

MOBILE
ALABAMA

LANGAN PARK - Amphitheater Pavilion & Restrooms

4901 ZEIGLER BOULEVARD, MOBILE, ALABAMA 36608

City of Mobile Project PR-031-21

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MOBILE, ALABAMA

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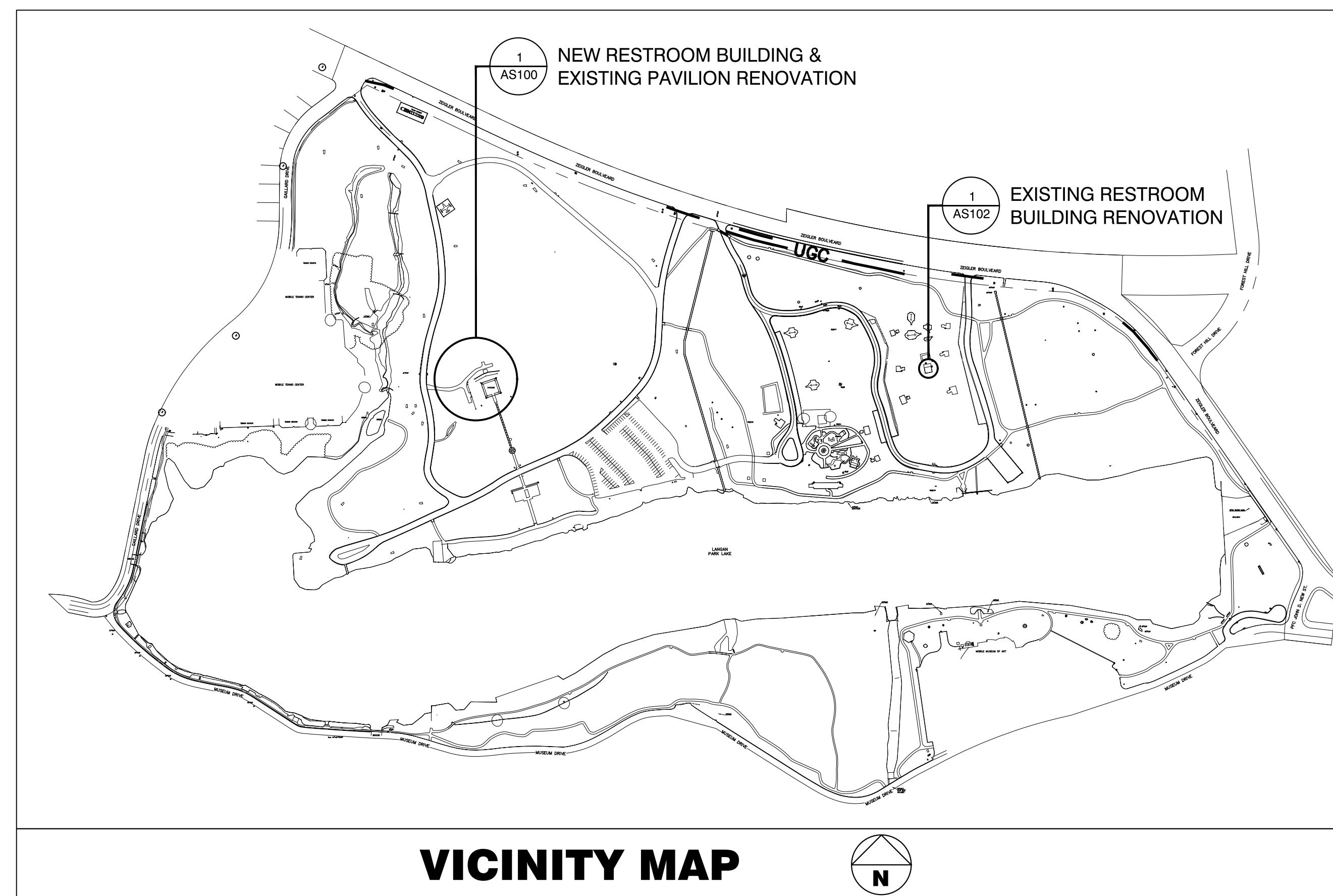
**LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS**

ALABAMA

MOBILE,

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VICINITY MAP

REVISIONS		
NO.	DATE	REMARKS
	9-28-22	IFB

SHEET TITLE
**TITLE SHEET,
DRAWING INDEX,
VICINITY MAP**

JOB NO. 2113

DATE: SEPT. 28, 2022

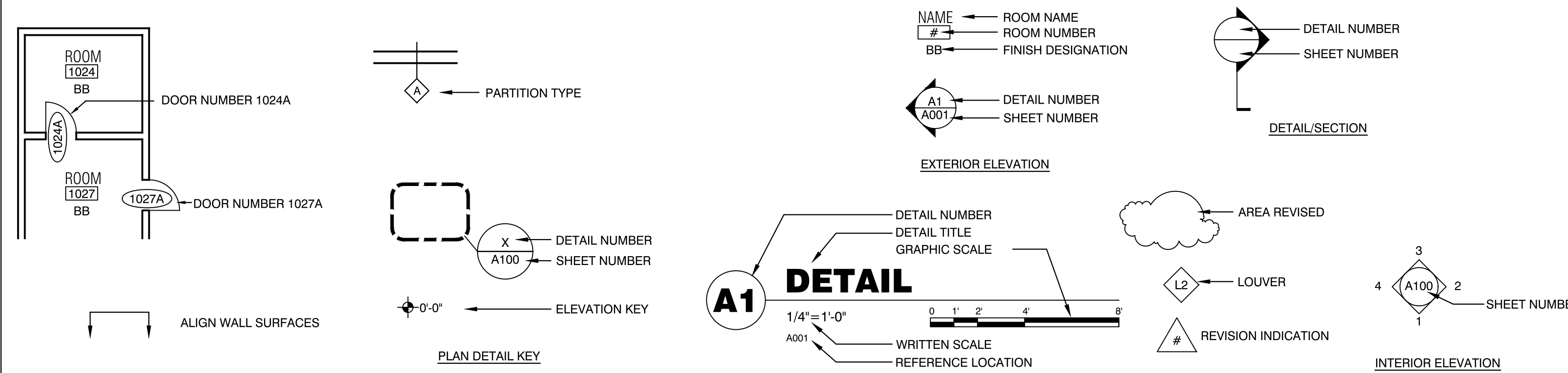
SHEET

G001

**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

ALABAMA
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SYMBOLS



ABBREVIATIONS

@	at	FIN FLR	Finished Floor	PVC	Polyvinyl Chloride
∠	angle	FLUOR	Fluorescent	QT	Quarry Tile
⊕	centerline	FOM	Face of Masonry	R	Riser, Radius
∅	diameter	FP	Fire Proof	RA	Return Air
AB	Anchor Bolt	FR	Fire Resistant, Fire Rating	RB	Rubber Base
AC	Air Conditioning	FT	Foot/Feet	RAF	Resilient Athletic Flooring
ACST	Acoustic	FUR	Furring	RCP	Reflected Ceiling Plan
ACT	Acoustic Ceiling Tile	GA	Gage, Gauge	RD	Roof Drain
ADA	Americans with Disabilities Act	GALV	Galvanized	REBAR	Reinforcing Steel Bars
AFF	Above Finished Floor	GB	Grab Bar	RECD	Received
ALT	Alternate	GC	General Contractor	REF	Reference
ALUM	Aluminum	GL	Glass	REINF	Reinforce
APPROX	Approximately	GYBD	Gypsum Board (drywall)	REQD	Required
BC	Base Cabinet	HC	Hollow Core, Handicap	REV	Revision(s), Revised
BD	Board	HCP	Handicapped	RET	Return
BLDG	Building	HD	Head/Header	RH	Right Hand
BS	Both Sides	HDBD	Hard Board	RM	Room
CAB	Cabinet	HDW	Hardware	RO	Rough Opening
CAC	Ceiling Attenuation Class	HDWD	Hardwood	SALV	Salvage
CEM	Cement	HM	Hollow Metal	SB	Splash Block
CF	Cubic Foot	HNDRL	Hand Rail	SC	Solid Core
CG	Corner Guard	HORIZ	Horizontal	SCB	Smooth Color Block
CJ	Control Joint	HT	Height	SCHED	Schedule
CLG	Ceiling	HVAC	Heating/Ventilating/Air Conditioning	SECT	Section
CLO	Closet	HWC	Hot Water Heater	SFB	Split Face Block
CM	Centimeter	ID	Inside Diameter	SHT	Sheet
CMU	Concrete Masonry Unit	INCL	Include(d)(ing)	SIM	Similar
COL	Column	INFO	Information	SND	Sanitary Napkin Dispenser
CONC	Concrete	INSUL	Insulation	SPEC	Specification(s)
CONSTR	Construction	INT	Interior	SST	Stainless Steel
CONT	Continuous	J-BOX	Junction Box	STC	Sound Transmission Class
CORR	Corridor	JANCLO	Janitor Closet	STD	Standard
CPT	Carpet	JT	Joint	STRUCT	Structural
CRN	Crown	KD	Knock Down	SUSP	Suspended
CSK	Counter Sunk	KIT	Kitchen	SYS	System
CT	Ceramic Tile	KO	Knock Out	T	Tread
CTB	Ceramic Tile Base	KW	Kilowatt	TB	Towel Bar
CU	Cubic	LAB	Laboratory	TC	Terra Cotta
CUYD	Cubic Yard	LAM	Laminat(e)d	TD	Towel Dispenser
CW	Cold Water	LAV	Lavatory	TEL	Telephone
D	Penny (nail)	LBL	Label	TER	Terrazo
DBL	Double	LBS	Pounds	THK	Thickness
DEL	Delete	LF	Linear Foot	THRU	Through
DEMOL	Demolition	LH	Lift Hand	TOM	Top of Masonry
DF	Drinking Fountain	M	Meter(s)	TOS	Top of Slab, Top of Steel
DIA	Diameter	MAX	Maximum	TPD	Toilet Paper Dispenser
DIAG	Diagonal	MB	Modified Bitumen	TPH	Toilet Paper Holder
DIV	Division	MDF	Medium Density Fiberboard	TV	Television
DN	Down	MECH	Mechanical	TYP	Typical
DS	Downspout	MED	Medium	U.N.O.	Unless Noted Otherwise
DTL	Detail	MEZZ	Mezzanine	VB	Vinyl Base
DW	Dishwasher	MFR	Manufacturer	VCT	Vinyl Composition Tile
DWG	Drawing	MIN	Minimum	VCJ	Veneer Control Joint
DWR	Drawer	MISC	Miscellaneous	VERT	Vertical
EA	Each	MM	Millimeter	VIF	Verify In Field
EJ	Expansion Joint	MO	Masonry Opening	VWC	Vinyl Wall Covering
EL	Elevation	MTD	Mounted	W	Watt, Width, Wide
ELEC	Electrical	MTL	Metal	WI	With
ELEV	Elevator	N	North	W/O	Without
EMER	Emergency	NIC	Not in Contract	WC	Water Closet, Wall Covering
ENGR	Engineer	NO	Number	WD	Wood
EO	Equal	NOM	Nominal	WH	Water Heater
EQUIP	Equipment	NTS	Not To Scale	WP	Water Proofing
EWC	Electric Water Cooler	OC	On Center	YD	Yard
EWH	Electric Water Heater	OD	Outside Diameter		
EXH	Exhaust	OF/CI	Owner Furnished/ Contractor Installed		
EXIST	Existing	OF/OI	Owner Furnished/ Owner Installed		
EXP	Expansion	OPNG	Opening		
EXT	Exterior, Extinguisher	PERP	Perpendicular		
FA	Fire Alarm	PLAM	Plastic Laminat		
FD	Floor Drain	PLAS	Plaster/ Plastic		
FE	Fire Extinguisher	PLYWD	Plywood		
FEC	Fire Extinguisher Cabinet	PT	Paint / Pressure Treated		
FHC	Fire Hose Cabinet	PTD	Paper Towel Dispenser		
FIN	Finish	PTN	Partition		

GENERAL NOTES

- GENERAL CONDITIONS**
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS INDICATED WITHIN THESE DOCUMENTS AND SHALL NOTIFY THE ARCHITECT OF ANY VARIATION PRIOR TO THE PURCHASING OF ANY MATERIALS, STARTING FABRICATION OR BEGINNING CONSTRUCTION.
 - THE CONTRACTOR, AT THE COMPLETION OF THIS PROJECT, SHALL LEAVE ALL AREAS AND FINISHED SPACES IN A CLEAN AND ACCEPTABLE CONDITION.
 - ALL MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS ARE TO BE FULLY COORDINATED WITH THE ARCHITECTURAL DOCUMENTS BY THE GENERAL CONTRACTOR.
 - CONDUIT, PIPING, ETC. SHALL NOT BE INSTALLED IN CMU CELLS THAT CONTAIN REINFORCING.
- THE DRAWINGS**
- DO NOT SCALE DRAWINGS. DIMENSIONS OR LINEAR MEASUREMENTS TAKE PRECEDENCE OVER NOTED DIMENSIONS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING FLOOR FINISH MATERIALS TO INSURE THAT TRANSITIONS BETWEEN FLOORING MATERIALS WILL BE SMOOTH AND IN ACCORDANCE WITH THE DRAWINGS.
 - UNLESS OTHERWISE NOTED, CHANGES IN FLOORING MATERIAL SHALL OCCUR AT THE CENTER LINE OF THE DOOR.
 - CENTER ALL CEILING GRIDS EACH WAY IN ALL CORRIDORS AND ROOMS OR AS SHOWN ON REFLECTED CEILING PLANS.
 - REFER TO ELECTRICAL DRAWINGS FOR ALL LIGHTING FIXTURE AND AIR GRILL LOCATIONS AND SPECIFICATIONS.
- WORKMANSHIP**
- ALL WORK SHALL BE PERFORMED AT THE HIGHEST LEVEL OF STATE OF THE INDUSTRY PRACTICES.
 - WHERE NEW CONSTRUCTION IS TO ALIGN WITH EXISTING CONDITIONS, THE GENERAL CONTRACTOR SHALL VERIFY DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
 - WALL, FLOOR, CEILING GRILLS AND REGISTERS SHALL BE FINISHED TO MATCH COLOR SPECIFIED FOR THE SURFACE IN WHICH THE ITEM IS INSTALLED. PAINT USED ON METAL WORK SHALL BE SEMI-GLOSS ENAMEL UNLESS OTHERWISE SPECIFIED.
 - CONTRACTOR SHALL COORDINATE, SCHEDULE AND PERFORM ALL CONSTRUCTION ACTIVITY, PROVIDE ALL SUPPORT AND MISCELLANEOUS MATERIALS REQUIRED TO ACHIEVE THE INTENDED DESIGN OBJECTIVES.
- RENOVATION**
- DUE TO THE COMPLEX AND INTERRELATED NATURE OF THE DEMOLITION OF EXISTING ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, ETC. AND NEW CONSTRUCTION FOR THE SAME, SOME NEW WORK INSTRUCTION OCCURS ON DEMOLITION PLANS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION & FURNISHING OF ALL ITEMS SHOWN IN THIS SET, REGARDLESS OF THE LOCATION WHERE IT APPEARS.
 - FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS BEFORE DEMOLITION OF BUILDING SYSTEMS. COORDINATE DEMOLITION WITH NEW WORK AND NOTIFY ARCHITECT OF CONFLICTS. NO DEMOLITION WORK SHALL PROCEED UNTIL CONFLICTS ARE RESOLVED TO THE SATISFACTION OF ARCHITECT.
 - ALL EXISTING FLOOR ELEVATIONS GIVEN ARE APPROXIMATE. EXISTING FLOORS ARE UNEVEN AND DAMAGED IN PLACES. FIELD VERIFY ALL FLOOR TO STRUCTURE HEIGHTS.
 - IF A WALL IS SCHEDULED TO BE DEMOLISHED, THE FULL HEIGHT OF THAT WALL FROM STRUCTURAL SLAB TO STRUCTURAL SLAB IS TO BE REMOVED. THE PERIMETER OF THE WALL, WHERE DEMO'D WALLS MEET THE FLOOR, WALL, AND STRUCTURE, SHALL BE CLEANED AND PREPARED FOR NEW FINISHES TO MATCH EXISTING, SO THAT NO TRACE OF THE FORMER WALL IS VISIBLE. THE SAME APPLIES TO DROPPED CEILING SOFFITS AND FURR-DOWNS.
 - FINISHES AFFECTED BY THE WORK SHALL BE REPAIRED/REPLACED TO MATCH EXISTING FINISHES.
 - ALL SURFACES REVEALED AFTER DEMOLITION AND SCHEDULED TO BE NEW FINISHED SURFACES ARE TO BE PATCHED AND REPAIRED TO MATCH SURROUNDING SURFACES READY TO RECEIVE PAINT.
 - PATCH ALL SURFACES WHERE ITEMS ARE REMOVED TO MATCH ADJACENT SURFACES.
 - IF PLUMBING FIXTURE IS TO BE REMOVED, REMOVE ABOVE SLAB LINES BACK TO NEXT UNREMOVED FIXTURE. IN OTHER WORDS, IF THE ABOVE SLAB LINES ARE NOT REQUIRED SOMEWHERE ELSE, REMOVE THEM TO THE POINT THEY ARE ACTIVE. DO NOT JUST CAP AND ABANDON.
 - CONTRACTOR IS TO REMOVE ALL ACCESSORIES ASSOCIATED WITH A REMOVED ITEM, AND/OR THOSE WHICH INTERFERE WITH NEW CONSTRUCTION, WHETHER SPECIFICALLY NOTED OR NOT. ITEMS INCLUDE, BUT ARE NOT LIMITED TO, HIDDEN CONDUIT OR PIPING, SWITCHES, OUTLETS, ETC. WIRING FROM ELECTRICAL DEVICES IS TO BE REMOVED BACK TO THE PANEL AND THE PANEL BOARD MARKED.
 - IF THERE ARE ABANDONED JUNCTION BOXES IN THE EXISTING CMU WALLS, THE GC IS TO REMOVE THE WIRING AND COVER WITH COVER PLATE.
 - SEE MECHANICAL, ELECTRICAL, PLUMBING, STRUCTURAL, AND FIRE PROTECTION SHEETS FOR ADDITIONAL DEMOLITION NOTES.

REVISIONS

NO.	DATE	REMARKS
	9-28-22	IFB

SHEET TITLE

**SYMBOLS,
 ABBREVIATIONS,
 GENERAL NOTES**

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

G002



City of Mobile - Permitting
Building Code Summary
For All Commercial Projects

Information to be copied and placed on drawings

General Information

Langan Park - Amphitheater Pavilion & Restrooms
Name of Project

4901 Zeigler Blvd., Mobile, Alabama 36608
Address

New construction of restroom building, minor renovation of existing restroom building, and renovation of existing pavilion.
Proposed Use

Architects Letter of Supervision Provided? Yes No

Codes used in design (Check all that apply)

- 2012 International Building Code
- 2012 International Existing Building Code
- 2012 International Fire Code
- 2015 International Energy Conservation Code
- 2014 National Electrical Code
- 2012 International Mechanical Code
- 2012 International Plumbing Code

Construction Description
 Addition Alteration New Construction Renovation of Existing Building Tenant Build-Out

Scope of Work - Building:
New one story 1,288 sf toilet building

Scope of Work - Electrical:
Lighting and power including unit heater as shown on plans.

Scope of Work - Mechanical:
Ventilation and unit heaters, small split system a/c as shown on plans.

Scope of Work - Plumbing:
Plumbing fixtures including urinals, water closets, and lavatories as shown on plans.

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For more information: www.BuildMobile.org | permittng@cityofmobile.org | 251.208.7198
Visit our help window: Mobile Government Plaza, 205 Government Street, Third Floor South Tower
Revised April 2020

N/A: EXISTING RESTROOM BUILDING RENOVATIONS ARE LIMITED TO FINISHES & REPLACEMENT OF EXISTING FIXTURES NO PHYSICAL PLAN CHANGES.

Existing Buildings
The building will remain in operation during construction Yes No
If yes, add provisions for rigid safety barriers and dust barriers to protect the public during construction in accordance with the applicable provisions of IBC Chapter 34. Yellow safety tape is not acceptable. See specification Summary

Provide Level of Alterations per IEBC 1 2 3 N/A

Renovations (Change of Occupancy)
Is the work in this building or space changing the occupancy type? Yes No N/A

Historic Buildings
Is this building a Historic Building? Yes No

Construction Type IA IB IIA IIB IIA IIB IV VA VB

- Occupancy Classification
- Assembly 303 A-1 A-2 A-3 A-4 A-5
 - Business 304
 - Education 305
 - Factory Industrial 306 F-1 F-1
 - High-Hazard 307 H-1 H-2 H-3 H-4 H-5
 - Institutional 308 I-1 I-2 I-3 I-4 Condition
 - Mercantile 309
 - Residential 310 R-1 R-2 R-3 R-4
 - Storage 311 S-1 S-2 High-piled
 - Utility & Miscellaneous 312

Building Element	Required Rating	UL No. *
Structural frame; columns, girders, trusses	0	
Bearing walls exterior	0	
Bearing walls interior	0	
Non-bearing walls & partitions exterior	0	
Non-bearing walls & partitions interior	0	
Floor construction; supporting beams and joists	0	
Roof construction; supporting beams and joists	0	
Sprinklers system	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Partial	
Sprinkler type	<input type="checkbox"/> 13 <input type="checkbox"/> 13R <input type="checkbox"/> 13D	
Standpipes	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wet <input type="checkbox"/> Dry Class	
Fire / Smoke Alarm	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Fire Rated Elements	Required Rating	Hourly Rating	UL No. *
Ceiling-Floors			
Beams			
Columns			
Ceiling-Roofs			
Shafts-Exit			
Shafts-Other			
Corridor separation			
Occupancy separation			

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Revised April 2020

Party/Fire wall separation _____
Smoke barrier separation _____
Tenant separations _____
* Or other approved agencies

- All fire rated walls shall be identified on plans by hatching, shading, etc.; show legend.
- Identify code section when using any special exceptions, etc.
- Reproduce full UL. Or other approved agencies details or reproductions of rated assemblies/penetrations on the drawings.

Draft Stopping (IBC 7)
Draft stopping in floor (IBC 718.3) Yes No

Draft stopping in attic (IBC 718.4) Yes No

Accessibility (IBC 11)
Design conforms to IBC Chapter 11 and ICC A117.1-2009? Yes No
If no, explain below condition that will not allow building to be accessible

Design Loads (City Ordinance 1609.3)

Ultimate Design Wind Speed (IBC 1609 or ASCE 7-10)
 Risk Cat. I-145MPH Risk Cat. II-159MPH Risk Cat. III & IV-169MPH

Live Loads (IBC 1607)
Roof 20 PSF Attic _____ PSF Floor _____ PSF Mezzanine _____ PSF

Wind-Borne Debris Region (IBC 1609)
This building will use impact resistant glass per (IBC 1609.1.2) Yes No

This building will use engineered shutters or other approved method Yes No

Special Inspections and Tests (IBC 17)
I have reviewed the requirements of IBC Section 17, specifically 1705; the design incorporates the requirements and is reflected on the drawings and in the specifications. Below are the requirements to be included:
Requirements listed in project manual.

The Contractor has been notified of his responsibility under Section 1704. Yes No **Per Division 1 of Project Manual.**

Safety Glazing for Hazardous (IBC 2406)
I have identified on drawings where tempered glass is required in hazardous locations (2406.4)
 Yes No

Flood Requirements (IBC 1612) NOT in Flood Zone
All projects located in a Special Flood Hazard Area shall comply with the City of Mobile Storm Water Management and Flood Control Ordinance. Yes No

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USE GROUP B – Business
CONSTRUCTION TYPE – VB
FLOOR AREA – 1,288 sf
ALLOWABLE HEIGHT – 40 ft., 16 ft ACTUAL
ALLOWABLE STORIES – 2, 1 ACTUAL
ALLOWABLE AREA PER FLOOR – 9,000 sf,
1,288 sf ACTUAL
BUILDING OCCUPANT LOAD: (Gross)
1/288 sf @ 100 sf/PERSON= 13 PEOPLE



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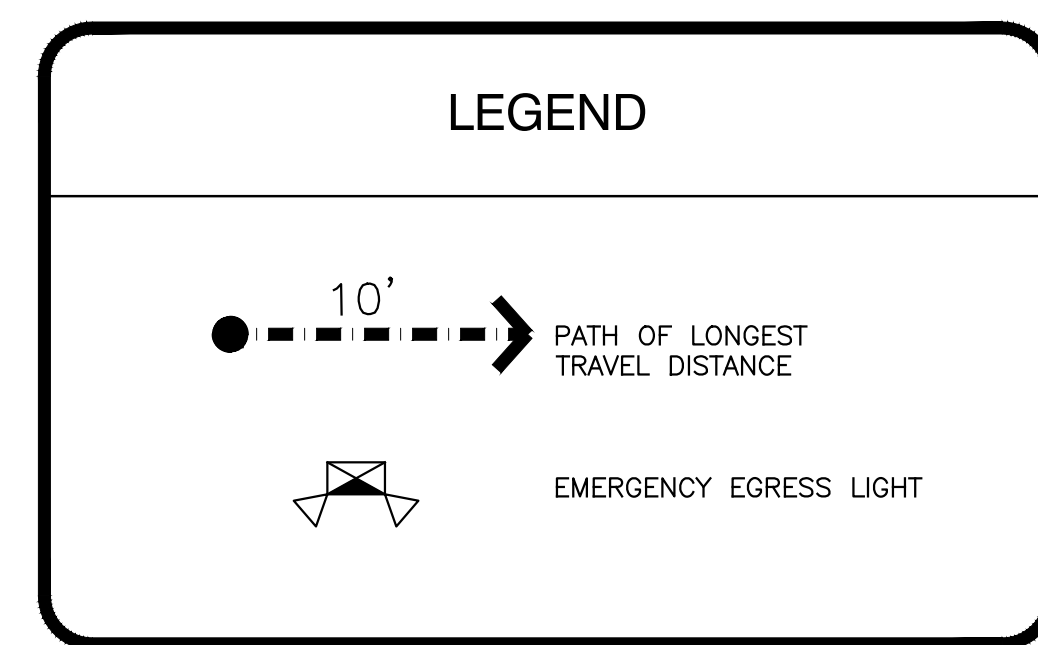
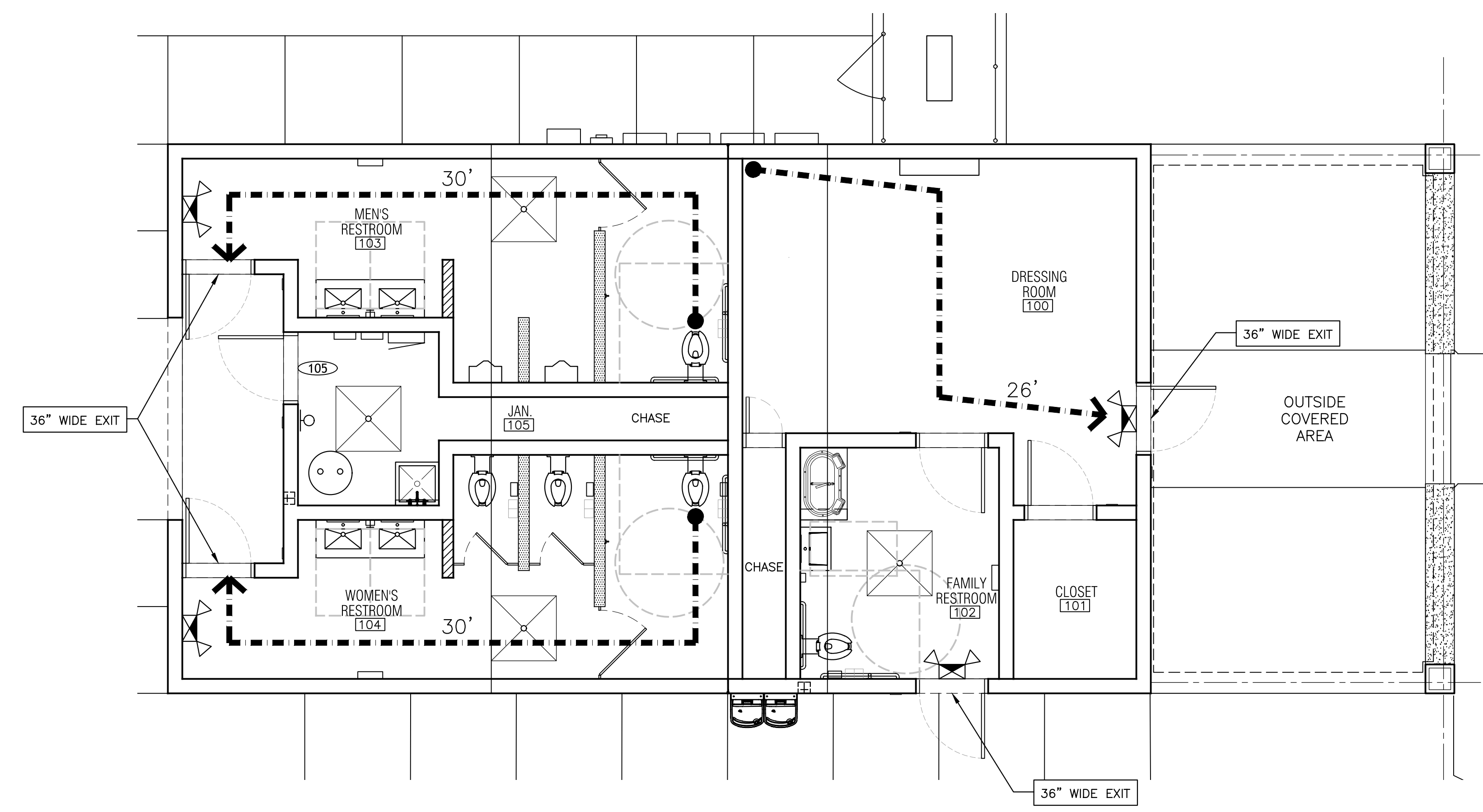


**LANGAN PARK -
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PAVILION & RESTROOMS**

MOBILE, ALABAMA

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PLUMBING COUNT
PER TABLE 2902.1 (TO SERVE A-5 ASSEMBLY)

- WATER CLOSETS:
 - MALE: (1 PER 75)
 - 7 @ 1/75 = 1 REQUIRED, 1 PROVIDED FOR 75 PEOPLE
 - FEMALE: (1 PER 40)
 - 7 @ 1/40 = 1 REQUIRED, 3 PROVIDED FOR 120 PEOPLE
- LAVATORIES:
 - MALE: (1 PER 200)
 - 7 @ 1/200 = 1 REQUIRED, 2 PROVIDED FOR 400 PEOPLE
 - FEMALE: (1 PER 150)
 - 7 @ 1/150 = 1 REQUIRED, 2 PROVIDED FOR 300 PEOPLE
- DRINKING FOUNTAINS: (1 PER 1000)
- 14 @ 1/1000 = 0.015 (MIN. 1) REQUIRED, 2 PROVIDED FOR 2000 PEOPLE
- SERVICE SINK: 1 REQUIRED, 1 PROVIDED

NOTE:
FAMILY RESTROOM IS NOT INCLUDED IN COUNT ABOVE.

LIFE SAFETY PLAN - NEW BUILDING
1/4"=1'-0" 0 1 2 4 8

SHEET TITLE
BUILDING CODE SUMMARY & LIFE SAFETY PLAN

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

LS100

**LANGAN PARK -
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REVISIONS

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1	9-28-22	IFB

SHEET TITLE

**OVERALL
 SITE PLAN**

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

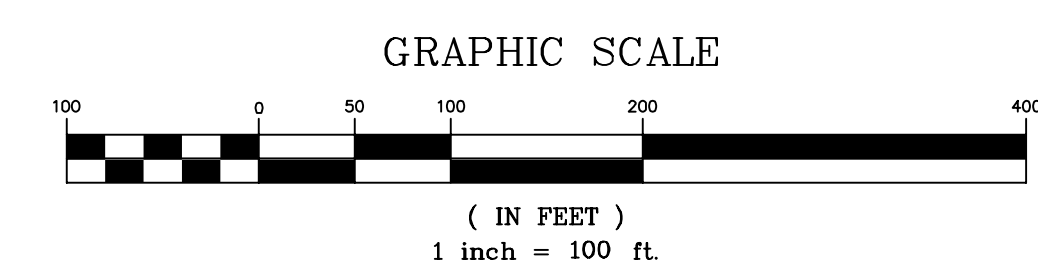
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TREE / SHURBBERY LEGEND

- | | | |
|--------------------|---------------|--------------|
| ACACIA CAVEN | FRINGE | PECAN |
| ANISE | GINKGO | PERSIMMON |
| ARBORVITAE | HACKBERRY | PINE |
| ASSORTED SHRUBBERY | HAWTHORNE | PISTACIA |
| BIRCH | HICKORY | POPCORN |
| BRADFORD PEAR | HOLLY | POPLAR |
| CAMELLIA | JACK | SASSAFRAS |
| CEDAR | MAGNOLIA | SERVICEBERRY |
| CHASTE | MAPLE | SWEETGUM |
| CHERRY | MAYHAW | SYCAMORE |
| CHOKEBERRY | MULBERRY | TITI |
| CRABAPPLE | LIVE OAK | TUPELO |
| CREPE MYRTLE | OAK | UNKNOWN |
| CYPRESS | PALMETTO | VBURNUM |
| DEVILWOOD | PALM | WALNUT |
| DOGWOOD | PARROTIA | YAUPON |
| ELM | PAW PAW | JAPANESE YEW |
| FIR | BRADFORD PEAR | |



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**LANGAN PARK -
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ALABAMA

MOBILE,

EXISTING SITE SURVEY NOTES:

- SITE WORK FOR THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STATE OF ALABAMA DEPARTMENT OF TRANSPORTATION STANDARD "SPECIFICATION FOR HIGHWAY CONSTRUCTION, CURRENT EDITION."
- SPEAKS & ASSOCIATES CONSULTING ENGINEERS SHALL BE NOTIFIED IMMEDIATELY OF ANY FIELD CONDITION REQUIRING DEVIATION FROM THE PLANS AND SPECIFICATIONS. ANY CHANGES OR REVISIONS MADE TO THE SITE PLAN MUST BE SUBMITTED FOR APPROVAL TO MOBILE COUNTY ENGINEERING DEPARTMENT.
- SITE CONTRACTOR SHALL CONTACT ALABAMA 1 CALL AND HAVE ALL EXISTING UTILITIES LOCATED PRIOR TO EXCAVATION. ALL UTILITIES TO SERVE BUILDING SHALL BE COORDINATED WITH OWNER AND RESPECTIVE UTILITY COMPANY PRIOR TO COMMENCEMENT OF SITE WORK.
- PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR SHALL FIELD LOCATE AND VERIFY DEPTH, LOCATION, SIZE, TYPE MATERIAL, AND OTHER DETAILS OF ALL EXISTING UTILITIES. UPON COMPLETION OF THE FIELD VERIFICATION, THE CONTRACTOR SHALL REVIEW EXISTING UTILITY DATA, ADVISE OF CONFLICTS, AND COORDINATE RESOLUTION OF CONFLICTS IF THEY EXIST PRIOR TO ORDERING ANY MATERIALS OR COMMENCING CONSTRUCTION.
- INSTALL TEMPORARY EROSION CONTROL ITEMS PRIOR TO START OF CONSTRUCTION AND IMMEDIATELY AFTER CLEARING IS COMPLETED. THE CONTROLS SHALL BE AS REQUIRED TO PREVENT EROSION OR SEDIMENTATION FROM THIS SITE MOVING ONTO ADJACENT PROPERTIES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO INSURE THAT EROSION CONTROL MEASURES PROVIDED ARE ADEQUATE TO PREVENT SILT, SEDIMENT, OR SIMILAR DAMAGE TO ADJACENT PROPERTIES.
- PLACE SEDIMENT BARRIERS FOR STORM DRAIN PIPING IMMEDIATELY AFTER PIPING IS PLACED. PIPE SHALL BE CLEANED OF SILT/SEDIMENT PRIOR TO FINAL INSPECTION.
- UPON COMPLETION OF CONSTRUCTION AND AS APPROVED BY THE ENGINEER, REMOVE ALL TEMPORARY EROSION CONTROL/BMP ITEMS.
- CONTRACTOR IS RESPONSIBLE FOR KEEPING MUD AND DEBRIS OUT OF THE EXISTING PAVEMENT. SITE CLEAN-UP IS REQUIRED ON A CONTINUAL BASIS UNTIL CONSTRUCTION IS COMPLETE.
- ALL EXCESS EXCAVATION AND UNSUITABLE SOIL MATERIALS SHALL BE REMOVED FROM THE PROJECT SITE PRIOR TO COMMENCING AND PLACING TOPSOIL AND FINE GRADING WORK.
- THE CONTRACTOR SHALL OBTAIN THE ADEM STORMWATER PERMIT AND PAY ALL RELATED FEES. THE CONTRACTOR SHALL COMPLY WITH THE PERMIT, ALL PERMIT CONDITIONS, PROVIDE A PROJECT SPECIFIC CBMP&P AND EROSION CONTROL PLAN, AND PROVIDE ALL PERIODIC INSPECTIONS THROUGH THE COURSE OF THE WORK AS REQUIRED BY THE PERMIT. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL TERMINATE THE PERMIT WITH ADEM. FINAL PAYMENT SHALL NOT BE MADE UNTIL THE TERMINATION PROCESS IS COMPLETE.
- ALL WORK LOCATED WITHIN THE CITY OF MOBILE RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE CITY OF MOBILE RIGHT-OF-WAY PERMIT ISSUED FOR THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE PERMIT AND PAYING ALL ASSOCIATED FEES.
- ADEM NOTICE OF REGISTRATION WILL BE REQUIRED FOR THE SITE TOTAL DISTURBED AREA.

GEOMETRIC PLAN CONSTRUCTION NOTES:

- PARKING LOT DIMENSIONS ARE SHOWN TO FACE OF CURB.
- WHERE CURB LINES ARE CONSTRUCTED ADJACENT TO SIDEWALK OR CONCRETE PAVEMENT, JOINTS IN CURB AND WALK/PAVEMENT SHALL COINCIDE.
- THE JOINT LAYOUT INDICATED HEREON SHALL BE STRICTLY FOLLOWED. VARIATION FROM THE JOINTS INDICATED SHALL BE APPROVED BY THE ARCHITECT/ENGINEER PRIOR TO ORDERING CONCRETE.
- AFTER PAVING OPERATIONS HAVE BEEN COMPLETED BUT PRIOR TO PLACING PARKING STRIPES, ALL DEFECTS AND CONSTRUCTION DAMAGE TO CONCRETE WORK SHALL BE REPAIRED OR CONCRETE REPLACED AS DIRECTED BY THE ENGINEER.
- PAINT STRIPING AND MARKINGS SHALL BE REFLECTIVE PAINT OF THE COLOR INDICATED BY THE DRAWINGS. STRIPING SHALL BE PLACED NOT LESS THAN 14 DAYS AFTER PAVING. UNLESS INDICATED OTHERWISE ALL STRIPING SHALL BE 4 INCHES WIDE. MINIMUM REQUIRED DRY THICKNESS SHALL BE 0.09 INCHES.
- ALL TRAFFIC MARKINGS, STRIPES, ETC., SHALL BE TEMPORARILY MARKED BY THE CONTRACTOR ON THE NEW PAVEMENT AND REVIEWED BY THE ENGINEER PRIOR TO PAINTING.
- AFTER ROUGH GRADING IS COMPLETED, AND CURB, GUTTER AND BASE ARE PLACED, ALL OTHER UNSURFACED AREAS SHALL RECEIVE TEMPORARY SEED AND MULCH.
- SOLID SOD SHALL BE PLACED AS SHOWN. ALL OTHER DISTURBED AREAS NOT DESIGNATED TO RECEIVE BUILDING, PAVING, SOLID SOD, OR OTHER LANDSCAPING MATERIALS SHALL RECEIVE SEEDED GRASS AND MULCH. RETAINAGE SHALL NOT BE RELEASED UNTIL THERE IS A DENSE, LIVE SATISFACTORY STAND OF PERMANENT GRASS.
- THE ENGINEER WILL PROVIDE TO THE CONTRACTOR A COORDINATE POINT FILE FOR ADDITIONAL HORIZONTAL STAKING INFORMATION.

GRADING PLAN CONSTRUCTION NOTES:

- UNLESS OTHERWISE INDICATED SPOT ELEVATIONS ON CURBS AND SIDEWALKS ARE SHOWN TO TOP OF CURB OR SIDEWALK.
- TOPSOIL FROM ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STRIPPED TO A DEPTH OF 6" OR AS OTHERWISE REQUIRED AND STOCKPILED ON THE PROJECT SITE FOR FUTURE USE. TOPSOIL MATERIAL SHALL BE STOCKPILED IN AREAS APPROVED BY THE ENGINEER PRIOR TO START OF GRADING OPERATIONS BY THE CONTRACTOR.
- CONTRACTOR SHALL FIELD VERIFY WITH THE ENGINEER GRADES AND CONFIGURATION OF ALL CURBS AND SIDEWALKS AFTER FORMING PRIOR TO PLACING CONCRETE. ANY CONCRETE ITEMS NOT REVIEWED BY THE ENGINEER PRIOR TO PLACEMENT MUST STRICTLY MEET THE REQUIREMENTS OF THE DRAWINGS.
- PRIOR TO CONSTRUCTION OF OVERLYING BASE AND PAVEMENT STRUCTURE LAYERS, SOIL SUB-GRADE MATERIALS SHALL BE VERIFIED FOR CORRECT GRADE (INCLUDING SURFACE TOLERANCE) DENSITY. COMPACTION FOR SUBGRADE MATERIALS SHALL BE 100% STANDARD PROCTOR DENSITY. OVERLYING LAYERS OF THE PAVEMENT STRUCTURE SHALL NOT BE CONSTRUCTED WITHOUT APPROVAL OF THE MATERIAL TESTING LABORATORY AND THE ENGINEER.
- WHERE A PAVED INVERT (SWALE) IS INDICATED, THE INVERT SHALL BE CONSTRUCTED IN A STRAIGHT LINE BETWEEN THE POINTS INDICATED BY THE DRAWINGS. THE LINE OF THE INVERT SHALL NOT VARY MORE THAN 0.5" FROM A TAUT LINE BETWEEN THE BEGINNING AND ENDING POINT INDICATED, NOR SHALL THE GRADE VARY MORE THAN 0.25" FROM THE FINISH PLAN GRADE.
- BASE COURSE MATERIALS SHALL BE PLACED AND COMPACTED TO A DENSITY OF 95% MODIFIED PROCTOR DENSITY. PRIOR TO THE PLACEMENT OF PRIME OR OTHER OVERLYING PAVEMENT STRUCTURE LAYERS, THE BASE LAYER SHALL BE PROOF-ROLLED AND INSPECTED FOR PROPER GRADE, SURFACE TOLERANCE, AND DENSITY BY THE TESTING LABORATORY AND ENGINEER.
- UPON COMPLETION OF MAJOR GRADING OPERATIONS AND CONSTRUCTION OF THE BASE LAYERS, BUT PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE, TOPSOIL SHALL BE PLACED ON ALL AREAS DESIGNATED TO RECEIVE GRASS OR OTHER LANDSCAPING ITEMS (MINIMUM 4" COMPACTED THICKNESS).
- ALL EXCESS EXCAVATION AND UNSUITABLE SOIL MATERIALS SHALL BE REMOVED FROM THE PROJECT SITE PRIOR TO COMMENCING FINE GRADING AND LANDSCAPE WORK. NO ON-SITE TOPSOIL MATERIALS SHALL BE REMOVED FROM THE SITE UNTIL THIS WORK IS COMPLETED.
- FIELD VERIFY WITH THE ENGINEER, FINAL TOP ELEVATION OF ALL DRAINAGE STRUCTURES PRIOR TO CONSTRUCTION.
- STORM DRAIN PIPING SHALL BE CLASS 3 REINFORCED CONCRETE WITH RUBBER GASKET JOINTS. BEDDING SHALL BE CLASS "C" AS PER ALDOT SPECIFICATIONS.
- BMP'S SHALL ADHERE TO THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL AND STORMWATER MANAGEMENT ON CONSTRUCTION SITES AND URBAN AREAS, CURRENT EDITION.

EROSION CONTROL NOTES:

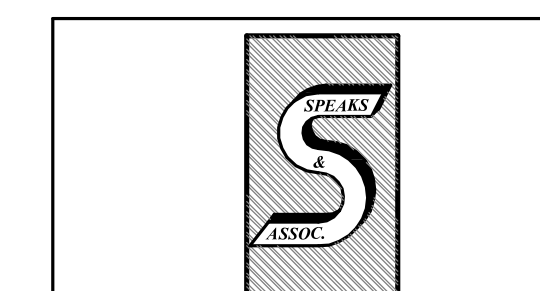
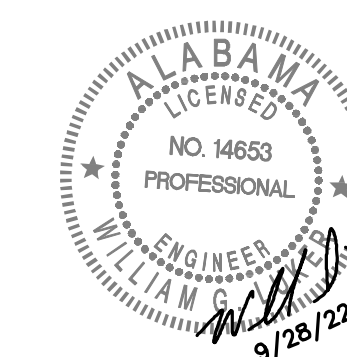
- SILT FENCE SHALL BE INSTALLED AS SHOWN ON PLAN PRIOR TO EXCAVATION AND/OR WHERE DEEMED NECESSARY BY ENGINEER. CONTRACTOR SHALL MAINTAIN SILT FENCE ON SITE UNTIL AN ACCEPTABLE STAND OF PERMANENT GRASS IS ESTABLISHED. CONTRACTOR SHALL USE ADEQUATE EROSION CONTROL PROCEDURES DURING THE CONSTRUCTION PERIOD UNTIL FINAL ACCEPTANCE OF THE PROJECT.
- IN ORDER TO PREVENT SILT AND SEDIMENT FROM BEING WASHED FROM THE SITE DURING HEAVY RAINS, THE CONTRACTOR SHALL INSTALL HAY BALE OR WATTLE SEDIMENT BARRIERS AROUND ALL EXCAVATIONS WHERE EROSION IS A POTENTIAL PROBLEM.
- HAY BALES OR WATTLE SEDIMENT BARRIERS SHALL BE SECURELY TIED, EMBEDDED IN THE SOIL A MINIMUM DEPTH OF 3 INCH TRENCHES AND SECURELY ANCHORED IN PLACE WITH STAKES OR REBAR. SILT FENCES SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS AND IN ANY OTHER AREAS AS REQUIRED TO PREVENT EROSION.
- ALL AREAS WHERE EROSION HAS OCCURRED SHALL BE PROPERLY REPAIRED.
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE SOLID SODDED.
- DISTURBED AREAS WHERE CONSTRUCTION IS NOT ACTIVE MAY NOT REMAIN DENUDED LONGER THAN 13 DAYS. AREAS SHALL RECEIVE TEMPORARY GRASS, MULCH, OR OTHER PROTECTIVE GROUND COVER.
- TECHNIQUES SHALL BE EMPLOYED TO PREVENT THE BLOWING OF DUST OR SEDIMENT FROM THE SITE ONTO ADJACENT PROPERTIES.
- DETENTION POND AREAS SHALL BE CLEANED TO DESIGN GRADES PRIOR TO FINAL ACCEPTANCE.
- SEDIMENT MUST BE REMOVED FROM ALL INLETS AND PIPES PRIOR TO ACCEPTANCE OF PROJECT.
- CONTRACTOR SHALL ADHERE TO THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL AND STORM WATER MANAGEMENT FOR CONSTRUCTION SITES AND URBAN AREAS BY THE ALABAMA SOIL & WATER CONSERVATION COMMITTEE VOLUMES I & II, LATEST EDITION TO PREVENT SEDIMENT LADEN STORM WATER FROM LEAVING THE CONSTRUCTION SITE.
- CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES AS DEFINED BY EPA WITH RESPECT TO STORM WATER MANAGEMENT DURING CONSTRUCTION AS SHOWN ON SITE PLAN OR AS OTHERWISE REQUIRED TO PREVENT EROSION OR SEDIMENT BEING WASHED FROM SITE. CONTROL MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, SILT FENCES, HAY BALE BARRIERS, EARTH DIKES, STORM DRAIN INLET PROTECTION AND TEMPORARY SEDIMENT BASINS.

UTILITY PLAN NOTES:

- WATER AND SEWER SERVICE LINES AS INDICATED HEREON SHALL BE CONSTRUCTED IN ACCORDANCE WITH ANY AND ALL APPLICABLE PORTIONS OF THE MOBILE AREA WATER & SEWER SYSTEM (MAWSS) STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATER AND SEWER LINES, AND IN ACCORDANCE WITH THE STANDARD PLUMBING CODE.
- WATER AND SEWER SERVICE INSTALLATION FEES SHALL BE PAID BY THE OWNER.
- EXACT ROUGH-IN REQUIREMENTS FOR THE POTABLE WATER SERVICE SHALL BE VERIFIED WITH THE MOBILE AREA WATER & SEWER SYSTEM PRIOR TO STARTING CONSTRUCTION OF THAT WORK OR OTHER RELATED ITEMS.
- WATER PIPE SHALL BE C-900 (S.D.R 18) P.V.C. DUCTILE IRON FOR POTABLE WATER LINES. ALL FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON TYPE WITH RESTRAINED JOINTS FOR P.V.C. OR DUCTILE IRON PIPE AS APPLICABLE. ALL MATERIALS MUST MEET MAWSS SPECIFICATION REQUIREMENTS.
- SANITARY SEWER PIPE SHALL BE C-900 (S.D.R. 18) P.V.C. AS NOTED ALL FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON TYPE WITH RESTRAINED JOINTS FOR P.V.C. PIPE.
- WORK OF CONNECTING TO THE EXISTING WATER AND SEWER LINES SHALL BE COORDINATED CLOSELY WITH THE MOBILE AREA WATER & SEWER SYSTEM AND SHALL BE COMPLETED IN SUCH A WAY AS TO CAUSE AS LITTLE DISRUPTION IN SERVICE TO EXISTING CUSTOMERS AS POSSIBLE.
- PLACE 3 INCH WIDE METALLIC DETECTOR TAPE AND 12 GAUGE DETECTOR WIRE WITH ALL NON-METALLIC UTILITY LINES.
- THE CONTRACTOR SHALL PROVIDE SIGNS, BARRICADES AND OTHER MARKINGS AS NECESSARY TO ADEQUATELY PROTECT THE WORK AS INDICATED BY THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PART VI, LATEST EDITION" AND SHALL PROVIDE, INSTALL, AND MAINTAIN THROUGHOUT THE DURATION OF THE PROJECT A TRAFFIC CONTROL PLAN APPROVED BY THE APPROPRIATE LOCAL OFFICIAL.
- BACKFILL AND COMPACTION OF UTILITY TRENCHES BENEATH PAVEMENT SHALL BE PLACED IN ACCORDANCE WITH THE ALABAMA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2018 EDITION" AS DETAILED IN SECTION 530 ENTITLED, "STORM SEWERS". TRENCHES SHALL BE BACKFILLED WITH A CLEAN GRANULAR MATERIAL WITH LESS THAN 15 PERCENT PASSING THE NO. 200 SIEVE.
- PLACEMENT OF WATER SERVICE AND SANITARY SEWER LINES SHALL BE CAREFULLY COORDINATED WITH OTHER UTILITY CONTRACTORS.
- WHERE REQUIRED, NEW WATER LINES SHALL BE PLACED ABOVE EXISTING SANITARY SEWER LINES WITH A MINIMUM 18" VERTICAL CLEARANCE.

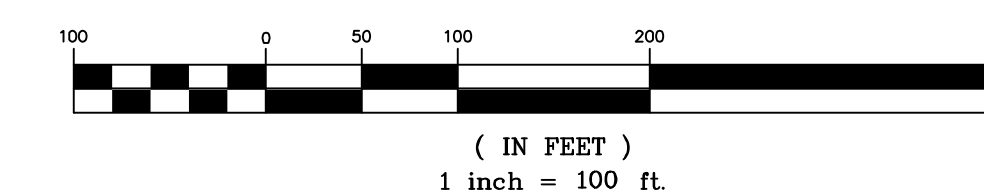
DRAINAGE STRUCTURE CONSTRUCTION NOTES:

- CONCRETE SHALL BE CLASS "A", TYPE II AS DETAILED IN ALDOT SEC. 501. REINFORCEMENT SHALL BE DEFORMED BARS, FY=40KSI MINIMUM.
- ALL REINFORCEMENT BARS TO HAVE 1-1/2" MINIMUM COVER.
- ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A FORMED 3/4" CHAMFER.
- STRUCTURE BOTTOMS SHALL BE PLACED ON 6 INCH THICK LAYER OF ALDOT #4 STONE OVER COMPACTED UNDISTURBED SOIL.
- ALL DRAINAGE STRUCTURES OVER 3' DEEP SHALL HAVE MANHOLE STEPS AT 0'-6" VERTICAL CENTERS PLACED AS APPROVED BY THE ENGINEER TO ALLOW ACCESS TO THE STRUCTURE. (SEE DETAIL)
- WEEP HOLES SHALL BE PROVIDED IN EACH FACE OF THE DRAINAGE STRUCTURE BOX. WEEP HOLES SHALL BE 3" DIA. P.V.C. PIPE WITH OUTSIDE END WRAPPED WITH FILTER FABRIC, A MINIMUM OF 1 CUBIC FOOT STONE OR GRAVEL DRAINAGE MATERIAL SHALL BE PLACED AROUND EACH WEEP HOLE.
- DRAINAGE STRUCTURES SHALL BE CONSTRUCTED TO THE ORIENTATION AND PLAN DIMENSIONS INDICATED BY THE DRAWINGS. WHERE PIPE SIZES OR MULTIPLE PIPE REQUIRE, DRAINAGE STRUCTURE BOX DIMENSIONS (BELOW GROUND) MAY BE ALTERED AS REQUIRED TO ACCOMMODATE THE PIPING INDICATED BY THE DRAWINGS. ABOVE GROUND (EXPOSED) PORTIONS OF THE DRAINAGE STRUCTURE SHALL CONFORM TO PLAN DIMENSIONS.
- ALL STORM DRAIN PIPES ENTERING AND EXITING DRAINAGE STRUCTURES MUST BE CUT OFF FLUSH WITH THE GROUDED INTERIOR FACE OF THE STRUCTURE. ALL INTERIOR SURFACES OF ALL DRAINAGE STRUCTURES SHALL BE GROUDED SMOOTHLY. ALL DRAINAGE STRUCTURES MUST HAVE A SMOOTHLY GROUDED INVERT TO DIRECT THE STORM WATER THROUGH THE STRUCTURE. NON-GROUDED CONCRETE BOTTOMS WILL NOT BE ACCEPTABLE IN ANY DRAINAGE STRUCTURE.



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JOB NO. : 22-0502 F.B. : N/A

GRAPHIC SCALE



REVISIONS

NO.	DATE	REMARKS
	9-28-22	IFB

SHEET TITLE

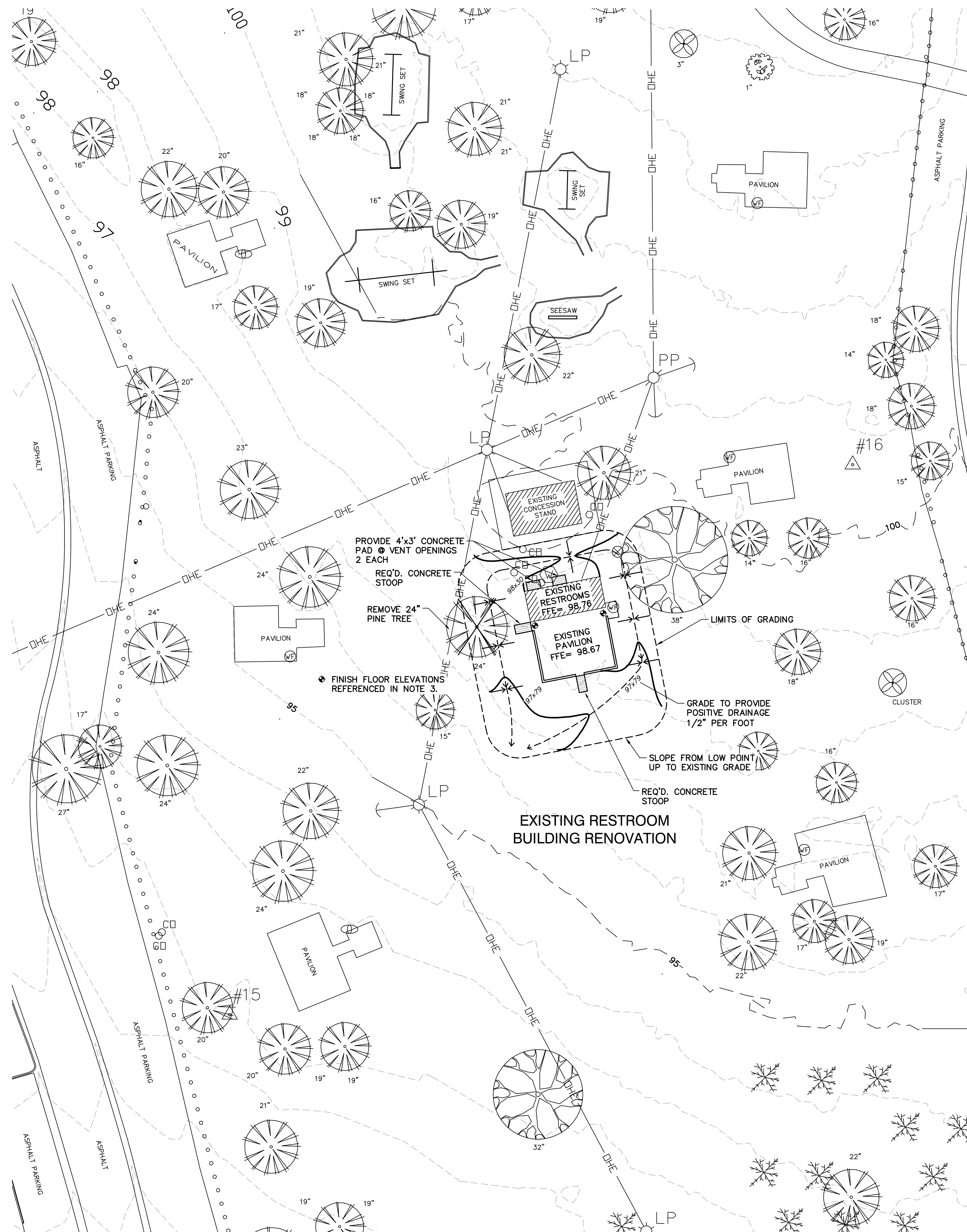
PROJECT NOTES

JOB NO. 2113

DATE: SEPT. 28, 2022

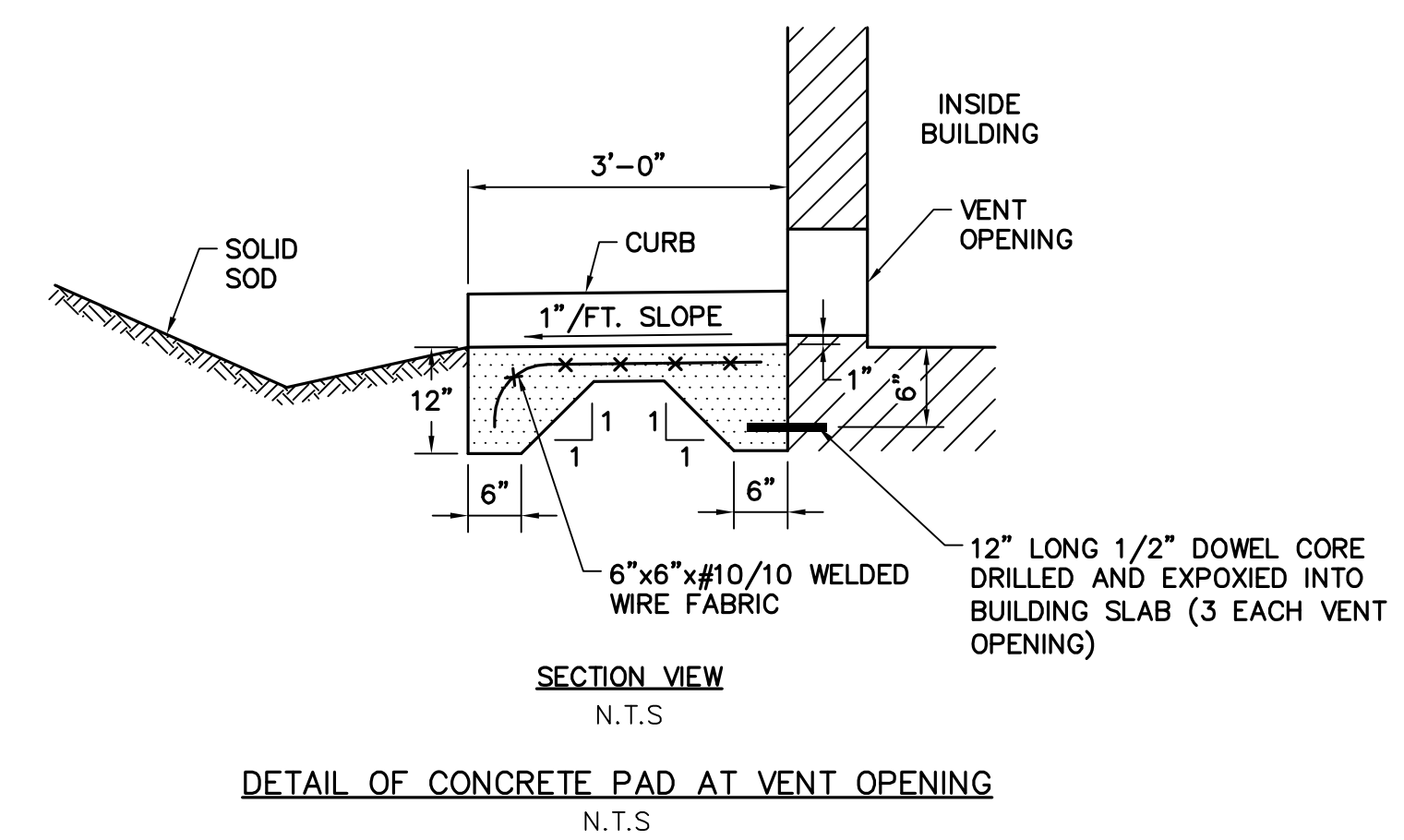
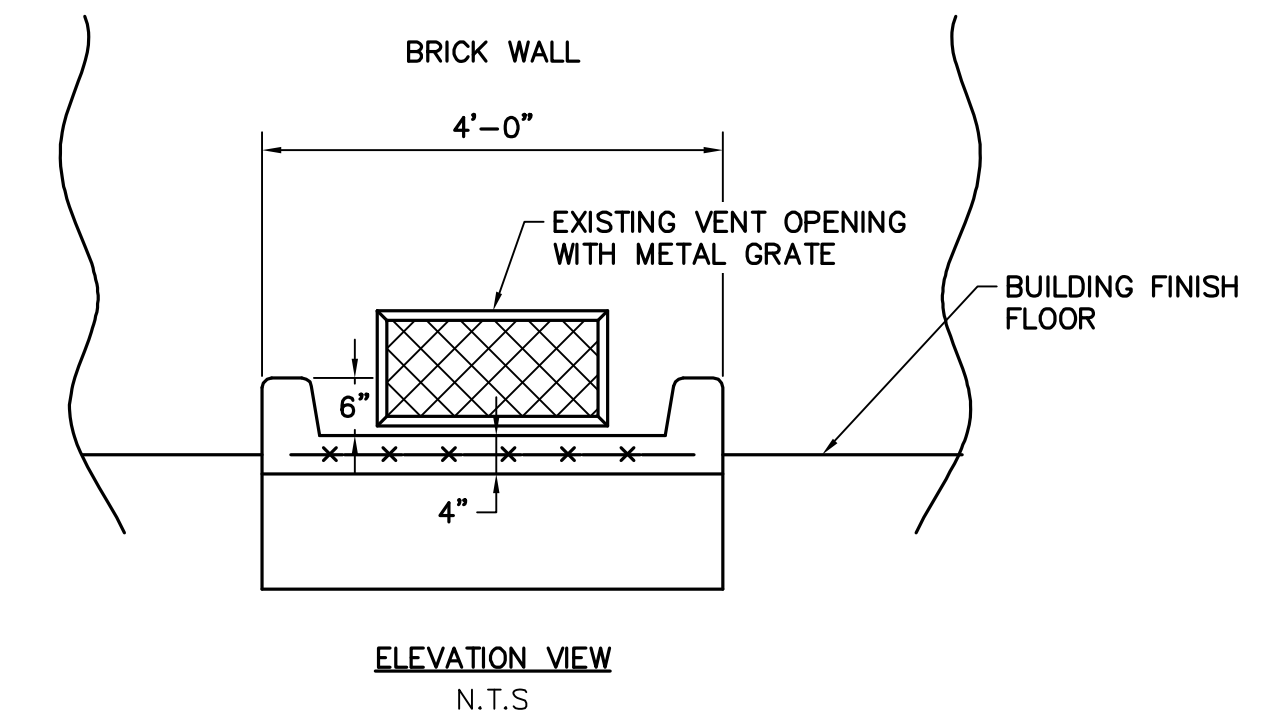
SHEET

C1.1



NOTES:

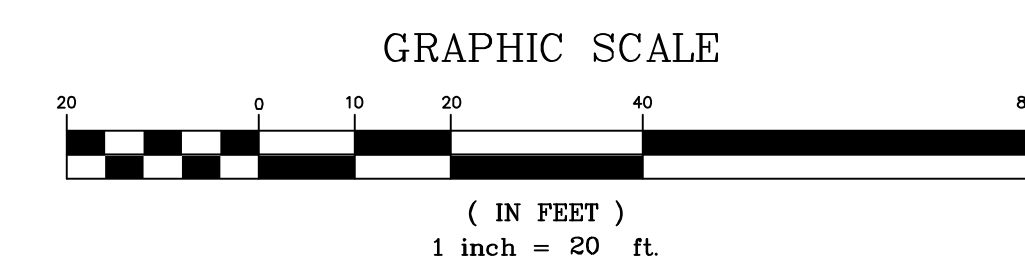
1. PRIOR TO COMMENCING GRADING WORK, LOCATE AND INVESTIGATE THE DEPTH, TYPE, SIZE, AND OTHER CHARACTERISTICS OF THE EXISTING UTILITY LINES, INDICATED WITHIN THE GRADING LIMIT.
2. COMPLETE GRADING AS SHOWN WORKING AROUND EXISTING CLEANOUTS, VALVE BOXES AND OTHER UTILITY APPURTENANCES. HAND WORK/MANUAL GRADING WILL BE REQUIRED. ESTABLISH THE FINISH GRADES INDICATED BY THE DRAWINGS. NOTIFY THE ENGINEER WELL IN ADVANCE OF THE START OF THIS WORK AND ARRANGE FOR A SITE REVIEW.
3. FINISH GRADE AROUND THE PERIMETER AND BE NO LESS THAN 0.33 FT. (4 INCHES) BELOW THE FLOOR ELEVATION. FINISH GRADE SHALL SLOPE AWAY FROM THE BUILDING AT 1/2" PER FOOT FOR NO LESS THAN 6 FEET OR AS OTHERWISE INDICATED BY THE DRAWINGS.
4. ALL AREAS WITHIN THE LIMITS OF GRADING SHALL RECEIVE SOLID SOD. TOP OF THE SOD IS TO BE AT THE FINISH GRADE INDICATED BY THE DRAWINGS.
5. RESET ALL CLEANOUTS, METER BOXES, VALVE BOXES, AND/OR OTHER UTILITY APPURTENANCES TO MATCH THE NEW FINISH GRADE.
6. NEW CONCRETE PAD AT VENT OPENINGS SHALL SLOPE AWAY FROM BUILDING, AS INDICATED.



SEE SHEET C1.0 FOR TREE LEGEND.



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**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

ALABAMA

MOBILE,

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE

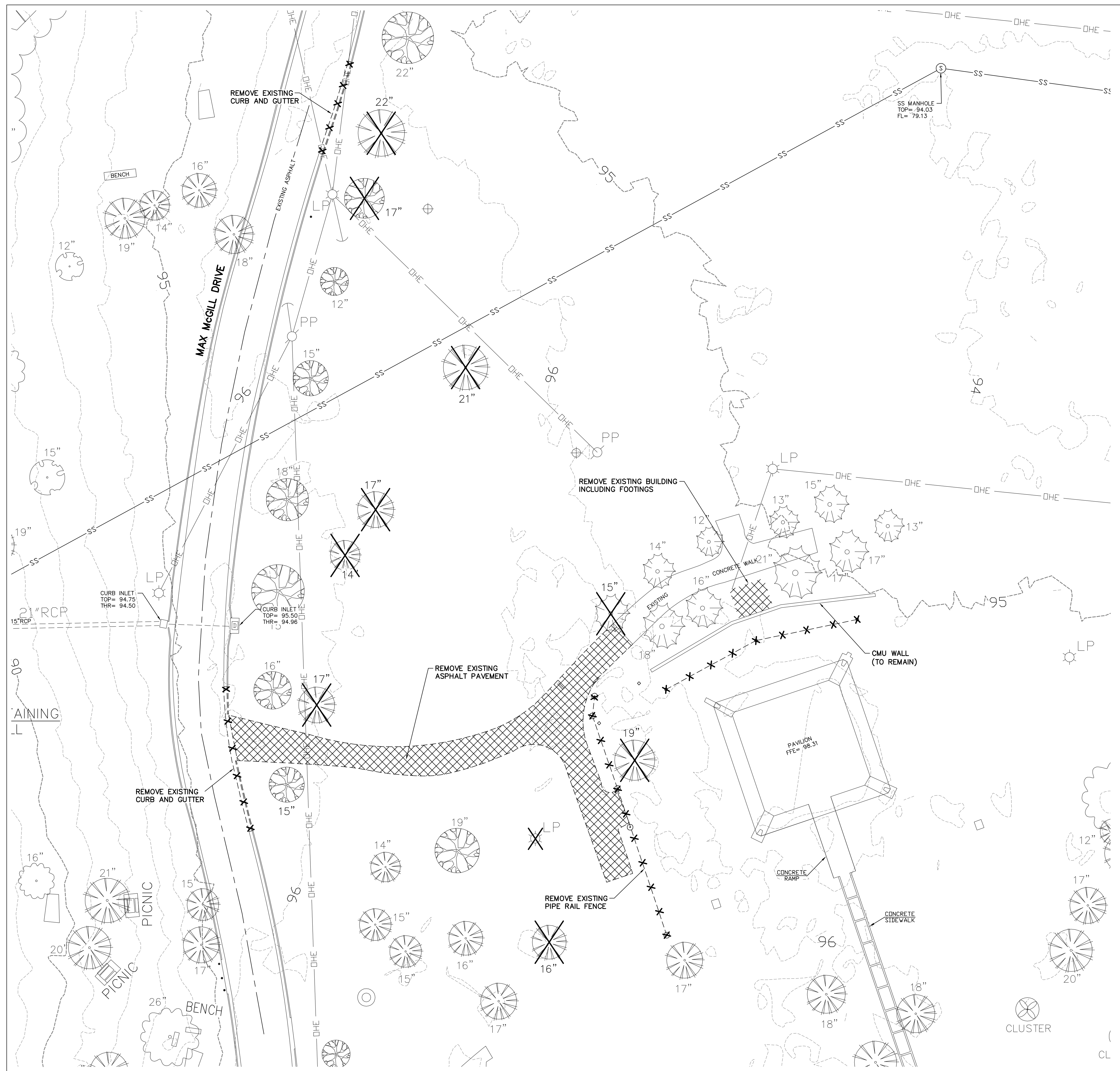
**EXISTING
 RESTROOM
 SITE PLAN**

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

C2.0



**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

MOBILE, ALABAMA

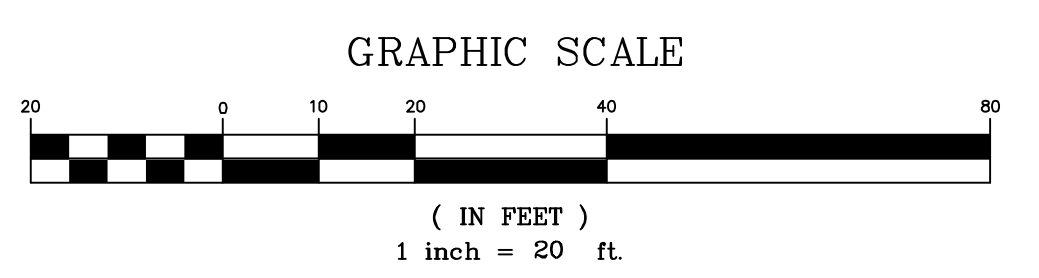
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SEE SHEET C1.0 FOR TREE LEGEND.

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SHEET TITLE
EXISTING SITE SURVEY AND REMOVAL PLAN

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

C3.0



THE ARCHITECTS
GROUP/INC
710 DOWNTOWNER BOULEVARD
MOBILE, ALABAMA 36609
251_343_1811 togarchitects.net

LANGAN PARK - AMPHITHEATER PAVILION & RESTROOMS

ALABAMA

MOBILE,

REVISIONS

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SHEET TITLE

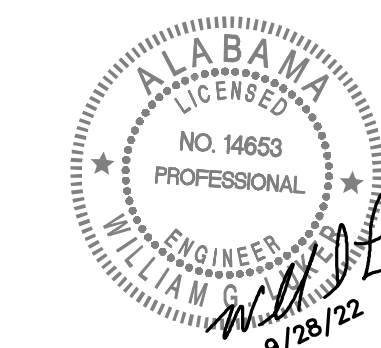
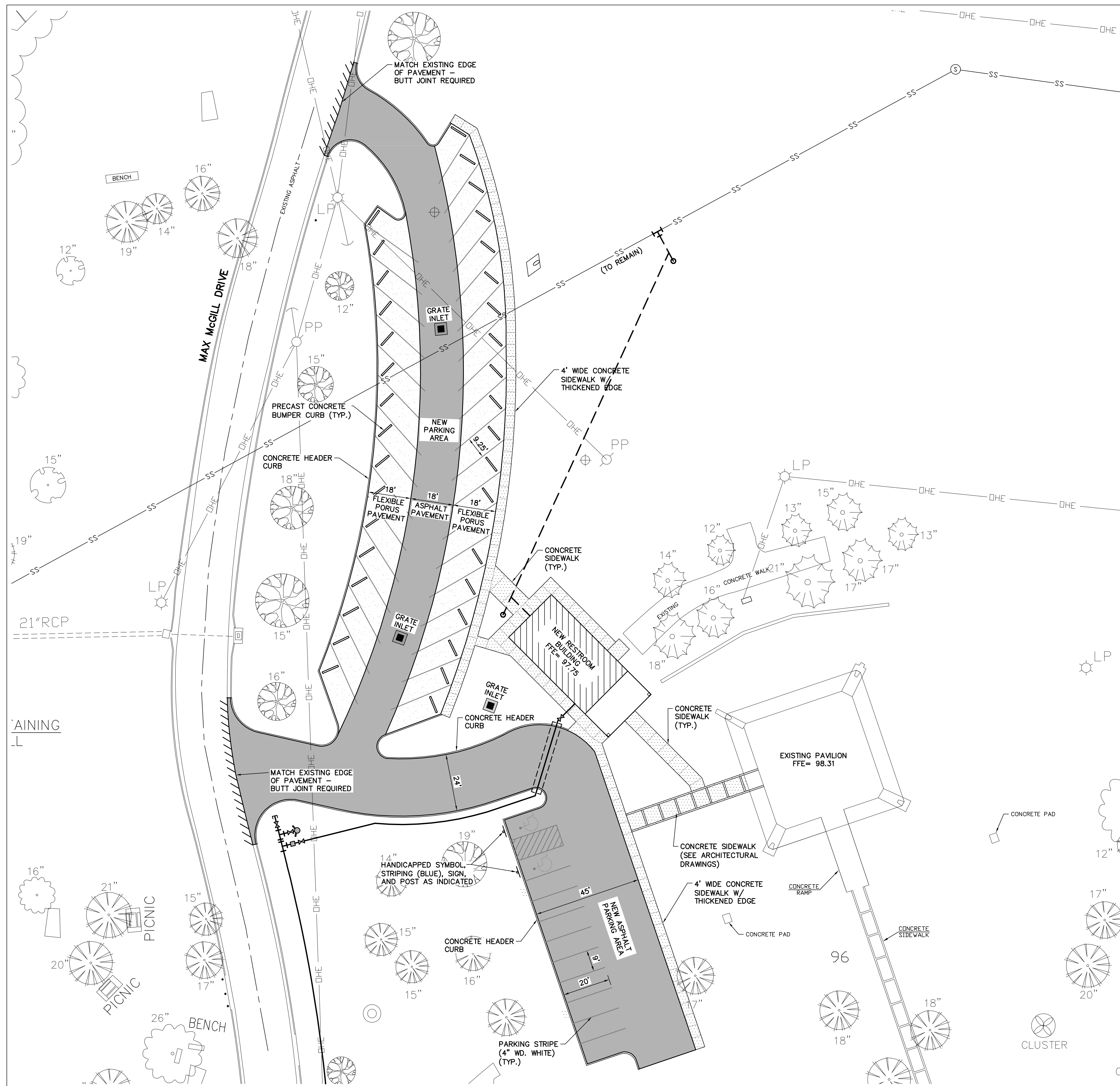
**NEW RESTROOM
BUILDING AND
EXISTING PAVILION
GEOMETRIC PLAN**

JOB NO. 2113

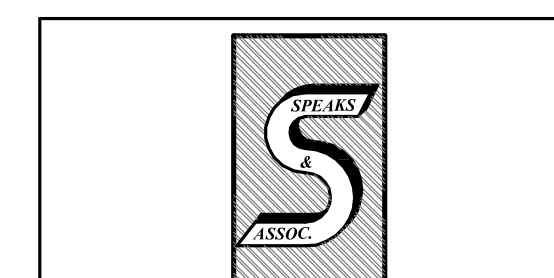
DATE: SEPT. 28, 2022

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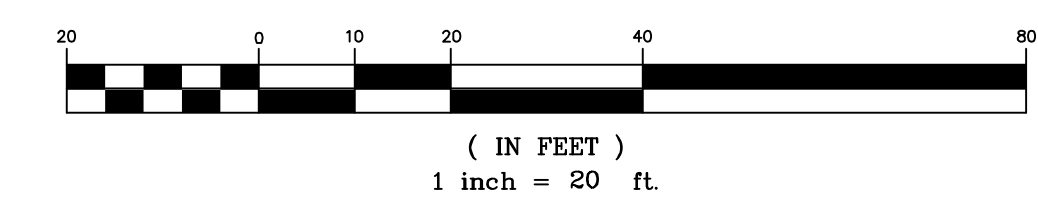


SEE SHEET C1.0 FOR TREE LEGEND.

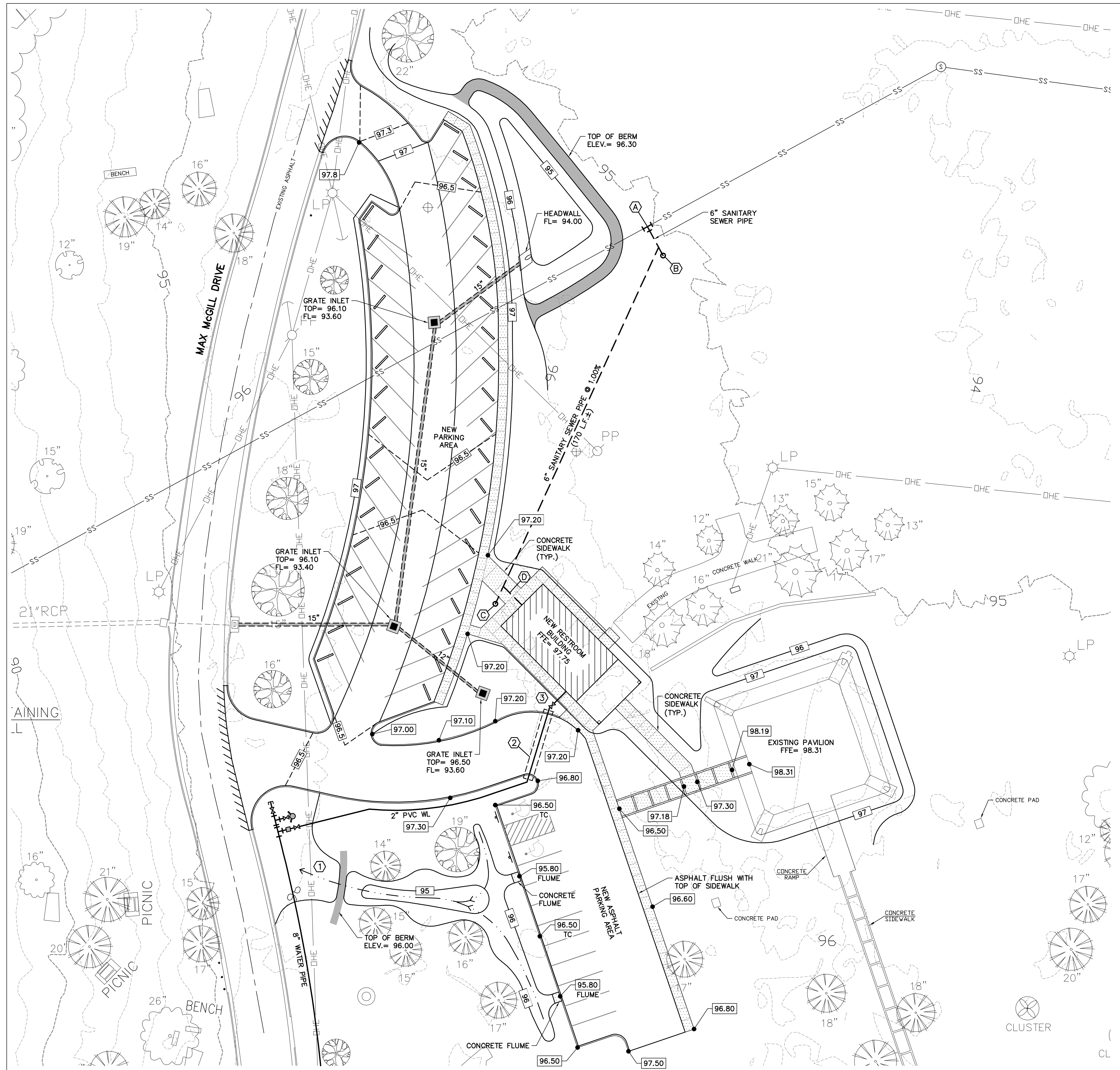


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GRAPHIC SCALE



WRITTEN SCALES AT DRAWING TITLE(S) ARE VALID ONLY FOR 24" x 36" SHEET SIZE.



NEW WATER LINE WORK

SYMBOL	DESCRIPTION
①	1 1/4" WATER SERVICE COMPLETE IN PLACE INCLUDING METER, BACKFLOW PREVENTOR AND BOX, AND 2" GATE VALVE WITH BOX
②	4" SDR 11 HDPE SLEEVE FOR WATER LINE BENEATH PAVEMENT
③	CONNECT TO 1 1/4" BUILDING WATER LINE

NEW SEWER LINE WORK

SYMBOL	DESCRIPTION
A	NEW 6 INCH SERVICE TEE ON EXISTING SEWER MAIN INV.= APPROX.
B	6 INCH CLEANOUT TOP= 96.00 INV.= 91.80
C	6 INCH CLEANOUT TOP= 97.50 INV.= 93.50
D	CONNECT TO 3 INCH BUILDING SEWER LINE

NOTE: AT EACH CLEANOUT, PROVIDE 4"x4" SQ. x 6' LONG CONCRETE MARKING POST STAMPED "SEWER". PAINT OLIVE GREEN.

**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

ALABAMA
 MOBILE.

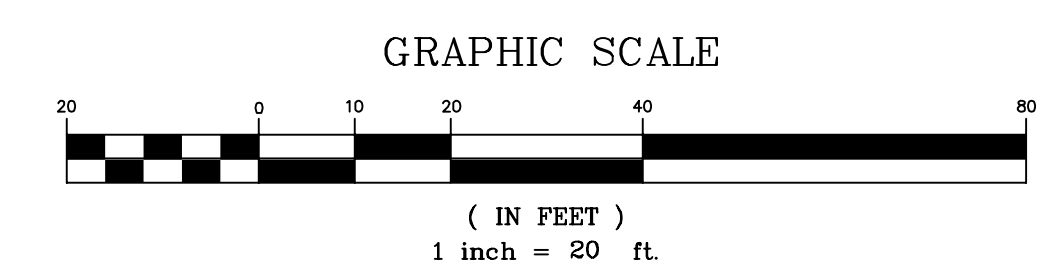
REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB



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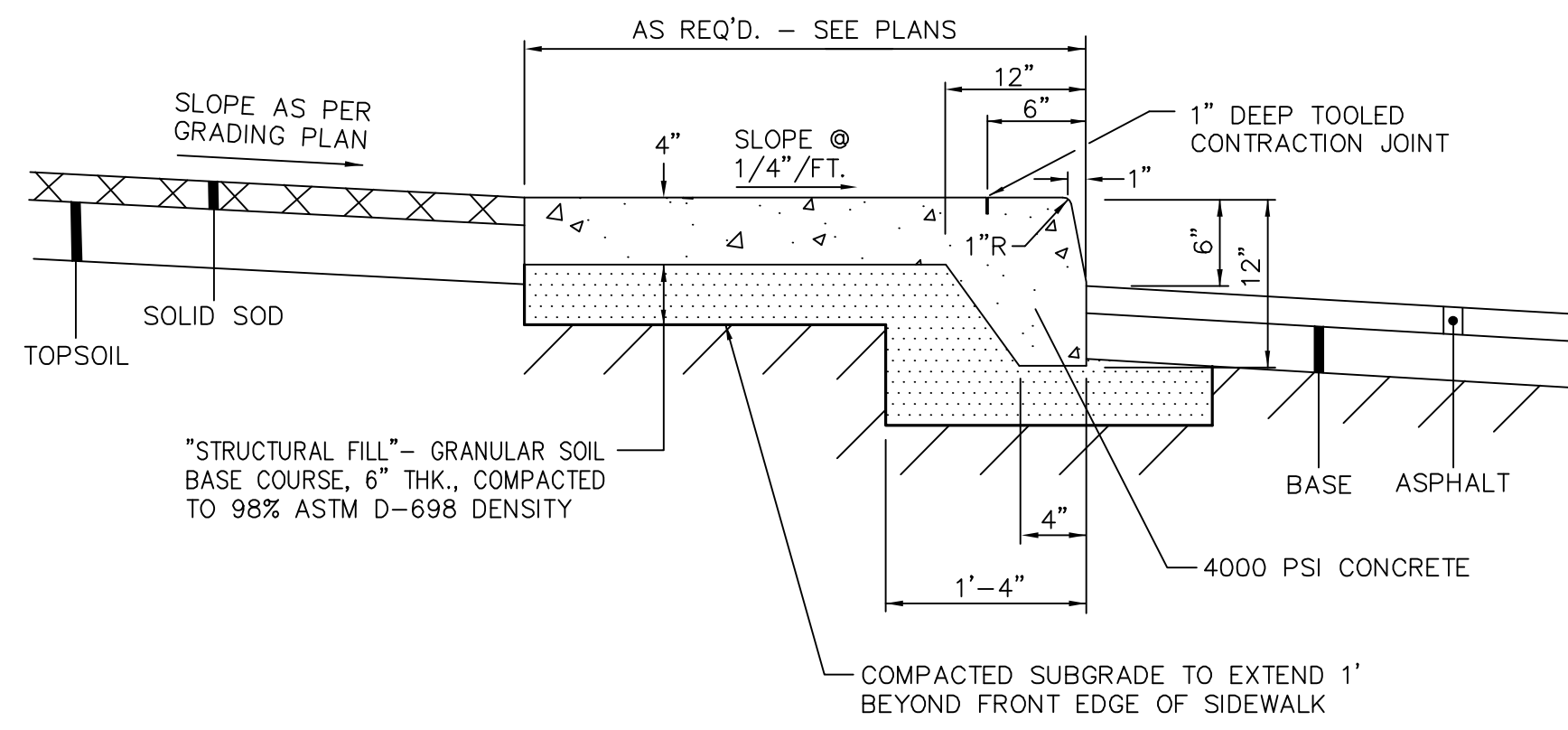
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**NEW RESTROOM
 BUILDING AND
 EXISTING PAVILION
 GRADING PLAN**

JOB NO. 2113

DATE: SEPT. 28, 2022

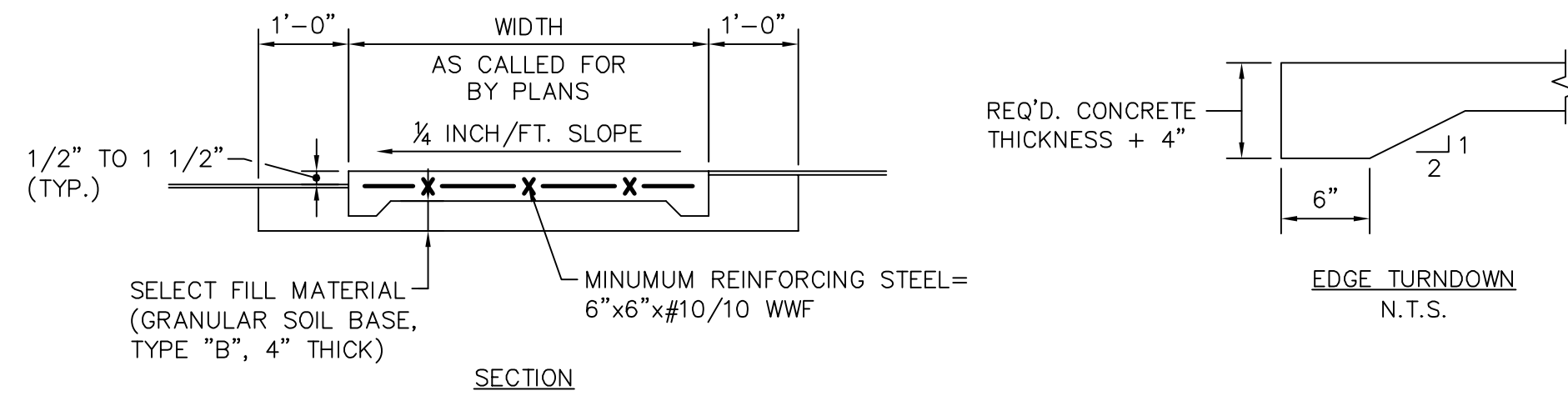
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CONCRETE SIDEWALK WITH THICKENED EDGE

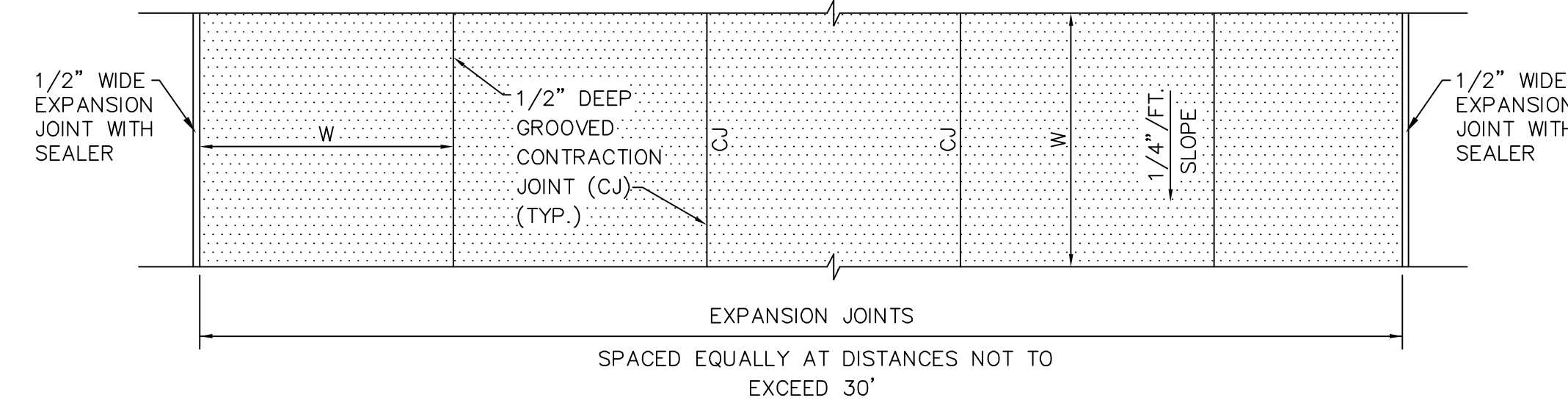
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SECTION

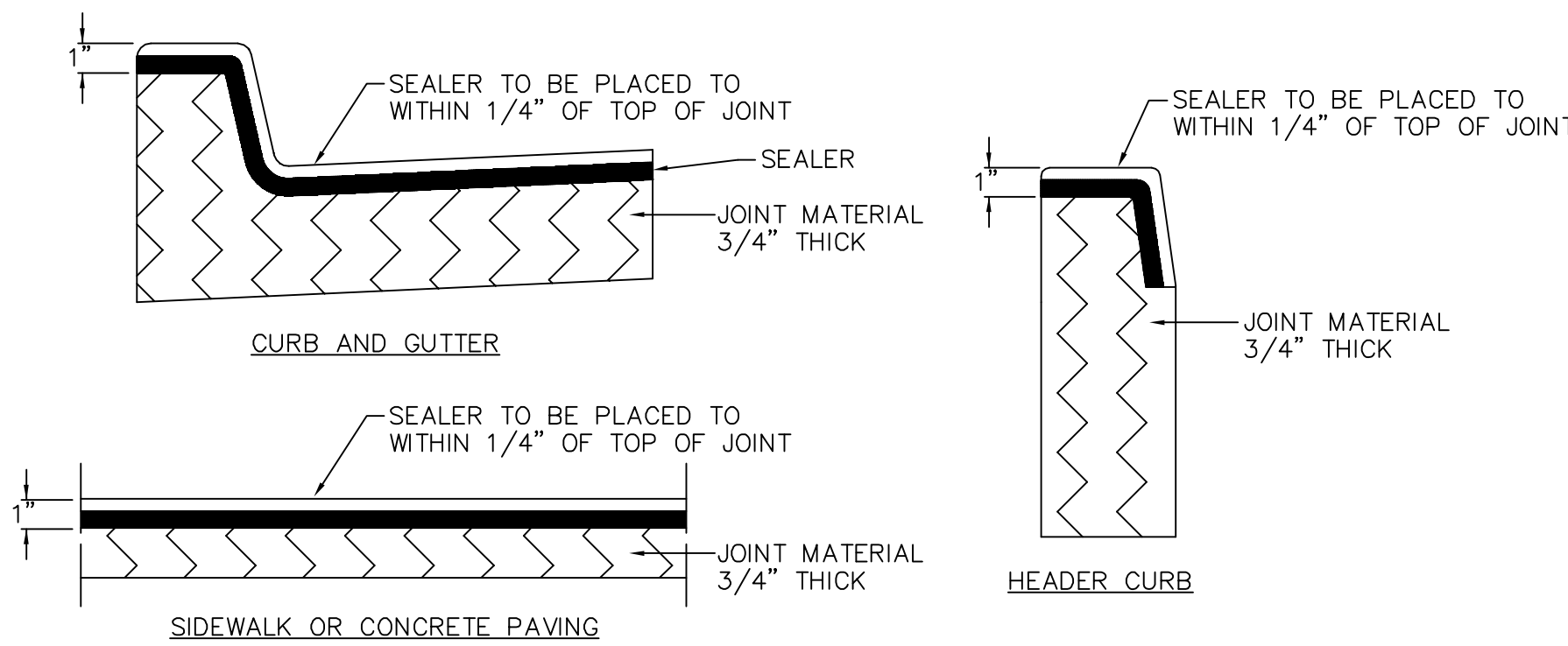
EDGE TURNDOWN

N.T.S.



CONCRETE SIDEWALK

N.T.S.

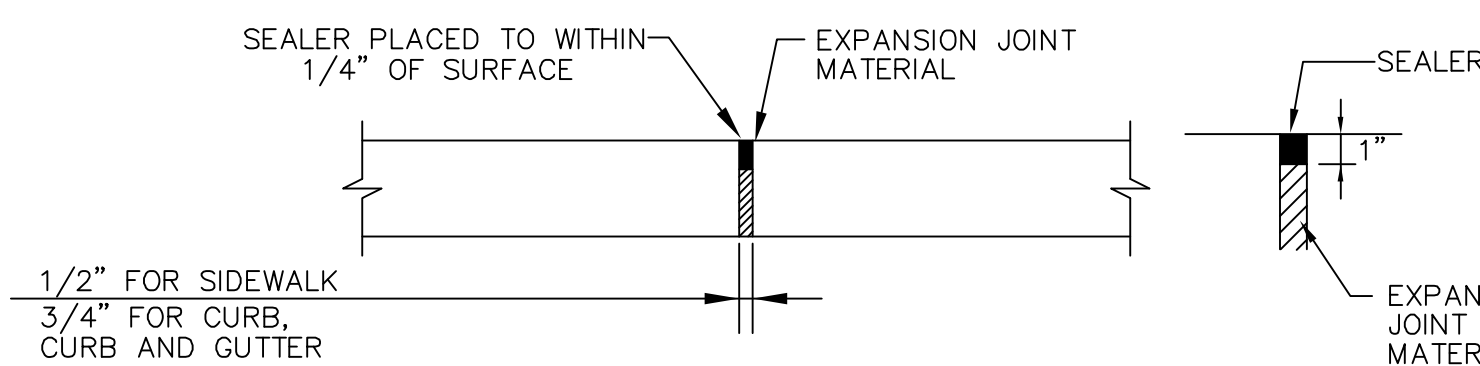


CURB AND GUTTER

HEADER CURB

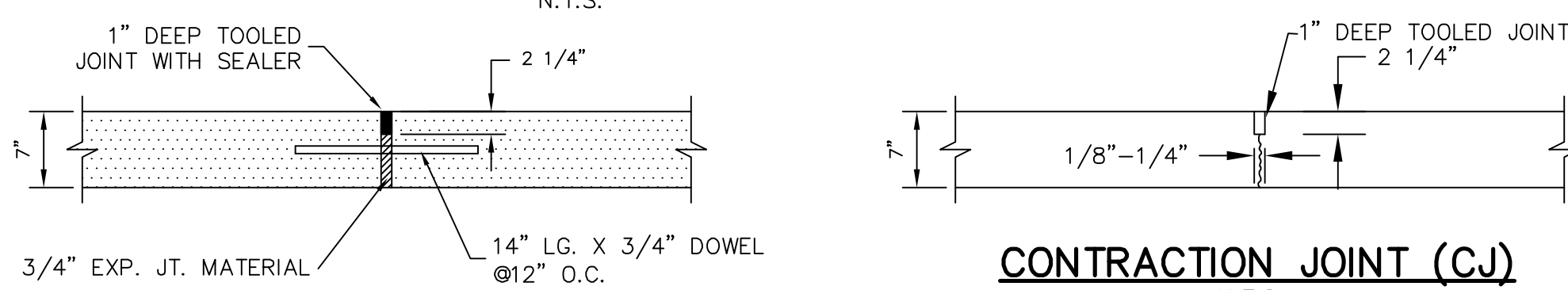
TYPICAL EXPANSION JOINT AND SEALER INSTALLATION

N.T.S.



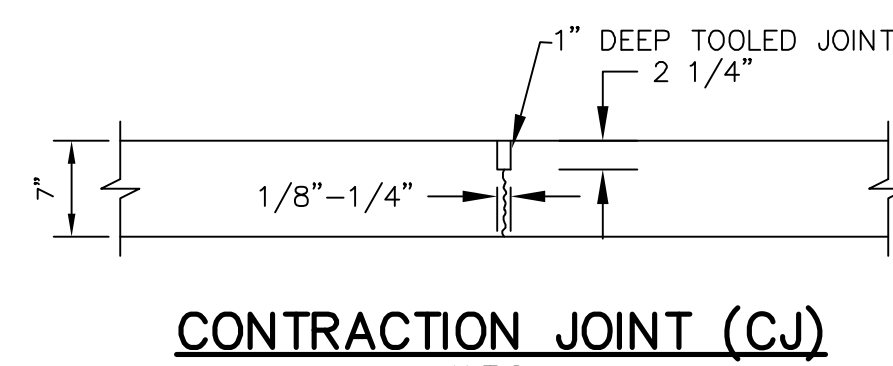
EXPANSION JOINT (EJ)

N.T.S.



CONSTRUCTION JOINT (DJ)

N.T.S.

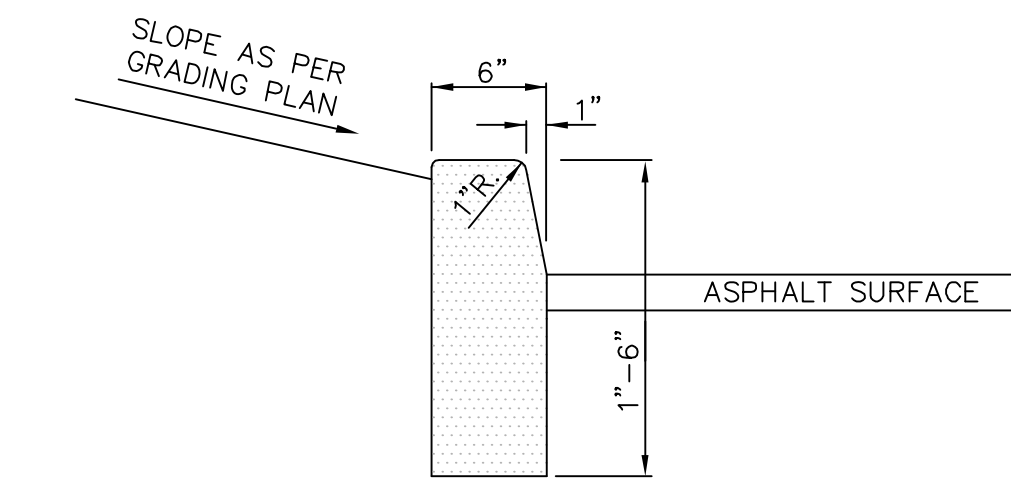


CONTRACTION JOINT (CJ)

N.T.S.

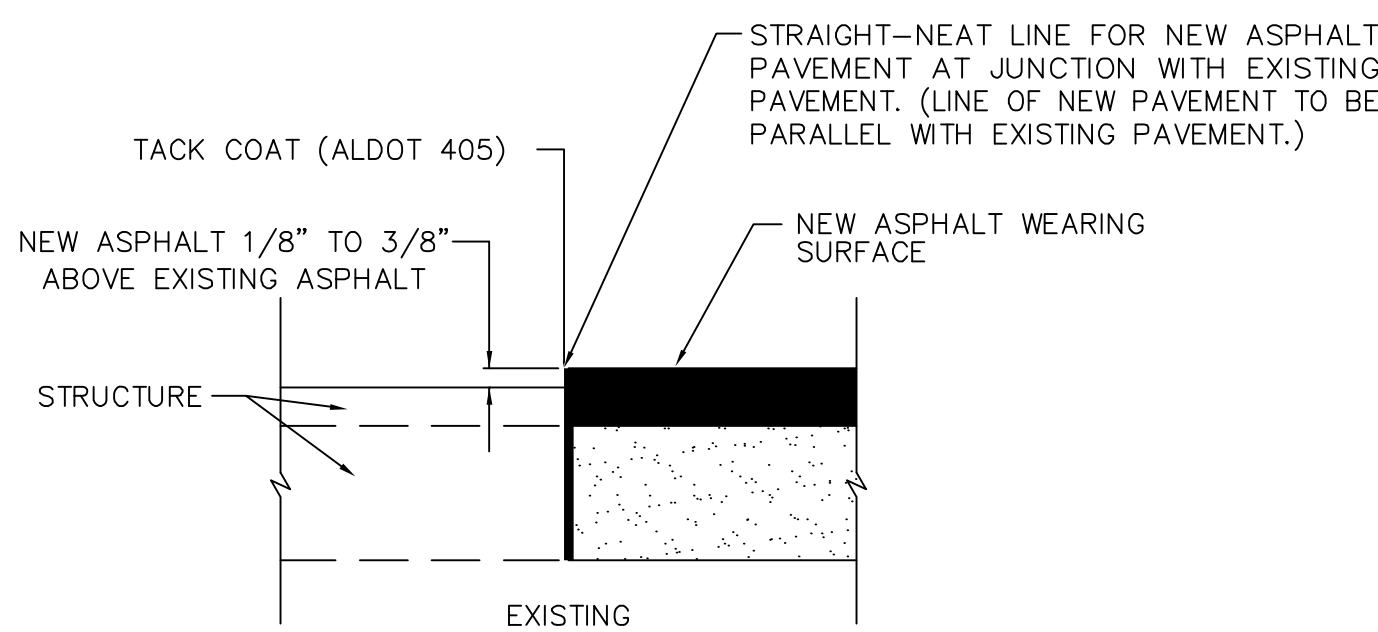
NOTES: (SIDEWALK AND CURB AND GUTTER)

1. EXPANSION JOINTS WITH SEALER SHALL BE PLACED AT JUNCTIONS WITH OTHER SIDEWALKS AND WHERE SIDEWALKS ARE ADJACENT TO BUILDINGS.
2. EXPANSION JOINTS SHALL BE PLACED IN CURB AND/OR GUTTER TO MATCH THOSE IN CONCRETE PAVEMENT WHERE THE TWO ARE ADJACENT.
3. EXPANSION JOINT 3/4 INCH WIDE SHALL BE PLACED WHERE CURB AND/OR GUTTER TERMINATES AGAINST RIGID OBJECTS.
4. EXPANSION JOINT FILLER AND SEALER SHALL MEET THE REQUIREMENTS OF ARTICLES 832.01 AND 832.02 AND ASTM D1751 AND D1752. EXPANSION JOINT FILLER SHALL EXTEND FROM THE BOTTOM OF THE CURB AND/OR GUTTER TO WITHIN ONE INCH OF THE TOP; THE SEALER SHALL BE 3/4\"/>



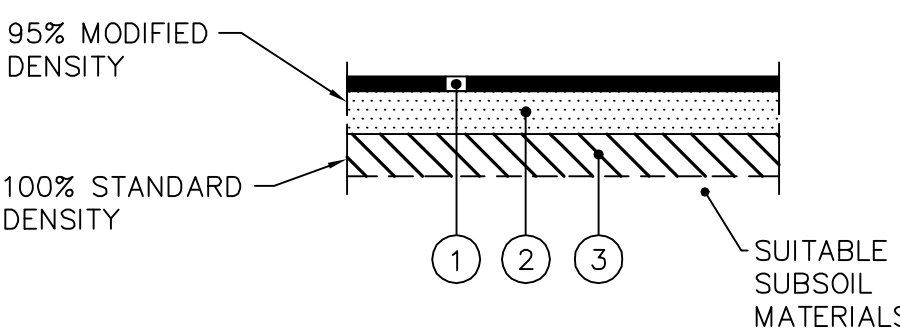
VERTICAL CURB (HEADER TYPE)

N.T.S.



BUTT JOINT DETAIL

N.T.S.

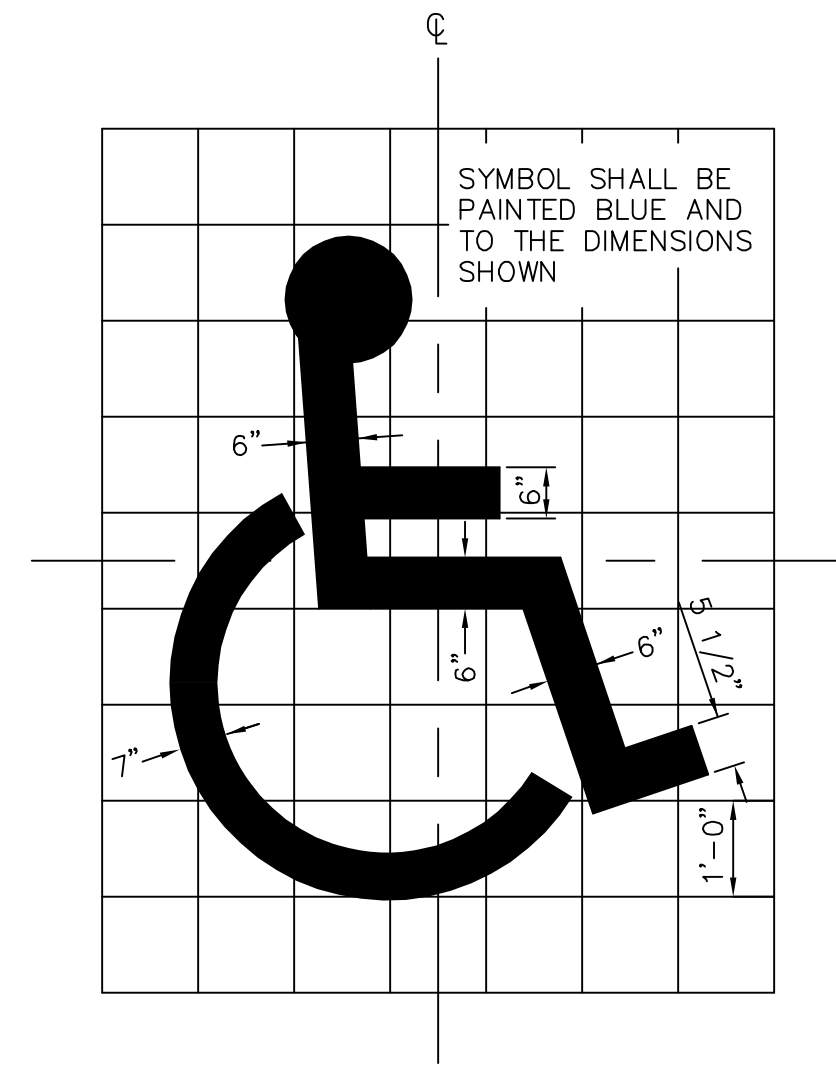


ASPHALT PAVEMENT LEGEND

- 1 IMPROVED BITUMINOUS CONCRETE WEARING SURFACE LAYER, 1/2" MAX. AGG. SIZE MIX, E.S.A.L. RANGE "B" 185#/S.Y., (SHD SEC. 424)
- 2 CRUSHED AGGREGATE BASE COURSE, TYPE "B", YARD MIXED, 6" COMPACTED THICKNESS (SHD SEC. 301)
- 3 SUBGRADE PROCESSING, 6" DEEP, (SHD SEC. 230)

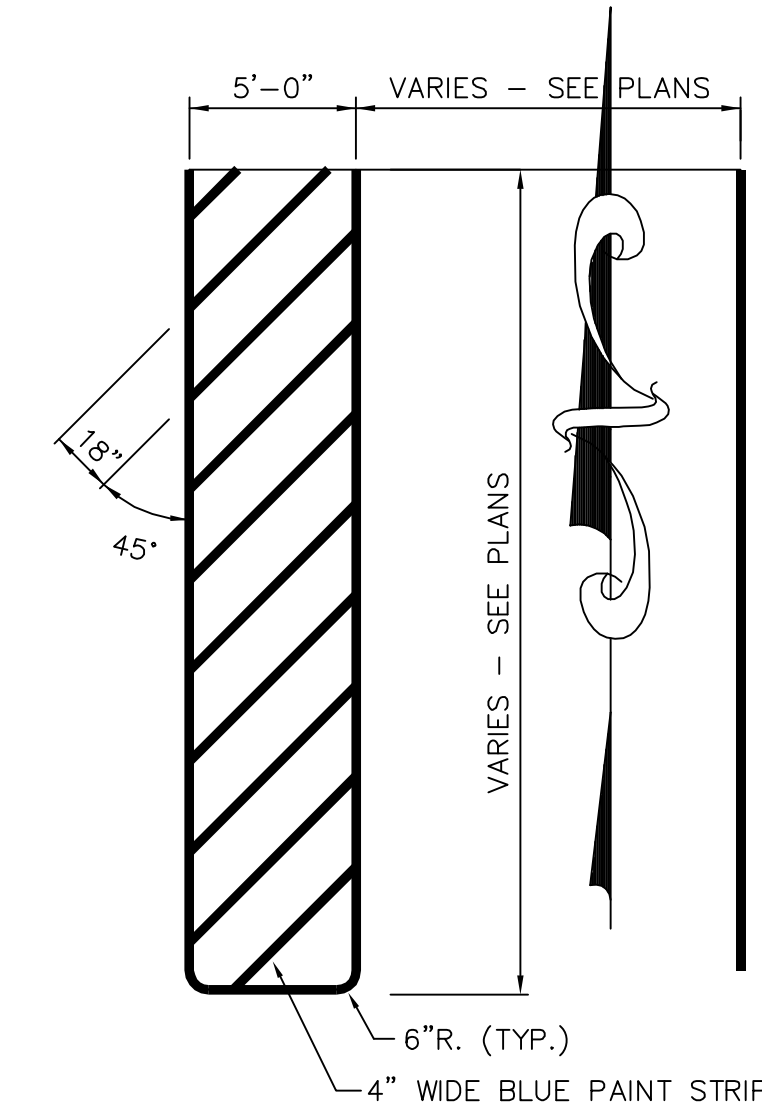
ASPHALT PAVEMENT SECTION

N.T.S.



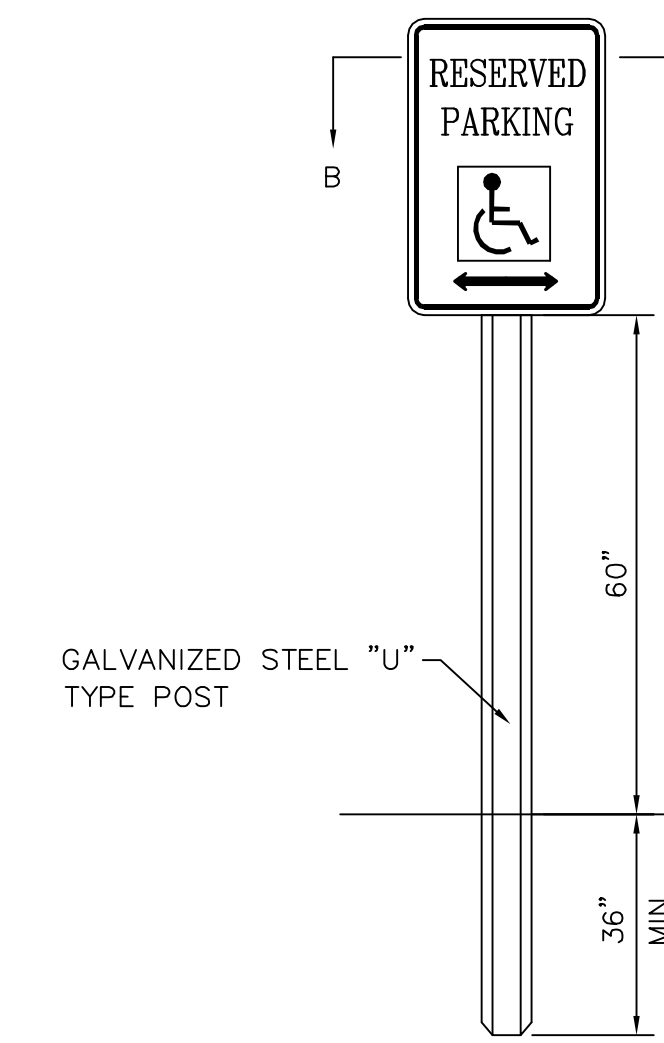
HANDICAPPED SYMBOL PAINT DETAIL

N.T.S.



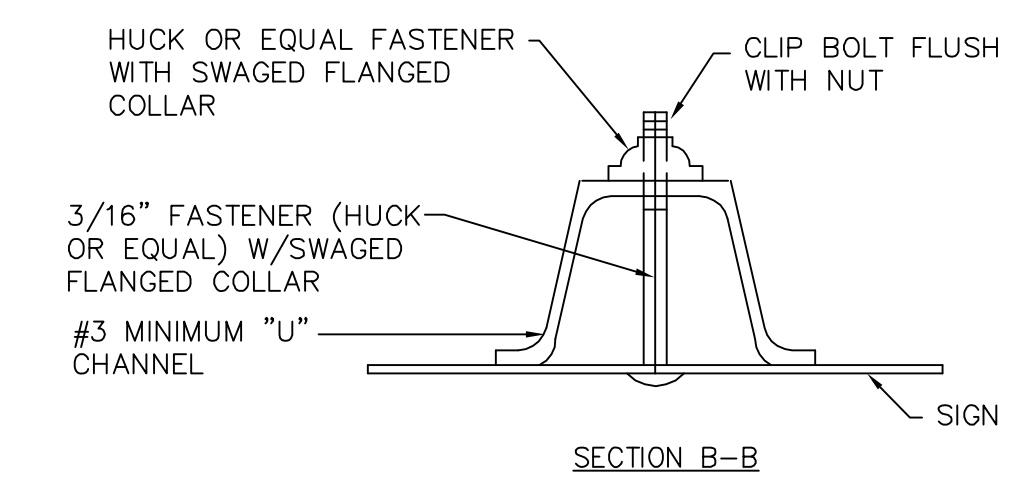
HANDICAPPED STRIPING DETAIL

N.T.S.



SIGN POST DETAIL

N.T.S.



SECTION B-B



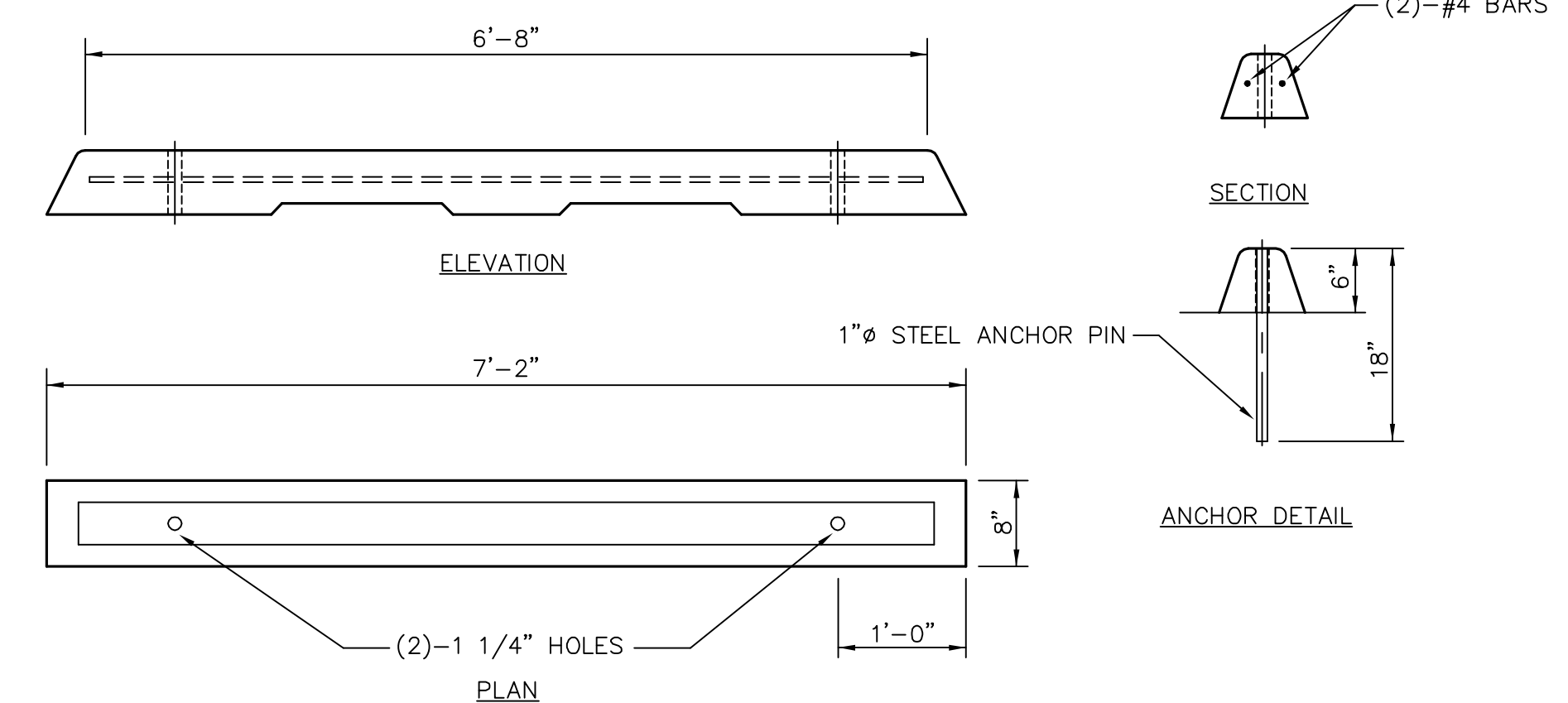
AL. D.O.T. SIGN R7-8 12"x18"



AL. D.O.T. SIGN R7-8P 12"x6"

SIGN DETAIL

N.T.S.

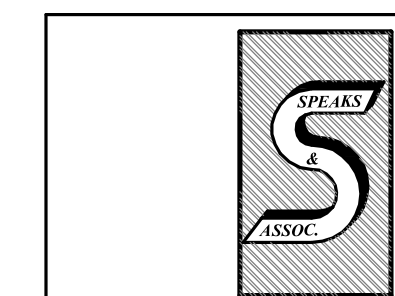


ELEVATION

PLAN

PRECAST BUMPER CURB DETAIL

(OR AS LOCALLY MANUFACTURED) N.T.S.



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JOB NO. : 22-0502 F.B. : N/A



LANGAN PARK - AMPHITHEATER PAVILION & RESTROOMS

ALABAMA

MOBILE,

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE

MISCELLANEOUS SITE DETAILS

JOB NO. 2113

DATE: SEPT. 28, 2022

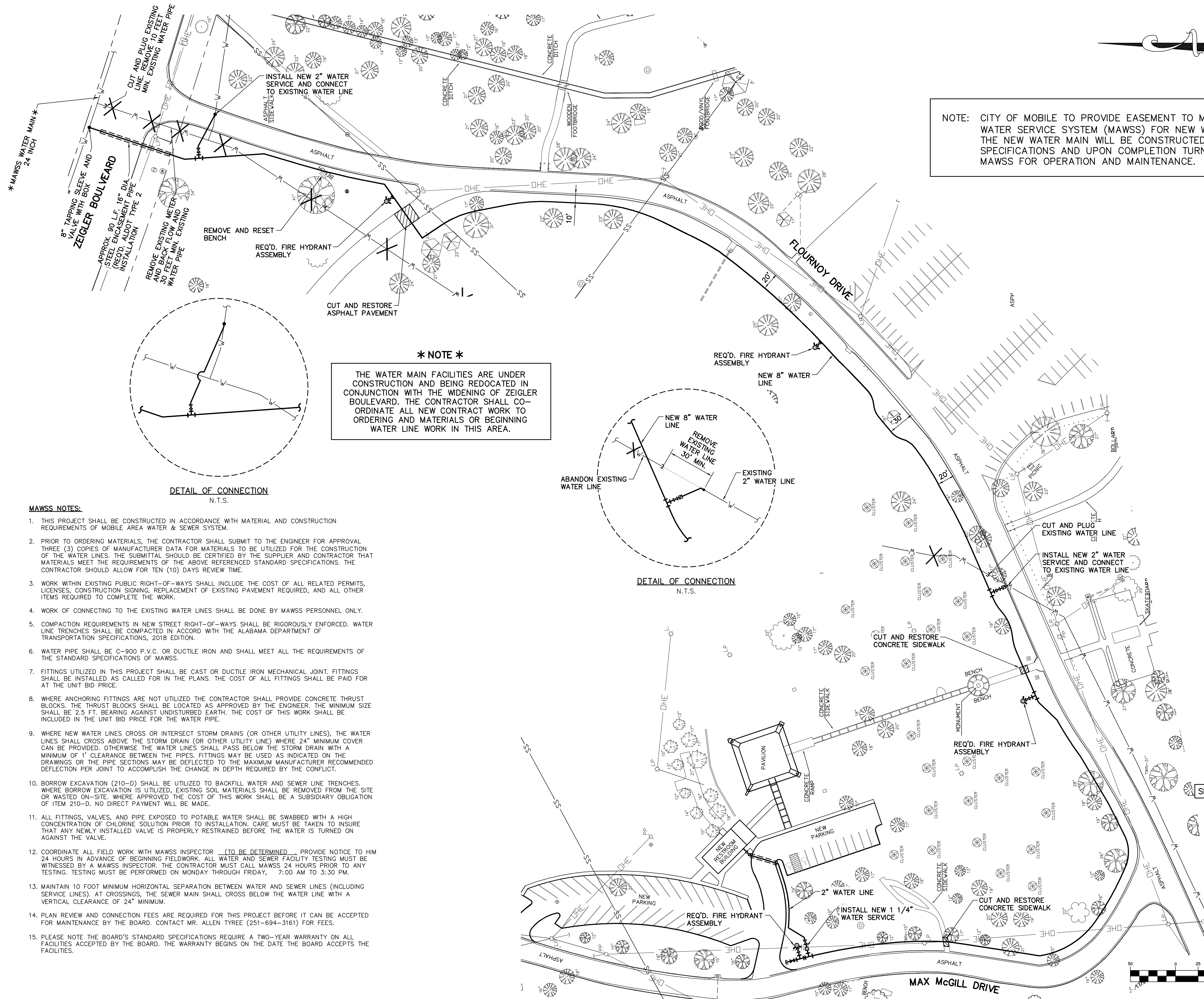
SHEET

C3.3

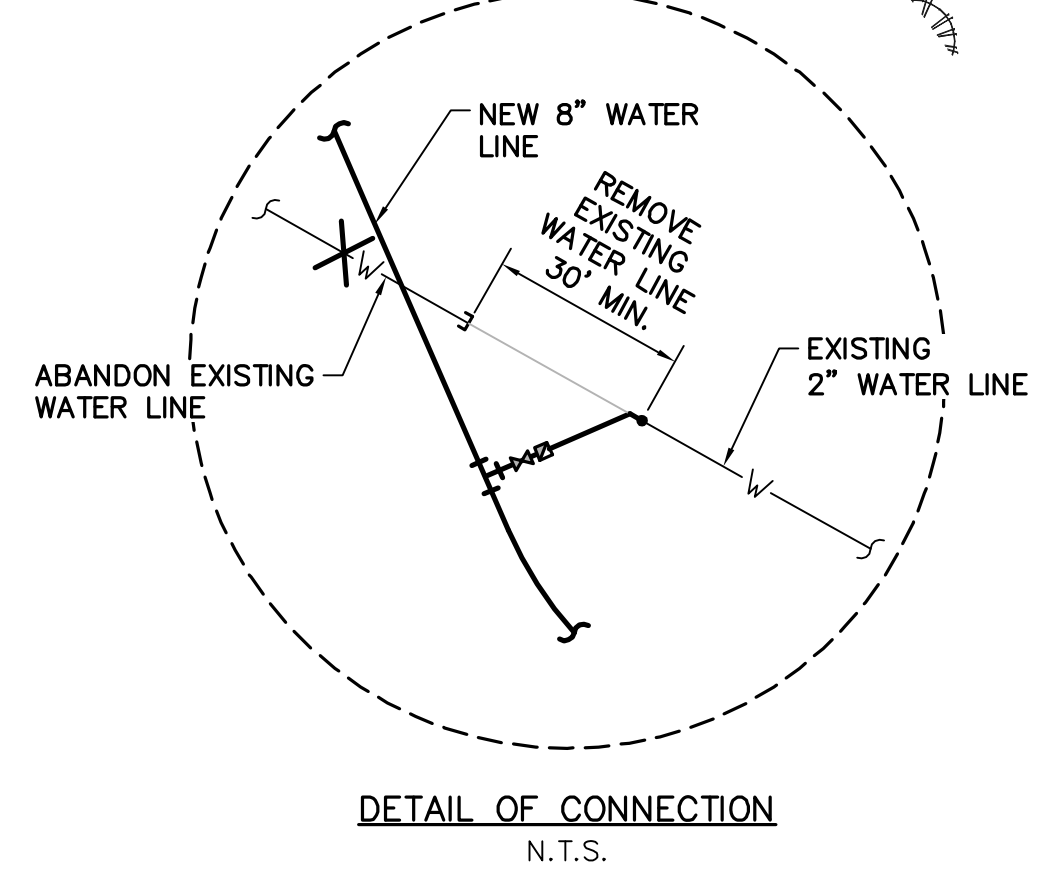
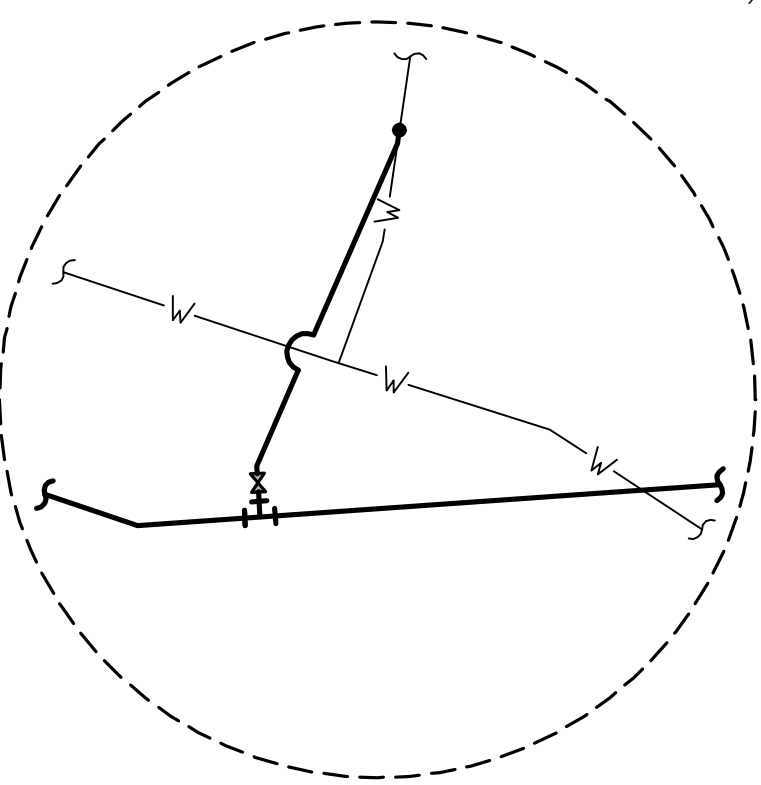
**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

ALABAMA
 MOBILE.

NOTE: CITY OF MOBILE TO PROVIDE EASEMENT TO MOBILE AREA WATER SERVICE SYSTEM (MAWSS) FOR NEW WATER MAIN. THE NEW WATER MAIN WILL BE CONSTRUCTED TO MAWSS SPECIFICATIONS AND UPON COMPLETION TURNED OVER TO MAWSS FOR OPERATION AND MAINTENANCE.



*** NOTE ***
 THE WATER MAIN FACILITIES ARE UNDER CONSTRUCTION AND BEING REDLOCATED IN CONJUNCTION WITH THE WIDENING OF ZEIGLER BOULEVARD. THE CONTRACTOR SHALL CO-ORDINATE ALL NEW CONTRACT WORK TO ORDERING AND MATERIALS OR BEGINNING WATER LINE WORK IN THIS AREA.



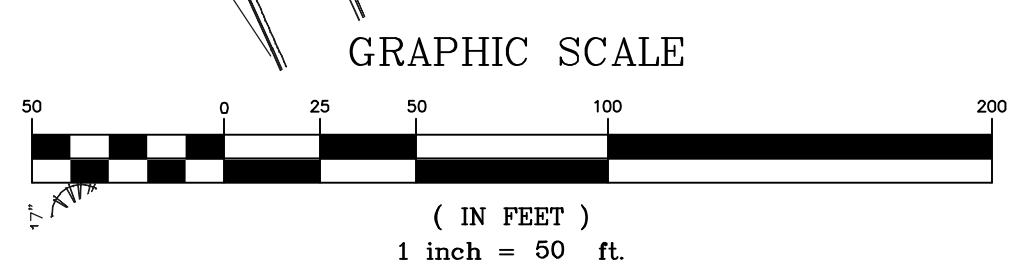
MAWSS NOTES:

- THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH MATERIAL AND CONSTRUCTION REQUIREMENTS OF MOBILE AREA WATER & SEWER SYSTEM.
- PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL THREE (3) COPIES OF MANUFACTURER DATA FOR MATERIALS TO BE UTILIZED FOR THE CONSTRUCTION OF THE WATER LINES. THE SUBMITTAL SHOULD BE CERTIFIED BY THE SUPPLIER AND CONTRACTOR THAT MATERIALS MEET THE REQUIREMENTS OF THE ABOVE REFERENCED STANDARD SPECIFICATIONS. THE CONTRACTOR SHOULD ALLOW FOR TEN (10) DAYS REVIEW TIME.
- WORK WITHIN EXISTING PUBLIC RIGHT-OF-WAYS SHALL INCLUDE THE COST OF ALL RELATED PERMITS, LICENSES, CONSTRUCTION SIGNING, REPLACEMENT OF EXISTING PAVEMENT REQUIRED, AND ALL OTHER ITEMS REQUIRED TO COMPLETE THE WORK.
- WORK OF CONNECTING TO THE EXISTING WATER LINES SHALL BE DONE BY MAWSS PERSONNEL ONLY.
- COMPACTION REQUIREMENTS IN NEW STREET RIGHT-OF-WAYS SHALL BE RIGOROUSLY ENFORCED. WATER LINE TRENCHES SHALL BE COMPACTED IN ACCORD WITH THE ALABAMA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, 2018 EDITION.
- WATER PIPE SHALL BE C-900 P.V.C. OR DUCTILE IRON AND SHALL MEET ALL THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS OF MAWSS.
- FITTINGS UTILIZED IN THIS PROJECT SHALL BE CAST OR DUCTILE IRON MECHANICAL JOINT. FITTINGS SHALL BE INSTALLED AS CALLED FOR IN THE PLANS. THE COST OF ALL FITTINGS SHALL BE PAID FOR AT THE UNIT BID PRICE.
- WHERE ANCHORING FITTINGS ARE NOT UTILIZED THE CONTRACTOR SHALL PROVIDE CONCRETE THRUST BLOCKS. THE THRUST BLOCKS SHALL BE LOCATED AS APPROVED BY THE ENGINEER. THE MINIMUM SIZE SHALL BE 2.5 FT. BEARING AGAINST UNDISTURBED EARTH. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE WATER PIPE.
- WHERE NEW WATER LINES CROSS OR INTERSECT STORM DRAINS (OR OTHER UTILITY LINES), THE WATER LINES SHALL CROSS ABOVE THE STORM DRAIN (OR OTHER UTILITY LINE) WHERE 24" MINIMUM COVER CAN BE PROVIDED. OTHERWISE THE WATER LINES SHALL PASS BELOW THE STORM DRAIN WITH A MINIMUM OF 1" CLEARANCE BETWEEN THE PIPES. FITTINGS MAY BE USED AS INDICATED ON THE DRAWINGS OR THE PIPE SECTIONS MAY BE DEFLECTED TO THE MAXIMUM MANUFACTURER RECOMMENDED DEFLECTION PER JOINT TO ACCOMPLISH THE CHANGE IN DEPTH REQUIRED BY THE CONFLICT.
- BORROW EXCAVATION (210-D) SHALL BE UTILIZED TO BACKFILL WATER AND SEWER LINE TRENCHES. WHERE BORROW EXCAVATION IS UTILIZED, EXISTING SOIL MATERIALS SHALL BE REMOVED FROM THE SITE OR WASTED ON-SITE. WHERE APPROVED THE COST OF THIS WORK SHALL BE A SUBSIDIARY OBLIGATION OF ITEM 210-D. NO DIRECT PAYMENT WILL BE MADE.
- ALL FITTINGS, VALVES, AND PIPE EXPOSED TO POTABLE WATER SHALL BE SWABBED WITH A HIGH CONCENTRATION OF CHLORINE SOLUTION PRIOR TO INSTALLATION. CARE MUST BE TAKEN TO INSURE THAT ANY NEWLY INSTALLED VALVE IS PROPERLY RESTRAINED BEFORE THE WATER IS TURNED ON AGAINST THE VALVE.
- COORDINATE ALL FIELD WORK WITH MAWSS INSPECTOR (TO BE DETERMINED). PROVIDE NOTICE TO HIM 24 HOURS IN ADVANCE OF BEGINNING FIELDWORK. ALL WATER AND SEWER FACILITY TESTING MUST BE WITNESSED BY A MAWSS INSPECTOR. THE CONTRACTOR MUST CALL MAWSS 24 HOURS PRIOR TO ANY TESTING. TESTING MUST BE PERFORMED ON MONDAY THROUGH FRIDAY, 7:00 AM TO 3:30 PM.
- MAINTAIN 10 FOOT MINIMUM HORIZONTAL SEPARATION BETWEEN WATER AND SEWER LINES (INCLUDING SERVICE LINES). AT CROSSINGS, THE SEWER MAIN SHALL CROSS BELOW THE WATER LINE WITH A VERTICAL CLEARANCE OF 24" MINIMUM.
- PLAN REVIEW AND CONNECTION FEES ARE REQUIRED FOR THIS PROJECT BEFORE IT CAN BE ACCEPTED FOR MAINTENANCE BY THE BOARD. CONTACT MR. ALLEN TYREE (251-694-3161) FOR FEES.
- PLEASE NOTE THE BOARD'S STANDARD SPECIFICATIONS REQUIRE A TWO-YEAR WARRANTY ON ALL FACILITIES ACCEPTED BY THE BOARD. THE WARRANTY BEGINS ON THE DATE THE BOARD ACCEPTS THE FACILITIES.



SEE SHEET C1.0 FOR TREE LEGEND.

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 JOB NO. : 22-0502 F.B. : N/A



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NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE

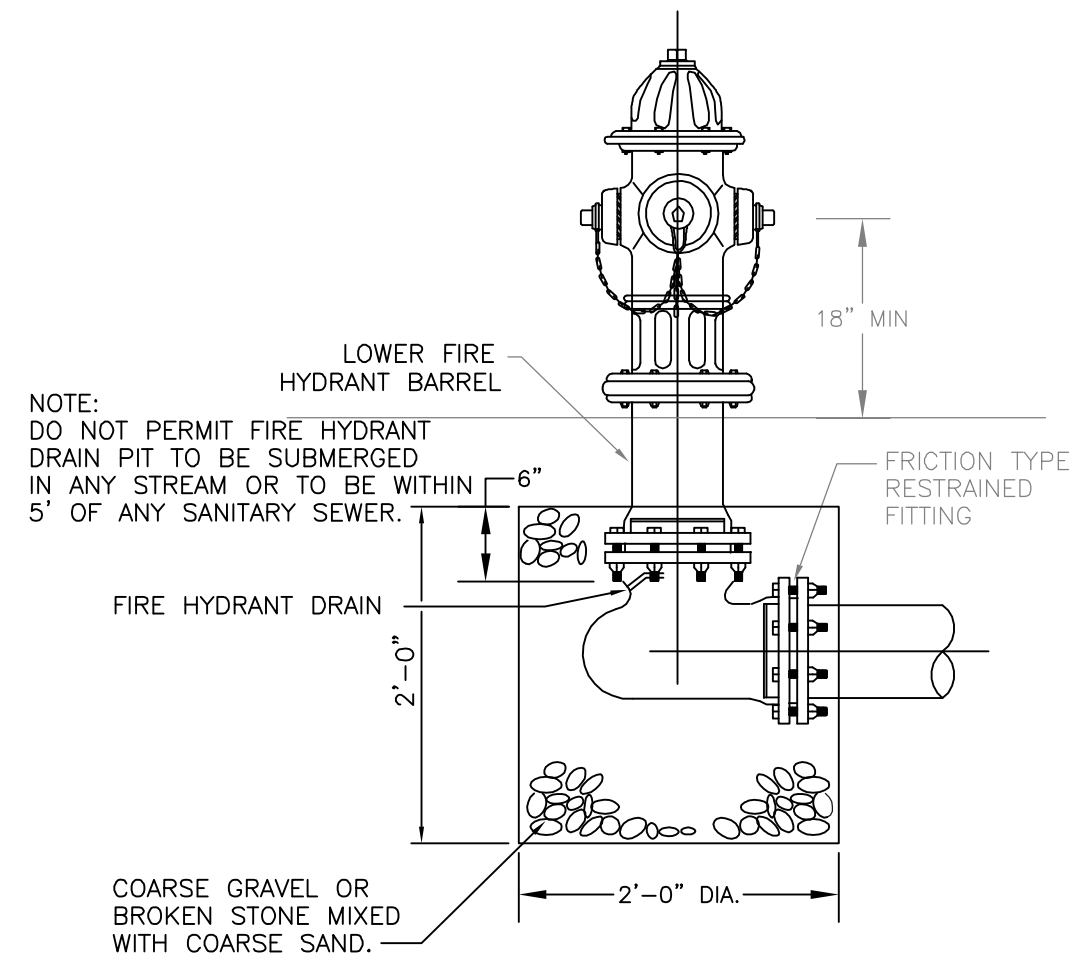
**WATERLINE
 IMPROVEMENTS**

JOB NO. 2113

DATE: SEPT. 28, 2022

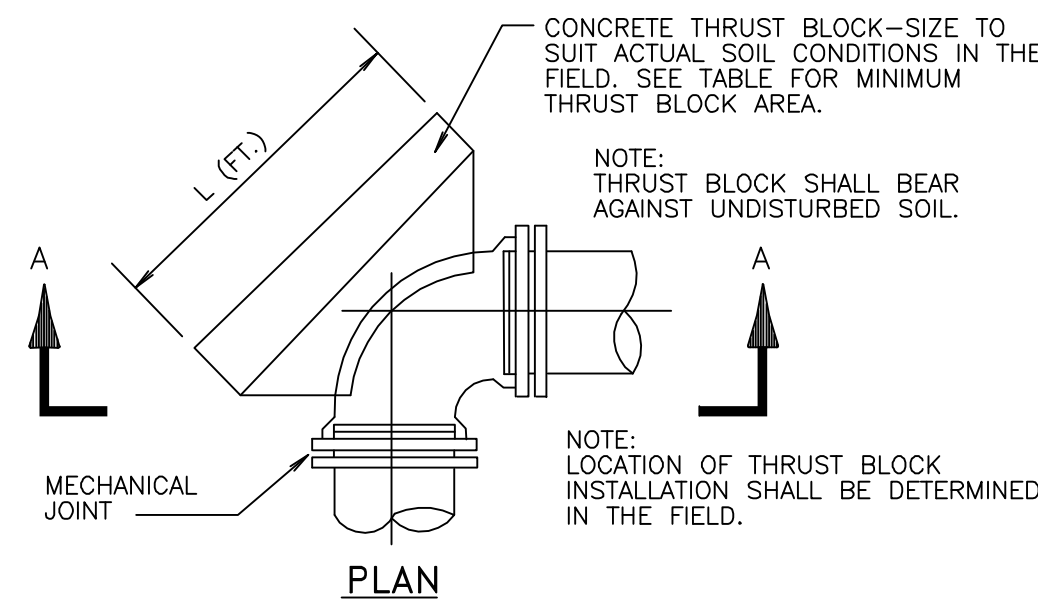
SHEET

C4.0

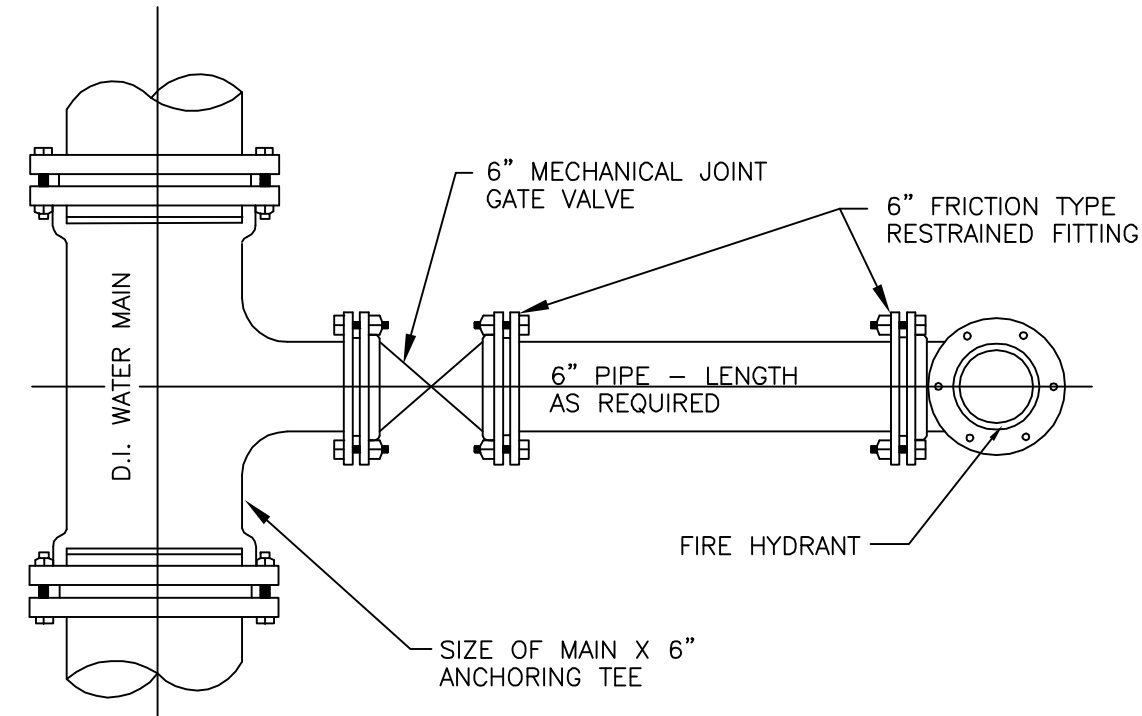


TYPICAL FIRE HYDRANT DRAIN PIT

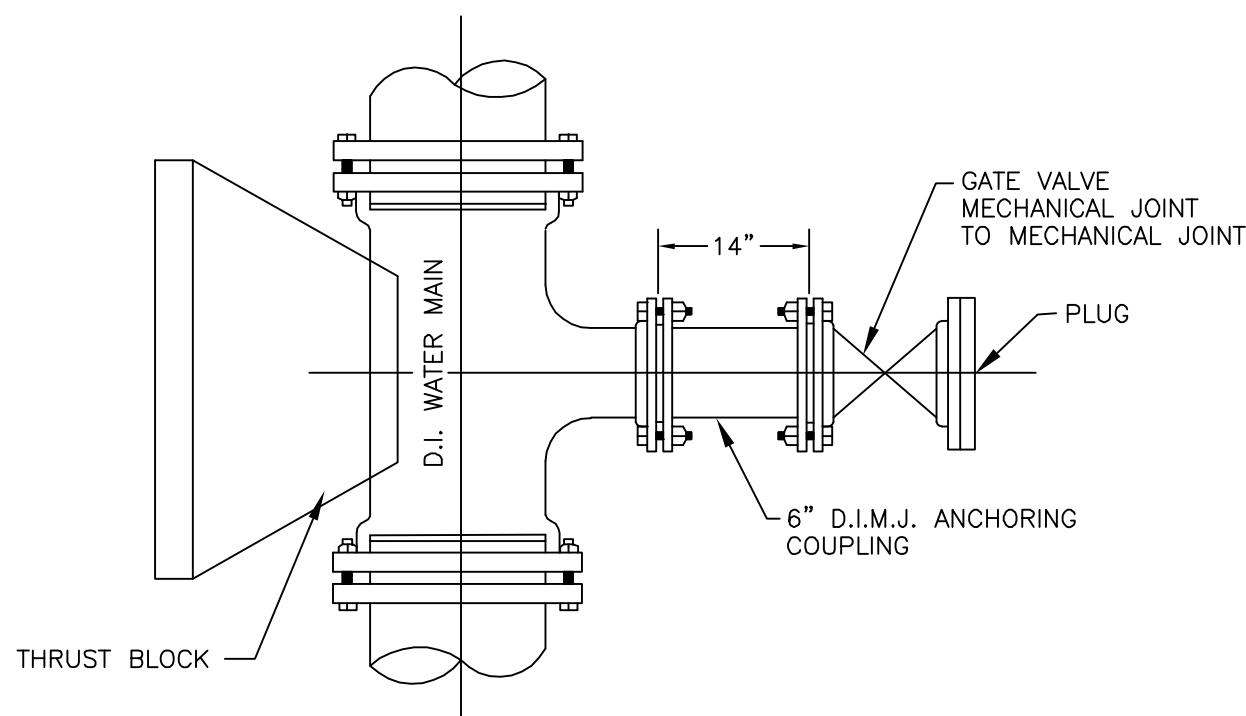
TYPICAL THRUST BLOCKS MINIMUM THRUST BLOCK AREA SQ. FT. L (FT.) X H (FT.)			
INSIDE DIA. PIPE IN INCHES	90° BENDS	TEES, DEAD ENDS, OR 45° BENDS	22 1/2° BENDS
6"	3.0	2.2	1.0
8"	5.5	4.0	1.5
10"	8.5	6.0	2.5
12"	12.0	9.0	3.5
16"	22.0	16.0	6.0
18"	27.0	20.0	8.0
20"	34.0	24.0	10.0
24"	48.0	34.0	14.0
30"	75.0	53.0	21.0



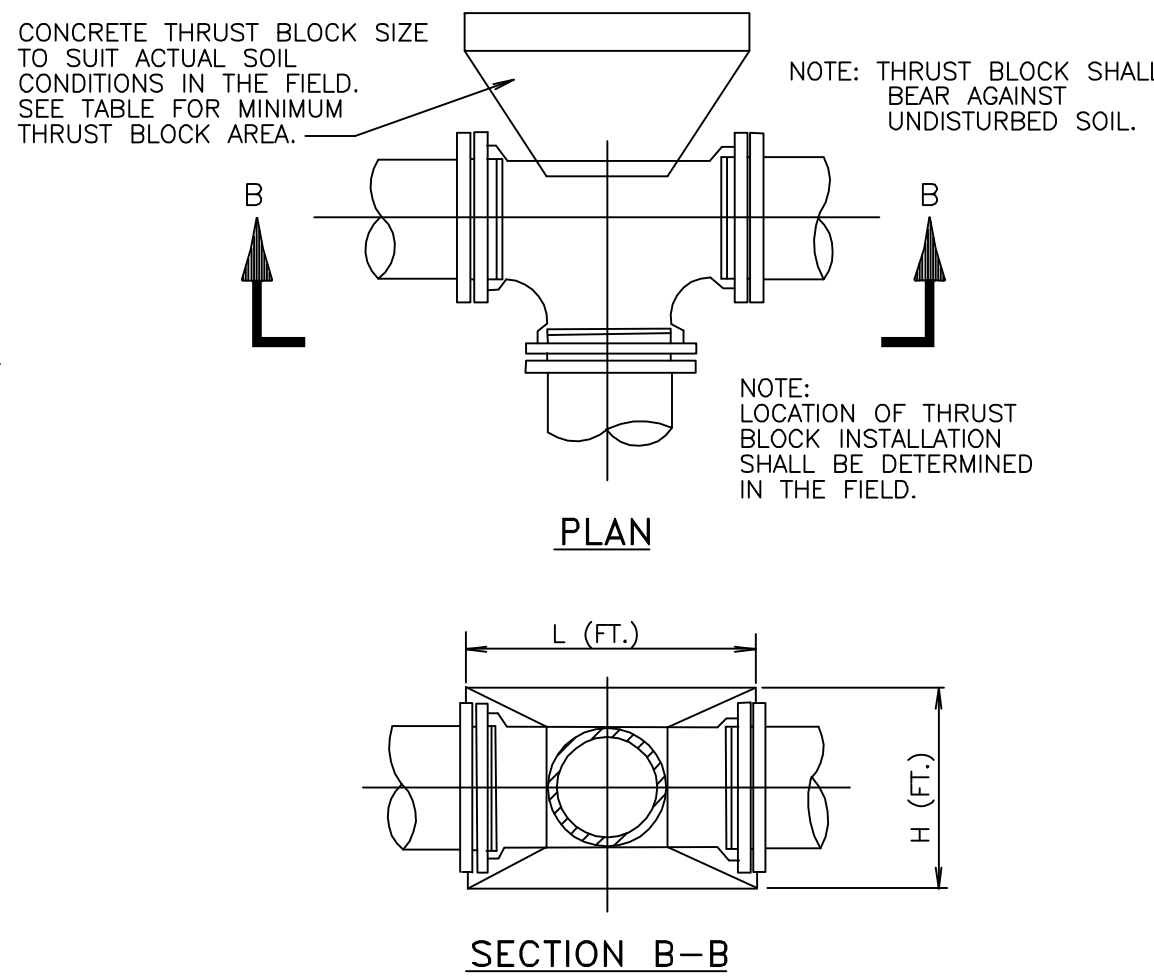
TYPICAL THRUST BLOCK DETAIL FOR BENDS



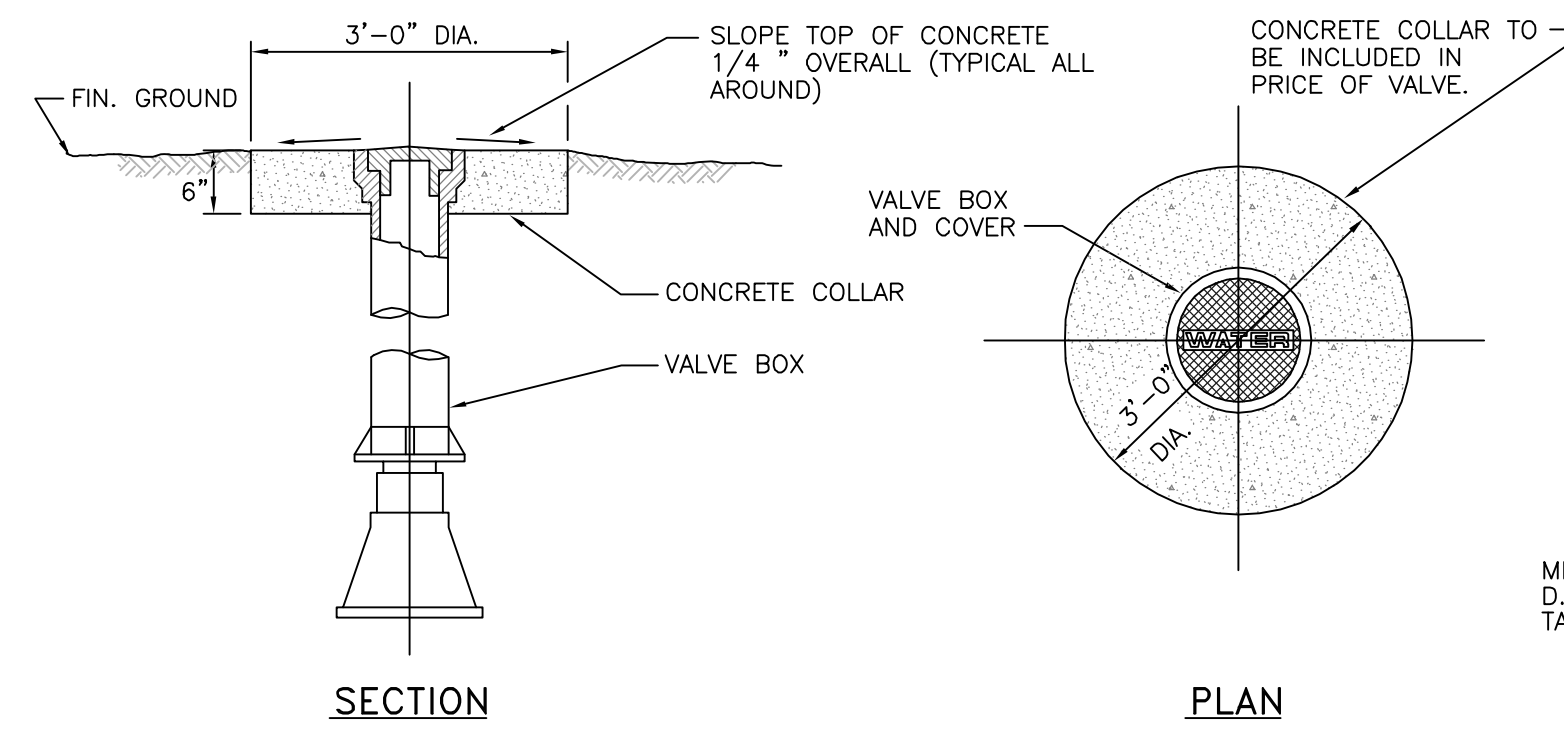
FIRE HYDRANT CONNECTION TO WATER MAIN (TYPICAL)



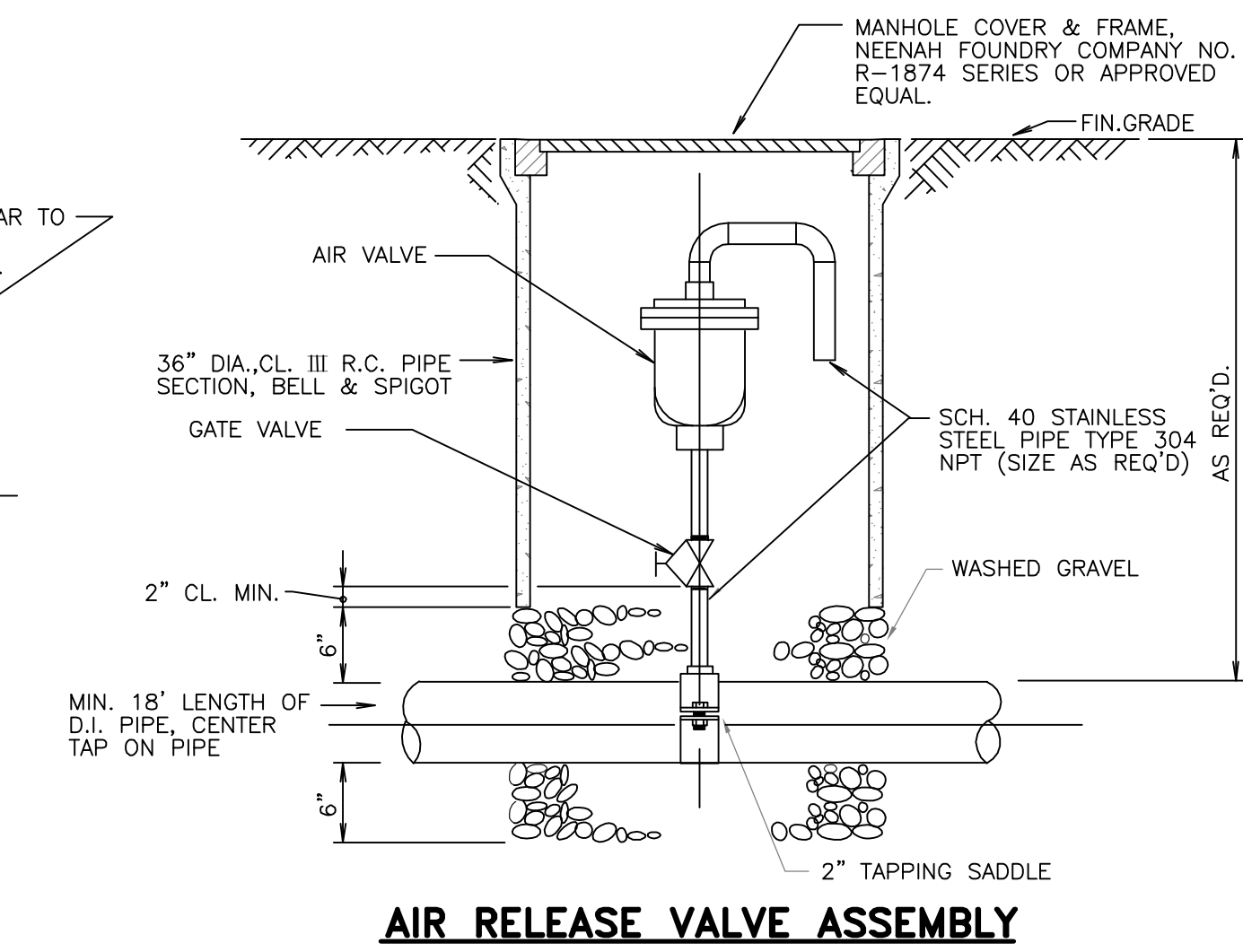
STUBOUT FOR FUTURE CONNECTION (TYPICAL)



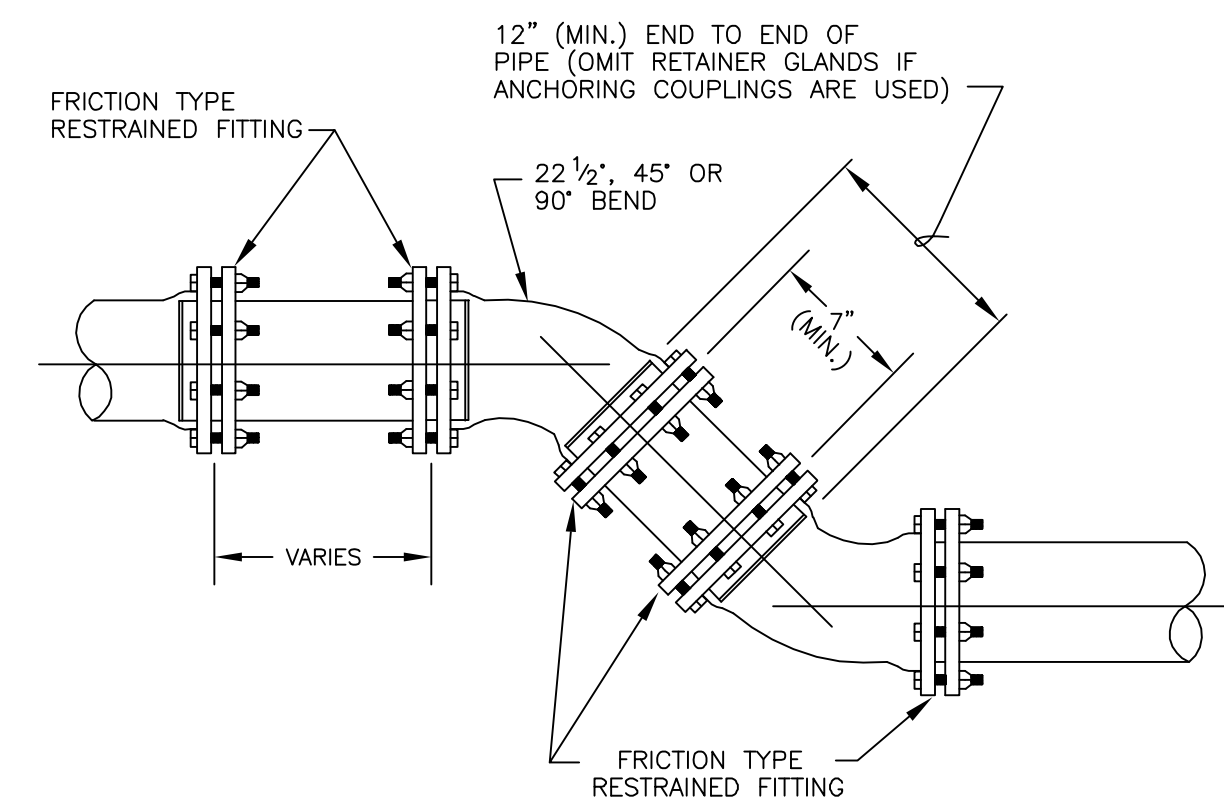
TYPICAL THRUST BLOCK DETAIL FOR TEES



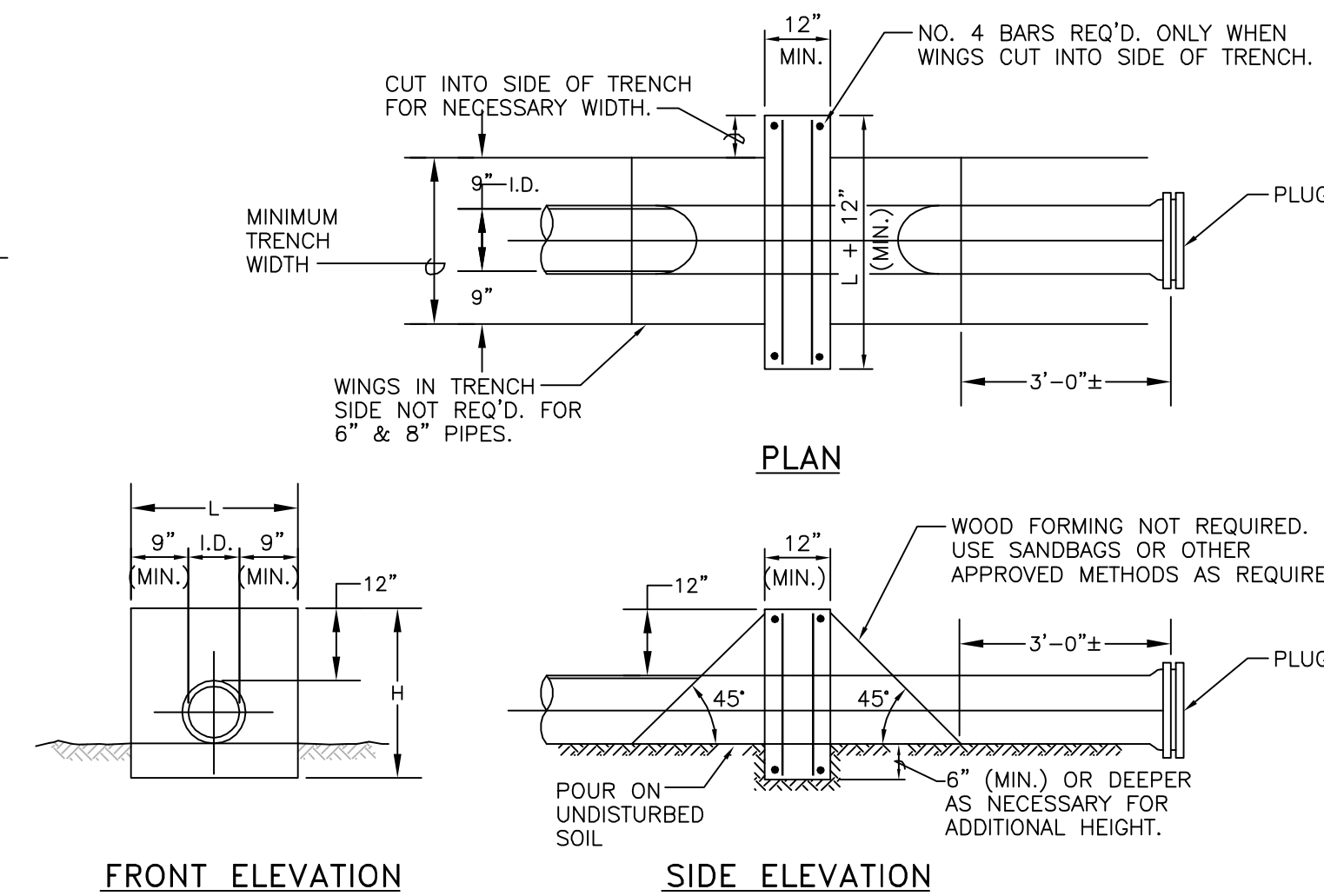
VALVE BOX COLLAR DETAIL



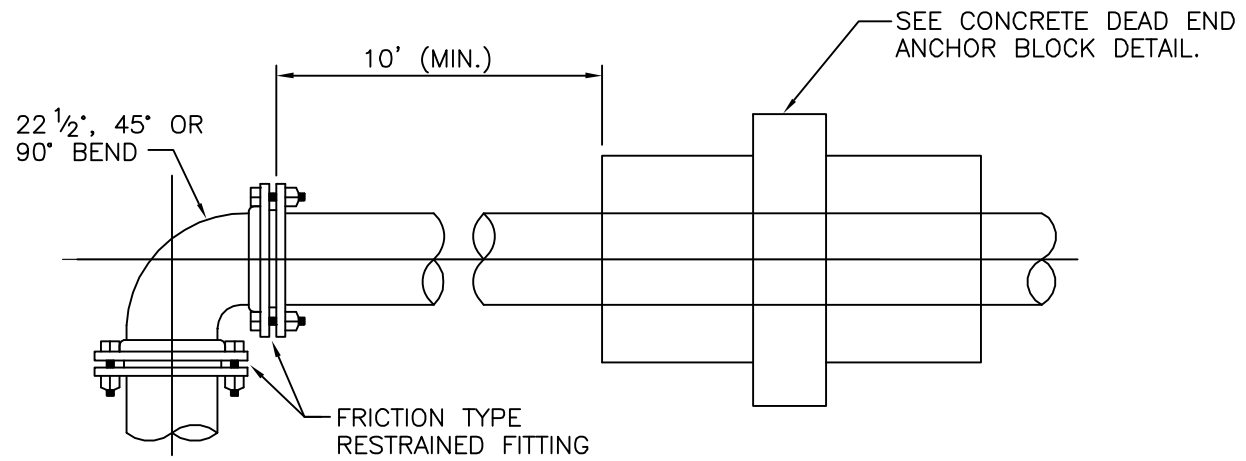
AIR RELEASE VALVE ASSEMBLY



ANCHORING OF VERTICAL OR HORIZONTAL BENDS WHERE THRUST BLOCKS ARE NOT DESIRED

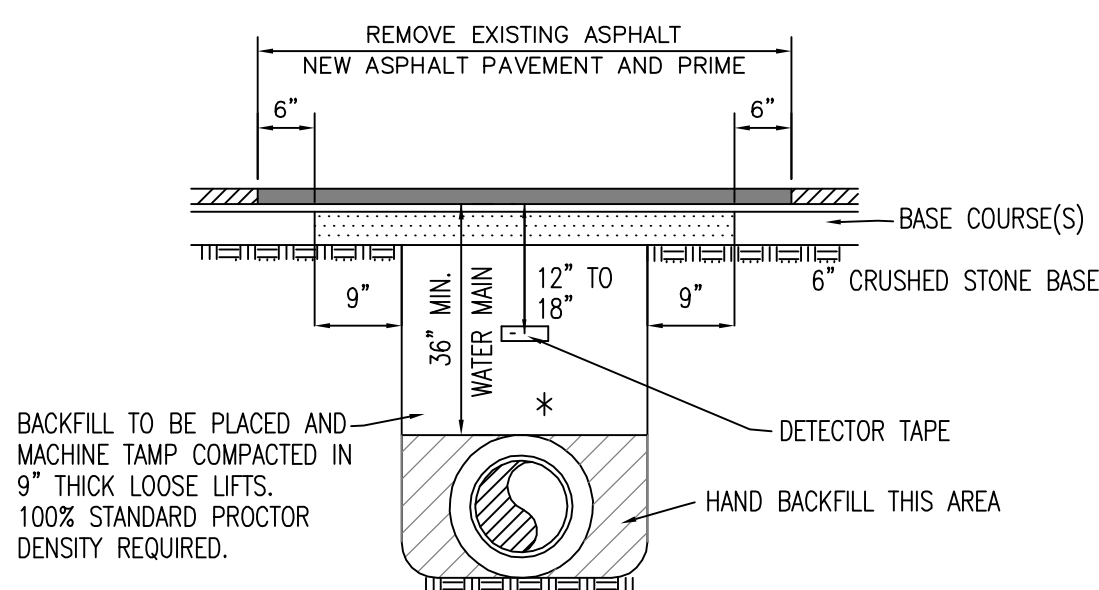


CONCRETE DEAD END ANCHOR BLOCK DETAILS

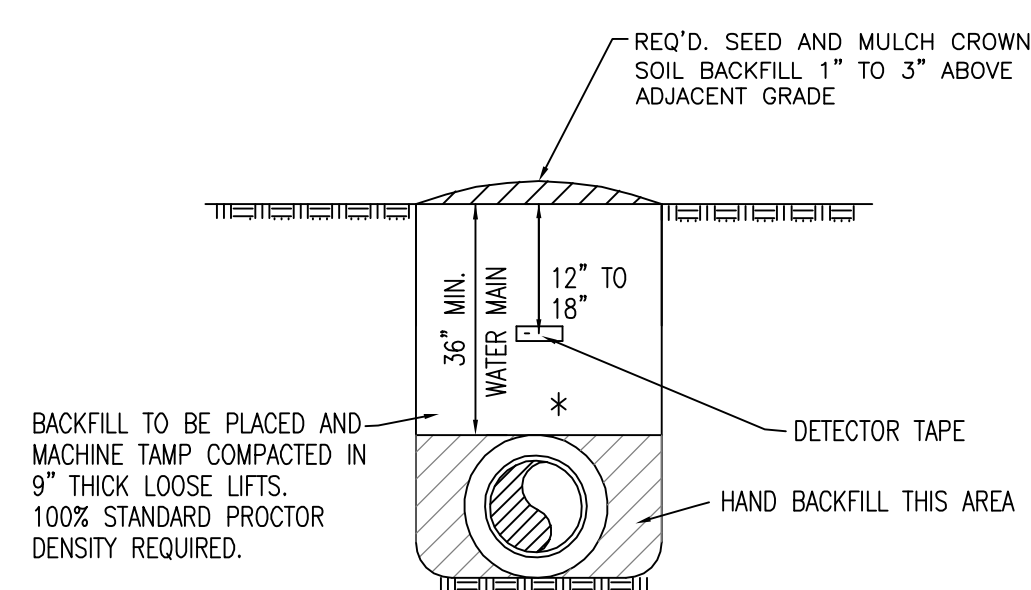


ANCHORAGE OF BENDS WHERE THRUST BLOCKS ARE NOT DESIRED - DEAD END ANCHORS

*NOTE:
MACHINE TRENCHING WILL BE ALLOWED; HOWEVER, SUFFICIENT CLEAR DISTANCE WILL BE REQUIRED SUCH THAT THE PIPE REST ON TRENCH BOTTOM AT ALL LOCATIONS.
THIS REQUIREMENT WILL BE STRICTLY ENFORCED.



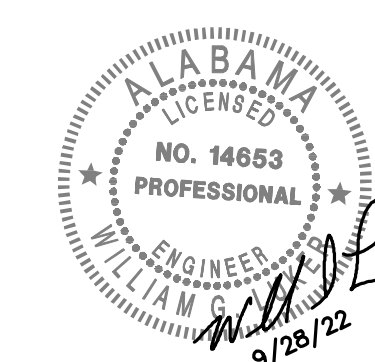
WATER MAIN INSTALLATION (PAVED AREAS) N.T.S.



WATER MAIN INSTALLATION (UNPAVED AREAS) N.T.S.

NOTES:

- ALL FITTINGS SHALL BE MECHANICAL JOINT CAST OR DUCTILE IRON WITH A MINIMUM OF 250 P.S.I. PRESSURE RATING MEETING THE REQUIREMENTS OF ANSI/AWWA-C110/A21.10 AND/OR ANSI/AWWA-C111/A21.11 STANDARDS.
- TRANSITION SLEEVES FOR DUCTILE IRON TO P.V.C. PIPE SHALL BE MECHANICAL JOINT CAST IRON WITH ALL REQUIRED GASKETS AND OTHER COMPONENTS.
- THRUST BLOCKS SHALL BE UTILIZED AT THE LOCATION OF TEES, BENDS, DEAD ENDS, AND OTHER LOCATIONS AS INDICATED HEREON. THRUST BLOCKS SHALL BE PLACED ON UNDISTURBED EARTH NEATLY TRIMMED, COMPACTED, AND PREPARED TO RECEIVE CONCRETE. CONCRETE SHALL BE 2,500 PSI MINIMUM AT 28 DAYS TEST. (SAK-CRETE OR OTHER PREMIXED MATERIALS ARE NOT ACCEPTABLE).
- THE COLOR OF THE FIRE HYDRANT BARRELS SHALL BE CHROME YELLOW



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JOB NO. : 22-0502 F.B. : N/A

REVISIONS		
NO.	DATE	REMARKS
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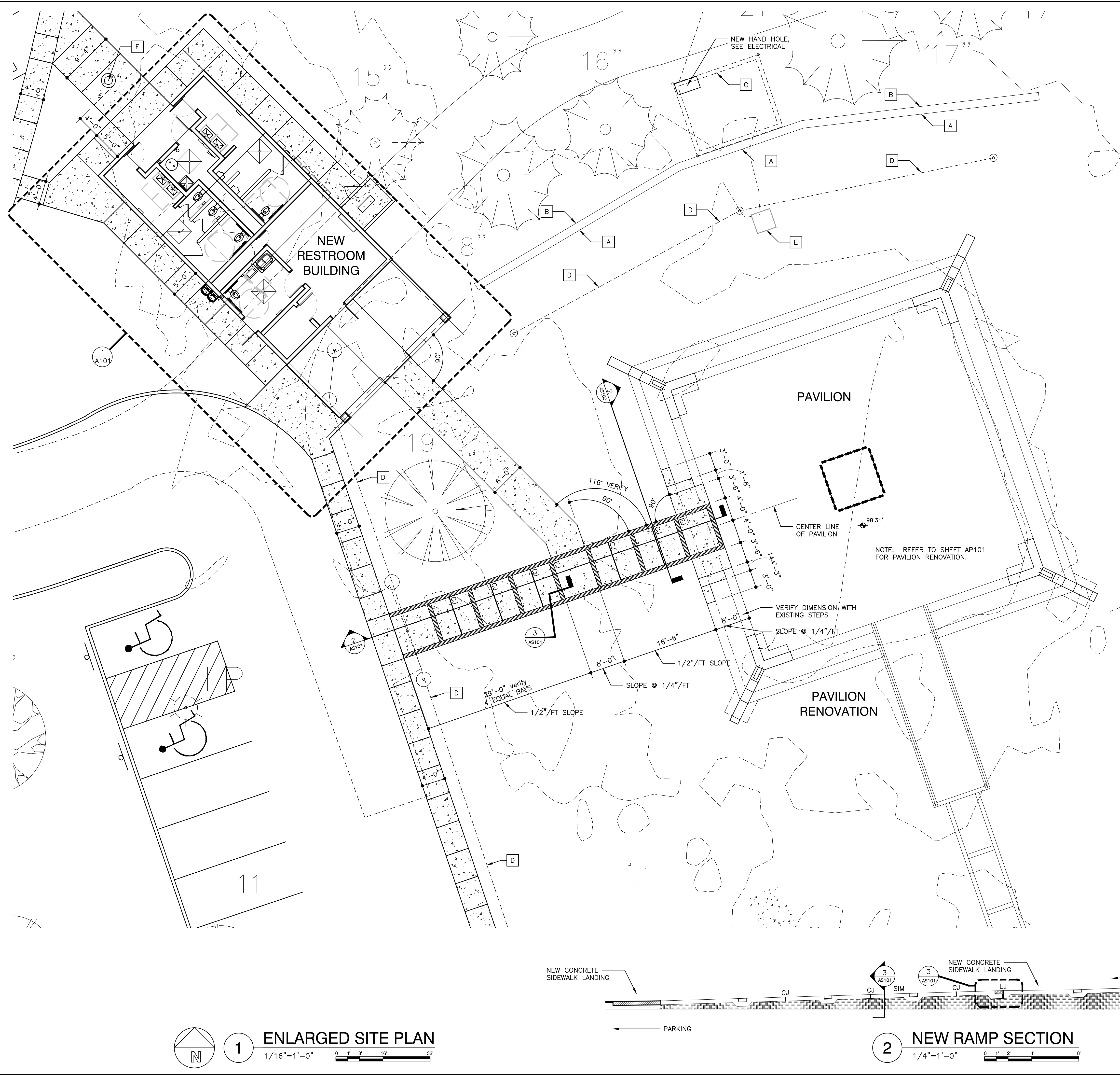
**MAWSS
WATERLINE
DETAILS**

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

C4.1



GENERAL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR PROPER MANAGEMENT OF ALL CONSTRUCTION AND DEMOLITION DEBRIS GENERATED BY THIS PROJECT. ALL CONSTRUCTION AND DEMOLITION WASTE SHALL BE MANAGED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND TO AN ADEM APPROVED DISPOSAL FACILITY.

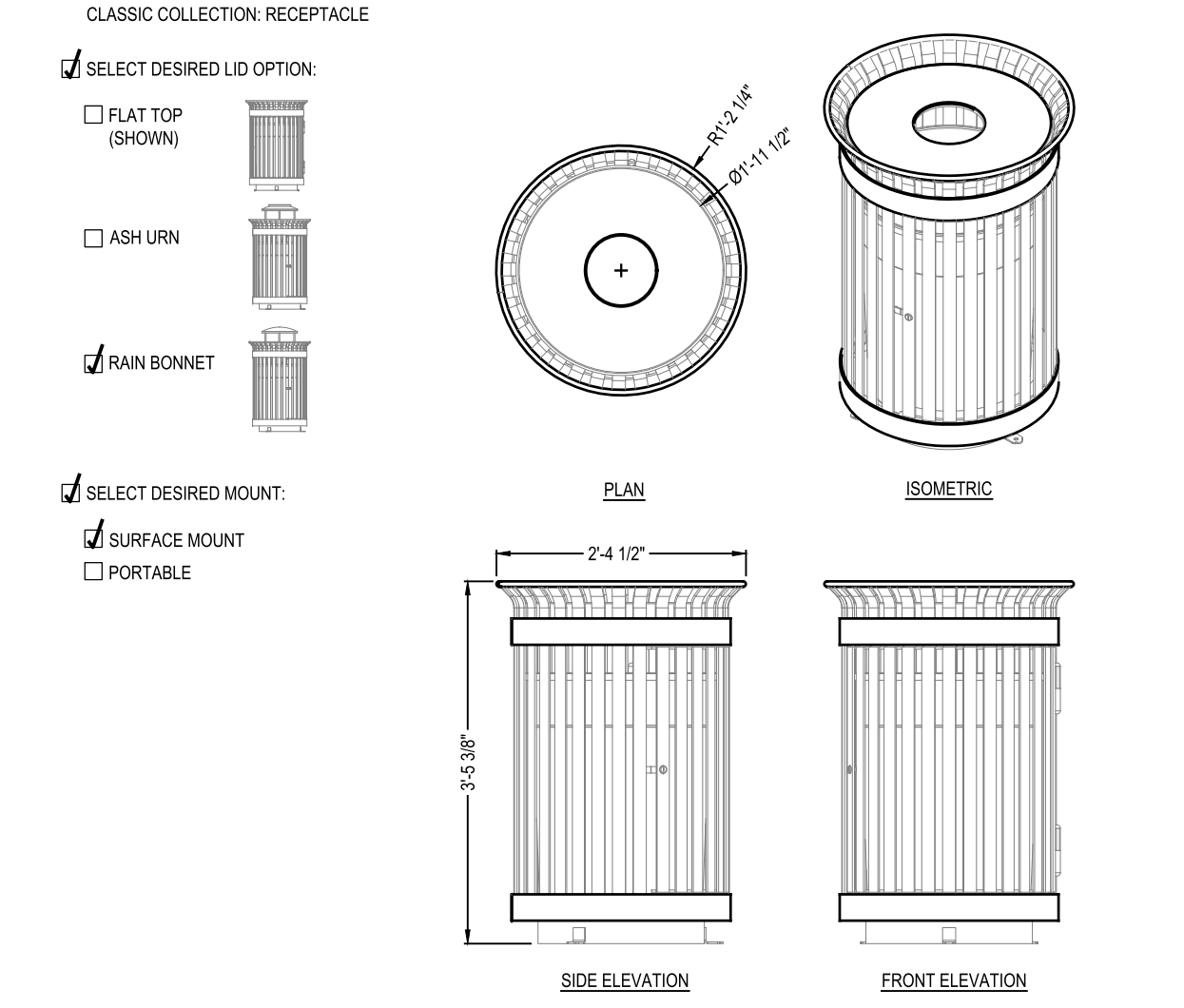
KEYNOTES

- A. CLEAN AND REPAIR EXISTING ROCK WALL.
- B. CLEAN, REPAIR AND PAINT BACK OF CMU WALL WITH ELASTOMERIC (WEIMER GREY).
- C. REMOVE EXISTING BUILDING INCLUDING FOOTINGS, SEE ELECTRICAL.
- D. REMOVE IN ITS ENTIRETY WOOD FENCING.
- E. CLEAN EXISTING MONUMENT.
- F. NEW TRASH RECEPTACLE, CONTRACTOR PROVIDED, CONTRACTOR INSTALLED. ANCHOR W/ STAINLESS STEEL TREADED RODS 3/4" DIA OR MATCH HOLE SIZE FOR DIA, 3" EMBED. THREADED RODS SHALL BE EPOXYED IN CONCRETE 3" EMBED.

BRICK EDGING NOTES

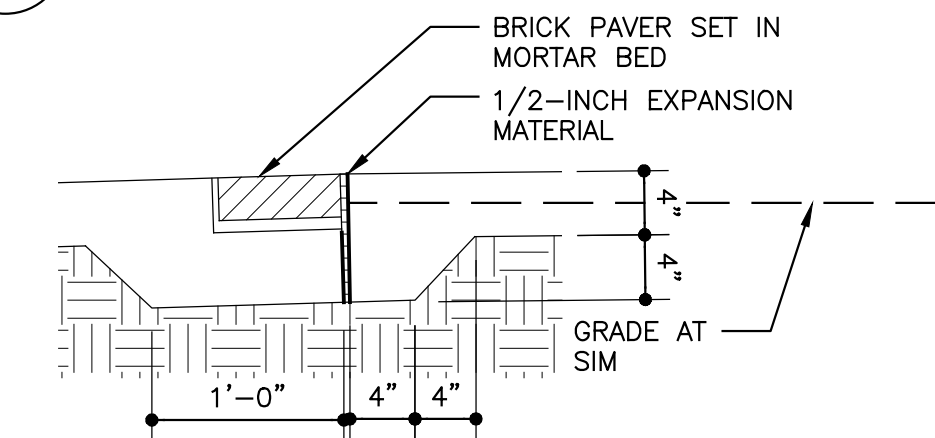
- NEW BRICK SHALL BE WITH OUT CORES AND VISUALLY MATCH EXISTING BRICK ON PAVILION FLOOR.
- SET BRICK EDGING IN 3/4" SETTING BED OF MORTAR.
- JOINTS BETWEEN BRICK SHALL BE 3/8" MORTAR JOINTS.
- MORTAR SHALL BE TYPE N.
- SETTING BED AND MORTAR JOINTS SHALL BE FULL THICK MORTAR WITH OUT VOIDS.

Ultra site
 ULTRASITE
 1675 LOCUST ST.
 RED BUD, IL 62278
 TOLL FREE: 1-800-458-5872
 www.ultra-site.com

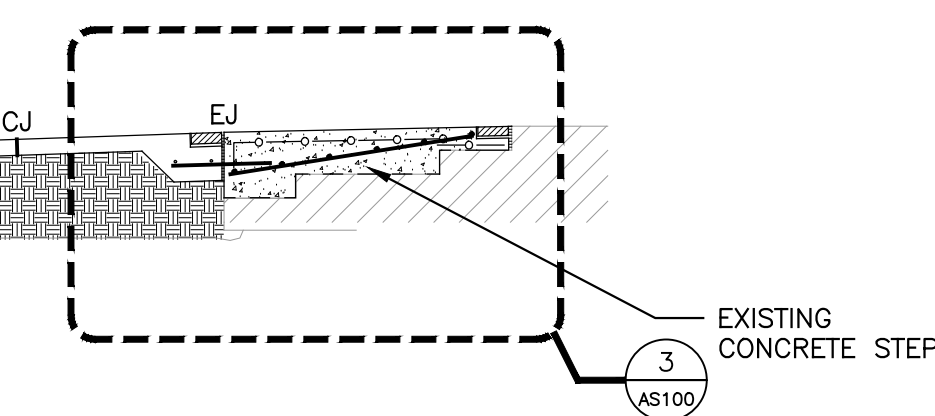


- Model #CL-36R14
- COLOR AS SELECTED FROM MFG STANDARDS
- INSTALL WITH TAMPER RESISTANT HARDWARE.

4 TRASH RECEPTACLE [F]
 N.T.S.



3 DETAIL
 1" = 1'-0"



1 ENLARGED SITE PLAN
 1/16" = 1'-0"

2 NEW RAMP SECTION
 1/4" = 1'-0"

TAG
 THE ARCHITECTS
 GROUP / INC
 710 DOWNTOWNER BOULEVARD
 MOBILE, ALABAMA 36609
 251-343-1811 tagarchitects.net

STATE OF ALABAMA
 DAVID M. BARR
 NO. 2519
 David M. Barr
 9-28-2022
 REGISTERED ARCHITECT

**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**
 ALABAMA
 MOBILE.

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE
 ENLARGED
 SITE PLAN

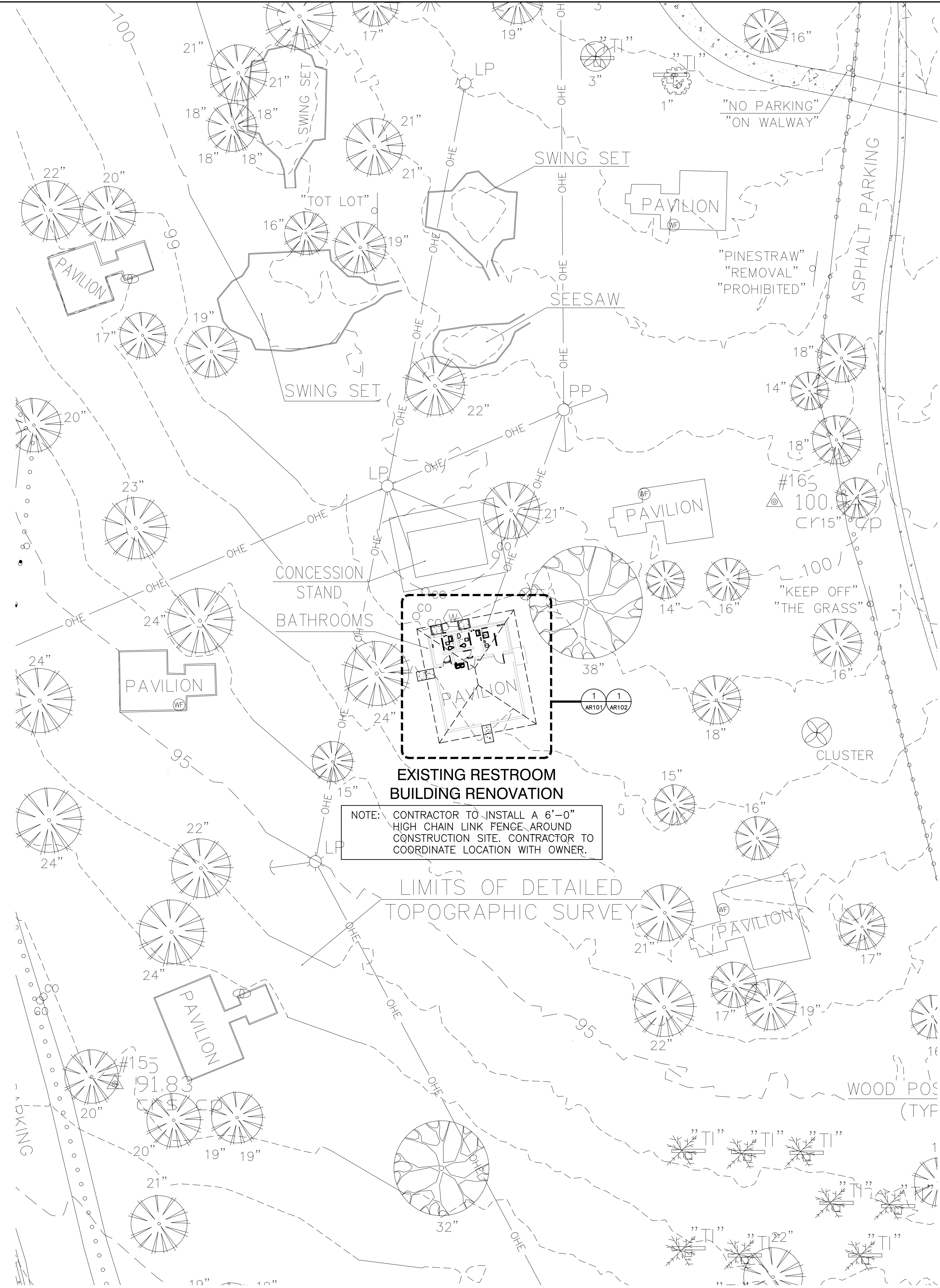
JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

AS101

WRITTEN SCALES AT DRAWING TITLE(S) ARE VALID ONLY FOR 24" x 36" SHEET SIZE.



EXISTING RESTROOM BUILDING RENOVATION
 NOTE: CONTRACTOR TO INSTALL A 6'-0" HIGH CHAIN LINK FENCE AROUND CONSTRUCTION SITE. CONTRACTOR TO COORDINATE LOCATION WITH OWNER.

GENERAL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR PROPER MANAGEMENT OF ALL CONSTRUCTION AND DEMOLITION DEBRIS GENERATED BY THIS PROJECT. ALL CONSTRUCTION AND DEMOLITION WASTE SHALL BE MANAGED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND TO AN ADEM APPROVED DISPOSAL FACILITY.
- CONTRACTOR TO INSTALL A 6'-0" HIGH CHAIN LINK FENCE AROUND CONSTRUCTION SITE. CONTRACTOR TO COORDINATE LOCATION WITH OWNER.



LANGAN PARK - AMPHITHEATER PAVILION & RESTROOMS

MOBILE, ALABAMA

REVISIONS

NO.	DATE	REMARKS
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SHEET TITLE
 EXISTING RESTROOM SITE PLAN

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

AS102



WRITTEN SCALES AT DRAWING TITLE(S) ARE VALID ONLY FOR 24" x 36" SHEET SIZE.

STRUCTURAL DESIGN CRITERIA

APPLICABLE CODES

- 2012 INTERNATIONAL BUILDING CODE
- ASCE 7-10 – MINIMUM DESIGN LOADS FOR BUILDINGS & OTHER STRUCTURES
- AISC 14TH EDITION – STEEL CONSTRUCTION MANUAL.

DESIGN GRAVITY LOADS

- ROOF DL = 10 PSF (TOP CHORD)
- ROOF LL = 20 PSF
- CEILING DL = 10 PSF (BOTTOM CHORD)

WIND LOADS (ASCE 7-10)

- ENCLOSURE CLASSIFICATION – ENCLOSED BUILDING
- WIND RISK CATEGORY = II
- WIND SPEED $V_{ult} = 155$ MPH $V_{asd} = 120$ MPH
- WIND EXPOSURE CATEGORY = "B"
- MEAN ROOF HT. = 13-FT.

TABLE-1
HIP ROOF (S:12)
MEAN ROOF HT. = 13 FT.

ZONE	TRIB. AREA	WIND COMPONENT PRESSURE				
		POSITIVE (+)	NEGATIVE (-)	OVERHANG		
ROOF	1	10	+24.9	-39.6	---	
		20	+22.7	-38.5	---	
		50	+19.8	-37.0	---	
		100	+17.6	-35.9	---	
		2	10	10	+24.9	-68.9
20	+22.7			-63.3	-69.3	
50	+19.8			-56.1	-67.7	
100	+17.6			-50.5	-66.4	
3	10			10	+24.9	-68.9
		20	+22.7	-63.3	-91.2	
		50	+19.8	-56.1	-58.2	
		100	+17.6	-50.5	-33.2	
		WALL	4	10	+43.2	-46.9
20	+41.3				-44.9	---
50	+38.7				-42.4	---
100	+36.8				-40.4	---
500	+32.2				-35.9	---
5	10		+43.2	-57.9	---	
			20	+41.3	-54.0	---
			50	+38.7	-48.8	---
			100	+36.8	-44.9	---
			500	+32.2	-35.9	---

TABLE-2
OPEN CANOPIES

ZONE	TRIBUTARY AREA (SQFT)	"OPEN STRUCTURE" CLEAR WIND FLOW COMPONENT PRESSURE (PSF)	
		POSITIVE (+)	NEGATIVE (-)
1	≤9	+37.4	-31.1
	>9, ≤36	+37.4	-31.1
	>36	+37.4	-31.1
2	≤9	+57.7	-48.2
	>9, ≤36	+57.7	-48.2
	>36	+37.4	-31.1
3	≤9	+74.8	-62.2
	>9, ≤36	+57.7	-48.2
	>36	+37.4	-31.1

NOTES:

- LOADS SHOWN IN TABLES ARE ULTIMATE LEVEL WIND PRESSURES.
- ALL PARTS AND COMPONENTS FORMING THE EXTERIOR ENVELOPE OF THE BUILDING SHALL BE DESIGNED TO RESIST THE COMPONENT & CLADDING LOADS INDICATED. POSITIVE SIGN SIGNIFIES LOADS ACTING TOWARD THE SURFACE. NEGATIVE LOADS SIGNIFY LOADS ACTING AWAY FROM THE SURFACE.
- COMPONENT & CLADDING PRESSURES SHOWN FOR "OVERHANGS" INCLUDES WIND PRESSURE FROM BOTH UPPER AND LOWER SURFACES OF THE ROOF OVERHANG. WHERE INDEPENDENTLY FRAMED SOFFITS ARE PROVIDED, THE SOFFIT SYSTEM (UNDERSIDE OF OVERHANG) MAY BE DESIGNED USING BOTH POSITIVE AND NEGATIVE COMPONENT PRESSURES SHOWN FOR WALLS (ZONE 4 & 5).

SCHEDULE OF STRUCTURAL DRAWINGS

- S001 GENERAL NOTES
- S002 GENERAL NOTES
- S101 FOUNDATION/SLAB PLAN
- S102 ROOF FRAMING PLAN
- S201 MASONRY SECTIONS AND DETAILS
- S301 FOUNDATION SECTIONS AND DETAILS
- S401 FRAMING SECTIONS AND DETAILS
- S402 FRAMING SECTIONS AND DETAILS

STRUCTURAL SITE VISITS

SITE VISITS DURING CONSTRUCTION WILL BE MADE BY THE STRUCTURAL ENGINEER IN ACCORDANCE WITH THE SCHEDULE STATED BELOW AND AT OTHER TIMES AS DEEMED APPROPRIATE. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER WHEN THE PROJECT HAS PROGRESSED TO THE POINT WHERE THE ITEMS TO BE INSPECTED ARE IN PLACE AND COMPLETE. FAILURE TO NOTIFY MAY REQUIRE REMOVAL OF COMPLETE CONSTRUCTION IN ORDER FOR THE SCHEDULED INSPECTIONS.

SCHEDULE OF STRUCTURAL SITE VISITS:

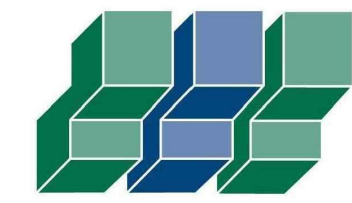
- UPON COMPLETION OF WOOD TRUSS INSTALLATION INCLUDING END ANCHORAGE.

STRUCTURAL TESTS & SPECIAL INSPECTIONS:

STRUCTURAL TESTS AND SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 17 OF THE 2012 INTERNATIONAL BUILDING CODE. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED TESTS AND INSPECTIONS WITH THE OWNERS DESIGNATED AGENT AND WITH THE SPECIAL INSPECTORS ASSIGNED TO THE PROJECT. THE EXTENT OF SPECIAL TESTS AND STRUCTURAL INSPECTIONS ARE IDENTIFIED IN THE SCHEDULE OF SPECIAL INSPECTION SERVICES AS CONTAINED IN THE PROJECT SPECIFICATIONS. FAILURE TO PERFORM THE REQUIRED INSPECTIONS AND TESTS MAY REQUIRE THE REMOVAL OF THE COMPLETED CONSTRUCTION SO THAT THE SPECIFIED TESTS AND INSPECTIONS CAN BE PERFORMED AS REQUIRED.

ABBREVIATIONS:

- AFF – ABOVE FINISHED FLOOR
- ARCH – ARCHITECTURAL
- BC – BOTTOM CHORD
- BCX – BOTTOM CHORD EXTENSION
- BFF – BELOW FINISHED FLOOR
- BLDG – BUILDING
- BOS – BOTTOM OF STEEL
- BP – BASE PLATE
- BRG – BEARING
- BTM – BOTTOM
- BTWN – BETWEEN
- CC – CENTER TO CENTER
- CLR – CLEAR COVER
- COL – COLUMN
- CONT – CONTINUOUS
- DBA – DEFORMED BAR ANCHOR
- DET – DETAIL
- DWG – DRAWING
- EA – EACH
- EF – EACH FACE
- ELEV – ELEVATION
- EQ – EQUAL
- EW – EACH WAY
- EXIST – EXISTING
- EXP ANCH – EXPANSION ANCHOR
- EXP. JT. – EXPANSION JOINT
- FFE – FINISHED FLOOR ELEVATION
- FNDN – FOUNDATION
- FOC – FACE OF CONCRETE
- FOM – FACE OF MASONRY
- FOS – FACE OF STUD
- FTG – FOOTING
- GALV – GALVANIZED
- HDG – HOT DIPPED GALVANIZED
- HORIZ – HORIZONTAL
- HSA – HEADED STUD ANCHOR
- HSB – HIGH STRENGTH BOLT
- JST – JOIST
- LG – LONG
- LLH – LONG LEG HORIZONTAL
- LLV – LONG LEG VERTICAL
- LLBB – LONG LEG BACK TO BACK
- MAT'L – MATERIAL
- MAX – MAXIMUM
- MECH – MECHANICAL
- MCJ – MASONRY CONTROL JOINT
- MEJ – MASONRY EXPANSION JOINT
- MO – MASONRY OPENINGS
- MRA – MASONRY RIGID ANCHOR
- MIN – MINIMUM
- NIC – NOT IN CONTRACT
- NTS – NOT TO SCALE
- o.c. – ON CENTER
- O/O – OUT TO OUT
- PAF – POWER ACTIVATED FASTENER
- REF – REFERENCE
- REIN – REINFORCE
- REQ'D – REQUIRED
- SEC – SECTION
- SHT – SHEET
- SPC'S – SPACES
- STD – STANDARD
- STL – STEEL
- TCX – TOP CHORD EXTENSION
- TOF – TOP OF FOOTINGS
- TOM – TOP OF MASONRY
- TOS – TOP OF STEEL
- TOW – TOP OF WALL
- TYP – TYPICAL
- UNO – UNLESS NOTED OTHERWISE
- VERT – VERTICAL
- W/ – WITH
- WP – WORKING POINT
- WWR – WELDED WIRE REINFORCEMENT



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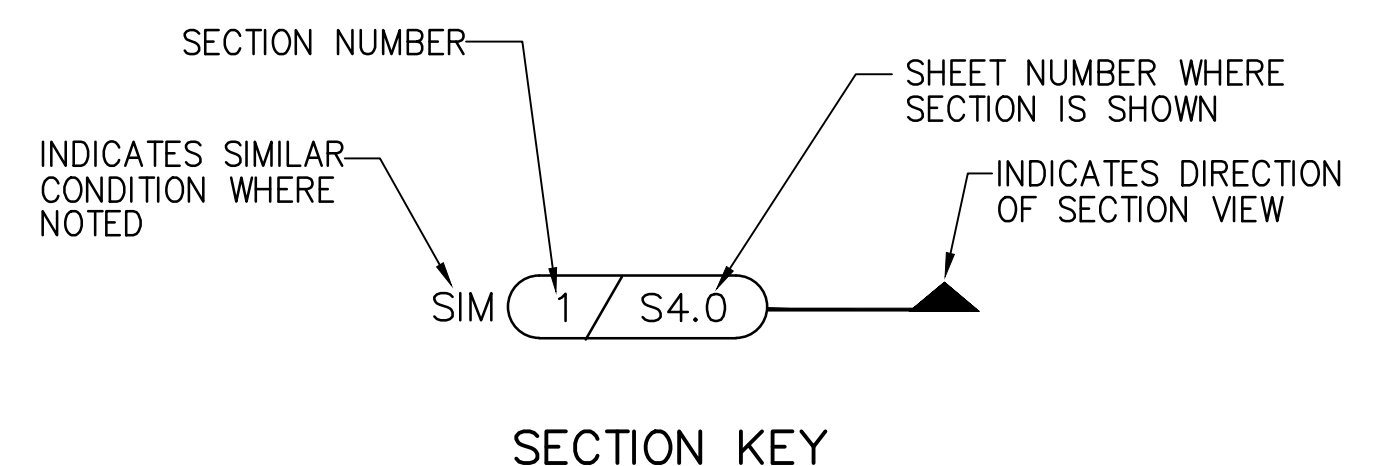
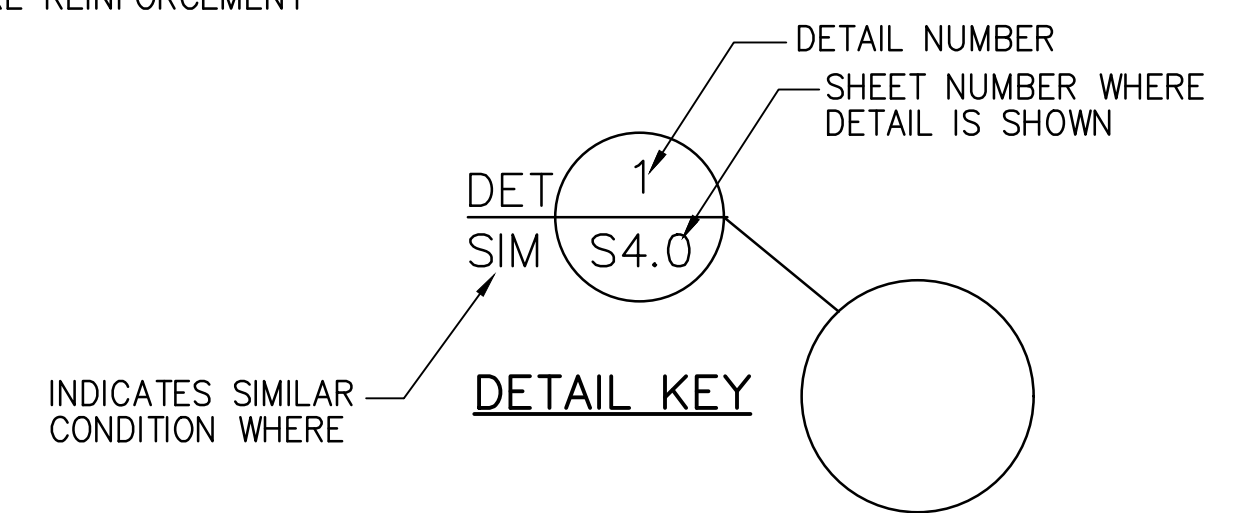
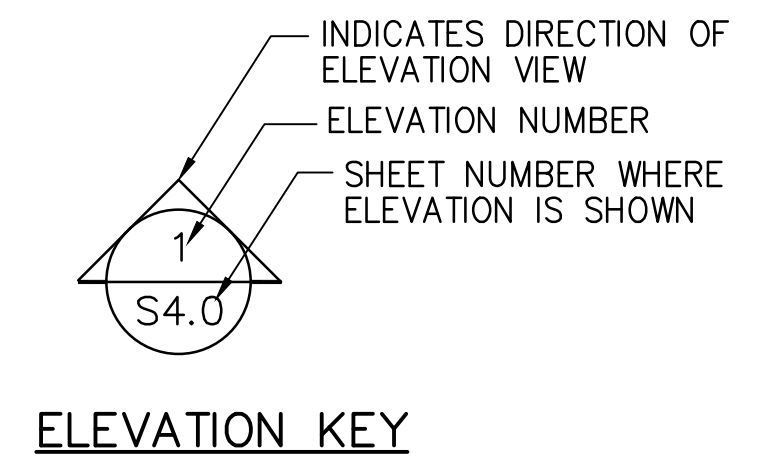
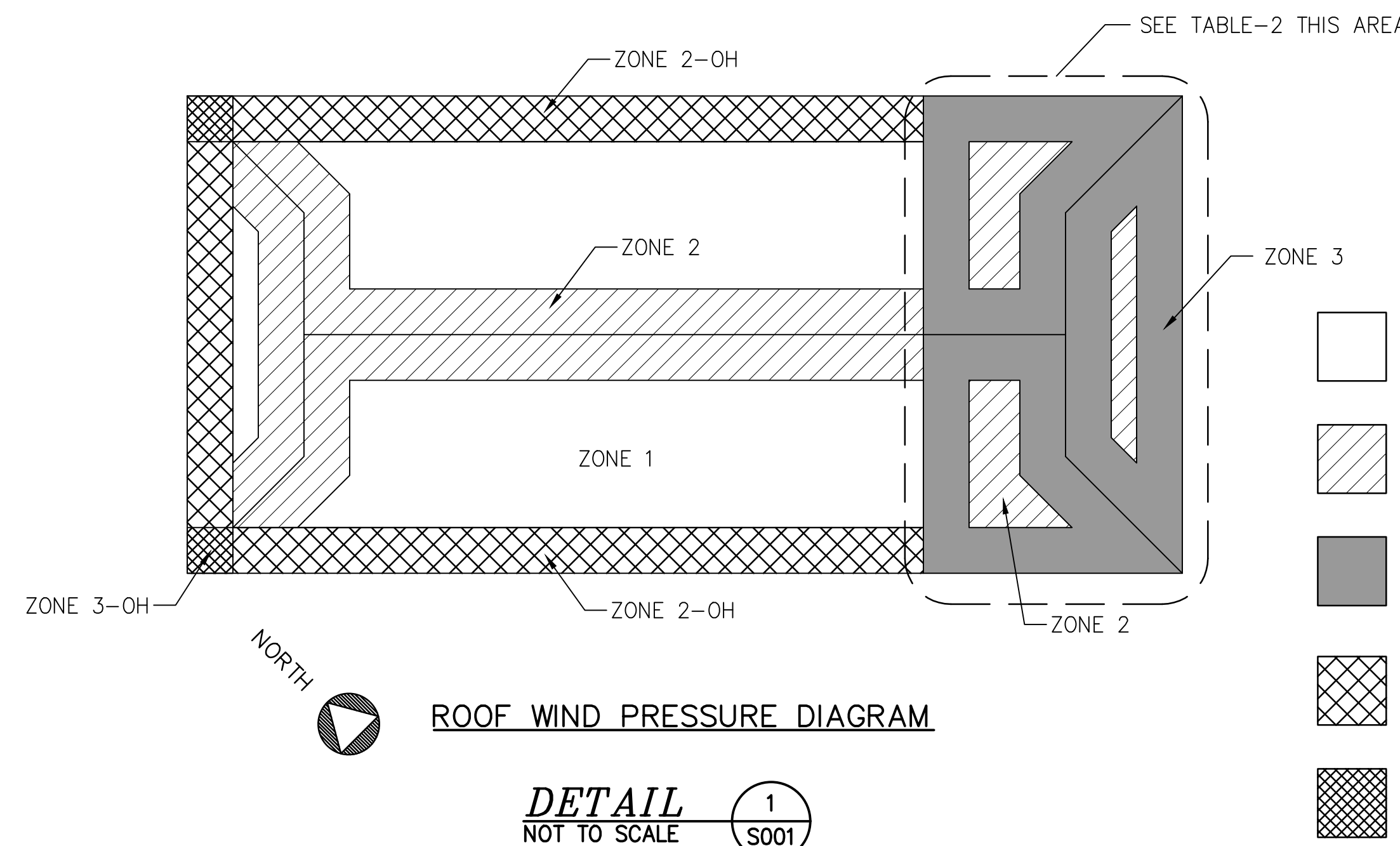
GENERAL NOTES

JOB NO. 2113

DATE, SEPT. 28, 2022

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S001



STRUCTURAL GENERAL NOTES

GENERAL:

- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, SHOP DRAWINGS AND SPECIFICATIONS.
- ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.
- A RECORD SET OF APPROVED SHOP DRAWINGS SHALL BE KEPT IN THE FIELD BY THE GENERAL CONTRACTOR.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECT'S PLANS AND THE EXISTING CONDITIONS BEFORE STARTING WORK.
- SEE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS FOR OPENINGS IN WALLS AND IN ROOF AND FLOOR SYSTEMS.
- VERIFY ALL MECHANICAL EQUIPMENT WEIGHTS, LOCATIONS AND ASSOCIATED OPENINGS WITH MECHANICAL CONTRACTOR. NOTIFY ENGINEER IF THE ACTUAL EQUIPMENT WEIGHT EXCEEDS THE DESIGN WEIGHT SHOWN ON THE DRAWINGS.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY BRACING, SHORING, GUYING, ETC. AND OTHER METHODS TO PREVENT EXCESSIVE STRESSES DURING CONSTRUCTION. THESE PROVISIONS ARE TO REMAIN IN PLACE UNTIL SUFFICIENT PERMANENT MEMBERS ARE CONSTRUCTED TO ENSURE THE SAFETY OF THE STRUCTURE.
- UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

SHOP DRAWINGS:

- THE GENERAL CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS BEFORE SUBMITTING FOR APPROVAL. SHOP DRAWINGS, REVIEWED BY THE GENERAL CONTRACTOR FOR CONCRETE MATERIALS, REINFORCING STEEL, STRUCTURAL STEEL, AND WOOD ROOF TRUSSES SHALL BE SUBMITTED TO THE ARCHITECT AND/OR ENGINEER AND A STAMPED APPROVAL RECEIVED PRIOR TO FABRICATION. INSTALLATION SHALL BE MADE FROM APPROVED SHOP DRAWINGS ONLY.
- REPRODUCTION & REUSE OF CONTRACT DRAWINGS FOR THE PURPOSE OF PREPARING SHOP DRAWINGS IS STRICTLY PROHIBITED. ELECTRONIC FILES OF THE STRUCTURAL FRAMING PLANS MAY BE PROVIDED FOR THE PURPOSE OF PREPARING SHOP DRAWINGS FOR A NOMINAL FEE OF \$100 PER SHEET.
- THE FABRICATOR SHALL HIGHLIGHT CHANGES MADE IN SHOP DRAWINGS WHICH DO NOT COMPLY WITH THE DESIGN DRAWINGS AND RECEIVE APPROVAL PRIOR TO COMMENCING WITH FABRICATION OF SAME.
- SHOP DRAWING APPROVAL SHALL NOT CONSTITUTE ACCEPTANCE OF FABRICATOR CHANGES TO THE CONTRACT DOCUMENTS, ONLY GENERAL CONFORMANCE TO THE DESIGN INTENT. FABRICATOR CHANGES THAT RESULT IN MODIFICATIONS TO THE CONTRACT SUM MUST BE APPROVED IN ACCORDANCE WITH PROVISIONS CONTAINED IN THE OWNER-CONTRACTOR AGREEMENT OR PROCEDURES OUTLINED IN THE CONTRACT MANUAL.
- ONLY SHOP DRAWINGS MARKED "APPROVED" OR "APPROVED AS NOTED" MAY BE RELEASED FOR FABRICATION. SHOP DRAWINGS WITH ANY OTHER MARKINGS MUST BE REVISED AND AN APPROVED COPY RECEIVED BY THE FABRICATOR PRIOR TO FABRICATION OF THE MATERIAL. MATERIAL FABRICATED WITHOUT PROPER APPROVAL IS SUBJECT TO REJECTION.
- REVIEW OF SHOP DRAWINGS IS FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE FABRICATOR IS RESPONSIBLE FOR DIMENSIONS AND QUANTITIES ASSOCIATED WITH THE FABRICATION OF THEIR RESPECTIVE PARTS AND PORTIONS OF THE PROJECT. MEANS AND METHODS ASSOCIATED WITH THE FABRICATION OF ANY MATERIAL SHALL REMAIN THE RESPONSIBILITY OF THE FABRICATOR AS SHALL THE RESPONSIBILITY FOR THE COORDINATION OF INSTALLATION SEQUENCES AFFECTING OTHER TRADES.

FOUNDATIONS/SOILS:

- FOUNDATION DESIGN IS BASED ON THE INFORMATION CONTAINED IN THE "SOILS EXPLORATION AND GEOTECHNICAL ENGINEERING STUDIES FOR THE PROPOSED ADDITIONS AT LANGAN PARK IN MOBILE, ALABAMA" (GET PROJECT NUMBER 22-160) AS PREPARED BY GEOTECHNICAL ENGINEERING TESTING DATED JULY 13, 2022. PREPARATION OF THE SITE INCLUDING INITIAL CLEARING, FILL / BACKFILL MATERIAL, AND RELATED COMPACTION REQUIREMENTS SHALL BE AS RECOMMENDED IN THE REFERENCED REPORT.
- ALL FOOTINGS TO BEAR ON UNDISTURBED EARTH OR PROPERLY COMPACTED STRUCTURAL FILL AT ELEVATIONS SHOWN ON PLANS AND DETAILS.
- ALL FOOTINGS, OR PORTIONS THEREOF BELOW GRADE, MAY BE EARTH FORMED BY NEAT EXCAVATIONS. WHERE SOILS ARE NOT SUITABLE TO SERVE AS EARTH FORMS OR WHERE THE SOILS SLOUGH INTO THE FOUNDATION EXCAVATIONS, THEN THE SIDES OF THE FOUNDATIONS SHALL BE FORMED.
- FOOTINGS TO BE CENTERED ON WALLS OR COLUMNS UNLESS NOTED OTHERWISE.
- SEE SOILS REPORT FOR PREPARATION OF SOILS AT BUILDING PAD. ALL SOILS WORK, INCLUDING BACKFILL OF UTILITY TRENCHES AND THE VERIFICATION OF BEARING CAPACITY OF SOILS, SHALL BE UNDER THE DIRECTION OF A QUALIFIED SOILS ENGINEER. PROXIMITY OF UTILITY TRENCHES TO BUILDING FOUNDATION SYSTEM SHALL BE AS APPROVED BY THE ARCHITECT AND/OR SOILS ENGINEER TO ENSURE INTEGRITY OF THE BEARING SOILS.

ALLOWABLE NET SOIL BEARING PRESSURES

- INDIVIDUAL SPREAD FOOTINGS = 1,750 PSF
CONTINUOUS (STRIP) FOOTINGS = 1,300 PSF
- STEP FOUNDATION LEVELS AS REQUIRED TO MAINTAIN AT LEAST 12-INCH MINIMUM SOIL COVERAGE BY EXISTING NATURAL GRADE OVER THE TOP OF THE FOUNDATION.

CONCRETE WORK:

- CONCRETE SHALL HAVE THE MINIMUM STRENGTH AND MEET THE PROPERTIES AS DESCRIBED BELOW FOR THE VARIOUS CLASSES OF CONCRETE & GROUT:

MIX TYPE	SUPER P	MAX. SLUMP **	W/C RATIO	% AIR	MAX. AGGR.	COMMENT	LOCATION
2500 PSI	N/A	8"-10"	-----		3/8"	COARSE GROUT PER ASTM C476	CMU FILL
4000 PSI	N/A	4" MAX.	0.50 MAX.	4-6			FOUNDATIONS
** ##/## INDICATES SLUMP PRIOR TO/AFTER ADDITION OF SUPER P TO MIX.							

- ALL CONCRETE CONSTRUCTION SHALL CONFORM TO THE 2013 "ACI MANUAL OF CONCRETE PRACTICE."
- PORTLAND CEMENT SHALL CONFORM TO ASTM C 150, TYPE I OR II.
- ALL AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL MEET ASTM C33.
- ALL REINFORCING TO MEET ASTM A 615, GRADE 60.
- ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED PER CRSI AND ACI STANDARDS, INCLUDING CONCRETE COVER AND BAR SUPPORTS (DESIRED METHOD OF SUPPORTING TOP BARS IN THICK MATS TO BE VERIFIED WITH ENGINEER.) PROVIDE CORNER BARS AT ALL FOOTINGS AND WALL INTERSECTIONS TO MATCH HORIZONTAL REINFORCING IN SIZE AND SPACING. AT INTERSECTIONS OF CONTINUOUS AND SPREAD FOOTINGS EXTEND ALL BARS TO FAR SIDE OF INTERSECTING FOOTING. LAP BARS AT ALL SPLICES, INCLUDING CORNER BARS AND DOWELS, IN ACCORDANCE WITH SPLICE SCHEDULE, OR IN LIEU THEREOF IN ACCORDANCE WITH ACI 318 REQUIREMENTS FOR CLASS "B" TENSION LAPS, 48 BAR DIAMETERS, MIN.
- ALL FOUNDATION REINFORCING SHALL BE SUPPORTED BY CORROSION TREATED CHAIRS, BOLSTERS, OR ACI APPROVED PRECAST REINFORCING SUPPORTS, WITH APPROPRIATE BASES OR SAND CHAIRS, DO NOT USE CMU BLOCKS, SHARDS, OR BRICKS. REINFORCING OR OTHER METAL BARS OR DEGRADABLE STAKES, DRIVEN INTO THE GROUND WILL NOT BE ALLOWED.
- CONCRETE PROTECTION FOR REINFORCING: 3" AT FOOTINGS AND GRADE BEAMS; 2" AT FORMED SURFACES LATER EXPOSED TO SOIL;
- NO ALUMINUM TO BE EMBEDDED IN ANY CONCRETE.
- NO HOLES OR OPENINGS THROUGH FOOTINGS WITHOUT ENGINEERS APPROVAL.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4".
- ALL FOOTINGS SHALL HAVE KEYED CONSTRUCTION JOINTS SPACED AT 80 FEET MAXIMUM ON CENTER.

MASONRY:

- HOLLOW CONCRETE BLOCK (MASONRY) UNITS SHALL CONFORM TO ASTM C 90, LIGHTWEIGHT, TYPE 1 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI ON THE NET AREA AND 1000 PSI ON THE GROSS AREA ($f_m = 1500\text{psi}$).
- ALL MORTAR FOR USE IN MASONRY SHALL CONFORM TO ASTM C 270, TYPE M OR S. ALL GROUT FOR USE IN MASONRY SHALL CONFORM TO ASTM C 476, MIN. 2500 PSI AND BE NOT LESS THAN A 7-1/2 SACK MIX.
- IN GENERAL, COARSE AGGREGATE GROUT SHALL BE USED FOR ALL NOMINAL CMU SIZES 8" AND ABOVE. FINE AGGREGATE GROUT SHALL BE USED FOR ALL NOMINAL CMU SIZES LESS THAN 8".
- REINFORCING BARS TO MEET ASTM A 615, GRADE 60.
- REINFORCE MASONRY AT BEARING POINTS OF ALL BEAMS, LINTELS, ETC. WITH 1-#5 (CONTINUOUS TO FOUNDATION) IN EACH BLOCK CORE BENEATH BEARING PLATES UNLESS NOTED OTHERWISE.
- PROVIDE AT LEAST 2 VERTICAL BARS AT EACH END, CORNERS, AND INTERSECTIONS OF ALL WALLS AND ADJACENT TO CONTROL JOINTS. SEE WALL SECTIONS AND SCHEDULES FOR TYPICAL VERTICAL REINFORCING.
- VERTICAL AND HORIZONTAL REINFORCING SHALL BE CONTINUOUS AND LAPPED 48-BAR DIAMETERS, MINIMUM.
- HOLD VERTICAL BARS STRAIGHT AND TRUE AND ACCURATELY LOCATED IN WALL AS DETAILED. INSTALL REBAR POSITIONERS @ 4'-0" o.c. MAXIMUM THAT ARE DESIGNED TO HOLD REBAR IN PROPER LOCATION WITHIN THE GROUTED CELL.
- PROVIDE A MINIMUM OF 1/2" GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
- PROVIDE STANDARD NO. 9 GAGE LADDER TYPE JOINT REINFORCEMENT AT 16" o.c. FOR TYPICAL HORIZONTAL REINFORCING IN BACKUP WYTHE.
- ALL REINFORCED MASONRY COLUMN AND WALL SECTIONS REQUIRE DOWELS FROM FOOTING, SAME SIZE AND QUANTITY AS VERTICAL REINFORCEMENT.
- GROUT FILL ALL CELLS, ALL WALLS BELOW GRADE. SLUSH JOINT BETWEEN WYTHES BELOW GRADE.
- ALL CMU TO BE LAID IN RUNNING BOND PATTERN.
- THE CONTRACTOR SHALL DESIGN, FABRICATE AND INSTALL BRACING THAT WILL ASSURE THE STABILITY OF THE MASONRY DURING CONSTRUCTION.
- LOW-LIFT GROUTING SHALL BE USED FOR ALL REINFORCED MASONRY CONSTRUCTION. LIMIT MAXIMUM GROUT LIFTS TO 5'-0" MAX.
- THE TOP OF EACH GROUT POUR SHALL BE 1" BELOW THE BED JOINT.
- REINFORCEMENT, REBAR POSITIONERS, AND TIES SHALL BE PLACED PRIOR TO GROUTING.

STEEL:

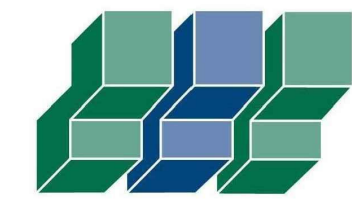
- STRUCTURAL STEEL SHALL MEET THE LATEST AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- ALL WIDE FLANGE SHAPES TO MEET ASTM A992 - $f_y = 50\text{ksi}$. ALL OTHER SHAPES, PLATES, ANGLES, ETC. TO MEET ASTM A36 - $f_y = 36\text{ksi}$.
- ALL BOLTS TO MEET ASTM A325 HIGH STRENGTH, WITH WASHERS AS REQUIRED, (EXCEPT ANCHOR BOLTS TO MEET ASTM F1554 GRADE 55).
- ANCHOR BOLTS SHALL NOT BE MODIFIED UNLESS APPROVED BY ENGINEER.
- ALL BEAMS AND DIAGONAL BRACING SHALL NOT BE RELEASED FROM THE HOIST CABLE UNTIL THE MEMBER IS SECURED BY A MINIMUM OF TWO BOLTS PER END.
- WELDING SHALL CONFORM TO THE STANDARDS SET FORTH IN AWS D1.0 PUBLICATION "CODE FOR WELDING IN BUILDING CONSTRUCTION".
- ALL SHOP CONNECTIONS TO HAVE 1/4" FILLET WELDS MINIMUM UNLESS NOTED AS BOLTED CONNECTIONS.
- CONNECTIONS OF MATERIAL IN THE FIELD SHALL BE WITH A 1/4" FILLET WELD MINIMUM UNLESS NOTED OTHERWISE. MATERIAL SHOWN TOUCHING SHALL BE CONNECTED WITH 1/4" CONTINUOUS FILLET WELDS UNLESS NOTED OTHERWISE.
- ALL FIELD WELDS TO BE WITH E70XX ELECTRODES. BRUSH AND CLEAN ALL FIELD WELDS AND COAT WITH A COLD-GALVANIZING REPAIR PRIMER.
- ALL ERECTION DRAWINGS SHALL SHOW ALL FIELD WELDS REQUIRED.
- ELEVATIONS FOR TOP OF STEEL ARE NOTED ON DRAWINGS. BEAMS FRAME FLUSH AT TOP UNLESS NOTED (+/-).
- ALL STRUCTURAL STEEL SHALL HAVE THE FOLLOWING SURFACE PREPARATION IN ACCORDANCE WITH THE STRUCTURAL STEEL PAINTING COUNCIL REQUIREMENTS FOR THE FOLLOWING GRADE: SSPC-SP3 "POWER TOOL CLEANING".
- ALL STRUCTURAL STEEL SHALL BE SHIPPED WITH ONE COAT OF SHOP PRIMER.
- NO OPENINGS TO BE PLACED IN BEAM WEBS OR FLANGES WITHOUT ENGINEER'S APPROVAL.
- THE STEEL FRAME IS "NON-SELF SUPPORTING". ADEQUATE TEMPORARY SUPPORT MUST BE PROVIDED BY THE CONTRACTOR UNTIL REQUIRED CONNECTIONS OR ELEMENTS ARE IN PLACE.
- THE FOLLOWING MINIMUM INSPECTION SHALL BE PROVIDED FOR FIELD WELDS:
 - FIELD WELDED CONNECTIONS - 100% VISUAL INSPECTION

LUMBER:

- UNLESS NOTED OTHERWISE, ALL LUMBER TO BE #2 KD SOUTHERN YELLOW PINE WITH A MAXIMUM MOISTURE CONTENT OF 19 %.
- ALL PLYWOOD SHALL BE APA RATED SHEATHING.
- ALL EXTERIOR WALLS AND GABLE STUDS TO BE FRAMED WITH #2 SOUTHERN YELLOW PINE 2x4 STUDS SPACED AT 16" o.c.
- ALL EXTERIOR PORCH CEILINGS AND SOFFITS SHALL BE COVERED ON THE UNDERSIDE WITH 15/32" EXTERIOR GRADE PLYWOOD AND FASTENED AS INDICATED FOR PLYWOOD CEILING DIAPHRAGMS. PLYWOOD SHALL BE PLACED DIRECTLY OVER CEILING FRAMING MEMBERS. FASTEN PLYWOOD DIRECTLY TO FRAMING USING 8d NAILS @ 6" o.c. ALONG PANEL EDGES AND BOUNDARIES WITH "FIELD" NAILING AT 6" o.c.
- ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED. ALL LUMBER EXPOSED TO THE EXTERIOR ENVIRONMENT SHALL BE PRESSURE TREATED.
- ROOF DECK SHALL BE 19/32" APA RATED EXPOSURE 1 PLYWOOD SHEATHING ATTACHED WITH 8D RING SHANK NAILS AT 6" o.c. AT SUPPORTED EDGES AND 8" o.c. IN FIELD. SPECIAL FASTENING REQUIREMENTS WITHIN 4 FEET OF ROOF HIPS, RIDGES, VALLEYS, AND EDGE OF ROOF SHALL BE WITH 8d RING SHANK NAILS @ 6" o.c. AT PANEL EDGES AND 6" o.c. IN FIELD. INSTALL PSC SHEATHING CLIPS BY SIMPSON STRONG TIE, INC. AT ALL UNSUPPORTED EDGES OF ROOF DECK (ONE PER SPAN).
- AS A MINIMUM, ANCHOR AND NAIL FRAMING TO COMPLY WITH "TABLE 2304.9.1 - FASTENING SCHEDULE" OF THE INTERNATIONAL BUILDING CODE.
- ALL ANCHOR BOLTS FOR ANCHORING TREATED SILL PLATES SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM 153 (MIN. G90 COATING).
- ALL CLIPS, STRAPS, OR OTHER PRE MANUFACTURED MATERIAL SHALL BE MANUFACTURED BY SIMPSON STRONG TIE, INC. AND SHALL HAVE A Z-MAX COATING (G185 COATING).
- ALL CONNECTORS AND HARDWARE SPECIFIED SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SIZE, QUALITY, AND LOCATION OF FASTENERS SHALL CONFORM TO THE MANUFACTURER'S PUBLISHED LITERATURE.
- ALL NAILS, SCREWS, BOLTS AND OTHER FASTENERS IN CONTACT WITH TREATED WOOD SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM 153, OR STAINLESS STEEL, 300 SERIES.
- UNLESS NOTED OTHERWISE, ALL EXTERIOR WALL SHEATHING TO BE 15/32" PLYWOOD ATTACHED DIRECTLY TO WALL FRAMING MEMBERS. BLOCK ALL PANEL EDGES AND NAIL WITH 8d COMMON NAILS @ 6" o.c. AT ALL PANEL EDGES, BLOCKING, AND TOP & BOTTOM PLATES WITH FIELD NAILING @ 12" o.c.

PREFABRICATED WOOD ROOF TRUSSES:

- ALL PREFABRICATED WOOD TRUSSES SHALL BE DESIGNED TO MEET THE LOADS SPECIFIED. FABRICATION AND ERECTION SHALL BE PER TRUSS PLATE INSTITUTE RECOMMENDATIONS AS CONTAINED IN THE APPROPRIATE PUBLICATIONS.
- SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR EACH TYPE OF TRUSS SPECIFIED AND SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF ALABAMA.
- ALL LUMBER USED IN THE MANUFACTURING OF THE ROOF TRUSSES SHALL BE #2 KD SOUTHERN PINE OR BETTER.
- COORDINATE TRUSS WEB CONFIGURATION WITH MECHANICAL DUCTWORK AS INDICATED ON MECHANICAL SHEETS. PROVIDE CLEAR SPACE BETWEEN WEBS, AS REQUIRED TO INSTALL DUCTWORK COORDINATE WITH ARCH./MECH.
- PROVIDE ALL TEMPORARY AND PERMANENT TRUSS BRACING AND BRIDGING AS REQUIRED AND SHOWN ON THE TRUSS MANUFACTURERS SHOP DRAWINGS.
- PROVIDE 2x4 DIAGONAL BRACING AT ROOF TRUSS VERTICALS WHERE INDICATED, ON SECTIONS, DETAILS, OR TRUSS ELEVATION SCHEMATICS.
- INSTALL STRONG BACKS, BRACING AND/OR BRIDGING PRIOR TO DECK INSTALLATION AND AS TRUSSES ARE ERECTED.
- INSTALL 2x4 CONTINUOUS BOTTOM CHORD BRACING AT 4 FEET o.c. MAXIMUM AT ALL AREAS WHERE A RIGID CEILING IS NOT ATTACHED DIRECTLY TO THE TRUSS BOTTOM CHORD.
- CONNECTIONS OF HIP TRUSSES SHALL BE WITH APPROPRIATE TRUSS HANGERS AS REQUIRED TO SUPPORT THE LOADS SPECIFIED.
- AT THE COMPLETION OF FABRICATION, THE TRUSS MANUFACTURER SHALL SUBMIT A CERTIFICATE OF COMPLIANCE STATING THAT THE TRUSSES ARE FABRICATED ACCORDING TO THE APPROVED SHOP DRAWINGS.

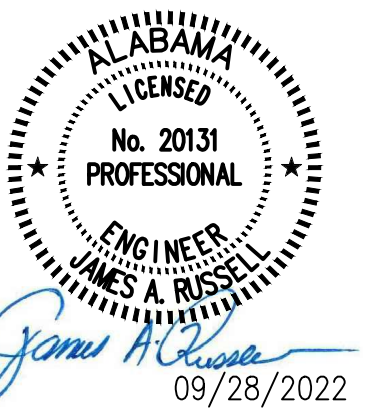


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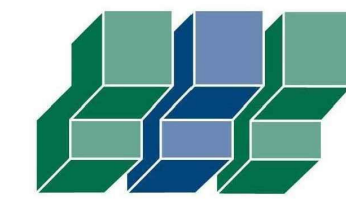
GENERAL NOTES

JOB NO. 2113

DATE, SEPT. 28, 2022

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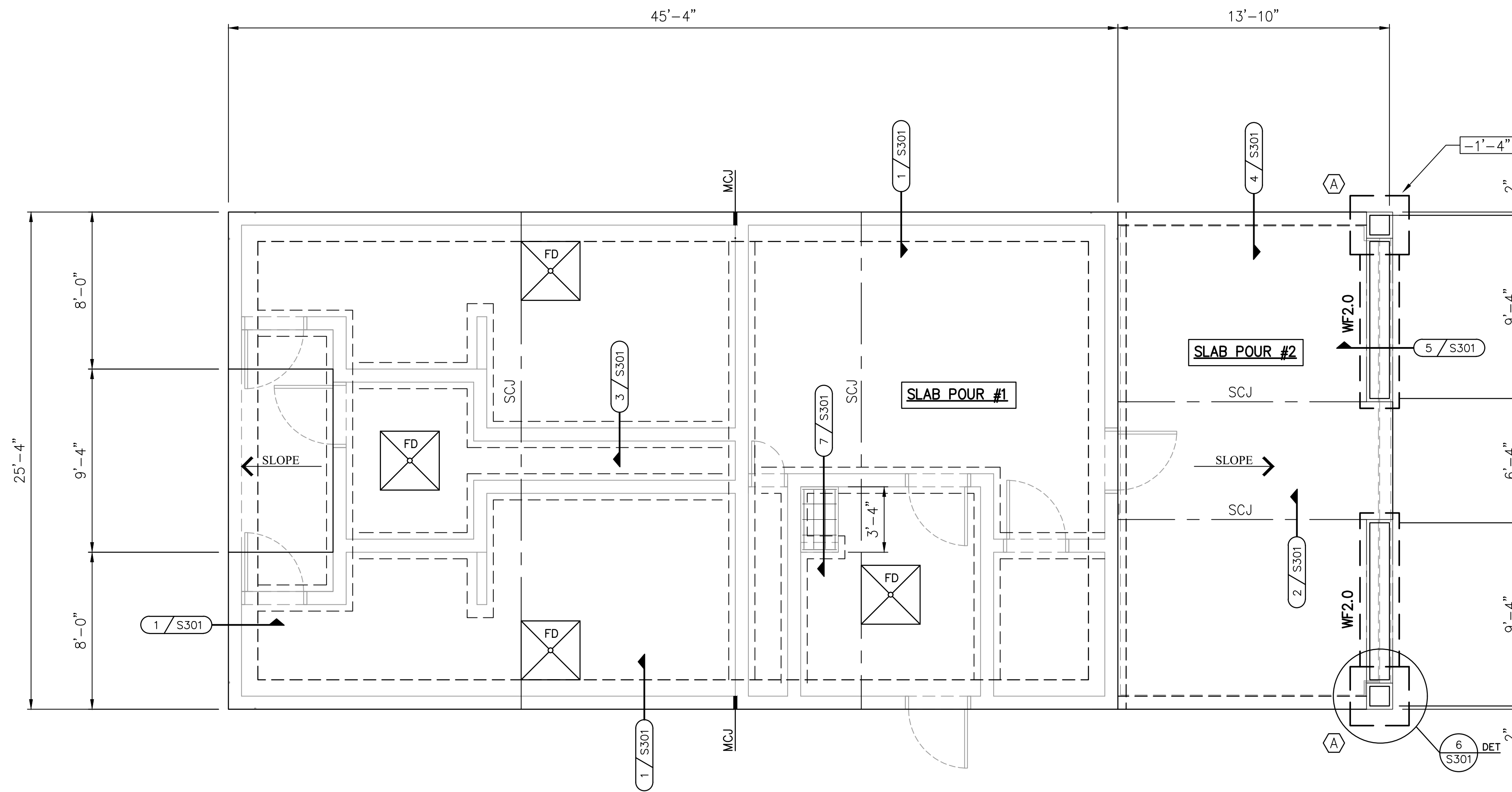
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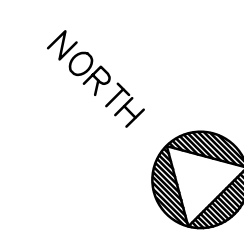


FOOTING SCHEDULE			
MARK	SIZE	BOTTOM REINF.	TOP REINF.
(A)	3'-0"x3'-0"x12"	(4) #5 EW	(4) #5 EW

LEGEND

- TOP OF FOOTING ELEVATION
- FLOOR DRAIN, REF. ARCH.
- SLAB CONTROL / CONSTRUCTION JOINTS - SEE DETAIL 2/S301
- FOOTING TYPE - SEE SCHEDULE SHEET S101
- ELEVATION, TOP OF SLAB
- WALL FOOTING TYPE
- MASONRY CONTROL JOINT LOCATION

- NOTES:**
- REFER TO THE PROJECT SOILS REPORT FOR PREPARATION OF THE BUILDING PAD.
 - DIMENSIONS ARE TO OUTSIDE FACE OF CMU, OR COLUMN CENTERLINE UNLESS NOTED OTHERWISE.
 - REFERENCE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND SIZES OF WALL OPENINGS.
 - REFERENCE ARCHITECTURAL / CIVIL DRAWINGS FOR EXTERIOR CONCRETE SLABS AND CONCRETE PAVING.
 - REFER TO DETAIL 1/S201 FOR TYPICAL MASONRY WALL REINFORCEMENT DIAGRAM.
 - SLOPE SLAB TOWARD FLOOR DRAINS AT A RATE OF $\frac{1}{8}$ " PER FOOT.
 - EXTERIOR SLABS TO HAVE A LIGHT BROOM FINISH.
 - GROUT CMU CELLS SOLID 8" EACH SIDE OF SINKS FOR SUPPORT, SEE ARCHITECTURAL.



FOUNDATION/SLAB PLAN
SCALE: 1/4"=1'-0"
TOP OF SLAB ELEV.=+0'-0" (U.N.O.)
TOP OF FOOTING ELEV.= -1'-4" (U.N.O.)

TYPICAL FLOOR SLAB CONSTRUCTION
4" CONCRETE SLAB REINFORCED
W/ 6X6-W2.1XW2.1 FLAT SHEETS OVER
15-MIL VAPOR BARRIER AND COMPACTED
STRUCTURAL FILL MATERIAL

REVISIONS

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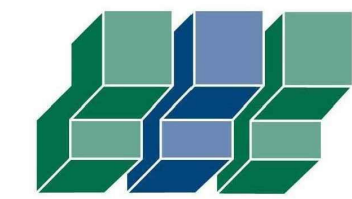
SHEET TITLE
FOUNDATION/SLAB PLAN

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

S101



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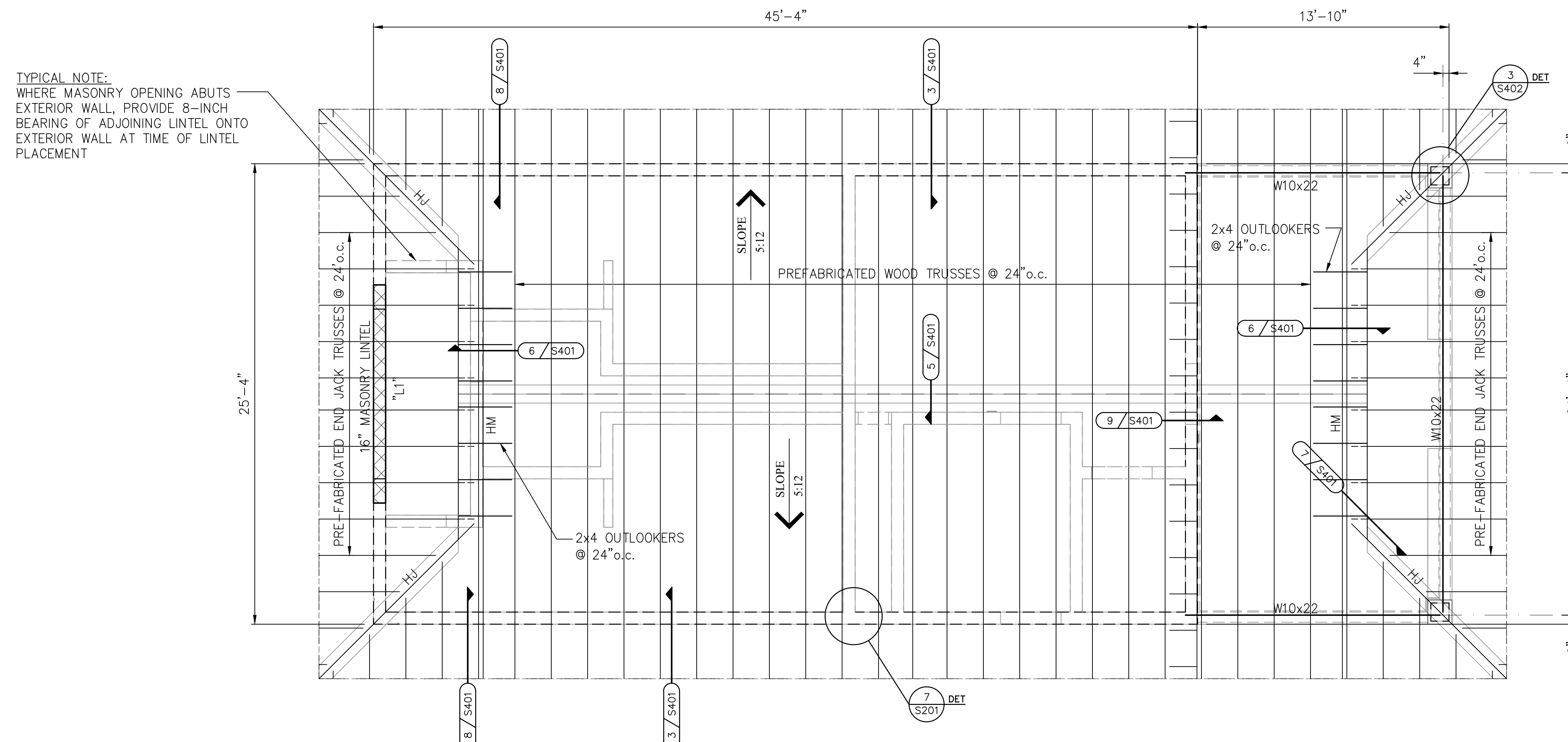
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TYPICAL NOTE:
WHERE MASONRY OPENING ABUTS
EXTERIOR WALL, PROVIDE 8-INCH
BEARING OF ADJOINING LINTEL ONTO
EXTERIOR WALL AT TIME OF LINTEL
PLACEMENT

ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"
T.O.M.=+9'-4" (U.N.O.)
TRUSS BRG. ELEV.=+9'-7" (U.N.O.)

LEGEND

- EJ END JACK
- CJ CORNER JACK
- GT GIRDER TRUSS
- HJ HIP JACK TRUSS
- HM TWO PLY HIP MASTER TRUSS

TYPICAL ROOF CONSTRUCTION

19/32" EXPOSURE 1 APA RATED PLYWOOD OVER
PRE-ENGINEERED ROOF TRUSSES @ 24"o.c. ATTACH ROOF
DECK WITH RING SHANK NAILS AS SPECIFIED IN STRUCTURAL
GENERAL NOTES.

REVISIONS

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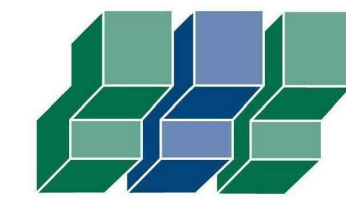
ROOF FRAMING
PLAN

JOB NO. 2113

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S102



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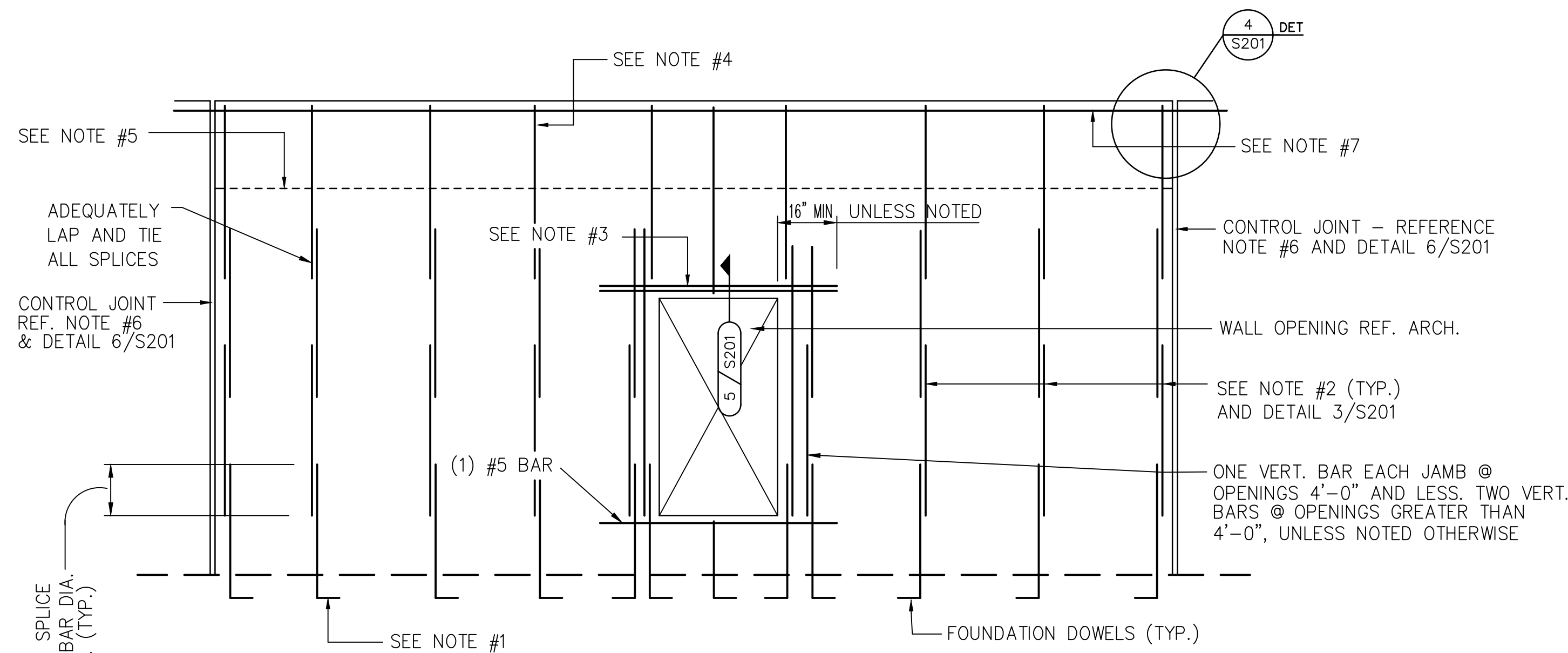
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MASONRY WALL REINFORCING NOTES

- VERTICAL WALL REINFORCING SHALL ALIGN WITH VERTICAL FOUNDATION DOWELS. DOWELS SHALL BE PLACED IN CENTER OF CMU WALL WITH ACI STANDARD HOOK. PLACE HOOKS DIRECTLY ON TOP OF BOTTOM LAYER OF FOOTING REINFORCING.
- TYPICAL VERTICAL WALL REINFORCEMENT TO BE PLACED IN CENTER OF WALL. GROUT CELLS FULL THAT CONTAIN REINFORCEMENT. FOR CLARITY, ALL VERTICAL AND HORIZONTAL REINFORCING IS SHOWN CONTINUOUS, HOWEVER VERTICAL REINFORCEMENT SHALL BE LAPPED AND SPLICED TO ACCOMMODATE MAXIMUM GROUT LIFTS OF 4'-8" AND HORIZONTAL BARS SHALL BE LAPPED AND SPLICED AS REQUIRED. ALL VERTICAL BARS SHALL BE ACCURATELY LOCATED WITHIN THE CELL WITH REBAR POSITIONERS PRIOR TO PLACING GROUT IN CELLS. ALL LAPS SHALL BE 48 BAR DIAMETERS UNLESS NOTED OTHERWISE.
- REFERENCE MASONRY LINTEL SCHEDULE FOR SIZE, LOCATION AND QUANTITY OF LINTEL REINFORCEMENT.
- ALL VERTICAL REINFORCING SHALL STOP 2" CLEAR FROM TOP OF WALL UNLESS NOTED.
- HORIZONTAL JOINT REINFORCING SHALL BE LADDER TYPE AT 16" o.c. - DISCONTINUE AT CONTROL JOINTS.
- MASONRY CONTROL JOINTS SHALL BE DISCONTINUOUS AT ALL BOND BEAMS AND SHALL NOT EXTEND BELOW GRADE. COORDINATE EXACT LOCATION OF MASONRY CONTROL JOINTS WITH THE ARCHITECT.
- REFERENCE SECTIONS AND DETAILS FOR SIZE AND LOCATION OF BOND BEAMS AND QUANTITY OF REINFORCING. PROVIDE HORIZONTAL BOND BEAMS IN ALL INTERIOR MASONRY WALLS, 8" HIGH WITH (1) #5 CONT. AT TOP OF WALL. WHERE WALL HEIGHT EXCEEDS +12'-0", PROVIDE AN ADDITIONAL INTERMEDIATE BOND BEAM WITH (1) #5 AT +10'-0" LEVEL. PROVIDE CORNER BARS AT ALL BOND BEAM CORNERS AND INTERSECTIONS TO MATCH HORIZONTAL REINF.
- REFERENCE ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS IN MASONRY WALLS.

TYPICAL MASONRY WALL REINFORCING DIAGRAM

DETAIL 1
NOT TO SCALE S201

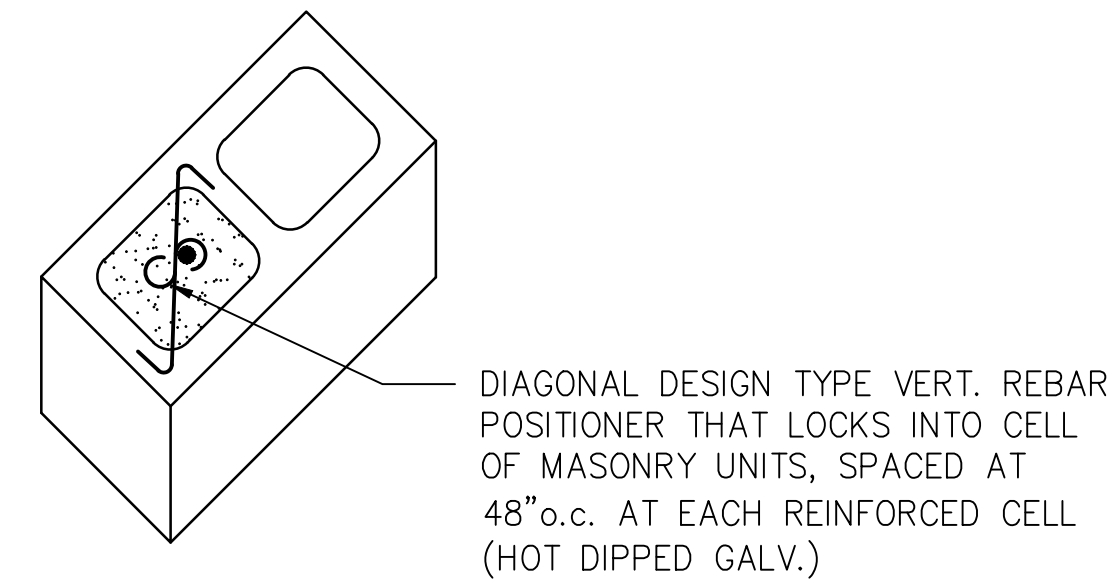
MASONRY LINTEL SCHEDULE					
LINTEL NUMBER	WALL THICKNESS	CLEAR SPAN	LINTEL DEPTH	BOTTOM REINFORCING	TOP REINFORCING
---	8	4'-0" MAX.	8"	1-#5	---
---	8	8'-0" MAX.	16"	2-#5	---
"L1"	8	9'-4" MAX.	16"	2-#5	---

MASONRY LINTEL NOTES:

- GROUTED LINTEL BLOCKS IN MASONRY WALLS SHALL EXTEND A MINIMUM OF 16 INCHES BEYOND FACE OF OPENING EACH SIDE. THE FIRST VERTICAL CELL ON EACH SIDE OF THE OPENING SHALL BE GROUTED AND CONTAIN ONE VERTICAL BAR IN EACH CELL CONT. TO THE TOP OF THE WALL UNLESS NOTED OTHERWISE.
- GROUT FOR LINTELS SHALL BE PLACED IN SINGLE LIFTS AND WITHOUT COLD JOINTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

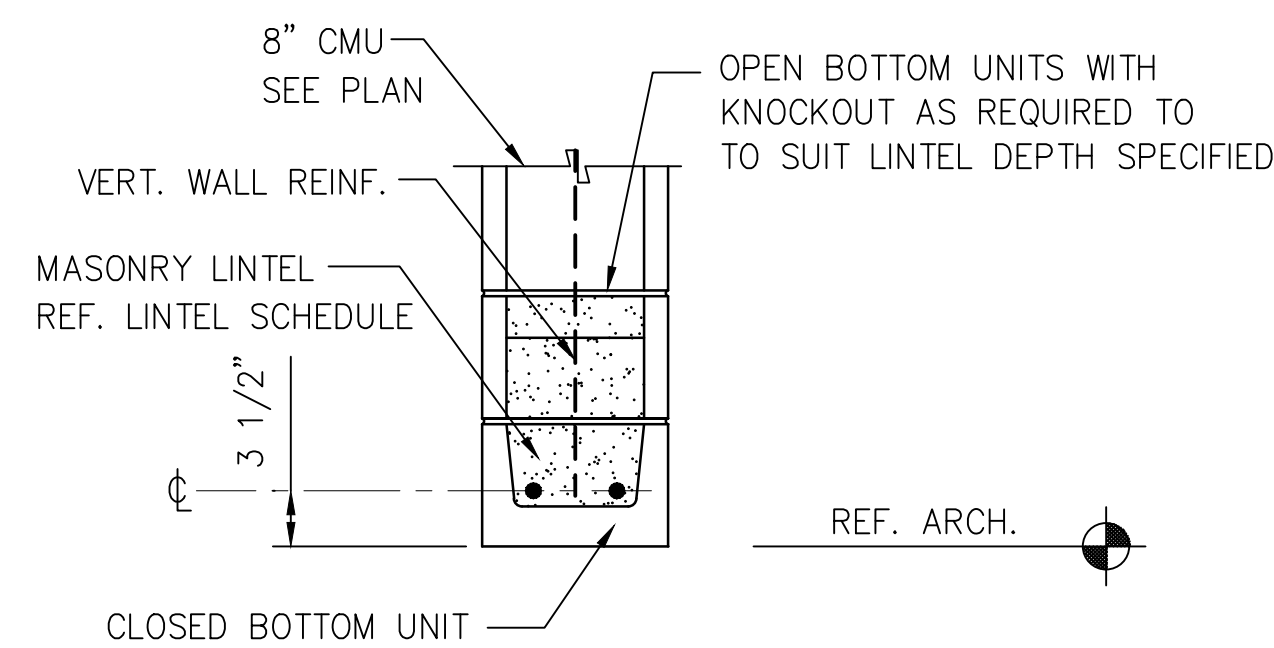
MASONRY LINTEL SCHEDULE

DETAIL 2
NOT TO SCALE S201



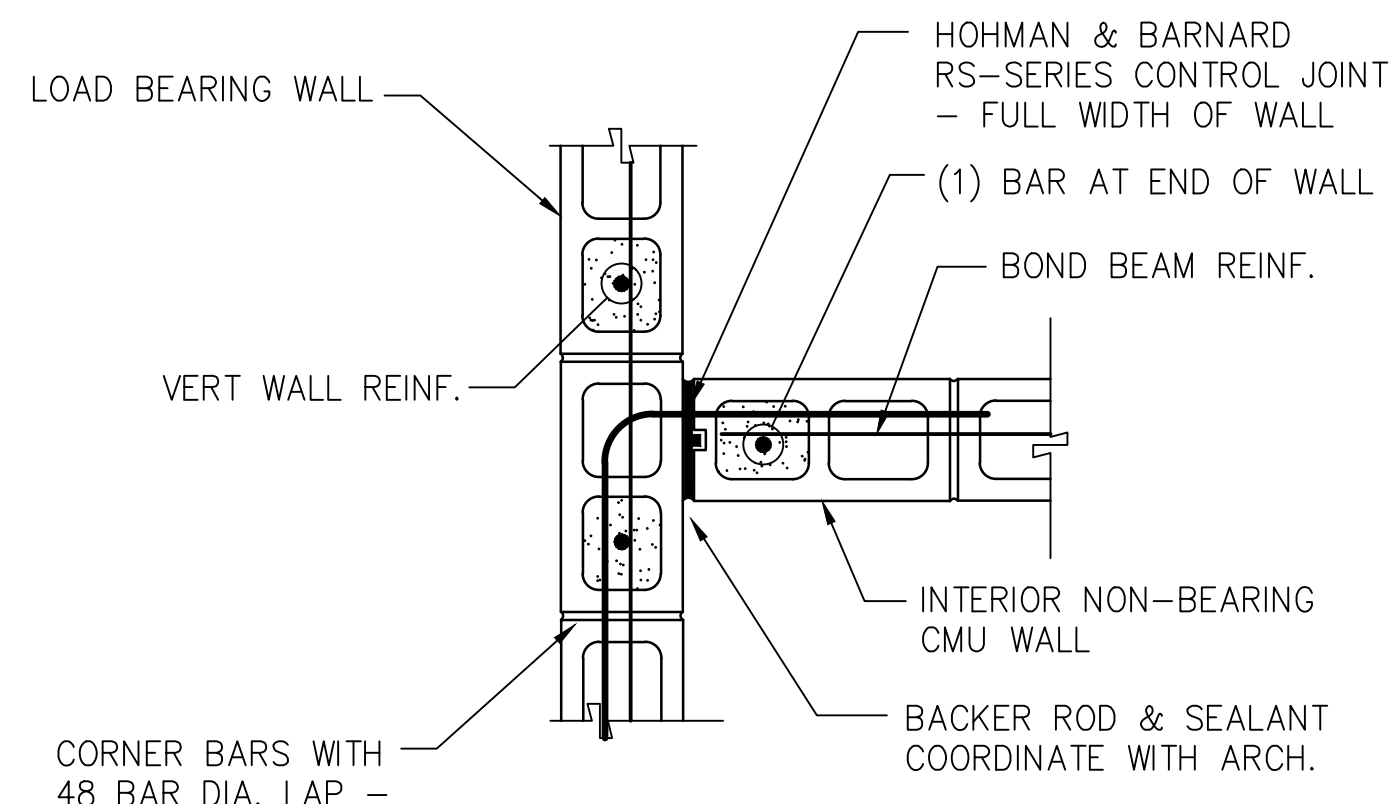
TYPICAL REBAR POSITIONER

DETAIL 3
NOT TO SCALE S201



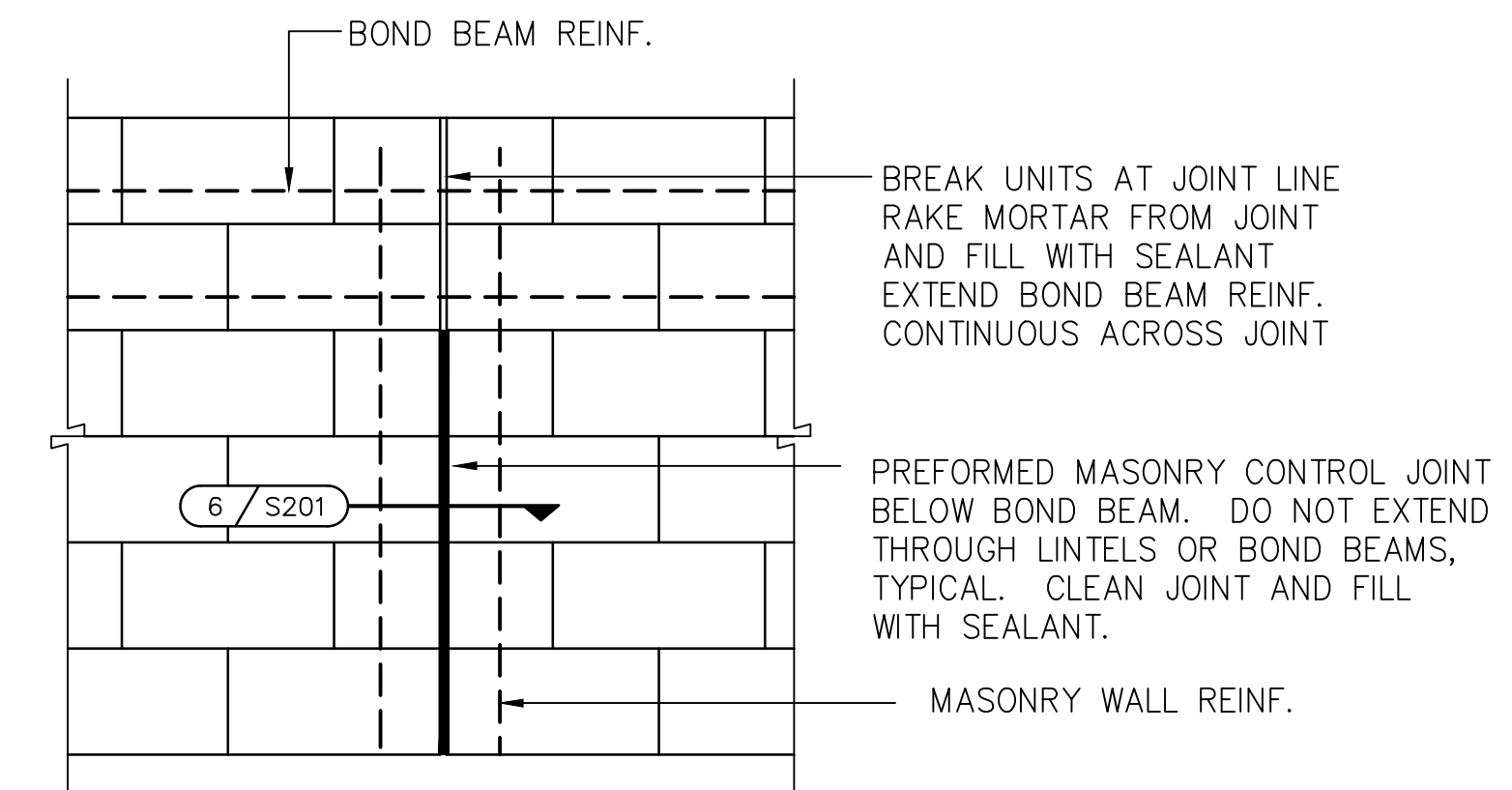
TYPICAL CMU LINTEL SECTION

SECTION 5
NOT TO SCALE S201



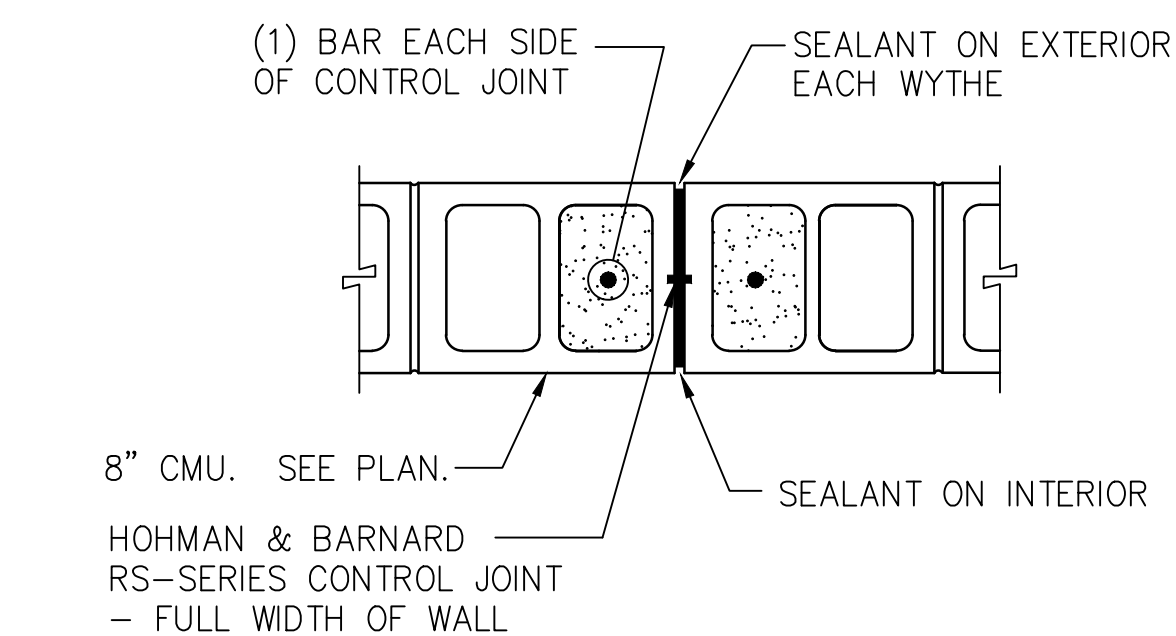
TYPICAL DETAIL @ INTERSECTION BETWEEN INTERIOR NON-BEARING WALL AND LOAD BEARING WALL

DETAIL 7
NOT TO SCALE S201



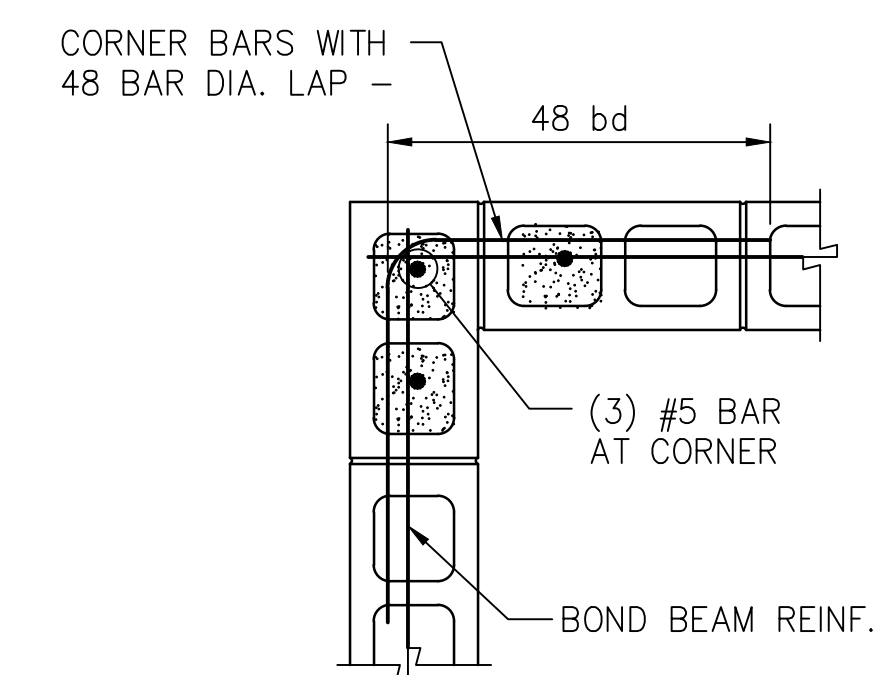
TYPICAL MASONRY CONTROL JOINT ELEVATION AT BOND BEAM

DETAIL 4
NOT TO SCALE S201



TYPICAL MASONRY CONTROL JOINTS

DETAIL 6
NOT TO SCALE S201



TYPICAL 8" CMU CORNER REINF.

DETAIL 8
NOT TO SCALE S201

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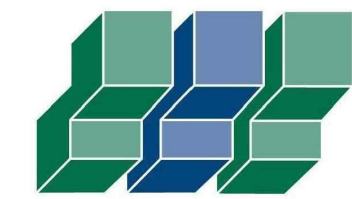
MASONRY SECTIONS AND DETAILS

JOB NO. 2113

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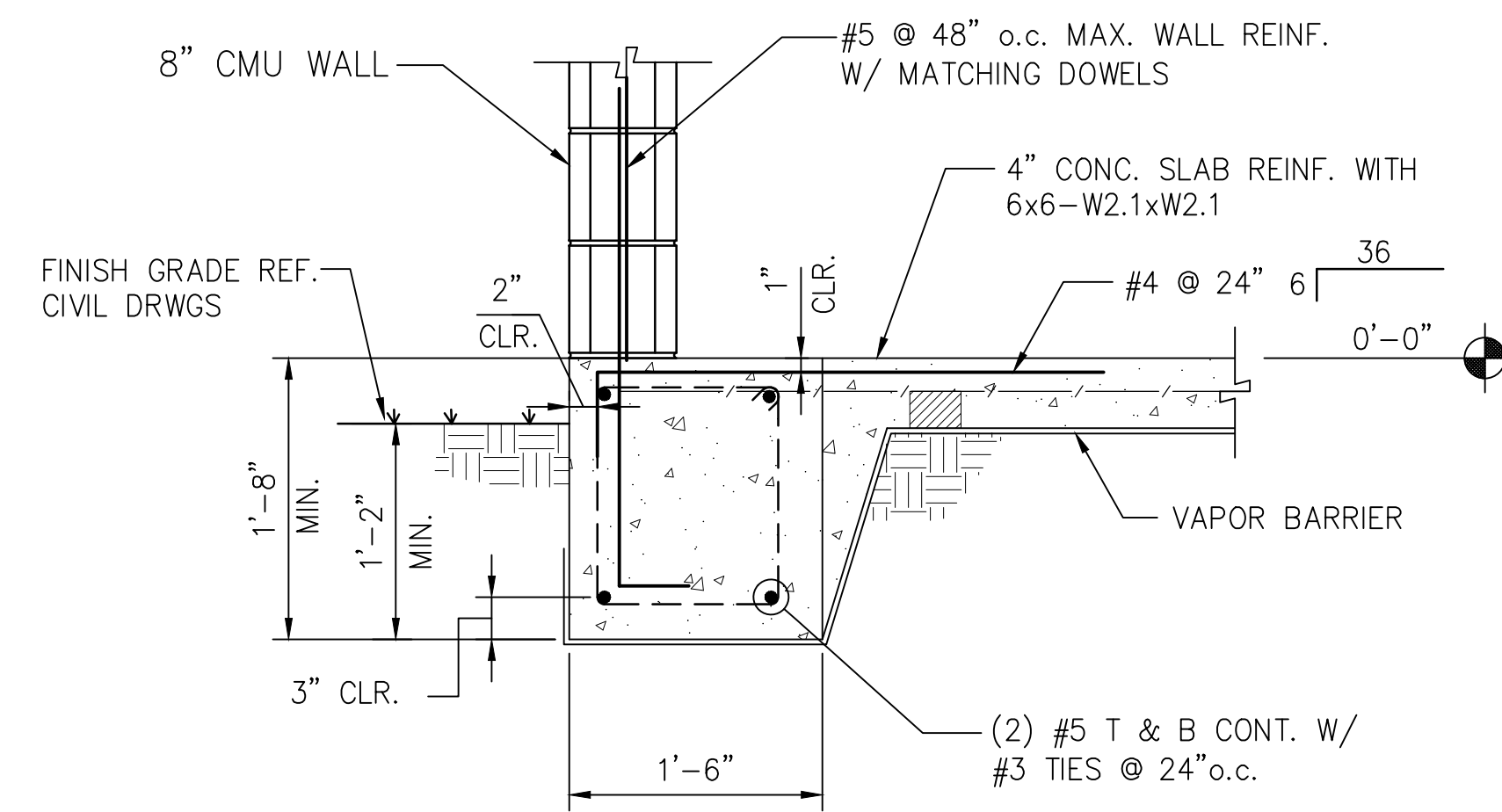
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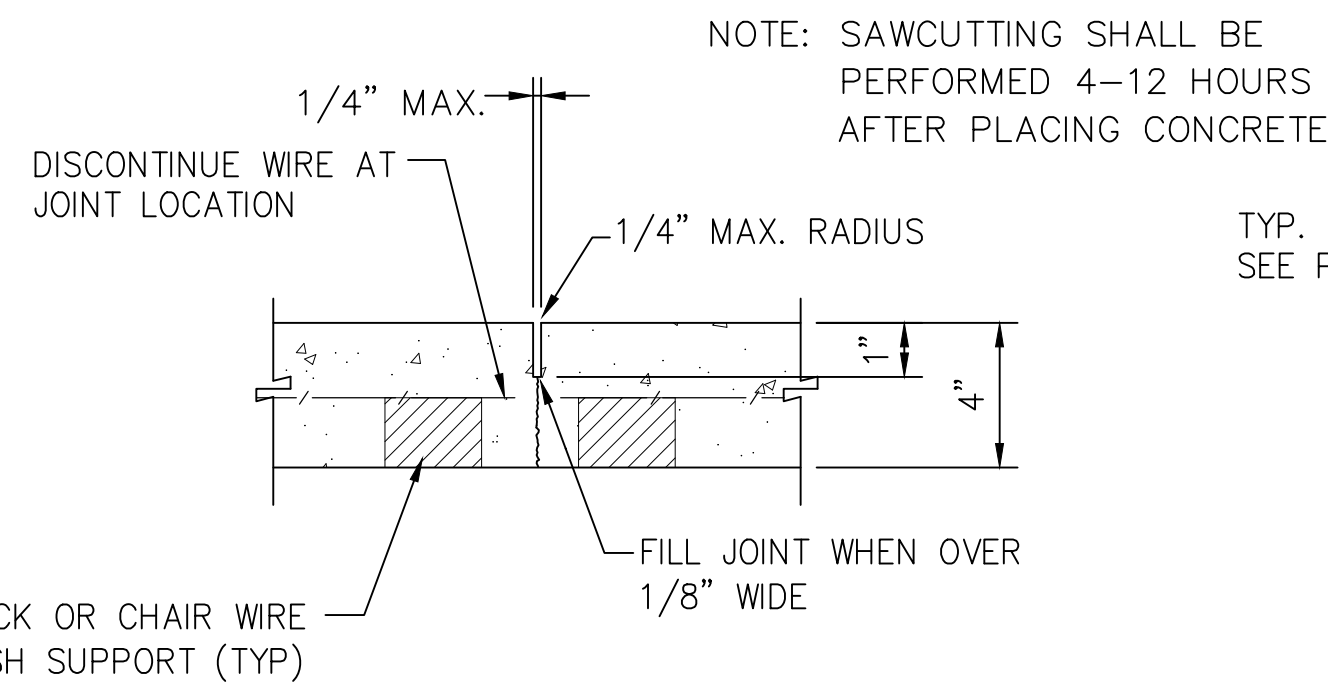
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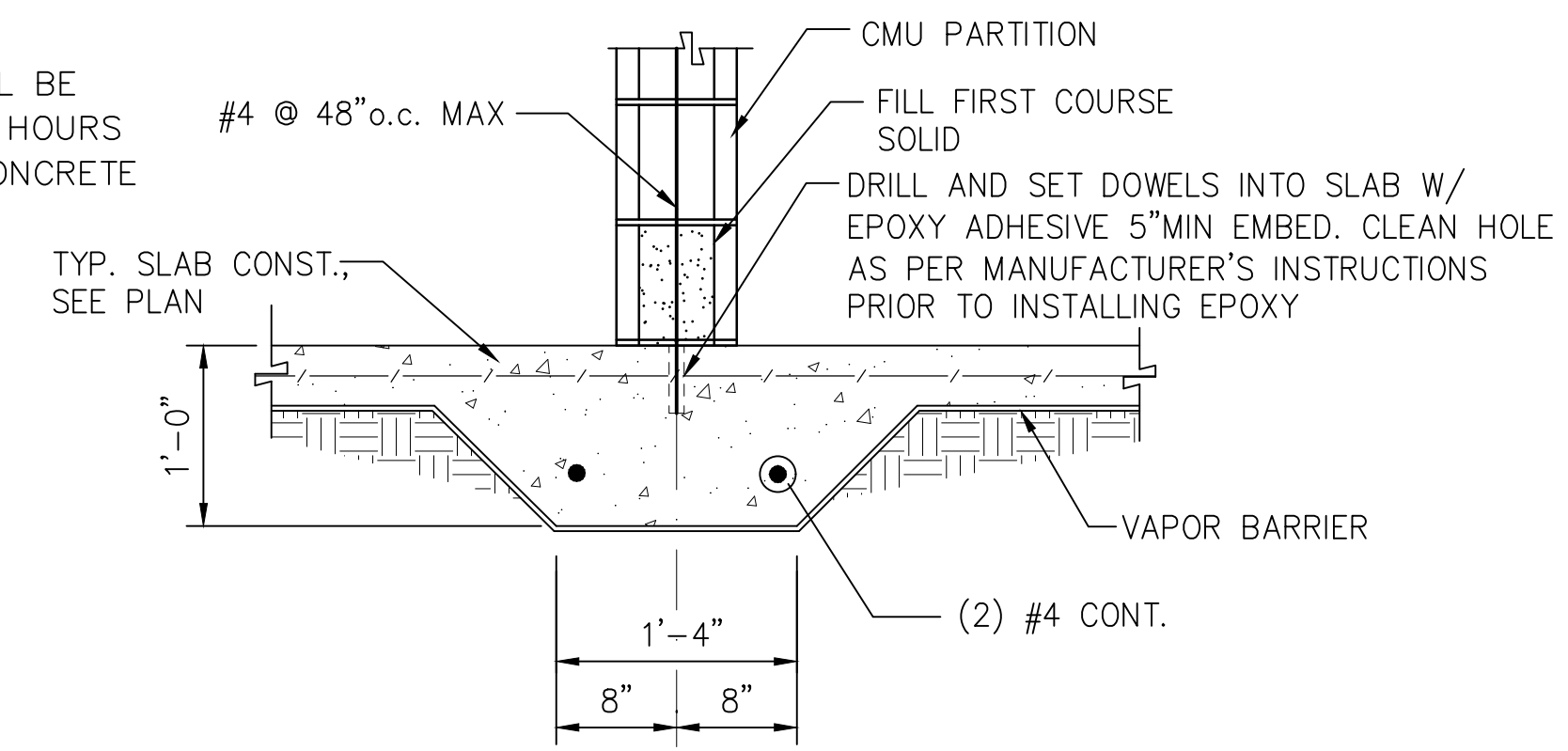
TYPICAL OUT BUILDING EXTERIOR WALL SECTION

SECTION 1
SCALE: 1"=1'-0" S301



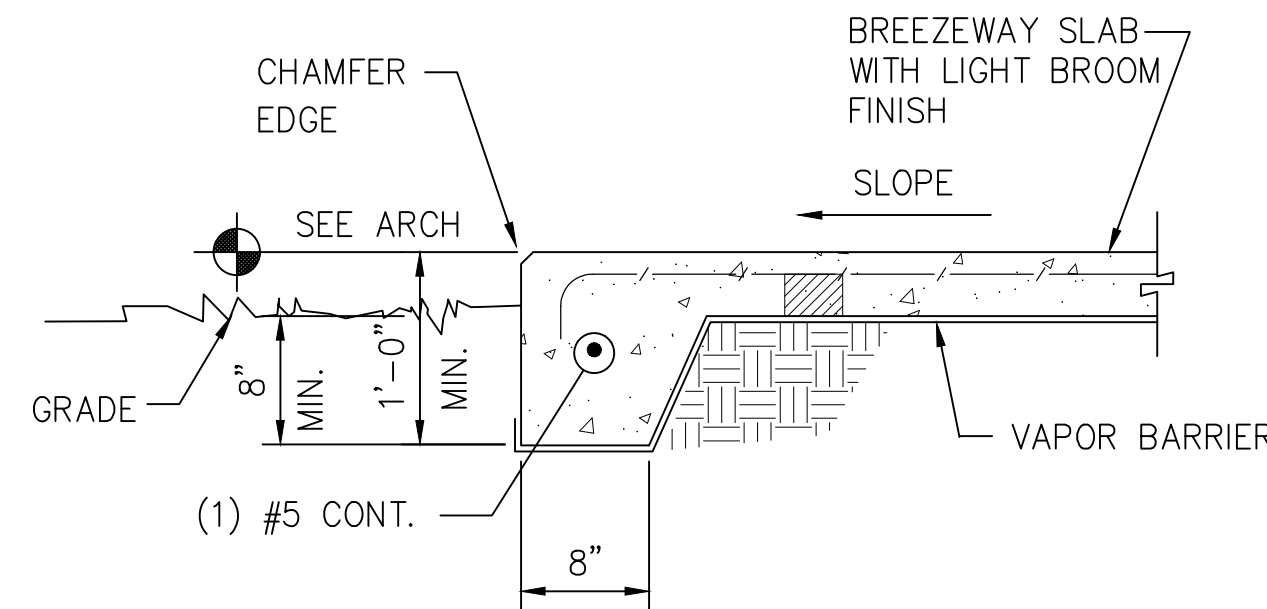
TYPICAL CONCRETE SLAB SAW-CUT JOINTS

DETAIL 2
NOT TO SCALE S301



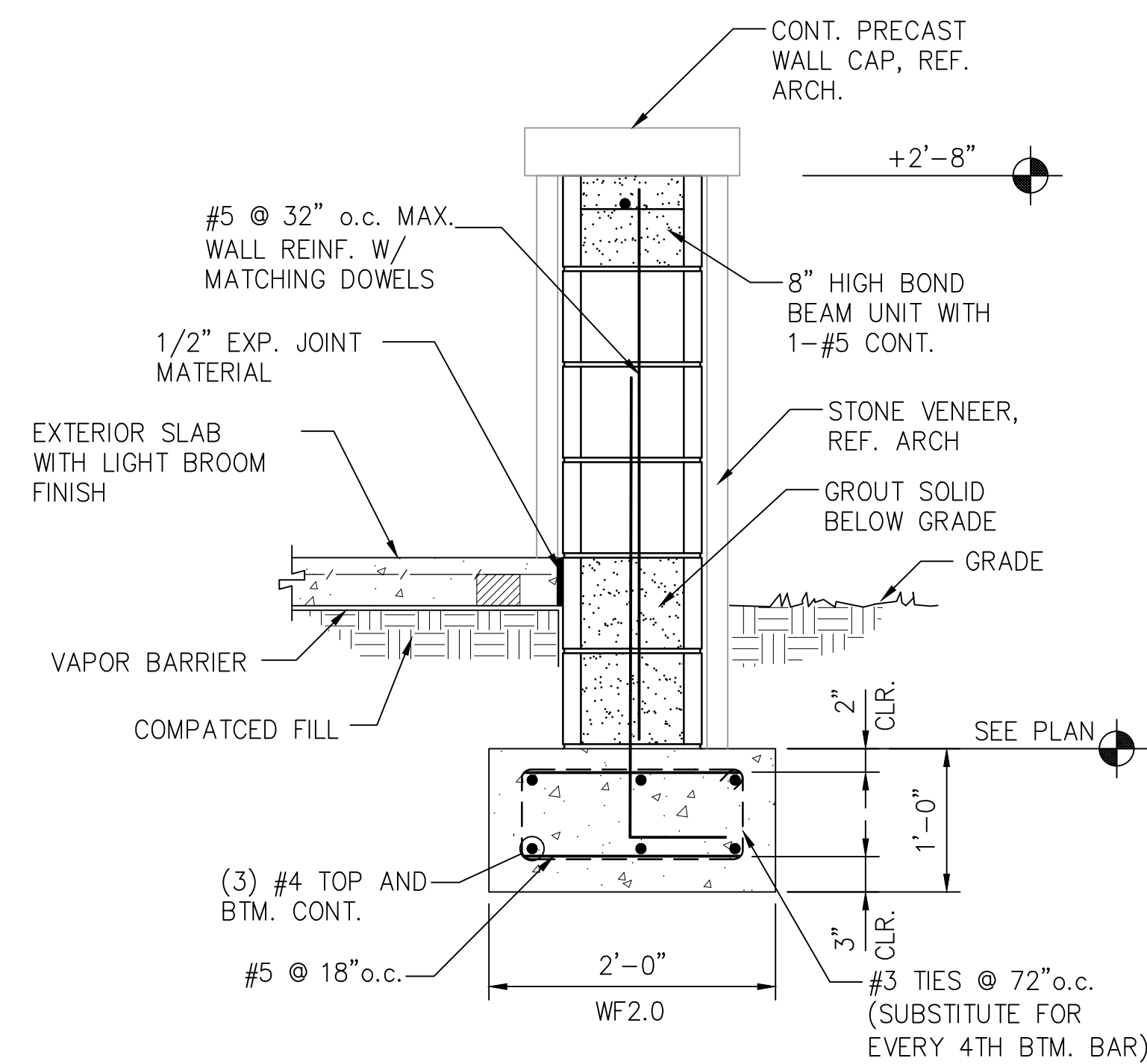
TYPICAL INTERIOR CMU PARTITION SECTION

SECTION 3
SCALE: 1"=1'-0" S301



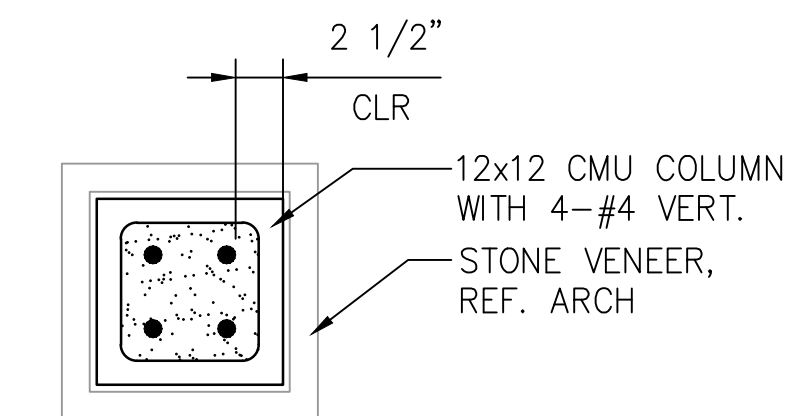
TYPICAL WALKWAY SLAB EDGE

SECTION 4
SCALE: 1"=1'-0" S301



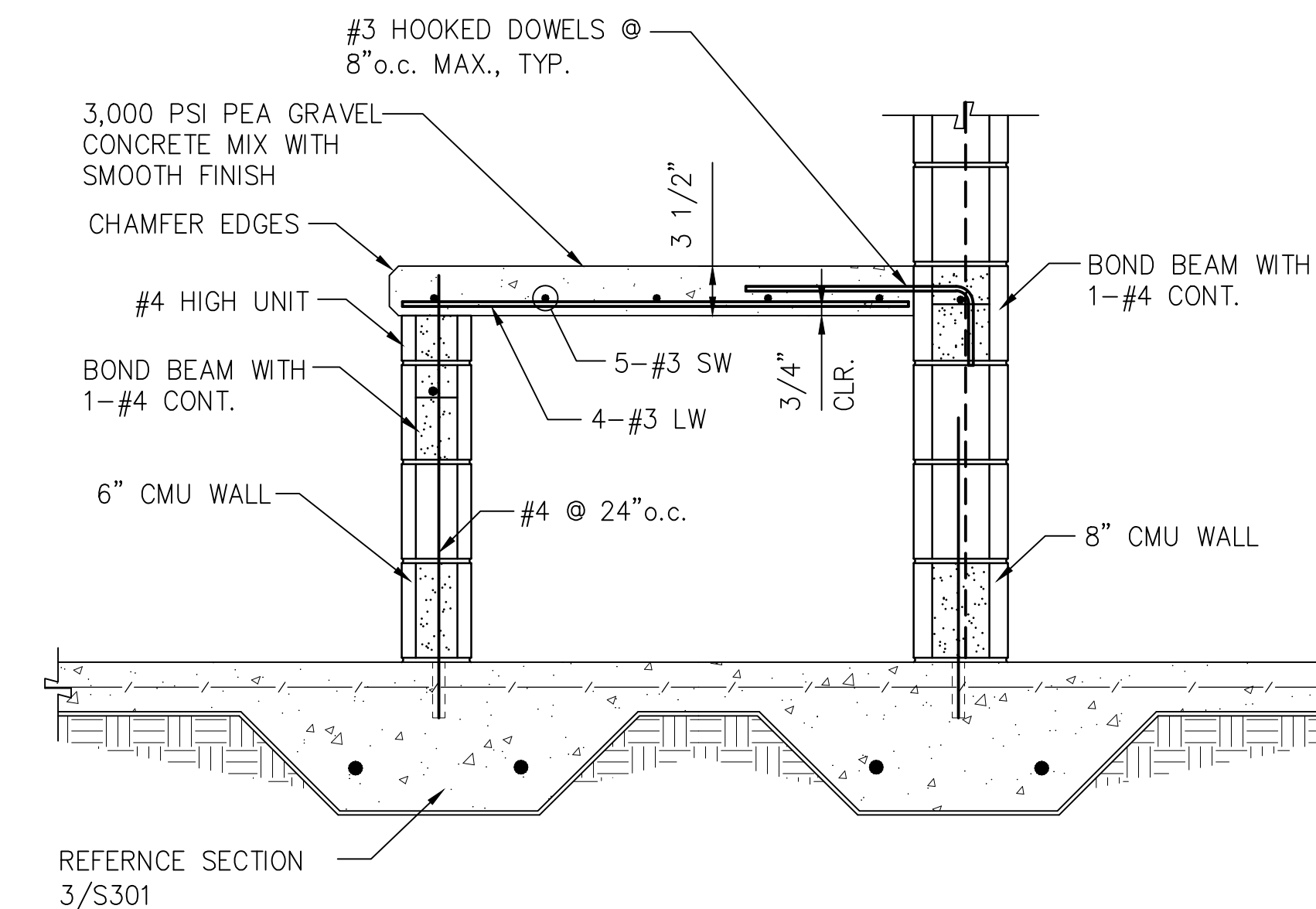
TYPICAL SECTION @ LOW WALL

SECTION 5
SCALE: 1"=1'-0" S301



TYPICAL MASONRY COLUMN

DETAIL 6
SCALE: 1"=1'-0" S301



SECTION AT BABY CHANGING TABLE

SECTION 7
SCALE: 1"=1'-0" S301

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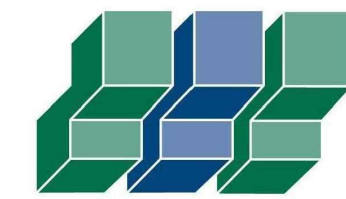
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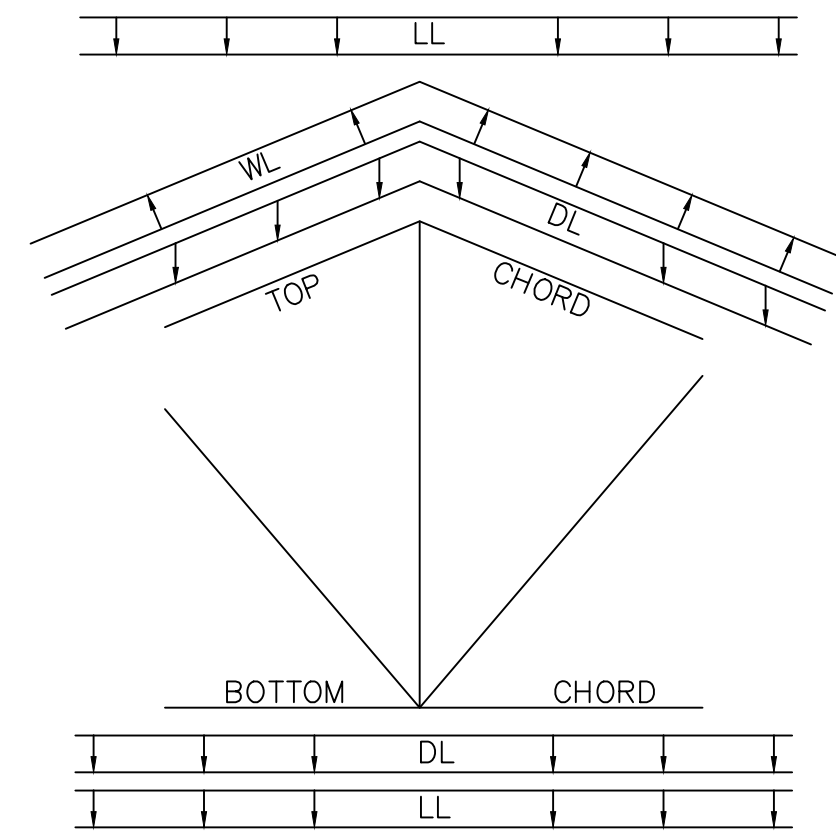
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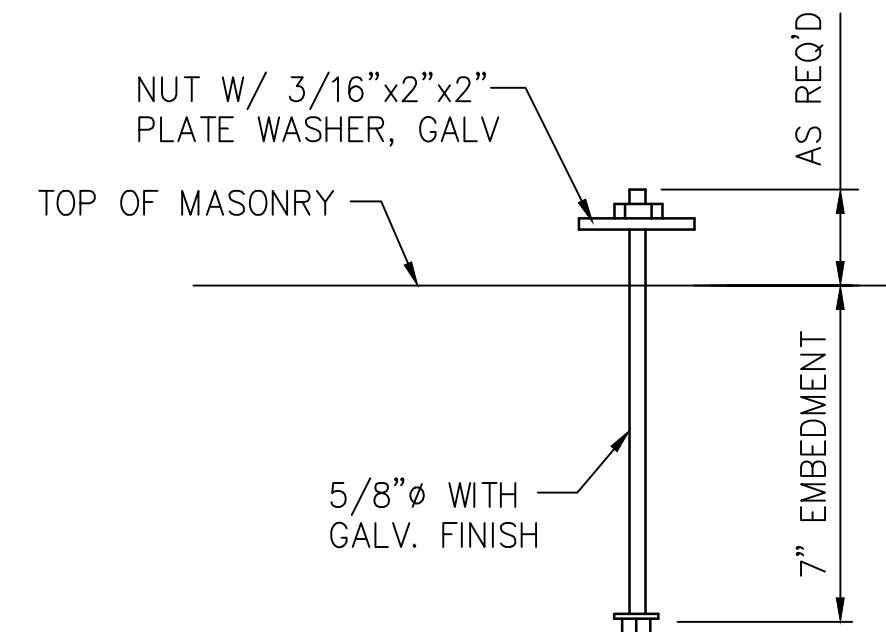
TYPICAL ROOF TRUSS LOAD DIAGRAM

NOTE: THIS DIAGRAM IS A SCHEMATIC SHOWING THE APPLICATION OF LOADS STATED HEREIN. LOADS SHALL BE COMBINED AS PROVIDED BY THE GOVERNING BUILDING CODE TO DETERMINE THE MOST UNFAVORABLE EFFECT.

PREFABRICATED ROOF TRUSS DESIGN CRITERIA:

DL = 10 PSF TOP CHORD
LL = 20 PSF TOP CHORD
WL = 155 MPH PER ASCE 7-10
DL = 10 PSF BOTTOM CHORD

DETAIL 1
NOT TO SCALE S401

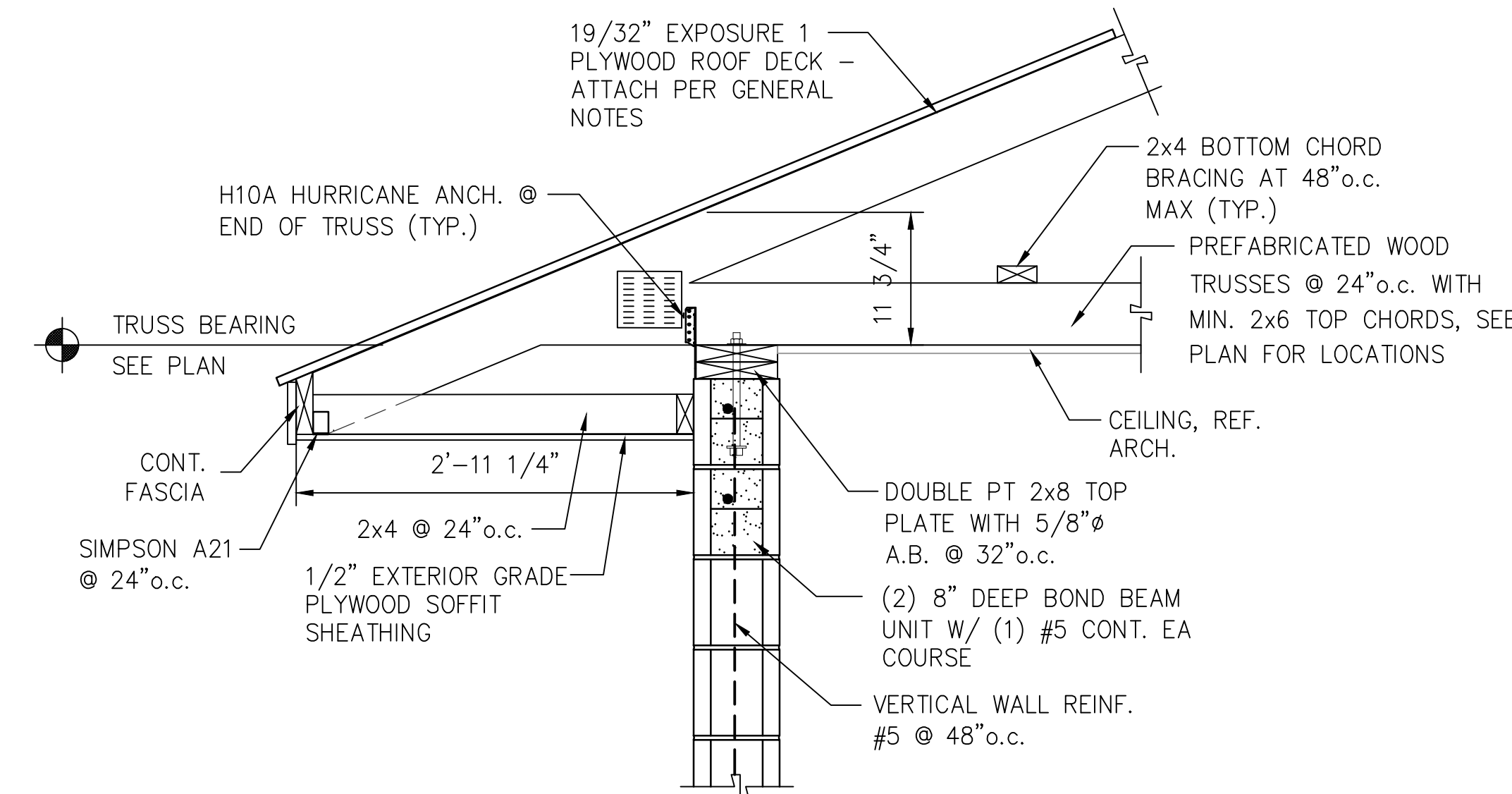


TYPICAL ANCHOR BOLT DETAILS

NOTE: PROVIDE ADDITIONAL ANCHOR BOLTS WITHIN 12" OF EACH END OF SILL PLATES. WHERE SILL PLATES ABUT UNDER WINDOW OPENINGS, ADDITIONAL ANCHOR BOLTS ARE NOT REQUIRED WITHIN 12" OF EACH END OF PLATE.

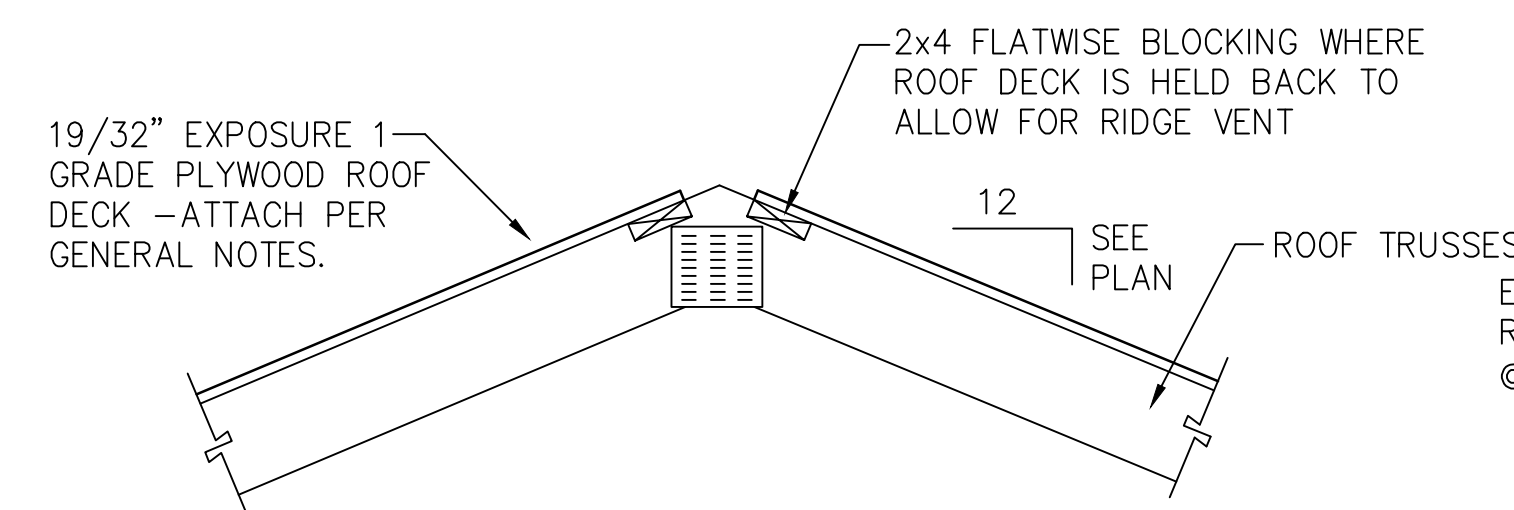
TYPICAL ANCHOR BOLT DETAILS

DETAIL 2
NOT TO SCALE S401



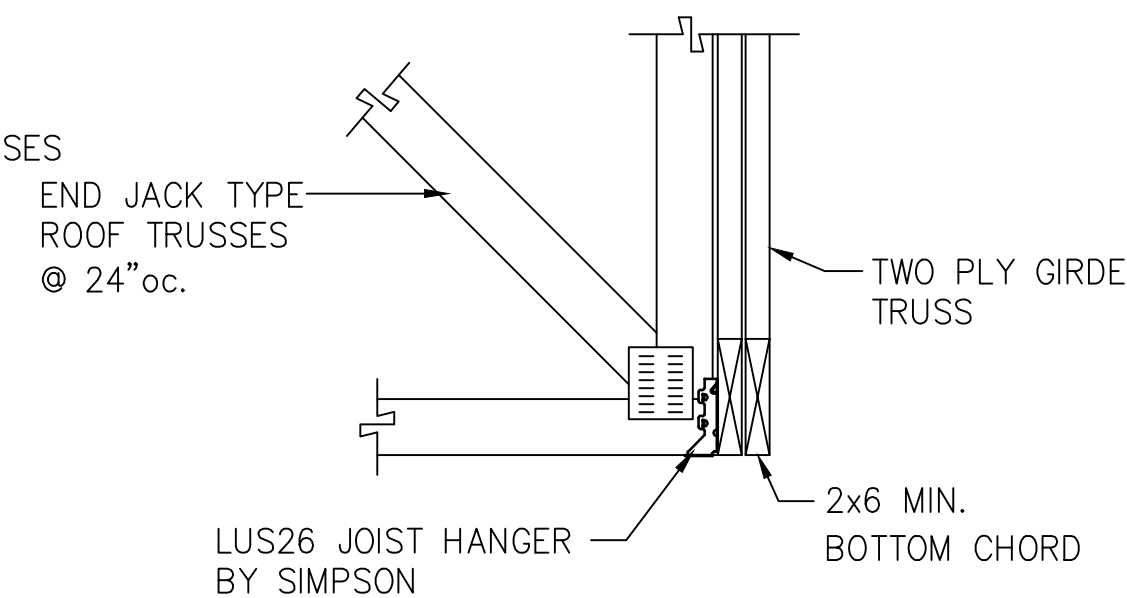
TYPICAL EXTERIOR WALL SECTION @ ROOF

SECTION 3
SCALE: 1"=1'-0" S401



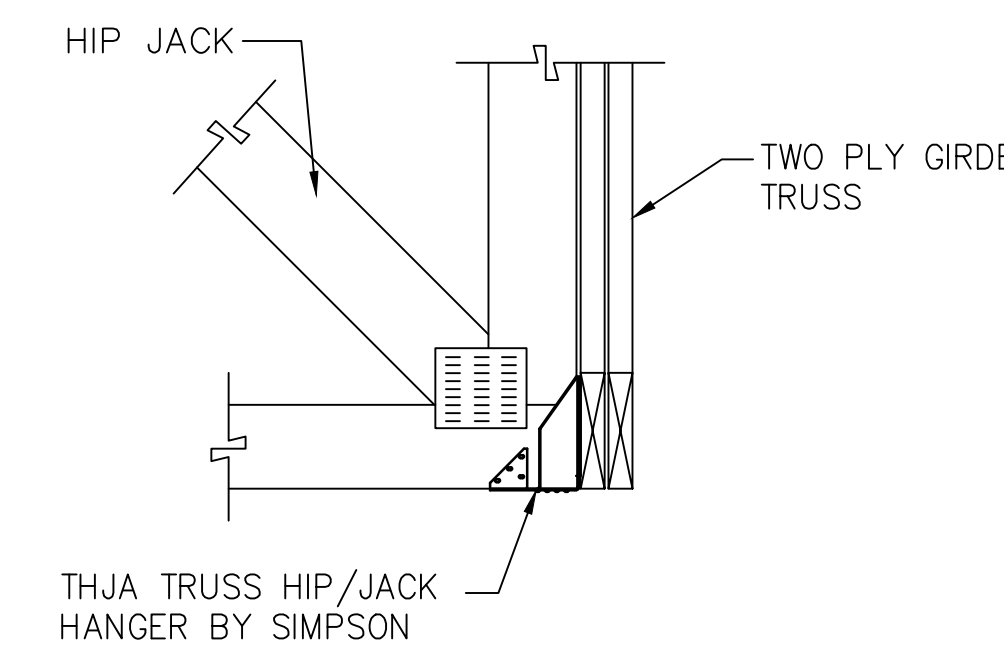
TYPICAL RIDGE FRAMING

SECTION 5
NOT TO SCALE S401



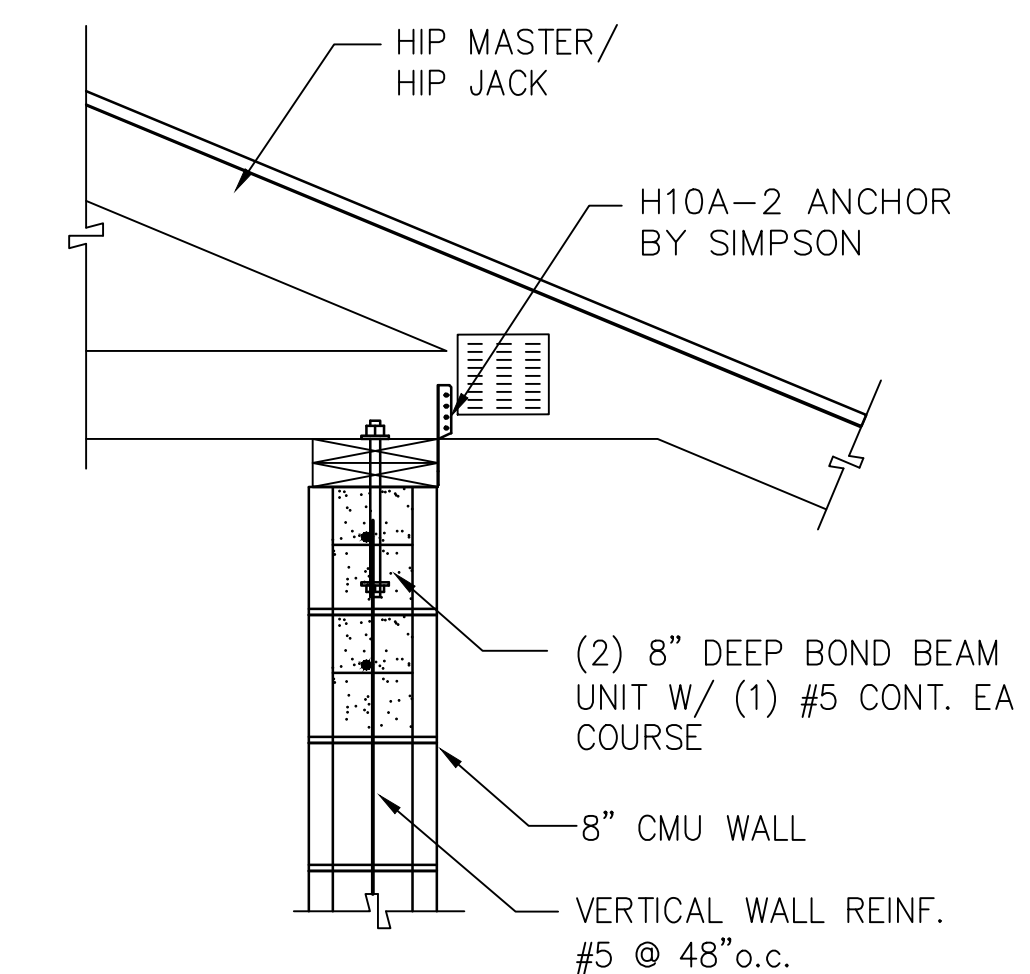
TYPICAL END JACK HANGER

SECTION 6
SCALE: 1"=1'-0" S401



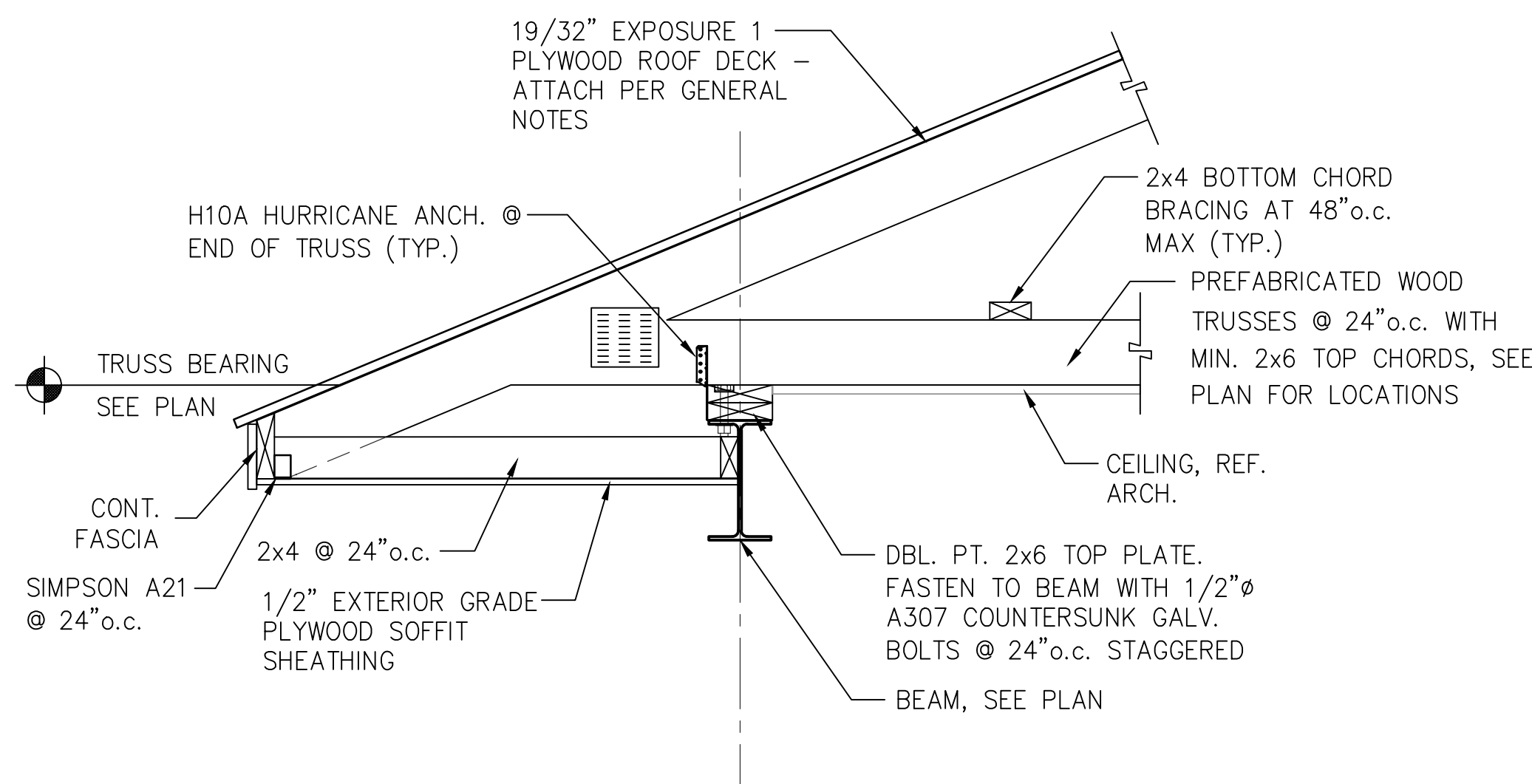
TYPICAL HIP JACK HANGER

SECTION 7
SCALE: 1"=1'-0" S401



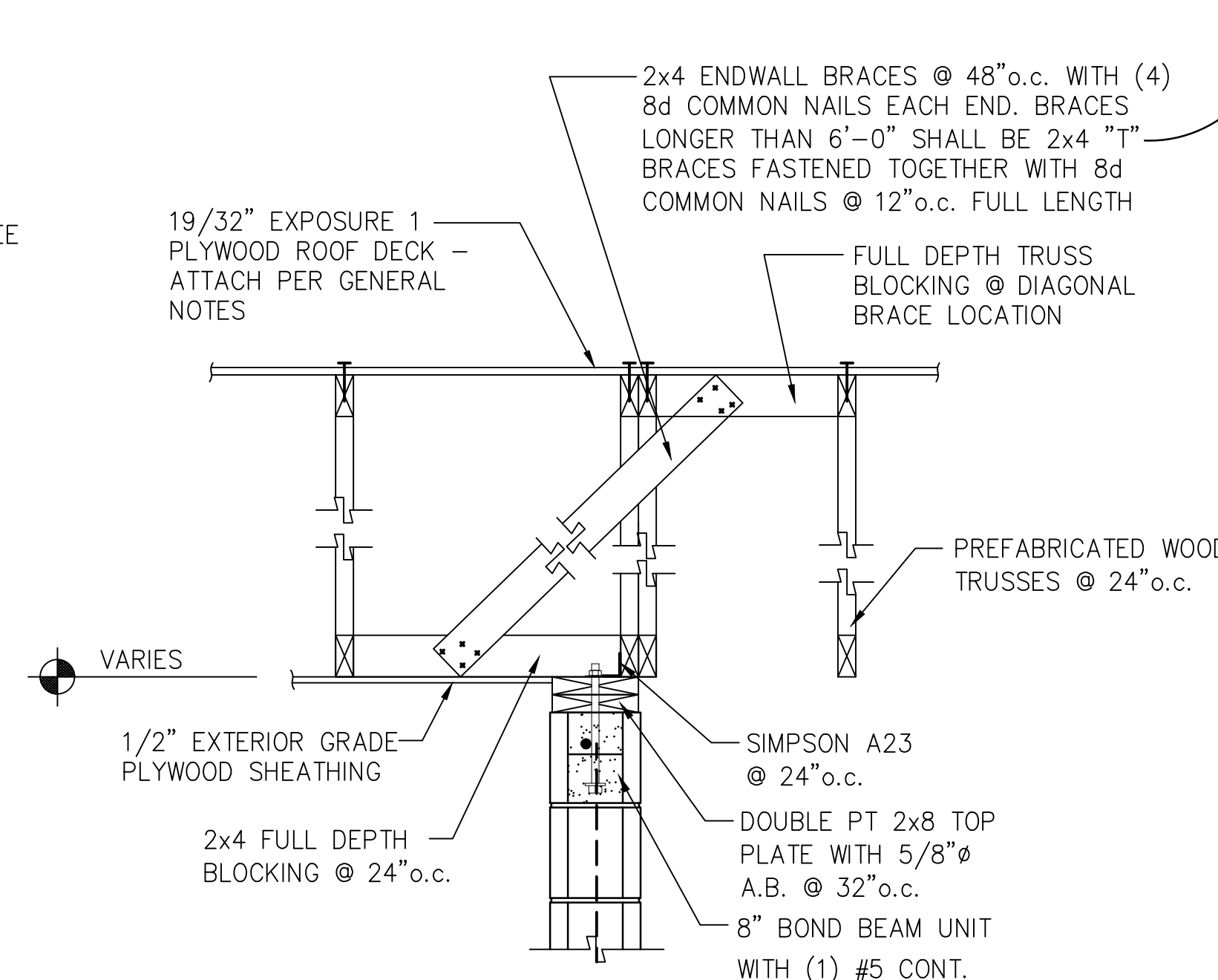
TYPICAL HM CONNECTION TO EXTERIOR CMU WALL

SECTION 8
SCALE: 1"=1'-0" S401



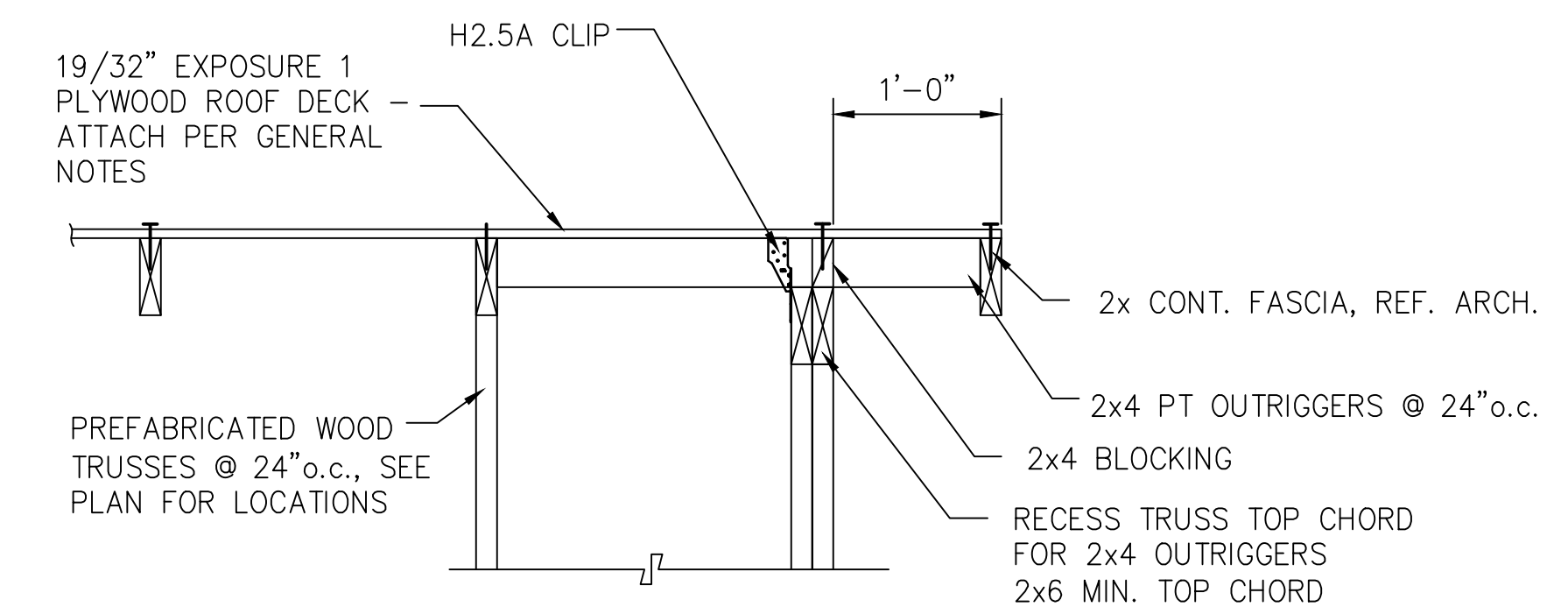
TYPICAL SECTION @ ROOF BEAM

SECTION 4
SCALE: 1"=1'-0" S401



TYPICAL SECTION @ FRONT GABLE WALL

SECTION 9
SCALE: 1"=1'-0" S401



TYPICAL GABLE ENDWALL ROOF OVERHANG

SECTION 10
SCALE: 1"=1'-0" S401

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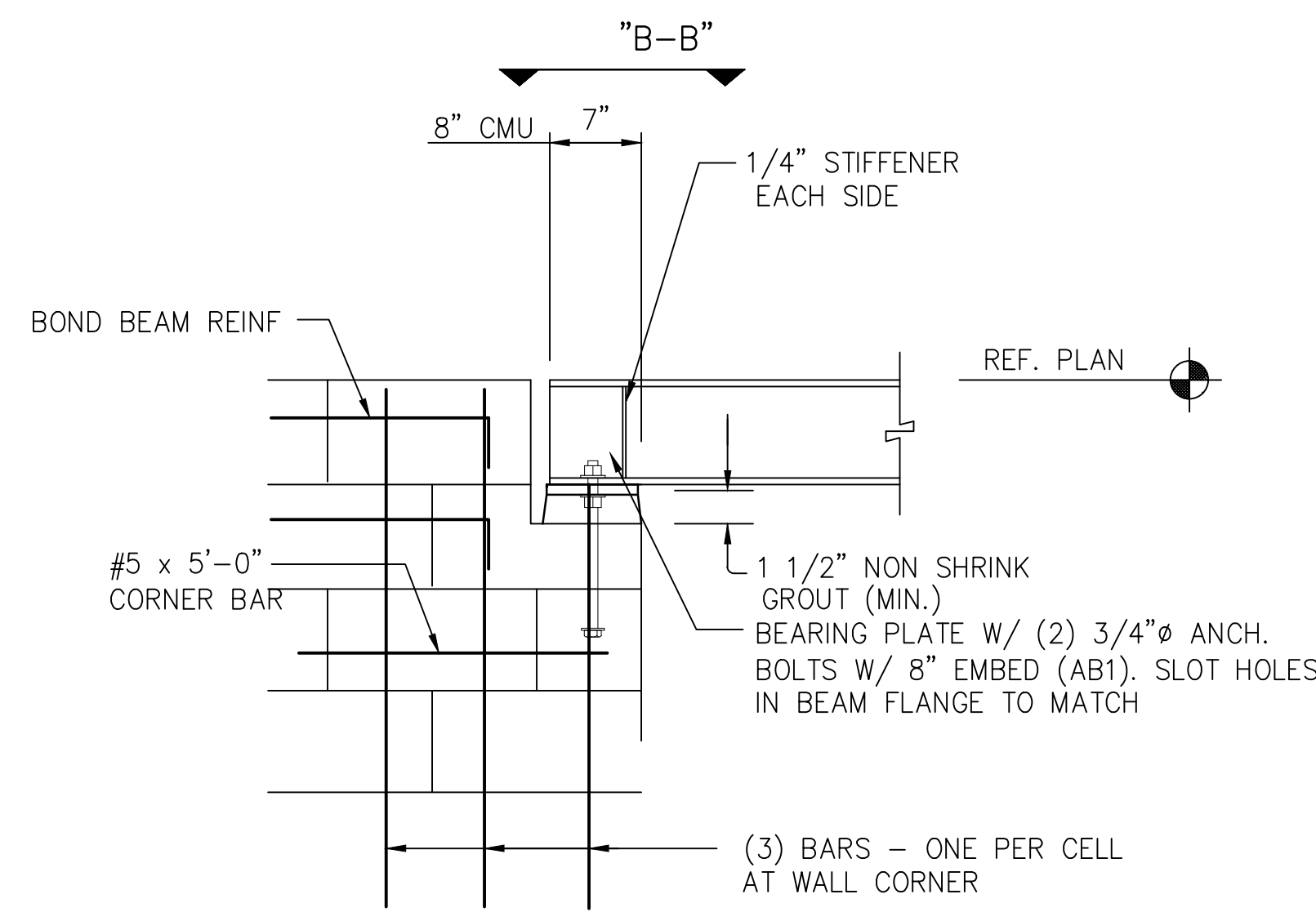
FRAMING
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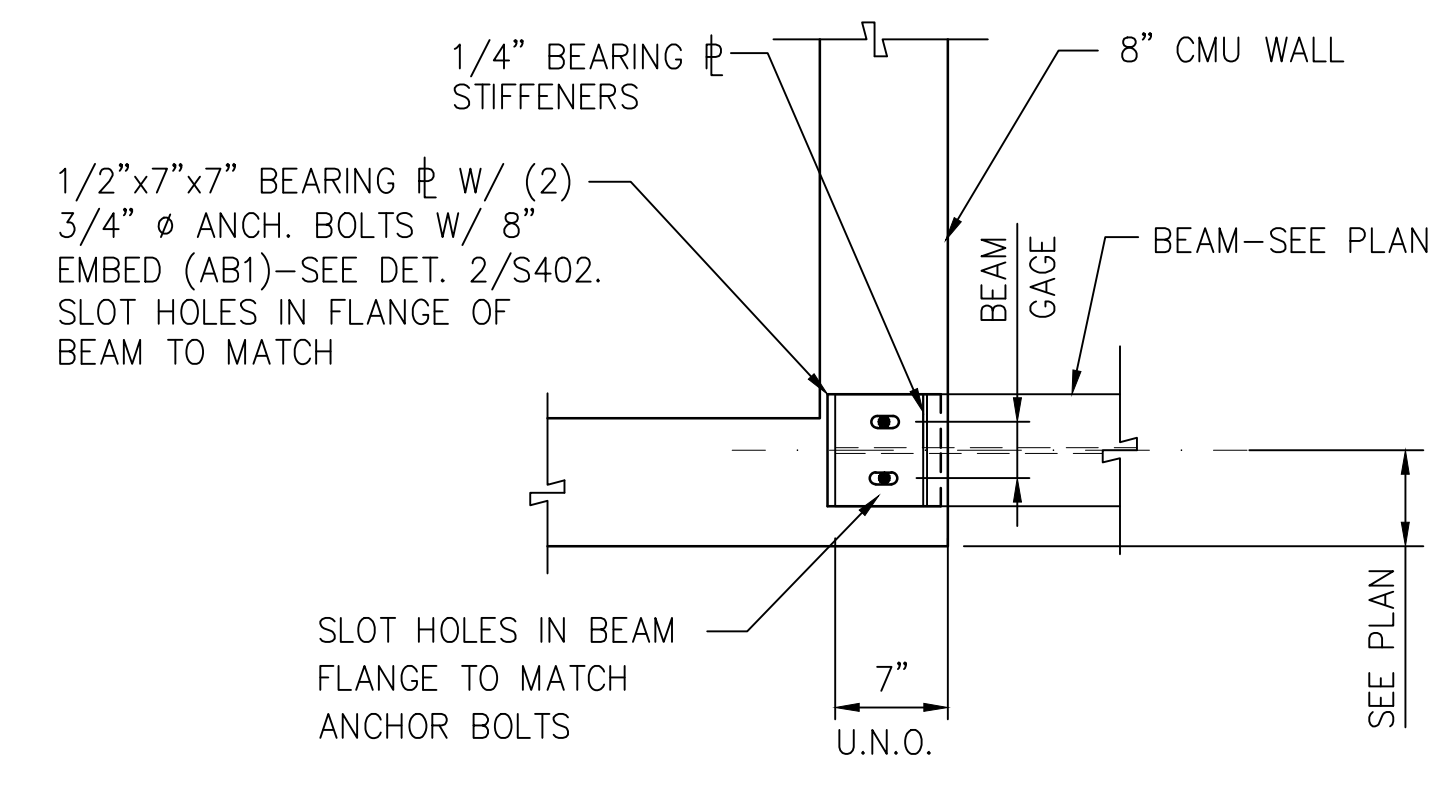
S401



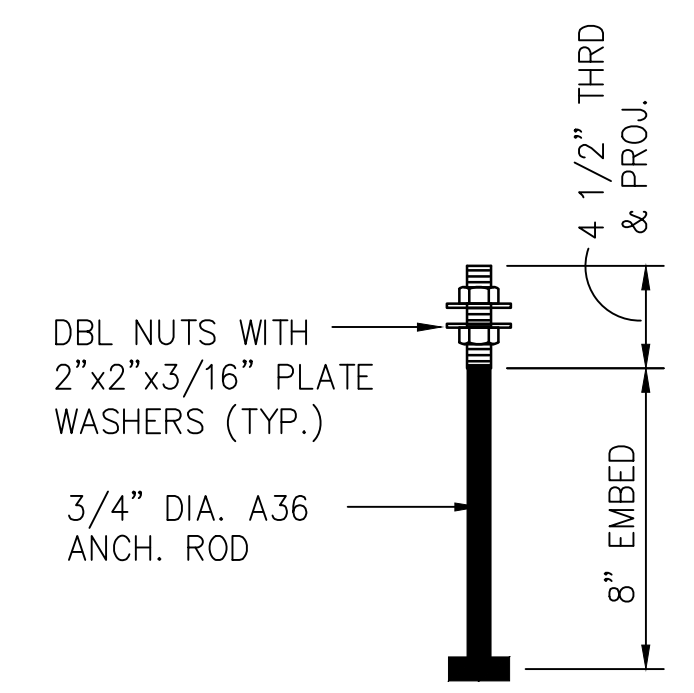
NOTE:
FORM & FILL AROUND BEAM W/
CONCRETE FILL AFTER BEAM IS SET.

TYPICAL ROOF BEAM BEARING AT
MASONRY WALL CORNER

SECTION 1
SCALE: 1"=1'-0" S402



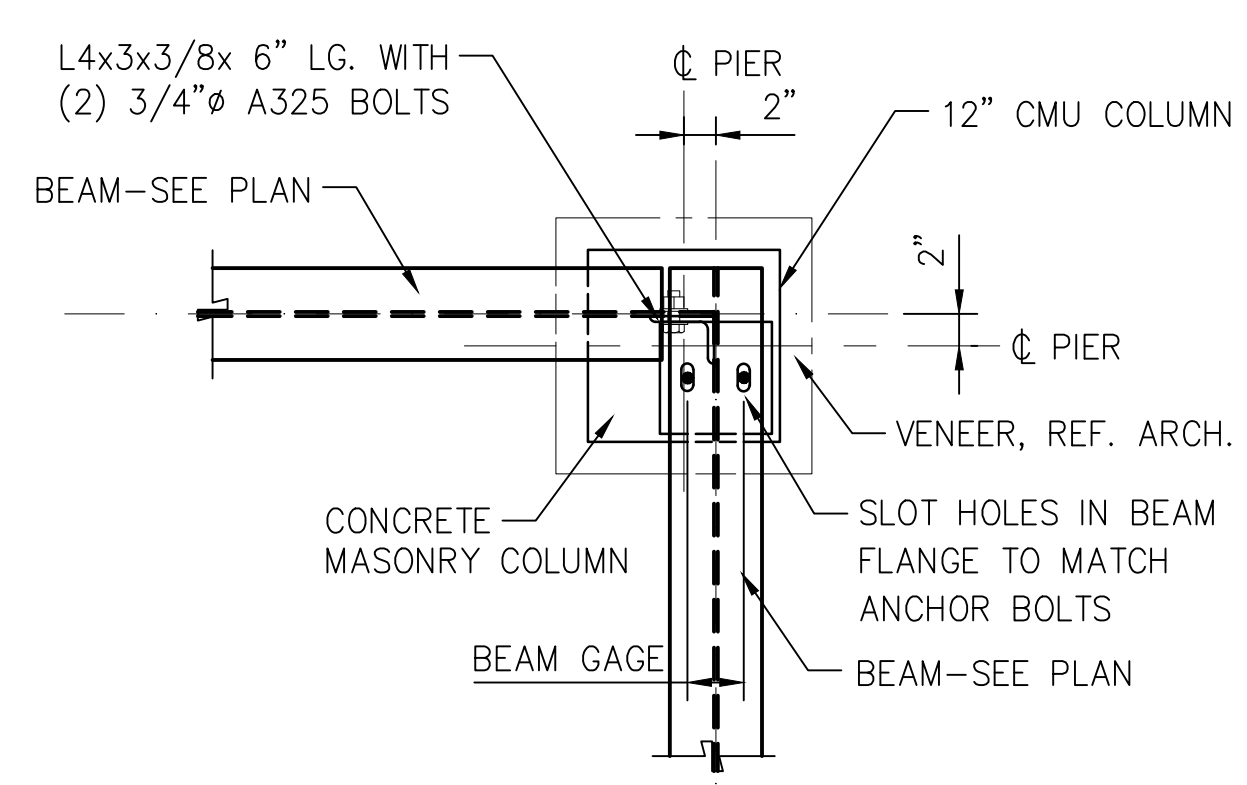
"B-B" BEAM BEARING @ CMU CORNER



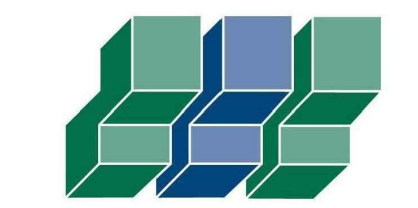
TYPE "AB1" CMU ANCHOR BOLT

NOTE:
ALL ANCHOR BOLTS SHALL
MEET ASTM F1554 (TYP.)

DETAIL 2
NOT TO SCALE S402



DETAIL 3
SCALE: 1"=1'-0" S402



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GENERAL NOTES

- ALL DIMENSIONS ARE TO FACE OF CONCRETE BLOCK UNLESS NOTED OTHERWISE.
- SEE SHEET A400 FOR ACCESSORY LEGEND AND TYPICAL MOUNTING HEIGHTS.
- ALL TOILET ACCESSORIES SHALL BE MOUNTED TO COMPLY WITH ADA.
- CONTRACTOR SHALL COORDINATE LOCATION OF COAT HOOKS WITH OWNER.
- SEE SHEET A101 FOR PARTITION TYPES.
- SEE SHEET A600 FOR DOOR SCHEDULE.
- CONDUIT, PIPING, ETC. SHALL NOT BE INSTALLED IN OR THROUGH CMU CELLS THAT CONTAIN REINFORCING.

LEGEND

- 6" CMU WALL TO STRUCTURE ABOVE
- 8" CMU WALL TO STRUCTURE ABOVE
- 6" CMU TOILET PARTITION (6'-0" HIGH)
- STONE VENEER CLAD CMU HALF WALL, MATCH EXISTING NEARBY STONE WALL, 3'-4" HIGH
- EXTERIOR CONCRETE
- CJ CONTROL JOINT
- FD FLOOR DRAIN TOP OF FLOOR DRAIN -1/2" F.F.E.
- MCJ MASONRY CONTROL JOINT, SEE STRUCTURAL
- SCJ STRUCTURAL CONTROL JOINT, SEE STRUCTURAL

INTERIOR COLOR SCHEDULE

FLOOR: GREY (RFS) STONHARD STONTEC WHITE PLATINUM 1/16 INCH
 BASE: GREY (RFS) STONHARD STONTEC WHITE PLATINUM 1/16 INCH
 CEILINGS: WHITE, GLOSS (PT-1)
 WALLS: WHITE, SEMI GLOSS EPOXY (PT-1)
 TRIM: WHITE, GLOSS (PT-1)

EXTERIOR COLOR SCHEDULE

WALLS: CMU-1 W/ELASTOMERIC COATING, MATCH WIEMER GREY (PT-2)
 WALLS: CMU-2 W/ELASTOMERIC COATING, MATCH ARCHITECTURAL BROWN (PT-3) (BOTTOM 5 COURSES)
 TRIM: WHITE, GLOSS (PT-1)
 EXTERIOR SOFFIT & LOUVERS: WHITE, GLOSS (PT-1)
 DOORS, FRAMES & LOUVERS: MATCH BLP ARCHITECTURAL BROWN (PT-3), SEMI-GLOSS
 ROOF SHINGLES: WEATHERED WOOD
 ROOF ACCESSORIES: PAINT TO MATCH ROOF SHINGLES

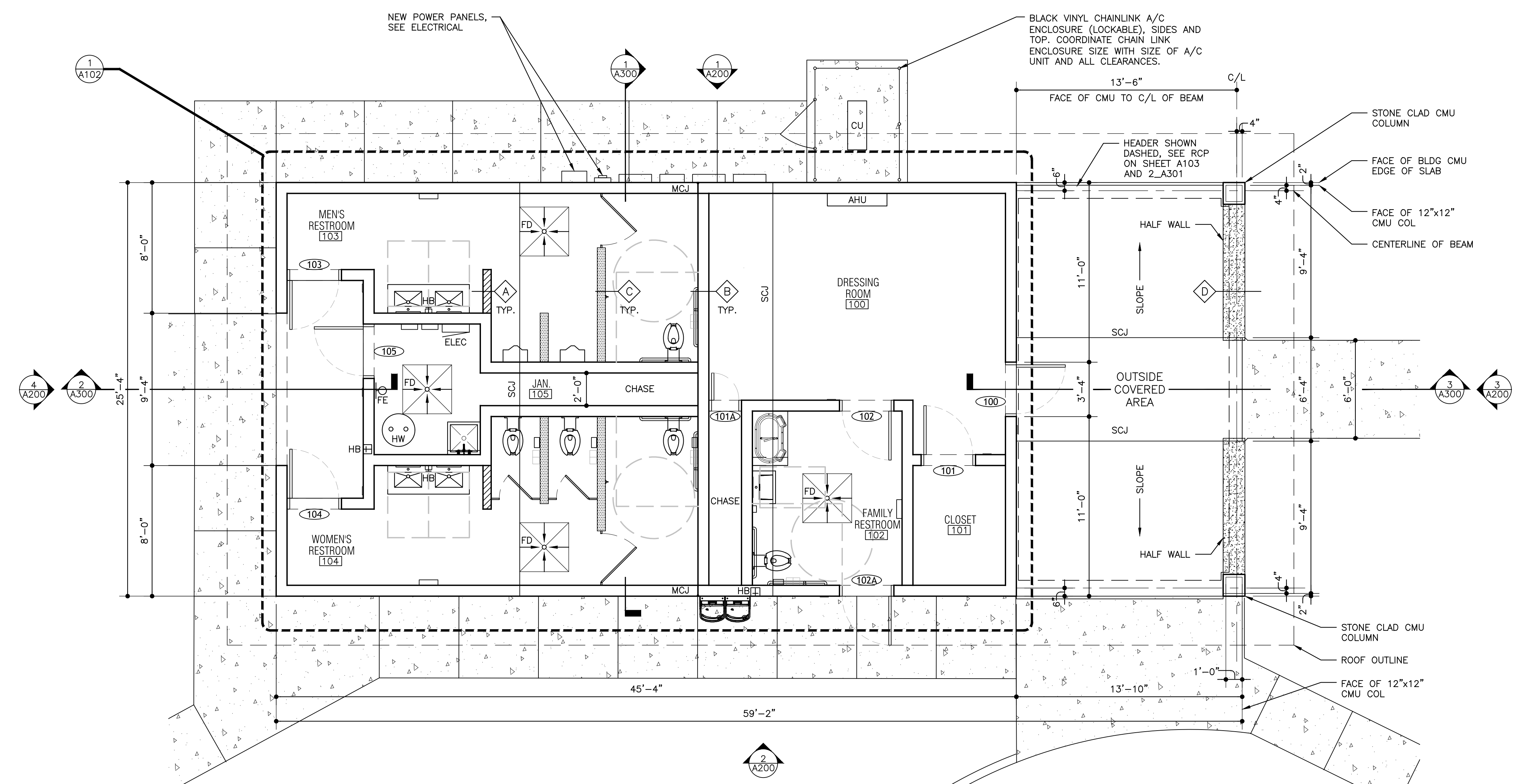
REFER TO DETAIL 4A_A401 FOR CMU CONCRETE FILL AT SINKS, TYP.

ROOM FINISH SCHEDULE									
ROOM NO.	ROOM	FLOOR	BASE	WALLS				CEILINGS	NOTES
				NORTH	EAST	SOUTH	WEST		
100	DRESSING ROOM	RFS	RFS	PT-1	PT-1	PT-1	PT-1	PT-1	X
101	CLOSET	RFS	RFS	PT-1	PT-1	PT-1	PT-1	PT-1	X
102	FAMILY RESTROOM	RFS	RFS	PT-1	PT-1	PT-1	PT-1	PT-1	X
103	MEN'S RESTROOM	RFS	RFS	PT-1	PT-1	PT-1	PT-1	PT-1	X
104	WOMEN'S RESTROOM	RFS	RFS	PT-1	PT-1	PT-1	PT-1	PT-1	X
105	JAN.	RFS	RFS	PT-1	PT-1	PT-1	PT-1	OPEN	X

NOTES & KEYNOTES for FINISH SCHEDULE

NOTE	DESCRIPTION
A	TOILET PARTITION DOORS, SOLID CORE PHENOLIC, COLOR: GRAPHITE GRAFIX
B	ALL DOORS TO BE HOLLOW METAL, COLOR: ARCHITECTURAL BROWN (PT-3)
C	ALL DOOR FRAMES TO BE HOLLOW METAL, COLOR: ARCHITECTURAL BROWN (PT-3)

ABBREVIATIONS			
UNO	UNLESS NOTED OTHERWISE	PT	PAINT
NF	NO FINISH	RFS	RESINOUS FLOORING SYSTEM
HM	HOLLOW METAL	SC	SEALED CONCRETE
INHM	INSULATED HOLLOW METAL	SPEC	SPECIFICATIONS
NIC	NOT IN CONTRACT		



1 FLOOR PLAN
1/4" = 1'-0"
0' 1' 2' 4' 8'

REVISIONS		
NO.	DATE	REMARKS
	9-28-22	IFB

SHEET TITLE
FLOOR PLAN

JOB NO. 2113

DATE. SEPT. 28, 2022

SHEET

A101



THE ARCHITECTS
GROUP / INC
710 DOWNTOWNER BOULEVARD
MOBILE, ALABAMA 36609
251_343_1811 tagarchitects.net



**LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS**

ALABAMA

MOBILE,

GENERAL NOTES

1. ALL DIMENSIONS ARE TO FACE OF CONCRETE BLOCK UNLESS NOTED OTHERWISE.
2. SEE SHEET A400 FOR ACCESSORY LEGEND AND TYPICAL MOUNTING HEIGHTS.
3. ALL TOILET ACCESSORIES SHALL BE MOUNTED TO COMPLY WITH ADA.
4. CONTRACTOR SHALL COORDINATE LOCATION OF COAT HOOKS WITH OWNER.
5. SEE SHEET A101 FOR PARTITION TYPES.
6. SEE SHEET A600 FOR DOOR SCHEDULE.
7. CONDUIT, PIPING, ETC. SHALL NOT BE INSTALLED IN OR THROUGH CMU CELLS THAT CONTAIN REINFORCING.

LEGEND

- 6" CMU WALL TO STRUCTURE ABOVE
- 8" CMU WALL TO STRUCTURE ABOVE
- 6" CMU TOILET PARTITION (6'-0" HIGH)
- STONE VENEER CLAD CMU HALF WALL, MATCH EXISTING NEARBY STONE WALL, 3'-4" HIGH
- EXTERIOR CONCRETE
- BCS COUNTERTOP SURFACE MOUNTED BABY CHANGING STATION
- CJ CONTROL JOINT
- FD FLOOR DRAIN TOP OF FLOOR DRAIN -1/2" F.F.E.
- MCJ MASONRY CONTROL JOINT, SEE STRUCTURAL
- SCJ STRUCTURAL CONTROL JOINT, SEE STRUCTURAL

REFER TO DETAIL 4A_A401 FOR CMU CONCRETE FILL AT SINKS, TYP.

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE

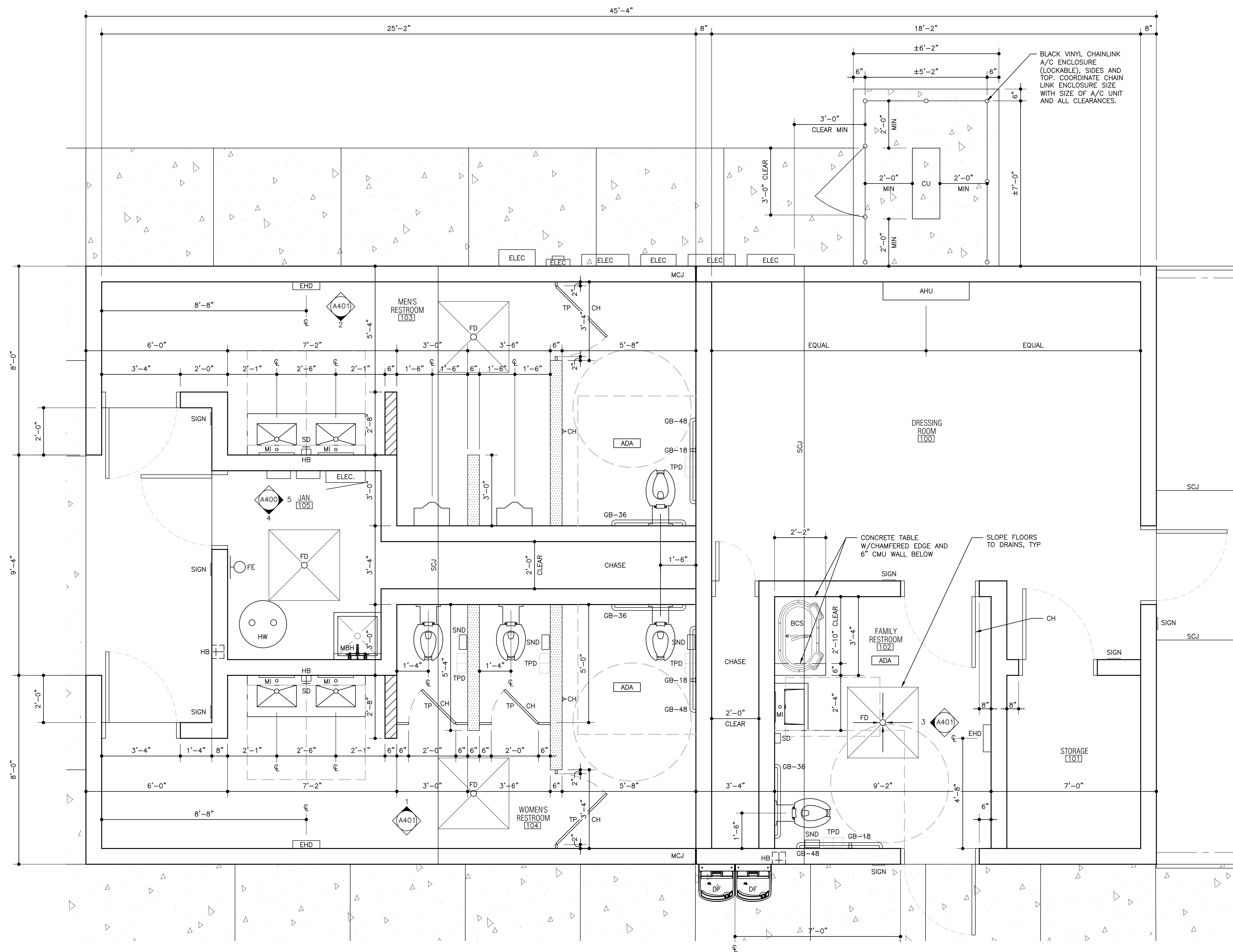
ENLARGED TOILET PLAN

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

A102



1 ENLARGED RESTROOM PLAN
1/2" = 1'-0"
0 6" 1" 2" 4"



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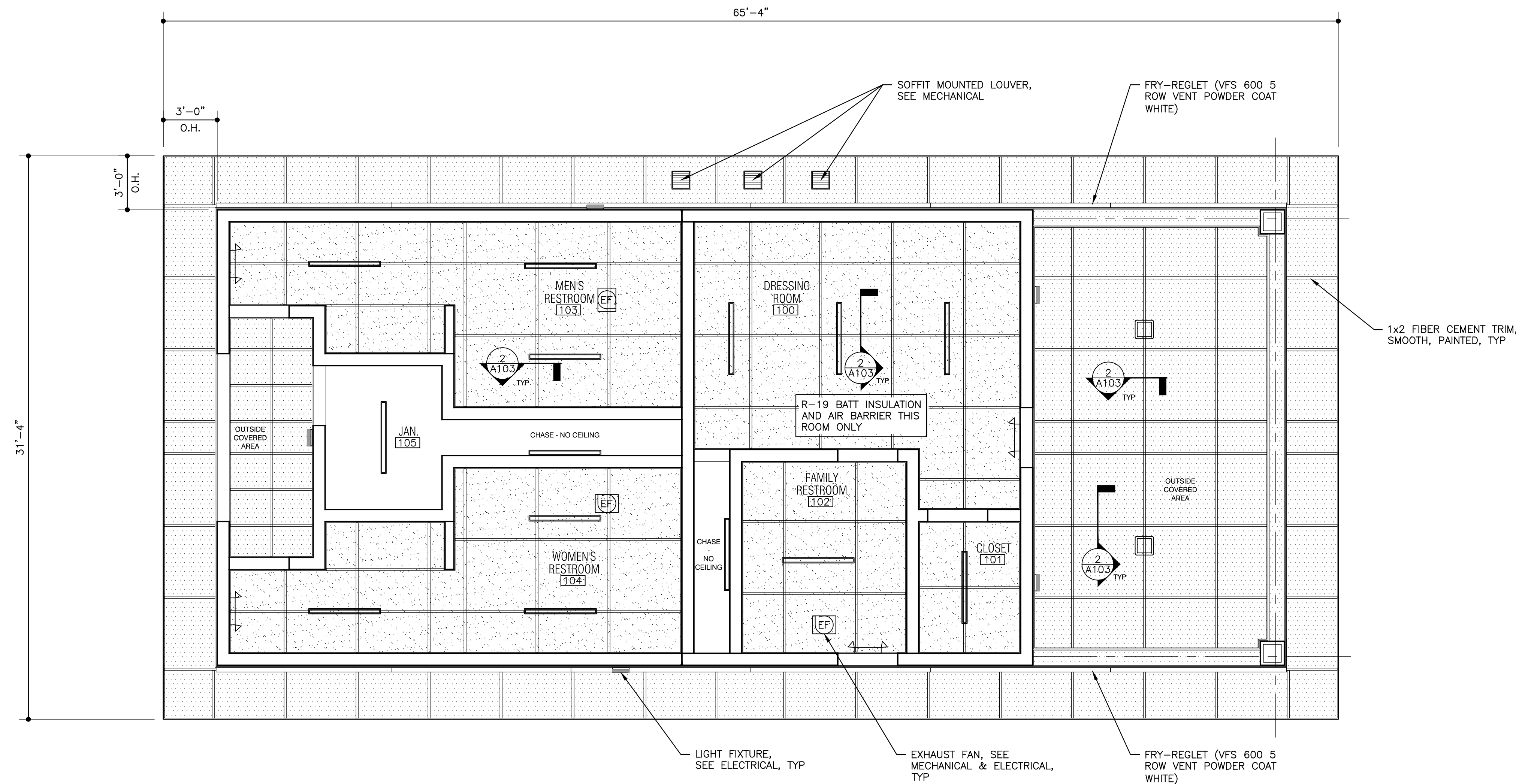
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NOTES

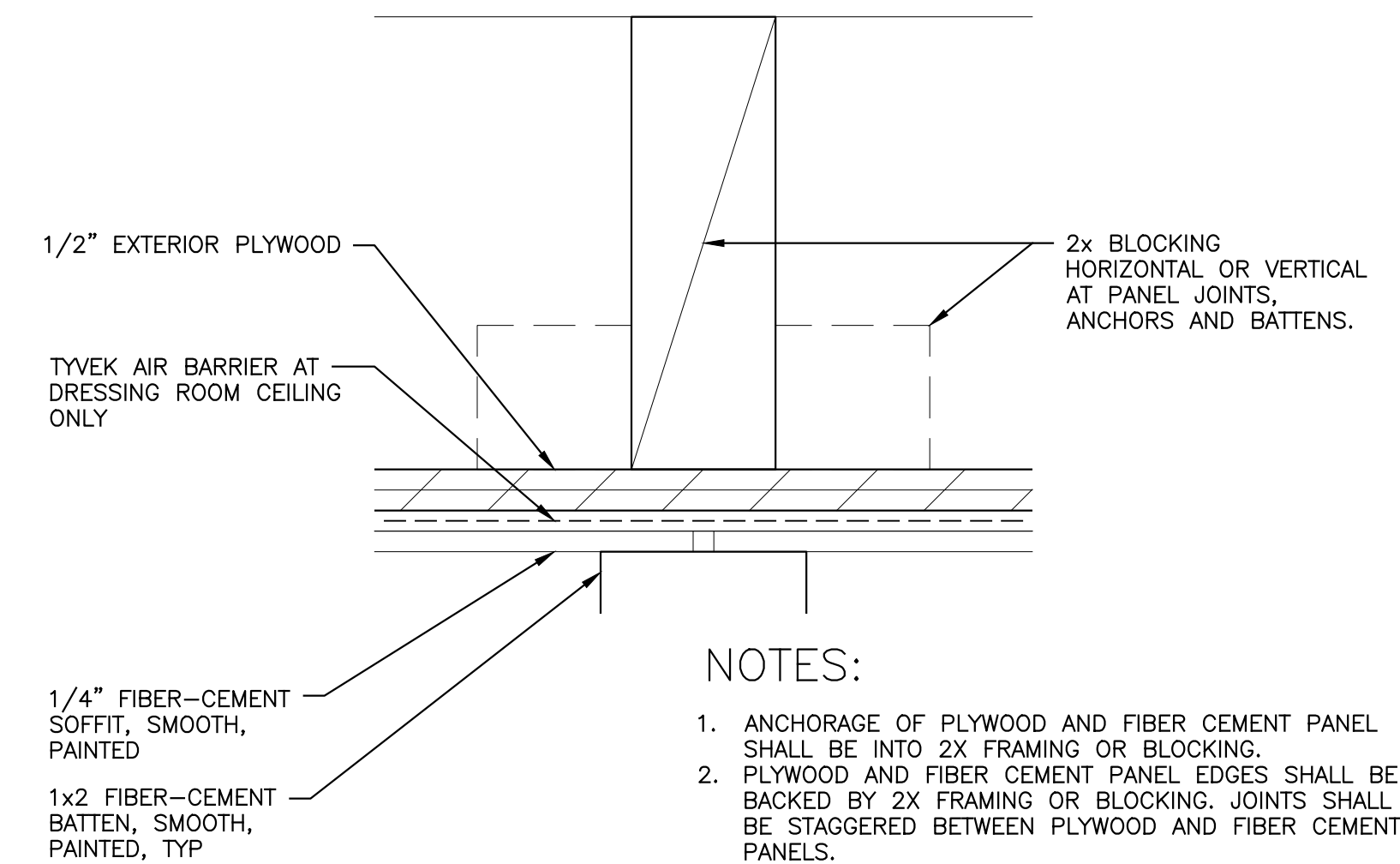
- REFER TO ENGINEERING DRAWINGS FOR ALL LIGHTING FIXTURE AND AIR GRILL LOCATIONS AND SPECIFICATIONS.
- SEE MECH. AND ELEC. FOR COMPLETE LIGHTING AND HVAC REQUIREMENTS. NOTIFY ARCHITECT IF CONFLICTS ARE ENCOUNTERED PRIOR TO PROCEEDING.

LEGEND

- FIBER-CEMENT CEILING, WITH 1x2 FIBER-CEMENT BATTENS AT SEAMS, SMOOTH, PAINTED WHITE. TYPICAL CEILING HEIGHT +/- 9'-6" UNLESS NOTED OTHERWISE. JOINTS OF FIBER-CEMENT PANELS SHALL OCCUR UNDER BATTENS.
- FIBER-CEMENT SOFFIT, WITH 1x2 FIBER-CEMENT BATTENS AT SEAMS, SMOOTH, PAINTED WHITE. JOINTS OF FIBER-CEMENT PANELS SHALL OCCUR UNDER BATTENS.
- SEE ELECTRICAL



1 REFLECTED CEILING PLAN
1/4"=1'-0"



2 BATTEN/ CEILING DETAIL
6"=1'-0"

NOTES:

- ANCHORAGE OF PLYWOOD AND FIBER CEMENT PANEL SHALL BE INTO 2X FRAMING OR BLOCKING.
- PLYWOOD AND FIBER CEMENT PANEL EDGES SHALL BE BACKED BY 2X FRAMING OR BLOCKING. JOINTS SHALL BE STAGGERED BETWEEN PLYWOOD AND FIBER CEMENT PANELS.
- AT EXTERIOR SOFFITS AND CEILINGS FIBER CEMENT PANEL ANCHORS SHALL PENETRATE 2X BLOCKING OR FRAMING NOT LESS THAN 1-INCH OR GREATER AS REQUIRED BY ESR.

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE

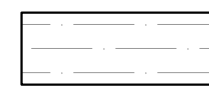
**REFLECTED
CEILING PLAN**

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

A103

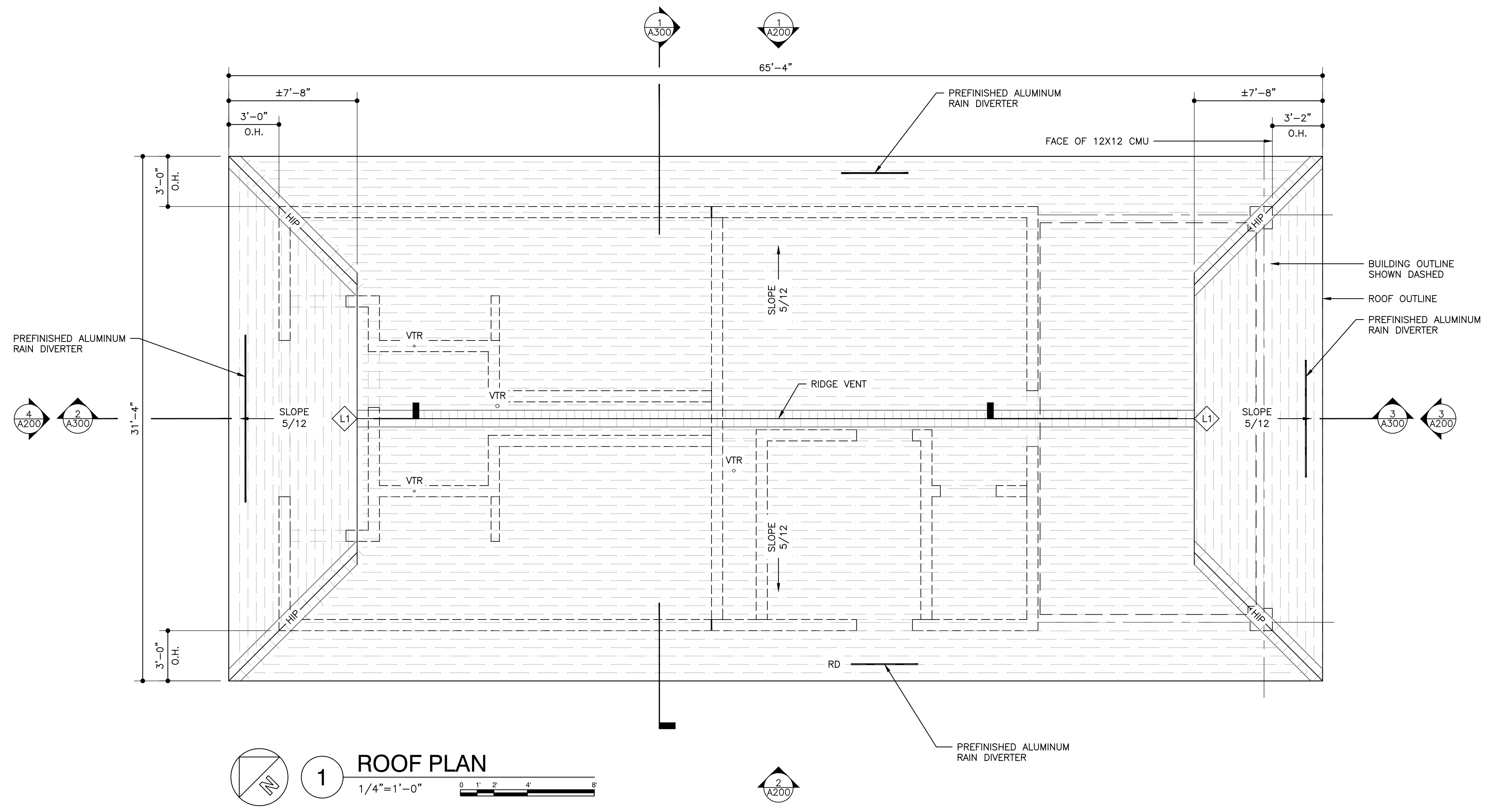
ROOF ASSEMBLIES LEGEND	
1. ARCHITECTURAL ASPHALT SHINGLES, COLOR: WEATHERED WOOD, OVER SELF-ADHERING SHEET UNDERLAYMENT ON PLYWOOD DECKING, TYPICAL.	

TAG
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**LANGAN PARK -
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MOBILE, ALABAMA



REVISIONS		
NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE
ROOF PLAN

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

A104

GENERAL NOTES

- ALL DIMENSIONS ARE TO FACE OF CONCRETE BLOCK UNLESS NOTED OTHERWISE.
- SEE SHEET A400 FOR ACCESSORY LEGEND AND TYPICAL MOUNTING HEIGHTS.
- ALL TOILET ACCESSORIES SHALL BE MOUNTED TO COMPLY WITH ADA.
- CONTRACTOR SHALL COORDINATE LOCATION OF COAT HOOKS WITH OWNER.
- SEE SHEET A101 FOR PARTITION TYPES.
- SEE SHEET A600 FOR DOOR SCHEDULE.
- CONDUIT, PIPING, ETC. SHALL NOT BE INSTALLED IN OR THROUGH CMU CELLS THAT CONTAIN REINFORCING.

KEYNOTES

- A. ARCHITECTURAL ASPHALT SHINGLE ROOF, COLOR: WEATHERED WOOD.
- B. RIDGE VENT.
- C. CMU-1: PAINTED SMOOTH FACE CONCRETE BLOCK.
- D. CMU-2: PAINTED DECORATIVE SPLIT FACE CONCRETE BLOCK.
- E. FIBER-CEMENT FASCIA, SMOOTH, PAINTED.
- F. HOLLOW METAL DOOR & FRAME, SEE DOOR SCHEDULE.
- G. STONE VENEER COLUMN.
- H. STONE VENEER HALF WALL.
- I. ADA ACCESSIBLE DRINKING FOUNTAIN WITH BOTTLE WATER FILL SEE 6/A400 & PLUMBING.
- J. 4" THICK x 1'-4" WIDE, CAST STONE WALL CAP.
- K. SIGN, SEE SHEET A700.
- L. FIBER-CEMENT SOFFIT, SMOOTH, PAINTED.
- M. MASONRY CONTROL JOINT (MCJ), SEE STRUCTURAL.
- N. TRASH RECEPTACLE, SEE 4_AS101.
- O. ALUMINUM LOUVER, SEE MECHANICAL.
- P. FIBER-CEMENT FRIEZE BOARD, SMOOTH, PAINTED.
- Q. FIBER-CEMENT CEILING, SMOOTH, PAINTED.
- R. FIBER-CEMENT BATTEN BOARD, SMOOTH, PAINTED.

SHEET NOTES

- USE SMOOTH FACE BLOCK BEHIND ALL LIGHT FIXTURE MOUNTS, HOSE BIBBS, OUTLETS, ETC.
- ALL CMU BLOCK FOR THIS BUILDING SHALL BE RUNNING BOND.
- INSIDE FACE OF EXTERIOR BLOCK TO BE FLUSH.
- ALL INTERIOR WALLS THAT HAVE BOTH FACES ON THE INTERIOR TO BE 8" CONCRETE BLOCK SMOOTH FACE, PAINTED WHITE.
- BATT INSULATION: ASTM C612, TYPE IA, UNFACED.

EXTERIOR COLOR SCHEDULE

WALLS: CMU-1 MATCH WIEMER GREY (PT-2), ELASTOMERIC
BOTTOM 5 COURSES

WALLS: CMU-2 MATCH ARCHITECTURAL BROWN (PT-3)
BOTTOM 5 COURSES

TRIM: WHITE, GLOSS (PT-1)

EXTERIOR SOFFIT & LOUVERS: WHITE, GLOSS (PT-1)

DOORS, FRAMES & LOUVERS: MATCH
BLP ARCHITECTURAL BROWN (PT-3), SEMI-GLOSS

ROOF SHINGLES: WEATHERED WOOD

ROOF ACCESSORIES: PAINT TO MATCH ROOF SHINGLES

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE

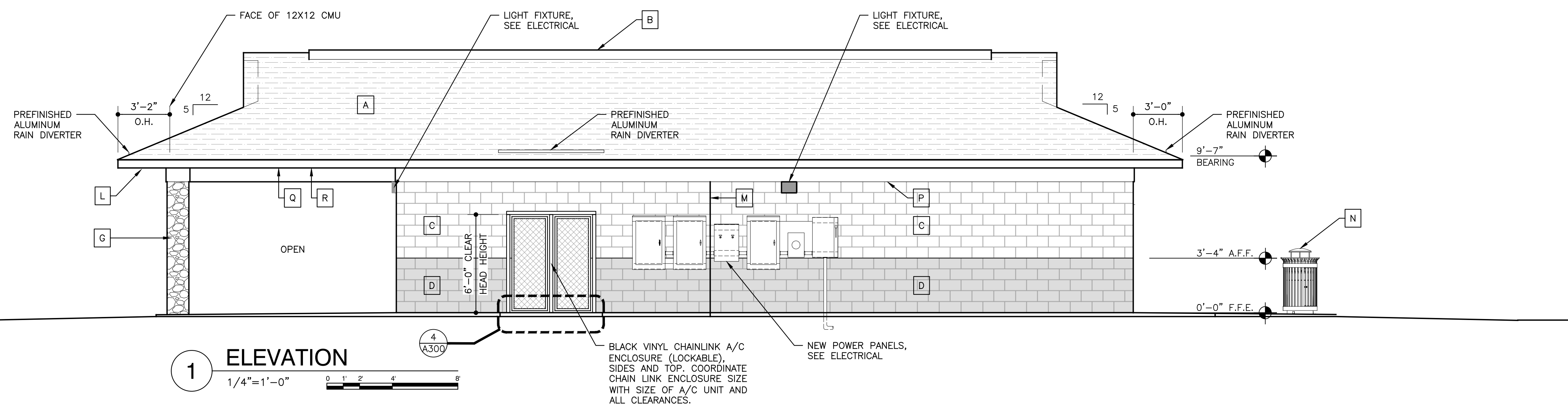
ELEVATIONS

JOB NO. 2113

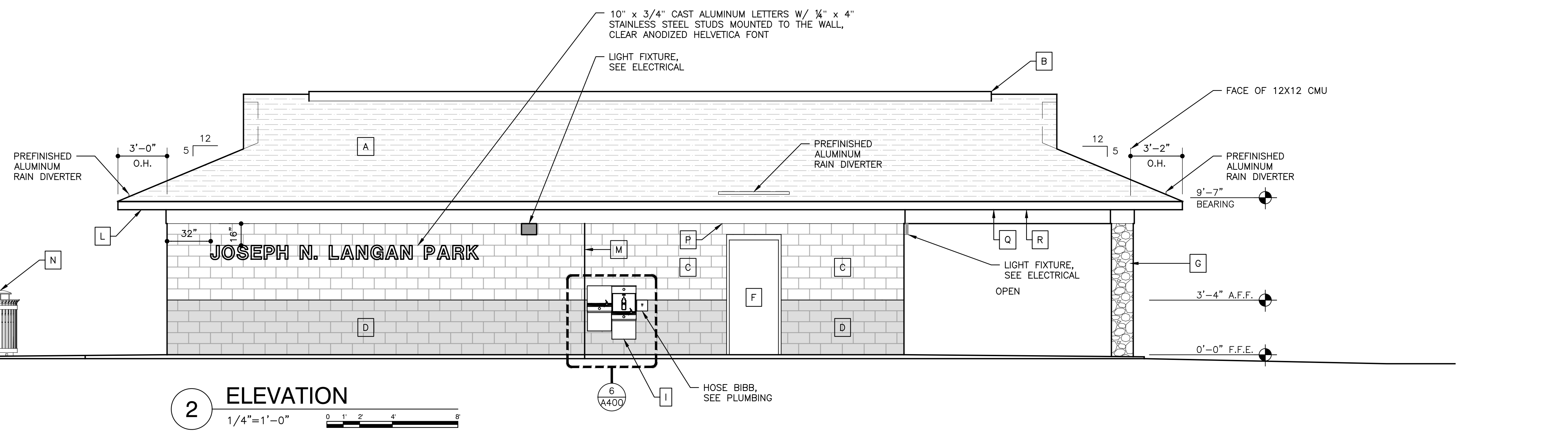
DATE, SEPT. 28, 2022

SHEET

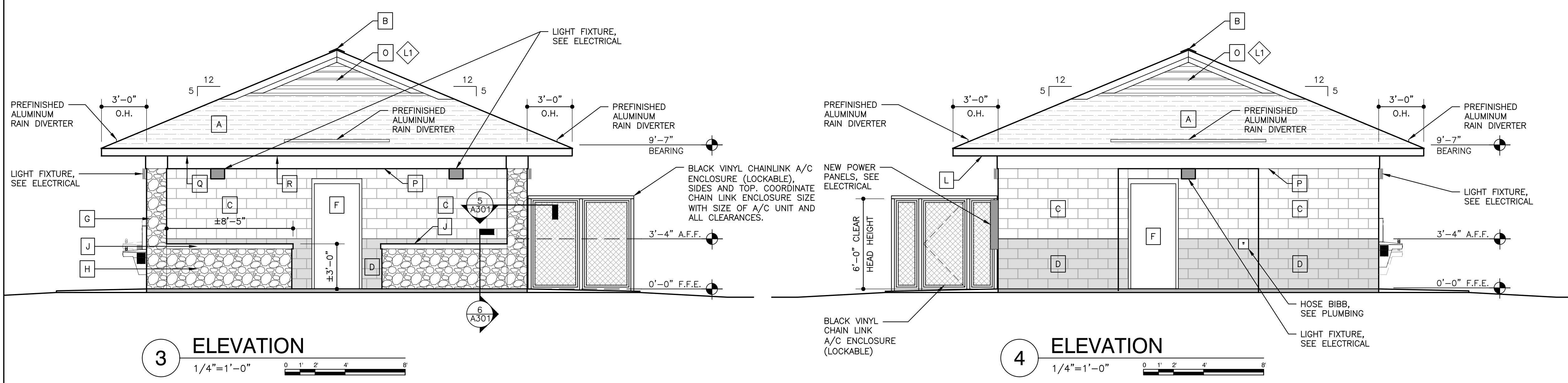
A200



1 ELEVATION
1/4"=1'-0"
0 1' 2' 4' 8'



2 ELEVATION
1/4"=1'-0"
0 1' 2' 4' 8'



3 ELEVATION
1/4"=1'-0"
0 1' 2' 4' 8'

4 ELEVATION
1/4"=1'-0"
0 1' 2' 4' 8'

**LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS**

ALABAMA

MOBILE,

GENERAL NOTES

- ALL DIMENSIONS ARE TO FACE OF CONCRETE BLOCK UNLESS NOTED OTHERWISE.
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- SEE SHEET A600 FOR DOOR SCHEDULE.
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KEYNOTES

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REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

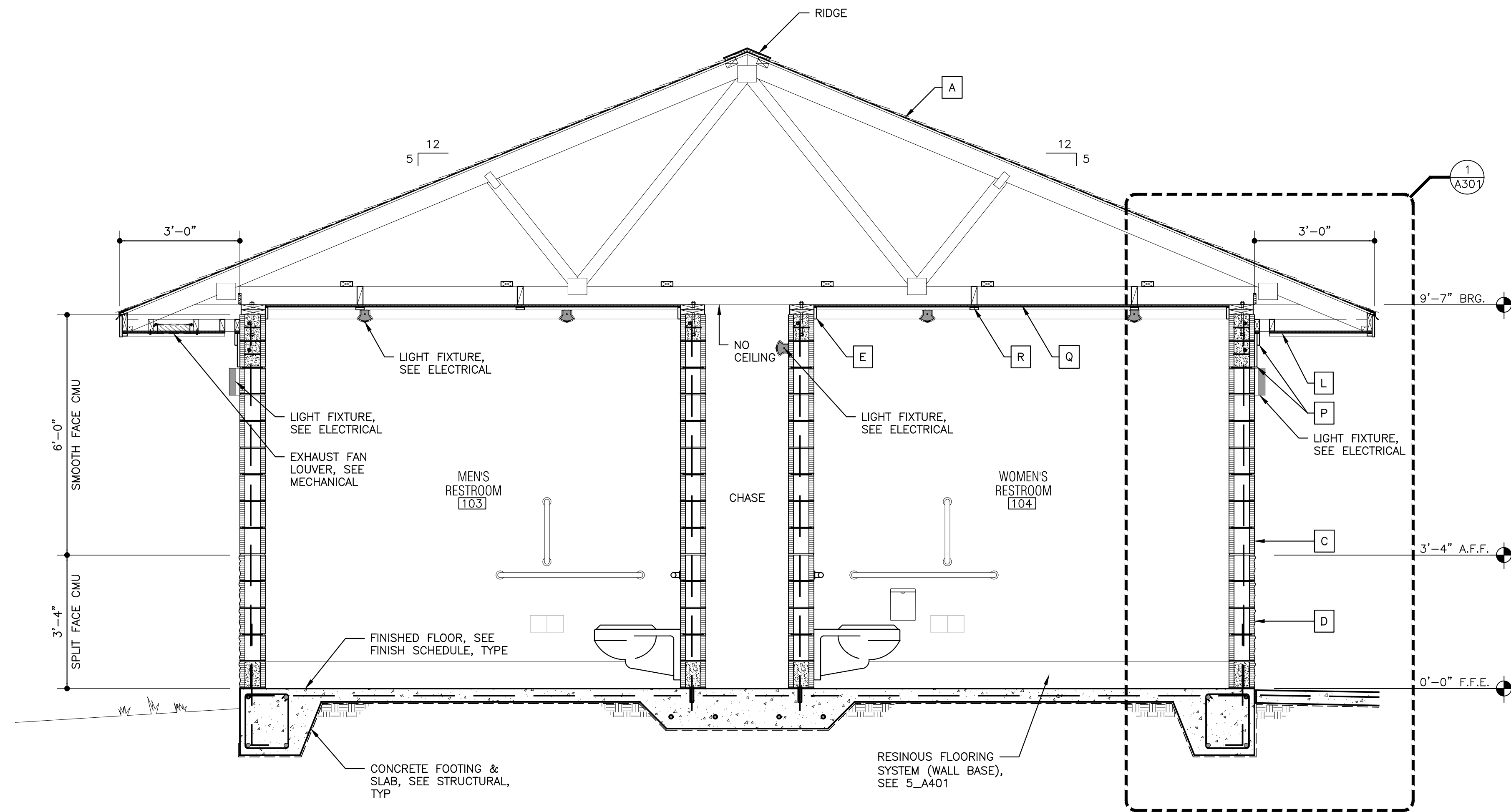
**SHEET TITLE
SECTIONS**

JOB NO. 2113

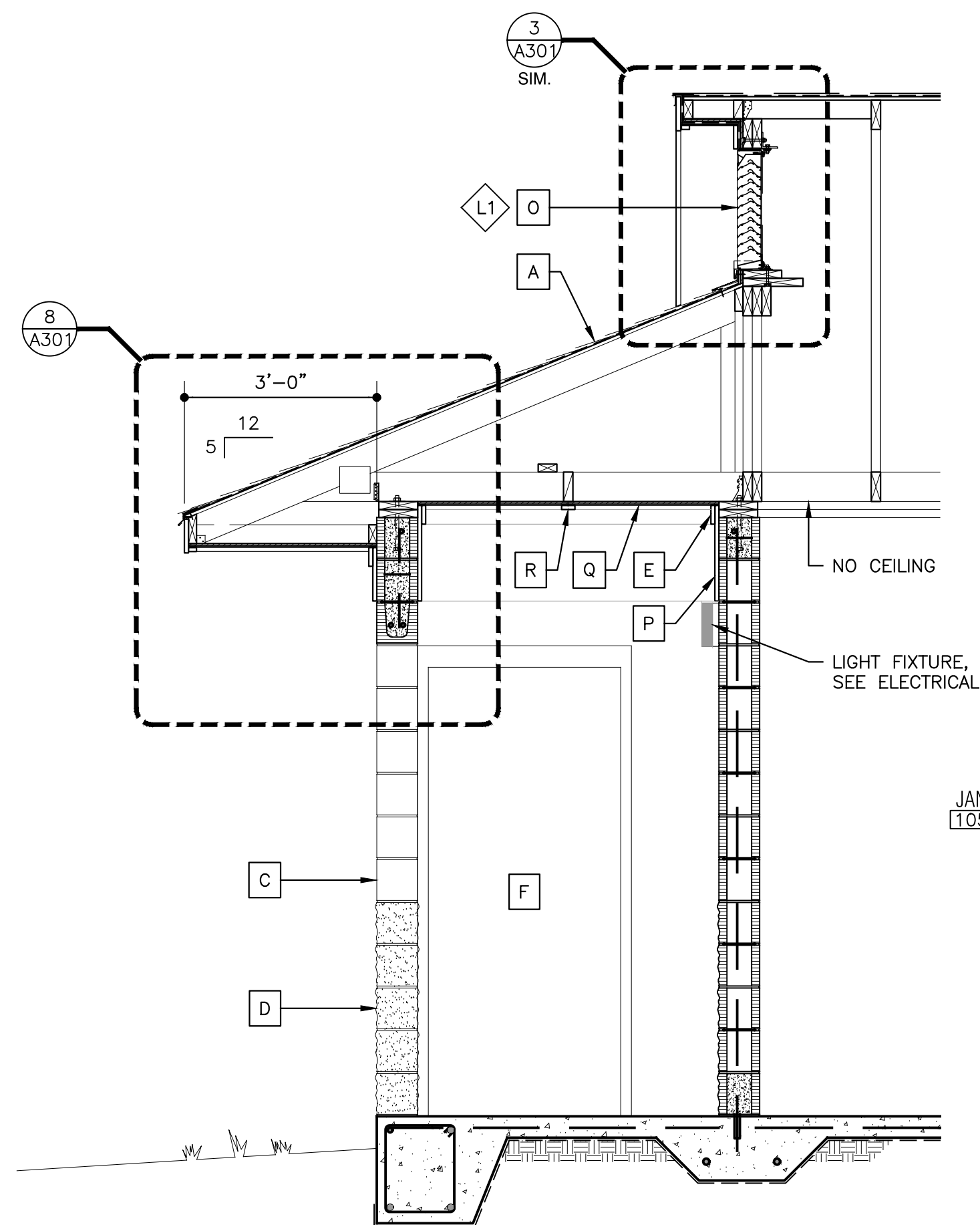
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SHEET

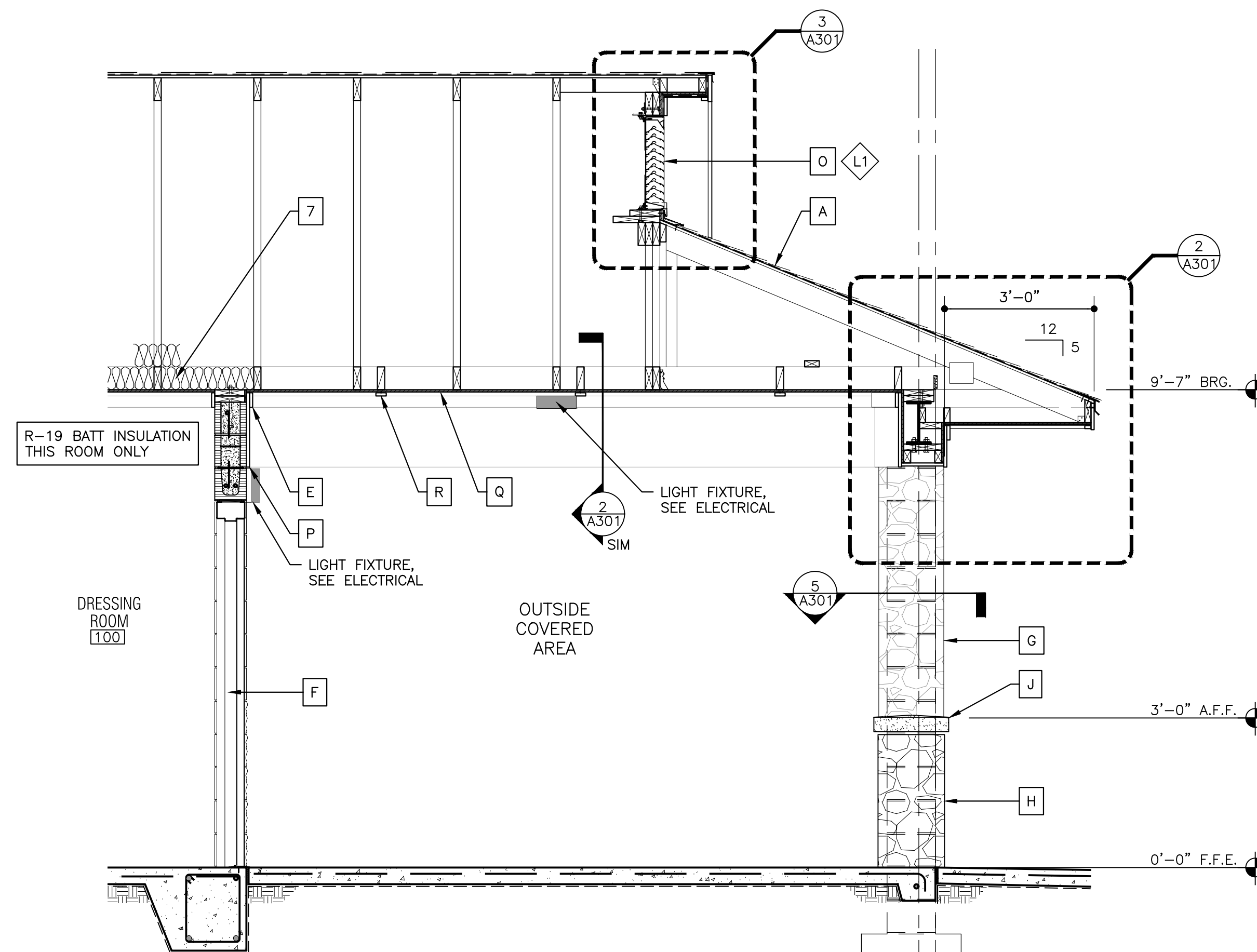
A300



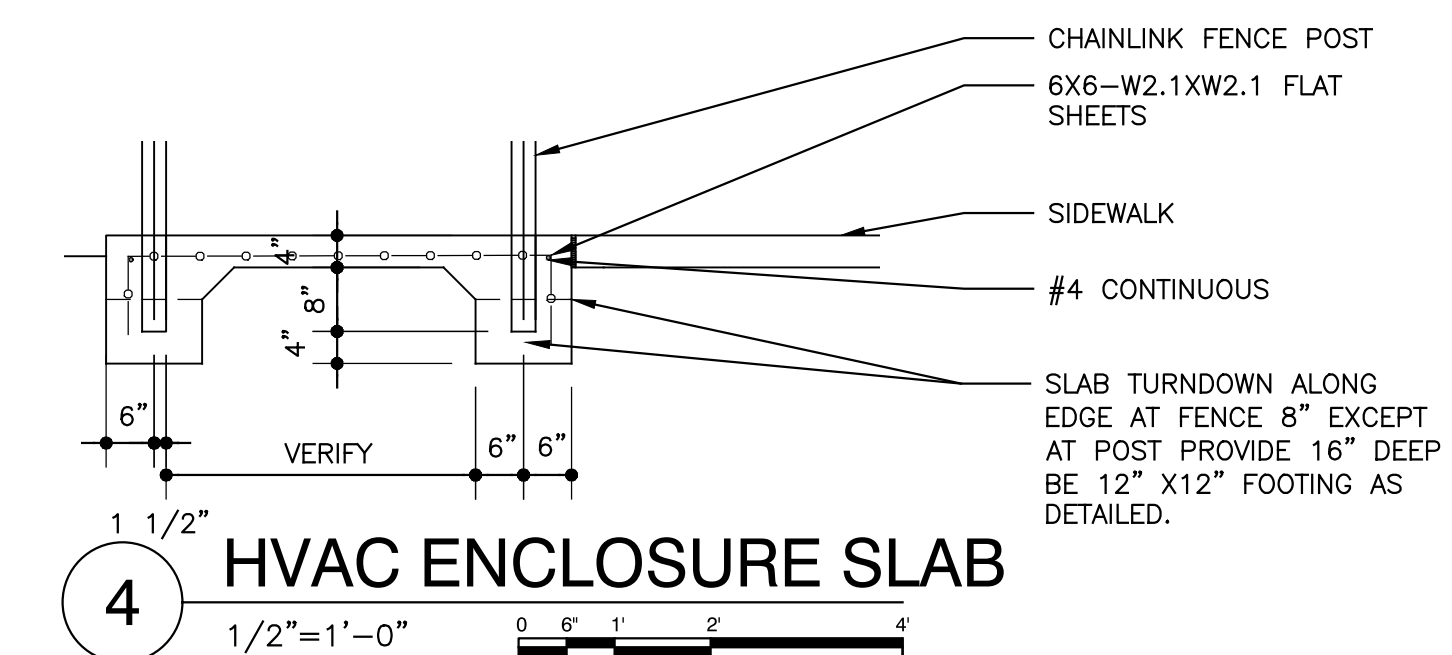
1 BUILDING SECTION
1/2"=1'-0"



2 BUILDING SECTION
1/2"=1'-0"



3 BUILDING SECTION
1/2"=1'-0"



4 HVAC ENCLOSURE SLAB
1/2"=1'-0"

**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

ALABAMA
 MOBILE

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

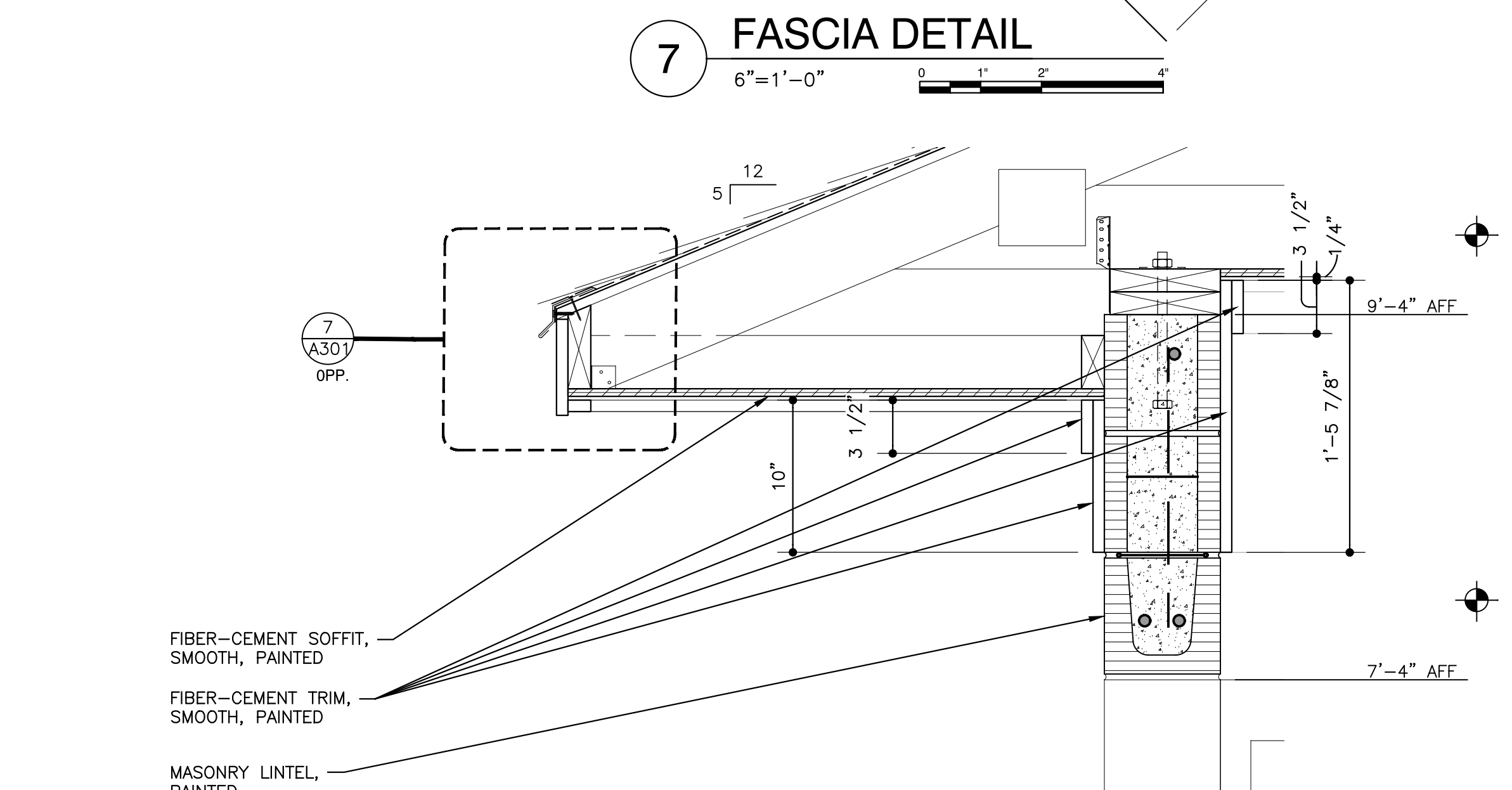
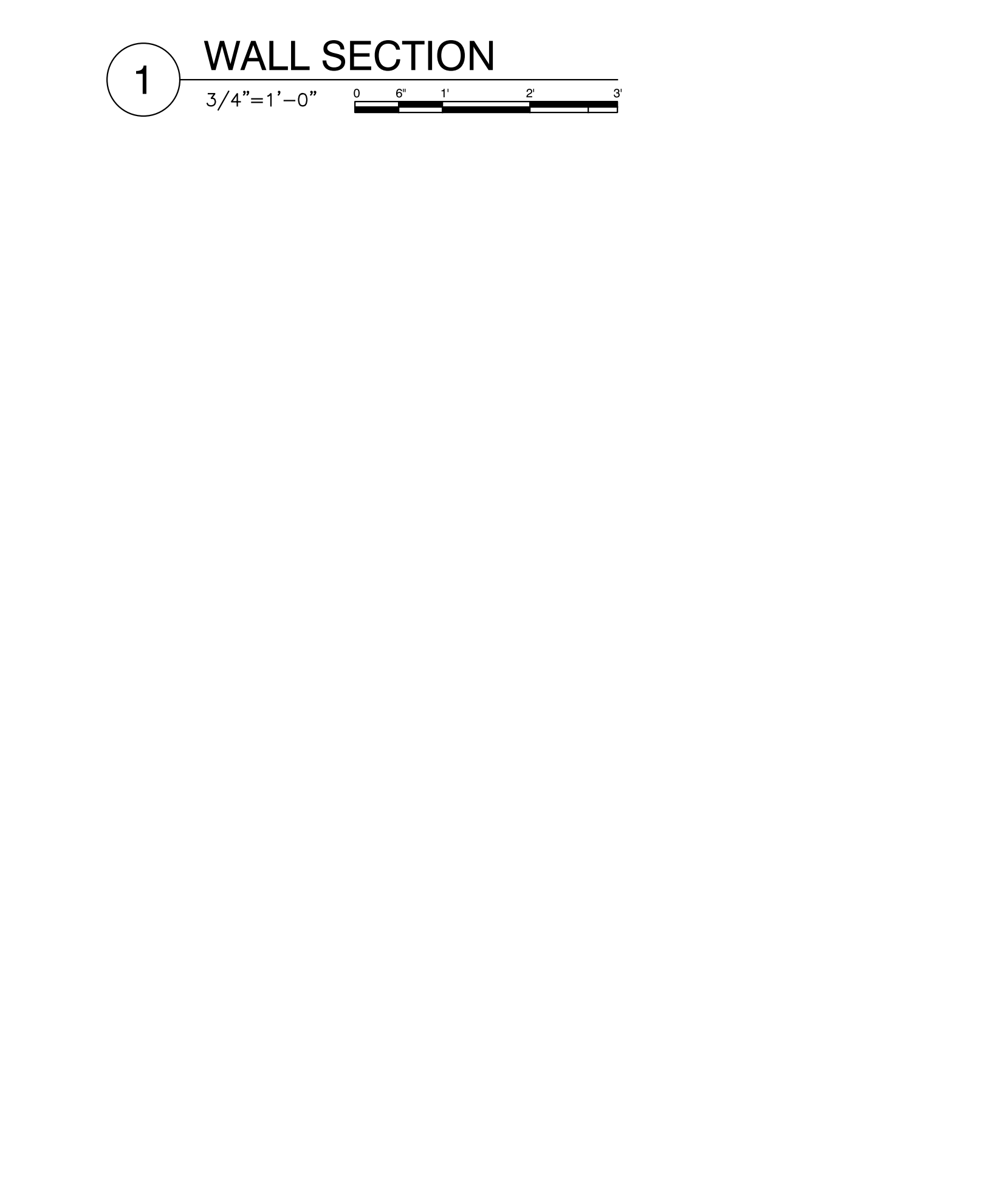
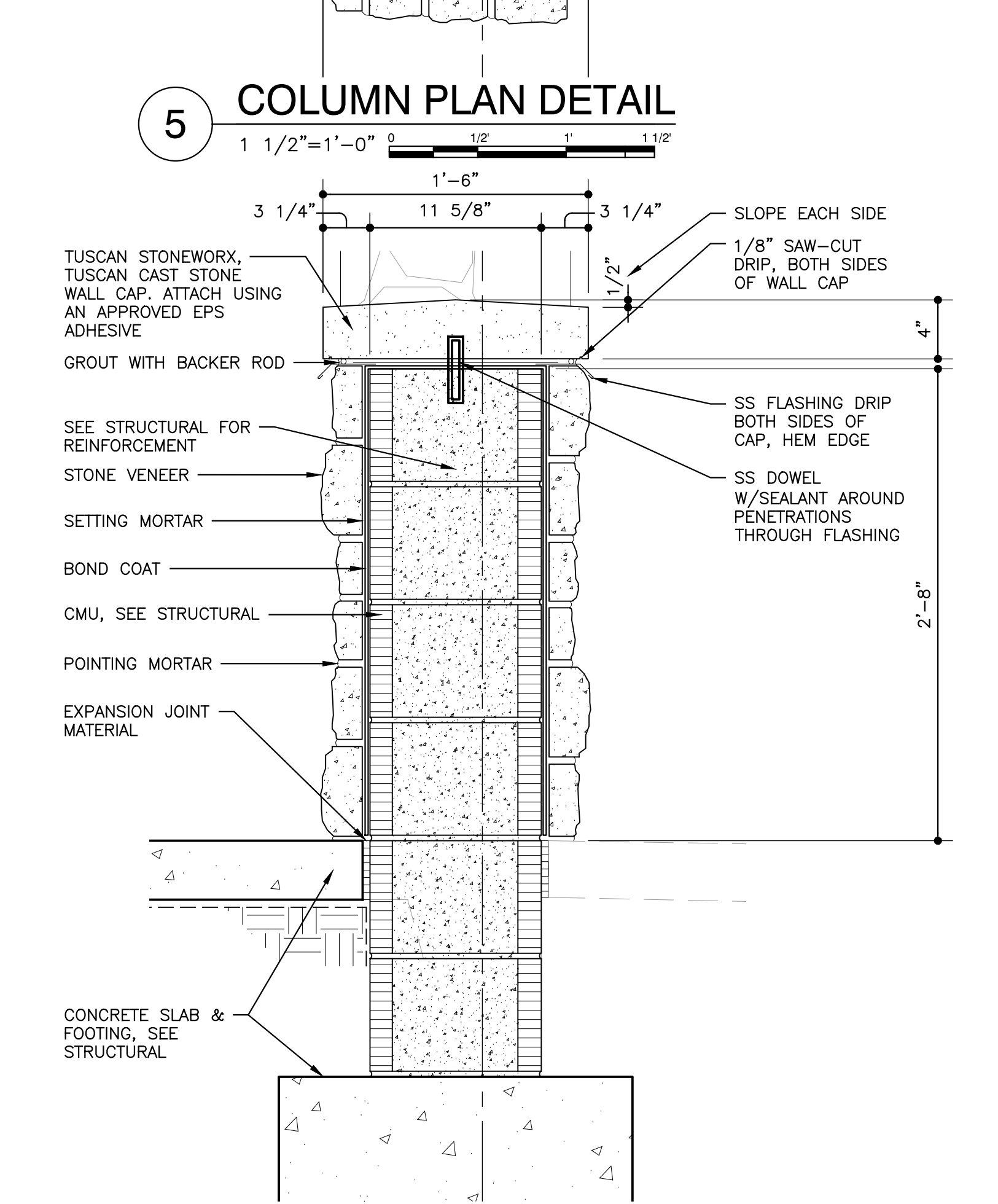
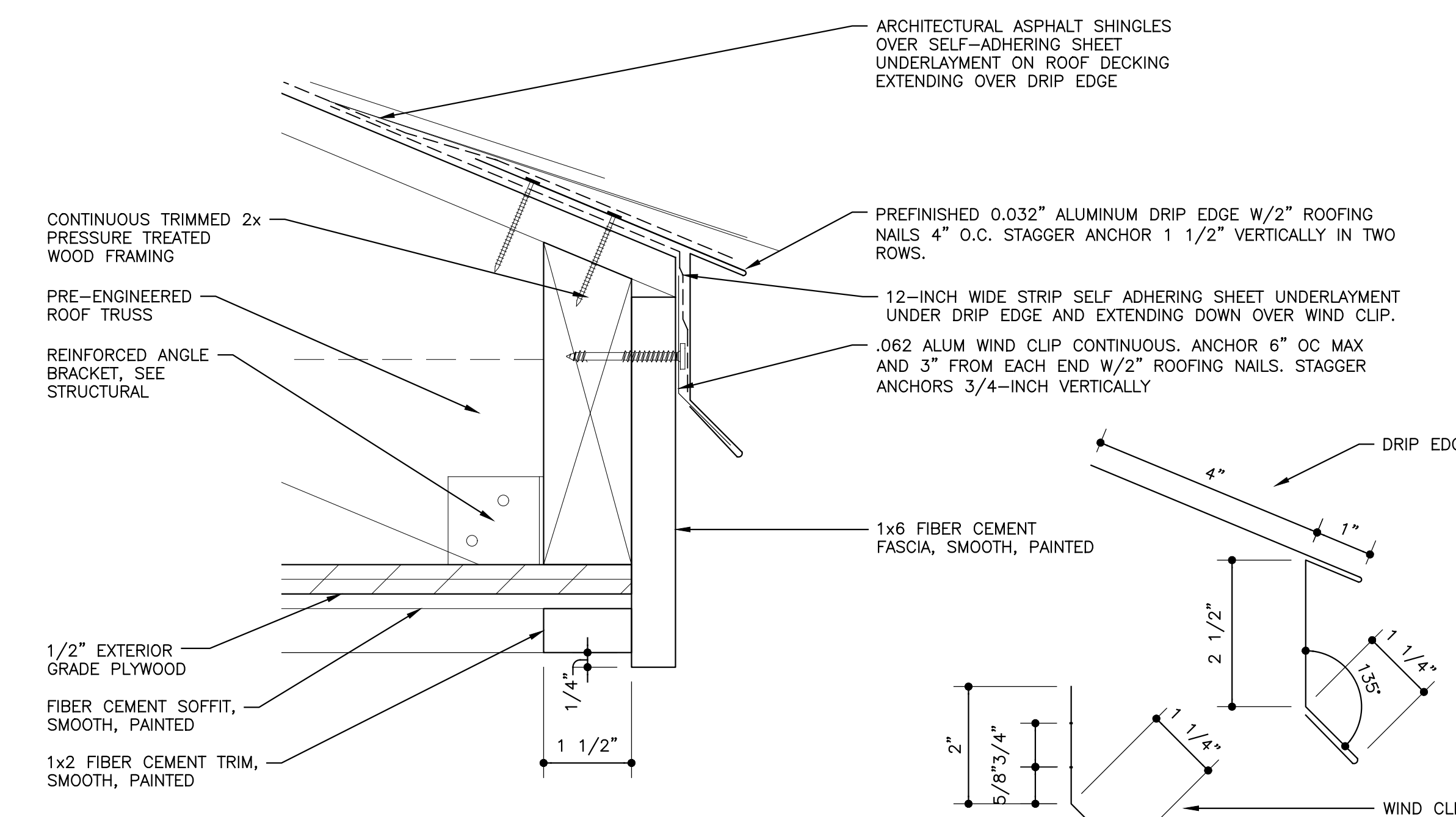
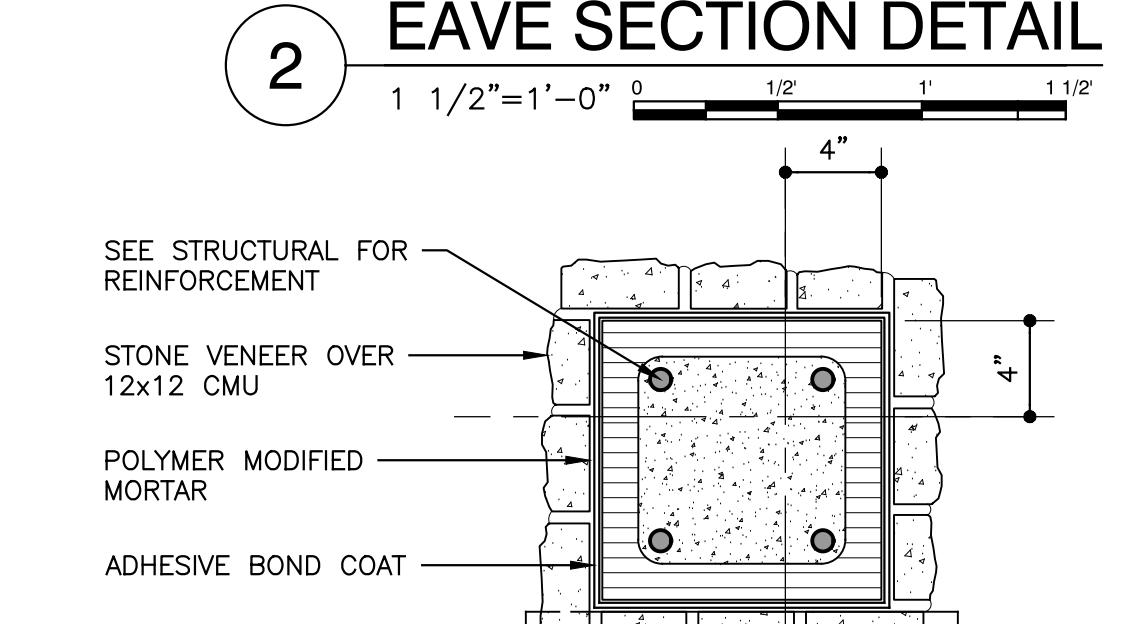
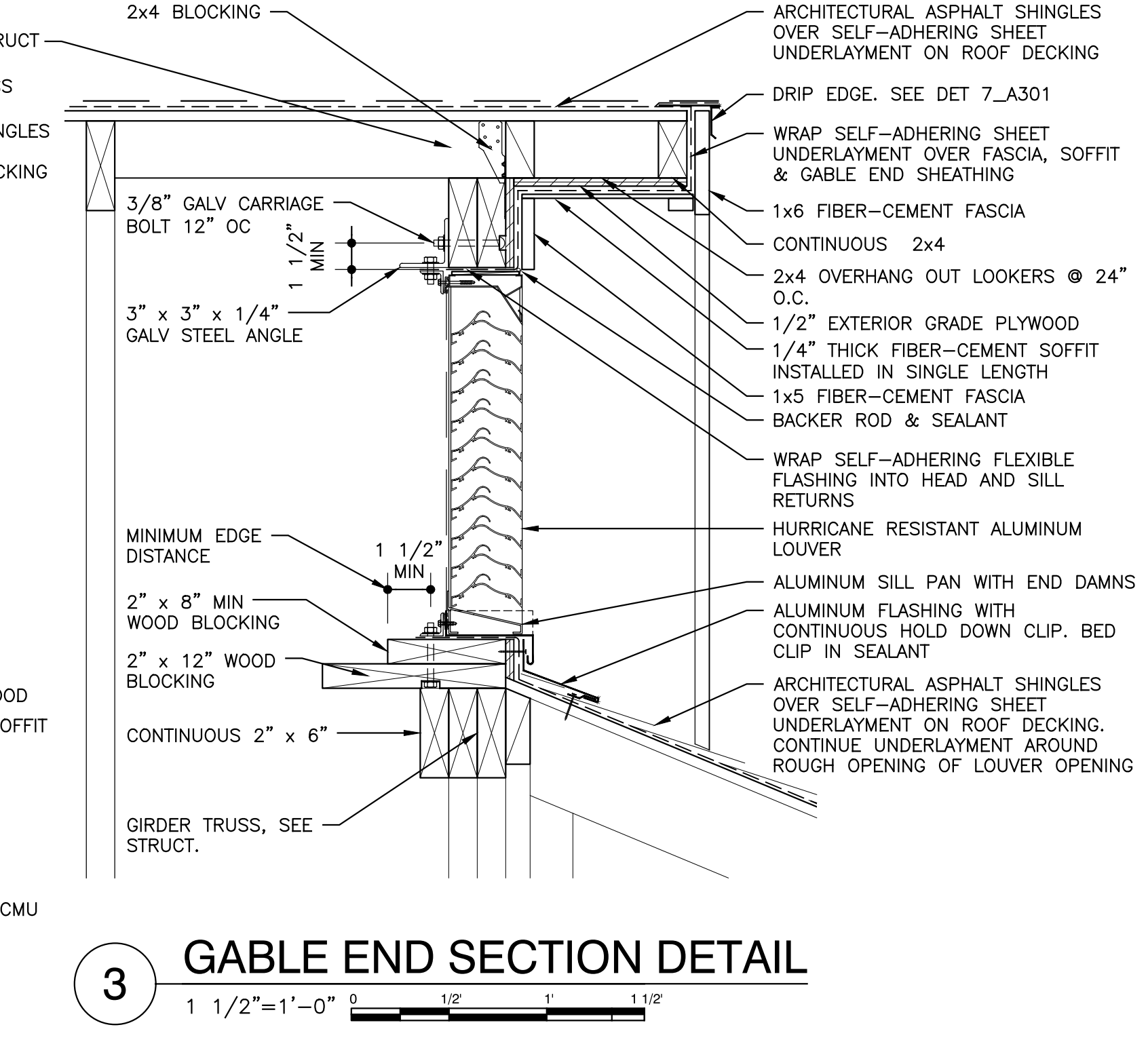
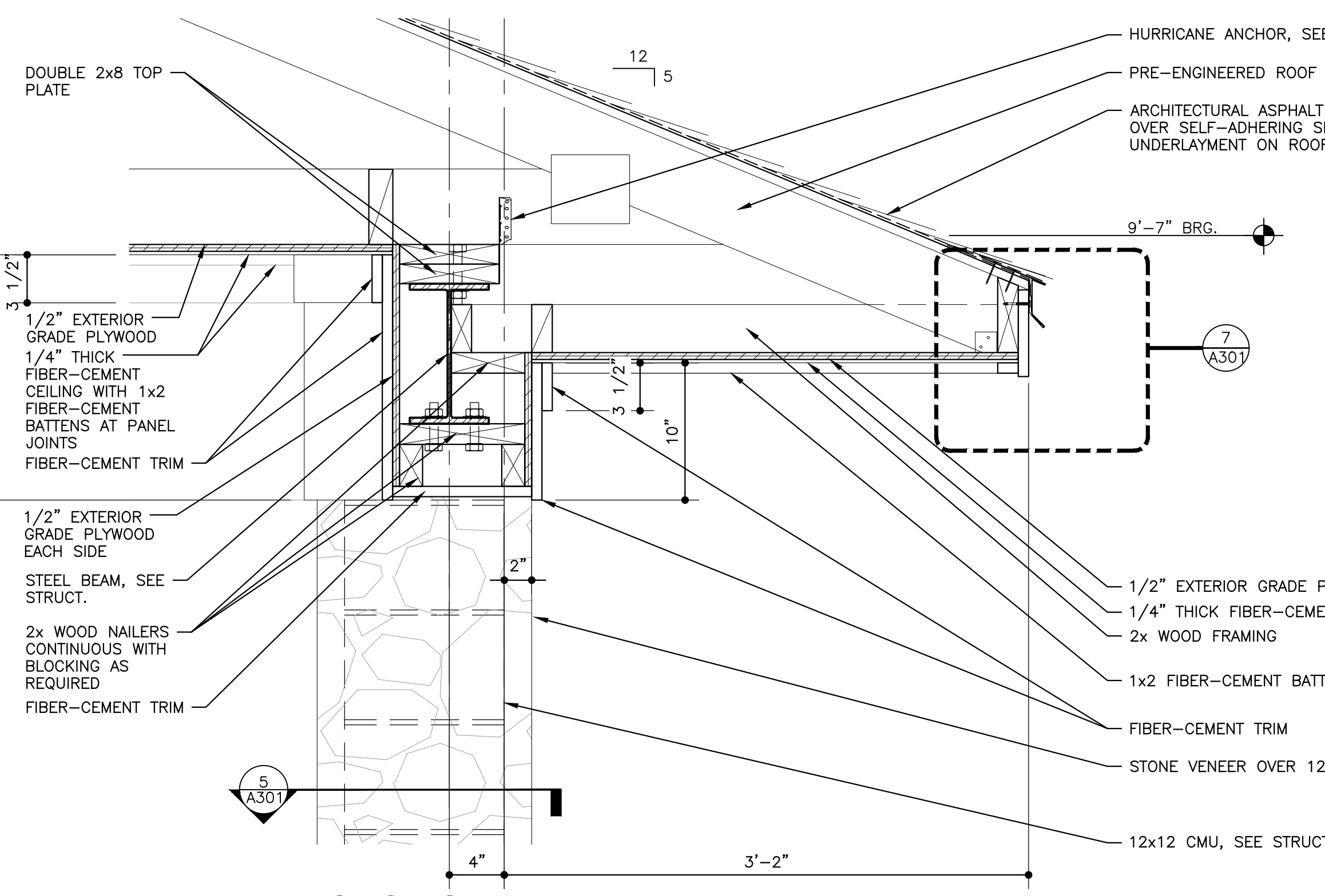
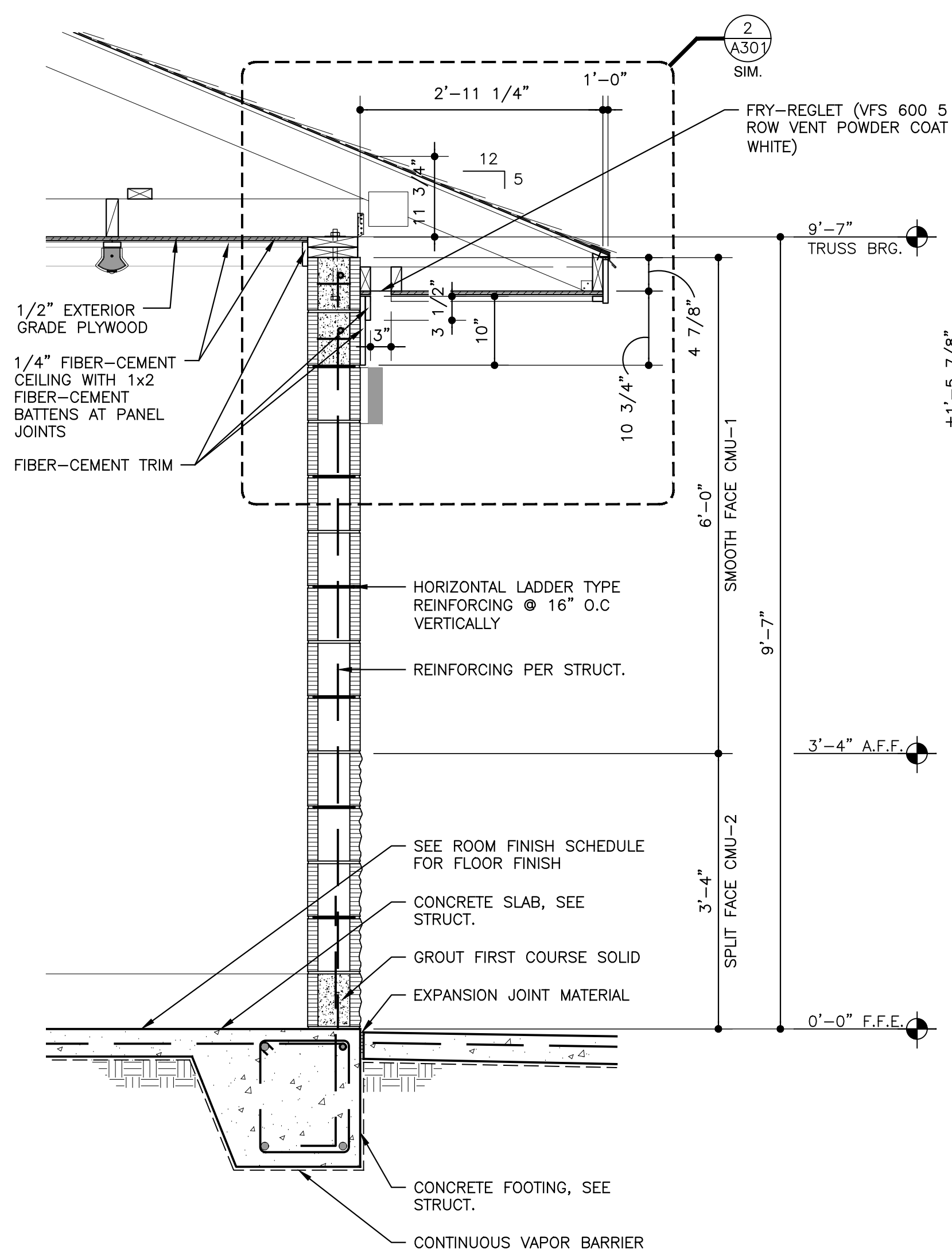
**SHEET TITLE
 SECTIONS**

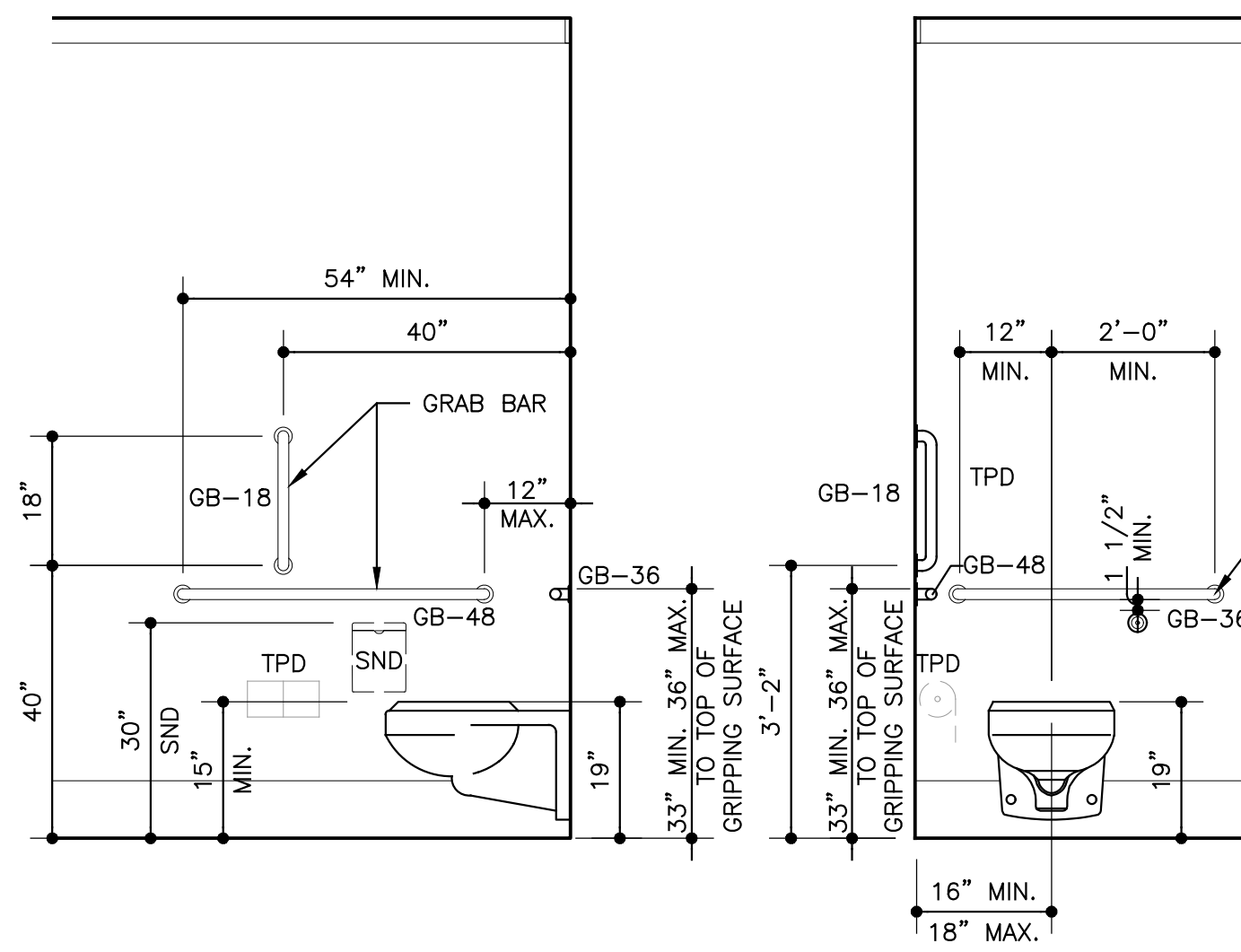
JOB NO. 2113

DATE, SEPT. 28, 2022

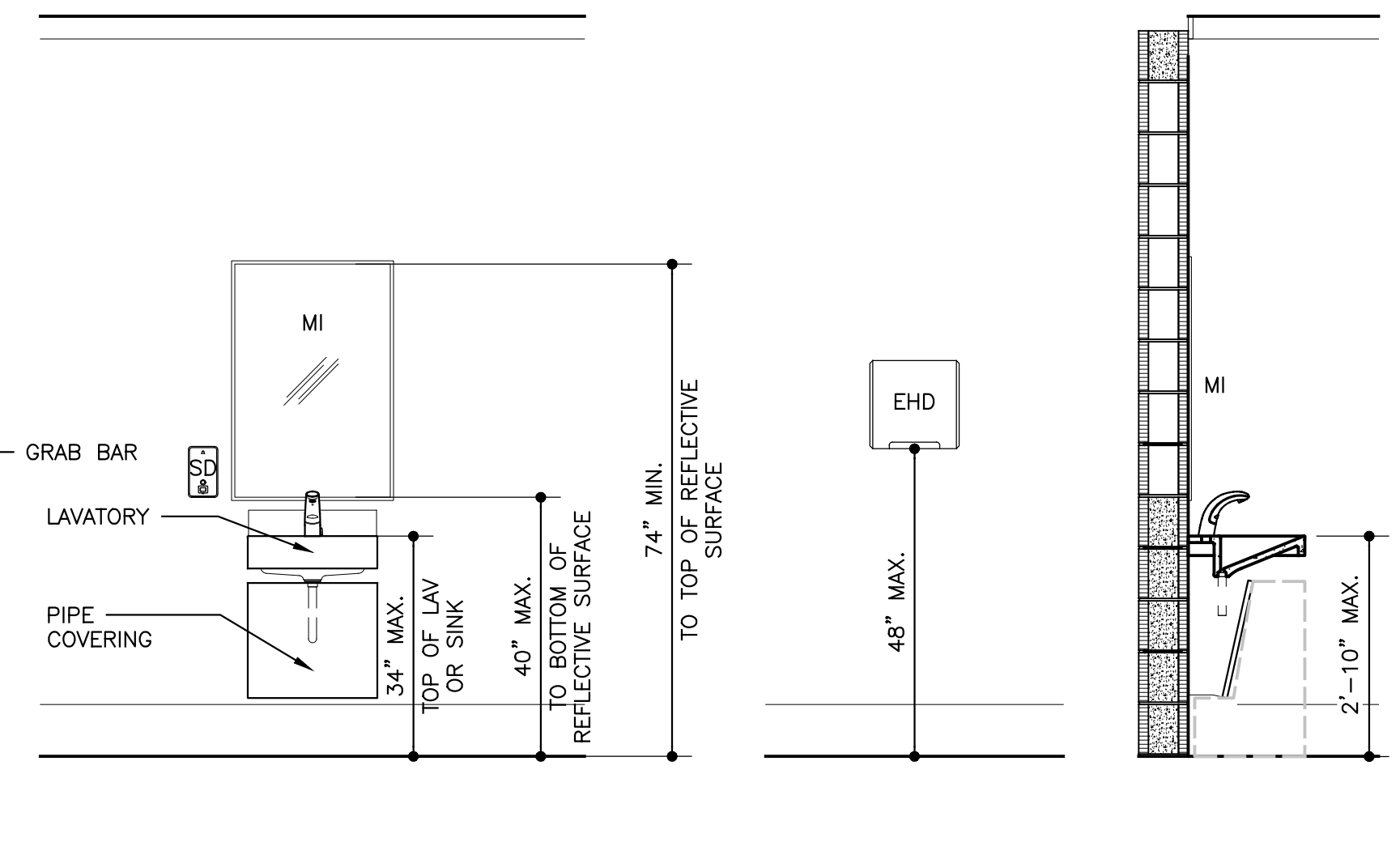
SHEET

A301

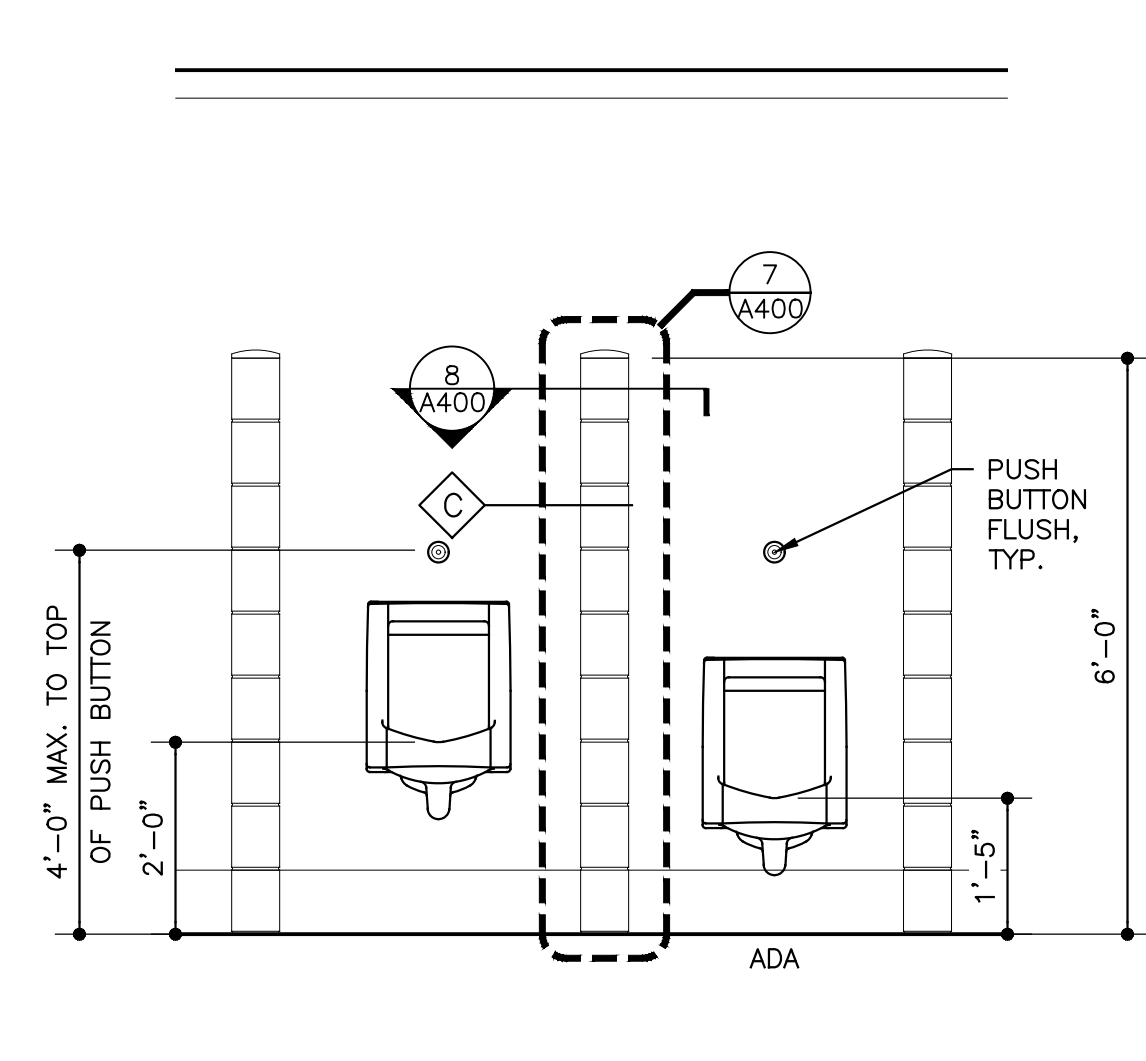




1 MOUNTING HEIGHT TOILET
1/2"=1'-0"

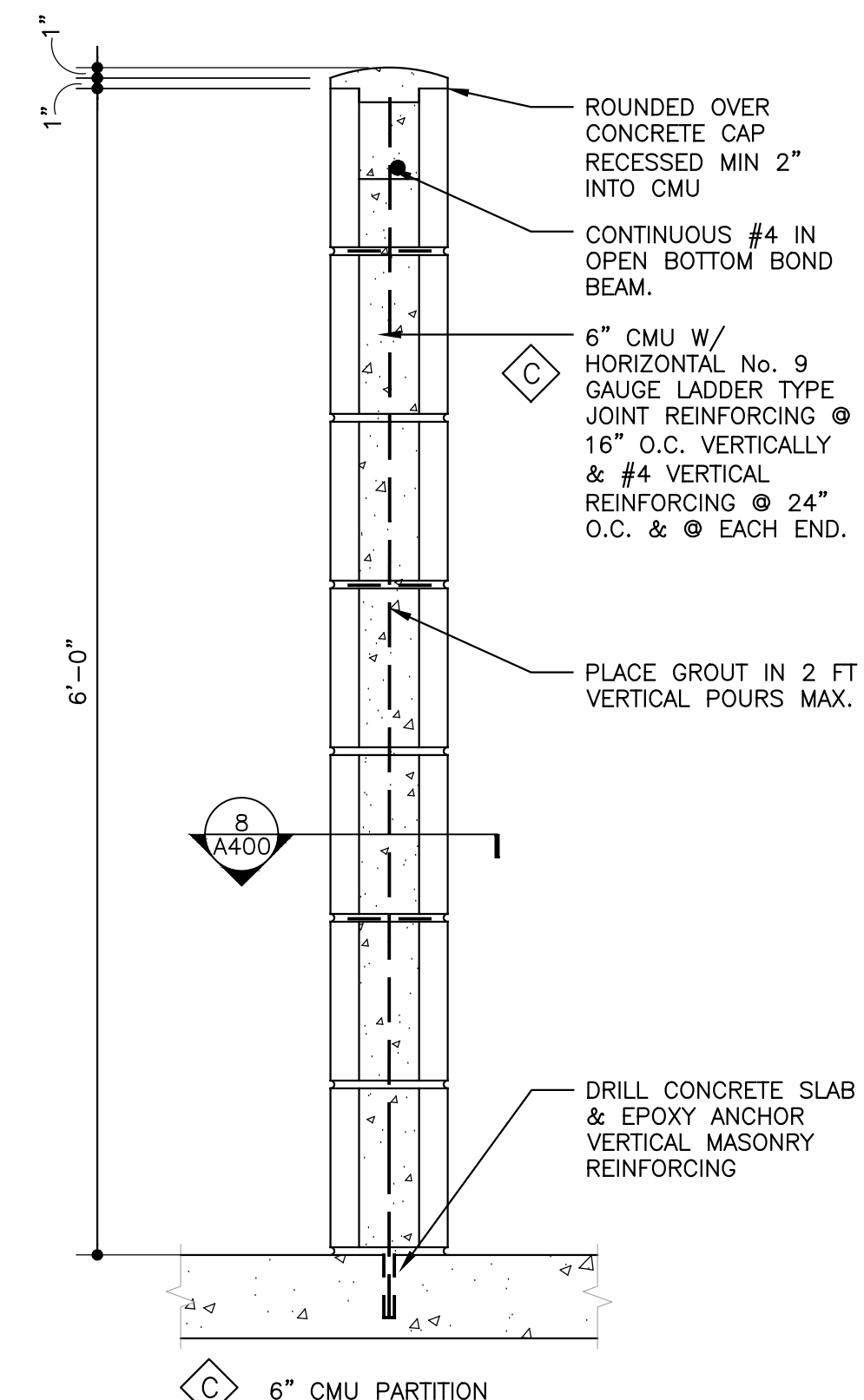


2 MOUNTING HEIGHT LAVATORY
1/2"=1'-0"

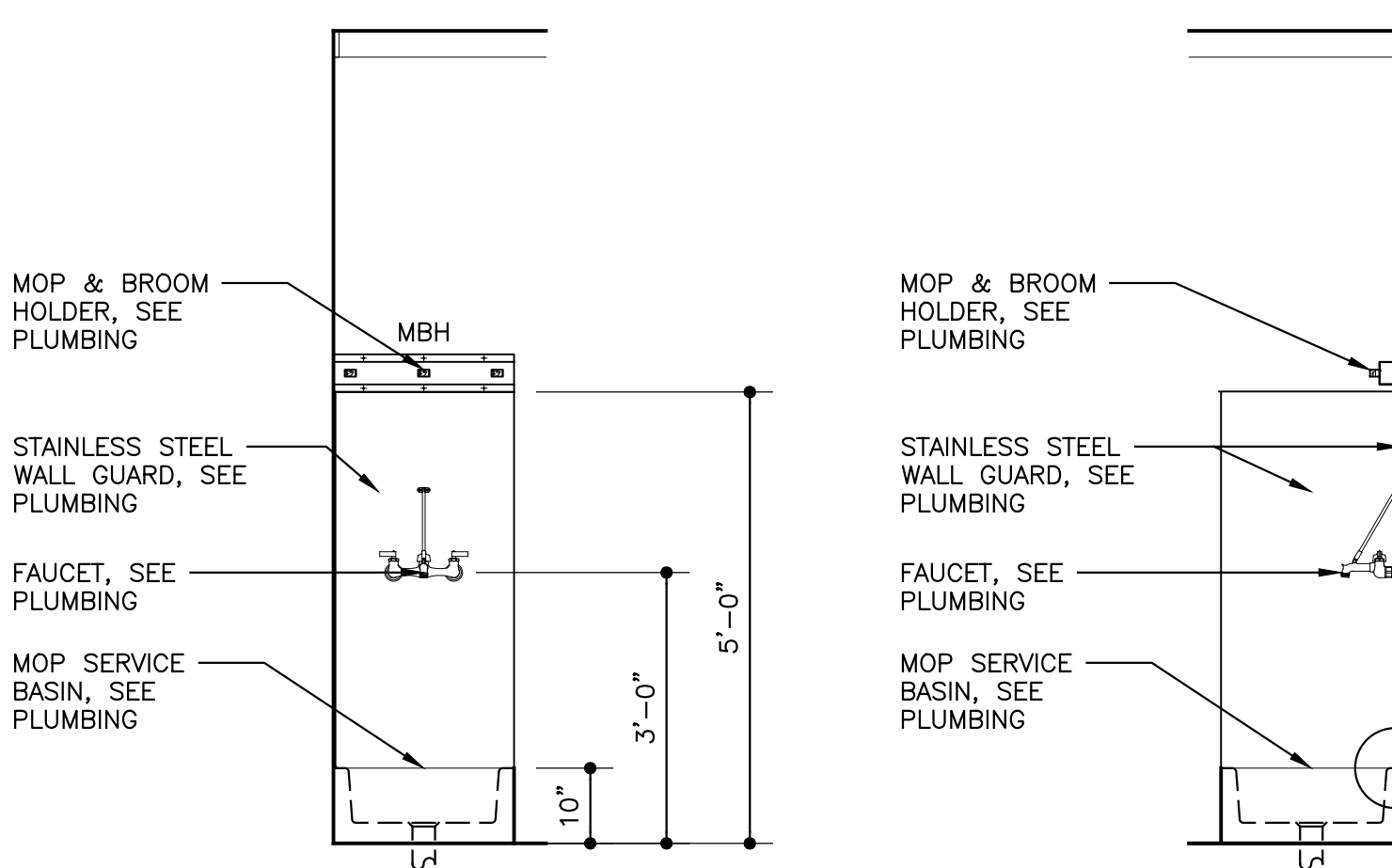


3 ELEVATION
1/2"=1'-0"

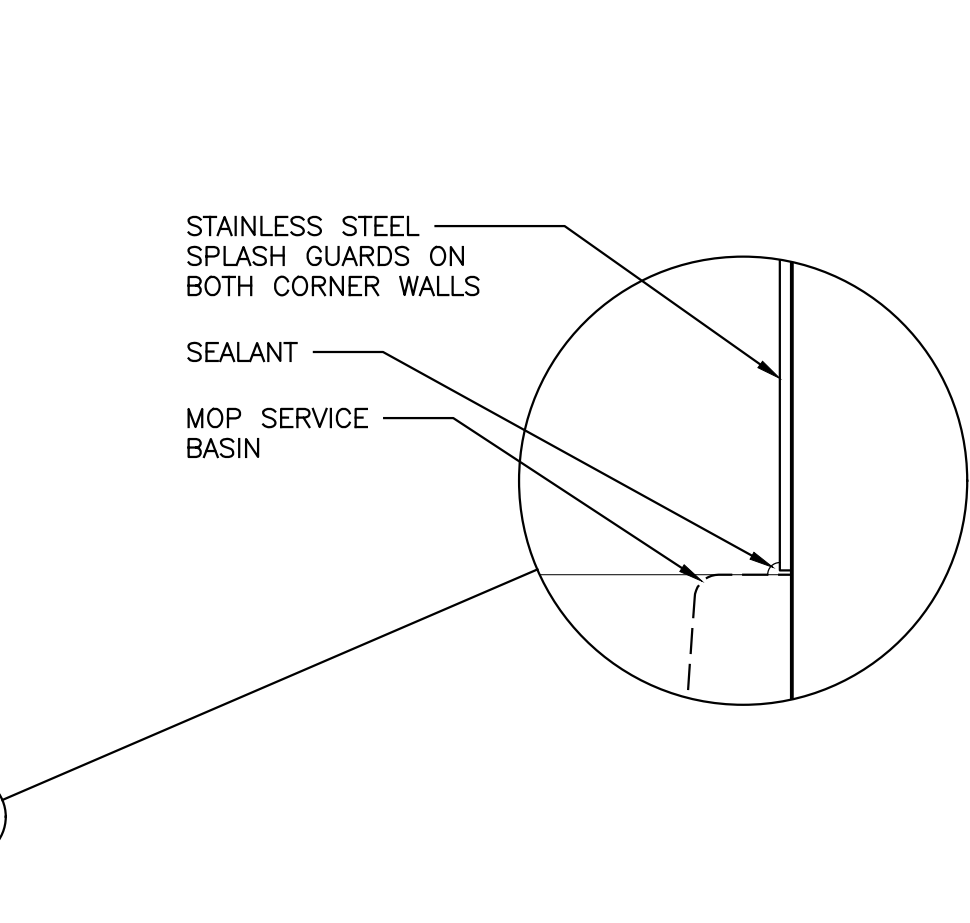
- GENERAL NOTES**
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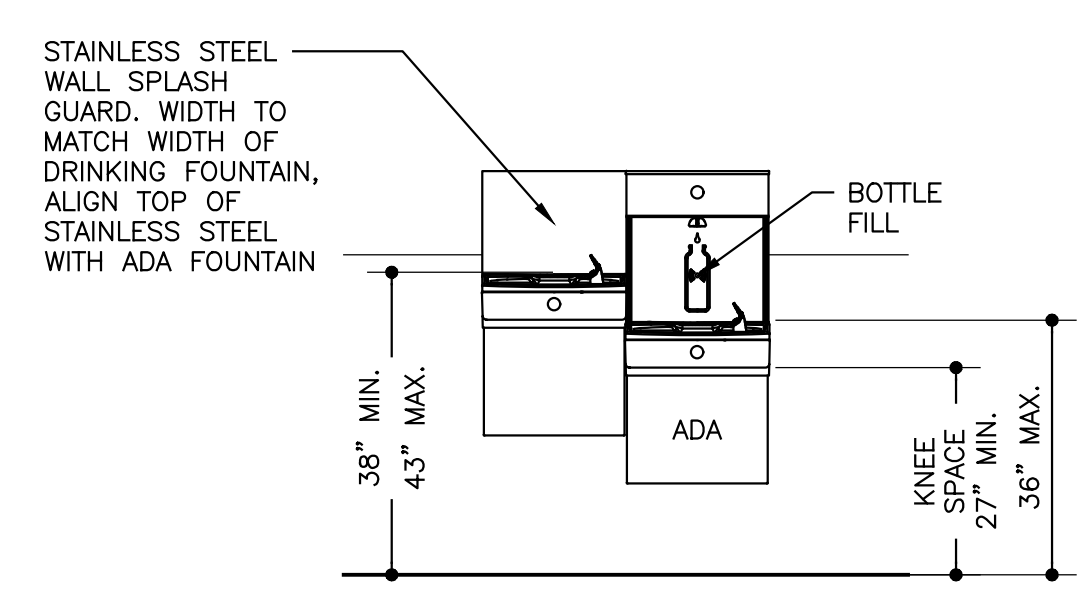
7 CMU PARTITION
1 1/2"=1'-0"



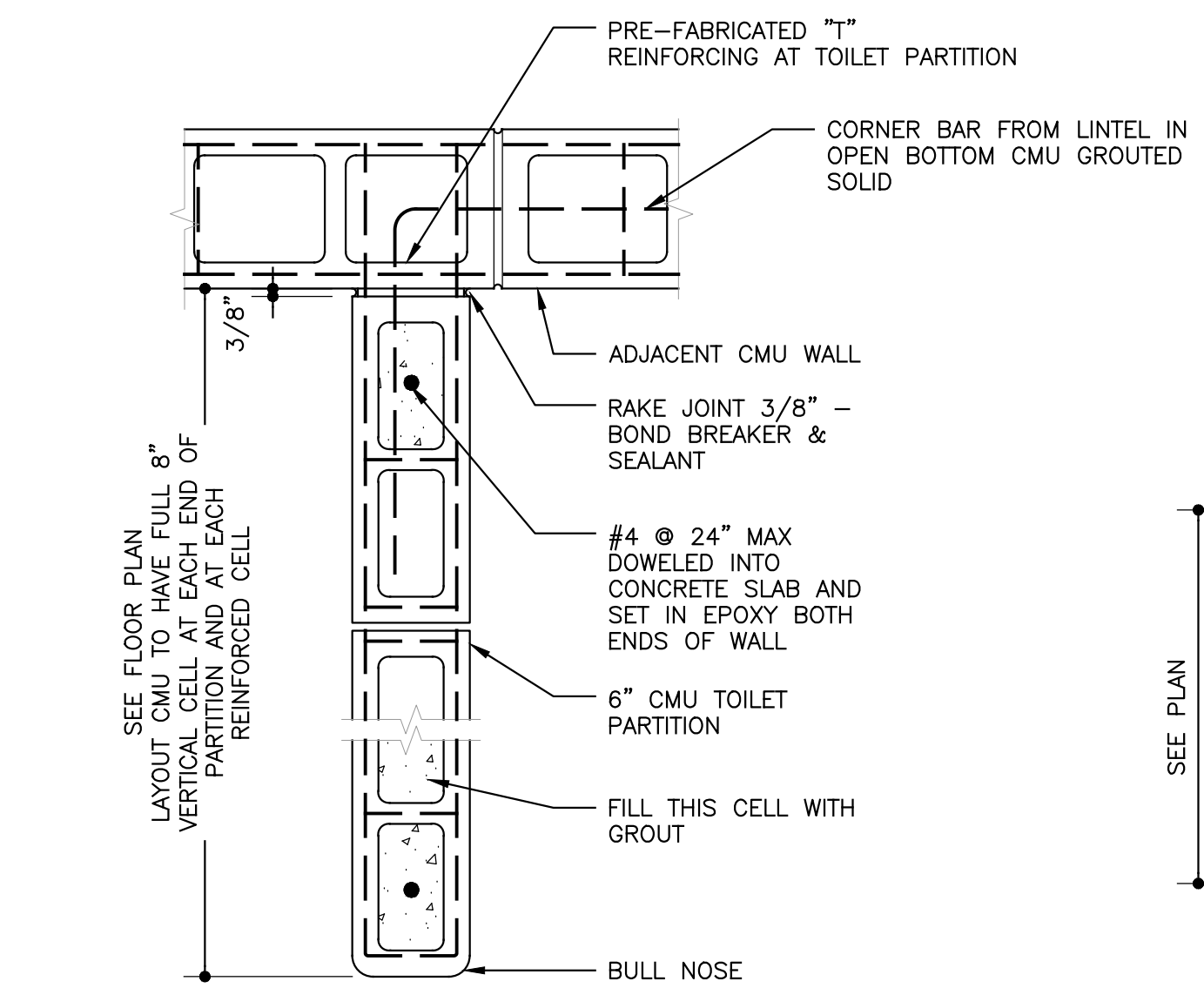
4 ELEVATION
1/2"=1'-0"



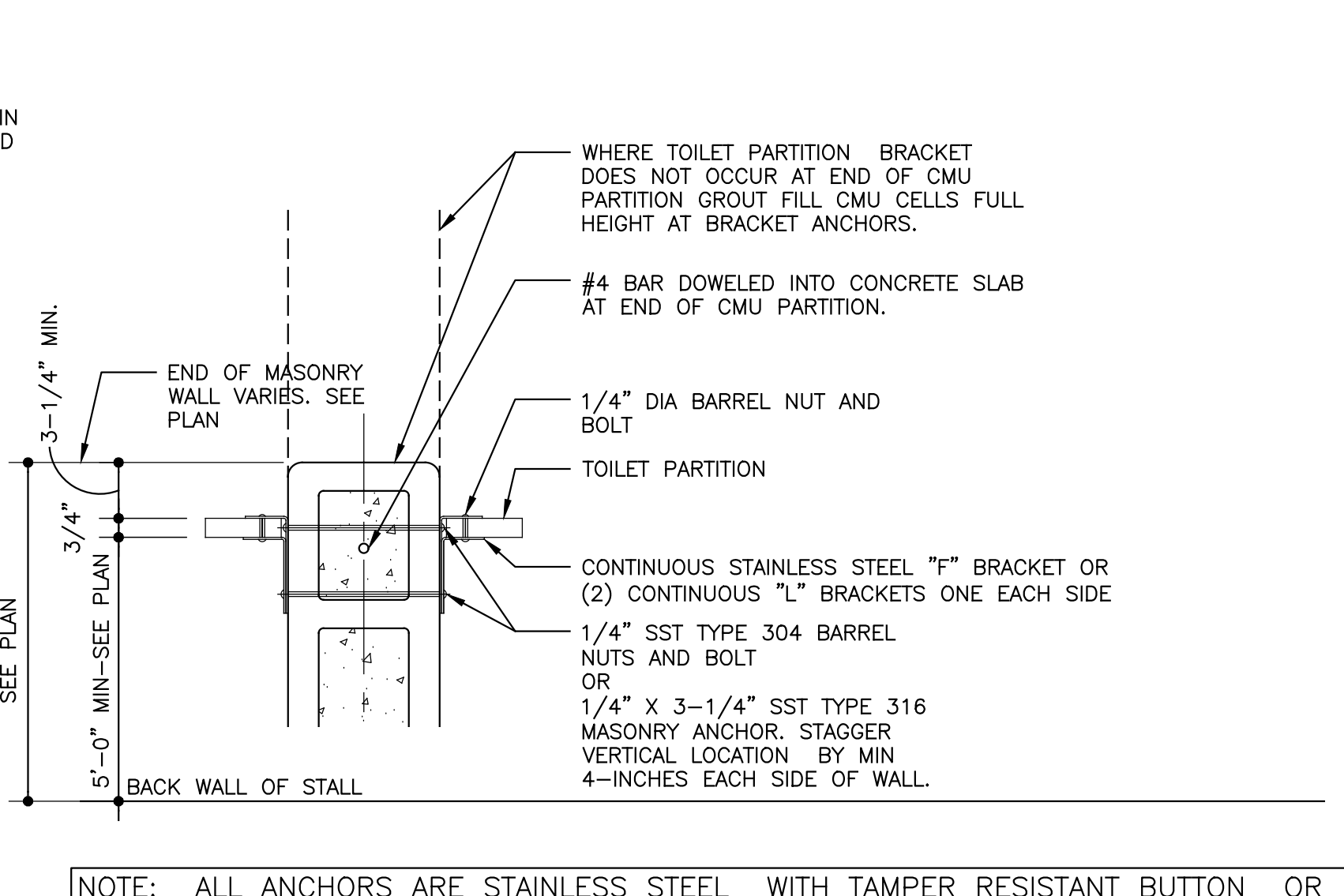
5 ELEVATION
1/2"=1'-0"



6 DRINKING FOUNTAINS
1/2"=1'-0"



8 CMU PLAN DETAIL
1 1/2"=1'-0"



9 TOILET PARTITION BRACKET
1 1/2"=1'-0"

NOTE: ALL ANCHORS ARE STAINLESS STEEL WITH TAMPER RESISTANT BUTTON OR SIMILAR TYPE HEAD. PLASTIC INSERTS ARE NOT ALLOWED WITH MASONRY ANCHORS.

ACCESSORY LEGEND				
MARK	DESCRIPTION	MANUFACTURER	MODEL NUMBER	NOTES
EXTPD	EXISTING TOILET PAPER DISPENSER	-	-	EXISTING TO REMAIN, PAINT
TPD	TOILET PAPER DISPENSER	-	-	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR, PAINT
MI	MIRROR	ATLAS AMERICAN	AA-MVL-18x36-304L-14g	MOUNT SUCH THAT BOTTOM OF REFLECTIVE SURFACE IS NO HIGHER THAN 40" FROM FLOOR
SD	SOAP DISPENSER	BOBRICK	B-2013	AUTOMATIC WALL-MOUNTED FOAM SOAP DISPENSER
SND	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270	WALL MOUNTED, MOUNT PER ADA
GB	GRAB BAR - 48", 36" & 18"	BOBRICK	B-6806.99	EACH HANDICAP TOILET STALL TO HAVE 36" & 48" HORIZONTAL GRAB BARS & 18" VERTICAL GRAB BARS MOUNTED PER ADA. ALL GRAB BARS TO BE STAINLESS STEEL
CH	COAT HOOK	BOBRICK	B-6707	SURFACE-MOUNTED COAT HOOK, SATIN FINISH, STAINLESS STEEL, INSTALL (1) COAT HOOK @ EACH TOILET, MOUNT 38" AFF CENTERED ON BACK OF TOILET PARTITION DOORS
TP	TOILET PARTITION DOORS			SOLID CORE PHENOLIC, COLOR: GRAPHITE GRAFIX
EHD	ELECTRIC HAND DRYER	AMERICAN SPECIALTIES	6165	SURFACE MOUNTED SENSOR HAND DRYER
MBH	MOP & BROOM HOLDER	FIAT PRODUCTS	889-CC	24" LONG 3" WIDE STAINLESS STEEL WITH (3) RUBBER TOOL GRIPS
BCS	BABY CHANGING STATION	KOALA	KB112-01CT	COUNTERTOP SURFACE MOUNTED

TOILET ACCESSORY NOTES:

- CONTRACTOR SHALL COORDINATE LOCATION OF UTILITY HOOKS WITH OWNER.
- ALL TOILET ACCESSORIES SHALL BE MOUNTED TO COMPLY WITH ADA.
- REFERENCE FINISH SCHEDULE FOR COLORS AND LOCATIONS OF FINISHES.

REVISIONS		
NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE
TOILET ELEVATIONS & DETAILS

JOB NO. 2113
DATE, SEPT. 28, 2022
SHEET

A400

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE
**TOILET
ELEVATIONS &
DETAILS**

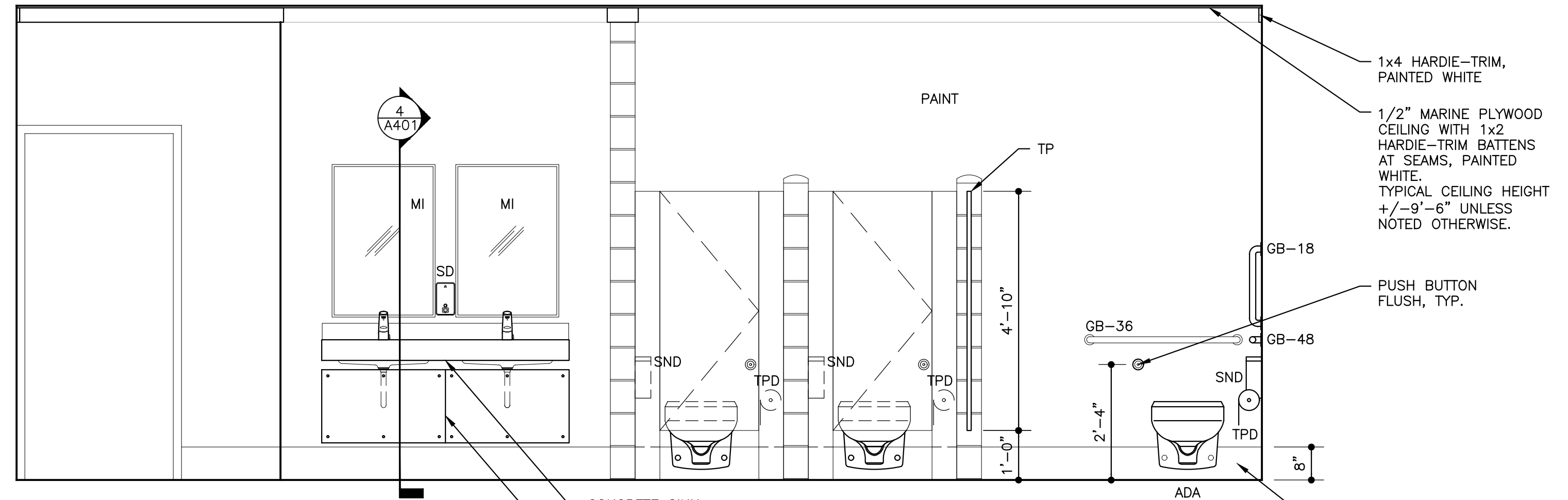
JOB NO. 2113

DATE: SEPT. 28, 2022

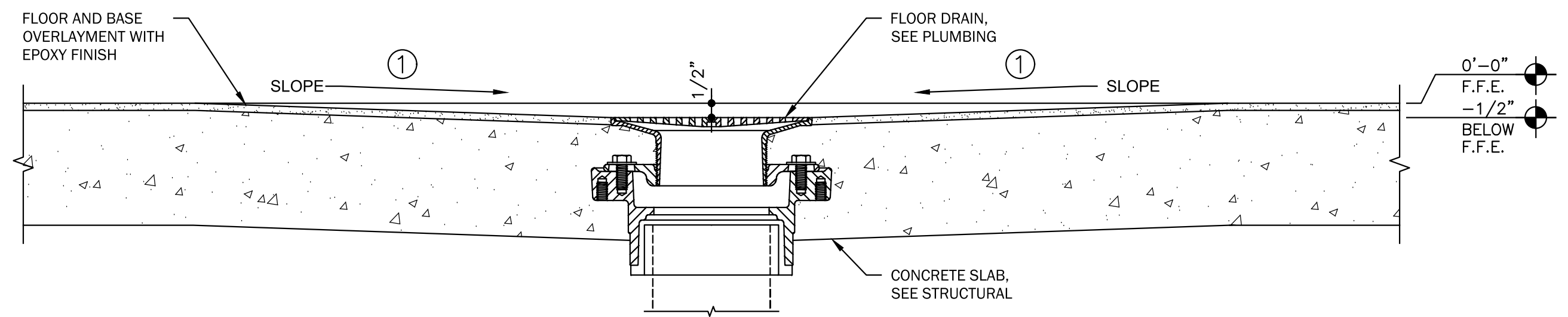
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A401

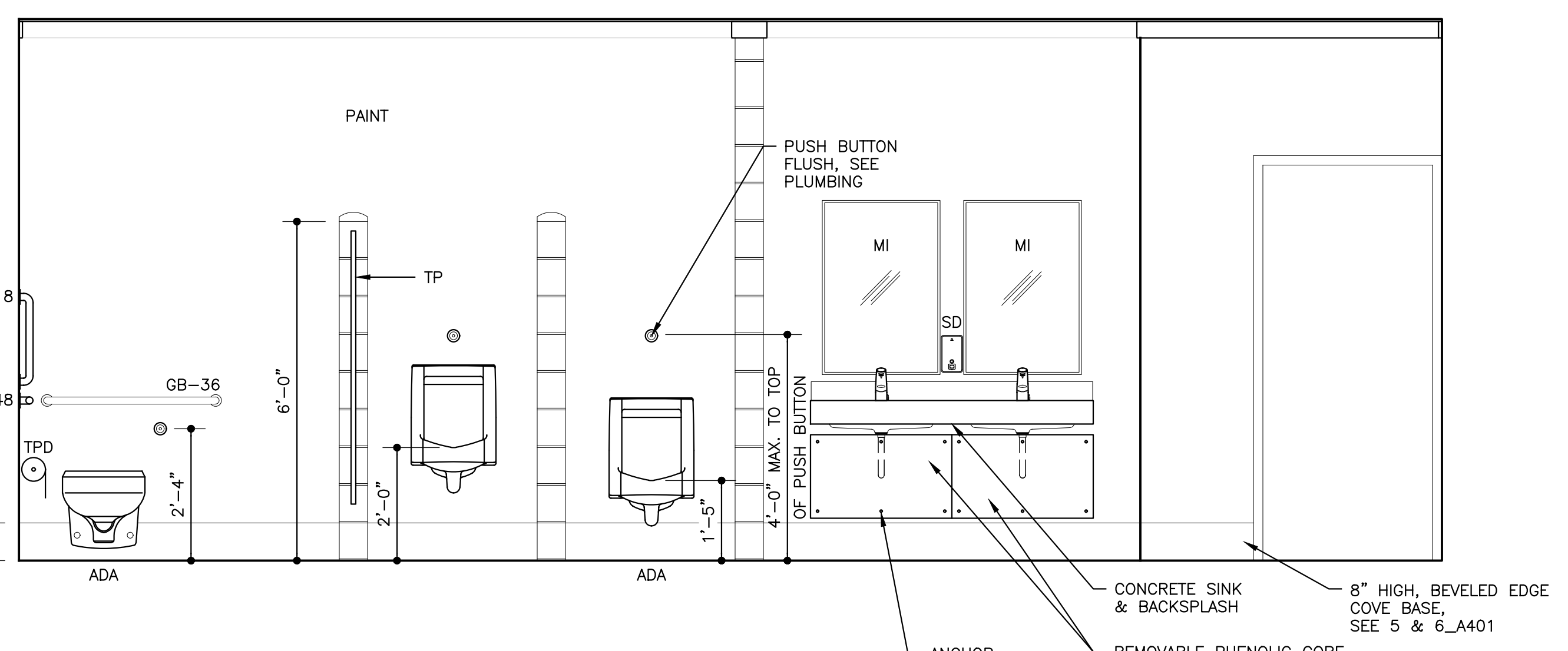
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 - SEE SHEET A600 FOR DOOR SCHEDULE.
 - CONDUIT, PIPING, ETC. SHALL NOT BE INSTALLED IN OR THROUGH CMU CELLS THAT CONTAIN REINFORCING.



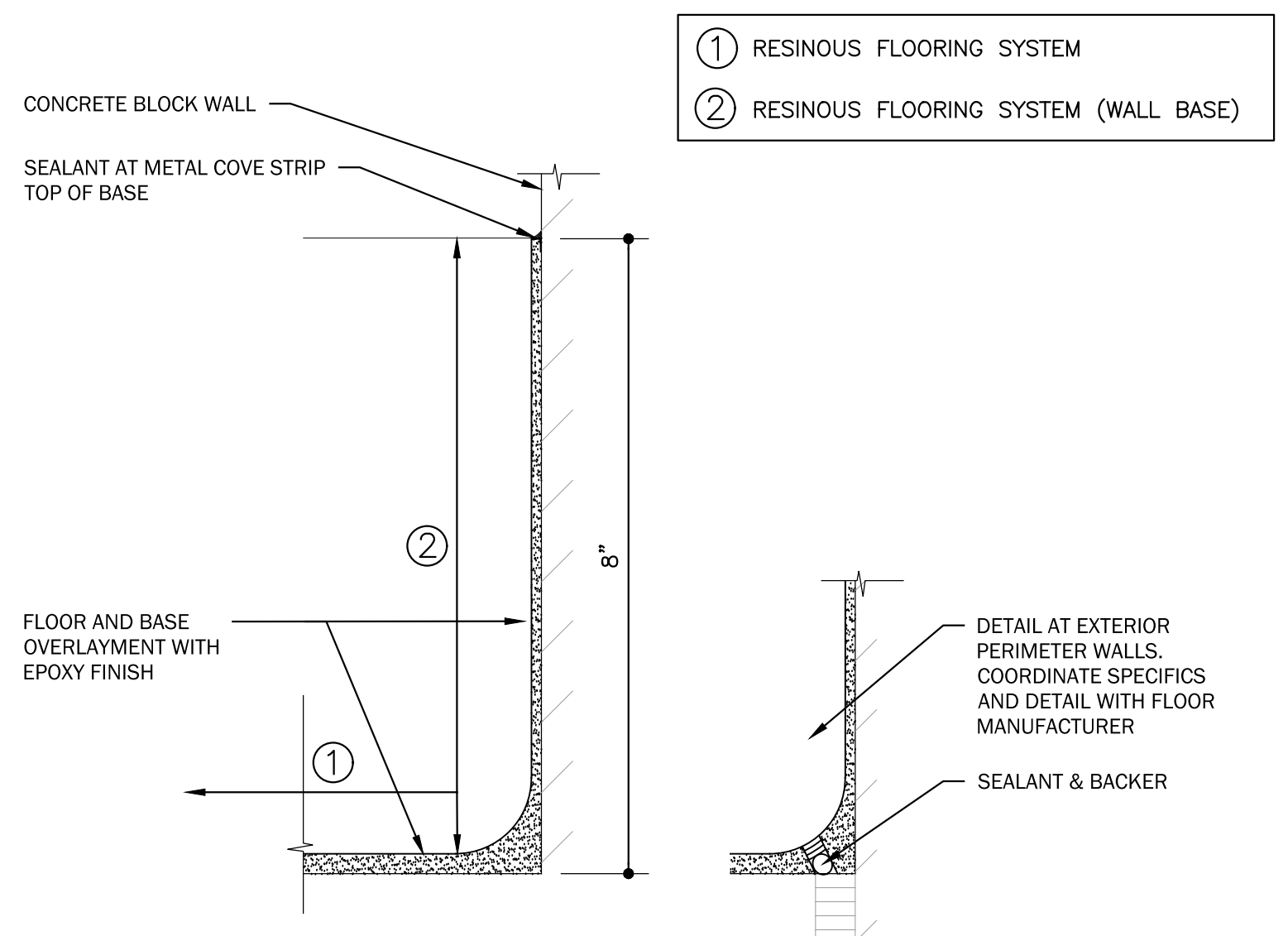
1 ELEVATION
1/2"=1'-0"
WOMEN'S RESTROOM [104]



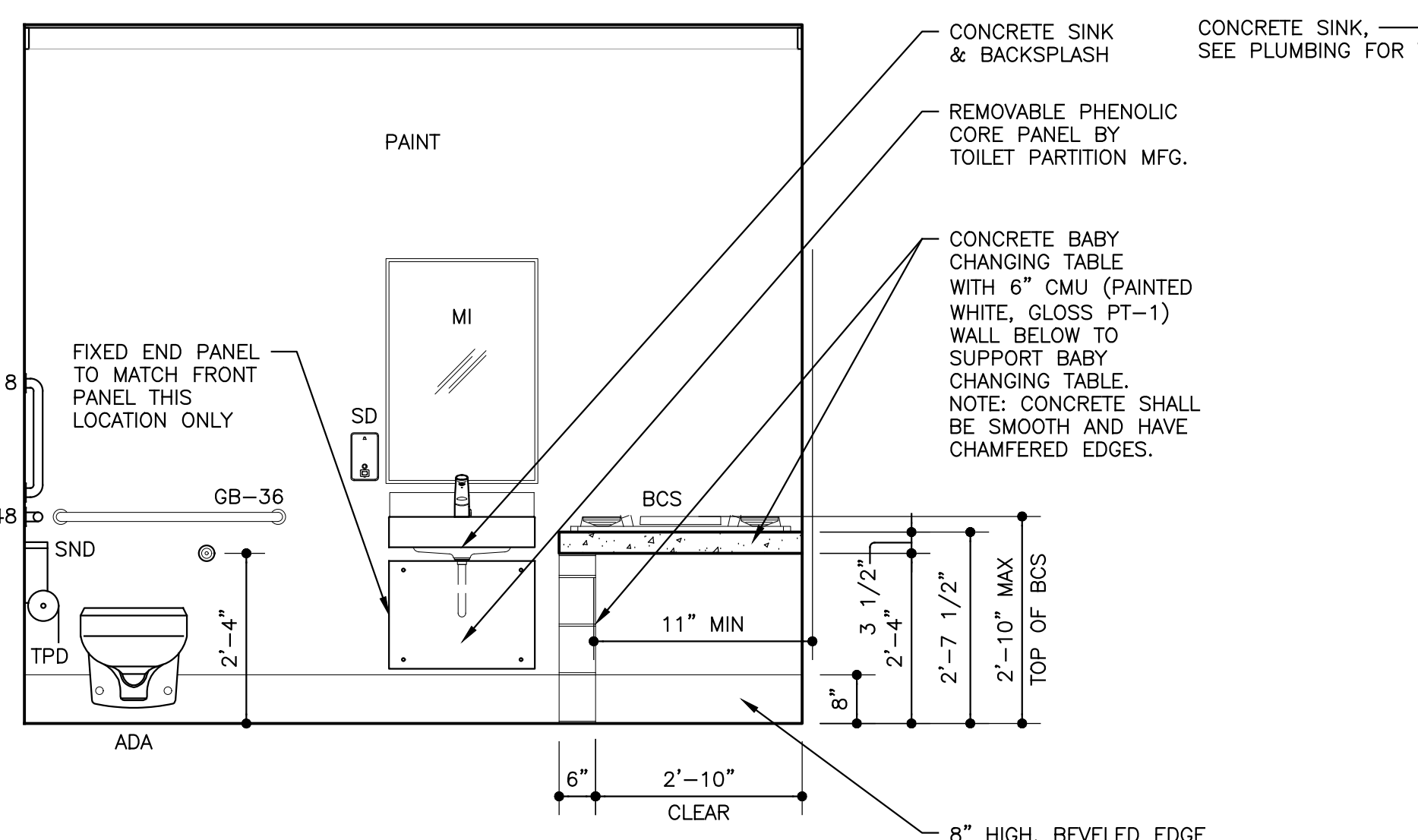
6 FLOOR DRAIN DETAIL
3"=1'-0"



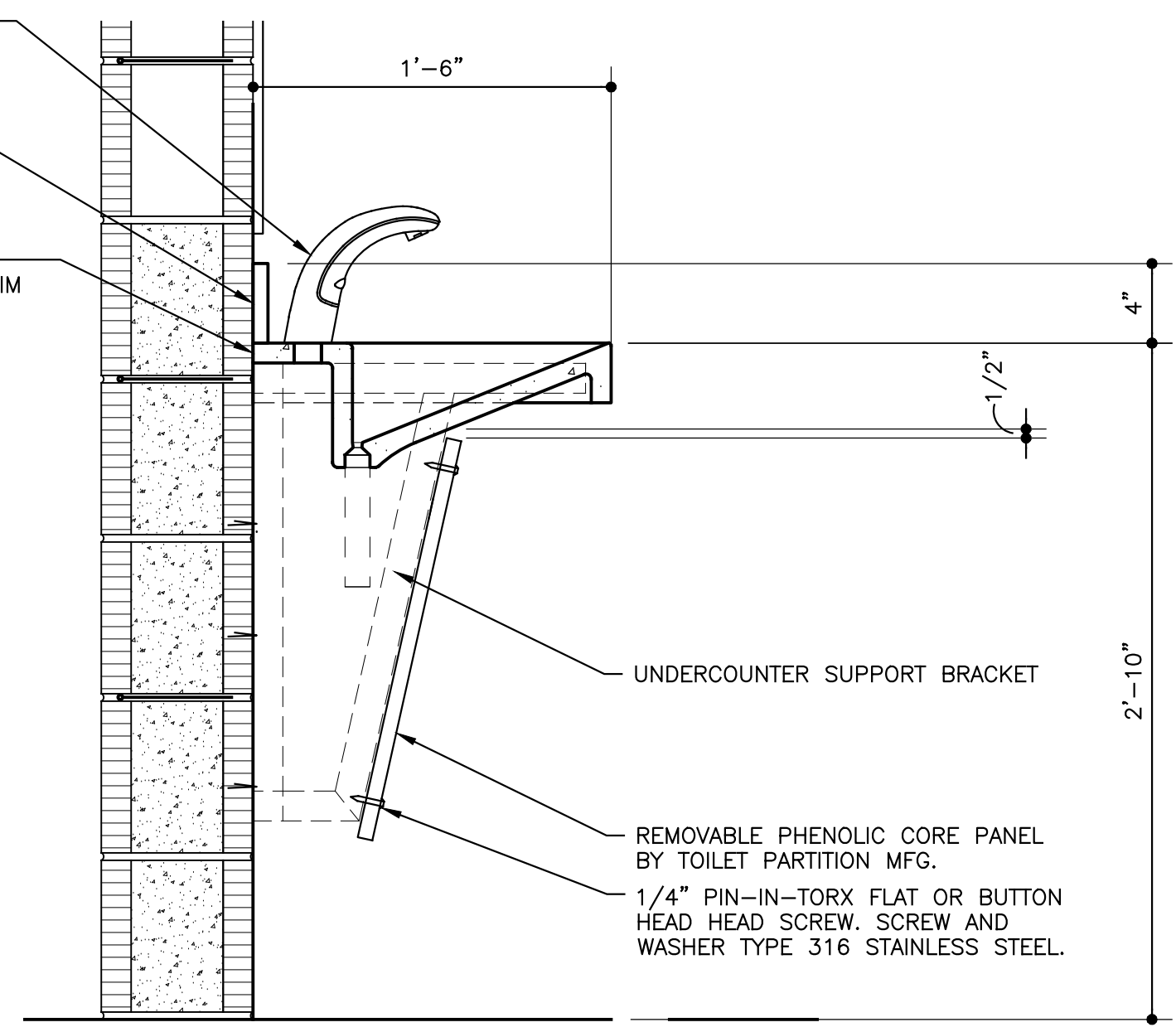
2 ELEVATION
1/2"=1'-0"
MEN'S RESTROOM [103]



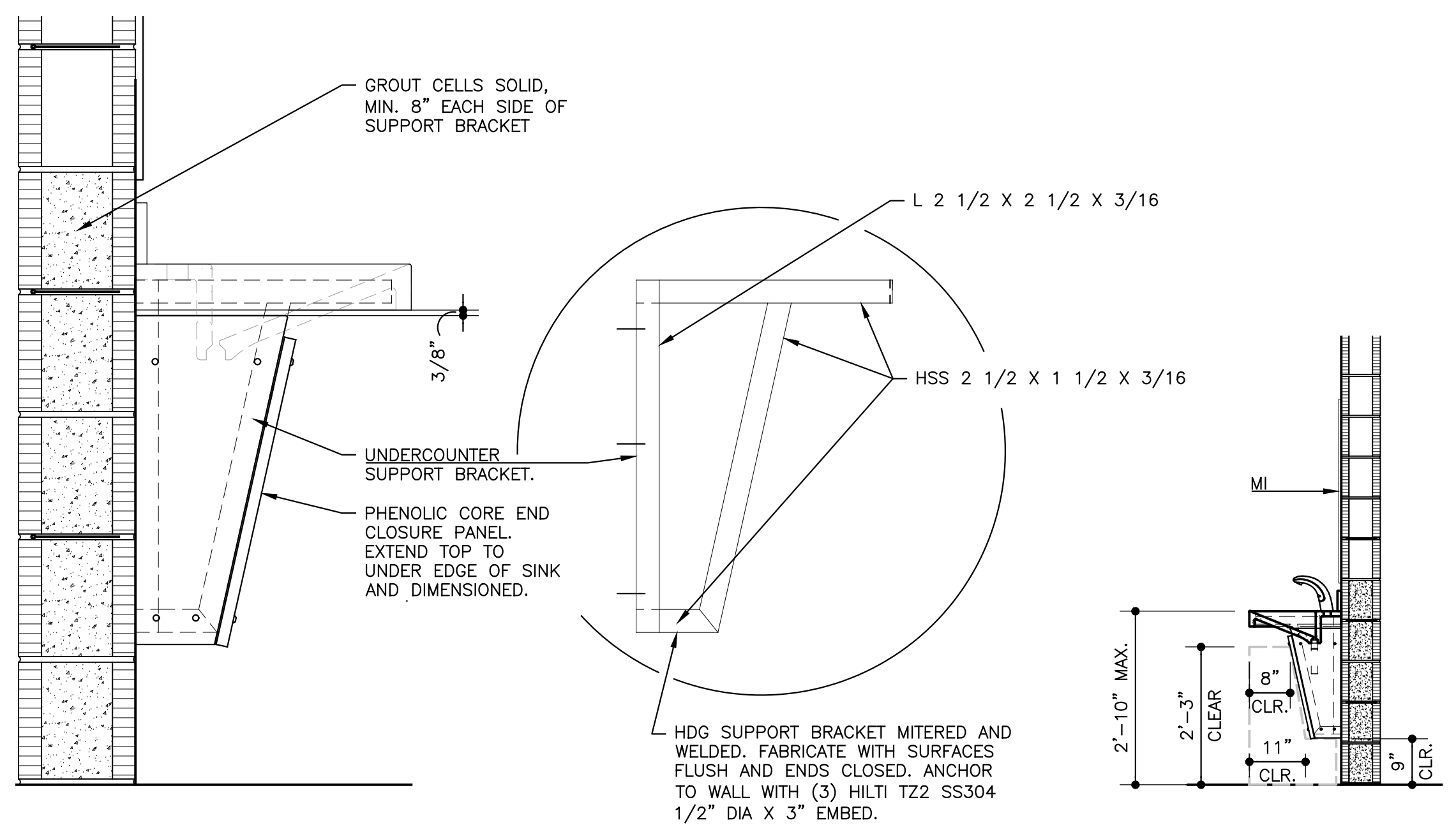
5 WALL & BASE DETAIL
6"=1'-0"



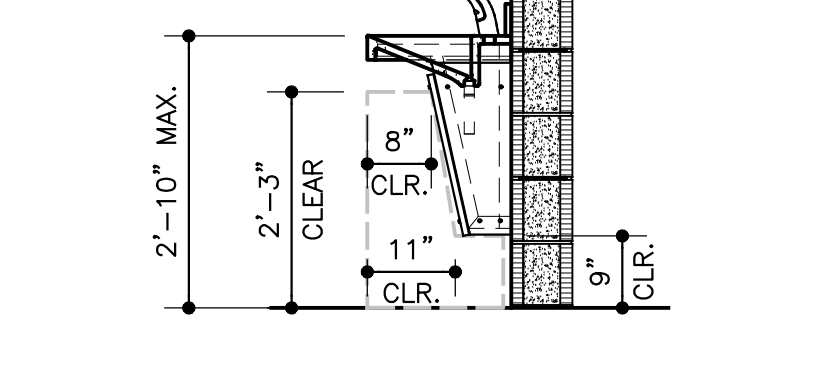
3 ELEVATION
1/2"=1'-0"
FAMILY RESTROOM [102]



4 SECTION
1 1/2"=1'-0"



4A END ELEVATION
1 1/2"=1'-0"



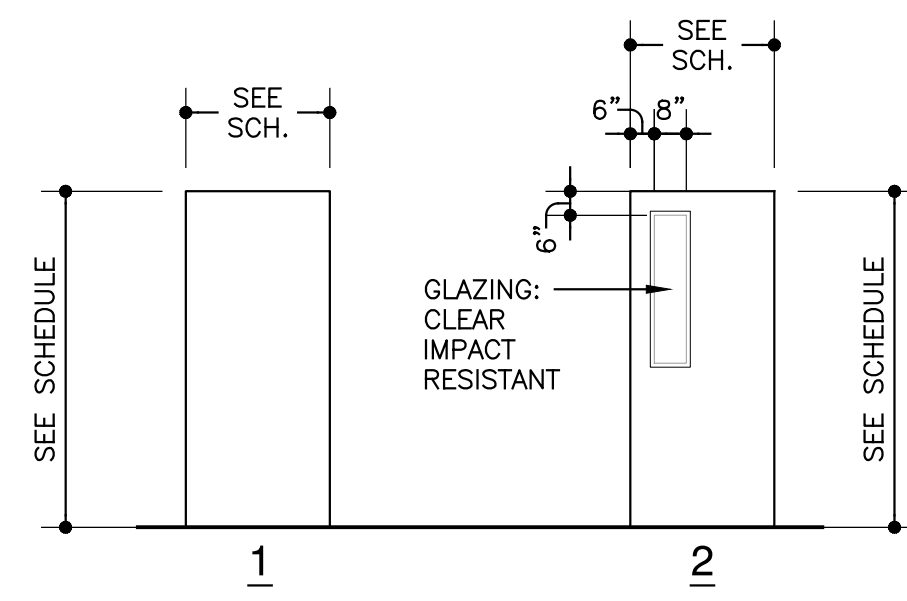
7 ELEVATION
1/2"=1'-0"
TYPICAL ADA LAVATORY MOUNTING HEIGHT

DOOR SCHEDULE												
DOOR MARK	WIDTH	HEIGHT	SINGLE/PAIR	DOOR			FRAME			THRESHOLD	HARDWARE	NOTES
				TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH			
100	3'-0"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1
101	3'-0"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1
101A	1'-8"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1
102	3'-0"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1
102A	3'-0"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1
103	3'-0"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1
104	3'-0"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1
105	3'-0"	7'-0"	S	1	HM	PT	A	HM	PT	3/A600	SEE SPECS	1

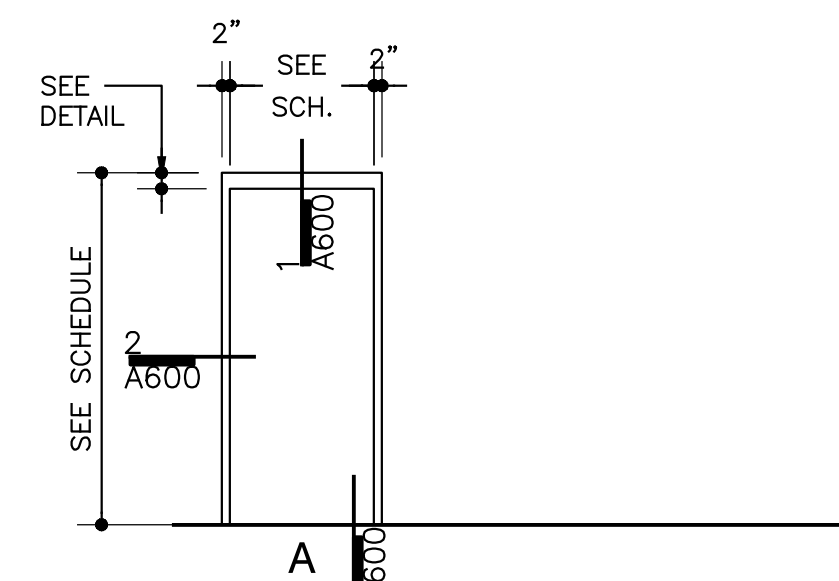
ABBREVIATIONS	
FV	FIELD VERIFY
HM	HOLLOW METAL
NA	NOT APPLICABLE
PT	PAINTED
PR	PAIR
S	SINGLE

SEE SHEET A600 FOR DOOR DETAILS

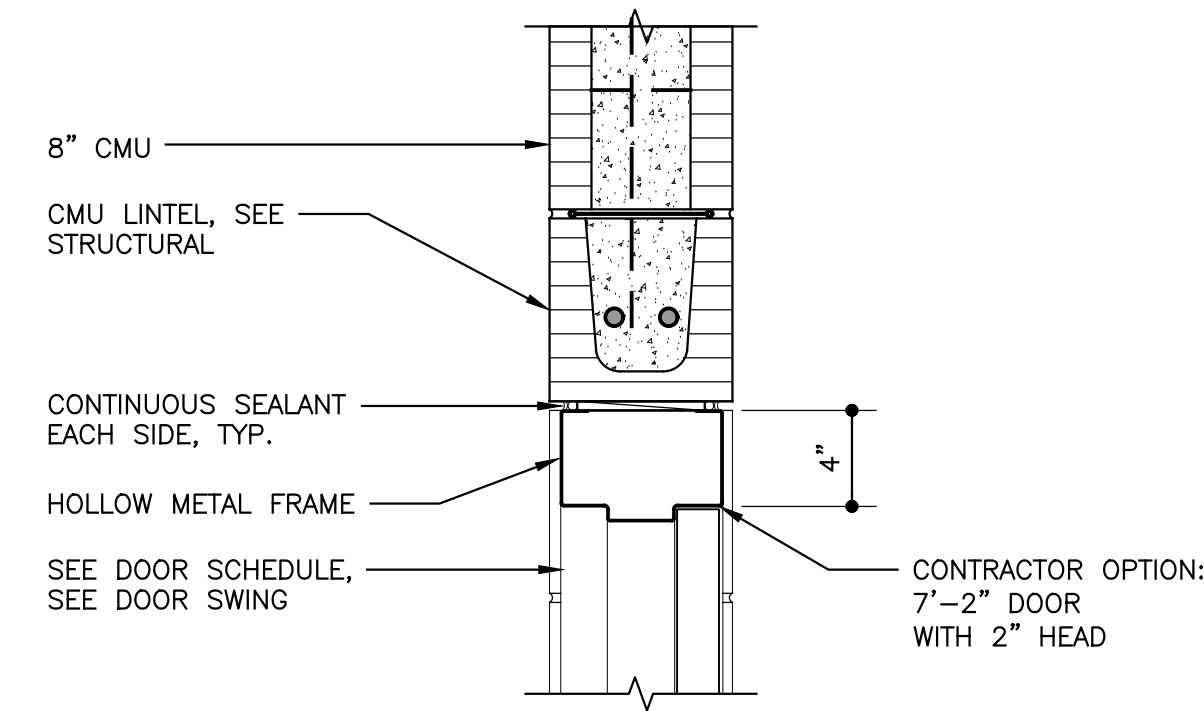
NOTES:
1. DOOR HEIGHT SHALL BE 7'-2" WHEN 2 INCH HEAD IS USED.



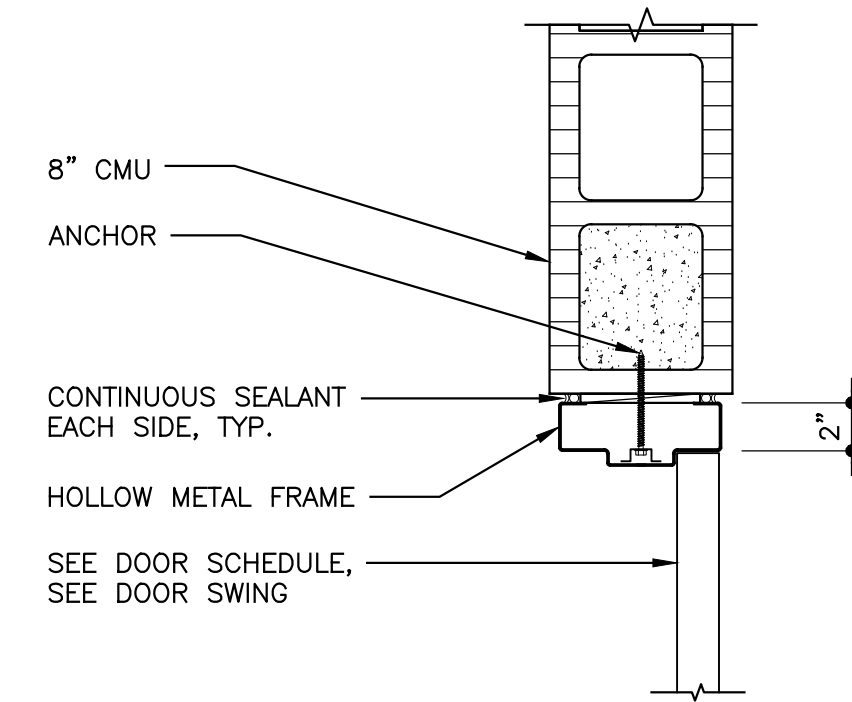
DOOR TYPE



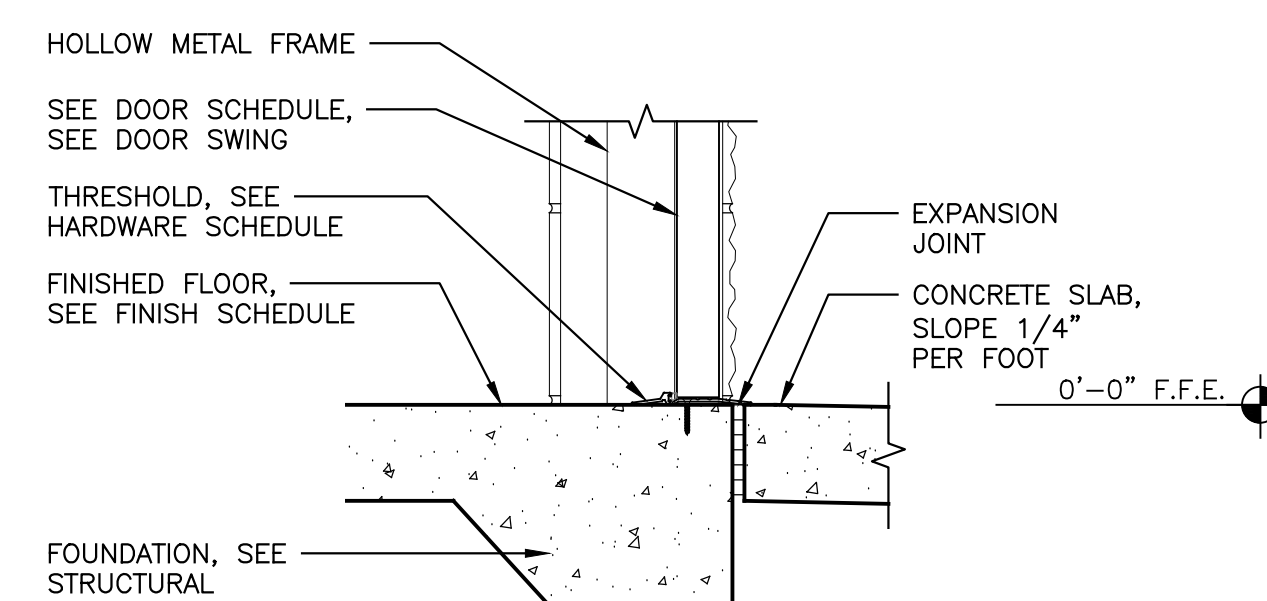
FRAME TYPE



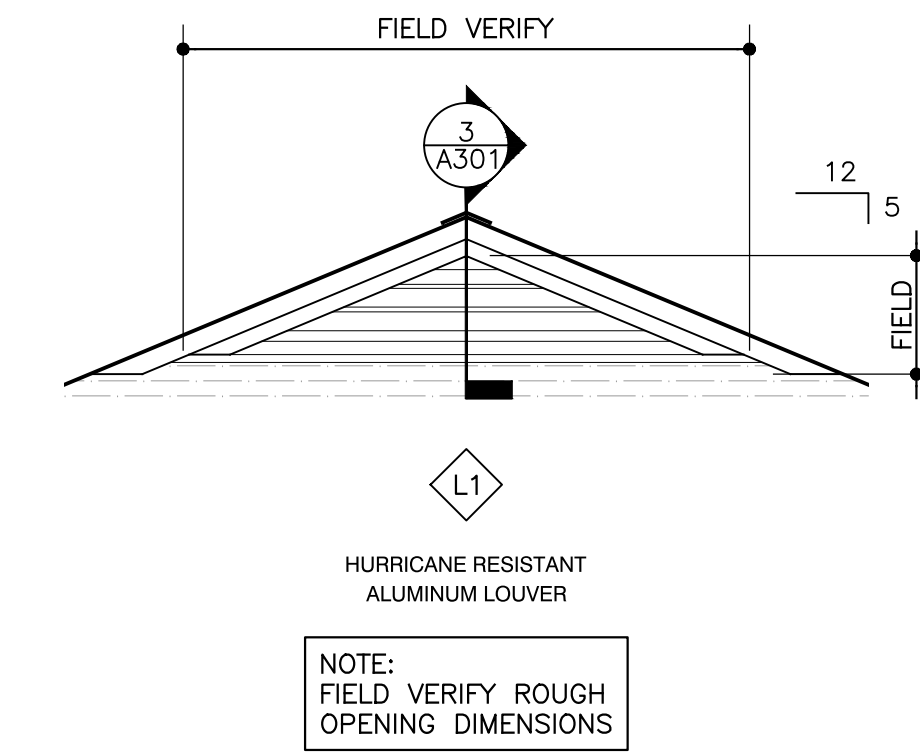
1 DOOR DETAIL @ HEAD
1 1/2"=1'-0"



2 DOOR DETAIL @ JAMB
1 1/2"=1'-0"



3 DOOR DETAIL @ THRESHOLD
1 1/2"=1'-0"



4 LOUVER ELEVATION
1/4"=1'-0"



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LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS

ALABAMA

MOBILE,

REVISIONS

NO.	DATE	REMARKS
	9-28-22	IFB

SHEET TITLE

DOOR SCHEDULE
& DETAILS

JOB NO. 2113

DATE, SEPT. 28, 2022

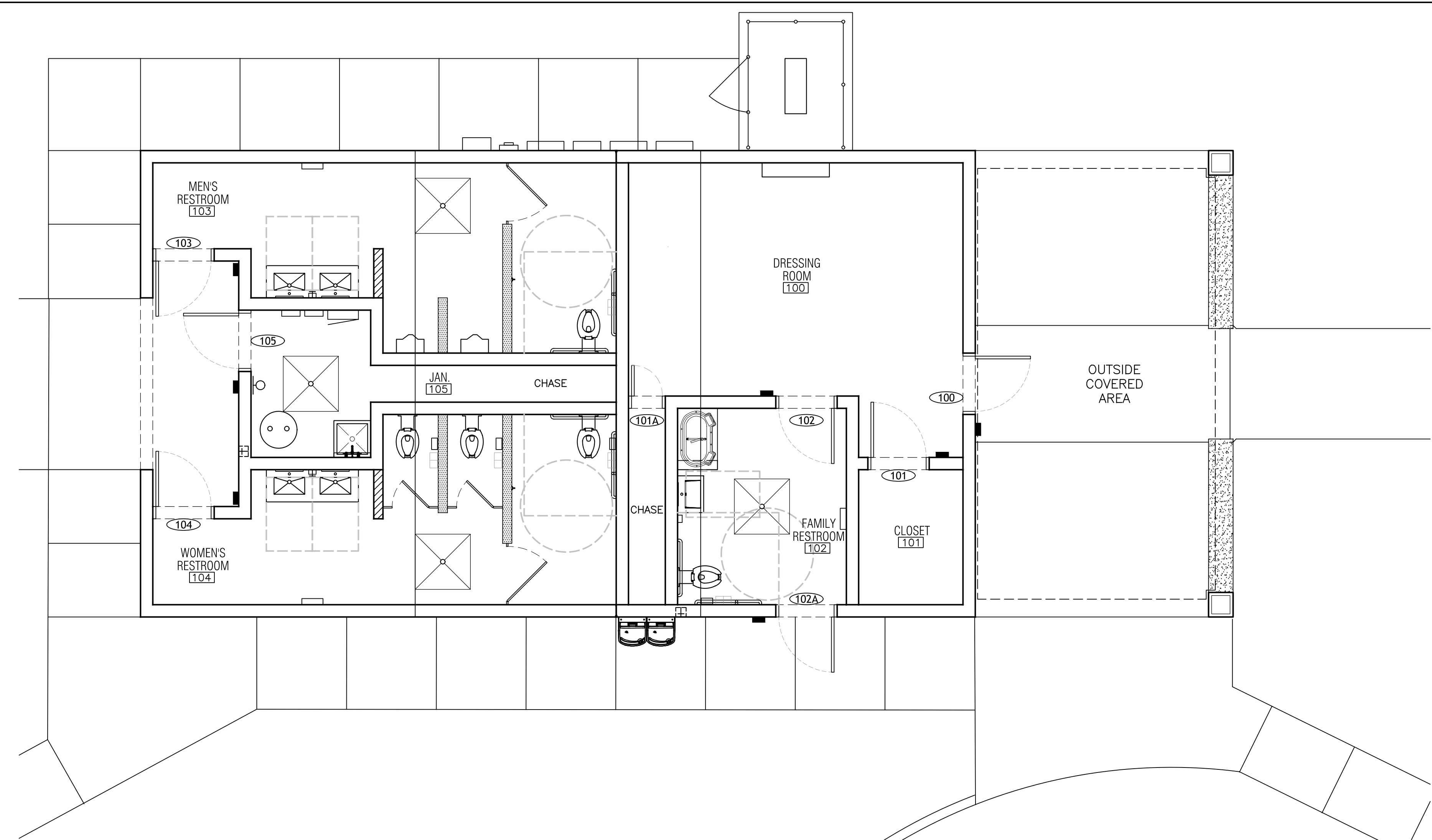
SHEET

A600

**LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS**

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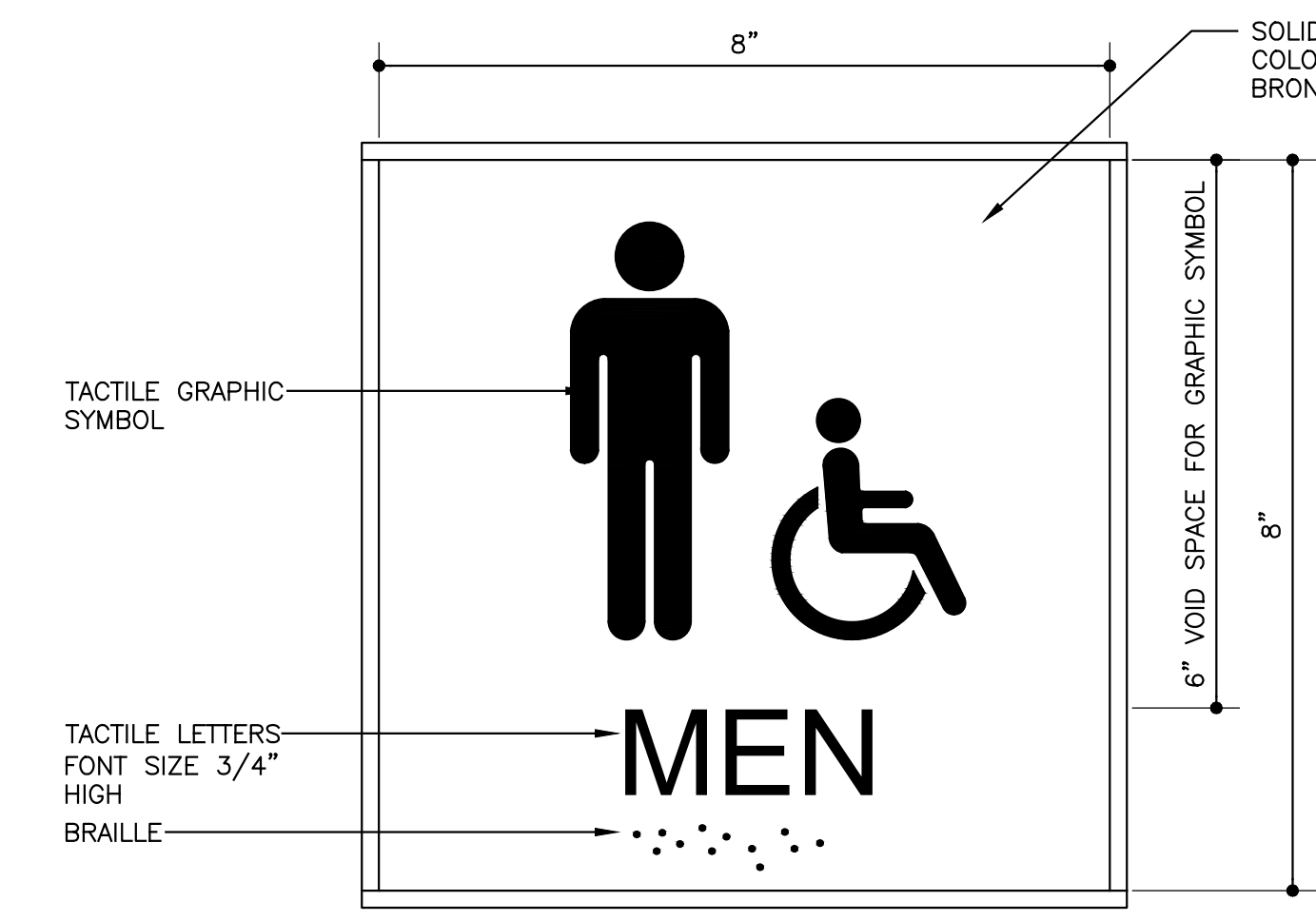
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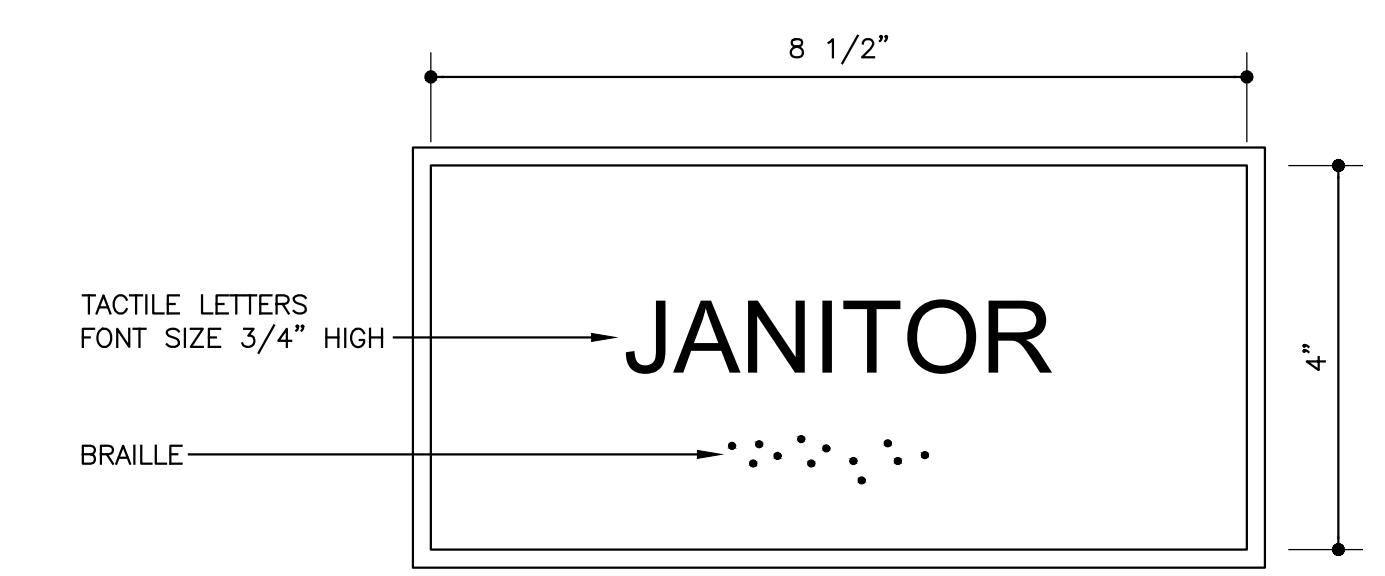
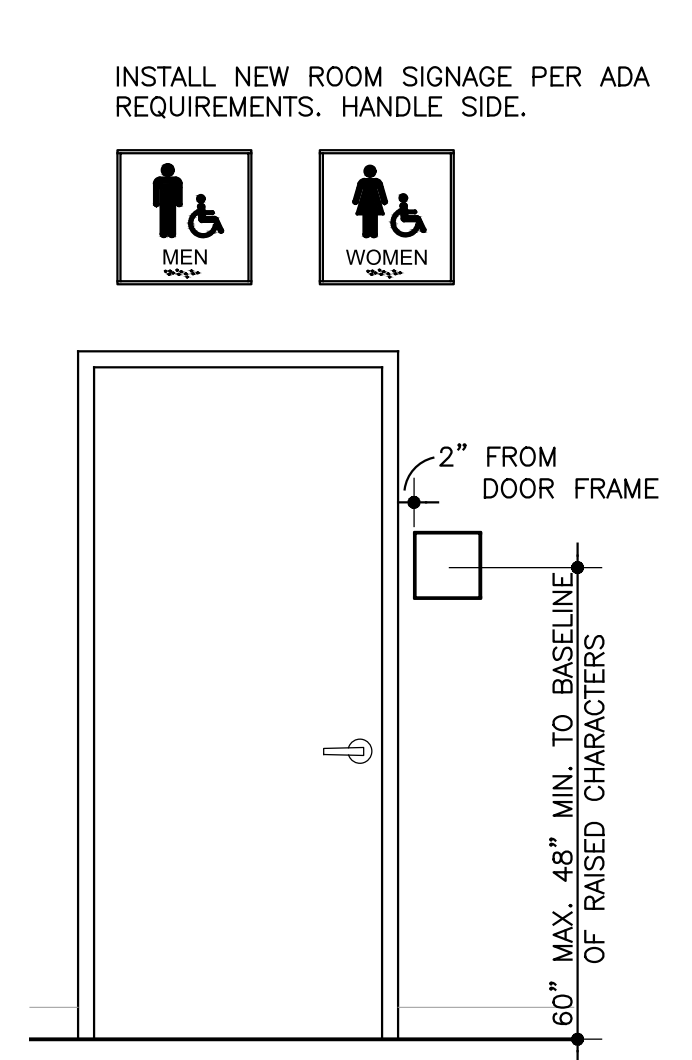
1 SIGNAGE REFERENCE PLAN
1/4"=1'-0" 0 1 2 4 8

REVISIONS

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	9-28-22	IFB



A SIGN TYPE A
6"=1'-0" 0 1 2 4



B SIGN TYPE B
6"=1'-0" 0 1 2 4

SIGN TYPE & LOCATION
SIGN SYMBOL LOCATIONS ON PLAN ABOVE

DOOR #	SIGN TYPE	NAME ON SIGN
100	B	DRESSING ROOM
101	B	CLOSET
102	A	FAMILY RESTROOM
103	A	MEN'S RESTROOM
104	A	WOMEN'S RESTROOM
105	B	JANITOR

SHEET TITLE
SIGNAGE

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SHEET

A700



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GENERAL NOTES

• THE CONTRACTOR IS RESPONSIBLE FOR PROPER MANAGEMENT OF ALL CONSTRUCTION AND DEMOLITION DEBRIS GENERATED BY THIS PROJECT. ALL CONSTRUCTION AND DEMOLITION WASTE SHALL BE MANAGED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND TO AN ADEM APPROVED DISPOSAL FACILITY.

KEYNOTES

- A. PREPARE SLAB, STEPS AND BRICK INLAY TO RECEIVE NEW CLEAR PROTECTIVE COATING. REMOVE PAINT, SEALERS, MARKINGS AND MISCELLANEOUS DEBRIS SUCH AS GUM THAT MAY BE ADHERED TO SURFACES. PROVIDE CLEAR PROTECTIVE COATING.
- B. CLEAN EXISTING WOOD DECK CEILING, LAMINATED BEAMS AND WOOD TRIM. PREPARE SURFACES FOR RE-COATING. RE-COAT.
- C. CLEAN EXISTING ROOF. REPAIR AND RE-PAINT EXISTING ROOF MEMBRANE.
- D. PROVIDE NEW CAP AND APRON FLASHING PER DETAILS 1 & 2_AP102.
- E. NOT USED.
- F. PRESSURE WASH EXISTING CONCRETE RAMP INCLUDING VERTICAL SIDE WALLS.
- G. REPAINT EXISTING RAILING.
- H. REMOVE PAINT FROM PAINTED CONCRETE BUTTRESS SURFACES. PROVIDE CLEAR PROTECTIVE COATING.
- I. NOT USED.
- J. REMOVE EXISTING LIGHTS AND REPLACE WITH NEW
- K. SEE AS101 FOR SIDEWALK AND INFILL AT EXISTING STEPS.
- L. NOT USED.
- M. NOT USED.
- N. PROVIDE NEW CEILING BEAMS.
- O. WOOD BEAM SUSPENSION WITH SWIVEL EYE, SEE 4_AP101. CONTRACTOR TO PURCHASE AND INSTALL. COORDINATE WITH EXISTING BEAM SIZE. COORDINATE INSTALLATION LOCATION WITH OWNER.
- P. REMOVE EXISTING WOOD SEATING AND BACK REST. REPLACE WITH NEW WOOD-PLASTIC COMPOSITE MATERIAL (TREX OR TIMBERTEC-AZTEK). PROVIDE NEW HDG HARDWARE, BOLTS AND ANCHORS. MATCH EXISTING BOARD CONFIGURATION, SIZES AND SPACING. RE-PAINT EXISTING STEEL SUPPORTS.

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE

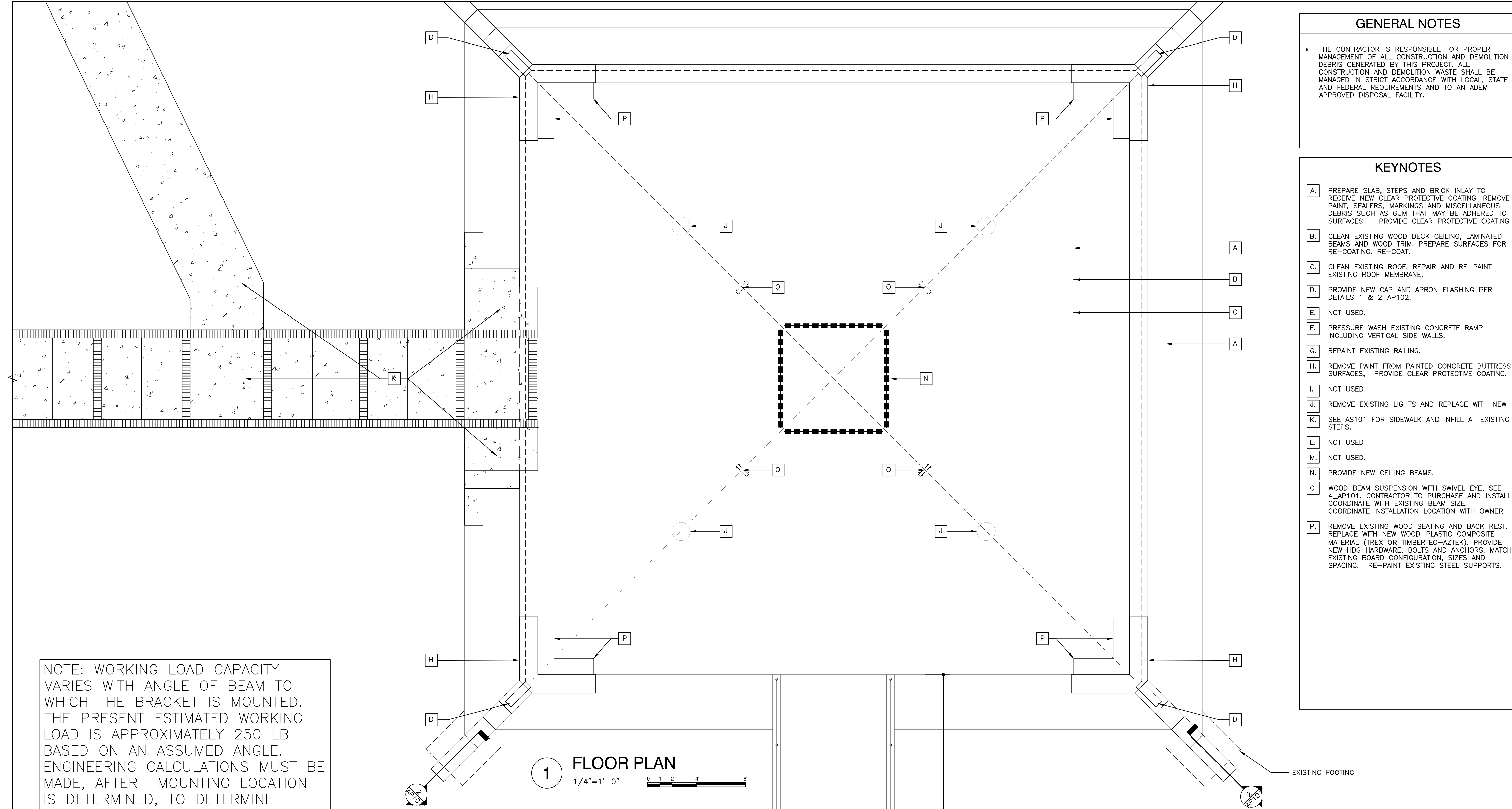
**PAVILION
PLAN**

JOB NO. 2113

DATE: SEPT. 28, 2022

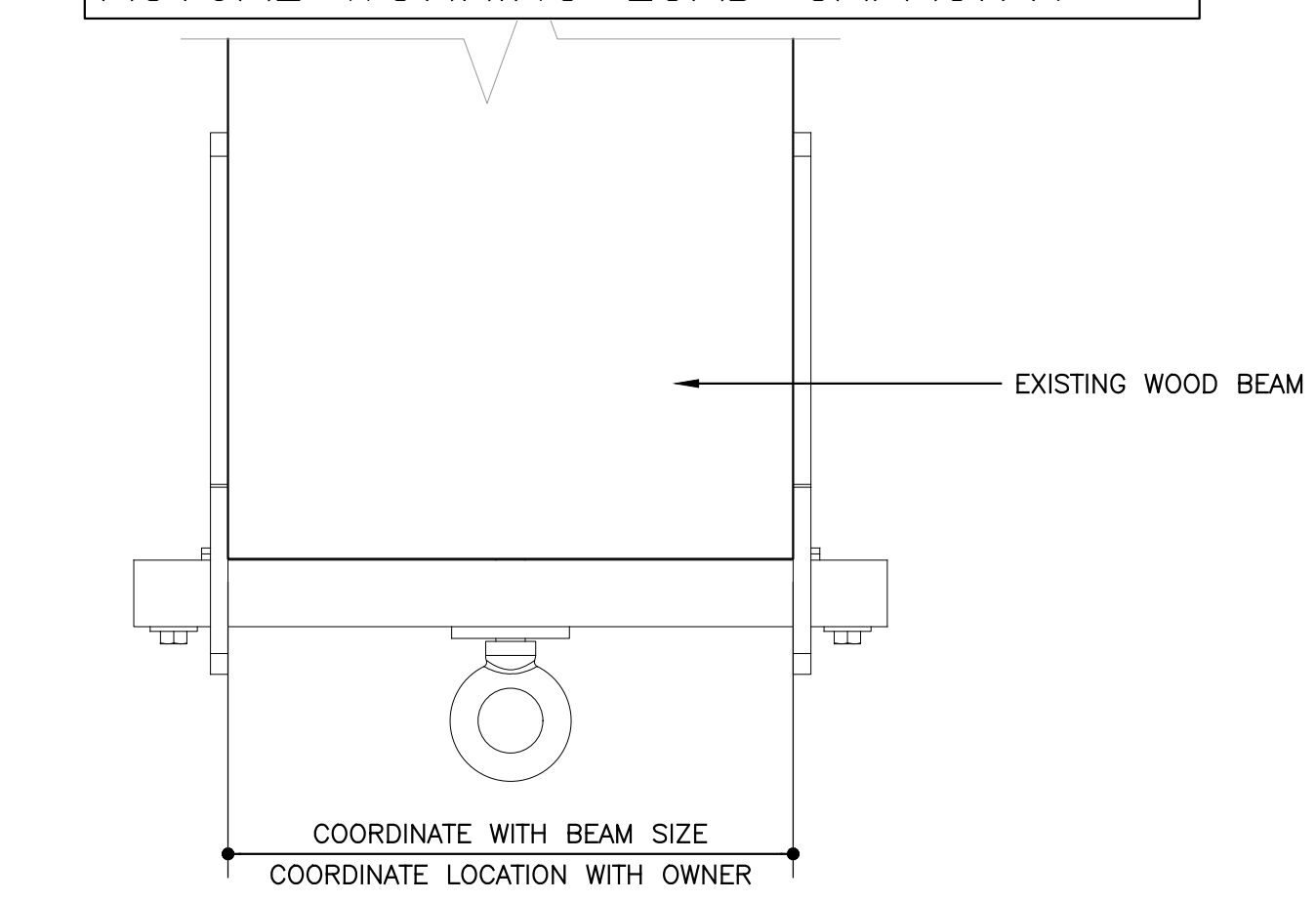
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AP101

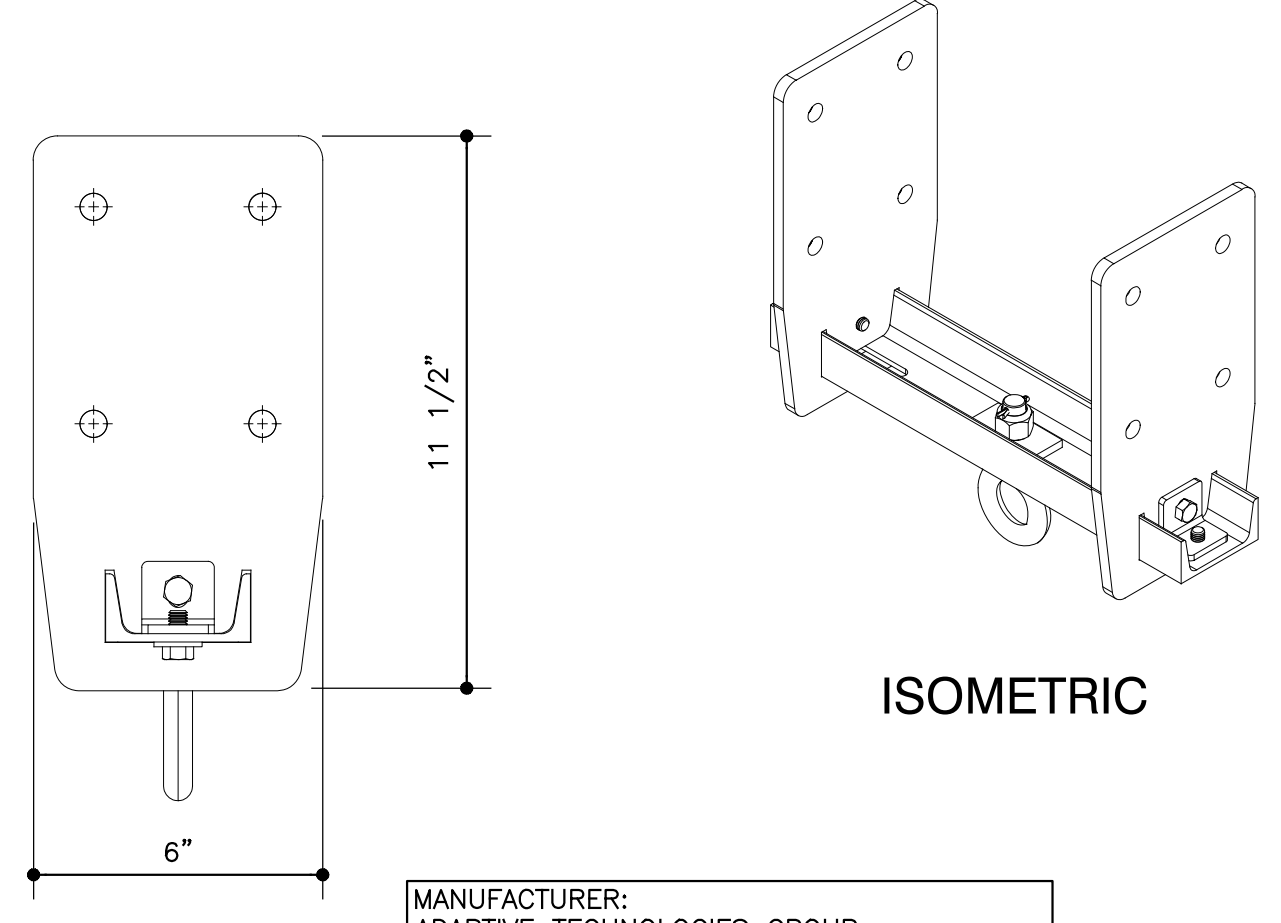


NOTE: WORKING LOAD CAPACITY VARIES WITH ANGLE OF BEAM TO WHICH THE BRACKET IS MOUNTED. THE PRESENT ESTIMATED WORKING LOAD IS APPROXIMATELY 250 LB BASED ON AN ASSUMED ANGLE. ENGINEERING CALCULATIONS MUST BE MADE, AFTER MOUNTING LOCATION IS DETERMINED, TO DETERMINE ACTUAL WORKING LOAD CAPACITY.

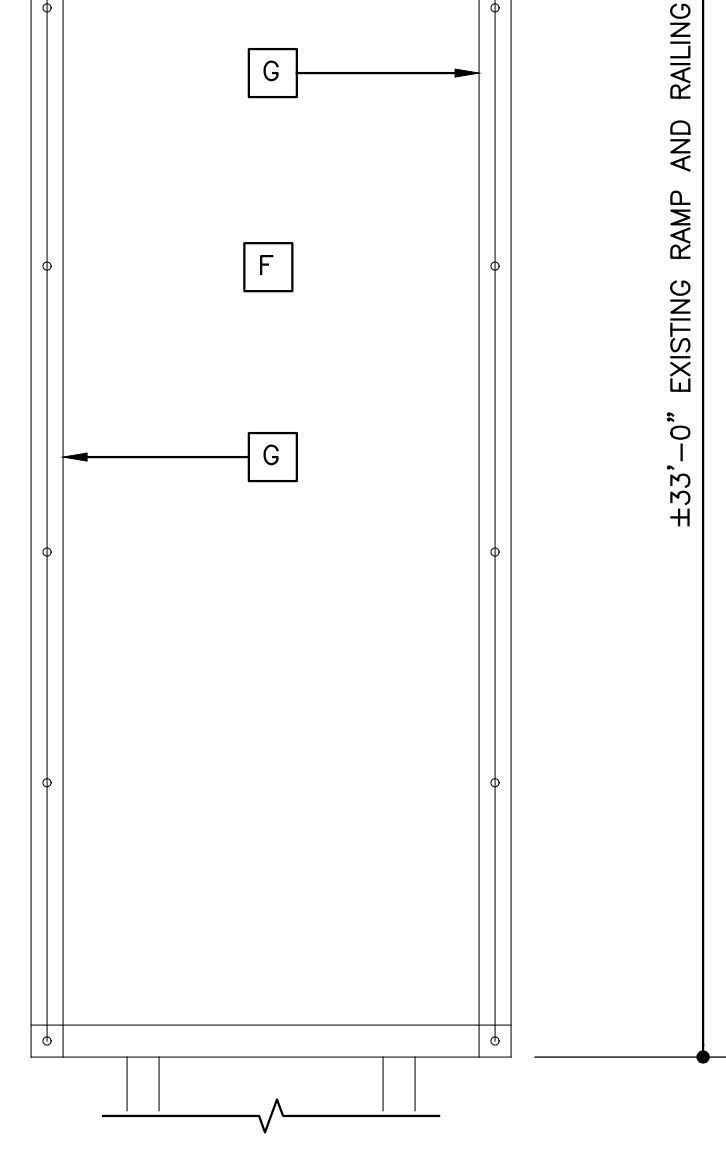
1 FLOOR PLAN
1/4"=1'-0"



4 WOOD BEAM SUSPENSION WITH SWIVEL EYE
3"=1'-0"



5 ISOMETRIC
MANUFACTURER: ADAPTIVE TECHNOLOGIES GROUP WOOD BEAM SUSPENSION WITH SWIVEL EYE MODEL: BC-W7-12-9 FOUR (4) REQUIRED

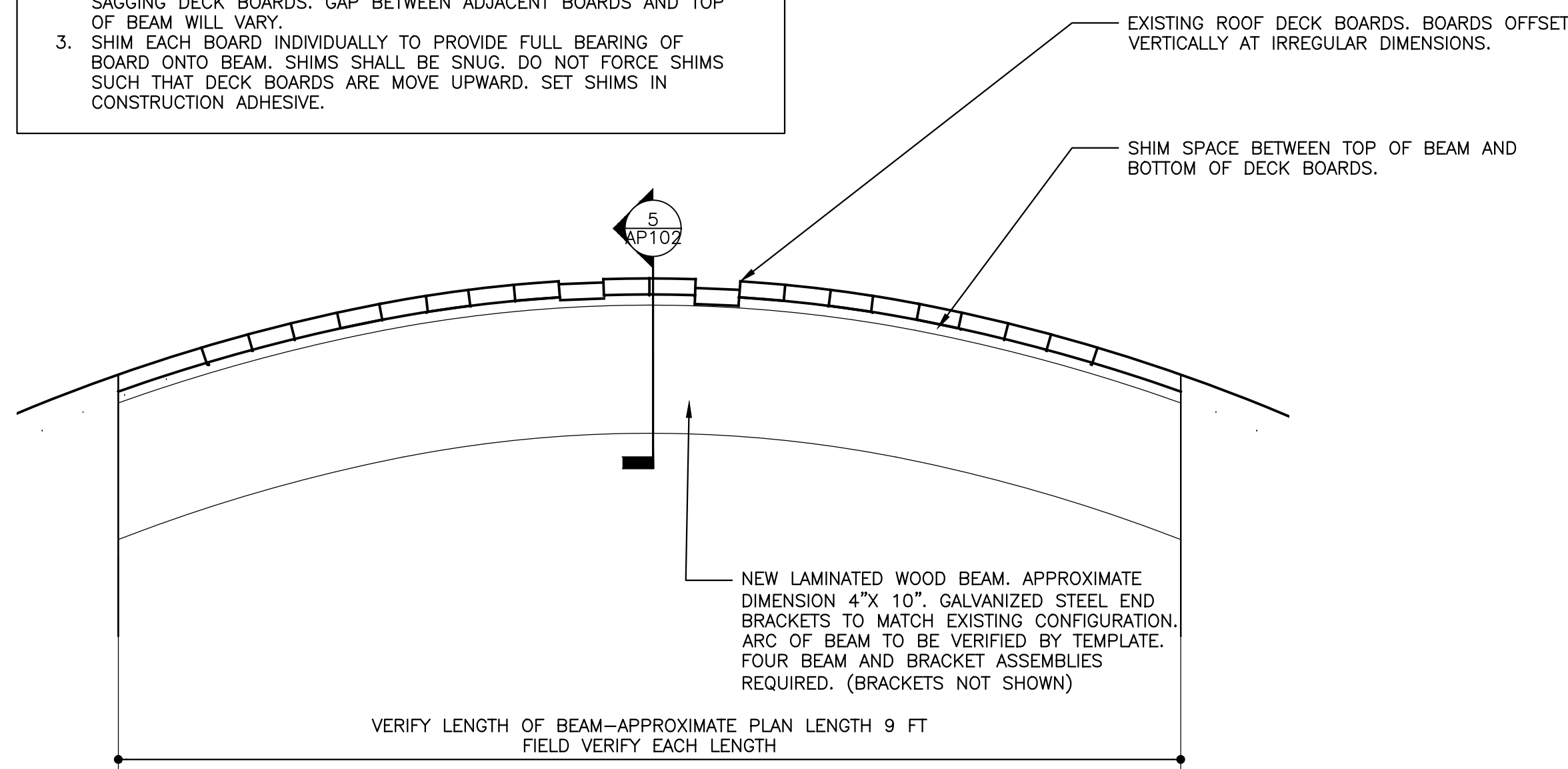


2 SLAB OVER CONDUIT
3/4"=1'-0"

NOTE: TWO REQUIRED

BEAM AND DECK NOTES

1. ALL NOTES AND CONDITIONS TO BE VERIFIED IN FIELD.
2. BEAM TO BE SET 3/8-INCH BELOW THE LOWEST ELEVATION OF SAGGING DECK BOARDS. GAP BETWEEN ADJACENT BOARDS AND TOP OF BEAM WILL VARY.
3. SHIM EACH BOARD INDIVIDUALLY TO PROVIDE FULL BEARING OF BOARD ONTO BEAM. SHIMS SHALL BE SNUG. DO NOT FORCE SHIMS SUCH THAT DECK BOARDS ARE MOVE UPWARD. SET SHIMS IN CONSTRUCTION ADHESIVE.

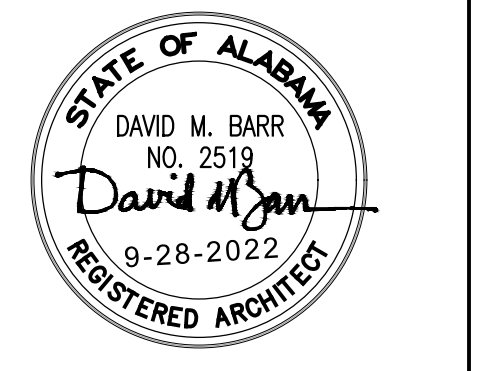


GENERAL NOTES

1. ANCHORS FOR WOOD BLOCKING, APRON AND CAP FLASHING SHALL PENETRATE INTO EXISTING SOLID WOOD NOT LESS THAN 1-INCH.
2. ALL ANCHORS TO BE TYPE 304 OR TYPE 316 STAINLESS STEEL.
3. REMOVE SATURATED WOOD DETERIORATED WOOD ON END OF BEAM.
4. APPLY TEMPORARY COVER OVER AREA TO RECEIVE CAP AND APRON FLASHING AND DRY WOOD TO NOT MORE THAN 19% MOISTURE CONTENT BEFORE COVERING WITH FLASHING.
5. CLEAN AND PREPARE ALL WOOD AND METAL SURFACES FOR RE-COATING. RE-COAT.

KEYNOTES

- A. NEW CAP FLASHING. CONSTRUCT WITH 3/8" DEEP VALLEY IN TOP SURFACE. EXTEND UNDER ROOF MEMBRANE MIN OF 4-INCHES. REPAIR AND RE-SECURE ROOF MEMBRANE AND EDGE FLASHING.
- B. NEW APRON FLASHING.
- C. SYNTHETIC UNDERLAYMENT BETWEEN WOOD AND FLASHING.
- D. EXISTING ARCH WOOD BEAM STEEL SUPPORT. CLEAN AND REPAINT PRIOR TO COVERING WITH FLASHING.
- E. SEE PHOTOS SHEET AP201.
- F. 1/4" STAINLESS STEEL ANCHORS WITH NEOPRENE WASHERS.
- G. FLAT SEAMED HEMMED EDGE AND HOLD DOWN W/ 2" STAINLESS STEEL ROOFING NAILS AT 6" O.C.
- H. CONCEALED HOLD-DOWN.
- I. FLAT LOCK SEAM WITH INTERNAL SEALANT.
- J. CONCEALED ANCHORS UNDER EXISTING FLASHING.
- K. SEALANT AND BACKER ROD
- L. 1" SEALANT TAPE
- M. 1" HEMMED EDGE
- N. 1"x1" CONTINUOUS HOLD DOWN W/ 2" STAINLESS STEEL ROOFING NAILS AT 6" O.C.
- O. EXISTING CONSTRUCTION
- P. LAMINATED BEAM
- Q. CONTINUOUS SEALANT IN HEMMED JOINT

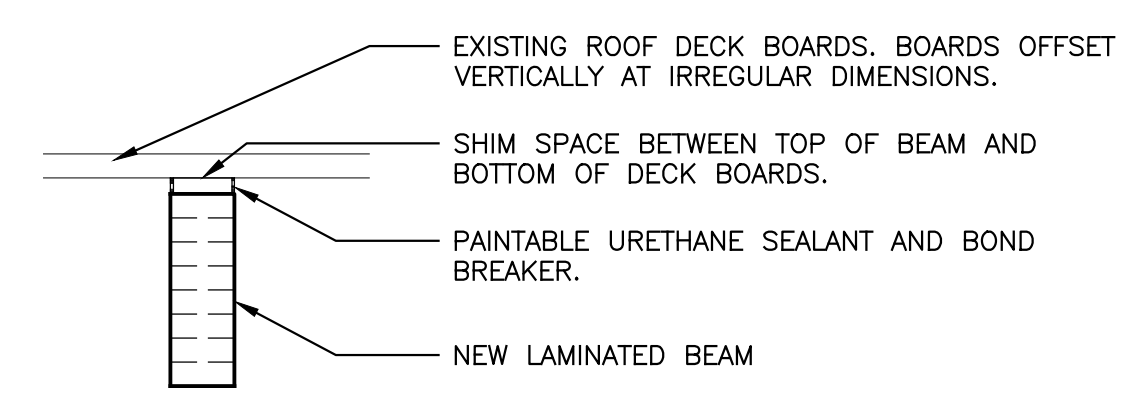


LANGAN PARK - AMPHITHEATER PAVILION & RESTROOMS

ALABAMA MOBILE,

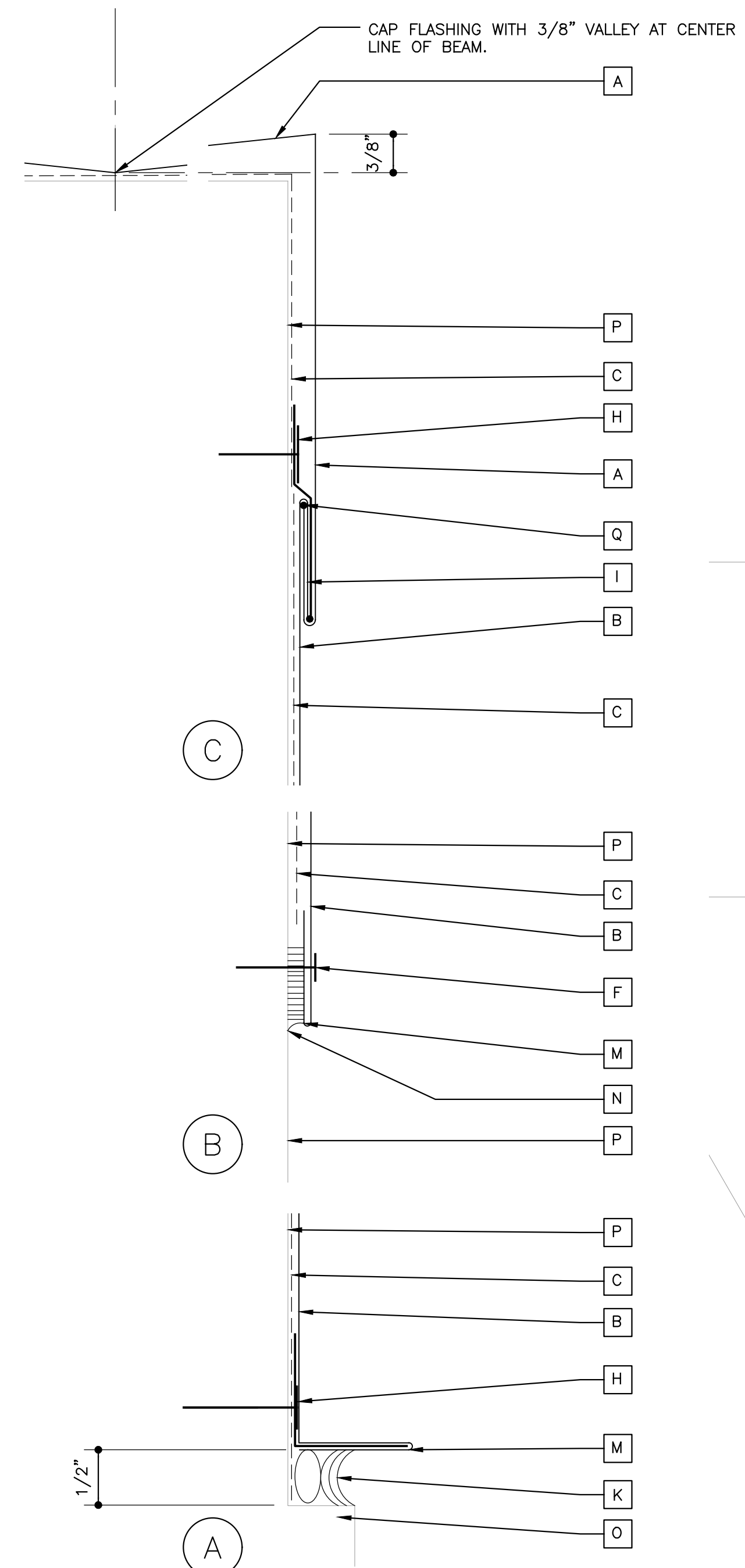
4 NEW LAMINATED BEAM ELEVATION-4 REQUIRED

1"=1'-0"

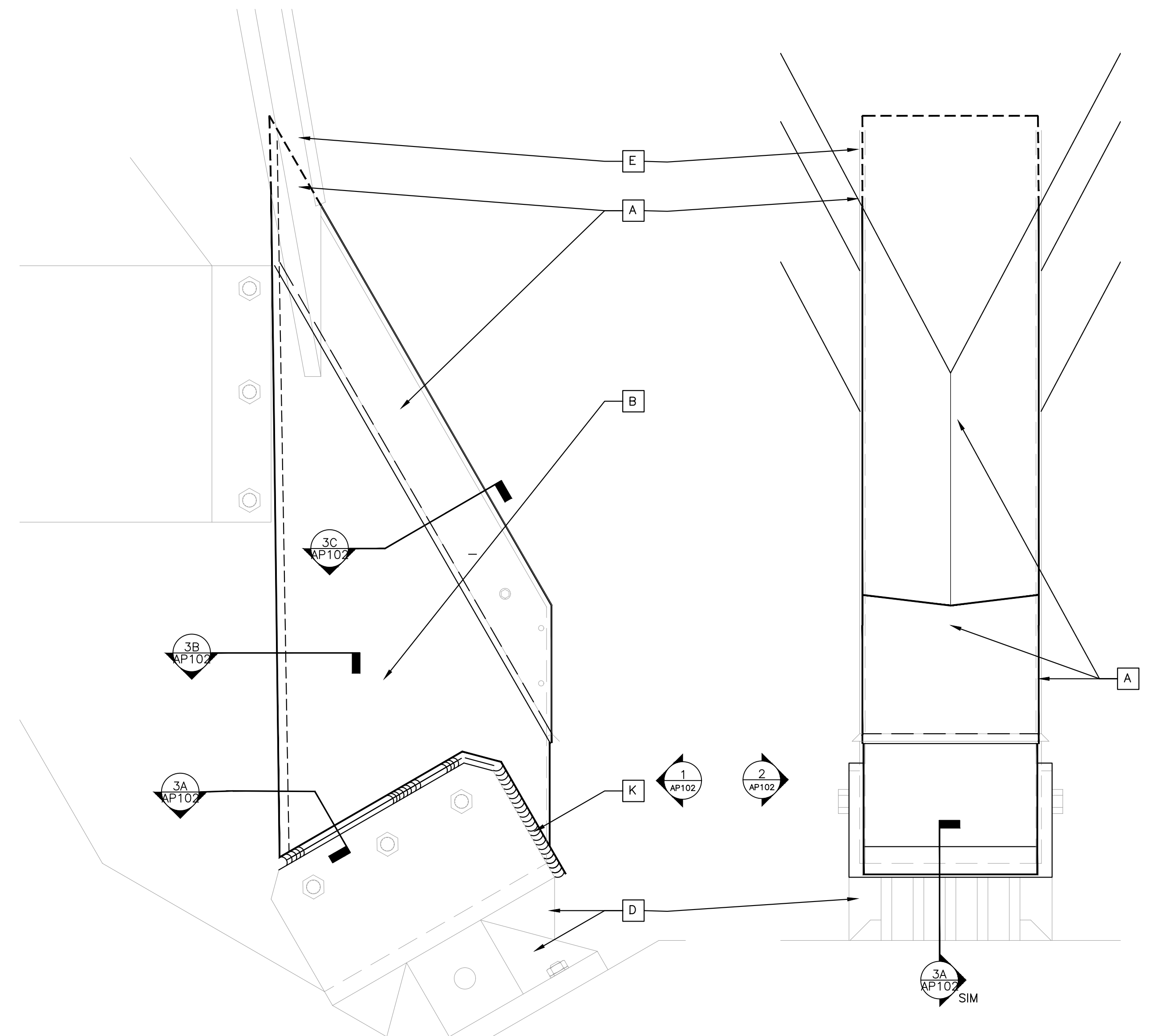


5 NEW LAMINATED BEAM SECTION

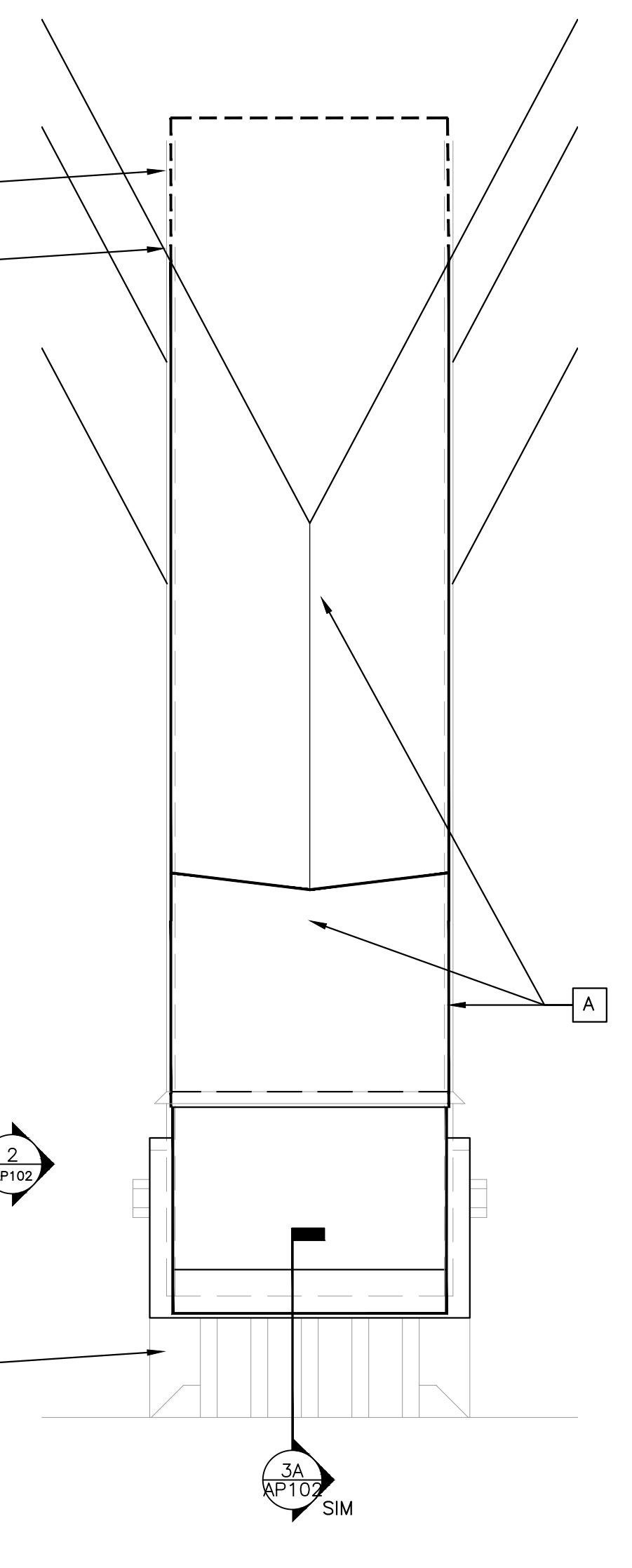
1"=1'-0"



3 DETAIL
FULL SCALE



2 SIDE FLASHING DETAIL
3"=1'-0"



1 FLASHING DETAIL
3"=1'-0"

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SHEET TITLE
PAVILION DETAILS

JOB NO. 2113

DATE. SEPT. 28, 2022

SHEET

AP102

NOTES

1. PHOTOS ARE INCLUDED TO PROVIDE A GENERAL VISUAL SENSE OF THE EXISTING CONDITIONS OF EACH BUILDING & ARE SUPPLEMENTAL TO THE DRAWINGS. PHOTOS ARE NOT INTENDED TO INDICATE ALL EXISTING CONDITIONS OR LOCATIONS SUCH CONDITIONS EXIST.



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ALABAMA

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1	9-28-22	IFB

SHEET TITLE

**PAVILION
ELEVATION**

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

AP200



ROOF ARCH LENGTH IS
APPROXIMATELY 74 FT.
FIELD VERIFY ALL DIMENSIONS

25'-0"

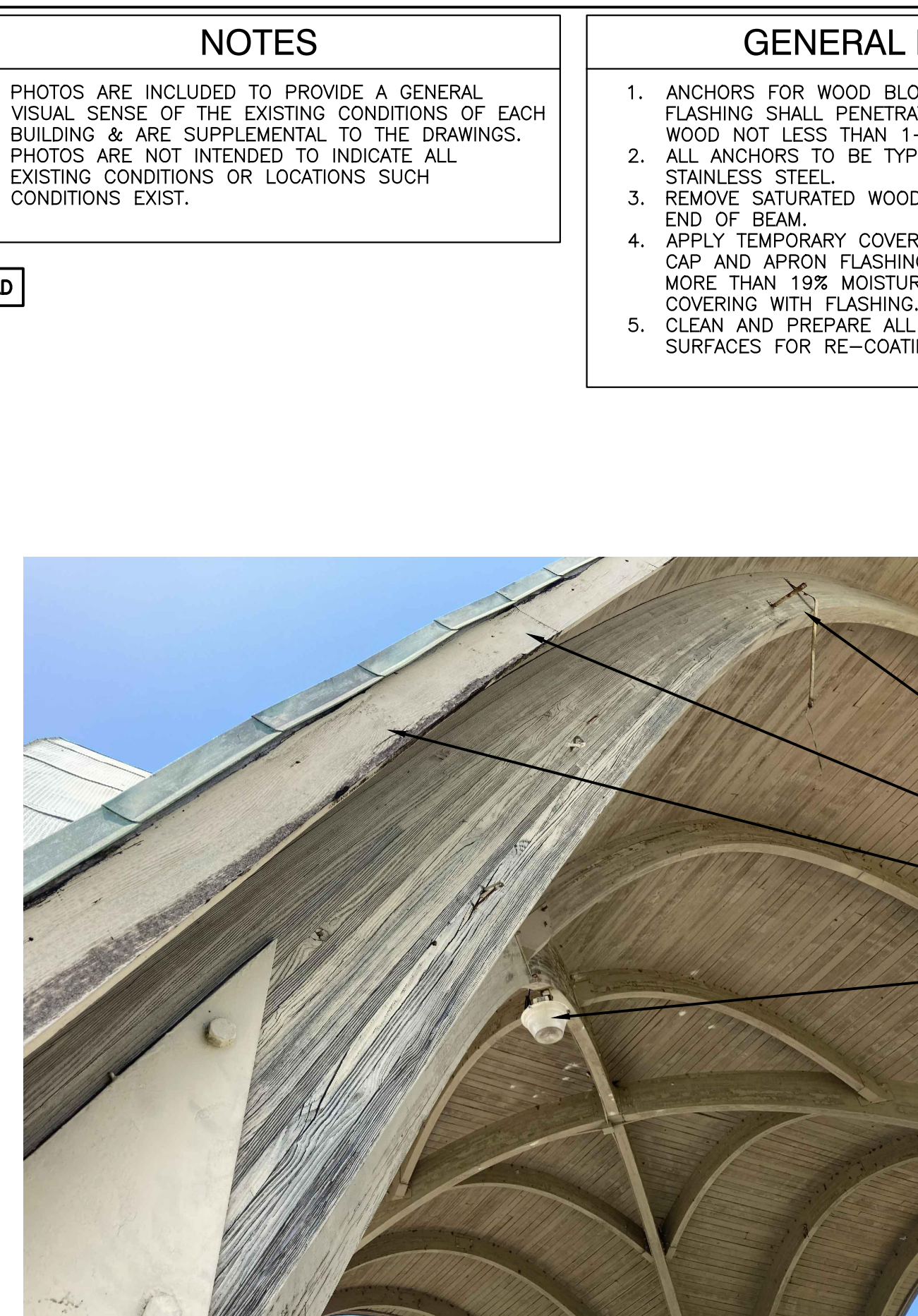
50'-0"



P0001



P0003



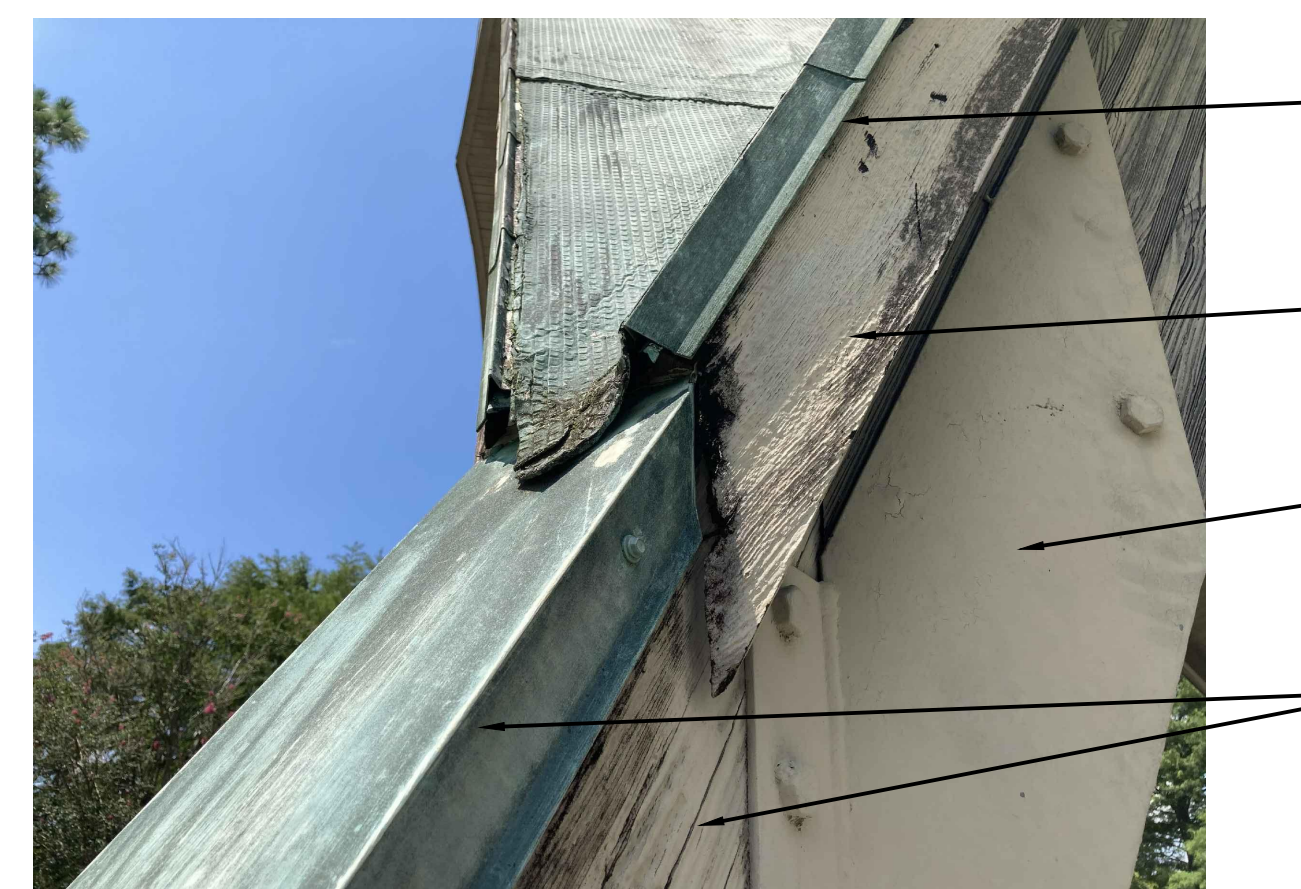
P0005



P0002



P0004



P0006

NOTES

- PHOTOS ARE INCLUDED TO PROVIDE A GENERAL VISUAL SENSE OF THE EXISTING CONDITIONS OF EACH BUILDING & ARE SUPPLEMENTAL TO THE DRAWINGS. PHOTOS ARE NOT INTENDED TO INDICATE ALL EXISTING CONDITIONS OR LOCATIONS SUCH CONDITIONS EXIST.

GENERAL NOTES

- ANCHORS FOR WOOD BLOCKING, APRON AND CAP FLASHING SHALL PENETRATE INTO EXISTING SOLID WOOD NOT LESS THAN 1-INCH.
- ALL ANCHORS TO BE TYPE 304 OR TYPE 316 STAINLESS STEEL
- REMOVE SATURATED WOOD DETERIORATED WOOD ON END OF BEAM.
- APPLY TEMPORARY COVER OVER AREA TO RECEIVE CAP AND APRON FLASHING AND DRY WOOD TO NOT MORE THAN 19% MOISTURE CONTENT BEFORE COVERING WITH FLASHING.
- CLEAN AND PREPARE ALL WOOD AND METAL SURFACES FOR RE-COATING. RE-COAT.

KEY NOTES

KEY NOTES IDENTIFY CONDITIONS DEPICTED ON INDIVIDUAL PHOTOGRAPHS. SHEETS NOTES ARE TYPICAL AND APPLY TO ALL SIMILAR CONDITIONS WHERE THEY OCCUR ON THE PAVILION.

- A. PREPARE SLAB, STEPS AND BRICK INLAY TO RECEIVE NEW CLEAR PROTECTIVE COATING. REMOVE PAINT, SEALERS, MARKINGS AND MISCELLANEOUS DEBRIS SUCH AS GUM THAT MAY BE ADHERED TO SURFACES. PROVIDE CLEAR PROTECTIVE COATING.
- B. CLEAN EXISTING WOOD DECK CEILING, LAMINATED BEAMS AND WOOD TRIM. PREPARE SURFACES FOR RE-COATING. RE-COAT.
- C. CLEAN EXISTING ROOF. REPAIR AND RE-PAINT EXISTING ROOF MEMBRANE.
- D. PROVIDE NEW CAP AND APRON FLASHING PER DETAILS 1 & 2_AP102.
- E. NOT USED.
- F. PRESSURE WASH EXISTING CONCRETE RAMP INCLUDING VERTICAL SIDE WALLS.
- G. REPAINT EXISTING RAILING.
- H. REMOVE PAINT FROM PAINTED CONCRETE BUTTRESS SURFACES. PROVIDE CLEAR PROTECTIVE COATING.
- I. NOT USED.
- J. REMOVE EXISTING LIGHTS AND REPLACE WITH NEW
- K. SEE AS101 FOR SIDEWALK AND INFILL AT EXISTING STEPS.
- L. NOT USED
- M. NOT USED.
- N. REPAIR CEILING STRUCTURE & DECK ABOVE, SEE SPECIFICATIONS.
- O. WOOD BEAM SUSPENSION WITH SWIVEL EYE. SEE 4_AP101. CONTRACTOR TO PURCHASE AND INSTALL. COORDINATE WITH EXISTING BEAM SIZE. COORDINATE INSTALLATION LOCATION WITH OWNER.
- P. REMOVE EXISTING WOOD SEATING AND BACK REST. REPLACE WITH NEW WOOD-PLASTIC COMPOSITE MATERIAL (TREX OR TIMBERTEC-AZTEK). PROVIDE NEW HDG HARDWARE, BOLTS AND ANCHORS. MATCH EXISTING BOARD CONFIGURATION, SIZES AND SPACING. RE-PAINT EXISTING STEEL SUPPORTS.

- AA. TRIM VERTICAL ENDS LAMINATED BEAM MINIMUM 1/2-INCH. INSTALL 1PRESERVATIVE TREATED PLYWOOD OVER END OF WOOD TO RETURN TO ORIGINAL PROFILE. USE SHIMS AND FILLER PIECES OF TREATED LUMBER TO CREATE SOLID ORIGINAL PROFILE.
- AB. REMOVE AND REPLACE FASCIA BOARD AND TRIM TO ALLOW INSTALLATION OF NEW CAP AND APRON FLASHING
- AC. SECURE ROOF DRIP EDGE ALONG LOWER 3- FEET OF DRIP EDGE.
- AD. ADHERE ROOFING MEMBRANE TO CAP FLASHING USING ROOF FLASHING CEMENT OR URETHANE SEALANT COMPATIBLE WITH THE ROOMING MEMBRANE AND FLASHING METAL.
- AE. REMOVE MISCELLANEOUS ANCHORS NAILS AND SIMILAR PREVIOUSLY INSTALLED ATTACHMENT HARDWARE. COORDINATE WITH OWNER FOR DETERMINATION OF ANCHORS AND HARDWARE TO BE REMOVED. PREPARE AND PAINT ANCHORS AND HARDWARE REMAINING.
- AF. CLEAN & PREPARE FOR REPAINTING ALL GALVANIZED METAL SUPPORT BRACKETS AND SUPPORT STRUCTURE.. RE-PAINT.
- AG. CLEAN & PREPARE FOR REPAINTING ALL FASCIA AND TRIM BOARDS. RE-PAINT.
- AH. RE SECURE AND RE-NAIL ALL FASCIA AND TRIM BOARDS.



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ALABAMA

MOBILE,

REVISIONS

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SHEET TITLE

PAVILION PHOTO DETAILS

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

AP201



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NO.	DATE	REMARKS
1	9-28-22	IFB

SHEET TITLE
**DEMOLITION
FLOOR, ROOF
& CEILING PLANS**

JOB NO. 2113

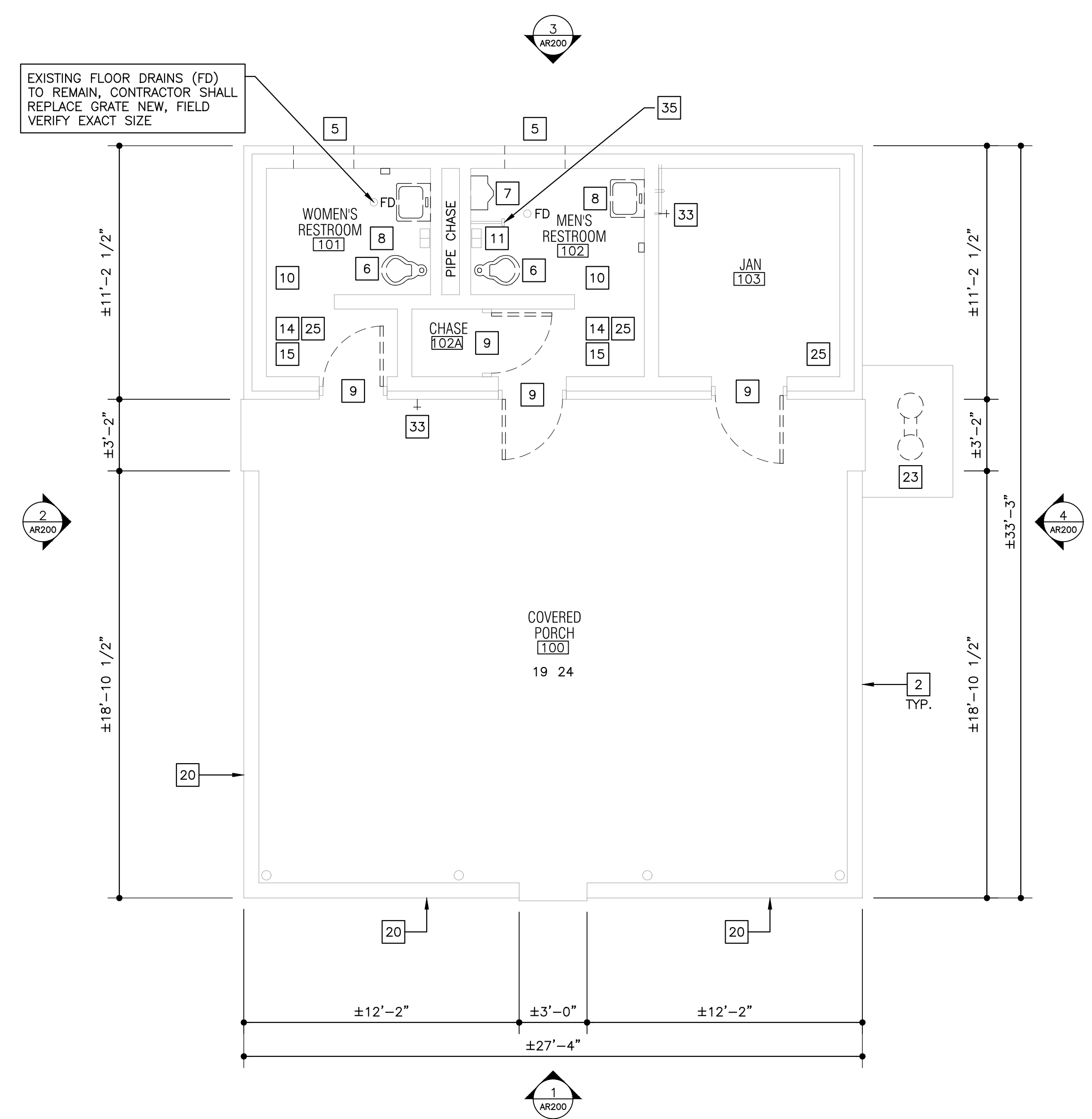
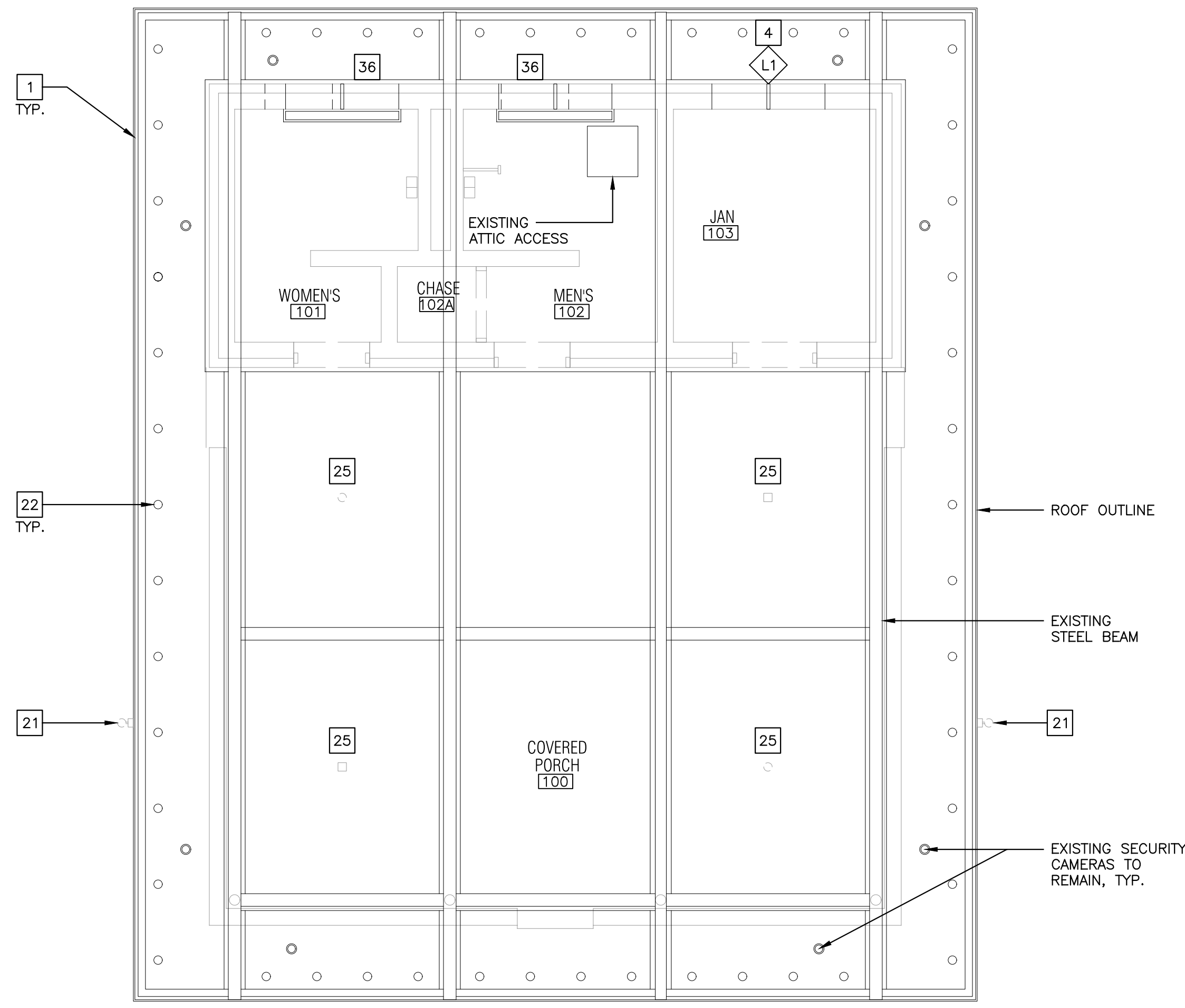
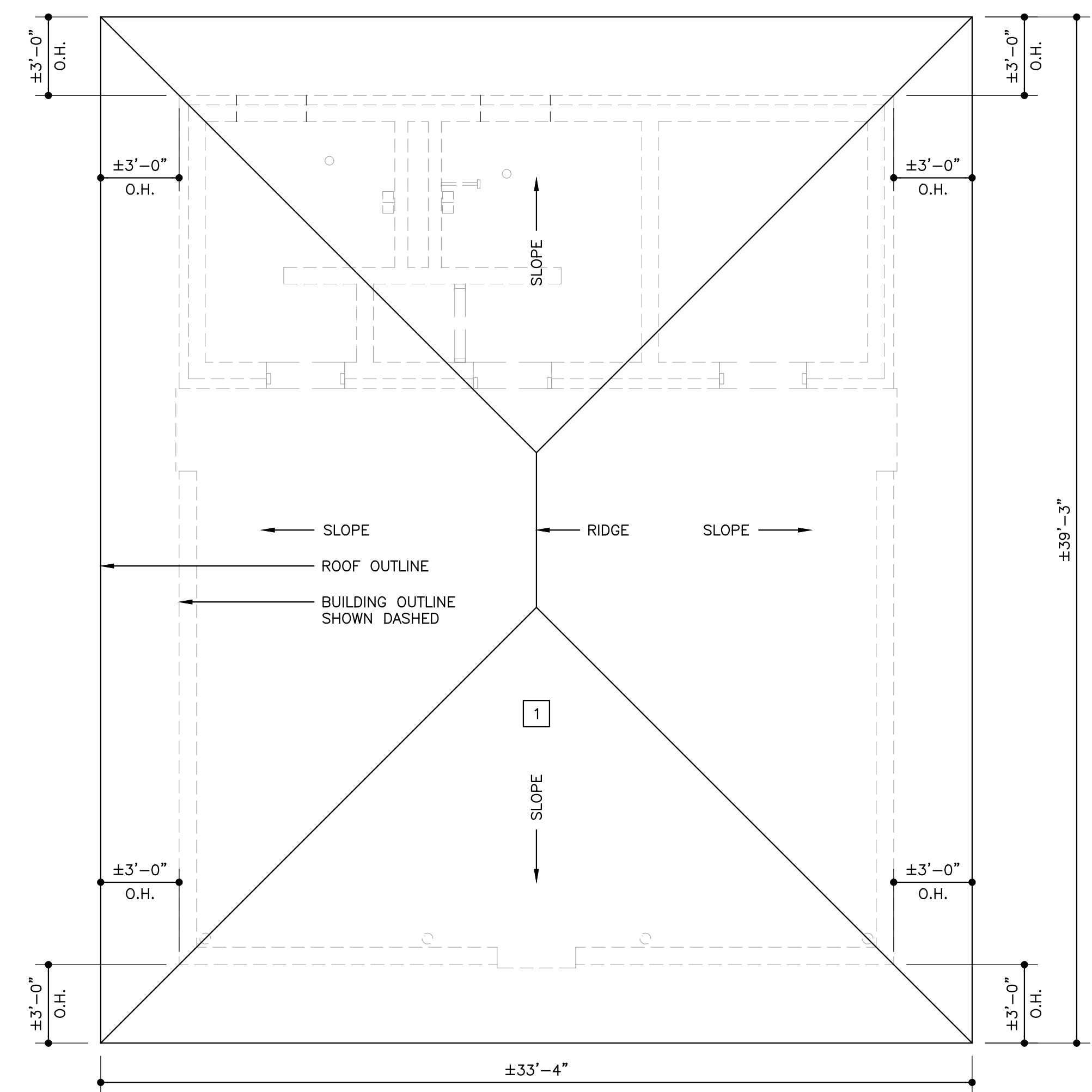
DATE, SEPT. 28, 2022

SHEET

AR101

- GENERAL NOTES**
- FURNISHINGS AND STORED ITEMS TO BE REMOVED BY OWNER.
 - PROTECT & CLEAN ALL FLOORS, WALLS, SOFFITS AND CEILINGS.
 - THE CONTRACTOR IS RESPONSIBLE FOR PROPER MANAGEMENT OF ALL CONSTRUCTION AND DEMOLITION DEBRIS GENERATED BY THIS PROJECT. ALL CONSTRUCTION AND DEMOLITION WASTE SHALL BE MANAGED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND TO AN ADEM APPROVED DISPOSAL FACILITY.

- KEYNOTES**
- REMOVE EXISTING ROOFING, UNDERLAYMENT, DRIP EDGE, AND 1X4 FASCIA. PATCH SUBSTRATE AS REQUIRED. PROVIDE NEW 1X4 FIBER-CEMENT FASCIA, SMOOTH, PAINTED.
 - CLEAN PATCH/REPAIR ALL EXTERIOR BRICK AND MORTAR JOINTS. (MATCH EXISTING)
 - NOT USED.
 - REMOVE EXISTING HIGH WALL EXTERIOR VENT SCREEN AND REPLACE WITH NEW WALL VENT LOUVER W/SCREEN, SEE 7_AR200.
 - REMOVE ALL EXISTING LOW WALL VENT SCREENS, LOUVERS AND REPLACE WITH NEW WALL VENT LOUVERS W/SCREENS, SEE 7_AR200.
 - REMOVE EXISTING TOILET AND REPLACE WITH NEW. (PUSH BUTTON FLUSH TYPE)
 - REMOVE EXISTING URINAL AND REPLACE WITH NEW. (PUSH BUTTON FLUSH TYPE)
 - REMOVE EXISTING SINK AND REPLACE WITH NEW CONCRETE SINK WITH APRON. GROUT CELLS SOLID, 8" MIN. EACH SIDE OF SUPPORT BRACKET.
 - REMOVE ALL EXISTING DOORS & FRAMES AND REPLACE WITH NEW HOLLOW METAL DOORS AND HOLLOW METAL FRAMES. PAINT.
 - REMOVE ALL EXISTING SOAP DISPENSER.
 - EXISTING TOILET PAPER DISPENSERS TO REMAIN. CLEAN AND PAINT ARCHITECTURAL BROWN.
 - NEW EXHAUST GRILLE. SEE MECH.
 - PAINT EXISTING TRIM BOARD PRIOR TO INSTALLING FIBER CEMENT.
 - REMOVE AND REPLACE EXISTING FLOOR DRAIN COVERS.
 - CLEAN ALL INTERIOR FLOORS.
 - PROVIDE A NEW MOP SINK/SERVICE BASIN IN THE JANITOR'S ROOM. SEE PLUMBING
 - PROVIDE A NEW HOT WATER TANK IN THE JANITOR'S ROOM.
 - CLEAN ALL INTERIOR WALLS AND CEILINGS AND REPAINT. ALL EXISTING WALL TILE TO REMAIN AND CLEANED.
 - CLEAN AND SEAL EXTERIOR CONCRETE FLOORS.
 - RE-CUT DRAIN HOLES IN PORCH SHORT WALL AT FLOOR LINE.
 - REMOVE EXISTING FASCIA LIGHTING AT TWO LOCATIONS.
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 - PAINT EXISTING COVERED PORCH CEILING, SOFFITS, BEAMS & COLUMNS.
 - REMOVE ALL EXISTING CEILING LIGHTS AND REPLACE WITH NEW.
 - PROVIDE NEW COM STANDARD SECURITY CAGE.
 - PROVIDE NEW RESTROOM SIGNS. (NOT ADA)
 - PROVIDE (2) NEW CONCRETE TRANSITION RAMPS @ THE COVERED PORCH. SEE CIVIL
 - PROVIDE NEW DOOR HARDWARE FOR (4) DOORS.
 - PROVIDE NEW DOOR THRESHOLDS.
 - PROVIDE THUMB LOCKS ON RESTROOM DOORS.
 - MAGNETIC LOCKS W/TIMER.
 - REMOVE EXISTING HOSE BIBB @ COVERED PORCH AND REPLACE WITH A NEW ZURN FREEZE PROOF KEYLESS TYPE.
 - NEW PICNIC TABLES.
 - EXISTING URINAL SCREEN. REMOVE AND REINSTALL. CLEAN AND PAINT WHITE.
 - REMOVE EXISTING VENT SCREEN & WOOD FRAME. INFILL WITH NEW BRICK, CMU MORTAR TO MATCH EXISTING.
 - PATCH CEILING AS REQUIRED TO COVER EXISTING CEILING VENT, PAINT.



**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

ALABAMA
 MOBILE

GENERAL NOTES

- FURNISHINGS AND STORED ITEMS TO BE REMOVED BY OWNER.
- PROTECT & CLEAN ALL FLOORS, WALLS, SOFFITS AND CEILINGS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROPER MANAGEMENT OF ALL CONSTRUCTION AND DEMOLITION DEBRIS GENERATED BY THIS PROJECT. ALL CONSTRUCTION AND DEMOLITION WASTE SHALL BE MANAGED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND TO AN ADEM APPROVED DISPOSAL FACILITY.

- KEYNOTES**
- REMOVE EXISTING ROOFING, UNDERLAYMENT, DRIP EDGE, AND 1X4 FASCIA. PATCH SUBSTRATE AS REQUIRED. PROVIDE NEW 1X4 FIBER-CEMENT FASCIA, SMOOTH, PAINTED.
 - CLEAN PATCH/REPAIR ALL EXTERIOR BRICK AND MORTAR JOINTS. (MATCH EXISTING)
 - NOT USED.
 - REMOVE EXISTING HIGH WALL EXTERIOR VENT SCREEN AND REPLACE WITH NEW WALL VENT LOUVER W/SCREEN, SEE 7_AR200.
 - REMOVE ALL EXISTING LOW WALL VENT SCREENS, LOUVERS AND REPLACE WITH NEW WALL VENT LOUVERS W/SCREENS, SEE 7_AR200.
 - REMOVE EXISTING TOILET AND REPLACE WITH NEW. (PUSH BUTTON FLUSH TYPE)
 - REMOVE EXISTING URINAL AND REPLACE WITH NEW. (PUSH BUTTON FLUSH TYPE)
 - REMOVE EXISTING SINK AND REPLACE WITH NEW CONCRETE SINK WITH APRON. GROUT CELLS SOLID, 8" MIN. EACH SIDE OF SUPPORT BRACKET.
 - REMOVE ALL EXISTING DOORS & FRAMES AND REPLACE WITH NEW HOLLOW METAL DOORS AND HOLLOW METAL FRAMES. PAINT.
 - REMOVE ALL EXISTING SOAP DISPENSER.
 - EXISTING TOILET PAPER DISPENSERS TO REMAIN. CLEAN AND PAINT ARCHITECTURAL BROWN.
 - NEW EXHAUST GRILLE. SEE MECH.
 - PAINT EXISTING TRIM BOARD PRIOR TO INSTALLING FIBER CEMENT.
 - REMOVE AND REPLACE EXISTING FLOOR DRAIN COVERS.
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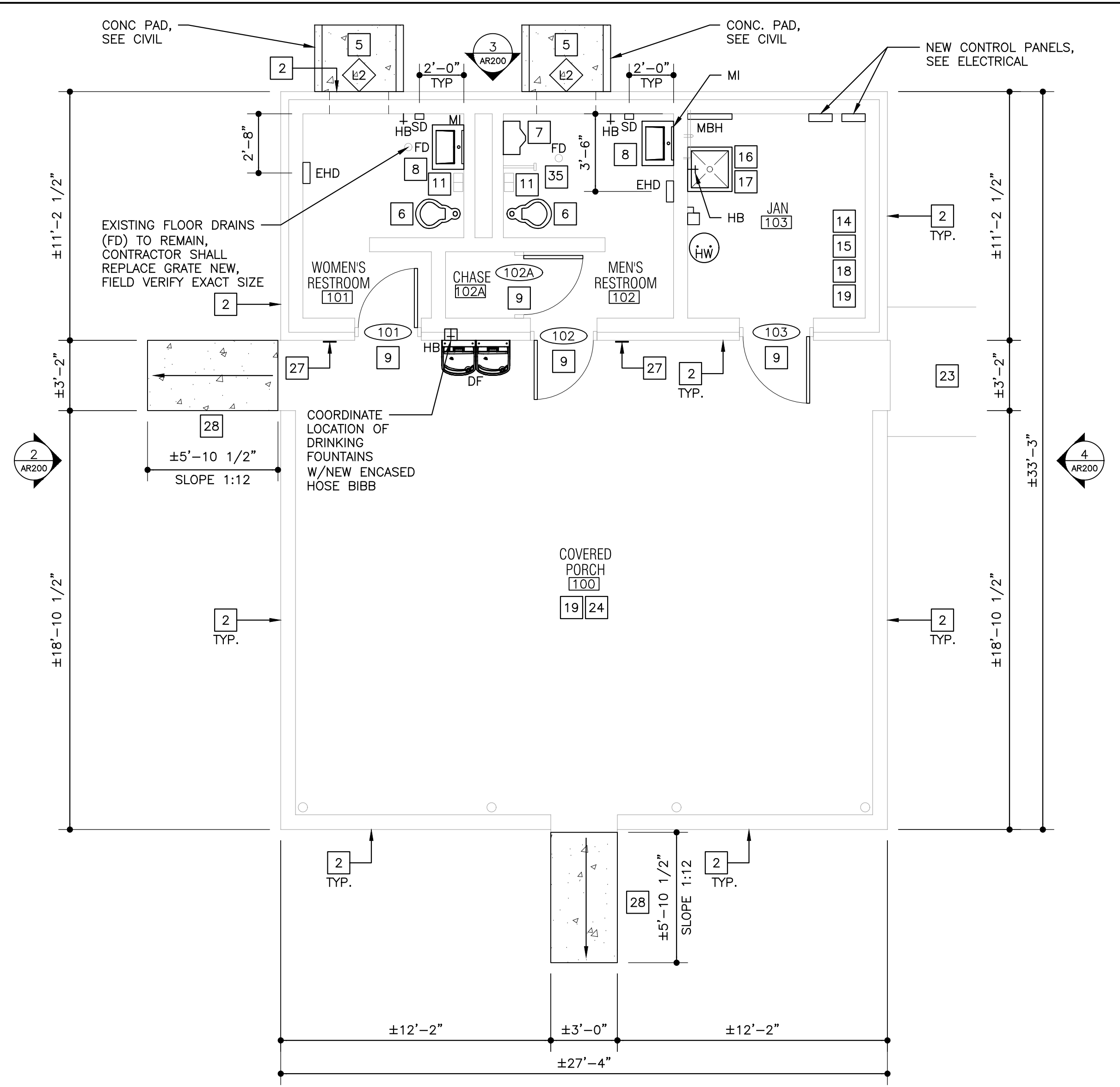
REVISIONS

NO.	DATE	REMARKS
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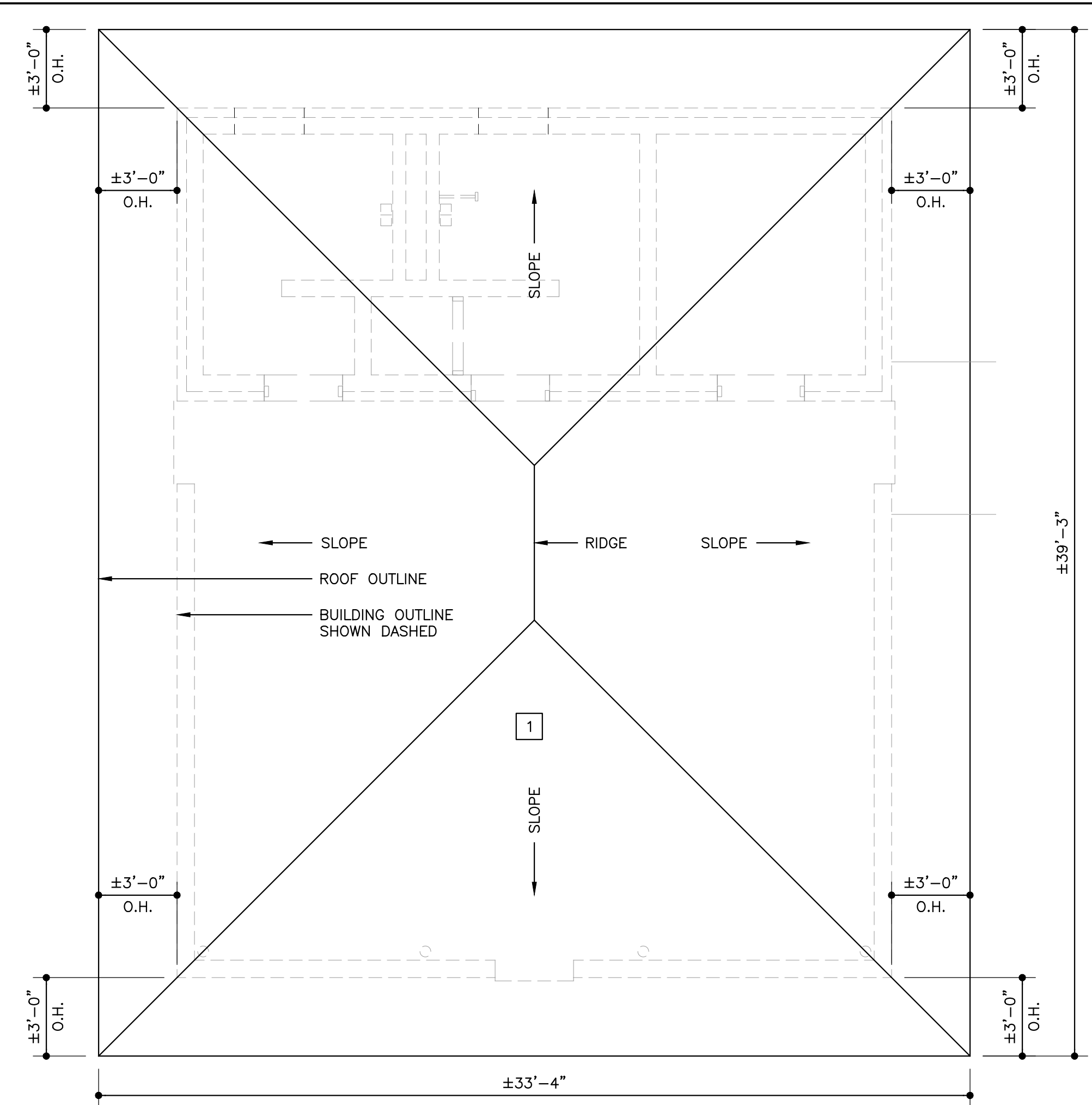
SHEET TITLE
FLOOR, ROOF & REFLECTED CEILING PLANS

JOB NO. 2113
DATE, SEPT. 28, 2022

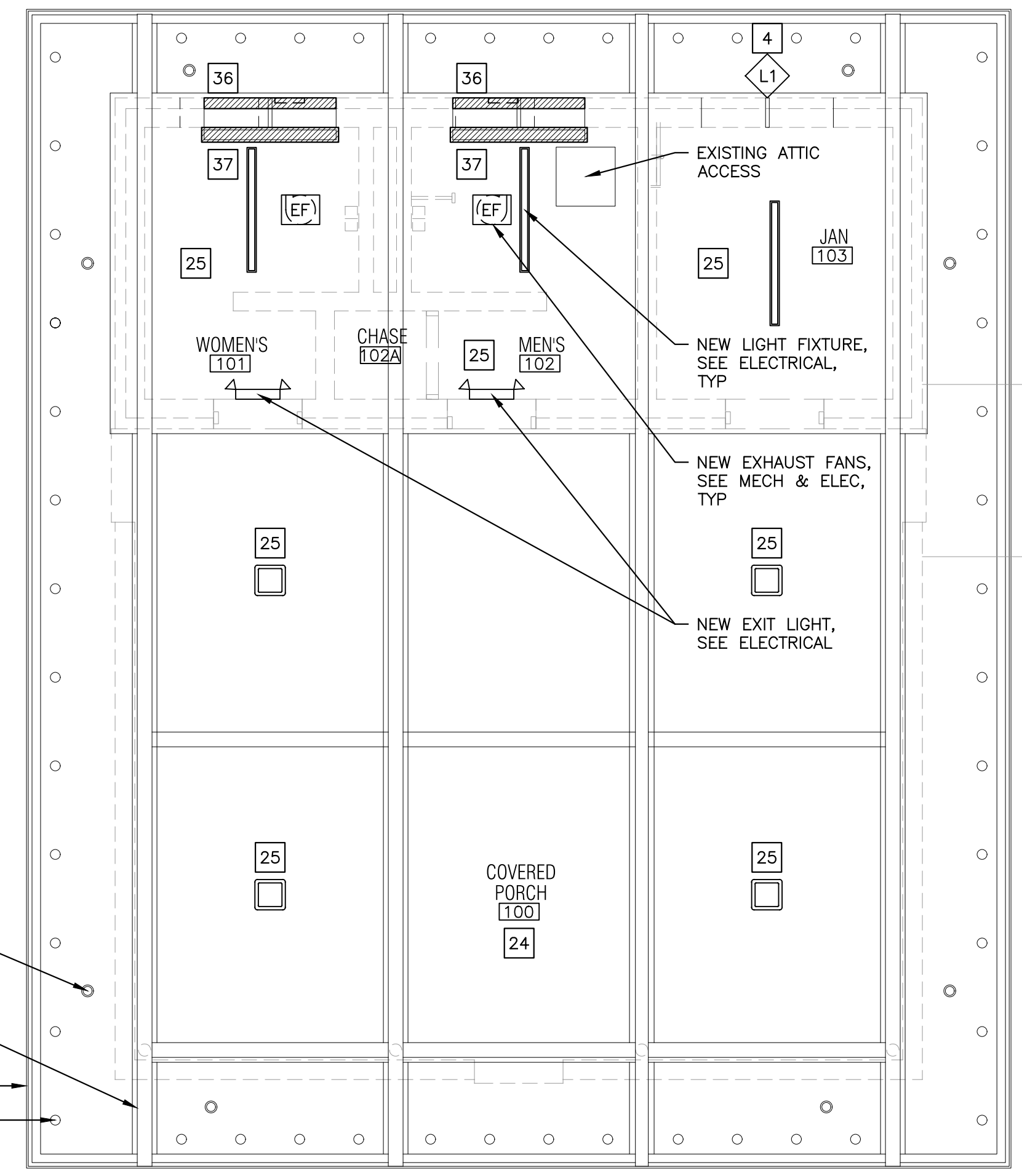
SHEET
AR102



1 FLOOR PLAN
 1/4"=1'-0"



2 ROOF PLAN
 1/4"=1'-0"



3 CEILING PLAN
 1/4"=1'-0"

ROOM FINISH SCHEDULE

ROOM NO.	ROOM	FLOOR	BASE	WALLS				CEILING	NOTES
				NORTH	EAST	SOUTH	WEST		
100	COVERED PORCH	SC	-	PT-1	PT-1	PT-1	PT-1	PT-1	-
101	WOMEN'S RESTROOM	RFS	RFS	PT-1	PT-1	PT-1	PT-1	PT-1	A
102	MEN'S RESTROOM	RFS	RFS	PT-1	PT-1	PT-1	PT-1	PT-1	A
102A	CHASE	-	-	-	-	-	-	-	A
103	JANITOR	SC	-	PT-1	PT-1	PT-1	PT-1	PT-1	A

NOTES & KEYNOTES FOR FINISH SCHEDULE

NOTE	DESCRIPTION
A	ALL DOORS TO BE HOLLOW METAL & FRAMES, COLOR: ARCHITECTURAL BROWN (PT-3)

ABBREVIATIONS

PT	PAINT
RFS	RESINOUS FLOORING SYSTEM
SC	SEALED CONCRETE (Refer to Section Painting)

INTERIOR COLOR SCHEDULE

FLOOR: GREY (RFS) STONHARD STONTEC WHITE PLATINUM 1/16 INCH

BASE: GREY (RFS) STONHARD STONTEC WHITE PLATINUM 1/16 INCH

CEILING: WHITE, (PT-1) GLOSS

WALLS: WHITE, (PT-1) EPOXY SEMI-GLOSS

TRIM: WHITE, (PT-1) GLOSS

EXTERIOR COLOR SCHEDULE

WALLS: EXISTING BRICK

TRIM & COLUMNS & BEAMS: WIEMER GREY, (PT-2) GLOSS

EXTERIOR CEILINGS, FASCIA & SOFFIT: PAINT TO MATCH WEIMER GREY (PT-2) GLOSS

EXTERIOR LOUVERS: WIEMER GREY (PT-2), GLOSS

DOORS, FRAMES & DOOR LOUVERS: BLP ARCHITECTURAL BROWN (PT-3) SEMI-GLOSS

ROOF SHINGLES: WEATHERED WOOD

ROOF ACCESSORIES: PAINT TO MATCH ROOF SHINGLES

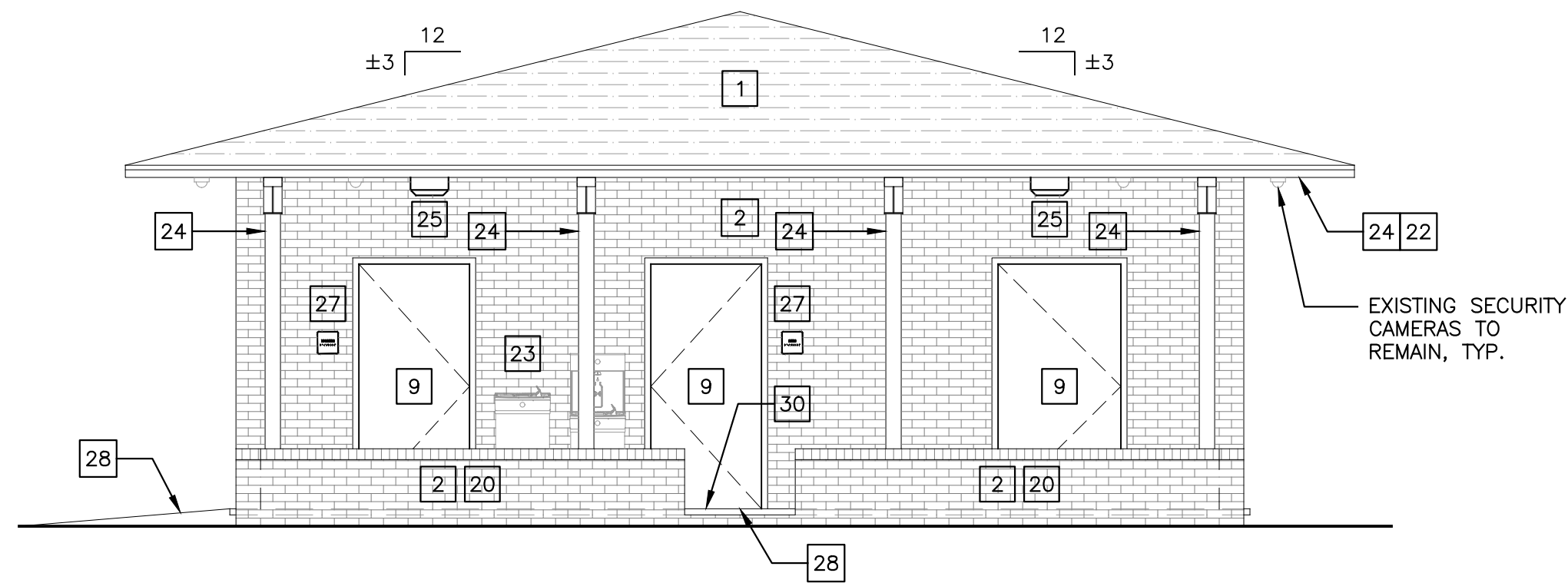
ACCESSORY LEGEND

MARK	DESCRIPTION	MANUFACTURER	MODEL NUMBER	NOTES
MI	MIRROR	ATLAS AMERICAN	AA-MVL-18x36-304L-14g	MOUNT SUCH THAT BOTTOM OF REFLECTIVE SURFACE IS NO HIGHER THAN 40" FROM FLOOR
SD	SOAP DISPENSER	BOBRICK	B-2013	AUTOMATIC WALL-MOUNTED FOAM SOAP DISPENSER
EHD	ELECTRIC HAND DRYER	AMERICAN SPECIALTIES	0165	SURFACE MOUNTED SENSOR HAND DRYER
MBH	MOP & BROOM HOLDER	FIAT PRODUCTS	889-CC	24" LONG 3" WIDE STAINLESS STEEL WITH (3) RUBBER TOOL GRIPS

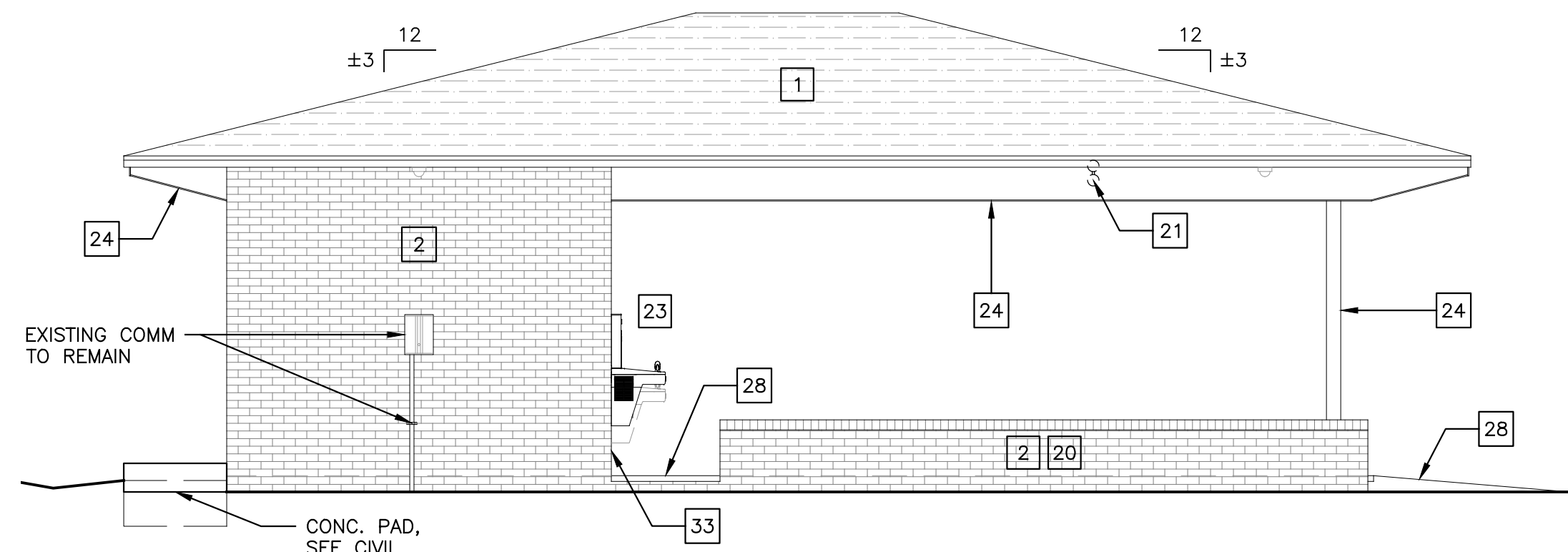
EXISTING SECURITY CAMERAS TO REMAIN

EXISTING STEEL BEAM

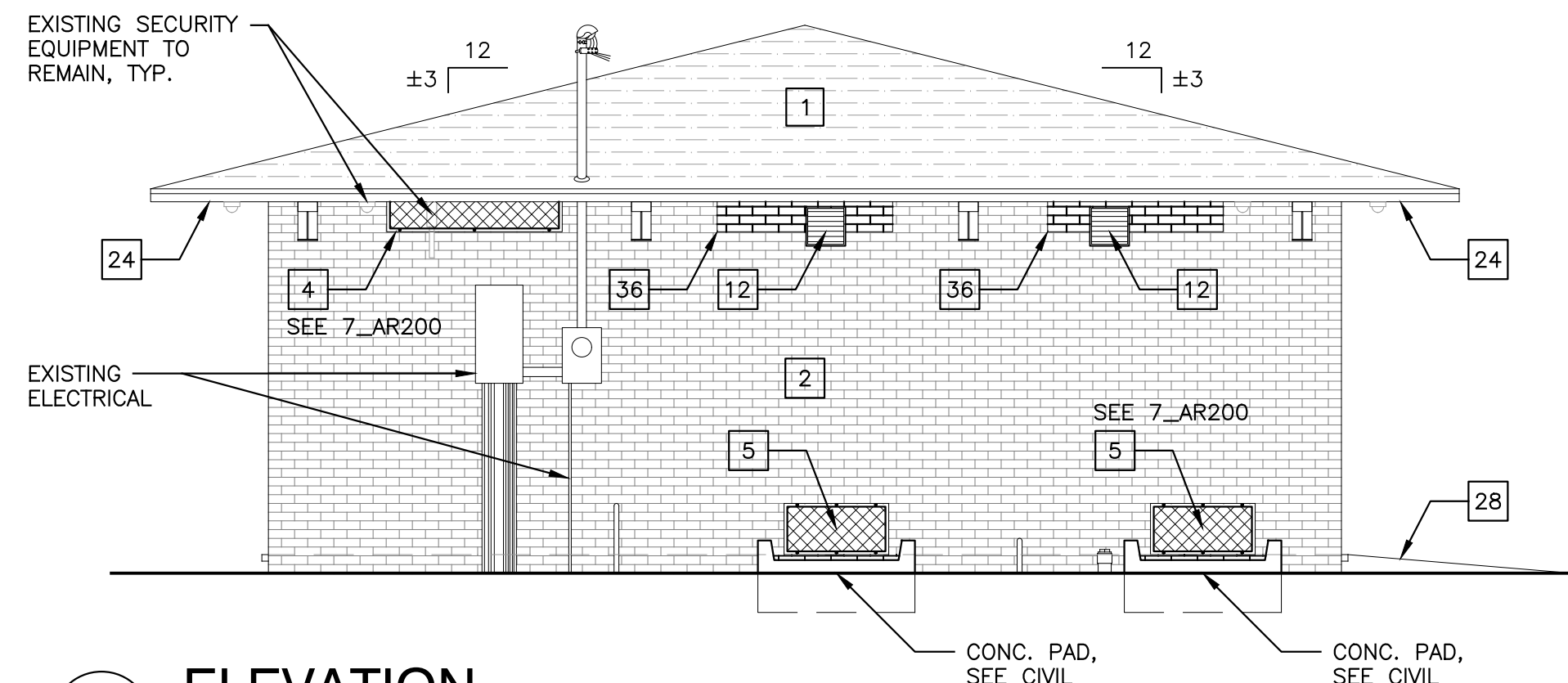
ROOF OUTLINE



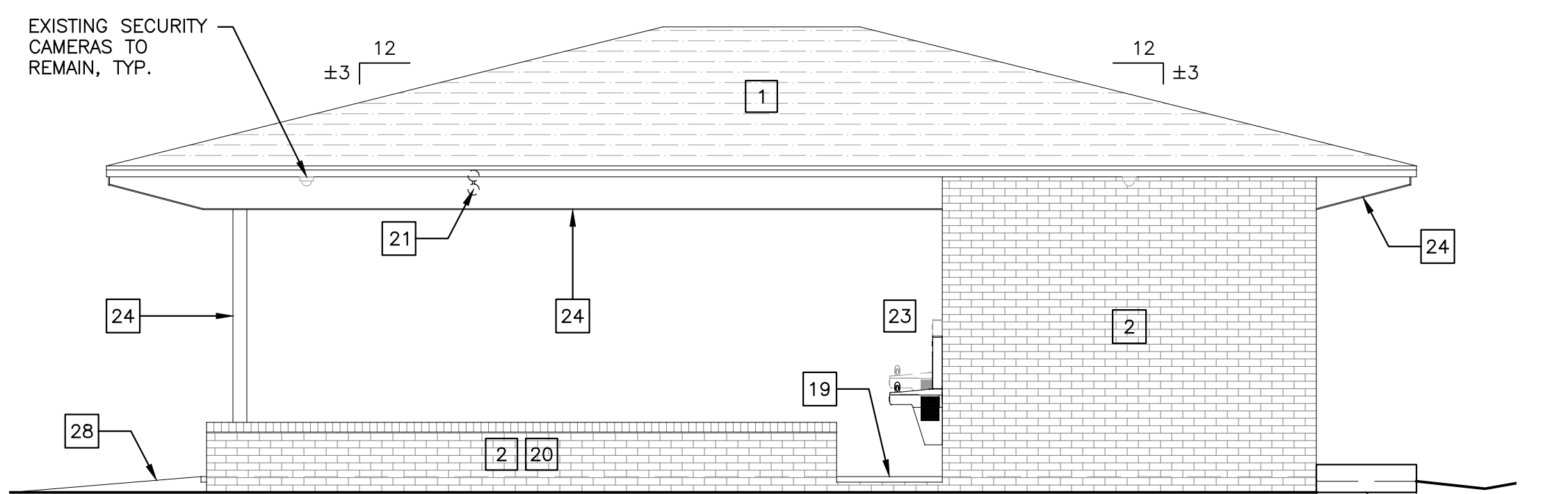
1 ELEVATION
1/4"=1'-0"



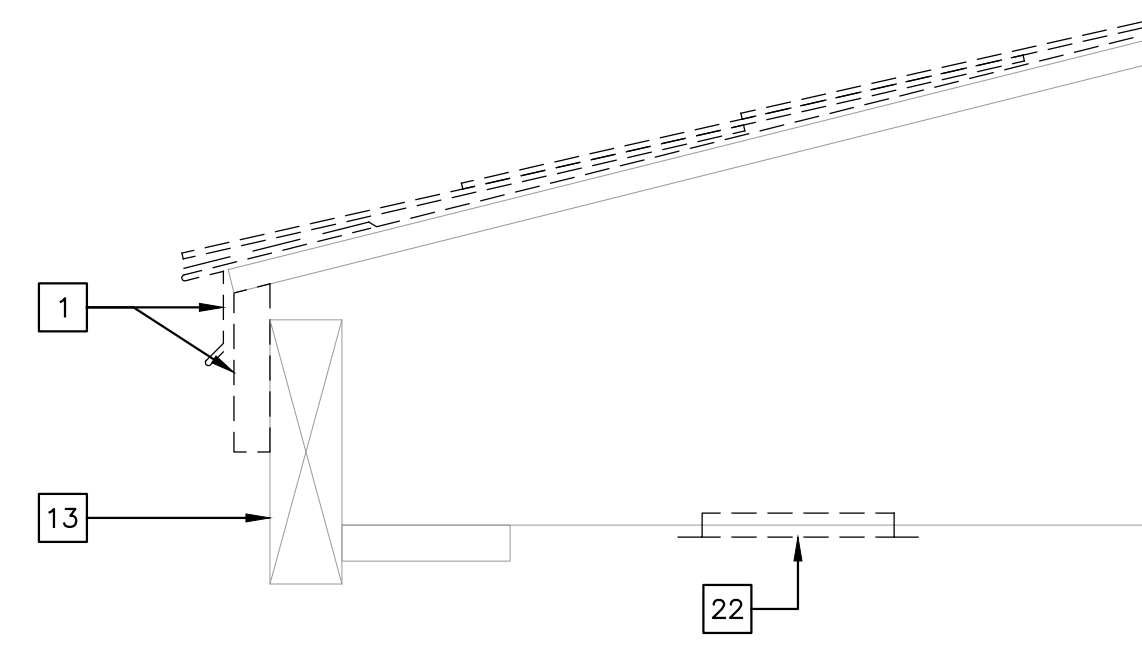
2 ELEVATION
1/4"=1'-0"



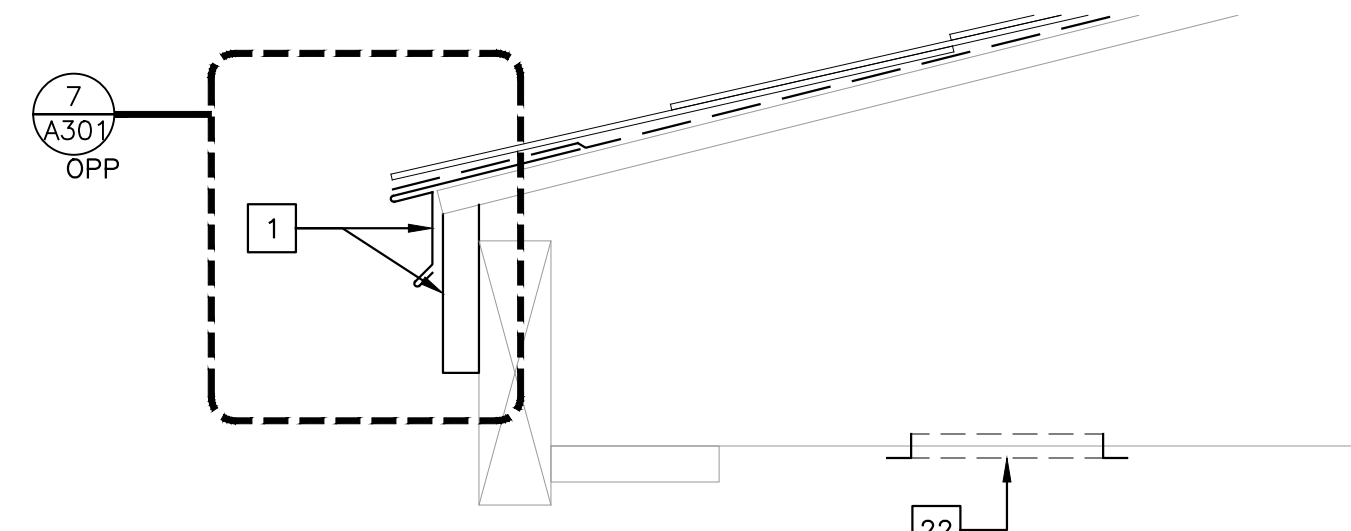
3 ELEVATION
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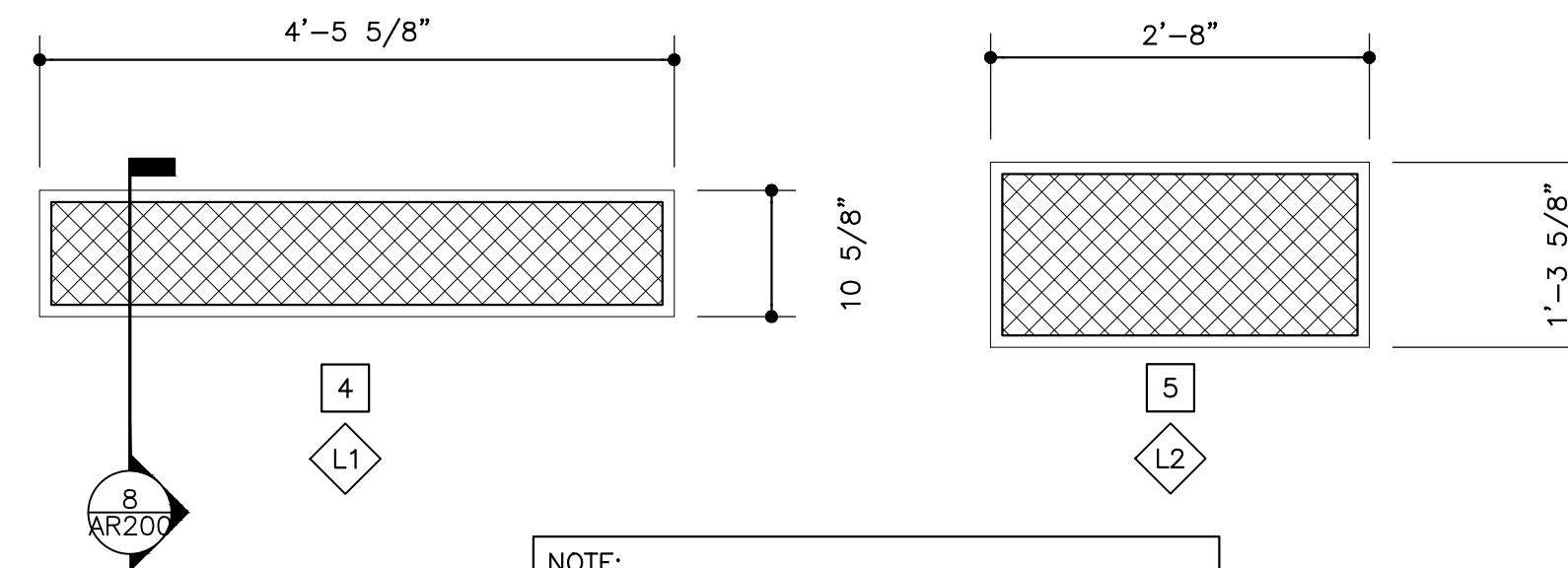
4 ELEVATION
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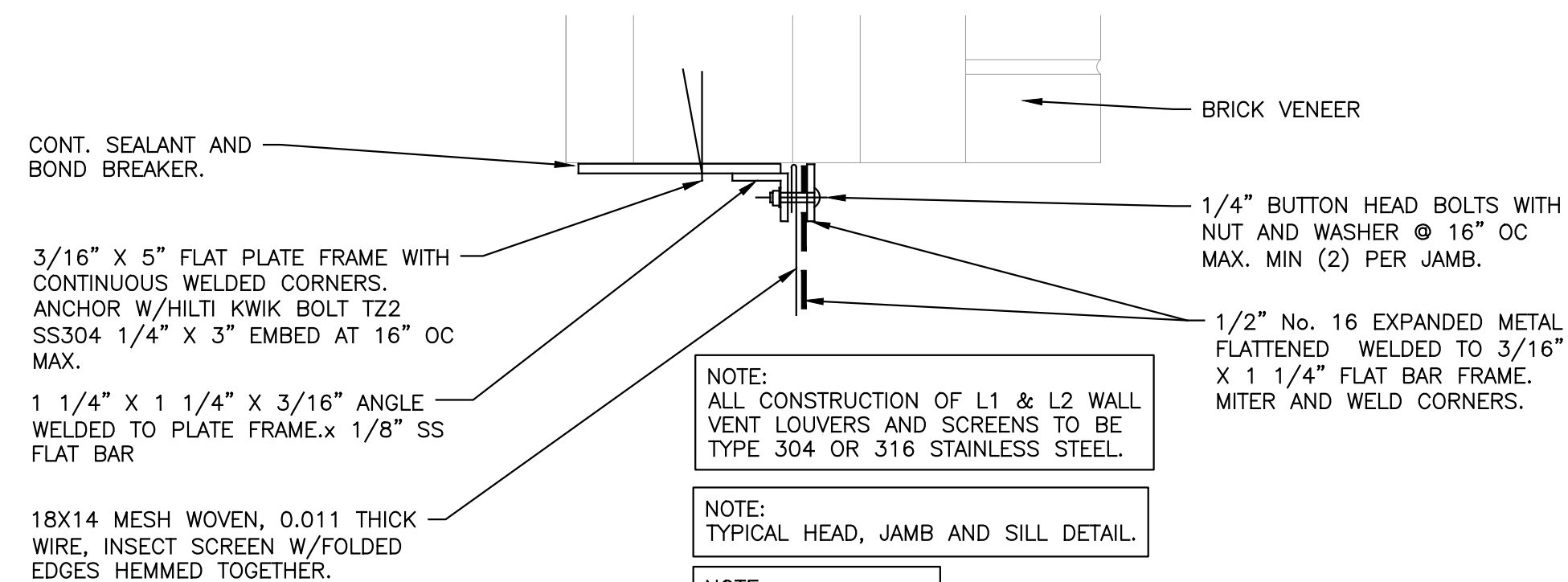
5 DEMO DETAIL
3"=1'-0"



6 DETAIL
3"=1'-0"



7 SS VENT LOUVER & SCREEN
3/4"=1'-0"



8 SS VENT LOUVER & SCREEN DETAIL
3"=1'-0"

GENERAL NOTES

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- THE CONTRACTOR IS RESPONSIBLE FOR PROPER MANAGEMENT OF ALL CONSTRUCTION AND DEMOLITION DEBRIS GENERATED BY THIS PROJECT. ALL CONSTRUCTION AND DEMOLITION WASTE SHALL BE MANAGED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND TO AN ADEM APPROVED DISPOSAL FACILITY.

KEYNOTES

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- CLEAN PATCH/REPAIR ALL EXTERIOR BRICK AND MORTAR JOINTS. (MATCH EXISTING)
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- EXISTING URINAL SCREEN. REMOVE AND REINSTALL. CLEAN AND PAINT WHITE.
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**LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS**

ALABAMA
MOBILE.

REVISIONS

NO.	DATE	REMARKS
	9-28-22	IFB

SHEET TITLE
**RENOVATION
ELEVATIONS**

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

AR200

GENERAL NOTES:

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE, THE OCCUPATIONAL SAFETY AND HEALTH ACT, ALL PIPING CODES LOCALLY BEING ENFORCED BY LOCAL AUTHORITY HAVING JURISDICTION (AHJ) IN THE PROJECT AREA AND THE CONTRACTING OFFICER (C.O.).
- CONTRACTOR TO OBTAIN AND PAY FOR ALL PERMITS, INSPECTION AND CONNECTION FEES.
- CONTRACTOR TO PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND SUPERVISION FOR AND INCIDENTAL TO THE COMPLETION OF A FULLY FUNCTIONAL, SAFE AND COMPLETE WATER PIPING SYSTEMS.
- CONTRACTOR TO TEST SYSTEM THOROUGHLY IN THE PRESENCE OF OWNER AND RENDER IT FREE FROM DEFECTS. CONTRACTOR TO PROVIDE OWNER WITH A ONE YEAR WARRANTY AFTER ACCEPTANCE.
- THE CONTRACTOR SHALL PROPERLY SEAL ALL PENETRATIONS THROUGH FIRE BARRIERS SHALL BE SEALED IN ACCORDANCE WITH THE LATEST REVISIONS OF INTERNATIONAL BUILDING CODE.
- PIPING CONTRACTOR TO COORDINATE WITH THE OWNER FOR ANY PIPING REQUIREMENTS FOR SPECIAL EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL PIPING ASSOCIATED WITH THE PROJECT WORK AREA.
- ALL EQUIPMENT AND MATERIALS SHALL MEET OR EXCEED THE SCHEDULED AND/OR REQUIRED ITEMS. SUBMIT FOR PRIOR APPROVAL FOR ANY DEVIATIONS.
- NO CHANGES SHALL BE MADE IN MATERIALS OR INSTALLATION WITHOUT ENGINEER AND OWNER'S APPROVAL.
- CONTRACTOR SHALL VERIFY CLEARANCE SPACE AVAILABLE, OFFSETS REQUIRED, STRUCTURAL OPENINGS, AND WORK BY OTHER TRADES.
- ALL PIPING MATERIAL AND EQUIPMENT PROVIDED BY THE CONTRACTOR SHALL BE NEW AND FREE OF DEFECTS. ALL WORK PERFORMED FOR THIS PROJECT SHALL BE CARRIED OUT BY SKILLED WORKERS REGULARLY ENGAGED IN THE PERFORMANCE OF SUCH DUTIES. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED CLEAN AND FREE FROM DENTS, SCARS OR DEFORMITIES.
- ANY PATCHING OF WALLS SHALL MATCH NEW ARCHITECTURAL FINISHING REQUIREMENTS.
- REFERENCE TO A PARTICULAR PRODUCT BY MANUFACTURER, TRADE NAME, OR CATALOG NUMBER ESTABLISHES THE QUALITY STANDARDS OF MATERIAL AND EQUIPMENT REQUIRED FOR THIS INSTALLATION AND IS NOT INTENDED TO EXCLUDE PRODUCTS EQUAL IN QUALITY AND SIMILAR DESIGN.
- THE ACCURACY OF GRADE, ELEVATION, DIMENSIONS, OR LOCATIONS OF THE EXISTING CONDITION IS NOT GUARANTEED BY THE ENGINEER OR THE OWNER. IF THE CONTRACTOR PERFORMS A CONSTRUCTION ACTIVITY WHEN THE CONTRACTOR KNOWS, OR SHOULD KNOW IN EXERCISING REASONABLE DILIGENCE THAT AN ACTIVITY INVOLVES AN ERROR IN CONSISTENCY OR OMISSION IN CONTRACT DOCUMENTS, THE CONTRACTOR SHALL ASSUME APPROPRIATE RESPONSIBILITY FOR SUCH PERFORMANCE AND BEAR AND APPROPRIATE AMOUNT OF THE COSTS ATTRIBUTABLE FOR CORRECTIONS.

LOUVER SCHEDULE								
MARK	ROOM	MANUFACTURER	MODEL NO.	WIDTH (IN.)	HEIGHT (IN.)	DEPTH (IN.)	APPROX. WEIGHT (LBS.)	REMARKS
LU-1	EXISTING MEN'S RESTROOM	RUSKIN	ELF211	12	12	2	2	SEE NOTE 1. INSECT SCREEN SHALL BE PROVIDED. SEE SHEET A101 FOR COLOR.
LU-2	EXISTING WOMEN'S RESTROOM	RUSKIN	ELF211	12	12	2	2	SEE NOTE 1. INSECT SCREEN SHALL BE PROVIDED. SEE SHEET A101 FOR COLOR.
LU-3	NEW MEN'S RESTROOM	RUSKIN	ELF211	12	12	2	2	SEE NOTE 1. INSECT SCREEN SHALL BE PROVIDED. SEE SHEET A101 FOR COLOR.
LU-4	NEW WOMEN'S RESTROOM	RUSKIN	ELF211	12	12	2	2	SEE NOTE 1. INSECT SCREEN SHALL BE PROVIDED. SEE SHEET A101 FOR COLOR.
LU-5	NEW FAMILY RESTROOM	RUSKIN	ELF211	12	12	2	2	SEE NOTE 1. INSECT SCREEN SHALL BE PROVIDED. SEE SHEET A101 FOR COLOR.
LU-6	NEW BUILDING ROOF GABLE	RUSKIN	ELT	144	26	4	-	SEE NOTE 1. SEE SHEET A101 FOR COLOR.
LU-7	NEW BUILDING ROOF GABLE	RUSKIN	ELT	144	26	4	-	SEE NOTES 1 & 2. SEE SHEET A101 FOR COLOR.

NOTES:

- + OR APPROVED EQUAL.
- LOUVERS LU-6 AND LU-7 SHALL COME IN TWO (2) TRIANGULAR HALF CONFIGURATIONS OR ONE PYRAMID CONFIGURATION. THE DIMENSIONS ARE APPROXIMATE.

AIR HANDLING UNIT (AHU) SCHEDULE											
MARK	+ MANUFACTURER	MODEL NO.	VOLTAGE/P H/Hz	FAN MOTOR HP	MCA	MOCP	COOLING			LOCATION	REMARKS
							MAX SUPPLY AIR CFM	TONNAGE	BTU/HR		
AHU-1	CARRIER	40MHHQ24--3	230/1/60	---	0.45	15	647	2.0	24,000	DRESSING ROOM	SEE NOTE 1

NOTES:

- + OR APPROVED EQUAL.

CONDENSING UNIT (CU) SCHEDULE															
MARK	+ MANUFACTURER	MODEL NO.	VOLTAGE/P H/Hz	NOMINAL CAPACITY (TONS)	COOLING CAPACITY (MBH)	TOTAL POWER (kW)	SEER	EER	COMPRESSOR HORSEPOWER	MOTOR RPM	MCA (AMPS)	FUSE (AMPS)	LIQUID LINE SIZE (IN.)	SUCTION LINE SIZE (IN.)	REMARKS

NOTES:

- + OR APPROVED EQUAL.

EXHAUST FAN SCHEDULE														
MARK	ROOM	MANUFACTURER	MODEL NO.	CFM	STATIC PRESSURE (IN. WG)	NOMINAL IMPELLER SIZE (IN.)	VOLTAGE/ PHASE/ CYCLE	POWER (WATTS)	MOTOR (HP)	FLA (AMPS)	FAN SPEED (RPM)	MOTOR SPEED (RPM)	APPROX. WEIGHT (LBS.)	REMARKS
EF-1	EXISTING MEN'S RESTROOM	COOK	GC-146	90	0.251	7.6	115/1/60	35	0.040	---	900	1550	12	SEE NOTES 1 & 2.
EF-2	EXISTING WOMEN'S RESTROOM	COOK	GC-146	90	0.251	7.6	115/1/60	35	0.040	---	900	1550	12	SEE NOTES 1 & 2.
EF-3	NEW MEN'S RESTROOM	GREENHECK	SP-A200	225	0.231	---	115/1/60	54	---	0.46	900	---	24	SEE NOTES 1 & 2.
EF-4	NEW WOMEN'S RESTROOM	GREENHECK	SP-A200	225	0.231	---	115/1/60	54	---	0.46	900	---	24	SEE NOTES 1 & 2.
EF-5	NEW FAMILY RESTROOM	COOK	CG-148	129	0.277	7.6	115/1/60	46	0.040	---	1075	1550	12	SEE NOTES 1 & 2.

NOTES:

- + OR APPROVED EQUAL
- THE EXHAUST FAN SHALL BE ENERGIZED BY ITS RESPECTIVE ROOM'S LIGHT SWITCH.



THE ARCHITECTS GROUP / INC
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LANGAN PARK - AMPHITHEATER PAVILION & RESTROOMS

ALABAMA

MOBILE,

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	9-28-22	IFB



SHEET TITLE
SYMBOLS, ABBREVIATIONS, GENERAL NOTES

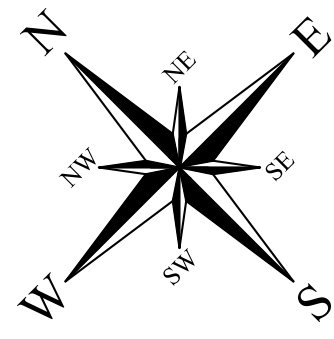
JOB NO. 2113

DATE: SEPT. 28, 2022

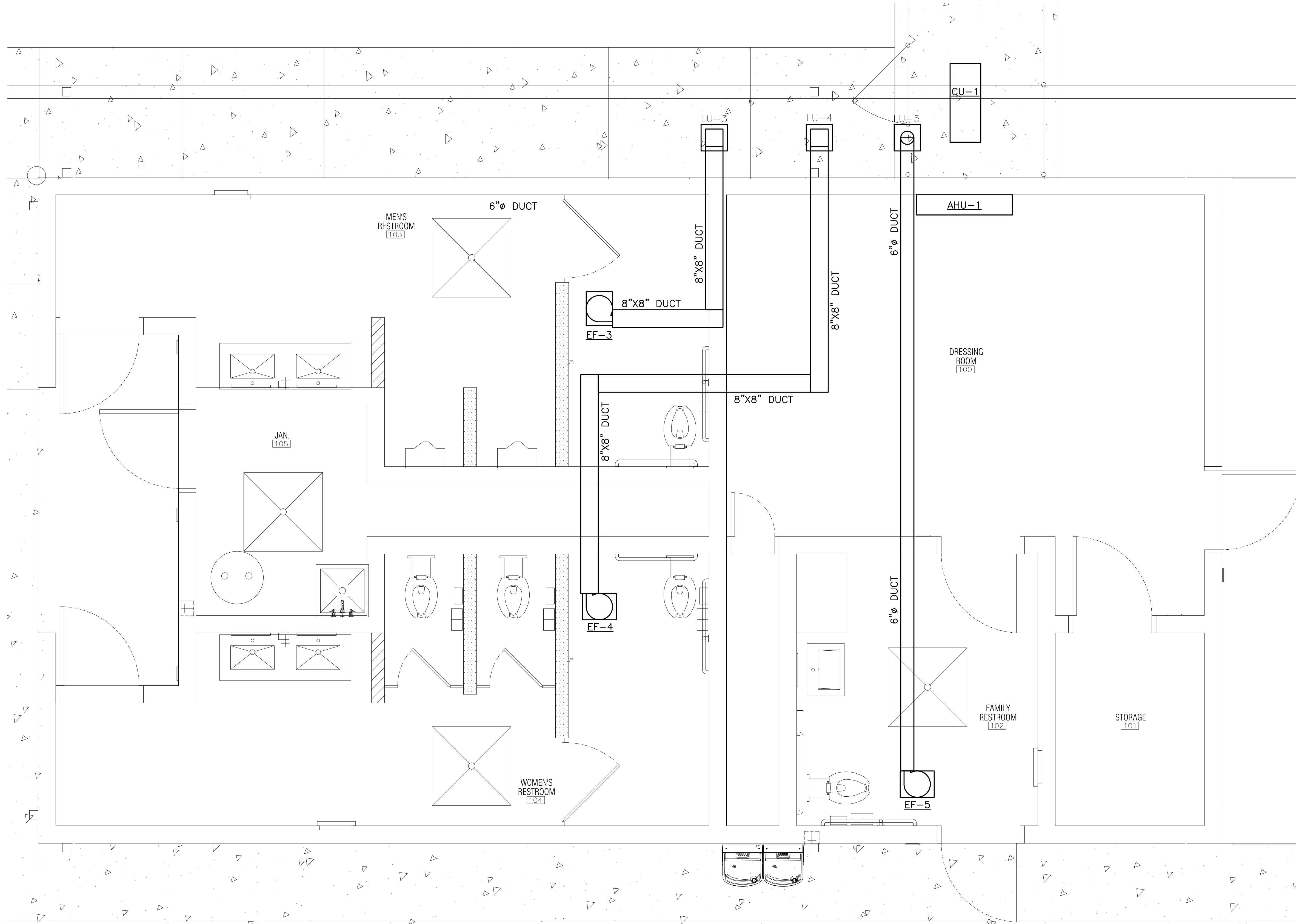
SHEET

M100

NOTES:



1. INSTALL NEW AIR HANDLING UNIT, CONDENSING UNIT AND EXHAUST FANS AS SHOWN ON THE ENLARGED RESTROOM PLAN.
2. INSTALL THE CONDENSATE PIPING FROM THE AHU THROUGH THE BACK WALL AND DOWNWARD TOWARD THE CONCRETE PAD.
3. INSTALL ALL DUCTWORK FROM EACH EXHAUST FAN TO THE SOFFIT AS SHOWN ON THE DRAWING. RIGID METAL DUCTWORK SHALL BE USED FROM EACH EXHAUST FAN TO THE SOFFIT. FLEXIBLE DUCT CAN BE USED WHERE THE DUCT AND THE LOUVERS CONNECT. THERE SHALL BE A MAXIMUM OF THREE (3) ELBOWS USED FOR EACH EXHAUST FAN DUCT RUN.
4. INSTALL SOFFIT MOUNTED LOUVER FOR EACH EXHAUST FAN AND DUCT ADAPTERS TO CONNECT EACH DUCT TO THE LOUVER. SEE LOUVER SCHEDULE ON SHEET M100.
5. THE CONTRACTOR SHALL OBSERVE ALL WORKING CLEARANCES WHEN INSTALLING THE CONDENSING UNIT (CU-1).



ENLARGED RESTROOM PLAN
SCALE: 1/2" = 1'-0"



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SHEET TITLE

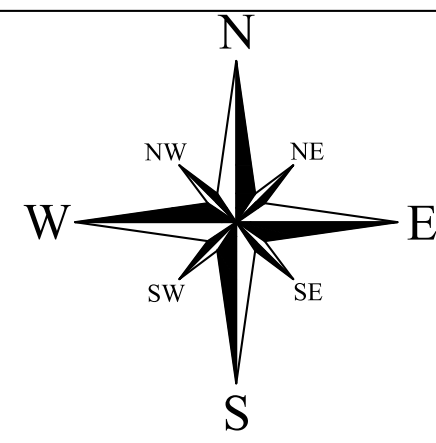
ENLARGED TOILET
PLAN

JOB NO. 2113

DATE: SEPT. 28, 2022

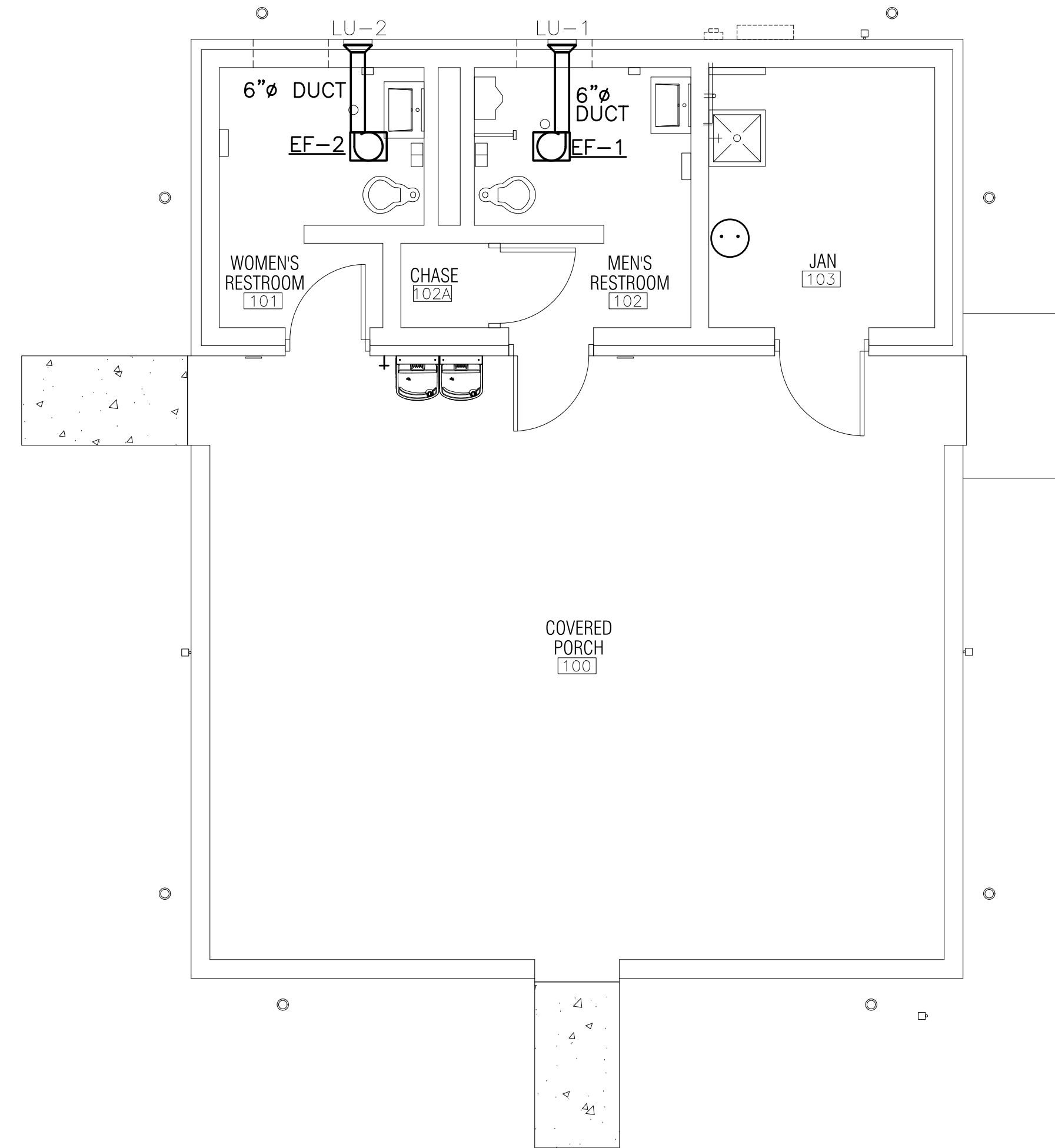
SHEET

M101



NOTES:

1. INSTALL NEW EXHAUST FANS AS SHOWN ON THE NEW WORK FLOOR PLAN.
2. INSTALL DUCTWORK FROM EACH EXHAUST FAN TO THE OUTSIDE WALLS AS SHOWN ON THE DRAWING.
3. INSTALL WALL MOUNTED LOUVER FOR EACH EXHAUST FAN AND DUCT ADAPTER TO CONNECT EACH DUCT TO THE LOUVER. SEE LOUVER SCHEDULE ON SHEET M100.



EXISTING RESTROOM NEW WORK FLOOR PLAN
SCALE: 1/4" = 1'-0"



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FLOOR PLAN -
EXISTING
BUILDING

JOB NO. 2113

DATE: SEPT. 28, 2022

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GENERAL NOTES:

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE, THE OCCUPATIONAL SAFETY AND HEALTH ACT, ALL PIPING CODES LOCALLY BEING ENFORCED BY LOCAL AUTHORITY HAVING JURISDICTION (AHJ) IN THE PROJECT AREA AND THE CONTRACTING OFFICER (C.O.).
- CONTRACTOR TO OBTAIN AND PAY FOR ALL PERMITS, INSPECTION AND CONNECTION FEES.
- CONTRACTOR TO PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND SUPERVISION FOR AND INCIDENTAL TO THE COMPLETION OF A FULLY FUNCTIONAL, SAFE AND COMPLETE WATER PIPING SYSTEMS.
- CONTRACTOR TO TEST SYSTEM THOROUGHLY IN THE PRESENCE OF OWNER AND RENDER IT FREE FROM DEFECTS. CONTRACTOR TO PROVIDE OWNER WITH A ONE YEAR WARRANTY AFTER ACCEPTANCE.
- THE CONTRACTOR SHALL PROPERLY SEAL ALL PENETRATIONS. ALL PENETRATIONS THROUGH FIRE BARRIERS SHALL BE SEALED IN ACCORDANCE WITH THE LATEST REVISIONS OF INTERNATIONAL BUILDING CODE.
- PIPING CONTRACTOR TO COORDINATE WITH THE OWNER FOR ANY PIPING REQUIREMENTS FOR SPECIAL EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL PIPING ASSOCIATED WITH THE PROJECT WORK AREA.
- ALL EQUIPMENT AND MATERIALS SHALL MEET OR EXCEED THE SCHEDULED AND/OR REQUIRED ITEMS. SUBMIT FOR PRIOR APPROVAL FOR ANY DEVIATIONS.
- NO CHANGES SHALL BE MADE IN MATERIALS OR INSTALLATION WITHOUT ENGINEER AND OWNER'S APPROVAL.
- CONTRACTOR SHALL VERIFY CLEARANCE SPACE AVAILABLE, OFFSETS REQUIRED, STRUCTURAL OPENINGS, AND WORK BY OTHER TRADES.
- ALL PIPING MATERIAL AND EQUIPMENT PROVIDED BY THE CONTRACTOR SHALL BE NEW AND FREE OF DEFECTS. ALL WORK PERFORMED FOR THIS PROJECT SHALL BE CARRIED OUT BY SKILLED WORKERS REGULARLY ENGAGED IN THE PERFORMANCE OF SUCH DUTIES. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED CLEAN AND FREE FROM DENTS, SCARS OR DEFORMITIES.
- ANY PATCHING OF WALLS SHALL MATCH NEW ARCHITECTURAL FINISHING REQUIREMENTS.
- REFERENCE TO A PARTICULAR PRODUCT BY MANUFACTURER, TRADE NAME, OR CATALOG NUMBER ESTABLISHES THE QUALITY STANDARDS OF MATERIAL AND EQUIPMENT REQUIRED FOR THIS INSTALLATION AND IS NOT INTENDED TO EXCLUDE PRODUCTS EQUAL IN QUALITY AND SIMILAR DESIGN.
- THE ACCURACY OF GRADE, ELEVATION, DIMENSIONS, OR LOCATIONS OF THE EXISTING CONDITION IS NOT GUARANTEED BY THE ENGINEER OR THE OWNER. IF THE CONTRACTOR PERFORMS A CONSTRUCTION ACTIVITY WHEN THE CONTRACTOR KNOWS, OR SHOULD KNOW IN EXERCISING REASONABLE DILIGENCE THAT AN ACTIVITY INVOLVES AN ERROR IN CONSISTENCY OR OMISSION IN CONTRACT DOCUMENTS, THE CONTRACTOR SHALL ASSUME APPROPRIATE RESPONSIBILITY FOR SUCH PERFORMANCE AND BEAR AND APPROPRIATE AMOUNT OF THE COSTS ATTRIBUTABLE FOR CORRECTIONS.

PLUMBING FIXTURE SCHEDULE							
MARK	FIXTURE DESCRIPTION	MANUFACTURER AND MODEL NUMBER	ROUGH-IN SCHEDULE				REMARKS
			CW	HW	W	V	
WC-1	WALL MOUNTED ELONGATED FLUSH VALVE ADA WATER CLOSET (15" HEIGHT)	+ AMERICAN STANDARD AFWALL 2856.016 (TOP SPUD)	1"	-	3"	2"	ZURN ZH6140AV -WS1 -MB FLUSH VALVE WITH WALL PLATE. BEMIS 1955SSCT TOILET SEAT
WC-2	FLOOR MOUNTED ELONGATED FLUSH VALVE ADA WATER CLOSET (16-1/2" HEIGHT)	+ AMERICAN STANDARD MADRA 3043.001 (TOP SPUD)	1"	-	3"	2"	ZURN ZH6140AV -WS1 -MB FLUSH VALVE WITH WALL PLATE. BEMIS 1955SSCT TOILET SEAT
UR-1	WALL MOUNTED URINAL	+ AMERICAN STANDARD WASHBROOK FLOWISE 6590.503 (TOP SPUD)	3/4"	-	2"	2"	ZURN Z1221 WALL SUPPORT SYSTEM. ZURN ZH6195AV -EWS FLUSH VALVE WITH WALL PLATE
UR-2	WALL MOUNTED URINAL	+ AMERICAN STANDARD WASHBROOK FLOWISE 6515.001 (TOP SPUD)	3/4"	-	2"	2"	ZURN Z1221 WALL SUPPORT SYSTEM. ZURN ZH6195AV -EWS FLUSH VALVE WITH WALL PLATE
LAV-1	ADA LAVATORY	+ TRUE FORM CONCRETE FLO-60V-DBL-CONTEMPO	1/2"	1/2"	1-1/4"	2"	SLOAN EAF-150-BAT-ISM-CP-0.35GPM FAUCETS WITH HOT AND COLD WATER SUPPLY
LAV-2	ADA LAVATORY	+ TRUE FORM CONCRETE FLO-24V-CONTEMPO	1/2"	1/2"	1-1/4"	2"	SLOAN EAF-150-BAT-ISM-CP-0.35GPM FAUCETS WITH HOT AND COLD WATER SUPPLY
SS	MOP SERVICE SINK	+ FIAT MOLDED STONE MODEL MSB 2424	1/2"	1/2"	2"	2"	CHICAGO FAUCETS MODEL 540-LD897SGXKCCP; FIAT MODEL 889-CC MOP HANGER
DF	ADA WALL MOUNT BI-LEVEL WATER COOLER	+ ELKAY VRCTLDDWSK, W/ VRCWS BOTTLE FILLER	3/8"	-	1-1/4"	2"	ZURN Z1225 WALL SUPPORT SYSTEM
HB-1	WATER HYDRANT	+ ZURN Z1305	3/4"	-	-	-	SEE NOTE 1.
HB-2	HOSE BIBB	+ ZURN 1341XL	3/4"	-	-	-	SEE NOTE 1. OPTIONAL LOOSE KEY SHALL BE PROVIDED WITH EACH HOSE BIBB.
FD-1	FLOOR DRAIN	+ ZURN FD2210-PV3	-	-	3"	-	SEE NOTE 1.
FD-2	FLOOR DRAIN	+ JAY R SMITH A05PBG	-	-	-	-	SEE NOTE 1. LOCATED IN EXISTING RESTROOM BUILDING. REPLACE GRATES ONLY.

NOTES:

- + OR APPROVED EQUAL.

WATER HEATER SCHEDULE

MARK	ROOM	MANUFACTURER	MODEL NO.	TYPE	NOMINAL CAPACITY (GAL.)	VOLTAGE/ PHASE/ CYCLE	ELEMENT WATTAGE	FLA (AMPS)	APPROX. WEIGHT (LBS.)	REMARKS
WH-1	EXISTING JANITOR'S CLOSET	AO SMITH	EJCT-20	TANK	20	120/1/60	2,500	---	68	SEE NOTE 1.
WH-2	NEW JANITOR'S CLOSET	RHEEM	PROE40 M2 RH95	TANK	40	240/1/60	4,500	---	106	SEE NOTE 1.

NOTES:

- + OR APPROVED EQUAL.

MATERIALS SCHEDULE

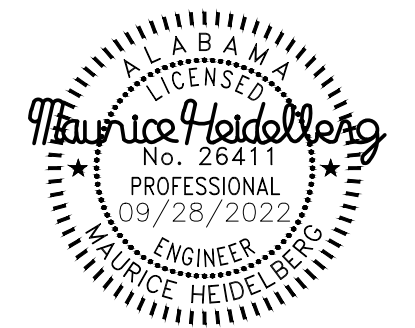
SERVICE TYPE	LOCATION	MATERIAL REQUIRED
SANITARY WASTE AND VENT	BELOW GRADE 5'-0" OUTSIDE BUILDING FOOTPRINT	CAST IRON W/ HUB & SPIGOT OR SCHEDULE 40 PVC W/ ELASTOMERIC JOINTS
	BELOW GRADE WITHIN 5'-0" OUTSIDE BUILDING FOOTPRINT	CAST IRON NO- HUB OR HUB & SPIGOT OR SCHEDULE 40 PVC W/ SOLVENT WELDED JOINTS
DOMESTIC COLD WATER AND HOT WATER	ABOVE GRADE WITHIN BUILDING	CAST IRON NO- HUB OR HUB & SPIGOT OR SCHEDULE 40 PVC W/ SOLVENT WELDED JOINTS
	BELOW GRADE 5'-0" OUTSIDE BUILDING FOOTPRINT	COPPER TYPE "K" HARD DRAWN
	BELOW GRADE WITHIN 5'-0" OUTSIDE BUILDING FOOTPRINT	COPPER TUBING TYPE "K" SOFT DRAWN
	ABOVE GRADE/SLAB WITHIN BUILDING	COPPER TYPE "L" SOFT DRAWN OR CPVC SCHEDULE 40 PIPE

FIXTURE LEGEND & ABBREVIATIONS

ABBREVIATION	DESCRIPTION
HB	HOSE BIBB (WATER HYDRANT)
LAV	LAVATORY
WC	WATER CLOSET
WH	HOT WATER HEATER
SS	SERVICE SINK
DF	DRINKING FOUNTAIN
FD	FLOOR DRAIN
TP	TRAP PRIMER
AAV	AIR ADMITTANCE VALVE
CO	CLEAN OUT
HW	HOT WATER
CW	COLD WATER
WW	WASTEWATER
V	VENT



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SHEET TITLE

SYMBOLS, ABBREVIATIONS, GENERAL NOTES

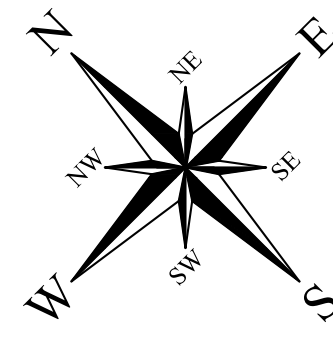
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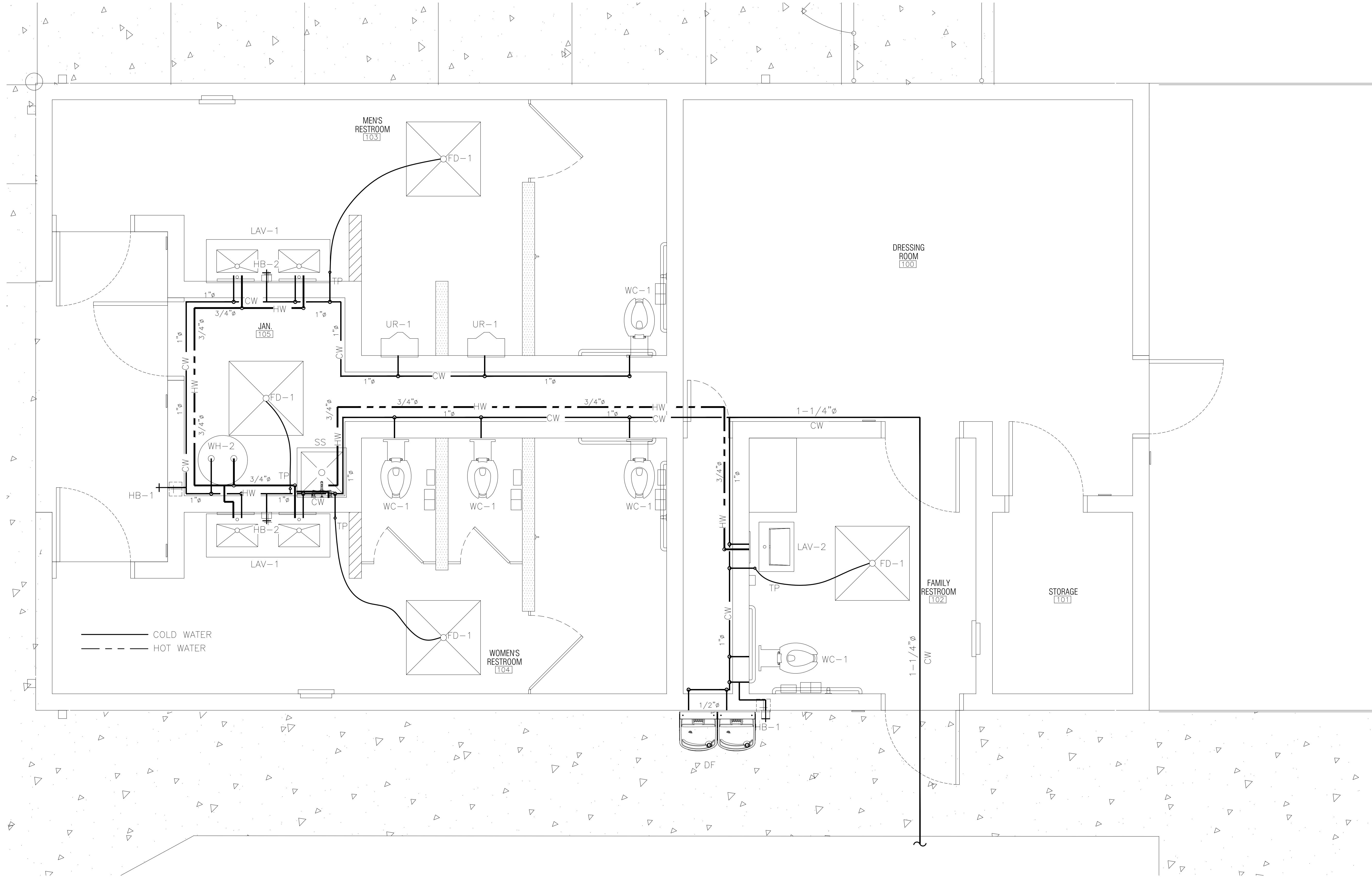
SHEET

P100

NOTES:



1. INSTALL NEW PLUMBING FIXTURES AS SHOWN ON THE ENLARGED RESTROOM PLAN.
2. REFER TO FIXTURE SCHEDULE ON SHEET P100 FOR WATER SUPPLY PIPE SIZES TO EACH FIXTURE.
3. THE PLUMBING CONTRACTOR SHALL INSTALL NEW WATER SUPPLY PIPING FROM FIVE (5) OUTSIDE OF THE BUILDING UNDER THE SLAB AND THEN STUB UP TO EACH NEW PLUMBING FIXTURE. THE NEW WATER PIPING SHALL BE CAPPED AT THE LOCATION FIVE (5) OUTSIDE OF THE BUILDING IN ORDER TO BE CONNECTED TO THE NEW WATER MAIN PIPING BRANCH. REFER TO CIVIL DRAWINGS FOR THE PIPE ROUTE FROM THE NEW WATER MAIN PIPING TO THE NEW BATHROOM BUILDING.



ENLARGED RESTROOM PLAN - POTABLE WATER PIPING
SCALE: 1/2" = 1'-0"



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SHEET TITLE
ENLARGED TOILET
PLAN - POTABLE
WATER PIPING

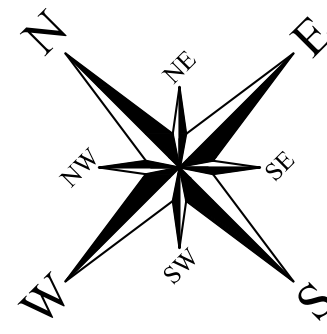
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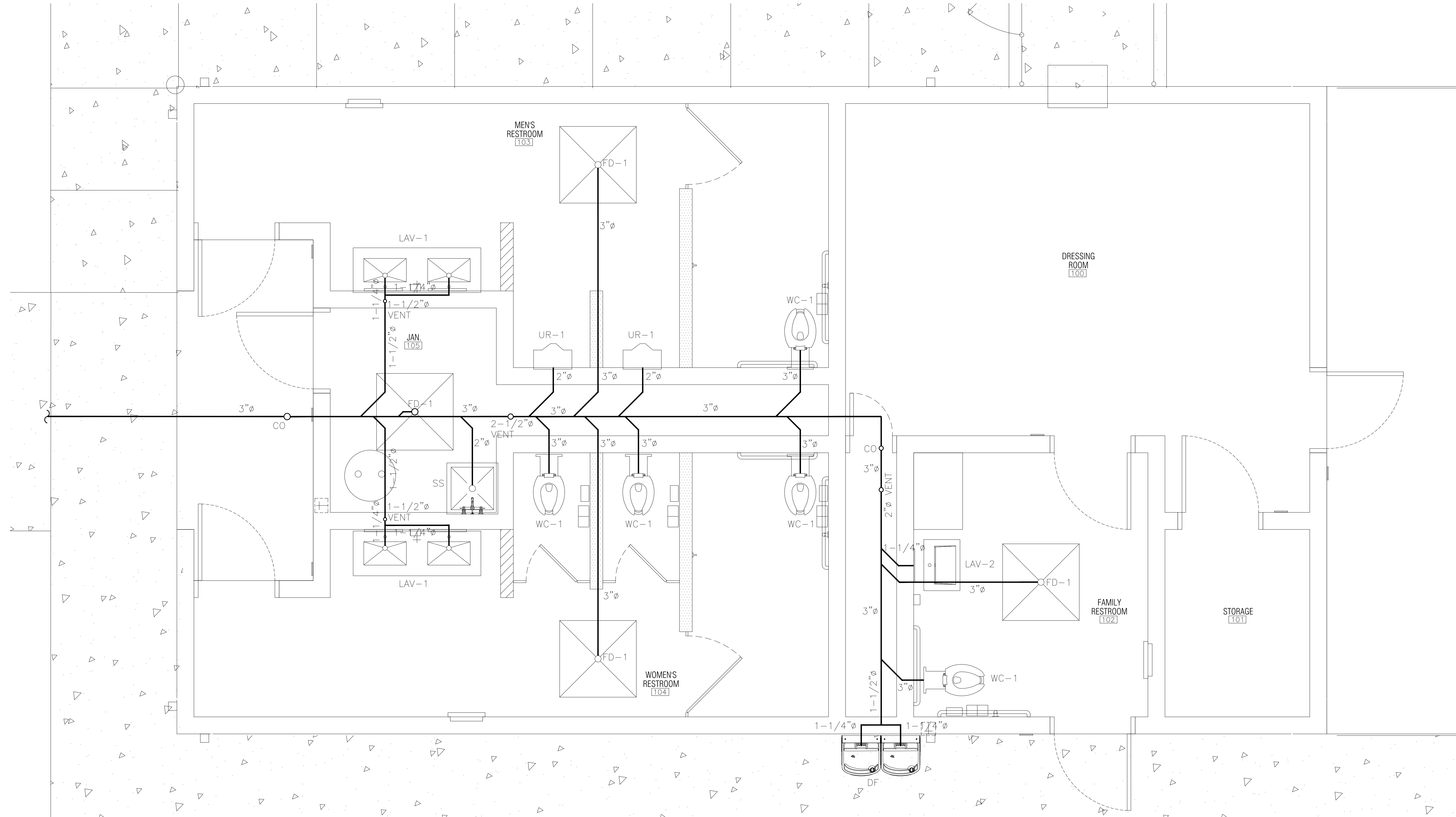
SHEET

P101

NOTES:



1. INSTALL NEW PLUMBING FIXTURES AS SHOWN ON THE ENLARGED RESTROOM PLAN.
2. REFER TO FIXTURE SCHEDULE ON SHEET P100 FOR WASTEWATER PIPE SIZES TO EACH FIXTURE.
3. THE PLUMBING CONTRACTOR SHALL INSTALL SEWER PIPING FROM FIVE (5) OUTSIDE OF THE BUILDING UNDER THE SLAB AND THEN STUB UP TO EACH NEW PLUMBING FIXTURE. THE SEWER PIPING SHALL BE CAPPED AT THE LOCATION FIVE (5) OUTSIDE OF THE BUILDING IN ORDER TO BE CONNECTED TO THE NEW MAIN SEWER PIPING BRANCH. REFER TO CIVIL DRAWINGS FOR THE PIPE ROUTE FROM THE NEW SEWER PIPING TO THE NEW BATHROOM BUILDING.



ENLARGED RESTROOM PLAN - SANITARY WASTE PIPING
SCALE: 1/2" = 1'-0"



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SHEET TITLE

ENLARGED TOILET
PLAN - SANITARY
WASTE PIPING

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

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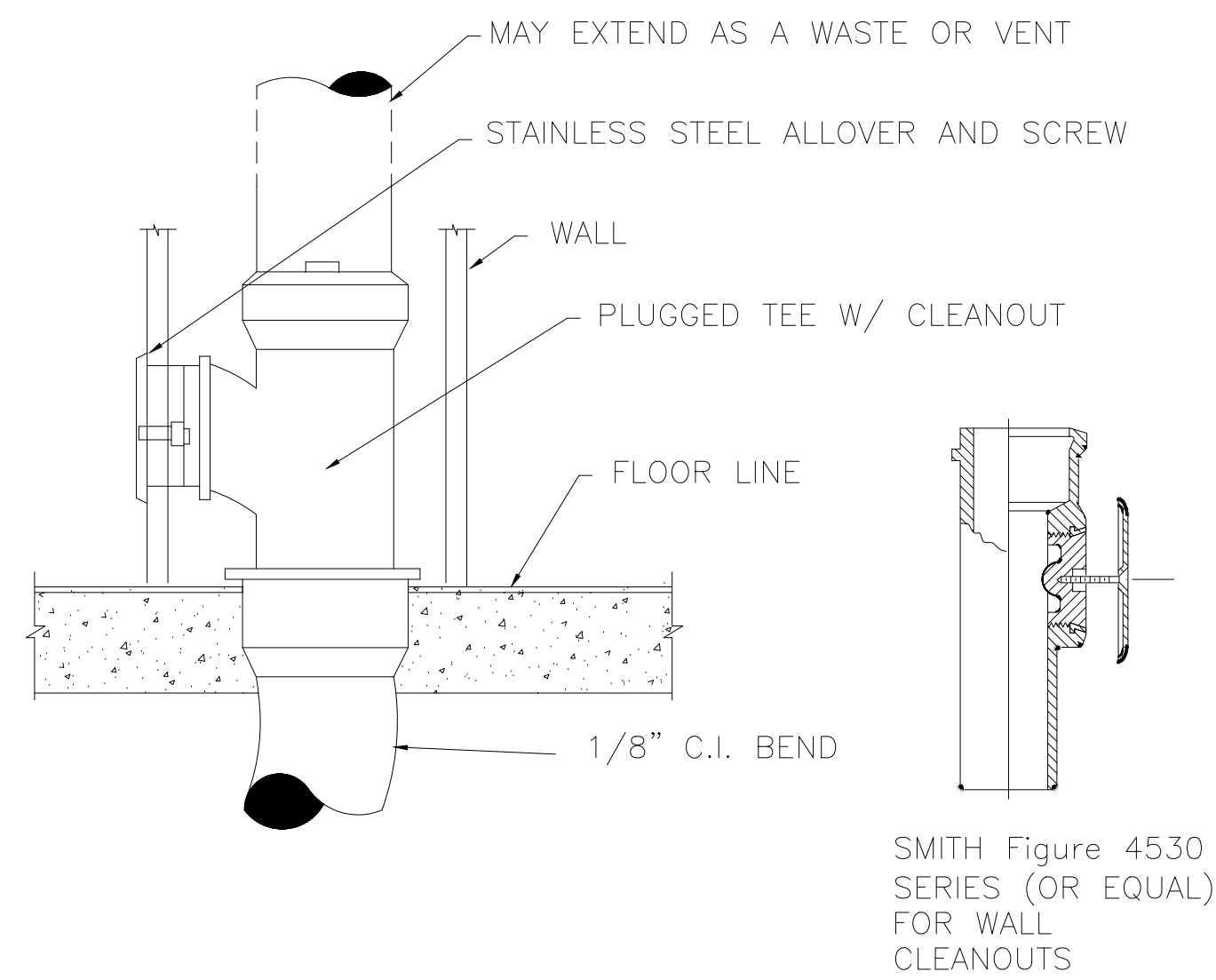
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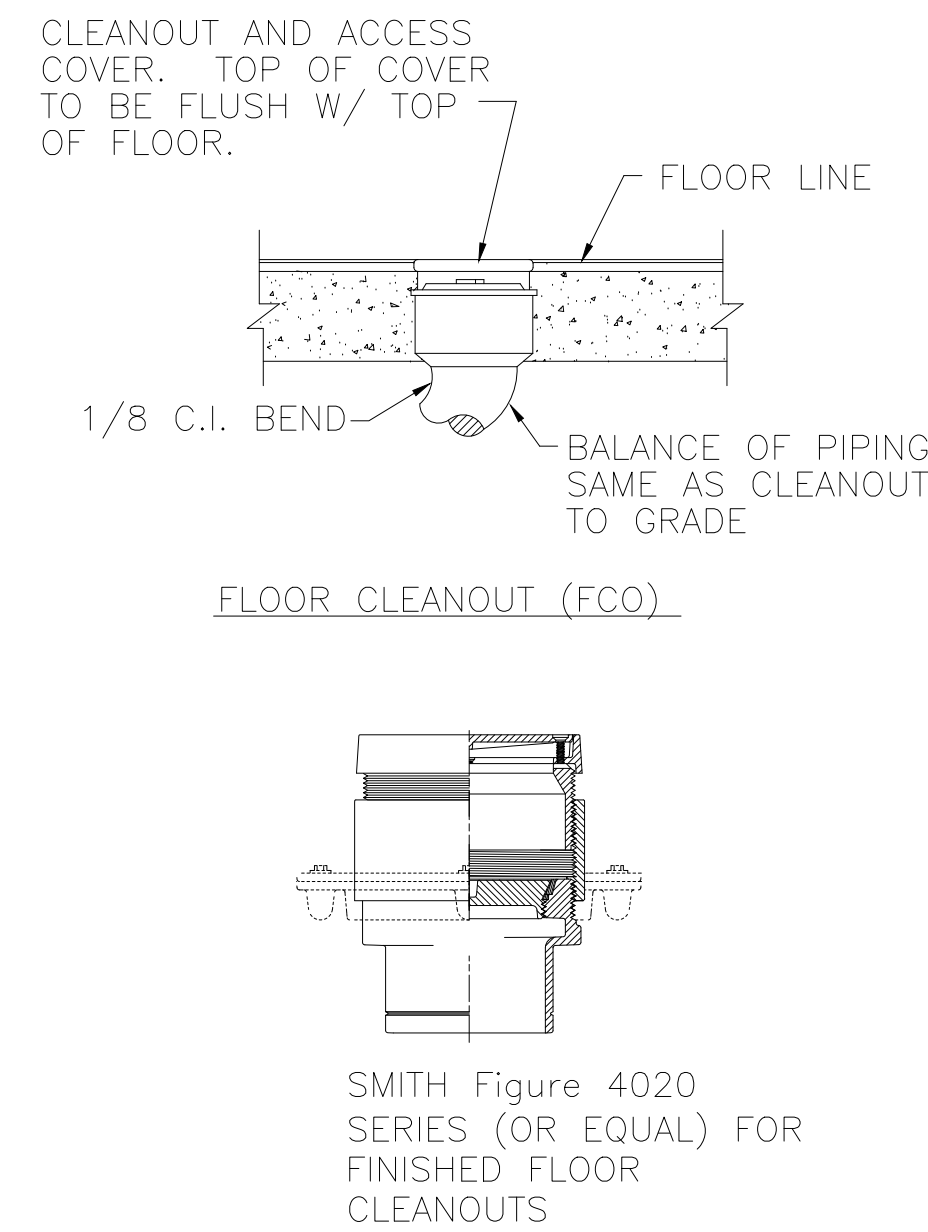
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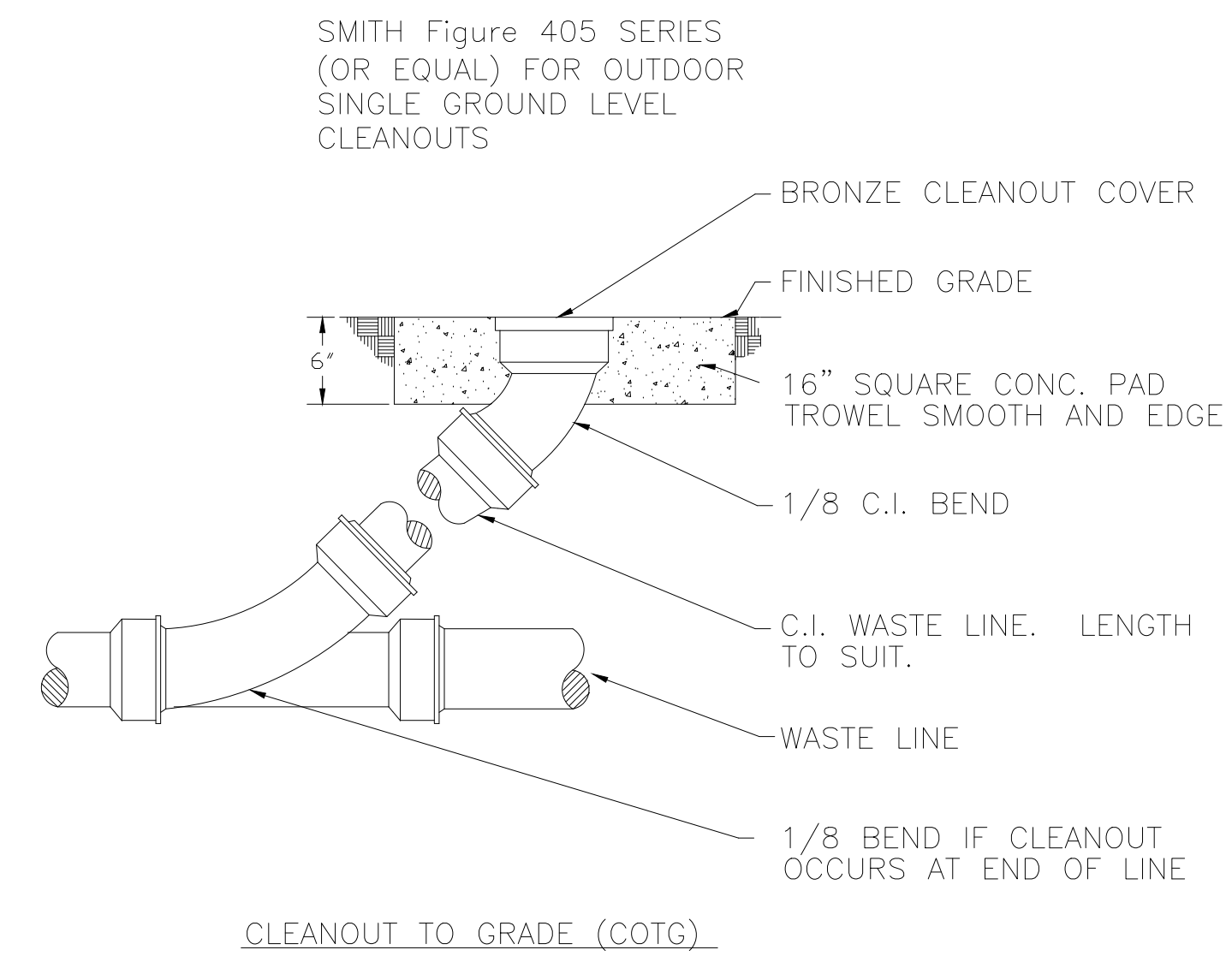
WALL CLEANOUT DETAIL

SCALE: N.T.S.



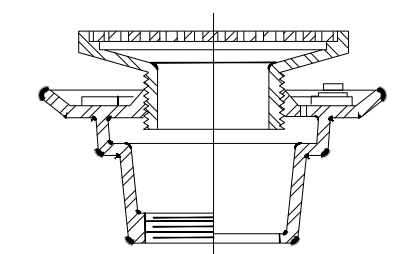
FLOOR GRADE CLEANOUT DETAILS

SCALE: N.T.S.



GRADE CLEANOUT DETAILS

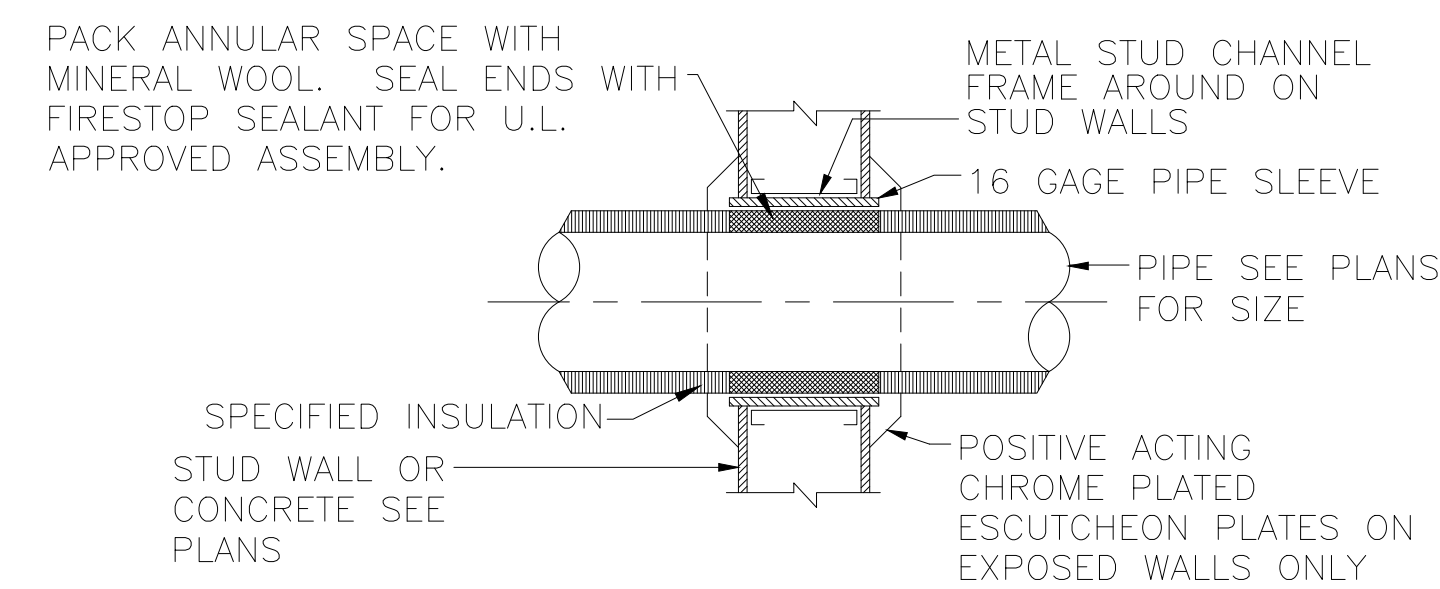
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ZURN FD-2210-PV3
(OR EQUAL) (QTY 5)

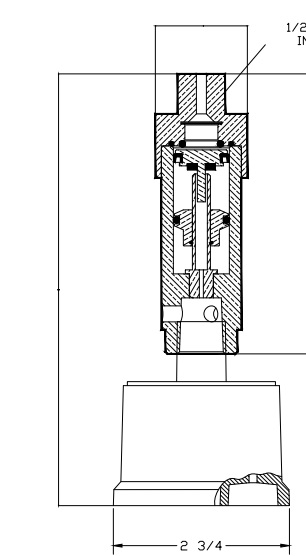
FLOOR DRAIN DETAILS

SCALE: N.T.S.



PIPE THROUGH DETAIL

SCALE: N.T.S.



JOSAM 88300 SERIES
(OR EQUAL) (QTY 3)

TRAP PRIMER DETAIL

SCALE: N.T.S.

PLUMBING DETAILS

SCALE: NOT TO SCALE

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PLUMBING
DETAILS

JOB NO. 2113

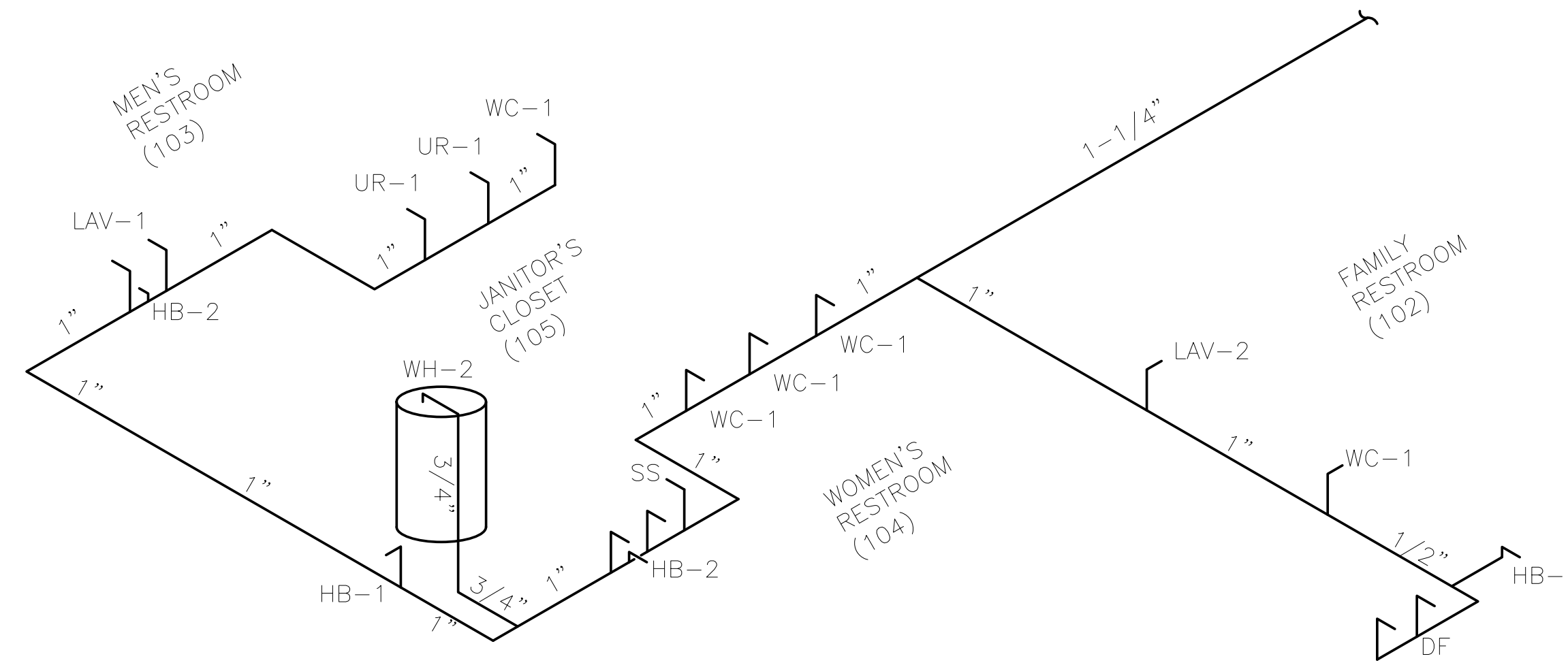
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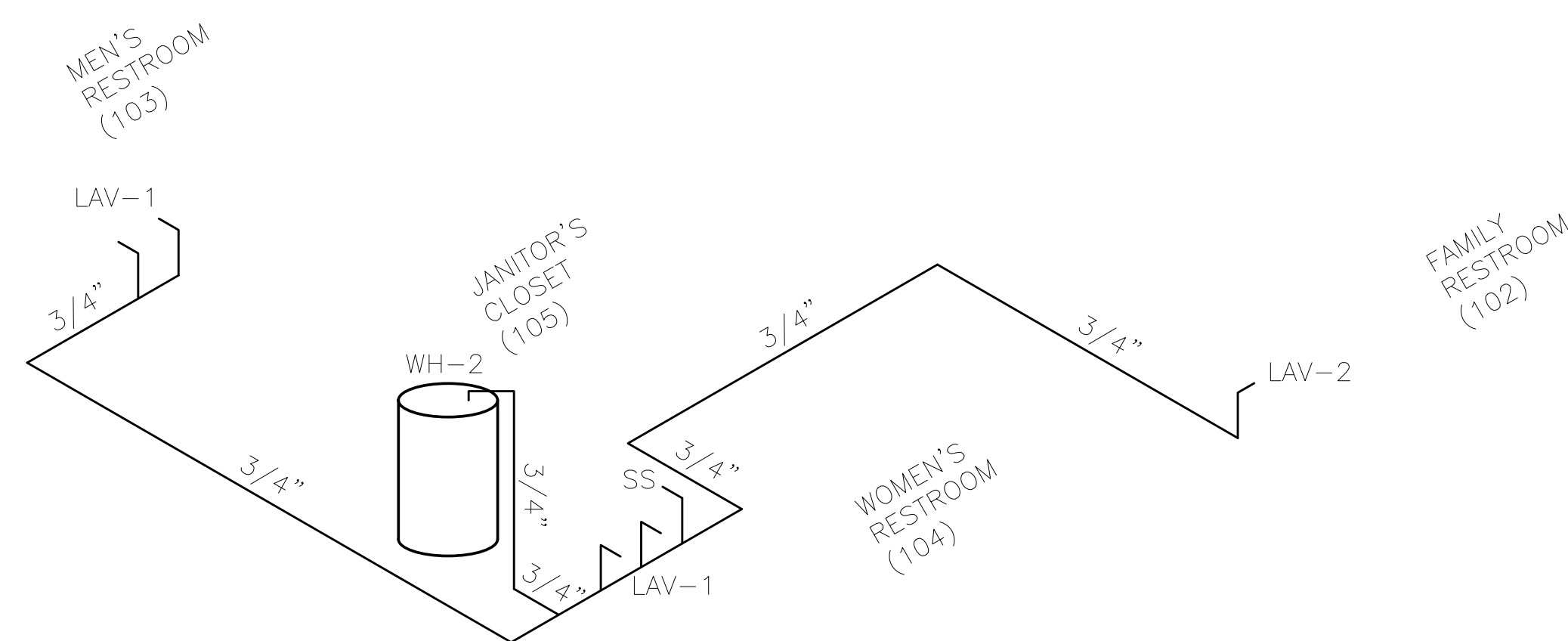
P103

NEW BUILDING NOTES:

1. INSTALL NEW WATER SUPPLY PIPING IN THE NEW BATHROOM BUILDING UNDER THE SLAB AND THEN STUB UP TO EACH PLUMBING FIXTURE LOCATION.
2. REFER TO THE FIXTURE SCHEDULE ON SHEET P100 FOR WATER SUPPLY PIPE SIZES TO EACH FIXTURE.
3. REFER TO THE PIPING SCHEDULE ON SHEET P100 FOR ACCEPTABLE WATER SUPPLY PIPING MATERIALS.



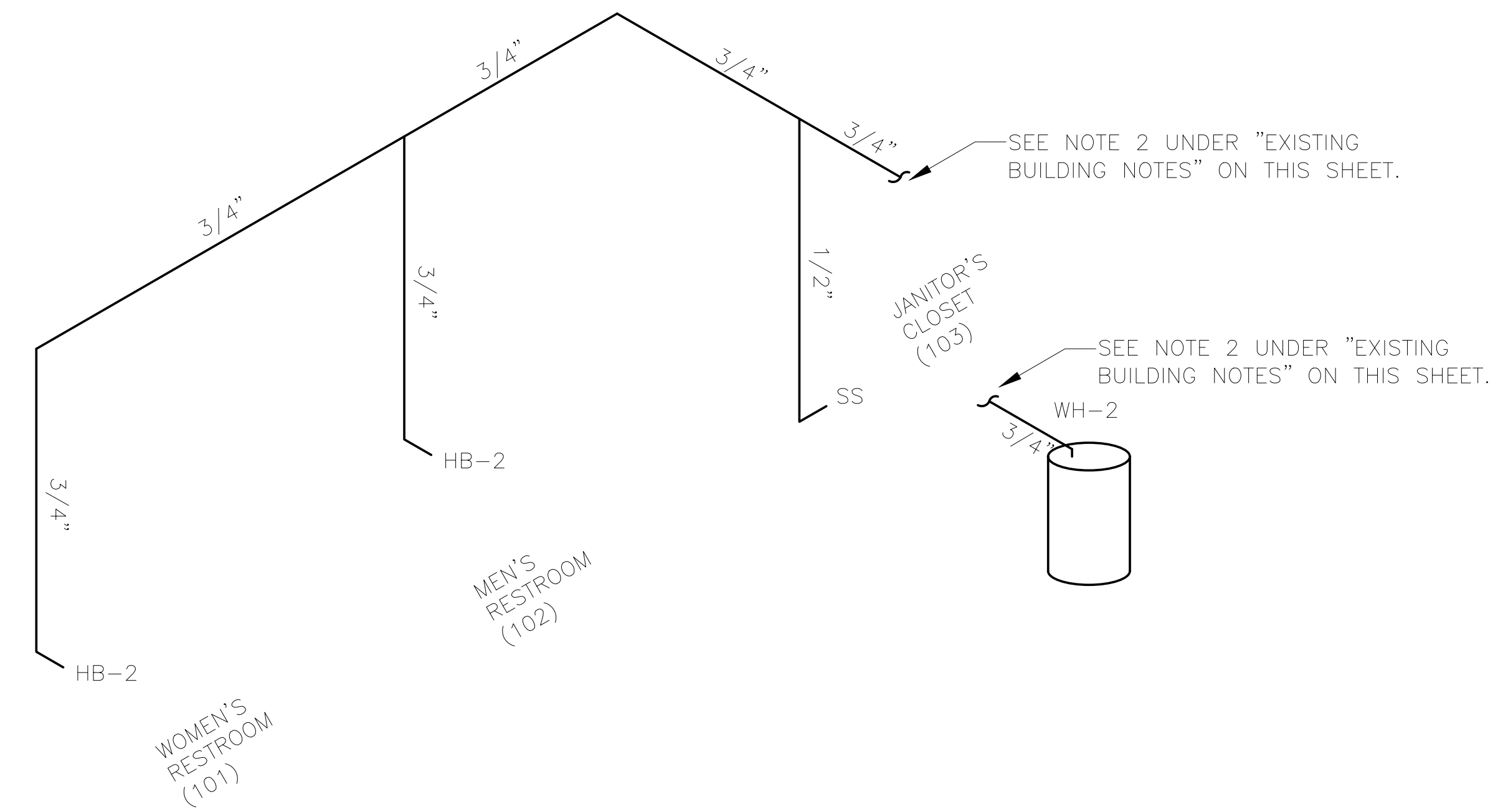
COLD WATER SUPPLY RISER DIAGRAM (NEW RESTROOM BUILDING)
SCALE: NOT TO SCALE



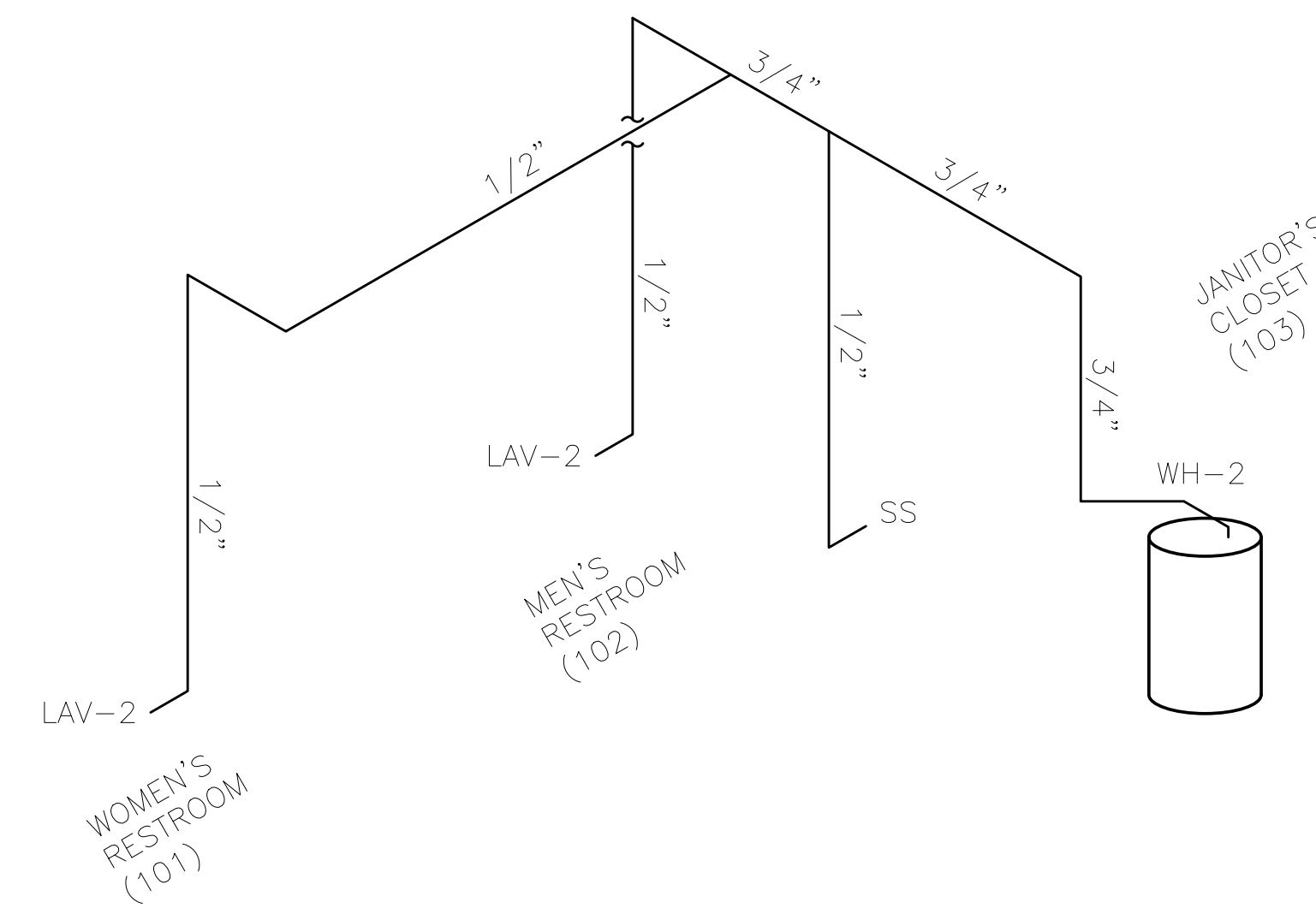
HOT WATER SUPPLY RISER DIAGRAM (NEW RESTROOM BUILDING)
SCALE: NOT TO SCALE

EXISTING BUILDING NOTES:

1. THE EXISTING WATER PIPE ROUTES TO THE EXISTING BUILDING SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION.
2. INSTALL AND CONNECT THE NEW COLD WATER PIPING IN THE EXISTING BATHROOM BUILDING TO THE EXISTING HOSE BIBB PIPE INSIDE THE JANITOR'S CLOSET THEN RUN TO THE NEW WATER HEATER, NEW SERVICE SINK AND TO EACH NEW HOSE BIBB IN THE MEN'S AND WOMEN'S RESTROOMS.
3. INSTALL AND ROUTE THE NEW HOT WATER SUPPLY PIPING IN THE EXISTING BATHROOM BUILDING FROM THE NEW HOT WATER HEATER ABOVE GRADE, ROUTE INTO THE CEILING AND THEN ROUTE HORIZONTALLY ABOVE THE CEILING AND DOWN TO EACH LAVATORY IN THE MEN'S AND WOMEN'S RESTROOMS AND TO THE NEW SERVICE SINK INSIDE THE JANITOR'S CLOSET.
4. THE EXISTING COLD WATER SUPPLY PIPING IN THE EXISTING BATHROOM BUILDING SHALL REMAIN IN PLACE. REPLACE THE HOSE CONNECTIONS BETWEEN THE EXISTING COLD WATER PIPING AND EACH NEW LAVATORY.
5. REFER TO THE FIXTURE SCHEDULE ON SHEET P100 FOR WATER SUPPLY PIPE SIZES TO EACH FIXTURE.
6. REFER TO THE PIPING SCHEDULE ON SHEET P100 FOR ACCEPTABLE WATER SUPPLY PIPING MATERIALS.



COLD WATER SUPPLY RISER DIAGRAM (EXISTING RESTROOM BUILDING)
SCALE: NOT TO SCALE



HOT WATER SUPPLY RISER DIAGRAM (EXISTING RESTROOM BUILDING)
SCALE: NOT TO SCALE



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SHEET TITLE

RISER
DIAGRAM

JOB NO. 2113

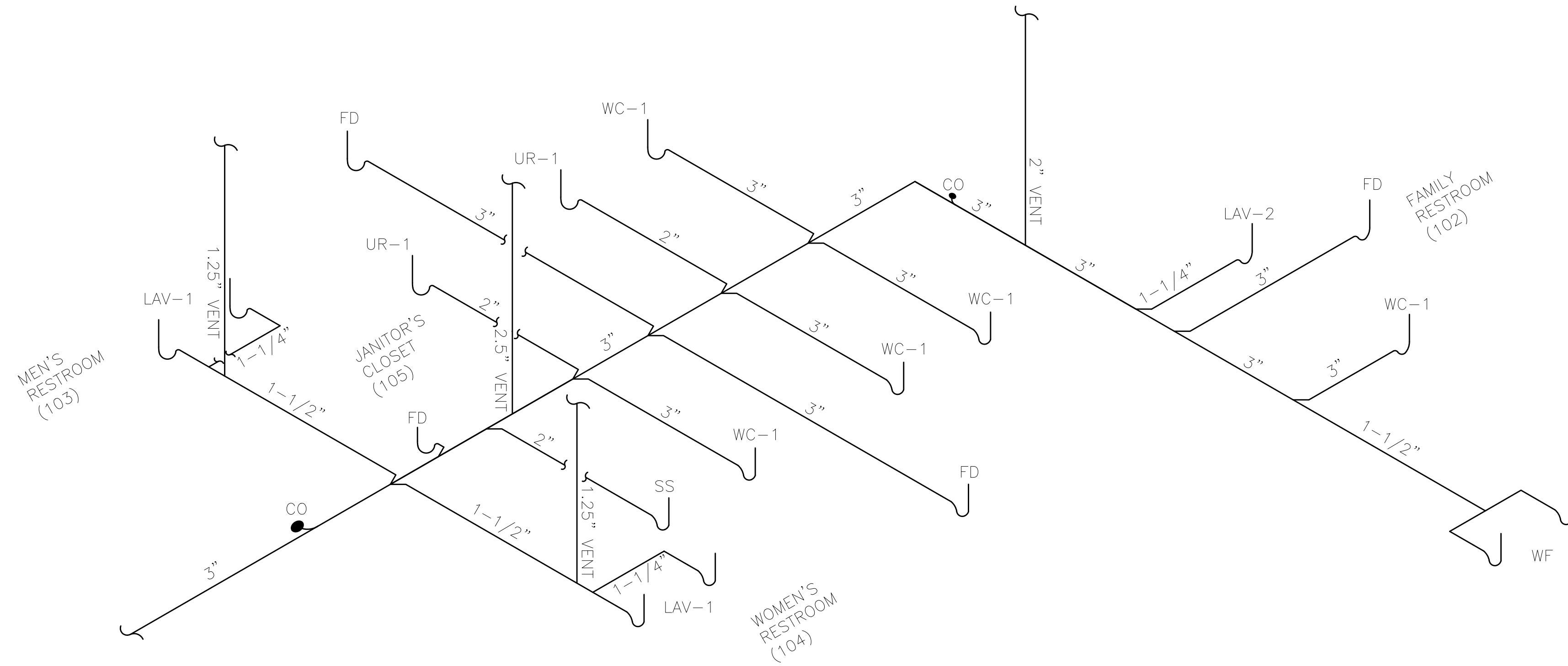
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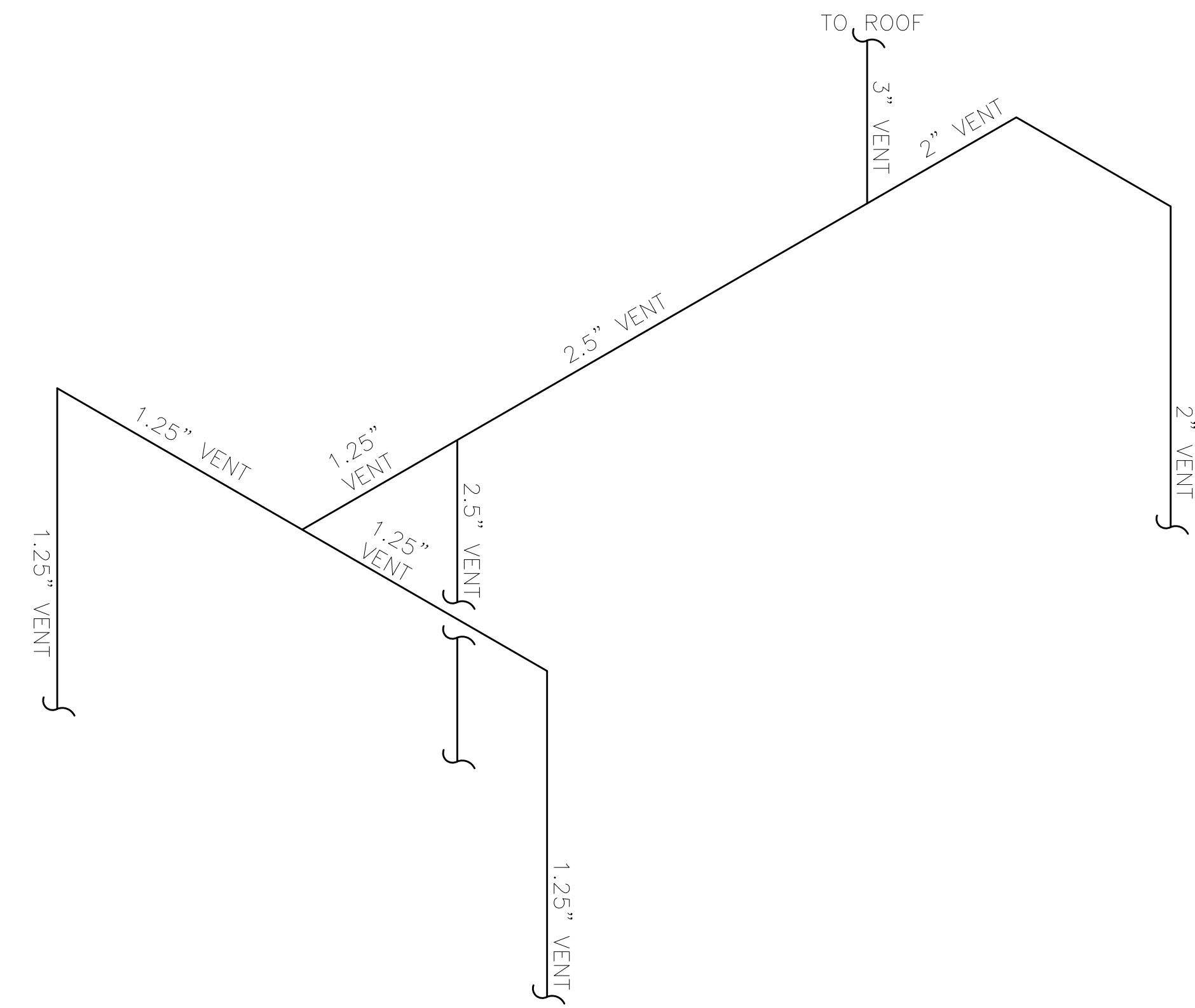
P104

NOTES:

1. INSTALL NEW BATHROOM BUILDING WASTEWATER PIPING UNDER THE SLAB AND THEN STUB UP TO EACH PLUMBING FIXTURE LOCATION.
2. REFER TO THE FIXTURE SCHEDULE ON SHEET P100 FOR WASTEWATER PIPE SIZES TO EACH FIXTURE.
3. REFER TO PIPING SCHEDULE ON SHEET P100 FOR ACCEPTABLE WASTEWATER PIPING MATERIALS.
4. ALL VENT PIPING SHALL BE CONNECTED TOGETHER IN ORDER FOR THERE TO BE ONLY ONE (1) VENT PIPE PENETRATING THE ROOF. SEE WASTEWATER VENT PIPING RISER DIAGRAM ON THIS SHEET.



WASTEWATER RISER DIAGRAM (NEW RESTROOM BUILDING)
SCALE: NOT TO SCALE



WASTEWATER VENT RISER DIAGRAM (NEW RESTROOM BUILDING)
SCALE: NOT TO SCALE



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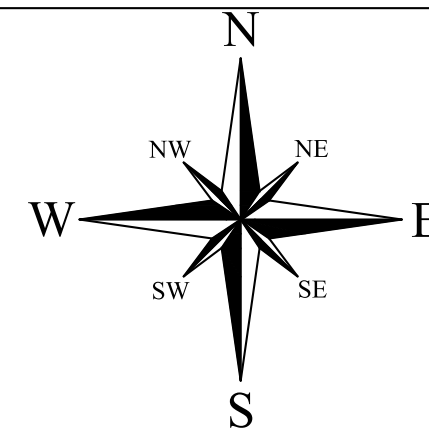
WASTEWATER
RISER
DIAGRAM

JOB NO. 2113

DATE: SEPT. 28, 2022

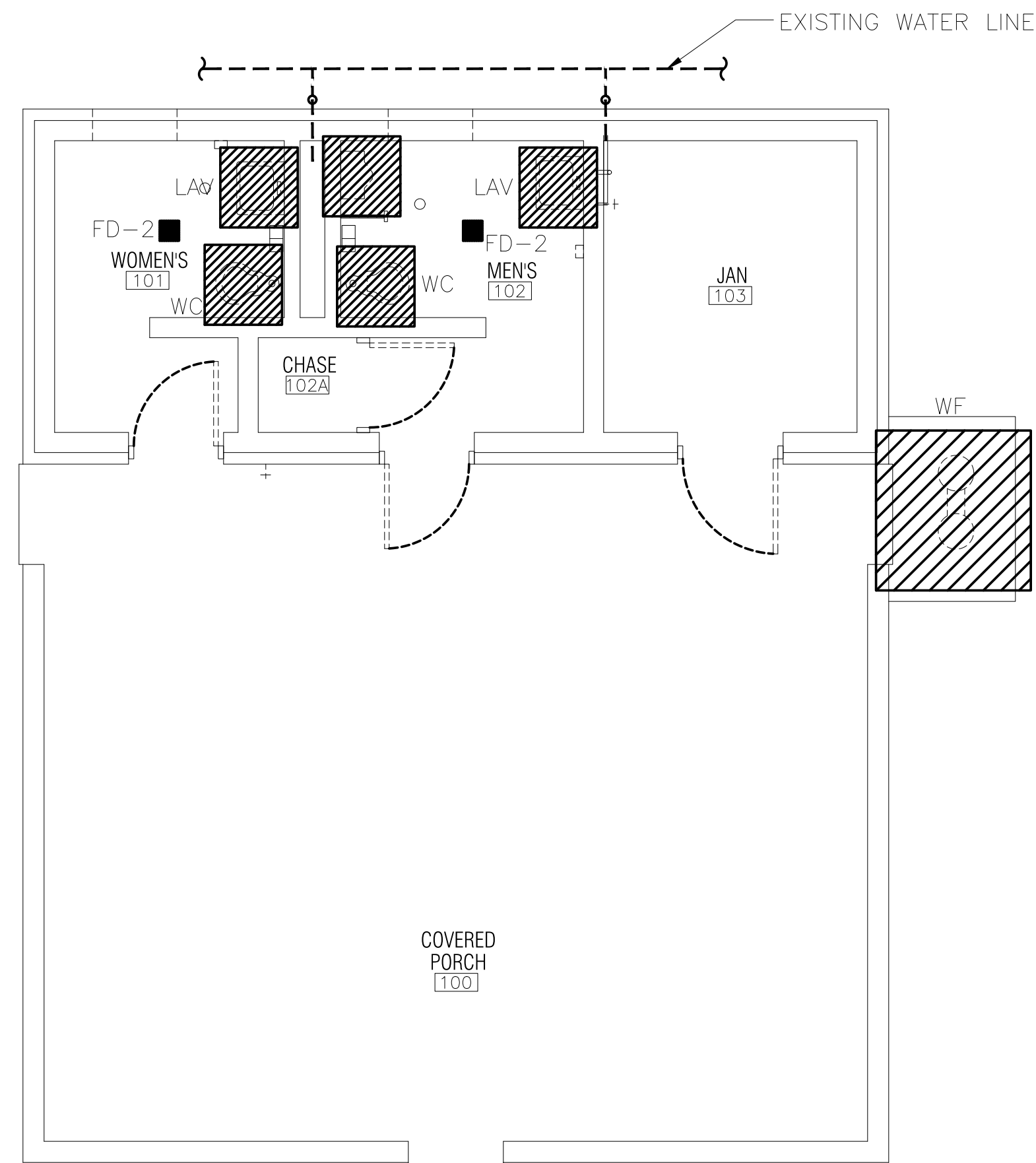
SHEET

P105



NOTES:

1. REMOVE THE EXISTING PLUMBING FIXTURES AS SHOWN ON THE DEMOLITION FLOOR PLAN INCLUDING THE EXISTING WATER FOUNTAIN.
2. REMOVE THE GRATES FROM THE EXISTING FLOOR DRAINS (FD-2) IN THE MEN'S AND WOMEN'S RESTROOMS AND REPLACE WITH NEW GRATES. THE FLOOR DRAINS SHALL REMAIN IN PLACE. REFER TO DRAWING P100 FIXTURE SCHEDULE FOR NEW GRATES.
3. THE CONTRACTOR SHALL FIELD VERIFY EXISTING WATER AND SEWER PIPE LINES FOR THE EXISTING BUILDING PRIOR TO CONSTRUCTION.



EXISTING RESTROOM DEMOLITION FLOOR PLAN
SCALE: 1/4" = 1'-0"



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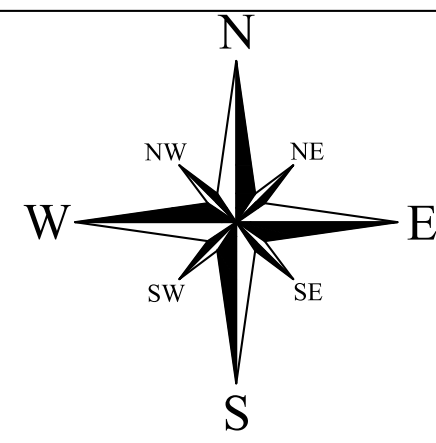
SHEET TITLE
DEMOLITION
FLOOR, ROOF
& CEILING PLANS

JOB NO. 2113

DATE: SEPT. 28, 2022

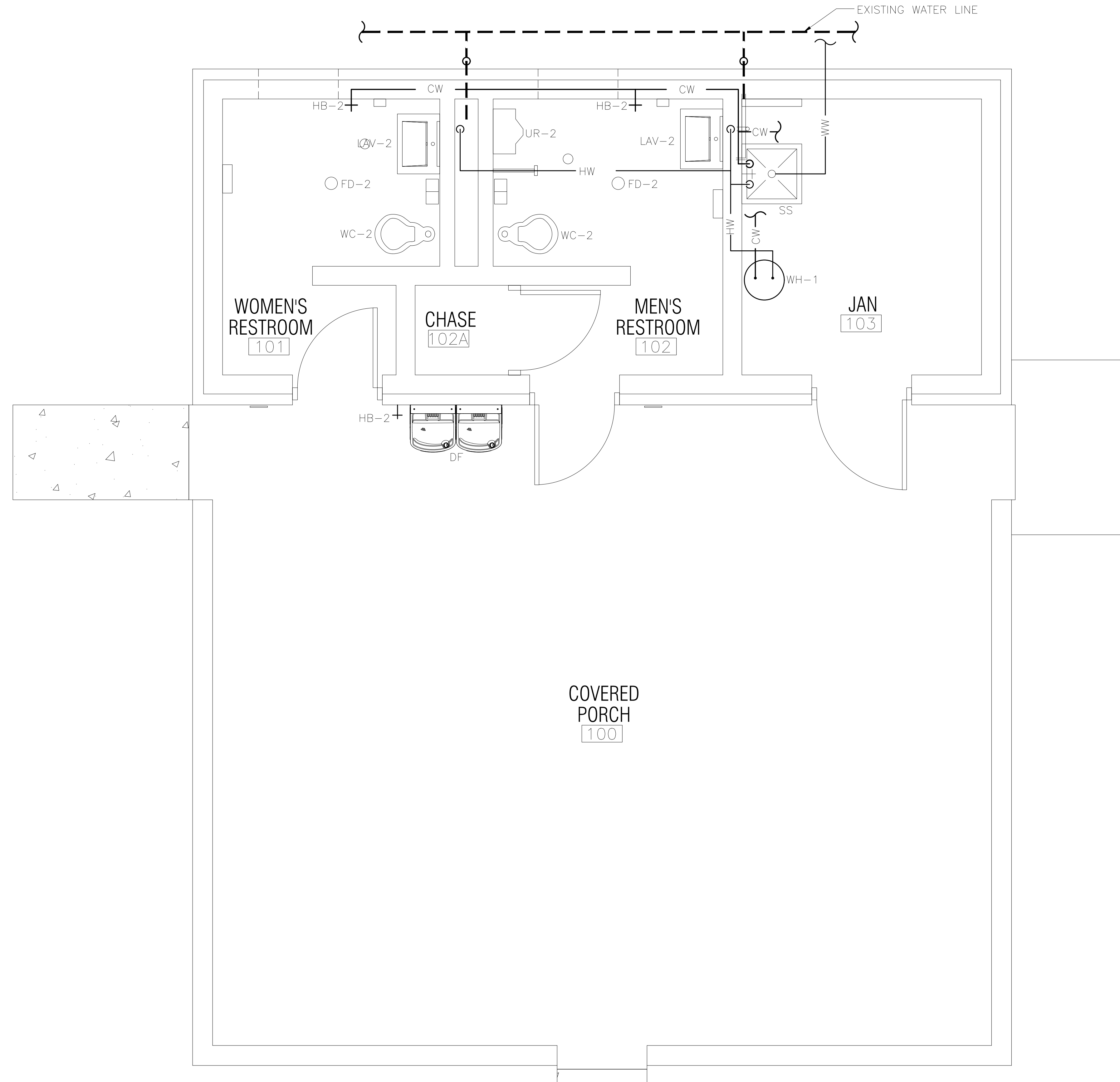
SHEET

PR101



NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY EXISTING WATER AND SEWER PIPE LINES FOR THE EXISTING BUILDING PRIOR TO CONSTRUCTION.
2. INSTALL AND CONNECT THE NEW COLD WATER PIPING IN THE EXISTING BATHROOM BUILDING TO THE EXISTING HOSE BIBB PIPE INSIDE THE JANITOR'S CLOSET THEN RUN TO THE NEW WATER HEATER, NEW SERVICE SINK AND TO EACH NEW HOSE BIBB IN THE MEN'S AND WOMEN'S RESTROOMS. REFER TO DRAWING P104 FOR GUIDANCE.
3. INSTALL NEW WATER HEATER IN JANITOR'S CLOSET.
4. INSTALL AND ROUTE THE NEW HOT WATER SUPPLY PIPING IN THE EXISTING BATHROOM BUILDING FROM THE NEW HOT WATER HEATER ABOVE GRADE, ROUTE INTO THE CEILING AND THEN ROUTE HORIZONTALLY ABOVE THE CEILING AND DOWN TO EACH LAVATORY IN THE MEN'S AND WOMEN'S RESTROOMS AND TO THE NEW SERVICE SINK INSIDE THE JANITOR'S CLOSET. REFER TO DRAWING P104 FOR GUIDANCE.
5. INSTALL NEW PLUMBING FIXTURES AS SHOWN ON THE NEW WORK FLOOR PLAN.
6. CONNECT EXISTING COLD WATER PIPE TO TOILETS, LAVATORIES, URINAL AND NEW WATER FOUNTAIN. INSTALL NEW COLD WATER PIPE FOR NEW WATER HEATER AND NEW SERVICE SINK.
7. THE EXISTING COLD WATER SUPPLY PIPING IN THE EXISTING BATHROOM BUILDING SHALL REMAIN IN PLACE. REPLACE THE HOSE CONNECTIONS BETWEEN THE EXISTING COLD WATER PIPING AND EACH NEW LAVATORY.
8. INSTALL NEW WASTE WATER PIPING FOR THE NEW SERVICE SINK AND CONNECT TO THE EXISTING WASTE WATER PIPING UNDERGROUND.
9. REMOVE THE GRATES FROM THE EXISTING FLOOR DRAINS (FD-2) IN THE MEN'S AND WOMEN'S RESTROOMS AND REPLACE WITH NEW GRATES. THE FLOOR DRAINS SHALL REMAIN IN PLACE.



EXISTING RESTROOM NEW WORK FLOOR PLAN
SCALE: 1/2" = 1'-0"



**LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS**

ALABAMA

MOBILE,

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB



SHEET TITLE
FLOOR, ROOF
& REFLECTED
CEILING PLANS

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

PR102



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**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**
 MOBILE, ALABAMA

REVISIONS

NO.	DATE	REMARKS
9	9-28-22	IFB



SHEET TITLE
 SYMBOLS,
 ABBREVIATIONS,
 GENERAL NOTES

JOB NO. 2113

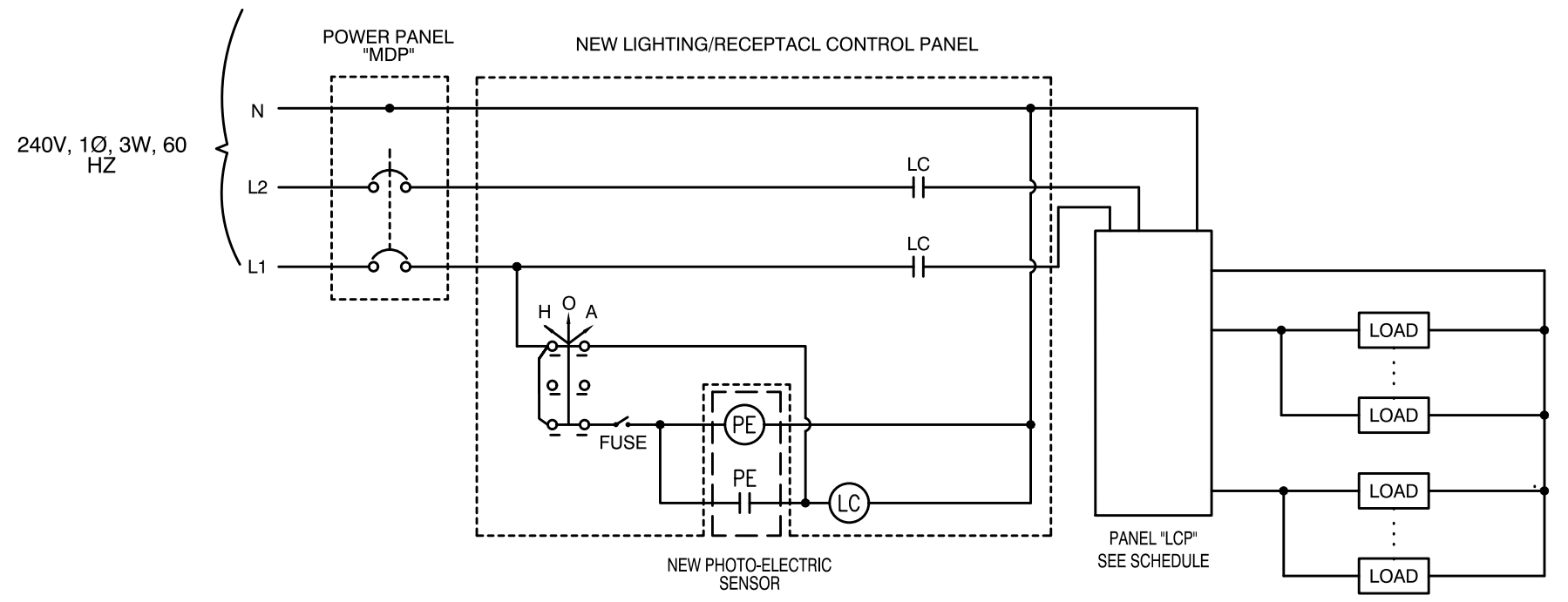
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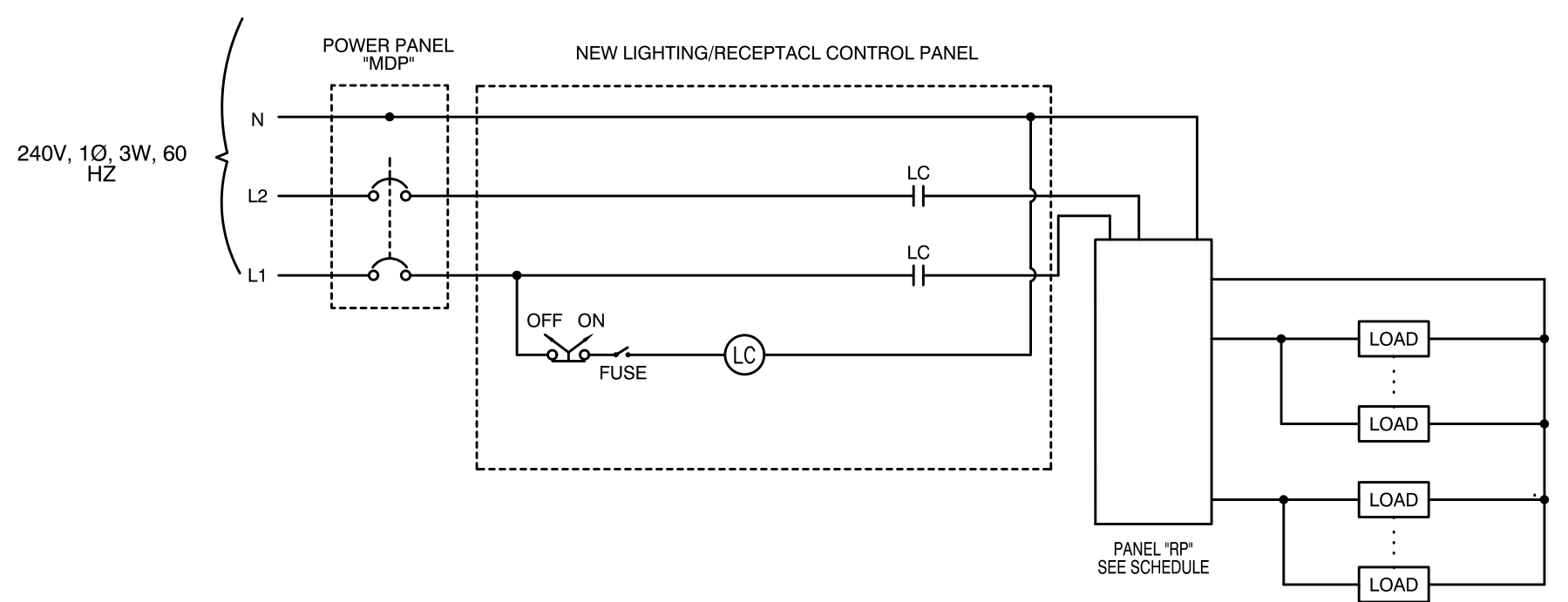
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GENERAL NOTES:

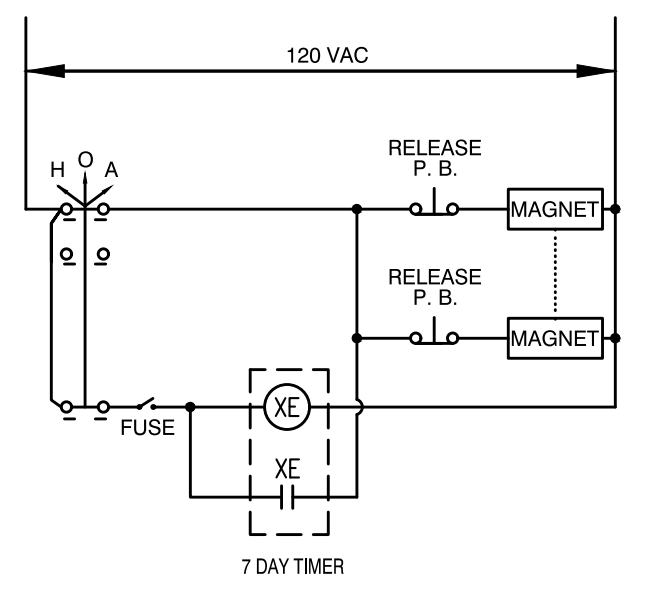
- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, THE OCCUPATIONAL SAFETY AND HEALTH ACT, ALL ELECTRICAL CODES LOCALLY BEING ENFORCED BY LOCAL AUTHORITY HAVING JURISDICTION (AHJ) IN THE PROJECT AREA AND THE CONTRACTING OFFICER (C.O.).
- CONTRACTOR TO OBTAIN AND PAY FOR ALL PERMITS, INSPECTION AND CONNECTION FEES.
- CONTRACTOR TO PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND SUPERVISION FOR AND INCIDENTAL TO THE COMPLETION OF A FULLY FUNCTIONAL, SAFE AND COMPLETE ELECTRICAL AND LIGHTING SYSTEMS.
- CONTRACTOR TO TEST SYSTEM THOROUGHLY IN THE PRESENCE OF OWNER AND RENDER IT FREE FROM DEFECTS. CONTRACTOR TO PROVIDE OWNER WITH A ONE YEAR WARRANTY AFTER ACCEPTANCE.
- THE CONTRACTOR SHALL PROPERLY SEAL ALL PENETRATIONS. ALL PENETRATIONS THROUGH FIRE BARRIERS SHALL BE SEAL IN ACCORDANCE WITH THE LATEST REVISIONS OF NEC 300.21 AND IBC 712.4.
- THE CONTRACTOR SHALL PROVIDE TYPE WRITTEN PANEL DIRECTORIES WITH BLACK 1/2" LETTERS "CK # & VOLTAGE" FOR A POWER CONTROL PANEL.
- ALL WIRING SHALL BE COPPER AND IN A CONTINUOUS CONDUIT SYSTEM (MT, RIGID PVC, etc.) AS ALLOWED BY CODE AND APPROVED BY AHJ. MINIMUM WIRE SIZE FOR POWER SHALL NO. 12 AWG.
- ALL ELECTRICAL PANELS SHALL HAVE COPPER BUS BARS.
- ELECTRICAL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID ANY CONFLICTS AND/OR CREATING A SAFETY HAZARD.
- CONCEAL ALL CONDUITS AND BOXES UNLESS OTHERWISE NOTED.
- ELECTRICAL CONTRACTOR TO COORDINATE WITH THE OWNER FOR ANY ELECTRICAL REQUIREMENTS FOR SPECIAL EQUIPMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL CIRCUITS ASSOCIATED WITH THE PROJECT WORK AREA.
- ALL EQUIPMENT AND MATERIALS SHALL MEET OR EXCEED THE SCHEDULED AND/OR REQUIRED ITEMS. SUBMIT FOR PRIOR APPROVAL FOR ANY DEVIATIONS.
- NO CHANGES SHALL BE MADE IN MATERIALS OR INSTALLATION WITHOUT ENGINEER AND OWNER'S APPROVAL.
- CONTRACTOR SHALL VERIFY CLEARANCE SPACE AVAILABLE, OFFSETS REQUIRED, STRUCTURAL OPENINGS, AND WORK BY OTHER TRADES.
- ALL ELECTRICAL MATERIAL AND EQUIPMENT PROVIDED BY THE CONTRACTOR SHALL BE NEW AND FREE OF DEFECTS. ALL WORK PERFORMED FOR THIS PROJECT SHALL BE CARRIED OUT BY SKILLED WORKERS REGULARLY ENGAGED IN THE PERFORMANCE OF SUCH DUTIES. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED CLEAN AND FREE FROM DENTS, SCARS OR DEFORMITIES.
- ANY PATCHING OF WALLS SHALL MATCH NEW ARCHITECTURAL FINISHING REQUIREMENTS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE A GROUNDING SYSTEM PER SECTION 250 OF THE NATIONAL ELECTRICAL CODE.
- ALL 120V BRANCH CIRCUITS SHALL HAVE A DEDICATED NEUTRAL (L2) CONDUCTOR.
- REFERENCE TO A PARTICULAR PRODUCT BY MANUFACTURER, TRADE NAME, OR CATALOG NUMBER ESTABLISHES THE QUALITY STANDARDS OF MATERIAL AND EQUIPMENT REQUIRED FOR THIS INSTALLATION AND IS NOT INTENDED TO EXCLUDE PRODUCTS EQUAL IN QUALITY AND SIMILAR DESIGN.
- THE ACCURACY OF GRADE, ELEVATION, DIMENSIONS, OR LOCATIONS OF THE EXISTING CONDITION IS NOT GUARANTEED BY THE ENGINEER OR THE OWNER. IF THE CONTRACTOR PERFORMS A CONSTRUCTION ACTIVITY WHEN THE CONTRACTOR KNOWS, OR SHOULD KNOWING EXERCISE IN REASONABLE DILIGENCE THAT AN ACTIVITY INVOLVES AN ERROR IN CONSISTENCY OR OMISSION IN CONTRACT DOCUMENTS, THE CONTRACTOR SHALL ASSUME APPROPRIATE RESPONSIBILITY FOR SUCH PERFORMANCE AND BEAR AND APPROPRIATE AMOUNT OF THE COSTS ATTRIBUTABLE FOR CORRECTIONS.
- ALL ELECTRICAL INSTALLATION SHALL BE INSPECTED PRIOR TO BEING CLOSED OR COVERED UP. FAILURE TO GET THE INSTALLATION INSPECTED SHALL RESULT IN THE CONTRACTOR PROVIDING THE LABOR AND MATERIALS EXPOSE THE INSTALLATION FOR INSPECTION AND TO RECOVER THE INSTALLATION AT CONTRACTOR'S EXPENSE.



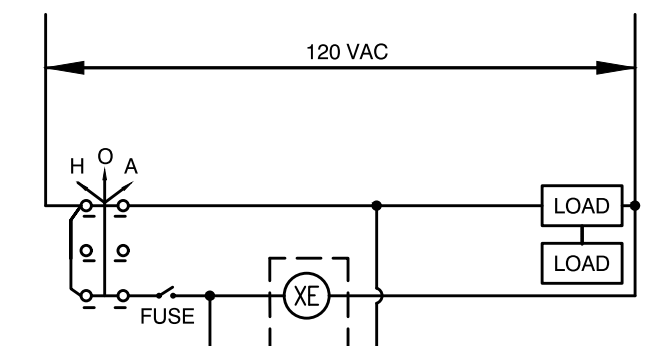
TYPICAL LIGHTING CONTROL PANEL DIAGRAM
 NOT TO SCALE



TYPICAL RECEPTACLE CONTROL PANEL DIAGRAM
 NOT TO SCALE



TYPICAL ELECTROMAGNETIC DOOR LOCK CONTROL PANEL DIAGRAM
 NOT TO SCALE



TYPICAL INTERIOR LIGHTING CONTROL PANEL DIAGRAM
 NOT TO SCALE

ELECTRICAL SYMBOL LEGEND	
SYMBOL	DESCRIPTION
	BRANCH CIRCUIT CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING. ARROWS INDICATE CIRCUIT HOMERUNS. HASH MARKS INDICATE NUMBER OF CONDUCTORS. NEUTRAL AND/OR SWITCH LEG CONDUCTORS. "A" DENOTES PANEL BOARDS SERVING CIRCUITS. "XX" CIRCUIT BREAKER SPACES IN PANELBOARD. SEE RESPECTIVE PANEL CIRCUIT SCHEDULE. MINIMUM CONDUCTOR SIZE = #12 AWG.
	BRANCH CIRCUIT CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING. ARROWS INDICATE CIRCUIT HOMERUNS. "A" DENOTES PANEL BOARDS SERVING CIRCUITS. "XX" CIRCUIT BREAKER SPACES IN PANELBOARD. SEE RESPECTIVE PANEL CIRCUIT SCHEDULE. MINIMUM CONDUCTORS 2#12, 1#12 GND, 1 CAT 5 CABLE, 3/4" C.
	BRANCH CIRCUIT CONDUIT RUN BELOW GRADE OR CONCEALED IN SLAB. ARROWS INDICATE CIRCUIT HOMERUNS. HASH MARKS INDICATE NUMBER OF CONDUCTORS. REVERSE HASH MARK INDICATES GROUND CONDUCTOR. ABSENCE OF HASH MARKS INDICATES TWO CONDUCTORS AND GROUND. GROUND CONDUCTORS SHALL BE RUN IN EACH CONDUIT WITH PHASE, NEUTRAL AND/OR SWITCH LEG CONDUCTORS. "A" DENOTES PANELBOARD SERVING CIRCUITS. "1,3,5" INDICATES CIRCUIT BREAKER SPACES IN PANELBOARD. SEE RESPECTIVE PANEL CIRCUIT SCHEDULE. MINIMUM CONDUCTOR SIZE = #12 AWG.
	DISCONNECT (SAFETY) SWITCH - SIZE AND TYPE AS NOTED. TOP OF SWITCH 6" A.F.F. MAX.
	ELECTRIC MOTOR- SEE RESPECTIVE EQUIPMENT SCHEDULE
	20A, 120/277 VAC SINGLE POLE TOGGLE SWITCH - FLUSH WALL MOUNTED 48" A.F.F. UNLESS NOTED OTHERWISE. LOWER CASE LETTER INDICATES FIXTURE AND/OR LAMPS CONTROLLED.
	20A, 120/277 VAC THREE WAY TOGGLE SWITCH - FLUSH WALL MOUNTED 48" A.F.F. UNLESS NOTED OTHERWISE. LOWER CASE LETTER INDICATES FIXTURE AND/OR LAMPS CONTROLLED.
	20A, 120/277 VAC FOUR WAY TOGGLE SWITCH - FLUSH WALL MOUNTED 48" A.F.F. UNLESS NOTED OTHERWISE. LOWER CASE LETTER INDICATES FIXTURE AND/OR LAMPS CONTROLLED.
	20A, 125 VAC 2P., 3W., GROUNDING TYPE, DUPLEX RECEPTACLE. FLUSH WALL MOUNTED 18" A.F.F. UNLESS NOTED OTHERWISE. "A - XX" INDICATES PANEL NAME AND CIRCUIT NUMBER
	230 VAC 2P., 3W., GROUNDING TYPE RECEPTACLE. FLUSH WALL MOUNTED 18" A.F.F. UNLESS NOTED OTHERWISE. "A - XX" INDICATES PANEL NAME AND CIRCUIT NUMBER. "YY" INDICATES AMPERAGE RATING.
	TWO 20A, 125 VAC 2P., 3W., GROUNDING TYPE, DUPLEX RECEPTACLES. FLUSH WALL MOUNTED: ONE AT 18" A.F.F. AND THE OTHER AT 48" A.F.F. "A - XX" INDICATES PANEL NAME AND CIRCUIT NUMBER
	20A, 125 VAC 2P., 3W., GROUND FAULT INTERRUPTING TYPE, DUPLEX RECEPTACLE. FLUSH WALL MOUNTED 18" A.F.F. UNLESS NOTED OTHERWISE. "A - XX" INDICATES PANEL NAME AND CIRCUIT NUMBER
	(2) 20A, 125 VAC 2P., 3W., GROUNDING TYPE, DUPLEX RECEPTACLES. FLUSH WALL MOUNTED IN 2-GANG BOX 18" A.F.F. UNLESS NOTED OTHERWISE. "A - XX" INDICATES PANEL NAME AND CIRCUIT NUMBER
	JUNCTION BOX. MINIMUM SIZE 4" SQUARE X 2-1/8" DEEP WITH COVER PLATE. FLUSH WALL MOUNTED 18" A.F.F. UNLESS NOTED OTHERWISE.

SYMBOLS NOTES:
 1. ALL OUTLETS ARE TO BE FLUSH MOUNTED.
 2. MOUNTING HEIGHTS ARE FROM THE CENTER LINE OF THE DEVICE UNLESS OTHERWISE NOTED.
 3. ALL SINGLE GANG AND TWO GANG DEVICES SHALL USE A 4" SQ. BOX WITH EXTENSION RING.
 4. ALL MULTI-GANG DEVICES SHALL USE A COMMON COVER PLATE.
 5. ALL NORMAL POWER DEVICES (i.e. SWITCHES, RECEPTACLES, TELEPHONE OUTLETS, ETC.) AND THEIR COVER PLATES SHALL BE WHITE OR BLACK FOR OUTLETS IN DARK GRANITE.
 6. A.F.F. INDICATES MOUNTING HEIGHT ABOVE FINISHED FLOOR.

ABBREVIATIONS

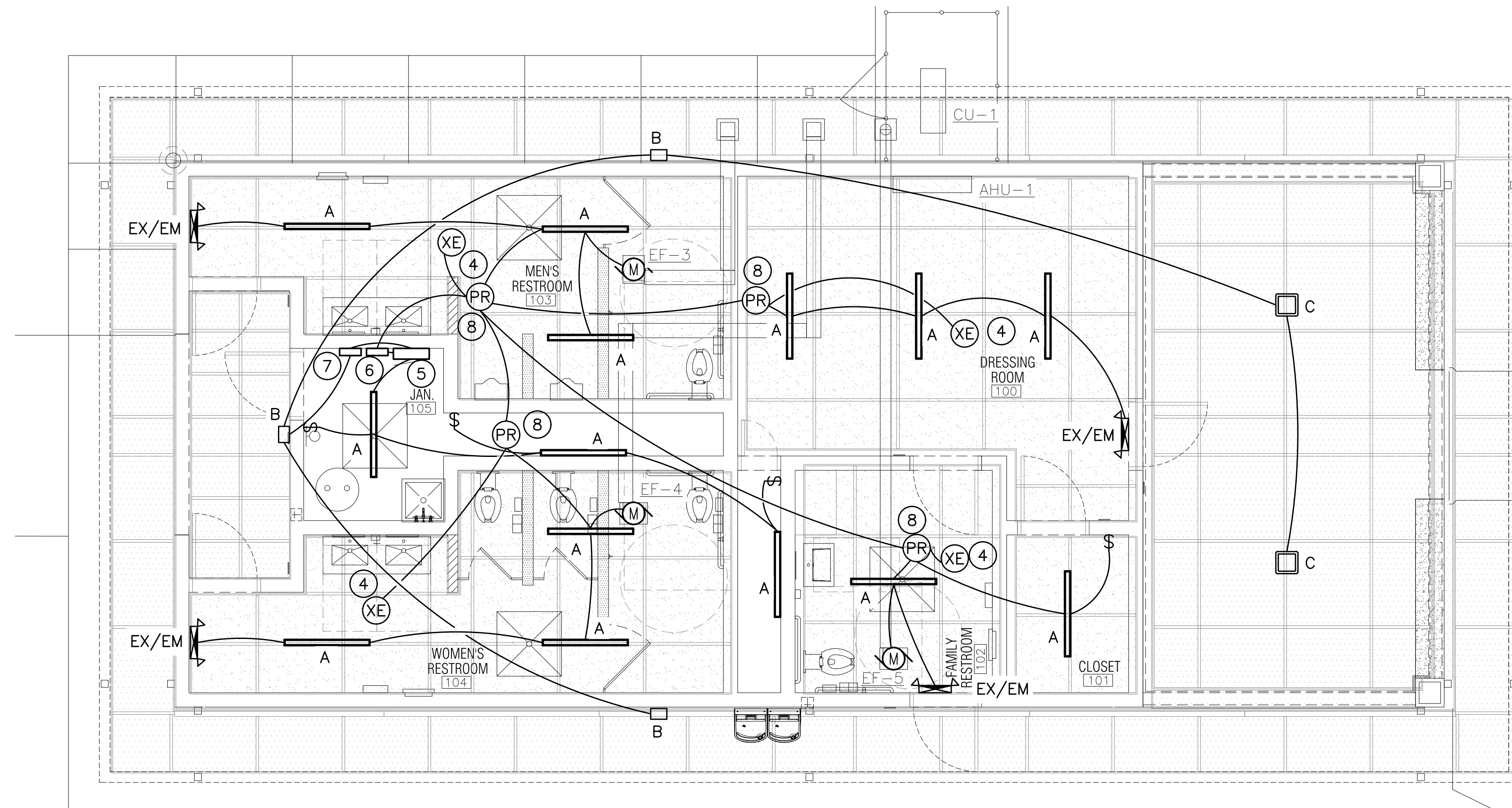
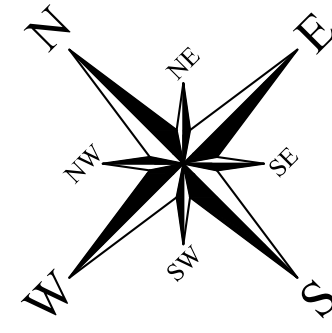
A	AMPS	MAG	MAGNETIC (METER or STARTER)
A/C	AIR CONDITIONING	MAN	MANUAL
A.F.F.	ABOVE FINISHED FLOOR	M.B.	MAIN BREAKER
AHU	AIR HANDLING UNIT	MCM	THOUSAND CIRCULAR MILS
A.I.C.	AMPS INTERRUPTING CAPACITY (SHORT CIRCUIT)	MCS	MOLDED CASE SWITCH
AL	ALUMINUM	MECH.	MECHANICALLY (HELD)
AM	AMMETER	MT.	MOUNT
AUTO	AUTOMATIC	MTD.	MOUNTED
AUX	AUXILIARY	N. NEUT	NEUTRAL
AWG	AMERICAN WIRE GAUGE	N.C.	NORMALLY CLOSED
B	BARE	N.O.	NORMALLY OPEN
C.	CONDUIT	OHE	OVER HEAD ELECTRICAL LINE
C.B.	CIRCUIT BREAKER	O.L.'s	OVERLOADS (THERMAL)
CH.	CHILLED	OUT	OUTPUT
CK	CIRCUIT	P	POLE(S)
Cu	COPPER	PNL	PANEL OR PANELBOARD
CONN.	CONNECTED	P.T.	POTENTIAL TRANSFORMER
CPT	CONTROL POWER TRANSFORMER	#(SUFFIX)	POUNDS WEIGHT
CR	CONTROL RELAY	#(PREFIX)	WIRE GAUGE (AWG)
C.O.	CONDUIT ONLY	Ø	PHASE
C.T.	CURRENT TRANSFORMER	REC.	RECEPTACLE
D.	DEEP	RECEPT	RECEPTACLE
DC	DIRECT CURRENT	S.C.	SHORT CIRCUIT (DUTY)
DISC.	DISCONNECT	SN	SOLID NEUTRAL
DN	DOWN	SOL	SOLID (CONDUCTOR)
EA.	EACH	SQ.	SQUARE
E.O.	ELECTRIC OPERATOR	ST	SHUNT TRIP
ELEC	ELECTRIC	STR.	STARTER
E. EM	EMERGENCY	SW.	SWITCH
EX. RE.	EXIST. RELOCATED	T.B.B.	TELEPHONE BACK BOARD
EQ.	EQUIPMENT (GROUND)	TEL	TELEPHONE
FA	FIRE ALARM	TEMP.	TEMPERATURE (CONTROL)
FU	FUSE(S)	T.O.E.	TIMED ON ENERGIZATION
FUT	FUTURE	TYP.	TYPICAL
G. GR.	GROUND	UPS	UNINTERRUPTIBLE POWER SYSTEM
GRDG.	GROUNDING	UG	UNDERGROUND
GI	GROUND FAULT INTERRUPTING	UGP	UNDERGROUND PRIMARY
H.	HIGH (MOUNTING HEIGHT TO CENTER LINE)	UGS	UNDERGROUND SECONDARY
HH	HAND HOLE	W	WATTS OR WIRE (USE CONTEXT)
H.O.A.	HAND-OFF AUTOMATIC SWITCH	W.H.	WATER HEATER
HT	HEAT	WP	WEATHERPROOF
IG	ISOLATED GROUND	WW	WIREWAY (or GUTTER)
IH	INSTRUMENT HAND HOLE	V	VOLTS
ISO	ISOLATED	VAC	VOLTS ALTERNATING CURRENT
IN	INPUT	VDCTP	VOLTS DATA AND CABLE TERMINATION PANEL
INS.	INSULATED	VM	VOLTMETER
INST.	INSTALL OR INSTRUMENT		
J.B.	JUNCTION BOX		
K.O.	KNOCK OUT		
KW	KILOWATTS		
LTG.	LIGHTING		
LG	LONG		

DISCONNECT SWITCH SCHEDULE					
SERVICE	AMPERE	VOLTAGE	NO. POLES	FUSE TYPE	ENCLOSURE TYPE
CU-1	30	240	2	NON	NEMA 3R
WH-2	30	240	2	NON	NEMA 1

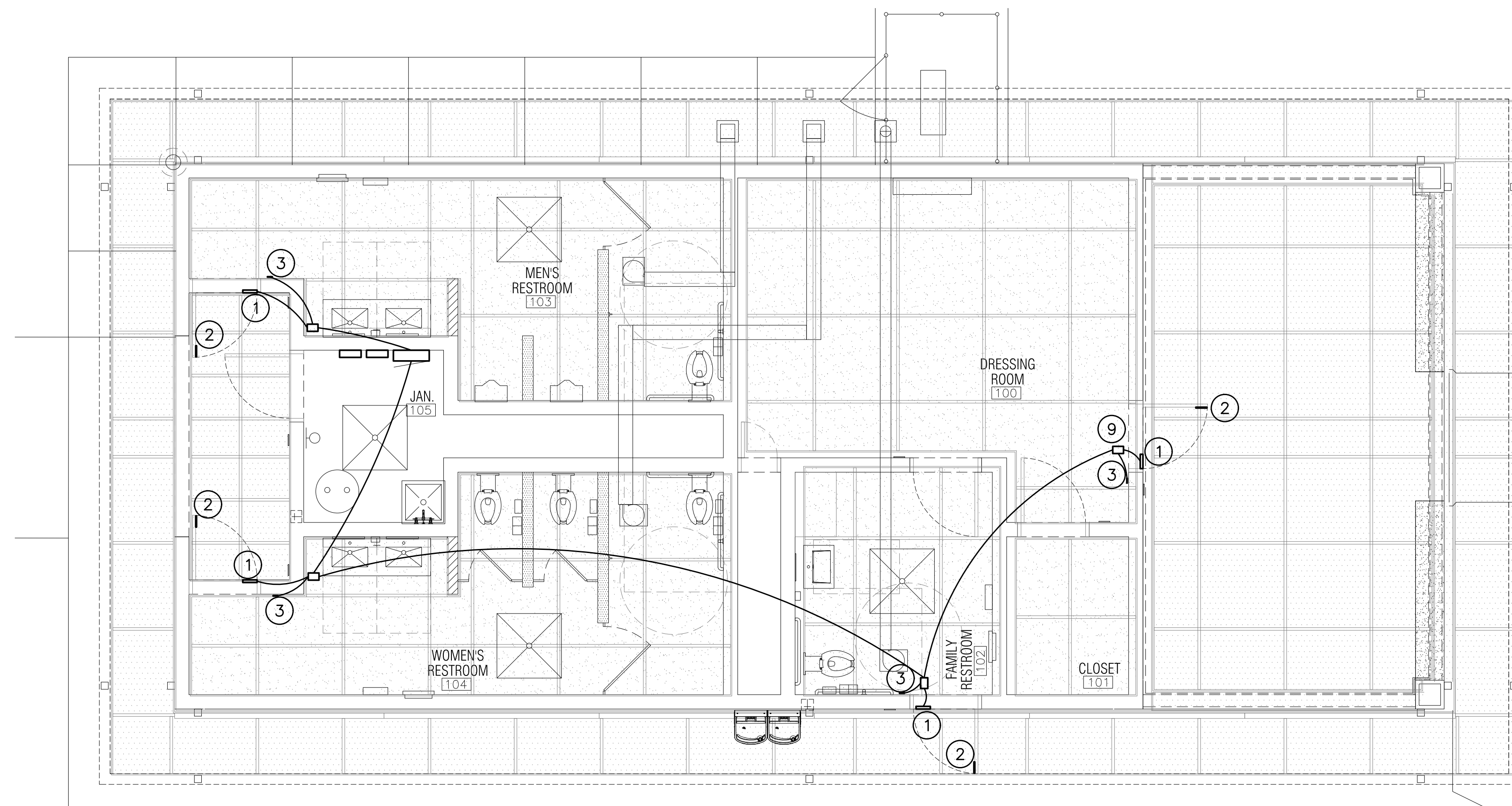
NOTE: CONTRACTOR SHALL COORDINATE EXACT SIZES WITH ACTUAL EQUIPMENT BEING INSTALLED.

LIGHT FIXTURE SCHEDULE					
NEW TYPE	MANUFACTURER	CATALOG NUMBER	MOUNTING	LAMPS	
				NO.	TYPE
A	TOPAZ	F-L4140W/50K/D-87	CEILING	1	40W LED
B	LITHONIA	WPX1 LED	WALL	1	24W LED
C	MORRIS	71603B	CEILING	1	45W LED
D	MOSAIC	MSC1101I WW UNV-CC-DIM	BALLARD	1	15W LED
EX/EM	LITHONIA	LHQM R M6	WALL	1	4.3W LED
E	LITHONIA	DSXSC LED 30C 700 50K T5W MVOLT DMG	PEDENT	1	67W LED
LP	STRESSCRETE	K124R-R1AR-V-100(SSL)-1063-120-277-K12-WRS W/GFI	POLE	1	100W LED
LP1	STRESSCRETE	K124R-R1AR-III-100(SSL)-1063-120-277-K12-WRS W/GFI	POLE	1	100W LED

NOTE: ALL FIXTURES AND ACCESSORIES SHALL BE APPROVED BY THE ARCHITECT, ENGINEER AND OWNER.



NEW RESTROOM PROPOSED WORK LIGHTING PLAN
SCALE: 1/4" = 1'-0"



NEW RESTROOM PROPOSED WORK ELECTROMAGNETIC DOOR LOCK POWER PLAN
SCALE: 1/4" = 1'-0"

NOTES:

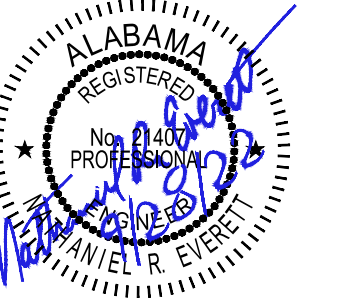
1. SEE LIGHT FIXTURE SCHEDULE ON SHEET NO. E100.

KEY NOTES:

- 1 ELECTROMAGNETIC DOOR LOCK MAGNET.
- 2 ELECTROMAGNETIC DOOR STRIKE.
- 3 ELECTROMAGNETIC DOOR RELEASE PUSH BUTTON.
- 4 INFRARED/MOTION SENSOR ACUITY CONTROLS MODEL NO. CM PDT 9 R LT OR APPROVED EQUAL
- 5 NEW PAVILION POWER PANEL "P1"
- 6 RESTROOM BUILDING INTERIOR CONTROL PANEL ACURITY MODEL NO. NDC BK OR APPROVED EQUAL
- 7 BUILDING EXTERIOR LIGHTING CONTROL PANEL ACURITY MODEL NO. NDC BK OR APPROVED EQUAL
- 8 SENSOR RELAY SWITCH ACUITY CONTROLS MODEL NO. PP20 LT OR APPROVED EQUAL
- 9 ELECTROMAGNETIC DOOR LOCK POWER MODULE (MOUNTED ABOVE THE CEILING)



THE ARCHITECTS
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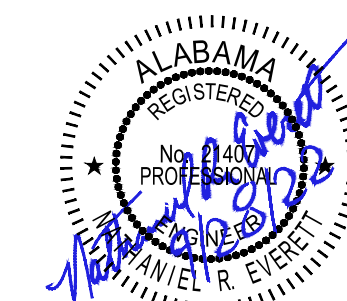
PROPOSED
REFLECTED CEILING
PLANS

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

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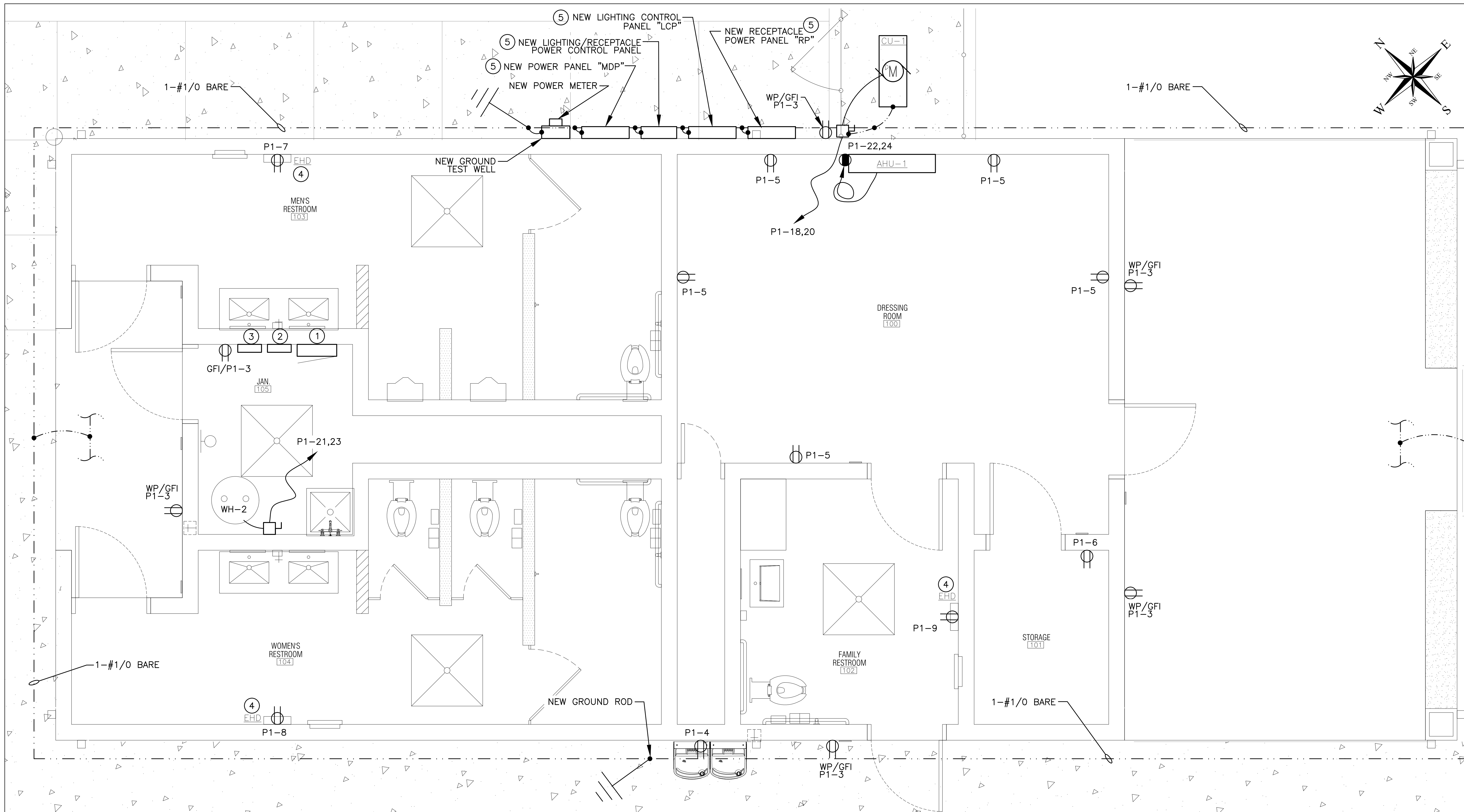
ENLARGED TOILET
PLAN

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

E102



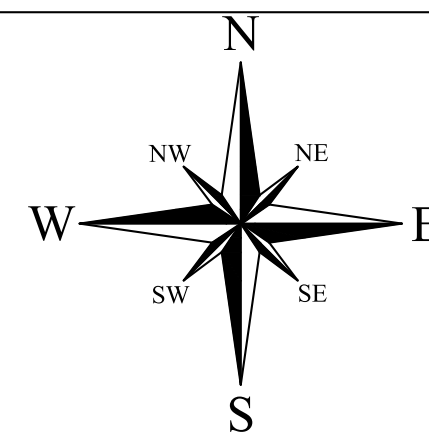
NEW RESTROOM NEW WORK FLOOR PLAN
SCALE: 1/2" = 1'-0"

LOAD DESCRIPTION	WIRE SIZE	KVA LOAD		CKT NO.	BKR. TRIP	L1	L2	BKR. TRIP	KVA LOAD		LOAD DESCRIPTION	WIRE SIZE	
		ØA	ØB						ØA	ØB			
INTERIOR LIGHTS	12	0.87		1	20			20	2	0.18	ELEC MAG DOOR LOCKS	12	
JAN#105/EXTERIOR REC.	12		1.08	3	20			20	4	0.50	WATER FOUNTAIN	12	
DRESSING RM 100 REC.	12	0.90		5	20			20	6	0.18	STORAGE REC.	12	
MEN'S RESTRM EHD	10		1.86	7	30			30	8	1.86	WOMEN'S RESTRM EHD	10	
FAMILY RESTRM EHD	10	1.86		9	30			30	10	0.18	EXT. LTG CONTROL PNL	12	
SPARE				11	20			20	12		SPARE		
SPARE				13	20			20	14		SPARE		
				15				16					
				17				30	18	1.75	C-1	10	
				19				2P	20	1.75	AHU-1	10	
NEW WH-2	10	2.25		21	30			15	22	0.04		12	
	10		2.25	23	2P			2P	24	0.04		12	
SUBTOTAL VA:		5.88	5.19							2.33	4.15		
VOLTAGE SOURCE: NEW POWER PANEL "MDP"				TOTAL KVA ØA:		8.21							
VOLTAGE: 120/240		MAIN: 100		TOTAL KVA ØB:		9.34							
TOTAL CKTS: 24		AMPS: 100		PHASE: 1									
TRIM: SURFACE				TOTAL CONN. KVA:		17.55							
INTERRUPT RATING: 10,000 A.I.C. SYMMETRICAL				EST. DEMAND:		73.13							

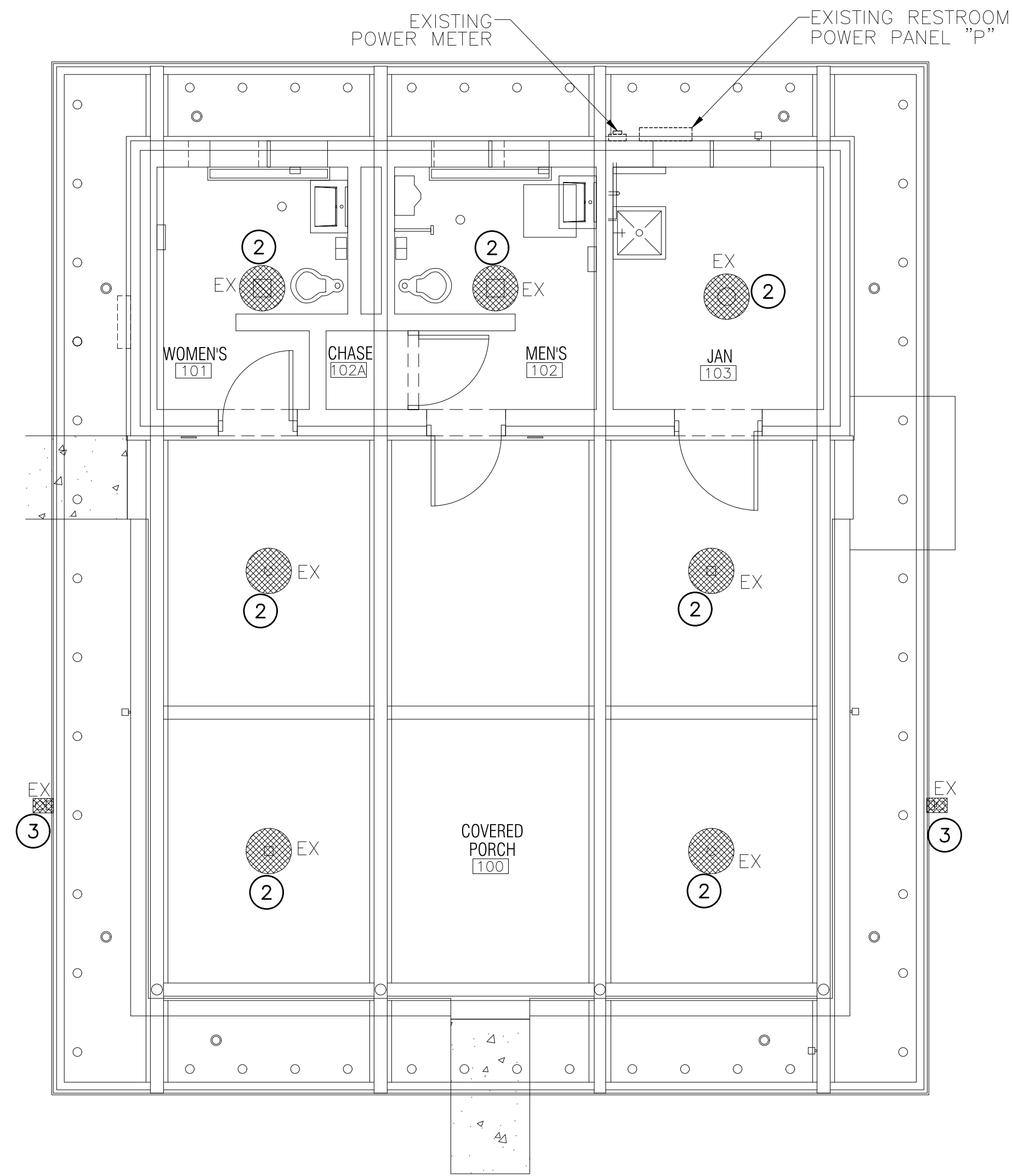
NEW PAVILION PANEL "P1" CIRCUIT SCHEDULE
LOC'N: JANITOR'S CLOSET

KEY NOTES:

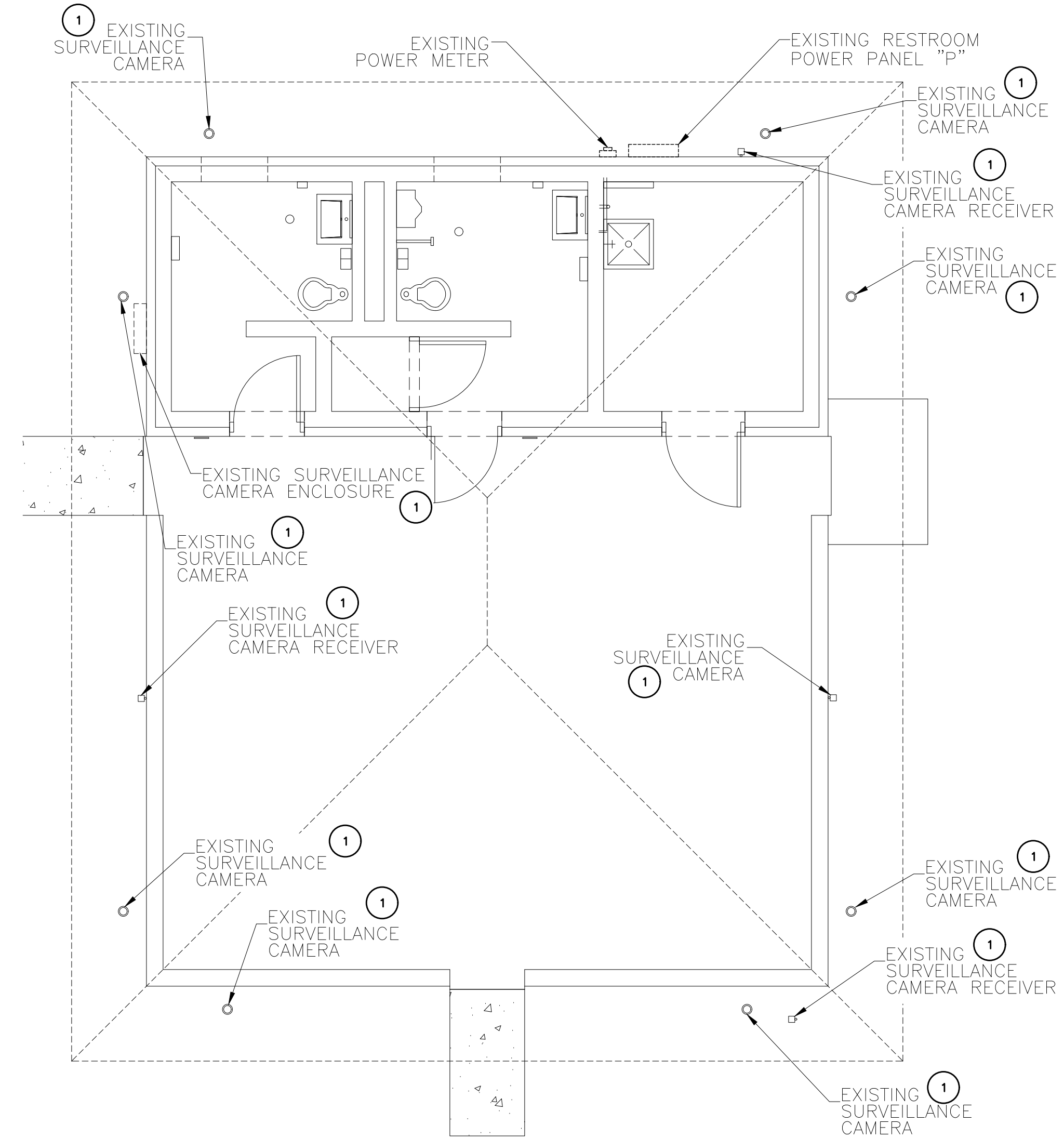
- NEW PAVILION POWER PANEL "P1"
- RESTROOM BUILDING INTERIOR LIGHTING CONTROL PANEL (SEE DRAWING NO. E101 FOR MODEL NUMBER)
- BUILDING EXTERIOR LIGHTING CONTROL PANEL (SEE DRAWING NO. E101 FOR MODEL NUMBER)
- ELECTRIC HAND DRYER AMERICAN MODEL NO. 0185 115AC 93
- EQUIPMENT SHALL BE PROVIDED WITH KEYS AND LOCKS.



SHALL BE DEMOLISHED



EXISTING RESTROOM DEMOLITION CEILING PLAN
SCALE: 1/4" = 1'-0"



EXISTING RESTROOM DEMOLITION ROOF PLAN
SCALE: 1/4" = 1'-0"

KEY NOTES:

- ① THIS EQUIPMENT SHALL REMAIN IN SERVICE AND IS NOT INCLUDED IN SCOPE OF WORK.
- ② THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVE THE EXISTING LIGHT FIXTURES AND CONDUCTORS. THE EXISTING CONDUIT SHALL BE CLEANED AND REUSED (SEE PROPOSED WORK FOR NEW LIGHTING PLAN ON SHEET ER102).
- ③ THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVE THE EXISTING LIGHT FIXTURE AND INSTALL A NEW BLIND COVER OVER THE EXISTING JUNCTION BOX.



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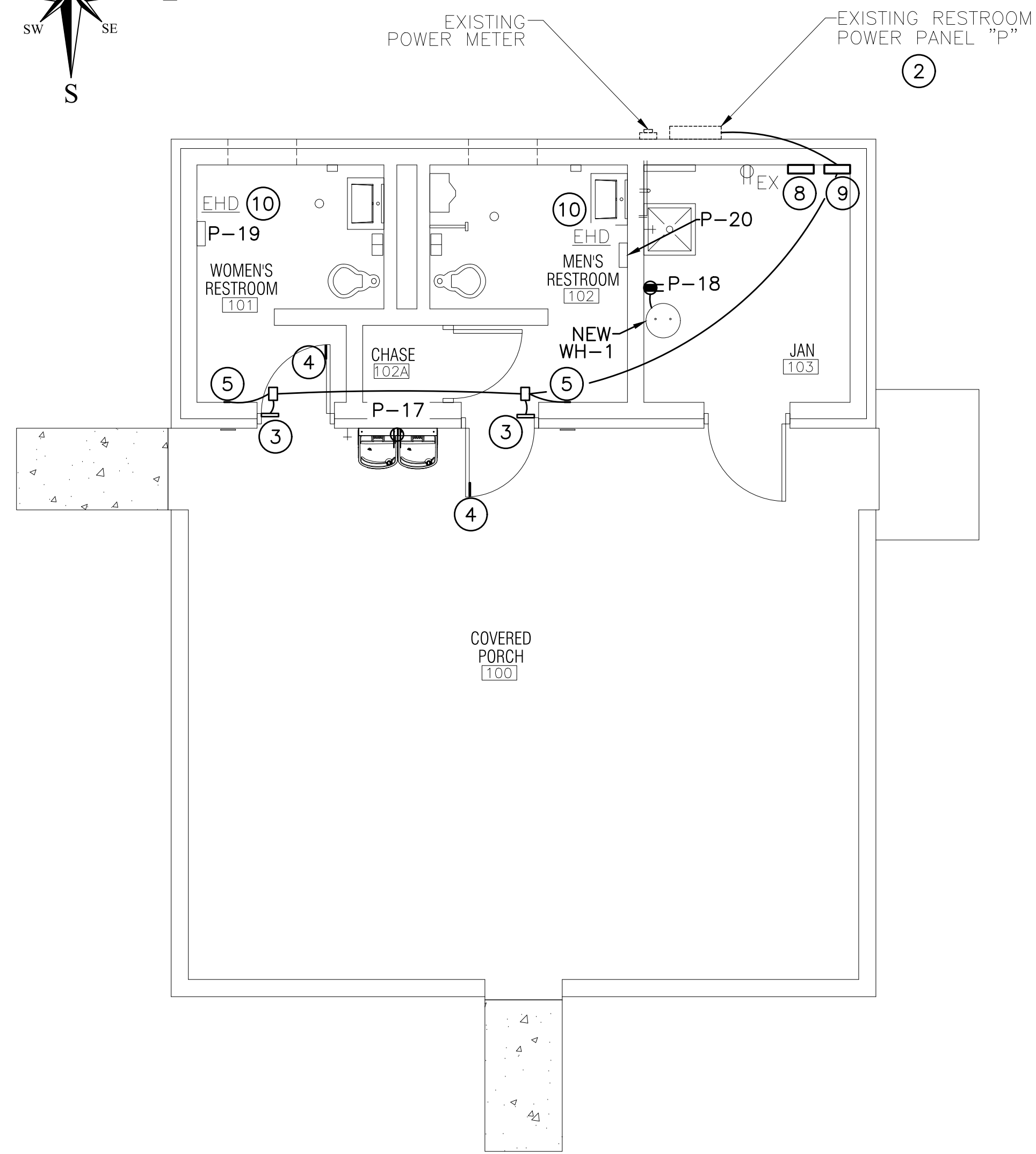
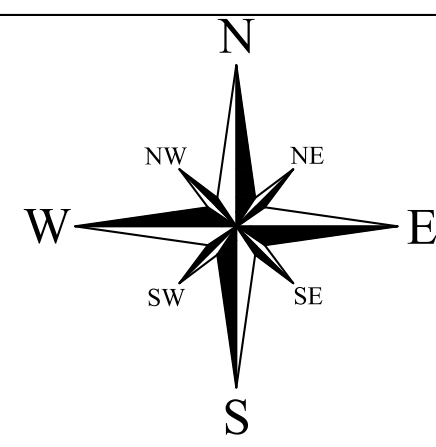


SHEET TITLE
DEMOLITION
FLOOR, ROOF
& CEILING PLANS

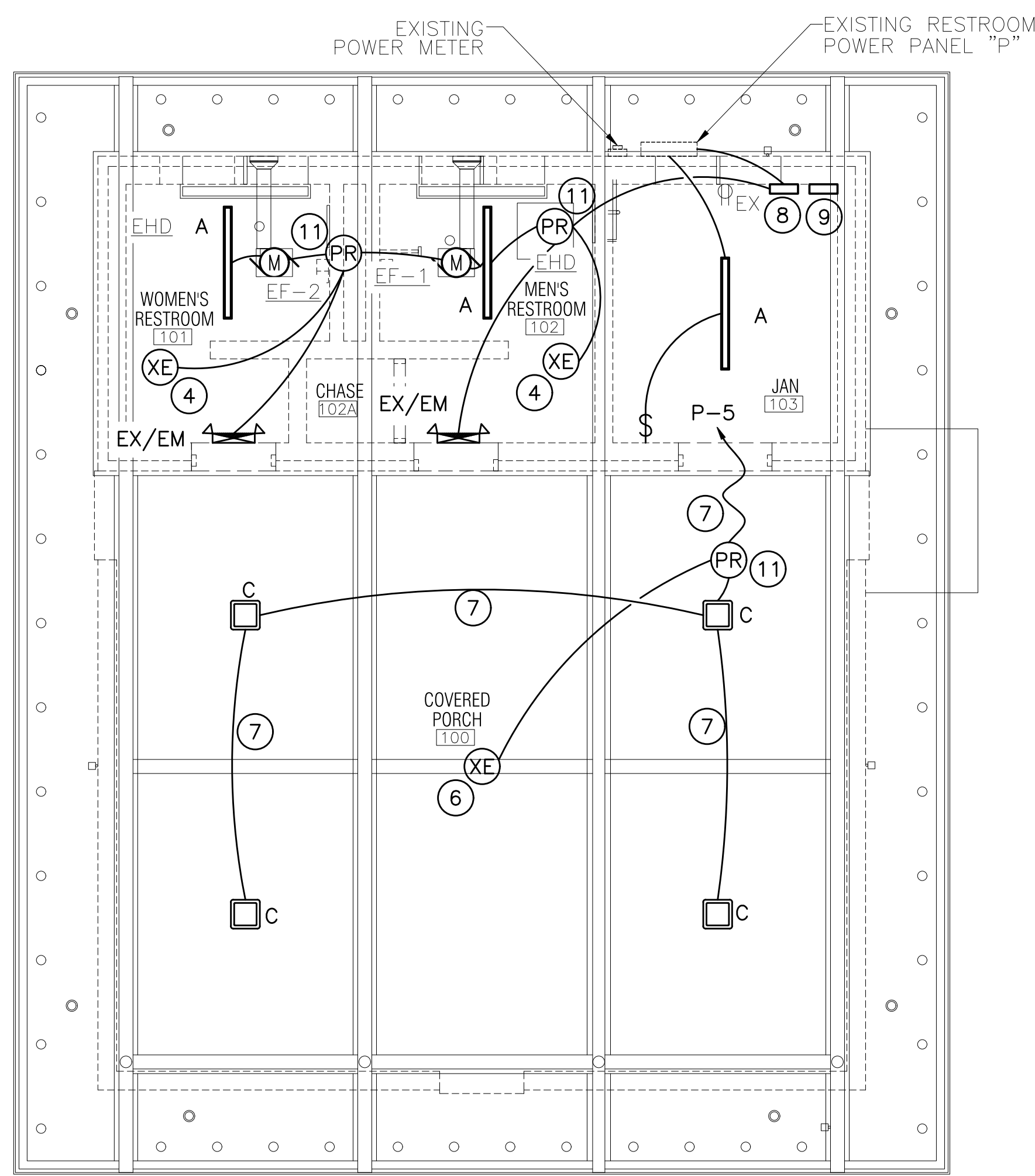
JOB NO. 2113

DATE: SEPT. 28, 2022

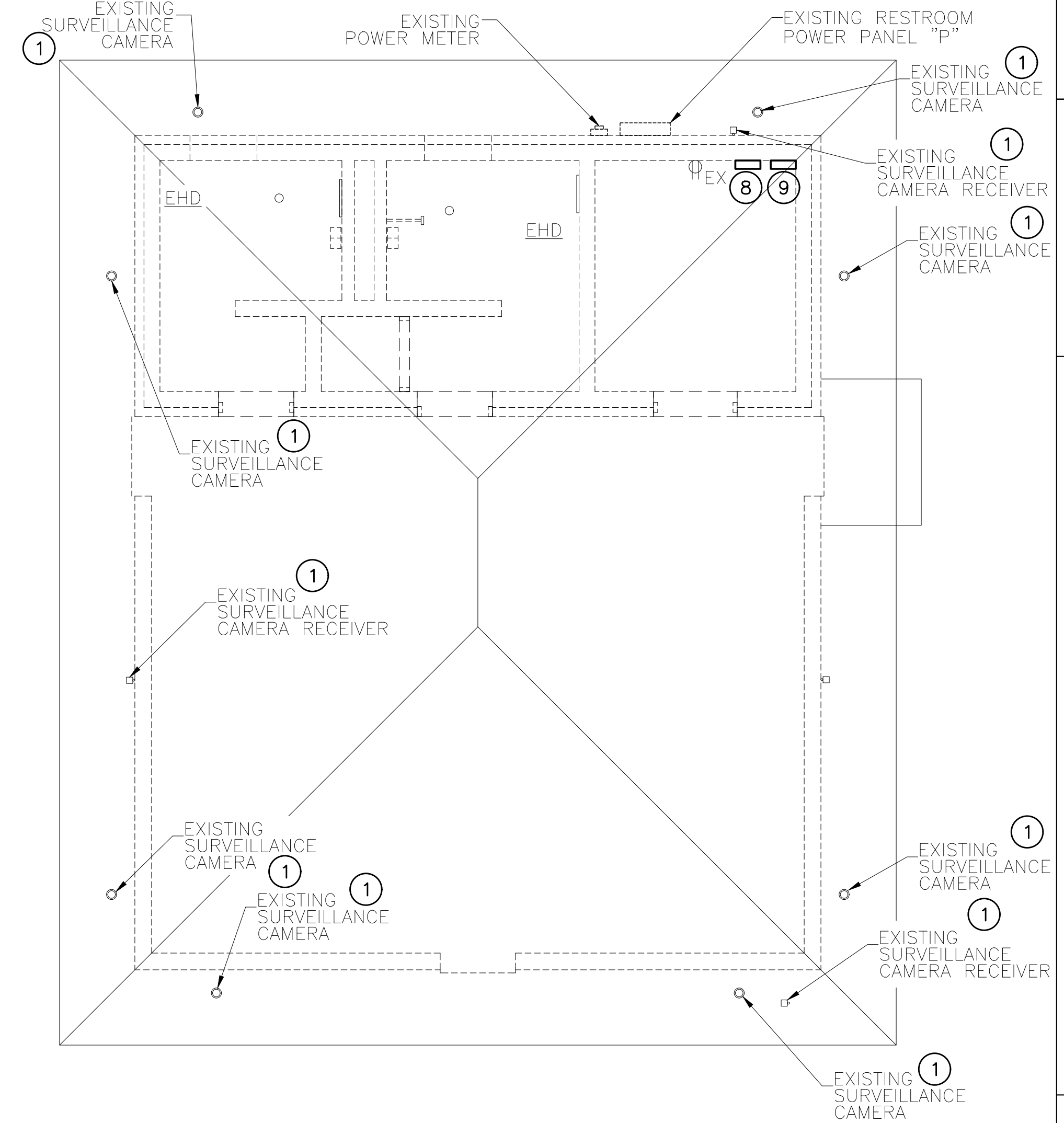
SHEET
ER101



EXISTING RESTROOM PROPOSED WORK FLOOR PLAN
SCALE: 1/4" = 1'-0"



EXISTING RESTROOM PROPOSED WORK CEILING PLAN
SCALE: 1/4" = 1'-0"



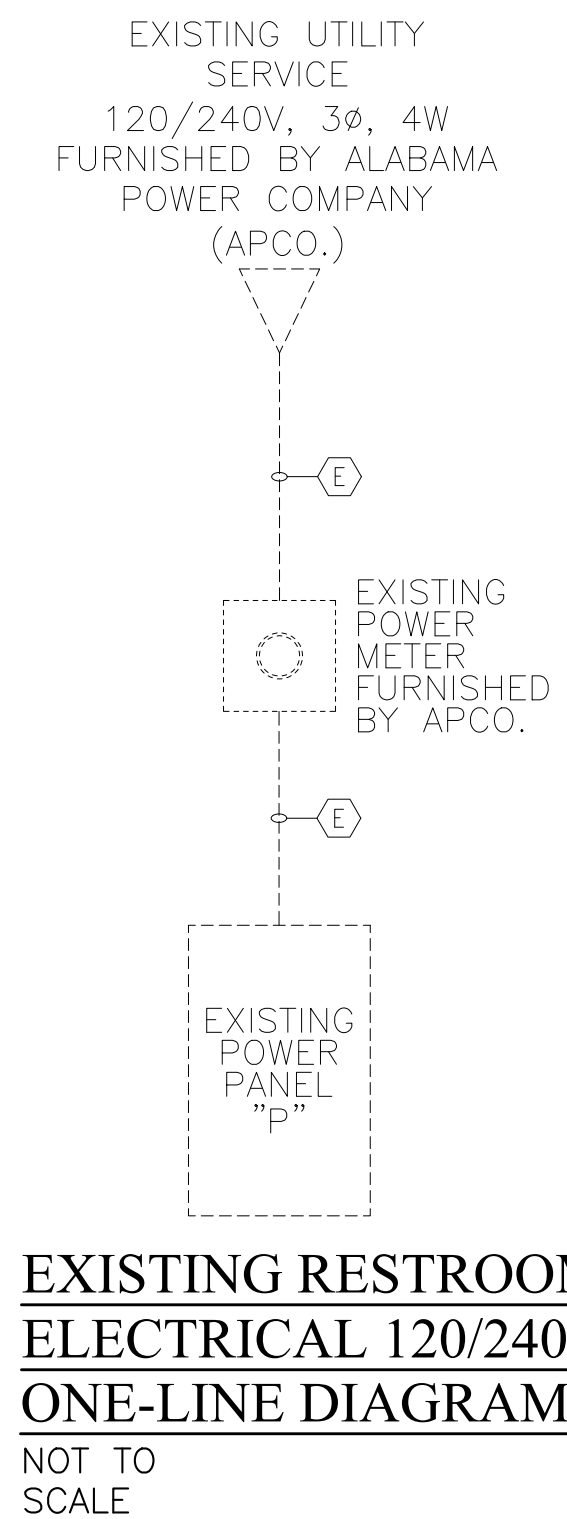
EXISTING RESTROOM PROPOSED WORK ROOF PLAN
SCALE: 1/4" = 1'-0"

KEY NOTES:

- ① THIS EQUIPMENT SHALL REMAIN IN SERVICE AND IS NOT INCLUDED IN SCOPE OF WORK.
- ② THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO INSTALL A NEW CIRCUIT BREAKER IN THE EXISTING RESTROOM POWER PANEL "P" TO PROVIDE POWER FOR THE ELECTRIC WATER HEATER.
- ③ ELECTROMAGNETIC DOOR LOCK MAGNET.
- ④ ELECTROMAGNETIC DOOR STRIKE.
- ⑤ ELECTROMAGNETIC DOOR RELEASE PUSH BUTTON.
- ⑥ INFRARED/MOTION SENSOR ACUITY CONTROLS MODEL NO. CM PDT 9 LT
- ⑦ THE EXISTING CONDUIT SHALL BE RE-USED.
- ⑧ BUILDING INTERIOR LIGHT CONTROL PANEL ACUITY MODEL NO. NDTK BK OR APPROVED EQUAL
- ⑨ BUILDING ELECTROMAGNETIC DOOR LOCK CONTROL PANEL ACUITY MODEL NO. NDTK BK OR APPROVED EQUAL
- ⑩ ELECTRIC HAND DRYER AMERICAN MODEL NO. 0185 115AC-93 OR APPROVED EQUAL
- ⑪ SENSOR SWITCH RELAY ACUITY CONTROLS MODEL NO. PP20 LT OR APPROVED EQUAL.

LOAD DESCRIPTION	WIRE SIZE	KVA LOAD		CKT NO.	BKR. TRIP	L1	L2	L3	BKR. TRIP	CKT NO.	KVA LOAD		LOAD DESCRIPTION	WIRE SIZE	
		ØA	ØB								ØA	ØB			
NEW RESTRM LTS	12	0.23		1	20				20	2	1.80		EXISTING LOAD	EX	
NEW EL. MAG. DR LCKS	12		0.02	3	20				20	4		1.80	EXISTING LOAD	EX	
NEW PATIO LTS	12	0.20		5	20				20	6	0.90		EX. TABLE NO. 3	EX	
EXISTING LOAD	EX		0.90	7	20				20	8		0.90	EX. TABLE NO. 2	EX	
EXISTING LOAD	EX	0.90		9	20				20	10	0.90		EX. TABLE NO. 1	EX	
NEW PATIO LTS	12		0.20	11	20				20	12		0.90	EX. TABLE NO. 5	EX	
EXISTING LOAD	EX	1.73		13	20				20	14	1.80		EXISTING LOAD	EX	
EXISTING LOAD	EX		1.73	15	2P				20	16		1.80	EXISTING LOAD	EX	
WATER FOUNTAIN	12	0.50		17	20				30	18	2.50		NEW WH-1	10	
WOMEN'S RESTRM EHD	10		1.86	19	30				30	20		1.86	MEN'S RESTRM EHD	10	
SUBTOTAL VA:		3.56	4.70									7.90	7.26	SUBTOTAL VA	
VOLTAGE SOURCE:						TOTAL KVA ØA:						11.46			
VOLTAGE: 120/240				MAIN: 200		TOTAL KVA ØB:						11.96			
TOTAL CKTS: 20		AMPS: 200		PHASE: 1											
TRIM: SURFACE						TOTAL CONN. KVA:						23.42			
INTERRUPT RATING: 10,000 A.I.C. SYMMETRICAL						EST. DEMAND:						97.58			

CABLE SCHEDULE	
SYMBOL	DESCRIPTION
ⓔ	EXISTING



EXISTING RESTROOM ELECTRICAL 120/240V ONE-LINE DIAGRAM
NOT TO SCALE



THE ARCHITECTS GROUP / INC
710 DOWNTOWNER BOULEVARD
MOBILE, ALABAMA 36609
251_343_1811 togarchitects.net



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LANGAN PARK - AMPHITHEATER PAVILION & RESTROOMS
MOBILE, ALABAMA

REVISIONS

NO.	DATE	REMARKS
	9-28-22	IFB



SHEET TITLE

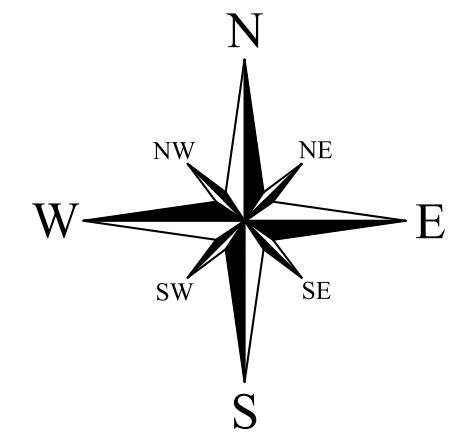
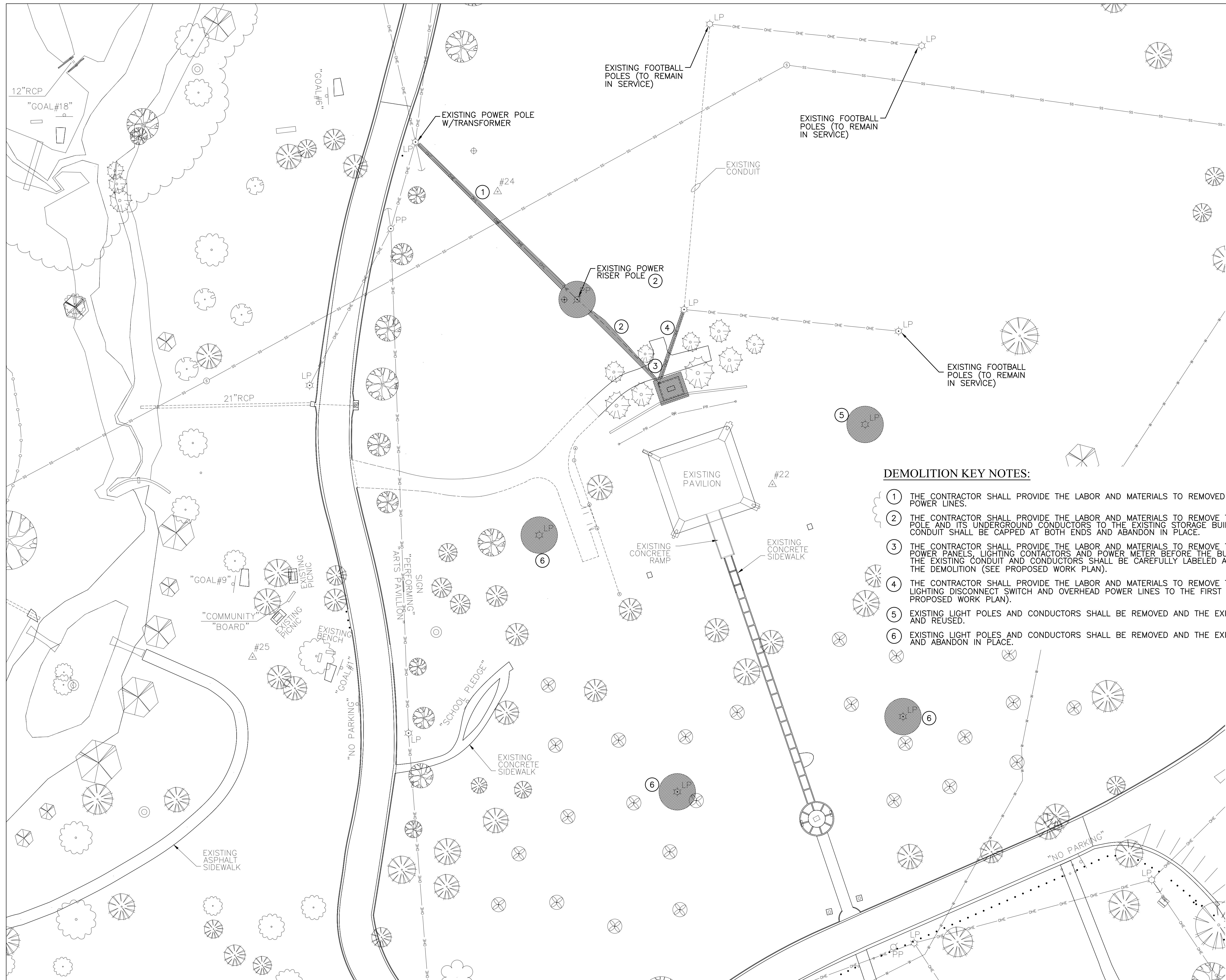
PROPOSED WORK FLR/ROOF/REFLEC. CEILING PLANS

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

ER102



THE ARCHITECTS
GROUP / INC
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LANGAN PARK - AMPHITHEATER PAVILION & RESTROOMS

ALABAMA

MOBILE,

DEMOLITION KEY NOTES:

- ① THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVED THE EXISTING OVERHEAD POWER LINES.
- ② THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVE THE EXISTING RISER POLE AND ITS UNDERGROUND CONDUCTORS TO THE EXISTING STORAGE BUILDING. THE EXISTING CONDUIT SHALL BE CAPPED AT BOTH ENDS AND ABANDON IN PLACE.
- ③ THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVE THE EXISTING NEMA 1 POWER PANELS, LIGHTING CONTACTORS AND POWER METER BEFORE THE BUILDING IS DEMOLISHED. THE EXISTING CONDUIT AND CONDUCTORS SHALL BE CAREFULLY LABELED AND PROTECTED DURING THE DEMOLITION (SEE PROPOSED WORK PLAN).
- ④ THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVE THE EXISTING FOOTBALL LIGHTING DISCONNECT SWITCH AND OVERHEAD POWER LINES TO THE FIRST LIGHT POLE (SEE PROPOSED WORK PLAN).
- ⑤ EXISTING LIGHT POLES AND CONDUCTORS SHALL BE REMOVED AND THE EXISTING CONDUIT CLEANED AND REUSED.
- ⑥ EXISTING LIGHT POLES AND CONDUCTORS SHALL BE REMOVED AND THE EXISTING CONDUIT CAPPED AND ABANDON IN PLACE.

▨ SHALL BE DEMOLISHED

REVISIONS

NO.	DATE	REMARKS
9-28-22		IFB



SHEET TITLE

DEMOLITION
SITE PLAN

JOB NO. 2113

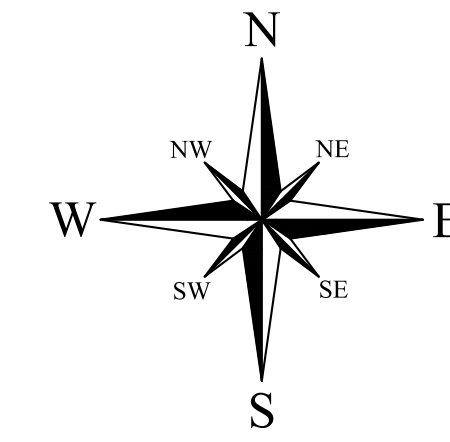
DATE, SEPT. 28, 2022

SHEET

ES100

SITE PLAN
SCALE: 1" = 30'-0"

■ SHALL BE DEMOLISHED



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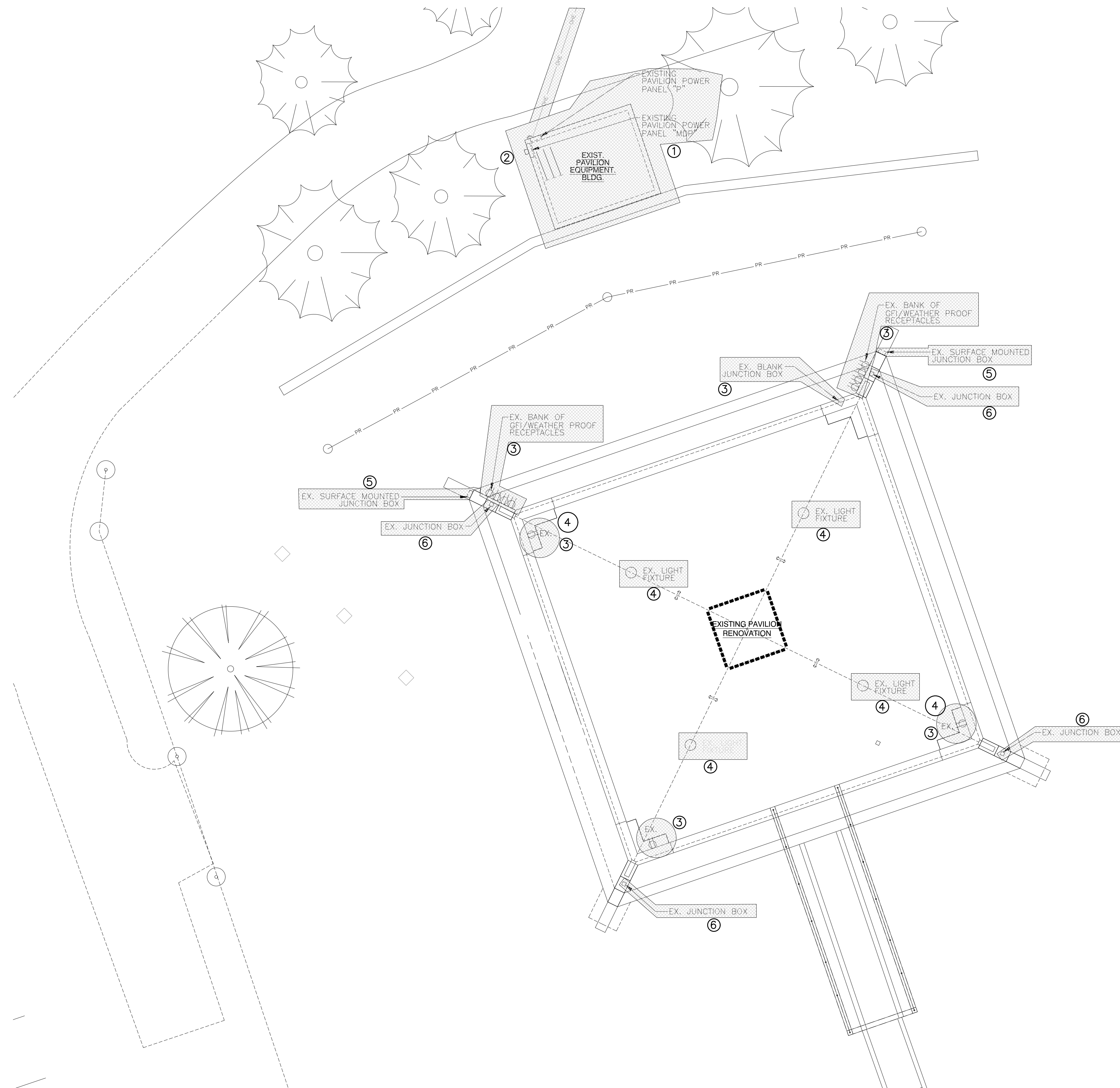
**LANGAN PARK -
AMPHITHEATER
PAVILION & RESTROOMS**

ALABAMA

MOBILE,

DEMOLITION KEY NOTES:

- ① THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVE THE EXISTING NEMA 1 POWER PANELS, LIGHTING CONTACTORS AND POWER METER BEFORE THE BUILDING IS DEMOLISHED. THE EXISTING CONDUIT AND CONDUCTORS SHALL BE CAREFULLY LABELED AND PROTECTED DURING THE DEMOLITION (SEE PROPOSED WORK PLAN).
- ② THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO REMOVE THE EXISTING FOOTBALL LIGHTING DISCONNECT SWITCH AND OVERHEAD POWER LINES TO THE FIRST LIGHT POLE (SEE PROPOSED WORK PLAN).
- ③ EXISTING RECEPTACLES AND CONDUCTORS SHALL BE REMOVED AND THE EXISTING CONDUIT CLEANED AND RE-USED.
- ④ EXISTING LIGHT FIXTURES AND CONDUCTORS SHALL BE REMOVED AND THE EXISTING CONDUIT SHALL BE CLEANED AND RE-USED.
- ⑤ THE EXISTING JUNCTION BOXES AND SURFACE MOUNT CONDUIT SHALL BE REMOVED AND REPLACED WITH A NEW JUNCTION BOXES AND CONDUIT.
- ⑥ THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO RE-SEAL THE EXISTING FLUSH MOUNTED JUNCTION BOXES AND REPLACE THE BLIND COVER PLATE.



ENLARGED SITE PLAN
SCALE: 1/8" = 1'-0"

REVISIONS

NO.	DATE	REMARKS
1	9-28-22	IFB



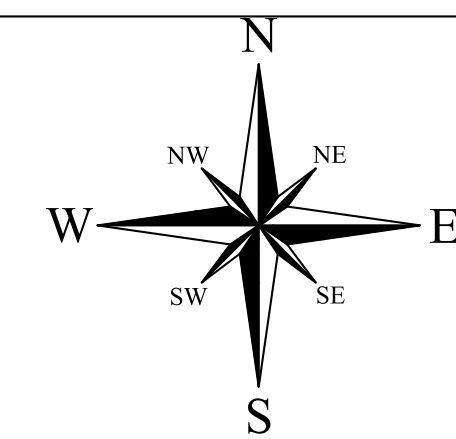
SHEET TITLE
PAVILION
DEMOLITION PLAN

JOB NO. 2113

DATE, SEPT. 28, 2022

SHEET

ES102

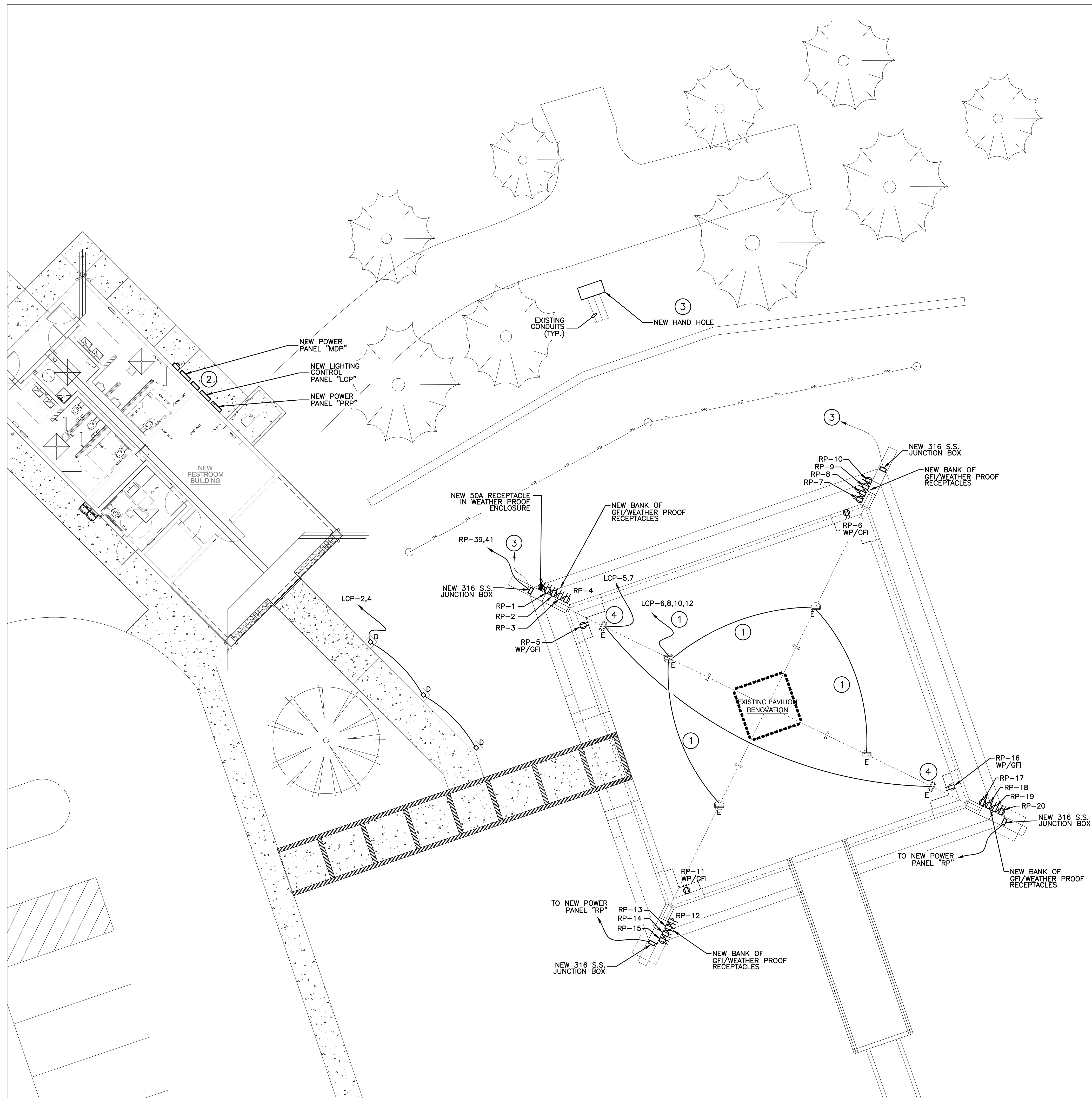


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**LANGAN PARK -
 AMPHITHEATER
 PAVILION & RESTROOMS**

ALABAMA

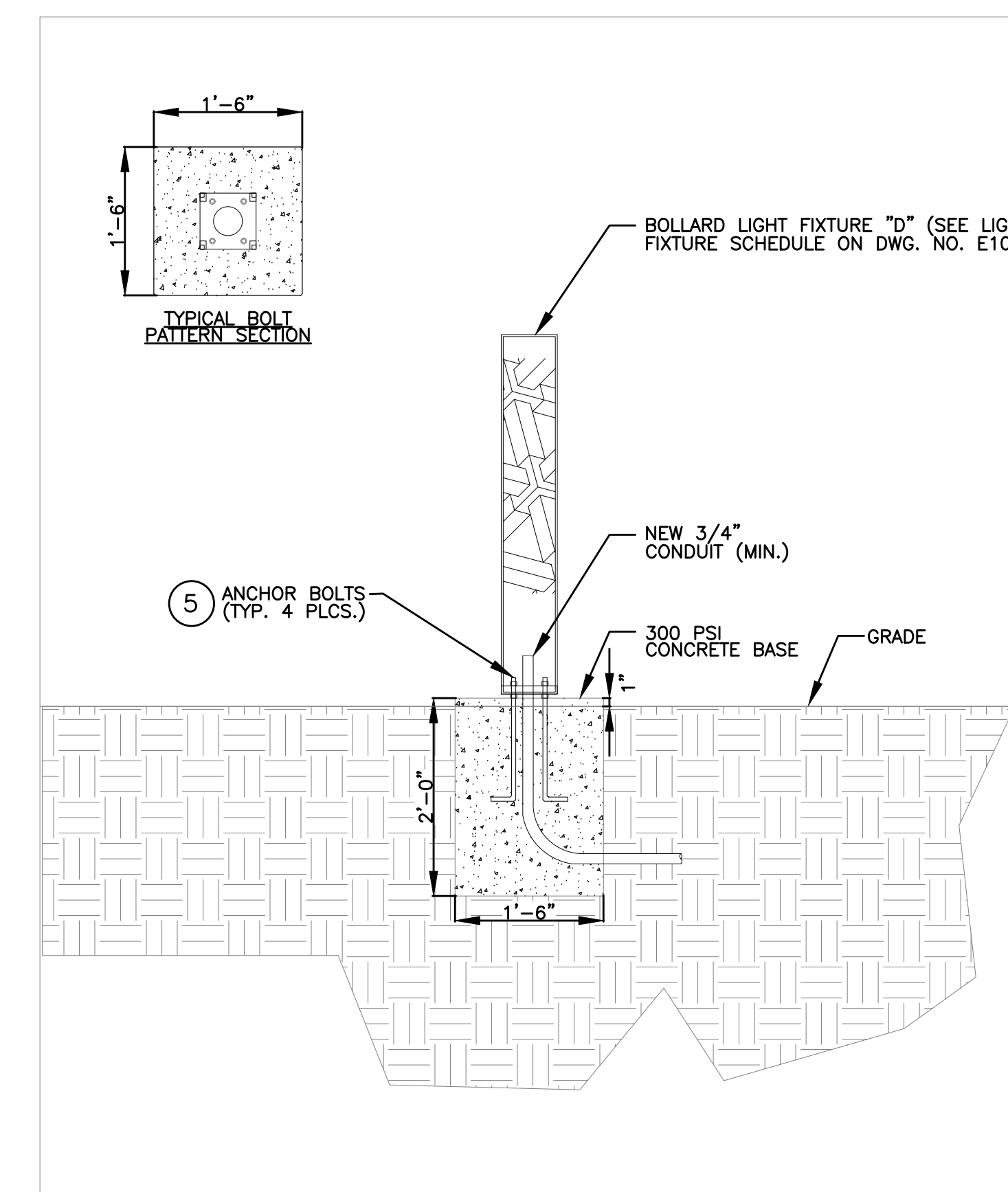
MOBILE,



ENLARGED SITE PLAN
 SCALE: 1/8" = 1'-0"

PROPOSED WORK KEY NOTES:

- ① CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO INSTALL A NEW LIGHT FIXTURE. THE EXISTING CONDUIT SHALL BE RE-USED TO PULL THE NEW CONDUCTORS TO THE NEW LIGHTING CONTROL PANEL. EACH FIXTURE SHALL HAVE THE DIMMER CONTROL CONDUCTOR INSTALLED AND ROUTED BACK TO THE LIGHTING CONTROL PANEL.
- ② SEE SHEET NO. ES104 FOR DETAILS.
- ③ THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO INSTALL A NEW HAND HOLE IN A LOCATION THAT ALLOWS THE EXISTING UNDERGROUND CONDUITS TO BE REUSED AND NEW CONDUCTORS INSTALLED.
- ④ SECURITY LIGHT FIXTURES SHALL BE MOUNTED APPROXIMATELY 12'-0" ABOVE FINISHED FLOOR.
- ⑤ ANCHOR BOLTS SHALL BE AB ϕ 0.50" X 15" X 3" OR THE MANUFACTURER'S RECOMMENDED ANCHOR BOLTS SIZE



TYPICAL BOLLARD LIGHT FIXTURE DETAIL
 SCALE: 3/4" = 1'-0"

REVISIONS

NO.	DATE	REMARKS
9-28-22		IFB



SHEET TITLE
 PAVILION
 PROPOSED NEW
 WORK PLAN

JOB NO. 2113

DATE, SEPT. 28, 2022

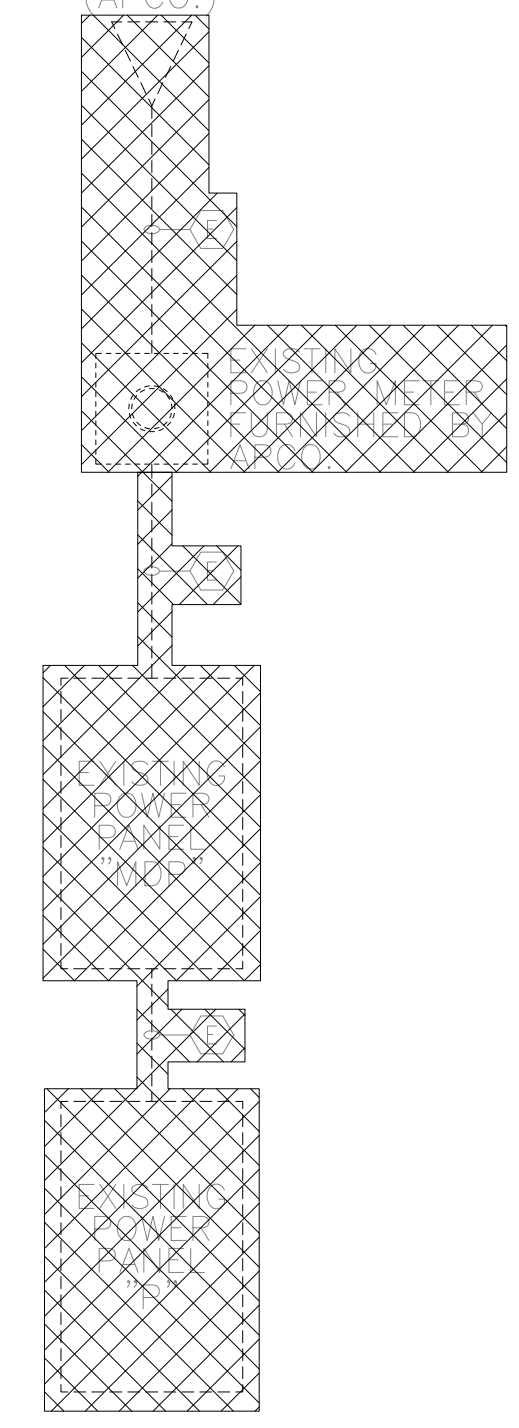
SHEET

ES103

LOAD DESCRIPTION	WIRE SIZE	KVA LOAD		CKT NO.	BKR. TRIP	MAIN	L1	L2	BKR. TRIP	CKT NO.	KVA LOAD		LOAD DESCRIPTION	WIRE SIZE	
		ØA	ØB								ØA	ØB			
EXISTING FOOTBALL LIGHTS	3	6.67		1	100					200	2	9.90	NEW RECEPT. POWER PANEL "RP"	3/0	
			6.67	3	2P					2P	4	9.90		3/0	
NEW LIGHTING CONTROL PANEL "LCP"	3	4.26		5	100					100	6	8.78	NEW PAVILION RESTRM POWER PANEL "P1"	3	
			2.13	7	2P					2P	8	8.78		3	
SPARE				9	100					10					
				11	2P					12					
				13						14					
				15						16					
				17						18					
				19						20					
				21						22					
				23						24					
				25						26					
				27						28					
				29						30					
				31						32					
				33						34					
				35						36					
				37						38					
				39						40					
				41						42					
SUBTOTAL VA:		10.93	8.80									18.68	18.68	SUBTOTAL VA	
VOLTAGE SOURCE: UTILITY SERVICE POLE				TOTAL KVA ØA:				29.61				NEW PANEL "MDP"			
VOLTAGE: 120/240 MAIN: 400				TOTAL KVA ØB:				27.48							
TOTAL CKTS: 42 AMPS: 400 PHASE: 1												CIRCUIT SCHEDULE			
TRIM: NEMA 3R SURFACE				TOTAL CONN. KVA:				33.15							
INTERRUPT RATING: 22,000 A.I.C. SYMMETRICAL				EST. DEMAND:				138.13				LOC'N: BLDG N. EXT WALL			

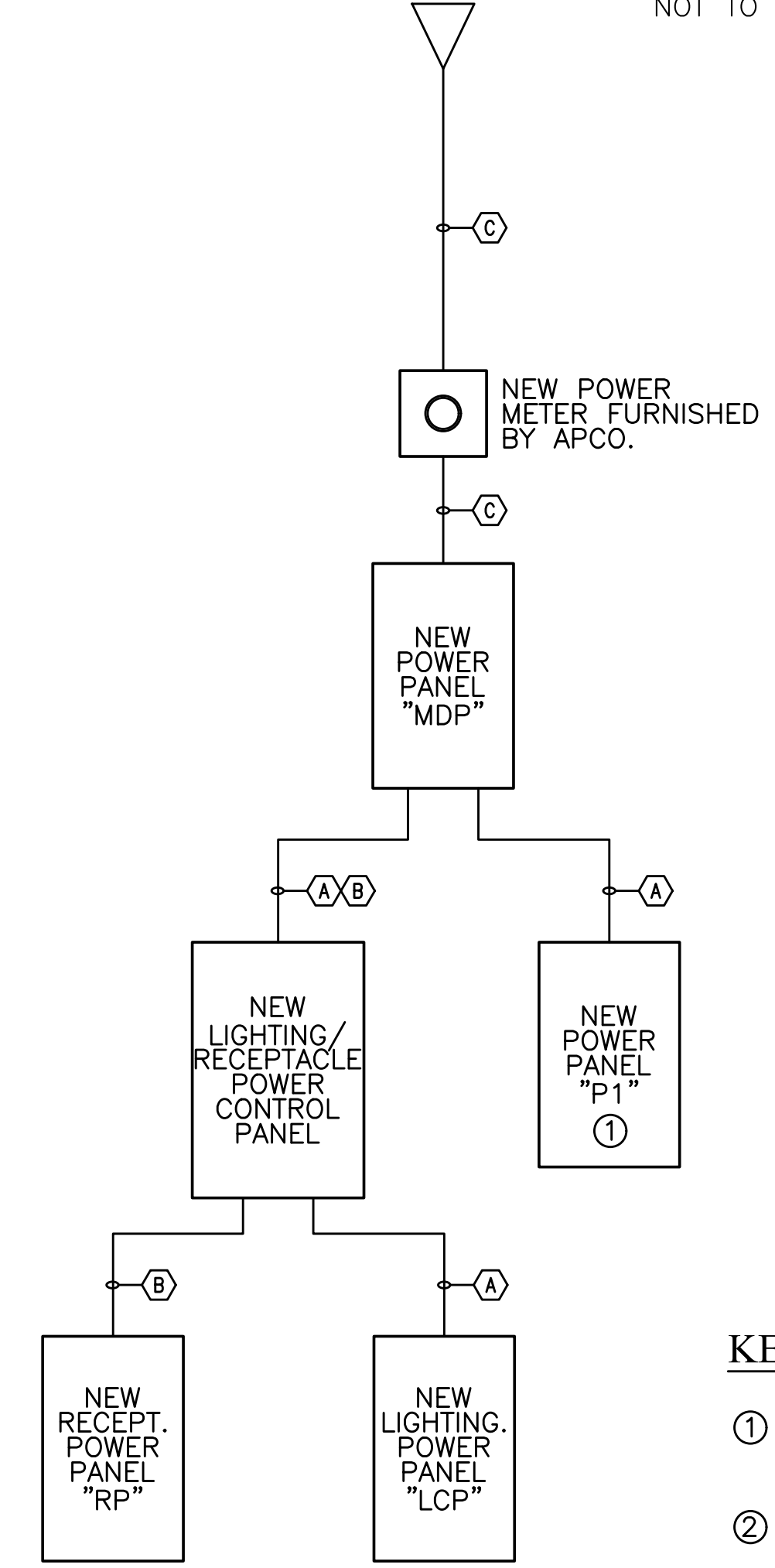
LOAD DESCRIPTION	WIRE SIZE	KVA LOAD		CKT NO.	BKR. TRIP	MAIN	L1	L2	BKR. TRIP	CKT NO.	KVA LOAD		LOAD DESCRIPTION	WIRE SIZE	
		ØA	ØB								ØA	ØB			
RECEPT. N.W. COLUMN	12	0.90		1	20					20	2	0.90	RECEPT. N.W. COLUMN	12	
RECEPT. N.W. COLUMN	12		0.90	3	20					20	4	0.90	RECEPT. N.W. COLUMN	12	
RECEPT. N.W. COLUMN	12	0.90		5	20					20	6	0.90	RECEPT. N.E. COLUMN	12	
RECEPT. N.E. COLUMN	12		0.90	7	20					20	8	0.90	RECEPT. N.E. COLUMN	12	
RECEPT. N.E. COLUMN	12	0.90		9	20					20	10	0.90	RECEPT. N.E. COLUMN	12	
RECEPT. S.W. COLUMN	12		0.90	11	20					20	12	0.90	RECEPT. S.W. COLUMN	12	
RECEPT. S.W. COLUMN	12	0.90		13	20					20	14	0.90	RECEPT. S.W. COLUMN	12	
RECEPT. S.W. COLUMN	12		0.90	15	20					20	16	0.90	RECEPT. S.E. COLUMN	12	
RECEPT. S.E. COLUMN	12	0.90		17	20					20	18	0.90	RECEPT. S.E. COLUMN	12	
RECEPT. S.E. COLUMN	12		0.90	19	20					20	20	0.90	RECEPT. S.E. COLUMN	12	
SPARE	12			21	20					20	22		SPARE		
SPARE	12			23	20					20	24		SPARE		
SPARE	12			25	20					20	26		SPARE		
				27						28					
				29						30					
				31						32					
				33						34					
				35						36					
				37						38					
				40						40					
				41	2P					42					
SUBTOTAL VA:		9.00	9.00									4.50	4.50	SUBTOTAL VA	
VOLTAGE SOURCE: POWER PANEL "MDP"				TOTAL KVA ØA:				13.50				PANEL "RP" CIRCUIT			
VOLTAGE: 120/240 MAIN: LUGS ONLY				TOTAL KVA ØB:				13.50							
TOTAL CKTS: 42 AMPS: 225 PHASE: 1												SCHEDULE			
TRIM: NEMA 3R SURFACE				TOTAL CONN. KVA:				19.80							
INTERRUPT RATING: 22,000 A.I.C. SYMMETRICAL				EST. DEMAND:				82.50				LOC'N: BLDG N.E. EXT. WALL			

EXISTING UTILITY SERVICE
120/240V, 1Ø, 3W
FURNISHED BY ALABAMA POWER COMPANY (APCO.)



EXISTING PAVILION ELECTRICAL 120/240V ONE-LINE DIAGRAM NOT TO SCALE

NEW UTILITY SERVICE
120/240V, 1Ø, 3W
FURNISHED BY ALABAMA POWER COMPANY (APCO.)



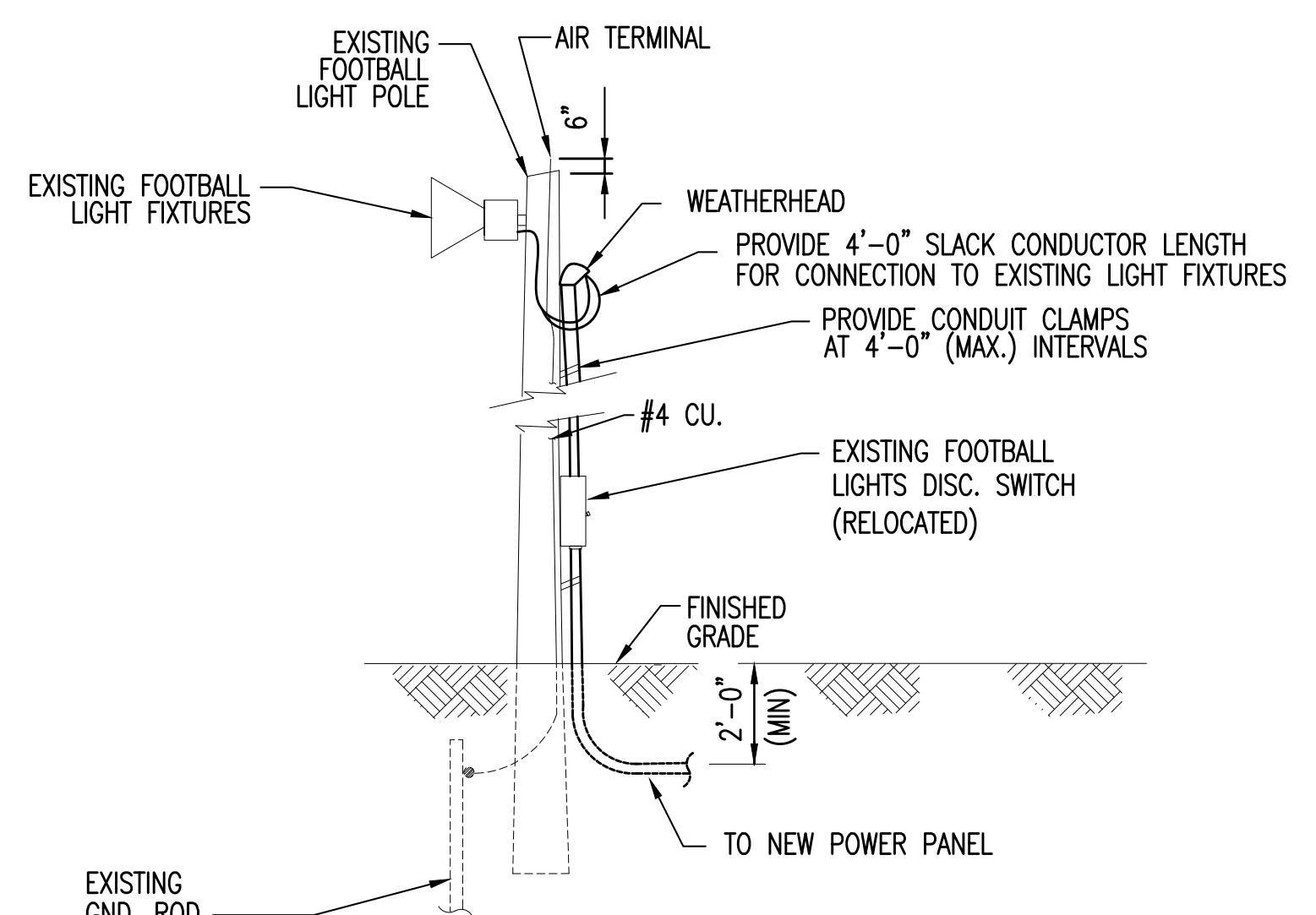
CABLE SCHEDULE	
SYMBOL	DESCRIPTION
(A)	2 #3, 1#6 GND., 1" C
(B)	2 #3/0, 1#4 GND., 1 1/2" C
(C)	2-RUNS: 2 #3/0, 1#4 GND., 1 1/2" C
(E)	EXISTING

☒ SHALL BE DEMOLISHED

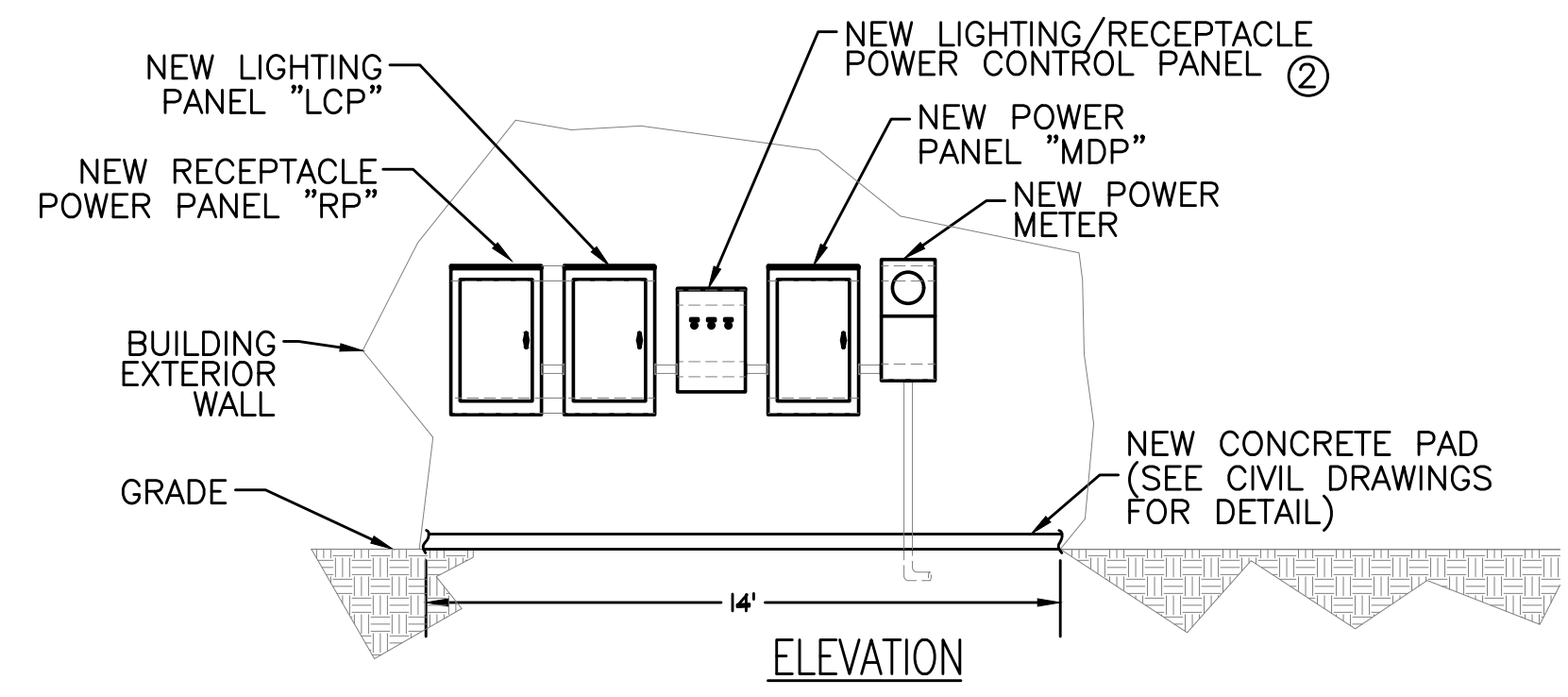
KEY NOTES:

- NEW POWER PANEL IS LOCATED IN THE NEW PAVILION RESTROOM, JANITOR ROOM NO. 105.
- THE CONTRACTOR SHALL PROVIDE THE LABOR AND MATERIALS TO INSTALL HEAVY DUTY OILTIGHT THREE POSITION SELECT SWITCHES WITH NAMEPLATES.

NEW PAVILION ELECTRICAL 120/240V ONE-LINE DIAGRAM NOT TO SCALE

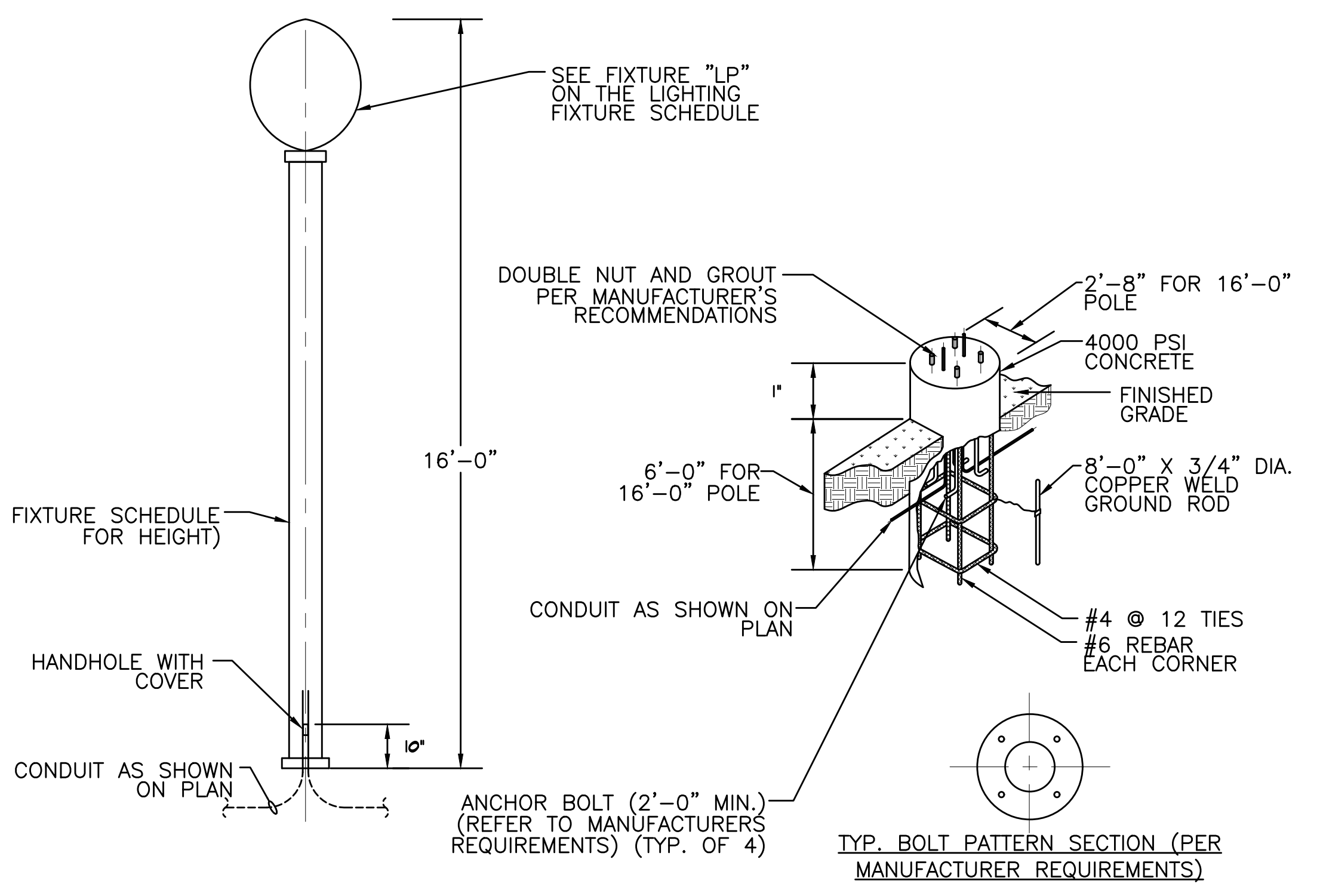


EXISTING FOOTBALL POLE POWER DETAIL N.T.S.



NEW POWER PANELS LAYOUT NOT TO SCALE

LOAD DESCRIPTION	WIRE SIZE	KVA LOAD		CKT NO.	BKR. TRIP	MAIN	L1	L2	BKR. TRIP	CKT NO.	KVA LOAD		LOAD DESCRIPTION	WIRE SIZE	
		ØA	ØB								ØA	ØB			
PARKING LIGHTING	12	1.88		1	20					20	2	0.03	SIDEWALK BOLLARD LTG	12	
PAV. SECUR. LTS N.W.	12		0.07	3	2P					2P	4	0.03		12	
PAV. SECUR. LTS S.E.	12		0.07	7	20					20	6	0.07	PAVILION LIGHTING N.W.	12	
SPARE	12			9	20					20	8	0.07	PAVILION LIGHTING N.E.	12	
SPARE	12			11	20					20	10	0.07	PAVILION LIGHTING S.W.	12	
SPARE	12			13	20					20	12	0.07	PAVILION LIGHTING S.E.	12	
				15						20	14		SPARE		
				17						20					
				19						20					
				21						22					
				23						24					
SUBTOTAL VA:		1.96	1.96									0.17	0.17	SUBTOTAL VA	
VOLTAGE SOURCE: NEW POWER PANEL "MDP"				TOTAL KVA ØA:				2.13				NEW LIGHTING CONTROL PNL "LCP" CIRCUIT SCHEDULE			
VOLTAGE: 120/240 MAIN: LUGS ONLY				TOTAL KVA ØB:				2.13							
TOTAL CKTS: 24 AMPS: 100 PHASE: 1												LOC'N: NEW BLDG N. EXTER.			
TRIM: SURFACE				TOTAL CONN. KVA:				4.26							
INTERRUPT RATING: 10,000 A.I.C. SYMMETRICAL				EST. DEMAND:				17.75							



TYPICAL NEW LIGHT POLE DETAIL NOT TO SCALE



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ALABAMA MOBILE.

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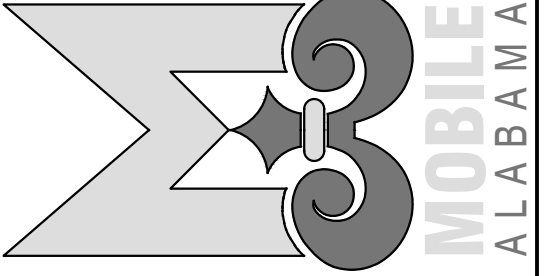
SHEET TITLE
SCHEDULES AND DETAILS

JOB NO. 2113

DATE: SEPT. 28, 2022

SHEET

ES104



REVISIONS

NO.	DATE	REMARKS
09-28-22		IFB

SHEET TITLE
**SYMBOLS, ABBREV.,
GENERAL NOTES &
REF. SITE PLAN**

KEY PLAN

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

G-002

SYMBOLS

DOOR NUMBER 1024A
DOOR NUMBER 1027A

DETAIL
A1
A001

GENERAL NOTES

ABBREVIATIONS

@	at	FIN FLR	Finished Floor	PVC	Polyvinyl Chloride
∠	angle	FLUOR	Fluorescent	QT	Quarry Tile
∅	diameter	FOM	Face of Masonry	R	Riser, Radius
AB	Anchor Bolt	FR	Fire Proof	RA	Return Air
AC	Air Conditioning	FR	Fire Resistant, Fire Rating	RB	Rubber Base
ACST	Acoustic	FT	Foot/Feet	RAF	Resilient Athletic Flooring
ACT	Acoustic Ceiling Tile	FUR	Furring	RCP	Reflected Ceiling Plan
ADA	Americans with Disabilities Act	GA	Gage, Gauge	RD	Roof Drain
AF	Above Finished Floor	GALV	Galvanized	REBAR	Reinforcing Steel Bars
ALT	Alternate	GB	Grab Bar	RECD	Received
ALUM	Aluminum	GC	General Contractor	REF	Reference
APPROX	Approximately	GL	Glass	REINF	Reinforce
BC	Base Cabinet	GYPBD	Gypsum Board (drywall)	REQD	Required
BD	Board	HB	Hose Bibb/ Wall Hydrant	REV	Revision(s), Revised
BLDG	Building	HC	Hollow Core, Handicap	RET	Return
BS	Both Sides	HCP	Handicapped	RH	Right Hand
CAB	Cabinet	HD	Head/Header	RM	Room
CAC	Ceiling Attenuation Class	HDBD	Hard Board	RO	Rough Opening
CEM	Cement	HDW	Hardware	SALV	Salvage
CF	Cubic Foot	HDWD	Hardwood	SB	Splash Block
CG	Corner Guard	HM	Hollow Metal	SC	Solid Core
CJ	Control Joint	HNDRL	Hand Rail	SCB	Smooth Color Block
CLG	Ceiling	HORIZ	Horizontal	SCHED	Schedule
CLO	Closet	HT	Height	SECT	Section
CM	Centimeter	HVAC	Heating/Ventilating/Air Conditioning	SFB	Split Face Block
CMU	Concrete Masonry Unit	HWC	Hot Water Heater	SHT	Sheet
COL	Column	ID	Inside Diameter	SIM	Similar
CONC	Concrete	INCL	Include(d)(ing)	SND	Sanitary Napkin Dispenser
CONSTR	Construction	INFO	Information	SPEC	Specification(s)
CONT	Continuous	INSUL	Insulation	SST	Stainless Steel
CORR	Corridor	INT	Interior	STC	Sound Transmission Class
CPT	Carpet	J-BOX	Junction Box	STD	Standard
CRN	Crown	JANCLO	Janitor Closet	STRUCT	Structural
CSK	Counter Sunk	JT	Joint	SUSP	Suspended
CT	Ceramic Tile	KD	Knock Down	SYS	System
CTB	Ceramic Tile Base	KIT	Kitchen	T	Tread
CU	Cubic	KO	Knock Out	TB	Towel Bar
CUYD	Cubic Yard	KW	Kilowatt	TC	Terra Cotta
CW	Cold Water	LAB	Laboratory	TD	Towel Dispenser
D	Penny (nail)	LAM	Laminate(d)	TEL	Telephone
DBL	Double	LAV	Lavatory	TER	Terrazzo
DEL	Delete	LBL	Label	THK	Thickness
DEMO	Demolition	LBS	Pounds	THRU	Through
DF	Drinking Fountain	LF	Linear Foot	TOM	Top of Masonry
DIA	Diameter	LH	Left Hand	TOS	Top of Slab, Top of Steel
DIAG	Diagonal	M	Meter(s)	TPD	Toilet Paper Dispenser
DIV	Division	MAX	Maximum	TPH	Toilet Paper Holder
DN	Down	MB	Modified Bitumen	TV	Television
DS	Downspout	MDF	Medium Density Fiberboard	TYP	Typical
DTL	Detail	MECH	Mechanical	U.N.O.	Unless Noted Otherwise
DW	Dishwasher	MED	Medium	VB	Vinyl Base
DWG	Drawing	MEZZ	Mezzanine	VCT	Vinyl Composition Tile
DWR	Drawer	MFR	Manufacturer	VCJ	Veneer Control Joint
EA	Each	MIN	Minimum	VERT	Vertical
ECO	Exterior Clean Out	MISC	Miscellaneous	VIF	Verify in Field
EJ	Expansion Joint	MM	Millimeter	VWC	Vinyl Wall Covering
EL	Elevation	MO	Masonry Opening	W	Watt, Width, Wide
ELEC	Electrical	MTD	Mounted	W/	With
ELEV	Elevator	MTL	Metal	W/O	Without
EMER	Emergency	N	North	WC	Water Closet, Wall Covering
ENGR	Engineer	NIC	Not in Contract	WD	Wood
EQ	Equal	NO	Number	WH	Water Heater
EQUIP	Equipment	NOM	Nominal	WP	Water Proofing
EWC	Electric Water Cooler	NTS	Not To Scale	YD	Yard
EWH	Electric Water Heater	OC	On Center		
EXH	Exhaust	OD	Outside Diameter		
EXIST	Existing	OF/OI	Owner Furnished/ Contractor Installed		
EXP	Expansion	OF/OI	Owner Furnished/ Owner Installed		
EXT	Exterior, Extinguisher	OPNG	Opening		
FA	Fire Alarm	PEPP	Perpendicular		
FCO	Floor Clean Out	PLAM	Plastic Laminate		
FD	Floor Drain	PLAS	Plaster/ Plastic		
FE	Fire Extinguisher	PLYWD	Plywood		
FEC	Fire Extinguisher Cabinet	PT	Paint / Pressure Treated		
FHC	Fire Hose Cabinet	PTD	Paper Towel Dispenser		
FIN	Finish	PTN.	Partition		

GENERAL NOTES

GENERAL CONDITIONS

- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS INDICATED WITHIN THESE DOCUMENTS AND SHALL NOTIFY THE ARCHITECT OF ANY VARIATION PRIOR TO THE PURCHASING OF ANY MATERIALS, STARTING FABRICATION OR BEGINNING CONSTRUCTION.
- ALL DEMOLITION AND WORK RELATED DEBRIS SHALL BE REMOVED FROM THE SITE REGULARLY AND PROMPTLY.
- THE CONTRACTOR, AT THE COMPLETION OF THIS PROJECT, SHALL LEAVE ALL AREAS AND FINISHED SPACES IN A CLEAN AND ACCEPTABLE CONDITION.
- ALL MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS ARE TO BE FULLY COORDINATED WITH THE ARCHITECTURAL DOCUMENTS BY THE GENERAL CONTRACTOR.

THE DRAWINGS

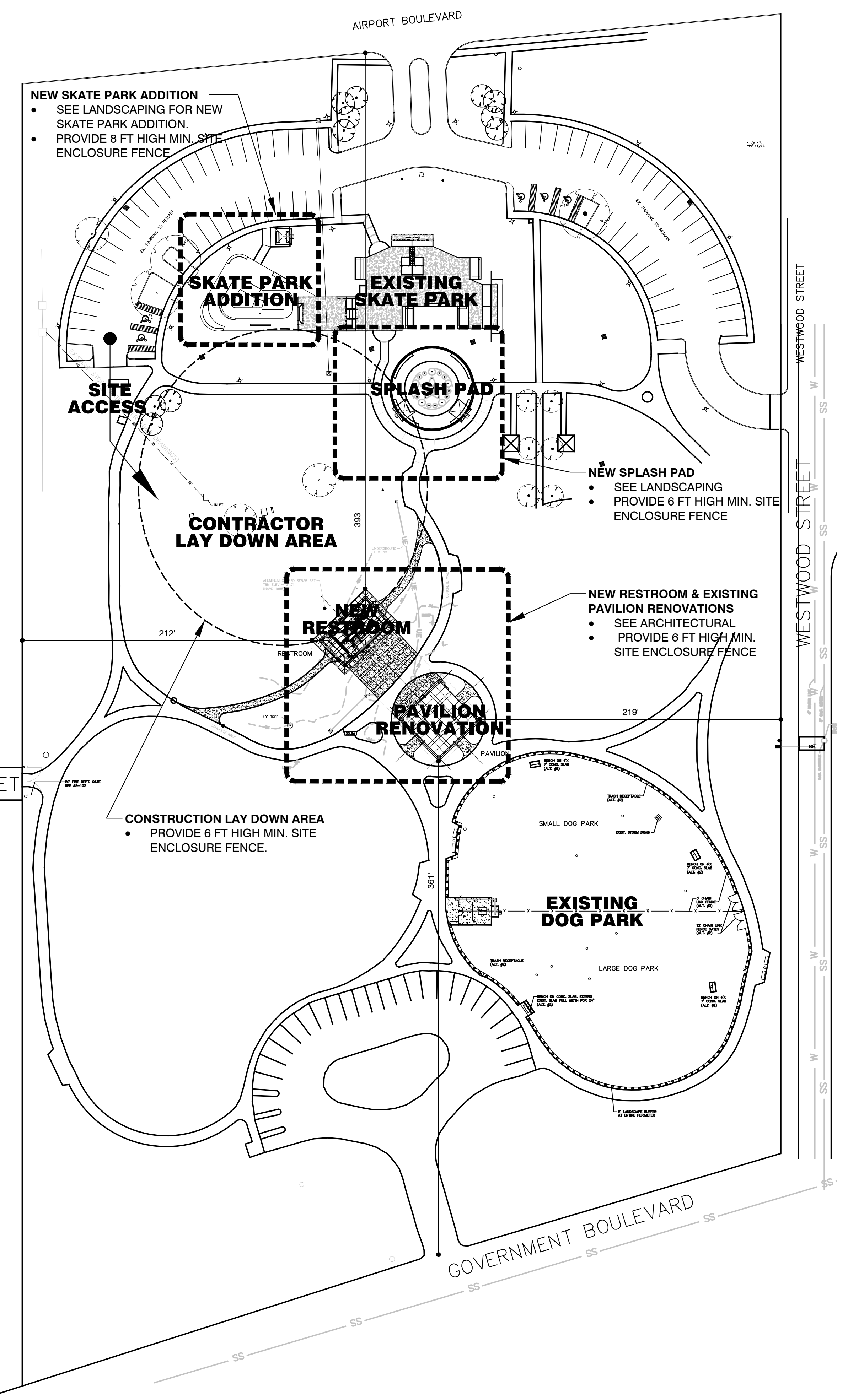
- DO NOT SCALE DRAWINGS, DIMENSIONS OR LINEAR MEASUREMENTS TAKE PRECEDENCE OVER NOTED DIMENSIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING FLOOR FINISH MATERIALS TO INSURE THAT TRANSITIONS BETWEEN FLOORING MATERIALS WILL BE SMOOTH AND IN ACCORDANCE WITH THE DRAWINGS.
- UNLESS OTHERWISE NOTED, CHANGES IN FLOORING MATERIAL SHALL OCCUR AT THE CENTER LINE OF THE DOOR.
- CENTER ALL CEILING GRIDS EACH WAY IN ALL CORRIDORS AND ROOMS OR AS SHOWN ON REFLECTED CEILING PLANS.
- REFER TO ELECTRICAL DRAWINGS FOR ALL LIGHTING FIXTURE AND AIR GRILL LOCATIONS AND SPECIFICATIONS.

WORKMANSHIP

- ALL WORK SHALL BE PERFORMED AT THE HIGHEST LEVEL OF STATE OF THE INDUSTRY PRACTICES.
- WHERE NEW CONSTRUCTION IS TO ALIGN WITH EXISTING CONDITIONS, THE GENERAL CONTRACTOR SHALL VERIFY DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
- WALL, FLOOR, CEILING GRILLS AND REGISTERS SHALL BE FINISHED TO MATCH COLOR SPECIFIED FOR THE SURFACE IN WHICH THE ITEM IS INSTALLED. PAINT USED ON METAL WORK SHALL BE SEMI-GLOSS ENAMEL UNLESS OTHERWISE SPECIFIED.
- CONTRACTOR SHALL COORDINATE, SCHEDULE AND PERFORM ALL CONSTRUCTION ACTIVITY, PROVIDE ALL SUPPORT AND MISCELLANEOUS MATERIALS REQUIRED TO ACHIEVE THE INTENDED DESIGN OBJECTIVES.

RENOVATION

- DUE TO THE COMPLEX AND INTERRELATED NATURE OF THE DEMOLITION OF EXISTING ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, ETC. AND NEW CONSTRUCTION FOR THE SAME, SOME NEW WORK, INSTRUCTION OCCURS ON DEMOLITION PLANS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING INSTALLATION & FURNISHING OF ALL ITEMS SHOWN IN THIS SET, REGARDLESS OF THE LOCATION WHERE IT APPEARS.
- FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS BEFORE DEMOLITION OF BUILDING SYSTEMS. COORDINATE DEMOLITION WITH NEW WORK AND NOTIFY ARCHITECT OF CONFLICTS. NO DEMOLITION WORK SHALL PROCEED UNTIL CONFLICTS ARE RESOLVED TO THE SATISFACTION OF ARCHITECT.
- ALL EXISTING FLOOR ELEVATIONS GIVEN ARE APPROXIMATE. EXISTING FLOORS ARE UNEVEN AND DAMAGED IN PLACES. FIELD VERIFY ALL FLOOR TO STRUCTURE HEIGHTS.
- IF A WALL IS SCHEDULED TO BE DEMOLISHED, THE FULL HEIGHT OF THAT WALL FROM STRUCTURAL SLAB TO STRUCTURAL SLAB IS TO BE REMOVED. THE PERIMETER OF THE WALL, WHERE DEMOD WALLS MEET THE FLOOR, WALL, AND STRUCTURE, SHALL BE CLEANED AND PREPARED FOR NEW FINISHES TO MATCH EXISTING, SO THAT NO TRACE OF THE FORMER WALL IS VISIBLE. THE SAME APPLIES TO DROPPED CEILING SOFFITS AND FLUR-DOWNS.
- FINISHES AFFECTED BY THE WORK SHALL BE REPAIRED/REPLACED TO MATCH EXISTING FINISHES.
- ALL SURFACES REVEALED AFTER DEMOLITION AND SCHEDULED TO BE NEW FINISHED SURFACES ARE TO BE PATCHED AND REPAIRED TO MATCH SURROUNDING SURFACES READY TO RECEIVE PAINT.
- PATCH ALL SURFACES WHERE ITEMS ARE REMOVED TO MATCH ADJACENT SURFACES.
- IF PLUMBING FIXTURE IS TO BE REMOVED, REMOVE ABOVE SLAB LINES BACK TO NEXT UNREMOVED FIXTURE. IN OTHER WORDS, IF THE ABOVE SLAB LINES ARE NOT REQUIRED SOMEWHERE ELSE, REMOVE THEM TO THE POINT THEY ARE ACTIVE. DO NOT JUST CAP AND ABANDON.
- CONTRACTOR IS TO REMOVE ALL ACCESSORIES ASSOCIATED WITH A REMOVED ITEM, AND/OR THOSE WHICH INTERFERE WITH NEW CONSTRUCTION, WHETHER SPECIFICALLY NOTED OR NOT. ITEMS INCLUDE, BUT ARE NOT LIMITED TO, HIDDEN CONDUIT OR PIPING, SWITCHES, OUTLETS, ETC. WIRING FROM ELECTRICAL DEVICES IS TO BE REMOVED BACK TO THE PANEL AND THE PANEL BOARD MARKED.
- IF THERE ARE ABANDONED JUNCTION BOXES IN THE EXISTING CMU WALLS, THE GC IS TO REMOVE THE WIRING AND COVER WITH COVER PLATE.
- SEE MECHANICAL, ELECTRICAL, PLUMBING, STRUCTURAL, AND FIRE PROTECTION SHEETS FOR ADDITIONAL DEMOLITION NOTES.



1 REFERENCE SITE PLAN
1"=50'



City of Mobile - Permitting
Building Code Summary
For All Commercial Projects

Information to be copied and placed on drawings

General Information

City of Mobile, Public Safety Memorial Park - New Restroom, Skateboard & Splash Pad Improvements

Name of Project

2301 Airport Boulevard, Mobile, Alabama 36608

Address

Public Park

Proposed Use

Architects Letter of Supervision Provided? Yes No

Codes used in design (Check all that apply)

- 2012 International Building Code 2014 National Electrical Code
- 2012 International Existing Building Code 2012 International Mechanical Code
- 2012 International Fire Code 2012 International Plumbing Code
- 2015 International Energy Conservation Code

Construction Description

Addition Alteration New Construction Renovation of Existing Building Tenant Build-Out

Scope of Work - Building:

Construction of a new public restroom building & new skateboard feature. Renovation of an existing picnic pavilion. Renovation of an existing decorative fountain into a splash pad. Placement of miscellaneous paving and installation of landscape furnishings.

Scope of Work - Electrical:

Installation of building power & lighting. Installation of site lighting. Provide power for splash pad equipment.

Scope of Work - Mechanical:

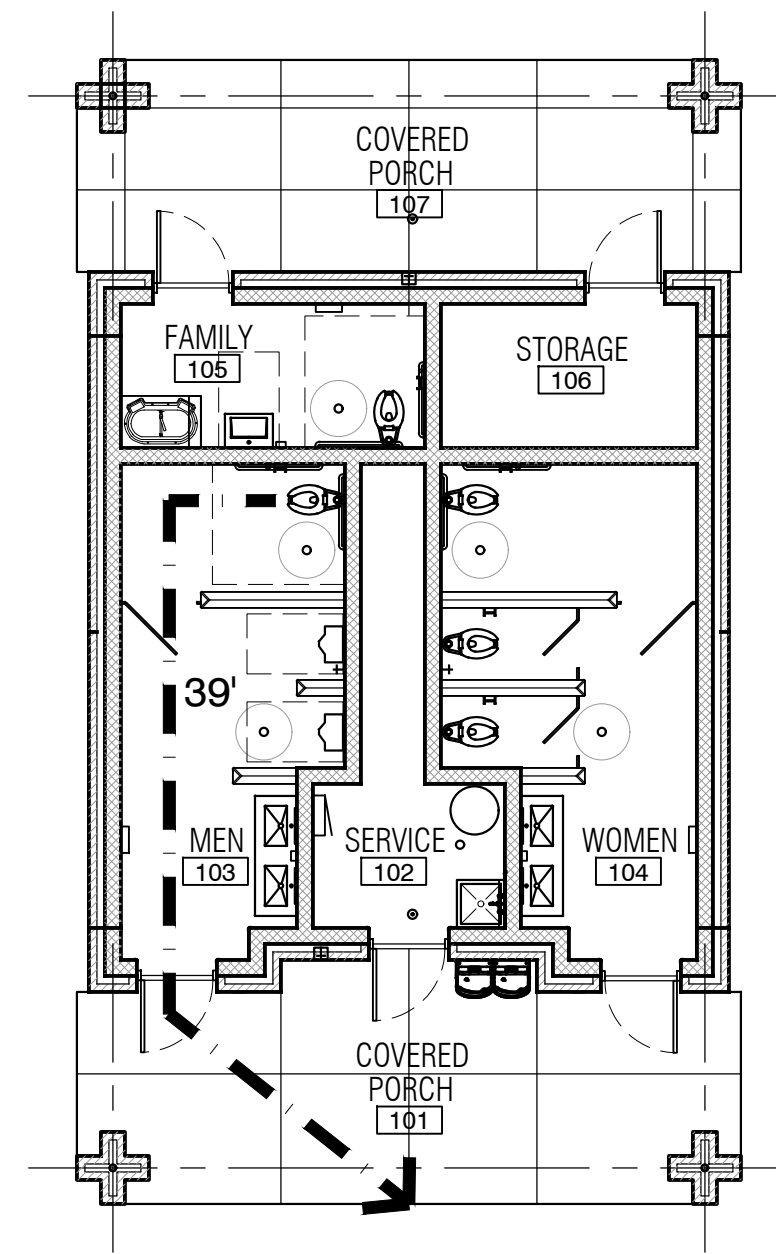
Installation of restroom building ventilation.

Scope of Work - Plumbing

Installation of water and sewer to serve the new restroom building & splash pad.

Build Mobile, PO Box 1827, Mobile, Alabama 36633
For more information: www.BuildMobile.org | permitting@cityofmobile.org | 251.208.7198
Visit our help window: Mobile Government Plaza, 205 Government Street, Third Floor South Tower

Revised April 2020



1 RESTROOM LIFE SAFETY PLAN

1/8" = 1'-0" 0 2 4 6 16'

Existing Buildings Existing Pavilion

The building will remain in operation during construction Yes No
If yes, add provisions for rigid safety barriers and dust barriers to protect the public during construction in accordance with the applicable provisions of IBC Chapter 34. Yellow safety tape is not acceptable.

Provide Level of Alterations per IBC 1 2 3 Existing Pavilion

Renovations (Change of Occupancy)

Is the work in this building or space changing the occupancy type? Yes No Existing Pavilion

Historic Buildings

Is this building a Historic Building? Yes No

Construction Type IA IB IIA IIB IIIA IIIB IV VA VB New Restroom

Occupancy Classification

- Assembly 303 Existing Pavilion
- Business 304 New Restroom
- Education 305
- Factory Industrial 306
- High-Hazard 307
- Institutional 308
- Mercantile 309
- Residential 310
- Storage 311
- Utility & Miscellaneous 312

Building Element

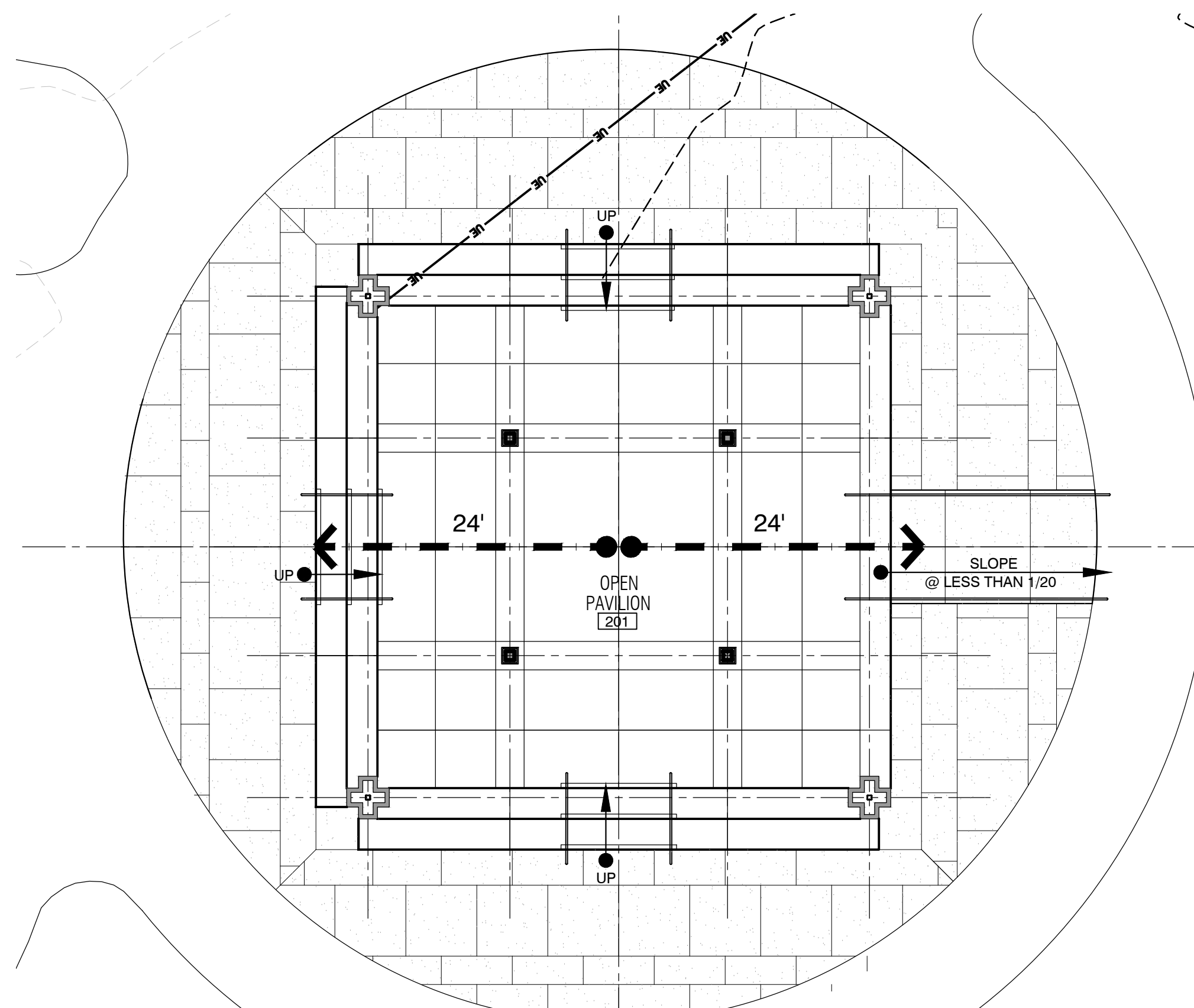
Building Element	Required Rating	UL No. *
Structural frame; columns, girders, trusses	0	
Bearing walls exterior	0	
Bearing walls interior	0	
Non-bearing walls & partitions exterior	0	
Non-bearing walls & partitions interior	0	
Floor construction; supporting beams and joists	0	
Roof construction; supporting beams and joists	0	
Sprinklers system	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Partial
Sprinkler type	<input type="checkbox"/> 13 <input type="checkbox"/> 13R <input type="checkbox"/> 13D	
Standpipes	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Wet <input type="checkbox"/> Dry Class
Fire / Smoke Alarm	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Fire Rated Elements

Fire Rated Elements	Required Rating	Hourly Rating	UL No. *
Ceiling-Floors	0		
Beams	0		
Columns	0		
Ceiling-Roofs	0		
Shafts-Exit	n/a		
Shafts-Other	n/a		
Corridor separation	n/a		
Occupancy separation	n/a		

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2 PAVILION LIFE SAFETY PLAN

1/8" = 1'-0" 0 2 4 6 16'

Party/Fire wall separation	n/a		
Smoke barrier separation	n/a		
Tenant separations	n/a		

* Or other approved agencies

- All fire rated walls shall be identified on plans by hatching, shading, etc.; show legend.
- Identify code section when using any special exceptions, etc.
- Reproduce full UL. Or other approved agencies details or reproductions of rated assemblies/penetrations on the drawings.

Draft Stopping (IBC 7)

Draft stopping in floor (IBC 718.3) Yes No N/A

Draft stopping in attic (IBC 718.4) Yes No New Restroom & Existing Pavilion

Accessibility (IBC 11)

Design conforms to IBC Chapter 11 and ICC A117.1-2009? Yes No New Restroom & Existing Pavilion

If no, explain below condition that will not allow building to be accessible

Design Loads (City Ordinance 1609.3) New Restroom No change to existing Pavilion design loads.

Ultimate Design Wind Speed (IBC 1609 or ASCE 7-10)

Risk Cat. I-145MPH Risk Cat. II-159MPH Risk Cat. III & IV-169MPH

Live Loads (IBC 1607)

Roof 20 PSF Attic 10 PSF Floor PSF Mezzanine PSF

Wind-Borne Debris Region (IBC 1609)

This building will use impact resistant glass per (IBC 1609.1.2) Yes No N/A, no glazing is used

This building will use engineered shutters or other approved method Yes No

Special Inspections and Tests (IBC 17)

I have reviewed the requirements of IBC Section 17, specifically 1705; the design incorporates the requirements and is reflected on the drawings and in the specifications. Below are the requirements to be included:

Inspections and Tests as indicated in Specification Section 01 41 10 - Schedule of Special Inspections in the Project Manual.

Inspections and Tests as noted on Sheet S-001, General Notes, Structural Tests & Special Inspections.

The Contractor has been notified of his responsibility under Section 1704. Yes No

Safety Glazing for Hazardous (IBC 2406)

I have identified on drawings where tempered glass is required in hazardous locations (2406.4) Yes No N/A, no glazing is used

Yes No

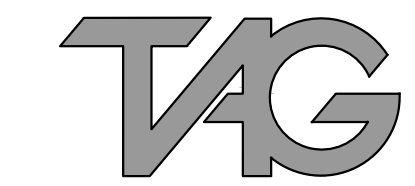
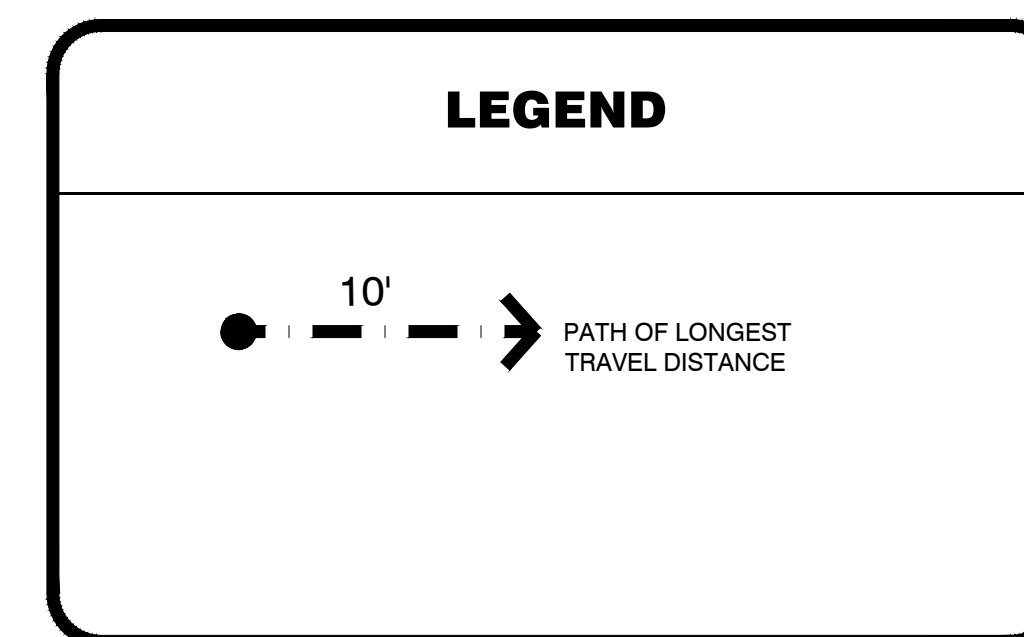
Flood Requirements (IBC 1612)

All projects located in a Special Flood Hazard Area shall comply with the City of Mobile Storm Water Management and Flood Control Ordinance. Yes No

No change to existing Flood Requirements.

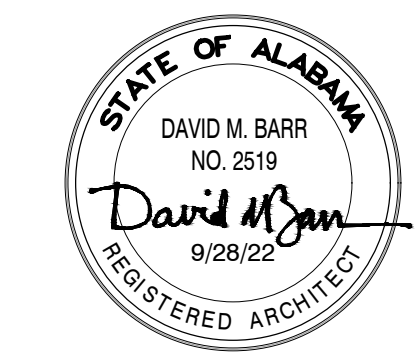
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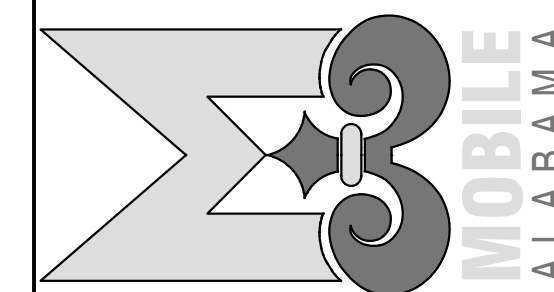


THE ARCHITECTS GROUP/INC

710 DOWNTOWNER BOULEVARD
MOBILE, ALABAMA 36609
251-343-1811 tagarchitects.net



**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
& SPLASHPAD
COM # PR-093-21**
MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE
**CODE SUMMARY,
NEW RESTROOM &
EX. PAVILION
LIFE SAFETY PLANS**

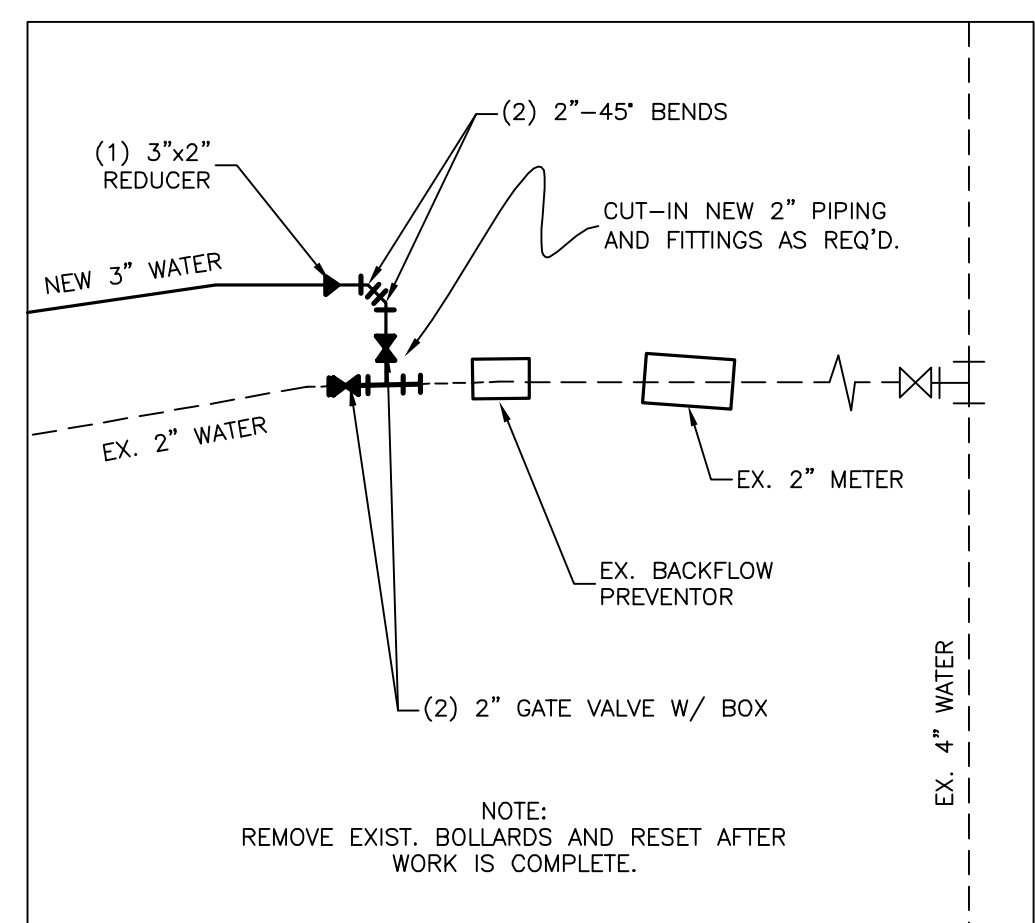
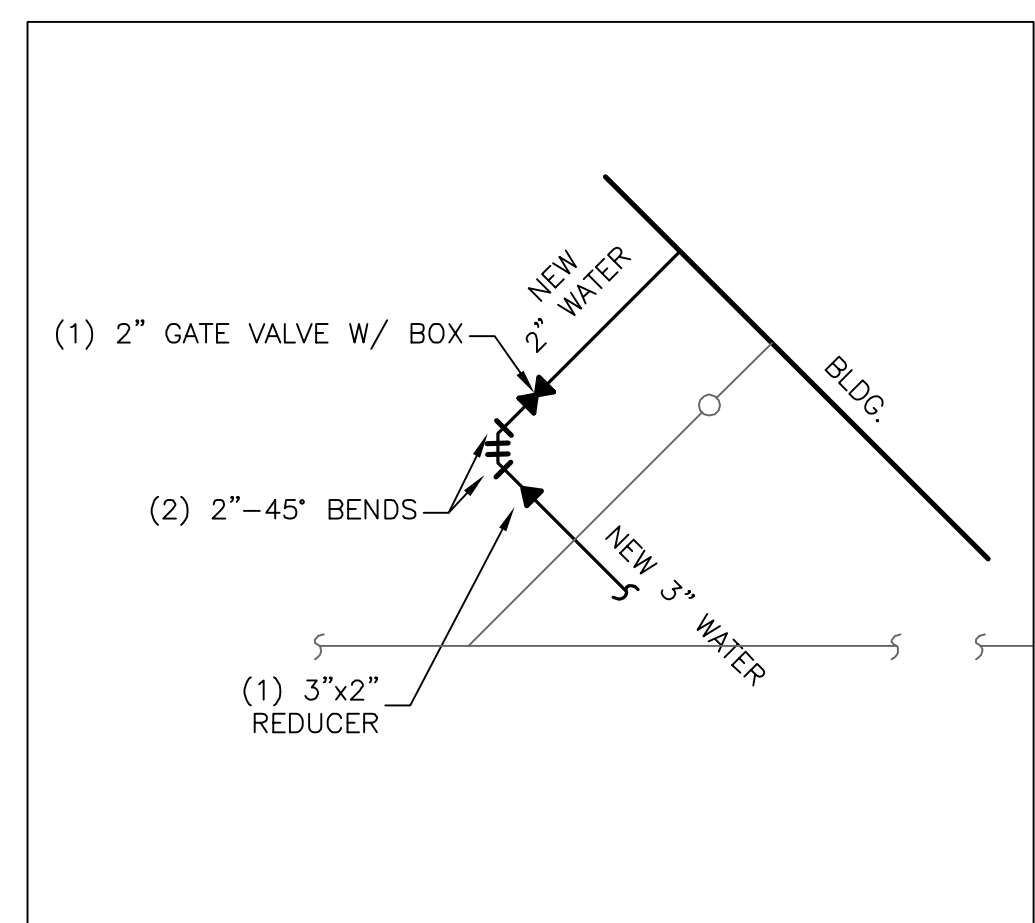
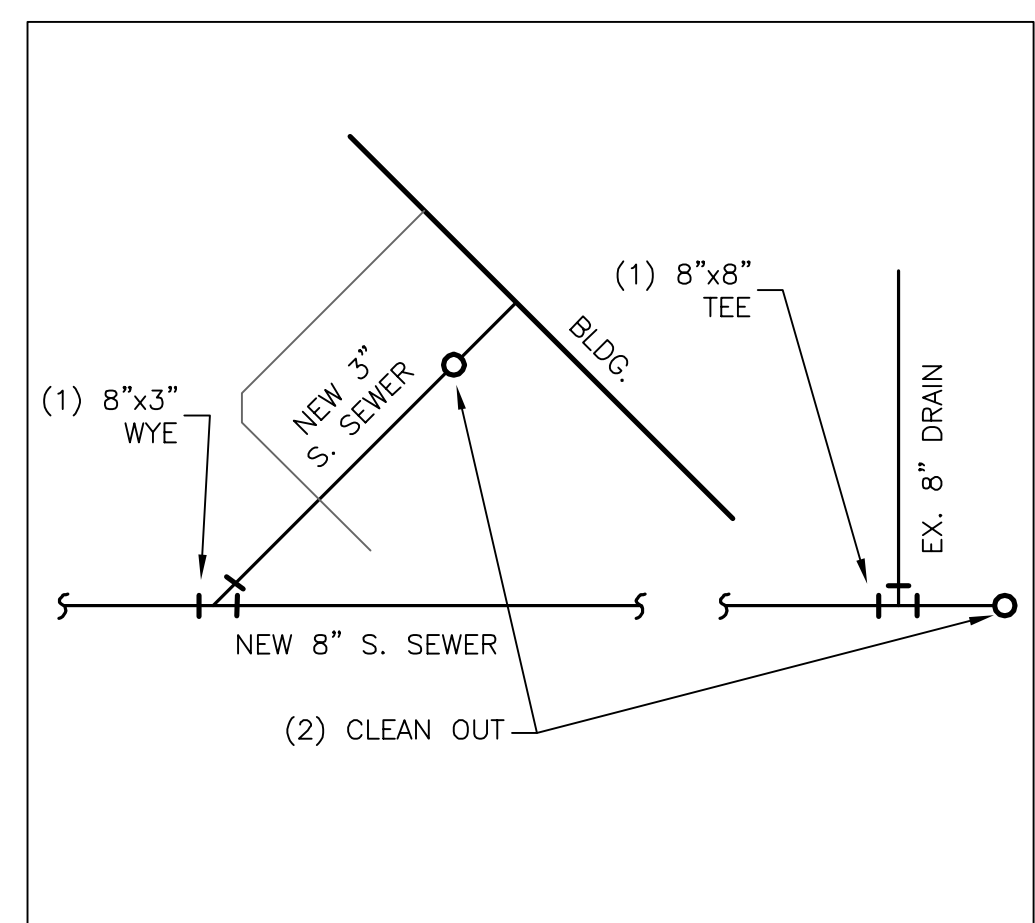
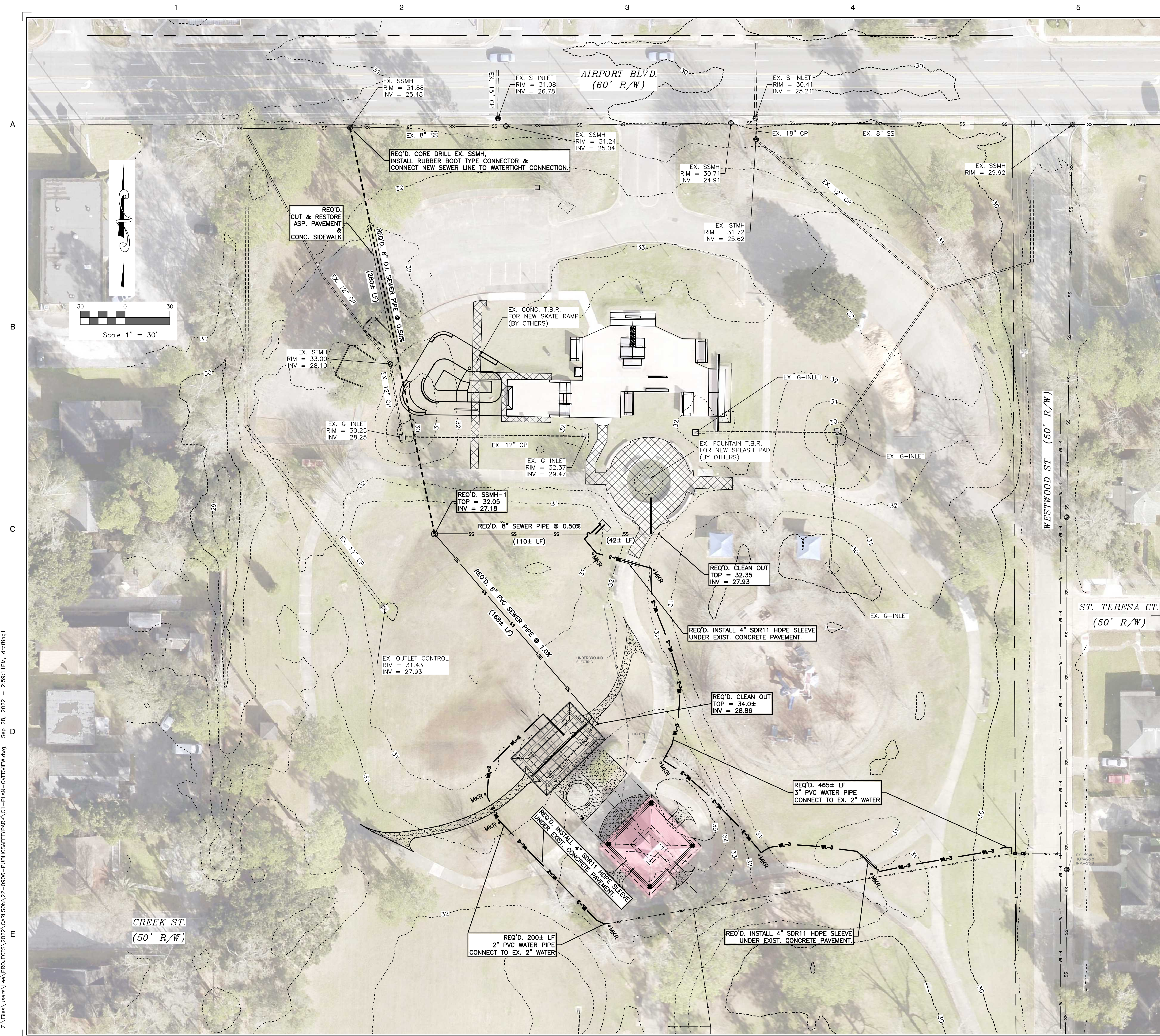
KEY PLAN

JOB NO. 2121

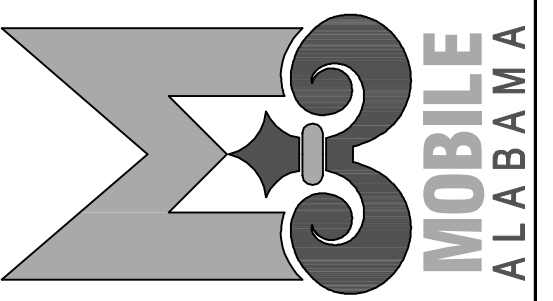
DATE: SEPTEMBER 28, 2022

SHEET

LS-101



**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
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COM # PR-093-21
MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS

SHEET TITLE
**SITE PLAN &
CONNECTION
DETAILS**

KEY PLAN

JOB NO. 2121
DATE: SEPTEMBER 28, 2022
SHEET

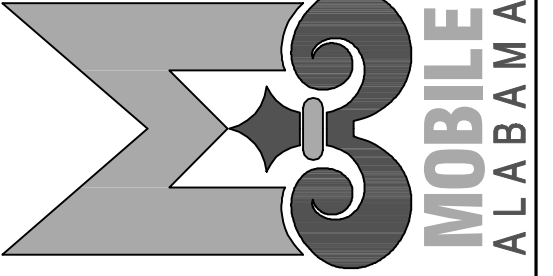
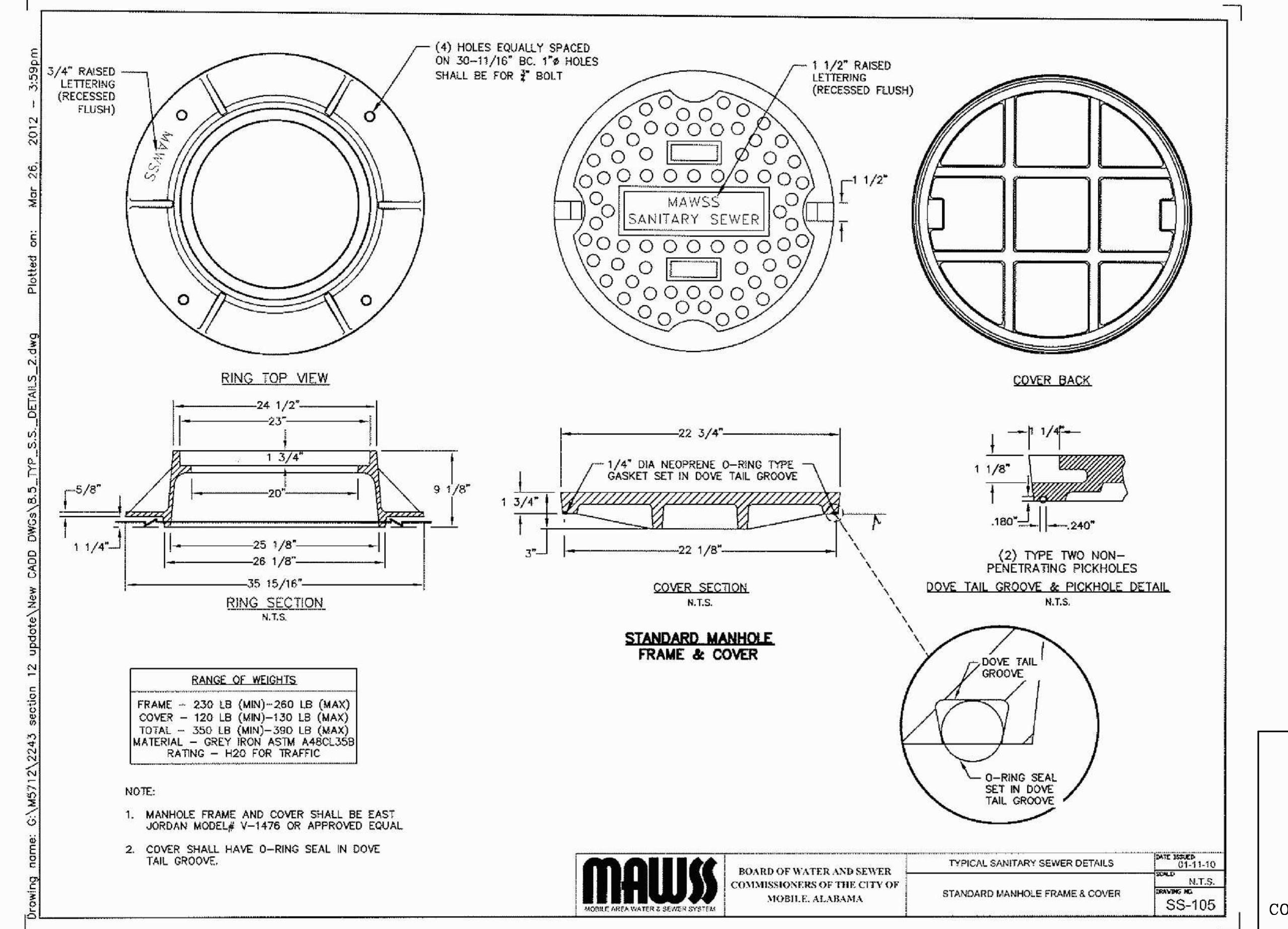
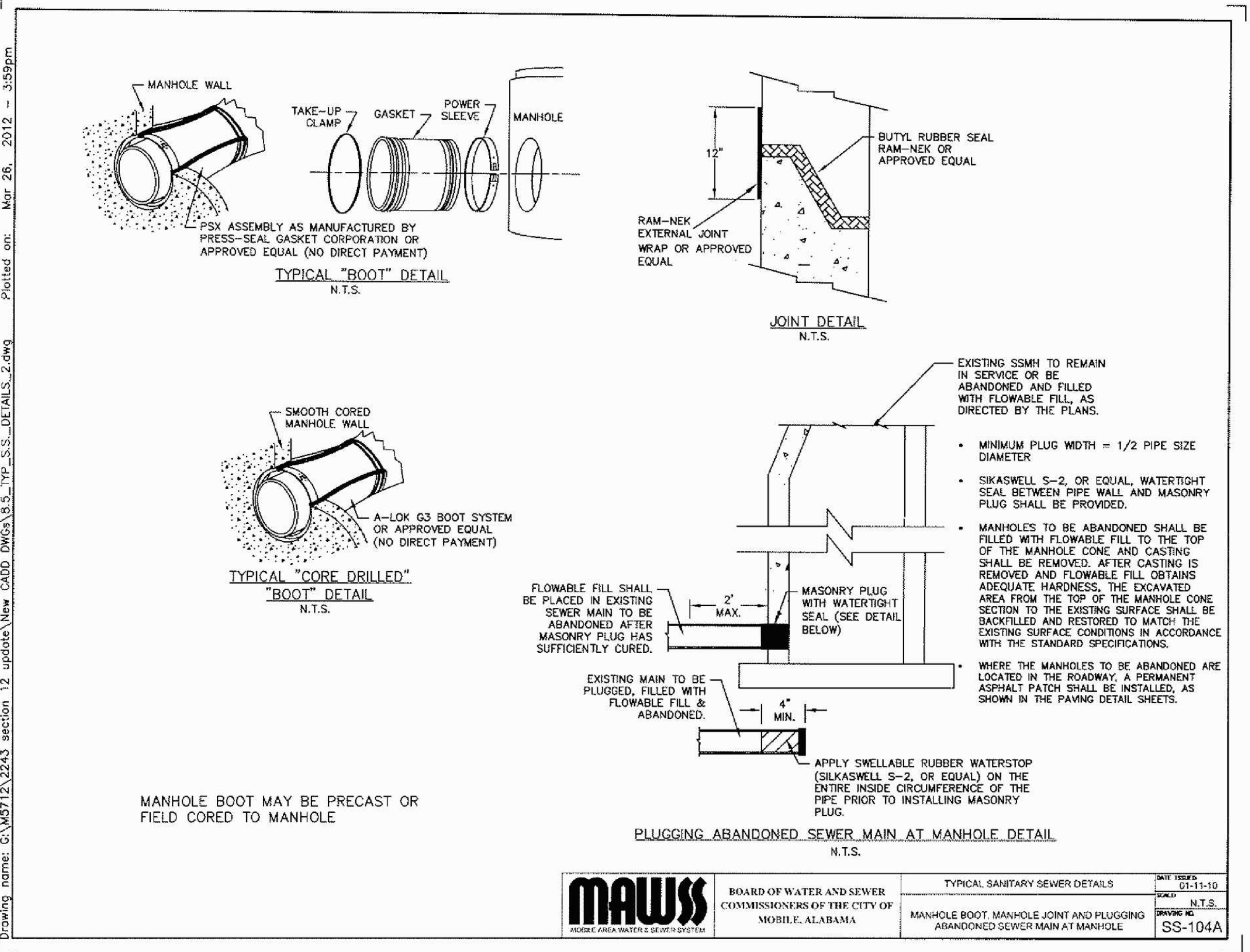
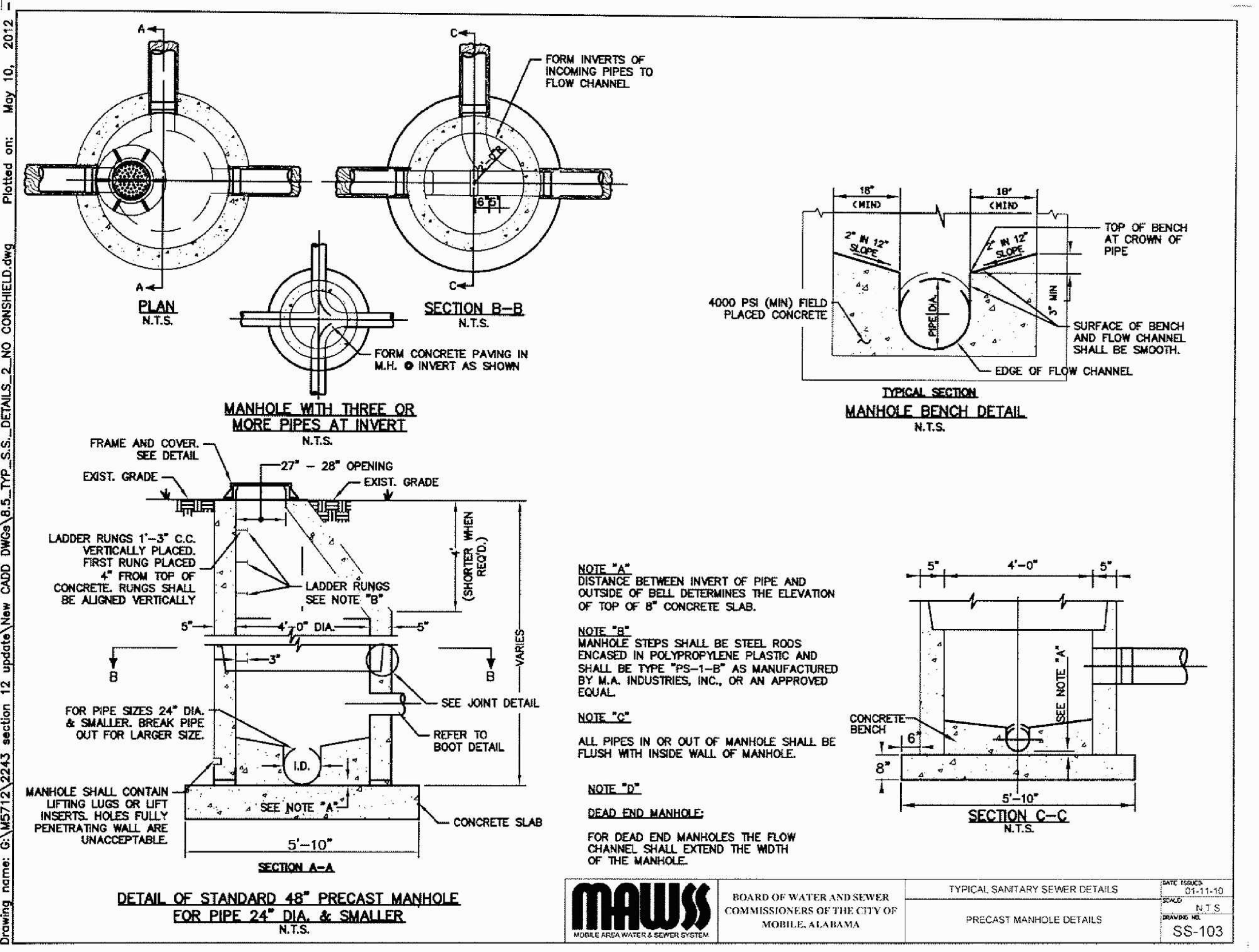
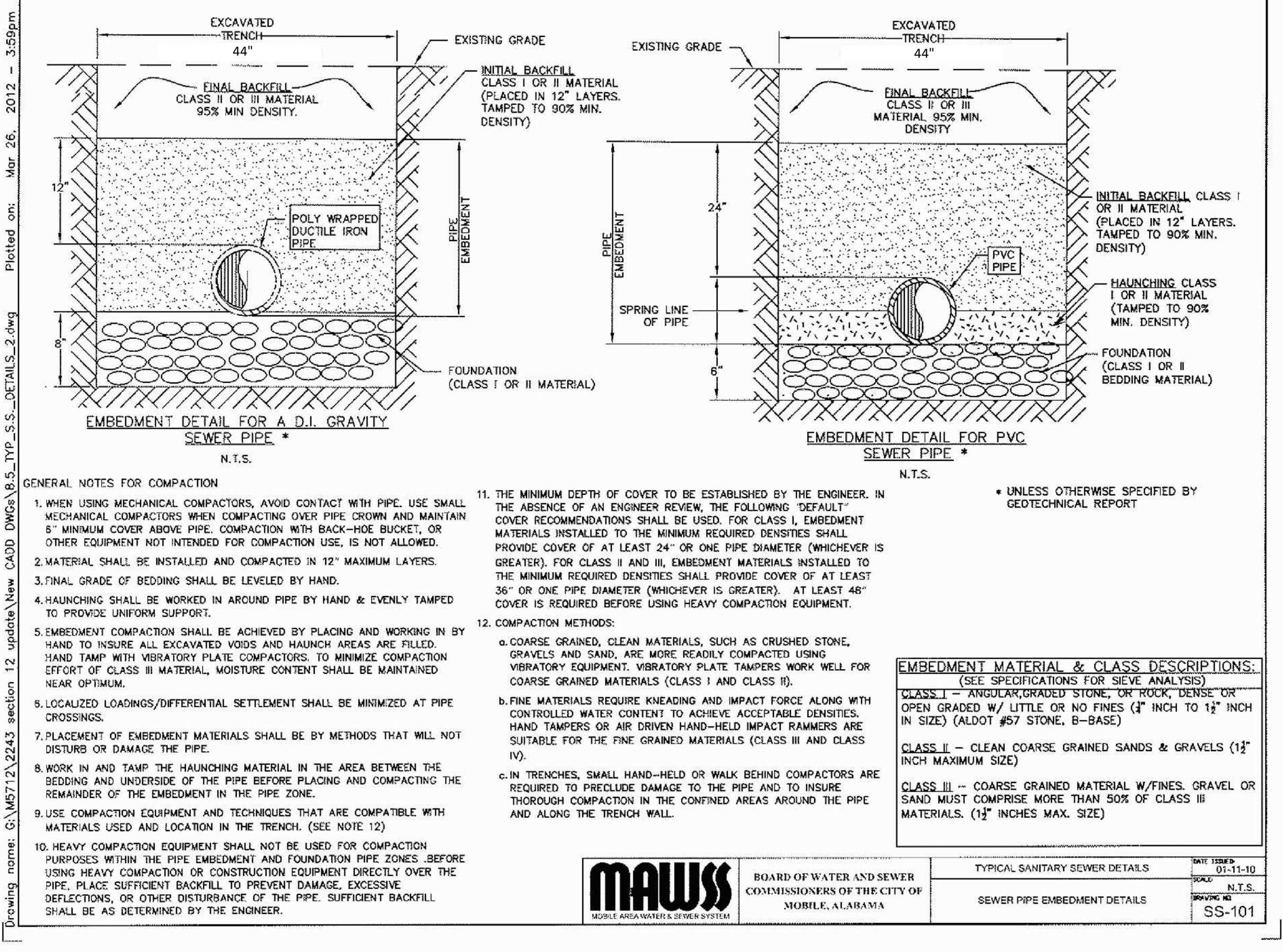
C1



SPEAKS & ASSOCIATES
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MOBILE, ALABAMA 36609
PHONE: (251)666-4646, FAX: (251)666-8868
JOB NO.: 22-0906 F.B.: 1140

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WRITTEN SCALES AT DRAWING TITLE(S) ARE VALID ONLY FOR 24" x 36" SHEET SIZE.



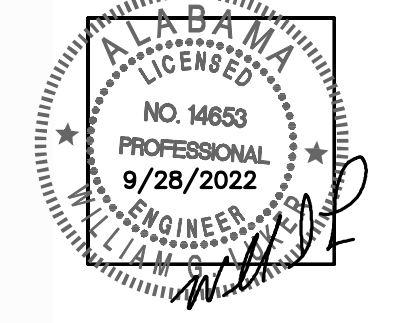
REVISIONS

NO.	DATE	REMARKS

SHEET TITLE
MAWSS SEWERLINE DETAILS

KEY PLAN

JOB NO. 2121
DATE: SEPTEMBER 28, 2022
SHEET



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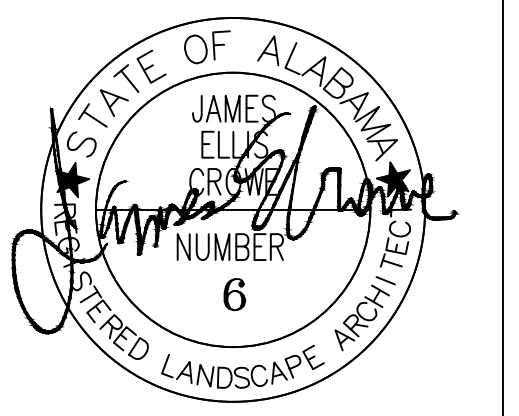
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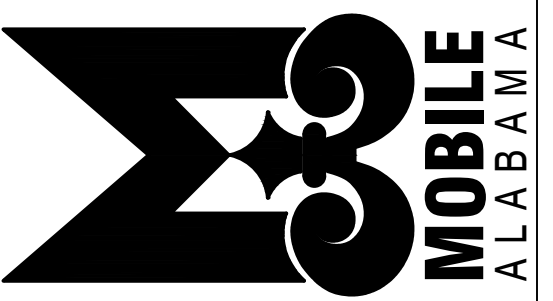


221017-011



**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
& SPLASHPAD
COM # PR-093-21**

MOBILE, ALABAMA



REVISIONS

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1	09-28-22	IFB

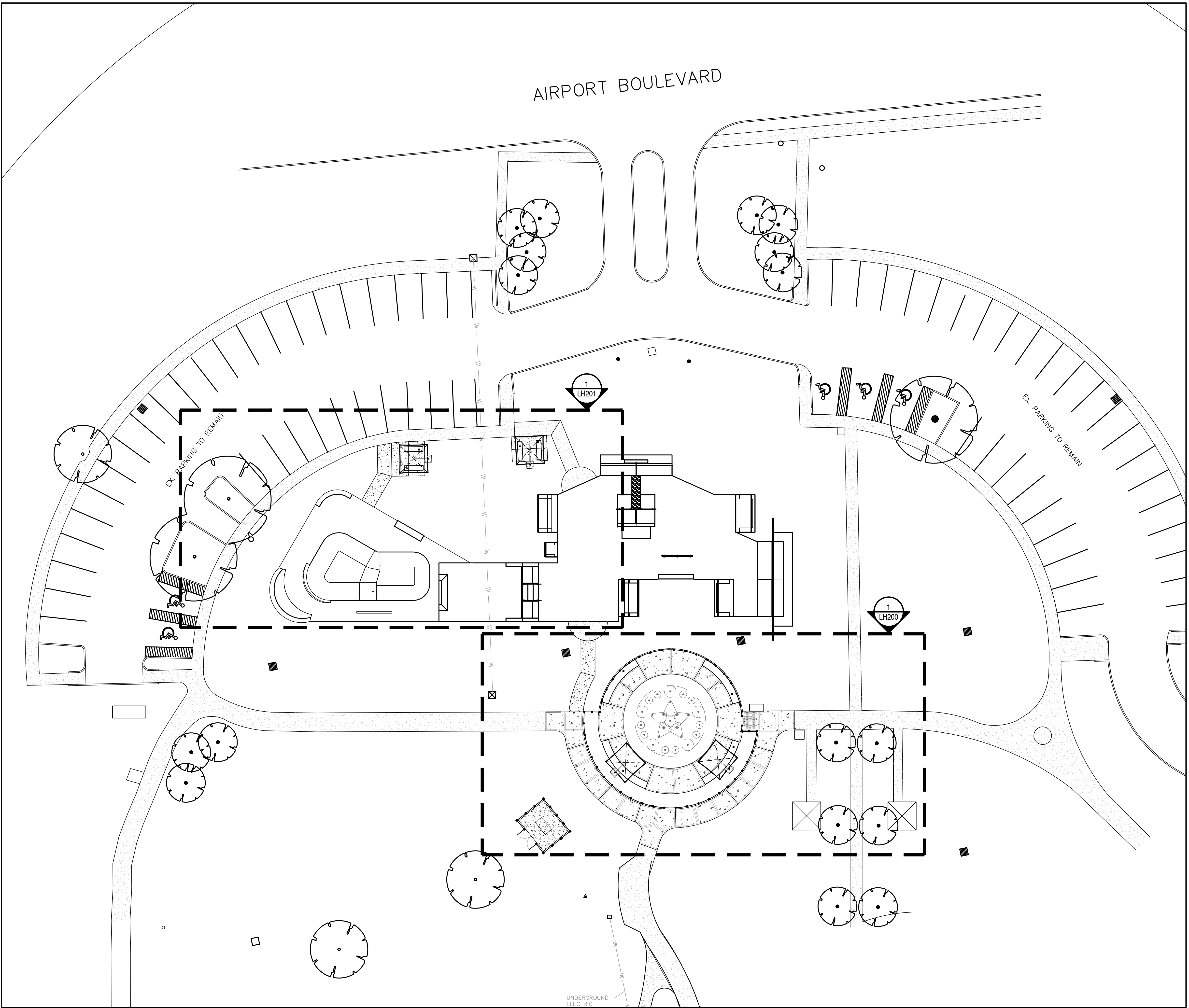
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KEY PLAN
**HARDSCAPE
PLAN**

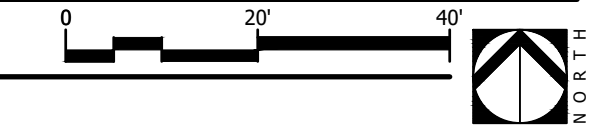
JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET
LH100



1 HARDSCAPE SITE PLAN
Scale: 1" = 20'_XREF



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REVISIONS

NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE

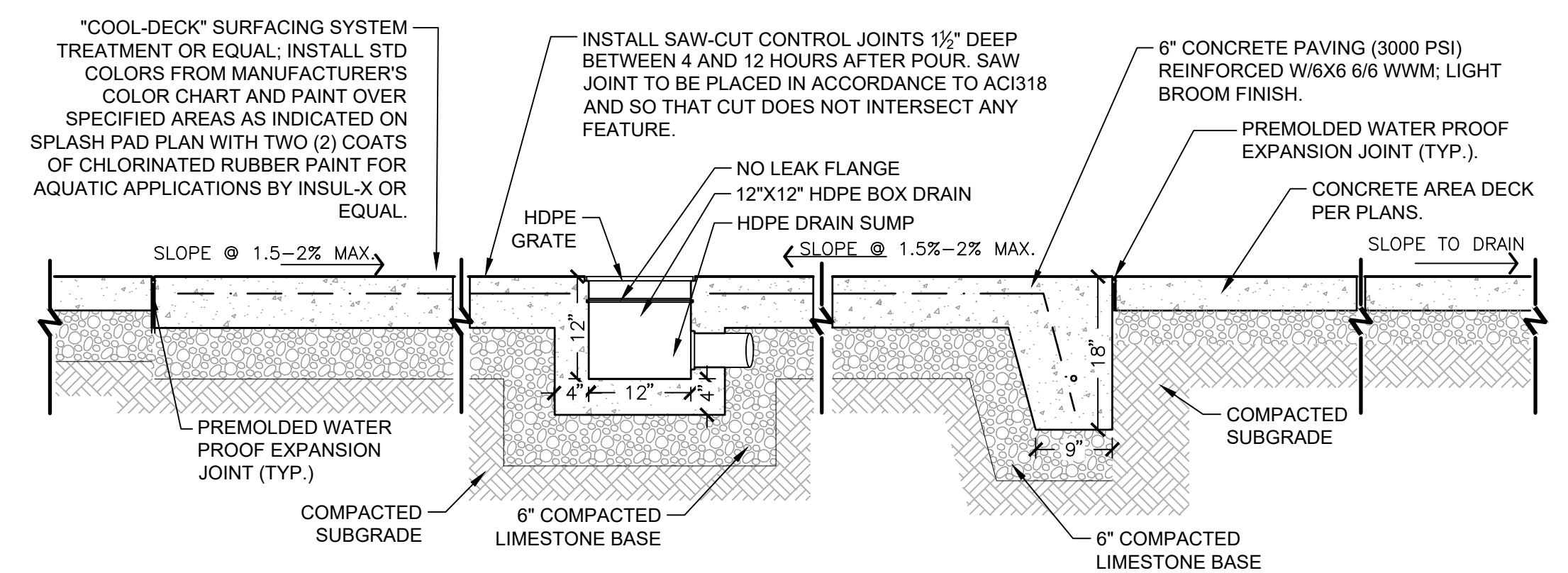
KEY PLAN
**HARDSCAPE
DETAILS**

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

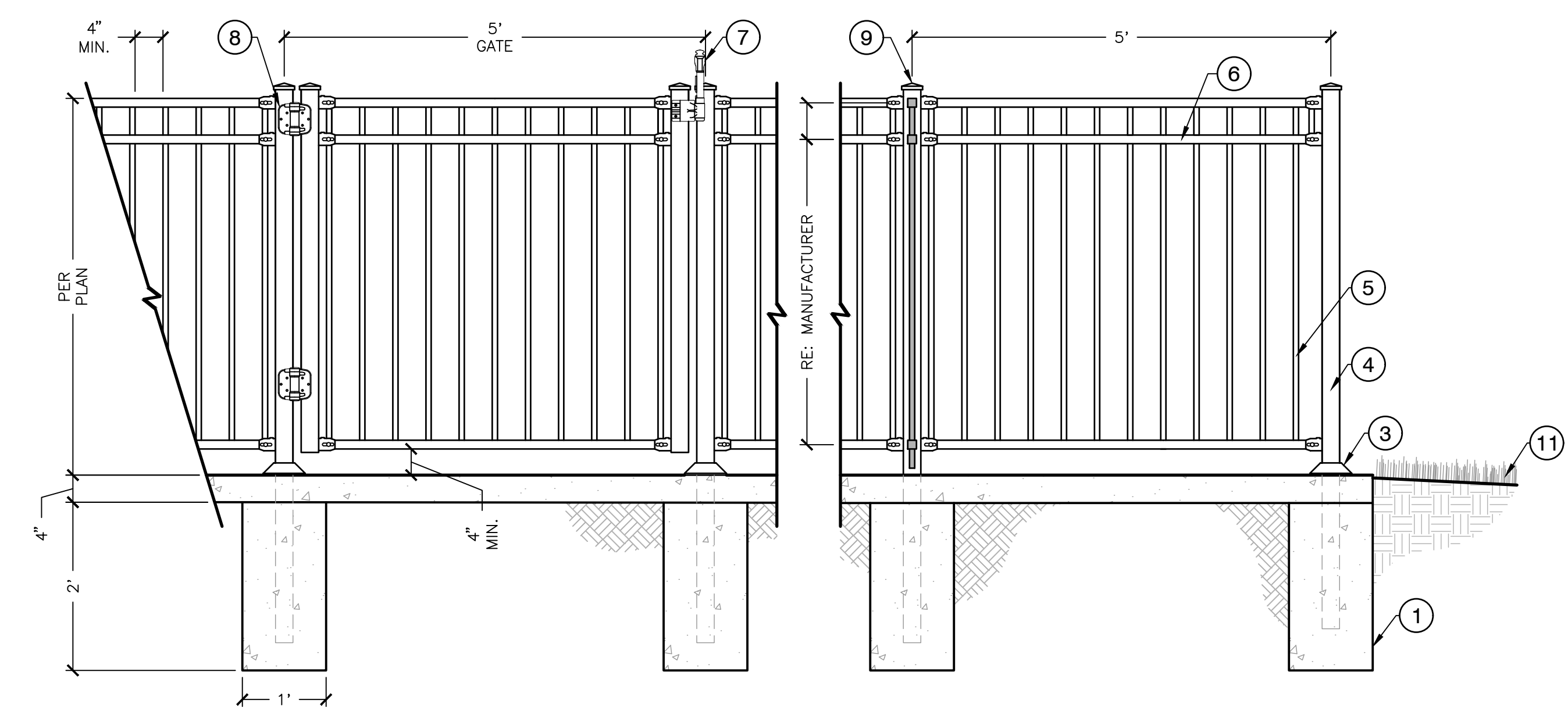
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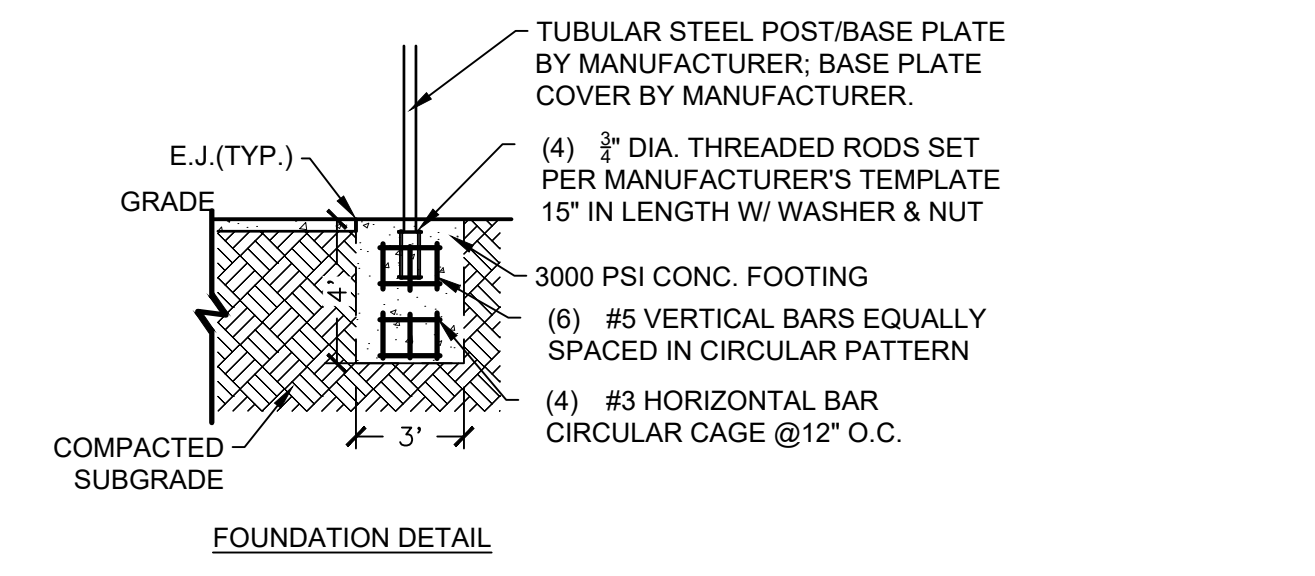
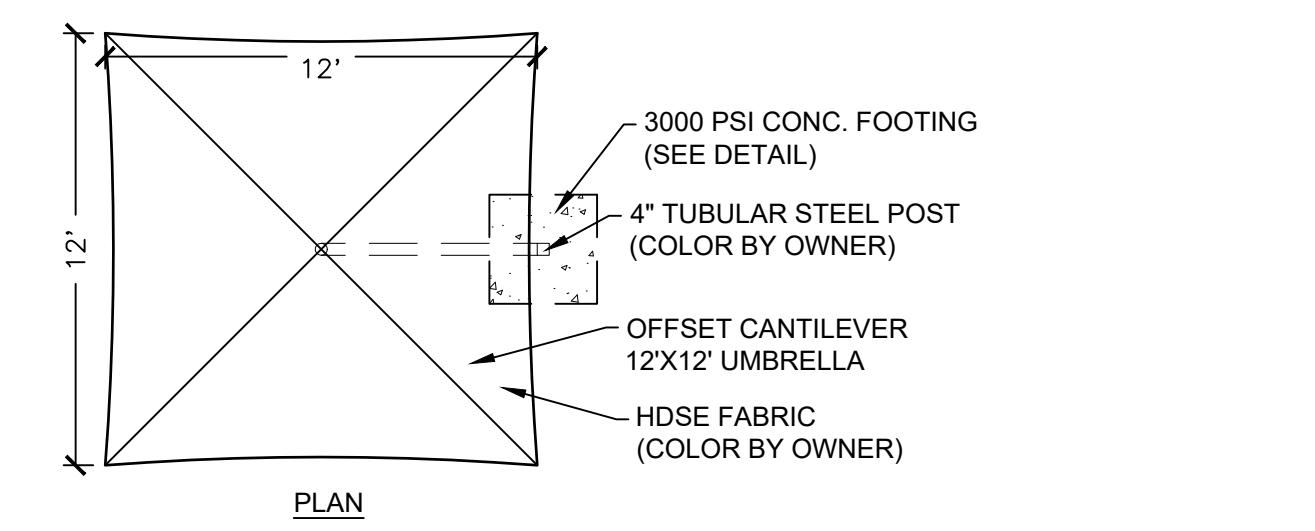
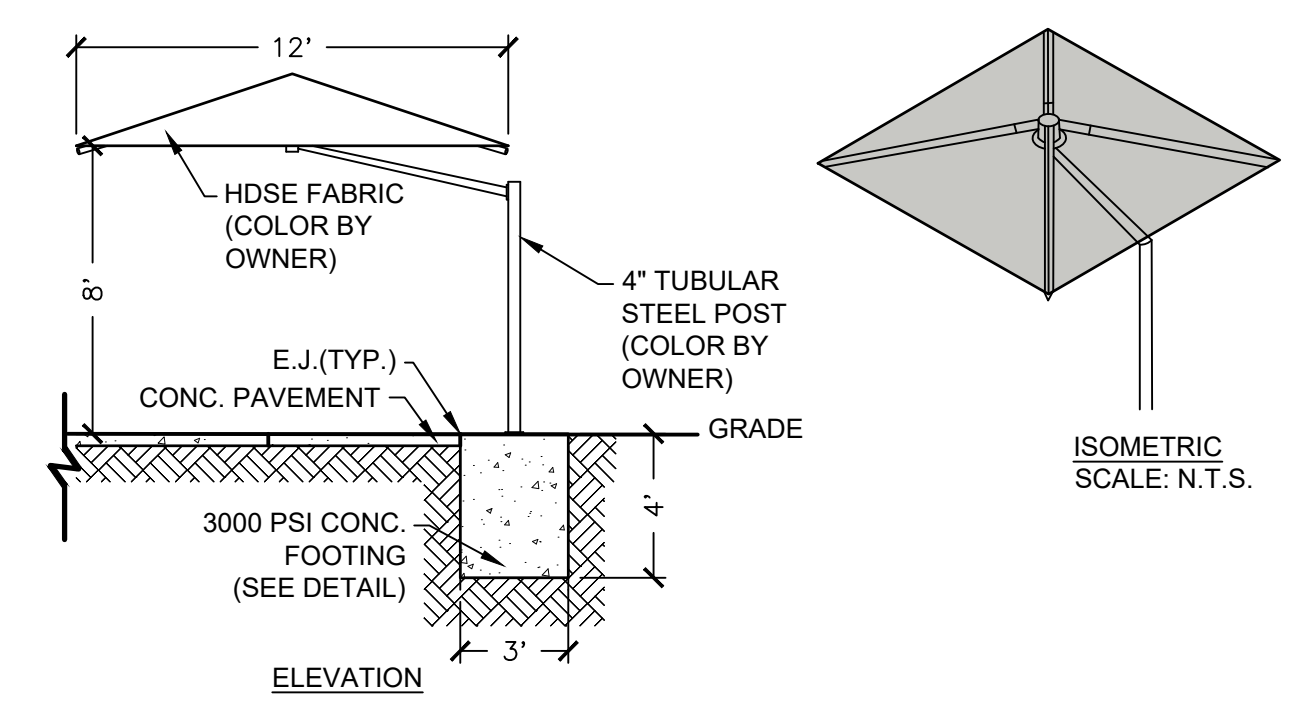
3 SPLASH PAD SECTION
3/4" = 1'-0"
S-SP-03

- NOTES**
- CUT AND OR MOUNT POOL POST & RAIL TO RETAIN A CONSISTENT HEIGHT ABOVE GRADE IN ALL CONDITIONS
 - RE: GRADE PLAN FOR PROP. ELEVATIONS
 - RE: HARDSCAPE PLAN ENLARGEMENT FOR PAVING CONDITIONS & RAIL LOCATIONS
 - GATE WIDTHS AS NOTED ON PLAN OR IN SCHEDULE
 - GATE SHOP DRAWINGS TO BE APPROVED BY I.A.

- LEGEND**
- 3,000 PSI CONC. FOOTER.
 - AS OCCURS.
 - FLOOR FLANGE W/ 2 PIECE COVER.
 - 2-1/2" ALUM. POST, EVENLY SPREAD, 5' MAX.
 - 1" VERT. ALUM. PICKET, 4" MAX FROM CORNER OF PICKET, EVENLY DISTRIBUTE PICKETS BETWEEN POST.
 - 1-1/4" ALUM. FORERUNNER RAIL.
 - VERT PULL GATE LATCH; INSTAL PER MANUF. INSTRUCTIONS.
 - TRU-CLOSE HEAVY DUTY STANDARD GATE HINGE OR APPROVED EQUAL. INSTALL PER MANUF. INSTRUCTIONS.
 - 2-1/2" ALUM. STANDARD POST CAP
 - ALUM. GATE, INSTALL PER MANUFACTURER'S RECOMMENDAIONS, INSTALL GATE POST IN CONC. FOOTING.

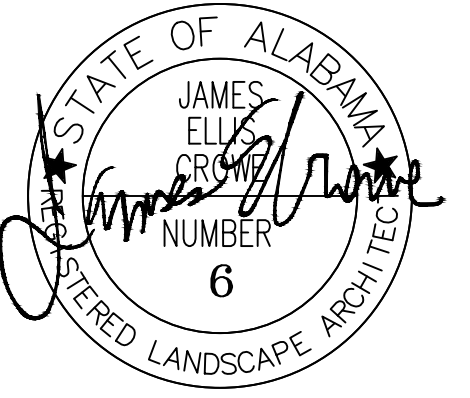


1 ALUMINUM FENCE & GATE
3/4" = 1'-0"
S-FENC-MET-36



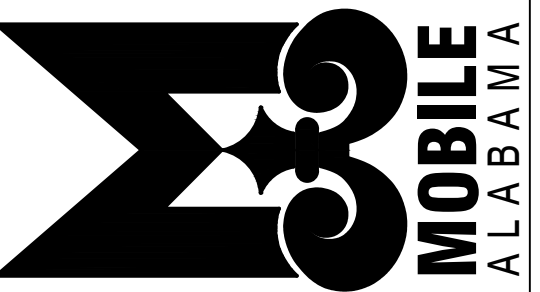
- NOTES:**
- SHADE STRUCTURES BY ULTRA PLAY SYSTEMS OR EQUAL; INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
 - SUBMIT SHOP DWG OF CONC. FOUNDATION DETAIL PROVIDED BY SHADE STRUCTURE MANUFACTURER AND STAMPED BY LICENSE ENGINEER-STATE OF ALABAMA; WIND LOAD RATED @ 150 MPH.

2 SHADE STRUCTURE PLAN & DETAILS
3/16" = 1'-0"
S-SP-SHA-06



**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
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COM # PR-093-21

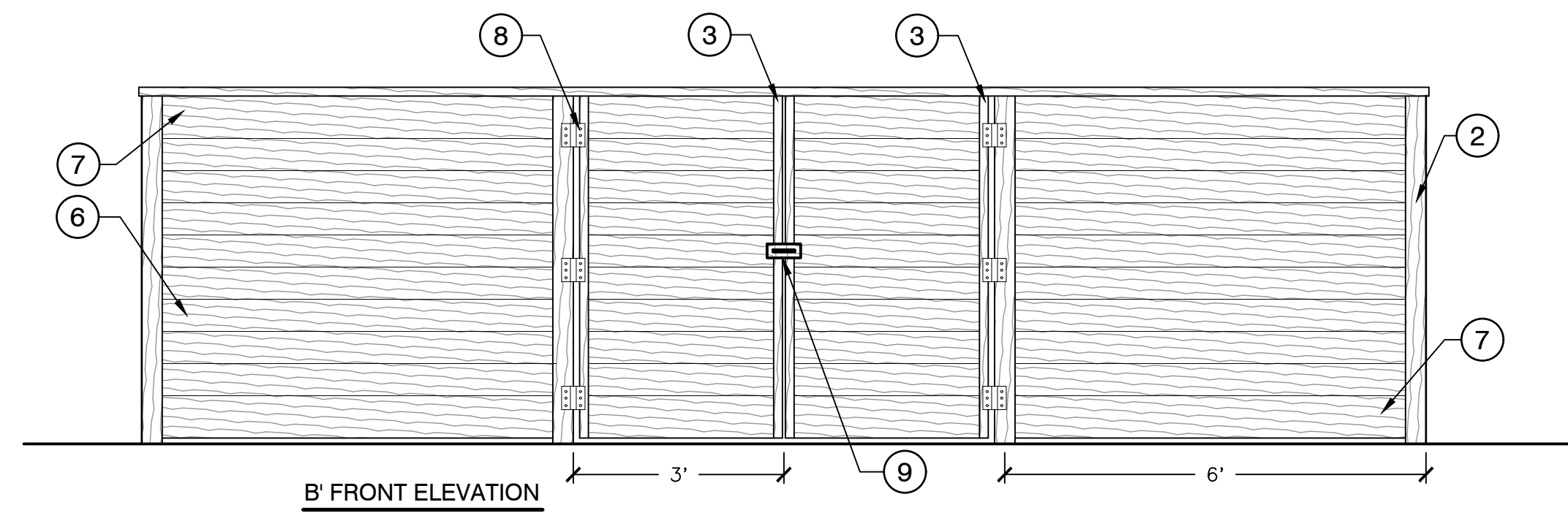
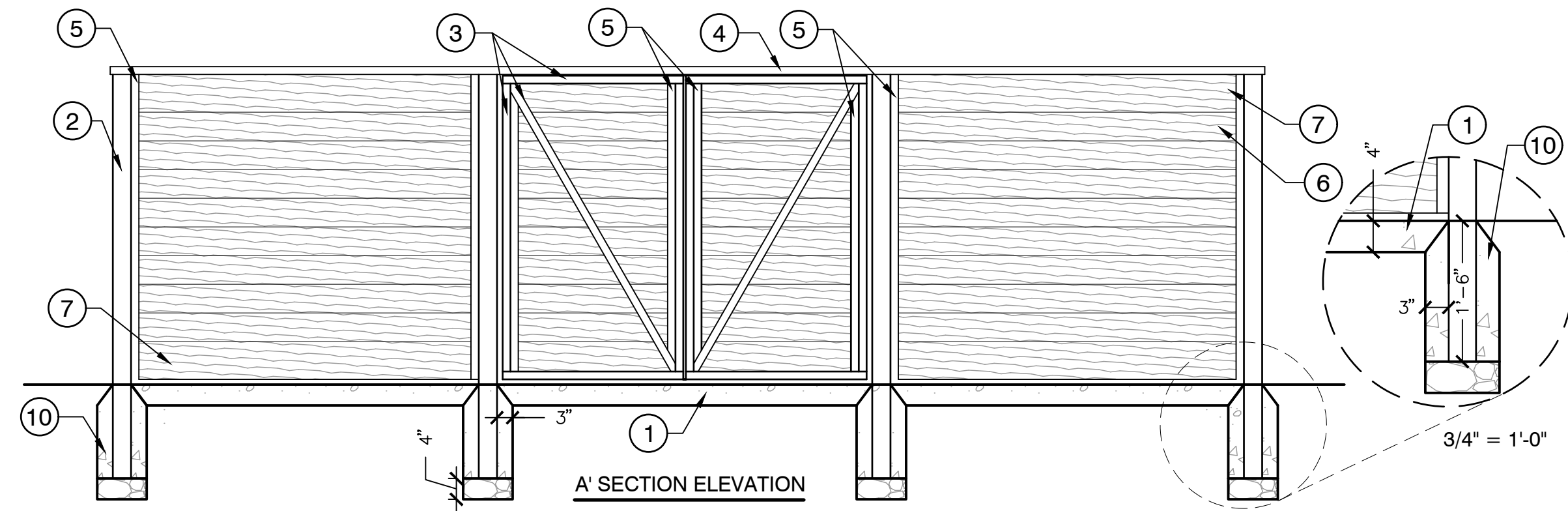
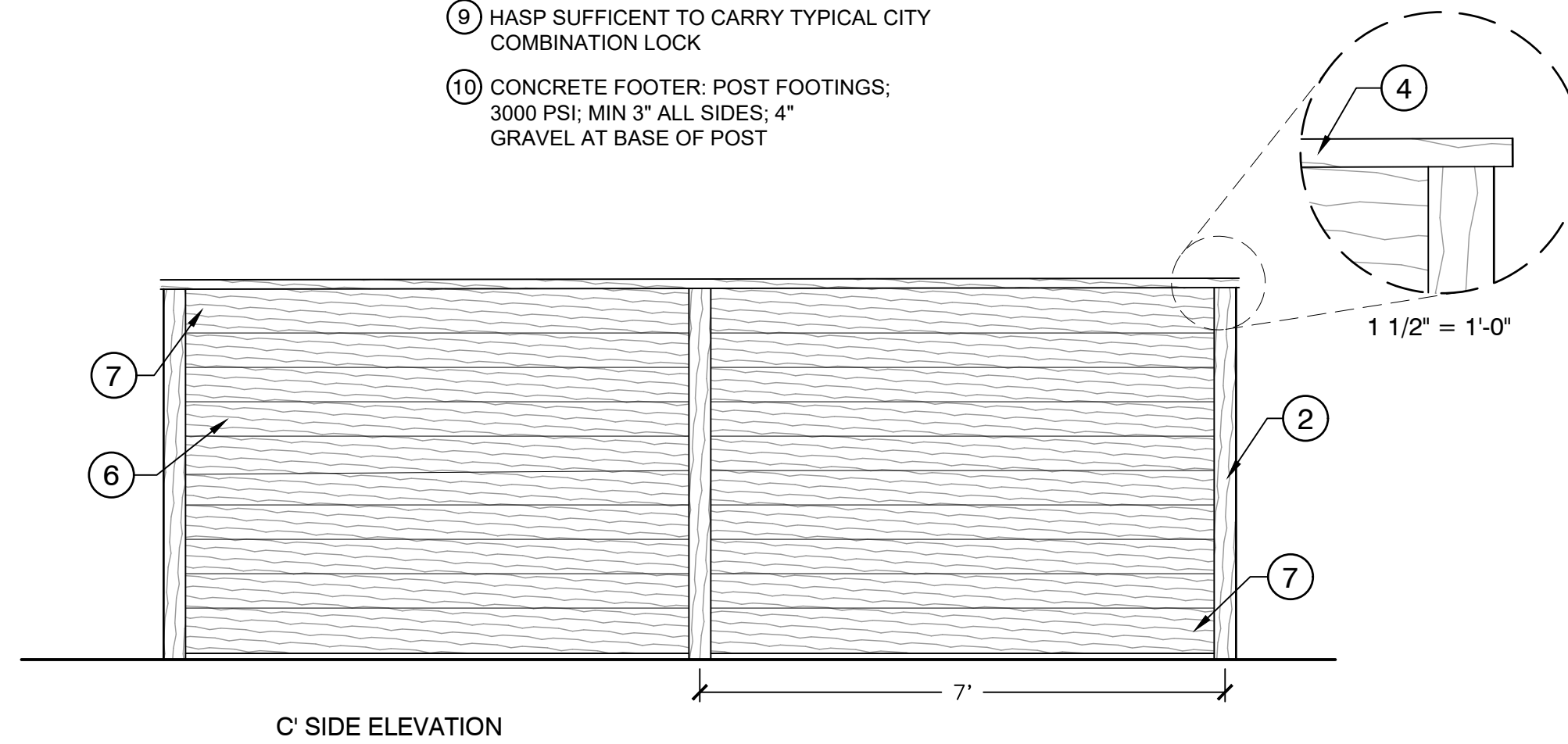
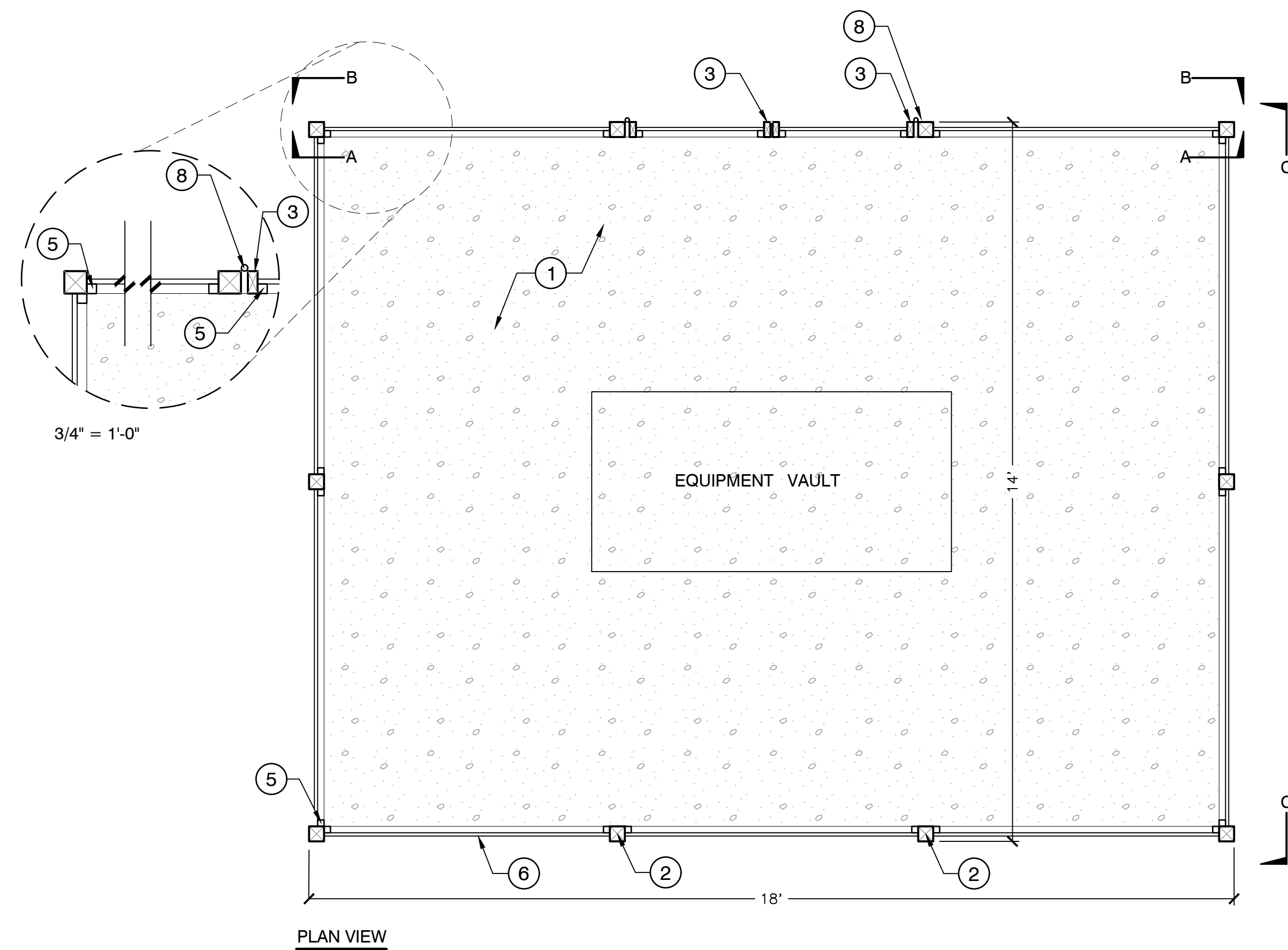
MOBILE, ALABAMA



NOTE
PAINT ALL EXPOSED SURFACES (SEE (5) FOR PLYWOOD APPLICATION), APPLY TWO (2) FINISH COATS OF 100% ACRYLIC FLAT EXTERIOR LATEX PAINT, COLOR BY OWNER

NOTE
USE DIMENSIONAL PRESSURE TREATED LUMBER UNLESS OTHERWISE NOTED. CONNECT WITH NAILS. USE GALVANIZED HARDWARE UNLESS OTHERWISE NOTED. ALL CONCRETE SHALL BE 4000 PSI UNLESS OTHERWISE NOTED. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR LANDSCAPE ARCHITECT APPROVAL.

- (1) 4" CRUSHED LIMESTONE W/GEOTEXTILE FABRIC
- (2) 4X4 POST
- (3) 2X4 FRAME FOR DOOR
- (4) 2X4 WALL CAP; C/W NAILS TOP OF POSTS
- (5) 2X2 NAILER BOARD; SCAB TO INSIDE EDGE OF POST TO RECESS HORIZONTAL SLATS
- (6) 1X6 HORIZONTAL WALL SLATS C/W NAILS TO 2X2 NAILER BOARD; CONNECT TO GATES SAME AS WALLS.
- (7) 1X8 HORIZONTAL WALL SLATS TOP AND BOTTOM CORSE; C/W NAILS TO 2X2 NAILER BOARD; CONNECT TO GATES SAME AS WALLS.
- (8) GALVANIZED HINGES
- (9) HASP SUFFICIENT TO CARRY TYPICAL CITY COMBINATION LOCK
- (10) CONCRETE FOOTER: POST FOOTINGS; 3000 PSI; MIN 3" ALL SIDES; 4" GRAVEL AT BASE OF POST



1 EQUIPMENT ENCLOSURE
1/2" = 1'-0"

REVISIONS

NO.	DATE	REMARKS
09-28-22	IFB	

SHEET TITLE

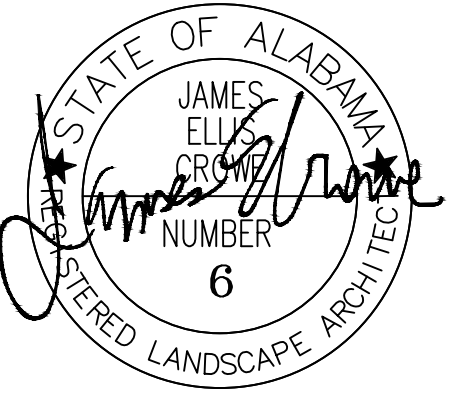
KEY PLAN
**HARDSCAPE
DETAILS**

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

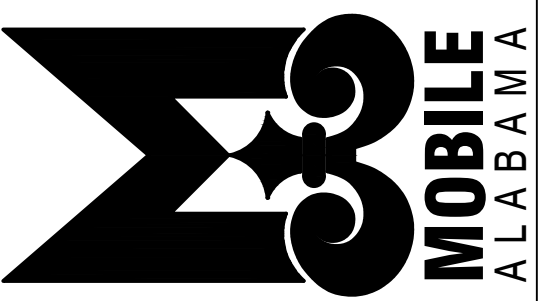
LH502



NOTES:

1. SOFTWASH EX. PRECAST SKATE FEATURES W/LOW PRESSURE NOZZLE TO REMOVE MOLD, DIRT, STAINS, MILDEW W/O USE OF CHEMICALS.

**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
& SPLASHPAD**
COM # PR-093-21
MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
1	09-28-22	IFB

SHEET TITLE

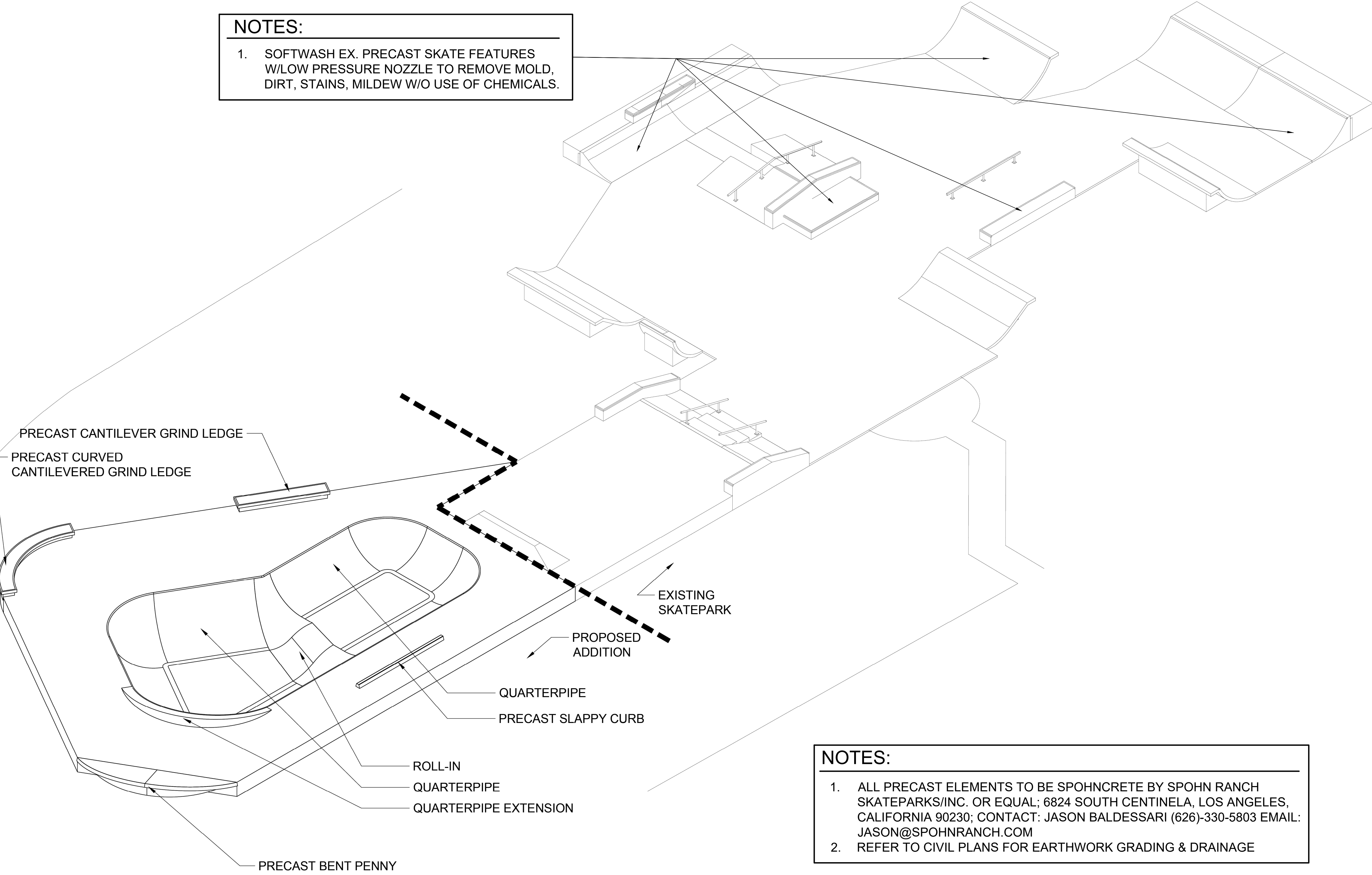
KEY PLAN
**3D
PERSPECTIVE**

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

SK1.0



NOTES:

1. ALL PRECAST ELEMENTS TO BE SPOHNCRETE BY SPOHN RANCH SKATEPARKS/INC. OR EQUAL; 6824 SOUTH CENTINELA, LOS ANGELES, CALIFORNIA 90230; CONTACT: JASON BALDESSARI (626)-330-5803 EMAIL: JASON@SPOHNRANCH.COM

2. REFER TO CIVIL PLANS FOR EARTHWORK GRADING & DRAINAGE

CONSTRUCTION NOTES:

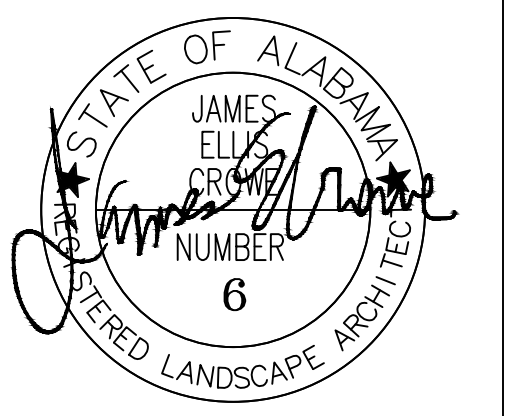
- ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO ALL APPLICABLE GOVERNING CODES AND ORDINANCES.
- ALL FORMS AND ALIGNMENTS OF PAVING, LAYOUT, AND SPECIAL PAVING AREAS SHALL BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO POURING (GIVE A MINIMUM OF 24 HOURS NOTICE)
- CONTRACTOR SHALL VERIFY THE LOCATION OF ALL PUBLIC IMPROVEMENTS, INCLUDING UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN-KIND ALL PUBLIC IMPROVEMENTS DAMAGED, BROKEN, OR REMOVED DURING CONSTRUCTION
- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS (UNLESS OTHERWISE NOTED)
- ALL REBAR CROSSINGS TO BE TIED.
- ALL CONSTRUCTION TO BE PLUMB AND TRUE, UNLESS OTHERWISE NOTED OR INDICATED.
- THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS AT THE JOB SITE. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER/BUILDER OR OWNER'S REPRESENTATIVE.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS AND FOR SAFETY CONDITIONS AT THE WORK SITE.
- ALL BRACING, TEMPORARY SUPPORTS, SHORING, ETC. ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- OBSERVATION VISITS TO THE JOB SITE BY THE MANUFACTURER, DO NOT INCLUDE INSPECTION OF CONSTRUCTION PROCEDURES. THE VISIT SHALL NOT BE CONSTRUED AS CONTINUOUS AND DETAILED INSPECTIONS.
- CONDITIONS NOT SPECIFICALLY SHOWN SHALL BE CONSTRUCTED SIMILAR TO THE DETAILS FOR THE RESPECTIVE MATERIALS.

- THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED CONSTRUCTION PRODUCT. THESE DOCUMENTS, ALTHOUGH PREPARED WITH CARE AND DILIGENCE, MAY CONTAIN ERRORS, OMISSIONS, CONTRADICTIONS, ETC. THE CONTRACTOR SHALL REVIEW ALL DOCUMENTS THOROUGHLY AND SHALL NOTIFY OWNER IMMEDIATELY UPON ANY SUCH DISCOVERY OR DISCREPANCY. GOVERNING CODES SHALL THEN APPLY.
- ALL SCALE DIMENSIONS ARE APPROXIMATE. WRITTEN DIMENSIONS AND DETAILS TAKE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL CHECK AND VERIFY ALL SITE DIMENSIONS PRIOR TO PROCEEDING WITH WORK AND CLARIFY WITH OWNER IF NECESSARY.
- DURING WORK AND THROUGH ITS COMPLETION, THE CONTRACTOR SHALL KEEP THE SITE CLEAN TO THE SATISFACTION OF THE OWNER.
- FINAL MATERIAL FINISHES AND COLOR SHALL BE APPROVED BY OWNER PRIOR TO INSTALLATION.
- CLEAN-UP SHALL TAKE PLACE ON A DAILY BASIS.
- REFER TO SPECIFICATIONS FOR ANY ADDITIONAL INFORMATION.

****ALL COLD JOINTS AT THE BOTTOM OF ALL RADIUS TRANSITIONS & RADIUS BANKS SHALL BE LOCATED 8" MAX. FROM THE POINT OF TANGENCY. SEE TYPICAL DETAILS FOR CLARIFICATION.**

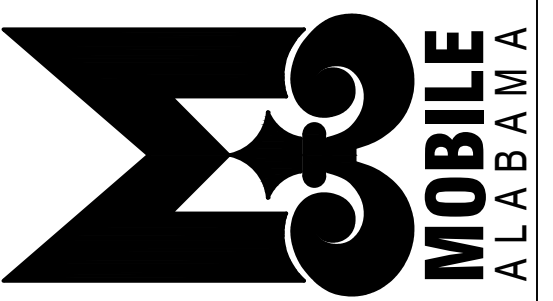


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**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
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COM # PR-093-21**

MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
1	09-28-22	IFB

SHEET TITLE

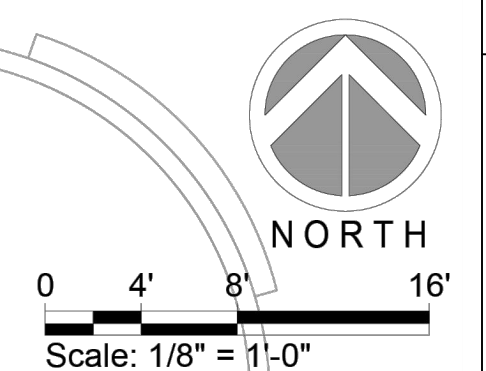
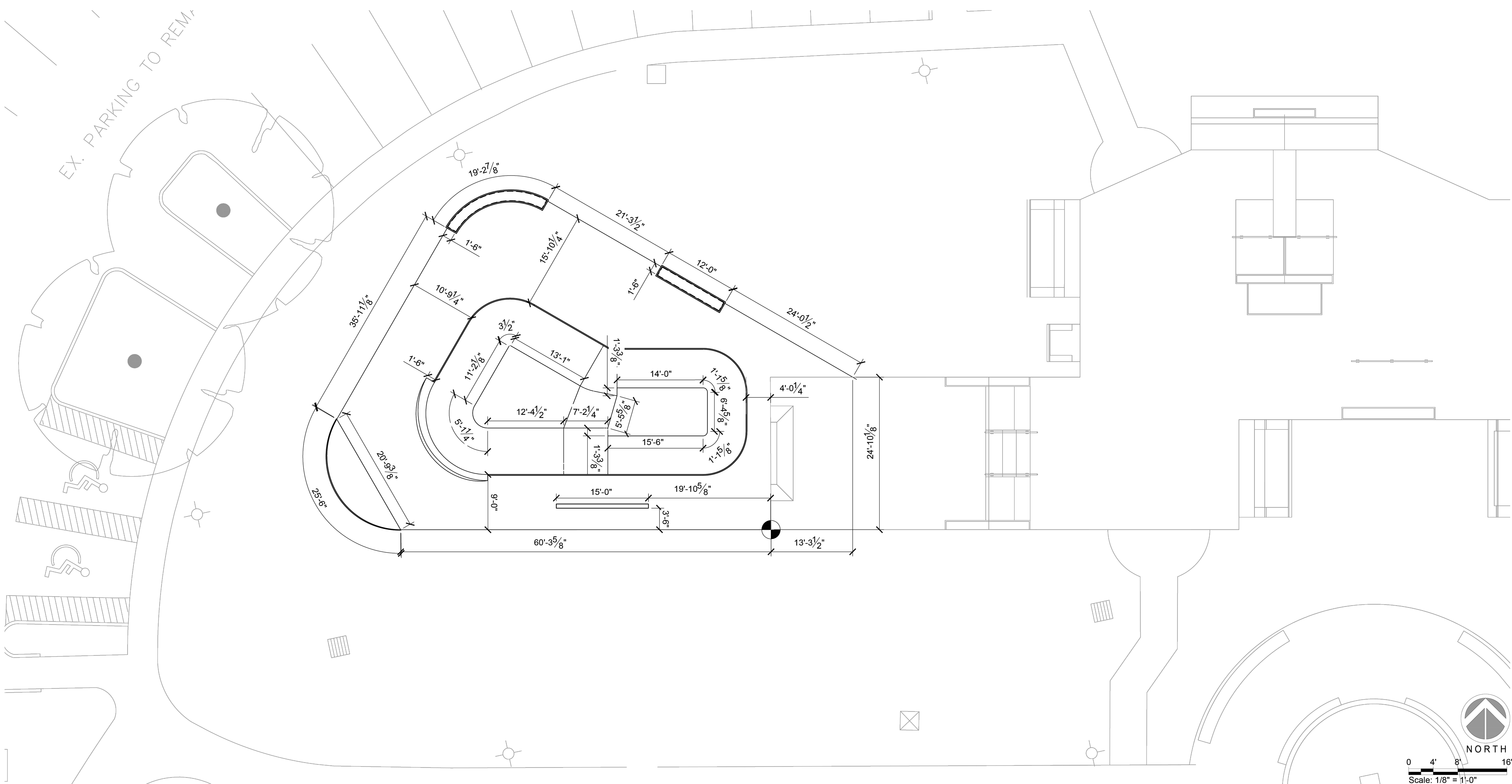
KEY PLAN
**LAYOUT PLAN
SKATE PARK**

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

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GRADING NOTES

- ALL GRADING SHALL BE IN ACCORDANCE WITH THE LOCAL GRADING CODE AND ANY SPECIAL REQUIREMENTS OF THE GRADING PERMIT.
- CONTRACTOR TO VERIFY GRADES AND NOTIFY OWNER'S CONSTRUCTION ADMINISTRATOR PRIOR TO START OF GRADING WORK.
- SLOPES SHALL BE NO STEEPER THAN 3' HORIZONTAL TO 1' VERTICAL (3:1) AND SHALL HAVE NOT LESS THAN 90% COMPACTION OUT TO THEIR FINISH SURFACES.
- ALL PAVED AREAS SHALL SLOPE AS SHOWN ON PLANS WITH A 2% MAXIMUM FALL. PLANTED AREAS SHALL HAVE A MINIMUM 2% FALL.
- FINISH GRADE SHALL HAVE A UNIFORM SURFACE, FREE OF LUMPS, BUMPS AND DEPRESSIONS AND ANY OBJECTS THAT MAY PREVENT A POSITIVE FLOW TO DRAIN.
- ALL PROPOSED PAVING SURFACES SHALL MEET EXISTING PAVING SURFACES WITH SMOOTH AND CONTINUOUS TRANSITIONS AND FLUSH ALONG ENTIRE EDGE.
- CONCRETE WALKS TO HAVE A MAXIMUM CROSS SLOPE OF 2% AND SHALL MEET ALL CITY AND COUNTY REQUIREMENTS.
- PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS, EXISTING DRAINAGE STRUCTURES, PARKING LOT IMPROVEMENTS, AND FINISH FLOOR ELEVATIONS. NOTIFY THE OWNER'S CONSTRUCTION ADMINISTRATOR IMMEDIATELY UPON NOTING ANY DISCREPANCIES.
- FINISH GRADE AT TURF AREAS SHALL BE ONE INCH BELOW FINISH SURFACE OF SIDEWALKS, CURBS OR PAVED AREAS. PLANTING AREA FINISH GRADE SHALL BE 2" BELOW SAME UNLESS OTHERWISE SPECIFIED.
- ALL CONSTRUCTION AREAS SHALL BE FREE OF ROCK, DEBRIS, ETC. ALL EXISTING WEEDS SHALL BE REMOVED.

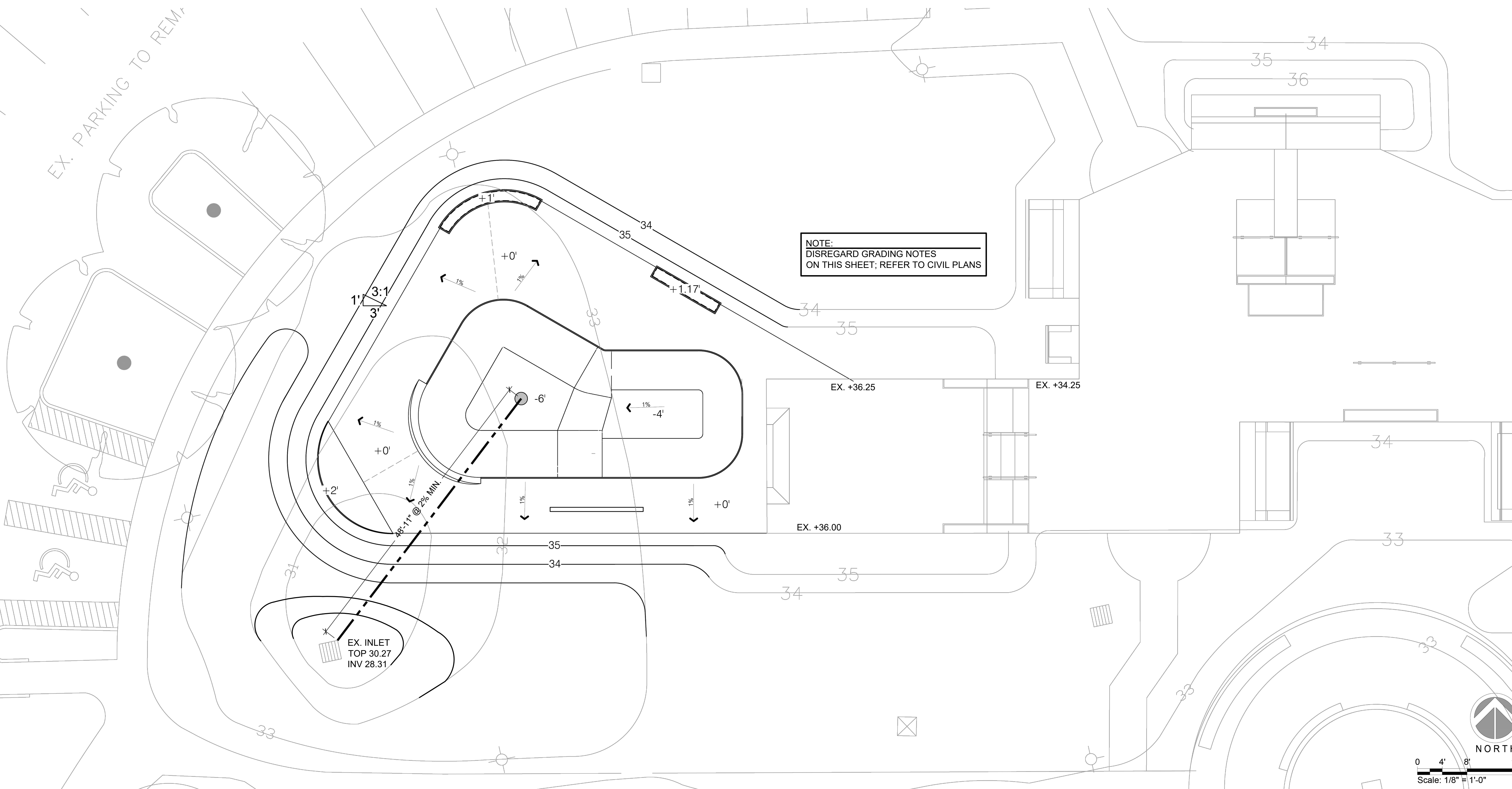
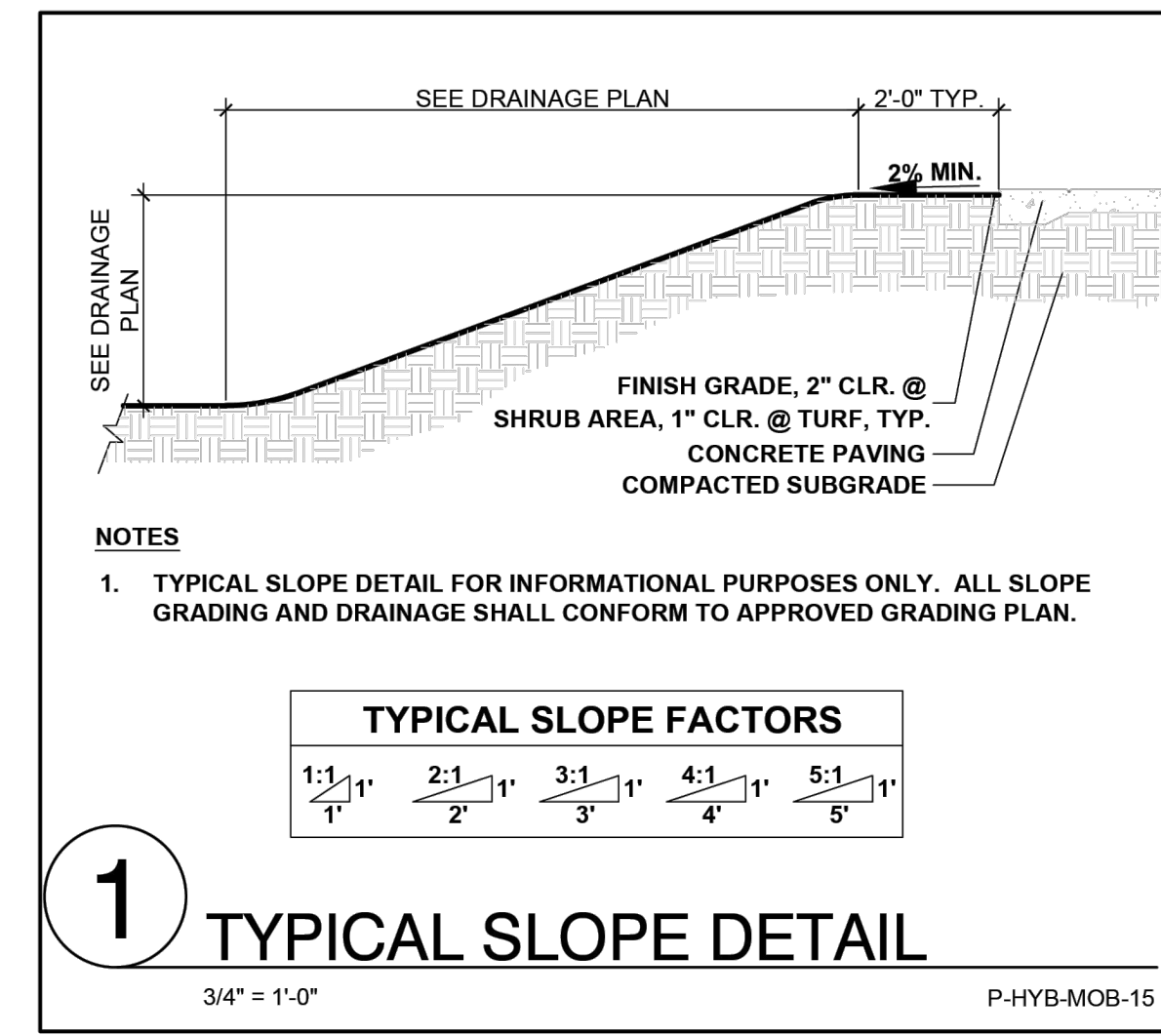
GRADING LEGEND:

- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED GRADE BREAK
- PROPOSED ELEVATIONS
- PROPOSED FLOW DIRECTION
- PROPOSED 4" SDR 35 DRAIN LINE
- PROPOSED AREA DRAIN SEE

- BS BOTTOM OF STEP
- FG FINISH GRADE
- FS FINISH SURFACE
- HP HIGH POINT
- INV INVERT ELEVATION (MAY CHANGE IN FIELD)
- PA PLANTING AREA
- TD TOP OF DRAIN
- TL TOP OF LEDGE
- TP TOP OF PAD
- TR TOP OF RAIL
- TS TOP OF STEP

(XXX.X) EXISTING ELEVATION (VERIFY IN FIELD)

**SLOPE AREAS TO BE BLENDED IN FIELD

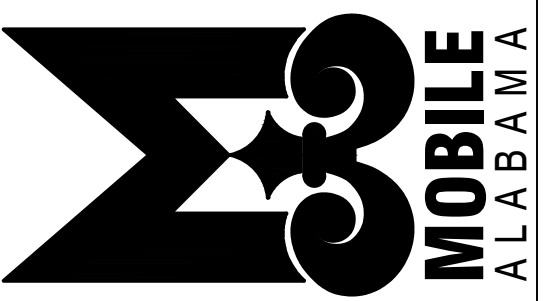


TAG
THE ARCHITECTS GROUP/INC
710 DOWNTOWNER BOULEVARD
MOBILE, ALABAMA 36609
251.343.1811 tagarchitects.net

STATE OF ALABAMA
JAMES ELLIOTT
LANDSCAPE ARCHITECT
NUMBER 6

**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
& SPLASHPAD
COM # PR-093-21**

MOBILE, ALABAMA



REVISIONS

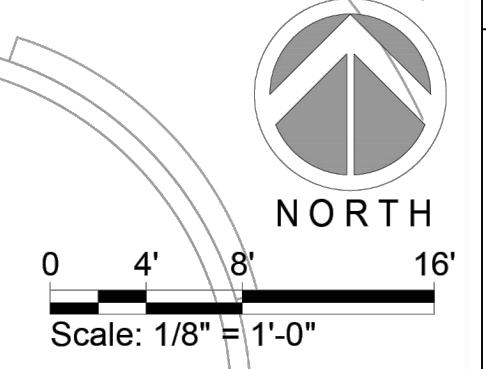
NO.	DATE	REMARKS
09-28-22	IFB	

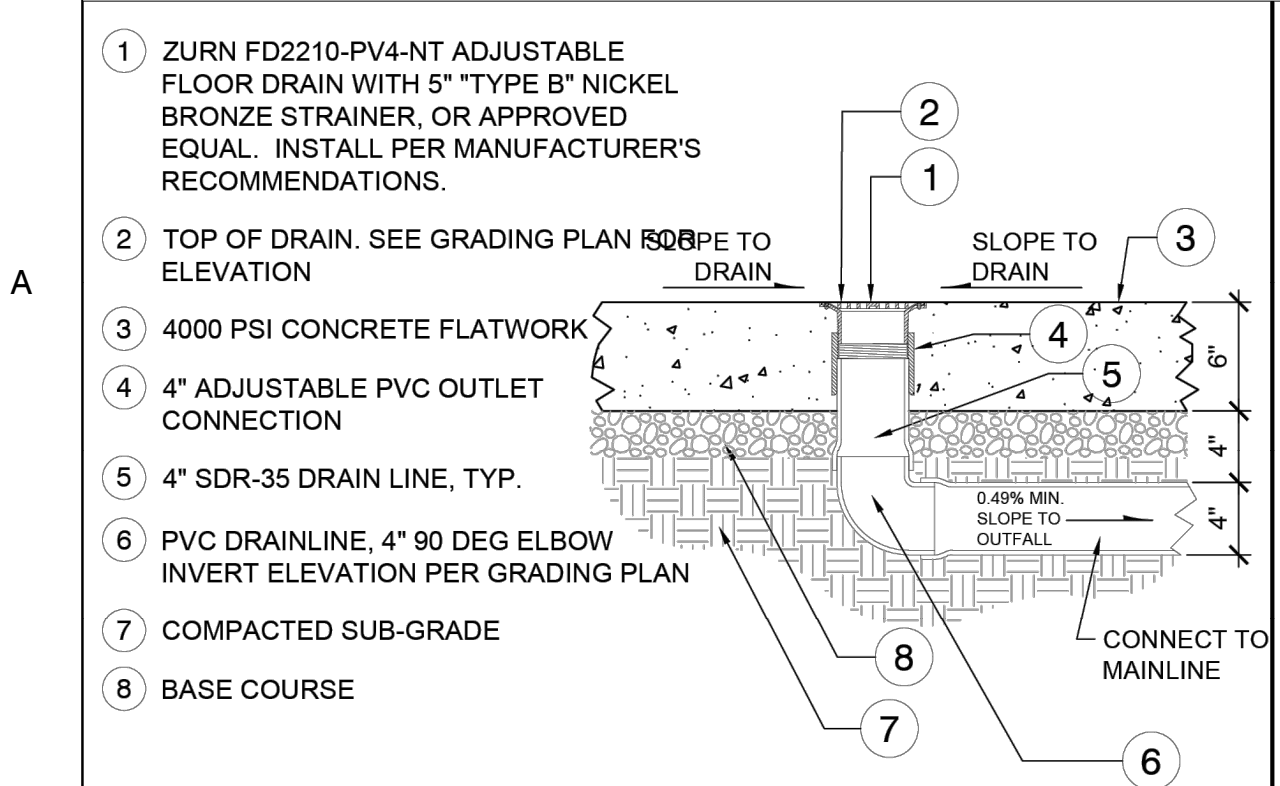
SHEET TITLE

KEY PLAN
**GRADING +
DRAINAGE
PLAN SKATE
PARK**

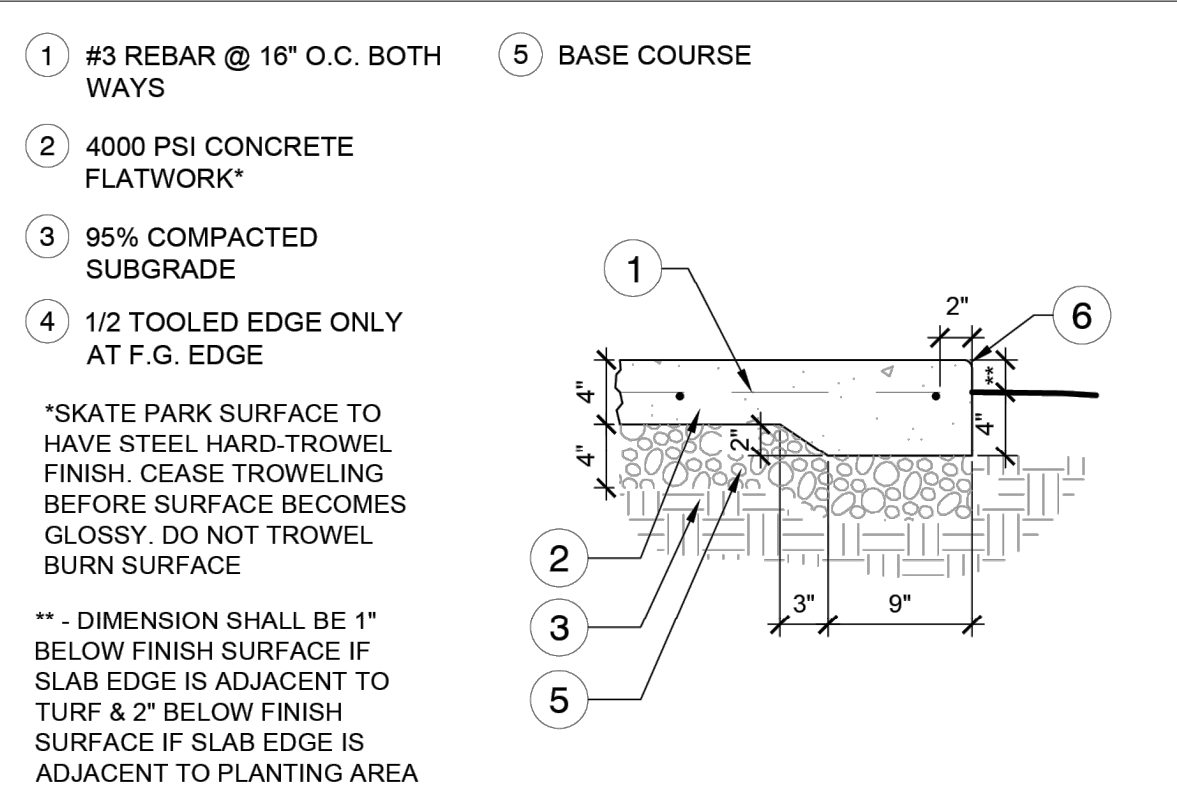
JOB NO. 2121
DATE: SEPTEMBER 28, 2022

SHEET
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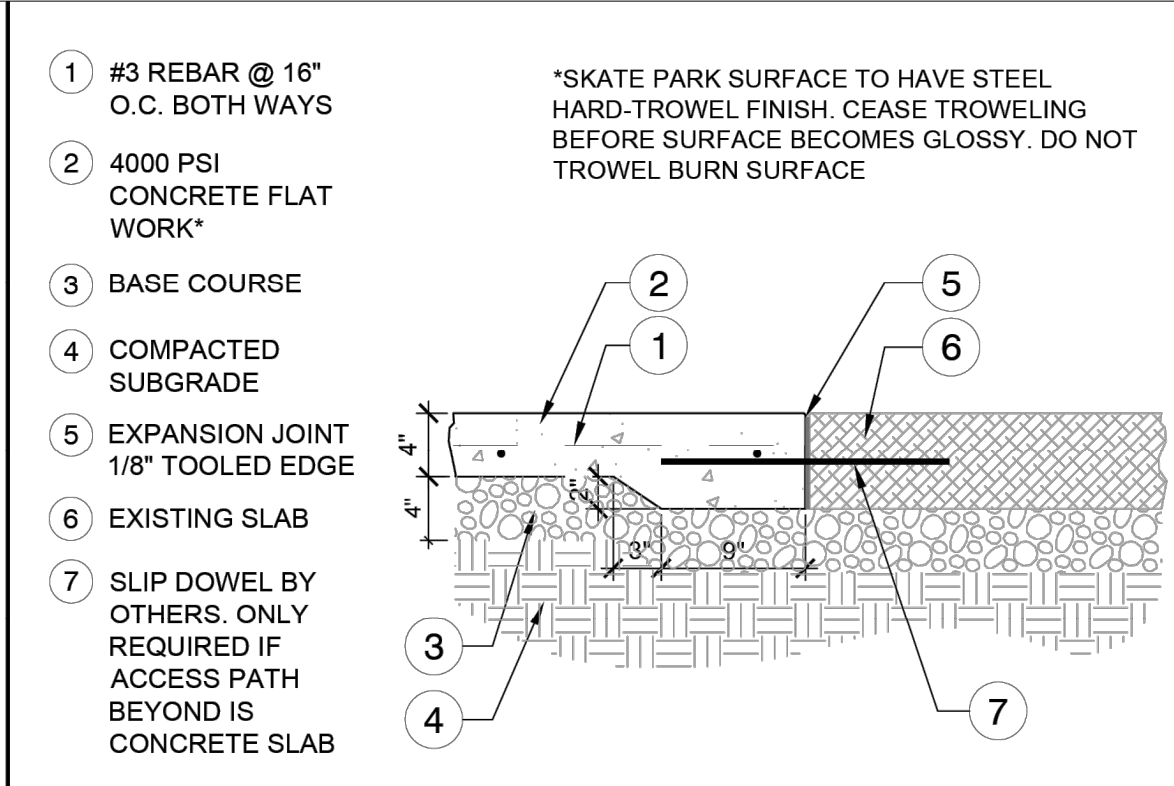




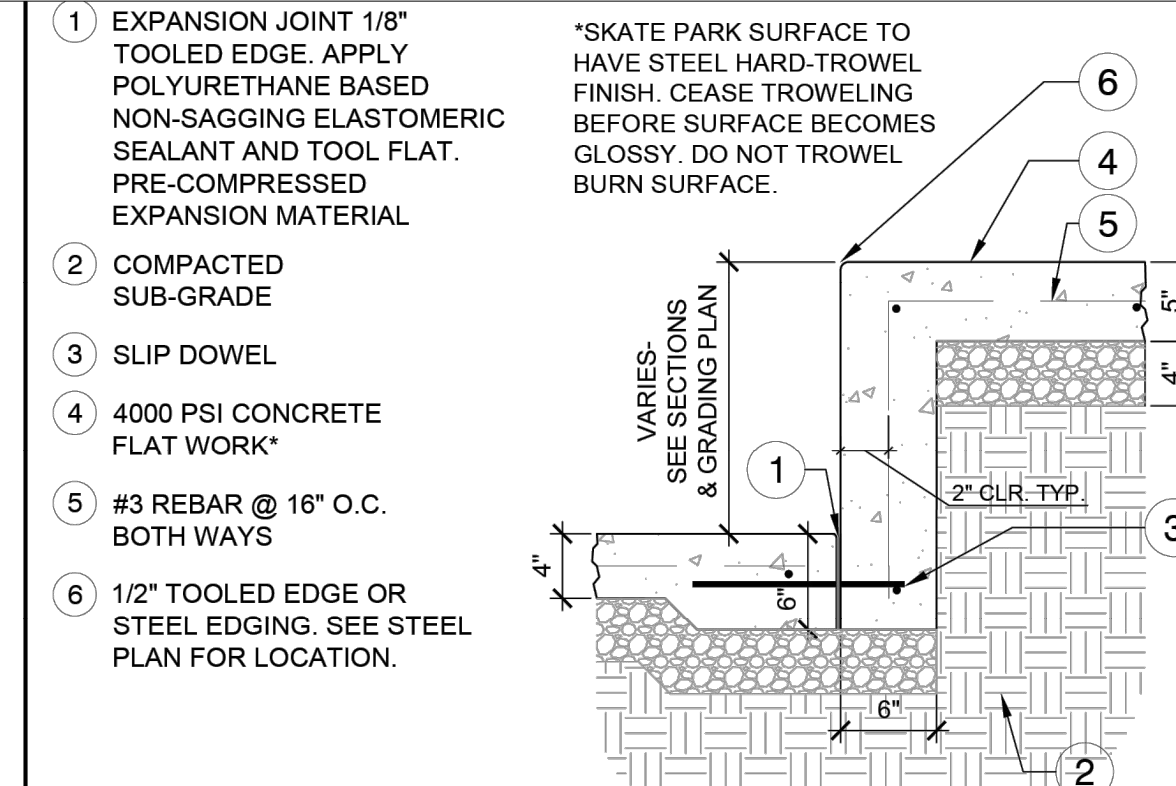
1 AREA DRAIN
3/4" = 1'-0"
P-HYB-MOB-02



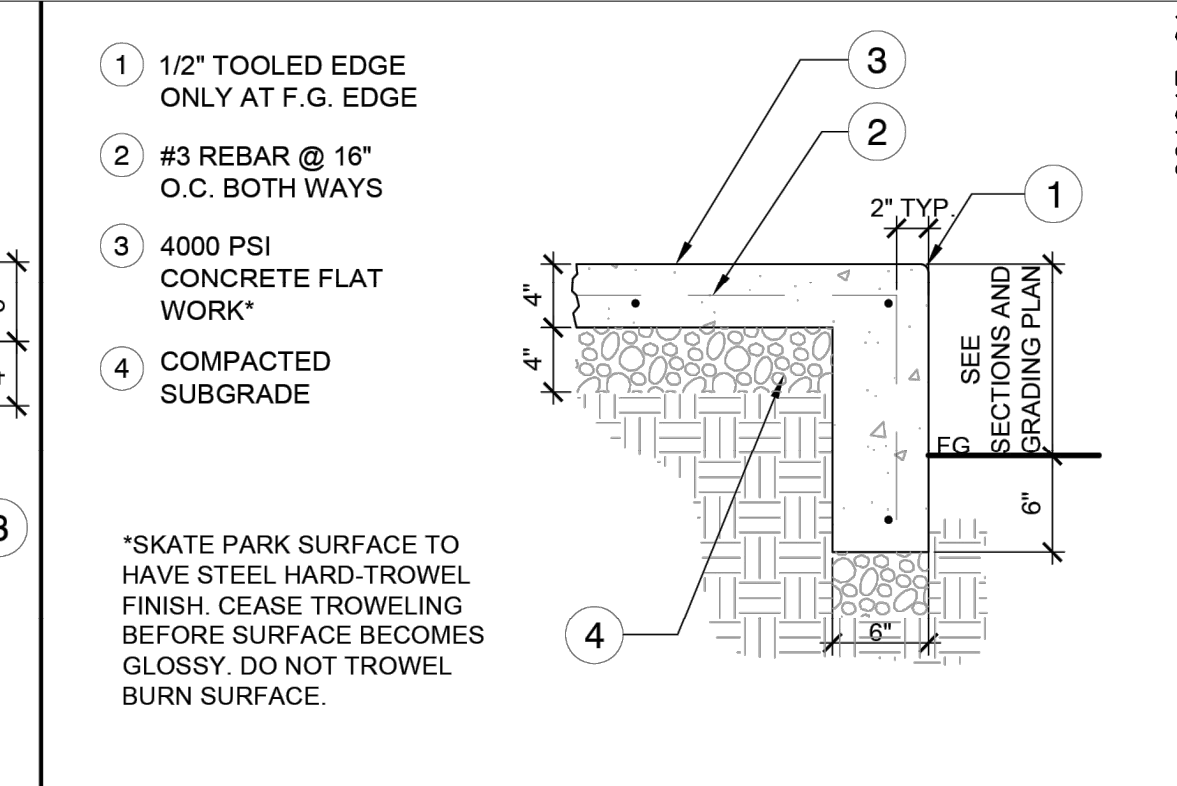
2 SLAB EDGE
1" = 1'-0"
P-HYB-MOB-45



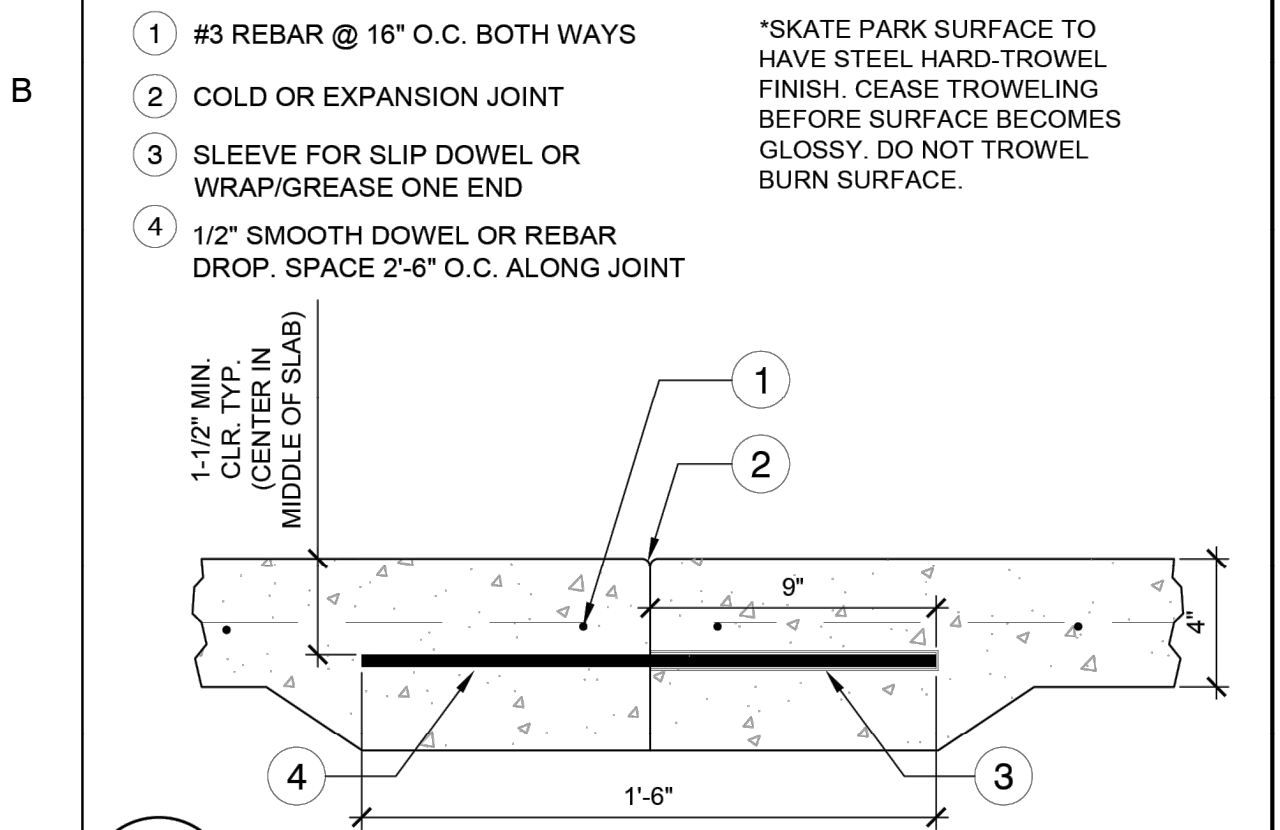
3 SKATEPARK TO EXISTING SLAB CONNECTION
1" = 1'-0"
P-HYB-MOB-04



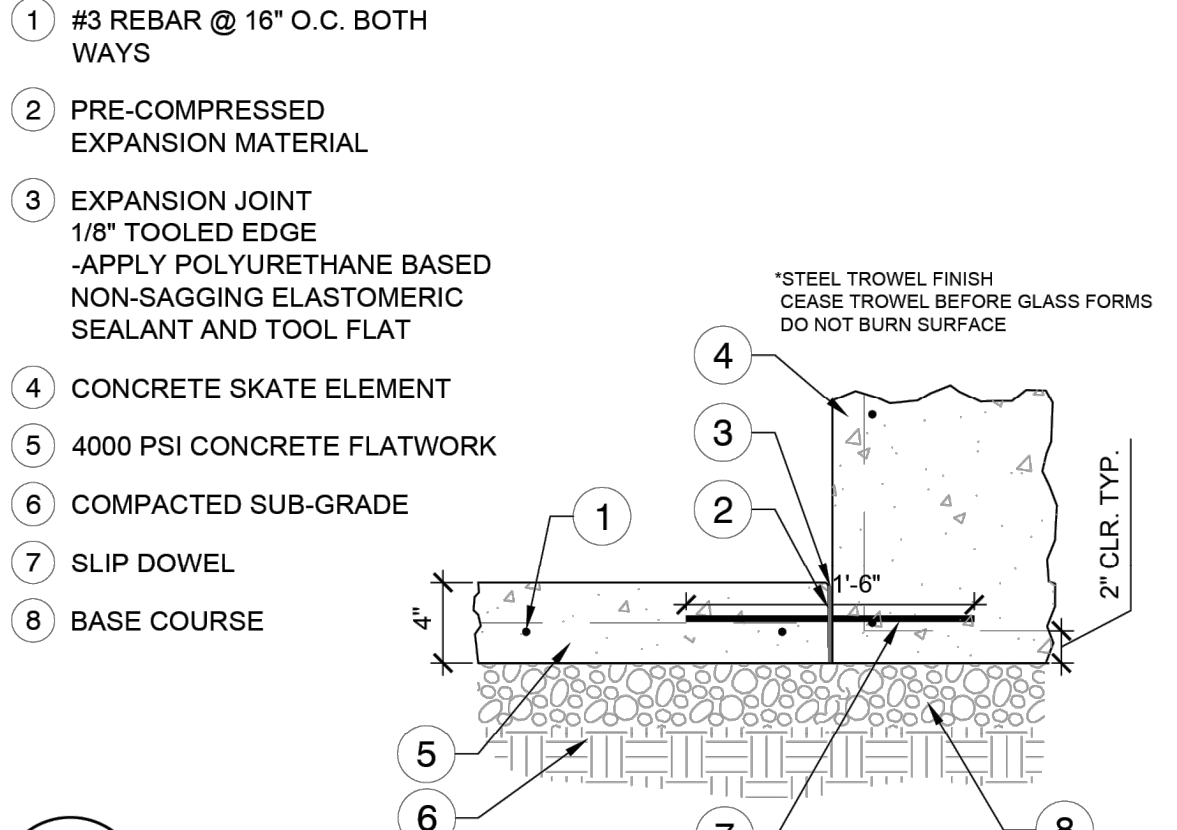
4 TURNDOWN EDGE AT FINISH SURFACE
1" = 1'-0"
P-HYB-MOB-21



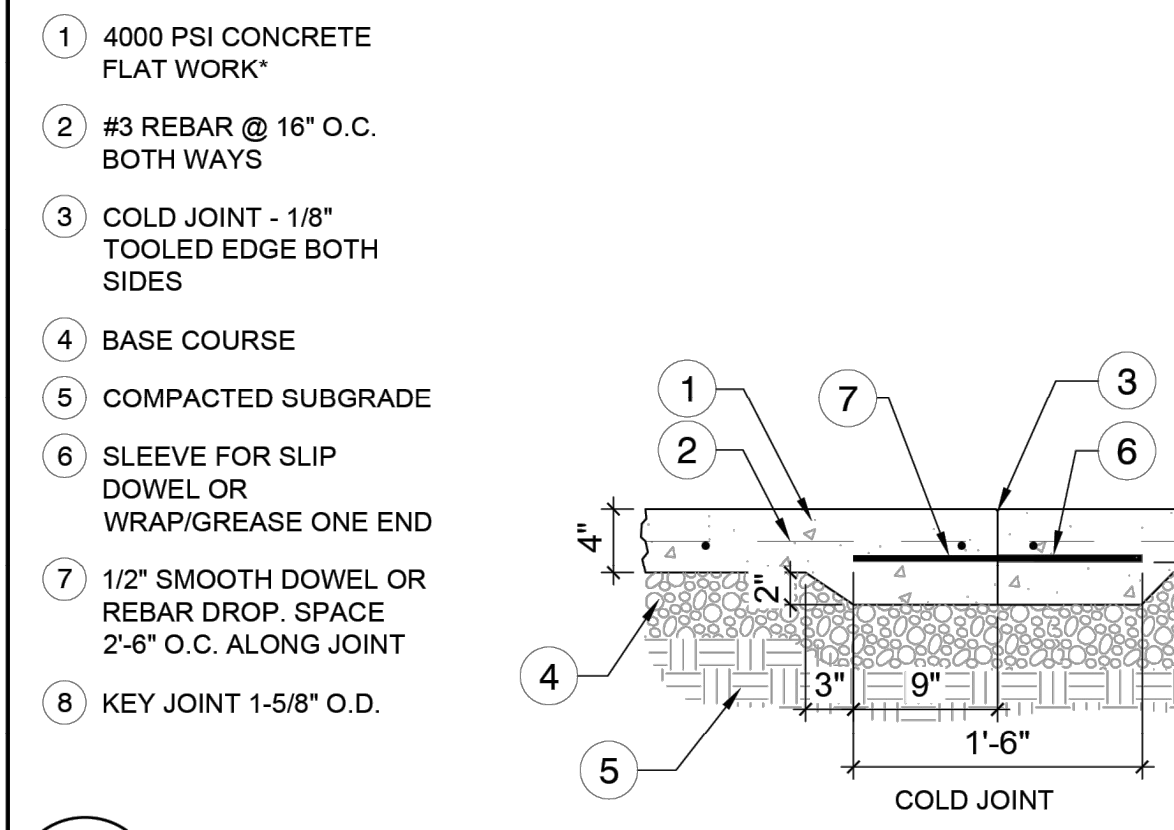
5 TURNDOWN EDGE AT FINISHED GRADE
1" = 1'-0"
P-HYB-MOB-46



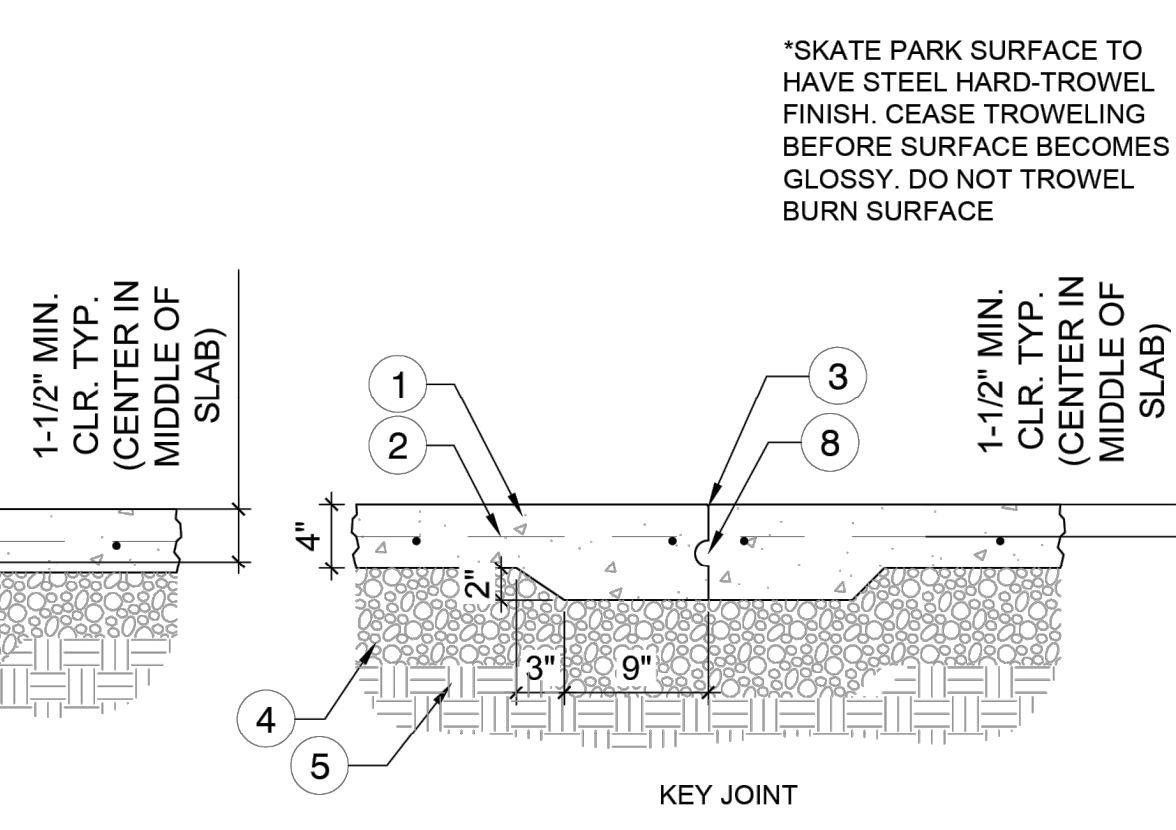
6 SLIP DOWEL
1" = 1'-0"
P-HYB-MOB-12



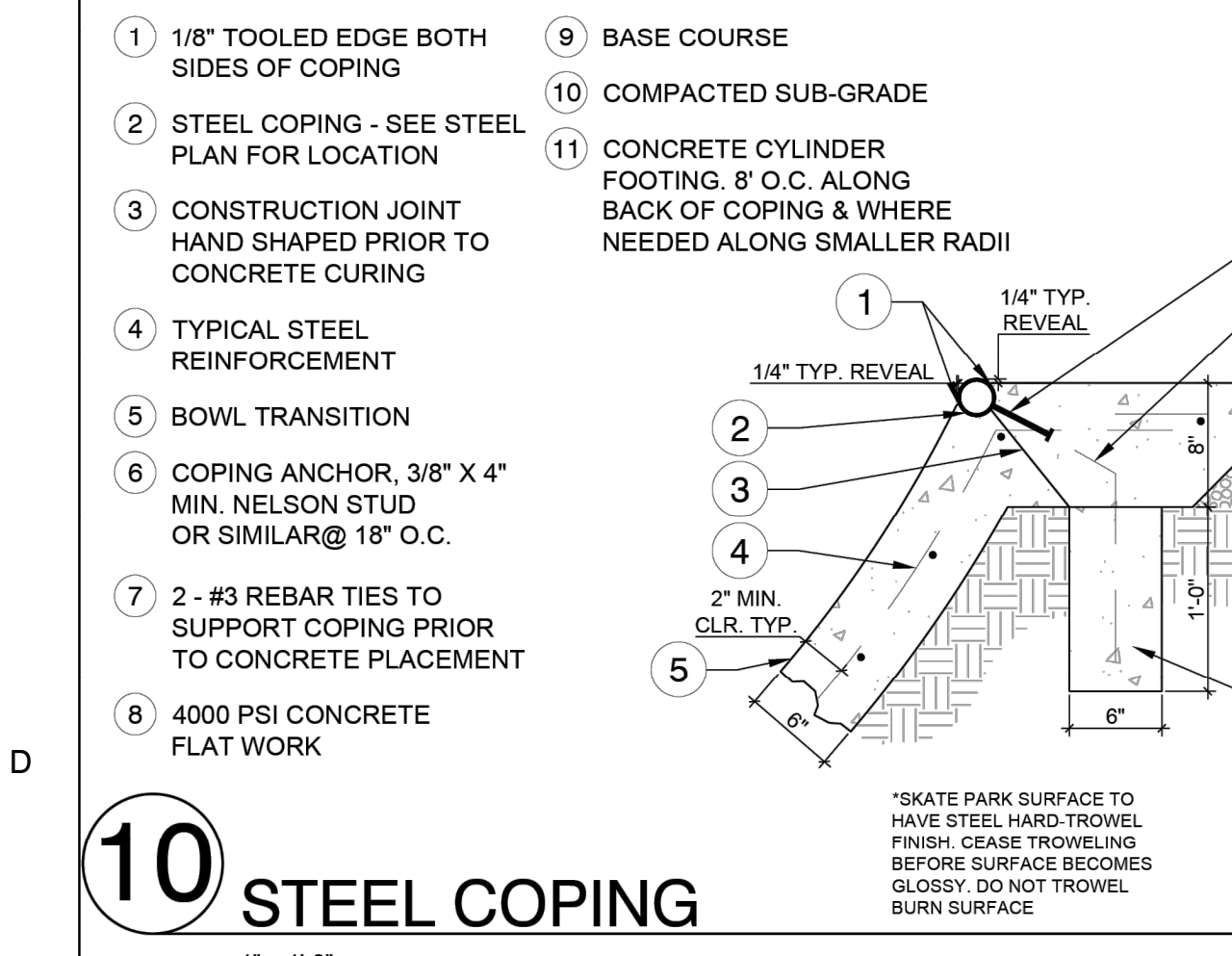
7 EXPANSION JOINT
1" = 1'-0"
P-HYB-MOB-47



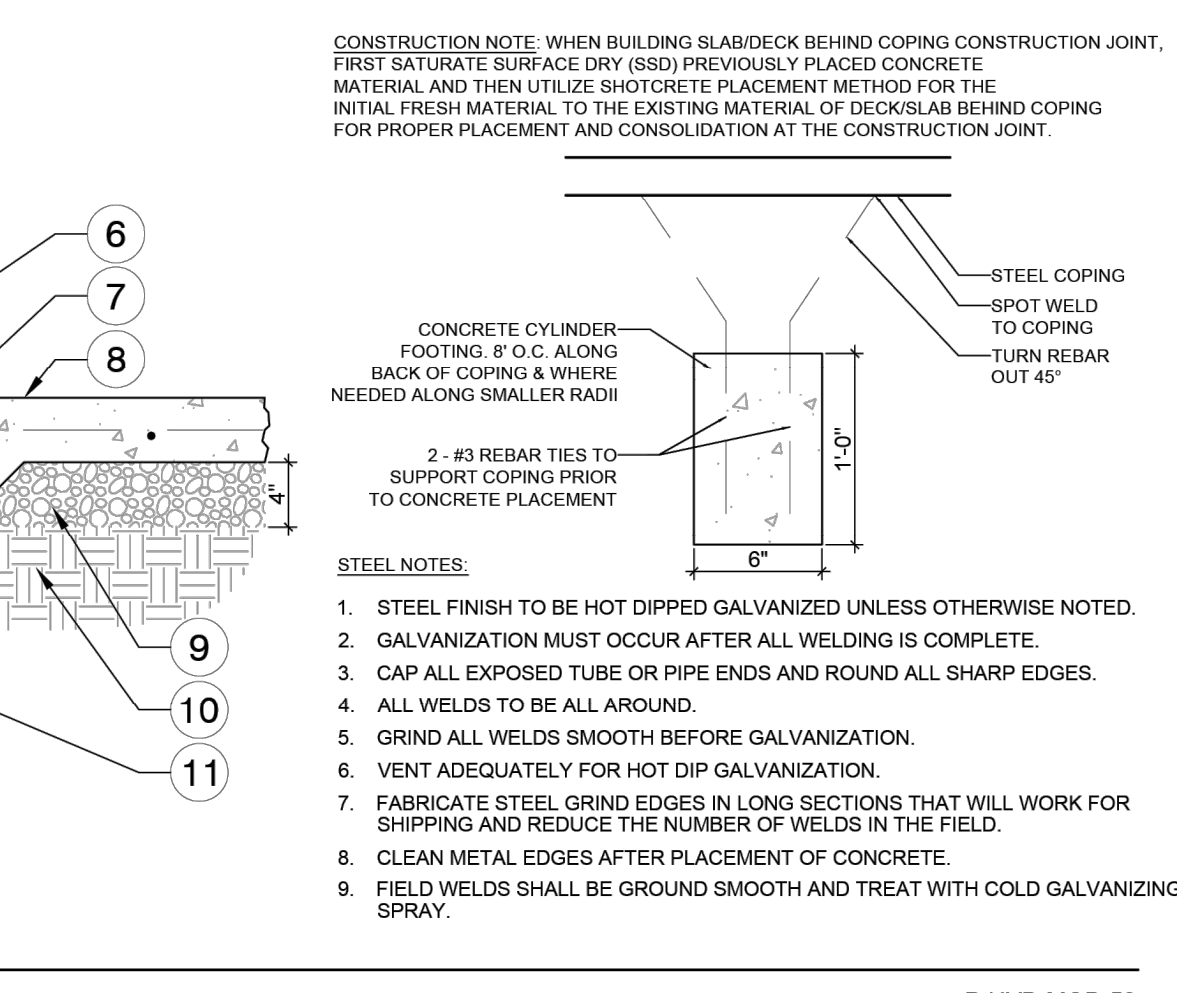
8 COLD JOINT / KEY JOINT
1" = 1'-0"
P-HYB-MOB-05



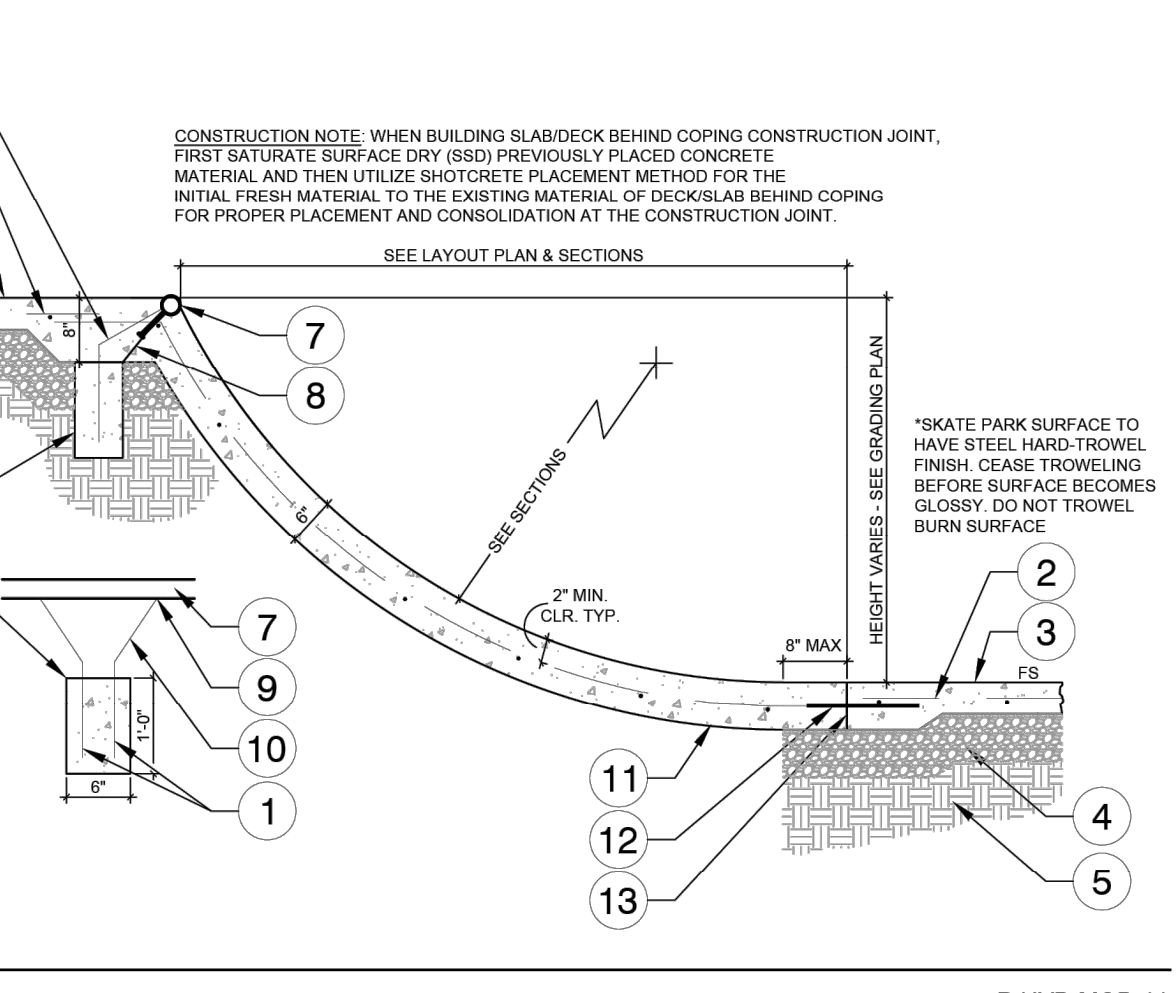
9 SAWCUT JOINT
1" = 1'-0"
P-HYB-MOB-49



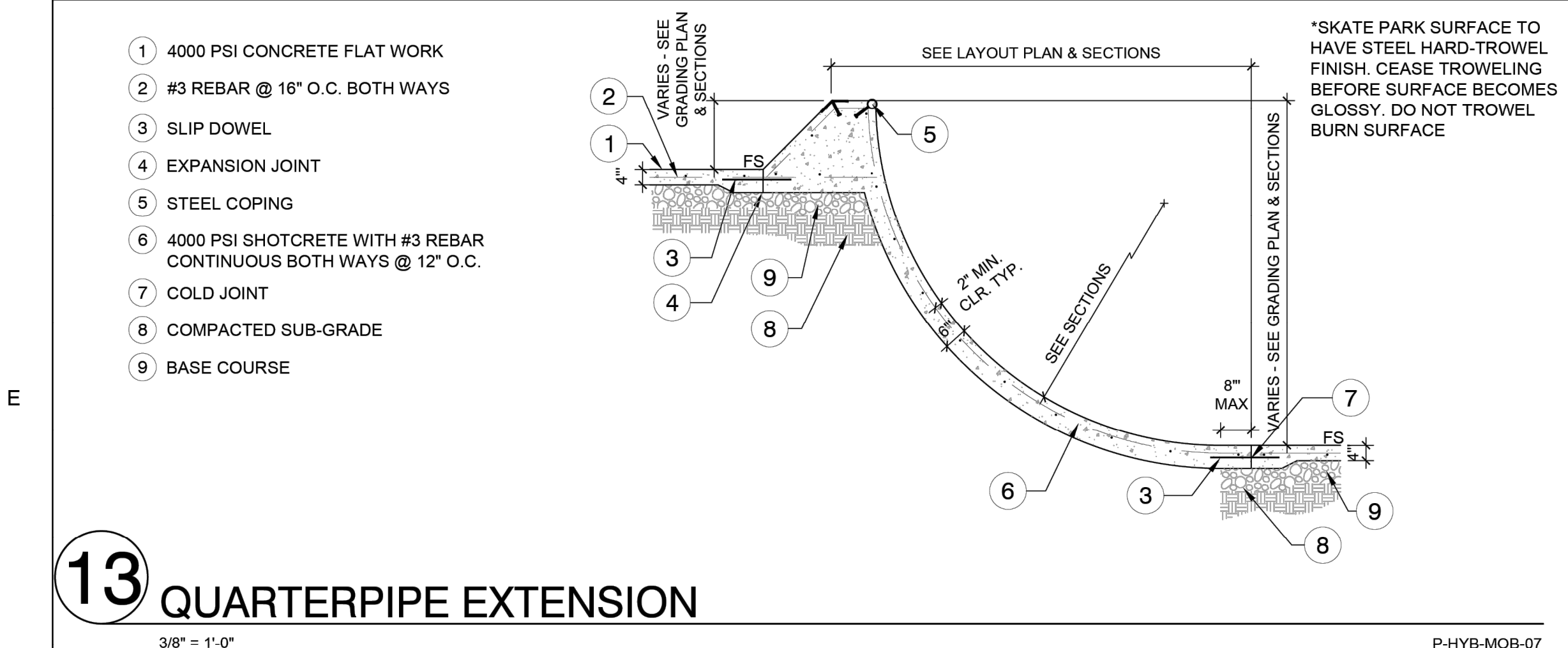
10 STEEL COPING
1" = 1'-0"
P-HYB-MOB-50



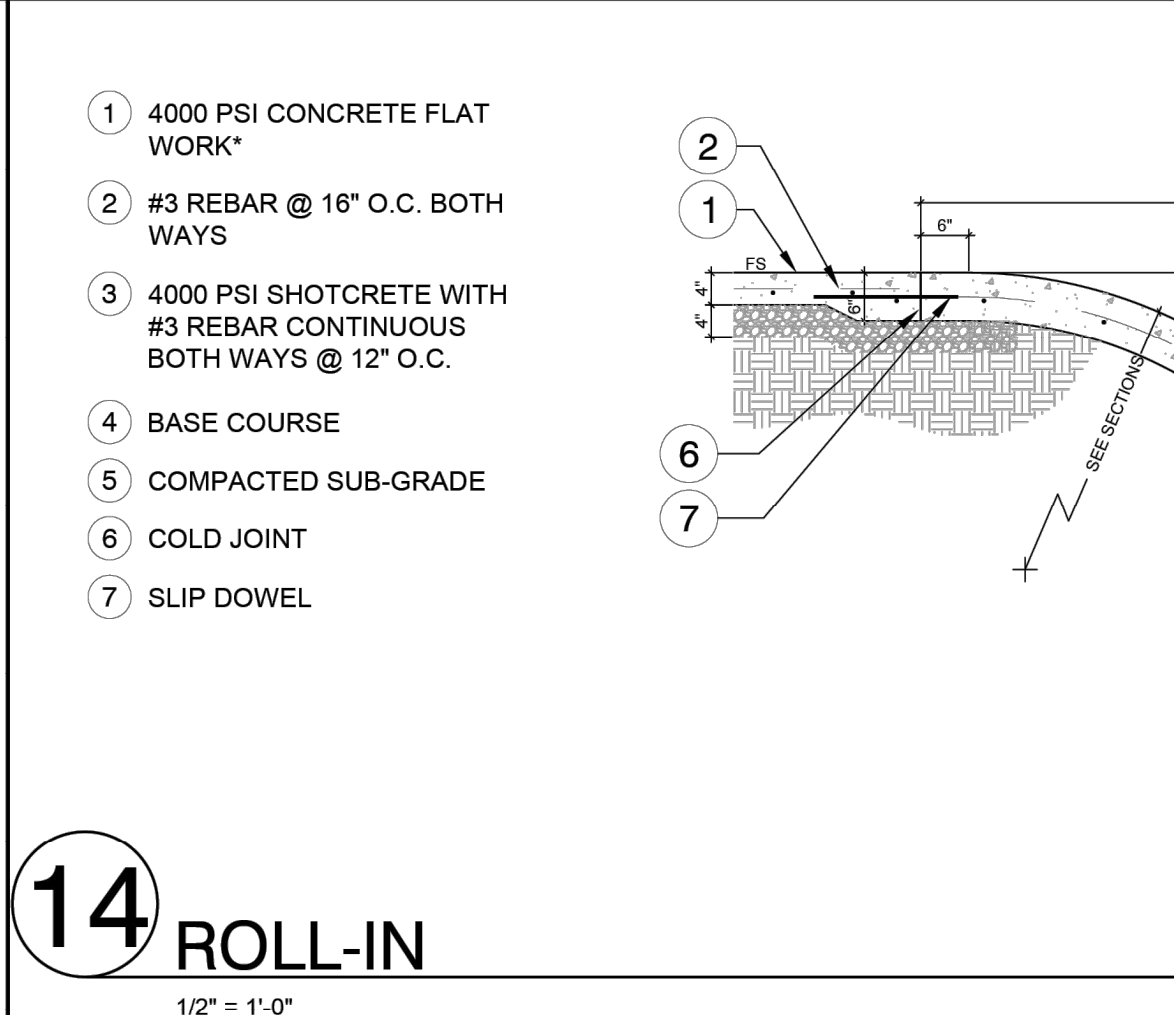
11 TYPICAL QUARTER PIPE
1/2" = 1'-0"
P-HYB-MOB-11



12 PRECAST CANTILEVERED GRIND LEDGE
3/4" = 1'-0"
P-HYB-MOB-25



13 QUARTERPIPE EXTENSION
3/8" = 1'-0"
P-HYB-MOB-07



14 ROLL-IN
1/2" = 1'-0"
P-HYB-MOB-06

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STATE OF ALABAMA
JAMES ELLIOTT
REGISTERED LANDSCAPE ARCHITECT
NUMBER 6

PUBLIC SAFETY MEMORIAL PARK - RESTROOM, SKATEBOARD PARK, & SPLASHPAD
COM # PR-093-21
MOBILE, ALABAMA

MOBILE
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REVISIONS

NO.	DATE	REMARKS
09-28-22	IFB	

SHEET TITLE

KEY PLAN
CONSTRUCTION DETAILS SKATE PARK

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

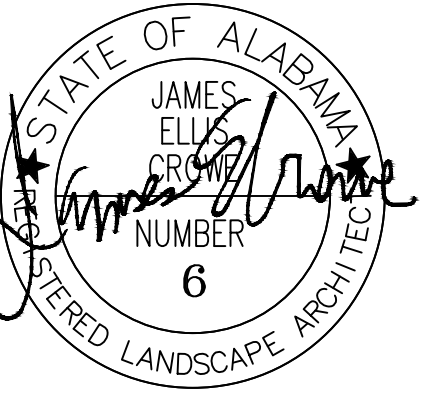
SHEET

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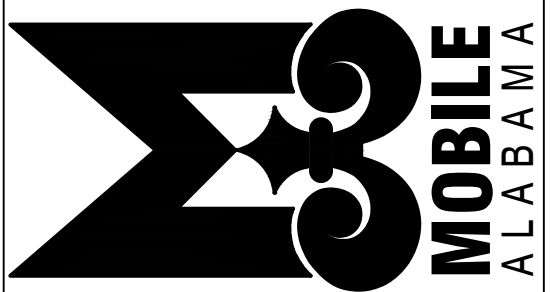


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**PUBLIC SAFETY MEMORIAL PARK -
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KEY PLAN

**LAYOUT PLAN
SPLASH PAD**

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

LA501

PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	TTLP-001-OM	TWO TIER TOOLIP SPRAY, OMNI
2	5	BSWV-001-LF-OM	BASKET WEAVE, LOW FLOW, OMNI
3	5	WTJT-001-LF-OM	WATER TIARA, LOW FLOW, OMNI
4	10	UPJT-007-LF-OM	UPSTREAM JET, LOW FLOW, OMNI
5	1	BOL-005	6" BOLLARD ACTIVATOR, TOUCH SENSOR
6	4	DRN12-002	DRAIN-12X12X12 FIBERGLASS-6"

- PLEASE NOTE:
ALL STAINLESS STEEL FEATURES TO BE GROUNDED
AND BONDED PER LOCAL CODE AND REGULATIONS.
- CONCRETE -
- 1 - WATERPLAY CONCRETE PAD DIMENSIONS AND ORIENTATION ARE TO BE USED AS A REFERENCE. THEY MAY BE ALTERED TO ACCOMODATE EXISTING FIELD CONDITIONS.
 - 2 - ALL CONCRETE SHALL BE 3000 PSI MINIMUM, 28 DAY COMPRESSIVE STRENGTH, WITH 6% AIR ENTRAPMENT.
 - 3 - GRADE SHALL BE SLOPED 2% FROM THE WATERPLAY PAD PERIMETER TO THE MAIN DRAINS.
 - 4 - A 5 FOOT OVERSPRAY BUFFER IS INCORPORATED BETWEEN THE WATERPLAY PAD PERIMETER AND THE INTENDED AREA OF INFLUENCE OF THE WATERPLAY FEATURES. THE BUFFER ZONE IS INCLUDED IN THE OVERALL DIMENSIONS OF THE WATERPLAY PAD.
 - 5 - ALL REINFORCEMENT STEEL SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH ACI 318-99, AND CRSI MSP-1-01.
 - 6 - ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
 - 7 - EACH WATER FEATURE SHALL BE LOCATED WITHIN A SINGLE PANEL OF CONCRETE, UNLESS OTHERWISE NOTED.
 - 8 - OMNIPOD COVER MUST BE CAST FLUSH AND LEVEL WITH THE FINISHED CONCRETE SURFACE.
 - 9 - SURFACE SPRAY NOZZLES SHALL BE CAST FLUSH AND LEVEL WITH THE FINISHED CONCRETE SURFACE.
 - 10 - EARTHFORMS MAY BE USED UNDER THE WATERPLAY CONCRETE PAD.
 - 11 - SPRAYGROUND AREA IS 2827.4 SQUARE FEET [262.7 SQUARE METERS]

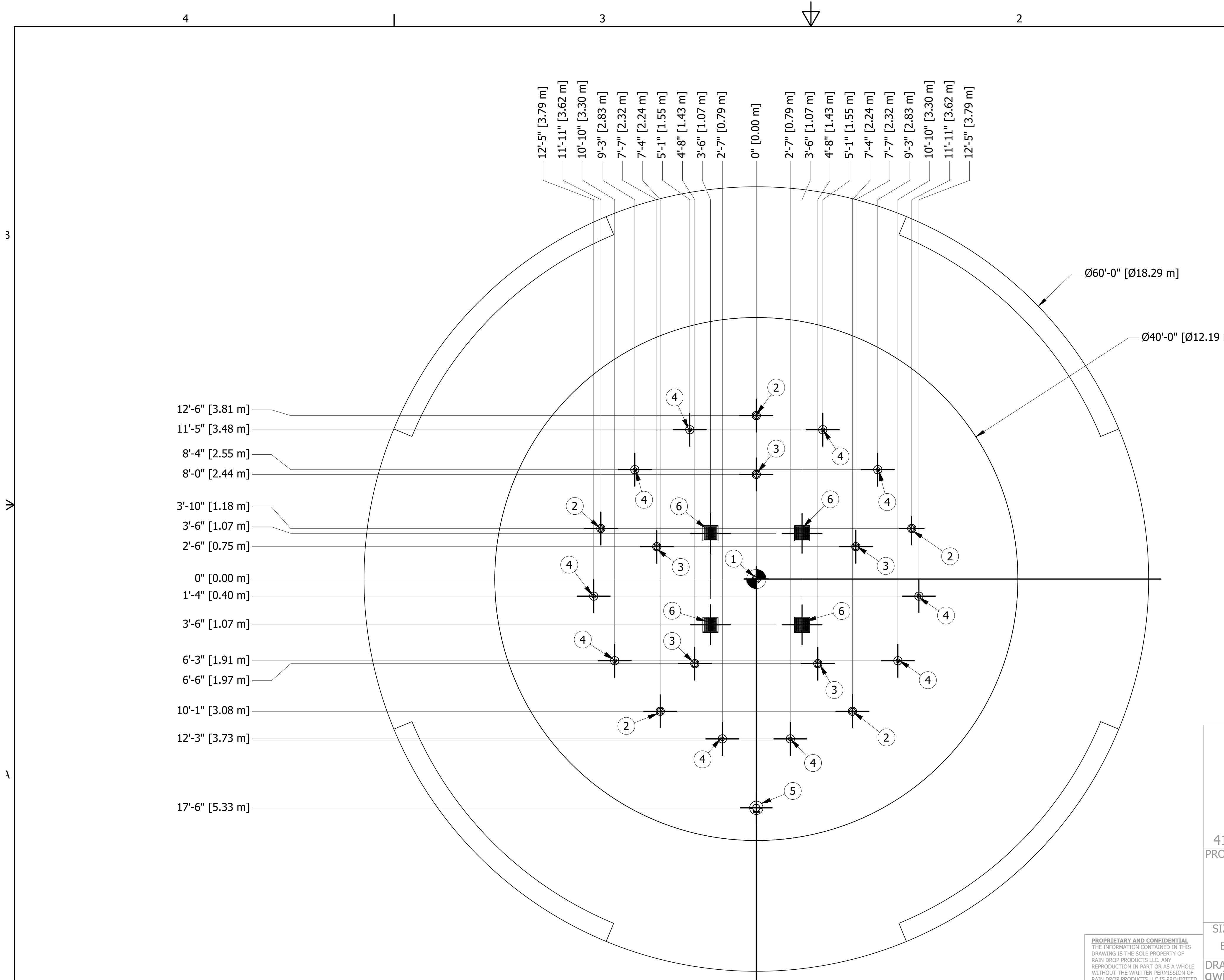


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PUBLIC SAFETY MEMORIAL PARK
MOBILE, AL 36606 USA

SIZE	PROJECT #	DWG NO	REV
B	18320	18320-2022-1AL-MOBILE-PUBLIC SAFETY MEMORIAL PARK-11	1
DRAWN	8/18/2022	SHEET	OF 10

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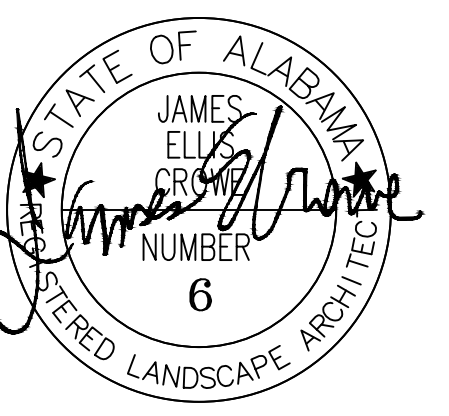
1 2 3 4 5 6

A
B
C
D
E

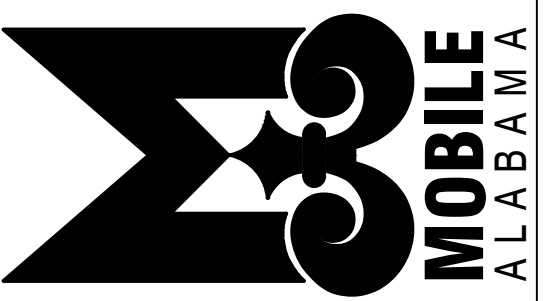


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**PUBLIC SAFETY MEMORIAL PARK -
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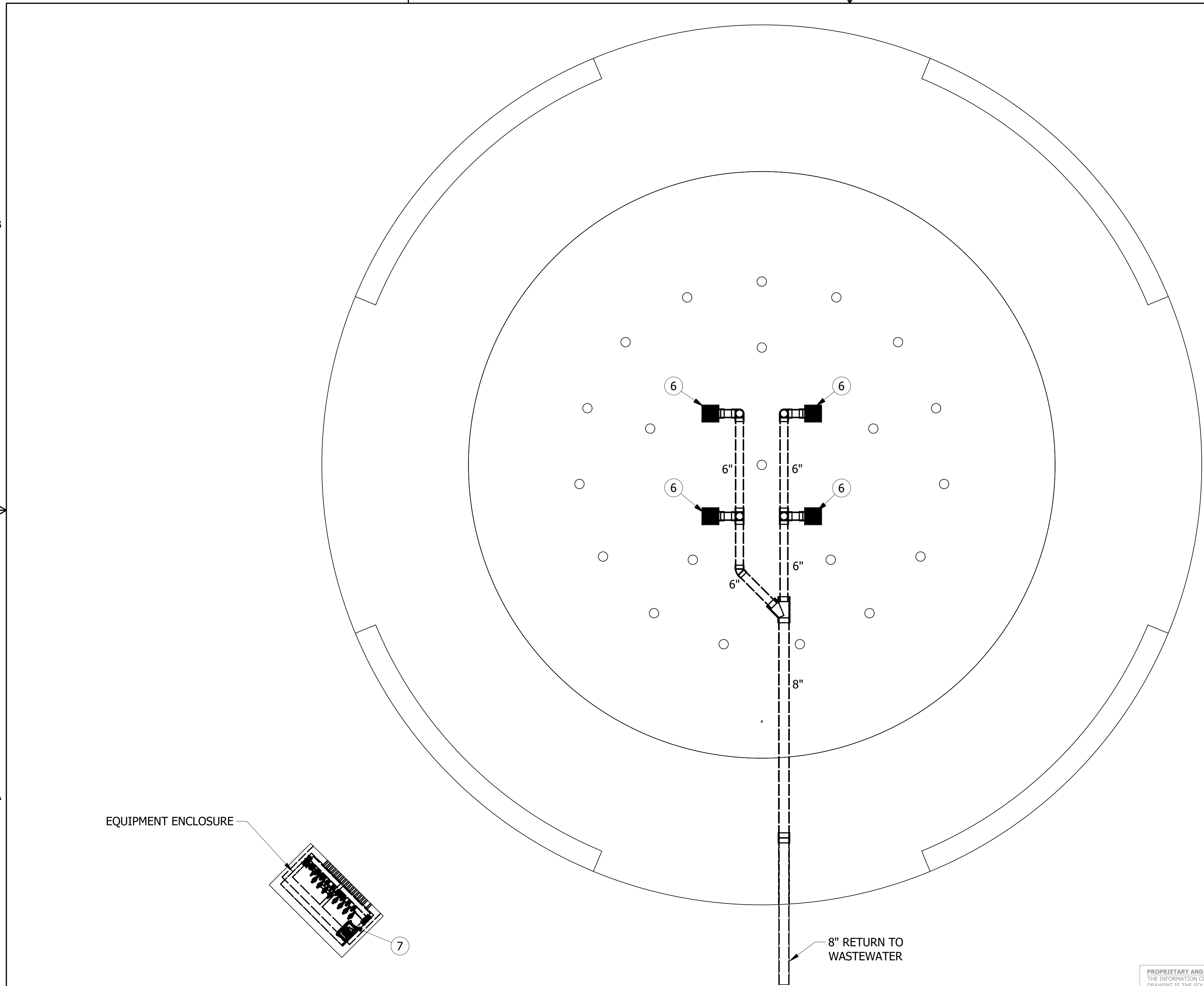
KEY PLAN
**DRAINAGE
PLAN
SPLASH PAD**

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

LA504



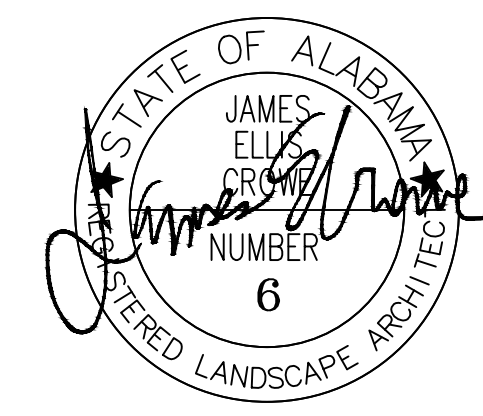
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
6	4	DRN12-002	DRAIN-12X12X12 FIBERGLASS-6"
7	1	ENCLOSURE	ENCLOSURE, W/ MANIFOLD4-161-012 & RNMK-024

PLEASE NOTE:
ALL PIPES AND FITTINGS TO BE SUPPLIED BY CONTRACTOR UNLESS OTHERWISE NOTED.
DRAINS -
1 - RETURN PIPE AND FITTINGS SHALL CONFORM TO ASTM D2665. CONNECTIONS SHALL BE A SOLVENT WELD, UNLESS OTHERWISE SPECIFIED.
2 - ALL PVC PIPING SHALL BE STAMPED WITH THE N.S.F. SEAL OF APPROVAL FOR POTABLE WATER.
3 - ALL PIPEWORK SHALL BE LABELED WITH ARROWS TO INDICATE THE DIRECTION OF FLOW.
4 - SOLVENT WELD CEMENT FOR SOCKET CONNECTIONS SHALL MEET THE REQUIREMENTS OF ASTM D2564.
5 - RETURN PIPING SHALL BE DESIGNED TO CARRY THE REQUIRED QUANTITIES OF WATER AT VELOCITIES NOT EXCEEDING 3 FPS IN A GRAVITY FED SYSTEM OR PER LOCAL CODE.
6 - ALL PIPING TO BE SLOPED A MINIMUM OF 2% FROM THE DRAIN TO THE RESERVOIR.
7 - DRAWINGS ARE INTENDED FOR SCHEMATIC USE ONLY. FINAL PIPE, RESERVOIR, AND SEDIMENT TRAP LOCATIONS SHALL BE FIELD VERIFIED AND COORDINATED WITH CONTRACTOR.

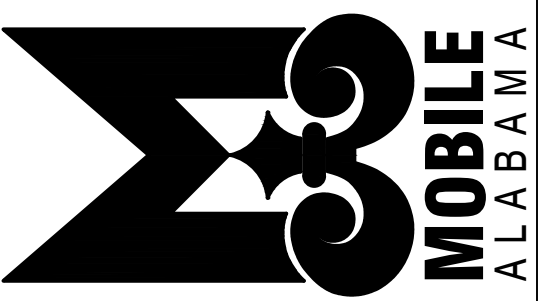
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419.207.1229 WWW.RAIN-DROP.COM
PROJECT
PUBLIC SAFETY MEMORIAL PARK
MOBILE, AL 36606 USA

SIZE B	PROJECT # 18320	DWG NO 18320-2022-1AL-MOBILE-PUBLIC SAFETY MEMORIAL PARK-11	REV 1
DRAWN qwills		8/18/2022	SHEET OF 10

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	09-28-22	IFB

SHEET TITLE

KEY PLAN
**MANIFOLD
PLAN
SPLASH PAD**

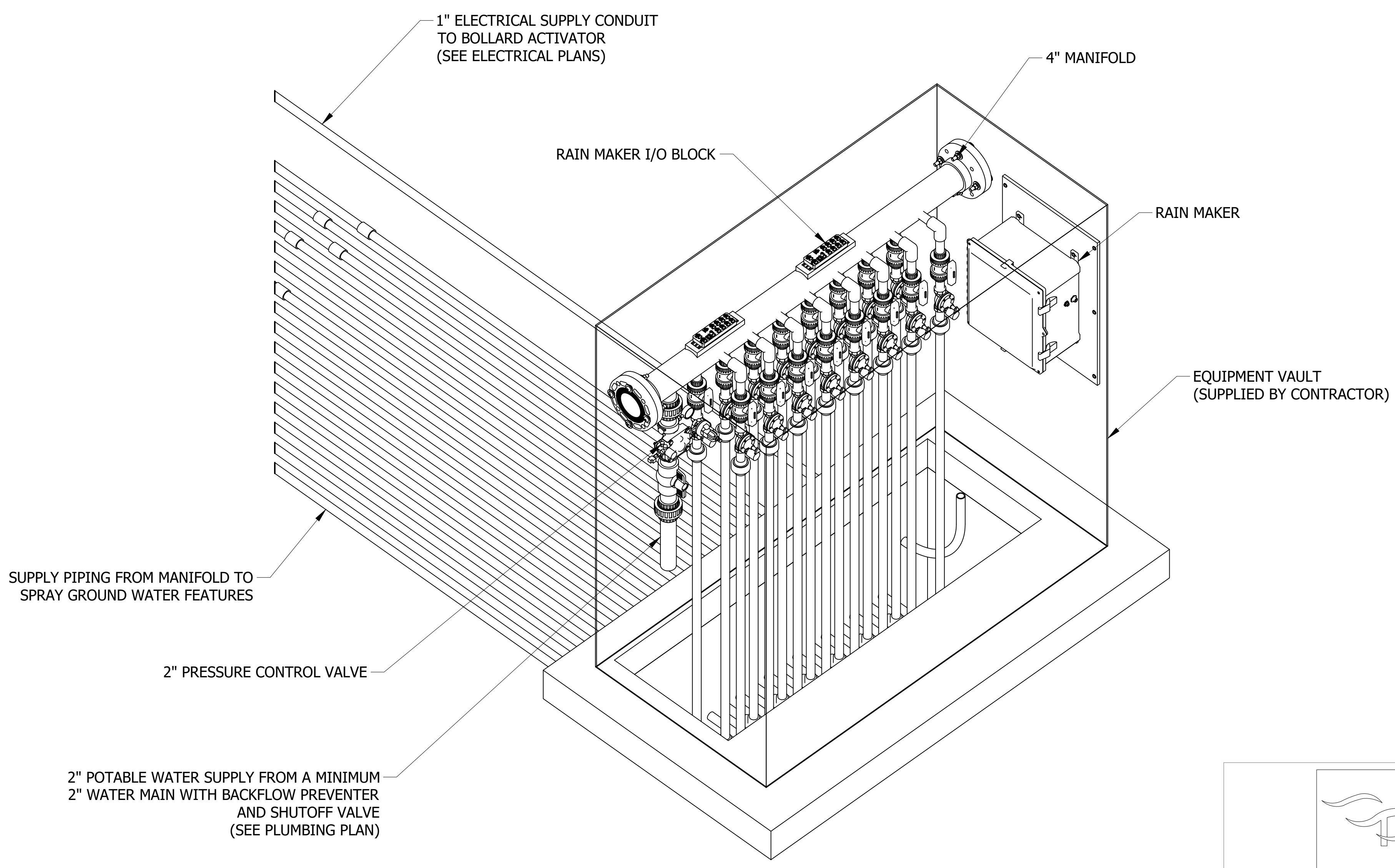
JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

LA507

SPRAYGROUND SPECIFICATIONS -
SEQUENCED FLOW RATE DESIGNED AT 26.8 GPM. MINIMUM OF 2" WATER MAIN REQUIRED.
WATER MAIN MUST HAVE A BACKFLOW PREVENTER, PRESSURE REDUCING AND/OR
PRESSURE SOLENOID VALVE, AND A MAIN SHUT OFF VALVE IN THE LINE. WATER
MAIN SHALL NOT EXCEED A WATER VELOCITY OF 10 FPS OR PER LOCAL CODE,
AND BE OPERATED AT 22-35 PSI. ALL PIPE WORK SHALL BE SCHEDULE 40 PVC,
APPROVED FOR POTABLE WATER USAGE AND PRESSURE TESTED BEFORE PLACING
CONCRETE. ALL PIPING SHALL BE LABELED WITH DIRECTIONAL ARROWS.



MANIFOLD ISOMETRIC VIEW

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PROJECT
PUBLIC SAFETY MEMORIAL PARK
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SIZE B	PROJECT # 18320	DWG NO 18320-2022-1AL-MOBILE-PUBLIC SAFETY MEMORIAL PARK-11	REV 1
DRAWN gwills		8/18/2022	SHEET OF 10

REVISIONS

NO.	DATE	REMARKS
09-28-22		IFB

SHEET TITLE

KEY PLAN

**MANIFOLD
ENCLOSURE
SPLASH PAD**

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

LA508

- GENERAL NOTES:**
- ALL PIPING "NSF-PW" APPROVED / ALL ELECTRICAL WIRING IN COMPLIANCE WITH NEC ELECTRICAL INTERLOCK OF ELECTRICAL FEED EQUIPMENT WITH RECIRCULATION PUMP, HYDRAULIC INTERLOCK OF EROSION FEED EQUIPMENT WITH RECIRCULATION PUMP, FLOW PROPORTIONING VALVES WHERE REQUIRED; 3" AND UNDER - DIVERTER VALVE, 4" AND ABOVE - BUTTERFLY VALVE
 - ALL MOTORS AND RECEPTACLES ARE PROTECTED BY GFCI BREAKERS AS REQUIRED BY N.E.C
 - EACH WASTE LINE SHALL HAVE A UNIQUE AIR GAP. WASTE LINES FROM DIFFERENT SOURCES (E.G. POOL, SPA, OVERFLOW, SUMP PUMP) SHALL NOT BE TIED TOGETHER BUT MAY DISCHARGE INTO A COMMON SUMP OR RECEPTACLE.
 - 3.1. THE WASTE LINE MUST BE CONNECTED TO AN APPROVED WASTE DISPOSAL SYSTEM ACCORDING TO LOCAL OR STATE CODES.
 - GEOMETRY FOR REFERENCE.
 - FLOOR DRAIN PIPED TO DRAIN CONNECTIONS OR PLUGGED IF NOT USED. TYP 1X PLCS.

FILTER EQUIPMENT LIST

MODEL: CS501WF-16PVP - 42 GPM @ 60 TDH

ITEM#	EL#	MFG	PART#	DESCRIPTION
1	1	SQUARE-D	Q0112M100PRB	MBR ELECTRICAL PANEL, 12SP, 100A, 1φ-120V
2	2	LEVITON	5320	RECEPTACLE W/ EXTRA-DUTY WEATHER-PROOF COVER, 1φ-120V
3	3	BARRINA	LSS-2FT-2P12H	LED SERVICE LIGHT, 2FT, 135LM/FT, MIN., 1φ-120V
4	-	VAK PAK INC	-	(2) EXHAUST VENTS
5	5	RAINDROP	TMR-008	TIMER CONTROLLER, 1φ-120V
6	-	VAK PAK INC	(16) VLV'S (16) 1.0"	SCH_80 MANIFOLD; (16) 1.0" VLV'S, POTABLE WATER SUPPLY
7	7	RAINDROP	-	2.0" SOLENOID/PRESSURE CONTROL VLV, 24VDC (PROVIDED BY OTHERS, INSTALLED BY VPI)
8	-	VAK PAK INC	-	CB416

ELECTRICAL NOTES:

- OUTLETS ARE GFCI PROTECTED.

***ADJUSTABLE-SPEED DRIVE SYSTEMS**

- NFPA70 NEC: 430.122 CONDUCTORS - MINIMUM SIZE AND AMPACITY
- (A) BRANCH/FEEDER CIRCUIT CONDUCTORS: CIRCUIT CONDUCTORS SUPPLYING POWER CONVERSION EQUIPMENT INCLUDED AS PART OF AN ADJUSTABLE-SPEED DRIVE SYSTEM SHALL HAVE AN AMPACITY NOT LESS THAN 125 PERCENT OF THE RATED INPUT CURRENT TO THE POWER CONVERSION EQUIPMENT.
- (B) OUTPUT CONDUCTORS - THE CONDUCTORS BETWEEN POWER CONVERSION EQUIPMENT AND THE MOTOR SHALL HAVE AN AMPACITY EQUAL TO OR LARGER THAN 125 PERCENT OF THE MOTOR FULL LOAD CURRENT AS DETERMINED BY 430.6(A) OR (B).

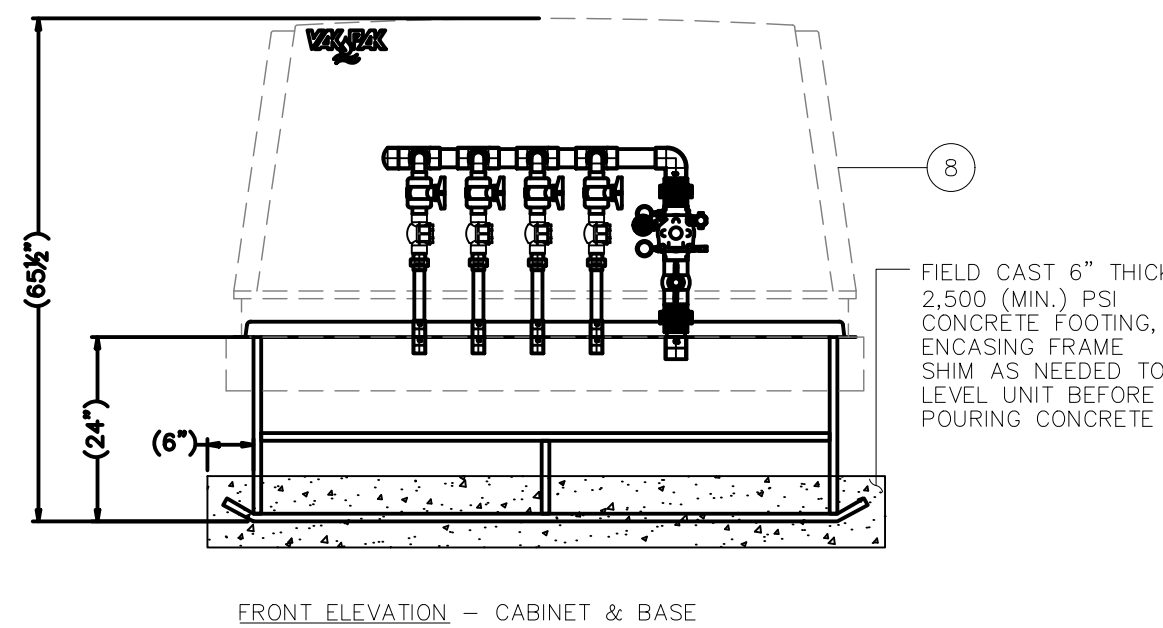
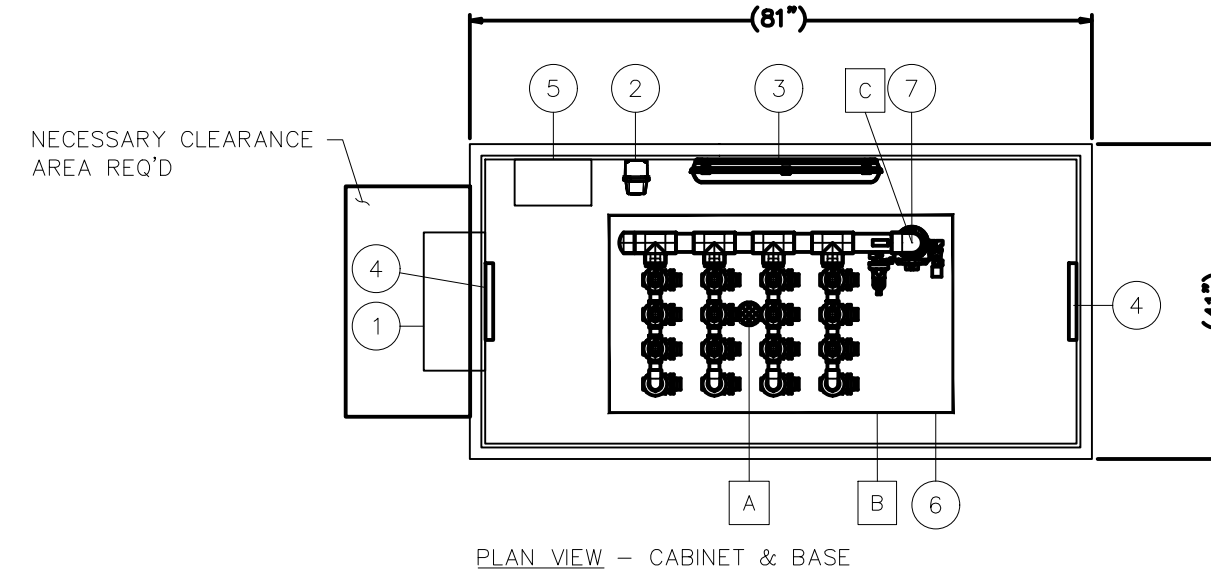
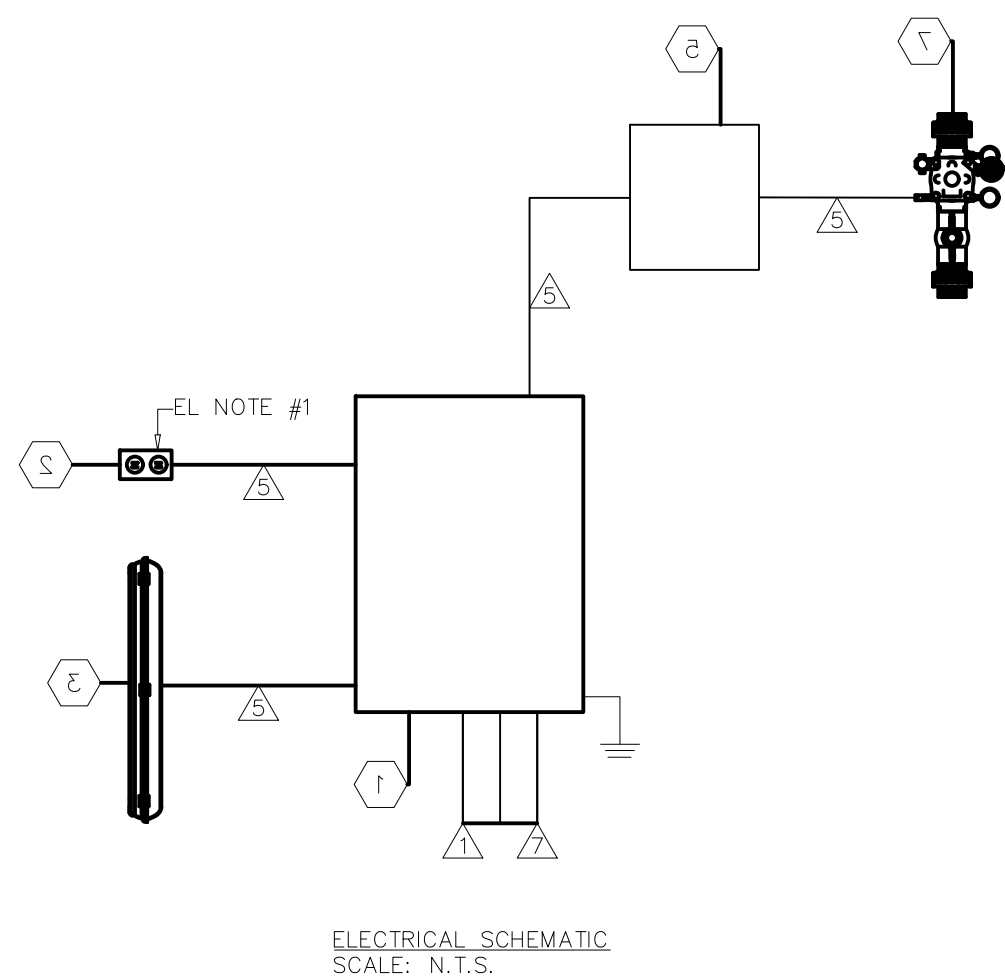
FEEDER & CONDUIT SCHEDULE

PHASE	CONDUCTORS			CONDUIT	REMARKS
	NEUTRAL	GROUND			
Δ	1 - #14	1 - #14	1 - #14	1/2"	PANEL FEED BY OTHERS
Δ	1 - #14	1 - #14	1 - #14	1/2"	TYPE LFNC-B UL SEALTITE
Δ	1 - #14	1 - #14	1 - #14	1/2"	TYPE SJOOW-3C
Δ	INDICATES WIRE AND CONDUIT INSTALLED BY OTHERS				

PANEL SCHEDULE

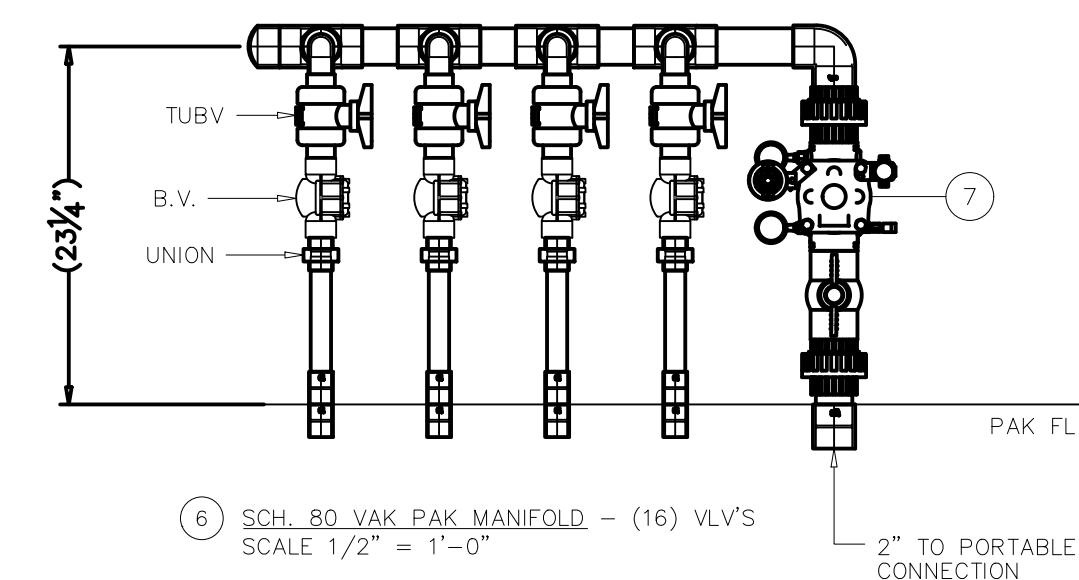
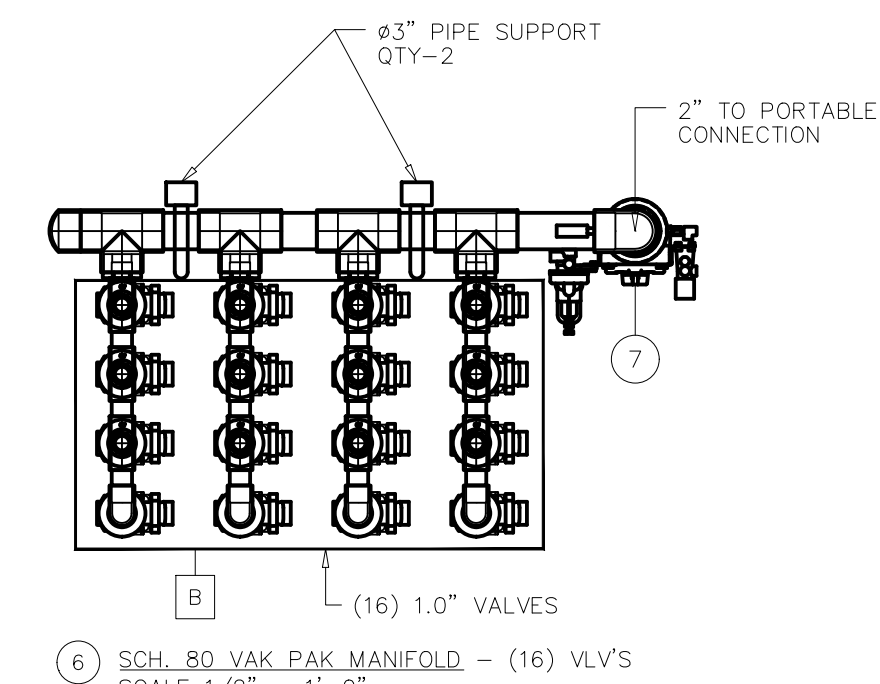
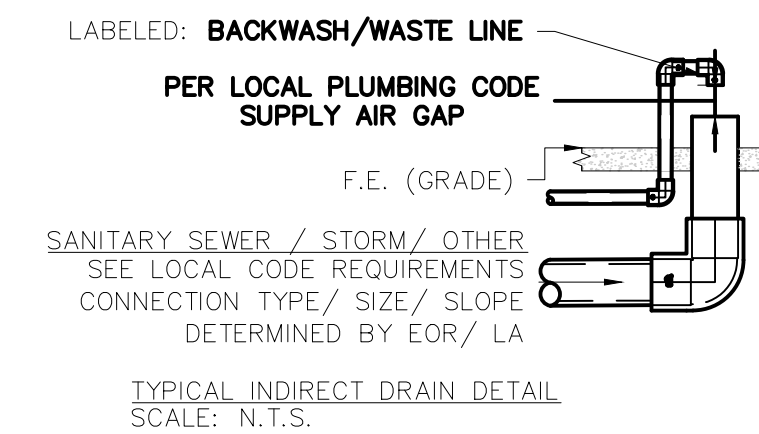
120V, 1 PHASE, 3 WIRE, NEMA 3R, 12SP, 100A MBR

CIR.	POLES	TRIP	LOAD	AMPS	DEMAND FACTOR
1	1	15A-GFCI	SERVICE LIGHT	1.0	1.3
2	1	20A-GFCI	RAINDROP TIMER	5.0	6.3
TOTAL LOAD				6.0	7.5



VALVES & PIPE CONNECTION SIZES

SIZE	SIZE
A FLOOR DRAIN (NOTE 5)	3"
B MANIFOLD DISCHARGE (16)	1"
C POTABLE INLET	2"



ENGINEER OF RECORD

ZONE	REV.	E.C.N. NO.	DESCRIPTION	DATE	BY
	A0	N/A	INITIAL RELEASE	09/08/22	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOL ANGLE ± 1.0°
2 PL ± 0.25, 3 PL ± 0.125
INTERPRET DIM(S) & TOL(S)

THIRD ANGLE PROJECTION

DRAWN	CHECKED	MFG CHECK	APPROVED
----	##	--	--

VAK PAK

#####

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WT. (lbs.) SCALE 1:1 SIZE REV # SHEET 1 OF # DWG NO #####M1

A

B

C

D

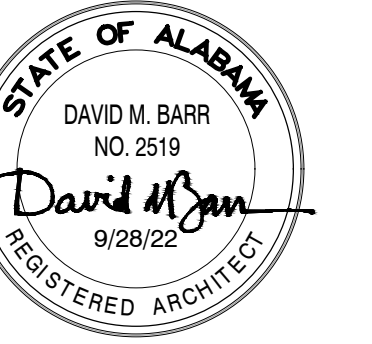
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GENERAL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR PROPER MANAGEMENT OF ALL CONSTRUCTION AND DEMOLITION DEBRIS GENERATED BY THIS PROJECT. ALL CONSTRUCTION AND DEMOLITION WASTE SHALL BE MANAGED IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS AND TO AN ADEM APPROVED DISPOSAL FACILITY.

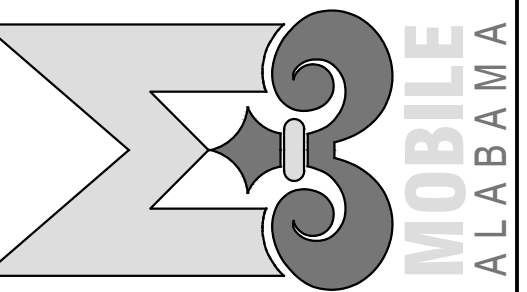


THE ARCHITECTS GROUP/INC
 710 DOWNTOWNER BOULEVARD
 MOBILE, ALABAMA 36609
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**PUBLIC SAFETY MEMORIAL PARK -
 RESTROOM, SKATEBOARD PARK,
 & SPLASHPAD
 COM # PR-093-21**

MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE
**ENLARGED
 SITE PLAN**

KEY PLAN

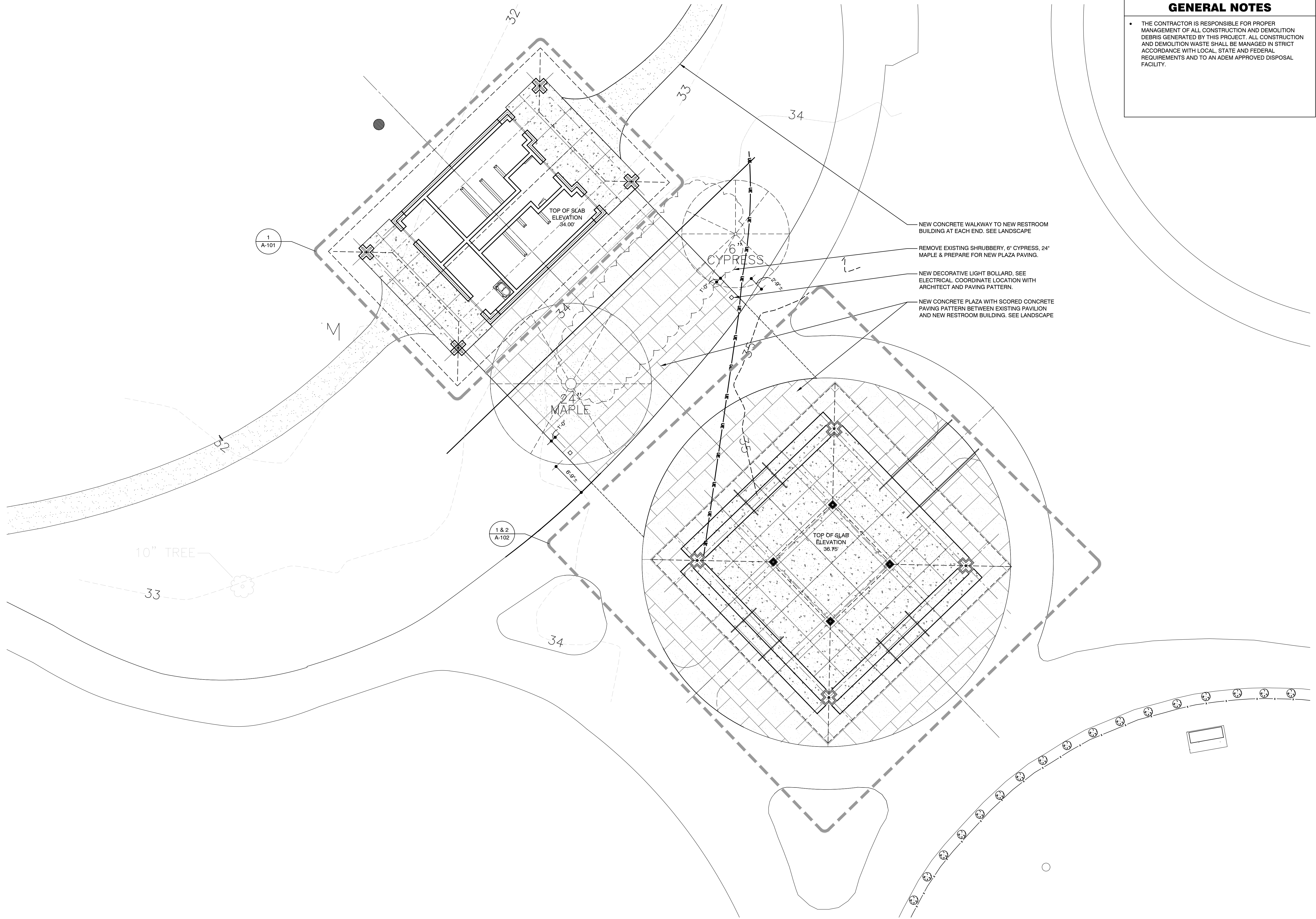
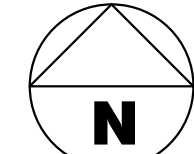
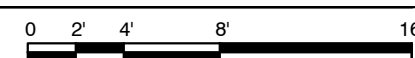
JOB NO. 2121

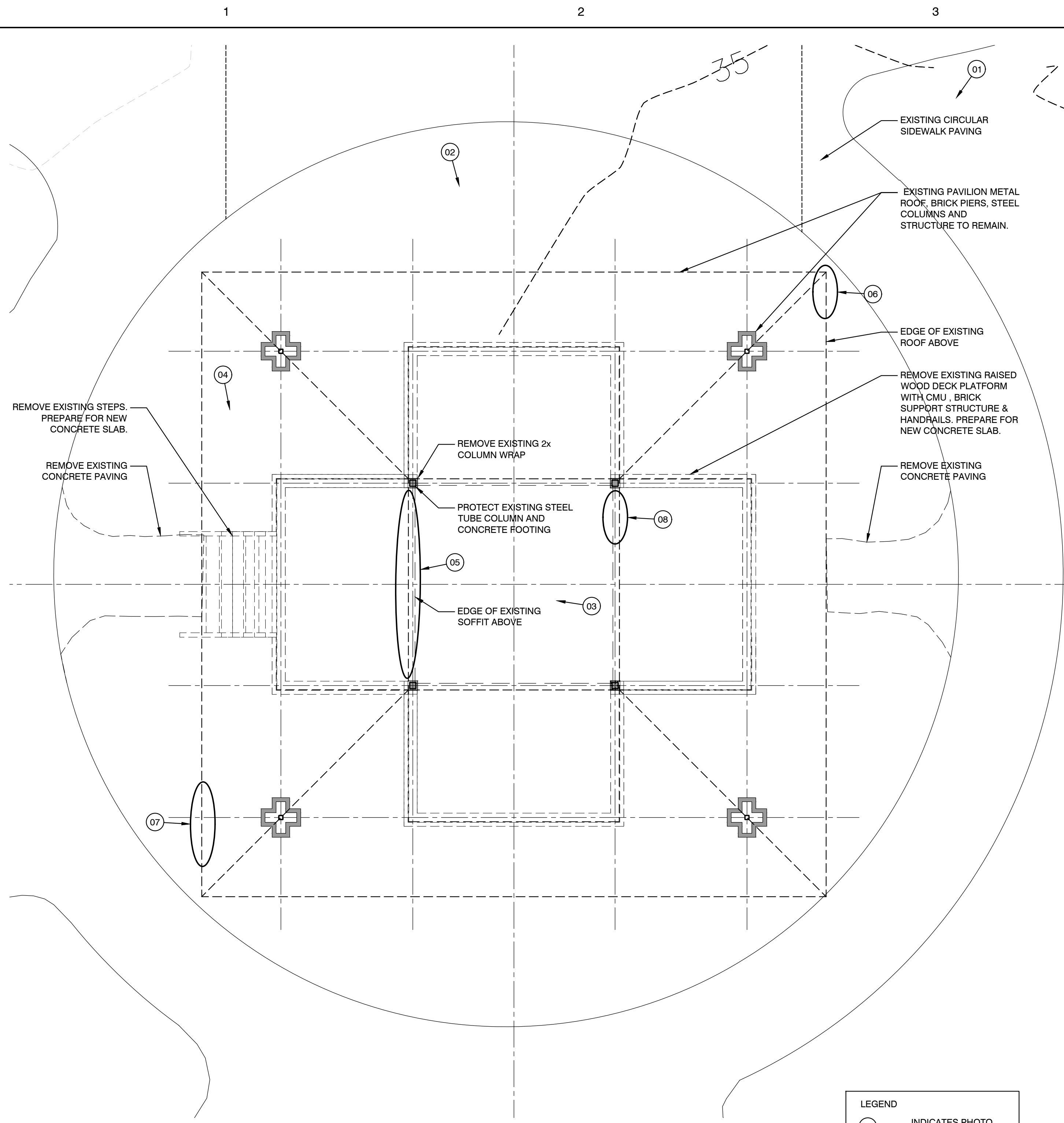
DATE: SEPTEMBER 28, 2022

SHEET

AS-102

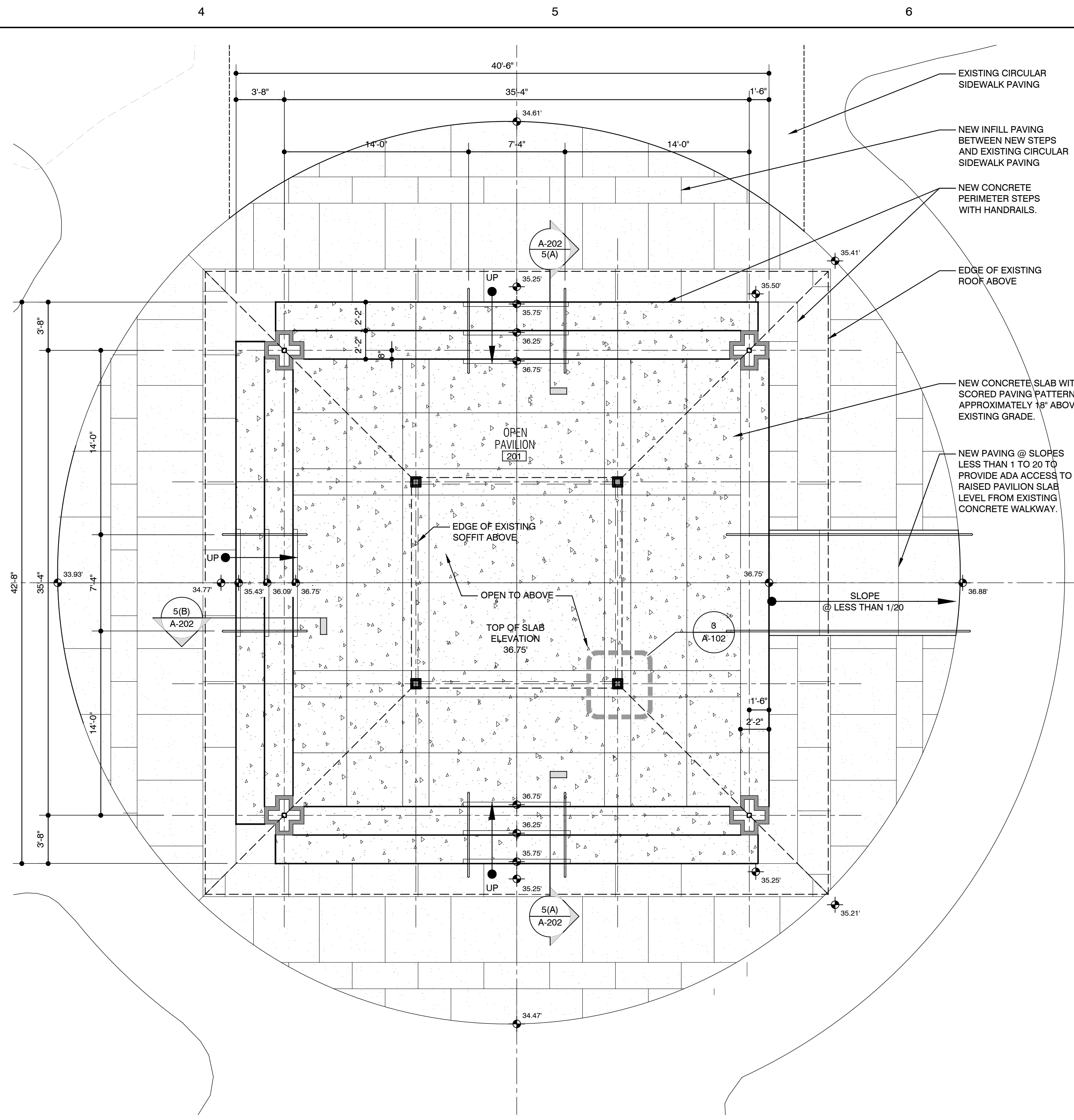
1 ENLARGED SITE PLAN
 1/8"=1'-0"





1 PAVILION EXISTING/DEMO PLAN
3/16"=1'-0"

LEGEND
1 INDICATES PHOTO NUMBER & DIRECTION
NOTE:
• SEE A-102 FOR PHOTOS 1-4
• SEE A-202 FOR PHOTOS 5-8



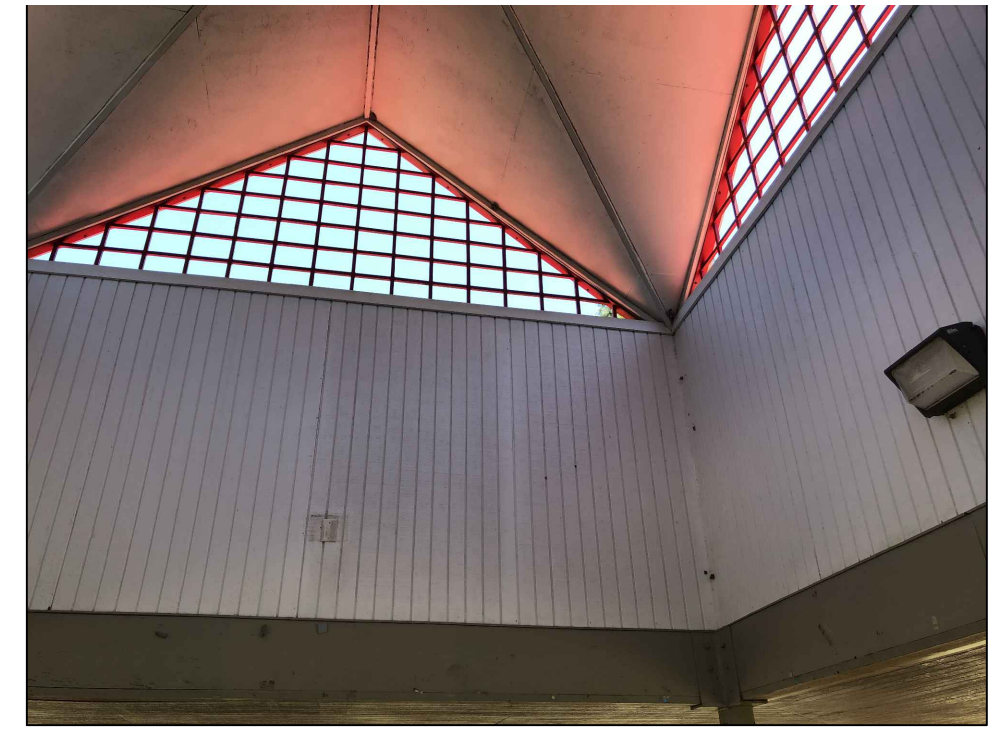
2 PAVILION FLOOR PLAN
3/16"=1'-0"



PAVILION PHOTO 01
• OVERALL VIEW OF PAVILION



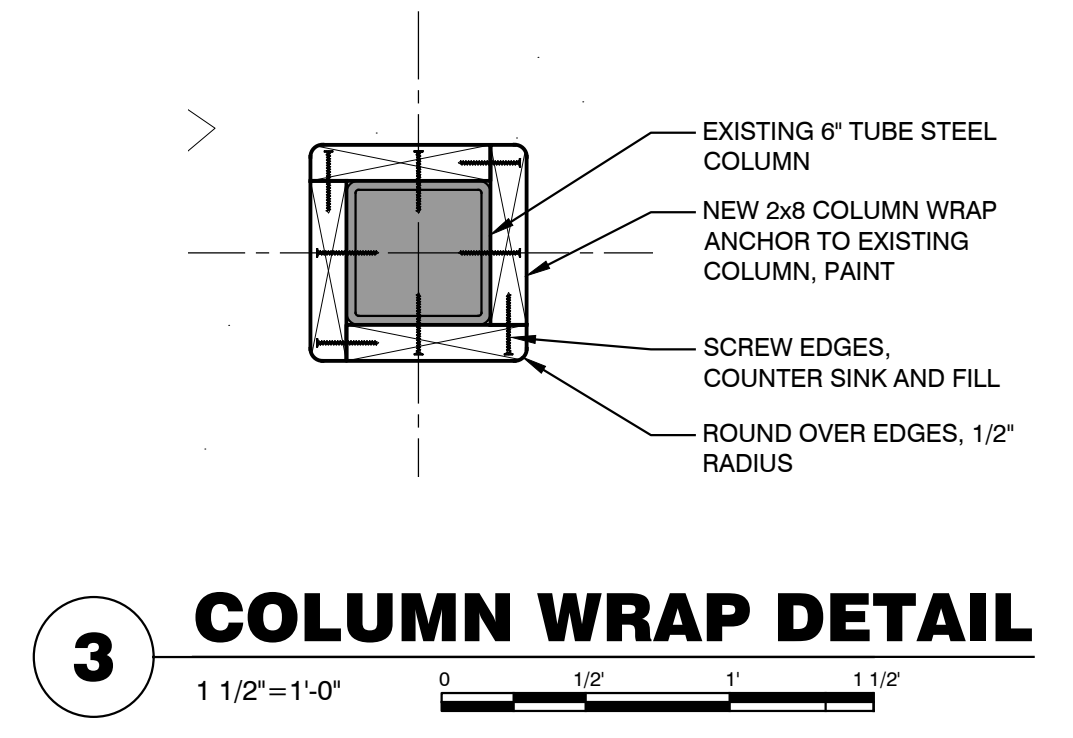
PAVILION PHOTO 02
• REMOVE EXISTING RAISED WOOD DECK PLATFORM WITH CMU, BRICK SUPPORT STRUCTURE & HANDRAILS. PREPARE FOR NEW CONCRETE SLAB



PAVILION PHOTO 03
• CENTER AREA OPEN TO CLERESTORY GRILLS ABOVE



PAVILION PHOTO 04
• REMOVE EXISTING STEPS. PREPARE FOR NEW CONCRETE SLAB.

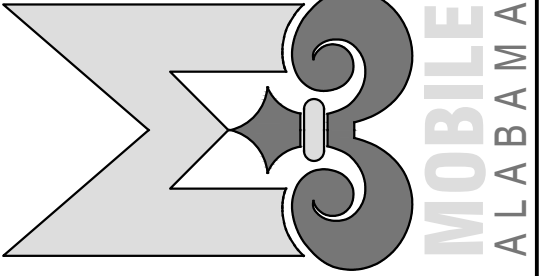


3 COLUMN WRAP DETAIL
1 1/2"=1'-0"

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STATE OF ALABAMA
DAVID M. BARR
NO. 2519
9/28/22
REGISTERED ARCHITECT

**PUBLIC SAFETY MEMORIAL PARK -
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COM # PR-093-21**
MOBILE, ALABAMA



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NO.	DATE	REMARKS
09-28-22	IFB	

SHEET TITLE
**PAVILION DEMO
PLAN, FLOOR PLAN
& PHOTOS**

KEY PLAN

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

A-102

1

2

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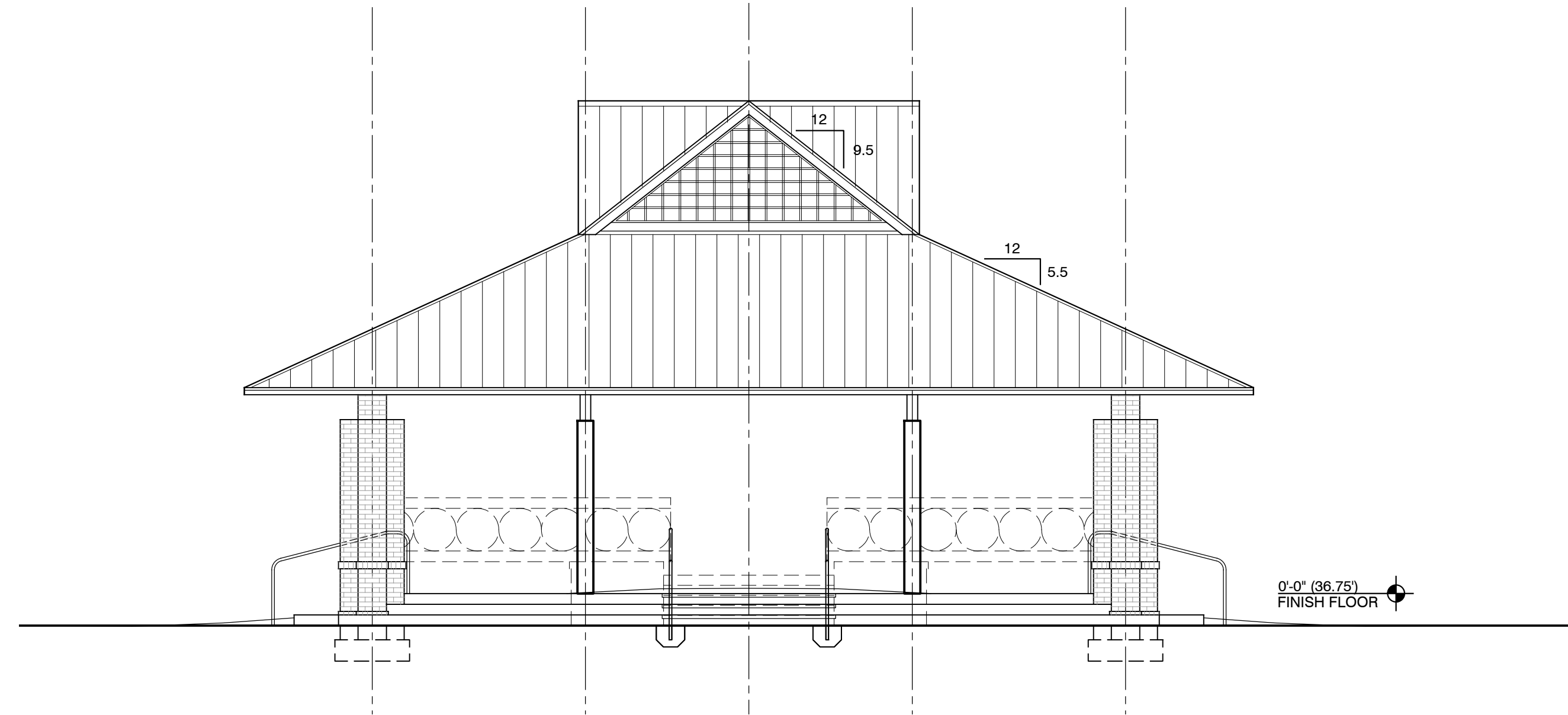
A

B

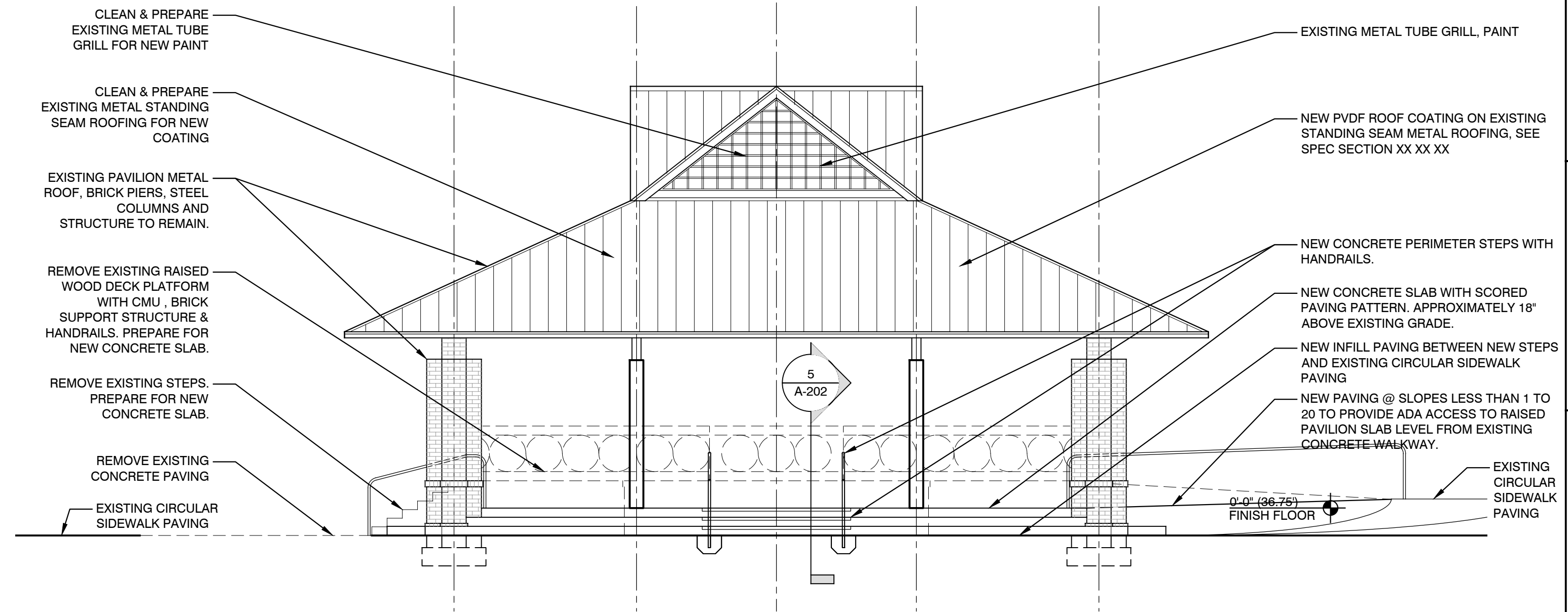
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D

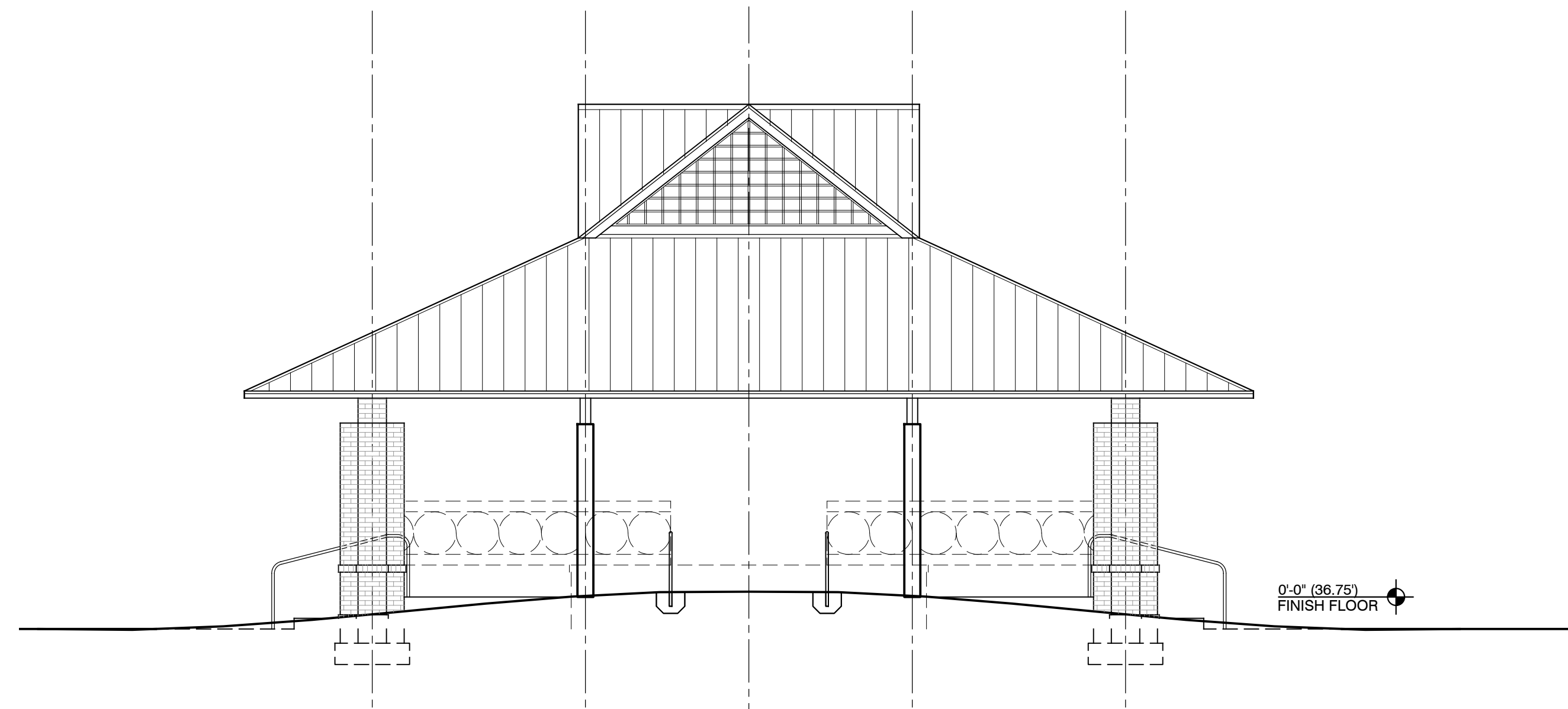
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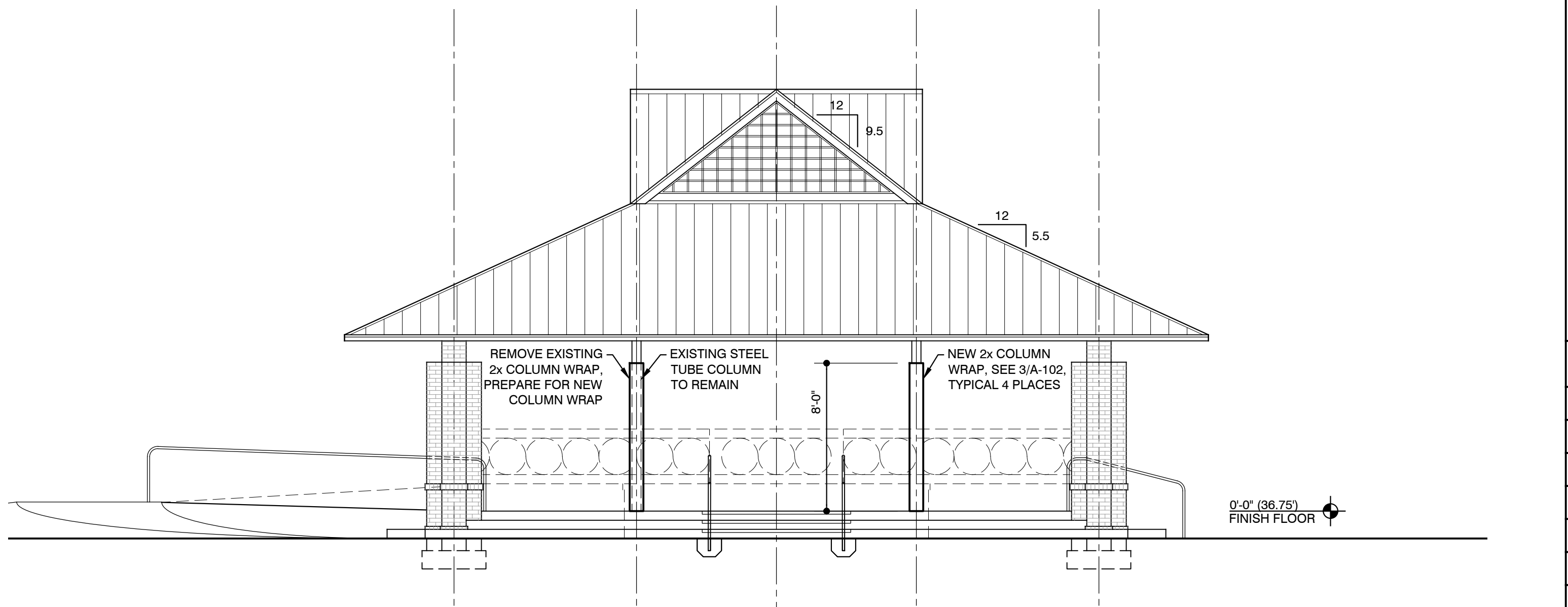
1 WEST PAVILION ELEVATION
3/16"=1'-0"



2 SOUTH PAVILION ELEVATION
3/16"=1'-0"



3 EAST PAVILION ELEVATION
3/16"=1'-0"



4 NORTH PAVILION ELEVATION
3/16"=1'-0"



PAVILION PHOTO 05
• INSTALL NEW SOFFIT VENT AND NEW 1x TRIM TO MATCH EXISTING AT DAMAGED AREA.



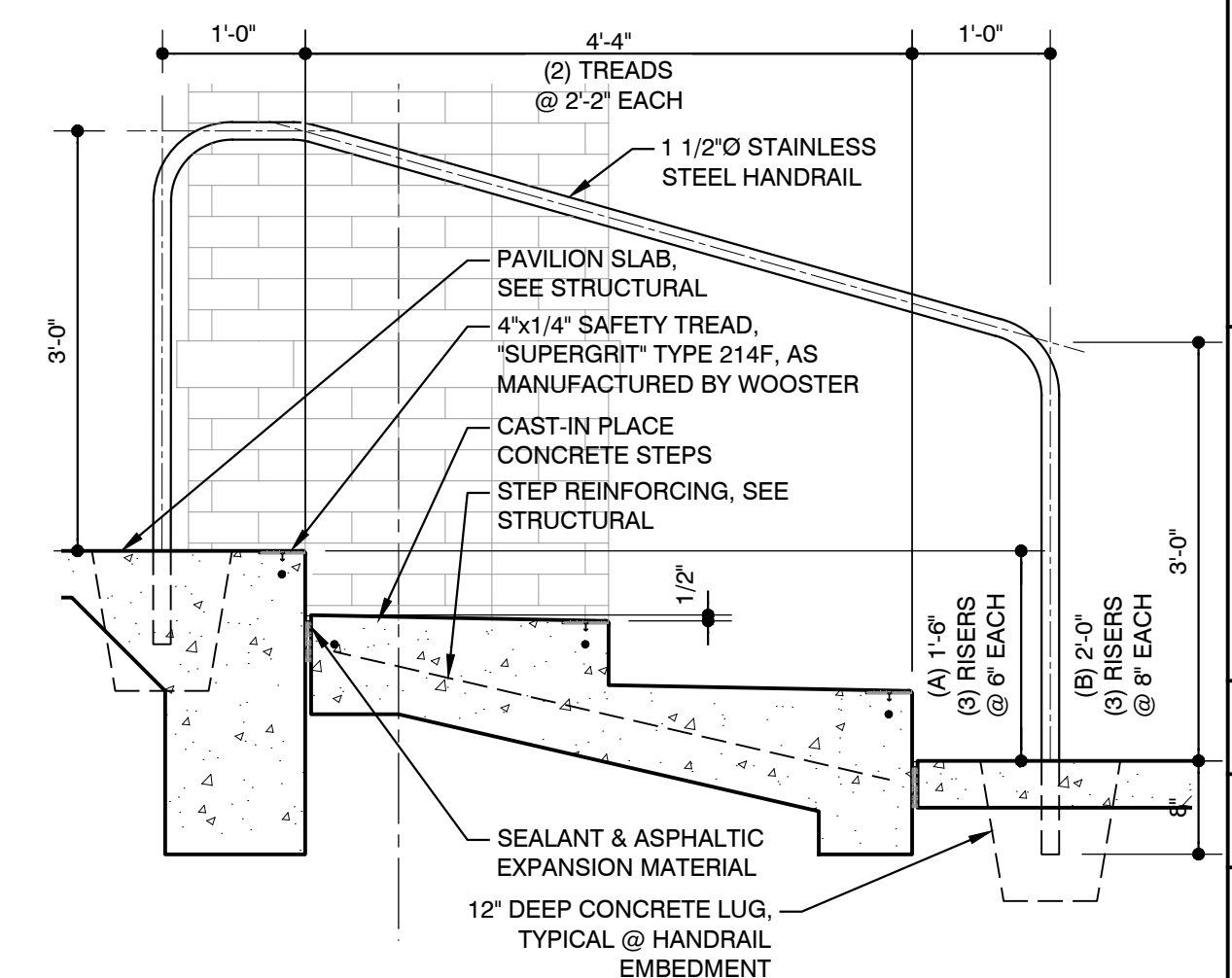
PAVILION PHOTO 06
• REPAIR/PATCH EXISTING FASCIA BOARD AT DAMAGED AREA.



PAVILION PHOTO 07
• REMOVE AND REPLACE ROTTING FASCIA BOARD IN DAMAGED AREA.



PAVILION PHOTO 08
• REFASTEN LOOSE TRIM BOARDS AS NEEDED.

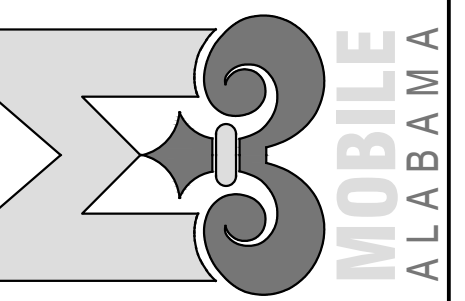


5 STEP & HANDRAIL DETAIL
3/4"=1'-0"

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DAVID M. BARR
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MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
09-28-22	IFB	

SHEET TITLE
**PAVILION
ELEVATIONS
& PHOTOS**

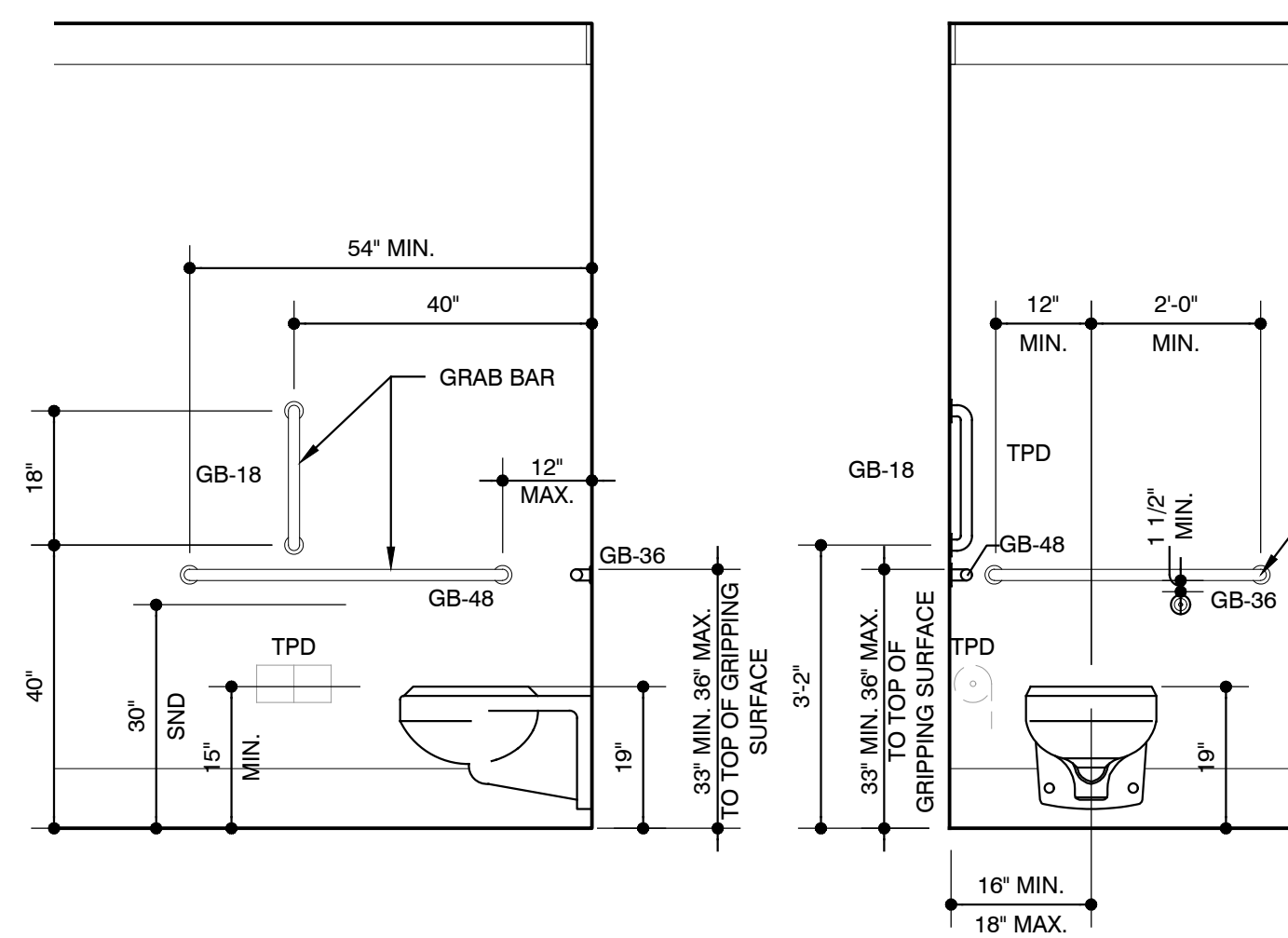
KEY PLAN

JOB NO. 2121

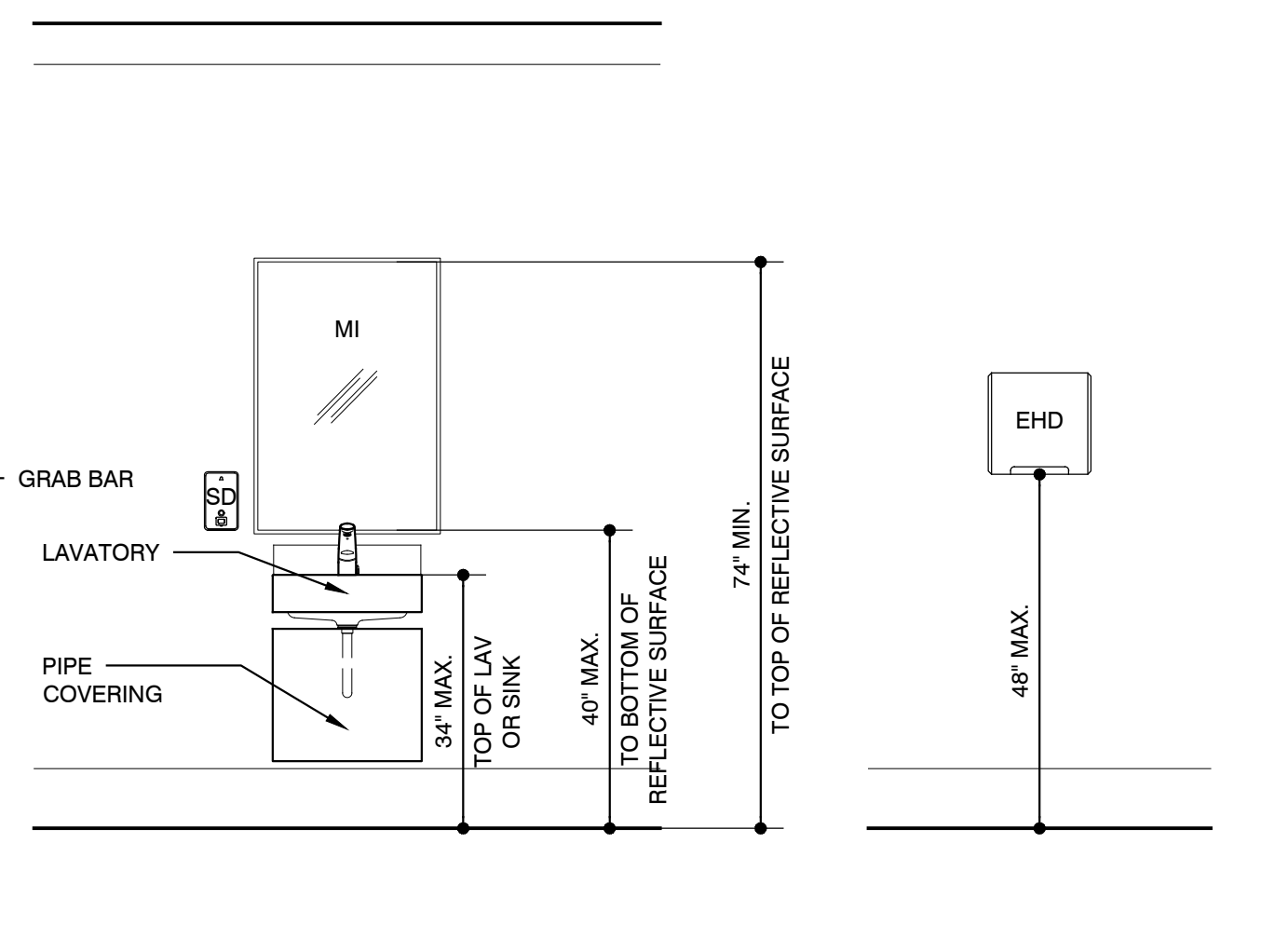
DATE: SEPTEMBER 28, 2022

SHEET

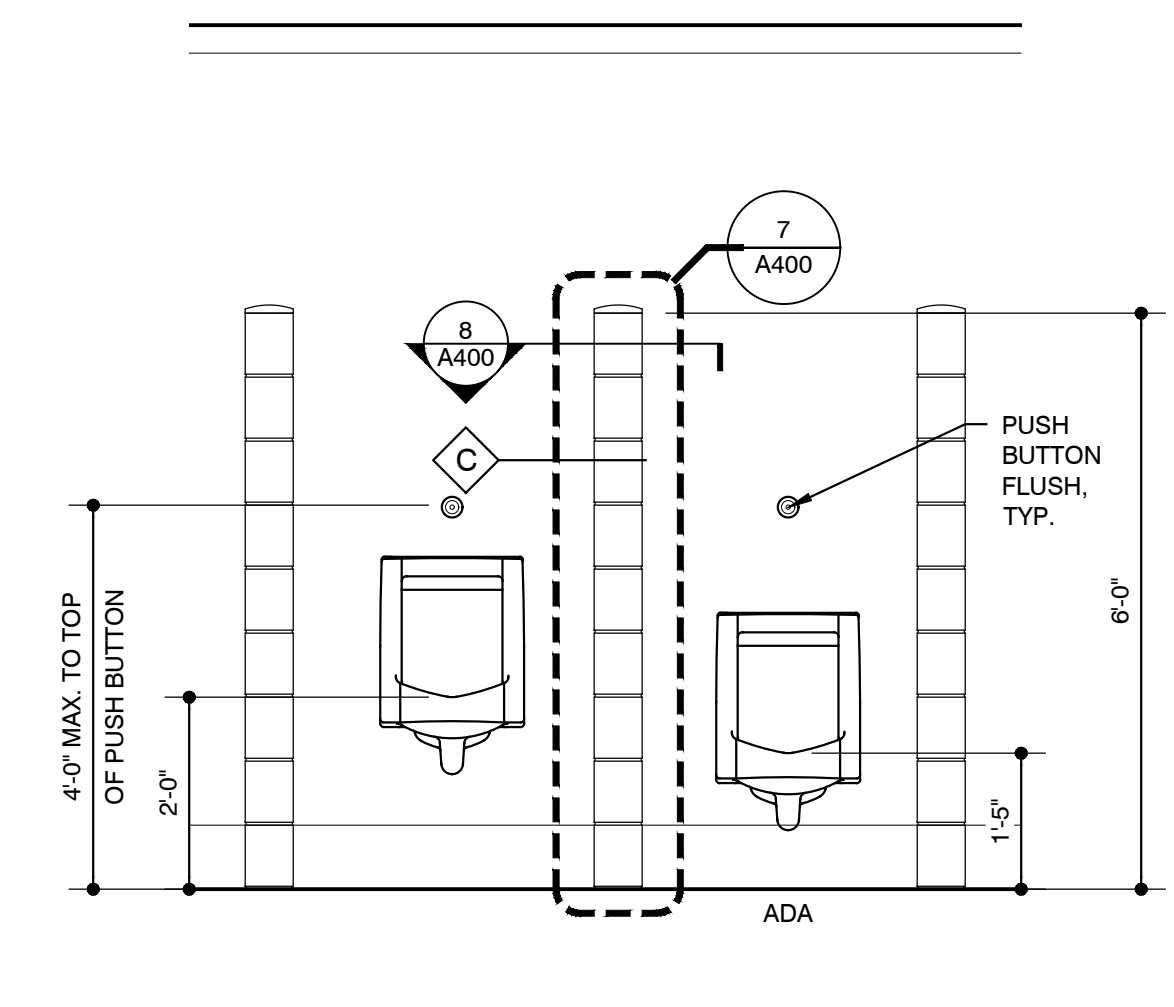
A-202



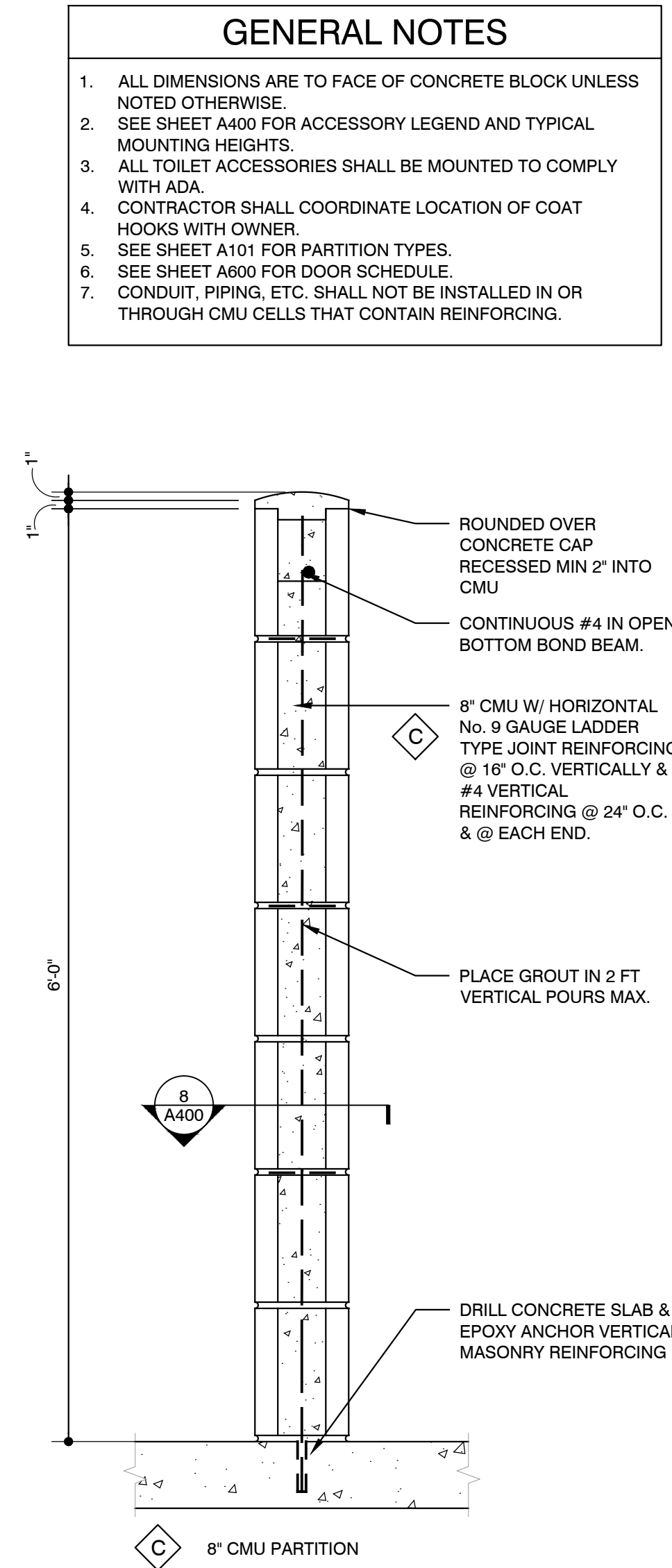
1 MOUNTING HEIGHT TOILET
1/2"=1'-0"



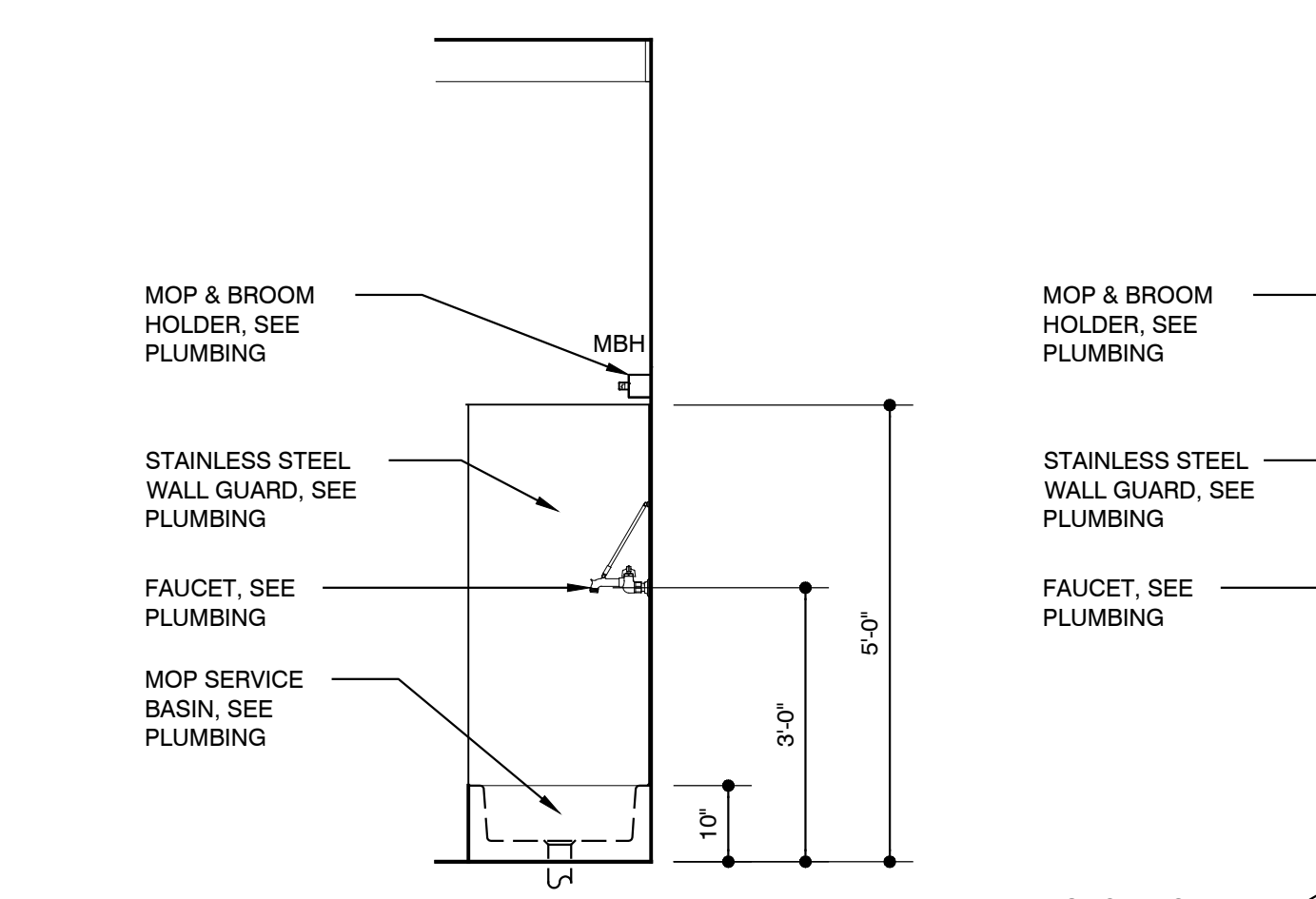
2 MOUNTING HEIGHT LAVATORY
1/2"=1'-0"



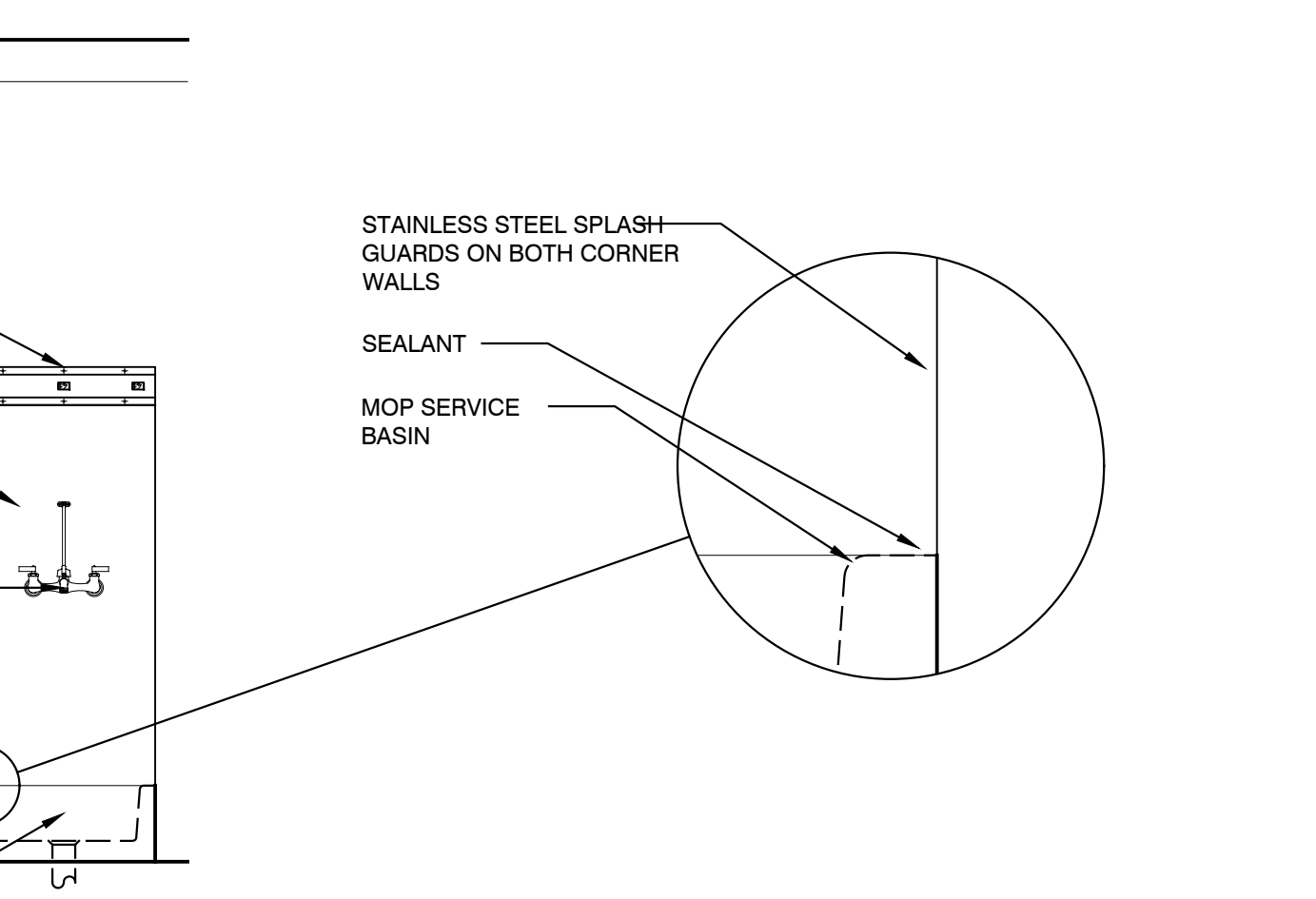
3 ELEVATION
1/2"=1'-0"



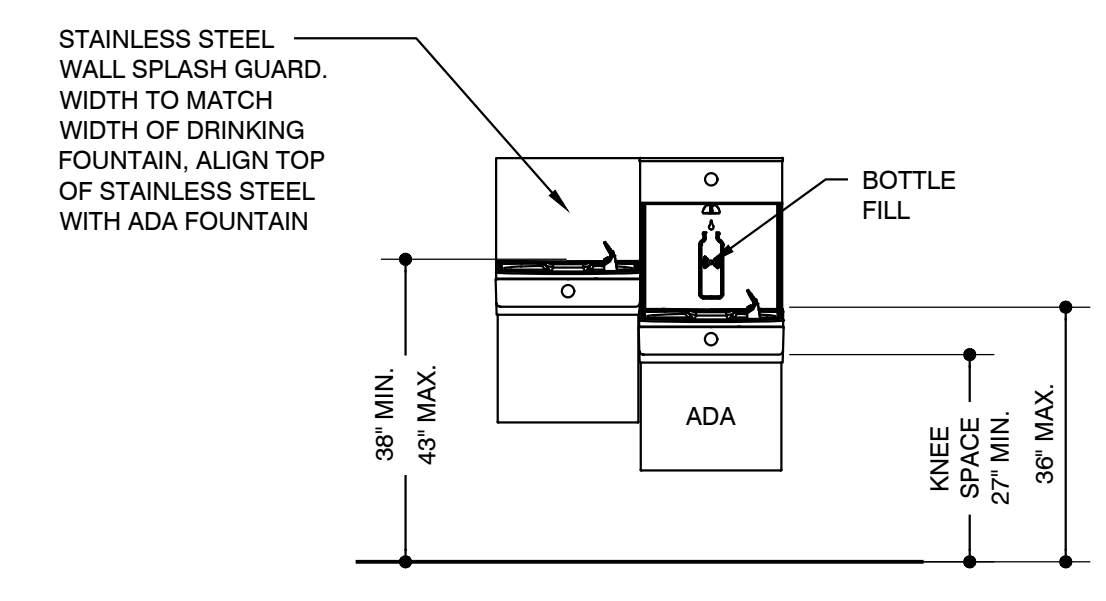
7 CMU PARTITION
1 1/2"=1'-0"



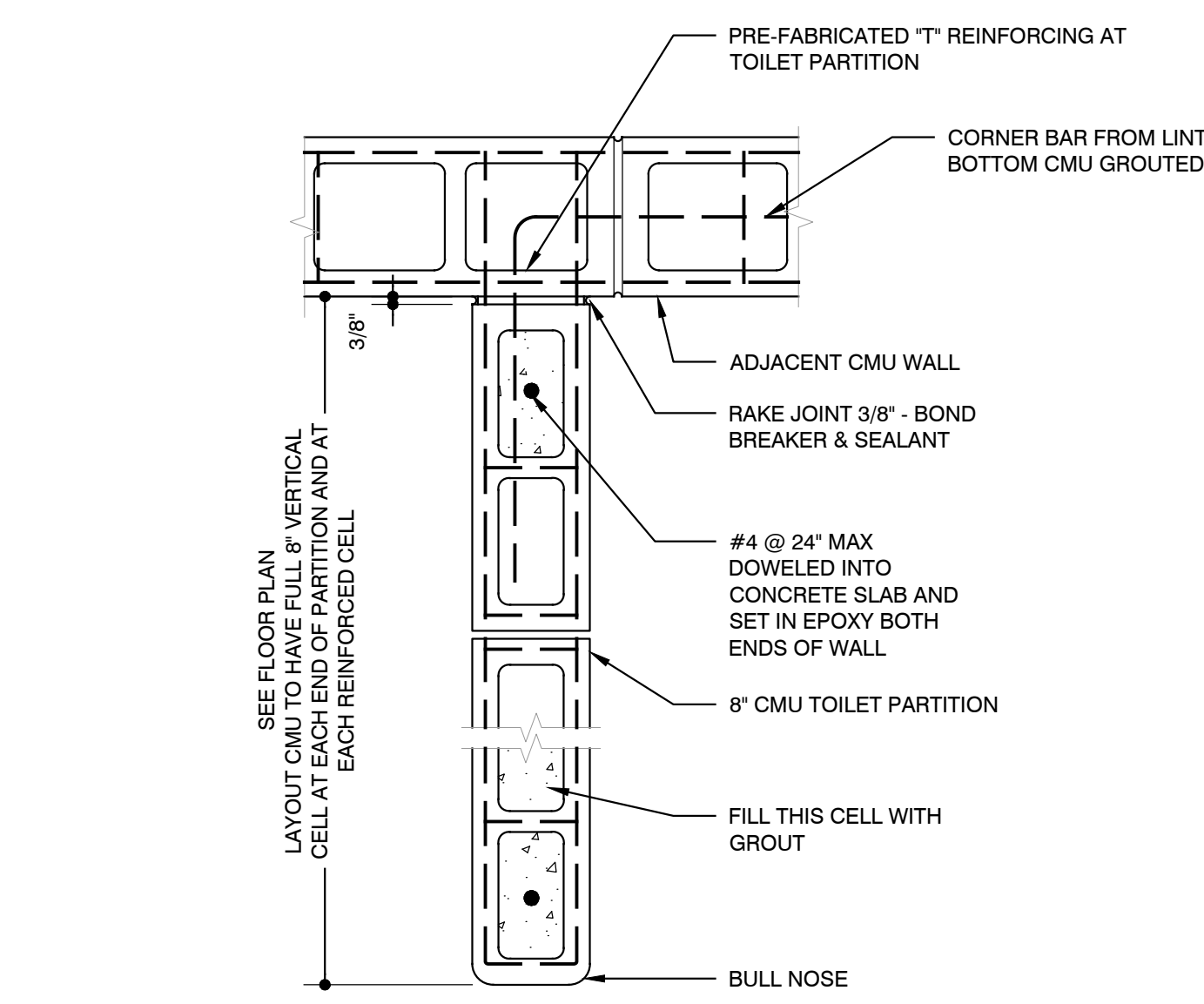
4 SERVICE 102 ELEVATION
1/2"=1'-0"



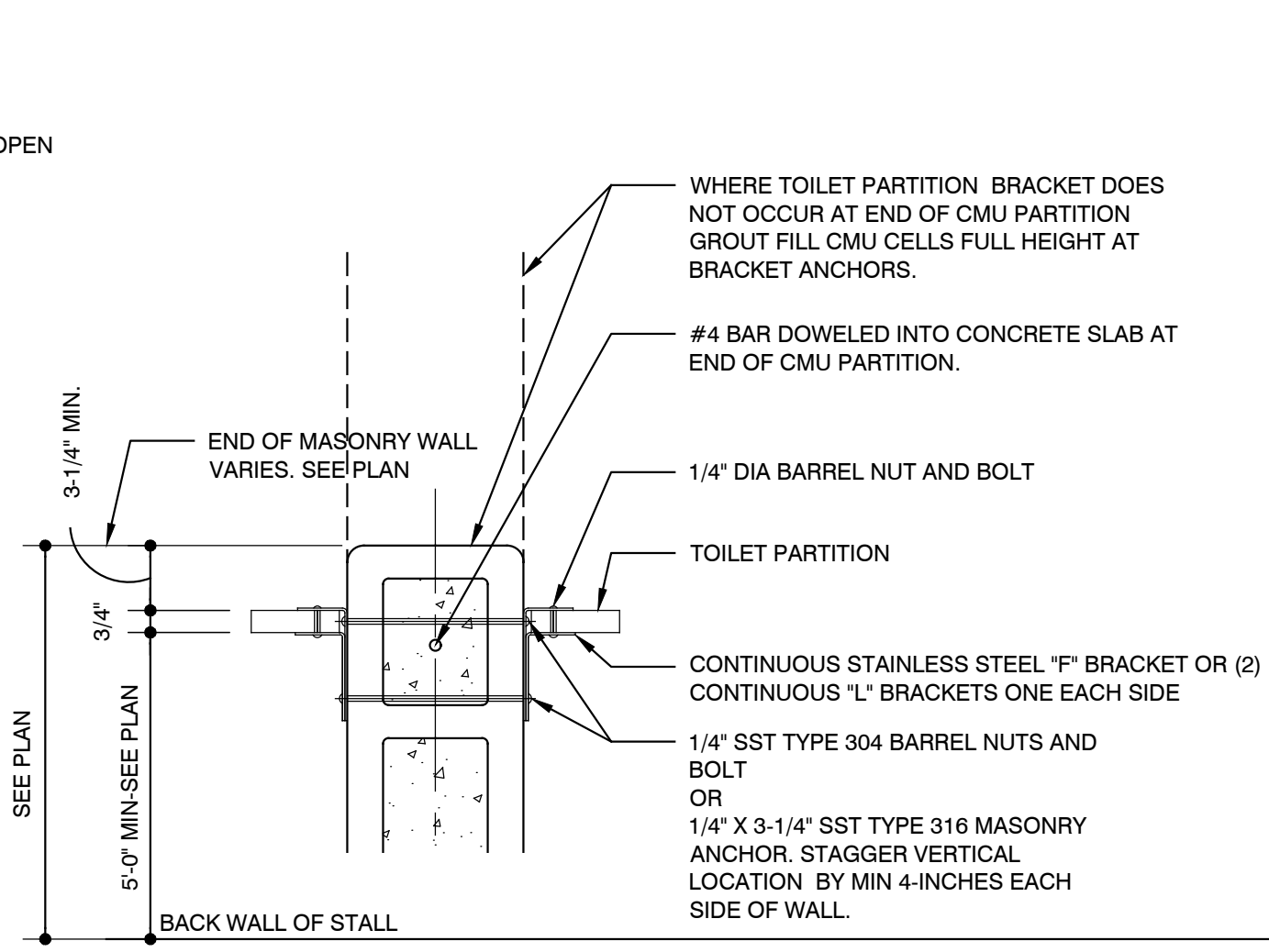
5 SERVICE 102 ELEVATION
1/2"=1'-0"



6 DRINKING FOUNTAINS
1/2"=1'-0"



8 CMU PLAN DETAIL
1 1/2"=1'-0"



9 TOILET PARTITION BRACKET
1 1/2"=1'-0"

NOTE: ALL ANCHORS ARE STAINLESS STEEL WITH TAMPER RESISTANT BUTTON OR SIMILAR TYPE HEAD. PLASTIC INSERTS ARE NOT ALLOWED WITH MASONRY ANCHORS.

ACCESSORY LEGEND				
MARK	DESCRIPTION	MANUFACTURER	MODEL NUMBER	NOTES
TPD	TOILET PAPER DISPENSER	-	-	SUPPLIED BY OWNER INSTALLED BY CONTRACTOR, PAINT
MI	MIRROR	ATLAS AMERICAN	AA-MVL-18x36-304L-14g	MOUNT SUCH THAT BOTTOM OF REFLECTIVE SURFACE IS NO HIGHER THAN 40" FROM FLOOR
SD	SOAP DISPENSER	BOBRICK	B-2013	AUTOMATIC WALL-MOUNTED FOAM SOAP DISPENSER
GB	GRAB BAR - 48", 36" & 18"	BOBRICK	B-6806.99	EACH HANDICAP TOILET STALL TO HAVE 36" & 48" HORIZONTAL GRAB BARS & 18" VERTICAL GRAB BARS MOUNTED PER ADA. ALL GRAB BARS TO BE STAINLESS STEEL
CH	COAT HOOK	BOBRICK	B-6707	SURFACE MOUNTED COAT HOOK, SATIN FINISH, STAINLESS STEEL, INSTALL (1) COAT HOOK @ EACH TOILET, MOUNT 38" AFF CENTERED ON BACK OF TOILET PARTITION DOORS
TP	TOILET PARTITION DOORS			SOLID CORE PHENOLIC, COLOR: GRAPHITE GRAFIX
EHD	ELECTRIC HAND DRYER	AMERICAN SPECIALTIES	0165	SURFACE MOUNTED SENSOR HAND DRYER
MBH	MOP & BROOM HOLDER	FIAT PRODUCTS	889-CC	24" LONG 3" WIDE STAINLESS STEEL WITH (3) RUBBER TOOL GRIPS
BCS	BABY CHANGING STATION	KOALA	KB112-01CT	COUNTERTOP SURFACE MOUNTED

TOILET ACCESSORY NOTES:

- CONTRACTOR SHALL COORDINATE LOCATION OF UTILITY HOOKS WITH OWNER.
- ALL TOILET ACCESSORIES SHALL BE MOUNTED TO COMPLY WITH ADA.
- REFERENCE FINISH SCHEDULE FOR COLORS AND LOCATIONS OF FINISHES.

REVISIONS		
NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE
**TOILET
ELEVATIONS
AND DETAILS**

KEY PLAN

JOB NO. 2121

DATE: SEPTEMBER 28, 2022

SHEET

A-400

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4

5

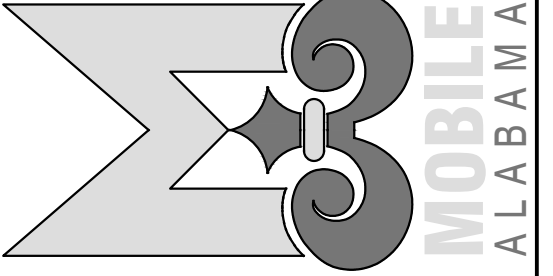
6

- GENERAL NOTES**
1. ALL DIMENSIONS ARE TO FACE OF CONCRETE BLOCK UNLESS NOTED OTHERWISE.
 2. SEE SHEET A400 FOR ACCESSORY LEGEND AND TYPICAL MOUNTING HEIGHTS.
 3. ALL TOILET ACCESSORIES SHALL BE MOUNTED TO COMPLY WITH ADA.
 4. CONTRACTOR SHALL COORDINATE LOCATION OF COAT HOOKS WITH OWNER.
 5. SEE SHEET A101 FOR PARTITION TYPES.
 6. SEE SHEET A600 FOR DOOR SCHEDULE.
 7. CONDUIT, PIPING, ETC. SHALL NOT BE INSTALLED IN OR THROUGH CMU CELLS THAT CONTAIN REINFORCING.



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09-28-22		IFB

SHEET TITLE
**TOILET
ELEVATIONS
AND DETAILS**

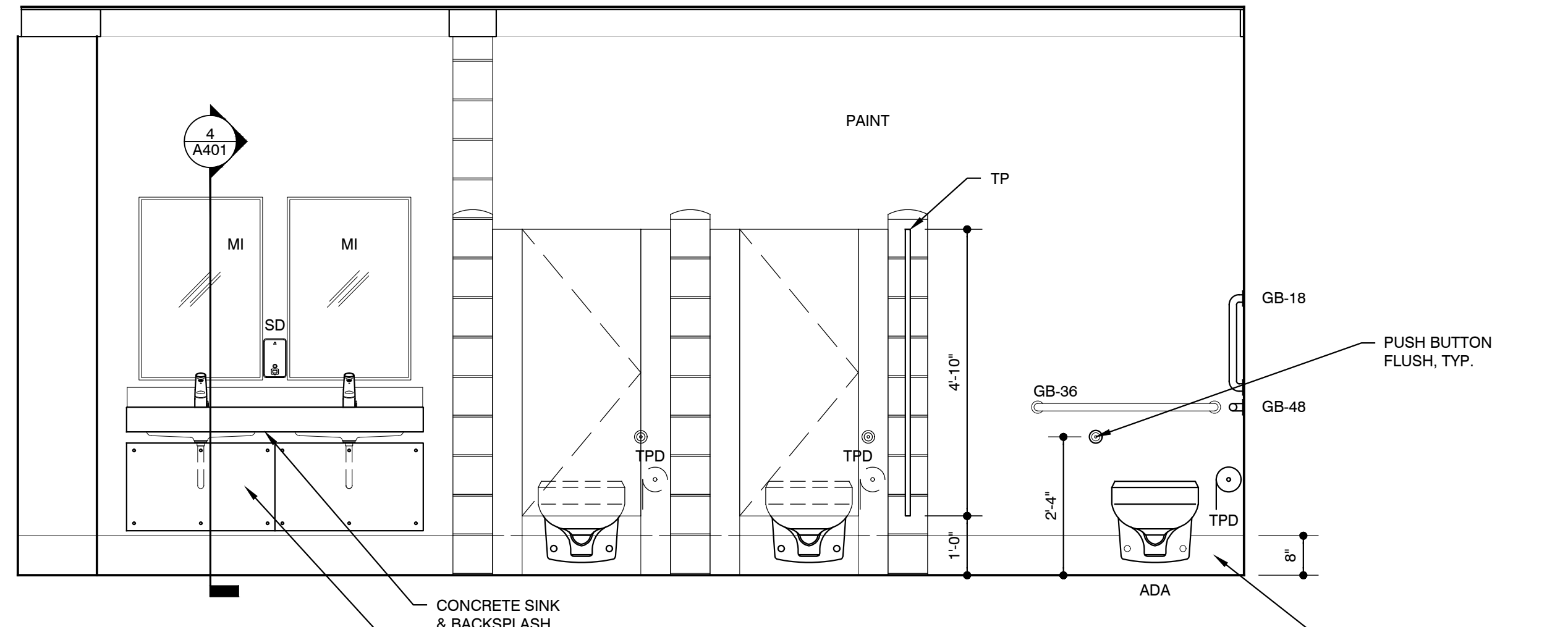
KEY PLAN

JOB NO. 2121

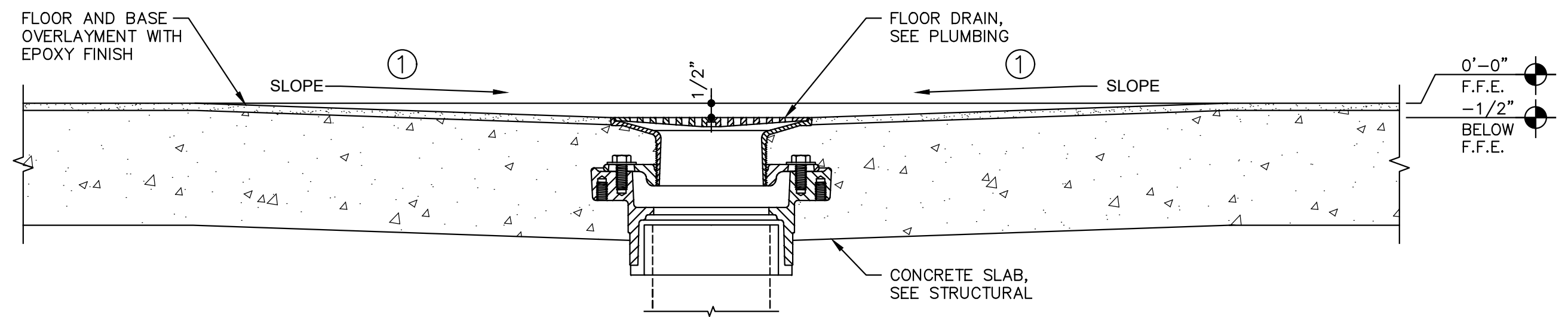
DATE: SEPTEMBER 28, 2022

SHEET

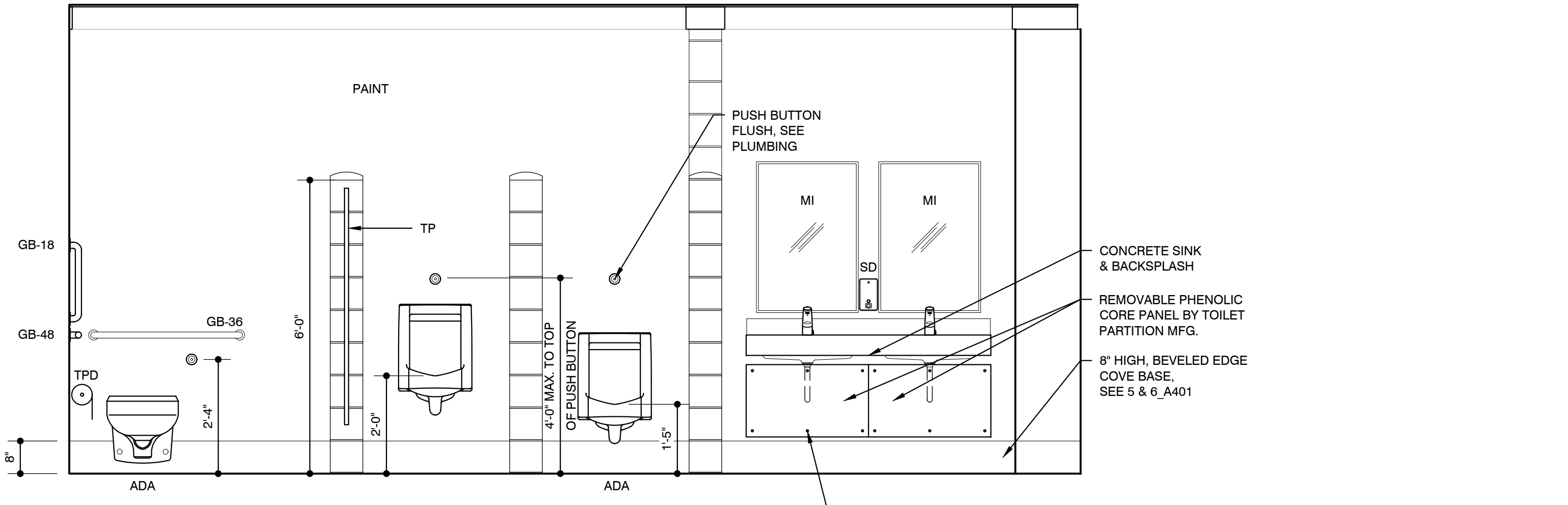
A-401



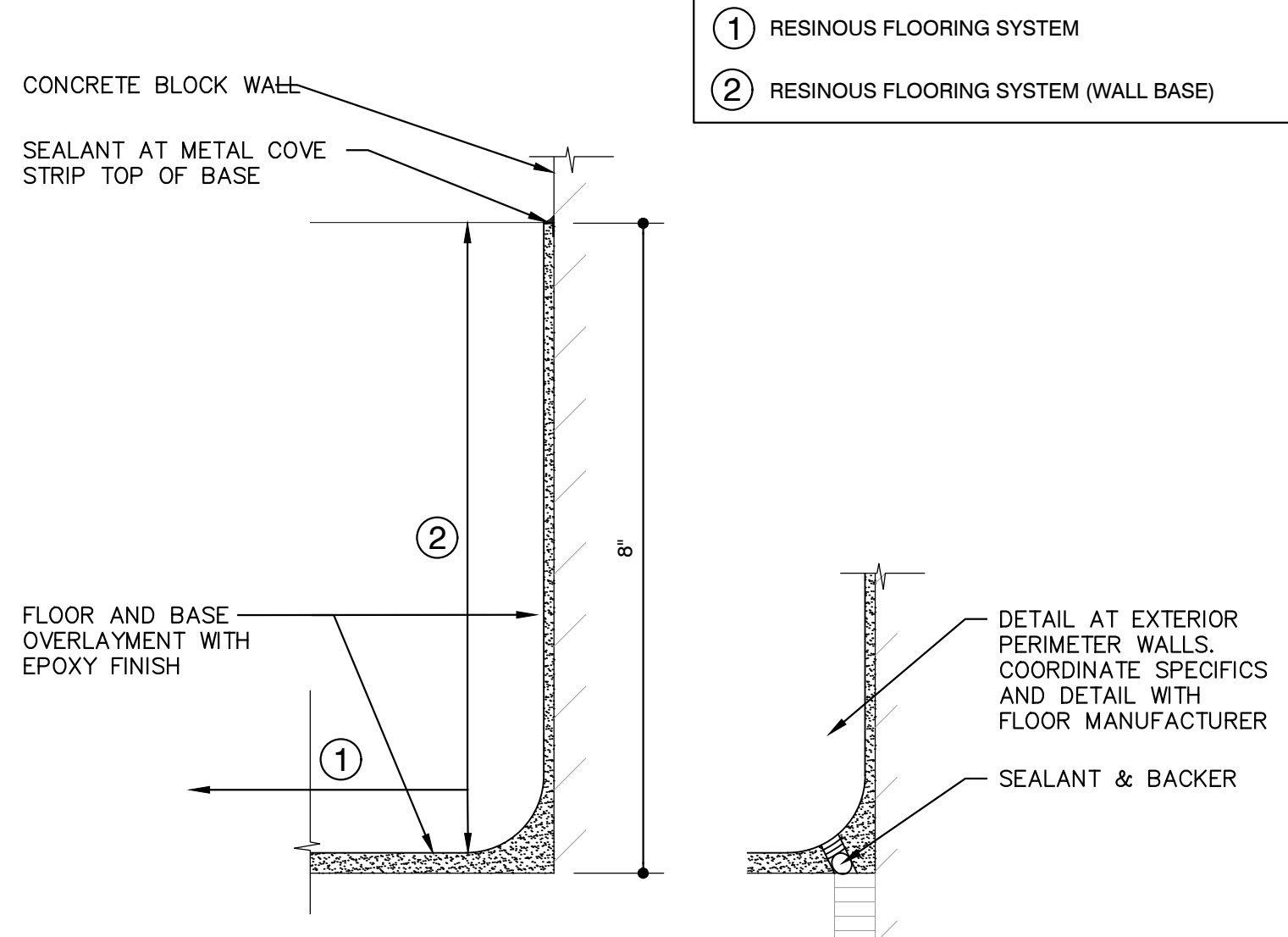
1 ELEVATION
1/2"=1'-0"
WOMEN
104
275 sq.ft.



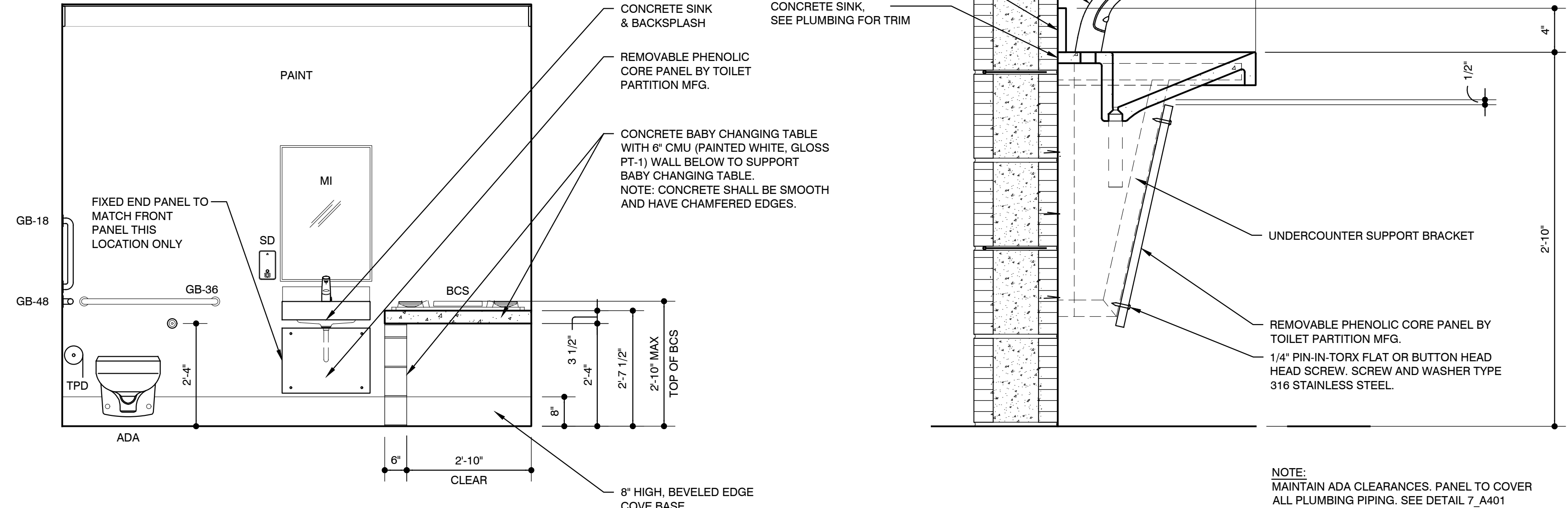
6 FLOOR DRAIN DETAIL
3"=1'-0"



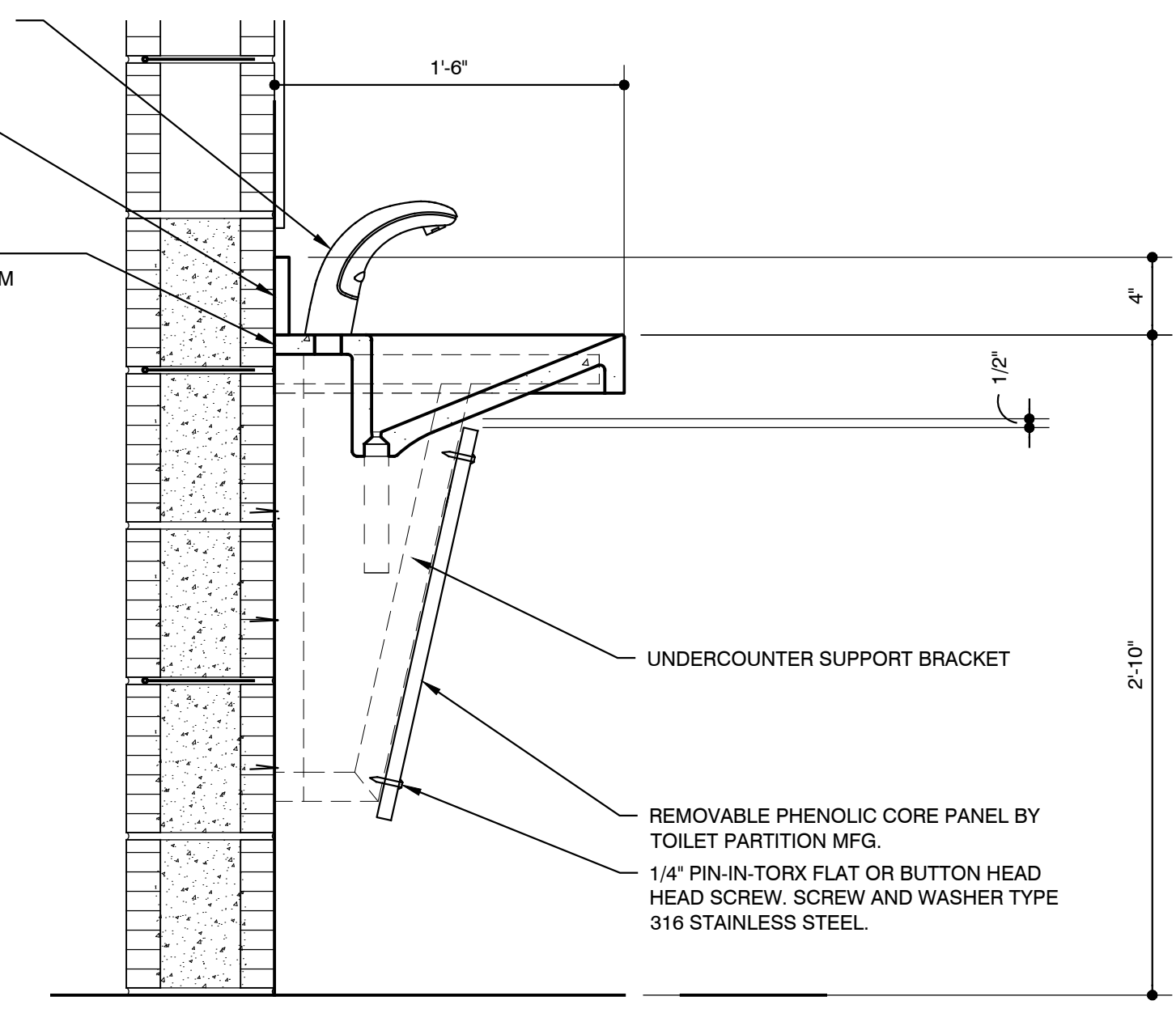
2 ELEVATION
1/2"=1'-0"
MEN
103
275 sq.ft.



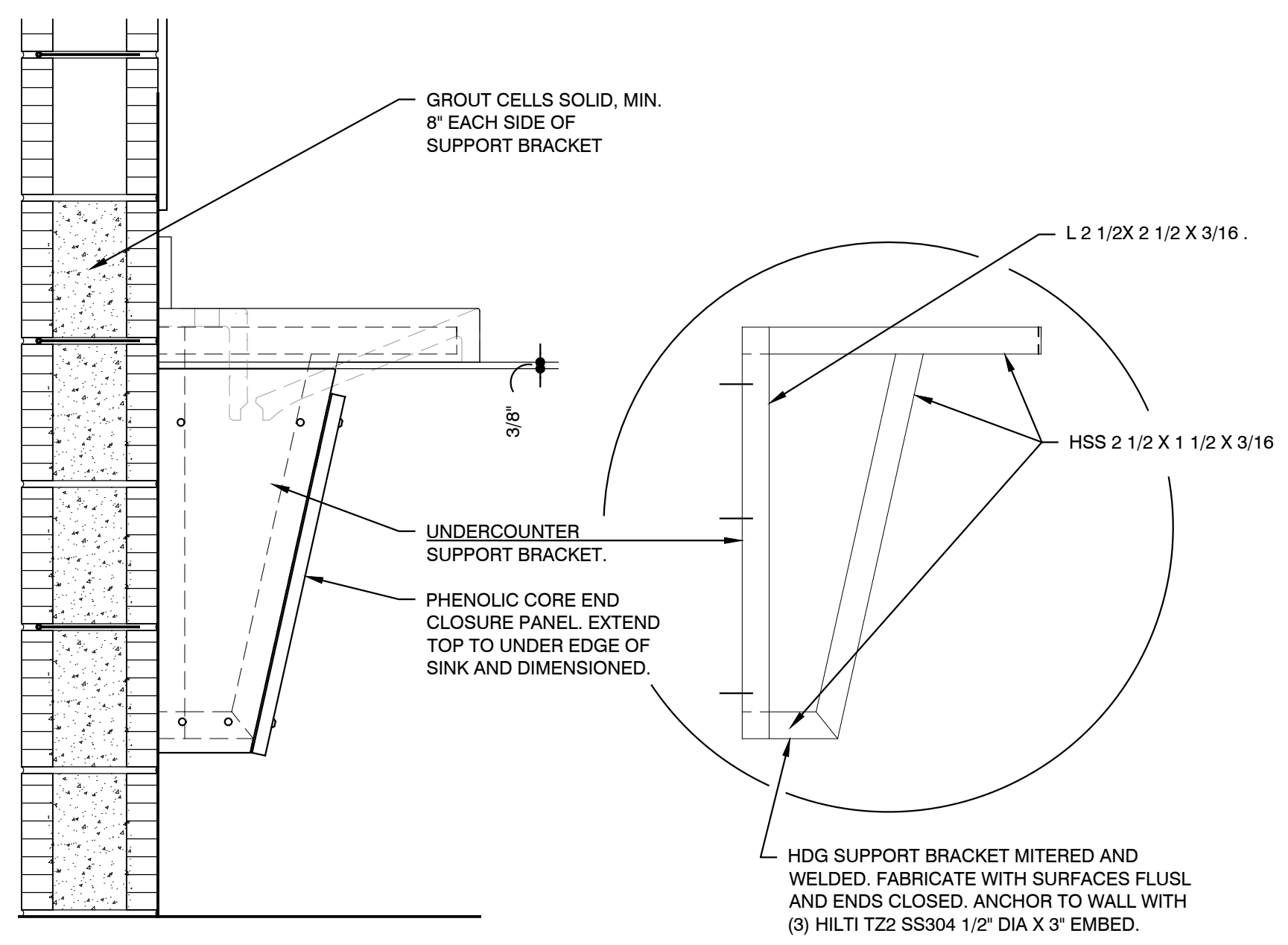
5 WALL & BASE DETAIL
6"=1'-0"



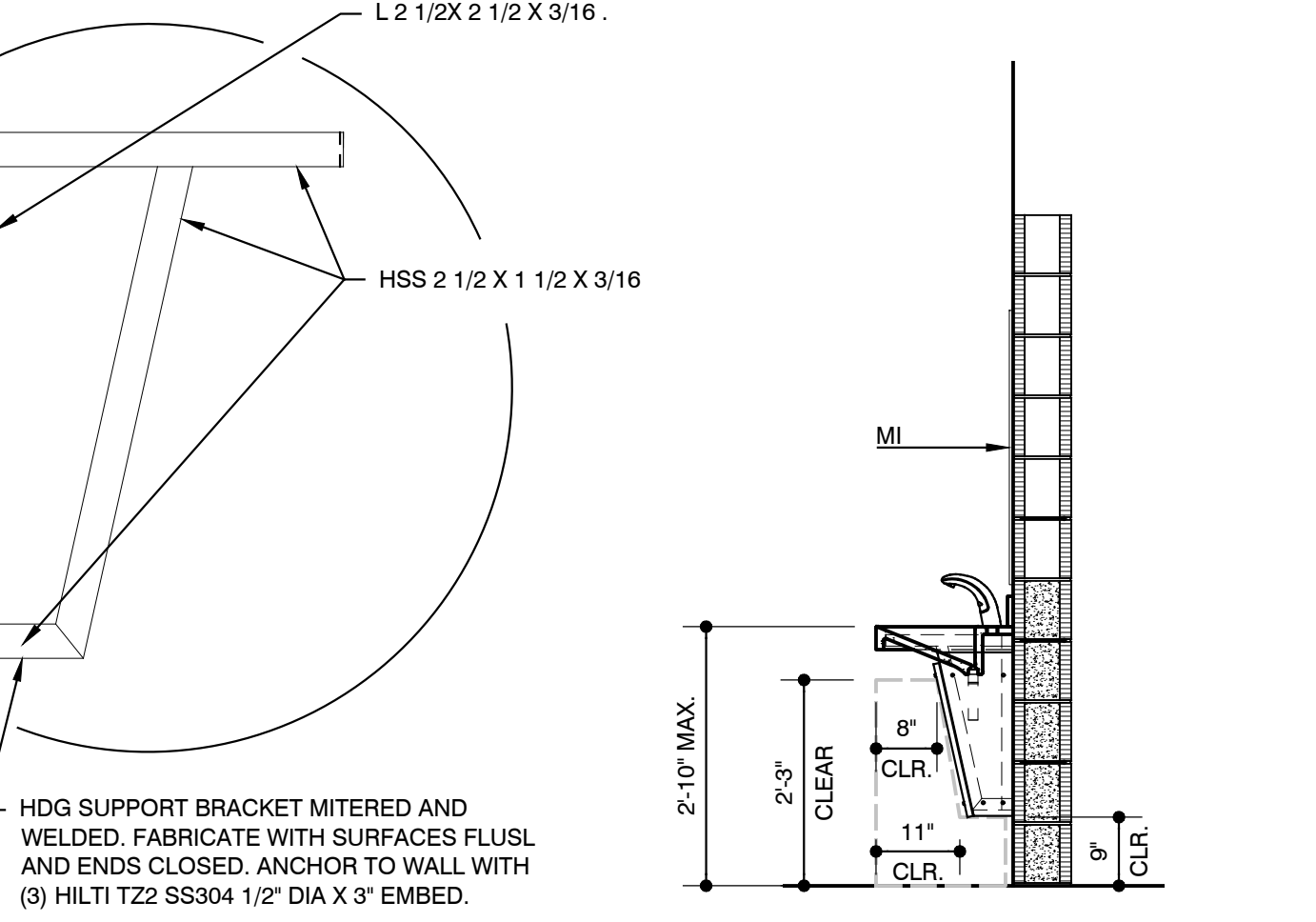
3 ELEVATION
1/2"=1'-0"
FAMILY
105
50 sq.ft.



4 SECTION
1 1/2"=1'-0"



4A END ELEVATION
1 1/2"=1'-0"



7 ELEVATION
1/2"=1'-0"
TYPICAL ADA LAVATORY MOUNTING HEIGHT

NOTE: MAINTAIN ADA CLEARANCES. PANEL TO COVER ALL PLUMBING PIPING. SEE DETAIL 7_A401

NOTE: PROVIDE ONE BRACKET EACH AT END OF COUNTERTOP AND ONE BETWEEN SINKS.

STRUCTURAL DESIGN CRITERIA

APPLICABLE CODES

- 2012 INTERNATIONAL BUILDING CODE
- ASCE 7-10 – MINIMUM DESIGN LOADS FOR BUILDINGS & OTHER STRUCTURES
- AISC 14TH EDITION – STEEL CONSTRUCTION MANUAL.

DESIGN GRAVITY LOADS

- ROOF DL = 10 PSF (TOP CHORD)
- ROOF LL = 20 PSF
- CEILING DL = 10 PSF (BOTTOM CHORD)

WIND LOADS (ASCE 7-10)

- ENCLOSURE CLASSIFICATION – ENCLOSED BUILDING
- WIND RISK CATEGORY = II
- WIND SPEED $V_{ult} = 159$ MPH $V_{osd} = 123$ MPH
- WIND EXPOSURE CATEGORY = "B"
- MEAN ROOF HT. = 15-FT.

TABLE-1
GABLE ROOF
MEAN ROOF HT. = 15-FT.

ZONE	TRIB. AREA	WIND COMPONENT PRESSURE			
		POSITIVE (+)	NEGATIVE (-)	OVERHANG	
ROOF	1	10	+41.6	-45.5	
		20	+40.5	-43.2	
	50	+38.9	-40.1		
	100	+37.8	-37.8		
	2	10	+41.6	-53.2	-77.1
20	+40.5	-50.9	-74.8		
50	+38.9	-47.8	-71.7		
100	+37.8	-45.5	-69.4		
WALL	3	10	+41.6	-53.2	-77.1
		20	+40.5	-50.9	-74.8
	50	+38.9	-47.8	-71.7	
	100	+37.8	-45.5	-69.4	
	4	10	+45.5	-49.3	---
20	+43.4	-47.3	---		
50	+40.7	-44.6	---		
100	+38.7	-42.5	---		
5	10	+45.5	-60.9	---	
	20	+43.4	-56.8	---	
	50	+40.7	-51.4	---	
	100	+38.7	-47.3	---	
	500	+33.9	-37.8	---	

NOTES:

- LOADS SHOWN IN TABLES ARE ULTIMATE LEVEL WIND PRESSURES.
- ALL PARTS AND COMPONENTS FORMING THE EXTERIOR ENVELOPE OF THE BUILDING SHALL BE DESIGNED TO RESIST THE COMPONENT & CLADDING LOADS INDICATED. POSITIVE SIGN SIGNIFIES LOADS ACTING TOWARD THE SURFACE. NEGATIVE LOADS SIGNIFY LOADS ACTING AWAY FROM THE SURFACE.
- COMPONENT & CLADDING PRESSURES SHOWN FOR "OVERHANGS" INCLUDES WIND PRESSURE FROM BOTH UPPER AND LOWER SURFACES OF THE ROOF OVERHANG. WHERE INDEPENDENTLY FRAMED SOFFITS ARE PROVIDED, THE SOFFIT SYSTEM (UNDERSIDE OF OVERHANG) MAY BE DESIGNED USING BOTH POSITIVE AND NEGATIVE COMPONENT PRESSURES SHOWN FOR WALLS (ZONE 4 & 5).

SCHEDULE OF STRUCTURAL DRAWINGS

- S-001 GENERAL NOTES
- S-002 GENERAL NOTES
- S-100 FOUNDATION PLAN – PAVILION
- S-101 FOUNDATION PLAN – RESTROOM
- S-102 MASONRY WALL / ROOF FRAMING PLAN
- S-201 MASONRY SECTIONS AND DETAILS
- S-301 FOUNDATION SECTIONS AND DETAILS
- S-401 ROOF FRAMING SECTIONS AND DETAILS
- S-402 ROOF FRAMING SECTIONS AND DETAILS

STRUCTURAL SITE VISITS

SITE VISITS DURING CONSTRUCTION WILL BE MADE BY THE STRUCTURAL ENGINEER IN ACCORDANCE WITH THE SCHEDULE STATED BELOW AND AT OTHER TIMES AS DEEMED APPROPRIATE. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER WHEN THE PROJECT HAS PROGRESSED TO THE POINT WHERE THE ITEMS TO BE INSPECTED ARE IN PLACE AND COMPLETE. FAILURE TO NOTIFY MAY REQUIRE REMOVAL OF COMPLETE CONSTRUCTION IN ORDER FOR THE SCHEDULED INSPECTIONS.

SCHEDULE OF STRUCTURAL SITE VISITS:

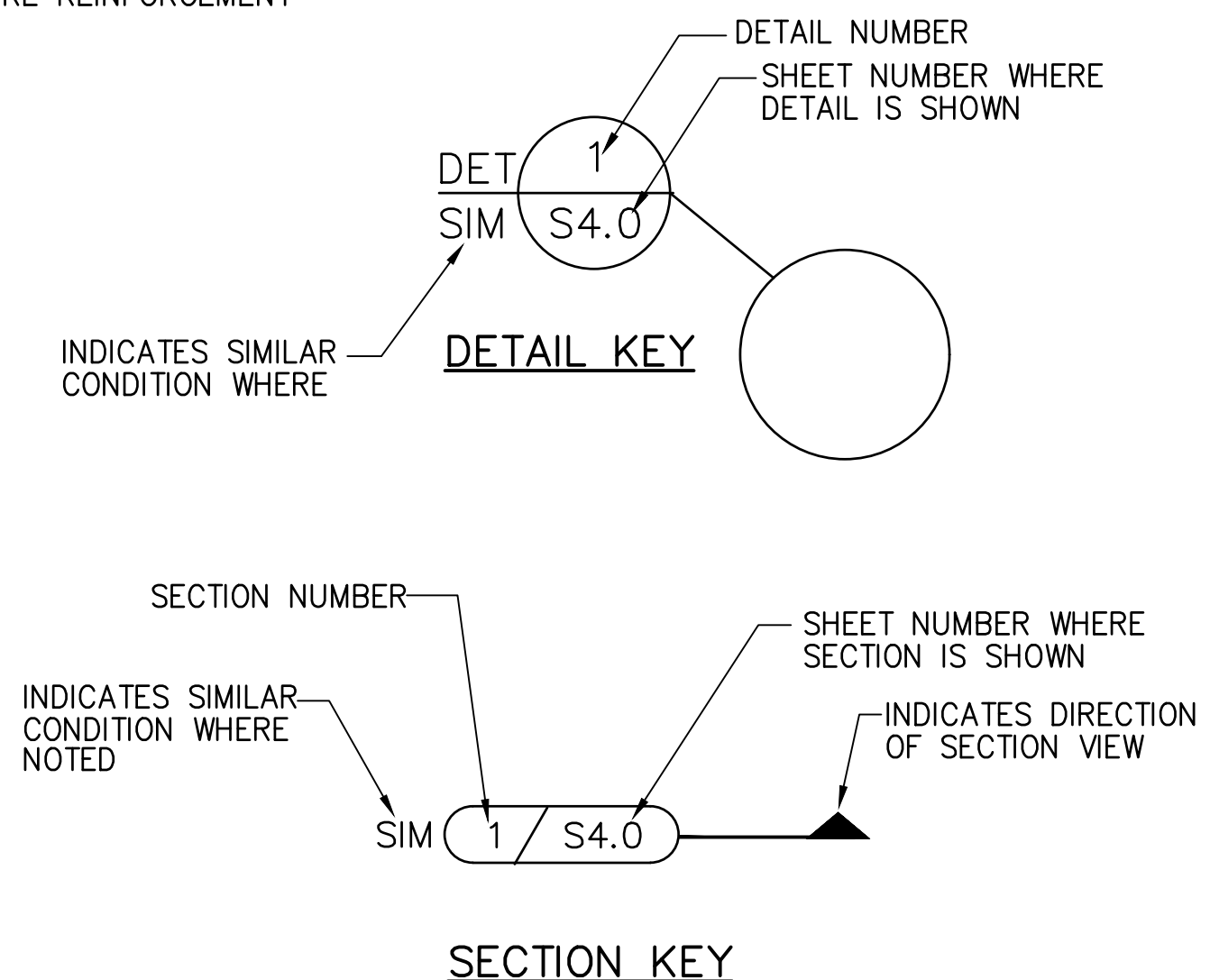
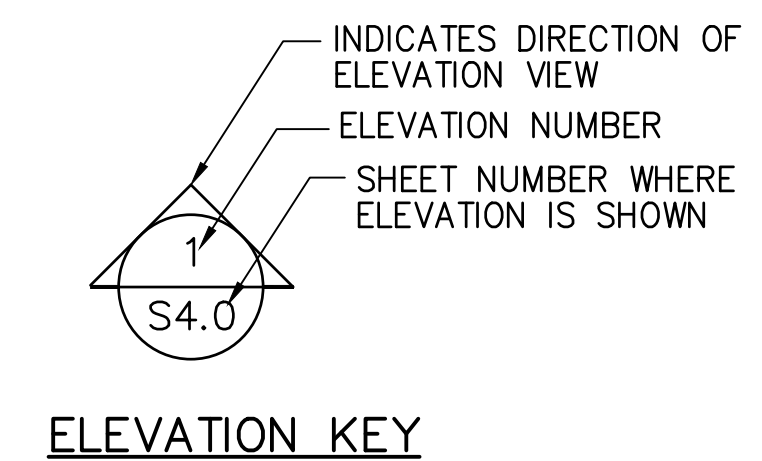
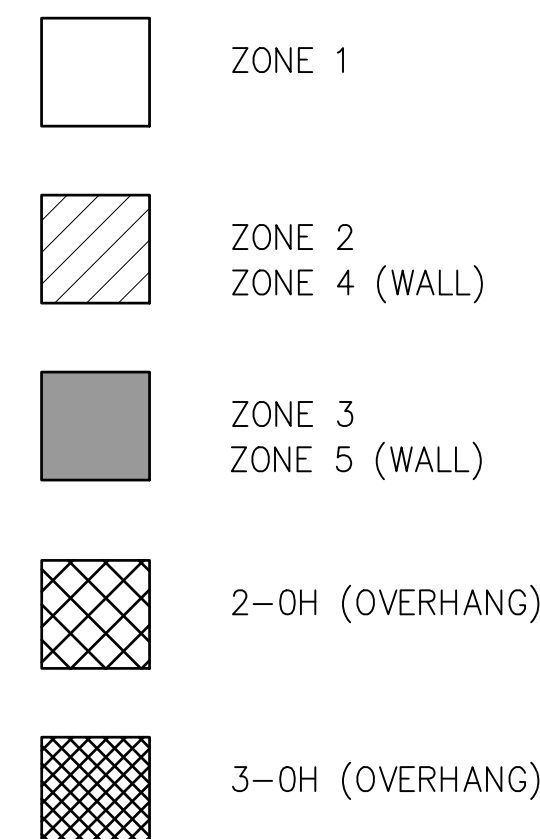
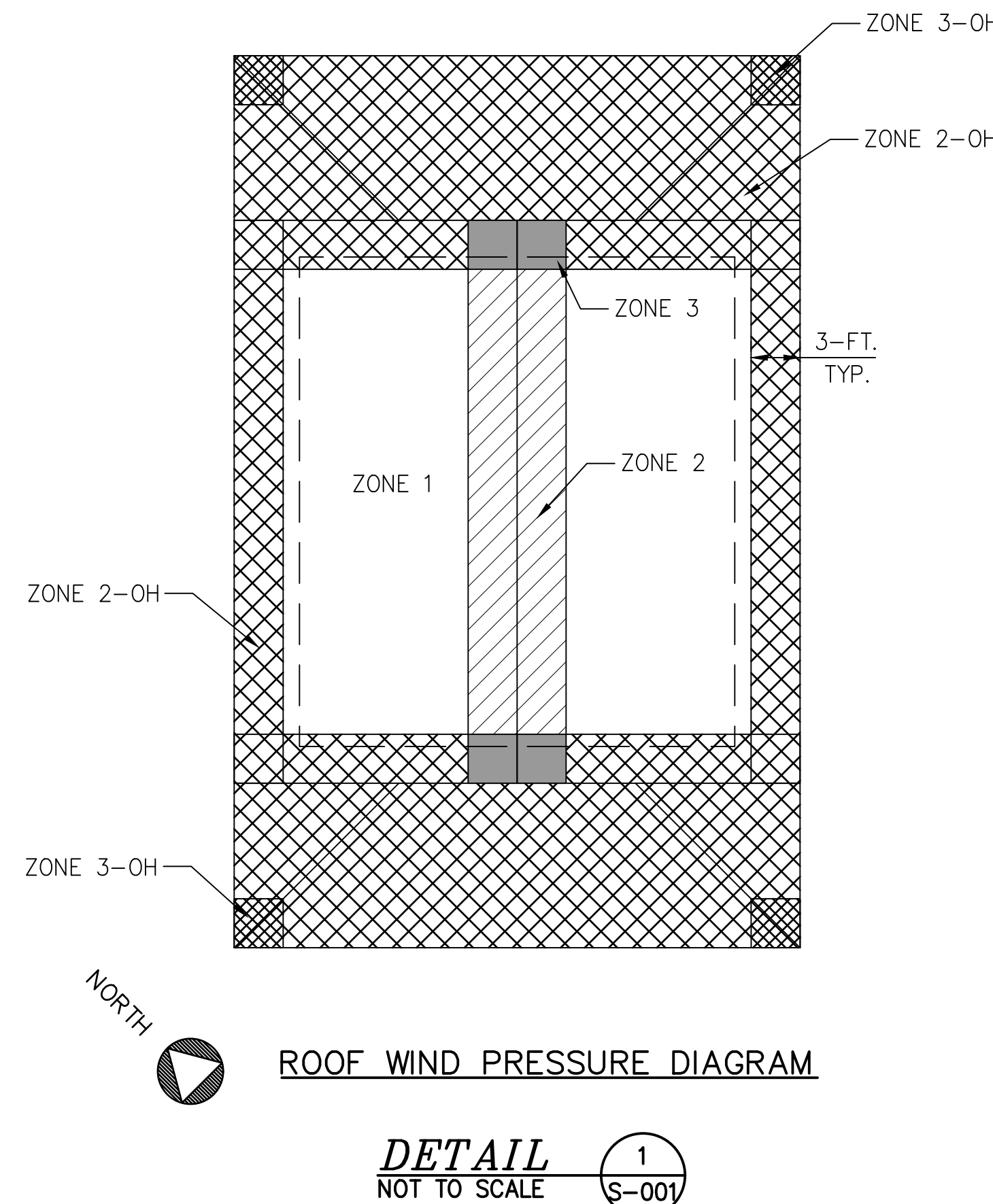
- UPON COMPLETION OF METAL TRUSS INSTALLATION INCLUDING END ANCHORAGE.

STRUCTURAL TESTS & SPECIAL INSPECTIONS:

STRUCTURAL TESTS AND SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 17 OF THE 2012 INTERNATIONAL BUILDING CODE. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED TESTS AND INSPECTIONS WITH THE OWNERS DESIGNATED AGENT AND WITH THE SPECIAL INSPECTORS ASSIGNED TO THE PROJECT. THE EXTENT OF SPECIAL TESTS AND STRUCTURAL INSPECTIONS ARE IDENTIFIED IN THE SCHEDULE OF SPECIAL INSPECTION SERVICES AS CONTAINED IN THE PROJECT SPECIFICATIONS. FAILURE TO PERFORM THE REQUIRED INSPECTIONS AND TESTS MAY REQUIRE THE REMOVAL OF THE COMPLETED CONSTRUCTION SO THAT THE SPECIFIED TESTS AND INSPECTIONS CAN BE PERFORMED AS REQUIRED.

ABBREVIATIONS:

- AFF – ABOVE FINISHED FLOOR
- ARCH – ARCHITECTURAL
- BC – BOTTOM CHORD
- BCX – BOTTOM CHORD EXTENSION
- BFF – BELOW FINISHED FLOOR
- BLDG – BUILDING
- BOS – BOTTOM OF STEEL
- BP – BASE PLATE
- BRG – BEARING
- BTM – BOTTOM
- BTWN – BETWEEN
- CC – CENTER TO CENTER
- CLR – CLEAR COVER
- COL – COLUMN
- CONT – CONTINUOUS
- DBA – DEFORMED BAR ANCHOR
- DET – DETAIL
- DWG – DRAWING
- EA – EACH
- EF – EACH FACE
- ELEV – ELEVATION
- EQ – EQUAL
- EW – EACH WAY
- EXIST – EXISTING
- EXP ANCH – EXPANSION ANCHOR
- EXP. JT. – EXPANSION JOINT
- FFE – FINISHED FLOOR ELEVATION
- FNDN – FOUNDATION
- FOC – FACE OF CONCRETE
- FOM – FACE OF MASONRY
- FOS – FACE OF STUD
- FTG – FOOTING
- GALV – GALVANIZED
- HDG – HOT DIPPED GALVANIZED
- HORIZ – HORIZONTAL
- HSA – HEADED STUD ANCHOR
- HSB – HIGH STRENGTH BOLT
- JST – JOIST
- LG – LONG
- LLH – LONG LEG HORIZONTAL
- LLV – LONG LEG VERTICAL
- LLBB – LONG LEG BACK TO BACK
- MAT'L – MATERIAL
- MAX – MAXIMUM
- MECH – MECHANICAL
- MCJ – MASONRY CONTROL JOINT
- MEJ – MASONRY EXPANSION JOINT
- MO – MASONRY OPENINGS
- MRA – MASONRY RIGID ANCHOR
- MIN – MINIMUM
- NIC – NOT IN CONTRACT
- NTS – NOT TO SCALE
- o.c. – ON CENTER
- O/O – OUT TO OUT
- PAF – POWER ACTIVATED FASTENER
- REF – REFERENCE
- REIN – REINFORCE
- REQ'D – REQUIRED
- SEC – SECTION
- SHT – SHEET
- SPC'S – SPACES
- STD – STANDARD
- STL – STEEL
- TCX – TOP CHORD EXTENSION
- TOF – TOP OF FOOTINGS
- TOM – TOP OF MASONRY
- TOS – TOP OF STEEL
- TOW – TOP OF WALL
- TYP – TYPICAL
- UNO – UNLESS NOTED OTHERWISE
- VERT – VERTICAL
- W/ – WITH
- WP – WORKING POINT
- WWR – WELDED WIRE REINFORCEMENT



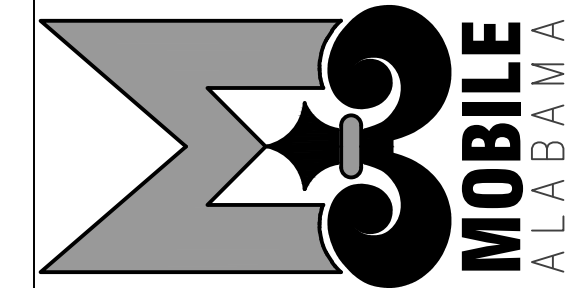
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ALABAMA
LICENSED
No. 20131
PROFESSIONAL
ENGINEER
JAMES A. RUSSELL
09/28/2022

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SHEET TITLE

GENERAL NOTES

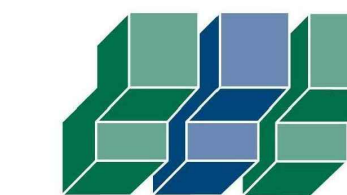
KEY PLAN

JOB NO. 2121

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SHEET

S-001



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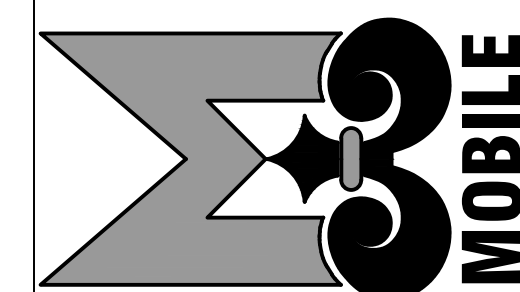
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**PAVILION
FOUNDATION PLAN**

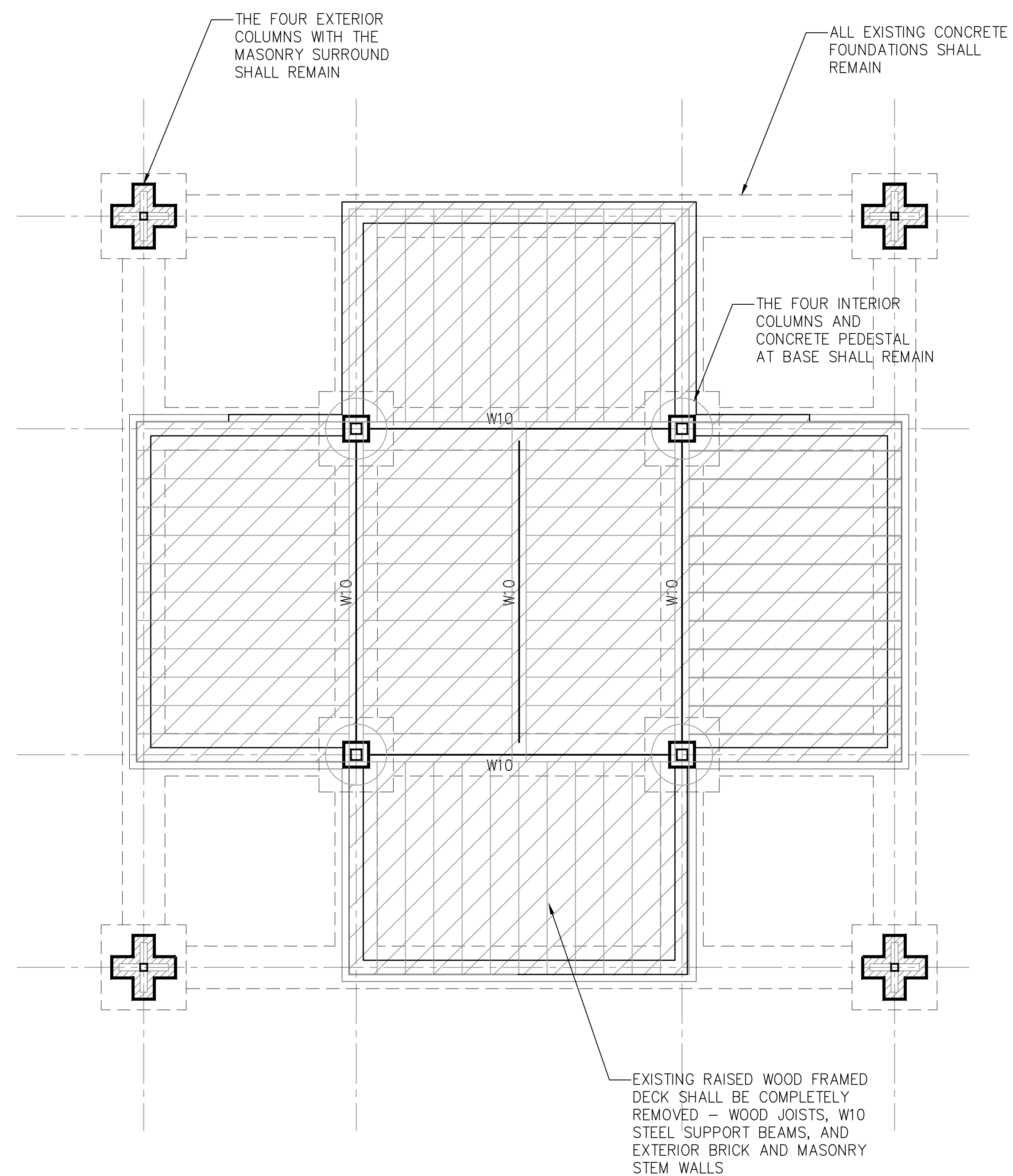
KEY PLAN

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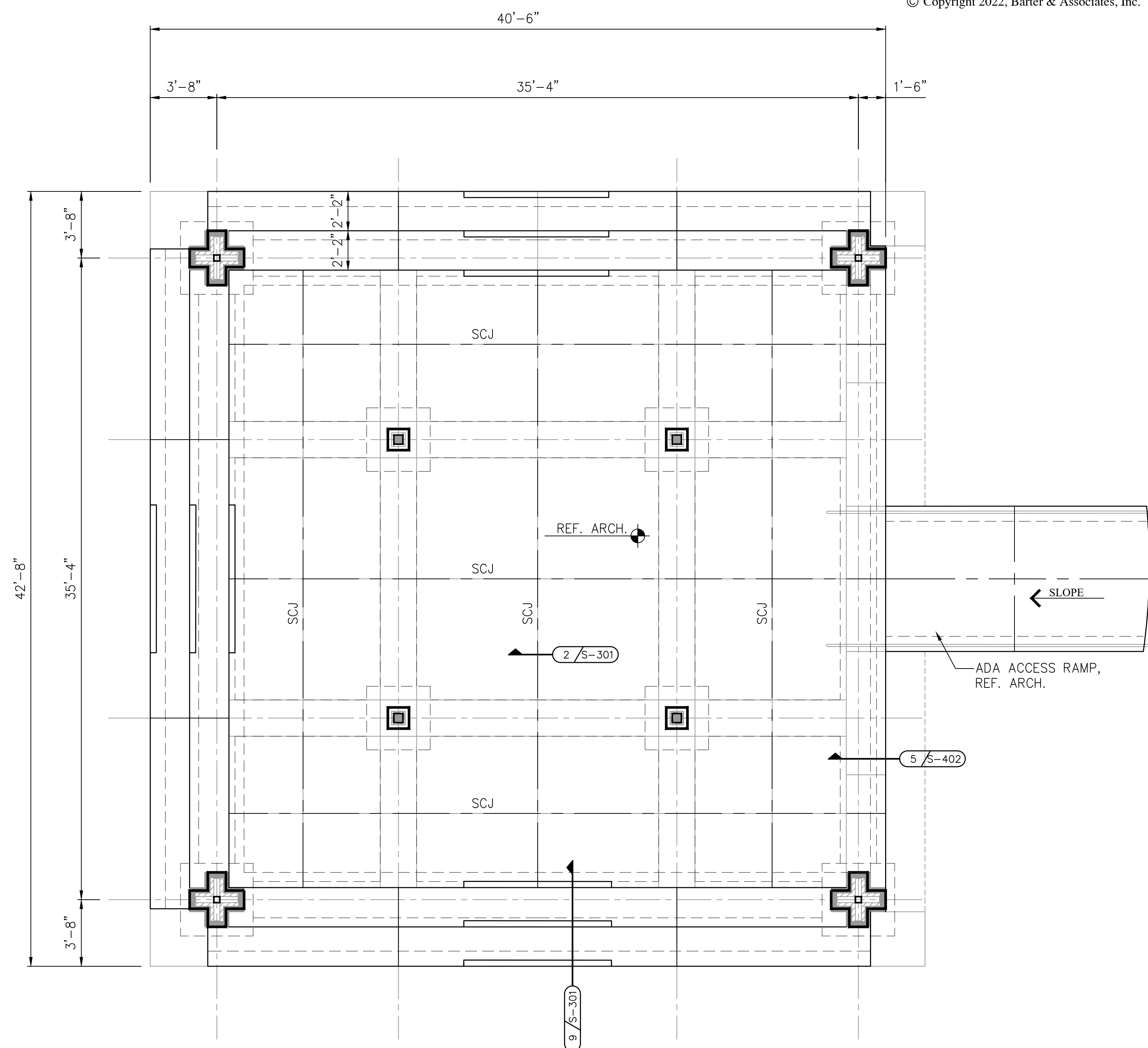
SHEET

S-100



EXISTING PAVILION FOUNDATION PLAN

SCALE: 1/4"=1'-0"
TOP OF DECK ELEV.=+0'-0" (NOMINAL)
TOP OF FOOTING ELEV.=-4'-6" (VERIFY)

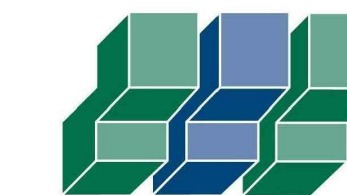


NEW PAVILION SLAB PLAN

SCALE: 1/4"=1'-0"
TOP OF SLAB ELEV.= SEE ARCHITECTURAL / CIVIL

TYPICAL PAVILION FLOOR SLAB

4" CONCRETE SLAB REINFORCED
W/ 6X6-W2.1XW2.1 FLAT SHEETS OVER
10-MIL VAPOR BARRIER AND COMPACTED
STRUCTURAL FILL MATERIAL

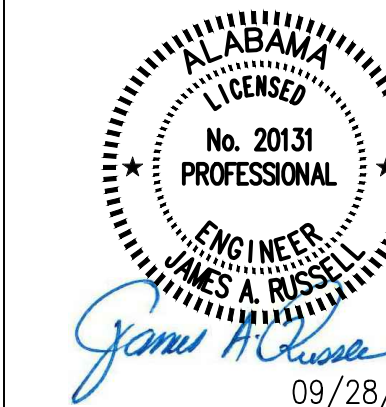


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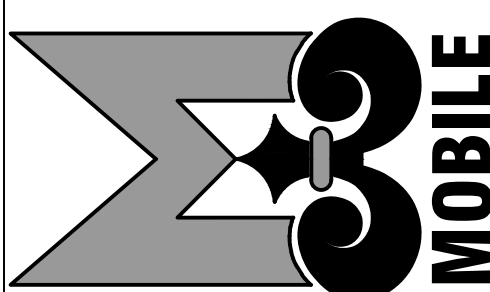
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**MASONRY WALL/
ROOF FRAMING
PLAN**

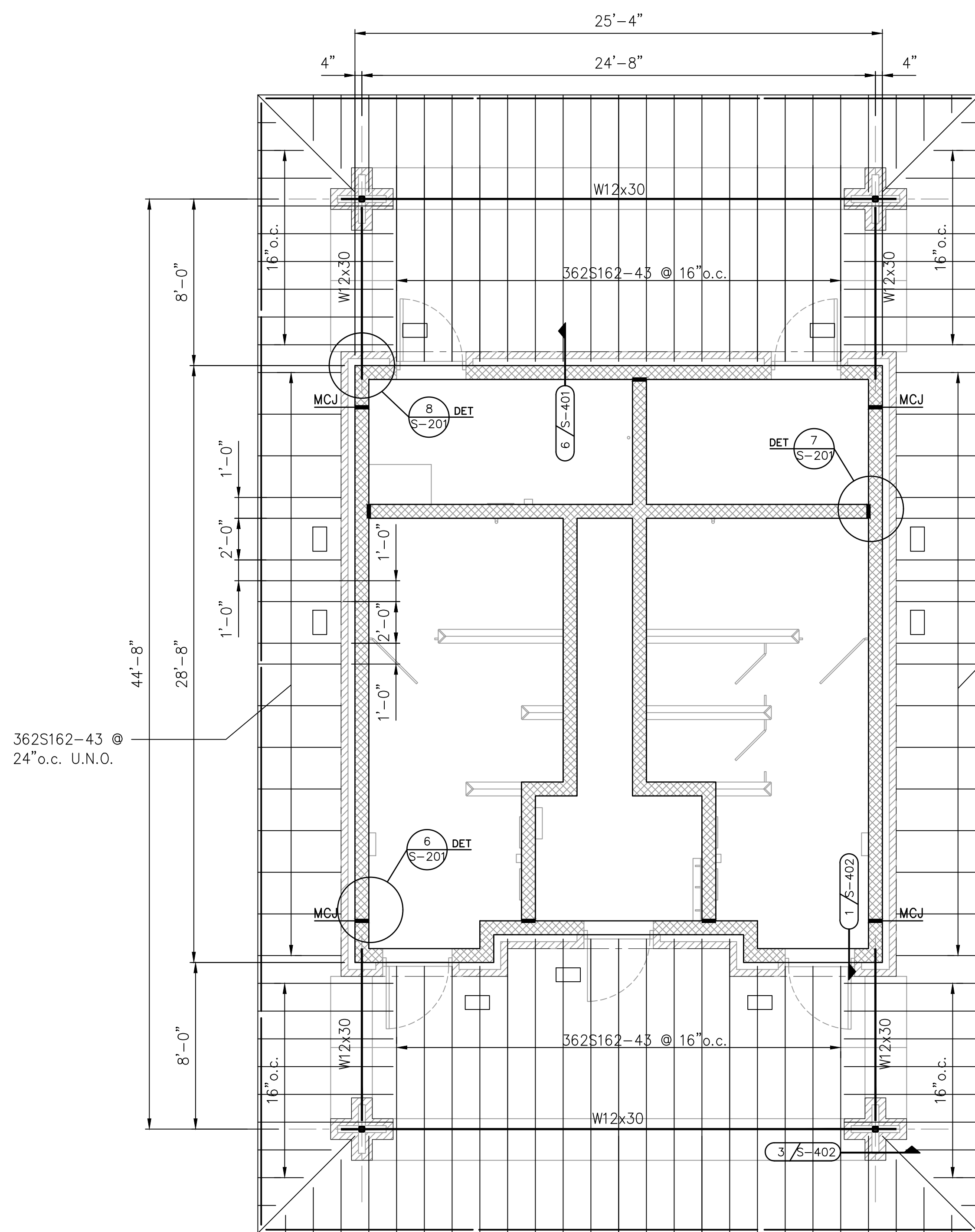
KEY PLAN

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SHEET

S-102



MASONRY WALL LEVEL PLAN

SCALE: 1/4"=1'-0"
T.O.M.= +9'-4" U.N.O.
T.O.S.= +10'-5" U.N.O.

NOTES:

- REFERENCE SHEETS S-001 & S-002 FOR PROJECT GENERAL NOTES.
- ALL EXTERIOR MASONRY WALLS TO BE 8" CMU REINFORCED WITH #5 VERTICAL REINFORCING BARS @ 48" o.c.
- FRAMING MATERIAL EXPOSED TO THE EXTERIOR ENVIRONMENT SHALL BE PRESSURE TREATED MATERIAL.

LEGEND

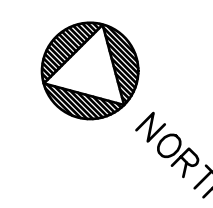
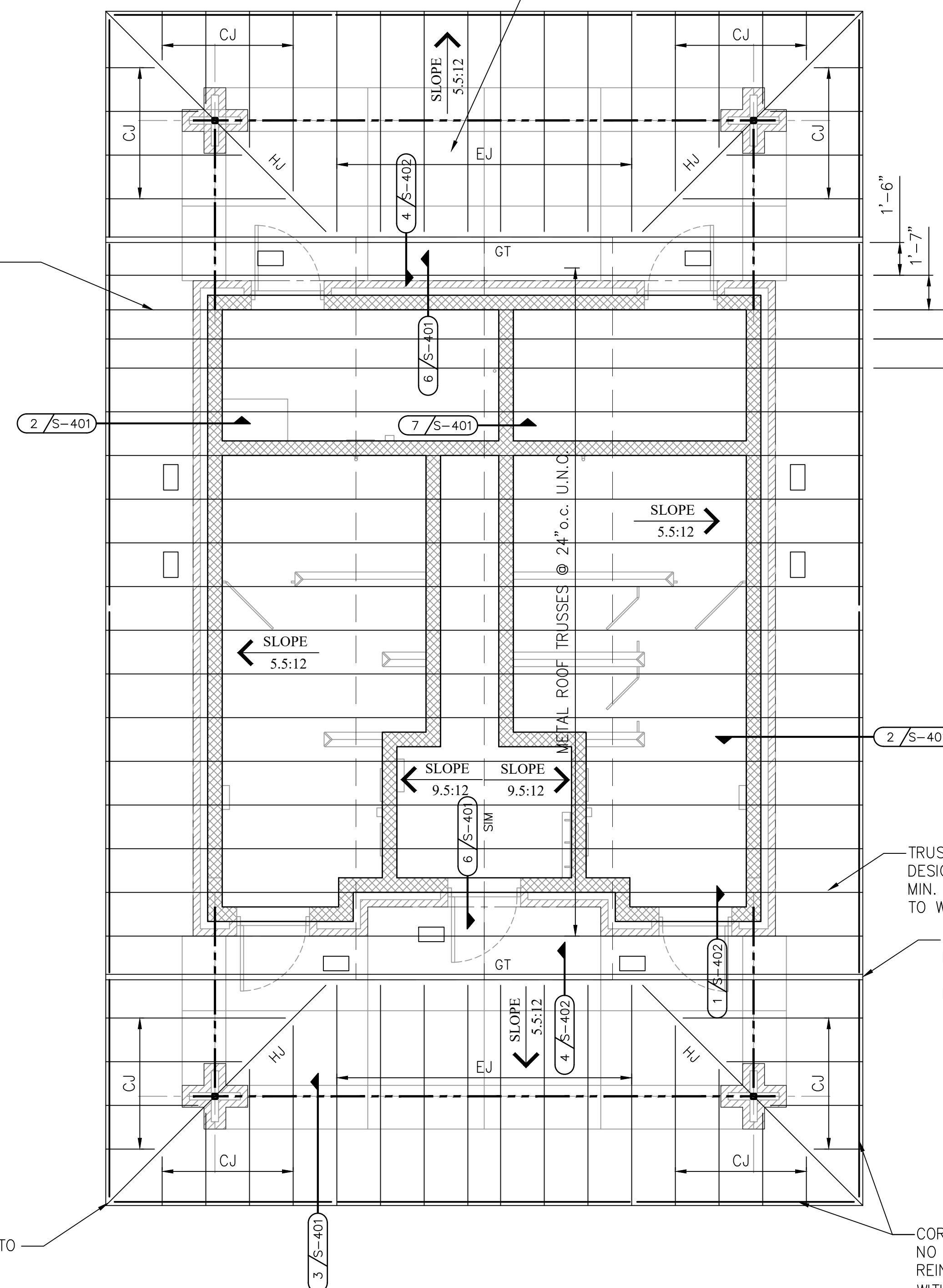
- MCJ MASONRY CONTROL JOINT - SEE DETAIL 6/S-201
- - - - - SUPPORT BEAM BELOW
- - - - - FACE OF BRICK LOCATION
- ▶ MOMENT END CONNECTION

TRUSS DESIGNER TO DESIGN SHEAR TRUSS FOR MIN. 80 PLF SHEAR LOAD DUE TO WIND

362S162-43 @ 24" o.c. U.N.O.

CONT. BUILT-UP FASCIA REINF., SEE TYP. DETAILS

TRUSS MANUFACTURER TO DESIGN HJ TRUSS FOR 300lb POINT LOAD THIS END, TYP.



ROOF FRAMING PLAN

SCALE: 1/4"=1'-0"
TRUSS BRG. ELEV.= +9'-4 3/8" AT MASONRY SUPPORT
TRUSS BRG. ELEV.= +10'-5" AT STEEL BEAM SUPPORT

TYPICAL ROOF CONSTRUCTION

19/32" EXPOSURE 1 APA RATED FIRE RETARDANT PLYWOOD OVER PRE-ENGINEERED METAL ROOF TRUSSES @ 24" o.c. ATTACH ROOF DECK WITH AS SPECIFIED IN STRUCTURAL GENERAL NOTES.

LEGEND

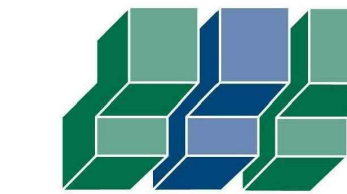
- EJ END JACK
- CJ CORNER JACK
- GT GIRDER TRUSS (TWO-PLY)
- HJ HIP JACK TRUSS
- HM TWO PLY HIP MASTER TRUSS

NOTE:
RAISE BOTTOM CHORD OF TRUSSES 1'-1" AT EXTERIOR COVERED AREA AT BOTH ENDS.

TRUSS DESIGNER TO DESIGN SHEAR TRUSS FOR MIN. 80 PLF SHEAR DUE TO WIND

TRUSS MANUFACTURER TO DESIGN GIRDER TRUSS FOR ADDITIONAL 700lb POINT LOAD @ EACH END, TYP.

CORNER OVERHANG REINFORCEMENT. NO SPLICING OF CORNER REINFORCEMENT SHALL BE ALLOWED WITHIN 10'-6" EACH WAY FROM CORNER. - SEE TYPICAL OVERHANG REINFORCEMENT DETAIL



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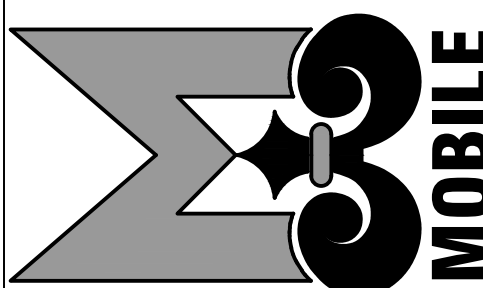
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**MASONRY
SECTIONS &
DETAILS**

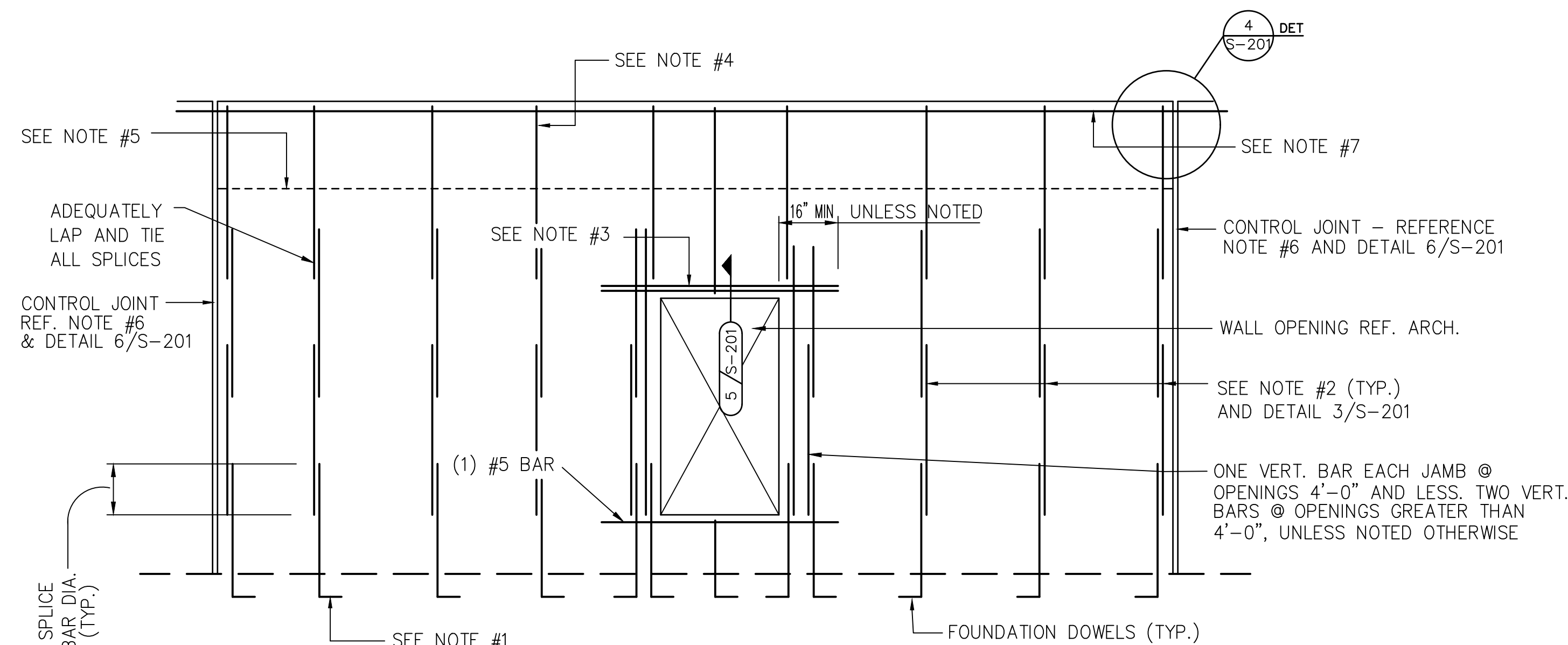
KEY PLAN

JOB NO. 2121

DATE: SEPTEMBER 28 2022

SHEET

S-201



MASONRY WALL REINFORCING NOTES

- VERTICAL WALL REINFORCING SHALL ALIGN WITH VERTICAL FOUNDATION DOWELS. DOWELS SHALL BE PLACED IN CENTER OF CMU WALL WITH ACI STANDARD HOOK. PLACE HOOKS DIRECTLY ON TOP OF BOTTOM LAYER OF FOOTING REINFORCING.
- TYPICAL VERTICAL WALL REINFORCEMENT TO BE PLACED IN CENTER OF WALL. GROUT CELLS FULL THAT CONTAIN REINFORCEMENT. FOR CLARITY, ALL VERTICAL AND HORIZONTAL REINFORCING IS SHOWN CONTINUOUS, HOWEVER VERTICAL REINFORCEMENT SHALL BE LAPPED AND SPLICED TO ACCOMMODATE MAXIMUM GROUT LIFTS OF 4'-8" AND HORIZONTAL BARS SHALL BE LAPPED AND SPLICED AS REQUIRED. ALL VERTICAL BARS SHALL BE ACCURATELY LOCATED WITHIN THE CELL WITH REBAR POSITIONERS PRIOR TO PLACING GROUT IN CELLS. ALL LAPS SHALL BE 48 BAR DIAMETERS UNLESS NOTED OTHERWISE.
- REFERENCE MASONRY LINTEL SCHEDULE FOR SIZE, LOCATION AND QUANTITY OF LINTEL REINFORCEMENT.
- ALL VERTICAL REINFORCING SHALL STOP 2" CLEAR FROM TOP OF WALL UNLESS NOTED.
- HORIZONTAL JOINT REINFORCING SHALL BE LADDER TYPE AT 16" o.c. - DISCONTINUE AT CONTROL JOINTS.
- MASONRY CONTROL JOINTS SHALL BE DISCONTINUOUS AT ALL BOND BEAMS AND SHALL NOT EXTEND BELOW GRADE. COORDINATE EXACT LOCATION OF MASONRY CONTROL JOINTS WITH THE ARCHITECT.
- REFERENCE SECTIONS AND DETAILS FOR SIZE AND LOCATION OF BOND BEAMS AND QUANTITY OF REINFORCING. PROVIDE HORIZONTAL BOND BEAMS IN ALL INTERIOR MASONRY WALLS, 8" HIGH WITH (1) #5 CONT. AT TOP OF WALL. WHERE WALL HEIGHT EXCEEDS +12'-0", PROVIDE AN ADDITIONAL INTERMEDIATE BOND BEAM WITH (1) #5 AT +10'-0" LEVEL. PROVIDE CORNER BARS AT ALL BOND BEAM CORNERS AND INTERSECTIONS TO MATCH HORIZONTAL REINF.
- REFERENCE ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS IN MASONRY WALLS.

TYPICAL MASONRY WALL REINFORCING DIAGRAM

DETAIL 1
NOT TO SCALE S-201

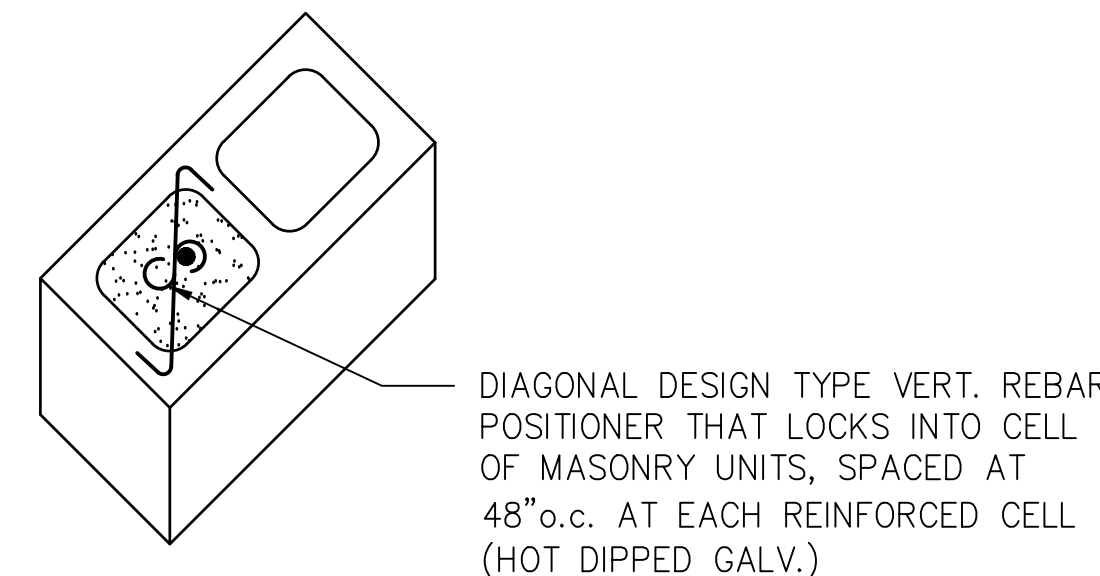
MASONRY LINTEL SCHEDULE				
WALL THICKNESS	CLEAR SPAN	LINTEL DEPTH	BOTTOM REINFORCING	TOP REINFORCING
8	4'-0" MAX.	8"	1-#5	---
8	8'-0" MAX.	16"	2-#5	---

MASONRY LINTEL NOTES:

- GROUTED LINTEL BLOCKS IN MASONRY WALLS SHALL EXTEND A MINIMUM OF 16 INCHES BEYOND FACE OF OPENING EACH SIDE. THE FIRST VERTICAL CELL ON EACH SIDE OF THE OPENING SHALL BE GROUTED AND CONTAIN ONE VERTICAL BAR IN EACH CELL CONT. TO THE TOP OF THE WALL UNLESS NOTED OTHERWISE.
- GROUT FOR LINTELS SHALL BE PLACED IN SINGLE LIFTS AND WITHOUT COLD JOINTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

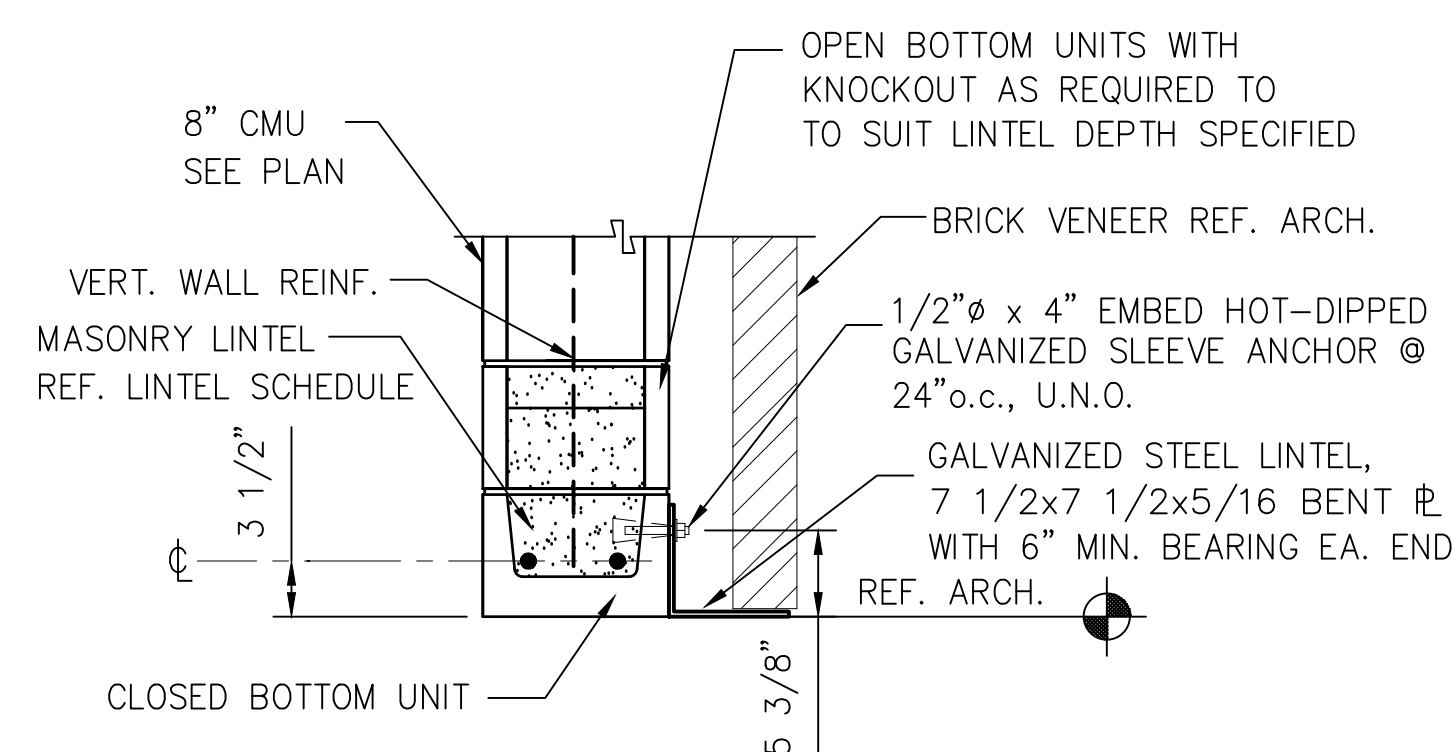
MASONRY LINTEL SCHEDULE

DETAIL 2
NOT TO SCALE S-201



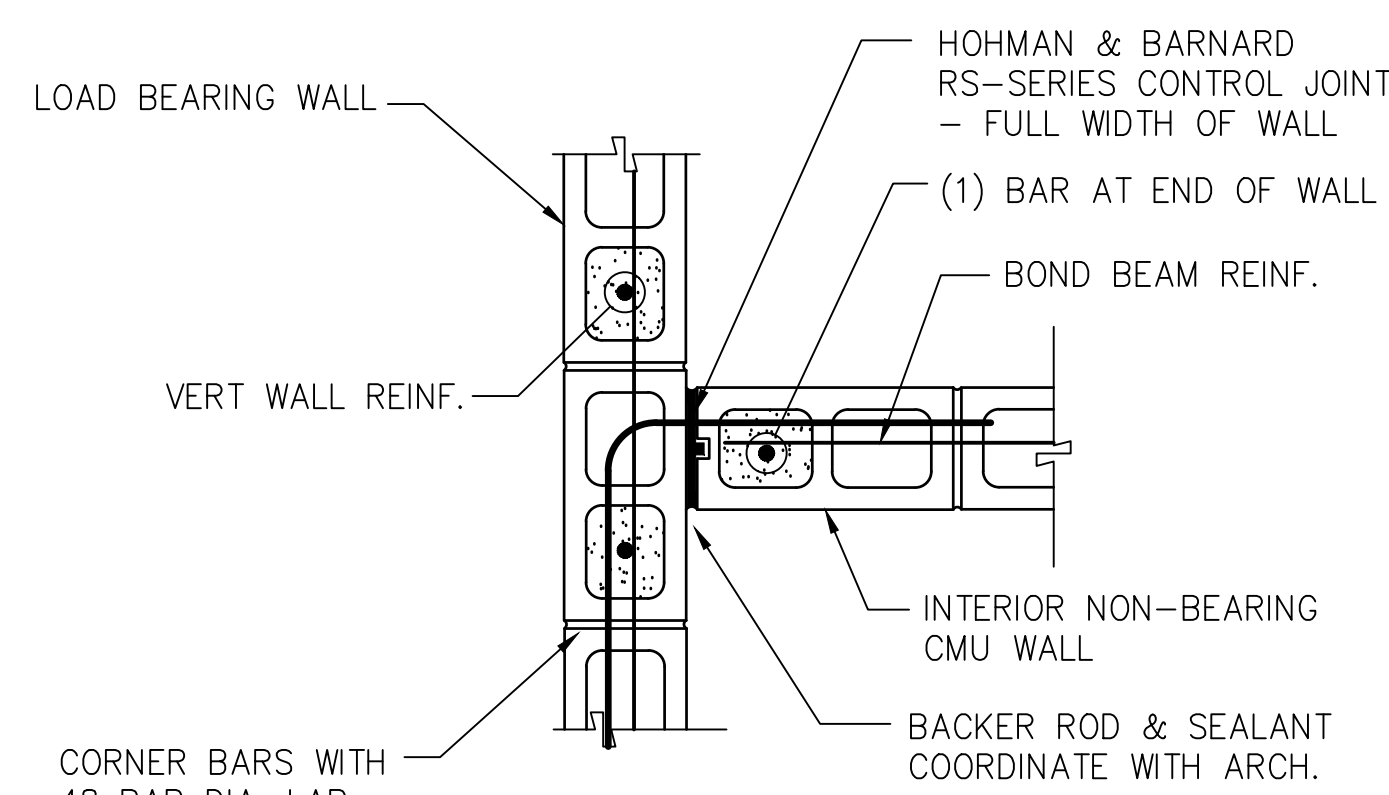
TYPICAL REBAR POSITIONER

DETAIL 3
NOT TO SCALE S-201



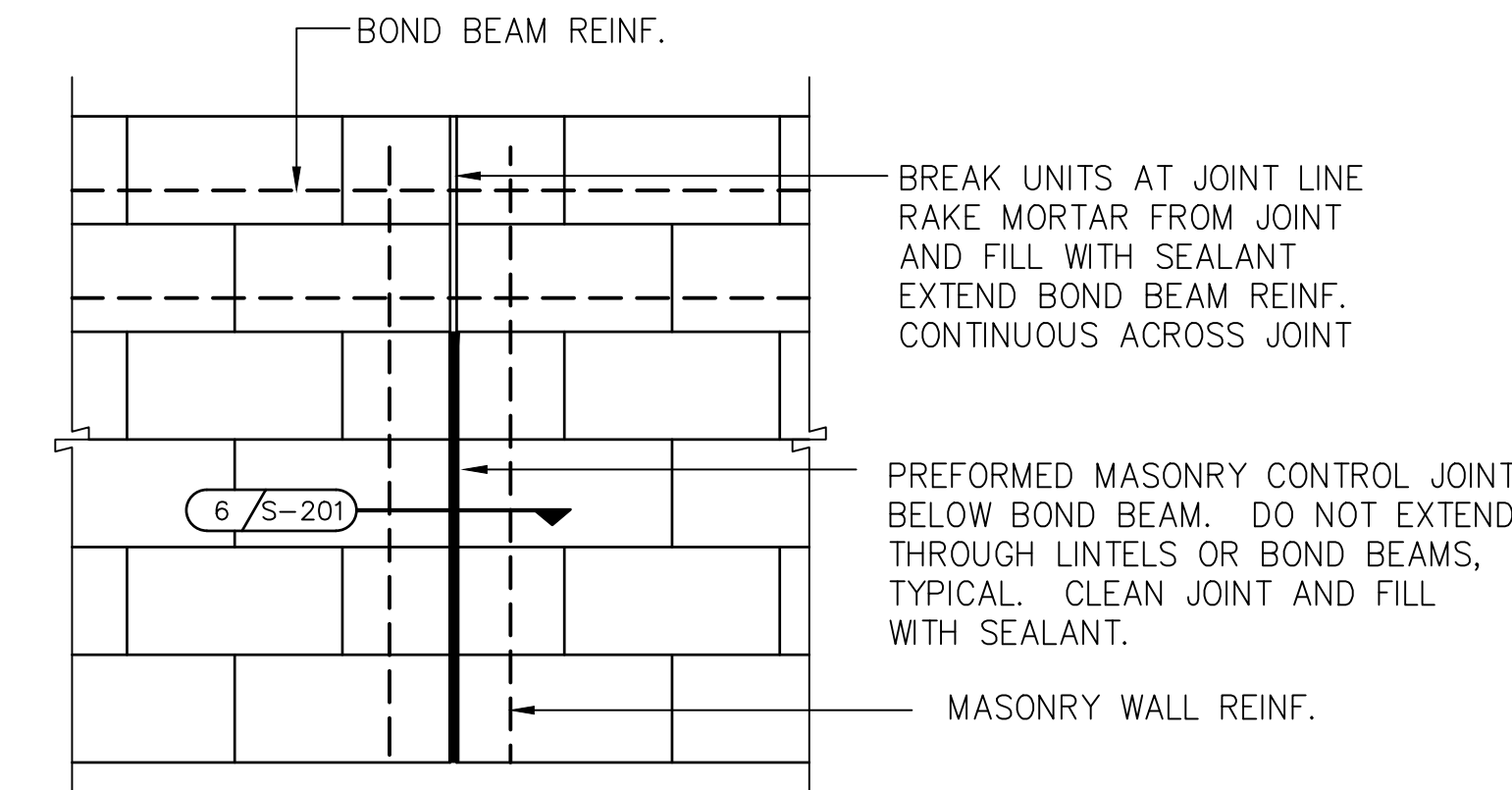
TYPICAL CMU LINTEL SECTION

SECTION 5
NOT TO SCALE S-201



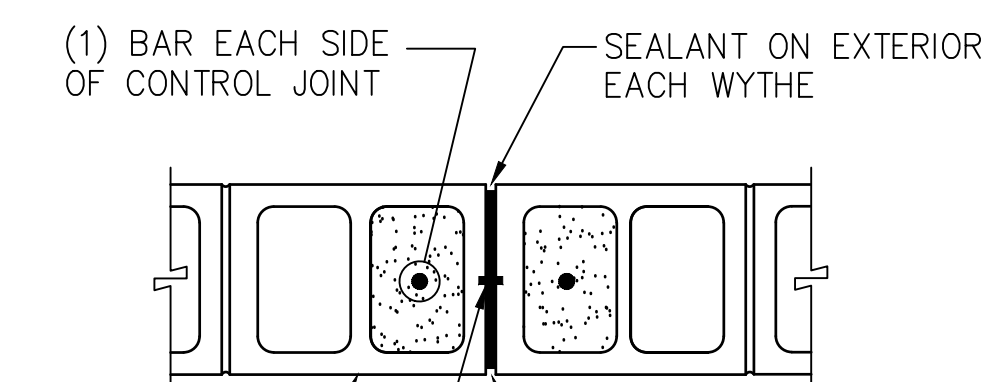
TYPICAL DETAIL @ INTERSECTION BETWEEN INTERIOR NON-BEARING WALL AND LOAD BEARING WALL

DETAIL 7
NOT TO SCALE S-201



TYPICAL MASONRY CONTROL JOINT ELEVATION AT BOND BEAM

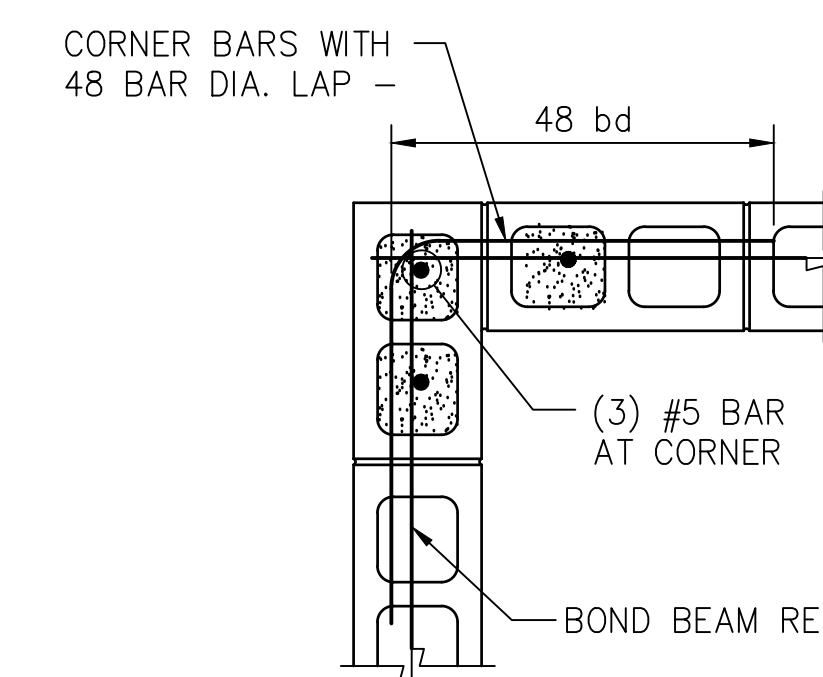
DETAIL 4
NOT TO SCALE S-201



8" CMU. SEE PLAN.
HOHMAN & BARNARD RS-SERIES CONTROL JOINT - FULL WIDTH OF WALL

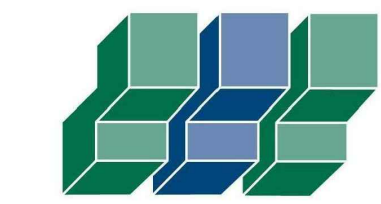
TYPICAL MASONRY CONTROL JOINTS

DETAIL 6
NOT TO SCALE S-201



TYPICAL 8" CMU CORNER REINF.

DETAIL 8
NOT TO SCALE S-201



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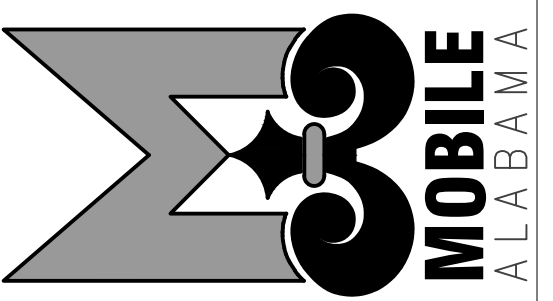
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SHEET TITLE
FOUNDATION SECTIONS & DETAILS

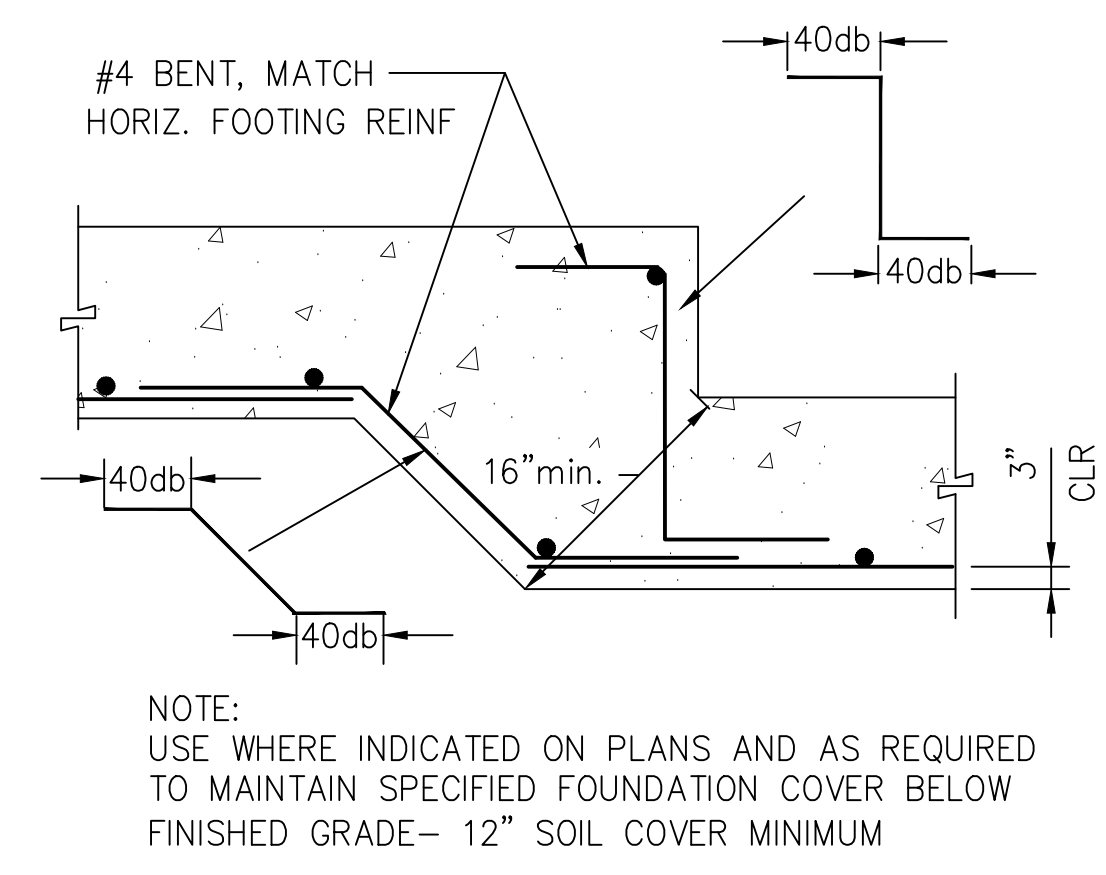
KEY PLAN

JOB NO. 2121

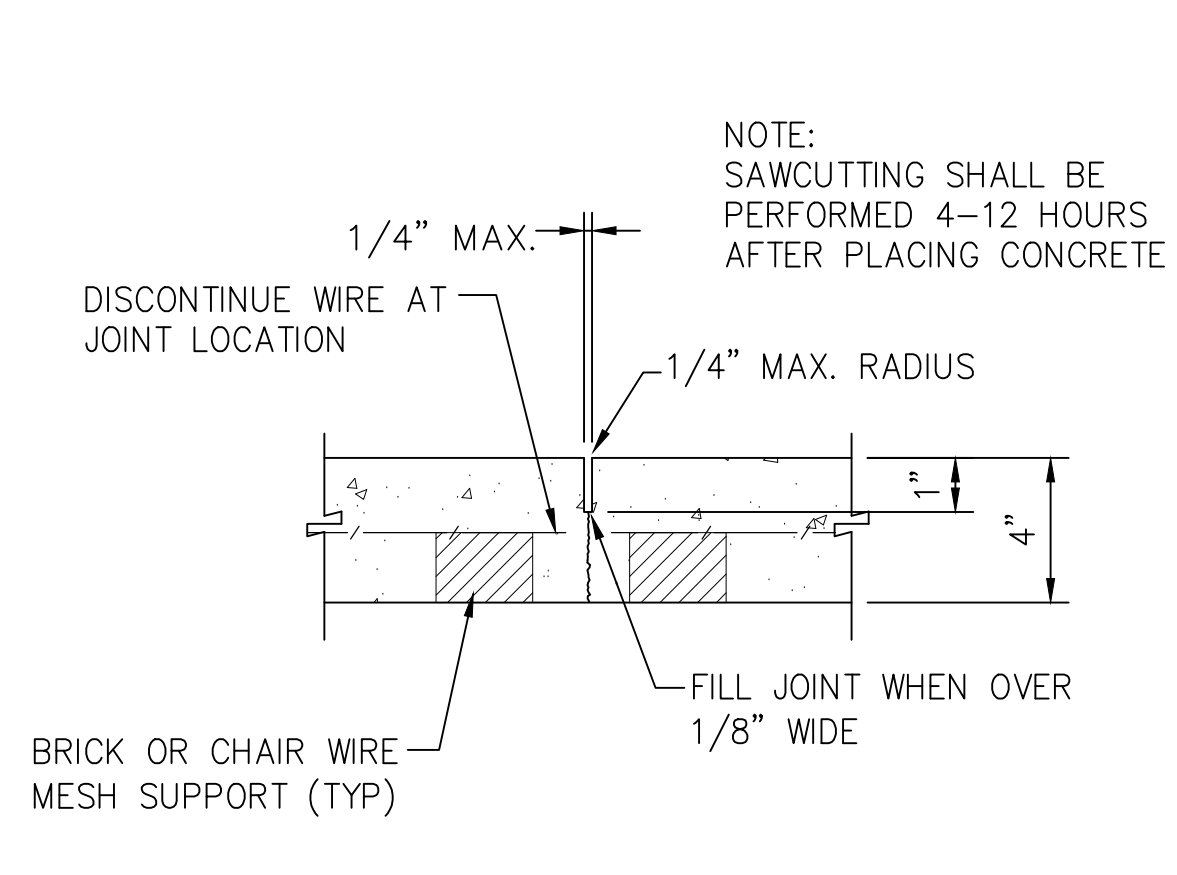
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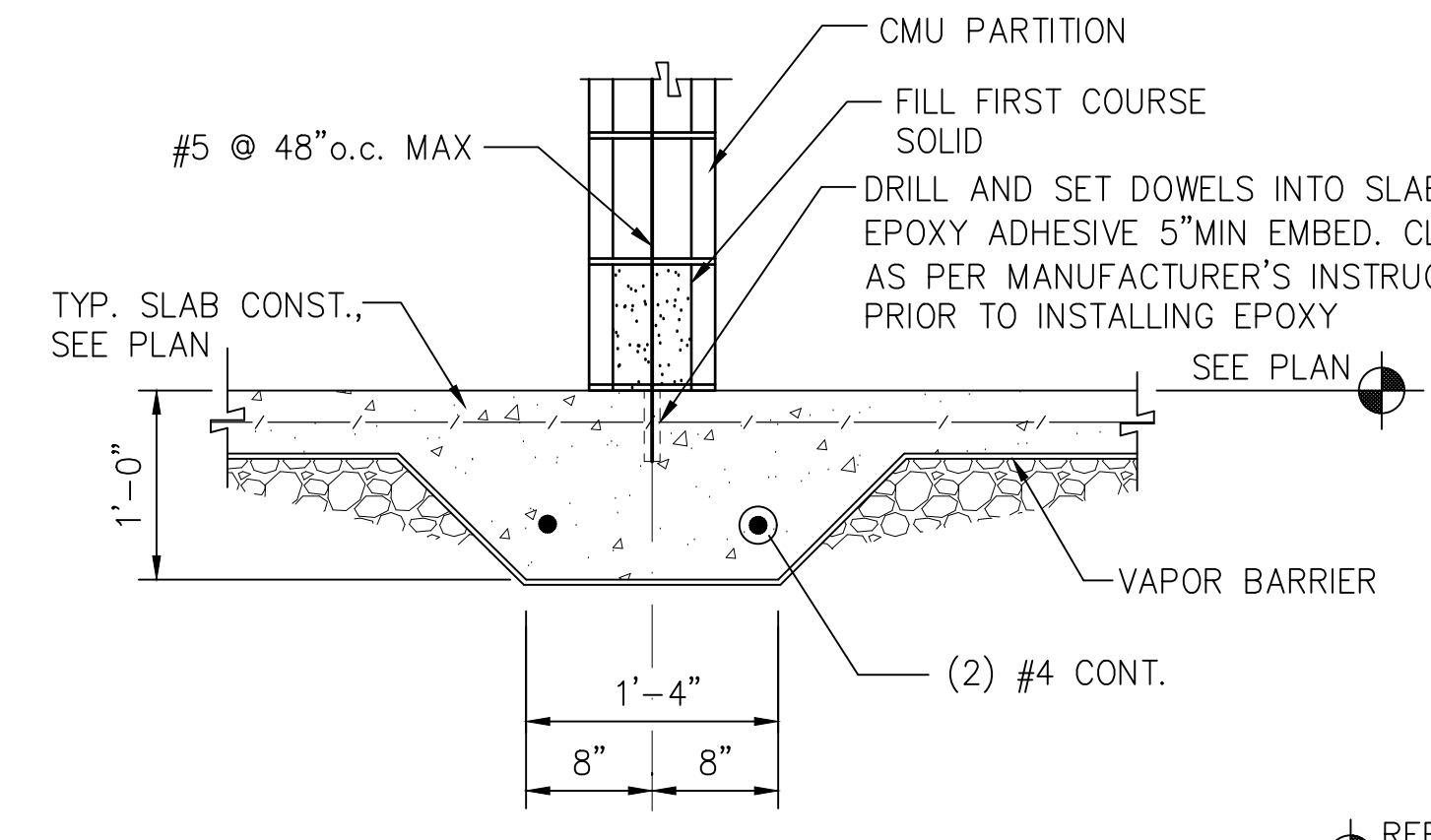
S-301



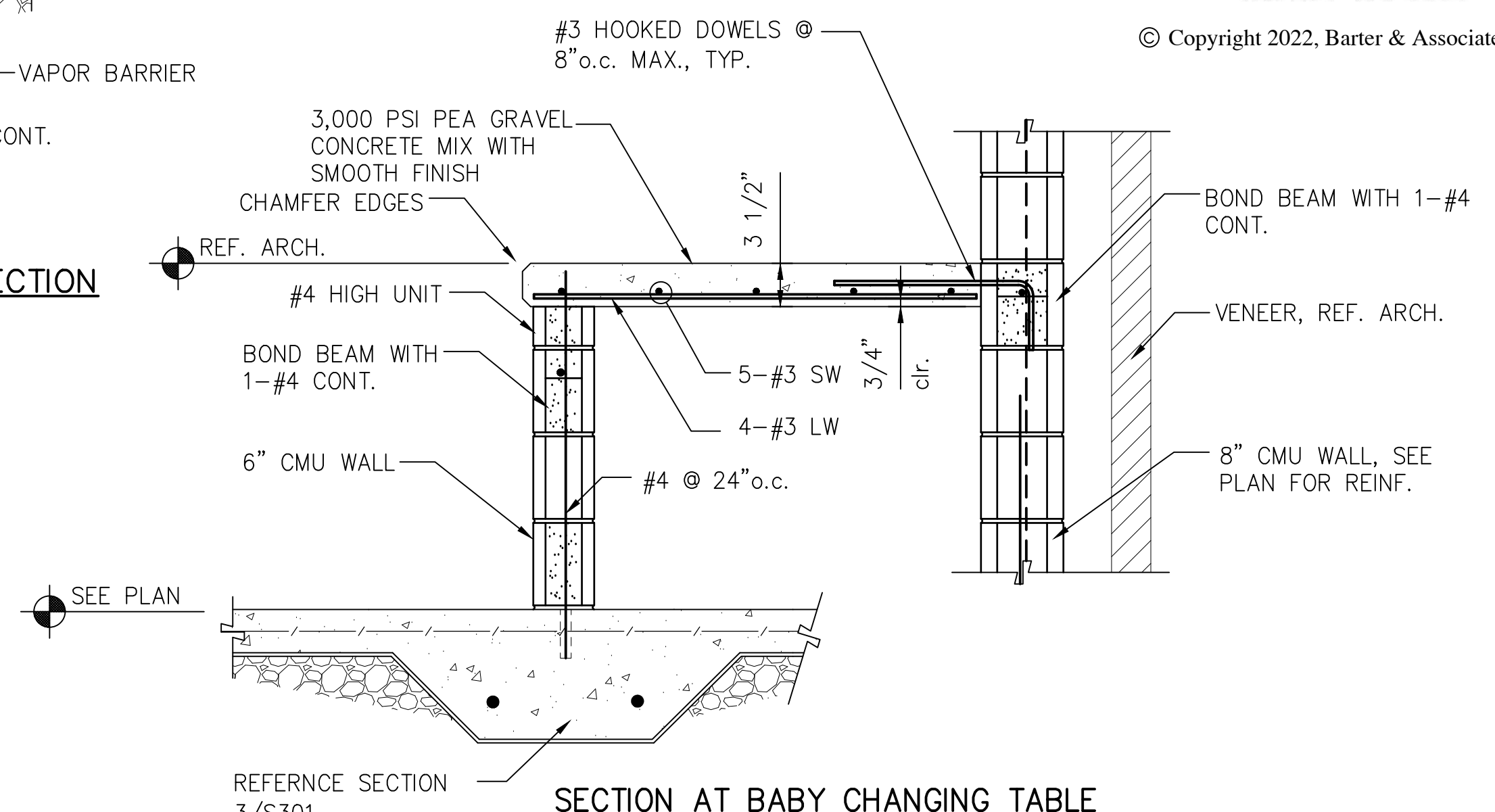
TYPICAL FOOTING STEP
DETAIL 1
NOT TO SCALE (S-301)



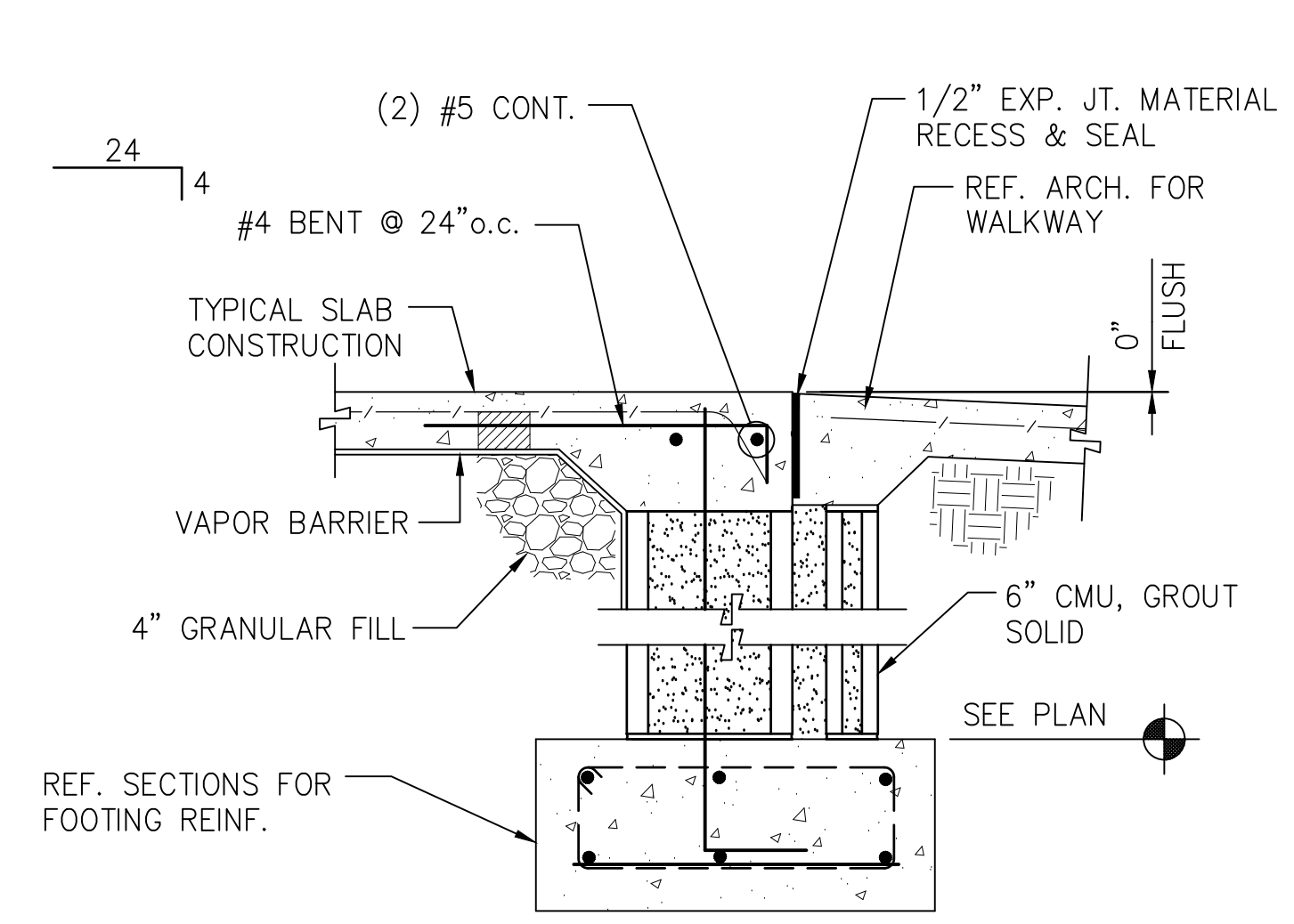
TYPICAL CONCRETE SLAB SAW-CUT JOINTS
DETAIL 2
NOT TO SCALE (S-301)



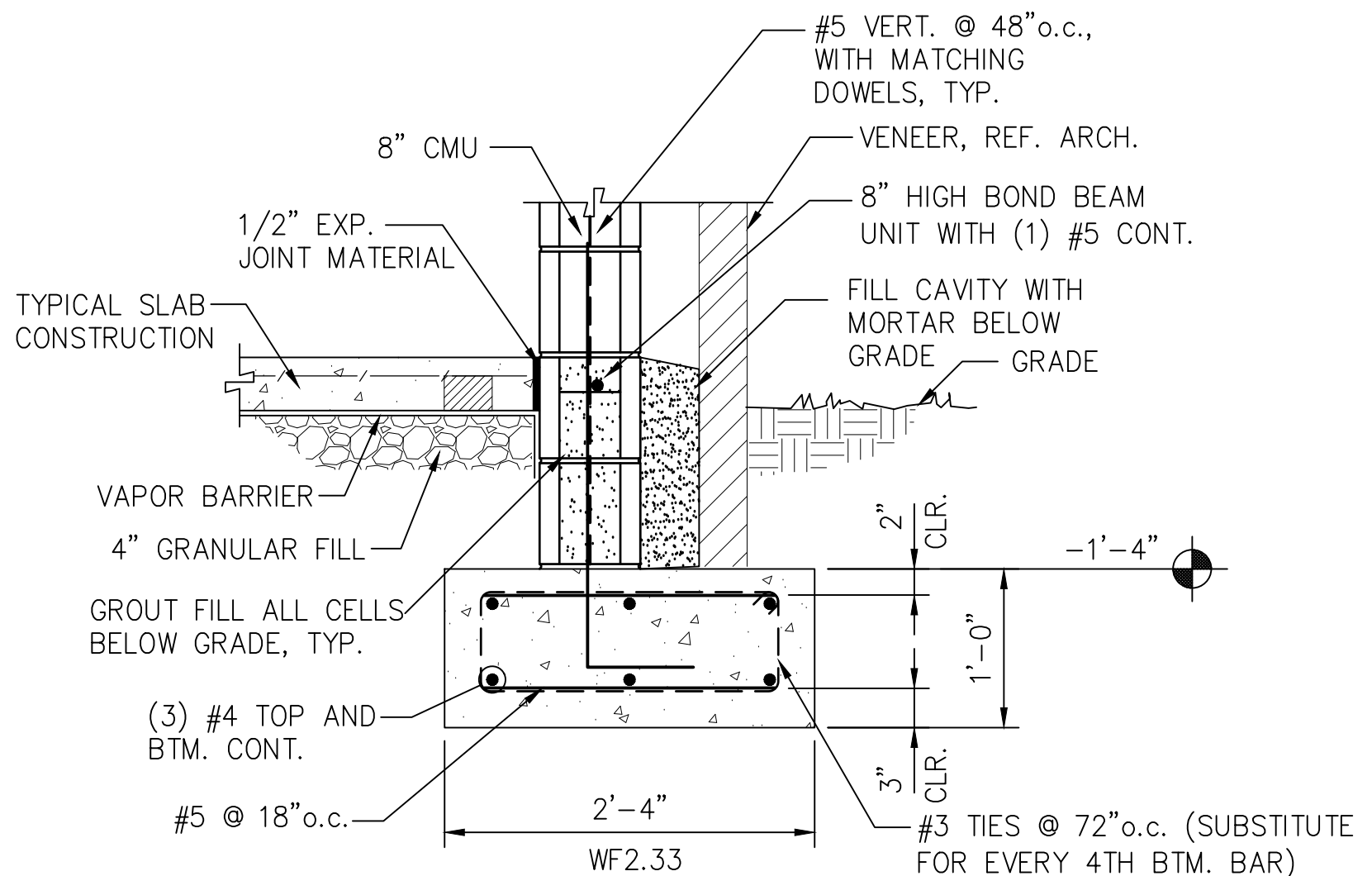
TYPICAL INTERIOR CMU PARTITION SECTION
SECTION 3
SCALE: 1"=1'-0" (S-301)



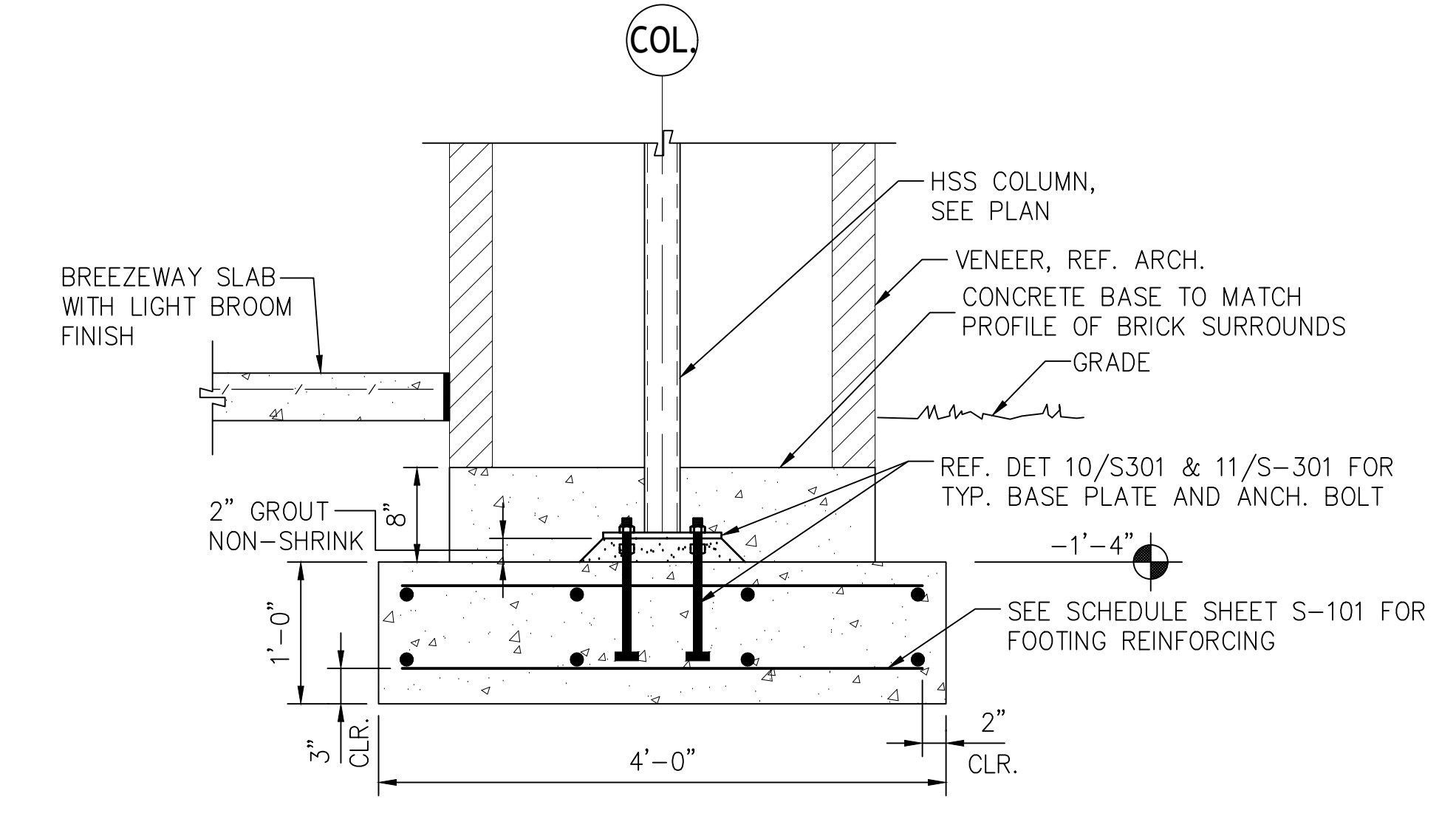
SECTION AT BABY CHANGING TABLE
SECTION 6
SCALE: 1"=1'-0" (S-301)



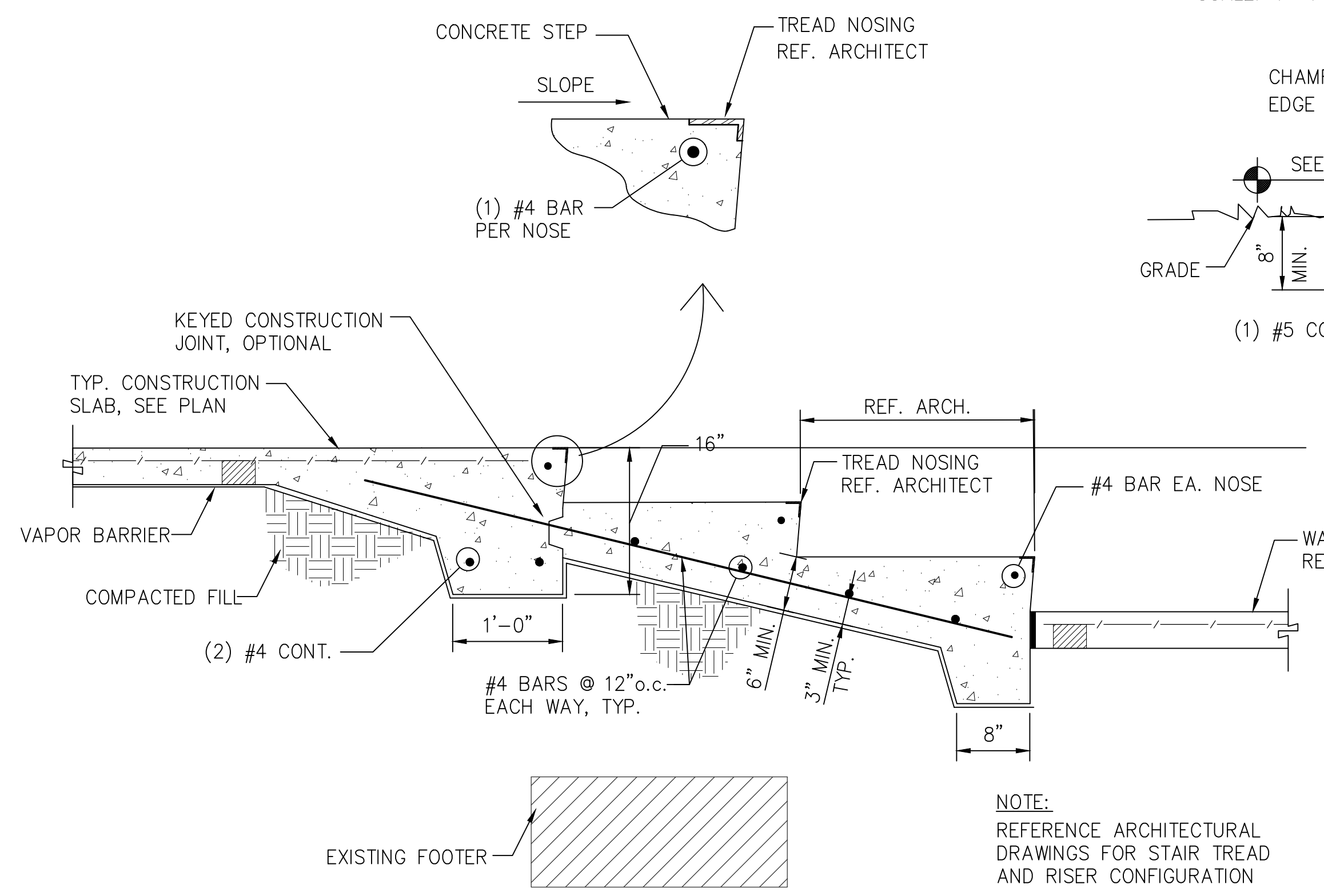
TYPICAL SECTION AT DOORWAY
SECTION 4
SCALE: 1"=1'-0" (S-301)



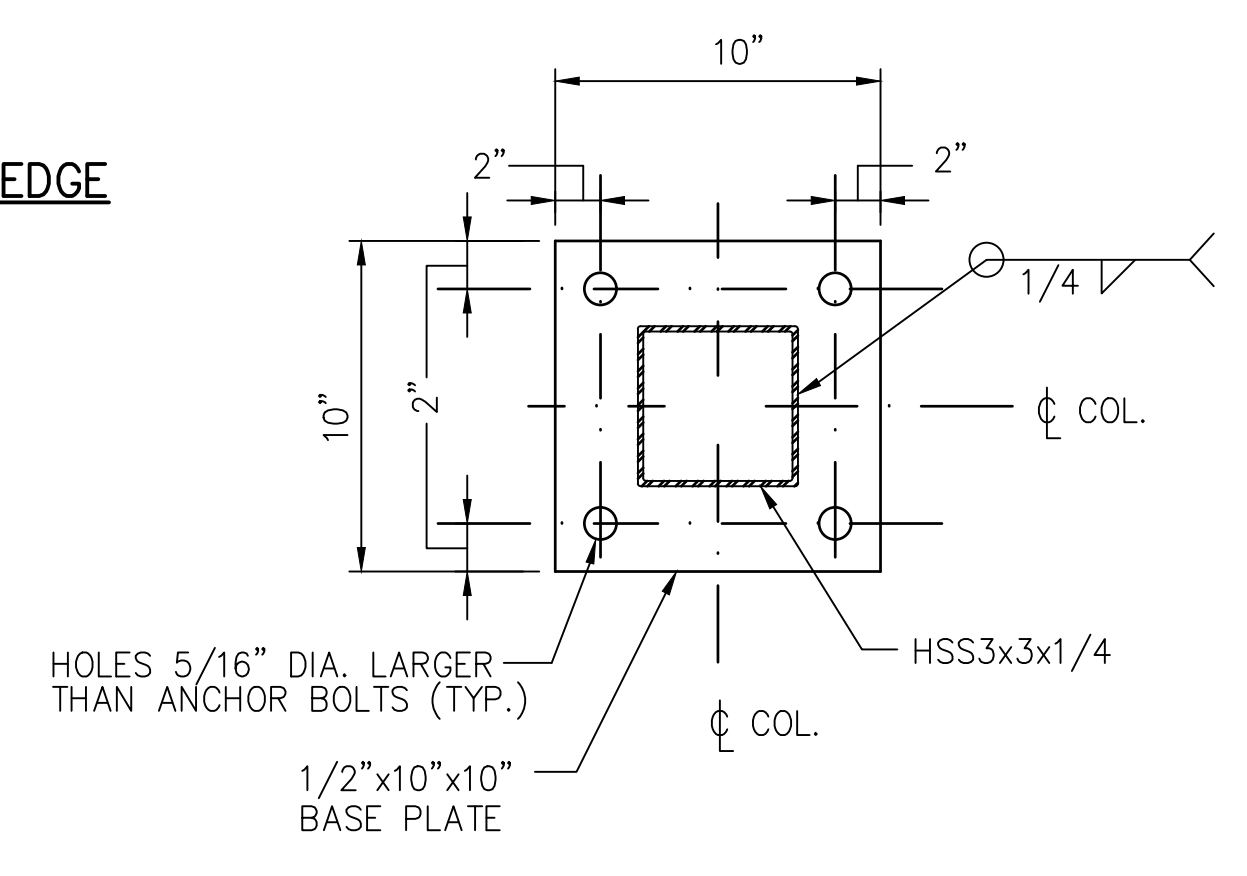
TYPICAL EXTERIOR WALL SECTION (FLOATING SLAB)
SECTION 5
SCALE: 1"=1'-0" (S-301)



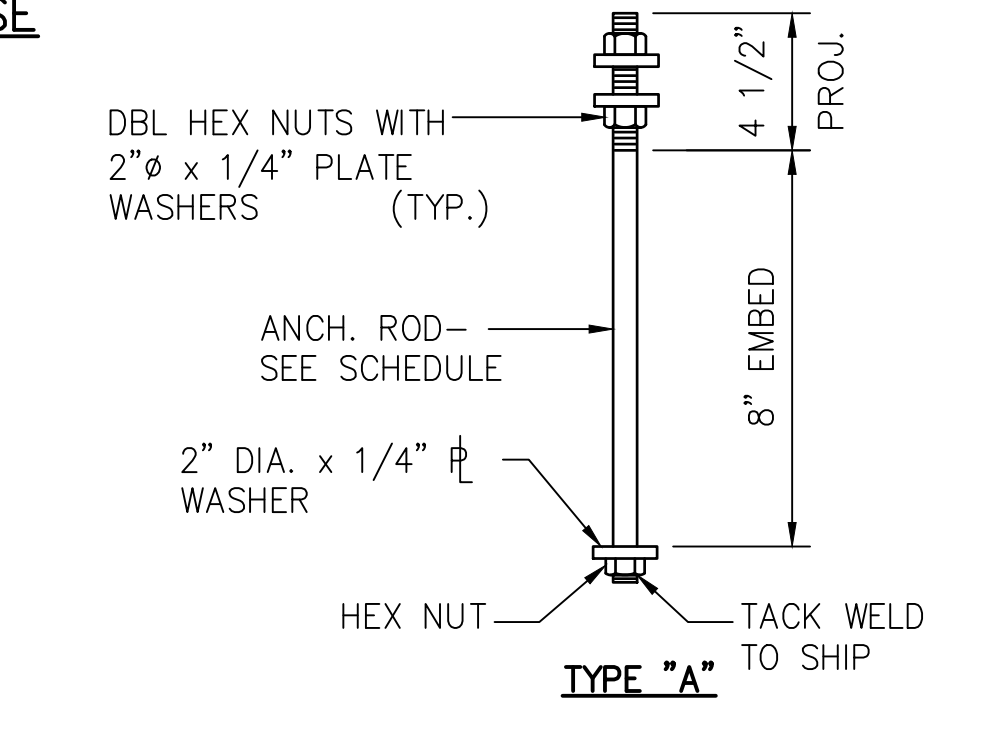
TYPICAL PORCH COLUMN BASE
DETAIL 8
NOT TO SCALE (S-301)



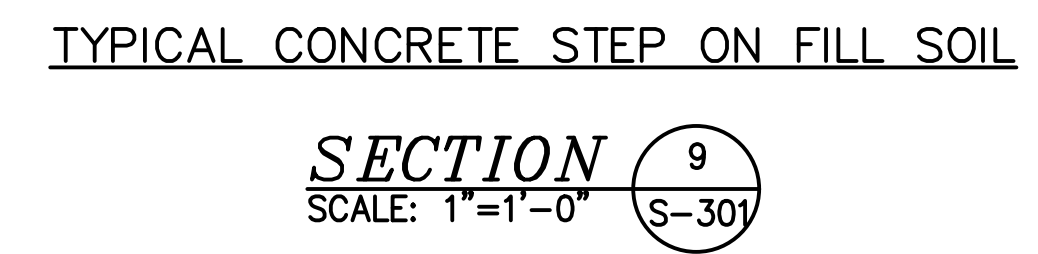
TYPICAL WALKWAY SLAB EDGE
SECTION 7
SCALE: 1"=1'-0" (S-301)



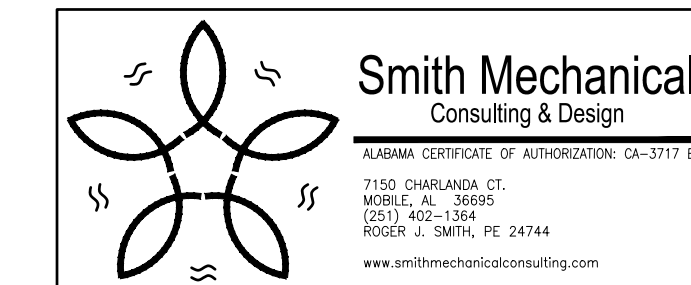
TYPICAL COLUMN BASE PLATE
DETAIL 10
NOT TO SCALE (S-301)



TYPICAL COLUMN ANCHOR BOLTS
DETAIL 11
NOT TO SCALE (S-301)



TYPICAL CONCRETE STEP ON FILL SOIL
SECTION 9
SCALE: 1"=1'-0" (S-301)



PLUMBING FIXTURE CONNECTION SCHEDULE

MARK #	FIXTURE TYPE	CONNECTIONS				REMARKS ①
		WASTE	VENT	CW	HW	
P-1	WALL MOUNTED FLUSH VALVE WATER CLOSET	3"	1-1/2"	1"	-	VIT. CHINA, WHITE, 15" HIGH ELONGATED BOWL, BACK SPUD, WALL HUNG BACK OUTLET 1.6 GPF FLUSH VALVE TYPE WITH WHITE OPEN FRONT SEAT WITHOUT COVER, BOLT CAPS, AND SLOAN ROYAL 952 CONCEALED BACK SPUD FLUSH VALVE WITH HYDRAULIC PUSH BUTTON FLUSH AND FLOOR MOUNTED CHAIR CARRIER. FIXTURE EQUAL TO KOHLER K-4323.
P-1A	WALL MOUNTED FLUSH VALVE WATER CLOSET (HANDICAPPED)	3"	1-1/2"	1"	-	VIT. CHINA, WHITE, 17" HIGH ELONGATED BOWL, BACK SPUD, WALL HUNG BACK OUTLET 1.6 GPF FLUSH VALVE TYPE WITH WHITE OPEN FRONT SEAT WITHOUT COVER, BOLT CAPS, AND SLOAN ROYAL 952 CONCEALED BACK SPUD FLUSH VALVE WITH HYDRAULIC PUSH BUTTON FLUSH AND FLOOR MOUNTED CHAIR CARRIER. FIXTURE EQUAL TO KOHLER K-4323. INSTALL PER ADA REQUIREMENTS.
P-2	WALL HUNG URINAL	2"	1-1/2"	3/4"	-	VIT. CHINA, WHITE, WALL HUNG, BACK SPUD URINAL, 0.5 GPF FLUSH VALVE TYPE. PROVIDE WITH BACK SPUD FLUSH VALVE EQUAL TO SLOAN ROYAL 995 CONCEALED BACK SPUD FLUSH VALVE WITH HYDRAULIC PUSH BUTTON FLUSH. EQUAL TO AMERICAN STANDARD WASHBROOK 6515.001 SERIES. PROVIDE WITH FLOOR MOUNTED CARRIER LOCATED WITHIN THE PLUMBING CHASE.
P-2A	WALL HUNG URINAL (HANDICAPPED)	2"	1-1/2"	3/4"	-	VIT. CHINA, WHITE, WALL HUNG, BACK SPUD URINAL, 0.5 GPF FLUSH VALVE TYPE. PROVIDE WITH BACK SPUD FLUSH VALVE EQUAL TO SLOAN ROYAL 995 CONCEALED BACK SPUD FLUSH VALVE WITH HYDRAULIC PUSH BUTTON FLUSH. EQUAL TO AMERICAN STANDARD WASHBROOK 6515.001 SERIES. PROVIDE WITH FLOOR MOUNTED CARRIER LOCATED WITHIN THE PLUMBING CHASE. INSTALL PER ADA REQUIREMENTS.
P-3	LAVATORY (HANDICAPPED)	1-1/2"	1-1/2"	1/2"	1/2"	TWO STATION WASH BASIN EQUAL TO BRADLEY FREQUENCY FL-2L AND FL-2H SERIES. COORDINATE COLOR SELECTION WITH THE ARCHITECT. PROVIDE WITH ZURN Z6913-XL BATTERY POWERED INFRARED SENSOR FAUCET FOR HOT AND COLD WATER. COORDINATE DRILLING REQUIREMENTS WITH FAUCET. PROVIDE WITH ADA SHROUD TO CONCEAL PIPING, FLEXIBLE SUPPLIES, P-TRAP, AND STOPS. PROVIDE WITH ASSE 1070 TEMPERATURE LIMITING MIXING VALVE SET FOR 100°F. INSTALL PER ADA REQUIREMENTS.
P-3A	LAVATORY (HANDICAPPED)	1-1/2"	1-1/2"	1/2"	1/2"	VIT. CHINA, WHITE, WALL MOUNTED LAVATORY, PROVIDE WITH SINGLE TEMPERATURE, VANDAL RESISTANT, METERING FAUCET. MP-TRAP & GRID DRAIN, FLEXIBLE SUPPLIES AND STOPS. PROVIDE WITH ASSE 1070 TEMPERATURE LIMITING VALVE SET FOR 110°F. PROVIDE WITH FLOOR MOUNTED CARRIER.
P-4	DRINKING FOUNTAIN (HANDICAPPED)	2"	1-1/2"	1/2"	-	DUAL HEIGHT, NON-REFRIGERATED DRINKING FOUNTAIN WITH BOTTLE FILLER. BASIS OF DESIGN ELKAY VRCTLDDWSK B-LEVEL TYPE WITH BOTTLE FILLER. PROVIDE WITH REPLACEABLE AQUAPURE AP101 WATER FILTER. INSTALL WATER FILTER IN AN EASILY ACCESSIBLE LOCATION. SUITABLE FOR OUTDOOR INSTALLATION. SUBMIT ALTERNATIVE FOUNTAINS FOR PRIOR APPROVAL. INSTALL PER ADA REQUIREMENTS.
P-5	SERVICE SINK	3"	2"	1/2"	1/2"	24"x24" FLOOR MOUNTED, MOLDED STONE JANITOR'S SINK EQUAL TO FIAT MSB-2424. PROVIDE WITH WALL MOUNTED FAUCET WITH VACUUM BREAKER, WALL BRACE, AND PAIL HOOK EQUAL TO CHICAGO MODEL 897-RCF.
WH	FREEZE PROOF HOSE BIBB	-	-	3/4"	-	1/2 TURN, FREEZE PROOF, ENCASED WALL HYDRANT WITH AUTOMATIC DRAINING, AND INTEGRAL VACUUM BREAKER. PROVIDE WITH LOOSE KEY OPERATION VALVE AND POLISHED NIKEL BRONZE FACE. EQUAL TO ZURN Z1305.
MV-1	MIXING VALVE	-	-	3/4"	3/4"	MIXING VALVE EQUAL TO SYMMONS WITH INTERNAL CHECK VALVES. MINIMUM FLOW 0.5 GMP, MAXIMUM FLOW 5.5 GPM @ 10.0 PSI DROP. SET FOR 105°F. SEE DETAIL FOR ADDITIONAL INFORMATION.
FD	FLOOR DRAIN	3"	2"	-	-	FLOOR DRAIN EQUAL TO ZURN ZN-451 WITH BRASS GRATE STRAINER. PROVIDE AND INSTALL WITH BRASS GRATE. PROVIDE WITH "GREEN DRAIN" TRAP SEAL.

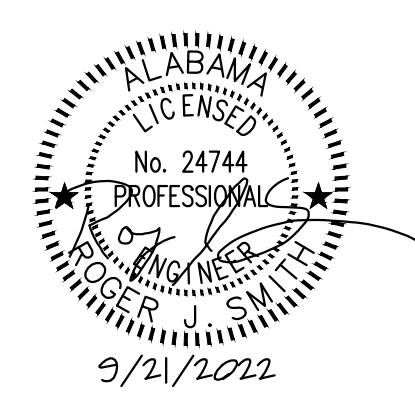
① SEE ARCHITECTURAL SHEETS FOR HANDICAPPED ACCESSIBILITY INSTALLATION REQUIREMENTS.

ELECTRIC WATER HEATER SCHEDULE

MARK EWH	TANK CAPACITY (GALLONS)	MINIMUM EFFICIENCY	TEMPERATURE SETPOINT (F)	HEATING CAPACITY (KW)	VOLTS	Hz	PHASE	RECIRCULATED SYSTEM	NOTES
1	20	0.94	119	3.0	208	60	1	NO	1, 2, 3
NOTES									
1	COORDINATE ALL ELECTRICAL REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.								
2	PROVIDE WITH EXPANSION TANK, HEAT TRAPS ON CONNECTIONS, T&P RELIEF VALVE, AUXILIARY DRAIN PAN, ISOLATION VALVES WITH DIELECTRIC UNIONS ON HOT AND COLD CONNECTIONS, AND WALL MOUNTING BRACKET0. SEE DETAIL FOR ADDITIONAL REQUIREMENTS.								
3	PROVIDE WITH MASTER MIXING VALVE AND RECIRCULATION PUMP. SEE DETAIL AND MANUFACTURERTS REQUIREMENTS FOR SPECIFIC PIPING REQUIREMENTS.								

PLUMBING GENERAL NOTES:

- THE CONTRACTOR SHALL EXECUTE ALL WORK SO THAT IT PROCEEDS WITH A MINIMUM INTERFERENCE WITH OTHER TRADES.
- VERIFY EXACT PLUMBING FIXTURE ROUGH-IN AND FINAL HVAC EQUIPMENT REQUIREMENTS IN THE FIELD.
- DRAIN, WASTE, AND VENT PIPING AND FITTINGS SHALL BE SCHEDULE 40 POLY VINYL CHLORIDE (PVC) SYSTEM "ASTM D 2665". NO FOAM CORE SHALL BE USED.
- DOMESTIC WATER PIPING SHALL BE ASTM B 88, TYPE K, WITH ANSI B16.18 OR ANSI B16.22 SOLDER JOINT FITTINGS USING SILVER SOLDER AND FLUX CONTAINING NOT MORE THAN 0.2 PERCENT LEAD; OR WITH ANSI B16.26 FLARED JOINT FITTINGS. ASTM B 88, TYPE L MAY BE PROVIDED FOR ABOVEGROUND PIPING. SLEEVE SERVICE ENTRANCE AT SLAB. SEAL AROUND PIPING WATER PROOF. AT CONTRACTOR'S OPTION, UPANOR PEX PIPING CAN BE USED WITH POLYMER FITTINGS. NO SHARK BITE FITTINGS ARE ALLOWED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINAL CONNECTIONS TO PLUMBING FIXTURES. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, FURNISHING AND INSTALLING ALL TRAPS, DRAINS, AND SUPPLIES WITH STOPS. FURNISH AND INSTALL PLUMBING FIXTURES INDICATED OR SPECIFIED, COMPLETE WITH ALL EQUIPMENT, FITTINGS, TRIM AND ACCESSORIES INDICATED OR SPECIFIED. EXPOSED WATER PIPING TO FIXTURES SHALL BE CHROME-PLATED BRASS, IPS. ADJUST WATER FLOW THROUGH ALL FIXTURES TO PROVIDE PROPER FLUSHING ACTION WITH THE LEAST AMOUNT OF WATER.
- COORDINATE ROUTING OF WATER SUPPLY, WASTE, AND VENT PIPING WITH OTHER TRADES.
- THE PLUMBING CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES ALL REQUIRED OPENINGS AND EXCAVATIONS.
- ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED A MINIMUM OF 12" ABOVE THE ROOF. ALL VENTS SHALL BE A MINIMUM OF 10 FEET FROM ANY OUTSIDE AIR INTAKE.
- ALL FLOOR DRAINS SHALL HAVE A 4" DEEP SEAL AND TRAPS WITH TRAP PRIMERS. AN ACCESS PANEL MUST BE INSTALLED IF THE TRAP PRIMER FITTING IS LOCATED INSIDE A WALL OR ABOVE A HARD CEILING. COORDINATE OPENINGS WITH ARCHITECT. CONTRACTOR SHALL INSTALL WATER CLOSET FLUSH VALVE TYPE PRIMER FITTINGS TO SERVE RESTROOM FLOOR DRAINS. CONTRACTOR TO ENSURE THAT EACH TRAP PRIMER VALVE IS CLEANED AND FREE OF DEBRIS JUST PRIOR TO PROJECT COMPLETION. FLUSH STRAINER FLOOR DRAINS SHALL BE CAST BRONZE OR NICKEL BRONZE STRAINER WITH ADJUSTABLE COLLAR AND DOUBLE DRAINAGE FLANGE.
- FLOOR CLEANOUTS SHALL BE ADJUSTABLE HEIGHT POLISHED BRONZE, NICKEL BRONZE WITH "CO" CAST IN THE FLOOR PLATE.
- PROVIDE STOPS AND WATER HAMMER ARRESTORS IN ACCORDANCE WITH PDI AND ASSE 1010. AN ACCESS PANEL MUST BE INSTALLED IF WATER HAMMER ARRESTER IS LOCATED INSIDE A WALL OR ABOVE A HARD CEILING. COORDINATE OPENINGS WITH ARCHITECT.
- PROVIDE DIELECTRIC UNIONS AT ALL DISSIMILAR METAL CONNECTIONS.
- INSULATE ALL WATER PIPING. DOMESTIC WATER PIPE NOT EXPOSED TO VIEW SHALL BE INSULATED WITH 1/2" THICK GLASS FIBER WITH FACTORY APPLIED UNIVERSAL JACKET. DENSITY SHALL BE 4 POUNDS PER CUBIC FOOT. FITTINGS SHALL BE INSULATED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. INSULATION VAPOR BARRIER SHALL BE LAPPED AND CEMENTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DOMESTIC WATER PIPE EXPOSED TO VIEW SHALL BE INSULATED SAME AS WHERE NOT EXPOSED TO VIEW, EXCEPT IT SHALL BE FINISHED WITH A SIZED UNIVERSAL JACKET SUITABLE FOR PAINTING. FITTING SHALL BE MADE OF "QUICKSET" CEMENT MOLDED TO FIT AND COVERED WITH 8 OZ. CANVAS AND FINISHED WITH WHITE VAPOR BARRIER CEMENT, AND HAVE PLASTIC MOLDED FITTING COVERS. INSULATE DOMESTIC WATER AND WASTE PIPING UNDER HANDICAP LAVATORIES AND SINKS USING "LAVGUARD2 E-Z SERIES" MOLDED VINYL PIPING COVERS. COVER ALL PIPING, FITTING, VALVES, AND TRAPS EXPOSED TO VIEW.
- ROUTE ALL PIPING AS TO CAUSE MINIMAL INTERFERENCE FOR MAINTENANCE OF ALL EQUIPMENT. UNLESS OTHERWISE NOTED, ALL DOMESTIC WATER PIPING SHALL BE ROUTED WITHIN CHASE SPACE. PIPING BELOW SLAB SHALL BE WITHOUT JOINTS AND TEES. PIPING PASSING THRU WALLS EXTENDING TO BOTTOM OF STRUCTURE SHALL BE SLEEVED AND SEALED. ALL DOMESTIC WATER PIPING ROUTED EXPOSED BELOW 6'-8" ABOVE FINISH FLOOR SHALL BE PROVIDED WITH A PVC JACKET TO PREVENT DAMAGE TO THE PIPE.
- PROVIDE SHUTOFF VALVE TO EACH SILLCOCK WITH VALVE IDENTIFICATION AS REQUIRED BY CODE.
- BEFORE FINAL ACCEPTANCE OF THE WORK, TEST EACH SYSTEM AS IN SERVICE TO DEMONSTRATE COMPLIANCE WITH 2009 INTERNATIONAL PLUMBING CODE AND LOCAL CODE REQUIREMENTS. ONCE TEST ARE IN COMPLIANCE WITH CONTRACT REQUIREMENTS DISINFECT WATER SYSTEM IN ACCORDANCE WITH AWWA C651.
- CONTRACTOR TO VERIFY ALL LOCATIONS OF ROOF PENETRATIONS WITH ARCHITECTURAL DRAWINGS.
- PIPE HANGERS AND SUPPORTS SHALL BE MSS SP-58 AND MSS SP-69, TYPE 1 OR 6, OF THE ADJUSTABLE TYPE, EXCEPT AS INDICATED OTHERWISE. ATTACHMENTS TO STEEL W OR S BEAMS SHALL BE WITH TYPE 21, 28, 29, OR 30 CLAMPS. ATTACHMENTS TO STEEL ANGLES AND CHANNELS (WITH WEB VERTICAL) SHALL BE WITH TYPE 20 CLAMP WITH A BEAM CLAMP CHANNEL ADAPTER. ATTACHMENTS TO STEEL CHANNEL (WITH WEB HORIZONTAL) SHALL BE WITH DRILLED HOLE ON CENTERLINE AND DOUBLE NUT AND WASHER. ATTACHMENTS TO CONCRETE SHALL BE WITH TYPE 18 INSERT OR A DRILLED HOLE WITH EXPANSION ANCHOR. HANGER RODS AND ATTACHMENTS SHALL BE FULL SIZE OF THE HANGER-THREADED DIAMETER. PROVIDE TYPE 40 INSULATION PROTECTION SHIELDS FOR INSULATED PIPING. PROVIDE STEEL SUPPORT RODS. PROVIDE NONMETALLIC, HAIR FELT, OR PLASTIC PIPING ISOLATORS BETWEEN COPPER TUBING AND THE HANGERS.
- LABEL ALL WATER SERVICE VALVES IN ACCORDANCE WITH APPLICABLE CODES
- COORDINATE EXACT FLOOR DRAIN LOCATIONS ARCHITECTURAL DRAWINGS. SLOPE ENTIRE ROOM TO DRAINS.
- ALL TRAP PRIMER VALVES NOT LOCATED IN NORMALLY UNOCCUPIED SPACES SHALL BE MOUNTED ABOVE THE CEILING AND PROVIDED WITH A LABEL ON THE CEILING GRID TO INDICATE THE TRAP PRIMER LOCATION. NO TRAP PRIMERS SHALL BE INSTALLED EXPOSED IN NORMALLY OCCUPIED SPACES.
- ROUTE SANITARY PIPING AS HIGH AS POSSIBLE TO AVOID CONFLICT WITH FOOTERS AND TO MAINTAIN ABILITY TO GRAVITY DISCHARGE INTO CITY SEWER. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE EXACT LOCATION OF THE NEW SANITARY SEWER LATERAL AND ENSURE WASTE PIPING IS INSTALLED TO PROVIDE A GRAVITY DISCHARGE INTO THE CITY MAIN.
- THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL ASSOCIATED WASTE AND WATER TAP FEES ASSOCIATED WITH THIS PROJECT. ALL FEES ARE TO BE INCLUDED IN THE CONSTRUCTION COST.
- ALL WORK INSTALLED SHALL MEET THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION, THE 2012 INTERNATIONAL PLUMBING CODE, AND THE 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
- SEAL AROUND ALL PIPING PENETRATIONS TO THE BUILDING EXTERIOR AIR TIGHT.



CITY OF MOBILE
PUBLIC SAFETY MEMORIAL PARK -
NEW RESTROOM & SKATEBOARD &
SPLASH PAD IMPROVEMENTS
COM # PR-093-21
MOBILE, ALABAMA

REVISIONS		
NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE
PLUMBING SCHEDULES AND NOTES

KEY PLAN

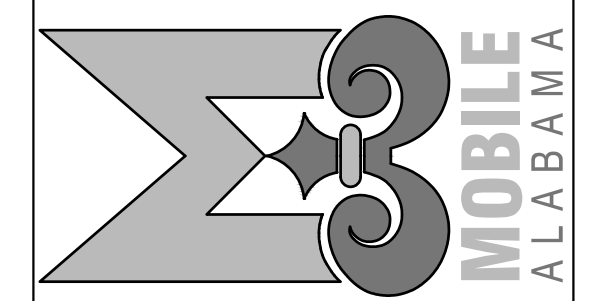
JOB NO. 2121

DATE: SEPTEMBER 21, 2022

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CITY OF MOBILE
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COM # PR-093-21
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REVISIONS

NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE
PLUMBING DETAILS

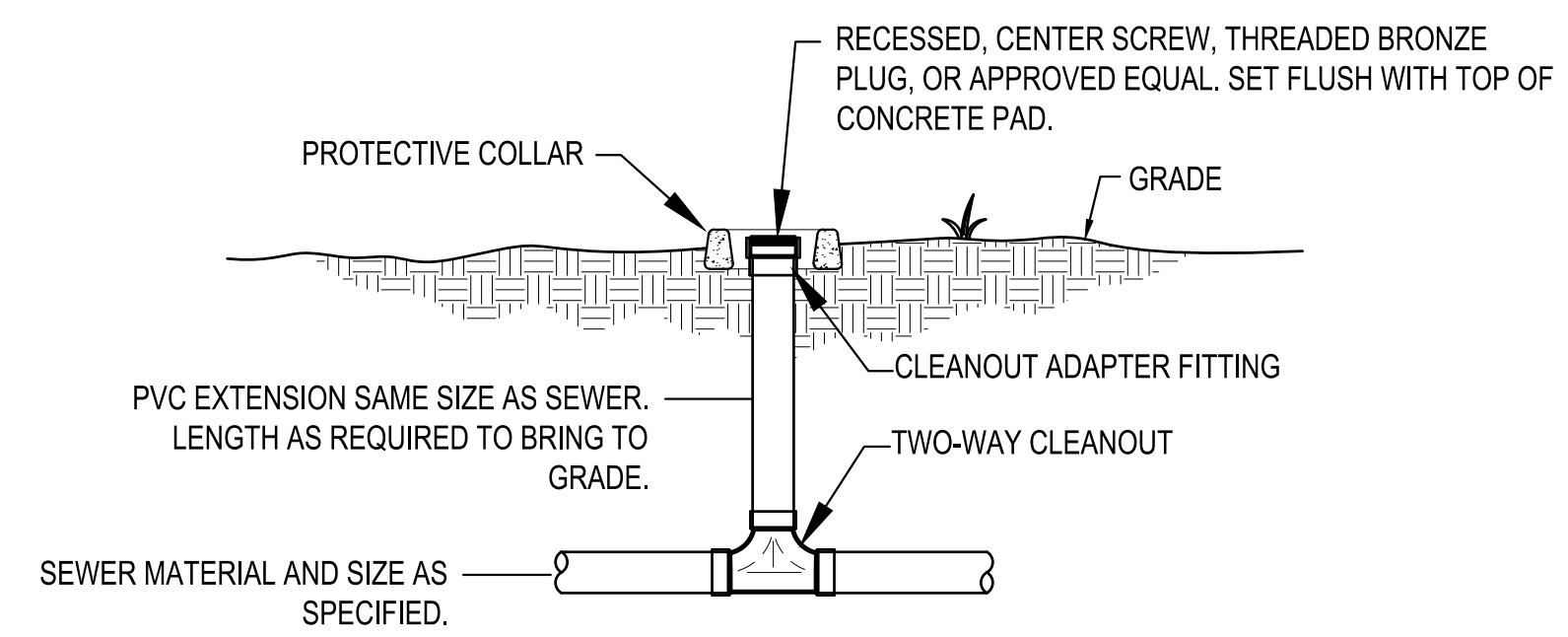
KEY PLAN

JOB NO. 2121

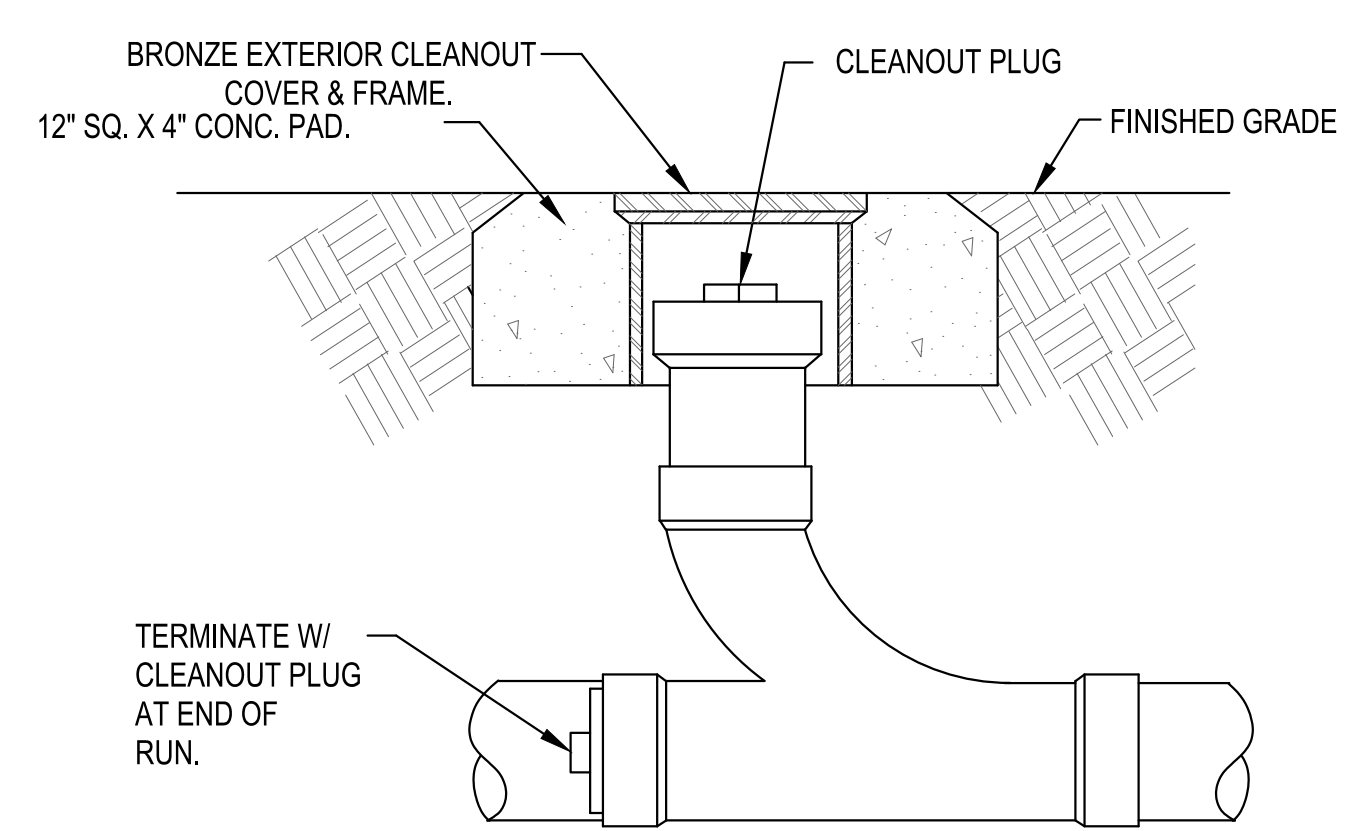
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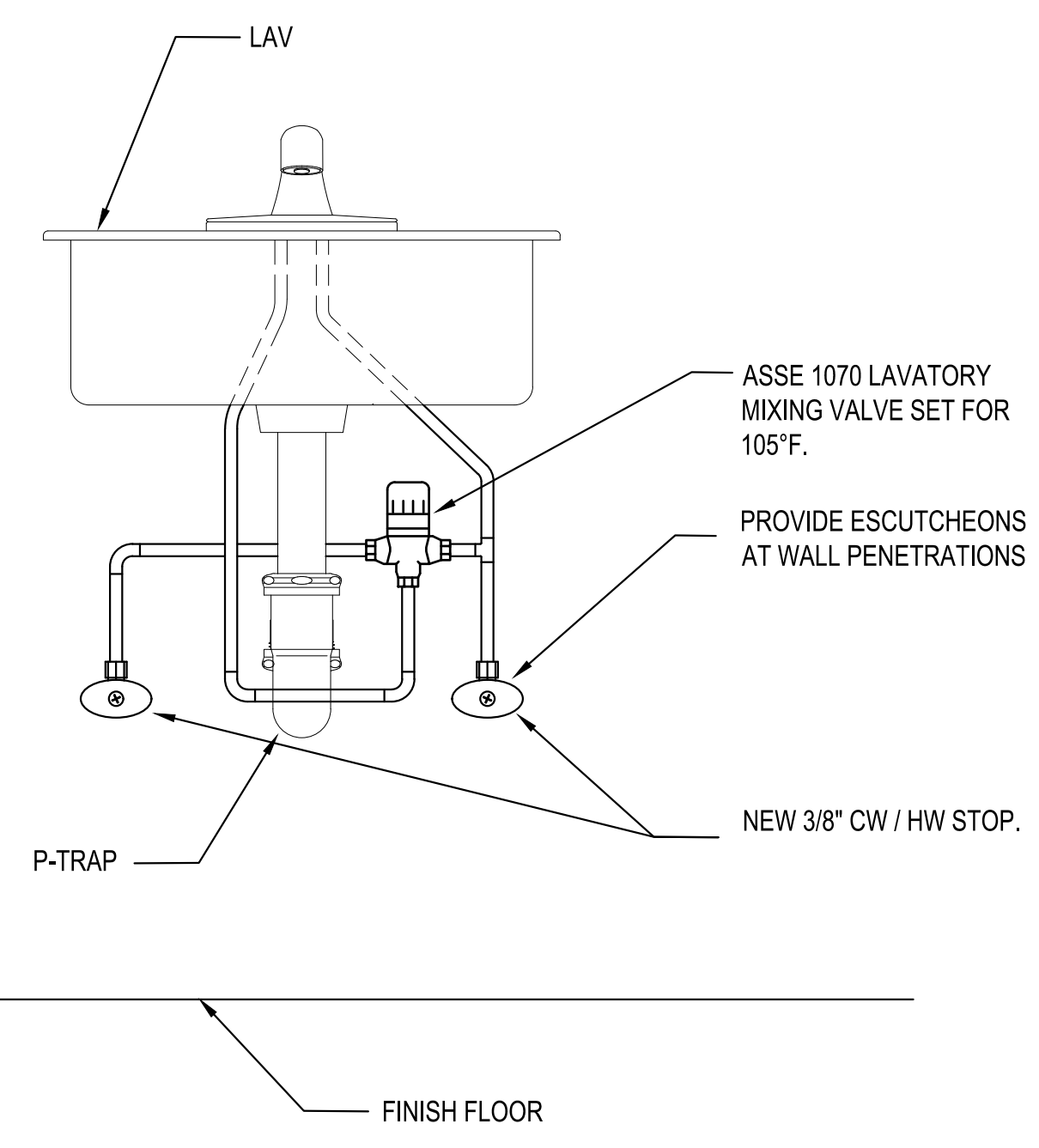
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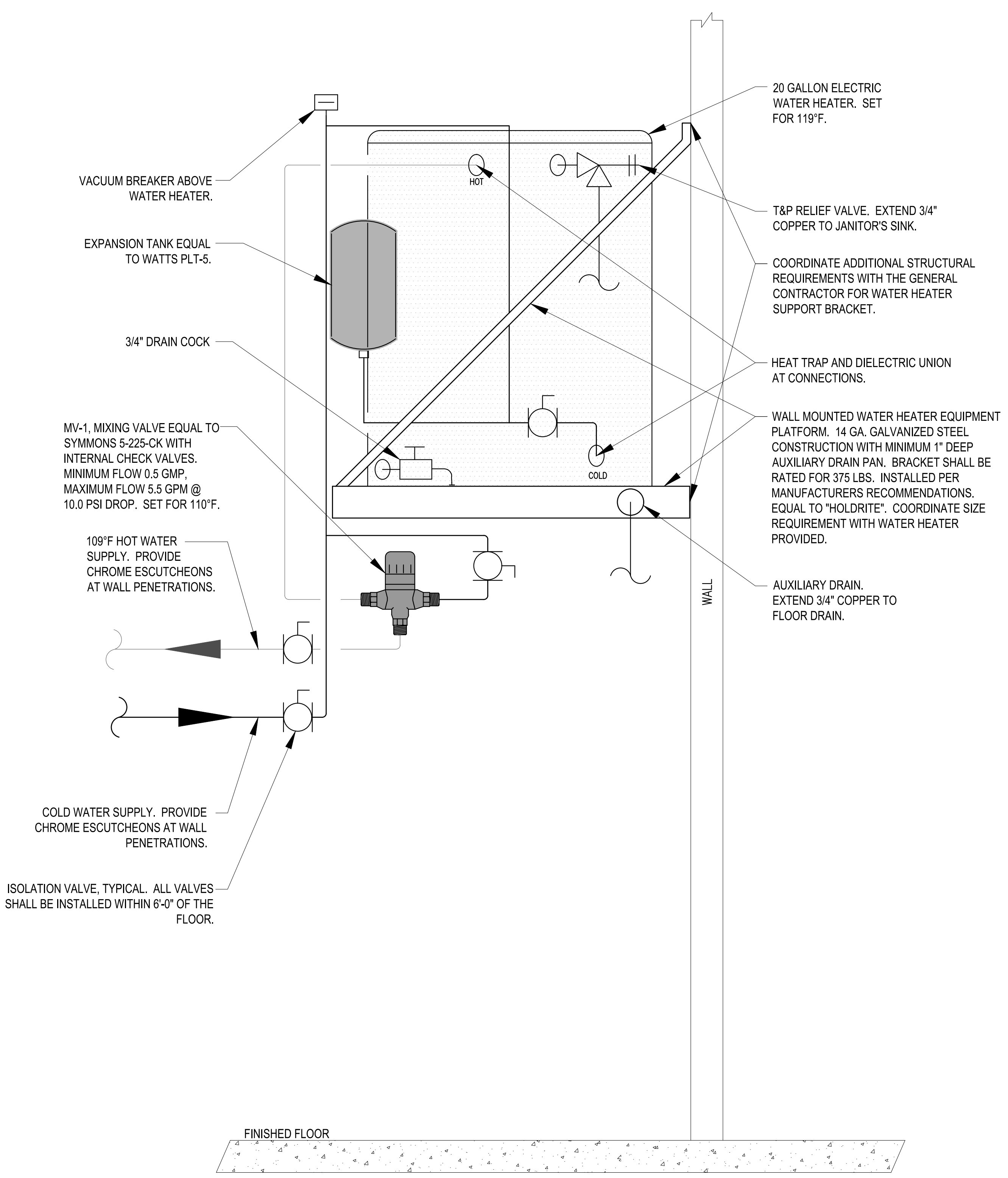
1 GROUND LEVEL CLEANOUT DETAIL
NOT TO SCALE



2 EXTERIOR CLEANOUT DETAIL
NOT TO SCALE



3 LAVATORY ASSE 1070 MIXING VALVE DETAIL
NOT TO SCALE



NOTES:
1. PIPING DIAGRAM. SEE MANUFACTURERS RECOMMENDATIONS FOR ADDITIONAL INFORMATION.
2. THE TEMPERATURE AND PRESSURE RELIEF VALVE SETTING SHALL NOT EXCEED PRESSURE RATING OF ANY COMPONENT IN THE SYSTEM.
3. PROVIDE WITH ISOLATION VALVES AS INDICATED.
4. PROVIDE WITH HEAT TRAPS ON INLET AND OUTLET.

4 WATER HEATER INSTALLATION DETAIL
NOT TO SCALE

FAN SCHEDULE													
MARK FAN	AIR FLOW (CFM)	STATIC PRESSURE (in of H2O)	DRIVE TYPE	FAN TYPE	FAN SERVICE	INTERLOCK WITH	MAXIMUM RPM	MAXIMUM SONES	MOTOR		ELECTRICAL DATA		NOTES
									HP/WATTS	VOLTS	Hz	PHASE	
EF-1	250	0.25	DIRECT	CEILING	TOILET ROOM	ROOM LIGHTS	1,400	3.0	135 WATTS	120	60	1	1,2
EF-2	250	0.25	DIRECT	CEILING	TOILET ROOM	ROOM LIGHTS	1,400	3.0	135 WATTS	120	60	1	1,2
EF-3	70	0.25	DIRECT	CEILING	TOILET ROOM	ROOM LIGHTS	1,075	2.5	90 WATTS	120	60	1	1,2
NOTES													
1	COORDINATE ALL ELECTRICAL REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.												
2	PROVIDE FAN WITH SOLID STATE SPEED CONTROL. DISCHARGE THROUGH ROUND GABLE LOUVER.												

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Consulting & Design

ALABAMA CERTIFICATE OF AUTHORIZATION: 04-3777-E

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9/21/2012

CITY OF MOBILE
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SPLASH PAD IMPROVEMENTS
COM # PR-093-21
MOBILE, ALABAMA

SHEET NOTES

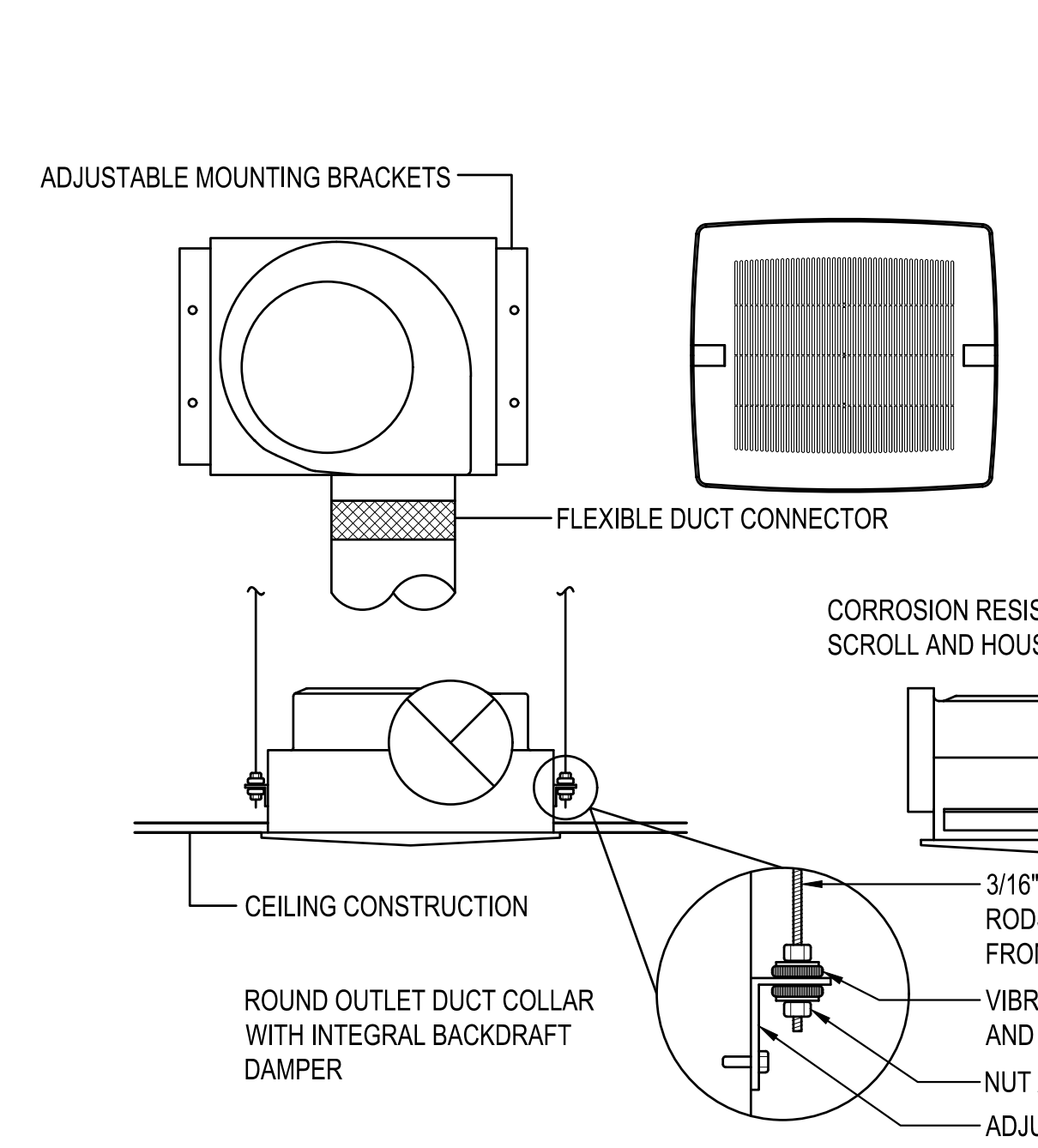
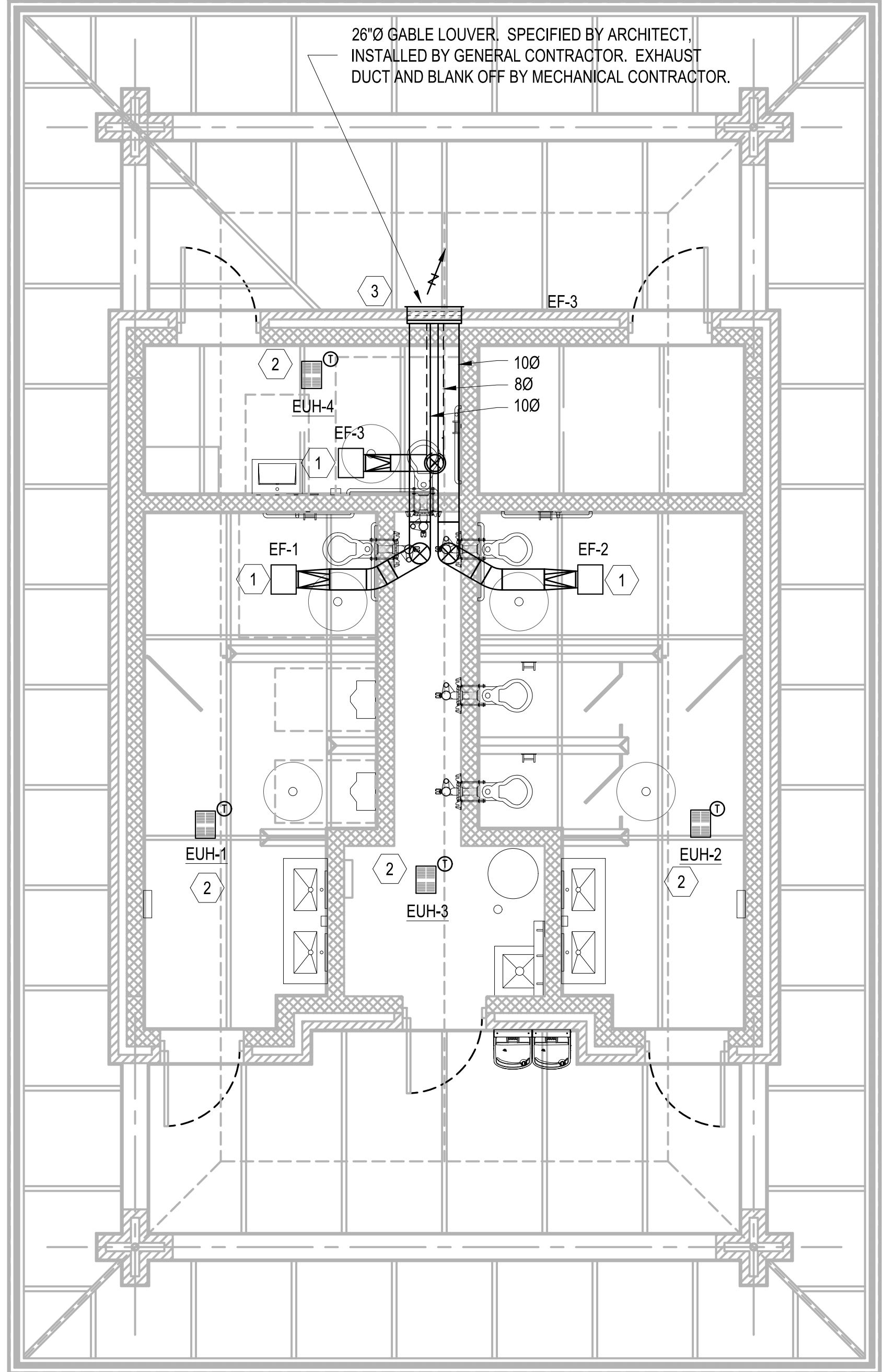
- 1 CEILING MOUNTED EXHAUST FAN. EXTEND EXHAUST DUCT THROUGH ATTIC FOR DISCHARGE THROUGH 26"Ø GABLE LOUVER. FIELD ROUTE DUCT THROUGH ATTIC AS NECESSARY TO AVOID CONFLICTS. BLANK OFF UNUSED PORTIONS OF LOUVER.
- 2 CEILING TYPE UNIT HEATER SUSPENDED FROM STRUCTURE ABOVE EXISTING PLUMBING CHASE FOR FREEZE PROTECTION. COORDINATE INSTALLATION WITH OTHER TRADES. PROVIDE 24X24 CEILING ACCESS PANEL ADJACENT TO UNIT HEATER FOR MAINTENANCE ACCESS. UNIT HEATER SHALL BE CEILING RECESSED TYPE. PROVIDE WITH RECESSED INSTALLATION BOX.
- 3 GABLE EXHAUST LOUVER TO BE SPECIFIED BY THE ARCHITECT. EXTEND TWO 10"Ø EXHAUST DUCTS UP FROM CEILING FANS FOR TERMINATION AT LOUVER. BLANK OFF UNUSED PORTIONS OF THE LOUVER.

HVAC GENERAL NOTES:

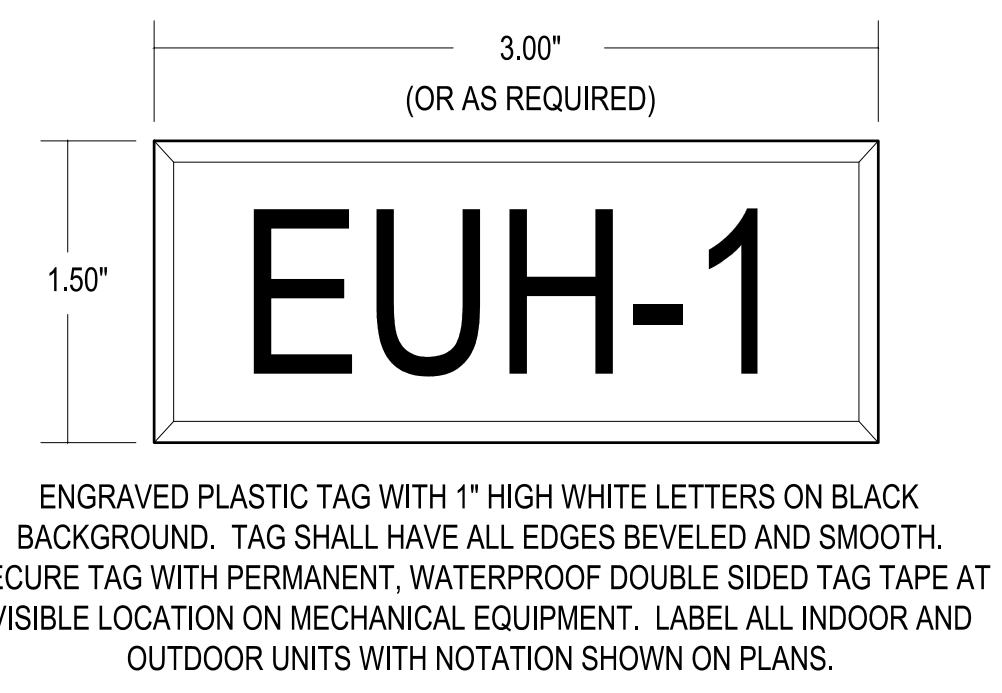
1. INSTALL ALL WORK IN COMPLIANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION, THE 2018 INTERNATIONAL MECHANICAL CODE, AND THE 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
2. COORDINATE ALL ELECTRICAL REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO BEGINNING ANY WORK.
3. DUCT CONSTRUCTION SHALL BE PER THE LATEST REQUIREMENTS OF NFPA 90A AND 90B, SMACNA AND ASHRAE AND SHALL MEET OR EXCEED THEIR REQUIREMENTS FOR SUPPORT AND REINFORCEMENT.
4. EQUIPMENT PROVIDED AND INSTALLED ON THIS PROJECT SHALL MEET OR EXCEED THE MINIMUM EFFICIENCY REQUIREMENTS INDICATED IN THE SCHEDULE.
5. UNLESS INDICATED OTHERWISE, DUCT CONSTRUCTION SHALL BE G-90 GALVANIZED SHEET METAL. DUCT SEALING SHALL BE CLASS "A". ALL JOINTS, SEAMS, AND PENETRATIONS SHALL BE BRUSHED WITH 2 COATS OF WATER BASED MASTIC. THE DUCT SEAL SHALL MEET OR EXCEED PRESSURE CLASS 2'.
6. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES ALL REQUIRED OPENINGS IN WALLS, FOUNDATIONS, FLOORS, AND ROOFS. CONTRACTOR SHALL INSTALL LOUVERS PER MANUFACTURERS RECOMMENDATIONS AND DETAILS INDICATED ON THE ARCHITECTURAL PLANS.
7. THE MECHANICAL CONTRACTOR SHALL VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND BE RESPONSIBLE FOR ALL RELATED CLEARANCES IN THE FIELD. PROVIDE CLEARANCE IN FRONT OF ALL ELECTRICAL PANELS PER NATIONAL ELECTRIC CODE REQUIREMENTS. DUCT SHALL NOT ROUTE OVER ELECTRICAL PANELS.
15. DUCT SHALL BE FIELD MEASURED PRIOR TO INSTALLATION TO ENSURE PROPER FIT WITHIN STRUCTURAL MEMBERS. DUCT SHALL BE OFFSET, OR TRANSITIONED AS NECESSARY TO ACCOMMODATE STRUCTURAL MEMBERS. DUCT SHALL NOT BE PURCHASED PREFABRICATED FROM THESE DRAWINGS. ANY DUCT PURCHASED PREFABRICATED FROM A DUCT VENDOR SHALL BE DONE FROM CONTRACTOR PROVIDED, FIELD MEASURED SHOP DRAWINGS THAT HAVE BEEN SUBMITTED TO THE ENGINEER FOR PRIOR APPROVAL. NO EXCEPTIONS.
16. OFFSET AND TRANSITION DUCT AS NECESSARY TO AVOID STRUCTURAL MEMBERS OR EQUIPMENT CONNECTION SIZES. PROVIDE FLEXIBLE DUCT CONNECTORS ON ALL DUCT CONNECTION TO MOTORIZED EQUIPMENT.

ELECTRIC UNIT HEATER SCHEDULE											
HEATER MARK	CFM TOTAL	TYPE DRIVE	MOUNTING	CONTROL WITH	HEATING CAPACITY	UNIT AMPS	ELECTRICAL DATA			HEATER SERVICE	REMARKS
							VOLTS	Hz	PHASE		
EUH-1	100	DIRECT	HORIZONTAL RECESSED	INTEGRAL T-STAT	750 W	8.0	240	60	1	FREEZE PROTECTION	1 2 3
EUH-2	100	DIRECT	HORIZONTAL RECESSED	INTEGRAL T-STAT	750 W	8.0	240	60	1	FREEZE PROTECTION	1 2 3
EUH-3	100	DIRECT	HORIZONTAL RECESSED	INTEGRAL T-STAT	750 W	8.0	240	60	1	FREEZE PROTECTION	1 2 3
EUH-4	100	DIRECT	HORIZONTAL RECESSED	INTEGRAL T-STAT	750 W	8.0	240	60	1	FREEZE PROTECTION	1 2 3

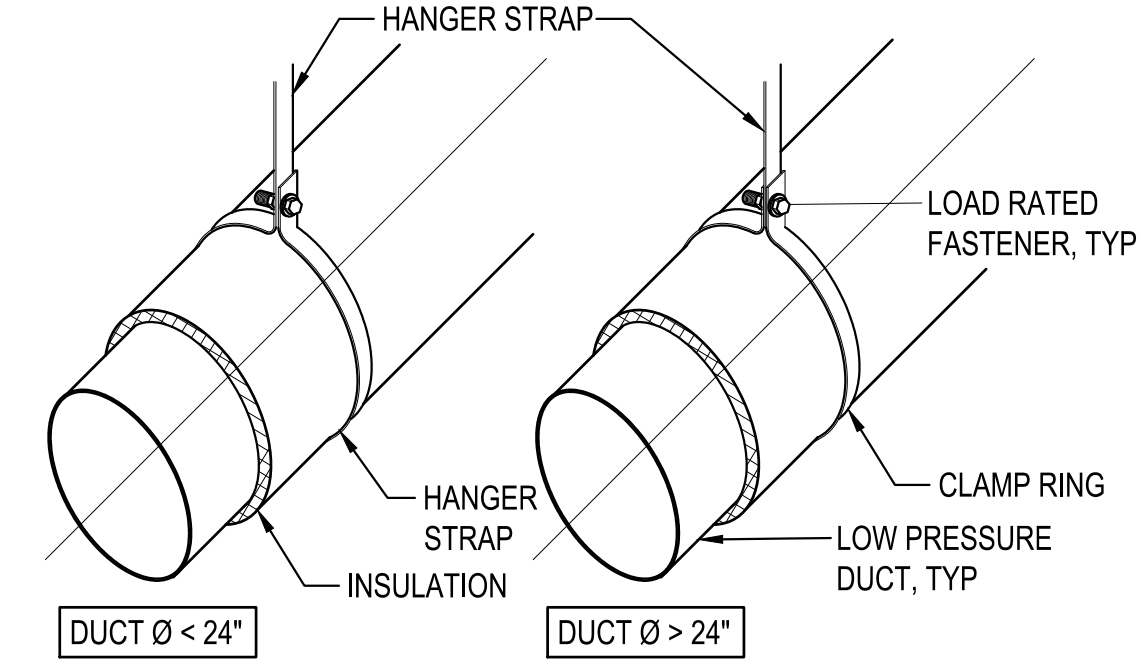
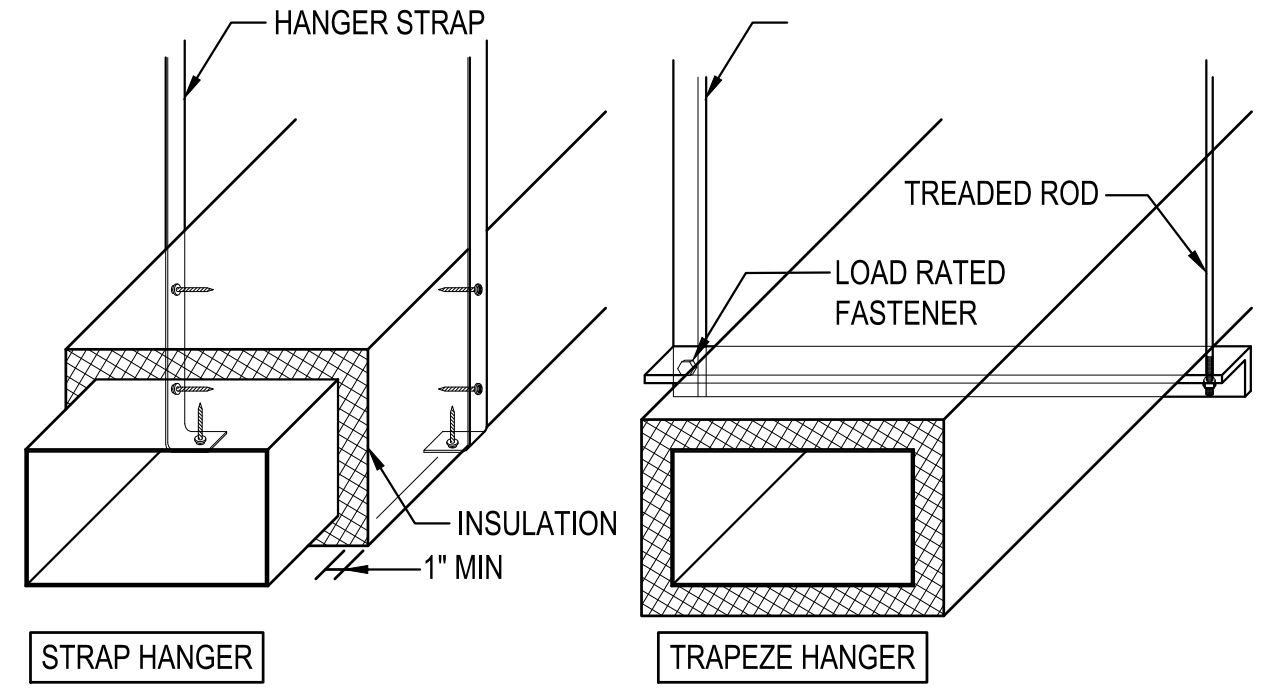
- 1 PROVIDE WITH FAN DELAY SWITCH, POWDER COATED EPOXY FINISH, AND INTEGRAL THERMOSTAT. SET FOR HEATER TO ENERGIZE AT TEMPERATURES BELOW 45°F.
- 2 COORDINATE ALL ELECTRICAL REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.
- 3 BASIS OF DESIGN IS MARKEL 3000 SERIES. PROVIDE WITH RECESSED MOUNTING BRACKET AS NECESSARY.



2 CEILING EXHAUST FAN DETAIL
NOT TO SCALE



3 TYPICAL ENGRAVED TAG DETAIL
NOT TO SCALE



4 DUCT HANGER DETAIL
NOT TO SCALE

1 HVAC PLAN

4' 0' 4' 8'

SCALE: 1/4" = 1'-0"

REVISIONS

NO.	DATE	REMARKS
1	09-28-22	IFB

SHEET TITLE
HVAC PLAN

KEY PLAN

JOB NO. 2121

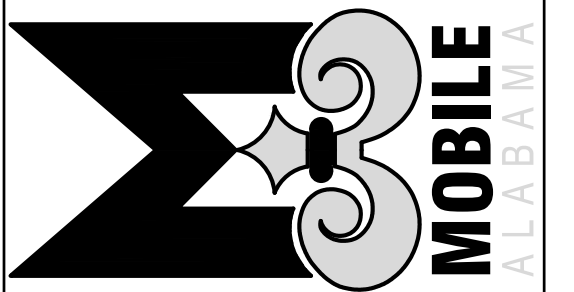
DATE: SEPTEMBER 21, 2022

SHEET

M-100



**PUBLIC SAFETY MEMORIAL PARK -
 RESTROOM, SKATEBOARD PARK,
 & SPLASHPAD
 COM # PR-093-21**
 MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE

KEY PLAN
**ENLARGED
 RESTROOM POWER
 & LIGHTING PLAN**

JOB NO. 2121

DATE: SEPTEMBER 21, 2022

SHEET

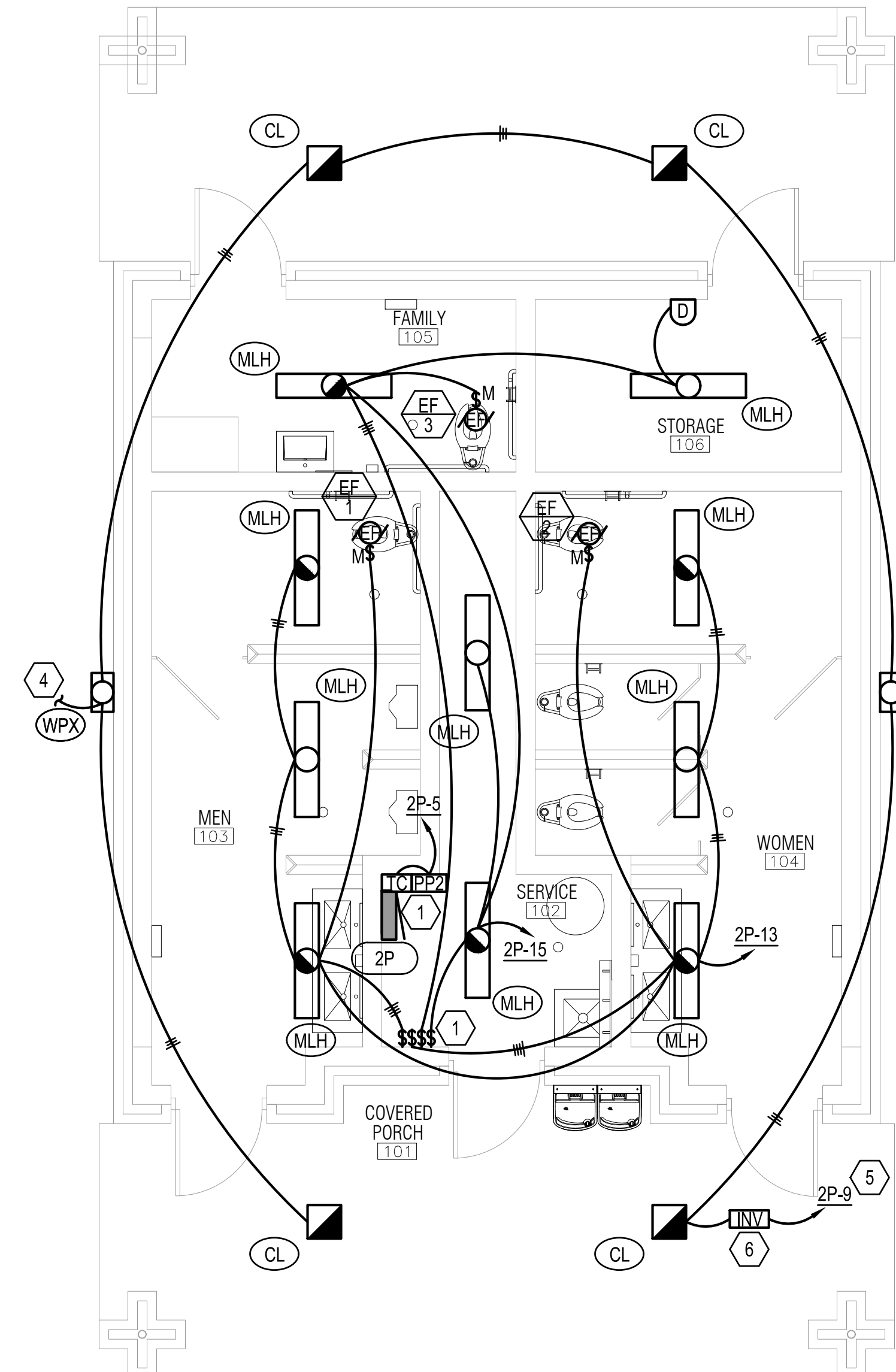
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GENERAL NOTES

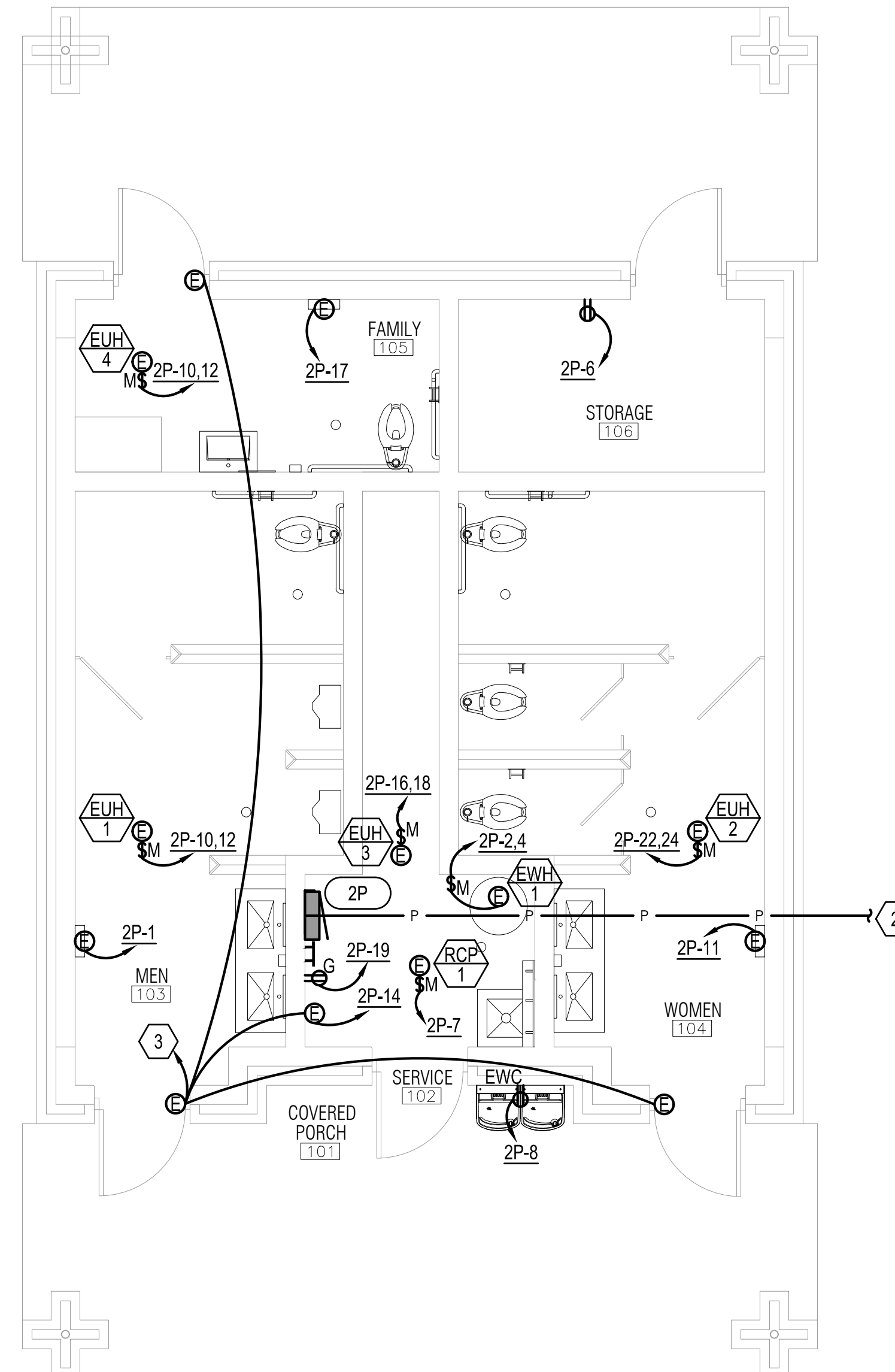
1. ALL LIGHTING FIXTURES AND DEVICES ARE TO BE nLIGHT (OR APPROVED EQUAL) ENABLED.
2. THE CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF ALL WIRING DEVICES WITH THE ARCHITECTURAL / STRUCTURAL PLANS. ADJUST DEVICES AS REQUIRED TO AVOID BLOCKS WITH REINFORCEMENT.
2. ELECTRICAL MUST BE INSPECTED PRIOR TO CLOSING IN OR COVERING UP.
3. THE CONTRACTOR SHALL COORDINATE THE FINAL LOCATION AND POWER REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.

SHEET KEYNOTES

- 1 THE "MLH" FIXTURES IN THE REST ROOMS ARE TO BE CONNECTED TO THE DIGITAL TIMER VIA THE WALL SWITCH. THE TIMER IS TO BE PROGRAMMED SO THAT IT BYPASSES THE SWITCH AND OPERATES THE LIGHTS FROM 8:00 AM TO 8:00 PM (THIS SCHEDULE (AS WELL AS HOLIDAY SCHEDULES) ARE TO BE COORDINATED WITH THE OWNER PRIOR TO PROGRAMMING) AND THE WALL SWITCH OPERATES THE LIGHTS ALL OTHER TIMES. THE WALL SWITCHES ARE TO BE LOCATED IN THE SERVICE ROOM. SEE PLAN FOR LOCATIONS. PROVIDE AND INSTALL ENGRAVED PHENOLIC LABELS ABOVE EACH SWITCH INDICATING LIGHTING CONTROLS FOR "MEN", "WOMEN" AND "FAMILY".
- 2 THE CONTRACTOR SHALL BORE FROM THE EXISTING 200A MCB PANEL TO THE NEW PANEL 2P. THE ELECTRICAL CONTRACTOR IS TO PROVIDE AND INSTALL 3#1/0, 1#6G, 2" CONDUIT TO SERVE THE NEW PANEL 2P FOR THE NEW RESTROOM. THE CONDUIT SHALL BE PVC BELOW GRADE AND GRS ABOVE GRADE. THE TRANSITION FROM PVC TO GRS SHALL OCCUR BELOW GRADE. THE ELECTRICAL CONTRACTOR SHALL COORDINATE FINAL ROUTE PRIOR TO BEGINNING ANY WORK TO AVOID CONFLICT WITH EXISTING TREE ROOT SYSTEM.
- 3 NEW DOOR CONTROLS. COORDINATE THE INSTALLATION / POWER REQUIREMENTS WITH THE ARCHITECT / EQUIPMENT PROVIDER PRIOR TO ROUGH-IN. DOOR TIMER CONTROLS SHALL BE INSTALLED IN THE SERVICE ROOM. FINAL LOCATION OF DOOR TIMER CONTROLS TO BE COORDINATED WITH OWNER PRIOR TO ROUGH IN.
- 4 THE ELECTRICAL CONTRACTOR SHALL EXTEND THE RESTROOM EXTERIOR LIGHTING CIRCUIT (2P-9) UNDERGROUND TO SERVE THE BOLLARD LIGHTING. ALL CONDUIT IS TO BE CONCEALED IN WALLS AND UNDERGROUND. THE BOLLARDS SHALL OPERATE WITH THE EXTERIOR LIGHTING VIA THE PHOTOCELL.
- 5 THE ELECTRICAL CONTRACTOR SHALL PROVIDE AN INSTALL A PHOTOCELL TO CONTROL THIS EXTERIOR LIGHTING CIRCUIT SO THAT THE LIGHTS ARE "OFF" FROM DAWN TO DUSK.
- 6 THE CONTRACTOR SHALL FURNISH AND INSTALL A NEW 400 WATT INVERTER TO PROVIDE EMERGENCY EXTERIOR EGRESS. THE INVERTER SHALL BE INSTALLED SO THAT THE FIXTURES ARE CONTROLLED WITH THE PHOTOCELL UNDER NORMAL CIRCUMSTANCES AND THE INVERTER ENERGIZES THE FIXTURES UPON LOSS OF POWER.



**ENLARGED RESTROOM BUILDING
 NEW WORK LIGHTING PLAN**
 1
 SCALE: 1/4"=1'-0"



**ENLARGED RESTROOM BUILDING
 NEW WORK POWER PLAN**
 2
 SCALE: 1/4"=1'-0"



GENERAL NOTES

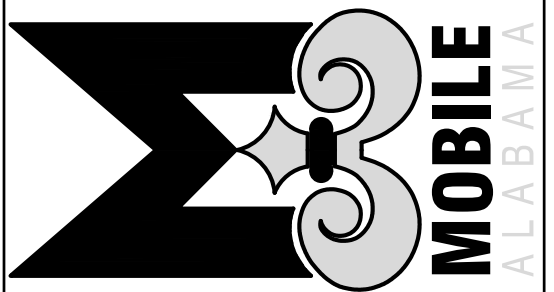
1. THE SPLASHPAD EQUIPMENT LAYOUT SHOWN IS BASED ON PRELIMINARY DESIGNS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF ALL SPLASHPAD EQUIPMENT WITH THE SPLASH PAD PROVIDER / INSTALLER PRIOR TO ROUGH IN. FIELD COORDINATE FINAL ROUTING OF CONDUIT TO AVOID CONFLICT.
2. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE POWER REQUIREMENTS OF ALL SPLASHPAD EQUIPMENT WITH THE SPLASH PAD PROVIDER / INSTALLER AND ADJUST ACCORDINGLY PRIOR TO BEGINNING ANY WORK TO ATTAIN A FULLY OPERATIONAL SYSTEM.

SHEET NOTES

- 1 THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL 1" CONDUIT WITH PULL STRING FROM BOLLARD ACTIVATOR TO RAIN MAKER (CONDUIT SUPPLIED BY ELECTRICAL CONTRACTOR, CABLE SUPPLIED BY RAIN DROP PRODUCTS) THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE FINAL ROUTING OF THE CONDUIT WITH THE SPLASH PAD PROVIDER / INSTALLER PRIOR TO ROUGH IN.
- 2 APPROXIMATE LOCATION OF BOLLARD TOUCH SENSOR. FIELD COORDINATE FINAL LOCATION WITH EQUIPMENT PROVIDER / INSTALLER PRIOR TO ROUGH IN.
- 3 FINAL LOCATION OF NEW SPLASHPAD CONTROLLER TO BE FIELD COORDINATED WITH EQUIPMENT PROVIDER / INSTALLER PRIOR TO BEGINNING ANY SPLASHPAD WORK.
- 4 THE CONTRACTOR SHALL BORE FROM THE EXISTING 200A MCB PANEL TO THE NEW SPLASHPAD CONTROL UNIT. THE ELECTRICAL CONTRACTOR IS TO PROVIDE AND INSTALL 2#6, 1#10G, 1-1/2" CONDUIT TO SERVE THE NEW CONTROL UNIT FOR THE NEW SPLASHPAD. THE CONDUIT SHALL BE PVC BELOW GRADE AND GRS ABOVE GRADE. THE TRANSITION FROM PVC TO GRS SHALL OCCUR BELOW GRADE. THE ELECTRICAL CONTRACTOR SHALL COORDINATE FINAL ROUTE, PRIOR TO BEGINNING ANY WORK TO AVOID CONFLICT WITH EXISTING TREE ROOT SYSTEM.

**PUBLIC SAFETY MEMORIAL PARK -
 RESTROOM, SKATEBOARD PARK,
 & SPLASHPAD
 COM # PR-093-21**

MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
	09-28-22	IFB

SHEET TITLE

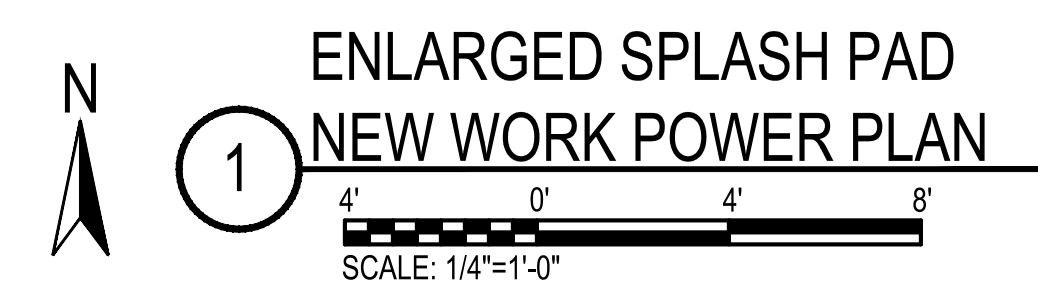
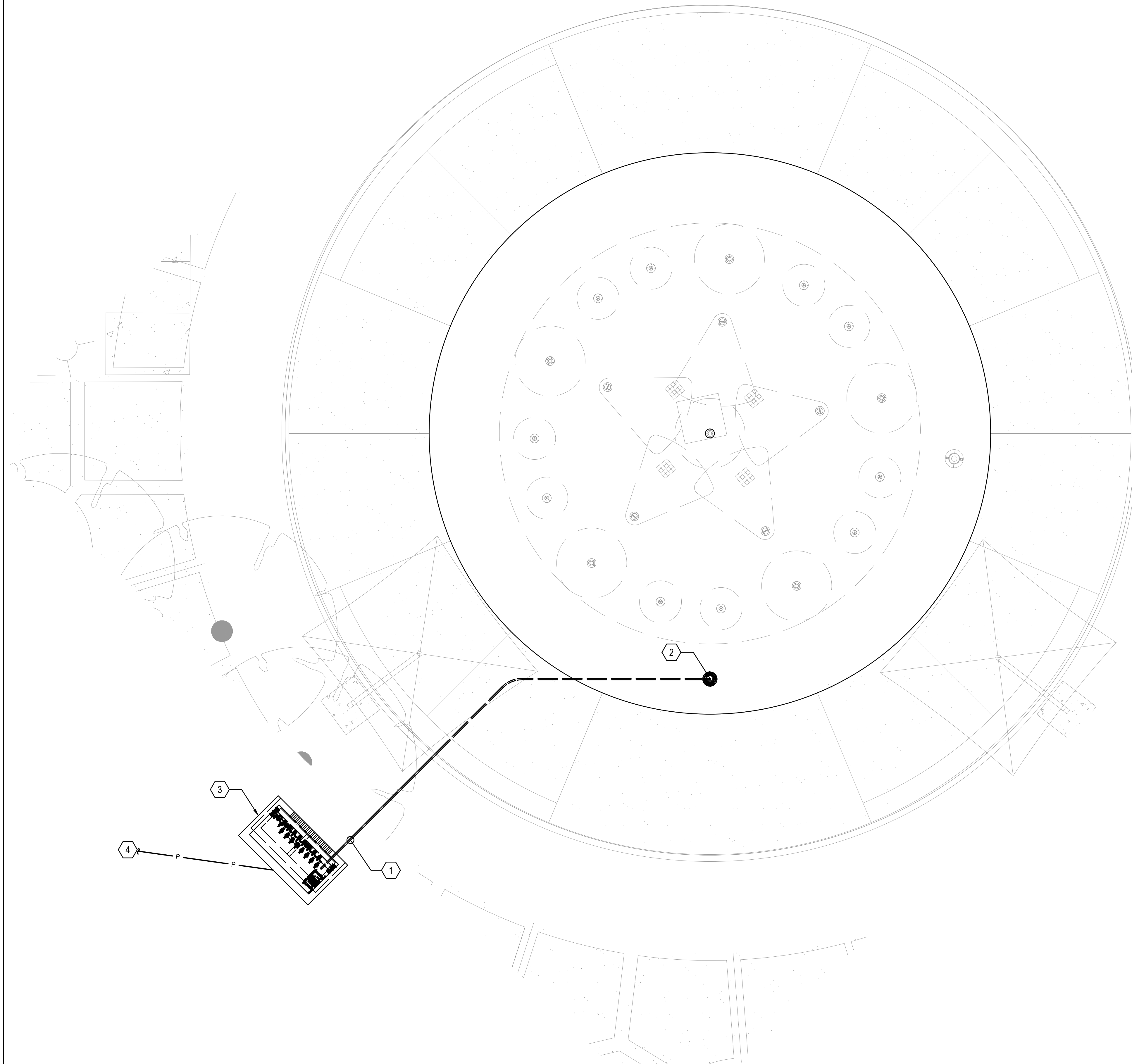
KEY PLAN
 ENLARGED
 SPLASHPAD
 POWER PLAN

JOB NO. 2121

DATE: SEPTEMBER 21, 2022

SHEET

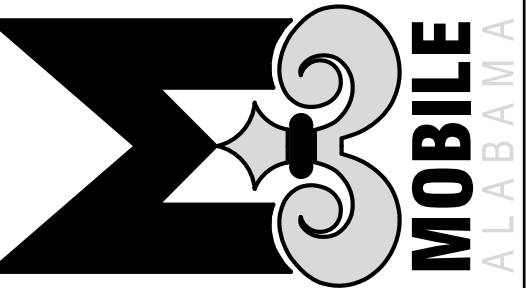
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**ENLARGED SPLASHPAD
 NEW WORK POWER PLAN**



**PUBLIC SAFETY MEMORIAL PARK -
RESTROOM, SKATEBOARD PARK,
& SPLASHPAD
COM # PR-093-21**
MOBILE, ALABAMA



REVISIONS

NO.	DATE	REMARKS
09-28-22		IFB

SHEET TITLE

KEY PLAN
**ELECTRICAL
RISER AND
SCHEDULES**

JOB NO. 2121

DATE: SEPTEMBER 21, 2022

SHEET

E500

PANELBOARD SCHEDULE												
MARK: EXISTING MAIN SERVICE PANEL												
CKT #	LOAD DESCRIPTION	BREAKER		PHASE (kVA)		PHASE (kVA)		BREAKER		LOAD		CKT #
		P	TRIP	A	B	A	B	TRIP	P	DESCRIPTION		
1	OCCUPIED BREAKER *	1	20	1.0		1.0		20	1	OCCUPIED BREAKER (PE CELL) *		2
3	OCCUPIED BREAKER ** (FOUNTAIN)	2	50			2.8	2.8	60	2	OCCUPIED BREAKER * (GAZEBO)		4
5						2.8						6
7	OCCUPIED BREAKER (LIGHTS) *	1	30		2.1		2.1	30	1	OCCUPIED BREAKER (LIGHTS) *		8
9	OCCUPIED BREAKER (LIGHTS) *	1	30	2.1								10
11	SPACE											12
13	SPACE											14
15	SPACE											16
17	SPACE											18
19	SPACE											20
21	SPACE						0.2			SERVICE RECEPTACLE		22
23	NEW RESTROOM PANEL "2P"	2	125		12.2		1.0	20	1	NEW LIGHTING CONTROLS		24
25				11.9		1.0		20	1	NEW SPLASH PAD CONTROLLER		26
27	NEW SKATE PARK	2	20		1.1		1.1	20	2	NEW SKATE PARK		28
29	SITE LIGHTING			1.1		1.1				SITE LIGHTING		30

TOTAL (kVA) ØA 22.2 ØB 22.4 HIGH PHASE (AMPS) 186.7
TOTAL CONNECTED LOAD (kVA) 44.6 TOTAL LOAD (AMPS) 185.8

CREATE A DIRECTORY TO INDICATE INSTALLED LOADS. INDICATE LOAD TYPE (REC, LTG, AHU-1, ETC.) AND RM NOS FOR EVERY BRANCH CIRCUIT.
* THE ELECTRICAL CONTRACTOR SHALL VERIFY LOADS BEING SERVED BY EXISTING BREAKERS.
** ALL BREAKERS NOT BEING REUSED SHALL BE MARKED AS SPARE.

PANELBOARD SCHEDULE												
MARK: PANEL 2P												
CKT #	LOAD DESCRIPTION	BREAKER		PHASE (kVA)		PHASE (kVA)		BREAKER		LOAD		CKT #
		P	TRIP	A	B	A	B	TRIP	P	DESCRIPTION		
1	ELECTRIC HAND DRYER	1	30	1.7		1.5		20	2	EWB-1		2
3	SPLASHPAD CONTROLLER *	1	20		1.7		1.5					4
5	DIGITAL TIMER	1	20	0.2		0.2		20	1	SERVICE RECEPTACLES		6
7	RCP-1	1	20		0.7		0.2	20	1	ELECTRIC WATER COOLER *		8
9	EXTERIOR LIGHTING	1	20	0.2		1.5		20	2	EUH-1		10
11	ELECTRIC HAND DRYER	1	30		1.7		1.5					12
13	INTERIOR LIGHTING	1	20	0.4		0.3		20	1	DOOR CONTROLS		14
15	INTERIOR LIGHTING	1	20		0.2		1.5	20	2	EUH-3		16
17	ELECTRIC HAND DRYER	1	30	1.7		1.5						18
19	SERVICE RECEPTACLES	1	20		0.2		-	20	1	SPARE		20
21	EUH-4	2	20		1.5		1.5	20	2	EUH-2		22
23						1.5		1.5				24
25	SPARE	1	20	-		-		20	1	SPARE		26
27	SPARE	1	20	-		-		20	1	SPARE		28
29	SPARE	1	20	-		-		20	1	SPARE		30

TOTAL (kVA) ØA 12.2 ØB 12.2 HIGH PHASE (AMPS) 101.7
TOTAL CONNECTED LOAD (kVA) 24.4 TOTAL LOAD (AMPS) 101.7

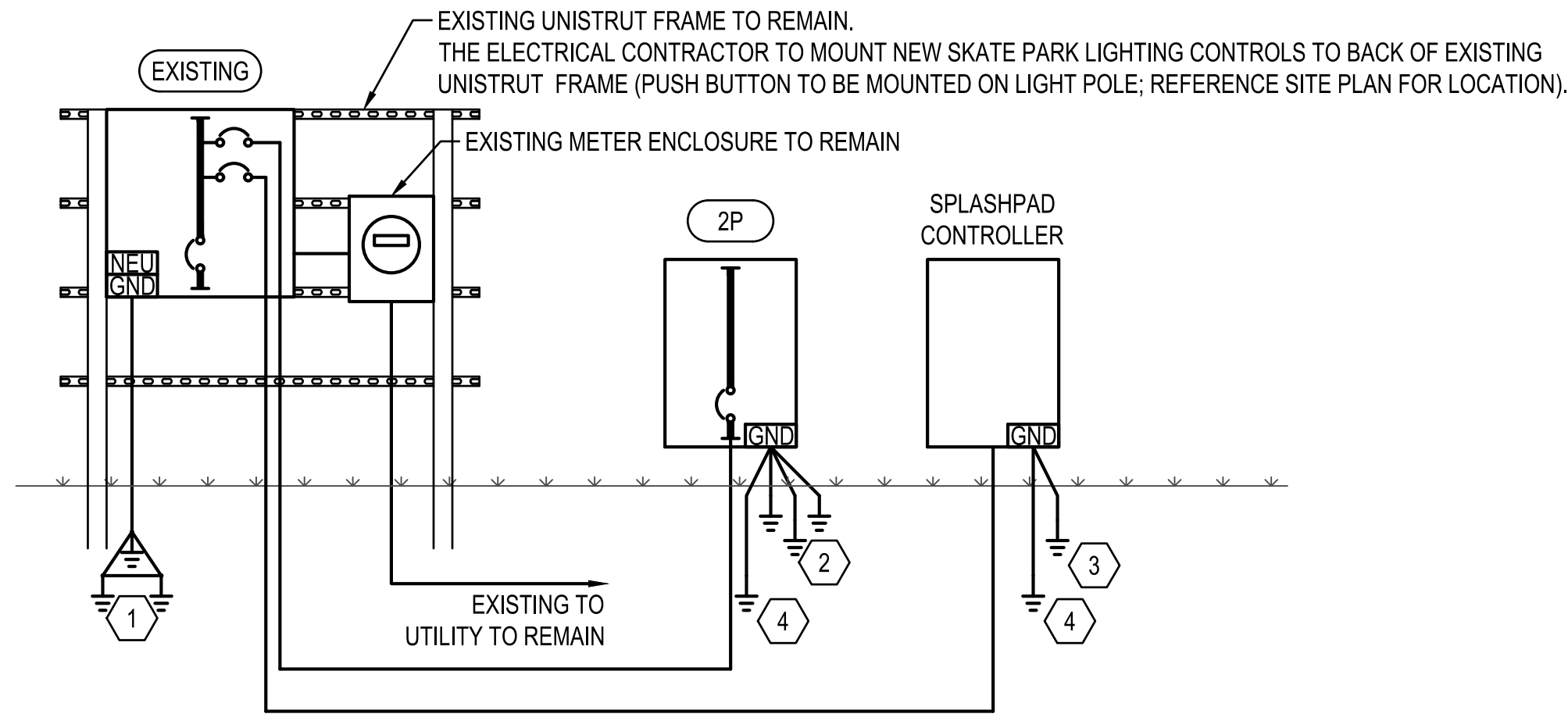
CREATE A DIRECTORY TO INDICATE INSTALLED LOADS. INDICATE LOAD TYPE (REC, LTG, AHU-1, ETC.) AND RM NOS FOR EVERY BRANCH CIRCUIT.
* PROVIDE THIS CIRCUIT WITH A GFCI BREAKER

LIGHTING FIXTURE SCHEDULE							
MARK	MANUFACTURER AND CATALOG NUMBER	TYPE	WATTS	TOTAL WATTS	VOLTAGE	MOUNTING	NOTES
DSX	LITHONIA LIGHTING DSX2 LED-P4-50K-T4M-MVOLT-SPA-PIRH-FAO-DF-DOBXD	LED	270	270	MVOLT	POLE	POLE MOUNTED LED MOTION / DIMMING SITE FIXTURE POLE: SSA-20-6-4G-DM29AS-TP-UL-DOBXD
BL	HESS AMERICA LIGHTING MSC1100/1-NW-UNV-XX	LED	15	15	MVOLT	CONCRETE FOUNDATION	LED BOLLARD FIXTURE COORDINATE FINISH WITH OWNER / ARCHITECT
WPX	LITHONIA LIGHTING WPX1-LED-P2-40K-MVOLT-PE-DOBXD	LED	24	24	MVOLT	SURFACE	DIMMABLE LED WALL MOUNTED EXTERIOR FIXTURE
CL	MORRIS LIGHTING 71603B / DLC# PL9DPILKJN18	LED	45	45	MVOLT	SURFACE	DIMMABLE SURFACE MOUNTED EXTERIOR EGRESS LIGHTING FIXTURE PROVIDE WITH EMERGENCY BATTERY BACK UP VIA INVERTER

NOTES: FIXTURES WITH HALF FILLED IN CENTER SHALL BE PROVIDED WITH AN EMERGENCY BALLAST, 1100 LUMENS OR THE MAXIMUM AVAILABLE FOR THE FIXTURE.
FINAL FIXTURE / POLE SELECTION BE APPROVED BY OWNER / ARCHITECT PRIOR TO ORDER
THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MOUNTING HARDWARE AS REQUIRED FOR A NEAT AND COMPLETE INSTALLATION.

PANELBOARD INFORMATION SCHEDULE														
MARK	ENCLOSURE TYPE	MOUNTING STYLE	VOLTAGE	Ø	WIRE	MAIN BKR	IF MLO, SERVING BKR	SERVICE RATED	K/IC RATING*	Ø BUS RATING (A)	N BUS RATING	FEEDER		
												CONDUCTORS	GROUND	CONDUIT
2P	NEMA 1	SURFACE	208Y/120	1	3	125	N/A	NO	10	150	100%	3#1/0	#6	2" C

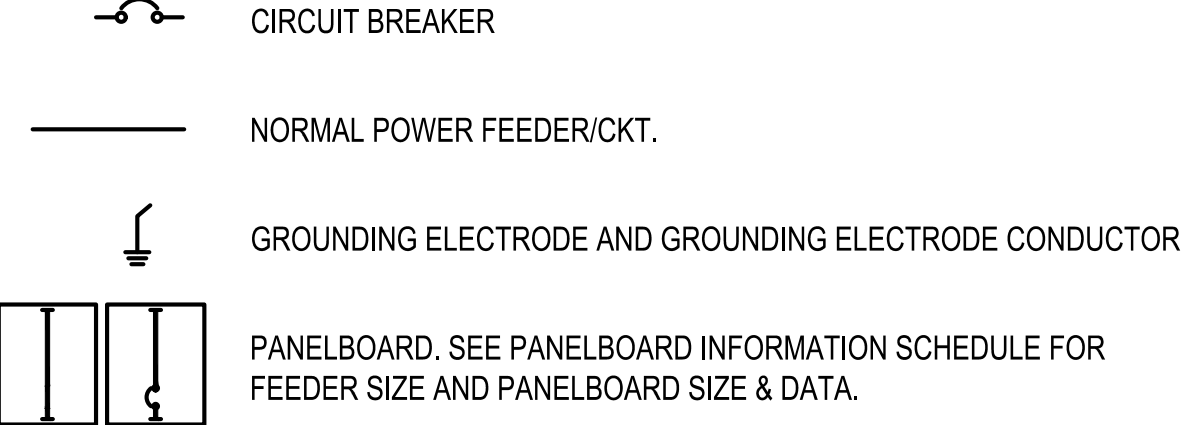
NOTES: ALL PANELBOARDS ARE TO HAVE ARC FLASH WARNING LABEL IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ARTICLE 110.16 (SEE DETAIL).
ALL PANELBOARDS ARE TO HAVE COPPER BUS.



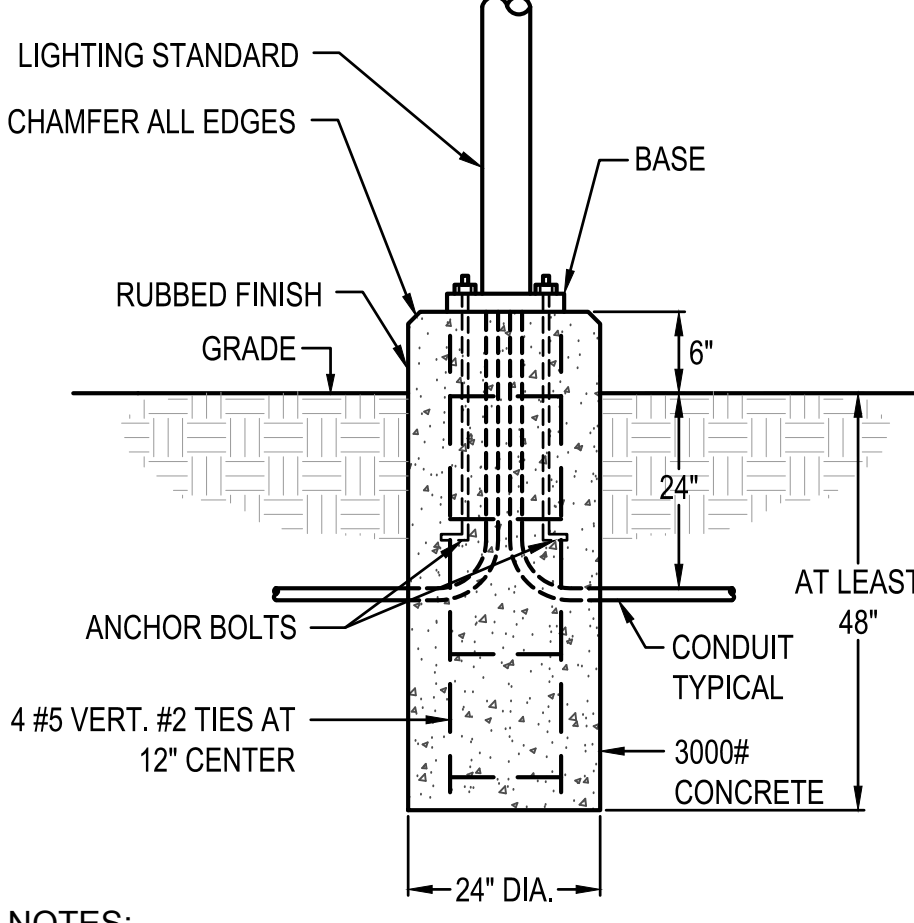
SINGLE LINE DIAGRAM NOTES

- 1 EXISTING GEC TO THREE 20' GROUND RODS ON 20' CENTERS IN EQUILATERAL DELTA ARRANGEMENT TO REMAIN.
- 2 #6 BONDS (BARE TINNED STRANDED COPPER) TO FOUNDATION REBAR, BUILDING WATER SERVICE AND BUILDING STEEL.
- 3 #6 BONDS (BARE TINNED STRANDED COPPER) TO ALL SPLASHPAD STEEL.
- 4 #6 BOND (BARE TINNED STRANDED COPPER) TO ONE 20' 3/4" GROUND ROD.

SINGLE LINE DIAGRAM LEGEND



NOTE: OTHER SYMBOLS SHOWN IN THE SINGLE LINE DIAGRAM MAY BE IDENTIFIED IN THE MAIN ELECTRICAL LEGEND



- NOTES:
- 1. INSTALL A 5/8" BY 10'-0" COPPERCLAD STEEL GROUND ROD DRIVEN BESIDE EACH BASE AND PROVIDE A #6 COPPER BOND FROM GROUND ROD TO BASE OF POLE. PROVIDE ALL NECESSARY LUGS OR TERMINALS TO CONNECT TO POLE.
 - 2. BASE TO BE POURED AGAINST UNDISTURBED EARTH. DO NOT PLACE ANY PORTION OF BASE BELOW WATER TABLE.
 - 3. SEE PLANS FOR LOCATION AND QUANTITIES.

2 CONCRETE BASE FOR SITE LIGHTING POLE DETAIL
NOT TO SCALE

1 SINGLE LINE DIAGRAM
NOT TO SCALE



ALABAMA

PROJECT MANUAL

FOR

**Langan Park
Amphitheater Pavilion & Restroom
4901 Zeigler Blvd.
Mobile, Alabama 26608
PR-031-21**

**Public Safety Memorial Park
Restroom, Skateboard Park & Splashpad
2301 Airport Boulevard
Mobile, Alabama x36606
PR-093-21**

**City of Mobile, Alabama
Architectural Engineering Department
P.O. Box 1827
Mobile, AL 36633-1827
(251) 208-7454**

**ARCHITECT
TAG/The Architects Group Inc.
Mobile, Alabama**

Date: IFB September 28, 2022

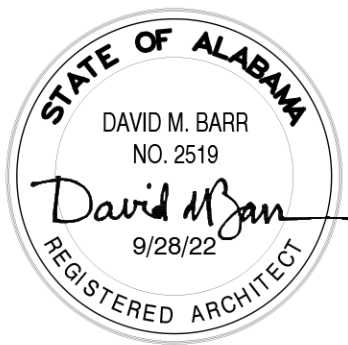


ALABAMA

SEALS PAGE

FOR

**Langan Park
Pavilion & Restroom
4901 Zeigler Blvd.
Mobile, Alabama 26608
PR-031-21**



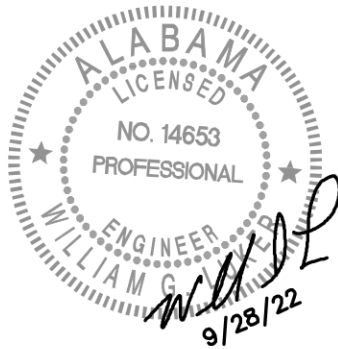


ALABAMA

SEALS PAGE

FOR

**Public Safety Memorial Park
Restroom, Skateboard Park & Splashpad
2301 Airport Boulevard
Mobile, Alabama x36606
PR-093-21**



Issued for Bid September 28, 2022

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Langan Park Pavilion & Restrooms
City of Mobile (COM)

TAG 2113
COM Project PR-031-21

Public Safety Memorial Park
New Restroom & Skateboard and Splash Pad Improvements
City of Mobile (COM)

TAG 2121
COM #PR-093-21

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Langan Park Pavilion & Restrooms
City of Mobile (COM)

TAG 2113
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Public Safety Memorial Park
New Restroom & Skateboard and Splash Pad Improvements
City of Mobile (COM)

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Langan Park Pavilion & Restrooms
City of Mobile (COM)

TAG 2113
COM Project PR-031-21

Public Safety Memorial Park
New Restroom & Skateboard and Splash Pad Improvements
City of Mobile (COM)

TAG 2121
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Issued for Bid September 28, 2022

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Issued for Bid September 28, 2022

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Langan Park Pavilion & Restrooms
City of Mobile (COM)

TAG 2113
COM Project PR-031-21

Public Safety Memorial Park
New Restroom & Skateboard and Splash Pad Improvements
City of Mobile (COM)

TAG 2121
COM #PR-093-21

Issued for Bid September 28, 2022

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Langan Park Pavilion & Restrooms
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City of Mobile (COM)

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END PUBLIC SAFETY PARK DRAWING INDEX

SECTION 00100
INVITATION TO BID

You are invited to submit a sealed bid for construction of the following facility:

PROJECT NAME: Langan Park – Amphitheater Pavilion & Restrooms
PROJECT LOCATION: 4901 Zeigler Boulevard, Mobile, Alabama 36608
PROJECT NUMBER: PR-031-21

and

PROJECT NAME: Public Safety Memorial Park – Restroom, Skateboard
Park, & Splashpad
PROJECT LOCATION: 2301 Airport Boulevard, Mobile, Alabama 36606
PROJECT NUMBER: PR-093-21

1 BID DATE:

- A. Sealed Bids will be received and clocked in until 2:15 PM local time, Wednesday, the 2nd day of November, 2022. Bidders shall insert sealed Bids into a receptacle, marked “City of Mobile Bids”, located in the elevator lobby outside the office of the City Clerk Office, 9th Floor South Tower, Government Plaza, 205 Government Street, Mobile, Alabama 36602.
- B. All Bids not clocked in at the City Clerk’s Office prior to the time specified, or Bids received after the specified time, will be automatically rejected and returned immediately, unopened.
- C. Bids will be publicly opened and read at 2:30 PM local time, in the Atrium Lobby of Government Plaza.

2 SPECIFICATIONS AND DRAWINGS:

- A. Specifications and Drawings are on file and may be examined and obtained from the following location: <https://www.cityofmobile.org/bids/>
- B. Bidders shall use complete sets of Bid Documents in preparing their bid. Neither the Owner nor Architect/Engineer assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid Documents.
- C. Addenda will be issued via e-mail to all Pre-Bid Conference attendees.
- D. **This is a tax exempt project and shall be certified by the requirements of the Alabama Department of Revenue. Bidders shall NOT include sales and use taxes with their bid amounts. Bidders shall complete the Sales Tax Form C-3A and include it as an attachment to their Bid Form (see Section 00400).**
- F. Product Substitutions must be pre-approved before the bid (see Section 01400 for requirements).
- G. BID SURETY: Required on Bids \$10,000.00 or more

- A. A Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or a Bid Bond payable to Owner, City of Mobile, in the amount of 5% of the Base Bid, but in no event more than \$10,000.00 is required to accompany Bid.
- B. Bid Bond must be issued by a Surety licensed to do business in the State of Alabama. Bidder shall require the attorney in fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.
- C. No Bid may be modified, withdrawn, or canceled for a period of sixty (60) days after the time designated above for receipt of bids.
- D. The City of Mobile will have sixty (60) days from the bid opening date to award contract.

3 SURETY QUALIFICATIONS:

- A. A Surety authorized to do business in the State of Alabama must issue Bonds.
- B. If the Base Bid is \$50,000 or more, the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.

4 IRREGULARITIES AND REJECTION:

- A. The City of Mobile reserves the right to waive irregularities in the Bid and in Bidding, and to reject any or all Bids.

5 BIDDER QUALIFICATIONS:

- A. Bids for Work costing \$50,000 or more must be licensed pursuant to current Alabama law and of classifications compliant with the State of Alabama Licensing Board for General Contractors. Note that if the contract amount is \$10,000 or greater, both a Performance Bond and a Labor and Material Payment Bond shall be required. **Before Bidding, Contractor shall verify their license classification of their General Contractors license with the State of Alabama Licensing Board for General Contractors to verify classification is acceptable to perform 51% of the Scope of Work.**
- B. In case of a joint venture of two or more Contractors, the amount for the bid shall be within the maximum bid limitations as set by the State of Alabama Licensing Board for General Contractors of at least one of the partners to the joint venture.

6 NON-RESIDENT CONTRACTORS:

- A. Except for contracts funded in whole or part with funds received from a federal agency, preference shall be given to resident Contractors on the same basis as the nonresident Contractor's state awards contracts to Alabama Contractors bidding in similar circumstances.
- B. Nonresident Bidders shall, prior to submitting a bid, be registered with the Alabama Secretary of State and the Alabama Department of Revenue. Provide the Secretary of State Business "Entity ID Number" on the Bid Form in the space provided.

7 PRE-BID CONFERENCE:

- A. **A** Pre-Bid Conference shall be held on October 5, 2022, **at starting at Langan Park - Pavilion Amphitheater, 4901 Zeigler Boulevard, Mobile, Alabama at 9:00 AM local time, followed by Public Safety Memorial Park Skateboard Park, 2301 Airport Boulevard, Mobile, Alabama.** The conference will include a walkthrough of the site locations. A representative of the Bidder is encouraged to be present at the meeting. However, if no representative can be present in person, the Bidder may contact the Project Manager at 251-508-7752, at least 24 hours prior to the meeting, in order to coordinate attendance of the meeting by conference call. Bidders are encouraged to participate in the Pre-Bid Conference, visit the site prior to submitting a Bid and required to include all costs associated with the project in their Bids.
- B. Minutes of this conference will be made as an Addendum for the project.

8 BID SUBMITTAL:

- A. Bids must be submitted on copies of the Bid Forms furnished in the bidding documents.
- B. Bid, with Bid Security, Sales Tax Form C-3A, City of Mobile Subcontracting and Major Supplier Plan and other supporting data specified, shall be contained in a sealed, opaque envelope, approximately 9x12 inches or larger and be marked on the outside with the words "**SEALED BID FOR LANGAN PARK – PAVILION AMPHITHEATER & RESTROOM - PROJECT NUMBER: PR-031-21 AND PUBLIC SAFETY MEMORIAL PARK RESTROOM, SKATEBOARD PARK & SPLASHPAD – PROJECT NUMBER PR-093-21**".
- C. The Bid envelope shall be clearly addressed to the Owner as indicated on the Bid Form and include the bid date, the name, address and State License number and classification of the Bidder issued by the State of Alabama Licensing Board for General Contractors.
- D. All Bids of \$50,000 or more must include the bidder's State of Alabama General Contractor's License information written on the outside of the bid envelope. Any bid submitted without such license information may be rejected and returned to the bidder unopened.
- E. In addition, in large letters on both front and back of envelope, write the following: **DO NOT OPEN UNTIL TWO-THIRTY PM, NOVEMBER 2, 2022.**
- F. For a bid to be valid it shall be delivered at designated location prior to time and date for receipt of Bids indicated in INVITATION TO BID, or prior to any extension thereof issued to Bidders. After that time no Bid will be received or withdrawn.
- G. When sent by mail, preferably special delivery, express service, or registered mail, the sealed Bid, marked as indicated above, shall be enclosed in another envelope for mailing such that the exterior mailing container or envelope may be opened without revealing the contents of the Bid. It is the Contractors responsibility to assure delivery of the bid to the City Clerk's Office prior the time and date established.

9 EQUAL OPPORTUNITY:

- A. The City of Mobile, Alabama is an Equal Opportunity Employer and requires that all Contractors comply with the Equal Employment Opportunity laws and the provisions of the Bid Documents in this regard.
- B. The City of Mobile also encourages and supports the utilization of Minority Business Enterprises on these and all other publicly solicited Bids, and shall be in compliance with the City of Mobile’s Minority Utilization Plan as adopted by the City Council.
- C. Contractor shall provide an appropriately completed copy of the “City of Mobile Subcontracting and Major Supplier Plan” in the envelope with their Bid Form. Form shall document DBE Subcontractors participating in the project and, should the total % of DBE participation not meet the 15% minimum, all efforts to obtain DBE Subcontractors shall be documented on or attached to the DBE Form when submitted. During construction, contractors are required to submit a “DBE Utilization Report” with every Pay Application.
- D. Contractors should contact the City of Mobile, Supplier Diversity Manager for assistance with DBE Subcontractor information and any questions regarding the DBE Compliance Forms. Contact Archnique Kidd at 251-208-7967.
- E. A Directory of DBE Vendors can be found at the following location:
<https://workwith.cityofmobile.org/>

10 ADDITIONAL BIDDING PROCEDURES:

- A. Refer to the complete information in the Bid Documents prior to submitting a bid. Additional Bidding Procedure information is contained therein, particularly in the specification Section 00200 “Instructions to Bidders - AIA Document A701” and in the specification Section 00300 “Supplementary Instructions to Bidders”.

12 STATE OF ALABAMA IMMIGRATION ACT

“The State of Alabama, under the Beason-Hammon Alabama Taxpayer and Citizen Protection Act, Act No. 2011-535, Alabama Code Section 31-13-1, et. Seq., requires:

- A. That the Contractor shall be enrolled in the E-Verify Program, shall participate in that Program during the performance of the contract, and shall verify the immigration status of every employee who is required to be verified, according to the applicable federal rules and regulations; and
- B. That it will attach to the contract the company’s documentation of enrollment in E-Verify.
- C. The subcontractor must also enroll in the E-Verify Program prior to performing any work on the contract and shall attach to its sworn affidavit documentation establishing that the subcontractor is enrolled in the E-Verify Program.

13 PUBLIC CONTRACTS WITH ENTITIES ENGAGING IN CERTAIN BOYCOTT ACTIVITIES

City of Mobile (COM)
Langan Park – Amphitheater Pavilion & Restrooms
Public Safety Memorial Park – Restroom,
Skateboard Park, & Splashpad

TAG 2113
COM Project PR-031-21
COM Project PR-093-21

- A. By signing this contract, Contractor further represents and agrees that it is not currently engaged in, nor will it engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.

END OF SECTION 00100



SECTION 00200
INSTRUCTIONS TO BIDDERS

PART 1 GENERAL

A. This section includes the INSTRUCTIONS TO BIDDERS, AIA Document A701 to be utilized with the Owner's most recent modifications and which shall be used in conjunction with the entire Bid Documents and Section 00300 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS for this project.

AIA Document A701™ – 2018

Instructions to Bidders

for the following Project:

(Name, location, and detailed description)

Langan Park – Amphitheater Pavilion & Restrooms

4901 Zeigler Boulevard

Mobile, Alabama 36608

and

Public Safety Memorial Park – Restroom, Skateboard Park, & Splashpad

2301 Airport Boulevard

Mobile, Alabama 36606

THE OWNER:

(Name, legal status, address, and other information)

City of Mobile

PO Box 1827

Mobile, Alabama 36633-1827

THE ARCHITECT:

(Name, legal status, address, and other information)

The Architects Group, Inc.

710 Downtowner Boulevard

Mobile, Alabama 36609

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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

- 11 PREFERENCE TO RESIDENT CONTRACTORS
- 12 PRE-BID REQUIREMENTS
- 13 POST-BID REQUIREMENTS

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents. A Bidder must be licensed by the State Licensing Board for General Contractors if the amount for the Contract exceeds the amount established by said Board.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work. A Sub-bidder performing Work must be licensed by the State Licensing Board for General Contractors if the Sub-bidders' contract amount exceeds that established by said Board.

- 1.10 A non-resident Bidder or Sub-bidder is one who
- a. Is neither organized nor existing under the laws of the State of Alabama
 - b. nor maintains its principal place of business in the State of Alabama.

A non-resident contractor who has maintained a permanent branch office within the State of Alabama for at least five (5) continuous years shall not thereafter be deemed to be a non-resident contractor so long as such contractor continues to maintain a branch office within Alabama.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

§ 2.2 The Bidder is licensed by the State Licensing Board for General Contractors and the amount Bid does not exceed the Bid Limit stipulated in the Bidder's License and by the City of Mobile.

§ 2.3 Each and every Contractor belonging to or comprising a part of any entity that is bidding as a joint venture or association involving two or more contractors is licensed by the State Licensing Board for General Contractors and that the amount Bid does not exceed the Bid limit stipulated in at least one of their licenses.

§ 2.4 Any non-resident Bidder is authorized by the Secretary of State of Alabama and is registered with Alabama Department of Revenue to transact business in Alabama.

§ 2.5 Joint Ventures or Associations of Contractors, whether the same are Bidders or Subcontractors of Bidders, will remain in existence until all insurance and warranty requirements for the Project have been fulfilled.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

(Paragraphs deleted)

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least five (5) calendar days prior to the date for receipt of Bids.

(Paragraphs deleted)

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.2.4 The Contract Drawings and Specifications are intended to cooperate and agree, but should conflicts or difference be found to exist between the requirements within either and clarification has not been obtained in accordance with the above procedure prior to Bidding, then the most costly and/or restrictive interpretation by the decision of the Architectural Engineering Department Director will be final.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least fifteen (15) calendar days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.3.6 See Division One Section "Substitution Procedures", if included in Specification.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Paragraphs deleted)

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than two (2) days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents. No bid will be considered unless made out and submitted on a copy of the Bid Form, Section 00410. Additional Bid Forms will be furnished to prospective Bidders upon request.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

Unit Prices: Supply requested Unit Prices where shown on the Bid Form, Such Unit Prices shall be used to adjust the Contract Amount where the quantities shown on the Drawings and/or Specifications do not reflect amounts required for

completion of the work. Where Completion of the Work requires quantities in excess of those shown on the drawings and specifications, unit prices shall be used to compute an extra payment to the Contractor. Where completion of work required quantities less than those on the Drawings and/or specifications, unit prices shall be used to compute a credit to the Owner.

Contingency Allowance: As shown on the Bid Form, Contractor shall add the amount of the contingency allowance to the Base Bid to derive the Total Bid. The contingency allowance shall cover cost of material, labor, overhead, profit and other expenses for complete installation of items of additional work as required for a complete functional project. The contingency allowance shall be used to fund unforeseen conditions not covered in the construction documents and shall be subject to the provisions of change orders. Upon the completion of work any unused portion of the contingency allowance shall be credited to the Owner by change order.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security if so required in the Bidding Documents:
(Insert the form and amount of bid security.)

The Bidder shall provide a Bid Security in the form of a cashier's check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or a Bid Bond. Bid Security is required for bids exceeding \$10,000.00. Bid Security shall be in the amount of 5% of the TOTAL BID, but in no event more than \$10,000.00.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected.

§ 4.2.5 Bonds must be issued by a Surety authorized to do business in the State of Alabama. A Performance Bond and a Labor and Material Payment Bond are required for projects exceeding \$10,000.00. If the project cost is \$50,000.00 or more, the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best's Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:
(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

Submission of Bid shall be as stated in Section 00100, Invitation to Bid, Paragraph 9, titled "Bid Submittal".

(Paragraph deleted)

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted and will be returned unopened.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

(Paragraphs deleted)

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 The Owner shall accept Alternates in the order listed on the Bid Form to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

(Paragraphs deleted)

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, within three (3) calendar days or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and

- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.
- .4 The name of the Project Superintendent and Project Manager together with the resume of qualifications of each;
- .5 Nonresident Contractor shall submit a letter from an attorney as required by Subparagraph 11.1.2 below and;
- .6 Engineering Firm or Testing Laboratory for testing as specified.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

§ 6.3.5 The Contractor shall, within ten (10) calendar days of receiving Contract Forms for signature, furnish to the Owner the following items, along with the signed contract, or the Bid Security will be forfeited automatically without further delay:

- .1 A Signed Construction Contract;
- .2 Performance Bond and Labor and Material Payment Bond (originals) on all Bids over \$10,000.00;
- .3 Certificate of Insurance and copy of Builder's Risk Policy (original), as identified in the specifications;
- .4 Schedule of Values; and
- .5 Federal Immigration Law Compliance: E-Verify enrollment documentation.

§ 6.3.6 The Bid Check or Bond of the three (3) lowest Bidders will not be returned until after the Construction Contract is executed.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

§ 7.1.4 A Surety authorized to do business in the State of Alabama shall issue Performance Bond and Labor and Material Payment Bond, as required by the Contract Documents. If the project cost is \$50,000.00 or more, the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best's Key Rating Guide Property-Casualty, published by Alfred M. Best Company, Inc.

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than ten (10) calendar days from receiving the Construction Contract forms for signature.

§ 7.2.2 The bonds shall be written on City's Performance Bond and Labor and Material Payment Bond forms.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

§ 8.1.1 AIA Document A101, Standard Form of Agreement Between Owner and Contractor where the Basis of Payment is a stipulated sum will be edited electronically and include the standard signatures as required by the City of Mobile.

ARTICLE 9 NONDISCRIMINATION

§ 9.1.1 Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, *inter alia*, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities. Contractor shall provide a completed copy of the City of Mobile Subcontracting and Major Supplier Plan with the Bid Form, for bids of \$250,000.00 or greater.

ARTICLE 10 USE OF DOMESTIC PRODUCTS

§ 10.1.1 Section 39-3-1 Code of Alabama provides that the Contractor agrees, in the execution of this contract, to use material supplies and products manufactured, mined, processed or otherwise produced in the United States or its territories, if available at reasonable prices, and that breach of this agreement by the Contractor shall result in the assessment of liquidated damages in an amount not less than \$500 nor more than 20 percent of the gross amount of the contract price.

§ 10.1.2 Section 39-3-4, Code of Alabama provides that the Contractor for a municipal construction project, financed by the State of Alabama or any political subdivision thereof, is required to use steel produced within the United States. If the Contractor violates the requirement to use domestic steel, this contract will automatically be revoked and the contractor shall not be entitled to any set-off or recoupment for labor or materials used up to the time of revocation.

ARTICLE 11 PREFERENCE TO RESIDENT CONTRACTORS

§ 11.1.1 Except for contracts funded in whole or in part with funds received from a federal agency, preference shall be given to Alabama resident contractors, and a nonresident bidder domiciled in a state having laws granting preference to local contractors shall be awarded the contracts only on the same basis as a the nonresident bidder's state awards contracts to Alabama contractors bidding under similar circumstances. In the letting of public contracts in which any state, county or municipal funds are utilized, resident contractors in Alabama, be they corporations, individuals or partnerships, are to be granted preference over nonresidents in awarding of contracts in the same manner and to the same extent as provided by the laws of the state of domicile of the nonresident.

§ 11.1.2 A successful nonresident bidder shall include in his post bid submittals a written opinion of an attorney at law licensed to practice law in such nonresident bidders' state of domicile, as to the preferences, if any or none, granted by the law of that state to its own business entities whose principal places of business are in that state in the letting of any or all public contracts.

ARTICLE 12 PRE-BID REQUIREMENTS

§ 12.1 STATE OF ALABAMA CONTRACTORS LICENSE

§ 12.1.1 If the Project total bid amount is \$50,000 or more, a license issued by the State of Alabama Licensing Board for General Contractors is required prior to submitting a bid and the licensed classification and bid limits must cover the type

of work in this project. See Invitation to Bid, Section 6 "Bidder Qualifications".

§ 12.2 A NONRESIDENT BIDDER

§ 12.2.1 Every bidder shall be registered with the Department of Revenue and with the Alabama Secretary of the State prior to bidding. The Secretary of State's "Business Entity ID" registration number shall be included on the bid form.

ARTICLE 13 POST-BID REQUIREMENTS

§ 13.1 CITY CONTRACTOR'S LICENSE

13.1.1 A City of Mobile Contractors License is required and must be current before the Contractor signs the Contract. Contractor must qualify and post \$10,000.00 Surety Bond with the Land Use/Code Administration Department before a Contractors License will be issued by the Revenue Department. Information on the City Contractors License may be obtained by writing or calling:

Land Use/Code Administration
P. O. Box 1827
Mobile, Alabama 36633-1827
Phone: 251.208.7421

Revenue Department
P. O. Box 1827
Mobile, Alabama 36633-1827
251.208.7461

13.2 E-VERIFY DOCUMENTATION

§ 13.2.1 The Contractor agrees that it shall comply with all of the requirements of the State of Alabama Immigration Law (Act. No. 2011-535 as amended by Act. No. 2012-491, Alabama Code (1975) Section 31-13-1, et. Seq., See Section 31-13-9), and the provisions of said Law, including all penalties for violation thereof, are incorporated therein.

13.3 PUBLIC CONTRACTS WITH ENTITIES ENGAGING IN CERTAIN BOYCOTT ACTIVITIES

§ 13.3 The Contractor represents and agrees that it is not currently engaged in, nor will engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.

(Table deleted)(Paragraphs deleted)(Paragraphs deleted)

SECTION 00300
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

THE ATTENTION OF ALL BIDDERS IS CALLED TO THE FOLLOWING INSTRUCTIONS AND CONDITIONS:

I. BIDDING DOCUMENTS:

- A. Bidders may obtain complete sets of Bid Documents and Specifications (Project Manual) from the Department of Architectural Engineering as listed in the Invitation to Bid.
- B. Bidders shall use the complete set of documents in preparing their bid. The City of Mobile assumes no responsibility for errors or misinterpretations resulting from use of an incomplete set of documents.

Bidders shall use the complete set of documents in preparing their bid. Neither the City of Mobile nor the Engineer (Architect) assume responsibility for errors or misinterpretations resulting from use of an incomplete set of documents.

2. INTERPRETATION OF BID DOCUMENTS:

- A. Bidders shall carefully study and compare the Bidding Documents and compare various components of the Bidding Documents with each other, encouraged to examine the site and local conditions and shall at once report to the Project Manager any errors, inconsistencies or ambiguities discovered.
- B. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Project Manager by 3:00 PM at least five (5) calendar days prior to the date for receipt of Bids. E-mail requests are required and should be addressed to shannon.mcintyre@cityofmobile.org. Interpretations, corrections and changes to the Bidding Documents will be made by a formal, written Addendum. Interpretations, corrections and changes to the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely on them.
- C. Any discrepancy not resolved prior to Bidding shall be bid by the Contractor to provide for the most costly and/or restrictive interpretation of the documents.

3. BIDDING PROCEDURES:

- A. No Bid will be considered unless made out and submitted on a copy of the Bid Form as set forth by the Bid Documents.
- B. All blanks on the Bid Form shall be legibly executed in a non-erasable medium.
- C. Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.
- D. Interlineations, alterations and erasures must be initialed by the signer of the Bid.

- E. All requested Alternates, Unit Prices and Allowances shall be bid as indicated on the Bid Form and the Bid Documents.
- F. Addenda shall be considered as a part of the Bid Documents and those issued prior to the opening of Bids shall be acknowledged on the Bid Form and any adjustment in cost shall be included in the Contract Sum.

4. BID SECURITY:

- A. A Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or Bid Bond payable to Owner, City of Mobile, in the amount of 5% of the Base Bid, but in no event more than \$10,000.00, must accompany bid. By submitting a Bid Security, the Bidder pledges to enter into a Contract with the City of Mobile on the terms stated in the Bid, and will, if required, furnish bonds covering faithful performance of the Contract and required insurance certificate. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds or insurance or any other required document, the amount of the Bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- B. Bid Bond shall be valid for a minimum of sixty (60) days from the date of the Bid. The Owner reserves the right to retain the security of all Bidders until the successful Bidder enters into the Contract or until (60) days after Bid opening, whichever is sooner.
- C. Bonds must be issued by a Surety licensed to do business in the State of Alabama. If the project cost is more than \$50,000.00 the Surety must have a minimum rating of A/Class VI as reported by the latest issue of Best's Key Rating Guide Property-Casualty published by Alfred M. Best Company, Inc.
- D. Power of Attorney is required for all Bonds.
- E. The Surety company shall be required to execute AIA Document G-707, "Consent of Surety to Final Payment" prior to Final Payment of retainage being made to the Contractor.

5. EXAMINATION OF DOCUMENTS AND SITE WORK:

- A. Before submitting a Bid, Bidders should carefully examine the Bid Documents, visit the site of the Work, including attendance at the Pre-Bid conference, fully inform themselves as to existing conditions and limitations, and include in the Bid a sum to cover the cost of all items included in the Contract and necessary to perform the Work. The submission of a Bid will be considered as conclusive evidence that the Bidder has made such examination.

6. SUBMISSION OF BIDS:

- A. Bid, with Bid Security, Sales Tax Form C-3A, City of Mobile Subcontracting & Major Supplier Plan and other supporting data specified, shall be contained in a sealed, opaque envelope, approximately 9 x 12 inches or larger and be marked on the outside

with the words **SEALED BID FOR LANGAN PARK – PAVILION AMPHITHEATER & RESTROOM - PROJECT NUMBER: PR-031-21 AND PUBLIC SAFETY MEMORIAL PARK RESTROOM, SKATEBOARD PARK & SPLASHPAD – PROJECT NUMBER PR-093-21**”, the Bid Date, and Contractor's name, address, and City of Mobile Business License number. And, if bidding in an amount \$50,000 or greater, the State of Alabama General Contractor's License number and classification of the Bidder issued by the State of Alabama Licensing Board for General Contractors shall be written on the envelope.

- B. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date specified in the Invitation to Bid, or as modified by Addendum, will not be considered. Late Bids will be returned to the Bidder unopened.
- C. The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.
- D. Oral, telephonic, facsimile or other electronically transmitted bids will not be considered.

7. MODIFICATION OR WITHDRAWAL OF BIDS:

- A. A Bid may not be modified, withdrawn, or canceled by the Bidder for a period of sixty (60) days following the time and date designated for receipt of bids, and each Bidder so agrees in submitting a Bid.

8. CONSIDERATION AND AWARD OF BIDS:

- A. At the discretion of the City, the properly identified Bids received on time will be publicly opened and will be read aloud.
- B. The City shall have the right to reject any and all Bids. A Bid not accompanied by a required Bid security or a Bid which is in any way incomplete or irregular is subject to rejection.
- C. It is the intent of the City to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The City shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the City's judgment, is in the City's best interest.
- D. The award shall be based on the lowest Total Bid for the Base Bid and any allowances, plus any alternates and/or options that may be accepted, as listed on the Bid Form.

9. PROOF OF COMPETENCY OF BIDDER:

- A. Bidders may be required to furnish evidence satisfactory to the City of Mobile that they have sufficient means and experience in the types of work called for to assure the completion of the Contract in a satisfactory manner.

10. SIGNING OF CONTRACT:

- A. The Standard Agreement between the City of Mobile and the Contractor, included herein, shall serve as the Agreement between the City and the Contractor.
- B. The Bidder to whom the Contract is awarded shall, within ten (10) calendar days of receiving the Contract Forms, properly execute and deliver to the Owner, the following items with the signed Agreement:
 - (1). Performance Bond and Labor and Material Payment Bond (originals);
 - (2). Certificate of Insurance (original) with endorsements to City of Mobile;
 - (3). Evidence of enrollment in the E-Verify program.
 - (4). Other documentation as required by the Contract Documents.
- C. Failure or refusal to sign the Agreement or to provide Certificates of Insurance in a form satisfactory to the City of Mobile, E-Verify verification, or other required documentation, shall subject the Bidder to immediate forfeiture of Bid Security.
- D. On all documents: City of Mobile Business License, the Alabama Secretary of State Business Identity, the Alabama Secretary of State Certificate of Authority (out of state contractors), E-verify documentation, and ACORD Insurance Form, the Contractor's name shall be EXACTLY the same.

11. NONDISCRIMINATION:

- A. Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, inter alia, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities.

12. AMERICANS WITH DISABILITIES ACT (ADA):

- A. Bidders shall comply with the provisions of the Americans with Disabilities Act (ADA) of 1990 which prohibits discrimination against individuals with disabilities.

13. USE OF DOMESTIC PRODUCTS:

- A. Section 39-3-1, Alabama Code, 1975, provides that the Contractor agree, in the execution of this Contract, to use materials, supplies and products manufactured, mined, processed or otherwise produced in the United States or its territories, if available at reasonable prices, and that breach of this Agreement by the Contractor shall result in the assessment of liquidated damages in an amount not less than \$500.00 nor more than twenty (20) percent of gross amount of the Contract Price.

14. NON-RESIDENT (OUT OF STATE) CONTRACTORS:

- A. Preference to Resident Contractors: Section 39-3-5, Code of Alabama, 1975, provides that a non-resident (out of State) bidder domiciled in a state which grants a preference to local Contractors is to be awarded a public contract on the same basis as the non-resident bidder's state awards contracts to Alabama bidders. Alabama bidders are

given a preference to the same extent that a non-resident bidder receives a preference in his home state. A non-resident bidder must include with any written bid documents a written opinion of an attorney licensed to practice in the non-resident bidder's state declaring what preferences, if any, exists in the non-resident's state.

- B. Certificate of Authority: All non-resident (out of State) bidders shall be registered with the Alabama Secretary of State and the Alabama Department of Revenue prior to submitting a Bid. Provide the Secretary of State Business "Entity ID Number" on the Bid Form in the space provided.

15. ALABAMA IMMIGRATION ACT:

- A. The State of Alabama Immigration Law (Act No. 2011-535 as amended by Act No. 2012-491), requires that Contractors not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. In addition, Contractors are required to enroll in the federal E-Verify program and submit verification of enrollment to the City of Mobile within ten (10) days of receiving the contract forms (see Section 00600).

16. CITY OF MOBILE BUSINESS LICENSE:

- A. A City of Mobile Business License is required and must be current at time of contract award and throughout contract period.

17. CITY OF MOBILE CONTRACTOR'S BUSINESS LICENSE:

- A. A City of Mobile Contractor's Business License is required and must be current when contractor signs the contract and throughout contract period.
- B. Contractor must qualify and post a \$10,000 surety bond with the Land Use/Code Administration Department before a Contractor's Business License will be issued by the Revenue Department. Information on the City Contractor's License may be obtained by writing or calling:

Land Use/Code Administration
P.O. Box 1827
Mobile, Alabama 36633-1827
Phone: 251-208-7421

Revenue Department
P.O. Box 1827
Mobile, Alabama 36633-1827
Phone: 251-208-7461

18. CITY OF MOBILE BUILDING PERMIT:

- A. A City of Mobile Building Permit/Electrical Permit/Plumbing Permit/HVAC Permit/Whatever Permit is required and shall be obtained from the Land Use/Code Administration Department, but at no cost to the Contractor.
- B. Contractor is responsible for ensuring that all inspections are successfully performed in accordance with City of Mobile regulations.

19. CONSTRUCTION SCHEDULE AND ACCESS:

- A. The project shall be completed within two hundred seventy (270) calendar days from the date indicated by the Notice to Proceed.
- B. At all buildings that will remain in use throughout the Construction period, the Contractor is directed to coordinate all areas of work and scheduling of work with the Owner. Within five days of the bid opening, the Apparent Low Bidder shall meet with the Owner to discuss Owner scheduling and priorities. Apparent Low Bidder shall then provide a proposed schedule within 5 calendar days of the initial meeting for Owner review and approval.
- D. The Contractor may be allowed additional construction days due to inclement conditions (“rain days”) only as such are appropriately documented and are in excess of the NOAA/National Weather Service average (previous 5 years) for the given month. A “rain day” is defined as more than a “trace” (0.10”) of rain falling within a given 24 hour period. The Contractor shall provide documentation and formally request any “rain days” they feel are legitimately due. Documentation shall be submitted to the Project Manager, in writing, within ten (10) calendar days of the rain event. Claim shall include documentation of trades adversely impacted and the impacted activities of each trade.

20. SITE CONSIDERATIONS:

- A. It is the Contractor’s responsibility to carefully remove and store any items not permanently installed within the work areas. We strongly recommend that the Contractor photograph, videotape or in some manner document any features to be removed and their condition, prior to removal.
- B. Noise and strong smells shall be isolated or kept to a minimum when adjacent portions of the site are occupied.
- C. Contractor shall be responsible to leave the work area and adjacent site clear of equipment and debris, etc. at the end of each work day. All final cleaning is the responsibility of the Contractor and shall be executed prior to acceptance for reuse of any portion of the site.
- D. A dumpster and lay down area for Contractor materials and staging may be located at the site and located per the direction of the Owner. The Contractor is responsible for the removal of the dumpster, any storage containers and any security fencing, temporary erosion control (BMPs), etc. as soon as practical after their use by the Contractor or the work is complete.

21. SALES AND USE TAX EXEMPTION:

- A. As per the State of Alabama ACT 2013-205, the Alabama Department of Revenue (ADOR) has been granted the authority to issue a “Certificate of Exemption from Sales and Use Tax for Governmental Entities” on construction projects. Therefore, this project shall qualify for State of Alabama Sales and Use Tax Exemptions under this ACT. It is the responsibility of the Bidder to confirm the potential tax exempt status of their bid with

the ADOR and include any such savings in their bid, as well as accounting for same on their bid form attachment Sales Tax Form C-3A.

- B. The full text of ACT 2013-205 is available on the State of Alabama Building Commission web-site at www.bc.alabama.gov .

22. SUBMISSION OF LIEN WAIVERS AND DBE COMPLIANCE, UTILIZATION REPORTS:

- A. At each monthly Application for Payment submitted to the owner, the Contractor shall provide completed “City of Mobile DBE Compliance, Utilization Reports” and lien waivers, including those from Subcontractors and material suppliers.

23. NOTICE OF COMPLETION:

- A. For Contracts \$50,000 or greater:
Contractor shall provide proof of publication of Advertisement of Completion for four consecutive weeks in a local newspaper, as required in the Title 39, Section 39-1-1, Subsection (f), of the Code of Alabama. This Advertisement shall not begin until the Project has been accepted by the City of Mobile.
- B. Notice of Completion advertisement shall read as follows:

STATE OF ALABAMA

COUNTY OF MOBILE

NOTICE OF COMPLETION

In accordance with Chapter 1, Title 39, Code of Alabama, 1975, NOTICE IS HEREBY given that (COMPANY NAME) has completed the contract for Langan Park – Amphitheater Pavilion & Restrooms, 4901 Zeigler Boulevard, Mobile, Alabama 36608 and Public Safety Memorial Park – Restroom, Skateboard Park, & Splashpad, 2301 Airport Boulevard, Mobile, Alabama 36606. All persons having any claims for labor, material or otherwise in connection with this project should immediately notify the Architectural Engineering Department, City of Mobile, P.O. Box 1827, Mobile, Alabama 36633-1827.

- C. Advertisement shall not begin until the Project has been accepted by the City of Mobile as Substantially Complete.

24. CONTRACTOR WARRANTY AND CERTIFICATION:

- A. Upon completion of the contract, the Contractor shall certify under oath that all bills have been paid in full.
- B. Contractor shall provide a one year Labor and Materials Warranty on company letterhead in addition to other warranties required by the Bid Documents.

25. LIQUIDATED DAMAGES

- A. A time charge equal to Two Hundred Fifty Dollars (\$250.00) per calendar day will be made against the Contractor for the entire period that any part of the Work remains uncompleted, or any required closeout documents are not acceptably submitted, for more than thirty (30) calendar days after the time specified for the Substantial Completion for the Work, the amount of which shall be deducted by the owner, and shall be retained by the Owner out of monies otherwise due the Contractor in the final payment, not as a penalty, but as liquidated damages sustained.

END OF SECTION

SECTION 00400

BID FORM

Copies of the following Bid Forms shall be used. Bids submitted on alternate forms may be rejected. Fill in all blank spaces with an appropriate entry. Bid Form must be signed by an officer of the company and notarized.

TO: City of Mobile, 205 Government St., P.O. Box 1827, Mobile, AL, 36633

REF: PROJECT NO.: PR-031-21
PROJECT NAME: Langan Park – Amphitheater Pavilion & Restrooms
PROJECT LOCATION: 4901 Zeigler Boulevard
Mobile, Alabama, 36608

And

PROJECT NO.: PR-093-21
PROJECT NAME: Public Safety Memorial Park – Restroom, Skateboard Park, & Splashpad
PROJECT LOCATION: 2301 Airport Boulevard
Mobile, Alabama, 36606

In compliance with the Bid Documents and having carefully and thoroughly examined said documents for the subject Work prepared by the City of Mobile, Architectural Engineering Department and Consultant dated March 24, 2021; and all Addendum (a) Number(s) _____, dated _____, 2021 (CAUTION: before submitting any bid it is the Bidder's responsibility to check with the Architectural Engineering Department for all Addenda or special instructions that may impact the Bid) thereto, receipt of which is hereby acknowledged, the premises and all conditions affecting the Work prior to making this Proposal, the Undersigned Bidder, hereby

COMPANY NAME: _____

ADDRESS: _____ **PHONE** _____

ALABAMA GENERAL CONTRACTOR LICENSE NO. _____

CITY OF MOBILE BUSINESS LICENSE NO. _____

SECRETARY OF STATE OF ALABAMA BUSINESS IDENTITY NO. _____

SECRETARY OF STATE OF ALABAMA ACCOUNT NO. _____

(Note: Secretary of State Account Number shall be filled in only by non-resident bidders)

City of Mobile (COM)
Langan Park – Amphitheater Pavilion & Restrooms
Public Safety Memorial Park – Restroom,
Skateboard Park, & Splashpad

TAG 2113
COM Project PR-031-21
COM Project PR-093-21

(Check one) A Corporation A Partnership An Individual Doing Business

hereby proposes to furnish all labor, materials, tools, equipment, and supplies and to sustain all the expenses incurred in performing the Work on the above captioned Project in accordance with the terms of the Contract Documents, and all applicable laws and regulations for the sum listed below. The initial term of the Contract shall extend for two hundred seventy (270) calendar days from the date of the Notice to Proceed.

<u>Langan Park Base Bid:</u>	\$	_____	.00
<u>Contingency Allowance:</u>	+	\$	25,000.00
<u>Site Work Allowance:</u>	+	\$	25,000.00
<u>Langan Park Total Base Bid:</u>	\$	_____	.00

_____ Dollars, (\$ _____ .00)
(Amount in Words) (Amount in Figures)

<u>Public Safety Memorial Park Base Bid:</u>	\$	_____	.00
<u>Contingency Allowance:</u>	+	\$	25,000.00
<u>Public Safety Memorial Park Park Total Base Bid:</u>	\$	_____	.00

_____ Dollars, (\$ _____ .00)
(Amount in Words) (Amount in Figures)

TOTAL BASE BID LANGAN PARK PLUS PUBLIC SAFETY MEMORIAL PARKS:

_____ Dollars, (\$ _____ .00)
(Amount in Words) (Amount in Figures)

Unit Price #1: Provide and install one (1) trash receptacle, model #CL-36R14 by Ultrasite, surface mounted to the concrete, per the specifications. Include placement, fasteners and all other necessary construction components for installation.

\$ _____ EA

Unit Price #2: Unsuitable Soil Material – Cubic Yards In Place, includes excavation, haul off and disposal of unsuitable material.

\$_____ CYIP

Unit Price #3: Structural Fill – Cubic Yards In Place, Provide and Install Imported Structural Fill, spread, compaction, and all other necessary construction components for installation.

\$_____ CYIP

Unit Price #4: Provide and install 4” concrete flatwork (sidewalks, fountain pads, etc) per detail. Include excavation, fill, compaction, grading, concrete, reinforcement, disposal, placement, and all other necessary construction components for installation.

\$_____ SF

Unit Price #5: Demolish and properly dispose offsite existing concrete flatwork (sidewalks) as specified on drawings. Include excavation, sawing, jack hammering, loading, haul off site, and proper disposal.

\$_____ SF

Unit Price #6: Provide and install Asphalt Patch as specified. Include excavation, fill, compaction, grading, disposal, placement, footings, and all other necessary construction components for installation.

\$_____ SY

Unit Price #7: Provide and install solid sod, Bermuda. Include grading, placement, and all other necessary construction components for installation.

\$_____ SY

Unit Price #8: Provide and install fascia wood at the Pavilion. Include removal, new material, placement, and all other necessary construction components for installation.

\$_____ 10 LF

Unit Price #9: Provide and install modified Bitumen roofing at the Pavilion. Include removal, new material, placement, and all other necessary construction components for installation.

\$_____ Roll Width x 10 LF

Unit Price #10: Provide and install roof decking at toilet renovation. Include removal, new material, placement, and all other necessary construction components for installation.

\$_____ 32 SF

Unit Price #11: Unclassified Excavation – Provide excavation and off-site disposal of unclassified excavation material.

\$_____ CY

Unit Price #12: Undercut Excavation – Provide excavation and off-site disposal of undercut excavation material.

\$_____ CY

Unit Price #13: Barrow Excavation – Provide off-site select borrow compacted in place. Measurement shall be by in-place survey.

\$_____ CY

Unit Price #14: Topsoil from Stockpile – Provide Topsoil from stockpile 6” thickness compacted in place.

\$_____ CY

Unit Price #15: Barrow Excavation, Backfill Material – Provide off-site select borrow, Loose granular soil backfill material, compacted in place.

\$_____ CY

Unit Price #16: 8” Storm Sewer Pipe (PVC).– Provide 8” Storm Sewer Pipe (PVC) with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10’-0” maximum depth.

\$_____ LF

Unit Price #17: 15” Storm Sewer Pipe (PVC).– Provide 8” Storm Sewer Pipe (PVC) with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10’-0” maximum depth.

\$_____ LF

Unit Price #18: 15” Storm Sewer Pipe (RC).– Provide 8” Storm Sewer Pipe (RC) in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10’-0” maximum depth.

\$_____ LF

Unit Price #19: Loose Riprap with Filter Fabric – Provide Loose Riprap with Filter Fabric in place. Measurement shall be by in-place survey.

\$_____ SY

Unit Price #20: Grate Inlet – Provide Grate Inlet (all Pipe Sizes) in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10 ft maximum depth.

\$_____ EA

Unit Price #21: Storm Sewer Cleanout – Provide Storm Sewer Cleanout with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10 ft maximum depth.

\$_____ EA

Unit Price #22: 6” Underdrain Pipe – Provide 6” Underdrain Pipe with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils).

\$_____ LF

Unit Price #23: Concrete Curb and Gutter – Provide 6” Underdrain Pipe with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils).

\$_____ LF

Unit Price #24: Concrete Header Curb – Provide Concrete Header Curb in place
\$_____ LF

Unit Price #25: Water Pipe, 8” Ductile Iron – Provide 8” Ductile Iron Water Pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). Cover 30” minimum, 60” maximum.
\$_____ LF

Unit Price #26: Water Pipe, 6” Ductile Iron – Provide 6” Ductile Iron Water pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). Cover 30” minimum, 60” maximum.
\$_____ LF

Unit Price #27: 8” Gate Valve and Box – Provide 8” Gate Valve and Box in place
\$_____ EA

Unit Price #28: 6” Gate Valve and Box – Provide 8” Gate Valve and Box in place
\$_____ EA

Unit Price #29: Fire Hydrant – Provide Fire Hydrant with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils).
\$_____ EA

Unit Price #30: 6” Ductile Iron Sanitary Sewer Pipe – Provide 6” Ductile Iron Sanitary Sewer Pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth.
\$_____ LF

Unit Price #31: 6” PVC Sanitary Sewer Pipe – Provide 6” PVC Sanitary Sewer Pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth.
\$_____ LF

Unit Price #32: Sanitary Sewer Cleanout – Provide Sanitary Sewer Cleanout with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth.
\$_____ EA

Unit Price #33: Sanitary Sewer Manhole – Provide Sanitary Sewer Manhole with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth.
\$_____ EA

Unit Price #34: Erosion Control Blanket – Provide Erosion Control Blanket, ALDOT Type S3 in place. Includes staking and all accessories for complete installation.
\$_____ SY

(Note: Show amount in both words and figures. In case of discrepancy, the amount in words shall govern). **Bids shall be provided in whole dollar amount with no cents.**

LANGAN PARK CONTINGENCY ALLOWANCE: \$25,000.00 lump sum Contingency Allowance shall be included in the Total Bid for work related to unforeseen conditions as approved by the Owner.

LANGAN PARK SITE WORK CONTINGENCY ALLOWANCE: \$25,000.00 lump sum Contingency Allowance shall be included in the Total Bid for work related to unforeseen conditions to the site as approved by the Owner.

PUBLIC SAFETY MEMORIAL PARK CONTINGENCY ALLOWANCE: \$25,000.00 lump sum Contingency Allowance shall be included in the Total Bid for work related to unforeseen conditions as approved by the Owner.

BID SECURITY: The undersigned Bidder agrees that the attached Bid Security, as a Cashier's Check drawn on a bank registered to do business in the State of Alabama and which is a member of the Federal Deposit Insurance Corporation, or a Bid Bond, made payable to the City of Mobile, in the amount of 5% of the bid amount, but in no event more than \$10,000, as the proper measure of liquidated damages which the City will sustain by the failure of the undersigned to execute the Contract. Said Bid Security shall become the property of the City of Mobile as liquidated damages as specified in the Contract Documents.

AMERICANS WITH DISABILITIES ACT (ADA): The undersigned Bidder agrees to fully comply with all requirements of the Americans with Disabilities Act of 1990 and the Amendment Act.

NONDISCRIMINATION: Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, *inter alia*, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability, require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities.

SIGNATURE: If the undersigned Bidder is incorporated, the entire legal title of the company followed by "a corporation" should be used. If Bidder is an individual, then that individual's full legal name followed by doing business as (d/b/a) and name of firm, if any, should be used. If Bidder is a partnership, then full name of each partner should be listed followed by "d/b/a" and name of firm, if any.

Ensure that name and exact arrangement thereof is the same on all forms submitted with this Bid. If a word is abbreviated in the official company name, such as "Co.", then use that abbreviation. If not abbreviated in the official name, spell out.

City of Mobile (COM)
Langan Park – Amphitheater Pavilion & Restrooms
Public Safety Memorial Park – Restroom,
Skateboard Park, & Splashpad

TAG 2113
COM Project PR-031-21
COM Project PR-093-21

Bidder agrees not to revoke or withdraw this Bid until sixty (60) calendar days following the time and date for receipt of bids. If notified in writing of the acceptance of this Bid within this time period, Bidder agrees to execute a Contract based on this Bid on the proscribed form within ten (10) calendar days of said notification and to furnish Performance Bond and Materials and Payment Bond as specified.

COMPANY NAME: _____
(Printed or Typed)

BY: _____
(Signature of Company Officer)

COMPANY OFFICER: _____
(Printed or Typed)

TITLE _____ **DATE** _____, 2022
(Printed or Typed)

Sworn to and subscribed before me this _____ day of _____ 2022.

Notary Public

- Attachments:
1. Bid Security, with Power of Attorney
 2. Secretary of State Authorization (Out of state bidders only)
 3. Sales Tax Form C-3A
 4. Supplier Diversity Subcontracting & Major Supplier Plan

END OF BID FORM

**ACCOUNTING OF SALES TAX
ATTACHMENT TO BID FORM SECTION 00400
SALES TAX FORM C-3A**

To: City of Mobile

Date: _____

Name of Project: LANGAN PARK – AMPHITHEATER PAVILION & RESTROOMS
Project Number: PR-031-21

Name of Project: PUBLIC SAFETY MEMORIAL PARK – RESTROOM, SKATEBOARD
PARK, & SPLASHPAD
Project Number: PR-093-21

SALES TAX ACCOUNTING

Pursuant to Act 2013-205, Section 1(g) the Contractor accounts for the sales tax NOT included in the bid proposal form as follows:

ESTIMATED SALES TAX AMOUNT

LANGAN PARK BASE BID: \$ _____

PUBLIC SAFETY MEMORIAL PARK BASE BID: \$ _____

Failure to provide an accounting of sales tax shall render the bid non-responsive. Other than determining responsiveness, sales tax accounting shall not affect the bid pricing nor be considered in the determination of the lowest responsible and responsive bidder.

Legal Name of Bidder _____

Mailing Address _____

***By (Legal Signature)** _____

*Name (type or print) _____ (Seal)

*Title _____

Telephone Number _____



OFFICE OF SUPPLIER DIVERSITY
CITY OF MOBILE

Subcontracting and Major Supplier Plan

Contact Office of Supplier Diversity for questions on completing this form.
Via email: Archonique.kidd@cityofmobile.org
251.208.7967
205 Government Street, 5th Floor

Bidders and Proposers – Please complete and submit these forms as required by your City of Mobile Bid or Proposal Specification.

If you are submitting a proposal in response to a Request for Qualifications, Request for Proposal, or other solicitation (“Solicitations”) issued by the City of Mobile, the bid specification may require you to utilize disadvantaged business enterprise (“DBE”) subcontractors and suppliers. If DBE participation is required, you must complete and submit these forms with your proposal. If required, failure to submit this form will render your bid non-responsive. NOTE: To satisfy participation requirements for a federally funded project, you must utilize DBEs certified through the Alabama Unified Certification Program.

If DBE participation is required, and you fail to satisfy the participation requirement, you must show that you made a good faith effort to include such participation; you will be required to submit DBE Compliance Form 2 and include additional information if needed. When so required, failure to address adequately the good faith effort factors on Form 2 will render your bid or proposal non-responsive. The “good faith effort” factors on Form 2 are not intended to be a mandatory, exhaustive, or exclusive.

You are encouraged to work with the City of Mobile Supplier Diversity Manager when preparing this form. Please consult with the City Supplier Diversity Manager for a list of eligible DBEs. The “good faith effort” factors on **Form 2** are not intended to be mandatory, exhaustive, or exclusive; they are a tool to help you, and the City of Mobile, determine whether you made efforts which, by their scope, intensity, and appropriateness to the objective, would reasonably be expected to fulfill the participation requirement.

About “**DBEs**”: Disadvantaged business enterprise or DBE means a for-profit small business concern (1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and (2) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

About “**Good Faith**” **Effort**: Good faith efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. The City of Mobile expects contractors holding large contracts to recruit and engage DBEs to be a part of their team.

Failure to submit this form, when so required by the bid or proposal specification, will render your bid non-responsive.



OFFICE OF SUPPLIER DIVERSITY
CITY OF MOBILE

Subcontracting and Major Supplier Plan

Contact Office of Supplier Diversity for questions on completing this form.
Via email: Archonique.kidd@cityofmobile.org
251.208.7967
205 Government Street, 5th Floor

FORM 1: Background and Plan

Section I. Information about your company

Company	
Address	
Telephone	
E-Mail	

RFP/RFQ Solicitation Number	
Project Description	
Is your company a DBE company?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Work force demographics	Male _____ Female _____ Minority _____ Non-minority _____ SDVO _____
Total #of Employees	_____

Subcontractor/Major Supplier Plan submitted by:

Printed Name: _____

Signature: _____ Date: _____

Title: _____

The following employee will be designated as the **DBE Liaison** for all communication regarding DBE participation including documentation for DBE participation and maintenance of records of Good Faith Efforts for this contract award:

Name: _____ Title: _____

Email: _____ Phone: _____



OFFICE OF SUPPLIER DIVERSITY
CITY OF MOBILE

Subcontracting and Major Supplier Plan

Form 2: Good Faith Effort Documentation

Name of Bidder: _____

Contact Person: _____ Phone _____ Email _____

Please complete this form if you are unable to identify DBE subcontractors or suppliers to reach 15% of the value of your bid.

YES <input type="checkbox"/>	NO <input type="checkbox"/>	Did you do these suggested areas for DBE recruitment and engagement
		PRE-BID MEETING(S): The bidder attended all pre-bid meetings scheduled by the City to inform DBEs of contracting and subcontracting opportunities.
		CMDBE/ALDOT DBE LIST(S): The bidder utilized the Office of Supplier Diversity's list or lists of certified through the Alabama Department of Transportation UCP DBE Listing
		SMALL CONTRACT(S): The bidder selected specific portions of the work to be performed by DBEs in order to increase the likelihood of meeting the DBE goals (including breaking down contracts into smaller units to facilitate DBE participation). Consider support services, including insurance, accounting, temporary labor, and transportation, landscaping, and janitorial as potential areas for DBE use.
		FOLLOW-UP: The bidder followed-up initial indications of interest by DBEs by contacting those DBEs to determine with certainty if they remained interested in bidding.
		GOOD FAITH NEGOTIATIONS: The bidder negotiated in good faith with interested DBEs and did not reject DBEs as unqualified without sound business reasons based on a thorough investigation of their capabilities. Bidders are not expected to engage unqualified subcontractors or subcontractors whose pricing, after negotiation, remains excessive or unreasonable. (Please document qualification deficiencies or unreasonable pricing if it prevented your engagement of specific DBE subcontractors.)
		ADVERTISEMENT: The bidder advertised in general circulation and/or trade association publications concerning subcontracting opportunities and allowed DBEs reasonable time to respond.
		INTERNET ADVERTISING: The bidder advertised DBE and/or subcontracting opportunities in the newspaper or other internet portals that are accessible to DBEs and/or potential subcontractors.



OFFICE OF SUPPLIER DIVERSITY
CITY OF MOBILE

Subcontracting and Major Supplier Plan

		INFORMATION: The bidder provided interested DBEs with adequate information about the plans, specifications and requirements of the subcontract.
		WRITTEN NOTICE(S): The bidder/proposer took the necessary steps to provide written notice in a manner reasonably calculated to inform DBEs of subcontracting opportunities and allowed sufficient time for them to participate effectively.
		COMMUNITY RESOURCES: The bidder/proposer used the services of available community organizations, small and/or disadvantaged business assistance offices and other organizations that provided assistance in the recruitment and placement of DBE firms.

CONTRACT RECORDS:

The bidder/proposer has maintained the following records for each DBE that has bid on the subcontracting opportunity:

1. Name, address, email address and telephone number
2. A description of information provided by the bidder/proposer or subcontractor; and
3. A statement of whether an agreement was reached, and if not, why not, including any reasons for concluding that the DBE was unqualified to perform the job.

Section 2(B)

_____ There are not ways to break out 15% of the value of this contract for subcontractors / suppliers. Provide further detail in Section 2(c) if the inability to break-out 15% of the value of the contract was the reason, or a reason, you could not meet the participation requirements.

_____ Could not find sufficient DBEs to provide subcontracting or supplier services.

_____ DBEs were available but did not have sufficient qualifications or experience to meet the needs of this contract. Please indicate additional efforts you have taken to recruit and engage DBEs. _____

SECTION 00200
AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR A STIPULATED SUM

PART 1 GENERAL

A. This section includes the AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR A STIPULATED SUM, AIA Document A101 to be utilized with the Owner's most recent modifications and which shall be used in conjunction with the entire Bid Documents.

AIA[®] Document A101[®] – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

City of Mobile
P. O. Box 1827
Mobile, Alabama 36633-1827

and the Contractor:
(Name, legal status, address and other information)

City of Mobile Business License Number:
Secretary of State Registration Number:

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

City of Mobile
Architectural Engineering Department
P. O. Box 1827
Mobile, Alabama 36633-1827

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®-2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®-2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.

TABLE OF ARTICLES

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS, INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others (See attachment Exhibit A).

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

A date set forth in a notice to proceed issued by the Owner.
(Paragraphs deleted)

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check one of the following boxes and complete the necessary information.)

Not later than () calendar days from the date of the Notice to Proceed for commencement of the Work.

(Table deleted)

(Paragraph deleted)

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor’s performance of the Contract. The Contract Sum shall be ___ and 00/100 Dollars (\$ ___.00), subject to additions and deductions as provided in the Contract Documents.

Base Bid: \$
Contingency Allowance: \$
Total Contract Sum: \$

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price
------	-------

(Table deleted)

(Paragraphs deleted)

§ 4.3 Allowances, if any, included in the Contract Sum:

(Identify each allowance.)

Contingency Allowance: and 00/100 Dollars (\$000.00)

- A. Contingency Allowance shall cover cost of material, labor, overhead, profit and other expenses for complete installation of items of additional work as required for a complete, functional project.
- B. Contingency Allowance shall be used for unforeseen conditions not covered in the construction documents.
- C. All extra work under this section must be authorized by the Owner, in writing, prior to materials or undertaking work.
- D. Upon completion of the Work, the unused portion of the Allowance shall be credited back to the Owner in the form of a Change Order.
- E. Allowances are subject to the same provision of AIA 201 Article 7.3.7.

§ 4.4 Unit prices, if any:

(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.5 Liquidated damages:

(Insert terms and conditions for liquidated damages, if any.)

A time charge equal to Two Hundred Fifty and 00/100 Dollars (\$250.00) per calendar day will be made against the Contractor for the entire period that any part of the Work remains uncompleted or any required closeouts documents are not acceptably submitted for more than thirty (30) days after the date specified for the substantial Completion of the Work, the amount of which shall be deducted by the owner, and shall be retained by the Owner out of monies otherwise due the Contractor in the final payment, not as a penalty, but as liquidated damages sustained.

(Paragraphs deleted)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the 25th of the month.

§ 5.1.3 Provided that an Application for Payment in acceptable format is received by the Architect not later than the first 1st day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the tenth 10th day of the following month. If an Application for Payment in acceptable format is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than forty (40) days after the Architect receives the Application for Payment.

(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This accepted schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201, General Conditions of the Contract for Construction (including Owner's then-current modifications), and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

- .1 That portion of the Contract Sum properly allocable to completed Work;
- .2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing and insured as specified;
- .3 Completed work shall be determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

- .1 The aggregate of any amounts previously paid by the Owner;
- .2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201-2017;
- .3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;
- .4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201-2017; and
- .5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.6.3 Any Progress Payment shall include partial release of liens for material and labor for previous application for payment amount approved and paid. The DBE Utilization Report shall be included with the pay application.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Five percent (5%) of the first fifty percent (50%) of the completed work and after fifty percent (50%) completion has been accomplished, no further retainage shall be held from the original Contract Sum. Increases in the contract sum by Change Order shall also be subject to retainage.

§ 5.1.7.1.1 The following items are not subject to retainage:

(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

N/A

(Paragraphs deleted)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:

(Insert any other conditions for release of retainage upon Substantial Completion.)

The net amount of the Retainage shall be equal to two and one half percent (2.5%) of total Contract Sum, as increased or decreased by Change Order.

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final monthly progress payment, constituting the entire unpaid balance of the Contract Sum, less retainage, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201 (including Owner's then-current modifications which may be obtained from the Owner or, alternatively, a copy of which is incorporated in the Project Manual and incorporated by reference herein as a part thereof), and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a Certificate of Substantial Completion has been issued by the Architect/Owner and the project accepted.

§ 5.2.2 The Owner's final payment to the Contractor of retainage shall be made as follows:

The final two and one half percent (2.5%) of the total Contract Sum retained will not be paid until proof of publication is submitted and all written claims paid in full. Contractor to submit the following:

- Contractor's Affidavit of Payment of Debts and Claims (AIA form G706, included in contract documents) with
 - a.) Contractor's Release or Waiver of Liens
 - b.) Releases or Waivers of Liens from Subcontractors and Material and Equipment Suppliers;
- Contractor's Affidavit of Release of Liens (AIA form G706A, included in contract documents);
- Consent of Surety, if any, to final payment (AIA form G707, included in contract documents);
- Any additional close out requirements per the contract documents; and
- Notarized Affidavit of Notice of Completion advertisement from publisher.

Contractor shall provide proof of publication of Notice of Completion in a local newspaper once per week for four (4) consecutive weeks, as required in the Title 39, Section 39-1-1, Subsection (f), of the Code of Alabama quoted below.

"The Contractor shall, immediately after the completion of the contract, give notice of Completion by an

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advertisement in a newspaper of general circulation published within the city or county in which the work has been done, for a period of four (4) consecutive weeks. A final settlement shall not be made upon the contract until the expiration of thirty (30) days after the completion of the notice. Proof of publication of the notice shall be made by the contractor to the authority by whom the contract was made by affidavit of the publisher and a printed copy of the notice published. If no newspaper is published in the county in which the work is done, the notice may be given by the contract." (Acts 1927, No. 39, 9.37; Acts 1935, No. 39, 9. 70; Code 1940, T. 50, Section 16; Acts 1983, No. 83-737, 9.1203; Acts 1989, No. 89-650m 9. 1284, Section 1; Acts 1994, No. 94-207, p, 270, Section 1; Acts 1997, No. 97-225, p. 348, Section 1.)

The Notice of Completion shall read as follows:

STATE OF ALABAMA
COUNTY OF MOBILE
NOTICE OF COMPLETION

In accordance with Chapter I, Title 39, Code of Alabama, 1975, NOTICE IS HEREBY given that () has completed the contract for (). All persons having any claims for labor, material or otherwise in connection with this project should immediately notify the Architectural Engineering Department, City of Mobile, P. O. Box 1827, Mobile, Alabama 36633-1827.

Publication of the Notice of Completion shall not begin until the Project has been accepted as Substantially Complete by the City of Mobile.

(Paragraphs deleted)

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Engineer will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.

(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

N/A

§ 6.2 Binding Dispute Resolution

For any Claim, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

Litigation in a court of competent jurisdiction

§ 6.3 Governing Law and Venue

(Paragraph deleted)

This Agreement shall be governed by the laws of the State of Alabama, and the appropriate venue of any actions arising out of this Agreement shall be a court of proper jurisdiction in Mobile, Alabama.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201, General Conditions of the Contract for Construction, including Owner's then-current modifications, a copy of which is incorporated in the contract documents and incorporated by reference herein as a part thereof.

(Paragraphs deleted)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201, General Conditions of the Contract for Construction, including Owner's then-current modifications, a copy of which is incorporated in the contract documents and incorporated by reference herein as a part thereof.

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ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents. A copy of such amended, revised or supplemental provision is incorporated in the contract documents and hereby incorporated by reference herein as a part thereof.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

Director of Real Estate Asset Management Department
P. O. Box 1827
Mobile, Alabama 36633-1827

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten (10) days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth below:
The Contractor shall purchase and maintain from a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18 of the General Conditions of the Contract for Construction.

The Contractor shall take out and maintain during the life of the Contract no less than the following amounts of insurance with the City of Mobile named as an additional insured. Contractor shall submit a Certificate of Insurance. Insurance companies listed as the "Companies Affording Coverage" shall be authorized by the Secretary of the State of Alabama. Insurance produced out of the State of Alabama must be signed or counter signed by a licensed Agent of Alabama, with the Agent's name, address and telephone number typed or printed on the face of the Certificate of Insurance.

- .1 Workmen's Compensation Insurance: - Statutory-amount and coverage as required by all applicable laws, rules or regulations of the State of Alabama and the United States of America, Including the U. S. Longshore and Harbor Workers Act and the Jones Act, if applicable.
- .2 Employee's Liability Insurance shall be provided for limits of liability not less than:

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- A. Bodily Injury by Accident \$1,000,000 each accident
 - B. Bodily Injury by Disease \$1,000,000 each employee
 - C. Bodily Injury by Disease \$1,000,000 each policy
- .3 United States Longshoreman's Harbor Worker's Act.
- .4 Jones Act Coverage (if applicable) placed either in the Workers Compensation or through the Marine General Liability.
- .5 The Contractor shall provide Broad Form (commonly termed Comprehensive) General Liability Insurance (including premises-product-completed operations, independent contractors, and blanket contractual liability), specifically covering the obligations assumed by the Contractor for limits of liability not less than:
- A. Bodily Injury \$1,000,000 each person
\$1,000,000 each occurrence
 - B. Property Damage \$1,000,000 each occurrence; or
 - C. Bodily Injury and Property Damage \$1,000,000 combined single limit
- .6 Such comprehensive policy shall include the following:
- A. All liability of the Contractor, for the Contractor's Direct Operations.
 - B. Subcontractor's Operations.
 - C. Completed Operations Cover, thereby meaning any loss which shall occur after the contract has been completed, but which can be traced back to the Contract.
 - D. General Aggregate Limit of \$2,000,000 shall apply on a "Per Project" Basis.
 - E. Contractual Liability, meaning thereby; any risk assumed by the Contractor under Hold Harmless Agreements or any other assumption of liability, but specifically items 11.1.1.8.3G herein below
 - F. Broad Form Property damage Coverage, including Completed Operations.
 - G. Personal Injury Liability, with employee's exclusions removed.
 - H. Explosion and Collapse Hazard:
Included or Not Applicable.
 - I. Underground Hazard:
Included or Not Applicable.
 - J. Marine General Liability shall include Premises and Operations, Personal and Advertising Injury, Products and Completed Operations, Protection and Indemnity including vessel and crew (if applicable).
 - K. Deletion of watercraft exclusion with respect to non-owned vessels and contractual Liability for watercraft exposure not covered by Protection and Indemnity policy.
 - L. The Marine General Liability policy must include an endorsement to cover "Sudden And Accidental Pollution."
- .7 The Contractor shall carry for himself and shall require that all Subcontractors and all Owners of Automobiles or trucks rented or hired on the contract carry, until the Contracts is completed, Comprehensive Automobile Liability Coverage for Bodily Injury and property. Damage for any auto in amounts not less than the minimum amounts as indicated. The Contractor and Subcontractor shall also carry for themselves insurance for all non-owned and hired automobile at the limits of liability as indicated below:
- A. Bodily Injury \$1,000,000 each person

- \$1,000,000 each occurrence
- B. Property damage \$1,000,000 each occurrence; or,
 C. Bodily Injury and Property damage \$1,000,000 combined single limit
- .8 Umbrella/Excess Liability: \$2,000,000 combined single limit each occurrence for bodily injury and/or property damage
- .9 Builder's Risk Coverage (Property Insurance): The Contractor shall carry for the Owner, himself, and all Subcontractors a Builder's Risk Policy to cover the full amount of the Contract during construction, fabrication or erection of any equipment.
- A. The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors, Sub-subcontractors, and the Design Professionals in the Project.
- B. Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.
- C. If the property insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles. Deductibles shall be limited to a maximum of \$2,500.00 unless the loss is caused by windstorm; then deductible shall be a maximum of three percent (3%) of the insured value.
- D. This property insurance shall cover the full value of equipment, material, and other portions of the Work stored off the site, and also portions of the Work in transit. There shall be no limits on the value of loss per occurrence.
- E. A named storm endorsement is required. The deductible shall be a maximum of three percent (3%) of the insured value.
- .10 A Surety authorized to do business in the State of Alabama shall furnish the required Insurance.
- .11 The standard ACORD™ format shall be provided. The ACORD™ Certificate must be signed or countersigned by a Licensed Resident Agent of the State of Alabama and the agent's name, address and telephone number must appear on the face of the certificate.
- .12 The Surety must have a minimum rating of A/Class VI as reported in the latest issue of Best's Key Rating Guide Property-Casualty, published by Alfred M. Best Company, Inc. if the bid price exceeds \$50,000.00.
- .13 "In Rem" endorsement.

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The insurance shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

Certificates of insurance acceptable to the Owner shall be filed with the Owner within ten (10) calendar days from date of issuance of contract forms for execution. Contractor shall deliver to the City of Mobile, certificates of insurance certifying the existence and limits of the insurance coverages along with separate policy endorsements. Contractor shall also be responsible for delivering policy renewal certificates to the City of Mobile, and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies shall contain a provision that coverages afforded under the policies will not be cancelled subject to non-renewal nor material change, or allowed to expire without at least thirty (30) days' (except ten (10) days from non-payment) prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the time. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

All policies of insurance, except worker's compensation, shall be endorsed to provide that all such insurances are primary and non-contributing with any other insurance maintained by the City of Mobile and endorsed to waive rights of subrogation in favor of the City of Mobile.

The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 8.5.2 The Contractor shall provide bonds as set forth below:

Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder.

Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

The Labor and Material Payment Bond and the Performance Bond shall each be for one hundred percent (100%) of the Contract Sum.

1. Bond shall be submitted with the executed agreement on provided form(s).
2. Power of Attorney is required for both bonds.
3. A Surety authorized to do business in the State of Alabama shall furnish both bonds.
4. A Surety licensed to do business in the State of Alabama must execute the bonds.
5. The Surety must have a minimum rating of A/Class VI as reported in the latest issue of Best's Key Rating Guide Property-Casualty, published by Alfred M. Best Company, Inc., if the bid price exceeds \$50,000.00.
6. The Surety company shall be required to execute AIA Document G-707, "Consent of Surety to Final Payment" prior to Final Payment being made to the Contractor.

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§ 8.6

(Paragraphs deleted)

Indemnification:

The Contractor shall indemnify, defend and hold harmless City and its officers, elected officials, agents, representatives, and employees in respect of any and all claims, injuries, losses, diminution in value, damages, liabilities, whether or not currently due, and related expenses (including without limitation, settlement costs and any legal or other expenses for investigating or defending any actions or threatened actions) arising from or in connection with the contractor’s performance under this agreement, including but not limited to, environmental laws, regulations, orders and decrees of whatever character or nature and damage or injury to persons or property. Contractor hereby confirms and agrees that Contractor is not a ‘design professional’ as defined in Alabama Act 2021-318, and not required to carry professional liability insurance for the performance or obligations of this contract.

§ 8.7 Other Provisions:

Contractor shall provide a minimum one (1) year warranty from the date of substantial completion of all Labor and Materials for the Work covered by this contract, unless otherwise specified. Labor and Material warranties required by other sections of the construction document shall not conflict with this provision. The most stringent warranty provision shall apply.

§ 8.8 Force Majeure:

In the event that either party hereto shall be delayed or hindered in or prevented from the performance of any act required hereunder by reason of strikes, lockouts, labor troubles, inability to procure materials, failure of power, restrictive governmental laws or regulations, riots, insurrection, war, Act of God, or other reason of a like nature not the fault of the party delayed in performing work or doing acts required under the terms of this Agreement, then performance of such act shall be excused for the period of the delay and the period for the performance of any such act shall be extended for a period equivalent to the period of such delay.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- .1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- .2 AIA Document A201, General Conditions of the Contract for

(Paragraphs deleted)

Construction, including Owner’s then-current modifications, a copy of which is incorporated in the contract documents and incorporated by reference herein as a part thereof.

(Paragraph deleted)

- .3 Drawings

Number	Title	Date
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- .4 Specifications

Section	Title	Date
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- .5 Addenda, if any:

Number	Date
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Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

- .6 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

(Paragraphs deleted)

§ 9.2

(Table deleted)

Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
N/A			

§ 9.2.1 Other documents, if any, listed below:

(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™-2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

BIDDING AND CONTRACT REQUIREMENTS

Section 00100	Invitation to Bid		
Section 00200	Instructions to Bidders-AIA Document A701-2018		
Section 00300	Supplementary Instructions to Bidders		
Section 00400	Bid Form		
	Accounting of Sales Tax Form C-3A		
	Supplier Diversity Subcontracting and Major Supplier Plan		
Section 00500	Standard Form of Agreement Between Owner and Contractor AIA Document A101		
Section 00600	Bonds, Certificates and Affidavits		
	Performance Bond		
	Labor and Material Payment Bond		
	E-Verify Documentation (Sample)		
	Application and Certificate for Payment-AIA Document G702and G703 with DBE Utilization Report		
	Certificate of Substantial Completion-AIA Document G704		
	Contractor's Affidavit of Payment of Debts and Claims- AIA Document G706		
	Contractor's Affidavit of Release of Liens-AIA Document G706A		
	Consent of Surety to Final Payment-AIA Document G707		
	Request for Taxpayer Identification Number and Certification W9 Tax Form and City of Mobile Vendor Information Form		
Section 00700	General Conditions of the Contract for Construction- AIA Document A201		

§ 9.2.2 Best Management Practices (BMPs):

The Contractor shall be responsible for providing, implementing and maintaining BMPs for sediment and erosion control in full compliance with all applicable Local, State and Federal Codes and Ordinances throughout the contract period. All Work shall be in accordance with the Clean Water Act; the Alabama Water Pollution Control Act; the current version of the Alabama Handbook for Erosion Control, Sediment Control Stormwater Management on Construction sites and Urban Areas; and the current version of the Mobile, Alabama City Code Chapter 17 Stormwater Management and Flood Control. All Waste water with oils, grease, paint, mortar, etc., shall be properly contained and disposed of.

§ 9.2.3 Contractor shall comply with all Federal, State and local laws concerning nondiscrimination, including but not limited to City of Mobile Ordinance No. 14-034 which requires, *inter alia*, that all contractors performing work for the City of Mobile not discriminate on the basis of race, creed, color, national origin or disability,

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require that all subcontractors they engage do the same, and make every reasonable effort to assure that fifteen percent of the work performed under contract be awarded to socially and economically disadvantaged individuals and business entities.

§ 9.2.4 By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

§ 9.2.5 Public Contracts with Entities Engaging in certain Boycott Activities:
By signing this contract, the Contractor further represents and agrees that it is not currently engaged in, nor will it engage in, any boycott of a person or entity based in or doing business with a jurisdiction with which the State of Alabama can enjoy open trade.

§ 9.2.6 Severability Clause:
In case any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provisions of this Agreement, but this Agreement shall be construed as if such invalid or illegal or unenforceable provision had never been contained herein. Upon such determination that any term or other provision is invalid, illegal or unenforceable, the court or other tribunal making such determination is authorized and instructed to modify this Agreement so as to effect the original intent of the parties as closely as possible so that the transactions and agreements contemplated herein are consummated as originally contemplated to the fullest extent possible.

§ 9.2.7 Non-Agency Clause:
Contractor, in the performance of its operations and obligations hereunder, shall not be deemed to be an agent of City but shall be deemed to be an independent Contractor in every respect and shall take all steps at its own expense, as City may from time to time request, to indicate that it is an independent Contractor. City does not and will not assume any responsibility for the means by which or the manner in which the services by Contractor provided for herein are performed, but on the contrary, Contractor shall be wholly responsible therefore.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

This Agreement entered into as of the day and year first written above.

City of Mobile

Legal Name of Party to Contract:
Contractor:

OWNER *(Signature)*

CONTRACTOR *(By Signature)*

(Rows deleted)

William S. Stimpson, Mayor

(Printed name and title)

(Printed name and title)

ATTEST:

City Clerk

STATE OF
COUNTY OF

Before me, the undersigned a Notary Public in and for said County and State, personally appeared _____ as _____ of _____ and after being duly sworn, did depose and say that he, as such officer and with full authority, signed the above and foregoing voluntarily as the act of said corporation on the day the same bears date.

Sworn to and subscribed for me this _____ day of _____, 20_____

NOTARY PUBLIC

My Commission Expires: _____

SECTION 00600

BONDS, CERTIFICATES AND AFFIDAVITS

PART 1 GENERAL

This section includes the Bond Forms and Certificates that are to be used on this Project. No other forms will be accepted. Forms may be obtained from the Architectural Engineering Department, City of Mobile, telephone number 251-208-7454.

1.1 FORMS

- A. PERFORMANCE BOND. Owner's modified Performance Bond form.
- B. LABOR AND MATERIAL PAYMENT BOND. Owner's modified Payment Bond form.
- C. E-Verify Documentation (Sample)
- D. APPLICATION AND CERTIFICATION FOR PAYMENT - AIA Document G702 and AIA Document G703 and DBE Utilization Report
- E. CERTIFICATE of SUBSTANTIAL COMPLETION – AIA Document G704-2017
- F. CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS - AIA Document G706
- G. CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS - AIA Document G706A.
- H. CONSENT OF SURETY TO FINAL PAYMENT - AIA Document G707
- I. Request for Taxpayer Identification Number and Certification, W-9 Form, and City of Mobile Vendor Information Form

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner or other Party shall be considered plural where applicable.

KNOW ALL MEN BY THESE PRESENTS: That the Contractor, _____, _____, hereinafter called the Principal, and _____, hereinafter called the Surety, are held and firmly bound unto the **City of Mobile, P. O. Box 1827, Mobile, AL 36633**, hereinafter called the Owner, in the penal sum of _____ and xx/100 Dollars (\$_____.00) for payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns for the faithful performance of a certain written Contract dated the ____ day of _____, 2022 entered into between the Principal and the City of Mobile for furnishing all labor, material, equipment and insurance and performing all Work required to properly complete Langan Park – Amphitheater Pavilion & Restrooms (PR-031-21) 4901 Zeigler Boulevard, Mobile, Alabama, 36608 and Public Safety Memorial Park – Restroom, Skateboard Park, & Splashpad (PR-093-21) 2301 Airport Boulevard, Mobile, Alabama, 36606 a copy of which said Contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, the condition of this obligation is such that if the Principal shall faithfully perform the terms and conditions of the Contract in all respects on its part and shall fully pay all obligations incurred in connection with the performance of such Contract on account of labor and materials used in connection therewith, and all such other obligations of every form, nature and character, and shall save harmless the Owner from all and any liability of every nature, kind and character which may be incurred in connection with the performance or fulfillment of such Contract or other such and liability resulting from negligence or otherwise on the part of such Principal and further save harmless the Owner from all cost and damage which may be suffered by reason of the failure to fully and completely perform said contract and shall fully reimburse and repay the Owner for all expenditures of every kind, character, and description which may be incurred by the Owner in making good any and every default which may exist on the part of the Principal in connection with the performance of said Contract; and further that the Principal shall pay all lawful claims of all persons, firms, partnerships, or corporations for all labor performed and material furnished in connection with the performance of the Contract, and that the failure to do so with such persons, firms, partnerships or corporations shall give them a direct obligation; and provided, however, that no suit, action, or proceedings by reason of any default whatever shall be brought on this bond after two years from the date on which the final payment on the Contract falls due, and provided, further, that if any alterations or additions which may be made under the Contract, or in the work to be done under it, or the giving by the Owner of any extensions of time for the performance of the Contract or any other forbearance being expressly waived. This obligation shall remain in full force and effect until the performance of all covenants, terms and conditions herein stipulated and after such performance, it shall become null and void.

In addition to any other legal mode of service, service of summons, and other process in civil actions brought in Mobile County may be had on the Contractor or the Surety on the bond by leaving a copy of the summons and complaint or other pleading or process with the Mayor of the City of Mobile which shall bind the principal Contractor and Surety to the mode of service above described and that the service shall be the same as personal service on the contractor or surety. This Bond is given pursuant to the terms of Alabama Code, Title 39-1-1, et. al., As Amended.

EXECUTED IN FOUR (4) COUNTERPARTS.

SIGNED, SEALED AND DELIVERED this ____ day of _____, 2022.

CONTRACTOR AS PRINCIPAL
Company: _____
(Corporate Seal)

SURETY
Company: _____
(Corporate Seal)

By: _____
(Signature)

By: _____
(Signature)

Name and Title: _____

Name and Title: _____

Resident Agent: _____
(Signature)

Phone and Fax: _____

Name and Title: _____
Company Name: _____
Address: _____

Owner's Representative: Cassie Boatwright

REAM Director
PO Box 1827
Mobile, AL 36633
251-208-7454

LABOR AND MATERIAL PAYMENT BOND

Any singular reference to Contractor, Surety, Owner or other Party shall be considered plural where applicable.

KNOW ALL MEN BY THESE PRESENTS: That the Contractor, _____, _____, _____, as Principal, and _____, _____, _____, as Surety, are held and firmly bound unto the **City of Mobile, P. O. Box 1827, Mobile, AL 36633** (hereinafter called the "Obligee") in the penal sum of _____ and xx/100 (\$_____.00) lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has entered into a certain Contract with said Obligee, dated the ____ day of _____, 2021 (hereinafter called the "Contract") for furnishing all labor, material, equipment and insurance and perform all work required to properly complete Langan Park – Amphitheater Pavilion & Restrooms (PR-031-21) 4901 Zeigler Boulevard, Mobile, Alabama, 36608 and Public Safety Memorial Park – Restroom, Skateboard Park, & Splashpad (PR-093-21) 2301 Airport Boulevard, Mobile, Alabama, 36606, which, **THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH** that if said Principal and all subcontractors to whom any portion of work provided for in said Contract is sublet and all assignees of said Principal and of such subcontractors shall promptly make payments to all persons supplying him or them with labor, materials or supplies for or in the prosecution of the work provided for in such Contract, or in any amendment or extension of or additions to said Contract, and for the payment of reasonable attorney's fees, incurred by the claimant or claimants in suits on each bond, then the above obligations shall be void; otherwise to remain in full force and effect. **PROVIDED**, however, that this bond is subject to the following conditions and limitations.

- (a) Any person, firm or corporation that has furnished labor, materials or supplies for or in the prosecution of the work provided for in said contract shall have a direct right of action against the Principal and Surety on this bond, which right of action shall be asserted in a proceeding instituted in the County in which the work provided for in said Contract is to be performed or in any county in which said Principal and Surety does business. Such right of action shall be asserted in a proceeding instituted in the name of the claimant or claimants for his or their use and benefit against said Principal and Surety or either of them (but not later than one year after the final settlement of said Contract) in which action such claim or claims shall be adjudicated and judgment rendered thereon.
- (b) The Principal and Surety hereby designate and appoint _____ **Attorney-In-Fact**, as the agent of each of them to receive and accept service of process or other pleading issued or filed in any proceeding instituted on this bond and hereby consent that such service shall be the same as personal service on the Principal and/or Surety. In addition to any other legal mode of service, service of summons, and other process in civil actions brought in Mobile County may be had on the Contractor or the Surety on the bond by leaving a copy of the summons and complaint or other pleading or process with the Mayor of the City of Mobile which shall bind the principal Contractor and Surety to the mode of service above described and that the service shall be the same as personal service on the contractor or surety.
- (c) The Surety shall not be liable hereunder for damage or compensation recoverable under any Workmen's Compensation or Employer's Liability Statute.
- (d) In no event shall the Surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than two years after the final settlement of said Contract.
- (e) This bond is given pursuant to the terms of Alabama Code, Title 39-1-1, et. al., As Amended.

EXECUTED IN FOUR (4) COUNTERPARTS.

SIGNED, SEALED AND DELIVERED this ____ day of _____, 2022

CONTRACTOR AS PRINCIPAL
Company: _____
(Corporate Seal)

SURETY
Company: _____
(Corporate Seal)

By: _____
(Signature)

By: _____
(Signature)

Name and Title: _____

Name and Title: _____

Resident Agent: _____
(Signature)

Name and Title: _____
Company Name: _____
Address: _____

Phone and Fax: _____

Owner's Representative: Cassie Boatwright
REAM Director
PO Box 1827
Mobile, AL 36633
251-208-7454

Company ID Number:

Approved by:

Employer	
Name (Please Type or Print)	
Signature	Date
Department of Homeland Security, Division	
Name (Please Type or Print)	Title
Signature	Date

SAMPLE

Company ID Number:

Information Required for the E-Verify Program	
Information relating to your Company:	
Company Name	
Company Facility Address	
Company Alternate Address	
County or Parish	
Employer Identification Number	
North American Industry Classification Systems Code	
Parent Company	
Number of Employees	
Number of Sites Verified for	

SAMPLE

TO OWNER City of Mobile
P. O. Box 1827
Mobile, AL 36633-1827

PROJECT:

APPLICATION NO:

Distribution to:

Form with checkboxes for OWNER, ARCHITECT, CONTRACTOR and two empty boxes.

PERIOD TO:

FROM CONTRACTOR:

VIA ARCHITECT:

PROJECT NO:

CONTRACT FOR:

CONTRACT DATE:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

The undersigned Contractor certifies that to the best of the Contractor's knowledge, application and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

- 1. ORIGINAL CONTRACT SUM \$
2. Net change by Change Orders \$
3. CONTRACT SUM TO DATE (Line 1 ± 2) \$
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$
5. RETAINAGE:
a. % of Completed Work (Column D + E on G703) \$
b. % of Stored Material (Column F on G703) \$
Total Retainage (Lines 5a + 5b or Total in Column I of G703) \$
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total) \$
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate) \$
8. CURRENT PAYMENT DUE \$
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6) \$

CONTRACTOR:

By: Date:

State of: County of:
Subscribed and sworn to before me this day of
Notary Public:
My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising the application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

Table with 3 columns: CHANGE ORDER SUMMARY, ADDITIONS, DEDUCTIONS. Rows include Total changes approved in previous months by Owner, Total approved this Month, TOTALS, and NET CHANGES by Change Order.

CONTINUATION SHEET

AIA DOCUMENT G703

PAGE OF PAGES

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.

APPLICATION NO:
APPLICATION DATE:

In tabulations below, amounts are stated to the nearest dollar.

PERIOD TO:

Use Column I on Contracts where variable retainage for line items may apply.

ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G		H BALANCE TO FINISH (C - G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD		TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)		
GRAND TOTALS									

Users may obtain validation of this document by requesting of the license a completed AIA Document D401 - Certification of Document's Authenticity

**OFFICE OF SUPPLIER DIVERSITY
CITY OF MOBILE**

Return to Office of Supplier Diversity
Via email: archnique.kidd@cityofmobile.org

or
P.O. Box 1948
Mobile, AL 36633

**DBE Compliance
DBE UTILIZATION REPORT**

CONTRACTOR: _____ **Certified DBE:** YES NO **Contract Start Date:** _____

DESCRIPTION: _____ **Estimated Completion Date:** _____

This report is for the month of: JAN FEB MARCH APR MAY JUNE JULY AUG SEPT OCT NOV DEC **FINAL** _____
(CHECK ONE):

Original Contract Amount	Total Amount of Contract Changes (change orders or amendments)	Final Contract Amount (include contract changes)	Payments to Date from City of Mobile	OFFICE USE ONLY (Verification)
\$	\$	\$	\$	

Instructions: List all DBEs utilized on the contract, whether or not the firms were originally listed for DBE goal credit. List actual amount paid to each DBE firm. If the established Percentage is not being met, please include a narrative description of the progress being made in DBE participation.

DBE SUBCONTRACTOR	DBE DESCRIPTION OF WORK	DBE SUBCONTRACT AMOUNT	DBE PAYMENTS THIS REPORT	PAYMENTS TO DATE	OFFICE USE ONLY (Verification)
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
TOTALS		\$	\$	\$	

I HEREBY CERTIFY THAT THE INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT. SUPPORTING DOCUMENTATION IS ON FILE AND IS AVAILABLE FOR INSPECTION BY CITY OF MOBILE OFFICE OF SUPPLIER DIVERSITY PERSONNEL AT ANY TIME.

PRINT NAME: _____

SIGNATURE: _____ (Title) _____ (Date)



AIA® Document G704® – 2017

Certificate of Substantial Completion

PROJECT: *(name and address)*

CONTRACT INFORMATION:

Contract For:

Date:

CERTIFICATE INFORMATION:

Certificate Number: 001

Date:

OWNER: *(name and address)*

ARCHITECT: *(name and address)*

CONTRACTOR: *(name and address)*

The Work identified below has been reviewed and found, to the Architect's best knowledge, information, and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated below is the date established by this Certificate.

(Identify the Work, or portion thereof, that is substantially complete.)

ARCHITECT *(Firm Name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE OF SUBSTANTIAL COMPLETION

WARRANTIES

The date of Substantial Completion of the Project or portion designated above is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

(Identify warranties that do not commence on the date of Substantial Completion, if any, and indicate their date of commencement.)

WORK TO BE COMPLETED OR CORRECTED

A list of items to be completed or corrected is attached hereto, or transmitted as agreed upon by the parties, and identified as follows:

(Identify the list of Work to be completed or corrected.)

The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment, whichever occurs first. The Contractor will complete or correct the Work on the list of items attached hereto within () days from the above date of Substantial Completion.

Cost estimate of Work to be completed or corrected: \$

The responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, insurance, and other items identified below shall be as follows:

(Note: Owner's and Contractor's legal and insurance counsel should review insurance requirements and coverage.)

The Owner and Contractor hereby accept the responsibilities assigned to them in this Certificate of Substantial Completion:

CONTRACTOR *(Firm Name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE

OWNER *(Firm Name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE



AIA[®]

Document G706™ – 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

OWNER:

ARCHITECT:

TO OWNER: *(Name and address)*

CONTRACT FOR: General Construction

CONTRACTOR:

CONTRACT DATED:

SURETY:

OTHER:

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

- Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose

Indicate Attachment Yes No

CONTRACTOR: *(Name and address)*

BY:

(Signature of authorized representative)

(Printed name and title)

The following supporting documents should be attached hereto if required by the Owner:

- Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
- Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.
- Contractor's Affidavit of Release of Liens (AIA Document G706A).

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:



AIA[®] Document G706A[™] – 1994

Contractor's Affidavit of Release of Liens

PROJECT: <i>(Name and address)</i>	ARCHITECT'S PROJECT NUMBER:	OWNER: <input type="checkbox"/>
	CONTRACT FOR: General Construction	ARCHITECT: <input type="checkbox"/>
TO OWNER: <i>(Name and address)</i>	CONTRACT DATED:	CONTRACTOR: <input type="checkbox"/>
		SURETY: <input type="checkbox"/>
		OTHER: <input type="checkbox"/>

STATE OF:
COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: *(Name and address)*

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:



AIA[®] Document G707[™] – 1994

Consent Of Surety to Final Payment

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

OWNER:

CONTRACT FOR: General Construction

ARCHITECT:

TO OWNER: *(Name and address)*

CONTRACT DATED:

CONTRACTOR:

SURETY:

OTHER:

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

on bond of
(Insert name and address of Contractor)

, SURETY,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the
Surety of any of its obligations to
(Insert name and address of Owner)

, CONTRACTOR,

as set forth in said Surety's bond.

, OWNER,

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

(Surety)

(Signature of authorized representative)

Attest:
(Seal):

(Printed name and title)

**CITY OF MOBILE, AL
VENDOR INFORMATION FORM**

Company Information:

1. City Vendor Number:

2. Name of Company:

3. Company D.B.A. Name, if any:

4. Mailing Address:

5. Remittance Address:

6. Telephone:

7. Fax

8. Main Email:

Primary Contact:

9. Contact Name and Title:

10. Contact Phone:

11. Contact Fax:

12. Contact Email:

Alternate Contact (if applicable):

13. Alt. Contact Name and Title:

14. Alt. Contact Phone:

15. Alt. Contact Fax:

16. Alt. Contact Email:

City of Mobile Business License Information:

17. City of Mobile Business License No. (if required):

Please attach additional sheets if necessary.

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name/disregarded entity name, if different from above	
	Check appropriate box for federal tax classification: <input type="checkbox"/> Individual/sole proprietor <input type="checkbox"/> C Corporation <input type="checkbox"/> S Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Trust/estate <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ <input type="checkbox"/> Other (see instructions) ▶ _____	
	<input type="checkbox"/> Exempt payee	
	Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
City, state, and ZIP code		
List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the "Name" line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number									

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Employer identification number									

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

SECTION 00700

STANDARD FORM OF GENERAL CONDITIONS

PART 1 GENERAL

- A. This section includes the GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, AIA Document A201, wherein the basis of payment is a Stipulated Sum; the document has been electronically modified to meet the Owner's requirements and shall be used for the Project.



AIA[®]

Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

Langan Park - Amphitheater Pavilion & Restrooms
Public Safety Memorial Park - Restroom, Skateboard Park, & Splashpad
Mobile, Alabama

THE OWNER:

(Name, legal status and address)

City of Mobile
Architectural Engineering Department
P. O. Box 1827
Mobile, Alabama 36633-1827

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

THE ARCHITECT:

(Name, legal status and address)

The Architects Group/TAG
710 Downtowner Boulevard
Mobile, Alabama 36609

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, Project Manual, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

~~§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.~~

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

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the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site, as may be required. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 ~~Unless otherwise provided in the Contract Documents, the~~ The Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2 up to ten copies of the drawings and specifications as required for Contractor's execution of the Work. Any additional sets of documents that the contractor desires for construction of the Project will be issued to contractor at actual printing and handling costs.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

3.3.4 Three (3) days after the opening of the Bids, the Contractor shall furnish for written approval, an outline of the education, experience and character of the Contractor's project manager, superintendent and engineer. Any future substitution must have prior written approval of the Architect.

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§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to ~~them~~them.

3.4.4 The Contractor's or his Subcontractor's supervisors and workmen engaged on special work or skilled Work in any supervisory position or trade shall be qualified and have had sufficient education, training and experience as a recognized professional or master mechanic in such Work to perform it properly and satisfactorily as prescribed in the Contract Documents.

3.4.5 Any project manager, superintendent, engineer, foreman or workman employed by the Contractor or by a subcontractor who, in the sole opinion of the Architect, does not perform his Work in a proper and skillful manner or becomes party to disrespectful, intemperate, disorderly, intoxicated, or dishonest behavior, or uses foul language, fights, commits criminal act(s) falsifies records and construction, covers-up faulty Work or materials, does not comprehend or follow instructions, does not get along with the Architect or Owner's representative, or is otherwise objectionable, shall, at the written request by the Architect, be discharged 24 hours by the Contractor or Subcontractor employing such project manager, superintendent, engineer, foreman or workman, and shall not be employed again or any portion of the Work without the written consent of the Architect.

3.4.6 Should the Contractor fail to remove such person or persons specified in Article 3.4.5 hereinabove or fail to furnish suitable and sufficient machinery, equipment, materials or qualified labor force for the proper execution of the Work, the Architect may withhold all payments which are or may become due the Contractor or may suspend the Work until such orders are complied with.

3.4.7 Contractor shall abide by provisions of Section 14-1 and Section 14.2, Code of the City of Mobile, originally adopted December 10, 1991. Prohibiting Discrimination in Employment by Contractors, Subcontractors and Vendors performing Work and providing materials and supplies for the City of Mobile. A copy of said Code is located in the City's Projects Architectural Engineering Department. Certification of compliance with this requirement shall be made for all persons involved in the Work by the signature of the General Contractor on the Bid Form (Section 00410).

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS
PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure ~~and pay for the building permit as well as for City of Mobile building permit without cost.~~ and shall secure and pay for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

3.7.1.1 The Contractor shall secure building and other permits customarily obtained from the City of Mobile at no cost.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 ~~Allowances~~ allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 ~~Whenever~~ whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, ~~promptly within ten (10) business days~~ after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction; and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals

upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action. Wherever Shop Drawings are required in these Specifications, Shop Drawings shall be submitted for approval before materials are fabricated. Drawings shall show complete details. The General Contractor shall check and approve them either in writing or by stamp before forwarding to the Architect. The Architect will mark copies "Approved" if correct; or, "Approved As Noted" if only minor corrections are necessary. If major corrections are necessary they will be noted on the Shop Drawings and they will be returned to the Contractor for correction and resubmission. Submit four (4) copies for Architect's and Owner's use plus the number of copies the contractor requires for his own use.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor

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shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that which would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be

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liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

3.19 As applicable, the Contractor shall be responsible at the appropriate time during construction of the Project to have all permanent meters installed (electrical, water, gas, etc.) and all utilities connected prior to the time of Final Inspection. The Contractor shall pay all utilities costs until the Project is accepted by the City of Mobile.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number. "Architect" may also designate the Licensed Designer of the Project and may be an Engineer or Landscape Architect.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment: (1) during construction (2) until all conditions necessary for the final completion and payment have been fulfilled and (3) with the Owner's concurrence, from time to time during the one-year period for correction of Work described in Section 12.2. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

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§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 ~~Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, The apparent low bidder, within (3) days after bids are opened shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day 14 day period shall constitute notice of no reasonable objection.~~

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. ~~If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.~~

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

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- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall ~~may~~ be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. ~~If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.~~

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

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§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. The total of all Change Orders on each contract shall not exceed ten percent (10%) of the contract price for each project and shall be subject to at least one of the following criteria:

- .1 Minor changes for a total monetary value less than required for competitive bidding under the State Competitive Bid Laws.
- .2 Changes for matters relatively minor and incidental to the original contract necessitated by unforeseen circumstances arising during the course of the Work.
- .3 Emergencies arising during the course of the Work on the Contract.
- .4 Changes or Alternates provided for in the original bidding where there is no difference in price on the Change Order from the original best bid on the Alternate.
- .5 Changes of relatively minor items not contemplated when the plans and specifications were prepared and the project was bid which are in the public interest.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.
- .4 There shall be attached to each Change Order a signed statement from the Architect containing the following:
 - A. A statement of what the Change Order covers and who instituted the Change Order and why it is necessary or desired.
 - B. A statement setting forth the reasons for using the Change Order method rather than taking new competitive bids.
 - C. A statement that all prices have been reviewed and found reasonable, fair and equitable and recommending approval of the same.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes

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in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall may be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, ~~an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount~~ allowance of 10% mark-up on Subcontractor's direct cost (actual cost of Labor & Materials) and 15% mark-up on a Contractor's direct (actual cost of Labor & Materials). In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 ~~Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed; actually incorporated or consumed in the work;~~
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented ~~from~~ by the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be

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reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

1. No Work shall commence and no materials ordered until the Owner issues the written Notice to Proceed.

2. The Work shall be commenced within ten (10) days of the date of a written Notice to Proceed.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; ~~Owner~~; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

8.4 LIQUIDATED DAMAGES

8.4.1 Time is the essence of the Contract. Any delay in the completion of the Work as provided for in the Contract Documents will cause inconvenience to the public and loss and damage to the Owner in interest, and in additional administrative, architectural, inspection, and supervision charges.

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Therefore, a time charge equal to \$250.00 per calendar day will be made against the Contractor for the entire period that any part of the Work remains uncompleted or any required closeouts documents are not acceptably submitted for more than 30 days after the time specified for the Substantial Completion of the Work, the amount of which shall be deducted by the Owner, and shall be retained by the Owner out of monies otherwise due the Contractor in the final payment, not as a penalty, but as liquidated damages sustained.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

1. Unit Prices and Allowances, if stated in the Contract Documents, shall be identified within the Schedule of Values.

§ 9.3 APPLICATIONS FOR PAYMENT

~~§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the on the first of each month, for Work done through the 25th of the preceding month, four (4) original, itemized Applications for Payment for Work completed in accordance with the accepted schedule of values, if required under Section 9.2, 9.2., for completed portions of the Work. Such application shall be notarized, if required, notarized and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors-subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents and documents as follows:~~

1. Until the final payment is made, the Owner shall pay ninety-seven and one half percent (97.5%) of the amount due the Contractor on account of progress payments (note: the 2-1/2% retainage is calculated by withholding the first 5% of the first 50% of the work completed); and

2. The Contractor shall provide documentation substantiating that test, inspections and approvals for portions of Work included in an Application for Payment and required by the Contract Documents, or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction were made at the appropriate time.

~~§ 9.3.1.1 As provided in Section 7.3.9, such Such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders. Work, which have been authorized and approved by properly executed Change Order(s).~~

~~§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay. Such applications may include requests for payment on account of changes in the Work, which have been authorized and approve by properly executed Change Order(s).~~

~~§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.~~

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§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third-party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the

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Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6: PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, Architect, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall ~~shall~~ may be extended appropriately and the Contract Sum shall ~~shall~~ may be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. ~~Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.~~ Work.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed

to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees payment. (5) contractors Affidavit of Release of Liens. (6) separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers (7) written warranty on Contractor's letterhead covering materials and labor for one year, and (8) the advertisement of completion. The Contractor shall provide proof of publication of Advertisement of completion in a local newspaper for four (4) consecutive weeks, as required in Title 39, Section 39-1-1, Subsection (f), of the Code of Alabama. The final 2.5% retained will not be paid until proof of publication is submitted and all written claims paid in full. This advertisement shall not begin until the City of Mobile has accepted the Project.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, Contractor, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 ~~liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;~~
- .2 ~~failure of the Work to comply with the requirements of the Contract Documents; or~~
- .3 ~~terms of special warranties required by the Contract Documents.~~

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall comply with all Federal, State and Local law regarding safety including the requirements of the Occupational Safety and Health Act of 1970, Public Law #91-596, latest revision. Contractor shall take all other reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- .4 The Contractor shall be responsible for damage done to buried cables and other utilities by its equipment and shall contact the appropriate offices prior to construction for information depth, etc., of utilities in the area.

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§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss ~~(other than damage or loss insured under property insurance required by the Contract Documents)~~ loss) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and ~~start-up~~ start-up, except to the extent that any such delay is attributable to the Contractor's objection to the persons or entities whom Owner shall have furnished to perform the task of removal or safe containment of such material or substance.

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~~§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.~~

~~§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances for materials or substances brought to the site by the Contractor regardless of whether such materials or substances were required by the Contract Documents.~~

~~§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.~~

~~§ 10.3.6 If, without negligence or wantonness on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify may reimburse the Contractor for all reasonable cost and expense thereby incurred.~~

~~§ 10.4: EMERGENCIES~~

~~In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall may be determined only as provided in Article 15 and Article 7.~~

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

The Contractor shall take out and maintain during the life of the Contract no less than the following amounts of insurance with the Owner named as an additional insured. Contractor shall submit a Certificate of Insurance and a supplemental Attachment for Certificate of Insurance 25-2 (7/90), AIA Document G715, Insurance companies listed as the "Companies Affording Coverage"

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shall be authorized by the Secretary of the State of Alabama. Insurance produced out of the State of Alabama must be signed or counter signed by a Resident Agent of Alabama, with the Resident Agent's name, address and telephone number typed or printed on the face of the Certificate of Insurance.

1. Workmen's Compensation and Employer's Liability Insurance: - Statutory-amount and coverage as required by law of place in which the Work is performed.

2. Employee's Liability Insurance shall be provided for limits of liability not less than:

- | | | |
|----|---------------------------|---------------------------|
| A. | Bodily Injury by Accident | \$1,000,000 each accident |
| B. | Bodily Injury by Disease | \$1,000,000 each employee |

3. The Contractor shall provide Broad Form (commonly termed Comprehensive) General Liability Insurance (including premises-product-completed operations) for limits of liability not less than:

- | | | |
|----|------------------------------------|--|
| A. | Bodily Injury | \$1,000,000 each person
\$1,000,000 each occurrence |
| B. | Property Damage | \$1,000,000 each occurrence; or |
| C. | Bodily Injury &
Property Damage | \$1,000,000 combined single limit |

4. Such comprehensive policy shall include the following:

- | | |
|----|---|
| A. | All liability of the Contractor, for the Contractor's Direct Operations. |
| B. | Subcontractor's Operations. |
| C. | Completed Operations Cover, thereby meaning any loss which shall occur after the contract has been completed, but which can be traced back to the Contract. |
| D. | Contractual Liability, meaning thereby, any risk assumed by the Contractor under Hold Harmless Agreements or any other assumption of liability, but specifically items 11.1.1.8.3G herein below |
| E. | Broad Form Property damage Coverage, including Completed Operations. |
| F. | Personal Injury Liability, with employee's exclusions removed. |
| G. | The Contractor shall indemnify and save harmless the Owner against all loss, cost, or damaged on account of injuries to persons or property occurring in the performance of the Contract, including all reasonable attorney's fees incurred by the Owner, on account thereof. |
| H. | Explosion and Collapse Hazard:
Included or <input checked="" type="checkbox"/> Not Applicable. |
| I. | Underground Hazard:
Included or <input checked="" type="checkbox"/> Not Applicable. |

5. The Contractor shall carry for himself and shall require that all Subcontractors and all Owners of Automobiles or trucks rented or hired on the contract carry until the Contract is completed, Comprehensive Automobile Liability Coverage for Bodily Injury and property Damage in amounts not less than the minimum amounts as indicated. The Contractor and Subcontractor shall also carry for themselves insurance for all non-owned and hired automobile at the limits of liability as indicated below:

- | | | |
|----|------------------------------------|--|
| A. | Bodily Injury | \$1,000,000 each person
\$1,000,000 each occurrence |
| B. | Property damage | \$1,000,000 each occurrence; or |
| C. | Bodily Injury &
Property damage | \$1,000,000 combined single limit |

6. Excess Liability: \$2000,000 limit

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7. Builder's Risk Coverage. The Contractor shall carry for the Owner, himself, and all Subcontractors a Builder's Risk Policy to cover the full amount of the Contract during construction, fabrications or erection of any equipment.

8. A Surety authorized to do business in the State of Alabama shall furnish the required insurance.

9. The ACCORD™ Certificate must be signed or countersigned by a Licensed Resident Agent of the State of Alabama and the agent's name, address and telephone number must appear on the face of the certificate.

10. The Surety must have a minimum rating of A/Class VI as reported in the latest issue of Best's Key Rating Guide Property-Casualty, published by Alfred M. Best Company, Inc., if the bid price exceeds \$50,000.00

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate-evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's ~~consultants~~ Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 ~~Unless otherwise provided, the Owner~~ The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional ~~deductibles~~ deductibles (See 11.1.1 Supplement Builder's Risk Coverage). Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

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§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the ~~Owner-Contractor~~ shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

~~§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.~~

~~§ 11.3.2 BOILER AND MACHINERY INSURANCE~~

~~The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.~~

~~§ 11.3.3 LOSS OF USE INSURANCE~~

~~The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.~~

~~§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.~~

~~§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.~~

~~§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable~~

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conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract thereunder.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

11.4.3. The Labor and Material Payment Bond and Performance Bond shall each be for one hundred percent (100%) of the Contract price if the Contract Price is greater than \$10,000.00

1. Cost of the bonds shall be included in the bid.

2. Bonds shall be submitted with the executed agreement on provided form(s).

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3. Power of Attorney is required for both bonds.
4. A Surety authorized to do business in the State of Alabama shall furnish both bonds.
5. A Surety licensed to do business in the State of Alabama must execute the bonds.
6. ~~Each bond must be signed or countersigned by a Resident Agent of the State of Alabama.~~
7. The Surety must have a minimum rating of A/Class VI as reported in the latest issue of Best's Key Rating Guide Property-Casualty, published by Alfred M. Best Company, Inc., if the bid price exceeds \$50,000.00.
8. The Surety company shall be required to execute AIA Document G-707, "Consent of Surety to Final Payment" prior to Final Payment being made to the Contractor.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

State of Alabama.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

13.2.3 No assignment of the Contract shall be made without the written permission of Surety providing bonding and the City of Mobile.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public

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authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

13.5.7 Test, inspections or approvals made in addition to the Architects normal design and contract administration services caused by the Contractor shall be paid for by the Contractor. The normal service schedule is contained in Article 2.8.1 of AIA B102-2007 as amended by the Owner and is available to Contractor on request.

13.5.8 The Contractor must call the Urban Development Department of the City of Mobile for their inspections and approval at the times required by the Urban Development Department, as well as notify the Architect. Consulting Engineer, and/or Test Laboratory, for inspection and approval of sub-grade conditions, under slab and footing Conditions, vapor barrier placement, reinforcing steel placement, all structural connections, electrical, mechanical, etc. None of the above will be accepted that have been covered up before receiving approval of the Architect or his Consultant.

§ 13.6 INTEREST

~~Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.~~

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

13.8 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.8.1 As between the Owner and Contractor:

1. Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;

2. Between Substantial Completion and Final Payment. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to the final payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all event not later than the date of issuance of the final Certificate for Payment; and
3. After Final Payment. As to acts or failures to act occurring after the relevant date of the final Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Contractor pursuant to any Warranty provided under Section 3.5, the date of any correction of the Work or failure to correct the Work by the Contractor under Section 3.5, the date of any correction of the Work or failure to correct the Work by the Contractor under Section 12.2, or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

13.9 SUBSTITUTION OF MATERIALS AND EQUIPMENT

13.9.1 Whenever a material, article or piece of equipment is identified on the Drawings or in the Specifications by reference to manufacturer's or vendor's names, trade names, catalog numbers, or the like, it is so identified for the purpose of establishing a standard, and any material, article, or piece of equipment of other manufacturers or vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or piece of equipment so proposed is, in the opinion of the Architect, of equal substance, appearance and function. It shall not be purchased or installed by the Contractor without the Architect's written approval.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
2. An act of government, such as a declaration of national emergency that requires all Work to be stopped;
3. Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
4. The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages executed.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall ~~may~~ be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, ~~along with reasonable overhead and profit on the Work not executed-termination.~~

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ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. ~~Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes acting with due diligence, reasonable should have first recognized the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Architect and the other party.~~

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Work giving rise to such claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

~~§ 15.1.5.1~~ If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

~~§ 15.1.5.2~~ If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been

rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

~~§ 15.2.2 The Initial Decision Maker Architect will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, Architect reasonably concludes that, it would be inappropriate for the Initial Decision Maker to resolve the Claim.~~

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

~~§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; therefore, and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.~~

~~§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.~~

~~§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.~~

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

~~§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.~~

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall not be subject to mediation as a condition precedent to binding dispute resolution.

~~§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in~~

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writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

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SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Project information.
- 2. Work covered by Contract Documents.
- 3. Project Duration.
- 4. Scheduling of Work
- 5. Langan Park: Work Area Schedule and Duration
- 6. Public Safety Memorial Park: Work Area Schedule and Duration
- 7. Contractor's use of site and premises.
- 8. Coordination with occupants.
- 9. Work restrictions.
- 10. Specification and Drawing conventions.

- B. Related Requirements:

- 1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project: The Project consists of work on two separate City of Mobile Park sites.

- 1. Langan Park-Amphitheater Pavilion & Restrooms; COM Project Number PR-031-21
 - a. 4901 Zeigler Boulevard, Mobile, Alabama 36608
- 2. Public Safety Memorial Park-Restroom, Skateboard Park, & Splashpad, COM Project Number PR-093-21
 - a. 2301 Airport Boulevard, Mobile, Alabama 36606

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- B. Owner: City of Mobile.
 - 1. Owner's Representative: Shannon McIntyre.
- C. Architect: TAG, The Architects Group, Inc.
 - 1. Architect's Representative: David Barr, AIA.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:
 - 1. Work indicated in the Contract Documents for work to be provided at Langan Park and Public Safety Memorial Park.
- B. Type of Contract:
 - 1. Project will be constructed under a single prime contract.

1.5 ADMINISTRATION OF THE WORK

- A. Administrative and procedural activities of the Contract shall occur as two separate projects:
 - 1. Langan Park.
 - 2. Public Safety Memorial Park.
- B. Requirements for administrative activities and procedural requirements are described in the Project Manual Series 0 "Bidding Requirements and Contract Forms" and Division One "General Requirements". These Requirements, administrative and procedural activities and other identified requirements apply to the work of each Park individually as if provided in duplicate and separately for each Park site.
- C. Requirements for and descriptions of the materials and quantities of work is provided in separate Drawings and Technical Specifications for each Park.

1.6 PROJECT DURATION

- A. Project Duration: The Work within Langan Park and Public Safety Memorial Park shall be Substantially Complete within 270 calendar days from the Notice to Proceed.
 - 1. Single Notice to Proceed will be issued for work of both Parks.

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1.7 SCHEDULING OF THE WORK and PROJECT DURATION for SEPARATE WORK AREAS

- A. Construct the Work of both Parks concurrently with work of both parks substantially complete as indicated in Article "Project Duration".
- B. The Work shall be divided into multiple separate work areas within each Park.
 - 1. Each separate work area shall have separate durations within the Project Duration. Durations for each work area are described below. Durations indicated are calendar days beginning from the date of the separate Notice to Proceed issued for each work area.
- C. After the initial Notice to Proceed is issued the Contractor's access to and activities on the site will be limited to activities of work that do not disrupt public access or public use within the separate work areas. Upon submittal, to the City of Mobile by the Contractor, of documentation confirming material ship dates for the materials to be used for each work area a separate Notices to Proceed will be issued. These separate Notices to Proceed will allow the Contractor full access to the work area for installation of site enclosure fencing, site demolitions, excavations, and all other required Work.
- D. Schedule for onsite work at each separate work area shall be coordinated with the City of Mobile to allow the least level of disruption to public access and City of Mobile activities within each Park.
- E. Schedule for onsite work for each separate work area shall be coordinated with the City of Mobile to result in the shortest duration of on-site disruption to public access to each work area.
- F. Schedule the Work of the separate work areas such that the work of all work areas within both Parks are Substantially Complete within the indicated Project Duration.
 - 1. It is not required that all work areas begin work or be Substantially Complete on the same date.

1.8 LANGAN PARK: WORK AREA SCHEDULE AND DURATION.

- A. The Work within this Park shall be divided into four separate work areas.
 - 1. New Building
 - 2. Pavilion
 - 3. Fire Line
 - 4. Renovation
- B. New Building:
 - 1. Work of the New Building shall be complete within 270 calendar days from date of initial Notice to Proceed.

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2. Installation of site fence enclosure around the new building work area shall begin only after City of Mobile issuance of Separate Notice to Proceed.
3. Work of the New Building shall be all work not included in other work areas.

C. Pavilion:

1. Work of the Pavilion shall be complete within 60 calendar days from date of installation of site fence enclosure around the pavilion work area. Installation of site fence enclosure around the Pavilion work area shall begin only after City of Mobile issuance of Separate Notice to Proceed.
 - a. Exception: Site grading and sidewalk construction on the west side of the pavilion may be part of the New Building construction. Such work shall be scheduled to be complete within 30 days of beginning.
2. Pavilion shall remain fully operational and open to public use until such time as the site enclosure fence is installed.
3. If Substantial Completion of the work of the Pavilion does not coincide with Substantial Completion of the work of the New Building, the City of Mobile shall issue a Partial Substantial Completion for the Pavilion..

D. Fire Line:

1. Work of the Fire Line shall be complete within 60 calendar days from date of first installation of site fence enclosure around the fire line work area. Installation of site fence enclosure around the work area shall begin only after City of Mobile issuance of Separate Notice to Proceed.
2. Work may be installed in multiple areas of work along the length of the line.
3. If Substantial Completion of the work of the Fire Line does not coincide with Substantial Completion of the work of the New Building, the City of Mobile shall issue a Partial Substantial Completion for Fire Line and the area of the fire line installation shall return to public use.

E. Renovation:

1. Work of the Renovation shall be complete within 90 calendar days from date of first installation of site fence enclosure around the Renovation work area. Installation of site fence enclosure around the work area shall begin only after City of Mobile issuance of Separate Notice to Proceed.
2. If Substantial Completion of the work of the Renovation does not coincide with Substantial Completion of the work of the New Building, the City of Mobile shall issue a Partial Substantial Completion the Renovation.

1.9 PUBLIC SAFETY MEMORIAL PARK: WORK AREA SCHEDULE AND DURATION.

A. The Work within this Park shall be divided into three separate work areas.

1. New Building and Pavilion Renovation

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2. Skate Park
3. Splash Pad

B. New Building and Pavilion Renovation:

1. Work of the New Building and Pavilion Renovation shall be complete within 270 calendar days from date of initial Notice to Proceed.
2. Installation of site fence enclosure around the new building work area shall begin only after City of Mobile issuance of Separate Notice to Proceed.
3. Work of the New Building and Pavilion Renovation shall be all work not included in other work areas.

C. Skate Park:

1. Work of the Skate Park shall be complete within 120 calendar days from date of installation of site fence enclosure around the pavilion work area. Installation of site fence enclosure around the Skate Park work area shall begin only after City of Mobile issuance of Separate Notice to Proceed.
 - a. Skate Park shall remain fully operational and open to public use throughout the duration of the new work.
2. If Substantial Completion of the work of the Skate Park does not coincide with Substantial Completion of the work of the New Building and Pavilion Renovation, the City of Mobile shall issue a Partial Substantial Completion for the Skate Park.

D. Splash Pad:

1. Work of the Splash Pad shall be complete within 90 calendar days from date of first installation of site fence enclosure around the Splash Pad work area. Installation of site fence enclosure around the work area shall begin only after City of Mobile issuance of Separate Notice to Proceed.
2. If Substantial Completion of the work of the Splash Pad does not coincide with Substantial Completion of the work of the New Building and Pavilion Renovation, the City of Mobile shall issue a Partial Substantial Completion for the Splash.

1.10 CONTRACTOR'S USE OF SITE AND PREMISES

A. Limits on Use of Site: Limit use of Park to allow continued Owner and Public access and use. All facilities shall remain in use except for those areas contained within the site enclosure fence and the immediate work area for the Project. Obey all Park regulations and coordinate access and schedule of work with Architect/Project Manager.

1. Driveways, Walkways and Entrances: Keep Park entrances, exits, driveways, existing facilities not under construction, clear and available to Owner, the public, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

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- b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.11 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner and public will occupy Park site during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner and public usage. Perform the Work so as not to interfere with Owner's and public day-to-day operations.
 - 1. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations and public use of park areas.
- B. Owner Full Occupancy of Completed Areas of Construction: Owner shall occupy and return to public use all parts of the project which are complete prior to Substantial completion of the total Work. Such occupancy shall not constitute acceptance of the total Work.
 - 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
 - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
 - 3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
 - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.12 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to between 5:00 a.m. to 6:00 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.
 - 1. Weekend Hours: As approved by Owner.

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2. Early Morning Hours: As approved by Owner .
 3. Hours for Utility Shutdowns: As approved by Owner .
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:
1. Notify Owner not less than 72 hours in advance of proposed utility interruptions.
 2. Obtain Owners written permission before proceeding with utility interruptions.
- D. Dust, and Odors: Coordinate operations that may result in high levels of dust, odors, or other disruption to Owner occupancy with Owner.
- E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Owner's property is not permitted.

1.13 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
 3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
 4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

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City of Mobile (COM)

TAG 2113
COM PR-031-21

Public Safety Memorial Park
Restroom, Skateboard Park & Splashpad
City of Mobile (COM)

TAG 2121
COM PR-093-21

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1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings and published as part of the U.S. National CAD Standard.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

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SECTION 012100 – ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Contingency allowance.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

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1.5 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.7 CONTINGENCY ALLOWANCES

- A. Use the contingency allowances only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowances are included in the allowance and shall be paid from the allowance amount. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the allowances will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the allowances to Owner by Change Order.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.

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2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Contingency Allowance: Include a contingency allowance of \$25,000.00 (TWENTY-FIVE Thousand Dollars) for use according to Owner's written instructions.
- B. Allowance No 2: Site Work Allowance: Site work contingency allowance of \$25,000.00 (TWENTY-FIVE Thousand Dollars) for use, according to Owner's written instructions, in payment for site work additional to that shown on the Drawings.

END OF SECTION

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SECTION 012200 – UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Section includes administrative and procedural requirements for unit prices .

1.3 DEFINITIONS

- A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 UNIT PRICES

- A. Provide unit prices for items listed, for inclusion in Contract, guaranteed to apply for duration of Project as basis for additions to Contract Sum.
- B. Unit prices include all costs related to providing the work of the unit price including necessary material, delivery cost, crating or uncrating, storage, installation, supplies, sheeting/shoring, bonds, insurance, applicable taxes, supervision, overhead, and profit.
- C. Take measurements and compute quantities.
- D. Quantities and measurements indicated are for Contract purposes only. Actual quantities and measurements supplied or placed in the Work will determine payment.

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- E. Payment includes full compensation for all required labor, products, tools, equipment, transportation, services and incidentals and for erection, application or installation of an item of the Work.
- F. The unit prices provided by the Contractor will be used to calculate changes to the contract sum.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 UNIT PRICE SCHEDULE.

- A. Unit Price #1: Trash Receptacle.
 - 1. Provide and install one (1) trash receptacle, model #CL-36R14 by Ultrasite, surface mounted to the concrete, per the specifications. Include placement, fasteners and all other necessary construction components for installation.
 - 2. Unit of Measure: One each.
- B. Unit Price #2: Unsuitable Soil Material
 - 1. Description: Includes excavation, haul off and disposal of unsuitable material. Measurement shall be by excavation survey.
 - 2. Unit of measure: One Cubic Yard.
- C. Unit Price #3: Structural Fill
 - 1. Description: Provide and Install Imported Structural Fill, spread, compaction, and all other necessary construction components for installation. Measurement shall be in place survey.
 - 2. Unit of measure: One Cubic Yard
- D. Unit Price #4: Concrete Flatwork (sidewalks, fountain pads, etc)
 - 1. Description: Provide and install 4" concrete flatwork per details. Include excavation, fill, compaction, grading, concrete, reinforcement, disposal, placement, and all other necessary construction components for installation
 - 2. Unit of Measure: One Square Foot.
- E. Unit Price #5: Demolition of Existing Concrete Flatwork.
 - 1. Description: Demolish and properly dispose offsite existing concrete flatwork (sidewalks) as specified on drawings. Include excavation, sawing, jack hammering, loading, haul off site, and proper disposal.

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2. Unit of Measure: One Square Foot.
- F. Unit Price #6: Asphalt Patch
1. Description: Provide and install Asphalt Patch as specified. Include cutting, excavation, fill, compaction, grading, disposal, placement, and all other necessary construction components for installation.
 2. Unit of Measure: One Square Yard.
- G. Unit Price #7: Solid Sod
1. Description: Provide and install solid sod, Bermuda. Include grading, placement, and all other necessary construction components for installation.
 2. Unit of Measure: One Square Yard.
- H. Unit Price #8: Fascia Wood Replacement- Langan Pavilion.
1. Description: Provide replacement of damaged or deteriorated wood fascia. Refer to Sheet AP201 for depiction of fascia that would be replaced if unit price is used. Match existing wood profile in preservative treated wood. Prime and paint.
 2. Unit of measure: 10 Linear Foot of Fascia Wood Replacement.
- I. Unit Price #9: Modified Bitumen Roofing-Langan Pavilion.
1. Description: Provide aluminum faced modified bitumen sheet (equal to Siplast Veral) along ridge of Pavilion Roof. Prepare existing surface and install in accordance with roofing manufacturer's written recommendations.
 2. Unit of measure: Typical Roll width by 10 feet.
- J. Unit Price #10: Roof Decking- Langan Toilet Renovation.
1. Description: Provide new roof sheathing on area to be re-roofed. Include removal of existing, preparation of existing framing for installation of new sheathing and installation of new sheathing. Materials and installation procedures shall be as shown on Structural drawings of similar work on new construction.
 2. Unit of measure: 32 Square Foot.
- K. Unit Price #11: Unclassified Excavation.
1. Description: Provide excavation and off-site disposal of unclassified excavation material. Measurement shall be by in-place survey.
 2. Unit of measure: One Cubic Yard.
- L. Unit Price #12: Undercut Excavation.
1. Description: Provide excavation and off-site disposal of undercut excavation material. Measurement shall be by in-place survey.
 2. Unit of measure: One Cubic Yard.
- M. Unit Price #13: Barrow Excavation.

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1. Description: Provide off-site select borrow compacted in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Cubic Yard
- N. Unit Price #14: Topsoil from Stockpile.
1. Description: Provide Topsoil from stockpile 6" thickness compacted in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Cubic Yard.
- O. Unit Price #15: Barrow Excavation, Backfill Material.
1. Description: Provide off-site select borrow, Loose granular soil backfill material, compacted in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Cubic Yard
- P. Unit Price #16: 8" Storm Sewer Pipe (PVC).
1. Description: Provide 8" Storm Sewer Pipe (PVC) with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10'-0" maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- Q. Unit Price #17: 15" Storm Sewer Pipe (PVC).
1. Description: Provide 15" Storm Sewer Pipe (PVC) with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10'-0" maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- R. Unit Price #18: 15" Storm Sewer Pipe (RC).
1. Description: Provide 15" Storm Sewer Pipe (RC) in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10'-0" maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- S. Unit Price #19: Loose Riprap with Filter Fabric.
1. Description: Provide Loose Riprap with Filter Fabric in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Square Yard.
- T. Unit Price #20: Grate Inlet.
1. Description: Provide Grate Inlet (all Pipe Sizes) in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10 ft maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Each.
- U. Unit Price #21: Storm Sewer Cleanout.

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1. Description: Provide Storm Sewer Cleanout with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 10 ft maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Each.
- V. Unit Price #22: 6" Underdrain Pipe.
1. Description: Provide 6" Underdrain Pipe with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- W. Unit Price #23: Concrete Curb and Gutter.
1. Description: Provide Concrete Curb and Gutter in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- X. Unit Price #24: Concrete Header Curb.
1. Description: Provide Concrete Header Curb in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- Y. Unit Price #25: Water Pipe, 8" Ductile Iron.
1. Description: Provide 8" Ductile Iron Water Pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). Cover 30" minimum, 60" maximum. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- Z. Unit Price #26: Water Pipe, 6" Ductile Iron.
1. Description: Provide 6" Ductile Iron Water pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). Cover 30" minimum, 60" maximum. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- AA. Unit Price #27: 8" Gate Valve and Box.
1. Description: Provide 8" Gate Valve and Box in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Each.
- BB. Unit Price #28: 6" Gate Valve and Box.
1. Description: Provide 6" Gate Valve and Box in place. Measurement shall be by in-place survey.
 2. Unit of measure: One Each.
- CC. Unit Price #29: Fire Hydrant.

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1. Description: Provide Fire Hydrant with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). Measurement shall be by in-place survey.
 2. Unit of measure: One Each.
- DD. Unit Price #30: 6" Ductile Iron Sanitary Sewer Pipe.
1. Description: Provide 6" Ductile Iron Sanitary Sewer Pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- EE. Unit Price #31: 6" PVC Sanitary Sewer Pipe.
1. Description: Provide 6" PVC Sanitary Sewer Pipe with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Linear Foot.
- FF. Unit Price #32: Sanitary Sewer Cleanout.
1. Description: Provide Sanitary Sewer Cleanout with connections and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Each.
- GG. Unit Price #33: Sanitary Sewer Manhole.
1. Description: Provide Sanitary Sewer Manhole with fittings and in place. Includes excavation, shoring/sheeting and compacted fill (existing soils). 12 ft maximum depth. Measurement shall be by in-place survey.
 2. Unit of measure: One Each.
- HH. Unit Price #34: Erosion Control Blanket.
1. Description: Provide Erosion Control Blanket, ALDOT Type S3 in place. Includes staking and all accessories for complete installation. Measurement shall be by in-place survey.
 2. Unit of measure: One Square Yard.

END OF SECTION

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SECTION 012510 – PREBID SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 PROCEDURES FOR “PRE-BID APPROVAL”

- A. If it is desired that a product, material, system, piece of equipment, or service from a source different from those sources identified in the Bid Documents be approved as an acceptable source, application for the approval must reach the hands of the Architect at least ten days prior to the date set for the opening of bids. At the Architect’s discretion, this ten-day provision may be waived. The application for approval of a proposed source must be accompanied by technical data which the applicant desires to submit in support of the application. The Architect will give consideration to reports from reputable independent testing laboratories, verified experience records showing the reputation of the proposed source with previous users, evidence of reputation of the source for prompt delivery, evidence of reputation of the source for efficiency in servicing its products, or any other pertinent written information. The application to the Architect for approval of a proposed source must be accompanied by a schedule setting forth in which respects the materials or equipment submitted for consideration differ from the materials or equipment designated in the Bid Documents. The burden of proof of the merit of the proposed substitution is upon the proposer. To be approved, a proposed source must also meet or exceed all express requirements of the Bid Documents and a statement must be submitted with the request confirming that. Approval, if granted, shall not be effective until published by the Architect in an addendum to the Bid Documents.

END OF SECTION

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SECTION 012600- CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's form.

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

- B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.

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5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

1.4 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, **Architect** will issue a Change Order for signatures of Owner and Contractor on form included in Project Manual.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section "Summary", Article "Administration of the Work" for administrative and procedural activities for the work on each Park as separate projects.
 - 2. Section "Allowances" for procedural requirements governing the handling and processing of allowances.
 - 3. Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 4. Section "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the schedule of values:

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- a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
2. Arrange schedule of values consistent with format of AIA Document G703.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of ten percent of the Contract Sum.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Allowances: Provide a separate line item in the schedule of values for each allowance. Each item in the schedule of values and Applications for Payment shall be complete. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values.
 6. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

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1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit four signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. List of Contractor's staff assignments.
 5. Copies of building permits.
 6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 7. Initial progress report.
 8. Report of preconstruction conference.
 9. Certificates of insurance and insurance policies.
- H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

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Restroom, Skateboard Park & Splashpad
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- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707-1994, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Requests for Information (RFIs).
 - 2. Project meetings.
- B. Related Requirements:
 - 1. Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

1.4 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections which depend on each other for proper installation, connection, and operation.

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1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.

1.5 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.

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9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: AIA Document G716.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within **10** days of receipt of the RFI response.

1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.

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3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Construction Manager, and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after Notice to Proceed.
1. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Designation of key personnel and their duties.
 - c. Procedures for processing field decisions and Change Orders.
 - d. Procedures for RFIs.
 - e. Procedures for testing and inspecting.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of record documents.
 - j. Use of the premises and existing building.
 - k. Work restrictions.
 - l. Working hours.
 - m. Owner's occupancy requirements.
 - n. Responsibility for temporary facilities and controls.
 - o. Construction waste management and recycling.
 - p. Parking availability.
 - q. Office, work, and storage areas.
 - r. Equipment deliveries and priorities.
 - s. Security.
 - t. Progress cleaning.
 - u. HUD funding requirements, including Davis-Bacon, Certified payroll, and employee interviews.
 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Progress Meetings: Conduct progress meetings at appropriate intervals.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in

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- planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
 - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 3. Division 1 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

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1.4 ACTION SUBMITTALS

- A. Due to funding restrictions, the contractor is encouraged to submit long lead time items for review as soon as construction contract has been received in unexecuted form.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. Refer to General Conditions of the Contract for additional requirements.
- B. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections. Submit submittals in pdf format by way of email except as stated below.
 - 1. Submit paper copies only when electronic pdf submittals cannot be submitted or when paper originals are specifically required.
 - a. Paper copies required for Project Record Document, Operations and Maintenance Manuals or additional distribution shall be color copies when color is contained in the document.
 - b. Shop drawings on sheets in excess of 11x17 inches shall be submitted in both electronic and non-electronic formats.
 - 2. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - b. Print and retain one copy as a Project Record Document. Make additional copies where copies are required for operation and maintenance manuals
 - 3. Number of Non-electronic Copies:
 - a. Submit five copies, unless otherwise indicated. Architect will return annotated electronic data file or one marked and one unmarked paper copy.
 - b. Mark-up and retain one returned copy as a Project Record Document. Make additional copies where copies are required for operation and maintenance manuals.
 - 4. Samples, color chips and other physical materials shall be submitted as indicated herein in the appropriate Article.
 - 5. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 1 Section "Closeout Procedures."
 - 6. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. For digital submittals provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.

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- b. For paper submittals provide a notarized statement on original paper copy certificates and certifications where indicated.
 7. Test and Inspection Reports Submittals: Comply with requirements specified in Division 1 Section "Quality Requirements."
- C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
- D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based upon Architect's digital data drawing files is otherwise permitted.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1067 mm).
 - a. Submit documents larger than 11 inches x 17 inches in both PDF electronic format and in paper format as described in Paragraph "General Submittal Procedure Requirements".

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- E. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- F. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
- G. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- H. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
 - 4. Submit subcontract list in the following format:
 - a. PDF electronic file.
- I. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- J. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- K. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- M. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- N. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."
- O. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

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- P. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- Q. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- R. Maintenance Data: Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- S. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 1 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
- D. Contractor's action shall include the word "Approved" as part of the approval indication.
- E. Submission of partial or incomplete submittal shall constitute the Contractor's acceptance of responsibility for correcting construction or product non-compliances resulting from partial or incomplete submissions.

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3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval and will return them without action
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Action shall be marked as follows:

1. INCOMPLETE	Additional information required.
2. REVISE & RESUBMIT OR REJECTED	Fabrication or installation MAY NOT be undertaken.
3. APPROVED FOR DESIGN AS NOTED	Fabrication installation may be undertaken provided submittal complies with notations on submittal and requirements of the Contract Documents.
4. APPROVED FOR DESIGN	Fabrication/installation may be undertaken provided submittal complies with requirements of the Contract Documents.
5. RECEIVED	Received for information only.
6. NO ACTION TAKEN	Submittal not required or no action required by Architect. Submittal may be discarded.
7. SUBMIT CORRECTED COPY	Correct submittal and return one corrected copy.

- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial or incomplete submittals may be considered nonresponsive and may be returned without review.
 - 1. Review of partial or incomplete submittals shall constitute review of only that information submitted and not be considered acceptance of any subsequent submittal or data that may result in the original submittal becoming non-conforming.

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2. Conditions or construction non-compliances are the responsibility of the Contractor regardless of the review action taken by the Architect.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
 - 1. Section "Structural Tests and Inspections" and "Schedule of Special Inspections" for special tests and inspections.
 - 2. Section 014140 "Contractor Statement of Responsibility" for contractor statement of responsibility document.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in

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nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

- B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).
- D. Mockups: Physical assemblies of portions of the Work constructed to establish the standard by which the Work will be judged. Mockups are not Samples.
 - 1. Mockups are used for one or more of the following:
 - a. Verify selections made under Sample submittals.
 - b. Demonstrate aesthetic effects.
 - c. Demonstrate the qualities of products and workmanship.
 - d. Demonstrate successful installation of interfaces between components and systems.
 - e. Perform preconstruction testing to determine system performance.
 - 2. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
 - 3. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.
- E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.
- F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

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- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."
- I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.4 DELEGATED DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.5 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

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1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Contractor's quality-control personnel.
- B. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- D. Reports: Prepare and submit certified written reports and documents as specified.
- E. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan prior to preconstruction conference.
- B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
- C. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- D. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

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1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, telephone number, and email address of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement of whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

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4. Statement of whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE

- A. Quality assurance requirements as identified in this Article and as identified in individual technical sections are the responsibility of the Contractor unless explicitly assigned to Owner within the individual technical sections.
- B. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- C. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- D. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. **Installer Qualifications:** A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- F. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.
- G. **Specialists:** Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.
 1. Requirements of authorities having jurisdiction supersede requirements for specialists.
- H. **Testing and Inspecting Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

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- I. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- K. **Preconstruction Testing:** Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:
 - 1. Provide test specimens representative of proposed products and construction.
 - 2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - 3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - 4. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
 - 5. When testing is complete, remove test specimens and test assemblies, and mockups; do not reuse products on Project.
 - 6. **Testing Agency Responsibilities:** Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
- L. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups of size indicated.
 - 2. Build mockups in location indicated or, if not indicated, as directed by Architect.
 - 3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
 - 5. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 6. Obtain Architect's approval of mockups before starting corresponding Work, fabrication, or construction.
 - 7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.

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8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
10. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 1. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Engage a qualified testing agency to perform quality-control services not being provided by Owner selected testing agencies and inspectors.
 - a. Contractor will not employ same entity selected by Owner, unless agreed to in writing by Owner and Owner selected testing agencies and inspectors.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
 1. Costs for payment of retesting and reinspection is the responsibility of the Contractor .
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

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1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

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- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.
 1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
 2. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency and special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Sections 014100 "Structural Tests and Inspections" and 014110 "Schedule of Special Inspections" , and as follows:
 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.

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4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and authorities' having jurisdiction reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 01 4100 - STRUCTURAL TESTS AND SPECIAL INSPECTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements required for compliance with the International Building Code, Chapter 17, Structural Tests and Special Inspections.
- B. Structural testing and special inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve contractor of responsibility for compliance with other construction document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the construction document requirements.
 - 3. Requirements for contractor to provide quality-assurance and -control services required by architect, owner, or authorities having jurisdiction are not limited by provisions of this section.
- C. The owner will engage one or more qualified special inspectors and / or testing agencies to conduct structural tests and special inspections specified in this section and related sections and as maybe specified in other divisions of these specifications.
- D. Related Sections include but are not limited to the following:
 - 1. SECTION 03 30 00 - CAST IN PLACE CONCRETE
 - 2. SECTION 04 20 00 - UNIT MASONRY
 - 3. SECTION 04 22 00_- CONCRETE UNIT MASONRY
 - 4. SECTION 05 44 00 – COLD-FORMED METAL TRUSSES
 - 5. SECTION 06 17 53 – SHOP FABRICATED WOOD TRUSSES
 - 6. SECTION - EARTHWORK

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1.3 DEFINITIONS

- A. **Approved Agency:** An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved by the building official.
- B. **Construction Documents:** Written, graphic and pictorial documents prepared or assembled for describing the design, location and physical characteristics of the elements of a project necessary for obtaining a building permit. Construction Documents include all supplemental instructions, sketches, addenda, and revisions to the drawings and specifications issued by the registered design professional beyond those issued for a building permit.
- C. **Shop Drawings / Submittal Data:** Written, graphic and pictorial documents prepared and / or assembled by the contractor based on the Construction Documents.
- D. **Structural Observation:** Visual observation of the structural system by a representative of the registered design professional's office for general conformance to the approved construction documents. Structural observations are not considered part of the structural tests and special inspections and do not replace inspections and testing by the testing agency or special inspector.
- E. **Special Inspector:** A qualified person who demonstrating competence, to the satisfaction of the code enforcement official and registered design professional in responsible charge, for inspection of the particular type of construction or operation requiring special inspection. The special inspector shall be a licensed professional engineer or engineering intern or a qualified representative from the testing agency.
- F. **Special Inspection, Continuous:** The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.
- G. **Special Inspection, Periodic:** The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work has been or is being performed and at the completion of the work.
- H. **Testing Agency:** A qualified materials testing laboratory under the responsible charge of a licensed professional engineer, approved by the code enforcement official and the registered design professional in responsible charge, to measure, examine, test, calibrate, or otherwise determine the characteristics or performance of construction materials and verify confirmation with construction documents.

1.4 QUALITY ASSURANCE

- A. **Testing Agency Qualifications:**

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1. Minimum qualifications of inspection and testing agencies and their personnel shall comply with ASTM E329-03 Standard Specification for Agencies in the Testing and / or Inspection of Materials Used in Construction.
 - a. Inspectors and individuals performing tests shall be certified for the work being performed as outlined in the appendix of the ASTM E329. Certification by organizations other than those listed must be submitted to the building official for consideration before proceeding with work.
2. In addition to these requirements, local jurisdiction may have additional requirements. It is the responsibility of the testing and inspection agencies to meet local requirements and comply with local procedures.

1.5 CONFLICTING REQUIREMENTS, REPORTS, AND TEST RESULTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the registered design professional in responsible charge for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to the registered design profession in responsible charge for a decision before proceeding.
- C. The special inspector's reports and testing agencies results shall have precedence over reports and test results provided by the contractor.
- D. Where a conflict exists between the construction documents and approved shop drawings / submittal data, the construction documents shall govern unless the shop drawings / submittal data are more restrictive. All conflicts shall be brought to the attention of the registered design professional in responsible charge.

1.6 SUBMITTALS BY SPECIAL INSPECTOR AND / OR TESTING AGENCY

- A. Special inspectors shall keep and distribute records of inspections. The special inspector shall furnish inspection reports to the building official, and to the registered design professional in responsible charge, contractor, architect, and owner. Reports shall indicate that work inspected was done in conformance to approved construction documents. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design

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professional in responsible charge prior to the completion of that phase of the work. A final report documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted at a point in time agreed upon by the permit applicant and the building official prior to the start of work.

1. Special inspection reports and test results shall include, but not be limited to, the following:
 - a. Date of inspection.
 - b. Description of inspections or tests performed including location (reference grid lines, floors, elevations, etc.).
 - c. Statement noting that the work, material, and / or product conforms or does not conform to the construction document requirements.
 - 1) Name and signature of contractor's representative who was notified of work, material, and / or products that do not meet the construction document requirements.
 - d. Name and signature of special inspector and / or testing agency representative performing the work.
- B. Schedule of Non-Compliant Work: Each agent shall maintain a log of work that does not meet the requirements of the construction documents. Include reference to original inspection / test report and subsequent dates of re-inspection / retesting.
- C. Reports and tests shall be submitted within 1 week of inspection or test. Schedule of Non-Compliant Work shall be updated daily and submitted at monthly intervals.
- D. Final Report of Special Inspections. Submitted by each agent listed in the schedule of Structural Testing and Special Inspections.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 CONTRACTOR'S RESPONSIBILITY

- A. The contractor shall coordinate the inspection and testing services with the progress of the work. The contractor shall provide sufficient notice to allow proper scheduling of all personnel. The contractor shall provide safe access for performing inspection and on site testing.
- B. The contractor shall submit schedules to the owner, registered design professionals and testing and inspecting agencies. Schedules will note milestones and durations of time for materials requiring structural tests and special inspections.

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- C. Each contractor responsible for the construction of a seismic-force-resisting system, designated seismic system, or component listed in the quality assurance plan shall submit a written contractor's statement of responsibility to the building official and to the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain the following:
1. Acknowledgment of awareness of the special requirements contained in the quality assurance plan.
 2. Acknowledgment that control will be exercised to obtain conformance with the construction documents approved by the building official.
 3. Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of the reports.
 4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.
- D. Each contractor responsible for the construction of a main wind force-resisting system or a wind-resisting component listed in the quality assurance plan shall submit a written statement of responsibility to the building official and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain the following:
1. Acknowledgment of awareness of the special requirements contained in the quality assurance plan.
 2. Acknowledgment that control will be exercised to obtain conformance with the construction documents approved by the building official.
 3. Procedures for exercising control within the contractor's organization, the method and frequency of reporting and the distribution of the reports.
 4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.
- E. The contractor shall repair and / or replace work that does not meet the requirements of the construction documents.
1. Contractor shall engage an engineer / architect to prepare repair and / or replacement procedures.
 2. Engineer / architect shall be registered in the state in which the project is located. Engineer shall be acceptable to the registered design professional in responsible charge, code enforcement official, and owner.
 3. Procedures shall be submitted for review and acceptance by the registered design professional in responsible charge, code enforcement official, and owner before proceeding with corrective action.
- F. The contractor shall be responsible for costs of:
1. Re-testing and re-inspection of materials, work, and / or products that do not meet the requirements of the construction documents and shop drawings / submittal data.
 2. Review of proposed repair and / or replacement procedures by the registered design professional in responsible charge and the inspectors and testing agencies.

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3. Repair or replacement of work that does not meet the requirements of the construction documents.

3.2 STRUCTURAL OBSERVATIONS

- A. Structural observations may be made periodically as determined by the registered design professional in responsible charge.

3.3 TESTING AND INSPECTION

- A. Testing and inspection shall be in accordance with the attached Schedule of Special Inspections.
- B. Reference related specifications for the minimum level of inspections and testing. Provide additional inspections and testing as necessary to determine compliance with the construction drawings.

PART 4 - SCHEDULES AND FORMS

4.1 SCHEDULE OF SPECIAL INSPECTIONS.

4.2 STATEMENT OF SPECIAL INSPECTIONS

4.3 FINAL REPORT OF SPECIAL INSPECTIONS

4.4 CONTRACTOR STATEMENT OF RESPONSIBILITY

END OF SECTION 01 4100

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT	LANGAN PARK RESTROOM				
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
1704.2.5 Inspection of Fabricators					
Verify fabrication/quality control procedures	In-plant review (3)	Y	Periodic	1	
The following fabricators, if registered and approved by the building official, may submit "certificate of compliance" at the completion of their scope of work that their fabricated items were constructed in accordance with the approved construction documents: WOOD TRUSS FABRICATOR	Submittal Review	Y	Periodic		
1705.2 Steel Construction					
1. Fabricator and erector documents (Verify reports and certificates as listed in AISC 360, chapter N, paragraph 3.2 for compliance with construction documents)	Submittal Review	Y	Each submittal	1	
2. Material verification of structural steel	submittal review and field inspection	Y	Periodic	1	
3. Embedments (Verify diameter, grade, type, length, embedment. See 1705.3 for anchors)	Field inspection	Y	Periodic	1	
4. Verify member locations, braces, stiffeners, and application of joint details at each connection comply with construction documents	Field inspection	Y	Periodic	1	
5. Structural steel welding:					
a. Inspection tasks Prior to Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1)	Shop (3) and field inspection	Y	Observe or Perform as noted (4)	1	
b. Inspection tasks During Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1)	Shop (3) and field inspection	Y	Observe (4)	1	
c. Inspection tasks After Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-3)	Shop (3) and field inspection	Y	Observe or Perform as noted (4)	1	
d. Nondestructive testing (NDT) of welded joints: see <i>Commentary</i>				1	
6. Structural steel bolting:	Shop (3) and field inspection				
a. Inspection tasks Prior to Bolting (Observe, or perform tasks for each bolted connection, in accordance with QA tasks listed in AISC 360, Table N5.6-1)		Y	Observe or Perform as noted (4)	1	
b. Inspection tasks During Bolting (Observe the QA tasks listed in AISC 360, Table N5.6-2)		Y	Observe (4)	1	
1) Snug-tight joints		Y	Periodic	1	
c. Inspection tasks After Bolting (Perform tasks for each bolted connection in accordance with QA tasks listed in AISC 360, Table N5.6-3)		Y	Perform (4)	1	

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT	LANGAN PARK RESTROOM				
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
1705.3 Concrete Construction					
1. Inspection of reinforcing steel installation (see 1705.2.2 for welding)	field inspection	Y	Periodic	1	
3. Inspection of anchors and reinforcing steel post-installed in hardened concrete: Per research reports including verification of anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque	Field inspection	Y	Periodic or as required by the research report issued by an approved source	1	
4. Verify use of approved design mix	Submittal review and field inspection	Y	Periodic	1	
5. Fresh concrete sampling, perform slump and air content tests and determine temperature of concrete	Field testing and field inspection	Y	Continuous	1	
6. Inspection of concrete and shotcrete placement for proper application techniques	field testing and field inspection	Y	Continuous	1	
7. Inspection for maintenance of specified curing temperature and techniques	Field testing and field inspection	Y	Periodic	1	
8. Inspection of formwork for shape, lines, location and dimensions	Field inspection	Y	Periodic	1	
9. Concrete strength testing and verification of compliance with construction documents	Field testing and review of laboratory reports	Y	Periodic	1	
1705.4 Masonry Construction					
(A) Level A, B and C Quality Assurance:					
1. Verify compliance with approved submittals	Field Inspection	Y	Periodic	1	
(B) Level B Quality Assurance:					
1. Verification of f'm and f' AAC prior to construction	Testing by unit strength method or prism test method	Y	Periodic	1	
(C) Levels B and C Quality Assurance:					
1. Verification of Slump Flow and Visual Stability Index (VSI) of self-consolidating grout as delivered to the project	Field testing	Y	Continuous	1	
2. Verify compliance with approved submittals	Field inspection	Y	Periodic	1	
3. Verify proportions of site-mixed mortar, grout and prestressing grout for bonded tendons	Field Inspection	Y	Periodic	1	
4. Verify grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages	Field Inspection	Y	Periodic	1	
5. Verify construction of mortar joints	Field Inspection	Y	Periodic	1	
6. Verify placement of reinforcement, connectors, and prestressing tendons and anchorages	Field Inspection	Y	Level B - Periodic	1	
7. Verify grout space prior to grouting	Field Inspection	Y	Level B - Periodic	1	
8. Verify placement of grout and prestressing grout for bonded tendons	Field Inspection	Y	Continuous	1	

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT	LANGAN PARK RESTROOM				
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
9. Verify size and location of structural masonry elements	Field Inspection	Y	Periodic	1	
10. Verify type, size, and location of anchors, including details of anchorage of masonry to structural members, frames, or other construction.	Field inspection	Y	Level B - Periodic	1	

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT	LANGAN PARK RESTROOM				
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
11. Verify preparation, construction, and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)	Field inspection	Y	Periodic	1	
1705.6 Soils					
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Field inspection	Y	Periodic	1	
2. Verify excavations are extended to proper depth and have reached proper material.	Field inspection	Y	Periodic	1	
3. Perform classification and testing of controlled fill materials.	Field inspection	Y	Periodic	1	
4. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of controlled fill	Field inspection	Y	Continuous	1	
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly	Field inspection	Y	Periodic	1	
1705.11.3 Wind-resisting Components					
1. Roof covering, roof deck, and roof framing connections	Submittal review and field inspection	Y	Periodic	1	1. Wood Roof Trusses - Verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package 2. Inspections anchoring of roof trusses to their supporting elements 3. Inspect nailing of roof decking
2. Wall cladding	Submittal review and field inspection	Y	Periodic		
* INSPECTION AGENTS					
FIRM		ADDRESS		TELEPHONE NO.	
1. Special Inspection - TBD					
2.					
3.					
4.					
Notes: 1. The inspection and testing agent(s) shall be engaged and paid for by the Owner. The qualifications of the Special Inspector(s) and/or testing agencies may be subject to the approval of the Design Professional. 2. The list of Special Inspectors may be submitted as a separate document, if noted so above. 3. Special Inspections as required by Section 1704.2.5 are not required where the fabricator is approved in accordance with IBC Section 1704.2.5.2 4. Observe on a random basis, operations need not be delayed pending these inspections.					

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT	LANGAN PARK RESTROOM				
	APPLICABLE TO THIS PROJECT				
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	COMMENT
<p><i>Perform these tasks for each welded joint, bolted connection, or steel element.</i></p> <p><i>5. NDT of welds completed in an approved fabricator's shop may be performed by that fabricator when approved by the AHJ. Refer to AISC 360, N7.</i></p> <p>Are Requirements for Seismic Resistance included in the Statement of Special Inspections? No</p> <p>Are Requirements for Wind Resistance included in the Statement of Special Inspections? Yes</p> <p style="text-align: right;">DATE:</p>					

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT		COM PUBLIC SAFETY MEMORIAL PARK			
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
1704.2.5 Inspection of Fabricators					
Verify fabrication/quality control procedures	In-plant review (3)	Y	Periodic	1	
The following fabricators, if registered and approved by the building official, may submit "certificate of compliance" at the completion of their scope of work that their fabricated items were constructed in accordance with the approved construction documents: METAL TRUSS FABRICATOR	Submittal Review	Y	Periodic		
1705.2 Steel Construction					
1. Fabricator and erector documents (Verify reports and certificates as listed in AISC 360, chapter N, paragraph 3.2 for compliance with construction documents)	Submittal Review	Y	Each submittal	1	
2. Material verification of structural steel	submittal review and field inspection	Y	Periodic	1	
3. Embedments (Verify diameter, grade, type, length, embedment. See 1705.3 for anchors)	Field inspection	Y	Periodic	1	
4. Verify member locations, braces, stiffeners, and application of joint details at each connection comply with construction documents	Field inspection	Y	Periodic	1	
5. Structural steel welding:					
a. Inspection tasks Prior to Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1)	Shop (3) and field inspection	Y	Observe or Perform as noted (4)	1	
b. Inspection tasks During Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1)	Shop (3) and field inspection	Y	Observe (4)	1	
c. Inspection tasks After Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-3)	Shop (3) and field inspection	Y	Observe or Perform as noted (4)	1	
d. Nondestructive testing (NDT) of welded joints: see <i>Commentary</i>				1	
6. Structural steel bolting:					
a. Inspection tasks Prior to Bolting (Observe, or perform tasks for each bolted connection, in accordance with QA tasks listed in AISC 360, Table N5.6-1)		Y	Observe or Perform as noted (4)	1	
b. Inspection tasks During Bolting (Observe the QA tasks listed in AISC 360, Table N5.6-2)		Y	Observe (4)	1	
1) Snug-tight joints		Y	Periodic	1	
c. Inspection tasks After Bolting (Perform tasks for each bolted connection in accordance with QA tasks listed in AISC 360, Table N5.6-3)		Y	Perform (4)	1	

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT		COM PUBLIC SAFETY MEMORIAL PARK			
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
1705.3 Concrete Construction					
1. Inspection of reinforcing steel installation (see 1705.2.2 for welding)	field inspection	Y	Periodic	1	
3. Inspection of anchors and reinforcing steel post-installed in hardened concrete: Per research reports including verification of anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque	Field inspection	Y	Periodic or as required by the research report issued by an approved source	1	
4. Verify use of approved design mix	Submittal review and field inspection	Y	Periodic	1	
5. Fresh concrete sampling, perform slump and air content tests and determine temperature of concrete	Field testing and field inspection	Y	Continuous	1	
6. Inspection of concrete and shotcrete placement for proper application techniques	field testing and field inspection	Y	Continuous	1	
7. Inspection for maintenance of specified curing temperature and techniques	Field testing and field inspection	Y	Periodic	1	
8. Inspection of formwork for shape, lines, location and dimensions	Field inspection	Y	Periodic	1	
9. Concrete strength testing and verification of compliance with construction documents	Field testing and review of laboratory reports	Y	Periodic	1	
1705.4 Masonry Construction					
(A) Level A, B and C Quality Assurance:					
1. Verify compliance with approved submittals	Field Inspection	Y	Periodic	1	
(B) Level B Quality Assurance:					
1. Verification of f'_m and f'_{AAC} prior to construction	Testing by unit strength method or prism test method	Y	Periodic	1	
(C) Levels B and C Quality Assurance:					
1. Verification of Slump Flow and Visual Stability Index (VSI) of self-consolidating grout as delivered to the project	Field testing	Y	Continuous	1	
2. Verify compliance with approved submittals	Field inspection	Y	Periodic	1	
3. Verify proportions of site-mixed mortar, grout and prestressing grout for bonded tendons	Field Inspection	Y	Periodic	1	
4. Verify grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages	Field Inspection	Y	Periodic	1	
5. Verify construction of mortar joints	Field Inspection	Y	Periodic	1	
6. Verify placement of reinforcement, connectors, and prestressing tendons and anchorages	Field Inspection	Y	Level B - Periodic	1	
7. Verify grout space prior to grouting	Field Inspection	Y	Level B - Periodic	1	
8. Verify placement of grout and prestressing grout for bonded tendons	Field Inspection	Y	Continuous	1	

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT	COM PUBLIC SAFETY MEMORIAL PARK				
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
9. Verify size and location of structural masonry elements	Field Inspection	Y	Periodic	1	
10. Verify type, size, and location of anchors, including details of anchorage of masonry to structural members, frames, or other construction.	Field inspection	Y	Level B - Periodic	1	

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT		COM PUBLIC SAFETY MEMORIAL PARK			
MATERIAL / ACTIVITY	SERVICE	Y/N	APPLICABLE TO THIS PROJECT		
			EXTENT	AGENT*	COMMENT
11. Verify preparation, construction, and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)	Field inspection	Y	Periodic	1	
1705.6 Soils					
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Field inspection	Y	Periodic	1	
2. Verify excavations are extended to proper depth and have reached proper material.	Field inspection	Y	Periodic	1	
3. Perform classification and testing of controlled fill materials.	Field inspection	Y	Periodic	1	
4. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of controlled fill	Field inspection	Y	Continuous	1	
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly	Field inspection	Y	Periodic	1	
1705.11.3 Wind-resisting Components					
1. Roof covering, roof deck, and roof framing connections	Submittal review and field inspection	Y	Periodic	1	1. Metal Roof Trusses - Verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package 2. Inspections anchoring of roof trusses to their supporting elements 3. Inspect nailing of roof decking
2. Wall cladding	Submittal review and field inspection	Y	Periodic		
* INSPECTION AGENTS					
FIRM		ADDRESS		TELEPHONE NO.	
1. Special Inspection - TBD					
2.					
3.					
4.					
<i>Notes: 1. The inspection and testing agent(s) shall be engaged and paid for by the Owner. The qualifications of the Special Inspector(s) and/or testing agencies may be subject to the approval of the Design Professional. 2. The list of Special Inspectors may be submitted as a separate document, if noted so above. 3. Special Inspections as required by Section 1704.2.5 are not required where the fabricator is approved in accordance with IBC Section 1704.2.5.2 4. Observe on a random basis, operations need not be delayed pending these inspections.</i>					

SCHEDULE OF SPECIAL INSPECTION SERVICES					
PROJECT		COM PUBLIC SAFETY MEMORIAL PARK			
		APPLICABLE TO THIS PROJECT			
MATERIAL / ACTIVITY	SERVICE	Y/N	EXTENT	AGENT*	COMMENT
<p><i>Perform these tasks for each welded joint, bolted connection, or steel element.</i></p> <p><i>5. NDT of welds completed in an approved fabricator's shop may be performed by that fabricator when approved by the AHJ. Refer to AISC 360, N7.</i></p>					
Are Requirements for Seismic Resistance included in the Statement of Special Inspections?				No	
Are Requirements for Wind Resistance included in the Statement of Special Inspections?				Yes	
DATE:					

STATEMENT OF SPECIAL INSPECTIONS

Project:

Project Address: Mobile, AL

Permit Applicant:

Applicant Address:

Owner:

Owner Address:

Registered Design Professionals (RDP):

Architect: The Architects Group (TAG)

Geotechnical Engineer:

Structural Engineer: Barter & Associates, Inc (BAA)

Mechanical Engineer:

Electrical Engineer:

This statement of special inspections is submitted as a condition for permit issuance in accordance with Chapter 17 of the International Building Code. It includes a *Schedule of Special Inspections* applicable to the above referenced project as well as the identity of the individuals, agencies, or firms intended to be retained for conducting these inspections.

The Special Inspector(s) shall keep records of all inspections and shall furnish interim inspection reports to the building official and to the registered design professional in responsible charge at a frequency agreed upon by the design professionals and the building official prior to the start of work. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and the registered design professional in responsible charge prior to completion of that phase of work. A *Final Report of Special Inspections* documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted to the building official and the registered design professional in responsible charge at the completion of that phase of work.

Maximum frequency of interim report submittals shall not be less than_____.

The Special Inspection program does not relieve the contractor of the responsibility to comply with the Contract Documents. Jobsite safety and means and methods of construction are solely the responsibility of the Contractor.

Owner's Acknowledgement:

Signature

Date

Building Official's Acceptance:

Signature

Date

Permit No.

Frequency of interim report submittals to building official:

Monthly

Bi-Monthly

Upon Completion

Per Attached Schedule

RDP in Responsible Charge



FINAL REPORT OF SPECIAL INSPECTIONS

Project:

Project Address: Mobile, Alabama

Testing / Inspection Agent:

Testing / Inspection Agent Address:

Scope of Testing / Inspections:

(To be completed by Testing / Inspection Agent)

To the best of my information, knowledge, and belief, the special inspections or testing required for this project, and designated for this Agent in the *Schedule of Special Inspections* submitted for permit, have been completed in accordance with the contract documents.

Interim reports submitted prior to this final report and numbered [] to [], form a basis for, and are to be considered an integral part of this final report. The following discrepancies that were outstanding since the last interim report dated [] have been corrected:

[Large empty box for describing corrections]

(Attach 8 1/2" x 11" continuation sheet(s) if required to complete the description of corrections)

Prepared By:

Type or print name

Signature _____ Date _____

Special Inspector's Seal

[Large empty box for seal]

(Licensed Professional Engineer)



Issued for Bid September 28, 2022

Contractor's Statement of Responsibility

(The term "each contractor", as used in this document, shall mean the Contractor, the Contractor's subcontractors, the Contractor's installer and the Contractor's or subcontractor's fabricator.)

Each contractor responsible for the construction, installation or fabrication of a main wind force-resisting system or wind-resisting component listed in the Statement of Special Inspections, Requirements for Wind Resistance, must submit a Statement of Responsibility.

Project: _____

Contractor's Name: _____

Address: _____

License No.: _____

Description of building systems and components included in Statement of Responsibility:

Contractor's Acknowledgement of Special Requirements

I hereby acknowledge that I have received, read, and understand the Statement of Special Inspections and Special Inspection program:

I hereby acknowledge that control will be exercised to obtain conformance with the approved construction documents.

Name and Title (type or print)

Signature

Date

Contractor's Provisions for Quality Control

Public Safety Memorial Park
Restroom, Skateboard Park & Splashpad
City of Mobile (COM)

TAG 2121
COM PR-093-21

Issued for Bid September 28, 2022

Procedures for exercising control within the contractor's organization, the method and frequency of reporting and distribution of reports is attached to this Statement. (*Each contractor to attach with executed Statement.*)

Identification and qualifications of the person(s) exercising such control and their position(s) in the organization are attached to this Statement. (*Each contractor to attach with executed Statement.*)

Issued for Bid September 28, 2022

Contractor's Statement of Responsibility

(The term "each contractor", as used in this document, shall mean the Contractor, the Contractor's subcontractors, the Contractor's installer and the Contractor's or subcontractor's fabricator.)

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Project: _____

Contractor's Name: _____

Address: _____

License No.: _____

Description of building systems and components included in Statement of Responsibility:

Contractor's Acknowledgement of Special Requirements

I hereby acknowledge that I have received, read, and understand the Statement of Special Inspections and Special Inspection program:

I hereby acknowledge that control will be exercised to obtain conformance with the approved construction documents.

Name and Title (type or print)

Signature

Date

Contractor's Provisions for Quality Control

Issued for Bid September 28, 2022

Procedures for exercising control within the contractor's organization, the method and frequency of reporting and distribution of reports is attached to this Statement. (*Each contractor to attach with executed Statement.*)

Identification and qualifications of the person(s) exercising such control and their position(s) in the organization are attached to this Statement. (*Each contractor to attach with executed Statement.*)

Issued for Bid September 28, 2022

SECTION 015000 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION OF SCOPE AND INTENT

- A. The intent of this section is to provide guidelines for construction facilities standards and temporary controls. Where local codes or environmental authorities' requirements exceed the standards of this section, the contractor is to include the requirements of such authorities.
- B. The General Contractor can use Owner's water and sewer utilities necessary for construction.
- C. The General Contractor shall be responsible for electrical power connection to the Owner's existing electrical service necessary for construction.

1.2 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone and facsimile service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction Facilities: Progress cleaning, project signage, and temporary buildings.
- D. Permits and Fees.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, utility hookups, staging areas, construction site entrances, vehicle circulation, vehicular traffic signage, controls and barricades, proposed location of site enclosure fencing and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Per Civil Engineering.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

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1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

1.6 TEMPORARY ELECTRICITY

- A. Provide temporary electric feeder from electrical service at location as necessary for completion of the work.
- B. Provide power outlets for construction operations, with branch wiring and distribution boxes located. Provide flexible power cords as required.
- C. Provide main service disconnect and over-current protection at convenient location.
- D. Permanent convenience receptacles may be utilized during construction.
- E. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.
 - 1. Provide 20 ampere duplex outlets, single phase circuits for power tools for of active work areas. Outlets shall be ground fault protected in wet or hazardous areas.
 - 2. Provide 20 ampere, single phase branch circuits for lighting.

1.7 TEMPORARY LIGHTING

- A. Provide and maintain lighting for construction operations to achieve a minimum lighting level of 2 watt/sf.
- B. Provide and maintain 1 watt/sf lighting to exterior staging and storage areas after dark for security purposes.

- C. Provide and maintain 0.25 watt/sq ft H.I.D. lighting to interior work areas after dark for security purposes.
- D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- E. Maintain lighting and provide routine repairs.
- F. Permanent building lighting may be utilized during construction.

1.8 TELEPHONE SERVICE

- A. Provide, maintain and pay for cellular telephone service for construction personnel on site at all times they are on site.

1.9 TEMPORARY WATER SERVICE

- A. Provide and maintain suitable quality water service required for construction.

1.10 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures.

1.11 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and adjacent properties from damage from construction operations.
- B. Provide protection for plant life designated to remain. Replace damaged plant life.
- C. Contractor shall protect non-owned vehicular traffic, stored materials, site and structures from damage.
- D. Contractor is responsible for maintaining proper traffic control for public safety adjacent to the construction site.
- E. Contractor shall furnish erect and maintain barricades, warning signs, lights and other traffic control devices in conformity with the Federal Highway Administration Manual on uniform traffic control. Devices for Streets and Highways.

1.12 FENCING

- A. Construction: Contractor to provide security of construction materials and install fencing at site as required in order to control traffic, protect the public and/or materials. **Location of fencing shall be PRE-APPROVED.**

1.13 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. Provide silting screen barricades at site run-off.
- D. Contractor shall use Best Management Practices (BMP's) and is responsible for the construction and maintenance of erosion and sedimentation controls during construction for protection of adjacent properties, roadways, and waterways.

1.14 PROTECTION OF INSTALLED WORK

- A. The Contractor shall notify the City/County Engineer prior to beginning work on City/County Right of Way (ROW).
- B. Protect installed Work and provide special protection where specified in individual specification Sections.
- C. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- D. Prohibit traffic from landscaped areas.

1.15 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition with minimum weekly cleaning and haul-off of waste materials.

1.16 LOCATING AND/OR REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. It is the Contractor's sole responsibility to locate any and all buried utilities prior to the commencement of work. Contractor is responsible for buried utilities damaged by Contractor during construction.

- B. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- C. Remove underground installations.
- D. Clean and repair damage caused by installation or use of temporary work.
- E. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

2.2 MATERIALS

- A. Chain Link Fencing: Minimum 2-inch (50 mm), 0.148 inch (3.8 mm) thick, galvanized steel, chain link fabric fencing; galvanized steel pipe posts; minimum 2 3/8 inch (60 mm) OD line posts and 2 7/8 inch (73 mm) OD corner and pull posts with 1 5/8 inch (42 mm) OD top rails.
 - 1. Minimum height of fencing: As shown on the drawings.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead underground unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- G. Cellular telephone service and e-mail to construction personnel must be provided at all times during working hours and other times when personnel are on site.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.2 SUPPORT FACILITIES INSTALLATION

- A. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
 - 3. Contractor shall coordinate with City of Mobile to determine allowable path of travel for construction traffic beginning at entrance onto City of Mobile park property, extending through City of Mobile park property and terminating at Site Enclosure Entrance Gate for each work area. Contractor shall control all construction related traffic along this City of Mobile approved travel path.
- C. Parking: For construction personnel use area designated and approved in the site plan submittal in Article "Information Submittals".
 - 1. All construction parking shall occur within the confines of the site enclosure fenced area unless otherwise specifically allowed by the City of Mobile.
- D. Project Signs: Provide Project sign. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs required by City of Mobile.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Perform progress cleaning every day of construction activity.

- F. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or if not indicated outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from construction activity damage, flooding, and erosion.
- F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - a. Entrance Gate: Provide only one entrance gate to the area encircled by the site enclosure fence. Additional gates are not allowed.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

- I. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire prevention program.
 1. Prohibit smoking in construction areas.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.4 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section "Closeout Procedures."

END OF SECTION

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SECTION 017000 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Environmental concerns.
 - 2. Installation of the Work.
 - 3. Cutting and patching.
 - 4. Progress cleaning.
 - 5. Starting and adjusting.
 - 6. Protection of installed construction.
 - 7. Correction of the Work.
- B. Related Sections:
 - 1. Division 1 Sections "Summary", "Project Record Documents", or "Closeout Procedures", if included in Project Manual, for submitting closeout documents and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

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2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate how long services and systems will be disrupted.

1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

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1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.
- 3.2 PREPARATION
- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
 - C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 1 Section "Project Management and Coordination."

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- D. Surface and Substrate Preparation: Comply with manufacturer's recommendations for preparation of substrates to receive subsequent work.

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches, but in no case shall the new piping be lower than the existing piping.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

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- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous, and meet environmental requirements.

3.4 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 1 Section "Summary."
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. [Concrete] [and] [Masonry]: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 5. Proceed with patching after construction operations requiring cutting are complete.

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- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).

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3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Utilize containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- F. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- G. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- H. Clean completed construction as frequently as necessary through the remainder of the construction period.
- 3.6 STARTING AND ADJUSTING
- A. Coordinate startup and adjusting of equipment and operating components with requirements in other Division 2 -16 Sections."
 - B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

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- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in other Division 2-16 Sections.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

3.9 ENVIRONMENTAL CONCERNS

- 1. Provide protection and conduct construction in ways that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

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TAG 2113
COM PR-031-21

Public Safety Memorial Park
Restroom, Skateboard Park & Splashpad
City of Mobile (COM)

TAG 2121
COM PR-093-21

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3.10 STORMWATER CONTROL AND DISCHARGE

1. Comply with City of Mobile and Alabama Department of Environmental Management requirements. Pay particular attention to Water Regulations and Allowable Discharges.
2. See City of Mobile Code, Chapter 17, Storm Water Management and Flood Control.
3. Obtain any necessary permits that may be required due to discharges.

END OF SECTION

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SECTION 017310 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Definition: Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and repair required to restore surfaces to their original condition.
- C. Refer to other sections for other requirements and limitations applicable to cutting and patching individual parts of the Work.

1.2 SUBMITTALS

- A. Cutting and Patching Plan: Submit a proposal to the Architect, describing procedures at least 14 calendar days in advance of the time cutting and patching will initially be performed.
 - 1. Include the following information, as applicable:
 - a. Description of the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.
 - b. Description of the anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in appearance and other significant visual elements.
 - c. List of products to be used and entities that will perform work.
 - d. Dates and hours of operation when cutting and patching will be performed.
 - e. Compatibility and cohesion characteristics of patching compounds with adjacent materials.
 - 2. Approval by the Architect to proceed with cutting and patching does not waive the right to later require complete removal and replacement of unsatisfactory work.

1.3 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
 - 1. The cutting and patching plan shall include but not be necessarily limited to work required at the following structural elements if they are present:
 - a. Concrete walls.
 - b. Structural concrete.

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- c. Structural steel.
 - d. Lintels.
 - e. Miscellaneous structural metals.
 - f. Equipment supports.
 - g. Piping, ductwork, vessels and equipment.
 - h. Structural systems of other construction.
- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or in increased maintenance or decreased operational life or safety.
- 1. The cutting and patching plan shall include but not be necessarily limited to work required at the following operating elements or safety related systems if they are present:
 - a. Primary operational systems and equipment.
 - b. Air or smoke barriers.
 - c. Water, moisture or vapor barriers.
 - d. Membranes and flashings.
 - e. Fire protection systems.
 - f. Noise and vibration control elements and systems.
 - g. Control systems.
 - h. Communication systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of other construction.
- C. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- 1. Engage a specialist who is specifically experienced in the work.
 - 2. The cutting and patching plan shall include but not be necessarily limited to work required at the following visual elements if they are present:
 - a. Processed concrete finishes.
 - b. Firestopping.
 - c. Acoustical ceilings.
 - d. Finished flooring.
 - e. Carpeting.
 - f. Aggregate wall.
 - g. Wall covering.
- 1.4 EXISTING WARRANTIES
- A. Replace, patching and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to avoid any existing warranties.

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PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use materials identical to existing materials to the maximum extent available.
- B. For exposed surfaces, use materials that visually matching existing adjacent surfaces to the fullest extent possible.
- C. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Before cutting, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
- B. Before proceeding with cutting and patching involving two or more trades, meet at the Project site with the entities providing or affected by the cutting and patching. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
- D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

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3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete, Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

3.4 CLEANING

- A. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
- B. Thoroughly clean piping, conduit and similar features before applying paint, restored pipe coverings, or other finishing materials.

END OF SECTION

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SECTION 017320 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the following:
 - 1. Demolition and removal of selected portions of a building.
 - 2. Demolition and removal of selected site elements.
 - 3. Repair procedures for selective demolition operations.

- B. Definitions:
 - 1. Remove: Detach items from existing construction and legally dispose of them.
 - 2. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
 - 3. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
 - 4. Existing to Remain: Existing items of construction that are not to be removed.

1.2 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be salvaged, reinstalled or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at Contractor's option.

1.3 SUBMITTALS

- A. Proposed dust-control measures.
- B. Proposed noise-control measures.
- C. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition work, with starting and ending dates for each activity.
 - 2. Interruption of utility services.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Locations of temporary partitions and means of egress.
 - 5. Procedures to ensure uninterrupted progress of Owner's on-site operations.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

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- D. Photographs or Videotape: Before work begins, submit sufficiently detailed photographs or videotapes showing existing conditions of adjoining construction and site improvements, including finish surfaces, which might be misconstrued as damage caused by selective demolition operations.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with NFPA 241 and ANSI A10.6.
- C. Pre-Demolition Conference: Conduct conference at Project site to comply with requirements in Division 1 section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review and finalize demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review requirements of work performed by other trades that rely on substrates exposed by demolition operations.

1.5 PROJECT CONDITIONS

- A. The Contractor shall remove the existing items required for installation of New Work.
- B. The Contractor shall remove and reinstall existing items required for the installation of New Work.
- C. On-site storage or sale of removed items or materials will not be permitted.
- D. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
- E. Fire Protection: Maintain fire-protection services during selective demolition operations.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

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- A. Where available and appropriate for use, provide repair materials that are identical to existing materials.
- B. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- C. Use materials whose installed performance equals or surpasses that of existing materials.
- D. See schedule below for images of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities to be removed have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. When encountering unanticipated mechanical, electrical or structural elements that conflict with the intended function or design, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Owner's Representative.
- D. Survey the condition of the building to determine whether removing any element might result in a structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.
- E. Perform surveys as the selective demolition progresses to detect hazards resulting from the activities.

3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by authorities having jurisdiction.
 - 1. Provide not less than 5 working days' notice to the Owner's Representative if shutdown of service is required.
- C. Utility Requirements:

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1. Owner will arrange to shut off utilities when requested by Contractor.
2. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit after bypassing.
3. Do not start selective demolition work until utility disconnection and sealing have been completed and verified.
4. Cap water piping below grade. Prepare for possible re-use. Mark off end of piping below grade.
5. Cap waste piping below grade. Prepare for possible re-use. Mark off end of piping below grade.

3.3 PREPARATION

- A. Dangerous Materials: Drain, purge or otherwise remove, collect and dispose of chemicals, gases, explosives, acids, flammables or other dangerous materials before proceeding with selective demolition operations.
- B. Temporary Site Control: Remove debris and conduct demolition operations in a manner to ensure minimum interference with roads, streets, walks, walkways, corridors, and other adjacent occupied or used facilities.
 1. Do not close or obstruct streets, walks, walkways, corridors, or other adjacent occupied or used facilities without permission from the Owner's Representative and authorities having jurisdiction.
- C. Temporary Facilities: Conduct demolition operations in a manner to prevent injury to people and damage to adjacent building and facilities to remain. Provide for safe passage of people around selective demolition area.
 1. Erect temporary protection, such as walks, fences, railings, canopies and covered passageways, where required for safety of persons.
 2. Protect existing site improvements, appurtenances and landscaping to remain.
 3. Protect walls, ceilings, floors and other existing finish work that are to remain and are exposed during selective demolition operations.
- D. Temporary Shoring: Provide and maintain shoring, bracing or other structural support to preserve stability and prevent movement, settlement or collapse of building to be selectively demolished. Strengthen or add new supports when required during the progress of selective demolition.

3.4 POLLUTION CONTROLS

- A. Dust Control: Use temporary enclosures and other suitable methods complying with governing environmental protection regulations to limit the spread of dust and dirt.

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1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding or pollution.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas. Clean evidence of tracking by transport means on interior.
- C. Cleaning: Clean adjacent structures and site improvements of dust, dirt and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.5 SELECTIVE DEMOLITION

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete selective demolition within limitations of governing regulations and as follows:
 1. Proceed with selective demolition systematically. Conduct work in an order that avoids transporting removed items and debris through areas with completed selective demolition work, and that allows for removal of items before supports for those items are removed in another area.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage adjoining construction to remain. Use hand or small power tools designed for sawing or grinding, not for hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations, and maintain adequate ventilation when using cutting torches.
 5. Remove decayed, vermin-infested and other dangerous or unsuitable materials, and promptly dispose of these materials off-site.
 6. Lower removed structural framing members to ground by method suitable to avoid free fall and to prevent floor impact or dust generation.
 7. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
- B. Existing Facilities: Comply with building Owner's regulations for using and protecting corridors, stairs, walkways, loading docks, building entries and other building facilities during selective demolition operations.
- C. Disposal of Salvaged Items and Items to be Reinstalled:

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1. Reinstallation: Where items are indicated to be removed and reinstalled, install the materials and equipment in locations indicated. Comply with installation requirements for new materials and equipment.
 2. Delivery to Owner: Where items are indicated to be removed and salvaged, transport the materials and equipment to the area on-site designated by the Owner's Representative or indicated on the Drawings.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Owner's Representative, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.
- E. Concrete: Demolish concrete in small sections. At junctures with construction to remain, cut concrete using power-driven masonry saw or hand tools; do not use power-driven impact tools.

3.6 PATCHING AND REPAIRS

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- B. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- C. Finishes: Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.
- D. Wall Surfaces: Patch and repair wall surfaces in each space where demolished walls or partitions result in extending one finished area into another. Provide a flush and even surface of uniform color and appearance.
 1. Closely match texture and finish of existing adjacent surface.
 2. Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 3. Where patching smooth painted surfaces, extend final paint coat over entire unbroken surface containing the patch after the patched surface has received primer and other specified undercoats.
 4. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

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City of Mobile (COM)

TAG 2113
COM PR-031-21

Public Safety Memorial Park
Restroom, Skateboard Park & Splashpad
City of Mobile (COM)

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- B. Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

END OF SECTION

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SECTION 017350 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Sections:
 - 1. Divisions 2 through 16 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use CSI Form 13.1A.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section.

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Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

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1.6 PROCEDURES

- A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.

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- e. Requested substitution will not adversely affect Contractor's construction schedule.
- f. Requested substitution has received necessary approvals of authorities having jurisdiction.
- g. Requested substitution is compatible with other portions of the Work.
- h. Requested substitution has been coordinated with other portions of the Work.
- i. Requested substitution provides specified warranty.
- j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 017500 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality Control.
- B. Submittals.
- C. Project Record Documents.

1.2 RELATED SECTIONS

- A. Contractor is responsible for coordination of work included in this specification with all other specification sections related to furnishing of all materials, labor, permits, fees, and services necessary for completion of work in this section.

1.3 QUALITY CONTROL

- A. Employ a Land Surveyor registered in the State of Alabama and acceptable to Architect/Engineer for layout and staking of project grades, construction location and utility requirements.

1.4 SUBMITTALS

- A. Submit name, address, and telephone number of Surveyor before starting survey work.
- B. On request, submit documentation verifying accuracy of survey work.

1.5 PROJECT RECORD DOCUMENTS

- A. Maintain a complete and accurate log of control and survey work as it progresses.
- B. On completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.
- C. Submit Record Documents under provisions of Section 017830.

1.6 EXAMINATION

- A. Verify locations of survey control points prior to starting work.
- B. Promptly notify Architect/Engineer of any discrepancies discovered.

1.7 SURVEY REFERENCE POINTS

- A. Contractor to locate and protect survey control and reference points.
- B. Control datum for survey is that established by Owner provided survey and indicated on Drawings.

1.8 SURVEY REQUIREMENTS

- A. Provide field engineering services. Utilize recognized engineering survey practices.
- B. Establish a minimum of two (2) permanent benchmarks on site, referenced to established control points. Record locations with horizontal and vertical data on Project Record Documents.
- C. Establish elevations, lines, and levels. Locate and lay-out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill, and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, ground floor elevations.
- D. Periodically verify layouts by same means.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Sections:
 - 1. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 2. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Submit test records.

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7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
8. Complete final cleaning requirements.
9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

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PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Division 1 Section "Temporary Facilities and Controls."

END OF SECTION

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SECTION 017820 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.
- B. Related Sections include the following:
 - 1. Division 1 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Division 1 Section "Closeout Procedures" for submitting operation and maintenance manuals.
 - 3. Division 1 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
 - 4. Divisions 2 through 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

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1.4 QUALITY ASSURANCE

- A. Maintenance Manual Preparation: In preparation of maintenance manuals, use personnel thoroughly trained and experienced in operation and maintenance of equipment or system involved.
 - 1. Where maintenance manuals require written instructions, use personnel skilled in technical writing where necessary for communications of essential data.
 - 2. Where maintenance manuals require drawings or diagrams, use draftsmen capable of preparing drawings clearly in an understandable format.
- B. Instructions for the Owner's Personnel: Use experienced instructors thoroughly trained and experienced in operation and maintenance of equipment or system involved to instruct the Owner's operation and maintenance personnel.

1.5 SUBMITTALS

- A. Initial Submittal: Submit 2 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.
- B. Final Submittal: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit specified number of copies of each corrected manual within 15 days of receipt of Architect's comments.

1.6 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.

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4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name, address, and telephone number of Contractor.
 6. Name and address of Architect.
 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

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- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) 20 lb. white bond paper.
 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
 6. Text Material: Where maintenance manuals require written materials, use manufacturer's standard printed material. If manufacturer's standard printed material is not available, provide specifically prepared data, neatly typewritten, per Item #4 above.

2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
1. Fire.
 2. Flood.

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3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

2.4 MANUAL CONTENT

A. In each manual include information specified in the individual Specification Section and the following information for each major component of building equipment and its controls.

1. General system or equipment description.
2. Design factors and assumptions.
3. Copies of applicable shop drawings and product data.
4. System or equipment identification, including:
 - a. Name of manufacturer.
 - b. Model number.
 - c. Serial number of each component.
5. Operating instructions.
6. Emergency instructions.
7. Wiring diagrams,
8. Inspection and test procedures.
9. Maintenance procedures and schedules.
10. Precautions against improper use and maintenance.
11. Copies of warranties.
12. Repair instructions including spare parts listing.
13. Sources of required maintenance materials and related services.
14. Manual Index.
15. Material Safety Data Sheets (MSDS) for products and materials.

B. Organize each manual into separate Sections for each piece of related equipment. As a minimum, each manual shall contain a title page, a table of contents, copies of product data,

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supplemented by drawings and written text, and copies of each warranty, bond and service contract issued.

1. Title Page: Provide a title page in a transparent, plastic envelope as the first sheet of each manual. Provide the following information:
 - a. Subject matter covered by the manual.
 - b. Name and address of the Project.
 - c. Date of submittal.
 - d. Name, address and telephone number of the Contractor.
 - e. Name and address of the Architect.
 - f. Cross-reference to related systems in other operation and maintenance manuals.
2. Table of Contents: After title page, include a typewritten table of contents for each volume, arranged systematically according to the Project Manual format. Include a list of each product included, identified by product name or other appropriate identifying symbol and indexed to the content of the volume.
 - a. Where a system requires more than one volume to accommodate data, provide a comprehensive table of contents for all volumes in each volume of the set.
3. General Information: Provide a general information Section immediately following table of contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the subcontractor or installer and the maintenance contractor. Clearly delineate the extent of responsibility of each of these entities. Include a local source for replacement parts and equipment.
4. Product Data: Where the manuals include manufacturer's standard printed data, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where the Project includes more than one item in a tabular format, identify each item, using appropriate references from the Contract Documents. Identify data that is applicable to the installation, and delete references to information that is not applicable.
5. Written Text: Prepare written text to provide necessary information where manufacturer's standard printed data is not available, and the information is necessary for proper operation and maintenance of equipment or systems. Prepare written text where it is necessary to provide additional information or to supplement data included in the manual. Organize text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operation or maintenance procedure.
6. Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems or to provide control or flow diagrams. Coordinate these drawings with information contained in project record drawings to assure correct illustration of the completed installation.
 - a. Do not use original project record documents as part of operation and maintenance manuals.
7. Warranties, Bonds and Service Contracts: Provide a copy of each warranty, bond or service contract in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to follow in the event of product failure. List circumstances and conditions that would affect validity of warranty or bond.

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2.5 MATERIAL AND FINISHES MAINTENANCE MANUAL

- A. Submit 3 copies of each manual, in final form, on material and finishes to the Architect for distribution. Provide one section for architectural products, including applied materials and finishes. Provide a second section for products designed for moisture protection and products exposed to the weather.
 - 1. Refer to individual specification sections for additional requirements on care and maintenance of materials and finishes.

- B. Architectural Products: Provide manufacturer's data and instructions on care and maintenance of architectural products, including applied materials and finishes.
 - 1. Manufacturer's Data: Provide complete information on architectural products, including the following, as applicable:
 - a. Manufacturer's catalog number.
 - b. Size.
 - c. Material composition.
 - d. Color.
 - e. Texture.
 - f. Reordering information for specially manufactured products.
 - 2. Care and Maintenance Instructions: Provide information on care and maintenance, including manufacturer's recommendations for types of cleaning agents to be used and methods of cleaning. Provide information on cleaning agents and methods that could detrimental to the product. Include manufacturer's recommended schedule for cleaning and maintenance.

- C. Moisture Protection and Products Exposed to the Weather: Provide complete manufacturer's data with instructions on inspection, maintenance, and repair of products exposed to the weather or designed for moisture-protection purposes.
 - 1. Manufacturer's Data: Provide manufacturer's data giving detailed information, including the following, as applicable:
 - a. Applicable standards.
 - b. Chemical composition.
 - c. Installation details.
 - d. Inspection procedures.
 - e. Maintenance information.
 - f. Repair procedures.

2.6 EQUIPMENT AND SYSTEMS MAINTENANCE MANUAL

- A. Submit 6 copies of each manual, in final form, on equipment and systems to the Architect for distribution. Provide separate manuals for each unit of equipment, each operating system, and each electric and electronic system.
 - 1. Refer to individual specification sections for additional requirements on operation and maintenance of the various pieces of equipment and operating systems.

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- B. Equipment and Systems: Provide the following information for each piece of equipment, each building operating system and each electric or electronic system.
1. Description: Provide a complete description of each unit and related component parts, including the following:
 - a. Equipment or system function.
 - b. Operating characteristics.
 - c. Limiting conditions.
 - d. Performance curves.
 - e. Engineering data and tests.
 - f. Complete nomenclature and number of replacement parts.
 2. Manufacturer's Information: For each manufacturer of a component part or piece of equipment, provide the following:
 - a. Printed operation and maintenance instructions.
 - b. Assembly drawings and diagrams required for maintenance.
 - c. List of items recommended to be stocked as spare parts.
 3. Maintenance Procedures: Provide information detailing essential maintenance procedures, including the following:
 - a. Routine operations.
 - b. Troubleshooting guide.
 - c. Disassembly, repair and reassembly.
 - d. Alignment, adjusting and checking.
 4. Operating Procedures: Provide information on equipment and system operating procedures, including the following:
 - a. Startup procedures.
 - b. Equipment or system break-in.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Instructions on stopping.
 - f. Shutdown and emergency operating instructions.
 - g. Summer and winter operating instructions.
 - h. Required sequences for electric or electronic systems.
 - i. Special operating instructions.
 5. Servicing Schedule: Provide a schedule of routine servicing and lubrication requirements, including a list of required lubricants for equipment with moving parts.
 6. Controls: Provide a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.
 7. Coordination Drawings: Provide each Contractor's Coordination Drawings.
 - a. Provide as-installed, color-coded, piping diagrams, where required for identification.
 8. Valve Tags: Provide charts of valve-tag numbers, with the location and function of each valve.
 9. Circuit Directories: For electric and electronic systems, provide complete circuit directories of panelboards, including the following:
 - a. Electric service.
 - b. Controls.

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c. Communication.

2.7 INSTRUCTIONS FOR THE OWNER'S PERSONNEL

- A. Prior to final inspection, instruct the Owner's personnel in operation, adjustment, and maintenance of products, equipment and systems. Provide instruction at mutually agreed upon times.
1. For equipment that requires seasonal operation, provide similar instruction during other seasons.
 2. Use operation and maintenance manuals for each piece of equipment or system as the basis of instruction. Review contents in detail to explain all aspects of operation and maintenance.

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 017830 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
- C. See Divisions 01 through 16 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit two sets of marked-up Record Prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Final Submittal: Submit two sets of marked-up Record Prints
- B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit two copies of each Product Data submittal.
- D. Submit PDF's of Record Drawings, Record Specifications, Record Change Orders, Requests for Proposal, Documentation of use of Allowances, Product and Contractor's Warrantees, Product Test Reports, Final Surveys, Record Product Data, etc on 2 discs.

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PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
 3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect and Engineer.

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- e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Completed Test Reports.

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TAG 2121
COM PR-093-21

Issued for Bid September 28, 2022

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION



ALABAMA

PROJECT MANUAL

FOR

**Langan Park
Amphitheater Pavilion & Restroom
4901 Zeigler Blvd.
Mobile, Alabama 26608
PR-031-21**

TECHNICAL SECTIONS

SECTION 020110 - EXISTING SURFACES CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes cleaning the following:
 - 1. Unit masonry surfaces.
 - 2. Stone surfaces.
 - 3. Miscellaneous items.

1.3 DEFINITIONS

- A. Very Low-Pressure Spray: Under 100 psi (690 kPa).

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to cleaning each surface type including, but not limited to, the following:
 - a. Verify cleaning equipment and facilities needed to make progress and avoid delays.
 - b. Materials, material application, and sequencing.
 - c. Cleaning program.

1.5 SEQUENCING AND SCHEDULING

- A. Work Sequence: Perform existing surface-cleaning work in the following sequence:
 - 1. Remove plant growth and accumulations of dirt, debris or other types of materials that could leach onto exposed surfaces during cleaning or which restrict ability to clean surfaces.
 - 2. Inspect for open mortar joints. Where repairs are required, delay further cleaning work until after repairs are completed, cured, and dried to prevent the intrusion of water and other cleaning materials into the wall.

3. Remove dirt, water stains, fungus, surface mold and other visible surfaces contaminants in contact with building materials being cleaned.
4. Clean surfaces indicated on the drawings.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For chemical-cleaner manufacturer.
- B. Preconstruction Test Reports: For cleaning materials and methods.

1.7 QUALITY ASSURANCE

- A. Chemical-Cleaner Manufacturer Qualifications: A firm regularly engaged in producing cleaners that have been used for similar applications with successful results, and with factory-authorized service representatives who are available for consultation and Project-site inspection, preconstruction product testing, and on-site assistance.
- B. Mockups: Prepare mockups of cleaning on existing surfaces to demonstrate aesthetic effects and to set quality standards for materials and execution. Coordinate locations for mockups with Owner.
 1. Cleaning: Clean a minimum of 10 sq. ft. of existing stone wall.
 - a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions. Do not test cleaners and methods known to have deleterious effect.
 - b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample panels for negative reactions.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit cleaning work to be performed according to product manufacturers' written instructions and specified requirements.
- B. Clean porous surfaces only when air temperature is 40 deg F (4 deg C) and above and is predicted to remain so for at least seven days after completion of cleaning.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. General: Select cleaning materials based on Pre-Construction testing. Use only materials that can be demonstrated to provide effective removal stains and substances requiring removal. Do not damage materials which are being cleaned.
- B. Water: Potable.
- C. Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).
- D. Detergent Solution, Job Mixed: As determined by Pre-Construction testing .
- E. Mold, Mildew, and Algae Remover, Job Mixed: As determined by Pre-Construction testing.
- F. Proprietary Cleaners. As determined by Pre-Construction testing.

2.2 CHEMICAL CLEANING SOLUTIONS

- A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended in writing by chemical-cleaner manufacturer.
- B. Acidic Cleaner: Dilute acidic cleaner with water to concentration demonstrated by testing that does not etch or otherwise damage glazed or polished surface, but not greater than that recommended in writing by chemical-cleaner manufacturer.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Comply with each manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical cleaning solutions from coming into contact with people, motor vehicles, landscaping, and other surfaces that could be harmed by such contact.
 - 1. Cover adjacent surfaces with materials that are proven to resist cleaners being used unless products being used will not damage adjacent surfaces.
 - 2. Do not apply chemical solutions during winds of enough force to spread them to unprotected surfaces.
 - 3. Neutralize alkaline and acid wastes before disposal.
 - 4. Dispose of runoff from operations by legal means.

3.2 CLEANING, GENERAL

- A. Cleaning Appearance Standard: Cleaned surfaces are to have a uniform appearance as viewed from adjacent walking surfaces or from **20 feet (6 m)** away by Architect.
- B. Use only those cleaning methods selected for each material and location.
 - 1. Brushes: Do not use wire brushes or brushes that are not resistant to chemical cleaner being used.
 - 2. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that cleaning methods do not damage surfaces, including joints.
- C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging surfaces. Keep wall wet below area being cleaned to prevent streaking from runoff.
- D. Water Application Methods:
 - 1. Water-Soak Application: Soak porous surfaces by applying water continuously and uniformly to limited area.
 - 2. Water-Spray Applications: Use only Very Low Pressure Spray..
- E. Chemical-Cleaner Application Methods: Apply chemical cleaners to surfaces according to chemical-cleaner manufacturer's written instructions; use brush or spray application. Do not spray apply at pressures exceeding **50 psi (345 kPa)**. Do not allow chemicals to remain on surface for periods longer than those indicated or recommended in writing by manufacturer.
- F. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.
 - 1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.
- G. After cleaning is complete, remove protection no longer required.

3.3 PRELIMINARY CLEANING

- A. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to planned cleaning methods. Extraneous substances include paint, calking, asphalt, and tar. Remove plant growth and accumulations of dirt, debris or other types of materials that could leach onto exposed surfaces during general cleaning or which restrict ability to clean surfaces.

3.4 CLEANING

- A. General: Use least aggressive cleaning method available to provide cleaning.
- B. Repeat cleaning procedure where required to produce cleaning effect established by mockup.

3.5 FINAL CLEANING

- A. Clean adjacent surfaces of spillage and debris. Use detergent and soft brushes or cloths.

END OF SECTION 020110

SECTION 021300 - CLEARING, GRUBBING AND DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, material, and equipment necessary to complete all clearing, grubbing, and demolition of the site as indicated on the Drawings and as required to complete new construction under this Contract, and as specified herein.
- B. The removal, demolition, and lawful disposal of all items indicated by the drawings to be removed or which conflict with the work in this contract are required by this specification.
- C. The items of work to be performed include, but are not limited to:
 - 1. Protecting areas indicated not to be disturbed with suitable barriers.
 - 2. Removal from the site and disposing of all trees, stumps, roots, and debris not indicated to remain.
 - 3. Grubbing of all areas within the limits of clearing.
 - 4. Field-verify location of existing utilities.
 - 5. Prepare Traffic Control Plan; furnish, install, and maintain required Traffic Control Devices.
 - 6. Install and maintain throughout project duration Temporary Erosion Control items as noted by the plans.
 - 7. **Obtain ADEM Stormwater Permit, perform required monitoring, and prepare required reports.** Terminate permit when the project is completed and the site has been stabilized.
 - 8. Obtain City of Mobile right-of-way permit. Terminate/closeout permit when the project has been completed.
- D. Related work specified elsewhere:
 - 1. Site Grading - Section 022100
 - 2. Asphalt Paving - Section 026100
 - 3. Concrete Paving, Curbs, and Walks - Section 026200
 - 4. Flexible Porous Pavement – Section 026950

1.2 SUBMITTALS

- A. Traffic control plan including Contractor representative.
- B. Certification of existing utility locations.
- C. Inspection Reports for Temporary Erosion Control.
- D. Certification of Disposal of Materials from Demolition.

PART 2 - PRODUCTS

(Not applicable.)

PART 3 – EXECUTION

3.1 TRAFFIC CONTROL

- A. Prior to starting clearing operations, provide and install hazard markings as required to protect the work. The Contractor shall provide a written traffic control plan and certification indicating the items installed meet the requirements of Part VI of the FHWA Manual on Uniform Traffic Control Devices, dated December 2000. The Contractor shall provide the name, address, and telephone numbers for the person responsible for the daily inspection and maintenance of the traffic control devices.

3.2 LOCATION OF EXISTING UTILITIES

- A. Prior to starting construction, locate and verify existing utility information. Provide information of any discrepancies or conflicts of existing utilities. Verify and field locate service connection point for potable water, fire protection water, sewer service, and gas service. Provide written certification to the Architect/Engineer of completion of this work prior to starting work under this section.

3.3 EXECUTION

- A. Grub and clear required areas with any equipment or methods at the Contractor's option. The following results shall be obtained:
 - 1. Grub and clear all areas where topsoil is indicated as needing to be stripped or as required to complete new construction called for by the drawings.
 - 2. Beneath building or paved areas to a depth of two (2) feet below the lowest limits of excavation at each point of work, all stumps and other wood and debris shall be removed, except roots less than 1/2 inch in diameter may remain or be removed.
 - 3. Beneath lawn or planted area from a depth of two (2) feet below new subgrade to the stripped original grade, all wood and debris shall be removed.
 - 4. Remove pavement as indicated by the drawings, provide neat, straight, saw-cut lines of removal at the locations indicated. Complete the removal of pavement at the time specified or as approved by the Architect.

3.4 TEMPORARY EROSION CONTROL

- A. Install and maintain all erosion control items called for by the drawings until Contractor-supplied Best Management Plan (ADEM Permit) can be implemented. Take all necessary precautions to prevent silt, soil, eroded materials or debris, or other effects of erosion from damaging new construction or moving off-site onto adjacent property.

3.5 DISPOSAL

- A. Dispose of all debris, asphalt and concrete pavement, trees, brush and other rubble from clearing, grubbing and demolition operations at an approved disposal area provided by the Contractor off the project site.
 - 1. Comply with all local regulations. Obtain necessary permits.

2. No burning or burial of debris on-site will be permitted.
3. Provide certification to Owner that all debris removed from the site was lawfully disposed of in an A.D.E.M. approved landfill.

3.6 PERMITS

- A. Prior to the start of construction, obtain permits as noted, providing applications, supporting documents, drawings, and fees.

END OF SECTION

SECTION 022100 - SITE GRADING

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, material, and equipment necessary to complete all site grading, and utility trenching, as indicated on the drawings and specified herein.
- B. The items of work to be performed include, but are not limited to:
1. Stripping and storing topsoil.
 2. Earth moving and excavation.
 3. Rough grading
 4. Undercutting
 5. Backfilling.
 6. Filling.
 7. Compacting.
 8. Removing from the site and disposing of all debris and excess materials.
 9. Fine grading and excavation for all construction including spreading and topsoil.
 10. Utilities trenching.
 11. Restoring to original grades and conditions all properties damaged by any activity related to the work and taking adequate precautions to avoid settlements or cave-in of properties higher than site; silting, eroding or other damage to properties lower than site.
- C. Related Documents:
1. Geotechnical data prepared by Geotechnical Engineering Testing, Inc. and entitled, "Soils Explorations and Geotechnical Evaluations for Proposed Additions at Langan Park in Mobile, Alabama", dated July 13, 2022, G.E.T. Project No. 22-160.
 2. **In situations where the project geotechnical report and the project drawings and specifications conflict, the contractor is directed to perform the work according to the more stringent of the two.**
- D. Related work specified elsewhere:
1. Clearing, Grubbing and Demolition - Section 021300
 2. Soil Compaction Control - Section 022600
 3. Asphalt Paving - Section 026100
 4. Concrete Paving, Curbs and Walks - Section 026200
 5. Flexible Porous Pavement – Section 026950
 6. Topsoil, Ground Preparation and Turfing - Section 028000

1.2 SUBMITTALS

- A. Test Reports: The testing laboratory will submit the following reports directly to the Engineer and shall copy the Contractor:
1. Analysis of soil materials including fill, backfill, and borrow materials.
 2. Verification of each pavement structure layer density.
 3. Verification of soil density over completed site.
 4. Coordinate all test reports with Section 02260 - Soil Compaction Control.

1.3 QUALITY ASSURANCE

- A. Testing Laboratory Services: See Section 02260 - Soil Compaction Control.

1.4 SITE CONDITIONS

- A. Traffic: Do not interfere with or close driveways without permission of governing authorities. Do not interfere with adjacent private facilities.
- B. Site Utilities:
1. Advise utility companies of excavation activities before starting excavations. Locate and identify underground utilities passing through work area before starting work.
 2. If underground utilities are encountered in locations other than indicated, immediately advise utility owners before proceeding. Amend project record documents to show actual locations.
 3. Protect existing utilities indicated to remain.
 4. Do not interrupt existing utilities without advance notice to and written approval from the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use approved materials from excavation to the extent available on the site. Should additional materials be required beyond the limits of excavation shown, obtain additional materials from on-site or off-site areas directed by the Engineer at no additional cost to the Owner.
- B. Suitable Subgrade Soils - Any in-place soil material that can be compacted to the density requirements specified.
- C. For each soil material proposed for use as fill or backfill, the testing laboratory shall classify soil material, develop a Proctor curve, and perform other tests required.
- D. Obtain approval of the Architect/Engineer/Testing Laboratory for each soil material.
- E. Fill materials shall be approved and conform to the following except as specifically indicated otherwise on the drawings or in the specifications:

1. Fill material shall be any stable soil material that can be compacted to the required density and is suitable for the specific use intended. Material shall be obtained from on-site or off-site excavation.
2. Fill, except as otherwise specified, shall be earth, free of debris, cinders, combustibles, frost, ice, roots, sod, wood, cellulose and organic materials.
3. Fill under topsoil of lawn and planted areas shall be earth, free of debris, cinders, frost, ice, sod, wood and roots over 1/4" in diameter. See landscape specifications for details of topsoil to be used in planting areas and on the berms surrounding the building.
4. Beneath the building and paved areas, structural fill or backfill material for undercut areas shall be soil of a sandy nature with less than 15 percent of the soil particles (by weight) passing the No. 200 mesh sieve and a liquid limit of less than 25. All fill material, imported and onsite, should be placed in 12-inches maximum lifts and compacted to at least 95 percent of the soils Modified Proctor Maximum dry density as determined by ASTM D 1557, Method "A". This material shall also be required for the backfill of all utility and storm drainage trenches excavated beneath paved areas.

F. Topsoil shall be as follows:

1. Topsoil: Friable clay loam surface soil. (See Section 2800 and landscape specification.)
2. Satisfactory Topsoil: Fertile agricultural soil, typical for locality, capable of sustaining vigorous plant growth; **free of** subsoil, rocks larger than 1 inch in diameter, clay, toxic matter, plants, weeds, and roots.

G. Backfill and Fill Materials: Materials classified as satisfactory.

H. Satisfactory Soil Material (ASTM D 2487): Free of stones larger than 1 inch in any dimension, trash, debris, organic material, or other objectionable material, and classified as follows:

1. SW (well-graded sand).
2. SP (poorly graded sand).
3. SM (silty sand).
4. SC (clayey sand).

I. Unsatisfactory Soil Material (ASTM D 2487):

1. GW (well-graded gravel).
2. GP (poorly graded gravel).
3. GM (silty gravel).
4. GC (clayey gravel).
5. CL (lean clay).
6. ML (silt).
7. OL (organic clay).
8. OL (organic silt).
9. CH (fat clay).
10. MH (elastic silt).
11. OH (organic clay).

12. OH (organic silt).
 13. PT (peat).
- J. Imported Fill: A satisfactory off-site inorganic granular soil material containing less than 15 percent passing the No. 200 sieve with a liquid limit of less than 25. If underwater sand fill material is required, material shall contain less than 8 percent fines. See geotechnical report for additional information relative to imported fill as well as the classification and use of structural fill.
- K. Lightweight Aggregate Fill: A satisfactory off-site inorganic material containing less than 10 percent passing the No. 200 sieve and having a unit weight of less than 60 pcf.
- L. Loose Granular Sand: A free-draining sand containing 10 percent or less material passing a number 200 sieve. This material shall meet the requirements of AASHTO soil classification A-3.
- M. Utility Trench Backfill: A satisfactory granular material containing less than 25 percent passing the No. 200 sieve.
- N. Plastic Warning Tape: Acid and alkali-resistant polyethylene film specifically manufactured for marking and identifying underground utilities.
1. Minimum width, 6 inches; minimum thickness, 4 mils.
 2. Metallic core encased in protective jacket against corrosion and detectable by metal detector when tape is buried 3 feet deep.
 3. Continuous printed inscription shall describe utility. Tape colors shall be as follows:
 - a. Electric: Red
 - b. Gas: Yellow
 - c. Pipeline: Yellow
 - d. Telephone: Orange
 - e. CATV: Orange
 - f. Water System: Blue
 - g. Sewer: Green

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Preparation:

1. Protections: Provide markers indicating limits of work and clear identification of items and areas requiring protection.
2. Provide barricades, warning signs, and warning lights around open excavations as necessary to prevent injury to persons.
3. The Contractor is solely responsible for determining the potential for injury to persons and damage to property.
 - a. Where such potential is present, take appropriate protective measures.
 - b. Protect persons from injury and protect existing and new improvements from damage caused directly or indirectly by construction operations.

4. Do not allow excavation of subgrades and soil at foundations to be subjected to freezing temperatures or frost. Provide protective insulating materials as necessary. Should prepared, compacted subgrades be damaged by freezing, remove soil materials to the depth required by the Architect and replace and recompact in conformance with specified requirements.

B. Dewatering:

1. Do not allow surface or ground water to flow into or accumulate in excavations. Do not allow water to flow in an uncontrolled fashion across the project site or to erode slopes or to undermine foundations. Do not allow water to be diverted onto adjacent properties. Arrange excavation operations so as to provide continual and effective drainage of excavations.
2. Provide and maintain temporary diversion ditches, dikes, and grading as necessary; do not use trench excavations for this purpose. When required by surface or subsurface water conditions, provide sumps, wellpoints, french drains, pumps, and other control measures necessary to keep excavations free of water. When existence of ground water near or above final excavation level is indicated or suspected, provide control measures prior to excavating to water level and maintain water level continuously below working level.

C. Strip Topsoil:

1. Strip topsoil, where available, over the entire site area, as indicated by the limits of construction and clearing and grubbing line, and the geotechnical report. Contractor may select any method, but shall comply with the following:
2. Do not strip topsoil in a muddy condition.
3. Stripped and stockpiled topsoil shall be free of debris (subsoil, rocks larger than 1 inch in diameter, clay, toxic matter, plants, weeds, and roots), and other extraneous materials.
4. Leave areas free of trash, debris and foreign materials.
5. Remove all topsoil from indicated areas to minimum depth of 6" or as required by site conditions.
6. Store topsoil in an approved location and protect it against loss and from admixture of debris.

D. Excavation:

1. General: Excavation includes the removal of any materials necessary to achieve the required subgrade elevations and includes reuse or disposal of such materials.
2. Excavate to lines and elevations as necessary for the proper construction of the work. Compact subgrade as required. Equipment and methods shall be suitable for the work at hand. Work shall conform to the following, unless indicated otherwise by the drawings:
 - a. Excavated material suitable for fill material shall be separated from unsuitable materials, (waste).
 - b. Excavated material unsuitable for fill (waste) shall be removed from the site promptly, and disposed of by the Contractor off the project site.
 - c. Excavation in areas at which excavation, filling, or backfilling will be performed under other sections of work shall be coordinated with said sections.

- d. Existing suitable subgrade materials beneath concrete or asphalt paving shall be scarified to a depth of 6" below the top of subgrade and compacted as specified.
 3. Unnecessary Excavation: The expense of excavation of materials outside of limits indicated or ordered in writing by the Architect and the correction thereof to the satisfaction of the Architect shall be borne by the Contractor.
 - a. Unnecessary excavation other than under footings: Either place compacted fill or otherwise correct conditions, as required by the Architect.
 4. Approval of Subgrade: Notify the Architect when required elevations have been reached.
 - a. When required by the Architect due to the presence of unsatisfactory materials, perform additional excavation and replace with approved compacted fill material in accordance with the Architect's instructions.
 5. Excavation Stabilization: Wherever it is possible to slope faces of excavations to achieve stabilization, do so in compliance with requirements of governing authorities. Otherwise, provide shoring and bracing.
 - a. Design, provide, maintain, and remove shoring and bracing in compliance with requirements of governing authorities. Remove temporary shoring and bracing when stabilization is no longer required.
 6. Excavation for Trenches:
 - a. Unless otherwise required, begin trenching, utility installation, and backfilling at the lowest portion of utility line, working toward the highest portion of the line.
 - b. Required trench width: Excavate accurately to provide not less than 6 nor more than 9 inches of clearance on each side of pipes and conduits, unless otherwise indicated.
 1. Where indicated trench widths are exceeded, redesign, stronger pipe, or special installation procedures may be required by the Architect at no additional cost to the Owner.
 - c. Unless otherwise indicated, trench walls for piping shall be vertical from trench bottom to one foot above top of pipe or to top elevation of initial backfill, whichever is higher.
 - d. Excavate trenches to the depths necessary to achieve required flow lines and invert elevations and to prevent freezing of liquids or frost heave during winter.
 - e. Dig trenches so as to provide not less than the following minimum cover:
 1. Water lines, gas distribution lines, electrical lines, etc.: 30 inches minimum unless indicated otherwise.
 - f. Trench bottoms: Unless otherwise indicated, excavate and shape trench bottoms as follows:
 1. Support pipes and conduit on smooth, accurately graded subgrade, shape surface by hand to provide continuous support on undisturbed soil for bell and body of pipe and joints, fittings, and body of conduit.
- E. Undercut:
1. **Undercut existing soils as indicated by the drawings or as recommended in the geotechnical report. The Contractor shall include in the project bid the cost for all undercut and the granular backfill as specified in the geotechnical report.**
- F. Backfilling:

1. Preparation: Backfill excavations as soon as practicable. Complete the following operations before backfilling:
 - a. Inspection and acceptance of below-grade construction.
 - b. Inspection, testing, and approval of underground utilities.
 - c. Surveying of underground utilities for record documents.
 - d. Concrete formwork removal.
 - e. Removal of loose material, muck, debris, and trash from excavation.
 - f. Installation of temporary or permanent horizontal bracing for structures to receive backfill.
2. Remove temporary shoring and bracing as the work progresses and when its use is no longer necessary.
3. Backfill for areas of undercut beneath the building and paving shall be placed in 12" maximum thickness loose lifts and compacted to 95% Modified Proctor maximum dry density as determined by ASTM D 1557, Method "A".
4. Backfill for Utility Trenches:
 - a. Backfill with clean sand material with less than 25 percent passing the No. 200 sieve. Place and compact in 8-inch maximum layers as required herein.
5. Testing of Piping:
 - a. Before performing testing of utilities (specified elsewhere), backfill and compact trenches to a level 1 foot above top of pipe, except at joint and couplings.
 - b. After successful testing, complete backfilling as soon as practicable.
 - c. Backfilling near footings, general: Where trenches occur underneath of footings, or where trench bottoms occur below and within 18 inches horizontally of footing bottoms, backfill trench with concrete to top of footing and up to 4 feet perpendicularly from each face of footing.
 - d. Do not place material on muddy or frozen surfaces or on surfaces containing frost.

G. Filling:

1. Preparation: Verify that area has been stripped of vegetation, including roots below grade. Remove and dispose of any unsatisfactory soils (waste).
 - a. When filling slopes steeper than 1 in 4 rise, plow, step, or break up surfaces to promote bond of new to existing material.
 - b. Should density of subgrade to receive fill be less than specified for fill, break up and pulverize subgrade to a depth of at least 6 inches, moisture condition if necessary, and recompact to required density at optimum moisture content.
2. Fill to line and grade, then compact as required for proper construction of the work and as required by the drawings and specifications. Place fill materials to required elevations in lifts of required depth. Equipment and method shall be suitable for the work at hand. Work shall conform to the following, unless otherwise indicated on the drawings:
 - a. Loosen existing soil for depth of 6" just before filling.
 - b. Do not place fill in water, on muddy, frozen or frosty areas, or over debris, wood or foreign material.
 - c. Fill in areas at which excavation, filling, or backfilling will be performed under other sections of these specifications shall be coordinated with said section.
 - d. Schedule and review inspection of new subgrade surfaces with Architect/Engineer.

- e. Surfaces of new subgrades shall be left clean prior to constructing overlying layer – topsoil, etc.
- f. Complete fine grading to the elevations and finish grade contours indicated by the drawings. Insure proper elevations after placement of topsoil, solid sod, or other overlying layers.

H. Compaction:

1. Place materials used in backfilling and filling in layers not exceeding loose depths as follows:
 - a. Heavy equipment compaction: 12 inches.
 - b. Hand-operated tampers: 4 inches.
2. Place material simultaneously on small structures, utility lines, etc. to avoid displacement or overstressing.
3. Compact fills and backfills to the minimum densities indicated by Section 02260 - Soil Compaction Control.
4. Moisture Control: During compaction, control moisture of subgrades and subsequent lifts to within tolerances from optimum moisture content as recommended by testing laboratory. Wet surface with water when additional moisture is required. Aerate soil to aid in drying or replace soil when excessive moisture is present.

I. Grading:

1. General: Smooth grade to a uniform surface that complies with compaction requirements and required lines, grades, and cross sections and is free from irregular surface changes. Provide smooth transition between existing adjacent grades and changed grades. Cut out soft spots, fill low spots, and cut down high spots to conform to required surfaces tolerances.
2. Slope grades to direct water away from structures and to prevent ponding. Finish subgrade to required elevations.

J. Proof-rolling:

1. After completion of required compaction, but prior to obtaining field density test, and immediately prior to proceeding with subsequent construction, proof-roll in the presence of Engineer and testing laboratory representative.
2. Proof-roll using a heavy pneumatic-tired vehicle having four tires abreast, each tire loaded to 30,000 pounds and tire inflated to 150 psi. **In areas which show pumping or which are otherwise unsatisfactory, undercut and replace with compacted fill, or stabilize in place, as required by the Architect/Engineer.**

K. Field Quality Control:

1. Testing Laboratory Services: Provide timely notice to testing laboratory. Do not proceed with construction until testing of each subgrade and lift of fill or backfill has been performed and required inspections and approvals have been obtained.
2. Maximum Density at Optimum Moisture Content: Determine in accordance with ASTM D 698, Method "A".
3. In-Place Density Tests: ASTM D 1557 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2922 (nuclear method), as applicable.

4. If testing service reports indicate that subgrade or fills are below specified density, scarify or remove and replace to the required depth, recompact, and retest at no cost to the owner.
5. See Section 02260 - Soil Compaction Control for additional requirements.

L. Maintenance:

1. Completed Areas: Protect from damage by pedestrian or vehicular traffic, freezing, erosion, and contamination with foreign materials.
 - a. Repair and re-establish grades to specified tolerances in settled, eroded, or rutted areas.
2. Damaged Areas: Where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction and whether due to subsequent construction operations or weather conditions, restore materials to required conditions. Scarify or remove and replace to the required depth, return to optimum moisture content, and compact materials to the required density before continuing construction.
3. Correction: Should settling occur within the project correction period, remove finished surfacing, add additional approved material, compact material, and reconstruct surfacing. Construct surfacing to match and blend in with adjacent surfacing as nearly as practicable.

M. Disposal of Excess and Waste Materials:

1. Remove any material not required for use on the project (including unsatisfactory soil, excess satisfactory soil, trash, and debris) and legally dispose of it off the owner's property.

END OF SECTION

SECTION 022600 - SOIL COMPACTION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, material and equipment necessary to assure that all work meets the minimum specified soil test requirements detailed herein.
- B. The actual cost of material testing including soil compaction control shall be included in and paid for using the Allowances provided in the contract.
- C. The items of work to be performed include, but are not limited to:
 - 1. Control of grading, filling, preparation of subgrade beneath building areas and utility trenches - Section 022100.
 - 2. Control of site grading, filling, preparation of subgrade under paving - Section 022100.
 - 3. Control of subgrade and base layers under paving - Sections 026100 and 026200.

1.2 MINIMUM DENSITIES

- A. Compact fills and backfills to the following minimum densities expressed as percentages of maximum densities as follows:
 - 1. Fill under lawn and planted areas, 90 percent Standard Density as per ASTM D-698.
 - 2. Fill under stoops and where not otherwise specified, 95 percent Standard Density as per ASTM D-698.
 - 3. Fill and backfill under paving, 95 percent Standard Density as per ASTM D-1557.
 - 4. In place processed subgrade, 6" thick adjacent to pavement base (See Section 026100 or Section 026200).
 - 5. Base under paving (See Section 026100 or Section 026200 for required density).
 - 6. Backfill for pipe trenches, within paved areas, 100 percent Standard Density as per ASTM D-698.
- B. For pavement structure layers, materials shall be within ± 2 percent of optimum moisture for test results to be considered valid. Under building areas, the materials shall be within range deemed acceptable by the testing laboratory.

1.3 SUBMITTALS

- A. Test Reports.
- B. Final Certification of all project tests, including a copy of all test reports, bound along with a letter from testing laboratory stating all test results meet the minimum requirements of the specifications and/or changes approved by the Architect/Engineer (any such changes shall be individually itemized in the letter). The letter shall be signed and stamped by a Professional Engineer in the State of Alabama.

PART 2 - PRODUCTS

(Not applicable.)

PART 3 - EXECUTION

3.1 FIELD TEST

- A. Field density, gradation, moisture contents, tests to check compaction compliance shall be conducted in all fill areas at a minimum frequency as follows to assure that material is being compacted to the required density:
1. Fill and backfill materials gradations (including borrow materials): One test per 250 cubic yards stockpiled or in-place source material.
 2. In-place densities:
 - a. One test per 1,000 square feet, or fraction thereof, of existing subgrade under buildings (including footings) or paving compacted by other than hand operated machines, not less than three (3) tests (see "d." also).
 - b. One test per 1,000 square feet, or fraction thereof, of each lift of base, fill, or backfill beneath building (including footings) or paving compacted by other than hand operated machines, not less than three (3) tests.
 - c. One test per 500 square feet, or fraction thereof, of each lift of existing subgrade, base, fill or backfill in areas compacted by hand-operated machines, not less than three (3) tests.
 - d. For isolated footings for columns or strip footings for walls, one (1) test for each isolated column footing or 100 linear feet of strip footing or fraction thereof of existing subgrade, or each lift of fill or backfill.
 - e. One (1) test per 200 L.F. of trench per lift, not less than two (2) tests per lift per pipe run (last two lifts only require testing - underlying layers shall be reviewed by visual inspection of the Architect/Engineer).
 3. Moisture Contents: In the stockpile, excavation or borrow areas, a minimum of two (2) tests per day per type of material or source of material being placed during stable weather conditions. During unstable weather, tests shall be made as dictated by local conditions and approved by the Engineer.
 4. Optimum moisture and maximum density: Tests shall be made for each type material or source of material including borrow materials to determine the optimum moisture and maximum density values. One (1) representative test per 500 cubic yards of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or maximum density.

3.2 TEST REPORTS

- A. All tests will be promptly reported to the Architect/Engineer. The results of each test will be clearly stated on the test report as passing or failing the requirements of the specifications. Each test will be certified as correct, stamped and signed by a Registered Civil Engineer in the State of Alabama. Failing tests shall be faxed to the Architect/Engineer no later than one (1) working day after the test is made.
- B. It is the Contractor's responsibility to insure that work on overlying fill and base layers is not commenced until subgrade is visually inspected and approved by the Architect/Engineer.

- C. Any area with failing test results shall be reworked as necessary and re-tested in accordance to the Specifications. The re-test shall be noted and referenced to the appropriate failing test.

3.3 CONDITIONS OF APPROVAL

- A. **For surfaces beneath the building and paving, the layer being tested shall not be considered approved until compaction has been completed within the required moisture limitations, field density test reflect “passing” density, surfaces have been fine graded to required surface tolerances, and the required proof-rolling has been completed, and any defective areas repaired.**

END OF SECTION

SECTION 023610 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Soil treatment with termiticide.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of termite control product.
 - 1. Include the EPA-Registered Label for termiticide products.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For termite control products, from manufacturer.
- B. Qualification Data: For firms and persons specified in Quality Assurance Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses.
- C. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's records and include the following:
 - 1. Date and time of application.
 - 2. Moisture content of soil before application.
 - 3. Termiticide brand name and manufacturer.
 - 4. Quantity of undiluted termiticide used.
 - 5. Dilutions, methods, volumes used, and rates of application.
 - 6. Areas of application.
 - 7. Water source for application.
- D. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A pest control operator who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment in the jurisdiction where the Project is located and who is experienced and has completed termite control treatment similar to that indicated for this Project and whose work has a record of successful in-service performance.
- B. Regulatory Requirements: Formulate and apply termiticides and termiticide devices according to the EPA-Registered Label.
- C. Source Limitations: Obtain termite control products from single source from single manufacturer.
- D. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.
- B. Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs, including under slabs replaced for installation of new utilities before construction.

1.7 WARRANTY

- A. Soil Treatment Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor, certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

- 1. Warranty Period: Three years from date of Substantial Completion.

1.8 MAINTENANCE SERVICE

- A. Continuing Service: Beginning at Substantial Completion, provide 12 months' continuing service including monitoring, inspection, and re-treatment for occurrences of termite activity. Provide a standard continuing service agreement. State services, obligations, conditions, terms for agreement period, and terms for future renewal options.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

- A. Termiticide: Provide an EPA-Registered termiticide, complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.
 - 1. Service Life of Treatment: Soil treatment termiticide that is effective for not less than three years against infestation of subterranean termites.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label requirements, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.
- B. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparation before beginning application of termite control treatment. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, stakes, formwork, and construction waste wood from soil within and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
 - 1. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

3.3 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.4 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
 - 1. Slabs-on-Grade: Under ground-supported slab construction, including footings, building slabs, including slabs replaced for installation of new utilities, and attached slabs as an overall treatment. Treat soil materials before vapor retarder or concrete footings and slabs are placed.
 - 2. Foundations: Adjacent soil, including soil along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers,; and along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
 - 3. Masonry: Treat voids.
 - 4. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.
- B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Post warning signs in areas of application.
- E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION

SECTION 024116 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings and site improvements.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse. Include fasteners or brackets needed for reattachment elsewhere.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.4 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Detail special measures proposed to protect adjacent construction and landscaping.
- B. Predemolition Photographs or Video: Show existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by salvage and demolition operations. Submit before the Work begins.

1.5 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

1.6 FIELD CONDITIONS

- A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. On-site storage or sale of removed items or materials is not permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

2.2 SOIL MATERIALS

- A. Satisfactory Soils: Refer to Civil Drawings and specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting demolition operations.
- B. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Utilities to Be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.
 - 1. Arrange to shut off utilities with utility companies.
 - 2. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
 - 3. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
 - 4. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PROTECTION

- A. Existing Facilities: Protect adjacent cmu wall, cmu wall footing, landscaping and other existing site conditions not otherwise scheduled for demolition.
- B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of demolition.
- C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.
 - 1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
- D. Temporary Protection: Erect temporary protection where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 015000 "Temporary Facilities and Controls."
 - 1. Protect adjacent buildings and facilities from damage due to demolition activities.
 - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 - 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 - 4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 DEMOLITION, GENERAL

- A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 - 2. Maintain fire watch during and for at least 24 hours after flame-cutting operations.
 - 3. Maintain adequate ventilation when using cutting torches.
 - 4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on adjacent construction.
- B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with adjacent areas of the Park.

3.5 DEMOLITION

- A. Special care shall be taken when disconnecting the building construction from the existing cmu/stone back wall. Proceed with demolition of building construction systematically without damage to construction to remain..
- B. Examine the connection between the building and the cmu/stone back wall, prior to beginning demolition, to determine any connecting elements. Provide limited demolition by hand or using appropriate mechanical tools to open the construction for determination of conditions.
- C. Remove or disconnect all connecting construction between the building enclosure and the cmu/stone back wall. Items that cannot be fully removed without damage to construction to remain shall be removed to 1-inch below the finish surface and the remaining surface repaired.
- D. Below-Grade Construction: Demolish and remove foundation walls and other below-grade construction.
 - 1. Excavation within 5 feet of the existing cmu/stone wall shall be by hand. Uncover both cmu/stone wall and building footing intersection prior to removal of any of the building footing. Prior to removal of the building footing saw cut completely through the existing building footing to disengage it from the cmu/stone wall footing.
- E. Existing Utilities: Demolish and remove existing utilities not scheduled for reuse.

3.6 SITE RESTORATION

- A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements on Civil Drawings and Specifications.
- B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.7 REPAIRS

- A. Promptly repair damage to adjacent construction caused by demolition operations.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

- B. Do not burn demolished materials.

END OF SECTION

SECTION 026100 - ASPHALT PAVING

PART 1 - GENERAL

1.01 SCOPE

- A. Furnish all labor, material and equipment necessary to complete all asphalt paving as indicated on the drawings and specified herein.
- B. Detail material and construction requirements for this work shall be in accordance with the State of Alabama Highway Department (Alabama Department of Transportation) "Standard Specifications for Highway Construction, 2018 Edition", hereinafter referred to as Standard Specifications.
- C. The items of work to be performed shall include, but are not limited to:
 - 1. Constructing, shaping, and compaction of subgrade surface adjacent to improved subgrade course.
 - 2. Constructing, shaping, and compaction of improved subgrade surface adjacent to base course.
 - 3. Constructing base course.
 - 4. Constructing binder layer (where required) with tack coat.
 - 5. Construction of wearing surface.
 - 6. Painting parking stripes, signs and arrows.
- D. Related work specified elsewhere:
 - 1. Site Grading - Section 022100.
 - 2. Soil Compaction Control - Section 022600.

1.2 SPECIAL REQUIREMENTS

- A. Prior to starting construction of each overlying layer of the pavement structure, the preceding layer shall be compacted and fine graded in accordance with the Specifications. The surface shall then be proof-rolled in the presence of the Engineer and any yielding or "pumping" areas removed and replaced.
- B. Asphalt paving shall be placed with equipment in good operating condition. All equipment shall be subject to the rejection by the Engineer if not in satisfactory operating condition.
- C. Asphalt will be supplied to the project with a sufficient number of trucks to prevent the formation of cold joints. Asphalt temperature will be strictly enforced in accordance with the job mix formula.
- D. If different subcontractors exist for completion of the paving work, **both the General Contractor and Material Supplier shall maintain a supervisor** on the site while paving is in progress. No paving work shall be undertaken unless the supervisors are present on the site.
- E. Any areas of ponded or trapped water in the asphalt wearing surface shall be cut out and replaced as required to correct the area. The cut-out area shall be square or rectangular and not less than 200 square feet. **Should cut-out areas, patches, or areas otherwise deemed unsatisfactory exceed 10 percent of the pavement area, the entire new pavement area shall be re-surfaced at no cost to the Owner.** Tack Coat and 110 pounds per square yard of Bituminous Concrete Wearing Surface shall be required.

1.3 SUBMITTALS

- A. Test reports.

PART 2 – PRODUCTS – (Not applicable – See Standard Specifications)

PART 3 - EXECUTION

3.1 MATERIALS AND METHODS

A. Subgrade

1. Immediately before improved sub-base material is placed, the underlying 6” of backfill material shall be scarified and compacted to a minimum of 100% Standard Proctor Density (ASTM D 698), then shaped and compacted to the final required grade. Soft, spongy or otherwise unsuitable material shall be replaced at no cost to the Owner. Every precaution shall be taken to obtain a subgrade of uniform bearing. Fill and tamp traces of utility trenches. Material and workmanship shall meet requirements set forth in Section 230 of the Standard Specifications.

B. Improved Subbase

1. Following completion of the subgrade processing, an improved subbase layer having a compacted thickness of at least 12” shall be constructed under all paving areas. The improved subbase layer shall consist of suitable imported fill. The subbase soils shall be placed in maximum lifts of 6 inches. Each lift is to be compacted to at least 95 percent of the soils Modified Proctor maximum dry density as determined by ASTM D 1557 – Method “A”. Material and workmanship shall meet requirements set forth in Section 301 of the Standard Specifications.

C. Base Course

1. Base course under all parking and drive areas shall be Crushed Aggregate Base Course, Type “B”, Plant Mixed, and placed in one (1) 5” layer (compacted thickness). Material and workmanship shall meet requirements set forth in Section 301 of the Standard Specifications.

D. Tack Coat

1. Tack coat will be used in conjunction with Pavement Section 2 and wherever else required by the project drawings. Material and workmanship shall meet the requirements set forth in Section 405 of the Standard Specifications.

E. Improved Bituminous Concrete Wearing Surface

1. Wearing surface to be placed in all parking and drive areas shall consist of an Improved Bituminous Concrete Pavement Wearing Surface Mix applied in accordance with Section 424A of the Standard Specifications and as indicated by the drawings.

F. Traffic Stripe and Markings

1. Material and construction requirements for traffic stripe and markings shall be in accordance with applicable portions of Section 701 and 703 of the Standard Specifications.
2. All stripe and markings shall be reflective (Type A) paint (Class 1) materials. The required thickness for all stripe and markings will be 0.090 inches.
3. Color of stripe and markings shall be as noted except for handicapped markings, which shall be blue.

G. Signs and Posts

1. Signs and posts shall be as indicated by the drawings and Section 710 of the Standard Specifications. The sign material shall be Type B Sheeting Class 2 or 2A face.
2. Post shall be #2 "U" post mounted in accord with A.L.D.O.T. Std. Dwg. IHS 710-12 and IHS 710-21.

END OF SECTION

SECTION 026200 - CONCRETE PAVING, CURBS AND WALKS

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, material and equipment necessary to complete all paving as indicated on the drawings and specified herein.
- B. The items of work to be performed shall include, but are not limited to:
 - 1. Constructing, shaping, and compacting of subgrade
 - 2. Concrete pavement and sidewalk paving
 - 3. Concrete curbs
 - 4. Concrete flumes
- C. Related work specified elsewhere:
 - 1. Site Grading - Section 022100
 - 2. Soil Compaction Control - Section 022600
- D. Detail material and construction requirements for this work shall be in accordance with the State of Alabama Highway Department (Alabama Department of Transportation) "Standard Specifications for Highway Construction, 2018 Edition", hereinafter referred to as "Standard Specifications".

1.2 LABORATORY CONTROL AND TEST

Shall be same as required under Section 033000 - Concrete Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portland Cement shall conform to ASTM Specification C-150, Type I or III.
- B. Aggregates for concrete shall conform to ASTM Specifications C-33. Fine Aggregates shall be natural sand, or subject to approval, sand prepared from stone, gravel or other inert materials having similar characteristics. Coarse Aggregates shall be crushed rock or gravel or, subject to approval, a combination of these materials. Maximum size of aggregate shall be 1-1/2 inch.
- C. Water shall be clear, and free from injurious amount of oils, acids, alkalis, organic materials, or other deleterious substances.
- D. Reinforcing bars shall be deformed steel bars per ASTM A-615, Grade 40.
- E. Welded steel wire fabric for concrete reinforcement shall conform to ASTM Specification A-185.
- F. Pre-molded joint filler shall be non-extruding or resilient type meeting ASTM Specification D-54-521. Pre-molded joint filler shall be Reflex as manufactured by the J.D. Russell Co. or Engineer approved equal. Joint Sealant shall be Type 3- Low Modulus Silicone Cold Poured Joint Sealant meeting the requirements of Section 832 of the Standard Specifications.

2.2 STORAGE OF CONCRETE MATERIALS

- A. Cement - Provide suitable means for storing and protecting the cement against dampness. Bags of cement which have become partially set or which contain lumps of caked cement shall be rejected.
- B. Aggregates - Shall be stockpiled as to prevent segregation of component sizes and intrusion of foreign matter. Aggregates of different gradations shall be stored separately.

2.3 PROPORTIONING AND MIXING CONCRETE

- A. Concrete shall be a mix of proportioned fine and coarse aggregates with Portland cement. Minimum cement content shall be 6.5 bags per cubic yard of concrete and maximum water content shall be 6 U.S. gallons per sack of cement, including moisture in aggregates.
- B. Proportioning Aggregates: The ratio of fine to total aggregate shall be such as will produce a dense, homogeneous, and workable mixture, which can be placed without segregation of materials and which will attain at 28 days a minimum compressive strength of 4000 psi and flexural strength of 600 psi as established by laboratory tests.
- C. Measurement of Materials: Measure concrete materials by such weighing methods as will permit accurate control of proportions and easy check thereof at all times.
- D. Mixing Concrete: Mix all concrete in an approved power batch mixer. Mix for a period of not less than 1-1/4 minutes after all materials are in the drum.
- E. Ready-Mixed Concrete: Certificates shall be furnished from the mixing plant that concrete has a 28-day compressive strength of at least 4000 psi and a flexural strength of 600 psi, when tested in accordance with methods described in ASTM Standard C-34-49. **A mix that produces a 28-day compressive strength of at least 4000 psi and a flexural strength of 700 psi, when tested in accordance with ASTM Standard C-34-49, will be required for the concrete pavement to be placed in the dumpster area.** No change shall be made in materials or the established mix without prior approval. Ready-mixed concrete shall be transported to the site in transit-mix or agitator trucks equipped with watertight drums loaded within the limits of rated capacities. The concrete shall be delivered and discharged within one hour after the cement is in the mixer. Concrete which, when delivered, is not plastic and workable shall be rejected.
- F. Ready Dry-Batched Mixes: Certificates shall be furnished for concrete strength and prior testing similar to those above specified for ready-mixed concrete. Ready dry-batched mixes shall be transported to the site in trucks having batch compartments of adequate size for the rated tarpaulin while in transit. Add water to batch after discharge into the mixer, which must be within two hours after the cement was added to the batch.
- G. Retempering of concrete that has partially hardened, that is, re-mixing with or without additional cement, aggregate or water, will not be permitted.

PART 3 - EXECUTION

3.1 SUBGRADE AND BASE

- A. The Contractor shall verify all grades shown on the plans before proceeding with the work. The Engineer reserves the right to improve the gradients by reasonable field adjustments prior to the completion of the subgrade work. The Contractor shall reference the required base materials to be used under the concrete pavement, sidewalks, and curb and gutter to be placed in this project as shown in the project details.

- B. Paving shall not be placed until all underground work, such as sewers, water pipes, storm drain pipe, underground electric work, etc. are all in place, backfilled, and trench work compacted.
- C. Shape, compact, and bring subgrade to required grade.
- D. Loosen exceptionally hard spots and re-compact. Replace spongy and otherwise unsuitable material. Fill and tamp traces of utility trenches.
- E. Place concrete only on a moist compacted subgrade or base, free from loose material. Place no concrete on a muddy or frozen subgrade.

3.2 FORMS

- A. All forms shall be free from warp, tight enough to prevent leakage of mortar, and substantial enough to maintain their shape and position, without springing or settlement, when concrete is placed or vibrated. Forms shall be staked, braced and/or tied together securely. Forms shall be clean and those for surfaces to be exposed shall produce a smooth, even finish without fins or board marks.
 - 1. Set forms for slabs on ground at exact finished grade. Check for line and grade and correct as necessary immediately before concreting. Provide uniform bearing for such forms. Use flexible or curved forms when edge of surface is to be curved to a radius of 100 feet or less.
 - 2. Expansion joints at pavement - provide expansion joints, with premolded filler at walk junctions and intersections, at building, platforms or other fixed structures, or termination at curbs. Locate expansion joints as indicated on the plans.
 - 3. Control joints in pavements shall be hand formed with proper tools so as to provide radius edged joints as shown on the drawings. Saw cut control joints in exposed aggregate concrete will not be allowed.
 - 4. Where adjacent to curb and gutter or other, concrete joints shall coincide.

3.3 DIMENSIONS

- A. Concrete paving shall be of one course construction, thickness and layout shown on the drawings.

3.4 REINFORCING

- A. Reinforcing shall be accurately placed, and securely supported and fastened to prevent movement during placement of concrete.

3.5 CONCRETE PLACEMENT AND FINISHING

- A. Concrete Paving or Sidewalk Concrete: Concrete shall be placed in the forms in one (1) layer of such thickness that when compacted and finished, the sidewalk will be of the thickness indicated. After concrete has been placed in the forms, a strike-off guided by side forms shall be used to bring the surface to proper section to be compacted. The concrete shall be tamped and consolidated with a suitable wood or metal tamping bar, and the surface shall be finished to grade with a wood float. Finished surface of the walk shall not vary more than 3/16 inch from the testing edge of a 10-foot straightedge. Irregularities exceeding the above shall be satisfactorily corrected. The surface shall be divided into rectangular areas by means of contraction joints spaced at not more than 5 feet on centers unless so

indicated by the drawings. **Contractor shall submit shop drawings of control joint layout for approval by Architect/Engineer prior to forming of concrete paving.**

1. Concrete finishing: After straight-edging, when most of the water sheen has disappeared, and just before the concrete hardens, the surface shall be finished to a smooth and uniformly fine granular or sandy texture free of waves, irregularities, or tool marks. A scored surface shall be produced by brooming with a fiber-bristle brush in a direction transverse to that of the traffic.
 2. Edge and joint finishing: All slab edges, including those at formed joints, shall be finished carefully with an edger having a radius of 1/8 inch. Transverse joints shall be edged before brooming, and the brooming shall eliminate the flat surface left by the surface face of the edger. Corner and edges which have crumbled and areas which lack sufficient mortar for proper finishing shall be cleaned and filled solidly with a properly proportioned mortar mixture and then finished.
 3. Contraction joints: The contraction joints shall be formed in the fresh concrete by cutting a groove in the top portion of the slab to a depth of at least one-fourth (1/4) of the sidewalk slab thickness, using a jointer to cut the groove, or by sawing a groove in the hardened concrete with a power-driven saw, unless otherwise approved. Sawed joints shall be constructed by sawing a groove in the concrete with a 1/8-inch blade to a depth indicated. The time of sawing shall be varied, depending on existing and anticipated weather conditions, and such sawing shall be at the required rate. An ample supply of saw blades shall be available on the job before concrete placement is started, and at least one standby sawing unit that is in good working order shall be available at the job site at all times during the sawing operations.
 4. Expansion joints: Transverse expansion joints shall be installed at sidewalk returns and opposite expansion joints in adjoining curbs. Where the sidewalk is not in contact with the curb, transverse expansion joints shall be installed as indicated. Transverse expansion joints shall be filled with 3/4-inch joint filler strips. Joint filler shall be placed with top edge 1 inch below the surface and shall be held in place with steel pins or other devices to prevent warping of the filler during floating and finishing. Immediately after finishing operations are completed, joint edges shall be rounded with an edging tool having a radius of 1/8-inch, and concrete over the joint filler shall be removed. Expansion joints shall be formed about structures and features that project through or into the sidewalk pavement, using joint filler of the type, thickness, and width indicated. The filler shall be installed in such manner as to form a complete, uniform separation between the structure and sidewalk pavement. All joints shall receive sealer as indicated by the drawings.
 5. Surface uniformity: The completed surface shall be uniform in color and free of surface blemishes and tool marks.
- B. Curb and gutter concrete: Concrete shall be placed in layers not to exceed 6 inches. Concrete shall be thoroughly consolidated by tamping and spading or with approved mechanical vibrators.
1. Concrete finishing: The edges of the gutter and top of the curb shall be rounded with an edging tool to a radius of 1/2-inch and the surfaces shall be floated and finished with a smooth wood float until true to grade and section and uniform in texture. Floated surfaces shall then be brushed with a fine-hair brush with longitudinal strokes. Immediately after removing the front curb form, the face of the curb shall be rubbed with a wood or concrete rubbing block and water until blemishes from marks, and tool

marks have been removed. The surface, while still wet, shall be brushed in the same manner as the gutter and curb top. The top surface of gutter and entrance shall be finished to grade with a wood float. Except at grade changes or curves, finished surfaces shall not vary, from the testing edge of a 10-foot straightedge, more than 1/8-inch for gutter and entrance and 1/4-inch for top and face of curb. Irregularities exceeding the above shall be satisfactorily corrected. Visible surfaces and edges of finished curb and gutter shall be free of blemishes and from tool marks, and shall be uniform in color, shape, and appearance.

2. Joints: Expansion joints and contraction joints shall be constructed at right angles to the line of curb and gutter.
3. Contraction joints: Contraction joints shall be constructed by means of 1/8-inch thick separators, of a section conforming to the cross section of the curb and gutter. Contraction joints shall be constructed directly opposite contraction joints in abutting Portland cement concrete pavement or sidewalk. Where curb and gutter do not abut, contraction joints shall be so placed that monolithic sections between curb returns will not be less than 5 feet nor greater than 15 feet in length. Separators shall be removed as soon as practicable after concrete has set sufficiently to preserve the width and shape of the joint. Separators shall be removed prior to finishing.
4. Expansion joints: Expansion joints shall be formed by means of preformed expansion-joint filler material cut and shaped to the cross section of curb and gutter. Expansion joints shall be provided in curb and gutter directly opposite expansion joints of abutting Portland cement concrete pavement and shall be the same type of thickness as joints in the pavement. Where curb and gutter do not abut Portland cement concrete pavement, expansion joints at least 3/4-inch in width shall be provided at intervals not exceeding 25 feet. Expansion joints shall be provided in non-reinforced concrete gutter at locations indicated. All expansion joints shall receive sealer, as indicated by the drawings.

C. Curb-forming machines:

1. Curb-forming machines for constructing curb and gutter will be approved based on trial use on the job. Use of the equipment shall be discontinued at any time during construction if the equipment produces unsatisfactory results, and the work shall be accomplished as specified above. Unsatisfactory work shall be removed and reconstructed for the full length between regularly scheduled joints. Removed portions shall be disposed of as directed.

3.6 PROTECTION

- A. Remove no forms (except face forms) for 24 hours after placing concrete. Barricade against vehicular traffic for 14 days. Compact thoroughly the backfill at all edges.

3.7 COLD WEATHER PROTECTION

- A. Whenever the air temperature may be expected to reach the freezing point, spread straw or other blanketing material to sufficient depth to keep concrete from freezing. Provide enclosure and heating device capable of maintaining concrete temperature of at least 50°F. Maintain such protection for at least five days. The Contractor shall be responsible for removing and replacing any concrete injured by frost action.

3.8 CURING

- A. Except as otherwise specified, cure all concrete by covering surface with burlap or cotton mats, straw, sand or other approved material. Keep such coverings wet for at least seven (7) days after concrete is placed. **Wiping of concrete surfaces with grout or other coatings shall not be performed unless specifically authorized by the Engineer.** This process shall not be used as a substitute for cleaning or repair of curb or curb and gutter.

3.9 REPAIR OF CRACKS AND BREAKS

- A. Hairline cracks may be repaired with epoxy grout. Sections containing breaks that penetrate the full concrete depth shall be removed from joint to joint unless specifically approved by Architect/Engineer.

3.10 FINAL CLEANING

- A. All concrete work, including sidewalks, steps, curbs, and curb and gutter, shall be sand or water blasted free of all stains or discolorations present on the exposed surfaces and to a uniform finish and color. This work shall not be commenced until all other construction, including paving, is completed.

END OF SECTION

SECTION 026950 – FLEXIBLE POROUS PAVEMENT

PART 1 – GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, and equipment necessary to complete the construction of the flexible porous pavement as indicated and detailed on the Drawings and as specified herein.
- B. The items of work to perform include, but are not limited to:
 - 1. Undercut roadbed, process subgrade, construct improved subgrade with geotextile fabric, and construct base.
 - 2. Provide and install flexible porous pavement product and soil fertilizer as per manufacturer's instructions.
 - 3. Provide and install clean sharp sand to fill flexible porous pavement units.
 - 4. Provide and install solid sod over flexible porous pavement units.
 - 5. Provide and install specified lane edge delineators if required.
- C. Related Work Specified Elsewhere:
 - 1. Earthwork: Section 022000
 - 2. Site Grading: Section 022100
 - 3. Soil Compaction Control: Section 022600
 - 4. Topsoil, Ground Preparation, and Turfing: Section 028000

1.2 SUBMITTALS

- A. Submit (5) sets of manufacturer's product data and installation instructions.
- B. Submit two 12" x 12" sections of flexible porous pavement material for review. One of the reviewed samples will be returned to the contractor if acceptable.
- C. Submit material certificates for base course and sand fill materials.

1.3 QUALITY ASSURANCE

- A. Provide submittals as required.
- B. Installation: Work shall be performed only by skilled workpeople with satisfactory record of performance on similar projects of comparable size and quality.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect flexible porous pavement units from damage during delivery and store under tarp to protect from sunlight, when time from delivery to installation exceeds one week.

1.5 PROJECT CONDITIONS

- A. Contractor shall review product installation procedures and coordinate installation with other work affected. In general, the placement of the flexible porous pavement will be one of the final construction activities performed at the site and will directly precede the placement of project solid sod.
- B. All hard surface paving to be placed adjacent to flexible porous pavement areas, including concrete walks and asphalt paving must be completed prior to installation of the flexible porous pavement.
- C. Cold Weather:
 - 1. Do not use frozen materials or materials mixed or coated with ice or frost. Care should be taken in handling flexible porous pavement materials in temperatures below 50° F to prevent damage. Additionally, rolled type products will retain the roll curl until warmed to room temperature. If it is anticipated that the flexible porous pavement material will be placed in cold weather, sheet type material rather than roll type material shall be provided.
- E. Protect partially completed paving against damage from other construction traffic when work is in progress, and until grass root system has had 3 to 4 weeks to mature.
- E. Protect adjacent work from damage during the installation of the flexible porous pavement units.

PART 2 – PRODUCTS

2.1 MATERIAL PROVIDER

- A. Manufacturer: Suitable products will be those as provided by the following: Invisible Structure, Inc. - Grasspave², NDS – Tufftrack Grass Pavers, Boddington, Ltd. – Bodpave 85, Terrafirm Enterprises – Ecogrid e50, Grassy Paver – Grassy Paver, or equal.

2.2 MATERIALS

- A. Subbase Course: Granular sand/clay material from local sources commonly used for road base construction and passing the following sieve analysis:

<u>Sieve</u>	<u>% Passing</u>
2"	100
#8	20 – 100
#10	18 – 99
#40	8 – 95
#200	2 – 40
Clay	1 – 18

shall be placed with no edges exposed. Where necessary, strips shall be turned down. In areas exposed to concentrated flows of water, or where placed on a slope steeper than 3:1, the sod shall be staked in place. All areas shall be rolled by a small hand-propelled steel wheel roller.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Examine subgrade, subbase, and base course installation. Do not start installation of flexible porous pavement units until unsatisfactory conditions are corrected. Check for improperly compacted trenches, debris, and improper gradients.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact project manager.
- C. It is recommended that the fire department inspector be notified when work on the fire lanes is begun. Verify with fire department if a certificate of inspection is required.

3.2 PREPARATION

- A. Under cut proposed roadbed as required and process subgrade to a compaction of 95% Modified Proctor density. Place granular soil subbase, in lifts not to exceed 6". Compact to 95% Modified Proctor Density. Place geogrid fabric on top of first lift following compaction. Granular soil subbase shall be placed to 1' beyond each side of fire lane.
- B. Place crushed aggregate base course over prepared subbase to the grades shown on the plans. Compact to 95% Modified Proctor Density in one 8" lift.
- C. Install the flexible porous pavement units by placing units facing up and facing in place with provided pegs if required, and interlock units. Trim units where required. Position units so that their tops are between 0.25" and 0.5" below the surface of adjacent hard-surface pavements.
- D. Install sand in units by "back-dumping" directly from a dump truck, or from tractor buckets. Dumping vehicles may exit by driving over the sand filled units. The sand should be spread over the units using flat-bottomed shovels and/or wide "asphalt rakes" to fill the units. A stiff bristled broom should be used for final finishing of the sand. The sand must be compacted by using water from a hose, irrigation heads, or rainfall, with the finish grade at no less than the top of the units and no more than 0.25" above the units.
- E. Apply fertilizer to sand fill.

3.3 INSTALLATION OF GRASS

- A. Install sod directly over sand filled units. Sod strips should be placed with very tight joints. Sodded area must be fertilized and kept moist during the

period of root establishment (first 3 weeks). Sodded areas should be protected from heavy traffic for approximately 3 to 4 weeks to allow the establishment of the root system.

3.4 PROTECTION

A. Sodded areas must be protected from heavy traffic for approximately 3 to 4 weeks or until the root system has been established and has penetrated the flexible porous pavement units.

3.5 CLEANING

A. Remove and replace damaged flexible porous pavement units.

B. Perform cleaning during the installation of the work and upon completion of the work. Remove all excess materials, debris, and equipment from the site. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

END OF SECTION

SECTION 027000 - STORM DRAINAGE SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish all labor, material and equipment necessary to complete all construction of the underground storm drainage system indicated on the drawings and specified herein.
- B. Detail material and construction requirements for this work shall be in accordance with the State of Alabama Highway Department (Alabama Department of Transportation) "Standard Specifications for Highway Construction, 2018 Edition", hereinafter referred to as "Standard Specifications".
- C. The items of work to be performed include, but are not limited to:
 - 1. Constructing underground storm sewer piping
 - 2. Construction of underdrain piping
 - 3. Backfilling and compaction of pipe trench lines
 - 4. Construction of inlets and other drainage structures
- D. Related work specified elsewhere:
 - 1. Site Grading – Section 022100
 - 2. Soil Compaction Control – Section 022600

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for storm sewage system materials and products.
- B. Contract Closeout Submittals:
 - 1. Record Drawings: At project closeout, submit record drawings of installed storm drainage piping and products, in accordance with requirements of Division 1.
 - 2. Maintenance Data: Submit maintenance data and parts lists for storm drainage system materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual; in accordance with requirements of Division 1.

1.3 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer: Firms regularly engaged in manufacture of storm sewer system's products of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 10 years.
 - 2. Installer: Firm with at least 5 years of successful installation experience on projects with storm sewage work similar to that required for project.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Storm drain piping shall be as follows:

1. Pipe greater than or equal to 15" diameter shall be Class 3, Reinforced Concrete pipe with rubber gasket joints for round pipe or ram neck joints for arch pipe, unless otherwise noted. All arch pipe used in this project shall be Class 3, Reinforced Concrete pipe with ram neck joints regardless of pipe size.
2. Pipe less than 15-inch diameter shall be S.D.R. 35 P.V.C. sewer pipe with rubber gasket type joints. Fittings for P.V.C. pipe shall be P.V.C. fittings for sewer pipe of equal or greater strength and with rubber gasket joints.

B. Joints in concrete pipe shall be wrapped with a geotextile filter fabric as set forth by the drawings.

C. Materials for all drainage structures shall meet the requirements of Section 621 of the Standard Specifications and as called for by the drawings. Please note that precast inlet boxes, as well as, site built inlet boxes are acceptable for use on this project.

D. Underdrain pipe shall be P.V.C. perforated pipe with P.V.C. fittings. Filter material shall be as specified in Section 606 of the Standard Specifications.

E. Rip rap and geotextile filter fabric shall be as specified in Section 610 of the Standard Specifications.

PART 3 - EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. Pipelines

1. Pipelines shall be laid true to lines and grades set forth by the plans and in accordance with the Standard Specifications. Pipe bedding and placement shall be as indicated by the drawings, and in compliance with ASTM D 2321. Deviations from manufacturer-recommended installation procedures will not be allowed.
2. Beneath paved areas, trenches and related excavations shall be backfilled with material meeting the requirements for select fill and backfill material beneath paved areas. Material shall be placed in 8" loose lifts and compacted to 100% Standard Density (ASTM D 698). Excavated materials shall be removed from the new pavement area as unsatisfactory materials.

B. Drainage Structures

1. All drainage structures shall be constructed in accordance with the plans and Section 621 of the Standard Specifications. The use of precast structures is allowed on this project. Shop drawings of the proposed precast structures shall be submitted for

approval before the structures are constructed. Precast structures shall be designed so that their top elevations can be easily adjusted +/- 6".

2. All inlets and boxes shall have weep holes.
3. Manhole steps shall be placed to allow reasonable access, maximum 6" vertical spaces in all drainage structures 36" deep or greater. Manhole covers or inlet tops shall be placed so as to allow easy access to steps.
4. Structure bottoms shall be placed on compacted and undisturbed soil beneath a 6-inch thick layer of coarse aggregate (ALDOT #4 stone).
5. All storm drain pipes entering and exiting the drainage structure must be cut off flush with the grouted interior face of the structure. All interior surfaces of the drainage structure shall be grouted smoothly. All drainage structures must have a smoothly formed cement mortar invert to direct the storm water through the structure. A non-shaped invert will not be acceptable in any drainage structure.
6. Special care shall be taken to place backfill in 9-inch thick loose lifts and compacted as required by the specifications.

C. Underdrain

1. Underdrain pipe shall be constructed in specific locations authorized by the Engineer.
2. The underdrain pipe shall be constructed in accordance with plan details and Section 606 of the Standard Specifications.

D. Cleanout and Inspection

1. The entire system shall be cleaned of silt, sediment, debris, and other objectionable matter.
2. Pipe shall be cut-off flush with the face of the drainage structure. At the connection point the pipe and drainage structure shall be grouted as indicated by the drawings.
3. **Pipe found to have flow lines that are not true to grade or that exhibit high points or low points, or skewed alignments, shall be removed and re-laid at the Contractor's expense. Additionally, pipe found to be installed with improper backfill or bedding shall be removed and replaced at the Contractor's expense.**
4. The entire interior surface of all drainage structures shall receive ½" thick cement mortar coating.
5. All inlets and boxes will have a properly formed invert.
6. All existing inlets modified in this project shall be rebuilt to a watertight condition and shall be subject to the above conditions.

END OF SECTION

SECTION 027100 - WATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. **Furnish all labor, material and equipment necessary to complete the water distribution system from a connection point along an existing main to a connection point approximately 5' outside of the building, as indicated by the drawings.**
- B. Detail material and construction requirements for this work shall be in accord with the National Standard Plumbing Code, latest Edition, the Mobile County Health Department, as well as any and all applicable portions of the "Standard Specifications for Water Mains, Sanitary Sewers and Sewage Pumping Stations, April 1993, updated June 2009", hereinafter called MAWSS Specifications and all addenda issued through the bid date of the project.
- C. The items of work to be performed include, but are not limited to:
 - 1. Water main to be accepted by MAWSS (8-inch main).
 - 2. Site piping, domestic (potable) and fire water service lines, backflow preventers, and control valves.
- D. Related work specified elsewhere:
 - 1. Site Grading – Section 022100
 - 2. Soil Compaction and Control – Section 022600

1.2 SUBMITTALS

- A. Provide manufacturer data and installation instructions on water line materials.
- B. **Test Results: (Please note that copies of the following documents must be provided to the Engineer before the project is signed off on.)**
 - 1. Hydrostatic Test Results
 - 2. Bacteriological Test Results
- C. Shop Drawings: Submit shop drawings for water distribution system, showing piping materials, size, locations and elevations. Include details of underground structures, connections, thrust blocks, and anchors. Show interface and spatial relationship between piping and proximate structures.
- D. Contract Closeout Submittals:
 - 1. Record Drawings: At project closeout, submit record drawings of installed water system piping and products, in accordance with requirements of Division 1.

2. Maintenance Data: Submit maintenance data and parts list for water system materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual in accordance with requirements of Division 1.

1.3 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer's Qualifications: Firms regularly engaged in manufacturer of potable water system materials and products, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 10 years.
2. Installer's Qualifications: Firm with at least 5 years of successful installation experience on projects with potable water piping work similar to that required for project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Subject to compliance with requirements, provide valves, hydrants, meters, backflow preventers, etc. and fittings manufactured by one of the following or others as approved by the MAWSS specifications:

1. Valves: Clow Corporation, or equal
2. Hydrants: M&H, Mueller, American, Clow, or Eclipse, or equal
3. Fittings: Ford, Mueller, or equal
4. Water Meters: Sensys
5. Backflow Preventer: Watts, or equal

2.2 MATERIALS

A. General: Provide piping materials and factory fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials, which match pipe materials used in potable water systems. Where more than one (1) type of materials or products is indicated, selection is Installer's option.

B. Piping: Provide pipes of the following materials unless indicated otherwise on the project drawings, of weight/class indicated. Provide pipefittings and accessories as indicated. All materials must be approved for use by local utility with jurisdiction over project.

1. Ductile Iron Pipe: AWWA C 151, with cement mortar lining complying with AWWA C 104; Class 51 unless otherwise indicated.
2. Polyvinyl Chloride: AWWA C900-97, Class 150 (D.R. 18), unless otherwise specified.
3. Fittings, Ductile Iron: Fittings shall be full size or compact (AWWA C 110 or AWWA C 153) for water with a pressure rating of 350 psi. Fittings shall be cement-lined (AWWA C 104). All fittings shall be provided with Ductile Iron Retainer Glands equal

to Series 1200 Mechanical Joint Ductile Iron Retainer Glands as manufactured by EBAA Iron Sales, Inc. Glands shall be U.L. listed.

4. Water pipe for hydrant runs, beneath storm drains, and at connection points and 20 feet beyond shall be ductile iron.

C. Valves:

1. Gate Valves: Provide as indicated, gate valves, AWWA C 500, 200 psi working pressure. Provide threaded, flanged, hub, or other end configurations to suit size of valve and piping connection. Provide inside screw type for use with curb valve box, iron body, bronze mounted, double disc, parallel seat, non-rising stem.
2. Check Valves: Provide as indicated, swing check valves, AWWA C 508, 150 psi working pressure. Provide iron body, cast iron disc, bolted cap.

- D. Fire Hydrants: Provide cast-iron body fire hydrants, compression type, opening against pressure and closing with pressure. Fire hydrants shall comply with AWWA C 502, shall have 5-1/4 inch hydrant valve, shall have two (2) 2-1/2 inch nozzles, and one (1) 4-1/2 inch pumper nozzle unless noted otherwise on the drawings, shall have National Standard Hose Threads, shall open left, shall have traffic break-away feature, and shall have O-ring seals. Fire hydrants shall be painted in accordance with AWWA C 502 and shall be painted red and white, unless directed otherwise.

- E. Backflow Preventers: Shall be in compliance and as accepted by the MAWSS Standard Specifications or as directed by MAWSS personnel. Backflow preventers shall comply with AWWA C510-92. Above-Ground backflow preventers will be supplied with a rust-proof chain and keyed lock to secure preventers after constructed. Backflow preventers shall be insulated as indicated in the drawings.

- F. Detector Tape: Detector tape shall be inductively locatable and conductively traceable using a standard pipe and cable-locating device. Tape shall be blue in color and shall bear a continuous printed message warning that a water line is buried below. Use tape 3 inches wide.

- G. Detector Wire: Detector wire shall be an insulated solid 12 gage copper wire with blue insulation for open cut installation; 10 gage for directionally bored installation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General

1. Install exterior water service piping system in compliance with utility, local governing regulations, and applicable portions of National Standard Plumbing Code (and local plumbing codes where more stringent).

B. Main Connection

1. Coordinate and construct as required the domestic water service connection to the existing water main, of the size, and in the location indicated by the drawings.
2. Coordinate and construct as required the fire water service and line connection to the existing water main of size and in location indicated by the drawings.
3. **Connection fees to be paid by the owner.**

C. Water Service Piping (Domestic and Fire)

1. Extend water service piping of size and in location indicated to water service entrance at building. See requirements for temporary plug and hydrostatic test.
 - a. Water Meter – Connect to water pipe in location and provide valves, backflow preventer, rough-in, and box as indicated.
 - b. Water Pipe - Install in accordance with recommended procedures of the manufacturer.
 - c. Control Valves - Install in accordance with manufacturer's instructions.
 - d. Joint Adapters - Make joints between different types of pipe with standard adapters and fittings.

D. Interior Inspection

1. Inspect conduit to determine whether line displacement or other damage has occurred.
2. If the inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects to satisfaction of Engineer.

E. Cleaning Conduit

1. Clear interior of water pipe of dirt and other superfluous material as work progresses.
2. Place plugs in end of uncompleted conduit at end of day or whenever the work stops.
3. Provide temporary plug for end of water piping approximately 5' from building to conduct hydrostatic testing. At completion of test, remove plug to allow waterline construction into building.

F. Sterilization

1. At completion of water service line installation, flush and sterilize in conformance with AWWA C 601, to the satisfaction of local authorities having jurisdiction. Chlorinating materials shall conform to AWWA B301 for liquid chlorine and AWWA B300 for hypochlorite, calcium and sodium.

G. Testing

1. Perform hydrostatic testing of completed conduit lines in accordance with local authorities having jurisdiction. As a minimum, test shall be 150 psi for 6 hours using a "recording" chart. To be deemed a "passing" test, the pipe test section shall maintain the 150 psi pressure; a drop of 2 psi during the initial one hour with no more than 5 psi pressure drop during the 6-hour test period. Once the pressure test is approved, the actual leakage will be evaluated. Maximum leakage shall be 10-gallons/24 hours/inch of diameter/mile of pipe.

2. Provide temporary plugs, connections, recording pressure gauge, and other equipment as required to complete the testing for waterline as necessary for testing.
3. Perform operational testing of valves by opening and closing each valve under water pressure to insure proper operation.
4. All testing shall be in the presence of the Engineer or his designated representative and shall be scheduled well in advance of the test time. Test shall be conducted for the full duration between the hours of 7:00 am and 7:00 pm.

H. Backfilling

1. Conduct backfilling operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.
2. Beneath paved areas, trenches and related excavations shall be backfilled with material meeting the requirements for select fill and backfill beneath paved areas (See Section 02210). Material shall be placed in 8" loose lifts and compacted to 100% Standard Density.
3. Excavated materials shall be removed from the paved areas and disposed of as unsatisfactory materials as detailed in other sections of the specifications.

END OF SECTION

SECTION 027200 - SANITARY SEWER SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. **Furnish all labor, material and equipment necessary to complete the exterior sanitary sewer collection system from a point approximately 5' outside of the building and to a connection point with an existing manhole.**
- B. Detail material and construction requirements for this work shall be in accord with the National Standard Plumbing Code, latest Edition, the Mobile County Health Department, as well as any and all applicable portions of the "Standard Specifications for Water Mains, Sanitary Sewers and Sewage Pumping Stations, April 1993, updated June 2009", hereinafter called MAWSS Specifications and all addenda issued through the bid date of the project.
- C. The items of work to be performed include, but are not limited to:
 - 1. Sanitary sewer conduits
 - 2. Manholes and clean-outs
- D. Related work specified elsewhere:
 - 1. Site Grading – Section 022100
 - 2. Soil Compaction and Control – Section 022600

1.2 SUBMITTALS

- A. Provide manufacturer date and installation requirements on all materials.
- B. **Test Reports: (Please note that copies of the following document must be provided to the Engineer before the project is signed off on.)**
 - 1. Air Test Results.
- C. Shop Drawings: Submit shop drawings for sanitary sewer system, showing piping materials, size, locations and elevations. Include details of underground structures and connections. Show interface and spatial relationship between piping and proximate structures.
- D. Contract Closeout Submittals:
 - 1. Record Drawings: At project closeout, submit record drawings of installed sewer system piping and products, in accordance with requirements of Division 1.
 - 2. Maintenance Data: Submit maintenance data and parts list for sewer system materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual in accordance with requirements of Division 1.

1.3 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: Firms regularly engaged in manufacture of sanitary sewage system's products of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
2. Installer: Firm with at least 3 years of successful installation experience on projects with sanitary sewage work similar to that required for project.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Conduit Materials

1. Ductile Iron Pipe – Pipe shall be ductile iron sewer pipe with wall thickness Class 52.
2. Polyvinyl Chloride Pipe – Pipe shall be S.D.R. 35 P.V.C. Sewer Pipe.
3. High Density Polyethylene Pipe – Pipe shall be H.D.P.E. S.D.R. 9 Sewer Pipe.
4. Fittings, Ductile Iron – Ductile iron fittings shall be utilized on ductile iron pipe or in other locations indicated by the drawings. Furnish ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and end caps of same type and class of material as conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer.
5. Fittings, Polyvinyl Chloride – P.V.C. pipe fittings shall be utilized on P.V.C. pipe. Furnish ells, tees, reducing tees, wyes, couplings, increasers, end caps, etc. of the same type and class material as conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer.

B. Accessories

1. Manholes – As indicated by the drawings.
2. Clean-outs – As indicated by the drawings.

C. Accessories

1. Manholes – As indicated by the drawings.

PART 3 – EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. General

1. Install exterior sewer service piping system in compliance with utility, local governing regulations, and applicable portions of National Standard Plumbing Code and local plumbing codes where more stringent.

B. Main Connection

1. **Connection Fees to be paid by the Owner.**

C. Installation of Conduit

1. Inspect conduit before installation to detect apparent defects. Mark defective materials with white paint and promptly remove from site.
2. Install conduit beginning at low point of system, true to grades and alignment indicated with unbroken continuity of invert.
3. Install gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements.

D. Cleaning Conduit

1. Clear interior of conduit of dirt and other superfluous material as work progresses.
2. Place plugs in ends of uncompleted conduit at end of day or whenever work stops, until inlets are completed and silt barriers are in place.
3. Flush lines between clean-outs as required to remove collected debris and sediment.

E. Joint Adapters

1. Make joints between different types of pipe with standard manufactured adapters and fittings, see drawings.

F. Interior Fittings

1. Inspect conduit to determine whether line displacement or other damage has occurred.
2. Make inspections after lines have been installed and approximately two feet of backfill is in place and again at the completion of project.

G. Connections

1. Verify tie in location and elevation prior to starting sewer system construction.
2. Make connections to existing conduits and underground structures, so that finished work will conform as nearly as practicable to requirements specified for new work.

H. Backfilling

1. Conduit backfilling operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.
2. Beneath paved areas, trenches and related excavations shall be backfilled with material meeting the requirements for select fill and backfill material beneath paved areas (See Section 02210). Material shall be placed in 8" loose lifts and compacted to 100% Standard Density. (ASTM D 698) Excavated materials shall be removed from the paved areas and disposed of as detailed in other sections of the Specifications.

3.2 TESTING

A. General

1. Perform infiltration and air testing of completed conduit lines in accordance with local authorities having jurisdiction and as detailed hereinafter.

2. Provide temporary plugs, connections, pressure gauges, and other equipment as required to complete the testing.
3. Visually check all manholes for infiltration, leakage, or other deficiencies.
4. All testing shall be in the presence of the Engineer or his designated representative and shall be scheduled well in advance of the test time. Testing shall be conducted between the hours of 7:00 am and 7:00 pm.

B. Infiltration

1. Leakage into the sewer shall not exceed 100 gallons per mile of sewer per inch of inside diameter of the sewer per 24 hours to any section between successive manholes. The amount of leakage shall be measured by a suitable weir or other device.
2. If infiltration exceeds the above specified amount, the contractor shall make the necessary corrections to bring it within the acceptable limits. All visible leaks or points of infiltration shall be repaired even though the infiltration is below the maximum specified.

C. Air Testing of Sewers

1. General: On all sanitary sewer lines, the contractor shall conduct a line acceptance test using low pressure air. The air test shall be conducted after the pipe has been backfilled. Equipment to be used in making the test shall be specifically designed for this purpose. The Engineer shall be advised at least 48 hours before tests are conducted.
2. Procedures: All pneumatic plugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the plugs out of the pipe.

After a reach of pipe has been backfilled and cleaned, and the pneumatic plugs are checked by the above procedure, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. At least 2 minutes shall be allowed for the air pressure to stabilize. After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The test of that portion of line being tested shall be termed "Acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any groundwater that be over the pipe) shall not be less than the time shown for the given diameters in the following table:

<u>Pipe Diameter in Inches</u>	<u>Minutes</u>
4	2.0
6	3.0
8	4.0

- D. Documentation: Documentation of the testing results shall be as follows:

1. Normal Testing Records - The Contractor shall keep a log or record covering the testing work and the information acquired therefrom. This log or record shall contain at least the following data:
 - a. Date and time.
 - b. Sewer Line Location (Point-To-Point Numbers, and direction North, South, East and West).
 - c. Size, Length, Type and Depth of Sewer Line.
 - d. Name of Owner's Representative at the Job Site.
 - e. Test Results.

Copies of the log or record, typed and bound, shall be delivered to the Architect/Engineer.

END OF SECTION

SECTION 028000 - TOPSOIL, GROUND PREPARATION, AND TURFING

PART 1 - GENERAL

1.1 SUMMARY

- A. This section shall include requirements for all materials and labor as required to establish an acceptable stand of seeded grass with mulch and solid sod over the entire project limits indicated by the drawings.
- B. The items of work to be performed include, but are not limited to:
 - 1. Preparation of sub-soil, re-spreading/spreading topsoil.
 - 2. Preparation of topsoil for planting.
 - 3. Fine grading areas to receive topsoil.
 - 4. Planting seeded grass, mulching, and solid sodding.
- C. Related work specified elsewhere:
 - 1. Site Grading - Section 022100

1.2 SUBMITTALS

- A. Provide required warranty (grass bond).**

PART 2 - PRODUCTS

2.1 MATERIALS

A. Seed

- 1. Seed shall be state-certified seed of the latest season's crop and shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures, purity, germination, weed-seed content, and inert material.
- 2. Seed shall be labeled in conformance with U.S. Department of Agriculture rules and regulations under the Federal Seed Act and applicable state seed laws.
- 3. Seed that has become wet, moldy, or otherwise damaged will not be acceptable.

B. Topsoil

- 1. Topsoil shall be the existing surface soil.
- 2. Imported topsoil, if required beyond that available, topsoil shall be a natural, friable soil representative of productive soils in the vicinity. It shall be obtained from well-drained borrow areas provided by the Contractor and shall be free of any admixture of subsoil, foreign matter, objects larger than one inch in any dimension, toxic substances, and any material or substance that maybe harmful to plant growth. The pH range shall be 5.3 to 6.0. Topsoil that does not meet the lower pH limit shall be amended by the addition of lime, at a rate recommended based on soil tests. Topsoil for planting areas

and on the terms surrounding the building shall be as specified in the landscape specification.

C. Liming Material

1. The Contractor shall use agricultural limestone.
 - a. Agricultural limestone shall have a minimum calcium carbonate equivalent of 90% and shall be ground to such fineness that at least 90% will pass a 10-mesh sieve and at least 50% will pass a 60-mesh sieve.

D. Fertilizer

1. Fertilizer shall be commercial grade, free flowing, and uniform in composition and shall conform to applicable state and Federal regulations. Fertilizer shall conform to Fed. spec. 0-F-241, Type I, Class (1), (2) or Type II, Class (1), (2), or (3) and shall bear the manufacturer's guaranteed statement of analysis. When slow-release nitrogen forms are used in the fertilizer mixture, they shall be derived from sulfur coated urea (SCU), urea formaldehyde (UF), plastic or polymer coated prills, or isobutylenediurea (IBDU). Fertilizer for use prior to tilling and for use during the establishment period shall be selected by the Contractor.

E. Mulch

1. Mulch shall be straw or hay mulch fixed in place with disk land packers or disk harrows.
 - a. Straw shall be stalks from oats, wheat, rye, barley, or rice that are free from noxious weeds, mold, or other objectionable material. Straw shall be in an air-dry condition and suitable for placing with blower equipment.
 - b. Hay shall be native hay, or other herbaceous mowings, free from noxious weeds, mold, or other objectionable material. Hay shall be in an air-dry condition and suitable for placing with blower equipment.

F. Solid Sod

1. Sod shall be live centipede sod with a minimum 2" thickness of root mat and soil attached. Sod strips shall be furnished with a minimum 12" width.

G. Temporary Seeding

1. Seeds shall be furnished in accordance with the requirements given in Section 2.1.A. Seed mixes used for temporary seeding shall be in accordance with the following table:

TEMPORARY SEEDING	
September through December	
Annual Ryegrass	25 pounds per acre
Kentucky 31 Fescue	30 pounds per acre
Reseeding Crimson Clover	10 pounds per acre
January through April 15	
Kentucky 31 Fescue	30 pounds per acre
Reseeding Crimson Clover	30 pounds per acre
Annual Ryegrass	15 pounds per acre
April 16 through August	
Brown Top Millet	30 pounds per acre
Kentucky 31 Fescue	30 pounds per acre
Hulled Bermuda Grass	10 pounds per acre

H. Temporary Mulching

1. Temporary mulching materials shall conform to the requirements given in Section 2.1.E. for Mulching Material.

I. Erosion Control Netting

1. Material shall be as required by ALDOT Specification Section 659. The material shall be as required for slope applications with a maximum slope of 2 horizontal to 1 vertical. The material provided shall be on ALDOT's approved list of materials.

J. Water

1. Water shall not contain elements toxic to plant life.

K. Maintenance Period

1. Upon completion of the work, the Contractor must maintain the completed project, including repairs of damage caused by erosion or weather conditions and routine maintenance, for a period of 90 calendar days.

PART 3 - EXECUTION

3.1 Site Preparation

A. Preparation of Seed Beds or Solid Sodding Subgrade

1. Placing topsoil: Topsoil shall be distributed evenly over the disturbed area to a minimum compacted thickness of 4 inches. Topsoil shall be spread so that planting can proceed with little additional soil preparation or additional tillage. Surface irregularities resulting from topsoiling or other operations shall be leveled to prevent depressions. Topsoil shall not be placed when the subgrade is frozen, excessively wet, extremely dry, excessively compacted, or in a condition detrimental to the proposed

planting or grading. Soil compacted by construction equipment shall be pulverized to a minimum depth of 4" by disking before spreading topsoil.

2. Tillage: Prior to seeding or sodding, the soil shall be tilled to a depth of at least 6". Tillage shall be accomplished by plowing, disking, harrowing, by the use of roto-tillage machinery or other approved operations until the condition of the soil is acceptable. The work shall be performed only during periods when beneficial moisture and other satisfactory conditions prevail. The work shall be stopped when directed. Undulations or irregularities in the surface shall be leveled before the next specified operation. Care shall be taken to correctly grade areas to receive solid sod (top of sod at new finish grade) and to provide the required minimum topsoil thickness below sodded areas.
3. Hand Raking: Prior to seeding, the seeded area shall be hand raked and all roots, limbs, debris, and other objectionable matter removed from the topsoil.

B. Application of Fertilizer and Lime

1. At a minimum, 8-8-8 fertilizer shall be applied at the rate of 1,500 pounds per acre. Other fertilizer and application rates may be used upon approval.
2. Lime: Ground agricultural limestone shall be applied at the rate of 4,000 pounds per acre.
3. All fertilizers and ground limestone shall be incorporated into the soil to a depth of at least 4" and may be incorporated at part of the tillage operation hereinbefore specified. Immediately before seeding, sodding, sprigging, the soil shall be restored to an even condition.

3.2 APPLICATION

A. Seeding

1. Broadcast seeding: Seed shall be broadcast either by hand crank seeders or with approved hydraulic seeding equipment, as specified hereinbefore, in combination with fertilizer, or with the approved hydraulic equipment in combination with fiber mulch and fertilizer as specified hereinbefore, or with other approved sowing equipment. Seed shall be distributed uniformly over designated areas. Half of seed shall be sown with sower moving in one direction, and the remainder with sower moving at right angles to first sowing. Seed shall be covered to an average depth of 1/4 inches by brush harrow, spike-tooth harrow, chain harrow, cultipacker, hand rake with wood tines, or other approved device. Seed shall not be broadcast during windy weather.
2. Seeding rates

Special Urban Seed Mixes

March thru June

Bermudagrass (Hulled)	30 lbs. per acre
Kobe Lespedeza	60 lbs. per acre

July and August

Bermudagrass (Hulled)	30 lbs. per acre
Reseeding Crimson Clover	80 lbs. per acre

September thru December

Bermudagrass (Unhulled)	30 lbs. per acre
Reseeding Crimson Clover	80 lbs. per acre

January and February

Bermudagrass (Unhulled)	30 lbs. per acre
Reseeding Crimson Clover	60 lbs. per acre
Kobe Lespedeza	60 lbs. per acre

3. Mulch shall be spread uniformly in a continuous blanket, using 2 tons per acre. Mulch shall be spread by hand or by a manure spreader, a modified grain combine with straw-spreader attachment, or a blower-type mulch spreader. Mulching shall be started at the windward side and continued uniformly until the area is covered. The mulch shall not be bunched. Immediately following spreading, the mulch shall be anchored to the soil by a V-type-wheel land packer, a scalloped-disk land packer designed to force mulch into the soil surface, or other suitable equipment.

B. Sodding

1. Solid sod shall be live, active centipede grass sod.
2. Sod shall be placed in designated areas. Voids between sod strips shall be carefully filled with topsoil. Sod shall be placed with no edges exposed. Where necessary, strips shall be turned down. In areas exposed to concentrated flows of water or where on a slope steeper than 3:1, the sod shall be staked in place. All areas shall be rolled by a small hand-propelled steel wheel roller. Roll sod a minimum of (2) times each in a parallel and at a right angle to the sod strips and as required additionally to level surface defects.
3. Sod shall be placed below the top surface of sidewalks, curbs, or other finished surfaces.

C. Temporary Seeding and Mulching

1. At locations where clearing and grubbing has occurred and where final turfing will not be completed within 30 calendar days, all bare ground shall be stabilized with temporary seeding and mulching. Ground preparation will not be required for temporary seeding and temporary mulching except as follows: Areas to be seeded temporarily shall be left in a rough graded condition. Areas that are smooth or hard shall be lightly scarified with scarifying teeth or some other acceptable method, running perpendicular to the direction of water flow. The intent of this scarifying is to obtain a rough area to hold seed and prevent the formation of rills and gulleys. All debris in these areas shall be removed to allow mowing. Application of 1000 pounds of 8-8-8 fertilizer per acre shall be applied by either hydraulic or conventional methods. Seeding and mulching shall also be applied by either hydraulic or conventional methods at a rate of no less than 2.0 toons per acre, separately or concurrently with fertilizer.
2. Anchoring of Temporary Mulching Near Ditches: Temporary mulch within 20 feet of ditches shall be anchored by either crimping or the installation of an approved mulch control netting.

D. Erosion Control Netting

1. Prior to placement of the erosion control netting (ECN), the area shall have been prepared in accordance with the required ground preparation, fertilizing, seeding, and other required treatment. The Contractor shall submit the ECN manufacturer's installation requirements to the Engineer. The requirements shall be submitted to the Engineer before beginning the installation. The ECN shall be installed in accordance with the manufacturer's requirements unless directed otherwise by the Engineer. Typical installation shall be parallel to the direction of flow. There shall be an anchor trench at the top of the installation. Upstream netting shall overlap any downstream netting. Adjacent netting shall also be overlapped. Staples shall be placed on overlaps, at the toe of the netting, and throughout the installation to ensure the netting is in contact with the underlying soil. The ECN shall be protected during all construction operations.

E. Watering

1. Watering shall be required as necessary to obtain a suitable stand of seeded or sodded grass.

F. Restoration and Clean-Up

1. Excess and waste material shall be removed daily. When turfing in an area that has been completed, the area shall be cleaned of all debris and excess material. Where existing turf areas have been damaged during turfing operations, the Contractor shall restore the areas to their original condition at his expense.
2. Areas of sod or seeded grass shall be diligently maintained and repaired as necessary beginning immediately after placement until the completion of the maintenance period. Where turfed surfaces are damaged by storm runoff from rainfall events or other erosion or drainage issues, washes, rills, areas of erosion, and other damage shall be filled with soil, compacted, and re-seeded or sodded as applicable. This work shall be performed at no greater interval than two weeks and shall be coordinated to occur with mowing operations at the site.

3.3 PROTECTION OF GRASSED AREAS

- A. Immediately after seeding or sodding, the area shall be protected against traffic or other use by erecting barricades, as required, and approved signs shall be placed at appropriate intervals until final acceptance.

3.4 MOWING

- A. The Contractor shall mow all turfed (temporary or permanent) project areas as directed or permitted by the Engineer. The Contractor shall mow as necessary to promote growth of the required permanent grass. Mowing shall be performed in a manner that will not cause unnecessary damage to desirable vegetation. Mowing of lespedezas and tall fescue shall not be done until after these plants have produced mature seed. Mowing shall generally be done once every two weeks for the duration of the 90-day maintenance period or as directed or

permitted by the Engineer. If the project is being considered for acceptance for maintenance by the Owner and has been mowed within the last two weeks, additional mowing will not be required. The Contractor shall mow, cut, and trim exercising extreme care not to damage trees, plants, shrubs, delineators, and other appurtenances. Damage to the turf or to the irrigation system or other appurtenances shall be repaired or replaced immediately by the Contractor at no cost to the Owner. The Engineer will determine if the damage must be corrected by repair or replacement.

3.5 WARRANTY

- A. The Contractor shall rework, re-seed and mulch areas seeded under the Contract where a satisfactory stand of grass is not present, or remove and replace areas of dead or damaged solid sod placed under the Contract in the eleventh (11th) month following acceptance of the project by the Owner. A bond of not less than \$5,000.00 shall be provided to the Owner to guarantee the performance of this work.

END OF SECTION

SECTION 028310- CHAIN LINK FENCES AND GATES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Six foot (6') high fence knuckle selvage; galvanized steel chain link fabric, gates and accessories. Provide Top Rail and Bottom Tension Wire. Spot Weld at all fittings. Touch Up Paint coatings at welds.
 - 2. Privacy slats.

1.3 SUBMITTALS

- A. Provide manufacturer data for all fencing, gate, and accessories. Provide shop drawings for gates and components.

1.4 QUALITY ASSURANCE

- A. Installation Qualifications: Engage an experienced Installer who has at least three (3) years' experience and has completed at least five (5) chain link fence projects with same material and of similar scope to that indicated for this Project with a successful construction record of in-service performance.
- B. Single-Source Responsibility: Obtain chain link fences, including accessories, fittings and fastenings, from a single source.

PART 2 – PRODUCTS

2.1 FABRIC

- A. Selvage: Knuckled on both sides 2-inch mesh sizes.
- B. Steel Chain Link Fence Fabric: Fabricated in one-piece widths for fencing 12 feet and less in height to comply with Chain Link Fence Manufacturers Institute (CLFMI) "Product Manual" and with requirements indicated below:
 - 1. Zinc-coated fabric: ASTM A 392, Type 2, Class 1 zinc-coated (galvanized).
 - 2. Mesh and Wire Size: 2-inch mesh, 9 gauge.
 - 3. Polymer-Coated (vinyl) Fabric: ASTM F668, Class 2a zinc-coated steel wire.
 - 4. Color: Black, according to ASTM F934.

2.2 FRAMING

- A. Posts and Rails: ASTM F1043 for framework, including rails, braces, and line, terminal and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F1043 based on the following:
1. Fence Height: As shown on Drawings.
 2. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40.
 - a. Line Post: 1.9 inches in diameter.
 - b. End, Corner, and Pull Posts: 2.875 inches in diameter.
 3. Horizontal Framework Members: Intermediate, top and bottom rails according to ASTM F1043.
 - a. Horizontal Rails: 1.66 inch in diameter.
 4. Metallic Coating for Steel Framework:
 - a. Type A: Not less than minimum 2.0-oz./sq. ft. (0.61-kg/sq. m) average zinc coating, inside and outside, according to ASTM A123/A123M or 4.0-oz./sq. ft. (1.22-kg/sq. m) zinc coating, inside and outside, according to ASTM A653/A653M.
 5. Polymer coating over metallic coating.
 - a. Color: Black, according to ASTM F934.
- B. Chain Link Cover: Use same frame work, fabric and connections for horizontal cover over top of chain link fence enclosure.

2.3 SWING GATES

- C. General: ASTM F900 for gate posts and swing gate types.
1. Gate Leaf Width: As indicated on the drawings.
 2. Framework Member Sizes and Strength: Based on gate fabric height indicated.
- D. Pipe and Tubing:
1. Zinc-Coated Steel: ASTM F1043 and ASTM F1083; protective coating and finish to match fence framework.
 2. Gate Posts: Round tubular steel.
 3. Gate Frames and Bracing: Round tubular steel.
- E. Frame Corner Construction: Welded.
- F. Hardware:
1. Hinges: 180 degree swing.
 2. Latch: With provisions for padlocking. Chain for padlock is additional to pad lock type latch.

3. Chain for Pad lock: Chain for padlock is additional to pad lock type latch.
 - a. Hot dipped galvanized steel with polymer coating, minimum 5/16-inch diameter, Grade 30 or 40, with link and gap to accommodate Owner's pad lock. Permanently affix to gate frame.

2.4 FITTINGS AND ACCESSORIES

- A. Material: Comply with ASTM F 626. Galvanized iron or steel to suit manufacturer's standards.
 1. Steel and Iron: Unless specified otherwise, hot-dip galvanized pressed steel or cast-iron fence fittings and accessories with at least 1.2 oz. zinc per square foot as determined by ASTM A 90.
- B. Post and Line Caps: Provide weather tight domed closure cap for each post. Provide line post caps with loop to receive tension wire or top rail.
- C. Post Brace Assembly: Manufacturer's standard adjustable brace. Use material specified below for brace, and truss to line posts with 3/8-inch diameter rod and adjustable tightener. Provide manufacturer's standard galvanized-steel, cast-iron or cast-aluminum cap for each end.
 1. Round Steel: 1.600-inch OD Schedule 40 steel pipe.
- D. Bottom and Center Rail: Same material as top rail. Provide manufacturer's standard galvanized steel, cast-iron or cast-aluminum cap for each end.
- E. Tension or Stretcher Bars: Hot-dip galvanized steel with a minimum length 2 inches less than the full height of fabric, a minimum cross section of 3/16 inch by 3/4 inch and a minimum of 1.2 oz. of zinc coating per square foot. Provide one (1) bar for each gate and end post, and two (2) for each corner and pull post, except where fabric is integrally woven into the post.
- F. Tension and Brace Bands: 3/4-inch wide minimum hot-dip galvanized steel with minimum of 1.2 oz. of zinc coating per square foot.
 1. Tension Bands: 0.074-inch thick (14 gauge) minimum.
 2. Brace Bands: 0.105-inch thick (12 gauge) minimum.
- G. Tie Wires: 0.106-inch diameter (12 gauge) galvanized steel with minimum of 0.80 oz. per square foot of zinc coating according to ASTM A 641, Class 3 or 0.148-inch diameter (9 gauge) aluminum wire alloy 1350-H19 or equal, to match fabric wire.
- H. Finish: For fittings and accessories.
 1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. (366 g/sq. m) of zinc.
 - a. Black polymer coating over metallic coating.

2.4 CONCRETE

- A. Concrete: Provide concrete consisting of Portland cement per ASTM C 150, aggregates per ASTM C 33, and potable water. Mix materials to obtain concrete with a minimum 28-day

compressive strength of 3000 psi. Use at least four (4) sacks of cement per cubic yard, 1-inch maximum size aggregate, 3-inch maximum slump.

- B. Packaged Concrete Mix: Mix dry-packaged normal-weight concrete conforming to ASTM D 387 with clean water to obtain a 2- to 3-inch slump.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. General: Install fence to comply with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.
 - 1. Apply fabric to outside of framework.
- B. Setting Posts: As detailed on the drawings.
- C. Top Rails: Run rail continuously through line post caps, at other posts terminating into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.
- D. Bottom and Center Rails: Secure to posts with fittings.
- E. Brace Assemblies: Install braces at end and at both sides of corner and pull posts. Locate horizontal braces at mid-height of fabric on fences with top rail and at 2/3 fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- F. Fabric: Leave approximately 2 inches between finish grade and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains under tension after pulling force is released.
- G. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull and gate posts with tension bands spaced not over 15 inches on center.
- H. Tie Wires: Use wire of proper length to secure fabric firmly to posts and rails. Bend ends of wire to minimize hazard to persons or clothing.
 - 1. Maximum Spacing: Tie fabric to line posts 12 inches on center and to rails and braces 24 inches on center.
- J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts for added security.
- K. Install privacy slats securely locked in place.
- L. Gates: Install gates to operate freely without binding or dragging and easily operable by hand.

END OF SECTION

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Foundation walls.
 - 3. Slabs-on-grade.
- B. Related Sections include the following:
 - 1. Division 2 Section "Cement Concrete Pavement" for concrete pavement and walks.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

- D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates.
- E. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Steel reinforcement and accessories.
 - 4. Curing compounds.
 - 5. Bonding agents.
 - 6. Adhesives.
 - 7. Vapor retarders.
 - 8. Semirigid joint filler.
 - 9. Joint-filler strips.
- F. Field quality-control test and inspection reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5.

2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

a. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.

E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

F. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.

2. Furnish ties that, when removed, will leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 1. For slabs-on-grade, provide all plastic type chairs with integral bottom bearing plate to prevent puncture of vapor barrier.
 2. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following at contractors option:
 - a. Fly Ash: ASTM C 618, Class C, F.
- B. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
 1. Maximum Coarse-Aggregate Size:
 - a. 1 1/2" maximum unless noted.
 - b. 3/4" maximum for pumped concrete
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 3. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

2.6 VAPOR RETARDERS

- A. Plastic Vapor Retarder: Plastic sheet of thickness required to comply with requirements indicated but not less than 10 mils. Furnish manufacturer's accessories including bonding tape or adhesive and mastic for sealing seams and penetrations. Comply with the following:
 - 1. ASTM E 1745, Class A
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.7 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.8 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 20 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability and as specified on drawings and schedules.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Foundations / Slab on Grade: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.51.
 - 3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
 - 4. Air Content: Do not allow air content of trowel finished floors to exceed 3 percent.

2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
 - 2. Class C, 1/2 inch (13 mm) for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.
- B. Granular Course: Place granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch (0 mm) or minus 3/4 inch (19 mm).

3.5 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 - 3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

3.7 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.
 3. Screed slab surfaces with a straightedge and strike off to correct elevations.

4. Slope surfaces uniformly to drains where required.
 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 301 and as follows:
1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed 1/8 inch in height.
1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
1. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match

adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.
 - 1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces indicated to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated, exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - 2. Finish and measure surface so gap at any point between concrete surface and an unveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 3/16 inch (4.8 mm).
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.10 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.11 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.

2. **Moisture-Retaining-Cover Curing:** Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
3. **Curing Compound:** Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. **Curing and Sealing Compound:** Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.12 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least one, six month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.13 CONCRETE SURFACE REPAIRS

- A. **Defective Concrete:** Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete, but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original

concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
 - F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.14 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
 6. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

- a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
13. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION

SECTION 042200 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Decorative concrete masonry units.
2. Mortar and grout.
3. Steel reinforcing bars.
4. Masonry-joint reinforcement.
5. Miscellaneous masonry accessories.

B. Related Requirements:

1. Sections "Quality Requirements" and "Structural Tests and Special Inspections" for specific masonry Quality Control and special inspections.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project Site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection:

1. Decorative CMUs, in the form of small-scale units.

C. Samples for Verification: For each type and color of the following:

1. Decorative CMU, in full size units.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of the following:

1. Masonry units.
 - a. Include material test reports substantiating compliance with requirements.
 - b. Include data and calculations establishing average net-area compressive strength of units.
- B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
- C. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined in accordance with TMS 602/ACI 530.1/ASCE 6.

1.6 QUALITY ASSURANCE

- A. Sample Panels: As indicated on the Drawings and the following.
 1. Protect approved sample panels from the elements with weather-resistant membrane.
 2. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless Architect specifically approves such deviations in writing.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.8 FIELD CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches (600 mm) down both sides of walls, and hold cover securely in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 PERFORMANCE REQUIREMENTS

- A. Provide reinforced unit masonry that develops indicated net-area compressive strengths at 28 days.
 - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) in accordance with TMS 602/ACI 530.1/ASCE 6.

2.3 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6 except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work when viewed from adjacent walking surfaces.

2.4 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - 2. Provide bullnose units for outside corners unless otherwise indicated.
- B. Integral Water Repellent: Provide units made with integral water repellent.
 - 1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested in accordance with ASTM E514/E514M as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, show no visible water or leaks on the back of test specimen.
- C. CMUs: ASTM C90.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength as shown on the Structural Drawings.
 - 2. Density Classification: Lightweight, Medium weight or Normal weight as standard with the manufacturer.
 - 3. Size (Width): Manufactured to dimensions **3/8 inch (10 mm)** less-than-nominal dimensions.
- D. Decorative CMUs: ASTM C90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength as shown on the Structural Drawings.
2. Density Classification: Lightweight or Medium weight or Normal weight as standard with the manufacturer.
3. Size (Width): Manufactured to dimensions 3/8 inch (10 mm) less-than-nominal dimensions.
4. Pattern and Texture:
 - a. Standard pattern, split-face finish. Match Architects samples.

2.5 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 1. Alkali content is not more than 0.1 percent when tested in accordance with ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C91/C91M.
- E. Aggregate for Mortar: ASTM C144.
 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
- F. Aggregate for Grout: ASTM C404 and as indicated on Structural Drawings.
- G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
 1. For use only after special approval by the CMU manufacturer, mortar manufacturer and the Architect.
- H. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.
- I. Water: Potable.

2.6 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60 (Grade 420).

- B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
- C. Masonry-Joint Reinforcement, General: Ladder type complying with ASTM A951/A951M.
 - 1. All Walls: Hot-dip galvanized carbon steel.
 - 2. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
 - 3. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
 - 4. Spacing of Cross Rods: Not more than 16 inches (407 mm) o.c.
 - 5. Provide in lengths of not less than 10 feet (3 m), with prefabricated corner and tee units.

2.7 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated.
- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

2.8 MORTAR AND GROUT MIXES

- A. General: As indicated on the Structural Drawings and as follows.
 - 1. Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 - 2. Do not use calcium chloride in mortar or grout.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Mortar for Unit Masonry: Comply with ASTM C270, either Proportion or Property Specification. Provide the types of mortar for applications as indicated on the Structural Drawings.
- C. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type coarse that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
 - 3. Provide grout with a slump of 8 to 11 inches (203 to 279 mm) as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
 - 4. Verify that substrates are free of substances that would impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping.
 - 1. Do not install grout into reinforced cells until all piping and conduit have been removed from the reinforced cells.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.3 TOLERANCES

- A. Dimensions and Locations of Elements:
 - 1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
 - 2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
 - 3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.
- B. Lines and Levels:
 - 1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
 - 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.

3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch (1.5 mm).

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch (3 mm).
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections and shown on the Drawings. Fill in solidly with masonry around built-in items.
- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 - 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
 - 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
 - 3. Bed webs in mortar in grouted masonry, including starting course on footings.
 - 4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
- B. Lay solid CMUs with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY-JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of $5/8$ inch (16 mm) on both interior and exterior walls. Lap reinforcement a minimum of 6 inches (150 mm).
 - 1. Space reinforcement not more than 16 inches (406 mm) o.c.
 - 2. Provide reinforcement not more than 8 inches (203 mm) above and below wall openings and extending 12 inches (305 mm) beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control joints.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

3.7 CONTROL AND EXPANSION JOINTS

- A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

3.8 REINFORCED UNIT MASONRY

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 - a. Provide grouting using methods that do not require cleanouts.
 2. Limit height of vertical grout pours to not more than 60 inches.
 3. Do not place grout until all cells are free of all obstructions.
 4. Do not place grout into reinforced cells until all plumbing or electrical construction has been removed from cells to be grouted.

3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Engage, Owner selected, special inspectors and testing agency to perform tests and inspections and prepare reports. Allow inspectors access to work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections: Level B special inspections according to TMS 402/ACI 530/ ASCE5.
1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each 5000 sq. ft. (464 sq. m) of wall area or portion thereof.
- E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.
- F. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.10 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: Provide final cleaning in accordance decorative cmu manufacturer's written recommendations and as follows:
 - 1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

3.11 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Excess Masonry Waste: Remove excess clean masonry waste and legally dispose of off Owner's property.

END OF SECTION

SECTION 044310 - ADHERED MANUFACTURED STONE MASONRY VENEER

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Manufactured stone masonry adhered to unit masonry backup.
- B. Related Requirements:
 - 1. Section 042000 "Unit Masonry" for concealed flashing.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

- A. Product Data: For each variety of manufactured stone, manufactured stone accessory, and manufactured product.
- B. Samples for Initial Selection: For colored mortar and other items involving color selection.
- C. Samples for Verification:
 - 1. For each manufactured stone type indicated. Include at least four Samples in each set, and show the full range of color and other visual characteristics in completed Work.
 - 2. For each color of mortar required.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Material Test Reports:
 - 1. Manufactured Stone Test Reports: For each manufactured stone variety proposed for use on Project, by a qualified testing agency, indicating compliance with required physical properties, other than abrasion resistance, according to referenced ASTM standards. Base reports on testing done within previous five years.
 - 2. Sealant Compatibility and Adhesion Test Report: From sealant manufacturer, indicating that sealants will not stain or damage manufactured stone. Include interpretation of test results and recommendations for primers and substrate preparation needed for adhesion.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs experienced manufactured stonemasons and manufactured stone fitters.
- B. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
 - 1. Build mockup of typical wall area as shown on Drawings.
 - 2. Protect accepted mockups from the elements with weather-resistant membrane.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- B. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- C. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, in a dry location, or in covered weatherproof dispensing silos.

1.7 FIELD CONDITIONS

- A. Protection of Manufactured Stone Masonry: Protect Manufactured stone masonry from rain or other water source until installation is complete and mortar cured.
- B. Stain Prevention: Immediately remove mortar and soil to prevent staining of manufactured stone masonry face.
 - 1. Protect base of walls from rain-splashed mud and mortar splatter, using coverings spread on the ground and over the wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
- C. Maintain manufacturer's recommended environmental conditions to ensure optimum results.
- D. Cold Weather Requirements: Installations should be performed in temperatures exceeding 40 degrees Fahrenheit prior to, during and for 48 hours after completion of work. If temperatures are below 40 degrees Fahrenheit, use heaters and tents during the installation process to regulate temperature.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried, but not less than seven days after completing cleaning.

- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1.8 COORDINATION

- A. Advise installers of other work about specific requirements for placement of flashing and similar items to be built into manufactured stone masonry.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Manufactured Stone: Obtain manufactured stone, from single source.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of uniform quality for each cementitious component from single manufacturer and each aggregate from single source or producer.

2.2 MANUFACTURED STONE VENEER

- A. Profile / Color: As shown on Drawings
- B. Manufactured Stone Veneer - Properties: Units consisting of Portland cement, lightweight aggregates and oxide pigments.
 1. Compressive Strength: Tested in accordance with ASTM C39 and ASTM C192, greater than 1800 psi.
 2. Shear Bond Test: Tested in accordance with ASTM C482, greater than 50 psi.
 3. Water Absorption: Tested in accordance with section 3.1.4 and 4.6 of ICC-ES AC51.
 4. Freeze / Thaw: Tested in accordance with ASTM C67, less than 3% mass loss.
 5. Unit Weight: Shipping weight is less than 15 lbs. per sq ft, density is determined in accordance with ASTM C567.

2.3 MORTAR MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or Type II, except Type III may be used for cold-weather construction; natural color or white cement may be used as required to produce mortar color indicated.
 1. Low-Alkali Cement: Not more than 0.60 percent total alkali when tested according to ASTM C114.

- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Aggregate: ASTM C144 and as follows:
 - 1. For pointing mortar, use aggregate graded with 100 percent passing No. 16 (1.18-mm) sieve.
- E. Latex Additive: Manufacturer's standard water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement mortar bed, and not containing a retarder.
- F. Water: Potable.

2.4 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
 - 1. Stainless Steel: ASTM A240/A240M, Type 304, 0.016 inch (0.4 mm) thick.
 - 2. Metal Drip Edges: Fabricate from stainless steel. Extend at least 3 inches (75 mm) into wall and 1/2 inch (13 mm) out from wall, with outer edge bent down 30 degrees and hemmed.
- B. Flexible Flashing: Use one of the following unless otherwise indicated:
 - 1. Stainless steel Flashing: 5-oz./sq. ft. (1.5-kg/sq. m) stainless steel sheet bonded with asphalt between two layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
 - 2. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive, rubberized-asphalt compound, bonded to a high-density, cross-laminated, polyethylene film to produce an overall thickness of not less than 0.040 inch (1.0 mm).
- C. Sealants for Sheet Metal Flashings:
 - 1. Elastomeric Sealant: ASTM C920, chemically curing urethane sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- D. Adhesives, Primers, and Seam Tapes for Flexible Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

2.5 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene or urethane .

2.6 MASONRY CLEANERS

- A. Masonry cleaners of type recommended by manufactured stone manufacturer.

2.7 FABRICATION

- A. General: Fabricate manufactured stone units in sizes and shapes required to comply with requirements indicated.

2.8 MORTAR MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride.
 - 2. Mixing Pointing Mortar: Thoroughly mix cementitious and aggregate materials together before adding water. Then mix again, adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. Maintain mortar in this dampened condition for one to two hours. Add remaining water in small portions until mortar reaches required consistency. Use mortar within 30 minutes of final mixing; do not retemper or use partially hardened material.
- B. Mortar for Pointing Manufactured Stone Masonry: Comply with ASTM C270, Proportion Specification.
 - 1. Mortar for Pointing Manufactured Stone: Type S.
- C. Mortar for Adhering Manufactured Stone Masonry: Polymer-modified, non-sag, high performance mortar, approved for exterior exposure, with life time commercial system warranty:
 - 1. Bond Coat: ANSI A118.15.
 - 2. Setting Mortar: ANSI A118.15

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces indicated to receive manufactured stone masonry, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of manufactured stone masonry.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean dirty or stained manufactured stone surfaces by removing soil, stains, and foreign materials before setting. Clean manufactured stone by thoroughly scrubbing with fiber brushes and then drenching with clear water. Use only mild cleaning compounds recommended by manufactured stone manufacturer that contain no caustic or harsh materials or abrasives.

3.3 SETTING MANUFACTURED STONE MASONRY

- A. Perform necessary field cutting and trimming as manufactured stone is set.
- B. Sort manufactured stone before it is placed in wall to remove manufactured stone that does not comply with requirements relating to aesthetic effects, physical properties, or fabrication, or that is otherwise unsuitable for intended use.
- C. Set manufactured stone to comply with requirements indicated on Drawings. Install supports, fasteners, and other attachments indicated or necessary to secure manufactured stone masonry in place. Set manufactured stone accurately in locations indicated, with edges and faces aligned according to established relationships and indicated tolerances.
- D. Provide sealant joints of widths and at locations indicated.
 - 1. Keep sealant joints free of mortar and other rigid materials.
 - 2. Sealing joints are specified in Section 079200 "Joint Sealants."
- E. Install embedded flashing where indicated.
 - 1. Install metal drip edges beneath flexible flashing at exterior wall face. Stop flexible flashing 1/2 inch (13 mm) back from exterior wall face, and adhere flexible flashing to top of metal drip edge.

3.4 INSTALLATION OF ADHERED MANUFACTURED STONE MASONRY VENEER

- A. Install bond coat to cmu with 100% coverage. Keep bond coat moist until manufactured stone is adhered..

- B. Coat backs of manufactured stone units and face of masonry backup with cement-paste bond coat, then butter both surfaces with setting mortar. Use sufficient setting mortar, so a slight excess will be forced out the edges of manufactured stone units as they are set. Tap units into place, completely filling space between units and masonry backup.
- C. Rake out joints for pointing with mortar to depth of not less than 3/4 inch (19 mm) before setting mortar has hardened. Rake joints to uniform depths with square bottoms and clean sides.

3.5 POINTING

- A. Prepare manufactured stone-joint surfaces for pointing with mortar by removing dust and mortar particles. Where setting mortar was removed to depths greater than surrounding areas, apply pointing mortar in layers not more than 3/8 inch (10 mm) deep until a uniform depth is formed.
- B. Point manufactured stone joints by placing and compacting pointing mortar in layers of not more than 3/8 inch (10 mm) deep. Compact each layer thoroughly, and allow to it become thumbprint hard before applying next layer.
- C. Tool joints, when pointing mortar is thumbprint hard, with a smooth jointing tool .

3.6 ADJUSTING AND CLEANING

- A. Remove and replace manufactured stone masonry of the following description:
 - 1. Broken, chipped, stained, or otherwise damaged manufactured stone. Manufactured stone may be repaired if methods and results are approved by Architect.
 - 2. Defective joints.
 - 3. Manufactured stone masonry not matching approved samples and mockups.
 - 4. Manufactured stone masonry not complying with other requirements indicated.
- B. Replace in a manner that results in manufactured stone masonry matching approved samples and mockups, complying with other requirements, and showing no evidence of replacement.
- C. In-Progress Cleaning: Clean manufactured stone masonry as work progresses. Remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean manufactured stone masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on mockup; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before cleaning manufactured stone masonry.

3. Protect adjacent manufactured stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
4. Clean manufactured stone masonry according to manufacturer's written instructions.

END OF SECTION 044310

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous metal fabrications.
2. Miscellaneous steel trim.
3. Undercounter support bracket for Concrete Countertops

B. Related Requirements:

1. Section 064150 "Concrete Countertops" for counter tops requiring support by brackets furnished in this section.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Fasteners.
2. Shop primers.
3. Shrinkage-resisting grout.

B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

1. Undercounter support brackets.

1.4 INFORMATIONAL SUBMITTALS

- A. Research Reports: For post-installed anchors.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:
1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
 3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Stainless Steel Sheet, Strip, and Plate: ASTM A240/A240M or ASTM A666, Type 304 or Type 316L.
- D. Stainless Steel Bars and Shapes: ASTM A276/A276M, Type 304 or Type 316L.
- E. Tubing: ASTM A554, Grade MT 304, or Grade MT 316, or Grade MT 316L as appropriate to application.
- F. Pipe: ASTM A312/A312M, Grade TP 304, or Grade TP 316, or Grade TP 316L as appropriate to application.
- G. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.
- H. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.
- I. Aluminum Plate and Sheet: **ASTM B209** (**ASTM B209M**), Alloy 6061-T6.
- J. Aluminum Extrusions: **ASTM B221** (**ASTM B221M**), Alloy 6063-T6.
- K. Aluminum Castings: ASTM B26/B26M, Alloy 443.0-F.

2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 or Type 316 stainless steel fasteners for exterior use. Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, **ASTM A307, Grade A (ISO 898-1, Property Class 4.6)**; with hex nuts, **ASTM A563 (ASTM A563M)**; and, where indicated, flat washers.
- C. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, **ASTM F593 (ISO 3506-1)**; with hex nuts, **ASTM F594 (ASTM F836M)**; and, where indicated, flat washers; Alloy Group **1 (A1)** or Group **2 (A4)** as appropriate to use.
- D. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.
- E. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors unless specifically identified.
 - 1. Material Where Stainless Steel Is Indicated: Alloy Group **1 (A1)** or Group **2 (A4)** stainless steel bolts, **ASTM F593 (ISO 3506-1)**, and nuts, **ASTM F594 (ASTM F836M)**.

2.3 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section "Painting
- B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- C. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- D. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained concrete with a minimum 28-day compressive strength of **3000 psi (20 MPa)**.

2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately **1/32 inch (1 mm)** unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded strap anchors, **1/8 by 1-1/2 inches (3.2 by 38 mm)**, with a minimum **6-inch (150-mm)** embedment and **2-inch (50-mm)** hook, not less than **8 inches (200 mm)** from ends and corners of units and **24 inches (600 mm)** o.c., unless otherwise indicated.

2.5 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize and prime miscellaneous steel trim.

2.6 UNDERCOUNTER SUPPORT BRACKETS

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners or cope intersections.
 - 1. Provide holes for mounting anchors.
 - 2. Fabricate right and left-hand assemblies providing flush mounting surface for phenolic panels.
- B. Galvanize after fabrication.

2.7 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.8 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, or masonry, or unless otherwise indicated.
- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Steel Items: SSPC-SP 3, "Power Tool Cleaning."
 - 2. Galvanized-Steel Items: SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.
- D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- E. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 UNDERCOUNTER SUPPORT BRACKETS

- A. Coordinate mounting locations with concrete countertops.
- B. Confirm location of grouted cells before setting anchors into masonry. Do not install until grouting is complete in the required cells and grout has cured.
- C. Install brackets only after completion of painting on wall under and behind brackets.
- D. Set brackets plumb and level to allow plumb and level mounting of phenolic panels and countertop.

3.3 REPAIRS

- A. Touchup Painting:
 - 1. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section "Painting".
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION

SECTION 061000 - CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Plywood panels.
4. Anchors for carpentry attachment.

B. Related Requirements:

1. Structural Drawings for roof sheathing.
2. Section 061020 "Fiber Cement Products" for coordination of framing, blocking and plywood soffit ceiling panel joints with fiber cement panel product installation.
3. Section 061753 "Shop-Fabricated Wood Trusses" for wood trusses made from dimension lumber.

1.2 DEFINITIONS

- ##### A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) size or greater but less than 5 inches nominal (114 mm actual) size in least dimension.
- ##### B. Lumber grading agencies, and abbreviations used to reference them, include the following:
1. SPIB: The Southern Pine Inspection Bureau.

1.3 ACTION SUBMITTALS

- ##### A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.4 INFORMATIONAL SUBMITTALS

- ##### A. Reports: For the following, from ICC-ES:
1. Wood-preservative-treated wood.
 2. Power-driven fasteners.
 3. Post-installed anchors.

4. Metal framing anchors.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
 3. Dress lumber, S4S, unless otherwise indicated.
 4. Grade: No. 2
 5. Species: Southern pine or mixed southern pine; SPIB.
- B. Maximum Moisture Content of Lumber:
 1. Dimension Lumber: 15 percent unless otherwise indicated.

2.2 PRESERVATIVE TREATMENT

- A. Preservative Treatment by Pressure Process: AWP A U1; Use Category Use Category UC3b.
 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX).
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on the Drawings.

2.3 DIMENSION LUMBER

- A. Dimension Lumber by Grade: No. 2 grade.
 - 1. Application: Blocking, framing, nailers.
 - 2. Species:
 - a. Southern pine or mixed southern pine; SPIB.

2.4 PLYWOOD PANELS

- A. Plywood Panels: Plywood, DOC PS 1, Exterior, C-C Plugged, in thickness indicated.
- B. Refer to Structural Drawings for roof sheathing.

2.5 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.
 - 1. Provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329 or of Type 304 stainless steel.
 - 2. For pressure-preservative-treated wood, use Series 300 stainless steel fasteners.
- B. Nails, Brads, and Staples: ASTM F1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 or ICC-ES AC193 as appropriate for the substrate.

2.6 METAL FRAMING ANCHORS

- A. General: Provide metal framing anchors of type, manufacturer and materials as indicated on the Drawings.

2.7 MISCELLANEOUS MATERIALS

- A. Plywood Face and Edge Sealer: Exterior polyurethane varnish sealer.
- B. Shims: HDPE or similar non-degrading plastic of thickness indicated and as required for conditions.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Install plywood panels by fastening to framing members or blocking;
 - 1. Do not align plywood joints with joints of fiber cement soffit and ceiling panels. Stagger joints. Provide additional blocking as needed.
- D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide blocking, or framing at all fiber cement panel edges. Coordinate layout of framing, blocking, plywood panels and fiber cement panels.
- E. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- F. Comply with AWPA M4 for applying field treatment to cut surfaces, including drilled holes, of preservative-treated lumber.
 - 1. Use copper naphthenate at roof perimeter framing.
- G. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 - 2. ICC-ES evaluation report for fastener.
- H. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

- 1. Comply with indicated fastener patterns where applicable.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 INSTALLATION OF PLYWOOD PANELS

- A. Install plywood panels by fastening to other wood framing members and cmu as detailed.
- B. Seal edges and side facing cmu with exterior polyurethane varnish prior to installation.

3.4 INSTALLATION OF CEILING JOIST AND RAFTER FRAMING

- A. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions if any.

3.5 PROTECTION

- A. Protect carpentry from weather. Cover with temporary protection when final waterproofing coverage has not yet been installed. Replace plywood if , despite protection, it becomes wet enough that moisture content exceeds that specified.

END OF SECTION 061000

SECTION 061020 – FIBER CEMENT PRODUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fiber Cement Soffits and Ceiling panels.
 - 2. Fascia and Trim Board .
- B. Related Requirements:
 - 1. Section “Carpentry” for plywood, blocking and framing installation.
 - 2. Section “Painting” for coating of fiber cement work.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
- B. Samples: For each type of product involving selection of profiles or textures.
- C. Manufacturer Instructions: Manufacturer’s printed installation instructions for each fiber cement product used.
- D. Evaluation Reports: For the following, from ICC-ES:
 - 1. Soffit and ceiling panels.

PART 2 - PRODUCTS

2.1 FIBER CEMENT SOFFITS AND CEILINGS

- A. Hardie Soffit non-vented smooth soffit panels.
- B. Thickness: 1/4 inch.
- C. Manufacturer: James Hardie Products.
- D. Finish: Factory primed for field painting and factory finished when available.

2.2 FIBER CEMENT FASCIA AND TRIM BOARDS

- A. Hardie Trim Smooth Board
- B. Thickness: ¾ inch.
- C. Width: As Detailed.
- D. Factory primed for field painting and factory finished where available.
- E. Manufacturer: James Hardie Products.

2.3 FASTENERS

- A. General: Provide fasteners as recommended by fiber cement manufacturer of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Provide fasteners of Type 304 or Type 316 stainless steel.
- B. Power-Driven Fasteners: NES NER-272. DO NOT STAPLE PANELS.
- C. Wood Screws: ASME B18.6.1.

2.4 ACCESSORY PRODUCTS

- A. Spacer material: Product recommend by wood treatment provider and acceptable to fiber cement product manufacture.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set fiber cement products to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Review framing and blocking locations, prior to installation of plywood or other covering, to assure framing and blocking occur at locations required for anchorage of panel products through the plywood and into the framing and blocking.
 - 1. Ceiling and soffit panels shall be anchored to framing members.
- C. Provide spacer materials to prevent contact with ACQ or CA preservative treated wood and aluminum products.
- D. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction" unless otherwise indicated.

3.2 INSTALLATION OF FIBER CEMENT TRIM

- A. Install per manufacturer's printed instructions. Follow recommendations in the James Hardie Products Best Practices Guide.
 - 1. Treat all non-factory cut edges using the Color Plus Technology edge coaters.

3.3 INSTALLATION OF FIBER CEMENT CEILINGS AND SOFFITS

- A. Install per manufacturer's printed instructions. Follow recommendations in the *James Hardie Products Best Practices Guide*
 - 1. For exterior soffits and ceilings install per HardieSoffit Panels HZ10 product installation instructions, applicable ICC ES Report and as indicated herein for anchor size and spacing.
 - a. Anchors:
 - 1) Length: 2-1/2 inch or as required to penetrate through plywood and into 2x framing not less than 2-inches.
 - 2) Head Diameter: 0.187" minimum.
 - 3) Shank: 0.092" minimum.
 - 4) Spacing: 4" oc at perimeter and intermediate supports spaced not more than 24" oc.
- B. Install panels over plywood. Verify that plywood substrate is well secured to framing and that plywood joints are flush.
 - 1. Install Tyvek air barrier between plywood and fiber cement panels at locations indicated on the Drawings.
- C. Gap panels 1/8" and seal with acrylic sealant. Treat all fasteners to insure smooth surface for painting.

END OF SECTION

SECTION 061753 - SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood roof trusses.

1.3 DEFINITIONS

- A. Metal-Plate-Connected Wood Trusses: Planar structural units consisting of metal-plate-connected members fabricated from dimension lumber and cut and assembled before delivery to Project site.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Show fabrication and installation details for trusses.
 - 1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
 - 2. Indicate sizes, stress grades, and species of lumber.
 - 3. Indicate locations of permanent bracing required to prevent buckling of individual truss members due to design loads.
 - 4. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
 - 5. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
 - 6. Show splice details and bearing details.
- B. Delegated-Design Submittal: For metal-plate-connected wood trusses indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For metal connector-plate manufacturer and fabricator.
- B. Product Certificates: For metal-plate-connected wood trusses, signed by officer of truss-fabricating firm certifying that the trusses supplied for the project were fabricated according to the specified requirements.

1.6 QUALITY ASSURANCE

- A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
 - 1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
 - 2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program, complies with quality-control procedures in TPI 1, and involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
- C. Installer Qualifications: Engage an experienced Installer who has completed wood truss installation similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store trusses to comply with recommendations in SBCA BCSI, "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."
 - 1. Store trusses flat, off of ground, and adequately supported to prevent lateral bending.
 - 2. Protect trusses from weather by covering with waterproof sheeting, securely anchored.
 - 3. Provide for air circulation around stacks and under coverings.
- B. Inspect trusses showing discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design metal-plate-connected wood trusses.
- B. Structural Performance: Metal-plate-connected wood trusses shall be capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1 unless more stringent requirements are specified below.
 - 1. Design Loads: As indicated.
 - 2. Maximum Deflection under Design Loads:
 - a. Roof Trusses: Vertical deflection of 1/240 of span.
- C. Comply with applicable requirements and recommendations of TPI 1, TPI DSB, and SBCA BCSI.
- D. Wood Structural Design Standard: Comply with applicable requirements in AF&PA's "National Design Specifications for Wood Construction" and its "Supplement."

2.2 DIMENSION LUMBER

- A. Lumber: DOC PS 20 and applicable rules of any rules-writing agency certified by the American Lumber Standard Committee (ALSC) Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Provide dressed lumber, S4S.
 - 3. Provide dry lumber with 19 percent maximum moisture content at time of dressing.
- B. Minimum Chord Size for Roof Trusses: 2 by 6 inches nominal (38 by 140 mm actual) for top chords.**
- C. Grade and Species: Provide visually graded dimension lumber for truss chord and web members, of the following grade and species:
 - 1. Grade for Chord Members: No. 2 or Better.
 - 2. Species: Southern pine graded per SPIB rules.
 - 3. Grade for Web Members: No. 3 or Better for roof trusses.
- D. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Section 061000 "Carpentry."

2.3 METAL CONNECTOR PLATES

- A. Fabricate connector plates to comply with TPI 1.
- B. Hot-Dip Galvanized-Steel Sheet: ASTM A653/A653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G60 (Z180) coating designation; and not less than 0.036 inch (0.9 mm) thick.
 - 1. Use for interior locations unless otherwise indicated.

2.4 FASTENERS

- A. Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Provide fasteners for use with metal framing anchors that comply with written recommendations of metal framing manufacturer.
 - 2. Where trusses are exposed to weather, in ground contact, made from pressure-preservative treated wood, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- B. Nails, Brads, and Staples: ASTM F1667.

2.5 METAL FRAMING ANCHORS AND ACCESSORIES

- A. Allowable design loads, as published by manufacturer, shall comply with or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- B. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 (Z180) coating designation.
 - 1. Use for interior locations unless otherwise indicated.

2.6 FABRICATION

- A. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints.
- B. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.

- C. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly, with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.
 - 1. Fabricate wood trusses within manufacturing tolerances in TPI 1.
- D. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

2.7 SOURCE QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections.
 - 1. Provide special inspector with access to fabricator's documentation of detailed fabrication and quality-control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to approved construction documents and referenced standards.
 - 2. Provide special inspector with access to places where wood trusses are being fabricated to perform inspections.
- B. Correct deficiencies in Work that special inspections indicate do not comply with the Contract Documents.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install wood trusses only after supporting construction is in place and is braced and secured.
- B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.
- C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.
- D. Install and brace trusses according to TPI recommendations and as indicated.
- E. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
- F. Space trusses **24 inches** o.c. Adjust and align trusses in location before permanently fastening.
- G. Anchor trusses securely at bearing points; use metal truss tie-downs or hangers as applicable. Install fasteners through each fastener hole in metal framing anchors according to manufacturer's fastening schedules and written instructions.

- H. Securely connect each truss ply required for forming built-up girder trusses.
 - 1. Anchor trusses to girder trusses as indicated.
- I. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.
 - 1. Install bracing to comply with Section 061000 "Rough Carpentry."
- J. Install wood trusses within installation tolerances in TPI 1.
- K. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.
- L. Replace wood trusses that are damaged or do not comply with requirements.
 - 1. Damaged trusses may be repaired according to truss repair details signed and sealed by the qualified professional engineer responsible for truss design, when approved by Architect.

3.2 REPAIRS AND PROTECTION

- A. Repair damaged galvanized coatings on exposed surfaces according to ASTM A780/A780M and manufacturer's written instructions.

3.3 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections to verify that temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the approved truss submittal package.

END OF SECTION 061753

SECTION 061800 - GLUED-LAMINATED CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural glued-laminated timber.
2. Timber connectors.

1.2 DEFINITIONS

- A. Structural Glued-Laminated (Glulam) Timber: An engineered, stress-rated timber product assembled from selected and prepared wood laminations bonded together with adhesives and with the grain of the laminations approximately parallel longitudinally.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include data on lumber, adhesives, fabrication, and protection.
2. For preservative-treated wood products. Include chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
3. For connectors. Include installation instructions.

B. Shop Drawings:

1. Show layout of structural glued-laminated timber system and full dimensions of each member.
2. Indicate species and laminating combination.
3. Fabrication details of connectors.

1.4 INFORMATIONAL SUBMITTALS

- A. Certificates of Conformance: Issued by a qualified testing and inspecting agency indicating that structural glued-laminated timber complies with requirements in ANSI A190.1.
- B. Material Certificates: For preservative-treated wood products, from manufacturer. Indicate type of preservative used and net amount of preservative retained.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: An AITC- or APA-EWS-licensed firm .

1.6 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with provisions in AITC 111.
- B. Individually wrap members using plastic-coated paper covering with water-resistant seams.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Structural glued-laminated timber and connectors are to withstand the effects of structural loads indicated without exceeding allowable design working stresses listed in ANSI 117 or determined according to ASTM D3737 and acceptable to authorities having jurisdiction.
 - 1. Load: 400 lb per linear foot.
- B. Design: Design and fabricate laminated timber to comply with performance requirements.

2.2 STRUCTURAL GLUED-LAMINATED TIMBER

- A. General: Provide structural glued-laminated timber that complies with ANSI A190.1 and ANSI 117 or research/evaluation reports acceptable to authorities having jurisdiction.
 - 1. Provide structural glued-laminated timber made from single species.
 - 2. Provide structural glued-laminated timber made from solid lumber laminations; do not use laminated veneer lumber.
 - 3. Provide structural glued-laminated timber made with wet-use adhesive complying with ANSI A190.1.
- B. Species and Grades for Arches:
 - 1. Species: Douglas fir-larch or southern pine, 24F-1.8E.
 - 2. Lay-up: Either balanced or unbalanced.

2.3 PRESERVATIVE TREATMENT

- A. Preservative Treatment: Where preservative-treated structural glued-laminated timber is indicated, comply with AWWA U1, Use Category 2.
 - 1. Use preservative solution without water repellents or substances that might interfere with application of indicated finishes.

2. Do not incise structural glued-laminated timber or wood used to produce structural glued-laminated timber.

2.4 TIMBER CONNECTORS

- A. Provide bolts, diameter to match existing adjacent construction, complying with ASTM A307, Grade A (ASTM F568M, Property Class 4.6); nuts complying with ASTM A563 (ASTM A563M); and, where indicated, flat washers.
- B. Beam Seat Materials: Unless otherwise indicated, fabricate from the following materials:
 1. Structural-steel shapes, plates, and flat bars complying with ASTM A36/A36M.
- C. Hot-dip galvanize steel assemblies and fasteners after fabrication to comply with ASTM A123/A123M or ASTM A153/A153M.

2.5 MISCELLANEOUS MATERIALS

- A. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.
- B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.6 FABRICATION

- A. Determine length, arc and all dimensions of laminated arch beam from site measurements. Each beam may require variations in construction configuration. Use templates or other means to accurately determine the required shape of each beam.
- B. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes.
 1. Dress exposed surfaces as needed to remove planing and surfacing marks.
- C. Where preservative-treated members are indicated, fabricate (cut, drill, surface, and sand) before treatment to greatest extent possible. Where fabrication must be done after treatment, apply a field-treatment preservative to comply with AWPA M4.
- D. End-Cut Sealing: Immediately after end cutting each member to final length and after preservative treatment, apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces flood coated for not less than 10 minutes.

- E. Connector fabrication: Fabrication to match existing connectors. Provide modifications as necessary to support loads and allow arch beam installation from below tight to existing roof decking.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates in areas to receive structural glued-laminated timber, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Erect structural glued-laminated timber true and plumb and with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.
 - 1. Handle and temporarily support glued-laminated timber to prevent surface damage, compression, and other effects that might interfere with indicated finish.
- B. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.
- C. Fit structural glued-laminated timber by cutting and restoring exposed surfaces to match specified surfacing.
 - 1. Predrill for fasteners using timber connectors as templates.
 - 2. Finish exposed surfaces to remove planing or surfacing marks and to provide a finish equivalent to that produced by machine sanding with No. 120 grit sandpaper.
 - 3. Coat cross cuts with end sealer.
 - 4. Where preservative-treated members must be cut during erection, apply a field-treatment preservative to comply with AWP A M4.
 - a. Use inorganic boron (SBX) treatment for members not in contact with the ground and continuously protected from liquid water.
 - b. Use copper naphthenate treatment for members in contact with the ground or not continuously protected from liquid water.
- D. Install timber connectors as indicated.
 - 1. Unless otherwise indicated, install bolts with same orientation within each connection and in similar connections.
 - 2. Install bolts with orientation as indicated or, if not indicated, as directed by Architect.

3.3 ADJUSTING

- A. Repair damaged surfaces after completing erection. Replace damaged structural glued-laminated timber if repairs are not approved by Architect.

3.4 PROTECTION

- A. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose, including protection from weather, sunlight, soiling, and damage from work of other trades.
 - 1. Coordinate wrapping removal with finishing work. Retain wrapping where it can serve as a painting shield.
 - 2. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

END OF SECTION

SECTION 064150 - CONCRETE COUNTERTOPS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Concrete countertops and trim.
- B. Related Work:
 - 1. Section 055000 "Metal Fabrications" for undercounter counter support bracket and as detailed on the drawings.

1.02 ACTION SUBMITTALS

- A. Product Data: For accessories and other manufactured products.
- B. Shop Drawings: Include plans, sections, details, and attachments to other work.

1.03 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Manufacturer and Installer.
- B. Sealant Compatibility Test Report: From sealant manufacturer, complying with requirements in Division 7 Section "Joint Sealants" and indicating that sealants will not stain or damage concrete.

1.04 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For concrete countertops to include in maintenance manuals. Include Product Data for concrete-care products used or recommended by countertop Manufacturer, and names, addresses, and telephone numbers of local sources for products.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of custom precast concrete countertops, constructed of custom blended cement and resin matrix specifically blended for use as countertops and designed for wet use areas.
 - 1. Manufacturer shall have successfully completed 10 projects of similar construction and size.
- B. Installer Qualifications: Fabricator of products.

1.06 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions of construction to receive concrete countertops by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Truform Concrete or approved equal.

2.02 CONCRETE COUNTERTOPS

- A. Type: Factory pre-cast, concrete countertops composed of minerals, Portland cement, resin, acrylic polymer, glass fibers and proprietary admixtures.
 - 1. Compressive strength: 8,000 psi minimum.
 - 2. Tensile Strength (without reinforcement): 1,500 psi minimum.
 - 3. Water:Cement Ratio: 0.3.
- B. Molds: Of type to produce smooth uniform finish. .
- C. Size and Configuration: As indicated on Drawings.
- D. Thickness: 1 1/2" thick concrete countertop, 3/4" thick back splash.
- E. Integral Color: N/A.
- F. Finish: As selected by Architect from fabricator's full range of finishes.
- G. Inlays: N/A.
- H. Edge: Eased edge on back splash and countertop edges.

2.03 ACCESSORIES

- A. Base Adhesive: Construction Adhesive specifically designed for use with concrete and metal and recommended in writing by countertop manufacturer.
- B. Attachment Adhesive: As recommended by manufacturer in writing.
- C. Surface Sealer: Manufacturer's standard 3-coat industrial grade surface sealer which forms a protective layer and is recommended by manufacture in writing.
- D. Overflow Drain: Manufacturer's standard overflow configuration with connection to plumbing drain lines.

2.04 FABRICATION

- A. Fabricate counter top in single piece in the factory in length shown on the drawings.
- B. Provide undersurface finish for attachment to field set support brackets as detailed on the drawings.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates indicated to receive concrete countertops and conditions under which concrete countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of concrete countertops.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Advise installers of other work about specific requirements for placement of inserts and similar items to be used by concrete countertop Installer for anchoring concrete countertops. Furnish installers of other work with Drawings or templates showing locations of these items.
- B. Clean dirty or stained concrete surfaces by removing soil, stains, oils, dust, paint, waterproofing and foreign materials before setting.
 - 1. Clean concrete countertops in accordance with fabricator's written instructions.
 - 2. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives. Allow concrete to fully cure before installing.

3.03 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces, not to exceed 1/16 inch in 48 inches.
- B. Variation from Level: Not to exceed 1/8 inch in 96 inches, 1/4 inch maximum.

3.04 INSTALLATION OF COUNTERTOPS

- A. General: Install countertops over countertop support brackets. Securely anchor brackets to wall, verifying proper load support.
- B. Use diamond saw or diamond grinding if required for field-fitting. Cut lines straight, true, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
- C. Set concrete countertops to comply with requirements indicated on Drawings and Shop Drawings. Shim and adjust concrete countertops to locations indicated, with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances. Install anchors and other attachments indicated or necessary to secure concrete countertops in place.

- 1. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent

damage while cutting. Use diamond-saw with diamond blades to cut concrete. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

- D. Install splash by adhering to wall with attachment adhesive. Leave 1/16-inch gap between countertop and splash for filling with sealant. Use temporary shims to ensure uniform spacing.
- E. Apply sealants to gaps specified for filling with sealant; comply with Division 7 Section "Joint Sealants." Remove temporary shims before applying sealant.

3.05 CLEANING AND REPLACEMENT

- A. In-progress Cleaning: Clean countertops as work progresses. Remove adhesive, grout, mortar, and sealant smears immediately.
- B. Clean concrete countertops not less than six days after completion of sealant installation, using clean water and soft rags. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage concrete.
- C. Sealer Application: Apply sealer and wax to comply with concrete countertop fabricator's and sealer manufacturer's written instructions.
- D. Remove and replace concrete countertops of the following description:
 - 1. Broken, chipped, stained, or otherwise damaged concrete.
 - 2. Defective countertops.
 - 3. Defective joints, including misaligned joints.
 - 4. Countertops not complying with other requirements indicated.
- E. Replace in a manner that results in concrete countertops complying with other requirements, and showing no evidence of replacement.

END OF SECTION

SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Glass-fiber-reinforced asphalt shingles.
2. Underlayment materials.
3. Ridge vents.
4. Metal flashing and trim.

1.2 DEFINITIONS

- ##### A. Roofing Terminology: See ASTM D1079 for definitions of terms related to roofing Work in this Section.

1.3 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Conference: Conduct conference at Project site.

1. Conduct pre-installation after completion of submittals and prior to installing underlayment..

1.4 ACTION SUBMITTALS

- ##### A. Product Data: For the following:

1. Asphalt shingles.
2. Underlayment materials.
3. Ridge vents.
4. Asphalt roofing cement.
5. Elastomeric flashing sealant.
6. Metal flashings associated with roofing installation.

- ##### B. Shop Drawings: For metal flashing and trim.

- ##### C. Samples: For each exposed product and for each color and blend specified, in sizes indicated.

1. Asphalt Shingles: Full size.
2. Ridge and Hip Cap Shingles: Full size.
3. Ridge Vent: 12-inch- (305-mm-) long Sample.
4. Exposed Valley Lining: 12 inches (305 mm) square.

- D. Samples for Initial Selection:
 - 1. For each type of asphalt shingle indicated.
 - 2. For each type of accessory involving color selection.

- E. Samples for Verification: For the following products, in sizes indicated:
 - 1. Asphalt Shingles: Full size.
 - 2. Ridge and Hip Cap Shingles: Full size.
 - 3. Ridge Vent: 12-inch- (305-mm-) long Sample.
 - 4. Exposed Valley Lining: 12 inches (305 mm) square.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranty: For manufacturer's materials warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For asphalt shingles to include in maintenance manuals.
- B. Materials warranties.
- C. Roofing Installer's warranty.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized installer who is trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store roofing materials in a dry, well-ventilated location protected from weather, sunlight, and moisture in accordance with manufacturer's written instructions.
- B. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double-stack rolls.
- C. Protect unused roofing materials from weather, sunlight, and moisture when left overnight or when roofing Work is not in progress.
- D. Handle, store, and place roofing materials in a manner to prevent damage to roof deck or structural supporting members.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Proceed with installation only when existing and forecasted weather conditions permit product installation and related Work to be performed in accordance with manufacturer's written instructions and warranty requirements.
 - 1. Install self-adhering sheet underlayment within the range of ambient and substrate temperatures recommended in writing by manufacturer.

1.10 WARRANTY

- A. Materials Warranty: Manufacturer agrees to repair or replace asphalt shingles that fail within specified warranty period. Any exceptions to the manufacturer's issuance of specified warranty must be given to Architect in written form seven (7) days prior to the project bid date.
 - 1. Failures include, but are not limited to, the following:
 - a. Manufacturing defects.
 - 2. Materials Warranty Period: 30 years from date of Substantial Completion, prorated, with first five years non-prorated.
 - 3. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 130 mph (58 m/s) for five years from date of Substantial Completion.
 - 4. Algae-Resistance Warranty Period: Asphalt shingles will not discolor for five years from date of Substantial Completion.
 - 5. Workmanship Warranty Period: Two years from date of Substantial Completion.
- B. General Contractor's Roofing Guarantee: Contractor's Roofing Guarantee on form at end of this Section, signed by Contractor.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain each type of product from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance in accordance with ASTM E108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

- B. Wind Resistance: Provide asphalt shingles that comply with requirements of ASTM D3161/D3161M, Class F, and with ASTM D7158/D7158M, Class H.
 - 1. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D3161/D3161M, Class F, and with ASTM D7158/D7158M, Class H.

2.3 GLASS-FIBER-REINFORCED ASPHALT SHINGLES

- A. Impact-Resistant, Laminated-Strip Asphalt Shingles: ASTM D3462/D3462M, laminated, multi-ply overlay construction; glass-fiber reinforced, mineral-granule surfaced, and self-sealing; with impact resistance complying with UL 2218, Class 4.
 - 1. Manufacturer's: Subject to compliance with the requirements provide products from one of the following :
 - a. GAG
 - b. Owens-Corning.
 - 2. Butt Edge: Straight or Notched cut.
 - 3. Strip Size: Manufacturer's standard.
 - 4. Algae Resistance: Granules resist algae discoloration.
 - 5. Color and Blends: As indicated by manufacturer's designations.
- B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles.

2.4 UNDERLAYMENT MATERIALS

- A. Self-Adhering, Polymer-Modified Bitumen Sheet: ASTM D1970/D1970M, minimum 40-mil- (1.0-mm-) thick sheet; glass-fiber-mat-reinforced, polymer-modified asphalt; with slip-resistant top surface and release backing; cold applied. Provide primer for adjoining concrete, masonry, and metal surfaces to receive underlayment.
 - 1. Top Surface: Textured polymer film or Polyester.

2.5 RIDGE VENTS

- A. Rigid Ridge Vent: Manufacturer's standard, rigid-section, high-density, UV-stabilized plastic ridge vent for use under ridge shingles. Ventilator designed to allow the passage of air out of attics. Provide 18.5 sq in NFVA per lineal foot.
 - 1. Features:
 - a. Nonwoven geotextile filter strips.
 - b. External deflector baffles.

2.6 ACCESSORIES

- A. Asphalt Roofing Cement: ASTM D4586/D4586M Type II, asbestos free.

- B. Elastomeric Flashing Sealant: ASTM C920, Type S, Grade NS, one-part, non-sag, elastomeric polymer sealant; of class and use classifications required to seal joints and remain watertight; recommended in writing by manufacturer for installation of flashing systems.
- C. Roofing Nails: ASTM F1667, aluminum, stainless steel, copper, or hot-dip galvanized-steel wire shingle nails complying with ASTM A-153, Class D, minimum 0.120-inch- (3-mm-) diameter, sharp-pointed, with a 3/8- to 7/16-inch- (10- to 11-mm-) diameter flat head and of sufficient length to penetrate 3/4 inch (19 mm) into solid wood decking or extend at least 1/8 inch (3 mm) through sheathing less than 3/4 inch (19 mm) thick.
 - 1. Where nails are in contact with metal flashing, use nails made from same metal as flashing.

2.7 METAL FLASHING AND TRIM

- A. Fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of the item unless otherwise specified in this Section or indicated on Drawings.
- B. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- C. Aluminum Sheet: ASTM B209 (ASTM B209M), alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
 - 1. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions for seacoast and severe environments.
 - 2. Color: As selected by Architect from manufacturer's full range.
 - 3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil (0.013 mm).
- D. Stainless Steel Sheet: ASTM A240/A240M, Type 304 or Type 316, dead soft, fully annealed; with smooth, flat surface.
- E. Lead Sheet: ASTM B749, Type L51121, at least 1/16 inch (1.6 mm) thick.
 - 1. Vent-Pipe Flashings: Provide lead sleeve sized to slip over and turn down into pipe, soldered to skirt at slope of roof, and extending at least 4 inches (102 mm) from pipe onto roof

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking or metal clips and that installation is within flatness tolerances.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored and that provisions have been made for flashings and penetrations through asphalt shingles.
 - 3. Verify that vent stacks and other penetrations through roofing are installed and securely fastened.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT MATERIALS

- A. Comply with asphalt shingle and underlayment manufacturers' written installation instructions and with recommendations in NRCA's "The NRCA Roofing Manual: Steep-Slope Roof Systems" applicable to products and applications indicated unless more stringent requirements are specified in this Section or indicated on Drawings.
- B. Self-Adhering, Polymer-Modified Bitumen Sheet: Install, wrinkle free, on roof deck.
 - 1. Comply with low-temperature installation restrictions of underlayment manufacturer.
 - 2. Install lapped in direction that sheds water.
 - a. Lap sides not less than 4 inches (102 mm).
 - b. Lap ends not less than 6 inches (152 mm), staggered 24 inches (610 mm) between succeeding courses.
 - c. Roll laps with roller.
 - 3. Prime roof sheathing and metal surfaces to receive self-adhering sheet.
 - 4. Extend underlayment over entire surface of roof surface.
 - 5. Valleys: Extend, in continuous sheet, from lowest to highest point 18 inches (457 mm) on each side of centerline.
 - 6. Cover underlayment within seven days.

3.3 INSTALLATION OF METAL FLASHING AND TRIM

- A. Unless more stringent requirements are specified in this Section or indicated on Drawings install metal flashings in accordance with recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems"

- B. Bed flanges of metal flashings using asphalt roofing cement or elastomeric flashing sealant.
- C. Rake Drip Edges: Install over underlayment materials and fasten to roof deck at not more than 6" oc.
- D. Eave Drip Edges: Install below underlayment materials and fasten to roof deck at not more than 6" oc.
- E. Pipe Flashings: Form flashing around pipe penetrations and asphalt shingles. Fasten and seal to asphalt shingles as recommended by manufacturer.

3.4 INSTALLATION OF ASPHALT SHINGLES

- A. Install asphalt shingles in accordance with manufacturer's written instructions and recommendations in NRCA's "NRCA Guidelines for Asphalt Shingle Roof Systems."
- B. Install starter strip along lowest roof edge, consisting of an asphalt shingle strip at least 7 inches (178 mm) wide with self-sealing strip face up at roof edge.
 - 1. Extend asphalt shingles 1/2 inch (13 mm) over fasciae at eaves and rakes.
 - 2. Install starter strip along rake edge.
- C. Install first and remaining courses of laminated asphalt shingles stair-stepping diagonally across roof deck with manufacturer's recommended offset pattern at succeeding courses, maintaining uniform exposure.
- D. Fasten asphalt shingle strips with a minimum of six roofing nails, but not less than the number indicated in manufacturer's written instructions for roof slope and design wind speed indicated on Drawings and for warranty requirements specified in this Section.
 - 1. Locate fasteners in accordance with manufacturer's written instructions.
 - 2. Hand-seal self-sealing asphalt shingles to improve the shingles' positive bond by applying asphalt roofing cement spots between course overlaps after nailing the upper course.
- E. Ridge Vents: Install continuous ridge vents over asphalt shingles in accordance with manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.
- F. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing-shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds.
 - 1. Fasten with roofing nails of sufficient length to penetrate sheathing.
 - 2. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

GENERAL CONTRACTOR’S ROOFING GUARANTEE

Project Name & Address	Project Owner Entity(ies) Name(s) & Address(es)
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General Contractor's Company Name, Address, & Telephone Number	EFFECTIVE DATES OF GUARANTEE
	Date of Acceptance:
	Date of Expiration:

1. The General Contractor does hereby certify that the roofing work included in this contract was installed in strict accordance with all requirements of the plans and specifications and in accordance with approved roofing manufacturers recommendations.

2. The General Contractor does hereby guarantee the roofing and associated work including but not limited to all flashing and counter flashing both composition and metal, roof decking and/or sheathing; all materials used as a roof substrate or insulation over which roof is applied; promenade decks or any other work on the surface of the roof; metal work; gravel stops and roof expansion joints to be absolutely watertight and free from all leaks, due to faulty or defective materials and workmanship for a period of five (5) years, starting on the date of substantial completion of the project. This guarantee does not include liability for damage to interior contents of building due to roof leaks, nor does it extend to any deficiency which was caused by the failure of work which the general contractor did not damage or did not accomplish or was not charged to accomplish.

3. Subject to the terms and conditions listed below, the General Contractor also guarantees that during the Guarantee Period he will, at his own cost and expense, make or cause to be made such repairs to, or replacements of said work, in accordance with the roofing manufacturers standards as are necessary to correct faulty and defective work and/or materials which may develop in the work including, but not limited to: blisters, delamination, exposed felts, ridges, wrinkles, splits, warped insulation and/or loose flashings, etc. in a manner pursuant to the total anticipated life of the roofing system and the best standards applicable to the particular roof type in value and in accordance with construction documents as are necessary to maintain said work in satisfactory condition, and further, to respond on or within three (3) calendar days upon proper notification or leaks or defects by the Owner or Architect.

4. Specifically excluded from this Guarantee are damages to the work, other parts of the building and building contents caused by: (1) lightning, windstorm, hailstorm and other unusual phenomena of the elements; and (2) fire. When the work has been damaged by

any of the foregoing causes, the Guarantee shall be null and void until such damage has been repaired by the General Contractor, and until the cost and expense thereof has been paid by the Owner or by the responsible party so designated.

5. During the Guarantee Period, if the Owner allows alteration of the work by anyone other than the General Contractor, including cutting, patching and maintenance in connection with penetrations, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations. If the owner engages the General Contractor to perform said alterations, the Guarantee shall not become null and void, unless the General Contractor, prior to proceeding with the said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Guarantee.
6. Future building additions will not void this guarantee, except for that portion of the future addition that might affect the work under this contract at the point of connection of the roof areas, and any damage caused by such addition. If this contract is for roofing of an addition to an existing building, then this guarantee covers the work involved at the point of connection with the existing roof.
7. During the Guarantee period, if the original use of the roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
8. The Owner shall promptly notify the General Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the General Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.

IN WITNESS THEREOF, this instrument has been duly executed this _____ day
of _____

General Contractor's Authorized Signature

Typed Name and Title

END OF SECTION 07311

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steep-slope roof sheet metal fabrications.
2. Miscellaneous sheet metal fabrications.

B. Related Requirements:

1. Section "Asphalt Shingles" for underlayment and eave flashing associated with shingle roofing.

1.2 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.3 ACTION SUBMITTALS

A. Product Data: For each of the following

1. Underlayment materials.
2. Elastomeric sealant.
3. Butyl sealant.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details of connections to adjoining work.
5. Detail formed flashing and trim at scale of not less than 3 inches per 12 inches.

C. Samples: For each exposed product and for each color and texture specified, 12 inches (300 mm) long by actual width.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.
- B. Special warranty.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.
 - 1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
 - 2. Protect stored sheet metal flashing and trim from contact with water.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.8 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.

2.2 SHEET METALS

- A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: **ASTM B209 (ASTM B209M)**, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
 - 1. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions for seacoast and severe environments.
 - 2. Color: As selected by Architect from manufacturer's full range.
 - 3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of **0.5 mil (0.013 mm)**.
 - C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, dead soft, fully annealed; with smooth, flat surface.
 - 1. Finish: ASTM A480/A480M, No. 2D (dull, cold rolled) .
 - D. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, **G90 (Z275)** coating designation or aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, **Class AZ50 (Class AZM150)** coating designation, **Grade 40 (Grade 275)**; prepainted by coil-coating process to comply with ASTM A755/A755M.
 - 1. Surface: Smooth, flat.
 - 2. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with

coating and resin manufacturers' written instructions for seacoast and severe environments.

3. Color: As selected by Architect from manufacturer's full range.
4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of **0.5 mil (0.013 mm)**.

E. Lead Sheet: ASTM B749 lead sheet.

2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.
- B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over **220 deg F (111 deg C)**; and complying with physical requirements of ASTM D226/D226M for Type I and Type II felts.
- C. Self-Adhering, High-Temperature Sheet Underlayment: Minimum **30 mils (0.76 mm)** thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal. Provide primer in accordance with underlayment manufacturer's written instructions.
 1. Source Limitations: Obtain underlayment from single source from single manufacturer.
 2. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus **20 deg F (29 deg C)** or lower.

2.4 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
 - b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.

3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.
 4. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape **1/2 inch (13 mm)** wide and **1/8 inch (3 mm)** thick.
- D. Elastomeric Sealant: ASTM C920, elastomeric polyurethane and silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.
- G. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

2.5 FABRICATION, GENERAL

- A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.
1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
 4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances:
1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of **1/4 inch in 20 feet (6 mm in 6 m)** on slope and location lines indicated on Drawings and within **1/8-inch (3-mm)** offset of adjoining faces and of alignment of matching profiles.
 2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.

- C. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.
- D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- E. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.
- F. Seams:
 - 1. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
- G. Do not use graphite pencils to mark metal surfaces.

2.6 SHEET METAL FABRICATIONS

- A. Unless otherwise indicated fabricate from the following materials:
 - 1. Aluminum: 0.032 inch (0.81 mm) thick.
 - 2. Stainless Steel: 0.0156 inch (0.396 mm) thick.
 - 3. Galvanized Steel: 0.028 inch thick.
 - 4. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick.
- B. Continuous hold down: Unless otherwise indicated fabricate from the following materials:
 - 1. Aluminum: 0.040 inch thick.
 - 2. Stainless Steel: 0.0188 inch thick.
 - 3. Galvanized Steel: 0.028 inch thick.
 - 4. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 - 3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

- A. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, in accordance with manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.
1. Lap horizontal joints not less than **4 inches (100 mm)**.
 2. Lap end joints not less than **12 inches (300 mm)**.
- B. Self-Adhering, High-Temperature Sheet Underlayment:
1. Install self-adhering, high-temperature sheet underlayment; wrinkle free.
 2. Prime substrate if recommended by underlayment manufacturer.
 3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
 4. Apply in shingle fashion to shed water, with end laps of not less than **6 inches (150 mm)** staggered **24 inches (600 mm)** between courses.
 5. Overlap side edges not less than **3-1/2 inches (90 mm)**. Roll laps and edges with roller.
 6. Roll laps and edges with roller.
 7. Cover underlayment within 14 days.

3.3 INSTALLATION, GENERAL

- A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.
1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.
 3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
 4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
 5. Install continuous cleats with fasteners spaced not more than **12 inches (300 mm)** o.c.
 6. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
 7. Do not field cut sheet metal flashing and trim by torch.
 8. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment.

- C. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than **1-1/4 inches (32 mm)** for nails and not less than **3/4 inch (19 mm)** for wood screws. Insert size requirement.
- D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- E. Seal joints as required for watertight construction.
 - 1. Use sealant-filled joints unless otherwise indicated.
 - a. Embed hooked flanges of joint members not less than **1 inch (25 mm)** into sealant.
 - b. Form joints to completely conceal sealant.
 - c. When ambient temperature at time of installation is between **40 and 70 deg F (4 and 21 deg C)**, set joint members for 50 percent movement each way.
 - d. Adjust setting proportionately for installation at higher ambient temperatures.
 - 1) Do not install sealant-type joints at temperatures below **40 deg F (4 deg C)**.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- F. Rivets: Rivet joints in where necessary for strength.

3.4 INSTALLATION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of **1/4 inch in 20 feet (6 mm in 6 m)** on slope and location lines indicated on Drawings and within **1/8-inch (3-mm)** offset of adjoining faces and of alignment of matching profiles.

3.5 CLEANING

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.

3.6 PROTECTION

- A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

- C. Maintain sheet metal flashing and trim in clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Nonstaining silicone joint sealants.
3. Urethane joint sealants.
4. Immersible joint sealants.
5. Mildew-resistant joint sealants.
6. Butyl joint sealants.

1.2 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Joint-sealants.
2. Joint sealant backing materials.

- ##### B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.4 INFORMATIONAL SUBMITTALS

A. Test and Evaluation Reports:

1. Preconstruction Field-Adhesion-Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

B. Field Quality-Control Submittals:

1. Field-Adhesion-Test Reports: For each sealant application tested.

C. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Warranty Documentation:
1. Manufacturers' special warranties.
 2. Installer's special warranties.

1.6 QUALITY ASSURANCE

- A. Qualifications:
1. Installers: Authorized representative who is trained and approved by manufacturer.
 2. Testing Agency: Qualified in accordance with ASTM C1021 to conduct the testing indicated.

1.7 MOCKUPS

- A. Install sealant in concrete masonry units for final verification of color selections and for preconstruction field adhesion testing. Use materials and installation methods specified in this Section.

1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 2. Conduct field tests for each kind of sealant and joint substrate.
 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
 4. Provide tests as follows.
 - a. Test Method: Test joint sealants in accordance with Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with

requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.9 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain joint sealants from single manufacturer for each sealant type.

2.2 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

2.4 BUTYL JOINT SEALANTS

- A. Butyl-Rubber-Based Joint Sealants: ASTM C1311.

2.5 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
- D. Cleaning cloths: Clean, soft, absorbent, lint-free cloths.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General
- B. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), oil, grease, waterproofing, mortar, water repellents, water, surface dirt, and frost.
 - 1. Non-porous surfaces and appropriate porous surfaces shall be cleaned by a two-cloth solvent wipe method in accordance with ASTM C1193 and as follows:
 - a. Use one lint free cotton cloth, to which cleaner has been applied, and vigorously wipe all dirt and contaminants from the surface.
 - b. Immediately wipe cleaned area, to remove any cleaner and dirt residue, with separate clean lint free cotton cloth before solvent has evaporated.
 - c. Do not allow to dirty cloth to contaminate liquid cleaner or clean wiping cloths.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces by methods recommended by sealant manufacturer and that do not stain, harm substrates, or leave residues capable of

interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

- a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Plastic wall panels.
 - e. Painted surfaces.
- C. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- D. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
 2. Dry tool all sealants. Use no liquids in tooling applications. Use tooling agents that
 - a. Clean tool when needed to provide smooth uniform tooled surface. Clean tools with agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces. Completely dry tools with clean lint free cloth prior to bringing tools in contact with wet sealant.
 3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
 4. Provide recessed joint configuration of recess depth and at locations indicated on Drawings in accordance with Figure 8C in ASTM C1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Tests and Inspections:
1. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - a. Extent of Testing: Test completed and cured sealant joints as follows:
 - 1) Perform two tests for each of the following; each for interior and exterior masonry control joints.
 - a) Interior Masonry Control Joints
 - b) Interior Masonry Control Joints
 - c) Slab on grade at coated slabs.
 - b. Test Method: Test joint sealants in accordance with Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - c. Inspect tested joints and report on the following:
 - 1) Whether sealants filled joint cavities and are free of voids.
 - 2) Whether sealant dimensions and configurations comply with specified requirements.

- 3) Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.
 - d. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.
 - e. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
2. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.
- C. Prepare test and inspection reports.

3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

- A. Manufacturers: Subject to compliance with the requirements provide products by the following:
 1. Dow, DowSil.
 2. Tremco
 3. Sika
 4. BASF/Master Builders
 5. Pecora

- B. General: When more than one type of sealant is listed for a Joint-Sealant Application provide one of the sealants listed.
- C. Exterior joints in horizontal traffic surfaces.
1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
 2. Joint Sealant: Silicone or Urethane, Type S or M, Grade P or NS, Class 35, Use T or NT, I, M, A, O.
- D. Exterior joints in vertical surfaces and horizontal nontraffic (non-pedestrian and non-vehicular) surfaces.
1. Joint Locations:
 - a. Control and expansion joints in unit masonry.
 - b. Perimeter joints at frames of doors, windows, metal soffit panels and louvers.
 2. Joint Sealant: Silicone, non-staining, Type S, Grade NS, Class 50, Use NT, M, A. Shore A Hardness 30-40.
 3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include but are not limited to the following:
 - a. DowSill 795:
 - b. Tremco Spectrum 2
- E. Interior joints, **other than at Gang Toilets and where mildew resistant sealant is indicated**, joints in vertical surfaces and horizontal nontraffic (non-pedestrian and non-vehicular) surfaces
1. Joint Locations:
 - a. Joints between metal.
 - b. Joints between metal and masonry,
 - c. Perimeter joints between unit masonry and frames of doors, windows, and louvers.
 - d. Joints between masonry to masonry.
 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Urethane Joint Sealant:
 - 1) Sika Corporation, Construction Products Division; Sikaflex - 15LM.
 - 2) Tremco Incorporated;Dymonic 100
 - 3) BASF; Sonolastic 150
 - b. Silicone joints:
 - 1) DowSill 795:
 - 2) Tremco Spectrum 2
- F. Interior joints in horizontal traffic surfaces.
1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
 2. Joint Sealant: Silicone or Urethane, Type S or M, Grade P or NS, Class 35, Use T or NT, I, M, A, O.
- G. **Interior** joints in vertical and horizontal nontraffic (non-pedestrian) surfaces.
1. Joint Location:
 - a. Masonry control joints.
 - b. Joints at intersection of masonry to masonry.

- c. Joints between masonry and aluminum.
 - 2. Joint Sealant:
 - a. Shore A 35 minimum, movement +-25% minimum.
 - 1) Tremco Dymonic 100
 - 2) BASF; MasterSeal CR 195.

- H. Interior mildew-resistant interior joints in vertical surfaces and horizontal nontraffic (non-pedestrian) surfaces.
 - 1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Joints between metal and masonry.
 - c. Other joints as indicated.
 - 2. Joint Sealant: Silicone, Type S, Grade NS, Class 35, Use T or NT, M, A, O.
 - a. Mildew resistant, single component, nonsag, neutral curing, silicone
 - b. Single component, nonsag, mildew resistant, acid curing silicone.

- I. Concealed mastics:
 - 1. Joint Locations:
 - a. Aluminum thresholds.
 - b. Other joints as indicated on Drawings.

 - 2. Joint Sealant: Butyl-rubber based.

END OF SECTION 079200

SECTION 081130 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes hollow-metal work.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Product test reports.

PART 2 - PRODUCTS

2.1 PERFORMANCE

- A. General Performance: Comply with performance requirements specified, as determined by testing of hollow metal doors and frames representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Failure also includes the following:
 - a. Loosening or weakening of fasteners, attachments, and other components.

- b. Failure of operating units.

B. Structural Loads:

- 1. Wind Loads: As indicated on Drawings.

2.2 HOLLOW-METAL DOORS AND FRAMES

A. Extra-Heavy-Duty Doors: ANSI/SDI A250.8, Level 3; ANSI/SDI A250.4, Level A.

1. Doors:

- a. Type: As indicated in the Door and Frame Schedule.
- b. Thickness: 1-3/4 inches (44.5 mm).
- c. Face Material: Metallic-coated steel sheet, minimum thickness of 0.053 inch (1.3 mm), with minimum A60 coating.
- d. Edge Construction: Model 2, Seamless.
- e. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.
- f. Bottom Edges: Close bottom edges of doors with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.
- g. Exposed Finish: Factory Prime.
- h. Hardware Reinforcement:
 - 1) Material: Metallic-coated steel sheet with minimum A60 coating.
 - 2) Closer and Magnetic Lock: Minimum 0.067 channel.
 - 3) Hinge: Minimum 0.167 bar.
 - a) For continuous hinge reinforce with continuous 0.067 minimum strip. Locate to coordinate with hinge anchor locations.
- i. Core: Manufacturer's standard foam insulation.

B. Maximum-Duty Frames: ANSI/SDI A250.8, Level 4; ANSI/SDI A250.4, Level A.:

1. Frames:

- a. Materials: Metallic-coated steel sheet, minimum thickness of 0.067 inch, with minimum A60 coating.
- b. Construction: Continuous welded.
- c. Exposed Finish: Factory Prime
- d. Hardware Reinforcement:
 - 1) Material: Metallic-coated steel sheet with minimum A60 coating.
 - 2) Closer and Magnetic Lock: Minimum 0.067 channel.
 - 3) Hinge: 0.167 Bar.
 - a) For continuous hinge reinforce with continuous 0.067 minimum strip. Locate to coordinate with hinge anchor locations.
 - 4) Other: As required by Standard.

2.3 FRAME ANCHORS

A. Jamb Anchors:

- 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2

inches (51 mm) wide by 10 inches (254 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

- a. For existing openings, where existing doors are being replaced, use stainless steel post-installed expansion Anchor: Minimum 3/8-inch- (9.5-mm-) diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (1.0 mm), and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.4 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: Steel sheet complying with hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.
- H. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.5 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:
 1. Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
- C. Hollow-Metal Frames:
 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor.
 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 16 inches (406 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. to match coursing, and as follows:
 - 1) Three anchors per jamb from up to 90 inches (1524 to 2286 mm) high.
 - 2) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
 - 3) Four anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.
 5. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to Article "HOLLOW-METAL DOORS AND FRAMES", SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 2. Provide loose stops and moldings on inside of hollow-metal work.
- 2.6 STEEL FINISHES
- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.
- 2.7 ACCESSORIES
- A. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Install frames with removable stops located on secure side of opening.
 - b. Install door silencers in frames before grouting.
 - c. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - d. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - e. Field-apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 2. Floor Anchors: Provide floor anchors for each jamb that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 4. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
- B. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).
 - b. Between Edges of Pairs of Doors: 1/8 inch (3.2 mm) to 1/4 inch (6.3 mm) plus or minus 1/32 inch (0.8 mm).
 - c. At Bottom of Door: 3/4 inch (19.1 mm) to 5/8 inch (15.8 mm) plus or minus 1/32 inch (0.8 mm).
 - 1) Except where thresholds are specified provide clearance required for proper threshold weather seal.
 - d. Between Door Face and Stop: 1/16 inch (1.6 mm) to 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).

3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION

SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
- C. Related Sections:
 - 1. Division 06 Section “Carpentry”.
 - 2. Division 08 Section “Hollow Metal Doors and Frames”.
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series
 - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

- b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: A recognized builders hardware supplier whose principal office and place of business is located within 150 miles of the project site, who has been furnishing hardware in the project's vicinity for a period of not less than five (5) years; and who is, or has in full time employment an Architectural Hardware Consultant (AHC) in good standing as certified by the American Society of Architectural Hardware Consultants, or equivalent, and who is a direct distributor of the products approved, for warranty purposes.

The supplier must have demonstrated willingness to coordinate field problems, and (upon reasonable compensation) to assist the Owner in re-keying and service operations. He must have a reputation for supplying quality material. Pre-bid approval is required; the following are accorded such approval in advance:

- a. Brabner & Hollon; Mobile, AL
- b. Construction Materials; Mobile, AL

- c. Ladd Architectural Door; Mobile, AL
 - d. Rayford & Associates, Inc.; Mobile, AL
- D. Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
- 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
- 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
- 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - 3. Review sequence of operation narratives for each unique access controlled opening.
 - 4. Review and finalize construction schedule and verify availability of materials.
 - 5. Review the required inspecting, testing, commissioning, and demonstration procedures

- I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems. Furnish and install backup batteries for restroom door timers.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 1. Structural failures including excessive deflection, cracking, or breakage.

2. Faulty operation of the hardware.
 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
1. Ten years for mortise locks and latches.
 2. Seven years for heavy duty cylindrical (bored) locks and latches.
 3. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
1. Quantity: Provide the following hinge quantity:

- a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
 5. Manufacturers:
 - a. Hager Companies (HA).
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
 - c. Stanley Hardware (ST).
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
1. Manufacturers:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
 - b. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
5. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years' experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 5. Keyway: Match Facility Standard.
- D. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. New System: Key locks to a new key system as directed by the Owner.
- E. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
- F. Construction Keying: Provide construction master keyed cylinders.

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – ML2000 Series.
 - b. Sargent Manufacturing (SA) – 8200 Series.
 - c. Yale Locks and Hardware (YA) – 8800FL Series.
- B. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.
1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latch bolt.
 2. Locks are to be non-handed and fully field reversible.
 3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.
 4. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – CL3300 Series.
 - b. Sargent Manufacturing (SA) – 10 Line.
 - c. Schlage (SC) – ND Series.

2.6 AUXILIARY LOCKS

- A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.36, Grade 1, small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DL4100 Series.
 - b. Sargent Manufacturing (SA) - 4870 Series.
 - c. Yale Locks and Hardware (YA) - 350 Series.

2.7 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latch bolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.8 ELECTROMAGNETIC LOCKING DEVICES

- A. Surface Electromagnetic Locks (Commercial Duty): Electromagnetic locks to be surface mounted type conforming to ANSI A156.23, Grade 1 with minimum holding force strength of 600 pounds. Locks to be capable of either 12 or 24 voltage and be UL listed for use on fire rated door assemblies. Electronics are to be fully sealed against tampering and allow exterior weatherproof applications. As indicated in Hardware Sets, provide specified mounting brackets and housings. Power supply to be by the same manufacturer as the lock with combined products having a lifetime replacement warranty.

1. Manufacturers:
 - a. Security Door Controls (SD) – EMLock 1500 Series.
 - b. Securitron (SU) – M32/M38 Series.

2.9 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use.

Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DC8000 Series.
 - b. Norton Door Controls (NO) – 9500 Series.
 - c. Sargent Manufacturing (SA) - 281 Series.

2.10 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.11 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 1. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.12 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. National Guard Products (NG).
 - 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
 - 3. Reese Enterprises, Inc. (RE).

2.13 ELECTRONIC ACCESSORIES

- A. Power Supplies: Provide Nationally Recognized Testing Laboratory Listed 12VDC or 24VDC (field selectable) filtered and regulated power supplies. Include battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
 - 1. Manufacturers:
 - a. Security Door Controls (SD) - 630 Series.
 - b. Securitron (SU) - BPS Series.

2.14 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with Section "Hollow Metal Doors and Frames" and with ANSI/DHI A115 series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 3. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one, or none, is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Manufacturer's Abbreviations:
1. MK - McKinney
 2. PE - Pemko
 3. SA - Sargent
 4. SU - Securitron
 5. RO - Rockwood

Hardware Sets

Set: 1.0 Each Door

Doors: 100, 102A, 103, 104 and at existing Toilet Building: Doors 101 and 102.

Description: EXT – RESTROOMS & DRESSING ROOM

1 Continuous Hinge	KCFMXX-HD1		PE
1 Mortise Deadlock	4877	US26D	SA
1 Magnetic Lock	M32BD		SU
1 Cylinder	as required	US32D	SA
1 Door Closer	281 Reg/PA	EN	SA
1 Door Pull	BF168	US32D	RO
1 Push Plate	70E	US32D	RO
1 Kick Plate	K1050 4" X 1" LDW 4BE CSK	US32D	RO
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 as required	US26D	RO
1 Threshold	271A MSES25SS		PE
1 Gasketing	S88D		PE
1 Rain Guard	346C x LAR		PE
1 Sweep	315CN		PE
1 Push Button	EEB3N		SU
1 Timer	DT-7		SU
1 Power Supply	BPS-Series (Volt & Amp as req)		SU
1 Motion Sensor	XMS		SU

Note: Provide all accessory mounting hardware for Magnetic Lock mounting to interior of room.

Note: Verify lock functions and hardware compatibility prior to ordering any hardware

Note: Furnish and install backup batteries.

SET: 2.0 Each Door

Door: 102

Description: RESTROOM 102 to DRESSING ROOM 100 at New Toilet Building

3 Ball Bearing Hinges			
1 Lever Handle Privacy Set		US26D	SA
1 Adjustable Closer			
2 Kick Plates		US32D	RO

Set: 3.0 Each Door

Doors: 101, 101A and Existing Toilet building Janitor Closet and Chase Doors 102A and 103
Description: CLOSET AND CHASE AND EXISTING CHASE 102A AND EXISTING JANITOR 103

1 Entry Lock (Storeroom Function)	Grade 1, Mortise, Lever as selected from Manufacturer's standard Line	US26D	SA
1 Door Closer	281 REG/PA	EN	SA
3 Ball Bearing Hinges			
1 Weatherstripping			
1 Cylinder	As required	US32D	SA
2 Kick Plates	Existing Toilet Bldg Door 103 ONLY		

Notes: Verify lock functions and hardware compatibility prior to ordering any hardware.

Set 4.0 Each Door

Door 105

Description: DOOR 105 NEW TOILET BUILDING

1 Entry Lock (Storeroom Function)	Lever Handle Mortise Set, Grade 1	US26D	SA
3 Ball Bearing Hinges			
1 Adjustable Closer			
1 Metal Low Profile Threshold			
1 Gasketing			
1 Rain Guard			
2 Kick Plates			

Note: Verify lock functions and hardware compatibility prior to ordering any hardware.

Set 5.0-Pad Lock

1 Padlock	Best 21B; verify Shackle length with use; XSPL; corrosion resistant; removable core keyed to Owner Key system.
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END OF SECTION

SECTION 089119 - FIXED LOUVERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fixed extruded-aluminum louvers.
2. Blank-off panels for louvers

B. Related Requirements:

1. Section 099010 "Painting" for field painting exterior louvers.

1.2 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.
- B. Horizontal Louver: Louver with horizontal blades (i.e., the axis of the blade is horizontal).
- C. Drainable-Blade Louver: Louver with blades having gutters that collect water and drain it to channels in jambs and mullions, which carry it to bottom of unit and away from opening.
- D. Wind-Driven-Rain-Resistant Louver: Louver that provides specified wind-driven-rain performance, as determined by testing in accordance with AMCA 500-L.
- E. Windborne-Debris-Impact-Resistant Louver: Louver that provides specified windborne-debris-impact resistance, as determined by testing in accordance with AMCA 540.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.
2. For anchors.

B. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing. Indicate anchor size and spacing.

1. Show weep paths, gaskets, flashings, sealants, and other means of preventing water intrusion.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranties: For manufacturer's special warranties.

1.5 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.6 WARRANTY

- A. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of baked enamel, powder coat, or organic finishes within specified warranty period.
 - 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Louvers withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures are considered to act normal to the face of the building.
 - 1. Wind Loads:
 - a. Determine loads based on pressures as indicated on Drawings.
- B. Windborne-Debris-Impact Resistance: Louvers located within **30 feet (9.1 m)** of grade pass basic protection, when tested in accordance with AMCA 540.
- C. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width in accordance with AMCA 500-L.

- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- E. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

2.2 FIXED EXTRUDED-ALUMINUM LOUVERS

- A. Horizontal, Windborne-Debris-Impact-Resistant Louver, Windborne-Debris-Impact-Resistant Louver, Extruded Aluminum :
 - 1. Shape: As shown on the Drawings.
 - a. Select louver type and design based on performance requirements specified. Fabricate non-rectangular configurations using same materials and components as tested rectangular configurations.
 - 2. Louver Depth: 4 inches.
 - 3. Frame and Blade Nominal Thickness: Not less than 0.080 inch.
 - 4. Louver Performance Ratings:
 - a. Free Area: Not less than 8.0 sq. ft. for 48-inch- (1220-mm-) wide by 48-inch- (1220-mm-) high louver.
 - 5. AMCA Rating: AMCA 540 and AMCA 550.

2.3 LOUVER SCREENS

- A. General: Provide screen at each louver.
 - 1. Screen Location for Fixed Louvers: Interior face.
 - 2. Screening Type: Insect screening.
- B. Louver Screening for Aluminum Louvers:
 - 1. Insect Screening, Stainless Steel: 18-by-18 (1.4-by-1.4-mm) mesh, 0.009-inch (0.23-mm) wire.

2.4 BLANK-OFF PANELS (Partial)

- A. Uninsulated Blank-Off Panels: Metal sheet attached to back of louver. Provide only at locations with mechanical duct connections to louver and only for that portion of louver not covered by mechanical plenum.
 - 1. Aluminum sheet for aluminum louvers, not less than 0.050-inch (1.27-mm) nominal thickness.
 - 2. Panel Finish: Same finish type applied to louvers, but black color.

3. Attach blank-off panels with sheet metal screws.

2.5 MATERIALS

- A. Aluminum Extrusions: **ASTM B221 (ASTM B221M)**, Alloy 6063-T5, T-52, or T6.
- B. Aluminum Sheet: **ASTM B209 (ASTM B209M)**, Alloy 3003 or 5005, with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Fasteners: Use types and sizes to suit unit installation conditions.
 1. For fastening aluminum, use aluminum or 300 series stainless steel fasteners.
 2. For fastening stainless steel, use 300 series stainless steel fasteners.
 3. For color-finished louvers, use fasteners with heads that match color of louvers.
- D. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, fabricated from stainless steel components, with allowable load or strength design capacities calculated in accordance with ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing in accordance with ASTM E488/E488M conducted by a qualified testing agency.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.6 FABRICATION

- A. Factory assemble louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- C. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
 1. Frame Type: Channel unless otherwise indicated.
- D. Include supports, anchorages, and accessories required for complete assembly.
- E. Field install blank off panels where required.

2.7 ALUMINUM FINISHES

- A. High-Performance Organic Finish, Two-Coat PVDF: Fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat.

1. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions for seacoast and severe environments.
2. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.3 INSTALLATION

- A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.
- B. Anchor louver to surrounding construction with clip angles or continuous angles of size and spacing, as determined by testing, to comply with performance requirements for wind load and impact requirements.
 1. Provide anchors of size and type to comply with performance requirements for wind load and impact requirements. Anchors shall be Series 300 stainless steel.
- C. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- D. Form closely fitted joints with exposed connections accurately located and secured.
- E. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- F. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Section 079200 "Joint Sealants" for sealants applied during louver installation.

3.4 ADJUSTING AND CLEANING

- A. Clean exposed louver surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvers damaged during installation and construction, so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION

SECTION 096720 - RESINOUS FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes resinous flooring system, with urethane body.
 - 1. Application Method: Squeegee, screed, and broadcast.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Samples for Verification: For each resinous flooring system required, 6 inches (150 mm) square, applied to a rigid backing by Installer for this Project.
- C. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- D. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
 - 1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
 - 2. Contractor shall have completed at least 10 projects of similar size and complexity.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer, with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Provide secondary materials,

including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

- C. Manufacturer Field Technical Service Representatives: Resinous flooring manufacturer shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.
 - 1. Field Technical Services Representatives shall be employed by the system manufacturer to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.

- D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Apply full-thickness mockups on 48-inch- (1200-mm-) square floor area selected by Architect.
 - a. Include 48-inch (1200-mm) length of integral cove base.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- E. Pre-installation Conference:
 - 1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
 - 2. Attendance:
 - a. General Contractor
 - b. Architect/Owner's Representative.
 - c. Manufacturer/Installer's Representative.
 - 3.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

- C. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

1. Maintain material and substrate temperature between 65 and 85 deg F (18 and 30 deg C) during resinous flooring application and for not less than 24 hours after application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.
- D. Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring

1.7 WARRANTY

- A. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of (1) full years from date of installation, or provide a joint and several warranty signed on a single document by material manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of (1) full year from date of installation.

PART 2 - PRODUCTS

2.1 RESINOUS FLOORING

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include:
- B. Products: Subject to compliance with requirements:
 1. Stonhard, Inc.; Stontec UTF®. Basis of design. Contact L. Chris Eicher (615) 424-2224 or ceicher@stonhard.com.
 2. Other manufacturer by prior Architect approval.
- C. System Characteristics:
 1. Color and Pattern: As shown on the Drawings.
 2. Wearing Surface: Slip resistant texture.
 3. Integral Cove Base: Match flooring.
 4. Overall System Thickness: 2mm
- D. System Components: Manufacturer's standard components that are compatible with each other and as follows:
 1. Primer: Stontec UTF Quik Primer.
 - a. Resin: Urethane; two-component, aromatic
 - b. Formulation Description: 100 percent solids.
 - c. Application Method: Squeegee and roller.

- d. Number of Coats: (1) one.
- e. Aggregates: Broadcast quartz into wet primer coat to refusal.
- 2. Body Coat(s): Stontec UTF undercoat.
 - a. Resin: Urethane.
 - b. Formulation Description: (3) component Polyaspartic urethane, aliphatic isocyanate.
 - c. Application Method: Notched squeegee.
 - 1) Thickness of Coats: 20-25 mils with UTF primer coat
 - 2) Number of Coats: (1) One.
- 3. Broadcast: Vinyl Flake.
 - a. Formulation Description: Vinyl Flake.
 - b. Flake Size: Micro (1/16").
 - c. Flake Color: White platinum.
 - d. Type: Tweed (chips to be pre-mixed at mfg. facility)
 - e. Finish: standard.
 - f. Number of Coats: one, broadcast to refusal.
- 4. Topcoat: Stonseal CA7.
 - a. Resin: Urethane
 - b. Formulation Description: (2) component, UV stable, Polyaspartic urethane, aliphatic isocyanate.
 - c. Type: Clear.
 - d. Finish: Gloss.
 - e. Wearing Surface: Slip resistant 90# grit silica additive in first coat.
 - f. Number of Coats: (2) two.

2.2 ACCESSORY MATERIALS

- A. Primer: Type recommended by manufacturer for substrate and body coats indicated. Formulation Description: Stontec UTF Primer.
- B. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated. Multiple component resinous matrix products only. No cementitious or single component products.
- C. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated. Allowances should be included for Stonflex MP7 joint fill material, and (or) Stonproof CT5 concrete crack treatment.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous flooring application.

- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
1. Mechanically prepare substrates as follows:
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - b. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.
 2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written recommendations.
 3. Verify that concrete substrates are dry.
 - a. Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 80 percent.
 - b. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. of slab in 24 hours.
 - c. Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.
 4. Verify that concrete substrates have neutral Ph and that resinous flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations. Allowances should be included for Stonflex MP7 joint fill material, and (or) Stonproof CT5 concrete crack treatment.

3.2 APPLICATION

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.

- B. Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates
- C. Broadcast: Immediately broadcast quartz silica aggregate into the primer using manufacturer's specially designed spray caster. Strict adherence to manufacturer's installation procedures and coverage rates is imperative.
- D. Integral Cove Base: Stonclad UR mortar, apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and top coating of cove base. Round internal and external corners
- E. Body coat: Mix base material according to manufacturer's recommended procedures. Uniformly spread mixed material over previously primed substrate using manufacturer's installation tool. Roll material with strict adherence to manufacturer's installation procedures and coverage rates.
- F. Broadcast: Immediately broadcast vinyl flakes into the body coat. Strict adherence to manufacturer's installation procedures and coverage rates is imperative.
- G. First Sealer: Remove excess unbonded flakes by lightly brushing and vacuuming the floor surface. Mix and apply sealer with strict adherence to manufacturer's installation procedures.
- H. Second sealer: Lightly sand first sealer coat. Mix and apply second sealer coat with strict adherence to manufacturer's installation procedures.

3.3 FIELD QUALITY CONTROL

- A. Material Sampling: Owner may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.
 - 1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
 - 3. If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

3.4 CLEANING, PROTECTING, AND CURING

- A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.
- B. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
- C. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer

END OF SECTION

SECTION 099010 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint and coating systems on the following interior and exterior substrates:
 - 1. Exposed interior and exterior substrates.
 - 2. Concrete.
 - 3. Concrete slabs (sealer).
 - 4. Concrete masonry units (CMUs).
 - 5. Steel and iron.
 - 6. Galvanized metal.
 - 7. Wood.
 - 8. Fiber cement board and panels
 - 9. Metal foil coated modified bitumen roofing.
 - 10. Laminated wood beams
- B. Related Requirements:
 - 1. Division 1 Section "Execution" and "Cutting and Patching" for cutting and patching.
 - 2. Division 5 for shop priming of metal substrates.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.

1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer Certificate: For compatibility of shop primer with finishing system.

1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- B. Single Source Responsibility:
 - 1. To the maximum extent practicable, select a single manufacturer to provide all materials required by this section, using additional manufacturers to provide systems not offered by the selected principal manufacturer.
 - 2. For each individual system: Provide primer and other undercoat paint produced by same manufacturer as finish coat. Use only thinners approved by paint manufacturer, and use only within recommended limits.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- C. Provide lighting level and type equal to that which will exist at Substantial Completion but not less than 30 foot-candles on the surface being coated.
- D. Provide continuous ventilation and heating to prevent accumulation of hazardous fumes and to maintain surface and ambient temperatures above 45 degrees F for 24 hours before, during, and for 48 hours after application of finishes.

1.9 COORDINATION

- A. General: Perform painting work in proper sequence with work of other trades to avoid damage to finished work.
- B. Primers: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates.
 - 1. Furnish information to other trades on characteristics of products proposed for use in this section.
 - 2. Provide barrier coats over incompatible primers or remove and re-prime.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide product listed in the Painting Schedule for the paint category indicated or comparable products from the listed manufacturers.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- B. Colors: As indicated on the Drawings. If not indicated as selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Fiber-Cement Board: 12 percent.
 - 3. Masonry (Clay and CMUs): 12 percent.
 - 4. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" and "MPI Repainting Manual" applicable to substrates and paint systems indicated. Limitations on responsibility for work identified in either referenced manufacturer's or MPI's documents do not limit the Work of this Section.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - 1. SSPC-SP 3.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas primer indicated in Paint Schedule.

- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
 - 1. Repair damaged galvanized surfaces using High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it. After repair spot prime then apply finish coat.
- H. Wood Substrates:
 - 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 PREPARATION FOR REPAINTING

- A. General: All requirements specified elsewhere in this Section apply to repainting. See Article "PREPARATION FOR SPECIFIC SUBSTRATES".
- B. Remove all contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence and sealers shall be removed.
- C. Glossy surfaces shall be clean and dull before painting. Wash with abrasive cleanser, wash thoroughly and dull by sanding or prepare and dull by other acceptable method to provide surface tooth necessary to assure bond with new paint.
- D. Remove loose or damaged substrate, route out cracks, fill holes resulting from removal of anchors or attachments to the substrate. Use products for repair as specified in sections for new work and as recommended by coating manufacturer.
- E. Sand, grind, scrape or use other acceptable methods to remove projections caused by paint buildup or foreign matter attached to the substrate. Provide smooth transitions between changes in surface level due to build-up of materials on original substrate.
- F. Use SSPC-SP 2 and 3 for preparation of metal surfaces.
- G. Remove rust using SSPC SP 3.
- H. Spot prime all bare surfaces existing or newly bared due to surface preparation indicated elsewhere.
- I. Wood trim that is removed from existing construction and salvaged for reuse shall be primed as indicated in Article "Preparation" paragraph "Wood" including prime coating of all uncoated surfaces.

- J. After completion of preparation of surface test compatibility of recoat system on area at least 2 to 3 square feet. Allow to dry one week before testing adhesion per ASTM D3359. If test shows unacceptable results adjust surface preparation procedure and retest.

3.4 PREPARATION FOR SPECIFIC SUBSTRATES

- A. General: The following surfaces require specific preparations not otherwise provided or defined in manufacturer's recommendations.
 - 1. Where chemical cleaning agents or detergents are proposed for use perform preconstruction testing on surfaces to be cleaned. Perform Preconstruction Testing prior to providing mock-ups.
 - 2. Use only materials that can be demonstrated to provide effective removal of paint, stains and substances requiring removal and do not harm materials to be cleaned.
 - 3. Prior to beginning mechanical methods of surface preparation demonstrate proposed methods will provide the appropriate level of surface profile without damaging the surface being prepared.
 - 4. Use hand cleaning methods with out mechanical assistance when necessary to prevent damage to existing surfaces.
- B. Metal Foil Surfaced Modified Bitumen Roof (Pavilion-Previously Painted)
 - 1. Remove existing chalking, dirt and debris using cleaning methods and mild detergents which do not damage existing membrane.
 - 2. Use very low-pressure water spray only. Under 100 psi.
 - 3. Thoroughly remove detergents, rinse and allow to dry prior to applying coatings.
- C. Existing Concrete Slab and Brick Inlay (Pavilion)
 - 1. Remove existing paint, sealers, markings and miscellaneous adhered debris.
 - 2. For Concrete use blasting, acid etching, grinding, chemical strippers or a combination of methods to provide a surface profile of 1mil to 3 mils or approximately equal to 120 grit sand paper. Do not used methods that produce profile greater than indicated.
 - 3. For Brick paver inlay use chemical strippers, detergent or other approved method to prepare for application of sealer. Do not abrade or damage brick and mortar surfaces.
- D. Existing Concrete Painted Buttresses (Pavilion)
 - 1. Remove existing paint and miscellaneous adhered debris.
 - 2. Use blasting, acid etching, grinding, chemical strippers or a combination of methods to remove the existing paint and provide a surface profile of 3 mils or approximately equal to 120 grit sand paper. Do not used methods that produce profile greater than indicated.
- E. Existing Wood Deck, Laminated Beams and Wood Trim (Pavilion).
 - 1. Remove existing dirt, mold, mildew, wasp nests, mud dauber nests, wood sap residue, loose or chalking paint and other debris using cleaning methods which do not damage existing wood surfaces.
 - 2. Clean both primary surfaces and open joints and crevices between boards.
 - 3. Do not allow moisture or liquid to enter and extend into cracks and joints beyond a point that cannot be dried by wiping the surface with clean cloth.
 - 4. Do not use water spray as a cleaning method.

3.5 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of doors and entire exposed surface of door frames.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

- E. Painting, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed to view, both interior and exterior, except in mechanical and storage rooms:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Pipe hangers and supports.
 - d. Metal conduit.
 - e. Plastic conduit.
 - 2. Paint the following work where exposed to view Mechanical Rooms:
 - a. Touch up and repair surfaces of prefinished work.
 - b. Uninsulated non-galvanized metal except conduit.

3.6 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.7 MANUFACTURERS

- A. Paint selections are based on Sherwin Williams products. Products for other manufacturers may be submitted for review as equal.

3.8 PAINTING SCHEDULE

- A. General: Gloss of each product shall be as shown on the Drawings.
- B. Steel Ferrous Metal (New):
 - 1. Prime: Pro-industrial Pro-Cryl Primer
 - 2. Finish: Pro-Industrial Multi-Surface Acrylic (2 coats)
- C. Steel Ferrous Metal (Existing previously painted):
 - 1. Spot Prime: Kem Bond HS
 - 2. Bond Coat: As recommended by paint manufacturer.
 - 3. Finish: Pro-Industrial Multi-Surface Acrylic (2 coats)
- D. Galvanized Steel (Existing previously painted)
 - 1. Spot Prime: Kem Bond HS
 - 2. Bond coat (as recommended by manufacturer)
 - 3. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)
- E. Galvanized Steel (New)
 - 1. Prime: Kem Bond HS
 - 2. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)
- F. CMU-Exterior Surfaces: Elastomeric Coating
 - 1. Spot Prime: (Existing Exterior CMU): Same as New CMU
 - 2. Primer: ConFlex Block Filler or Loxon Acrylic Block Surfacer (2 coats)
 - 3. Finish: ConFlex SherLastic Elastomeric (2 coats).
- G. CMU-Interior Surfaces: Epoxy
 - 1. Spot Prime: (Existing interior CMU): Same as New CMU
 - 2. Primer: Loxon Acrylic Block Surfacer (2 coats)
 - 3. Finish: Pro Industrial Pre-Catalyzed Waterbased Epoxy (2 coats).
- H. Fiber Cement – Prime coated:
 - 1. Spot Prime- (For factory primed products): Exterior Latex Wood Primer
 - 2. Prime: Exterior Latex Wood Primer
 - 3. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)
- I. Fiber Cement-Factory Finish-Refer to Section Fiber Cement Products”

- J. Wood (New and Previously coated paint finish):
 - 1. Spot Prime-: Exterior Latex Wood Primer
 - 2. Bond coat (for existing painted wood): As recommended by paint manufacturer.
 - 3. Prime: Exterior Latex Wood Primer
 - 4. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)

- K. Wood (Pavilion-previously coated wood boards, laminated beams and trim).
 - 1. Spot Prime: As recommended by paint manufacturer.
 - 2. Finish: WoodScapes Exterior Acrylic Solid Color Stain (2 coats)

- L. Wood (Pavilion-New laminated beams).
 - 1. Spot Prime: As recommended by paint manufacturer.
 - 2. Finish: WoodScapes Exterior Acrylic Solid Color Stain (2 coats)

- M. Aluminum Surfaced Modified Bitumen Roof (Previously Painted)
 - 1. Primer: Pro Industrial Pro-Cryl Universal Acrylic Primer
 - 2. Finish Sher-Cryl HPA High Performance Acrylic Semi-Gloss Coating.

- N. Concrete Sealer: Vertical and Horizontal Surfaces, Concrete and Brick Inlay in slab.
 - 1. Sealer: Clarishield Solvent Base Natural Look Sealer. (2 coats)

END OF SECTION

SECTION 101419 - DIMENSIONAL LETTER SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Dimensional characters.
 - a. Cast dimensional characters.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For signs.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights and accessories.
 - 3. Show message list, typestyles, graphic elements, and layout for each sign at least half size.
- C. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:
 - 1. Dimensional Characters: Full-size Sample of one character.
 - 2. Full-size Samples, if approved, will be returned to Contractor for use in the Project.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers approved by manufacturer.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of finishes beyond normal weathering.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 DIMENSIONAL CHARACTERS

- A. Cast Characters: Characters with uniform faces, sharp corners, and precisely formed lines and profiles, and as follows:
 - 1. Character Material: Cast aluminum .
 - 2. Character Height: As indicated on Drawings .
 - 3. Thickness: 1-1/2 inch..
 - 4. Finishes:
 - a. Integral Aluminum Finish: Clear anodized.
 - 5. Mounting: Concealed studs.
 - 6. Typeface: As shown on the Drawings.

2.2 DIMENSIONAL CHARACTER MATERIALS

- A. Aluminum Castings: ASTM B26/B26M, alloy and temper recommended by sign manufacturer for casting process used and for type of use and finish indicated.

2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:
 - 1. Use concealed fasteners and anchors.
 - 2. Furnish Series 300 stainless steel devices.
 - 3. Sign Mounting Fasteners:
 - a. Concealed Studs: Concealed (blind), threaded studs screwed into tapped lugs cast integrally into back of cast sign material.

2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
 - 1. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.

2.5 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.

2.6 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF DIMENSIONAL CHARACTERS

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

B. Mounting Methods:

1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
 - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed characters and signs that do not comply with specified requirements. Replace characters with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101419

SECTION 101423 - PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Panel signs.

1.2 DEFINITIONS

- A. Accessible: In accordance with the accessibility standard.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Panel signs.

B. Shop Drawings: For panel signs.

1. Include fabrication and installation details and attachments to other work.
2. Show sign mounting heights and accessories.
3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at full scale..

- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.

1.4 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with applicable provisions in the 2010 ADA Standards for Accessible Design and ICC A117.1 for sign design, fabrication, and mountings.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Deterioration of finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image.
 - c. Separation or delamination of sheet materials and components.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL SIGNS

- A. Panel Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
 1. Solid-Sheet Sign: Acrylic sheet with finish specified in "Surface Finish and Graphics" Subparagraph and as follows:
 - a. Thickness: 0.125 inch (3.18 mm).
 - b. Acrylic -Inlaid, Raised Graphics: Characters, graphics and Braille shall be chemically welded into 1/32" depression
 2. Sign-Panel Perimeter: Finish edges smooth.
 - a. Edge Condition:
 - 1) Vertical Edges: As indicated on Drawings .
 - 2) Horizontal Edges: As indicated on Drawings.
 - b. Corner Condition in Elevation: As indicated on Drawings .
 3. Mounting: Surface mounted to wall with through fastening anchors and perimeter silicone adhesive.
 4. Surface Finish and Graphics:
 - a. Integral Sheet Color: Acrylic sheet with color as selected by Architect from full range of industry colors .
 5. Text and Typeface: Accessible raised characters and Braille. Finish raised characters to contrast with background color, and finish Braille to match background color.

2.2 PANEL-SIGN MATERIALS

- A. Acrylic Sheet: ASTM D4802, category as standard with manufacturer for each sign, Type UVF (UV filtering), UV stablized.
- B. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.

2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following unless otherwise indicated:
 - 1. Exposed Metal-Fastener Components, General:
 - a. Fabricated from 300 series stainless steel.
 - b. Fastener Heads: Button head screws and bolts with tamper-resistant Allen-head, spanner-head or one-way-head slots unless otherwise indicated.
 - 2. Sign Mounting Fasteners:
 - a. Through Fasteners: Exposed metal fasteners prefinished head to matching sign color, with type of head indicated, and installed in predrilled holes.
 - 3. Inserts: Do not use plastic inserts.
- B. Adhesive: Silicone sealant adhesive or other type as recommended by sign manufacturer.

2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
- B. Surface-Engraved for Inlaid Graphics: Machine engrave characters and other graphic devices into indicated sign surface to produce precisely formed copy, incised to uniform depth. Inlay characters and other graphics into recess and chemically adhere.

2.5 GENERAL FINISH REQUIREMENTS

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
- B. Accessible Signage: Install in locations on walls as indicated on Drawings and according to the accessibility standard .
- C. Mounting Methods:
 - 1. Adhesive with Through Fasteners:
 - a. Drill holes in substrate using predrilled holes in sign as template. Place sign in position and flush to surface.
 - b. Apply linear beads of adhesive around perimeter to back of sign. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position, and push to engage adhesive.
 - c. Install through fasteners and tighten.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101423

SECTION 102113- PHENOLIC-CORE TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Phenolic- core toilet compartments configured as shown on the Drawings.
 - 2. Phenolic-core plumbing screens under sinks.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.
- B. Shop Drawings: For toilet compartments.
 - 1. Include plans, elevations, sections, details, and attachment details.
- C. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
 - 1. Each type of material, color, and finish required for toilet compartments, prepared on 6-inch- (152-mm-) square Samples of same thickness and material indicated for Work.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer: To the greatest extent possible obtain all items from a single source. Where panel manufacturer's standard or optional products do not meet requirements of

specification panel manufacturer shall obtain and provide products that meet specified requirements.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of building components and other construction contiguous with toilet compartments by field measurements before fabrication.

1.7 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard 25-year limited warranty for panels, doors, and stiles against breakage, corrosion, delamination, and defects in factory workmanship. Manufacturer's standard 1-year guarantee against defects in material and workmanship for stainless steel door hardware and mounting brackets

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the list following. Where toilet compartment manufacturer's standard or optional products do not meet requirements of specification toilet compartment manufacturer shall obtain and provide products that meet specified requirements.
 1. Bobrick Solid Phenolic Core.
 2. Ampco Solid Phenolic Core.
 3. Bradley Corp. Solid Phenolic Core.
 4. Columbia Partitions, Inc., Solid Phenolic Core.
 5. Rockville Partitions, Inc., Solid Phenolic Core.
 6. Metpar, Solid Phenolic Core

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: 75 or less.
 2. Smoke-Developed Index: 450 or less.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.3 PHENOLIC-CORE TOILET COMPARTMENTS

- A. Door, Screens and Pilaster Construction: Solid phenolic- moisture-resistant-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges. Provide minimum 3/4-inch- (19-mm-) thick doors and pilasters.
- B. Pilaster Shoes and Sleeves (Caps): Formed from stainless steel sheet, not less than 0.031-inch (0.79-mm) nominal thickness and 3 inches (76 mm) high, finished to match hardware.
- C. Brackets (Fittings):
 - 1. Full height of pilaster, less +-1-inch, stainless steel, minimum thickness 0.05-inches, Cold rolled stainless steel, from single sheet, #4 finish, "F" shaped with "U" shaped receiver sized for panel material. Corners shall be radiused +-1/2-inch. Anchor holes shall be in two vertical rows. One row within the "U" shaped portion of bracket and one row in the flange end of "F" shape. Holes in each row shall be spaced 12- 14 inches on center, not less than 1-inches or more than 4-inch from each end of bracket. Holes shall be sized for 1/4-inch diameter barrel bolt/through bolts.
 - a. Option: Bracket may be constructed as two nested angles only at wall conditions where bracket anchor occurs a minimum of 4-inches from end of wall.
- D. Phenolic-Panel Finish:
 - 1. Facing Sheet Finish: One color and pattern in each room.
 - 2. Color and Pattern: As selected by Architect from manufacturer's full range.
 - 3. Edge Color: Black..

2.4 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's heavy-duty institutional operating hardware and accessories.
 - 1. Hinges: Minimum 0.062-inch- (1.59-mm-) thick stainless steel full height institutional, self-closing by cam action, 1/4 -inch continuous pin, non-handed, 3 section hinges. Mount with through-bolts.
 - 2. Latch and Keeper: Manufacturer's heavy-duty surface-mounted cast-stainless steel latch unit designed to resist damage due to slamming, with combination rubber-faced door strike and keeper, and with provision for emergency access. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible. Mount with through-bolts.
 - 3. Coat Hook: Manufacturer's heavy-duty combination cast-stainless steel hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories. Mount with through-bolts.
 - 4. Door Bumper: Manufacturer's heavy-duty rubber-tipped cast-stainless steel bumper at out-swinging doors and entrance-screen doors. Mount with through-bolts.
 - 5. Door Pull: Manufacturer's heavy-duty cast-stainless steel pull at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible. Mount with through-bolts.

- B. Anchorages and Fasteners: Stainless steel, finished to match the items they are securing, with theft-resistant-type heads as indicated. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel.
 - 1. Material: Type 304 or 316 stainless steel.
 - 2. Fastener Head: Security head Pin-in-Head Torx or One-Way Slot Truss Head.
 - (1) At under sink screens use anchors as Detailed.
 - 3. For latch, coat hook and doorstop provide through bolted with sex bolts. Fasteners secured directly into core are not acceptable.
 - 4. For hinges provide sex bolts or through bolts with security heads on each end of bolt.
 - 5. For mounting brackets anchored to masonry provide sex bolts of length to accommodate through bolting of full thick masonry partition or modified sex-bolts using a combination of two nuts with threaded rod to accommodate width of masonry partition.
 - 6. For panels mounted parallel and directly to masonry, fasteners shall be same as for mounting brackets anchored perpendicular to masonry; or, where anchor is set not less than 4-inches from end of masonry wall/partition, expansion anchors minimum 3-inch embed.
 - a. Bolt Diameter: 1/4-inch minimum.
 - 7. Anchors into masonry and concrete shall be designed for that use and without inserts.

2.5 MATERIALS

- A. Brass Castings: ASTM B584.
- B. Brass Extrusions: ASTM B455.
- C. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.
- D. Stainless Steel Castings: ASTM A743/A743M.

2.6 FABRICATION

- A. Fabrication, General: Fabricate toilet doors and pilasters components to sizes indicated.
- B. Floor-Anchored Units: Provide stainless steel anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage. Provide stainless steel wedge or sleeve anchors.
- C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with specified anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters: 1/2 inch (13 mm).
 - 2. Full-Height (Continuous) Brackets: Secure panels and pilasters to walls with full-height brackets.
- B. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches (51 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.
- C. Under Sink Screens: Secure to support brackets as Detailed.

3.3 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and doors in entrance screens to return doors to fully closed position. Set hinges on accessible toilet compartments to return to fully closed position.

END OF SECTION

SECTION 102800 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Public-use washroom accessories including electric hand dryers.
2. Childcare accessories.
3. Underlavatory guards.

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.
- C. Coordinate blocking and anchoring devices for owner furnished accessories.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
3. Include electrical characteristics.

- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

1.7 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Hand Dryers: Manufacturer agrees to repair or replace hand dryers that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet accessory design, fabrication and mountings.

2.2 OWNER-FURNISHED MATERIALS

- A. Owner-Furnished Materials: If indicated on the Drawings.
 - 1. At return of Contractor submittal product data for Owner furnished materials will be provided to the Contractor for scheduling and installation use.

2.3 PRODUCTS

- A. Source Limitations: Obtain each type of accessory from single source from single manufacturer.
- B. Basis-of-Design: Specific products are identified in this Section and on the Drawings by manufacturer and model number as Basis-of -Design. Published attributes and characteristics of the Basis-of-Design product establish salient characteristics of products to be used in determining comparable products for compliance with the requirements. Subject to compliance with the requirements provide either the named product, with required options and modifications, or a comparable product complying with the requirements:

2.4 UNDERLAVATORY GUARDS

A. Underlavatory Guard:

1. Description: Insulating pipe covering for supply and drain piping assemblies that prevents direct contact with and burns from piping; allow service access without removing coverings.
2. Material and Finish: Antimicrobial, molded plastic, white.

2.5 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch (0.9-mm) minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: screws, bolts, and other devices, 300 Series stainless steel and tamper-and-theft resistant.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

2.6 MIRRORS:

- A. Mirror and Frame: Vandal resistant, surface mounted stainless steel frame with replaceable protective sacrificial Plexiglass protective layer.
 1. Frame and mirror: 0.011- inch thick Type 316L stainless steel.
 2. Frame Anchors: Torx security screws.
 3. Wall anchors: 3/8-inch stainless steel expansion anchors.

2.7 HAND DRYER

- A. Electric Hand Dryer: Surface Mounted Hand Dryer with automatic operation from IR sensor that activates dryer when hands are placed in sensor zone. Motor and heating element with internal resetting automatic thermal protection. One-piece, heavy-duty cast aluminum 7/64" thick cover with all exposed surfaces finished with acid, chip and scratch resistant epoxy enamel. Heavy duty, rust proof and tamper resistant fixed directional air vanes. Circuitry shall be self-adjusting time-out and fail-safe off protection controlled by a microprocessor that shall detect and reject false signals and shall automatically self-calibrate to provide uniform

sensitivity over its entire life span. Entire unit shall be internally electrically grounded. Dryer unit shall have C-UL-US® approval and be listed under the re-examination services of Underwriters Laboratories, Inc. Maximum projection from wall shall be 4-inches.

1. Power requirements: Coordinating operating power with electrical service.
2. Warranty: Warranted against defects in materials or workmanship for ten (10) years.
3. Product: American Specialties Model 0165 or approved equal.

2.8 BABY CHANGING STATION

- A. Countertop Surface Mounted Baby Changing Station: Thermofomed high-density polyethylene body. Design for counter top mounting. Concave bed with nylon safety strap.
1. Anchor to concrete countertop using Type 304 or Type 316 stainless steel anchor of configuration recommended by manufacturer.
 2. Manufacturer: Koala Kare Products.

2.9 ACCESSORY COMPONENTS

- A. Fasteners: All fasteners shall be stainless steel 300 Series.
1. All exposed to view fasteners, used for assembly or maintenance of toilet accessories, shall have security heads that allow removal and re-use.
 2. Concealed non-accessible fasteners may be either non-security or security head type.
 3. Concealed or exposed to view mounting fasteners shall be non-removable security head type.
 4. Fasteners used for mounting to cmu walls shall be type specifically designed for use in masonry. When inserts are required for screw type anchors only metal inserts shall be used. Plastic inserts shall not be used.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative. Key all accessories alike.

2.10 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and of the type specified and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.
- C. Install hand dryers level, plumb and firmly anchored into walls using manufacturer's recommended anchors. Apply a bead of sealant around edges of cover to wall.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION



ALABAMA

**Public Safety Memorial Park
Restroom, Skateboard Park & Splashpad
2301 Airport Boulevard
Mobile, Alabama x36606
PR-093-21**

TECHNICAL SECTIONS

SECTION 020700 - SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected site elements.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 2 Section "Site Clearing" for site clearing and removing above- and below-grade improvements.
 - 2. Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.

1.3 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged or to remain the Owner's property.
- B. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Landscape Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.
- B. Inventory of items to be removed by Owner

- C. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued by selective demolition operations.

1.6 PROJECT CONDITIONS

- A. Owner will occupy portions of park immediately adjacent to selective demolition area. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Storage or sale of removed items or materials on-site will not be permitted.

1.7 SCHEDULING

- A. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.

1.8 WARRANTY

- A. Existing Special Warranty: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

- D. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Architect.

3.2 UTILITY SERVICES

- A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to governing authorities.
 - a. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover.

3.3 PREPARATION

- A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, park facilities, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.
 - 1. Erect temporary protection, such as walks, fences, railings, as required.
 - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 - 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.

3.4 POLLUTION CONTROLS

- A. Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations.
- B. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.5 SELECTIVE DEMOLITION

- A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete Work within limitations of governing regulations and as follows:
 - 1. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.
 - 2. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.
 - 3. Break up and remove concrete pavement, asphalt paving as shown.
 - 4. Remove Concrete footings - foundations
 - 5. Demolish concrete benches and removal
 - 6. Remove underdrain, pool-fountain equipment
 - 7. Remove trees
- B. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain, using power-driven masonry saw or hand tools; do not use power-driven impact tools.
- C. Break up and remove concrete slabs on grade, unless otherwise shown to remain.

3.6 PATCHING AND REPAIRS

- A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.
- B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- C. Restore exposed finishes of patched areas and extend finish restoration into adjoining construction to remain in a manner that eliminates evidence of patching and refinishing.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials. Burning of any nature on site is prohibited.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.8 CLEANING

- A. Sweep adjacent walkways, streets and other areas broom clean on completion of selective demolition operation.

3.9 SELECTIVE DEMOLITION SCHEDULE

- A. Remove items indicated on the drawings.
- B. Remove, salvage, reconstruct and reinstall the items indicated on the drawings.

END OF SECTION 020700

SECTION 022300 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Protecting existing trees and vegetation to remain.
 - 2. Removing trees and other vegetation.
 - 3. Clearing and grubbing.
- B. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for soil materials, excavating, backfilling, and site grading.
 - 2. Division 2 Section "Site Clearing" for site for site clearing and removing above and below grade improvements.

1.3 MATERIALS OWNERSHIP

- A. Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

1.4 SUBMITTALS

- A. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damage caused by site clearing.

1.5 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

- B. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Notify utility locator service for area where Project is located before site clearing.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Provide erosion-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Locate and clearly flag trees and vegetation to remain or to be relocated.
- D. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 UTILITIES

- A. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.
 - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
 - 2. Arrange to shut off indicated utilities with utility companies
- B. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Landscape Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written Permission.
- C. Excavate for and remove underground utilities indicated to be removed.

3.3 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction. Removal includes digging out stumps and obstructions and grubbing roots.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated or directed to remain by the Landscape Architect.
 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner where such roots and branches obstruct installation of new construction.
 3. Completely remove stumps, roots, obstructions, and debris extending to a depth of 18 inches below exposed subgrade.
 4. Use only hand methods for grubbing within drip line of remaining trees.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
1. Place fill material in horizontal layers not exceeding 8-inch loose depth, and compact each layer to a density equal to adjacent original ground.

3.4 DISPOSAL

- A. Disposal: Remove and legally dispose of any surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

3.5 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

END OF SECTION 022300

SECTION 023000 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns, and plantings.
 - 2. Subbase course for concrete crushed stone and pavements.
 - 3. Site grading and filling to indicated elevations and contours.

1.3 DEFINITIONS

- A. Backfill: Soil materials used to fill an excavation.
- B. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- C. Excavation: Removal of material encountered above subgrade elevations.
- D. Fill: Soil materials used to raise existing grades.
- E. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
- F. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Landscape Architect and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Landscape Architect not less than three days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Landscape Architect's written permission.
 - 3. Contact utility-locator service for area where Project is located before excavating.

- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.
- C. Contractor is hereby made aware of the possible disturbances of existing rubble from previous demolition of old county courthouse. If encountered, contractor shall determine quantity, removal from site, and replacement of suitable fill material. Contractor shall save and present truck tickets to verify quantities. Contractor shall be paid per unit prices in Bid.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Soil materials sufficient to satisfactory complete required grading are available from excavated material.
- B. All fill material is subject to testing and inspection.
- C. Fill materials: Inert subsoil material free of organic matter, rubbish, debris, and rocks greater than 6" diameter and meeting the following requirements.
 - 1. Plastic index of not more than 30 -ASTM D424.
 - 2. Minimum laboratory dry weight at optimum moisture content of 110 pounds per cubic foot.
 - 3. Proposed fill material shall be inspected, tested and laboratory report issued prior to use in the work.
 - 4. Suitable excavated materials removed to accommodate new construction may be used as fill material subject to Soils Engineer's inspection and approval.
- D. Structural Fill: Select structural fill of sandy material from offsite having less than 20% fines passing the No. 200 U.S. Standard mesh sieve by dry weight conforming to Section 820 Alabama State Highway Department Specifications.
- E. Topsoil: Natural, friable, fertile soil characteristic of productive soil in the vicinity, reasonably free stones, clay lumps, roots and other foreign matter.
 - 1. Utilize on-site stockpiled topsoil as required to complete the work.
- F. Other materials required for proper completion of work: As selected by Contractor and acceptable to Landscape Architect.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Establish extent of grading and excavation by areas and elevation. Designate and identify datum elevation and project engineering reference points. Set required lines, levels, and elevations.
- D. Do not cover or enclose work of this Section before obtaining required inspections, test, approvals, and location recording.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.

3.4 EXCAVATION FOR WALLS AND OTHER STRUCTURAL ELEMENTS

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.5 EXCAVATION FOR WALKS AND CONCRETE PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.
- B. Excavate existing soils to a depth as indicated on plans below existing site grade.
- C. Place and compact backfill.

3.6 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.

3.8 APPROVAL OF SUBGRADE

- A. Notify Landscape Architect when excavations have reached required subgrade.
- B. If Landscape Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
 - 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

3.9 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Landscape Architect.

3.10 STORAGE OF SOIL MATERIALS

- A. Stockpile soil materials if required without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

- A. Place and compact backfill in excavations promptly.

3.12 UTILITY TRENCH BACKFILL

- A. Backfill trenches excavated under footings and within 18 inches of bottom of footings; fill with concrete to elevation of bottom of footings.
- B. Place and compact initial backfill of subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.
- C. Place and compact final backfill of satisfactory soil material to final subgrade.
- D. Install warning tape directly above utilities, 12 inches below grade, except 6 inches below subgrade under pavements and slabs.

3.13 FILL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Place and compact fill material in layers to required elevations.

3.14 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill material on surfaces that are muddy.
 - 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each.
- C. Subbase under concrete bowl shall be lightly compacted, re a gravel aggregate with 15# building felt above, lapped minimum 6 inches.
- D. Compact soil to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 92 percent.
 - 3. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 85 percent.

3.16 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water into storm drain inlets and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Lawn or Unpaved Areas: Plus or minus 1 inch.
 - 2. Pavements: Plus or minus 1/2 inch.
 - 3. Finish grade, elevations to be confirmed by Laser level.
- C. Rough grading includes the movement of suitable on-site material (cut and fill) within the limits of walkways, paving areas, yard areas and skatepark to obtain appropriate subgrade levels as required for these areas.
- D. Undercut & Backfill of some “soft spots” may be required during the grading of on-site soils during the rough grading operations.

Undercut of “unsuitable materials”, where authorized shall extend to a depth of eighteen inches (18"). Unsuitable material shall be disposed of off-site. Undercut areas shall be measured for payment. Undercut area shall be backfilled with any of the following as approved by the Geotechnical Engineer.

- 1. Suitable On-Site Soil.
- 2. Suitable “General Fill”.
- 3. Suitable “Select Structural Fill”.

This backfill shall be placed the same day as the excavation and shall be compacted to not less than 95% of Modified Proctor Density.

- E. All grading operations shall be performed in such manner that erosion will be prevented and accumulation of standing water will be prevented.
- F. Unsuitable or excess earth shall be disposed of off-site.
- G. Restore to original grades and conditions all properties damaged by any activity related to the work and take adequate precautions to avoid settlement or cave-in of properties higher than site and silting, eroding or other damage to properties lower than site.
- H. In-place soils may be highly sensitive to moisture. Never allow water to stand or become trapped on a foundation subgrade area. Provide positive drainage to any excavated areas at all times. If subgrade becomes saturated after undercutting, an additional amount of soil, to be determined by the Engineer, shall be removed at no cost to the Owner.

3.17 SUBBASE AND BASE COURSES

- A. Under pavements and walks, place subbase course on prepared subgrade and as follows:
1. Place base course material over subbase.
 2. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
 3. Shape subbase and base to required crown elevations and cross-slope grades.
 4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.

3.18 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing although testing is not anticipated for earthwork operations.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.19 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
1. Scarify or remove and replace soil material to depth as directed by Landscape Architect; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove and legally dispose of surplus waste material, including soil, trash, and debris off Owner's property.

END OF SECTION 023000

SECTION 023610 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Soil treatment with termiticide.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of termite control product.
 - 1. Include the EPA-Registered Label for termiticide products.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For termite control products, from manufacturer.
- B. Qualification Data: For firms and persons specified in Quality Assurance Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses.
- C. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's records and include the following:
 - 1. Date and time of application.
 - 2. Moisture content of soil before application.
 - 3. Termiticide brand name and manufacturer.
 - 4. Quantity of undiluted termiticide used.
 - 5. Dilutions, methods, volumes used, and rates of application.
 - 6. Areas of application.
 - 7. Water source for application.
- D. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A pest control operator who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment in the jurisdiction where the Project is located and who is experienced and has completed termite control treatment similar to that indicated for this Project and whose work has a record of successful in-service performance.
- B. Regulatory Requirements: Formulate and apply termiticides and termiticide devices according to the EPA-Registered Label.
- C. Source Limitations: Obtain termite control products from single source from single manufacturer.
- D. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.
- B. Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs, including under slabs replaced for installation of new utilities before construction.

1.7 WARRANTY

- A. Soil Treatment Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor, certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

- 1. Warranty Period: Three years from date of Substantial Completion.

1.8 MAINTENANCE SERVICE

- A. Continuing Service: Beginning at Substantial Completion, provide 12 months' continuing service including monitoring, inspection, and re-treatment for occurrences of termite activity. Provide a standard continuing service agreement. State services, obligations, conditions, terms for agreement period, and terms for future renewal options.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

- A. Termiticide: Provide an EPA-Registered termiticide, complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.
 - 1. Service Life of Treatment: Soil treatment termiticide that is effective for not less than three years against infestation of subterranean termites.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil per termiticide label requirements, interfaces with earthwork, slab and foundation work, landscaping, utility installation, and other conditions affecting performance of termite control.
- B. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparation before beginning application of termite control treatment. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, stakes, formwork, and construction waste wood from soil within and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
 - 1. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

3.3 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.4 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
 - 1. Slabs-on-Grade: Under ground-supported slab construction, including footings, building slabs, including slabs replaced for installation of new utilities, and attached slabs as an overall treatment. Treat soil materials before vapor retarder or concrete footings and slabs are placed.
 - 2. Foundations: Adjacent soil, including soil along the entire inside perimeter of foundation walls; along both sides of interior partition walls; around plumbing pipes and electric conduit penetrating the slab; around interior column footers, piers,; and along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
 - 3. Masonry: Treat voids.
 - 4. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.
- B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Post warning signs in areas of application.
- E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION

SECTION 027000 - STORM AND DRAINAGE

PART I – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the General and Supplementary Conditions and Division I Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes drainage systems outside buildings. Systems include the following:
 - a. Storm Drainage

1.3 DEFINITIONS

- A. Drainage Piping: System pipe and appurtenances for gravity flow of storm drainage.

1.4 QUALITY ASSURANCE

- A. City of Mobile: Comply with regulations pertaining to storm drainage systems.
- B. Product Options: Drawings indicate materials, sizes, profiles, connections, and dimensional requirements of system components and are based on specific manufacturer types indicated. Other manufacturers' products with equal performance characteristics may be considered. Refer to Division I Section "Product Substitutions"

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic structures in direct sunlight
- B. Do not store plastic pipe or fittings in direct sunlight
- C. Protect pipe, pipe fittings, and seals from dirt and damage.

1.6 PROJECT CONDITIONS

- A. Site Information: Perform site survey, research public utility records, and verify existing utility locations.

1.7 SEQUENCING AND SCHEDULING

- A. Coordinate storm drainage connections to City's storm sewer.
- B. Coordinate with other utility work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

- 1. Advanced Drainage Systems (ADS)

2.2 PIPES AND FITTINGS

Corrugated, Polyethylene (PE) Plastic Pipe and Fittings: AASHTO M 294 Interim, Type S, with smooth waterway for coupling joints.

1. Soiltight Couplings: AASHTO M 294 Interim, corrugated, matching pipe and fittings to form soiltight joints.
2. Silt tight Couplings: Polyethylene (PE) sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings to form silt tight joints.

2.3 CONCRETE

A. General: Cast-in-place concrete according to ACI 318, ACI 350R, and the following:

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Structures: Portland-cement design mix, 4000 psi minimum, with 0.45 maximum water-cement ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615, Grade 60, deformed steel.

C. Structure Channels and Benches: Factory or field formed from concrete. Portland-cement design mix, 4000 psi minimum, with 0.45 maximum water-cement ratio.

1. Include channels and benches in sanitary sewerage and combined sanitary sewerage and storm drainage manholes.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 2 Section "Earthwork."

3.2 IDENTIFICATION

A. Materials and their installation are specified in Division 2 Section "Earthwork." Arrange for installation of green warning tapes directly over piping and at outside edges of underground structures.

1. Use warning tapes or detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.3 DRAINAGE PIPING APPLICATIONS

A. General: Include watertight, silt tight, or soiltight joints, except where watertight or silt tight joints are indicated.

B. Refer to Part 2 of this Section for detailed specifications for pipe and fitting products listed below. Use pipe, fittings, and joining methods according to the following applications.

- C. Pipe Sizes 8 to 15 Inches: AASHTO M 252 Interim, corrugated, polyethylene (PE) drainage tubing and fittings; corrugated, soiltight couplings; and soiltight, coupled joints in sizes 8 and 10 inches. AASHTO M 294 Interim, corrugated, polyethylene (PE) plastic pipe and fittings; corrugated, soiltight couplings; and soiltight, coupled joints in sizes 12 and 15 inches.
- D. Pipe Sizes 8 to 15 Inches: AASHTO M 252 Interim, corrugated, polyethylene (PE) drainage tubing and fittings; polyethylene (PE) sleeve, silttight couplings; and silttight, coupled joints in sizes 8 and 10 inches. AASHTO M 294 Interim, corrugated, polyethylene (PE) plastic pipe and fittings; polyethylene (PE) sleeve, silttight couplings; and silttight, coupled joints in sizes 12 and 15 inches.

3.4 INSTALLATION, GENERAL

- A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of drainage systems piping. Location and arrangement of piping layout take into account many design considerations. Install piping as indicated, to extent practical.
- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.
- C. Use manholes for changes in direction, except where fittings are indicated. Use fittings for branch connections, except where direct tap into existing sewer is indicated.
- D. Use proper size increasers, reducers, and couplings, where different sizes or materials of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.
- E. Install gravity-flow-systems piping at constant slope between points and elevations indicated. Install straight piping runs at constant slope, not less than that specified, where slope is not indicated.

3.5 PIPE JOINT CONSTRUCTION AND INSTALLATION

- A. General: Join and install pipe and fittings according to the following.
- B. Polyethylene (PE) Plastic Pipe and Fittings: As follows:
 - a. Join pipe, tubing, and fittings with couplings for soiltight joints according to AASHTO "Standard Specifications for Highway Bridges," Division II, Section 26.4.2.4 "Joint Properties" and manufacturer's written instructions.
 - b. Join pipe, tubing, and gasketed fittings with elastomeric seals for watertight joints according to ASTM D 2321 and manufacturer's written instructions.
 - c. Install according to ASTM D 2321 and manufacturer's written instructions.
- C. System Piping Joints: Make joints using system manufacturer's couplings, except where otherwise specified.
- D. Join piping made of different materials or dimensions with couplings made for this

application. Use couplings that are compatible with and fit both systems' materials and dimensions.

3.6 STORM DRAINAGE INLET AND OUTFALL INSTALLATION

- A. Construct inlet head walls, aprons, and sides of reinforced concrete, as indicated.
- B. Construct outlet head walls, aprons, and sides of reinforced concrete, as indicated.

3.7 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318, ACI 350R, and as indicated.

3.8 DRAINAGE SYSTEM INSTALLATION

- A. Assemble and install components according to manufacturer's written instructions and as indicated.

3.9 FIELD QUALITY CONTROL

- A. Clear interior of piping and structures of dirt and superfluous material as the work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.
 - 1. Flush piping between manholes and other structures, if required by authorities having jurisdiction, to remove collected debris.
- B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of the Project.
- C. Test new piping systems and parts of existing systems that have been altered, extended, or repaired for leaks and defects.
 - 1. Do not enclose, cover, or put into service before inspection and approval.
 - 2. Test completed piping systems according to authorities having jurisdiction.

END OF SECTION 027000

SECTION 027100 - WATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. **Furnish all labor, material and equipment necessary to complete the water distribution system from a connection point along an existing main to a connection point approximately 5' outside of the building, as indicated by the drawings.**
- B. Detail material and construction requirements for this work shall be in accord with the National Standard Plumbing Code, latest Edition, the Mobile County Health Department, as well as any and all applicable portions of the "Standard Specifications for Water Mains, Sanitary Sewers and Sewage Pumping Stations, April 1993, updated June 2009", hereinafter called MAWSS Specifications and all addenda issued through the bid date of the project.
- C. The items of work to be performed include, but are not limited to:
 - 1. Site piping, domestic (potable), backflow preventers, and control valves.

1.2 SUBMITTALS

- A. Provide manufacturer data and installation instructions on water line materials.
- B. **Test Results: (Please note that copies of the following documents must be provided to the Engineer before the project is signed off on.)**
 - 1. Hydrostatic Test Results
 - 2. Bacteriological Test Results
- C. Shop Drawings: Submit shop drawings for water distribution system, showing piping materials, size, locations and elevations. Include details of underground structures, connections, and anchors. Show interface and spatial relationship between piping and proximate structures.
- D. Contract Closeout Submittals:
 - 1. Record Drawings: At project closeout, submit record drawings of installed water system piping and products, in accordance with requirements of Division 1.
 - 2. Maintenance Data: Submit maintenance data and parts list for water system materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual in accordance with requirements of Division 1.

1.3 QUALITY ASSURANCE

- A. Qualifications:

1. Manufacturer's Qualifications: Firms regularly engaged in manufacturer of potable water system materials and products, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 10 years.
2. Installer's Qualifications: Firm with at least 5 years of successful installation experience on projects with potable water piping work similar to that required for project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Subject to compliance with requirements, provide valves, backflow preventers, etc. and fittings manufactured by one of the following or others as approved by the MAWSS specifications:
 1. Valves: Clow Corporation, or equal
 2. Hydrants: M&H, Mueller, American, Clow, or Eclipse, or equal
 3. Fittings: Ford, Mueller, or equal
 4. Backflow Preventer: Watts, or equal

2.2 MATERIALS

- A. General: Provide piping materials and factory fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes and types matching piping and equipment connections; provide fittings of materials, which match pipe materials used in potable water systems. Where more than one (1) type of materials or products is indicated, selection is Installer's option.
- B. Piping: Provide pipes of the following materials unless indicated otherwise on the project drawings, of weight/class indicated. Provide pipefittings and accessories as indicated. All materials must be approved for use by local utility with jurisdiction over project.
 1. Ductile Iron Pipe: AWWA C 151, with cement mortar lining complying with AWWA C 104; Class 51 unless otherwise indicated.
 2. Polyvinyl Chloride: ASTM D1784 and D2241, SDR 18 (250 psi), unless otherwise specified.
 3. Fittings, Ductile Iron: Fittings shall be full size or compact (AWWA C 110 or AWWA C 153) for water with a pressure rating of 350 psi. Fittings shall be cement-lined (AWWA C 104). All fittings shall be provided with Ductile Iron Retainer Glands equal to Series 1200 Mechanical Joint Ductile Iron Retainer Glands as manufactured by EBAA Iron Sales, Inc. Glands shall be U.L. listed.
 4. Water pipe beneath concrete paving, concrete structures, storm drains, and at connection points (and 10 feet beyond) shall be ductile iron.
- C. Valves:
 1. Gate Valves: Provide as indicated, gate valves, AWWA C 500, 200 psi working pressure. Provide threaded, flanged, hub, or other end configurations to suit size of

valve and piping connection. Provide inside screw type for use with curb valve box, iron body, bronze mounted, double disc, parallel seat, non-rising stem.

- D. Backflow Preventers: Shall be in compliance and as accepted by the MAWSS Standard Specifications or as directed by MAWSS personnel. Backflow preventers shall comply with AWWA C510-92.
- E. Detector Tape: Detector tape shall be inductively locatable and conductively traceable using a standard pipe and cable-locating device. Tape shall be blue in color and shall bear a continuous printed message warning that a water line is buried below. Use tape 3 inches wide.
- F. Detector Wire: Detector wire shall be an insulated solid 12 gage copper wire with blue insulation for open cut installation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General

- 1. Install exterior water service piping system in compliance with utility, local governing regulations, and applicable portions of National Standard Plumbing Code (and local plumbing codes where more stringent).

B. Main Connection

- 1. Coordinate and construct as required the domestic water service connection to the existing water main, of the size, and in the location indicated by the drawings.
- 2. **Connection fees to be paid by the owner.**

C. Water Service Piping (Domestic)

- 1. Extend water service piping of size and in location indicated to water service entrance at building. See requirements for temporary plug and hydrostatic test.
 - a. Water Meter – Connect to water pipe in location and provide valves, backflow preventer, rough-in, and box as indicated.
 - b. Water Pipe - Install in accordance with recommended procedures of the manufacturer.
 - c. Control Valves - Install in accordance with manufacturer's instructions.
 - d. Joint Adapters - Make joints between different types of pipe with standard adapters and fittings.

D. Interior Inspection

- 1. Inspect conduit to determine whether line displacement or other damage has occurred.

2. If the inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects to satisfaction of Engineer.

E. Cleaning Conduit

1. Clear interior of water pipe of dirt and other superfluous material as work progresses.
2. Place plugs in end of uncompleted conduit at end of day or whenever the work stops.
3. Provide temporary plug for end of water piping approximately 5' from building to conduct hydrostatic testing. At completion of test, remove plug to allow waterline construction into building.

F. Sterilization

1. At completion of water service line installation, flush and sterilize in conformance with AWWA C 601, to the satisfaction of local authorities having jurisdiction. Chlorinating materials shall conform to AWWA B301 for liquid chlorine and AWWA B300 for hypochlorite, calcium and sodium.

G. Testing

1. Perform hydrostatic testing of completed conduit lines in accordance with local authorities having jurisdiction. As a minimum, test shall be 150 psi for 6 hours using a "recording" chart. To be deemed a "passing" test, the pipe test section shall maintain the 150 psi pressure; a drop of 2 psi during the initial one hour with no more than 5 psi pressure drop during the 6-hour test period. Once the pressure test is approved, the actual leakage will be evaluated. Maximum leakage shall be 10-gallons/24 hours/inch of diameter/mile of pipe.
2. Provide temporary plugs, connections, recording pressure gauge, and other equipment as required to complete the testing for waterline as necessary for testing.
3. Perform operational testing of valves by opening and closing each valve under water pressure to insure proper operation.
4. All testing shall be in the presence of the Engineer or his designated representative and shall be scheduled well in advance of the test time. Test shall be conducted for the full duration between the hours of 7:00 am and 7:00 pm.

H. Backfilling

1. Conduct backfilling operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.
2. Beneath paved areas, trenches and related excavations shall be backfilled with material meeting the requirements for select fill and backfill beneath paved areas. Material shall be placed in 8" loose lifts and compacted to 100% Standard Density.
3. Excess excavated materials shall be removed from the project and disposed of as unsatisfactory materials as detailed in other sections of the specifications.

END OF SECTION

SECTION 027200 - SANITARY SEWER SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. **Furnish all labor, material and equipment necessary to complete the exterior sanitary sewer collection system from a point approximately 5' outside of the building and to a connection point with an existing manhole.**
- B. Detail material and construction requirements for this work shall be in accord with the National Standard Plumbing Code, latest Edition, the Mobile County Health Department, as well as any and all applicable portions of the "Standard Specifications for Water Mains, Sanitary Sewers and Sewage Pumping Stations, April 1993, updated June 2009", hereinafter called MAWSS Specifications and all addenda issued through the bid date of the project.
- C. The items of work to be performed include, but are not limited to:
 - 1. Sanitary sewer conduits
 - 2. Manholes and clean-outs

1.2 SUBMITTALS

- A. Provide manufacturer date and installation requirements on all materials.
- B. Test Reports: **(Please note that copies of the following document must be provided to the Engineer before the project is signed off on.)**
 - 1. Air Test Results.
- C. Shop Drawings: Submit shop drawings for sanitary sewer system, showing piping materials, size, locations and elevations. Include details of underground structures and connections. Show interface and spatial relationship between piping and proximate structures.
- D. Contract Closeout Submittals:
 - 1. Record Drawings: At project closeout, submit record drawings of installed sewer system piping and products, in accordance with requirements of Division 1.
 - 2. Maintenance Data: Submit maintenance data and parts list for sewer system materials and products. Include this data, product data, shop drawings, and record drawings in maintenance manual in accordance with requirements of Division 1.

1.3 QUALITY ASSURANCE

- A. Qualifications:

1. Manufacturer: Firms regularly engaged in manufacture of sanitary sewage system's products of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
2. Installer: Firm with at least 3 years of successful installation experience on projects with sanitary sewage work similar to that required for project.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Conduit Materials

1. Ductile Iron Pipe – Pipe shall be ductile iron sewer pipe with wall thickness Class 52.
2. Polyvinyl Chloride Pipe – Pipe shall be S.D.R. 35 P.V.C. Sewer Pipe.
3. Fittings, Ductile Iron – Ductile iron fittings shall be utilized on ductile iron pipe or in other locations indicated by the drawings. Furnish ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and end caps of same type and class of material as conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer.
4. Fittings, Polyvinyl Chloride – P.V.C. pipe fittings shall be utilized on P.V.C. pipe. Furnish ells, tees, reducing tees, wyes, couplings, increasers, end caps, etc. of the same type and class material as conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer.
5. All pipe and fittings must meet MAWSS specifications.

B. Accessories

1. Manholes – As indicated by the drawings. (Must meet MAWSS specifications and requirements.)
2. Clean-outs – As indicated by the drawings.

C. Accessories

1. Manholes – As indicated by the drawings.

PART 3 – EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. General

1. Install exterior sewer service piping system in compliance with utility, local governing regulations, and applicable portions of National Standard Plumbing Code and local plumbing codes where more stringent.

B. Main Connection

1. **Connection Fees, if required, to be paid by the Owner.**

C. Installation of Conduit

1. Inspect conduit before installation to detect apparent defects. Mark defective materials with white paint and promptly remove from site.
2. Install conduit beginning at low point of system, true to grades and alignment indicated with unbroken continuity of invert.
3. Install gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements.

D. Cleaning Conduit

1. Clear interior of conduit of dirt and other superfluous material as work progresses.
2. Place plugs in ends of uncompleted conduit at end of day or whenever work stops, until inlets are completed and silt barriers are in place.
3. Flush lines between clean-outs as required to remove collected debris and sediment.

E. Joint Adapters

1. Make joints between different types of pipe with standard manufactured adapters and fittings, see drawings.

F. Interior Fittings

1. Inspect conduit to determine whether line displacement or other damage has occurred.
2. Make inspections after lines have been installed and approximately two feet of backfill is in place and again at the completion of project.

G. Connections

1. Verify tie in location and elevation prior to starting sewer system construction.
2. Make connections to existing conduits and underground structures, so that finished work will conform as nearly as practicable to requirements specified for new work.

H. Backfilling

1. Conduit backfilling operations of open-cut trenches closely following laying, jointing and bedding of pipe, and after initial inspection and testing are completed.
2. Beneath paved areas, trenches and related excavations shall be backfilled with material meeting the requirements for select fill and backfill material beneath paved areas. Material shall be placed in 8" loose lifts and compacted to 100% Standard Density (ASTM D 698). Excess excavated materials shall be removed from the project and disposed of as detailed in other sections of the Specifications.

3.2 TESTING

A. General

1. Perform infiltration and air testing of completed conduit lines in accordance with local authorities having jurisdiction and as detailed hereinafter.

2. Provide temporary plugs, connections, pressure gauges, and other equipment as required to complete the testing.
3. Visually check all manholes for infiltration, leakage, or other deficiencies.
4. All testing shall be in the presence of the Engineer or his designated representative and shall be scheduled well in advance of the test time. Testing shall be conducted between the hours of 7:00 am and 7:00 pm.

B. Infiltration

1. Leakage into the sewer shall not exceed 100 gallons per mile of sewer per inch of inside diameter of the sewer per 24 hours to any section between successive manholes. The amount of leakage shall be measured by a suitable weir or other device.
2. If infiltration exceeds the above specified amount, the contractor shall make the necessary corrections to bring it within the acceptable limits. All visible leaks or points of infiltration shall be repaired even though the infiltration is below the maximum specified.

C. Air Testing of Sewers

1. General: On all sanitary sewer lines, the contractor shall conduct a line acceptance test using low pressure air. The air test shall be conducted after the pipe has been backfilled. Equipment to be used in making the test shall be specifically designed for this purpose. The Engineer shall be advised at least 48 hours before tests are conducted.
2. Procedures: All pneumatic plugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the plugs out of the pipe.

After a reach of pipe has been backfilled and cleaned, and the pneumatic plugs are checked by the above procedure, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into the sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. At least 2 minutes shall be allowed for the air pressure to stabilize. After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The test of that portion of line being tested shall be termed "Acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any groundwater that be over the pipe) shall not be less than the time shown for the given diameters in the following table:

<u>Pipe Diameter in Inches</u>	<u>Minutes</u>
4	2.0
6	3.0
8	4.0

- D. Documentation: Documentation of the testing results shall be as follows:

1. Normal Testing Records - The Contractor shall keep a log or record covering the testing work and the information acquired therefrom. This log or record shall contain at least the following data:
 - a. Date and time.
 - b. Sewer Line Location (Point-To-Point Numbers, and direction North, South, East and West).
 - c. Size, Length, Type and Depth of Sewer Line.
 - d. Name of Owner's Representative at the Job Site.
 - e. Test Results.

Copies of the log or record, typed and bound, shall be delivered to the Architect/Engineer.

END OF SECTION

SECTION 027510 - CEMENT CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes colored-textured exterior cement concrete pavement for the following:

1. Walkways
2. Sidewalks
3. Paving Areas

- B. Related Sections include the following:

1. Division 2 Section "Earthwork" for subgrade preparation, grading, and subbase course.
2. Division 3 Section-Poured-in-place Concrete for Skate Parks

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag, and silica fume.

1.4 SUBMITTALS

- A. Submit name of concrete plant meeting qualifications listed below:

- B. Design mixes and material certificates will not be required, provided that concrete materials are provided by approved concrete plant. Concrete must pass all strength testing.

1.5 INFORMATIONAL SUBMITTALS

- A. Installer Qualifications: An experienced installer who has completed concrete pavement work similar in material, design, size, and scope to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance with a minimum of 5 years' experience.

- B. Manufacturer must be certified according to the National Ready Mix Concrete Association's Plant Certification Program.

- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.
- D. Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.

1.6 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.1 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- B. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement bars, welded wire fabric, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 CONCRETE MATERIALS

- A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.
- B. Portland Cement: ASTM C 150, Type I or II.
 - 1. Fly Ash: ASTM C 618, Class F or C.
 - 2. Ground Granulated Blast- Furnace slag: ASTM C 989, Grade JOO or 120

- C. Aggregate: ASTM C 33, uniformly graded, from a single source, with coarse aggregate as follows:
1. Maximum Aggregate Size: 1 inch nominal.
 2. Do not use fine or coarse aggregates containing substances that cause spalling.

2.4 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures.
- B. Air-Entraining Admixture: ASTM C 260.
- C. Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.
- D. Fiber Reinforcement: Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.5 lb/cu.yd.

2.5 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXES

- A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
- B. Proportion mixes to provide concrete with the following properties:
1. Compressive Strength (28 Days): 3000 psi or as noted in drawings.
 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 3. Slump Limit: 4 inches.
- C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements for concrete exposed to deicing chemicals.
- D. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content of 2.5 to 4.5 percent.
- E. Synthetic Fiber: Fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, ½ to 1 inch (13 to 25 mm) long.

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94 and ASTM C 1116.
1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating reinforcement and with recommendations in CRSI's "Placing Reinforcing Bars" for placing and supporting reinforcement.
 - 1. Apply epoxy repair coating to uncoated or damaged surfaces of epoxy-coated reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.4 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
 - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.

- B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.
1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys, unless otherwise indicated.
 2. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
 3. Provide tie bars at sides of pavement strips where indicated.
 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips or eurathane joints, as indicated when paving, abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
1. Locate expansion joints at intervals of **50 feet** unless otherwise indicated.
 2. Extend joint fillers full width and depth of joint.
 3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
- D. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints as detailed.
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to the following radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
- F. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
1. Radius: 1/4 inch or as noted on drawings.

3.5 CONCRETE PLACEMENT

- A. Inspection Before placing concrete, inspect and complete formwork installation, reinforcement steel, and items to be embedded or cast-in.
- B. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- C. Comply with requirements and with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.

- D. Do not add water to concrete during delivery, at Project site, or during placement.
- E. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- F. Consolidate concrete by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Use equipment and procedures to consolidate concrete according to recommendations in ACI 309R.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- G. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.
 - 1. Remove and replace portions of bottom layer of concrete that have been placed more than 15 minutes without being covered by top layer, or use bonding agent if approved by Landscape Architect.
- H. Screed pavement surfaces with a straightedge and strike off. Commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.
- I. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.6 CONCRETE FINISHING

- A. General: Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.
- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide uniform, fine-line texture directions of brooming across walks or as noted on drawings.
2. Smooth, steel-trunel, surface adjacent to joints as noted on drawings.

3.7 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and follow recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

3.8 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 1/4 inch
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-foot-long, unlevelled straightedge not to exceed 1/4 inch.
4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Concrete Tests will be in accordance with field quality control testing requirements of Section "Cast in Place Concrete".

3.10 REPAIRS AND PROTECTION

- A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not comply with requirements in this Section.
- B. Drill test cores, where directed by the Landscape Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 027510

SECTION 029000 - PLANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Trees.
 - 2. Shrubs.
 - 3. Groundcover
 - 4. Plants.
 - 5. Topsoil and soil amendments.
 - 6. Fertilizers and mulches.
 - 7. Stakes and guys.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 2 Section "Earthwork" for excavation, filling, rough grading, and subsurface aggregate drainage and drainage backfill.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product certificates signed by manufacturers certifying that their products comply with specified requirements.
 - 1. Manufacturer's certified analysis for standard products.
 - 2. Label data substantiating that plants, trees, shrubs, and planting materials comply with specified requirements.
- C. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.
 - 1. Analysis of imported topsoil.
- D. Planting schedule indicating anticipated dates and locations for each type of planting.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful landscape establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that landscaping is in progress.
- B. Provide quality, size, genus, species, and variety of trees and shrubs indicated, complying with applicable requirements of ANSI Z60.1 "American Standard for Nursery Stock."
- C. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content of topsoil.
 1. Report suitability of topsoil for growth of applicable planting material. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce satisfactory topsoil.
- D. Measurements: Measure trees and shrubs according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
- B. Trees and Shrubs: Deliver freshly dug trees and shrubs. Do not prune before delivery, except as approved by Landscape Architect. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy natural shape. Provide protective covering during delivery. Do not drop trees and shrubs during delivery.
- C. Handle balled and burlapped stock by the root ball.
- D. Deliver trees, shrubs, ground covers, and plants after preparations for planting have been completed and install immediately. If planting is delayed more than 6 hours after delivery, set planting materials in shade, protect from weather and mechanical damage, and keep roots moist.
 1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
 2. Do not remove container-grown stock from containers before time of planting.
 3. Water root systems of trees and shrubs stored on site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.6 PROJECT CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities and perform work in a manner which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Engineer before planting.

1.7 COORDINATION AND SCHEDULING

- A. Coordinate installation of planting materials during normal planting seasons for each type of plant material required.

1.8 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Warrant the following living planting materials for a period of one year after date of Substantial Completion, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner, abnormal weather conditions unusual for warranty period, or incidents that are beyond Contractor's control.
 - 1. Trees.
 - 2. Shrubs.
 - 3. Ground covers.
 - 4. Plants.
- C. Remove and replace dead planting materials immediately unless required to plant in the succeeding planting season.
- D. Replace planting materials that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
- E. A limit of one replacement of each plant material will be required, except for losses or replacements due to failure to comply with requirements.

1.9 TREE AND SHRUB MAINTENANCE

- A. Maintain trees and shrubs by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required to keep trees and shrubs free of insects and disease. Restore or replace damaged tree wrappings. Maintain trees and shrubs for the following period:
 - 1. Maintenance Period: 30 days following Substantial Completion.

1.10 GROUND COVER AND PLANT MAINTENANCE

- A. Maintain ground cover and plants by watering, weeding, fertilizing, and other operations as required to establish healthy, viable plantings for the following period:
 - 1. Maintenance Period: 30 days following Substantial Completion.

PART 2 - PRODUCTS

2.1 PLANTING SOILS SPECIFIED BY COMPOSITION

- A. General: Soil amendments, fertilizers, and rates of application specified in this article are guidelines that may need revision based on testing laboratory's recommendations after preconstruction soil analyses are performed
- B. Planting-Soil: Imported, naturally formed soil from off-site sources and consisting of sandy loam soil type according to USDA textures; and modified to produce viable planting soil.
 - 1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches deep, not from agricultural land, bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants including, but not limited to, quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewell, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and bromegrass.
 - 2. Additional Properties of Imported Soil before Amending: Soil reaction of pH 6 to 7 and minimum of 2 percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration.
 - 3. Unacceptable Properties: Clean soil of the following:
 - a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
 - b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.
 - c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 2 inches in any dimension.
 - 4. Amended Soil Composition: Blend imported, unamended soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:
 - a. Ratio of Loose Compost to Soil: 1:3 by volume.
 - b. Weight of Commercial Fertilizer: 1 lb. per 1000 sq. ft. per 6 inches of soil depth.
 - c. Weight of Slow-Release Fertilizer: 1 lb. per 1000 sq. ft. per 6 inches of soil depth.

2.2 TREE AND SHRUB MATERIAL

- A. General: Furnish nursery-grown trees and shrubs conforming to ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully-branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Grade: Provide trees and shrubs of sizes and grades conforming to ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.
- C. Label at least 1 tree and 1 shrub of each variety and caliper with a securely attached, waterproof tag bearing legible designation of botanical and common name.

2.3 SHADE AND FLOWERING TREES

- A. Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, conforming to ANSI Z60.1 for type of trees required.
 - 1. Branching Height: 1/3 to 1/2 of tree height.
 - 2. Branching Height: 1/2 of tree height
 - 3. Provide container grown trees

- B. Small Trees: Small upright or spreading type, branched or pruned naturally according to species and type, and with relationship of caliper, height, and branching recommended by ANSI Z60.1, and stem form as follows:
 - 1. Form: Single stem.
 - 2. Form: Multistem, clump, with 3 or more main stems.
 - 3. Form: Multistem, shrub, with multiple stems.
 - 4. Provide container grown trees

2.4 DECIDUOUS SHRUBS

- A. Form and Size: Deciduous shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of shrub.

- B. Provide container grown or balled and burlapped deciduous shrubs as indicated.

2.5 CONIFEROUS EVERGREENS

- A. Form and Size: Normal-quality, well balanced, coniferous evergreens, of type, height, spread, and shape required, conforming to ANSI Z60.1.

- B. Form and Size: Specimen-quality, exceptionally heavy, tightly knit, symmetrically shaped coniferous evergreens.

- C. Provide container grown or balled and burlapped coniferous evergreens as indicated.

2.6 BROADLEAF EVERGREENS

- A. Form and Size: Normal-quality, well balanced, broadleaf evergreens, of type, height, spread, and shape required, conforming to ANSI Z60.1.

- B. Provide container grown or balled and burlapped broadleaf evergreens as indicated.

2.7 GROUND COVERS AND PLANTS

- A. Provide ground covers and plants established and well rooted in removable containers or integral peat pots and with not less than the minimum number and length of runners required by ANSI Z60.1 for the pot size indicated.

2.8 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, 4 percent organic material minimum, free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.
 - 1. Topsoil Source: Import topsoil from off-site sources. Obtain topsoil from naturally well-drained sites where topsoil occurs at least 4 inches deep; do not obtain from bogs or marshes.
- B. Topsoil Mix:
 - 1. Prepare all topsoil mix used in tree and shrub pits and ground cover beds in the following proportions:
 - 4 parts by volume topsoil as specified
 - 2 parts by volume decomposed organic matter
 - 2 parts by volume sand
 - 2. Add 6 lbs. 14-14-14 Osmocote to each cubic yard of topsoil mix during missing process, for all plants.

OR

Add 3 lbs. of 12-6-6 granular fertilizer to each cubic yard of topsoil mix during the mixing process, for all plants.

2.9 SOIL AMENDMENTS

- A. Lime: ASTM C 602, Class T, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent, with a minimum 99 percent passing a No. 8 sieve and a minimum 75 percent passing a No. 60 sieve.
 - 1. Provide lime in the form of dolomitic limestone.
- B. Aluminum Sulfate: Commercial grade, unadulterated.
- C. Sand: Clean, washed, natural or manufactured sand, free of toxic materials.
- D. Perlite: Horticultural perlite, soil amendment grade.
- E. Peat Humus: Finely divided or granular texture, with a pH range of 6 to 7.5, composed of partially decomposed moss peat (other than sphagnum), peat humus, or reed-sedge peat.
- F. Peat Humus: For acid-tolerant trees and shrubs, provide moss peat, with a pH range of 3.2 to 4.5, coarse fibrous texture, medium-divided sphagnum moss peat or reed-sedge peat.
- G. Ground-Bark Humus: Decomposed, nitrogen-treated, of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

1. When site treated, mix with at least 0.15 lb of ammonium nitrate or 0.25 lb of ammonium sulfate per cu. ft. of loose sawdust or ground bark.

H. Herbicides: EPA registered and approved, of type recommended by manufacturer.

I. Water: Potable.

2.10 FERTILIZER

A. Bonemeal: Commercial, raw, finely ground; minimum of 4 percent nitrogen and 20 percent phosphoric acid.

B. Superphosphate: Commercial, phosphate mixture, soluble; minimum of 20 percent available phosphoric acid.

C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea-form, phosphorous, and potassium in the following composition:

1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

D. Slow-Release Fertilizer: Granular fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.11 MULCHES

A. Organic Mulch: Organic mulch, free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of the following:

1. Type: Shredded bark (dark in color) to be approved by Landscape Architect.

2.12 STAKES AND GUYS

A. Upright and Guy Stakes: Rough-sawn, sound, new hardwood, redwood, or pressure-preservative-treated softwood, free of knots, holes, cross grain, and other defects, 1 1/2 by 1 1/2 inches by length indicated, pointed at one end.

B. Guy and Tie Wire: ASTM A 641 (ASTM A 641M), Class 1, galvanized-steel wire, 2-strand, twisted, 0.106 inch in diameter.

C. Hose Chafing Guard: Reinforced rubber or plastic hose at least 1/2 inch in diameter, black or dark green, cut to lengths required to protect tree trunks from damage.

D. Proprietary Staking and Guying Device:

1. Anchors: Aluminum-alloy triangular arrowhead anchors (4 inches by 3-3/4 inches) with 1/2 inch by 3/4 inch round opening at top.

2. Guy Lines: Flat woven, UV resistant, 3/8 inch by 15 feet polypropylene guy line with 600-pound break strength.
3. Tension Bar: Adjustable tension bar with round openings at each end.

2.13 MISCELLANEOUS MATERIALS

- A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive landscaping for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 SITE PREPARATION

- A. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, and secure Landscape Architect's acceptance before the start of planting work. Make minor adjustments as may be required.
- B. Subgrade will be established by others at four (4) inches below finished grade in all areas to receive planting, seeding or sodding, unless greater topsoil depth is indicated herein or on Drawings for berming or deeper bed preparation.
 1. Topsoil depth for shrub and groundcover beds is six (6) inches (unless otherwise specified) and is by this Contractor. Do not place or spread topsoil in an area until subgrade is reviewed by Landscape Architect and is acceptable to the Contractor.
- C. Remove all vegetative growth from topsoil by approved means before commencing with planting operations.
- D. Remove all unwanted vegetative growth from areas designated to receive new planting. Sod or seeding with chemical herbicide or by other approved means, prior to scarifying and placing topsoil.
- E. Scarify subsoil for a depth of 4" before spreading topsoil.
- F. Place and spread approved topsoil to specified finished grades (depth of 4") in all areas to receive sodding or planting, unless greater depth is indicated.
- G. Remove extraneous matter measuring 1-1/2" or larger in any dimensions from top four inches (4") of placed topsoil.

- H. Uniformly grade areas including adjacent transition areas to line and grade shown on Drawings.
- I. Obtain approval of finished grades before proceeding with planting operations; eliminate irregularities and ponding.
- J. Protect stockpiled or spread topsoil from erosion by force of wind, water, or other force; re-establish eroded, rutted or settled grades to proper finished grade.

3.3 PLANTING SOIL PREPARATION

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.
- B. Mix soil amendments and fertilizers with topsoil at rates indicated. Delay mixing fertilizer if planting does not follow placing of planting soil within a few days.
- C. For tree pit or trench backfill, mix planting soil before backfilling and stockpile at site.
- D. For planting beds and lawns, mix planting soil either prior to planting or apply on surface of topsoil and mix thoroughly before planting.
 - 1. Mix lime with dry soil prior to mixing fertilizer. Prevent lime from contacting roots of acid-tolerant plants.
 - 2. Apply phosphoric acid fertilizer, other than that constituting a portion of complete fertilizers, directly to subgrade before applying planting soil and tilling.
- E. Soil shall be amended by the addition of compost and fertilizer. Compost type shall be mushroom compost or decomposed pine bark, and shall be approved by Landscape Architect prior to purchase. Compost shall be uniformly applied over planting beds at an average depth of 2 inches and over sod areas at an average depth of $\frac{3}{4}$ inch.
- F. Incorporate uniformly in planting beds to a depth of 6 inches and in sod areas to a depth of 3 inches using a rotary tiller or other appropriate equipment. Pre-plant fertilizer and pH adjusting agents (e.g. Lime and Sulfur) may be applied in conjunction with compost incorporation, as necessary.
- G. Rake soil surface smooth prior to planting. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- H. Contractor shall be responsible for providing 3% positive drainage in all planting beds. Any other proposed drainage method shall be coordinated with planting efforts to minimize conflicts and maintain proper function of drainage systems.

3.4 GROUND COVER AND PLANT BED PREPARATION

- A. Loosen subgrade of planting bed areas to a minimum depth of 6 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous materials.

- B. Spread planting soil mixture to depth required to meet thickness, grades, and elevations shown, after light rolling and natural settlement. Place approximately ½ the thickness of planting soil mixture required. Work into top of loosened subgrade to create a transition layer and then place remainder of planting soil mixture.

3.5 EXCAVATION FOR TREES AND SHRUBS

- A. Pits and Trenches: Excavate with vertical sides and with bottom of excavation slightly raised at center to assist drainage. Loosen hard subsoil in bottom of excavation.
 - 1. Balled and Burlapped Trees and Shrubs: Excavate approximately 1-1/2 times as wide as ball diameter and equal to ball depth, plus the following setting layer depth:
 - a. Setting Layer: Allow 6 inches of planting soil.
 - 2. Container-Grown Trees and Shrubs: Excavate to container width and depth, plus the following setting-layer depth:
 - a. Setting Layer: Allow 6 inches of planting soil.
- B. Dispose of subsoil removed from landscape excavations. Do not mix with planting soil or use as backfill.
- C. Obstructions: Notify Landscape Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
 - 1. Hardpan Layer: If encountered, drill 6-inch- diameter holes into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.
- D. Drainage: Notify Landscape Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub pits.
- E. Fill excavations with water and allow to percolate out, before placing setting layer and positioning trees and shrubs.

3.6 PLANTING TREES AND SHRUBS

- A. Set container-grown stock plumb and in center of pit or trench with top of ball raised above adjacent finish grades as indicated.
 - 1. Carefully remove containers so as not to damage root balls.
 - 2. Place stock on setting layer of compacted planting soil.
 - 3. Place backfill around ball in layers, tamping to settle backfill and eliminate voids and air pockets. When pit is approximately 1/2 backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing and tamping final layer of backfill.
- B. Dish and tamp top of backfill to form a **3-inch-** high mound around the rim of the pit. Do not cover top of root ball with backfill.

3.7 TREE AND SHRUB PRUNING

- A. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Landscape Architect, do not cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character. Shrub sizes indicated are size after pruning.

3.8 TREE AND SHRUB GUYING AND STAKING

- A. Upright Staking and Tying: Stake trees of 2- through 5-inch caliper with ground stakes, minimum 3 stakes per tree. Stake trees of less than 2-inch caliper with vertical stakes. Use a minimum of 2 stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend at least 72 inches above grade. Set vertical stakes and space to avoid penetrating balls or root masses. Support trees with 2 strands of tie wire encased in hose sections at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.
- B. Guying and Staking: Guy and stake trees exceeding 14 feet and more than 3-inch caliper unless otherwise indicated. Securely attach no fewer than 3 guys to stakes 30 inches long, driven to grade. Attach flags to each guy wire, 30 inches above finish grade.
- C. Proprietary Staking and Guying:
 - 1. Install staking and guying systems sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

3.9 PLANTING GROUND COVER AND PLANTS

- A. Space ground cover and plants as indicated.
- B. Space groundcover and plants not more than 24 inches apart.
- C. Dig holes large enough to allow spreading of roots, and backfill with planting soil. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to old water. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

3.10 MULCHING

- A. Mulch backfilled surfaces of pits, trenches, planted areas, and other areas indicated.
- B. Organic Mulch: Apply the following average thickness of organic mulch and finish level with adjacent finish grades. Do not place mulch against trunks or stems.
 - 1. Thickness: 3 inches.

3.11 INSTALLATION OF MISCELLANEOUS MATERIALS

- A. Apply antidesiccant using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage.

1. When deciduous trees or shrubs are moved in full-leaf, spray with antidesiccant at nursery before moving and again 2 weeks after planting.

3.12 CLEANUP AND PROTECTION

- A. During landscaping, keep pavements clean and work area in an orderly condition.
- B. Protect landscaping from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.13 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

END OF SECTION 029000

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Foundation walls.
 - 3. Slabs-on-grade.
- B. Related Sections include the following:
 - 1. Division 2 Section "Cement Concrete Pavement" for concrete pavement and walks.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Aggregates.
- E. Material Certificates: For each of the following, signed by manufacturers:
1. Cementitious materials.
 2. Admixtures.
 3. Steel reinforcement and accessories.
 4. Curing compounds.
 5. Bonding agents.
 6. Adhesives.
 7. Vapor retarders.
 8. Semirigid joint filler.
 9. Joint-filler strips.
- F. Field quality-control test and inspection reports.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated, as documented according to ASTM E 548.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301, "Specification for Structural Concrete," Sections 1 through 5.
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
 - 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
- E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- F. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.3 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For slabs-on-grade, provide all plastic type chairs with integral bottom bearing plate to prevent puncture of vapor barrier.
 - 2. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following at contractors option:
 - a. Fly Ash: ASTM C 618, Class C, F.
- B. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size:
 - a. 1 ½" maximum unless noted.
 - b. ¾" maximum for pumped concrete
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
3. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

2.6 VAPOR RETARDERS

- A. Plastic Vapor Retarder: Plastic sheet of thickness required to comply with requirements indicated but not less than 10 mils. Furnish manufacturer's accessories including bonding tape or adhesive and mastic for sealing seams and penetrations. Comply with the following:
 1. ASTM E 1745, Class A
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.7 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.8 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 20 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability and as specified on drawings and schedules.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Foundations / Slab on Grade: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.51.
 - 3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
 - 4. Air Content: Do not allow air content of trowel finished floors to exceed 3 percent.

2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
 - 2. Class C, 1/2 inch (13 mm) for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended tape.
- B. Granular Course: Place granular fill, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch (0 mm) or minus 3/4 inch (19 mm).

3.5 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.6 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 - 3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 - 2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 - 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

3.7 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed 1/8 inch in height.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.
 - 1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces indicated to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated, exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - 2. Finish and measure surface so gap at any point between concrete surface and an unveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 3/16 inch (4.8 mm).
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.10 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.11 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall

within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

- a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.12 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least one, six month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.13 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension in solid concrete, but not less than 1 inch (25 mm) in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding

- color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.14 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
 - 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.
 - 6. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - 7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 - 8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
 - 9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 - 10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.

11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
13. Correct deficiencies in the Work that test reports and inspections indicate dos not comply with the Contract Documents.

END OF SECTION 033000

SECTION 033010 POURED IN PLACE CONCRETE FOR SKATEPARKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes exterior cement concrete pavement for the following:
 - 1. Concrete skate pad.
 - 2. Flat work
 - 3. Colored concrete paving for skate pad.
- B. All concrete work in this section is considered specialty skatepark construction. Please see binder qualifications for contractors eligible for the work as specified herein. Bidder qualification questionnaire form must be submitted in with the bid.
- C. Place all concrete to follow skatepark drawings, unless otherwise approved by the Architect
- D. Related Sections include the following:
 - 1. Division 2 Section "Earthwork" for subgrade preparation, grading, and subbase course.
 - 2. Division 2 Section "Cement Concrete Pavement".
 - 3. Division 3 Section "Precast Concrete for Skate Parks".

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, expansive hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.4 SUBMITTALS

- A. Submit name of concrete plant meeting qualifications listed below:
- B. Design mixes and material certificates will not be required, provided that concrete materials are provided by approved concrete plant. Concrete must pass all strength testing.
- C. Shop Drawings:
 - 1. Submit Shop Drawing for review. This review is only for general conformance with the design concept and does not relieve the contractor from compliance with Design Drawings & Specifications, which have a priority over Shop Drawings. Contractor is responsible for confirmed & correlated dimensions, fabrication processes, means, methods, techniques, safety, and coordination of the work with other trades. It is the contractor's responsibility to check the accuracy of his own Shop Drawings and those of his subcontractors, prior to submittal.

2. The Shop Drawings will be returned for resubmittal if a cursory review shows major errors which should have been found by the contractor's checking. All Shop Drawings shall include plan layouts showing locations of items detailed on the Shop Drawings. Any changes, substitutions, or deviations from the Contract Documents shall be clouded on Shop Drawings.
3. Any resubmittal of a detail sheet with changed information shall be accompanied by Location Plan identifying the members involved, and clouding around changed information.

1.5 QUALITY ASSURANCE

- A. Poured-in-place concrete for skate parks installer must have completed 5 public skateparks comparable to the plans and specifications for this project within the last 5 years. Project must be open and in good operating condition for at least 1 year from the date this bid is due. Only projects constructed for municipality (city, town, count, etc.) will be considered. Projects constructed for private entities will not constitute an acceptable reference. Submit completed Section 033010.A "Skate Park Qualification Form-Attachment A" with bid. Any bids that do not submit a completed form will be considered unresponsive.
- B. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
 1. Manufacturer must be certified according to the National Ready Mix Concrete Association's Plant Certification Program.
- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.
- D. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.
- E. Concrete cylinders shall be taken and tested per the ACI code as required by the project.

1.4 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other park activities.

PART 2 - PRODUCTS

2.1 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.
 1. Use flexible or curved forms for curves of a radius 100 feet or less.
- B. Provide 2 inch nominal thickness, surfaced plank wood forms for straight sections. Use flexible metal, 1 inch lumber, or plywood forms for radius bends. Do not overlap forms, creating an offset finished edge.
- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with,

stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

- D. Edge forms and screed construction:
1. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
 2. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.

2.2 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.
- B. Reinforcement Bars: ASTM A 615/A 615M, Grade 60, deformed.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement bars, welded wire fabric, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
- I. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.
- D. All reinforcing steel shall conform to ASTM A-615 Grade 60. For reinforcing that is to be welded, conform to ASTM A-706 Grade 60. Use ASTM A-108 Grade 60 for all welded anchors.
- E. Joint Dowel Bars: Plain steel dowels, ASTM A 615/A 615M, Grade 60. Cut bars true to length with ends square and free of burrs.
- F. Slip dowels are acceptable.
- G. Bar Supports: Bolsters, chairs, spacers and other devices for spacing, supporting, and fastening reinforcements bars and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete.

All reinforcing bars to be deformed. Latest ACI Code and Detailing Manual apply. Clear concrete coverages to any reinforcing including ties are as follows:

1. 3" CONCRETE PLACED AGAINST ROUGH EARTH.
 2. 2" FORMED CONCRETE EXPOSED TO EARTH OR WEATHER
 3. 1" SLABS AND JOISTS NOT EXPOSED TO WEATHER.
 4. 1-1/2" ALL OTHER.
- I. Smaller clearances permissible for precast or prestressed.
- J. Lap Splices in Masonry: Shall be 48 inches diameter.
- K. Tension Lap Splices in Concrete: Unless noted otherwise, provide the following:

1. #3, 22"; #4, 29"; #5, 36". Multiply by 1.3 for top bars.
- L. Minimum clear cover for spliced reinforcing is greater than one bar diameter, and minimum clear spacing is greater than two bar diameters. Splice bottom bar over supports and top bar at midspan only. Where bars are shown spliced, they may run continuous at contractor's option.
- M. Place rebar per CRSI Manual. Rebar spacings given are maximum on center whether stated as "o.c." or not, and all rebar is continuous whether stated as "cont." or not. Provide bent corner rebar to match and lap with horizontal rebars at corners and intersection of walls, beams, bond beams and footings per ACI Manual. Dowel all vertical rebar to foundations. Securely tie all rebar, including dowels, in location before placing concrete or grout.
- N. General: Comply with CRSI's Manual of Standard Practice for Fabricating Reinforcement and with recommendations in CRSI's "Placing Reinforcing Bars for Placing and Supporting Reinforcement." Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials. Arrange space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- O. Fiber Reinforcement: Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.5 lb/cu.yd. (0.9 kg/cu.m).

2.3 COLOR MATERIAL

- A. Coloring Admixture: ASTM C 979, synthetic mineral - oxide pigments or colored water reducing admixtures. Color stable, non-fading, and resistant to lime and other alkalis.
 1. Color: #5084 OMAHA TAN by Davis Colors or equal.

2.4 CONCRETE MATERIALS

- A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.
- B. Portland Cement: ASTM C 150, Type I or II.
 1. Provide white Portland cement for integrally colored concrete.
 2. Fly Ash: ASTM C 618, Class F or C.
 3. Ground granulated blast-furnace slag: ASTM C 989, Grade 100 or 120.
- C. Aggregate: ASTM C 33, uniformly graded, from a single source, with coarse aggregate as follows:
 1. Maximum Aggregate Size: 3/4 inch nominal.
 2. Do not use fine or coarse aggregates containing substances that cause spalling.
 3. Water: ASTM C 94.

2.5 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures.

- B. Air-Entraining Admixture: ASTM C 260.

2.6 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.7 CONCRETE MIXES

- A. Prepare design mixes, proportioned according to ACI 211.1 and ACI 301, for each type and strength of normal-weight concrete determined by either laboratory trial mixes or field experience.
- B. Proportion mixes to provide concrete with the following properties:
 - 1. Compressive Strength (28 Days): 4000 psi or as noted in drawings.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50.
 - 3. Slump Limit: 2-4 inches.
 - 4. Concrete shall be placed within 90 minutes of batching and shall not exceed a temperature of 90 degrees Fahrenheit unless pre-approved by the engineer.
- C. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement according to ACI 301 requirements for concrete exposed to deicing chemicals.
- D. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content not to exceed 3%.

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94 and ASTM C 1116.
 - 1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1- 1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

2.9 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet (bur Jene).
- C. Water: Potable.
- D. Evaporation Retardant: Waterborne, monomolecular film forming, manufactured for application to fresh concrete, such as Eucobar Evaporation Retardant by the Euclid Chemical Company.

2.10 JOINT MATERIALS

- A. Expansion and Isolation Joint Filler Strips: Expansion joint materials shall be flexible polyethylene closed cell foam or similar and supplied by concrete contractor. Deck-O-Foam or equivalent.
- B. Expansion Joint Sealant: Sikaflex - 2C NS TG polyurethane elastomeric sealant, or approved equal. Color of caulk should resemble color of concrete (aluminum gray or similar).
- C. Saw Cut Joint Sealant: Sikaflex-1A SL high performance, self-leveling, I-part polyurethane

sealant, or approved equal. Color of caulk should resemble color of concrete.

- D. Bonding Agent: ASTM C 1059, Type II, non-redispersal, acrylic emulsion or styrene butadiene.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Proceed with pavement only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating reinforcement and with recommendations in CRSI's "Placing Reinforcing Bars" for placing and supporting reinforcement.
- B. Apply epoxy repair coating to uncoated or damaged surfaces of epoxy-coated reinforcement.
- C. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- D. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- F. Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in the finished product.
- G. Unless otherwise indicated, weld or bolt connections between members. Where possible, conceal connections on the finished work. Fit or miter exposed joints to hairline tolerance or use welded joints. On finished surfaces, grind all welds smooth and flush with base metal.
- H. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations.
- I. Cap all exposed tube or pipe ends. Use size and thickness of material shown. Properly fit and weld cap at joint, grind weld smooth and flush with base metal.
- J. Bend pipe or tubing without collapsing or deforming the walls, and so as to produce a smooth uniform

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curved section and maintain uniform sectional shape.

- K. Where items are to be imbedded in concrete or masonry, provide welded-on anchors or lugs as indicated or required.
- L. Provide temporary bracing or anchors in formwork for items which are to be built into concrete or similar construction.
- M. Fastening to In-Place Construction: Provide anchoring devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction including threaded fasteners for concrete inserts, or other connectors as required.
- N. Galvanizing repair--use a high zinc dust content paint for re-galvanizing welds in galvanized steel. Hot galvanized solder is also acceptable.
- O. All welding shall conform to requirements of AWS Standards. All welding shall be shielded metal arc welding. Welds in finish work shall be filled out flush, ground and distressed. Welders for structural shall be certified.
- P. ASTM A-36 for C, MC, Angles, and Plates. ASTM A -53 Grade B or A-501 for Steel Pipes.
- Q. ASTM A -123 Standard Specification for Zinc (hot-dip galvanized) Coatings on Iron and Steel Pipes
- R. Products ASTM A -513 Grade B, FY=46 KSI for TS/HSS Tube Steel for Sizes up to 5/8" Thick.
- S. ASTM A -780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
- T. ASTM F -1554 Grade 36, A-307 or A-36 Plain Anchor Bolts.

3.4 JOINTS

- A. General: Construct construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.
 - 1. When joining existing pavement, place transverse joints to align with previously placed joints, unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
 - 1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys, unless otherwise indicated.
 - 2. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of pavement strips, unless otherwise indicated.
 - 3. Provide tie bars at sides of pavement strips where indicated.
 - 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Key Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour, unless pavement terminates at isolation joints.
 - 1. Provide pre-formed galvanized steel or plastic keyway-section forms or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1.5 inches into concrete.
 - 2. Continue reinforcement across key joints, unless otherwise indicated. Do not

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- continue reinforcement through sides of pavement strips where indicated.
 3. Provide tie bars at sides of pavement strips where indicated.
 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- D. Isolation Joints: Form isolation joints of preformed joint-filler strips or eurathane joints, as indicated when paving, abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
1. Locate expansion joints as indicated on drawings.
 2. Extend joint fillers full width and depth of joint.
 3. Terminate joint filler less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 5. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- E. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one-half of dowel length to prevent concrete bonding to one side of joint.
- F. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints as detailed.
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with groover tool to the following radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover marks on concrete surfaces.
 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8 inch wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks. Early saw cuts are approximately 1 inch deep, regardless of pavement thickness. Refer to Control Joint Guide Drawing of plan set if applicable.
 3. If skatepark project design utilizes poured steps, control joints must be cut 3 - 4 feet from the edge of the top step.
- G. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to the following radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.
1. Radius: 1/8 inch for skate pad. 1/4" or as noted on drawings for sidewalks, walkways, and paving areas.
- H. Post Cure Detail Work: Grind smooth any inconsistencies in the finish or high spots between pours.

3.5 CONCRETE PLACEMENT

- A. Do not install concrete work over saturated, muddy, or frozen subgrade.
- B. Protect adjacent work and provide temporary barricades as required for protection of project work and public safety.

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- C. All reinforcing, including dowels and anchor bolts, shall be securely tied in location before placing concrete or grout. dowels will not be allowed to be "stabbed" in.
- D. Conduits, pipes, and sleeves embedded in concrete shall conform to the requirements of aci 6.3.
- E. Mechanically vibrate all concrete flatwork when placed, except that slabs on grade and slabs on deck need to be vibrated only around embedded items.
- F. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures to consolidate concrete according to recommendations in aci 309r.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcement, dowels, and joint devices.
- G. Cold weather placement: comply with aci 306.1 and as follows. protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg f, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg f at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- H. Hot-weather placement: place concrete according to recommendation in aci 305r and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 100 deg Fahrenheit. chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is contractor's option.
 - 2. Fog-spray forms, reinforcement steel, and sub grade just before placing concrete. Keep sub grade moisture uniform without standing water, soft spots, or dry areas.

3.6 CONCRETE FINISHING

- A. General: Wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.
- B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots, and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Integrally colored concrete finish: After final floating of skate pad, apply a hard steel hand-trowel finish unless otherwise noted. Trowel until all visible pours are closed. Cease trowel before glass forms on surface. Do not broom finish skate pad. Apply curing compound immediately after final finishing.
- C. All edge tooling should be 1/8 inch radius. Chamfered edges on slab/flatwork perimeter preferred to mitigate slab edge breakage.

3.7 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and follow recommendations in

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ACI 305R for hot- weather protection during curing.

- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a) Water.
 - b) Continuous water-fog spray.
 - c) Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 6-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 6 inches, and sealed by waterproof tape or adhesive where necessary. Immediately repair any holes or tears during curing period using the same material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Maintain continuity of coating and repair damage during curing period. When exposed to UV rays and weathering, membrane should be broken down approximately four (4) weeks after application.

3.8 PAVEMENT TOLERANCES

- A. Comply with tolerances of ACI 117 and as follows:
 - 1. Elevation: 1/4 inch.
 - 2. Thickness: Plus 3/8 inch, minus 1/4 inch .
 - 3. Surface: Gap below 10-foot- long, unlevelled straightedge not to exceed 1/4 inch.
 - 4. Lateral Alignment and Spacing of Tie Bars and Dowels: 1 inch.
 - 5. Vertical Alignment of Tie Bars and Dowels: 1/4 inch.
 - 6. Alignment of Tie-Bar End Relative to Line Perpendicular to Pavement Edge: 1/2 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Pavement Edge: Length of dowel 1/4 inch per 12 inches.
 - 8. Joint Spacing: 3 inches.
 - 9. Contraction Joint Depth: Plus 1/4 inch
 - 10. Joint Width: Plus 1/8 inch, no minus.
- B. Contractor must achieve positive drainage for all surfaces within the skatepark area- level to a tolerance of 1/4 inch in 10 feet when tested with a 10 foot steel straightedge placed on the surface. Standing water will not be allowed.

3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Concrete Tests will be in accordance with field quality control testing requirements of Section "Cast in Place Concrete".

3.10 REPAIRS AND PROTECTION

Public Safety Memorial Park
Restroom, Skateboard Park and Splash Pad
City of Mobile (COM)

- A. Remove and replace concrete pavement that is broken, damaged, or defective, or does not meet requirements in this Section. The contractor shall repair all cracks and displacements larger than 1/16 inch.
- B. Drill test cores where directed by the Engineer when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy adhesive.
- C. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 033010

SECTION 033010.A – SKATE PARK QUALIFICATION FORM-ATTACHMENT A

Attachment A

SKATEPARK QUALIFICATION FORM

As part of their bid, the General Contractor must submit this form identifying the supplier and installer of the pre-cast concrete skate elements, as well as the contractor placing, shooting and finishing the specialty skatepark concrete.

Submission of these forms does not constitute qualification. The Owner will review the firm's project references for acceptable quality and workmanship. In the Owner's absolute discretion, if the prior work of the firm is deemed unacceptable, the General Contractor will be declared a non-responsive bidder

POURED-IN-PLACE CONCRETE & SHOTCRETE QUESTIONNAIRE

Does the contractor have a minimum of 5 (five) years of experience placing, shooting and finishing concrete for public skateparks? **YES** or **NO**

Is the contractor's shotcrete nozzleman certified by the American Concrete Institute?
YES or **NO**

Shotcrete Nozzleman:

- Name _____
- Certification ID _____
- Certification Expiration Date _____

In the past 5 (five) years has the contractor been sued for damages for breach of contract, defective construction or breach of warranty by a public entity? **YES** or **NO**

In the past 5 (five) years has a claim or lawsuit been filed against the contractor's performance bonding company arising from a breach of contract or defective construction? **YES** or **NO**

List 5 (five) public projects where the contractor successfully placed, shot and finished concrete for a public skatepark within the last 5 (five) years. Projects must have been open and continuously in good operating condition for at least one year.

1. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR CONSTRUCTED: _____

2. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR CONSTRUCTED: _____

3. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR CONSTRUCTED: _____

4. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR CONSTRUCTED: _____

5. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR CONSTRUCTED: _____

END OF SECTION

SECTION 033713- SHOTCRETE FOR SKATEPARKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes shotcrete applied by wet-mix process.
 - 1. Description: Shotcrete application, cutting, sculpting and finish work has been deemed as specialty construction work within the construction documents. All work related to the specialty construction shall be coordinated with the project architect, and the pre-qualified specialty contractor, prior to the start of construction.

1.3 DEFINITIONS

- A. Shotcrete: Mortar or concrete pneumatically projected onto a surface at high velocity.
- B. Wet-Mix Shotcrete: Shotcrete with ingredients, including mixing water, mixed before introduction into delivery hose.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product including reinforcement and forming accessories, shotcrete materials, admixtures, and curing compounds.
- B. Design Mixtures: For each shotcrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Shop Drawings: For shotcrete installation. Include support and anchor details; reinforcement materials and grades and details of fabricating, bending, and placing reinforcement; number and location of splices; special reinforcement required for openings through shotcrete structures; formwork materials and details of formwork fabrication, assembly, and support; and locations of proposed construction joints.
- D. Samples: For each exposed product and for each color and finish specified, approximately 24 by 24 by 4 inches in size.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Material Certificates: For each of the following:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials.
- C. Preconstruction Test Reports: For shotcrete.
- D. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer employing nozzle operators for the Project, each of whom on preconstruction tests is ACI Shotcrete Nozzleman certified in Wet-Mix Process for Vertical Position as appropriate to the required shotcrete work.
- B. Shotcrete installer must have completed 5 public skateparks comparable to the plans and specifications for this project within the last 5 years. Project must be open and in good operating condition for at least 1 year from the date this bid is due. Only projects constructed for municipality (city, town, county, etc.) will be considered. Projects constructed for private entities will not constitute an acceptable reference. Submit completed Section 03310-A "Skate Park Qualification Form-Attachment A" with bid. Any bids that do not submit a completed form will be considered unresponsive..
- C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- D. ACI Publications: Comply with ACI 506.2, "Specification for Shotcrete," unless modified by requirements in the Contract Documents.
- E. Shotcrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design shotcrete mixtures.
- F. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Build mockups for each finish required and for each design mixture, shooting orientation, and nozzle operator.
 - 3. Build mockups in the location and of the size as directed by Landscape Architect.
 - 4. Demonstrate curing and protecting of shotcrete, finishes, and joints, as applicable.
 - 5. In presence of Landscape Architect, damage part of the exposed-face surface for each color and finish, and demonstrate materials and techniques proposed for repair of holes and surface blemishes to match adjacent undamaged surfaces.
 - 6. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- G. Standards: Comply with the requirements of the current edition of the following codes and standards, except as herein modified.
 - 1. IBD: "International Building Code"
 - 2. American Concrete Institute (ACI): 506, Chapter 13, Wet Method. Chapter 5, Shotcrete crew
 - 3. ASTM: American Society for Testing Materials
- H. Contractor who places the shotcrete must also be the same contractor who installs the precast skate elements.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing and inspections indicated below:
 - 1. Produce shotcrete test panels before shotcrete placement according to requirements in ACI 506.2 and ASTM C 1140 for each design mixture, shooting orientation, and nozzle operator. Produce test panels with dimensions of 24 by 24 inches minimum and of average thickness of shotcrete, but not less than 3-1/2 inches.
 - 2. From each test panel, testing agency will obtain six test specimens: one set of three specimens unreinforced and one set of three specimens reinforced. Agency will perform the following:
 - a. Strength Testing: Test each set of unreinforced specimens for compressive strength according to ASTM C 42/C 42M.
 - b. Core Grading: Visually inspect each set of reinforced shotcrete cores taken from test panels and determine mean core grades according to ACI 506.2.

1.8 COORDINATION

- A. Coordinate scheduled of concrete work to allow adequate time for installation of other related work.
- B. Verify the anchor bolts and other embedded steel items to be cast into concrete are properly placed.
- C. Coordinate earthwork and soils report recommendations with placement requirements.
- D. Coordinate with form-work and finishes sections to provide finish floor levelness and flatness as specified herein. Slope to drains at grades and percent slope shown in the construction drawings.

PART 2-PRODUCTS

2.1 FORM MATERIALS

- A. Forms: Form-facing panels that will provide continuous, straight, smooth, concrete surfaces. Furnish panels in largest practical sizes to minimize number of joints.

2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- C. Galvanized Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed bars, ASTM A 767/A 767M, Class I zinc coated after fabrication and bending.
- D. Plain-Steel Wire: ASTM A 82/A 82M, as drawn.
- E. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as- drawn steel wire into flat sheets.
- F. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.
- G. Galvanized-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from galvanized-steel wire into flat sheets.
- H. Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire fabric in place; manufactured according to CRSI's "Manual of Standard Practice" and as follows:
 - 1. For uncoated reinforcement, use CRSI Class 2, stainless-steel bar supports.
 - 2. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.
- I. Reinforcing Anchors: ASTM A 36/A 36M, unheaded rods or ASTM A 307, Grade A, hex-head bolts; carbon steel; and carbon-steel nuts.
 - 1. Finish: Hot-dip zinc coating, ASTM A 153/A 153M, Class C.
- J. Zinc Repair Material: ASTM A 780, zinc-based solder, paint containing zinc dust, or sprayed zinc.

2.3 SHOTCRETE MATERIALS

- A. Regional Materials: Provide shotcrete that has been manufactured within 500 miles of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.
- B. Source Limitations for Shotcrete: Obtain each color, size, type, and variety of shotcrete material and shotcrete mixture from single manufacturer with resources to provide shotcrete of consistent quality in appearance and physical properties.
- C. Portland Cement: ASTM C 150, Type I. Use only one brand and type of cement for Project.
 - 1. Fly Ash: ASTM C 618, Class C or Class F.
 - 2. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or Grade 120.

- D. Blended Hydraulic Cement: ASTM C 595, Type IS.
- E. Silica Fume: ASTM C 1240, amorphous silica.
- F. Normal-Weight Aggregates: ASTM C 33, from a single source, and as follows:
 - 1. Combined Aggregate Size: ACI 506R or ASTM C 1436, Grading No. 1 sieve analysis.
 - 2. Deleterious Substances: As specified for fine aggregate according to ASTM C 33.
- G. Lightweight Aggregates: ASTM C 330.
 - 1. Combined Aggregate Size: ACI 506R, Grading No. 1 sieve analysis.
- H. Coloring Agent: ASTM C 979, synthetic mineral-oxide pigments or colored, water-reducing admixtures, free of carbon black; color stable, nonfading, and resistant to lime and other alkalis.
- I. Water: Potable, complying with ASTM C 94/C 94M, free from deleterious materials that may affect color stability, setting, or strength of shotcrete.
- J. Ground Wire: High-strength steel wire, 0.8 to 1.0 mm in diameter.
- K. Joint Filler Strips: Polyethylene closed cell expansion joint filler

2.4 ADMIXTURES

- A. General: ASTM C 1141, Class A (liquid), but limited to the following admixture materials. Provide admixtures for shotcrete that contain not more than 0.1 percent chloride ions. Certify compatibility of admixtures with each other and with other cementitious materials.
 - 1. Accelerating Admixture, Conventional: ASTM C 494/C 494M, Type C or Type E.
 - 2. Pozzolanic Admixture: Fly ash, ground granulated blast-furnace slag, and silica fume as limited in "Shotcrete Materials" Article.
 - 3. Coloring Admixture: Coloring agent as limited in "Shotcrete Materials" Article.

2.5 CURING MATERIAL

- A. Water: Portable
- B. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.

2.6 SHOTCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type of strength of shotcrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 506.2
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based laboratory trial mixture or field test data, or both.
- B. Cementous Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of Portland cement, which would otherwise be used, by no less than 40 percent.
- C. Limit water-soluble chloride ions to maximum percentage by weight of cement or cementitious materials

permitted by ACI 301.

- D. Admixtures: When included in shotcrete design mixtures, use admixtures according to manufacturers written instructions.
- E. Design-Mixture Adjustments: Subject to compliance with requirements, shotcrete design-mixture adjustments may be proposed when characteristics of materials, project conditions, weather, test results, or other circumstanced warrant.

2.7 SHOTCRETE MIXTURE DESIGN

- A. ACI Standard 506 latest edition, “Specification for Materials, Proportioning and Application of Shotcrete” and ACI 506.2 latest edition, “Recommended Practices for Shotcreting” shall be followed.
- B. Mix designs for shotcrete containing fly ash shall be by an independent testing laboratory. Only ASTM C618 Class F Fly Ash shall be used. The amount of fly ash used shall not exceed 20% by weight of the combined weight of fly ash plus cement.
- C. Provide mix designs that will meet the minimum requirements listed below. Increase cement content over that shown, if required to obtain the compressive strength:

Min. 28 Day Compressive Strength (Psi)	Min. Cement Content (Pounds)	Max. Slump (Inches)	Max. Aggregate Size (Inches)	Max. Air Entraining (Percent)
4000 (27.56 Mps)	600(217.72kg)	3" (7.62cm)	3/8" (0.94cm)	3%

2.8 SHOTCRETE EQUIPMENT

- A. ACI Standard 506 latest edition, “Specification for Materials, Proportioning and Application of Shotcrete” and ACI 506.2 latest edition, “Recommended Practices for Shotcreting” shall be followed.
- B. Dry Mix Delivery Equipment: Capable of discharging aggregate-cement mixture into delivery hose under close control and maintaining continuous stream of uniformly mixed materials at required velocity to discharge nozzle. Equip discharge nozzle with manually operated water-injection system for directing even distribution of water to aggregate-cement mixture.
 - 1. Provide uniform, steady supply of clean, compressed air to maintain constant nozzle velocity while simultaneously operating blow pipe for cleaning away rebound.
 - 2. Provide water supply with uniform pressure at discharge nozzle to ensure uniform mixing with aggregate-cement mix. Provide water pump to system if line water pressure is inadequate.
- C. For Wet mix Shotcrete:
 - 1. Mixing Equipment: Capable of thoroughly mixing aggregate, cement, and water in sufficient quantity to maintain continuous placement.
 - 2. Ready-mixed concrete: ASTM C94, except that it may be delivered to the site in the dry state if the equipment is capable of adding the water and mixing it satisfactorily with the dry ingredients.
 - 3. Air supply: Clean air adequate for maintaining sufficient nozzle velocity for parts of work, and

for simultaneous operation of blow pipe for cleaning away rebound.

4. Delivery equipment: Capable of discharging aggregate-cement-water mixture accurately, uniformly, and continuously through delivery hose.

2.9 BATCHING AND MIXING

- A. Wet-Mix Process: Measure, batch, mix, and deliver shotcrete according to ASTM C 94/C 94M and furnish batch ticket information.
 1. Comply with ASTM C 685/C 685M when shotcrete ingredients are delivered dry and proportioned and mixed on-site.
- B. Proportions: Mix proportions shall be controlled by weight batching. The contractor's testing laboratory shall maintain quality control records during shotcrete production and make those records available to the client.
- C. Scheduling: Concrete shall be placed within 90 minutes of batching and shall not exceed a temperature of 90 degrees Fahrenheit (32 degrees Celsius) unless pre-approved by the project engineer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Concrete or Masonry: Before applying shotcrete, remove unsound or loose materials and contaminants that may inhibit shotcrete bonding. Chip or scarify areas to be repaired to extent necessary to provide sound substrate. Cut edges square and 1/2 inch deep at perimeter of work, tapering remaining shoulder at 1: 1 slope into cavity to eliminate square shoulders. Dampen surfaces to saturated, surface-dry condition before shotcreting.
 1. Abrasive blast or hydroblast existing surfaces that do not require chipping to remove paint, oil, grease, or other contaminants and to provide roughened surface for proper shotcrete bonding.
- B. Earth: Compact and trim to line and grade before placing shotcrete. Do not place shotcrete on frozen surfaces. Dampen surfaces to saturated, surface-dry condition before shotcreting.
- C. Steel: Clean steel surfaces by abrasive blasting according to SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- D. Examination: Examine concrete formwork and verify that it is true to line and dimension, adequately braced against vibration, and constructed to permit escape of air and rebound but to prevent leakage during shotcreting. Correct deficiencies.
- E. Inspection: Inspect reinforcement steel and items to be embedded in concrete. Correct any deviations from the accepted shop drawings.
- F. Notification: Notify other trades involved in ample time to permit the proper installation of their work. Cooperate in setting such work.
- G. Existing surfaces: Examine existing concrete surfaces for unsound material. Correct deficiencies.

3.2 FORMS

- A. General: Design erect, support, brace, and maintain forms, according to ACI 301, to support shotcrete and construction loads and to facilitate shotcreting. Construct forms so shotcrete members and structures are secured to prevent excessive vibration or deflection during shotcreting.
 - 1. Fabricate forms to be readily removable without impact, shock, or damage to shotcrete surfaces and adjacent materials.
 - 2. Construct forms to required sizes, shapes, lines, and dimensions using ground wires and depth gages to obtain accurate alignment location, and grades in finished structures. Construct forms to prevent mortar leakage but permit escape of air and rebound during shotcreting. Provide for openings, offsets, blocking, screeds, anchorages, inserts, and other features required in the Work.
 - 3. Use a form-coating material on removable forms to prevent absorption of moisture and to prevent bond with shotcrete.
- B. Form openings, chases, recesses, bulkheads, keyways, and screeds in formwork. Determine sizes and locations from trades providing such items. Accurately place and securely support items built into forms.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that weaken shotcrete bonding.
- C. Securely embed reinforcing anchors into existing substrates, located as required.
- D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports, bolsters, chairs, spacers, and other devices as required to maintain minimum concrete cover.
- E. Set wire ties with ends directed into shotcrete, not toward exposed shotcrete surfaces.
- F. Install welded wire reinforcement in longest practical lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
- G. Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to ASTM A 780. Use galvanized steel wire ties to fasten zinc-coated steel reinforcement.

3.4 JOINTS

- A. General: Construct joints at locations indicated or as approved by Architect.
- B. Construction Joints: Locate and install construction joints tapered to a 1: 1 slope where joint is not subject to compression loads and square where joint is perpendicular to main reinforcement. Continue reinforcement through construction joints unless otherwise indicated.
- C. Contraction Joints: Construct contraction joints in shotcrete using saw cuts 1/8-inch-wide by 1/3 slab depth or joint-filler strips 1/8-inch-wide by 1/3 shotcrete depth unless otherwise indicated.

1. After shotcrete has cured, remove strip inserts and clean groove of loose debris.
2. Space joints at centers indicated horizontally and vertically.
3. Tool edges round on each side of strip inserts if floated or troweled finishes are required.
4. Where shooting over an existing substrate joint, align new shotcrete joint with existing joint.

3.5 ALIGNMENT CONTROL

- A. Ground Wires: Install ground wires to establish thickness and planes of shotcrete surfaces. Install ground wires at comers and offsets not established by forms. Pull ground wires taut and position adjustment devices to permit additional tightening.

3.6 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by shotcrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.7 APPLICATION

- A. Apply temporary protective coverings and protect adjacent surfaces against deposit of rebound and overspray or impact from nozzle stream.
- B. Moisten wood forms immediately before placing shotcrete where form coatings are not used.
- C. Apply shotcrete according to ACI 506.2.
- D. Apply wet-mix shotcrete materials within 90 minutes after batching.
- E. Do not place shotcrete if drying or stiffening of the mix takes place at any time prior to delivery to the nozzle.
 1. Control thickness, method of support, air pressure, and/or water content of shotcrete to preclude sagging or sloughing off. Discontinue shotcreting or provide suitable means to screen the nozzle stream if wind or air currents cause separation of the nozzle stream during placement.
 2. Hold nozzle as perpendicular to surface as work will permit, to secure maximum compaction with minimum rebound.
 3. In shotcreting walls, begin application at bottom. Ensure work does not sag.
 4. Layering:
 - a) Build up layers by making several passes of nozzle over work area.
 - b) Broom or scarify the surface of freshly placed shotcrete to which, after hardening, additional layers of shotcrete are to be bonded.
 - c) Dampen surface just prior to application of succeeding layers.
 - d) Allow each layer of shotcrete to take initial set before applying succeeding layers.
 - e) Use radial templates to insure exact radii from flat bottom of bowl/pipe to face of coping. Template shall be fabricated from steel or $\frac{3}{4}$ " minimum plywood. Check every horizontal foot when applying shotcrete for conformance of intended wall radii. Brace template and place levels at arc to tangent connections to insure no kinks will be formed. Kinks at the bottom of bowls will not be acceptable. Slumping of the shotcrete causing coping setback will not be acceptable.
 - f) Remove any rebound or accumulated loose aggregate from surfaces to be covered prior to placing the initial or any succeeding layers of shotcrete. Rebound shall not be used as aggregate.
 5. Placement around reinforcement:
 - a) Hold the nozzle at such distance and angle to place materials behind reinforcement before any material is allowed to accumulate on its face. In the dry-mix process,

additional water may be added to the mix when encasing reinforcement to facilitate a smooth flow of material behind the bars.

- b) Test to ascertain if any void or sand pockets have developed around or behind reinforcement by probing with an awl or other pointed tool after the shotcrete has achieved its initial set, by removal of randomly selected bars, or coring or other suitable standards.
- F. Access: Allow easy access to shotcrete surfaces for screeding and finishing, permitting uninterrupted application.
- G. Shotcrete Core Grade: Apply shotcrete to achieve mean core grades not exceeding 2.5 according to ACI 506.2, with no single core grade exceeding 3.0.
- H. Cold-Weather Shotcreting: Mix, place, and protect shotcrete according to ACI 306.1 and as follows. Protect shotcrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. Discontinue shotcreting when ambient temperature is 40 deg F and falling.
 2. Uniformly heat water and aggregates before mixing to obtain a shotcrete shooting temperature of not less than 50 deg F and not more than 90 deg F.
 3. Do not use frozen materials or materials containing ice or snow.
 4. Do not place shotcrete on frozen surfaces or surfaces containing frozen materials.
 5. Do not use calcium chloride, salt, or other materials containing antifreeze agents.
- I. Hot-Weather Shotcreting: Mix, place, and protect shotcrete according to recommendations of ACI 305R when hot-weather conditions and high temperatures would seriously impair quality and strength of shotcrete, and as follows:
1. Cool ingredients before mixing to maintain shotcrete temperature at time of placement below 90 deg F for wet mix.
 2. Reduce temperature of reinforcing steel and receiving surfaces below 100 deg F before shotcreting.

3.8 SURFACE FINISHES

- A. General: Finish shotcrete according to descriptions in ACI 506R.
- B. All exposed shotcrete surfaces are to be hard steel trowel finish unless otherwise noted. Trowel until all visible pours are closed. Cease trowel before glass forms on surface. Do not broom finish and do not bum surface.
- C. Grinding the surfaces will not be an acceptable means of achieving the intended radii/angle.
- D. All shotcrete surfaces are to be natural gray color unless otherwise noted. Minor variations in appearance of colored concrete, which are similar to natural variations in color and appearance of uncolored concrete, are acceptable.
- E. During the curing period, concrete shall be maintained at a temperature above 40 degrees Fahrenheit and in moist condition. For initial curing, concrete shall be kept continuously moist for 24 hours after placement is complete. Final curing shall continue for seven days after placement and shall consist of application of curing compound per ASTM C309. Apply at a rate sufficient to retain moisture, but not less than 1 gallon per 200 square feet. Cover concrete with polyethylene plastic to maintain temperature if necessary. Lap seams in the plastic 6", weigh down and tape the plastic seams as needed.
- F. The contractor shall fix all cracks and displacements larger than 1/16".

3.9 CURING

- A. Protect freshly placed shotcrete premature drying and excessive cold or hot temperatures.
- B. Begin curing immediately after placing and finishing but not before free water, if any, has disappeared from shotcrete surface.
- C. Curing Exposed Surfaces: Cure shotcrete by one of the following methods:
 - 1) Moisture Curing: Keep surfaces continuously moist for no less than seven days with the following materials.
 - i. Water
 - ii. Continuous water-fog spray
 - iii. Water-saturated absorptive covers or moisture-retaining covers. Lap and seal sides and ends of covers with 1 2-inch lap over adjacent covers.
 - 2) Curing Compound: Apply uniformly in continuous operation by power spray according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - i. Apply curing compound to natural gun finish or flash-coat shotcrete as per manufacturer's instructions.
- D. Curing Formed Surfaces: Cure formed shotcrete surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue by methods specified above, as applicable.

3.10 FORM REMOVAL

- A. Forms not supporting weight of shotcrete may be removed after curing for 24 consecutive hours at no less than 50-degree F, provided shotcrete is hard enough not to be damaged by form-removal operations and provided curing and protecting operations are maintained.
 - 1. Leave forms supporting weight of shotcrete in place until shotcrete has attained design compressive strength. Determine compressive strength of in-place shotcrete by testing representative field-cured specimens of shotcrete.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the work. Split, frayed, delaminated, or otherwise damaged form-facing materials are unacceptable for exposed surfaces. Apply new form-coating compound as specified for new form work.

3.11 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to sample materials, visually grade cores, perform tests, and submit reports during shotcreting.
- B. Air Content: ASTM C 173/C 173M, volumetric method or ASTM C 231, pressure method; one test for each compressive-strength test for each mixture of air-entrained, wet-mix shotcrete measured before pumping.
- C. Shotcrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 45 deg F and falling and when 85 deg F and rising, and one test for each set of compressive-strength specimens.

- D. In-Place Shotcrete Testing: One set of three unreinforced cores for each mixture and for each workday or for every 50 cu. yd. of shotcrete placed, whichever is less. Test cores for compressive strength according to ACI 506.2 and ASTM C 42. Do not cut steel reinforcement.
- E. Strength of shotcrete will be considered satisfactory according to the following:
 - 1. Specimen Cores: Mean compressive strength of each set of three unreinforced cores equals or exceeds 85 percent of specified compressive strength, with no individual core less than 75 percent of specified compressive strength.
 - 2. Specimen Cubes: Mean compressive strength of each set of three unreinforced cubes shall equal or exceed design compressive strength with no individual cube less than 88 percent of specified compressive strength.

3.12 REPAIRS

- A. Remove and replace shotcrete that is delaminated or exhibits laminations, voids, or sand/rock pockets exceeding limits for specified core grade of shotcrete.
 - 1. Remove unsound or loose materials and contaminants that may inhibit bond of shotcrete repairs.
 - 2. Chip or scarify areas to be repaired to extent necessary to provide sound substrate. Cut edges square and 1/2 inch deep at perimeter of work, tapering remaining shoulder at 1:1 slope into cavity to eliminate square shoulders.
 - 3. Dampen surfaces and apply new shotcrete. Match adjacent color and finish.
- B. Repair core holes from in-place testing according to repair provisions in ACI 301, except do not use shotcrete. Match adjacent color and finish.
- C. Cracking from inadequate curing is not allowed. Saw cut joints and construction joints may be shown in the construction drawings for diagrammatic purposes only. The contractor may, with approval of the skatepark designer, recommend and detail other joints required to prevent cracking.
- D. The contractor shall fix all cracks and displacements larger than 1/16".
- E. General: Remove and replace shotcrete which lacks uniformity, exhibits segregation honeycombing, or lamination, or which contains any dry patches, slugs, voids or pockets. Remove defective areas.
- F. Sounding: Sound work with hammer for voids. Remove and replace damaged in-place shotcrete.

3.13 CLEANING

- A. Immediately remove and dispose of rebound and overspray materials from final shotcrete surfaces and areas not intended for shotcrete placement.

END OF SECTION

SECTION 034500 - PRECAST CONCRETE FOR SKATEPARKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. All work contained in this section is specialty skate park construction manufacturers and installers must meet the minimum experience requirements contained in the quality assurance section.
- B. Requirements of the contract documents, including but not limited to, the general, special, and technical provisions, apply to work in this section as if restated completely herein.
- C. Furnish materials, labor, transportation, services, and equipment necessary to install all pre-cast concrete skate elements related to the skate park as indicated on the drawings complete as shown and as specified herein.
- D. Related Sections:
 - 1. Section 027510 "Cement Concrete Pavement"
 - 2. Section 033010 "Cast-In-Place Concrete for Skate Parks"

1.3 DEFINITIONS

- A. Design Reference Sample: Sample of approved precast concrete color, finish and texture, pre-approved by Architect.

1.4 SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each precast concrete mixture. Include compressive strength and water-absorption tests.
- C. Manufacturer's Data: Current printed specifications with application and installation instruction for proprietary materials.
- D. Shop Drawings: Submit shop drawings of all precast concrete skate elements showing detail sections and profile for all precast items. Details shall show all reinforcing and special hardware required for fastening. Evidence of actual manufacture pursuant to drawings is required.

Additionally, each shop drawing should notate how many individual sections each feature is comprised of.

- E. Specified Models: Equipment model numbers or catalog numbers are listed in the specifications to identify a standard of quality required for this project.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

1. The precast concrete installer to perform the installation work shall be factory trained/certified and have a minimum of five (5) years' experience installing precast concrete skatepark equipment as specified for this project. Precast concrete installer must have completed ten (10) public pre-cast concrete skate park facilities with a minimum size of 7,000 square feet (concrete surface only) within the prior five (5) years from the bid due-date. Qualifying parks must currently be in good operating condition with at least 75% of the features being monolithic, non-approach plate, pre-cast concrete skate elements that do not require site installed enclosures, metal support legs, or hardware.
2. Any installer who does not meet the minimum experience criteria as set forth above and reflected in the Section "Skate Park Qualification Form-Attachment B" will not be considered for this project. Completed "Skate Park Qualification Form-Attachment B" must be submitted with bid.
3. Precast experience - Contractor shall submit with their bid proof of prior successful experience for either themselves or a subcontractor in manufacturing and installing monolithic pre-cast concrete skate elements for similar skate parks as specified.

B. Manufacturer Qualifications:

1. Manufacturer of all precast concrete elements must maintain the capacity and facilities to produce the quantity and quality of goods specified without any delay to the progress of the work. A "qualifying facility" must have been in operation and producing precast concrete skate elements at that same location for five (5) years. A "qualifying facility" must have been in continuous operation producing precast concrete products at the same location for the same length as the specified warranty period (fifteen years).
2. Manufacturer must provide references for five (5) precast concrete skateparks manufactured at this facility in the last five (5) years that are a minimum of 7,000 square feet (concrete surface only, landscaping does not count) whose features have been integrally tinted (stain or paint is not acceptable). Qualifying parks must currently be in good operating condition with at least 75% of the features being monolithic, non-approach plate, pre-cast concrete skate elements that do not require site installed enclosures, metal support legs, or hardware.
3. Any manufacturer who does not meet the minimum experience criteria as set forth above and reflected in the "Precast Concrete Questionnaire Form- Manufacturer and Installer form" will not be considered for this project. Completed "precast concrete qualification - manufacturer and installer form" must be submitted with bid.

1.6 SUBSTITUTIONS

- A. Basis of Design: Spohn Ranch Skateparks or equal. Contractors seeking to use alternate equipment, materials, or installers other than Spohn Ranch Skateparks must obtain the Landscape Architect's pre-approval. Any product that is not pre-approved will not be considered.
 - B. The Landscape Architect must receive, at least ten (10) business days prior to bid opening, all documents and other submittals required to establish equality of a proposed substitute. Any submissions for approval that do not allow for a 10-day review period will not be accepted.
 - C. Architect shall approve, disapprove, or require additional information for each request. Any approved substitutes shall be identified in an addendum.
 - D. Any alternate products being submitted for equivalency shall disclose all instances of any prior municipal or Architect's rejection of the same or similar product for "as equal" status to the product specified for this project. Failure to disclose a prior rejection is grounds for denial of any request to approve an alternate product.
 - E. Architect shall have absolute discretion to determine whether any submitted product is an equal. The Architect has the authority to accept or reject submissions for any reason including prior experience or knowledge of a specific product or firm.
 - F. Requirement for alternate equipment pre-bid submittals:
 - 1. Must include shop drawings/typical details that show all structural reinforcement and various thicknesses of a precast quarter pipe including information on how the feature supports itself (legs, hardware, etc.).
 - 2. Product warranty.
 - 3. Completed "precast concrete qualification - manufacturer and installer form".
 - G. Pre-cast concrete equipment pre-submittals shall include the cost of all changes in the structure, electrical work, and other appurtenances, including engineering costs from redesign, for the accommodation of such equipment, as determined by the Landscape Architect, at the expense of the contractor.
 - H. The pre-bid submittals shall list any and all deviations from items specified, and the advantages to be derived if the deviation is approved. If no deviations are noted, it will be assumed that no such deviations exist, and the final submittals will allow no deviations.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. Deliver precast concrete features in such quantities and at such times to limit unloading units temporarily on the ground or other re-handling.

1.8 PROJECT CONDITIONS

- A. Coordinate schedules of concrete placement to allow adequate time for installation of other related work.
- B. Coordinate earthwork and soils report requirements with placement requirements. Coordinate size and location of electrical work prior to pouring concrete pads.
- C. Coordinate with form-work and finishes sections to provide finish floor levelness and flatness as specified herein. Slope to drains at grades and percent slope shown on contract documents.
- D. Ensure that irrigation sleeves, electrical conduit, drainage lines and other utility elements are accommodated and as-built located prior to placing concrete.

1.9 WARRANTY

- A. General Description: In addition to manufacturer's warranties, warrant work for a period of one year from the date of final completion against defects in materials and workmanship.
- B. Additional Items Covered: Warranty shall also cover repair of damage to other materials and workmanship resulting from defects in materials and workmanship.
- C. Exceptions: Contractor shall not be held responsible for failures due to ordinary wear, neglect by owner, vandalism, or other causes beyond the contractor's control.
- D. Manufacturer's Warranty: At a minimum, the warranty must provide 15 years of warranty coverage for the precast skate elements.

PART 2 -PRODUCTS

2.1 MANUFACTURERS

- A. Fabricators: Subject to compliance with requirements, provide products by the following:
 - 1. Spohn Ranch Skateparks, 6824 South Centinela Avenue, Los Angeles, California 90230.

2.2 PERFORMANCE REQUIREMENTS

- A. All numbered precast concrete components in the bid (as shown in the drawings) must be shipped and arrive on-site as fully integrated or "monolithic" pieces requiring no further assembly. Contractor must submit proof that the applicable manufacturing processes will produce elements that meet this specification.
- B. All skate park components shall be manufactured from high quality, steam cured, precast concrete.

- C. Finished precast concrete shall be free from honeycomb, cracks, defects in workmanship, and be of the highest quality.
- D. Poured on site elements or elements formed using shotcrete will not be acceptable for features specified as precast.
- E. Precast concrete components shall be reinforced with steel rebar, synthetic fiber, welded wire mesh, and meet the specifications listed below.
- F. All coping and edge protection shall be stainless steel.
- G. All precast equipment must be self-retaining and have factory integrated sides and backs without the use of hardware or metal support legs.
- H. Precast equipment requiring site installation of retaining walls will not be acceptable.
- I. Any products that do not carry the thickness of the concrete throughout the entire piece and use a channel or waffle system with varying thicknesses will not be considered for this project (the structural reinforcement does not receive the proper coverage and the product is not suitable for a public facility).
- J. Any system that requires hardware, metal support legs, or turnbuckles will not be accepted.
- K. This bid features four (4) precast concrete features. Any product that is unable to produce this park to the exact dimensions specified for each feature (i.e. needs to produce the park in more than 13 pieces) will not be approved as an equal.
- L. All precast concrete skate park equipment components shall conform to ASTM C33, "Standard Specification for Concrete Aggregates."

2.3 REINFORCING MATERIALS

- A. Reinforcing steel shall be new billet deformed bars and welded wire steel mesh and shall conform to ASTM Standard A615. Minimum cover for all reinforcing shall be 1 1/2".
- B. No. 3 rebar steel reinforcing @ 12" o.c. grid steel reinforcing.
- C. 1/4" welded wire mesh (wwm) steel reinforcing @ 6" o.c. grid. Synthetic macro fiber reinforcement meeting ASTM C1116.

2.4 CONCRETE MATERIALS

- A. Type II Portland Cement.
- B. Maximum 3/4" rock aggregate (foam pellets are not acceptable).
- C. Mechanically vibrated up-side-down in precise concrete mold (self-settling concrete is not acceptable).

- D. Precast indoors off-site at least two weeks prior to installation. Cured in temperature- and humidity-controlled environment.
- E. Minimum 4000 PSI, maximum 7000 PSI compressive strength@ 28 days (PSI above 7500 is not acceptable).
- F. Slump: 2"-3".
- G. Air Entrainment: 3-5%.
- H. Color: Davis colors "Brick Red - 160" (color to be verified with owner before production of precast commences)

2.5 JOINTS

- A. Hand-finished with cementitious grout or caulk as needed.

2.6 STEEL COMPONENTS

1. Coping: 2 3/8" schedule 40, ASTM A 53 steel pipe shall be anchored to concrete ramp at 12" on center with steel studs, fitted with welded end caps and then ground smooth. Vent adequately for galvanizing finish. ASTM A 123 hot-dip galvanizing to occur after all welding is complete. Where field welds are necessary, use a high zinc dust content paint for re-galvanizing welds in galvanized steel.
2. Angle edge protection: 1.5" x 2" x 3/16" thick, astm a36 steel angle shall be anchored at 12" on center. astm a123 hot-dip galvanizing finish to occur after all welding is complete. Where field welds are necessary, use a high zinc dust content paint for re-galvanizing welds in galvanized steel. The amount of edge protection can be customized to specifications.
3. Channel edge protection: 2" x 4" x 2.5" x 1/8" thick astm a36 folded steel plate shall be anchored into the concrete ramp at 12" on center. astm a123 hot-dip galvanizing finish to occur after all welding is complete. Where field welds are necessary, use a high zinc dust content paint for re-galvanizing welds in galvanized steel. The amount of edge protection can be customized to specifications.
4. Grind plate/ bmx plate (when applicable): 2" x 6" x 1/8" thick ASTM A 36 folded steel plate shall be anchored into the concrete ramp at 12" on center. Hot-dip galvanizing to occur after all welding is complete. Where field welds are necessary, use a high zinc dust content paint for re-galvanizing welds in galvanized steel. The amount of edge protection can be customized to specifications. all components will be fitted with grind plate as specified. This provides extra protection for bmx applications.
5. Coping with grind plate/ coping with bmx plate (when applicable): 2 3/8" schedule 40, ASTM A 53 steel pipe shall be anchored into the concrete ramp at 12" on center using steel studs and welded to 4" x 3/16" ASTM A 36 steel plate with anchors. Coping to be fitted with welded end caps and then ground smooth. Vent adequately for galvanizing finish. ASTM A 123 hot-dip galvanizing to occur after all welding is complete. Where field welds are necessary, use a high zinc dust content paint for re-galvanizing welds in galvanized steel.
6. Grind rail-rectangular: 3" x 2" x 1/8" thick ASTM A 500 steel tube. All grind rails shall be fitted with welded end caps and then ground smooth. Vertical supports are 2" x 2" x 1/8" or 2" x 3" x 1/8" ASTM A 500 steel tubing welded to the horizontal rail. All welds to be all around. Grind

welds smooth before galvanizing finish. vent adequately for galvanizing. astm a123 hot-dip galvanizing to occur after all welding is complete. These are cast or surface mounted into the concrete foundation during installation as specified in the construction drawings.

7. Grind rail-round: 2 3/8" schedule 40, astm a 53 steel pipe. All grind rails shall be fitted with welded end caps and then ground smooth. Vertical supports are 2 3/8" schedule 40 astm a 53 steel pipe welded to the horizontal rail. All welds to be all around. Grind welds smooth before galvanizing finish. Vent adequately for galvanizing. astm a123 hot-dip galvanizing to occur after all welding is complete. These are cast or surface mounted into the concrete foundation during installation as specified in the construction drawings.
8. Guard rails (when applicable): 2" diameter astm a500 steel tube w/ astm a123 hot-dip galvanized corrosion resistant finish. Guard rail frame formed and rounded at corners with 1" diameter tube vertical pickets evenly spaced at no more than 4" on center. All guard rails shall be cast or surface mounted into the concrete foundation. Guard rails shall be a minimum of 42" high and shall prevent passage of a sphere equal to or greater than 4" outside diameter. Safety rails are constructed in a manner that does not allow a skateboard underneath and through the opening between the bottom of the rail and the resting deck.

2.7 INSPECTION

- A. Inspect subgrade, forms, reinforcing steel, pipes, conduits, sleeves, hangers, anchors, inserts, and other work required to be built into concrete and report any discrepancies. Notify owner's representative at least 5 working days in advance of scheduled placement.
- B. Correct unsatisfactory work prior to placing abutting concrete.
- C. Remove rubbish from formwork immediately prior to placing concrete.

2.8 CONCRETE MIXTURES

- A. Prepare design mixtures for each type of precast concrete required.
 1. Use a single design mixture for units with more than one major face or edge exposed.
 2. Where only one face of unit is exposed use either a single design mixture or separate mixtures for face and backup.
- B. Limit use of fly ash and ground granulated blast-furnace slag to 20% of Portland cement by weight; limit metakolin and silica fume to 10% of Portland cement by weight.
- C. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at architectural precast concrete fabricator's option.
- D. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 318 (ACI 318M) when tested according to ASTM C 1218/C 1218M.
- E. Normal-Weight Concrete Mixtures: Proportion **full-depth mixtures, at fabricator's option**] by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:
 1. Compressive Strength (28 Days): 6000 psi minimum.

2. Maximum Water-Cementitious Materials Ratio: 0.45.
- F. Water Absorption: 6 percent by weight or 14 percent by volume, tested according to ASTM C 642, except for boiling requirement.
 - G. Lightweight Concrete Backup Mixtures: Proportion mixtures by either laboratory trial batch or field test data methods according to ACI 211.2, with materials to be used on Project, to provide lightweight concrete with the following properties:
 1. Compressive Strength (28 Days): 6000 psi minimum.
 2. Unit Weight: Calculated equilibrium unit weight of 115 lb/cu. Ft., plus or minus 3 lb/cu. Ft., according to ASTM C 567.
 - H. Add air -entraining admixture at manufacturers prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 117.
 - I. When included in design mixtures, add other admixtures to concrete mixtures according to manufacturer's written instructions.

2.9 MOLD FABRICATION

- A. Molds: Accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for prestressing and detensioning operations. Coat contact surfaces of molds with release agent before reinforcement is placed. Avoid contamination of reinforcement and prestressing tendons by release agent.
 1. Place form liners accurately to provide finished surface texture indicated. Provide solid backing and supports to maintain stability of liners during concrete placement. Coat form liner with form-release agent.
- B. Maintain molds to provide completed architectural precast concrete units of shapes, lines, and dimensions indicated, with fabrication tolerances specified.
 1. Form joints are not permitted on faces exposed to view in the finished work.
 2. Edge and Corner Treatment: Uniformly chamfered.

2.10 THIN-BRICK FACINGS

- A. Place form liner templates accurately to provide grid for thin-brick facings. Provide solid backing and supports to maintain stability of liners while placing thin bricks and during concrete placement.
- B. Securely place thin-brick units face down into form lines pockets and place concrete backing mixture.
- C. Completely fill joint cavities between thin-brick units with sand-cement mortar, and place precast concrete backing mixture while sand-cement mortar is still fluid enough to ensure bond.
- D. Mix and install pointing grout according to ANSI A108.10. Completely fill joint cavities between thin-brick units with pointing grout and compress into place without spreading grout onto faces of thin-brick units. Remove excess grout immediately to prevent staining of thin brick.

1. Tool joints to a slightly concave shape when pointing grout is thumbprint hard.
- E. Clean faces and joints of thin brick facing.

2.11 FABRICATION

- A. Cast-In Anchors, Inserts, Steel, Sleeves, and Other Built-In Work: Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware, and secure in place during precasting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.
1. Weld-headed studs and deformed bar anchors used for anchorage according to AWS D1.1/D1.1M and AWS C5.4, "Recommended Practices for Stud Welding."
- B. Furnish loose hardware items including steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing precast concrete units to supporting and adjacent construction.
- C. Reinforcement: Comply with recommendations in PCI MNL 117 for fabricating, placing, and supporting reinforcement.
1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete. When damage to epoxy-coated reinforcing exceeds limits specified in ASTM A 775/A 775M, repair with patching material compatible with coating material and epoxy coat bar ends after cutting.
 2. Accurately position, support, and secure reinforcement against displacement during concrete-placement and consolidation operations. Completely conceal support devices to prevent exposure on finished surfaces.
 3. Place reinforcing steel and prestressing strands to maintain at least 3/4-inch minimum concrete cover. Increase cover requirements for reinforcing steel to 1-1/2 inches when units are exposed to corrosive environment or severe exposure conditions. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.
 4. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh spacing and wire tie laps, where required by design. Offset laps of adjoining widths to prevent continuous laps in either direction.
- D. Reinforce precast concrete units to resist handling, transportation, and erection stresses and specified in-place loads.
- E. Prestress tendons for precast concrete units by either pretensioning or post-tensioning methods. Comply with PCI MNL 117.
- a. Delay detensioning or post-tensioning of precast, prestressed architectural concrete units until concrete has reached its indicated minimum design release compressive strength as established by test cylinders cured under same conditions as concrete unit.
 - b. Detension pretensioned tendons either by gradually releasing tensioning jacks or by heat-cutting tendons, using a sequence and pattern to prevent shock or unbalanced loading.
 - c. If concrete has been heat cured, detension while concrete is still warm and moist to avoid

- dimensional changes that may cause cracking or undesirable stresses.
- d. Protect strand ends and anchorages with bituminous, zinc-rich, or epoxy paint to avoid corrosion and possible rust spots.
- F. Comply with requirements in PCI MNL 117 and requirements in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.
 - G. Place face mixture to a minimum thickness after consolidation of the greater of 1 inch or 1.5 times the maximum aggregate size, but not less than the minimum reinforcing cover specified.
 - H. Place concrete in a continuous operation to prevent cold joints or planes of weakness from forming in precast concrete units.
 - a. Place backup concrete mixture to ensure bond with face-mixture concrete.
 - I. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air voids on surfaces. Use equipment and procedures complying with PCI MNL 117.
 - a. Place self-consolidating concrete without vibration according to PCI TR-6, "Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Prestressed Concrete Institute Member Plants." Ensure adequate bond between face and backup concrete, if used.
 - J. Comply with PCI MNL 117 for hot- and cold-weather concrete placement.
 - K. Identify pickup points of precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each precast concrete unit on a surface that does not show in finished structure.
 - L. Cure concrete, according to requirements in PCI MNL 117, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture. Cure units until compressive strength is high enough to ensure that stripping does not have an effect on performance or appearance of final product.
 - M. Discard and replace precast concrete units that do not comply with requirements, including structural, manufacturing tolerance, and appearance, unless repairs meet requirements in PCI MNL 117 and Landscape Architect's approval.
- 2.12 FABRICATION TOLERANCES
- A. Fabricate precast concrete units to shapes, lines, and dimensions indicated so each finished unit complies with PCI MNL 117 product tolerances as well as position tolerances for cast-in items.
- 2.13 FINISHES
- A. All pre-cast elements must transition to the slab without the use of transition plates.

- B. Riding surfaces hand-finished smooth after concrete sealer applied.

PART 3 -EXECUTION

3.1 EXAMINATION

- A. Examine supporting foundation and conditions for compliance with requirements for installation tolerances, bearing surface tolerances, and other conditions affecting performance of the Work.
- B. Do not install precast concrete units until supporting cast-in-place concrete has attained minimum allowable design compressive strength and supporting steel or other structure is structurally ready to receive loads from precast concrete units.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Inspect subgrade, forms, foundations, reinforcing steel, pipes, conduits, sleeves, hangers, anchors, inserts, and other work required to be built into concrete and report any discrepancies. Notify owner's representative at least five (5) working days in advance of scheduled placement.
- E. Correct unsatisfactory work prior to placing precast concrete.

3.2 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate with work of cast-in-place concrete section.
- B. Pre-cast concrete skate park components are to be stored at manufacturers facility, above ground on skids or other supports, until site is ready for their installation.
- C. Pre-cast concrete skate park components can be placed after a 7-day minimum curing time of the pre-cast footings.
- D. Suitable skate park site access is required for delivery and placement of pre-cast concrete skate park components. Access must allow tractor-trailers and 70-ton crane (TYP) to park directly adjacent to pre-cast footings, without obstruction, for delivery and placement of components.

3.3 INSTALLATION

- A. Install anchors, hangers, bearing pads, and other accessories required for placing precast concrete units to supporting members and backup materials.
- B. Install precast concrete level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until permanent connections are completed.
 - 1. Install temporary steel or plastic spacing shims as precast concrete units are being erected. Tack weld steel shims to each other to prevent shims from separating.

2. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.
 3. Remove projecting lifting devices and grout fill voids within recessed lifting devices flush with surface of adjacent precast surfaces when recess is exposed.
- C. Install pre-cast concrete level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until permanent connections are completed.

3.4 ERECTION TOLERANCES

- A. Install precast concrete units level, plumb, square, and in alignment without exceeding the noncumulative erection tolerances.

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Engage a qualified special inspector to perform the following special inspections and prepare reports:

1. Compressive Strength Test
 - a. Tested in accordance with CSA Standard A23.3-9c.
 - b. Date Received in Laboratory: February 2, 2010
 - c. Cement Type: Type II Normal Portland.
 - d. Specified strength: 6000 PSI.
 - e. Cast By: JP Tested By: JP

Age Date Tested	Average Diameter	Compressive Strength
7 Days 2/9/10	4"	5599.87 PSI
7 Days 2/9/10	4"	5508.35 PSI
28 Days 3/2/10	4"	6678.14 PSI
28 Days 3/2/10	4"	6773.59 PSI

2. Concrete manufacturing and testing practices are undertaken in accordance with the National Precast Concrete Association (NPCA), Canadian Standards Association, and American Standards & Testing Methods (ASTM) standards.
 3. Safety and Performance Guidelines: Comply with all safety and performance requirements and all applicable references as specified in the ASTM F2480 Standard Guide for In-Ground Skate Parks.
- B. Testing agency will report test results promptly and in writing to Contractor and Architect.
- C. Repair or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, shall be performed to determine compliance of replaced or additional work with specified requirements.

3.5 REPAIRS

- A. Remove and replace precast elements that are broken, damaged, defective, or do not meet the requirements of this section or conformance with ASTM F2480 - Standard Guide for In-Ground Skate Parks.
- B. Protect precast skate elements from damage until final payment. Exclude traffic from precast skate elements for at least 28 days after placement.

3.6 CLEANING

- A. Clean surfaces of precast concrete units exposed to view.
- B. Clean mortar, plaster, fireproofing, weld slag, and other deleterious material from concrete surfaces and adjacent materials immediately.
- C. Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains.
 - 1. Perform cleaning procedures, if necessary, according to precast concrete fabricator's recommendations. Protect other work from staining or damage due to cleaning operations.
 - 2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

END OF SECTION 034500

SECTION 034500.B - SKATE PARK QUALIFICATION FORM -ATTACHMENT B

Attachment B

SKATEPARK QUALIFICATION FORM

As part of their bid, the General Contractor must submit this form identifying the supplier and installer of the pre-cast concrete skate elements, as well as the contractor placing, shooting and finishing the specialty skatepark concrete.

Submission of these forms does not constitute qualification. The Owner will review the firm's project references for acceptable quality and workmanship. In the Owner's absolute discretion, if the prior work of the firm is deemed unacceptable, the General Contractor will be declared a non-responsive bidder.

PRE-CAST CONCRETE PRODUCT QUESTIONNAIRE AND INSTALLATION QUESTIONNAIRE

Product Name: _____

Supplier:

- Company Name _____
- Address _____
- Phone _____
- Email _____

Has the manufacturer been producing this product for at least 10 years? YES or NO

Does the manufacturer's warranty provide a minimum 5 years of coverage? YES or NO

Is the product cast with integral **galvanized steel** edging/coping? YES or NO

Is the product cast via an "upside down" casting method with mechanical vibration for optimal consolidation of concrete against steel? (ie. edging/coping not field-installed) YES or NO

At 28 days, is the product's compressive strength a minimum of 6,000 PSI? YES or NO

Is the product cast and cured indoors in a temperature and humidity-controlled environment for at least two weeks prior to installation? YES or NO

Is the product reinforced with steel rebar, synthetic macro fiber and welded wire mesh? YES or NO

Installer:

Public Safety Memorial Park
Restroom, Skateboard Park and Splash Pad
City of Mobile (COM)
PR-093-21

- Company Name _____
- Address _____
- Phone _____
- Email _____

Does the installer have a minimum of 5 (five) years of experience installing monolithic pre-cast concrete skate elements? **YES** or **NO**

List 5 (five) public projects in NJ where the installer installed the pre-cast concrete product specified above. Projects must have been open and continuously in good operating condition for at least one year.

1. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR INSTALLED: _____

2. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR INSTALLED: _____

3. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR INSTALLED: _____

4. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR INSTALLED: _____

5. PROJECT NAME: _____

OWNER: _____

OWNER CONTACT INFORMATION: _____

YEAR INSTALLED: _____

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Lintels.
3. Brick.
4. Mortar and grout materials.
5. Reinforcement.
6. Ties and anchors.
7. Embedded flashing.
8. Accessories.
9. Mortar and grout mixes.

B. Products Installed but not Furnished under This Section:

1. Steel lintels in unit masonry.
2. Steel shelf angles for supporting unit masonry.

C. Related Requirements:

1. Section 076200 "Sheet Metal Flashing and Trim" for sheet metal flashing and for furnishing manufactured reglets installed in masonry joints.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For the following:

1. Reinforcing Steel: Indicate bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315R. Indicate elevations of reinforced walls.
2. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.

- C. Samples for Initial Selection:
 - 1. Brick, in the form of straps of five or more bricks.
 - 2. Weep/cavity vents.

- D. Samples for Verification: For each type and color of the following:
 - 1. Brick, in the form of straps of five or more bricks.
 - 2. Weep/cavity vents.
 - 3. Cavity drainage material.
 - 4. Accessories embedded in masonry.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type of the following:
 - 1. Masonry units.
 - a. Include material test reports substantiating compliance with requirements.
 - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
 - c. For exposed brick, include test report for efflorescence in accordance with ASTM C67/C67M.
 - d. For masonry units, include data and calculations establishing average net-area compressive strength of units.

- B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

- C. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined in accordance with TMS 602.

1.6 MOCKUPS

- A. Sample Panel Mockups: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.
 - 1. Build sample panels for typical exterior wall in sizes approximately **60 inches (1524 mm)** long by **36 inches (914 mm)** high by full thickness.
 - a. Include a sealant-filled joint at least **16 inches (406 mm)** long in exterior wall mockup.
 - b. Include through-wall flashing with a **12-inch (305-mm)** length of flashing left exposed to view (omit masonry above half of flashing).
 - c. Include dampproofing, veneer anchors, flashing, cavity drainage material, and weep holes in exterior masonry-veneer wall mockup.
 - 2. Build sample panels facing south.
 - 3. Clean one-half of exposed faces of panels with masonry cleaner indicated.

4. Protect approved sample panels from the elements with weather-resistant membrane.
5. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless Architect specifically approves such deviations in writing.
6. Subject to prior approval by Architect and compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
7. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.8 FIELD CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 1. Extend cover a minimum of **24 inches (610 mm)** down both sides of walls, and hold cover securely in place.
 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of **24 inches (610 mm)** down face next to unconstructed wythe, and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.

- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain exposed masonry units, cementitious mortar components, and mortar aggregate from single source, producer, or manufacturer for each type material.

2.2 PERFORMANCE REQUIREMENTS

- A. Provide reinforced unit masonry that develops indicated net-area compressive strengths at 28 days.
 - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) in accordance with TMS 602.

2.3 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602, except as modified by requirements in the Contract Documents.

- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work and will be within 20 ft. (6 m) vertically and horizontally of a walking surface.

2.4 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - 2. Provide bullnose units for outside corners unless otherwise indicated.
- B. CMUs: ASTM C90, lightweight unless otherwise indicated.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength as shown on the Structural Drawings.
 - 2. Size (Width): Manufactured to dimensions 3/8 inch (10 mm) less than nominal dimensions.
 - 3. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.

2.5 LINTELS

- A. Masonry Lintels: Built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with grout.

2.6 BRICK

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
 - 1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
- B. Clay Face Brick: Facing brick complying with ASTM C216 or hollow brick complying with ASTM C652, Class H40V (void areas between 25 and 40 percent of gross cross-sectional area) . Grade and type shall comply with Performance Requirements and to visually match brick in existing adjacent buildings.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of not less than 3350 psi (23.10 MPa) .
 - 2. Initial Rate of Absorption: Less than 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested in accordance with ASTM C67/C67M.

3. Efflorescence: Provide brick that has been tested in accordance with ASTM C67/C67M and is rated "not effloresced." Delete "Surface Coating" Subparagraph below if not using surface-coated brick.
4. Retain pertinent size selections in "Size (Actual Dimensions)" Subparagraph below. Coordinate with coursing and verify availability of sizes with manufacturer.
- 5.
6. Application: Use where brick is exposed unless otherwise indicated.
7. Where indicated to match brick in existing adjacent buildings provide face brick matching color range, texture, and size of existing adjacent brickwork.
8. Delete "Color and Texture" Subparagraph below if brick is specified by product name. First three options are examples of descriptive requirements for appearance where proprietary specifications cannot be used. Retain last option if using allowance.
- 9.

2.7 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 1. Alkali content will not be more than 0.1 percent when tested in accordance with ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C91/C91M.
- E. Mortar Cement: ASTM C1329/C1329M.
- F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C979/C979M. Use only pigments with a record of satisfactory performance in masonry mortar.
- G. Aggregate for Mortar: ASTM C144.
 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
- H. Aggregate for Grout: ASTM C404.
- I. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.
- J. Water: Potable.

2.8 REINFORCEMENT

- A. Uncoated-Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, **Grade 60 (Grade 420)**.
- B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from **0.148-inch (3.77-mm)** steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
- C. Masonry-Joint Reinforcement, General: ASTM A951/A951M.
 - 1. Interior and Exterior Walls: Hot-dip galvanized carbon steel.
 - 2. Wire Size for Side Rods: **0.148-inch (3.77-mm)** diameter.
 - 3. Wire Size for Cross Rods: **0.148-inch (3.77-mm)** diameter.
 - 4. Wire Size for Veneer Ties: **0.148-inch (3.77-mm)** diameter.
 - 5. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than **16 inches (406 mm)** o.c.
 - 6. Provide in lengths of not less than **10 ft. (3 m)**, with prefabricated corner and tee units.
- D. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder or truss type with single pair of side rods.
- E. Masonry-Joint Reinforcement for Multiwythe Masonry:
 - 1. Adjustable (two-piece) type, ladder design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum horizontal play of **1/16 inch (1.6 mm)** and maximum vertical adjustment of **1-1/4 inches (32 mm)**. Size ties to extend at least halfway through facing wythe but with at least **5/8-inch (16-mm)** cover on outside face.

2.9 TIES AND ANCHORS

- A. General: Ties and anchors extend at least **1-1/2 inches (38 mm)** into veneer but with at least a **5/8-inch (16-mm)** cover on outside face.
- B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
 - 1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A1064/A1064M, with ASTM A153/A153M, Class B-2 coating.
 - 2. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Individual Wire Ties: Rectangular units with closed ends and not less than **4 inches (100 mm)** wide.
 - 1. Z-shaped ties with ends bent 90 degrees to provide hooks not less than **2 inches (51 mm)** long for masonry constructed from solid units.
 - 2. Wire: Fabricate from **3/16-inch- (4.76-mm-)** diameter, hot-dip galvanized steel wire.
- D. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor Section for Welding to Steel Frame: Crimped **1/4-inch- (6.4-mm-)** diameter, hot-dip galvanized steel [wire].
 2. Tie Section: Triangular-shaped wire tie made from **0.187-inch- (4.76-mm-)** diameter, hot-dip galvanized steel wire.
- E. Rigid Anchors: Fabricate from steel bars **1-1/2 inches (38 mm)** wide by **1/4 inch (6.4 mm)** thick by **24 inches (610 mm)** long, with ends turned up **2 inches (51 mm)** or unless otherwise indicated].
1. Corrosion Protection: Hot-dip galvanized to comply with ASTM A153/A153M.
- F. Adjustable Masonry-Veneer Anchors:
1. General: Provide anchors that allow vertical adjustment but resist a **100 lbf (445 N)** load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of **1/16 inch (1.6 mm)**.
 2. Fabricate sheet metal anchor sections and other sheet metal parts from **0.1084-inch- (2.75-mm-)** thick steel sheet, galvanized after fabrication.
 3. Fabricate wire ties from **0.187-inch- (4.76-mm-)** **0.25-inch- (6.4-mm-)** diameter, hot-dip galvanized-steel wire unless otherwise indicated.
 4. Anchors: Stainless steel, Type 304 or Type 316, of size, type and allowable design capacity, as installed with adjustable anchor, to achieve load requirement of adjustable anchor.

2.10 EMBEDDED FLASHING

- A. Flexible Flashing: Use one of the following unless otherwise indicated:
1. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than **40 mil (1.0 mm)**.
 - a. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.
- B. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- C. Termination Bars for Flexible Flashing, Flanged: Aluminum, Stainless steel or Rigid PVC bars **1/8 inch by 1-1/8 inch (3.2 mm by 29 mm)**.

2.11 ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene or urethane or PVC.

- B. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).
- D. Weep/Cavity Vents: Use the following unless otherwise indicated:
 - 1.
 - 2. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth **1/8 inch (3.2 mm)** less than depth of outer wythe, in color selected from manufacturer's standard.
- E. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
 - 1. Mortar Deflector: Strips, full depth of cavity and **10 inches (254 mm)** high, with dovetail-shaped notches that prevent clogging with mortar droppings.

2.12 MORTAR AND GROUT MIXES

- A. General: As indicated on the Structural Drawings and as follows:
 - 1. Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 - 2. Do not use calcium chloride in mortar or grout.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated as indicated on the Structural Drawings..
- C. Grout for Unit Masonry: Comply with ASTM C476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.1.2 for specified 28-day compressive strength indicated, but not less than **2000 psi (14 MPa)**.
 - 3. Provide grout with a slump of **8 to 11 inches (203 to 279 mm)** as measured in accordance with ASTM C143/C143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
 - 4. Verify that substrates are free of substances that impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
 - 1. Do not install grout into reinforced cells until all piping and conduit have been removed from the reinforced cells.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested in accordance with ASTM C67/C67M. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus **1/2 inch (13 mm)** or minus **1/4 inch (6.4 mm)**.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus **1/2 inch (13 mm)**.
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus **1/4 inch (6.4 mm)** in a story height or **1/2 inch (13 mm)** total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than **1/4 inch in 10 ft. (6.4 mm in 3 m)**, or **1/2-inch (13-mm)** maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than **1/8 inch in 10 ft. (3.2 mm in 3 m)**, **1/4 inch in 20 ft. (6.4 mm in 6 m)**, or **1/2-inch (13-mm)** maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than **1/4 inch in 10 ft. (6.4 mm in 3 m)**, **3/8 inch in 20 ft. (10 mm in 6 m)**, or **1/2-inch (13-mm)** maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than **1/8 inch in 10 ft. (3.2 mm in 3 m)**, **1/4 inch in 20 ft. (6.4 mm in 6 m)**, or **1/2-inch (13-mm)** maximum.
5. For lines and surfaces, do not vary from straight by more than **1/4 inch in 10 ft. (6.4 mm in 3 m)**, **3/8 inch in 20 ft. (10 mm in 6 m)**, or **1/2-inch (13-mm)** maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than **1/4 inch in 10 ft. (6.4 mm in 3 m)**, or **1/2-inch (13-mm)** maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than **1/16 inch (1.6 mm)** except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus **1/8 inch (3.2 mm)**, with a maximum thickness limited to **1/2 inch (13 mm)**.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than **1/8 inch (3.2 mm)**.
3. For head and collar joints, do not vary from thickness indicated by more than plus **3/8 inch (10 mm)** or minus **1/4 inch (6.4 mm)**.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus **1/8 inch (3.2 mm)**. Do not vary from adjacent bed-joint and head-joint thicknesses by more than **1/8 inch (3.2 mm)**.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal **4-inch (102-mm)** horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than **4 inches (102 mm)**. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal **4-inch (102-mm)** horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay CMUs and hollow brick as follows:
 - 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
 - 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
 - 3. Bed webs in mortar in grouted masonry, including starting course on footings.
 - 4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
 - 5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.
- B. Lay solid masonry units and hollow brick with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- D. Cut joints flush where indicated to receive dampproofing unless otherwise indicated.

3.6 CAVITY WALLS

- A. Bond wythes of cavity walls together as follows:
 - 1. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.
 - a. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable-type (two-piece-type) reinforcement to allow for differential movement regardless of whether bed joints align.

- B. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.

3.7 MASONRY-JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of **5/8 inch (16 mm)** on exterior side of walls, **1/2 inch (13 mm)** elsewhere. Lap reinforcement a minimum of **6 inches (152 mm)**.
 - 1. Space reinforcement not more than **16 inches (406 mm)** o.c.
 - 2. Space reinforcement not more than **8 inches (203 mm)** o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement not more than **8 inches (203 mm)** above and below wall openings and extending **12 inches (305 mm)** beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

3.8 CONTROL AND EXPANSION JOINTS

- A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry as shown on the Drawings.
- C. Form expansion joints in brick as follows:
 - 1. Form open joint full depth of brick wythe and of width indicated, but not less than **3/8 inch** for installation of sealant and backer rod specified in Section 079200 "Joint Sealants."

3.9 LINTELS

- A. Install steel lintels where indicated.
- B. Provide masonry lintels where indicated and where openings of more than **12 inches (305 mm)** for brick-size units and **24 inches (610 mm)** for block-size units are indicated without structural steel or other supporting lintels.
- C. Provide minimum bearing of **8 inches (203 mm)** at each jamb unless otherwise indicated.

3.10 FLASHING, WEEP HOLES, AND CAVITY VENTS

- A. General: Install embedded flashing and weeps in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
 - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape and as recommended by flashing manufacturer.
 - 2. At masonry-veneer walls, extend flashing through veneer, across airspace behind veneer, and up face of cum at least **8 inches (203 mm)**. Fasten upper edge of flexible flashing to cmu through termination bar.
 - 3. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- C. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.
 - 1. Use specified weep/cavity vent products or open-head joints to form weep holes.
 - 2. Space weep holes **24 inches (610 mm)** o.c. unless otherwise indicated.
- D. Place cavity drainage material in airspace behind veneers to comply with configuration requirements for cavity drainage material in "Accessories" Article.

3.11 REINFORCED UNIT MASONRY

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in TMS 602 for grout placement, including minimum grout space and maximum pour height.
 - a. Provide grouting using methods that do not require cleanouts.

2. Limit height of vertical grout pours to not more than **60 inches (1524 mm)** .

3.12 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements will be at Contractor's expense.
- B. Inspections: Special inspections in accordance with Level 2 in TMS 402.
 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
 3. Place grout only after inspectors have verified proportions of site-prepared grout.
- C. Testing Prior to Construction: One set of tests.
- D. Testing Frequency: One set of tests for each **5000 sq. ft. (464 sq. m)** of wall area or portion thereof.
- E. Clay Masonry Unit Test: For each type of unit provided, in accordance with ASTM C67/C67M for compressive strength.
- F. Concrete Masonry Unit Test: For each type of unit provided, in accordance with ASTM C140/C140M for compressive strength.
- G. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, in accordance with ASTM C780.
- H. Grout Test (Compressive Strength): For each mix provided, in accordance with ASTM C1019.

3.13 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
4. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
5. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

3.14 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Excess Masonry Waste: Remove excess clean masonry waste and legally dispose of off Owner's property.

END OF SECTION

SECTION 054000 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Soffit framing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of cold-formed steel framing product and accessory.
- B. Shop Drawings:
 - 1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
 - 2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.
 - 1. Expansion anchors.
 - 2. Power-actuated anchors.
 - 3. Mechanical fasteners.
- B. Research Reports: For non-standard cold-formed steel framing, from ICC-ES.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling.

PART 2 - PRODUCTS

2.1 COLD-FORMED STEEL FRAMING, GENERAL

- A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:
1. Grade: 33 KSI minimum.
 2. Coating: G90 (Z270) minimum.

2.2 EXTERIOR NON-LOAD-BEARING WALL FRAMING

2.3 SOFFIT FRAMING

- A. Exterior Soffit Frame: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inch (1.09 mm).
 2. Flange Width: 1-5/8 inches (41 mm), minimum.

2.4 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
1. Supplementary framing.
 2. Bracing, bridging, and solid blocking.
 3. Web stiffeners.
 4. Anchor clips.
 5. End clips.
 6. Foundation clips.
 7. Gusset plates.
 8. Stud kickers and knee braces.
 9. Hole reinforcing plates.
 10. Backer plates.

2.5 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or

equal to the design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.

1. Corrosion Resistance: Tested in accordance with ASTM B 117 for 0% red rust after 500 hour exposure.
- C. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
1. Corrosion Resistance: Tested in accordance with ASTM B 117 for 0% red rust after 500 hour exposure.
- D. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.
 2. Length: For self-drilling and self-threading screws thread bearing length, as defined by the manufacturer, shall be not less than as required to extend a minimum of three full threads through the material(s) being anchored.
 3. Corrosion Resistance: Tested in accordance with ASTM B 117 for 0% red rust after 500 hour exposure.

2.6 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20 or ASTM A 780.

2.7 FABRICATION

- A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
 1. Fabricate framing assemblies using jigs or templates.
 2. Cut framing members by sawing or shearing; do not torch cut.
 3. Fasten cold-formed steel framing members by screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
 - a. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads.
 4. Fasten other materials to cold-formed steel framing and cold-formed steel framing to other materials by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 - 2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Cold-formed steel framing shall be field assembled.
- B. Install cold-formed steel framing according to AISI S200 and to manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install field-fabricated, cold-formed framing and securely anchor to supporting structure.
- D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
 - 1. Cut framing members by sawing or shearing; do not torch cut.
 - 2. Fasten cold-formed steel framing members together by screw fastening. Wire tying of framing members is not permitted.
 - a. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads. Complying with requirements for spacing and edge distances.
 - 3. Fasten other materials to cold-formed steel framing and cold-formed steel framing to other materials by bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
 - a. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

- F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.
- H. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.
- I. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.3 EXTERIOR CEILING/SOFFIT INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.
- B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:
 - 1. Stud Spacing: 24 inches maximum unless indicated otherwise.
- C. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.4 FIELD QUALITY CONTROL

- A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing agency will report test results promptly and in writing to Contractor and Architect.
- C. Remove and replace work where test results indicate that it does not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.5 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, which ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 054000

SECTION 054400 – COLD-FORMED METAL TRUSSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Cold-formed steel trusses for roofs.

- B. Related Requirements:

- 1. Section 054000 "Cold-Formed Metal Framing" for cold-formed steel studs, joists, and rafters.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- B. Shop Drawings:

- 1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel trusses; fabrication; and fastening and anchorage details, including mechanical fasteners.
- 2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

- C. Delegated-Design Submittal: For cold-formed steel trusses.

1.4 INFORMATIONAL SUBMITTALS

- A. Welding certificates.

- B. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.

- 1. Power-actuated anchors.
- 2. Mechanical fasteners.
- 3. Miscellaneous structural clips and accessories.

- C. Manufacturer's Certificates: Upon completion of fabrication, submit original form in triplicate - *Fabricator's Certificate of Compliance* executed and signed by an authorized individual.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Fabrication shall be performed by a cold-formed steel truss fabricator with experience in designing and fabricating cold-formed steel truss systems equal in material, design, and extent to the systems required for this project.
- B. Erector Qualification: Cold-formed metal truss system installation shall be performed by an experienced installer approved by the steel truss fabricator.
- C. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect cold-formed steel trusses from corrosion, deformation, and other damage during delivery, storage, and handling.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01400 "Quality Requirements," to design cold-formed steel framing.
- B. Structural Performance: Provide cold-formed steel trusses capable of withstanding design loads within limits and under conditions indicated.
 - 1. Design Loads: As indicated
 - 2. Deflection Limits: Design trusses to withstand design loads without deflections greater than the following:
 - a. Roof Trusses: Vertical deflection of 1/360 of the span.
 - 3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F (67 deg C).
- C. Cold-Formed Steel Framing Design Standards:
 - 1. Floor and Roof Systems: Design according to AISI S210.
 - 2. Roof Trusses: Design according to AISI S214.
- D. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 COLD-FORMED STEEL TRUSS MATERIALS

- A. Steel Sheet: ASTM A 1003/A 1003M, structural grade, Type H, metallic coated, of grade and coating weight as follows:
 1. Grade: As required by structural performance
 2. Coating: G90 (Z270)

2.3 ROOF TRUSSES

- A. Roof Truss Members: Manufacturer's standard steel sections.
 1. Connecting Flange Width: 1-5/8 inches (41 mm) minimum at top and bottom chords connecting to sheathing or other directly fastened construction.
 2. Minimum Base-Metal Thickness: 0.043 inch for top and bottom chord members

2.4 ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, structural grade, Type H, metallic coated, of same grade and coating weight used for truss members.
- B. Provide accessories of manufacturer's standard thickness and configuration unless otherwise indicated.

2.5 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
- B. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and Appendix D in ACI 318, greater than or equal to the design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.
- C. Power-Actuated Fasteners: Fastener system of type suitable for application, fabricated from corrosion-resistant materials, with capability to sustain, without failure, allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.
- D. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
 1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.

- E. Welding Electrodes: Comply with AWS standards.

2.6 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: ASTM A 780.
- B. Shims: Load bearing, of high-density multimonomer plastic, nonleaching; or of cold-formed steel of same grade and coating as framing members supported by shims.

2.7 FABRICATION

- A. Fabricate cold-formed steel trusses and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
 - 1. Fabricate trusses using jigs or templates.
 - 2. Cut truss members by sawing or shearing; do not torch cut.
 - 3. Fasten cold-formed steel truss members by screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator.
 - 4. Fasten other materials to cold-formed steel trusses by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace trusses to withstand handling, delivery, and erection stresses. Lift fabricated trusses to prevent damage or permanent distortion.
- C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 - 2. Squareness: Fabricate each cold-formed metal framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine supporting substrates and abutting cold-formed steel trusses for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install, bridge, and brace cold-formed steel trusses according to AISI S200, AISI S214, AISI's "Code of Standard Practice for Cold-Formed Steel Structural Framing," and manufacturer's written instructions unless more stringent requirements are indicated.
 - 1. Anchor trusses securely at all bearing points.
 - 2. Install continuous bridging and permanently brace trusses as indicated on Shop Drawings and designed according to CFSEI's Technical Note 551e, "Design Guide: Permanent Bracing of Cold-Formed Steel Trusses."
- B. Install cold-formed steel trusses and accessories plumb, square, and true to line, and with connections securely fastened.
 - 1. Erect trusses with plane of truss webs plumb and parallel to each other. Align and accurately position trusses at required spacings.
 - 2. Erect trusses without damaging truss members or connections.
 - 3. Fasten cold-formed steel trusses by welding or mechanical fasteners.
 - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings; comply with requirements for spacing, edge distances, and screw penetration.
- C. Install temporary bracing and supports. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- D. Truss Spacing: As indicated.
- E. Do not alter, cut, or remove framing members or connections of trusses.
- F. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
 - 1. Space individual trusses no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.3 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - 1. Cold-Formed Steel Trusses: Verify permanent individual truss member restraint/bracing are installed according to the approved truss submittal package.
 - 2. Verify anchorage at supports complies with the approved construction documents.

- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Field and shop welds will be subject to testing and inspecting.
- D. Cold-formed metal trusses will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports.

3.4 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed metal framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed metal trusses are without damage or deterioration at time of Substantial Completion.

3.5 ATTACHMENTS

- A. FABRICATOR'S CERTIFICATE OF COMPLIANCE

END OF COLD-FORMED METAL TRUSSES

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Miscellaneous metal fabrications.
2. Railings
3. Decorative Aluminum Grill
4. Miscellaneous steel trim.
5. Metal bollards and Security Gate
6. Abrasive metal nosings.
7. Undercounter support bracket for Concrete Countertops

B. Related Requirements:

1. Section 064150 "Concrete Countertops" for counter tops requiring support by brackets furnished in this section.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Fasteners.
2. Shop primers.
3. Shrinkage-resisting grout.
4. Gate hinges.
5. Abrasive metal nosings.

- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:

1. Railings.

2. Decorative Aluminum Grill.
3. Metal bollards and Security Gate
4. Undercounter support brackets.

C. Samples for Verification: For each type and finish of extruded nosing.

1.4 INFORMATIONAL SUBMITTALS

A. Research Reports: For post-installed anchors.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Stainless Steel Sheet, Strip, and Plate: ASTM A240/A240M or ASTM A666, Type 304 or Type 316L.
- D. Stainless Steel Bars and Shapes: ASTM A276/A276M, Type 304 or Type 316L.
- E. Tubing: ASTM A554, Grade MT 304, or Grade MT 316, or Grade MT 316L as appropriate to application.
- F. Pipe: ASTM A312/A312M, Grade TP 304, or Grade TP 316, or Grade TP 316L as appropriate to application.
- G. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.

- H. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.
- I. Aluminum Plate and Sheet: **ASTM B209 (ASTM B209M)**, Alloy 6061-T6.
- J. Aluminum Extrusions: **ASTM B221 (ASTM B221M)**, Alloy 6063-T6.
- K. Aluminum Castings: ASTM B26/B26M, Alloy 443.0-F.

2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 or Type 316 stainless steel fasteners . Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, **ASTM A307, Grade A (ISO 898-1, Property Class 4.6)**; with hex nuts, **ASTM A563 (ASTM A563M)**; and, where indicated, flat washers.
- C. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, **ASTM F593 (ISO 3506-1)**; with hex nuts, **ASTM F594 (ASTM F836M)**; and, where indicated, flat washers; Alloy Group **1 (A1)** or Group **2 (A4)** as appropriate to use.
- D. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.
- E. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors unless specifically identified.
 - 1. Material Where Stainless Steel Is Indicated: Alloy Group **1 (A1)** or Group **2 (A4)** stainless steel bolts, **ASTM F593 (ISO 3506-1)**, and nuts, **ASTM F594 (ASTM F836M)**.

2.3 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section "Painting
- B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- C. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- D. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained concrete with a minimum 28-day compressive strength of **3000 psi (20 MPa)**.

2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately **1/32 inch (1 mm)** unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded strap anchors, **1/8 by 1-1/2 inches (3.2 by 38 mm)**, with a minimum **6-inch (150-mm)** embedment and **2-inch (50-mm)** hook, not less than **8 inches (200 mm)** from ends and corners of units and **24 inches (600 mm)** o.c., unless otherwise indicated.

2.5 RAILINGS (Hand and Guard Rails)

- A. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.
 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Finish #1 welds; ornamental quality with no evidence of a welded joint.
- B. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- C. For railing posts set in concrete, provide stainless steel sleeves not less than **6 inches (150 mm)** long with inside dimensions not less than **1/2 inch (13 mm)** greater than outside dimensions of post, with metal plate forming bottom closure.

2.6 DECORATIVE ALUMINUM GRILLE

- A. Fabricate of extruded aluminum not less than 0.125 inch thick and solid aluminum bar where needed for strength or rigidity.
- B. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.
- C. Close all open ends of extrusions
- D. Provide drain and weep holes necessary to eliminate water containment within the assembly.
- E. Provide stainless steel hardware and anchorage to supporting construction.
- F. Prime and finish paint after assembly and before installation. Provide painting in accordance with Section "Painting".

2.7 METAL BOLLARDS AND SECURITY GATE

- A. Performance requirements: Provide component design and assembly to support weight of gate and not less than 200 lb vertical force applied at end of gate.
- B. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 2. Obtain fusion without undercut or overlap.
 3. Remove flux immediately.

4. At exposed connections, finish exposed welds with smooth contours.
- C. Bend members in jigs to produce uniform curvature for each configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- D. Gate: Fabricate and reinforce to comply with performance requirements.
- E. Hinge: Select hinge type, design, anchorage to bollard and gate to comply with performance requirements.
 1. Stainless steel, hot dipped galvanized or non-corrosive base material.
 2. Anchor to gate and bollard by continuous welding.
 3. Hinge assembly shall be mechanically connected such that gate cannot be removed without disassembly.
- F. Hasp: Fabricate hasp integral with gate components. Size to coordinate with pad lock specified in Section "Hardware"
- G. Hot dip galvanize gate and bollard after fabrication.

2.8 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize and prime miscellaneous steel trim.

2.9 UNDERCOUNTER SUPPORT BRACKETS

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners or cope intersections.
 1. Provide holes for mounting anchors.
 2. Fabricate right and left-hand assemblies providing flush mounting surface for phenolic panels.
- B. Galvanize after fabrication.

2.10 ABRASIVE METAL NOSINGS

- A. Metal Units: As shown on Drawings. Fabricate units in lengths necessary to accurately fit conditions.
- B. Apply bituminous paint to concealed surfaces of cast-metal units and clear lacquer to extruded units.

2.11 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.12 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, or masonry, or unless otherwise indicated.
- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Steel Items: SSPC-SP 3, "Power Tool Cleaning."
 - 2. Galvanized-Steel Items: SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.13 ALUMINUM FINISHES

- A. As-Fabricated Finish: AA-M12 for field painted items

2.14 STAINLESS STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. Run grain of directional finishes with long dimension of each piece.
- C. Stainless Steel Tubing Finishes:
 - 1. 180-Grit Polished Finish: Uniform, directionally textured finish.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction.
- D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- E. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 ANCHORING RAILINGS

- A. Set sleeves prior to placing concrete.
- B. Secured railings into sleeves with non-shrink non-metallic grout. Set grout at rail slightly higher than perimeter of sleeve and slope gout to drain away from rail.
 - 1. Protect rail grout. Clean all grout off rail immediately.

3.3 DECORATIVE METAL GRILL

- A. Coordinate with wood framing and cold formed metal framing installation to provide appropriate blocking and framing to support attachment of grill.

- B. Install and secure grill to supporting construction to resist wind loading using appropriate anchor size and spacing.

3.4 UNDERCOUNTER SUPPORT BRACKETS

- A. Coordinate mounting locations with concrete countertops.
- B. Confirm location of grouted cells before setting anchors into masonry. Do not install until grouting is complete in the required cells and grout has cured.
- C. Install brackets only after completion of painting on wall under and behind brackets.
- D. Set brackets plumb and level to allow plumb and level mounting of phenolic panels and countertop.

3.5 INSTALLATION OF METAL BOLLARDS AND SECURITY GATES

- A. Fill bollards solidly with concrete, mounding top surface to shed water.
- B. Mount hinges and gate level to allow meeting of gate hasp components and use of removable pad lock.

3.6 INSTALLATION OF ABRASIVE METAL NOSINGS

- A. Center nosings on tread widths unless otherwise indicated.
- B. For nosings embedded in concrete steps or curbs, align nosings flush with riser faces and level with tread surfaces.

3.7 REPAIRS

- A. Touchup Painting:
 - 1. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section "Painting".
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION

SECTION 061000 - CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Plywood backing panels.
4. Anchors for carpentry attachment.

B. Related Requirements:

1. Structural Drawings for roof sheathing.
2. Section 061753 "Shop-Fabricated Wood Trusses" for wood trusses made from dimension lumber.

1.2 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) size or greater but less than 5 inches nominal (114 mm actual) size in least dimension.
- B. Lumber grading agencies, and abbreviations used to reference them, include the following:
1. SPIB: The Southern Pine Inspection Bureau.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.4 INFORMATIONAL SUBMITTALS

- A. Reports: For the following, from ICC-ES:
1. Fire-retardant-treated wood.
 2. Power-driven fasteners.
 3. Post-installed anchors.
 4. Metal framing anchors.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
 - 3. Dress lumber, S4S, unless otherwise indicated.
 - 4. Grade: No. 2
 - 5. Species: Southern pine or mixed southern pine; SPIB.
- B. Maximum Moisture Content of Lumber:
 - 1. Dimension Lumber: 15 percent unless otherwise indicated.

2.2 FIRE-RETARDANT TREATMENT

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
 - 1. Treatment shall not promote corrosion of metal fasteners.
 - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D2898. Use for exterior locations and where indicated.
 - 3. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D5664 and design value adjustment factors shall be calculated according to ASTM D6841.

- C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent. Kiln-dry plywood after treatment to maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not bleed through, contain colorants, or otherwise adversely affect finishes.
- F. Application: Treat all rough carpentry unless otherwise indicated.

2.3 DIMENSION LUMBER

- A. Dimension Lumber by Grade: No. 2 grade, fire retardant treated.
 - 1. Application: Blocking, farming, nailers.
 - 2. Species:
 - a. Hem-fir (north); NLGA.
 - b. Southern pine or mixed southern pine; SPIB.
 - c. Spruce-pine-fir; NLGA.
 - d. Hem-fir; WCLIB, or WWPA.
 - e. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
 - f. Northern species; NLGA.
 - g. Eastern softwoods; NeLMA.
 - h. Western woods; WCLIB or WWPA.

2.4 PLYWOOD PANELS

- A. Plywood Panels: Plywood, DOC PS 1, Exterior, C-C Plugged, fire-retardant treated, in thickness indicated.
- B. Roof Sheathing: Plywood, DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated.

2.5 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into wood substrate. For attachment to metal framing screws shall penetrate metal with not less than 3 complete threads viable.
 - 1. Provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329 or of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F1667.

- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 or ICC-ES AC193 as appropriate for the substrate.

2.6 MISCELLANEOUS MATERIALS

- A. Shims: HDPE or similar non-degrading plastic of thickness indicated and as required for conditions.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Install plywood panels by fastening to framing members or blocking. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
 - 1. Do not align plywood joints with joints of fiber cement soffit and ceiling panels. Stagger joints. Provide additional blocking as needed.
- D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide blocking, or framing at all fiber cement panel edges. Coordinate layout of framing, blocking, plywood panels and fiber cement panels.
- E. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 - 2. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
 - 3. ICC-ES evaluation report for fastener.

- G. Use steel common nails, for anchoring wood to wood, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- H. Use self tapping screws for anchoring wood to metal framing.
- I. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Comply with indicated fastener patterns where applicable.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 INSTALLATION OF PLYWOOD PANELS

- A. Install plywood panels by fastening to cold formed framing as detailed.

3.4 PROTECTION

- A. Protect carpentry from weather. Cover with temporary protection when final waterproofing coverage has not yet been installed. Replace plywood if , despite protection, it becomes wet enough that moisture content exceeds that specified.

END OF SECTION

SECTION 061020 – FIBER CEMENT PRODUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fiber Cement Soffits and Ceiling panels.
 - 2. Fascia and Trim Board .
- B. Related Requirements:
 - 1. Section “Cold Formed Metal Framing” for framing at soffit exterior soffits.
 - 2. Section “Carpentry” for plywood, blocking and framing installation.
 - 3. Section “Painting” for coating of fiber cement work.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
- B. Samples: For each type of product involving selection of profiles or textures.
- C. Manufacturer Instructions: Manufacturer’s printed installation instructions for each fiber cement product used.
- D. Evaluation Reports: For the following, from ICC-ES:
 - 1. Soffit and ceiling panels.

PART 2 - PRODUCTS

2.1 FIBER CEMENT SOFFITS AND CEILINGS

- A. Hardie Soffit non-vented smooth soffit panels.
- B. Thickness: 1/4 inch.
- C. Manufacturer: James Hardie Products.
- D. Finish: Factory primed for field painting and factory finished when available.

2.2 FIBER CEMENT FASCIA AND TRIM BOARDS

- A. Hardie Trim Smooth Board
- B. Thickness: $\frac{3}{4}$ inch.
- C. Width: As Detailed.
- D. Factory primed for field painting and factory finished where available.
- E. Manufacturer: James Hardie Products.

2.3 FASTENERS

- A. General: Provide fasteners as recommended by fiber cement manufacturer of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Provide fasteners of Type 304 or Type 316 stainless steel.
- B. Power-Driven Fasteners: NES NER-272. DO NOT STAPLE PANELS.
- C. Wood Screws: ASME B18.6.1.
- D. Mechanical Fasteners: ASTM C1513, stainless steel Type 304 or Type 310, self-drilling, self-tapping, steel drill screws.
 - 1. Head Type: Flush head.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set fiber cement products to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Review framing and blocking locations, prior to installation of plywood or other covering, to assure framing and blocking occur at locations required for anchorage of panel products through the plywood and into the framing and blocking.
 - 1. Ceiling and soffit panels shall be anchored to framing members.
- C. Provide spacer materials to prevent contact with fire retardant treated wood and aluminum products.
- D. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction" unless otherwise indicated.

3.2 INSTALLATION OF FIBER CEMENT TRIM

- A. Install per manufacturer's printed instructions. Follow recommendations in the James Hardie Products Best Practices Guide.
 - 1. Treat all non-factory cut edges using the Color Plus Technology edge coaters

3.3 INSTALLATION OF FIBER CEMENT CEILINGS AND SOFFITS

- A. Install per manufacturer's printed instructions. Follow recommendations in the *James Hardie Products Best Practices Guide*.
 - 1. For exterior soffits and ceilings install per HardieSoffit Panels HZ10 product installation instructions, applicable ICC ES Report and as indicated herein for anchor size and spacing.
 - a. Anchors:
 - 1) Length: 2-1/2 inch or as required to penetrate through plywood and into 2x framing not less than 2-inches.
 - 2) Head Diameter: 0.187" minimum.
 - 3) Shank: 0.092" minimum.
 - 4) Spacing: 4" oc at perimeter and intermediate supports spaced not more than 24" oc.
- B. Install panels over plywood. Verify that plywood substrate is well secured to framing and that plywood joints are flush.
- C. Gap panels 1/8" and seal with acrylic sealant. Treat all fasteners to insure smooth surface for painting.

END OF SECTION

SECTION 064150 - CONCRETE COUNTERTOPS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Concrete countertops and trim.
- A. Related Work:
 - 1. Section 055000 "Metal Fabrications" for undercounter counter support bracket and as detailed on the drawings.

1.02 ACTION SUBMITTALS

- A. Product Data: For accessories and other manufactured products.
- B. Shop Drawings: Include plans, sections, details, and attachments to other work.

1.03 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Manufacturer and Installer.
- B. Sealant Compatibility Test Report: From sealant manufacturer, complying with requirements in Division 7 Section "Joint Sealants" and indicating that sealants will not stain or damage concrete.

1.04 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For concrete countertops to include in maintenance manuals. Include Product Data for concrete-care products used or recommended by countertop Manufacturer, and names, addresses, and telephone numbers of local sources for products.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of custom precast concrete countertops, constructed of custom blended cement and resin matrix specifically blended for use as countertops and designed for wet use areas.
 - 1. Manufacturer shall have successfully completed 10 projects of similar construction and size.
- B. Installer Qualifications: Fabricator of products.

1.06 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions of construction to receive concrete countertops by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: Truform Concrete or approved equal.

2.02 CONCRETE COUNTERTOPS

- A. Type: Factory pre-cast, concrete countertops composed of minerals, Portland cement, resin, acrylic polymer, glass fibers and proprietary admixtures.
 - 1. Compressive strength: 8,000 psi minimum.
 - 2. Tensile Strength (without reinforcement): 1,500 psi minimum.
 - 3. Water:Cement Ratio: 0.3.
- B. Molds: Of type to produce smooth uniform finish. .
- C. Size and Configuration: As indicated on Drawings.
- D. Thickness: 1 1/2" thick concrete countertop, 3/4" thick back splash.
- E. Integral Color: N/A.
- F. Finish: As selected by Architect from fabricator's full range of finishes.
- G. Inlays: N/A.
- H. Edge: Eased edge on back splash and countertop edges.

2.03 ACCESSORIES

- A. Base Adhesive: Construction Adhesive specifically designed for use with concrete and metal and recommended in writing by countertop manufacturer.
- B. Attachment Adhesive: As recommended by manufacturer in writing.
- C. Surface Sealer: Manufacturer's standard 3-coat industrial grade surface sealer which forms a protective layer and is recommended by manufacture in writing.
- D. Overflow Drain: Manufacturer's standard overflow configuration with connection to plumbing drain lines.

2.04 FABRICATION

- A. Fabricate counter top in single piece in the factory in length shown on the drawings.
- B. Provide undersurface finish for attachment to field set support brackets as detailed on the drawings.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates indicated to receive concrete countertops and conditions under which concrete countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 4. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of concrete countertops.
 - 5. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Advise installers of other work about specific requirements for placement of inserts and similar items to be used by concrete countertop Installer for anchoring concrete countertops. Furnish installers of other work with Drawings or templates showing locations of these items.
- B. Clean dirty or stained concrete surfaces by removing soil, stains, oils, dust, paint, waterproofing and foreign materials before setting.
 - 1. Clean concrete countertops in accordance with fabricator's written instructions.
 - 2. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives. Allow concrete to fully cure before installing.

3.03 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces, not to exceed 1/16 inch in 48 inches.
- B. Variation from Level: Not to exceed 1/8 inch in 96 inches, 1/4 inch maximum.

3.04 INSTALLATION OF COUNTERTOPS

- A. General: Install countertops over countertop support brackets. Securely anchor brackets to wall, verifying proper load support.
- B. Use diamond saw or diamond grinding if required for field-fitting. Cut lines straight, true, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.
- C. Set concrete countertops to comply with requirements indicated on Drawings and Shop Drawings. Shim and adjust concrete countertops to locations indicated, with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances. Install anchors and other attachments indicated or necessary to secure concrete countertops in place.
- D. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Use diamond-saw with diamond blades to cut concrete. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

E. Install splash by adhering to wall with attachment adhesive. Leave 1/16-inch gap between countertop and splash for filling with sealant. Use temporary shims to ensure uniform spacing.

F. Apply sealants to gaps specified for filling with sealant; comply with Division 7 Section "Joint Sealants." Remove temporary shims before applying sealant.

3.05 CLEANING AND REPLACEMENT

A. In-progress Cleaning: Clean countertops as work progresses. Remove adhesive, grout, mortar, and sealant smears immediately.

B. Clean concrete countertops not less than six days after completion of sealant installation, using clean water and soft rags. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage concrete.

C. Sealer Application: Apply sealer and wax to comply with concrete countertop fabricator's and sealer manufacturer's written instructions.

D. Remove and replace concrete countertops of the following description:

1. Broken, chipped, stained, or otherwise damaged concrete.
2. Defective countertops.
3. Defective joints, including misaligned joints.
4. Countertops not complying with other requirements indicated.

E. Replace in a manner that results in concrete countertops complying with other requirements, and showing no evidence of replacement.

END OF SECTION

SECTION 070513 – PVDF ROOF COATING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Field-applied, water-based, fluoropolymer liquid coating system on existing roof surfaces.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for under-slab vapor retarders.

1.2 DEFINITIONS

- ##### A. Kynar Aquatec® ARC Latex: Hybrid dispersion containing 70% by weight Kynar® fluoropolymer resin and 30% acrylic resin

1.3 ACTION SUBMITTALS

- ##### A. Product Data: Product Data: Submit data on finishing products and coatings.
- ##### B. Samples for Initial Selection: Two 6 by 6 inches in size illustrating color, gloss, and texture for each color.

1.4 INFORMATIONAL SUBMITTALS

- ##### A. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- ##### B. Certificates: Certify coatings are manufactured with minimum 50%, by weight, Kynar Aquatec® fluoropolymer resin and meet or exceed specified requirements of this section.
- ##### C. Tests and Evaluation Reports.
1. Submit preconstruction adhesion test report.
- ##### D. Manufacturers' Instructions: Submit manufacturer's installation instructions.
- ##### E. Qualification Statements: Submit installer qualifications.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Data on cleaning, touch-up, and repair of coated surfaces.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacture of coatings specified in this Section that is a licensee of the resin manufacturer.
- B. Applicator Qualifications: Company specializing in applications of coatings specified in this Section and approved by coating manufacturer.
- C. Preconstruction Adhesion Testing:
 - 1. Apply first coat to substrate. Test coating adhesion by ASTM D 3359.
 - a. Perform minimum three tests.
 - 1) Acceptance Criteria: Minimum 4A, each test.
 - b. Comply with manufacturer's instructions for meeting specified adhesion.
 - c. Repeat test until meeting acceptance criteria.
 - d. Remove or repair damaged coating.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Acceptance Requirements:
 - 1. Deliver materials in manufacturer's original unopened containers with labels intact and legible.
- B. Storage and Handling Requirements:
 - 1. Store materials on clean raised platforms with weather protective covering when stored outdoors. Store coatings in a cool dry area.
- C. Protect materials against damage by construction traffic.

1.8 FIELD CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 100 °F (10 and 38 °C). Substrate should be 5 °F above the dew point.
- B. Do not apply coatings in snow, rain, fog, or mist. Do not apply coatings if precipitation is expected within 24 hours or if the air or substrate temperature is expected to drop below 35 °F within 48 hours.

1.9 WARRANTY

- A. Coating Applicator's Warranty: Applicator agrees to repair finish or replace coated items that demonstrate deterioration of field-applied high performance latex coatings within warranty period indicated.
1. Deterioration includes but is not limited to:
 - a. Color fading exceeding 10 Delta E Hunter units per ASTM D 2244.
 - b. Peeling, checking, or cracking of coating adhesion to metal.
 - c. Chalking exceeding No. 6 (Colors) per ASTM D 4214.
 2. Warranty Period: 10 years from date of substantial completion.

PART 2 - PRODUCTS

2.1 COATING PERFORMANCE

- A. Emulsion-based, field-applied, water-based, fluoropolymer liquid coating system on existing roof and exterior surfaces that comply with the following performance criteria:
1. After 4000 hours of QUV-B exposure per ASTM G154 cycle 2 with UVB-313 lamps and a minimum irradiance of 0.67 W/m²/nm, or a modified cycle 2 with UVB-313 lamps, 8 hours UV at 60 (+/- 3) °C black panel temperature; 4 hours condensation at 50 (+/- 3) °C black panel temperature and a minimum irradiance of 0.67 W/m²/nm, the exposed coating deterioration does not exceed the following criteria:
 - a. Color fading exceeding 5 Delta E Hunter units per ASTM D 2244.
 - b. Peeling, checking, or cracking of coating adhesion to substrate.
 - c. Chalking exceeding No. 6 (whites) or No. 8 (colors) when tested per ASTM D 4214.

2.2 PERFORMANCE REQUIREMENTS

- A. Performance-Criteria:
1. Composition: Coating compositions produced by Kynar Aquatec[®] licensee that contains resin solids, where at least 50% by weight of total resin solids present is Arkema fluoropolymer.

2.3 PVDF ROOF COATING SYSTEM

- A. General: Spray, Roller, Brush-applied, water based, Kynar Aquatec[®] emulsion-based, fluoropolymer finish.
1. Resin: Polyvinylidene Fluoride fluoropolymer.

- B. Fluoropolymer coating:
 - 1. Primer: Type as recommended by manufacturer to suit substrate.
 - 2. Top Coat: Modified fluoropolymer coating.
 - a. Dry Film Thickness: 6.4 to 8.0 mils (0.16 to 0.20 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine coating substrates and correct conditions that would adversely affect appearance or performance of coating system.
- B. Correct unsuitable conditions before proceeding with surface preparation and coating application.

3.2 PREPARATION

- A. Protection of In-Place Conditions: Restore to original condition or replace work or materials damaged by work of this Section.
- B. Surface Preparation: Remove loose, flaking or oxidized paint from surfaces by sand blasting, water blasting, wire brushing or scraping. Remove mold, mildew and fungi completely using a bleach solution prior to applying any coating.
- C. Repair cracks, holes and defective seams of existing substrate with polyester fabric, where needed, and manufacturer's approved crack filler.

3.3 APPLICATION – EXISTING METAL ROOF

- A. Apply in accordance with manufacturer's written instructions.
- B. Maintain a wet edge to prevent lap marks.
- C. Apply sufficient material to achieve minimum dry film thickness in accordance with manufacturer's written instructions.
- D. Number of coats as specified by manufacturer. If full coverage is not obtained with specified number of coats, apply such additional coats as necessary to produce a complete coating system.
- E. Provide coating system in continuous film barrier protecting substrate.
- F. Keep equipment clean and in proper condition.
- G. Apply materials evenly spread and smoothly apply, free of runs, sags, holidays, lap marks, air bubbles and pinholes to assure a smooth finish.

3.4 FIELD QUALITY CONTROL

- A. Inspect for pinholes, blisters and other imperfections. Correct defective finishes, maintaining manufacturer's warranty conditions.
- B. Manufacturer's Field Services:
 - 1. Provide manufacturer's presence before, during and after installation to review procedures and completed work, and issue warranty specified.
 - 2. Repair unsatisfactory conditions disclosed by manufacturer's site visits, and re-inspect by manufacturer before work starts or resumes in affected areas.
- C. Inspected coated surfaces for uniform thickness, color and appearance, matching approved samples when viewed from 5 feet away under normal lighting conditions.
 - 1. Ensure coatings are smooth and free from blemishes impairing serviceability and detract from appearance.

3.5 CLEANING

- A. Clean adjacent construction to remove overspray or roller splatter with mild detergent and rinsed with clean water, prior to coating drying.

3.6 PROTECTION

- A. Protect PVDF roof coatings from subsequent construction operations.

END OF SECTION

SECTION 071113 - BITUMINOUS DAMPPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cold-applied, emulsified-asphalt dampproofing.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for bituminous vapor retarders under slabs-on-grade.
2. Section 042000 "Unit Masonry" for mortar parge coat on masonry surfaces.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.3 FIELD CONDITIONS

- A. Weather Limitations: Proceed with application only when existing and forecasted weather conditions permit dampproofing to be performed according to manufacturers' written instructions.
- B. Ventilation: Provide adequate ventilation during application of dampproofing in enclosed spaces. Maintain ventilation until dampproofing has cured.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Source Limitations: Obtain primary dampproofing materials and primers from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. VOC Content: Products are to comply with VOC content limits of authorities having jurisdiction unless otherwise indicated.

2.3 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

- A. Brush and Spray Coats: ASTM D1227, Type III, Class 1.

2.4 AUXILIARY MATERIALS

- A. Furnish auxiliary materials recommended in writing by dampproofing manufacturer for intended use and compatible with bituminous dampproofing.
- B. Emulsified-Asphalt Primer: ASTM D1227, Type III, Class 1, except diluted with water as recommended in writing by manufacturer.
- C. Asphalt-Coated Glass Fabric: ASTM D1668/D1668M, Type I.
- D. Patching Compound: Asbestos-free fibered mastic of type recommended in writing by dampproofing manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for surface smoothness, maximum surface moisture content, and other conditions affecting performance of the Work.
- B. Proceed with application only after substrate construction and penetrating work have been completed and unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for dampproofing application.
- B. Mask or otherwise protect adjoining exposed surfaces from being stained, spotted, or coated with dampproofing. Prevent dampproofing materials from entering and clogging weep holes and drains.
- C. Clean substrates of projections and substances detrimental to dampproofing work; fill voids, seal joints, and remove bond breakers if any.
 - 1. Remove mortar from surface of cmu and from wire ties projecting through mortar.
- D. Apply patching compound to patch and fill tie holes, honeycombs, reveals, and other imperfections.

3.3 INSTALLATION, GENERAL

- A. Comply with manufacturer's written instructions for dampproofing application, cure time between coats, and drying time before covering.
 - 1. Apply dampproofing to provide continuous plane of protection.
 - 2. Apply additional coats if recommended in writing by manufacturer or to achieve a smooth surface and uninterrupted coverage.
- B. Where dampproofing exterior face of inner wythe of exterior masonry cavity walls, lap dampproofing at least **1/4 inch (6 mm)** onto flashing, masonry reinforcement, veneer ties, and other items that penetrate inner wythe.
 - 1. Extend dampproofing vertically behind through wall flashing onto horizontal ledge of foundation.
 - 2. Lap dampproofing at least **1/4 inch (6 mm)** onto shelf angles supporting veneer.

3.4 INSTALLATION OF COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

- A. Exterior Face of Inner Wythe of Cavity Walls: Apply primer and two brush or spray coats at not less than **1 gal./100 sq. ft. (0.4 L/sq. m) each coat**.
 - 1. Apply additional coats as necessary to provide complete coverage without pin holes or lessening of full coverage of material being coated.

3.5 PROTECTION

- A. Correct dampproofing that does not comply with requirements; repair substrates, and reapply dampproofing.

END OF SECTION 071113

SECTION 074113 - STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Standing-seam metal roof panels.
 - 2. Underlayment

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
 - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
 - 4. Examine support conditions for compliance with requirements.
 - 5. Review structural loading limitations of deck and trusses during and after roofing.
 - 6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
 - 7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
 - 8. Review temporary protection requirements for metal panel systems during and after installation.
 - 9. Review procedures for repair of metal panels damaged after installation.
 - 10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
 - B. Shop Drawings:
 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
 - C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.
 1. Include similar Samples of trim and accessories involving color selection.
 - D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
 1. Metal Panels: 12 inches (305 mm) long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.
- 1.5 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For Installer.
 - B. Product Test Reports: For each product, for tests performed by a qualified testing agency.
 - C. Field quality-control reports.
 - D. Sample Warranties: For special warranties.
- 1.6 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For metal panels to include in maintenance manuals.
 - B. Warranties: Executed warranties.
- 1.7 QUALITY ASSURANCE
- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.
- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard non-prorated warranty form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

- C. Special Weathertightness Warranty: Manufacturer's standard non-prorated warranty form , with riders or modifications necessary for compliance with specified warranty requirements, in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.
 - 2. Standard manufacturer's roofing guarantees or warranties contain language regarding the governing of the guarantee or warranty by any state other than the State of Alabama shall be amended to exclude such language and substitute the requirement that the laws of the State of Alabama shall govern all such guarantees or warranties.
- D. General Contractor's Roofing Guarantee: Contractor's Roofing Guarantee on form at end of this Section, signed by Contractor.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
 - 1. Wind Loads: As indicated on Drawings.
 - 2. Deflection Limits: For wind loads, no greater than 1/240 of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E1680 or ASTM E283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).
- C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E1646 or ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft. (300 Pa).
- D. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E2140.
- E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
 - 1. Uplift Rating: UL 90.
- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS

- A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
 1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.
- B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and intermediate pencil ribs symmetrically spaced or a flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips, located under panel edges, and engaging opposite edge of adjacent panels, by mechanically seaming panels and clips together. Provide factory-applied sealant in engaged panel edges.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. IMETCO.
 - b. McElroy Metal, Inc.
 - c. PAC-CLAD; Petersen Aluminum Corporation; a Carlisle company.
 2. Panel Materials: Subject to compliance with Warranty and Performance requirements provide one of the sheet materials listed below.
 3. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Nominal Thickness: As required for compliance with Performance and Warranty requirements and not less than 0.022 inch (0.56 mm).
 - b. Exterior Finish: Two-coat fluoropolymer or Three-coat fluoropolymer or FEVE fluoropolymer.
 - c. Color: To match color indicated on the Drawings..
 - d.
 4. Clips: One-piece fixed or Two-piece floating to accommodate thermal movement.
 - a. Material: As required for compliance with Performance and Warranty requirements and not less than 0.028-inch- (0.71-mm-) thick and of either zinc-

coated (galvanized) or aluminum-zinc alloy-coated steel sheet or stainless steel 300 Series.

5. Joint Type: Double folded .
6. Panel Coverage: If not indicated **16 inches (406 mm)]** or **18 inches (457 mm)**.
7. Panel Height: **2.0 inches (51 mm)** minimum. .

2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of **30 mils (0.76 mm)** thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer of type appropriate for used with underlayment and substrate.
1. Thermal Stability: Stable after testing at **240 deg F (116 deg C)**; ASTM D1970.
 2. Low-Temperature Flexibility: Passes after testing at minus **20 deg F (29 deg C)**; ASTM D1970.
- B. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

2.4 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, ASTM A653/A653M, **G90 (Z275 hot-dip galvanized)** coating designation or ASTM A792/A792M, **Class AZ50 (Class AZM150)** coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum **1-inch- (25-mm-)** thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Panel Fasteners: Screws designed to withstand design loads based on substrate being anchored into.

- E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape **1/2 inch (13 mm)** wide and **1/8 inch (3 mm)** thick.
 - 2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.5 FABRICATION

- A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 4. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
 - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured and not less than indicated on Drawings.

2.6 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories: One of the following as required to coordinate with color selection shown on the Drawings:
 - 1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions for seacoast and severe environments.
 - 2. FEVE Fluoropolymer: AAMA 621. Two-coat fluoropolymer finish containing 100 percent fluorinated ethylene vinyl ether (FEVE) resin in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 3. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).
 - a. Where indicated provide concealed surfaces with same finish as exposed surfaces.
- D. Stainless Steel Accessories:
 - 1. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
 - 2. Bright, Cold-Rolled, Unpolished Finish: ASTM A480/A480M No. 2B.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF UNDERLAYMENT

- A. Self-Adhering Sheet Underlayment: Apply primer to wood sheathing. Application of underlayment shall result in a permanently fully adhered underlayment system. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below and on Drawings, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.
 - 1. Apply over the entire roof surface.
 - a. Apply strip flashing at locations indicated below and as shown on Drawings:
 - 1) Roof perimeter for a distance up from eaves of 8-inches minimum and down fascia behind fascial metal wrap 4-inches minimum. !
 - 2) Hips and ridges for a distance on each side .
 - 3) Roof-to-wall intersections.
 - 4) Around penetrating .
- B. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels.

3.4 INSTALLATION OF STANDING SEAM METAL ROOF PANELS

- A. Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Shim or otherwise plumb substrates receiving metal panels.
 - 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 - 3. Install screw fasteners in predrilled holes.
 - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 5. Install flashing and trim as metal panel work proceeds.
 - 6. Install if full length panels without end laps except at changes in roof pitch.
 - 7. Fasten flashings and trim around openings and similar elements with self-tapping screws.

8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
1. Steel Panels: Use stainless steel fasteners.
 2. Aluminum Sheet: Use aluminum or stainless steel fasteners.
- C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
1. Install clips to supports with self-tapping fasteners.
 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
 3. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
 4. Watertight Installation:
 - a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
 - b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
 - c. At panel splices, nest panels with minimum **6-inch (152-mm)** end lap, sealed with sealant and fastened together by interlocking clamping plates.
- F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.
- G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of **10 feet (3 m)** with no joints allowed within **24 inches (610 mm)** of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with mastic sealant (concealed within joints).

- H. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.5 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal panel units within installed tolerance of **1/4 inch in 20 feet (6 mm in 6 m)** on slope and location lines as indicated and within **1/8-inch (3-mm)** offset of adjoining faces and of alignment of matching profiles.

3.6 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.
- B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

GENERAL CONTRACTOR’S ROOFING GUARANTEE

General Contractor's Company Name, Address, & Telephone Number	EFFECTIVE DATES OF GUARANTEE
	Date of Acceptance:
	Date of Expiration:

1. The General Contractor does hereby certify that the roofing work included in this contract was installed in strict accordance with all requirements of the plans and specifications and in accordance with approved roofing manufacturers recommendations.

2. The General Contractor does hereby guarantee the roofing and associated work including but not limited to all flashing and counter flashing both composition and metal, roof decking and/or sheathing; all materials used as a roof substrate or insulation over which roof is applied; promenade decks or any other work on the surface of the roof; metal work; gravel stops and roof expansion joints to be absolutely watertight and free from all leaks, due to faulty or defective materials and workmanship for a period of five (5) years, starting on the date of substantial completion of the project. This guarantee does not include liability for damage to interior contents of building due to roof leaks, nor does it extend to any deficiency which was caused by the failure of work which the general contractor did not damage or did not accomplish or was not charged to accomplish.

3. Subject to the terms and conditions listed below, the General Contractor also guarantees that during the Guarantee Period he will, at his own cost and expense, make or cause to be made such repairs to, or replacements of said work, in accordance with the roofing manufacturers standards as are necessary to correct faulty and defective work and/or materials which may develop in the work including, but not limited to: blisters, delamination, exposed felts, ridges, wrinkles, splits, warped insulation and/or loose flashings, etc. in a manner pursuant to the total anticipated life of the roofing system and the best standards applicable to the particular roof type in value and in accordance with construction documents as are necessary to maintain said work in satisfactory condition, and further, to respond on or within three (3) calendar days upon proper notification or leaks or defects by the Owner or Architect.

4. Specifically excluded from this Guarantee are damages to the work, other parts of the building and building contents caused by: (1) lightning, windstorm, hailstorm and other unusual phenomena of the elements; and (2) fire. When the work has been damaged by any of the foregoing causes, the Guarantee shall be null and void until such damage has been repaired by the General Contractor, and until the cost and expense thereof has been paid by the Owner or by the responsible party so designated.

5. During the Guarantee Period, if the Owner allows alteration of the work by anyone other than the General Contractor, including cutting, patching and maintenance in connection with penetrations, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations. If the owner engages the General

Contractor to perform said alterations, the Guarantee shall not become null and void, unless the General Contractor, prior to proceeding with the said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Guarantee.

6. Future building additions will not void this guarantee, except for that portion of the future addition that might affect the work under this contract at the point of connection of the roof areas, and any damage caused by such addition. If this contract is for roofing of an addition to an existing building, then this guarantee covers the work involved at the point of connection with the existing roof.
7. During the Guarantee period, if the original use of the roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
8. The Owner shall promptly notify the General Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the General Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.

IN WITNESS THEREOF, this instrument has been duly executed this _____ day
of _____

General Contractor's Authorized Signature

END OF SECTION 074113

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steep-slope roof sheet metal fabrications.
2. Miscellaneous sheet metal fabrications.

B. Related Requirements:

1. Section "Asphalt Shingles" for underlayment and eave flashing associated with shingle roofing.

1.2 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.3 ACTION SUBMITTALS

A. Product Data: For each of the following

1. Underlayment materials.
2. Elastomeric sealant.
3. Butyl sealant.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details of connections to adjoining work.
5. Detail formed flashing and trim at scale of not less than 3 inches per 12 inches.

C. Samples: For each exposed product and for each color and texture specified, 12 inches (300 mm) long by actual width.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.
- B. Special warranty.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.
 - 1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
 - 2. Protect stored sheet metal flashing and trim from contact with water.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.8 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.

2.2 SHEET METALS

- A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: **ASTM B209 (ASTM B209M)**, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
 - 1. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions for seacoast and severe environments.
 - 2. Color: As selected by Architect from manufacturer's full range.
 - 3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of **0.5 mil (0.013 mm)**.
 - C. Stainless Steel Sheet: ASTM A240/A240M, Type 304, dead soft, fully annealed; with smooth, flat surface.
 - 1. Finish: ASTM A480/A480M, No. 2D (dull, cold rolled) .
 - D. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, **G90 (Z275)** coating designation or aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, **Class AZ50 (Class AZM150)** coating designation, **Grade 40 (Grade 275)**; prepainted by coil-coating process to comply with ASTM A755/A755M.
 - 1. Surface: Smooth, flat.
 - 2. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with

coating and resin manufacturers' written instructions for seacoast and severe environments.

3. Color: As selected by Architect from manufacturer's full range.
4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of **0.5 mil (0.013 mm)**.

E. Lead Sheet: ASTM B749 lead sheet.

2.3 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt; nonperforated.
- B. Synthetic Underlayment: Laminated or reinforced, woven polyethylene or polypropylene, synthetic roofing underlayment; bitumen free; slip resistant; suitable for high temperatures over **220 deg F (111 deg C)**; and complying with physical requirements of ASTM D226/D226M for Type I and Type II felts.
- C. Self-Adhering, High-Temperature Sheet Underlayment: Minimum **30 mils (0.76 mm)** thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal. Provide primer in accordance with underlayment manufacturer's written instructions.
 1. Source Limitations: Obtain underlayment from single source from single manufacturer.
 2. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus **20 deg F (29 deg C)** or lower.

2.4 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
 - b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 3. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.

4. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape **1/2 inch (13 mm)** wide and **1/8 inch (3 mm)** thick.
- D. Elastomeric Sealant: ASTM C920, elastomeric polyurethane and silicone polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.
- G. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

2.5 FABRICATION, GENERAL

- A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.
 1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
 4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances:
 1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of **1/4 inch in 20 feet (6 mm in 6 m)** on slope and location lines indicated on Drawings and within **1/8-inch (3-mm)** offset of adjoining faces and of alignment of matching profiles.
 2. Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified.
- C. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

- D. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- E. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard for application, but not less than thickness of metal being secured.
- F. Seams:
 - 1. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
- G. Do not use graphite pencils to mark metal surfaces.

2.6 SHEET METAL FABRICATIONS

- A. Unless otherwise indicated fabricate from the following materials:
 - 1. Aluminum: 0.032 inch (0.81 mm) thick.
 - 2. Stainless Steel: 0.0156 inch (0.396 mm) thick.
 - 3. Galvanized Steel: 0.028 inch thick.
 - 4. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick.
- B. Continuous hold down: Unless otherwise indicated fabricate from the following materials:
 - 1. Aluminum: 0.040 inch thick.
 - 2. Stainless Steel: 0.0188 inch thick.
 - 3. Galvanized Steel: 0.028 inch thick.
 - 4. Aluminum-Zinc Alloy-Coated Steel: 0.028 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 - 3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

- A. Synthetic Underlayment: Install synthetic underlayment, wrinkle free, in accordance with manufacturers' written instructions, and using adhesive where possible to minimize use of mechanical fasteners under sheet metal.
1. Lap horizontal joints not less than **4 inches (100 mm)**.
 2. Lap end joints not less than **12 inches (300 mm)**.
- B. Self-Adhering, High-Temperature Sheet Underlayment:
1. Install self-adhering, high-temperature sheet underlayment; wrinkle free.
 2. Prime substrate if recommended by underlayment manufacturer.
 3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
 4. Apply in shingle fashion to shed water, with end laps of not less than **6 inches (150 mm)** staggered **24 inches (600 mm)** between courses.
 5. Overlap side edges not less than **3-1/2 inches (90 mm)**. Roll laps and edges with roller.
 6. Roll laps and edges with roller.
 7. Cover underlayment within 14 days.

3.3 INSTALLATION, GENERAL

- A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.
1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.
 3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
 4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
 5. Install continuous cleats with fasteners spaced not more than **12 inches (300 mm)** o.c.
 6. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
 7. Do not field cut sheet metal flashing and trim by torch.
 8. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment.

- C. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than **1-1/4 inches (32 mm)** for nails and not less than **3/4 inch (19 mm)** for wood screws Insert size requirement.
- D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- E. Seal joints as required for watertight construction.
 - 1. Use sealant-filled joints unless otherwise indicated.
 - a. Embed hooked flanges of joint members not less than **1 inch (25 mm)** into sealant.
 - b. Form joints to completely conceal sealant.
 - c. When ambient temperature at time of installation is between **40 and 70 deg F (4 and 21 deg C)**, set joint members for 50 percent movement each way.
 - d. Adjust setting proportionately for installation at higher ambient temperatures.
 - 1) Do not install sealant-type joints at temperatures below **40 deg F (4 deg C)**.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- F. Rivets: Rivet joints in where necessary for strength.

3.4 INSTALLATION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of **1/4 inch in 20 feet (6 mm in 6 m)** on slope and location lines indicated on Drawings and within **1/8-inch (3-mm)** offset of adjoining faces and of alignment of matching profiles.

3.5 CLEANING

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.

3.6 PROTECTION

- A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

- C. Maintain sheet metal flashing and trim in clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Nonstaining silicone joint sealants.
3. Urethane joint sealants.
4. Immersible joint sealants.
5. Mildew-resistant joint sealants.
6. Butyl joint sealants.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Joint-sealants.
2. Joint sealant backing materials.

- B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.4 INFORMATIONAL SUBMITTALS

A. Test and Evaluation Reports:

1. Preconstruction Field-Adhesion-Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

B. Field Quality-Control Submittals:

1. Field-Adhesion-Test Reports: For each sealant application tested.

C. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Warranty Documentation:
1. Manufacturers' special warranties.
 2. Installer's special warranties.

1.6 QUALITY ASSURANCE

- A. Qualifications:
1. Installers: Authorized representative who is trained and approved by manufacturer.
 2. Testing Agency: Qualified in accordance with ASTM C1021 to conduct the testing indicated.

1.7 MOCKUPS

- A. Install sealant in concrete masonry units for final verification of color selections and for preconstruction field adhesion testing. Use materials and installation methods specified in this Section.

1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 2. Conduct field tests for each kind of sealant and joint substrate.
 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
 4. Provide tests as follows.
 - a. Test Method: Test joint sealants in accordance with Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1.1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.9 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 2. Disintegration of joint substrates from causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain joint sealants from single manufacturer for each sealant type.

2.2 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

2.4 BUTYL JOINT SEALANTS

- A. Butyl-Rubber-Based Joint Sealants: ASTM C1311.

2.5 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

- D. Cleaning cloths: Clean, soft, absorbent, lint-free cloths.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General
- B. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), oil, grease, waterproofing, mortar, water repellents, water, surface dirt, and frost.
 - 1. Non-porous surfaces and appropriate porous surfaces shall be cleaned by a two-cloth solvent wipe method in accordance with ASTM C1193 and as follows:
 - a. Use one lint free cotton cloth, to which cleaner has been applied, and vigorously wipe all dirt and contaminants from the surface.
 - b. Immediately wipe cleaned area, to remove any cleaner and dirt residue, with separate clean lint free cotton cloth before solvent has evaporated.
 - c. Do not allow to dirty cloth to contaminate liquid cleaner or clean wiping cloths.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces by methods recommended by sealant manufacturer and that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.

- c. Porcelain enamel.
 - d. Plastic wall panels.
 - e. Painted surfaces.
- C. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- D. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
- 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
- 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
- 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Dry tool all sealants. Use no liquids in tooling applications. Use tooling agents that

- a. Clean tool when needed to provide smooth uniform tooled surface. Clean tools with agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces. Completely dry tools with clean lint free cloth prior to bringing tools in contact with wet sealant.
3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
4. Provide recessed joint configuration of recess depth and at locations indicated on Drawings in accordance with Figure 8C in ASTM C1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Tests and Inspections:
 1. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - a. Extent of Testing: Test completed and cured sealant joints as follows:
 - 1) Perform two tests for each of the following; each for interior and exterior masonry control joints.
 - a) Interior Masonry Control Joints
 - b) Interior Masonry Control Joints
 - c) Slab on grade at coated slabs.
 - b. Test Method: Test joint sealants in accordance with Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - c. Inspect tested joints and report on the following:
 - 1) Whether sealants filled joint cavities and are free of voids.
 - 2) Whether sealant dimensions and configurations comply with specified requirements.
 - 3) Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.
 - d. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations,

whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.

- e. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
2. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.
- C. Prepare test and inspection reports.

3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

- A. Manufacturers: Subject to compliance with the requirements provide products by the following:
 1. Dow, DowSil.
 2. Tremco
 3. Sika
 4. BASF/Master Builders
 5. Pecora
- B. General: When more than one type of sealant is listed for a Joint-Sealant Application provide one of the sealants listed.
- C. Exterior joints in horizontal traffic surfaces.
 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
 2. Joint Sealant: Silicone or Urethane, Type S or M, Grade P or NS, Class 35, Use T or NT, I, M, A, O.

- D. Exterior joints in vertical surfaces and horizontal nontraffic (non-pedestrian and non-vehicular) surfaces.
1. Joint Locations:
 - a. Control and expansion joints in unit masonry.
 - b. Perimeter joints at frames of doors, windows, metal soffit panels and louvers.
 2. Joint Sealant: Silicone, non-staining, Type S, Grade NS, Class 50, Use NT, M, A. Shore A Hardness 30-40.
 3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include but are not limited to the following:
 - a. DowSill 795:
 - b. Tremco Spectrum 2
- E. Interior joints, **other than at Gang Toilets and where mildew resistant sealant is indicated**, joints in vertical surfaces and horizontal nontraffic (non-pedestrian and non-vehicular) surfaces
1. Joint Locations:
 - a. Joints between metal.
 - b. Joints between metal and masonry,
 - c. Perimeter joints between unit masonry and frames of doors, windows, and louvers.
 - d. Joints between masonry to masonry.
 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Urethane Joint Sealant:
 - 1) Sika Corporation, Construction Products Division; Sikaflex - 15LM.
 - 2) Tremco Incorporated;Dymonic 100
 - 3) BASF; Sonolastic 150
 - b. Silicone joints:
 - 1) DowSill 795:
 - 2) Tremco Spectrum 2
- F. Interior joints in horizontal traffic surfaces.
1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
 2. Joint Sealant: Silicone or Urethane, Type S or M, Grade P or NS, Class 35, Use T or NT, I, M, A, O.
- G. **Interior** joints in vertical and horizontal nontraffic (non-pedestrian) surfaces.
1. Joint Location:
 - a. Masonry control joints.
 - b. Joints at intersection of masonry to masonry.
 - c. Joints between masonry and aluminum.
 2. Joint Sealant:
 - a. Shore A 35 minimum, movement +-25% minimum.
 - 1) Tremco Dymonic 100
 - 2) BASF; MasterSeal CR 195.
- H. Interior mildew-resistant interior joints in vertical surfaces and horizontal nontraffic (non-pedestrian) surfaces.
1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Joints between metal and masonry.

- c. Other joints as indicated.
 2. Joint Sealant: Silicone, Type S, Grade NS, Class 35, Use T or NT, M, A, O.
 - a. Mildew resistant, single component, nonsag, neutral curing, silicone
 - b. Single component, nonsag, mildew resistant, acid curing silicone.
- I. Concealed mastics:
 1. Joint Locations:
 - a. Aluminum thresholds.
 - b. Other joints as indicated on Drawings.
 2. Joint Sealant: Butyl-rubber based.

END OF SECTION 079200

SECTION 081130 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes hollow-metal work.

1.3 DEFINITIONS

- A. **Minimum Thickness:** Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.4 ACTION SUBMITTALS

- A. **Product Data:** For each type of product.
- B. **Shop Drawings:** Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.
- C. **Schedule:** Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Product test reports.

PART 2 - PRODUCTS

2.1 PERFORMANCE

- A. **General Performance:** Comply with performance requirements specified, as determined by testing of hollow metal doors and frames representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Failure also includes the following:
 - a. Loosening or weakening of fasteners, attachments, and other components.

- b. Failure of operating units.

B. Structural Loads:

- 1. Wind Loads: As indicated on Drawings.

2.2 HOLLOW-METAL DOORS AND FRAMES

A. Extra-Heavy-Duty Doors: ANSI/SDI A250.8, Level 3; ANSI/SDI A250.4, Level A.

1. Doors:

- a. Type: As indicated in the Door and Frame Schedule.
- b. Thickness: 1-3/4 inches (44.5 mm).
- c. Face Material: Metallic-coated steel sheet, minimum thickness of 0.053 inch (1.3 mm), with minimum A60 coating.
- d. Edge Construction: Model 2, Seamless.
- e. Top Edge Closures: Close top edges of doors with flush closures of same material as face sheets. Seal joints against water penetration.
- f. Bottom Edges: Close bottom edges of doors with end closures or channels of same material as face sheets. Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape.
- g. Exposed Finish: Factory Prime.
- h. Hardware Reinforcement:
 - 1) Material: Metallic-coated steel sheet with minimum A60 coating.
 - 2) Closer and Magnetic Lock: Minimum 0.067 channel.
 - 3) Hinge: Minimum 0.167 bar.
 - a) For continuous hinge reinforce with continuous 0.067 minimum strip. Locate to coordinate with hinge anchor locations.
- i. Core: Manufacturer's standard foam insulation.

B. Maximum-Duty Frames: ANSI/SDI A250.8, Level 4; ANSI/SDI A250.4, Level A.:

1. Frames:

- a. Materials: Metallic-coated steel sheet, minimum thickness of 0.067 inch, with minimum A60 coating.
- b. Construction: Continuous welded.
- c. Exposed Finish: Factory Prime
- d. Hardware Reinforcement:
 - 1) Material: Metallic-coated steel sheet with minimum A60 coating.
 - 2) Closer and Magnetic Lock: Minimum 0.067 channel.
 - 3) Hinge: 0.167 Bar.
 - a) For continuous hinge reinforce with continuous 0.067 minimum strip. Locate to coordinate with hinge anchor locations.
 - 4) Other: As required by Standard.

2.3 FRAME ANCHORS

A. Jamb Anchors:

- 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2

inches (51 mm) wide by 10 inches (254 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

- a. For existing openings, where existing doors are being replaced, use stainless steel post-installed expansion Anchor: Minimum 3/8-inch- (9.5-mm-) diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer
- B. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (1.0 mm), and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.4 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.
- D. Frame Anchors: Steel sheet complying with hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
- F. Power-Actuated Fasteners in Concrete: From corrosion-resistant materials.
- G. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.
- H. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.5 FABRICATION

- A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Hollow-Metal Doors:
 1. Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
- C. Hollow-Metal Frames:
 1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.

2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 3. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor.
 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 16 inches (406 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. to match coursing, and as follows:
 - 1) Three anchors per jamb from up to 90 inches (1524 to 2286 mm) high.
 - 2) Four anchors per jamb from 90 to 120 inches (2286 to 3048 mm) high.
 - 3) Four anchors per jamb plus one additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 120 inches (3048 mm) high.
 5. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
- D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to Article "HOLLOW-METAL DOORS AND FRAMES", SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.
- E. Stops and Moldings: Provide stops and moldings around glazed lites and louvers where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
1. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 2. Provide loose stops and moldings on inside of hollow-metal work.
- 2.6 STEEL FINISHES
- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure..
- 2.7 ACCESSORIES
- A. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Hollow-Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. Install frames with removable stops located on secure side of opening.
 - b. Install door silencers in frames before grouting.
 - c. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - d. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - e. Field-apply bituminous coating to backs of frames that will be filled with grout containing antifreezing agents.
 2. Floor Anchors: Provide floor anchors for each jamb that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 4. Installation Tolerances: Adjust hollow-metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.
- B. Hollow-Metal Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Steel Doors:
 - a. Between Door and Frame Jambs and Head: 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).
 - b. Between Edges of Pairs of Doors: 1/8 inch (3.2 mm) to 1/4 inch (6.3 mm) plus or minus 1/32 inch (0.8 mm).
 - c. At Bottom of Door: 3/4 inch (19.1 mm) to 5/8 inch (15.8 mm) plus or minus 1/32 inch (0.8 mm).
 - 1) Except where thresholds are specified provide clearance required for proper threshold weather seal.
 - d. Between Door Face and Stop: 1/16 inch (1.6 mm) to 1/8 inch (3.2 mm) plus or minus 1/32 inch (0.8 mm).

3.2 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow-metal work immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.
- E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION

SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
- C. Related Sections:
 - 1. Division 06 Section “Carpentry”.
 - 2. Division 08 Section “Hollow Metal Doors and Frames”.
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
 - 1. ANSI/BHMA Certified Product Standards - A156 Series
 - 2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

- b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
 - 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
 - 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: A recognized builders hardware supplier whose principal office and place of business is located within 150 miles of the project site, who has been furnishing hardware in the project's vicinity for a period of not less than five (5) years; and who is, or has in full time employment an Architectural Hardware Consultant (AHC) in good standing as certified by the American Society of Architectural Hardware Consultants, or equivalent, and who is a direct distributor of the products approved, for warranty purposes.

The supplier must have demonstrated willingness to coordinate field problems, and (upon reasonable compensation) to assist the Owner in re-keying and service operations. He must have a reputation for supplying quality material. Pre-bid approval is required; the following are accorded such approval in advance:

- a. Brabner & Hollon; Mobile, AL
- b. Construction Materials; Mobile, AL
- c. Ladd Architectural Door; Mobile, AL

d. Rayford & Associates, Inc.; Mobile, AL

- D. Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
1. Function of building, purpose of each area and degree of security required.
 2. Plans for existing and future key system expansion.
 3. Requirements for key control storage and software.
 4. Installation of permanent keys, cylinder cores and software.
 5. Address and requirements for delivery of keys.
- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.
 5. Review the required inspecting, testing, commissioning, and demonstration procedures

- I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems. Furnish and install backup batteries for restroom door timers.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 1. Structural failures including excessive deflection, cracking, or breakage.
 2. Faulty operation of the hardware.

3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
1. Ten years for mortise locks and latches.
 2. Seven years for heavy duty cylindrical (bored) locks and latches.
 3. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
1. Quantity: Provide the following hinge quantity:

- a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
 5. Manufacturers:
 - a. Hager Companies (HA).
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
 - c. Stanley Hardware (ST).
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
1. Manufacturers:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK).
 - b. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
5. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years' experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
- C. Cylinders: Original manufacturer cylinders complying with the following:
 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 5. Keyway: Match Facility Standard.
- D. Keying System: Each type of lock and cylinders to be factory keyed.
 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. New System: Key locks to a new key system as directed by the Owner.
- E. Key Quantity: Provide the following minimum number of keys:
 1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
- F. Construction Keying: Provide construction master keyed cylinders.

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – ML2000 Series.
 - b. Sargent Manufacturing (SA) – 8200 Series.
 - c. Yale Locks and Hardware (YA) – 8800FL Series.
- B. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.
1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
 2. Locks are to be non-handed and fully field reversible.
 3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.
 4. Manufacturers:
 - a. Corbin Russwin Hardware (RU) – CL3300 Series.
 - b. Sargent Manufacturing (SA) – 10 Line.
 - c. Schlage (SC) – ND Series.

2.6 AUXILIARY LOCKS

- A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.36, Grade 1, small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DL4100 Series.
 - b. Sargent Manufacturing (SA) - 4870 Series.
 - c. Yale Locks and Hardware (YA) - 350 Series.

2.7 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.8 ELECTROMAGNETIC LOCKING DEVICES

- A. Surface Electromagnetic Locks (Commercial Duty): Electromagnetic locks to be surface mounted type conforming to ANSI A156.23, Grade 1 with minimum holding force strength of 600 pounds. Locks to be capable of either 12 or 24 voltage and be UL listed for use on fire rated door assemblies. Electronics are to be fully sealed against tampering and allow exterior weatherproof applications. As indicated in Hardware Sets, provide specified mounting brackets and housings. Power supply to be by the same manufacturer as the lock with combined products having a lifetime replacement warranty.

1. Manufacturers:
 - a. Security Door Controls (SD) – EMLock 1500 Series.
 - b. Securitron (SU) – M32/M38 Series.

2.9 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use.

Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.
1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DC8000 Series.
 - b. Norton Door Controls (NO) – 9500 Series.
 - c. Sargent Manufacturing (SA) - 281 Series.

2.10 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

6. Manufacturers:

- a. Hiawatha, Inc. (HI).
- b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
- c. Trimco (TC).

2.11 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

- a. Hiawatha, Inc. (HI).
- b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
- c. Trimco (TC).

2.12 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. National Guard Products (NG).
 - 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
 - 3. Reese Enterprises, Inc. (RE).

2.13 ELECTRONIC ACCESSORIES

- A. Power Supplies: Provide Nationally Recognized Testing Laboratory Listed 12VDC or 24VDC (field selectable) filtered and regulated power supplies. Include battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
 - 1. Manufacturers:
 - a. Security Door Controls (SD) - 630 Series.
 - b. Securitron (SU) - BPS Series.

2.14 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with Section "Hollow Metal Doors and Frames" and with ANSI/DHI A115 series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 3. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one, or none, is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Manufacturer's Abbreviations:
1. MK - McKinney
 2. PE - Pemko
 3. SA - Sargent
 4. SU - Securitron
 5. RO - Rockwood

Hardware Sets

Set: 1.0 Each Door

Doors: 103, 104, 105.

Description: EXT – RESTROOMS

1 Continuous Hinge	KCFMXX-HD1		PE
1 Mortise Deadlock	4877	US26D	SA
1 Magnetic Lock	M32BD		SU
1 Cylinder	as required	US32D	SA
1 Door Closer	281 Reg/PA	EN	SA
1 Door Pull	BF168	US32D	RO
1 Push Plate	70E	US32D	RO
1 Kick Plate	K1050 4" X 1" LDW 4BE CSK	US32D	RO
1 Kick Plate	K1050 10" X 2" LDW 4BE CSK	US32D	RO
1 Door Stop	409 / 446 as required	US26D	RO
1 Threshold	271A MSES25SS		PE
1 Gasketing	S88D		PE
1 Rain Guard	346C x LAR		PE
1 Sweep	315CN		PE
1 Push Button	EEB3N		SU
1 Timer	DT-7		SU
1 Power Supply	BPS-Series (Volt & Amp as req)		SU
1 Motion Sensor	XMS		SU

Note: Provide all accessory mounting hardware for Magnetic Lock mounting to interior of room.

Note: Verify lock functions and hardware compatibility prior to ordering any hardware

Note: Furnish and install backup batteries.

SET: 2.0 Not Used

Set: 3.0 Not Used

Set 4.0 Each Door

Door 105

Description: DOOR 106

1 Entry Lock (Storeroom Function) Lever Handle Mortise Set, Grade 1 US26D SA

- 3 Ball Bearing Hinges
- 1 Adjustable Closer
- 1 Metal Low Profile Threshold
- 1 Gasketing
- 1 Rain Guard
- 2 Kick Plates

Note: Verify lock functions and hardware compatibility prior to ordering any hardware.

Set 5.0-Pad Lock

- 2 Padlock Best 21B; verify Shackle length with use; XSPL; corrosion resistant; removable core keyed to Owner Key system.

END OF SECTION

SECTION 089119 - FIXED LOUVERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fixed extruded-aluminum louvers.
2. Blank-off panels for louvers

B. Related Requirements:

1. Section 099010 "Painting" for field painting exterior louvers.

1.2 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.
- B. Horizontal Louver: Louver with horizontal blades (i.e., the axis of the blades is horizontal).
- C. Drainable-Blade Louver: Louver with blades having gutters that collect water and drain it to channels in jambs and mullions, which carry it to bottom of unit and away from opening.
- D. Wind-Driven-Rain-Resistant Louver: Louver that provides specified wind-driven-rain performance, as determined by testing in accordance with AMCA 500-L.
- E. Windborne-Debris-Impact-Resistant Louver: Louver that provides specified windborne-debris-impact resistance, as determined by testing in accordance with AMCA 540.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.
2. For anchors.

B. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing. Indicate anchor size and spacing.

1. Show weep paths, gaskets, flashings, sealants, and other means of preventing water intrusion.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranties: For manufacturer's special warranties.

1.5 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.6 WARRANTY

- A. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of baked enamel, powder coat, or organic finishes within specified warranty period.
 - 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Louvers withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures are considered to act normal to the face of the building.
 - 1. Wind Loads:
 - a. Determine loads based on pressures as indicated on Drawings.
- B. Windborne-Debris-Impact Resistance: Louvers located within **30 feet (9.1 m)** of grade pass basic protection, when tested in accordance with AMCA 540.
- C. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width in accordance with AMCA 500-L.

- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- E. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

2.2 FIXED EXTRUDED-ALUMINUM LOUVERS

- A. Horizontal, Windborne-Debris-Impact-Resistant Louver, Windborne-Debris-Impact-Resistant Louver, Extruded Aluminum :
 - 1. Shape: As shown on the Drawings.
 - a. Select louver type and design based on performance requirements specified. Fabricate non-rectangular configurations using same materials and components as tested rectangular configurations.
 - 2. Louver Depth: 4 inches.
 - 3. Frame and Blade Nominal Thickness: Not less than 0.080 inch.
 - 4. Louver Performance Ratings:
 - a. Free Area: Not less than 8.0 sq. ft. for 48-inch- (1220-mm-) wide by 48-inch- (1220-mm-) high louver.
 - 5. AMCA Rating: AMCA 540 and AMCA 550.

2.3 LOUVER SCREENS

- A. General: Provide screen at each louver.
 - 1. Screen Location for Fixed Louvers: Interior face.
 - 2. Screening Type: Insect screening.
- B. Louver Screening for Aluminum Louvers:
 - 1. Insect Screening, Stainless Steel: 18-by-18 (1.4-by-1.4-mm) mesh, 0.009-inch (0.23-mm) wire.

2.4 BLANK-OFF PANELS (Partial)

- A. Uninsulated Blank-Off Panels: Metal sheet attached to back of louver. Provide only at locations with mechanical duct connections to louver and only for that portion of louver not covered by mechanical plenum.
 - 1. Aluminum sheet for aluminum louvers, not less than 0.050-inch (1.27-mm) nominal thickness.
 - 2. Panel Finish: Same finish type applied to louvers, but black color.

3. Attach blank-off panels with sheet metal screws.

2.5 MATERIALS

- A. Aluminum Extrusions: **ASTM B221 (ASTM B221M)**, Alloy 6063-T5, T-52, or T6.
- B. Aluminum Sheet: **ASTM B209 (ASTM B209M)**, Alloy 3003 or 5005, with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Fasteners: Use types and sizes to suit unit installation conditions.
 1. For fastening aluminum, use aluminum or 300 series stainless steel fasteners.
 2. For fastening stainless steel, use 300 series stainless steel fasteners.
 3. For color-finished louvers, use fasteners with heads that match color of louvers.
- D. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, fabricated from stainless steel components, with allowable load or strength design capacities calculated in accordance with ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing in accordance with ASTM E488/E488M conducted by a qualified testing agency.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.

2.6 FABRICATION

- A. Factory assemble louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- C. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
 1. Frame Type: Channel unless otherwise indicated.
- D. Include supports, anchorages, and accessories required for complete assembly.
- E. Field-install blank off panels where required.

2.7 ALUMINUM FINISHES

- A. High-Performance Organic Finish, Two-Coat PVDF: Fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat.

1. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions for seacoast and severe environments.
2. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.3 INSTALLATION

- A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.
- B. Anchor louver to surrounding construction with clip angles or continuous angles of size and spacing, as determined by testing, to comply with performance requirements for wind load and impact requirements.
 1. Provide anchors of size and type to comply with performance requirements for wind load and impact requirements. Anchors shall be Series 300 stainless steel.
- C. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- D. Form closely fitted joints with exposed connections accurately located and secured.
- E. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- F. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Section 079200 "Joint Sealants" for sealants applied during louver installation.

3.4 ADJUSTING AND CLEANING

- A. Clean exposed louver surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvers damaged during installation and construction, so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION

SECTION 096720 - RESINOUS FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes resinous flooring system, with urethane body.
 - 1. Application Method: Squeegee, screed, and broadcast.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Samples for Verification: For each resinous flooring system required, 6 inches (150 mm) square, applied to a rigid backing by Installer for this Project.
- C. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- D. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
 - 1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
 - 2. Contractor shall have completed at least 10 projects of similar size and complexity.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer, with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Provide secondary materials,

including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

- C. Manufacturer Field Technical Service Representatives: Resinous flooring manufacturer shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.
 - 1. Field Technical Services Representatives shall be employed by the system manufacturer to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.

- D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Apply full-thickness mockups on 48-inch- (1200-mm-) square floor area selected by Architect.
 - a. Include 48-inch (1200-mm) length of integral cove base.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

- E. Pre-installation Conference:
 - 1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
 - 2. Attendance:
 - a. General Contractor
 - b. Architect/Owner's Representative.
 - c. Manufacturer/Installer's Representative.
 - 3.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

- C. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

1. Maintain material and substrate temperature between 65 and 85 deg F (18 and 30 deg C) during resinous flooring application and for not less than 24 hours after application.
 - B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
 - C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.
 - D. Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring
- 1.7 WARRANTY
- A. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of (1) full years from date of installation, or provide a joint and several warranty signed on a single document by material manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of (1) full year from date of installation.

PART 2 - PRODUCTS

2.1 RESINOUS FLOORING

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include:
- B. Products: Subject to compliance with requirements:
 1. Stonhard, Inc.; Stontec UTF®. Basis of design. Contact L. Chris Eicher (615) 424-2224 or ceicher@stonhard.com.
 2. Other manufacturer by prior Architect approval.
- C. System Characteristics:
 1. Color and Pattern: As shown on the Drawings.
 2. Wearing Surface: Slip resistant texture.
 3. Integral Cove Base: Match flooring.
 4. Overall System Thickness: 2mm
- D. System Components: Manufacturer's standard components that are compatible with each other and as follows:
 1. Primer: Stontec UTF Quik Primer.
 - a. Resin: Urethane; two-component, aromatic
 - b. Formulation Description: 100 percent solids.
 - c. Application Method: Squeegee and roller.

- d. Number of Coats: (1) one.
- e. Aggregates: Broadcast quartz into wet primer coat to refusal.
- 2.
- 3. Body Coat(s): Stontec UTF undercoat.
 - a. Resin: Urethane.
 - b. Formulation Description: (3) component Polyaspartic urethane, aliphatic isocyanate.
 - c. Application Method: Notched squeegee.
 - 1) Thickness of Coats: 20-25 mils with UTF primer coat
 - 2) Number of Coats: (1) One.
- 4. Broadcast: Vinyl Flake.
 - a. Formulation Description: Vinyl Flake.
 - b. Flake Size: Micro (1/16").
 - c. Flake Color: White platinum.
 - d. Type: Tweed (chips to be pre-mixed at mfg. facility)
 - e. Finish: standard.
 - f. Number of Coats: one, broadcast to refusal.
- 5. Topcoat: Stonseal CA7.
 - a. Resin: Urethane
 - b. Formulation Description: (2) component, UV stable, Polyaspartic urethane, aliphatic isocyanate.
 - c. Type: Clear.
 - d. Finish: Gloss.
 - e. Wearing Surface: Slip resistant 90# grit silica additive in first coat.
 - f. Number of Coats: (2) two.

2.2 ACCESSORY MATERIALS

- A. Primer: Type recommended by manufacturer for substrate and body coats indicated. Formulation Description: Stontec UTF Primer.
- B. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated. Multiple component resinous matrix products only. No cementitious or single component products.
- C. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated. Allowances should be included for Stonflex MP7 joint fill material, and (or) Stonproof CT5 concrete crack treatment.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous flooring application.
- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
 - 1. Mechanically prepare substrates as follows:
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - b. Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.
 - 2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written recommendations.
 - 3. Verify that concrete substrates are dry.
 - a. Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 80 percent.
 - b. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. of slab in 24 hours.
 - c. Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.
 - 4. Verify that concrete substrates have neutral Ph and that resinous flooring will adhere to them. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations. Allowances should be included for Stonflex MP7 joint fill material, and (or) Stonproof CT5 concrete crack treatment.

3.2 APPLICATION

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - 3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
- B. Mix and apply primer over properly prepared substrate with strict adherence to manufacturer's installation procedures and coverage rates
- C. Broadcast: Immediately broadcast quartz silica aggregate into the primer using manufacturer's specially designed spray caster. Strict adherence to manufacturer's installation procedures and coverage rates is imperative.
- D. Integral Cove Base: Stonclad UR mortar, apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and top coating of cove base. Round internal and external corners
- E. Body coat: Mix base material according to manufacturer's recommended procedures. Uniformly spread mixed material over previously primed substrate using manufacturer's installation tool. Roll material with strict adherence to manufacturer's installation procedures and coverage rates.
- F. Broadcast: Immediately broadcast vinyl flakes into the body coat. Strict adherence to manufacturer's installation procedures and coverage rates is imperative.
- G. First Sealer: Remove excess unbonded flakes by lightly brushing and vacuuming the floor surface. Mix and apply sealer with strict adherence to manufacturer's installation procedures.
- H. Second sealer: Lightly sand first sealer coat. Mix and apply second sealer coat with strict adherence to manufacturer's installation procedures.

3.3 FIELD QUALITY CONTROL

- A. Material Sampling: Owner may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.
 - 1. Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.

2. Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.
3. If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

3.4 CLEANING, PROTECTING, AND CURING

- A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.
- B. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
- C. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer

END OF SECTION

SECTION 099010 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint and coating systems on the following interior and exterior substrates:
 - 1. Exposed interior and exterior substrates.
 - 2. Concrete slabs (sealer).
 - 3. Concrete masonry units (CMUs).
 - 4. Steel and iron.
 - 5. Galvanized metal.
 - 6. Wood.
 - 7. Fiber cement board and panels
- B. Related Requirements:
 - 1. Division 1 Section "Execution" and "Cutting and Patching" for cutting and patching.
 - 2. Division 5 for shop priming of metal substrates.
 - 3. Section "PVDF Roof Coating" for recoating existing metal roof.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.

1.5 INFORMATIONAL SUBMITTALS

- A. Manufacturer Certificate: For compatibility of shop primer with finishing system.

1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- B. Single Source Responsibility:
 - 1. To the maximum extent practicable, select a single manufacturer to provide all materials required by this section, using additional manufacturers to provide systems not offered by the selected principal manufacturer.
 - 2. For each individual system: Provide primer and other undercoat paint produced by same manufacturer as finish coat. Use only thinners approved by paint manufacturer, and use only within recommended limits.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.
- C. Provide lighting level and type equal to that which will exist at Substantial Completion but not less than 30 foot-candles on the surface being coated.
- D. Provide continuous ventilation and heating to prevent accumulation of hazardous fumes and to maintain surface and ambient temperatures above 45 degrees F for 24 hours before, during, and for 48 hours after application of finishes.

1.9 COORDINATION

- A. General: Perform painting work in proper sequence with work of other trades to avoid damage to finished work.
- B. Primers: Provide finish coats which are compatible with prime paints used. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates.
 - 1. Furnish information to other trades on characteristics of products proposed for use in this section.
 - 2. Provide barrier coats over incompatible primers or remove and re-prime.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide product listed in the Painting Schedule for the paint category indicated or comparable products from the listed manufacturers.

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- B. Colors: As indicated on the Drawings. If not indicated as selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Fiber-Cement Board: 12 percent.
 - 3. Masonry (Clay and CMUs): 12 percent.
 - 4. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" and "MPI Repainting Manual" applicable to substrates and paint systems indicated. Limitations on responsibility for work identified in either referenced manufacturer's or MPI's documents do not limit the Work of this Section.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:
 - 1. SSPC-SP 3.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas primer indicated in Paint Schedule.

- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
 - 1. Repair damaged galvanized surfaces using High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it. After repair spot prime then apply finish coat.
- H. Aluminum Substrates: Remove loose surface oxidation.
- I. Wood Substrates:
 - 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer recommended in writing by topcoat manufacturer for exterior use in paint system indicated.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

3.3 PREPARATION FOR REPAINTING

- A. General: All requirements specified elsewhere in this Section apply to repainting
- B. Remove all contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence and sealers shall be removed.
- C. Glossy surfaces shall be clean and dull before painting. Wash with abrasive cleanser, wash thoroughly and dull by sanding or prepare and dull by other acceptable method to provide surface tooth necessary to assure bond with new paint.
- D. Remove loose or damaged substrate, route out cracks, fill holes resulting from removal of anchors or attachments to the substrate. Use products for repair as specified in sections for new work and as recommended by coating manufacturer.
- E. Sand, grind, scrape or use other acceptable methods to remove projections caused by paint buildup or foreign matter attached to the substrate. Provide smooth transitions between changes in surface level due to build up of materials on original substrate.
- F. Use SSPC-SP 2 and 3 for preparation of metal surfaces.
- G. Remove rust using SSPC SP 3.
- H. Spot prime all bare surfaces existing or newly bared due to surface preparation indicated elsewhere.
- I. Wood trim that is removed from existing construction and salvaged for reuse shall be primed as indicated in Article "Preparation" paragraph "Wood" including prime coating of all uncoated surfaces.

- J. After completion of preparation of surface test compatibility of recoat system on area at least 2 to 3 square feet. Allow to dry one week before testing adhesion per ASTM D3359. If test shows unacceptable results adjust surface preparation procedure and retest.

3.4 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of doors and entire exposed surface of door frames.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed to view, both interior and exterior, except in mechanical and storage rooms:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Pipe hangers and supports.
 - d. Metal conduit.
 - e. Plastic conduit.
 - 2. Paint the following work where exposed to view Mechanical Rooms:
 - a. Touch up and repair surfaces of prefinished work.
 - b. Uninsulated non-galvanized metal except conduit.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 MANUFACTURERS

- A. Paint selections are based on Sherwin Williams products. Products for other manufacturers may be submitted for review as equal.

3.7 PAINTING SCHEDULE

- A. General: Gloss of each product shall be as shown on the Drawings.
- B. Steel Ferrous Metal (New):
 - 1. Prime: Pro-industrial Pro-Cryl Primer
 - 2. Finish: Pro-Industrial Multi-Surface Acrylic (2 coats)
- C. Steel Ferrous Metal (Existing previously painted):
 - 1. Spot Prime: Kem Bond HS
 - 2. Bond Coat: As recommended by paint manufacturer.
 - 3. Finish: Pro-Industrial Multi-Surface Acrylic (2 coats)
- D. Galvanized Steel (Existing previously painted)
 - 1. Spot Prime: Kem Bond HS
 - 2. Bond coat (as recommended by manufacturer)
 - 3. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)
- E. Galvanized Steel (New)
 - 1. Prime: Kem Bond HS
 - 2. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)
- F. CMU-Interior Surfaces: Epoxy
 - 1. Spot Prime: (Existing interior CMU): Same as New CMU
 - 2. Primer: Loxon Acrylic Block Surfacer (2 coats)
 - 3. Finish: Pro Industrial Pre-Catalyzed Waterbased Epoxy (2 coats).
- G. Fiber Cement – Prime coated:
 - 1. Spot Prime- (For factory primed products): Exterior Latex Wood Primer
 - 2. Prime: Exterior Latex Wood Primer
 - 3. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)
- H. Fiber Cement-Factory Finish-Refer to Section “Fiber Cement Products”
- I. Wood (New and Previously coated paint finish):

1. Spot Prime-: Exterior Latex Wood Primer
 2. Bond coat (for existing painted wood): As recommended by paint manufacturer.
 3. Prime: Exterior Latex Wood Primer
 4. Finish: Pro Industrial Multi-Surface Acrylic (2 coats)
- J. Concrete Sealer: Horizontal Surfaces, Concrete.
1. Sealer: Clarishield Solvent Base Natural Look Sealer. (2 coats)
- K. Aluminum: Mill Finish
1. Prime: Pro-industrial Pro-Cryl Primer
 2. Finish: Pro-Industrial Multi-Surface Acrylic (2 coats)

END OF SECTION

SECTION 101419 - DIMENSIONAL LETTER SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Dimensional characters.
 - a. Cast dimensional characters.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For signs.
 - 1. Include fabrication and installation details and attachments to other work.
 - 2. Show sign mounting heights and accessories.
 - 3. Show message list, typestyles, graphic elements, and layout for each sign at least half size.
- C. Samples for Verification: For each type of sign assembly showing all components and with the required finish(es), in manufacturer's standard size unless otherwise indicated and as follows:
 - 1. Dimensional Characters: Full-size Sample of one character.
 - 2. Full-size Samples, if approved, will be returned to Contractor for use in the Project.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers approved by manufacturer.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
 - a. Deterioration of finishes beyond normal weathering.
 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 DIMENSIONAL CHARACTERS

- A. Cast Characters: Characters with uniform faces, sharp corners, and precisely formed lines and profiles, and as follows:
1. Character Material: Cast aluminum .
 2. Character Height: As indicated on Drawings .
 3. Thickness: 1-1/2 inch..
 4. Finishes:
 - a. Integral Aluminum Finish: Clear anodized.
 5. Mounting: Concealed studs.
 6. Typeface: As shown on the Drawings.

2.2 DIMENSIONAL CHARACTER MATERIALS

- A. Aluminum Castings: ASTM B26/B26M, alloy and temper recommended by sign manufacturer for casting process used and for type of use and finish indicated.

2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following:
1. Use concealed fasteners and anchors.
 2. Furnish Series 300 stainless steel devices.
 3. Sign Mounting Fasteners:
 - a. Concealed Studs: Concealed (blind), threaded studs screwed into tapped lugs cast integrally into back of cast sign material.

2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
 - 1. Castings: Fabricate castings free of warp, cracks, blowholes, pits, scale, sand holes, and other defects that impair appearance or strength. Grind, wire brush, sandblast, and buff castings to remove seams, gate marks, casting flash, and other casting marks before finishing.

2.5 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.

2.6 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF DIMENSIONAL CHARACTERS

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

3. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

B. Mounting Methods:

1. Concealed Studs: Using a template, drill holes in substrate aligning with studs on back of sign. Remove loose debris from hole and substrate surface.
 - a. Masonry Substrates: Fill holes with adhesive. Leave recess space in hole for displaced adhesive. Place sign in position and push until flush to surface, embedding studs in holes. Temporarily support sign in position until adhesive fully sets.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed characters and signs that do not comply with specified requirements. Replace characters with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101419

SECTION 101423 - PANEL SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Panel signs.

1.2 DEFINITIONS

- A. Accessible: In accordance with the accessibility standard.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Panel signs.

B. Shop Drawings: For panel signs.

1. Include fabrication and installation details and attachments to other work.
2. Show sign mounting heights and accessories.
3. Show message list, typestyles, graphic elements, including raised characters and Braille, and layout for each sign at full scale..

- C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.

1.4 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with applicable provisions in the 2010 ADA Standards for Accessible Design and ICC A117.1 for sign design, fabrication, and mountings.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Deterioration of finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image.
 - c. Separation or delamination of sheet materials and components.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL SIGNS

- A. Panel Sign: Sign with smooth, uniform surfaces; with message and characters having uniform faces, sharp corners, and precisely formed lines and profiles; and as follows:
 1. Solid-Sheet Sign: Acrylic sheet with finish specified in "Surface Finish and Graphics" Subparagraph and as follows:
 - a. Thickness: 0.125 inch (3.18 mm).
 - b. Acrylic -Inlaid, Raised Graphics: Characters, graphics and Braille shall be chemically welded into 1/32" depression
 2. Sign-Panel Perimeter: Finish edges smooth.
 - a. Edge Condition:
 - 1) Vertical Edges: As indicated on Drawings .
 - 2) Horizontal Edges: As indicated on Drawings.
 - b. Corner Condition in Elevation: As indicated on Drawings .
 3. Mounting: Surface mounted to wall with through fastening anchors and perimeter silicone adhesive.
 4. Surface Finish and Graphics:
 - a. Integral Sheet Color: Acrylic sheet with color as selected by Architect from full range of industry colors .
 5. Text and Typeface: Accessible raised characters and Braille. Finish raised characters to contrast with background color, and finish Braille to match background color.

2.2 PANEL-SIGN MATERIALS

- A. Acrylic Sheet: ASTM D4802, category as standard with manufacturer for each sign, Type UVF (UV filtering), UV stablized.
- B. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.

2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signs, noncorrosive and compatible with each material joined, and complying with the following unless otherwise indicated:
 - 1. Exposed Metal-Fastener Components, General:
 - a. Fabricated from 300 series stainless steel.
 - b. Fastener Heads: Button head screws and bolts with tamper-resistant Allen-head, spanner-head or one-way-head slots unless otherwise indicated.
 - 2. Sign Mounting Fasteners:
 - a. Through Fasteners: Exposed metal fasteners prefinished head to matching sign color, with type of head indicated, and installed in predrilled holes.
 - 3. Inserts: Do not use plastic inserts.
- B. Adhesive: Silicone sealant adhesive or other type as recommended by sign manufacturer.

2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
- B. Surface-Engraved for Inlaid Graphics: Machine engrave characters and other graphic devices into indicated sign surface to produce precisely formed copy, incised to uniform depth. Inlay characters and other graphics into recess and chemically adhere.

2.5 GENERAL FINISH REQUIREMENTS

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 - 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
- B. Accessible Signage: Install in locations on walls as indicated on Drawings and according to the accessibility standard .
- C. Mounting Methods:
 - 1. Adhesive with Through Fasteners:
 - a. Drill holes in substrate using predrilled holes in sign as template. Place sign in position and flush to surface.
 - b. Apply linear beads of adhesive around perimeter to back of sign. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position, and push to engage adhesive.
 - c. Install through fasteners and tighten.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101423

SECTION 102113- PHENOLIC-CORE TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Phenolic-core toilet compartments configured as shown on the Drawings.
 - 2. Phenolic-core plumbing screens under sinks.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for toilet compartments.
- B. Shop Drawings: For toilet compartments.
 - 1. Include plans, elevations, sections, details, and attachment details.
- C. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
 - 1. Each type of material, color, and finish required for toilet compartments, prepared on 6-inch- (152-mm-) square Samples of same thickness and material indicated for Work.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer: To the greatest extent possible obtain all items from a single source. Where panel manufacturer's standard or optional products do not meet requirements of

specification panel manufacturer shall obtain and provide products that meet specified requirements.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of building components and other construction contiguous with toilet compartments by field measurements before fabrication.

1.7 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard 25-year limited warranty for panels, doors, and stiles against breakage, corrosion, delamination, and defects in factory workmanship. Manufacturer's standard 1-year guarantee against defects in material and workmanship for stainless steel door hardware and mounting brackets

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the list following. Where toilet compartment manufacturer's standard or optional products do not meet requirements of specification toilet compartment manufacturer shall obtain and provide products that meet specified requirements.
 1. Bobrick Solid Phenolic Core.
 2. Ampco Solid Phenolic Core.
 3. Bradley Corp. Solid Phenolic Core.
 4. Columbia Partitions, Inc., Solid Phenolic Core.
 5. Rockville Partitions, Inc., Solid Phenolic Core.
 6. Metpar, Solid Phenolic Core

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: 75 or less.
 2. Smoke-Developed Index: 450 or less.
- B. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet compartments designated as accessible.

2.3 PHENOLIC-CORE TOILET COMPARTMENTS

- A. Door, Screens and Pilaster Construction: Solid phenolic- moisture-resistant-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges. Provide minimum 3/4-inch- (19-mm-) thick doors and pilasters.
- B. Pilaster Shoes and Sleeves (Caps): Formed from stainless steel sheet, not less than 0.031-inch (0.79-mm) nominal thickness and 3 inches (76 mm) high, finished to match hardware.
- C. Brackets (Fittings):
 - 1. Full height of pilaster, less +-1-inch, stainless steel, minimum thickness 0.05-inches, Cold rolled stainless steel, from single sheet, #4 finish, "F" shaped with "U" shaped receiver sized for panel material. Corners shall be radiused +-1/2-inch. Anchor holes shall be in two vertical rows. One row within the "U" shaped portion of bracket and one row in the flange end of "F" shape. Holes in each row shall be spaced 12- 14 inches on center, not less than 1-inches or more than 4-inch from each end of bracket. Holes shall be sized for 1/4-inch diameter barrel bolt/through bolts.
 - a. Option: Bracket may be constructed as two nested angles only at wall conditions where bracket anchor occurs a minimum of 4-inches from end of wall.
- D. Phenolic-Panel Finish:
 - 1. Facing Sheet Finish: One color and pattern in each room.
 - 2. Color and Pattern: As selected by Architect from manufacturer's full range.
 - 3. Edge Color: Black..

2.4 HARDWARE AND ACCESSORIES

- A. Hardware and Accessories: Manufacturer's heavy-duty institutional operating hardware and accessories.
 - 1. Hinges: Minimum 0.062-inch- (1.59-mm-) thick stainless steel full height institutional, self-closing by cam action, 1/4 -inch continuous pin, non-handed, 3 section hinges. Mount with through-bolts.
 - 2. Latch and Keeper: Manufacturer's heavy-duty surface-mounted cast-stainless steel latch unit designed to resist damage due to slamming, with combination rubber-faced door strike and keeper, and with provision for emergency access. Provide units that comply with regulatory requirements for accessibility at compartments designated as accessible. Mount with through-bolts.
 - 3. Coat Hook: Manufacturer's heavy-duty combination cast-stainless steel hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories. Mount with through-bolts.
 - 4. Door Bumper: Manufacturer's heavy-duty rubber-tipped cast-stainless steel bumper at out-swinging doors and entrance-screen doors. Mount with through-bolts.
 - 5. Door Pull: Manufacturer's heavy-duty cast-stainless steel pull at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible. Mount with through-bolts.

- B. Anchorages and Fasteners: Stainless steel, finished to match the items they are securing, with theft-resistant-type heads as indicated. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel.
 - 1. Material: Type 304 or 316 stainless steel.
 - 2. Fastener Head: Security head Pin-in-Head Torx or One-Way Slot Truss Head.
 - (1) At under sink screens use anchors as Detailed.
 - 3. For latch, coat hook and doorstop provide through bolted with sex bolts. Fasteners secured directly into core are not acceptable.
 - 4. For hinges provide sex bolts or through bolts with security heads on each end of bolt.
 - 5. For mounting brackets anchored to masonry provide sex bolts of length to accommodate through bolting of full thick masonry partition or modified sex-bolts using a combination of two nuts with threaded rod to accommodate width of masonry partition.
 - 6. For panels mounted parallel and directly to masonry, fasteners shall be same as for mounting brackets anchored perpendicular to masonry; or, where anchor is set not less than 4-inches from end of masonry wall/partition, expansion anchors minimum 3-inch embed.
 - a. Bolt Diameter: 1/4-inch minimum.
 - 7. Anchors into masonry and concrete shall be designed for that use and without inserts.

2.5 MATERIALS

- A. Brass Castings: ASTM B584.
- B. Brass Extrusions: ASTM B455.
- C. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.
- D. Stainless Steel Castings: ASTM A743/A743M.

2.6 FABRICATION

- A. Fabrication, General: Fabricate toilet doors and pilasters components to sizes indicated.
- B. Floor-Anchored Units: Provide stainless steel anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage. Provide stainless steel wedge or sleeve anchors.
- C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fastening, support, alignment, operating clearances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with specified anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters: 1/2 inch (13 mm).
 - 2. Full-Height (Continuous) Brackets: Secure panels and pilasters to walls with full-height brackets.
- B. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches (51 mm) into structural floor unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.
- C. Under Sink Screens: Secure to support brackets as Detailed.

3.3 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and doors in entrance screens to return doors to fully closed position. Set hinges on accessible toilet compartments to return to fully closed position.

END OF SECTION

SECTION 102800 - TOILET ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Public-use washroom accessories including electric hand dryers.
2. Childcare accessories.
3. Underlavatory guards.

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.
- C. Coordinate blocking and anchoring devices for owner furnished accessories.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
3. Include electrical characteristics.

- B. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

1.7 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Hand Dryers: Manufacturer agrees to repair or replace hand dryers that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for toilet accessory design, fabrication and mountings.

2.2 OWNER-FURNISHED MATERIALS

- A. Owner-Furnished Materials: If indicated on the Drawings.
 - 1. At return of Contractor submittal product data for Owner furnished materials will be provided to the Contractor for scheduling and installation use.

2.3 PRODUCTS

- A. Source Limitations: Obtain each type of accessory from single source from single manufacturer.
- B. Basis-of-Design: Specific products are identified in this Section and on the Drawings by manufacturer and model number as Basis-of -Design. Published attributes and characteristics of the Basis-of-Design product establish salient characteristics of products to be used in determining comparable products for compliance with the requirements. Subject to compliance with the requirements provide either the named product, with required options and modifications, or a comparable product complying with the requirements:

2.4 UNDERLAVATORY GUARDS

A. Underlavatory Guard:

1. Description: Insulating pipe covering for supply and drain piping assemblies that prevents direct contact with and burns from piping; allow service access without removing coverings.
2. Material and Finish: Antimicrobial, molded plastic, white.

2.5 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch (0.8-mm) minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch (0.9-mm) minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: screws, bolts, and other devices, 300 Series stainless steel and tamper-and-theft resistant.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).

2.6 MIRRORS:

- A. Mirror and Frame: Vandal resistant, surface mounted stainless steel frame with replaceable protective sacrificial Plexiglass protective layer.
 1. Frame and mirror: 0.011- inch thick Type 316L stainless steel.
 2. Frame Anchors: Torx security screws.
 3. Wall anchors: 3/8-inch stainless steel expansion anchors.

2.7 HAND DRYER

- A. Electric Hand Dryer: Surface Mounted Hand Dryer with automatic operation from IR sensor that activates dryer when hands are placed in sensor zone. Motor and heating element with internal resetting automatic thermal protection. One-piece, heavy-duty cast aluminum 7/64" thick cover with all exposed surfaces finished with acid, chip and scratch resistant epoxy enamel. Heavy duty, rust proof and tamper resistant fixed directional air vanes. Circuitry shall be self-adjusting time-out and fail-safe off protection controlled by a microprocessor that shall detect and reject false signals and shall automatically self-calibrate to provide uniform

sensitivity over its entire life span. Entire unit shall be internally electrically grounded. Dryer unit shall have C-UL-US® approval and be listed under the re-examination services of Underwriters Laboratories, Inc. Maximum projection from wall shall be 4-inches.

1. Power requirements: Coordinating operating power with electrical service.
2. Warranty: Warranted against defects in materials or workmanship for ten (10) years.
3. Product: American Specialties Model 0165 or approved equal.

2.8 BABY CHANGING STATION

- A. Countertop Surface Mounted Baby Changing Station: Thermofomed high-density polyethylene body. Design for counter top mounting. Concave bed with nylon safety strap.
1. Anchor to concrete countertop using Type 304 or Type 316 stainless steel anchor of configuration recommended by manufacturer.
 2. Manufacturer: Koala Kare Products.

2.9 ACCESSORY COMPONENTS

- A. Fasteners: All fasteners shall be stainless steel 300 Series.
1. All exposed to view fasteners, used for assembly or maintenance of toilet accessories, shall have security heads that allow removal and re-use.
 2. Concealed non-accessible fasteners may be either non-security or security head type.
 3. Concealed or exposed to view mounting fasteners shall be non-removable security head type.
 4. Fasteners used for mounting to cmu walls shall be type specifically designed for use in masonry. When inserts are required for screw type anchors only metal inserts shall be used. Plastic inserts shall not be used.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative. Key all accessories alike.

2.10 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and of the type specified and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

- B. Grab Bars: Install to withstand a downward load of at least 250 lbf (1112 N), when tested according to ASTM F 446.
- C. Install hand dryers level, plumb and firmly anchored into walls using manufacturer's recommended anchors. Apply a bead of sealant around edges of cover to wall.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION

