

**FOR CONSTRUCTION**

**FACILITIES DESIGN**  
**ARCHITECTS & ENGINEERS**  
**FACILITY MANAGEMENT DIVISION**

1 SOUTH WILMINGTON STREET  
919/707-4540 FAX: 919/715-0399  
RALEIGH, NORTH CAROLINA 27601



**FIVE BAY SALT STORAGE**  
HIGHWAY DIVISION 4, NCDOT  
HALIFAX COUNTY, NC  
**SCO ID# 09-07377-01L**

1

CO ID#:  
09-07377-01L

REVISIONS	
NO.	DATE

DATE ISSUED:09-14-15

DRAWN BY: MDM

CHECKED BY: MDM

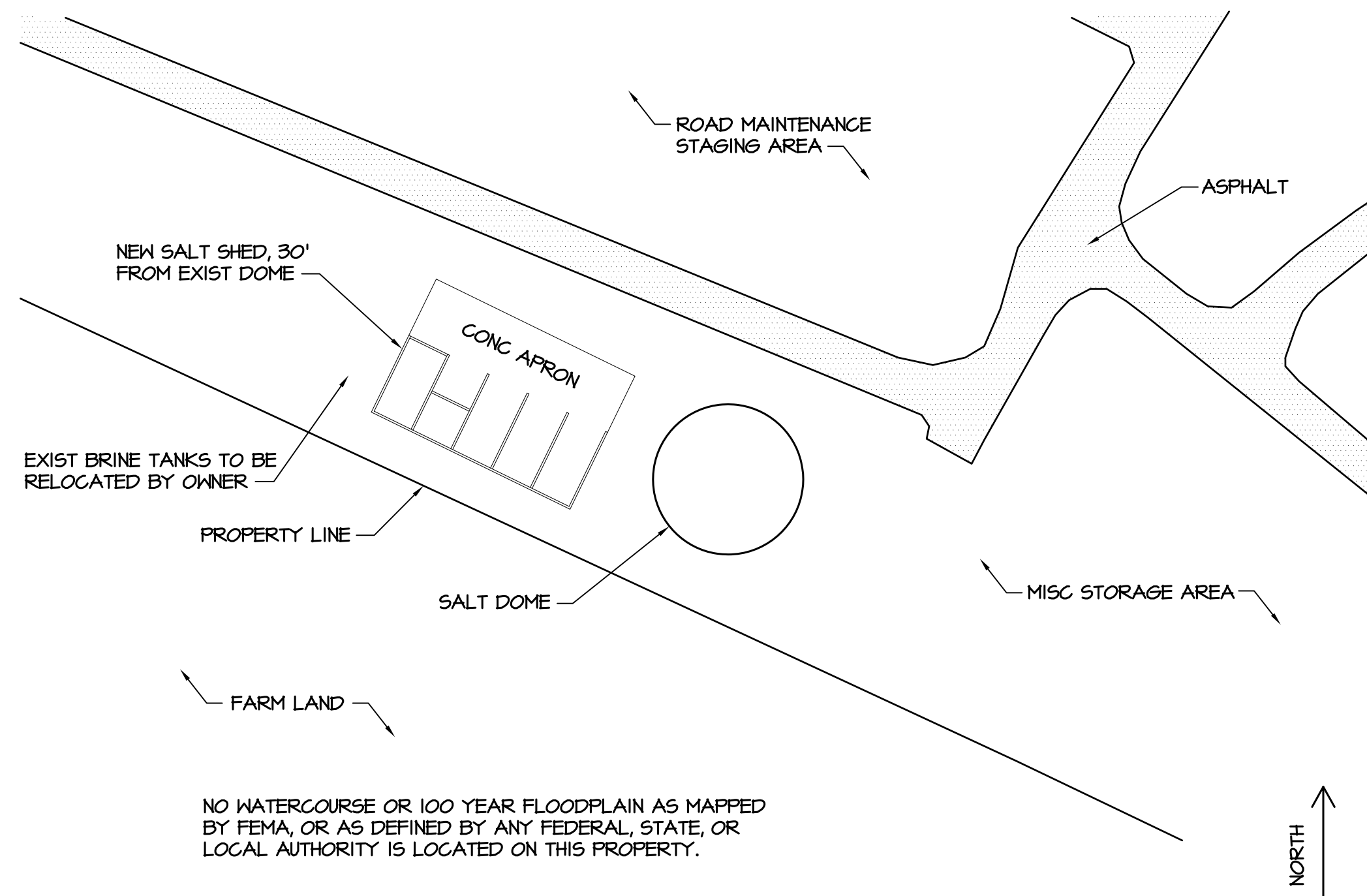
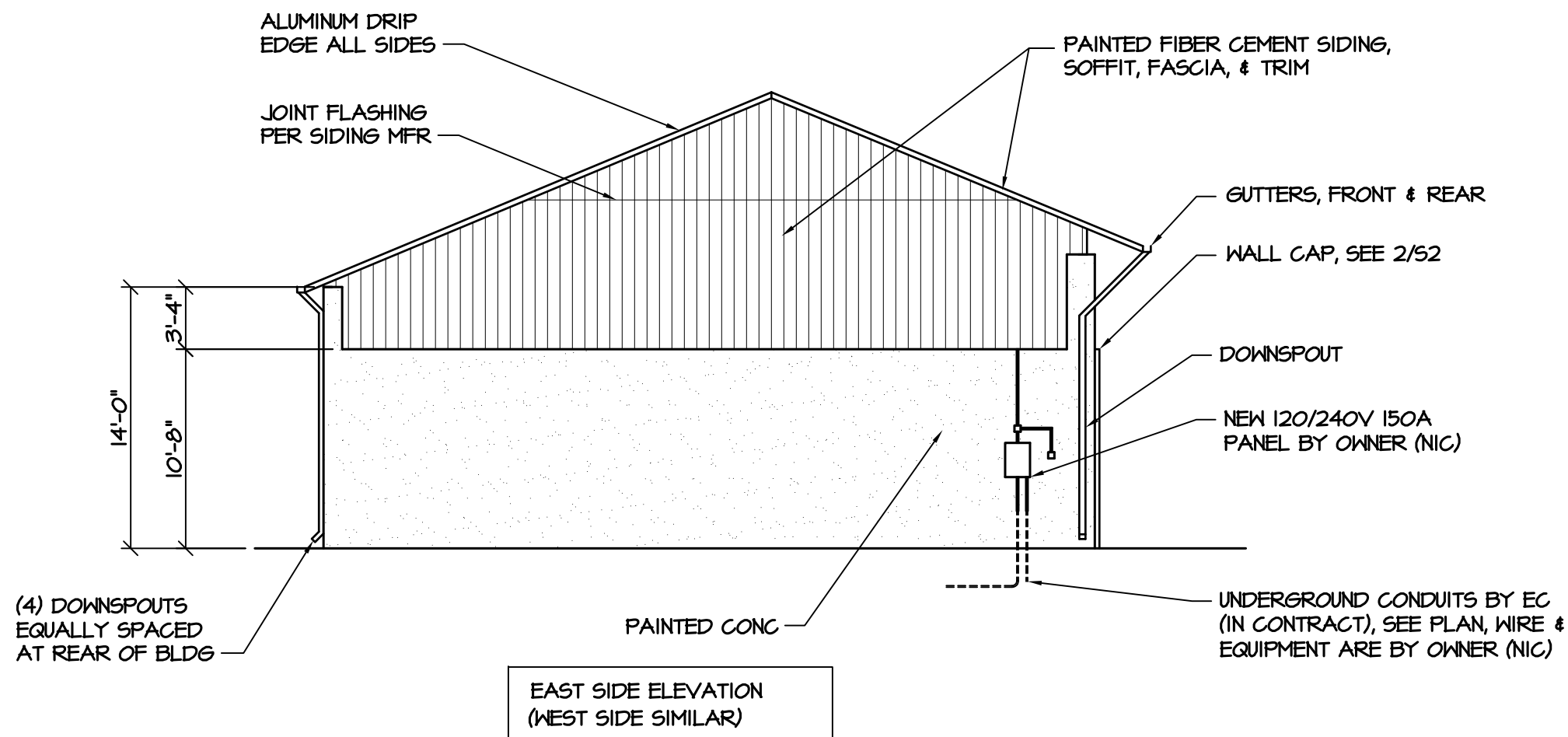
SHEET NO.

# S1

OF 4

## SITE LAYOUT

**HIGHWAY DIVISION 4  
HALIFAX COUNTY, NC  
SCO ID# 09-07377-01L**



S1 ELEVATIONS & CODE SUMMARY  
S2 FOUNDATION PLAN & DETAILS  
S3 FRAMING PLAN & DETAILS  
S4 DETAILS

NO WATERCOURSE OR 100 YEAR FLOODPLAIN AS MAPPED BY FEMA, OR AS DEFINED BY ANY FEDERAL, STATE, OR LOCAL AUTHORITY IS LOCATED ON THIS PROPERTY.

2012 APPENDIX B  
BUILDING CODE SUMMARY

Name of Project: FIVE BAY SALT STORAGE BUILDING, HALIFAX, NC

Address: 14134 NC 903, HALIFAX, NC 27839

Proposed Use: STORAGE

Owner or Authorized Agent: HIGHWAY DIVISION 4 Phone # 336-334-3192

Owned By: STATE OF NORTH CAROLINA ☐ City/County ☐ Private ☒ State

Code Enforcement Jurisdiction: ☐ City ☐ County

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LEAD DESIGN PROFESSIONAL:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	<u>FACILITIES DESIGN, NCDOT</u>				
SITE "Civil"					
Electrical					
Plumbing					
Mechanical					
Sprinkler-Standpipe					
Structural	<u>NCDOT</u>	<u>MIKE MOUNTCASTLE</u>	<u>17326</u>	<u>(919) 707-4547</u>	<u>mndmountcastle@ncdot.gov</u>

2012 EDITION OF NC CODE FOR: ☒ New Construction ☐ Addition ☐ Upfit  
EXISTING: ☐ Reconstruction ☐ Alteration ☐ Repair  
CONSTRUCTED \_\_\_\_\_ ORIGINAL USE \_\_\_\_\_ RENOVATED \_\_\_\_\_ CURRENT USE \_\_\_\_\_

BUILDING DATA			
Construction Type: <input type="checkbox"/> I-A <input type="checkbox"/> II-A <input type="checkbox"/> III-A <input type="checkbox"/> IV <input type="checkbox"/> V-A			
<input type="checkbox"/> I-B <input type="checkbox"/> II-B <input type="checkbox"/> III-B <input checked="" type="checkbox"/> V-B			
Mixed construction: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		Types: _____	
Sprinklers: <input checked="" type="checkbox"/> No <input type="checkbox"/> Partial	<input type="checkbox"/> Yes	<input type="checkbox"/> NFPA 13	<input type="checkbox"/> NFPA 13R <input type="checkbox"/> NFPA 13D
Standpipes: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Class <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III	<input type="checkbox"/> Wet	<input type="checkbox"/> Dry
Fire District: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	Flood Hazard Area: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		
Building Height: Feet	Number of Stories: <u>1</u>		
<u>25'-0"</u>			
Mezzanine: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes			
Gross Building Area:			
FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
1st Floor		4346	4346
TOTAL		4346	4346

Primary Occupancy: ☐ Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5  
☐ Business ☐ Educational ☐ Factory ☐ F-1 ☐ Moderate ☐ F-2 ☐ Low  
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM  
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4  
☐ In-3 Condition ☐ J-2 ☐ J-3 ☐ J-4 ☐ J-5  
☐ Mercantile ☐ Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4  
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled ☐ R-4  
☐ Utility and Miscellaneous ☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage

Secondary Occupancy: ☐ N/A  
Mixed Occupancy: ☐ No ☐ Yes Separation: \_\_\_\_\_ Hr. Exception: \_\_\_\_\_

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503 AREA	(C) AREA FOR OPEN SPACE INCREASE	(D) AREA FOR SPRINKLER INCREASE	(E) ALLOWABLE AREA OR UNLIMITED	(F) MAXIMUM BUILDING AREA
1	Utility & Misc.	4346	5500	NOT USED	NOT USED	5500	5500

TYPE: II-B	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Building height in feet	Feet <u>40</u>	Feet= $H+20'$ = <u>N/A</u>	Feet <u>25'-0"</u>	503
Building Height in Stories	Stories <u>1</u>	Stories+1= <u>N/A</u>	Stories <u>1</u>	503

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	SATISFIED		DETAIL & SHEET	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
		REQ'D	PROVIDED W/ REDUCT				
Structural frame, including columns, girders, & trusses	10	0	0	-	-	-	-
Exterior walls	-	0	0	-	-	-	-
Interior Walls and partitions	-	0	0	-	-	-	-
Roof construction	10	0	0	-	-	-	-

Emergency Lighting: ☒ No ☐ Yes

Exit Signs: ☒ No ☐ Yes

Fire Alarm: ☒ No ☐ Yes

Smoke Detection Systems: ☒ No ☐ Yes

Panic Hardware: ☒ No ☐ Yes

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## DESIGN LOADS:

**DESIGN LOADS:**

Importance Factors:	Wind	( $I_w$ )	<u>1.0</u>	Live Loads:	Roof	<u>20</u>	psf
	Snow	( $I_s$ )	<u>1.0</u>		Mezzanine	<u>N/A</u>	psf
	Seismic	( $I_e$ )	<u>1.0</u>		Floor	<u>800</u>	psf

Snow Load: 15 psf

Wind Load: Basic Wind Speed 95 mph (ASCE-7-05)  
Exposure Category C  
Wind Base Shears (for MWFRS)  $V_x =$  \_\_\_\_\_  $V_y =$  \_\_\_\_\_

Compliance with Section 1616.4 only? ☐ YES ☒ NO

SEISMIC DESIGN CATEGORY ☐ A ☒ B ☐ C ☐ D

Provide the following Seismic Design Parameters:

Occupancy Category: ☐ I ☐ II ☐ III ☐ IV

Spectral Response Acceleration  $S_s$  15.4 %  $S_1$  6.2 %

Site Classification D ☐ Field Test ☒ Presumptive

Basic structural system (check one)

☒ Bearing Wall ☐ Dual w/ Special Moment Frame

☐ Building Frame ☐ Dual w/ Intermediate R/C or Special Steel

☐ Moment Frame ☐ Inverted Pendulum

Seismic base shear  $V_w$  X  $V_{w,eq}$  X

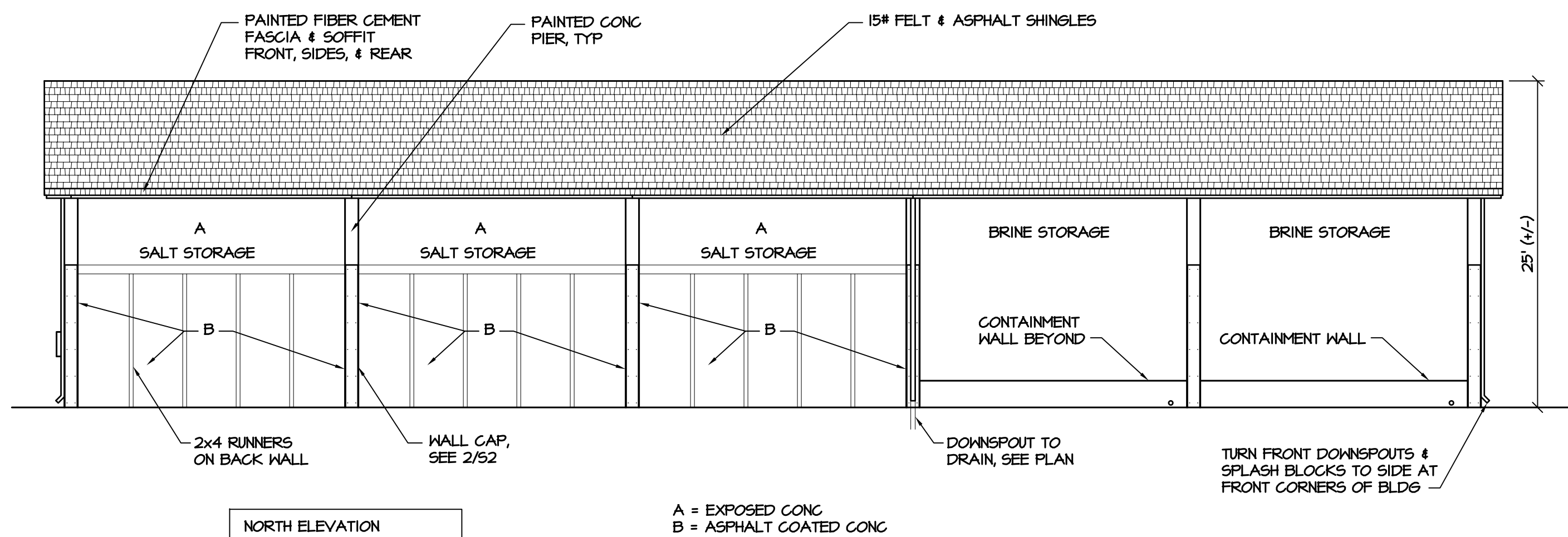
Analysis Procedure ☒ Simplified ☐ Equivalent Lateral Force ☐ Modal

Architectural, Mechanical, Components anchored? N/A

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☒ Special Inspection ☐

SOIL BEARING CAPACITIES: (Field Test) 2000 psf ☐ Yes ☒ No

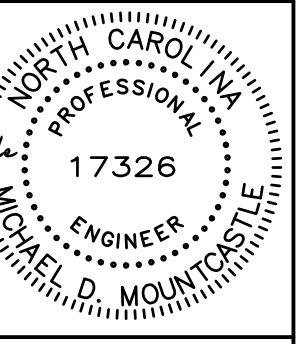
PLUMBING, ENERGY, ELECTRICAL, &amp; MECHANICAL SUMMARIES - NOT APPLICABLE



SCALE: 1/8" = 1'-0"

- NOTES:
1. WOOD RUNNERS & EMULSIFIED ASPHALT COATING ARE ONLY REQ'D AT SALT STORAGE BAYS. WALLS AT BRINE STORAGE ARE PAINTED.
  2. PROVIDE SPLASHBLOCKS AT ALL DOWNSPOUTS, UNLESS OTHERWISE NOTED ON PLAN.





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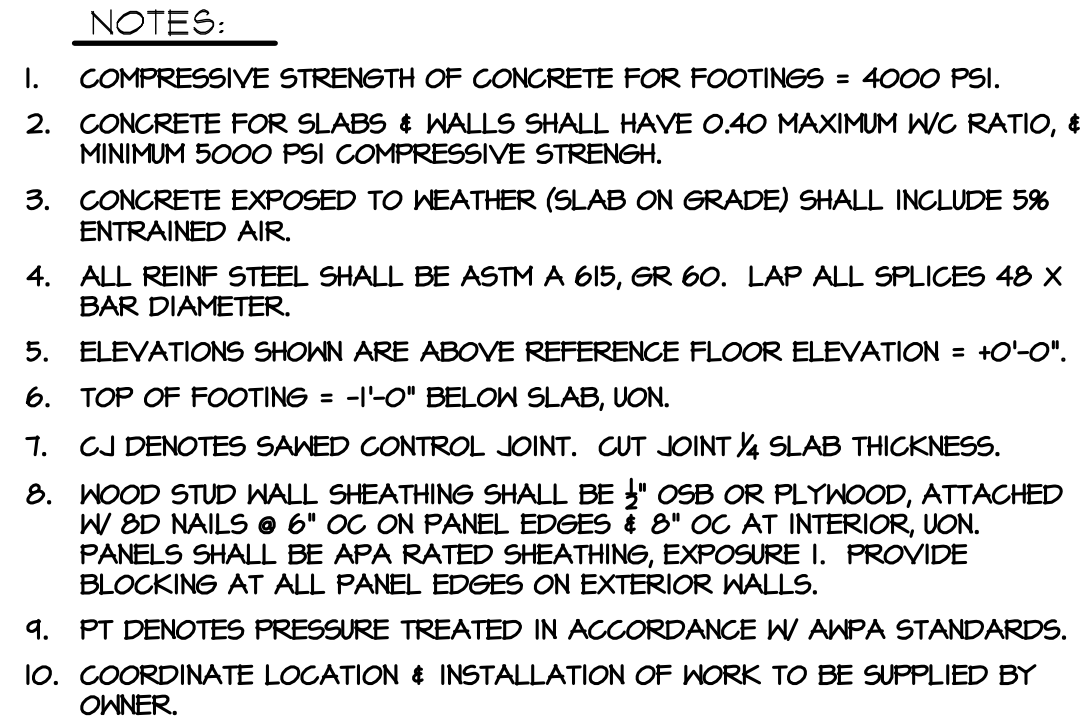
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**S2**  
OF 4



### SITE NOTES:

BUILDING HAS BEEN LOCATED BY OWNER BUT CONTRACTOR IS RESPONSIBLE FOR BUILDING LAYOUT. VERIFY BUILDING LOCATION W/ NCDOT PRIOR TO CONSTRUCTION.

OWNER WILL REMOVE EXISTING SHED & ASPHALT, & PROVIDE ROUGH GRADING TO BUILDING PAD.

APPROXIMATE SPOT ELEVATIONS ARE PROVIDED ON PLAN FOR REFERENCE. ACTUAL FINISH FLOOR ELEVATION IS PROVIDED ON PLANS BASED ON SPOT ELEVATIONS. FIELD VERIFY BUILDING ELEVATIONS W/ OWNER PRIOR TO CONSTRUCTION.

GC TO PROVIDE FINAL GRADING AWAY FROM BUILDING TO TIE INTO EXISTING GRADES.

GC TO PROVIDE PVC CONDUIT AS SHOWN ON PLAN. BURY CONDUIT MIN 24" & COORD CONDUIT LOCATIONS W/ OWNER PRIOR TO INSTALLATION. CONDUIT SHALL BE MARKED W/ TRACER TAPE & INSPECTED BY THE STATE ELECTRICAL INSPECTOR PRIOR TO COVERING. CONTACT MIKE HARD AT 914-605-4001 TO SCHEDULE INSPECTIONS.

GC TO PROVIDE PLUMBING STUD UP INTO BUILDING AS SHOWN ON PLAN. COORD LOCATIONS W/ OWNER.

PROTECT ALL PLUMBING & CONDUIT STUBS FROM WEATHER.

ONLY MINOR PATCHING IS ALLOWED, WALLS W/ EXCESSIVE DEFECTS SUCH AS EXPOSED REINF WILL BE REMOVED & REPLACED AT GC'S EXPENSE.

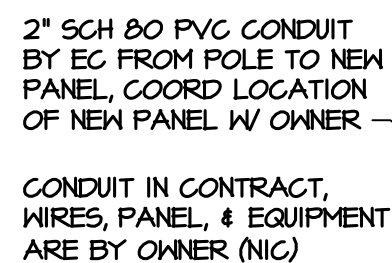
MOIST CURE CONCRETE WALLS FOR 7 DAYS BY LEAVING FORMS IN PLACE OR OTHER MEANS IN ACCORDANCE W/ ACI SPECIFICATIONS.

PREPARE CONCRETE WALL SURFACES AS FOLLOWS:

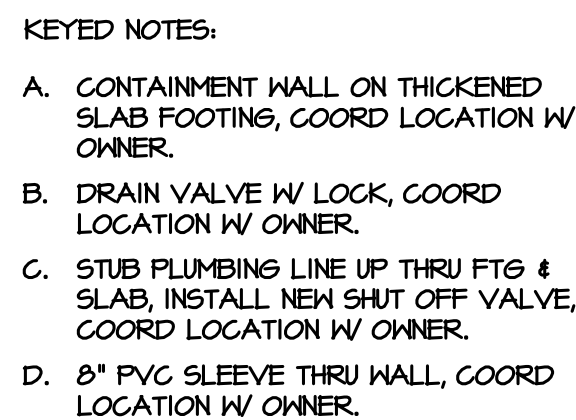
UNPAINTED - PATCH TIE HOLES & DEFECTS, REMOVE  
FINS FLUSH W/ SURFACE.

PAINTED - PATCH TIE HOLES, BUG HOLES, & OTHER DEFECTS. REMOVE FINS FLUSH WITH SURFACE. RUB AS REQUIRED TO PREPARE SURFACE IN ACCORDANCE W/ PAINT MFR RECOMMENDATIONS.

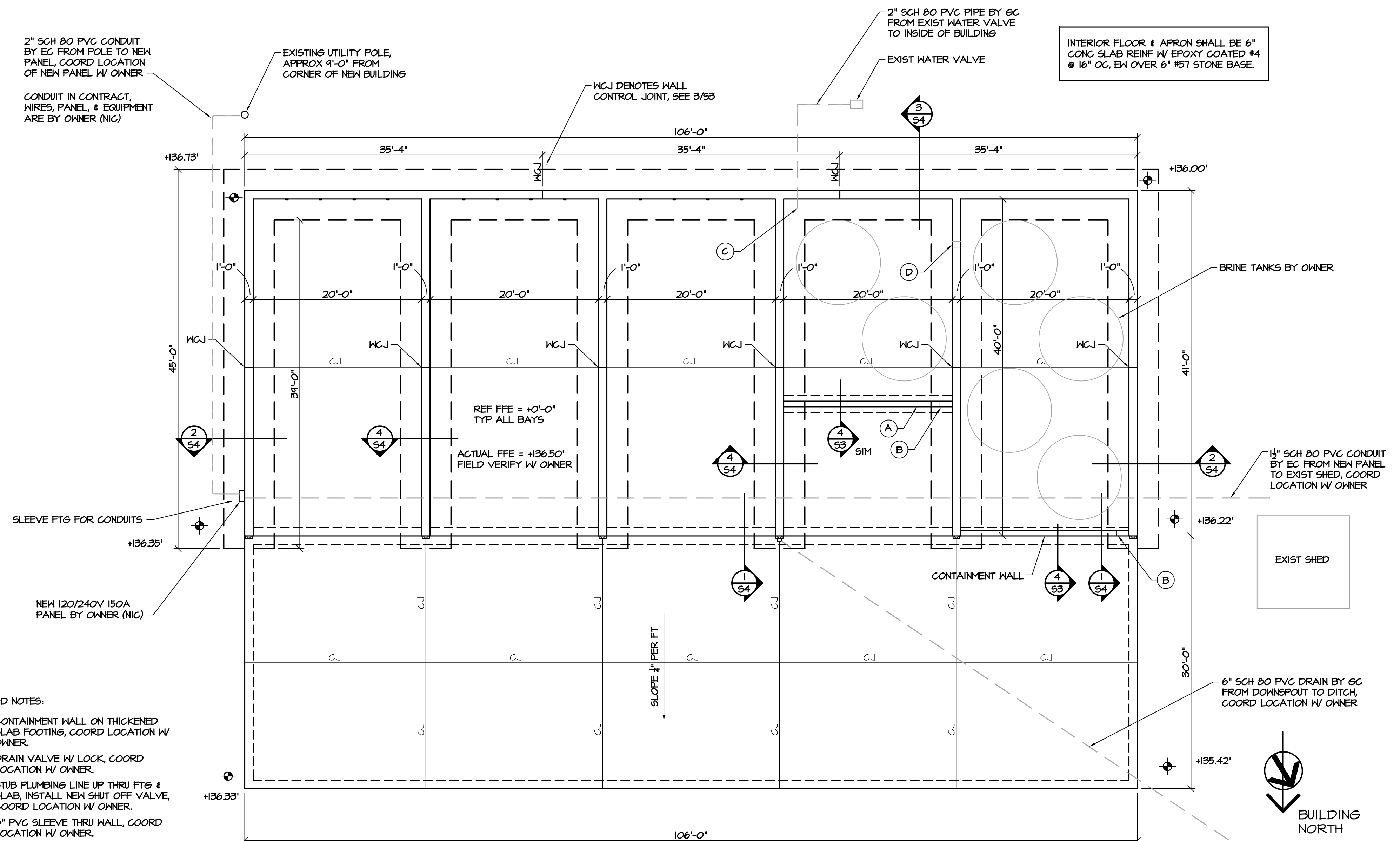
SCALE:  $\frac{3}{4}" = 1'-0"$



SCALE:  $\frac{3}{4}" = 1'-0"$



SCALE:  $\frac{3}{4}" = 1'-0"$



SCALE: 1/8" = 1'-0"



## GENERAL NOTES:

### A. GENERAL

- See specifications for further information. In case of conflict between specifications & drawings, contact architect for resolution.
- Contractor is responsible for coordination & distribution of all changes in contract documents to all subcontractors.
- Contractor shall verify all field conditions, elevations, & dimensions prior to construction. Do not scale from plans.
- Means & methods of construction, including temporary bracing, shoring, & jobsite safety, are the responsibility of the contractor.
- Structural frame shall be braced until erection is complete & permanent connections & bracing are installed.
- Provide silt fence or other erosion & sediment control measures as required.
- If demolition is included in project, sawcut all edges of existing slab and asphalt to remain adjacent to new construction.
- Provide as used in the contract documents means to furnish & install.

### B. FOUNDATION

- Footing excavations shall be reviewed by a geotechnical engineer or construction testing agency approved by the architect or engineer.
- Footing depths shown are based on geotechnical investigation or presumptive soil properties. Soft or unsuitable soils shall be removed & replaced with suitable fill as specified.
- Under slabs & footings, remove all topsoil, trash, & organic material, & replace with select fill compacted to 95% maximum density as measured by the Standard Proctor Method (ASTM 698) in 12 inch maximum lifts. The top 12" shall be compacted to 98% maximum density.
- Contractor is responsible for shoring while excavating near existing structures.

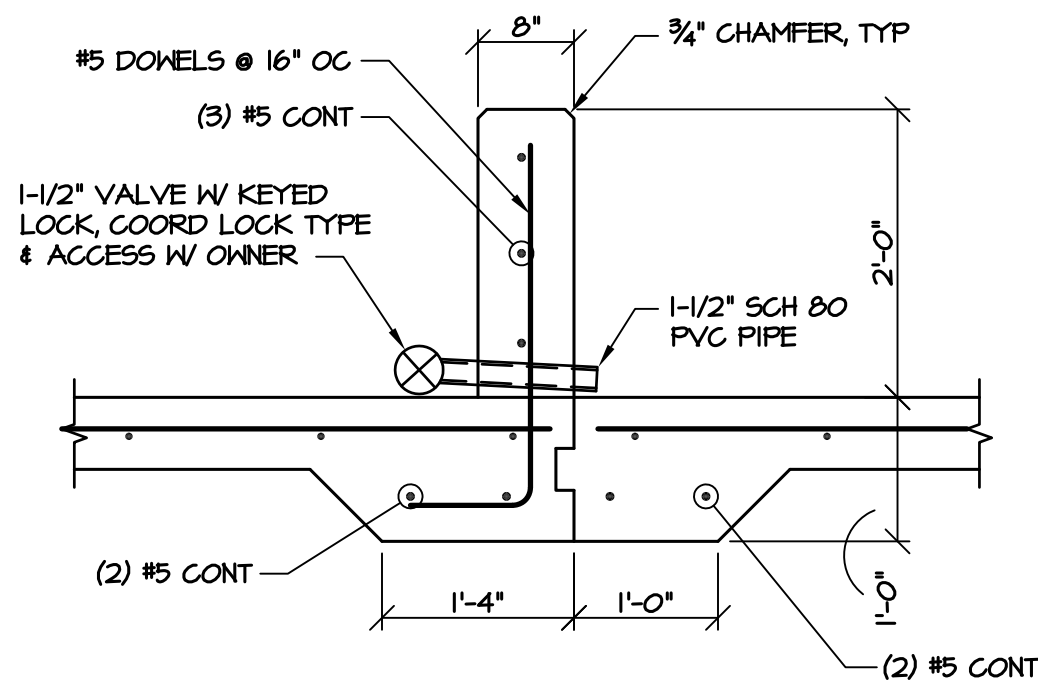
### C. CONCRETE

- Compressive strength of concrete shall be 4000 psi for footings & 5000 psi for walls and slabs, unless otherwise noted.
- Coordinate floor slopes and depressions with arch and plumbing plans. Maintain specified slab thickness below depressed or sloped areas.
- If not specified on plans, provide sawed slab control joints in slabs on grade spaced at not more than 48 times the slab thickness.
- Reinforcing steel shall meet ASTM A 615, Grade 60.
- Welded wire reinforcement shall conform to ASTM A 185 & A 82.
- Grout under all columns & beam bearing plates with non-shrink, non-metallic grout which meets ASTM C 1107.
- Clear distance from face of concrete to main reinforcing:
  - Suspended slabs and joists: 1"
  - Grade beams, pedestals, columns, walls: 2"
  - Footings & walls cast against earth: 3"
- Provide (2) #4 x 48" diagonal corner bars at center of slab at all corners of floor slab openings.
- Lap all reinforcement splices 48 bar diameters, UON.
- Detailing, fabrication, & installation of reinforcing steel shall conform to ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315).
- Workmanship, tolerances, & concrete placement shall conform to "Standard Specifications for Structural Concrete" (ACI 301).
- Chamfer exposed edges of concrete 3/4", UON.
- Anchor bolts shall conform to ASTM F 1554, Grade 36.
- See architectural plans for floor finishes. Coordinate slab curing & sealing compounds with flooring materials.

### C. WOOD

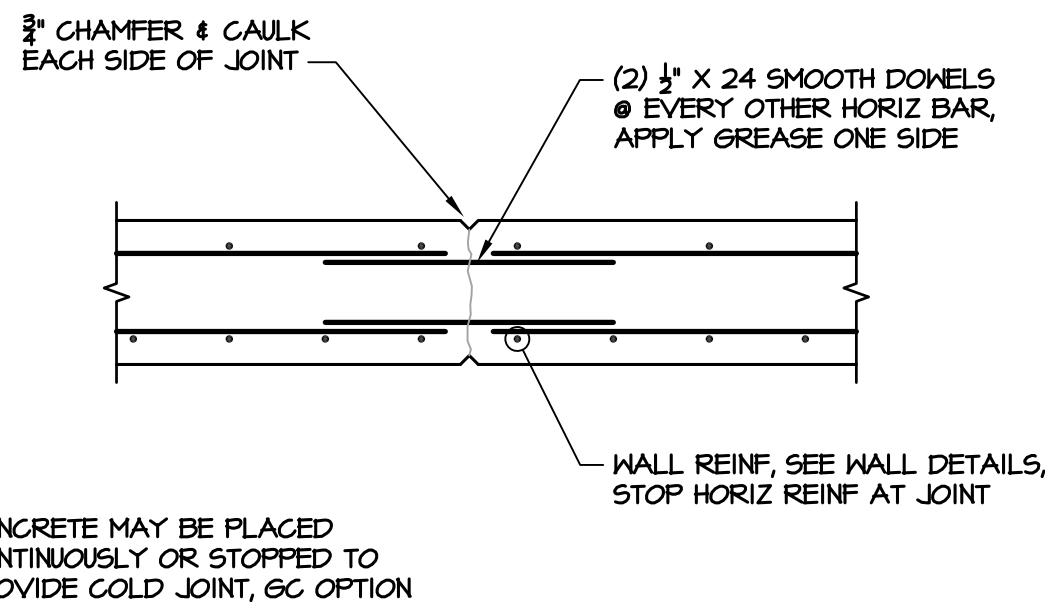
- Structural lumber shall be SPF #2 or better, UON. Wood for fabricated trusses shall be SYP #2 or better, except that webs may be SYP #3.
- Wood in contact with concrete or masonry shall be treated.
- Straps, ties, hangers, & other connection hardware shall be galvanized.
- Connections not otherwise detailed shall be in accordance with Tables 2304.9.1.1 thru 2304.9.1.6 of the NC State Building Code.
- Trusses shall be designed for the full dead & live loads specified in the contract. Submit truss shop drawings bearing the seal of a registered professional engineer licensed in the state of NC. Show truss layout & truss designs including required bracing. Bracing design is the truss designer's responsibility.
- Contractor shall install both temporary and permanent bracing. Note that permanent bracing is often shown on individual truss calculation pages instead of the truss layout sheet, especially where there is no hard ceiling applied to truss.
- Additional bracing may be required by engineer of record as indicated on plans for support of gable walls or other items.
- Install blocking in walls & ceiling where required for partitions, fixtures, & other misc items. Coordinate with all trades.

PAINT TOP & SIDES OF  
CONTAINMENT WALL

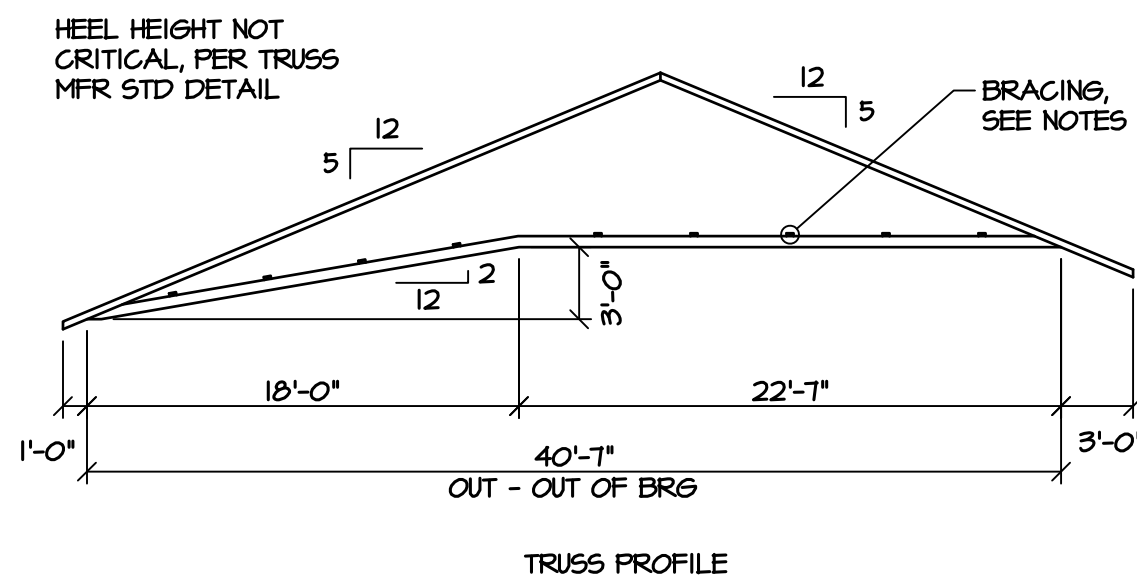


WALL IS CENTERED ON 12"  
DEEP X 24" WIDE THICKENED  
SLAB WHERE MARKED "SIM"

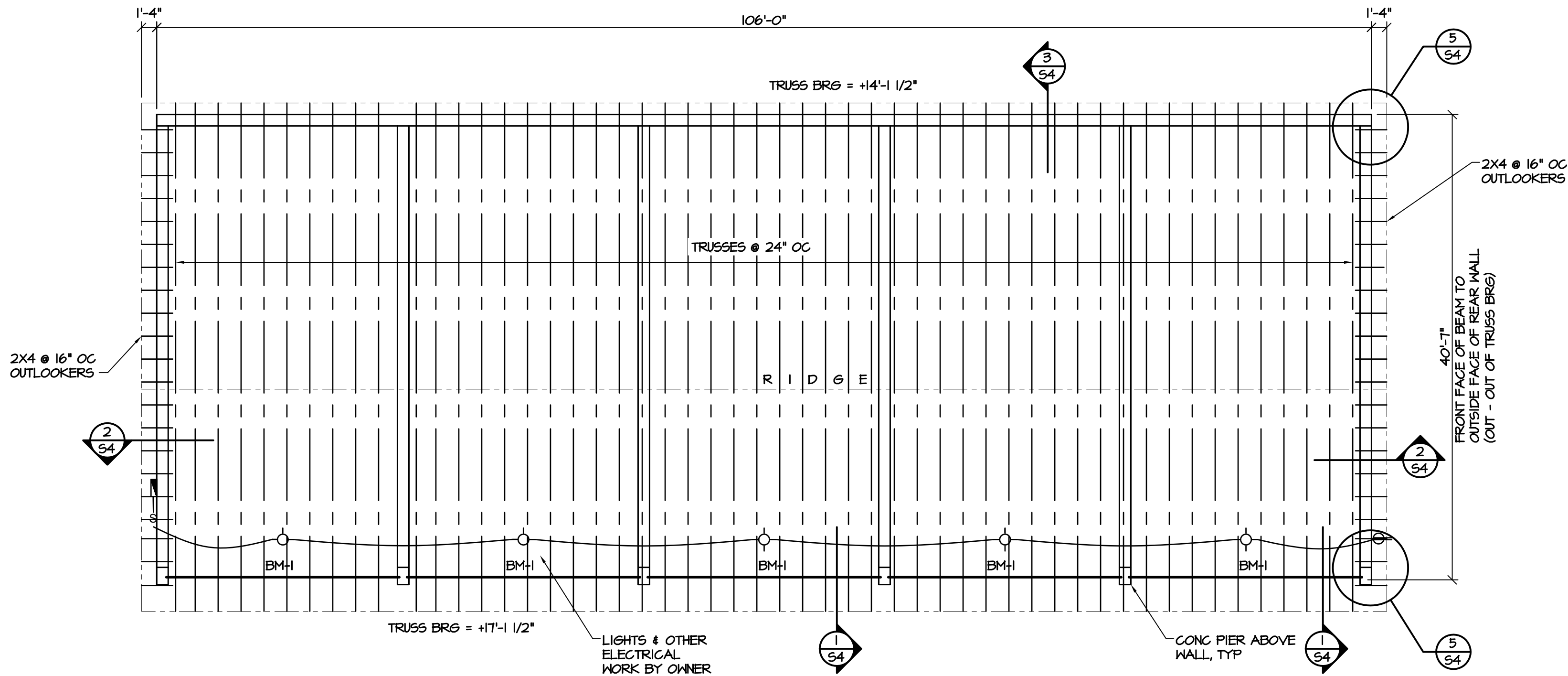
**4** CONTAINMENT WALL  
SCALE: 3/4" = 1'-0"



**3** WALL CONTROL JOINT  
SCALE: 3/4" = 1'-0"



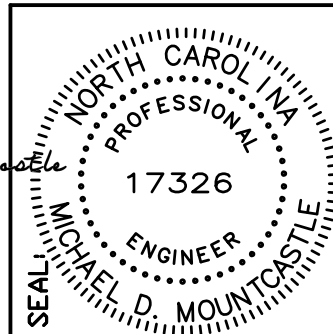
**2** TRUSS PROFILE  
SCALE: 1/8" = 1'-0"



**1** FRAMING PLAN  
SCALE: 1/8" = 1'-0"

### NOTES:

- PROVIDE TRUSS SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NC, SHOWING TRUSS LAYOUT, TRUSS DESIGNS, & REQUIRED BRACING.
- TRUSS MFR NOTE THERE IS NO CEILING & BOTTOM CHORD BRACING MAY BE REQUIRED. GC NOTE BOTTOM CHORD BRACING IS SHOWN ON TRUSS CALCULATION SHEETS & IS IN ADDITION TO THE TEMPORARY BRACING.
- ROOF SHEATHING SHALL BE 5/8" OSB OR PLYWOOD, ATTACHED W/ 10D NAILS @ 6" O.C. ON PANEL EDGES, & @ 8" O.C. AT INTERIOR.
- SIDING, VENTED SOFFIT, & FASCIA SHALL BE PAINTED FIBER-CEMENT BOARD, COLOR SELECTION BY OWNER.
- BM-1 = 5-1/2" X 16" GLULAM, 24F-V4, BALANCED, & PRESSURE TREATED.



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