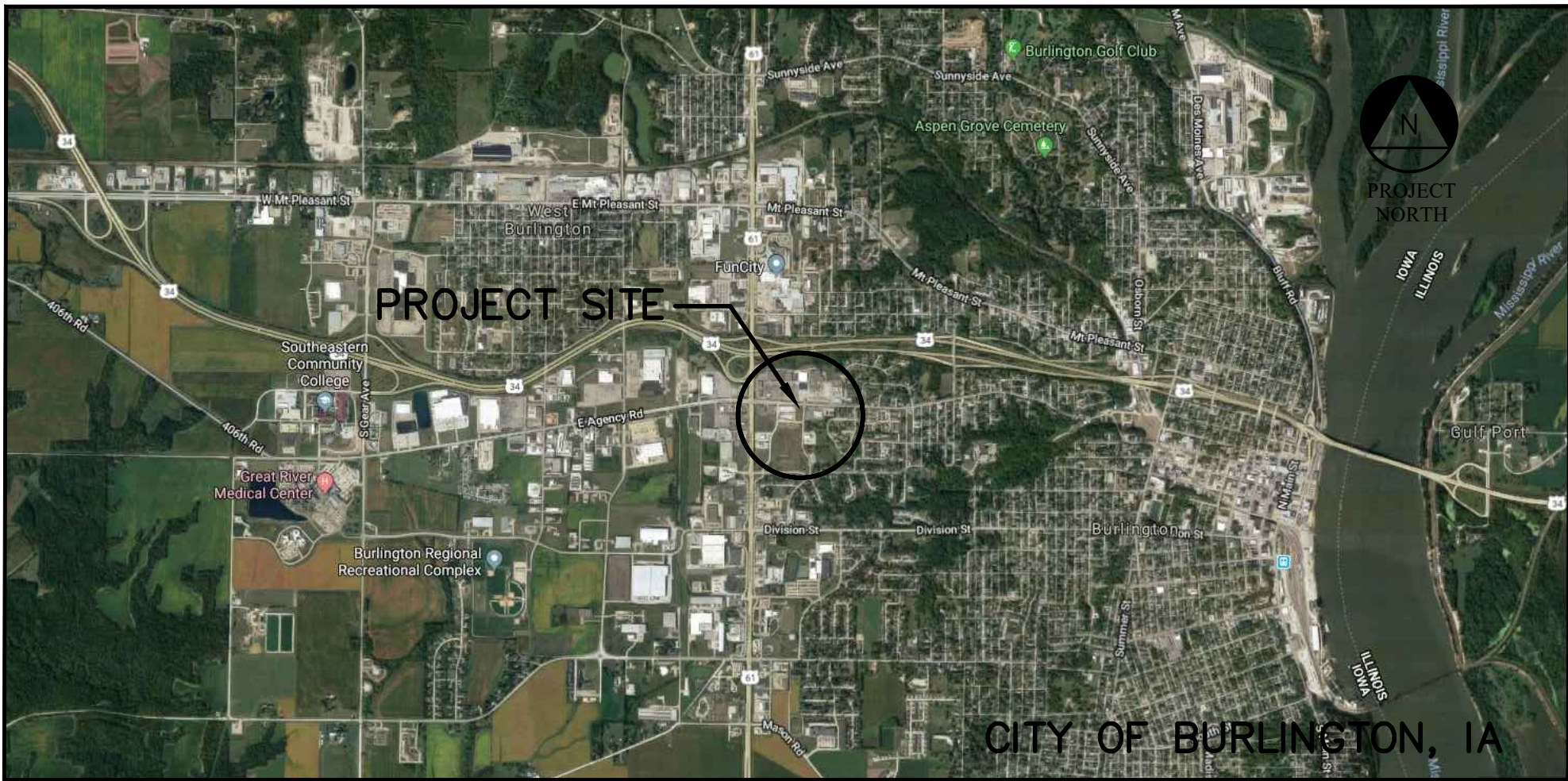


NEW BUILDING:
C A R W A S H



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- G0.0 COVER SHEET
- A1.0 GENERAL NOTES AND DETAILS
- A2.0 FLOOR PLAN
- A3.0 REFLECTED CEILING PLAN
- A4.0 ROOF PLAN
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BUILDING CODE REVIEW

LOCATION:	EAST AGENCY STREET, BURLINGTON, IOWA 52601	EXIT DOOR WIDTH REQUIREMENTS:	44 OCCUPANTS x 0.2 INCHES PER OCCUPANT YIELDS 8.8 INCHES OF EXIT WIDTH (1005.3.2); MINIMUM REQUIRED CLEAR WIDTH OF DOOR IS 32", WHICH REQUIRES A 36" DOOR (1008.1.1).
PROJECT DESCRIPTION:	ONE-STORY CARWASH BUILDING OF 5047 S.F.	DOOR SWING:	AN OCCUPANT LOAD OF 50 OR MORE REQUIRES DOORS TO SWING IN THE DIRECTION OF EGRESS TRAVEL. ALTHOUGH NOT REQUIRED DUE TO THE 44 PERSON OCCUPANCY, ALL EXIT DOORS AS PROVIDED SHALL SWING IN THE DIRECTION OF EGRESS TRAVEL. ALL INDIVIDUAL ROOM DOORS MAY SWING INWARD (1010.1.2.1).
BUILDING CODES:	2015 INTERNATIONAL BUILDING CODE 2009 INTERNATIONAL ENERGY CONSERVATION CODE	DOOR OPERATIONS:	EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF KEY OR SPECIAL KNOWLEDGE OR EFFORT (1010.1.9). PANIC HARDWARE NOT REQUIRED (1010.1.10).
OCCUPANCY CLASSIFICATION:	BUSINESS GROUP "B" (302.1 AND 304.1).	CORRIDOR WIDTH REQUIREMENTS:	A REQUIRED OCCUPANCY CAPACITY LESS THAN 50 YIELDS A 36" MINIMUM CORRIDOR WIDTH (TABLE 1020.2).
CONSTRUCTION TYPE:	TYPE 11B (TABLE 601).	CORRIDOR FIRE RESISTANCE:	N.A. (TABLE 1020.1).
AUTOMATIC SPRINKLER SYSTEM:	NONE REQUIRED.	FIRE EXTINGUISHERS:	FLOOR AREA OF LESS THAN 11,250 SF WITH A MAX. TRAVEL DISTANCE OF NO GREATER THAN 75 FEET TO NEAREST FIRE EXTINGUISHER REQUIRES ONE (2-A RATED) FIRE EXINGUISHER (TABLE 906.1).
FIRE RATING OF EXTERIOR WALLS:	NONE REQUIRED; FIRE SEPARATION DISTANCE BETWEEN CARWASH AND ADJACENT FURNITURE STORE IS BETWEEN 10 AND 30 FEET, THEREFORE NO RATING IS REQUIRED (TABLE 602).	EMERGENCY LIGHTING:	PROVIDE LIGHTING AT THE MEANS OF EGRESS INCLUDING THE EXIT DISCHARGE AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED (1008.1).
ALLOWABLE HEIGHT:	OPENINGS IN EXTERIOR WALL ALONG EQUIPMENT ROOM ARE LIMITED TO 45% OF WALL SURFACE AREA; 74sf/1300sf = 6%, OK. (TABLE 705.8).	EXIT SIGNAGE:	PROVIDE EXIT SIGNAGE AT ALL EXITS (1013.1).
ALLOWABLE AREA:	TABULAR ALLOWABLE HEIGHT IS 55 FEET AND 3 STORIES (TABLE 504.3 AND TABLE 504.4); ACTUAL SINGLE-STORY OFFICE BUILDING HEIGHT AT ROOF PEAK IS 35 FEET; 35' < 55', OK.	ACCESSIBLE ROUTE:	PROVIDE ACCESSIBLE ROUTE FROM ACCESSIBLE PARKING SPACES TO MAIN PUBLIC ENTRANCE (1104.1).
OCCUPANT LOAD:	TABULAR ALLOWABLE AREA IS 23,000 SF PER STORY (TABLE 506.2); ACTUAL OFFICE BUILDING AREA IS 5047 SF; 5047 SF < 23,000 SF, OK.	PLUMBING FIXTURES:	SINCE THE ACTUAL TOTAL NUMBER OF STAFF AND CUSTOMERS WILL AVERAGE LESS THAN 15, ONE UNISEX REST ROOM SHOULD SUFFICE, AND IS PROVIDED WITHIN THE MAIN OFFICE. (2902.2).
NUMBER OF EXITS REQUIRED:	GROSS AREA OF 5047: TWO OFFICES: 317 SF / 100 SF (GROSS) PER OCCUPANT YIELDS 3.17, OR 4 OCCUPANTS; TUNNEL: 3620 SF / 100 SF (GROSS) PER OCCUPANT YIELDS 36.2, OR 37 OCCUPANTS; EQUIPMENT ROOM: 693 SF / 300 SF (GROSS) PER OCCUPANT YIELDS 2.31, OR 3 OCCUPANTS; TOTAL BUILDING OCCUPANCY IS 44 OCCUPANTS (TABLE 1004.1.2); ONE EXIT REQUIRED, SINCE 44 OCCUPANTS IS LESS THAN THE TABULAR MAXIMUM OCCUPANT LOAD OF 49 (TABLE 1006.3.2(2)); TWO EXITS ARE PROVIDED.		



VIEW FROM NORTHEAST

LICENSED PROFESSIONAL ENGINEER

KEVAN J. COOPER
NO. 15471

IOWA

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KEVAN J. COOPER, P.E., P.L.S.

Date

AUGUST 22, 2018

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LICENSED PROFESSIONAL ARCHITECT

KURT J. FANDERCLAI
7515

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GREGORY C. PETERSON
NO. 18262

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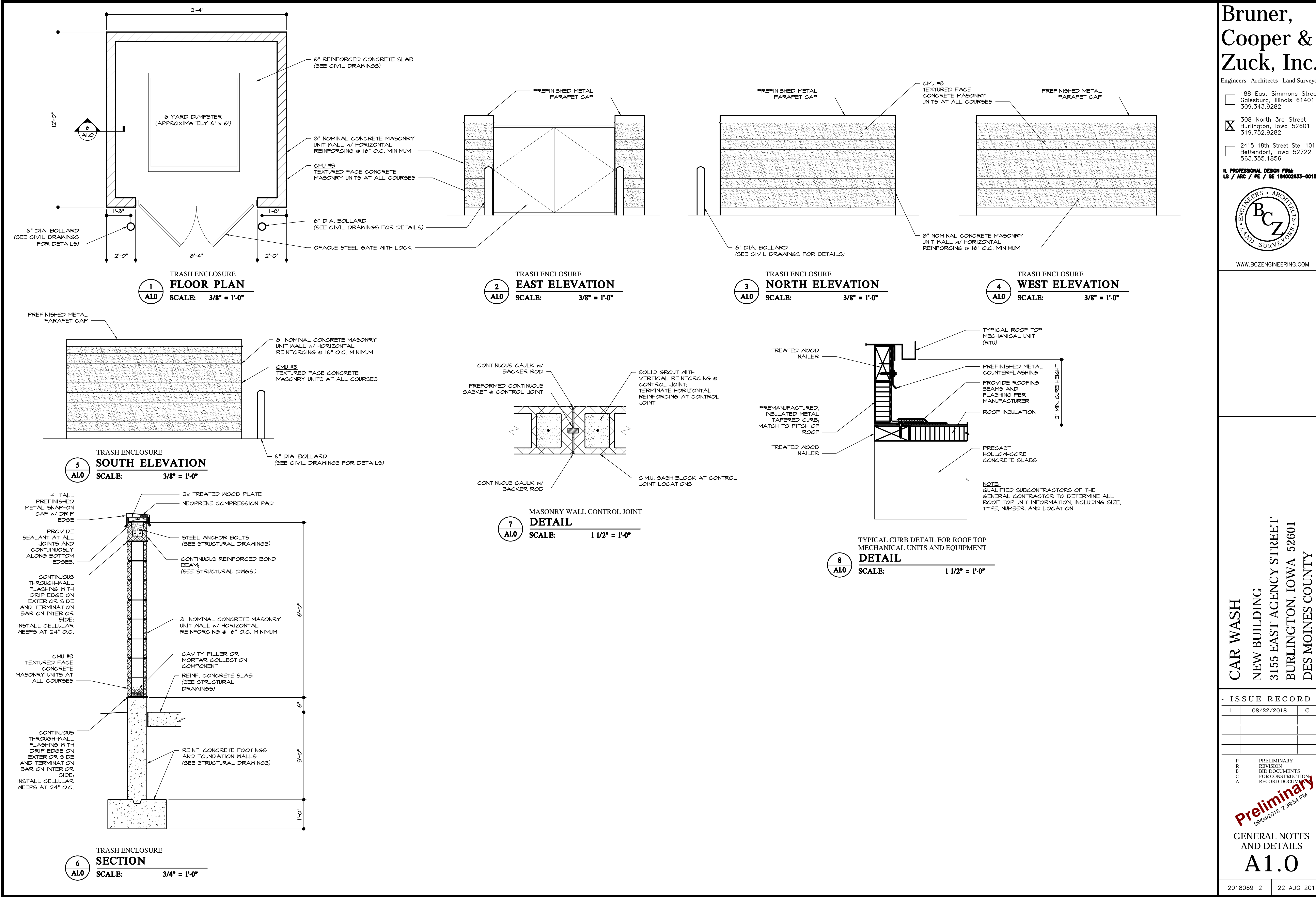
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COVER SHEET

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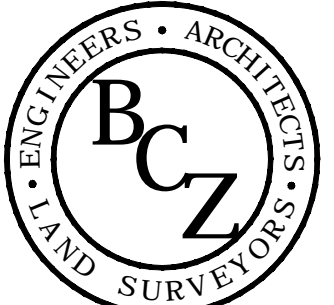
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GENERAL NOTES
AND DETAILS

A1.0

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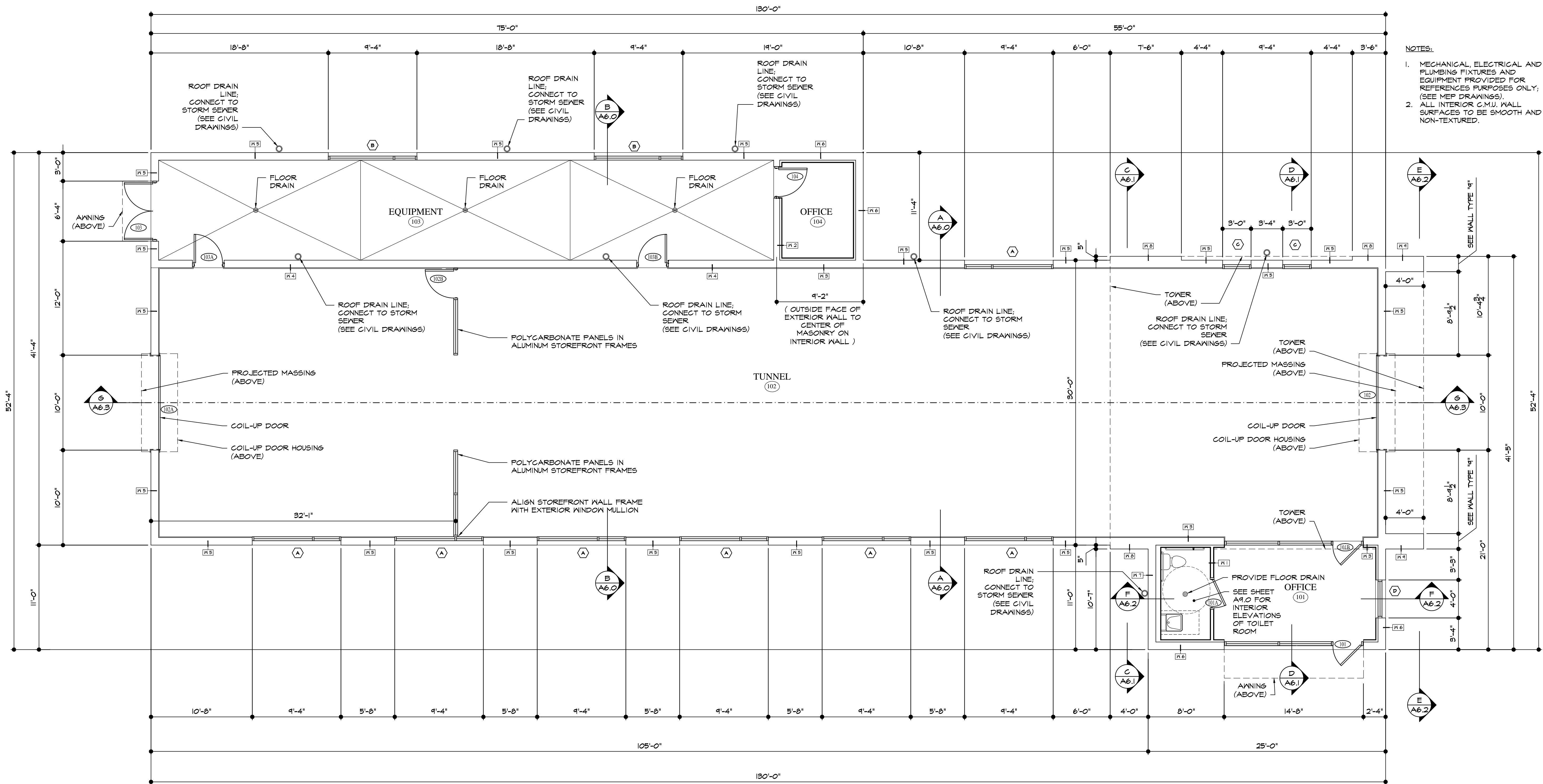
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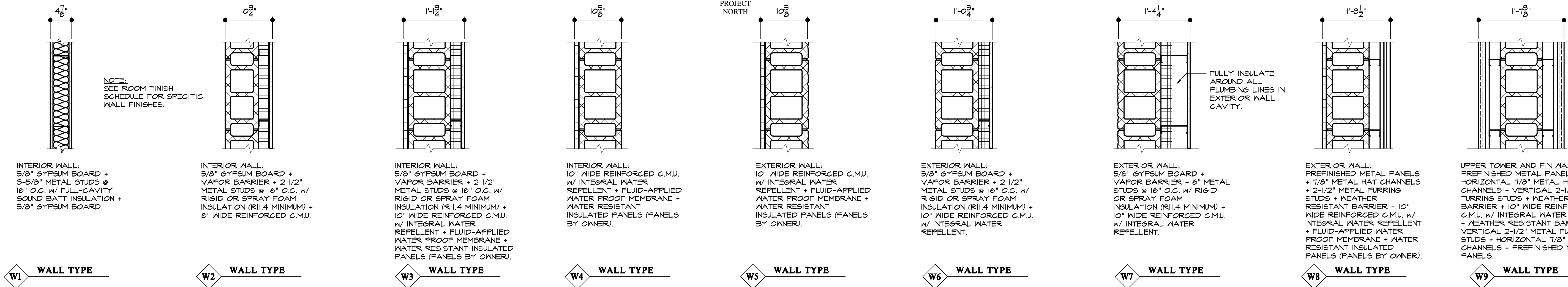
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FLOOR PLAN

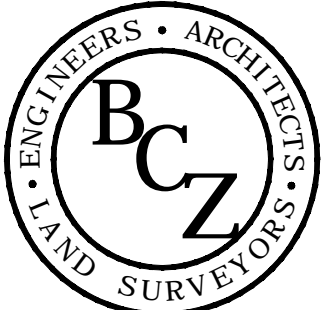
A2.0



FLOOR PLAN
SCALE: 3/16" = 1'-0"
PROJECT NORTH



WALL TYPES
SCALE: 1" = 1'-0"



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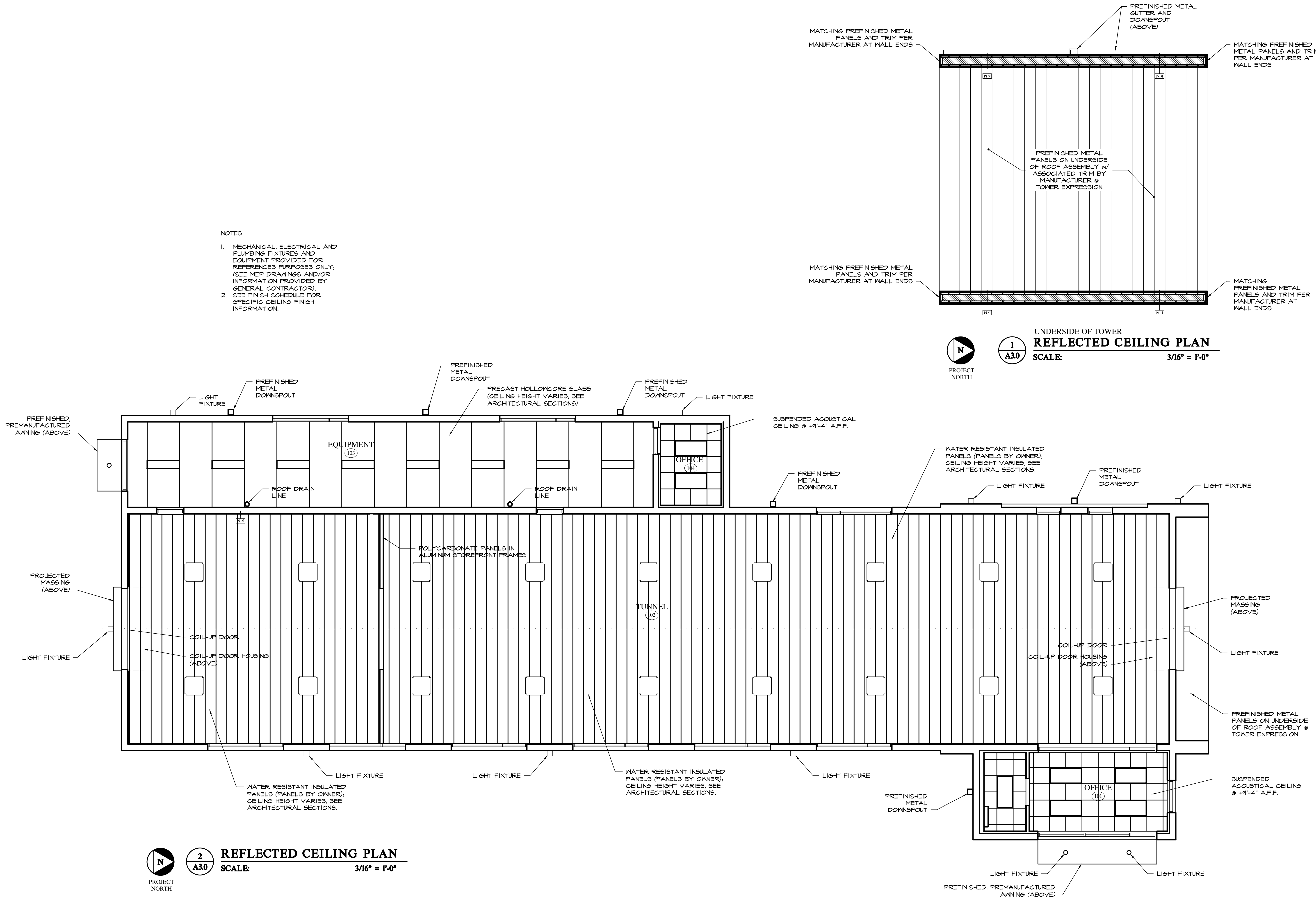
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REFLECTED
CEILING PLAN

A3.0



NOTES:

- MECHANICAL, ELECTRICAL AND PLUMBING FIXTURES AND EQUIPMENT PROVIDED FOR REFERENCES PURPOSES ONLY; (SEE MEP DRAWINGS AND/OR INFORMATION PROVIDED BY GENERAL CONTRACTOR).
- SEE FINISH SCHEDULE FOR SPECIFIC CEILING FINISH INFORMATION.

UNDERSIDE OF TOWER
REFLECTED CEILING PLAN

SCALE: 3/16" = 1'-0"



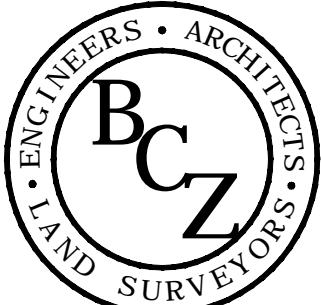
1
A3.0



2
A3.0

REFLECTED CEILING PLAN

SCALE: 3/16" = 1'-0"



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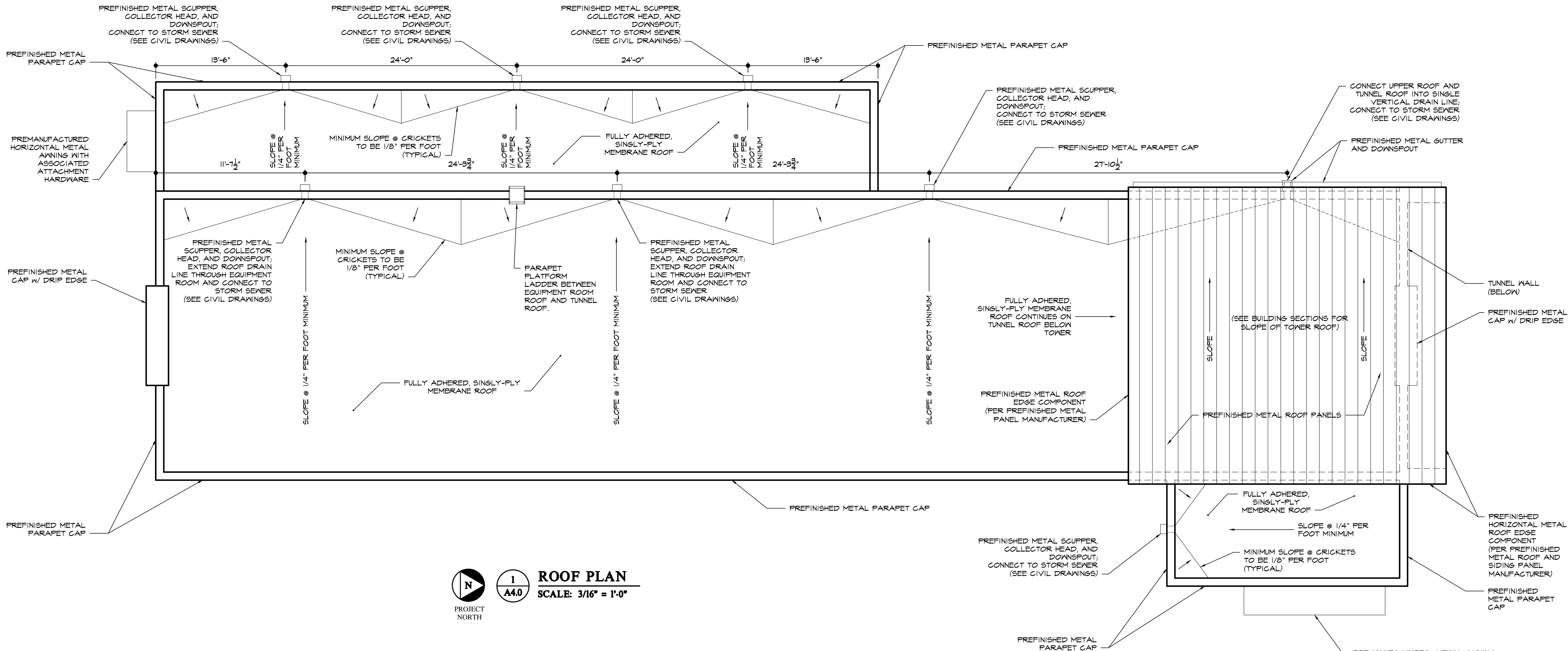
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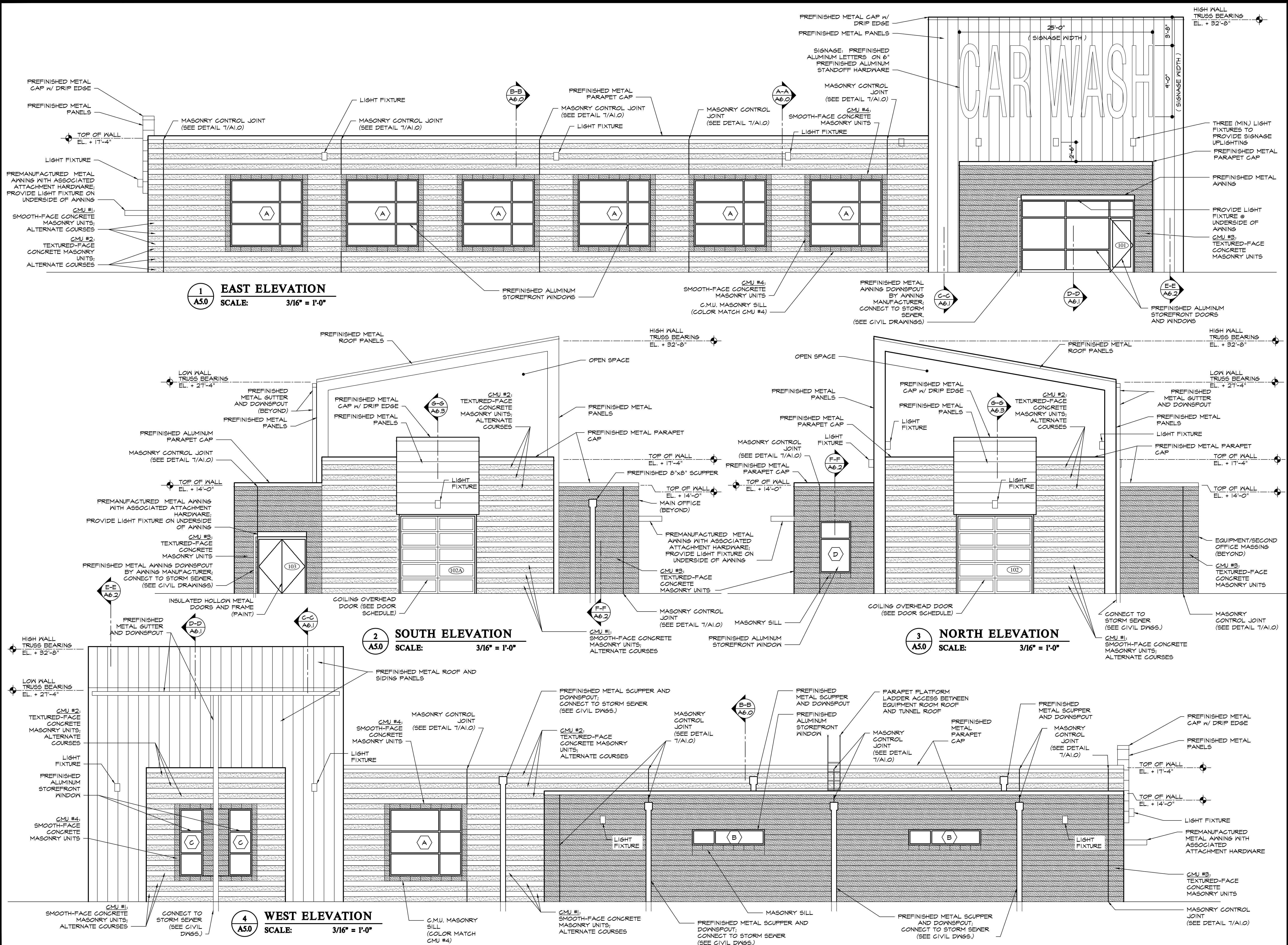
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ROOF PLAN

A4.0





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ELEVATIONS

A5.0

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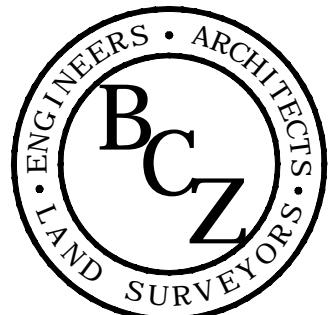
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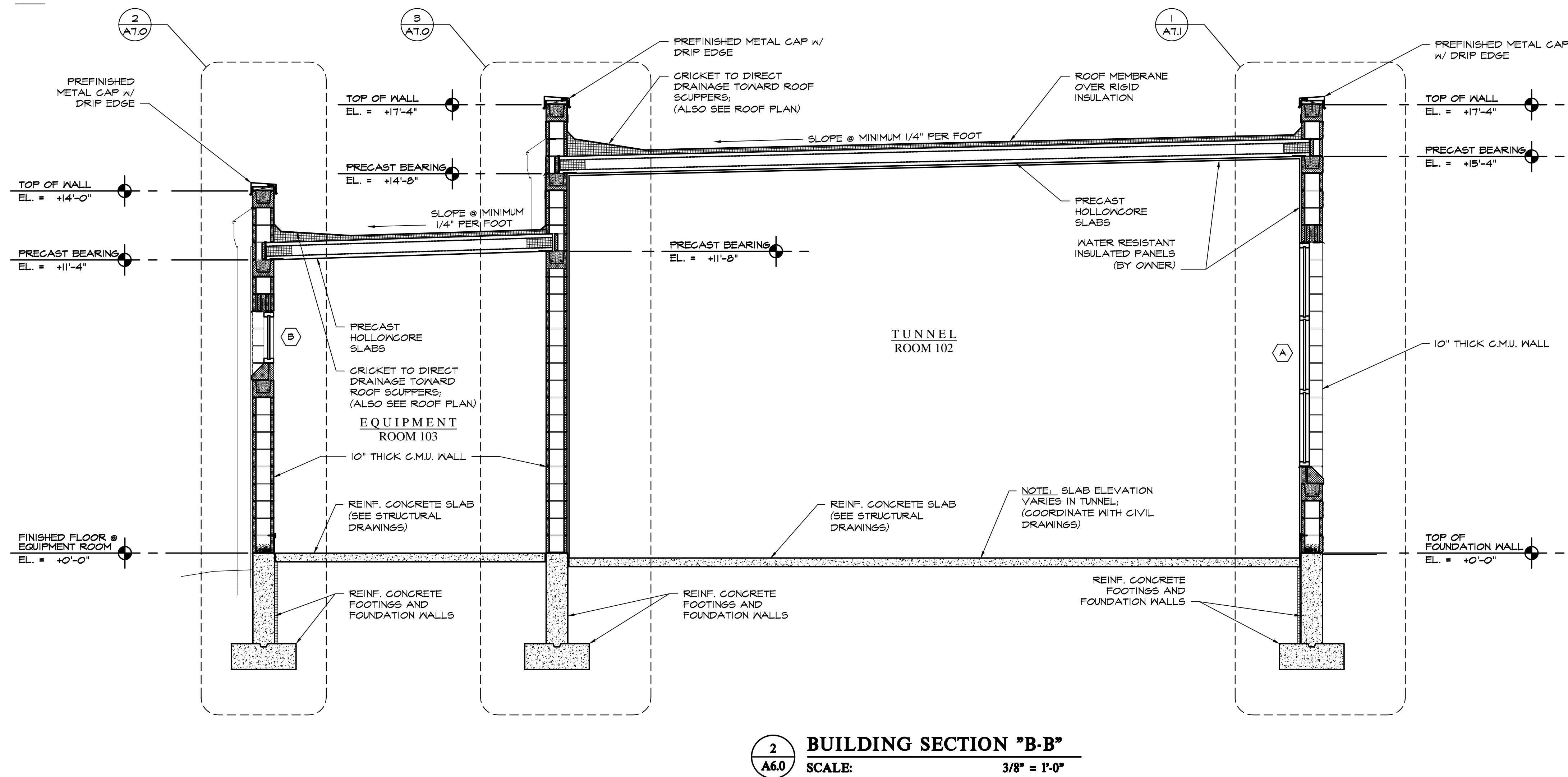
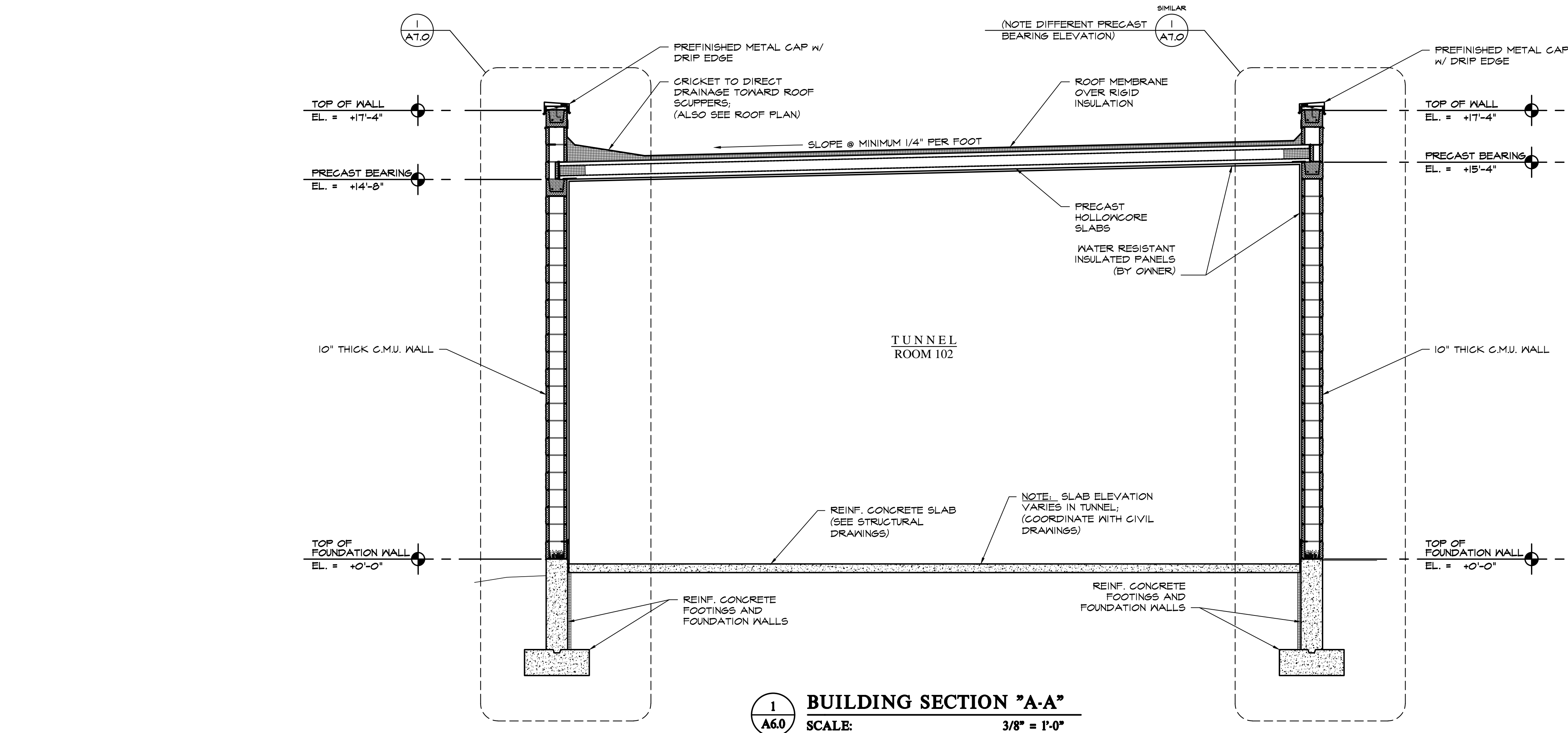
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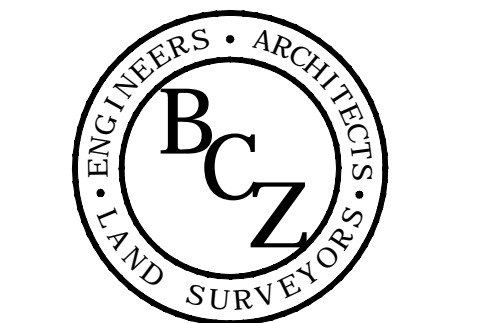
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BUILDING
SECTIONS
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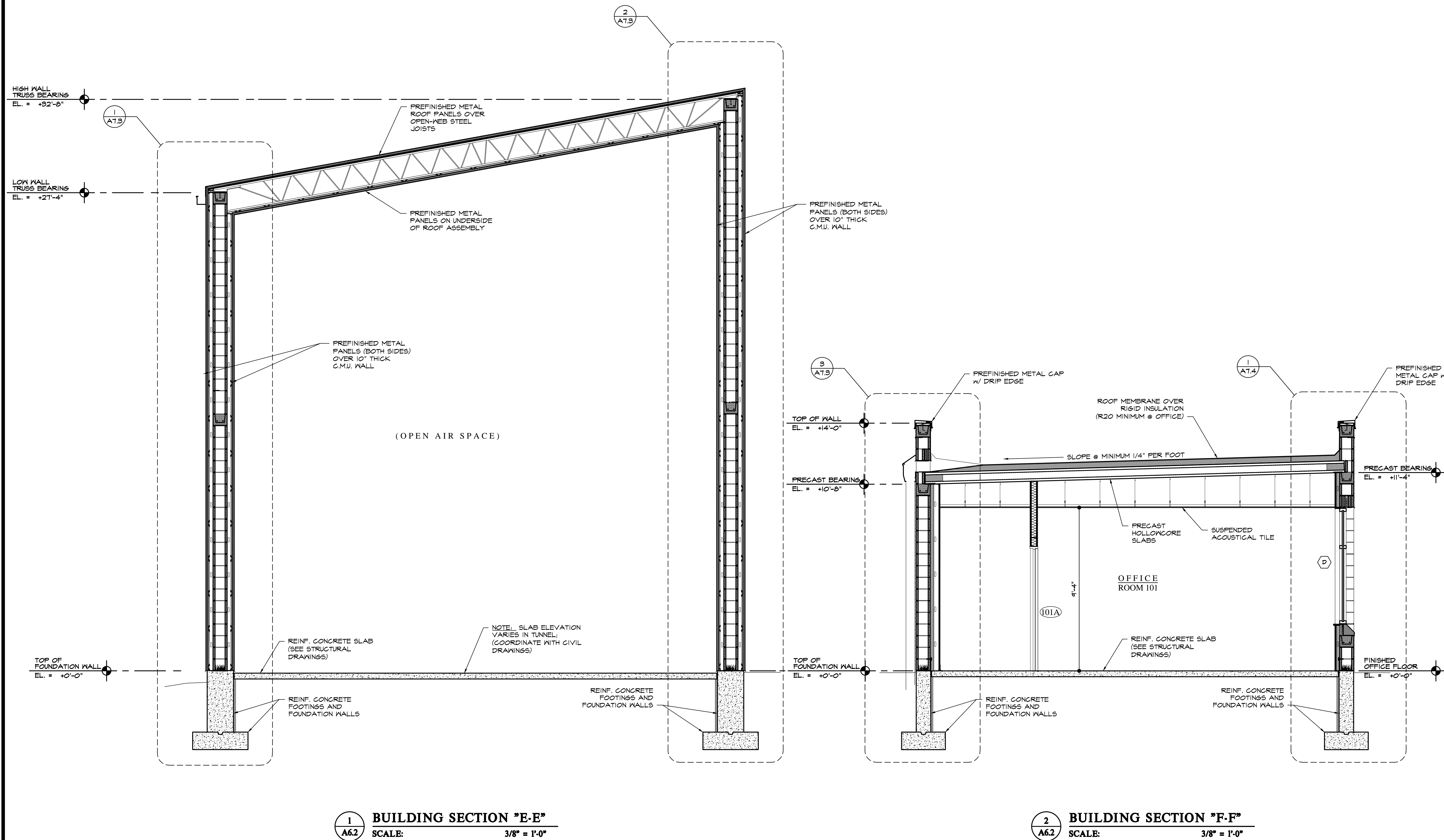
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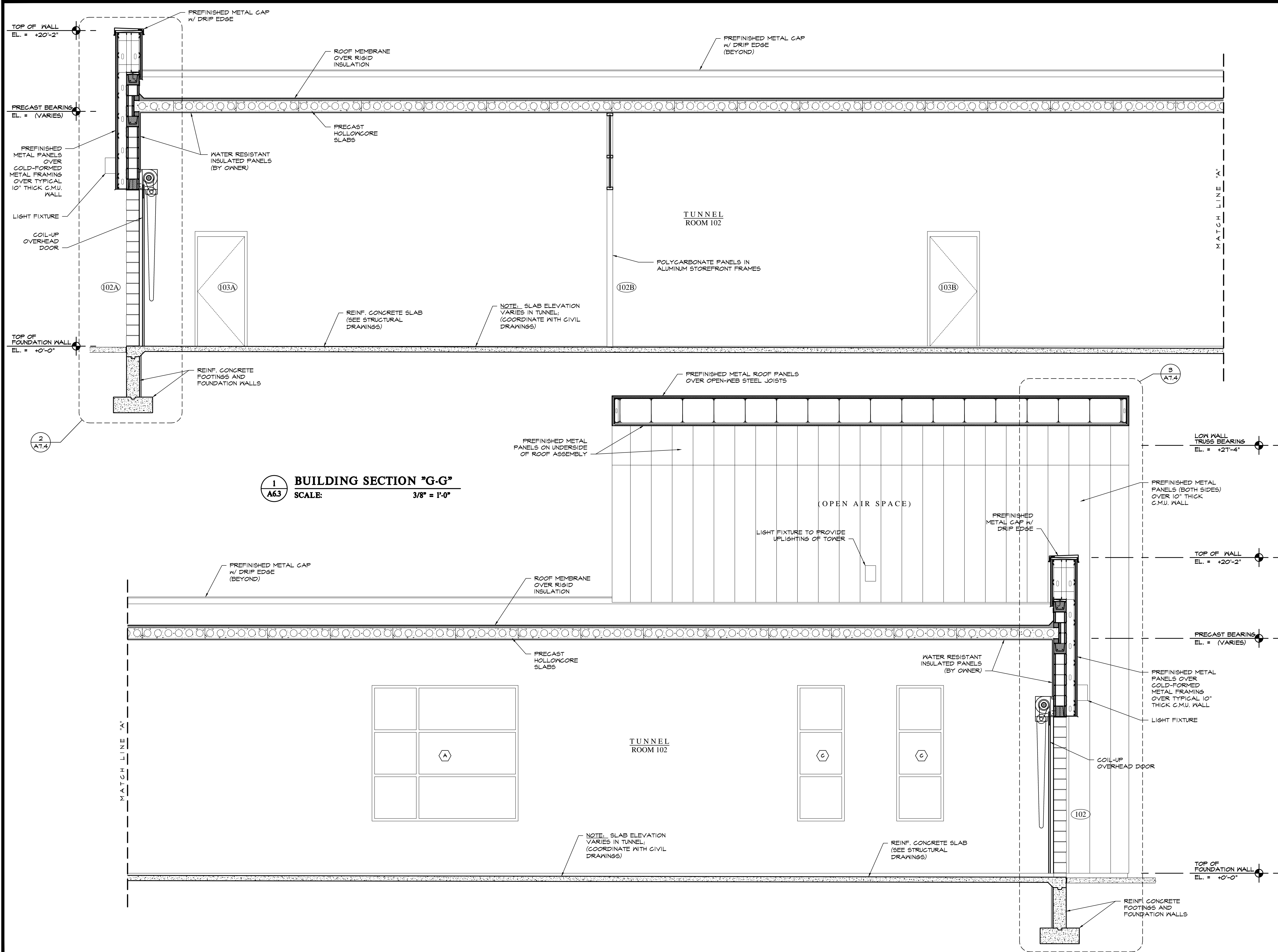
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BUILDING
SECTIONS
A6.2



1 BUILDING SECTION "E-E"
A6.2 SCALE: 3/8" = 1'-0"

2 BUILDING SECTION "F-F"
A6.2 SCALE: 3/8" = 1'-0"



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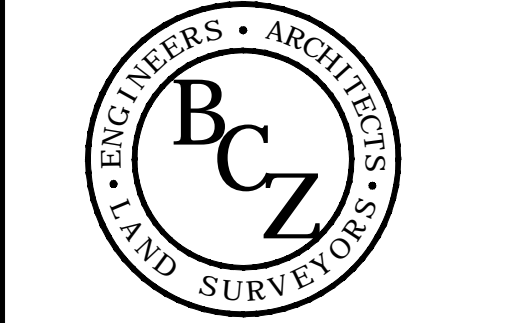
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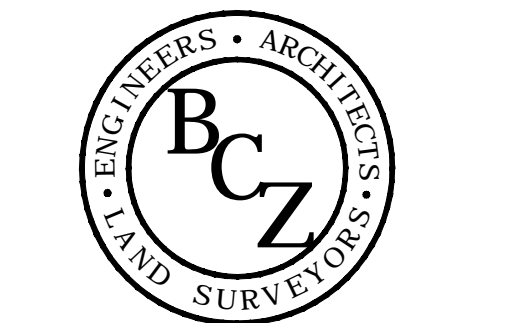
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BUILDING
SECTIONS
A6.3



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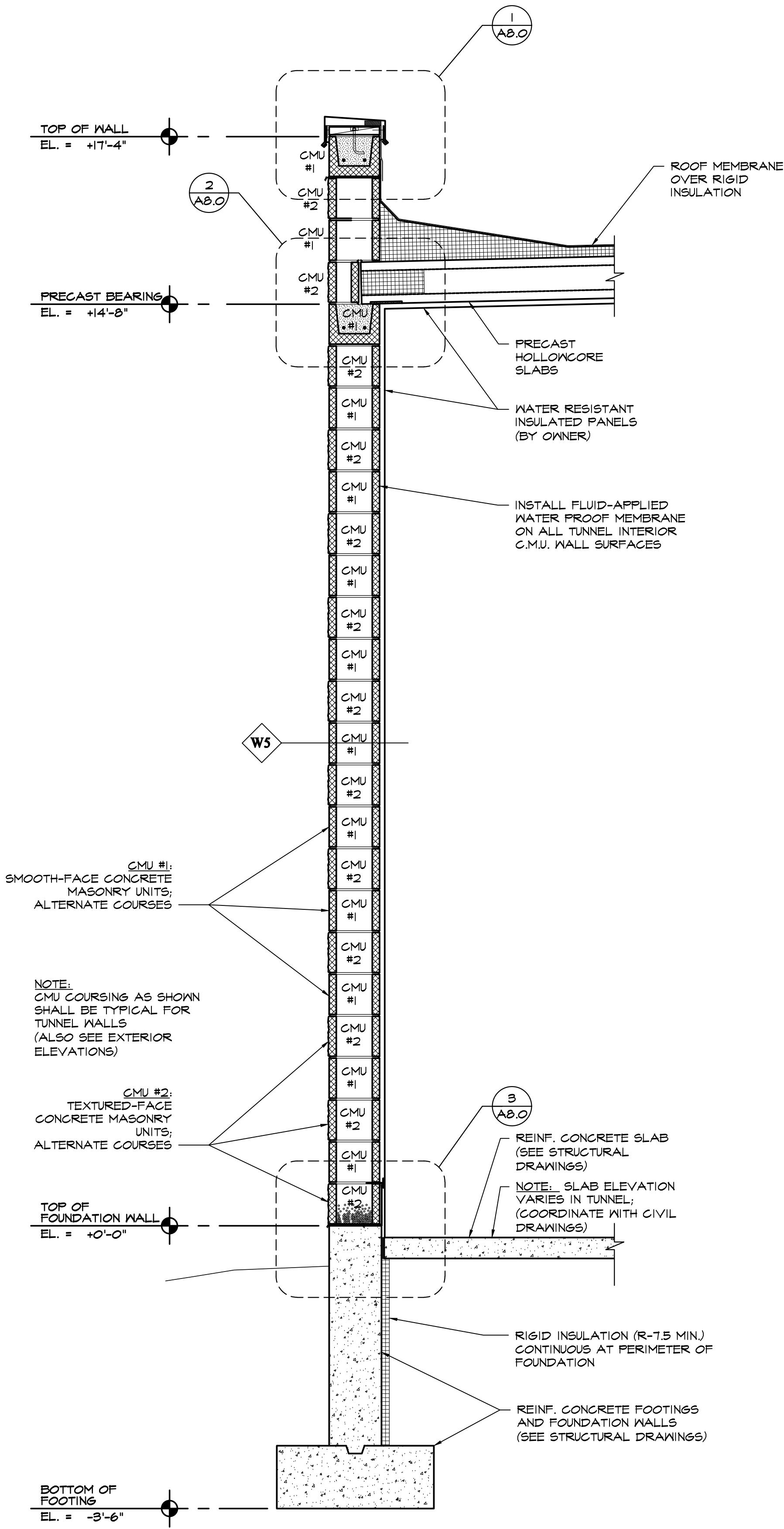
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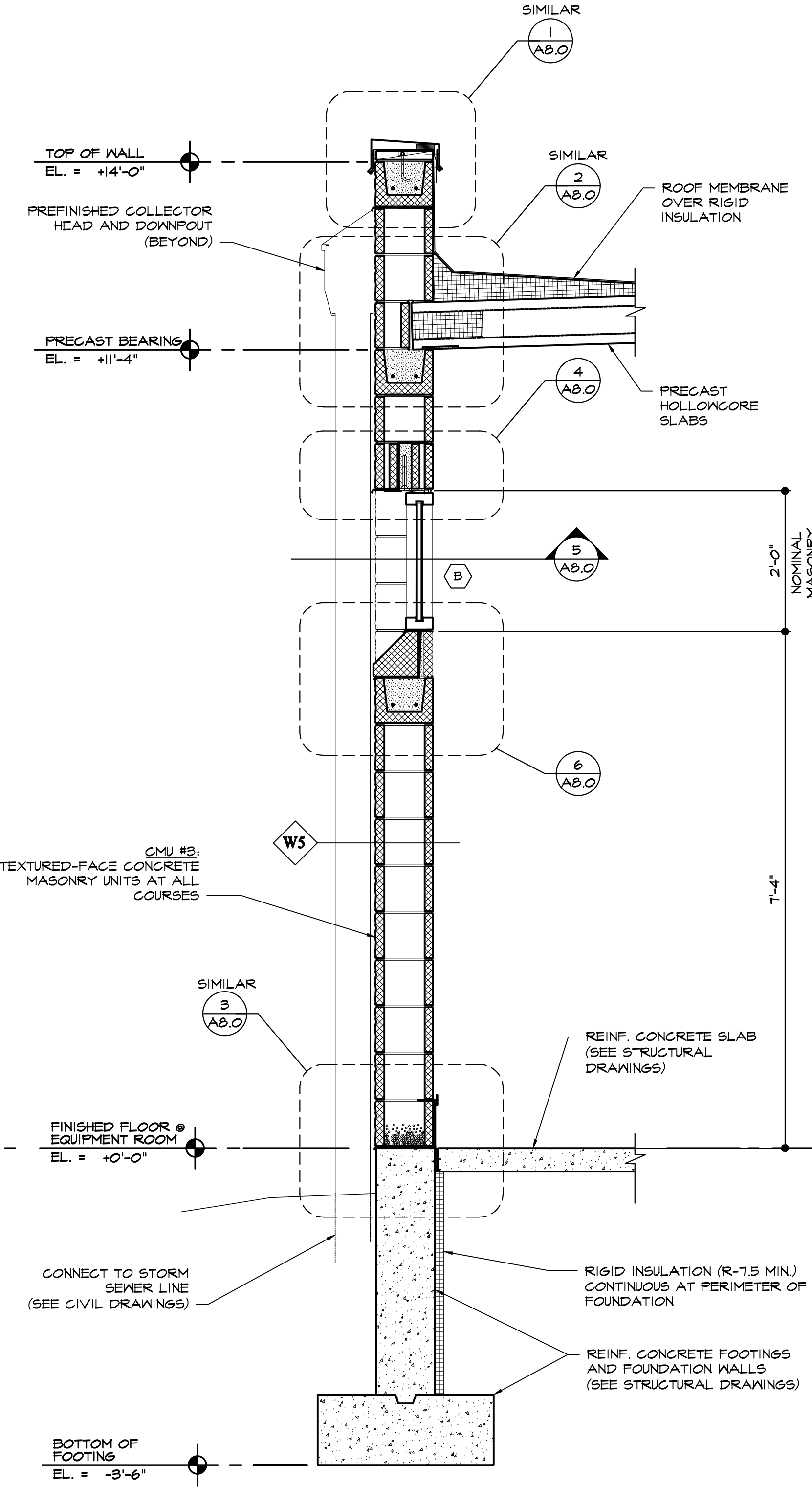
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WALL
SECTIONS
A7.0

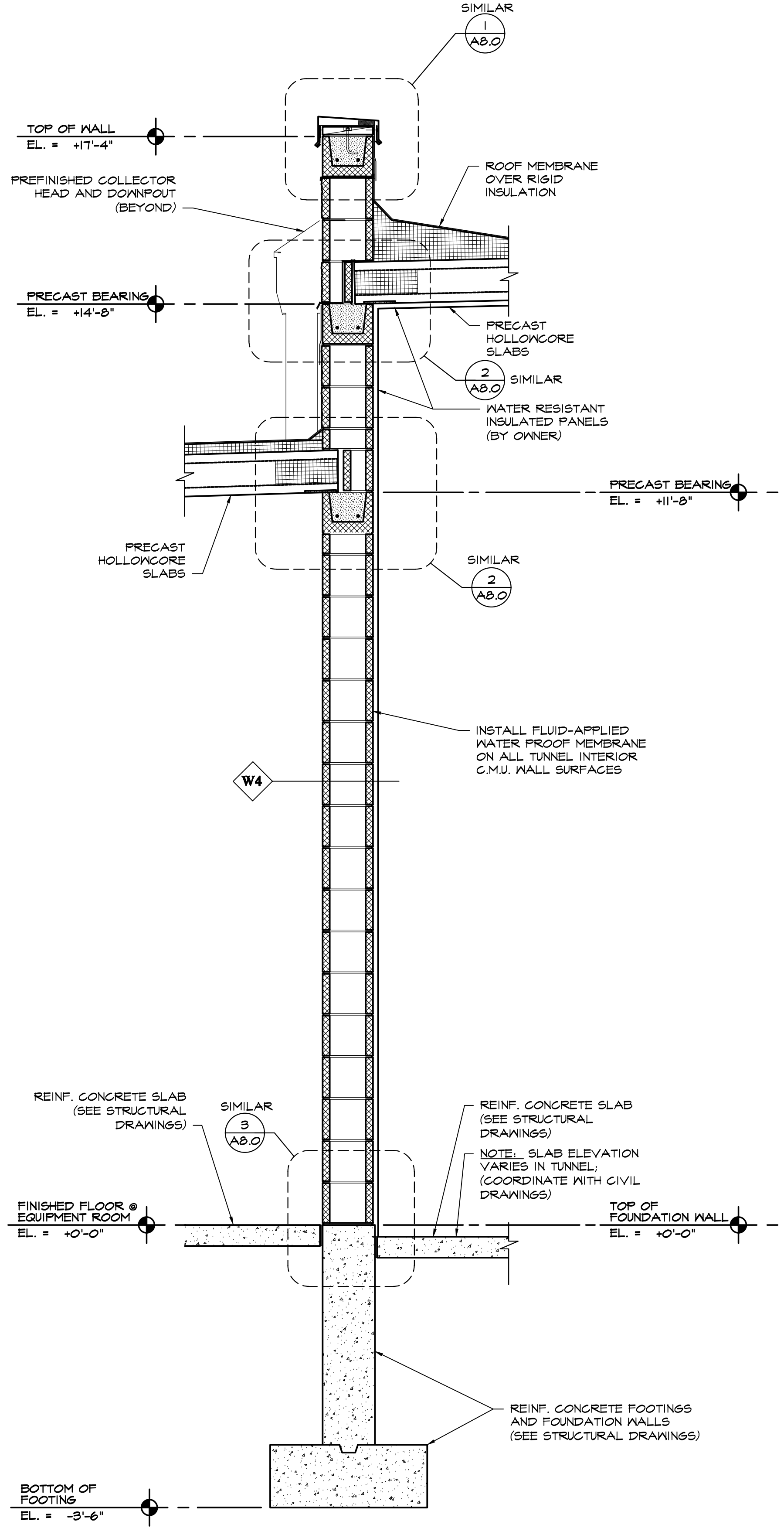
NOTES FOR "AT" WALL SECTION SHEETS:
1. SEE REFERENCED WALL TYPES ON SHEET A2.0.
2. INSTALL FLUID-APPLIED WATER PROOF MEMBRANE ON ALL TUNNEL INTERIOR C.M.U. WALL SURFACES.



1
A7.0 WALL SECTION
SCALE: 3/4" = 1'-0"

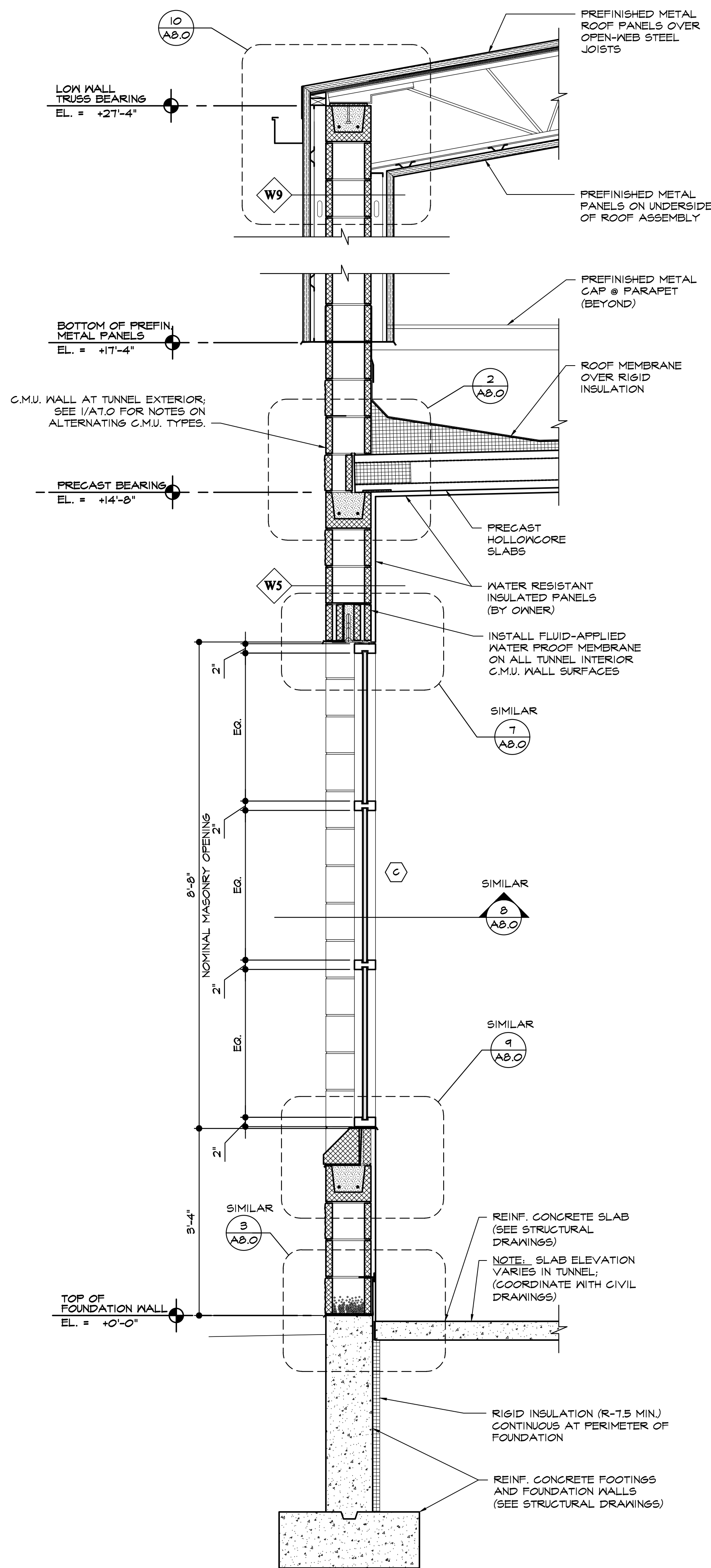


2
A7.0 WALL SECTION
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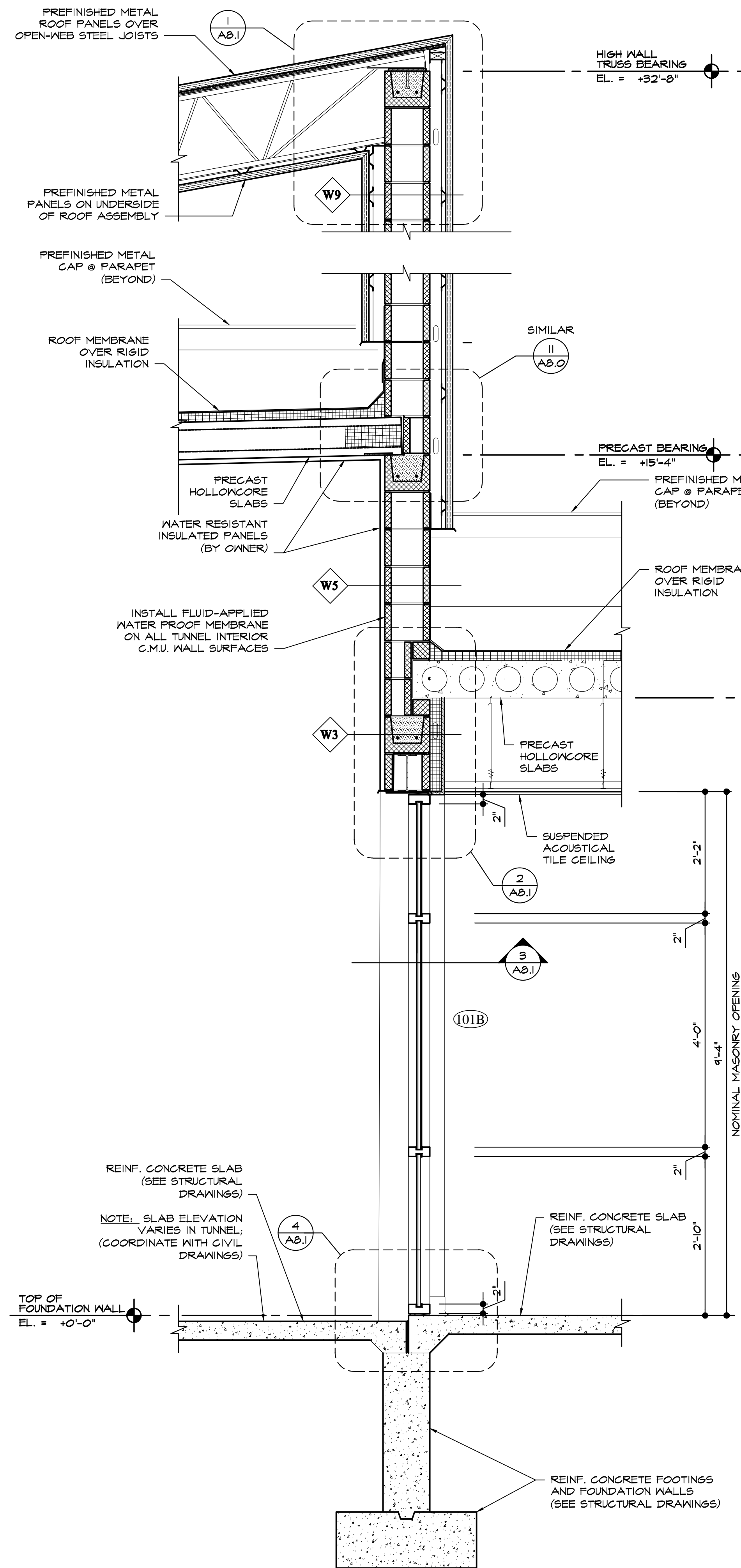


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A7.0 WALL SECTION
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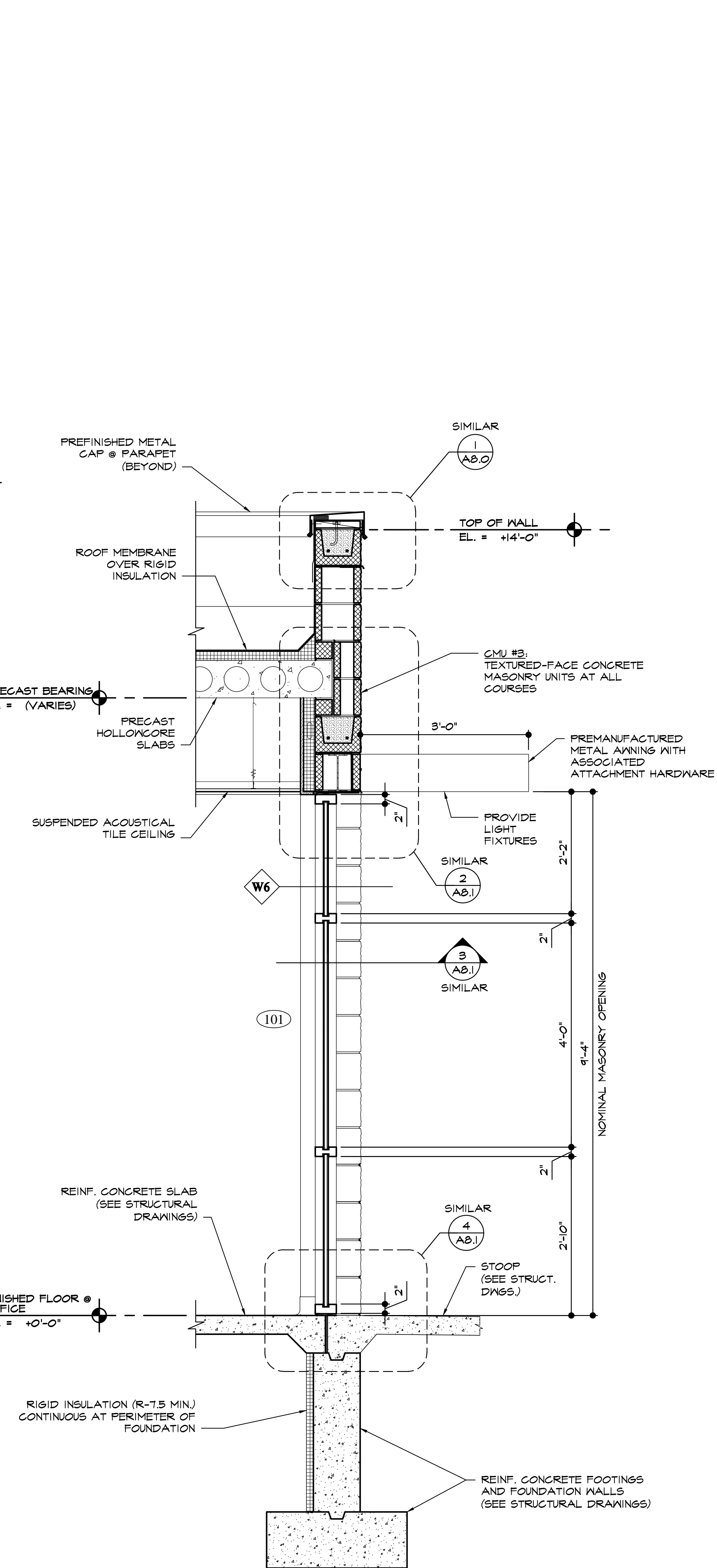
3
A7.1



1
A7.2 **WALL SECTION**
SCALE: 3/4" = 1'-0"



2
A7.2 **WALL SECTION**
SCALE: 3/4" = 1'-0"



3
A7.2 **WALL SECTION**
SCALE: 3/4" = 1'-0"

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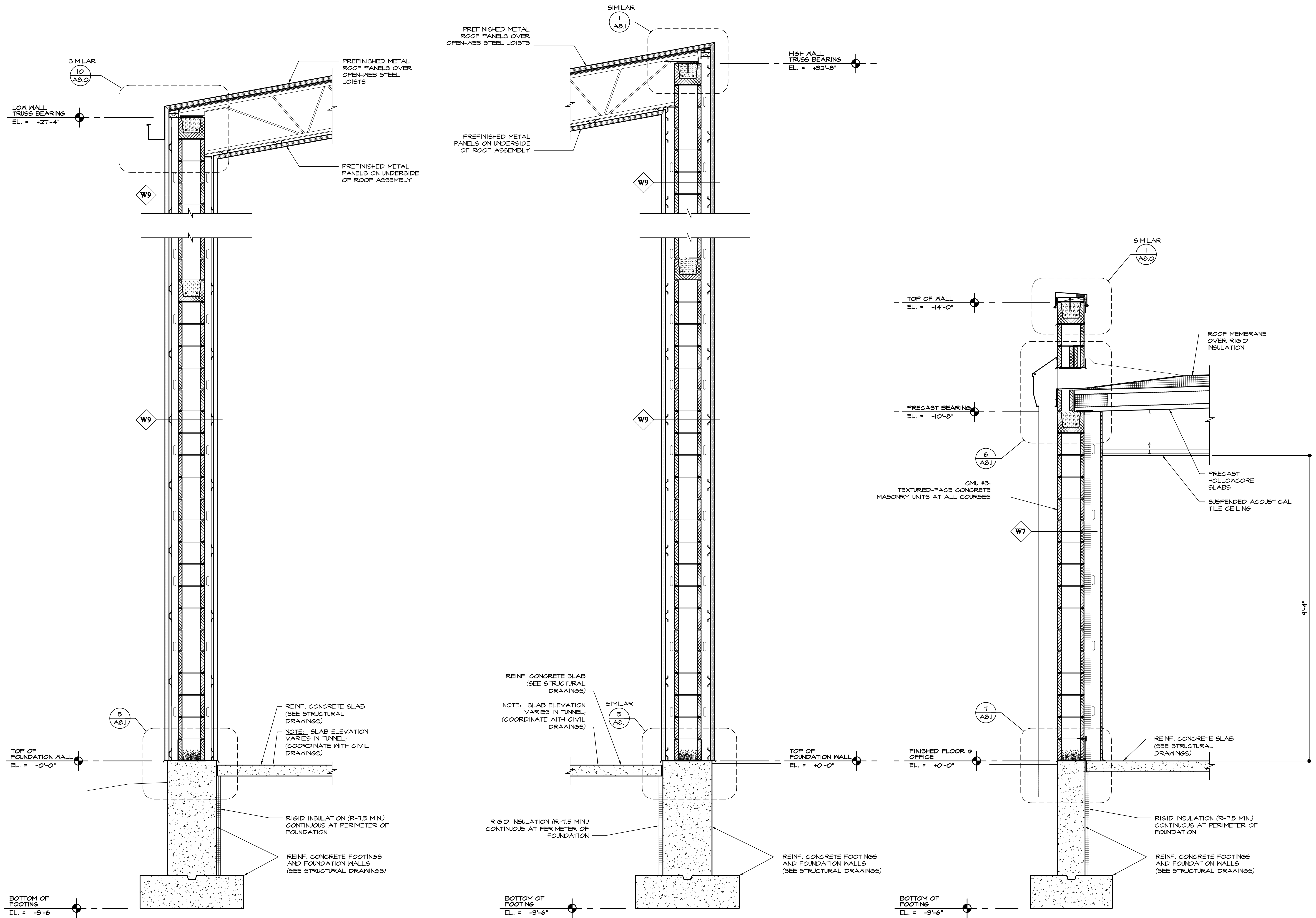
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WALL
SECTIONS
A7.2



1
A7.3
WALL SECTION
SCALE: 3/4" = 1'-0"

2
A7.3
WALL SECTION
SCALE: 3/4" = 1'-0"

3
A7.3
WALL SECTION
SCALE: 3/4" = 1'-0"

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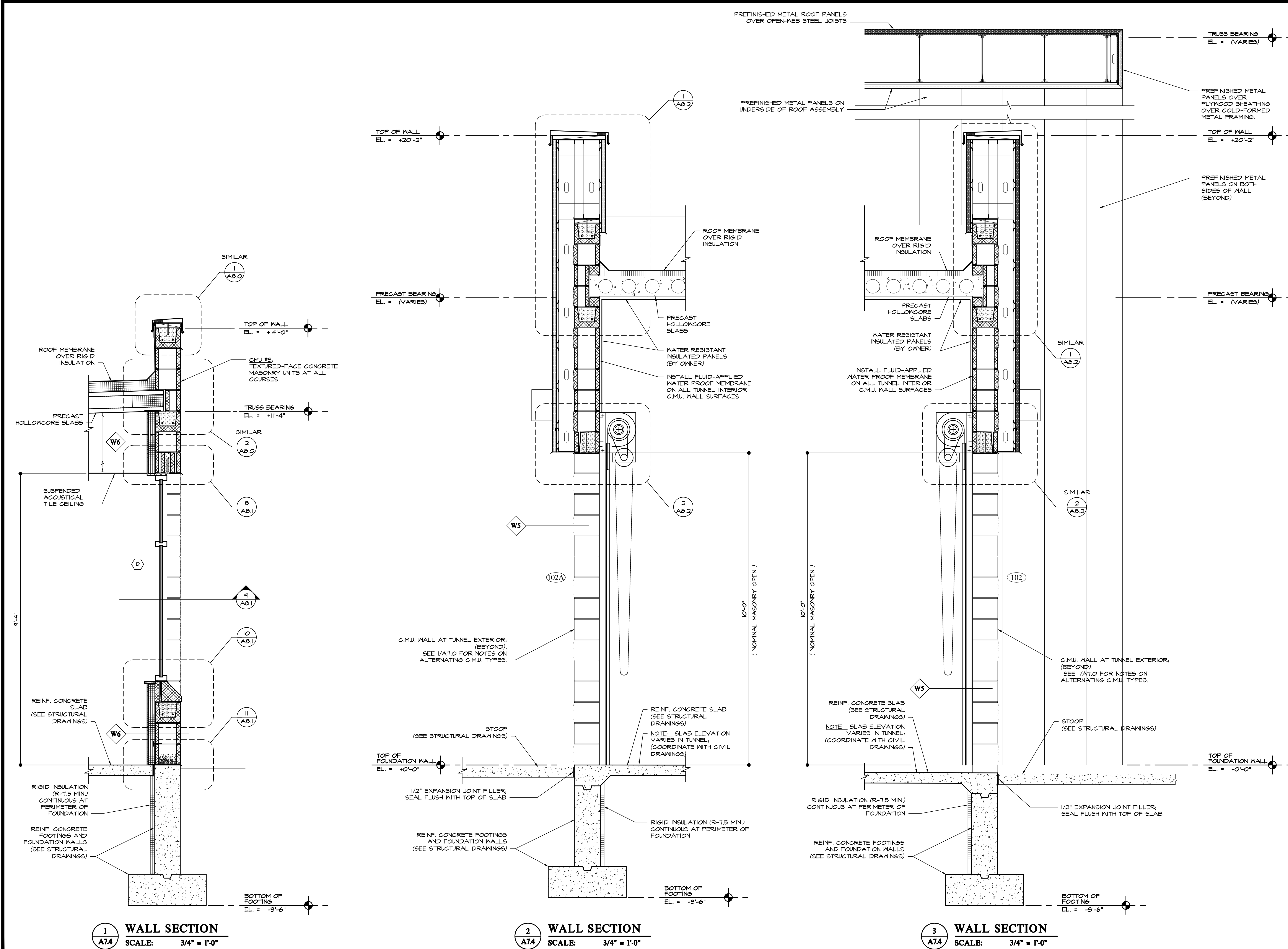
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WALL
SECTIONS
A7.3



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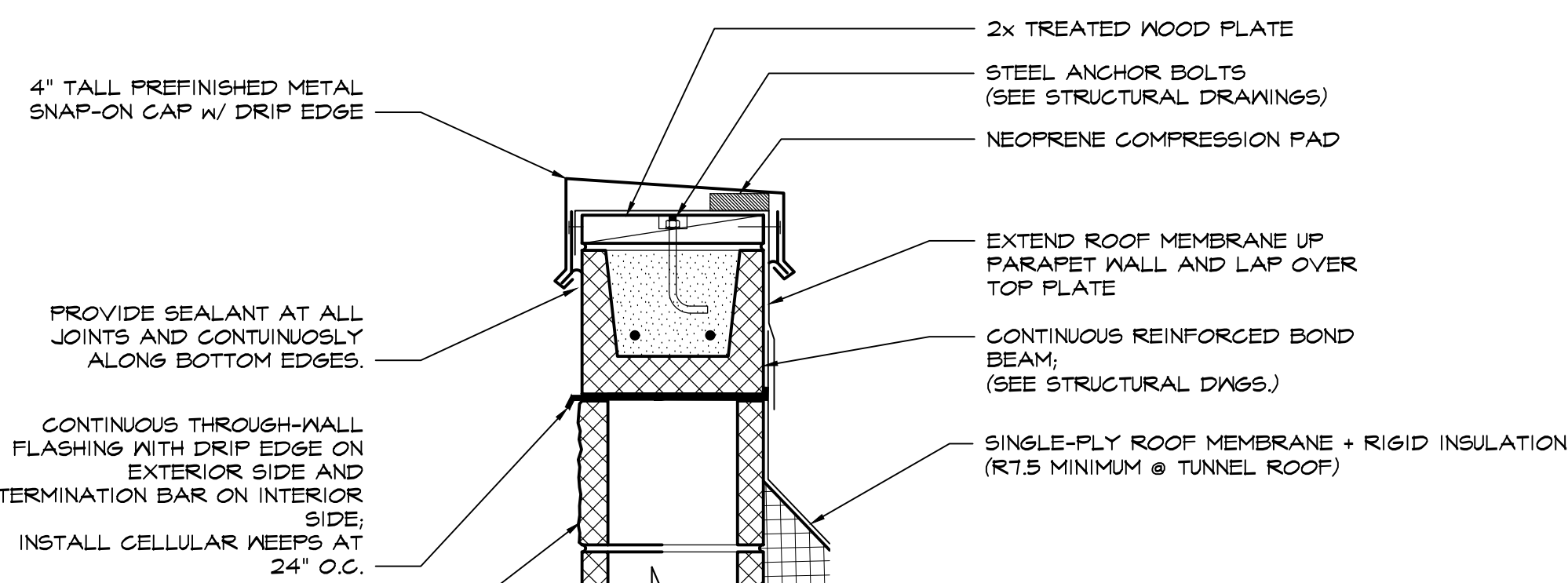
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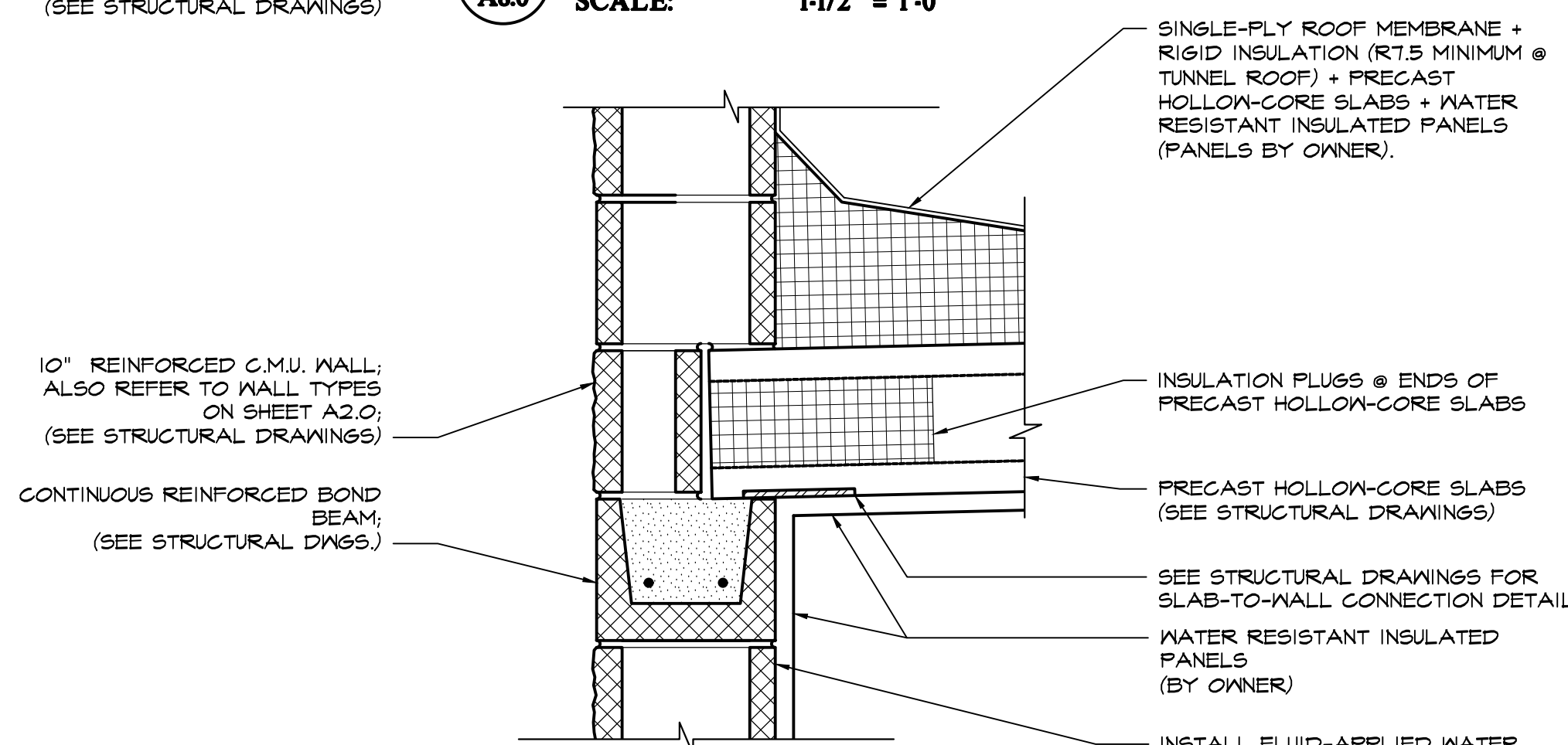
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WALL
SECTIONS
A7.4

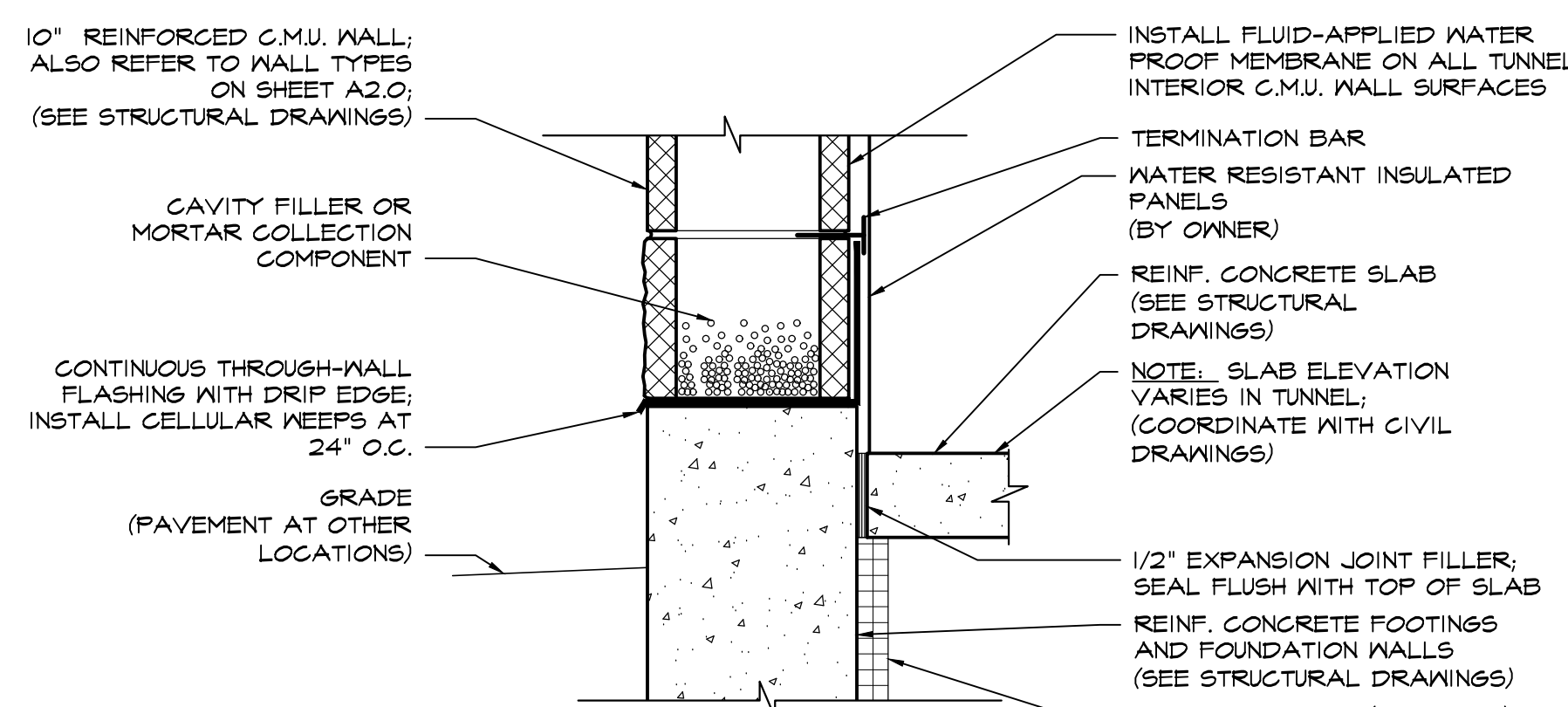
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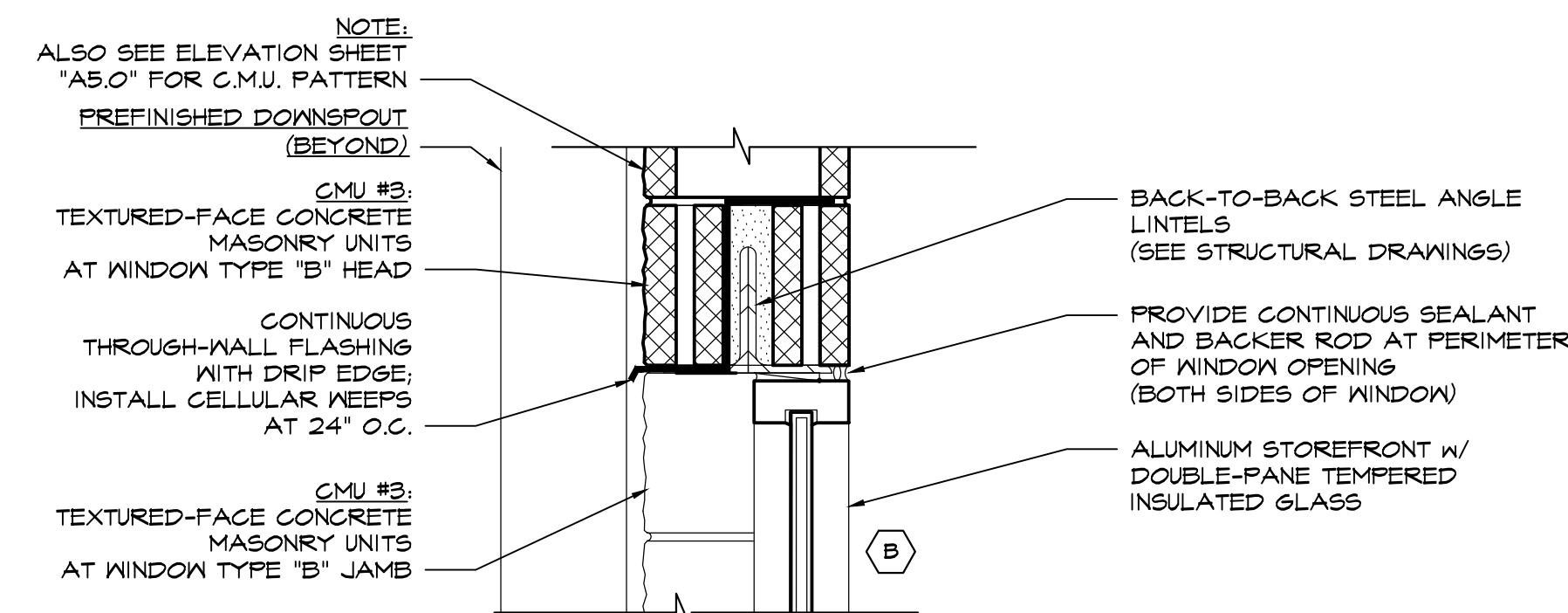
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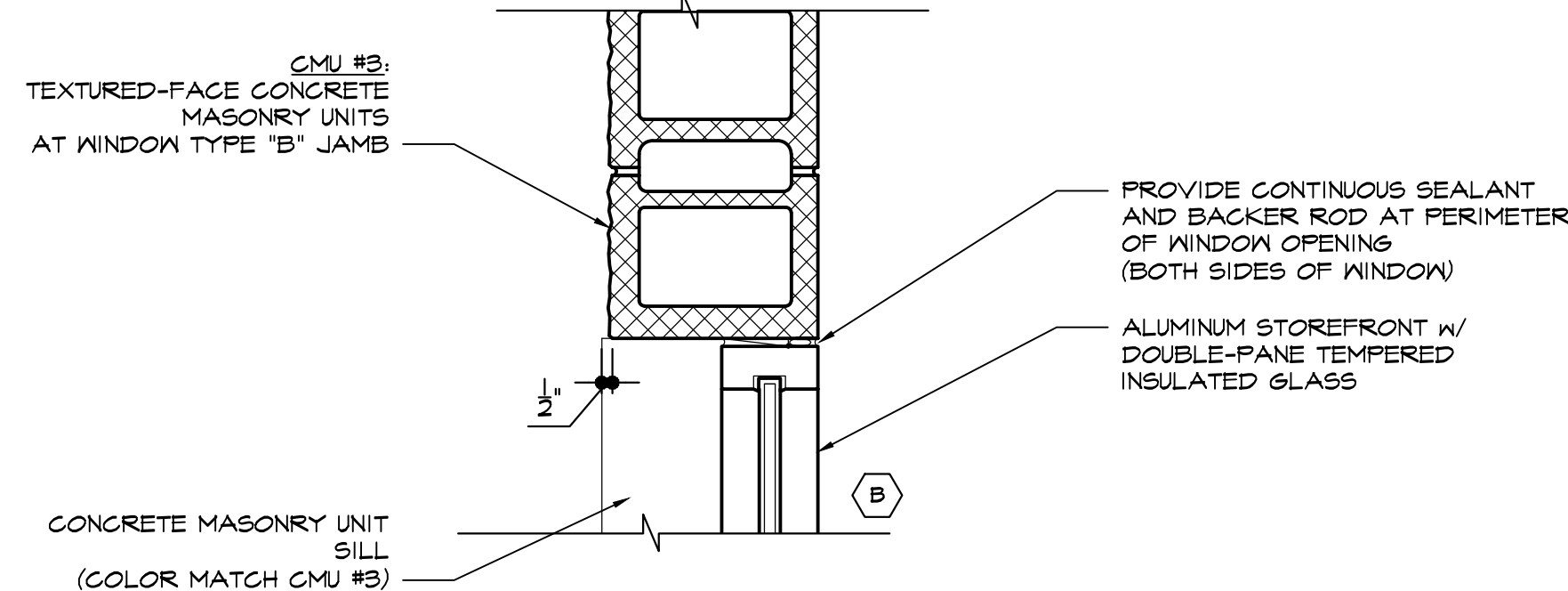
2 SECTION DETAIL
SCALE: 1-1/2" = 1'-0"



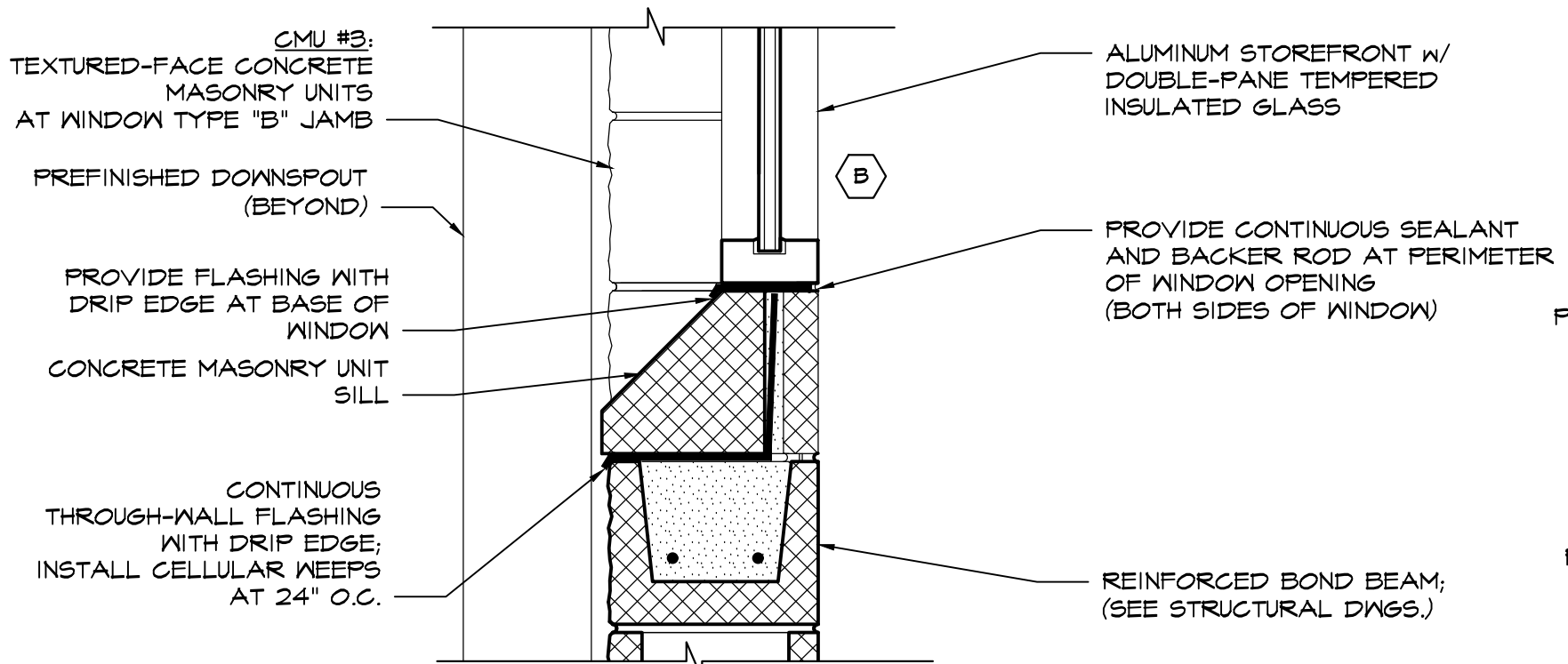
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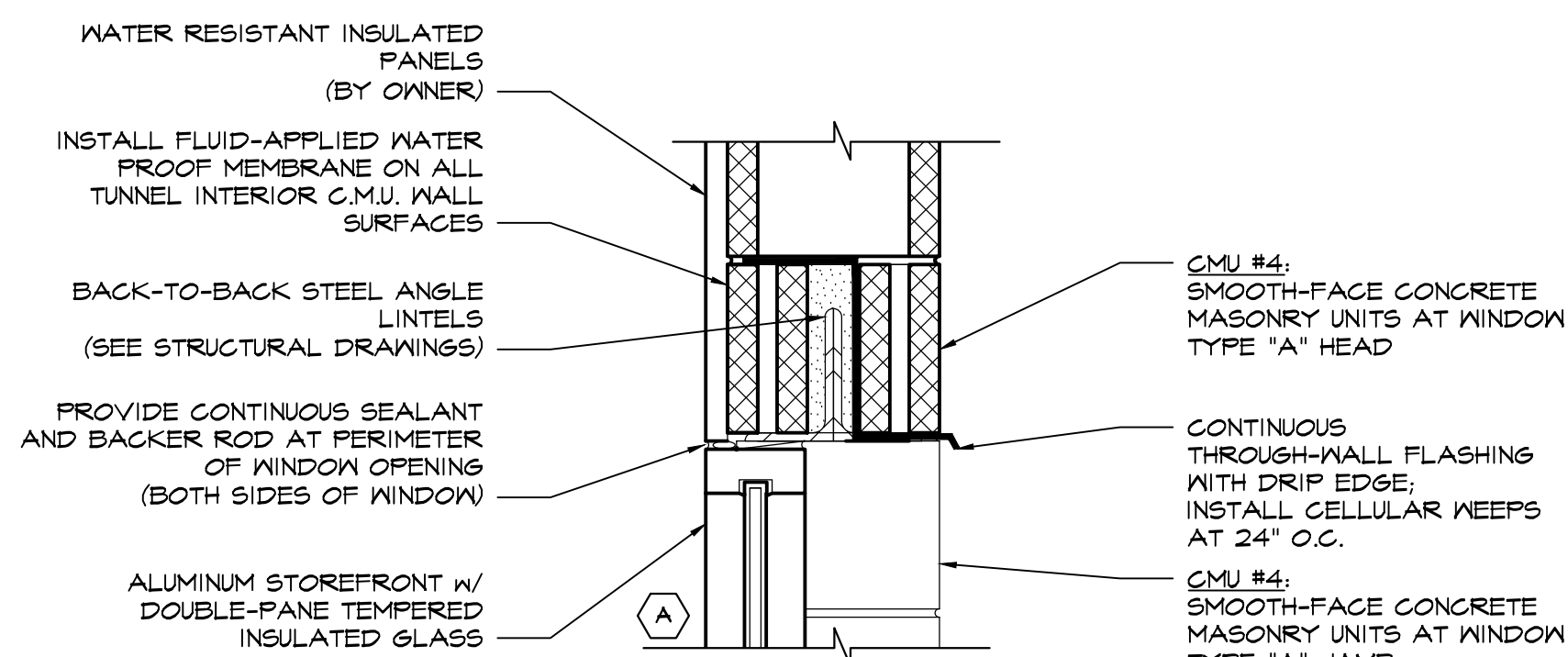
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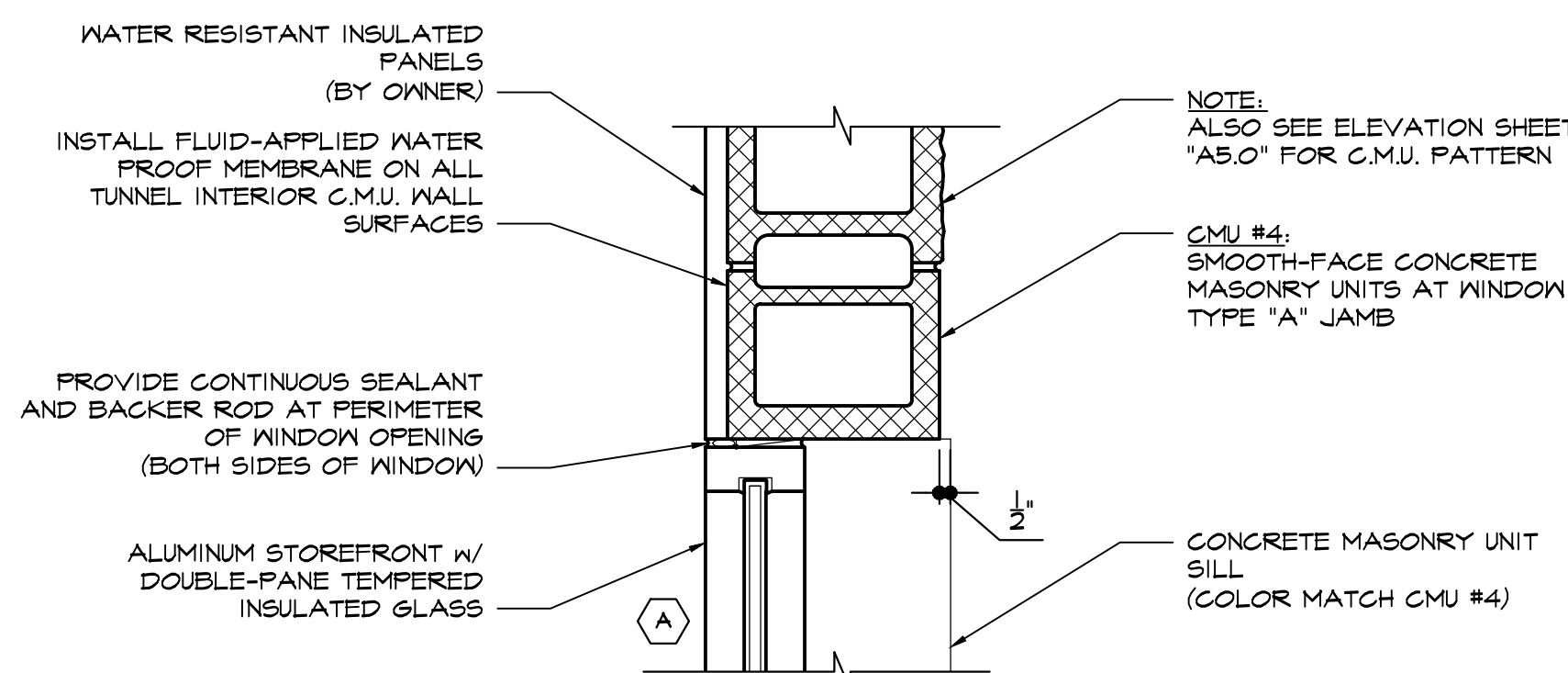
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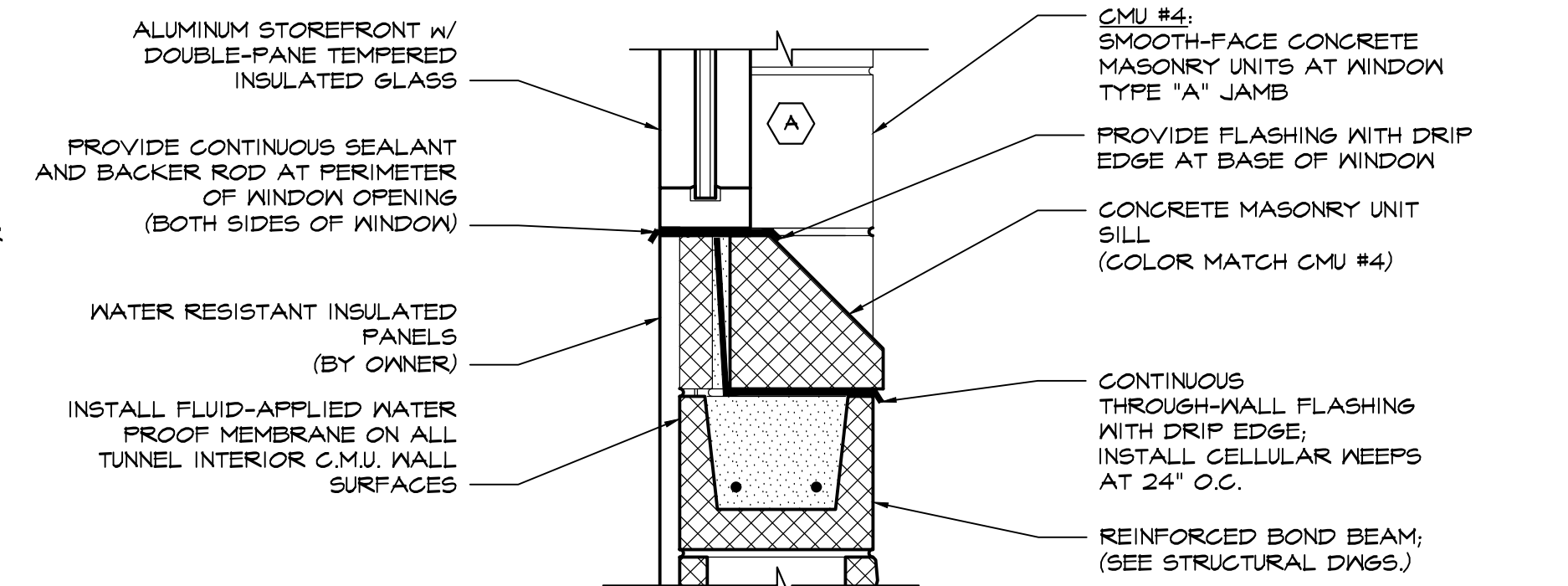
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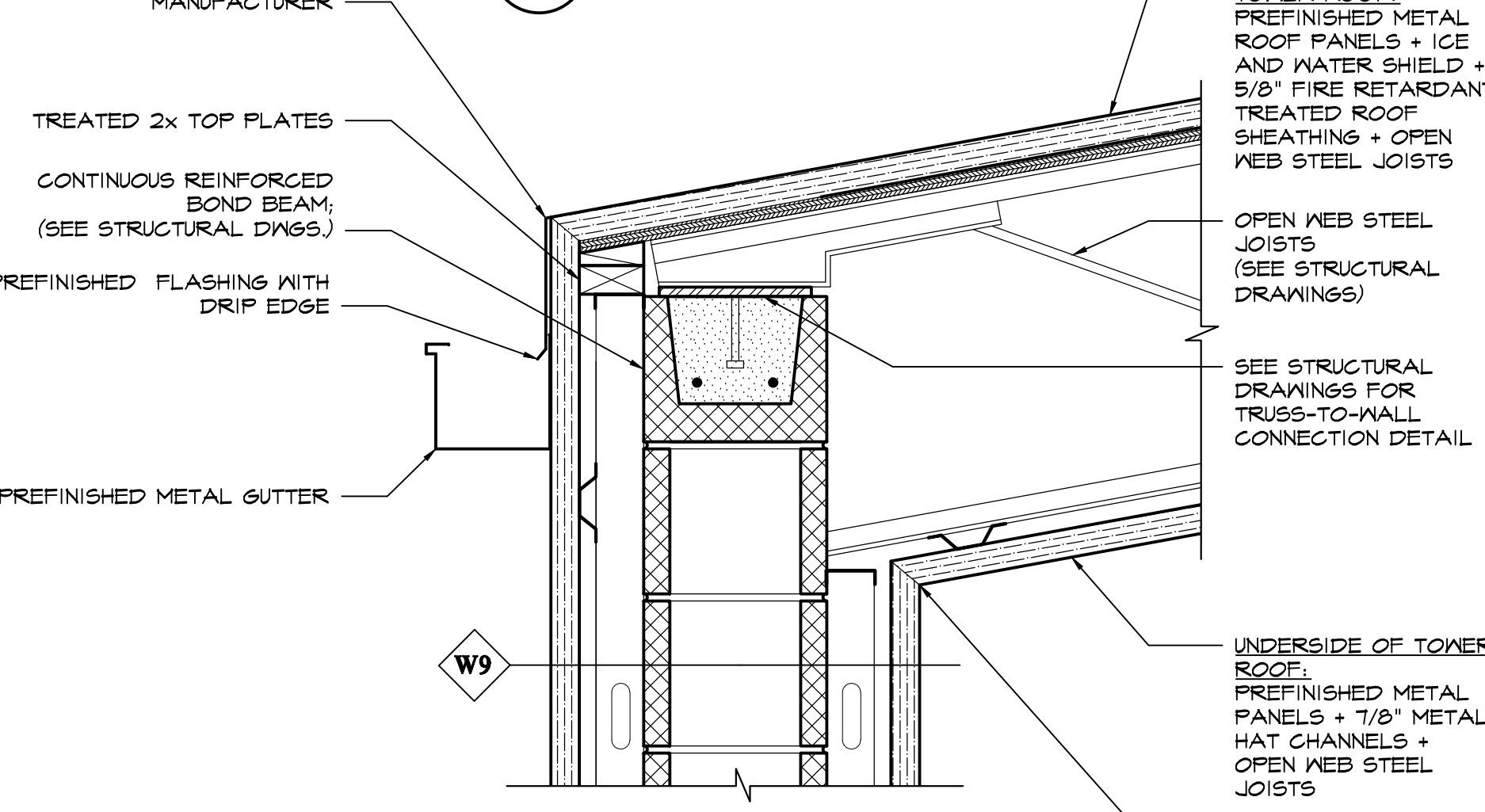
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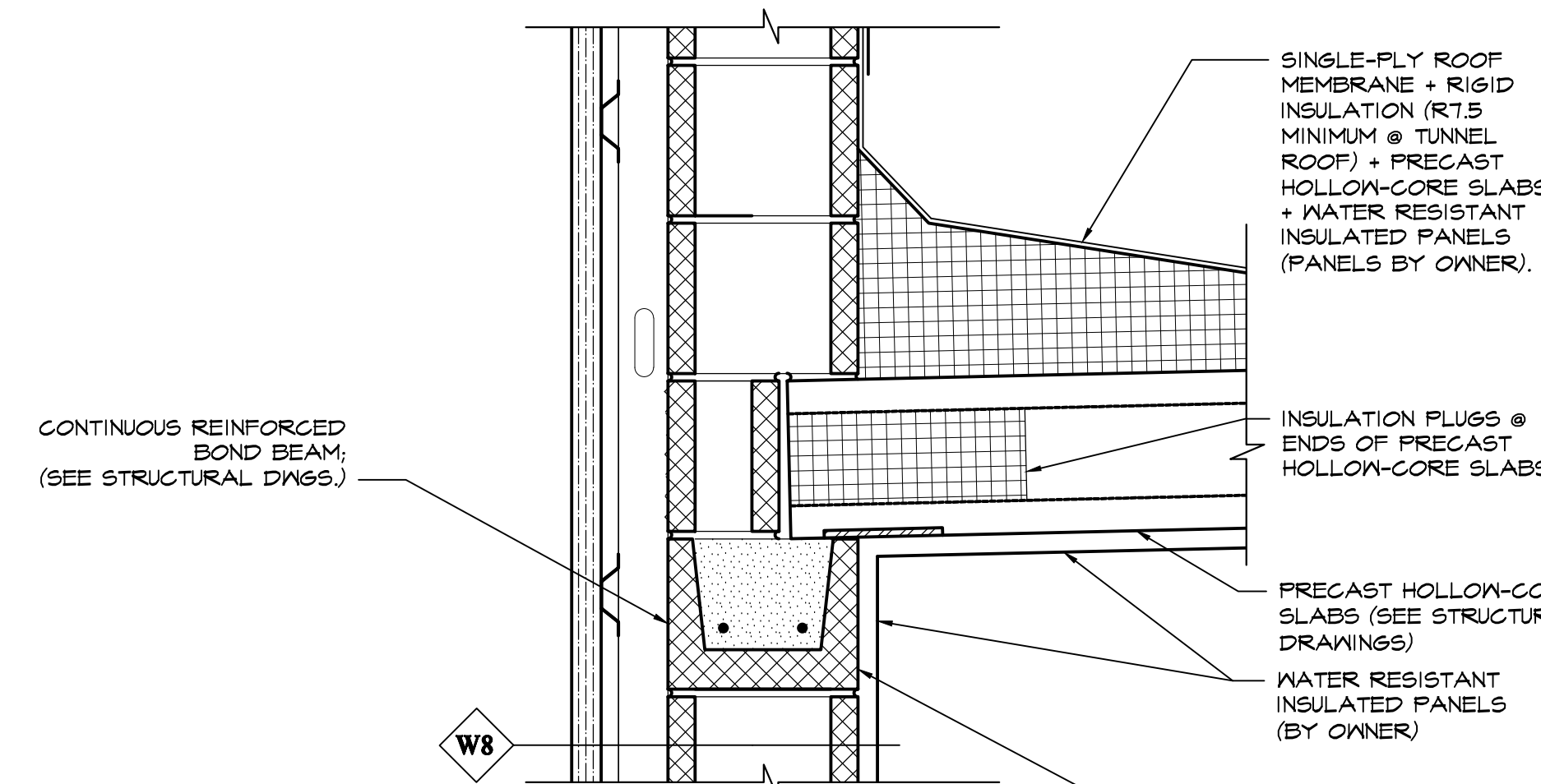
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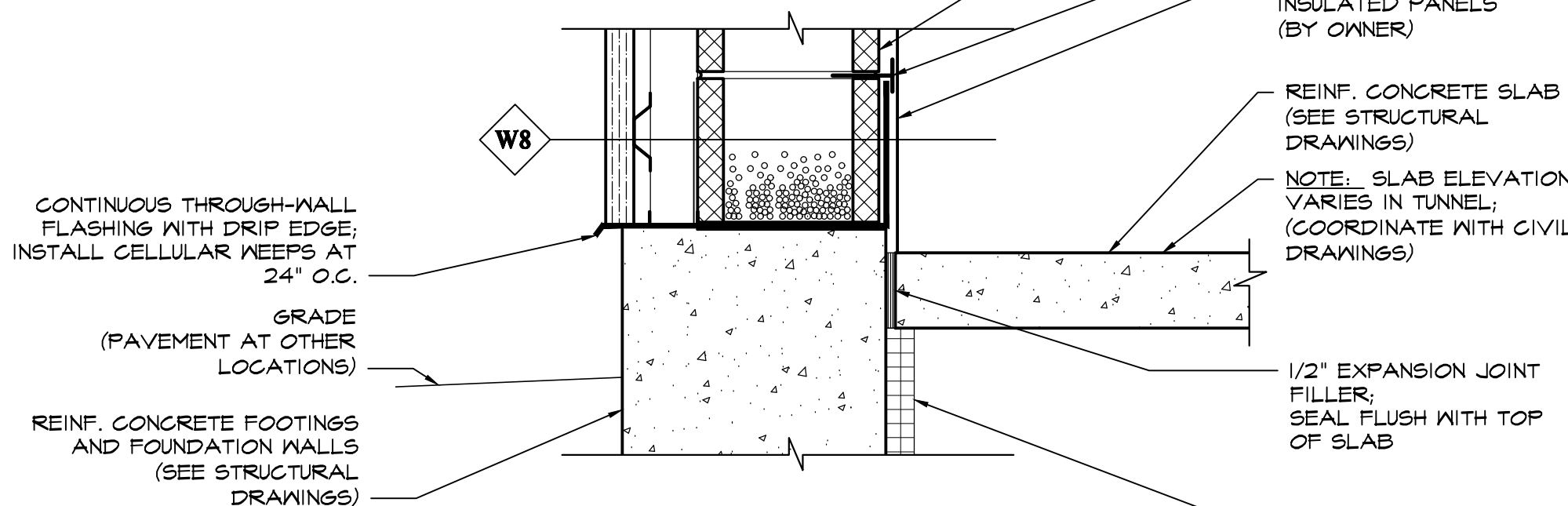
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SCALE: 1-1/2" = 1'-0"



10 SECTION DETAIL
SCALE: 1-1/2" = 1'-0"

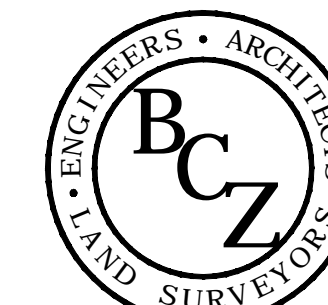


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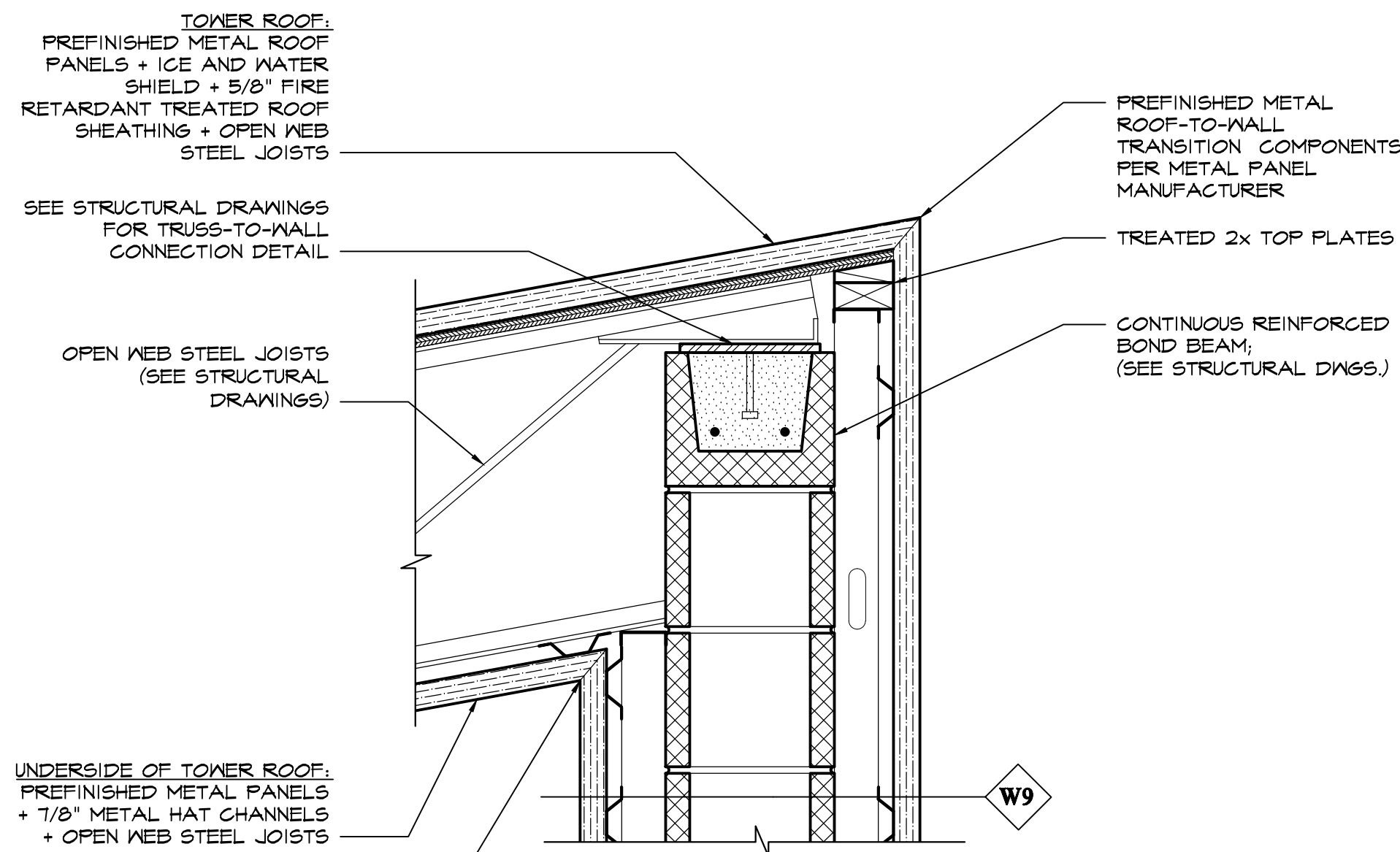


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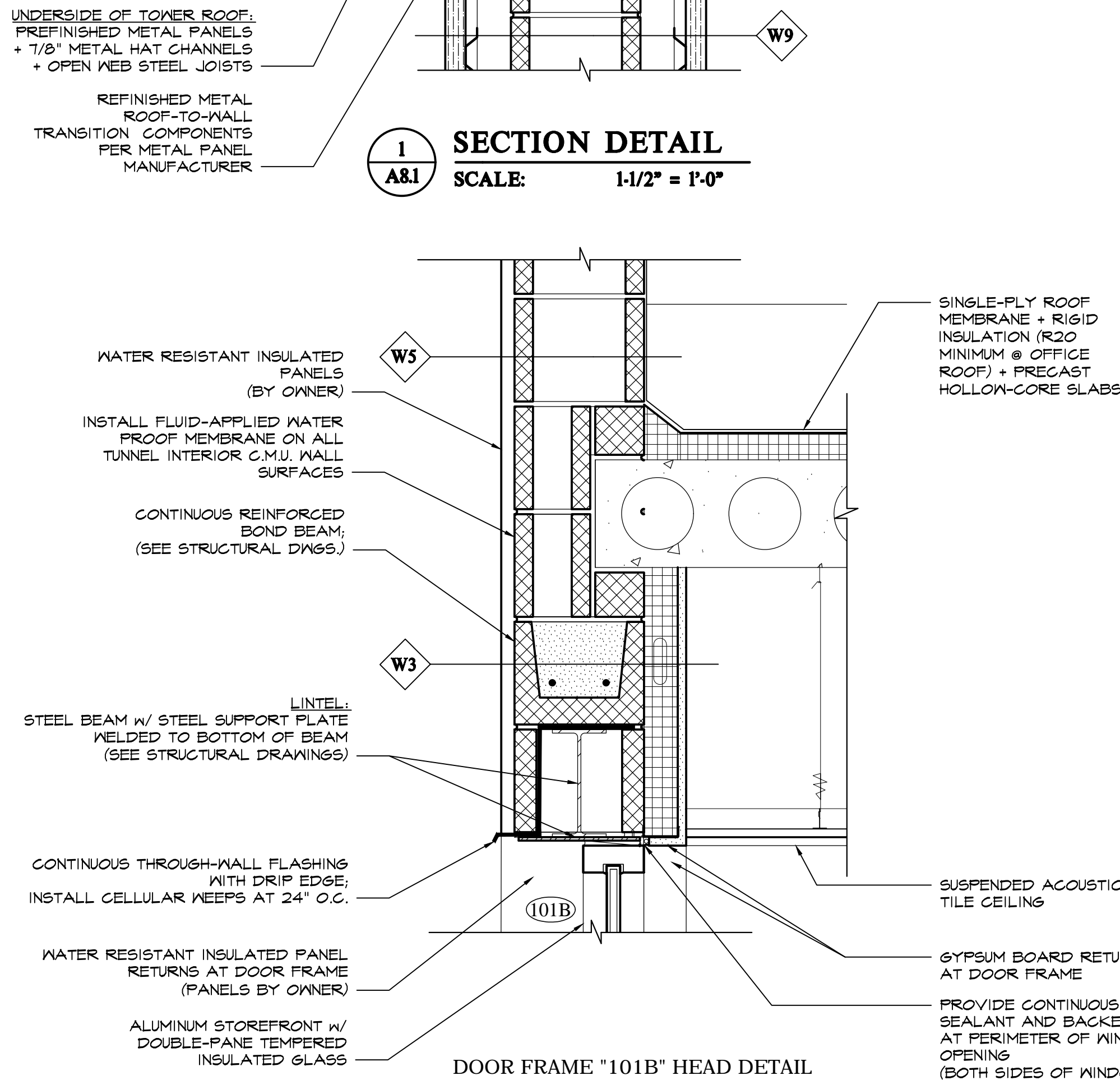
- NOTES FOR "A8" DETAIL SHEETS:
- SEE REFERENCED WALL TYPES ON SHEET A2.0.
 - INSTALL FLUID-APPLIED WATER PROOF MEMBRANE ON ALL TUNNEL INTERIOR C.M.U. WALL SURFACES.
 - ALL EXPOSED STRUCTURAL STEEL TO BE PRIMED AND PAINTED. (ALSO SEE STRUCTURAL DRAWINGS.)
 - PROVIDE TREATED WOOD SHIMS AS REQUIRED AT ALL WINDOW AND DOOR FRAMES.



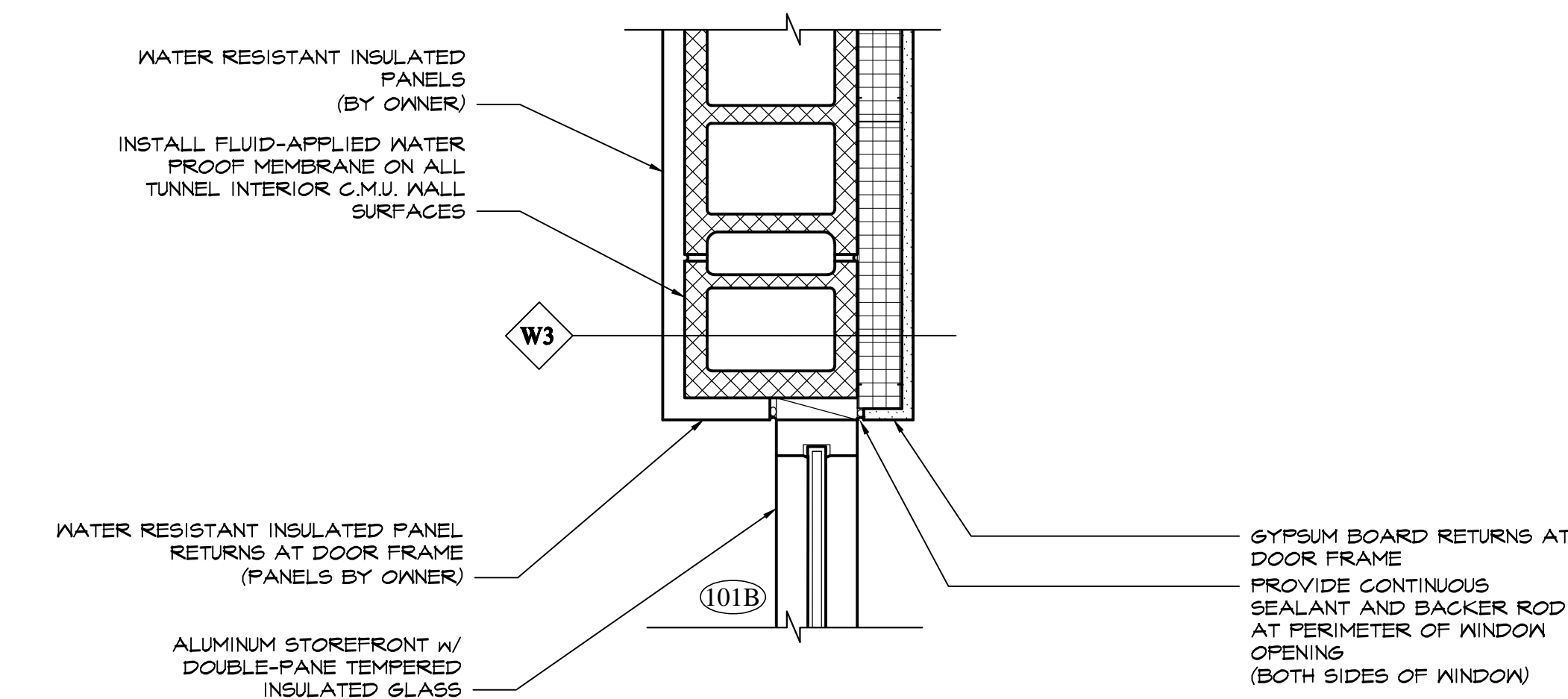
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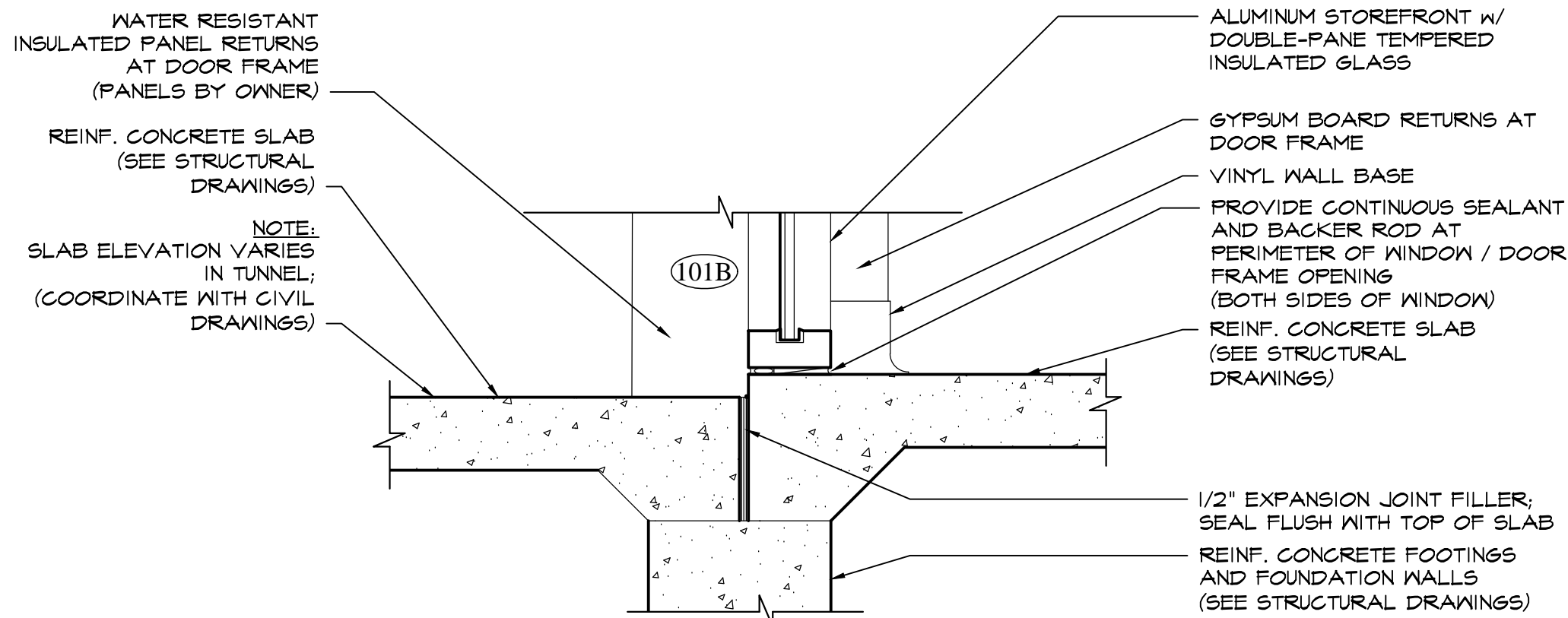
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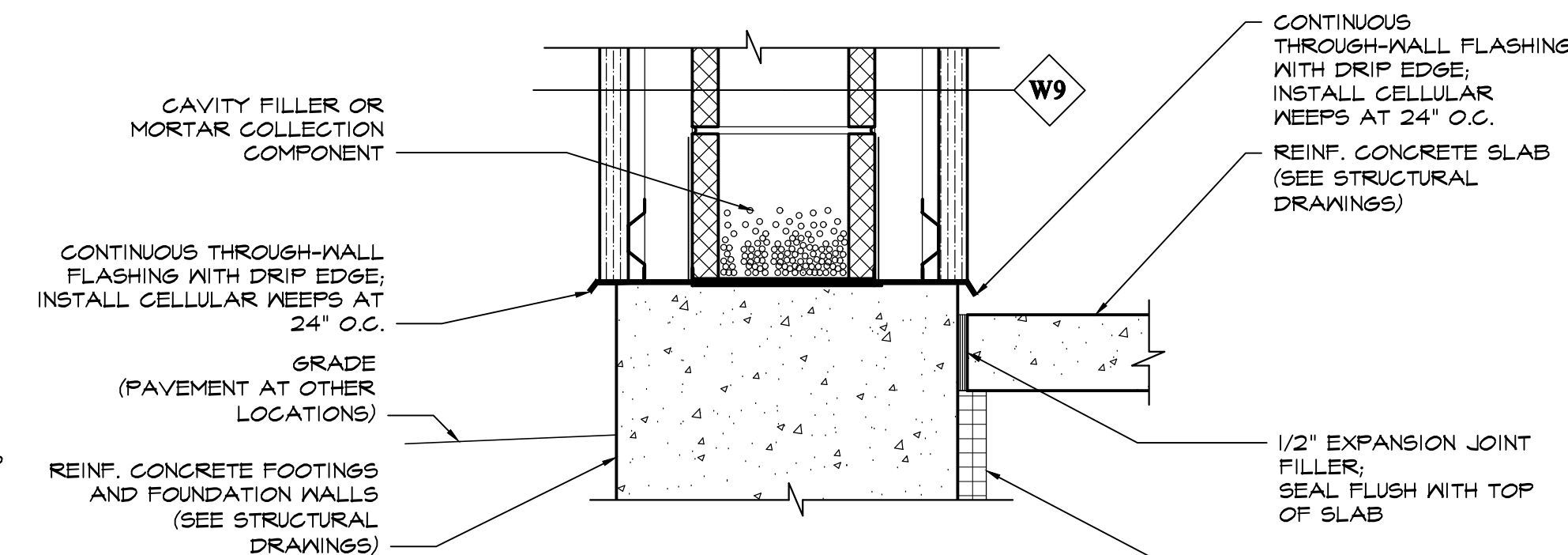
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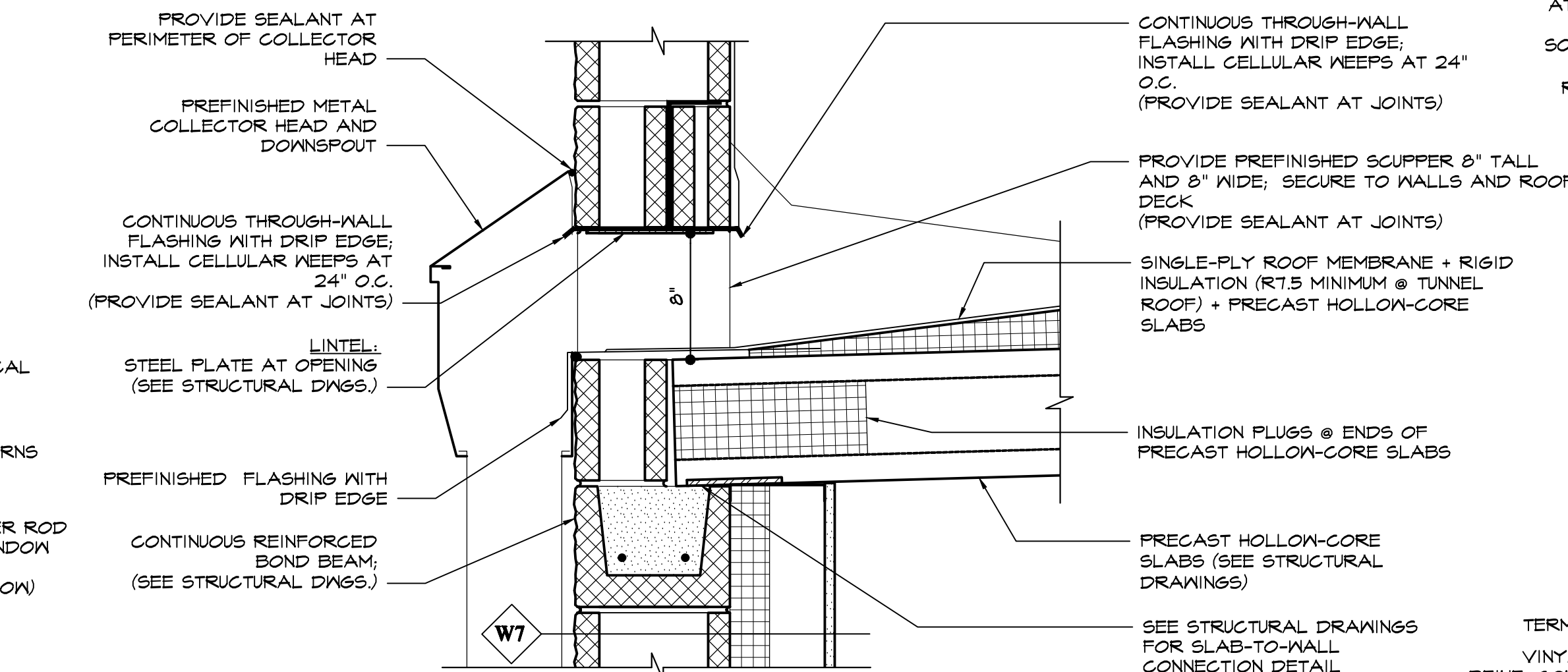
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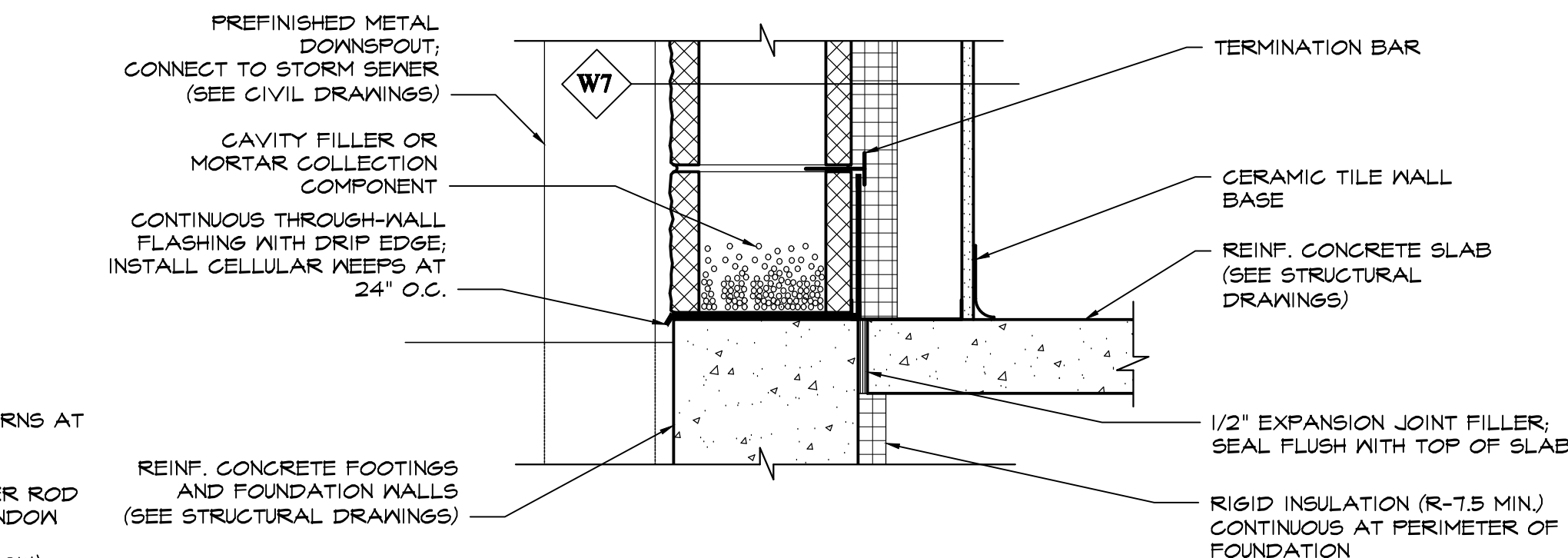
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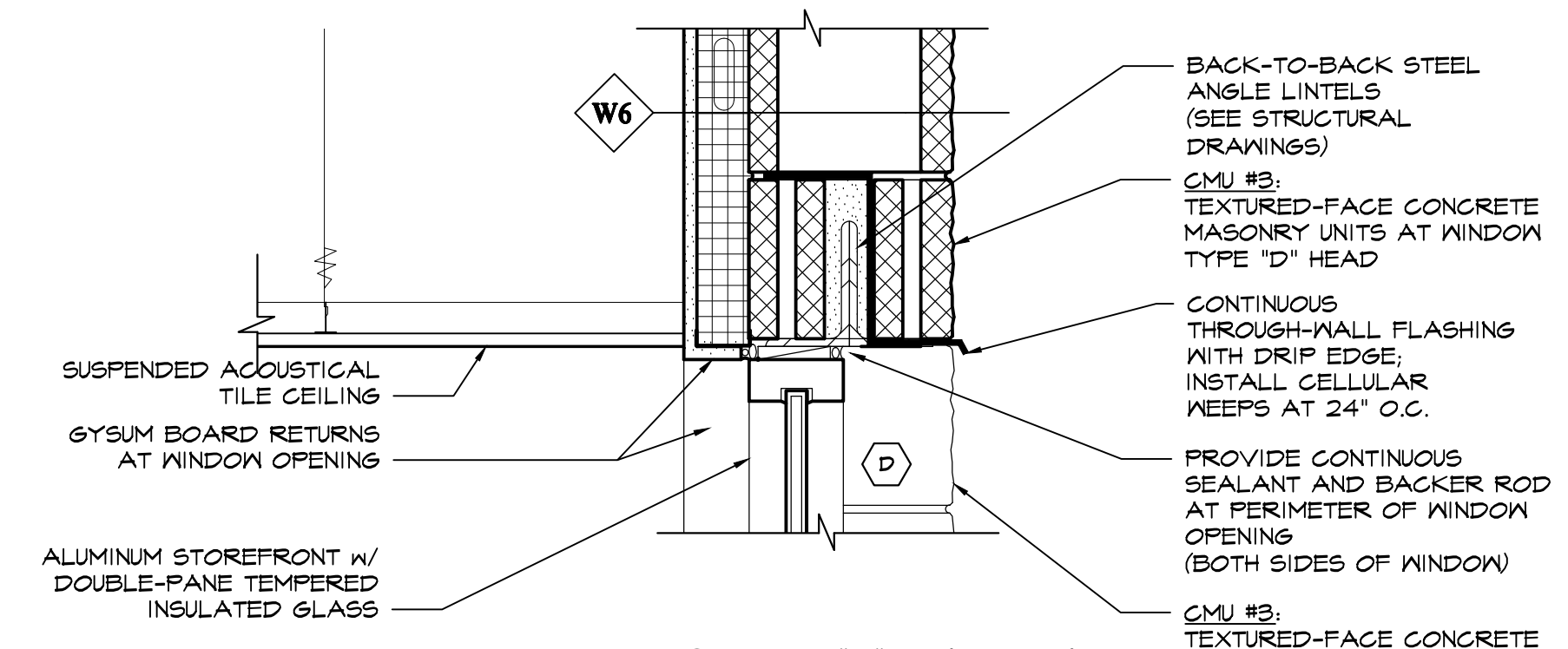
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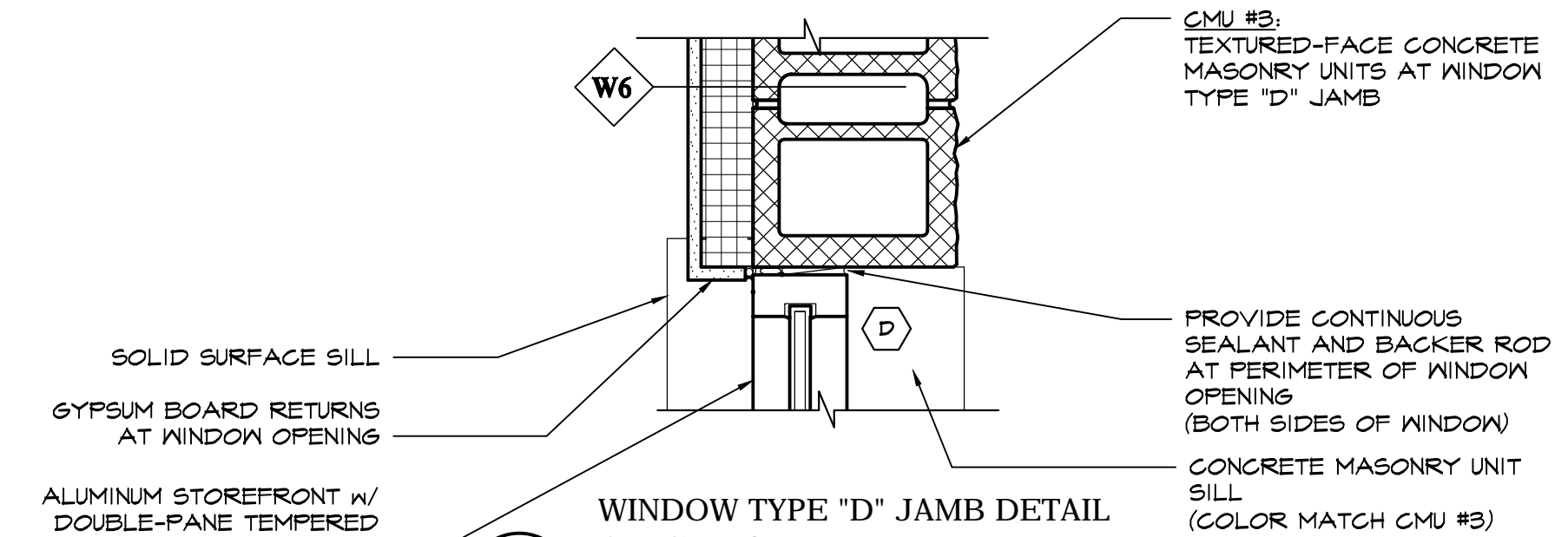
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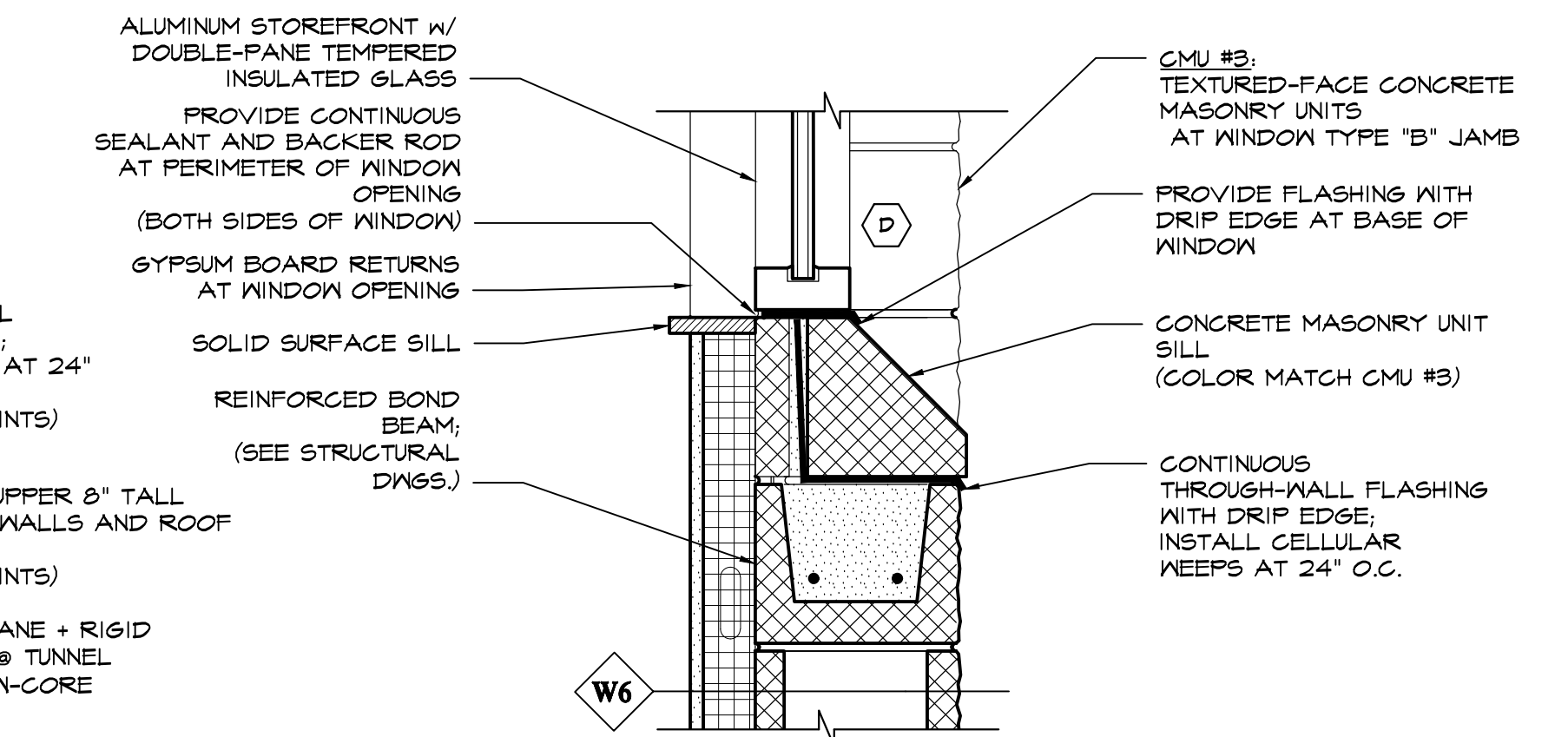
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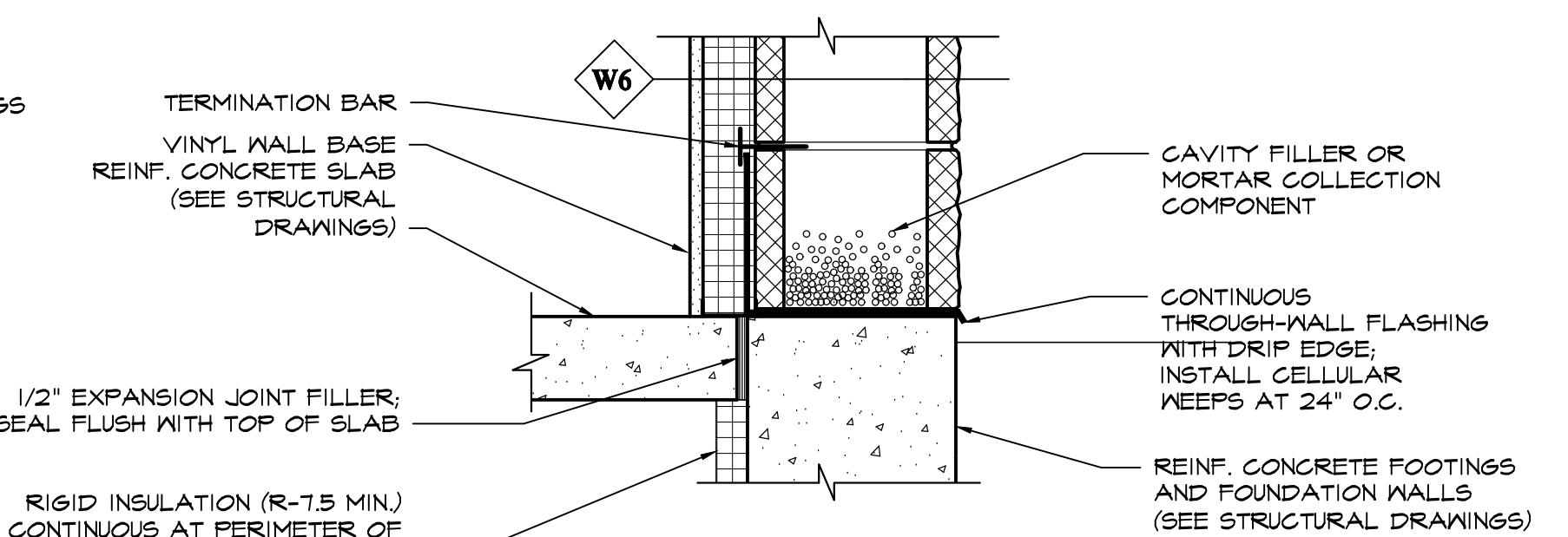
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9 SECTION DETAIL
SCALE: 1-1/2" = 1'-0"



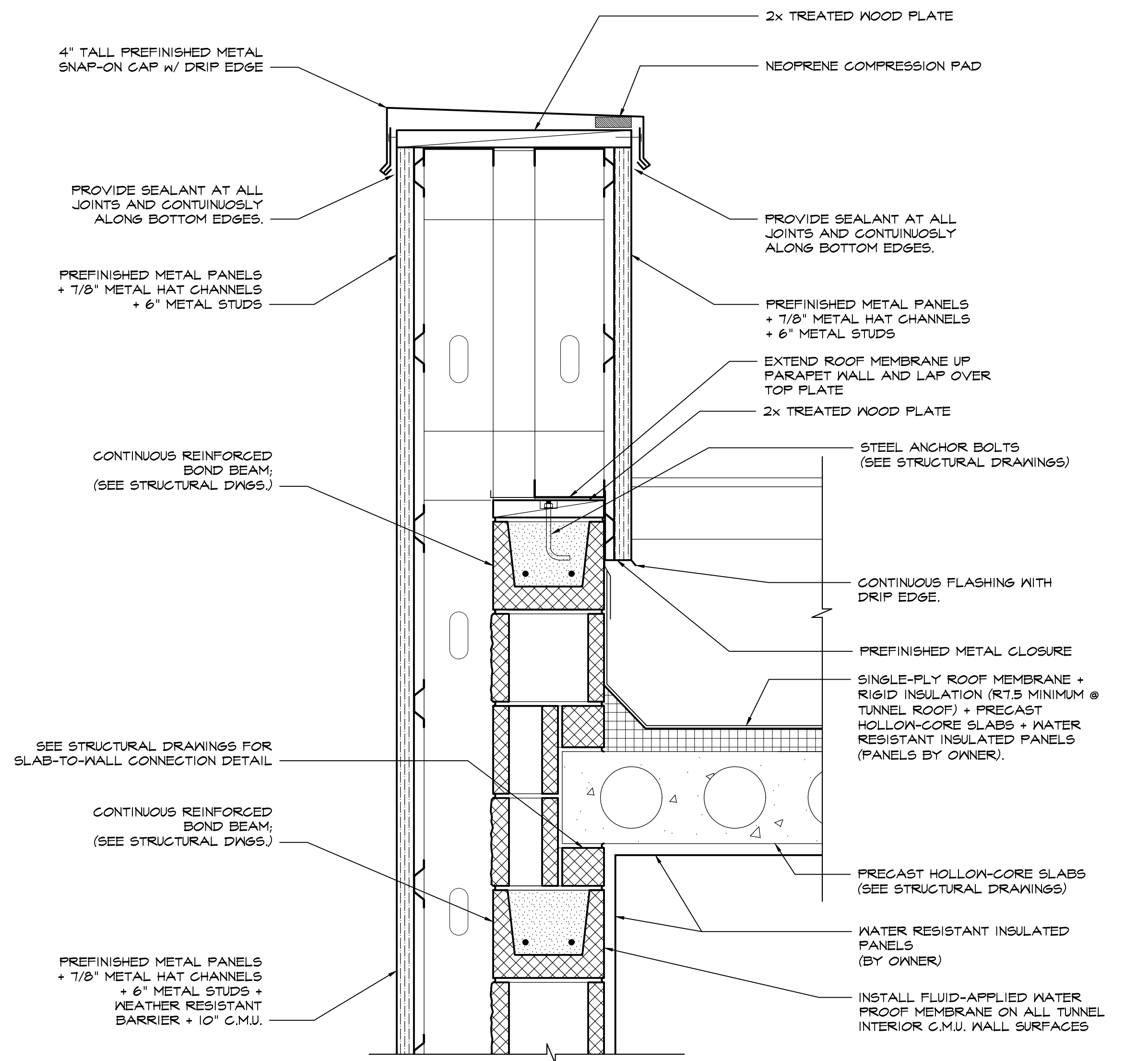
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SCALE: 1-1/2" = 1'-0"



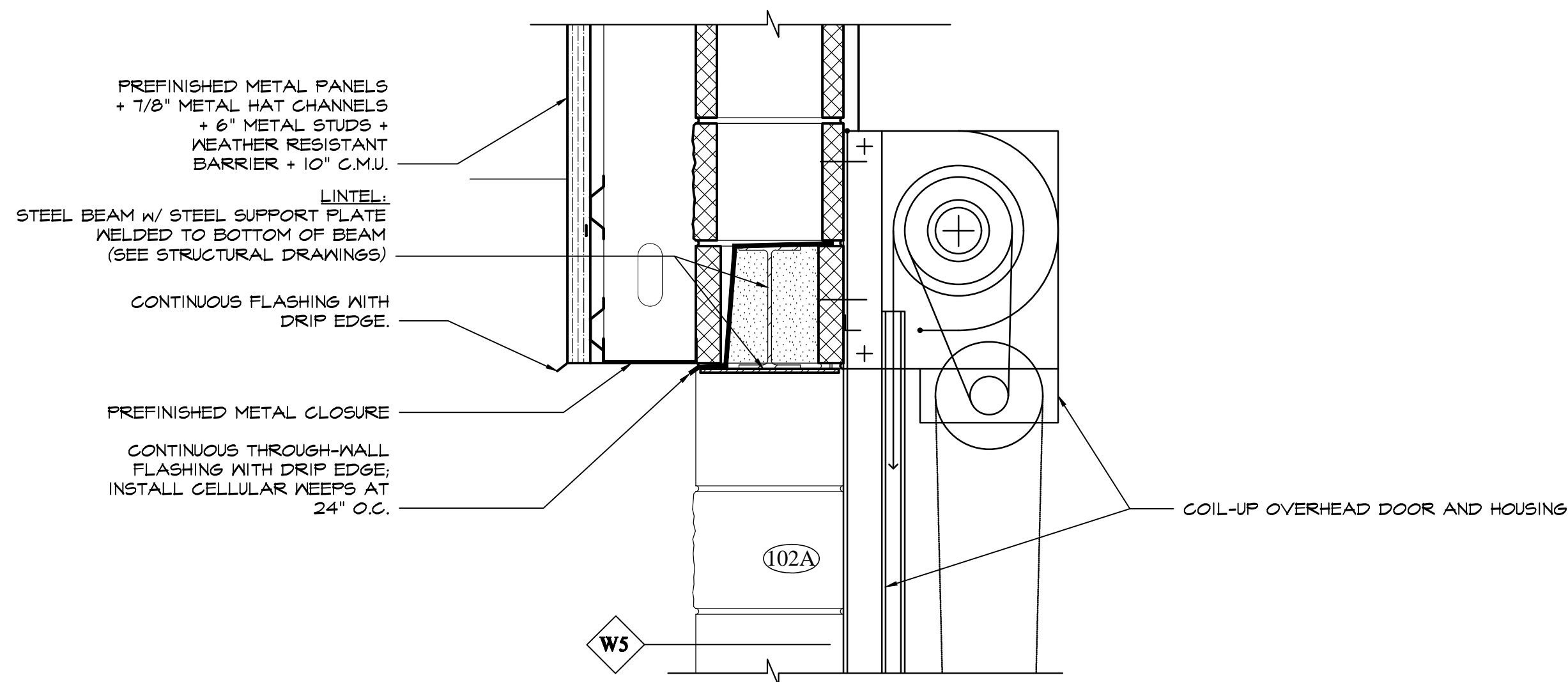
11 SECTION DETAIL
SCALE: 1-1/2" = 1'-0"



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A8.2 **SECTION DETAIL**
SCALE: 1-1/2" = 1'-0"



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A8.2 **SECTION DETAIL**
SCALE: 1-1/2" = 1'-0"

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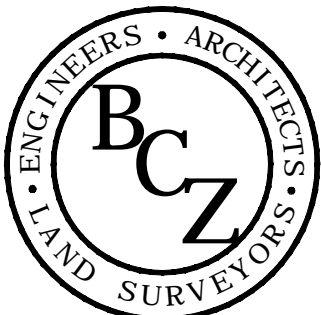
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DES MOINES COUNTY

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P PRELIMINARY
R REVISION
B BID DOCUMENTS
C FOR CONSTRUCTION
A RECORD DOCUMENT

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DETAILS

A8.2

ROOM FINISH SCHEDULE														
ROOM NO.	DESCRIPTION	FLOOR	BASE	WALLS								CEILING MATERIAL	CEILING HT.	REMARKS
				NORTH		EAST		SOUTH		WEST				
101	(101) OFFICE	VCT	V.B.	GYP. BD.	PAINT	GYP. BD.	PAINT	GYP. BD.	PAINT	GYP. BD.	PAINT	A.C.T.	9'-4"	—
	(101) TOILET ROOM	C.T.	C.T.	GYP. BD.	PAINT	GYP. BD.	C.T. / PAINT	GYP. BD.	C.T. / PAINT	GYP. BD.	C.T. / PAINT	A.C.T.	9'-4"	MR. GYPSUM BOARD @ MET WALLS & PROVIDE FLOOR DRAIN ON TOILET ROOM
102	TUNNEL	CONCRETE	—	WATER RESISTANT INSULATED PANELS (PANELS BY O H N E R)									14'-8" TO 15'-4"	—
103	EQUIPMENT	CONCRETE	—	CMU	PAINT	CMU	PAINT	CMU	PAINT	CMU	PAINT	PRECAST HOLLOW-CORE / PAINT	11'-4" TO 11'-8"	
104	OFFICE	VCT	V.B.	GYP. BD.	PAINT	GYP. BD.	PAINT	GYP. BD.	PAINT	GYP. BD.	PAINT	A.C.T.	9'-4"	—

DOOR SCHEDULE									
NO.	DOOR				FRAME		HARDWR. GROUP	RATING	REMARKS
	TYPE	SIZE (WxHxT)	MAT.	GLASS	TYPE	MATL.			
101	F6	3'-0"x7'-0"x1 3/4"	ALUM.	1" INSL.	3	ALUM.	1	NONE	---
101A	F	3'-0"x7'-0"x1 3/4"	H.M.	-	1	H.M.	2	NONE	---
101B	F6	3'-0"x7'-0"x1 3/4"	ALUM.	1" INSL.	3	ALUM.	3	NONE	---
102	O.H.	3'-0"x7'-0"x1 3/4"	ALUM.	POLYCARBONATE	---	---	---	NONE	EXTERIOR OVERHEAD DOOR AT TUNNEL
102A	O.H.	3'-0"x7'-0"x1 3/4"	ALUM.	POLYCARBONATE	---	---	---	NONE	EXTERIOR OVERHEAD DOOR AT TUNNEL
102B	F6	3'-0"x7'-0"x1 3/4"	ALUM.	POLYCARBONATE	4	ALUM.	---	NONE	---
103	F	(PAIR) 3'-0"x7'-0"x1 3/4"	H.M.	-	2	H.M.	4	NONE	---
103A	F	3'-0"x7'-0"x1 3/4"	H.M.	-	1	H.M.	1	NONE	---
103B	F	3'-0"x7'-0"x1 3/4"	H.M.	-	1	H.M.	1	NONE	---
104	F	3'-0"x7'-0"x1 3/4"	H.M.	-	1	H.M.	1	NONE	---

DOOR SCHEDULE / GENERAL NOTES:

- ALL HARDWARE TO BE ADA COMPLIANT (TYPICAL).
- PROVIDE SAFETY GLAZING AS REQUIRED BY CODE (TYPICAL).
- DOOR LITE HEIGHTS TO BE PER 2010 ADA STANDARDS.

DOOR SCHEDULE / INSTALLATION NOTES:

- ALL H.M. DOORS AND/OR FRAMES SHALL BE PAINTED (TYP). PROVIDED GALVANIZED H.M. DOOR & FRAME AS SCHEDULED. PROVIDE DOOR SILENCERS AT HM FRAMES (TYP).
- INTERIOR DOOR FRAMES SHALL BE BACKSET 1/2" FROM SWING-SIDE OF DOOR IN WALL THICKNESSES GREATER THAN 5 3/4" DEEP FRAME - TYPICAL UNLESS NOTED OTHERWISE.
- FRAMES SHALL BE RIGIDLY ATTACHED TO WOOD STUD CONSTRUCTION w/ ANCHORS OF MANUFACTURER'S DESIGN.
- PROVIDE SEALANT AND BACKER ROD, BOTH SIDES, OF ALL METAL DOOR FRAMES.
- SEE FLOOR PLAN FOR WALL TYPES AND CONSTRUCTION. SEE STRUCTURAL DRAWINGS RE: LINTEL SIZES.
- LAM = LAMINATED GLASS, T = TEMPERED (SAFETY GLASS), S = SPANDREL (SEE DETAILS).
- FIELD MEASURE ALL OPENINGS PRIOR TO INSTALLATION OF DOORS/FRAMES.

ROOM FINISH SCHEDULE REMARKS:

A.C.T.: ACOUSTIC CEILING TILE
BLK.: BLOCK (CONCRETE BLOCK - CMU)
CMU: CONCRETE MASONRY UNITS (PAINTED)
CONC: CONCRETE
CPT: CARPET
CPT TL: CARPET TILE (OR CPTT)
C.T.: CERAMIC TILE
EPX: EPOXY PAINT - SEE SPECS
FRP: FIBER-REINFORCED PLASTIC
GYP BD: GYPSUM WALLBOARD
LVT: LUXURY VINYL TILE
M.R.: MOISTURE-RESISTANT
MTL: METAL
P.C.: POLISHED CONCRETE
PNT: PAINT (OR PNT.)
RESIL: RESILIENT
S.C.: SEALED CONCRETE
S.S.: SOLID SURFACE
VB: VINYL BASE
VCT: VINYL COMPOSITION TILE
VNC: VINYL WALL COVERING
MOM: MALK-OFF CARPET TILE

- * PROVIDE MOISTURE - RESISTANT GYPSUM BD. ON "WET" WALLS (TYP)
** ALL ROOMS PART OF BASE BID (UNLESS NOTED OTHERWISE).

DOOR HARDWARE GROUPS:

GROUP #1

- HINGES
- PUSH/PULL BARS
- CYLINDER LOCK
- SURFACE-MOUNTED CLOSER
- WEATHER STRIPPING
- RAIN DRIP EDGE
- DOOR SWEEP
- THRESHOLD

GROUP #2

- HINGES
- LEVER LOCKSET (PRIVACY)
- SURFACE-MOUNTED CLOSER

GROUP #3

- HINGES
- PUSH/PULL BARS
- SURFACE-MOUNTED CLOSER
- WEATHER STRIPPING
- RAIN DRIP EDGE
- DOOR SWEEP
- THRESHOLD

GROUP #4

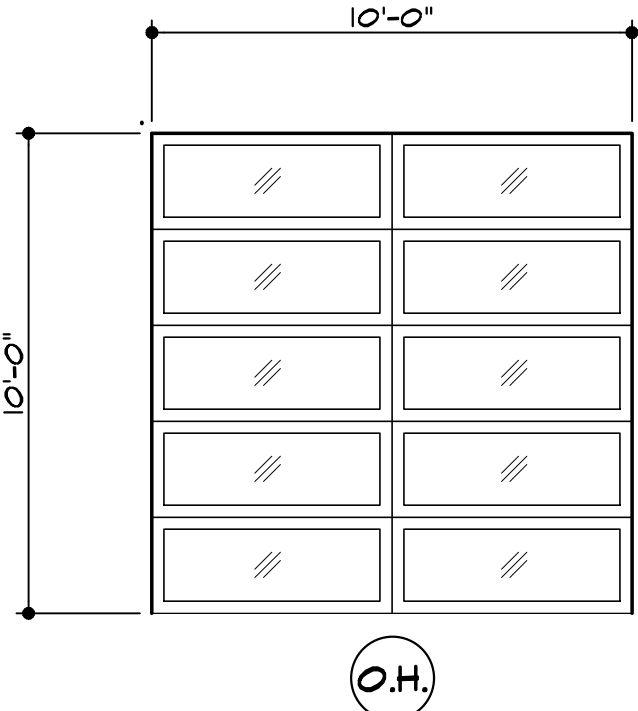
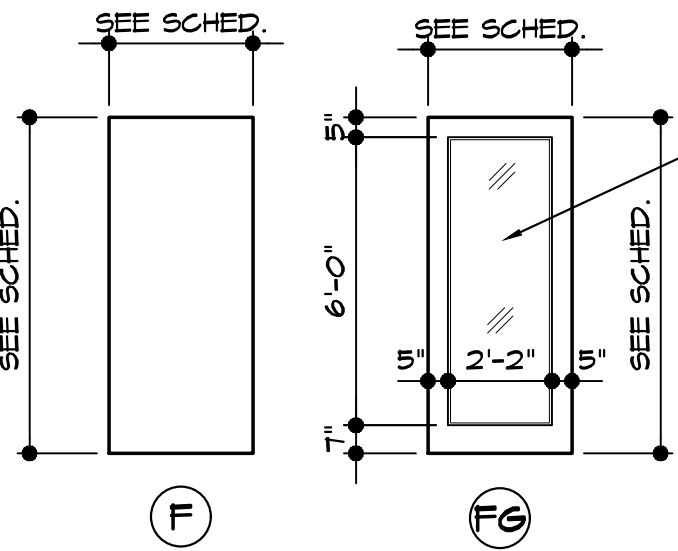
- HINGES
- LEVER HANDLES
- STOREROOM LOCKSET
- MORTISE LOCK
- SURFACE-MOUNTED CLOSER w/ HOLD-OPEN
- TOP & BOTTOM FLUSH BOLTS (INACTIVE LEAF)
- WEATHER STRIPPING
- RAIN DRIP EDGE
- DOOR SWEEP
- THRESHOLD
- FLOOR STOPS

GROUP #5

- HINGES
- LEVER HANDLES
- STOREROOM LOCKSET
- SURFACE-MOUNTED CLOSER w/ HOLD-OPEN
- WEATHER STRIPPING
- RAIN DRIP EDGE
- DOOR SWEEP
- THRESHOLD
- FLOOR STOPS

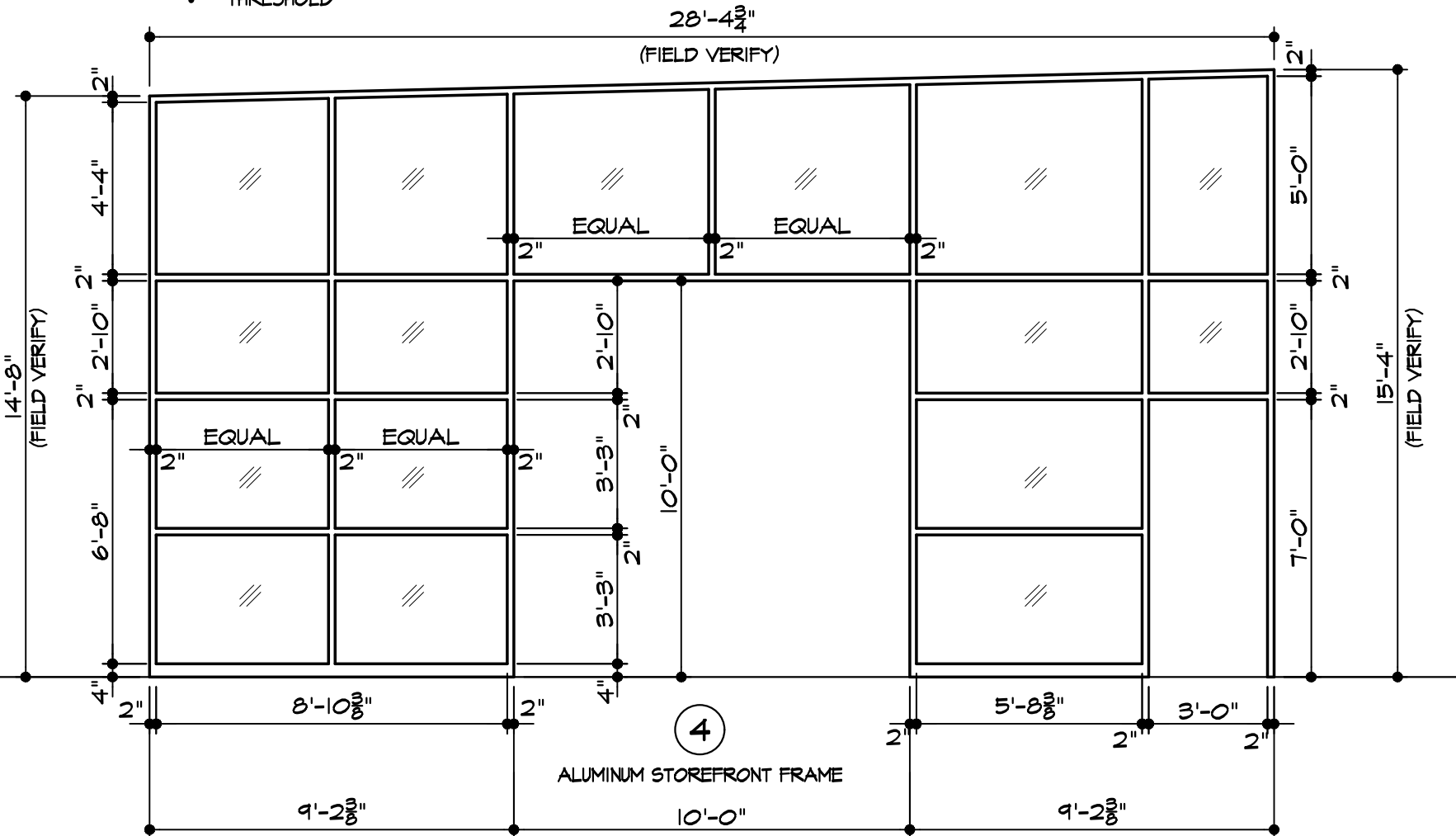
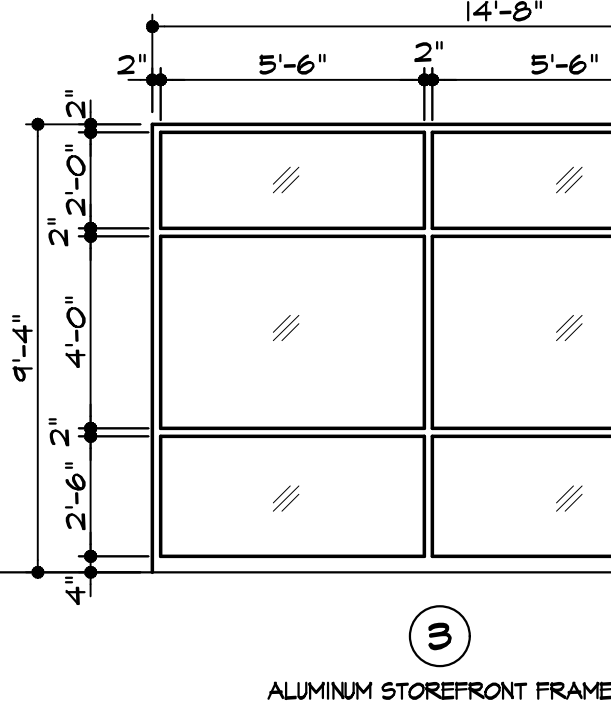
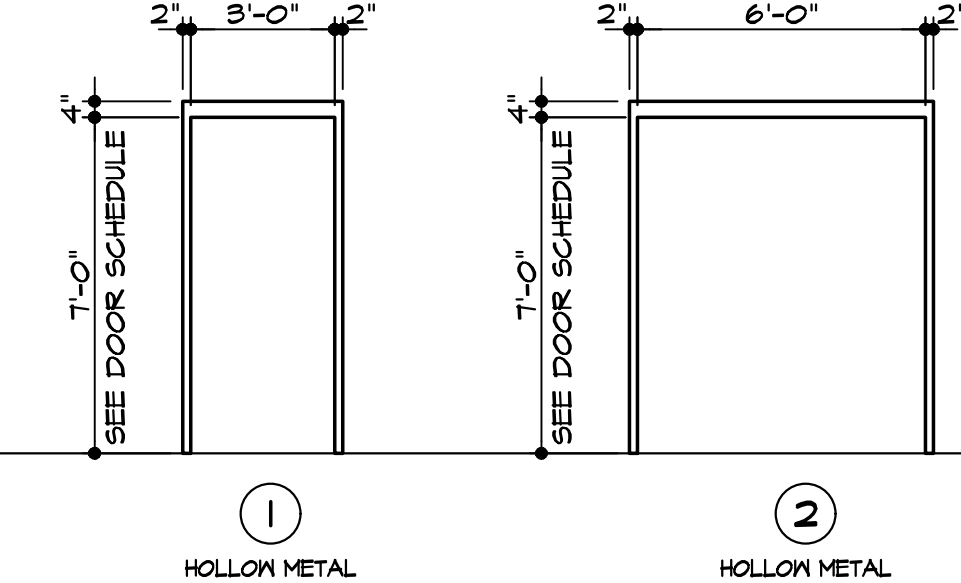
DOOR TYPES

(SCND. = SOLID CORE WOOD)
(H.M. = HOLLOW METAL DOOR)

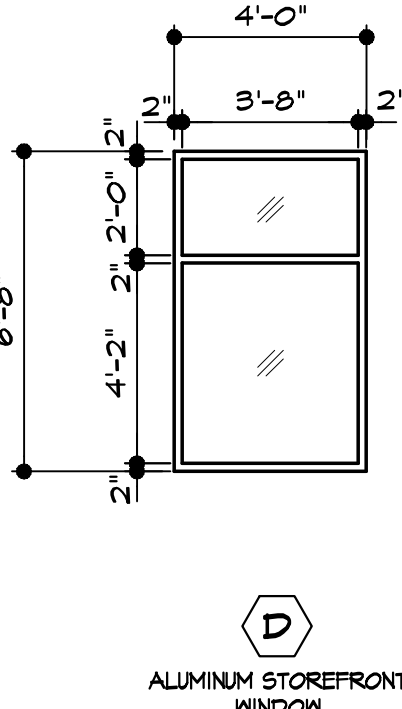
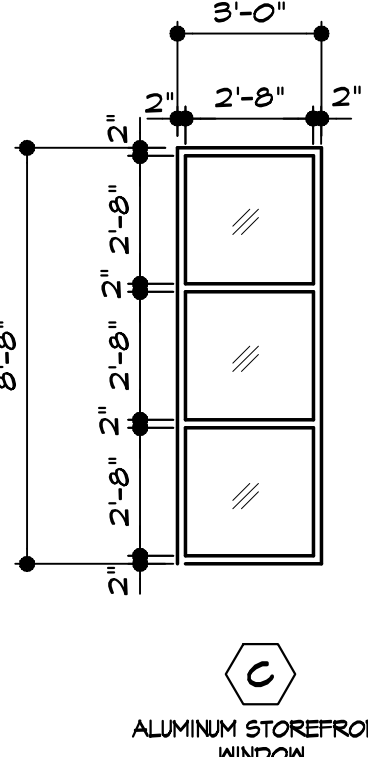
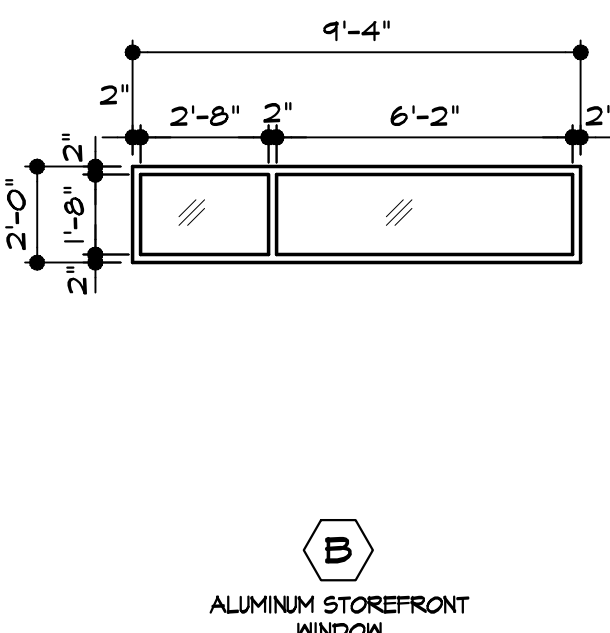
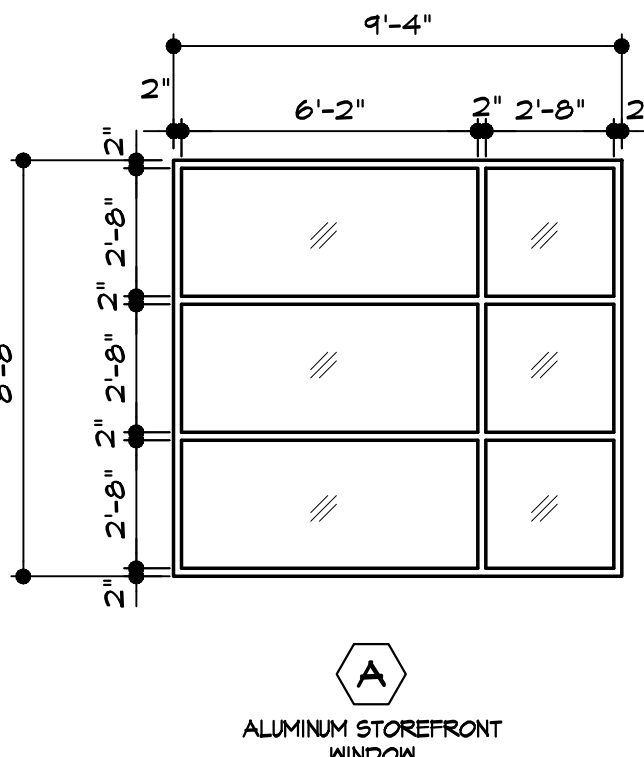


FRAME TYPES

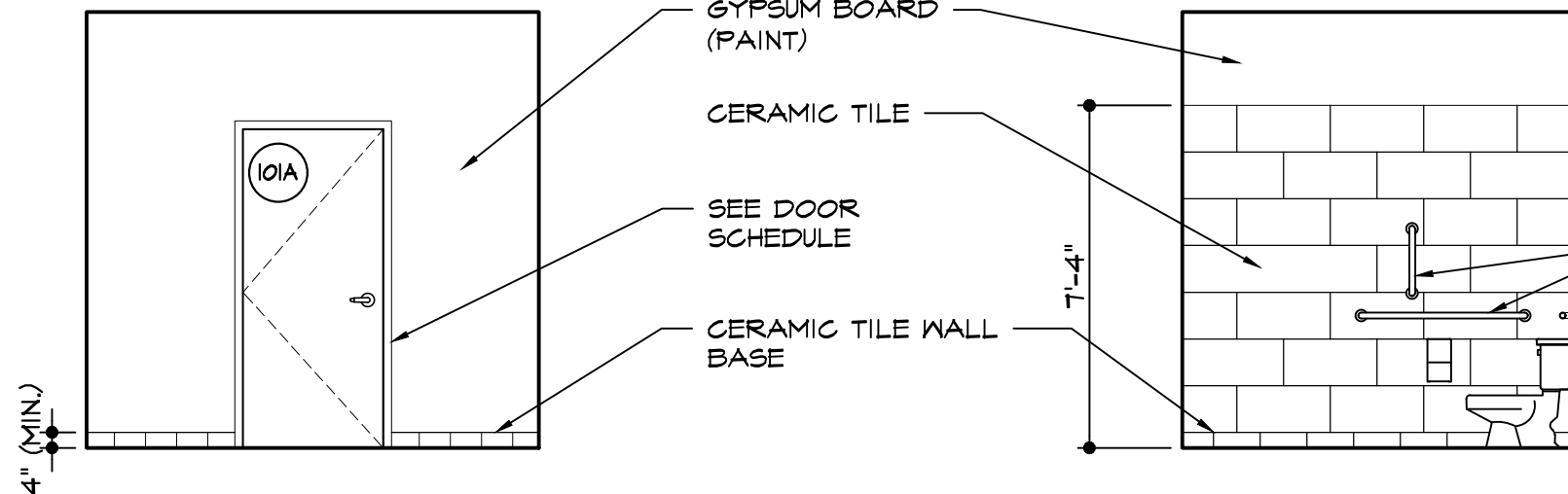
(H.M. = HOLLOW METAL FRAME)
(ALUM. = ALUMINUM STOREFRONT FRAME)



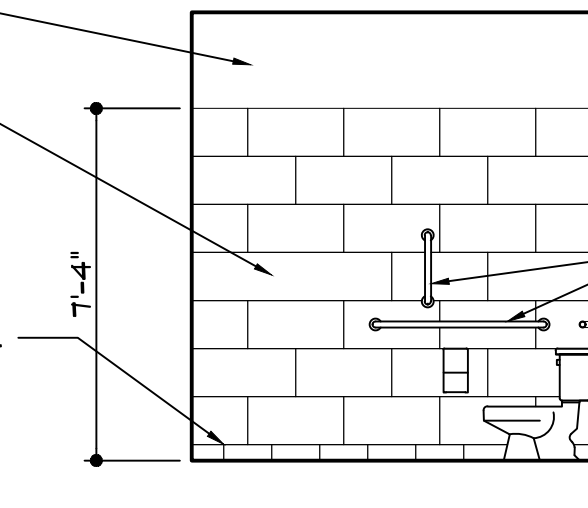
WINDOW TYPES



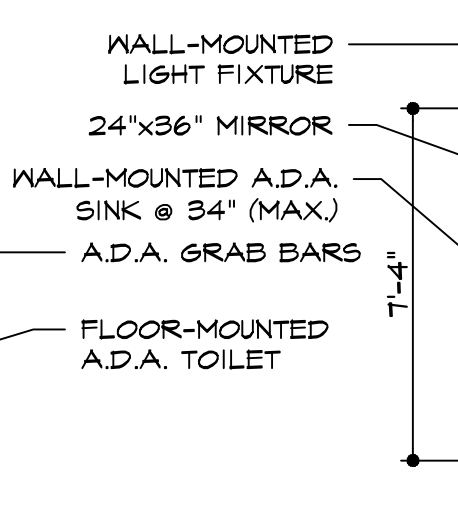
WINDOW SCHEDULE								
WINDOW								
TYPE	DESCRIPTION	WIDTH	HEIGHT	SILL HEIGHT	U-FACTOR	SHGC	VT	REMARKS
A	ALUMINUM STOREFRONT	9'-4"	8'-8"	(SEE WALL SECTIONS)	0.28	0.32	0.54	---
B	ALUMINUM STOREFRONT	9'-4"	2'-0"	(SEE WALL SECTIONS)	0.28	0.32	0.54	---
C	ALUMINUM STOREFRONT	3'-0"	8'-8"	(SEE WALL SECTIONS)	0.28	0.32	0.54	---
D	ALUMINUM STOREFRONT	6'-8"	4'-0"	(SEE WALL SECTIONS)	0.28	0.32	0.54	---



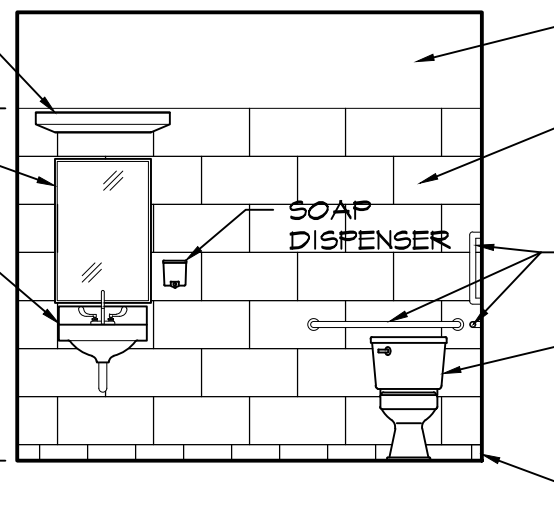
1 TOILET RM. - NORTH
SCALE: 1/4" = 1'-0"



2 TOILET RM. - WEST
SCALE: 1/4" = 1'-0"



3 TOILET RM. - SOUTH
SCALE: 1/4" = 1'-0"



4 TOILET RM. - EAST
SCALE: 1/4" = 1'-0"

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Cooper &
Zuck, Inc.**

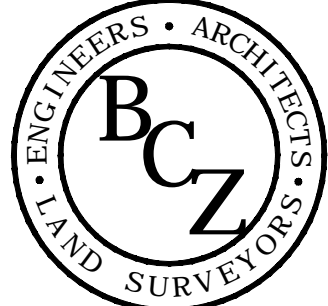
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SCHEDULES

A9.0

DIVISION 1 – GENERAL REQUIREMENTS

1. All contractors shall abide by any city, state, or federal codes or regulations which have jurisdiction over this work and include any work specified therein as though called for in these plans.
2. All contractors shall comply with requirements regarding insurance on bonds. Subcontractors shall obtain and maintain the required coverage for the duration of the project.
3. Work required of any trade may be shown anywhere in the drawings and specification notes. The subcontractors are therefore cautioned to base their bids on the entire construction documents.
4. Provide temporary heat enclosures and related materials if required for winter construction (verify with General Contractor).

DIVISION 2 – SITEWORK

1. See civil drawings for additional information.
2. Finish grading, sod, seeding and landscaping are as shown on the civil drawings and landscaping plan.
3. If provided, irrigation systems should be avoided directly adjacent to the building.
4. Provide new asphalt pavement over compacted rock base and geo-tech fabric in thicknesses as indicated on the civil drawings. Provide heavy-duty asphalt where indicated.
5. Provide new concrete paving over compacted rock base over geo-tech fabric in thicknesses as indicated on civil drawings. provide thickened concrete aprons at entry/egress, at docks, dumpster or other pads, and elsewhere as shown.
6. Provide new 4" reinf. concrete sidewalks over compacted rock base where indicated on civil drawings. patch and repair existing sidewalks damaged by construction activities. new concrete and compacted rock base to match existing thicknesses. Verify sidewalk along research parkway with city/developer.
7. Provide reinforced concrete curb and/or gutter where indicated and detailed on civil drawings.
8. Provide 4" concrete pad on rock base as required by code for transformers (verify size), AC condensers, and other equipment – see civil drawings. Coordinate locations with utility companies and MEP contractors.
9. provide site electrical and communications as shown on the civil drawings. Provide all necessary tie-ins at existing utilities, and extend to transformer (verify location) and/or within (5) five feet of the building.

DIVISION 3 – CONCRETE

1. Concrete work shall conform to all requirements of ACI 301. Specifications for Structural Concrete for Buildings, except as modified by supplemental requirements contained in the following notes.
2. Unless otherwise detailed or noted, reinforcing shall be in accordance with "The ACI Detailing Manual, SP-66."
3. The Contractor shall be responsible for verifying dimensions and quantities relative to reinforcing steel.
4. Unless noted otherwise, concrete cover for reinforcing shall be 3 inches where placed against wall; 1-1/2" for #5 and smaller and 2" for #6 and larger at formed surfaces that are exposed to soil or weather and 1" at all interior formed surfaces.
5. Concrete forms shall be tight and provide a straight, smooth finished surface.
6. Formed concrete footings shall be built monolithically.
7. Concrete and related materials:
 - a. Portland cement: ASTM C150, Type as required
 - b. Normal weight aggregates: ASTM C33
 - c. Water: potable
 - d. Air-entraining admixture: ASTM C260
 - e. Water-reducing admixture: ASTM C494, Type A
 - f. 6" x 6", W1.4 x W1.4 WWF in interior slab-on-grade.
8. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. Slump shall be 4" maximum, 2" minimum for wall and footings and 5" maximum, 3" minimum for slab-on-grade.
9. Use air-entraining admixture in exterior, exposed concrete. Air content 5% to 8%. Comply with the manufacturer's recommendations and Table 3.4.1 of ACI 301.
10. Ready-mix concrete shall be in compliance with requirements of ASTM C94, and as herein specified.
11. Design, erect, support, brace and maintain form work to support vertical and lateral loads that will be imposed by concrete and construction activities. Construct form work so concrete members and structures are of correct size, shape, alignment, elevation and position.
12. Interior concrete slab: see structural drawings for thickness and locations. Provide vapor barrier under floor slab at office area-See Div 9 for conc finishes.
13. Provide concrete slab finishes that conform to the Architectural requirements of the project. Follow procedure in accordance with ASTM E1155 for FF and FL (for appropriate building type application) – OR – floor finish tolerances shall be measured by placing a 10' level on freshly placed (within 72 hours) and the maximum gap from straightedge to conc shall not exceed 3/16" (for appropriate building type application).
14. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Curing procedures and materials shall conform to ACI 301.
15. Design net allowable soil bearing pressure2,000 psf
16. Minimum 28-day compressive strength (fc') of concrete shall be as follows:

Footings:	3,000 psi
Foundation Walls:	3,000 psi
Slab-on-Grade:	4,000 psi
17. Reinforcing steel:
 - a. Deformed reinforcing bars.
 1. Reinforcing steelASTM A615-60
 2. Welded wire fabricASTM 185
18. Provide poured-in-place concrete stoops at exterior doors; see structural drawings.
19. Exterior concrete walks: Provide 4" thick sidewalks over 4" rock base or as noted on Civil drawings.
20. Exterior concrete paving: See Civil drawings.

DIVISION 4 – MASONRY

1. General: Masonry material and construction to comply with IBC 2015 Masonry Chapter. Follow IBC for cold-weather placement as required (provide itemized estimate for winter-time construction methods and materials.)
2. Concrete Masonry Units (CMU)

Provide Kings Materials, Inc. "Rock Face" or equal series of CMUs which offers the following masonry features, sizes, and textures:
Hollow Load Bearing CMUs: ASTM C 90, Grade N, See Structural Drawings for notes on compressive strength.
Solid Load Bearing CMUs: ASTM C 145, Grade N, See Structural Drawings for notes on compressive strengths.

CMU #1 --- (● Exterior walls of tunnel) Provide smooth-face concrete masonry unit; typical size ● 10"D x 8"H x 16" in running bond pattern; refer to architectural drawings to determine additionally required sizes.

CMU #2 --- (● Exterior walls of tunnel) Provide textured-face concrete masonry unit; typical size ● 10"D x 8"H x 16" in running bond pattern; refer to architectural drawings to determine additionally required sizes.

CMU #3 --- (● Exterior walls of Office #101, and exterior walls of Equipment #103 / Office #104) Provide textured-face concrete masonry unit; typical size ● 10"D x 8"H x 16" in running bond pattern; refer to architectural drawings to determine additionally required sizes.

CMU #4 --- (● Jamb and heads for Window Type "A" and "C") Exterior walls of tunnel) Provide smooth-face concrete masonry unit; typical size ● Jamb is 10"D x 8"H x 8" in stacked bond pattern; typical size ● head is 4"D x 8"H x 16". Refer to architectural drawings to determine additionally required sizes.

At Window Types "A" and "D", provide smooth-face CMU slanted sill block ● 8"D x 8"H x 16"; color to match CMU#4.

See architectural drawings for all CMU locations and patterns. Color to be selected from standard manufacturer's list by architect.

Provide standard CMUs ● 8"D x 8"H x 16"for interior partition walls.

Provide bond beam CMUs; see architectural and structural drawings for sizes, locations, and required reinforcing.
2. Mortar and Grout
(See Structural drawings and specifications)
3. Reinforcing Steel
(See Structural drawings and specifications).
4. Joint Reinforcement
(See Structural drawings and specifications).
5. Masonry Ties and Anchors
(See Structural drawings and specifications).
6. Anchor Bolts
(See Structural drawings and specifications).
7. Typical Flashing
Provide 30 mil., self-adhering rubberized asphalt and Type 304 grade, 27 gauge stainless steel drip edges at all through-wall conditions, at steel lintels above all openings, and at masonry sills at all openings.
8. Sill Flashing
At the sill conditions at all door, window, and louver openings, run continuous flashing the full length of the opening. Extend an additional 4" (min.) beyond the vertical edge of openings; provide end dams at each end.
9. Weep Vents
Provide Hoh,ann and Barnard, Inc, Quadra-Vent (or equal) cellular weep vents 24" O.C. at all embedded flashing locations.
10. Masonry Water Repellent
Install Protecosil Chem-Trete 40 water repellent or equal over all exposed Exterior Concrete Masonry Units.
Provide Integral Water Repellent for all Concrete Masonry Units.

DIVISION 5 – METALS

1. See Structural drawings and specifications for additional information.
2. Shop coat all steel with rust inhibitive paint.
3. Provide cold-formed metal framing at exterior tower walls, tower roof, and elsewhere as indicated. Exterior framing to be 16 ga. minimum with galvanized finish as appropriate for exterior use. See structural drawings for additional information.
4. Structural and Misc. Steel Schedule (see Structural Drawings for additional information):
 - 4.1. Structural steel columns, beams, or support steel.
 - 4.2. Steel bollards (concrete filled); also see Civil drawings.
 - 4.3. Reinforcing steel.
5. Steel lintels at openings as indicated (Also see Structural drawings.)

DIVISION 6 – WOOD AND PLASTICS.

1. See Structural drawings and specifications for additional information regarding structural wood framing and other structural elements. Provide new exterior grade roofing and wall sheathing in thickness as shown on the drawings. Lumber to be #2 douglas fir/larch lb=875 psf; fc=600 psi or better.
2. Exterior sheathing: 5/8" O.S.B. as shown/detailed. Provide 5/8" exterior grade structural plywood roof sheathing at tower as shown on drawings. Provide clips for plywood roof installation.
3. Provide treated wood blocking and/or wood shims at windows, doors, siding, and as shown and/or detailed.
4. Provide backing in walls to support grab bars, mirrors and other accessories as required.
5. Provide plastic laminate ADA pipe shroud (if used in lieu of ADA pipe insulation) of Formica Brand or equal as shown on architectural drawings. Scribe pieces as required for installation of casework against wall materials. Caulk casework at wall connections.
6. Provide 3/4" (min.) solid surface window stool trim in Office 101.

DIVISION 7 – THERMAL & MOISTURE PROTECTION

1. Provide 2"x24" extruded polystyrene insulation at the perimeter of the foundation wall as detailed. Insulation to extend to top of footing.
2. Vapor Barrier: Apply 6 mil. polyethylene sheets to inside face of exterior framing. See drawings for additional information.
3. Provide Water Resistive Barrier (WRB) equal to Tyvek Commerical Wrap over exterior rigid insulation or hat channels. Coordinate installation of WRB wrap with through-wall flashings and other accessories.
4. All interior walls to have sound insulation to be friction-fit in thickness to match wall. Extend all walls and sound insulation to roof deck unless noted otherwise.
5. Provide sealant where shown and between dissimilar materials. Install joint fillers, backer rods and sealants in accordance with manufacturers requirements and installation instructions.
6. Sheet metal trim, commercial gauge gutters, conductor heads, and downspouts shall be prefinished steel equal to Morin Architectural Metals as shown on drawings – standard colors as selected by architect. Extend downspouts into existing perimeter underground storm drain system.
7. At exterior wall conditions where insulation is indicated on drawings, provide rigid polyisocyanurate insulation or closed-cell spray-foam insulation layer over CMU walls. See drawings for minimum R-values.
8. At roof conditions, provide rigid polyisocyanurate insulation. See drawings for minimum R-values.
9. Standing Seam Roof Panels ● Tower: Provide Morin SLR Profile Series (or equal) prefinished roof panels, 16" width, 22 ga. Galvalume with Kynar 1 mil. two-coat fluoropolymer paint finish by Morin Architectural Metals. Color to be selected from standard list of colors by architect. Provide two stiffening beads at panel.
10. Metal Wall Panels ● Tower: On vertical Tower wall faces, provide Morin Concealed F-16-2 (or equal) prefinished flush wall panel, 16" width, 20 ga. Galvalume with Kynar finish by Morin Architectural Metals. Install in vertical orientation. Color to be selected from standard list of colors by architect. Provide two stiffening beads at mid-point of panel.

11. Metal Soffit Panels ● Tower: On sloping Tower soffit, provide Morin Concealed F-16-2 (or equal) prefinished flush wall panel, 16" width, 20 ga. Galvalume with Kynar 1 mil. two-coat fluoropolymer paint finish by Morin Architectural Metals. Color to be selected from standard list of colors by architect. Provide two stiffening beads at panel.
12. Metal Panels ● Tower Wall End and Tower Roof Fascia Conditions: Provide Morin Concealed F-16-2 (or equal) prefinished flush wall panels, 16" width, 20 ga. Galvalume with Kynar 1 mil. two-coat fluoropolymer paint finish by Morin Architectural Metals. Color to be selected from standard list of colors by architect. Provide two stiffening beads at panel.
13. Metal Trim and Accessories at Tower: Provide required prefinished trim nd accessories by Morin Architectural Metals (or equal) to match type and finish of Tower roof and wall components.
14. At massing over overhead doors at each end of Tunnel (also see Wall Sections 2/A7.4 and 3/A7.4), provide Morin Concealed F-16-2 (or equal) prefinished flush wall panel, 16" width, 20 ga. Galvalume with Kynar 1 mil. two-coat fluoropolymer paint finish by Morin Architectural Metals. Install in horizontal orientation. Color to be selected from standard list of colors by architect. Provide two stiffening beads at panel.
15. Membrane Roofing:
Provide and install Carlisle (or equal) fully-adhered, 60 mil single-ply EPDM roof membrane with all associated flashing and accessories necessary to provide a complete roofing system. Install per manufacturer's recommendations.
Provide 20-year warranty.
Provide and install 1" tall aluminum termination bars with pre-drilled holes at 8" O.C.
Seal all flashing and all components contacting or penetrating the roof membrane.
16. Interior Sealants
Provide ASTM C834, non-sag, single-component polyurethane caulk where sealant is noted at interior conditions on drawings.
17. Exterior Sealants
Provide Type S or M, Grade NS, Class 25 ASTM C920 single component silicone caulk where sealant is noted at exterior condition on drawings. Color to be selected by architect from manufacturer's list of standard colors.

DIVISION 8 – DOORS & WINDOWS

1. Exterior hollow metal doors to be 18 gauge with insulated slabs set in 16 ga. hollow metal frames. Exterior doors to be galvanized. Field paint with compatible paint coating.
2. Interior door frames to be 16 gauge with drywall anchors unless shown/detailed otherwise. Frames to have welded connections and shop-primed, ready for field painting.
3. Provide medium grade commercial ADA compliant hardware throughout. Hardware finish to be brushed chrome or as selected by Owner. Bathroom doors to have privacy lever locksets, 1 1/2 pair butts and closers. Exterior doors to have closers, mortise lever locksets that activate without "special knowledge" (thumbturn and/or deadbolt lever activation not allowed), 1 1/2 pair heavy-duty butts, weatherstripping and ADA accessible thresholds.
4. Windows and storefronts to use 1" low "E" insulating glass equal to Solorban 60 glazing (side 3) by PPG. Verify use of tinted glazing at exterior lite with General Contractor. Aluminum framing to be "thermally-enhanced" equal to Kawneer 451-T. Color of windows/doors to be selected from standard colors by architect. Door slabs to have medium stiles, equal to Kawneer 350 Series.
5. Provide tempered glazing in interior sidelites and interior doors as required by code.
6. Provide commercial overhead doors by Clopay or equal with polycarbonate window panels; see architectural drawings for location and general pattern/appearance. Color and finish to be selected by architect from full range of manufacturer's standard color chart.

DIVISION 9 – FINISHES

1. Gypsum board and cold-formed metal stud framing system with taped and sanded joint treatment to conform to applicable code. Perform work in accordance with GA 201 and GA 216 for the application and finishing of gypsum board systems.
2. All exposed gypsum board surfaces shall be taped, sanded and provided with smooth finish as shown on drawings. Provide 5/8" M.R. gypsum board on wet walls. Provide smooth wall surface for walls to receive paint and/or other finish.
3. Extend gypsum board at exterior walls to deck. Provide reinforcing for wall-hung fixtures and/or accessories as required.
4. Install 2x2 reveal-edge lay-in ceiling tile w/ standard 15/16" grid equal to "Fine Fissured" Model 1732 as manufactured by Armstrong or equal – color white.
5. Ceramic tile flooring in restroom equal to Daltile. Size 12"x 12". Provide approved grout in color as selected by architect. Provide 4x12 cove base.
5. Ceramic wall tile in restrooms equal to Daltile. size 12"x 24". Provide approved grout in color as selected by architect. Provide stainless steel edge detail by Schluter or equal at top course.
6. Provide 12x12 Vinyl composition tile equal to Armstrong Standard Excelon Imperial Texture. Color from standard color offering as selected by architect. Provide 4" coved vinyl base by Armstrong or equal. VCT and vinyl base are to be located as shown/scheduled.
7. Painting:

Ferrous Metals:	Shop Primer – touch up as required. Two coats: Alkyd enamel semi-gloss. Exterior metals only.
Parking Markings	Standard Yellow
Exposed CMU walls: Walls, misc. trim, etc. architect.	Primer plus two coats of semigloss, alkyd enamel Primer and two coats latex eggshell enamel – color as selected by architect.
Other materials	Verify finishing with Owner.

DIVISION 10 – SPECIALTIES

1. Toilet accessories: Provide and install units by Bobrick accessories or equal-mount per ADA requirements.

Paper Towel Dispenser:	Bobrick Model B-3942 (1 thus).
Grab Bar:	Bobrick B-5806 x 42" grab bars (1 thus). Mount centerline at 35" AFF.
Grab Bar:	Bobrick B-5806 x 36" grab bars (1 thus). Mount centerline at 35" AFF.
Grab Bar:	Bobrick B-5806 x 18" grab bars (1 thus). Mount bottom ● 39" to 41" above floor and 39" to 41" from back wall.
Toilet Paper Dispenser :	Bobrick Model B-685 (1 thus).
Mirror:	Bobrick Model B-293 2436 (1 thus).
Soap Dispenser:	Bobrick Model B-211 (1 thus).
2. Fire Extinguishers: Provide one (2) units by JL Industries or equal. Mount extinguishers on brackets or in cabinets (General Contractor's option). Verify mounting locations with City.
3. Fire Extinguisher cabinets: Contractor's Option: Provide extinguisher cabinet(s) equal to Panorama Series Model 1017P48 by JL Industries or equal. Semi-recessed. Locate (1) unit in Equipment Room #103 and (1) unit in Office #101- verify chosen location with City.
4. Knox Box: Verify and locate Knox Box(es) as directed by City.
5. Provide prefinished metal parapet platform ladder by Royaltte Manufacturing (or equal). Ladder must comply with the 2015 International Mechanical Code, including Section 306.5.
6. Provide prefinished metal canopies by Imperial Marquee Awning by General Awning, LLC (or equal) for the two sizes and locations shown in the drawings. Provide braces, integral gutter, downspout, and connection hardware by manufacturer. Color to be selected from standard list by architect.

DIVISION 11 – EQUIPMENT

1. All car wash equipment to be purchased by Owner and installed by General Contractor. General Contractor to coordinate the installation of all equipment with Architectural, Structural and Civil drawings and Specifications. General Contractor to coordinate requirements of equipment with Mechanical, Electrical and Plumbing.

DIVISION 12 – FURNISHINGS

1. All furniture is to be provided by Owner. No furniture is included as part of this contract.

DIVISION 15 – MECHANICAL and DIVISION 16 – ELECTRICAL

1. Plumbing, mechanical, and electrical work is to be designed and installed by subcontractors of the General Contractor on a design-build basis.

DIVISION 17 – COMMUNICATIONS

1. Communications and/or Security work is to be designed and installed by the subcontractors of the General Contractors on a design-build basis.

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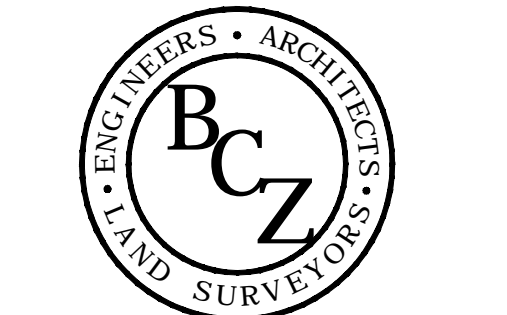
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DES MOINES COUNTY

- ISSUE RECORD -

1	08/22/2018	C

P PRELIMINARY
R REVISION
B BID DOCUMENTS
C FOR CONSTRUCTION
A RECORD DOCUMENT

Preliminary
09/04/2018 2:39:57 PM

SPECIFICATIONS

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GENERAL NOTES

- Do not scale dimensions for construction.
- All work is intended to comply with the Illinois Accessibility Code and the Americans With Disabilities Act (A.D.A.). The Contractor shall notify the Engineer before altering any dimensions.
- Contractor shall verify all dimensions and conditions on drawings and report any discrepancy to Structural Engineer before bid has been submitted and/or construction has commenced.
- Submit six copies of shop drawings for the review of the Engineer for the following items: Concrete Mix Design, Masonry Materials and Accessories.
- Reproduction of the Structural Documents by any photographic, xerographic, etc., process or technique for direct incorporation of the plans, details, notes, etc., herein indicated into a shop drawing is strictly prohibited and shall be immediately rejected.
- Shop Drawings of the structural items shall be submitted before fabrication, for review by the Structural Engineer. Should it become evident that the shop drawings are being submitted with the appearance of not having been properly checked by the Detailer or Contractor, prior to submission, they will be returned by the Structural Engineer without review. The transmittal will indicate a "Non-Submittal".
- The building structure has been designed for the in-service loads only. The methods, procedures and sequences of construction are the sole responsibility of the Contractor. The Contractor shall take all necessary precautions to maintain and ensure the integrity of the building structure at all stages of construction.
- Contractor is responsible for adequacy of temporary shoring to resist lateral and vertical loads during construction.
- Unless specifically detailed in the drawings, no pipes or sleeves shall pass through structural members without approval of the Engineer.
- Contractor shall coordinate structural plans with all other Construction Documents and shall verify the size and location of openings, holes and sleeves through all structural elements with Mechanical, Electrical and Plumbing Contractors.
- Costs of additional design work necessitated by sequence or construction errors shall be paid by the Contractor.

DIVISION 1- GENERAL REQUIREMENTS

- This section not used.

DIVISION 2 - SITE WORK

- Before proceeding with the work, the Contractor shall familiarize himself with the scope of the foundation work, including soil and water conditions. The soil conditions indicated in the construction documents are for general information only. Actual site conditions may vary.
- All footing excavations shall be clean and free of debris, standing water and loose soil and shall be inspected by the Engineer prior to placement of concrete.
- In areas where structures derive some or all support from fill supported foundations and slabs on grade, fill shall be compacted to 98% standard proctor density according to ASTM D698.
- All fill material shall be approved for use in advance of placement by the Engineer. No fill shall be placed over frozen, muddy or other deleterious material. Lift thickness shall be minimized to allow efficient compaction. No fill may be placed over a previous lift that has not been adequately compacted and has not been accepted by the Engineer.
- Backfill against grade walls shall be placed evenly and compacted on all sides.
- All foundations shall be centered on wall and column centerlines unless otherwise indicated by an offset dimension shown in the construction documents.
- Piping running below foundation shall be placed prior to foundation operations and the hole filled with lean concrete.
- Design bearing capacity of soils: 1200 p.s.f.. Contractor shall contract a Soils Engineer to verify that acceptable soils and soil bearing capacities exist within the building area. If poor soils conditions are encountered provide corrected procedures as formulated by Soils Engineer and as outlined in the soils report.

DIVISION 3 - CONCRETE

- All cast-in-place concrete shall have a minimum 28 day compressive strength of 3500 p.s.i. unless noted otherwise.
- All reinforcement bars shall conform to ASTM A615, Grade 60.
- All welded wire fabric shall conform to ASTM A185, flat stock only.
- All concrete work shall conform to ACI 318 "Building Code Requirements For Reinforced Concrete, latest edition." All reinforcing details not shown shall conform to ACI 315 "Detailing Manual", latest edition.
- Cold weather concrete work shall be done in accordance with ACI-306. Hot weather concrete work shall be done in accordance with ACI-305.
- Reinforcing bar lap splices shall be Class "B" splices per ACI 318 unless noted otherwise on the drawings.
- Mechanical splices may be used in lieu of lap splices. Mechanical splices shall develop in tension or compression, at least 125% of the specified yield strength of the reinforcement bars to be lapped. The Contractor shall submit to the Engineer manufacturers literature, product samples and certified test reports prior to receiving approval of the mechanical splices. Locations of the mechanical bar splices shall be as shown on the reinforcing steel shop drawings.
- Concrete protection for reinforcement shall be as follows unless noted otherwise:

A. Concrete cast against and permanently exposed to earth or water (excluding slabs poured on grade)	3".				
B. Concrete cast to forms exposed to earth or weather: <table><tr><td>#6 Bar or larger</td><td>2"</td></tr><tr><td>#5 Bar and smaller</td><td>1-½".</td></tr></table>	#6 Bar or larger	2"	#5 Bar and smaller	1-½".	
#6 Bar or larger	2"				
#5 Bar and smaller	1-½".				
C. Concrete cast to forms not exposed to earth or weather					
Slabs and Joists					
#14 and #18 Bars	1-½".				
#11 Bars and Smaller	¾".				
Beams, Columns and Walls					
Primary reinforcement, ties, stirrups and spirals	1-½".				
Shells and Folded Plate Members	1"				
Slabs Poured on Grade					
From top surface	2"				
Troweled surface (increase by ½" if surface is to be in permanent contact with ground or water	1"				
Screeded surface for topping	¾".				
- All reinforcement bars shall be clean and free of grease, scaling rust and other foreign materials.
- Reinforcement bar bending dimensions are out to out.
- All field bending of reinforcement shall be done cold. Do not heat reinforcement.
- All concrete subject to exterior exposure with specified strength 5,000 psi or less, shall be air entrained 6%, with a tolerance of +1.5%, as delivered

- For slabs on grade, use ½" thick premolded joint filler to isolate the slab from contact with the structures along its perimeter and apply sealant, ¾" minimum depth.
- A lean concrete mud slab 3 to 4 inches thick shall be used in the footing excavation if the bottom of the excavation tends to become muddy and soft. The lean concrete mix shall have a minimum 28 day compressive strength of 2000 p.s.i.
- All exposed edges and equipment pads shall be chamfered ¾". Chamfer on vertical edges shall be continued a minimum of one foot below finished ground level.
- No construction joints except those shown on the plans or approved shop drawings will be allowed except those submitted by the Contractor in writing and approved by the Engineer.
- Provide 2'-6" x 2'-6" corner bars at foundation wall corners at same size and spacing as horizontal reinforcement.
- Strip all topsoil from all slab on grade locations to a depth of 8". Backfill and compact subgrade up to 8" below finished floor slab using bank sand as additional fill material as required. Place sand in 8" lifts and compact to 98% standard proctor density.
- Install a 4" crushed stone (CA-7) sub-base directly below all slabs on grade.
- Install a 6 mil. Polyethylene vapor barrier below all building interior slabs on grade. Install ½" expansion joint filler with plastic zip cap around the perimeter of the slab on grade at foundation walls.
- Footings shall bear on compacted fill or acceptable virgin soil at a minimum depth of 3'-0" or at a depth below the frost line.
- Size and location of bases, supports and embedded anchorages for equipment shall be coordinated with equipment suppliers and shall be in accordance with approved shop drawings.
- Water shall not be added on site unless called out in the approved mix design.
- Concrete slabs on grade shall have construction or contraction joints at 12 foot each direction maximum unless noted otherwise. Cut slabs between 4 and 12 hours after casting slab. Isolate columns, walls and piers from slabs.
- The precast concrete manufacturer shall be responsible for the design and installation of all precast slabs, including reinforcing, inserts and connections to the structure not specifically called out in the construction documents. The design and installation of all panels shall be in accordance with ACI 318 and 301, latest edition, and the Recommendations of the Manual for the Design of Hollowcore Slabs, published by the Precast/Prestressed Institute. Submit design calculations prepared by a Structural Engineer licensed in the State of Illinois to the Structural Engineer for review.
- Fill slab keyways of precast slabs with grout having a minimum 28 day compressive strength (f'c) of 3,000 psi. Grouted keyways shall be capable of transmitting a minimum horizontal shear force of 600 pounds per lineal foot.
- The maximum allowable live load deflection of precast slabs shall be limited to L/360.
- Manufacture precast slabs with concrete having a minimum 28 day compressive strength (f'c) of 5,000 psi.

DIVISION 4 - MASONRY

- Masonry construction shall comply with ACI 530, Building Code Requirements for Masonry Structures, latest version, and Specifications for Masonry Structures, ACI 530.1. See IBC 2012 for hot and cold weather procedures.
- All concrete masonry units shall be normal weight aggregate units conforming to ASTM C90, Grade N, Type 1. Provide square ends at all exposed corners. All block shall be free from cracked or chipped faces, F'm = 1500.
- C.M.U. shall be laid in a running bond pattern.
- Fill all c.m.u. cells solid floor to floor at jams of openings.
- Grout all c.m.u. cells containing reinforcement in lifts not to exceed 5'-0". Do not displace the reinforcement while placing the grout.
- Prior to grouting the first 5'-0" lift of wall above the slab and prior to grouting the top lift of wall, the rebar placement shall be inspected and three (3) grout and mortar specimens shall be taken for each 500 square feet of masonry being erected. Test specimens and seven (7) and twenty-eight (28) days, hold the third specimen for further testing, if required.
- Mortar shall be tested by an approved testing laboratory in accordance with ASTM C-780. Two sets of three mortar cubes shall be taken at random for each day of masonry work. Test one cube of each set at 7 days and 28 days. Test the third cube at 56 days only if required by the Structural Engineer.
- Lap reinforcement bars 48 bar diameters unless noted otherwise.
- Mortar shall be Type S consisting of 1 part portland cement, ¼ - ½ part hydrated lime, 4-½ parts sand and potable water as required.
- Grout for filling masonry wall cores shall have a minimum 28 day compressive strength of 2000 p.s.i. and consist of 1 part portland cement, 0 to 1/10 part hydrated lime, 2-¾ to 3 parts sand and potable water as required.
- Reinforce exterior walls as called for on the drawings using ASTM A615, Grade 60 deformed bars.
- At control joint locations shown on the drawings, install sash block and wide flange PVC control joint with sealant at face joint.
- Cut masonry units only where required using power saw and use full size units wherever possible.
- Interior and exterior masonry joints shall be approximately 3/8" wide and tooled to a slightly concave shape.
- Clean all masonry walls using a detergent or chemical type cleaner.
- Reinforcing steel shall be lapped 40 bar diameters or 24", whichever is greater. Where spliced, bars shall be seperated one bar diameter or wired together.
- Vertical bars shall be held in position at top and bottom and at intervals not exceeding 192 bar diameters.
- Vertical reinforcement steel shall have a clearance of ¾" from masonry or adjacent bars, but not less than one bar diameter between bars.
- All reinforcement shown on drawings shall be grouted full length..
- All grout shall be puddled or vibrated into place.
- Cells containing reinforcement shall be solidly filled with grout and pours shall be stopped 1-½" below the top of a course to form a key at pour joints.
- All bolts, anchors, etc. Inserted in the masonry wall shall be solidly grouted in place.
- Grout all CMU cells full within a 12" radius when concrete anchors are built into cmu walls.
- Do not place conduit, chases or other embedded items in grouted cells without prior written approval from the Structural Engineer.
- Locate control joints in c.m.u. units a maximum spacing of 20 foot unless noted otherwise. Locate control joints in exterior masonry per Architectural Drawings.
- Continue reinforcement through control joints and wrap reinforcement bar with bond breaking tape 2'-0" each side of joint. Do not splice reinforcement bars within 4'-0" of joints.
- Lintels shall be placed above all openings and recesses in masonry construction. Back to back steel angles shall be welded together with 2" weld at 12" centers. Lintels shall bear a minimum of 8" each end on fully grouted cell.
- Grout all c.m.u. cells solid under lintel bearing, beams and bearing plates.
- Quality Assurance and inspection of work, as defined by ACI 530.1/ASCE 6 and/or the project specifications, are required.

DIVISION 5 - METALS

- This structure has been designed and shall be fabricated and erected in accordance with the latest A.I.S.C. Code of Standard Practice for Steel Buildings and Bridges.
- All structural and miscellaneous steel shall conform to ASTM A36.
- All steel joists shall be in accordance with the Steel Joist Institute Standard Specifications With Rigid Bracing and shall be erected in accordance with the recommendations of the Steel Joist Institute.
- Unless noted otherwise, all welds shall be done by the Electric Arc Method using E70XX electrodes and shall conform to AWS Structural Welding Code D1.1. Shielded arc welding process shall use low hydrogen electrodes.
- All anchor bolts shall conform to ASTM A 307 (A325), galvanized unless noted otherwise.

Anchor bolts shall be placed within the following tolerances:	
Top of anchor bolt elevation	+1" to -3/8"
Out of position anchor bolts	+/- 1/8"
- All anchor bolts, nuts, washers, etc. shall be galvanized steel unless noted otherwise and shall be in accordance with ASTM A153.
- All detailing, fabrication and erection of structural steel shall conform to AISC Specifications For Structural Steel Buildings.
- Openings required in structural steel members shall be shown on the shop drawings. Field cutting of holes in structural steel members shall not be allowed without the written permission of the Engineer.
- Contractor shall field verify existing conditions and dimensions prior to structural steel fabrication.
- This structure is designed as a stable unit after all component parts are in place. The Erector shall provide all necessary shoring and bracing as required to insure stability during erection and construction.
- Whenever construction scheduling requires the erection of structural members which by themselves would be considered laterally unstable, adequate temporary bracing shall be provided.
- Structural steel that is not to be galvanized shall receive one coat of rust inhibitive shop primer compatible with finish paint system. All field connections and damaged portions of shop primer shall be spot painted unless encased in concrete.
- All welding shall be performed by welders with experience in that type of weld and are certified for that work. Welds shall be performed in accordance with the Structural Welding Code by the American Welding Society, latest edition.
- The surface of the existing beams to be welded shall be cleaned to the bare metal prior to welding.
- All headed studs shall conform to ASTM A108.
- All structural steel to be properly guyed and braced until roof system is in place.
- All structural steel members exposed to weather shall be galvanized.
- Design, fabricate, deliver and erect open web steel joists, joist girders, and accessories according to the specifications recommended by the Steel Joist Institute (SJI).
- Provide cold formed metal framing, including trusses, studs, joist, track, runners, lintels, clip angles, reinforcements, shoes, blocking and bridging, complete with all fasteners and accessories needed for a complete and finished installation.
- Cold-formed metal framing shall be designed in accordance with American Iron and Steel publication "Specifications for Design of Cold-Formed Steel Structural Members", latest edition.
- All cold-formed structural members shall be formed from corrosion resistant steel, corresponding to the requirements of ASTM A446, Grade C, with a minimum yield strength of 40 ksi for studs and joists, and Grade A, 33ksi, for runners. All structural members shall be zinc coated meeting ASTM A525, G-60, or equivalent.

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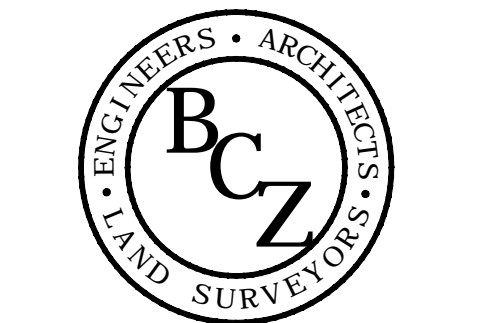
Engineers Architects Land Surveyors

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309.343.9282

308 North 3rd Street
Burlington, Iowa 52601
319.752.9282

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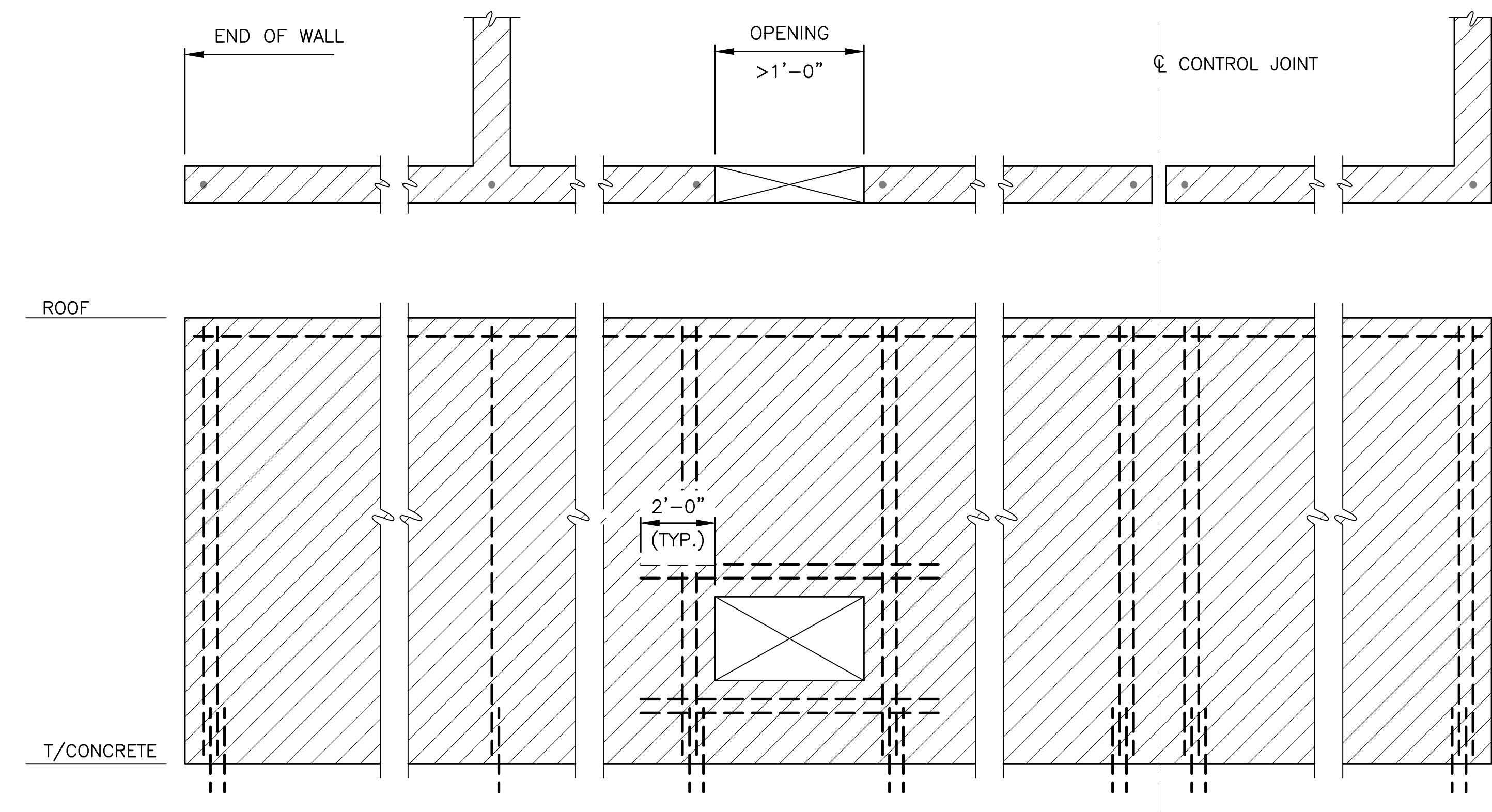
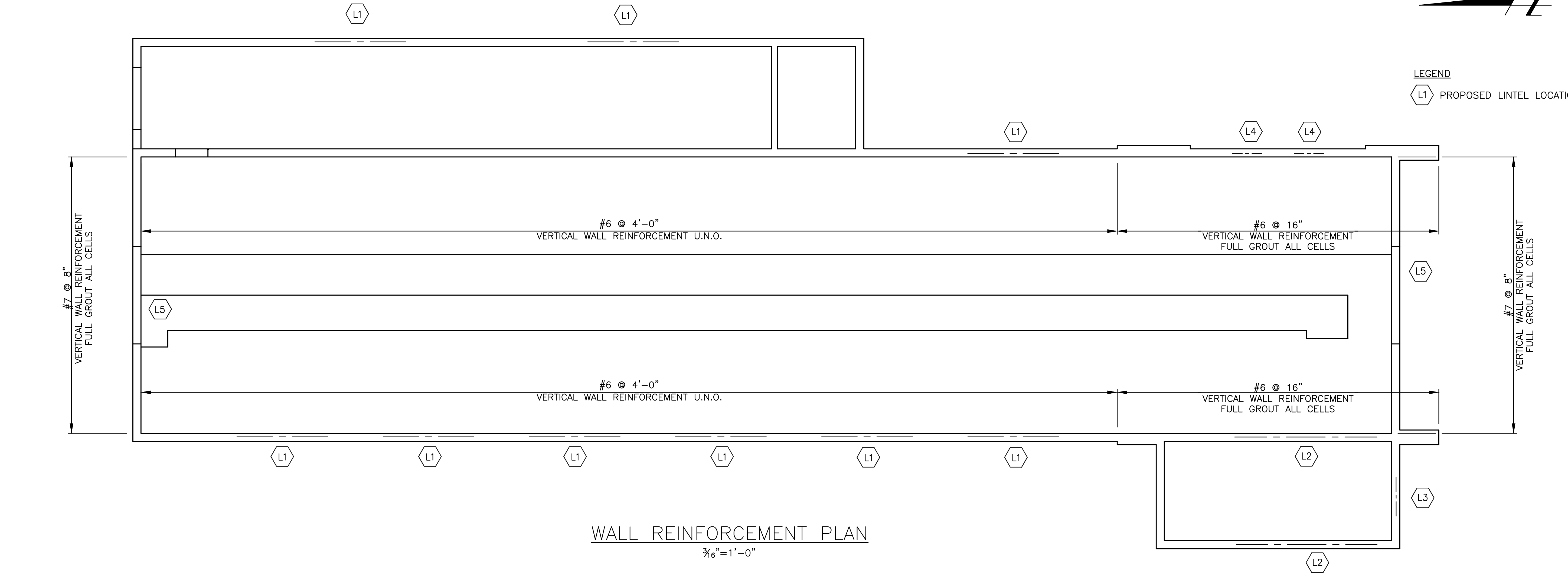
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GENERAL NOTES

S1.0

SECTION D
 $\frac{3}{4}" = 1' - 0"$

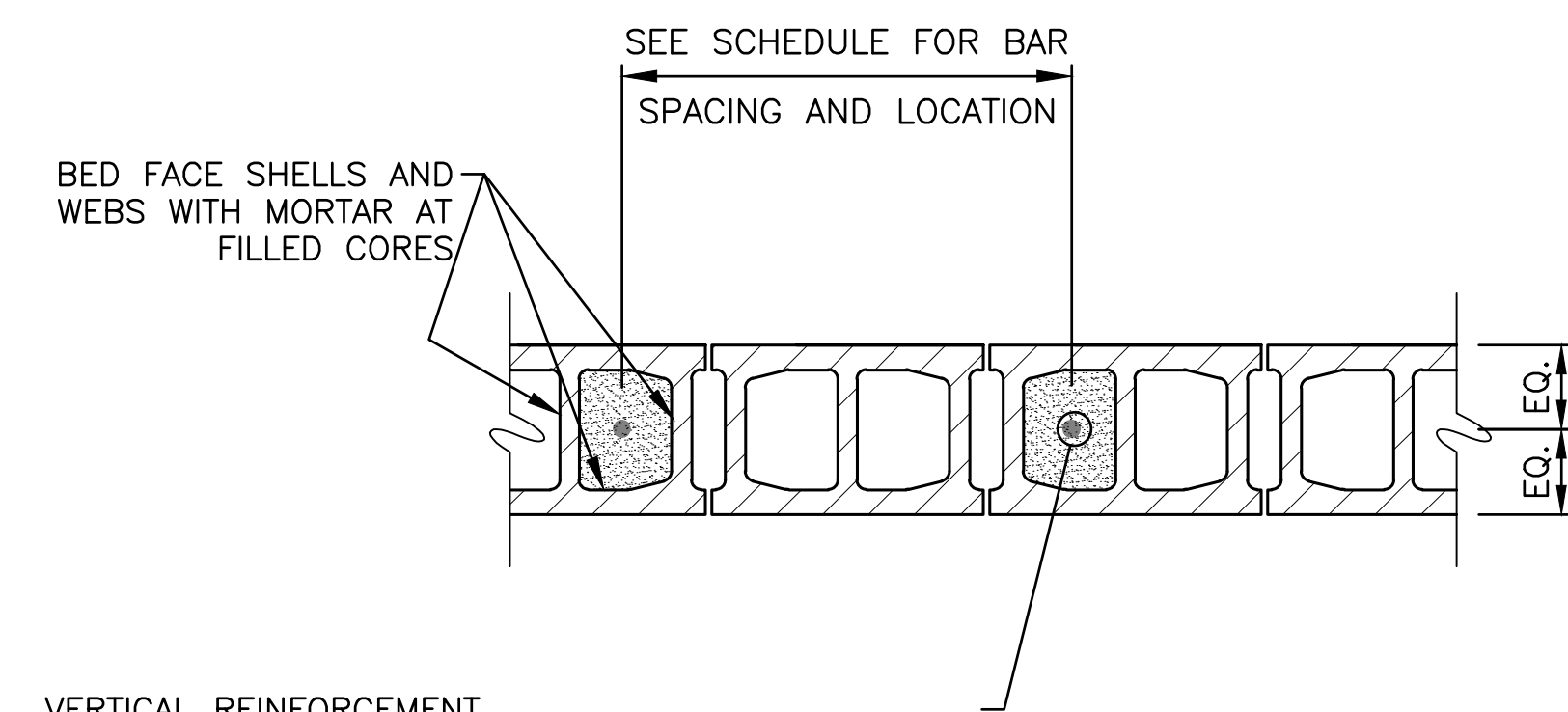
T:\2018\PROJECTS\2018069-2 CAR WASH_BURLINGTON\DESIGN\DRAWINGS_ARCHITECTURAL\STRUCTURAL\2018069-2 FOUNDATION.DWG
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TYPICAL REINFORCED MASONRY NOTES

TYPICAL HORIZONTAL AND VERTICAL REINFORCING BARS SHALL BE AS NOTED IN THE MASONRY WALL TYP9E CONSTRUCTION SCHEDULE AND WALL SECTIONS. ADDITIONAL REINFORCING SHALL BE AS FOLLOWS:

- VERTICAL REINFORCING BAR SHALL BE PROVIDED, CONTINUOUSLY FROM SUPPORT TO SUPPORT (FINISHED FLOOR TO ROOF) AT:
 - 2-#6 WITHIN 8" OF EACH END OF WALL;
 - 2-#6 EACH WALL SECTION;
 - 2-#6 WITHIN 16" OF EACH SIDE OF A MASONRY OPENING > 1'-0" IN WIDTH;
 - 2-#6 WITHIN 8" OF EACH SIDE OF A MASONRY CONTROL OR EXPANSION JOINT;
 - 2-#6 EACH CORNER OF THE BUILDING.A: 1-#6 @ 48" O.C. (MAX)
- HORIZONTAL REINFORCING BARS SHALL BE PROVIDED AT:
 - 2-#6 TOP AND BOTTOM OF MASONRY OPENINGS;
 - 1-#6 FLOOR AND ROOF LEVELS, CONTINUOUS;
 - 1-#6 WITHIN 16" OF THE TOP OF MASON WALLS, CONTINUOUS;



VERTICAL REINFORCEMENT

- REINFORCEMENT SHALL BE CONTINUOUS FROM FOUNDATION TO ROOF.
- GROUT BARS SOLID FULL HEIGHT.

TYPICAL REINFORCED MASONRY WALL DETAILS
NO SCALE

1



LEGEND

L1 PROPOSED LINTEL LOCATION

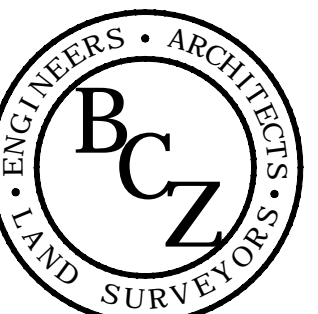
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FOUNDATION PLANS FOR
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DES MOINES COUNTY

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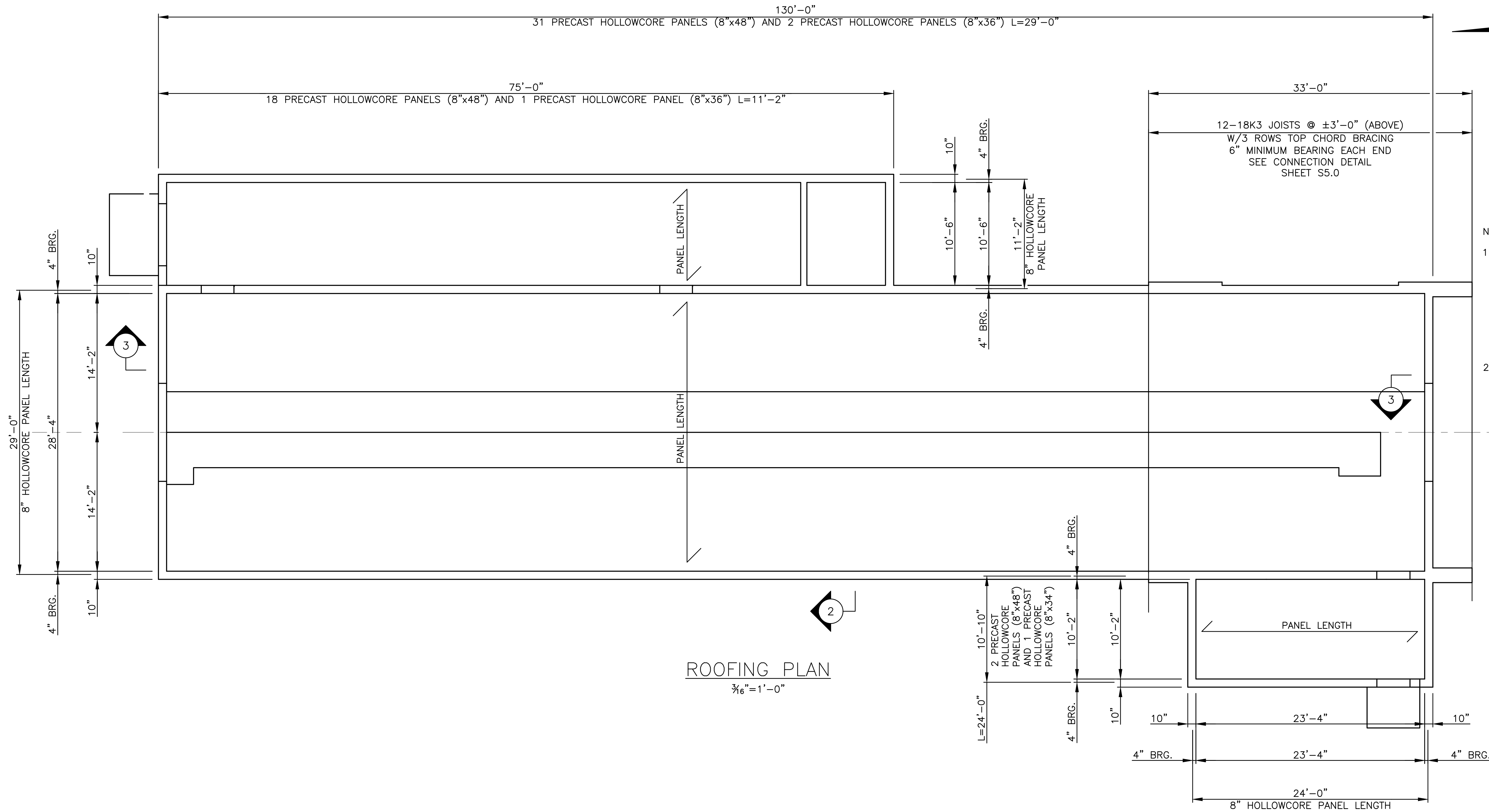
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WALL
REINFORCEMENT
PLAN

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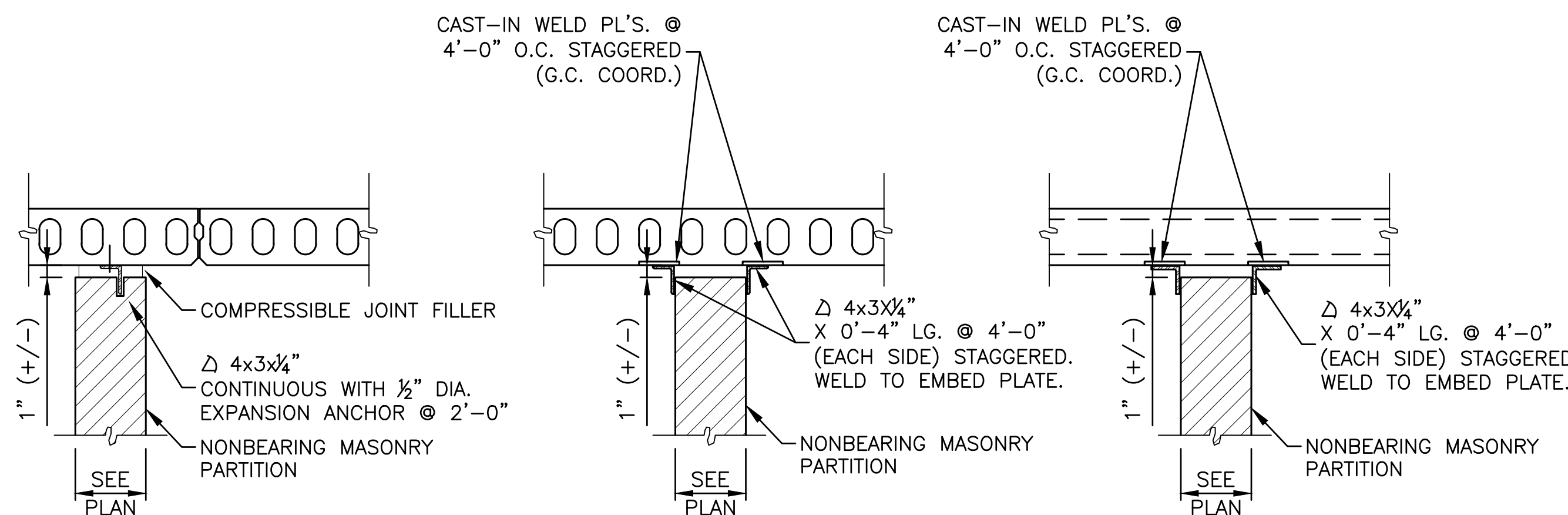
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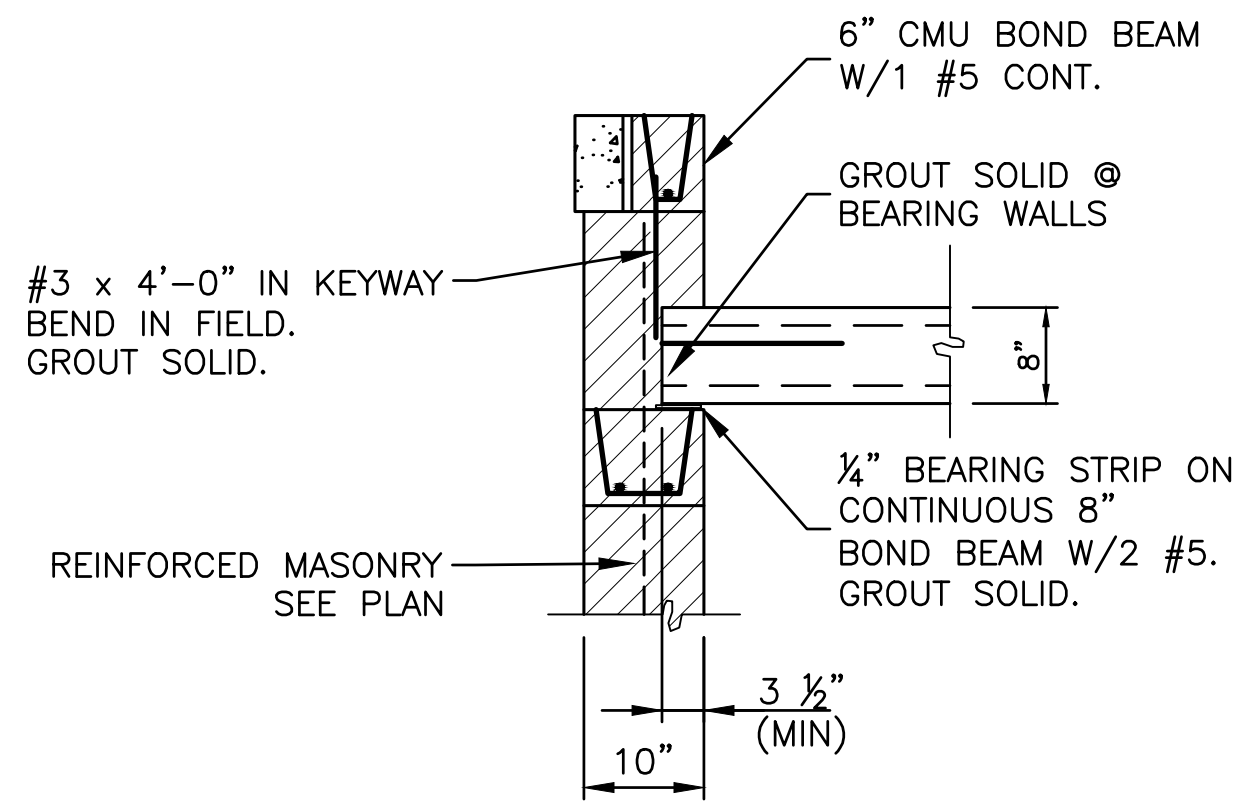
ROOFING PLAN
3/8"=1'-0"

NOTES:

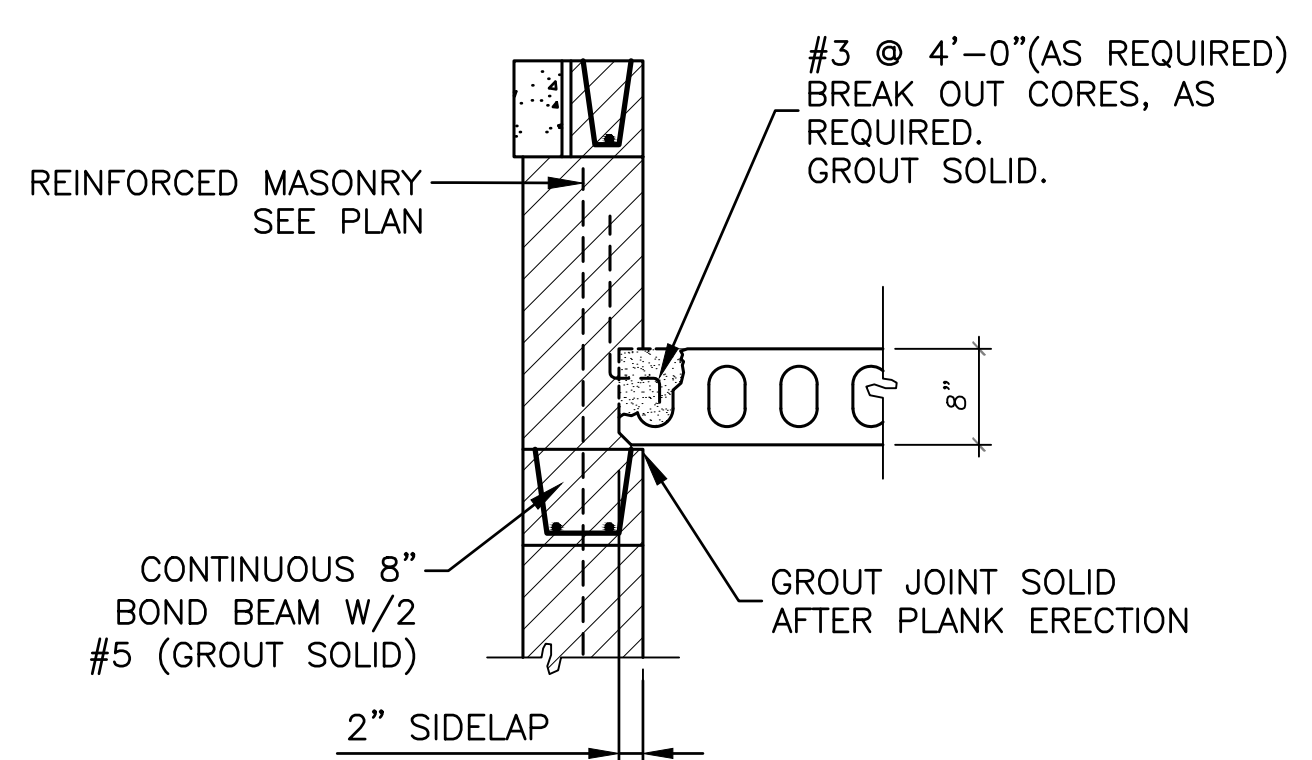
1. PRECAST PANEL FABRICATOR TO GET R.T.U. AND OTHER DESIGN LOADS NOT SHOWN FROM GENERAL CONTRACTOR AND INCLUDE THESE LOADS INTO THE PRECAST PANEL DESIGN.
2. HEADERS REQUIRED FOR FLOOR OPENINGS TO BE DESIGNED BY HOLLOWCORE PLANK CONTRACTOR, UNLESS NOTED OTHERWISE.



TYPICAL DETAIL @ NON-BEARING MASONRY PARTITION
NO SCALE



PANEL CONNECTION DETAIL
NO SCALE



PANEL CONNECTION DETAIL
NO SCALE

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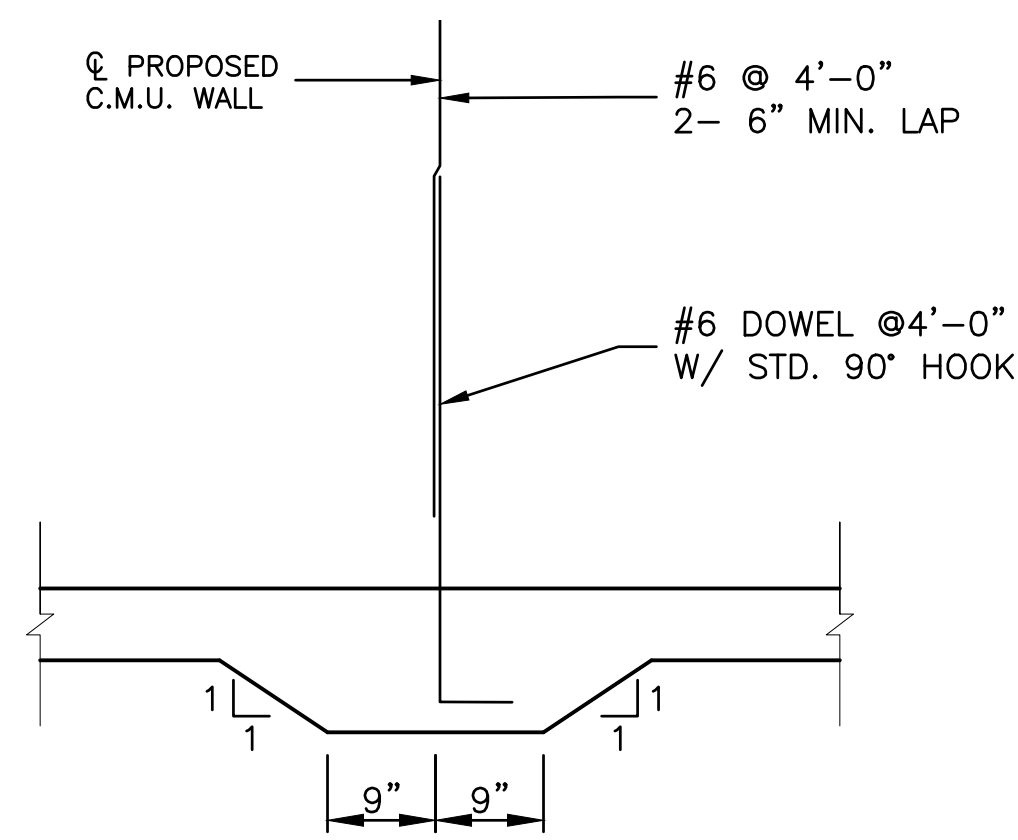
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ROOFING PLAN

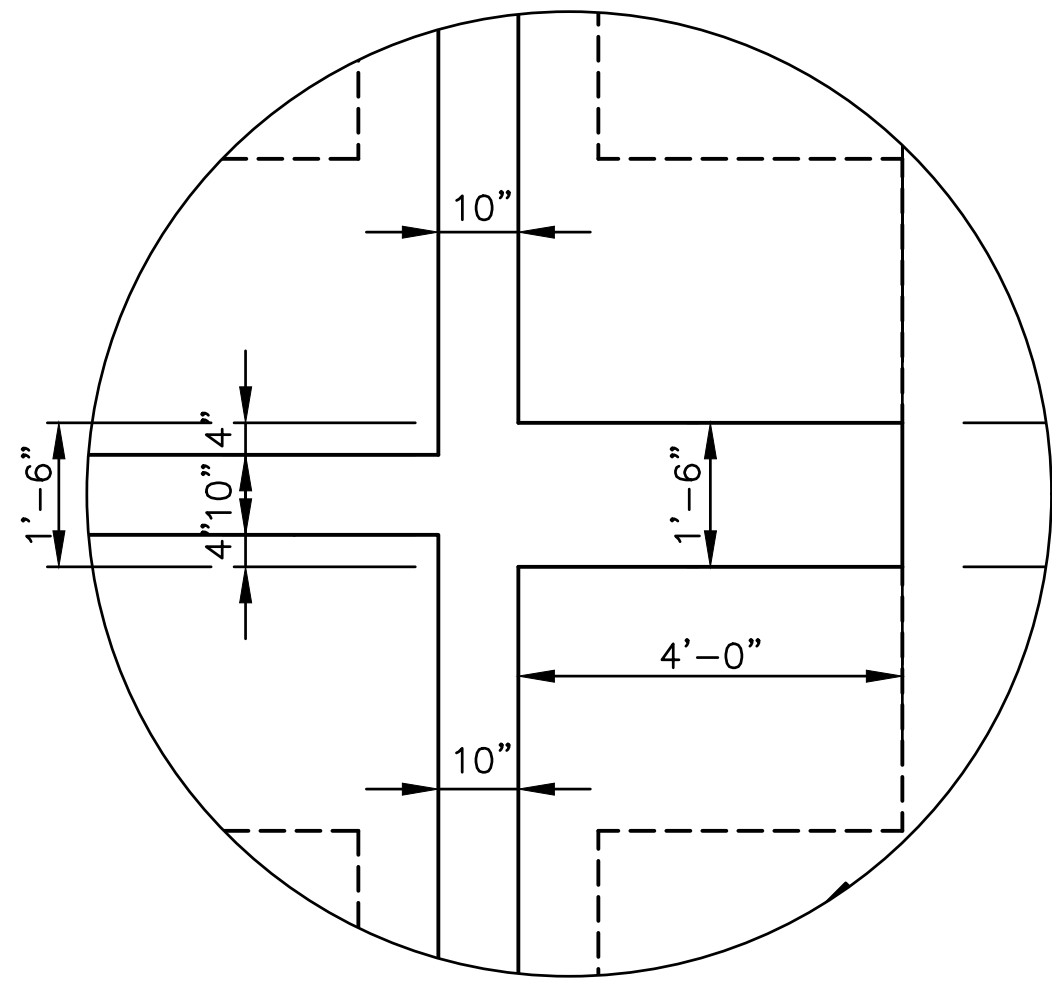
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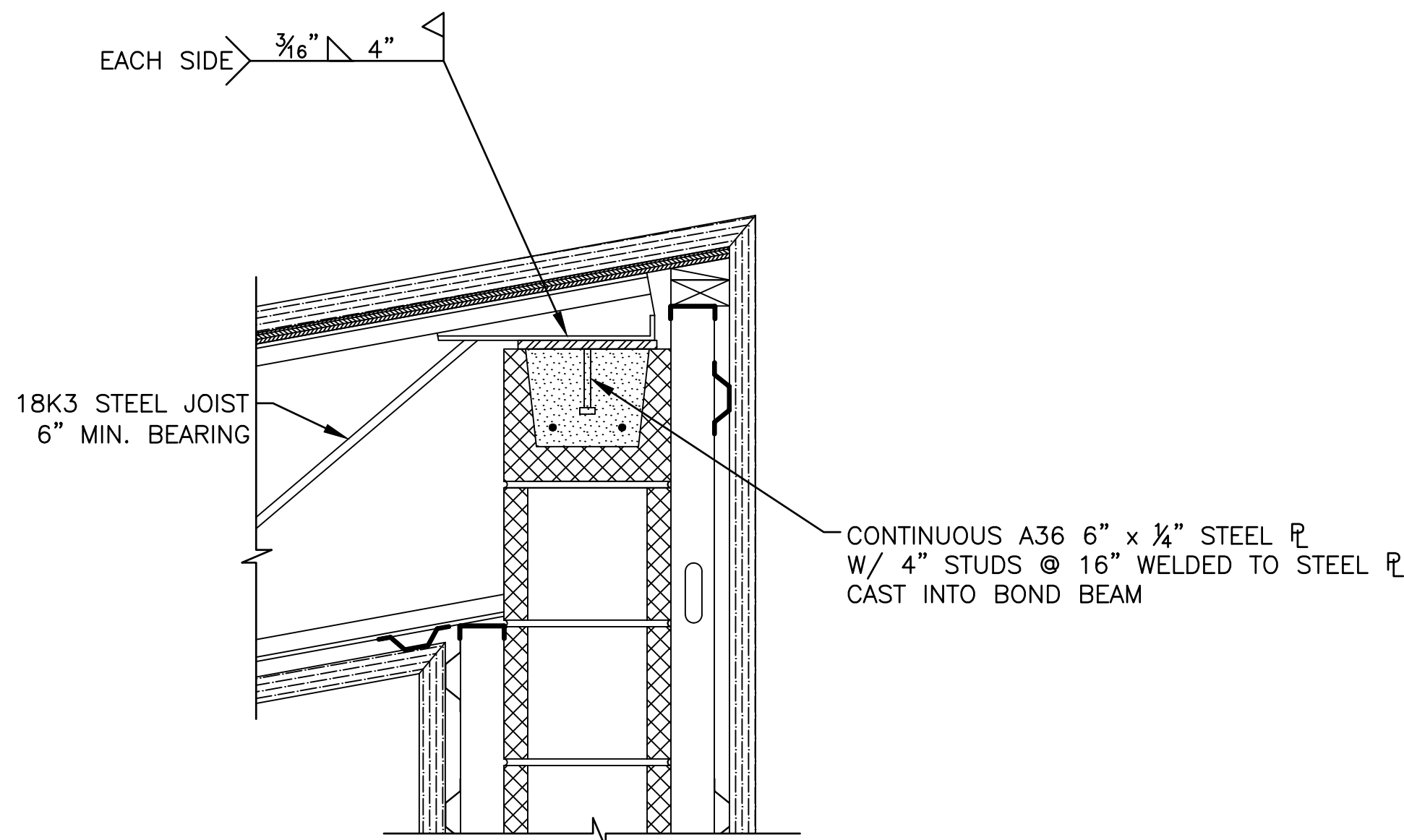
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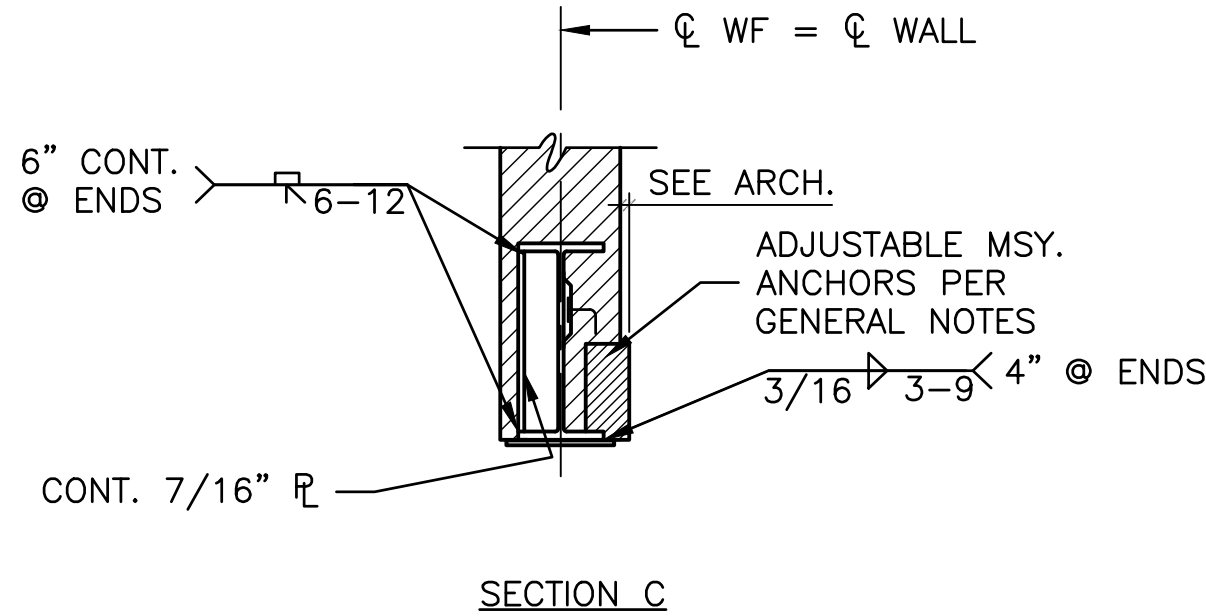
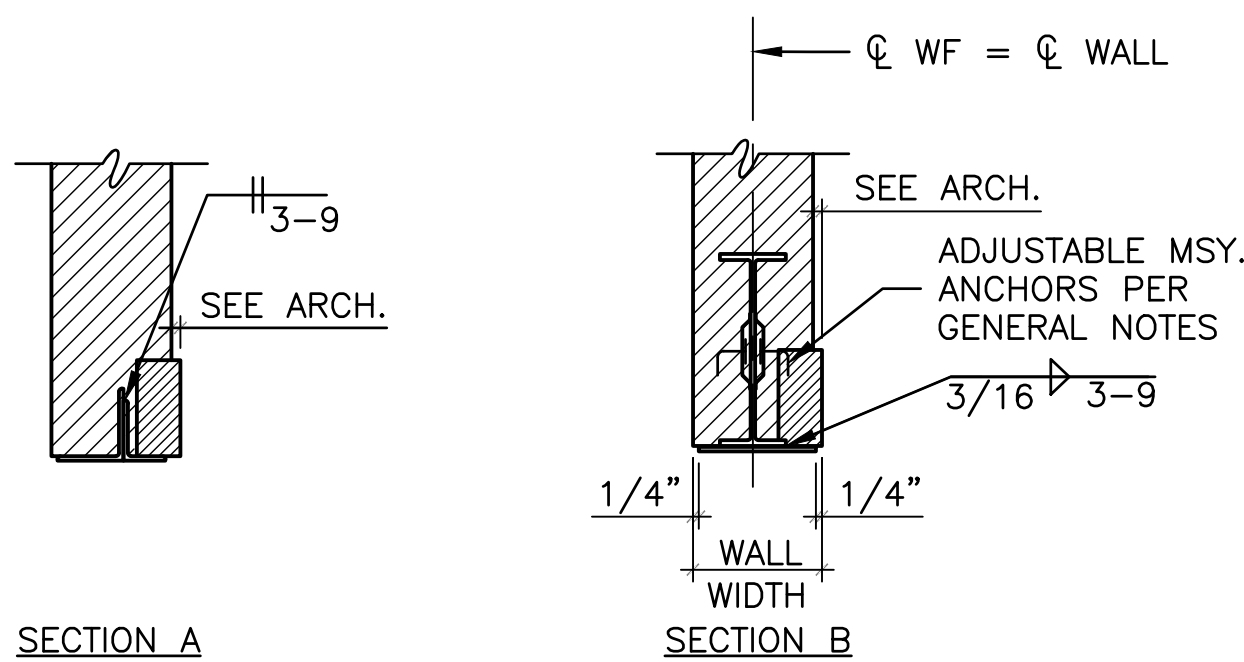
SECTION E
3/4"=1'-0"



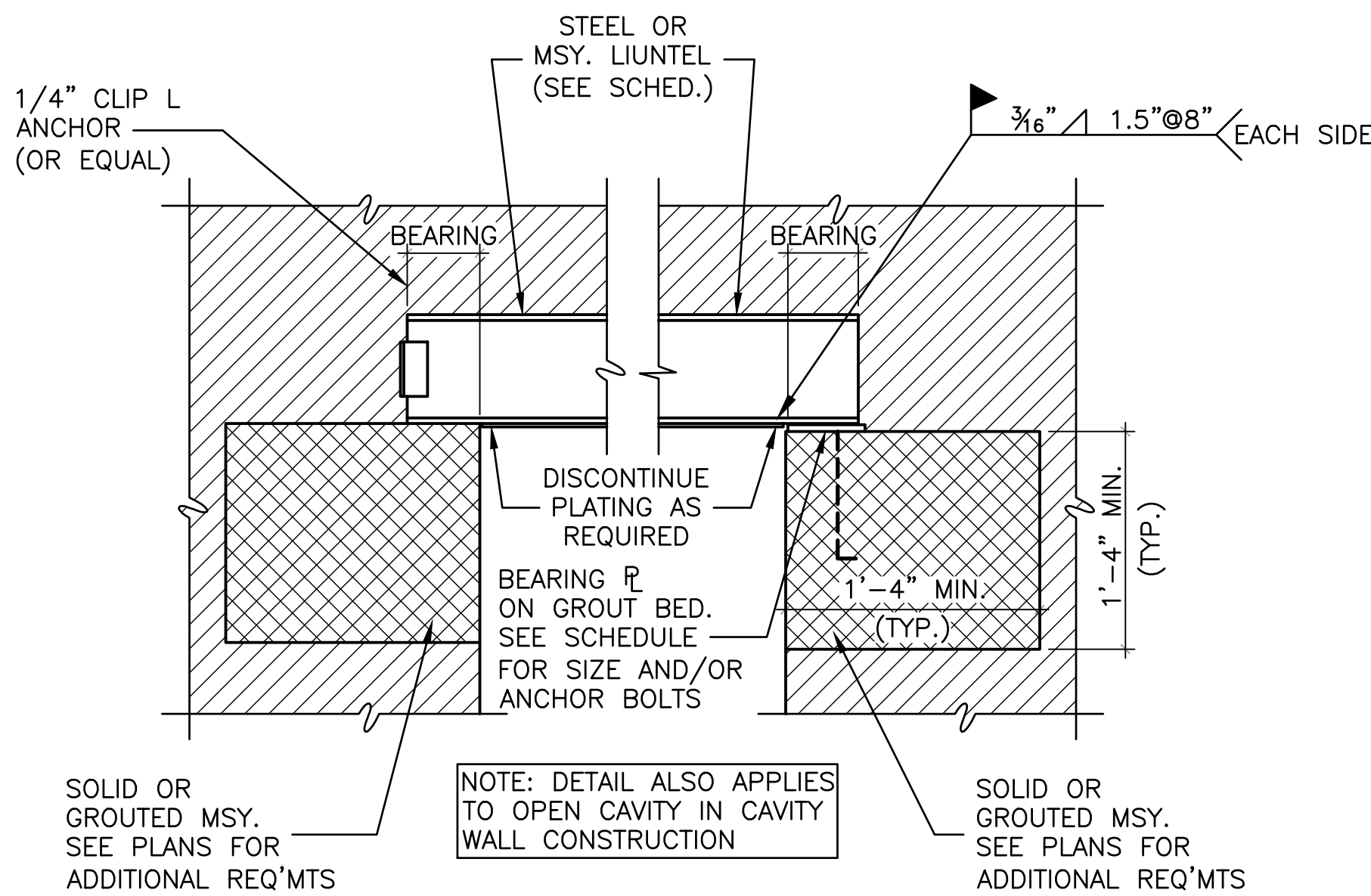
DETAIL F
1/2"=1'-0"



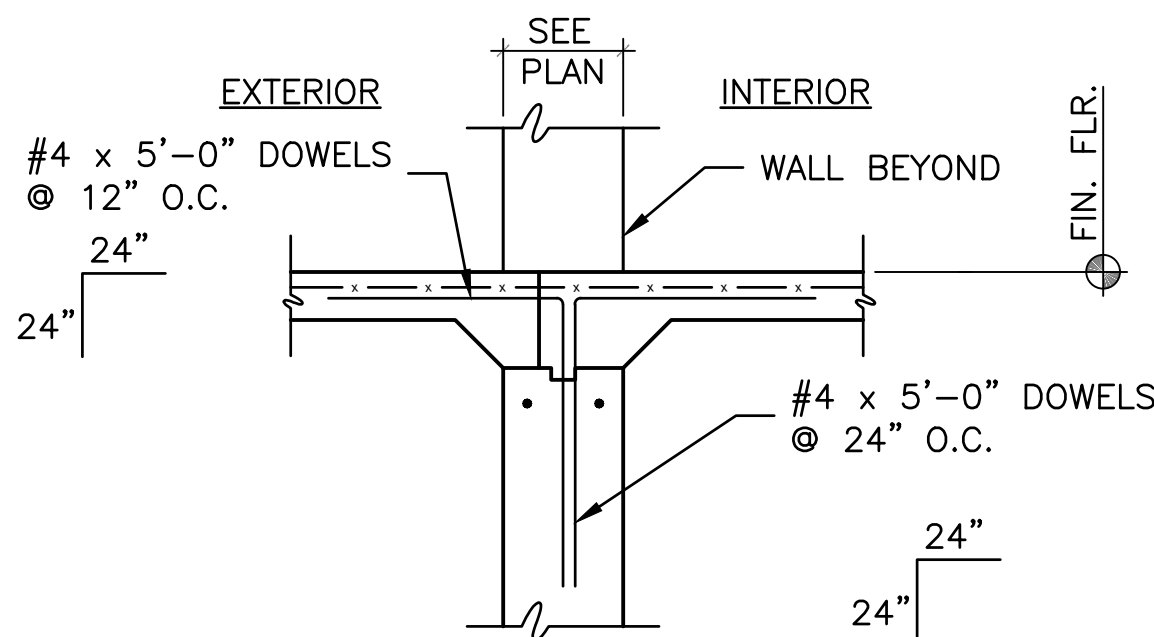
STEEL JOIST CONNECTION DETAIL
1 1/2"=1'-0"



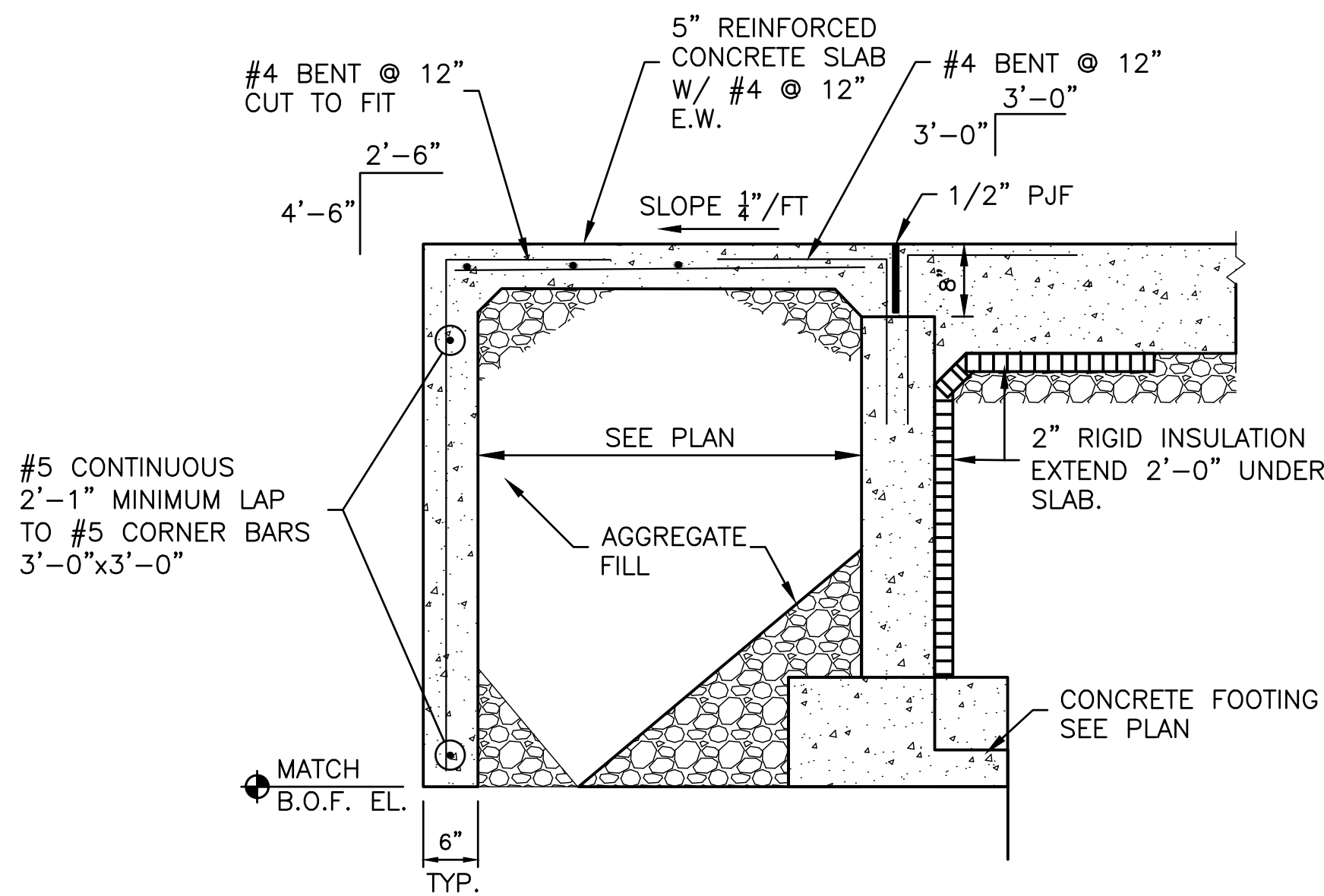
TYPICAL STEEL LENTIL SECTIONS
3/4"=1'-0"



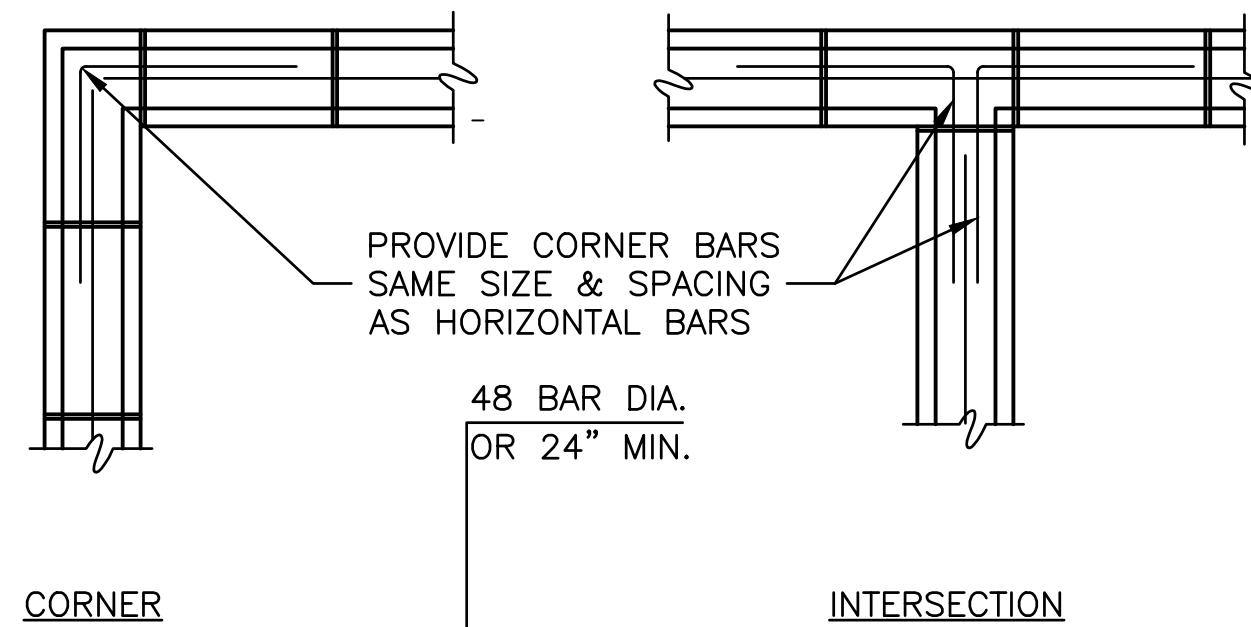
TYPICAL STEEL LENTIL DETAIL
3/4"=1'-0"



TYPICAL WALL DEPRESSION AT MANDOR
3/4"=1'-0"



SECTION THROUGH STOOP
3/4"=1'-0"



TYPICAL BOND BEAM DETAIL
3/4"=1'-0"

BEARING PLATE SCHEDULE		
MARK	DESCRIPTION	DETAIL/REMARKS
BP1	3/8"x8"x8"+ 2-3/8"DIA.x4" H.S.	DETAIL 4

LINTEL SCHEDULE			
MARK	DESCRIPTION	BEARING MIN.	DETAIL/REMARKS
L1	W8x18 GR50	8"	SECTION B BPI EACH END
L2	W8x31 GR50	8"	SECTION B BPI EACH END
L3	W8x10 GR50	8"	SECTION B BPI EACH END
L4	W8x10 GR50	8"	SECTION B BPI EACH END
L5	W8x18 6R50	8"	SECTION B BPI EACH END

LINTEL NOTES:

- SEE ARCHITECTURAL SHEETS FOR ALL MASONRY OPENING SIZES AND LOCATIONS
- ALL LINTELS, U.N.O., SHALL BEAR ON SOLID OR GROUTED MASONRY, MINIMUM 1'-4" LENGTH x 1'-4" DEPTH, EACH END. SEE "TYPICAL STEEL LINTEL DETAIL" THIS SHEET.

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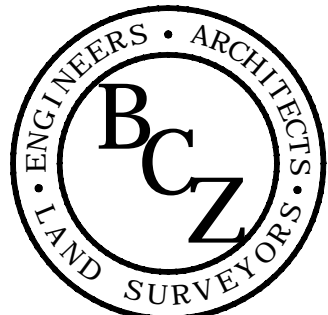
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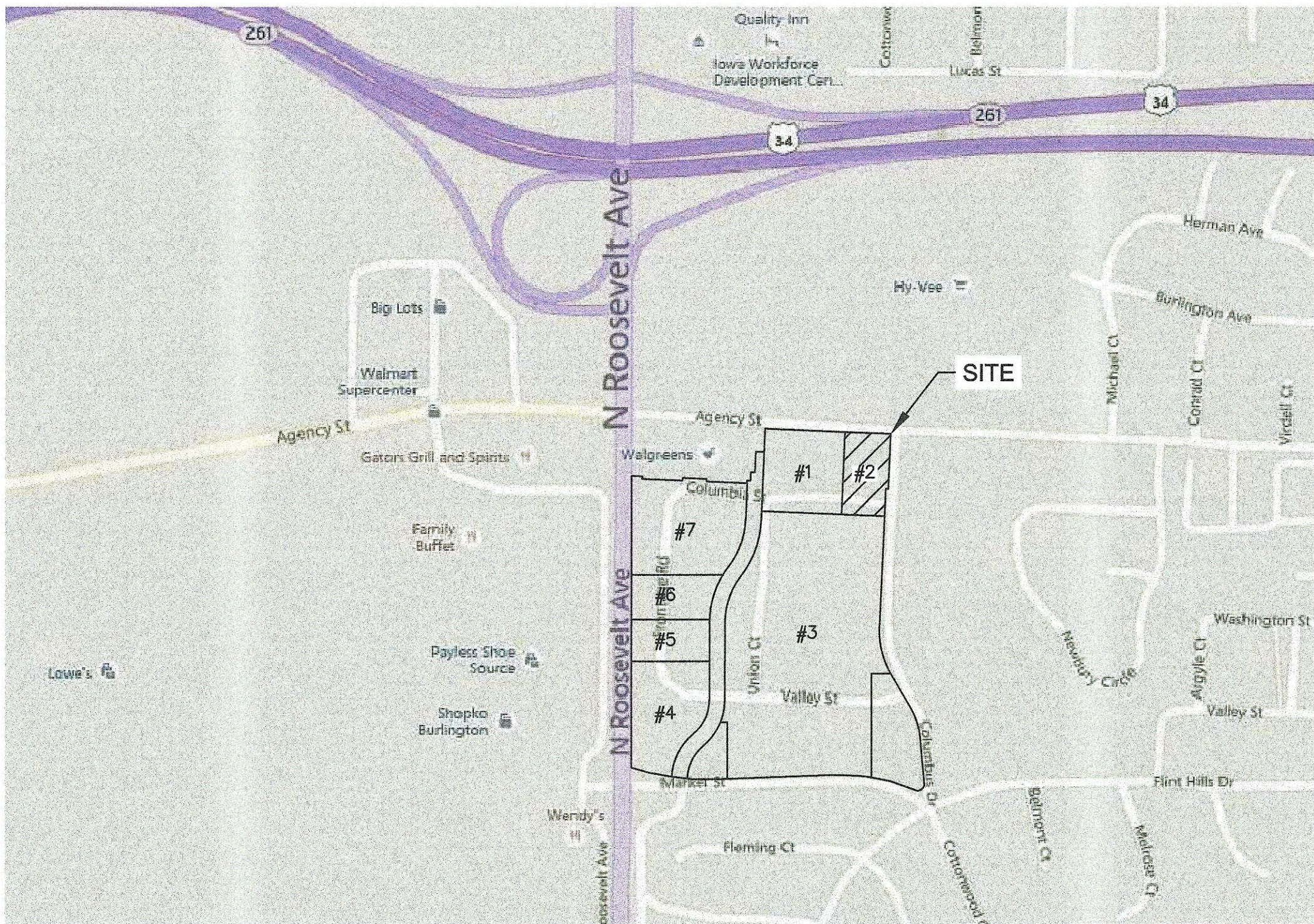
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8/22/2018

CONSTRUCTION PLANS
FOR:
PROPOSED CAR WASH
(LOT 2 - BURLINGTON CROSSING SUBDIVISION)
BURLINGTON, IOWA



LOCATION MAP
NTS

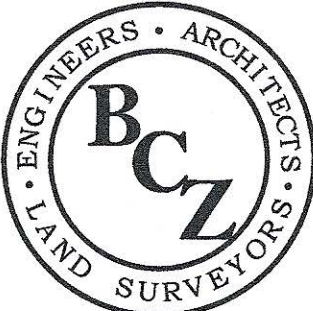
- SHEETS
- C-1 COVER SHEET
 - C-2 CONTACTS, NOTES, AND LEGEND
 - C-3 SEDIMENT AND EROSION CONTROL PLAN
 - C-4 EXISTING CONDITIONS PLAN
 - C-5 SITE PLAN
 - C-6 UTILITY PLAN
 - C-7 GRADING PLAN
 - C-8 GENERAL DETAILS
 - C-9 GENERAL DETAILS
 - C-10 GENERAL DETAILS



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KEVIN REED

OWNER
151 ANGLING ROAD
GALESBURG, IL 61401
PH: 309.221.7827

COVER SHEET
PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY

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COVER SHEET

C-1

2018069-2 JUNE 2018

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

KEVAN J. COOPER
15471

6/12/18
Date

Kevin J. Cooper

License number: 15471
My License renewal date is December 31, 2019

Pages or sheets covered by this seal:
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GENERAL NOTES

1.

UNDERGROUND WATER, GAS, TELEPHONE, SEWER & ELECTRICAL UTILITY INFORMATION SHOWN ON THESE PLANS WAS COMPILED FROM PREVIOUS SITE PLANS, UTILITY COMPANY MAPS, AND FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS MANHOLES, VALVES, JUNCTION BOXES, ETC. RESPECTIVE UTILITY COMPANIES SHOULD BE CONTACTED FOR EXACT LOCATIONS. THE 811 UTILITY LOCATE (IOWA ONE CALL) TELEPHONE NUMBER IS 1-800-292-8989.
2.

UTILITY COMPANIES:
- A.

ELECTRIC & GAS:

ALLIANT ENERGY
527 SOUTH ROOSEVELT AV
BURLINGTON, IOWA 52601
MATTHEW ZURMUHLEN
319.753.5715
- B.

CABLE TV:

MEDIACOM
3210 DIVISION ST
BURLINGTON, IOWA 52601
TIM EAGAN / JOEL HANGER
319.753.6585
- C.

FIBER/DATA

DANVILLE TELECOM
iconnectyou
102 S MAIN ST
PO BOX 158
DANVILLE, IOWA 52623
MIKE BAKER
319.392.4251
- D.

SANITARY:

PUBLIC WORKS
3510 DIVISION ST
BURLINGTON, IOWA 52601
JESSE HOWE
319.753.8176
- E.

WATER:

BURLINGTON WATERWORKS
500 NORTH 3RD ST
BURLINGTON, IOWA 52601
SHANE JOHNSON
319.754.6501
3.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL STATE AND LOCAL ORDINANCES AND SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO INITIATING CONSTRUCTION.
4.

AT ALL UTILITY CROSSINGS PROVIDE SELECT COMPACTED BACKFILL TO ONE FOOT OVER THE TOP OF THE EXISTING UTILITY. COORDINATE IN ADVANCE WITH THE APPROPRIATE UTILITY COMPANY REGARDING OTHER REQUIREMENTS.
5.

ANY PROPERTY DAMAGE OUTSIDE OF EASEMENTS AND RIGHT-OF-WAY LINES SHALL BE REPLACED TO ORIGINAL OR BETTER CONDITION BY THE CONTRACTOR AT HIS/HER OWN EXPENSE.
6.

THIS CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

A.

"IOWA – SUDAS (Statewide Urban Design and Specifications)", LATEST EDITION.

B.

CITY OF BURLINGTON DEVELOPMENT ORDINANCE", LATEST EDITION.

7.

CONTACT IOWA ONE CALL BY DIALING 811 OR 1-800-292-8989 AT LEAST 48 HOURS BUT NO MORE THAN 14 CALENDAR DAYS BEFORE DIGGING.

8.

THE CONTRACTOR SHALL NOTIFY THE PROPER AUTHORITIES A MINIMUM OF 48 HOURS PRIOR TO CONNECTING TO AN EXISTING STORM SEWER, SANITARY SEWER, OR WATER MAIN.
- SANITARY SEWER NOTES
1.

PROPOSED SANITARY SEWER LENGTHS INDICATED ON PLANS ARE MEASURED FROM CENTER TO CENTER OF STRUCTURES.

2.

ALL SANITARY SEWER SERVICES SHALL BE 6 INCH IN DIAMETER AND SHALL BE LAID AT A MINIMUM SLOPE OF 1.00%.

3.

ALL SEWER PIPE SHALL BE CONSTRUCTED TO LINE AND GRADE BY USE OF LASER BEAM.

4.

ALL UTILITY TRENCHES SHALL BE BACKFILLED WITH CLASS A STONE AND GRANULAR MATERIAL WHERE THE TRENCH IS UNDER OR WITHIN 2 FEET OF EXISTING OR PROPOSED CURB & GUTTER, SIDEWALK OR PAVEMENT. SEE DETAIL SHEET 9.

5.

SUDAS DIVISION 4: SEWER AND DRAINS
SECTION 4010: SANITARY SEWER
SECTION 4060: CLEANING, INSPECTION AND TESTING OF SEWERS

6.

SUDAS DIVISION 6: STRUCTURES FOR SANITARY AND STORM SEWERS
SECTION 6010: STRUCTURES FOR SANITARY AND STORM SEWER
SECTION 6020: REHABILITATION OF EXISTING MANHOLES
SECTION 6030: CLEANING, INSPECTION AND TESTING OF STRUCTURES
- GRADING & REMOVAL NOTES
1.

GRADE ALL DISTURBED EARTH AREAS AS SHOWN BY PROPOSED CONTOURS AND SPOT ELEVATIONS. SEED AND FERTILIZE IN ACCORDANCE WITH ARTICLE 2601.03,C,4 AND SECTION 4169 I.A.D.O.T. STANDARD SPECIFICATIONS. USE MULCH MEETING THE REQUIREMENTS OF ARTICLES 2601.03,E,2,a AND 4169.07,A STANDARD SPECIFICATIONS. CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY CONSTRUCTION AND SHALL PROVIDE AND INSTALL STRAW MULCH "PUNCHED" INTO THE SOIL FOR EROSION CONTROL ON ALL SEEDED AREAS. PROVIDE POSITIVE DRAINAGE.

2.

PROPOSED SURFACE GRADE ADJACENT TO ALL EXTERIOR BUILDING WALLS SHALL BE 6" BELOW FINISHED FLOOR ELEVATIONS UNLESS SPECIFIED BY PROPOSED CONTOURS OR SPOT ELEVATIONS.

3.

EXCESS DIRT FROM CONSTRUCTION SHALL BE WASTED ON SITE BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. EXCESS DIRT SHALL NOT LEAVE THE SITE WITHOUT ENGINEER'S APPROVAL.

4.

ALL FENCES, DRAIN TILES, WATER MAINS, DRAINAGE DITCHES OR OTHER STRUCTURES WHICH MAY BE SEVERED OR DAMAGED, REMOVED, OR INTERFERED WITH DURING CONSTRUCTION MUST BE REPLACED OR REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST.

5.

THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN DRAINAGE IN THE AREA DURING CONSTRUCTION. ALL DRAINAGE DITCHES SHALL BE OPEN AT THE END OF EACH DAYS WORK.

6.

ALL FILL AREAS SHALL BE STRIPPED OF ALL TOPSOIL PRIOR TO PLACING EMBANKMENT MATERIAL. LAWN AREAS THAT HAVE RECEIVED EMBANKMENT MATERIAL SHALL RECEIVE AT LEAST 6" OF TOPSOIL AS THE FINAL COURSE OF FILL IN PREPARATION FOR SEEDING OPERATIONS. ALL LAWN AREAS DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED AND RESTORED TO THE SATISFACTION OF THE OWNER.

7.

NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ON SITE. ALL TRASH AND CONSTRUCTION DEBRIS WILL BE HAULED TO THE LOCAL MUNICIPAL DUMP AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL SOLID WASTE MANAGEMENT REGULATIONS.

8.

THE CONTRACTOR SHALL PROVIDE SOLID WASTE COLLECTION DURING CONSTRUCTION TO MINIMIZE POLLUTION.

9.

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THESE PROCEDURES DURING CONSTRUCTION.

10.

SUDAS DIVISION 2: EARTHWORK
SECTION S010: EARTHWORK, SUBGRADE AND SUBBASE

11.

SUDAS DIVISION 9: SITE WORK AND LANDSCAPING
SECTION 9010: SEEDING
SECTION 9040: EROSION AND SEDIMENT CONTROL
- PAVEMENT & SIDEWALK NOTES
1.

LONGITUDINAL SLOPE ON ALL SITE SIDEWALKS SHALL NOT EXCEED 4.50%, EXCEPT AT DESIGNATED SIDEWALK RAMP LOCATIONS WHERE SLOPE SHALL NOT EXCEED 8.0%. CROSS SLOPE ON ALL SITE SIDEWALKS SHALL NOT EXCEED 1.50%.

2.

ALL PROPOSED SITE PLAN DIMENSIONS ARE TO FACE OF CURBS (FOC) OR AS NOTED ON PLANS.
- STORM SEWER NOTES
1.

PROPOSED STORM SEWER LENGTHS INDICATED ON PLANS ARE MEASURED FROM CENTER TO CENTER OF STRUCTURES.

2.

UNLESS NOTED OTHERWISE, ALL STORM SEWER SHALL BE IN CONFORMANCE WITH THE FOLLOWING:

A.

PIPE MATERIAL – HDPE. COVER AND BEDDING MUST ADHERE TO SUDAS SPECIFICATIONS.

a.

FITTINGS: SAME AS PIPE.

b.

INITIAL BACKFILL SHALL EXTEND 12" ABOVE THE PIPE AND MAY CONSIST OF PREVIOUSLY EXCAVATED LOW PLASTICITY CLASS IV MATERIAL THAT MEETS THE GRADATION REQUIREMENTS OF CLASS I. II OR III.

c.

GRANULAR TRENCH BACKFILL REQUIREMENTS ARE THE SAME AS FOR RCCP STORM SEWER.

C.

GASKETS– FLEXIBLE RUBBER OR BITUMINOUS JOINTS, ASTM C443.

D.

BEDDING – CLASS C, ASTM C12.

3.

INLETS AND MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD DETAILS INCLUDED WITH THESE PLANS.
- WATERMAIN & SERVICE NOTES
1.

SEPARATION OF WATER MAINS FROM SANITARY SEWERS AND STORM SEWERS SHALL BE IN ACCORDANCE WITH THE IOWA WASTEWATER FACILITIES DESIGN STANDARDS, CHAPTER 12, SECTION 5.8, "PROTECTION OF WATER SUPPLIES." WHERE THE WATER MAIN EITHER CROSSES UNDER OR IS LESS THAN 18 INCHES ABOVE THE SEWER, ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THAT BOTH JOINTS ARE AS FAR AS POSSIBLE FROM THE SEWER. THE SEWER AND WATER PIPES MUST BE ADEQUATELY SUPPORTED. A LOW PERMEABILITY SOIL SHALL BE USED FOR BACKFILLING MATERIAL WITHIN TEN FEET OF THE POINT OF CROSSING. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER MANHOLE. SEWER PIPE AT THIS LOCATION SHALL BE CONSTRUCTED OF WATER MAIN QUALITY MATERIAL.

2.

MINIMUM BURIAL OF WATER MAIN AND SERVICE PIPING SHALL BE 5' FROM FINISH GRADE TO TOP OF PIPE.

3.

COPPER OR POLYETHYLENE SERVICE PIPE
COPPER PIPE SHALL BE COPPER WATER TUBE TYPE K OR GREATER SOFT TEMPER, FOR UNDERGROUND SERVICE AND CONFORMING TO ASTM B88 AND ASTM B251. THE PIPE SHALL BE MARKED WITH THE MANUFACTURER'S NAME OR TRADEMARK AND A MARK INDICATIVE OF THE TYPE OF PIPE. THE OUTSIDE DIAMETER OF THE PIPE SHALL CONFORM TO ASTM B251 TABLE 2. POLYETHYLENE PIPE SHALL BE SDR 9 ENDOT ENDOPURE OR EQUIVALENT WITH TRACER WIRE CONFORMING TO ASTM D2737.

4.

STOPS AND FITTINGS:
ALL CORPORATION STOPS AND CURB STOPS SHALL BE FABRICATED OF BRASS AND SHALL BE PROVIDED WITH OUTLETS SUITABLE FOR COPPER CONNECTIONS. CURB STOPS SHALL BE OF THE ROUND-WAY TYPE. FITTINGS FOR SERVICE PIPE SHALL BE BRASS AND OF THE COMPRESSION TYPE FOR TYPE K TUBING. THE CITY REQUIREMENTS AND SPECIFICATIONS SHALL BE USED, CONTRACTOR TO VERIFY PROPER STOPS AND FITTINGS.

5.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PIPING MEASUREMENTS AND LAYOUT AND SHALL VERIFY COMPATIBILITY OF NEW PIPING WITH EXISTING AT FLANGED, MECHANICAL JOINT, PUSH – ON OR THREADED CONNECTIONS, PROVIDING SUITABLE ADAPTORS AS MAY BE REQUIRED. COST OF ANY AND ALL SUCH ADAPTORS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

6.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LEAKAGE, PRESSURE AND BACTERIOLOGICAL TESTS ON NEW WATER MAIN.

7.

A MINIMUM HORIZONTAL SEPARATION OF 10 FEET SHALL BE MAINTAINED BETWEEN ALL WATER MAINS AND SEWERS. IF SEPARATION IS NOT POSSIBLE, WATER MAIN ENCASEMENT SHALL BE REQUIRED OR THE SEWER SHALL BE CONSTRUCTED OF WATER MAIN QUALITY PIPE.

8.

WATER MAINS SHALL CROSS ABOVE SEWERS WITH A MINIMUM VERTICAL SEPARATION OF 18 INCHES WHILE STILL MAINTAINING THE REQUIRED DEPTH OF COVER. IF PROPER SEPARATION IS NOT POSSIBLE, OR IF THE WATER MAIN MUST BE ROUTED UNDER THE SEWER, WATER MAIN ENCASEMENT SHALL BE REQUIRED OR THE SEWER SHALL BE CONSTRUCTED OF WATER MAIN QUALITY PIPE.

9.

ALL BENDS, TEES, PLUGS. VALVES AND HYDRANTS SHALL BE MECHANICAL RESTRAINED JOINT, CORE BLUE BOLTS OR STAINLESS STEEL. ALL APPURTENANCES SHALL MEET THE CITY OF BURLINGTON SPECIFICATIONS.

10.

WATER FOR USE IN CONSTRUCTION ACTIVITIES THAT IS OBTAINED FROM CITY FIRE HYDRANTS SHALL BE OBTAINED USING A BACKFLOW PREVENTER THAT IS PROVIDED BY THE CITY WATER DEPARTMENT.

11.

ALL UTILITY TRENCHES SHALL BE BACKFILLED WITH GRANULAR MATERIAL WHERE THE TRENCH IS UNDER OR WITHIN 2 FEET OF EXISTING OR PROPOSED CURB & GUTTER, SIDEWALK OR PAVEMENT.
- MISCELLANEOUS REFERENCE:
1.

SUDAS DIVISION 11: MISCELLANEOUS
SECTION 11.020: MOBILIZATION
SECTION 11.030: PAVEMENT MARKINGS
SECTION 11.040: TEMPORARY SERVICES
SECTION 11.060: CONCRETE WASHOUT
- MISCELLANEOUS NOTES
1.

SEE ARCHITECTURAL DRAWINGS FOR ALL NEW BUILDING PLANS, DIMENSIONS AND DETAILS.

2.

PROPOSED ELECTRICAL SERVICE SHALL BE PER ELECTRICAL DRAWINGS.

3.

PROPOSED GAS SERVICE SHALL BE PER PLUMBING DRAWINGS.

4.

PROPOSED TELEPHONE SERVICE SHALL BE PER MECHANICAL DRAWINGS.

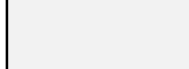

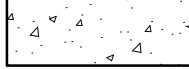

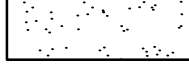
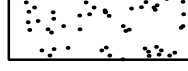


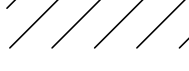



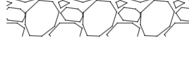

5.

SEE LANDSCAPE PLANS FOR FINISH SITE LANDSCAPING PLANTINGS.

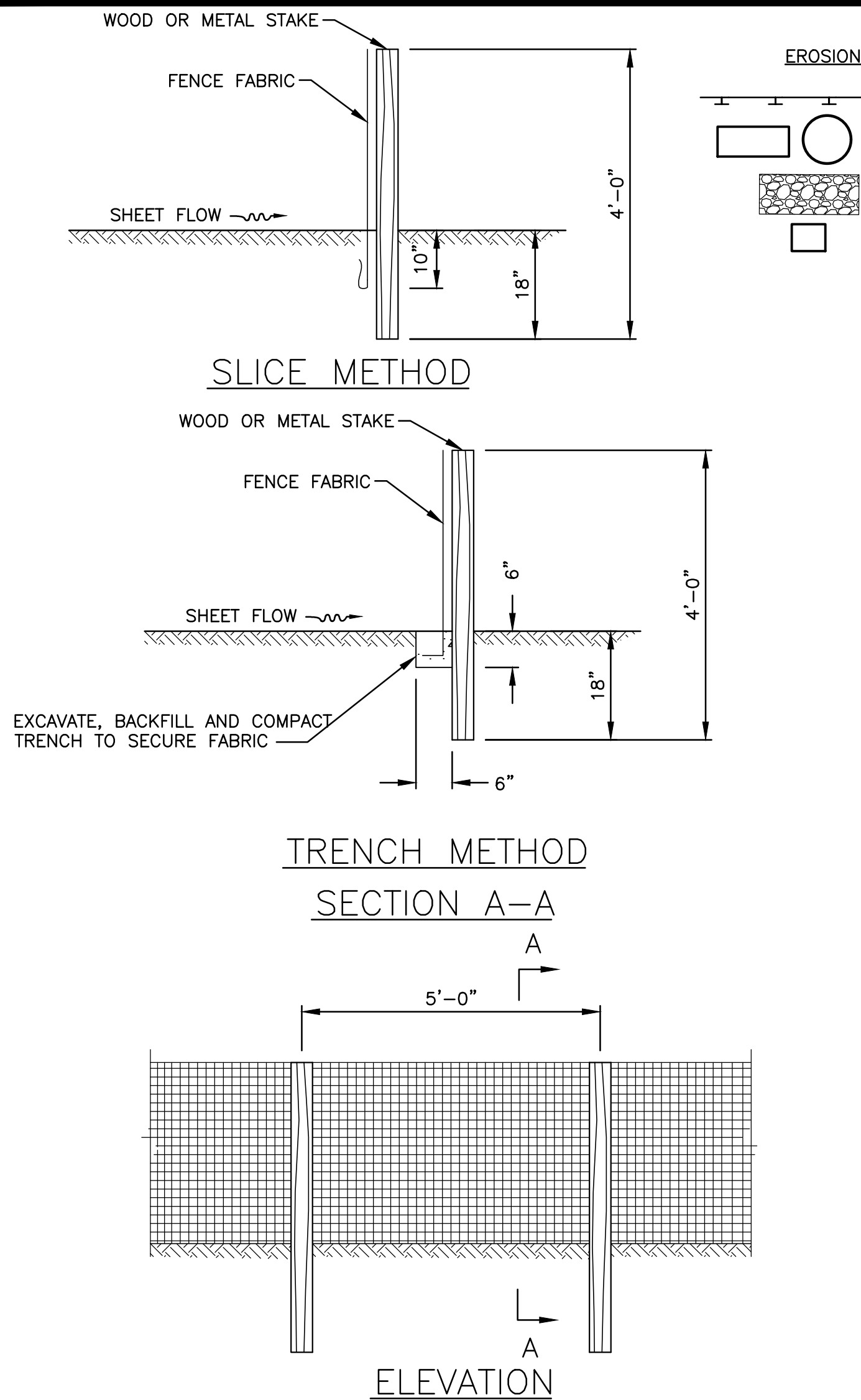
6.

PROPOSED UTILITY & PIPE LOCATIONS & ELEVATIONS SHOWN ENTERING THE BUILDING ON THESE SHEETS ARE ONLY APPROXIMATE. CONTRACTOR SHALL VERIFY ALL SUCH LOCATIONS AND ELEVATIONS WITH MECHANICAL/ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION – IN CASE OF DISCREPANCY, MECHANICAL/ARCHITECTURAL PLANS SHALL GOVERN.

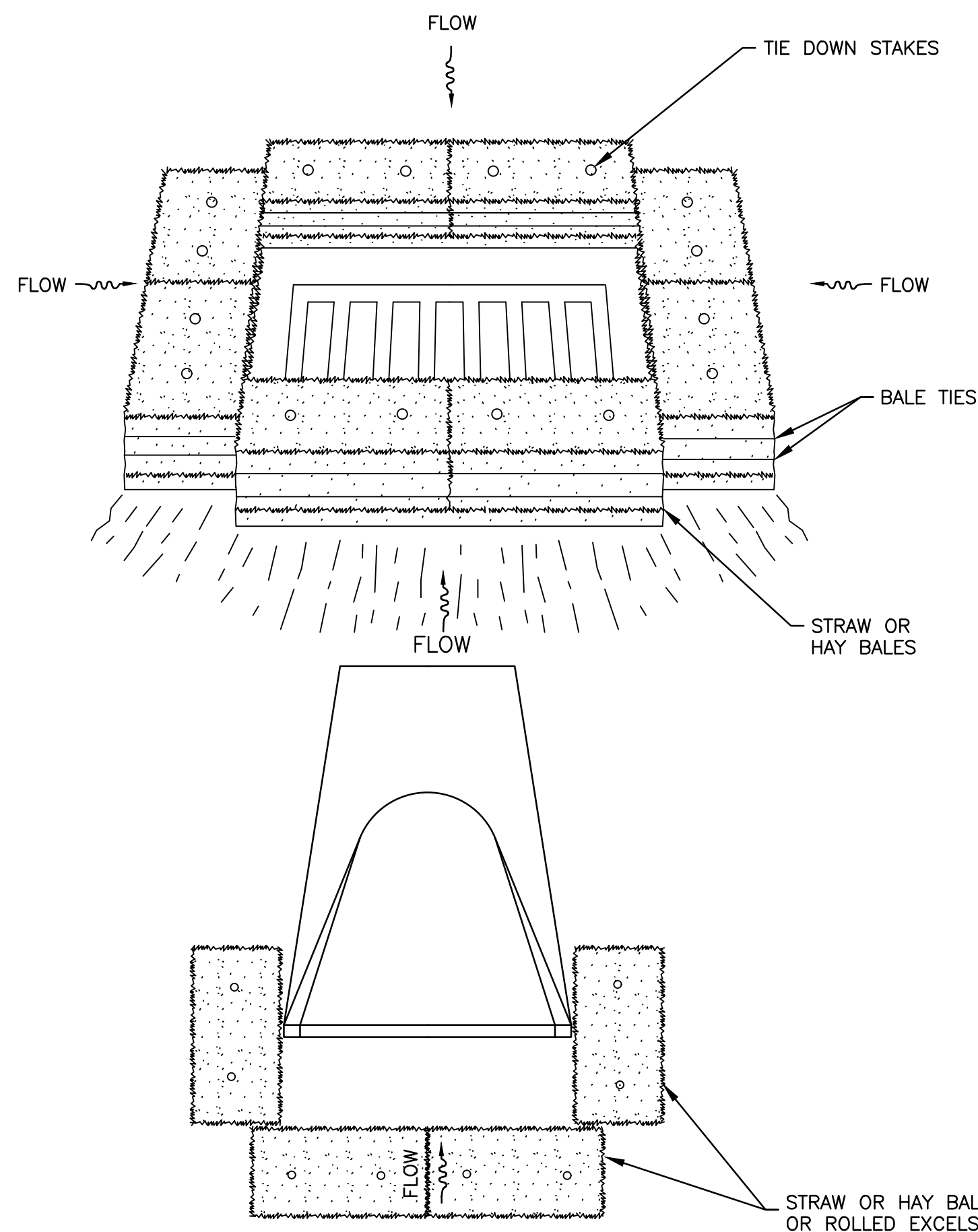
7.

IT IS RECOMMENDED THE BURLINGTON CROSSING COVENANTS BE REVIEWED PRIOR TO BIDDING, BEFORE EARTH MOVING AND CONSTRUCTION.
- | BENCHMARKS | | |
|------------|--------|--|
| NO. | ELEV. | DESCRIPTION |
| BM 101 | 694.12 | TSFH- LOCATED ON THE SOUTH SIDE OF MARKET ST. IN FRONT OF HOUSE #3009 |
| BM 102 | 684.51 | TSFH- LOCATED IN THE SE QUAD. OF THE INTERSECTION OF FLINT HILLS DR. & COTTONWOOD CT. |
| BM 103 | 692.24 | SET 60d SPK IN P.P.- LOCATED ON THE EAST SIDE OF COLUMBUS DR. IN FRONT OF SHELTER HOUSE JUST SOUTH OF THE SALVATION ARMY BLDG. |
| BM 104 | 697.11 | TSFH- LOCATED ON THE EAST SIDE OF COLUMBUS DR., 50' NORTH OF THE NW CORNER OF THE SALVATION ARMY BLDG. |
| BM 105 | 698.60 | TSFH- LOCATED ON THE EAST SIDE OF COLUMBUS ST., 300' SOUTH OF AGENCY RD. ON THE NORTH SIDE OF THE SOUTH ENTRANCE TO ALDI'S |
| BM 106 | 703.03 | TSFH- LOCATED ON THE NORTH SIDE OF AGENCY RD., IN FRONT OF HY-VEE GAS STA. |
| BM 107 | 703.85 | TSFH- LOCATED ON THE NORTH SIDE OF AGENCY RD., 280 WEST OF COLUMBUS DR. |
| BM 108 | 697.94 | CHISELED "X" WEST SIDE OF MH RIM, LOCATED 40' EAST OF THE EAST END OF THE SOUTHERN MOST PRIVACY ON SOUTH PROP. LINE OF WALGREENS |
| BM 109 | 702.31 | TSFH- LOCATED AT THE NW CORNER OF SITE ON THE EAST SIDE OF ROOSEVELT, 15' SOUTH OF THE SW CORNER OF WALGREENS PROPERTY. |
| BM 110 | 700.13 | CUT "SQUARE" IN CONCRETE LIGHT BASE, ON THE EAST SIDE OF ROOSEVELT AVE., 580' & 3RD LIGHT NORTH OF MARKET ST. |
| BM 111 | 698.32 | CUT "SQUARE" IN CONCRETE LIGHT BASE, ON THE EAST SIDE OF ROOSEVELT AVE., 330' & 2ND LIGHT NORTH OF MARKET ST. |
- 2
2 BENCHMARKS AND CONTROL
- | EXISTING | | PROPOSED | |
|---|--------------------|---|--------------------|
|  | BITUMINOUS SURFACE |  | BITUMINOUS SURFACE |
|  | CONCRETE SURFACE |  | CONCRETE SURFACE |
|  | AGGREGATE SURFACE |  | AGGREGATE SURFACE |
|  | BRICK SURFACE |  | BRICK SURFACE |
|  | BUILDING |  | BUILDING |
|  | SUBGRADE |  | SUBGRADE |
|  | RIPRAP SURFACE |  | RIPRAP SURFACE |
- 3
2 HATCHING LEGEND
- 4
2 OMITTED
- Bruner,
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Zuck, Inc.
- Engineers Architects Land Surveyors
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Galesburg, Illinois 61401
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- ☒ 308 North 3rd Street
Burlington, Iowa 52601
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- ☐ 2415 18th Street Ste. 101
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563.355.1856
- IL PROFESSIONAL DESIGN FIRM:
LS / ARC / PE / SE 184002633-0015
-
- WWW.BCZENGINEERING.COM
- KEVIN REED
- OWNER
- 151 ANGLING ROAD
GALESBURG, IL 61401
PH: 309.221.7827
- CONTACTS, NOTES AND LEGEND
- PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY
- ISSUE RECORD -
- | | | |
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- P PRELIMINARY
R REVISION
B BID DOCUMENTS
C FOR CONSTRUCTION
A RECORD SET
- Preliminary**
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- CONTACTS, NOTES
AND LEGEND
- C-2
- 2018069-2
- JUNE 2018

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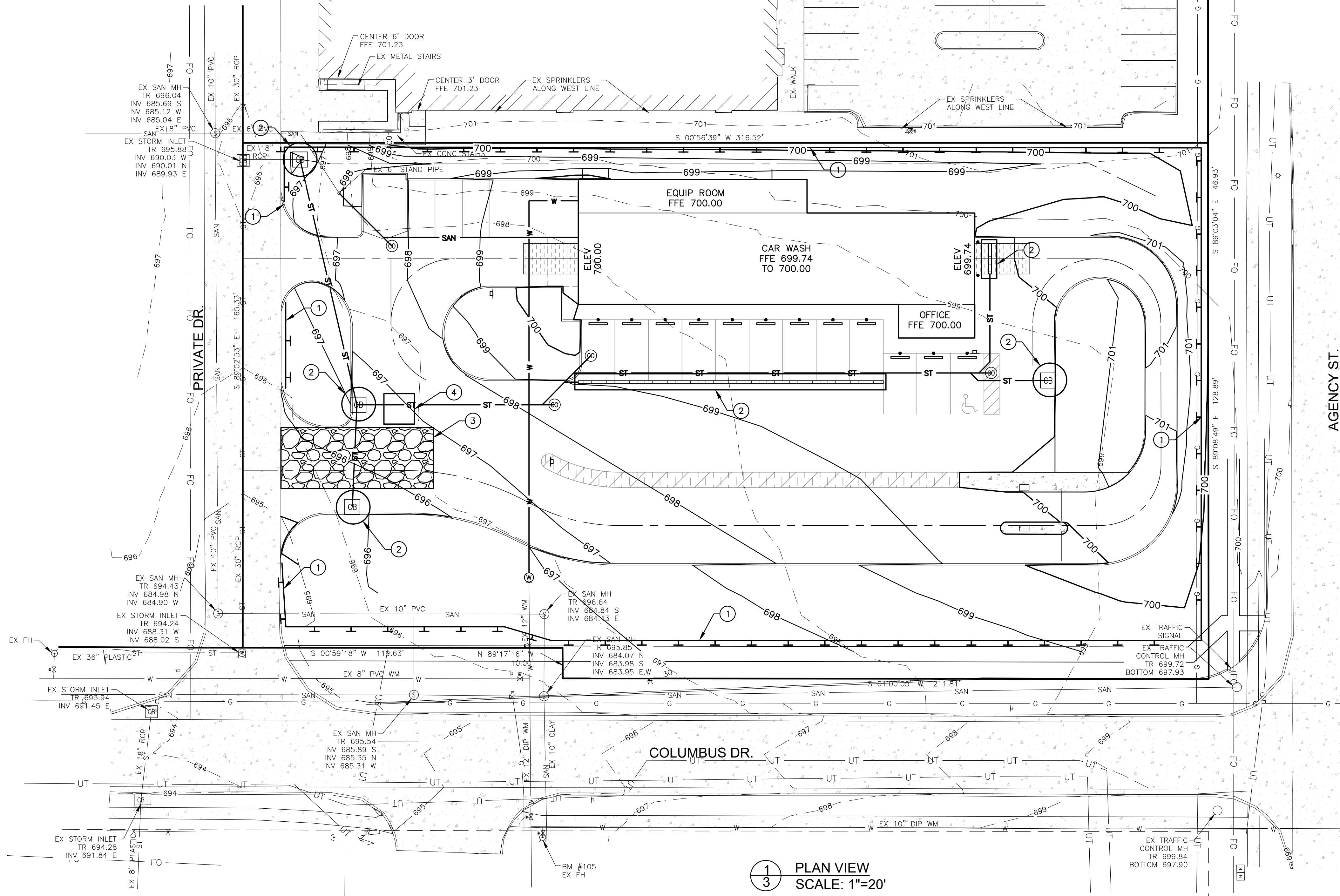
4 **3** SILT FILTER FENCE AS A PERIMETER EROSION BARRIER
SCALE: NONE



5 **3** INLET AND PIPE PROTECTION
SCALE: NONE

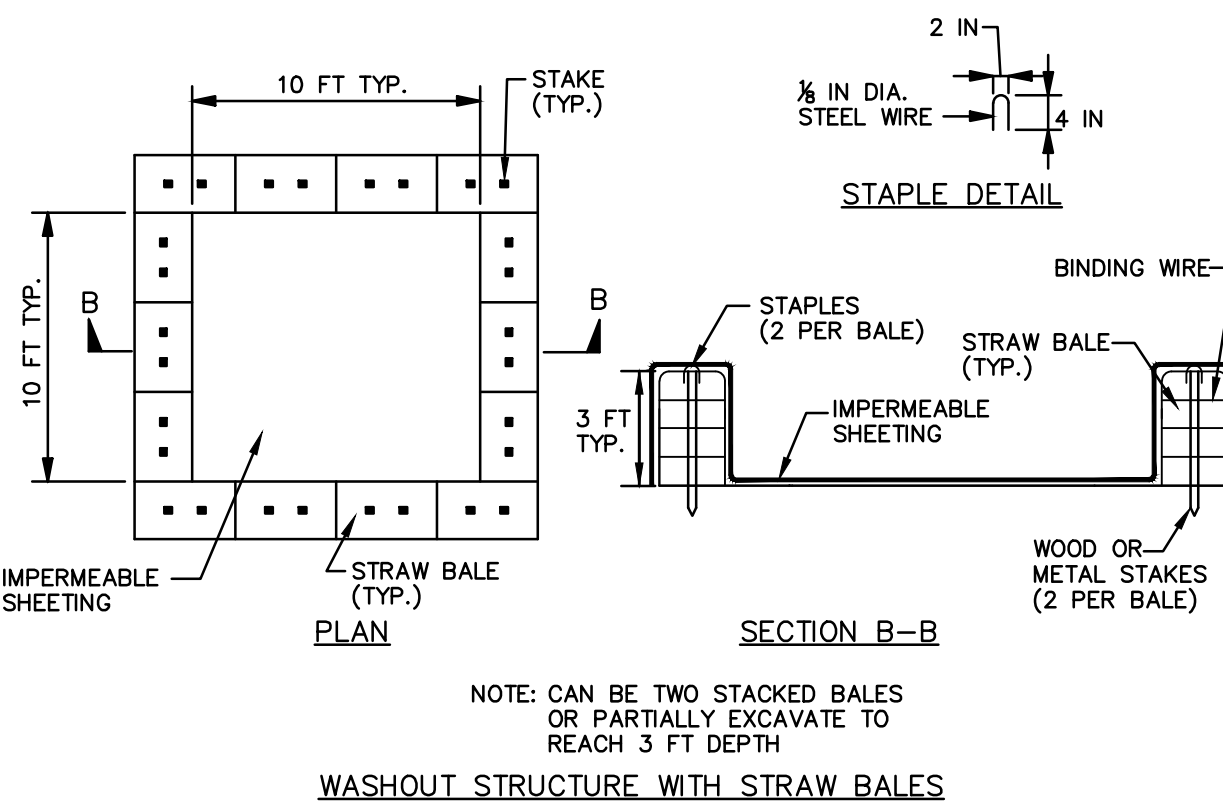
EROSION CONTROL LEGEND

- 1 PERIMETER EROSION BARRIER - SEE DETAIL 4/3
- 2 INLET, TRENCH & PIPE PROTECTION - SEE DETAIL 5/3
- 3 TEMPORARY CONSTRUCTION ENTRANCE - SEE DETAIL 2/3
- 4 CONCRETE WASHOUT AREA - SEE DETAIL 3/3



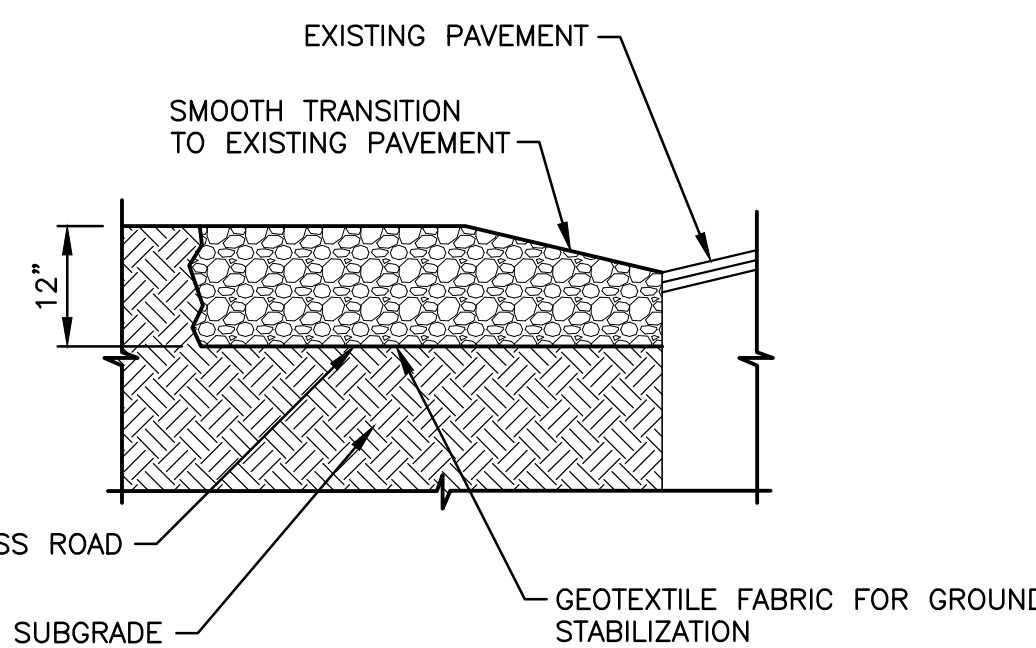
NOTES.

1. USE #2 STONE MINIMUM. MINIMUM 20' WIDTH AND 50' LENGTH. MINIMUM 12" THICK.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND/OR REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
3. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS DONE, IT SHALL BE DONE IN AN AREA STABILIZED WITH STONE AND WHICH DRAINS TO AN APPROVED SEDIMENT TRAPPING DEVICE.
4. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO A PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY.
5. ACCESS PERMIT TO PUBLIC ROADS MUST BE OBTAINED PRIOR TO CONSTRUCTION.
6. MINIMUM ROAD WIDTH SHALL BE 20'-0".



3 **3** CONCRETE WASHOUT AREA DETAILS
SCALE: NONE

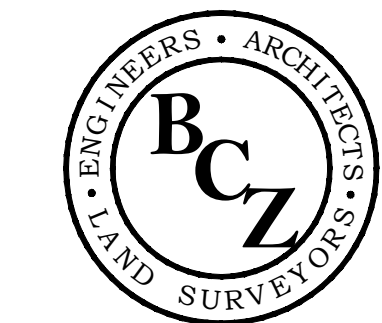
2 **3** TEMPORARY CONSTRUCTION ENTRANCE
SCALE: NONE



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SEDIMENT AND EROSION CONTROL

**PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY**

- ISSUE RECORD -

NO.	REVISION	DATE

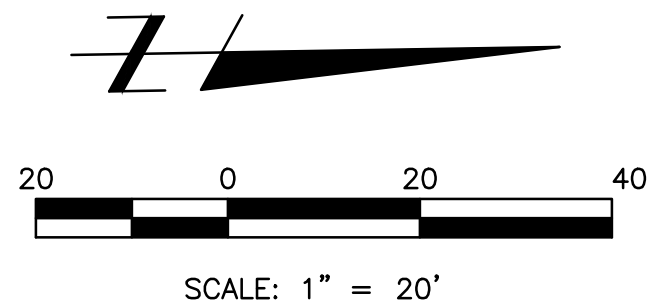
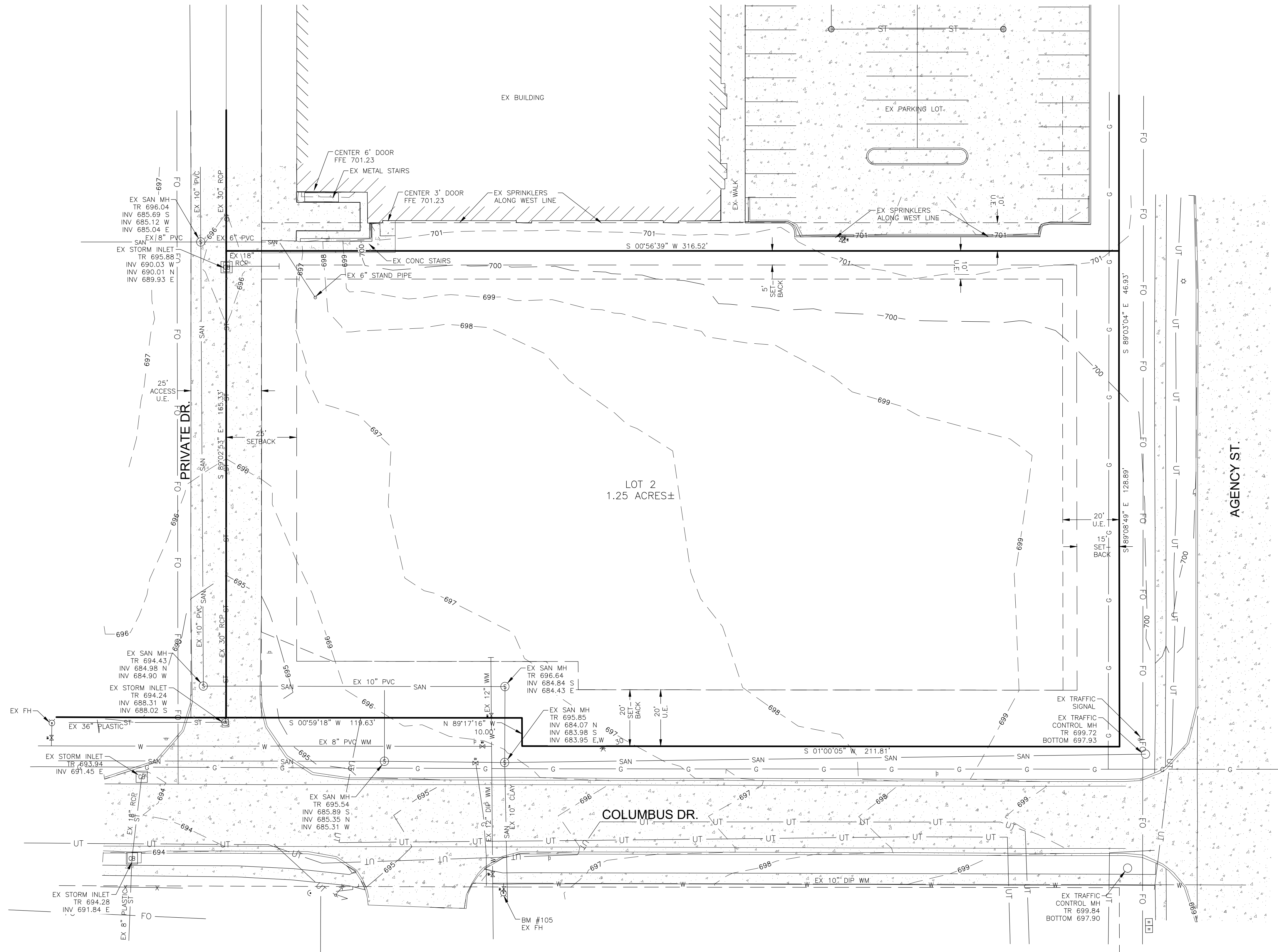
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SEDIMENT AND EROSION CONTROL
C-3

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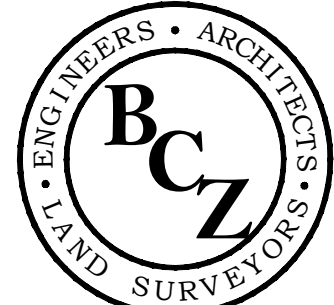
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EXISTING CONDITIONS
PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY

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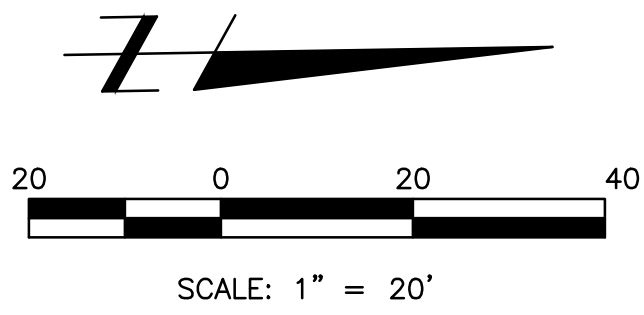
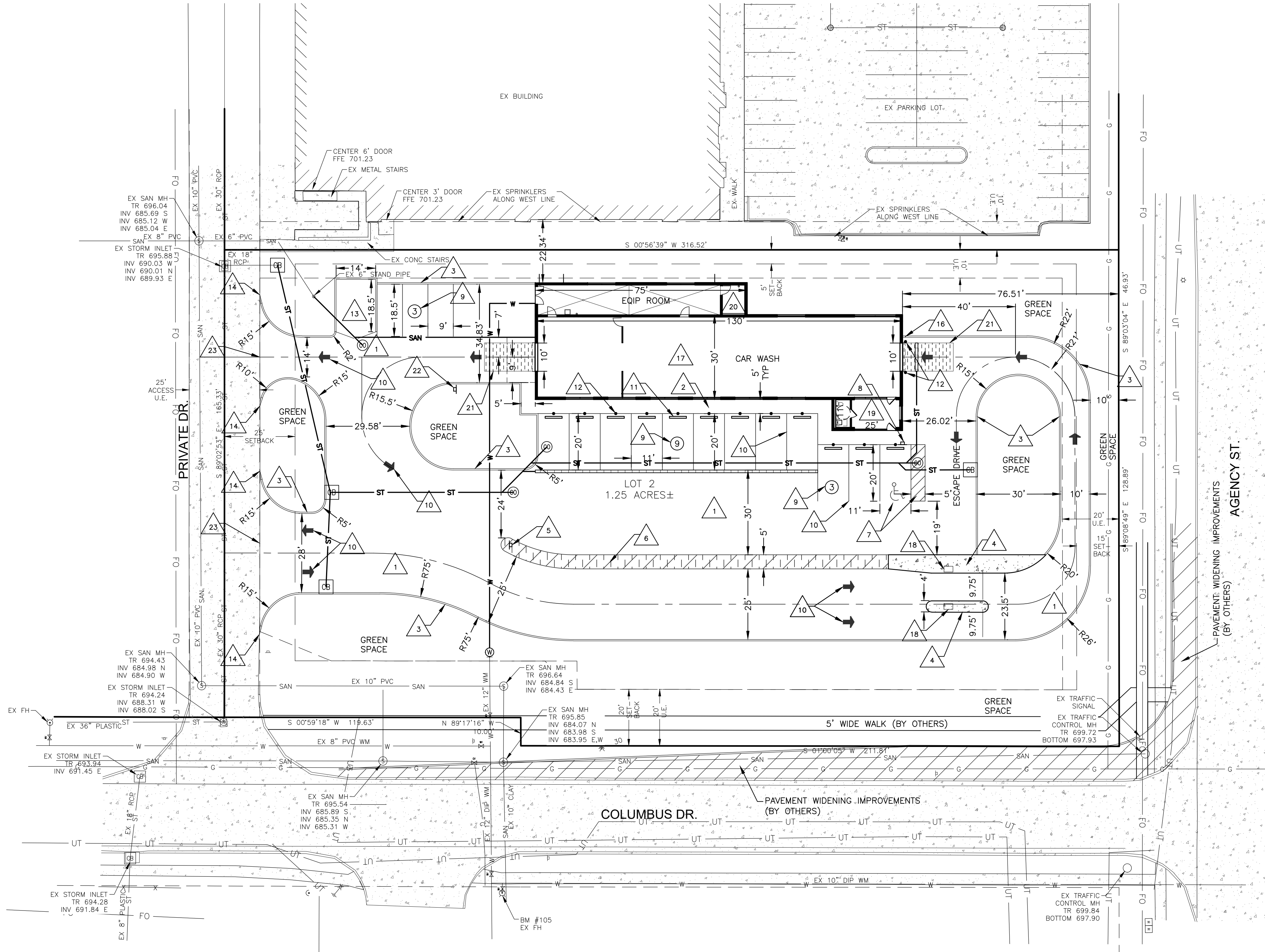
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B BID DOCUMENTS
C FOR CONSTRUCTION
A RECORD DRAWING

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EXISTING
CONDITIONS
C-4

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- NOTES FOR SITE PLAN (THIS SHEET **xx** ONLY):
- ALL DIMENSIONS SHOWN ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.
- 6" CONCRETE PAVEMENT. SEE SHEET 8 FOR DETAILS.
 - 6" CONCRETE CLEAR AREA PAVEMENT. SEE SHEET 8 FOR DETAILS.
 - 6" WIDE INTEGRAL CURB AND GUTTER. SEE SHEET 8 FOR DETAILS.
 - CONCRETE MEDIAN. SEE SHEET 8 FOR DETAILS.
 - TRAFFIC CONTROL SIGN FOR CAR WASH. COORDINATE WITH OWNER FOR SPECIFICATIONS.
 - RUMBLE STRIP WITH YELLOW STRIPING. SEE IOWA TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS. COORDINATE WITH OWNER FOR PERMANENT OR SURFACE MOUNTED RUMBLE STRIPS.
 - HC PARKING STALL, HC SYMBOL AND STRIPING PER ADA GUIDELINES.
 - HANDICAP SIGN. SEE SHEET 8 FOR DETAILS.
 - PARKING COUNT FOR A ROW OF PARKING SPACES.
 - PARKING STRIPING AND ARROW STRIPING PAINTED YELLOW IN COLOR.
 - CONCRETE WHEEL STOP. SEE SHEET 8 FOR DETAILS.
 - CONCRETE BOLLARD, 6" IN SIZE. SEE SHEET 8 FOR DETAILS.
 - TRASH ENCLOSURE FOR DUMPSTER PAD. SEE SHEET 8 FOR PAVEMENT DETAIL AND COORDINATE WITH OWNER FOR ENCLOSURE DETAILS.
 - "LAY DOWN" 6" HIGH CURB TO 0" HIGH CURB IN 36" LENGTH.
 - OMITTED.
 - "LAY DOWN" 6" HIGH CURB TO ELEVATION SHOWN ON C-7 IN 12" LENGTH.
 - CAR WASH BUILDING. SEE ARCHITECTURAL AND STRUCTURAL PLANS.
 - CAR WASH AUTO CASHIER. COORDINATE WITH OWNER FOR DETAILS.
 - PRIMARY CAR WASH OFFICE. SEE ARCHITECTURAL PLANS FOR DETAILS.
 - SECONDARY CAR WASH OFFICE. SEE ARCHITECTURAL PLANS FOR DETAILS.
 - HYDRONIC HEATING (APPROXIMATE LOCATION). SEE PLANS BY OTHERS FOR DETAILS.
 - CUSTOMER INSTRUCTIONAL SIGN. COORDINATE WITH OWNER FOR SPECIFICATIONS.
 - MATCH EXISTING CONCRETE ROADWAY. CONTRACTOR SHALL BE RESPONSIBLE FOR SAW-CUT IF NECESSARY.

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SITE PLAN

PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY

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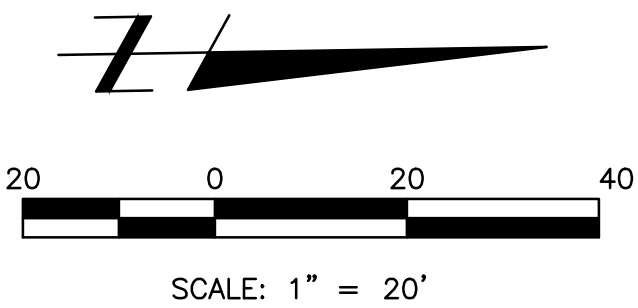
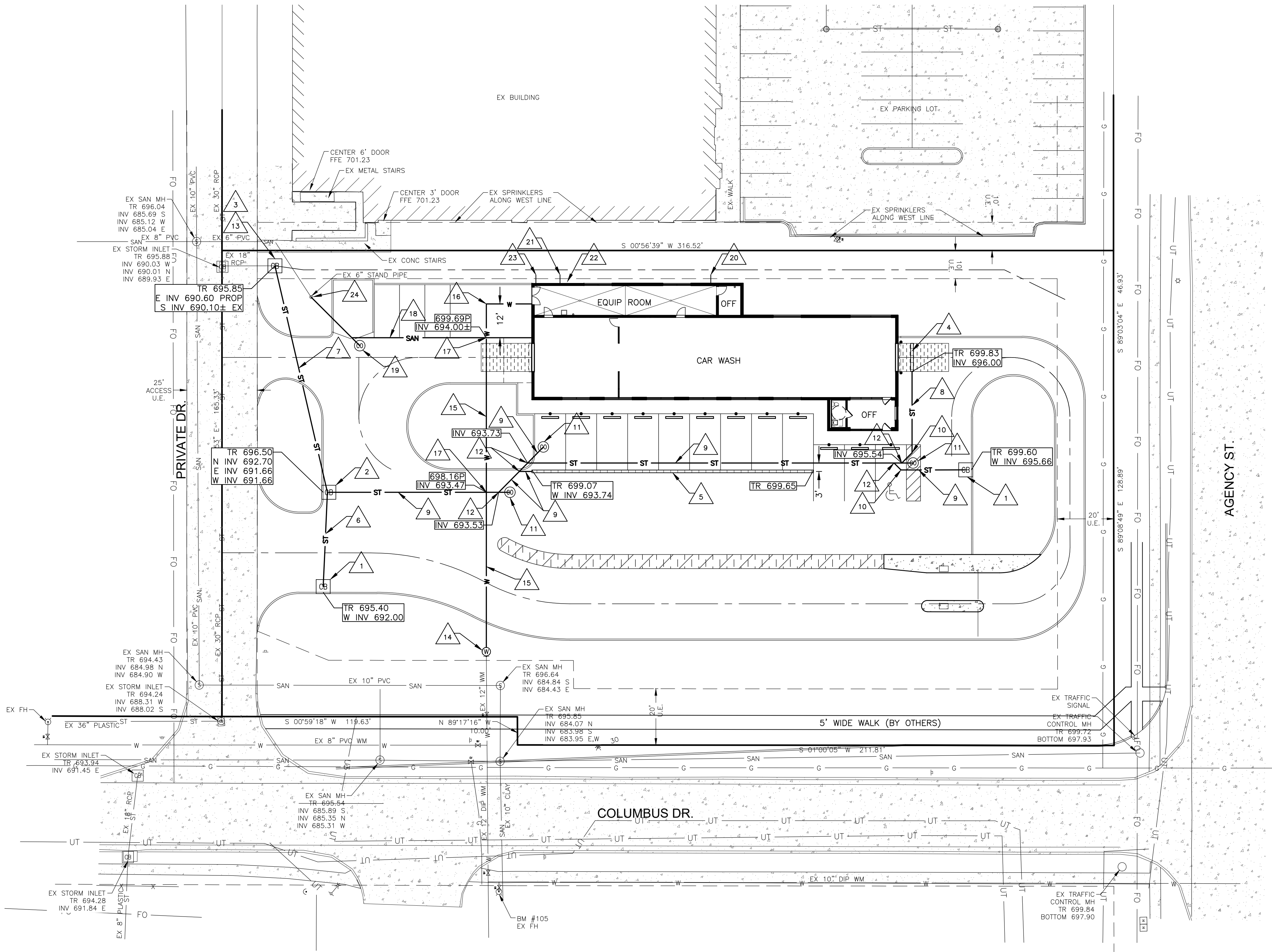
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SITE PLAN

C-5

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NOTES FOR UTILITY PLAN (THIS SHEET **xx** ONLY):

1. SINGLE GRATE INTAKE. SEE SHEET 9 FOR DETAILS.
2. CIRCULAR SINGLE GRATE INTAKE. SEE SHEET 9 FOR DETAILS.
3. CIRCULAR AREA INTAKE. SEE SHEET 9 FOR DETAILS.
4. NEENAH FOUNDRY HEAVY DUTY R-4996-A1** TYPE M TRENCH FRAME WITH GRATED COVER (10 LF). SPECIFY BOTTOM OUTLET TYPE WHEN ORDERING TRENCH DRAIN. SEE SHEET 9 FOR DETAILS.
5. NEENAH FOUNDRY HEAVY DUTY R-4996-A1** TYPE M TRENCH FRAME WITH GRATED COVER (100 LF). SPECIFY BOTTOM OUTLET TYPE WHEN ORDERING TRENCH DRAIN. SEE SHEET 9 FOR DETAILS
6. HDPE STORM PIPE, 34 LF 15" AT 1.00%
7. HDPE STORM PIPE, 83 LF 15" AT 1.28%
8. PVC SDR-26 STORM PIPE, 42 LF TOTAL 6" AT 0.50%±.
9. HDPE STORM PIPE, 250 LF TOTAL 12" AT 0.50%±.
10. PVC STORM BEND, 45 DEGREE.
11. STORM LINE CLEANOUT. SEE SHEET 10 FOR DETAILS. PIPE MATERIAL IS INCIDENTAL TO CLEANOUT.
12. STORM LINE WYE CONNECTION. SEE SHEET 10 FOR DETAILS.
13. CONNECT TO EXISTING STORM PIPE. USE CONCRETE WATERTIGHT CONNECTION METHODS. VERIFY LOCATION AND DEPTH PRIOR TO ORDERING PIPE OR STRUCTURE.
14. CONNECT TO EXISTING WATER MAIN. WATER CURB STOP. USE WATER MAIN REDUCER. SEE SHEET 10 FOR DETAILS. COORDINATE WITH BURLINGTON WATER WORKS DEPARTMENT FOR SERVICE AND REQUIREMENTS.
15. WATER SERVICE WITH 42" MIN. COVER. SIZE TO BE DETERMINED. COORDINATE WITH OWNER AND BURLINGTON WATER WORKS FOR LOCATION INTO CAR WASH, SIZE AND UTILITY POINT OF CONNECTION PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
16. HORIZONTAL 90° BEND. BEND MATERIAL TO BE PER BURLINGTON WATER WORKS DEPARTMENT.
17. UTILITY CROSSING. VERIFY 18" MIN. VERTICAL SEPARATION (WATER MAIN ON TOP) PRIOR TO ORDERING PIPE AND CONSTRUCTION. CONTACT ENGINEER FOR CONFLICTS. SEE NOTE 24.
18. SANITARY SEWER SERVICE, 84 LF 6" PVC (SUBJECT TO CHANGE) AT 1.00% MINIMUM SLOPE. SEE SHEET 10 FOR DETAILS. COORDINATE WITH OWNER AND BURLINGTON WATER WORKS FOR LOCATION INTO CAR WASH, SIZE AND UTILITY POINT OF CONNECTION PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS
19. SANITARY SEWER CLEANOUT. SEE SHEET 10 FOR DETAILS.
20. GAS SERVICE ENTERING BUILDING (SUBJECT TO CHANGE). COORDINATE WITH OWNER AND UTILITY PROVIDER FOR LOCATION INTO CAR WASH, SIZE AND UTILITY POINT OF CONNECTION PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
21. ELECTRIC SERVICE ENTERING BUILDING (SUBJECT TO CHANGE). COORDINATE WITH OWNER AND UTILITY PROVIDER FOR LOCATION INTO CAR WASH AND UTILITY POINT OF CONNECTION PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
22. ELECTRIC TRANSFORMER (SUBJECT TO CHANGE). COORDINATE WITH OWNER AND UTILITY PROVIDER FOR LOCATION AND ORIENTATION PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
23. COMMUNICATIONS/TELEPHONE SERVICE ENTERING BUILDING (SUBJECT TO CHANGE). COORDINATE WITH OWNER AND UTILITY PROVIDER FOR LOCATION INTO CAR WASH, SIZE AND UTILITY POINT OF CONNECTION PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
24. CONNECT TO EXISTING SANITARY SERVICE STUB. VERIFY LOCATION AND DEPTH PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. SEE NOTE 17.

GENERAL NOTES:

1. BUILDING ROOF DRAINS. CONNECT TO STORM SEWER. VERIFY LOCATIONS, SIZE AND INVERT ELEVATIONS WITH OWNER AND PLUMBER PRIOR TO CONSTRUCTION.
2. OIL INTERCEPTOR/GREASE TRAP. SEE PLANS BY OTHERS FOR DETAILS.

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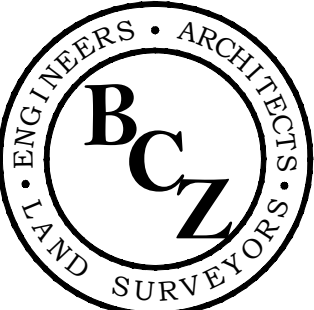
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UTILITY PLAN

**PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY**

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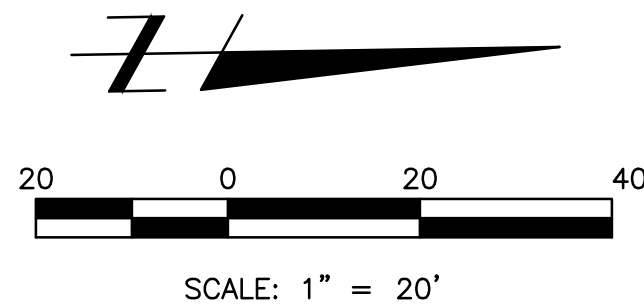
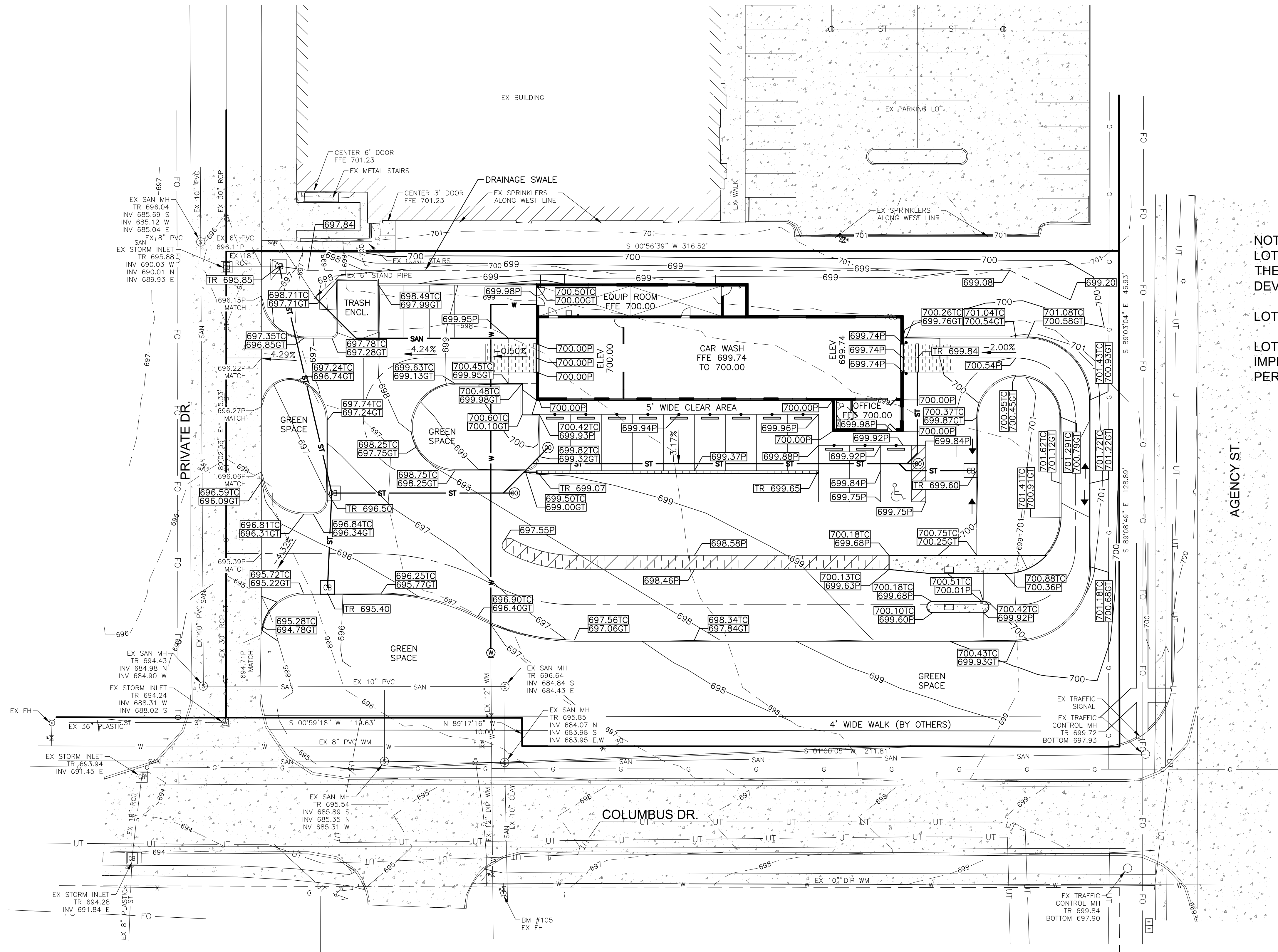
UTILITY PLAN

C-6

2018069-2

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NOTE:
LOT 2 FALLS INTO THE WATERSHED BASIN P5 OF
THE EXISTING BURLINGTON CROSSING
DEVELOPMENT. "c" = 0.81

LOT 2 WEIGHTED "c" FACTOR = 0.61

LOT AREA = 1.25 AC.
IMPERVIOUS AREA = 0.7252 AC.
PERVIOUS AREA = 0.5248 AC.

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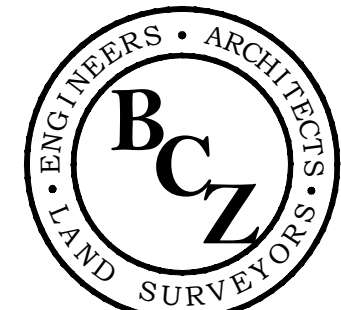
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PH: 309.221.7827

DRAINAGE PLAN

PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY

- ISSUE RECORD -

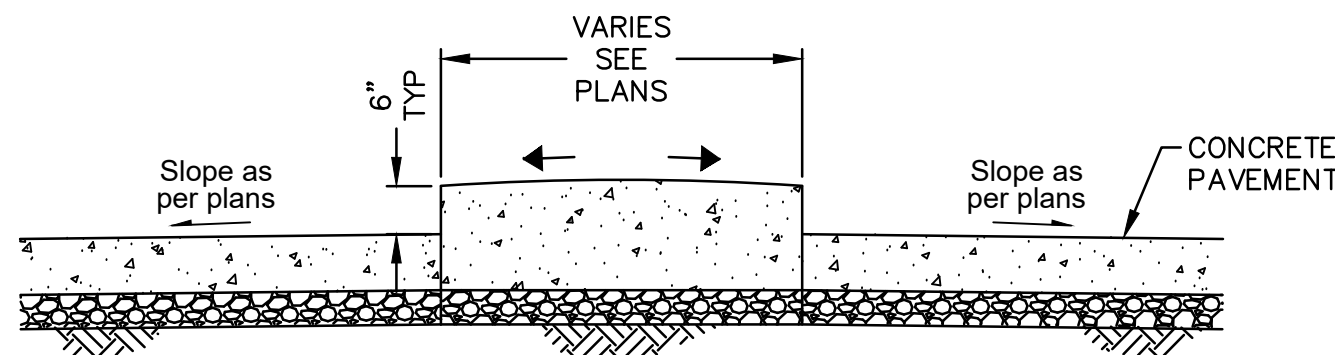
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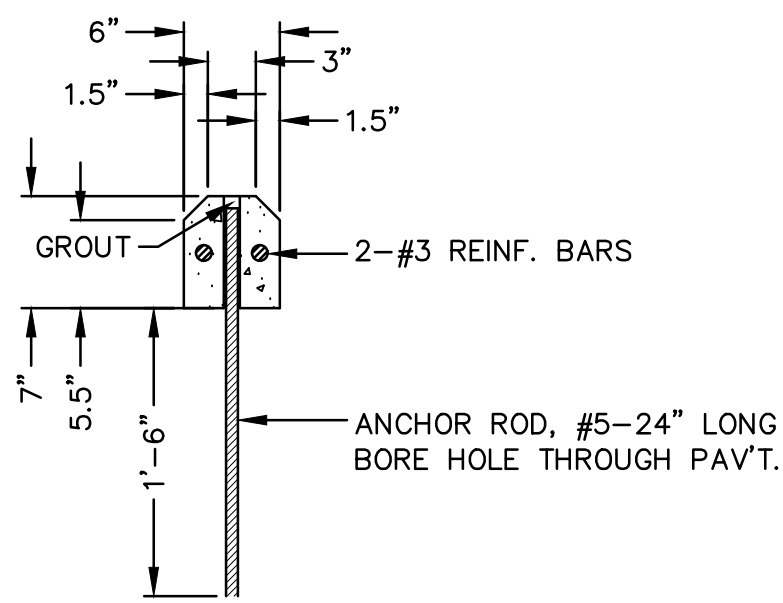
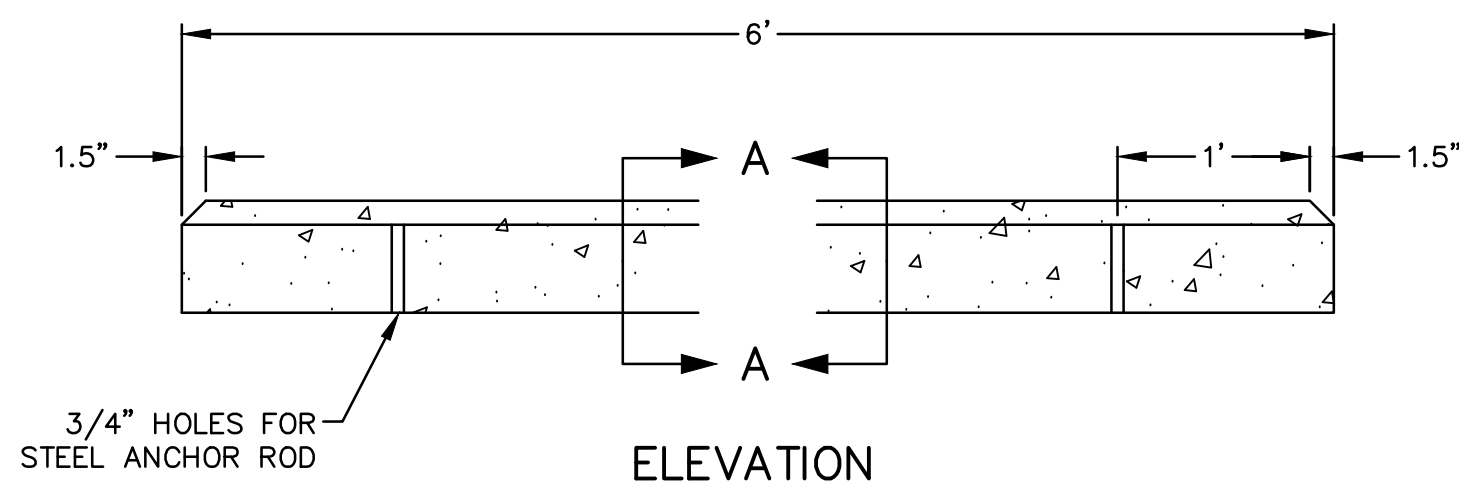
DRAINAGE PLAN

C-7

2018069-2 JUNE 2018

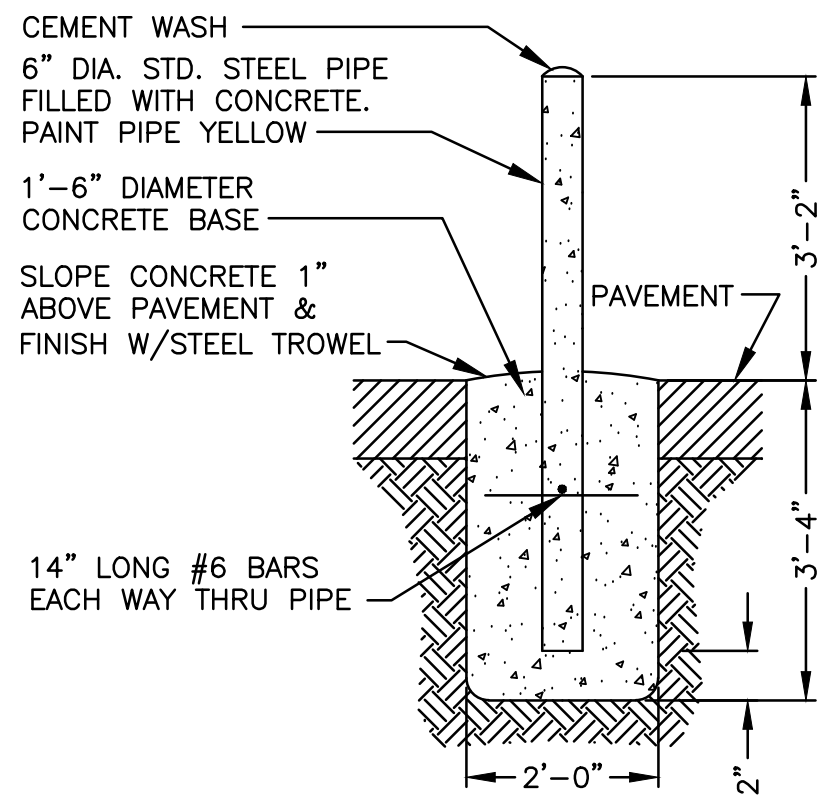


8 CONCRETE MEDIAN DETAIL
SCALE: NONE

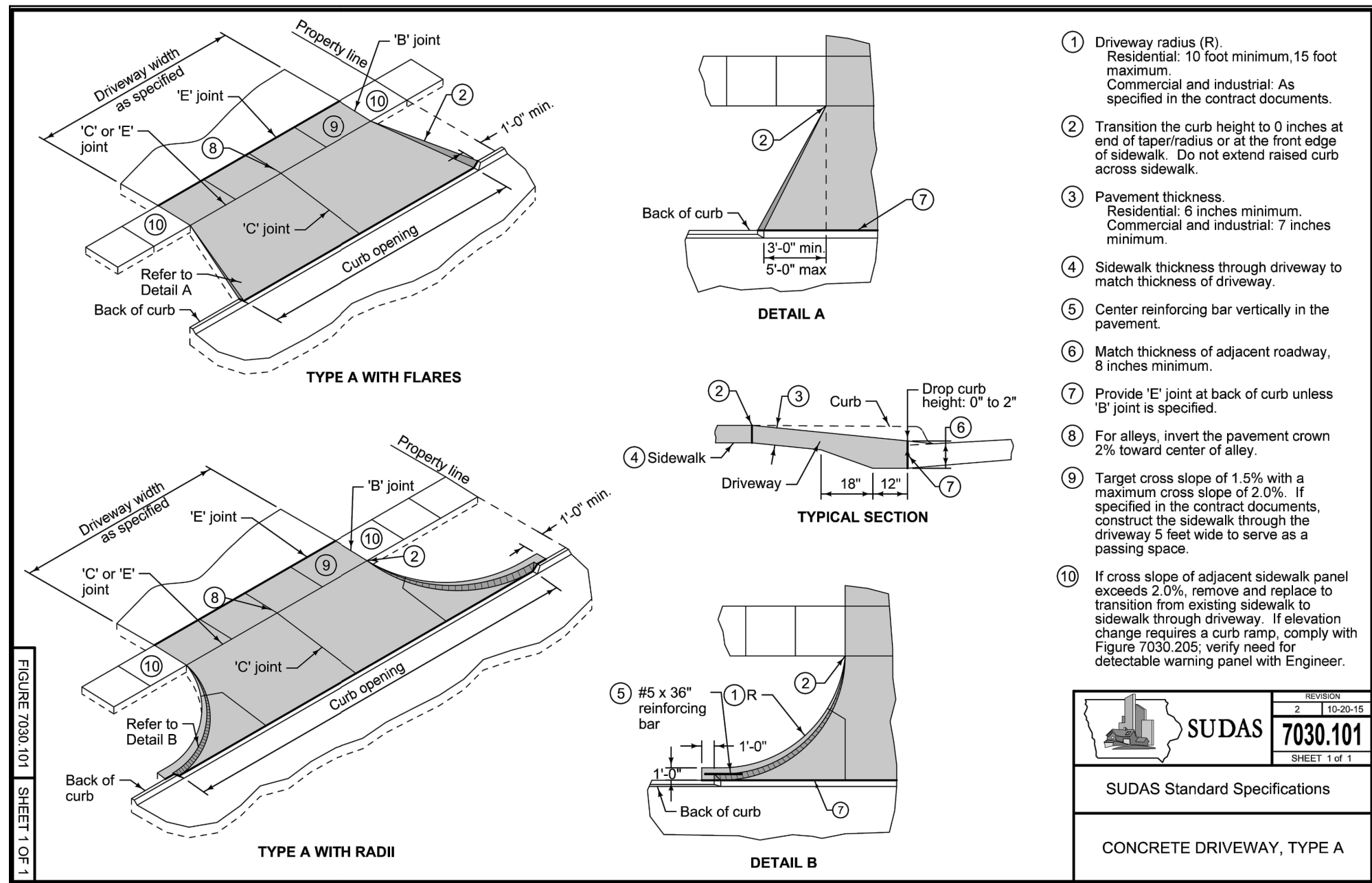


SECTION A-A

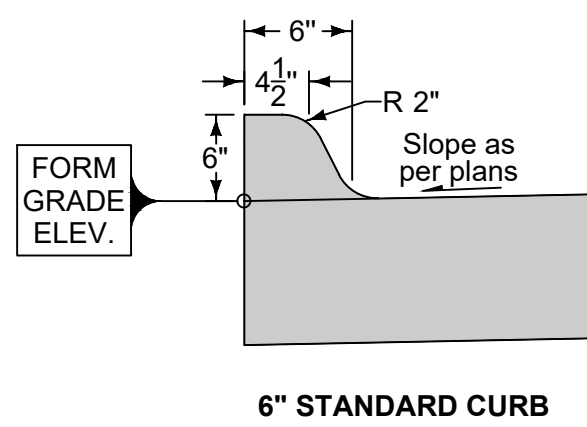
9 PRECAST CONCRETE WHEEL STOP
SCALE: NONE



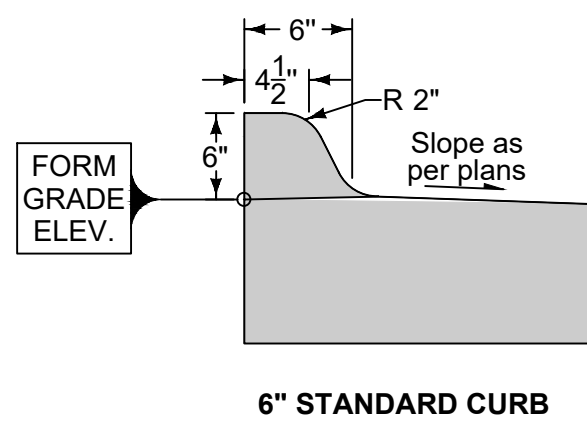
10 6" BOLLARD DETAIL
SCALE: NONE



5 TYPICAL DRIVEWAY DETAIL
SCALE: NONE





6" STANDARD CURB

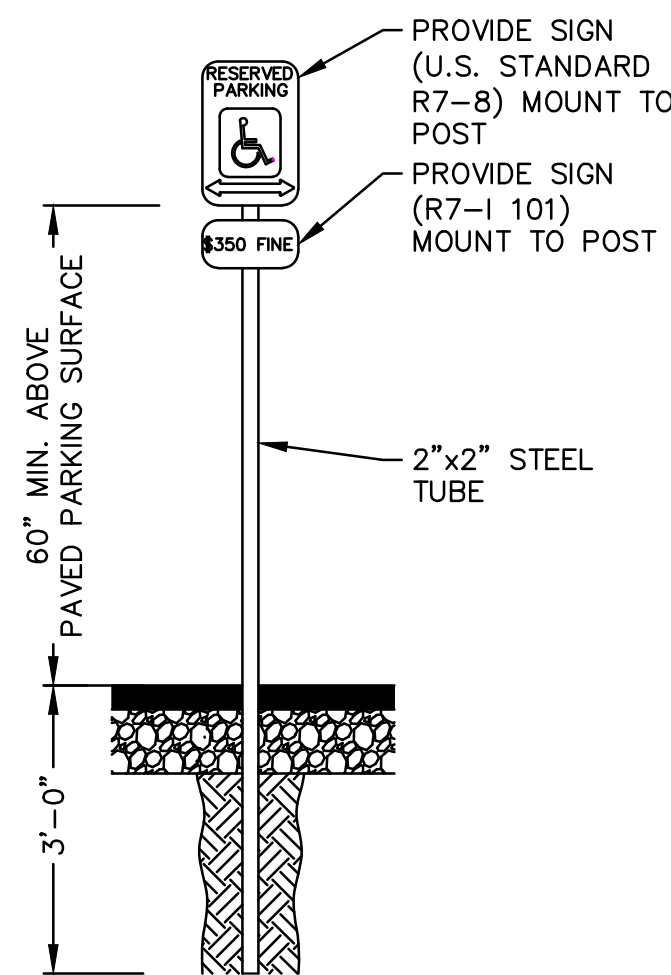


6" STANDARD CURB

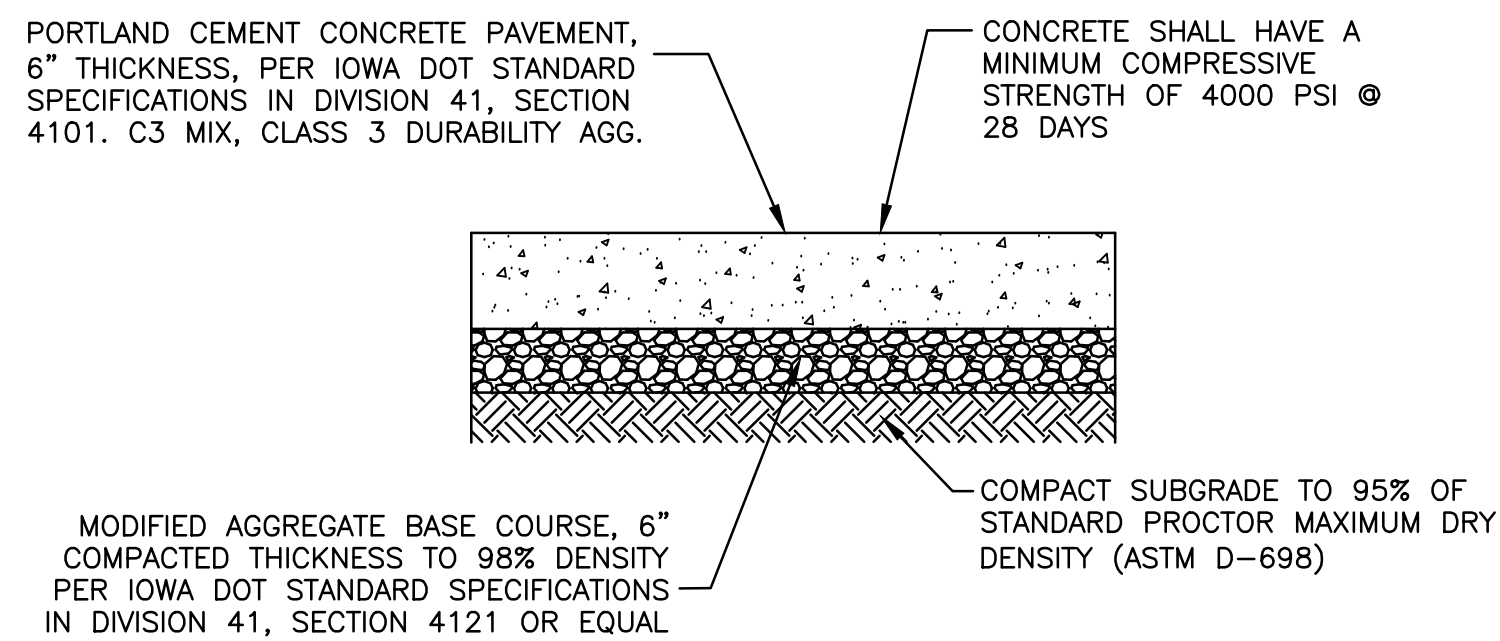
- 1/8" if Proposed Pavement is HMA. No elevation difference if Proposed Pavement is PCC.
- 'BT', 'KT', or 'L' joint if Proposed Pavement is PCC. 'B' joint if Proposed Pavement is HMA. See PV-101.

 SUDAS	 Iowa Department of Transportation	REVISION	
		2 04-16-13	
FIGURE 7010.102 STANDARD ROAD PLAN		PV-102	
REVISIONS: Added notes 1 and 2 and modified CURB AND GUTTER ADJACENT TO PROPOSED PAVEMENT detail labeling.		SHEET 1 of 1	
SUDAS DIRECTOR		DESIGN METHODS ENGINEER	
MODIFIED PCC CURB DETAILS			

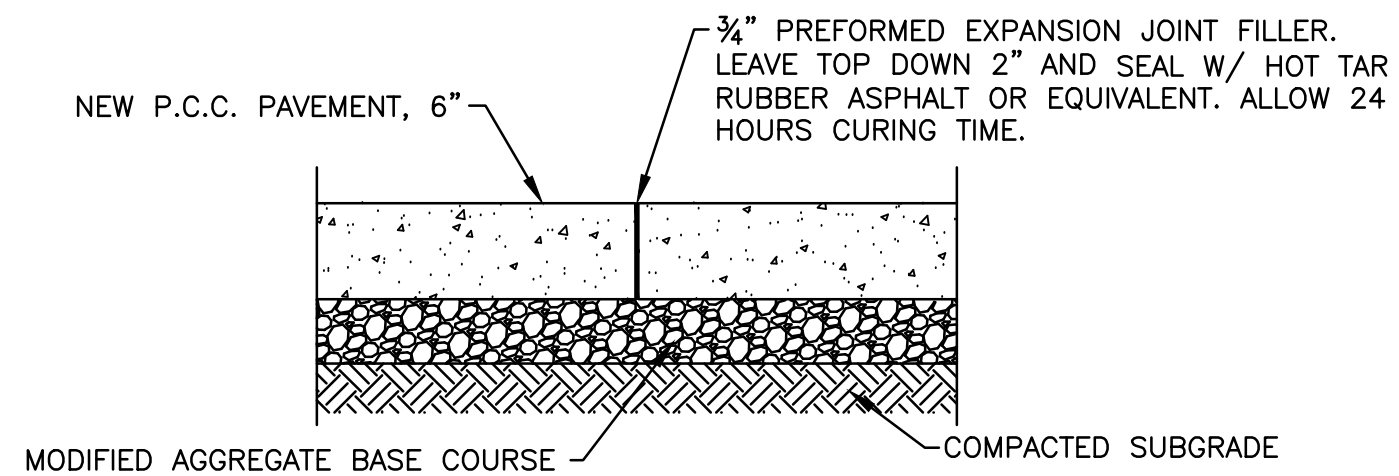
6 TYPICAL CONCRETE INTEGRAL CURB & GUTTER DETAIL
SCALE: NONE



7 HANDICAP PARKING SIGN DETAIL
SCALE: NONE

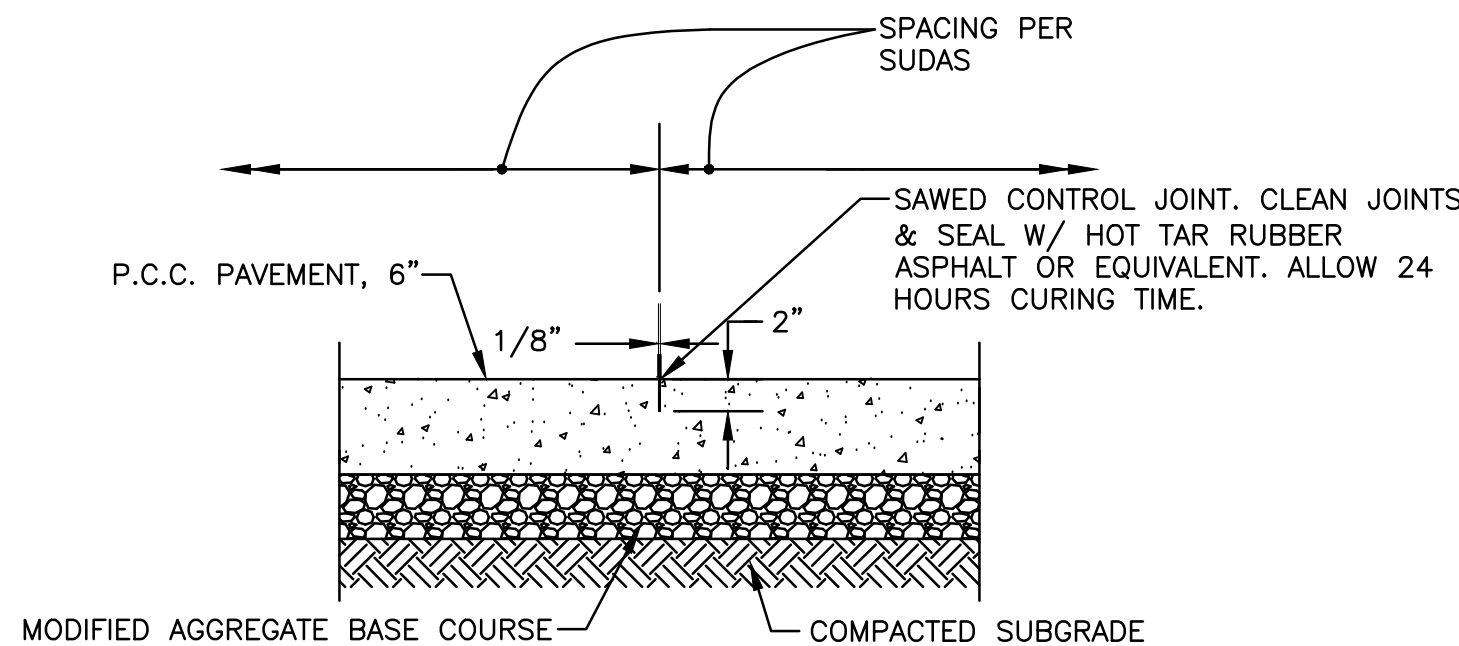


1 CONCRETE PAVEMENT DETAIL
SCALE: NONE



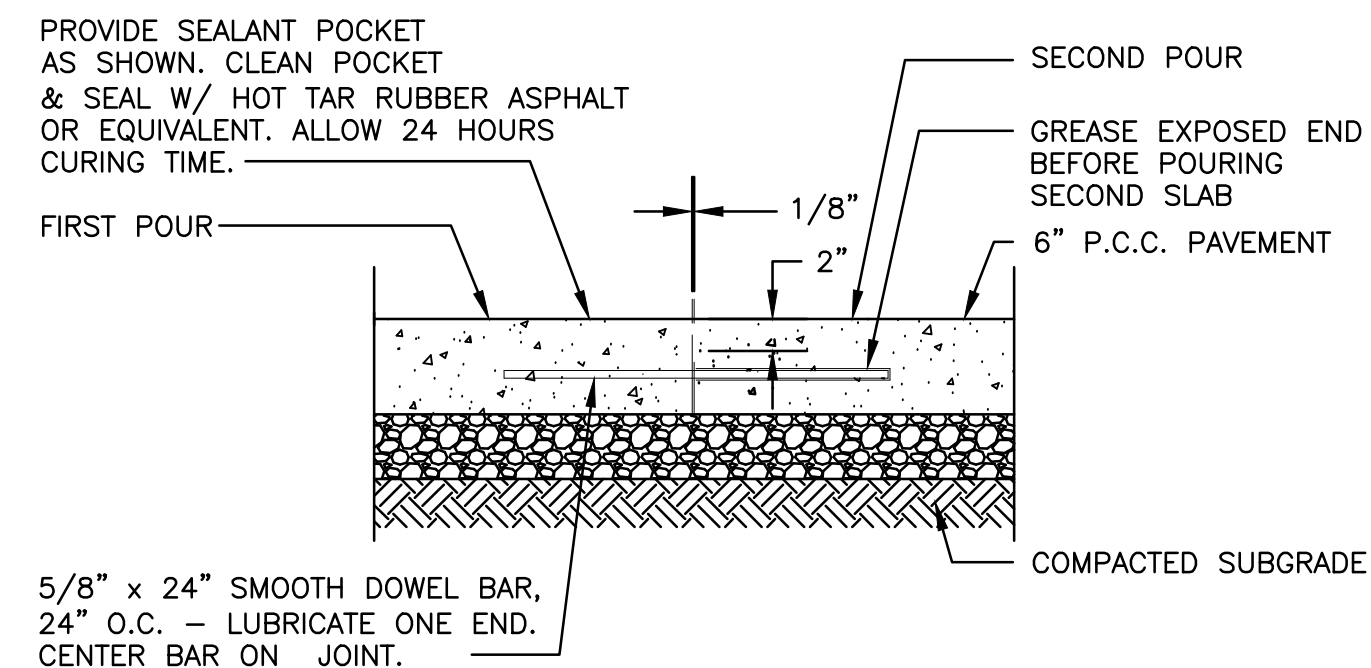
2 EXPANSION JOINT DETAIL
SCALE: NONE

NOTE:
ALL JOINTING TO BE ACCORDING TO SUDAS SPECIFICATIONS AND CITY REQUIREMENTS.



3 CONSTRUCTION JOINT DETAIL
SCALE: NONE

NOTE:
ALL JOINTING TO BE ACCORDING TO SUDAS SPECIFICATIONS AND CITY REQUIREMENTS.



4 CONTROL JOINT DETAIL
SCALE: NONE

NOTE:
ALL JOINTING TO BE ACCORDING TO SUDAS SPECIFICATIONS AND CITY REQUIREMENTS.

Bruner, Cooper & Zuck, Inc.

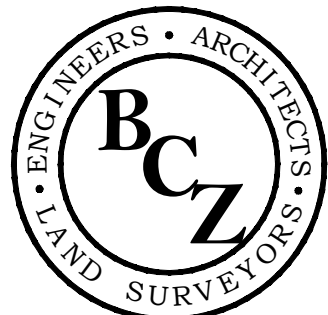
Engineers Architects Land Surveyors

188 East Simmons Street
Galesburg, Illinois 61401
309.343.9282

308 North 3rd Street
Burlington, Iowa 52601
319.752.9282

2415 18th Street Ste. 101
Bettendorf, Iowa 52722
563.355.1856

IL PROFESSIONAL DESIGN FIRM:
LS / ARC / PE / SE 184002633-0015



WWW.BCZENGINEERING.COM

KEVIN REED

OWNER
151 ANGLING ROAD
GALESBURG, IL 61401
PH: 309.221.7827

GENERAL DETAILS

PROPOSED CAR WASH
LOCATED IN BURLINGTON, IA.
DES MOINES COUNTY

- ISSUE RECORD -

P PRELIMINARY
R REVISION
B BID DOCUMENTS
C FOR CONSTRUCTION
A RECORD DRAWING

Preliminary
09/04/2018 2:40:00 PM

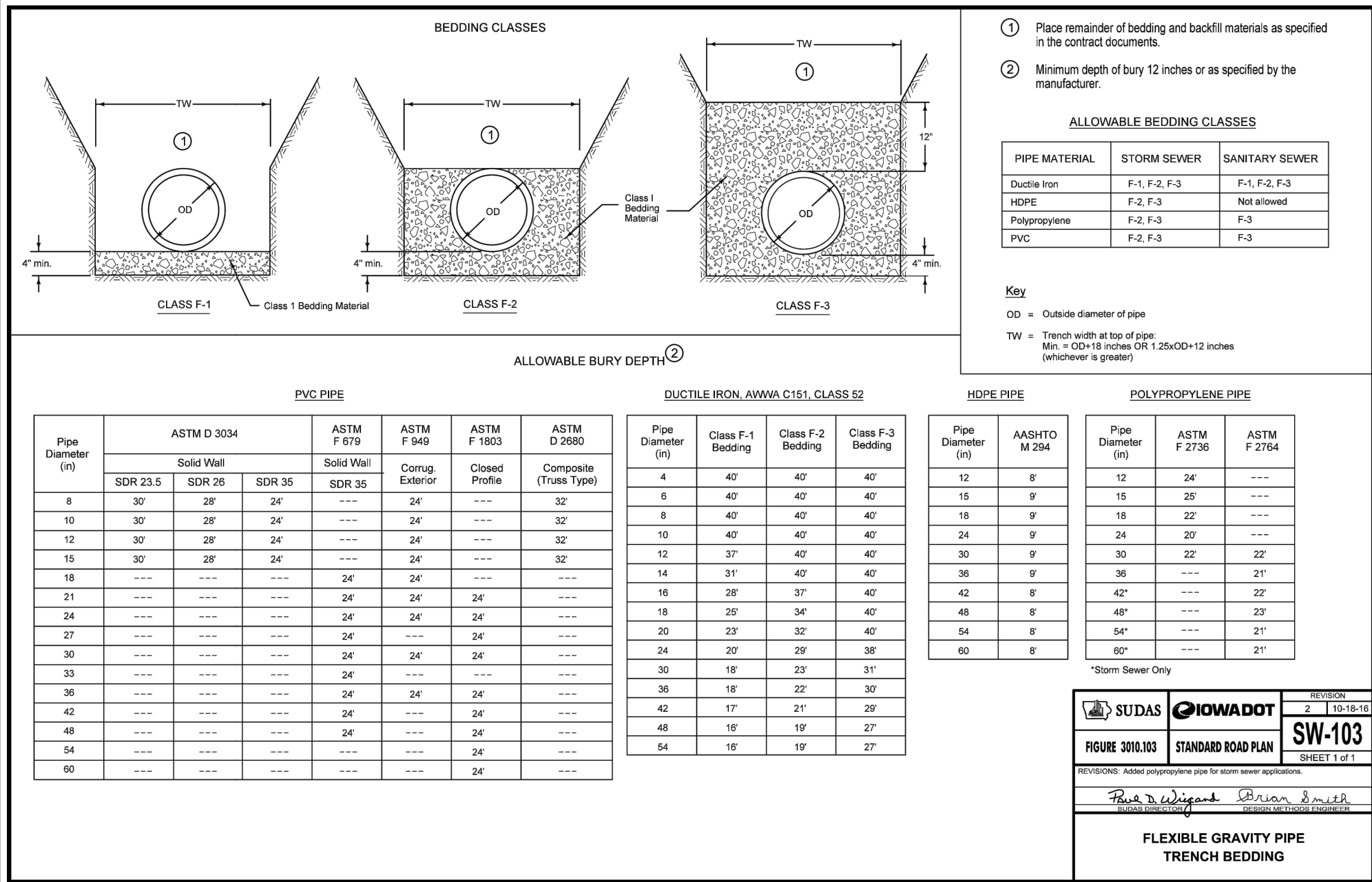
GENERAL DETAILS

C-8

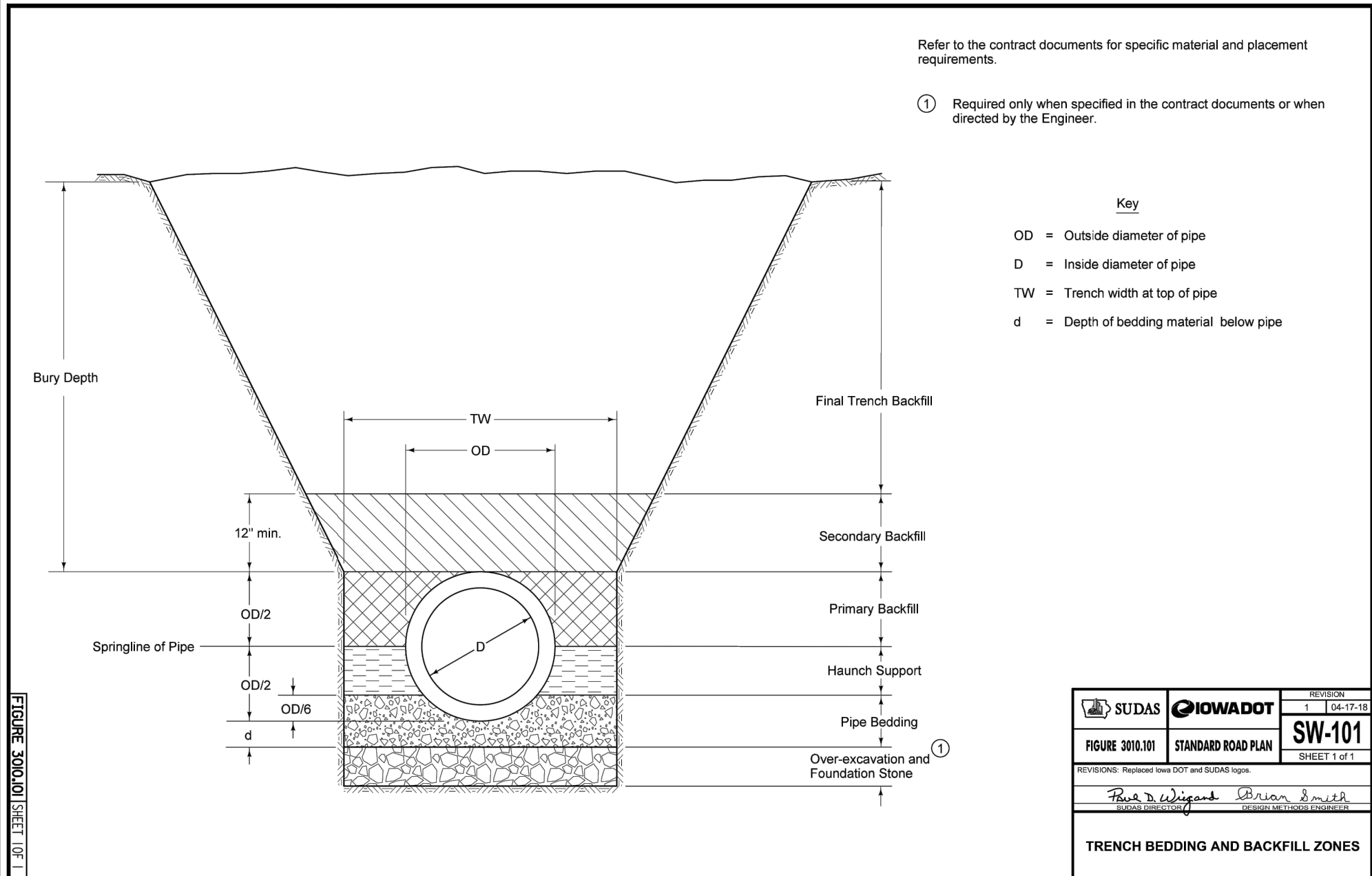
2018069-2

JUNE 2018

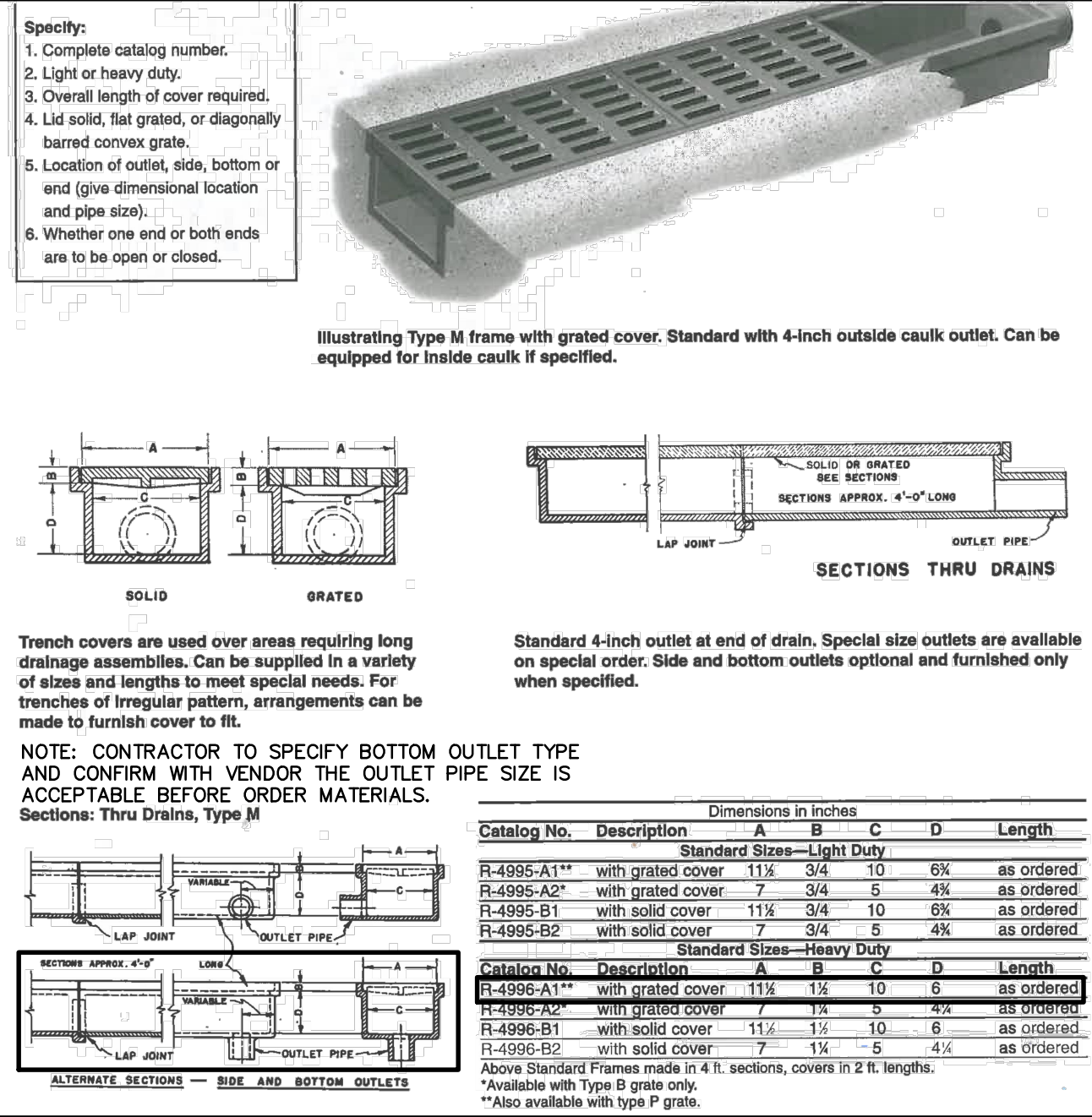
6/7/2018 2:00:35 PM m:\2018\projects\4018069-2 burlington car wash\design\drawings\production\4018069-2 c08_c10 general details.dwg Bill R. Streets



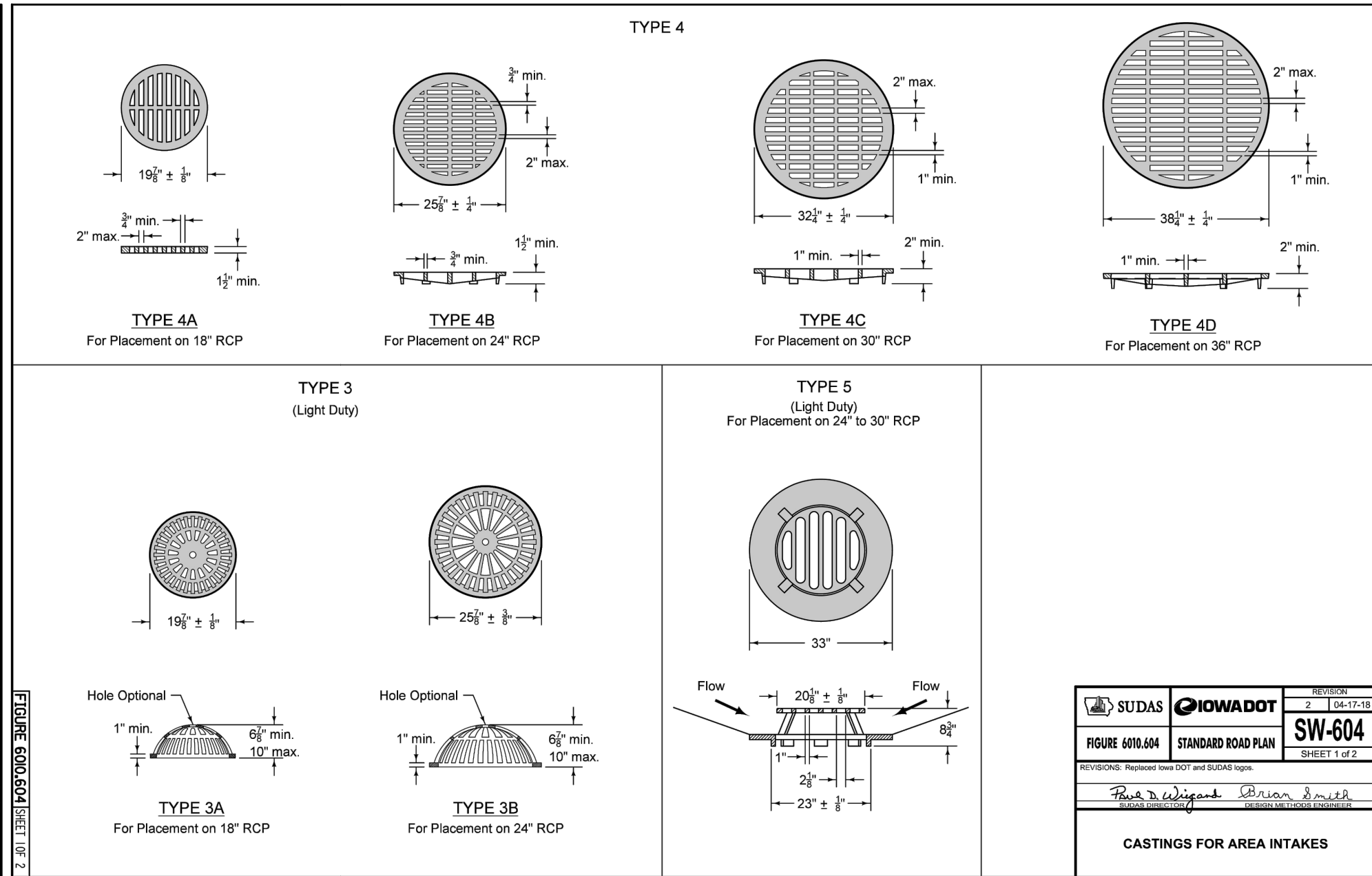
7 FLEXIBLE GRAVITY PIPE TRENCH BEDDING
9 SCALE: NONE



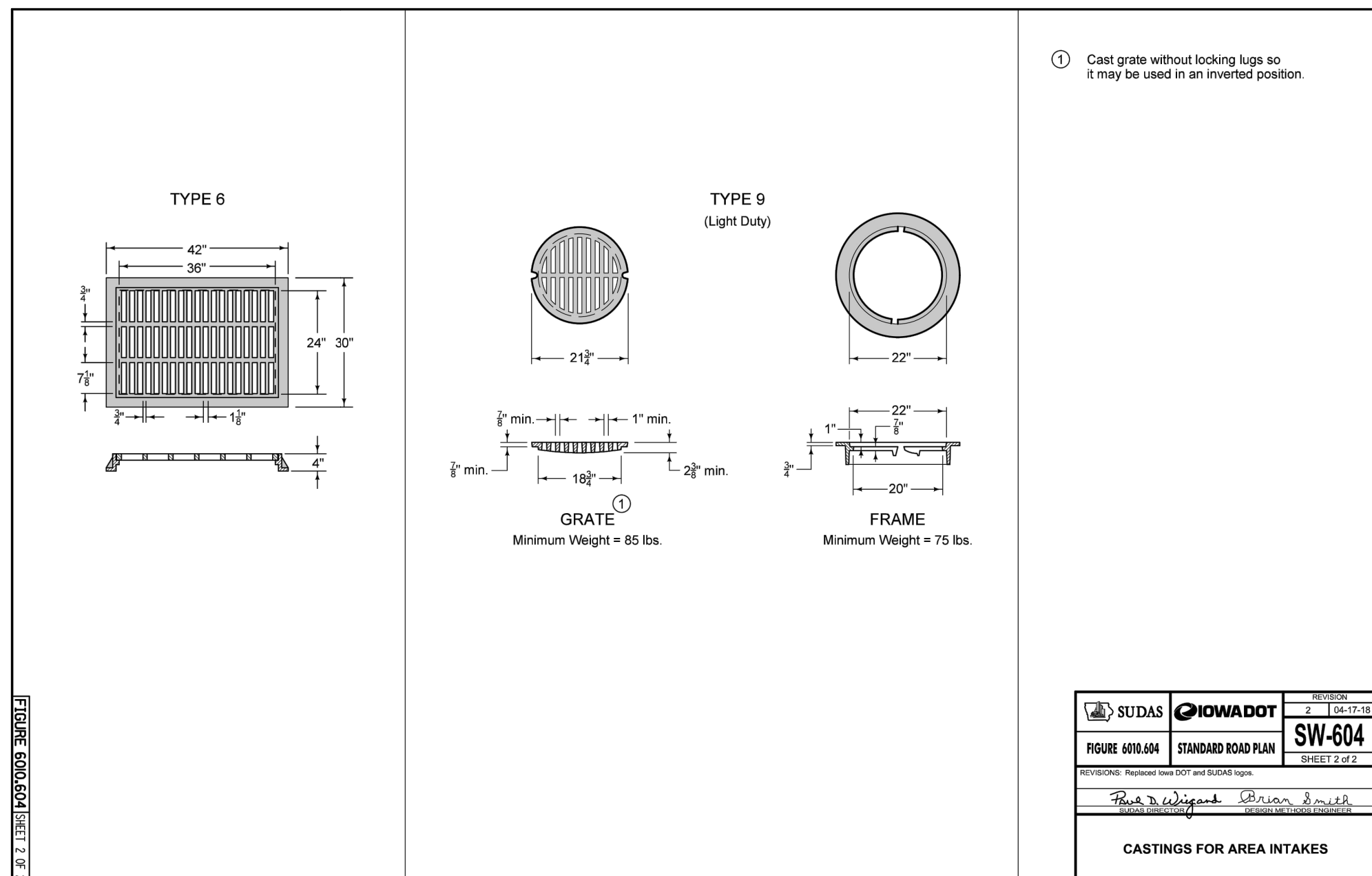
8 TRENCH BEDDING AND BACKFILL ZONES
9 SCALE: NONE



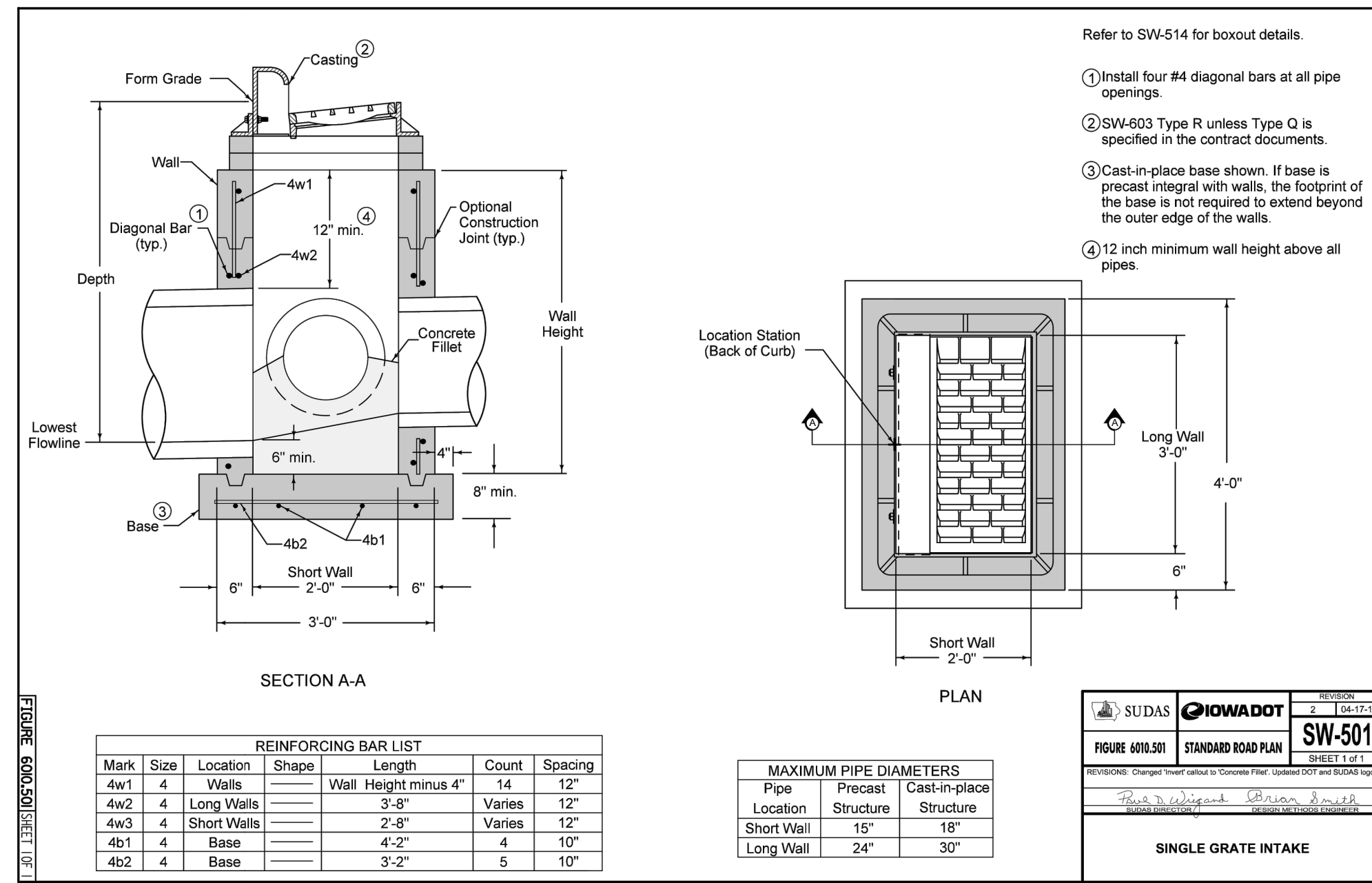
4 TRENCH DRAIN DETAIL
9 SCALE: NONE



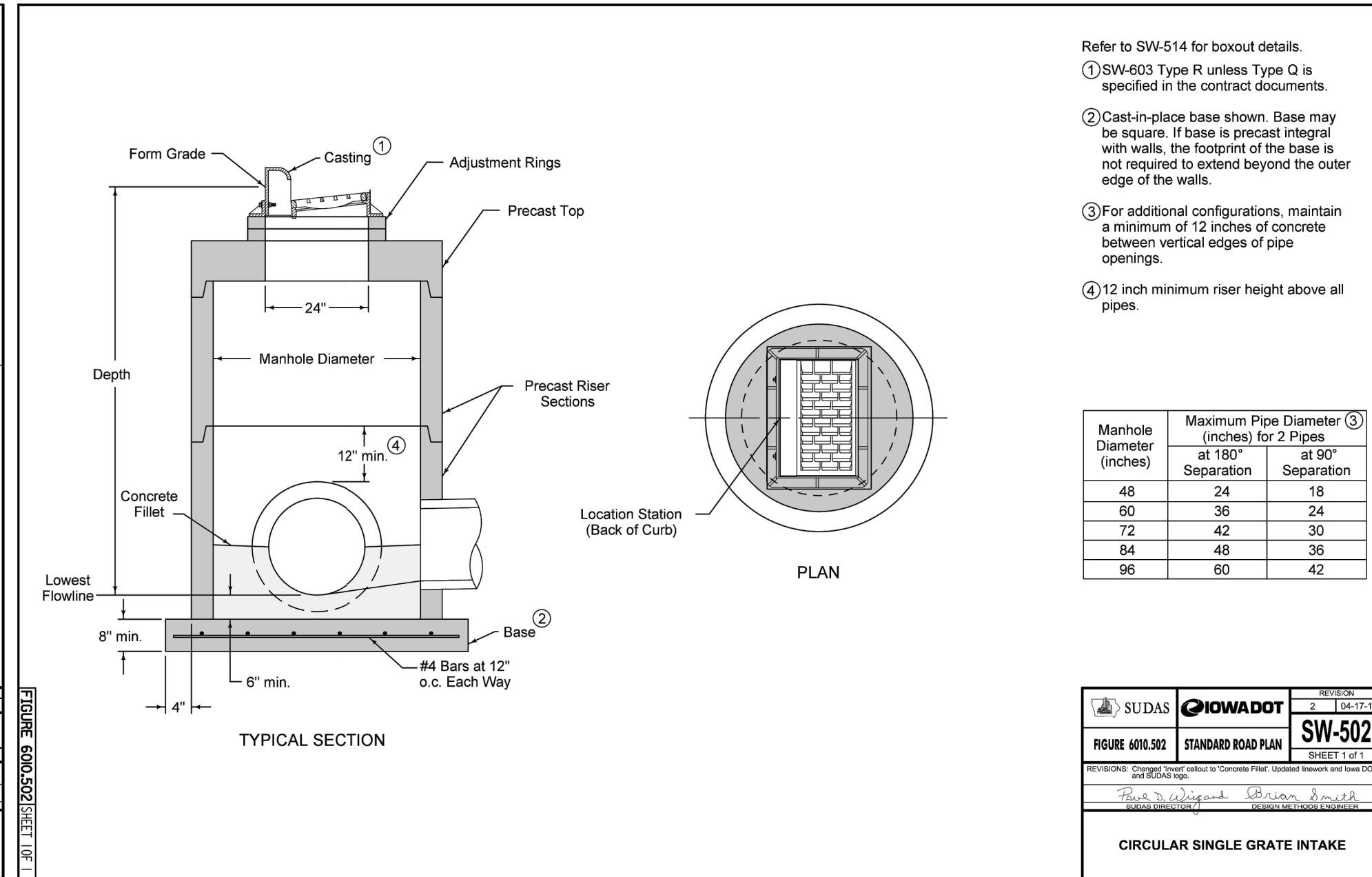
5 CASTINGS FOR AREA INTAKES
9 SCALE: NONE



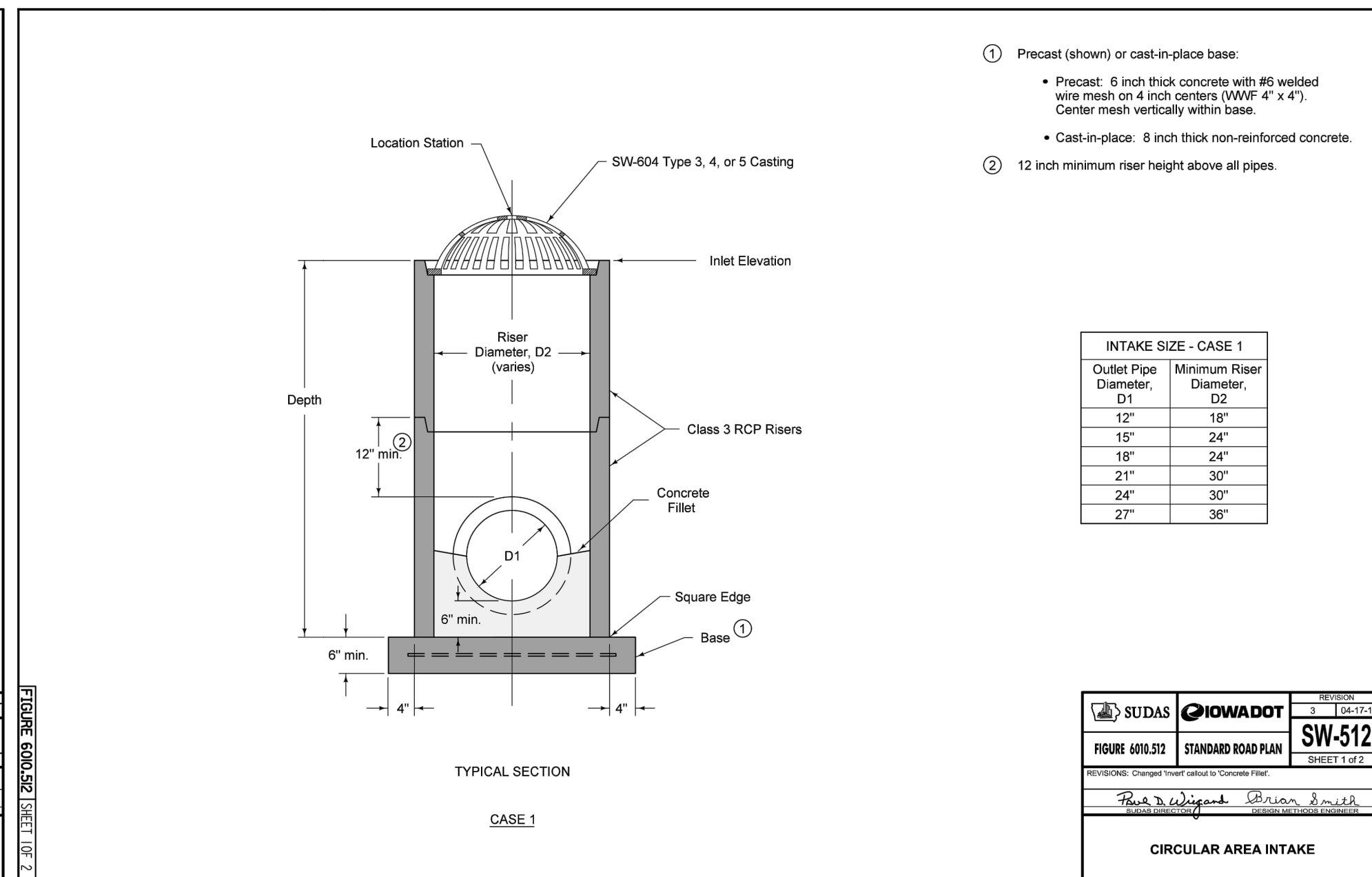
6 CASTINGS FOR AREA INTAKES
9 SCALE: NONE



1 SINGEL GRATE INTAKE
9 SCALE: NONE



2 CIRCULAR SINGEL GRATE INTAKE
9 SCALE: NONE



3 CIRCULAR AREA INTAKE
9 SCALE: NONE

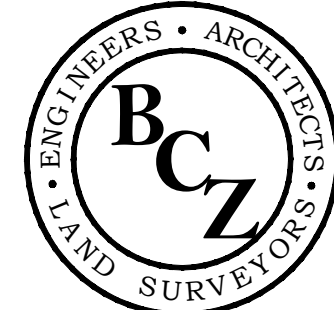
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GENERAL DETAILS

C-9

2018069-2 JUNE 2018

