

LIST OF DRAWINGS:

COVER SHEET

GENERAL

G-1 GENERAL SITE AREA

CIVIL

- C-1 LEGEND SHEET
- C-2 NOTE AND DETAIL SHEET
- C-3 EXISTING CONDITIONS, PROJECT REMOVALS AND SESC MEASURES
- C-4 PROPOSED GRADING PLAN
- C-5 GRADING DETAIL SHEET
- C-6 PROPOSED CONSTRUCTION
- C-7 PROPOSED LOCATION PLAN
- C-8 DETAIL SHEET
- C-9 DETAIL SHEET

STRUCTURAL

- S-0 STRUCTURAL GENERAL NOTES
- S-1 STRUCTURAL GENERAL NOTES
- S-2 STRUCTURAL FOUNDATION PLAN
- S-3 STRUCTURAL ROOF AND PLATFORM PLANS
- S-4 STRUCTURAL SECTIONS AND DETAILS
- S-5 STRUCTURAL SECTIONS AND DETAILS
- S-6 STRUCTURAL ELEVATIONS
- S-7 STRUCTURAL ELEVATIONS
- S-8 STRUCTURAL SECTIONS
- S-9 STRUCTURAL SECTIONS AND DETAILS
- S-10 STRUCTURAL SECTIONS AND DETAILS
- S-11 STRUCTURAL WALL ELEVATIONS, SECTIONS AND DETAILS
- S-12 STRUCTURAL SECTIONS AND DETAILS
- S-13 STRUCTURAL SECTIONS AND DETAILS
- S-14 STRUCTURAL SECTIONS AND DETAILS

ARCHITECTURAL

- A-1 MISCELLANEOUS DETAILS
- A-2 PHOTO SHEET
- A-3 PHOTO SHEET - TANK INSPECTION AND REPAIRS, 2010-2014

MECHANICAL - PLUMBING

M-1 MISCELLANEOUS PLUMBING

PROCESS

- PD-1 PROCESS REMOVALS & PHASING LAYOUT
- P-1 PROCESS AND NOTES LEGEND
- P-2 EXISTING & PROPOSED CLEARWELL PROCESS FLOW DIAGRAM
- P-3 HYDRAULIC PROFILE
- P-4 PROPOSED CLEARWELL PLAN
- P-5 PROPOSED CLEARWELL SECTIONS
- P-6 PROCESS SITE PIPING PROFILES
- P-7 DRAINAGE PUMPING STATION
- P-8 PROCESS PROJECT DETAILS
- P-9 PROCESS MECHANICAL SCHEDULES AND DETAILS

ELECTRICAL

- E-1 ELECTRICAL SITE PLAN
- E-2 ELECTRICAL DETAILS

REFERENCE DRAWINGS

THE FOLLOWING DRAWING SETS ARE ISSUED FOR CONTRACTOR REFERENCE ONLY AND ARE NOT CONSIDERED AS-BUILT OR FIELD VERIFIED.

1. CITY OF ALPENA, MICH. WATER PURIFICATION PLANT - 1921, WILLIAM G. CLARK, CONSULTING ENGINEER, 12 SHEETS
2. ALPENA MICHIGAN, ADDITION TO WATER TREATMENT PLANT AND LOW SERVICE PUMPING STATION - 1965, MCNAMEE, PORTER AND SEELEY, CONSULTING ENGINEERS, 33 SHEETS PLUS 1 SHEET FOR C-1 UPDATED WITH ROCK BORING DATA "RECORD" (FROM 1966)

CITY OF ALPENA

WATER PRODUCTION PLANT

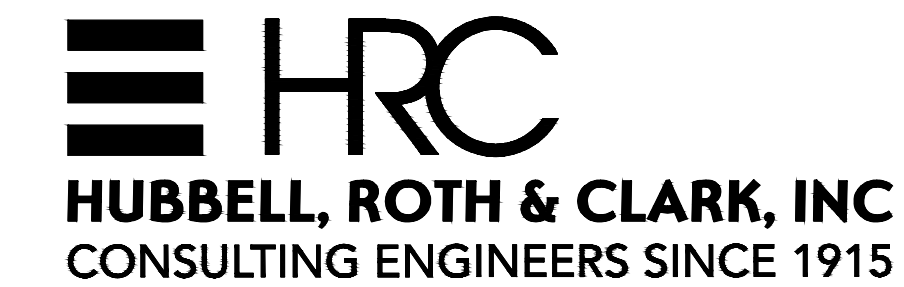
CLEARWELL REPLACEMENT &

INFRASTRUCTURE IMPROVEMENTS

ALPENA, MICHIGAN

HRC JOB NO. 20220751

ISSUED FOR BIDS:
FEBRUARY 19, 2024



555 HULET DRIVE P.O. BOX 824
BLOOMFIELD HILLS, MI. 48303 - 0824

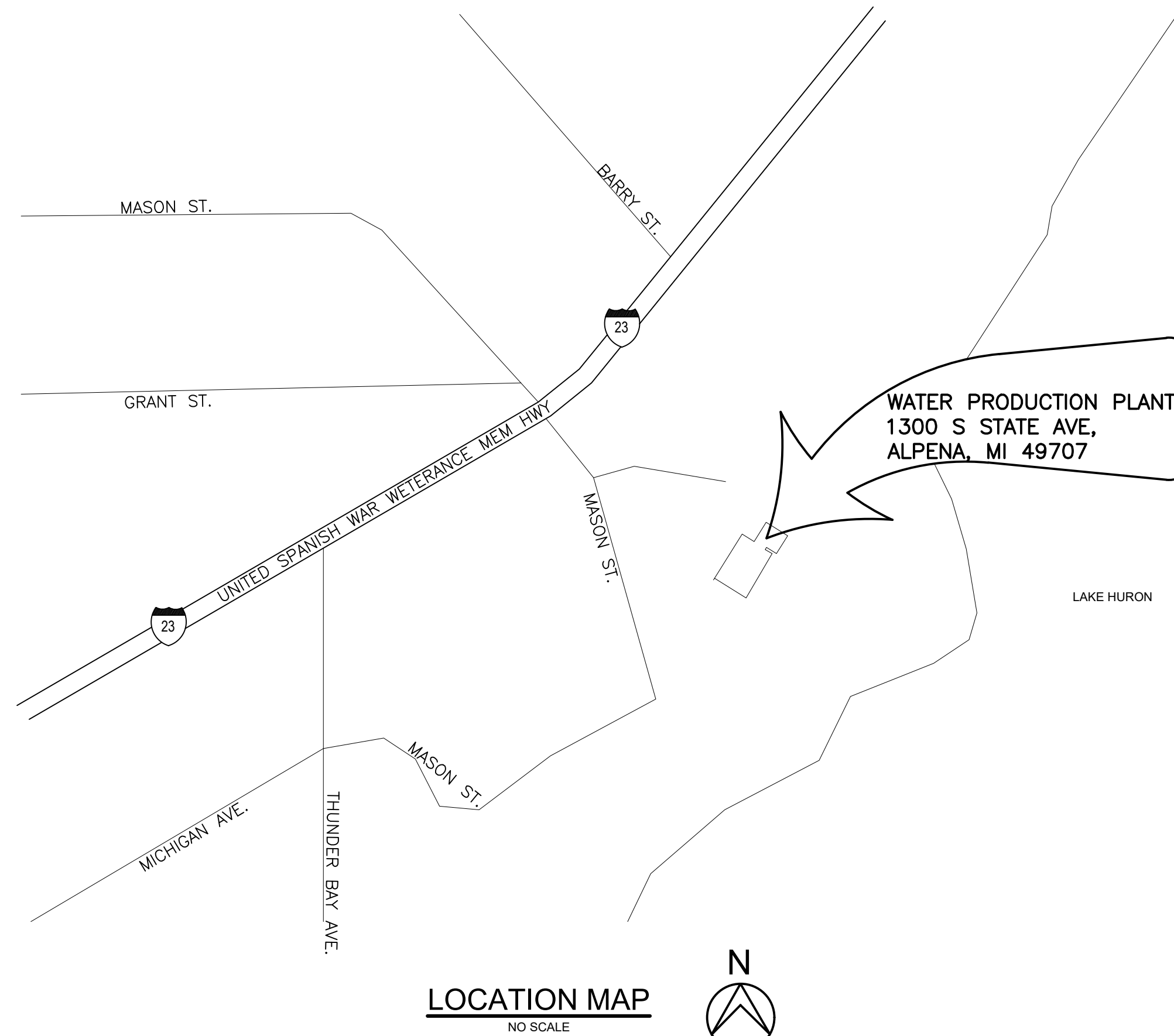
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CITY ADMINISTRATION AND COUNCIL:

RACHEL SMOLINSKI - CITY MANAGER
CINDY JOHNSON - MAYOR
MIKE NOWAK - MAYOR PRO TEM
BILL PFIEFER - ATTORNEY

KEITH WALLACE - ASSISTANT CITY ATTORNEY
DANNY MITCHELL - MEMBER
KAROL WALCHAK - MEMBER
ERINN KANE - MEMBER



DEPARTMENT OF ENVIRONMENT,
GREAT LAKES AND ENERGY

PERMIT NO. _____
DATE _____



HUBBELL, ROTH & CLARK, INC.
JOB NO. 20220751
PREPARED UNDER THE SUPERVISION OF:
DOUGLAS I. URQUHART
REGISTERED PROFESSIONAL ENGINEER
MICHIGAN REGISTRATION NO. 6201067401

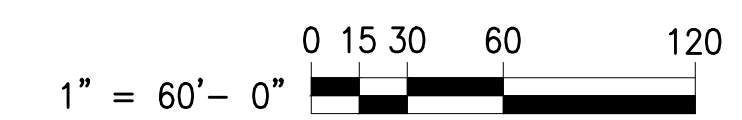


- NOTES:
1. CONTRACTOR MAY USE THE SOUTH HALF OF THE PARK FOR HIS OPERATIONS AND FENCE THE AREA OFF AS CALLED FOR IN SECTION 02831. LIMITS OF HIS ACTIVITIES SHALL STAY WITHIN THE FENCE LINE AND BE ORGANIZED AS NECESSARY FOR HIS OPERATIONS. AREA SHOWN FOR ADDITIONAL STOCKPILE, TRAILER, ETC. AREA SCHEMATIC ONLY AND SHALL BE PER CONTRACTOR'S NEEDS. COORDINATE EXACT LIMITS OF AREA WITH THE CITY, IN THE FIELD.
 2. REFER TO SECTION 01000 FOR ON-SITE AND OFF-SITE RESTORATION REQUIREMENTS, INCLUDING MASON STREET.
 3. IT IS UNDERSTOOD THAT CONSTRUCTION TRAFFIC WILL BE USING MASON STREET AND THUNDER BAY AVE. TO ACCESS THE CONTRACTOR'S STAGING AREA AND TO REACH THE WORK SITE AT THE PLANT. CONTRACTOR SHALL MAINTAIN STREETS IN CLEAN CONDITION PER THE SPECIFICATIONS.
 4. PROVIDE BARRICADES AND SIGNAGE FOR DIRECTING PUBLIC BEACH VEHICLE AND PEDESTRIAN TRAFFIC AROUND CONSTRUCTION OPERATIONS. MAINTAIN PUBLIC ACCESS TO PARK, BEACH, BIKE PATH AND PAVILION.
 5. SEE SECTION 01500 FOR CONTRACTOR TEMPORARY UTILITIES FOR THE STAGING/SITE AREA. CONTACT LOCAL UTILITIES AS LISTED ON SHEET C-2 FOR POWER (AND WATER) AS NEEDED FOR CONTRACTOR AREA.

GENERAL AREA AERIAL
SCALE**: 1"=60'-0"



SCALE NOTE:**
AERIAL PHOTO SCALE IS NOT EXACT,
IT IS APPROXIMATELY 1"=60'-0"
FOR THE PURPOSES OF PLANNING
AND CONTR. REFERENCE.



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02-19-24	BIDS
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	J.M.G.
DRAWN	J.M.G.
CHECKED	J.M.G.
APPROVED	T.G.M.

CITY OF ALPENA
WATER PRODUCTION PLANT
CLEARWELL REPLACEMENT &
INFRASTRUCTURE
IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707
ALPENA COUNTY MICHIGAN

GENERAL SITE AREA

HRC JOB NO.	SCALE
20220751	AS NOTED
DATE	SHEET NO.
DECEMBER 2023	G-1

WATER & DRAINAGE SYMBOLS

- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING CULVERT END SECTION
- PROPOSED CULVERT END SECTION
- EXISTING HEADWALL
- PROPOSED HEADWALL
- WATER SHUTOFF(Service Valve)
- GATE VALVE
- GATEWELL
- WATER METER
- WATER MANHOLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- ADJUST FIRE HYDRANT
- ADJUST DRAINAGE STRUCTURE
- ADJUST DRAINAGE STRUCTURE W/COVER
- ADJUST DRAINAGE STRUCTURE BY OTHERS
- RELOCATE - BY OTHERS
- SIDEWALK RAMP TYPE
- CHECK DAM (PROFILES)
- DIKE (PROFILES)
- WATER TABLE (PROFILES)
- POST
- WATER WELL

REAL ESTATE SYMBOLS

- PROPERTY OWNERSHIP ARROW
- CONTIGUOUS PROPERTY SYMBOL
- 123456 PARCEL NUMBER BOX
- PARCEL LINES

UTILITIES SYMBOLS

- POWER POLE
- TELEPHONE POLE
- GUY POLE
- LIGHT POLE
- POWER LIGHT POLE
- TELEPHONE MANHOLE
- POWER TOWER
- GAS VALVE
- WALK/NO-WALK
- GUY ANCHOR
- RAILROAD SIGNAL
- ELECTRICAL MANHOLE
- ELECTRICAL HANDHOLE
- TELEPHONE PEDESTAL/RISER
- FIBER OPTIC MARKER

MISCELLANEOUS SYMBOLS

- RIPRAP
- SIGN
- STUMP
- SWAMP
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- MAIL BOX
- FLAG
- BAR & CAP
- SECTION CORNER
- QUARTER SECTION
- BENCHMARK
- USGS MARKER
- CONTROL POINT
- BEAM G. R. RUN NUMBER (EXISTING)
- BEAM G. R. RUN NUMBER (PROPOSED)
- HAZARDOUS OR FLAMMABLE MATERIAL USED WITH UNDERGROUND GAS & ELECTRICAL LINES
- CAUTION - CRITICAL UNDERGROUND UTILITY USED WITH FIBER OPTICS LINES
- PROP 36" PROPOSED CULVERT/SEWER
- EX 12" CMP EXISTING CULVERT/SEWER

UTILITY PATTERNS

- ELEC ELECTRICAL LINE
- 24" GAS GAS LINE
- 12" OIL OIL LINE
- TELE TELEPHONE LINE
- 36" WM WATER LINE
- CTV CABLE TV
- FO FIBER OPTICS
- POWER TRANSMISSION LINE

R.O.W. PATTERNS

- EX. LIMITED ACCESS R.O.W.
- EXISTING R.O.W.
- PROP LIMITED ACCESS R.O.W.
- PROP FREE ACCESS R.O.W.
- SECTION LINE
- GRADING EASEMENT

TOPO PATTERNS

- HEDGE LINE
- TREE LINE
- EXISTING FENCE
- PROPOSED FENCE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- DRAINAGE CRS/EDGE OF WATER
- WETLANDS AREA
- ABANDON ANY UTILITY
- CITY LIMITS
- RAILROAD
- SOUND ABATEMENT WALL
- CONCRETE MEDIAN BARRIER
- SLOPE STAKE LINE

DRIVE/APPROACH LEGEND

- CONCRETE
- HMA
- AGGREGATE
- GRASS

REMOVAL LEGEND

- REMOVING
- ABANDONING
- SAVE
- BULKHEAD
- REMOVING CURB & GUTTER



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DESIGNED	RR
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APPROVED	TGM

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 1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

LEGEND SHEET

HURON JOB NO. 23 088	SCALE
DATE DECEMBER 2023	SHEET NO. C-1 OF 9

SLOPE RESTORATION

RESTORE ALL DISTURBED AREAS AS FOLLOWS.
 APPLY TOPSOIL, FERTILIZER, SEED, MULCH WITH MULCH ANCHOR, MULCH BLANKET, AND HIGH VELOCITY MULCH BLANKET. ENSURE TURF ESTABLISHMENT IS IN ACCORDANCE WITH SECTION 816 AND 917 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND STANDARD PLAN R-100 SERIES, EXCEPT AS MODIFIED HEREIN OR OTHERWISE DIRECTED BY THE ENGINEER.

THE MATERIALS, APPLICATION RATES, AND CONSTRUCTION METHODS SPECIFIED IN SECTIONS 816 AND 917 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION APPLY UNLESS MODIFIED BY THIS SPECIAL PROVISION OR OTHERWISE DIRECTED BY THE ENGINEER. FURNISH THE FOLLOWING MATERIALS ON THIS PROJECT:

1. SEEDING MIXTURE TDS
2. CHEMICAL FERTILIZER NUTRIENT, CLASS A.
3. TOPSOIL.
4. MULCHING MATERIAL.

IF MULTIPLE GRADES OF THE SELECTED PRODUCT ARE AVAILABLE, USE THE GRADE APPROPRIATE FOR THE APPLICATION AS APPROVED BY THE ENGINEER.

MULCH BLANKET SHALL BE AN EXCELSIOR MULCH BLANKET FREE OF CHEMICAL ADDITIVES. ENSURE THE NETTING THREAD IS 100 PERCENT BIODEGRADABLE AND MANUFACTURED WITH NON-PLASTIC MATERIALS SUCH AS JUTE, SISAL, OR COIR FIBER. DEGRADABLE, PHOTO-DEGRADABLE, UV-DEGRADABLE, OXO-DEGRADABLE, OR OXO-BIODEGRADABLE PLASTIC NETTING INCLUDING POLYPROPYLENE, NYLON, POLYETHYLENE, AND POLYESTER IS NOT AN ACCEPTABLE ALTERNATIVE. ALL NETTING MATERIALS MUST HAVE A LOOSE WEAVE DESIGN WITH MOVABLE JUNCTIONS BETWEEN THE MACHINE AND CROSS-MACHINE DIRECTION TWINES THAT MOVE INDEPENDENTLY AND REDUCE THE POTENTIAL FOR WILDLIFE ENTANGLEMENT.

ENSURE CONSTRUCTION METHODS ARE IN ACCORDANCE WITH SUBSECTION 816.03 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. BEGIN THIS WORK AS SOON AS POSSIBLE AFTER FINAL GRADING OF THE AREAS DESIGNATED FOR SLOPE RESTORATION BUT NO LATER THAN THE MAXIMUM TIME FRAMES SPECIFIED IN SUBSECTION 208.03 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. IT MAY BE NECESSARY, AS DIRECTED BY THE ENGINEER, TO PLACE MATERIALS BY HAND.

SHAPE, COMPACT, AND ENSURE ALL AREAS TO BE SEEDED ARE WEED-FREE PRIOR TO PLACING TOPSOIL. PLACE 6" OF TOPSOIL TO MEET PROPOSED FINISHED GRADE. IF THE AREA BEING RESTORED REQUIRES MORE THAN THE MINIMUM DEPTH OF TOPSOIL TO MEET FINISHED GRADE, FILL THIS ADDITIONAL DEPTH USING TOPSOIL OR, AT THE CONTRACTOR'S OPTION, EMBANKMENT. FURNISHING AND PLACING THIS ADDITIONAL MATERIAL IS INCLUDED IN THIS ITEM OF WORK.

ENSURE TOPSOIL IS WEED AND WEED SEED FREE AND FRIABLE PRIOR TO PLACING SEED. REMOVE ANY STONES GREATER THAN 1/2-INCH IN DIAMETER OR OTHER DEBRIS. APPLY SEED MIXTURE AND FERTILIZER TO PREPARED SOIL SURFACE. INCORPORATE SEED INTO TOP 1/2-INCH OF TOPSOIL.

SPREAD MULCH AT A RATE OF TWO TONS PER ACRE. IF THE ENGINEER ALLOWS DORMANT SEEDING SPREAD MULCH AT A RATE OF 3 TONS PER ACRE. PLACE MULCH ANCHORING OVER THE MULCH AT A RATE IN ACCORDANCE WITH SUBSECTION 816.03.F OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. PLACE MULCH BLANKET AND HIGH-VELOCITY MULCH BLANKET IN ACCORDANCE WITH SUBSECTION 816.03.G OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND STANDARD PLAN R-100 SERIES.

INSTALL MULCH BLANKET IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED GUIDELINES AND AS DIRECTED BY THE ENGINEER.

IF AN AREA WASHES OUT, MAKE THE REQUIRED CORRECTIONS TO PREVENT FUTURE WASHOUTS AND REPLACE THE TOPSOIL, FERTILIZER, SEED, AND MULCH TREATMENT.

THE ENGINEER WILL INSPECT THE SEEDED TURF TO ENSURE IT IS WELL-ESTABLISHED, IN A VIGOROUS GROWING CONDITION, AND CONTAINS THE SPECIES CALLED FOR IN THE SEEDING MIXTURE.

IF THE SEEDED TURF IS NOT WELL-ESTABLISHED AT THE END OF THE FIRST GROWING SEASON, THE CONTRACTOR IS RESPONSIBLE TO RE-SEED UNTIL THE TURF IS WELL ESTABLISHED AND APPROVED BY THE ENGINEER.

PROVIDE WEED CONTROL, IF WEEDS ARE DETERMINED BY THE ENGINEER TO COVER MORE THAN 10 PERCENT OF THE TOTAL AREA OF SLOPE RESTORATION, IN ACCORDANCE WITH SUBSECTION 816.03.I OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. WEED CONTROL WILL BE AT NO ADDITIONAL COST TO THE CONTRACT.

SLOPE RESTORATION INCLUDES INSTALLING TOPSOIL SURFACE, FERTILIZER, CHEMICAL NUTRIENT, CLASS A; SEEDING MIXTURE; MULCH; AND MULCH ANCHORING.

IT SHALL BE UNDERSTOOD THAT SLOPE RESTORATION IS A PERFORMANCE BASED REQUIREMENT AND WILL BE PAID FOR AS A LUMP SUM, INCLUDED IN THE BID PRICE FOR THE PROJECT. SEE SECTION 01000 GENERAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

GENERAL PLAN NOTES

UNDERGROUND UTILITIES

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

MDOT STANDARD SPECIFICATIONS

THE IMPROVEMENTS IN THIS PROPOSAL SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION'S 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION, SUPPLEMENTAL SPECIFICATIONS AND THE PLANS.

SLOPES

CLASS A SLOPES SHALL BE REQUIRED.

PARCEL CORNER

CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON FINDING/DISTURBING A PARCEL CORNER. THE OWNER WILL THEN PRESERVE AND OR REPLACE THE PARCEL CORNER.

SAWCUTTING

ALL HARD SURFACES NOTED FOR REMOVAL WILL BE SAWCUT

DATUM AND COORDINATE SYSTEM

ALL INFORMATION IS PRESENTED IN MI CENTRAL ZONE STATE PLAN COORDINATES AND NAVD88 DATUM.

SURVEY AND TESTING REQUIREMENTS

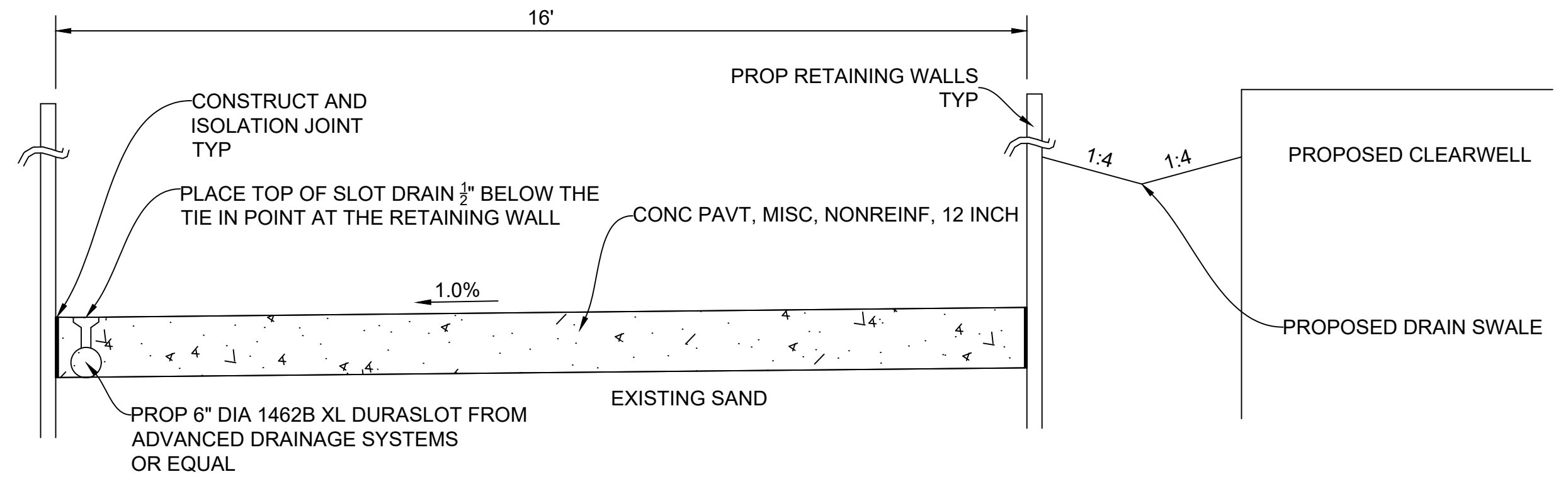
OWNER WILL ESTABLISH CONTROL AND THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL OTHER SURVEY REQUIREMENTS. CONTRACTOR WILL BE RESPONSIBLE FOR ALL REQUIRED TESTING AND WILL PROVIDE ALL TESTING RESULTS TO THE OWNER.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

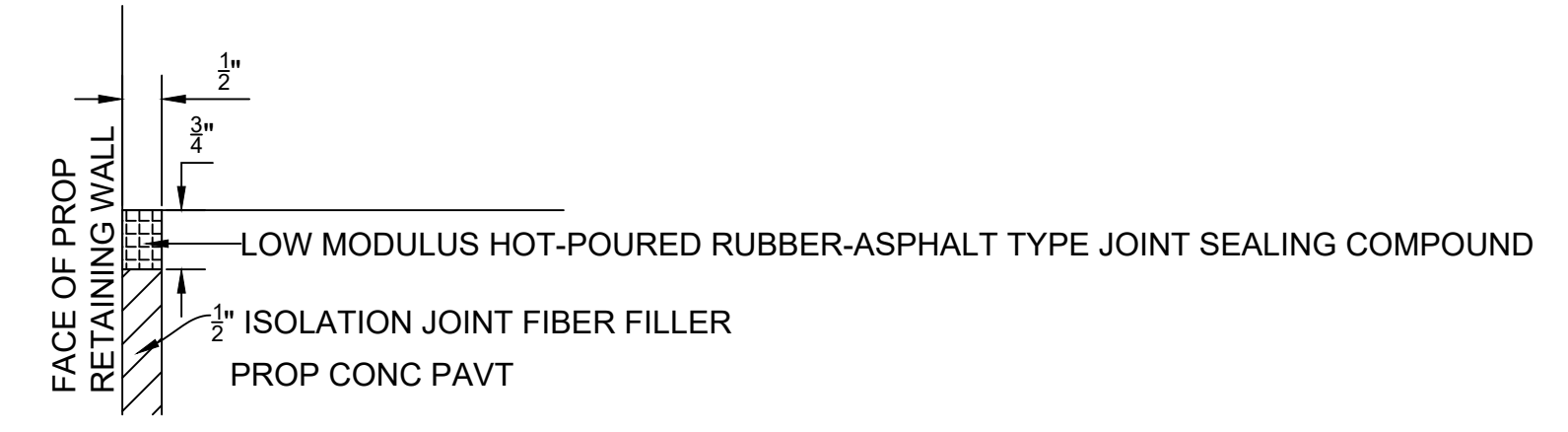
UTILITY

- | | |
|---|--|
| FRONTIER COMMUNICATIONS
3249 FOREST ROAD
GAYLORD, MI 49735
CONTACT: CHUCK HARDIN
989-732-8575 | TELEPHONE |
| ALPENA TOWNSHIP DPW
4385 US 23 N
ALPENA, MI 49707
989-356-0297 | WATER & SANITARY SEWER |
| ALPENA POWER COMPANY
401 N 9TH AVE UNJUE
ALPENA, MI 49707
989-356-4900 | ELECTRIC |
| DTE ENERGY
1250 MICHCON LANE, PO BOX 279
KALKASKA, MI 49646
CONTACT: MATTHEW LOGAN
231-258-3785 | GAS |
| CHARTER COMMUNICATIONS
1392 TRADE CENTER DRIVE
TRAVERSE CITY, MI 48696
CONTACT: BOB PARKER
231-215-6501 | FIBER & CABLE |
| CITY OF ALPENA
989-354-1780 | ELECTRIC
FIBER OPTICS
POTABLE WATER
SANITARY SEWER
STORM SEWER |



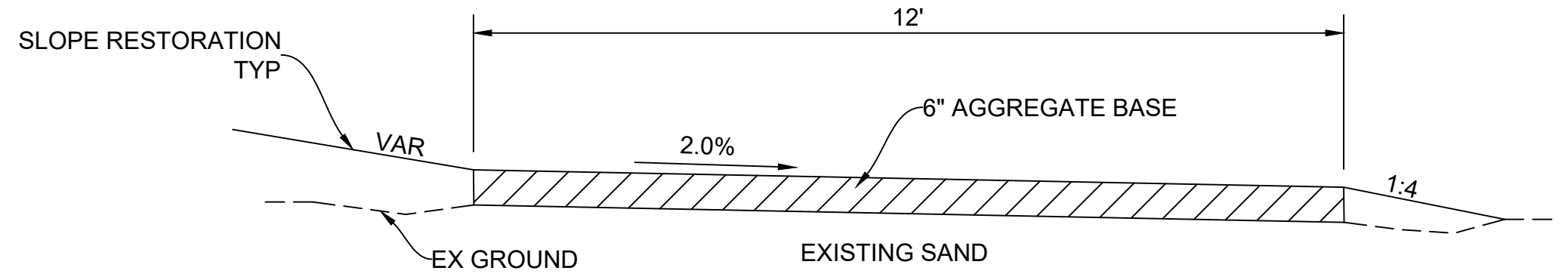
PROPOSED CONCRETE DRIVE CROSS SECTION

NOT TO SCALE



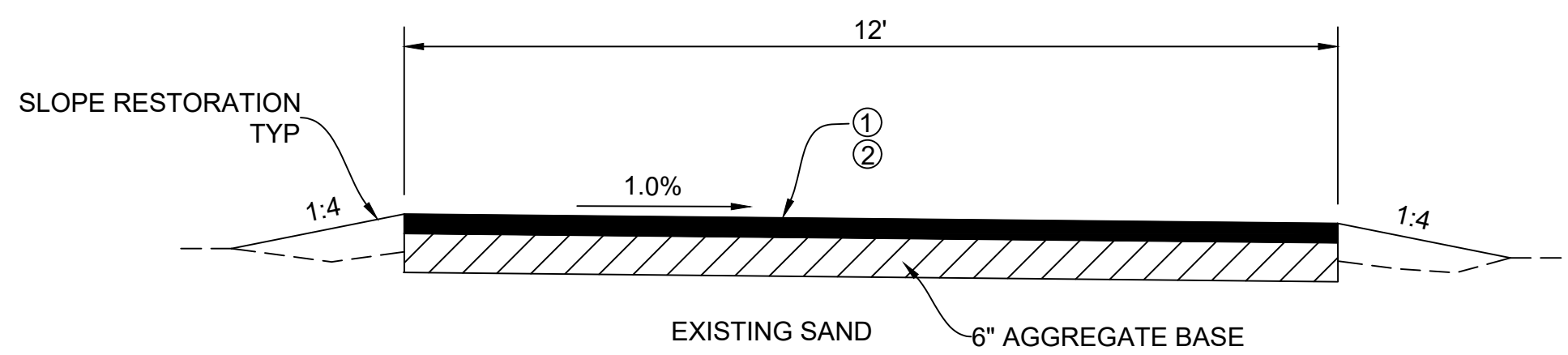
ISOLATION JOINT DETAIL

NOT TO SCALE



PROPOSED PERIMETER ROAD CROSS SECTION

NOT TO SCALE



PROPOSED HMA DRIVE CROSS SECTION

NOT TO SCALE

HMA APPLICATION TABLE				
IDENTITY	PAY ITEM	RATE LB/SYD	PERFORMANCE GRADE	REMARKS
1	HMA, 4EML	165	58-28	TOP COURSE AWI 165
2	HMA, 4EML	165	58-28	
	HMA BOND COAT	0.05-0.15 GAL/SYD (FOR INFORMATION ONLY)		

USE OF RECYCLED ASPHALT SHINGLES (RAS) IS PROHIBITED.
 THE NUCLEAR GAUGE METHOD OF TESTING COMPACTION SHALL APPLY.



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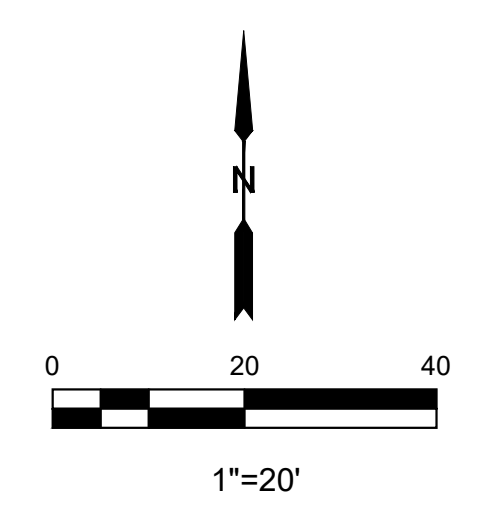
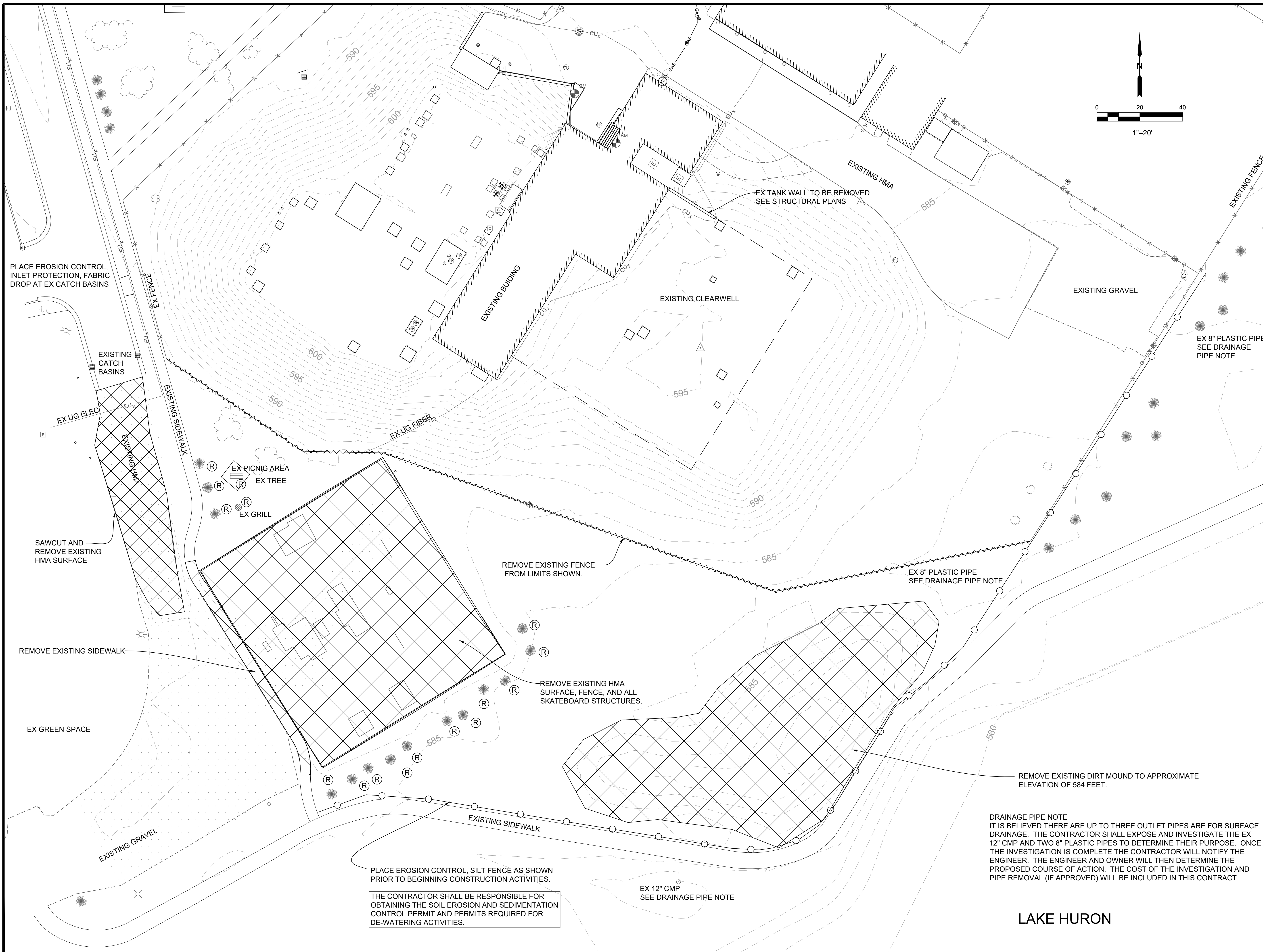
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CITY OF ALPENA
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 1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

NOTE AND DETAIL SHEET

HURON JOB NO. 23 088	SCALE
DATE DECEMBER 2023	SHEET NO. C-2 OF 9



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CITY OF ALPENA
WATER PRODUCTION PLANT CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

EXISTING CONDITIONS, PROJECT REMOVALS AND SESC MEASURES

HURON JOB NO. 23.088	SCALE 1"=20'
DATE DECEMBER 2023	SHEET NO. C-3 OF 9

PLACE EROSION CONTROL, SILT FENCE AS SHOWN PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES.
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT AND PERMITS REQUIRED FOR DE-WATERING ACTIVITIES.

DRAINAGE PIPE NOTE
 IT IS BELIEVED THERE ARE UP TO THREE OUTLET PIPES ARE FOR SURFACE DRAINAGE. THE CONTRACTOR SHALL EXPOSE AND INVESTIGATE THE EX 12" CMP AND TWO 8" PLASTIC PIPES TO DETERMINE THEIR PURPOSE. ONCE THE INVESTIGATION IS COMPLETE THE CONTRACTOR WILL NOTIFY THE ENGINEER. THE ENGINEER AND OWNER WILL THEN DETERMINE THE PROPOSED COURSE OF ACTION. THE COST OF THE INVESTIGATION AND PIPE REMOVAL (IF APPROVED) WILL BE INCLUDED IN THIS CONTRACT.

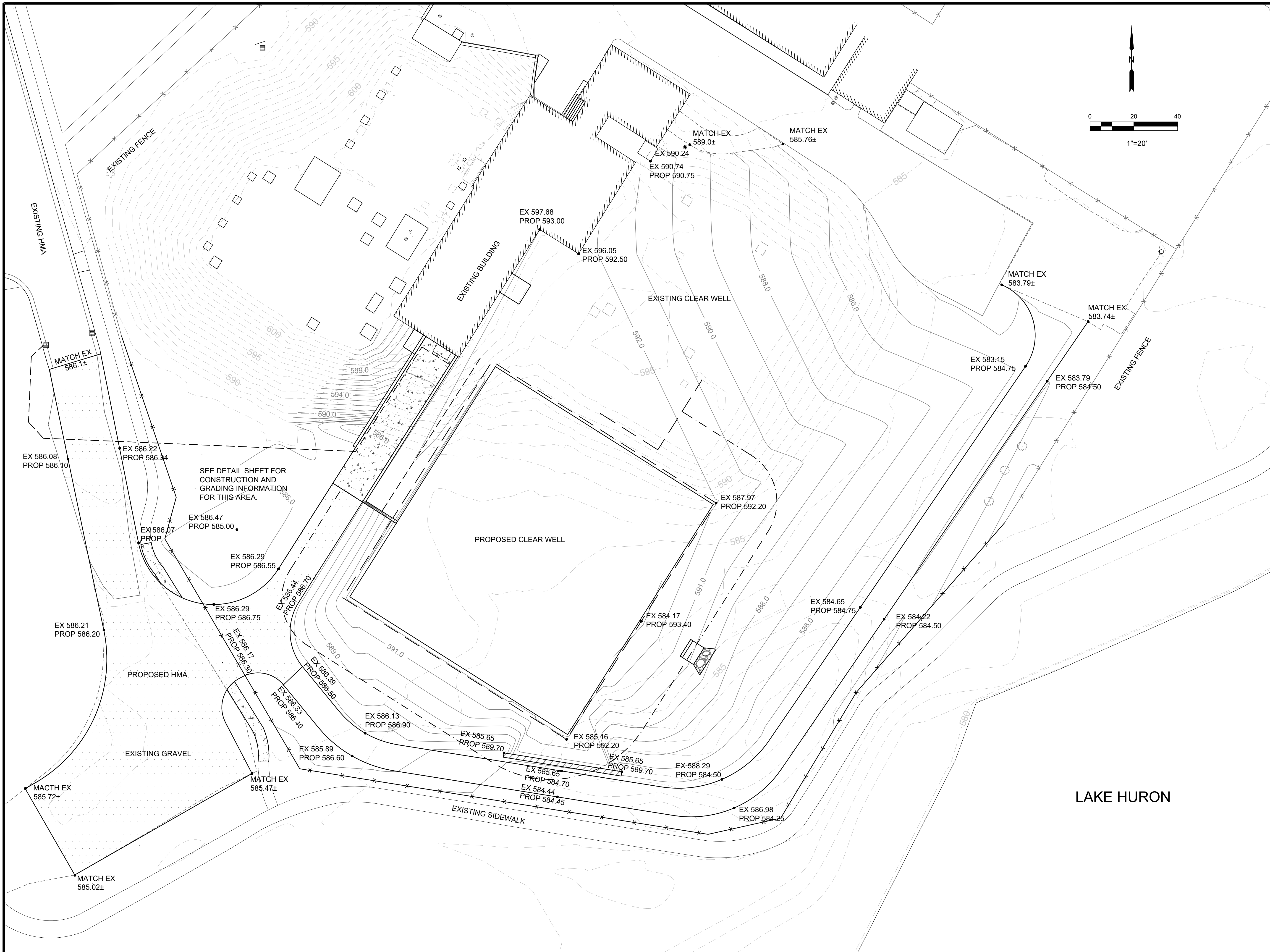
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\\192.168.44.10\Projects\2023\23.088_HRC_City of Alpena Water Plant Project\CADD\Water Plant Proposed Grading Plan.dwg

Rebecca Bivard



SEE DETAIL SHEET FOR
CONSTRUCTION AND
GRADING INFORMATION
FOR THIS AREA.



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DATE	ADDITIONS AND/OR REVISIONS
2-19-24	BIDS
12-29-23	EGL SUBMITTAL
12-14-23	OWNER REVIEW
DESIGNED	RR
DRAWN	KS
CHECKED	RR
APPROVED	TGM

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 ENGINEERING & SURVEYING, INC.
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 3285 US 23 SOUTH
 ALPENA, MI 49707
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CITY OF ALPENA
**WATER PRODUCTION PLANT
 CLEARWELL REPLACEMENT &
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 IMPROVEMENTS**
 1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

PROPOSED
 GRADING PLAN

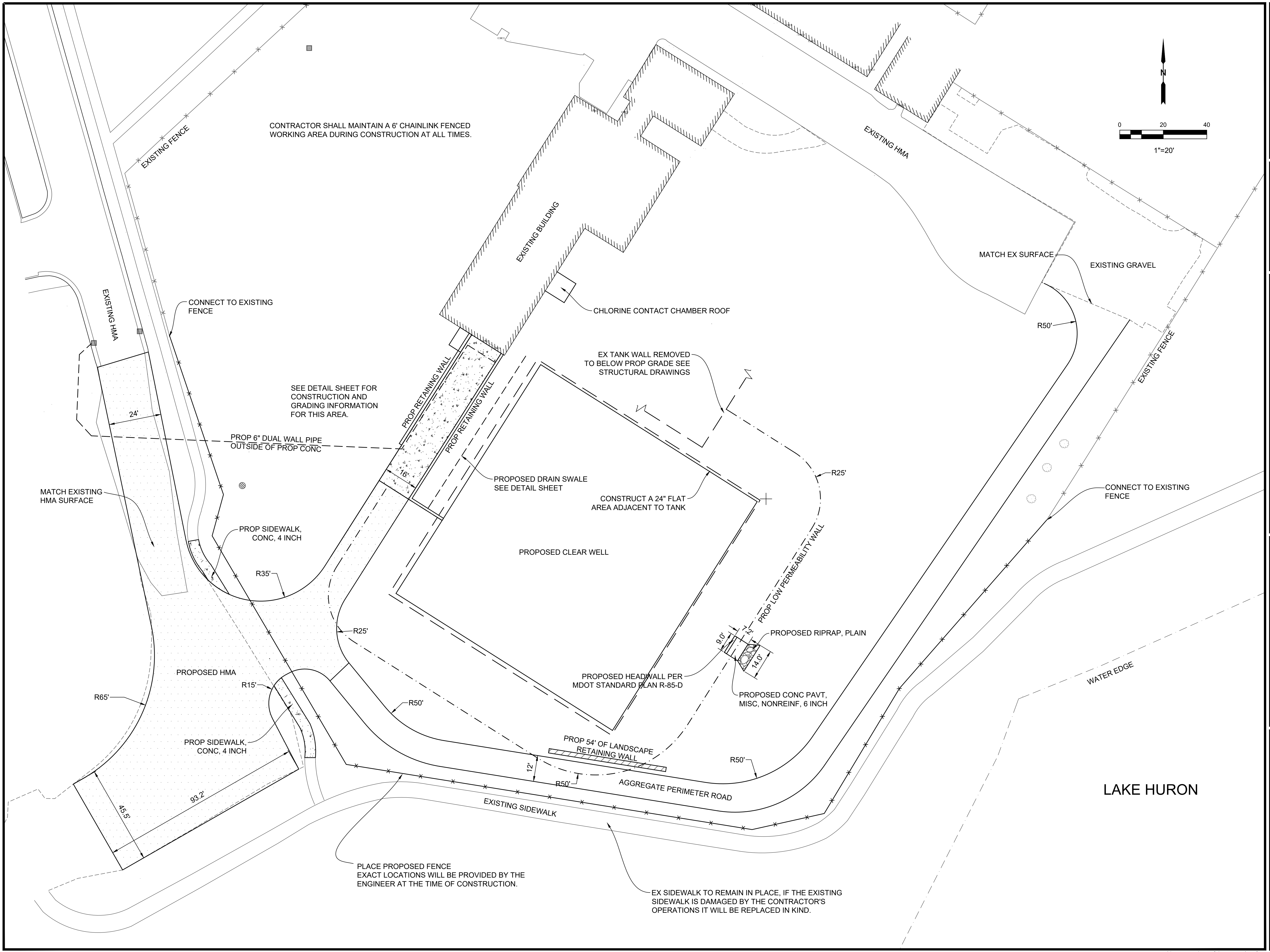
HURON JOB NO. 23.088	SCALE 1"=20'
DATE DECEMBER 2023	SHEET NO. C-4 OF 9

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Rebecca Bivard



HRC
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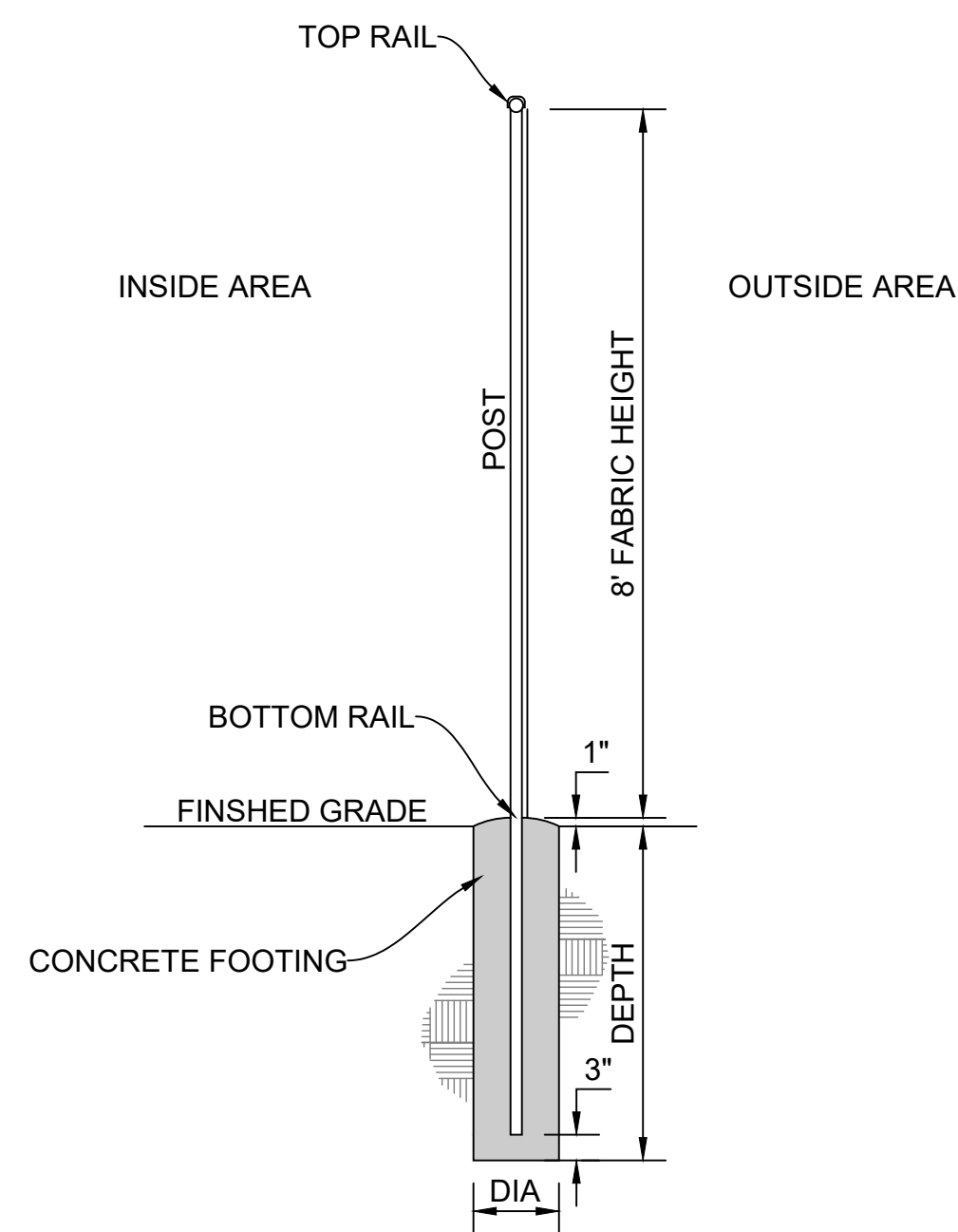
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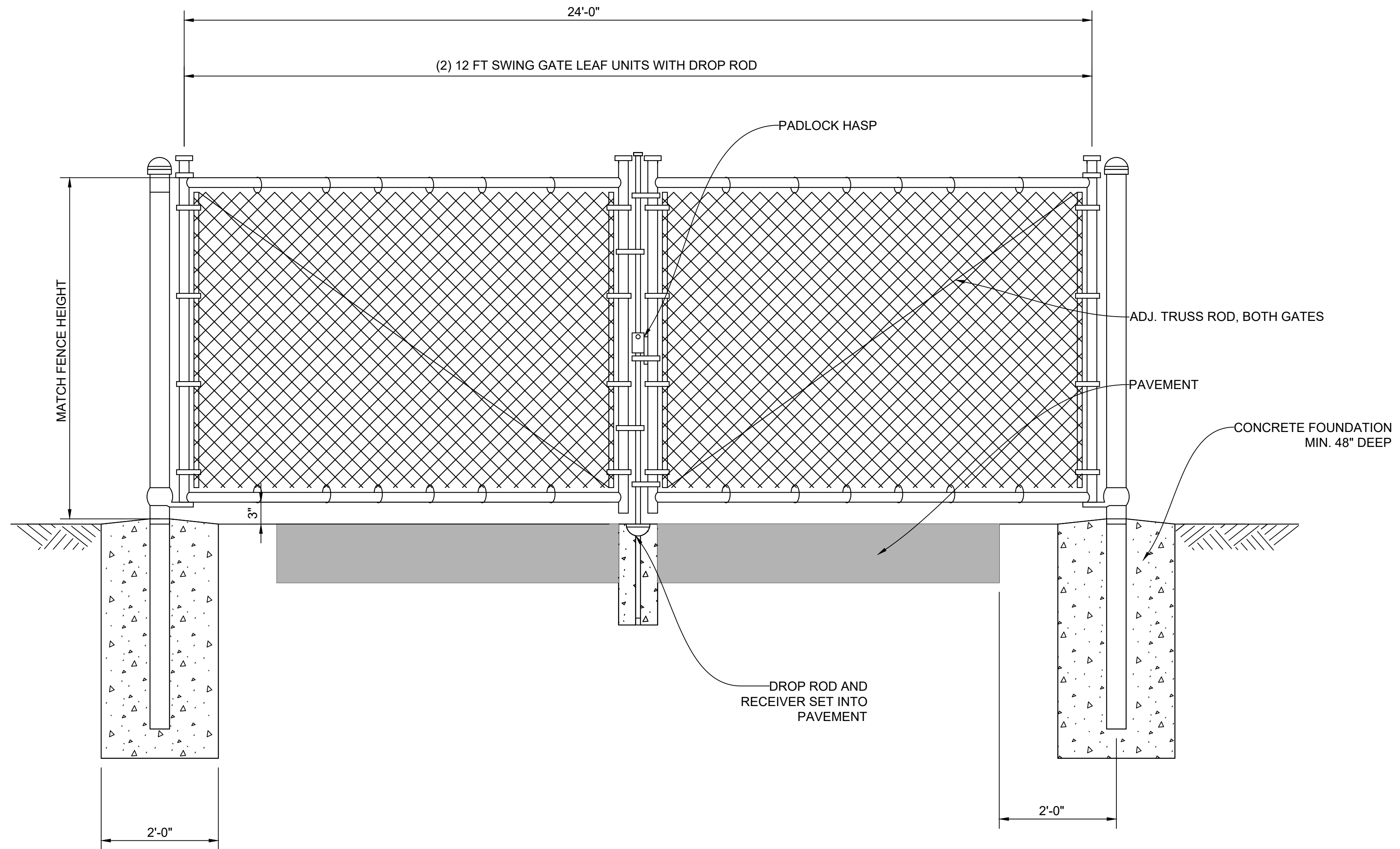
PROPOSED CONSTRUCTION

HURON JOB NO. 23.088	SCALE 1"=20'
DATE DECEMBER 2023	SHEET NO. C-6 OF 9



FOOTING SIZE		
LOCATION	DIA	DEPTH
LINE POSTS	10"	48"
CORNER, ANGLE PULL & END	15"	48"
GATE W/ LEAF <=6'	15"	48"
GATE W/LEAF >6'	24"	54"

FENCE DETAIL
NOT TO SCALE



SWING GATE DETAIL
NOT TO SCALE



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DETAIL SHEET

HURON JOB NO. 23.088	SCALE
DATE DECEMBER 2023	SHEET NO. C-9 OF 9

FOUNDATIONS - GENERAL NOTES

- 1. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL CONTRACT DOCUMENTS AND FIELD CONDITIONS. TAKE NECESSARY MEASUREMENTS OF EXISTING CONDITIONS AND VERIFY ALL DIMENSIONS PRIOR TO MOBILIZATION...
2. THE CONTRACTOR SHALL GENERATE THEIR OWN PLANS AND ASSOCIATED DETAILS FOR THE COMPLETE FABRICATION AND ERECTION OF THE WORK DEFINED ON THE DESIGN DOCUMENTS...
3. ALL WORK SCHEDULES, CONSTRUCTION MATERIAL HANDLING INCLUDING LAYDOWN AREAS AND OTHER ACTIVITIES SHALL BE COORDINATED WITH THE OWNER OR OWNER'S DESIGNATED REPRESENTATIVE...
4. CONSTRUCTION MEANS-AND-METHODS ACTIVITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR...
5. FOUNDATION DESIGN IS BASED UPON THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT PREPARED BY SOILS & STRUCTURES REPORT 2023.1089 DATED SEPTEMBER 22, 2023...
6. FOUNDATION DESIGN IS BASED ON PRESUMPTIVE ALLOWABLE BEARING PRESSURE AND SHALL BE VERIFIED BY THE RESPONSIBLE GEOTECHNICAL ENGINEER...
7. NO DESIGN CHANGES OR MATERIAL SUBSTITUTIONS SHALL BE MADE TO THE STRUCTURE WITHOUT PRIOR WRITTEN PERMISSION OF THE ENGINEER-OF-RECORD...
8. THE DESIGN OF THE TANK MAT AND RETAINING WALL FOOTINGS IS BASED UPON A MINIMUM NET ALLOWABLE BEARING PRESSURE OF 10,000 PSF...
9. THE BEARING STRATA FOR THE TANK MAT AND RETAINING WALL FOOTINGS SHALL BE INSPECTED AND TESTED TO VERIFY THE MINIMUM ALLOWABLE BEARING PRESSURE IS MET AND APPROVED BY A QUALIFIED GEOTECHNICAL ENGINEER...
10. WHERE FOOTING EXCAVATIONS ARE TO REMAIN EXPOSED TO RAINFALL, FROST, ICE OR OTHER ADVERSE CONDITIONS THAT MIGHT AFFECT THE SURFACE AND IF DEEMED APPROPRIATE BY THE ENGINEER...
11. CONTRACTOR SHALL PROVIDE NECESSARY SHORING, BRACING, ETC. AS REQUIRED DURING EXCAVATIONS TO PROTECT EXISTING CONSTRUCTION AND PERSONNEL FROM SLIDES AND CAVELINS...
12. EXCAVATED MATERIAL SHALL BE LEGALLY DISPOSED OFF THE OWNER'S PROPERTY OR AS OTHERWISE DIRECTED BY THE OWNER OR OWNERS REPRESENTATIVE...
13. PLACE CONCRETE CONTINUOUSLY AND IN A SMOOTH FLOW TO AVOID SEGREGATION...
14. PREPARE THE SITE IN ACCORDANCE WITH THE REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT...
15. PLACE FILL MATERIAL TO RAISE THE GRADE AS REQUIRED TO CONSTRUCT THE AGGREGATE BASE AND STRUCTURE...
16. FOR WALLS OR GRADE BEAMS HAVING FILL ON EACH SIDE, PROCEED WITH BACKFILLING OPERATIONS SIMULTANEOUSLY IN UNIFORM LIFTS...
17. UNLESS NOTED OTHERWISE, ALL WALLS SHALL BE SUPPORTED, SHORED AND/OR BRACED UNTIL THE STRUCTURE SUPPORTING THE TOP OF THE WALL HAS BEEN PLACED AND APPROPRIATELY CURED...
18. REFER TO SPECIFICATION FOR ITEMS OF WORK NOT COVERED BY THESE GENERAL NOTES...
19. APPLY BONDING AGENT WHEN CASTING NEW CONCRETE TO EXISTING CONCRETE...
20. ADHESIVE ANCHORING SYSTEM, FOR BOLTED CONNECTIONS, SHALL BE HILTI HIT RE500-V3 EPOXY ADHESIVE ANCHORING SYSTEM WITH TYPE 315 STAINLESS STEEL, THREADED STUD ASSEMBLY WITH NUT AND WASHER OR OTHER PRE-APPROVED SUBSTITUTE.

PRECAST SOLID PLANK - GENERAL NOTES

- 1. PRECAST SOLID PLANK SHALL BE MANUFACTURED, TRANSPORTED, AND INSTALLED PER THE REQUIREMENTS OF SPECIFICATION, SECTION 03400.
2. PRECAST SOLID PLANK SHALL BE 8 INCH THICK X 72 INCH WIDE SECTION.
3. THE PRECAST PLANK MANUFACTURER SHALL BE RESPONSIBLE FOR THE PLANK DESIGN. THE PRECAST PLANK MANUFACTURER SHALL PROVIDE A LETTER OF CERTIFICATION, SEALED BY AN ENGINEER LICENSED IN THE STATE OF MICHIGAN...
4. PRESTRESSING STRANDS SHALL BE GRADE 270K, fpu = 270 ksi.
5. ESTIMATED CAMBER AT TIME OF ERECTION SHALL BE LIMITED TO 1/4 INCH MAXIMUM.
6. PRECAST SOLID PLANK SHALL HAVE A SCRATCH OR ROUGHENED FINISH ON THE TOP SURFACE FOR INSTALLATION OF A BONDED CAST-IN-PLACE CONCRETE TOPPING SLAB.
7. PRECAST SOLID PLANK SHALL BE PINNED TO THE TANK STRUCTURE WITH TWO NO. 6 PINS PER PLANK AT EACH SUPPORTING PLANK EDGE...
8. PRECAST PLANK CONCRETE MIX SHALL INCLUDE A CONCRETE WATERPROOFING ADDITIVE. SEE SPECIFICATION.

CAST-IN-PLACE CONCRETE - GENERAL NOTES

- 1. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST EDITIONS OF THE AMERICAN CONCRETE INSTITUTE PUBLICATIONS: ACI 301, ACI 311, ACI 315, ACI 318, ACI 347 AND ACI 304.
2. ALL REINFORCINGS STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO ASTM A615 GRADE 60.
3. ALL BAR DETAILING AND ACCESSORIES TO BE FURNISHED SHALL CONFORM TO TYPICAL DETAILS IN THE LATEST ACI STANDARD 315 DETAILING MANUAL.
4. CONCRETE COVER:
a. UNFORMED SURFACES AND CONCRETE CAST AGAINST EARTH - 3 INCHES
b. FORMED SURFACES IN CONTACT WITH SOIL OR WATER - 2 INCHES
c. WALL SURFACES NOT IN CONTACT W/ SOIL OR WATER - 1 1/2 INCHES
d. SUPPORTED SLABS - 3/4 INCH
5. CONCRETE AGGREGATE SHALL CONFORM TO ASTM C33.
6. ALL EXTERIOR CONCRETE INCLUDING WALLS SHALL BE AIR ENTRAINED.
7. ALL REINFORCED CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI...
8. CONCRETE FOR MUD MATS SHALL BE NORMAL WEIGHT WITH A MINIMUM 28 DAY COMPRESSIVE OF 2000 PSI.
9. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS FOR EACH MIX BEING USED ON THIS PROJECT...
10. CONCRETE MIX DESIGNS FOR EACH TYPE MIXTURE TO BE USED, SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW...
11. CEMENT FOR CONCRETE SHALL BE ASTM C595 TYPE 1L WITH AN EQUIVALENT TOTAL ALKALI CONTENT AS NA2O NO GREATER THAN 0.60%.
12. ADMIXTURES USED IN THE CONCRETE MIXTURES SHALL BE CERTIFIED TO HAVE A CHLORIDE ION CONTENT OF LESS THAN 0.1% AND THAT CHLORIDE WAS NOT ADDED DURING MANUFACTURE OF THE ADMIXTURE PRODUCT.
13. ADMIXTURES FOR USE IN CONCRETE MIXTURES SHALL BE AS FOLLOWS:
a. AIR-ENTRAINING ADMIXTURE PER ASTM C260.
b. WATER-REDUCING ADMIXTURE PER ASTM C494, TYPE A.
c. RETARDING ADMIXTURE PER ASTM C494, TYPE B.
d. ACCELERATING ADMIXTURE PER ASTM C494, TYPE C.
e. WATER-REDUCING, RETARDING ADMIXTURE PER ASTM C494, TYPE D.
f. WATER-REDUCING, ACCELERATING ADMIXTURE PER ASTM C494, TYPE E.
14. TEST CONCRETE BY MOLDING AND CURING THREE SETS OF COMPRESSIVE STREIGHT SPECIMENS, IN ACCORDANCE WITH ASTM C31, FOR EACH CONCRETE MIX PLACED AS FOLLOWS:
a. AT LEAST ONE SET FOR EACH 100 CUBIC YARDS, OR FRACTION THEREOF, OF CONCRETE PLACED.
b. AT LEAST ONE SET PER DAY.
c. AT LEAST ONE SET PER 5000 SQUARE FEET, OR FRACTION THEREOF, OF SURFACE AREA OF WALLS AND SLABS PLACED.
d. AT LEAST FIVE SETS FOR EACH MIX DESIGN USED OR ONE PER BATCH IF LESS THAN FIVE BATCHES ARE PLACED.
15. THE CONTRACTOR SHALL PREPARE AND SUBMIT REINFORCEMENT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION AND INSTALLATION...
16. ANCHOR RODS FURNISHED BY THE STRUCTURAL STEEL CONTRACTOR SHALL BE SET BY TEMPLATE TO WITHIN 1/8 INCH TOLERANCE...
17. PROVIDE 3/4 INCH CHAMFER AT ALL EXPOSED CORNERS OF CONCRETE WALLS AND OTHER VERTICAL AND HORIZONTAL SURFACES.
18. LOCATE ALL SLEEVES, OPENINGS, EMBEDDED ITEMS AS NOTED ON THE DRAWINGS...
19. ALL FIELD BENDING AND CUTTING OF REINFORCEMENT SHALL BE PERFORMED IN A 'COLD' STATE...
20. MECHANICAL REBAR SPLICES SHALL DEVELOP 125 PERCENT OF THE TENSILE STRENGTH OF THE REBAR.
21. WALLS SHALL HAVE A SMOOTH FORM FINISH.
22. REFER TO THE SPECIFICATION FOR ITEMS OF WORK NOT COVERED BY THESE GENERAL NOTES.
23. PROVIDE TENSION REINFORCING DEVELOPMENT LENGTHS AND SPLICE LENGTHS AS NOTED IN THE FOLLOWING TABLE UNLESS NOTED OTHERWISE:
24. STAGGER BAR LAPS BETWEEN ADJACENT BARS BY 1'-0".
25. ADHESIVE ANCHORING SYSTEM FOR DOWEL BARS SHALL BE HILTI RE-500-V3 EPOXY ADHESIVE ANCHORING SYSTEM OR OTHER PRE-APPROVED SUBSTITUTE.

TABLE 1 (IMPERIAL) MINIMUM LAP SPLICE AND ANCHORAGE DIMENSIONS

Table with 6 columns: BAR SIZE, LAP, ANCH, BAR SIZE, LAP, ANCH. Rows for bar sizes #3 through #11.

TABLE 1 NOTES

FOR BUNDLED BARS MULTIPLY THE TABLE VALUES BY 1.2 (3 BAR BUNDLES) AND 1.33 (4 BAR BUNDLES)

TABLE IS BASED ON A 3 BAR DIAMETER MINIMUM CENTER-TO-CENTER SPACING AND A 50mm (2 INCH) BAR COVER. IF THE SPLICE AND / OR EMBEDMENT DOES NOT CONFORM TO THESE REQUIREMENTS, THEN THE CONTRACTOR SHALL APPLY APPROPRIATE FACTORS IN COMPLIANCE WITH ACI 350 WITH APPROVAL BY THE ARCHITECT-ENGINEER.

WHEN LAPPING TWO DIFFERENT SIZE BARS, USE THE LAP DIMENSION OF THE SMALLER BAR OR THE ANCHORAGE DIMENSION OF THE LARGER BAR. USE WHICHEVER DIMENSION IS LARGER.

TOP LAYER OF REINFORCING IN SLABS, BEAMS OR MATS SHALL BE CONSIDERED TOP BARS REGARDLESS OF THE THICKNESS OF THE CONCRETE BELOW THE BAR. HORIZONTAL REINFORCING IN WALLS SHALL BE CONSIDERED TOP BARS.

PROVIDE CORNER BARS IN WALLS AND FOOTINGS TO MATCH HORIZONTAL REINFORCEMENT SIZE AND SPACING.

TOPPING SLAB FOR PRECAST PLANK - GENERAL NOTES

- 1. TOPPING SLAB THICKNESS SHALL BE MEASURED AT THE POINT OF MAXIMUM PLANK CAMBER.
2. TOPPING SLAB SHALL BE FINISHED WITH A BROOM FINISH WITH STRIATIONS PARALLEL TO SLOPE.
3. TOPPING SLAB CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH, Fc = 4,500 psi.
4. TOPPING SLAB COARSE AGGREGATE SIZE SHALL BE 1/2 INCH MAXIMUM.
5. TOPPING SLAB CONCRETE SHALL BE AIR ENTRAINED.
6. TOPPING SLAB CONCRETE SHALL INCLUDE A CONCRETE WATERPROOFING ADDITIVE. SEE SPECIFICATION.
7. TOPPING SLAB CONCRETE SHALL INCLUDE A SHRINKAGE REDUCING ADMIXTURE. ADMIXTURE SHALL BE EUCLID EUCON SRA-XT OR PRE-APPROVED SUBSTITUTE.
8. TOPPING SLAB SHALL RECEIVE A DISSIPATING CURING COMPOUND IMMEDIATELY AFTER FINISHING OR BE WATER CURED CONTINUOUSLY FOR NOT LESS THAN 7 DAYS.
9. SAWCUT AND TOOLED SLAB JOINTS SHALL BE AN NSF61 CERTIFIED, 1 COMPONENT, POLYURETHANE BASED, NON-SAG ELASTOMERIC SEALANT, LIMESTONE COLOR WITH BACKING ROD. JOINT SEALANT SHALL BE SIKA FLEX-1A OR PRE-APPROVED SUBSTITUTE.
10. PREMOLDED JOINT FILLER INCORPORATED INTO THE WORK SHALL BE AS SUPPLIED BY W. R. MEADOWS, INC, 'CERAMAR', OR PRE-APPROVED SUBSTITUTE.
11. SAWCUT SLAB CONTROL JOINTS WITHIN 4 HOURS OF FIRST CONCRETE SET. REFER TO PLANS FOR LOCATIONS. SUBMIT CUTTING PLANS AND COORDINATION SCHEDULES FOR REVIEW.

SPECIAL INSPECTION - GENERAL NOTES

- 1. THE OWNER SHALL RETAIN A QUALIFIED TESTING AGENCY WITH CERTIFIED INSPECTORS TO PROVIDE SPECIAL INSPECTION SERVICES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SCHEDULING OF INSPECTION SERVICES AND SHALL PROVIDE THE SPECIAL INSPECTOR WITH TIMELY ACCESS TO WORK AREAS REQUIRING INSPECTION.
3. THE CONTRACTOR SHALL PROMPTLY PROVIDE CORRECTIVE ACTION ON WORK NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS AT NO ADDITIONAL COST TO THE OWNER.
4. WORK FOUND TO BE DEFECTIVE SHALL BE RE-INSPECTED AFTER REPAIRS OR CORRECTIVE MEASURES HAVE BEEN TAKEN.

SPECIAL INSPECTION - CONCRETE CONSTRUCTION

Table with 4 columns: ITEM, TYPE OF INSPECTION, INSPECTOR, REMARKS. Rows for inspection items like REINFORCING STEEL, WELDING, BOLT PLACEMENT, etc.

REFER TO SPECIFICATION SECTIONS 03010 FOR CAST-IN-PLACE CONCRETE TESTING REQUIREMENTS.

SPECIAL INSPECTION - STRUCTURAL STEEL CONSTRUCTION

Table with 3 columns: VERIFICATION AND INSPECTION, TYPE OF INSPECTION, INSPECTOR. Rows for material verification, bolting, structural steel, and welding.

U.S. STEEL SHAPES HAVE BEEN SPECIFIED ON THESE DRAWINGS. EQUIVALENT METRIC SECTIONS MAY BE PROPOSED BY DESIGN/BUILD CONTRACTOR FOR SUBSTITUTION. FINAL APPROVAL OF SHAPES IS BY OWNER AND OWNER'S ENGINEER. DESIGN/BUILD CONTRACTOR IS RESPONSIBLE FOR ALL ADDITIONAL STEEL TONNAGE COST DUE TO PROPOSED SUBSTITUTIONS.



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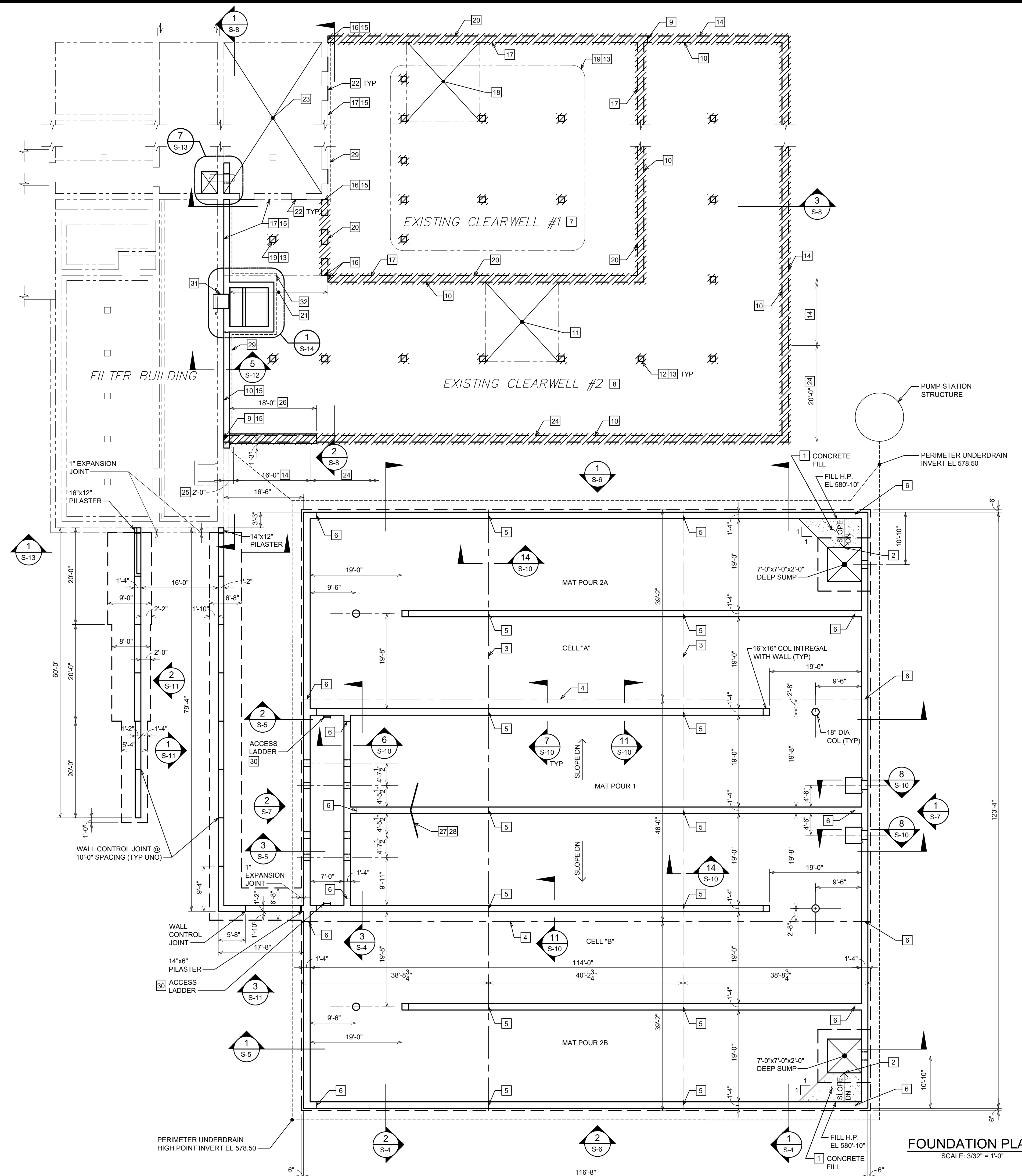
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CITY OF ALPENA WATER PRODUCTION PLANT CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707 ALPENA COUNTY MICHIGAN

STRUCTURAL GENERAL NOTES

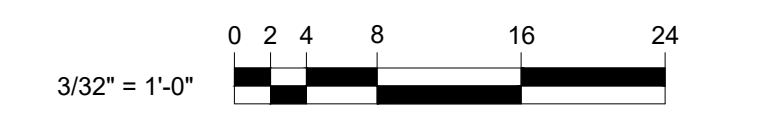
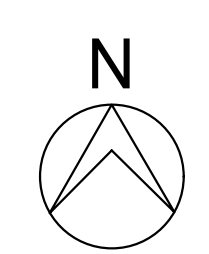
Table with 2 columns: HRC JOB NO., SCALE, DATE, SHEET NO. Values: 20220751, AS NOTED, DECEMBER 2023, S-0 OF



- PLAN KEY NOTES**
- CONCRETE FILL SHALL INCLUDE SYNTHETIC MACRO FIBERS AT A DOSAGE RATE OF 5.0 POUNDS PER CUBIC YARD. FINISH CONCRETE FILL TO A SMOOTH TROWEL FINISH, ROUGHEN CONCRETE SUBSTRATE FOR A BONDED INTERFACE WITH THE MAT. MACRO FIBERS TO BE EUCLID CHEMICAL TUF-STRAND SF OR PRE-APPROVED SUBSTITUTE.
 - THE THICKNESS OF THE CONCRETE FILL WILL VARY WITH THE SLOPE OF THE MAT. MAINTAIN A 2 INCH THICK CONCRETE FILL ALONG THIS EDGE.
 - MAT CONTROL JOINT.
 - MAT CONSTRUCTION JOINT.
 - WALL CONTROL JOINT.
 - WALL CONSTRUCTION JOINT. SEE DETAIL 2/S-10 AT CORNER. SEE DETAIL 3/S-10 AT TEE INTERSECTION.
 - EXISTING CLEARWELL #1 TO REMAIN IN SERVICE UNTIL THE NEW CLEARWELL HAS BEEN PLACED IN SERVICE.
 - EXISTING CLEARWELL #2 SHALL BE SCHEDULED FOR DEMOLITION AS REQUIRED TO CONSTRUCT THE NEW CLEARWELL AND PLACE IT IN SERVICE.
 - FULL DEPTH VERTICAL SAWCUT WALL OF EXISTING CLEARWELL #2.
 - FULL DEPTH SAWCUT ROOF STRUCTURE OF EXISTING CLEARWELL #2 ALONG WALLS WHERE SHOWN. SHORE ROOF SLAB FRAMING AS REQUIRED TO PREVENT UNCONTROLLED COLLAPSE.
 - REMOVE EXISTING CLEARWELL #2 ROOF SLAB FRAMING IN SECTIONS AND BREAK UP AWAY FROM EXISTING CLEARWELL #1.
 - DEMOLISH COLUMNS IN EXISTING CLEARWELL #2. 12 COLUMNS TO BE DEMOLISHED.
 - FULL DEPTH SAWCUT COLUMNS AT TOP OF TRAPAZOIDAL COLUMN PEDESTALS. COLUMN PEDESTALS TO BE ABANDONED IN PLACE.
 - DEMOLISH EXISTING CLEARWELL #2 WALL TO 3" ABOVE TANK BASE SLAB. REMAINING WALL SHALL BE TRIMMED WITH A FULL DEPTH HORIZONTAL SAWCUT. NO REINFORCEMENT SHALL PROJECT ABOVE THE SAWCUT.
 - CHIP AND GRIND WALL OR SLAB FLUSH WITH REMAINING EXISTING STRUCTURE.
 - FULL DEPTH VERTICAL SAWCUT WALL OF EXISTING CLEARWELL #1.
 - FULL DEPTH SAWCUT ROOF STRUCTURE OF EXISTING CLEARWELL #1 ALONG WALLS WHERE SHOWN. SHORE ROOF SLAB FRAMING AS REQUIRED TO PREVENT UNCONTROLLED COLLAPSE.
 - REMOVE EXISTING CLEARWELL #1 ROOF SLAB FRAMING IN SECTIONS AND BREAK UP AWAY FROM EXISTING FILTER BUILDING.
 - DEMOLISH COLUMNS IN EXISTING CLEARWELL #1 WHERE INDICATED. 14 COLUMNS TO BE DEMOLISHED.
 - DEMOLISH EXISTING CLEARWELL #1 WALL TO 3" ABOVE TANK BASE SLAB. REMAINING WALL SHALL BE TRIMMED WITH A FULL DEPTH HORIZONTAL SAWCUT. NO REINFORCEMENT SHALL PROJECT ABOVE THE SAWCUT.
 - EXISTING WALL SEGMENT TO REMAIN. SAWCUT TOP OF WALL TO EL. 592.50 AT BUILDING EAST WALL TO 592.25 10'-4" EAST OF BUILDING WALL AND TEMPORARILY SHORE WALL UNTIL BACKFILL IS PLACED ON BOTH SIDES. CORE HOLE THROUGH WALL AS REQUIRED FOR NEW PIPING.
 - BULK HEAD OPENINGS UNTIL FLOWABLE FILL SETS.
 - FLOWABLE FILL PLACED IN 2'-0" MAXIMUM THICKNESS LIFTS. FILL TO UNDERSIDE OF FILTER TANK SLAB.
 - DEMOLISH EXISTING WALL TO ELEVATION 584.00. REMAINING WALL SHALL BE TRIMMED WITH A FULL DEPTH HORIZONTAL SAWCUT AT ELEVATION 584.00. NO REINFORCEMENT SHALL PROJECT ABOVE THE SAWCUT.
 - REMOVE WALL TO TOP OF TANK BASE SLAB.
 - FLOWABLE FILL 4'-0" WIDE INSTALLED IN 2'-0" MAXIMUM LIFTS. PIPE PASSING THROUGH FLOWABLE FILL TO BE CONTAINED IN A SINGLE LIFT. FLOWABLE FILL TO BEAR ON ROCK OR CLEARWELL BASE SLAB AND EXTEND TO ELEVATION 584.00.
 - TOP MAT BENT DOWEL BAR TO HAVE VARYING LENGTHS OF: 6'-9" 6'-9" AND 5'-9" 5'-9" STAGGER DOWEL BARS ALTERNATING SPACING. LAP TOP MAT BARS WITH DOWEL BARS 4'-1" MINIMUM.
 - BOTTOM MAT BENT DOWEL BAR TO HAVE VARYING LENGTHS OF: 5'-1" 5'-1" AND 4'-1" 4'-1" STAGGER DOWEL BARS ALTERNATING SPACING. LAP BOTTOM MAT BARS WITH DOWEL BARS 3'-1" MINIMUM.
 - UNDERDRAIN WITH INVERT AT 0.75' ABOVE EXISTING TANK BASE SLAB. SEE DETAIL 4/S-4. TIE IN TO TANK PERIMETER DRAIN. PROVIDE SLEEVE FOR UNDERDRAIN THROUGH FLOWABLE FILL AT EXISTING TANK SOUTH WALL.
 - MIOSHA COMPLIANT, FS INDUSTRIES STAINLESS STEEL, SERIES F, FIXED LADDER WITH MOUNTING HARDWARE.
 - SAWCUT OPENING THROUGH EXISTING WALL 3'-0" AND 10'-0" HIGH FROM TOP OF TANK BASE SLAB TO 6'-8" ABOVE GALLERY FLOOR (EL 594.75) CENTER 9'-0" OVER EXISTING 16" DIA PIPE.
 - CORE HOLE THROUGH EXISTING WALL FOR UNDERDRAIN.

LEGEND

—	NEW CONSTRUCTION
- - -	NEW CONSTRUCTION FOUNDATION
- - - - -	NEW CONSTRUCTION UNDERDRAIN
---	EXISTING TO REMAIN
	EXISTING TO BE DEMOLISHED



FOUNDATION PLAN
SCALE: 3/32" = 1'-0"



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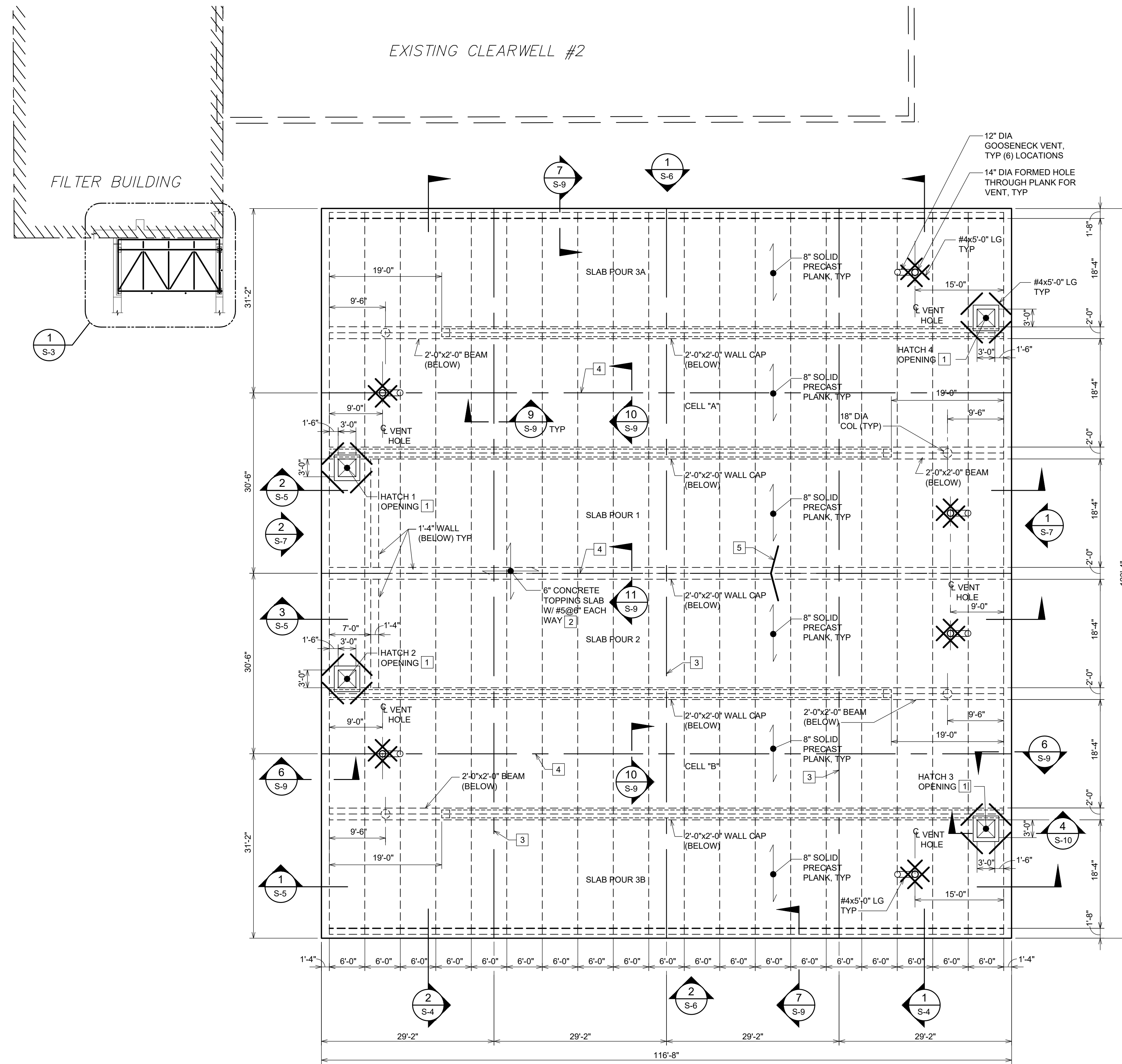
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STRUCTURAL
FOUNDATION PLAN

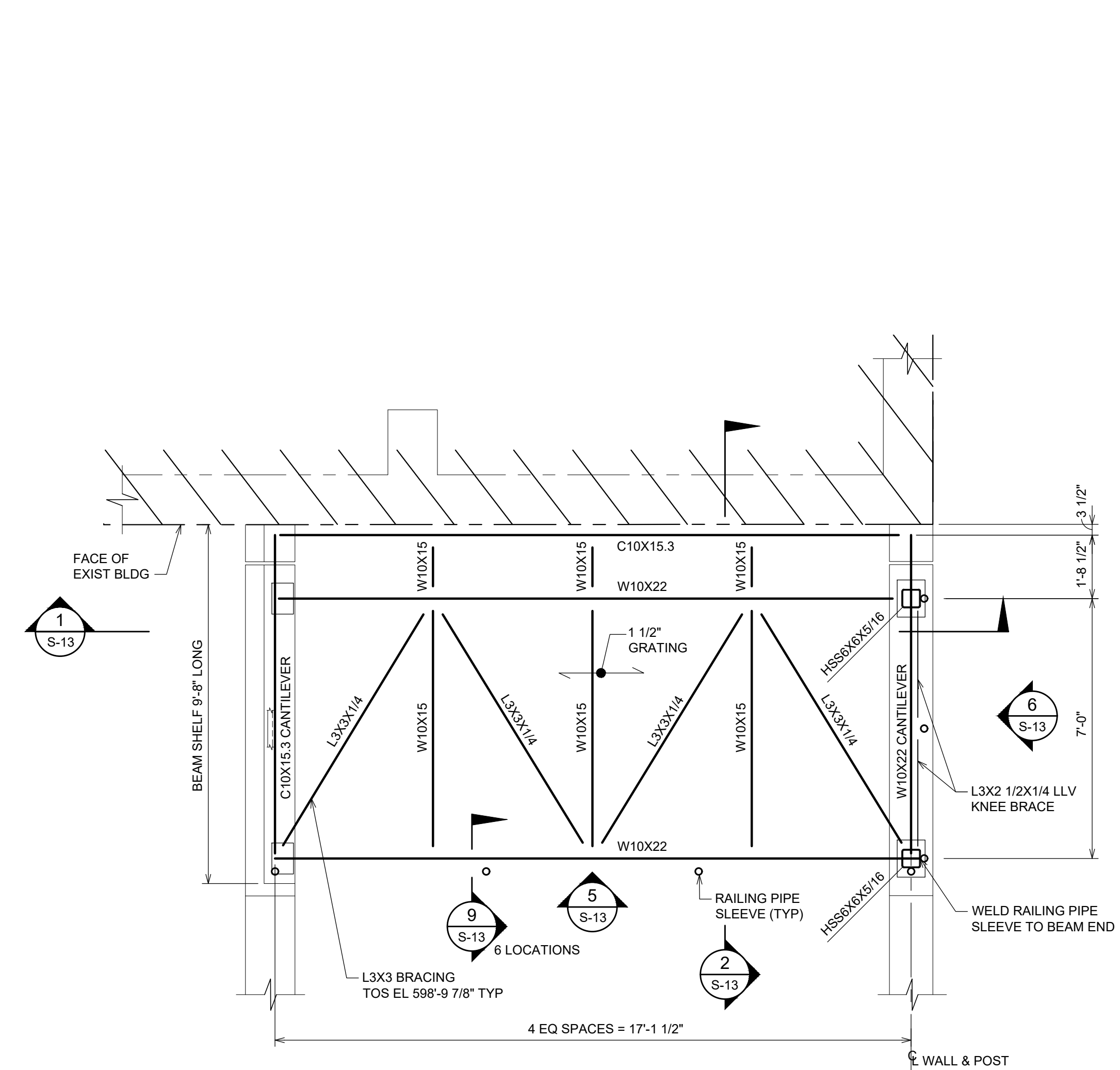
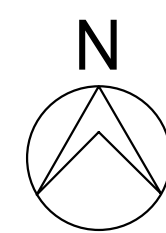
HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. S-2 OF

02-19-24	BIDS
12-29-23	EGLE SUBMITTAL
12-14-23	OWNER REVIEW
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	F.S.
DRAWN	G.H.
CHECKED	F.S.
APPROVED	T.G.M.

- PLAN KEY NOTES**
- CONTRACTOR SHALL VERIFY HATCH OPENING WITH APPROVED HATCH SHOP DRAWINGS BEFORE CASTING HATCH CURB.
 - PROVIDE STANDARD 90° HOOK FOR ALL TOPPING SLAB REINFORCEMENT AT TANK WALLS.
 - TOPPING SLAB CONTROL JOINT.
 - TOPPING SLAB CONSTRUCTION JOINT.
 - TOPPING SLAB #5@6" BENT DOWEL BAR TO HAVE VARYING LENGTHS OF 3'-9" 3'-9" AND 4'-9" 4'-9". STAGGER DOWEL BARS ALTERNATING SPACING.

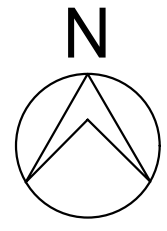


ROOF PLAN
 SCALE: 3/32" = 1'-0"



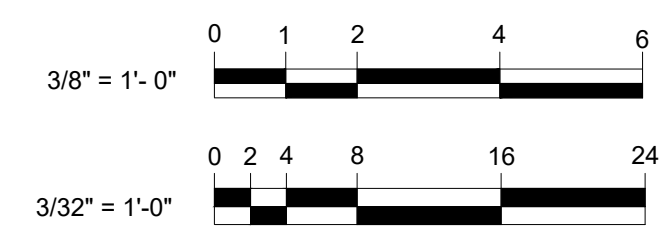
NOTE:
 STRUCTURAL STEEL TO BE HOT DIP GALVANIZED.

ENLARGED PLATFORM FRAMING PLAN 1
 SCALE: 3/8" = 1'-0" TOS EL 599'-1 1/2" UNO



GRATING NOTES

- GRATING SHALL BE OF WELDED STEEL CONSTRUCTION AND SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
- GRATING AND HARDWARE SHALL BE AS MANUFACTURED BY INDIANA GRATING INC. OR APPROVED EQUAL.
- GRATING SHALL BE GALVANIZED STEEL 19W4 1 1/2"x3/16" BEARING BARS WITH WELD LUGS AT HOLD DOWN LOCATIONS.
- PROVIDE TWO (2) HOLD DOWN LUGS PER SUPPORT LOCATION PER GRATING PANEL. FASTEN EACH LUG WITH A 3/8" DIAMETER GALVANIZED BOLT AND LOCKING NUT.
- SUBMIT SHOP DRAWINGS THAT INCLUDE PANEL LAYOUT, GRATING, HOLD DOWN LUG AND FASTENER DATA.
- COORDINATE GRATING HOLD DOWN LUG LOCATIONS WITH STRUCTURAL STEEL FABRICATION THROUGH BOLT THROUGH FLANGES OF SUPPORTING MEMBERS.
- LOAD BAND GRATING AT PANEL ENDS.



CITY OF ALPENA
WATER PRODUCTION PLANT
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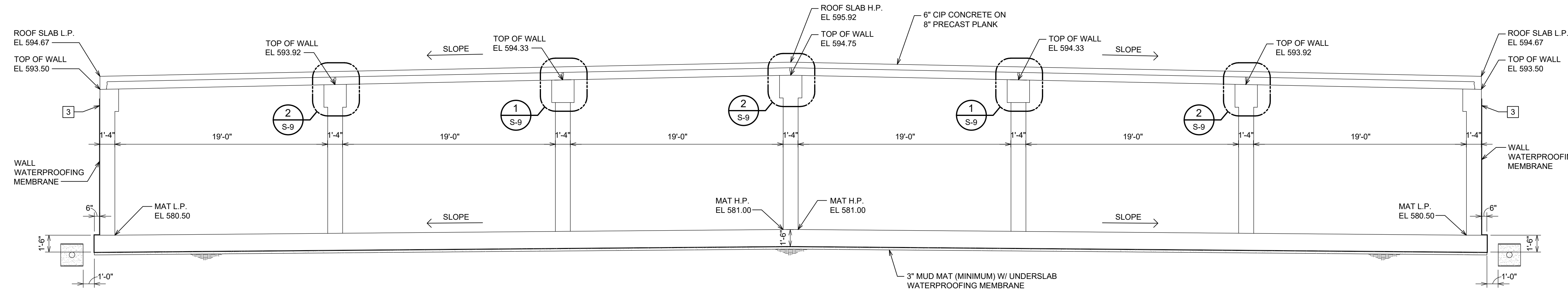
1300 S STATE AVE, ALPENA, MI 49707
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STRUCTURAL
ROOF AND PLATFORM PLANS

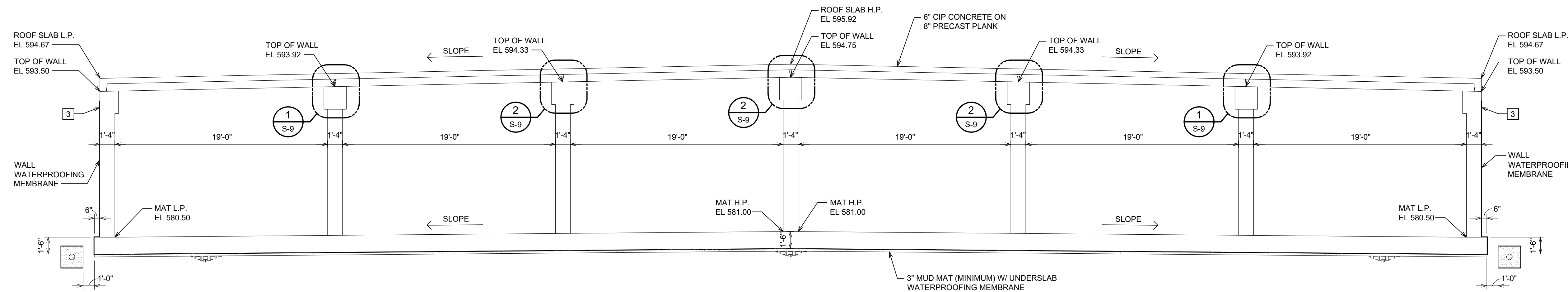
HRC JOB NO.	SCALE
20220751	AS NOTED
DATE	SHEET NO.
DECEMBER 2023	S-3 OF

ELEVATION, SECTIONS AND DETAILS KEY NOTES

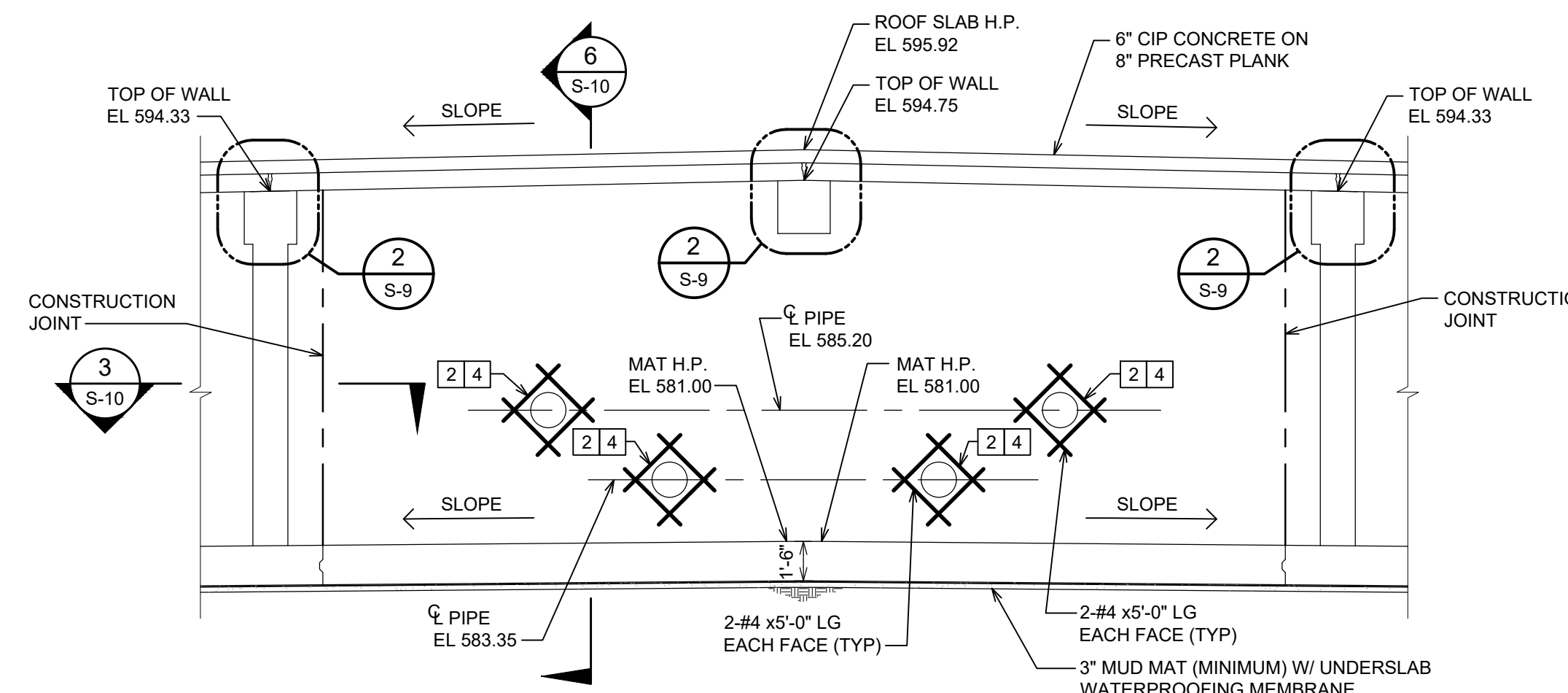
- 1 FOUNDATION UNDERDRAIN SHALL CONSIST OF 6" DIAMETER CORRUGATED HDPE PIPE WITH FITTINGS EMBEDDED IN CLEAN (WASHED) PEA GRAVEL WRAPPED IN MIRAFI 140N NON-WOVEN FILTER FABRIC.
- 2 PROVIDE 2 ADDITIONAL #6 VERTICAL BARS WITH MATCHING BENT DOWELS FROM MAT AND ROOF SLAB EACH SIDE OF WALL PIPE AND EACH FACE OF WALL.
- 3 TERMINATE WALL WATERPROOFING MEMBRANE 3" BELOW FINISH GRADE. SEE CIVIL DRAWINGS FOR GRADE ELEVATIONS. SECURE TOP EDGE OF MEMBRANE WITH UV RESISTANT TERMINATION BARS, SEALANT AND/OR MASTIC POINTING. FASTEN BARS WITH HILTI STAINLESS STEEL POWDER ACTUATED X-CR FASTENERS AT 6" CENTER TO CENTER SPACING.
- 4 SEE PROCESS DRAWINGS FOR PIPE WALL PENETRATION/OPENING REQUIREMENTS.



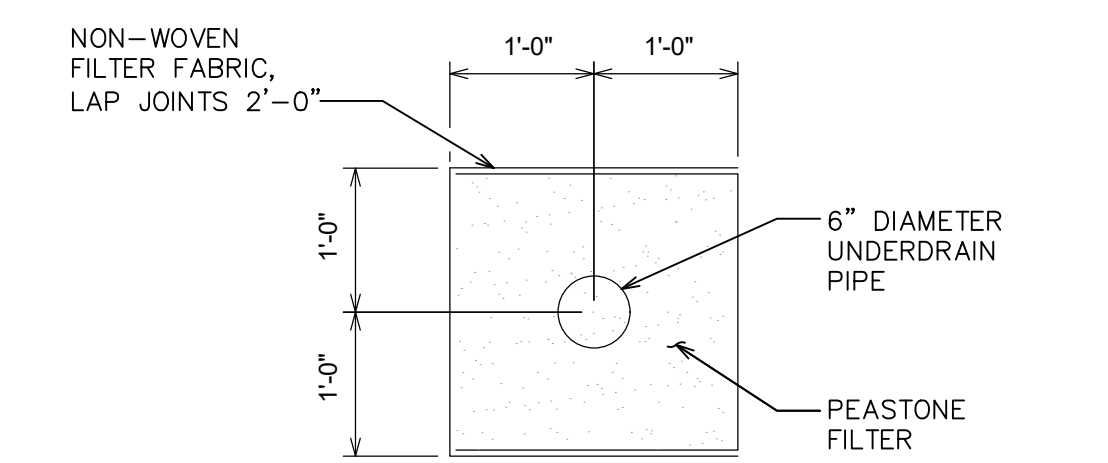
SECTION 1
SCALE: 3/16" = 1'-0"
S-2, S-3



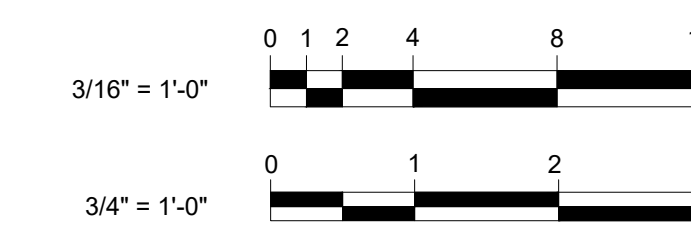
SECTION 2
SCALE: 3/16" = 1'-0"
S-2, S-3



SECTION 3
SCALE: 3/16" = 1'-0"
S-2



FOUNDATION UNDERDRAIN DETAIL 4
SCALE: 3/4" = 1'-0"
S-4



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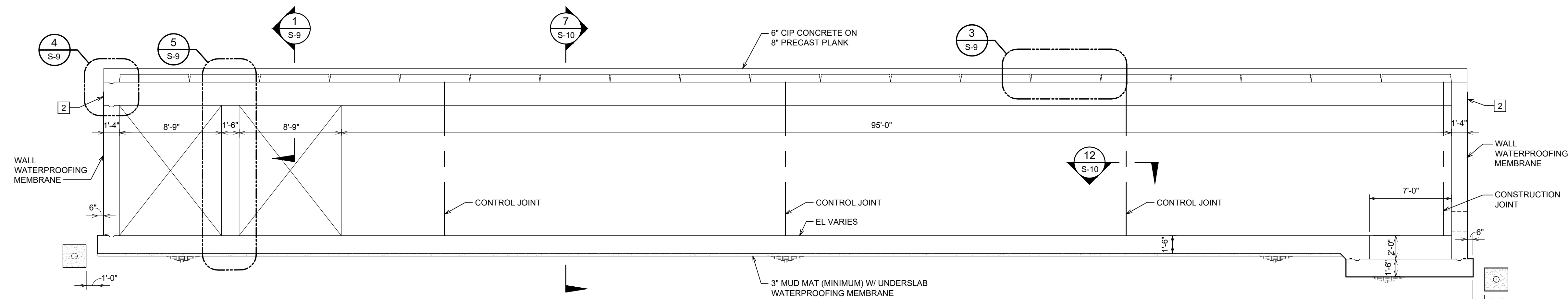
CITY OF ALPENA
WATER PRODUCTION PLANT
CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS
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 ALPENA COUNTY MICHIGAN

STRUCTURAL SECTIONS AND DETAILS

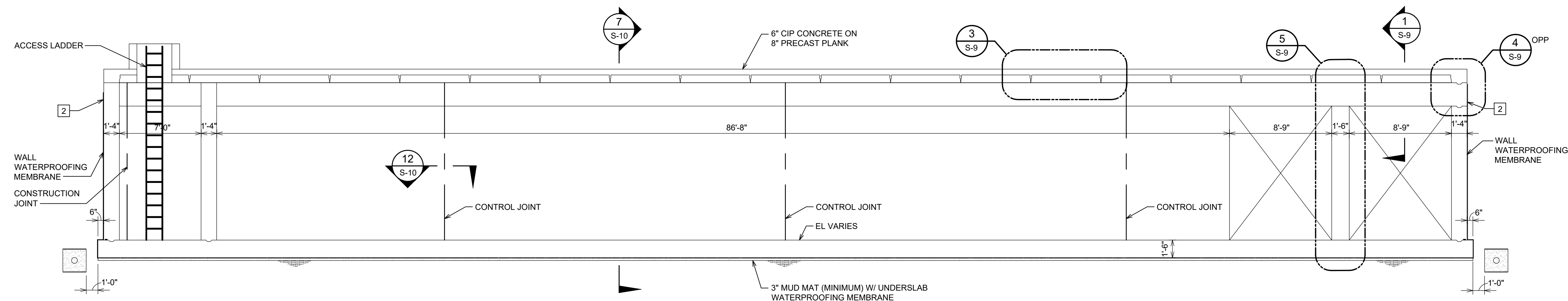
HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. S-4 OF

ELEVATION KEY NOTES

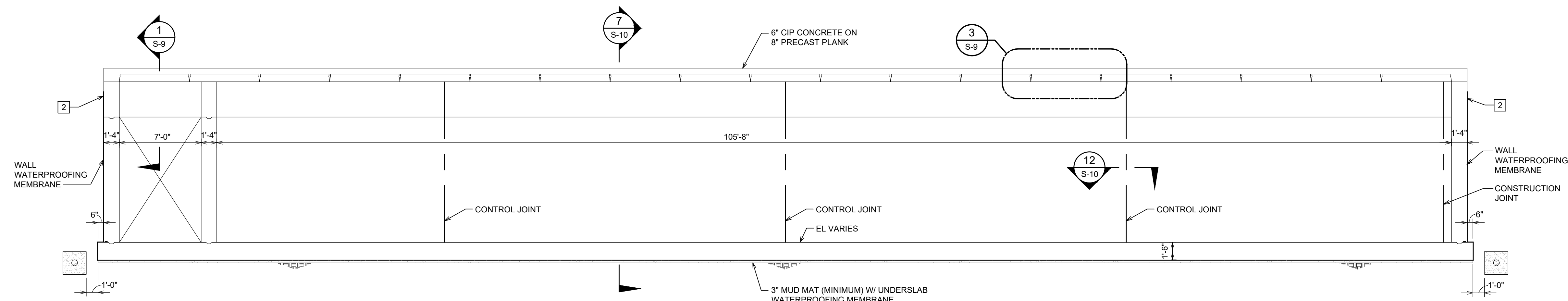
- 1 FOUNDATION UNDERDRAIN SHALL CONSIST OF 6" DIAMETER CORRUGATED HDPE PIPE WITH FITTINGS EMBEDDED IN CLEAN (WASHED) PEA GRAVEL WRAPPED IN MIRAFI 140N NON-WOVEN FILTER FABRIC.
- 2 TERMINATE WALL WATERPROOFING MEMBRANE 3" BELOW FINISH GRADE. SEE CIVIL DRAWINGS FOR GRADE ELEVATIONS. SECURE TOP EDGE OF MEMBRANE WITH UV RESISTANT TERMINATION BARS. SEALANT AND/OR MASTIC POINTING. FASTEN BARS WITH HILTI STAINLESS STEEL POWDER ACTUATED X-CR FASTENERS AT 6" CENTER TO CENTER SPACING.



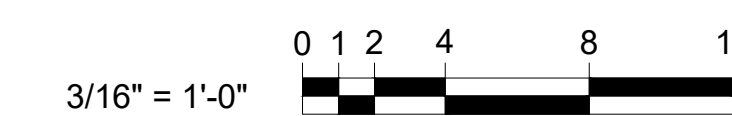
SECTION 1
SCALE: 3/16" = 1'-0"
S-2, S-3



SECTION 2
SCALE: 3/16" = 1'-0"
S-2, S-3



SECTION 3
SCALE: 3/16" = 1'-0"
S-2, S-3



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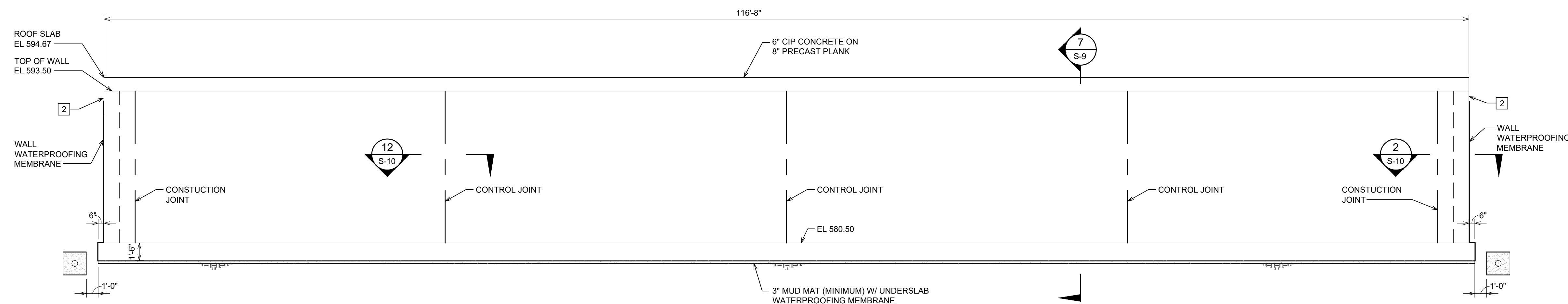
STRUCTURAL
 SECTIONS AND DETAILS

HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. S-5 OF

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ELEVATION KEY NOTES

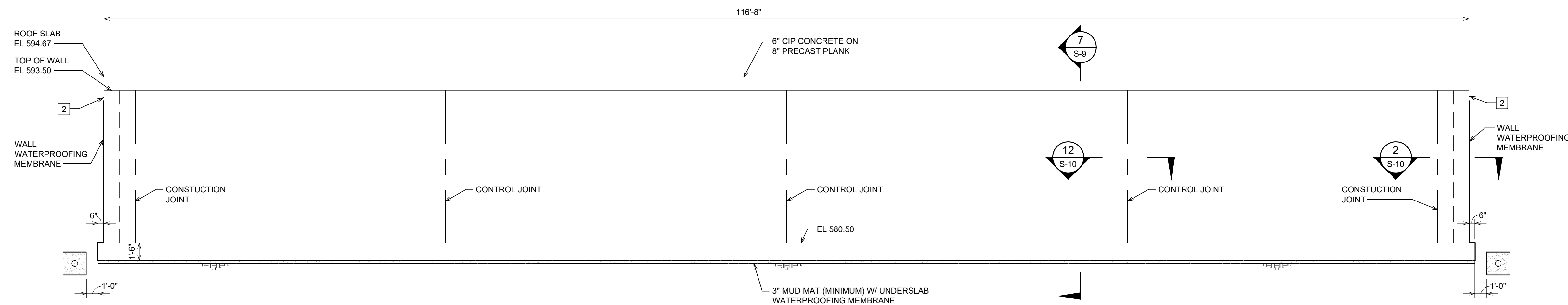
- 1 FOUNDATION UNDERDRAIN SHALL CONSIST OF 6" DIAMETER CORRUGATED HDPE PIPE WITH FITTINGS EMBEDDED IN CLEAN (WASHED) PEA GRAVEL WRAPPED IN MIRAFI 140N NON-WOVEN FILTER FABRIC.
- 2 TERMINATE WALL WATERPROOFING MEMBRANE 3" BELOW FINISH GRADE. SEE CIVIL DRAWINGS FOR GRADE ELEVATIONS. SECURE TOP EDGE OF MEMBRANE WITH UV RESISTANT TERMINATION BARS, SEALANT AND/OR MASTIC POINTING. FASTEN BARS WITH HILTI STAINLESS STEEL POWDER ACTUATED X-CR FASTENERS AT 6" CENTER TO CENTER SPACING.



NORTH TANK ELEVATION 1

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

S-2, S-3



SOUTH TANK ELEVATION 2

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

S-2, S-3

3/16" = 1'-0" 0 1 2 4 8 12



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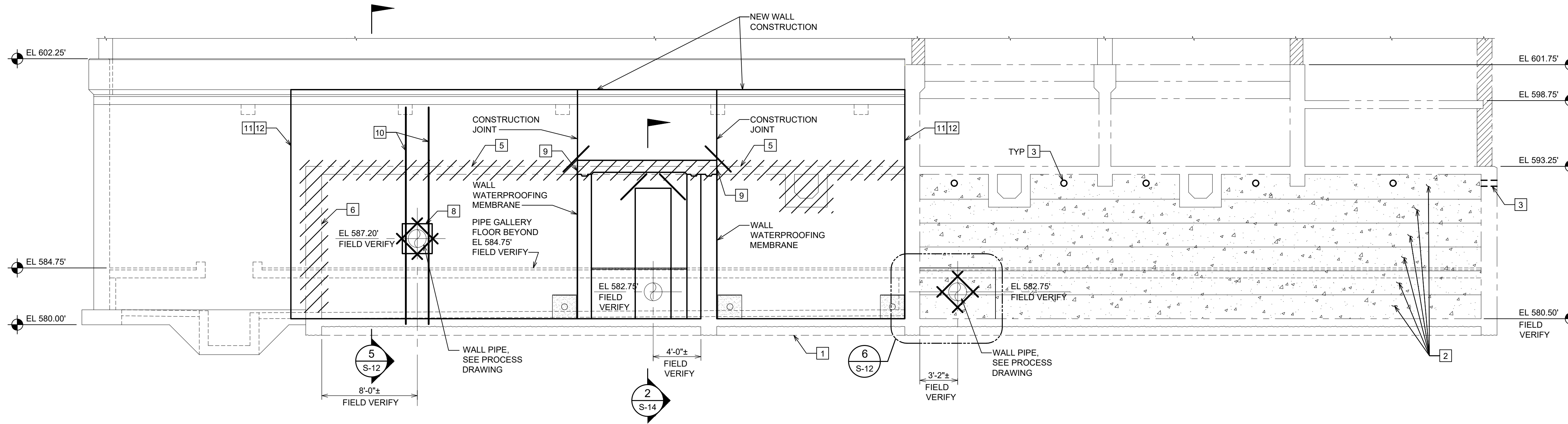
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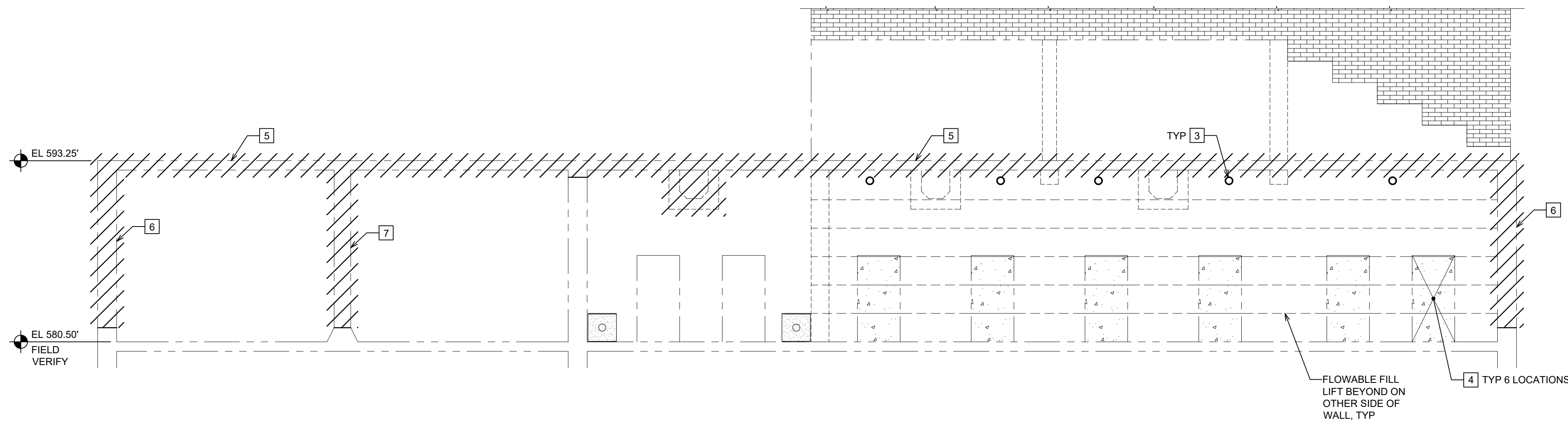
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STRUCTURAL
 ELEVATIONS

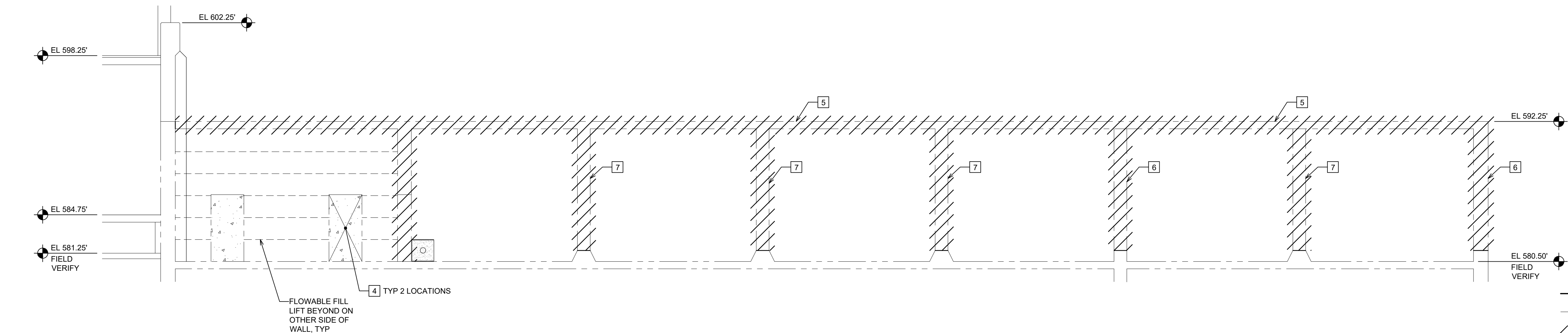
HRC JOB NO. 20220751 SCALE AS NOTED
 DATE DECEMBER 2023 SHEET NO. S-6 OF



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



SECTION 2
SCALE: 3/16" = 1'-0"



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

KEY NOTES

- 1 EXISTING TANK WALLS ARE SOCKETED INTO ROCK. THE DEPTH OF THE SOCKET IS UNKNOWN.
- 2 FLOWABLE FILL IN 2'-0" MAXIMUM THICKNESS LIFTS. CURE EACH LIFT A MINIMUM OF 7 DAYS BETWEEN LIFTS.
- 3 VENT AND FILL HOLES WITH STAND PIPES AS REQUIRED TO PLACE FLOWABLE FILL TO UNDERSIDE OF SLAB. PATCH HOLES ON COMPLETION OF FLOWABLE FILL. PLACEMENT: MAXIMUM HOLE SIZE TO BE NO GREATER THAN 6" DIAMETER.
- 4 BULKHEAD OPENINGS FOR EACH FLOWABLE FILL LIFT.
- 5 TANK CELL ROOF SLAB TO BE DEMOLISHED.
- 6 TANK CELL WALL TO BE DEMOLISHED.
- 7 TANK CELL COLUMN TO BE DEMOLISHED.
- 8 30" SQUARE FULL DEPTH SAWCUT TO REMOVE EXISTING 16" DIAMETER FLANGED WALL PIPE.
- 9 TERMINATE WALL WATERPROOFING MEMBRANE 3" BELOW FINISH GRADE. SEE CIVIL DRAWINGS FOR GRADE ELEVATIONS. SECURE TOP EDGE OF MEMBRANE WITH UV RESISTANT TERMINATION BARS, SEALANT AND/OR MASTIC POINTING. FASTEN BARS WITH HILTI STAINLESS STEEL POWDER ACTUATED X-CR FASTENERS AT 6" CENTER TO CENTER SPACING.
- 10 PROVIDE 1 ADDITIONAL #5 VERTICAL BAR WITH LAPPING DOWEL ANCHORED INTO EXISTING SLAB, EACH SIDE OF PIPE AND EACH FACE OF WALL.
- 11 PROVIDE SIKA/GREENSTREAK HYDROTITE CS-1030-M WATERSTOP 6" IN FROM END OF NEW WALL. INSTALL WATERSTOP IN COMPLIANCE WITH THE MANUFACTURERS REQUIREMENTS.
- 12 DRILL AND ADHESIVE ANCHOR #4 DOWEL BARS WITH STANDARD 90° HOOK AT 12" CENTER TO CENTER SPACING VERTICALLY.



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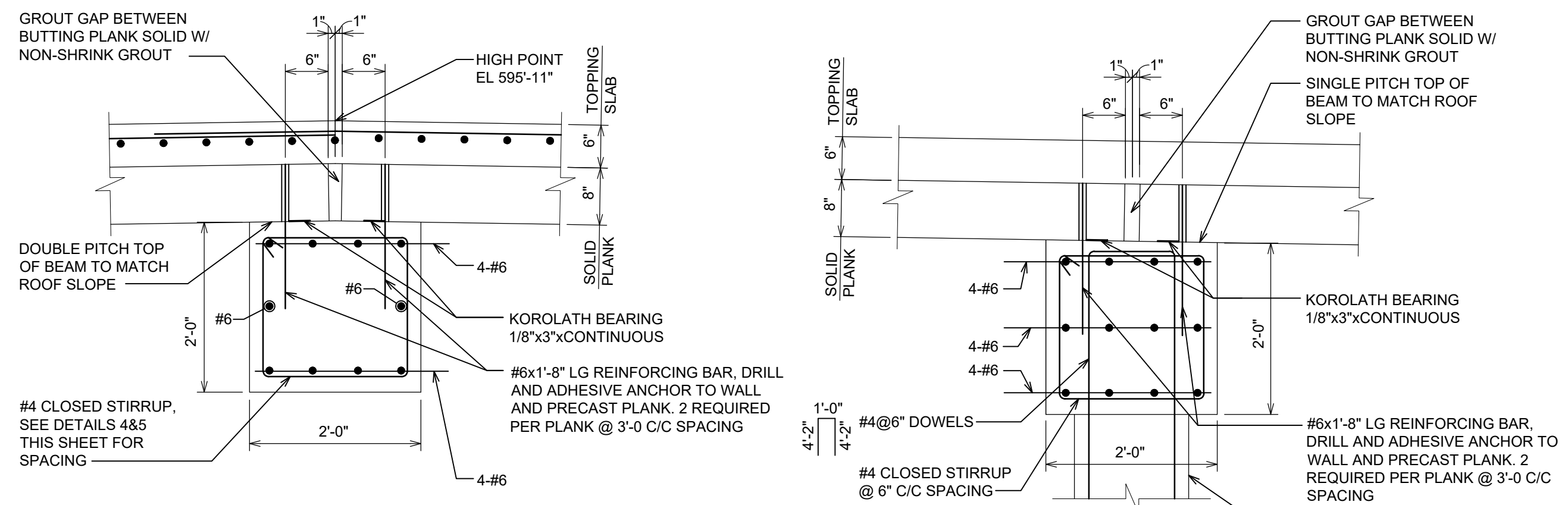
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IMPROVEMENTS
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ALPENA COUNTY MICHIGAN

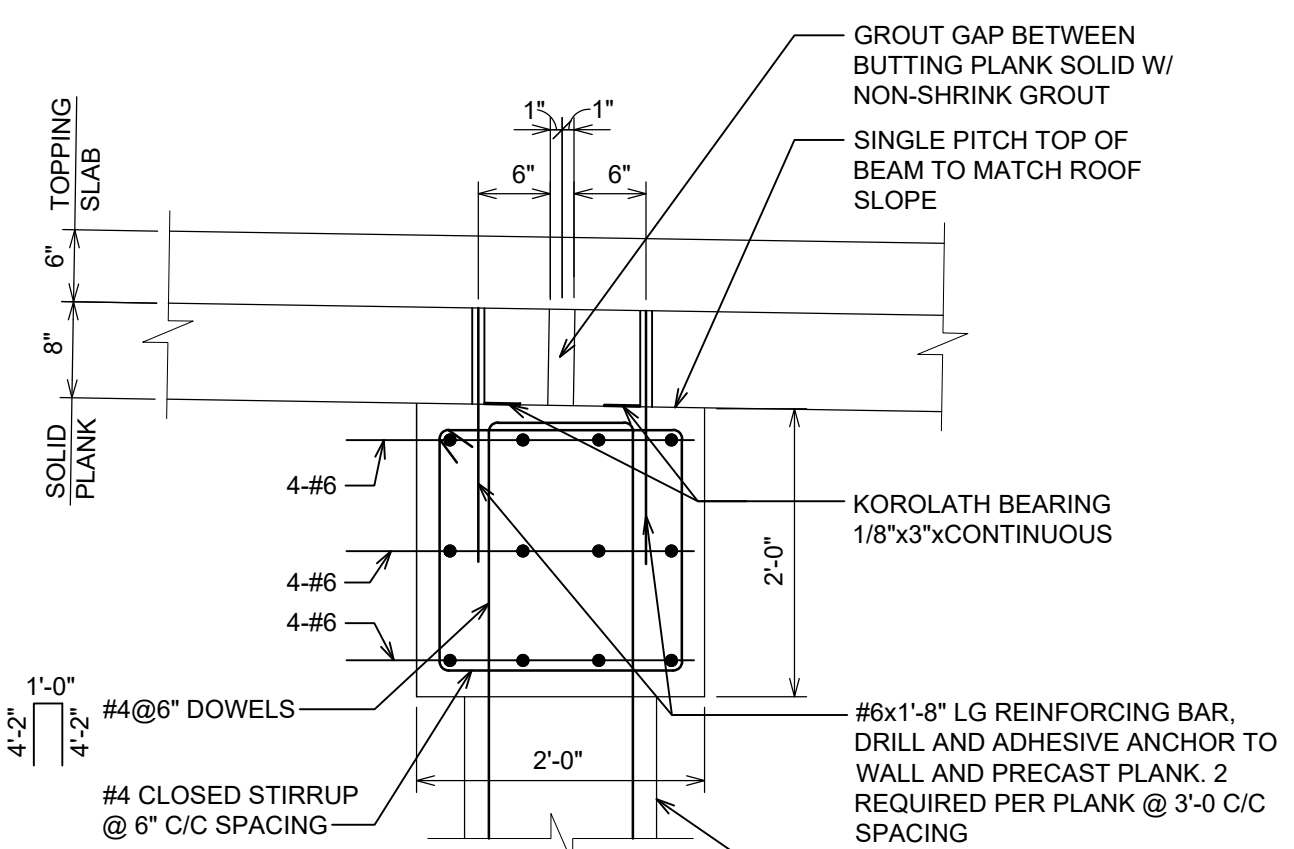
STRUCTURAL SECTIONS

HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. S-8 OF

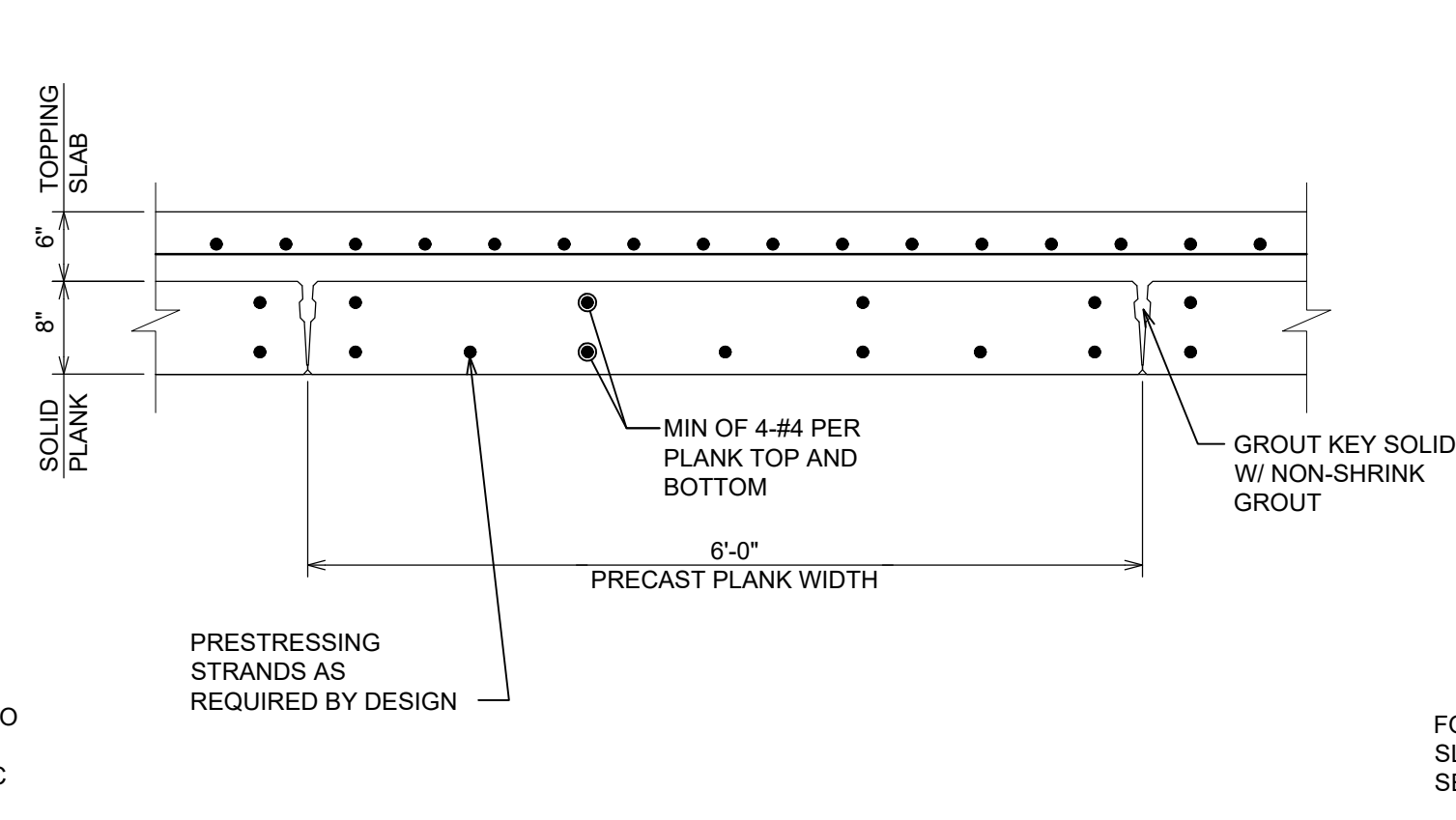




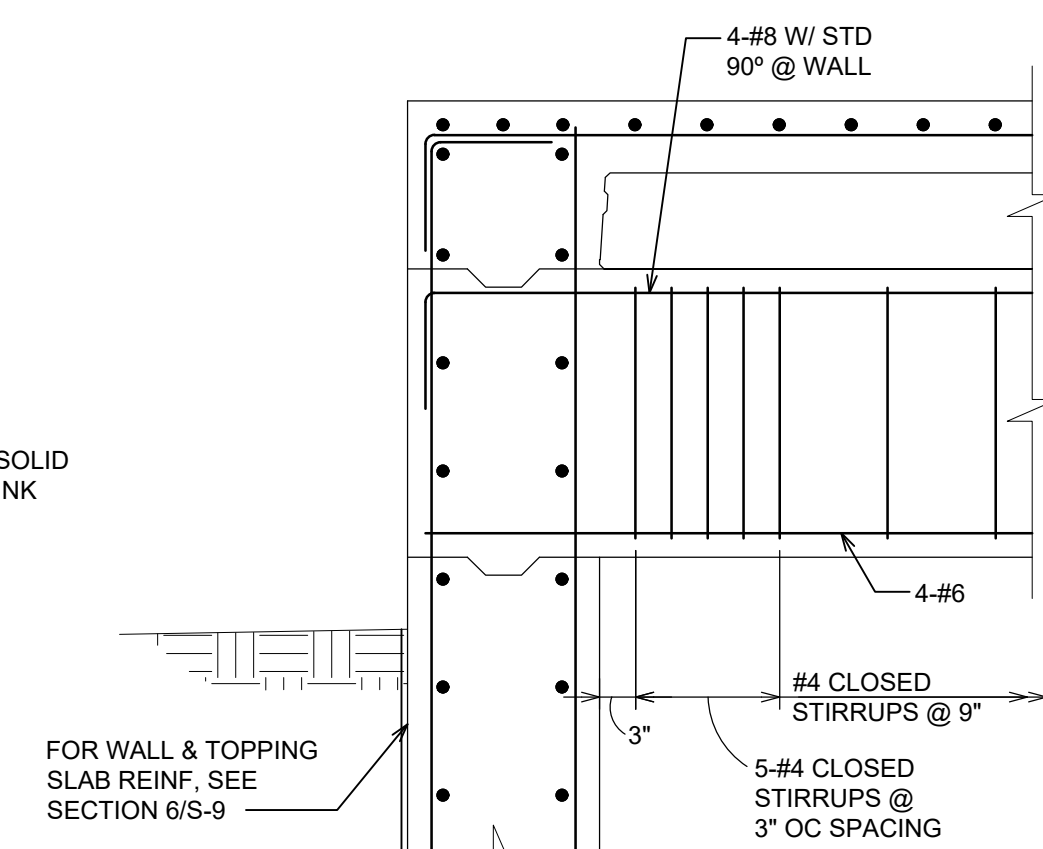
DETAIL/SECTION 1
SCALE: 3/4" = 1'-0"
S-4



DETAIL 2
SCALE: 3/4" = 1'-0"
S-4-S-10

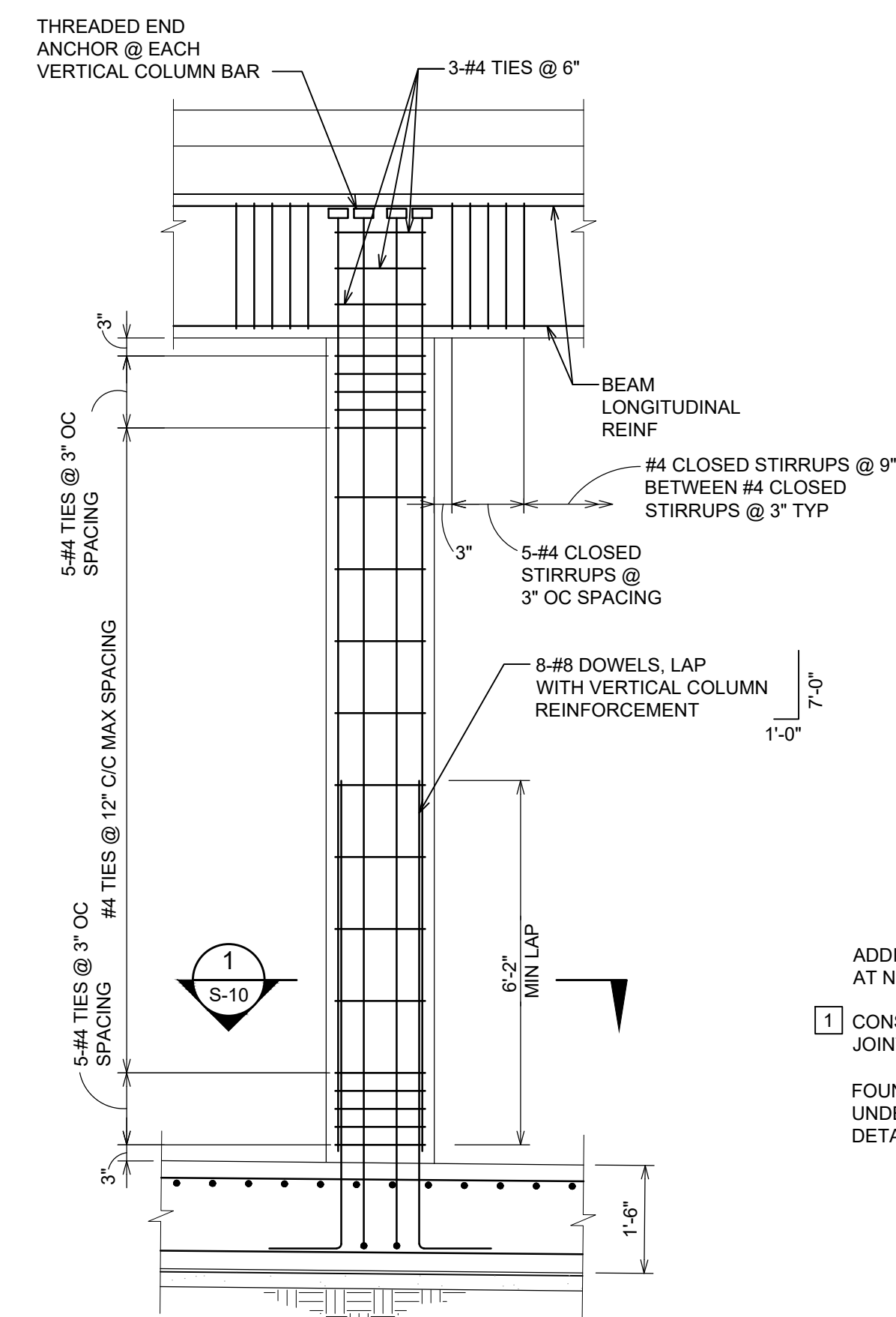


DETAIL 3
SCALE: 3/4" = 1'-0"
S-5

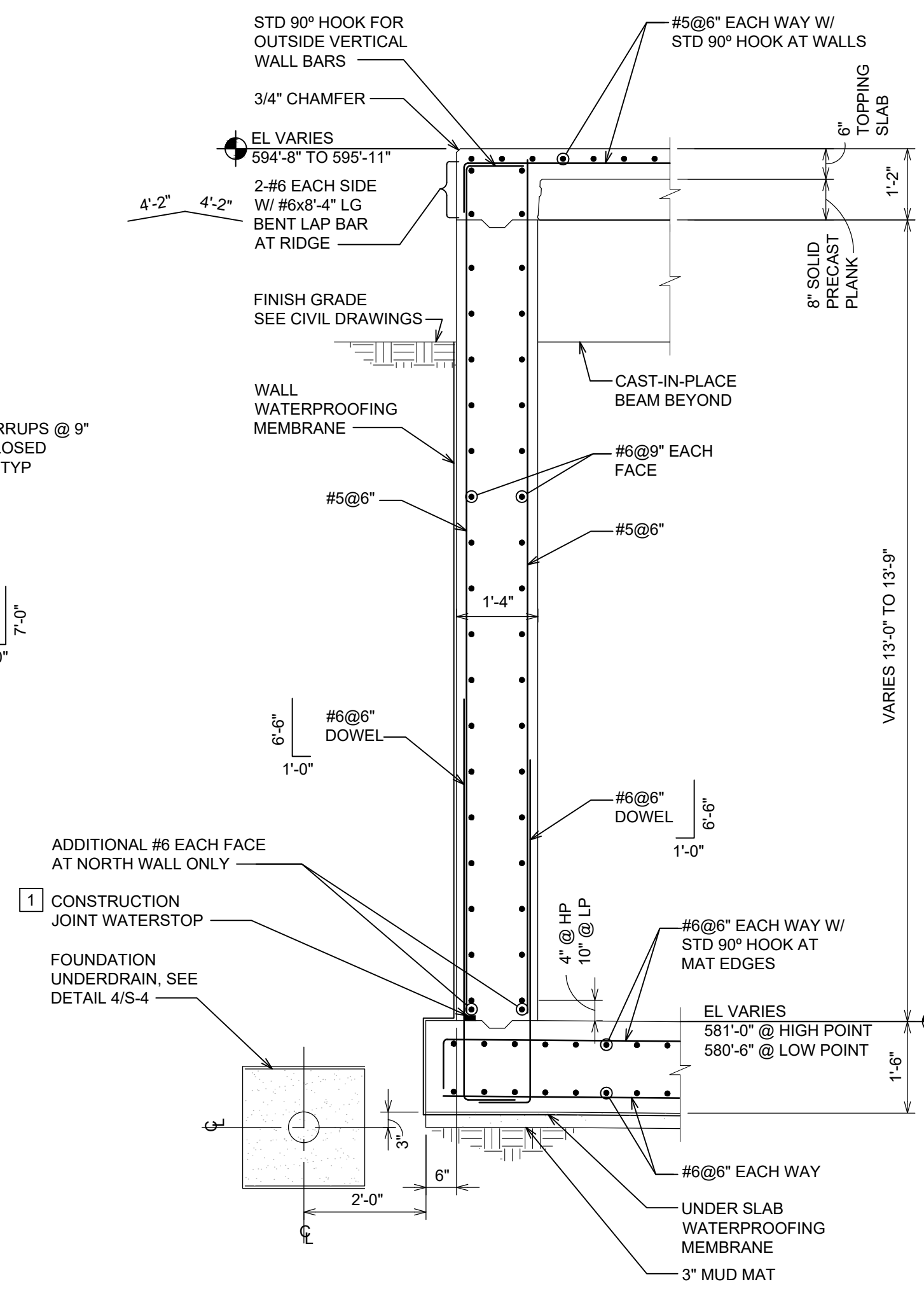


DETAIL 4
SCALE: 3/4" = 1'-0"
S-4

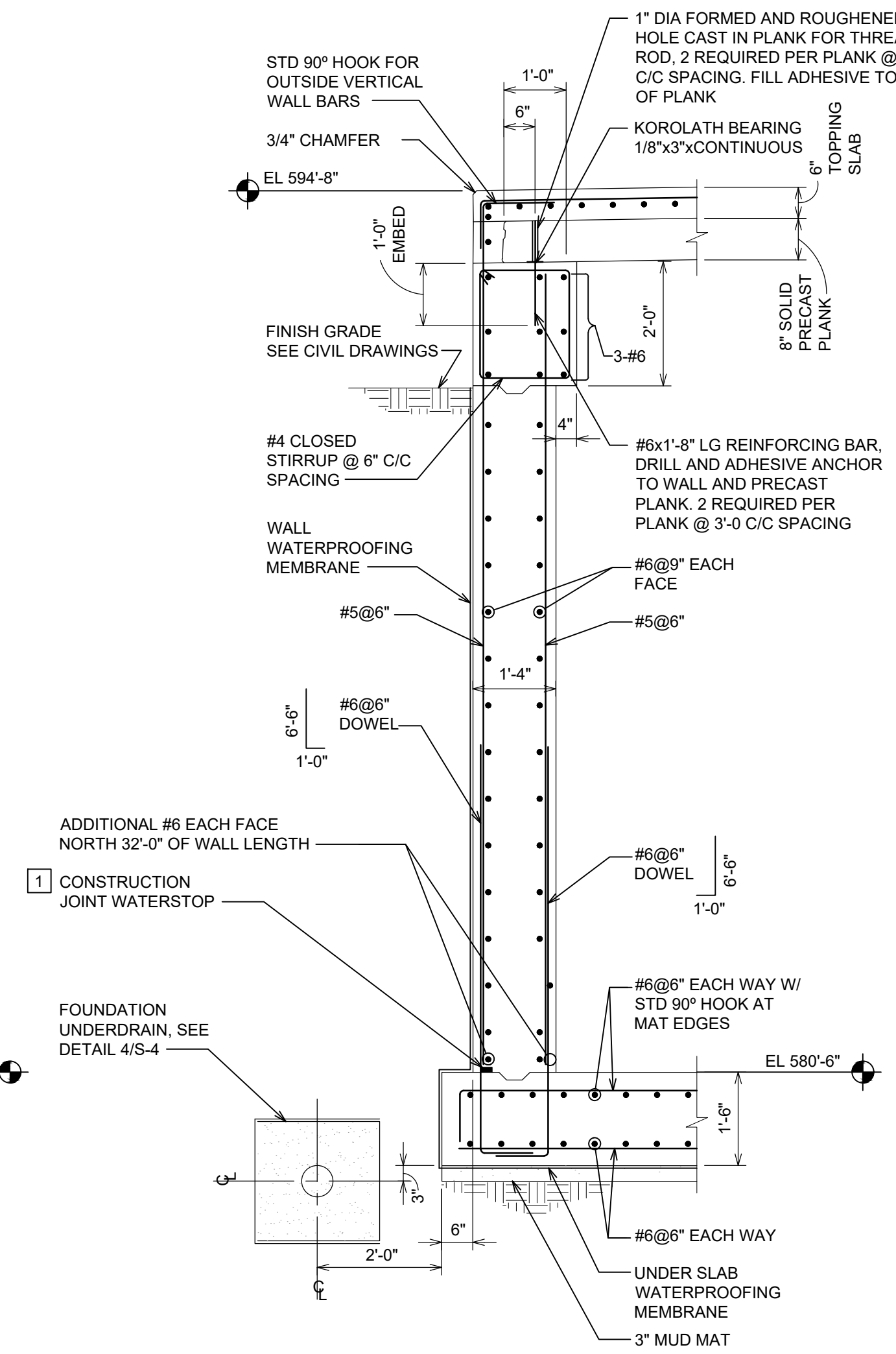
- SECTION AND DETAIL KEY NOTES**
- CONSTRUCTION JOINT WATERSTOP SHALL BE SIKAGREENSTREAK HYDROTITE CJ-1030-M WATERSTOP. INSTALL WATERSTOP IN COMPLIANCE WITH THE MANUFACTURERS REQUIREMENTS.
 - TOPPING SLAB WATERSTOP SHALL BE SIKAGREENSTREAK MODEL 771.
 - ELASTOMERIC JOINT SEALANT SHALL BE SIKAFLEX-1A, LIMESTONE COLOR. INSTALL IN COMPLIANCE WITH MANUFACTURERS APPLICATION INSTRUCTIONS AND LIMITATIONS.



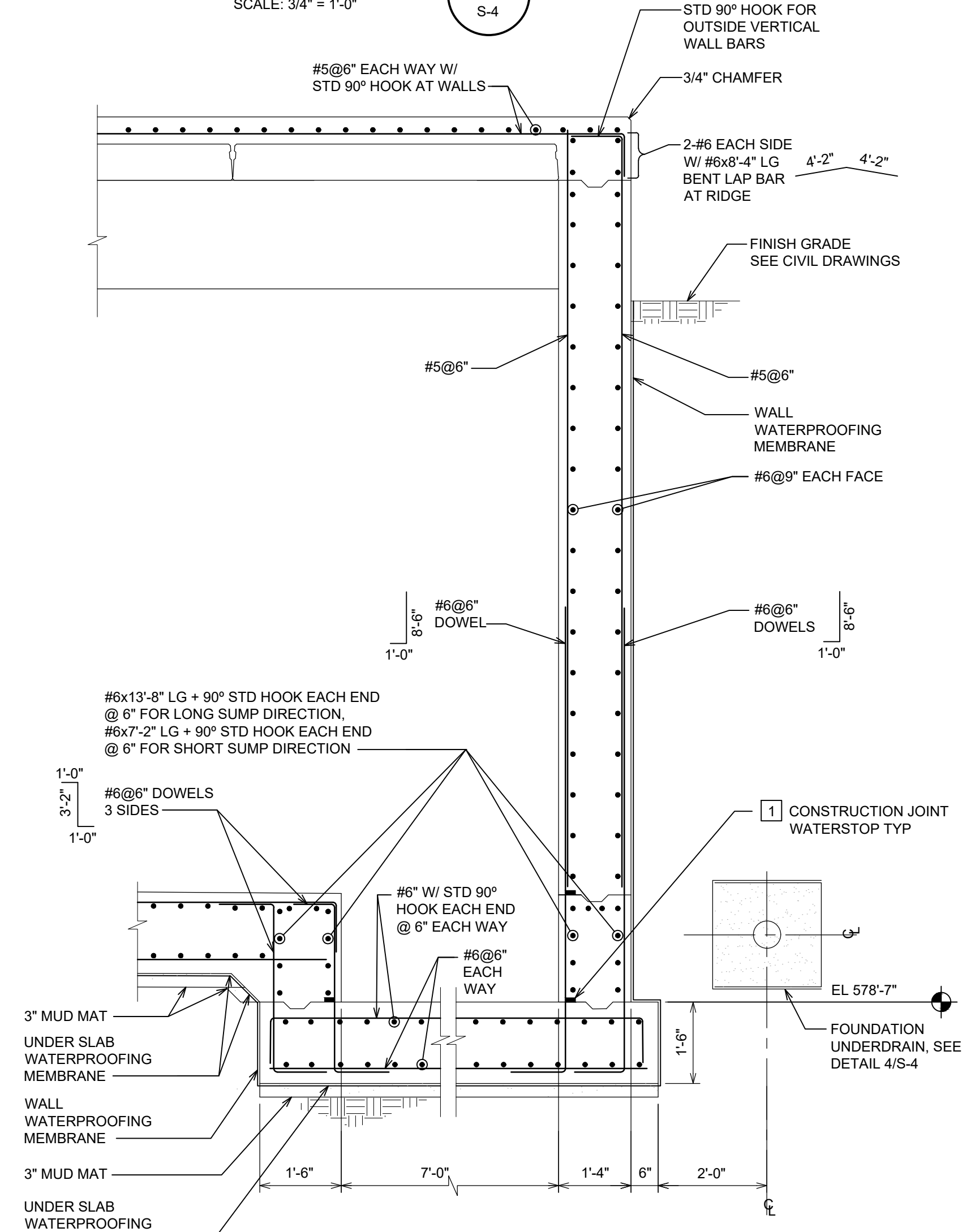
DETAIL 5
SCALE: 1/2" = 1'-0"
S-5



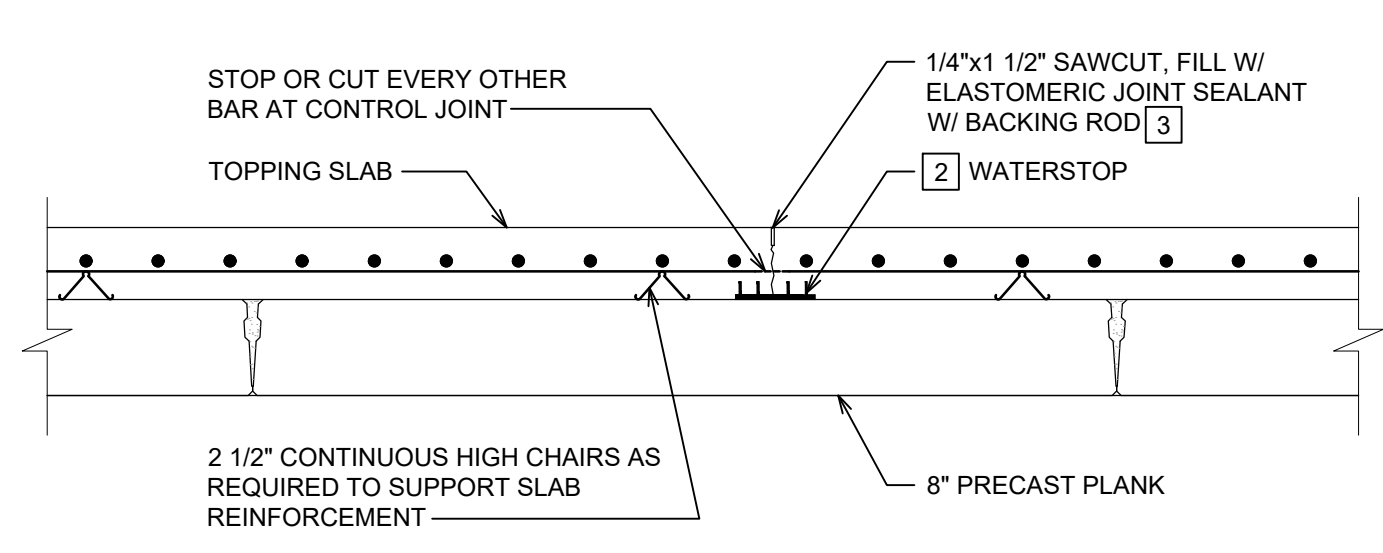
SECTION 6
SCALE: 1/2" = 1'-0"
S-7



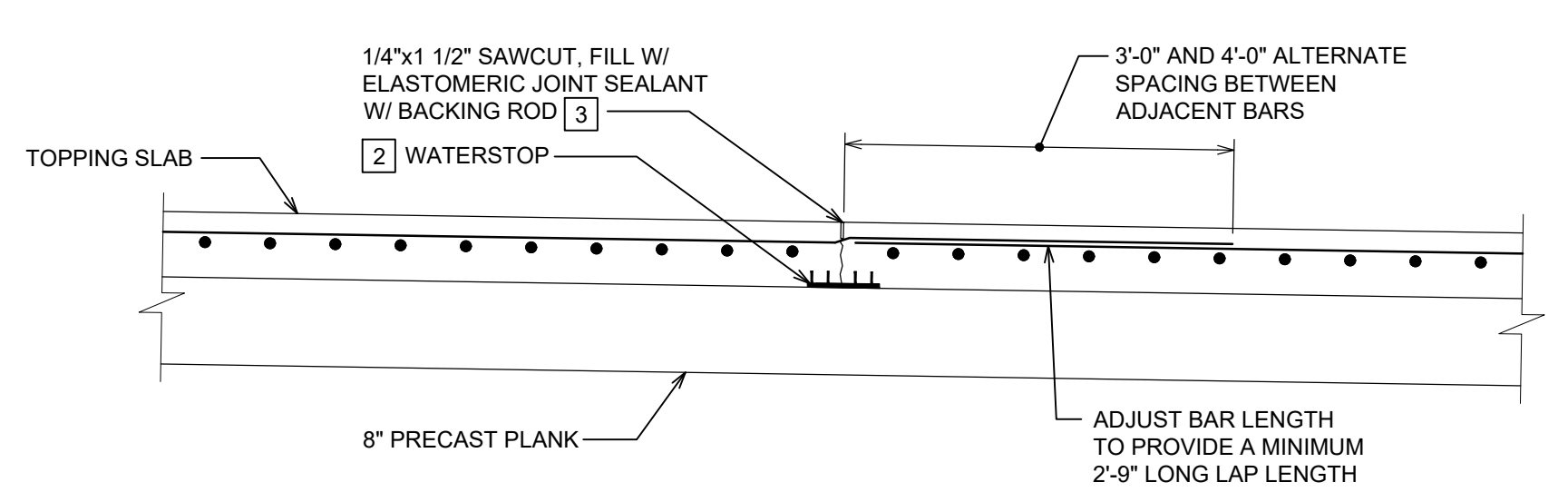
SECTION 7
SCALE: 1/2" = 1'-0"
S-3,S-6



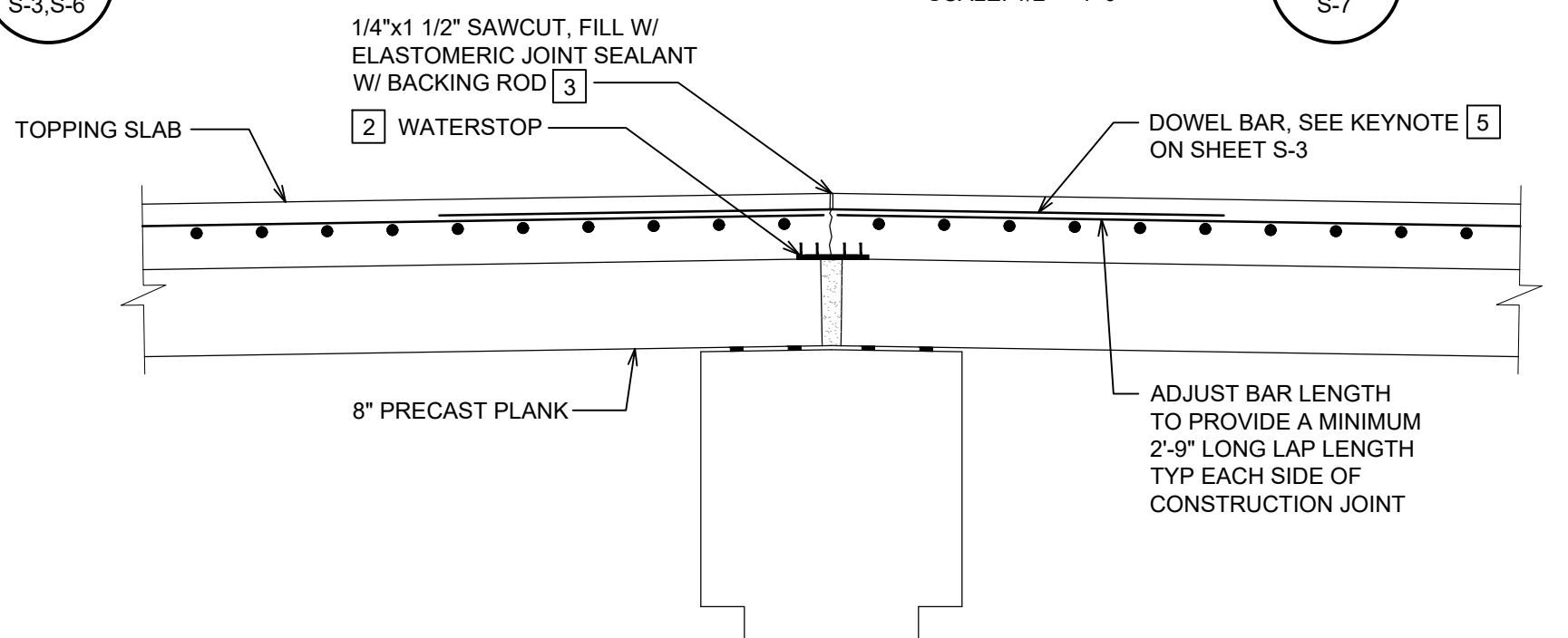
SECTION 8
SCALE: 1/2" = 1'-0"
S-7



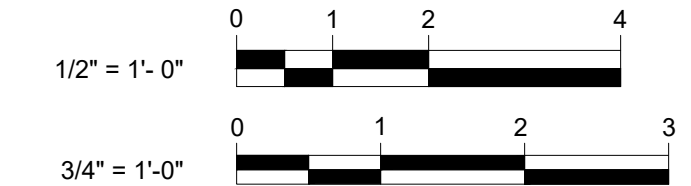
DETAIL 9
SCALE: 3/4" = 1'-0"
S-3



DETAIL 10
SCALE: 3/4" = 1'-0"
S-3



DETAIL 11
SCALE: 3/4" = 1'-0"
S-3



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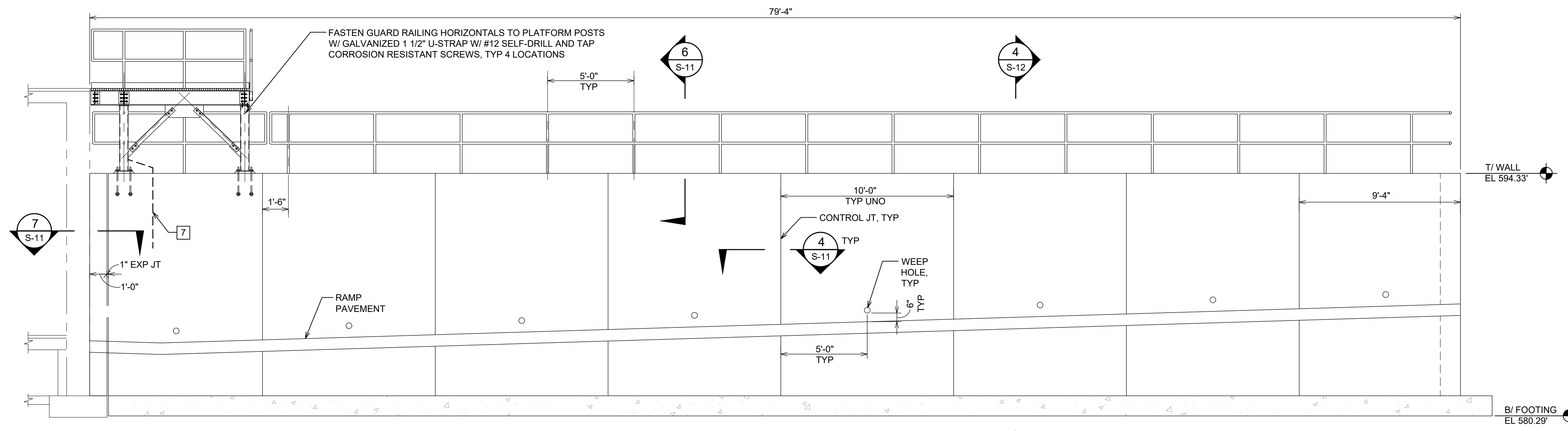
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APPROVED	T.G.M.

CITY OF ALPENA
WATER PRODUCTION PLANT
CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS

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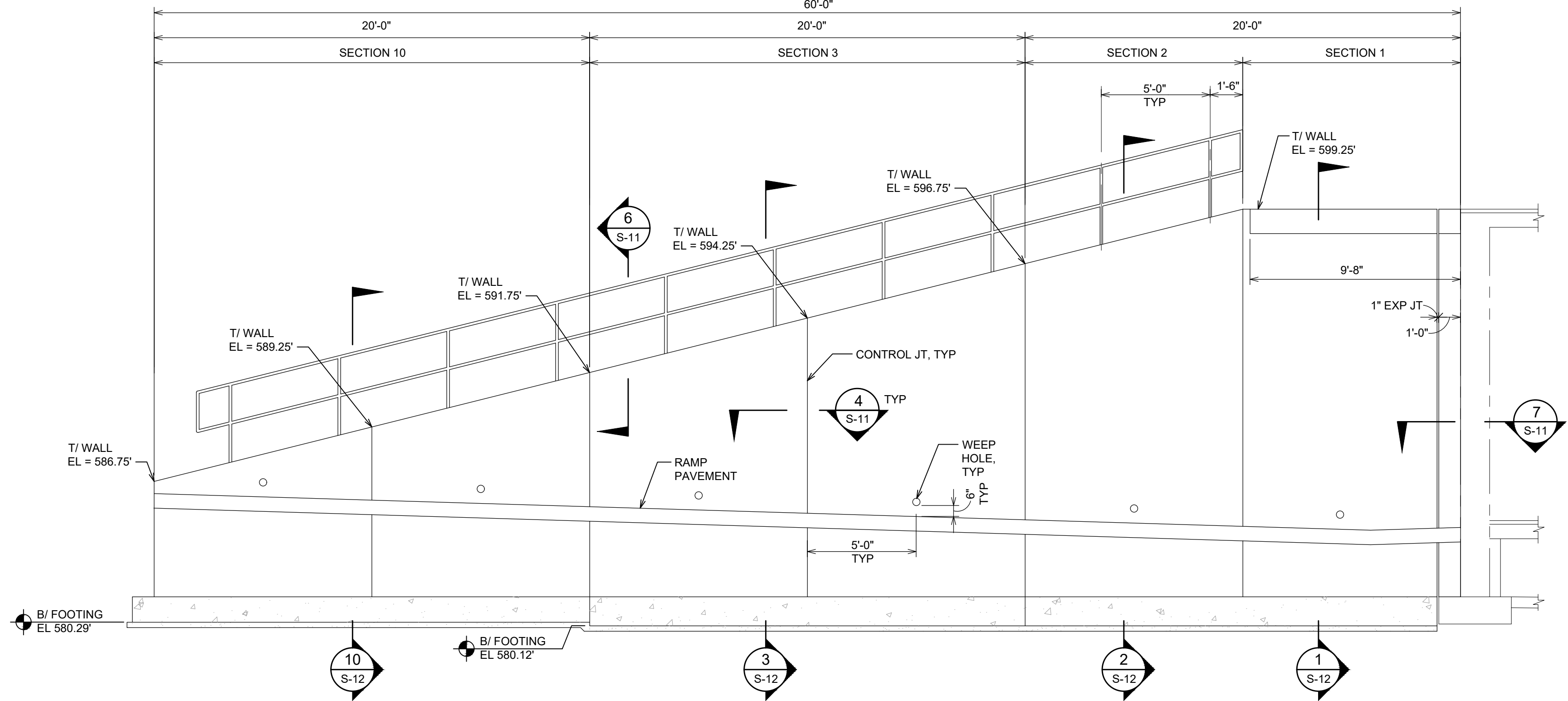
STRUCTURAL
SECTIONS AND DETAILS

HRC JOB NO.	SCALE
20220751	AS NOTED
DATE	SHEET NO.
DECEMBER 2023	S-9 OF

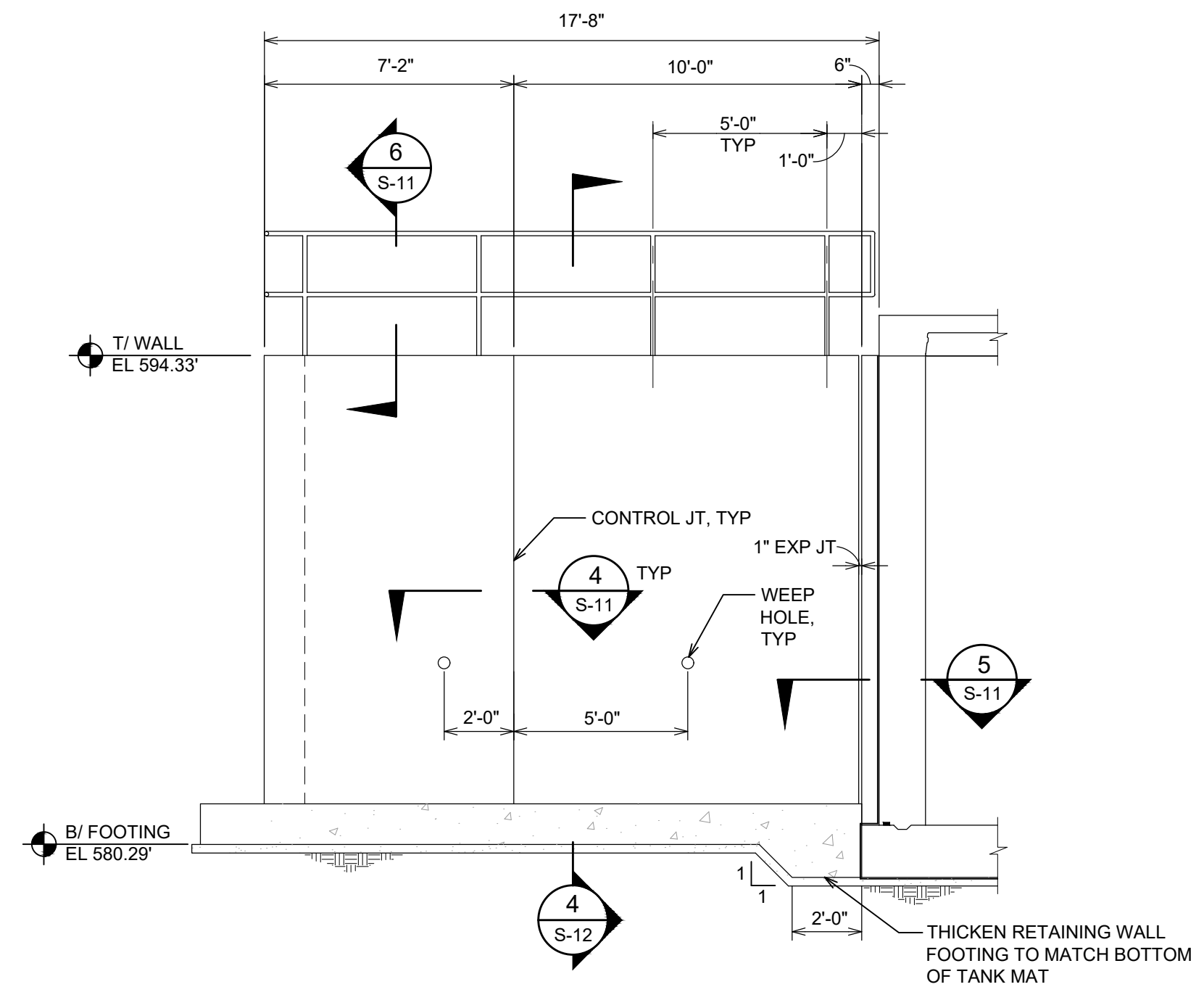


- ELEVATION, SECTIONS AND DETAILS KEY NOTES
- EXPANSION JOINT WATERSTOP SHALL BE SIKA/GREENSTREAK MODEL 735.
 - FOUNDATION UNDERDRAIN SHALL CONSIST OF 4" DIAMETER CORRUGATED HDPE PIPE WITH FITTINGS EMBEDDED IN CLEAN (WASHED) PEA GRAVEL WRAPPED IN MIRAFI 140N NON-WOVEN FILTER FABRIC.
 - JOINT WATERPROOFING SHALL CONSIST OF SHEET WATERPROOFING AS SPECIFIED IN SPECIFICATION SECTION 07110. SHEET MEMBRANE WATERPROOFING. MASTIC POINT EDGES AND PROTECTION BOARD OVER WATERPROOFING.
 - JOINT FILLER SHALL BE 1" THICK W. R. MEADOWS SELF-EXPANDING CORK EXPANSION JOINT WITH SEALANT AT EXPOSED FACES AND 1" DIAMETER CLOSED CELL BACKING ROD AT COVERED FACE.
 - EXPANSION JOINT WATERPROOFING SHALL CONSIST OF SHEET WATERPROOFING AS SPECIFIED IN SPECIFICATION SECTION 07110 WITH MASTIC POINT EDGES AND PROTECTION BOARD OVER WATERPROOFING. APPLY 1 1/2" WIDE STRIP OF BOND BREAKING TAPE TO WATERPROOFING TO DEBOND MEMBRANE AT BACKING ROD.
 - CLOSURE PLATE SHALL CONSIST OF A 12" WIDE CONTINUOUS 316 STAINLESS STEEL 20 GAGE BENT PLATE ANCHORED WITH 3/8" DIAMETER ADHESIVE ANCHORS WITH 2 3/8" MINIMUM EMBEDMENT AT 6" ON CENTER SPACING AND 4 INCH EDGE DISTANCE EACH SIDE OF JOINT TO COVER THE MEMBRANE AT THE EXPANSION JOINT.
 - GROUNDING ROD AND GROUNDING CABLE TO GROUNDING LUG ON COLUMN. SEE STRUCTURAL STEEL GENERAL NOTE 25.

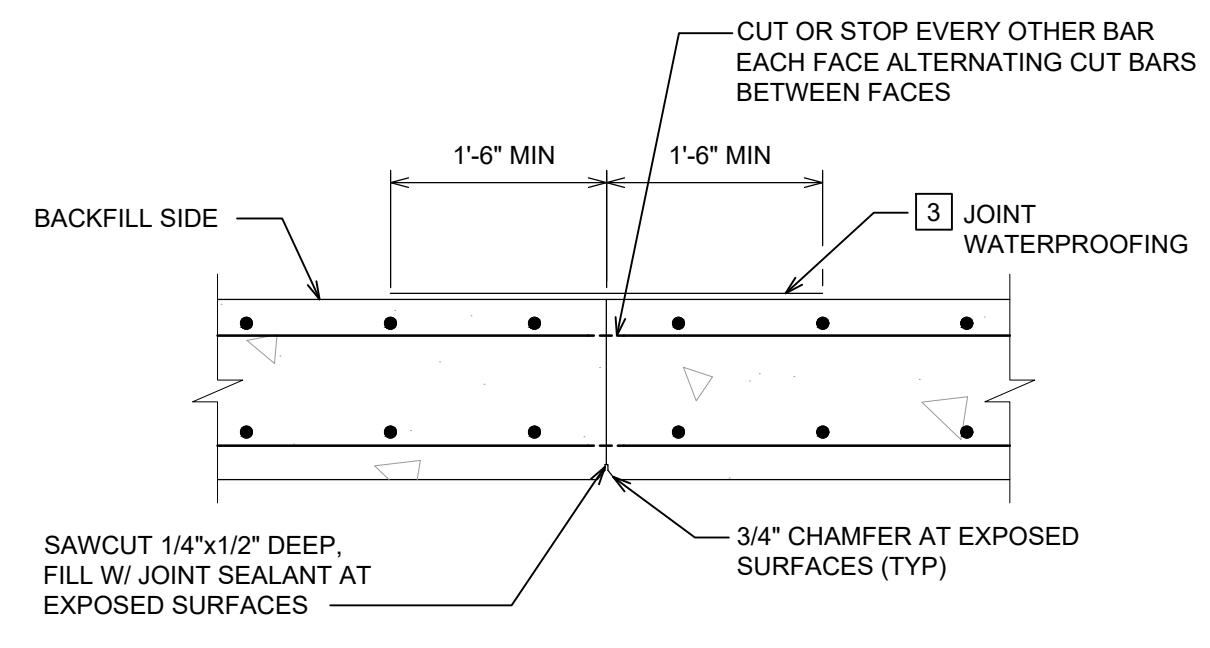
WALL ELEVATION 1
SCALE: 1/4" = 1'-0"



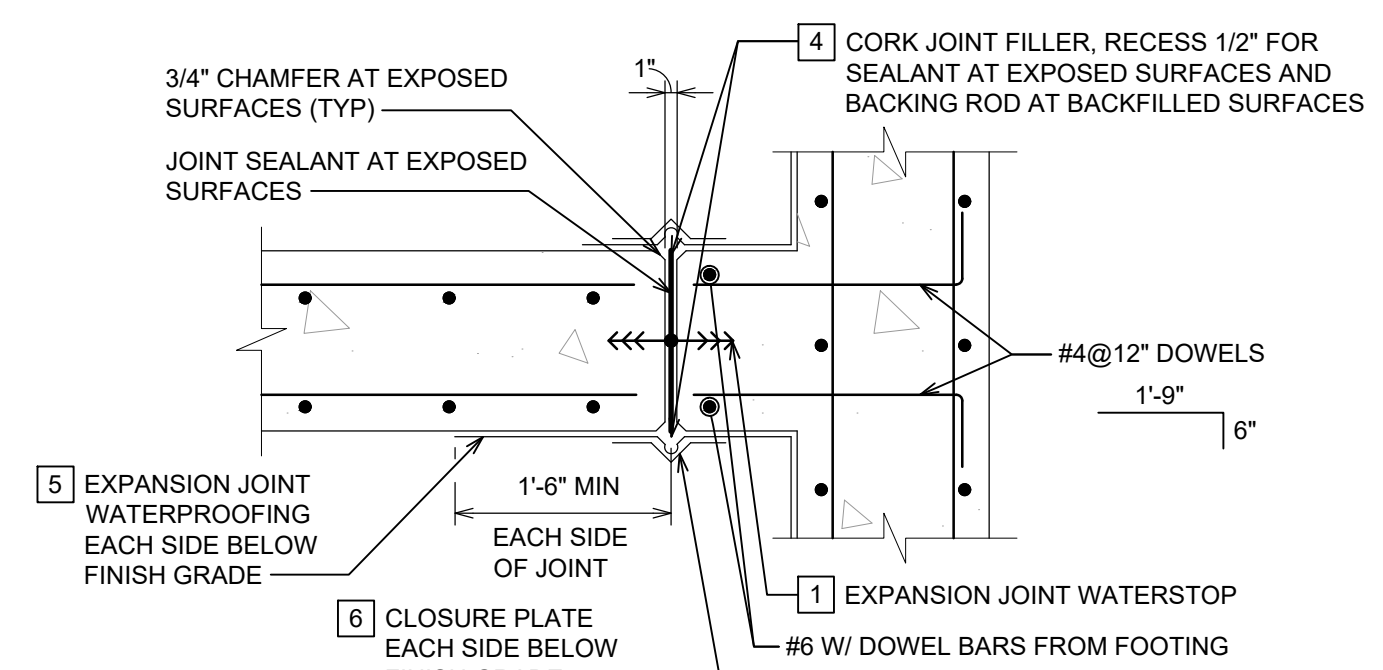
WALL ELEVATION 2
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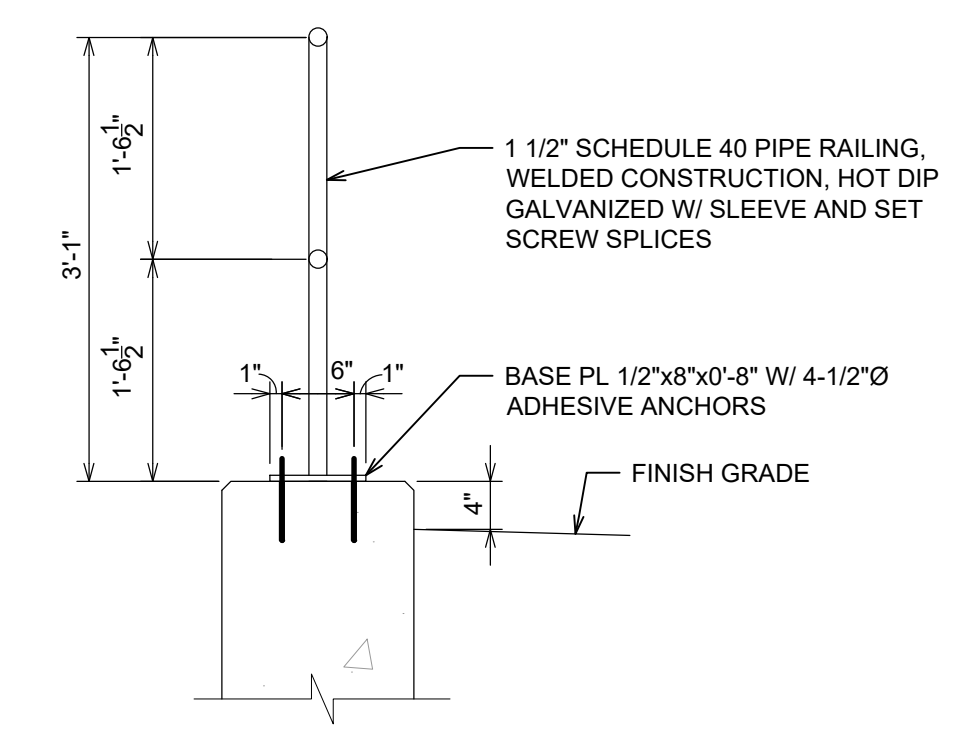
WALL ELEVATION 3
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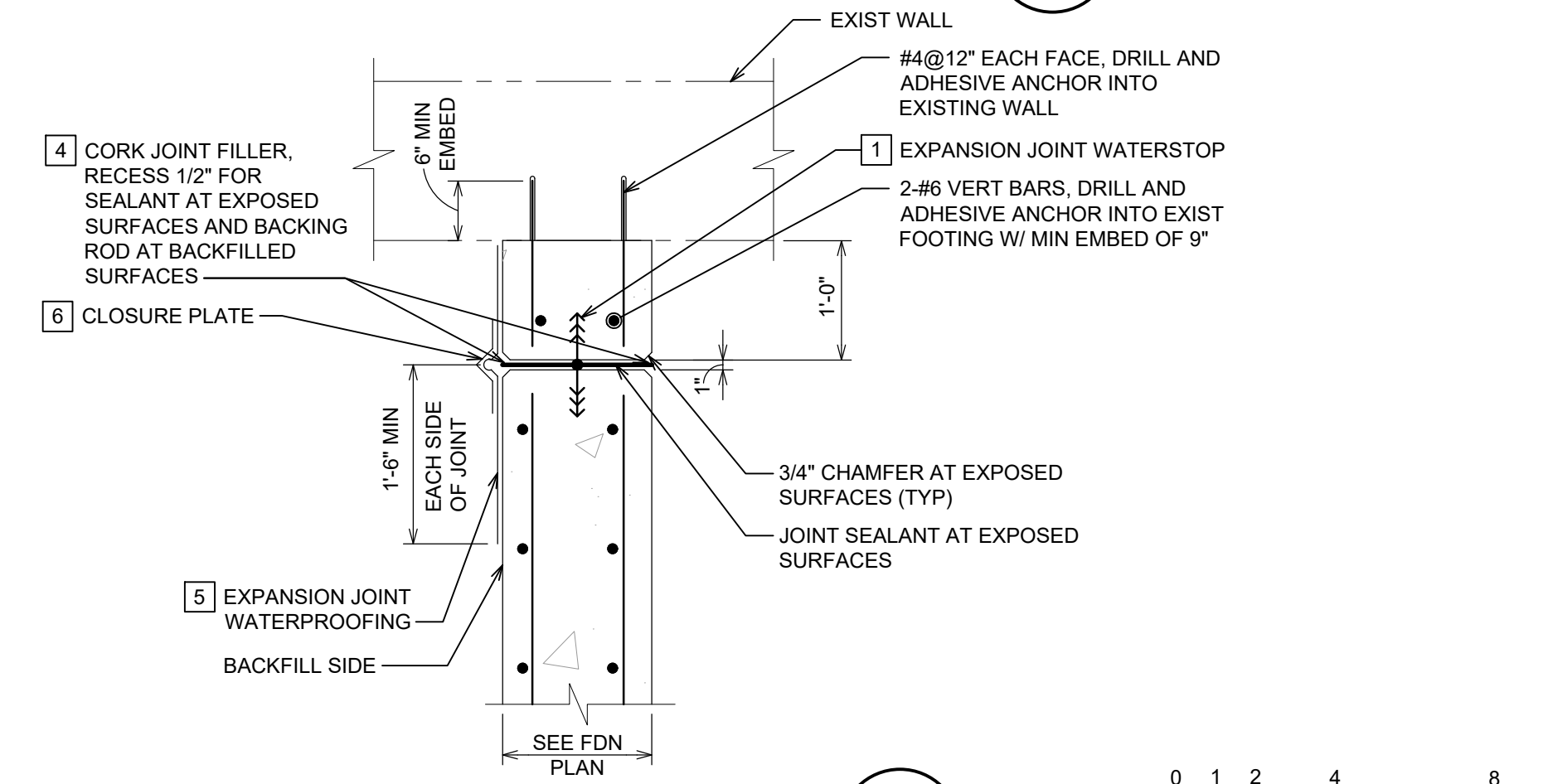
WALL CONTROL JOINT DETAIL 4
SCALE: 3/4" = 1'-0"



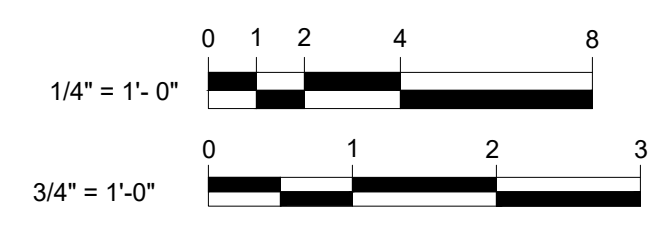
WALL EXPANSION JOINT DETAIL 5
SCALE: 3/4" = 1'-0"



GUARD RAIL DETAIL 6
SCALE: 3/4" = 1'-0"



DETAIL 7
SCALE: 3/4" = 1'-0"



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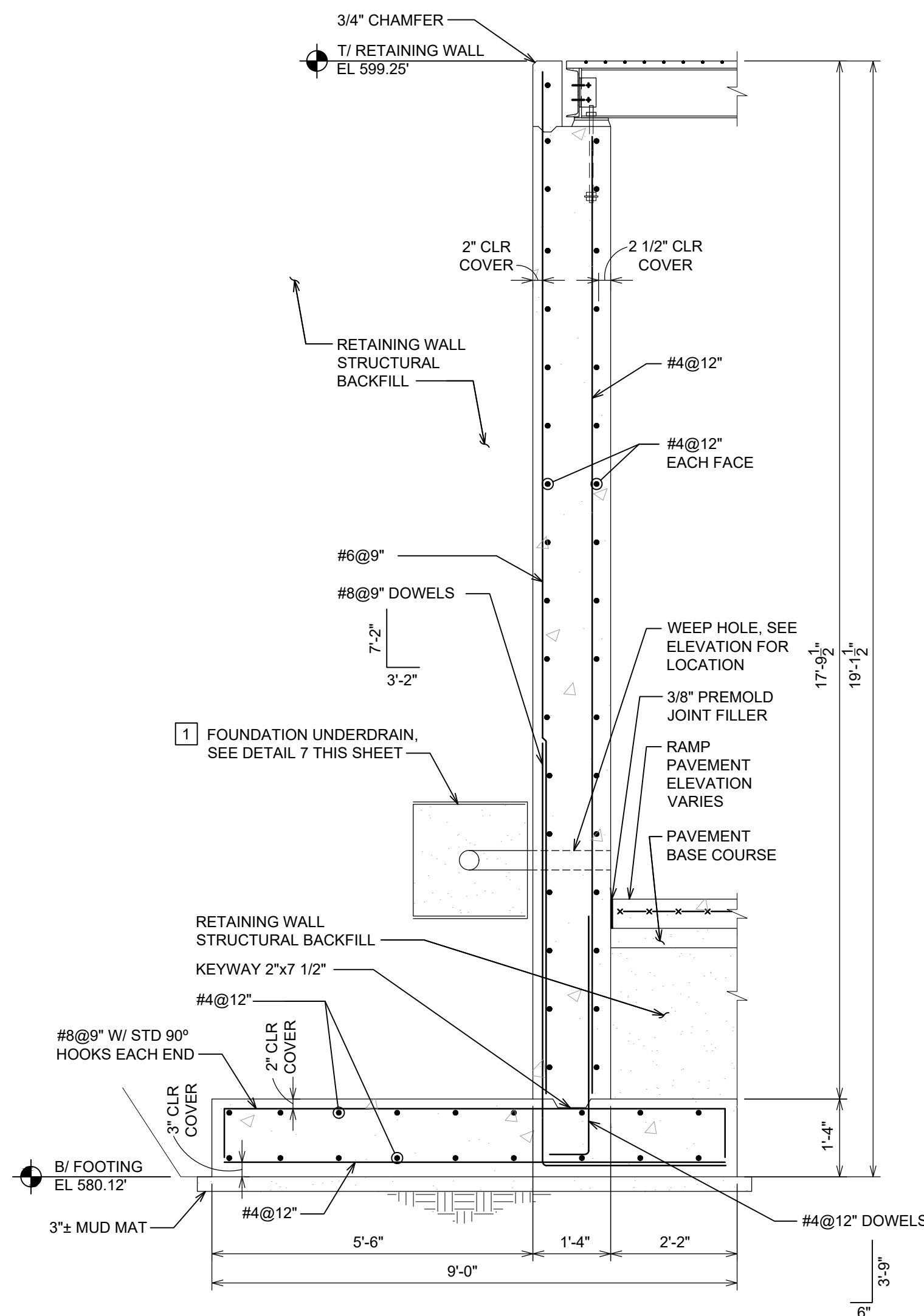
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12-14-23	OWNER REVIEW
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CHECKED	F.S.
APPROVED	T.G.M.

CITY OF ALPENA
WATER PRODUCTION PLANT
CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS

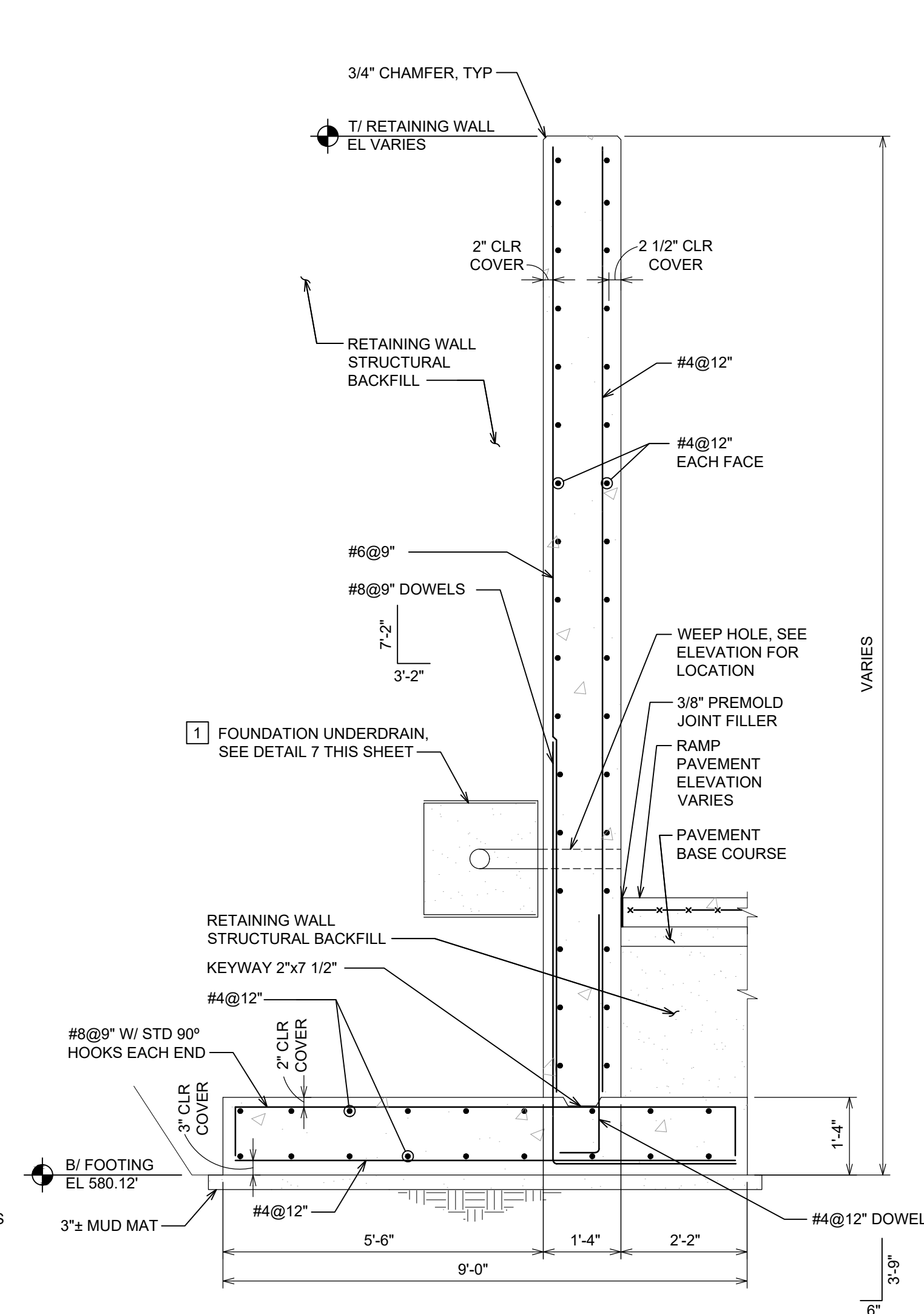
1300 S STATE AVE, ALPENA, MI 49707
ALPENA COUNTY MICHIGAN

STRUCTURAL
WALL ELEVATIONS,
SECTIONS AND DETAILS

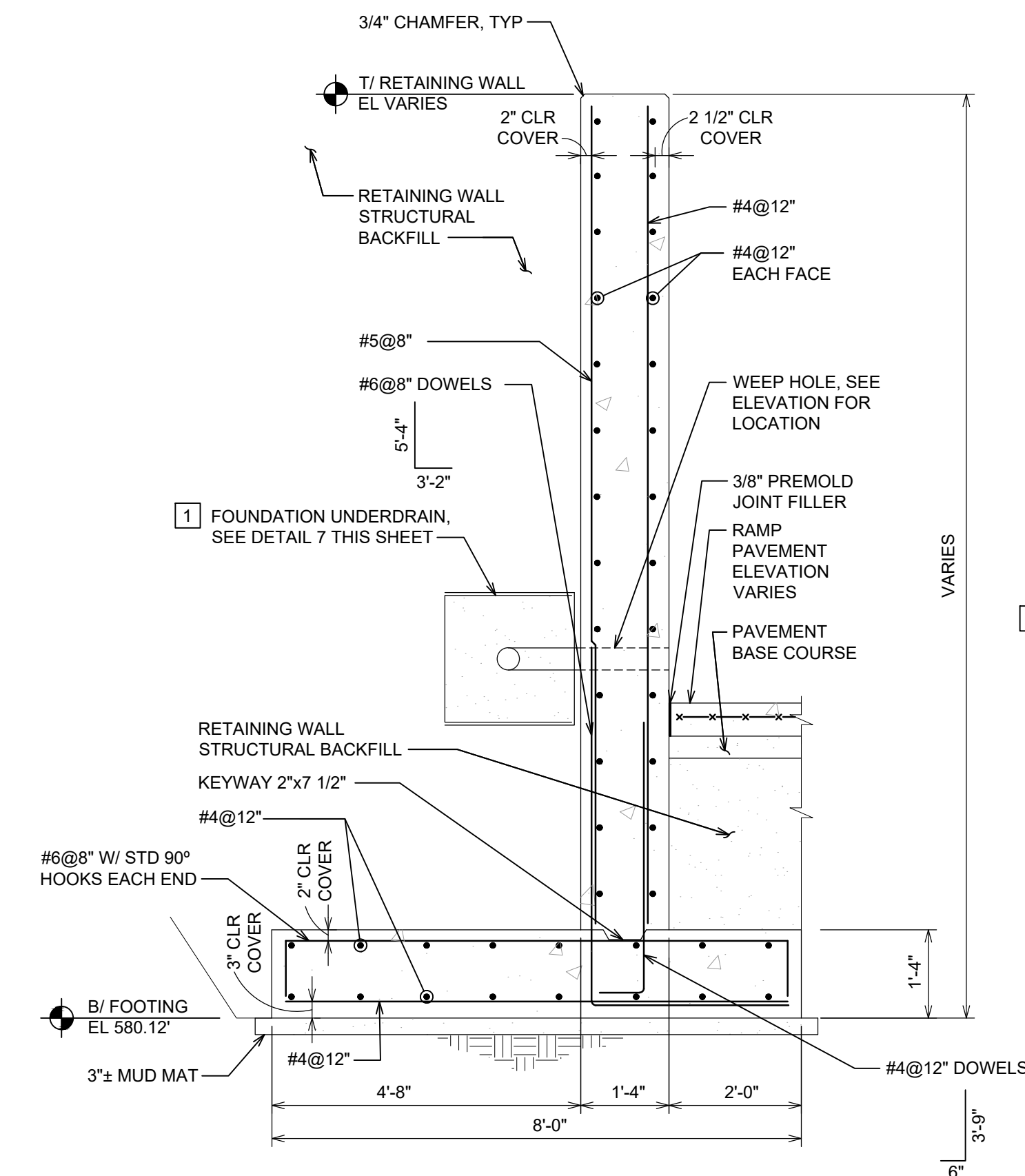
HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. S-11 OF



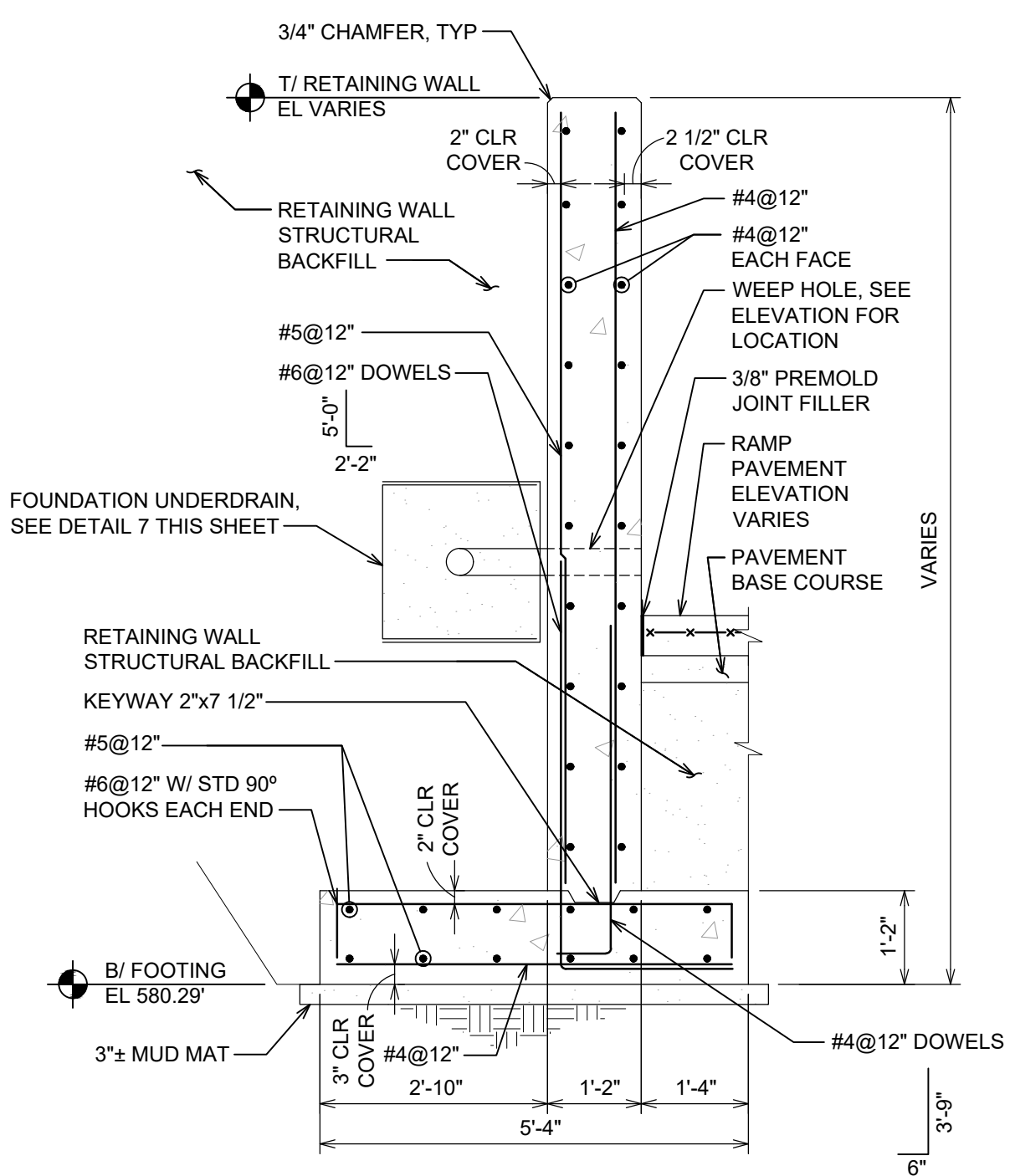
SECTION 1
SCALE: 1/2" = 1'-0"
S-11



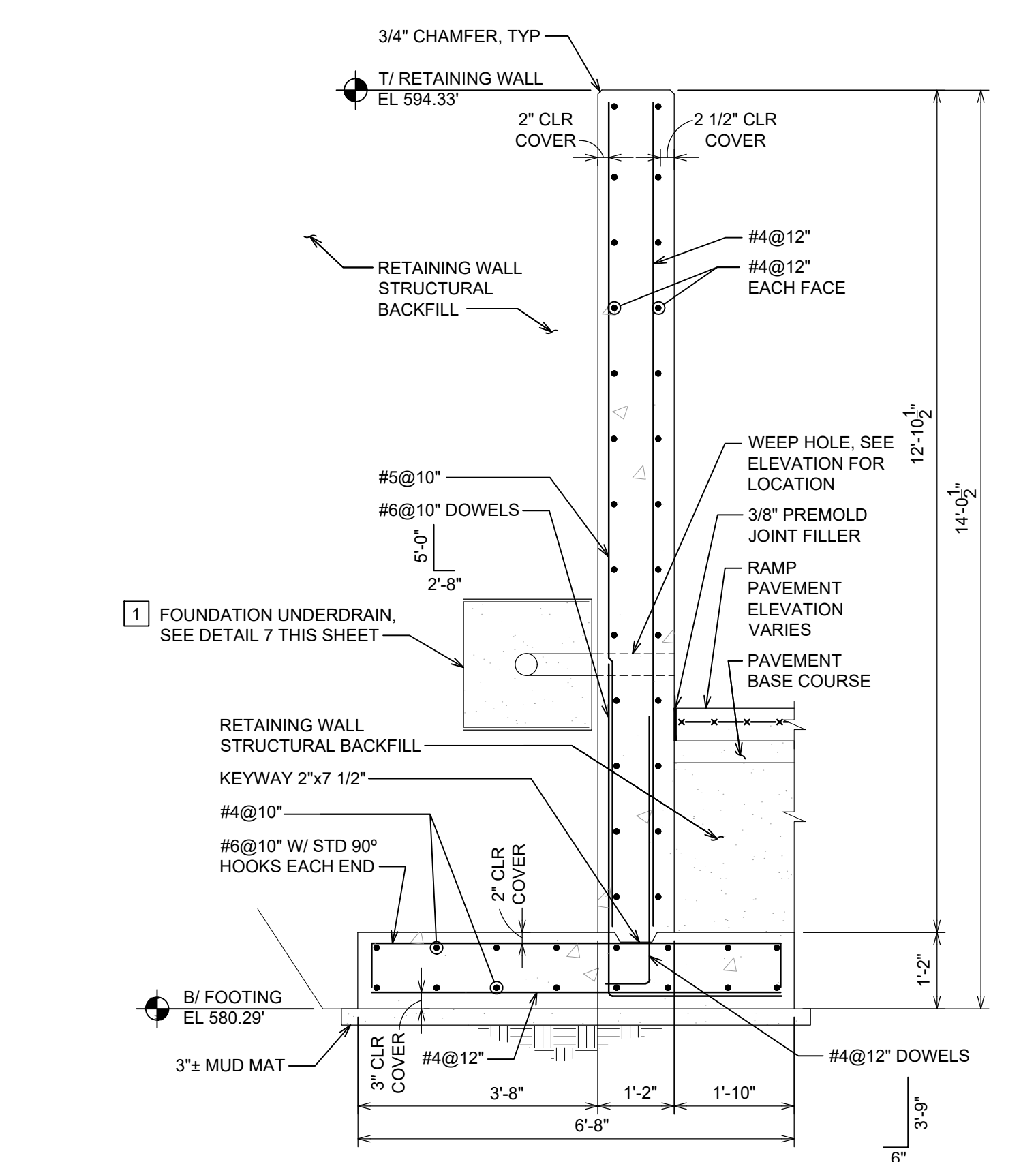
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S-11



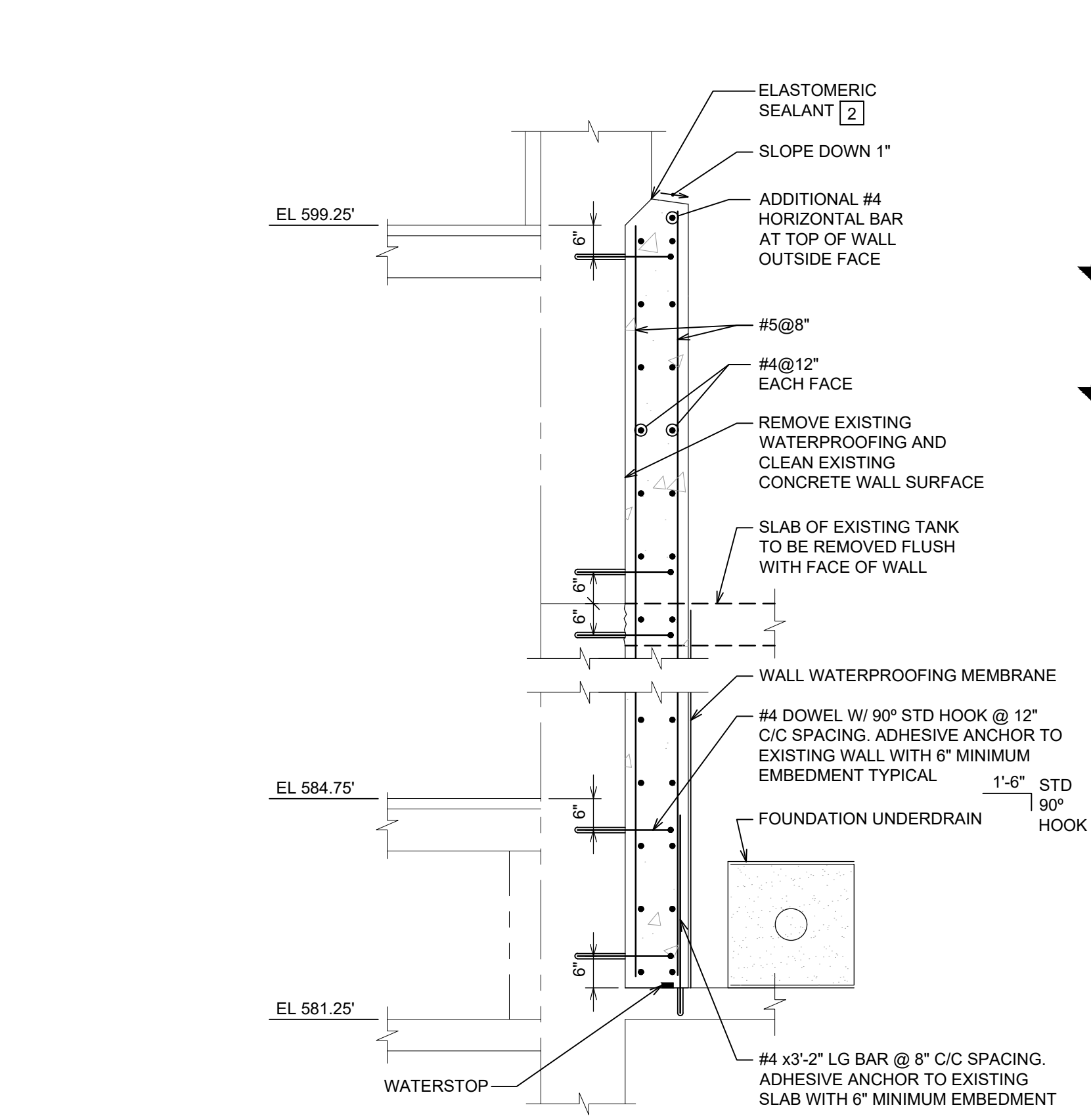
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S-11



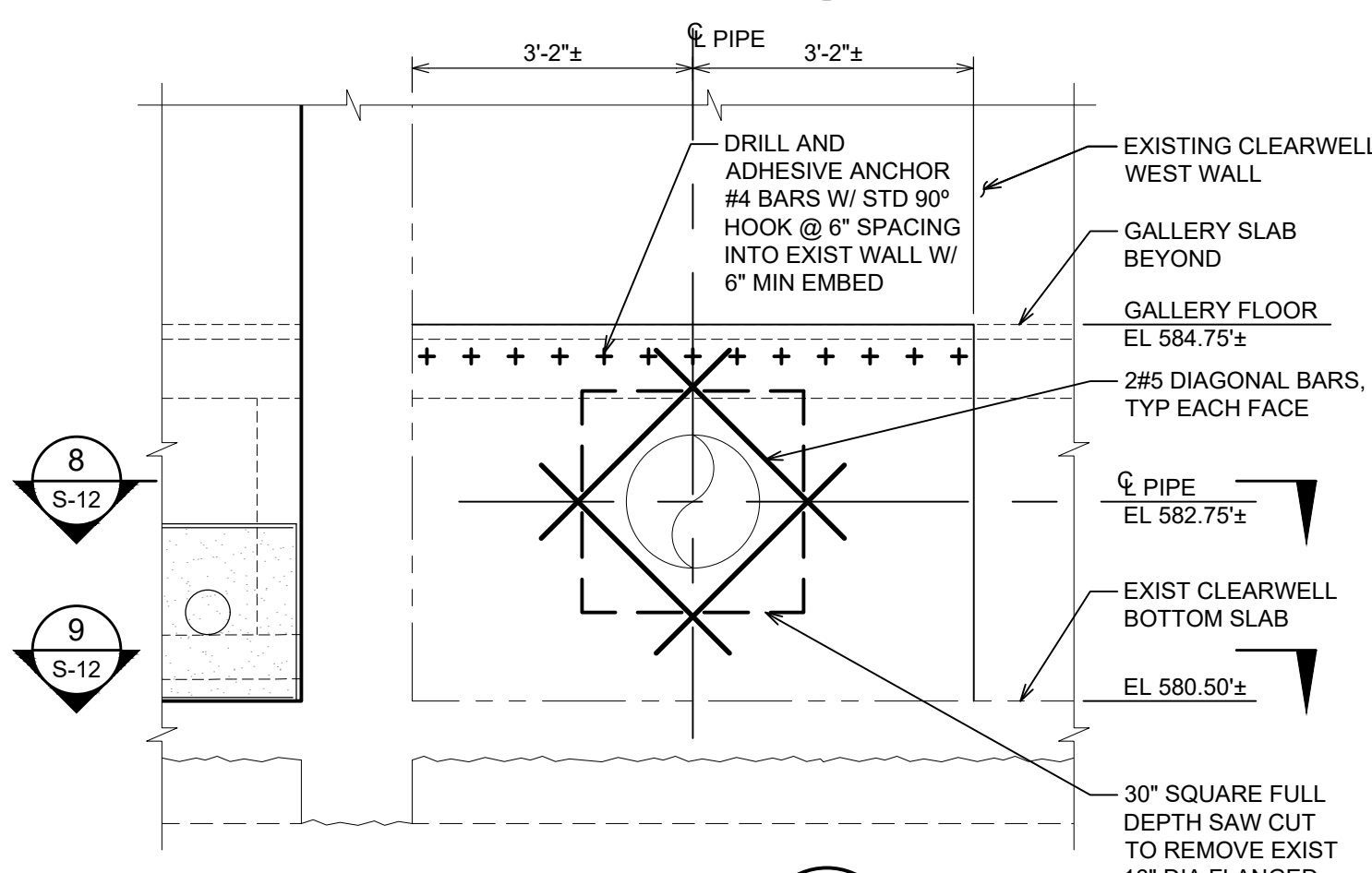
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S-11



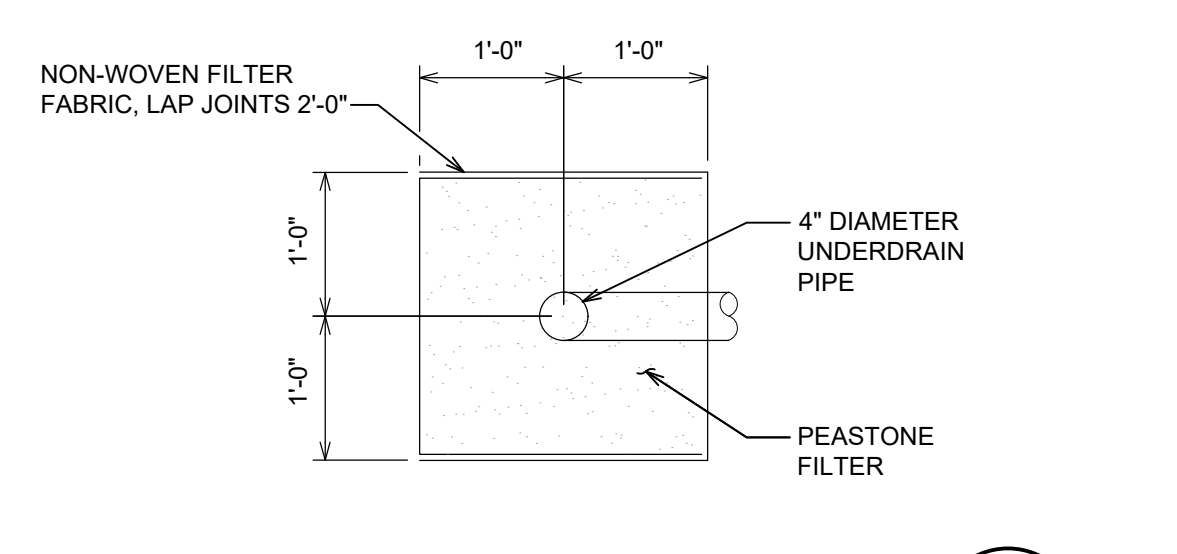
SECTION 4
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S-11



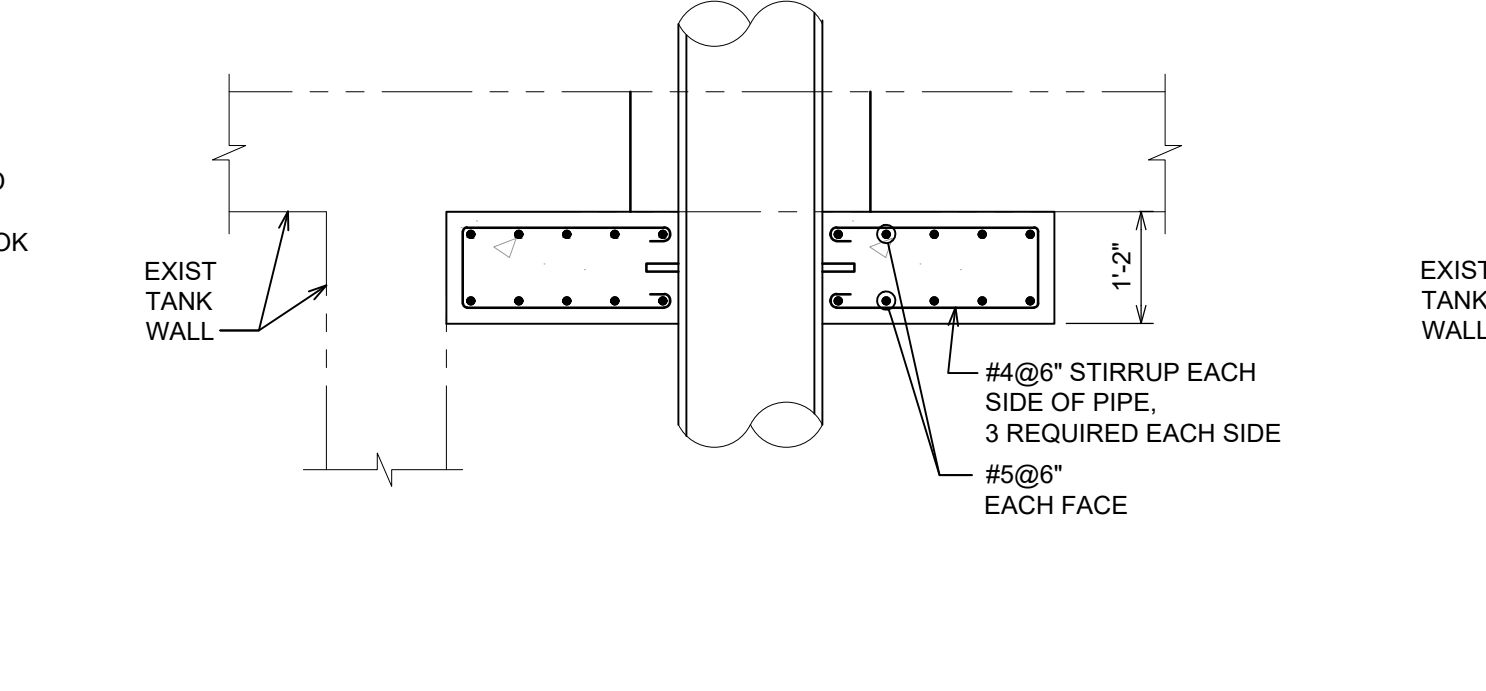
SECTION 5
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S-2,S-8



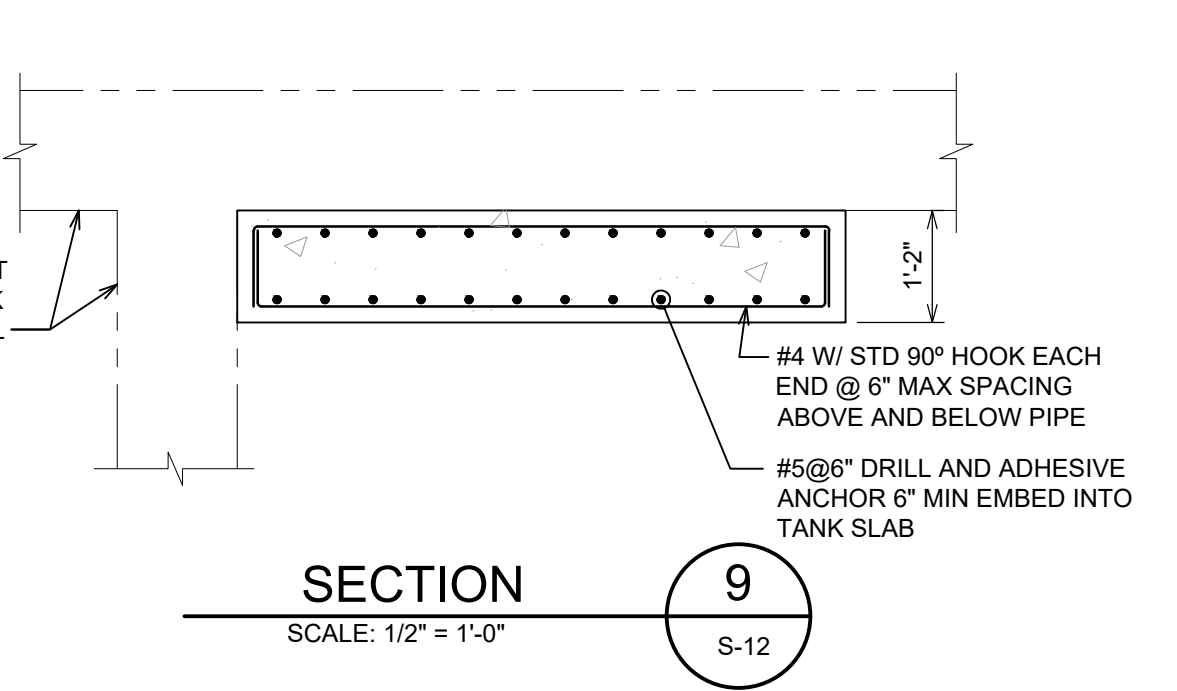
DETAIL 6
SCALE: 1/2" = 1'-0"
S-8



FOUNDATION UNDERDRAIN DETAIL 7
SCALE: 3/4" = 1'-0"
S-12



SECTION 8
SCALE: 1/2" = 1'-0"
S-12



SECTION 9
SCALE: 1/2" = 1'-0"
S-12

ELEVATION, SECTIONS AND DETAILS KEY NOTES

- FOUNDATION UNDERDRAIN SHALL CONSIST OF 4" DIAMETER CORRUGATED HDPE PIPE WITH FITTINGS EMBEDDED IN CLEAN (WASHED) PEA GRAVEL WRAPPED IN MIRAFI 140N NON-WOVEN FILTER FABRIC.
- ELASTOMERIC JOINT SEALANT SHALL BE SIKAFLEX-1A, LIMESTONE COLOR. INSTALL IN COMPLIANCE WITH MANUFACTURER'S APPLICATION INSTRUCTIONS AND LIMITATIONS.



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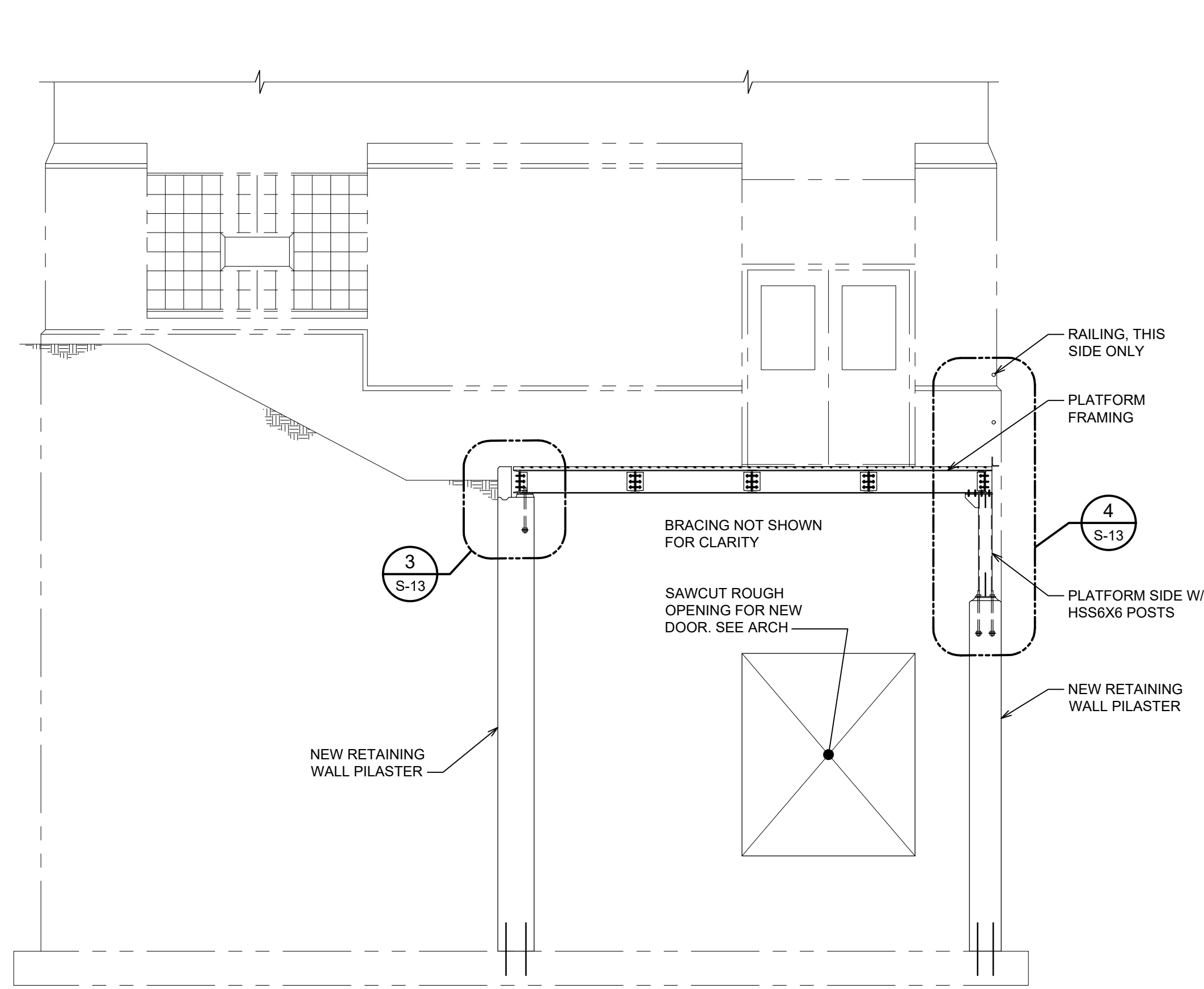
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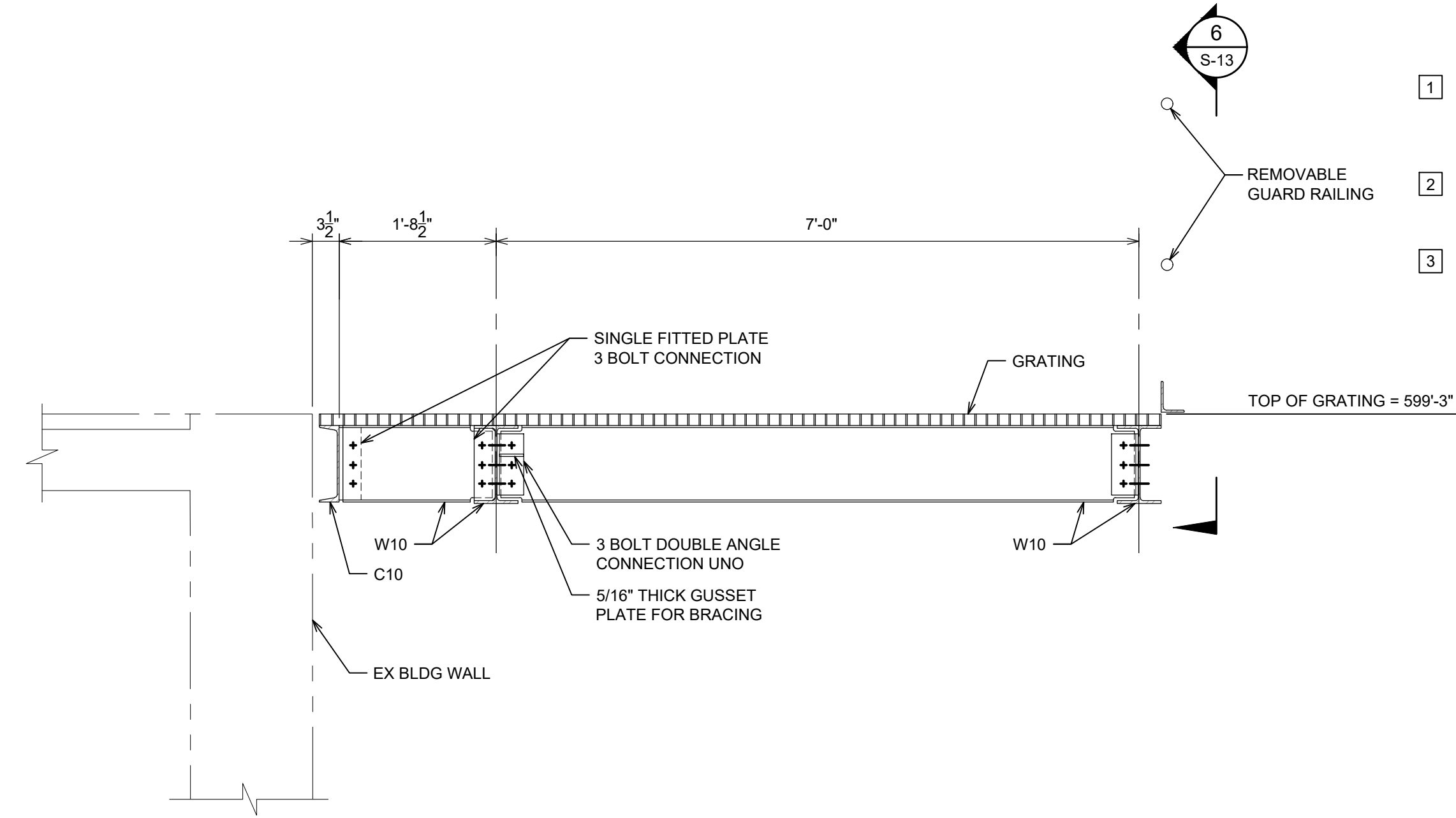
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 ALPENA COUNTY MICHIGAN

STRUCTURAL SECTIONS AND DETAILS

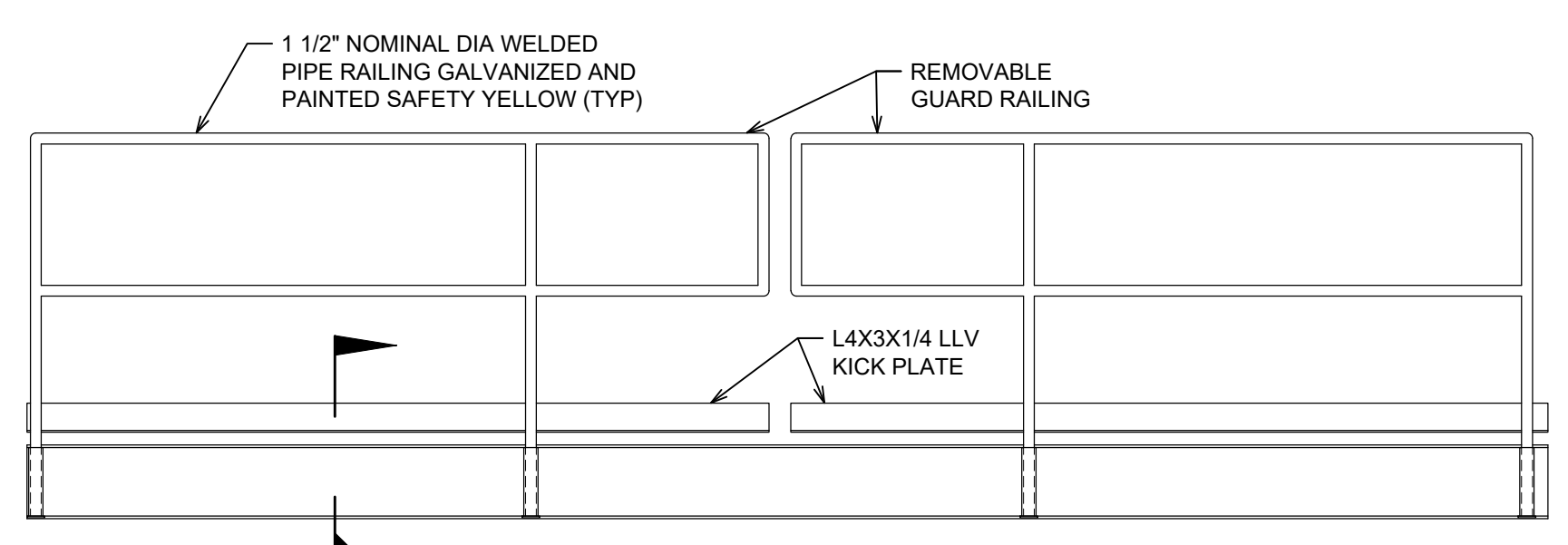
HRC JOB NO.	SCALE
20220751	AS NOTED
DATE	SHEET NO.
DECEMBER 2023	S-12 OF



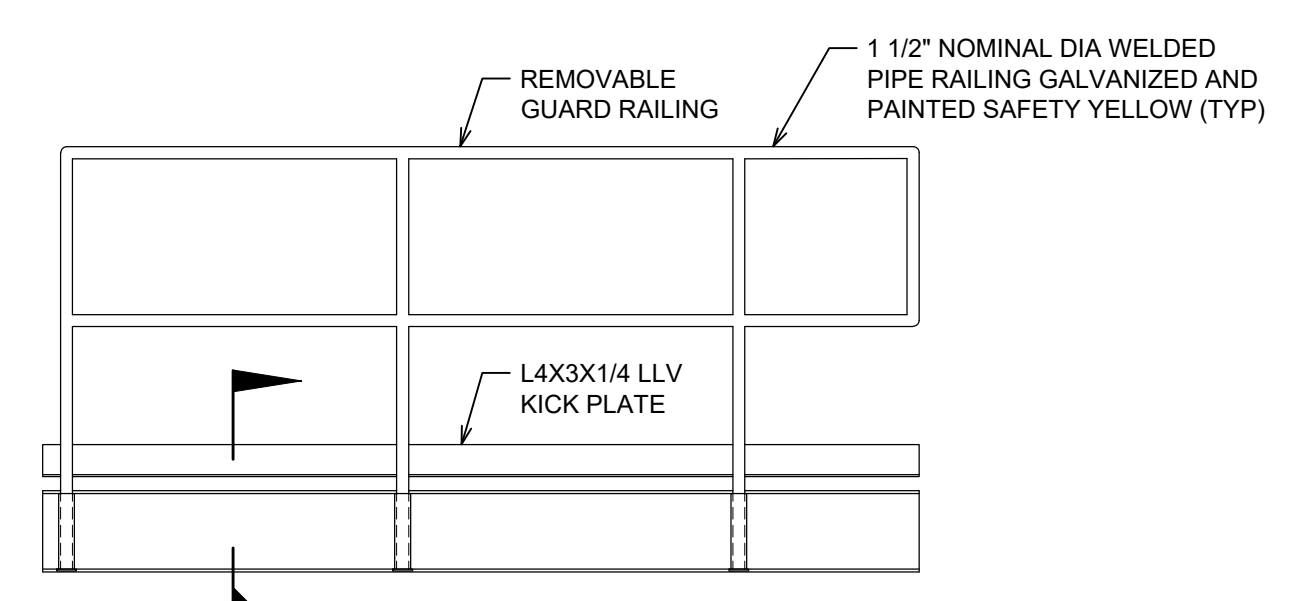
SECTION 1
SCALE: 1/4" = 1'-0"
S-2, S-3



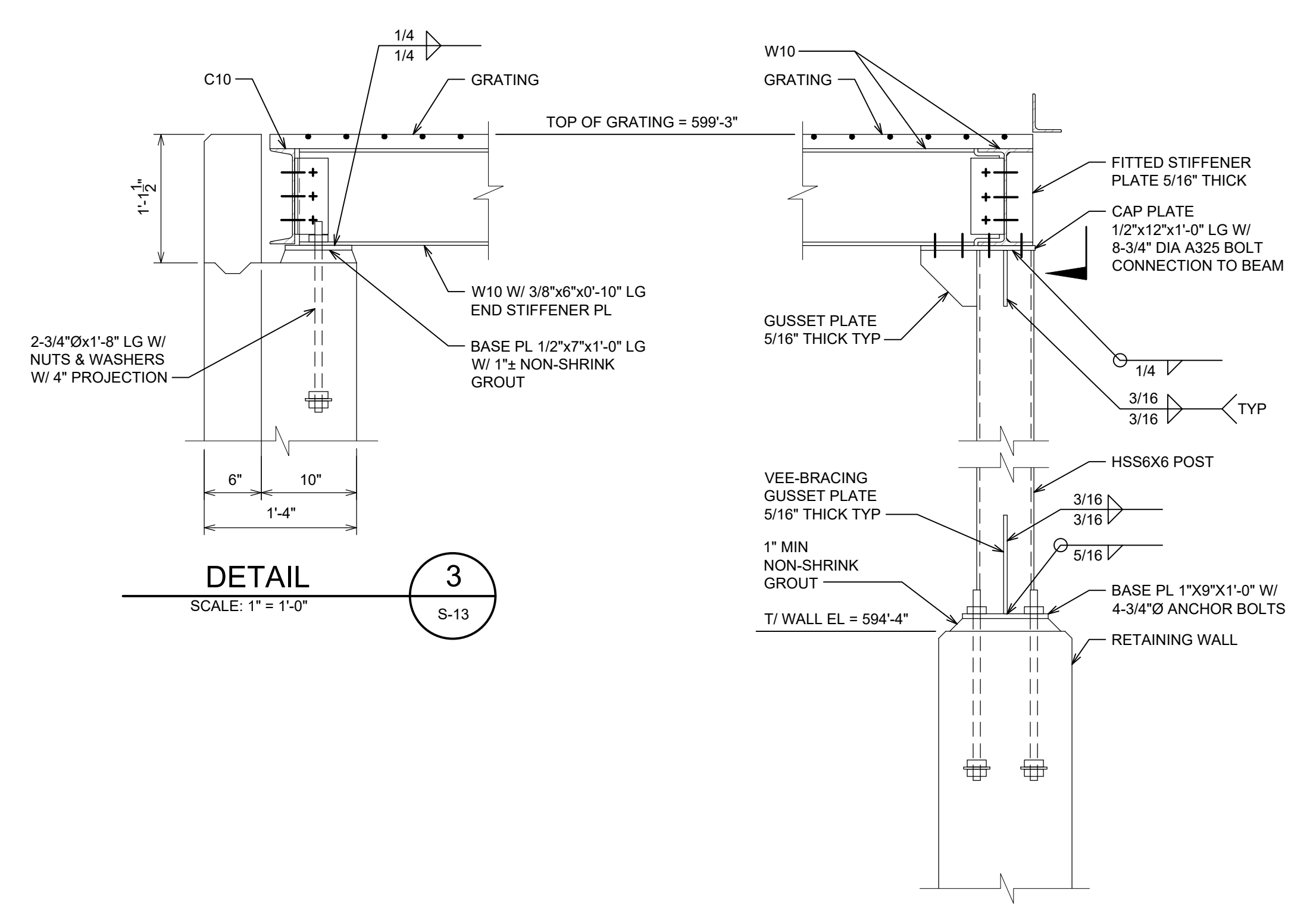
SECTION 2
SCALE: 3/4" = 1'-0"
S-3



DETAIL 5
SCALE: 1/2" = 1'-0"
S-3

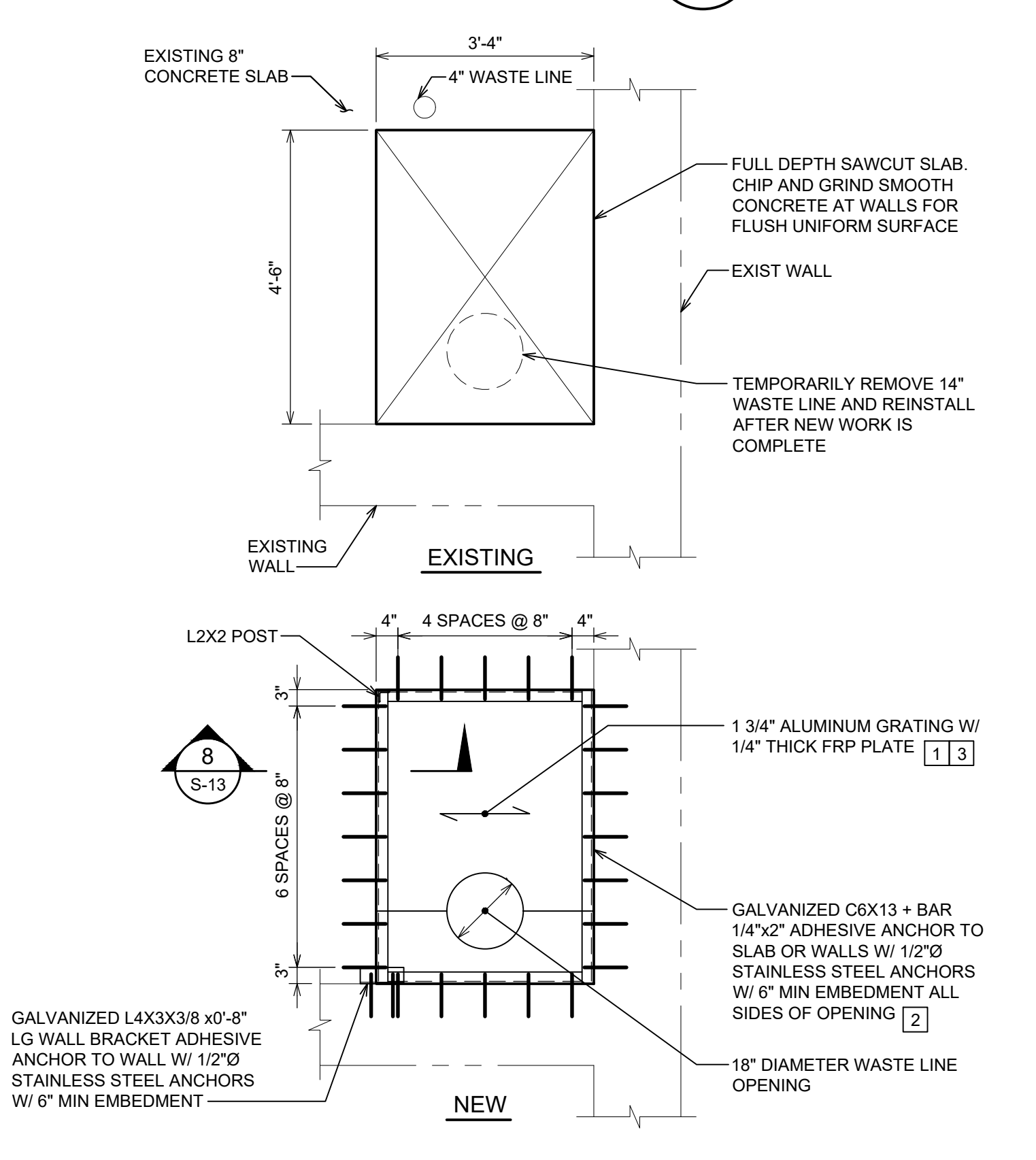


DETAIL 6
SCALE: 1/2" = 1'-0"
S-3

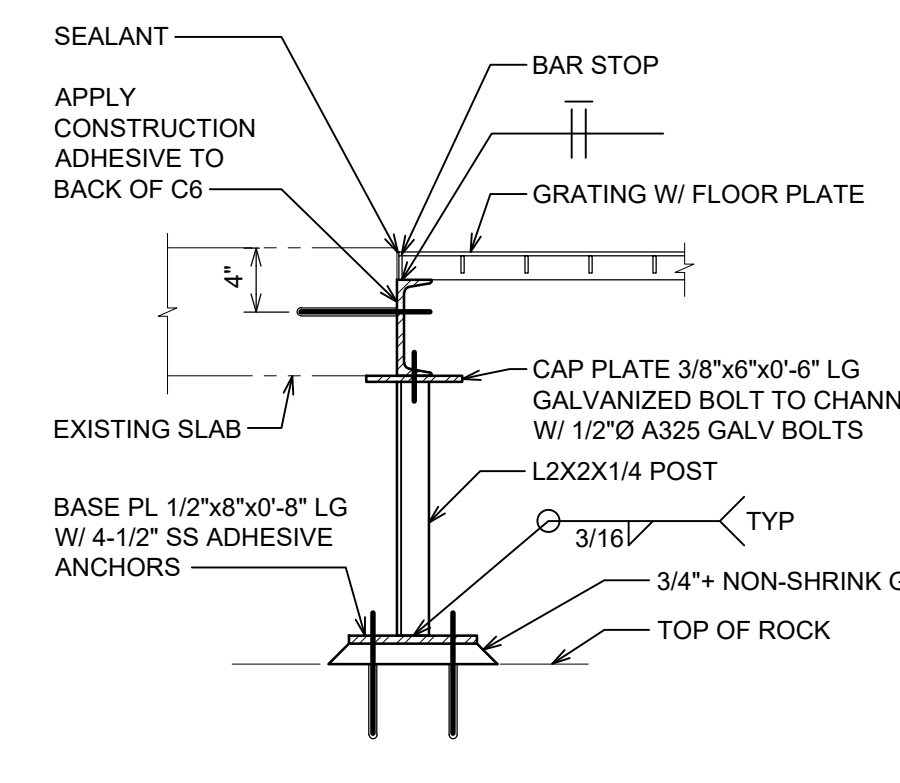


DETAIL 3
SCALE: 1" = 1'-0"
S-13

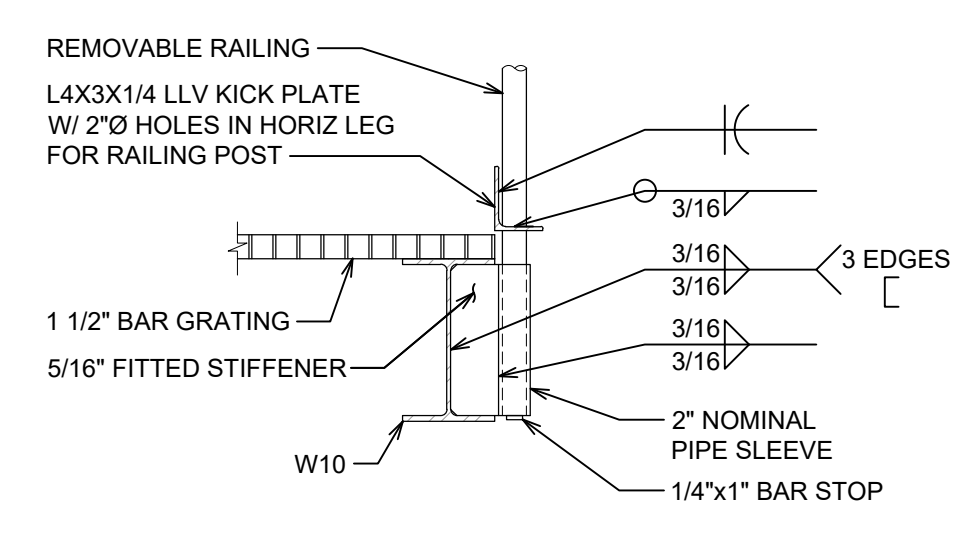
DETAIL 4
SCALE: 1" = 1'-0"
S-13



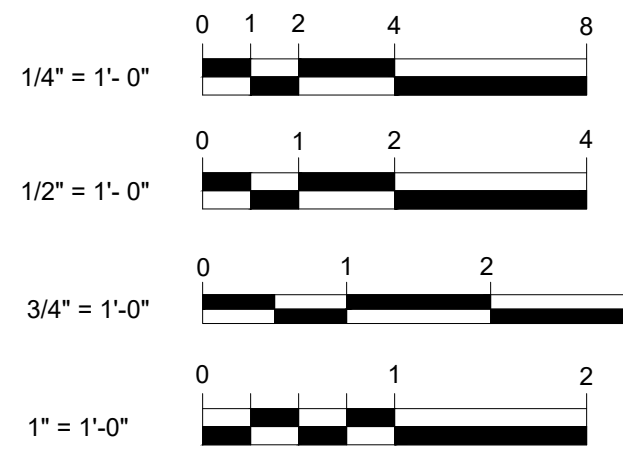
PLAN DETAILS 7
SCALE: 1/2" = 1'-0"
S-2



SECTION 8
SCALE: 1" = 1'-0"
S-13



DETAIL 9
SCALE: 1" = 1'-0"
S-13



- SECTION AND DETAIL KEY NOTES**
- 1 3/4"x3/16" PRESSURE LOCKED ALUMINUM GRATING (19-4) LOAD BANDED AT PANEL LOAD BEARING EDGES AND LOADED BANDED AT PIPE OPENING WITH 1/2"x2" BAR WITH 1/4" PROJECTION ABOVE TOP OF GRATING TO SERVE AS STOP FOR THE FRP PLATE.
 - ISOLATE ALUMINUM GRATING FROM CONTACT WITH GALVANIZED STEEL SURFACES WITH 2 MIL THICK YELLOW POLYETHYLENE TAPE ADHERED TO THE GALVANIZED STEEL SURFACES.
 - FRP FLOOR PLATE SHALL BE 1/4" THICK STRONGWELL.



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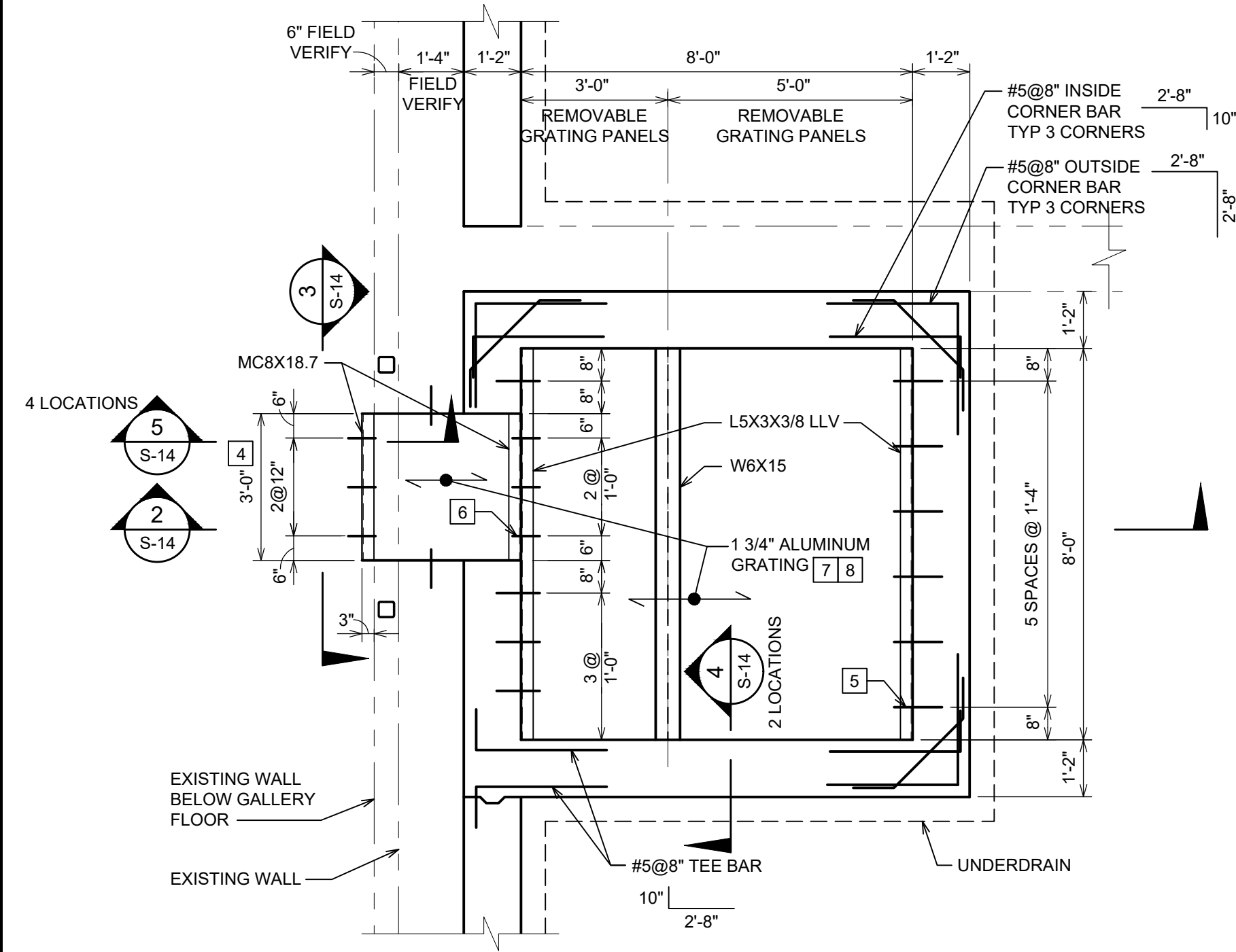
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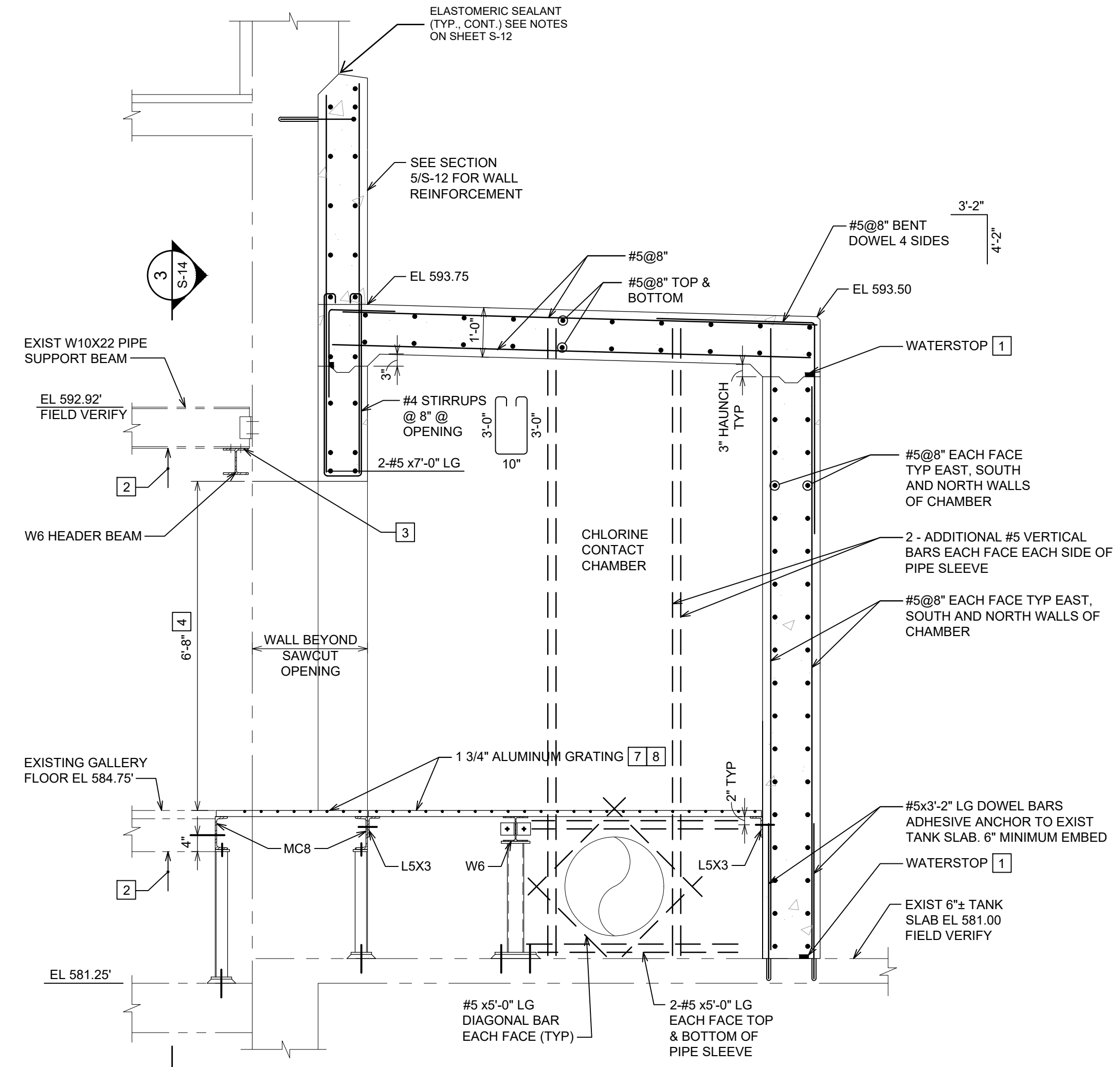
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STRUCTURAL
SECTIONS AND DETAILS

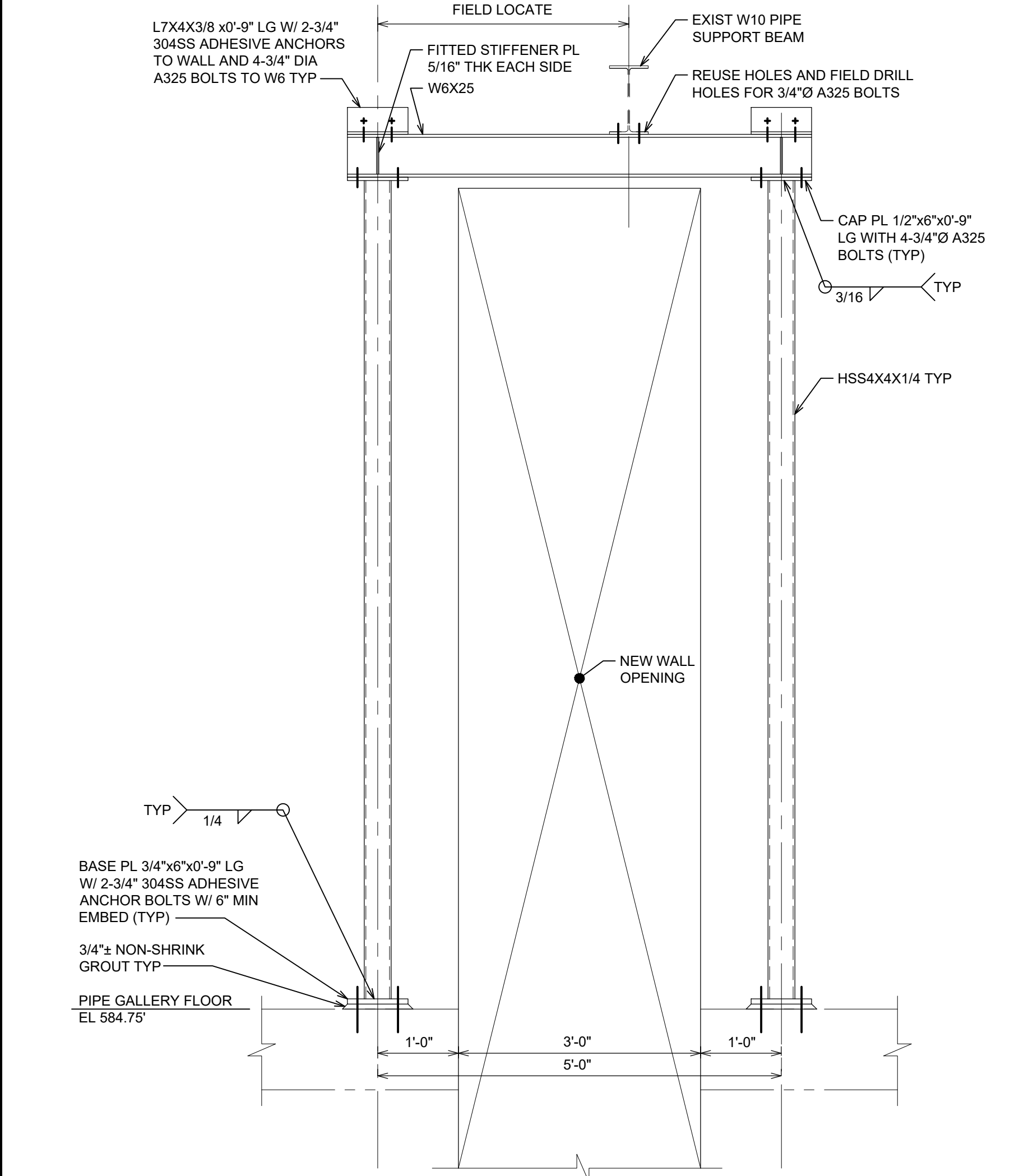
HRC JOB NO. 20220751	SCALE AS NOTED
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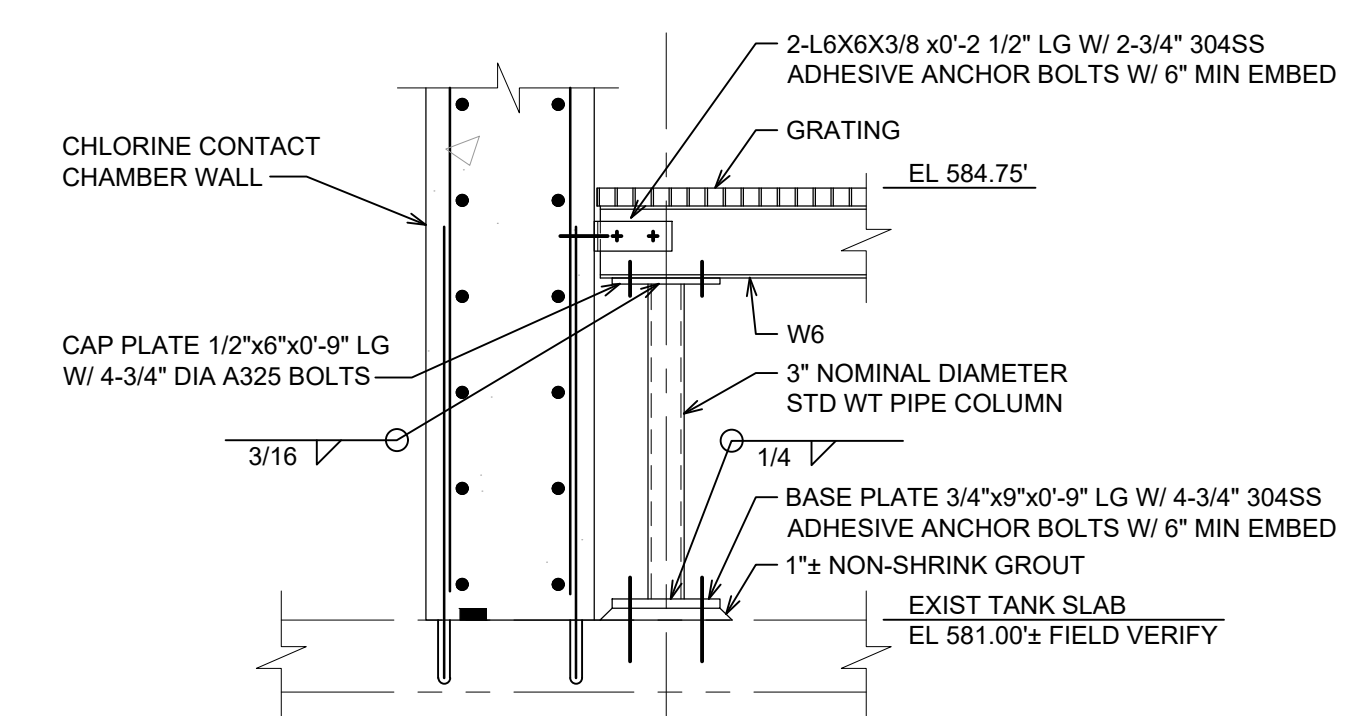
PLAN DETAIL 1
SCALE: 3/8" = 1'-0"
S-2



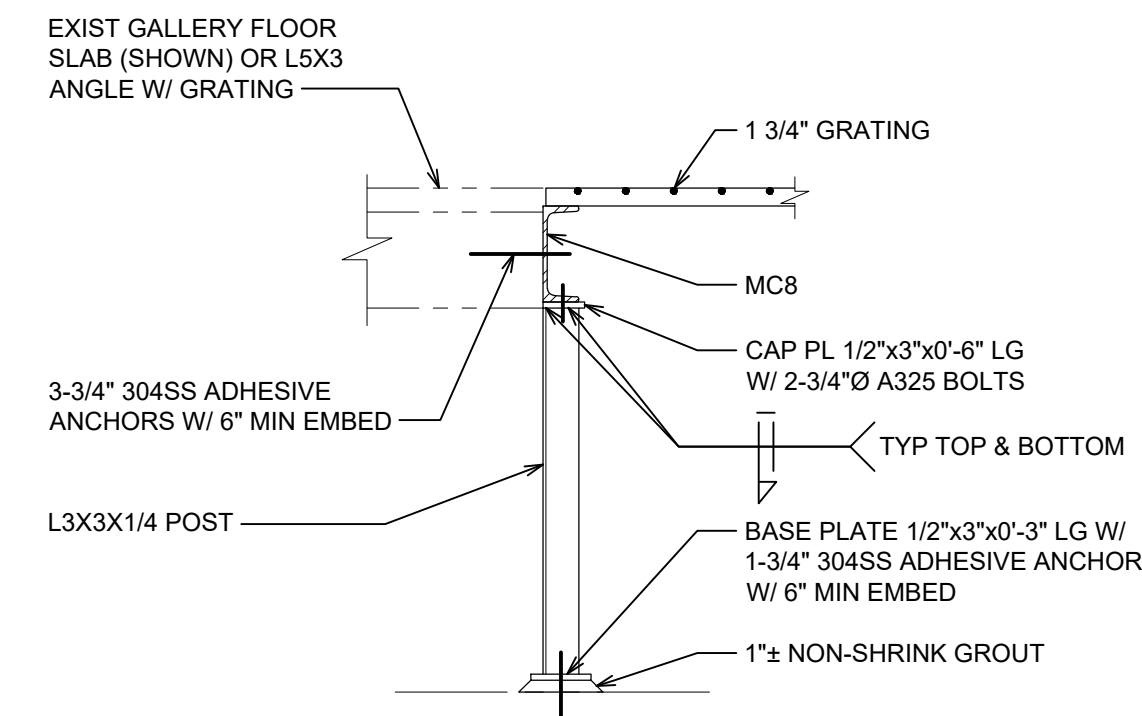
SECTION 2
SCALE: 1/2" = 1'-0"
S-8, S-14



SECTION 3
SCALE: 3/4" = 1'-0"
S-14

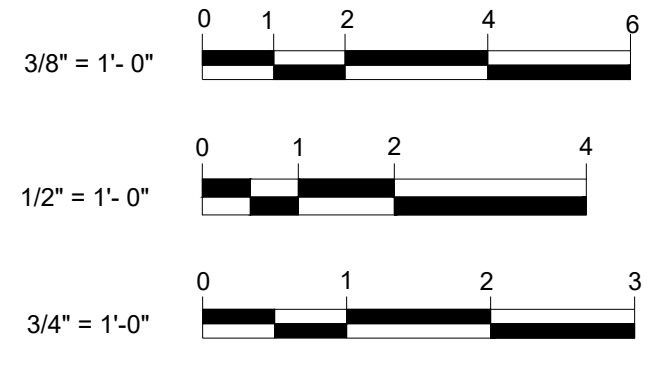


SECTION 4
SCALE: 3/4" = 1'-0"
S-14



SECTION 5
SCALE: 3/4" = 1'-0"
S-14

- SECTION AND DETAIL KEY NOTES**
- CONSTRUCTION JOINT WATERSTOP SHALL BE SIKA/GREENSTREAK HYDROTITE CJ-1030-M WATERSTOP. INSTALL WATERSTOP IN COMPLIANCE WITH MANUFACTURERS REQUIREMENTS.
 - SHORE EXISTING W10 PIPE SUPPORT BEAM TO MODIFY WALL CONNECTION. TRANSFER SUPPORT TO W6 HEADER BEAM. SHORING SHALL TRANSFER LOAD THROUGH GALLERY FLOOR SLAB TO PIPE CHASE SLAB BELOW.
 - REMOVE W10 PIPE SUPPORT BEAM SEAT ANGLE END CONNECTION AT WALL. THIS SHALL INCLUDE REMOVAL OF WALL BOLTS.
 - SAWCUT 3'-0" PASSAGE WAY OPENING THROUGH EXISTING PIPE GALLERY AND PIPE CHASE WALLS. OPENING SHALL EXTEND VERTICALLY FROM PIPE CHASE FLOOR SLAB TO 6'-8"± ABOVE GALLERY FLOOR ELEVATION OF 584.75.
 - 3/4" DIAMETER 304 SS ADHESIVE ANCHORS FOR WALL ANGLE SUPPORT. 6" MINIMUM EMBEDMENT INTO WALL, TYPICAL.
 - 3/4" A325 BOLTS FOR CONNECTION OF L5X3 TO MC8.
 - 1 3/4"x3/16" PRESSURE LOCKED ALUMINUM GRATING (19-4) LOAD BANDED AT PANEL BEARING EDGES. PANELS SHALL BE SINGLE SPAN WITH PANEL WIDTH IN CHAMBER AT MAXIMUM NOMINAL WIDTH OF 2'-8". CLIP EACH PANEL TO SUPPORTING STRUCTURE WITH A MINIMUM OF 4 GRATING CLIPS.
 - ISOLATE ALUMINUM GRATING FROM CONTACT WITH GALVANIZED STEEL SURFACES WITH 2.2 MIL THICK YELLOW POLYETHYLENE TAPE ADHERED TO THE GALVANIZED STEEL SURFACES.



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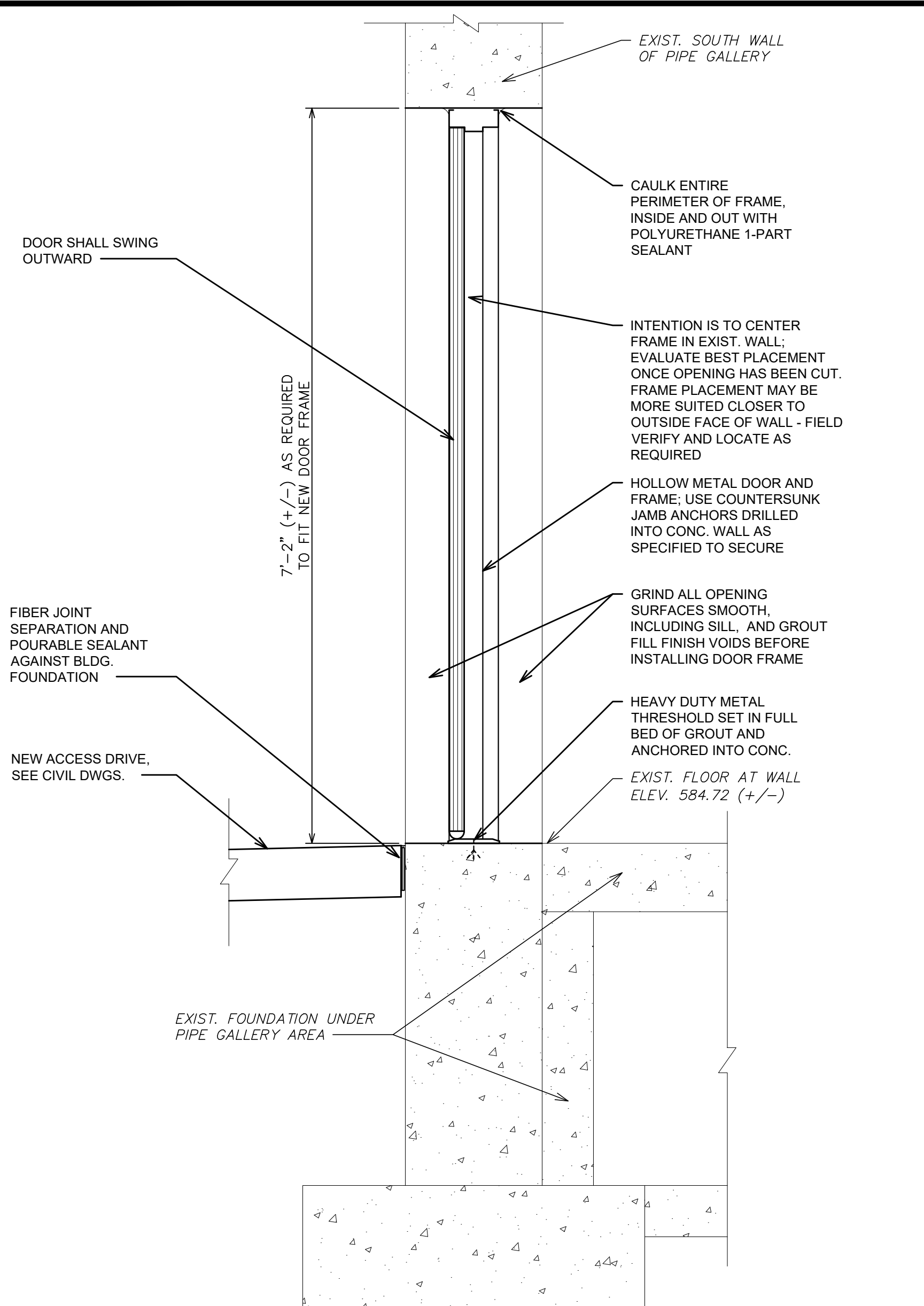
CITY OF ALPENA
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1300 S STATE AVE, ALPENA, MI 49707
ALPENA COUNTY MICHIGAN

STRUCTURAL SECTIONS AND DETAILS

HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. S-14 OF

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Crahm, Jane



DOOR SECTION 1
SCALE: 1" = 1'-0"
A-1

BUILDING CODE DATA:

APPLICABLE CODES:

2015 MICHIGAN BUILDING CODE (MBC)

EFFECTIVE AS OF MARCH 12, 2024:

2023 NATIONAL ELECTRIC CODE (NEC) WITH MICHIGAN AMENDMENTS
2021 MICHIGAN MECHANICAL CODE
2021 MICHIGAN PLUMBING CODE

NEW CONSTRUCTION IS A CONCRETE TANK TO BE USED AS A DRINKING WATER CLEARWELL. USE GROUP IS "U" UTILITY AND MISCELLANEOUS. TANK STRUCTURE IS NOT A HABITABLE SPACE AND THERE IS NO OCCUPANCY ASSOCIATED WITH IT.

SEE STRUCTURAL DRAWINGS FOR ADDITIONAL CODE AND DESIGN DATA.

ABBREVIATIONS					
A.B.	-ANCHOR BOLT	ELEC.	-ELECTRICAL	MAX.	-MAXIMUM
ABV.	-ABOVE	ELEV.	-ELEVATION	MECH.	-MECHANICAL
A.D.	-ACCESS DOOR	EQUIP.	-EQUIPMENT	MFR.	-MANUFACTURER
ADJ.	-ADJACENT, ADJUSTIBLE	EXIST.	-EXISTING	MIN.	-MINIMUM
A.F.F.	-ABOVE FINISHED FLOOR	EXP.	-EXPANSION	M.O.	-MASONRY OPENING
ALUM.	-ALUMINUM	EXT.	-EXTERIOR	N.I.C.	-NOT IN CONTRACT
ARCH.	-ARCHITECTURAL	F.D.	-FLOOR DRAIN	NOM.	-NOMINAL
B/B	-BACK TO BACK	FDN.	-FOUNDATION	N.T.S.	-NOT TO SCALE
BLDG.	-BUILDING	FEX	-FIRE EXTINGUISHER	O.C.	-ON CENTER
BLK.	-BLOCK	FIN.	-FINISH	OPNG.	-OPENING
BOTT.	-BOTTOM	FL.	-FLOOR	R.O.	-ROUGH OPENING
BRD.	-BOARD	FL.	-FINISHED	R.S.	-ROOF SUMP
		FLASH.	-FLASHING	REF.	-REFERENCE
		FLG.	-FLANGE	REINF.	-REINFORCEMENT
		FSTN.	-FASTEN	REQ'D.	-REQUIRED
		FT.	-FOOT, FEET	RM.	-ROOM
		FTG.	-FOOTING	RQMTS.	-REQUIREMENTS
		GA.	-GAUGE	SCH.	-SCHEDULE
		GALV.	-GALVANIZED	S.F.	-SQUARE FEET
		G.B.W.	-GLASS BLOCK WINDOW	SIM.	-SIMILAR
		GR.	-GRADE	SPECS.	-SPECIFICATIONS
		H.	-HIGH	S.S.	-STAINLESS STEEL
		H.M.	-HOLLOW METAL	STL.	-STEEL
		HD.	-HEAD	STRUCT.	-STRUCTURAL
		H.P.	-HIGH POINT	T/	-TOP
		HT.	-HEIGHT	TYP.	-TYPICAL
		HORIZ.	-HORIZONTAL	U.N.O.	-UNLESS NOTED OTHERWISE
		I.E.	-INVERT ELEVATION	VERT.	-VERTICAL
		INSUL.	-INSULATION	W.	-WIDTH
		INT.	-INTERIOR	W/	-WITH
		LB.	-POUND	WD.	-WOOD
		LLH.	-LONG LEG HORIZONTAL	W.L.	-WINDOW LINTEL
		LLV.	-LONG LEG VERTICAL		
		L.P.	-LOW POINT		
		MAINT.	-MAINTENANCE, MAINTAIN		
		MAS.	-MASONRY		

HOLLOW METAL DOOR, FRAME & HARDWARE

WALL OPENING VERIFICATION:

- CONTRACTOR SHALL NOT ORDER DOOR AND FRAME UNIT UNTIL WALL HAS BEEN EXCAVATED AND RETAINING WALL LOCATIONS ARE LAID OUT IN THE FIELD. DO NOT SUBMIT SHOP DRAWINGS FOR DOOR UNIT UNTIL THIS HAS BEEN DONE BECAUSE AT THIS TIME, CONTRACTOR WILL MEASURE WALL FACE FOR NEW OPENING AS INDICATED BELOW.
- INSIDE THE PIPE GALLERY, FIELD MEASURE WHERE EXISTING PIPING IS LOCATED AND MARK WALL FOR NEW OPENING. VERIFY FRAME DIMENSIONS AS DESIRED AND SHOWN IN DOOR SCHEDULE. SHORTER FRAME HEIGHT MAY BE ACCEPTABLE IF NECESSARY TO CLEAR PIPING. IF DOOR/FRAME DIMENSIONS REQUIRE MODIFICATION BEFORE ORDERING FOR BEST FIT, THIS SHALL BE AT NO ADDITIONAL COST TO OWNER. COORDINATE INTERIOR LOCATION OF WHERE OPENING WILL BE WITH THE FIELD LAYOUT FOR THE EAST SIDE RETAINING WALL OUTSIDE THE BUILDING.
- OWNER AND ENGINEER TO REVIEW OPENING LOCATION BEFORE WALL CUTTING IS STARTED.

DOOR, FRAME AND HARDWARE:

DOOR AND FRAME SHALL BE BASED ON CECO LEGION SERIES DOOR WITH SQ SERIES FRAME, OR EQUAL PRODUCTS BY STEELCRAFT OR CURRIES ARE ACCEPTABLE.

DOOR LEAF:

- FACE: STEEL, 16 GAGE, GALVANIZED SHEET IN ACCORDANCE WITH ASTM A653, G90, GALVANIZED BOTH SIDES; MANUFACTURED AND FABRICATED IN ACCORDANCE WITH HMMMA 802 AND 810.
- DOOR CORE SHALL BE SOLID POLYSTYRENE MATERIAL.
- DOOR STYLE SHALL BE FLUSH PANEL, NO VISION LITES.

FRAME SHALL BE PROVIDED BY DOOR MFR., MIN. 16 GA. GALVANIZED STEEL, ASTM A653 G90 GALVANIZING, AND WELDED CONSTRUCTION. FRAME SHALL BE 5-3/4 INCH X 2 INCH PROFILE. PROVIDE FACTORY ASPHALTIC COATING ON INSIDE OF FRAME.

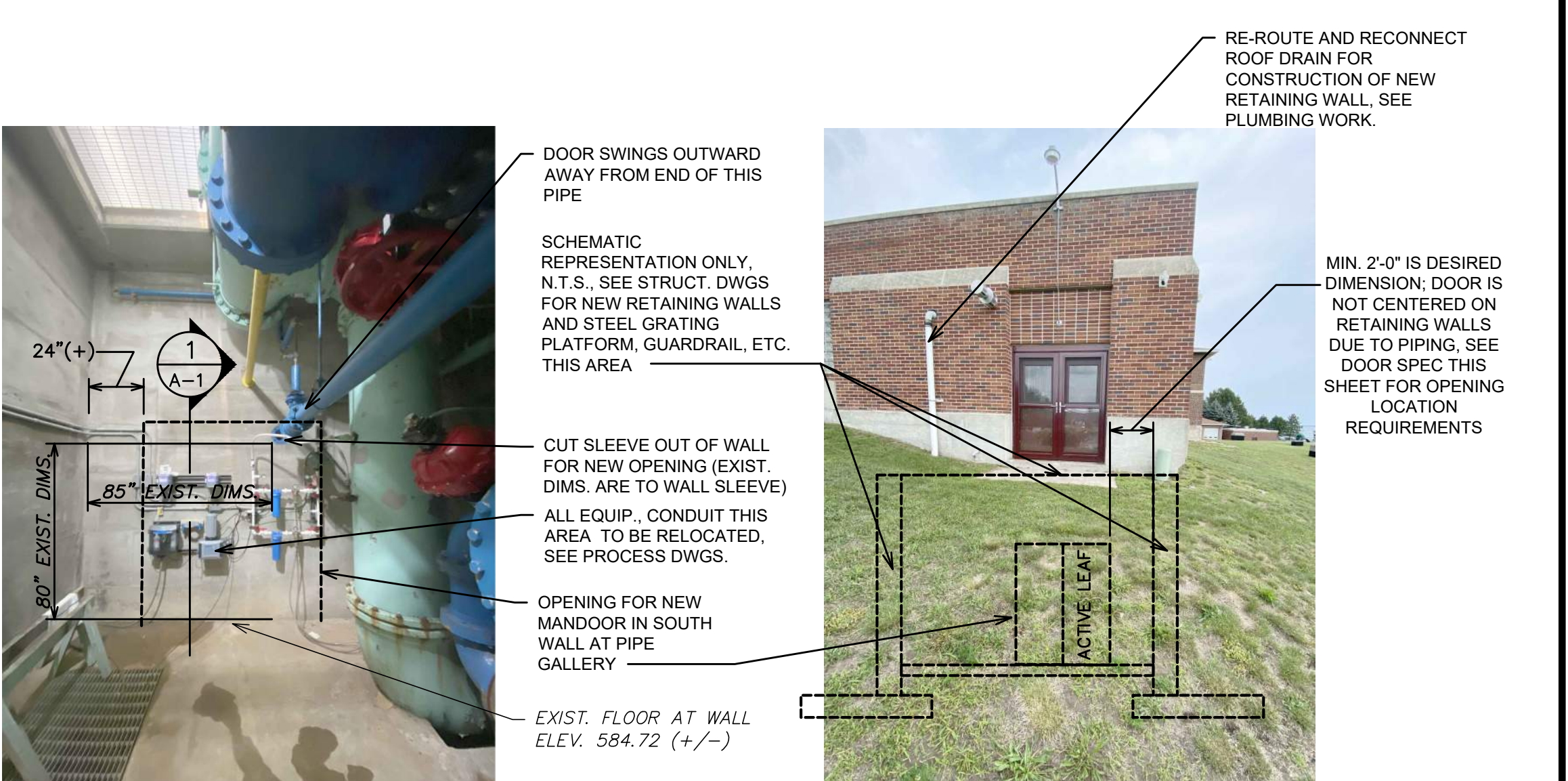
FRAME ANCHORS SHALL BE COUNTERSUNK GALV. BOLTS INTO EXISTING CONCRETE WALL WITH HEADS GLAZED OVER, SMOOTH WITH EPOXY, AND PAINTED.

MORTISE DOOR & FRAME FOR HARDWARE AS SPECIFIED BELOW. PROVIDE HARDWARE REINFORCEMENT, INCLUDING CLOSER REINFORCING, FOR DOORS AND FRAME.

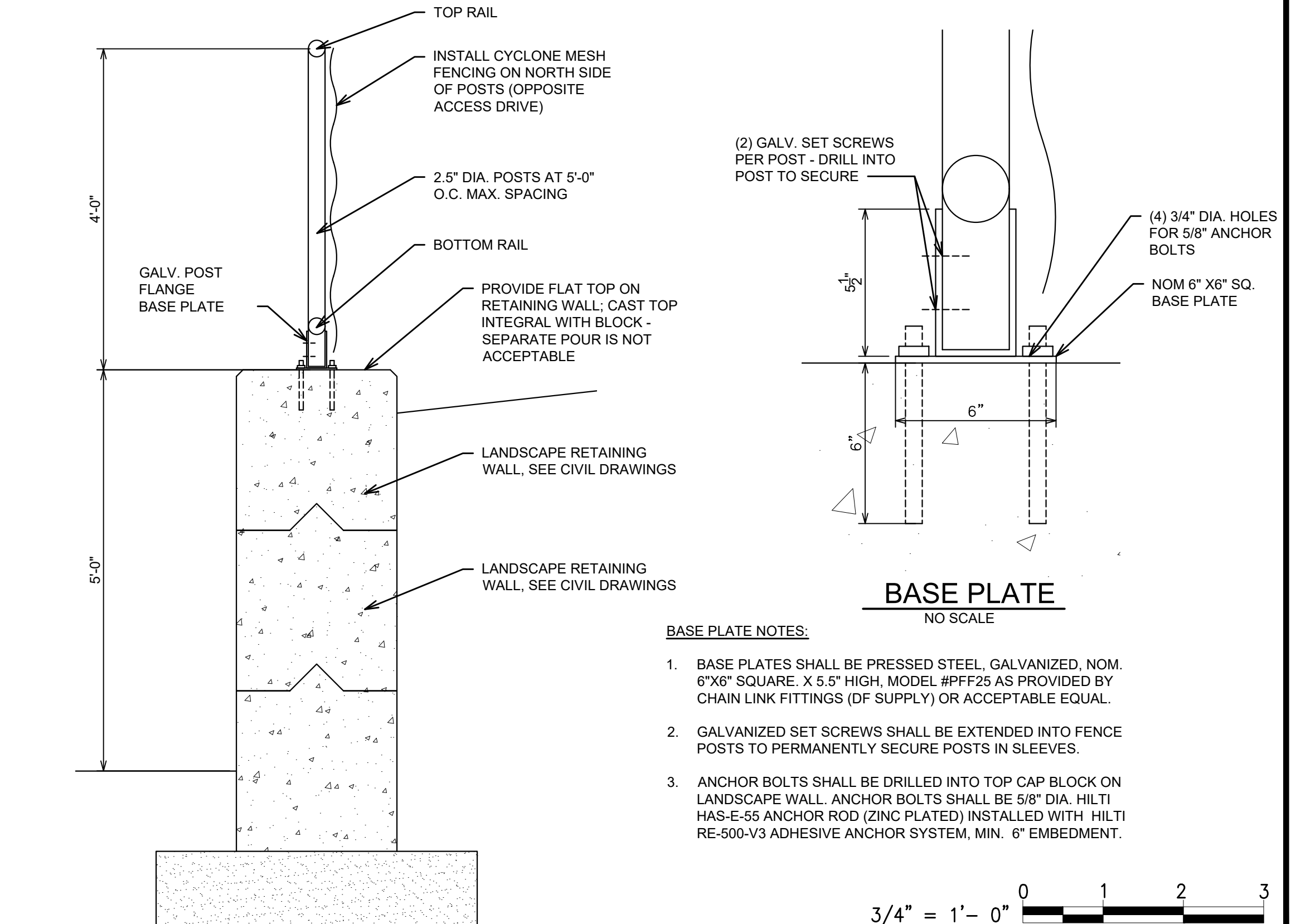
DOOR HARDWARE:

- SHOP DRAWINGS: INDICATE LOCATIONS AND MOUNTING HEIGHTS OF EACH TYPE OF HARDWARE, AND MATERIAL TYPES. SUBMIT MANUFACTURER'S PARTS LISTS, AND TEMPLATES TO STEEL DOOR AND FRAME MANUFACTURERS FOR MORTISING OF STEEL DOORS AND FRAMES. ALL NECESSARY TEMPLATES AND SCHEDULES SHALL BE PROVIDED AT SUCH TIME SO NOT TO DELAY THE WORK. REFER TO DELIVERY, STORAGE AND HANDLING HEREIN FOR FORWARDING REQUIREMENTS OF HARDWARE.
- HARDWARE FOR HOLLOW METAL DOOR:
 - HINGES: STAINLESS STEEL WITH BALL BEARINGS, FLAT BUTTON TIP, STANLEY FBB 199 32D, HAGER BB 1199, IVES A5111 OR MCKINNEY NO. T4B3386. HINGES SHALL BE 4-1/2" X 4-1/2" MINIMUM 0.180 INCHES THICK STAINLESS STEEL WITH STAINLESS NON-REMOVABLE STEEL PINS. DOORS SHALL HAVE A MINIMUM OF 1-1/2 PAIR PER LEAF, (U.N.O.), EACH LEAF.
 - EXIT DEVICE - VON DUPRIN, NO. 9875L X 996L BREAK AWAY LEVER DESIGN OR PRECISION APEX SERIES 2300 X V4908A OR EQUAL, SURFACE MOUNTED, VERTICAL ROD DEVICE. EXTERIOR HANDLE FOR PULL OPERATION SHALL BE LEVER STYLE; FINISH SHALL BE US-26D. MOUNT EXIT DEVICE ON ACTIVE LEAF.
 - CLOSER: LCN 4040XP, NORTON 9500 SERIES, SARGENT 281 SERIES OR EQUAL CLOSER FOR PUSH SIDE MOUNTING, WITH COVER, COVER FINISH TO MATCH HARDWARE. MOUNT CLOSER ON ACTIVE LEAF.
 - KICKPLATES: DULL STAINLESS STEEL (US32D), (050) GA. 10" HIGH. PROVIDE KICKPLATES ON PUSH SIDES OF BOTH DOOR LEAFS.
 - HOLD OPEN DEVICE: PROVIDE IVES HOLD OPEN DEVICE ON INACTIVE LEAF.
 - FLUSH BOLTS: PROVIDE IVES FLUSH BOLTS TOP AND BOTTOM OF INACTIVE LEAF WITH DUSTPROOF STRIKE AT FLOOR.
 - THRESHOLD: EXTRA HEAVY DUTY (DUE TO WHEELED TRAFFIC THROUGH DOOR OPENING), BHMA CERTIFIED TO ANSI A156.21 HEAVY DUTY 10,000 LB LOAD TEST, 5 INCH WIDE X DOOR FRAME OPENING WIDTH, NATIONAL GUARD (OR APPROVED EQUAL) MODEL #425HD X 1/2 INCH HEIGHT WITH "SIA" SLIP RESISTANT FINISH.
 - WEATHERSTRIP - HEAD AND JAMBS - NATIONAL GUARD PRODUCTS OR EQUAL, VINYL SEALS; DOOR SILL SHALL HAVE VINYL OR NEOPRENE SWEEP; ALUM. SHALL BE MILL FINISH.
 - ALL LOCKS SHALL BE CAPABLE OF ACCEPTING MINIMUM SIX (6) PIN CORES AND CYLINDERS. KEY BOTH NEW DOORS ALIKE; PROVIDE BEST OR SCHLAGE CYLINDERS. PROVIDE OWNER WITH 4 KEYS.
 - FINISHES: SATIN CHROME, U.S. 32D OR 26D, WHEN U.S. 32D IS NOT AVAILABLE, UNLESS OTHERWISE NOTED IN HARDWARE PRODUCT DESCRIPTIONS OR SCHEDULE. ALL HARDWARE SCREWS, FASTENERS, ETC. SHALL BE TYPE 304 STAINLESS STEEL.

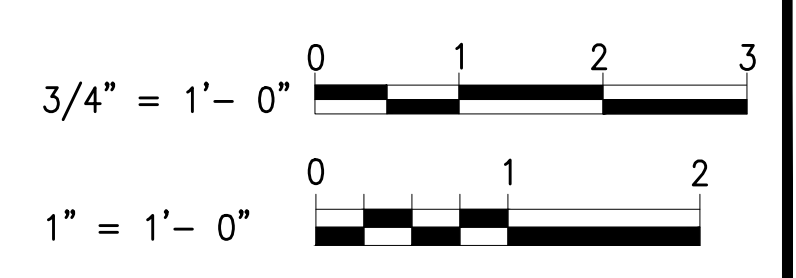
DOOR SCHEDULE											
DOOR NO.	DOOR LOCATION	SIZE (WxH)	TYPE	HEAD	JAMB	SILL	MATERIAL		HMDR SET	REMARKS	
							DOOR	FRAME			
01	PIPE GALLERY	6'-0" X 7'-0"	A				H.M.	H.M.	YES	NEW OPENING IN EXIST. CONC. WALL; DO NOT ORDER UNTIL FIELD VERIFICATION IS COMPLETE - SEE SPECS.	



SOUTH WALL OF PIPE GALLERY (BELOW GRADE)
SOUTH ELEVATION (LOCATION FOR NEW DRIVE & MANDOOR 01)



LANDSCAPE RETAINING WALL FENCING
SCALE: 3/4" = 1'-0"



BASE PLATE
NO SCALE

- BASE PLATE NOTES:**
- BASE PLATES SHALL BE PRESSED STEEL, GALVANIZED, NOM. 6"X8" SQUARE, X 5.5" HIGH, MODEL #PF25 AS PROVIDED BY CHAIN LINK FITTINGS (DF SUPPLY) OR ACCEPTABLE EQUAL.
 - GALVANIZED SET SCREWS SHALL BE EXTENDED INTO FENCE POSTS TO PERMANENTLY SECURE POSTS IN SLEEVES.
 - ANCHOR BOLTS SHALL BE DRILLED INTO TOP CAP BLOCK ON LANDSCAPE WALL. ANCHOR BOLTS SHALL BE 5/8" DIA. HILTI HAS-E-55 ANCHOR ROD (ZINC PLATED) INSTALLED WITH HILTI RE-500-V3 ADHESIVE ANCHOR SYSTEM, MIN. 6" EMBEDMENT.



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12-14-23	OWNER REVIEW

DESIGNED	J.M.G.
DRAWN	J.M.G.
CHECKED	J.M.G.
APPROVED	T.G.M.

CITY OF ALPENA

WATER PRODUCTION PLANT CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707
ALPENA COUNTY MICHIGAN

MISCELLANEOUS DETAILS

HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. A-1

RE-ROUTE AND RECONNECT ROOF DRAIN FOR CONSTRUCTION OF NEW RETAINING WALL. SEE PLUMBING WORK

RELOCATE HOSE BIBB - SEE PLUMBING WORK

CHARTER-SPECTRUM WILL RELOCATE FIBER CONNECTION TO PLANT
RELOCATE PORTABLE GENERATOR. SEE ELECT. DWGS. FOR DETAILS



SOUTHEAST CORNER

ONCE FACADE WALL IS EXPOSED, GRIND/CLEAN OLD WATERPROOFING PARGE COAT AND MASTIC OFF FACE OF CONCRETE ALONG EAST SIDEWALL OF FILTER BUILDING; APPLY PARGE COAT AS SPECIFIED



EAST WALL LOOKING NORTH

ORIGINAL 1921 WATER PLANT BUILDING
1965 WATER PLANT ADDITION
BURIED CLEARWELLS #1 AND #2



EAST WALL LOOKING WEST



SOUTHEAST CORNER OF ORIGINAL BUILDING

REMOVE ONLY LOOSE AND UNSOUND MATERIALS AND EASILY COME OFF AT THIS CORNER. DO NOT REMOVE SOLID INTACT PRIOR PATCH MATERIALS REGARDLESS OF WHETHER OR NOT THE RESULTING SURFACE IS SMOOTH AND LEVEL

ONCE FACADE WALL IS EXPOSED, GRIND/CLEAN OLD WATERPROOFING PARGE COAT AND MASTIC OFF FACE OF CONCRETE (THAT IS BELOW GRADE) ALONG EAST SIDE OF FILTER BUILDING; APPLY PARGE COAT AS SPECIFIED

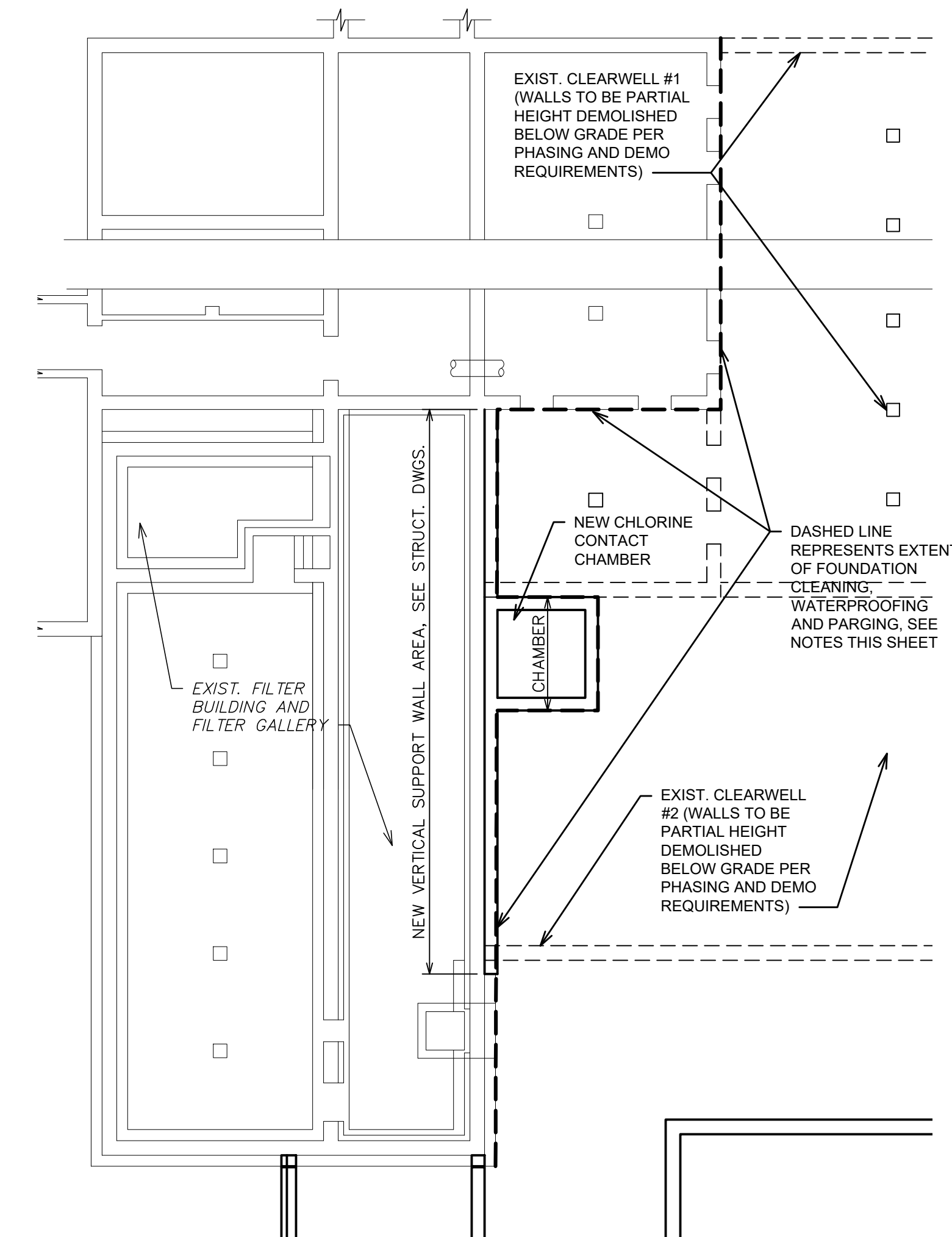


NORTHEAST CORNER OF ORIGINAL BUILDING

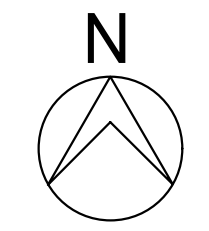
HIGH SERVICE PUMP STATION
LABORATORY
EXIST. TRANSFORMER, ELECT. POWER, THIS AREA



EAST FACE OF HIGH SERVICE PUMP STATION



FILTER BUILDING PLAN
SCALE: 3/32" = 1'-0"



HIGH SERVICE PUMP STATION AND CHEMICAL BUILDING

HATCH FOR CLEARWELL #1
CHEMICAL BUILDING
LOW SERVICE PUMP STATION
HATCH FOR CLEARWELL #2



EAST FACE OF ORIGINAL BUILDING LOOKING SOUTH

HATCH FOR CLEARWELL #1
LABORATORY
EXPOSED NORTH WALL OF CLEARWELL #1

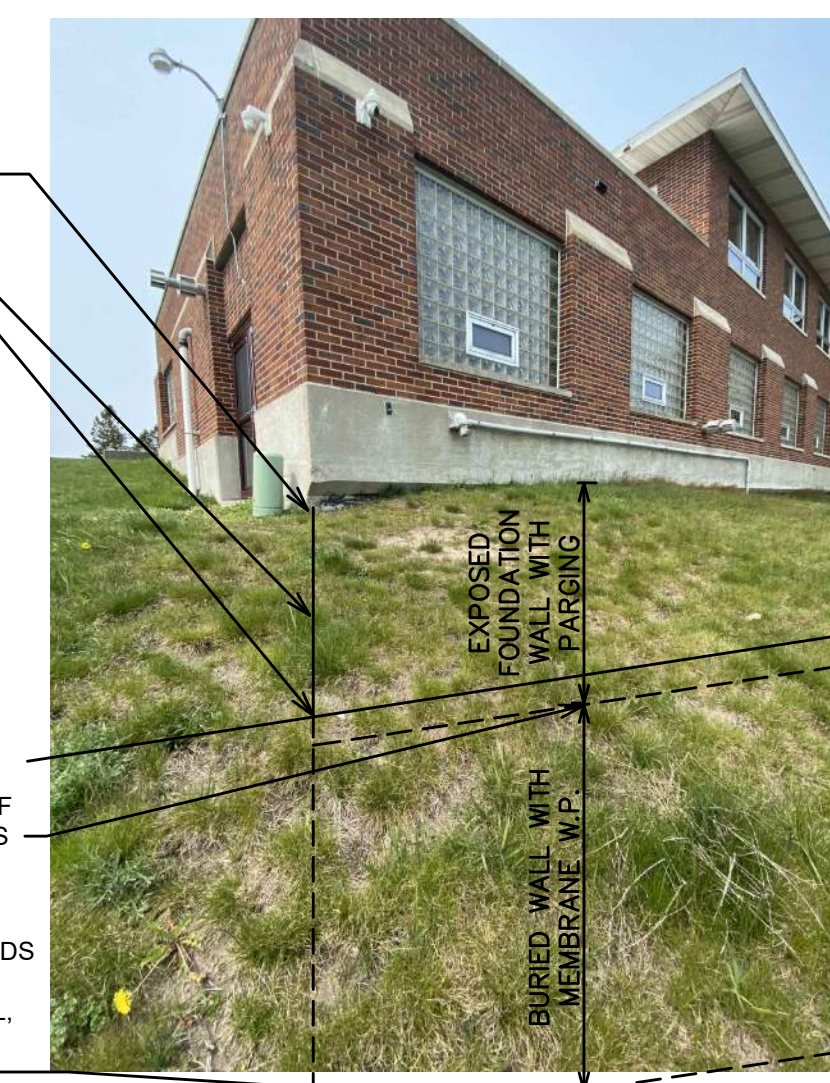
WEST WALL FOUNDATION CLEANING, WATERPROOFING AND PARGING:

THE NEW FINISH GRADES ALONG MUCH OF THE WEST SIDE OF THE FILTER BUILDING WILL BE APPROXIMATELY 5.5 FEET LOWER THAN THE EXISTING GRADES. THIS WILL LEAVE MUCH OF THE EXISTING FOUNDATION WALL EXPOSED. THE PHYSICAL CONDITION OF THIS WALL IS UNKNOWN AND A PORTION OF THIS WALL IS ACTUALLY THE CLEARWELL WALLS, AS SHOWN IN THE PLAN ABOVE AND ON SHEET A-3.

THE NATGUN REPORT PHOTOS (ON SHEET A-3) SHOW SOME OF THE EXPOSED WALL AREAS FROM THE 2010-2014 TANK INSPECTION AND REPAIRS, BUT THESE PHOTOS ARE FOR CONTRACTOR REFERENCE ONLY. AT SOME POINT IN 2014 OR LATER, A FORM OF CEMENT PARGING AND BITUMINOUS COATING WAS ADDED TO THE BELOW GRADE SURFACES OF THE WEST WALL, AS IS VISIBLE IN THE PHOTOS ON THIS SHEET, A-2.

- CONTRACTOR SHALL REMOVE CEMENT PARGING AND BITUMINOUS COATING. THIS NEEDS TO BE DONE PRIOR TO FORMING AND POURING THE VERTICAL SUPPORT WALLS ALONG THE WEST END OF THE CLEARWELLS AS SHOWN ON THE STRUCTURAL DRAWINGS. (SEE SECTION 5/S-12 FOR DETAIL OF THIS NEW WALL CONDITION.)
- REMOVAL METHODS SHALL BE DONE BY MECHANICAL EQUIPMENT AS SPECIFIED TO MEET THE REQUIREMENTS OF THE AREAS TO RECEIVE THE NEW PARGE COAT AS SPECIFIED BELOW.
- ASSESS EXPOSED EXTERIOR CONCRETE WALL SURFACES FOR NECESSARY REPAIRS. INJECTION GROUT TO REPAIR CRACKS WIDER THAN 1/8 INCH PRESENT IN EXISTING WALL; SEE PROPOSAL ALLOWANCES FOR THIS ITEM. IF GROUTING IS NECESSARY, LINEAL FOOT INSTALLED IN FIELD SHALL BE DOCUMENTED BY OWNER'S REPRESENTATIVE.
- NEW FINISH GRADE ALONG THE WEST WALL IS INTENDED TO BE ELEV. 593.0.
 - FROM GRADE ELEVATION 592.0 DOWN TO THE TOP OF THE CLEARWELL SLAB TO REMAIN, INSTALL RUBBER MEMBRANE WATERPROOFING AND PROTECTION BOARD PER SPECIFICATION SECTION 07110 FOR SHEET MEMBRANE WATERPROOFING. (FOR WALL AREA SOUTH, PAST CLEARWELL #2 SLAB, INSTALL DOWN TO TOP OF FOOTING.)
 - FROM GRADE ELEVATION 592.0 UPWARD ON THE EXIST. CONCRETE WALLS ONLY (NOT THE NEW VERTICAL SUPPORT WALLS THAT WERE POURED) INSTALL PARGE COATING. PRODUCT SHALL BE AS SPECIFIED BELOW.
- PARGE COATING: COATING SHALL BE USED TO CREATE UNIFORM SURFACE APPEARANCE ACROSS THE EXPOSED EXISTING CONCRETE FOUNDATION WALL SURFACES (TO 1 FOOT BELOW GRADE AS SPECIFIED ABOVE.) COATING SHALL ALSO SERVE AS A DAMP-PROOFING / WATERPROOFING COAT.
 - MATERIAL REQUIREMENTS ARE BASED UPON SIKATOP-144; EQUAL PRODUCTS BY W.R. MEADOWS OR XYPEX ARE ACCEPTABLE. MATERIAL MUST HAVE DAMP PROOFING / WATERPROOFING QUALITIES. SURFACE PREPARATION PER MANUFACTURER'S INSTRUCTIONS, VIA MECHANICAL MEANS.
 - INSTALL IN 2 COATS, OF 8 MILS PER COAT. ALLOW CURE TIME BETWEEN COATS PER APPLICATION INSTRUCTIONS.
 - PROVIDE PROPER CURING TREATMENT PER MANUFACTURER.
 - PROVIDE WRITTEN WARRANTY FROM INSTALLING APPLICATOR TO GUARANTY AGAINST DELAMINATION, CRACKING, SPALLING, ETC. FOR A PERIOD OF ONE YEAR FROM THE DATE OF PROJECT ACCEPTANCE BY OWNER, NOT THE DATE OF COATING INSTALLATION. REMOVAL, REPAIRS AND RE-APPLICATION FOR FAILED COATING AREAS SHALL BE MADE AT NO COST TO OWNER WITHIN THE WARRANTY PERIOD.

EXIST. ELEV. 598.57
WALL CORNER
NEW ELEV. 593.0



SEE SPEC THIS SHEET FOR OVERLAP AREA OF THESE PRODUCTS
T/TANK SLAB OR FOOTING (DEPENDS ON LOCATION ALONG THE WALL, SEE SPEC THIS SHEET

FINISH GRADE ELEVATION SCHEMATIC

THE PHOTOS ON THIS SHEET ARE PROVIDED FOR GENERAL REFERENCE ONLY, TO SHOW THE EXTERIOR OF THE WATER PLANT. ALL BIDDERS SHALL VISIT THE SITE TO ASCERTAIN CONDITIONS UNDER WHICH THE WORK MUST BE COMPLETED.



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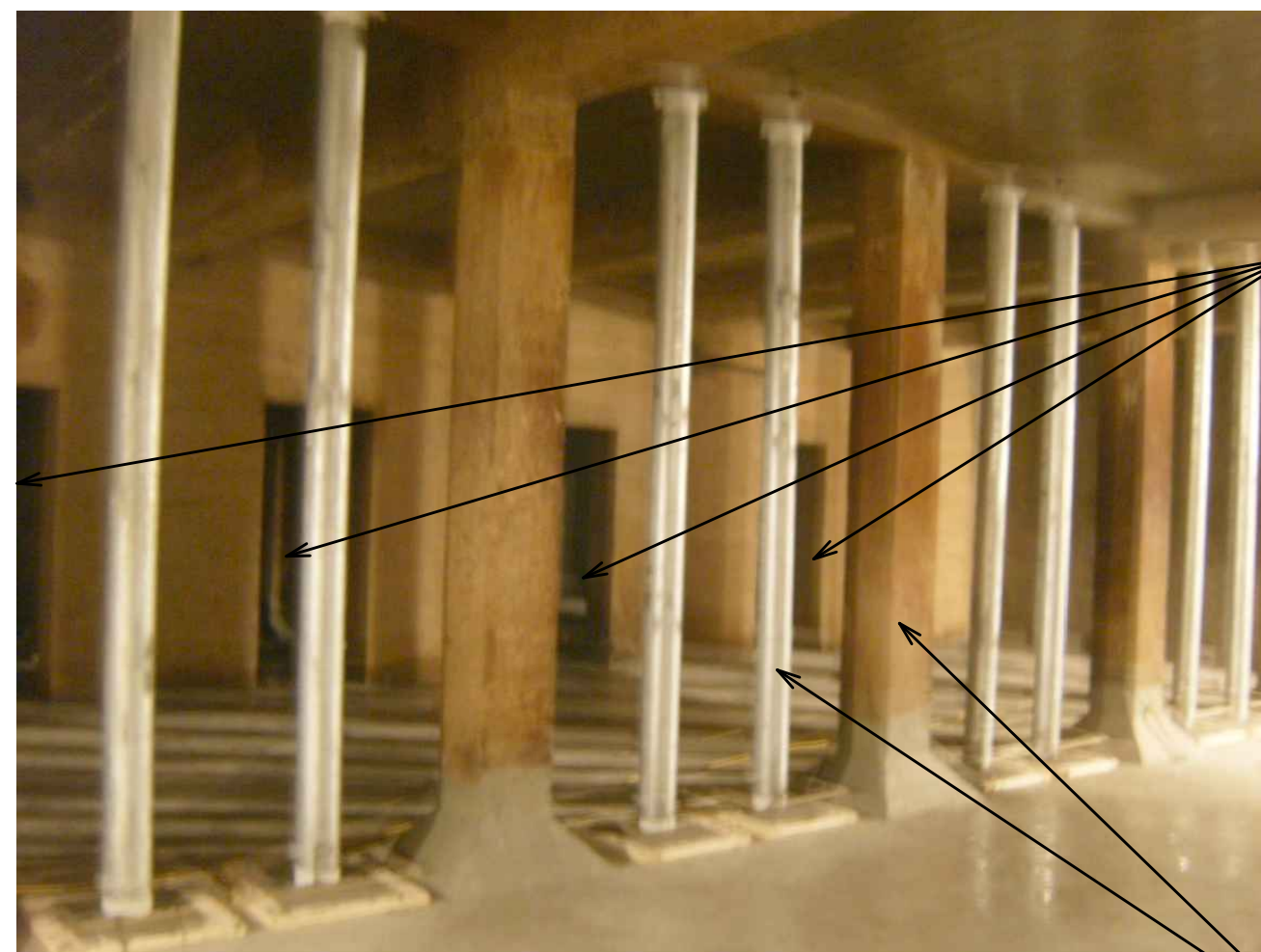
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PHOTO SHEET

HRC JOB NO. 20220751	SCALE NONE
DATE DECEMBER 2023	SHEET NO. A-2 OF



ADDITIONAL REINF. COLUMNS INSIDE CLEARWELL #1

WALL BELOW LAB AREA, SEE STRUCT. DWGS FOR FILLING THESE OPENINGS/AREAS AS PART OF THE TANK DEMOLITION WORK

WEST WALL SHALL BE CLEANED AND WATERPROOFED, SEE SHEET A-2

FOUNDATION DRAINS ARE TO BE REMOVED WITH TANK DEMOLITION (TYP.), AS WELL AS PVC OUTLET PIPING AS MAY BE FOUND WHERE DRAINS DAYLIGHT TO GRADE

CONTRACTOR SHALL REMOVE AND DISPOSE OF CONC. CLEARWELL AND INTERIOR COLS., TYP., TO THE EXTENT SHOWN ON THE DWGS.



PERFORATED DRAIN INSTALLATION, EAST WALL OF FILTER BUILDING, BELOW LABORATORY AREA, LOOKING NORTH



NORTH WALL OF CLEARWELL #1 LOOKING EAST

WEST WALL SHALL BE CLEANED AND WATERPROOFED, SEE SHEET A-2

THIS PHOTO TO THE LEFT IS A CLOSE-UP OF THIS AREA (ON THE RIGHT)



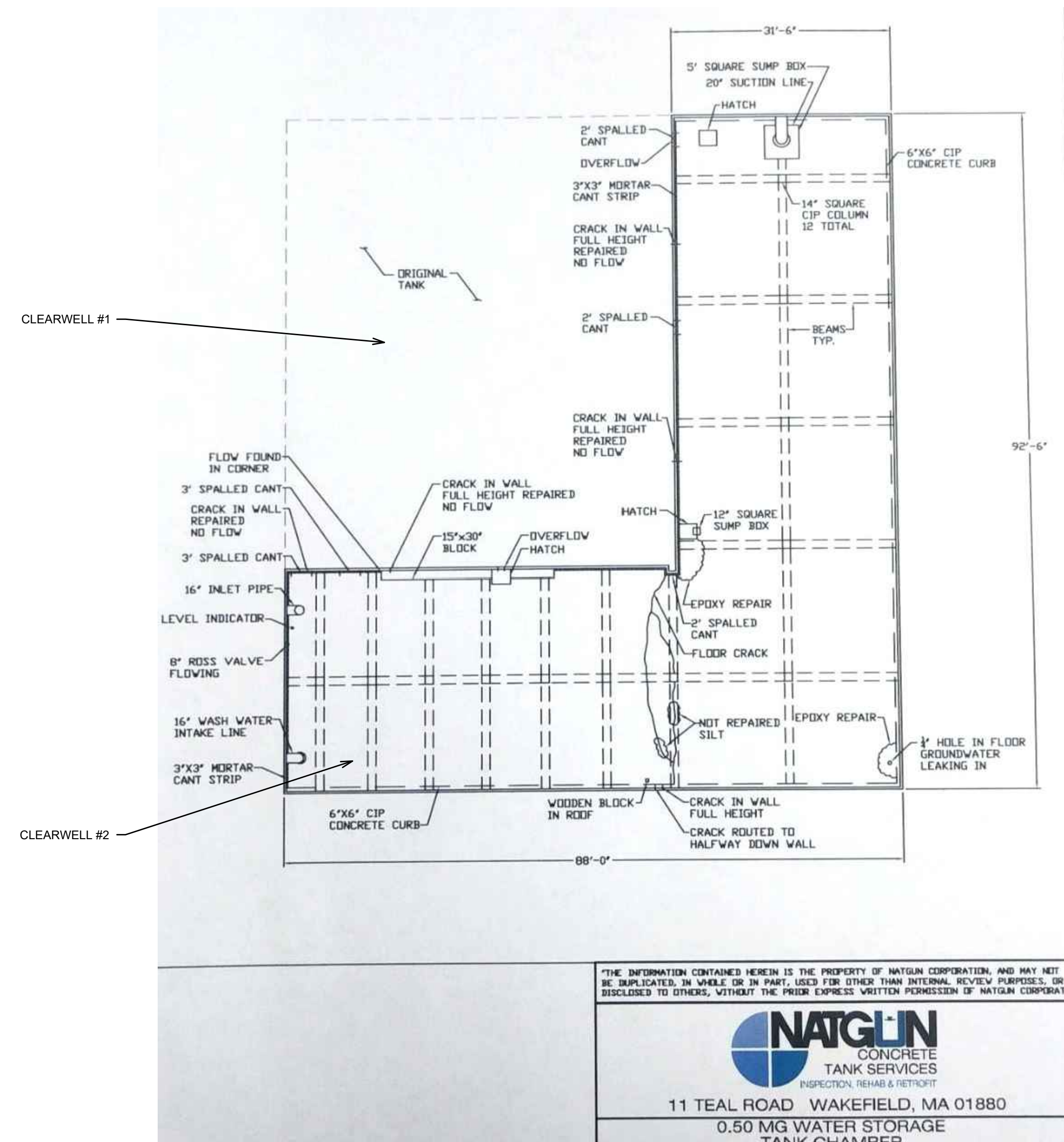
CLEARWELL #2 LOOKING WEST



WATERPROOFING UNDERWAY OVER CLEARWELLS



SOUTHEAST CORNER OF LAB WALL FOUNDATION AT TANK



NATGUN SKETCH OF CLEARWELLS FROM INSPECTION AND REPAIR REPORTS (DIMENSIONS ARE APPROX. ONLY AND FOR REFERENCE PURPOSES)

THIS IS THE NORTHEAST CORNER OF CLEARWELL #2
NORTH WALL OF CLEARWELL #2
EXIST. CLEARWELL #2 APPEARS TO HAVE AN EXIST. WATERPROOFING PROTECTION LAYER ON THE EXTERIOR



NORTHEAST CORNER OF CLEARWELL #2

THE PHOTOS ON THIS SHEET ARE PROVIDED FOR GENERAL REFERENCE ONLY. BETWEEN 2010 AND 2014, THE CITY HAD NATGUN (I.E. NOW KNOWN AS "DN TANK") INSPECT BOTH CLEARWELLS AND MAKE SUBSEQUENT REPAIRS. THE TANKS WERE ALSO WATERPROOFED. THESE PHOTOS ARE FROM CITY/NATGUN'S FIELD DOCUMENTATION, AT THE TIME OF THE WORK. THE CURRENT INTERIOR AND EXTERIOR CONDITIONS OF THE CLEARWELLS AND FILTER BUILDING FOUNDATION WALLS IS UNKNOWN.



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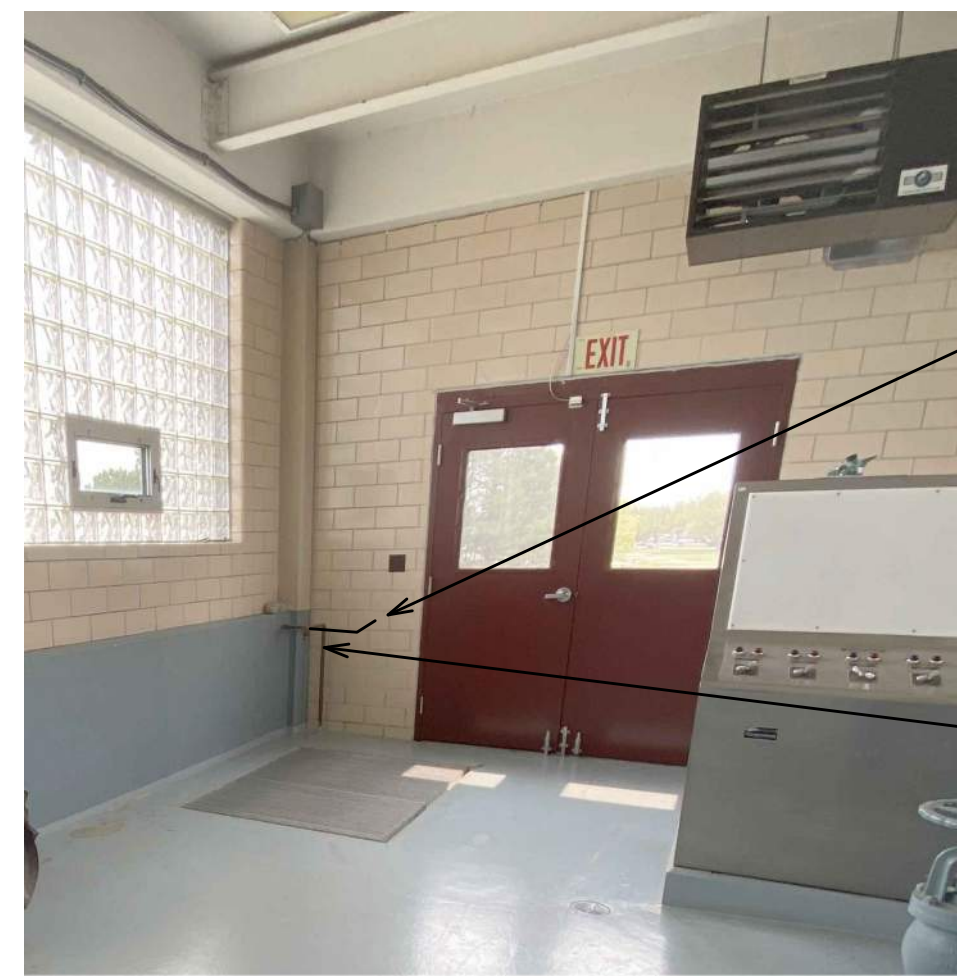
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PHOTO SHEET
TANK INSPECTION AND REPAIRS, 2010-2014

HRC JOB NO.	20220751	SCALE	NONE
DATE	DECEMBER 2023	SHEET NO.	A-3 OF

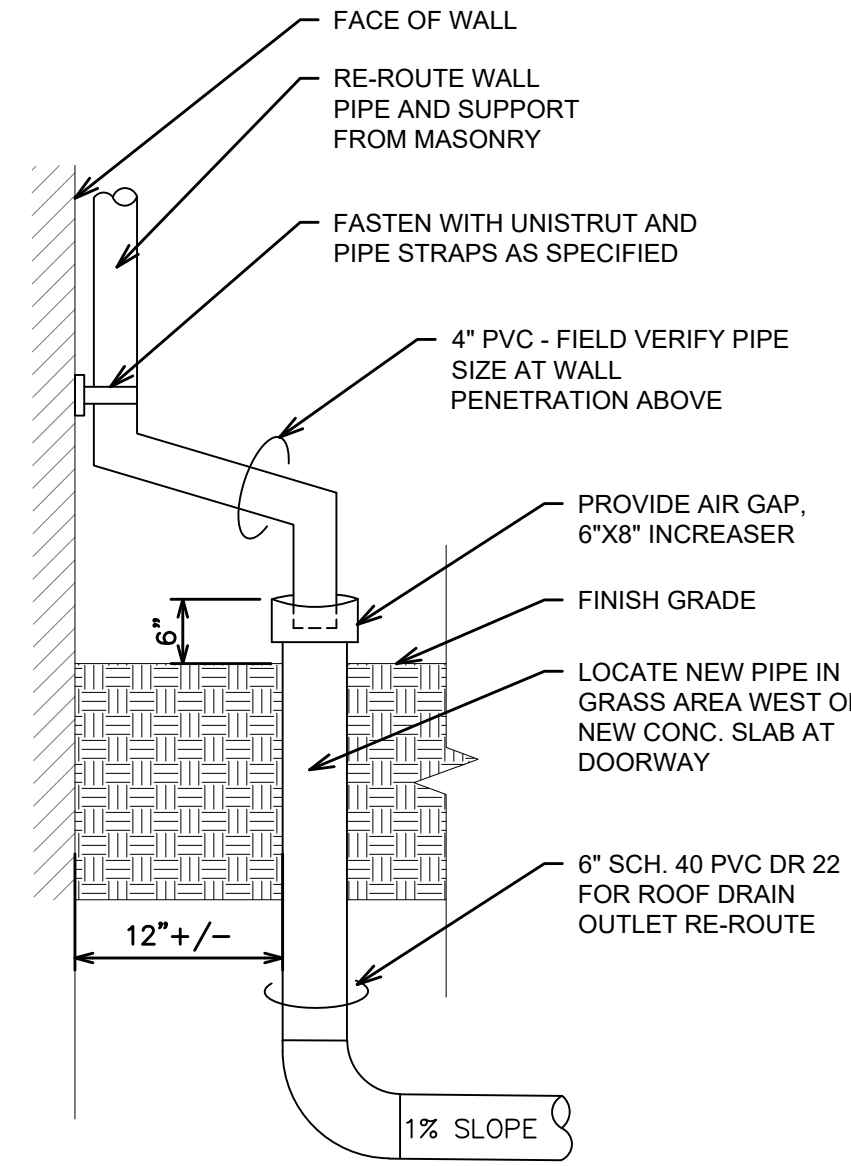


CORE HOLE AND REPIPE THROUGH SOUTH WALL AT SAME ELEVATION, SEE NOTES THIS SHEET; PROVIDE REDUCER FITTINGS AS NECESSARY TO ACCOMMODATE NEW 3/4" PIPING

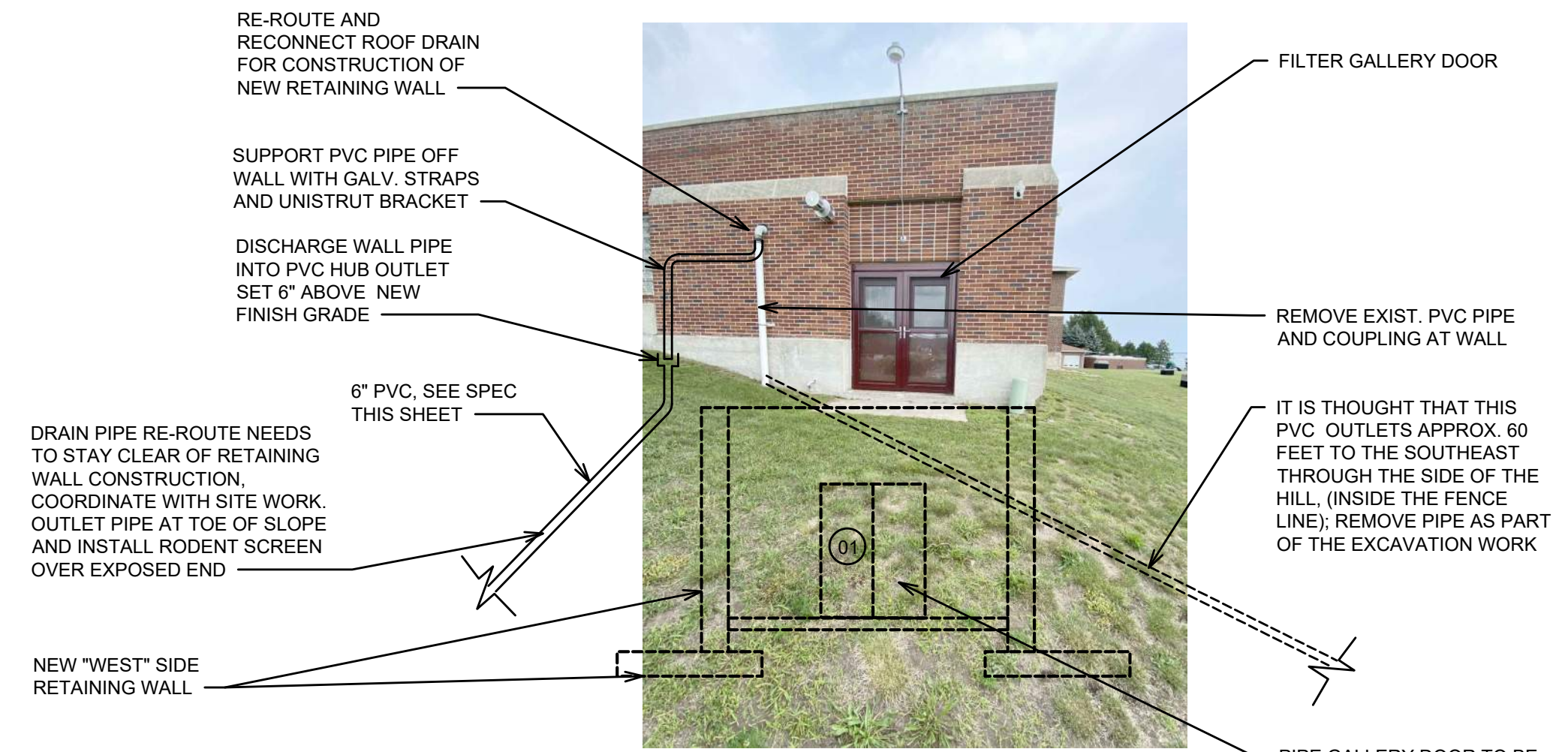
RELOCATE AND REPIPE EXTERIOR HOSE BIBB FROM EAST WALL TO SOUTH WALL BECAUSE, ONCE GRADING IS COMPLETED AROUND THE NEW CLEARWELL, THE HOSE BIBB WILL BE TOO HIGH ABOVE THE GROUND TO ACCESS



RELOCATE EXTERIOR HOSE BIBB, EAST WALL



EXIST. ROOF CONDUCTOR RE-CONNECTION DETAIL
NOT TO SCALE



EXIST. ROOF DRAIN CONDUCTOR RELOCATION - SOUTH ELEVATION (WITH NEW DRIVE & MANDOOR 01)

MISCELLANEOUS PLUMBING WORK:

MISCELLANEOUS PLUMBING WORK IS REQUIRED FOR THE PROJECT AS FOLLOWS:

HOSE BIBB RELOCATION

1. THE HOSE BIBB PLUMBING ON THE EAST SIDE OF THE FILTER BUILDING NEEDS TO BE RELOCATED AND A NEW FROST FREE HOSE BIBB INSTALLED. HOSE BIBB SHALL BE ZURN Z1321-CXL OR APPROVED EQUAL WITH ANGLED HOSE CONNECTION AND WALL CLAMP ACCESSORIES. FACE PLATE SHALL BE STAINLESS STEEL. HOSE BIBB SHALL BE AUTOMATIC DRAINING AND FEATURE INTEGRAL BACKFLOW PREVENTION WITH ANTI-SIPHON TECHNOLOGY.
2. THE EXACT THICKNESS OF THE EXTERIOR WALL AT THE NEW LOCATION IS NOT KNOWN. SEE 1965 REFERENCE DRAWING SHEETS 3 OF 33 AND 4 OF 33; WALL THICKNESS IS CALLED OUT AS 17.5 INCHES WITH GLAZED CMU ON THE INTERIOR AND CONCRETE ON THE EXTERIOR. THERE IS A CAVITY SPACE BETWEEN THE MATERIALS. MEASURE WALL THICKNESS PRIOR TO ORDERING.
3. ON INTERIOR, CUT WALL TO REMOVE SMALL PORTION OF GLAZED CMU UNIT. ON EXTERIOR, SAWCUT CONCRETE WALL TO CREATE RECESS FOR HOSE BIBB HOUSING. DO NOT CUT WALL OPENING LARGER THAN FACE PLATE ON HOSE BIBB. COORDINATE SIZE OF HOLE WITH REVIEWED SHOP DRAWINGS BEFORE CUTTING WALL. CORE / DRILL THE REMAINING THICKNESS OF CONCRETE TO PROVIDE HOLE FOR NEW PIPING THROUGH WALL.
4. NEW PIPE SHALL BE TYPE L COPPER PIPE. PROVIDE REDUCER/FITTINGS AS NECESSARY TO ADAPT EXISTING PIPE TO NEW CONNECTION.
5. ON INTERIOR FACE OF WALL, PROVIDE RIGID METAL WALL ESCUTCHEON TRIM PLATE TO COVER HOLE CUT THROUGH GLAZED CMU.

ROOF DRAIN CONDUCTOR PIPE RELOCATION

THE CURRENT DRAIN PIPE CONNECTION INTERFERES WITH THE CONSTRUCTION OF THE NEW "WEST SIDE" RETAINING WALL AT THE CORNER OF THE FILTER BUILDING.

RE-PIPE THE OUTLET TO THE SOUTHWEST AS SHOWN TO ELIMINATE CONFLICT WITH NEW RETAINING WALL CONSTRUCTION.

USE SAME DIAMETER PIPE TO MATCH EXISTING WHERE LEAVING BUILDING. FIELD VERIFY EXISTING PIPE DIAMETER.

AT GRADE, DISCHARGE WALL PIPE INTO PVC HUB OUTLET AS SHOWN IN DETAIL.

PVC DRAIN PIPE MATERIALS SHALL BE SCH. 40, DR 22 (PS 200) PER MICHIGAN PLUMBING CODE. OFFSET PIPE AND SUPPORT AT WALL WITH GALV. UNISTRUT AND GALV. PIPE STRAPS, MIN. 2 SUPPORTS.

PROVIDE GALV. METAL OR ALUMINUM MESH RODENT SCREEN SCREW FASTENED INTO END OF EXPOSED END OF PVC DRAIN PIPE.

FIELD LOCATE MOST SUITABLE ROUTE FOR PIPING; LOCATE TO MISS NEW CONCRETE SLAB AREA AT EXISTING FILTER GALLERY DOOR.



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MISCELLANEOUS PLUMBING

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PHOTO P-1

- RELOCATE HACH TURBIDITY SENSORS TU5300SC (AT110) & CHLORINE ANALYZER (AT210) WITH AUXILIARY INSTRUMENTS LOCATED AT THE SOUTH WALL TO EAST WALL OF THE PIPE GALLERY WITH ALL ELECTRICAL & CONDUIT EQUIPMENTS.
- THE NEW WATER LINE ALIGNMENT FOR THESE INSTRUMENTS TO BE COORDINATED WITH THE NEW ACCESS DOOR OPENING.
- RELOCATION AND SCADA PROGRAMMING TO BE COMPLETED BY TEMPEST ENTERPRISES.
- CONTRACTOR TO COMPLETE AND COORDINATE REROUTING OF ELECTRICAL/INSTRUMENTATION CONDUIT AND OTHER ANCILLARY EQUIPMENT.



PHOTO P-2

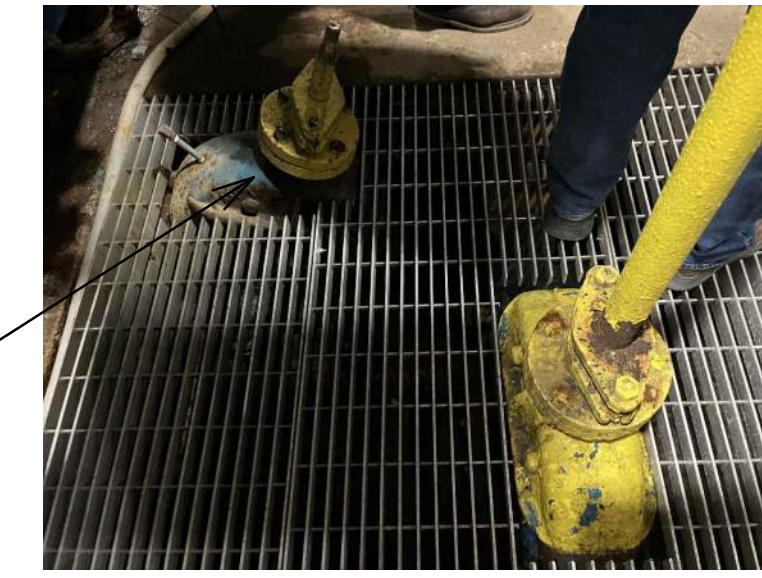


PHOTO P-3

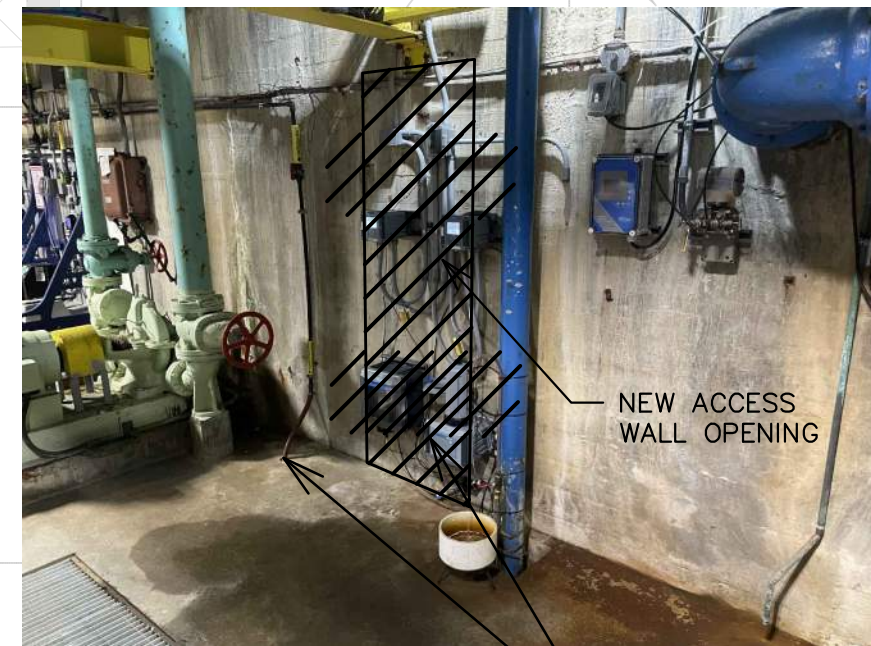
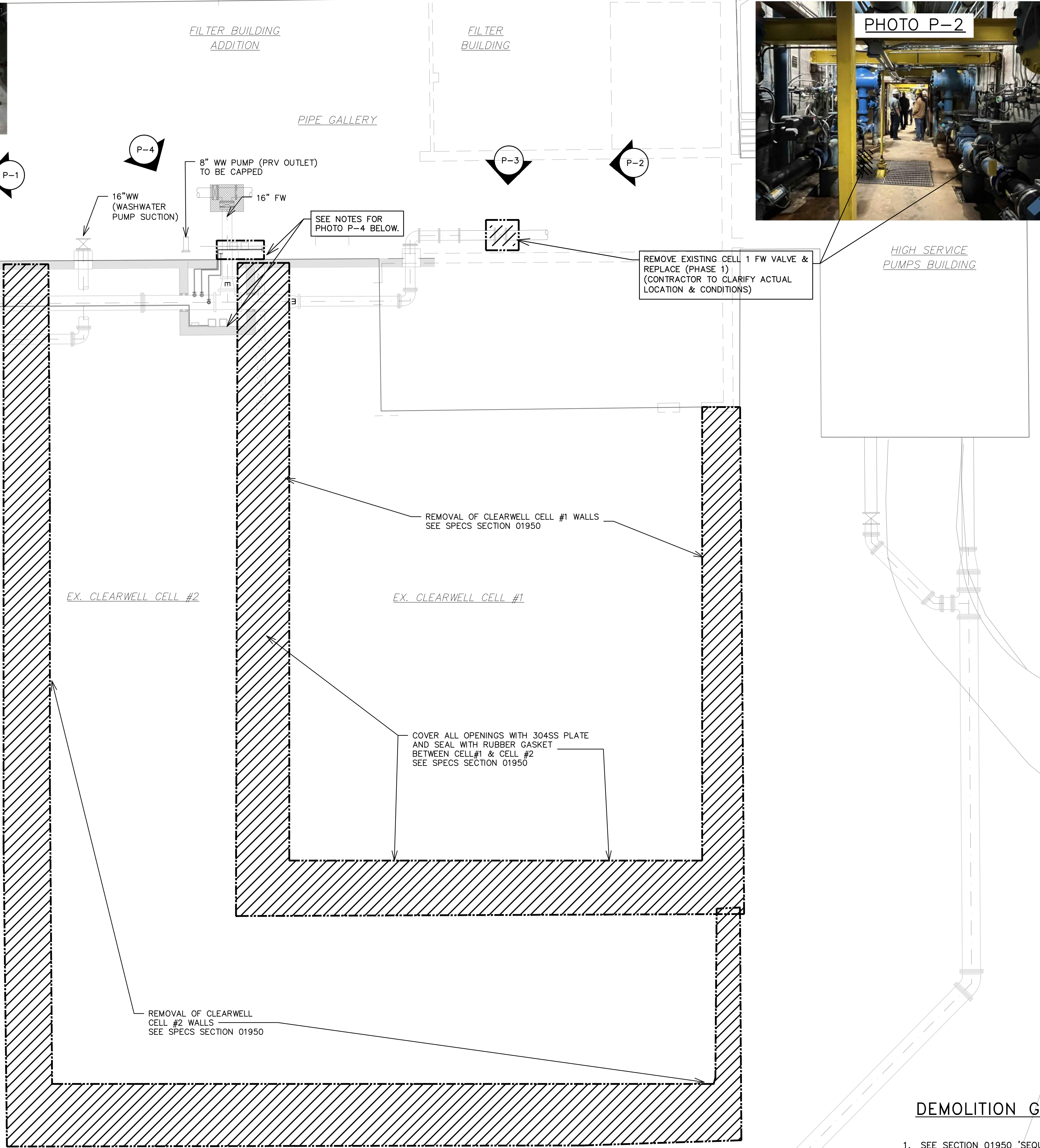


PHOTO P-4

- SEE STRUCTURAL DRAWINGS FOR NEW ACCESS OPENING.
- RELOCATE EXISTING NaOCl INJECTION LINE TO TWO NEW INJECTION POINTS LOCATED ON NEW 24" COMBINED FILTERED WATER LINE.
- RELOCATE HACH TURBIDITY SENSORS TU5300SC (AT100) & CHLORINE ANALYZER (AT200) WITH AUXILIARY INSTRUMENTS LOCATED AT THE EAST WALL TO NEW CHLORINE CONTACT CHAMBER WALL WITH ALL ELECTRICAL & CONDUIT EQUIPMENTS.
- THE NEW WATER LINE ALIGNMENT FOR THESE INSTRUMENTS TO BE COORDINATED WITH THE NEW ACCESS OPENING.
- RELOCATION AND SCADA PROGRAMMING TO BE COMPLETED BY TEMPEST ENTERPRISES.
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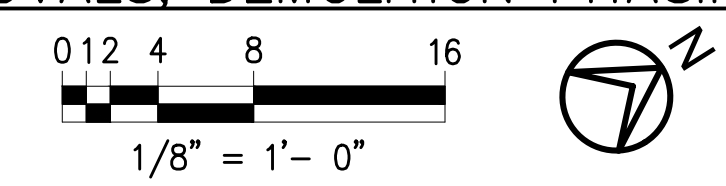


DEMOLITION GENERAL NOTES

1. SEE SECTION 01950 'SEQUENCE AND SPECIAL CONDITIONS' FOR WPP PHASING AND SHUT DOWN REQUIREMENTS
2. EXISTING PIPING, EQUIPMENT, INSTRUMENTATION, AND OTHER APPURTENANCES ARE NOT SHOWN. FIELD VERIFY PRIOR TO THE CONSTRUCTION/DEMOLITION ACTIVITIES.

NOTE:
 BACKGROUND DRAWINGS/DETAILS, EXISTING PIPING AND UTILITIES SHOWN HERE ARE FROM A PRIOR PROJECTS AND DO NOT NECESSARILY DEPICT AS-BUILT CONDITIONS. THESE ARE SHOWN FOR REFERENCE ONLY FOR THE PURPOSE OF DEPICTING NEW WORK. CONTRACTOR IS RESPONSIBLE TO CHECK, CLARIFY & INFORM THE ENGINEER & OWNER AND REPRESENTATIVES BEFORE TAKE ANY ACTION.

PROCESS REMOVALS, DEMOLITION PHASING LAYOUT



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PROCESS REMOVALS & PHASING LAYOUT

HRC JOB NO. 20220751	SCALE NTS
DATE DECEMBER 2023	SHEET NO. PD-1

GENERAL PROCESS NOTES

- FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK AND IMMEDIATELY NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES.
- ACCESS TO EXISTING FACILITIES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION AND CONSTRUCTION OPERATIONS SHALL BE SCHEDULED TO ALLOW THE OWNER UNINTERRUPTED ACCESS AND OPERATION OF EXISTING FACILITIES.
- CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COORDINATION OF ALL CONSTRUCTION ACTIVITIES WHICH REQUIRES ACTION BY OWNERS PERSONNEL.
- CONFINE ALL CONSTRUCTION ACTIVITIES ASSOCIATED WITH WORK SPECIFIED UNDER THIS CONTRACT TO THE AREA WITHIN THE LIMITS OF CONSTRUCTION.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SAFETY AND COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL HEALTH AND SAFETY CODES, LAWS REGULATIONS, AND ORDINANCES, BUT NOT LIMITED TO THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
- ALL NEW EQUIPMENT SHALL BE ASSEMBLED AND INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND GUIDANCE.
- INSTALL ANCHOR BOLTS IN ACCORDANCE WITH THE MANUFACTURER'S GUIDANCE. ANCHOR BOLTS SHALL BE SUPPLIED BY THE CONTRACTOR.
- ALL HARDWARE, FASTENERS, ANCHORS, NUTS, BOLTS, AND WASHERS SHALL BE GALVANIZED STEEL (OR 316 STAINLESS STEEL WHERE SPECIFIED)
- APPLY TOUCH-UP PAINT TO ALL SHOP PAINTED SURFACES WHERE SCRATCHED OR DAMAGED TO MATCH COATING AND COLOR OF SHOP PAINTING
- NOT ALL CONDUIT, WIRING, SUPPORTS, OR SMALL DIAMETER PIPING HAS NECESSARILY BEEN SHOWN ON THE CONTRACT DRAWINGS. HOWEVER THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL PIPING, CONDUIT, SUPPORTS, AND WIRING INCIDENTAL TO OR NECESSARY FOR A SOUND AND COMPLETELY OPERATIONAL INSTALLATION.
- MAINTAIN OPERATIONAL STATUS OF THE WPP AT ALL TIMES AND COMPLETE DEMOLITION PHASE 1 AND PHASE 2 IN ACCORDANCE WITH THE GUIDELINES IN SECTION 01950 "SPECIAL PROJECT REQUIREMENTS".
- ALL WPP SHUTDOWNS TO BE APPROVED BY WPP SUPERINTENDENT BEFORE PROGRESSING. ANY SHUTDOWN REQUEST SHALL BE MADE A MINIMUM FIFTEEN DAYS IN ADVANCE.

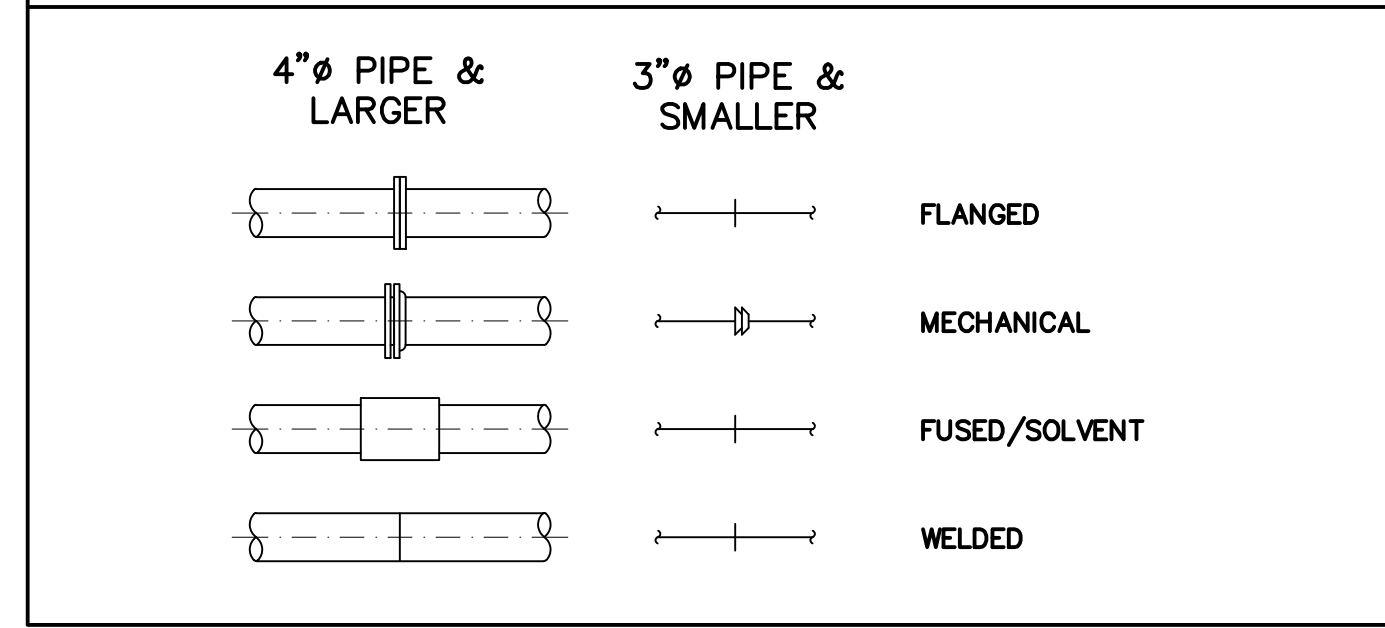
INSTRUMENT TERMINOLOGY

TAG LETTER	FIRST LETTER - PROCESS VARIABLE	MODIFIER OR SECOND LETTER - READING OR FUNCTION	THIRD OR FOURTH LETTER - FUNCTION
A	ANALYSIS	ALARM	ALARM
B	BURNER FLAME	-	-
C	-	CONTROLLER	CONTROLLER/CLOSED
D	DIFFERENTIAL	DIFFERENTIAL	-
E	VOLTAGE	ELEMENT	ELEMENT
F	FLOW RATE	FRACTION	-
G	-	GAUGE (GLASS)	GAUGE (GLASS)
H	HAND (MANUAL)	HAND	HIGH
I	CURRENT	INDICATING	INDICATOR
J	POWER	SCAN	-
K	TIME	TIME RATE OF CHANGE	-
L	LEVEL	LIGHT	LOW
M	-	-	MEDIUM
N	-	-	-
O	-	ORIFICE	OPEN
P	PRESSURE	POINT, PRESSURE	-
Q	QUANTITY	TOTALIZE	-
R	RADIATION	RECORDING	RECORDING
S	SPEED	SWITCH	SWITCH
T	TEMPERATURE	TRANSMITTER	TRANSMITTER
U	MULTIVARIABLE	MULTIFUNCTION	MULTIFUNCTION
V	MECHANICAL ANALYSIS	VALVE	VALVE
W	WEIGHT	WELL	-
X	-	-	-
Y	EVENT	COMPUTE	RELAY
Z	POSITION	DRIVE	-

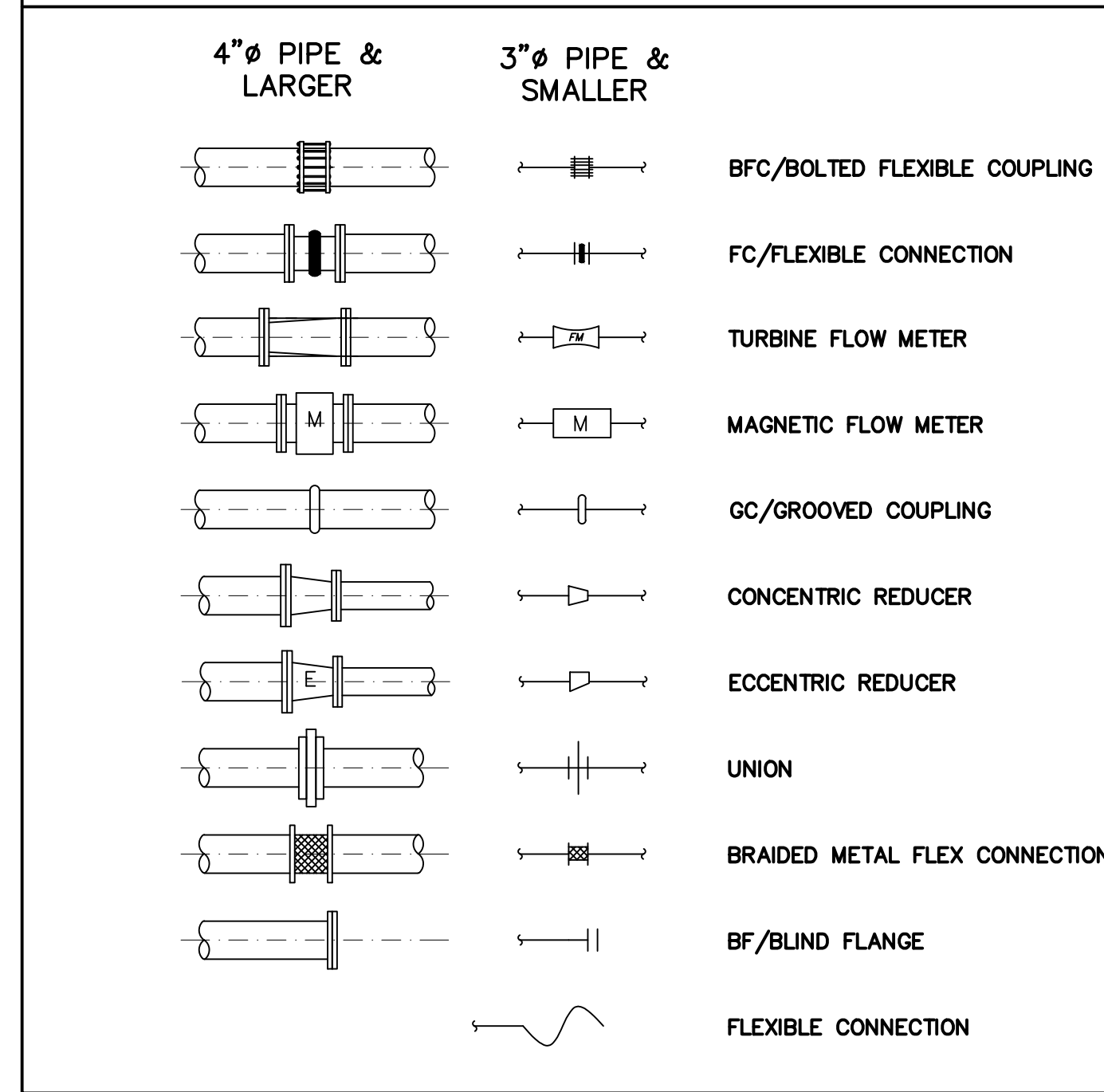
INSTRUMENT SYMBOLS

	DISCRETE INSTRUMENTS	PROGRAMMABLE LOGIC CONTROLLER	SHARED DISPLAY /CONTROL
FIELD MOUNTED			
PANEL LOCATION			
AUXILIARY LOCATION			
INSIDE PANEL			

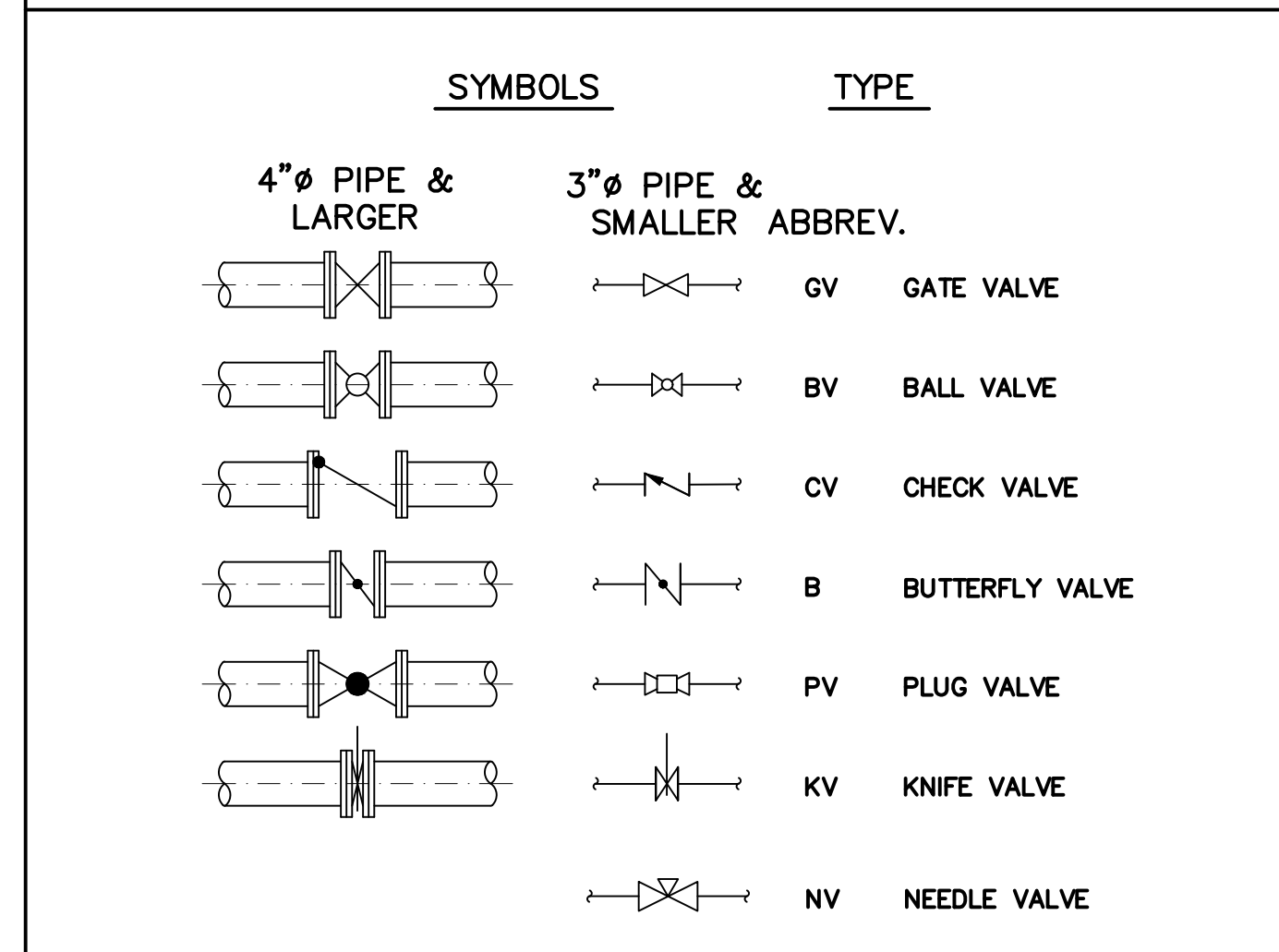
JOINT CONNECTIONS



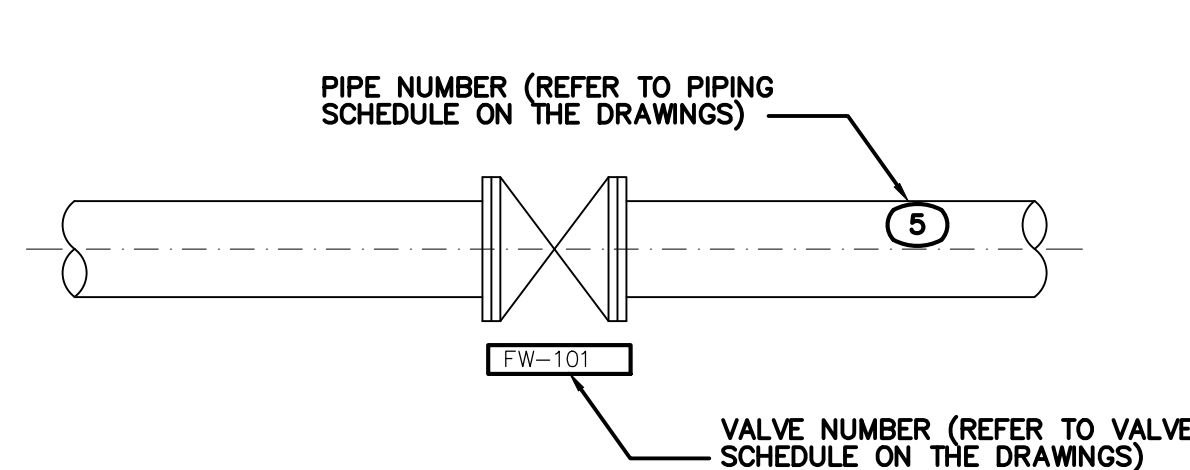
MISCELLANEOUS DESIGNATIONS



VALVE DESIGNATIONS



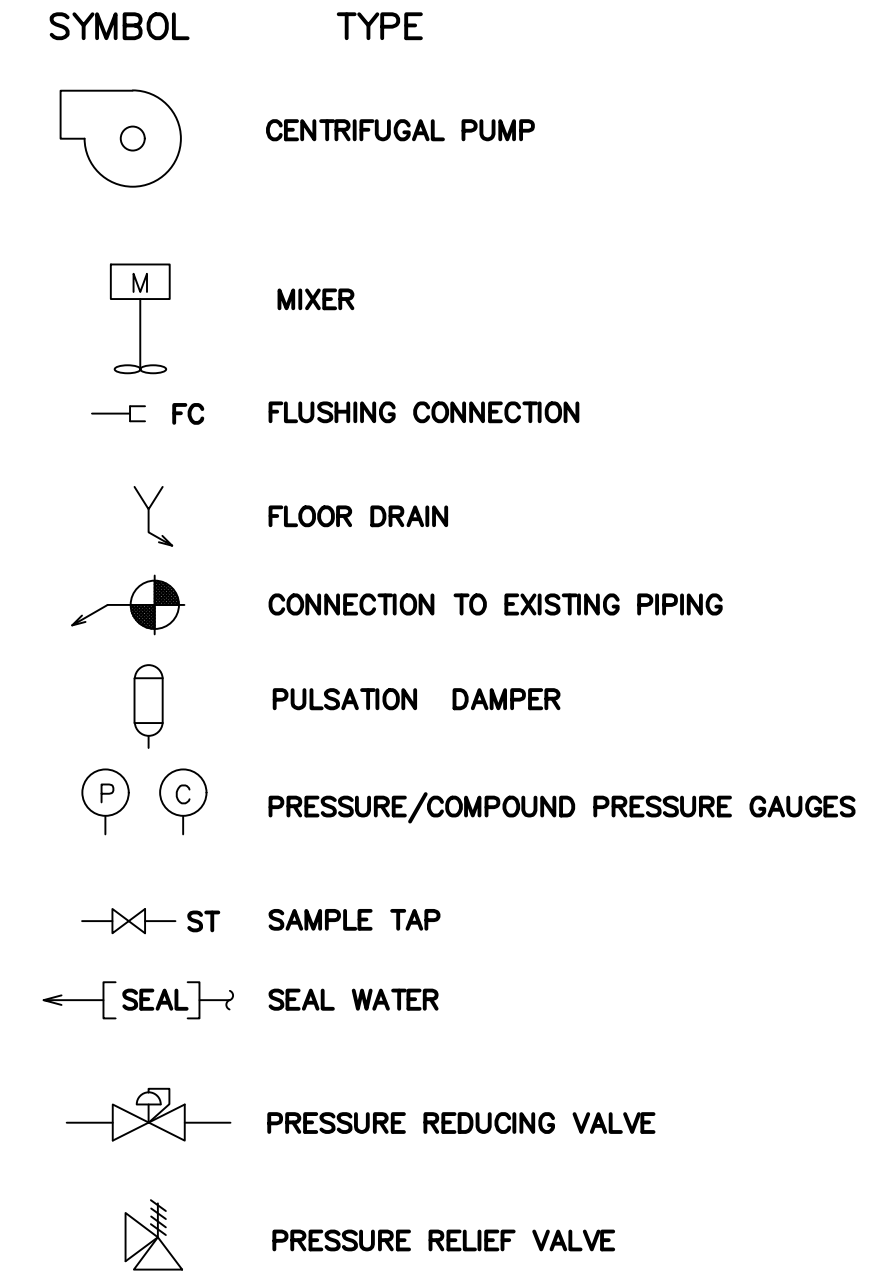
VALVE & PIPE IDENTIFICATION



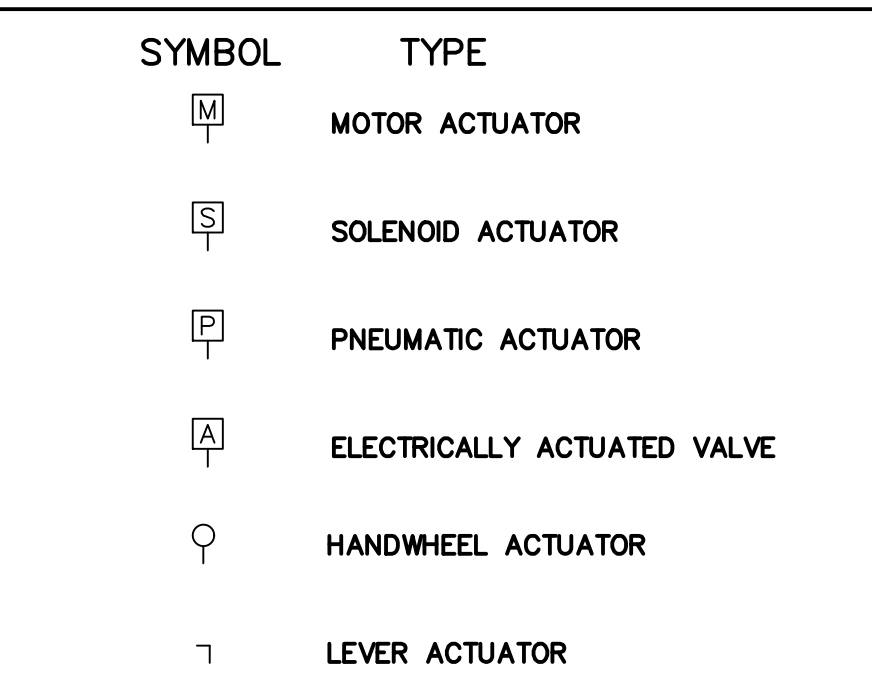
PROCESS ABBREVIATION

- (A) ABANDONED UTILITY
- AFF ABOVE FINISHED FLOOR
- ALUM ALUMINUM
- APPROX APPROXIMATELY
- ARCH ARCHITECTURAL
- ARV AIR RELEASE VALVE
- AW APPLIED WATER (TO FILTERS)
- B BUTTLERFLY VALVE
- BF BLIND FLANGE
- BFP BACKFLOW PREVENTOR
- BOTT BOTTOM
- BYP BYPASS
- CFP CHEMICAL FEED PUMP
- CI CAST IRON
- CLG CHLORINE GAS
- CLS CHLORINE SOLUTION
- CL CENTER LINE
- CMU CONCRETE MASONRY UNIT
- CONN CONNECTION
- CONT CONTINUATION
- CP CONTROL PANEL
- CPLG COUPLING
- CT/C*T CONTACT TIME
- CTR CENTER
- CU COPPER
- CV CHECK VALVE
- DI DUCTILE IRON
- DR DRAIN
- E ELECTRICAL CONDUIT
- F FILTER
- FCA FLANGED COUPLING ADAPTER
- FD FLOOR DRAIN
- FFE FINISHED FLOOR ELEVATION
- FM FORCE MAIN
- FW FILTERED WATER
- HHL(L): HIGH HIGH LIQUID LEVEL (ALARM)
- HH(L): HIGH LIQUID LEVEL (HIGH OPERATING LEVEL)
- HB HOSE BIBB
- HS HIGH SERVICE WATER (TO DISTRIBUTION SYSTEM)
- HWL HIGH WATER LEVEL
- LL(L): LOW LIQUID LEVEL (LOW OPERATING LEVEL)
- LLL(L): LOW LOW LIQUID LEVEL (LOWEST POINT OF OPERATING LEVEL - ALARM)
- LOH LOSS OF HEAD TRANSMITTER
- MHW MANUAL HANDWHEEL VALVE OPERATOR
- NaOCI SODIUM HYPOCHLORITE SOLUTION
- N/O NORMALLY OPEN
- N/C NORMALLY CLOSED
- NL(L) NORMAL; LIQUID LEVEL (MID-POINT OF THE NORMAL RANGE)
- OF OVERFLOW
- PID PROPORTIONAL-INTEGRAL-DERIVATIVE CONTROLLER
- PVC POLYVINYL CHLORIDE
- PW PROCESS WATER
- RW RAW WATER
- SS STAINLESS STEEL
- SST STAINLESS STEEL TUBING
- TURB TURBIDIMETER
- VFD VARIABLE FREQUENCY DRIVE
- VT VENT
- WW WASHWATER (BACKWASH)
- WWD WASHWATER DRAIN (BACKWASH DRAIN)

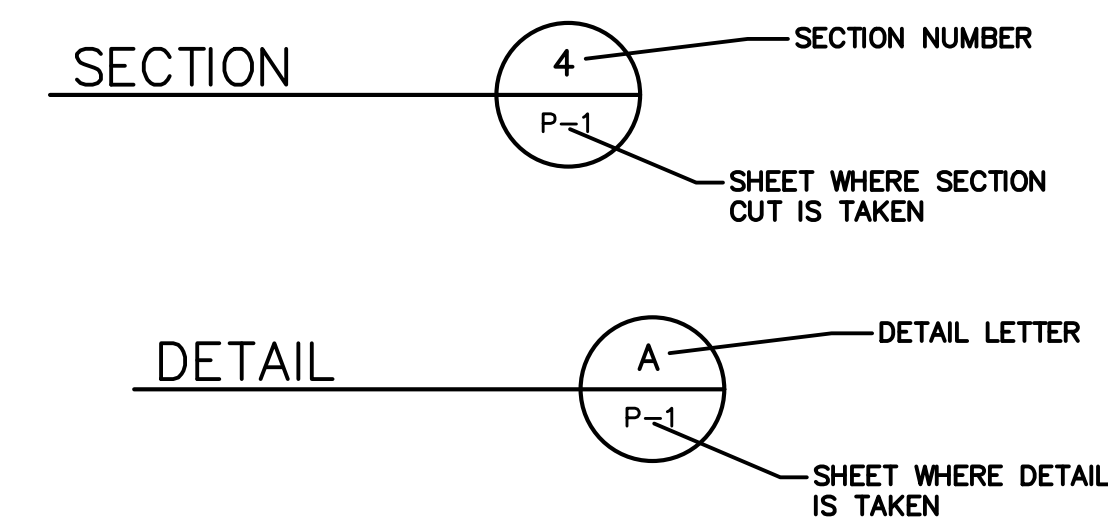
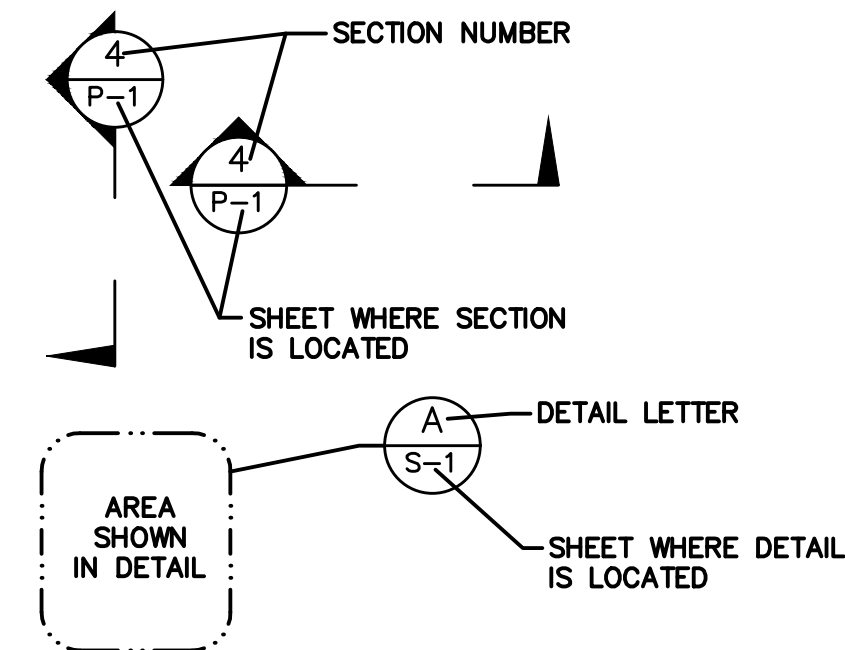
MISCELLANEOUS



VALVE OPERATORS



DRAWING, SECTION & DETAIL TITLES



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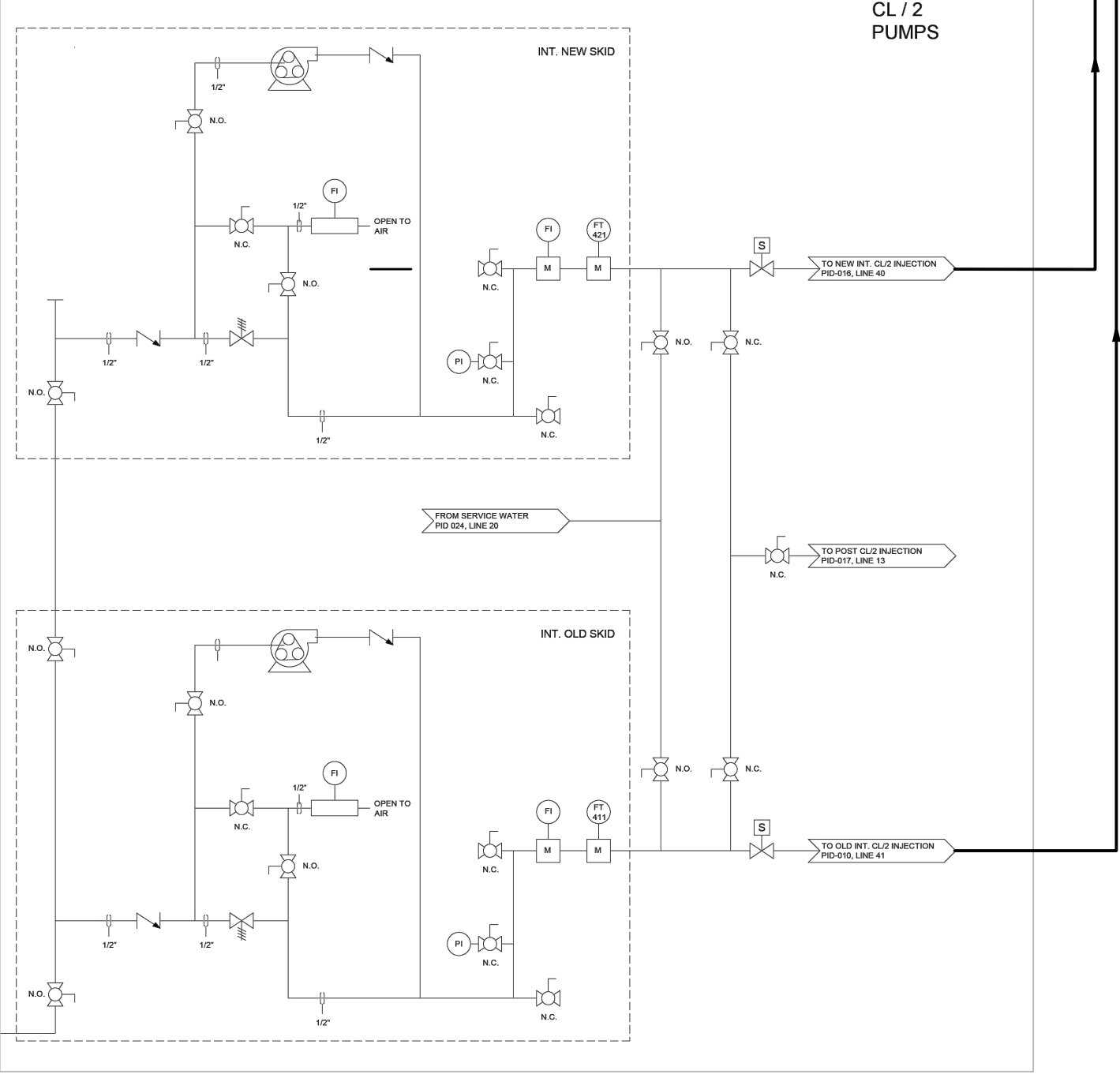
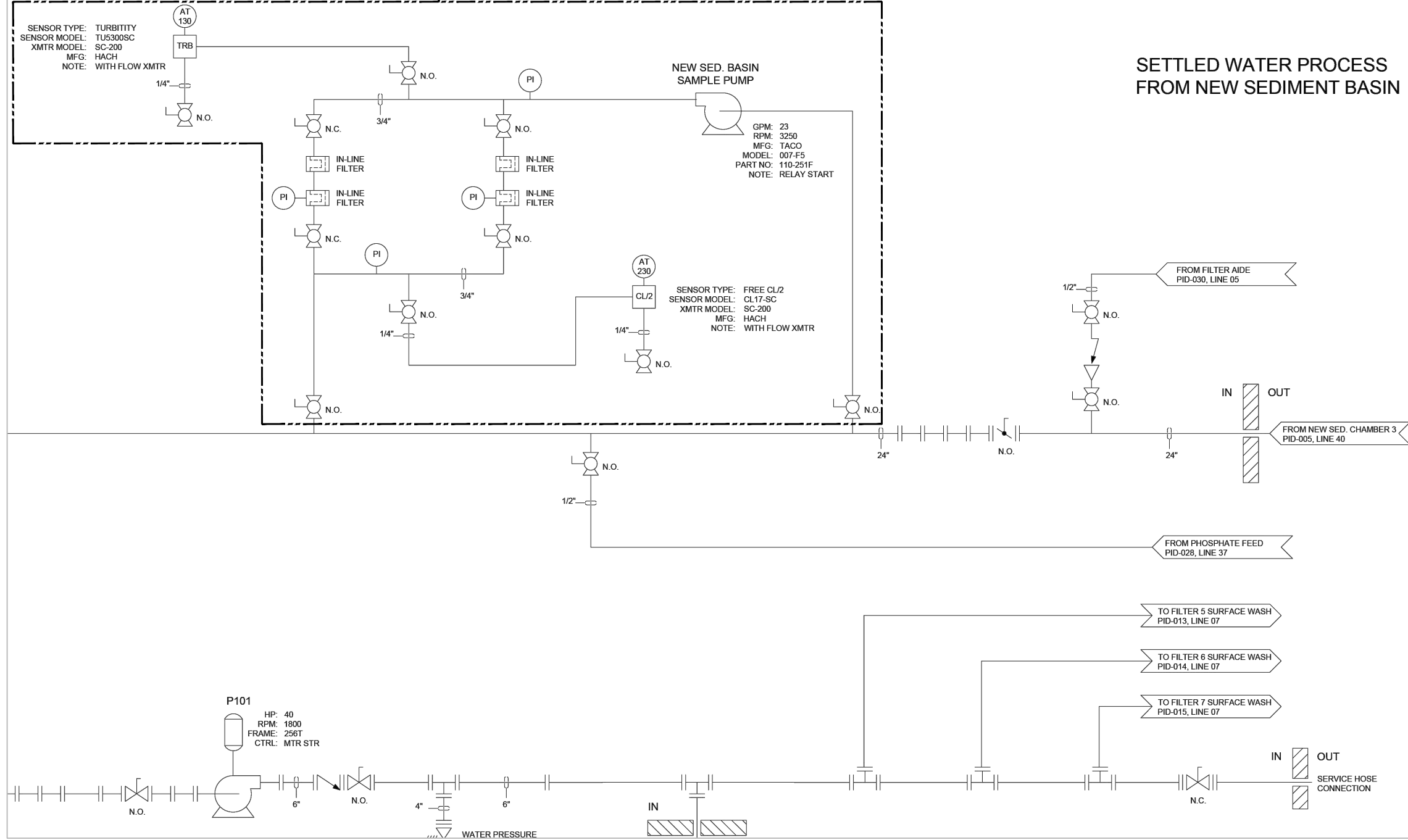
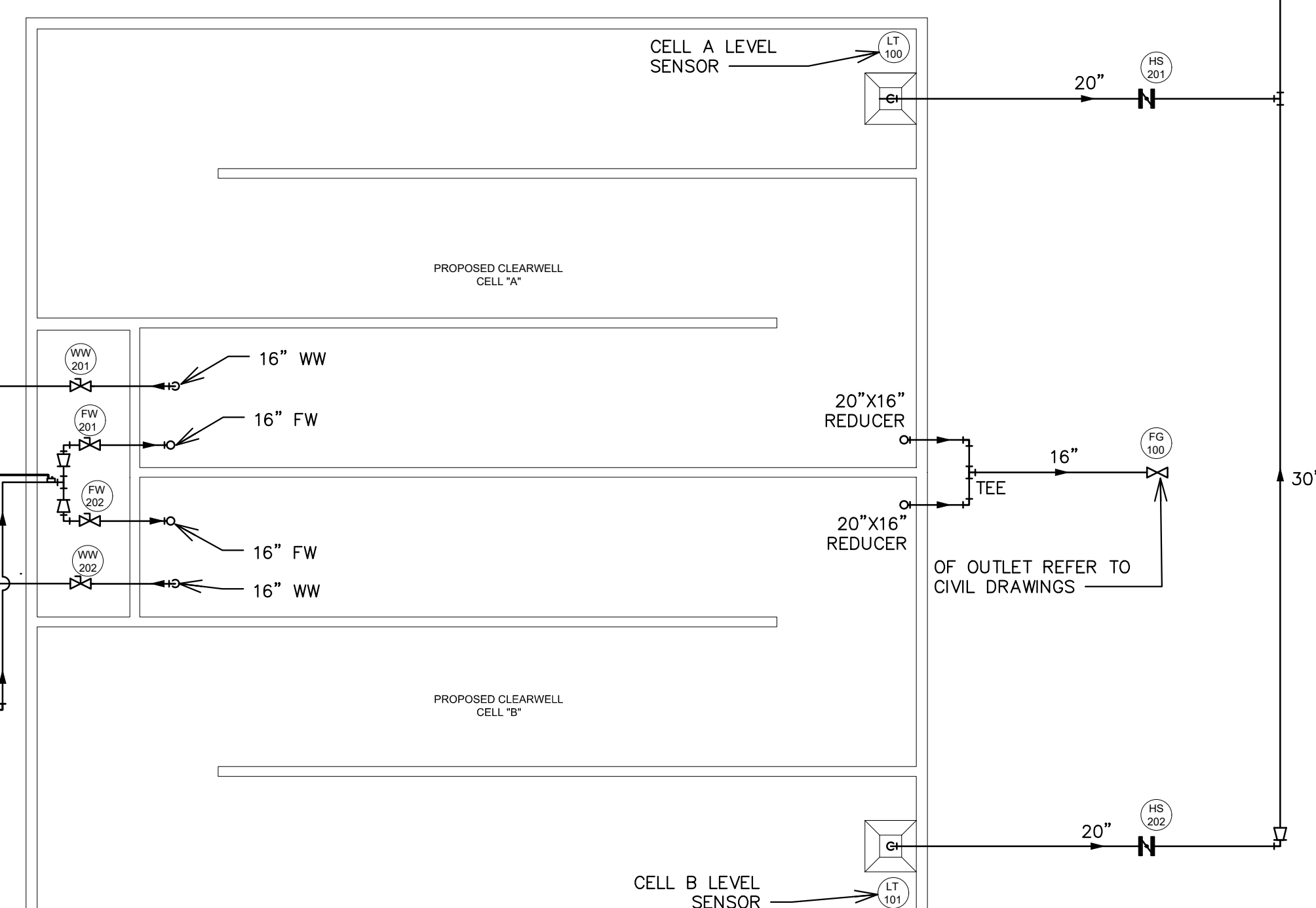
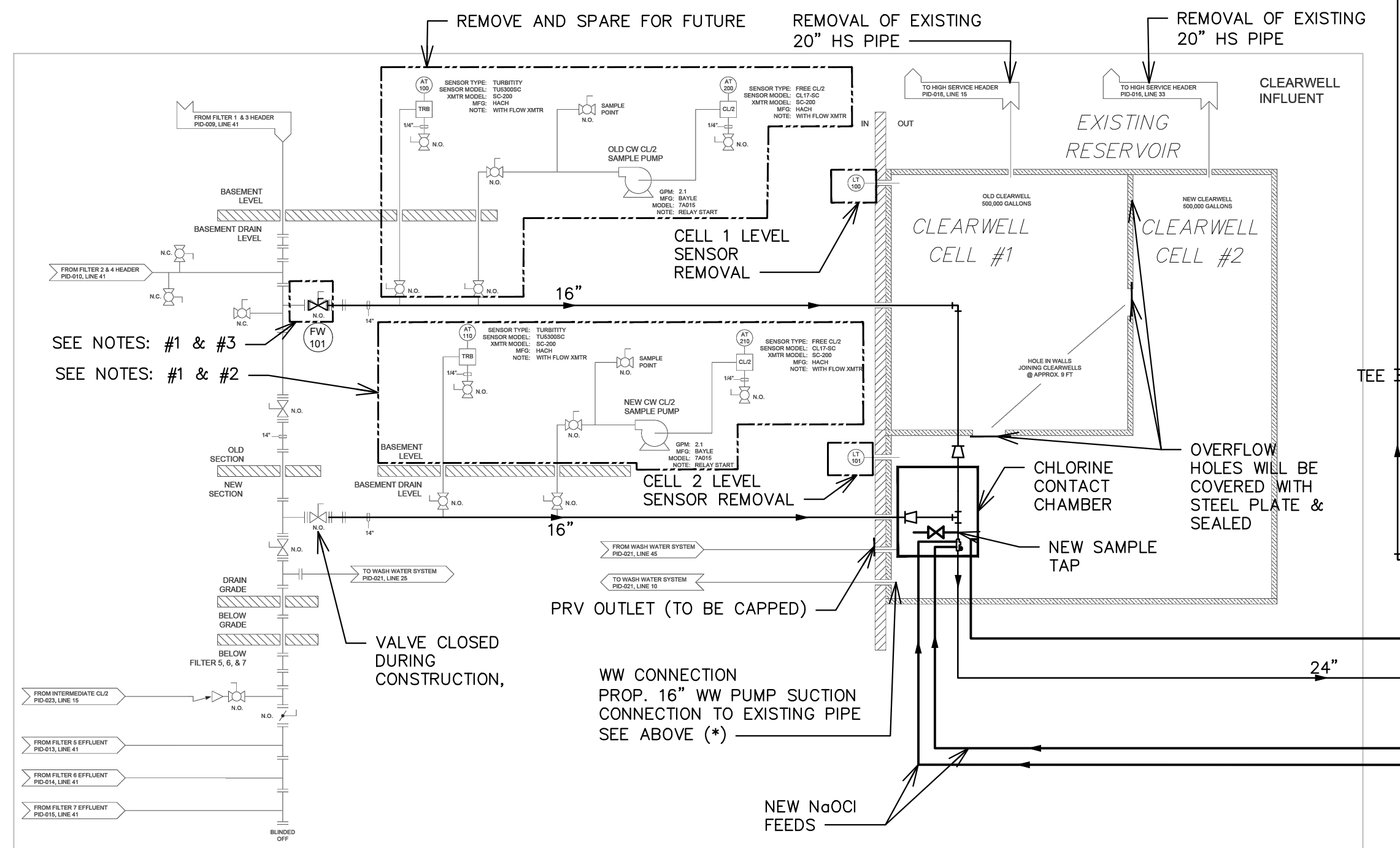
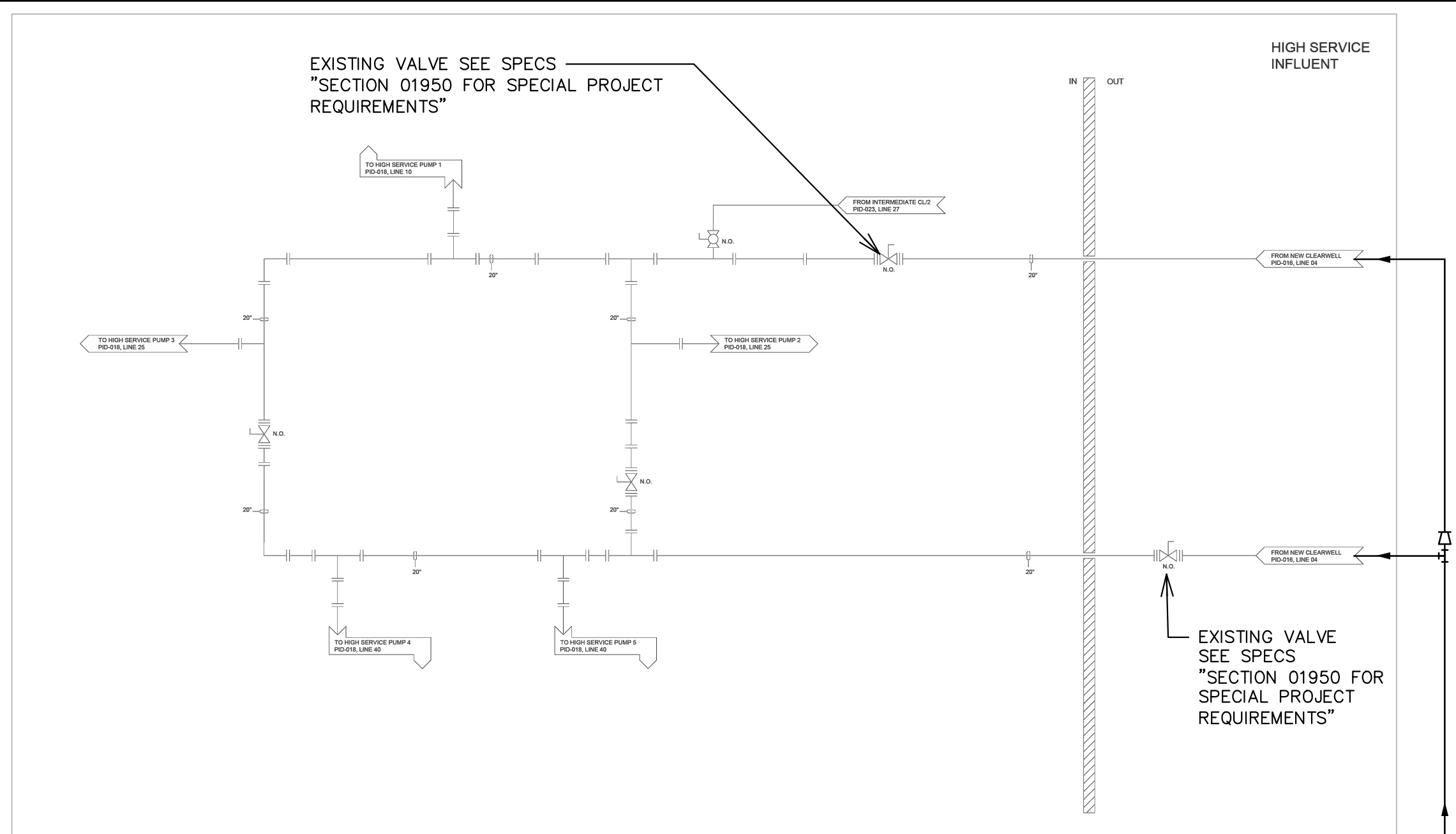
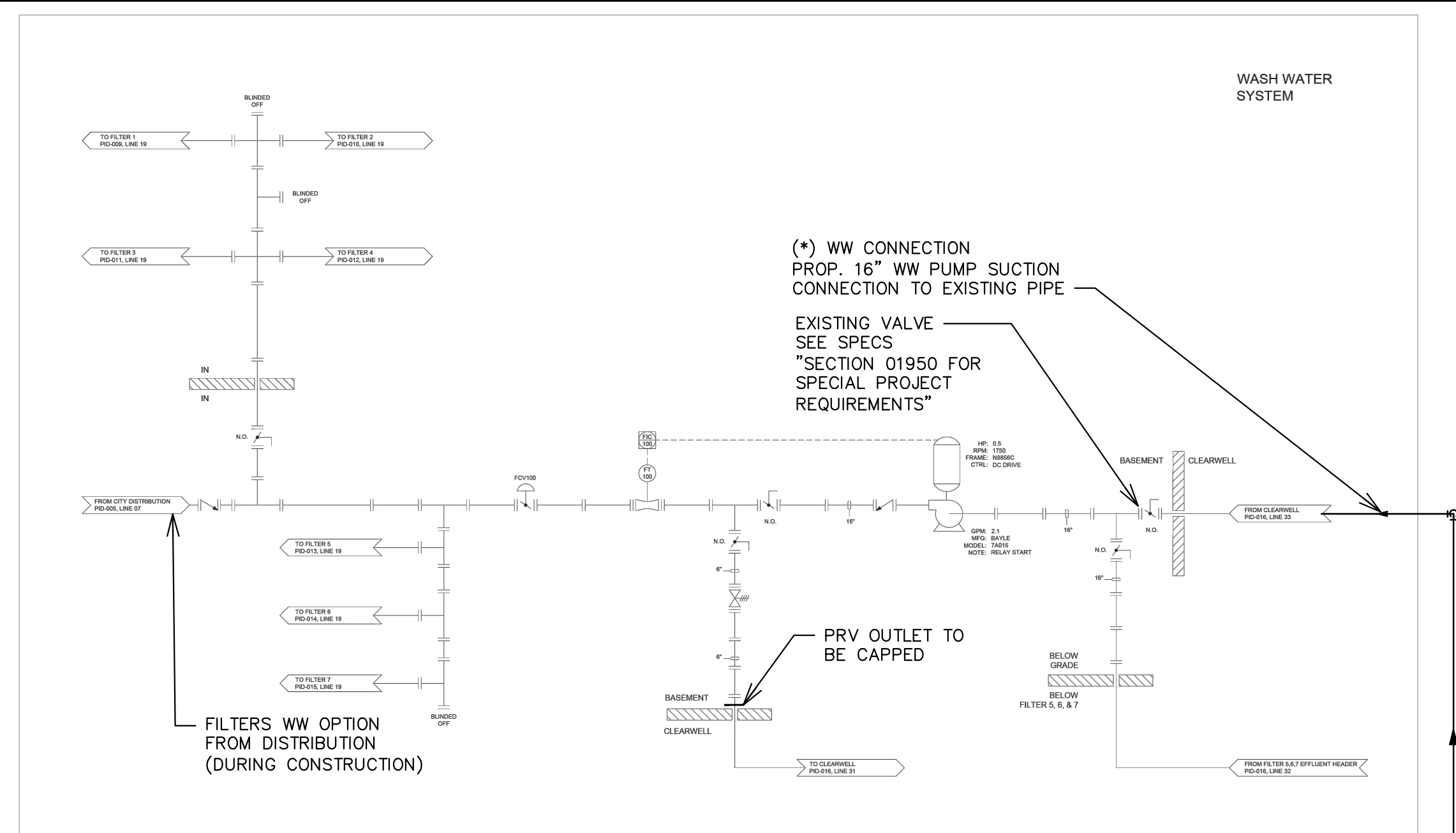
02-19-24	BIDS
12-29-23	EGL. SUBMITTAL
12-14-23	OWNER REVIEW
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	D.I.U./B.U.
DRAWN	B.U.
CHECKED	D.I.U.
APPROVED	T.G.M.

CITY OF ALPENA
 WATER PRODUCTION PLANT
 CLEARWELL REPLACEMENT &
 INFRASTRUCTURE
 IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707
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PROCESS AND NOTES LEGEND

HRC JOB NO. 20220751	SCALE NONE
DATE DECEMBER 2023	SHEET NO. P-1 OF



- NOTES
- SEE SPECIFICATION - SECTION 01950
 - RELOCATE HACH TURBIDITY SENSORS TU5300SC (AT110) & CHLORINE ANALYZER (AT210) WITH AUXILIARY INSTRUMENTS. REFER TO DRAWING PD-1. ADD A SAMPLE PUMP LINE FROM 24" DIA. COMBINED FILTERED WATER AND INSTALL TO NEW CHLORINE CONTACT CHAMBER. SEE SPECIFICATIONS FOR RELOCATION REQUIREMENTS.
 - REMOVE & REPLACE EXISTING CELL 1 FW VALVE, REMOVE EXISTING VENTURI PIPE 66"±.
 - RELOCATE HACH TURBIDITY SENSORS TU5300SC (AT130) & CHLORINE ANALYZER (AT230) WITH AUXILIARY INSTRUMENTS LOCATED AT THE SOUTH WALL TO EAST WALL WITH ALL ELECTRICAL & CONDUIT EQUIPMENTS. NEW FEED LINE FOR THESE INSTRUMENT TO BE COORDINATED WITH THE NEW ACCESS DOOR OPENING WORKS ALIGNMENT FOR - REFER TO DRAWING PD-1. SEE SPECIFICATIONS FOR RELOCATION REQUIREMENTS.
 - INSTRUMENT RELOCATIONS AND SCADA PROGRAMMING TO BE COMPLETED BY TEMPEST ENTERPRISES.
 - CONTRACTOR TO COMPLETE AND COORDINATE REROUTING OF ELECTRICAL/INSTRUMENTATION CONDUIT AND OTHER ANCILLARY EQUIPMENT.
 - BACKGROUND DRAWINGS/DETAILS, EXISTING PIPING AND UTILITIES SHOWN HERE ARE FROM A PRIOR PROJECTS AND DO NOT NECESSARILY DEPICT AS-BUILT CONDITIONS.
 - THESE ARE SHOWN FOR REFERENCE ONLY FOR THE PURPOSE OF DEPICTING NEW WORK. CONTRACTOR IS RESPONSIBLE TO CHECK, CLARIFY & INFORM THE ENGINEER & OWNER AND REPRESENTATIVES BEFORE TAKE ANY ACTION.



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	DESIGNED D.I.U./B.U.
	DRAWN B.U.
	CHECKED D.I.U.
	APPROVED T.G.M.

CITY OF ALPENA

**WATER PRODUCTION PLANT
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IMPROVEMENTS**

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**EXISTING & PROPOSED
CLEARWELL PROCESS
FLOW DIAGRAM**

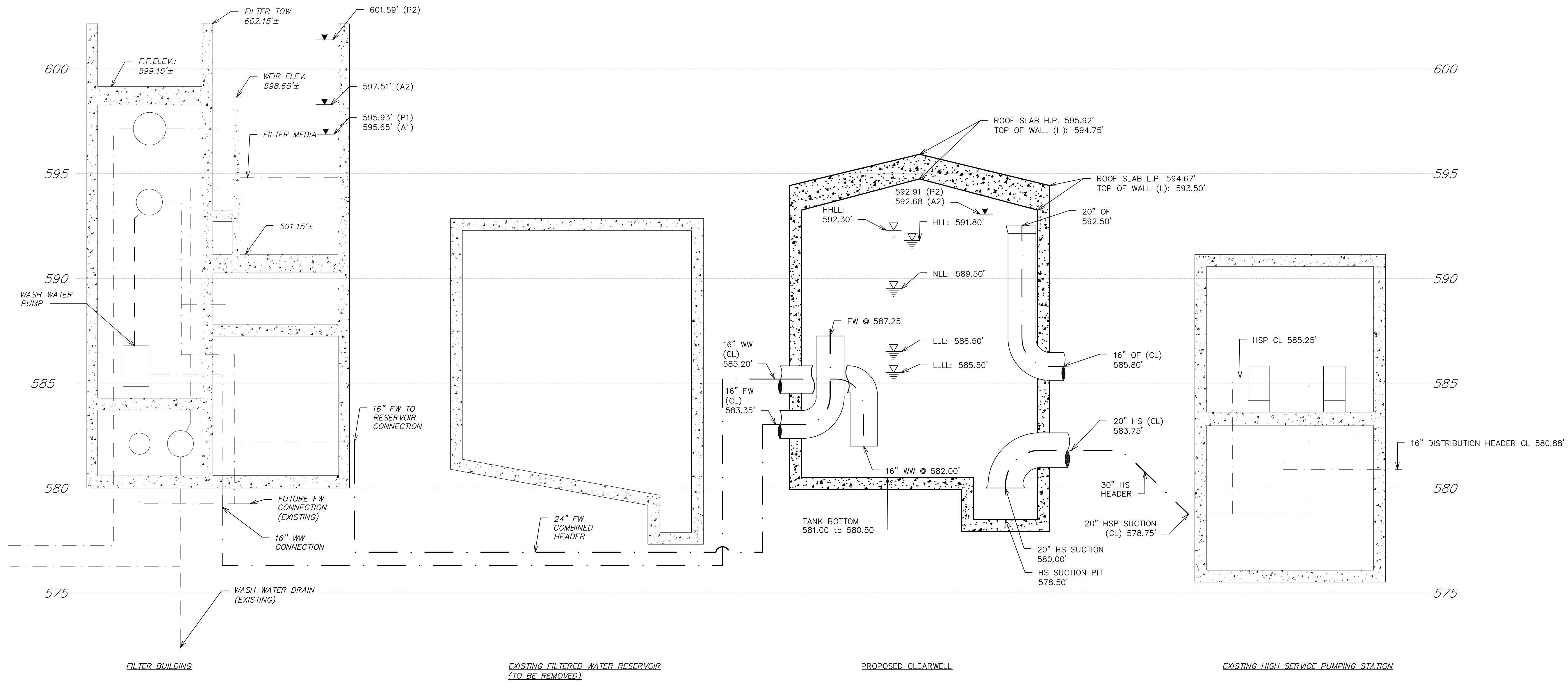
HRC JOB NO. 20220751	SCALE NONE
DATE DECEMBER 2023	SHEET NO. P-2

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(P1) HGL AT DESIGN PEAK TREATMENT FLOW 6.0 MGD, LOW CLEARWELL LEVEL
 (A1) HGL AT AVERAGE TREATMENT FLOW 1.66 MGD, LOW CLEARWELL LEVEL
 (P2) HGL AT DESIGN PEAK TREATMENT FLOW 6.0 MGD, OVERFLOW CONDITIONS
 (A2) HGL AT AVERAGE TREATMENT FLOW 1.66 MGD, OVERFLOW CONDITIONS



**HYDRAULIC PROFILE
(CLEARWELL)**

DATE	ADDITIONS AND/OR REVISIONS
02-19-24	BIDS
12-29-23	EGL SUBMITTAL
12-14-23	OWNER REVIEW

DESIGNED	D.I.U./B.U.
DRAWN	B.U.
CHECKED	D.I.U.
APPROVED	T.G.M.

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IMPROVEMENTS
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HYDRAULIC PROFILE

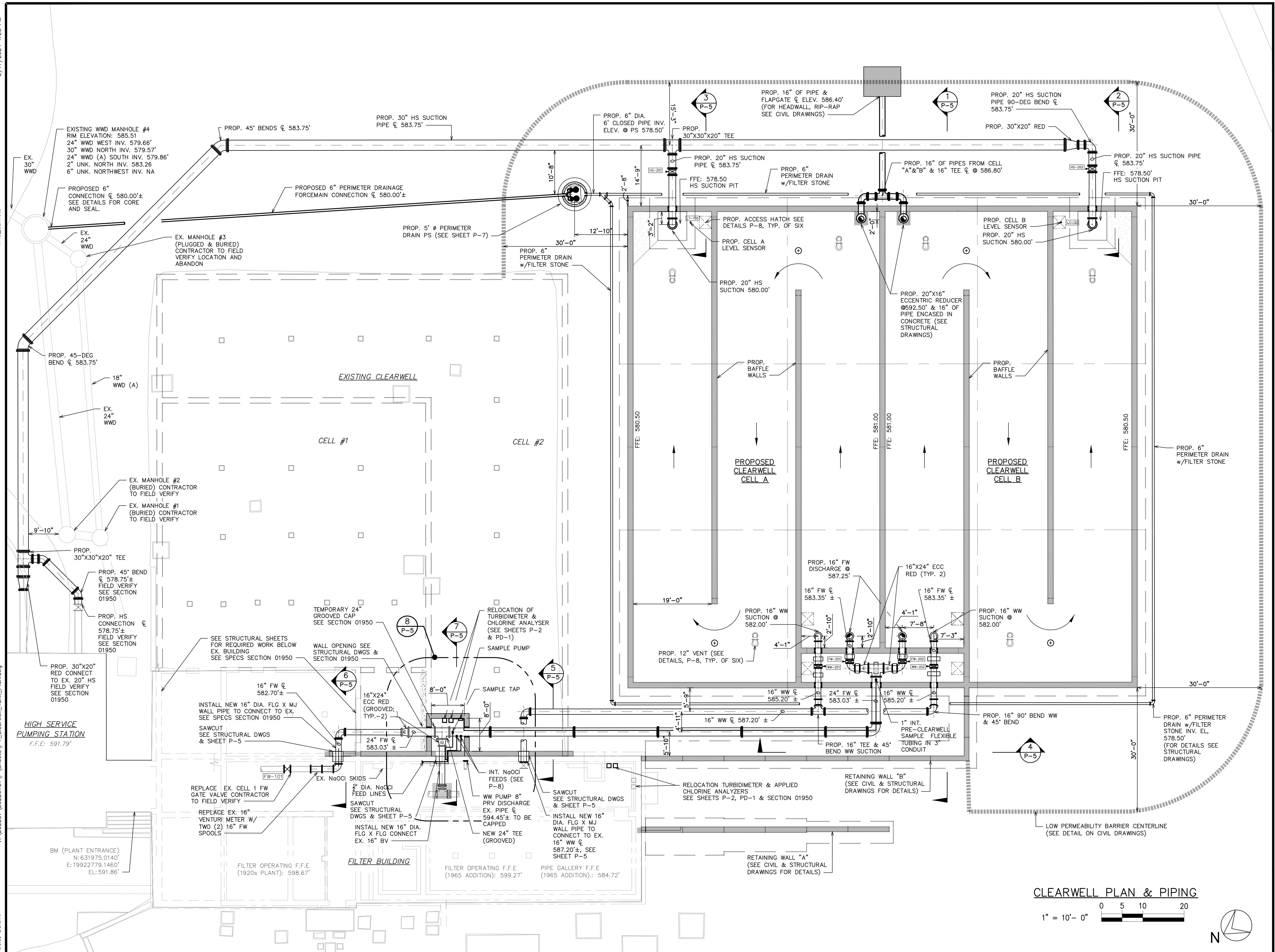
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DATE DECEMBER 2023	SHEET NO. P-3 OF

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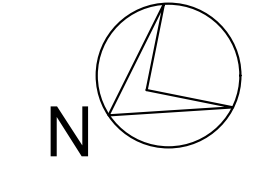
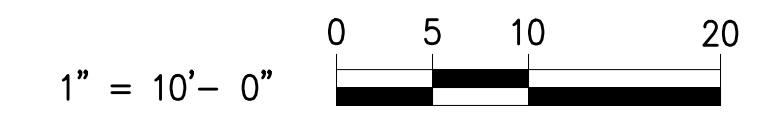
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CLEARWELL PLAN & PIPING



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12-14-23	OWNER REVIEW
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APPROVED	T.G.M.

CITY OF ALPENA
WATER PRODUCTION PLANT
CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS

1300 S STATE AVE., ALPENA, MI 49707
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PROPOSED CLEARWELL PLAN

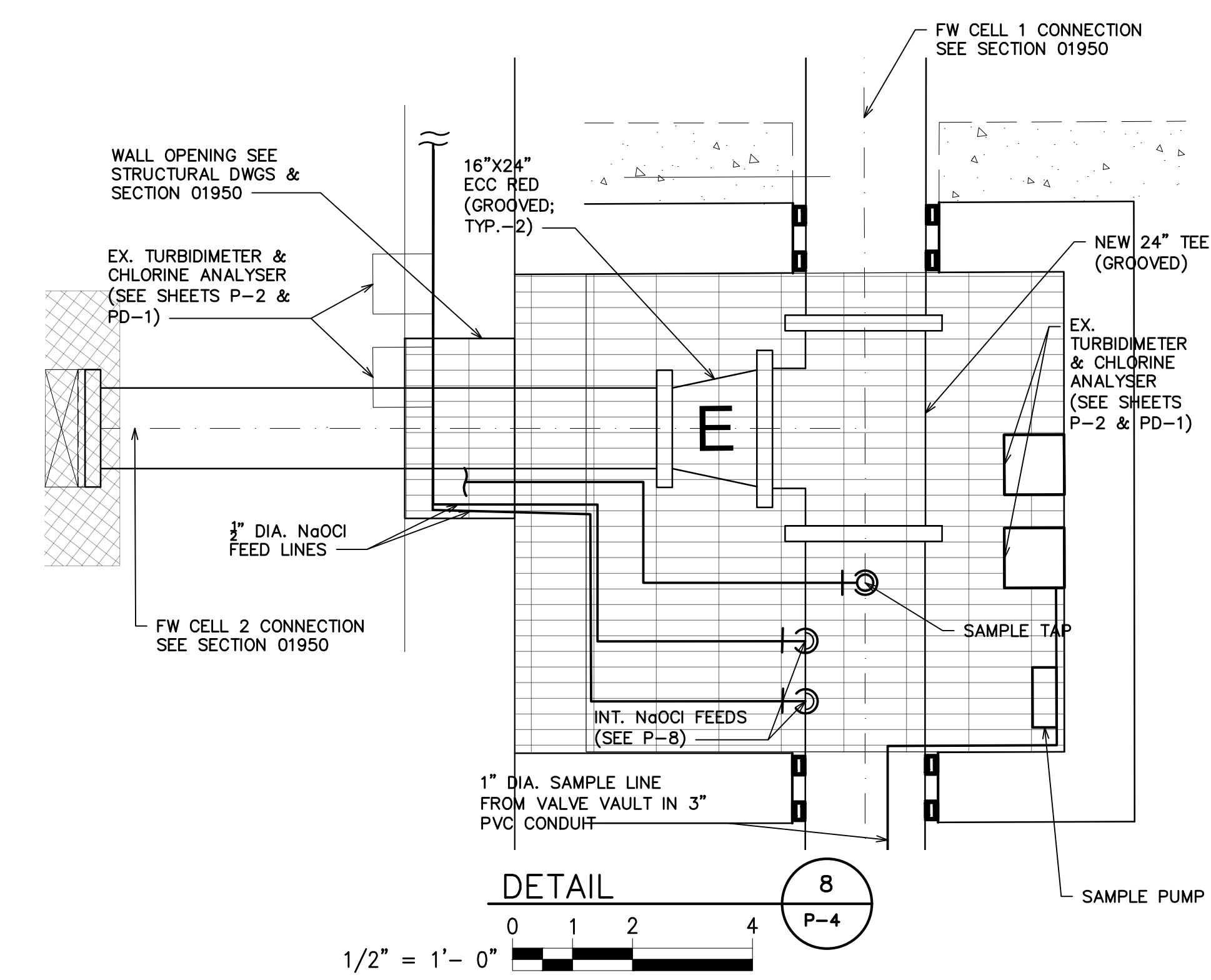
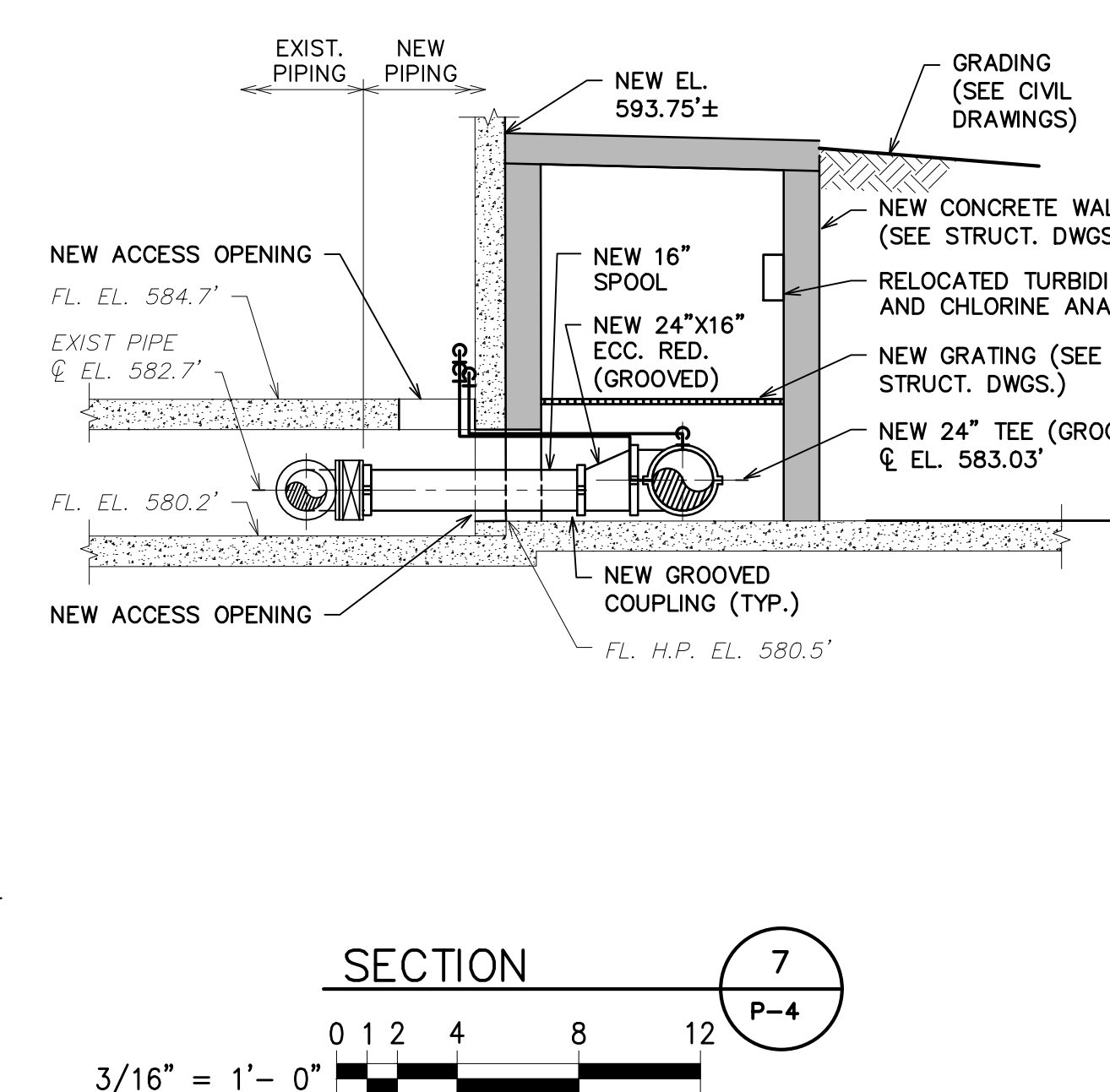
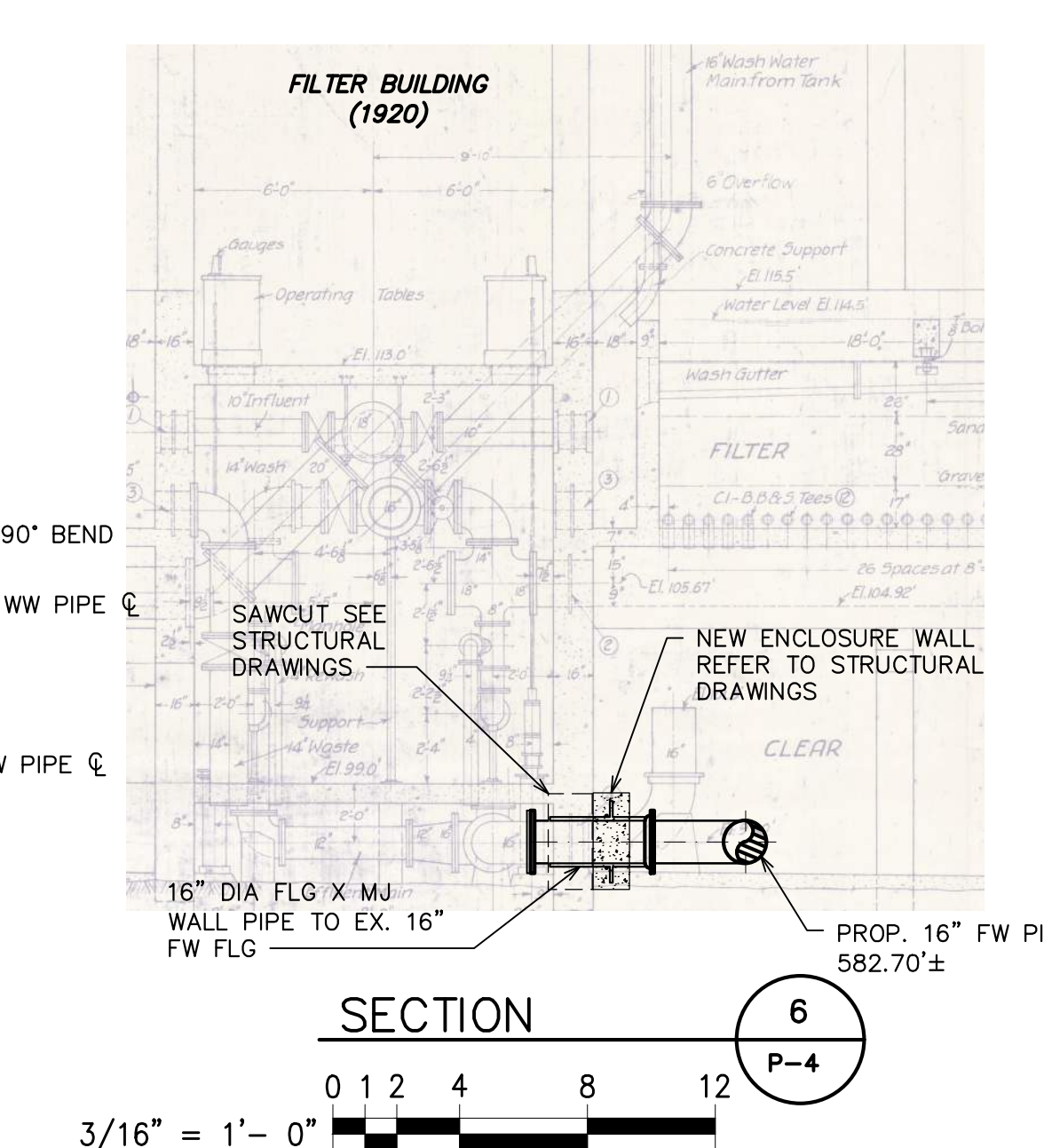
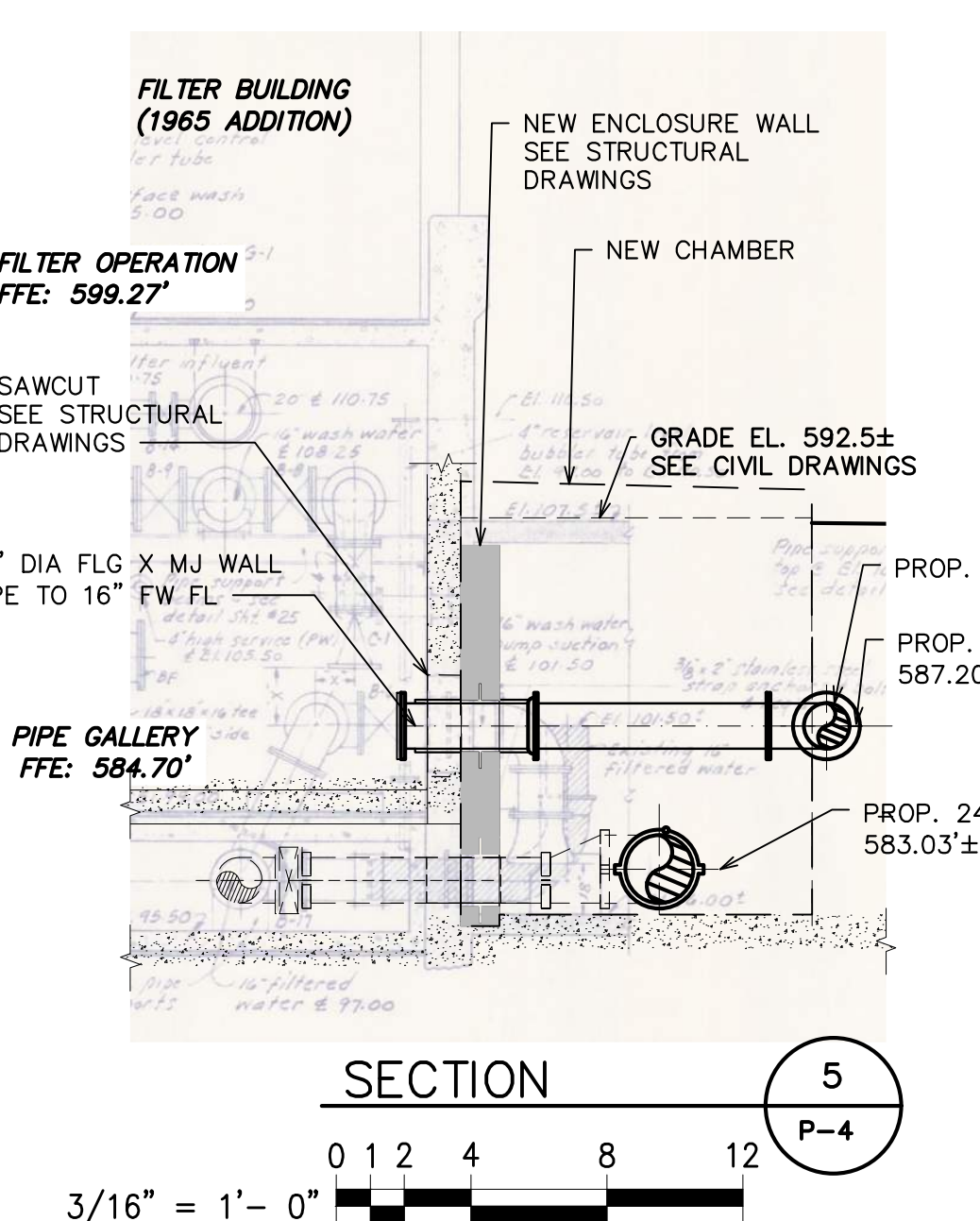
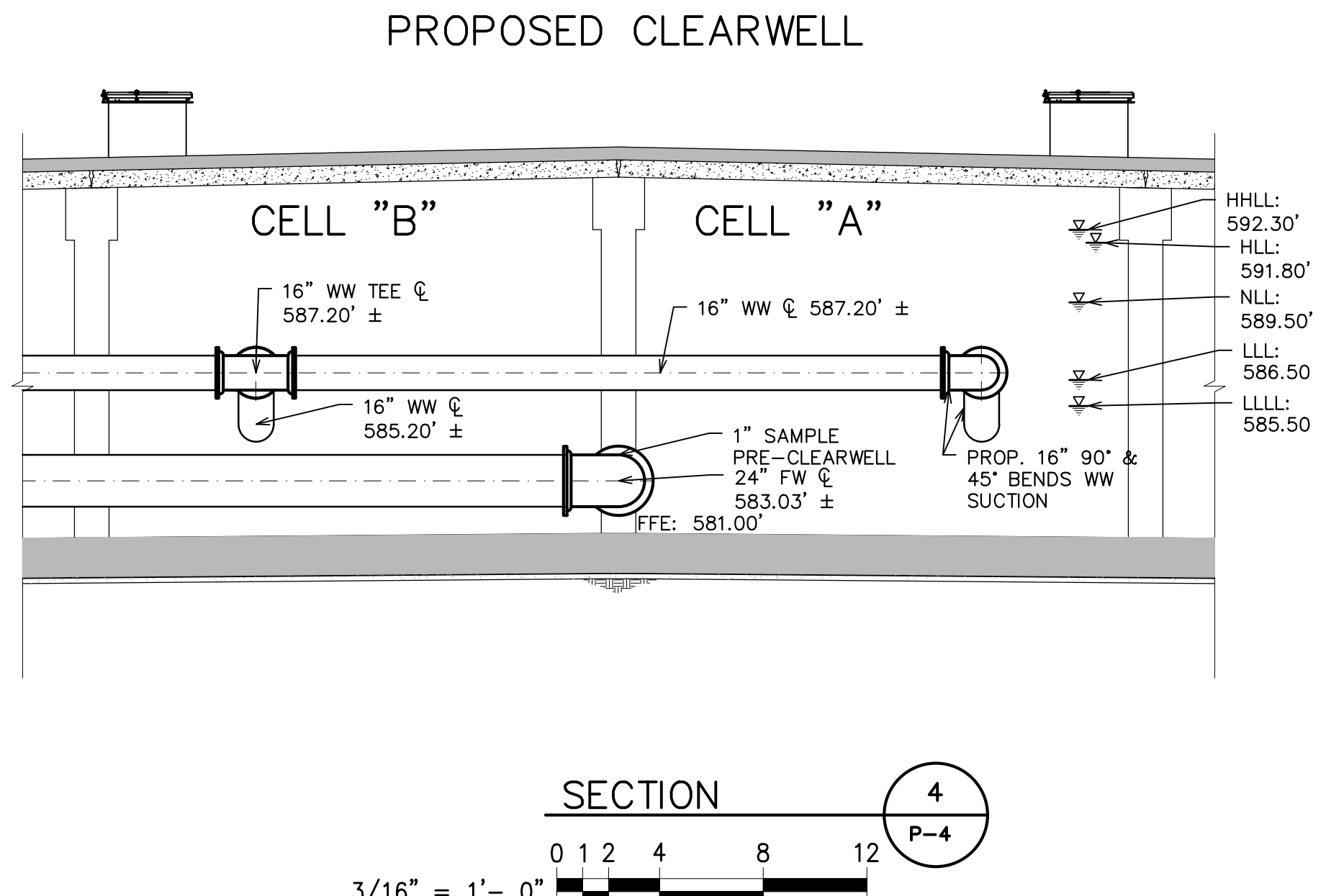
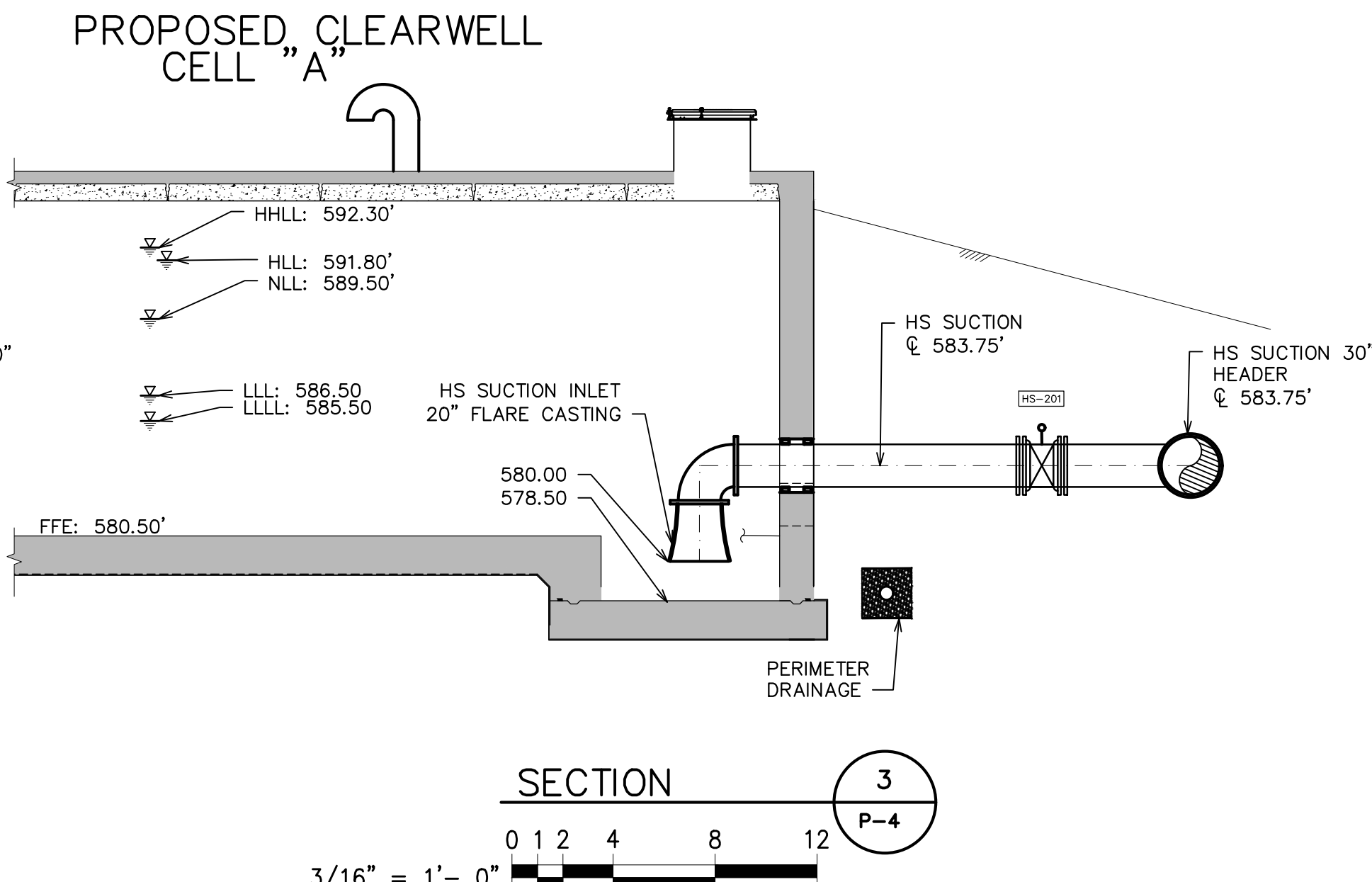
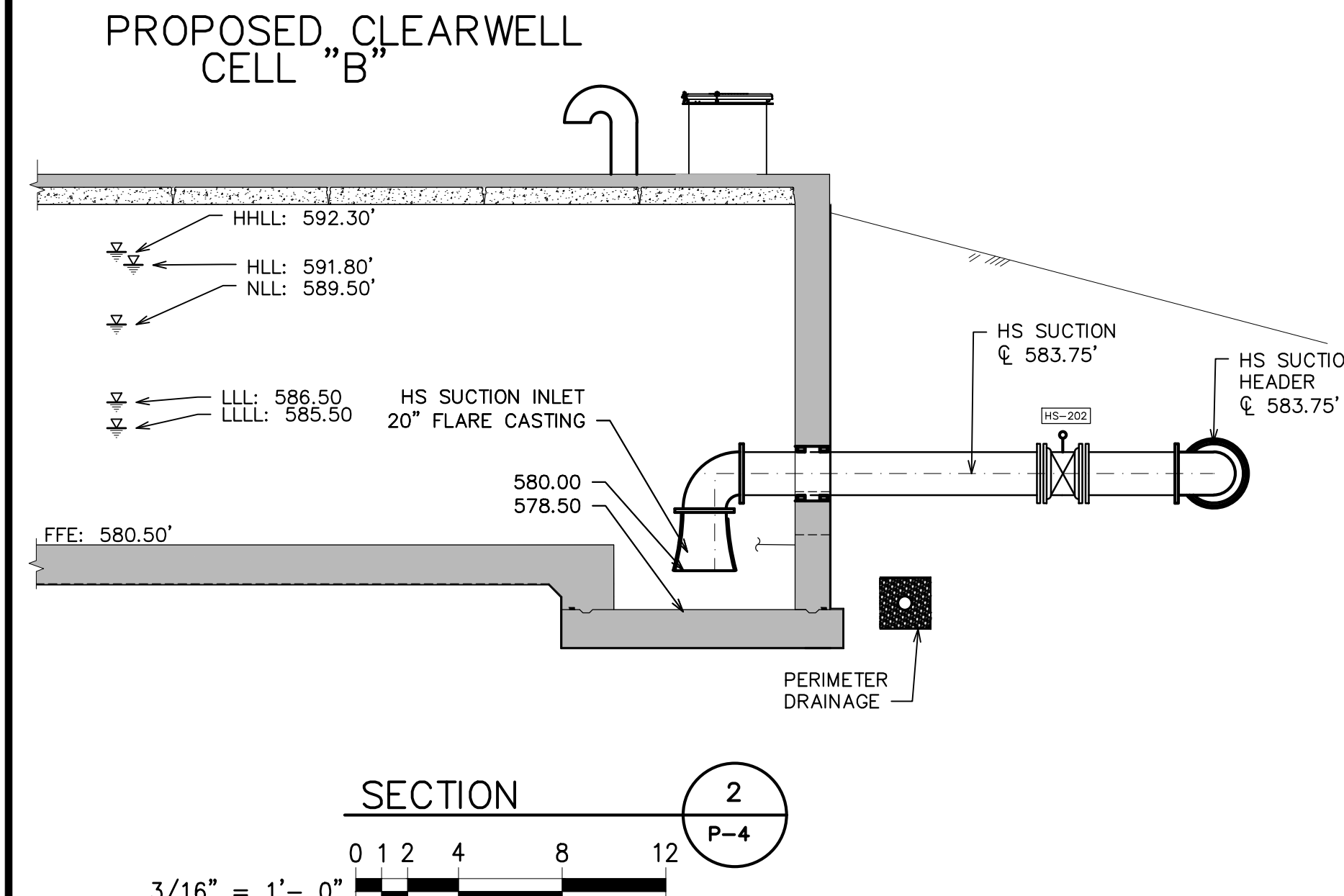
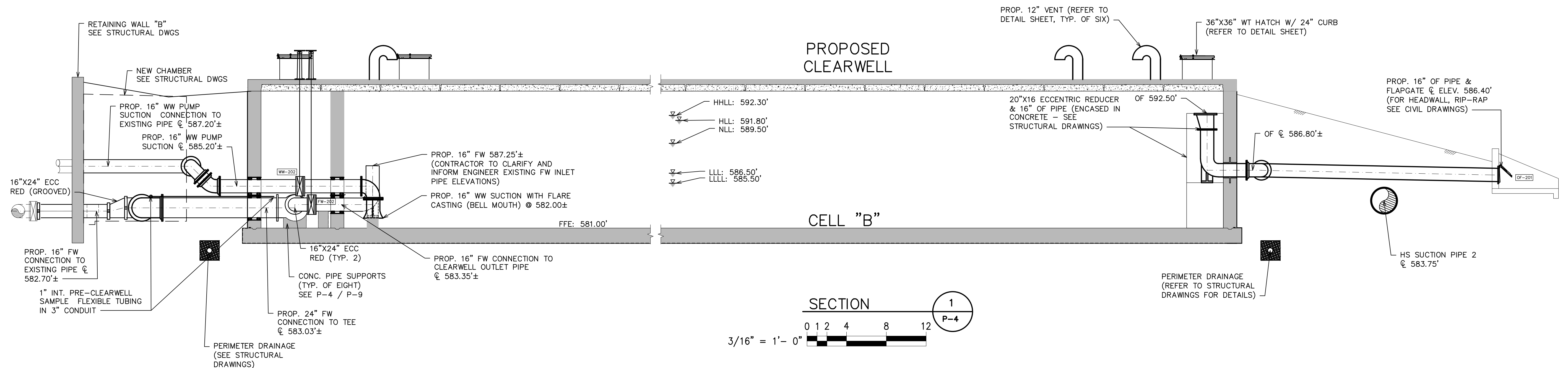
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DATE DECEMBER 2023	SHEET NO. P-4 OF

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12-29-23	EGLE SUBMITTAL
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DATE	ADDITIONS AND/OR REVISIONS
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DRAWN	B.U.
CHECKED	D.I.U.
APPROVED	T.G.M.

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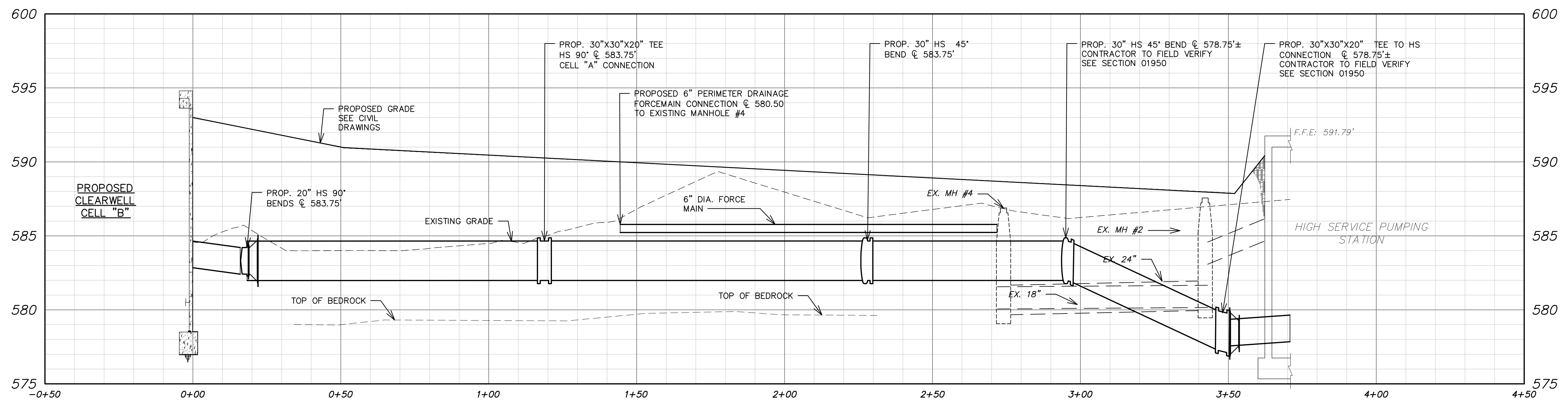
PROPOSED CLEARWELL
SECTIONS

HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. P-5 OF

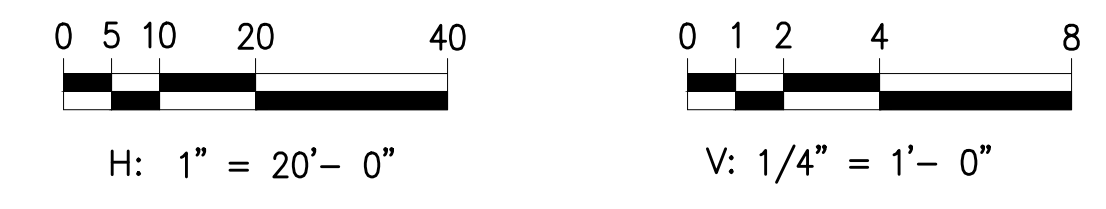


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CHECKED	D.I.U.
APPROVED	T.G.M.



HIGH SERVICE SUCTION & PERIMETER DRAINAGE PS FORCE MAIN PIPING PROFILE



CITY OF ALPENA
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PROCESS SITE PIPING PROFILES

HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. P-6 OF

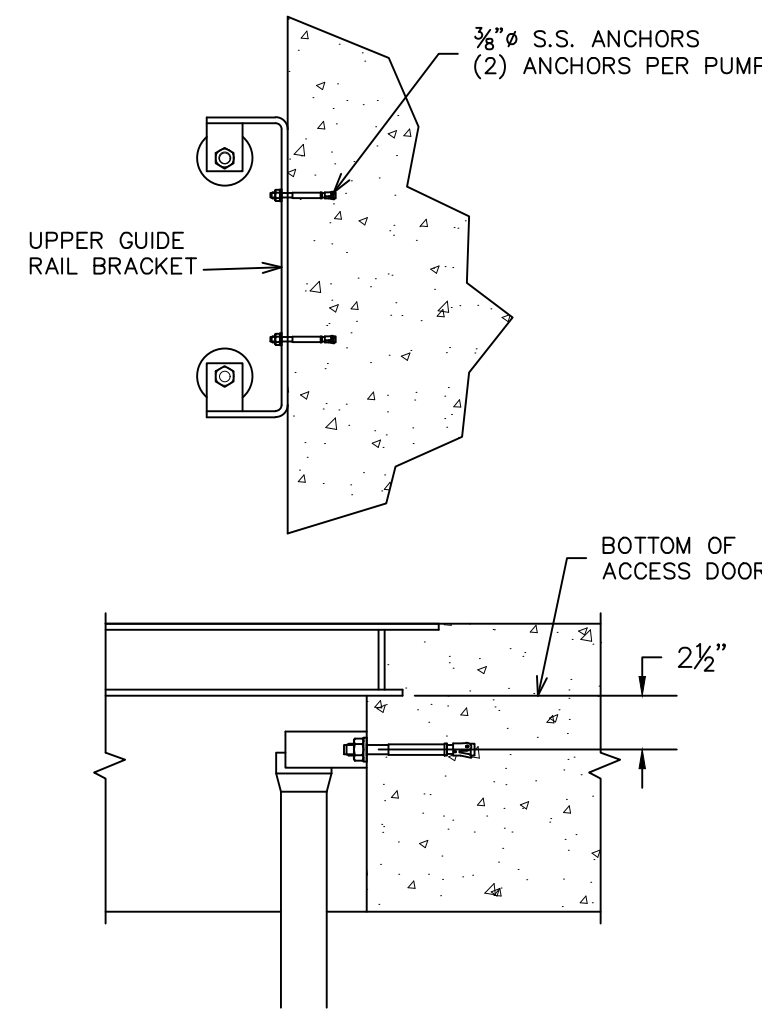
PUMP STATION NOTES:

- REFER TO STATION MFG. INSTALLATION MANUAL FOR CORRECT LOCATION OF INLET & ORIENTATION AND OTHER INSTALLATION DETAILS.
- DEWATERING AND SHEETING, IF NECESSARY, FOR SLOPE STABILIZATION OF EXCAVATION SHALL BE INCIDENTAL TO THE SITE CONTRACTOR CONTRACT.
- ALL BACKFILL SHALL BE COMPACTED TO 95% OF THE MODIFIED AASHTO DENSITY AT THE MOISTURE CONTENT WITHIN 10% OF OPTIMUM.
- ALL FITTINGS ATTACHING TO THE PVC OR HDPE PIPING AND THE S/S FLEX FITTING. ALSO THE IN LINE COUPLINGS MUST BE MADE OF S/S OR BRASS METAL (NOT PLASTIC).
- FLEX DISCHARGE FITTING AND REDUCING BUSHING MUST BE STAINLESS STEEL.
- DURING THE INSTALLATION OF THE LIFT STATION THE STATION MFG. REP. SHALL BE PRESENT TO ADVISE AND CONFIRM PROPER INSTALLATION.
- PUMPING STATIONS SHALL BE EQUIPPED WITH SPECIFIED PUMP OR APPROVED EQUAL.
- ALL PIPING WITHIN THE WET WELL SHALL BE SCH. 80 PVC WITH THE ABILITY TO TAKE THE VALVES OUT FOR REPAIR.
- EACH PUMP SHALL BE SUPPLIED WITH LIFT RINGS AND 1/8" STAINLESS STEEL LIFT CHAIN OR CABLE FOR PUMP REMOVAL.
- ALL FLOAT SWITCHES SHALL BE MERCURY-FREE LEVEL SENSORS USED AS LEVEL CONTROLS.
- DURING THE LIFT STATION START-UP, A PUMP REPRESENTATIVE MUST BE PRESENT TO CONFIRM PUMP PERFORMANCE, AND SYSTEMS OPERATIONS. DURING THE START-UP THE OWNER AND THE OWNERS PERSONNEL WILL BE PRESENT FOR TRAINING.
- CONTRACTOR/STATION SUPPLIER SHALL SUPPLY THE OWNER WITH OPERATIONS AND MAINTENANCE MANUALS, INCLUDING PUMP CURVES, PUMP AND CONTROL INFORMATION.
- CONTRACTOR/STATION SUPPLIER TO CONFIRM ELECTRICAL SERVICE AVAILABLE VOLTAGE & PHASE, WITH THE PROJECT'S ELECTRICAL CONTRACTOR.
- WEATHER PROOF SIGNS MUST BE PUT ON THE WET WELL, WARNING FOR "CONFINED SPACE ENTRY"
- THE CONTROL PANEL IS TO ONLY HAVE AN ALARM LIGHT ON TOP OF IT (FLASHING), TO PROVIDE A WARNING OF FAILURES.
- CONTROL PANEL TO BE SUPPLIED BY TEMPEST ENTERPRISES PER SECTION 11390.
- INCLUDE A SERVICE DISCONNECT WITHIN THE CONTROL PANEL.
- THE CONTROL PANEL MUST BE PROVIDED WITH THE ABILITY TO BE PAD LOCKED.

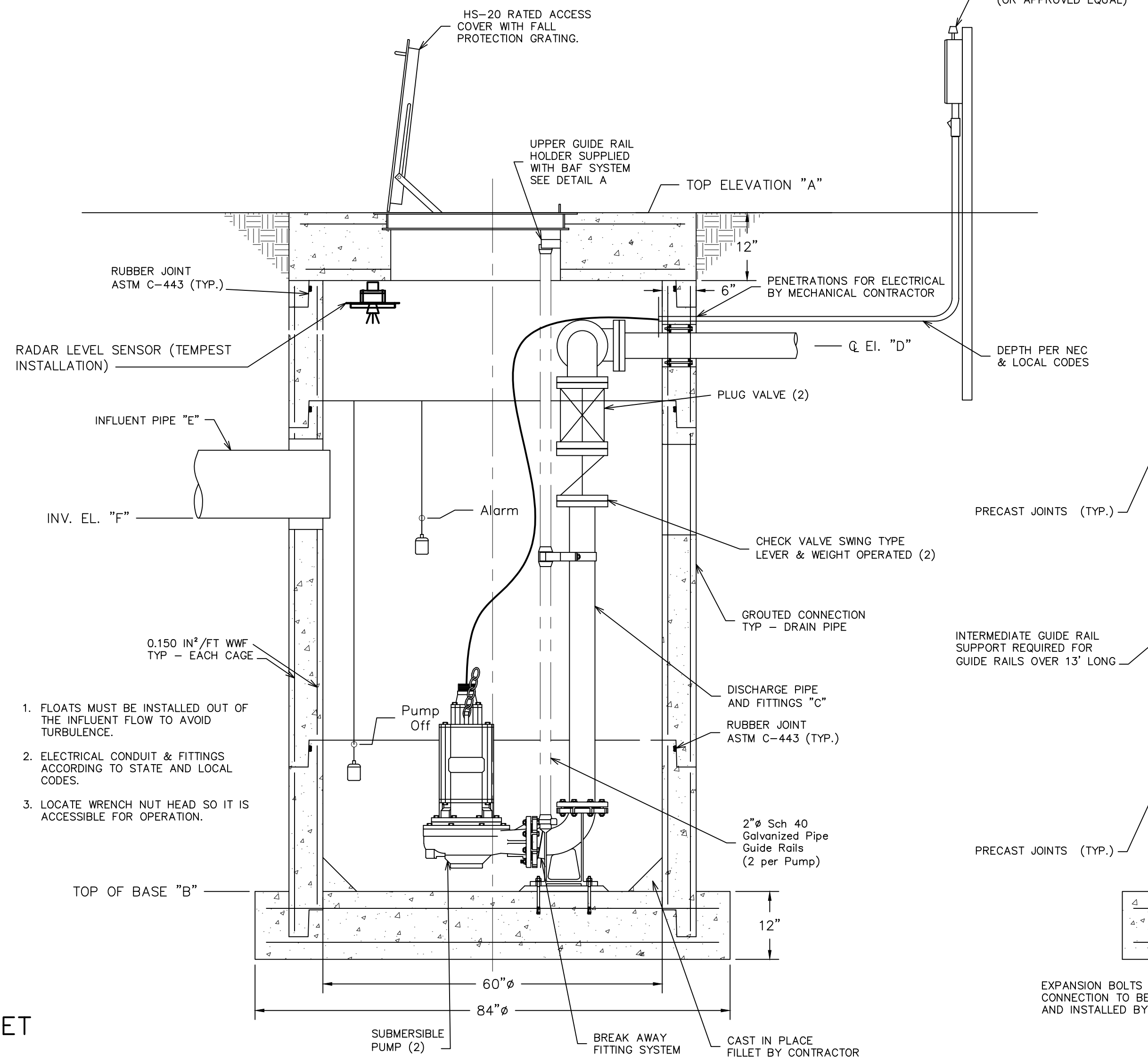
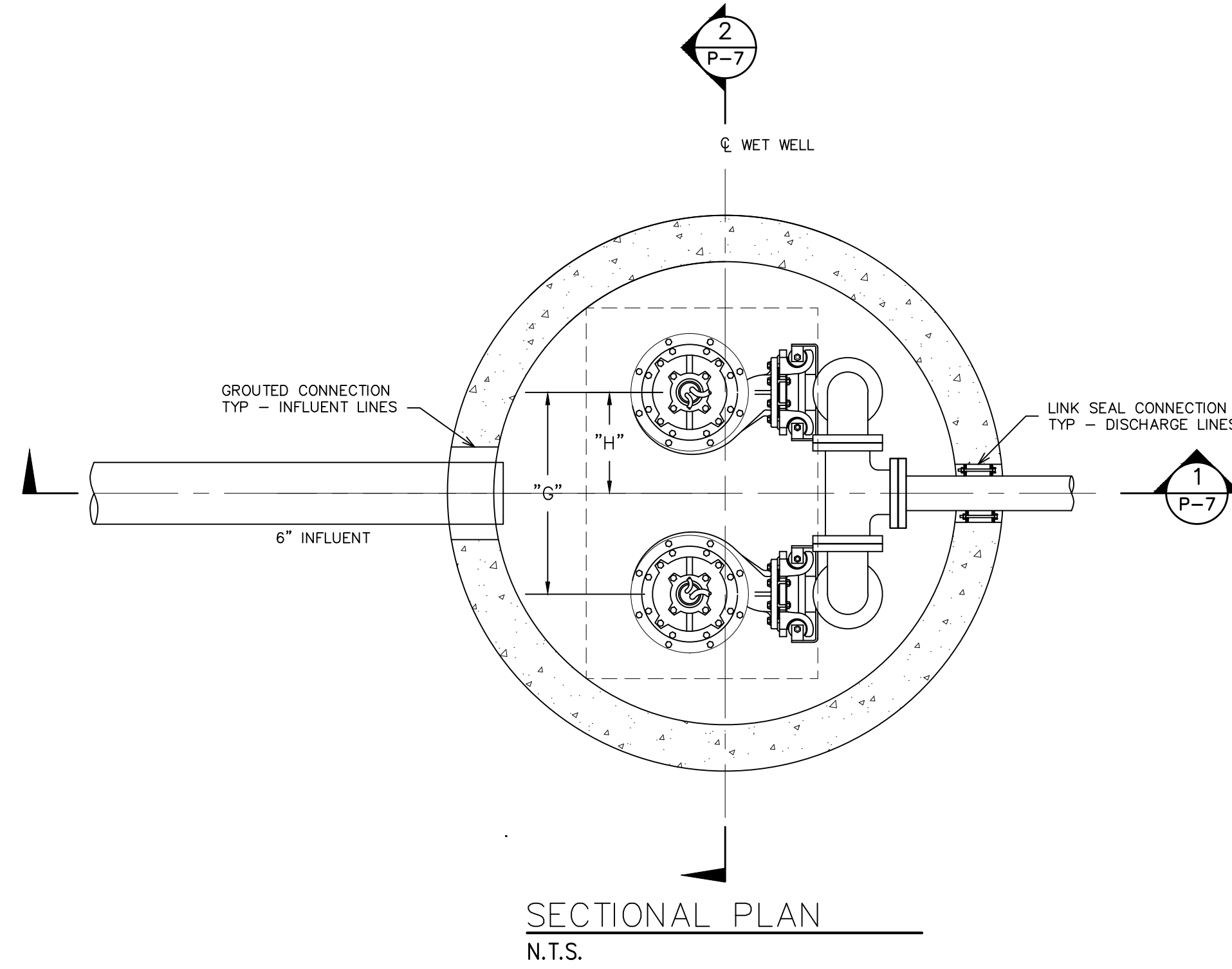
PRECAST NOTES:

- PUMP STATION SECTIONS TO BE MANUFACTURED TO ASTM C-478 SPECIFICATIONS W/HS-20 LOADING.
- CONCRETE: 4000 PSI @ 28 DAYS.
- REINFORCEMENT PER ASTM A-615 & A-496.

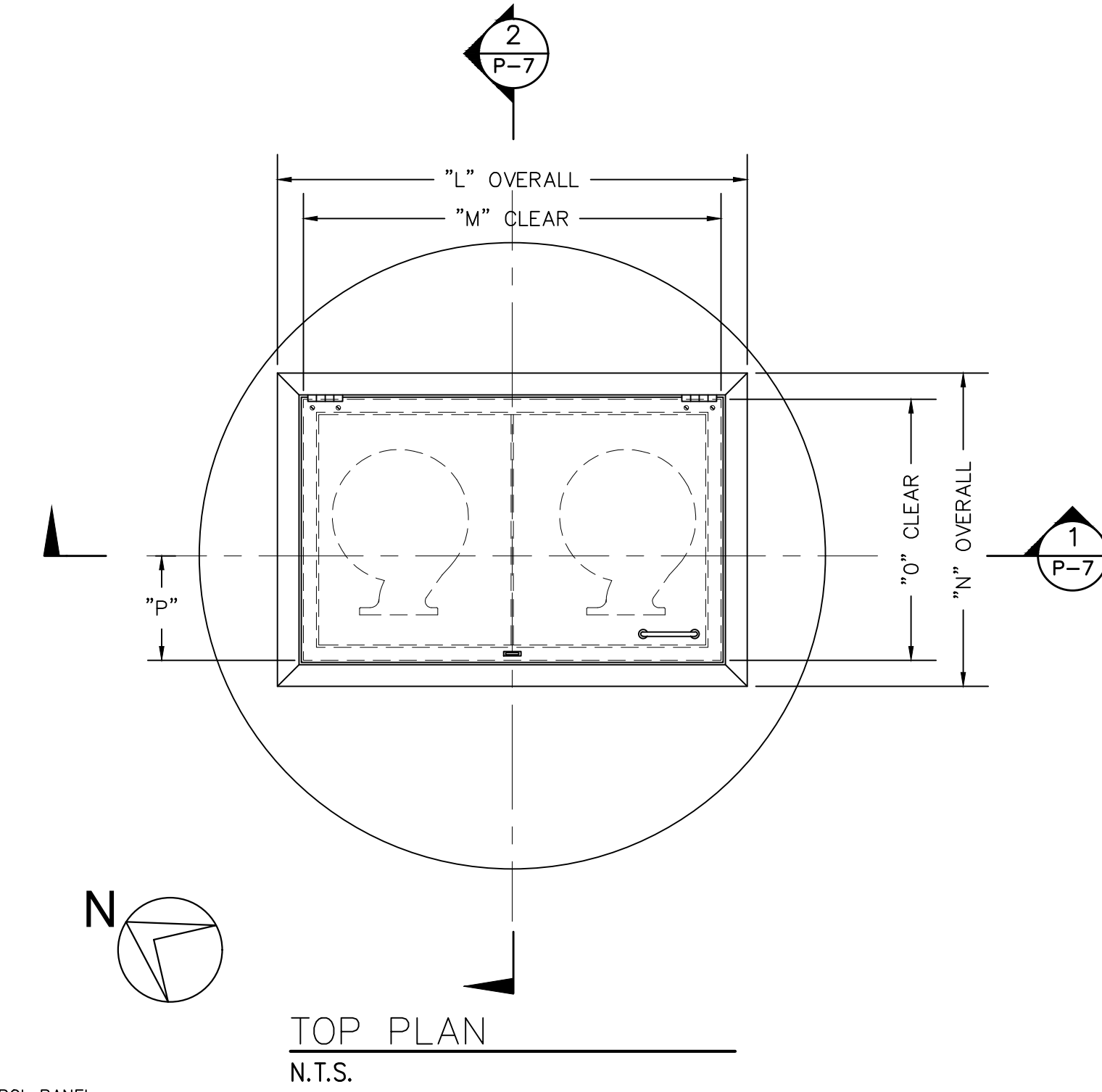
WET WELL DIMENSIONS	
A TOP OF COVER ELEVATION	590.50'
B TOP OF BASE ELEVATION	574.60'
C DISCHARGE PIPE DIAMETER	6" PVC
D DISCHARGE PIPE ϕ ELEVATION	580.50'
E INFLUENT PIPE DIAMETER	6" PVC
F INFLUENT PIPE INV. ELEVATION	578.50'
WET WELL ACCESS HATCH DIMENSIONS	
L ACCESS HATCH OVERALL LENGTH	42"
M ACCESS HATCH CLEAR LENGTH	36"
N ACCESS HATCH OVERALL WIDTH	42"
O ACCESS HATCH CLEAR WIDTH	36"
P ACCESS HATCH OFFSET	12"
PUMP SPECIFICATIONS	
PUMP MODEL NUMBER	GRUNDFOS SL1.30.A30.20 (OR APP. EQUAL)
GALLONS PER MINUTE (GPM)	200 GPM (EACH)
TOTAL DYNAMIC HEAD (TDH)	15 FT
HORSE POWER (HP)	2.0 HP
PHASE	3 PHASE
VOLTAGE (V)	460 V
ALARM ELEVATION	578.40'
PUMP OFF ELEVATION	576.10'



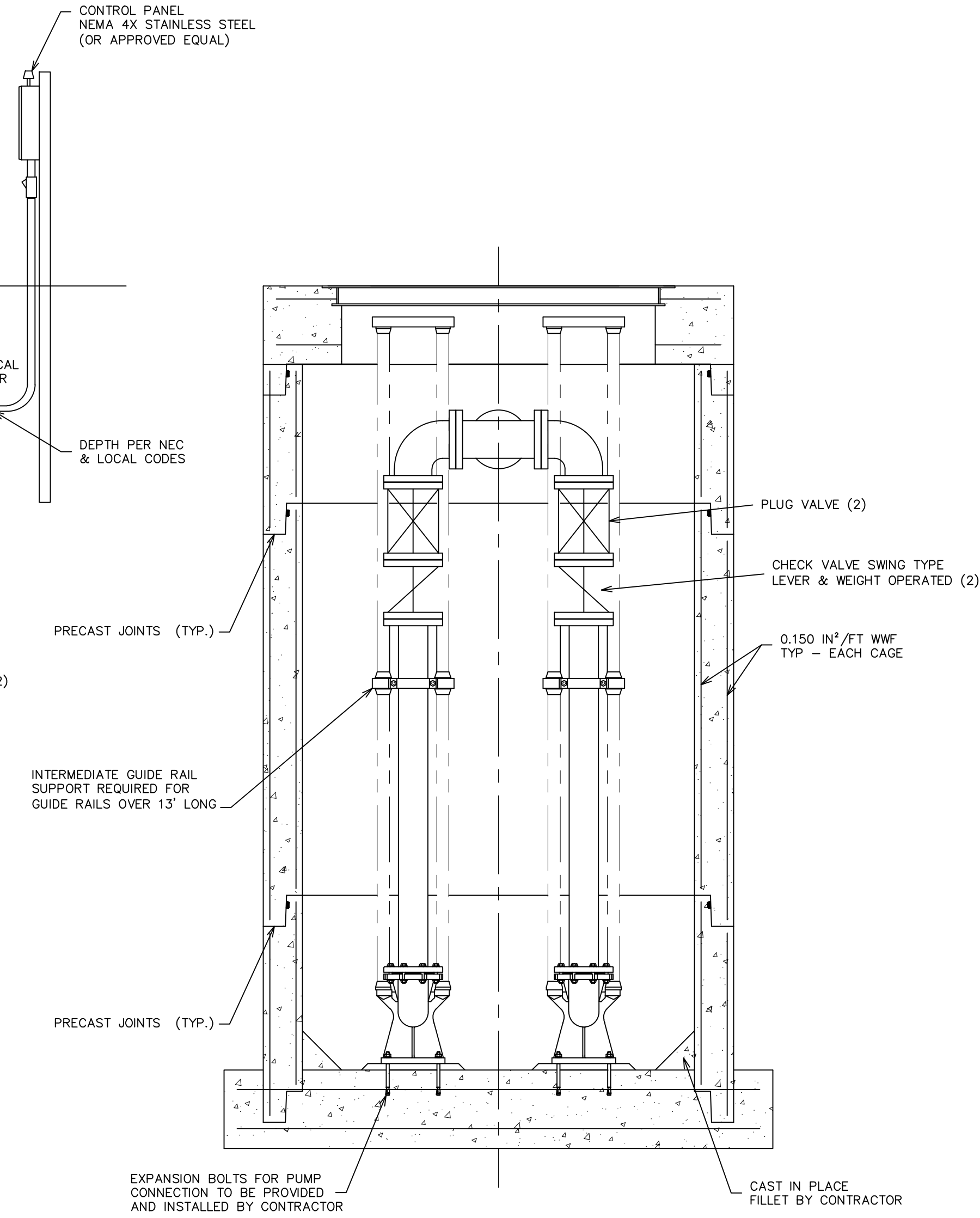
UPPER GUIDE RAIL BRACKET MOUNTING DETAIL
 DETAIL A
 N.T.S.



SECTION 1
 N.T.S.



TOP PLAN
 N.T.S.



SECTION 2
 N.T.S.

PERIMETER DRAINAGE PUMPING STATION PLAN & SECTIONS



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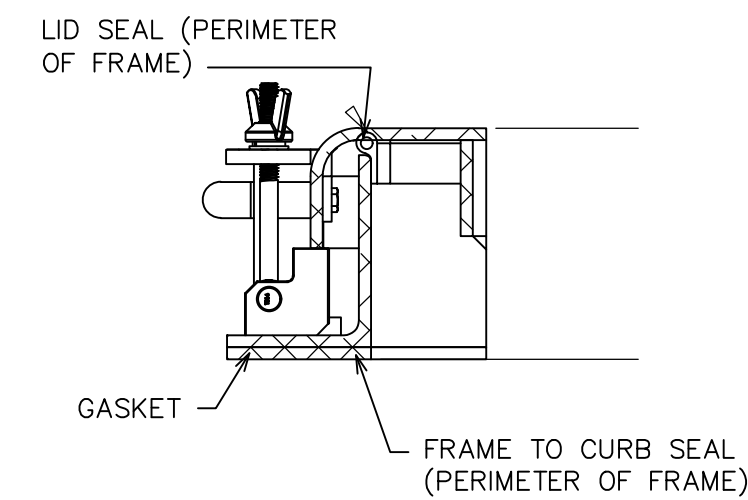
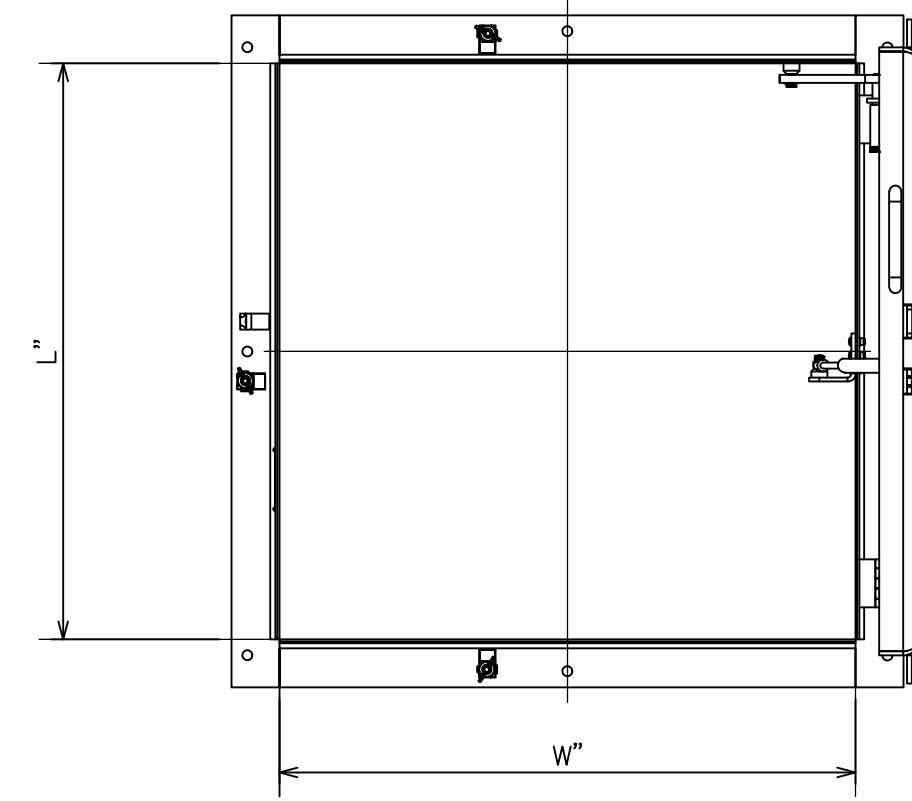
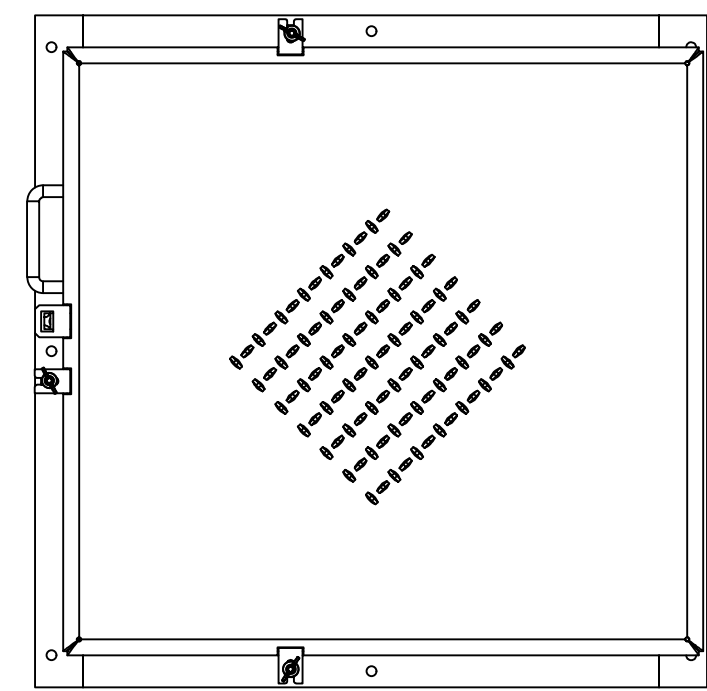
DATE	ADDITIONS AND/OR REVISIONS
02-19-24	BIDS
12-29-23	EGL E SUBMITTAL
12-14-23	OWNER REVIEW
DESIGNED	D.I.U./B.U.
DRAWN	B.U.
CHECKED	D.I.U.
APPROVED	T.C.M.

CITY OF ALPENA
WATER PRODUCTION PLANT CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

DRAINAGE PUMPING STATION

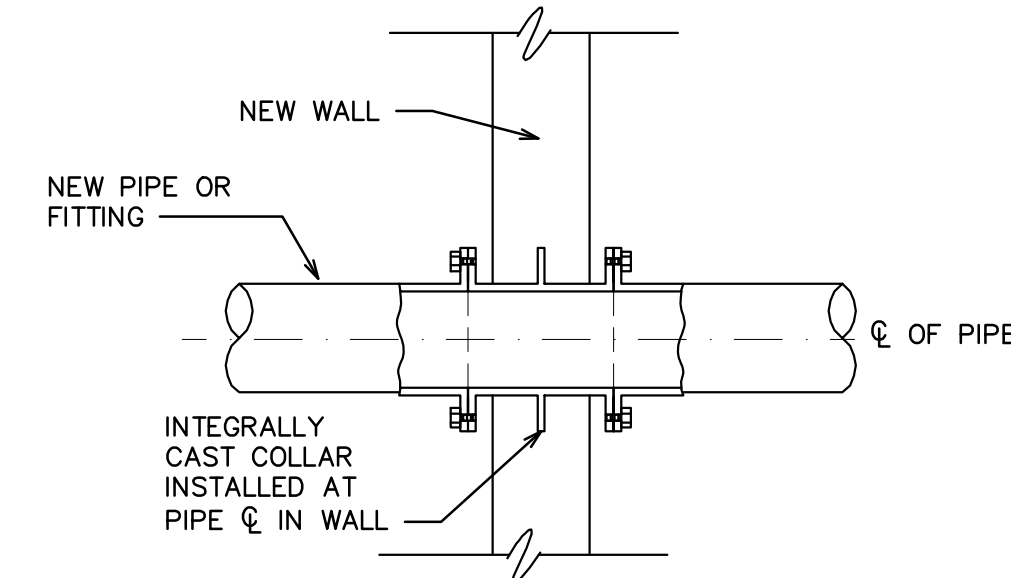
HRC JOB NO. 20220751	SCALE NTS
DATE DECEMBER 2023	SHEET NO. P-7 OF



- NOTES:
- HATCH SHALL BE ALUMINUM VERSA VSH-150 WATER RESERVOIR HATCH OR EQUAL. WEATHER PROOF WITH CONTINUOUS SEAL ON LID TO FRAME NO 1/4" X 3" WIDE FRAME TO CURB SEALS.
 - LID SHALL OVERLAP FRAME A MINIMUM OF 2 INCHES.
 - FRAME SHALL BE A MINIMUM OF 4" ABOVE THE CURB.
 - LID SHALL BE HINGED ON SIDE WITH TAMPER PROOF SCREWS. THERE ARE A MINIMUM OF THREE SWING BOLT HOLD DOWNS TO SECURE THE HATCH FOR WEATHER PROOF SEAL.
 - HATCH SHALL BE DESIGNED FOR 150 PSF LOAD.
 - PROVIDE MIN. EIGHT (8) EXTERIOR ATTACHMENT POINTS FOR 1/2" FASTENER. PROVIDE FULL FACE GASKET OF 3" WIDE CLOSED CELL FOAM EPDM BETWEEN FRAME AND CURB.
 - LID SHALL BE 1/4" 5086 FORMED ALUMINUM TREAD PLATE.
 - ALL FASTENERS AND HARDWARE SHALL BE 316 SS.
 - APPLY MIN. ONE COAT OF BLACK BITUMINOUS PAINT ON THE INSIDE OF FRAME WHERE IT CONTACTS CURBING CONCRETE.

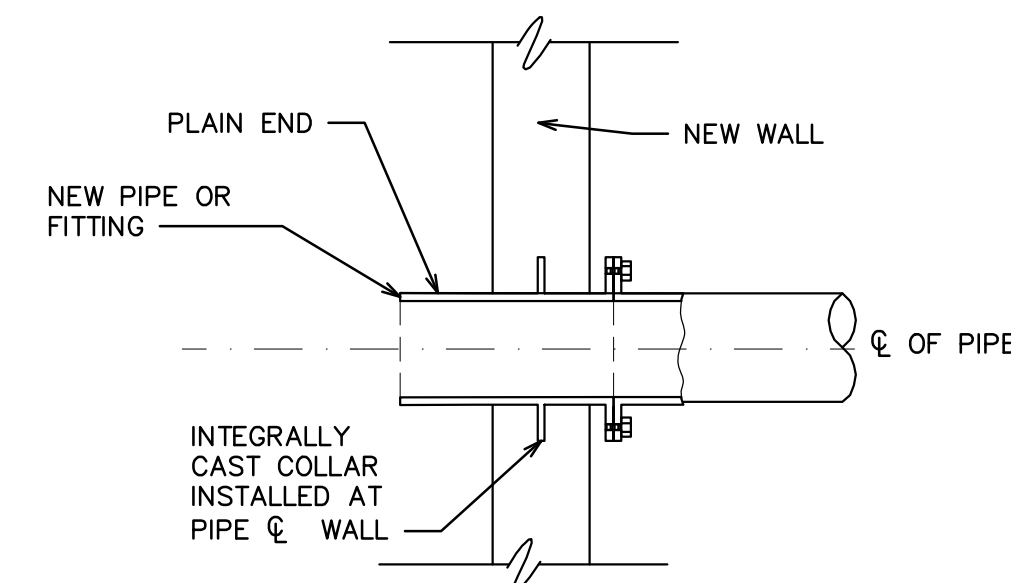
TANK ACCESS HATCH DETAIL

NO SCALE



FLG X FLG WALL PIPE DETAIL

NO SCALE



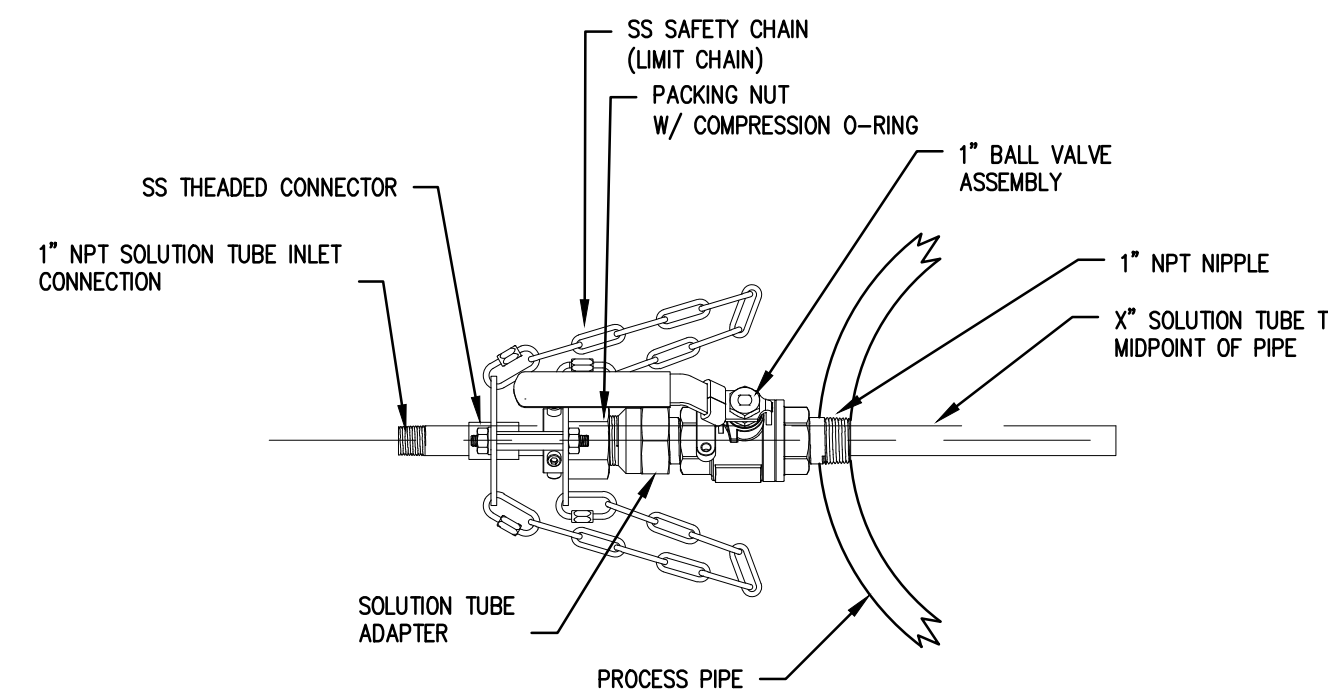
FLG X PE WALL PIPE DETAIL

NO SCALE

NOM. PIPE DIAMETER (IN)	DUCTILE IRON PIPE		STEEL PIPE	
	B DIAMETER (IN)	T _c THICKNESS (IN)	B DIAMETER (IN)	T _c THICKNESS (IN)
4	8.00	0.50	8.75	0.375
6	10.00	0.50	10.81	0.375
8	12.50	0.50	12.88	0.375
10	14.50	0.50	15.75	0.375
12	16.50	0.50	17.19	0.375
14	19.50	0.50	19.25	0.375
16	21.75	0.75	21.38	0.375
18	23.75	0.75	23.38	0.375
20	25.75	0.75	25.50	0.375
24	30.25	0.75	31.63	0.375
30	36.50	1.00	38.00	0.375
36	43.00	1.00	44.19	0.375
42	49.50	1.25	50.50	0.50

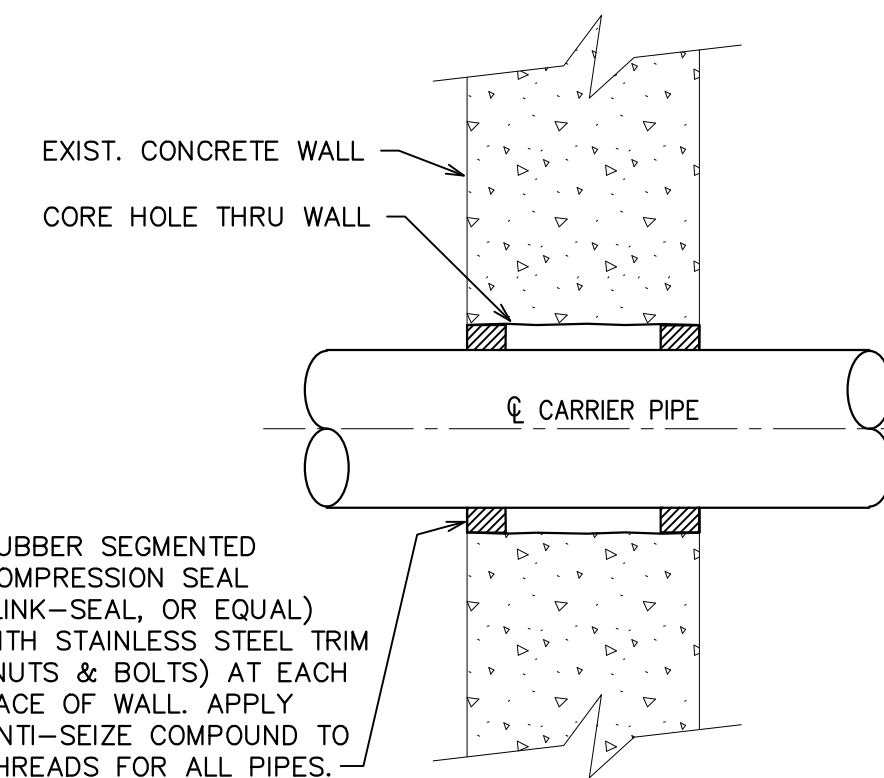
MINIMUM PIPE COLLAR DIMENSIONS

NO SCALE



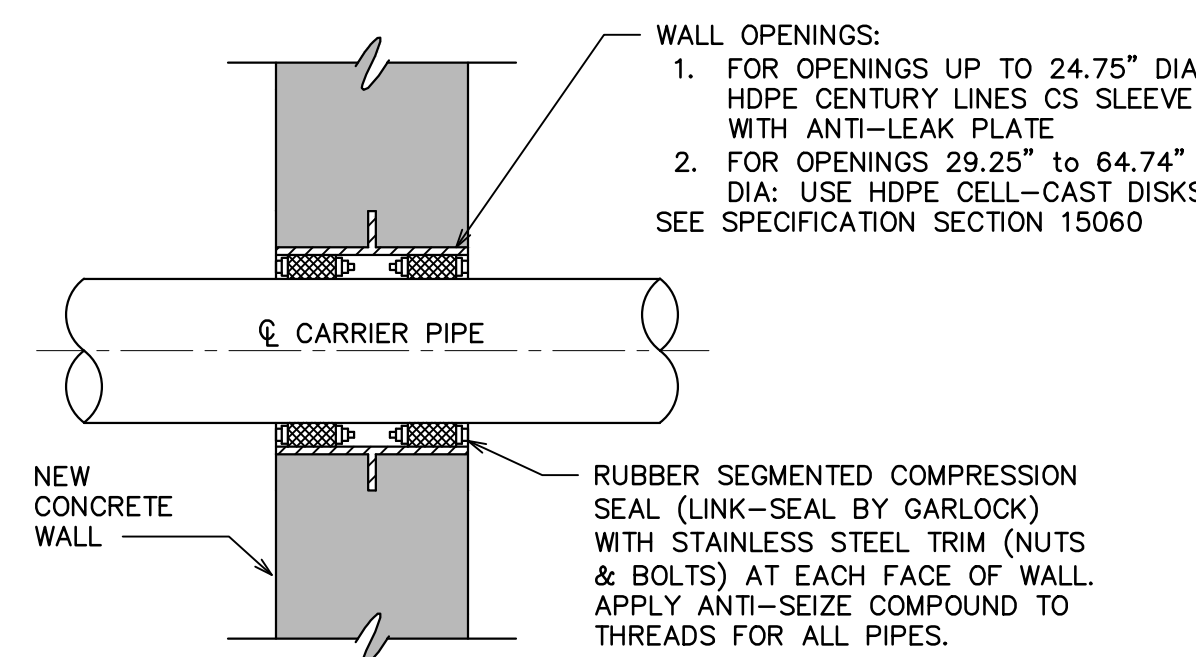
RETRACTABLE INJECTION QUILL DETAIL

NO SCALE



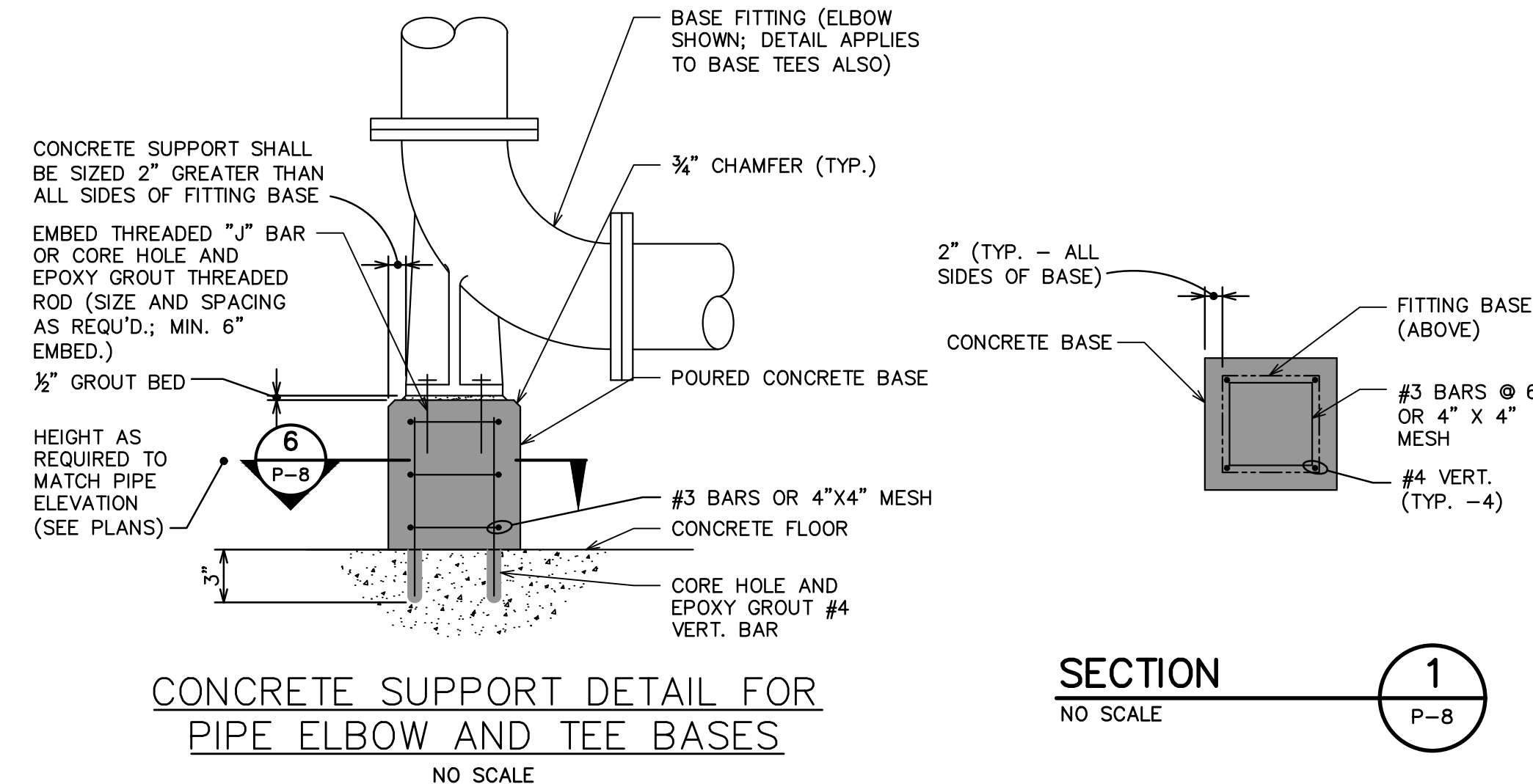
TYPICAL PIPE/DUCT SLEEVE IN EXISTING CONCRETE WALL

NO SCALE



TYPICAL PIPE/DUCT SLEEVE WITH COMPRESSION SEAL IN NEW CONCRETE WALL

NO SCALE



CONCRETE SUPPORT DETAIL FOR PIPE ELBOW AND TEE BASES

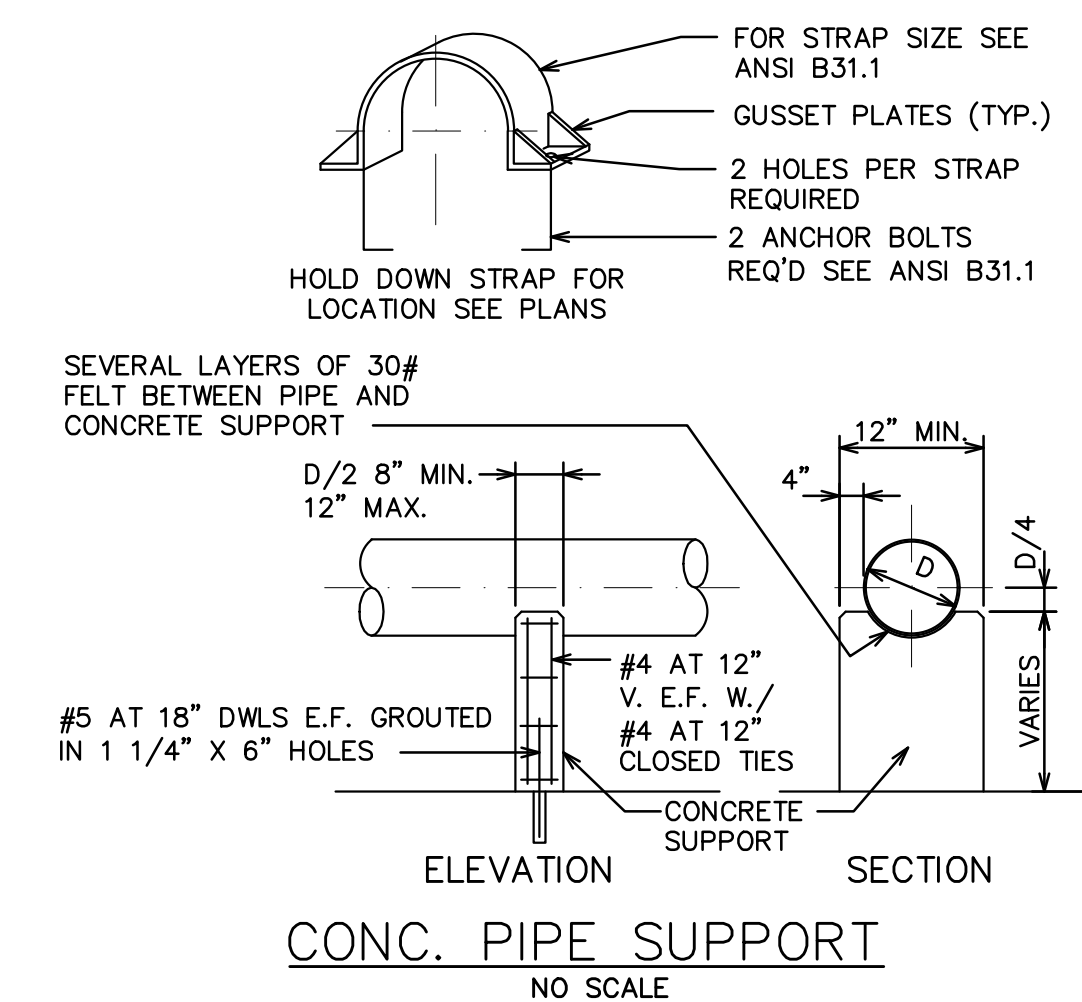
NO SCALE

SECTION 1

NO SCALE

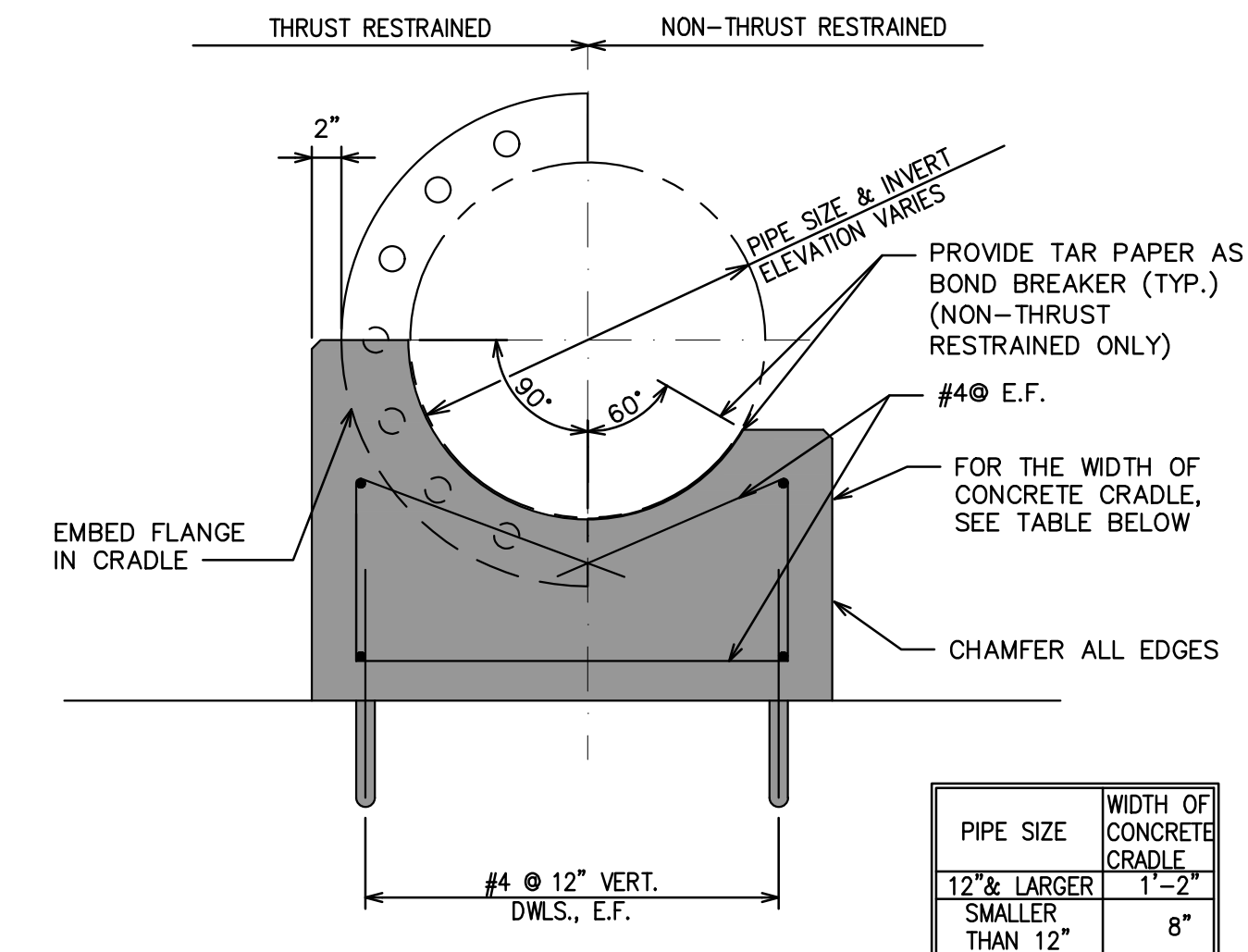
1

P-8



CONC. PIPE SUPPORT

NO SCALE



CONCRETE PIPE CRADLE

NO SCALE

PIPE SIZE	WIDTH OF CONCRETE CRADLE
12" & LARGER	1'-2"
SMALLER THAN 12"	8"

DATE	ADDITIONS AND/OR REVISIONS
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12-14-23	OWNER REVIEW

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CITY OF ALPENA
WATER PRODUCTION PLANT
CLEARWELL REPLACEMENT &
INFRASTRUCTURE
IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

PROCESS PROJECT
DETAILS

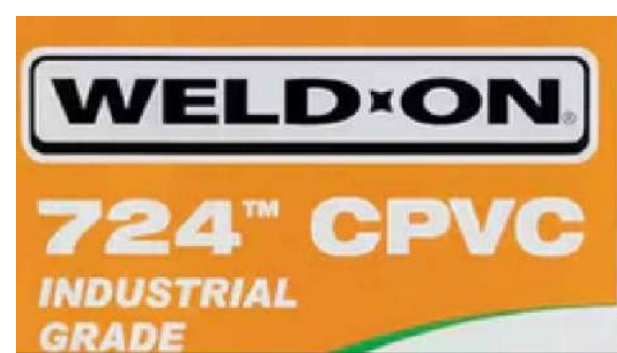
HRC JOB NO.	SCALE
20220751	NONE
DATE	SHEET NO.
DECEMBER 2023	P-8

PIPE SCHEDULE

SERVICE	DESCRIPTION	LOCATION	MATERIAL	SIZE (IN)	JOINT	TEST PRESSURE	NOTES
FW	FILTERED WATER	YARD, CLEARWELL	CL 54 DI	16, 24	FJ, RJ, GC	150	AWWA C105 POLYETHYLENE ENCASUREMENT
HS	HIGH SERVICE (SUCTION)	YARD	CL 54 DI	20, 30	RJ	150	AWWA C105 POLYETHYLENE ENCASUREMENT
WW	WASHWATER	YARD, CLEARWELL	CL 54 DI	16	FJ, RJ	150	AWWA C105 POLYETHYLENE ENCASUREMENT
PD	PERIMETER DRAIN FORCE MAIN	YARD	C900 DR 17 PVC	4, 6	FJ, RJ	150	
NAOCL/CL	SODIUM HYPOCHLORITE SOLUTION	PIPE GALLERY	PVC SCH 80	SEE PLANS	WJ	150	USE CPVC PIPE CEMENT (SEE NOTES AND SECTION 15060)

PIPING GENERAL NOTES AND KEY

- INSTALL ALL PIPING SUPPORTS AND PIPING IN ACCORDANCE WITH THE LATEST EDITION OF THE ASME ANSI POWER PIPING CODE B 31.1.
- WELD ALL STEEL PIPE WITH FLANGES WHERE MAKING CONNECTIONS TO EXISTING STEEL PIPE OR VALVES.
- LOCATE PRESSURE TAPS ON THE TOP OF PROCESS PIPES.
- LOCATE SAMPLE TAPS ON THE SIDE OF PROCESS PIPES.
- LOCATE DRAIN TAPS ON THE BOTTOM OF PROCESS PIPES.
- UNLESS OTHERWISE NOTED PIPE ELEVATIONS SHOWN ON PIPING DRAWINGS REFER TO CENTERLINE OF THE PIPE.
- DISINFECT ALL WATER PIPING PER AWWA C651 AFTER PIPE HAS PASSED PRESSURE AND LEAK TESTING.



USE WELD-ON 724 CPVC PIPE CEMENT FOR ALL SODIUM HYPOCHLORITE AND CHLORINE WATER PVC PIPING (SEE PHOTO)

PROCESS PIPING	PIPE JOINTS
HDPE HIGH DENSITY POLYETHYLENE PIPE	AFC ADAPTER FLANGE COUPLING
SS STAINLESS STEEL	BFC BOLTED FLEXIBLE COUPLING
	BSL BELL AND SPIGOT STEEL
	FJ FLANGED JOINT
	RJ RESTRAINED JOINT
	GC GROOVED COUPLING
	MJ MECHANICAL JOINT
	WJ WELDED JOINT

VALVE SCHEDULE

TAG	VALVE TYPE	LOCATION	SERVICE	CLASS	SIZE (IN)	JOINT	OPERATOR	ACCESSORIES/REMARKS	NOTES
FW-101	RGV-F	FILTERED WATER ISOLATION TO CLEARWELL CELL 1	FW	150	16	FL	H	AWWA	
WW-201	BV-F	WASHWATER ISOLATION TO CLEARWELL CELL A	WW	150	16	FL	G, WN	AWWA	FLOORSTAND, ES (9'-0")
WW-202	BV-F	WASHWATER ISOLATION TO CLEARWELL CELL B	WW	150	16	FL	G, WN	AWWA	FLOORSTAND, ES (9'-0")
FW-201	BV-F	FILTERED WATER ISOLATION TO CLEARWELL CELL A	FW	150	16	FL	G, WN	AWWA	FLOORSTAND, ES (11'-6")
FW-202	BV-F	FILTERED WATER ISOLATION TO CLEARWELL CELL B	FW	150	16	FL	G, WN	AWWA	FLOORSTAND, ES (11'-6")
HS-201	BVM	HIGH SERVICE SUCTION ISOLATION / CLEARWELL CELL A	FW	150	20	MJ	G, WN	AWWA	ES (13'-6"), SC
HS-202	BVM	HIGH SERVICE SUCTION ISOLATION / CLEARWELL CELL B	FW	150	20	MJ	G, WN	AWWA	ES (13'-6"), SC

VALVE GENERAL NOTES AND KEY

- THE VALVE AND GATE SCHEDULES GIVES THE DESIGNATION FOR EACH VALVE AND GATE, ITS LOCATION, SERVICE SIZE, QUANTITY AND OTHER PERTINENT DATA.
- IN GENERAL, BURIED VALVES AND VALVES OR GATES SMALLER THAN 4 INCHES MAY NOT BE INCLUDED IN THE SCHEDULE.
- INSTALL NAMEPLATES ON ALL (NEW AND EXISTING) VALVE AND EQUIPMENT AS TAGGED IN THE SCHEDULES PER SECTION 15000
- ALIGN FLOORSTANDS AND EXTENSIONS STEMS WITH VALVE ACTUATOR NUT IN FIELD (CORE CONCRETE IN FIELD AS REQUIRED PER ENGINEER APPROVAL)

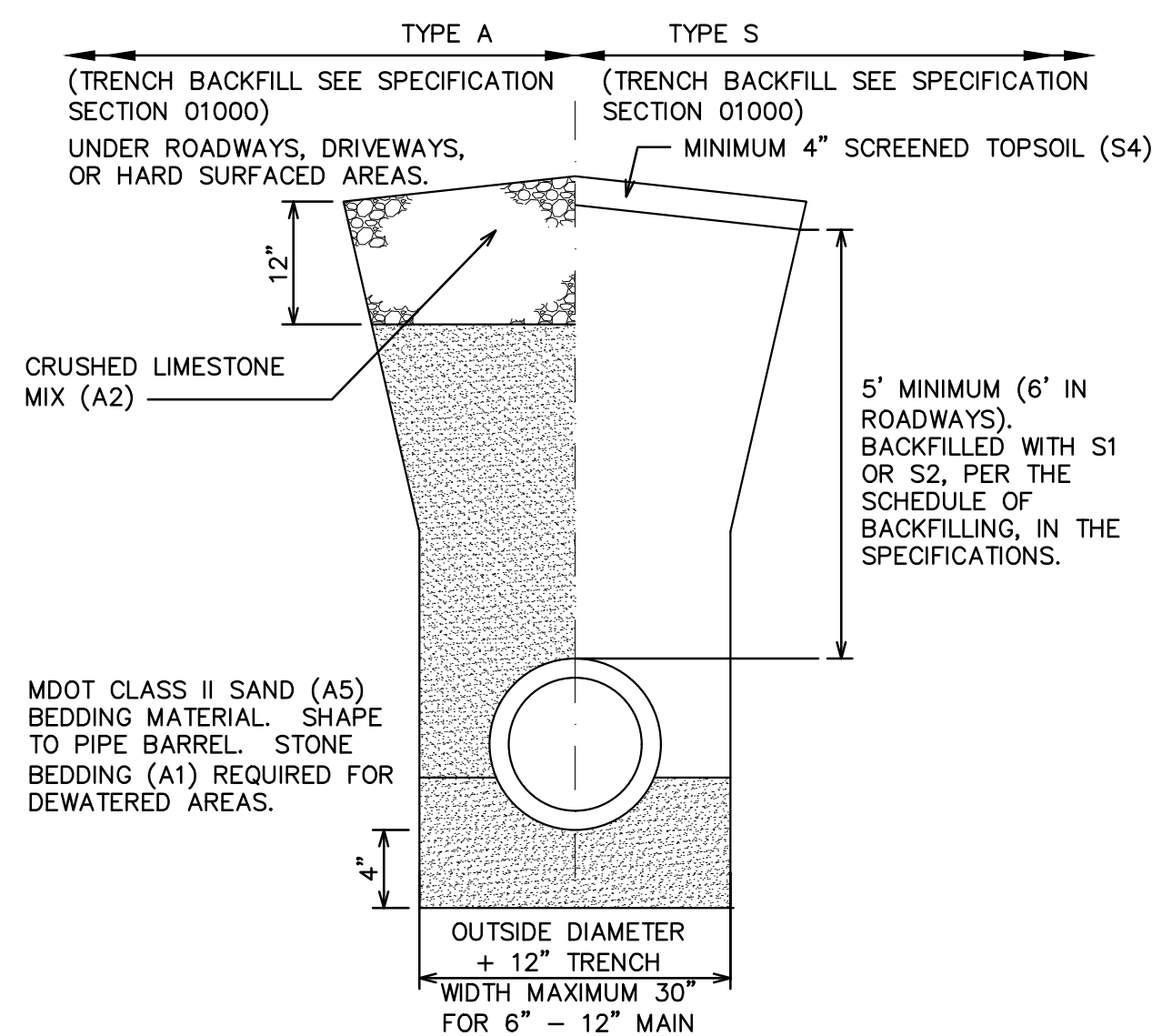
VALVE JOINT	ACCESSORIES	REMARKS	VALVE TYPE
BS BELL AND SPIGOT	BS BENCH STANDS	CL CLASS	BV BUTTERFLY
FL FLANGED JOINT	CP CONTROL PACKAGE	FC FAIL CLOSE	PV PLUG
GC GROOVED COUPLING	EB EXTENSION BONNET	FO FAIL OPEN	CV CHECK VALVE
MJ MECHANICAL JOINT	ES EXTENSION STEM SHAFT (LENGTH)	GB GROUND BURIED	GV GATE VALVE
W WAFER	FB FLOOR BOX (LENGTH)	NRS NON RISING STEM	RGV RESILIENT WEDGE GATE VALVE
	FS FLOOR STAND (LENGTH)	OS OPEN SHUT	
	LS LIMIT SWITCH	RF RUBBER FLAPPER	
	MS MANUAL SCREW	TH THROTTLING	
	PI POSITION INDICATOR		
	PO PORTABLE OPERATOR		
	RPI REMOTE POSITION INDICATOR		
	SC STEM COVER		
	SG STEM GUIDE		
	TW T WRENCH		
	VB VALVE BOX (LENGTH)		
	WB WALL BRACKET		
	WG WORM GEAR		

GATE SCHEDULE

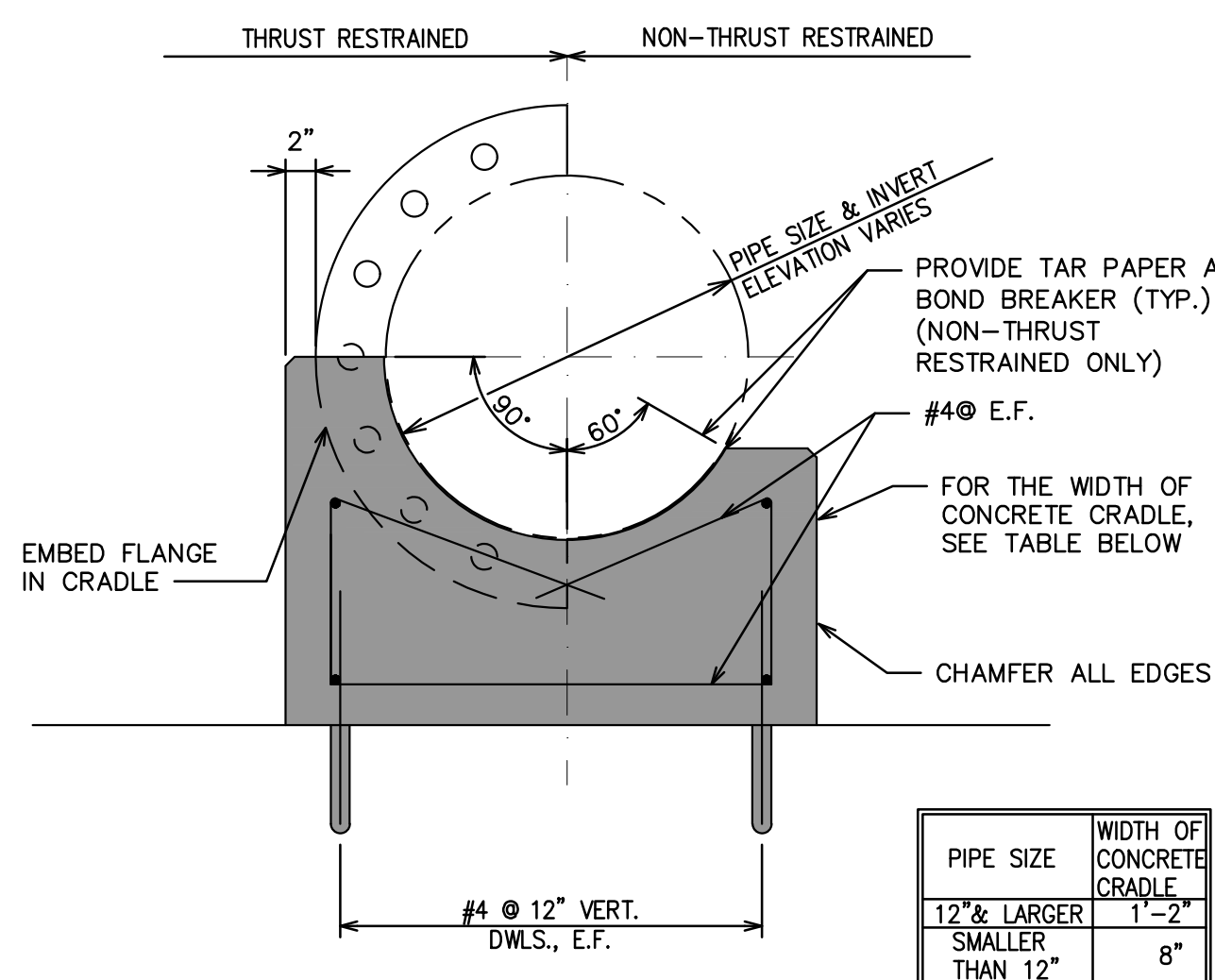
MARK	LOCATION	TYPE	MATERIAL	OPENING SIZE (FT) (WXH)	NOMINAL SIZE (FT) (WXH)	QUANTITY	MAXIMUM SEATING HEAD (FT)	MINIMUM UNSEATING HEAD (FT)	FRAME TYPE	FRAME MOUNT	REMARKS
FG-100	CLEARWELL OVERFLOW FLAP GATE	FG	SS	16"	16"	1	0	0.5	NSC	S	

GATE SCHEDULE KEY

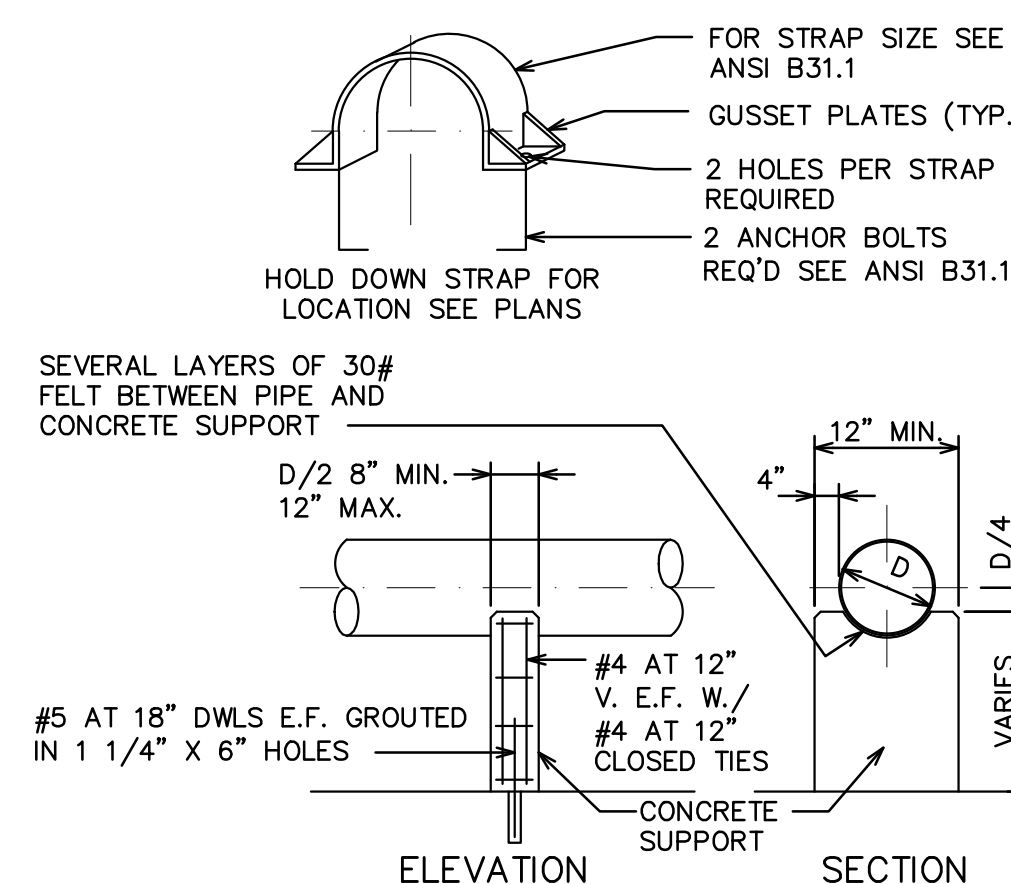
- LOCATION: CHAMBER AT WHICH GATES ARE TO BE MOUNTED
- GATE TYPE: SP-STOP PLATE; SG-SLIDE GATE; FG-FLAP GATE
- MATERIAL: SS-STAINLESS STEEL, CI-CAST IRON, R-RUBBER
- FRAME TYPE: NSC-NON SELF-CONTAINED; SC-SELF-CONTAINED
- FRAME MOUNT: WT-WALL THIMBLE; S-SURFACE MOUNTED; P-PIPE MOUNTED
- FLUSH BOTTOM: YES OR NO
- STEM TYPE: NR-NONRISING; R-RISING
- OPERATOR: EM - ELECTRIC MOTOR; MHW - MANUAL HANDWHEEL; MCR-MANUAL GEAR DRIVE; H-MANUAL LIFTED BY HAND; OIL - HYDRAULIC; P - PILOT VALVE
- OPERATOR MOUNTING: SP - STRAIGHT PEDESTAL
- JOINT DESIGNATION: FJ - FLANGED JOINT; SJ - SWEATED JOINT; WJ - WELDED JOINT



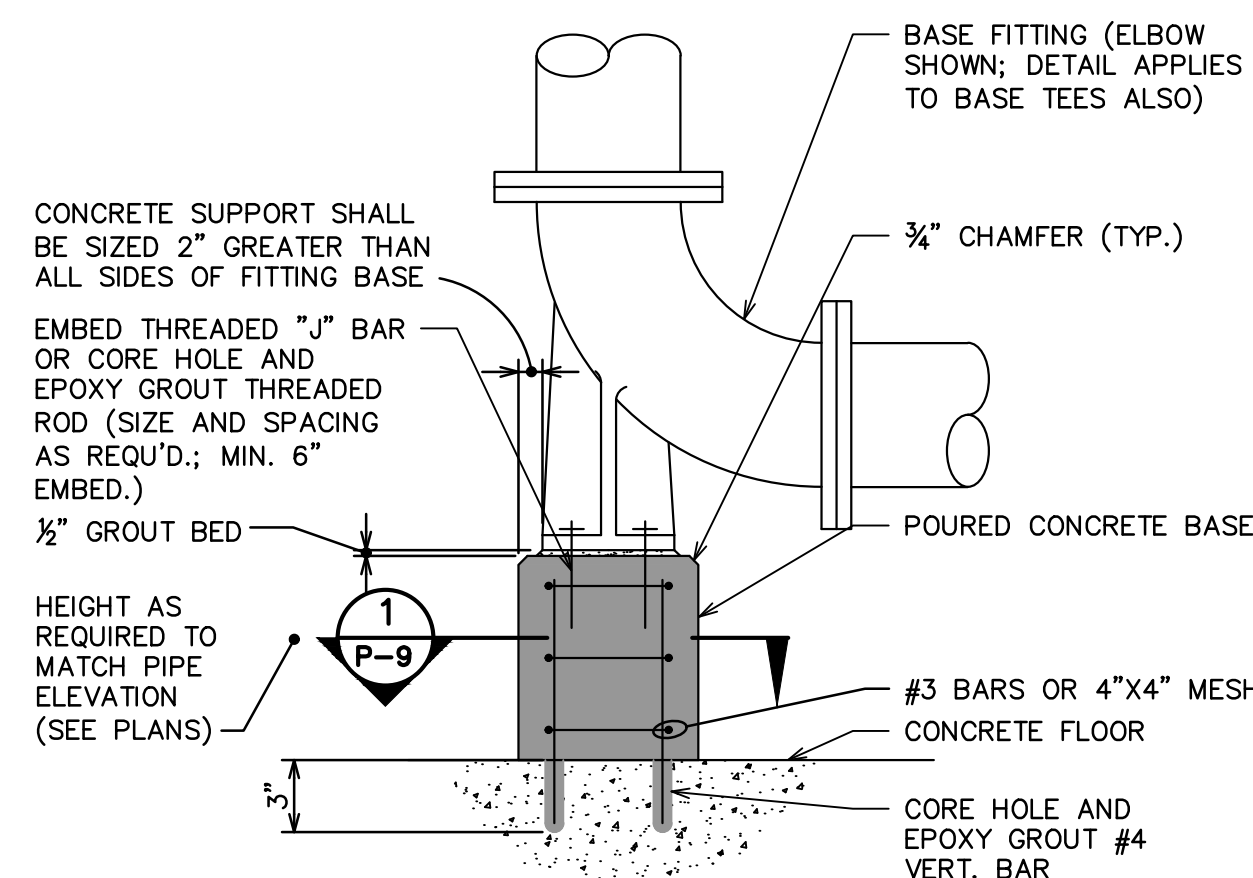
- NOTES:
- PLACE 12" OF CRUSHED LIMESTONE 22A (A2) ON THE COMPACTED SAND BACKFILL (A5) FOR ALL DRIVES, PARKING LOTS OR OTHER HARD SURFACED AREAS.
 - THE CONTRACTOR SHALL COMPACT THE SAND BACKFILL (A5) TO 95% OF THE MATERIAL UNIT WEIGHT BY MODIFIED PROCTOR ACROSS ALL ROADWAYS AND DRIVES PER THE SCHEDULE OF BACKFILLING IN THE SPECIFICATIONS. THIS INCLUDES SERVICE LEADS UNLESS BORED. THE CONTRACTOR SHALL DO THE TESTING WITH THE RESULTS SUBMITTED TO GDCG-WWS PRIOR TO FINAL TESTING.
 - WHERE THE GROUND ELEVATION AT THE TRENCH LINE IS ABOVE THE ELEVATION OF THE CENTERLINE OF THE ROAD, THE CONTRACTOR SHALL INSTALL THE PRESSURE PIPE 6" BELOW THE ELEVATION OF THE ROAD. THE EXTRA DEPTH SHALL BE NOTED ON THE AS-BUILT DRAWINGS.
 - FOR ADDITIONAL CONSIDERATION OF PIPE ZONE EMBEDMENT CONDITIONS, SEE AWWA C600-99.
 - DESIGN ENGINEER SHALL REVIEW AND ADJUST PIPE THICKNESS DESIGN RECOMMENDATIONS IN AWWA C151/A21.51-02 FOR ADDITIONAL DEPTHS OF COVER.



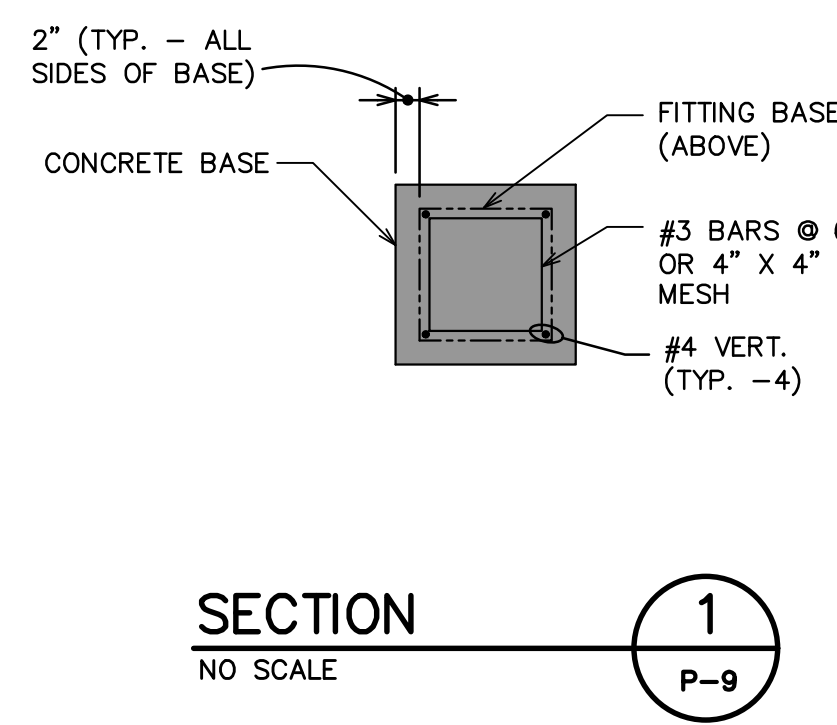
CONCRETE PIPE CRADLE NO SCALE



CONC. PIPE SUPPORT NO SCALE



CONCRETE SUPPORT DETAIL FOR PIPE ELBOW AND TEE BASES NO SCALE



SECTION 1 NO SCALE



HRC
HUBBELL, ROTH & CLARK, INC
 CONSULTING ENGINEERS SINCE 1915
 555 HULET DRIVE
 BLOOMFIELD HILLS, MICH. P.O. BOX 824
 48303 - 0824
 PHONE: (248) 454-6300
 FAX (1st. Floor): (248) 454-6312
 FAX (2nd. Floor): (248) 454-6359
 WEB SITE: www.hrcengr.com

DATE	ADDITIONS AND/OR REVISIONS
02-19-24	BIDS
12-29-23	EGL E SUBMITTAL
12-14-23	OWNER REVIEW
DESIGNED	D.I.U./B.U.
DRAWN	B.U.
CHECKED	D.I.U.
APPROVED	T.G.M.

CITY OF ALPENA
WATER PRODUCTION PLANT
CLEARWELL REPLACEMENT &
INFRASTRUCTURE
IMPROVEMENTS

1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

PROCESS MECHANICAL
SCHEDULES AND DETAILS

HRC JOB NO. 20220751	SCALE NONE
DATE DECEMBER 2023	SHEET NO. P-9



PHOTO-1

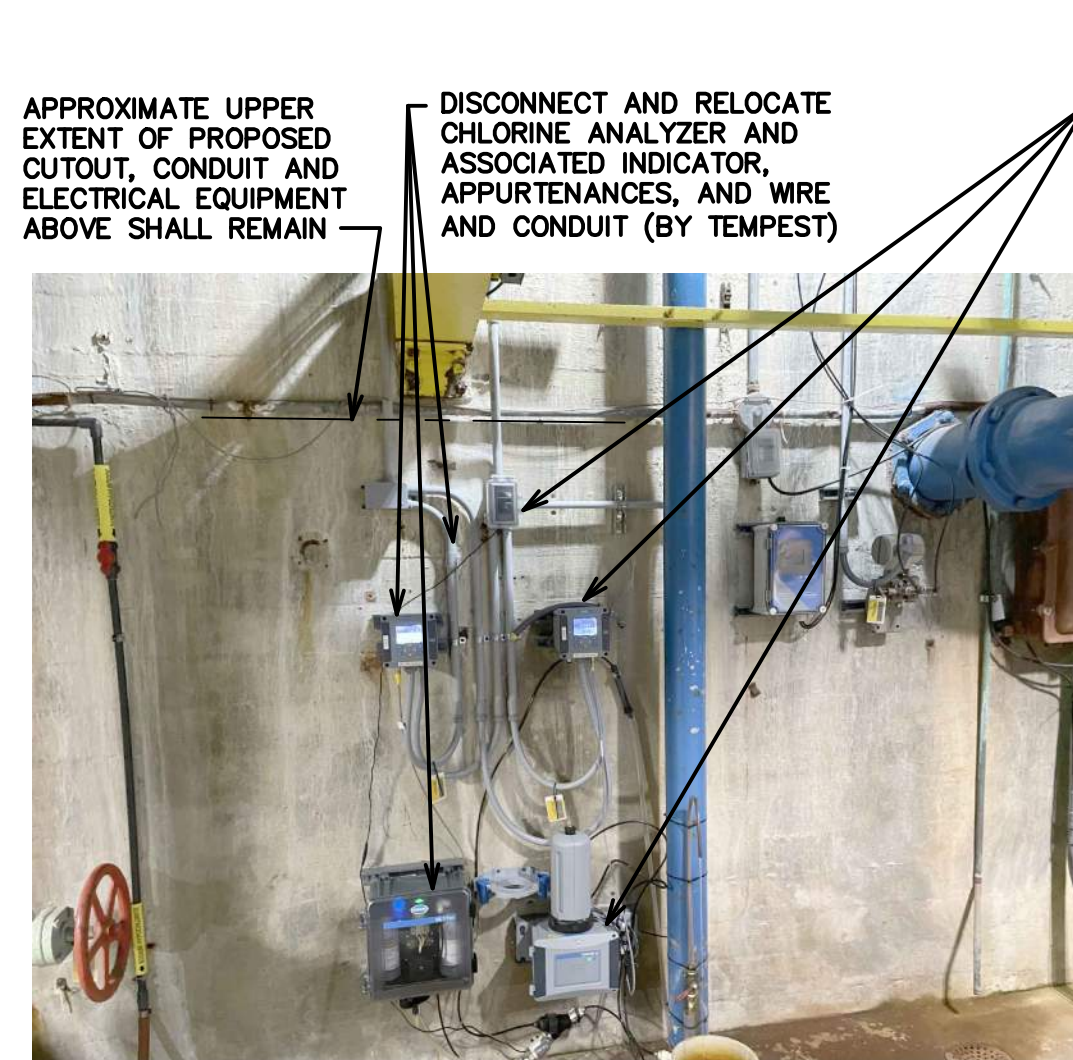
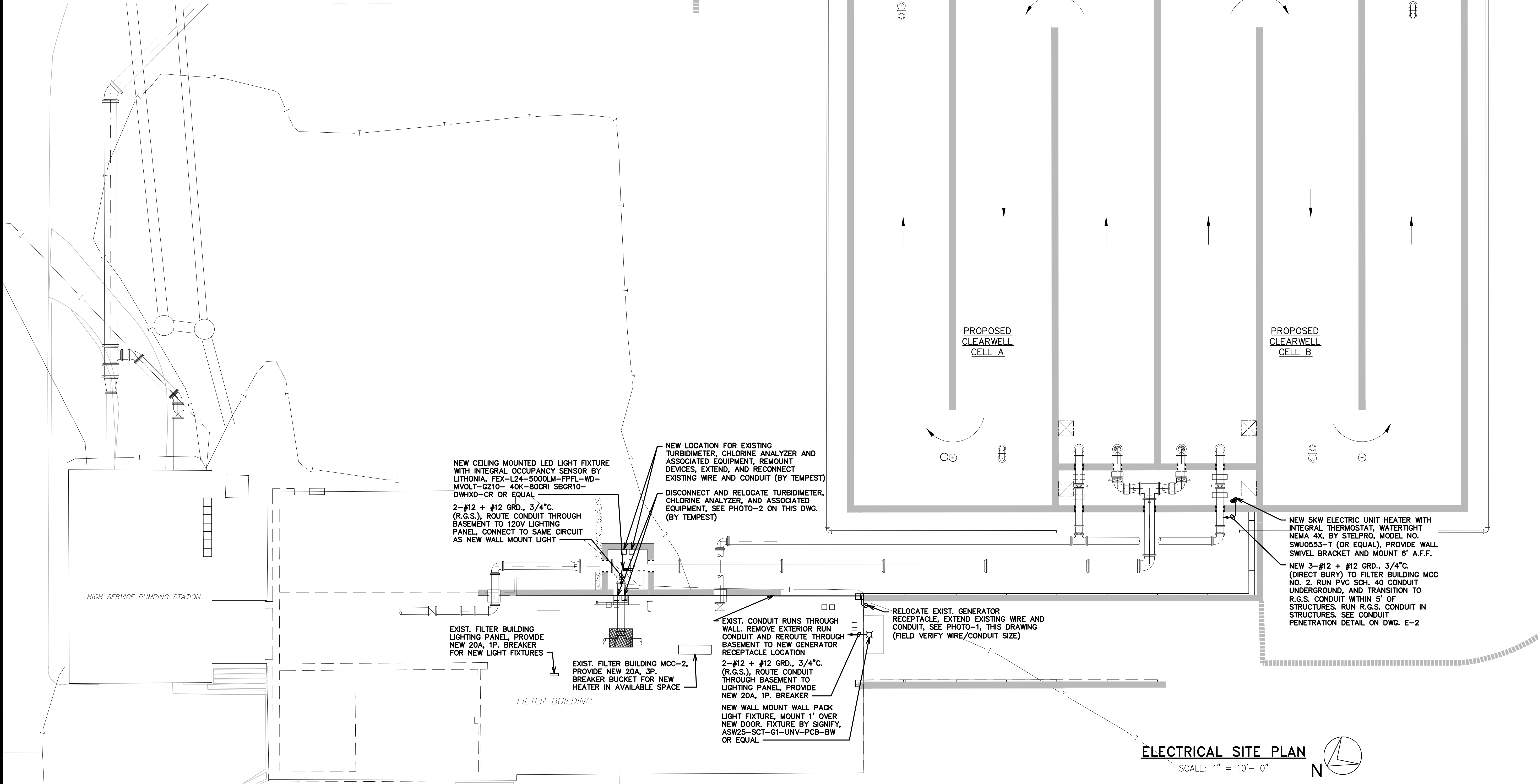


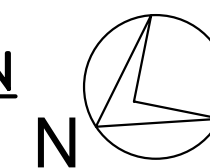
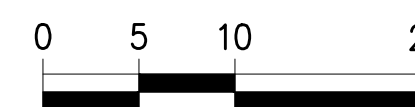
PHOTO-2

NEW PUMP CONTROL PANEL, PANEL, MOUNTING AND WIRE/CONDUIT BY TEMPEST



ELECTRICAL SITE PLAN

SCALE: 1" = 10'- 0"



HRC
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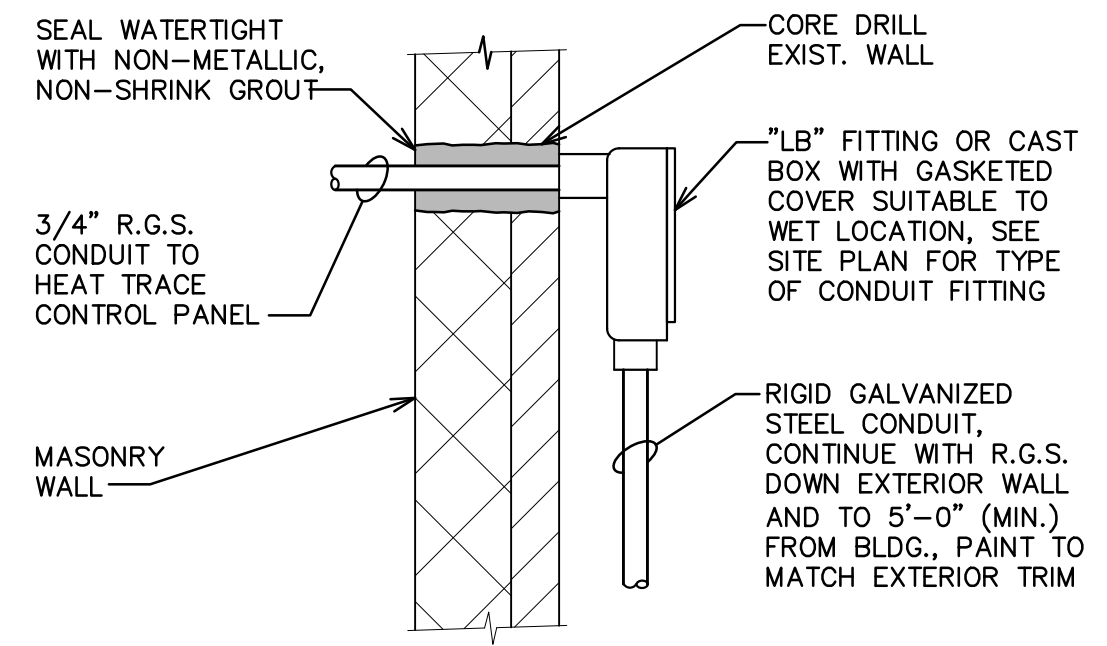
02-19-24	BIDS
12-29-23	EGL E SUBMITTAL
12-14-23	OWNER REVIEW
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	M.J.R.
DRAWN	E.S.M.
CHECKED	M.J.R.
APPROVED	T.G.M.

CITY OF ALPENA
**WATER PRODUCTION PLANT
 CLEARWELL REPLACEMENT &
 INFRASTRUCTURE
 IMPROVEMENTS**

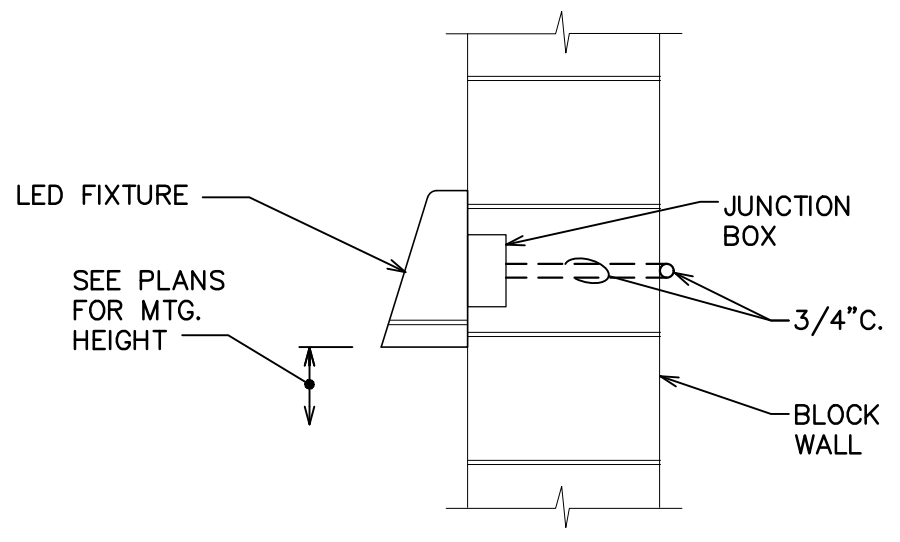
1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

ELECTRICAL SITE PLAN

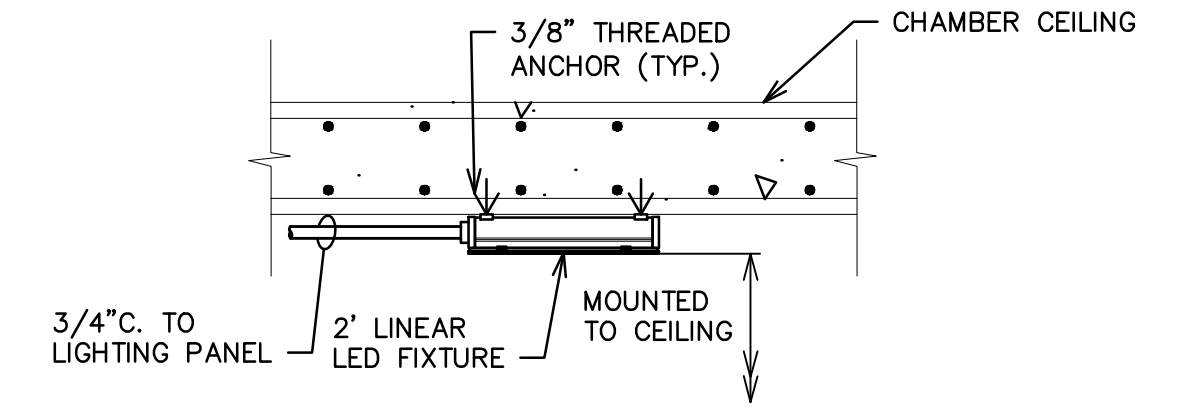
HRC JOB NO. 20220751	SCALE AS NOTED
DATE DECEMBER 2023	SHEET NO. E-1 OF



WALL PENETRATION DETAIL
N.T.S.



WALL PACK LIGHT FIXTURE MOUNTING DETAIL
N.T.S.



CEILING MOUNT LIGHT FIXTURE MOUNTING DETAIL
N.T.S.



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02-19-24	BIDS
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	M.J.R.
DRAWN	E.S.M.
CHECKED	M.J.R.
APPROVED	T.G.M.

DESIGNED	M.J.R.
DRAWN	E.S.M.
CHECKED	M.J.R.
APPROVED	T.G.M.

CITY OF ALPENA
WATER PRODUCTION PLANT CLEARWELL REPLACEMENT & INFRASTRUCTURE IMPROVEMENTS
 1300 S STATE AVE, ALPENA, MI 49707
 ALPENA COUNTY MICHIGAN

ELECTRICAL DETAILS

HRC JOB NO. 20220751	SCALE NO SCALE
DATE DECEMBER 2023	SHEET NO. E-2 OF