



**LOCATION PLAN**

SCALE: N.T.S.

**DRAWING INDEX**

SHEET NO.	TITLE
G-1	NOTES, ABBREVIATIONS AND LEGEND
C-1	EXISTING SITE PLAN
C-2	PROPOSED SITE PLAN
C-3	CONSTRUCTION DETAILS
A-1	BUILDING ELEVATIONS
A-2	BUILDING DIMENSIONS
S-1	GENERAL NOTES AND TYPICAL DETAILS
S-2	PLANS AND SECTIONS
M-1	WELL STATION PLAN
M-2	CHEMICAL FEED SCHEMATICS
M-3	CHEMICAL FEED DETAILS I
M-4	CHEMICAL FEED DETAILS II
H-1	HVAC FLOOR PLAN
I-1	INSTRUMENTATION DIAGRAM
I-2	INSTRUMENTATION DIAGRAM
E-1	LEGENDS, DETAILS, NOTES & ABBREVIATIONS
E-2	SITE PLAN & DETAILS
E-2.1	SITE LIGHTING FOOT CANDLE CALCULATION PLAN
E-3	LIGHTING & POWER, DATA & FIRE ALARM PLAN
E-4	ONE-LINE DIAGRAM & SCHEDULES
E-5	SPECIFICATIONS
E-5.1	SPECIFICATIONS

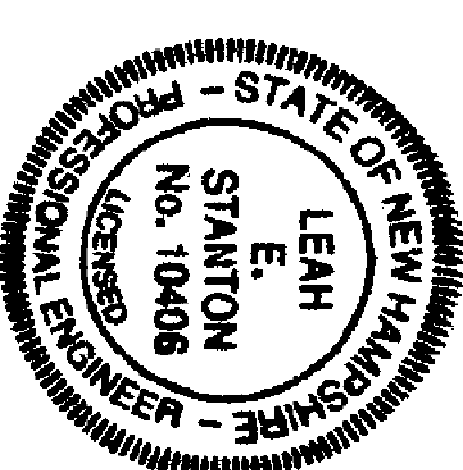
# CITY OF PORTSMOUTH, NEW HAMPSHIRE

## DEPARTMENT OF PUBLIC WORKS

### GREENLAND WELL PUMP STATION REPLACEMENT

**SEPTEMBER 2016**

*Leah Stanton*



8-29-16

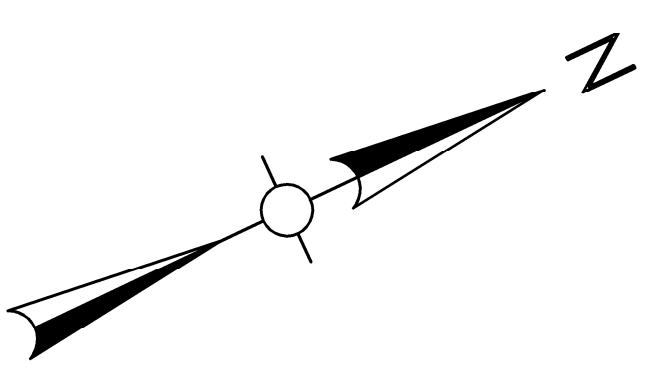
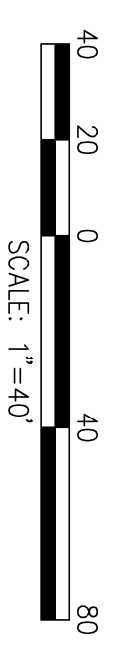
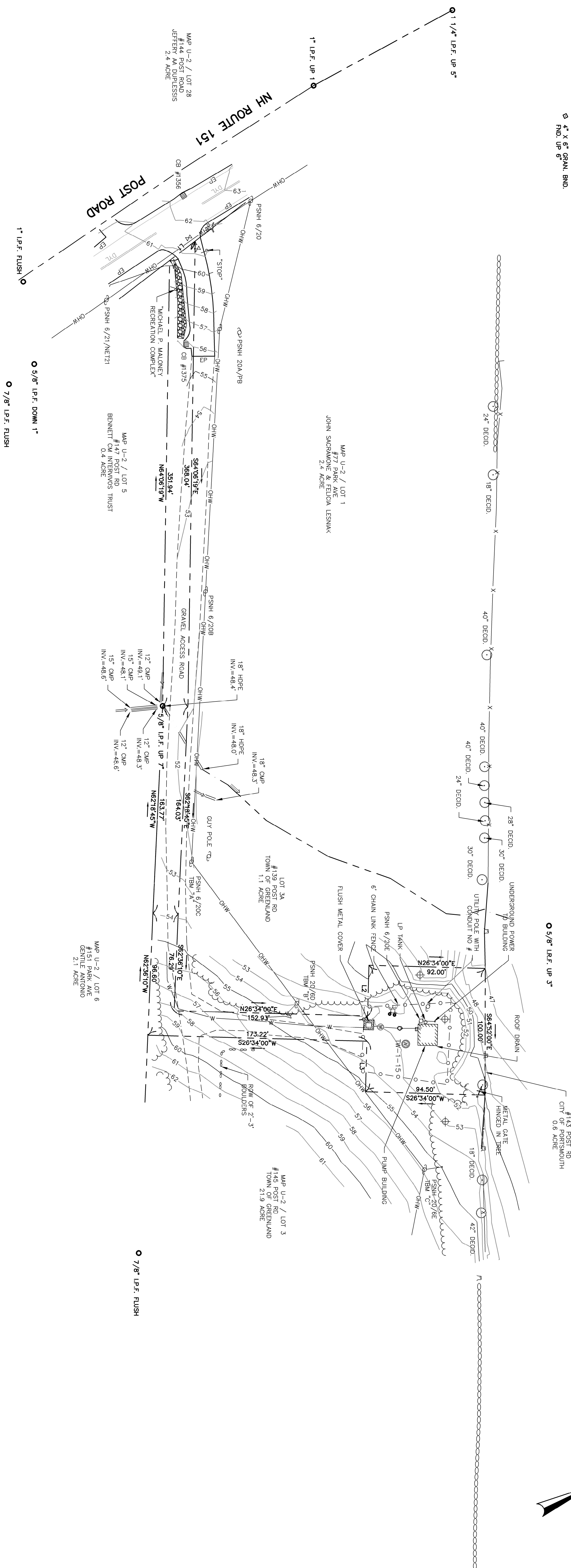
Weston & Sampson<sup>SM</sup>

Five Centennial Drive, Peabody, Massachusetts 01960



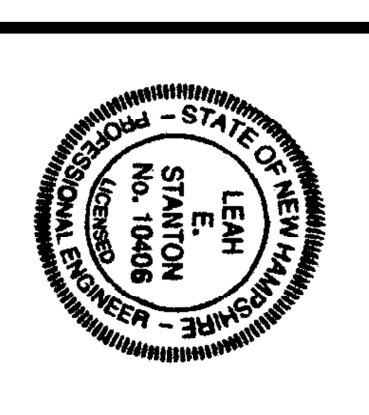
- LEGEND**
- PROPERTY LINE
  - - - APPROXIMATE ABUTTERS LOT LINE
  - CHAIN LINK FENCE
  - OVERHEAD WIRES
  - DRAIN CULVERT
  - WATER LINE (SEE NOTE 5)
  - MAJOR CONTOUR LINE
  - TREE LINE
  - STREAM
  - UTILITY POLE
  - SIGN (TWO POSTS)
  - GRANITE BOUND FOUND
  - BRILL HOLE FOUND
  - BOLLARD/IRON BEAM
  - 5/8" REBAR W/ ID CAP TO BE SET
  - FIRE HYDRANT
  - WATER GATE VALVE
  - WELL
  - CATCH BASIN
  - MANHOLE
- 
- TREE STUMP
  - DECIDUOUS TREE
  - MONITORING WELL
  - CONCRETE
  - RIP RAP
  - DRAINAGE FLOW
  - DIRECTION ARROW
  - TYPICAL
  - BOUND FOUND
  - IRON ROD FOUND
  - EDGE OF PAVEMENT
  - DOUBLE YELLOW LINE

**PLAN**  
SCALE: 1" = 40'



**3**  
SHEET 3 OF 23

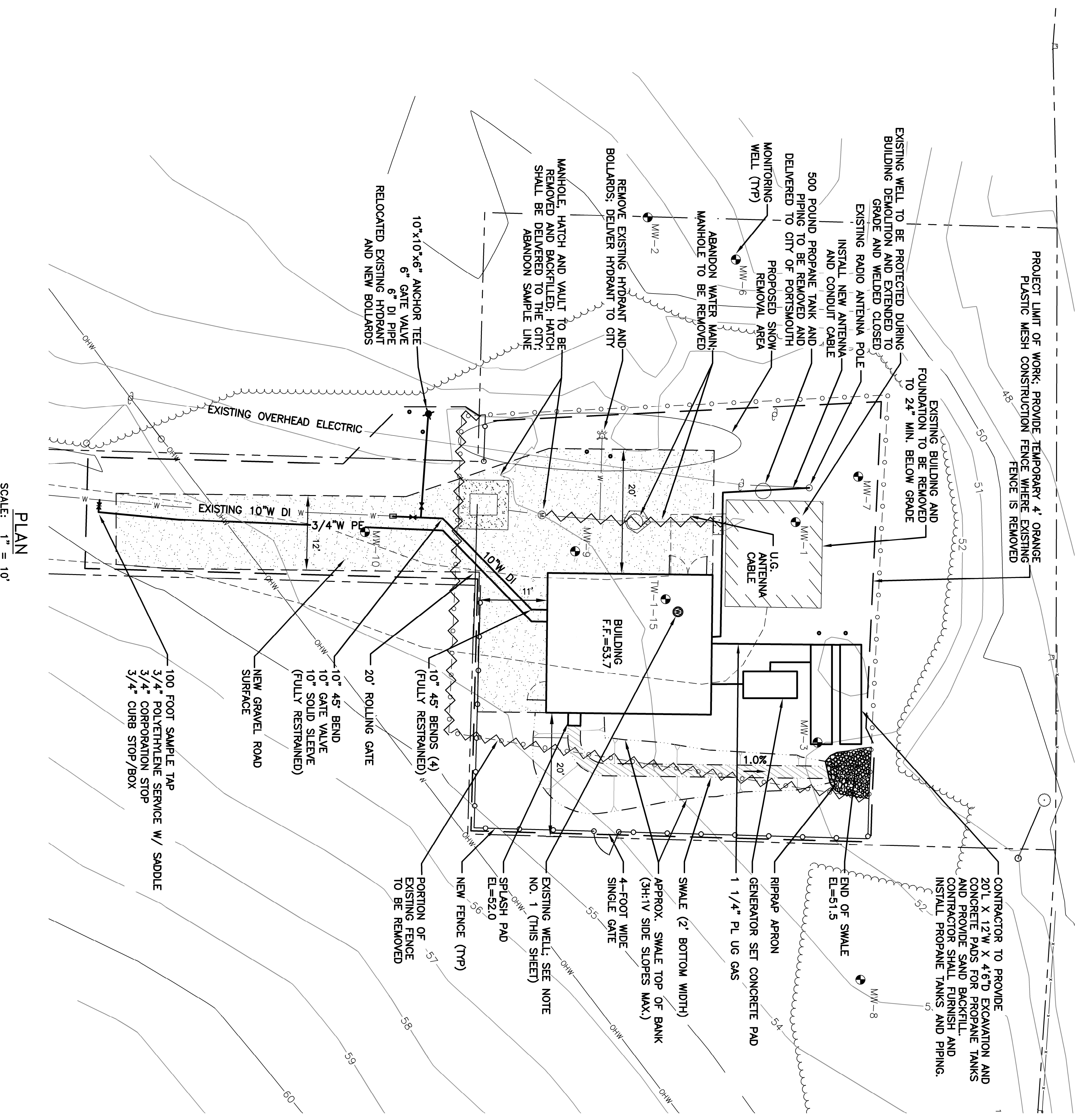
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GREENLAND WELL PUMP STATION REPLACEMENT							
EXISTING SITE PLAN							
FILE NO.	CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR. BY	DSN. BY	CHK. BY
215-59		NOTED		2140738	RWS	RAS	RAS
APP. BY	LES						



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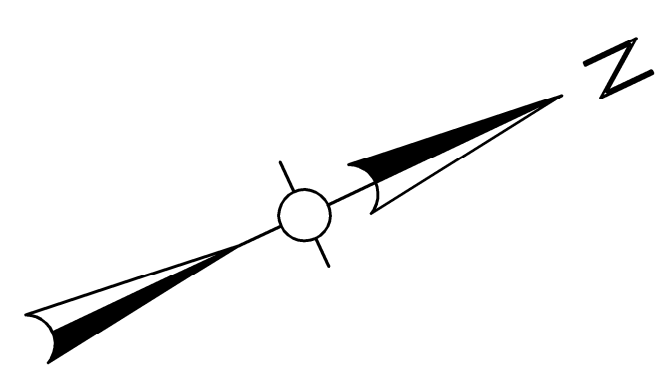
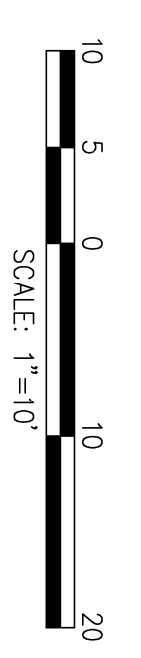
REGISTERED PROFESSIONAL ENGINEER  
Leah Stata  
AUGUST 29, 2016  
DATE

**Weston & Sampson**  
Five Centennial Drive, Peabody, MA 01960  
978.532.1900 800.SAMPSON  
www.westonandsampson.com



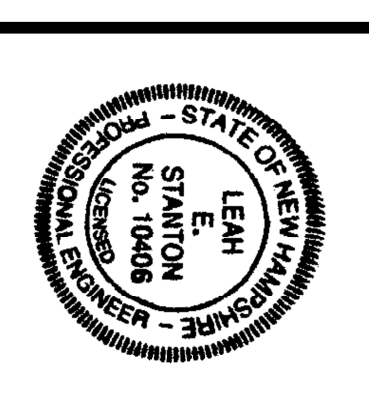
PLAN  
SCALE: 1" = 10'

- NOTES:**
- UPON COMPLETION OF FOUNDATION WORK, AND PRIOR TO THE INSTALLATION OF ANY PUMPING EQUIPMENT, THE WELL MUST REMAIN WITHIN VERTICAL PLUMBNESS AND ALIGNMENT REQUIREMENTS (MINIMUM 1-INCH OFFSET PER 100 VERTICAL FEET). THE CONTRACTOR WILL RETAIN A CERTIFIED WELL DRILLER IN THE STATE OF NH TO CONDUCT A TEST ON THE EXISTING WELL. THE TEST MUST BE ACCEPTABLE TO THE ENGINEER AND SHOULD INCLUDE USING A CAGE OR SIMILAR DEVICE LOWERED INTO THE FULL DEPTH OF THE WELL AND SCREEN. RESULTS SHOWING MISALIGNMENT OR PROBLEMS WITH THE CASING WILL BE INSPECTED USING A DOWNHOLE T.V. CAMERA OR OTHER METHOD APPROVED BY THE ENGINEER.
  - THE TOP OF PVC CASING AND PROTECTIVE STEEL CASING FOR TW-1-15 IS CURRENTLY AT GRADE. THE CONTRACTOR SHALL EXTEND THE TOP OF THE PVC CASING TO 18-INCHES ABOVE THE FINISH FLOOR. ALTHOUGH TESTING IS NOT REQUIRED, THE CONTRACTOR SHALL MAINTAIN VERTICAL PLUMBNESS OF TW-1-15 DURING CONSTRUCTION TO THE SATISFACTION OF THE ENGINEER.
  - THE CONTRACTOR SHALL RESTORE ALL AREAS THAT ARE DISTURBED DURING CONSTRUCTION WITH LOAM AND SEED.
  - PROPERTY BOUNDARIES WILL BE MARKED AT THE SITE BY THE CITY'S SURVEYOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL PROTECT ALL BOUNDARY MARKERS DURING CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE RE-ESTABLISHMENT OF MARKERS BY A SURVEYOR IN THE EVENT THAT ANY ARE MOVED OR DESTROYED DURING CONSTRUCTION.
  - WATER FROM PUMP STARTUP SHALL BE MANAGED BY THE CONTRACTOR TO PREVENT SITE EROSION. CONTRACTOR SHALL INSTALL A TAY BALE CHECK DAM IN SWALE AND DIRECT FLOWS INTO THE SWALE BEHIND THE CHECK DAM.
  - THE NEW ANTENNA WIRE SHALL BE INSTALLED UNDERGROUND WITHIN A NEW 4-INCH PVC CONDUIT.
  - LOAM AND SEEDING SHALL BE APPLIED TO DISTURBED AREAS. VEGETATION AROUND THE EXISTING FENCE SHALL BE CLEARED.



SHEET 4 OF 23

CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS						
GREENLAND WELL PUMP STATION REPLACEMENT						
PROPOSED SITE PLAN						
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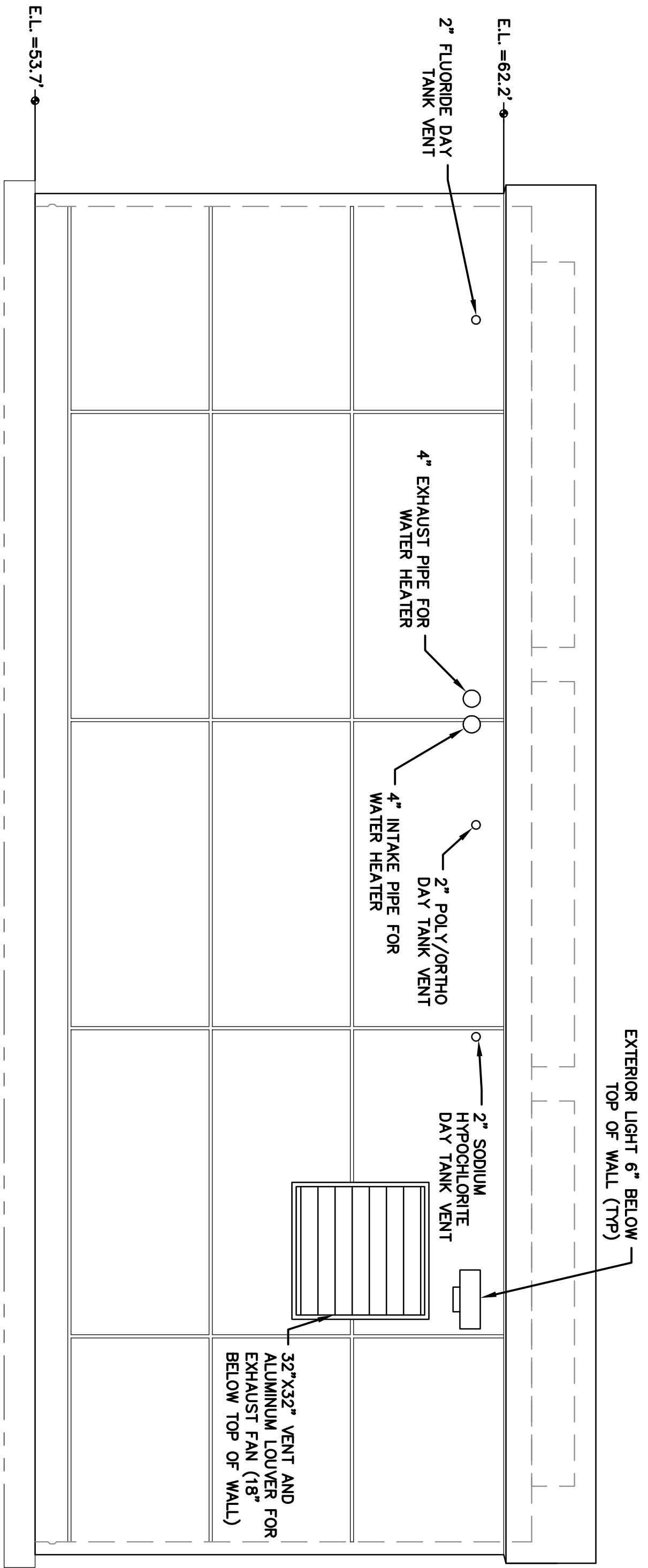


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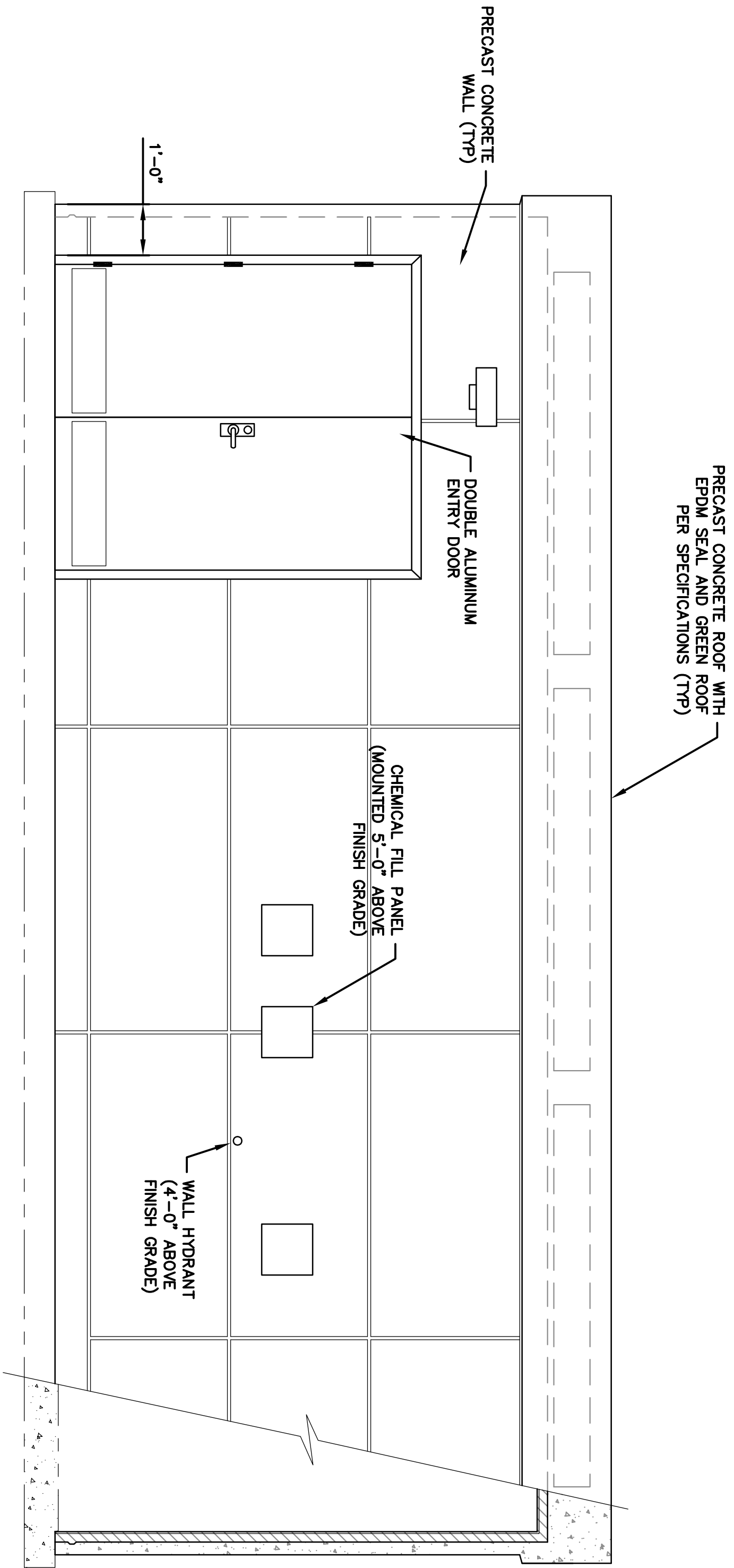
REGISTERED PROFESSIONAL ENGINEER  
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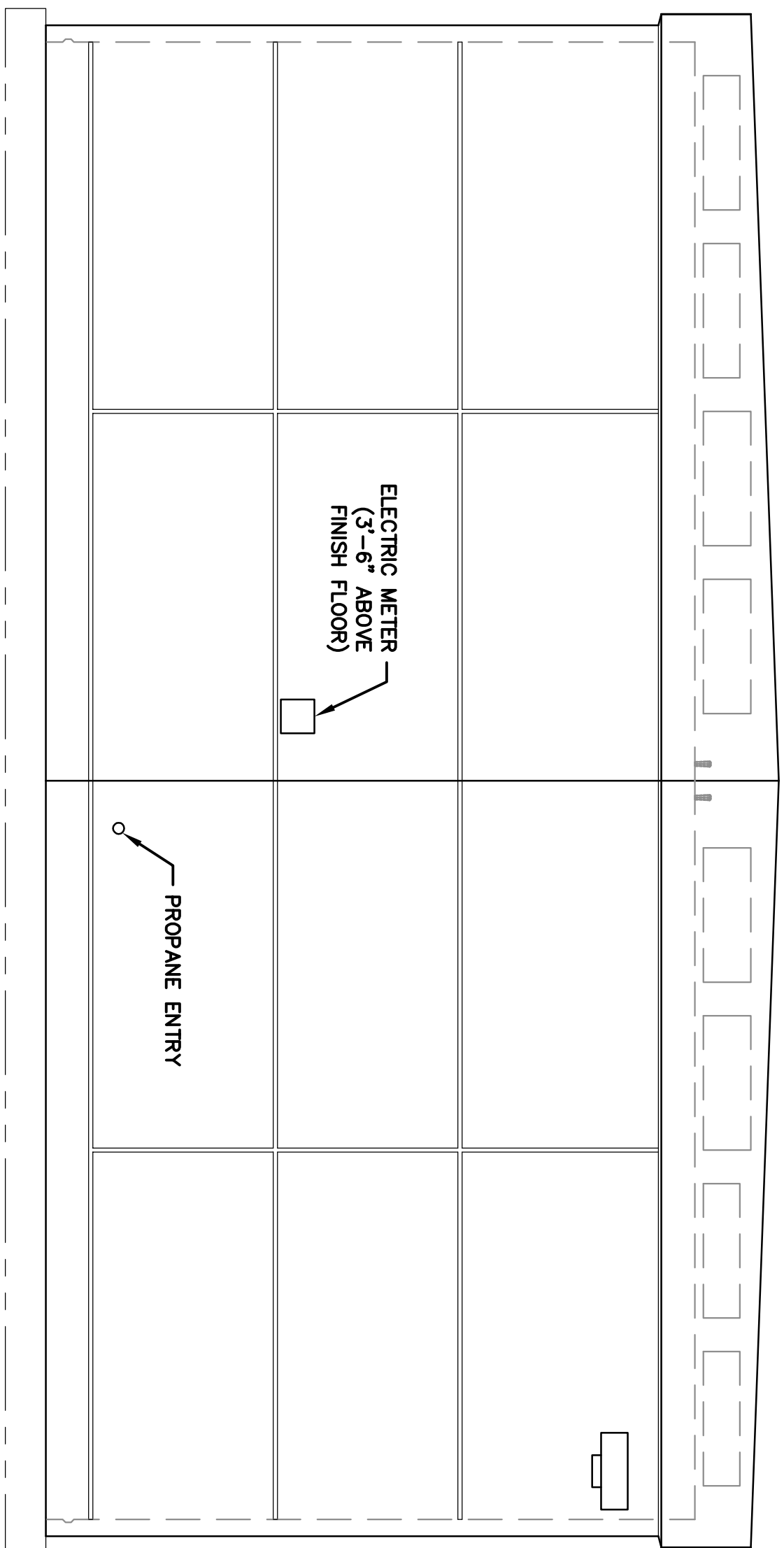




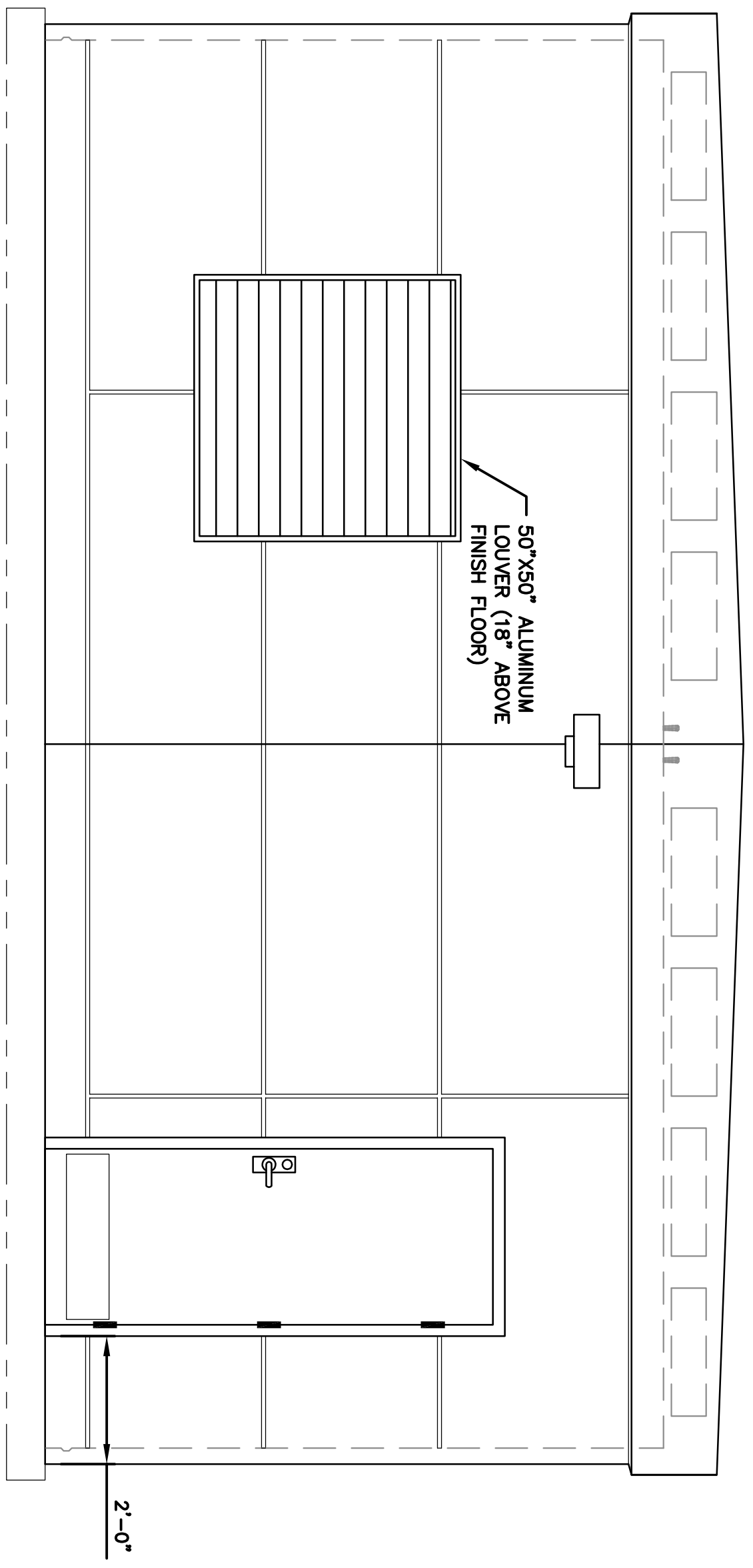
**EAST SIDE ELEVATION**  
SCALE: 1/2"=1'-0"



**WEST SIDE ELEVATION**  
SCALE: 1/2"=1'-0"



**NORTH SIDE ELEVATION**  
SCALE: 1/2"=1'-0"

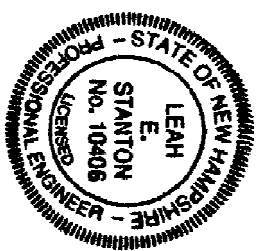


**SOUTH SIDE ELEVATION**  
SCALE: 1/2"=1'-0"

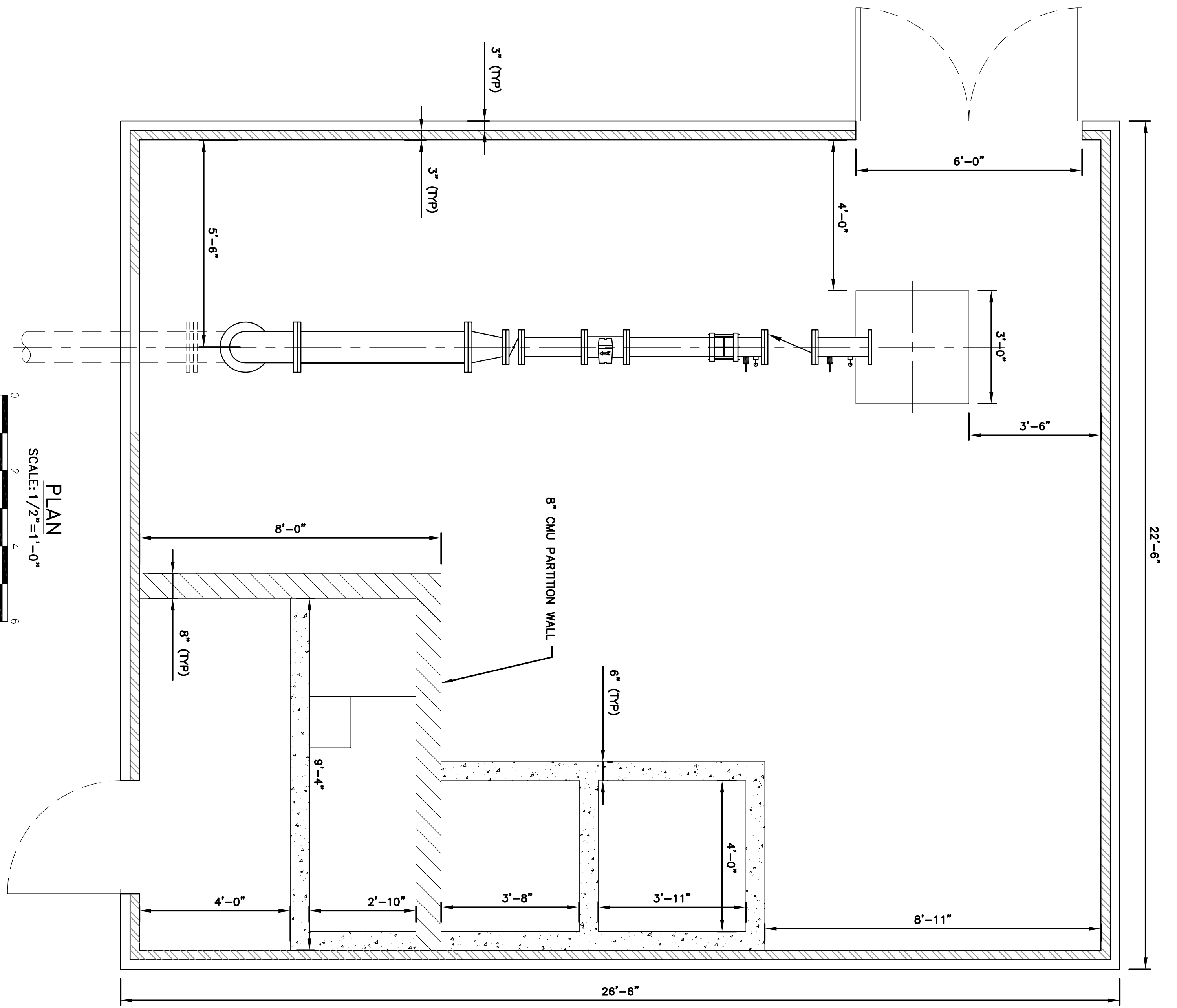


**GENERAL NOTES:**  
1. ALL DAY TANK AND EXHAUST/INTAKE VENTS TO BE INSTALLED 6\"/>

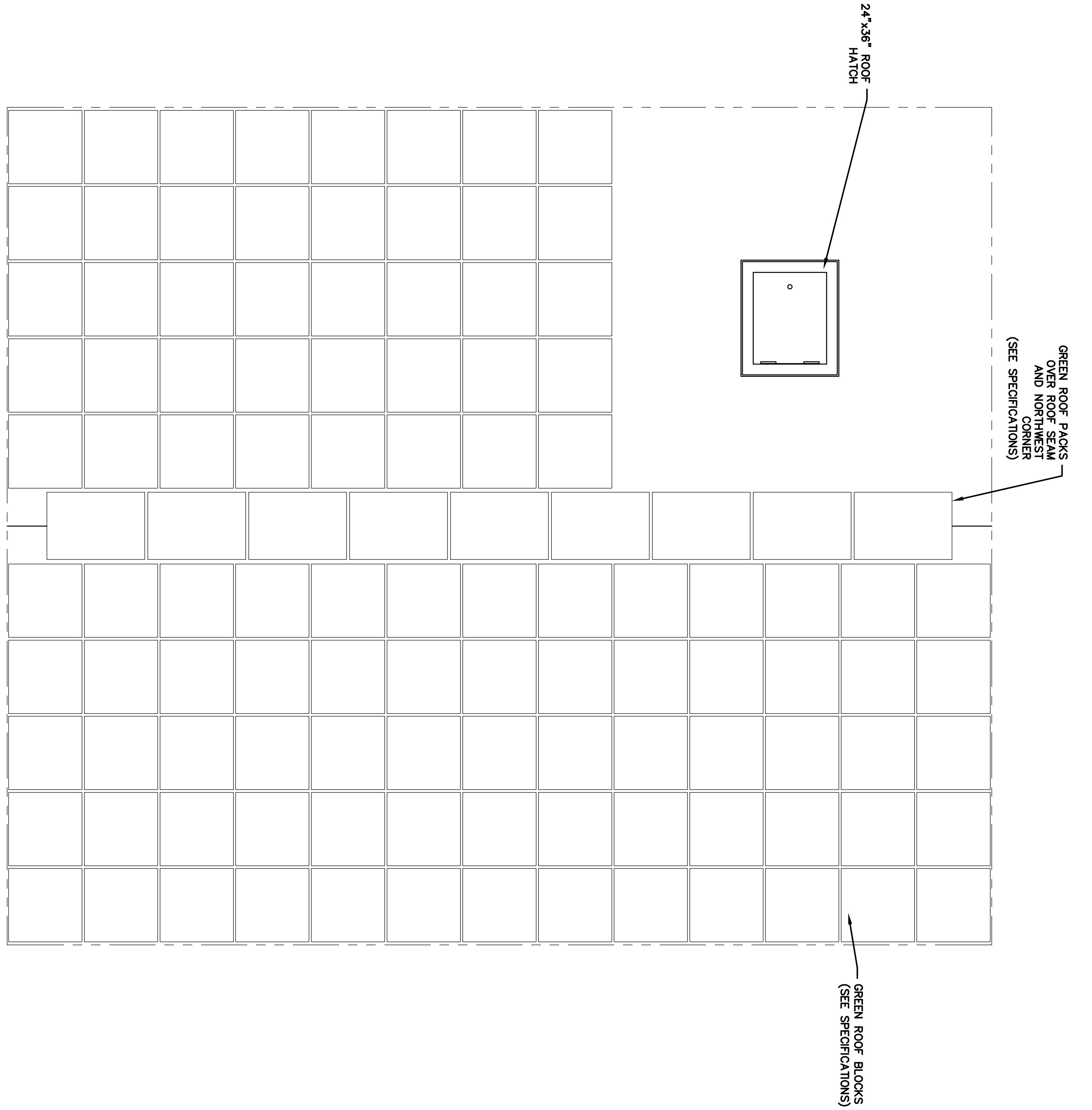
CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS GREENLAND WELL PUMP STATION REPLACEMENT							
<b>BUILDING ELEVATIONS</b>							
FILE NO.	CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR. BY	DSN. BY	APP. BY
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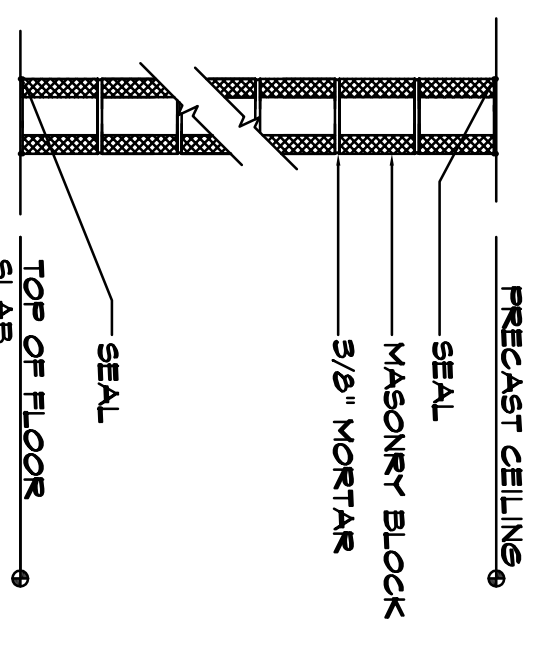
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<i>Leah Stata</i>					<b>AUGUST 29, 2016</b>
REGISTERED PROFESSIONAL ENGINEER					DATE



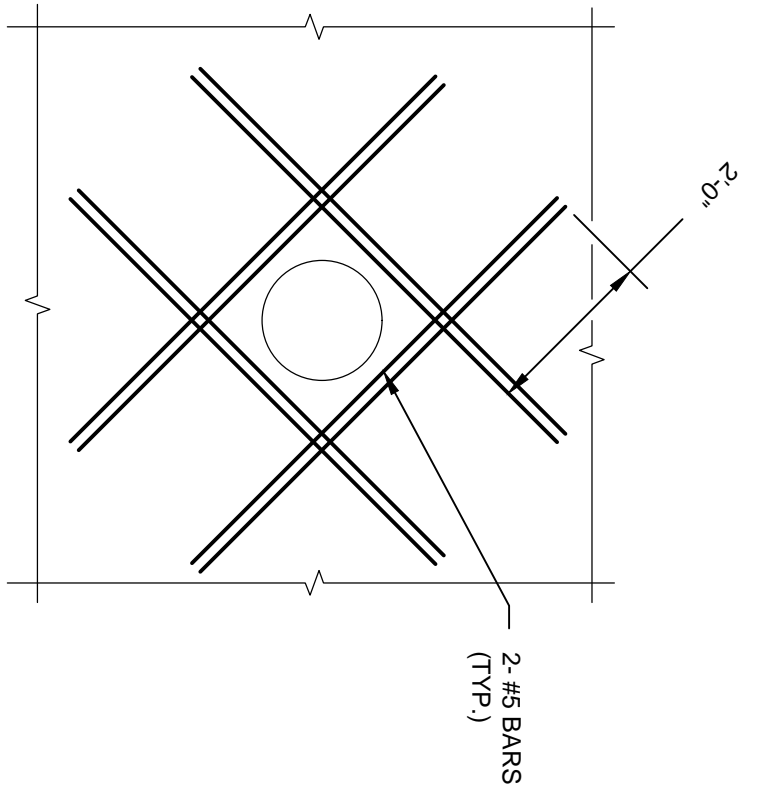
**PLAN**  
SCALE: 1/2" = 1'-0"  
SCALE: 1/2" = 1'-0"



**GREEN ROOF DETAIL**  
SCALE: 1/2" = 1'-0"

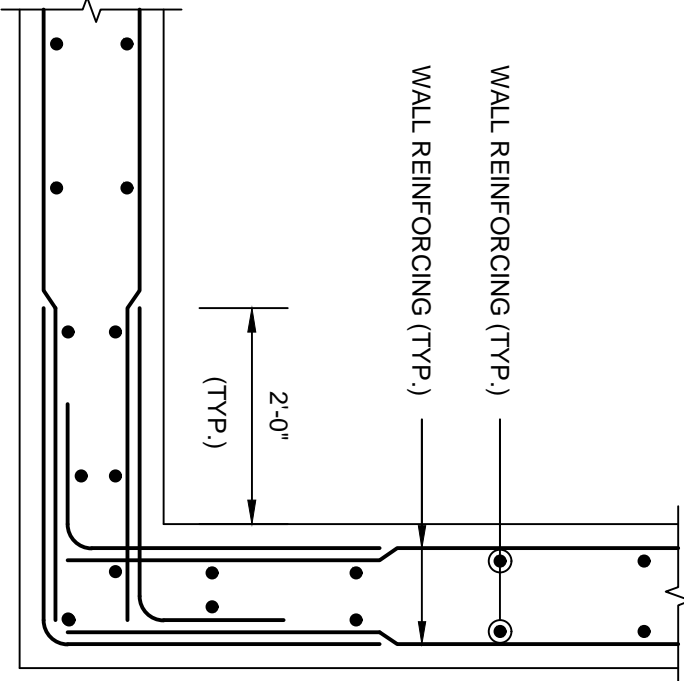


**8-INCH CMU WALL PARTITION TYPE**  
N.T.S.



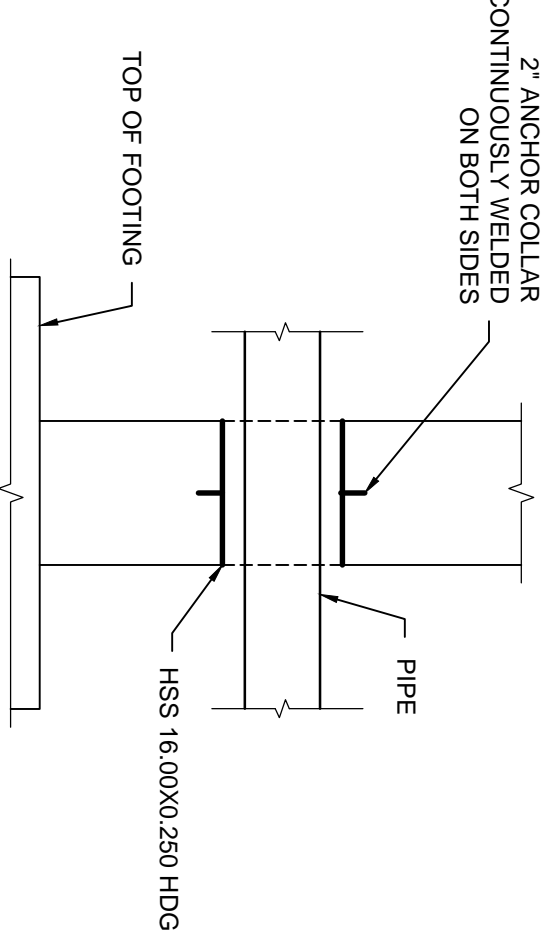
WALL PENETRATION DETAIL  
(FOR PENETRATIONS > 6")

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



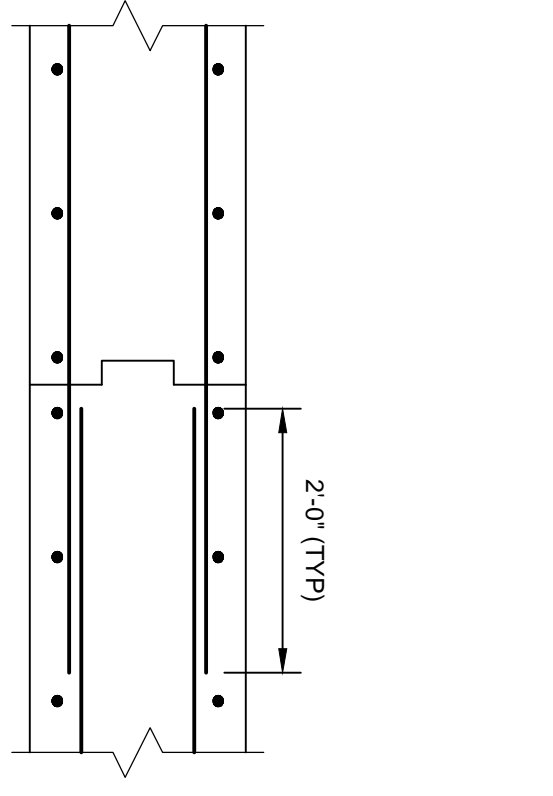
PLAN OF TYPICAL CORNER

NOT TO SCALE



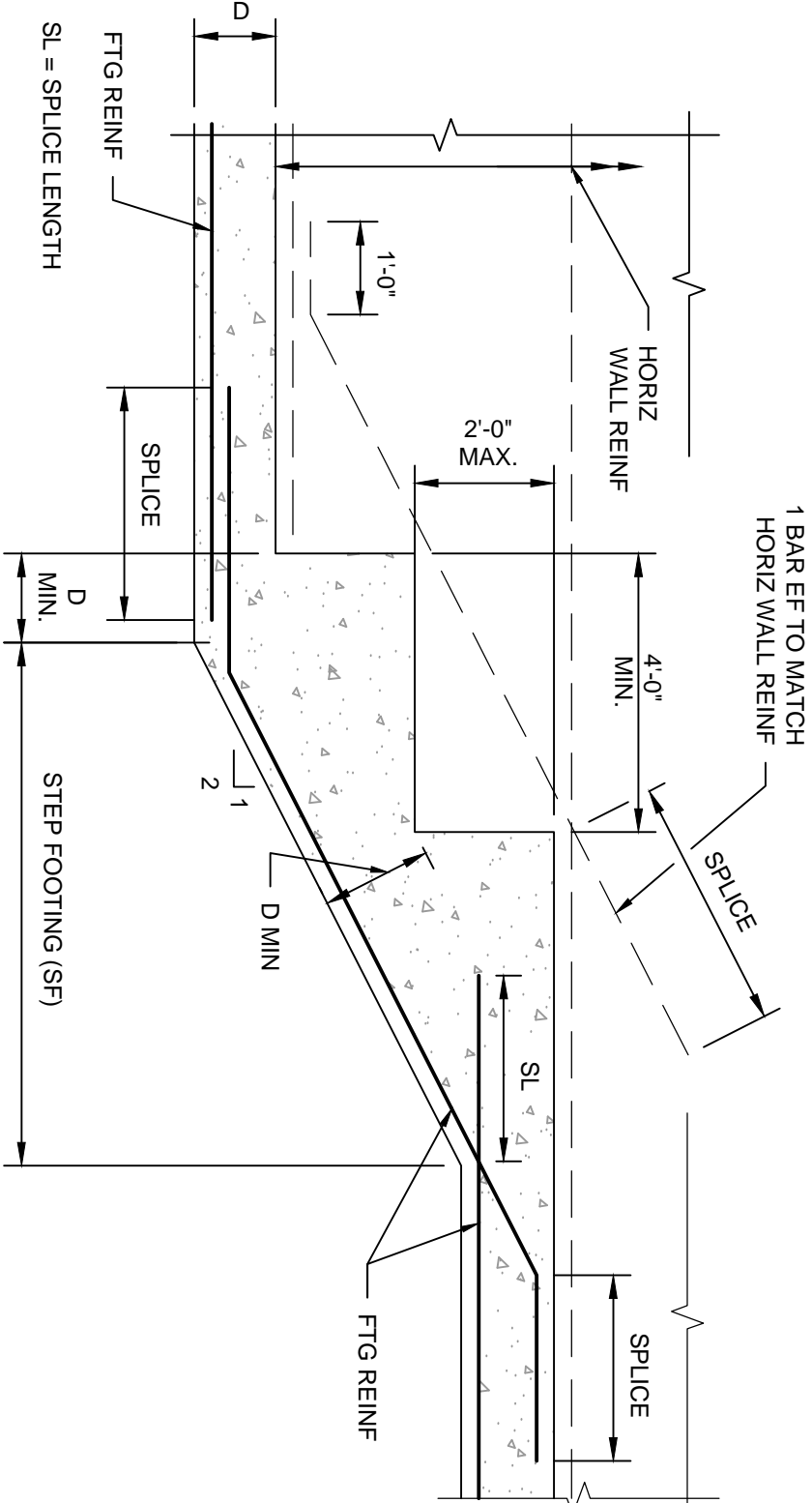
PIPE PENETRATION THROUGH WALL

NOT TO SCALE



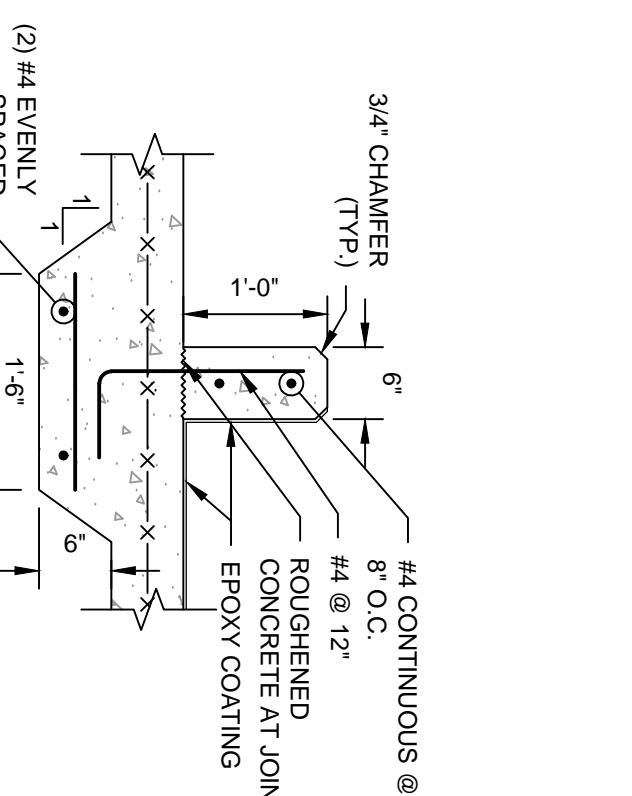
TYPICAL WALL CONSTRUCTION JOINT

NOTES:  
1. JOINT SPACING TO BE A MAXIMUM OF 30 FEET



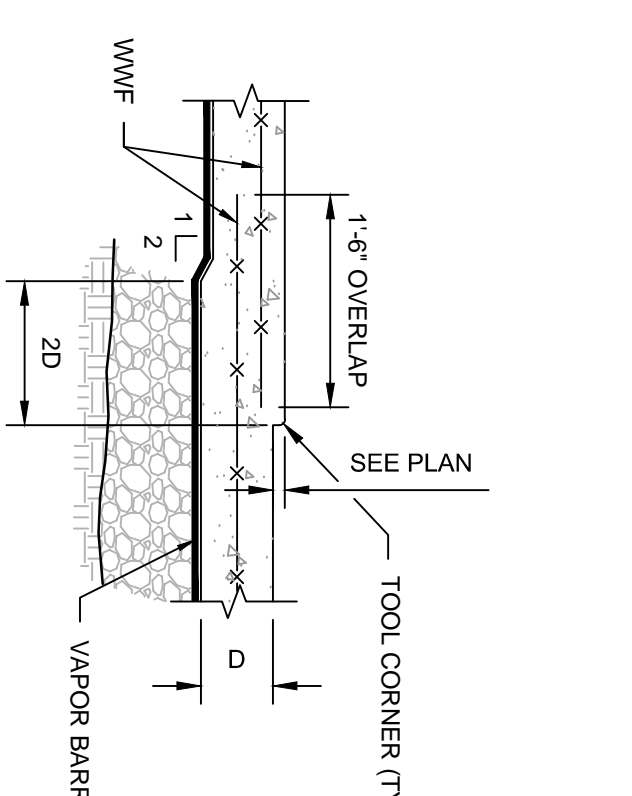
STEP FOOTING DETAIL

NOT TO SCALE



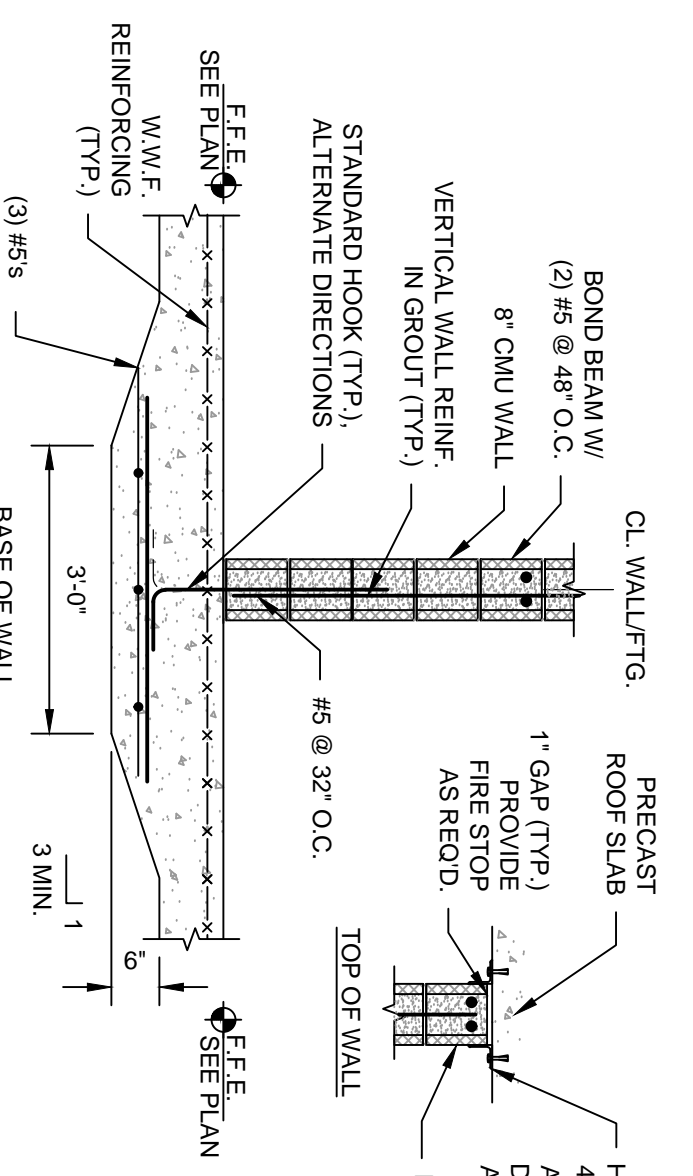
TYPICAL CURB DETAIL

NOT TO SCALE



SLAB ON GRADE AT DEPRESSIONS

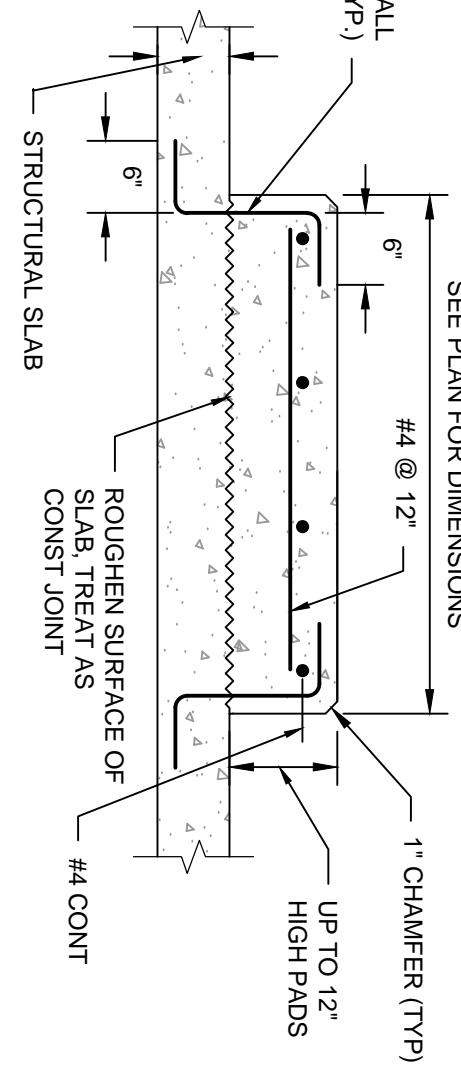
NOT TO SCALE



MASONRY PARTITION FOUNDATION

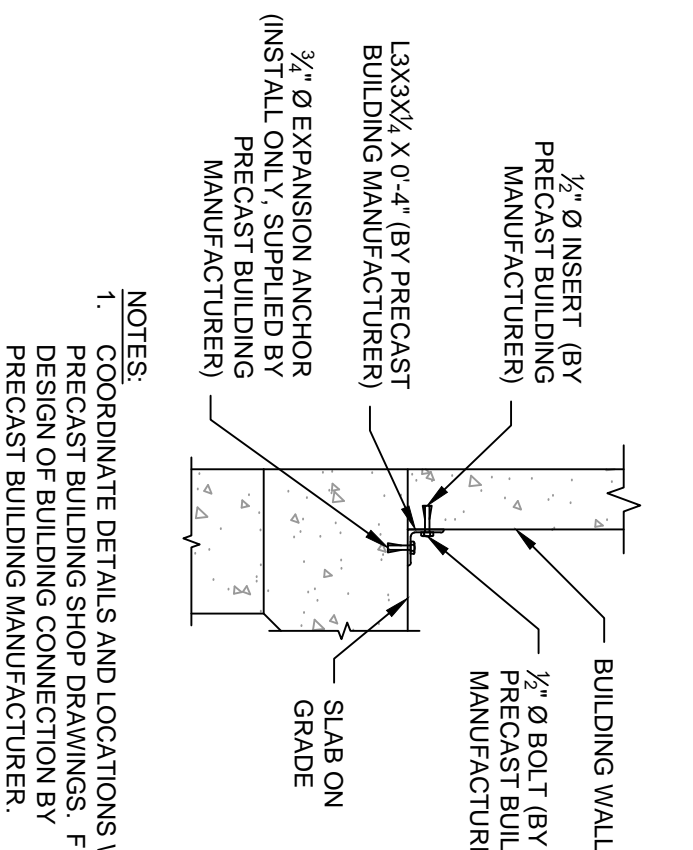
NOT TO SCALE

- NOTES:
1. REFER TO ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS AND LAYOUT.
  2. PROVIDE CONT. W/ 7 (6 GAUGE) LADDER TYPE JOINT REINFORCING AT 16" O.C.
  3. PROVIDE CORNER BARS AT BOND BEAMS.
  4. PROVIDE CONT. BOND BEAM IN COURSE ABOVE DOOR OPENING.
  5. GROUT BOTTOM (3) COURSES SOLID.
  6. GROUT BOTTOM (3) COURSES SOLID.
  7. HOG INDICATES HOT-DIPPED GALVANIZED.



CONCRETE EQUIPMENT PAD

NOT TO SCALE



TYPICAL BUILDING CONNECTION

NOT TO SCALE

THE EXACT SIZE, SHAPE AND LOCATION OF EQUIPMENT (HOUSEKEEPING PADS) SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF SHOP DRAWINGS FOR EQUIPMENT. ANCHOR BOLTS WHERE REQUIRED SHALL BE PROVIDED AND INSTALLED ACCORDING TO MANUFACTURER'S REQUIREMENTS.

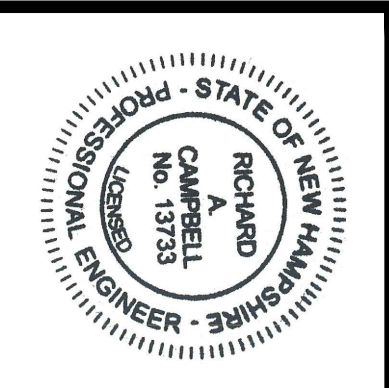
TYPICAL ABBREVIATIONS	
TYP. = TYPICAL	CONT. = CONTINUOUS
MIN. = MINIMUM	E.F. = EACH FACE
DIA. = DIAMETER	E.W. = EACH WAY
T.O.F. = TOP OF FOOTING	T.O.W. = TOP OF WALL
B.O.F. = BOTTOM OF FOOTING	O.C. = ON CENTER

- 1.0 GENERAL NOTES:
- 1.0 ALL WORK SHALL CONFORM WITH THE NEW HAMPSHIRE STATE BUILDING CODE, INTERNATIONAL BUILDING CODE (2009) ASSESS AND THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 308.0R).
  2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING, COORDINATING AND VERIFYING ALL DIMENSIONS IN THE FIELD PRIOR TO COMMENCING WORK.
  3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF UNANTICIPATED CONDITIONS THAT MAY BE UNCOVERED DURING CONSTRUCTION.
  4. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING IN THE FIELD THE EXISTENCE OF ALL EMBEDDED UTILITIES AND THE LOCATION OF ALL MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS AFFECTED BY THE WORK OF THIS CONTRACT.
- 2.0 FOUNDATIONS:
1. THE CONTRACTOR SHALL DESIGN AND PROVIDE ALL TEMPORARY EARTH SUPPORT, SHORING AND BRACING NECESSARY TO PERFORM THE WORK IN ACCORDANCE WITH OSHA, STATE AND LOCAL REQUIREMENTS.
  2. EXCAVATION SHALL BE REMOVED TO CLEAR THE REQUIRED FOUNDATION GEOMETRY.
  3. SUBMIT PLANS DETAILS AND CALCULATIONS STAMPED AND SIGNED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF NEW HAMPSHIRE.
- 3.0 CAST-IN PLACE CONCRETE
1. CONCRETE SHALL CONFORM TO BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-02).
  2. CONCRETE SHALL BE CONTROLLED CONCRETE, PROPORTIONED, MIXED AND PLACED IN THE PRESENCE OF A REPRESENTATIVE TESTING AGENCY.
  3. CONCRETE SHALL BE NORMAL WEIGHT AND HAVE THE FOLLOWING PROPERTIES:
    - A. MINIMUM 28 DAY COMPRESSIVE STRENGTH \_\_\_\_\_
    - B. MINIMUM SLUMP \_\_\_\_\_
    - C. MAXIMUM SLUMP \_\_\_\_\_
  - 4.0 CAST-IN PLACE REINFORCEMENT
  1. REINFORCEMENT DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO ACI DETAILING MANUAL - SP-68, "CSI MANUAL OF STANDARD PRACTICE".
  2. STEEL REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL CONFORM TO THE FOLLOWING:
    - A. BARS, TIES AND STRUTS \_\_\_\_\_ ASTM A615 GRADE 60
    - B. REINFORCING STEEL SHALL BE UNCOATED AND DEFORMED.
    - C. REINFORCING STEEL SHALL CONFORM TO ASTM C-476 FINE OR COARSE.
    - D. MORTAR SHALL CONFORM TO ASTM C-270, TYPE N.
    - E. GROUT SHALL CONFORM TO ASTM C-930 OF C-145 GRADE M-1.
    - F. CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C-90 OF C-145 GRADE M-1.
    - G. CONCRETE SHALL HAVE  $f_m = 1,500$  PSI. IS THE COMPRESSIVE STRENGTH OF THE MASONRY AT 28 DAYS AS DETERMINED BY TESTS.
    - H. MORTAR SHALL CONFORM TO ASTM C-270, TYPE N.
  3. THE DESIGN OF REINFORCED CONSTRUCTION IS BASED ON ALLOWABLE STRESSES PREDICATED ON CONTINUOUS BASIS WHENEVER MASONRY IS BEING PLACED. EACH FLOOR LEVEL, AT THE TOP OF EACH WALL, AND SPACED 64 FEET ON CENTER, SHALL HAVE 2 #4 BARS PER FOOTING. EACH WALL SHALL BE CONTINUOUS WITH ALL INTERSECTING BOND BEAMS.
  4. ANCHORS TO MASONRY WALLS SHALL BE 1" EXPANSION BOLTS OR ANCHOR BOLTS. BOLTS SHALL BE 2" SHORTER THAN WALL THICKNESS, WITH A MAXIMUM LENGTH OF "12".
  5. ONLY BE INSTALLED IN FULLY GROUTED CELLS OF CONCRETE MASONRY.
  6. MASONRY OPENINGS MORE THAN 16" WIDE SHALL BE REINFORCED APPROVED UNITS. (SEE UTILITY SCHEDULE).
  7. MASONRY OPENINGS MORE THAN 16" WIDE SHALL BE REINFORCED APPROVED UNITS. (SEE UTILITY SCHEDULE).
  8. MASONRY OPENINGS MORE THAN 16" WIDE SHALL BE REINFORCED APPROVED UNITS. (SEE UTILITY SCHEDULE).
  9. MASONRY OPENINGS MORE THAN 16" WIDE SHALL BE REINFORCED APPROVED UNITS. (SEE UTILITY SCHEDULE).
  10. MASONRY OPENINGS MORE THAN 16" WIDE SHALL BE REINFORCED APPROVED UNITS. (SEE UTILITY SCHEDULE).
  11. MASONRY OPENINGS MORE THAN 16" WIDE SHALL BE REINFORCED APPROVED UNITS. (SEE UTILITY SCHEDULE).
  12. PROVIDE AND INSTALL LINTELS FOR OPENINGS IN ACCORDANCE WITH THE SCHEDULE OTHERWISE PROVIDE ONE (1) 3" X 28" GALV. ANCHORED LINTEL AT EACH END.
  13. GROUTING WITH 6" MINIMUM BEARING AT EACH END.
  14. REINFORCEMENT SHALL BE CONTINUOUS THROUGH THE ENTIRE LENGTH OF THE BEAM. PLATES SHALL BEAR ON CONCRETE FILL BLOCKS HAVING A COMPRESSIVE STRENGTH OF 2,500 PSI.
  15. FILL CORES OF CONCRETE BLOCKS UNDER ALL BEARING PLATES WITH CONCRETE FOR A WIDTH EQUAL TO 3 TIMES THE BEARING PLATE LENGTH.
  16. PROVIDE 14G VERTICAL REINFORCING AT 32" O.C. AT ALL MASONRY WALLS UNLESS NOTED OTHERWISE. THIS REINFORCING SHALL BE CONTINUOUS THROUGH THE ENTIRE LENGTH OF THE WALL.
  17. ALL MASONRY WALLS SHALL BE REINFORCED WITH #9 GA. WIRE LADDERS (LADDER OR TRUSS TYPE) AT 16" O.C. HORIZONTAL REINFORCEMENT.
  18. PROVIDE 2#6 CONTINUOUS HORIZONTAL BARS IN THE TOP COURSE (BOND BEAM) OF ALL WALLS BELOW EACH FLOOR LEVEL ON ROOF AND FILL.
  19. ALL MASONRY WALLS SHALL BE REINFORCED WITH #9 GA. WIRE LADDERS (LADDER OR TRUSS TYPE) AT 16" O.C. HORIZONTAL REINFORCEMENT.
  20. MORTAR IS UNACCEPTABLE. THE COMPRESSIVE STRENGTH OF GROUT AT THE END OF 28 DAYS SHALL BE 3,000 PSI MINIMUM.
- 5.0 DESIGN LOADS
- LOADS, LOADING CONDITIONS AND COMBINATIONS SHALL BE IN ACCORDANCE WITH THE NEW HAMPSHIRE STATE BUILDING CODE, IRC 2008 AND ASCE 7.05 AS APPLICABLE. LOADS DESIGNATED BY "PS" ARE UNIFORM LOADS, THOSE DESIGNATED BY "CS" ARE CONCENTRATED LOADS AND SHALL BE APPLIED AS REQUIRED BY THE NEW HAMPSHIRE STATE BUILDING CODE.
- BUILDING OCCUPANCY CATEGORY \_\_\_\_\_ III
1. DEAD LOADS
- 1.1. FOR FURTHER INFORMATION
2. LIVE LOADS:
- 2.1. FLOOR LIVE LOADS: \_\_\_\_\_ 300 PSF
  - 2.1.1. SLAB ON GRADE: \_\_\_\_\_ 300 PSF
  - 2.1.2. ROOF LIVE LOADS: \_\_\_\_\_ 20 PSF, 300 LB
  - 2.1.2.1. CONSTRUCTION: \_\_\_\_\_
3. ROOF SNOW LOAD:
- 3.1. GROUND SNOW LOAD,  $P_g$ : \_\_\_\_\_ 50 PSF
  - 3.2. HEATED SPACE: \_\_\_\_\_
  - 3.2.1. FLAT ROOF SNOW LOAD,  $P_f$ : \_\_\_\_\_ 42.4 PSF MIN.
  - 3.2.2. SLOPED ROOF SNOW LOAD,  $P_s$ : \_\_\_\_\_ 10, 11
  - 3.2.3. SNOW LOAD IMPORTANCE FACTOR: \_\_\_\_\_ 1.1 III
  - 3.2.4. THERMAL FACTOR,  $C$ : \_\_\_\_\_ 1.1
4. WIND DESIGN DATA
- 4.1. BASIC WIND SPEED,  $V$ : \_\_\_\_\_ 100 MPH
  - 4.2. EXPOSURE CATEGORY: \_\_\_\_\_ C, III
  - 4.3. WIND EXPOSURE: \_\_\_\_\_ C
5. EARTHQUAKE DESIGN DATA
- 5.1. SEISMIC IMPORTANCE FACTOR,  $I$ : \_\_\_\_\_ 1.25, III
  - 5.2. MAPPED SPECTRAL RESPONSE ACCELERATIONS,  $S_s$ ,  $S_1$ : \_\_\_\_\_ 0.273G, 0.080G
  - 5.3. SITE CLASS: \_\_\_\_\_ D
6. GEOTECHNICAL INFORMATION
- 6.1. ALLOWABLE NET BEARING PRESSURE: \_\_\_\_\_ 2,000 PSF (ASSUMED)
  - 6.2. FROST DEPTH: \_\_\_\_\_ 4'-0"
- SEE HYDROGEOLOGIC EVALUATION BY EMERY AND GARRETT GROUNDWATER, INC. DATED DECEMBER 2007 FOR ADDITIONAL DATA.
- CONDITION OF SUBGRADE TO BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLING FOUNDATIONS.

No.	Date	Dr. By	Ck. By	App. By	Description
A		P	P	R	O
					V
					E
					D

REGISTERED PROFESSIONAL ENGINEER

DATE: Aug 29, 2016

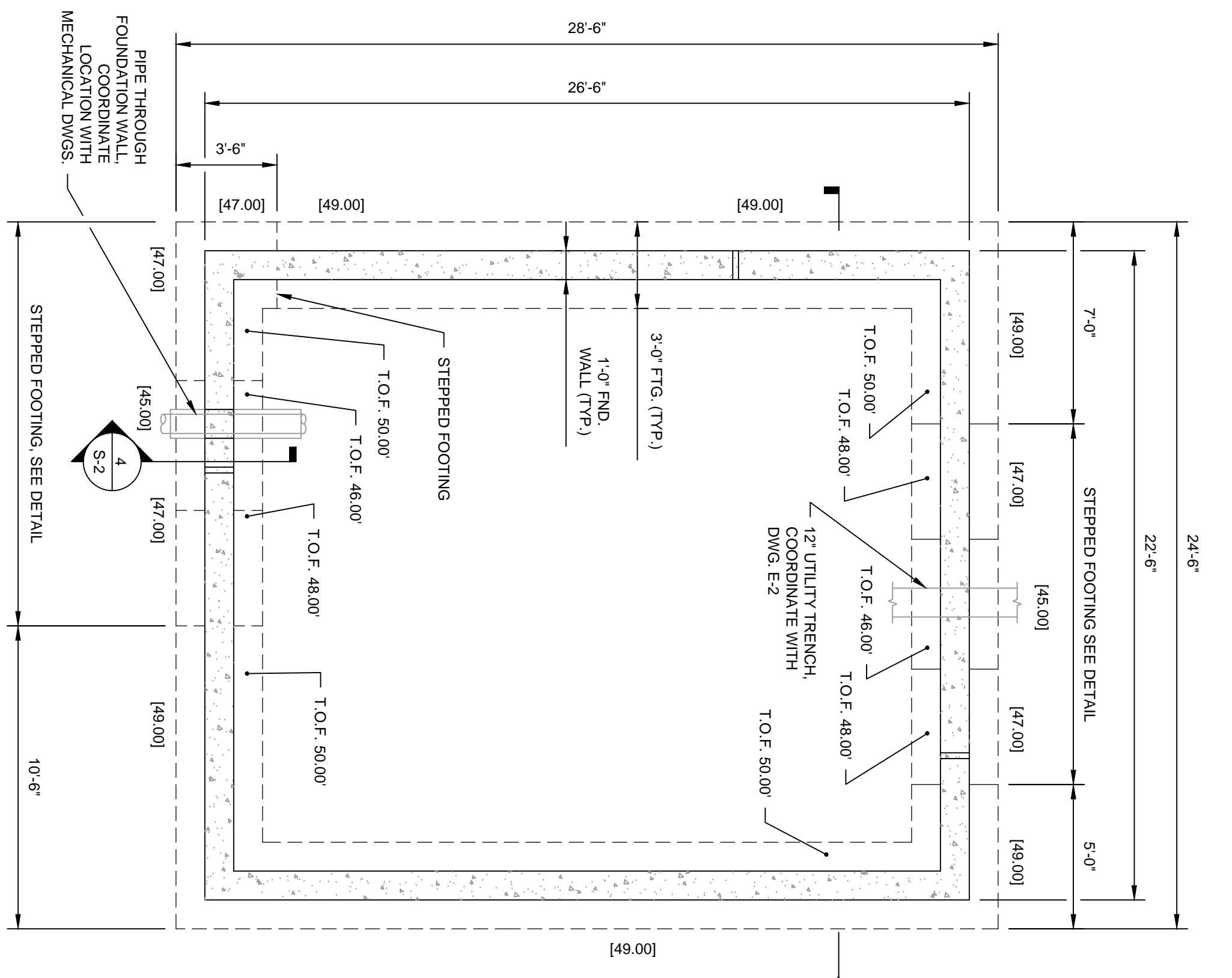


CITY OF PORTSMOUTH, NEW HAMPSHIRE  
DEPARTMENT OF PUBLIC WORKS  
GREENLAND WELL PUMP STATION REPLACEMENT  
GENERAL NOTES AND TYPICAL DETAILS

FILE NO.	CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR. BY	DSN. BY	CHK. BY	APP. BY
		NOTED		2140738				

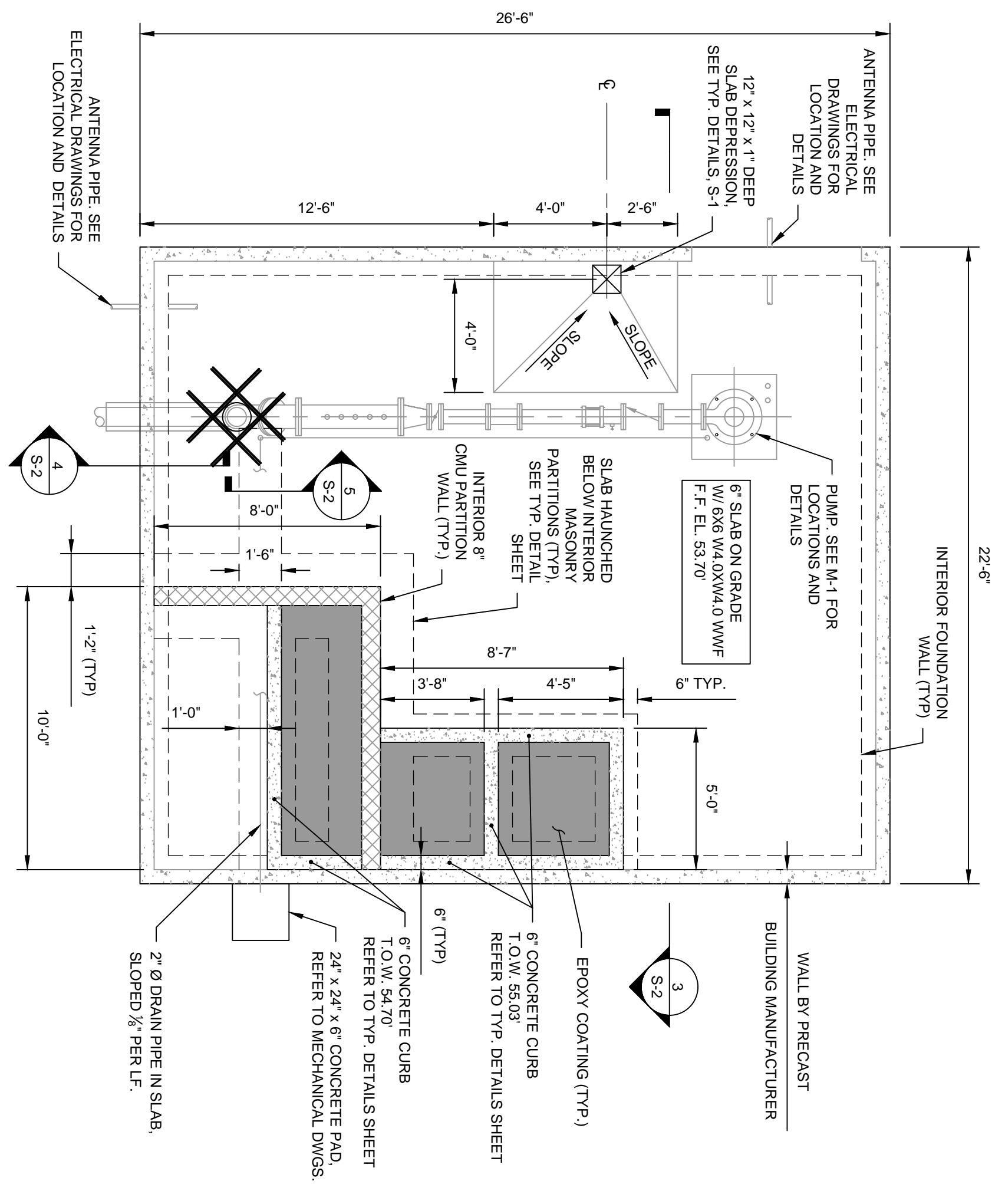
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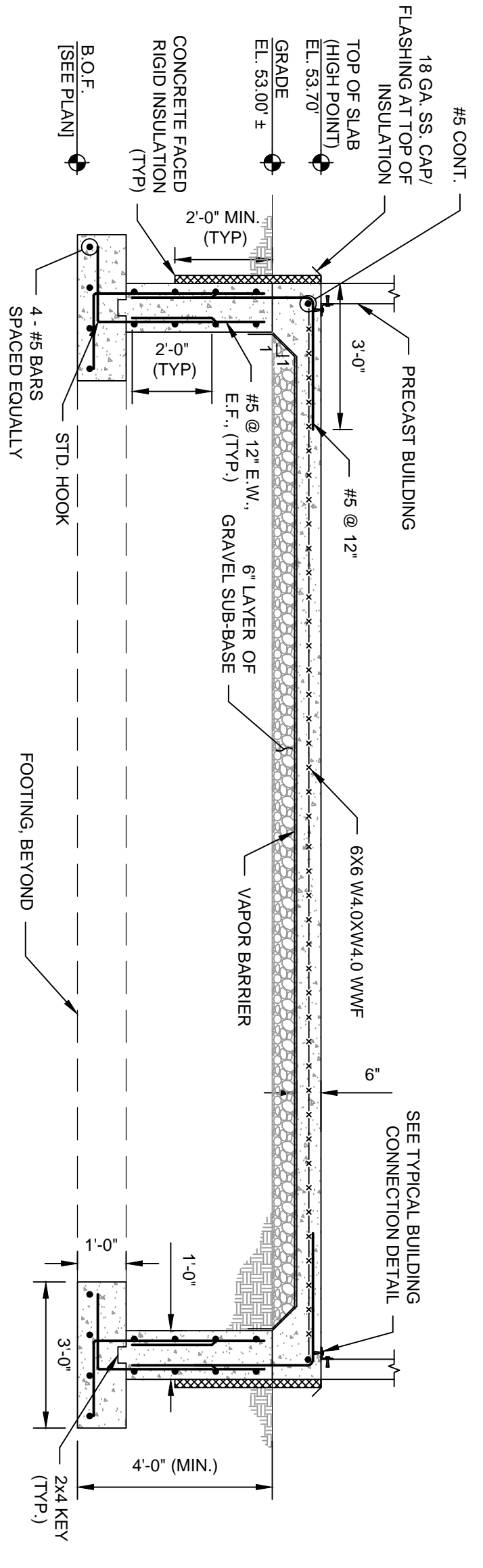
**1 FOUNDATION PLAN**  
SCALE: 1/4"=1'-0"

- NOTES:  
 1. FOR GENERAL NOTES SEE SHEET S-1.  
 2. FOR TYPICAL DETAILS SEE SHEET S-1.  
 3. XXX INDICATES BOTTOM OF FOOTING ELEVATION.  
 4. COORDINATE WITH CIVIL, PROCESS, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR ALL PIPE PENETRATIONS NOT SHOWN.  
 5. FOR PIPE SIZE, LOCATIONS, AND ELEVATION SEE PROCESS, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS.

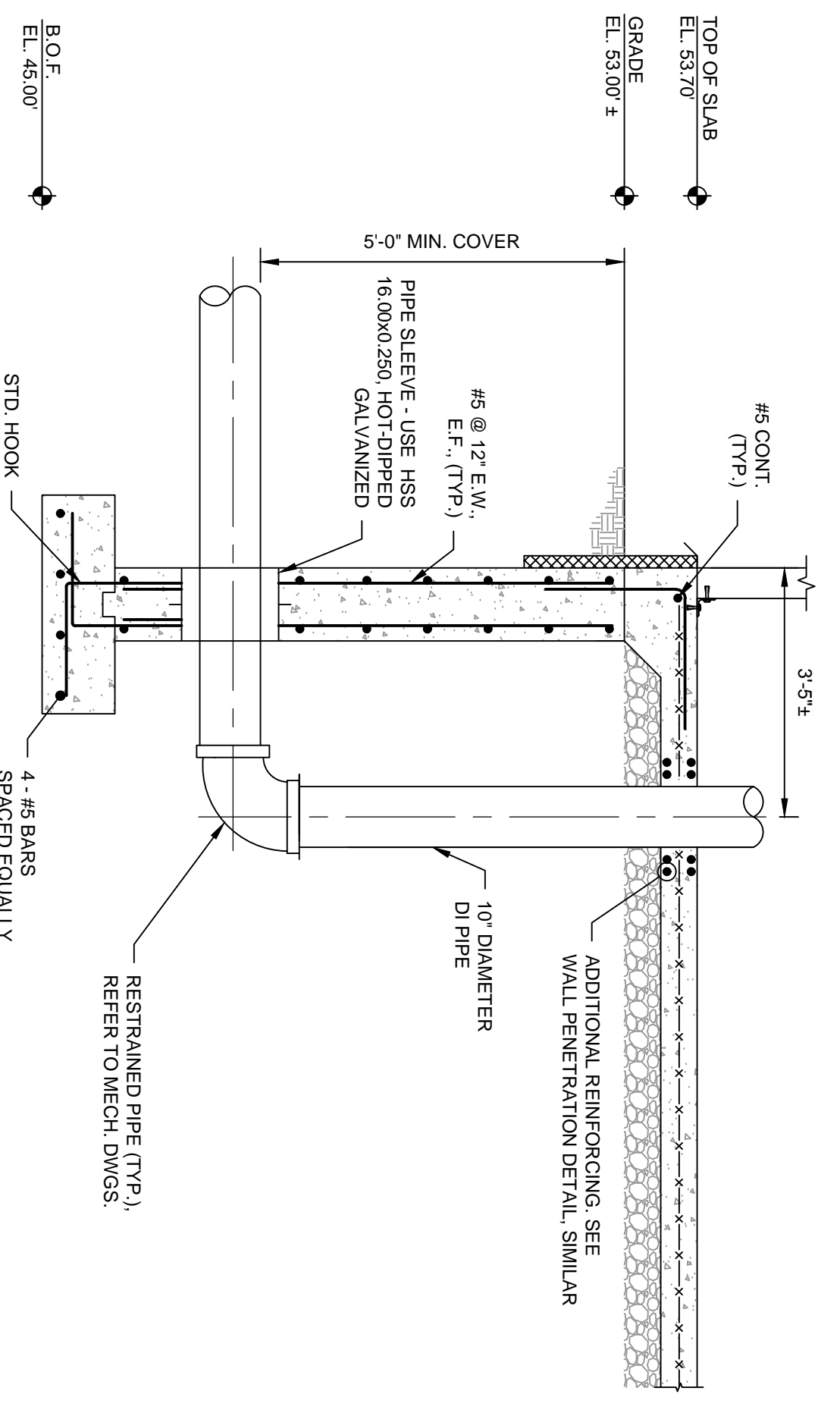


**2 SLAB PLAN**  
SCALE: 1/4"=1'-0"

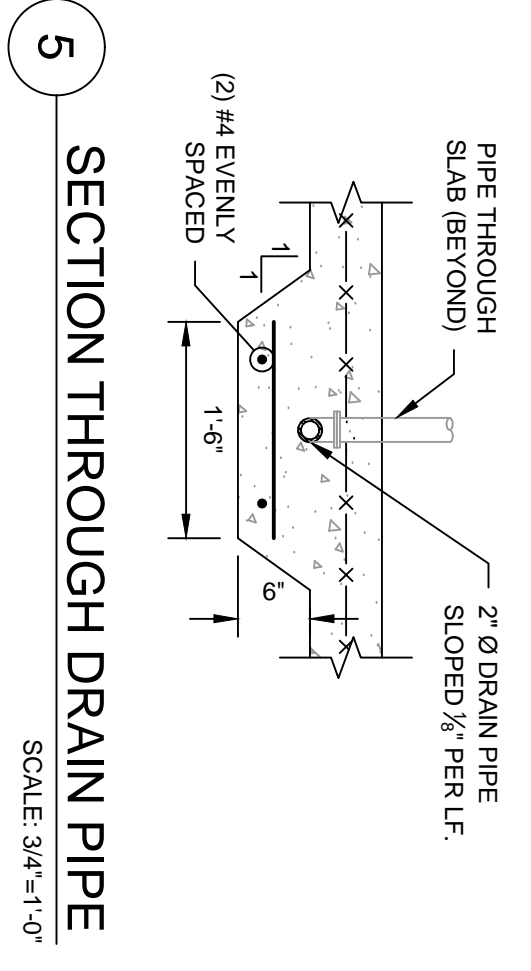
- NOTES:  
 1. FOR GENERAL NOTES SEE SHEET S-1.  
 2. FOR TYPICAL DETAILS SEE SHEET S-1.  
 3. COORDINATE WITH CIVIL, PROCESS, MECHANICAL, AND PLUMBING FOR LOCATIONS OF ALL PIPE PENETRATIONS.  
 4. BUILDING PRECAST MANUFACTURER REFER TO SHEET S-1 FOR TYPICAL BUILDING.  
 5. EPOXY COATING SHALL BE APPLIED TO HORIZONTAL SURFACES, AS SHOWN ON PLAN SIDE TO A HEIGHT OF 1'-0" MIN. REFER TO SPECIFICATION 09500 HARDENERS/SEALER WITH FLOOR FINISHES.



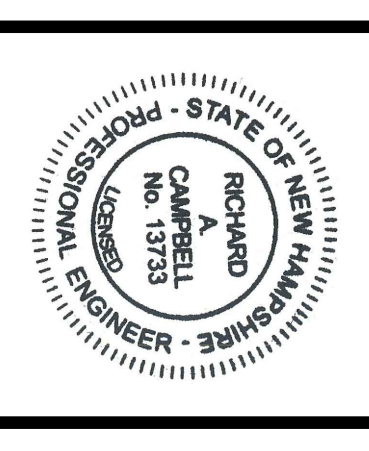
**3 FOUNDATION SECTION**  
SCALE: 3/8"=1'-0"



**4 FOUNDATION SECTION**  
SCALE: 1/2"=1'-0"



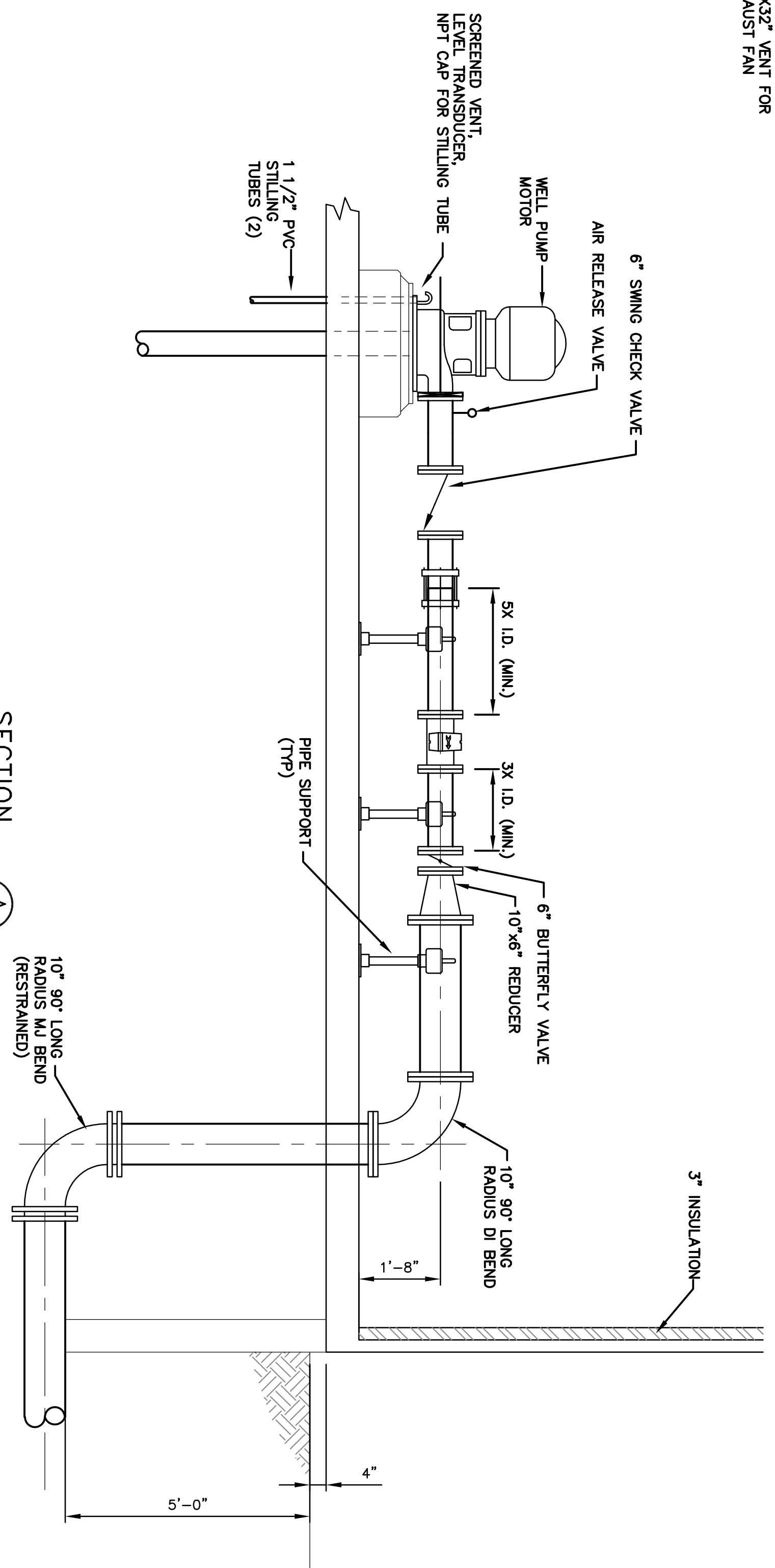
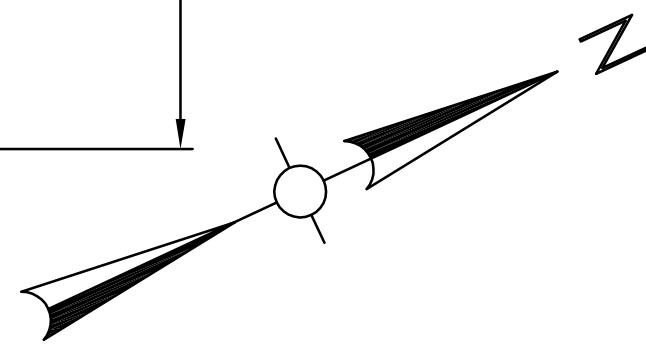
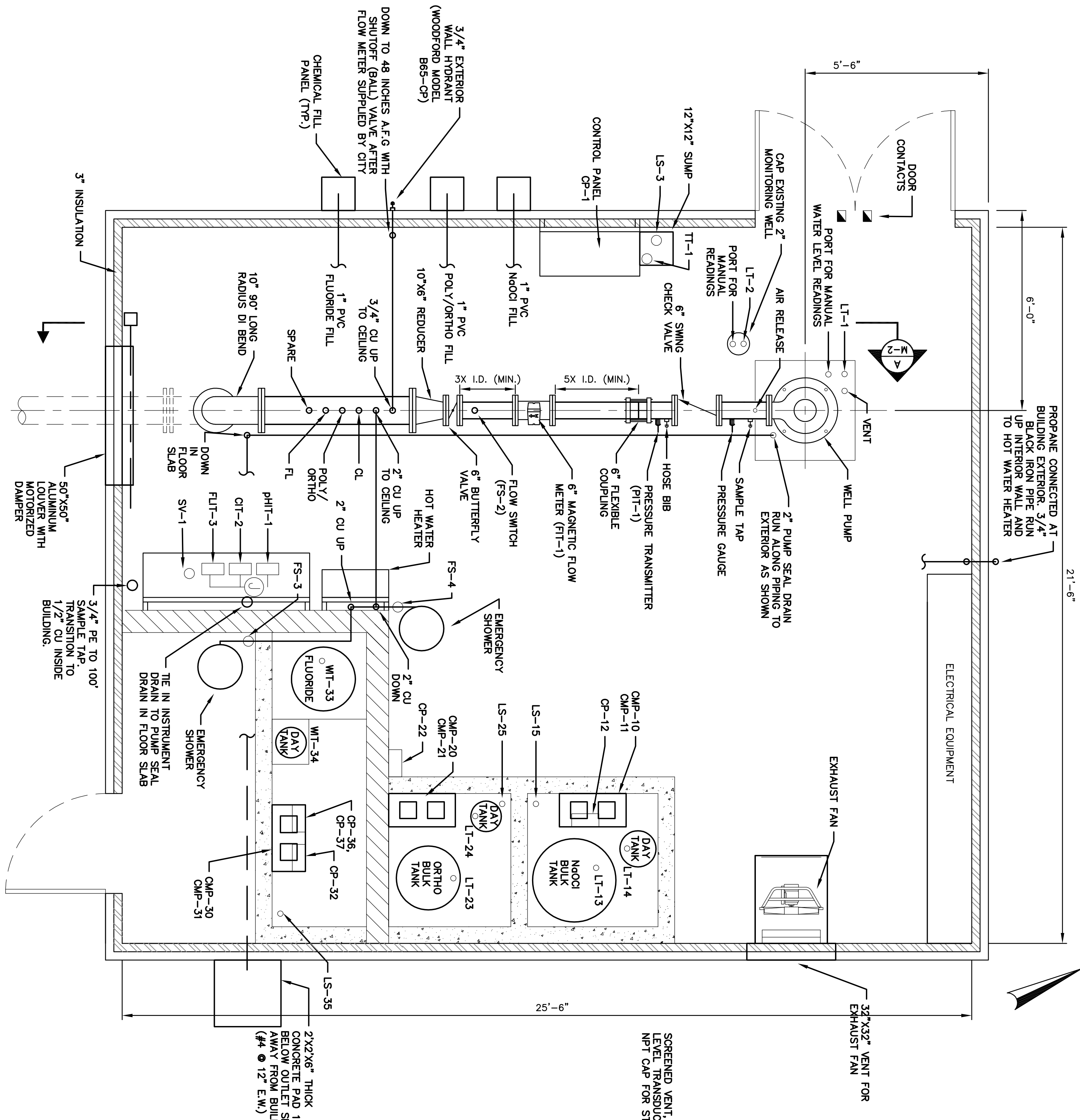
**5 SECTION THROUGH DRAIN PIPE**  
SCALE: 3/4"=1'-0"



No.	Date	Dr. By	Ck. By	App. By	Description
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					O
					V
					E
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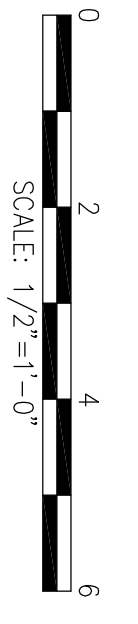
REGISTERED PROFESSIONAL ENGINEER  
 DATE: Aug. 29, 2016

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



SECTION  
SCALE: 1/2" = 1'-0" (A-A)

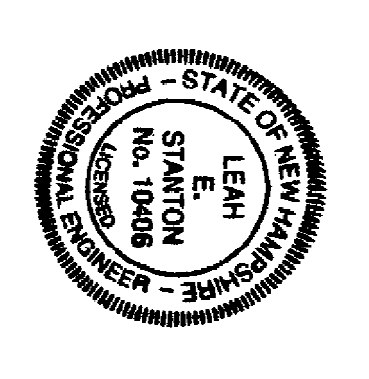
- NOTES:
1. ALL WELL PENETRATIONS SHALL BE SEALED AIR TIGHT. WITH THE EXCEPTION OF THE WELL VENT WHICH SHALL BE PROVIDED WITH A PVC GOOSENECK WITH INSECT SCREEN.
  2. OWNER TO PROVIDE METER FOR INSTALLATION.
  3. PUMP SHEETS SHALL ALSO PROVIDE BACKGROUND SPACE TO MOUNT ALL CONTROL PANELS. NO PANEL SHALL BE MOUNTED HIGHER THAN 5'6".
  4. CONTRACTOR TO SLOPE CONTAINMENT AREAS TO LEVEL SWITCH (LS-XS).
  5. CONTRACTOR SHALL PERFORM PRESSURE TEST OF ALL PIPE UNDERNEATH THE SLAB PRIOR TO BACKFILLING.



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

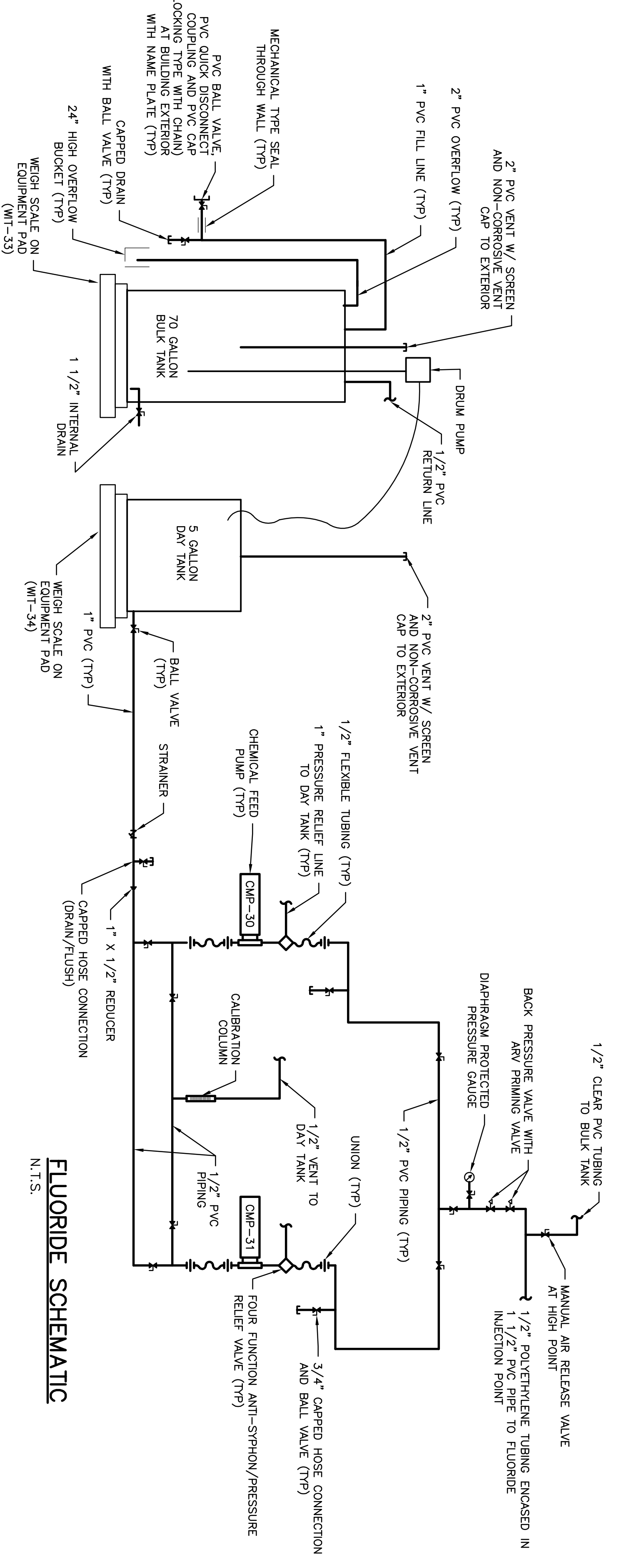
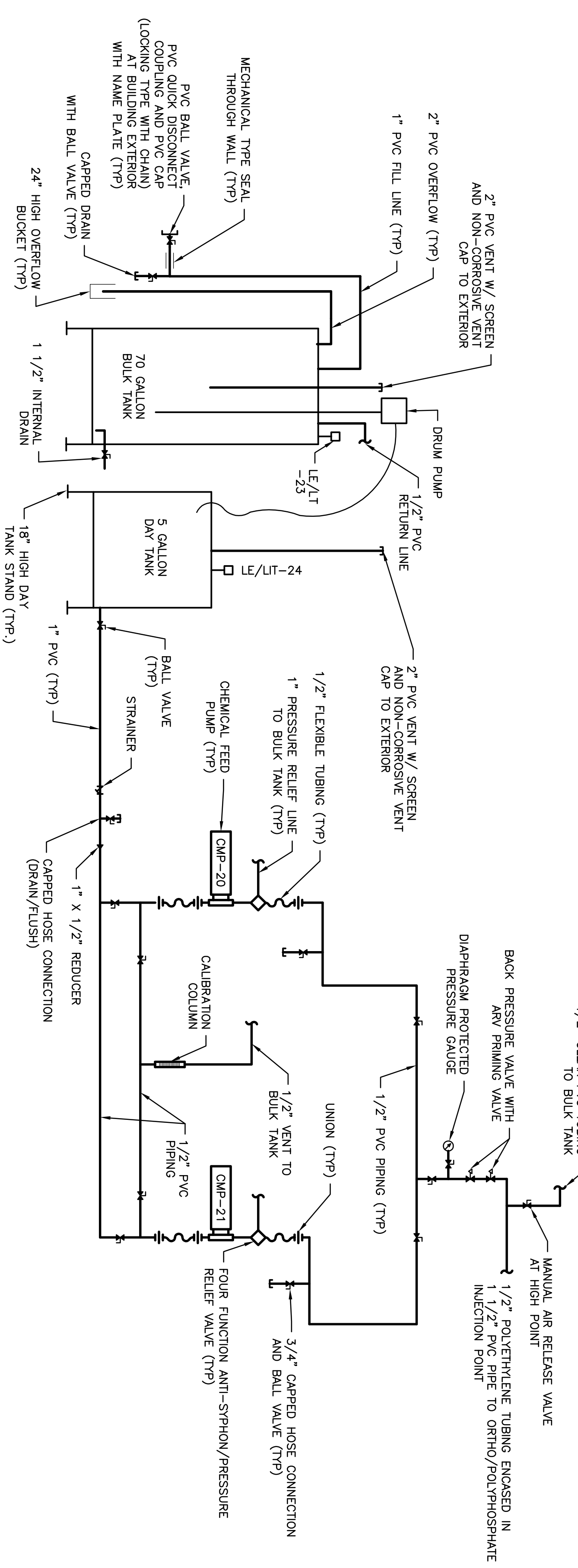
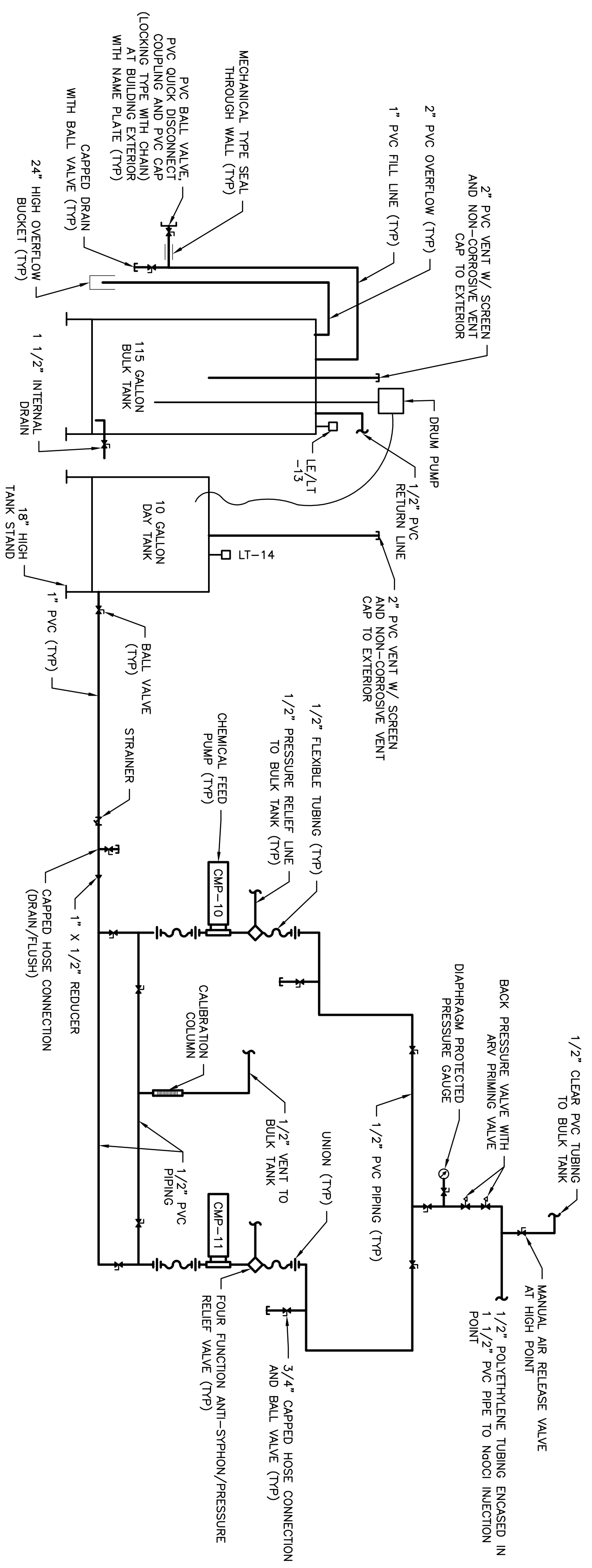
**M-1**  
SHEET 10 OF 23

CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS						
GREENLAND WELL PUMP STATION REPLACEMENT						
<b>WELL STATION PLAN</b>						
FILE NO.	CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR. BY	DSM. BY
215-52		NOTED		2140738	KMC	RAS
					CHK. BY	APP. BY
					RAS	LES



No.	Date	Dr. By	Ck. By	App. By	Description
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<i>Leah Stata</i>					AUGUST 29, 2016
REGISTERED PROFESSIONAL ENGINEER					DATE

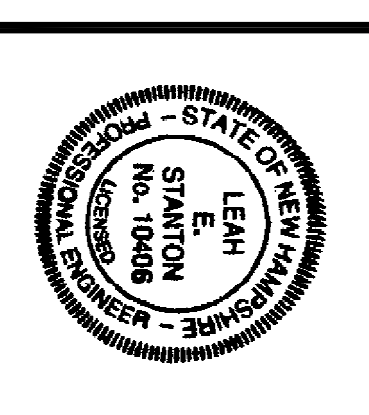
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- NOTES:**
1. PROVIDE UNIONS AND/OR FLEXIBLE CONNECTIONS AS REQUIRED AT PUMPS, TANK CONNECTIONS, AND VALVES.
  2. REFER TO SPECIFICATIONS FOR SIZE AND DIMENSIONS OF TANKS, CHEMICAL FEED EQUIPMENT AND APPURTENANCES.
  3. CHEMICAL FEED PUMPS SHALL BE INSTALLED SUCH THAT VALVE ASSEMBLIES AND LIQUID ENDS ARE ACCESSIBLE AND REMOVABLE.
  4. PROVIDE UNI-STRUT SUPPORTS ON WALL AND USE OVERHEAD BEAMS TO SUPPORT CHEMICAL FEED PIPING.
  5. THE PUMP DISCHARGE LINES FOR THE SODIUM HYPOCHLORITE CHEMICAL FEED SYSTEM SHALL BE EQUIPPED WITH TWO (2) BACK PRESSURE VALVES IN SERIES.
  6. DAY TANK VENTS SHALL RUN VERTICAL FROM THE DAY TANK, TO JUST BELOW THE CEILING, AND THEN HORIZONTAL THROUGH THE BUILDING EXTERIOR WALL. THE DAY TANK VENT WALL PENETRATION DETAIL IS SHOWN ON SHEET M-4.
  7. STRAINERS SHALL BE INSTALLED A MINIMUM 4" ABOVE THE FINISHED FLOOR.

**M-2**  
SHEET 11 OF 23

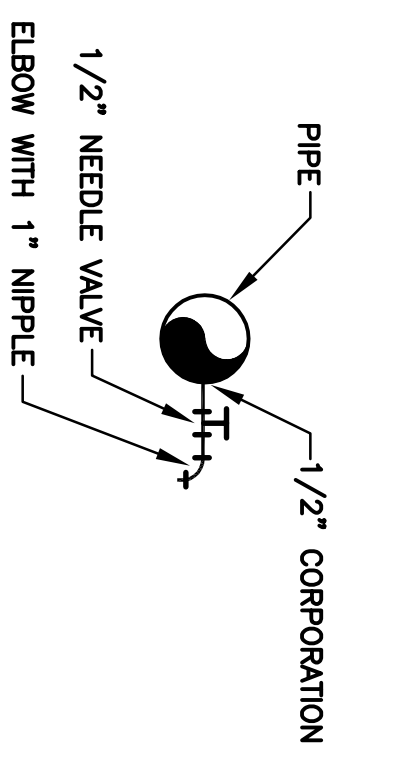
CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS							
GREENLAND WELL PUMP STATION REPLACEMENT							
CHEMICAL FEED SCHEMATICS							
FILE NO.	CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR.BY	DSM.BY	CHK.BY
215-51	-	NOTED		2140738	KMC	KMC	RAS
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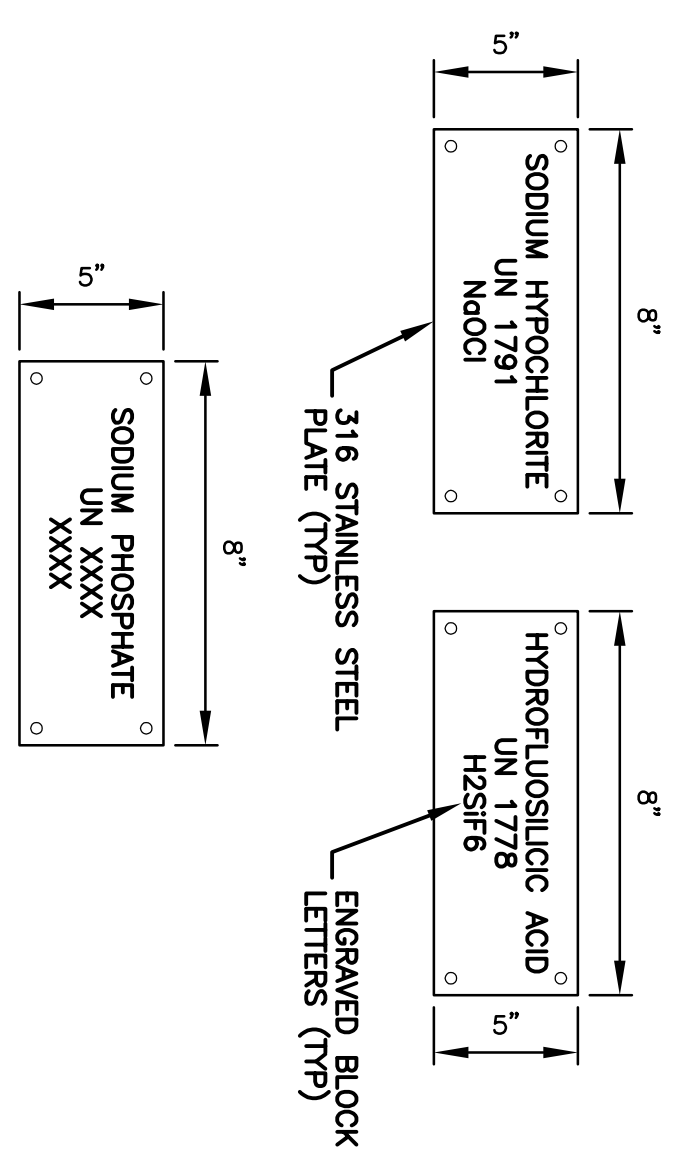
No.	Date	Dr.By	Ck.By	App.By	Description
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					D

REGISTERED PROFESSIONAL ENGINEER  
DATE: AUGUST 29, 2016

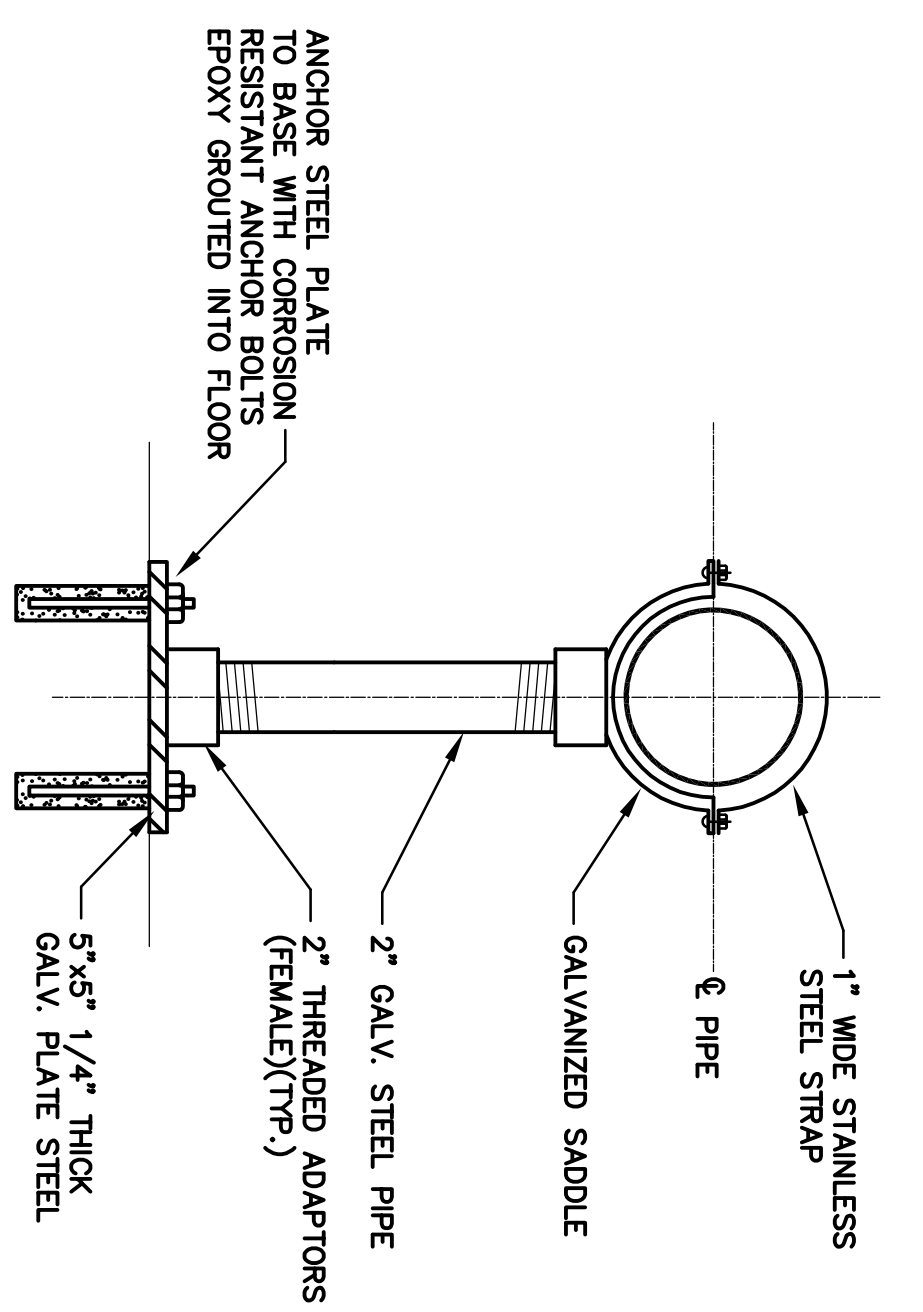
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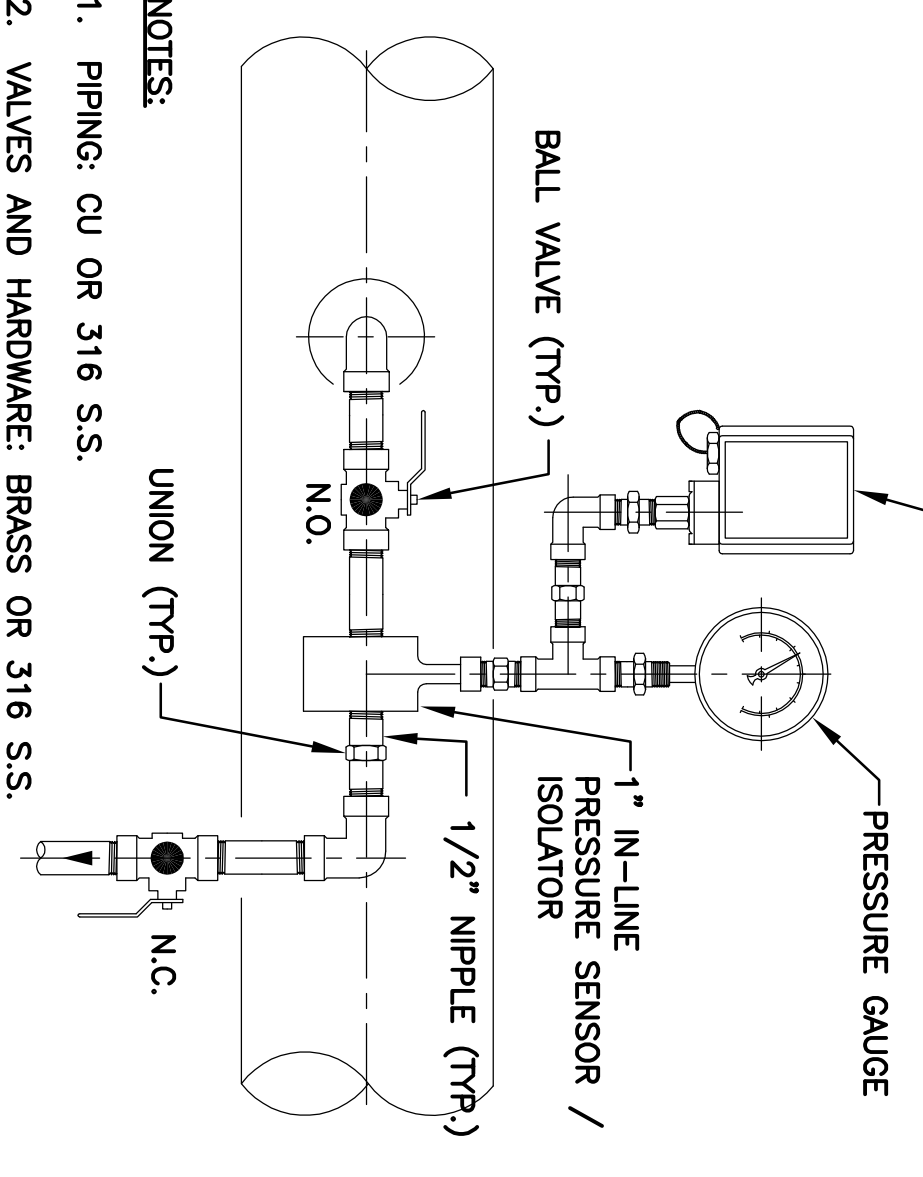
**SMOOTH SAMPLE TAP DETAIL**  
N.T.S.



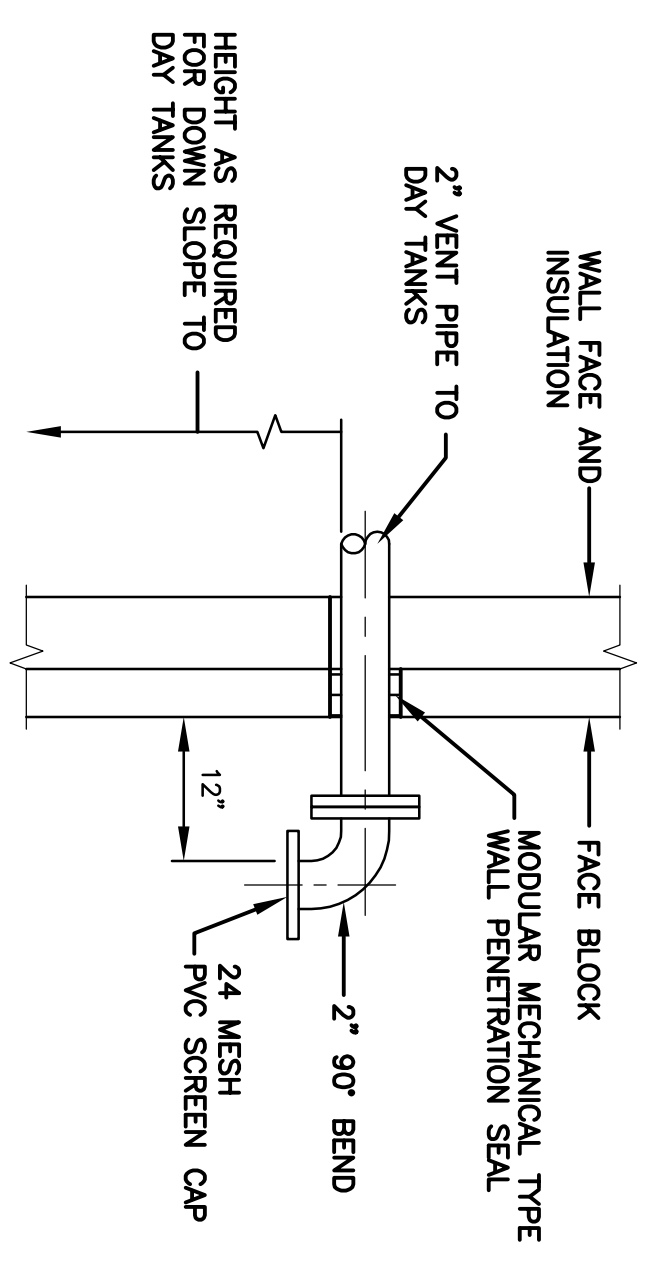
**NOTE:**  
SCREW TO MASONRY WALL, ON INTERIOR OF CABINET AND ON THE FRONT OF THE FILL CABINET DOOR USING 316SS SCREWS.  
**FILL PIPE EXTERIOR I.D. LABELS**  
(TWO REQUIRED FOR EACH BULK TANK FILL PIPE)  
N.T.S.



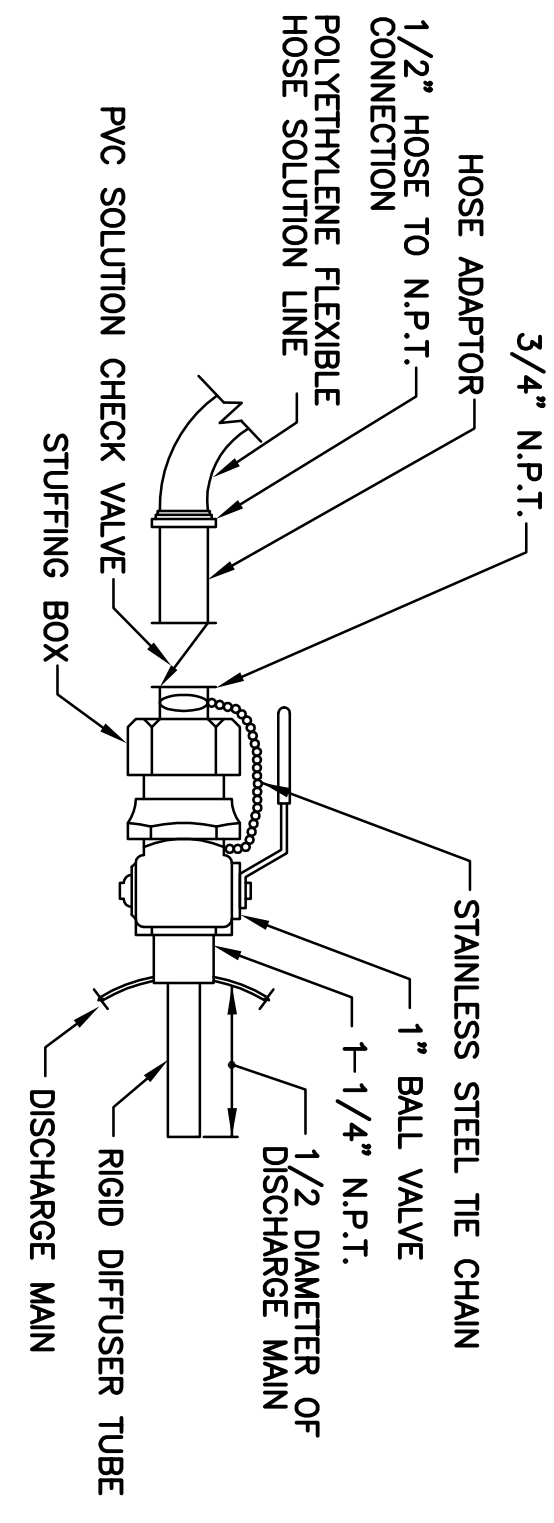
**ADJUSTABLE STEEL PIPE SUPPORT**  
N.T.S.



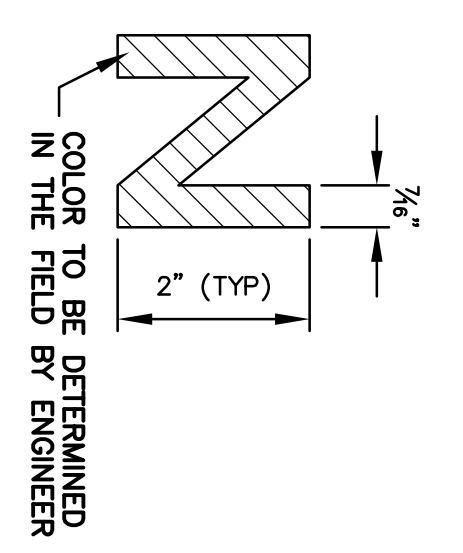
**NOTE:**  
1. PIPING: CU OR 316 S.S.  
2. VALVES AND HARDWARE: BRASS OR 316 S.S.  
**PRESSURE TRANSMITTER / GAUGE ASSEMBLY**  
N.T.S.



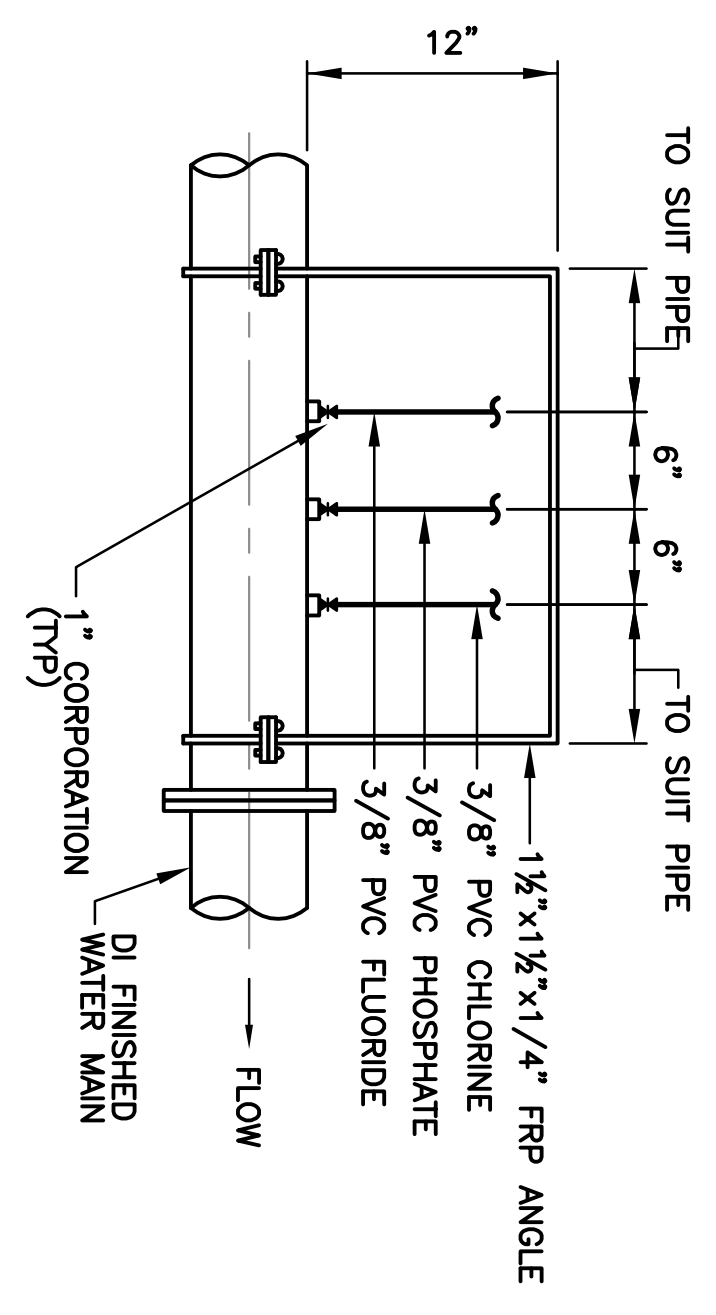
**TYPICAL CHEMICAL DAY TANK VENT WALL PENETRATION DETAIL**  
N.T.S.



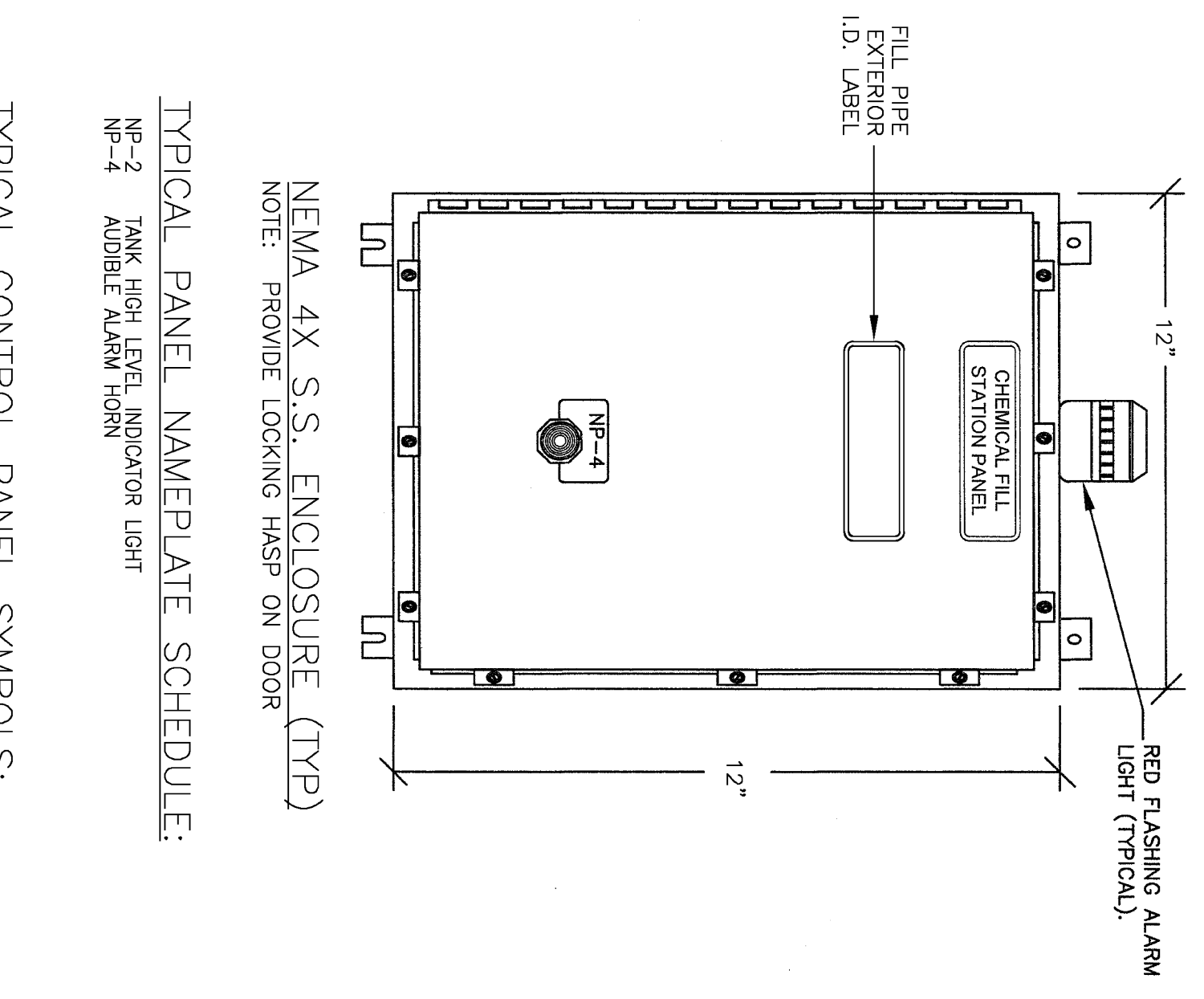
**NOTE:**  
1. LABEL CHEMICAL INJECTION PIPE WITHIN 3 FEET OF INJECTION POINT WITH COLOR PLASTIC TAG.  
**PIPE LINE DIFFUSER BALL VALVE TYPE**  
N.T.S.



**CHEMICAL TANK I.D. VINYL LETTERING DETAIL**  
N.T.S.

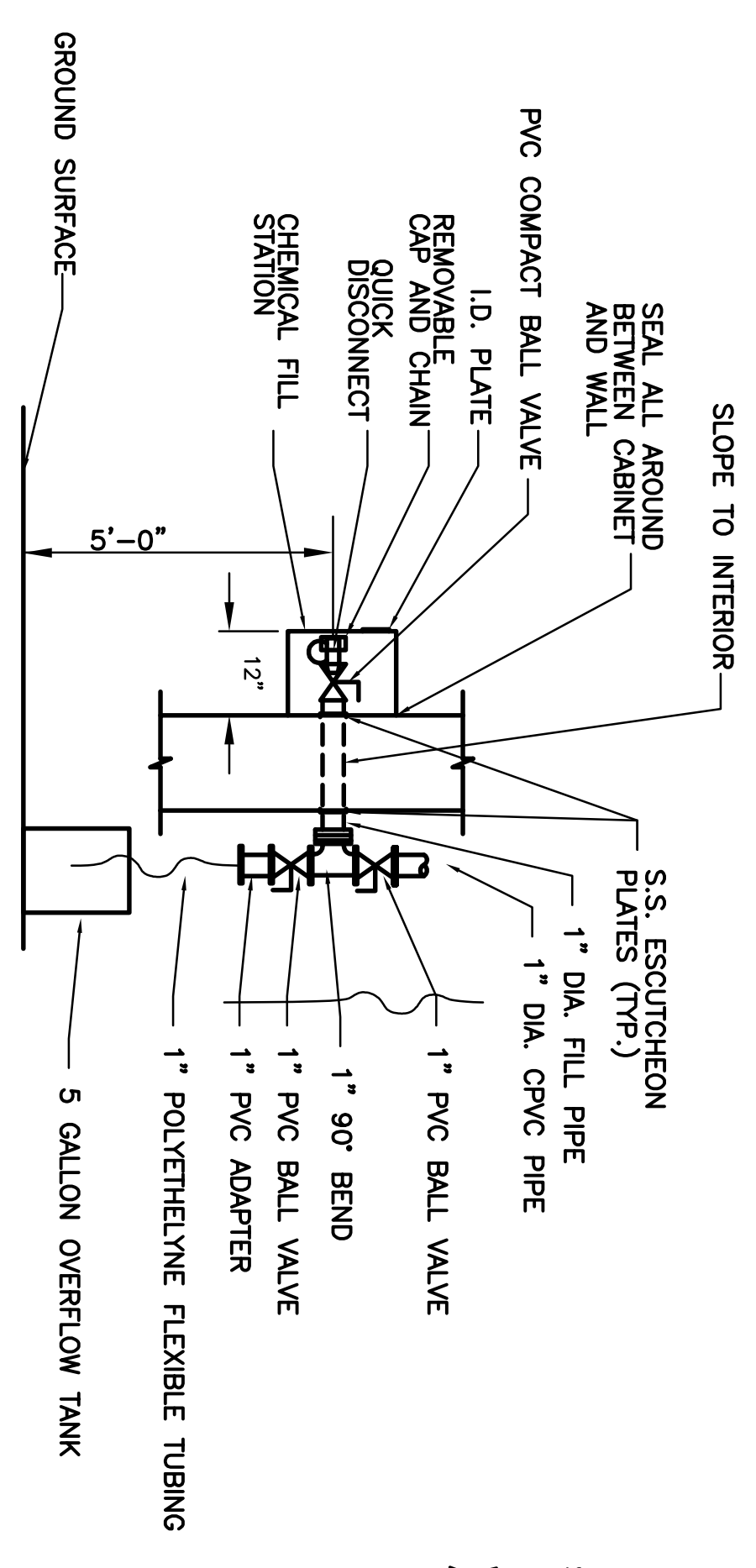


**NOTE:**  
1. NUMBER OF CHEMICAL INJECTION NOZZLES AS REQUIRED. CORPORATION GUARD DIMENSIONS TO SUIT THE NUMBER OF CHEMICAL INJECTION NOZZLES.  
2. FRP ANGLE STRUCTURE TO BE SIZED TO FIT THE PIPE AND IS TO BE MOUNTED TO PIPE USING PIPE CLAMPS.  
3. INSTALL 1/2" THICK GLUED PLEXIGLASS ENCLOSURE ON 4-SIDES AND TOP. PLEXIGLASS ENCLOSURE TO BE MOUNTED ON FRP ANGLE W/ S.S. SCREWS.  
**CHEMICAL FEED INJECTION NOZZLE GUARD DETAIL**  
N.T.S.

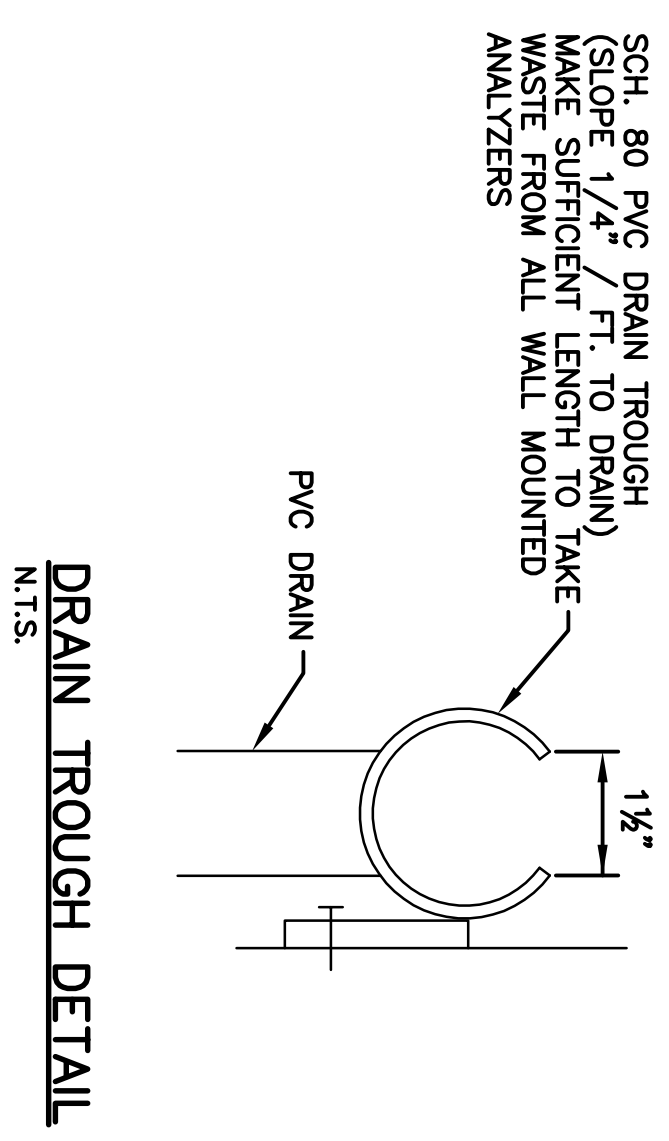


**NEMA 4X S.S. ENCLOSURE (TYP)**  
**NOTE:** PROVIDE LOCKING HASP ON DOOR  
**TYPICAL PANEL NAMEPLATE SCHEDULE:**  
NP-2 TANK HIGH LEVEL INDICATOR LIGHT  
NP-4 AUDIBLE ALARM HORN  
**TYPICAL CONTROL PANEL SYMBOLS:**

- INDICATING LIGHTS
  - AMBER
  - GREEN
  - RED
  - WHITE
  - YELLOW
  - SOMALERT
- CHEMICAL FILL STATION (TYP)**  
SCALE: NONE



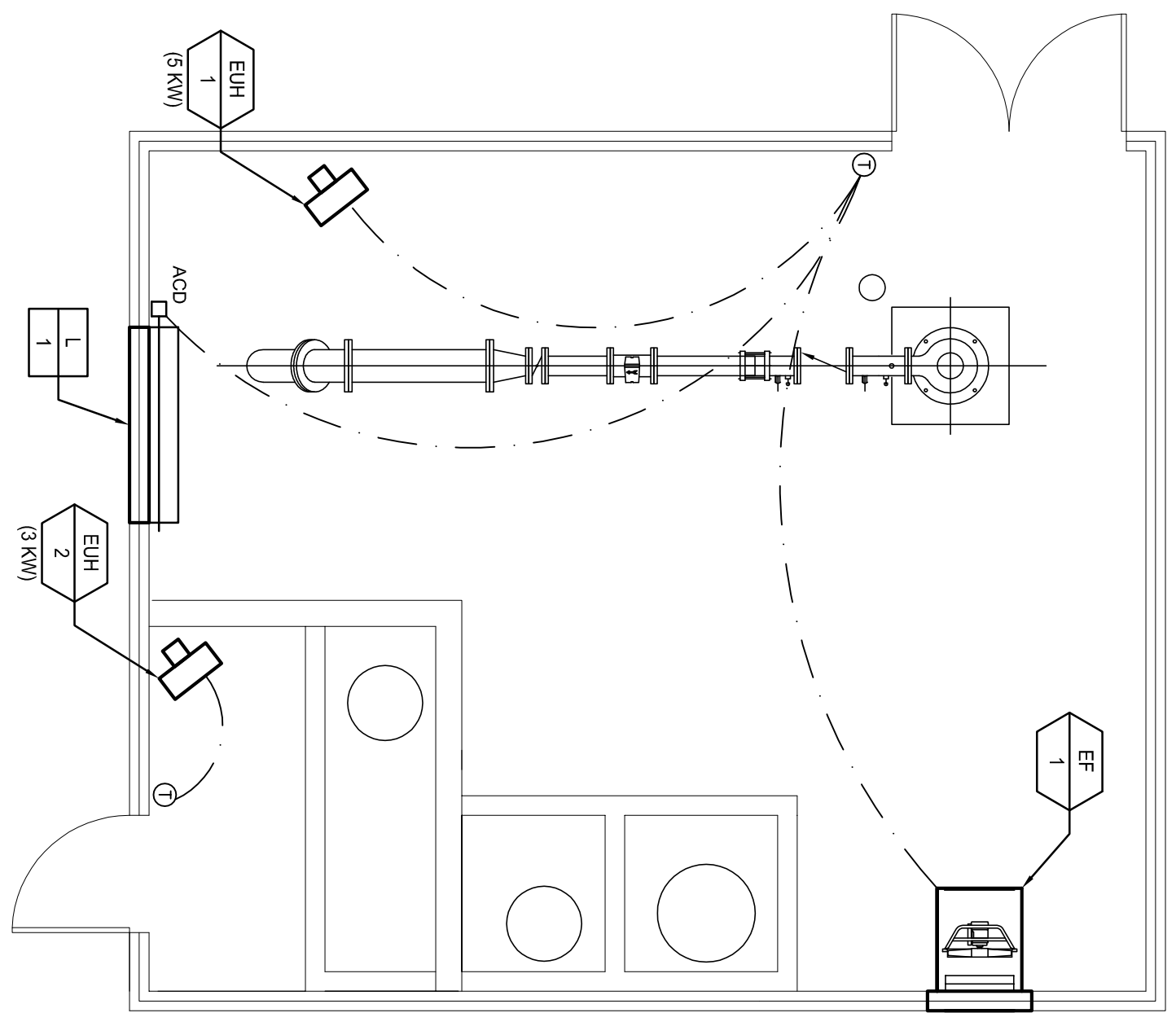
**NOTE:**  
1. ALL STAINLESS STEEL MATERIALS ARE 316 SERIES.  
2. MOUNTED FLUSH TO BUILDING WALL ELASTOMERIC SEAL CONTACT JOINTS.  
**CHEMICAL FILL STATION FILL LINE DETAIL**  
N.T.S.



**DRAIN THROUGH DETAIL**  
N.T.S.

**GENERAL NOTES:**  
1. PROVIDE UNIONS AND/OR FLEXIBLE CONNECTIONS AS SPECIFIED AT PUMPS, TANK CONNECTIONS, AND VALVES.  
2. REFER TO SPECIFICATIONS FOR SIZE AND DIMENSIONS OF TANKS, CHEMICAL FEED EQUIPMENT AND APPURTENANCES.  
3. CHEMICAL FEED PUMPS SHALL BE INSTALLED SUCH THAT VALVE ASSEMBLIES AND LIQUID ENDS ARE ACCESSIBLE AND REMOVABLE.  
4. PROVIDE UNI-STRUT SUPPORTS ON WALL TO SUPPORT CHEMICAL FEED PIPING.  
5. DAY TANK VENTS RUN VERTICAL FROM THE DAY TANK TO JUST BELOW THE CEILING, AND THEN HORIZONTALLY THROUGH THE BUILDING EXTERIOR WALL. THE DAY TANK VENT WALL PENETRATION DETAIL IS SHOWN ON THIS SHEET.  
6. STRAINERS SHALL BE INSTALLED A MINIMUM 4" ABOVE THE FINISHED FLOOR.  
7. CONTRACTOR SHALL INSTALL LINK-SEALS ON ALL WALL PENETRATIONS.





**GREENLAND PUMP STATION HEATING AND VENTILATING CONTROLS**

1. ALL HVAC CONTROLS SHALL BE VIA A SINGLE LOW VOLTAGE THERMOSTAT. THERMOSTAT SHALL NOT ALLOW SIMULTANEOUS HEATING AND VENTILATING WHEN UNOCCUPIED.
2. UNOCCUPIED SETPOINTS (ADJUSTABLE):
  - a. HEATING = 45F
  - b. COOLING (VENTILATING) = 85F
3. OCCUPIED SETPOINTS (ADJUSTABLE):
  - a. HEATING = 55F
  - b. COOLING (VENTILATING) = 75F
4. WHEN SPACE TEMPERATURE, AS MEASURED BY THE SINGLE THERMOSTAT, DROPS BELOW SPACE TEMPERATURE SETPOINT, PUH-1 AND EUH-1 SHALL BE ENERGIZED AND CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. IF SPACE TEMPERATURE RISES 2F (ADJUSTABLE) ABOVE THE HEATING SETPOINT, EUH-1 SHALL BE DEREGULATED.
5. WHEN SPACE TEMPERATURE, AS MEASURED BY THE SINGLE THERMOSTAT, RISES ABOVE SETPOINT, EF-1 SHALL BE ENERGIZED, THE INTAKE SCOPER DAMPER SHALL BE OPENED AND THE FAN SHALL OPERATE UNTIL SPACE TEMPERATURE SETPOINT DROPS 2F (ADJUSTABLE) BELOW SETPOINT.
6. OCCUPIED SETPOINTS AND OPERATION SHALL BE INITIATED MANUALLY VIA 4-HOUR MANUAL MECHANICAL WIND DOWN TIMER. WHEN IN SETPOINT TIMER HAS COUNTED DOWN, THE VENTILATION FAN SHALL BE CAPABLE OF MANUAL BYPASS OPERATION. WHEN THE OCCUPIED SETPOINT TIMER HAS COUNTED DOWN, THE SPACE CONTROL SHALL REVERT TO UNOCCUPIED OPERATION AND EF-1 SHALL NO LONGER BE CAPABLE OF MANUAL OVERRIDE OPERATION.

**LEGEND**

- (T) THERMOSTAT (TEMPERATURE SENSOR)
- (F) MOTORIZED EQUIPMENT (E.G. BI UPPER - EQUIPMENT DESIGNATION LOWER - EQUIPMENT NUMBER)
- (L) NON-INSULATED EQUIPMENT (E.G. AS, CV)
- (E) UPPER - EQUIPMENT DESIGNATION LOWER - EQUIPMENT NUMBER
- (A) AUTOMATIC CONTROL DAMPER
- (B) ABOVE FINISHED FLOOR
- (C) AUTOMATIC TEMPERATURE CONTROL
- (D) BRAKE HORSEPOWER
- (E) CUBIC FEET PER MINUTE
- (G) ENTERING AIR TEMPERATURE
- (H) FULL LOAD AIR FLOW
- (I) FULL LOAD AIR FLOW
- (J) FULL LOAD AIR FLOW
- (K) FULL LOAD AIR FLOW
- (L) FULL LOAD AIR FLOW
- (M) FULL LOAD AIR FLOW
- (N) FULL LOAD AIR FLOW
- (O) FULL LOAD AIR FLOW
- (P) FULL LOAD AIR FLOW
- (Q) FULL LOAD AIR FLOW
- (R) FULL LOAD AIR FLOW
- (S) FULL LOAD AIR FLOW
- (T) FULL LOAD AIR FLOW
- (U) FULL LOAD AIR FLOW
- (V) FULL LOAD AIR FLOW
- (W) FULL LOAD AIR FLOW
- (X) FULL LOAD AIR FLOW
- (Y) FULL LOAD AIR FLOW
- (Z) FULL LOAD AIR FLOW

**ELECTRIC UNIT HEATER SCHEDULE**

TAG	LOCATION	TYPE	INPUT (KW)	OUTPUT (MBH)	AIR		MOTOR		ELECTRIC DATA			MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS	
					CFM	DELTA T (F)	RPM	HP	V	PH	HZ			AMPS
EUH-1	PUMP STATION	ELECTRIC	5	17	350	45	-	1/100	480	3	60	6	QMARK - MUH03-41	1 & 2
EUH-2	PUMP STATION	ELECTRIC	3	10.2	350	27	-	1/100	480	3	60	3.6	QMARK - MUH03-41	1 & 2

NOTES:  
 1. PROVIDE WITH LOW VOLTAGE CONTROL AND WALL MOUNTING BRACKET.  
 2. PROVIDED WITH PRECAST BUILDING.

**FAN SCHEDULE**

TAG	LOCATION SERVED	LOCATION	CFM	FAN TYPE	ESP (IN.WG)	MOTOR		ELECTRIC DATA			MANUFACTURER AND MODEL NUMBER (AS STANDARD)	REMARKS	
						RPM	BHP	HP	V	PH			HZ
EF-1	PUMP STATION	WALL	6,500	DIRECT DRIVE	625	1750	1.15	1-1/2	480	3	60	GREENHECK SCE3-24-415-415	1, 2 & 3

NOTES:  
 1. PROVIDE FAN WITH GRANTY OPERATED DAMPER (MD-320) AND ALUMINUM BRD SCREEN.  
 2. PROVIDE SHORT WALL HOUSING (GLUSH EXTERIOR), MOTOR STARTER, OSHA GUARD, PREMIUM EFFICIENT MOTOR, PERMATECTOR.  
 3. PROVIDED WITH PRECAST BUILDING.

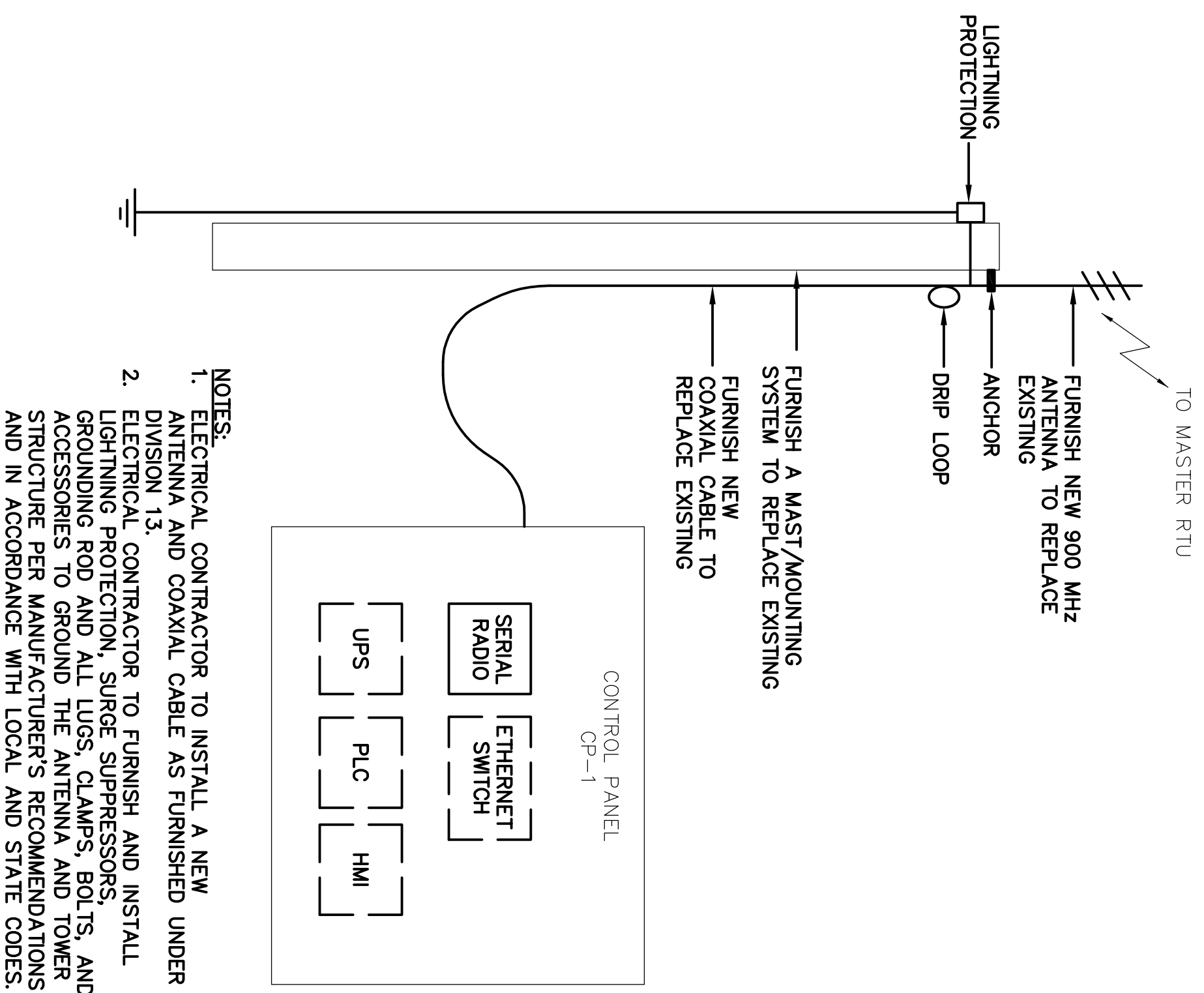
**LOUVER SCHEDULE**

TAG	LOCATION	DIMENSIONS	FREE AREA	DUTY	MANUFACTURER AND MODEL NUMBER (AS STANDARD)	ACCESSORIES/OPTIONS	REMARKS
L-1	PUMP STATION	50" x 50" x 6"D	14.36 SQ/FT	INTAKE	GREENHECK ECD-601	SEE BELOW	1, 2, 3 & 4

NOTES:  
 1. PROVIDE WITH 120 VAC ACTUATOR (MODEL MS4120F)  
 2. PROVIDE LOCAL MANUAL-AUTO SWITCH  
 3. PROVIDE WITH 120 VAC ACTUATOR (MODEL MS4120F)  
 4. PROVIDE INSULATED MOTORIZED DAMPER AND BRD SCREEN.

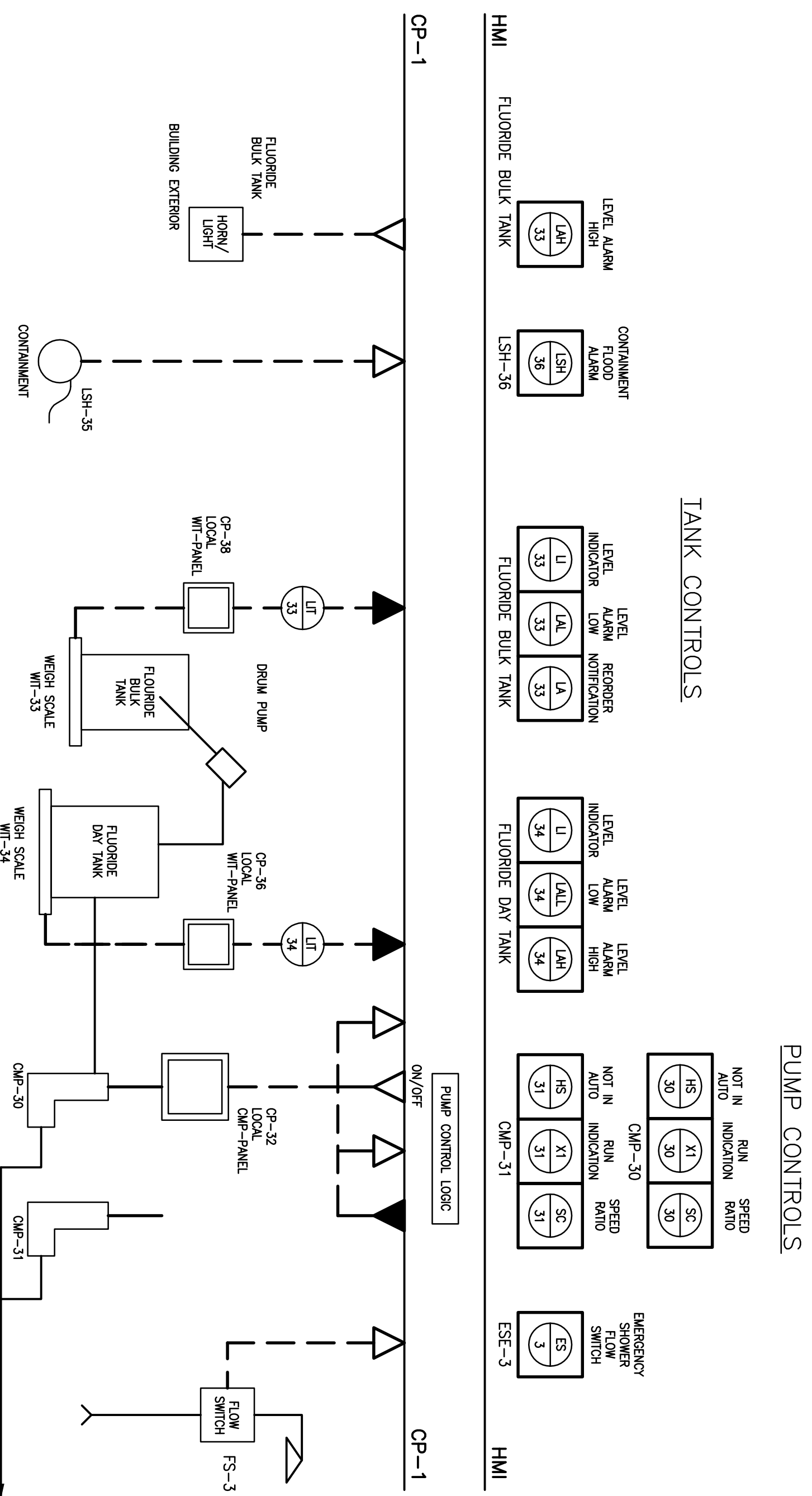
CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS <b>GREENLAND WELL PUMP STATION REPLACEMENT</b> <b>HVAC FLOOR PLAN</b>											No. _____ Date _____ Dr. By _____ Ck. By _____ App. By _____ Description A P P O V E D	WESTON & SAMPSON Five Centennial Drive, Peabody, MA 01960 978.532.1900 800.SAMPSON www.westonandsampson.com
FILE NO. 215-48 CADD NO. _____ SCALE: NOTED CONTRACT: _____ JOB NO. 2140738 DR. BY KP DSN. BY KP CHK. BY RAS APP. BY LES	REGISTERED PROFESSIONAL ENGINEER LEAH STATA AUGUST 29, 2016 DATE											

FIRST-LETTER		INSTRUMENTATION IDENTIFICATION LETTERS		SUCCEEDING-LETTERS	
SYMBOL	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	-	ALARM	-	-
B	BURNER, COMBUSTION	-	-	CONTROL	-
C	-	-	-	-	-
D	VOLTAGE	-	-	-	-
E	FLOW RATE	-	SENSOR (PRIMARY ELEMENT)	-	-
F	FLOW RATE	-	RATIO (FRACTION)	-	-
G	-	-	GLASS, VIEWING DEVICE	-	-
H	HAND	-	INDICATE	-	HIGH
I	CURRENT (ELECTRICAL)	-	-	CONTROL STATION	-
J	POWER	-	SCAN	-	-
K	TIME, TIME SCHEDULE	-	TIME RATE OF CHANGE	-	-
L	LEVEL	-	MOMENTARY	-	LOW
M	-	-	-	-	MIDDLE, INTERMEDIATE
N	-	-	-	-	-
O	PRESSURE, VACUUM	-	ORIFICE, RESTRICTION	-	-
P	QUANTITY	-	POINT (TEST) CONNECTION	-	-
Q	RADIATION	-	INTEGRATE, TOTALIZE	-	-
R	SPEED, FREQUENCY	-	RECORD	-	-
S	TEMPERATURE	-	SAFETY	SWITCH	-
T	MULTIVARIABLE	-	-	TRANSMIT	-
U	VELOCITY, MECHANICAL ANALYSIS	-	-	MULTIFUNCTION VALVE, DAMPER, LOUVER	-
V	WEIGHT, FORCE	-	-	-	MULTIFUNCTION
W	UNCLASSIFIED	-	WELL	-	-
X	EVENT, STATE OR PRESENCE	-	UNCLASSIFIED	-	UNCLASSIFIED
Y	AXIS	-	-	RELAY, COMPUTE, CONVERT DRIVER, ACTUATOR, UNCLASSIFIED	-
Z	POSITION, DIMENSION	-	-	FINAL CONTROL ELEMENT	-



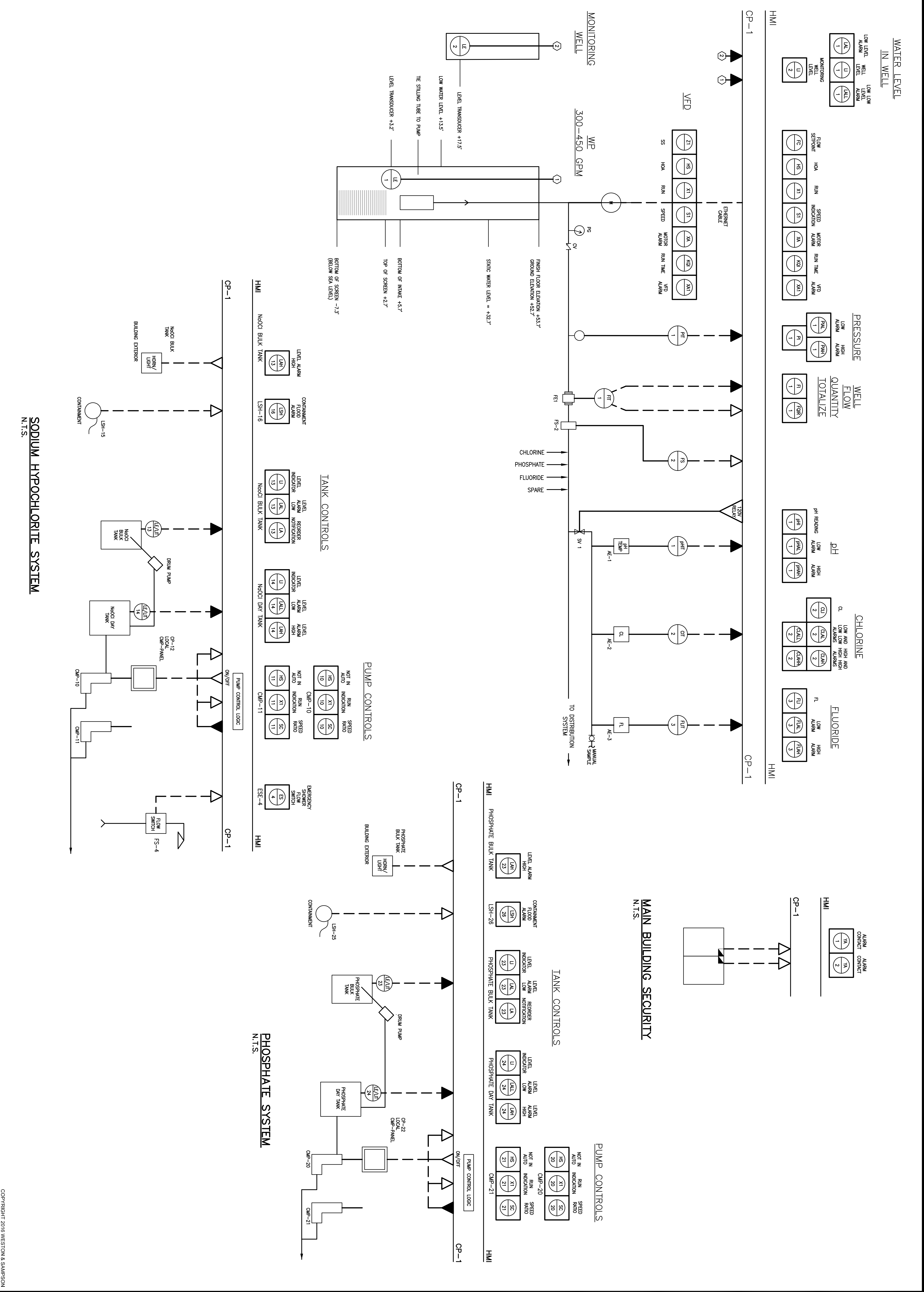
CONTROL PANEL AND ANTENNA

- NOTES:**
- TAG ID NUMBERS AND EQUIPMENT TAG ID NUMBERS SHALL BE PROVIDED ON ACTUAL INSTRUMENTS AND EQUIPMENT.
  - ANALOG SIGNALS ARE 4-20 MA DC UNLESS OTHERWISE NOTED.
  - ALL PROCESS AND PROGRAMMABLE LOGIC CONTROL FUNCTIONS ARE DETAILED IN THE SPECIFICATION SECTION 13310, 13320, 13430, 13440 AND 13450. THE FOLLOWING SHEETS SCHEMATICALLY REPRESENT INSTRUMENTATION AND CONTROL.
  - ALL PROCESS CONTROL FUNCTIONS AND DISPLAYS TO BE PROVIDED AT THE COMPUTER CONTROL SYSTEM SHALL BE PROVIDED BY THE CONTROL SYSTEM PROVIDER AS SPECIFIED IN DIVISION 13.
  - PROVIDE COMPLETE SYSTEM INTEGRATION FOR NEW INSTRUMENTATION SYSTEMS.
  - DEVICES MAY BE SUFFIXED "H" OR "L" TO DESIGNATE HIGH OR LOW ACTIVATION, AND "HH" OR "LL" TO DESIGNATE HIGH-HIGH OR LOW-LOW ACTIVATION.
  - SEE PROCESS SHEETS FOR INSTRUMENT AND EQUIPMENT LOCATIONS AND ADDITIONAL INSTALLATION DETAILS.
  - INSTALL RADIO TELEMETRY AS DESCRIBED IN SPECIFICATION SECTION 13460.
  - SOLENOID VALVES ARE 120V AND REQUIRE A RELAY SWITCH UNLESS OTHERWISE NOTED.
  - ALL WELL LEVEL TRANSDUCERS SHALL BE INSTALLED IN AN APPROPRIATELY SIZED STILLING TUBE. A SECOND PORT WITH STILLING TUBE SHALL BE AVAILABLE FOR MANUAL WATER LEVEL MEASUREMENTS.
  - DOOR CONTACTS SHALL BE PROVIDED AND WIRED TO THE MAIN CONTROL PANEL (CP-1) FOR SECURITY CALL OUT. SEE SPECIFICATIONS FOR PROGRAMMING REQUIREMENTS.
  - ELECTRICAL CONTRACTOR TO INSTALL CONDUITS UNDER FLOOR SLAB WHERE FEASIBLE FOR ALL INSTRUMENTATION.



FLUORIDE SYSTEM  
N.T.S.

	CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS			No.    Date    Dr. By    Ck. By    App. By    Description						
	GREENLAND WELL PUMP STATION REPLACEMENT			A    P    P    R    O    V    E    D						
SHEET 15 OF 23	FILE NO. 215-47	CADD NO.	SCALE: NOTED	CONTRACT:	JOB NO. 2140738	DR. BY RAS	DSM. BY RAS	CHK. BY LES	APP. BY LES	REGISTERED PROFESSIONAL ENGINEER DATE: AUGUST 29, 2016



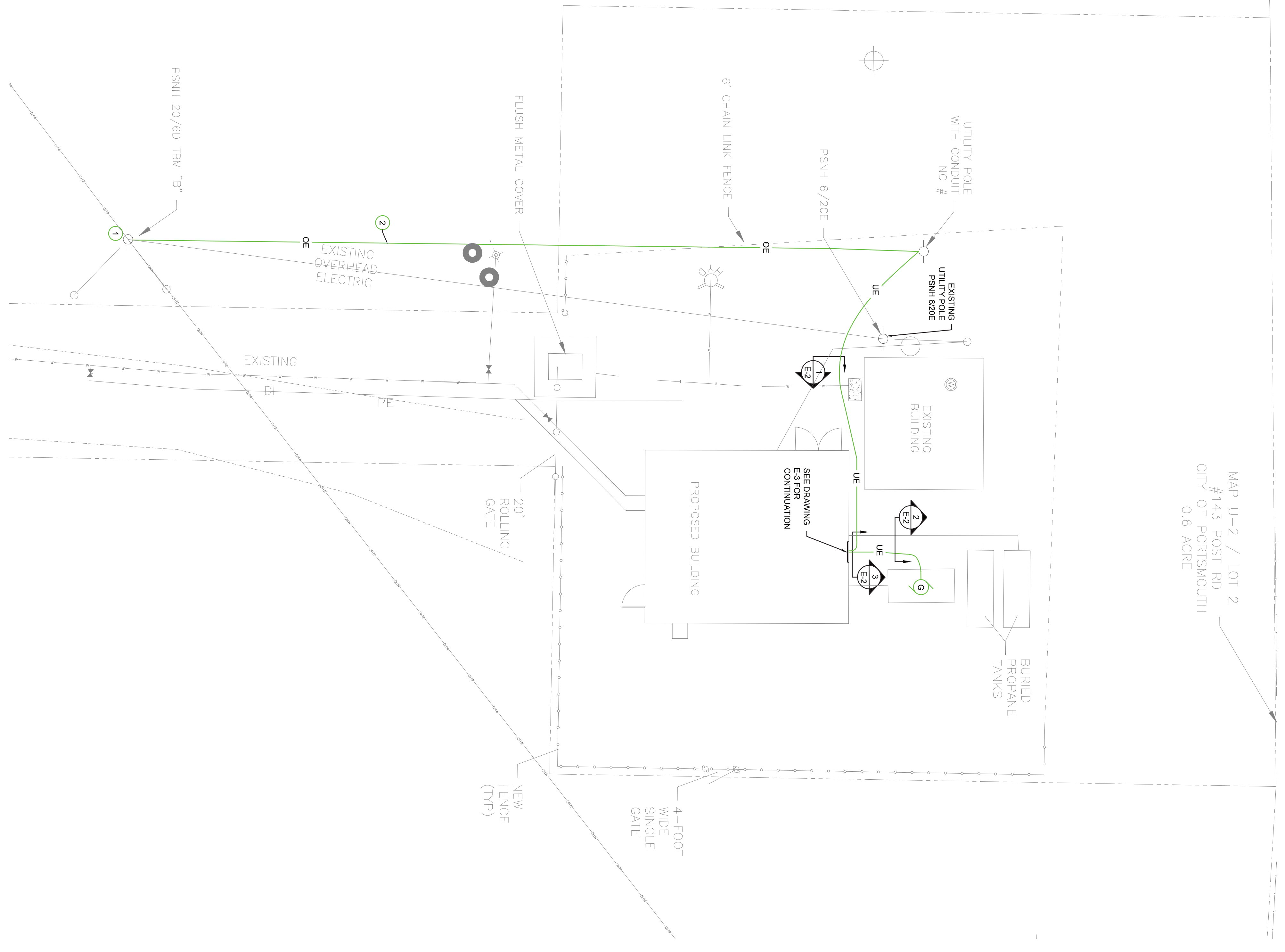
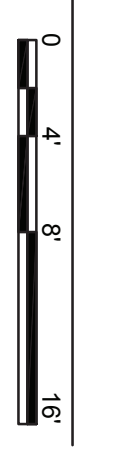
CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS GREENLAND WELL PUMP STATION REPLACEMENT <b>INSTRUMENTATION DIAGRAM</b>									
	FILE NO. 215-46	CADD NO.	SCALE: NOTED	CONTRACT:	JOB NO. 2140738	DR. BY RAS	DSM. BY RAS	CHK. BY LES	APP. BY LES
					No.    Date    Dr. By    Ck. By    App. By    Description A    P    P    O    V    E    D _____ REGISTERED PROFESSIONAL ENGINEER				
SHEET 16 OF 23					AUGUST 29, 2016 DATE				



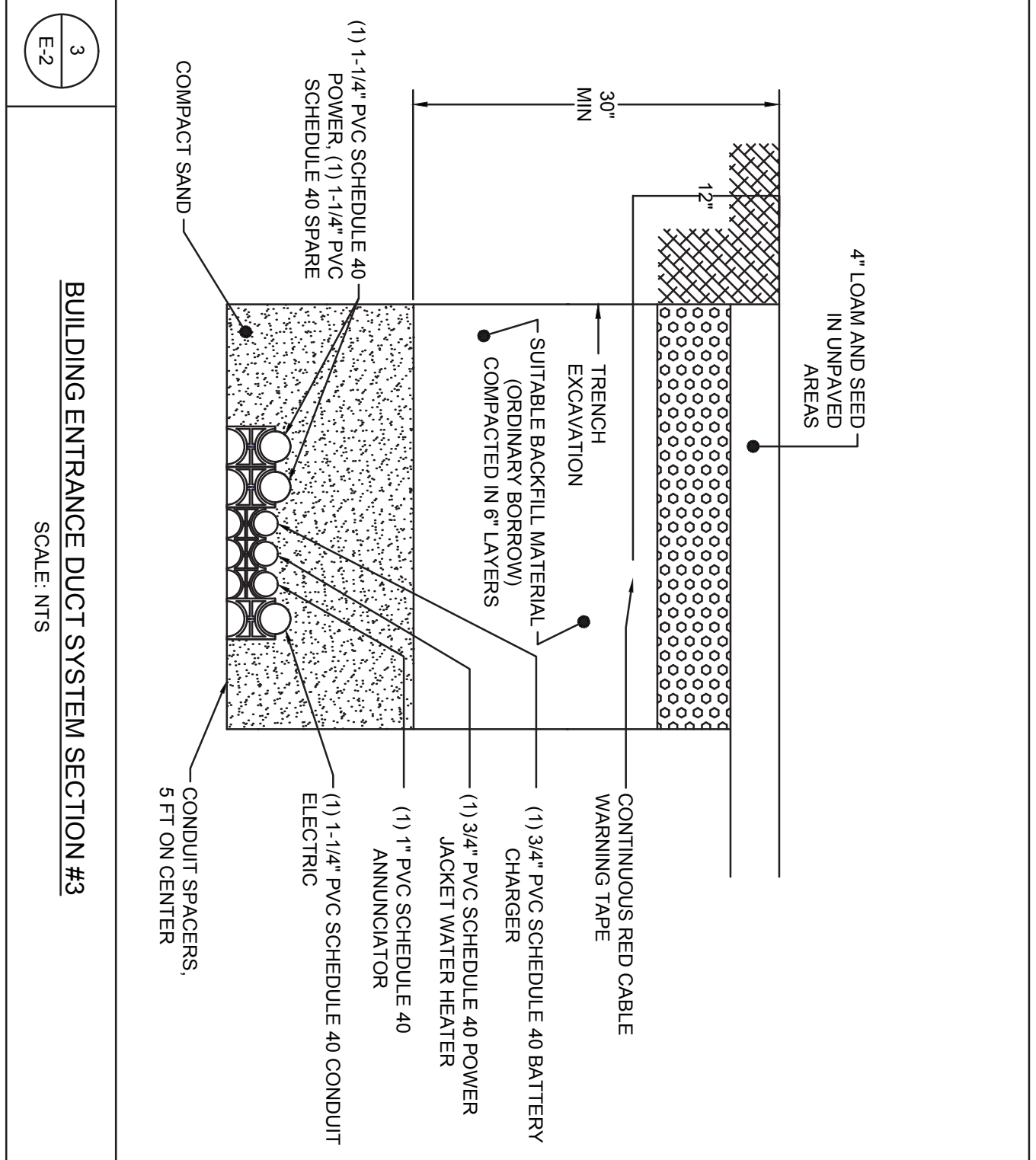
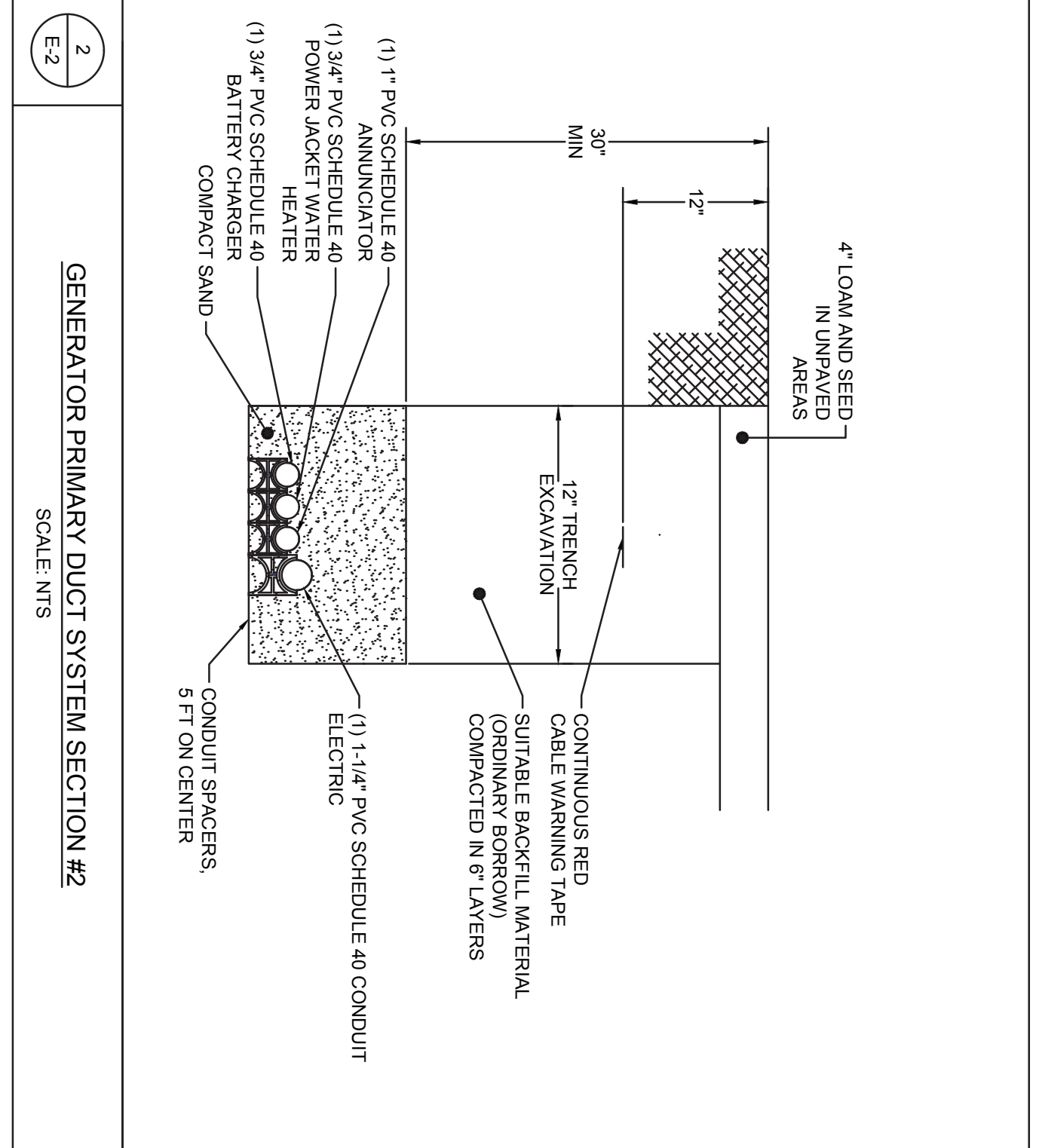
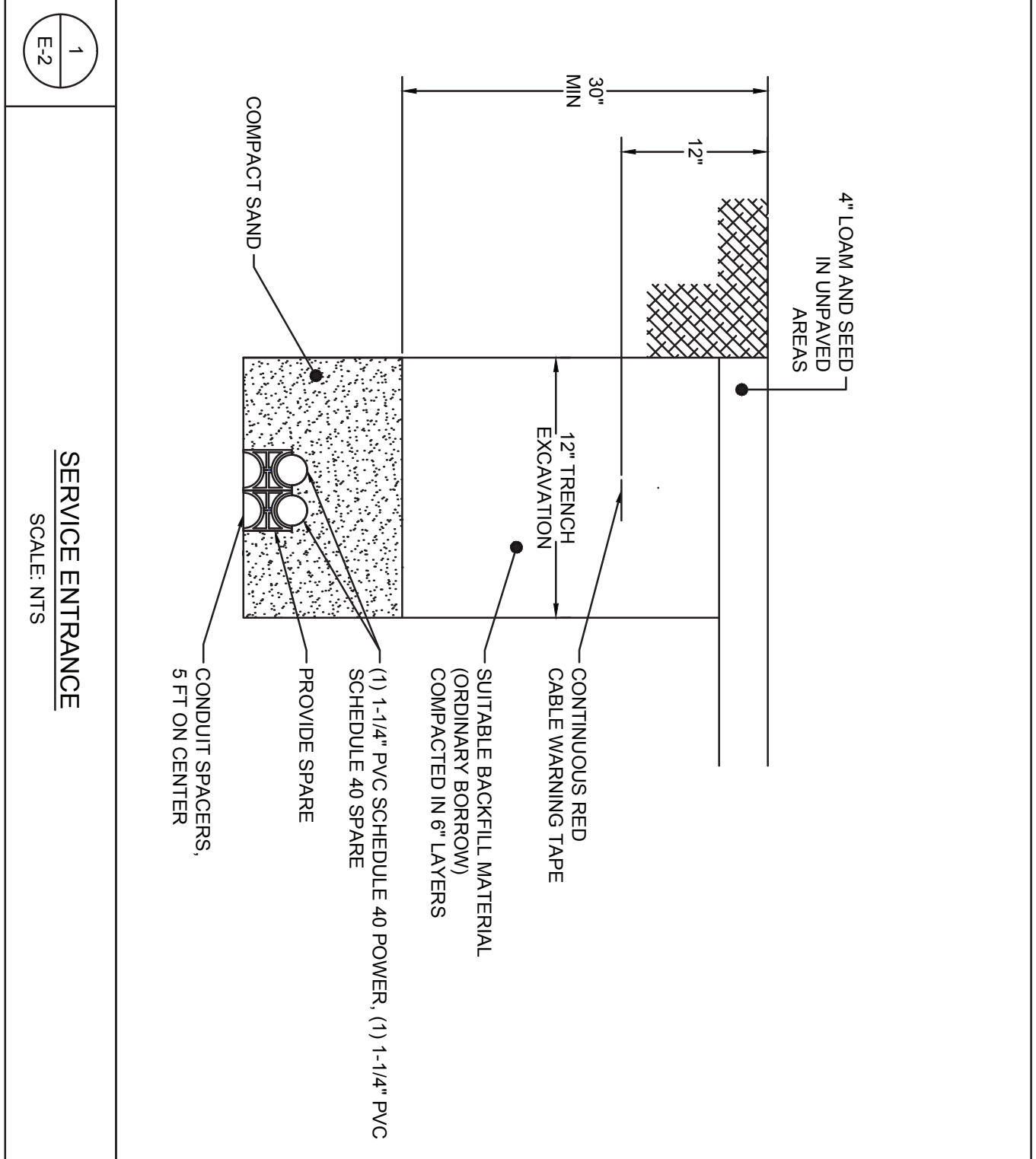




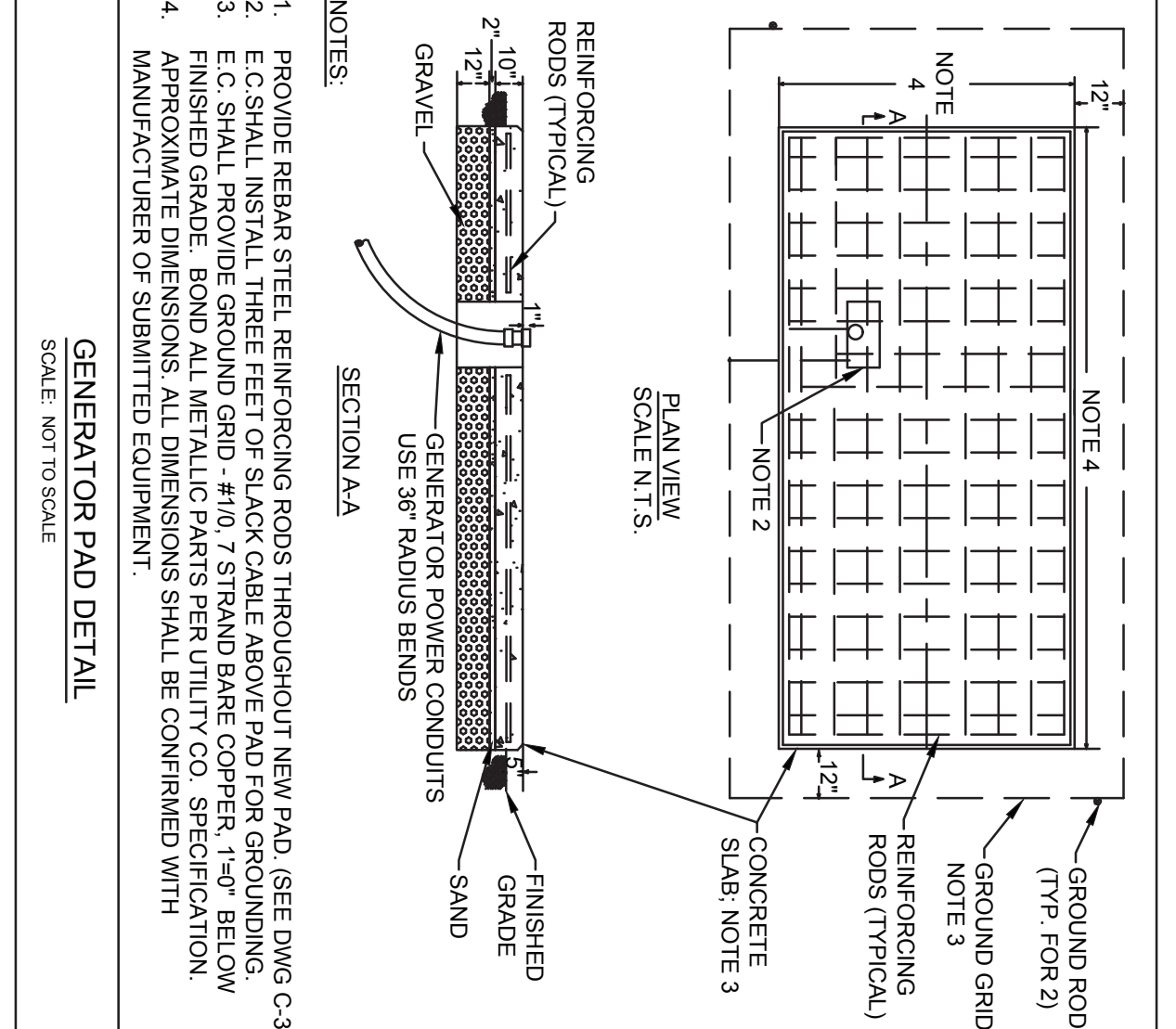
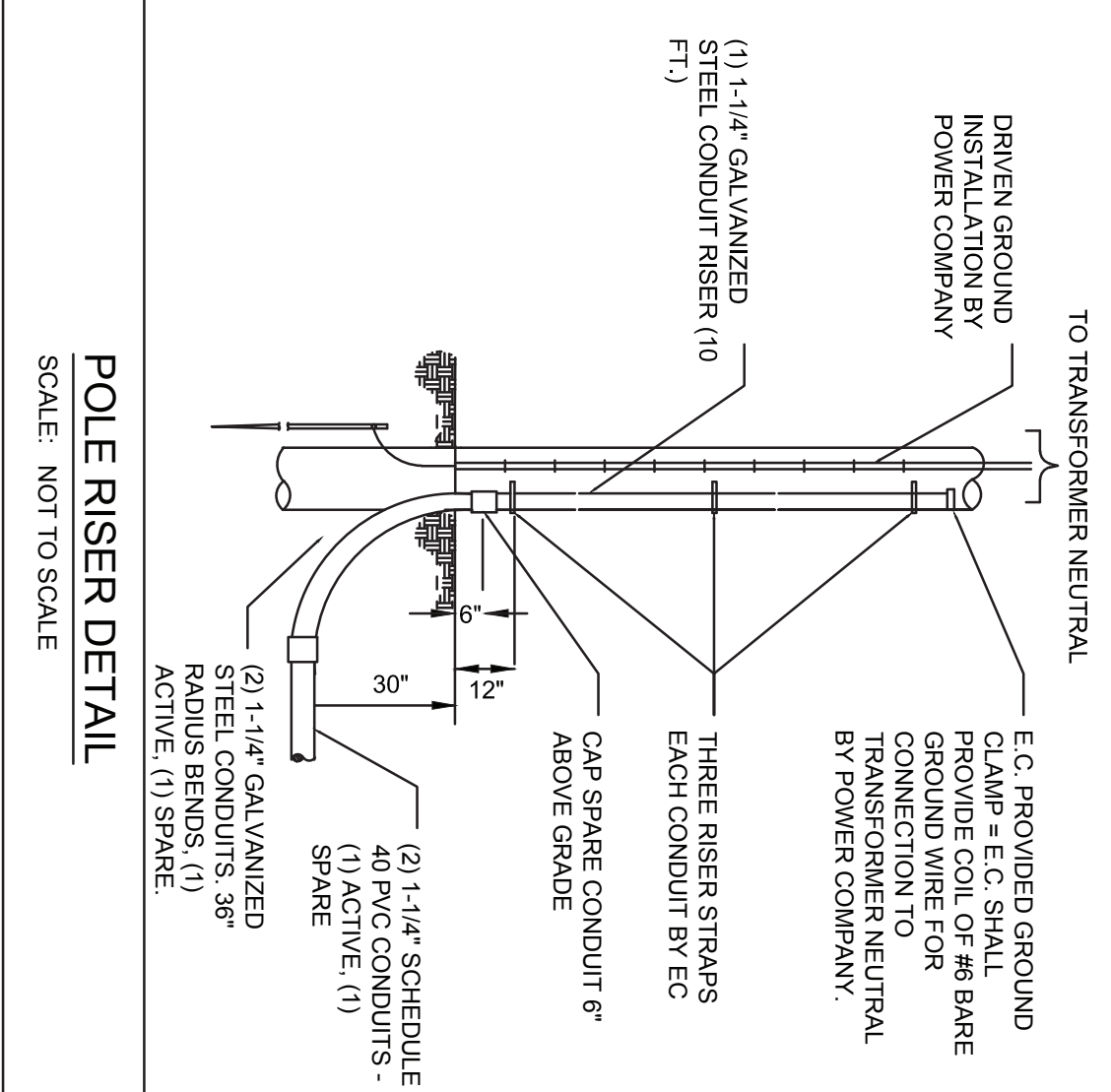
**SITE PLAN**  
SCALE: 1/8"=1'-0"



MAP U-2 / LOT 2  
#143 POST RD  
CITY OF PORTSMOUTH  
0.6 ACRE



- GENERAL NOTES**
- REFER TO DRAWING E-1 FOR LEGENDS, ABBREVIATIONS & GENERAL NOTES.
  - EXISTING UTILITY POLE E-C TO COORDINATE WITH POWER COMPANY TO REMOVE EXISTING TRANSFORMERS & INSTALLATION OF NEW 480V POLE MOUNTED TRANSFORMERS.
  - EC TO COORDINATE NEW UTILITY COMPANY OVERHEAD ELECTRICAL SECONDARY FEEDERS FROM POLE PSNH 20/60D TBM 'B' TO DESIGNATED UTILITY POLE SHOWN ON DWG IF REQUIRED.



- NOTES:**
- PROVIDE REBAR STEEL REINFORCING RODS THROUGHOUT NEW PAD. (SEE DWG C-3)
  - E.C. SHALL INSTALL THREE FEET OF SLACK CABLE ABOVE PAD FOR GROUNDING.
  - E.C. SHALL PROVIDE GROUND GRID - #10, 7 STRAND BARE COPPER, 1'-0" BELOW FINISHED GRADE. BOND ALL METALLIC PARTS PER UTILITY CO. SPECIFICATION.
  - APPROPRIATE DIMENSIONS AND DIMENSIONS SHALL BE CONFIRMED WITH MANUFACTURER OF SUBMITTED EQUIPMENT.

No.	Date	Dr. By	Ck. By	App. By	Description
12/03/15	DH	JO	CM		PERMIT SET
		A	P	P	R
		A	P	P	R

**Weston & Sampson**  
Five Centennial Drive, Peabody, MA 01960  
(978) 532-1900 (800) SAMPSON  
www.westonandsampson.com

CITY OF PORTSMOUTH, NEW HAMPSHIRE WATER / SEWER DIVISION		GREENLAND WELL REPLACEMENT		SITE PLAN & DETAILS	
FILE NO.	CADD NO.	SCALE:	CONTRACT:	JOB NO.	DR. BY
		AS NOTED		2015-139	DH
					CM









