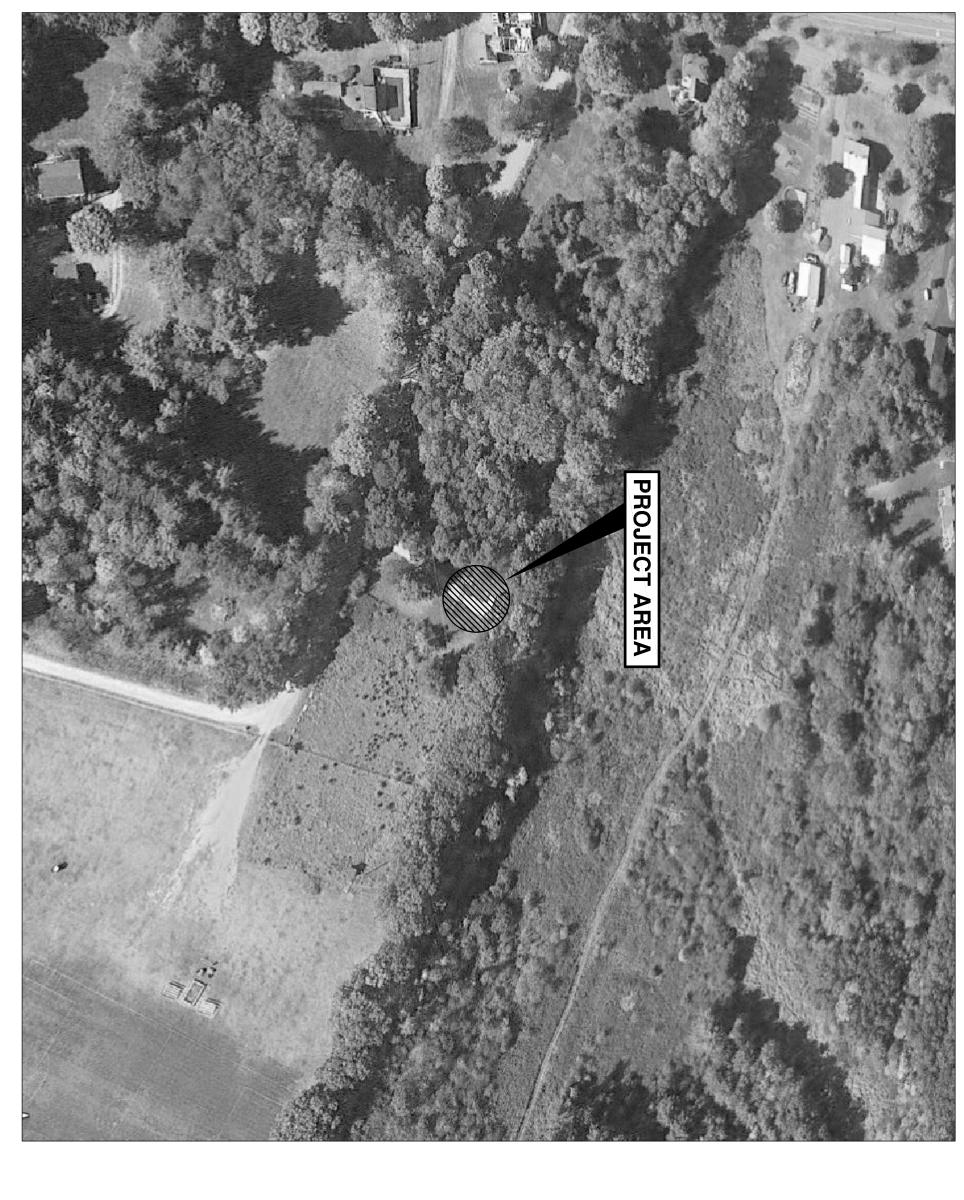
E-5

**SPECIFICATIONS** 

SPECIFICATIONS



#### OCATION PLAN

S <u>-1</u>	A-2	A-1	C-3	C-2	C-1	G-1	SHEET NO.	DRAWING INDEX
GENERAL NOTES AND TYPICAL DETAILS	BUILDING DIMENSIONS	BUILDING ELEVATIONS	CONSTRUCTION DETAILS	PROPOSED SITE PLAN	EXISTING SITE PLAN	NOTES, ABBREVIATIONS AND LEGEND		

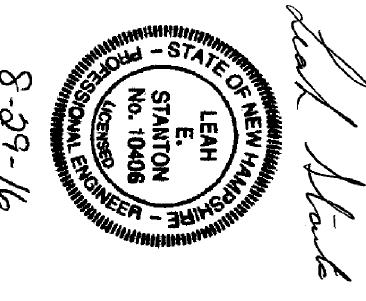
X X S - 2	PLANS AND SECTIONS  WELL STATION PLAN  CHEMICAL FEED SCHEMATICS
M-3	CHEMICAL FEED DETAILS I
<b>M-4</b>	CHEMICAL FEED DETAILS II
H-1	HVAC FLOOR PLAN
<u> </u>	INSTRUMENTATION DIAGRAM
I <b>-2</b>	INSTRUMENTATION DIAGRAM
E-1	LEGENDS, DETAILS, NOTES & ABBREVIATIONS
E-2	SITE PLAN & DETAILS
E-2.1	SITE LIGHTING FOOT CANDLE CALCULATION PLAN
E-3	LIGHTING & POWER, DATA & FIRE ALARM PLAN
E-4	ONE-LINE DIAGRAM & SCHEDULES

## SHIRE

# DEPARTMENTOF PUBLIC WORKS

### STATION REP GREENLAND MELL PUMP ACEMENT

TEMBI ER 2016







Five Centennial Drive, Peabody, Massachusetts 01960

-	#35	HOUSE NUMBER
	56	
×141.5	× 141.5	SPOT ELEVATIONS
		APPROX. LIMIT OF REFUSE
  -    -		LIMIT OF WORK
		EASEMENT LINE
	-  -  -  -  -  -  -	PROPERTY LINE
		SURVEY MARKER
~~~~		TREE LINE
*	*	INDIVIDUAL EVERGREEN TREE
٥	$\Box$	INDIVIDUAL DECIDUOUS TREE
 	×	FENCE
RET WALL	RET WALL	RETAINING WALL
000000000000000000000000000000000000000		STONE WALL
	+	RAILROAD
	5	SIDEWALK
	\$	CURB
1		EDGE OF UNPAVED ROAD
		EDGE OF PAVEMENT
	0 0 0	TRAFFIC SIGNAL
	ф	LIGHT POST
	÷	GUY POLE
•	∂ X	UTILITY POLE
]	୧ ]	CAP OR PLUG
•	Δ	
Xı	Xi	BALL VALVE
Z	Z	BUTTERFLY VALVE
*	<b>%</b>	CURB STOP
<u> </u>	<u> </u>	CHECK VALVE
x	<b>∑</b> ₹	GATE VALVE
<b></b>		TEMPORARY HYDRANT
<b>+</b>	Ä	
		CATCH BASIN (CURB INLET)
		CATCH BASIN
• 60	0 (	CLEANOUT
FMCO		FORCE MAIN CLEANIOLT MANHOLE
ADVIL :	0	
• TMH	® ®	TELECTRICAL MANHOLE
• VUMH	0	STORM DRAIN MANHOLE
• SMH	(M)	SANITARY SEWER MANHOLE
• GP	6	
		GAS BY OTHERS
		TELEPHONE
H H	  -  -	ELECTRIC
	G	GAS
— 18"D RCP —	D	STORM DRAIN
	W	TEMPORARY WATER
⊢li		FORCE MAIN
—8"S PVC —		SORCE MAIN
PROPOSED	EXISTING	DESCRIPTION
ーリリンフンファ	- !:!) <u>!</u> ::)	

LET, FOOT ATURAL GAS ALVANIZED RANITE CURB RANITE

SE CONNECTION ZONTAL PRESSURE

**HYDRANT** 

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CH WAY
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, ELECTRIC

GAS BY OTHERS		
GRINDER PUMP	©	•
SANITARY SEWER MANHOLE		• SDMH
ELECTRICAL MANHOLE	6	• EMH
TELEPHONE MANHOLE	(1)	
AIR RELEASE VALVE MANHOLE	0 0	FMCO
CLEANOUT	•	
CATCH BASIN		
CATCH BASIN (CURB INLET)		
HYDRANT TEMPORARY HYDRANT	**	•
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CAP OR PLUG	] 🛆	] 🔺
	∑2	
UTILITY POLE	ę	•
GUY POLE	<b>→</b>	
TRAFFIC SIGNAL	0 0 }	
EDGE OF PAVEMENT		
	\$	<u></u>
SIDEWALK		
STONE WALL		X
FENCE WALL	RET WALL	RET WALL
INDIVIDUAL DECIDUOUS TREE	$\Box$	0
TREE LINE	*	*
SURVEY MARKER		
PROPERTY LINE		     
LIMIT OF WORK		
APPROX. LIMIT OF REFUSE	v 141.5	<b>v</b> 141.5
CONTOUR LINES		- ×
DEPRESSION CONTOUR LINES	#35 	
FLOOR ELEVATION	FL=56.7	
SILL ELEVATION	S=56.7	
WETLAND FLAGS	*	1 2
RIP RAP	***************************************	***************************************
GHWAY STATION	·	•
SURFACE MOUNTED DELINEATOR  GUARD POST	$\triangleright$	• 🔈
BOLLARD	OB	В
SIGN BENCH MARK	•	
AUGER	⊕ A-1	⊕ A-1
PERCOLATION TEST	PT PT	<b>⊕</b> PT-1
BORING		<b>⊕</b> B−11
	<b>⊕</b> P-10	<b>⊕</b> P-11
GROUNDWATER MONITORING WELL	₩S-1	⊕ GMW_10
HAY BALES		•
DRAINAGE DITCH / SWALE		

#### **ABBRI JIATIONS**

## ASBESTOS CEMENT PIPE ASPHALT COATED CORRUGATED N AIR RELEASE VALVE AMERICAN SOCIETY FOR TESTING BITUMINOUS CONCRETE BITUMINOUS

- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER AT NO ADDITIONAL COST THE TOWN.

NTERLINE MENT LINED IRON RRUGATED METAL

- AREAS OUTSIDE THE CONTRACTOR'S OPER TO THEIR ORIGINAL THE LIMITS OF PROPOSED WORK DISTURBED BY THE OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR INAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- ALL WORK SHOWN ON THE PLANS AS BOLD SHALL REPRESENT PROPOSED WORK. THE TERM "PROPOSED (PROP)" INDICATES WORK BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET
- THE CONTRACTOR SHALL CALL DIGSAFE AT 1-888-344-7233 (811) AT LEAST 72 HOURS, SATURDAYS AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.
- LIMIT OF WORK SHOWN ON PLANS REPRESENTS LIMITS OF NEW CONSTRUCTION ACTIVITY AND AVAILABLE STAGING AREAS. CONTRACTOR SHALL NOT PERFORM WORK OR STORE MATERIALS OUTSIDE OF THESE LIMITS WITHOUT PERMISSION FROM THE TOWN AND ENGINEER.
- THE CONTRACTOR SHALL REMOVE ALL STUMPS AND SURFACE VEGETATION PRIOR TO GRADING THE SITE. TEMPORARY EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS (INCLUDING SILT FENCE, STRAW BALES, OR SILT SOCKS) WILL BE INSTALLED BY TO CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE PROJECT WHICH COST SHALL BE INCIDENTAL. JHI OI

E DIAMETER PIPE

- ALL FILL OR SOIL MATERIALS BROUGHT TO THE SITE SHALL CONTAIN HAZARDOUS MATERIALS. REPROCESSED ASPHALT IS PROHIBITED FROM THE SITE.
- HAULING OF EARTH MATERIALS AND CONCRETE TRUCK TRAFFIC TO AND FROM THE SITE SHALL BE RESTRICTED TO THE HOURS OF 8:00 AM TO 4:00 PM MONDAY THROUGH FRIDAY. NO HAULING OF EARTH MATERIAL SHALL OCCUR ON HOLIDAYS.
- TEST PITS TO LOCATE EXISTING UTILITIES AND FOUNDATION WALLS MAY BE ORDERED BY THE ENGINEER TO DETERMINE WHETHER TO RAISE OR LOWER THE PROPOSED WATER MAIN TO CLEAR EXISTING UTILITIES OR VERIFY EXISTING FOUNDATION OR UTILITY LOCATION, SIZE AND TYPE.
- UNLESS OTHERWISE INDICATED, CONCRETE USED FOR PIPE ANCHOR BLOCKS, BACKING, PIPE CRADLES, ARCHES, AND FILL SHALL HAVE AMINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
- THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES OR WITHIN 100 FEET OF WETLANDS.
- ALL HYDRANTS REMOVED SHALL BE SALVAGED LOCATION TO BE DETERMINED BY THE OWNER.

#### CONSTRUCTION **NOTES**

- THE LOCATIONS OF EXISTING UNDERGROUND UNDERGROUND OBJECTS ARE SHOWN AS APPR CONTRACTOR SHALL DETERMINE THE EXACT LOUTILITIES BEFORE COMMENCING WORK, AND AGRESPONSIBLE FOR ANY AND ALL DAMAGES WHITHE CONTRACTOR'S FAILURE TO EXACTLY LOCATION AND ALL UNDERGROUND UTILITIES. TION OF A
  ES TO BE
  I MIGHT BI
  AND PRE

- ALL KNOWN EXISTING STATE, COUNTY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND ARE INDICATED ON THE PLANS.

- ALL UNSUITABLE UNCONTAMINATED EXCESS SOIL FROM CONSTRUCTION ACTIVITIES SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE TOWN. REMOVAL ACTIVITIES SHALL BE IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS AT NO ADDITIONAL COST TO THE TOWN. SUITABLE SOIL EXCAVATION AS PART OF THIS PROJECT MUST MEET ONE OR MORE OF THE MATERIAL REQUIREMENTS SPECIFIED IN 02300—EARTHWORK.

ORTH EAST
ORTH WEST
ORTH WEST
OT FOUND
UMBER
UTSIDE DIAMETER
RESTRESSED CONCRETE CYLINDER P
LAIN END, POLYETHYLENE
OINT OF CURVATURE
OINT OF TANGENCY
OINT OF TANGENCY
OINT OF REVERSE CURVATURE
OINT OF COMPOUND CURVATURE
OINT OF VERTICAL TANGENCY

- STONE WALLS, FENCES, MAIL BOXES, SIGNS, CURBS, LIGETC. SHALL BE REMOVED AS NECESSARY TO PERFORM TREPLACED TO A CONDITION AT LEAST EQUAL TO THAT BE CONSTRUCTION BEGAN. UNLESS OTHERWISE INDICATED, A WORK SHALL BE INCIDENTAL TO CONSTRUCTION OF THE
- ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND PAYMENT LIMITS SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER. ALL PAVEMENT AND GRAVEL ROADWAYS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE MAINTAINED AT THE CURRENT LEVEL OF SERVICE AND REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.

US OF CURVATURE FORCED CONCRETE IN THE THE TOTAL TOTAL

'VINYL CHLORIDE

- APPROVED JOINT RESTRAINT METHODS SHALL BE PROVIDED FOR WATER MAINS WHERE ANY BENDS, TEES, PLUGS, OR WYES ARE INSTALLED.
- EXISTING WATER MAINS OR SERVICES SHALL NOT WITHOUT THE APPROVAL OF THE OWNER.

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ITEMS

NMOHS

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LEGEND

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PRESENT

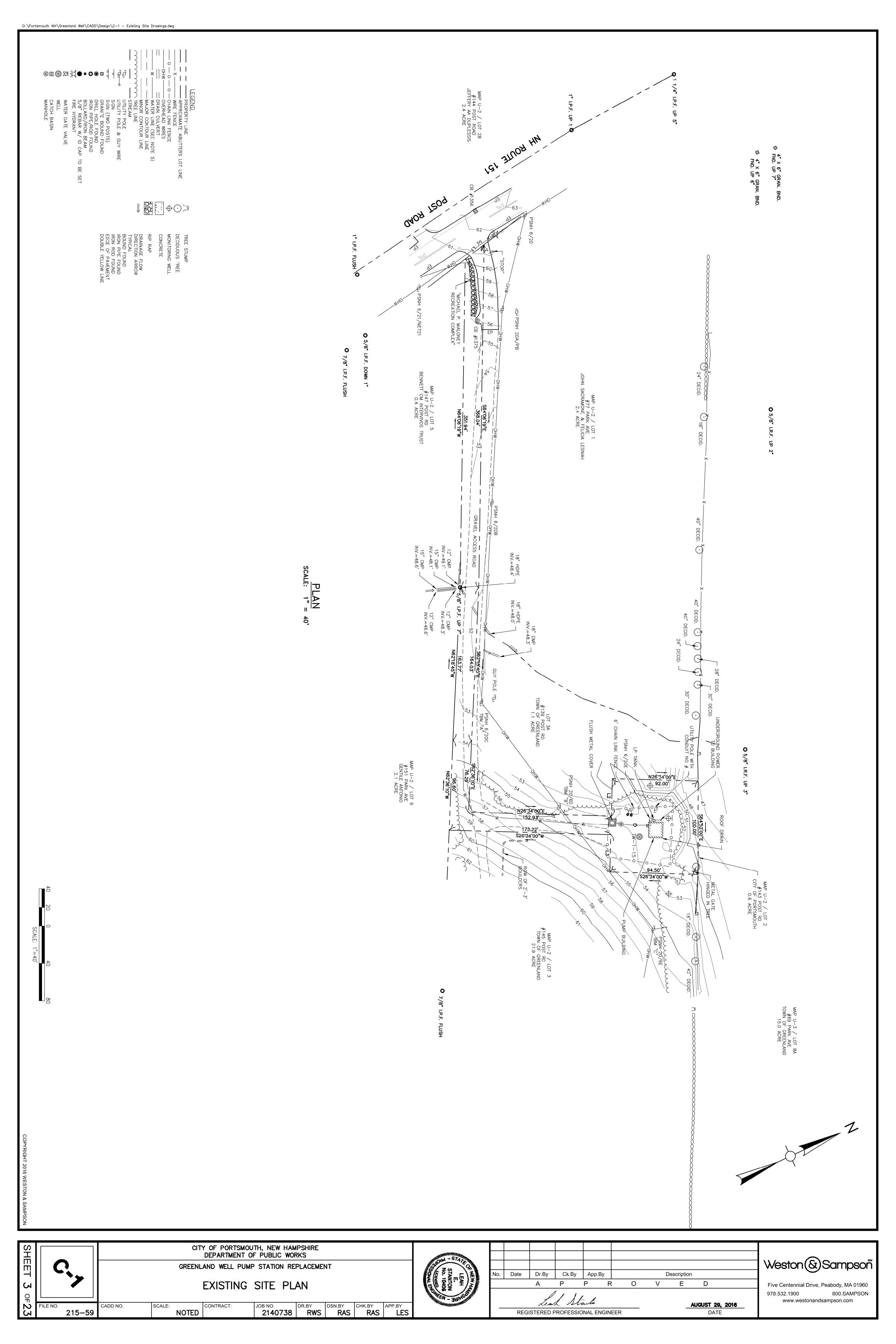
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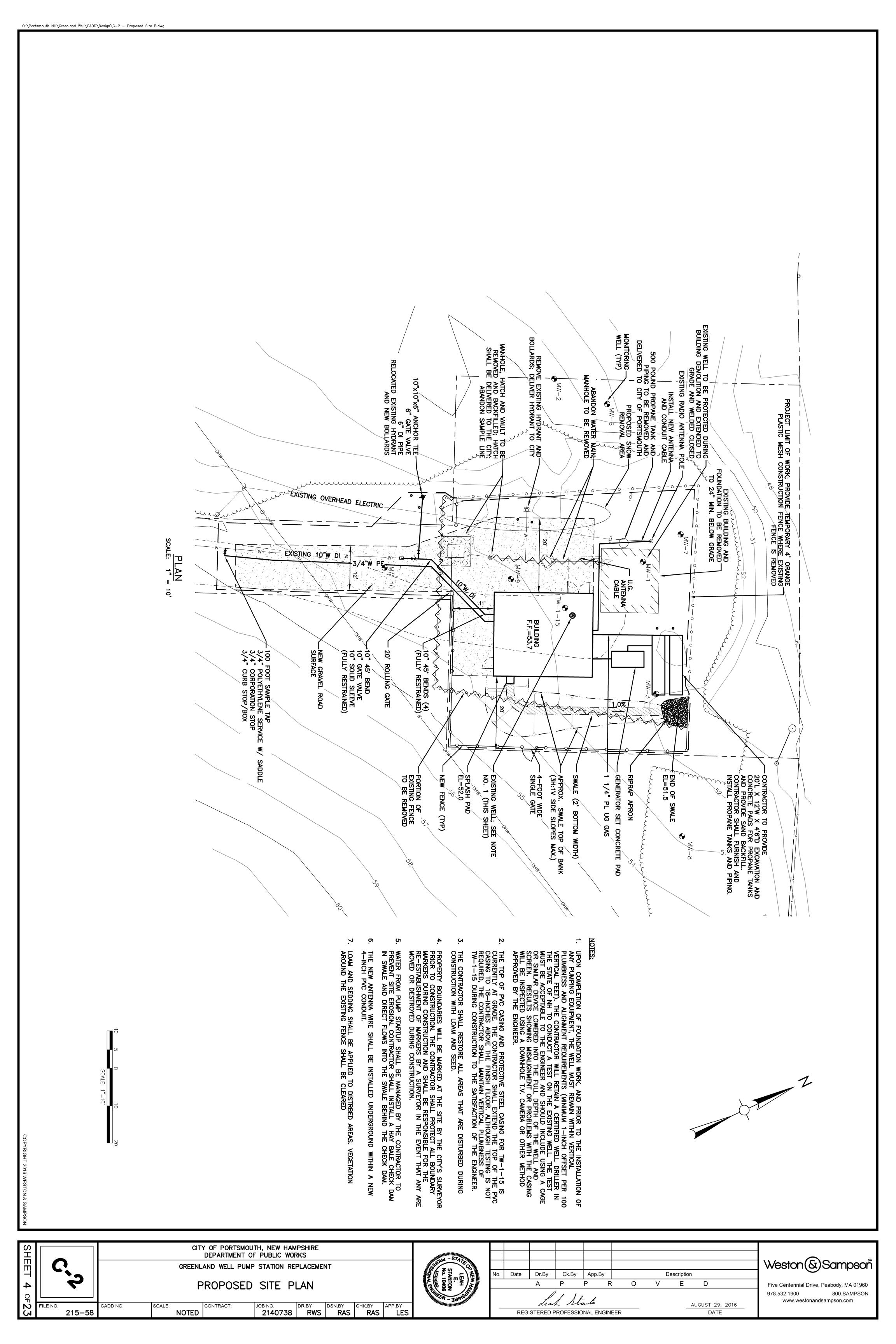
**PLANS** 

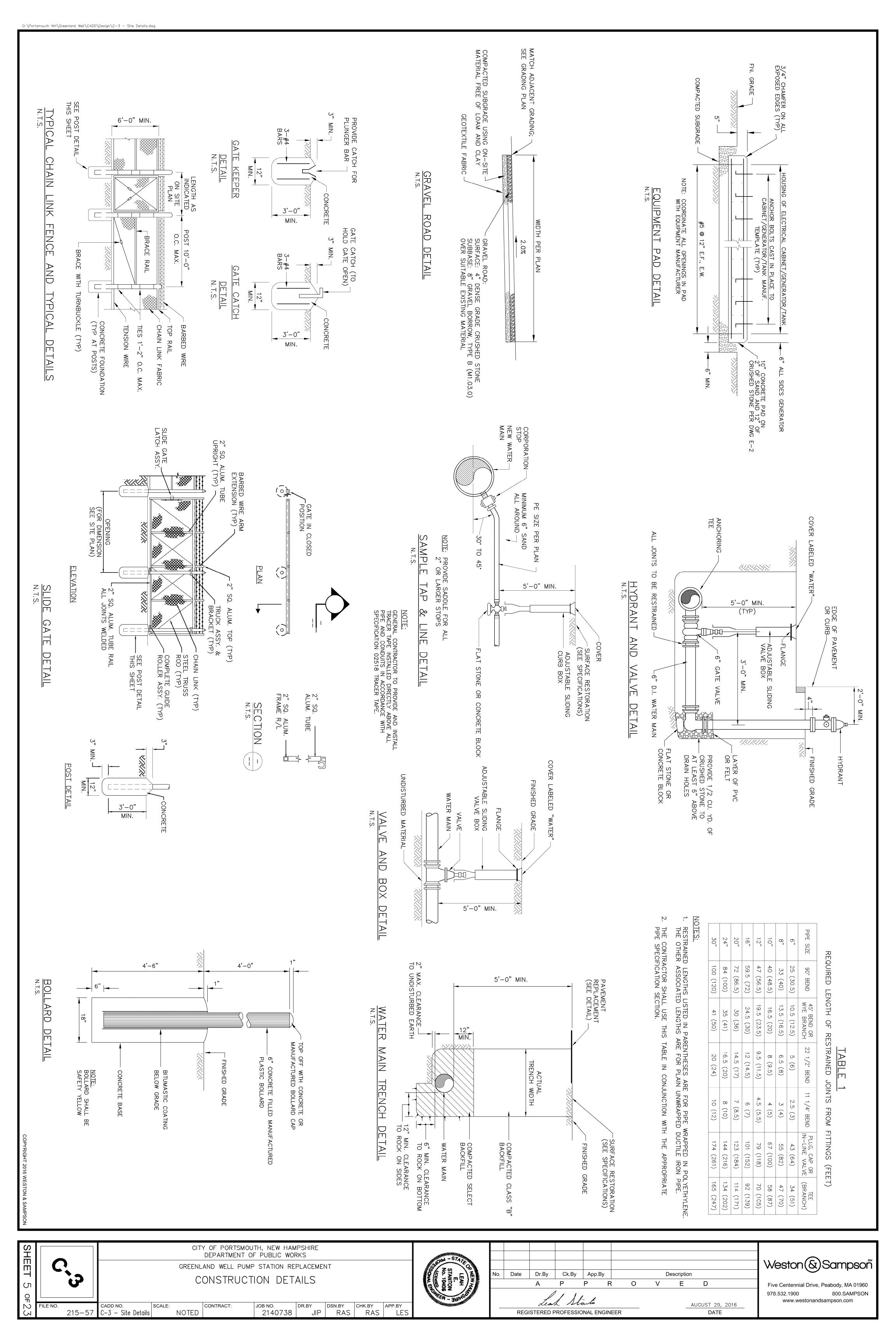
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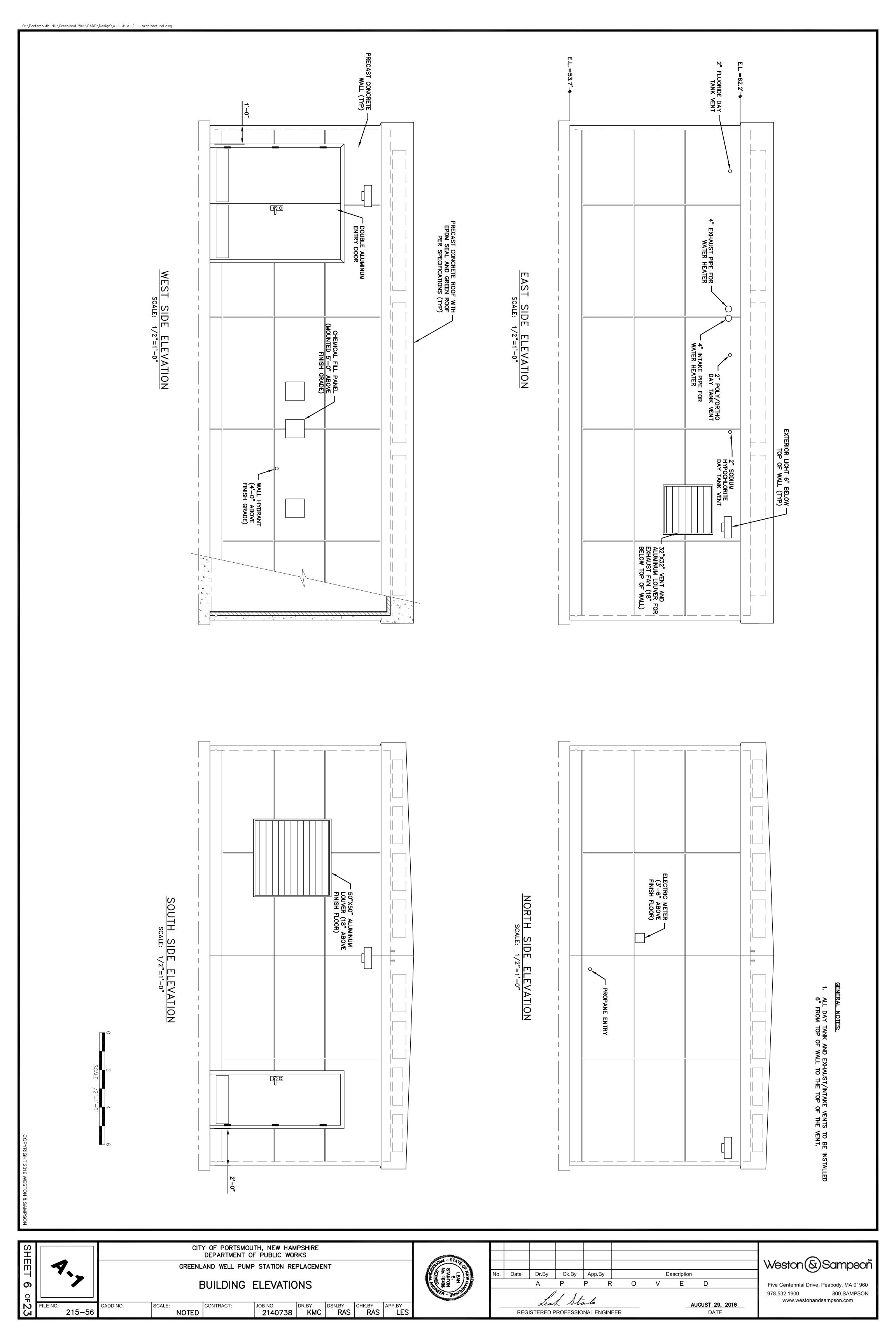
- ANY HYDRANT WHICH IS NOT IN SERVICE SHALL SECURELY FASTENED BURLAP BAG. ВE COVERED WITH A
- THE LOCATION OF PIPES, CAPS, REDUCERS, BENDS AND OTHER FITTINGS AT POINTS OF CONNECTIONS TO EXISTING MAINS IS APPROXIMATE. VALVES WHICH
  24 HOURS NOTICE
  VALVES REQUIRED
  S SECTIONS OF
- ELEVATIONS (NGVD) 1929 (NGVD) 1929, FEET. HORIZONTAL COORDINATE BASED ON NEW HAMPSHIRE STATE PLANE CONTRACTOR SHALL RETAIN A SURVEYOR TO AND VERTICAL CONTROL FOR THE PROJECT.
- ARTMENT OF I

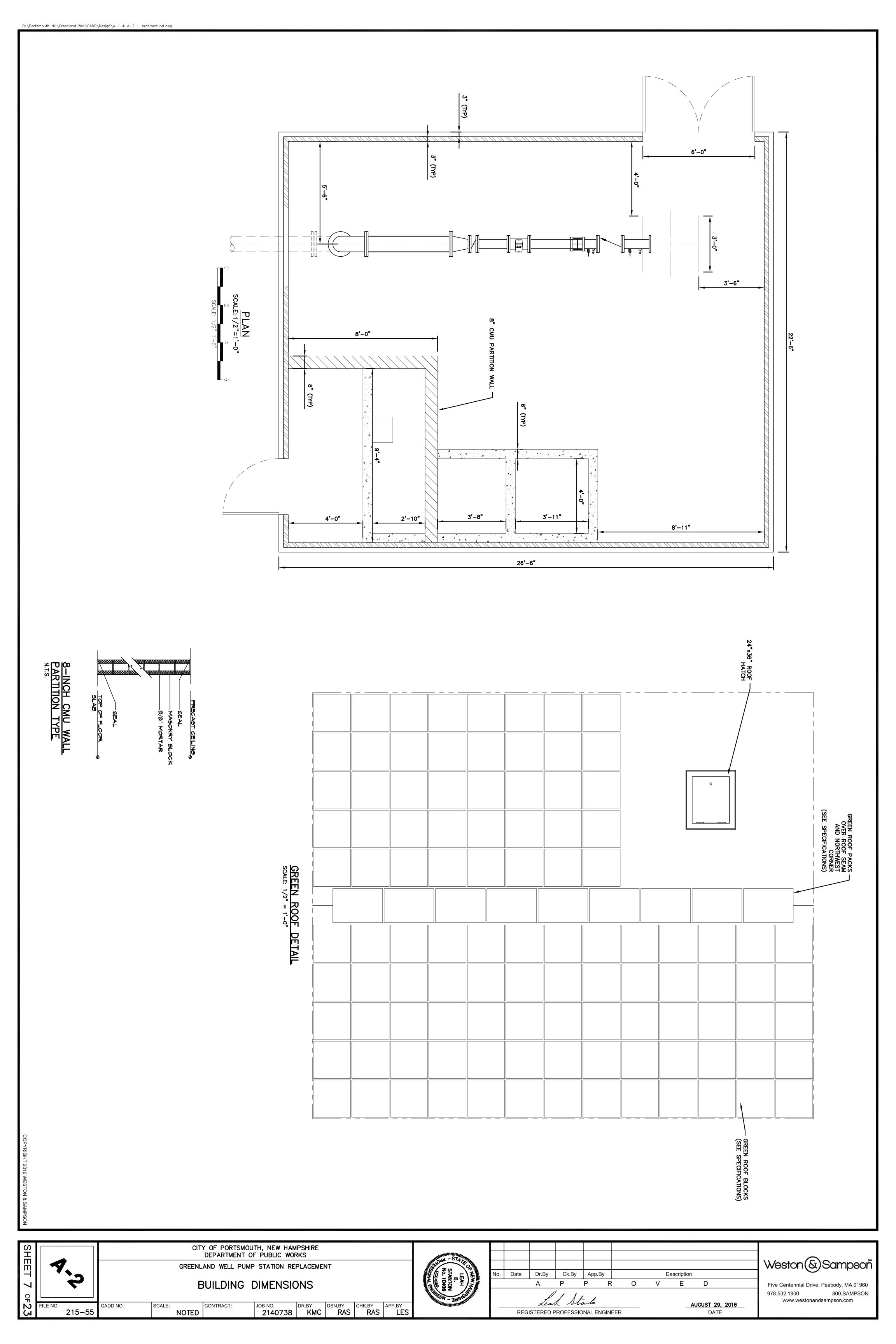
SHEET CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS Weston & Sampson GREENLAND WELL PUMP STATION REPLACEMENT No. Date Dr.By Ck.By App.By Description NOTES, ABBREVIATIONS & LEGEND Five Centennial Drive, Peabody, MA 01960 800.SAMPSON 978.532.1900 OF 23 RAS 1 www.westonandsampson.com AUGUST 29, 2016 CADD NO. SCALE: CONTRACT: DSN.BY APP.BY RAS RAS LES NOTED 2140738 215-60 REGISTERED PROFESSIONAL ENGINEER DATE

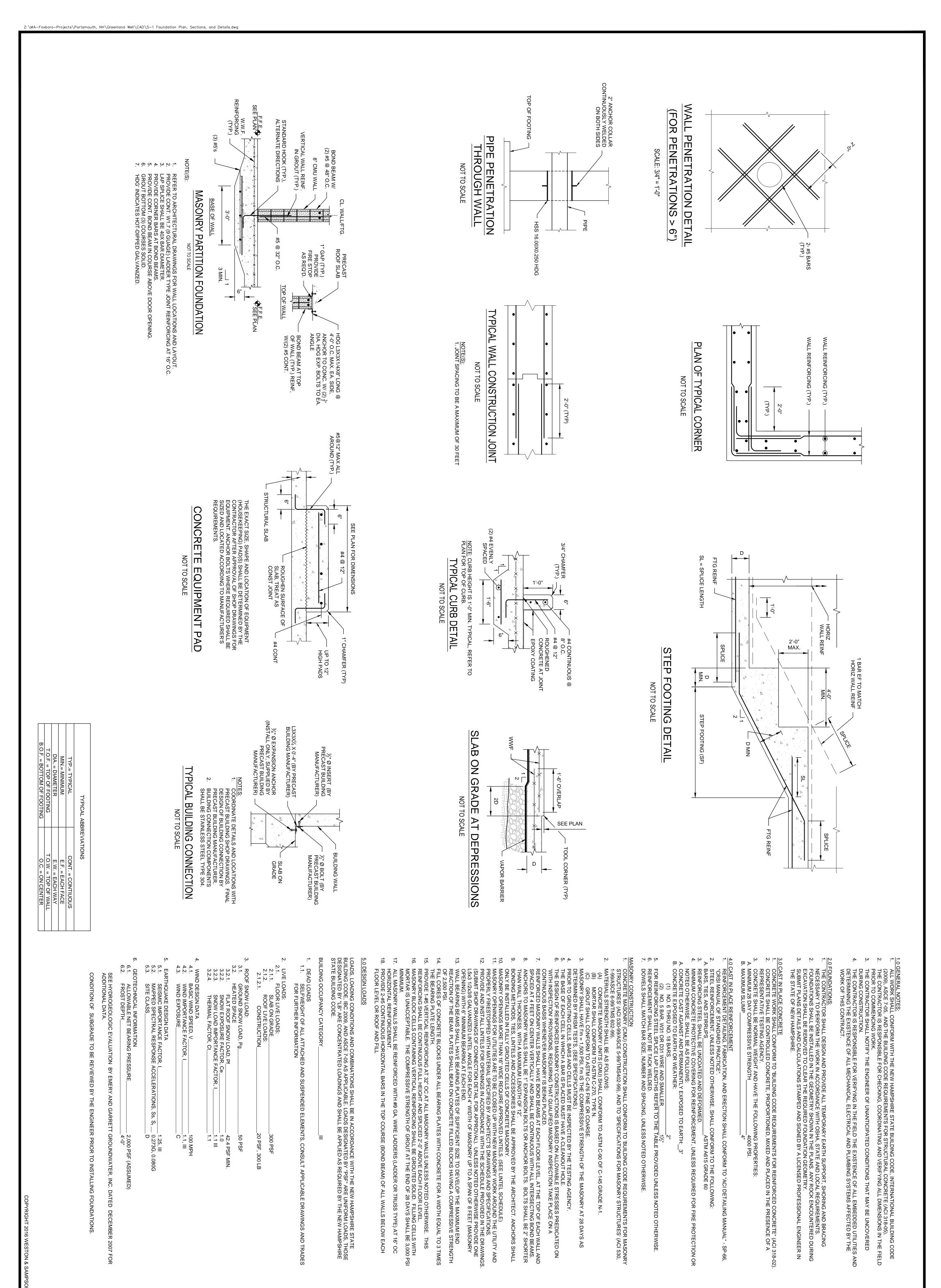




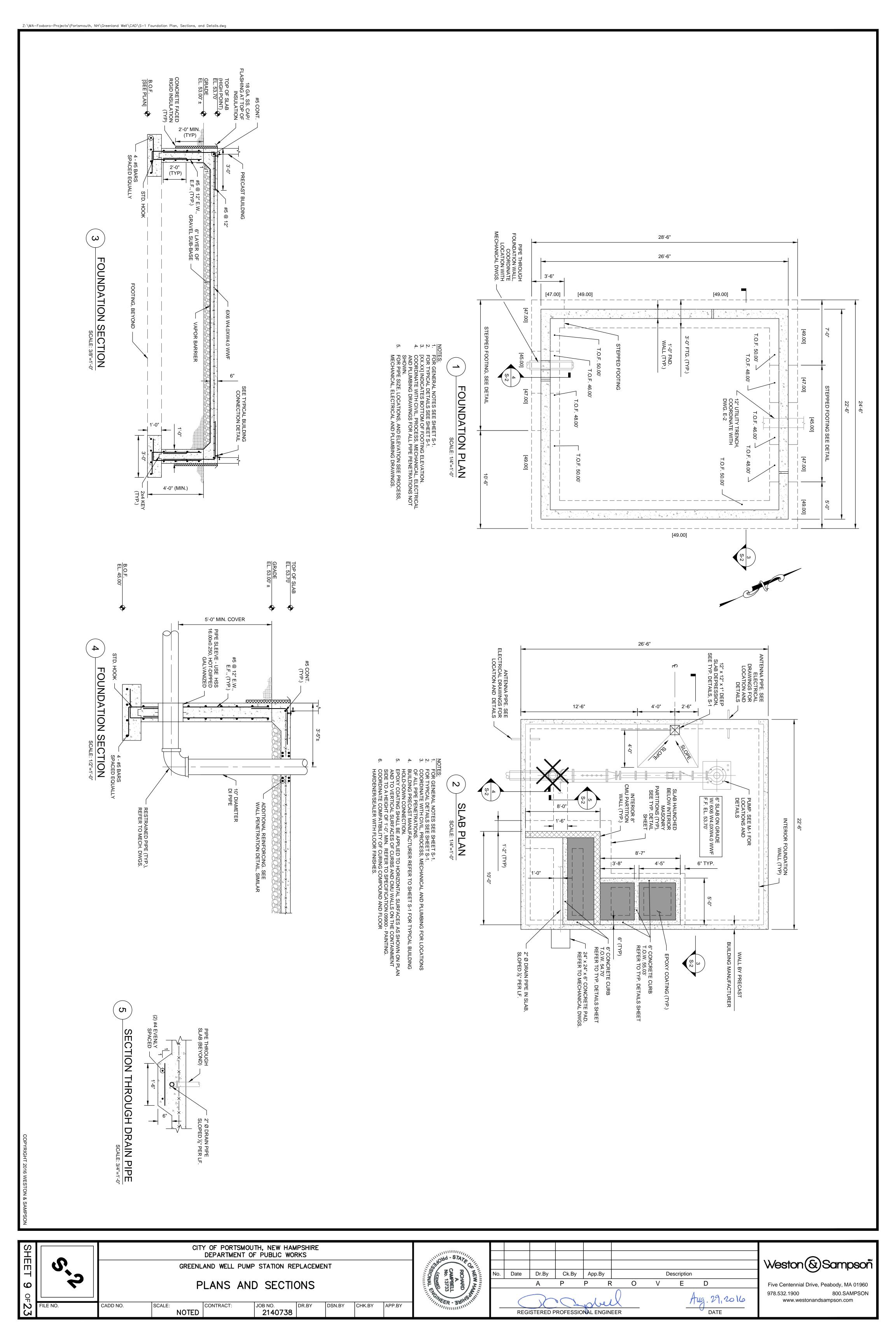


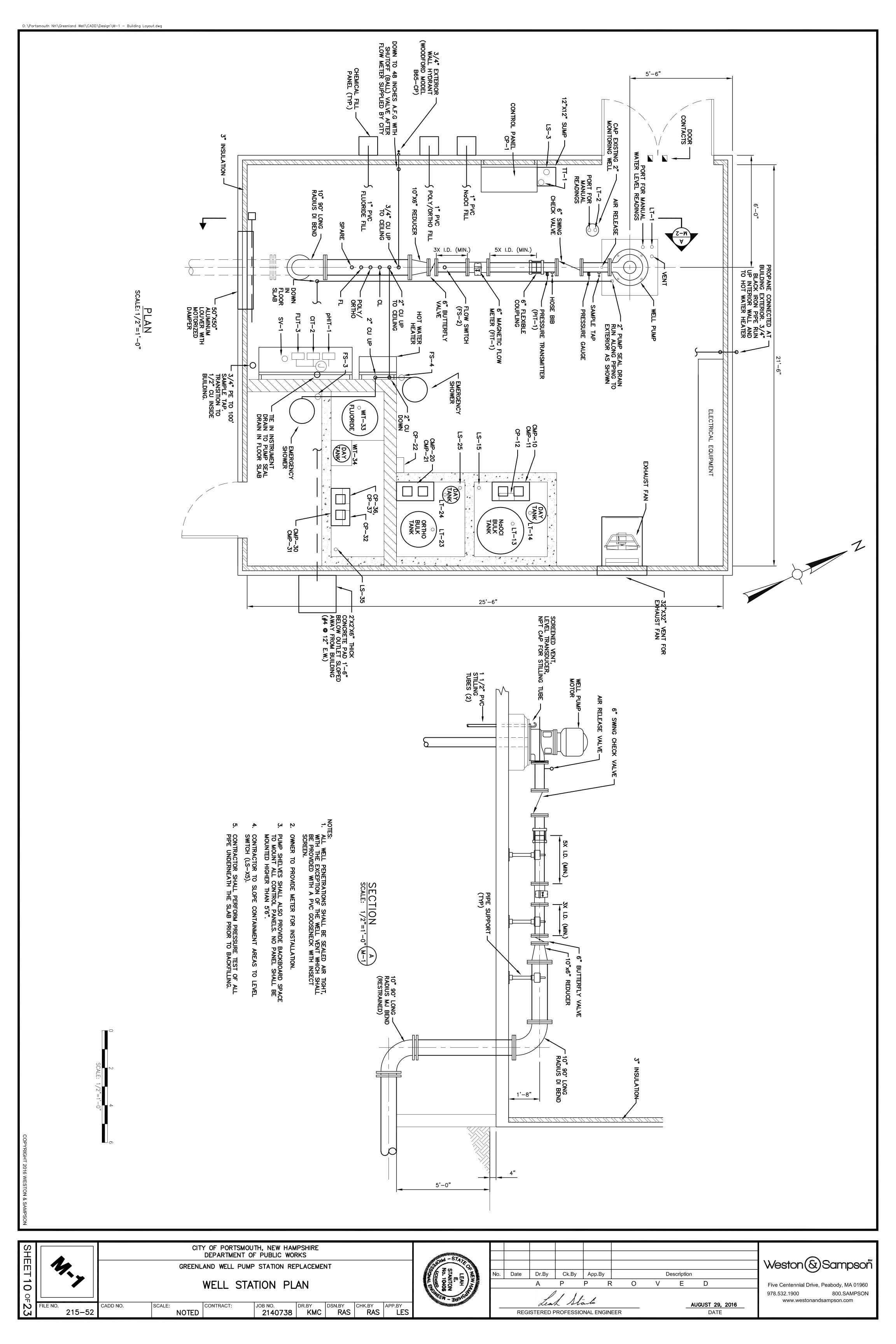


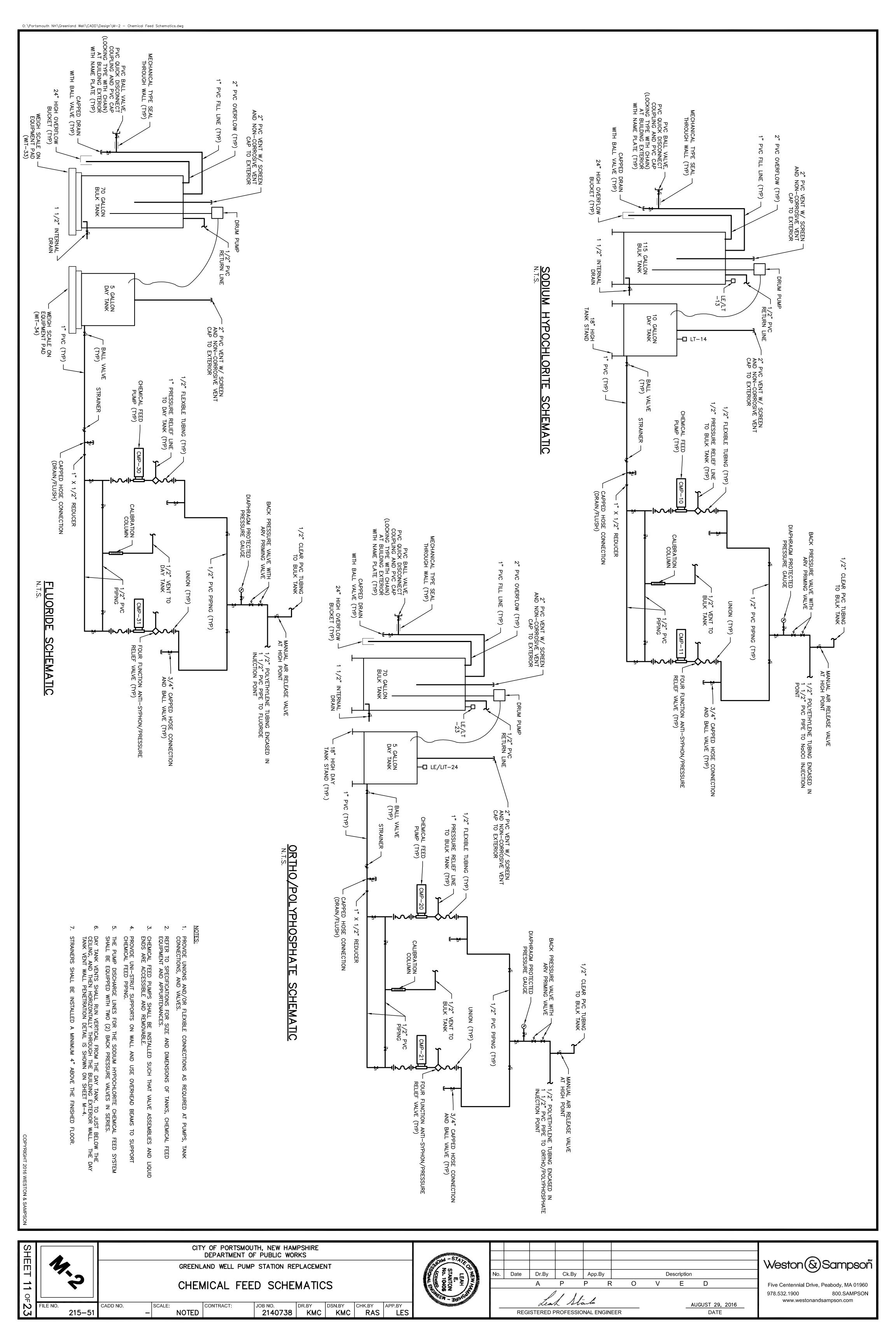


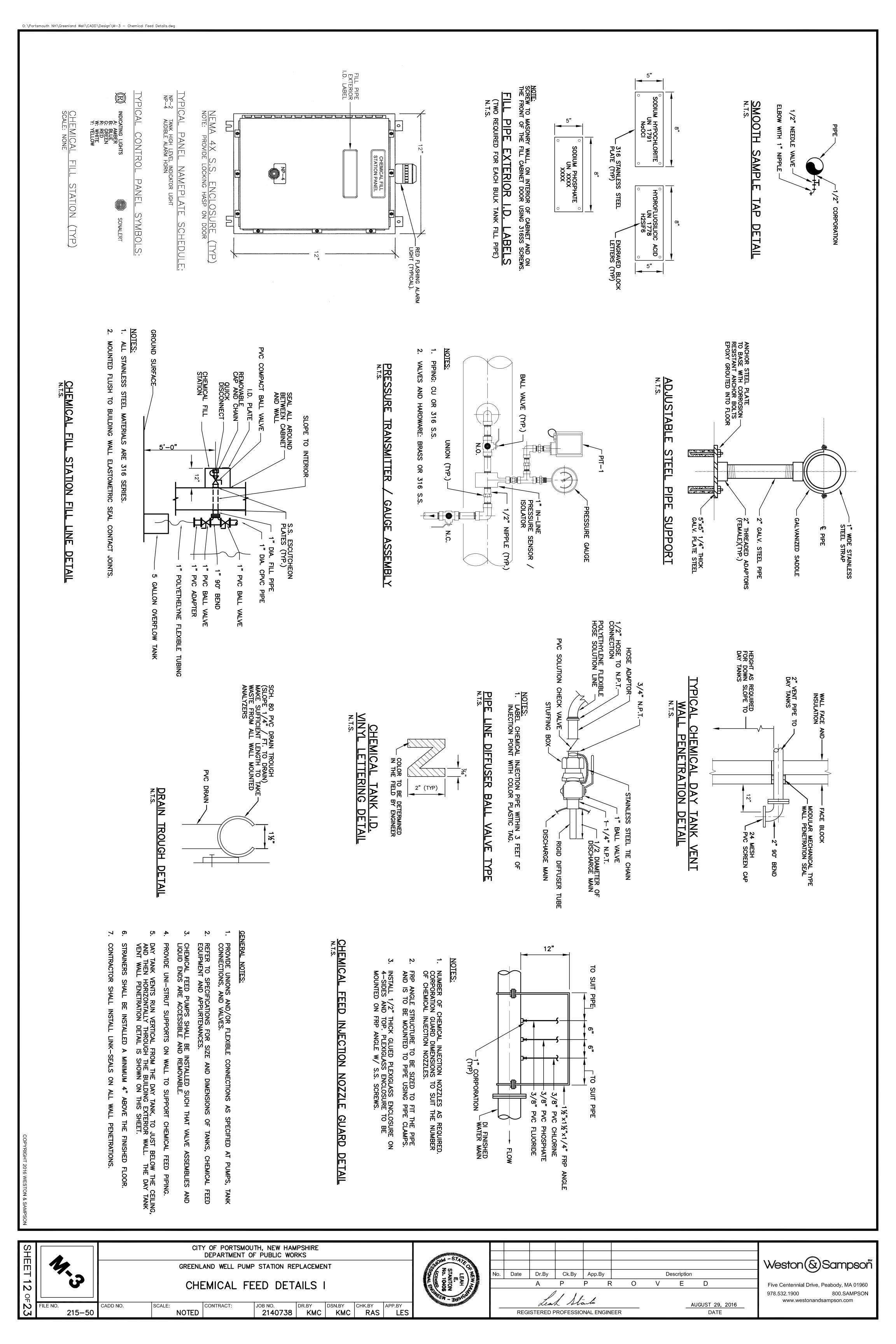


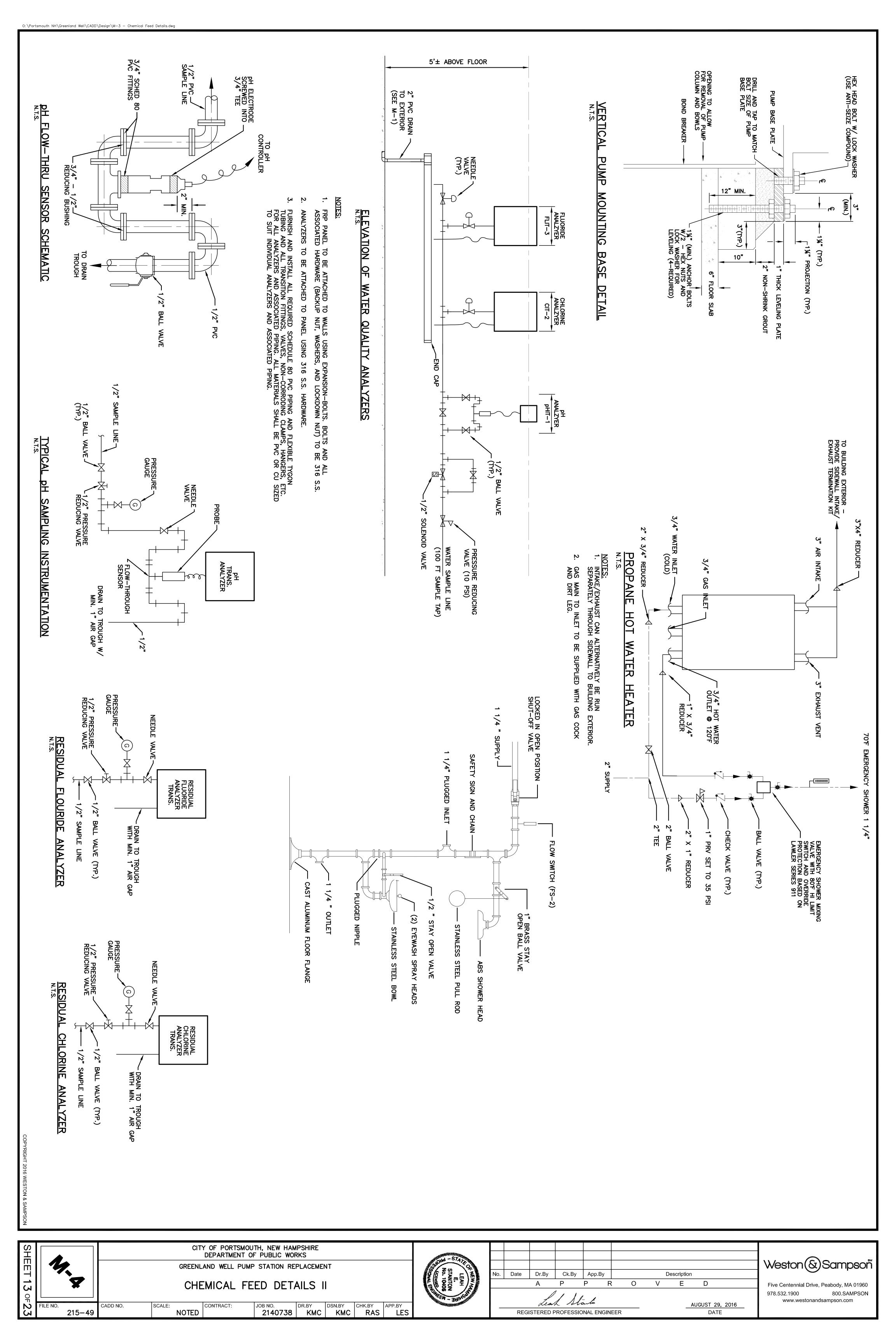
SHEET CITY OF PORTSMOUTH, NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS Weston & Sampson GREENLAND WELL PUMP STATION REPLACEMENT No. Date Dr.By Ck.By App.By Description GENERAL NOTES AND TYPICAL DETAILS 0 Five Centennial Drive, Peabody, MA 01960 978.532.1900 .29,2016 www.westonandsampson.com CADD NO. CONTRACT: DSN.BY CHK.BY 2140738 REGISTERED PROFESSIONAL ENGINEER NOTED











O: \Portsmouth NH\Greenland Well\CADD\Design\H—1.dwg

THERMOSTAT (TEMPERATURE SENSOR)

THERMOSTAT (TEMPERATURE SENSOR)

MOTORIZED EQUIPMENT (EF, B)
UPPER - EQUIPMENT DESIGNATION
LOWER - EQUIPMENT DESIGNATION
LOWER - EQUIPMENT DESIGNATION
LOWER - EQUIPMENT DESIGNATION
LOWER - EQUIPMENT NUMBER
AFF
AGC
AHF
ABOVE FINISHED FLOOR
AHF
CHM
CHM
BRAKE HORSEPOWER
CUBIC FEET PER MINUTE
EAT
ENTERING AIR TEMPERATURE
FULL LOAD AMPS

. OCCUPIED SETPOINTS AND OPERATION SHALL BE INITIATED MANUALLY VIA 4-HOUR MANUAL MECHANICAL WIND DOWN TIMER. WHEN IN OCCUPIED TIMER IS INITIATED, 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.

a. HEATING = 55F

b. COOLING (VENTILATING) = 75F

b. COOLING (VENTILATING) = 75F

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 denergized.

when space temperature, as measured by the single thermostat, rises above setpoint, ef-1 shall be energized, the intake louver damper shall be opened and the fan shall operate until space temperature setpoint drops 2f (adjustable) below setpoint.

TAG LOCATION DIMENSIONS FREE AREA DUTY AND MODEL NUMBER (AS STANDARD)

L-1 PUMP STATION 50"L × 50" × 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
4. PROVIDE INSULATED MOTORIZED DAMPER AND BIRD SCREEN.

GREENLAND PUMP STATION HEATING AND VENTILATING CONTROLS

1. ALL H&V CONTROLS SHALL BE VIA A SINGLE LOW VOLTAGE THERMOSTAT. THERMOSTAT SHALL NOT ALLOW SIMULTANEOUS HEATING AND VENTILATING WHEN UNOCCUPIED.

2. UNOCCUPIED SETPOINTS (ADJUSTABLE):

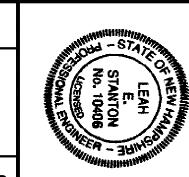
a. HEATING = 45F

b. COOLING (VENTILATING) = 85F OCCUPIED SETPOINTS(ADJUSTABLE):

MOTOR ELECTRICAL DATA
TAG LOCATION SERVED LOCATION CFM FAN TYPE (IN.WG) RPM BHP HP V PH HZ (AS STANDARD)  AND MODEL NUMBER REMAR REMAR
EF-1 PUMP STATION WALL 6,500 DIRECT DRIVE .625 1750 1.15 1-1/2 460 3 60 GREENHECK SCE3-24-415-A15 1, 2 &
NOTES:
<ol> <li>PROVIDE FAN WITH GRAVITY OPERATED DAMPER (WD-320) AND ALUMINUM BIRD SCREEN.</li> <li>PROVIDE SHORT WALL HOUSING (FLUSH EXTERIOR), MOTOR STARTER, OSHA GUARD, PREMIUM EFFICIENT MOTOR, PERMATECTOR COATING AND ALUMINUM DAMPER GUARD.</li> </ol>

N -1 -1-		Ē	Е			
<u>NOTES:</u> 1. PROV 2. PROV		EUH-2	EUH-1	TAG		
NOTES: 1. PROVIDE WITH LOW VOLTAGE CONTROL AND WALL MOUNTING BRACKET. 2. PROVIDED WITH PRECAST BUILDING.		PUMP STATION	PUMP STATION	LOCATION		
TROL AND W.		ELECTRIC	ELECTRIC	TYPE		
ALL MOU		3	5	(kW)	TIIDINI	
NTING BF		10.2	17	(MBH)	דו ופו וכ	
RACKET.		350	350	CFM		ELE
		27	45	DELTA T (°F)	AIR	ELECTRIC U
		ı	-	RPM	MOTOR	UNIT HEATER SCHEDULE
		1/100 480	1/100	HP	OR	EATE
		480	480	<	Е	R SC
		3	3	P	ELECTRIC DATA	HEDU
		60	60	НΖ	DATA	JLE
		3.6	6	AMPS		
		QMARK - MUHO3-41	QMARK - MUHO5-41	AND MODEL NUMBER (AS STANDARD)	MANUFACTURER	
		1 & 2	1 & 2	REMARKS		

SHEE.				CIT	Y OF PORTSMOU DEPARTMENT O					
ΞET				GREENL	AND WELL PUMP	STATION RE	PLACEME	NT		
14					HVAC FLO	OOR PLA	AN			
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23	FILE NO. <b>215–48</b>	CADD NO.	SCALE:	NOTED	CONTRACT:	ЈОВ NO. <b>2140738</b>	DR.BY	DSN.BY <b>KP</b>	CHK.BY <b>RAS</b>	APP.BY <b>LES</b>



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No.	Date	Dr.By	Ck.By	App.E	Зу		С	escriptio	on			
		Α	Р	Р	R	0	V	Е	D			
		Lea	1 St	onte					AUGUST 2	29, 2016		
	REG		PROFESSIO	——————————————————————————————————————	IGINEER			-	DA		•	
												<b>_</b>

Five Centennial Drive, Peabody, MA 01960 978.532.1900 800.SAMPSON www.westonandsampson.com

PRESSURE, VACUUM
QUANTITY
RADIATION
SPEED, FREQUENCY
TEMPERATURE
MULTIVARIABLE
VIBRATION, MECHANICAL ANALY
WEIGHT, FORCE
UNCLASSIFIED
EVENT, STATE OR PRESENCE
POSITION, DIMENSION HAND
CURRENT (ELECTRICAL)
POWER
TIME, TIME SCHEDULE
LEVEL VOLTAGE FLOW RATE ANALYSIS BURNER, COMBUSTION MEASURED OR INITIATING VARIABLE FIRST-LETTER ANALYSIS  $\bigcirc$ NOTES: FURNISH NEW
- COAXIAL CABLE TO
REPLACE EXISTING - FURNISH NEW ANTENNA TO F EXISTING INTEGRATE,
SAFETY -DIFFERENTIAL -RATIO (FRACT FURNISH A MAST/MOUNTING SYSTEM TO REPLACE EXISTING MOMENTARY SCAN TIME ANCHOR DRIP LOOP ANTENNA AND COAXIAL CABLE AS FURNISHED UNDER ANTENNA AND COAXIAL CABLE AS FURNISHED UNDER DIVISION 13.

2. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL LIGHTNING PROTECTION, SURGE SUPPRESSORS, GROUNDING ROD AND ALL LUGS, CLAMPS, BOLTS, AND ACCESSORIES TO GROUND THE ANTENNA AND TOWER STRUCTURE PER MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH LOCAL AND STATE CODES. AXIS AXIS MASTER RTU (FRACTION) CHANGE SERIAL RADIO ORIFICE, RESTRICTION
POINT (TEST) CONNECTION
RECORD UPS LIGHT INDICATE - GLASS, VIEWING DEVICE PASSIVE FUNCTION CONTROL PANEL CP-1 ETHERNET PLC ĭ ĭ SWITCH
TRANSMIT
MULTIFUNC
VALVE, DA CONTROL CONTROL UNCLASSIFIED
RELAY, COMPUTE, CONVERT
DRIVER, ACTUATOR, UNCLASSIFIED
FINAL CONTROL ELEMENT SUCCEEDING-LETTERS AMPER, LOUVER STATION OUTPUT FUNCTION UNCLASSIFIED
-MULTIFUNCTION
-LOW MIDDLE, -HGH INTERMEDIATE

#### NOTES:

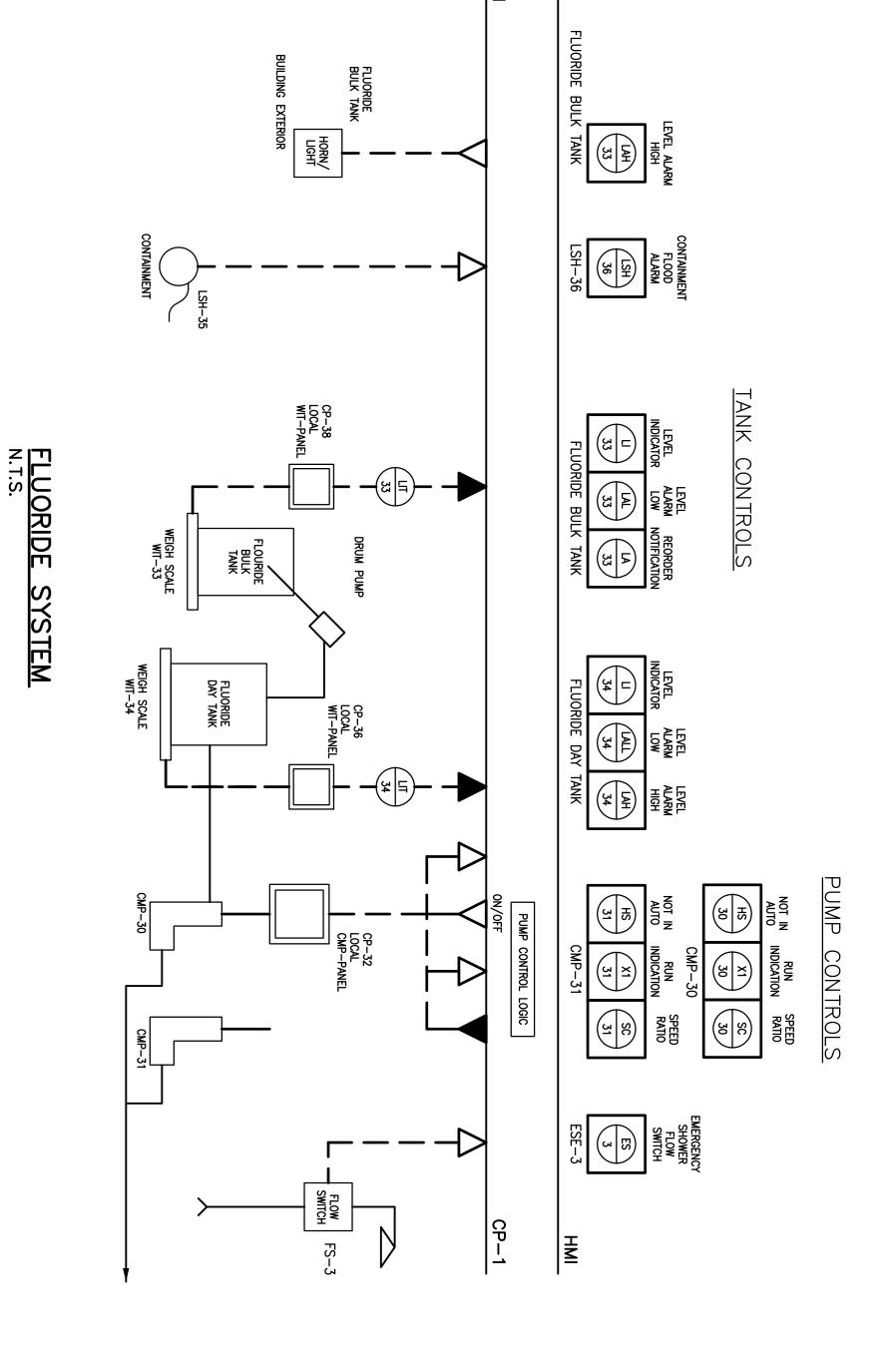
INSTRUMENTATION

**IDENTIFICATION** 

LETTERS

- TAG ID NUMBERS AND EQUIPMENT TAG ID NUMBERS SHALL BE 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 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 ADDITIONAL INSTALLATION DETAILS.
- AND
- INSTALL RADIO TELEMTRY AS DESCRIBED IN SPECIFICATION SECTION 13460. SOLENOID VALVES ARE 120V AND REQUIRE A RELAY SWITCH UNLESS OTHERWISE NOTED.
- 11. DOOR CONTACTS SHALL BE PROVIDED AND WIRED TO THE MAIN CONTROL PANEL (CP-1) FOR SECURITY CALL OUT. SEE SPECIFICATIONS FOR PROGRAMMING REQUIREMENTS. 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.
- 12. ELECTRICAL CONTRACTOR TO INSTALL CONDUITS UNDER FLOOR FEASIBLE FOR ALL INSTRUMENTATION. SLAB WHERE



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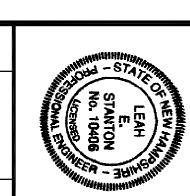
CITY OF PORTSMOUTH, NEW HAMPSHIRE SHEET 15 of 23 DEPARTMENT OF PUBLIC WORKS GREENLAND WELL PUMP STATION REPLACEMENT INSTRUMENTATION DIAGRAM CADD NO. CONTRACT: DSN.BY CHK.BY APP.BY FILE NO. 215-47 NOTED 2140738 RAS RAS LES LES

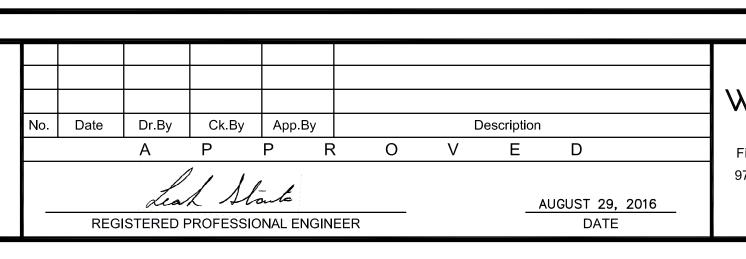
CONTROL

ANEL

AND

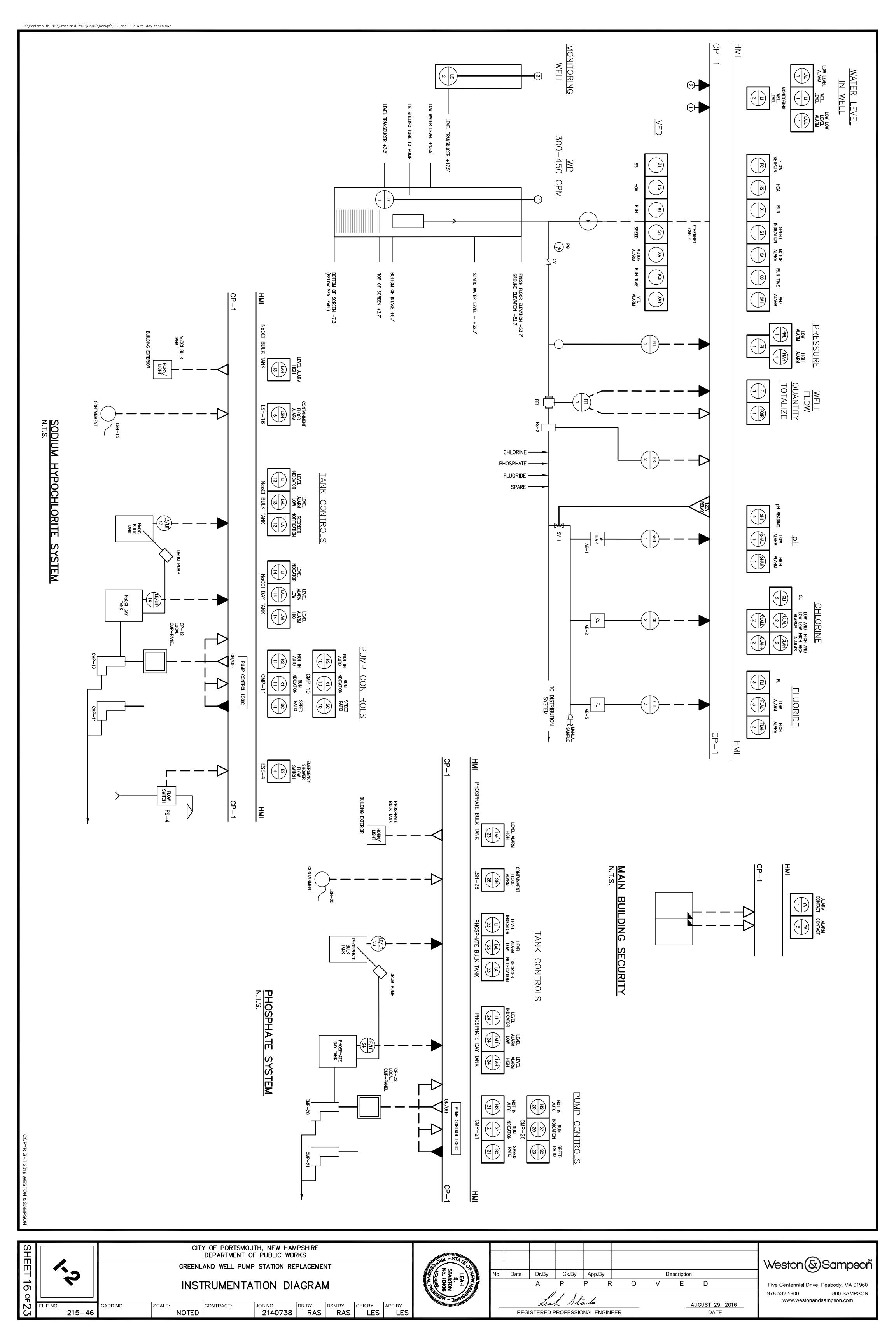
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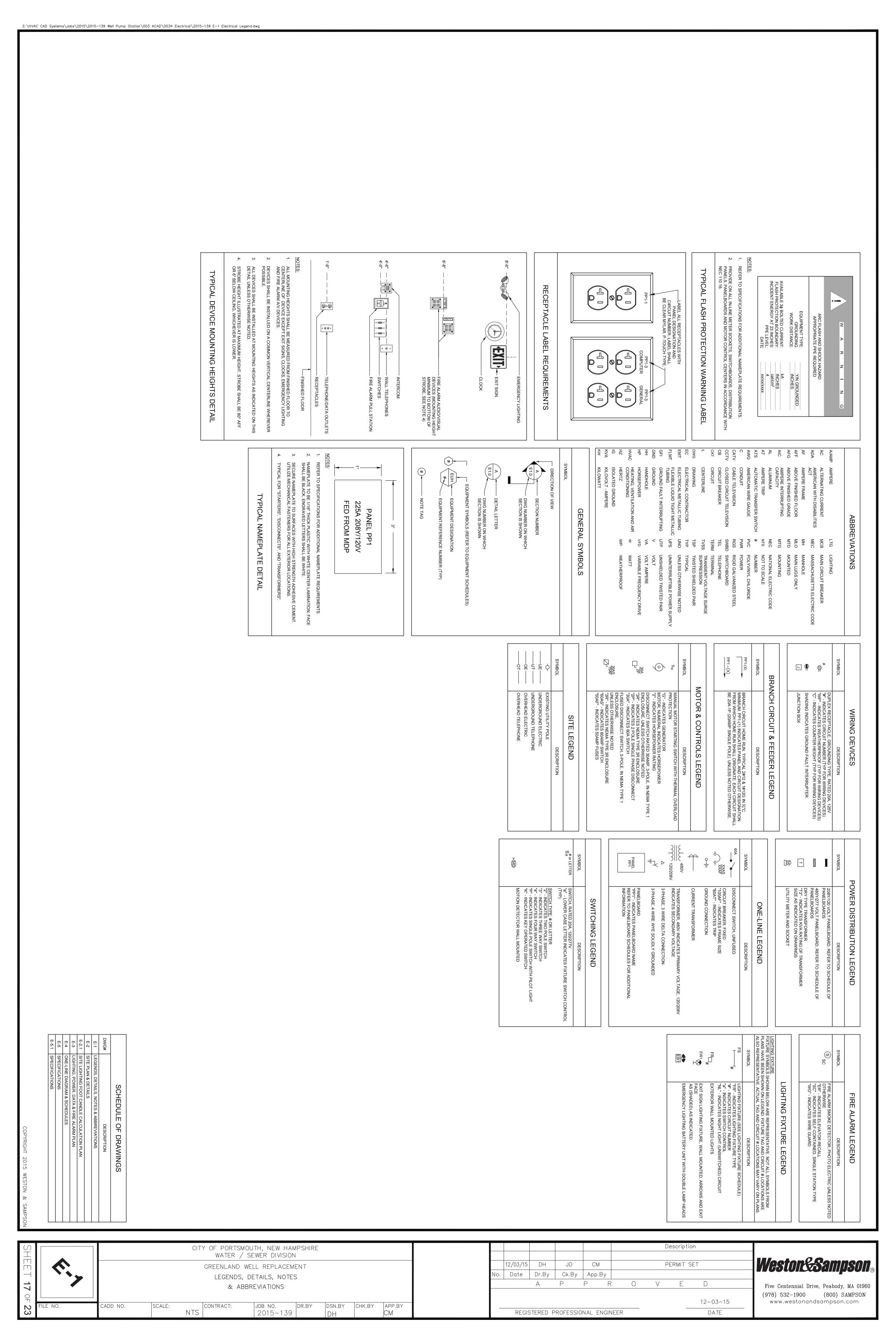


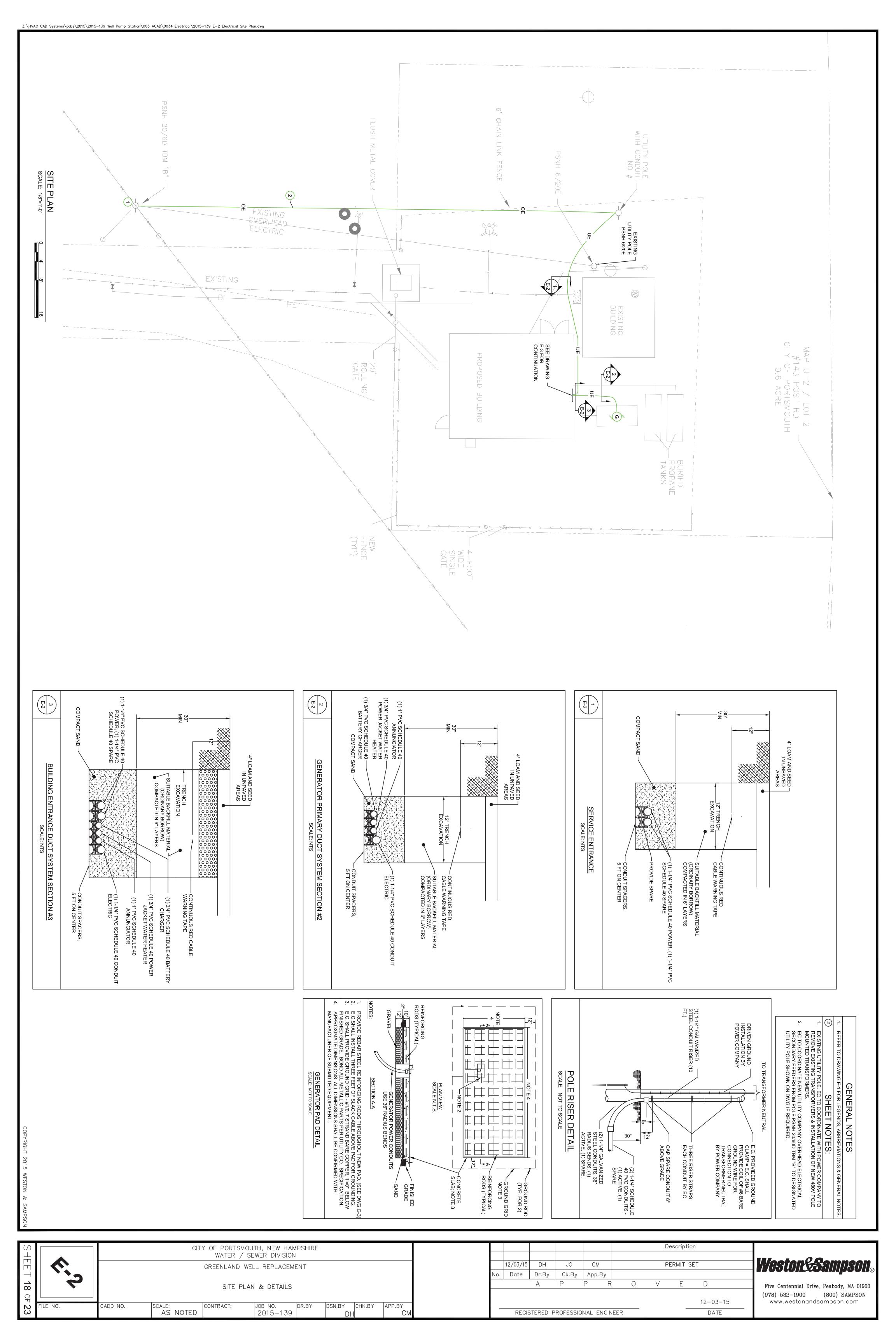


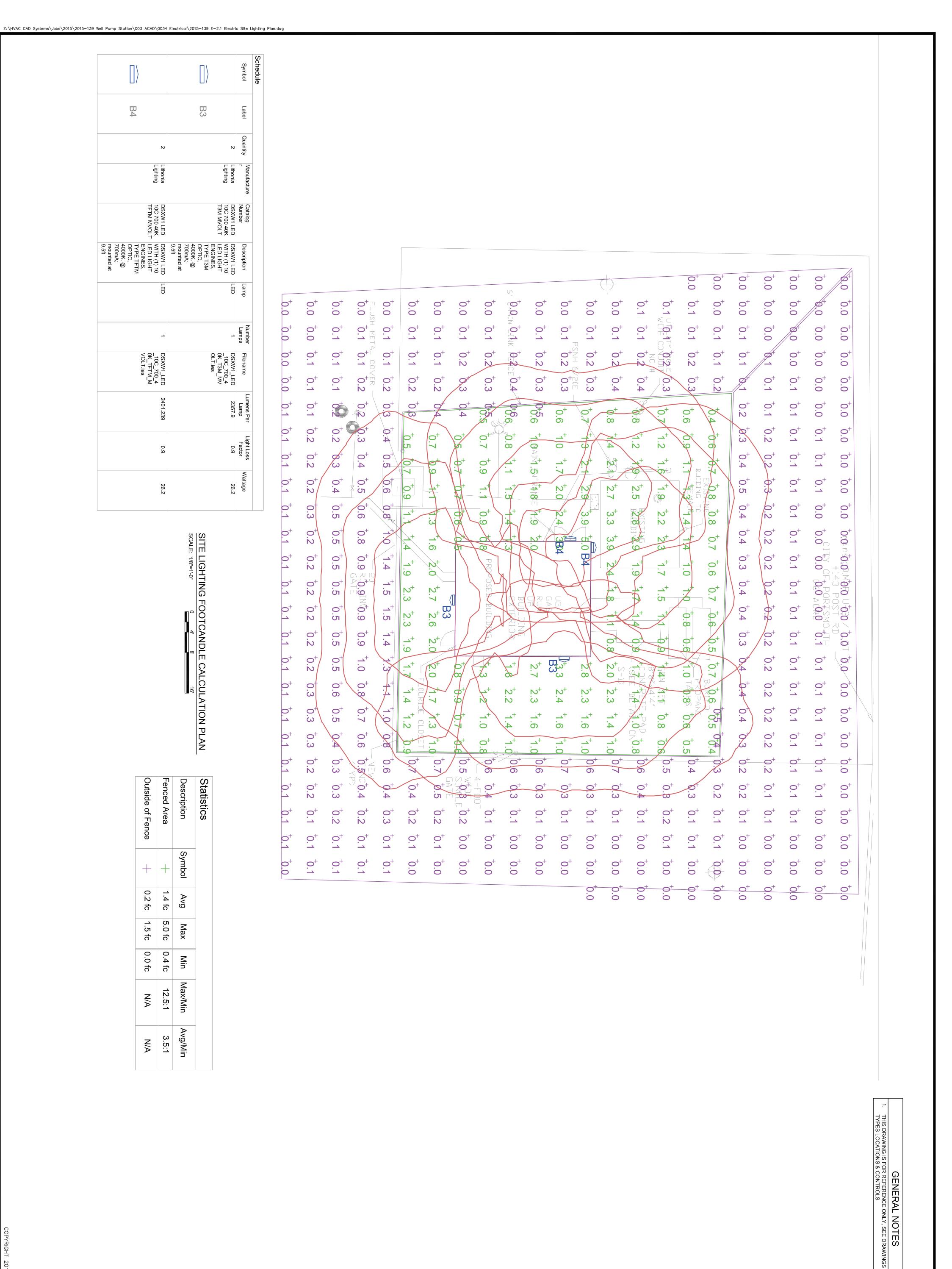
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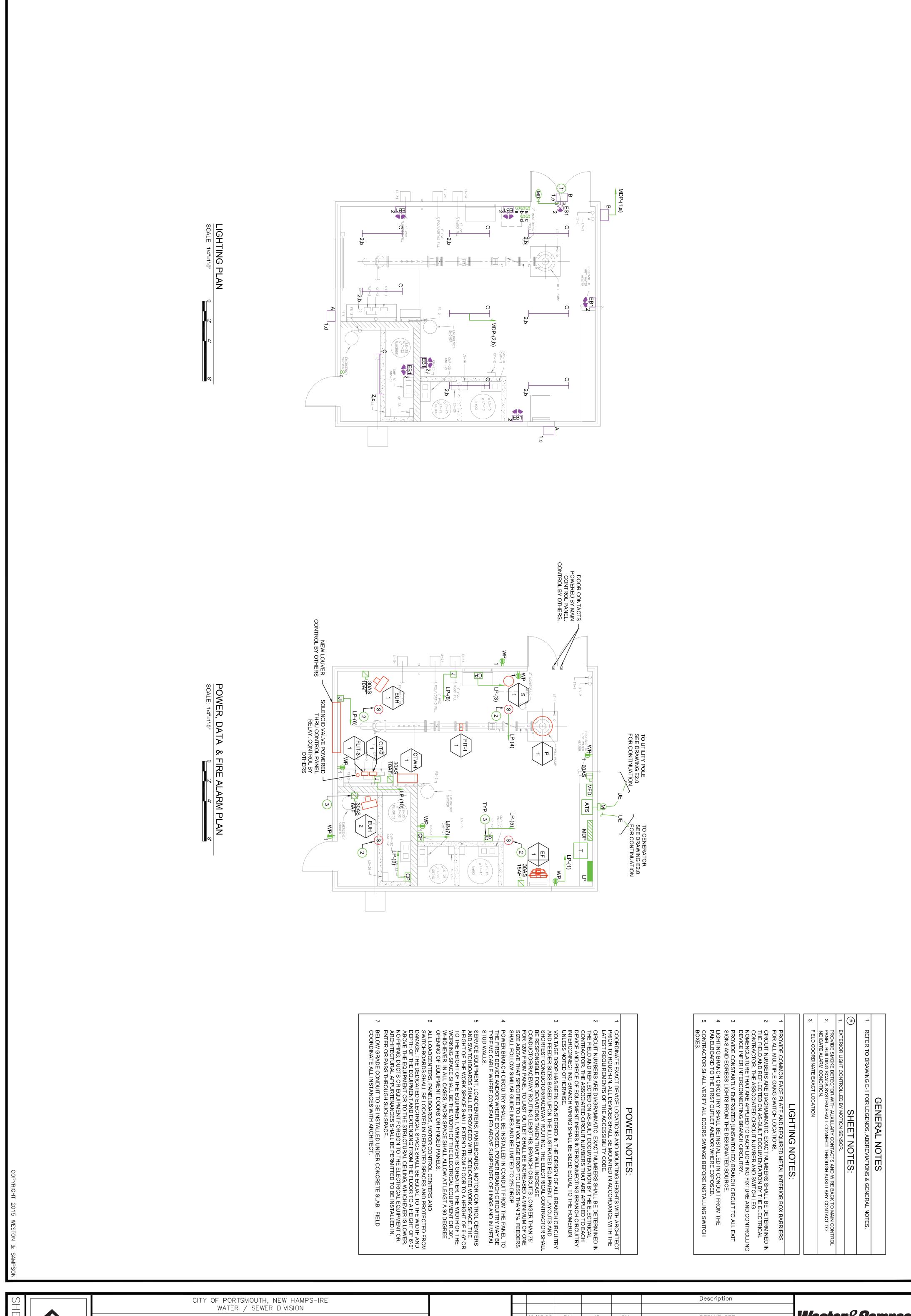






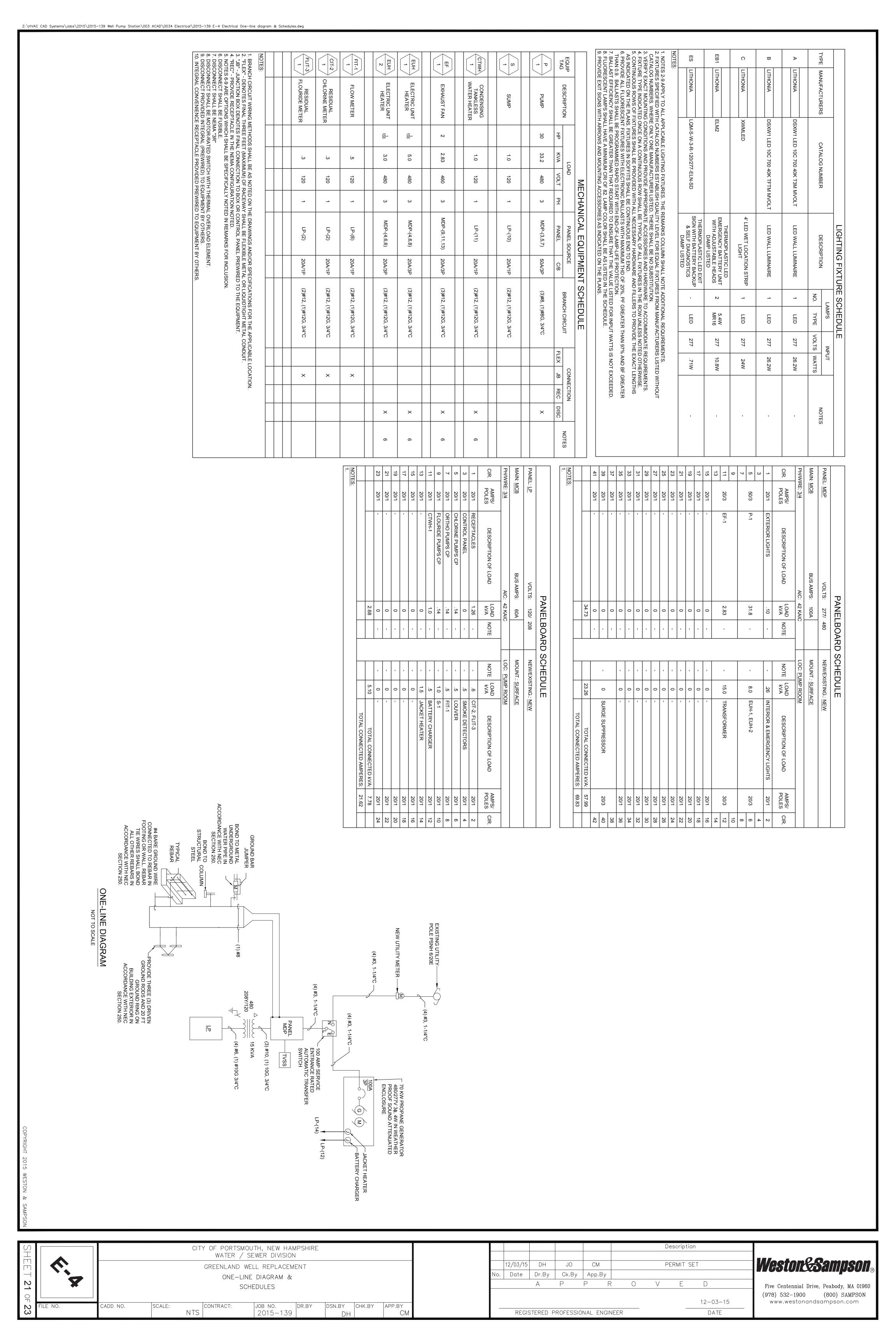


Description CITY OF PORTSMOUTH, NEW HAMPSHIRE WATER / SEWER DIVISION Weston Sampson PERMIT SET 12/03/15 JO GREENLAND WELL REPLACEMENT Dr.By Ck.By Date App.By **19** OF 0 D Five Centennial Drive, Peabody, MA 01960 SITE LIGHTING FOOT CANDLE CALCULATION PLAN (800) SAMPSON (978) 532-1900 www.westonandsampson.com 12-03-15 SCALE: 1/8"=1'-0" CONTRACT: 23 APP.BY CADD NO. JOB NO. DR.BY DSN.BY CHK.BY FILE NO. 2015-139 REGISTERED PROFESSIONAL ENGINEER



Z: \HVAC CAD Systems\Jobs\2015\2015-139 Well Pump Station\003 ACAD\0034 Electrical\2015-139 E-3 Electrical Lighting Plan\_Power,Data, Fire Alarm.dwg

**Weston&Sampson** PERMIT SET DH JO 12/03/15| CM GREENLAND WELL REPLACEMENT Dr.By Ck.By App.By Date LIGHTING & POWER, 20 OF 23 0 D Five Centennial Drive, Peabody, MA 01960 DATA, & FIRE ALARM PLAN (800) SAMPSON (978) 532-1900 www.westonandsampson.com 12-03-15 SCALE: 1/4"=1'-0" APP.BY CADD NO. CONTRACT: JOB NO. DR.BY DSN.BY CHK.BY TILE NO. 2015-139 CM DATE DH REGISTERED PROFESSIONAL ENGINEER



FOR THE CONSTRUCTION OF THE PROJECT AND SHALL PAY FOR THE COST OF INSTALLATIONS. THEE C. SHALL PAY FOR THE COST OF INSTALLATIONS. THEE C. SHALL INCLUDE ALL CHARGES FROM THE UTILITY COMPANY SERVICE.  13. RECORD DRAWINGS: IN ACCORDANCE WITH REQUIREMENTS. FLIRNISH AND KEEP IN THE JOB AT ALL TIMES. TWO (2) COMPLETE AND SEPARATE SETS OF BLACKLINE PRINTS OF THE ELECTRICAL WORK ON WHICH SHALL BE CLEARLY, NEATLY AND ACCURATELY NOTED, PROMPTLY AS THE WORK PROGRESSES. ALL ELECTRICAL CHANGES, REVISIONS AND ADDITIONS TO THE WORK IN STALLED OTHERWORK IN MORK IS IN ACCORDANCE WITH GENERAL CONDITIONS.  14. THE COMPLETED ELECTRICAL INSTALLATION SHALL BE GUARANTEED IN WRITING BY THE ELECTRICAL CONTRACTOR TO SE FREE FROM DEFECTS OF MANUFACTIOR AND THE DATE OF WRITTEN ACCEPTANCE BY THE OWNER AND SHALL BE MOECOND FOR MAPROPER MATERIAL. EQUIPMENT WORKMANSHIP OR DESIGN WHICH MAY DEVELOP SHALL BE MOECOND FOR INFORMED AND ADDITIONS.  15. THE CO SHALL NOTIFY THE OWNER UPON: (1) COMPLETION OF ALL ROUGH WIRING SHORTER SYSTEMS RESULTING FROM THIS FAILURE.  16. THE EC SHALL NOTIFY THE OWNER UPON: (1) COMPLETION, THE OWNER SAND OTHER SYSTEMS RESULTING FROM THIS FAILURE.  16. THE EC SHALL POURPLETON, THE OWNER SAND OTHER SYSTEMS RESULTING FROM THIS FAILURE.  16. THE EC SHALL POURPLETON. THE OWNER SAND OTHER SUPPLIED AND INSTALLED BY THE HORD CONTRACTOR, INSTALLED BY THE HORD CONTRACTOR, INSTALLED BY THE MORK AFTER SUPPLIED AND INSTALLED BY THE FOR SHALL CORRECT, AT NO ADDITIONAL COST, ANY DEFICIENCIES FOUND.  16. RELATED WORKBY OTHERS  16. THERMOSTATS AND CONTRAC WIRING SHALL BE SUPPLIED AND INSTALLED BY THE ELECTRICAL CONTRACTOR, INSTALLED BAD WIRED BY THE ELECTRICAL CONTRACTOR.  16. SUPPLIED AND WIRED BY THE ELECTRICAL CONTRACTOR.  16. SUPPLIED AND WIRED BY THE ELECTRICAL CONTRACTOR.  16. SUPPLIED AND WIRED BY THE ELECTRICAL CONTRACTOR.  17. SUBMITTALS FOR ELECTRICAL EQUIPMENT TO THE	ELECTRICAL SPECIFICATIONS  PART 1-GENERAL  1. THE PROJECT INCLUDES INSTALLATION OF ELECTRICAL SYSTEMS AT GENERAL CONDITIONS, SPECIAL CONDITIONS AND SUPPLEMENTAL CONDITIONS OR RECULAND, NH.  2. THE CONNERS GENERAL CONDITIONS, SPECIAL CONDITIONS AND SUPPLEMENTAL CONDITIONS OR RECULAND, NH.  3. EXAMINATION OF SITE AND CONTRACTOR SHALL EFFORE SUBMITHING HIS PROPOSAL, THIS GENERAL RECURRENTS WHICH HAVE BE DISPOSAL REQUIREMENTS WHICH ANY BE DISPOSAL REQUIREMENT SHALL BE INCORPOGRATED INTO THE BID IF POIS GENERALL APPLY, NO DEPERAMING AND SPECIFICATIONS SHALL BE INCORPOGRATED INTO THE BID IF DISPOSAL SELECTIVES SHALL APPLY NO DEPERAMING SAND SPECIFICATIONS SHALL BE INCORPOGRATED INTO THE BID IF DISPOSAL ELECTRICATIONS THE MORE STRINGENT RECURRENCE SUPPLIES HAVE ONE STRINGENT RECURRENCE SUPPLIES HAVE ONE STRINGENT RECURRENCES SHALL BE ALLOWED DUE TO EXISTING CONDITIONS.  4. THE ECS SHALL FURNISH AND INSTALL ALL APPLY NO DEPARATION AND SPECIFICATIONS SHALL BE CONDITION WIFE BOXESS SWITCHES LIGHTMON STRUTURES FIRE ALLOW COMPONENTS, RECEPTACLES AND OPERATIONAL ELECTRICAL SYSTEMS.  5. THE INSTALLATION OF THE SYSTEMS SHALL CONCORN COME NATIONAL FIRE PROTECTION ASSOCIATION AND ALLOWERS FEDERAL SYSTEMS.  6. ALL MATERIALS SHALL BE NEW AND SHALL BEART THE UNDERWRITERS LABEL.  7. OSETIAN AND DAYS FOR ALL BECONSTRUCTED AND FINISHED IN STALL BY AND LOCAL TAXES.  8. WORKMANSHIP: THE ENTIRE WORK PROVIDED IN THIS SPECIFICATION SHALL BE CONSTRUCTED AND FINISHED IN STALL BY AND LOCAL TAXES.  8. WORKMANSHIP: THE ENTIRE WORK PROVIDED IN THIS SPECIFICATION SHALL BE CONSTRUCTED AND FINISHED IN STALL BY AND LOCAL TAXES.  8. WORKMANSHIP: THE ENTIRE WORK PROVIDED IN THIS SPECIFICATION SHALL BE CONSTRUCTED AND FINISHED IN STALL BY AND LOCAL TAXES.  9. WORK OF OTHER TRADES OF THE PROPER METHOD OF THE WHOLE PROJECT IN A WORKMANLER COLUMENT SHALL BE SUPPORTED BY WORK OF OTHER TRADES. OF THE SECOND OF THE WHOLE PROJECT THE CONSTRUCTION OF THE WHOLE PROJECT THE CONSTRUCTION OF THE WHOLE PROJECT THE CONSTRUCTION OF THE STALL BROCKING AND TOWNER HEIG
5. WIRING: WIRING SHALL BE A MINIMUM OF #12 AWG SOLID NON-METRALIC CONDUIT TYPE NUNCTROMEX SHALL NOT BE USED, ALL WIRE AND CABLE SHALL BE COPPER, NO ALUMINUM IS PERMITTED, WIRE AND CABLE SHALL BE MANUFACTURED BY PEILEY DODGE COPPER PRODUCTS CORP., GENERAL CABLE CO., TRANGLE CONDUIT AND CABLE CO., OR EQUAL.  6. OUTLET BOXES AND ACCESSORIES. 6.1. PROVIDE GALVANIZED SHEET STEEL OUTLET BOXES FOR ALL OUTLETS UNLESS OTHERWISE NOTED  6.2. ALL OUTLET BOXES FOR PENDANT-MOUNTED FORTURES SHALL BE GALVANIZED SHEET; THOSE FOR FIXTURES SHALL BE GALVANIZED SHEET; THOSE FOR FIXTURES SHALL BE GALVANIZED SHEET STEEL ONDITIONS (2) SIZE AND NUMBER OF RECEWAYS, CONDUCTORS OR CABLES ENTERNO, AND (3) DEVICES OR FIXTURES SHALL BE GALVANIZED SHEET STEEL ONDITIONS (2) SIZE AND NUMBER OF RECEWAYS, CONDUCTORS OR CABLES ENTERNO, AND (3) DEVICES OR FIXTURES SHALL BE GALVANIZED SHEET SHEED  6.5. INSTALL BLANK PLATES ON ALL OUTLET BOXES IN WHICH NO APPARATIUS IS INSTALLED, WHICH DO NOT INTEGRALLY PROVIDE A COVER FOR THE BOX. SPECIAL CARE SHALL BE TAKEN TO SET ALL BOXES CORRECTLY SQUARE AND TRUE WITH THE BUILDING FINISH.  6.7. FIXTURE OUTLET BOXES SHALL HAVE 39" SOLID MALE FIXTURE STUDS. OUTLET BOXES AND ACCESSORIES SHALL BE AS MANUFACTURED BY STEEL CITY, APPLETON, RACO., OR EQUAL.  7. WIRING DEVICES: ALL WIRING DEVICES SHALL BE OF A SINGLE MANUFACTURED BY STEEL CITY, APPLETON, RACO., OR EQUAL.  7. WIRING DEVICES: ALL WIRING DEVICES SHALL BE GROUNDING TYPE, RATED AS INDICATED, AND 125V. RECEPTACLE SHALL BE BACK AND SOLE WIRED  THE COUNTERMENTS. COORDINATE COLOR WITH ARCHITEAL  7.1. ZOA COMMERCIAL GRADE RECEPTACLES SHALL BE GROUNDING TYPE, RATED AS INDICATED AND 125V. RECEPTACLES SHALL BE BACK AND SOLE WIRED  SHALL HAVE SAN ADDITIONAL GROUNDING LEG AND SHALL HAVE AN ADDITIONAL GROUNDING LEG AND SHALL HAVE AN ADDITIONAL GROUNDING LEG AND SHALL HE EQUIPMENT TO BE CONNECTED.	INEER FOR APPROMITTALS SHALL IN NGS. PROVIDE IN S  S  S  S  S  S  S  S  S  S  S  S  S
TAP SHALL BE Z. 12%. VIBRATION DAMPERS SHALL BE PROVIDED BETWEEN FRANKE AND HOUSING; NOISE LEVEL, SHALL BE PER NEMA STANDARD.  OF REAL SHALL BE SHER NEMA STANDARD.  OF REAL BECTRIC TYPE QL OR EQUAL BY SIEMENS OR SQUARE D.  11. LIGHTING FIXTURES: LIGHTING FIXTURES SHALL BE PROVIDED COMPLETE, WITH LAMPS, AS SHOWN ON THE FIXTURE SCHOLE. FURNISH ALL FITTINGS AND OTHER MISCELLAVIOUS MATERIALS FOR COMPLETE INSTALLATION OF FIXTURES.  12. DISCONNECT SWITCHES: ALL SAFETY SWITCHES SHALL BE REAM GENERAL DUTY TYPE HD AND UNDERWRITERS LABORATORIES LISTED  12.1. ALL SWITCHES SHALL HAVE SWITCHBLADES WHICH ARE FULLY VISIBLE IN THE OFF POSITION WITH THE DOOR OPEN ALL CURRENT, CARRYING PARTS SHALL BE PLATED THROUGH ELECTROLYTIC PROCESSES TO RESIST CORROSION AND PROMOTE COOL OPERATION.  12.2. SWITCHES SHALL BE OVICK, MAKE AND QUICK, SHEAK SUCH THAT DURING NORMAL OPERATION OF THE SWITCH THE OPERATION OF THE CONTACTS SHALL BE NOT CAPABLE OF BEING FISH CONTACTS SHALL BE NOT CAPABLE OF THE BOX, NOT THE COVER, WITH POSITIVE PADLOCKING PROVISIONS IN THE OPERATION HANDLE AFTER THE CLOSING OR OPENING ACTION OF THE COVER, WITH POSITIVE PADLOCKING PROVISIONS IN THE OFF COSTION.  12.3. SWITCHES SHALL BE HORSEPOWER RATED FOR 600 VOLTS AC AND ALL SWITCHES SHALL BE OF CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE (JL 98) SHEET STEEL (WEMA 1) OR CODE GALIGE PROVIDED AND ALL SWITCHES SHALL BE FURSED FOR 600 VOLTS AC APPROVED EQUAL ALS MANUFACTURED BY GENERAL ELECTRIC OR WESTINGHOUSE ELECTRIC  13. FURSES SHALL BE ROOR	7.3. GEH RECEPTACLES SIMALL EACH HAVE GET ITRIPPING (NO FEED THROUGH IS PERMITTED) AND EQUAL TO PASS & SEYMORE #2091-SI.  7.4. DAMP LOCATION WEATHERPROOF RECEPTACLES SHALL COATON WEATHERPROOF RECEPTACLES SHALL COATON WEATHERPROOF RECEPTACLE SINGLE-POILE ON WEATHERPROOF RECEPTACLE IS COVERED AND EQUAL TO HUBBELL MODEL HELESOSMO.  7.5. SHALL COATON WEATHERPROOF RECEPTACLE IS COVERED AND EQUAL TO HUBBELL MODEL HELESOSMO.  7.6. LIGHT SWITCHES. SLALL COATON WEATHERPROOF RECEPTACLE IS COVERED AND EQUAL TO HUBBELL MODEL HELESOSMO.  7.6. LIGHT SWITCHES. SLALL COATON WEATHERPROOF RECEPTACLE WIT OVER EQUAL TO PASS & SEYMORE #WIUCID.  7.6. LIGHT SWITCHES. SLALL COATON THE FLUSH QUIET TOGGLE TYPE. SINGLE-POILE OF THREE WAY AS REQUIRED. SWITCHES SHALL SECONMON INTERNAL TO THE FOLLOWING.  7.6.1. SINGLE POLE PASS & SEYMOUR 20AC, 3  8. CIRCUIT BREAKERS SHALL BE COMMON INTERNAL THE PROPER VOLTAGE AND PAYER THAN THE PROPER VOLTAGE AND PAYER THAN THE SAME AND THE SEARCH STATED TO COATON THE FLUSH AND THE SEARCH STATED TO COATON THE THAN THE PROPER VOLTAGE AND PAYER THAN THE PROPER VOLTAGE SHALL BE COATON THE BRAKERS FEED AND THAN SHALL BE COATON THE BRAKERS WILL BE RECARGES SHALL BE GOVED TO PAYER THAN THE PROPORTING AND PAYER THAN THE SHALL BE CAPABLE TO FS SUPPORTING AND PAYER THAN THAN THAN THE PROPORTING AND THE REAGERS WILL BE PROVIDED TO MAKE ADD AND PAYER THAN THAN THAN THAN THE PROPORTING AND THE PAYER SHALL BE PROVIDED AS REQUIRED.  10 PAYER THAN THAN THAN THAN THE P
15.6.1.3. MICHANIORAL AND ENHAUST NOISE 15.6.1.4. GOVERNOR SPEED REGULATION AT %, %, %, AND FULL LOAD, AND DURING TRANSIENTS 15.6.1.5. MOTOR STRARTING KVA 15.6.1.6. GENERATOR TEMPERATURE RISE IN ACCORDANCE WITH NEMA MG 1-22 40 15.6.1.7. VOLTAGE REGULATION AT %, %, %, AND FULL LOAD, AND DURING TRANSIENTS 15.6.1.8. GENERATOR SEGULATION AND TELEPHONE INFLUENCE FACTOR 15.6.1.10. COOLING SYSTEM PERFORMANCE 15.6.1.11. LINEAR VIBRATION AND ANALYSIS 15.6.1.12. GENERATOR REVOLVING FIELD ASSEMBLY FOR 2 HOURS AT 27200 RPM (150%) OVERSPEED) AND 70C, AND EACH PRODUCTION UNIT TESTED AT 2250 (125%) OVERSPEED) AND 70C, AND EACH PRODUCTION UNIT TESTED AT 2250 (125%) OVERSPEED) AND TOTO, AND EACH PRODUCTION UNIT TESTED AT 1250 (125%) OVERSPEED) AT ROOM TEMPERATURE. 15.7. FACTORY TEST 11.1. THE GENERATOR SET MANUFACTURERS SHALL BE PROVIDED AT THE TIME OF EMERATOR SET MANUFACTURERS FACILITY. A CERTIFIED REPORT OF THESE TESTS SHALL BE PROVIDED AT THE TIME OF EMERATOR SHIPPING FROM THE FACTORY. THE MANUFACTURERS TEST SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: 15.7.1.1. OPERATION AT RATED KVA 15.7.1.2. OPERATION AT RATED KVA 15.7.1.3. TRANSIENT AND STEADY STATE GOVERNING 15.7.1.4. TRANSIENT AND STEADY STATE GOVERNING 15.7.1.5. OPERATION OF ALL ALARMAND SHUTDOWN DEVICES 15.8. ENGINE 15.8. ENGINE SHALL BE A PROPAME GAS FUELED, STATIONARY, TURBO CHARGED, LIQUID COOLLED, 1800 RPM, FOUR CYCLE DESIGN. ENGINE SHALL BE A PROPAME GAS FUELED. STATIONARY, TURBO CHARGED, LIQUID COULED, 1800 RPM, FOUR CYCLE DESIGN. ENGINE SHALL BE A PROPAME GAS FUELED. STATIONARY, TURBO CHARGED, LIQUID COULED, 1800 RPM, FOUR CYCLE DESIGN. ENGINE SHALL BE A PROPAME GAS FUELED. STATIONARY, TURBO CHARGED, LIQUID COULED, 1800 RPM, FOUR CYCLE DESIGN. ENGINE SHALL HAVE WITHER-COOLED ENGINE MOUNTED RADATOR, ENGINE SHALL BE 15.8.1. LUBE OIL, AS REQUIRED.	RATED FOR THE MOTOR WITH A MINIMUM OF 10 SECONDS AT 500% OF THE DELAY OF A MINIMUM OF 10 SECONDS AT 500% OF MOTOR PULL LOAD MAP SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AT 500% OF MOTOR PULL LOAD MAP OF SECONDS AND DETAILS OF SHALL BE MANUFACTURED BY BUSSMAN GOULD SHAMMUT, LITTLE OR APPROVED EQUAL.  14. MAMEPLATES. NAMEPLATES CONSISTING OF BLACK PLASTIC WITH WHITE CENTER, LETTERN GT OR BLACK PLASTIC WITH WHITE CENTER, LETTERN GT OR BLACK PLASTIC WITH BRASS SCREWS SHALL BE SHOWN ON THE DRAWNING EQUIPMENT.  14. ALL PARELBOARDS AND DETRIBUTION  14. THE STAND-BY GENERATOR SHALL HEAVEN WAS SHALL BE CONTINUOUSLY PATED FROM THE FORWARD SHALL BE CONTINUOUSLY PATED FOR THAT THE FROM THE SHALL BE CONTINUOUSLY PATED FOR SHALL BE CONTINUOUSLY PATED FOR SHALL BE CONTINUOUSLY PATED POWER FOR SHALL BE SHALL BE CONTINUOUSLY PATED POWER FOR SHALL BE SHALL
15.11.11.2 AC AMPMETER WITH 3 POSITION SELECTOR SWITCH TO READ EACH PHASE. 15.11.1.13 FREQUENCY METER. 15.11.1.14. ENGINE RPM METER. 15.11.1.15. DC VOLTAGE METER. 15.11.1.16. OIL PRESSURE METER. 15.11.1.17. COOLANT TEMPERATURE METER. 15.11.1.19. IT SHALL BE ACCEPTABLE TO COMBINE METERS TO A SINGLE DIGITAL DISPLAY WITH SELECTOR SWITCHES. 15.12. THE ENGINE GENERATOR SHALL ALSO BE EQUIPPED WITH AN ALARM MODULE METTING NEPA 110 REQUIREMENTS. ALL POINTS OF CONTROLS TO BE RUN BACK TO OWNER FURNISHED CONTROLS TO BE RUN BACK TO OWNER FURNISHED CONTROLS TO BE RUN BACK TO OWNER FURNISHED CONTROLAL SHEETOR SWITCH 15.12.0.1. COMMON ALARM HORN 15.12.0.2. LOW MATER TEMPERATURE LED 15.12.0.3. APPROACH LOW OIL PRESSURE LED 15.12.0.4. LAPPROACH LOW OIL PRESSURE LED 15.12.0.5. LOW WATER TEMPERATURE LED 15.12.0.6. LOW WATER TEMPERATURE LED 15.12.0.6. LOW WATER TEMPERATURE LED 15.12.0.7. PROVIDE FLUSH MOUNTED REMOTIE ANNUNCATOR TO MEET NEPA 110. 15.12.0.8. VIBRATION ISOLATORS 15.12.0.10. BATTERY CHARGER SHALL BE PROVIDE BY THE MANUFACTURES. SIZED AS RECOMMENDED BY THE MANUFACTURE TO AND PROVIDE BATTERIES, SIZED AS RECOMMENDED BY THE MANUFACTURER. COMPETER WITH BATTERY CHARGER SHALL HAVE DE AMMETER AND TERMINATIONS. 15.12.0.12. EXHAUST SILENCER SHALL BE CRITICAL GRADE AND SHALL HAVE PROVISION FOR DRAINING MOISTURE. 15.12.0.14. ON-SITE INSTALLATION AND TEST 15.12.0.15. ON-SITE INSTALLATION SHALL BE 15.12.0.16. ON-SITE INSTALLATION SHALL BE	15.8.1.2 LUBE OIL PUMP WITH REPLACEABLE FULL FLOW FILTERS.  15.8.1.3 FUEL TRANSFER PUMP WITH REPLACEABLE FULL FLOW FILTERS.  15.8.1.4 ENGINE MOVINED VERTICAL RADIATOR WITH BLOWER WAN.  15.8.1.5 ENGINE DOWERN JAN.  15.8.1.5 ENGINE DOWERN JAN.  15.8.1.6 LACKET WATER HEATER AND THERMOSTAT.  15.8.1.7 ETHYLENE GLYCOL-FOR ENGINE REEZE_UP PROTECTION OF JOSE MOBILETIC STARTING CYCLES WITHOUT  15.8.1.8 ELECTRIC STARTING MOTOR AND CONTROL CIRCUIT CAPABLE OF THREE COMPLETIC STARTING CYCLES WITHOUT  15.9.0.1 REPLACEABLE AIR FILTER 15.9.0.2 STANLESS STEEL EXHAUST CONNECTOR 15.9.0.3 BATTERY CHARGING ALTERMATOR WITH 15.9.0.3 BATTERY CHARGING ALTERMATOR WITH 15.9.0.4 PROPAME GAS FUEL CARBURETOR 15.9.0.5 CRITICAL GRADE SILENCER  15.9.0.6 FUEL FULTER 15.9.0.1 PROPAME GAS FUEL CARBURETOR 15.9.0.2 STANLESS STEEL EXHAUST FOLLOWING 15.9.0.3 STANDARDS 15.10.0.1 CONSTRUCTED TO NEMA 1 AND IP22 STANDARDS 15.10.0.1 STANDARD PLANT CONTROL PANEL (UNIT MOUNTED), 15.10.0.4 BATTERY CHARGER 15.10.0.5 SHALL BE STAND BY ANTEN TO SERVE SELECTED BUILDING 15.10.0.5 BATTERY CHARGER 15.10.0.6 GENERATOR OUTPUT CIRCUIT BREAKER 15.10.0.7 STANDARDS 15.10.0 GENERATOR SHALL BE TOTALLY SOLD STAFE. 15.10.1 GENERATOR SHALL BE TOTALLY SOLD STAFE. 15.10.2 GENERATOR SHALL BE COUNTED 15.11.1 ENGINE CONTROL PANEL SHALL BE MOUNTED. 15.11.1 ENGINE CONTROL SHORT FOR AUTOMATIC START MANUAL START RESET, OR STOP 15.11.1 ENGINE CONTROL FOR AUTOMATIC START MANUAL START RESET, OR STOP 15.11.1 ENGINE CONTROL FOR AUTOMATI
	PROVIDED BY THE GENERATOR MANUFACTURER TO ASSEMBLE ALL UNCONNECTED, LOOSE SHIPPED ITEMS.  15.13.0 GENERATOR SHALL BE ITESTED AT THE SITE FOR FINAL ACCEPTANCE PROPER OPERATION SHALL BE DEMONSTRATED AS FOLLOWS.  15.13.0.1 COLD START TEST TO VERTY ENGINE START.  15.13.0.2 TEST OF AUTOMATIC TRANSFER SWITCH. 15.13.0.3 TEST OF AUTOMATIC TRANSFER SWITCH. 15.13.0.4 LOPERATION OF GENERATOR AT 100% FULL LOAD, AFTER THE FIRST 2'**HOWN FULL LOAD, AFTER THE FIRST 2'**HOWN FULL LOAD, AFTER THE FRED LOWING SHALL BE RECORDED AT 15 MINUTE 15.13.0.5 VOLTAGE, AMPERATURE AT ENGINE 15.13.0.7 LEAFWAST GAS TRAMPERATURE AT ENGINE 15.13.0.8 AWBIENT TEMPERATURE AT ENGINE EXHAUST GAS TRAMPERATURE AT ENGINE 15.14.0.1 AND STRUCTIONS 15.14.0.2 PARTS BOOK 15.14.0.3 ROUTING TEST PROCEDURES 15.14.0.4 ROUTING TEST PROCEDURES 15.14.0.5 RECENTATIVE SHALL BE MANUFACTURED BY CATERPILLER, KOHLER, OR EQUAL

SCALE:

NTS

CADD NO.

CITY OF PORTSMOUTH, NEW HAMPSHIRE WATER / SEWER DIVISION GREENLAND WELL REPLACEMENT SPECIFICATIONS APP.BY CM CONTRACT: JOB NO. 2015-139 DR.BY CHK.BY DSN.BY DH

Description PERMIT SET 12/03/15 DH JO Dr.By Ck.By App.By Date D 12-03-15 DATE REGISTERED PROFESSIONAL ENGINEER

**Weston&Sampson**® Five Centennial Drive, Peabody, MA 01960

(978) 532-1900 (800) SAMPSON www.westonandsampson.com

AROUND CONTRICTS. THEY SHALL BE OF THE CONTRICT.  BELIEV OWN CONTRICTION, THE OFFENTION.  BERIEV OWN CONTRICTION THE OFFENTION.  BERIEV OWN CONTRICTION THE OFFENTION.  BERIEV OWN CONTRICTION.  BERIEV	16. AUTOMATIC TRANSFER SWITCHES  16.1. THE AUTOMATIC TRANSFER SWITCHES SHALL BE MECHANICALLY HELD AND ELECTRONICALLY OPERATED BY A SINGLE SOLENOID MECHANISM ENERGIZED FROM THE SOURCE TO WHICH THE LOAD IS TO BE TRANSFERRED. THE SWITCH SHALL BE RATED FOR CONTINUOUS DUTY AND BE INHERENTLY DOUBLE THROW. THE SWITCH SHALL BE MECHANICALLY INTERLOCKED TO ENSURE ONLY ONE (1) OF TWO (2) POSSIBLE POSITIONS NORMAL OR EMERGENCY.  16.2. TRANSFER SWITCH SHALL BE CLOSED TRANSITION TYPE.  16.3. ALL MAIN CONTACTS SHALL BE OF SILVER COMPOSITION. THEY SHALL BE PROTECTED BY
MÜLOWITCHUK BEWANSEID. HIE MOWTON SHALL NOT REQUIRE HER WERNEN WITH HE SHALL ROWENDE PROGRAMMABLE BROWNE EXERCISER DESERBATTER FOODRAMMABLE BROWNE EXERCISER DESERBATTER FOODRAMMABLE BROWNE EXERCISER DESERBATTER FOODRAMMABLE BROWNE EXERCISER DESERBATTER SOURCES OF MANY FLORE HALL PROVIDE PROGRAMMABLE BROWNE PROVIDE PROVIDE PROVIDE PROGRAMMABLE BROWNE PROVIDE PR	TOR LOAD TRANSFER: AN INNITOR SHALL BE PROVIDED. ALL CONTROL TRANSFER/RETERATION BETWEEN LIVE SOUDSURE ON THE ALTERNATE SOUNCERONLY WHEN THE TWO SOPROACHING SYNCHRONISM, AUTHORIES MAXIMUM SO THAT INITIAL BETWEEN ARTING CURRENTS. THE MONTARTING CURRENTS. THE MONTARTING CURRENTS. THE MONTARTING TRANSFER TIME OF SECOND. IF THE VOLTAGE OF RRYING SOURCE DROPS BELIFICATION SOURCE DROPS
SYSTEMS SYSTEM	UNDERWRITERS LABORATORIE BY UNDERWRITERS LABORATORIE BY UNDERWRITERS LABORATORIE CERTIFICATION AND FOLLOW L TESTING OR LISTING TO THE U STANDARD BY LABORATORIES UNDERWRITERS LABORATORIE ACCEPTABLE.  O.8. THE UL 1449 SUPPRESSION VC (SVR) AND CSA LABEL SHALL B AFFIXED TO THE SERIES SURG (SVR) AND CSA LABORATORIE (SVR) AND CSA LABORATORIE (SVR) AND CSA LABORATORIE (SVR) AND FOR SAFETY - ELEC INTERFERENCE FILTERS  OLONG NATIONAL FIRE PROTECTION A NFPA 780 - NATIONAL ELECTRIE
19.1.5. I FREDUESTED, ASAMPLE DE SAM USE IN TESTINO AND EVALUTION.  19.1.1. PROVIDE LESTON AND EVALUTION.  19.1. PROVIDE LANGUT AND	19.1.3. DRAWINGS, WITH DIMENSIONS, INDICATING SPD MOUNTING ARRANGEMENT AND LEAD LENGTH CONFIGURATION, AND MOUNTING ARRANGEMENT OF ANY OPTIONAL REMOTE DIAGNOSTIC EQUIPMENT AND ASSEMBLIES.  19.1.4. LIST AND DETAIL ALL PROTECTION SYSTEMS SUCH AS FUSES, DISCONNECTING MEANS AND PROTECTIVE MATERIALS.  19.1.5. SPD WIRING, BONDING, AND GROUNDING CONNECTIONS SHALL BE INDICATED ON THE WIRING DIAGRAMS FOR EACH SYSTEM. INCLUDE INSTALLATION DETAILS DEMONSTRATING MECHANICAL AND ELECTRICAL CONNECTIONS TO EQUIPMENT TO
MINIMAM OF 33 DIS JALL MESSARAMENTS FOR HIS RECOURSEAN INASTE EXPERISING FOR HIS RECOURSEAN INASTE EXPENSIVE FOR HIS RECOURSEAN INASTE EXPENSIVE ON THE INASTALL PRICE OF THE PROCESS OF TEXT OF THE PROCESS OF THE PROC	INFORMATION.  9.1.32. SPDS SHALL BE EQUIPPED WITH AN AUDIBLE ALARM WITH MUTE, RESET AND ACKNOWLEDGE FEATURES.  9.1.33. THE DEVICE MUST BE CERTIFIED TO WITHSTAND A MINIMUM OF 20,000 CATEGORY C3 (COMBINATION WAVE - 20,000 VOLTS - 1.2X50US OCV AND 10,000 AMPS - 8X20US SCC AS DEFINED BY ANSI/IEEE C62.41-1991) IMPULSES WITH LESS THAN 10% CHANGE IN THE BASELINE TO FINAL LET-THROUGH VOLTAGE. THIS DATA MUST BE SUBMITTED AS AN INDEPENDENTLY VERIFIED AND CERTIFIED TEST REPORT.  9.1.34. THE MAXIMUM VALUE FOR THE ATTENUATION FOR THE SUPPRESSOR MUST EXCEED A MINIMUM OF 23 DB. ALL MEASUREMENTS FOR
THE ELECTRICAL CONTRACTOR HAS A  MANUER SO AS NOT TO DELAY THE PROGRESS OF THE PROJECT.  THE ELECTRICAL CONTRACTOR HAS A  RESPONSIBILITY TO COORDINATE THE ELECT  RESPONSIBILITY OF COORDINATE THE ELECT  RESPONSIBILITY OF COORDINATE THE PROPERTY OR  RESPONSIBILITY OF THE THE MISTALLED CONCESAED.  MULTIPLES SO THE THE MISTALLED CONCESAED.  MULTIPLES SO THE THE MISTALLED CONCESAED.  MULTIPLES SO THE THE MISTALLED CONCESSION TO THE MISTALLED CON	ALL PAINTING AND PATCHING WHICH SHALL MATCH EXISTING BASE MATERIALS IN LOOKS AND COLOR. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ROUTINE DRILLING THROUGH 2 X 4 AND/OR 2 X 6 WOOD FRAME WALLS AND 2 X 10 AND/OR 2 X 12 FLOOR JOISTS IN ORDER TO INSTALL WIRING.  COOPERATION AND WORK PROGRESS THE ELECTRICAL WORK SHALL BE CARRIED ON UNDER THE USUAL CONSTRUCTION CONDITIONS, IN CONJUNCTION WITH ALL OTHER WORK AT THE SITE. THE ELECTRICAL CONTRACTOR SHALL COOPERATE WITH THE ENGINEER AND ALL CONTRACTORS AND EQUIPMENT SUPPLIERS WORKING ON THE SITE, COORDINATE THE WORK, AND PROCEED IN A MANNIER SO AS NOT TO DELAY THE BEOCRESS OF 6.1. 6.1. 6.1.
ECONNECTIONS PROCESSAND PROPERSION  8.1.2. MAKE SPLIZES IN HONORIO DIRECTIONS NOTION  MAKE SPLIZES SCREEP, OCCOMENTIONS  8.1.3. RECONNECTIONS NOTION  8.1.3. RECONNECTIONS NOTION  8.1.3. RECONNECTIONS NOTION  8.1.3. RECONNECTIONS NOTION  8.1.3. RECONNECTIONS SPLICES WITH LORD ON THE HONORIO TO THE PROPERSION NOTION PROCESSAND  8.1.3. RECONNECTIONS SPLICES AND EXAMINATION OF THE CONNECTIONS SPAND AND AND EXAMENTION OF THE PROPERSION NOTION SPECIAL THE PROPERSION NOTION SPECIAL TO NOTION SPECIAL	NEUT EQUI EQUI AKE CON GHT ARP ROVIDE (S CORRE CORRE ONDUCT ONDUCT ONDUCT
ELECTRICAL	Vestoresampson® Five Centennial Drive, Peabody, MA 01960

SPECIFICATIONS 12-03-15 DSN.BY CHK.BY APP.BY CADD NO. SCALE: CONTRACT: DR.BY JOB NO. 2015-139 NTS DATE REGISTERED PROFESSIONAL ENGINEER

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