ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD
LIFT STATION 16

FALL 2014 *VOLUME 2 OF 2*

PLANS ARE PREPARED IN ACCORDANCE TO RCW 39.35a-c DESIGN BUILD PROCEDURE. ADDITIONAL DETAILS MAY BE DEVELOPED DURING CONSTRUCTION AND WILL BE INCLUDED IN THE FINAL CONSTRUCTION RECORDS.

PROJECT DATA

ADDRESS: 19426 56TH AVE W, LYNWOOD, WA 98036

PROJECT DESCRIPTION: THE CITY OF LYNNWOOD LIFT STATION 16 PROJECT CONSISTS OF CONSTRUCTING A WET WELL WITH SUBMERSIBLE SEWAGE PUMPS AND A CHECK VALVE CHAMBER, AN ABOVE-GRADE CMU BUILDING THAT WILL HOUSE THE ELECTRICAL AND TELEMETRY EQUIPMENT AND ODOR CONTROL UNIT, INSTALLATION OF AN EMERGENCY GENERATOR, AND SITE WORK. THE PROPOSED SITE IS APPROXIMATELY 8940 SF.

TYPE OF CONSTRUCTION PER IBC: TYPE III-B, NON-SPRINKLERED

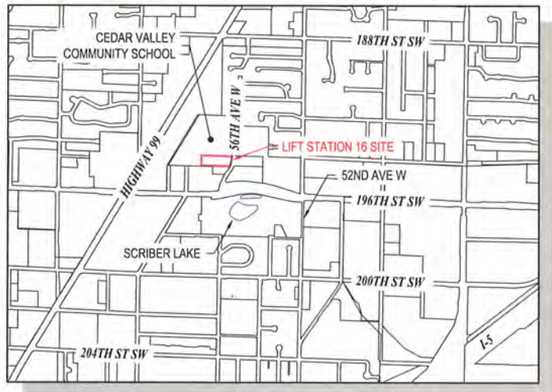
TOTAL BUILDING AREA: 672 SF

OCCUPANCY CLASSIFICATION PER IBC: UTILITY AND MISCELLANEOUS GROUP U

OCCUPANCY LOAD: N/A

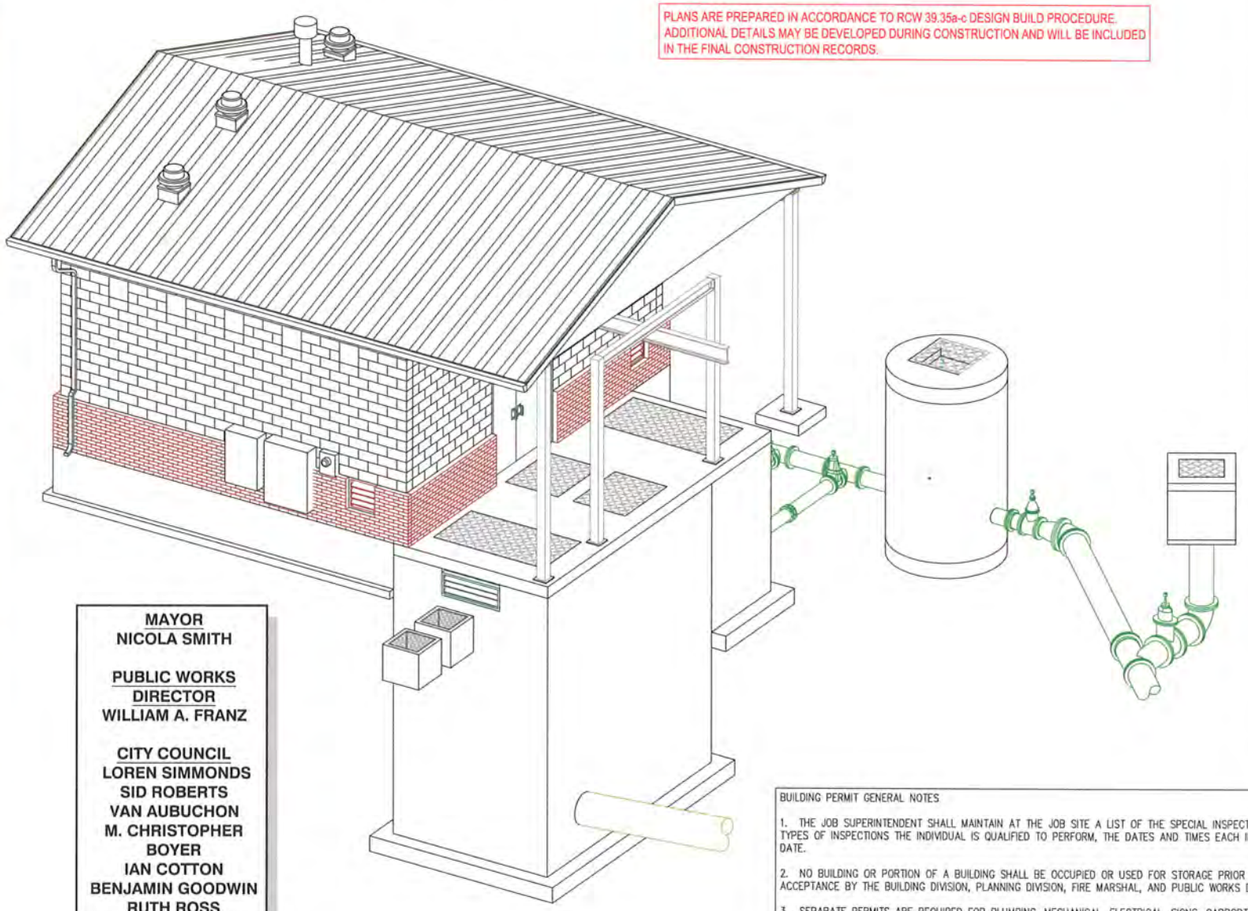
SURVEY DESCRIPTION: S ½, S ½, SW ¼, SECTION 16, TOWNSHIP 20 N, RANGE 4 E, W.M.

VICINITY MAP



CONTACT INFORMATION

CONTACT	COMPANY	PHONE
LES RUBSTELLO, P.E.	CITY OF LYNNWOOD	(425) 670-5231
RICK BALLARD, P.E.	RH2 ENGINEERING	(425) 951-5328
EDWIN HALIM, P.E.	RH2 ENGINEERING	(425) 951-5332
RYAN FESKENS, P.E.	RH2 ENGINEERING	(425) 951-5396
DAVID MATULICH	PUGET SOUND ENERGY	(425) 424-6442
JAMES SUTULL, P.E.	TRANE	(425) 588-1679



MAYOR
NICOLA SMITH

PUBLIC WORKS DIRECTOR
WILLIAM A. FRANZ

CITY COUNCIL
LOREN SIMMONDS
SID ROBERTS
VAN AUBUCHON
M. CHRISTOPHER BOYER
IAN COTTON
BENJAMIN GOODWIN
RUTH ROSS

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BUILDING PERMIT GENERAL NOTES

1. THE JOB SUPERINTENDENT SHALL MAINTAIN AT THE JOB SITE A LIST OF THE SPECIAL INSPECTORS CONDUCTING INSPECTIONS ON THE PROJECT. INCLUDED ON THE LIST WILL BE THE INDIVIDUAL'S NAME, THE TYPES OF INSPECTIONS THE INDIVIDUAL IS QUALIFIED TO PERFORM, THE DATES AND TIMES EACH INDIVIDUAL WAS OR WILL BE PRESENT ON THE JOB SITE, AND THE TYPES OF INSPECTIONS COMPLETED EACH DATE.

2. NO BUILDING OR PORTION OF A BUILDING SHALL BE OCCUPIED OR USED FOR STORAGE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY. APPROVAL FOR OCCUPANCY IS ONLY GRANTED AFTER ACCEPTANCE BY THE BUILDING DIVISION, PLANNING DIVISION, FIRE MARSHAL, AND PUBLIC WORKS DEPARTMENT. NO EXCEPTIONS.

3. SEPARATE PERMITS ARE REQUIRED FOR PLUMBING, MECHANICAL, ELECTRICAL, SIGNS, CARPORTS, POOLS, UNDERGROUND OR ABOVE-GROUND STORAGE TANKS, AND DEMOLITIONS. A SEWER CAPPING PERMIT IS REQUIRED PRIOR TO ANY DEMOLITION WORK.

4. WORKING ON WEEKENDS REQUIRES WRITTEN APPROVAL FROM THE MAYOR. WORK MAY ONLY BE COMPLETED ON SATURDAYS FROM 9 AM TO 5 PM. WRITTEN REQUESTS SHALL BE SUBMITTED TO THE CITY HALL NO LATER THAN 12 PM (NOON) ON THE PRECEDING WEDNESDAY.

5. GREASE TRAPS AND OIL-WATER SEPARATORS REQUIRE SEPARATE INSPECTIONS DURING INSTALLATION AND BEFORE COVERING UP.

6. ALL REQUESTED INSPECTIONS SHALL BE CALLED IN VIA A LAND LINE ON THE 24-HOUR RECORDER NUMBER: (425) 670-5550 FOR BUILDING AND ELECTRICAL PERMITS. FOR PUBLIC WORKS PERMITS, CALL (425) 670-8337.

7. ALL REQUESTED CHANGES TO THE APPROVED PLANS SHALL BE PREPARED BY THE PROJECT ARCHITECT AND/OR ENGINEER AND SUBMITTED TO THE BUILDING OFFICIAL FOR APPROVAL. COPIES OF THE APPROVED PLANS SHALL BE ON THE JOB SITE PRIOR TO COMMENCEMENT OF WORK. ALL REQUESTS FOR CHANGES SHALL INCLUDE THE PROJECT ADDRESS AND PERMIT NUMBER.

8. THE FINAL SIGNED REPORT FROM THE APPROVED TESTING LAB SHALL BE SUBMITTED TO THE BUILDING OFFICIAL PRIOR TO FINAL INSPECTION FOR OCCUPANCY.

9. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STATE-ADOPTED CODES.

RICHARD L. BALLARD — 32878 — SIGNED: 11/20/15
EDWIN HALIM — 38889 — SIGNED: 11/20/15
RYAN J. FESKENS — 49451 — SIGNED: 11/20/15
JOE MARSHALL CONSTANTINO — 44672 — SIGNED: 11/20/15
CHRISTOPHER M. ROBERTS — 45317 — SIGNED: 11/20/15
TONY V. PARISI — 26978 — SIGNED: 11/20/15

CONSTRUCTION SET

PLOT DATE: 11/18/2015

LS16-0-COV-LS.DWG

GENERAL NOTES

1. CONSTRUCTION OF IMPROVEMENTS SHALL CONFORM TO THE CURRENT EDITION OF THE CITY OF LYNNWOOD AND SNOHOMISH COUNTY STANDARDS AND THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, 2014 EDITION, AS ISSUED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION. THESE DOCUMENTS HEREINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE APPLICANT AND THE PROFESSIONAL ENGINEER OF RECORD TO CORRECT ANY ERROR, OMISSION, OR VARIATION FROM THE ABOVE REQUIREMENTS FOUND IN THESE PLANS. ALL CORRECTIONS SHALL BE AT NO ADDITIONAL COST OR LIABILITY TO THE CITY OF LYNNWOOD.
2. ALL CONSTRUCTION IS SUBJECT TO INSPECTION BY THE CITY OF LYNNWOOD AND/OR TRANE OR A DESIGNATED TRANE REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY THE CITY AND/OR TRANE OF THEIR SCHEDULE IN SUFFICIENT TIME TO PERMIT INSPECTION PRIOR TO AND DURING WORK. 24 HOURS NOTIFICATION IS REQUIRED FOR ALL INSPECTIONS. CALL (425) 670-5201 FOR INSPECTION REQUESTS.
3. BEFORE ISSUANCE OF PERMITS, CONSTRUCTION OR ANY DEVELOPMENT ACTIVITY, A PRECONSTRUCTION MEETING IS REQUIRED BETWEEN THE CITY OF LYNNWOOD, THE APPLICANT AND THE APPLICANT'S CONSTRUCTION REPRESENTATIVE. REQUEST A PRECONSTRUCTION MEETING ON THE CITY OF LYNNWOOD PUBLIC WORKS INSPECTION LINE AT (425) 670-5201.
4. ALL WORK WITHIN THE SITE AND CITY OF LYNNWOOD RIGHT OF WAY SHALL BE SUBJECT TO INSPECTION BY THE CITY, TRANE AND/OR A DESIGNATED TRANE REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY TRANE IN SUFFICIENT TIME TO PERMIT INSPECTION PRIOR TO AND DURING WORK.
5. CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF TRANE AND/OR THE ENGINEER AND SHALL BE RESOLVED PRIOR TO PROCEEDING WITH CONSTRUCTION.
6. WORK NOT READY FOR A REQUESTED INSPECTION UPON THE ARRIVAL OF THE CITY, TRANE AND/OR A DESIGNATED TRANE REPRESENTATIVE MUST BE RESCHEDULED FOR INSPECTION AND A RE-INSPECTION FEE MAY BE IMPOSED.
7. THE CONTRACTOR SHALL KEEP 3 SETS OF PLANS ON SITE AT ALL TIMES FOR RECORDING "AS-BUILT" INFORMATION. ONE SET SHALL BE SUBMITTED TO THE DEVELOPER'S ENGINEER AND ONE SET TO THE CITY OF LYNNWOOD AT THE COMPLETION ON CONSTRUCTION. IN ADDITION, A SURVEY SHALL BE PROVIDED AS NECESSARY.
8. THE CITY OF LYNNWOOD SHALL BE PROVIDED RECORD PLANS AS REQUIRED AT THE COMPLETION OF CONSTRUCTION STAMPED AND SIGNED BY A LICENSED SURVEYOR AND/OR THE DESIGN ENGINEER, VERIFYING THE INFORMATION AS PROVIDED BY THE CONTRACTOR AND/OR THE SURVEYOR UPON COMPLETION OF THE PROJECT. AS-BUILT SHALL BE PROVIDED IN THE FOLLOWING FORMS: 1 SET OF PRINTS AND ELECTRONIC COPY (CAD AND PDF).
9. CONTRACTOR SHALL CALL 1-800-424-5555 FOR UTILITY LOCATES 48 HOURS BEFORE CONSTRUCTION. THE CONTRACTOR SHALL HAVE ALL UTILITIES LOCATED BY THE APPROPRIATE UTILITY LOCATING PROFESSIONALS, PRIOR TO AND DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY TRANE, THE ENGINEER, AND THE UTILITY COMPANY WHEN A CONFLICT OCCURS OR WHEN A CONFLICT IS ANTICIPATED.
10. TRANE SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE PERMITS AND EASEMENTS AS REQUIRED BY THE CITY OF LYNNWOOD PUBLIC WORKS DEPARTMENT.
11. CONSTRUCTION NOISE SHALL BE LIMITED AS PER LYNNWOOD MUNICIPAL CODE (SECTION 10.12.300) FROM 7AM TO 6PM (M-F). WEEKEND WORK PROHIBITED UNLESS APPROVED PER LMC 10.12.300
12. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO TRANE AND THE ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION OR CONSTRUCTION.
13. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE PUBLIC AND PREVENT NUISANCES. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.
14. THE CONTRACTOR IS REQUIRED TO PROVIDE ALL CONSTRUCTION STAKING ON THIS PROJECT INCLUDING THE PREPARATION OF COMPLETE CONSTRUCTION RECORDS. STAKING FOR GRADES AND ALIGNMENT SHALL BE PERFORMED BY AN ENGINEERING OR SURVEYING FIRM LICENSED AND CAPABLE OF PERFORMING SUCH WORK. RIGHT OF WAY AND EASEMENT LIMITS MUST BE CLEARLY IDENTIFIED IN THE FIELD DURING CONSTRUCTION.
15. CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO CONDITIONS EQUAL OR BETTER TO THOSE FOUND PRIOR TO CONSTRUCTION OR AS REQUIRED BY THE CITY OF LYNNWOOD DEPARTMENT OF PUBLIC WORKS.
16. OFF SITE PREMISE STAGING OR STORAGE AREAS SHALL REQUIRE A WRITTEN RELEASE FROM THE AFFECTED PROPERTY OWNER. IN ADDITION, A RELEASE FROM THE CITY SHALL BE REQUIRED DESIGNATING THAT DAMAGE TO CITY PROPERTY IS NEGLIGIBLE OR NON-EXISTENT.
17. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF EMPLOYEES ON THE PROJECT AND SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF FEDERAL, STATE, AND MUNICIPAL SAFETY LAWS AND BUILDING CODES. THE CONTRACTOR SHALL ERECT AND PROPERLY MAINTAIN, AT ALL TIMES, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR PROTECTION OF WORKMEN AND THE PUBLIC; SHALL POST DANGER SIGNS WARNING AGAINST KNOWN OR UNUSUAL HAZARDS; AND SHALL DESIGNATE A RESPONSIBLE MEMBER OF THEIR ORGANIZATION ON THE CONSTRUCTION SITE WHOSE DUTY SHALL BE THE PREVENTION OF ACCIDENTS.
18. THE CONTRACTOR SHALL DETERMINE THE SCOPE, TYPE, SIZE, QUANTITY, METHOD OF INSTALLATION, OPERATION, AND REMOVAL OF THE DEWATERING SYSTEM NECESSARY TO KEEP THE EXCAVATION SITE DEWATERED TO STABILIZE THE SOILS FOR CONSTRUCTION. THE DEWATERING SYSTEM MUST BE LOCATED WITHIN THE CONSTRUCTION LIMITS.
19. THE CONTRACTOR SHALL DISCHARGE WATER FROM THE DEWATERING SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF STATE AND LOCAL REGULATIONS AND THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS. AT NO TIME SHALL SILT-LADEN WATER BE DISCHARGED OFF SITE. SEE EXISTING SITE AND TESC PLAN FOR ADDITIONAL STORMWATER NOTES.

SURVEY CONTROL

DATUMS:
HORIZONTAL DATUM: WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE. NAD 83/91.
VERTICAL DATUM: NAVD 88.
BENCHMARK: WSDOT SURFACE MONUMENT IS3174 ON CONCRETE SIDEWALK, NORTH SIDE OF SR 524, APPROXIMATELY 150' EAST OF 58TH AVE W. ELEVATION = 377.06 FEET
NOTES:
1. UTILITIES SHOWN ARE BASED ON OBSERVATION OF SURFACE FEATURES AND PAINT MARKS APPLIED BY AN UNDERGROUND UTILITY LOCATING SERVICE. FIELD LOCATIONS MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION. CALL 1-800-424-5555 FOR THIS VERIFICATION.
2. EDGES OF GUTTERS SHOWN AT DRIVEWAYS ONLY FOR CLARITY.

TESC GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL MEASURES AND FACILITIES PER APPENDIX D OF THE SNOHOMISH COUNTY DRAINAGE MANUAL (2010), CITY STANDARDS AND THESE CONTRACT DOCUMENTS.
2. ANY DISCHARGE OF SEDIMENT-LADEN RUN-OFF OR OTHER POLLUTANTS TO WATERS OF THE STATE IS IN VIOLATION OF CHAPTER 90.48, WATER POLLUTION CONTROL, AND WAC 173-201A, WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF WASHINGTON, AND IS SUBJECT TO ENFORCEMENT ACTION.
3. DURING CONSTRUCTION, ALL RELEASES OF OILS, HYDRAULIC FLUIDS, FUELS, OTHER PETROLEUM PRODUCTS, PAINTS, SOLVENTS, AND OTHER DELETERIOUS MATERIALS MUST BE CONTAINED AND REMOVED IN A MANNER THAT WILL PREVENT THEIR DISCHARGE TO WATERS AND SOILS. THE CLEANUP OF SPILLS SHALL TAKE PRECEDENCE OVER OTHER WORK ON THE PROJECT. BARRELS, PETROPHILIC PADS, TARPS, AND OTHER EQUIPMENT NECESSARY FOR CAPTURING, CONTROLLING, AND DISPOSING OF HAZARDOUS FLUIDS SHALL BE AVAILABLE ON-SITE AT ALL TIMES.
4. PROPER EROSION AND SEDIMENT CONTROL PRACTICES MUST BE USED ON THE CONSTRUCTION SITE AND ADJACENT AREAS TO PREVENT UPLAND SEDIMENTS FROM ENTERING THE NATURAL DRAINAGE SYSTEM. ALL SURFACE AREAS DISTURBED AND ANY EMBANKMENTS OR EXCAVATIONS CREATED BY CONSTRUCTION ACTIVITIES MUST BE REVEGETATED OR PROVIDED AN EQUIVALENT TYPE OF PROTECTION AGAINST EROSION.
5. LINEAR CONSTRUCTION ACTIVITIES SUCH AS RIGHT-OF-WAY AND EASEMENT CLEARING, ROADWAY DEVELOPMENT, PIPELINES, AND TRENCHING FOR UTILITIES, SHALL BE CONDUCTED TO MEET THE SOIL STABILIZATION REQUIREMENT.
6. IF STRAW MULCH FOR TEMPORARY EROSION CONTROL IS USED, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF FOUR INCHES.
7. TRANE OR THE ENGINEER MAY DIRECT MAINTENANCE AND REPAIR OF TESC MEASURES AND/OR FACILITIES AS THE HIGHEST PRIORITY WORK AT ANY TIME THE TESC MEASURES AND/OR FACILITIES DO NOT MEET THE CURRENT CITY PLAN REQUIREMENTS. ALL TESC MEASURES AND/OR FACILITIES MAY NOT BE SHOWN ON THE PLANS, BUT SHALL BE PROVIDED BASED ON WEATHER CONDITIONS AND CONSTRUCTION PRACTICES AT THE DISCRETION OF THE OWNER.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL LOADS ARE SECURED PER RCW 46.61.655.
9. DUST CONTROL MUST BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL USE A VACUUM STREET SWEEPER TO REMOVE DUST AND DEBRIS FROM PAVEMENT AREAS AS DIRECTED BY THE ENGINEER OR TRANE. FLUSHING OF STREETS SHALL NOT BE PERMITTED WITHOUT PRIOR CITY APPROVAL.
10. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G. ADDITIONAL COVER MEASURES, ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, PERIMETER PROTECTION ETC.) AS DIRECTED BY TRANE OR THE ENGINEER.
11. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES.
12. ANY AREAS OF EXPOSED SOILS THAT WILL NOT BE DISTURBED FOR TWO CONSECUTIVE DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
13. ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.
14. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A WEEK DURING THE DRY SEASON, TWICE A WEEK DURING THE WET SEASON, OR WITHIN TWENTY FOUR (24) HOURS FOLLOWING A STORM EVENT.
15. COVER MEASURES WILL BE APPLIED IN CONFORMANCE WITH APPENDIX D OF THE SURFACE WATER DESIGN MANUAL.

PIPE LENGTH MEASUREMENTS

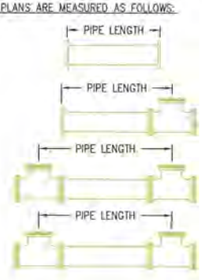
PIPE LENGTHS CALLED OUT ON PLANS ARE MEASURED AS FOLLOWS:

FLANGE x FLANGE (FLxFL) PIPE MEASURED FROM FACE OF FLANGE TO FACE OF FLANGE.

FLANGE x PLAIN END (FLxPE) PIPE MEASURED FROM FACE OF FLANGE TO CENTER OF FITTING.

PLAIN END x PLAIN END (PExPE) PIPE MEASURED FROM CENTER OF FITTING TO CENTER OF FITTING.

RESTRAINED JOINT x RESTRAINED JOINT (RJxRJ) PIPE MEASURED FROM CENTER OF FITTING TO CENTER OF FITTING.



FITTINGS ARE ASSUMED TO BE STANDARD LENGTH 125#, 250# FLANGED OR COMPACT CLASS 350 MECHANICAL JOINTS. CONTRACTOR RESPONSIBLE FOR VERIFYING LENGTHS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE INTO ACCOUNT ANY VARIATIONS IN FITTING DIMENSIONS.

NORTHING AND EASTING CALLOUT POINTS

SEWER FORCE MAIN CONSTRUCTION NOTES

1. FORCE MAIN TRENCH SECTION AND ALL EXCAVATED AREAS SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS, CITY OF LYNNWOOD STANDARD DETAILS 6-12, 6-13, 6-17, AND WITH SECTIONS 7-9.3(10) AND 7-9.3(11) OF THE STANDARD SPECIFICATIONS. COMPACTION TESTING SHALL BE REQUIRED DURING BACKFILLING OPERATIONS ON ALL 24" AND LARGER PIPE, ALL OPEN CUTS AND/OR CROSSINGS WITHIN PAVED OR TRAVELED AREAS AND AT THE DISCRETION OF THE OWNER. IF TRENCH BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS, CONTRACTOR SHALL EXCAVATE, RE-COMPACT AND RETEST MATERIAL AT CONTRACTOR'S EXPENSE.
2. ENGINEER-APPROVED THRUST RESTRAINTS ARE REQUIRED FOR ALL UNRESTRAINED FITTINGS. THRUST BLOCKING IS THE PREFERRED METHOD UNLESS OTHERWISE SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PIPE JOINT RESTRAINT SO THAT THE PIPE DOES NOT SEPARATE DUE TO THERMAL EXPANSION, UNRESOLVED THRUST FORCES, OR DESTABILIZATION OF STEEP SLOPES.
3. AT POINTS WHERE EXISTING THRUST BLOCKING EXISTS, THE MINIMUM CLEARANCE OF UNDISTURBED SOIL BETWEEN THE CONCRETE BLOCKING AND PROPOSED BURIED UTILITIES OR STRUCTURES SHALL BE 5 FEET.
4. THE CONTRACTOR SHALL PERFORM PRESSURE TESTING IN ACCORDANCE WITH THE SPECIFICATIONS TO 100 PSI FOR THE FORCE MAIN PIPING, UNLESS OTHERWISE APPROVED. THE ENGINEER AND OWNER HAVE DISCRETION TO MODIFY THE TESTING REQUIREMENTS AS DEEMED APPROPRIATE.
5. CONTRACTOR SHALL CONSTRUCT FORCE MAIN IN SUCH A MANNER AS TO ELIMINATE JOINT(S) WITHIN 10 FEET OF A WATER CROSSING. WHERE 18" OF VERTICAL SEPARATION BETWEEN CROSSINGS AND THE FORCE MAIN CANNOT BE OBTAINED, THE CONTRACTOR SHALL ENCASE THE PROPOSED FORCE MAIN PER THE WASHINGTON STATE DEPARTMENT OF ECOLOGY REQUIREMENTS.

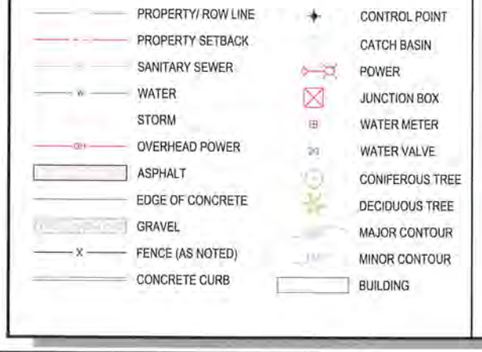
EXISTING UTILITIES

1. ALL EXISTING UTILITIES INDICATED ON THE PLANS HAVE BEEN PLOTTED FROM THE BEST INFORMATION AVAILABLE TO THE ENGINEER AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. THE SOURCE OF INFORMATION GENERALLY CONSISTS OF CONSTRUCTION RECORDS, UTILITY LOCATES, AND OTHER DATA OBTAINED VERBALLY FROM OFFICIALS ASSOCIATED WITH THE PARTICULAR UTILITY. IT IS UNDERSTOOD THAT OTHER ABOVE-GROUND AND UNDERGROUND FACILITIES NOT SHOWN ON THE PLANS MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN TO AVOID DAMAGE AND/OR DISTURBANCE TO SUCH UTILITIES, AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN. CONTRACTOR SHALL PRESERVE, PROTECT AND SUPPORT ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION.
2. OVERHEAD UTILITIES: NOT ALL OVERHEAD UTILITIES MAY BE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE TO INDEPENDENTLY VERIFY ALL OVERHEAD UTILITIES. THE CONTRACTOR SHALL ACCOUNT FOR ACCOMMODATING ALL OVERHEAD UTILITIES IN HIS BID AND NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR FACILITATING OVERHEAD UTILITIES.
3. POWER, TELEPHONE, GAS AND CABLE: WHERE THESE UTILITIES CROSS THE PROPOSED SEWER MAIN, THE DEPTH OF EACH IS SHOWN ON THE PROFILES AND IS BASED ON TYPICAL LAYING DEPTHS FOR EACH OF THESE UTILITIES. ACTUAL DEPTHS ARE UNKNOWN AND MAY VARY SIGNIFICANTLY. CONTRACTOR SHALL NOTIFY TRANE AND THE ENGINEER IMMEDIATELY IF UTILITY CROSSING DEPTH CONFLICTS ARISE.
4. PROVIDE STYROFOAM CUSHION BETWEEN PIPING AT PIPE CROSSINGS WHERE PIPES CROSS WITH LESS THAN 12 INCHES OF VERTICAL SEPARATION. A SAND CUSHION MAY BE USED IN AREAS WHERE ADEQUATE COMPACTION CAN BE ACHIEVED AND AS APPROVED BY THE ENGINEER.

TRAFFIC CONTROL

1. THE CONTRACTOR SHALL PREPARE TRAFFIC CONTROL PLAN(S) SHOWING SIGNAGE AND FLAGGERS AS NEEDED TO COMPLETE THESE IMPROVEMENTS AND SUBMIT TO CITY FOR APPROVAL. NO WORK SHALL COMMENCE UNTIL ALL APPROVED TRAFFIC CONTROL IS IN PLACE. ALL TRAFFIC CONTROL DEVICES AND PROCEDURES SHALL COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), WSDOT AND THE CITY OF LYNNWOOD STANDARDS.
2. THE CONTRACTOR SHALL PROVIDE FOR EMERGENCY VEHICLE ACCESS TO ALL STREETS WITHIN AND ADJACENT TO THE CONSTRUCTION SITE. THE CONTRACTOR SHALL PROVIDE 48-HOUR NOTICE TO EMERGENCY DEPARTMENTS WHICH MAY BE AFFECTED BY ACTIONS OF THE CONTRACTOR.
3. KEEP ONE LANE OPEN AT ALL TIMES. ALTERNATE TRAFFIC DIRECTION WITH FLAGGERS. DAYTIME WORK IS PERMITTED. NO LANE CLOSURES FROM 30 MIN BEFORE SCHOOL STARTS UNTIL 30 MIN AFTER SCHOOL STARTS. NO LANE CLOSURES FROM ONE HOUR BEFORE SCHOOL END UNTIL ONE HOUR AFTER SCHOOL ENDS. COORDINATE WITH CROSSING GUARDS. SPOTTERS TO ESCORT PEDESTRIANS THROUGH WORK ZONE. NOTIFY SCHOOL PRINCIPAL WHEN WORK WILL BE PERFORMED. MONDAY-FRIDAY ONLY.

EXISTING LEGEND



PROPOSED LEGEND

RH2 ENGINEERING, INC.
www.rh2.com 1.800.720.8052
BOTHELL, WA
22722 29th place SE, Suite 210

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

CITY OF LYNNWOOD

GENERAL NOTES

SIGNED: 11/20/15

SIGNED: 11/20/15

NO	DATE	DESCRIPTION	BY	REVIEW
1	09/23/15	CONSTRUCTION SET	MRJF	RJF / JMC
2	09/18/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF	RJF / JMC
3	11/20/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF	RJF / JMC

REVISIONS

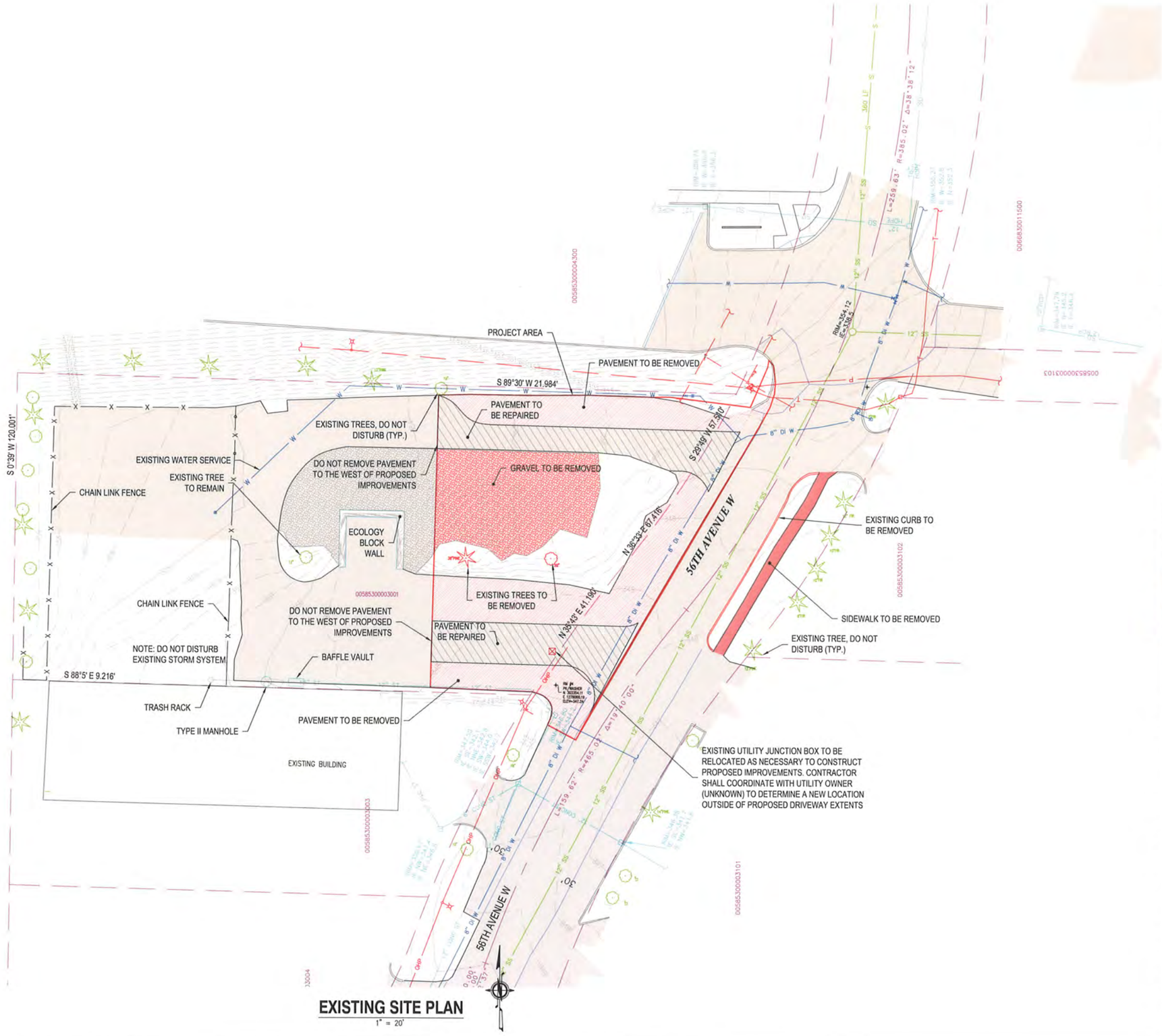
ENGINEER: AHF
REVIEWED: RJF
DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-0-GEN01.DWG
JOB NO: 1144-005

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: G01
SHEET NO.: 2



EXISTING SITE PLAN
1" = 20'

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SIGNED: 11/20/15

SIGNED: 11/20/15

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

EXISTING SITE PLAN

ENGINEER: AHF
REVIEWED: RJF
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-CIV01.DWG
JOB NO.: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF | CGR	RJF | JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF | CGR	RJF | JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF | CGR	RJF | JMC

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C01
SHEET NO.: 3
39

GRADING POINTS

#	ELEV.	NORTHING	EASTING
1	351.73	303402.42	1278075.81
2	351.73	303423.95	1278076.35
3	351.23	303438.57	1278091.68
4	350.39	303438.01	1278116.53
5	-	303425.92	1278116.20
6	-	303389.16	1278094.59
7	347.93	303377.16	1278094.29
8	-	303349.77	1278071.47
9	347.29	303361.77	1278069.79
10	MATCH EX.	303363.03	1278019.32
11	MATCH EX.	303379.03	1278019.72
12	MATCH EX.	303467.24	1278021.92
13	353.30	303455.88	1278039.64
14	-	303465.58	1278139.38
15	350.60	303453.41	1278139.14
50	MATCH EX.	303335.85	1278063.66
51	MATCH EX.	303330.10	1278074.53
52	347.28	303335.38	1278076.90
53	MATCH EX.	303343.66	1278081.74
54	MATCH EX.	303382.61	1278104.66
55	348.07	303387.78	1278107.70
56	348.78	303414.75	1278123.57
57	MATCH EX.	303419.93	1278126.60
58	MATCH EX.	303459.31	1278149.76
59	352.00	303464.72	1278152.40
60	MATCH EX.	303476.62	1278153.57
61	352.81	303467.26	1278148.06
62	351.36	303462.09	1278145.02
63	348.91	303422.71	1278121.87
64	348.78	303417.54	1278118.83
65	348.09	303390.57	1278102.97
66	347.95	303385.40	1278099.92
67	347.48	303346.43	1278077.01
68	347.78	303341.26	1278073.97
69	346.82	303341.31	1278066.17
70	350.04	303437.96	1278174.91
71	349.71	303438.01	1278180.14
72	350.21	303430.24	1278175.60
73	350.54	303432.52	1278171.72
74	348.06	303368.73	1278139.43
75	348.16	303371.35	1278135.75
76	347.64	303366.16	1278132.69
77	347.56	303363.54	1278136.37

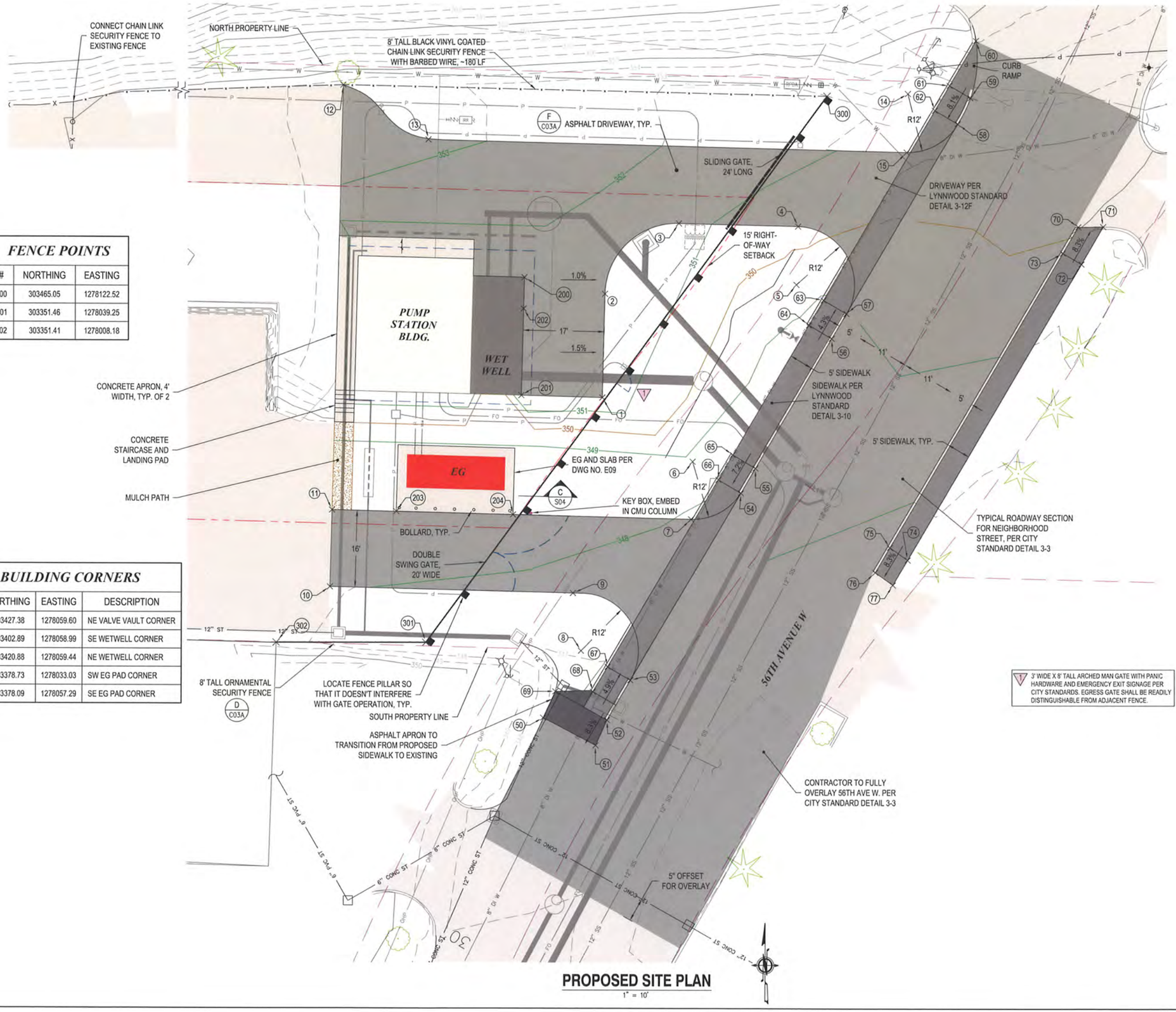
NOTE: CONTRACTOR TO PROVIDE FINE GRADING AS NECESSARY TO PROVIDE SMOOTH TRANSITION BETWEEN PROPOSED GRADING AND EXISTING TOPOGRAPHY.

FENCE POINTS

#	NORTHING	EASTING
300	303465.05	1278122.52
301	303351.46	1278039.25
302	303351.41	1278008.18

BUILDING CORNERS

#	NORTHING	EASTING	DESCRIPTION
200	303427.38	1278059.60	NE VALVE VAULT CORNER
201	303402.89	1278058.99	SE WETWELL CORNER
202	303420.88	1278059.44	NE WETWELL CORNER
203	303378.73	1278033.03	SW EG PAD CORNER
204	303378.09	1278057.29	SE EG PAD CORNER



PROPOSED SITE PLAN
1" = 10'

SIGNED: 11/20/15

SIGNED: 11/20/15

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ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

PROPOSED SITE PLAN

JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-CIV05.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: MRJF
REVIEWED: EDH

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF|CGR	RJF|JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF|CGR	RJF|JMC
3	08/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF|CGR	RJF|JMC

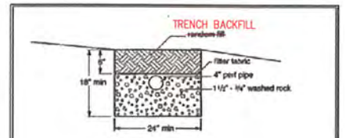
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C02
SHEET NO.: 4

UTILITY POINTS

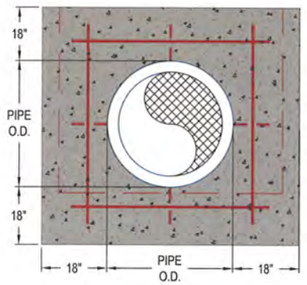
#	NORTHING	EASTING	DESCRIPTION
100	303405.95	1278096.71	SEWER MANHOLE
101*	303387.14	1278113.84	SEWER MANHOLE
102*	303381.78	1278123.75	SEWER MANHOLE
103	303440.03	1278072.58	45 DEGREE RJ BEND
104	303391.42	1278116.84	CONNECT TO EXISTING
105	303414.31	1278117.04	6" TAPPING TEE
106	303416.56	1278112.95	HYDRANT
107	303436.80	1278023.16	CLEANOUT
108	303353.38	1278021.08	45 DEGREE BEND
109	303352.47	1278058.30	CATCH BASIN
110	303337.99	1278079.57	CATCH BASIN
111	303440.50	1278063.74	FLOW METER VAULT

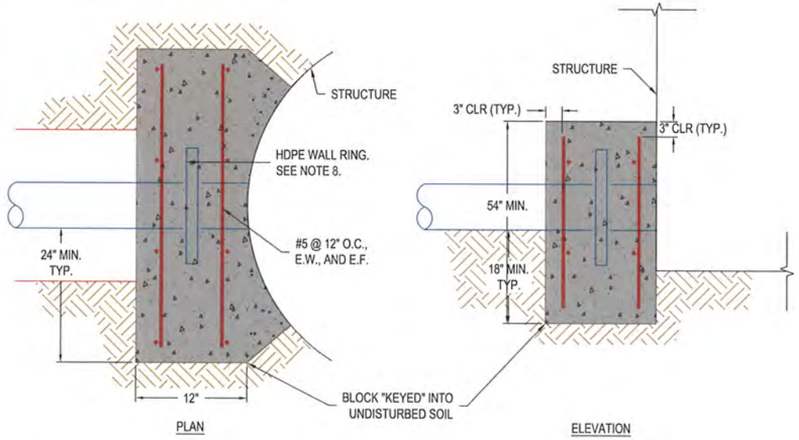
* NOT PART OF THIS PROJECT



Source: King County

Figure 3.8 Perforated Stub-Out Connection



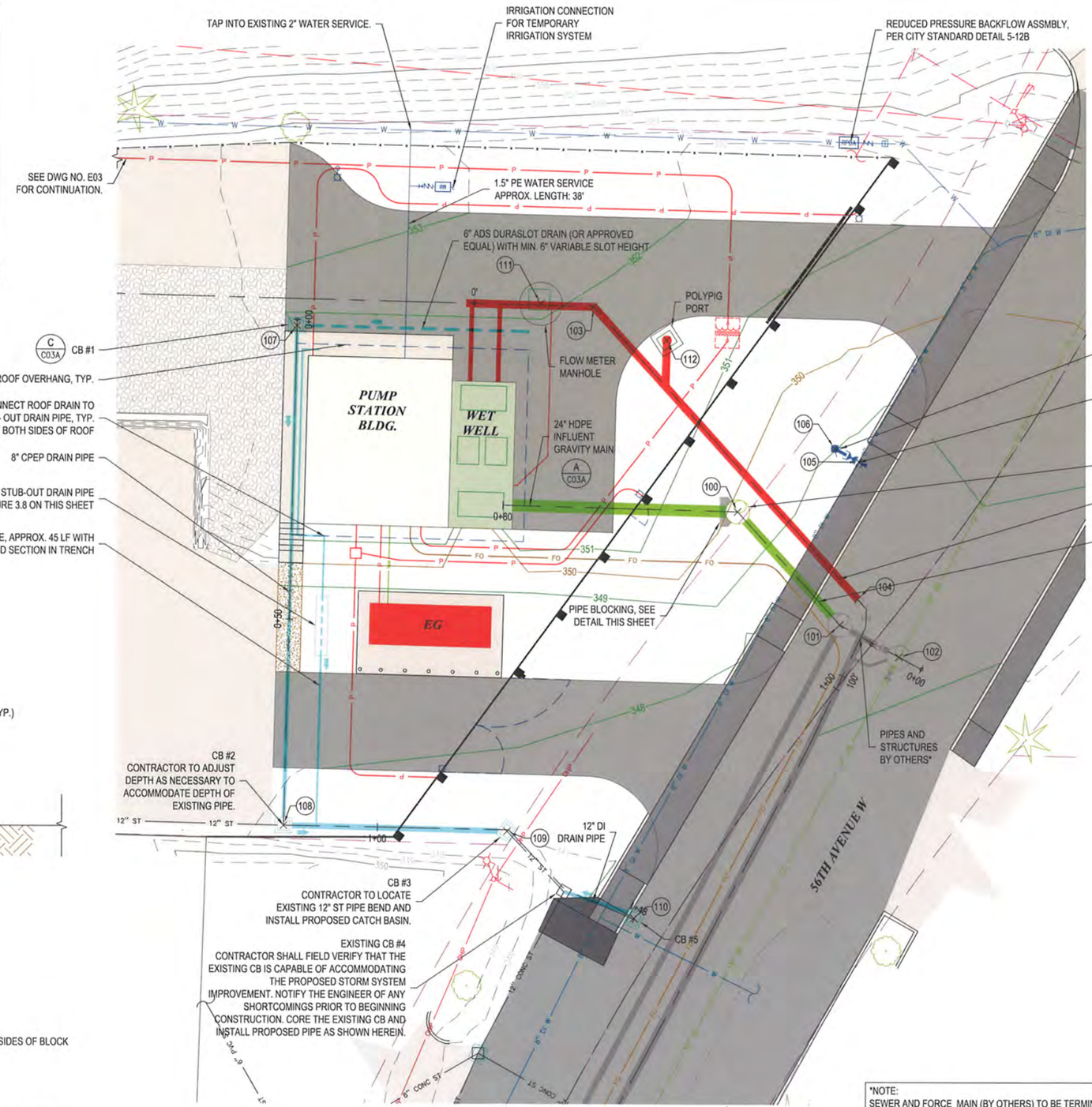


NOTES:

1. DETAIL SHALL BE USED AT ALL STRUCTURE PENETRATIONS WHERE HDPE PIPE IS USED AND AS SPECIFIED ON THE PLANS.
2. CONCRETE BLOCK SHALL BE PER SECTION 7-09.3(21) OF THE WSDOT STANDARD SPECIFICATIONS.
3. MAINTAIN 18" MINIMUM COVER OVER THE TOP OF BLOCK.
4. BOTTOM OF BLOCK IS TO BE ON UNDISTURBED SOIL.
5. TRENCH TO BE BACKFILLED TO THE FULL DEPTH OF THE BLOCK WITH CRUSHED ROCK COMPACTED TO 95% DENSITY ON ALL SIDES OF BLOCK AND TO A MINIMUM DISTANCE OF 4' IN FRONT OF AND BEHIND PROPOSED BLOCK.
6. FOR SOIL CONDITIONS NOT SHOWN, BLOCK IS TO BE DESIGNED BY THE ENGINEER.
7. IF BLOCK CANNOT BE KEYED INTO UNDISTURBED SOIL TO THE SATISFACTION OF THE ENGINEER:
   a) THE BLOCK LENGTH SHALL BE EXTENDED TO PROVIDE AN ADEQUATE KEY OR
   b) CDF SHALL BE USED TO FILL BACK TO NATIVE SOIL OR
   c) THE TRENCH SHALL BE BACKFILLED AND COMPACTED TO 95% DENSITY A MINIMUM DISTANCE OF 15 FEET IN FRONT OF THE BLOCK TO THE SATISFACTION OF THE ENGINEER.
8. HDPE WALL RING MUST BE SIZED TO RESIST PULL-OUT FORCE OF HDPE PIPE DUE TO THERMAL EXPANSION AND PIPELINE CHARGING PER MANUFACTURER'S RECOMMENDATION.

PIPE BLOCKING DETAIL

NOT TO SCALE



PROPOSED UTILITY PLAN

1" = 10'

*NOTE:
SEWER AND FORCE MAIN (BY OTHERS) TO BE TERMINATED WITH TEMPORARY CAP AND BLOCKING. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING TEMPORARY CAP AND BLOCKING AND PROVIDING ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR MAKING FINAL CONNECTION TO OFF-SITE SEWER AND FORCE MAIN. THE FINAL CONNECTION SHALL ONLY BE MADE AFTER ONSITE AND OFF-SITE MAINS HAVE BEEN FULLY TESTED AND APPROVED BY THE CITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND FLUSHING OF ON-SITE PIPING PRIOR TO FINAL CONNECTION. UNLESS OTHERWISE AGREED IN WRITING BY THE CITY, THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR THE FINAL CONNECTION. THE CONTRACTOR SHALL RESTORE THE DISTURBED, OFF-SITE SURFACE TO EXISTING CONDITION OR BETTER.

DARIN HALM — 36888 — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — SIGNED: 11/20/15
TONY V. PARDO — 36978 — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — SIGNED: 11/20/15
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ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

PROPOSED UTILITY PLAN

ENGINEER: MRJF | DRAWN: EDH | SAVE DATE: Nov 19, 2015 | PLOT DATE: Nov 19, 2015 | CLIENT: TRANE | FILENAME: LS16-D-CIV02.DWG | JOB NO.: 114-005

REVISIONS

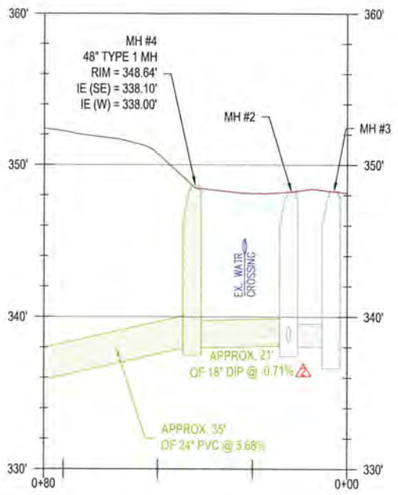
NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF | CGR	RJF | JMC
2	09/29/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF | CGR	RJF | JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF | CGR	RJF | JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

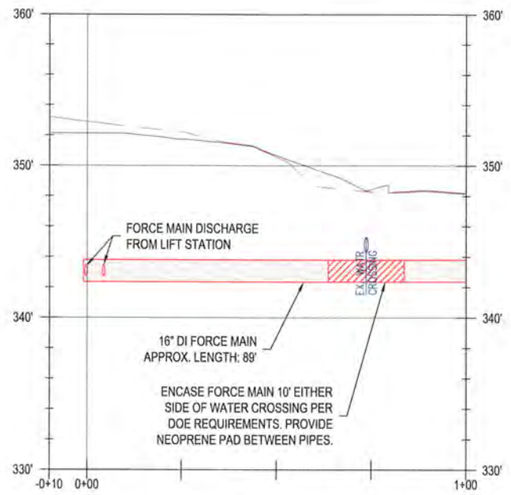
DWG NO.: C03 | SHEET NO.: 5 | 39



PROPOSED LIFT STATION GRAVITY MAIN PROFILE

H: 1" = 20' V: 1" = 5'

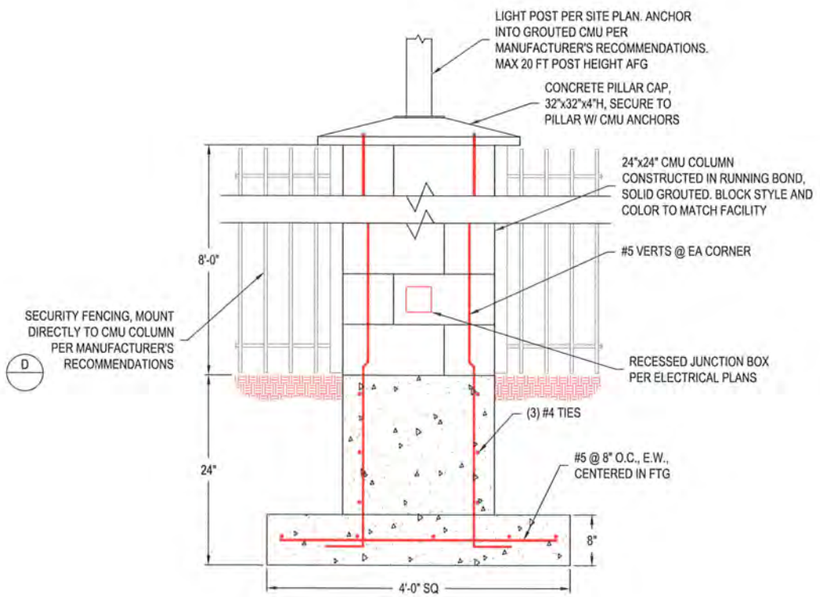
A / C03



PROPOSED LIFT STATION FORCE MAIN PROFILE

H: 1" = 20' V: 1" = 5'

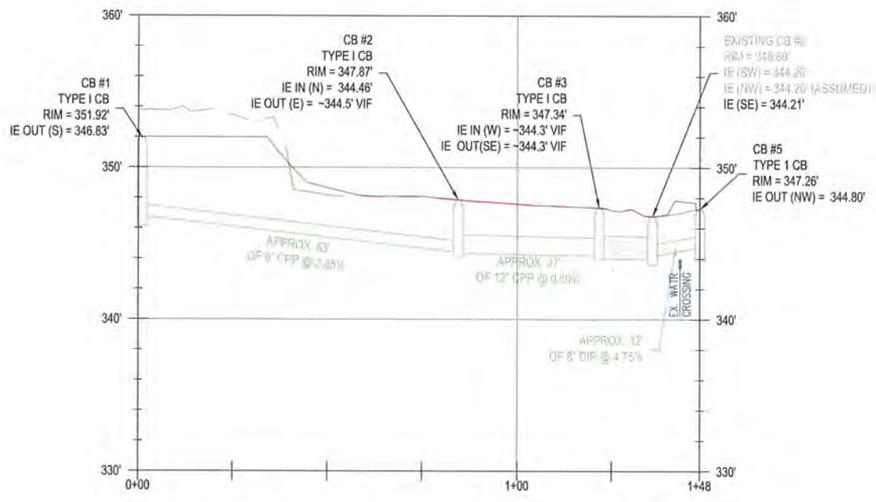
B / C03



FENCE COLUMN FOOTING

1" = 1'-0"

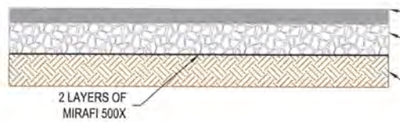
E / TYP.



PROPOSED LIFT STATION STORM PROFILE

H: 1" = 20' V: 1" = 5'

C / C03

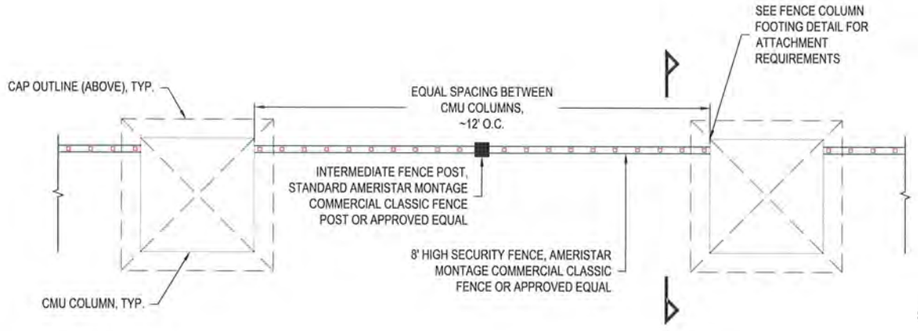


ASPHALT DRIVEWAY SECTION

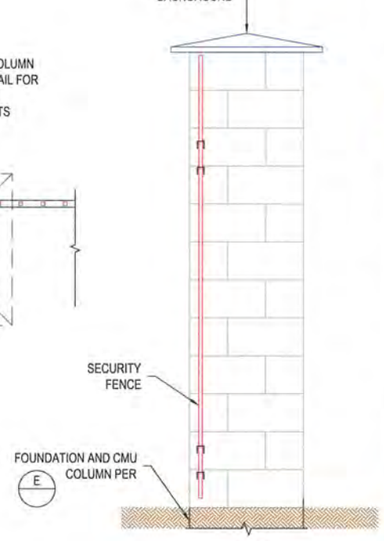
NOT TO SCALE

F / C02

NOTE:
NATIVE SUBGRADE AND GRAVEL TOP COURSE SHALL BE COMPACTED TO FIRM AND UNYIELDING CONDITION.



PLAN



PROFILE

ORNAMENTAL SECURITY FENCE DETAIL

1" = 1'-0"

D / C02

RAY V. PADILLA — STATE OF WASHINGTON — 36889 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

RAY V. PADILLA — STATE OF WASHINGTON — 36878 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

UTILITY PROFILES AND CIVIL DETAILS

NO.	DESCRIPTION	DATE	BY
1	CONSTRUCTION SET	11/20/15	MRJF | CGR
2	REVISED PER BUILDING PERMIT REVIEW COMMENTS	09/23/15	MRJF | CGR
3	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	09/18/15	MRJF | CGR

REVISIONS

JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-CIV09.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: MRJF
REVIEWED: EDH

	REVIEW
RJF | JMC	
RJF | JMC	
RJF | JMC	

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

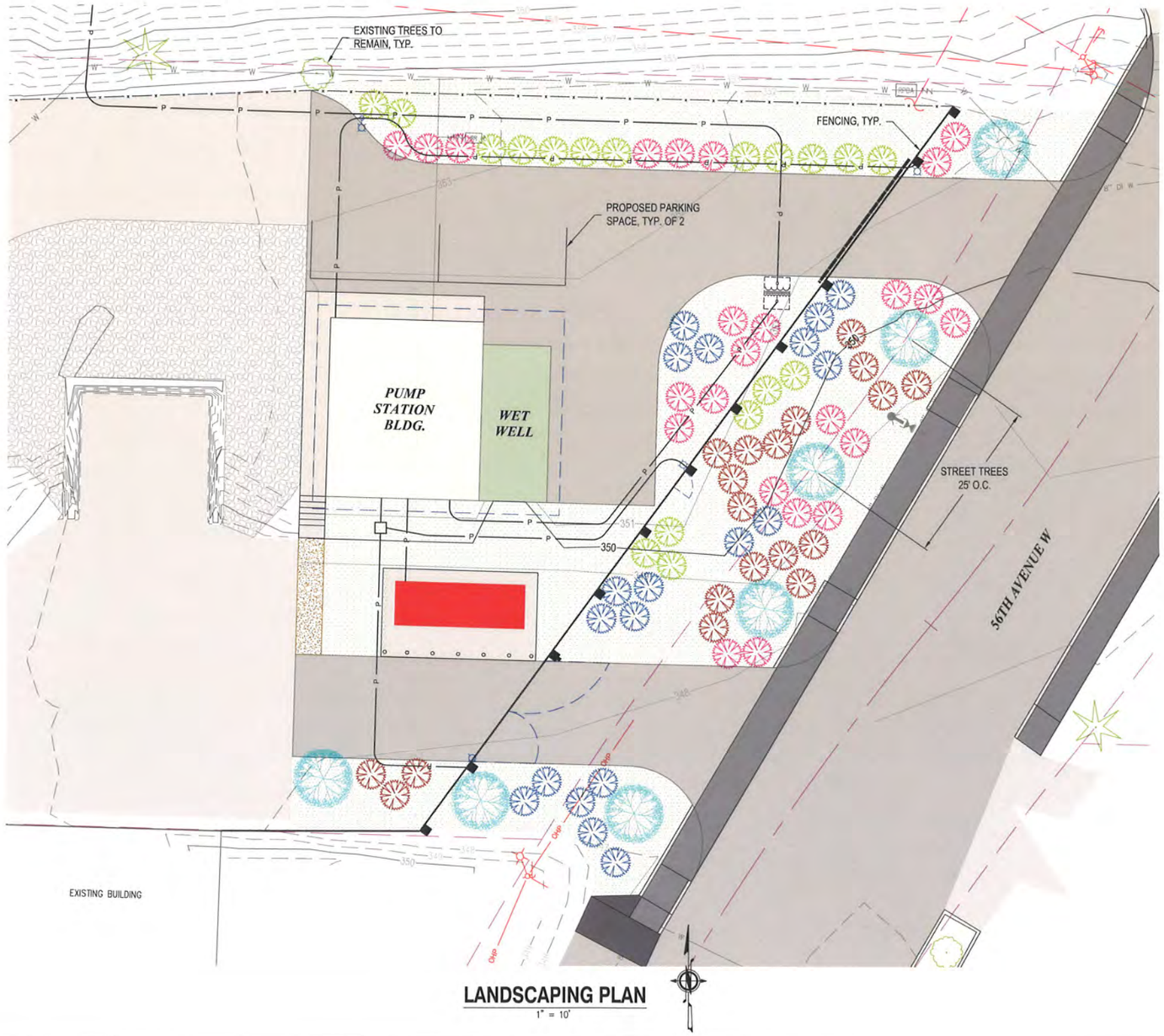
DWG NO.: C03A
SHEET NO.: 5A
39

LANDSCAPING LEGEND

SYMBOL	COMMON NAME	SCIENTIFIC NAME	QUANTITY	SIZE & SPACING
	RED MAPLE	ACER RUBRUM	7	CONTAINERIZED OR B&B TREE WITH A MIN. 10' HEIGHT AT PLANTING, 2-3" CALIPER DIAMETER AND SPACED @ 25' O.C.
	GLOSSY ABELIA 'EDWARD GOUCHER'	ABELIA GRANDIFLORA 'EDWARD GOUCHIER'	19	CONTAINERIZED SHRUBS MEASURING 3' TALL AT PLANTING AND SPACED @ 4' O.C.
	MUGHO PINE	PINUS MUGO PUMLIO	19	CONTAINERIZED SHRUB MEASURING 2-3' TALL AT PLANTING AND SPACED @ 4' O.C.
	SPRING BOUQUET LAURUSTINUS	VIBURNUM TINUS 'COMPACTUM'	24	
	OTTO LUYKEN ENGLISH LAUREL	PRUNUS LAUROCERASUS	18	
	KINNIKINNICK	ARCTOSTAPHYLOS UVA-URSI	1300	1 GALLON CONTAINER SPACED @ 24" O.C.

LANDSCAPING NOTES:

1. IN ALL AREAS TO BE PLANTED, CONTRACTOR SHALL APPLY A 3-INCH LAYER OF BARK MULCH AROUND AND BELOW PLANT MATERIAL.
2. CONTRACTOR SHALL PROVIDE TEMPORARY IRRIGATION SYSTEM DURING THE PLANT ESTABLISHMENT PERIOD OF 1 YEAR. ONCE THE PLANTS ARE ESTABLISHED, THE TEMPORARY IRRIGATION SYSTEM SHALL BE REMOVED FROM THE SITE. CONTRACTOR SHALL TIE IN IRRIGATION SYSTEM TO BUILDING WATER SUPPLY DOWNSTREAM OF REDUCED PRESSURE BACKFLOW ASSEMBLY.
3. CONTRACTOR SHALL MAINTAIN ALL PLANTINGS AND IRRIGATION COMPONENTS FOR ONE YEAR FOLLOWING SUCCESSFUL PLANT INSTALLATION. CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR SITE ACCESS TO COMPLETE MAINTENANCE ACTIVITIES.



LANDSCAPING PLAN

1" = 10'

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ENERGY SAVINGS PERFORMANCE CONTRACTING
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CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LANDSCAPING PLAN

ENGINEER: AHF	SAVE DATE: Nov 18, 2015
REVIEWED: RJF	PLOT DATE: Nov 18, 2015
CLIENT: TRANE	JOB NO.: 114-005
FILENAME: LS16-D-C0V06.DWG	

REVISIONS

NO.	DATE	DESCRIPTION	BY
A	11/20/15	CONSTRUCTION SET	MRJF \ CGR \ RJF \ JMC
B	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR \ RJF \ JMC
C	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR \ RJF \ JMC

SCALE: SHOWN

0" 1" 2"

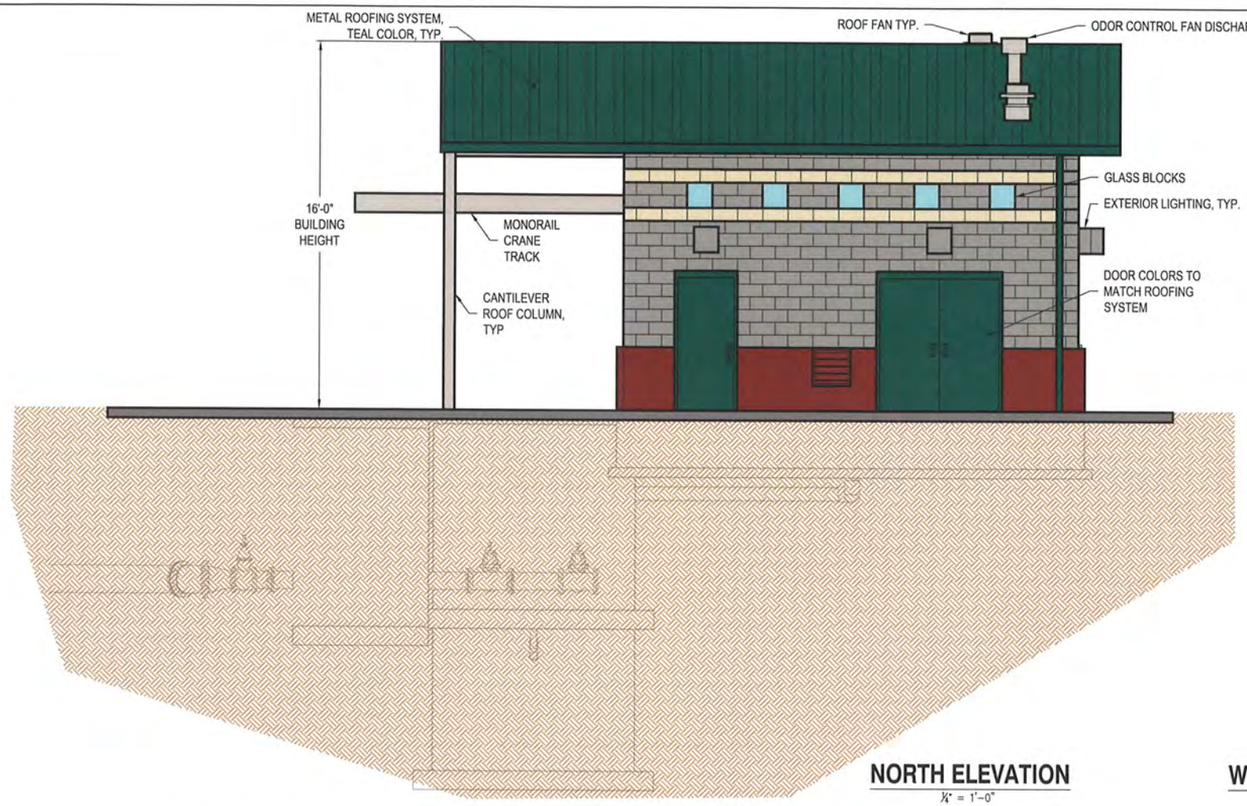
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C04

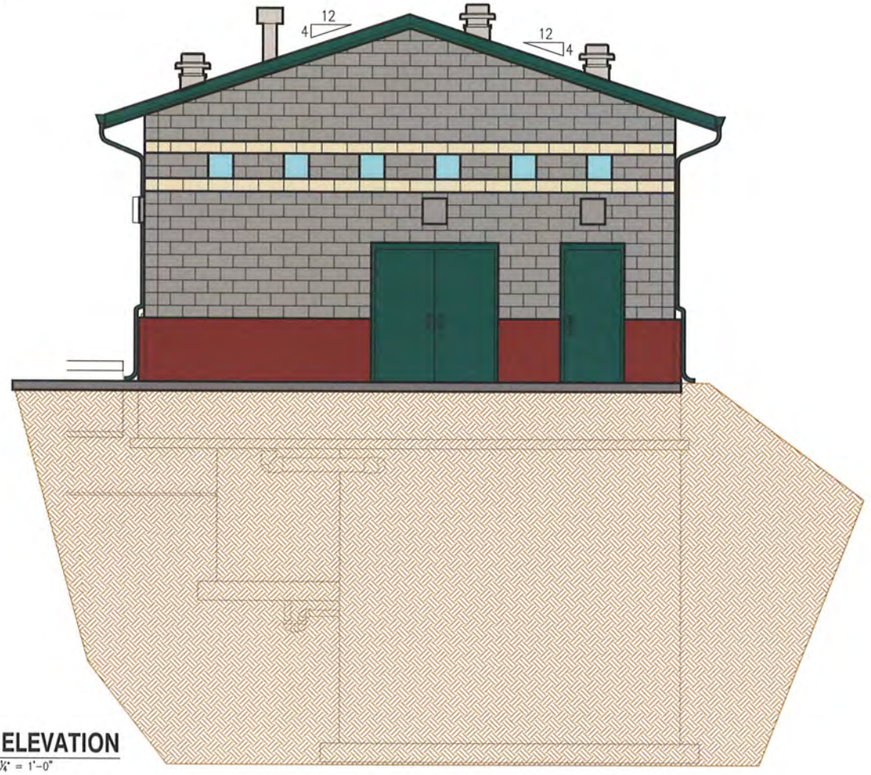
SHEET NO.: 6 39

SIGNED: 11/20/15

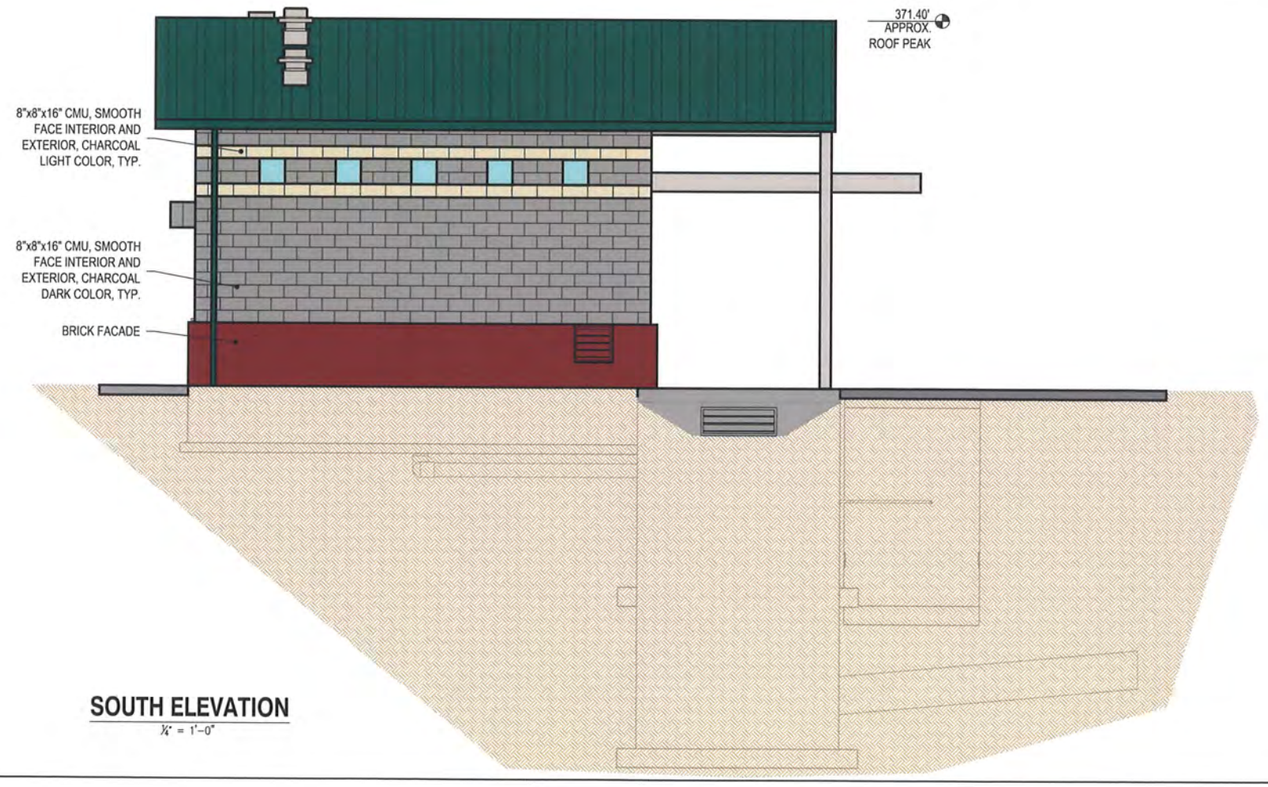
SIGNED: 11/20/15



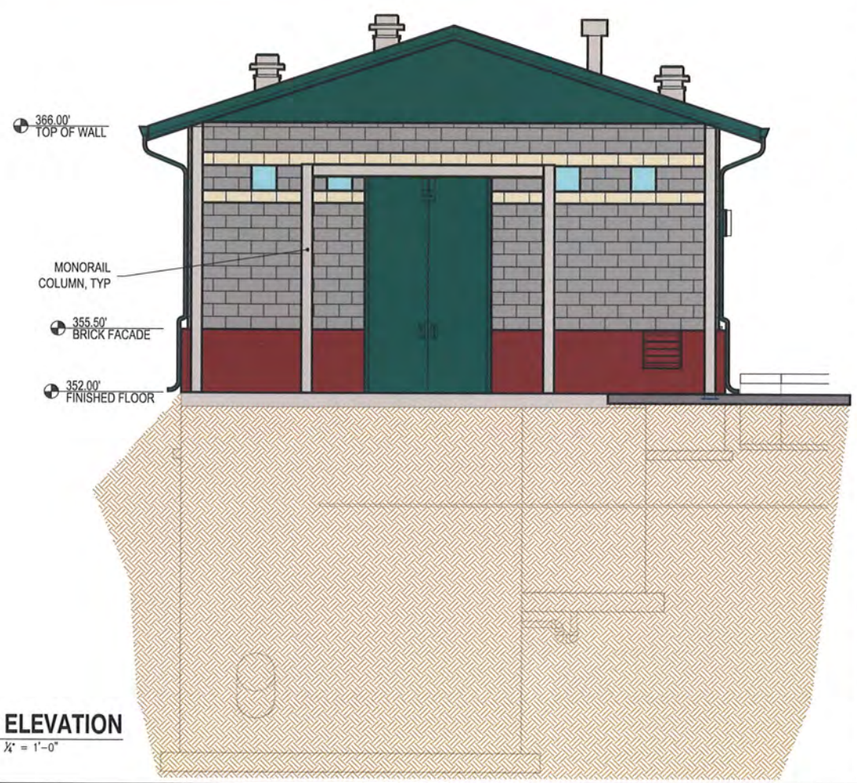
NORTH ELEVATION
¼" = 1'-0"



WEST ELEVATION
¼" = 1'-0"



SOUTH ELEVATION
¼" = 1'-0"



EAST ELEVATION
¼" = 1'-0"

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

PUMP STATION ARCHITECTURAL ELEVATIONS

RH2 ENGINEERS PLANNERS SCIENTISTS
RH2 ENGINEERING, INC.
www.rh2.com 1.800.720.8052
BOTHELL, WA
22722 29th Drive SE, Suite 210

SIGNED: 11/20/15

SIGNED: 11/20/15

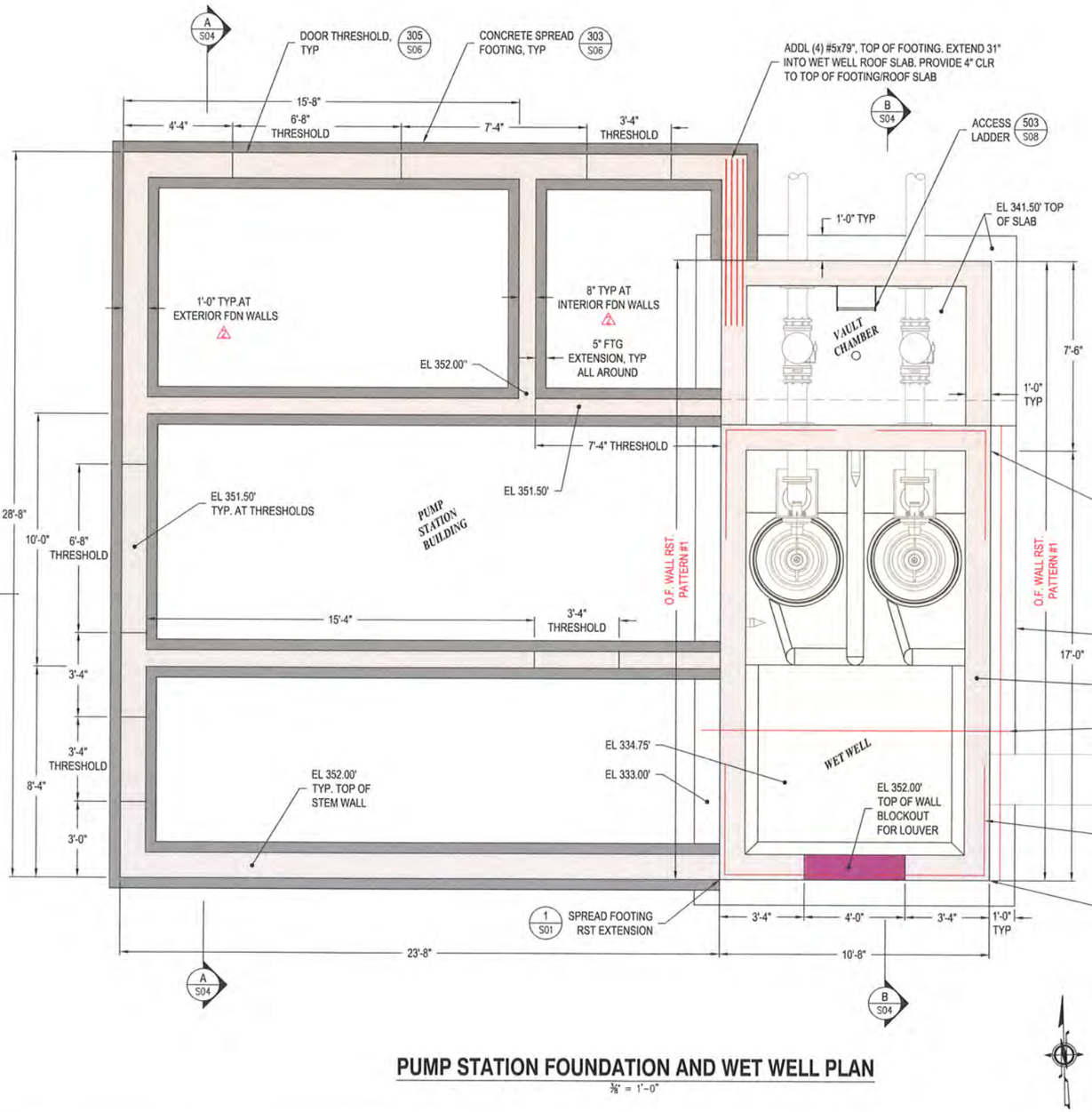
ENGINEER: MRJF | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: RJF | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ARCH02.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
2	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
A	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
1	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

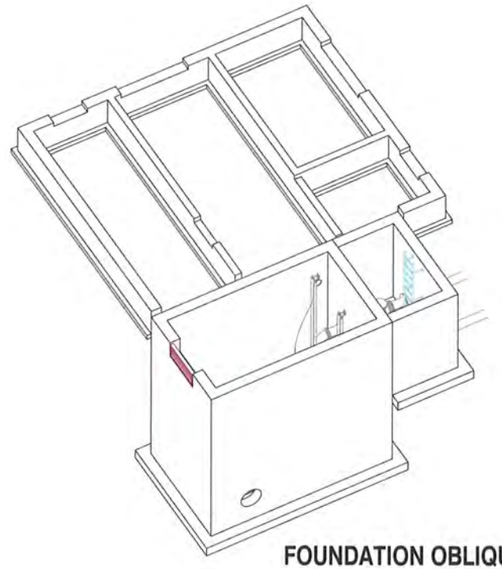
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: A02 | SHEET NO.: 7 | 39



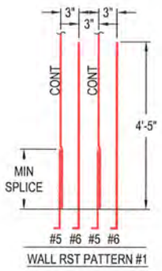
PUMP STATION FOUNDATION AND WET WELL PLAN

3/8" = 1'-0"

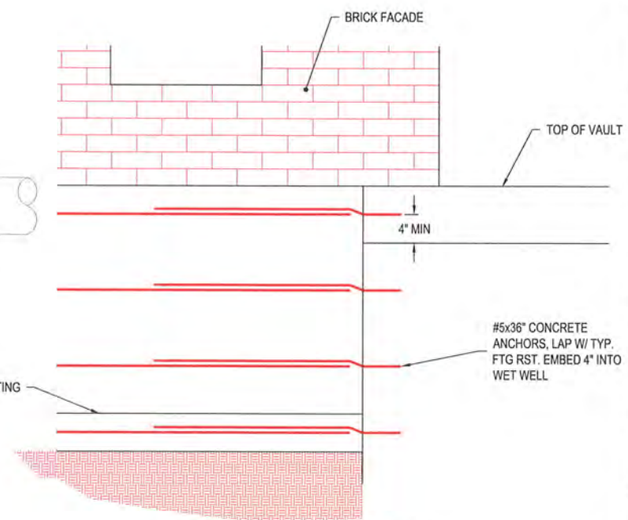


FOUNDATION OBLIQUE

NOT TO SCALE



WALL RST PATTERN #1



FOOTING CONNECTION

1" = 1'-0"

1 S01

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ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

PUMP STATION FOUNDATION PLAN

JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-STR01.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: CGR
REVIEWED: JMC

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
	11/20/15	CONSTRUCTION SET	MRJF | CGR	RJF | JMC
	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF | CGR	RJF | JMC
	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF | CGR	RJF | JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S01

SHEET NO.: 8 39

ACCESS HATCH SCHEDULE

NO.	LOCATION	OPENING WIDTH X LENGTH (HINGE SIDE)	FRAME	GUTTER	H-20 RATED	MOUNTING	GASKET	NO. OF LEAVES	ROUTE DRAIN TO
H1	VALVE CHAMBER	42" X 84"	ALUM	YES	YES	ANCHORS	NO	2	WETWELL
H2	WETWELL	36" X 48"	ALUM	YES	YES	ANCHORS	NO	1	WETWELL
H3	WETWELL	36" X 48"	ALUM	YES	YES	ANCHORS	NO	1	WETWELL
H4	WETWELL	42" X 84"	ALUM	YES	YES	ANCHORS	NO	2	WETWELL
H5	METERING MANHOLE	36" X 36" ⚠	ALUM	NO	YES	ANCHORS	NO	1	-
H6	POLYPIGGING VAULT	42" X 84"	ALUM	NO	YES	ANCHORS	NO	1	-

ACCESS HATCH NOTES:
1.1. PROVIDE RECESSED PADLOCK HASP WITH HINGED COVER FOR EACH HATCH

DOOR SCHEDULE

No.	LOCATION	DOOR TYPE	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR MATERIAL	FRAME SIZE WIDTH	FRAME SIZE HEIGHT	FRAME MATERIAL
D101	ODOR CONTROL ROOM	3	6'-4"	7'-2"	STL	6'-8"	7'-4"	STL
D102	MAINENANCE ROOM	1	3'-0"	7'-2"	STL	3'-4"	7'-4"	STL
D103	MAINTENANCE ROOM	3	6'-4"	11'-7"	STL	6'-8"	12'-0"	STL
D104	MAINTENANCE ROOM	2	3'-0"	7'-2"	STL	3'-4"	7'-4"	STL
D105	MAINTENANCE ROOM	3	6'-4"	7'-2"	STL	6'-8"	7'-4"	STL
D106	ELECTRIAL ROOM	1	3'-0"	7'-2"	STL	3'-4"	7'-4"	STL

NOTES

1) SEE MECHANICAL AND ELECTRICAL PLANS FOR ADDITIONAL UNDER/IN SLAB PIPING AND CONDUIT.

2) SEE DWG NO. M03 FOR EQUIPMENT SCHEDULES: (LXXX) (VXXX) (FXXX)

3) SEE (300 / S06) FOR GENERAL STRUCTURAL NOTES.

4) FOR PIPE PENETRATIONS THRU CMU WALL, LEAVE BLOCKOUT IN CMU WALL AND GROUT IN PLACE WITH NON-SHRINK GROUT. SEE MECHANICAL PLANS FOR DETAILED PENETRATION LOCATIONS.

5) GROUT EXTERIOR CMU WALL CELLS BETWEEN BOND BEAMS WHERE PIPE SUPPORTS OR PANELS ARE ATTACHED. SEE MECHANICAL AND ELECTRICAL PLANS FOR LOCATIONS.

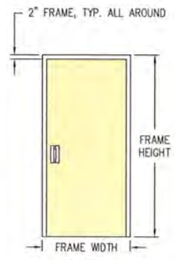
6) ALL DOOR/GATE HARDWARE TO BE ADA COMPLIANT, MEET SECTION 1008 OF THE IBC AND L.M.C. SECTIONS 16.04.230 AND 16.04.240. ⚠

7) ALL METAL IN CONTACT WITH TREATED WOOD SHALL BE APPROVED FOR THAT USE. ⚠

COLOR LEGEND

- SPREAD FOOTING OR SUNKEN FLOOR
- FINISH FLOOR, FILTER PAD OR LANDING
- WALL OR EQUIPMENT PAD
- CMU WALL
- DOOR
- LOUVER
- VENTILATOR
- WALL PENETRATION
- ROOF OUTLINE
- FLOOR RIDGE/VALLEY

DOOR TYPES:



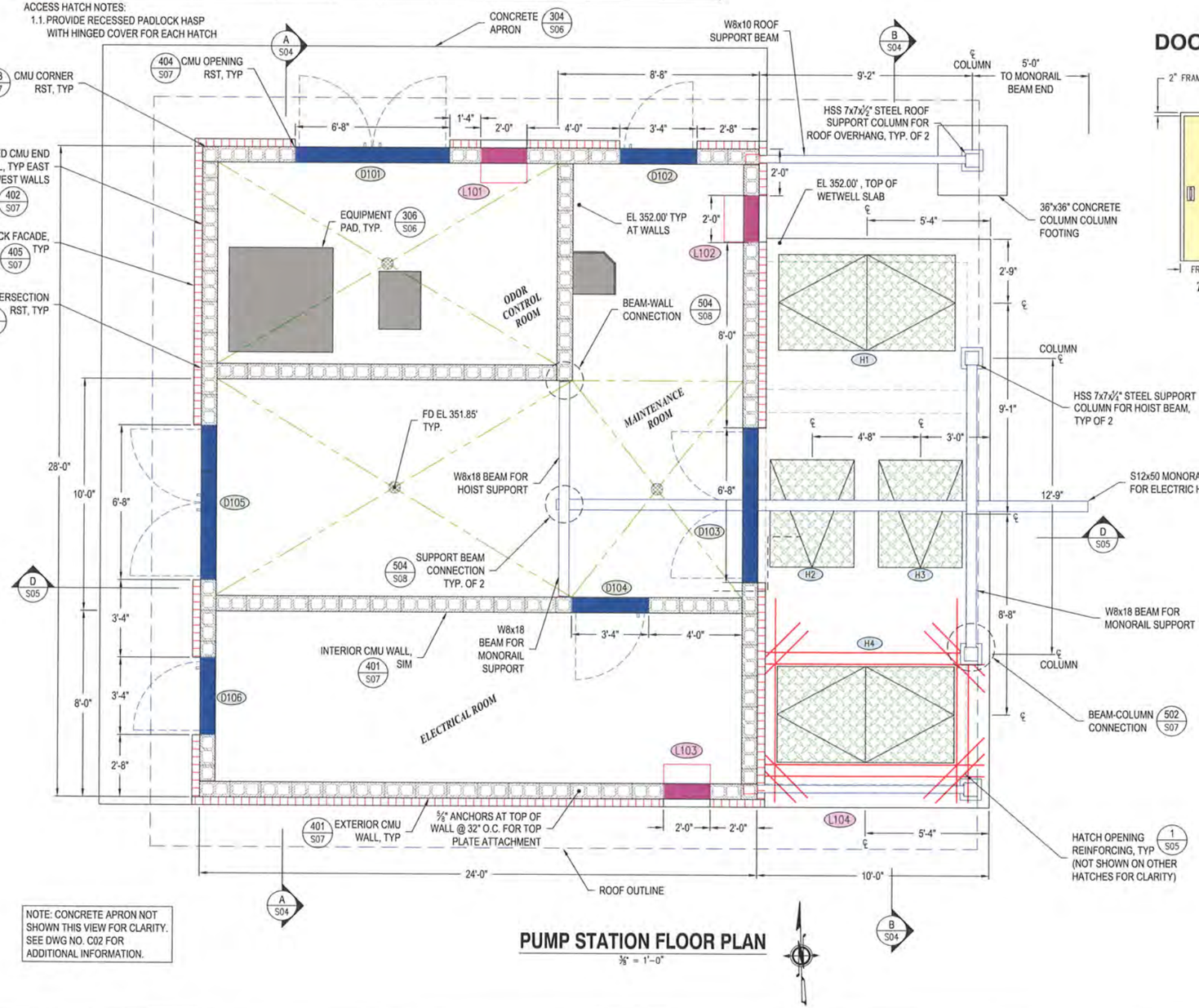
TYPE 1

TYPE 2

TYPE 3

MATERIAL KEY

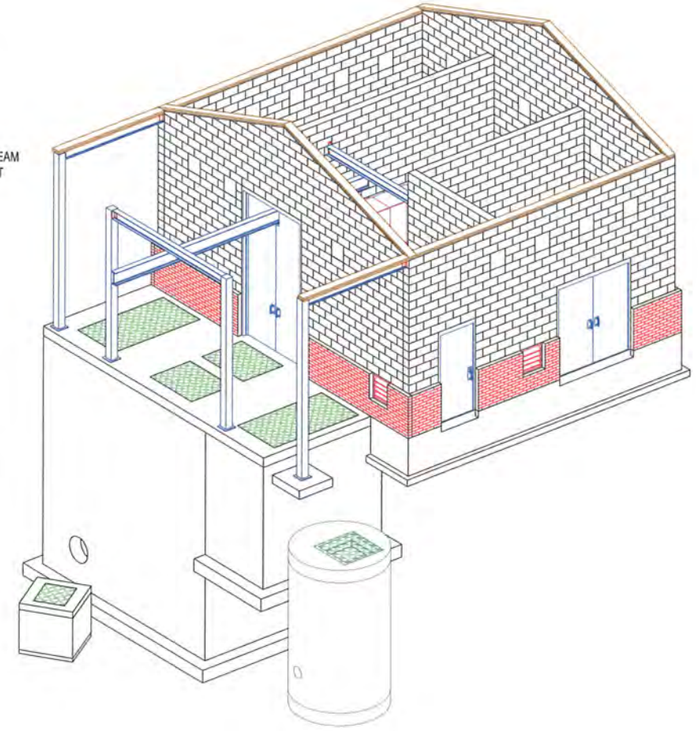
HM	HOLLOW METAL
STL	STEEL
ALUM	ALUMINUM



NOTE: CONCRETE APRON NOT SHOWN THIS VIEW FOR CLARITY. SEE DWG NO. C02 FOR ADDITIONAL INFORMATION.

PUMP STATION FLOOR PLAN

⅜" = 1'-0"



PUMP STATION OBLIQUE

NOT TO SCALE

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CITY OF LYNNWOOD LIFT STATION 16 AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

PUMP STATION FLOOR PLAN

ENGINEER: CGR
REVIEWED: JMC
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-STR02.DWG
JOB NO.: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
1	09/22/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
2	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

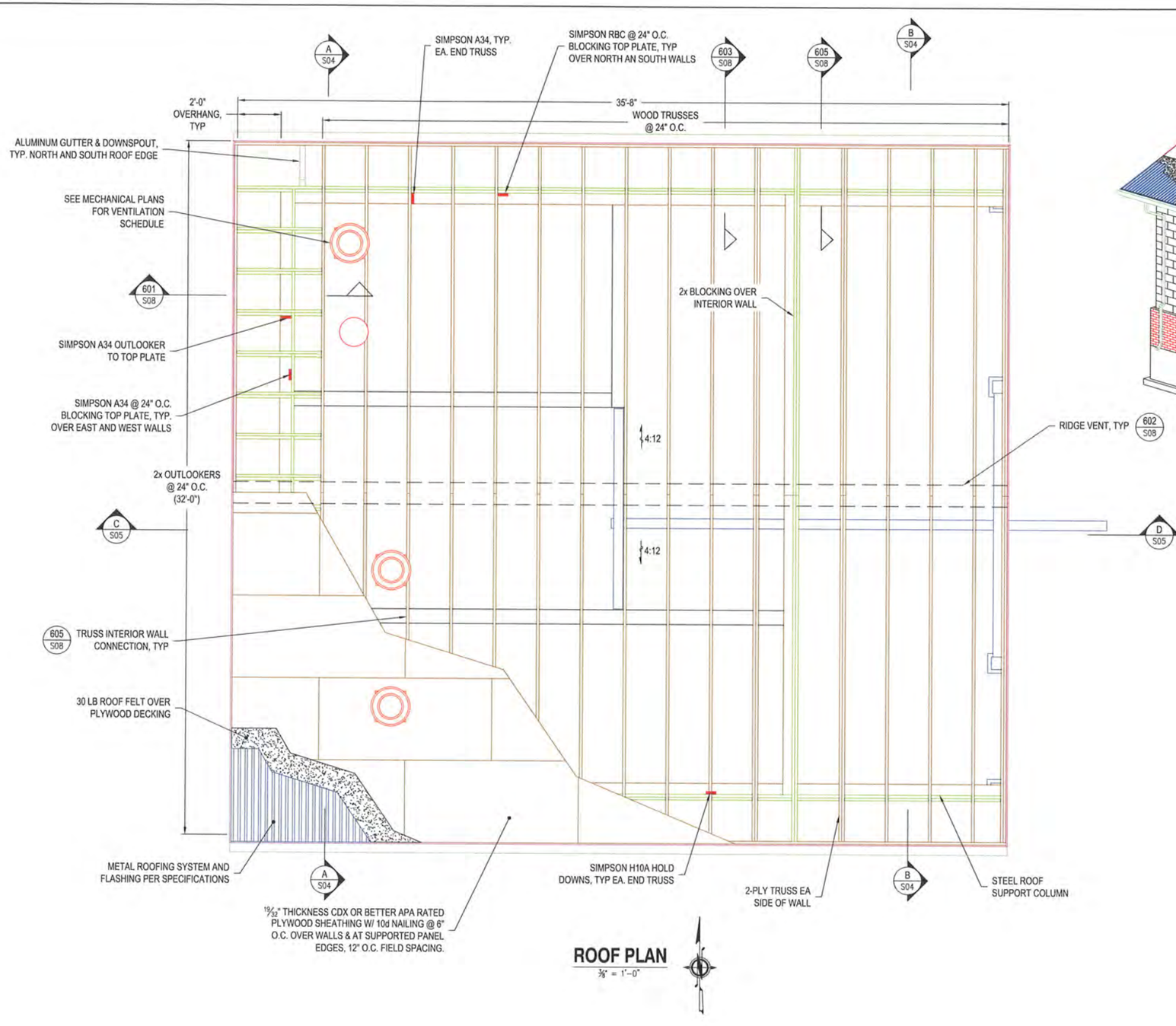
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

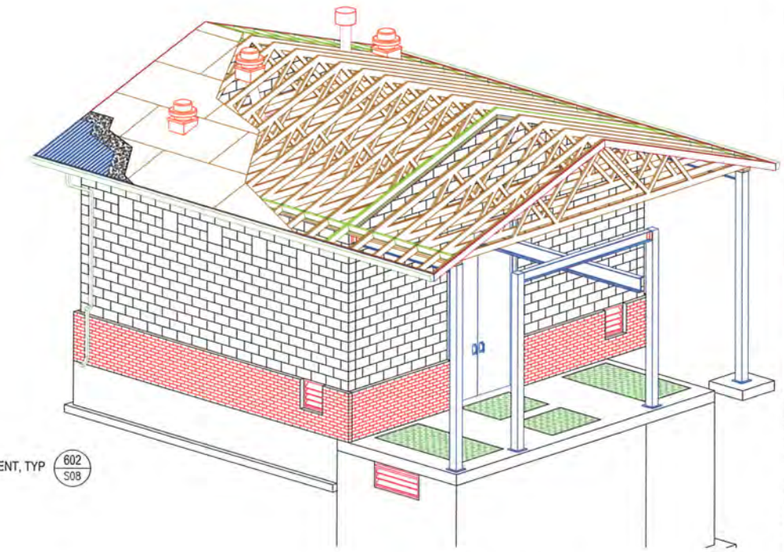
DWG NO.: S02

SHEET NO.: 9 / 39



ROOF PLAN

3/8" = 1'-0"



ROOF FRAMING OBLIQUE

NOT TO SCALE

TRUSS NOTES:

1. TRUSS SPECS NEED TO BE ON SITE FOR INSPECTION

PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES AND OTHER FRAMING SHALL BE DESIGNED BY THE MANUFACTURER IN ACCORDANCE WITH ANSI/TPI 1-1995 FOR THE SPANS AND CONDITIONS SHOWN ON THE DRAWINGS.

LOADING SHALL BE AS FOLLOWS:
- ROOF DEAD LOAD:
  - TOTAL DEAD LOAD = 12 PSF, INCLUDES:
    - ROOFING: 1.5 PSF
    - SHEATHING: 2.0 PSF
    - TRUSSES: 2.0 PSF ASSUMED
    - INSULATION: 0.5 PSF
    - (1) LAYER OF 5/8 INCH GYPSUM WALLBOARD: 3.0 PSF
    - MISCELLANEOUS MECHANICAL: 3.0 PSF.
  - SNOW LOADS = 25 PSF
- MAX BOTTOM CHORD DEFLECTION: L/360

2. ALL METAL IN CONTACT WITH TREATED WOOD SHALL BE APPROVED FOR THAT USE.

SIGNED: 11/20/15

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PUMP STATION ROOF PLAN

ENGINEER: CGR	SAVE DATE: Nov 18, 2015	CLIENT: TRANE	JOB NO.: 114-005
DRAWN/ED: JMC	PLOT DATE: Nov 18, 2015	FILENAME: LS16-D-STR03.DWG	

REVISIONS

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	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
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	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

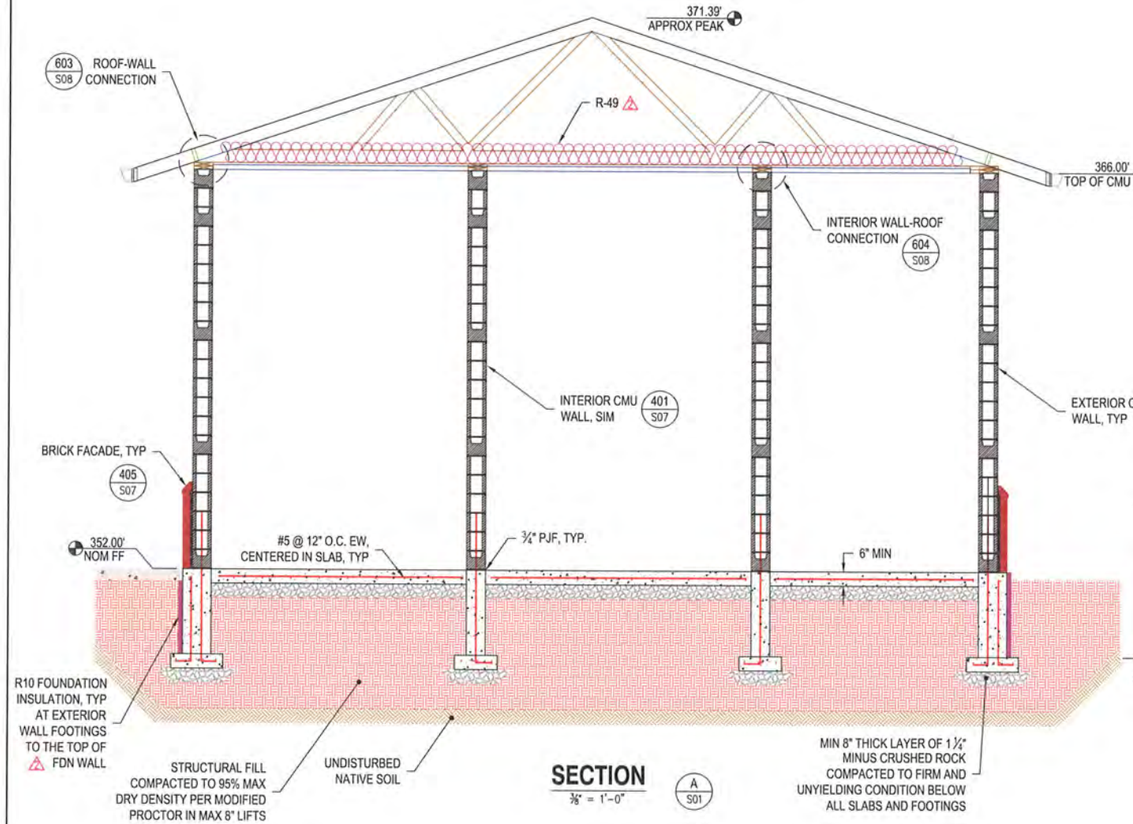
SCALE: SHOWN

0" 1" 2"

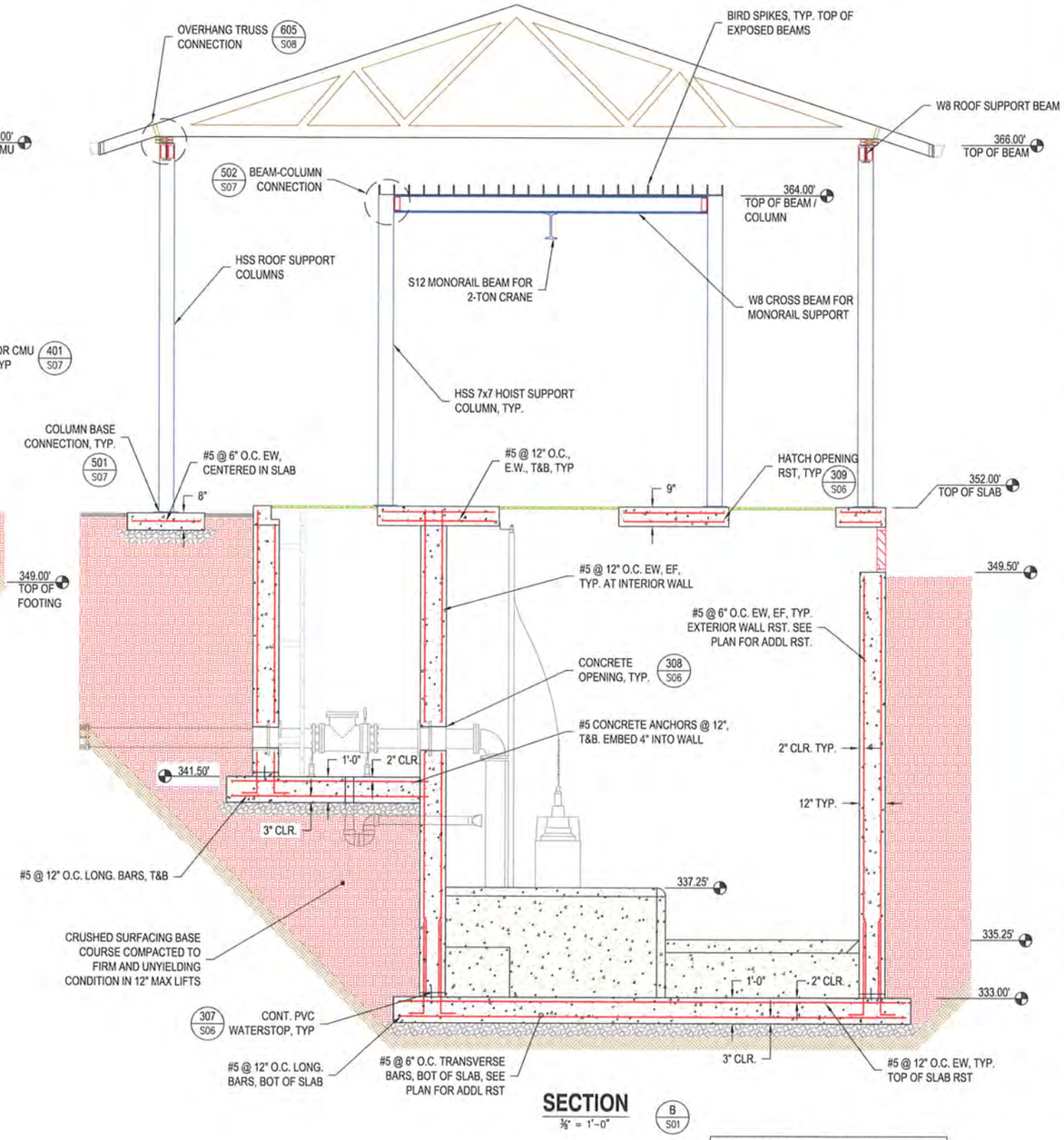
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S03

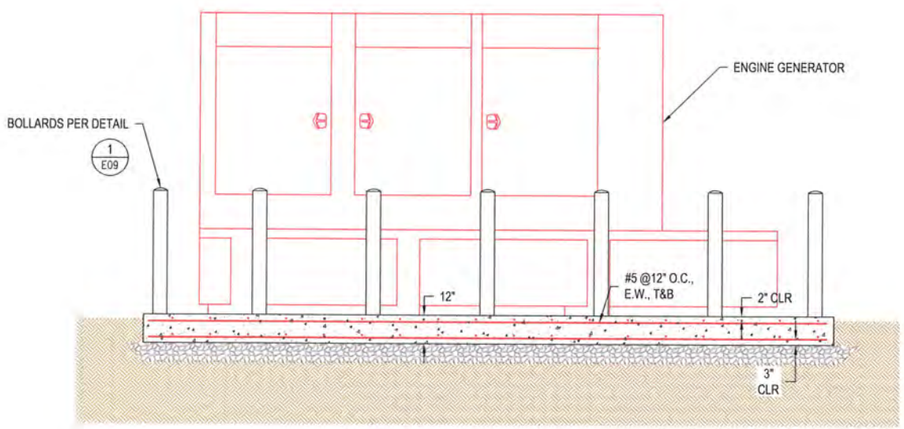
SHEET NO.: 10



SECTION
⅜" = 1'-0"
A S01



SECTION
⅜" = 1'-0"
B S01



GENERATOR SLAB SECTION
⅜" = 1'-0"
C C02

SUBGRADE PREPARATION NOTES:
NATIVE MATERIAL IS MOISTURE SENSITIVE AND MAY NOT BE USED AS STRUCTURAL BACKFILL.

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AND FORCEMAIN IMPROVEMENTS
LYNNWOOD

PUMP STATION SECTIONS 1

JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-STR03.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: CGR
REVIEWED: JMC

REVISIONS

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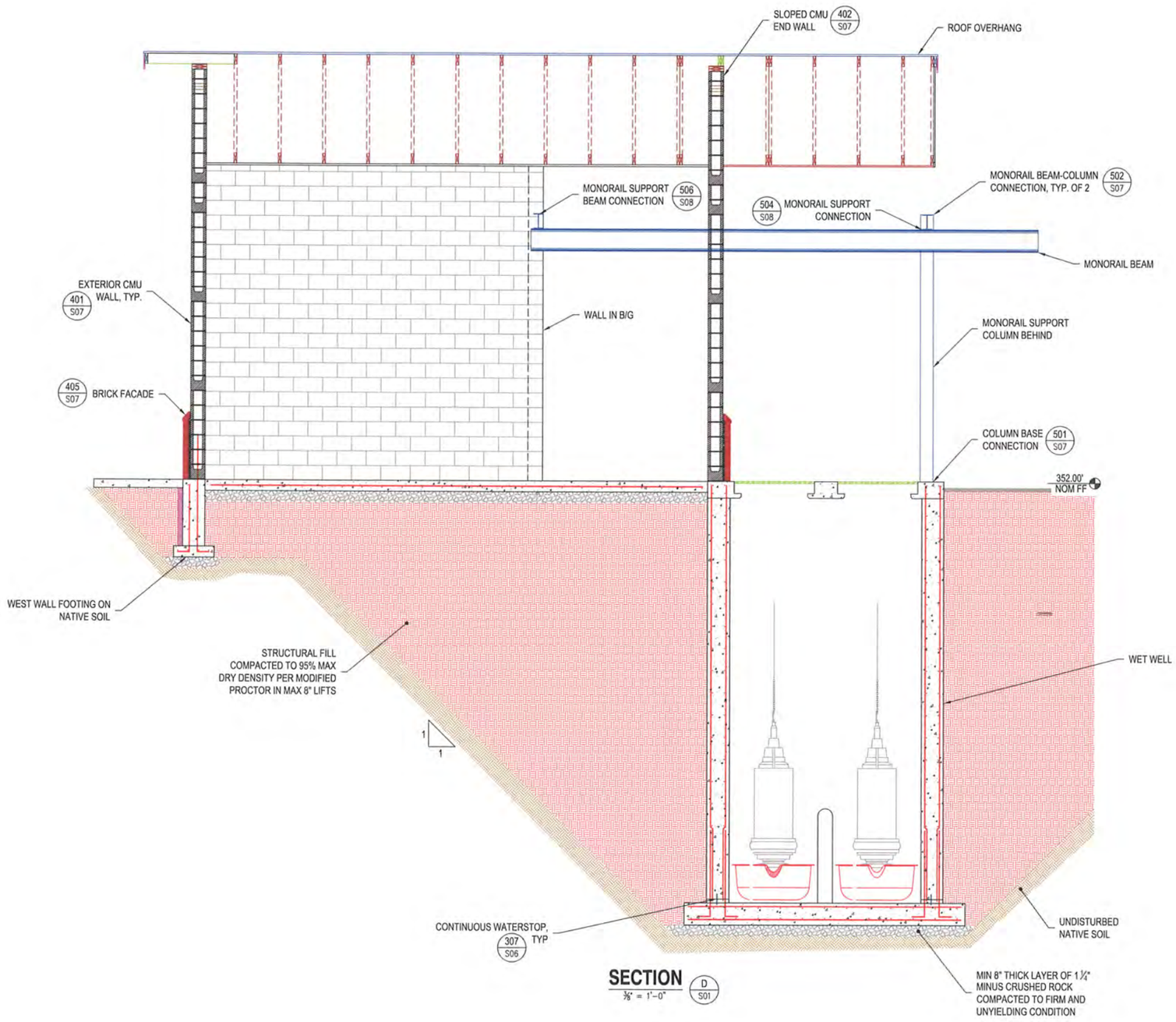
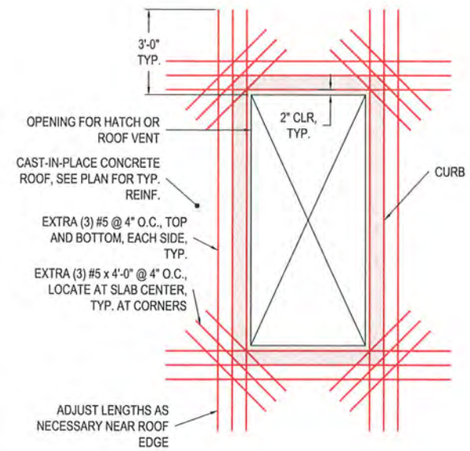
⚠	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S04
SHEET NO.: 11
39



SECTION D S01
3/8" = 1'-0"



ACCESS HATCH OPENING REINFORCING 1 S06
NOT TO SCALE

ENERGY SAVINGS PERFORMANCE CONTRACTING
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PUMP STATION SECTIONS 2

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ENGINEER: CGR | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: JMC | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-STR03.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
2	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
1	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
0	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S05 | SHEET NO.: 12 | 39

GENERAL STRUCTURAL NOTES (300)

GEOTECHNICAL PARAMETERS:

MINIMUM FROST DEPTH	18"
MAXIMUM NET BEARING	4,000 PSF OVER FILL, 6,000 PSF OVER GLACIAL TILL
AT-REST LATERAL EARTH PRESSURE	90 PCF SATURATED
GROUND WATER TABLE	AT GRADE
SOILS REPORT REFERENCE	GEO REPORT, HWA GEOSCIENCE INC. AUG. 2009
TRAFFIC SURCHARGE	100 PSF
SEISMIC SOIL LOAD	10 PSF (TRIANGULAR)

OTHER LOADING PARAMETERS:

WIND LOAD	115 MPH, EXPOSURE C
SNOW LOAD	25 PSF
EARTHQUAKE LOAD	LAT 47.82227, LONG 122.30876, SOIL TYPE C

OTHER DESIGN VALUES USED:

RISK CATEGORY	iii - WASTEWATER FACILITY
CONCRETE	4,000 PSI WITH 60,000 PSI REINFORCING
CMU	1,500 PSI WITH 60,000 PSI REINFORCING
STEEL	A36 FOR PLATES, A992 FOR OTHER
TIMBER	SPRUCE-PINE FIR, NO 2 OR BETTER

LIVE LOADS:

ROOF	20 PSF
TRAFFIC	60 PSF
FLOOR	125 PSF (LIGHT MANUFACTURING)

CRITERIA:

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (2012 EDITION)

SPECIAL INSPECTIONS, TESTS, AND OBSERVATIONS:

⚠ PROVIDE VERIFICATION OF APPROVED SHOP IF AN APPROVED SHOP IS USED.
SPECIAL INSPECTIONS AND TESTS SHALL INCLUDE THE FOLLOWING. REFER TO IBC SECTION 1704 AND 1707 FOR DETAILS.

1. SPECIAL INSPECTIONS BY THE GEOTECHNICAL ENGINEER INCLUDING:
   - 1.1. SITE EXCAVATION AND GRADING
   - 1.2. PLACEMENT OF STRUCTURAL FILL AND SOIL COMPACTION
   - 1.3. VERIFICATION OF SOIL-BEARING CAPACITY
2. CONCRETE PLACEMENT AT CONCRETE CONSTRUCTION: CONTINUOUS, SEE ALSO SECTION 1704.4 OF THE INTERNATIONAL BUILDING CODE.
3. REINFORCEMENT AT CONCRETE CONSTRUCTION: PERIODIC, SEE ALSO SECTION 1704.4.
4. MASONRY CONSTRUCTION, INCLUDING PLACEMENT OF MASONRY UNITS, MORTAR REINFORCEMENT AND STRUCTURAL CONNECTIONS: PERIODIC, SEE ALSO SECTION 1704.5.3.
5. GROUT PLACEMENT AT MASONRY CONSTRUCTION: CONTINUOUS, SEE ALSO SECTION 1704.5.3.
6. WOOD-FRAMED LATERAL-FORCE RESISTING SYSTEM: PERIODIC, SEE ALSO SECTION 1707.3.
7. TESTING OF CONCRETE FOR SPECIFIED COMPRESSIVE STRENGTH (FC), AIR CONTENT AND SLUMP. SEE ALSO TABLE 1704.4 OF THE INTERNATIONAL BUILDING CODE.
8. VERIFICATION OF SPECIFIED COMPRESSIVE STRENGTH (FM) OF MASONRY PRIOR TO CONSTRUCTION AND EVERY 5,000 SQUARE FEET DURING CONSTRUCTION. SEE ALSO TABLE 1708.1.4 OF THE INTERNATIONAL BUILDING CODE.
9. STRUCTURAL OBSERVATION BY A REGISTERED DESIGN PROFESSIONAL IN ACCORDANCE WITH IBC 1709 SHALL BE PROVIDED.
10. ⚠ SPECIAL INSPECTION OF EPOXY GROUTING / ANCHORAGE REQUIRED.
11. ⚠ SPECIAL INSPECTION OF WELDING / BOLTING REQUIRED UNLESS PERFORMED AT AN APPROVED SHOP.

GENERAL:

LINES SHOWN ON DRAWINGS MAY BE ASSOCIATED WITH CAD MODELING AND MAY NOT REPRESENT REQUIRED OR ALLOWED JOINTS. SEE DETAILS FOR CLARIFICATION ON REQUIRED AND ALLOWED JOINTS.

REINFORCED CONCRETE:

1. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 315-99 AND 318-08. LAP ALL REINFORCEMENTS IN ACCORDANCE WITH THE "REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE" - SEE THIS SHEET. PROVIDE CORNER BARS AT ALL WALL INTERSECTIONS PER DETAIL 303. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.
2. NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.
3. A 6" WATERSTOP SHALL BE PLACED AT ALL BELOW GRADE CONCRETE SLAB AND WALL CONSTRUCTION JOINTS AND AS SHOWN TO PROVIDE A WATERTIGHT STRUCTURE.
4. CONCRETE PROTECTION FOR REINFORCING STEEL SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
   - 4.1. FOOTINGS AND OTHER UNIFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ..... 3"
   - 4.2. FORMED SURFACES EXPOSED TO EARTH (WALLS BELOW GRADE), WATER OR WEATHER (#6 BARS OR LARGER) ..... 2"
   - 4.3. COLUMN TIES OR SPIRALS AND BEAM STIRRUPS ..... 2"
   - 4.4. SLABS AND INTERIOR FACES ..... 2"

ABBREVIATIONS:

AL - ALUMINUM
CHK - CHECKERED
CL - CENTERLINE
CLR - CLEAR
EA - EACH
EF - EACH FACE
FB - FLAT BAR
HORZ - HORIZONTAL
LLV - LONG LEG VERT
O.C. - ON CENTER
PL - PLATE
RB - ROUND BAR
RST - REINF. STEEL
SST - STAINLESS STEEL
T&B - TOP & BOTTOM
VERT - VERTICAL

REINFORCEMENT SPLICE AND DEVELOPMENT SCHEDULE

BAR	MINIMUM STRAIGHT DEVELOPMENT LENGTHS: TOP BARS	MINIMUM STRAIGHT DEVELOPMENT LENGTHS: OTHER BARS	MINIMUM LAP SPLICE LENGTHS: TOP BARS	MINIMUM EMBEDMENT LENGTHS: ALL BARS
#3	19"	15"	25"	6"
#4	25"	19"	33"	7"
#5	31"	24"	41"	9"
#6	37"	29"	49"	10"

"TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.
IF CLEAR CONCRETE COVER IS LESS THAN 2x THE DIAMETER OF THE BAR OR THE CENTER-TO-CENTER SPACING IS LESS THAN (4) BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 43%
SIDE COVER MUST BE EQUAL TO OR GREATER THAN 2-1/2"
END COVER FOR 90° HOOKS MUST BE EQUAL TO OR GREATER THAN 2"

CMU ANCHORS FOR THE USE IN BOTH GROUTED AND UNGROUTED CMU CELLS SHALL BE EITHER HILTI HIT-HY 70 INJECTABLE MORTAR, SIMPSON STRONG-TIE ET-HP ANCHORING ADHESIVE, OR POWERS AC100+ GOLD ADHESIVE ANCHORS.

WHERE SIZE IS CALLED OUT ON THE DRAWINGS, PROVIDE MINIMUM EMBEDMENT DEPTHS AS SHOWN ON THE FOLLOWING TABLES. PROVIDE MINIMUM EDGE DISTANCES AND SPACING AS SHOWN ON THE FOLLOWING TABLES UNLESS SPECIFICALLY DETAILED OTHERWISE.

INSTALL ANCHORS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

NOTIFY OWNER 24 HOURS IN ADVANCE OF INSTALLATION OF ALL ANCHORS.

WHERE SIZE IS NOT CALLED OUT, ANCHOR SHALL BE SELECTED BASED ON DESIGN LOADS. IF THE MINIMUM EDGE DISTANCE AND/OR MINIMUM SPACING CAN NOT BE ACHIEVED, REFER TO PRODUCT INFORMATION FOR REDUCTION IN ALLOWABLE LOADS.

FORCES ARE DETERMINED BY THE FOLLOWING FORMULA: (Ps / Pt) + (Vs / Vt) = 1

WHERE: Ps = APPLIED SERVICE TENSION LOAD
Pt = ALLOWABLE SERVICE TENSION LOAD
Vs = APPLIED SERVICE SHEAR LOAD
Vt = ALLOWABLE SERVICE SHEAR LOAD

THE ABOVE FORMULA IS FOR THE ALLOWABLE LOADS FOR ANCHORS SUBJECTED TO COMBINED TENSION AND SHEAR.

GROUTED CMU ANCHORS
HILTI HIT-HY 70, SIMPSON STRONG-TIE ET-HP & POWERS AC100+ GOLD

DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS): TENSION	SHEAR
3/8	12	3-3/8	(1) PER CELL	1,000	845
1/2	12	4-1/2	(1) PER CELL	1,000	1,470
5/8	12	5-5/8	(1) PER CELL	1,140	1,595
3/4	12	6-3/4	(1) PER CELL	1,200	1,625
#3	12	3-3/8	(1) PER CELL	1,000	850
#4	12	4-1/2	(1) PER CELL	1,000	1,355
#5	12	5-5/8	(1) PER CELL	1,140	1,355

UNGROUTED CMU ANCHORS
HILTI HIT-HY 70, SIMPSON STRONG-TIE ET-HP & POWERS AC100+ GOLD

DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS): TENSION	SHEAR
3/8	12	3	(1) PER CELL	280	265
1/2	12	3	(1) PER CELL	280	265
5/8	12	3	(1) PER CELL	280	265
3/4	12	3	(1) PER CELL	280	265
#3	12	3	(1) PER CELL	280	265
#4	12	3	(1) PER CELL	280	265
#5	12	3	(1) PER CELL	280	265

CMU ANCHOR (301)

CONCRETE ANCHORS SHALL BE EITHER HILTI HIT-RE 500-SD INJECTABLE MORTAR, SIMPSON STRONG-TIE SET-XP ANCHORING ADHESIVE, OR POWERS PE1000+ ADHESIVE ANCHORS AS SPECIFIED. WHERE SIZE IS CALLED OUT ON THE DRAWINGS, PROVIDE MINIMUM EMBEDMENT DEPTHS AS SHOWN ON THE FOLLOWING TABLES. PROVIDE MINIMUM EDGE DISTANCES AND SPACING AS SHOWN ON THE FOLLOWING TABLES UNLESS SPECIFICALLY DETAILED OTHERWISE. SPECIAL INSPECTION REQUIRED. ⚠

INSTALL ANCHORS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

NOTIFY OWNER 24 HOURS IN ADVANCE OF INSTALLATION OF ALL ANCHORS.

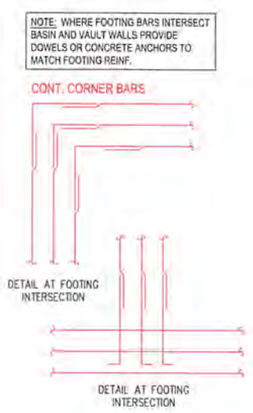
WHERE SIZE IS NOT CALLED OUT, ANCHOR SHALL BE SELECTED BASED ON DESIGN LOADS.IF THE MINIMUM EDGE DISTANCE AND/OR MINIMUM SPACING CAN NOT BE ACHIEVED, REFER TO PRODUCT INFORMATION FOR REDUCTION IN ALLOWABLE LOADS.

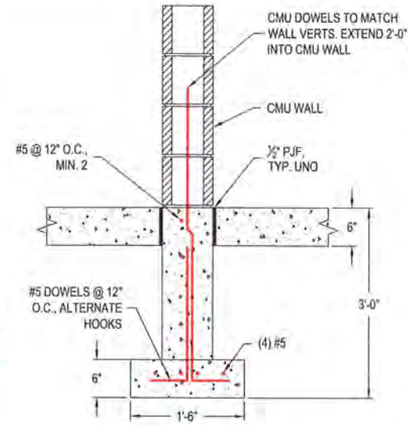
CONCRETE ANCHORS
HILTI HIT-RE 500-SD, SIMPSON STRONG-TIE SET-XP & POWERS PE1000+

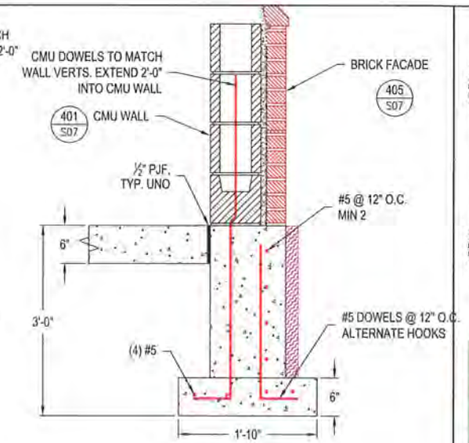
DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS): TENSION	SHEAR
1/2	2-1/2	2-3/4	2-1/2	1,027	2,210
5/8	3-1/8	3-1/8	3-1/8	1,312	2,827
3/4	3-3/4	3-1/2	3-3/4	1,556	3,351
7/8	4-3/8	3-1/2	4-3/8	1,556	3,351
#4	2-1/2	4-1/2	2-1/2	1,520	3,618
#5	3-1/8	5-5/8	3-1/8	1,775	5,494
#6	3-3/4	6-3/4	3-3/4	2,225	7,570
#7	4-3/8	7-7/8	4-3/8	2,440	9,428
#8	5	9	5	4,520	11,507

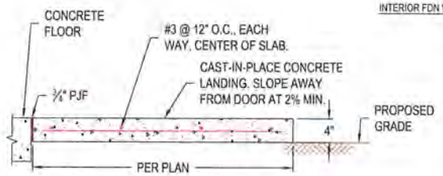
CONCRETE ANCHOR (302)

NOTE: WHERE FOOTING BARS INTERSECT BASIN AND VAULT WALLS PROVIDE DOWELS OR CONCRETE ANCHORS TO MATCH FOOTING REINF.





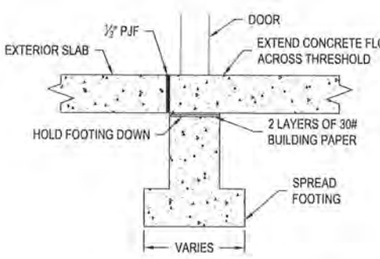




NOTE: ENTRANCE LANDING, WIDTH EQUAL TO DOOR WIDTH PLUS 3" EACH SIDE, OR AS NOTED.

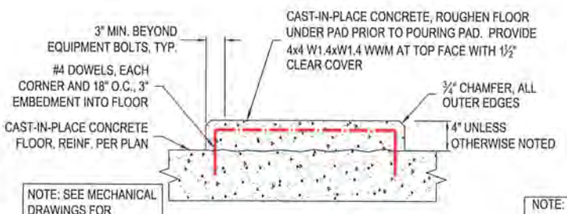
TYPICAL ENTRANCE LANDING DETAIL (304 TYP)

NOT TO SCALE



DOOR THRESHOLD (305 TYP)

1" = 1'-0"



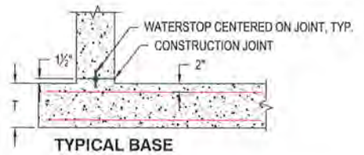
NOTE: SEE MECHANICAL DRAWINGS FOR EQUIPMENT LOCATION AND DIMENSIONS.

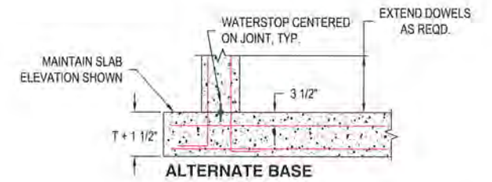
EQUIPMENT PAD (306 TYP)

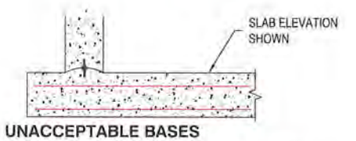
1" = 1'-0"

SPREAD FOOTING (303 TYP)

NOT TO SCALE



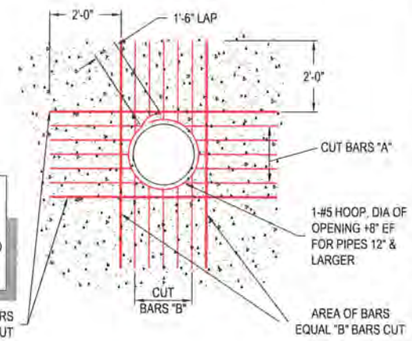




WATERSTOP JOINT (307 TYP)

½" = 1'-0"

NOTE: THIS DETAIL USED FOR SINGLE PENETRATIONS 4" IN DIAMETER AND LARGER, AND IN EQUIVALENT GROUPS OF SMALLER DIAMETER PENETRATIONS. REFER TO MECHANICAL PLANS FOR SIZE AND LOCATION OF PIPE PENETRATIONS.



NOTE: NOT ALL PENETRATIONS ARE SHOWN ON STRUCTURAL PLANS.

PENETRATION AND OPENING REINFORCEMENT (308 TYP)

NOT TO SCALE

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

STRUCTURAL DETAILS 1

SIGNED: 11/20/15

SIGNED: 11/20/15

RH2 ENGINEERING, INC.
www.rh2.com 1.800.720.8052
BOTHELL, WA
22722 29th Drive SE, Suite 210

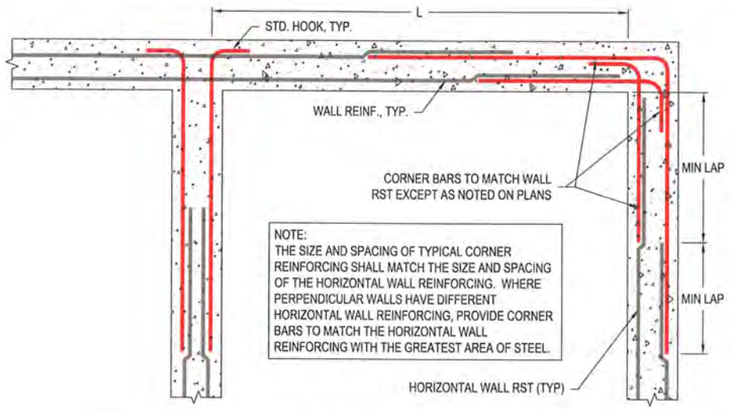
NO.	DATE	DESCRIPTION	BY	REVIEW
	11/20/15	CONSTRUCTION SET	MRJF|CGR	RJF|JMC
	05/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF|CGR	RJF|JMC
	05/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF|CGR	RJF|JMC

REVISIONS

JOB NO: 114-005
CLIENT: TRANE
FILENAME: LS16-D-STR01.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: CGR
REVIEWED: JMC

SCALE: SHOWN
0 1" 2
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

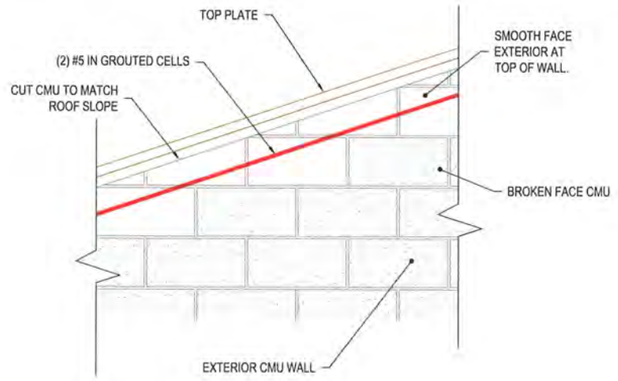
DWG NO.: S06
SHEET NO.: 13
39



TYPICAL CONCRETE WALL INTERSECTION / CORNER

1" = 1'-0"

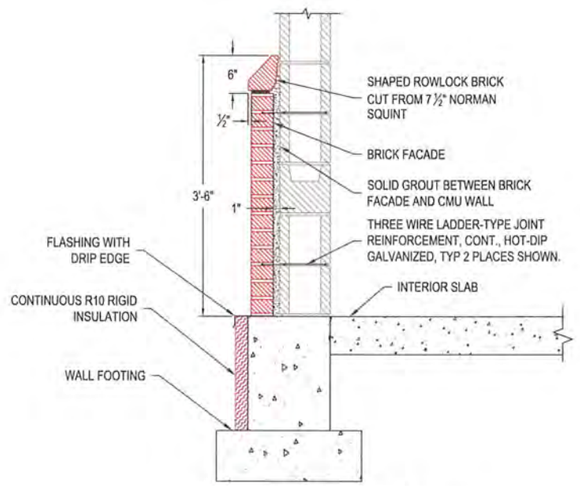
310 TYP



SLOPED END WALL DETAIL

1" = 1'-0"

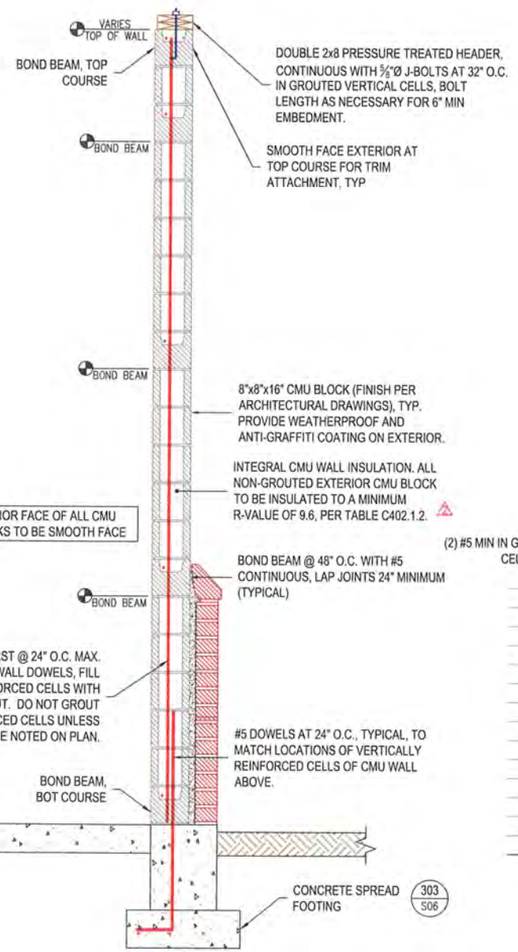
402 TYP



BRICK FACADE

1" = 1'-0"

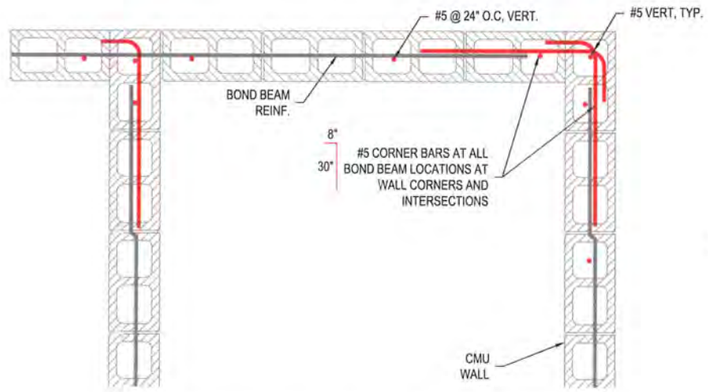
405 TYP



EXTERIOR CMU WALL

NOT TO SCALE

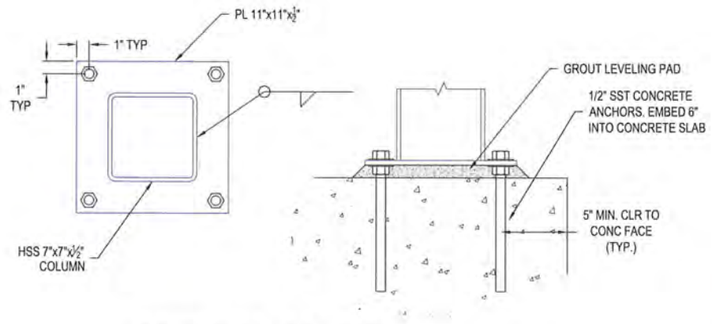
401 TYP



CMU WALL INTERSECTION / CORNER

1" = 1'-0"

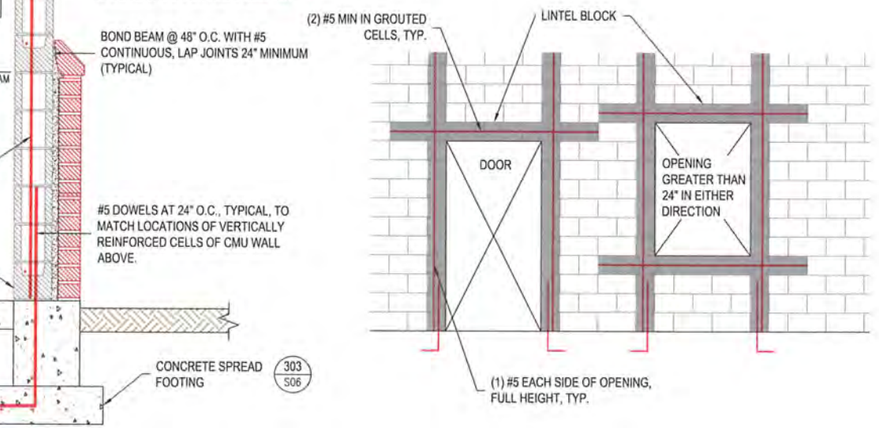
403 TYP



COLUMN BASE CONNECTION

2" = 1'-0"

501 TYP

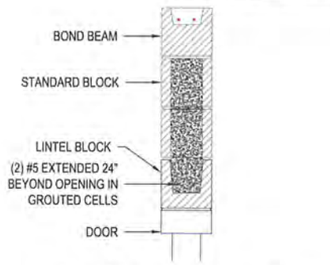


TYPICAL CMU OPENING

NOT TO SCALE

404 TYP

NOTE:
DOOR FRAME OF SOUND RATED DOORS SHALL BE FULLY GROUTED.

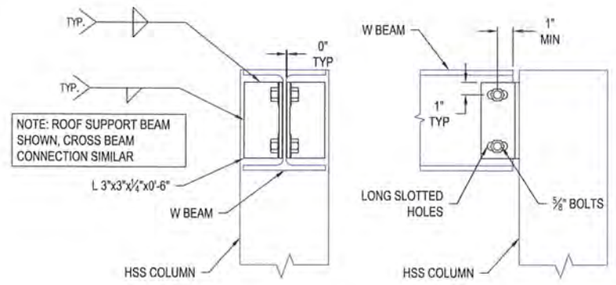


TYPICAL DOOR LINTEL

1" = 1'-0"

406 TYP

NOTE: SPECIAL INSPECTION OF WELDING AND BOLTING REQUIRED. ALL WELDING MUST BE PRE-APPROVED.



BEAM-COLUMN CONNECTION

2" = 1'-0"

502 TYP

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

STRUCTURAL DETAILS 2

SIGNED: 11/20/15

SIGNED: 11/20/15

RH2 ENGINEERING, INC.
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BOTHELL, WA
22722 29th Drive SE, Suite 210

NO.	DESCRIPTION	DATE	BY
	CONSTRUCTION SET	11/20/15	RJF \ JMC
	REVISED PER BUILDING PERMIT REVIEW COMMENTS	09/22/15	RJF \ JMC
	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	09/18/15	RJF \ JMC

REVISIONS

ENGINEER: COR
REVIEWED: JMC
DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-STRGD.DWG
JOB NO.: 114-005

SCALE: SHOWN

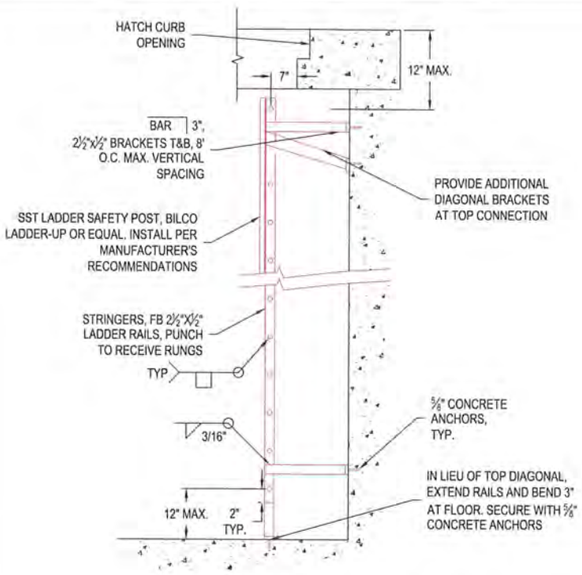
0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S07

SHEET NO.: 14

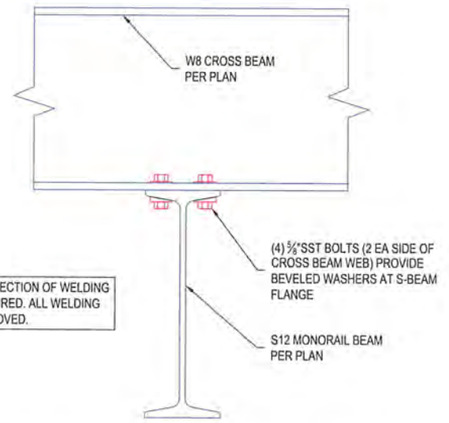
39



FIXED LADDER SECTION

503 TYP

1" = 1'-0"

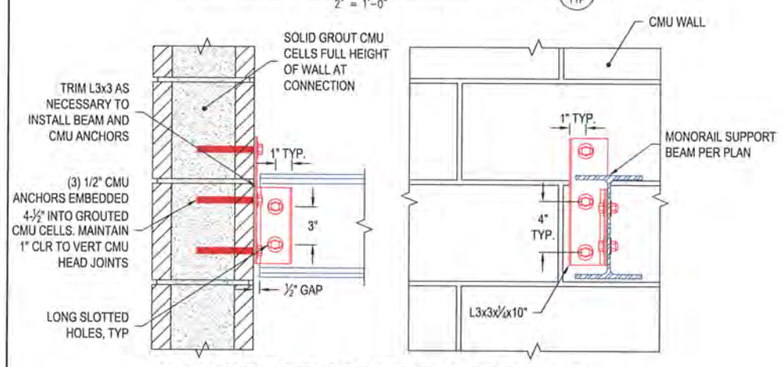


NOTE: SPECIAL INSPECTION OF WELDING AND BOLTING REQUIRED. ALL WELDING MUST BE PRE-APPROVED.

MONORAIL SUPPORT CONNECTION

504 TYP

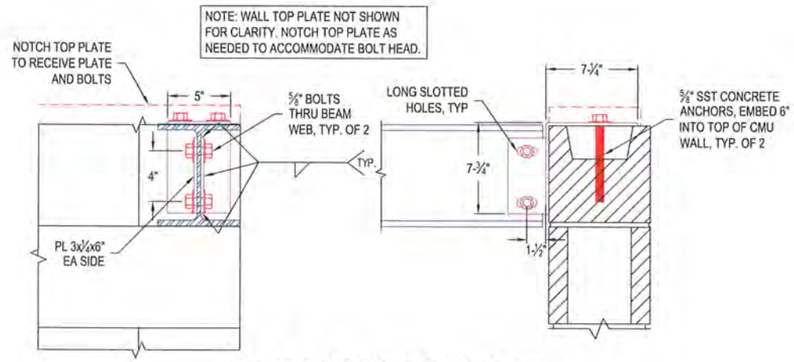
2" = 1'-0"



MONORAIL SUPPORT BEAM CONNECTION

505 TYP

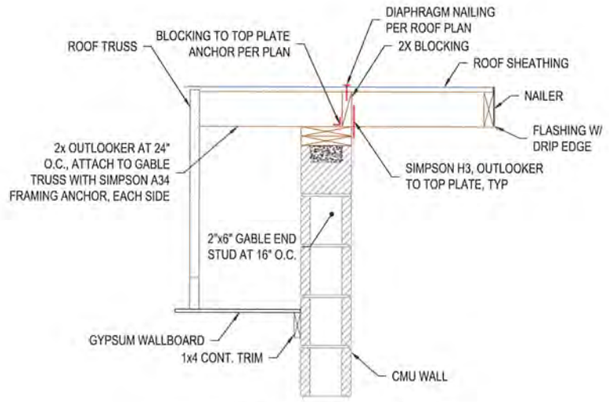
2" = 1'-0"



BEAM-COLUMN CONNECTION

506 TYP

2" = 1'-0"

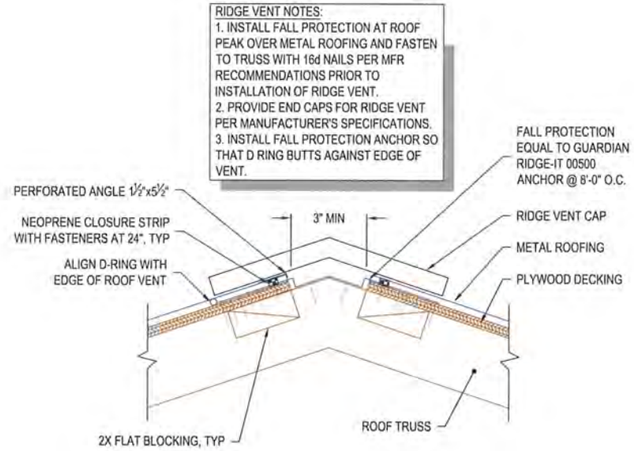


GABLE END SECTION

601 TYP

1"=1'-0"

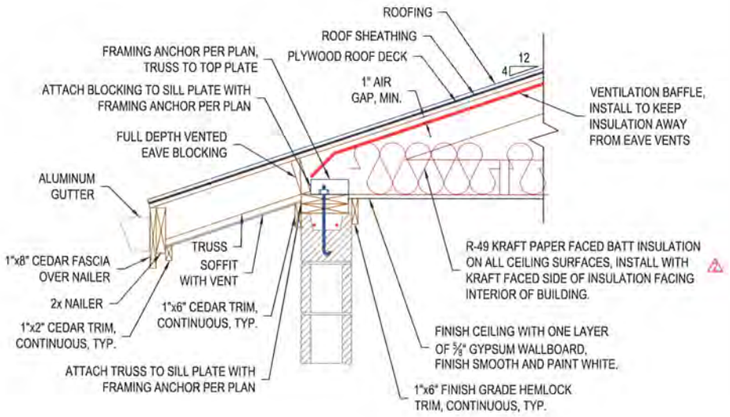
RIDGE VENT NOTES:
1. INSTALL FALL PROTECTION AT ROOF PEAK OVER METAL ROOFING AND FASTEN TO TRUSS WITH 16d NAILS PER MFR RECOMMENDATIONS PRIOR TO INSTALLATION OF RIDGE VENT.
2. PROVIDE END CAPS FOR RIDGE VENT PER MANUFACTURER'S SPECIFICATIONS.
3. INSTALL FALL PROTECTION ANCHOR SO THAT D RING BUTTS AGAINST EDGE OF VENT.



RIDGE VENT DETAIL

602 TYP

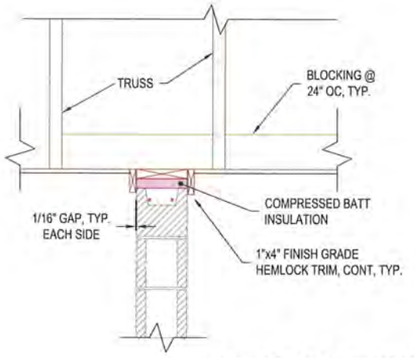
NOT TO SCALE

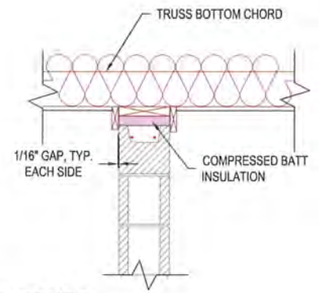


CMU WALL/TRUSS CONNECTIONS

603 TYP

1" = 1'-0"

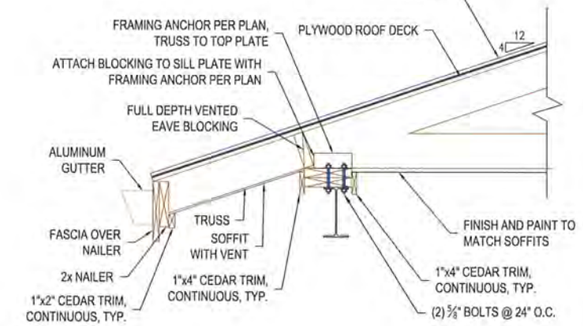




INTERIOR CMU WALL/TRUSS CONNECTIONS

605 TYP

1" = 1'-0"



STEEL BEAM/TRUSS CONNECTIONS

604 TYP

1" = 1'-0"

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SIGNED: 11/20/15

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

STRUCTURAL DETAILS 3

NO.	DESCRIPTION	DATE	BY
	CONSTRUCTION SET	11/20/15	MRJF \ CGR
1	REVISED PER BUILDING PERMIT REVIEW COMMENTS	05/22/15	MRJF \ CGR
2	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	09/18/15	MRJF \ CGR

REVIEW: RJF \ JMC; RJF \ JMC; RJF \ JMC

JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-STR03.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: CGR
REVIEWED: JMC

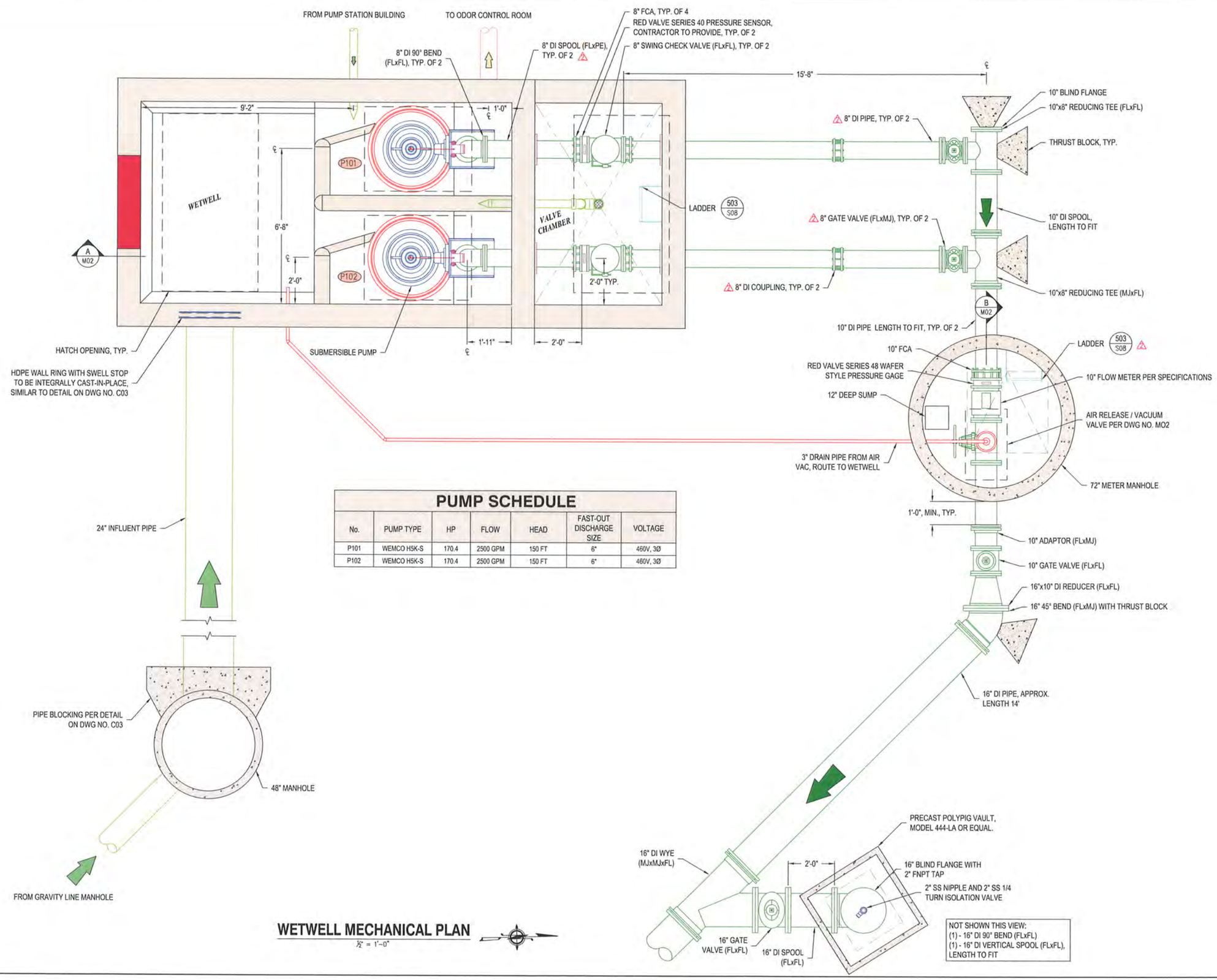
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S08

SHEET NO.: 15 / 39



PUMP SCHEDULE

No.	PUMP TYPE	HP	FLOW	HEAD	FAST-OUT DISCHARGE SIZE	VOLTAGE
P101	WEMCO H5K-S	170.4	2500 GPM	150 FT	6"	460V, 3Ø
P102	WEMCO H5K-S	170.4	2500 GPM	150 FT	6"	460V, 3Ø

WETWELL MECHANICAL PLAN

½" = 1'-0"

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

PROPOSED MECHANICAL PLAN

SIGNED: 11/20/15

SIGNED: 11/20/15

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BOTHELL, WA
22722 29th Drive SE, Suite 210

NO.	DATE	DESCRIPTION	BY
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR
			RJF \ JMC
			RJF \ JMC
			RJF \ JMC

REVISIONS

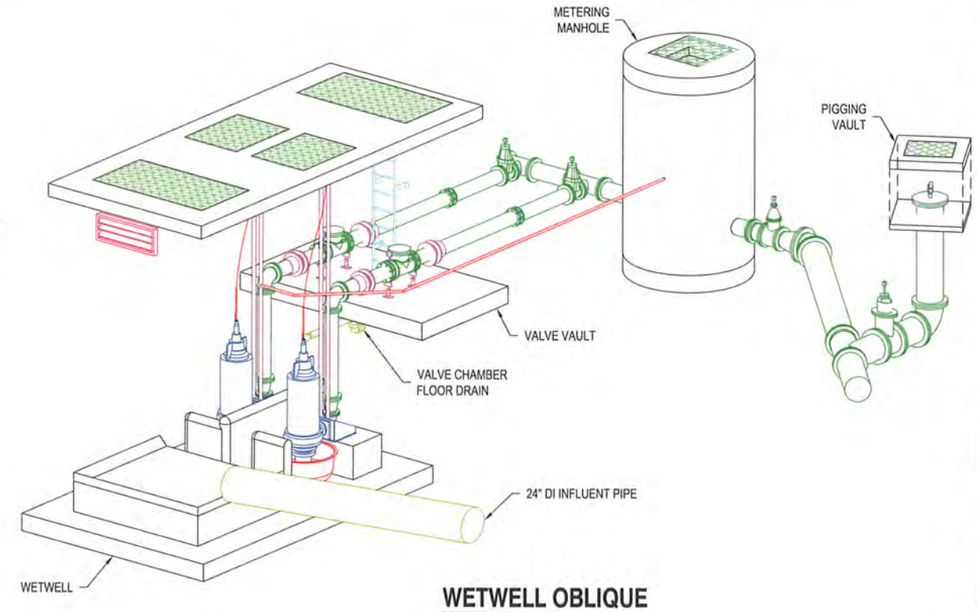
ENGINEER: AHF
REVIEWED: RJF
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-MEC01.DWG
JOB NO.: 114-005

SCALE: SHOWN

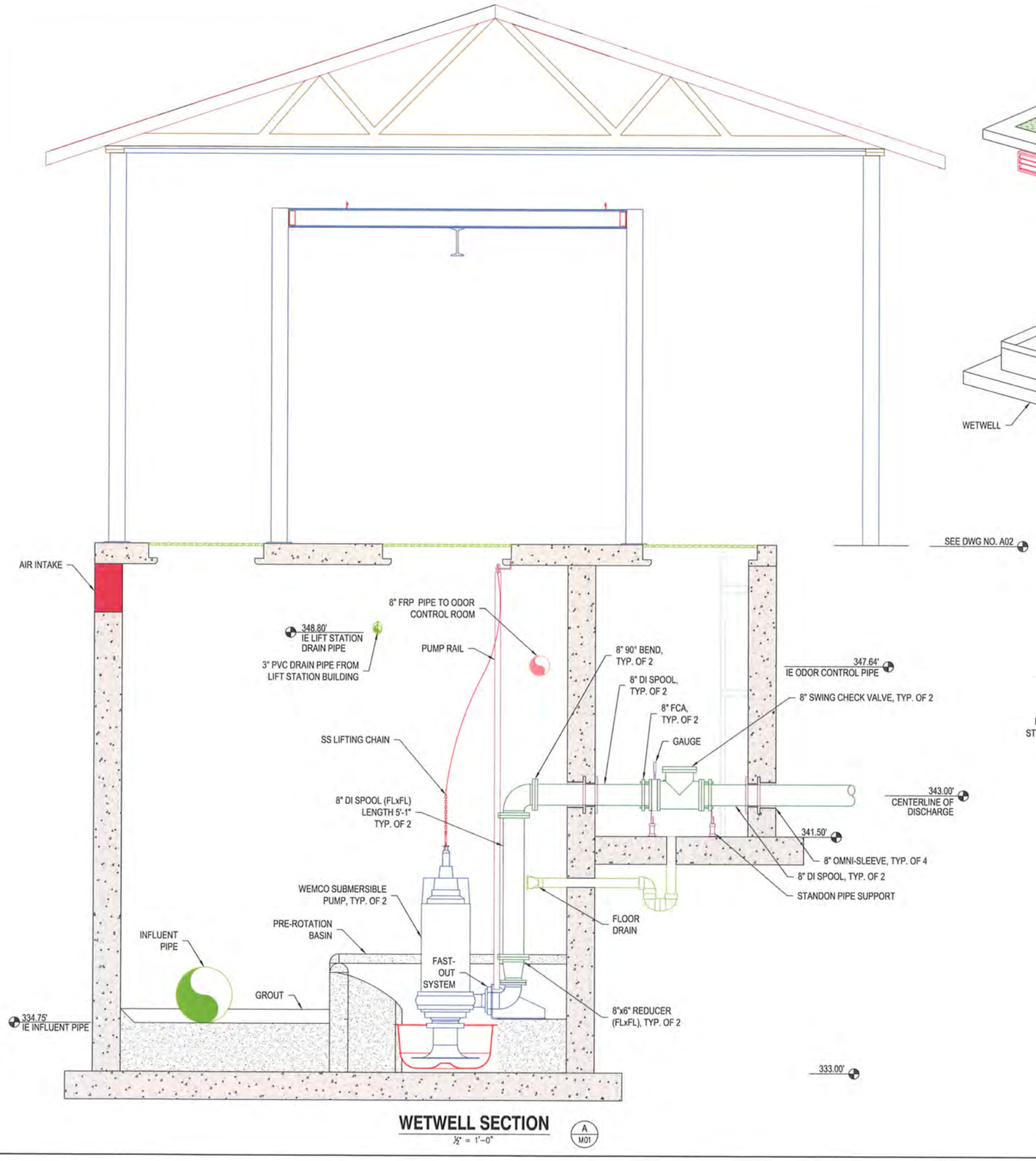
0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

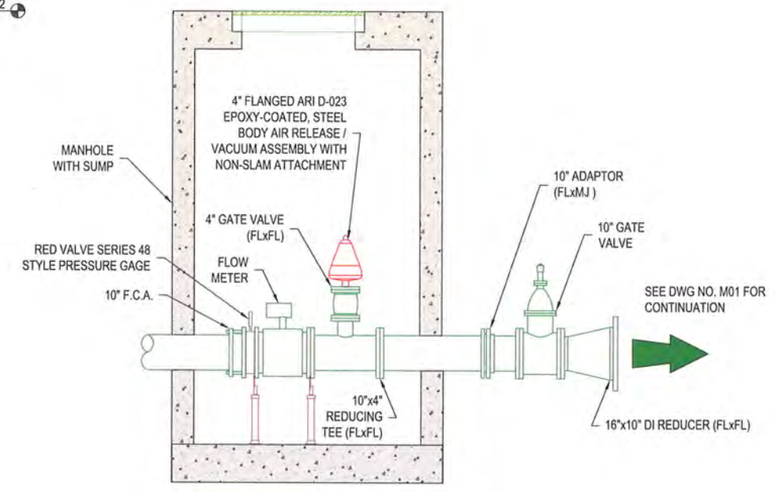
DWG NO.: M01
SHEET NO.: 16



WETWELL OBLIQUE
NOT TO SCALE



WETWELL SECTION
A / M01
½" = 1'-0"



METER SECTION
B / M01
½" = 1'-0"

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SIGNED: 11/20/15

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

PROPOSED MECHANICAL PROFILE

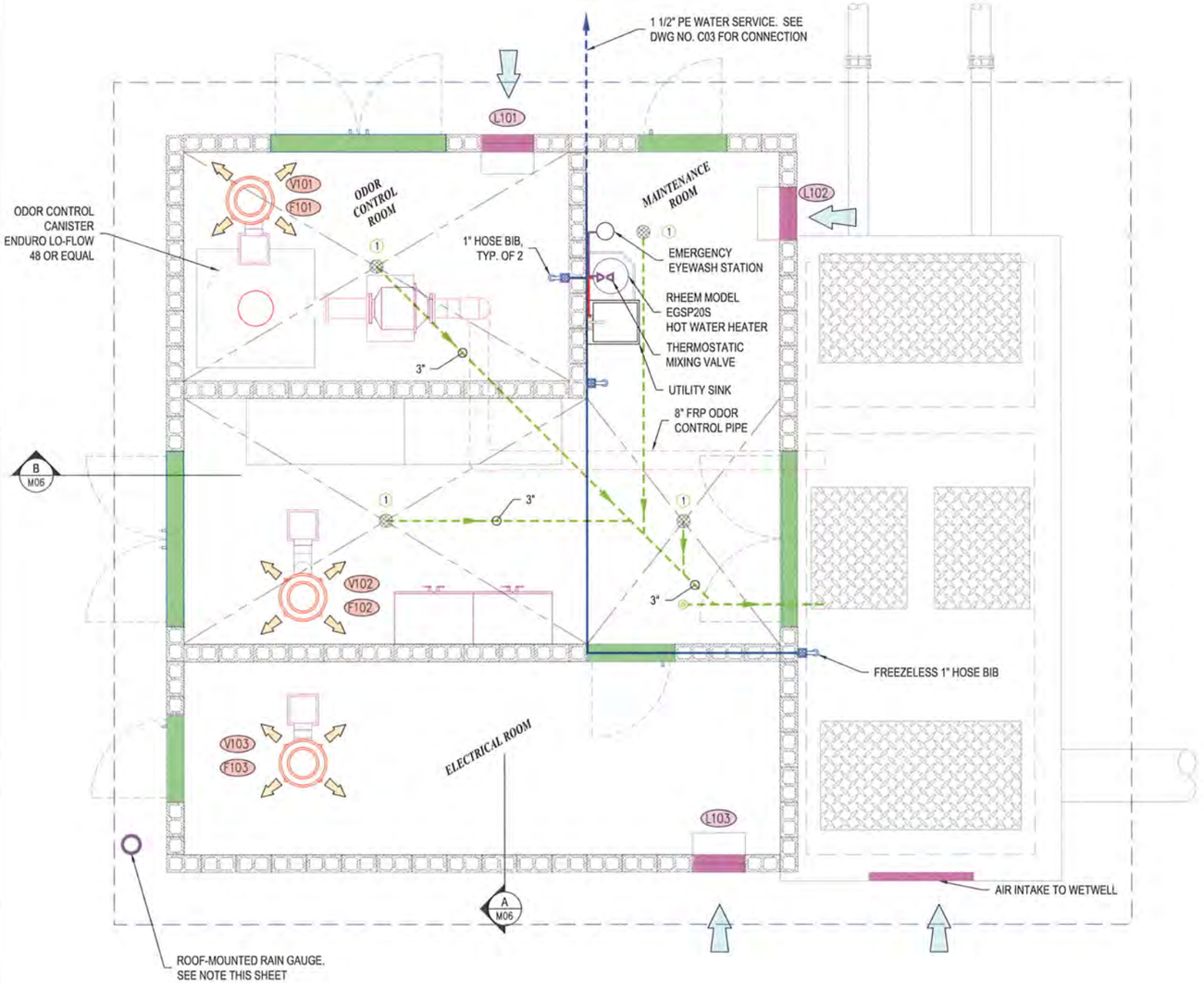
JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-MEC01.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: AHF
REVIEWED: RJF

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	05/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M02
SHEET NO.: 17
39



LIFT STATION BUILDING MINOR MECHANICAL & HVAC PLAN

3/8" = 1'-0"

PLUMBING NOTES:
1) THE WASTE AND WATER PIPING SYSTEM AS SHOWN ON THIS DRAWING IS DIAGRAMMATIC AND DOES NOT SHOW ALL DETAIL OR OFFSETS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CORRECTLY LOCATE AND INSTALL THIS PLUMBING SYSTEM.

2) ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE, 2012 EDITION, AND ALL OTHER APPLICABLE CODES AND STANDARDS.

3) ALL WASTE PIPING TO BE SLOPED AT ¼"/FT MIN. UNLESS OTHERWISE NOTED. ALL ELEVATIONS AND SLOPES TO BE FIELD VERIFIED BEFORE INSTALLATION.

4) ALL DRAIN, WASTE, AND VENT PIPING SHALL BE PVC UNLESS OTHERWISE NOTED.

5) ALL DWV PIPES SHALL BE LABELED WITH FUNCTION AND FLOW DIRECTION.

6) PROVIDE PIPE SUPPORTS AND STRAPS AS NECESSARY TO SECURE PIPE TO NEAREST WALL / BEAM / CEILING.

7) P-TRAP WATER SUPPLY AND PLUMBING IS NOT SHOWN AND SHALL BE PROVIDED PER PLUMBING CODE. PROVIDE P-TRAPS AT ALL FLOOR DRAINS UNLESS NOTED OTHERWISE.

(1) 3" FLOOR DRAIN W/ CONCEALED CLEANOUT, TYP. (TYLER SERIES 710 OR EQUAL)

LOUVER AND DAMPER SCHEDULE

No.	DESCRIPTION	AIR DIRECTION	MANUFACTURER	MODEL NUMBER	SIZE	DAMPER	DAMPER VOLTAGE
L101	ODOR CONTROL ROOM	INTAKE	POTTORFF	EFD-445	24"X24"	MOTORIZED	120V, 1 PHASE
L102	MAINTENANCE ROOM	INTAKE	POTTORFF	EFD-445	24"X24"	MOTORIZED	120V, 1 PHASE
L103	ELECTRICAL ROOM	INTAKE	POTTORFF	EFD-445	24"X24"	MOTORIZED	120V, 1 PHASE
L104	WETWELL	INTAKE	POTTOROFF	EFD-445	48"x18"	GRAVITY	N/A

LOUVER NOTES
1. CHANNEL FRAME FLUOROPOLYMER COATED EXTRUDED ALUMINUM WITH FACE MOUNTED STAINLESS STEEL INSECT SCREEN
2. PROVIDE LOUVER WITH 18" LONG SLEEVE TO ACCOMMODATE DAMPERS

FAN SCHEDULE

No.	DESCRIPTION	AIR DIRECTION	FAN TYPE	AIRFLOW (CFM)	MANUFACTURER	MODEL NUMBER	AMPS @ 60 HZ	ENCLOSURE	VOLTAGE
F101	ODOR CONTROL ROOM	EXHAUST	CEILING	303	ACME	VQ300	2.6	TEFC	120V, 1 PHASE
F102	MAINTENACE ROOM	EXHAUST	CEILING	491	ACME	VQ500	2.2	TEFC	120V, 1 PHASE
F103	ELECTRICAL ROOM	EXHAUST	CEILING	303	ACME	VQ300	2.6	TEFC	120V, 1 PHASE

ROOF VENT SCHEDULE

No.	DESCRIPTION	AIR DIRECTION	FAN TYPE	MANUFACTURER	MODEL NUMBER
V101	ODOR CONTROL ROOM	EXHAUST	ROOF	ACME	LQV12
V102	MAINTENACE ROOM	EXHAUST	ROOF	ACME	LQV12
V103	ELECTRICAL ROOM	EXHAUST	ROOF	ACME	LQV12

ROOF VENT NOTES
1. PROVIDE VENTILATOR WITH PVC COATED BIRD SCREEN, POLYPROPYLENE WHEEL, 12" HIGH MINIMUM GALVANIZED STEEL CURB TO MATCH ROOF SLOPE AND PROFILE
2. CONTRACTOR TO INSTALL DAMPER ON ALL ROOF VENTS AS PROVIDED BY MANUFACTURER

NOTE: CONTRACTOR TO PROVIDE AND INSTALL THE FOLLOWING COMPONENTS TO CREATE A COMPLETE RAIN GAUGE SYSTEM:

(1) DAVIS 7852 RAIN COLLECTOR II 0.01 INCH
(1) POE INJECTOR 48V 24W GIGABIT 802.3AF (TP-POE-48GD)
(1) ACTIVE POE SPLITTER 802.3AF/AT 12VDC 25W (POE-SPLT-4812G)
(1) 10/100/1000 MBPS NETWORK LIGHTNING/SURGE PROTECTOR (TP-ESP-1000-POE)
(1) CONTROLBYWEB.COM X-320M WEATHER I/O CONTROLLER
(1) CONTROLBYWEB.COM X-MDA-1 DAVIS INSTRUMENTS ADAPTER BOARD
(4) CAT 5E PLENUM CABLE 30 FEET AND RJ-45 CONNECTORS

IF THE SCADA PANEL WITH FIBER MODEM, ETHERNET SWITCH, AND 110 VAC POWER CANNOT ACCOMMODATE THE ABOVE EQUIPMENT, A NEMA 4 ENCLOSURE WILL BE NEEDED:

(1) NEMA 4 NON-METALLIC 10X8X6 (H,W,D) ENCLOSURE WITH ALUMINUM SUB-PANEL
(1) NEMA 4 VENT NON-METALLIC (NBX-10911)
(3) CORD GRIP NON-METALLIC (5308 901)
MOUNTING HARDWARE AS NECESSARY

RAIN COLLECTOR SHALL BE MOUNTED ACCORDING TO MANUFACTURE'S RECOMMENDATION WHERE IT WILL HAVE UNOBSTRUCTED VERTICAL CLEARANCE TO NATURAL RAINFALL. RAIN COLLECTOR CABLE WILL BE ROUTED INTO NEMA 4 SCADA OR NEMA 4 STAND-ALONE ENCLOSURE THROUGH CORD GRIP THEN PLUGGED INTO X-MDA-1 "RAIN" INPUT.

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BOTHELL, WA
22722 29th Drive SE, Suite 210

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ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

PUMP STATION BUILDING MINOR MECHANICAL & HVAC PLAN

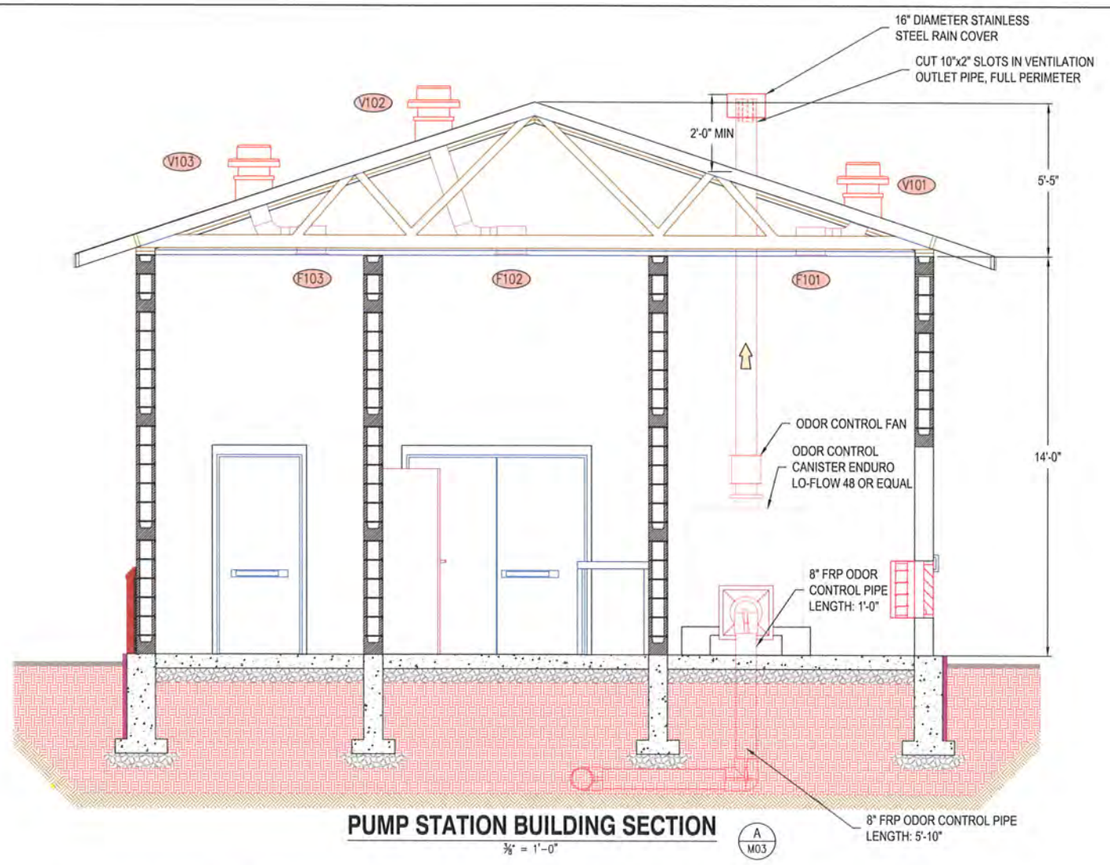
JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-MEC02.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: MRJF
REVIEWED: EDH

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/2/2015	CONSTRUCTION SET	MRJF | CGR	RJF | JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF | CGR	RJF | JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF | CGR	RJF | JMC

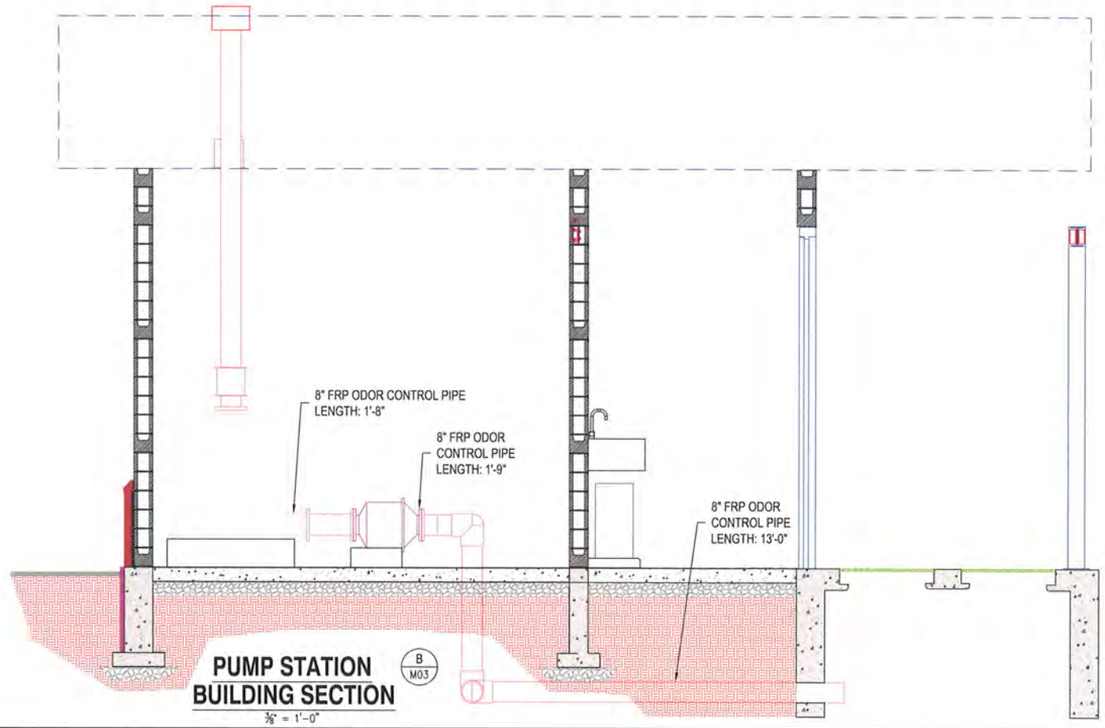
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M03
SHEET NO.: 18
39



PUMP STATION BUILDING SECTION (A / M03)

3/8" = 1'-0"



PUMP STATION BUILDING SECTION (B / M03)

3/8" = 1'-0"

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ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

PUMP STATION BUILDING MINOR MECHANICAL AND HVAC ELEVATIONS

ENGINEER: MRJF
REVIEWED: EDH
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-MEC06.DWG
JOB NO.: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
3	09/19/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: M06

SHEET NO.: 19

ONE-LINE DIAGRAM SYMBOLS

- CIRCUIT BREAKER
  - XXX/YY – CB SIZE & NO. OF POLES
  - ET – ELECTRONIC TRIP
  - TM – THERMAL MAGNETIC BREAKER
  - MCP – MOTOR CIRCUIT PROTECTOR
  - SE – SERVICE ENTRANCE
  - GFI – GROUND FAULT INTERRUPTER
- FUSE
- FUSED DISCONNECT SWITCH
- PLUG–IN CONNECTION
- RTM — RUN TIME METER
- OC — MOTOR OPERATION COUNTER
- SSRVS — SSRVS – SOLID STATE REDUCED VOLTAGE STARTER
- VARIABLE FREQUENCY DRIVE
- MOTOR STARTER
- MOTOR STARTER W/ OPERATOR DEVICES (A B / C D)
  - A – HAND–OFF–AUTO
  - B – OPERATIONAL COUNTER
  - C – RUN TIME METER
  - D – RUN LIGHT
  - E – FAIL LIGHT
  - F – EMERGENCY STOP
- K — KIRK KEY INTERLOCK
- POWER TRANSFORMER
- CONTROL POWER TRANSFORMER
- TRANSFORMER
- CURRENT TRANSFORMER
- VOLTAGE TRANSFORMER
- CONTACTOR
- CAPACITOR
- ENGINE GENERATOR
- GENERATOR CONNECTION RECEPTACLE
- S/N — SOLID NEUTRAL
- TB — TERMINAL BLOCK
- SURGE PROTECTION DEVICE
- SPD — SURGE PROTECTION DEVICE (ALTERNATIVE)

GROUNDING SYSTEM SYMBOLS

- GROUND
- METAL PIPE GROUND
- CONNECTION POINT, EXOTHERMIC WELD. CADWELD OR APPROVED EQUAL.
- GROUND ROD SIZED PER N.E.C. USE EXOTHERMIC WELD CONNECTION AT THE GROUND ROD.
- PIGTAIL, BARE COPPER, LENGTH AS REQUIRED, 8' MINIMUM.
- CONNECTION POINT, MECHANICAL, COMPRESSION TYPE.

ELECTRICAL SITE PLAN SYMBOLS

- UTILITY POLE AND GUY WIRE
- HH — MANHOLE OR HANDHOLE
- P — BURIED POWER VAULT OR MANHOLE
- T — TELEPHONE VAULT OR PEDESTAL
- F — FIBER OPTICS VAULT OR PEDESTAL
- LUMINAIRE
- PAD–MOUNT TRANSFORMER

PANELBOARDS, SWITCHES, AND EQUIPMENT

- SERVICE ENTRANCE, SWITCHGEAR, MOTOR CONTROL CENTER, OR PANELBOARD
- SURFACE MOUNTED PANELBOARD
- FLUSHED MOUNTED PANELBOARD
- NXX — FIELD CONTROL STATION WITH NEMA REQUIREMENTS.
  - N1 – NEMA 1
  - N3R – NEMA 3R
  - N4 – NEMA 4
  - N4SS – NEMA 4 STAINLESS STEEL
  - N4F – NEMA 4 FIBERGLASS
  - N6 – NEMA 6
  - N12 – NEMA 12 GASKETED
- EQUIPMENT MOUNTING STAND
- HEATER, WATTAGE NOTED
- EQUIPMENT CONNECTION
- M — SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- 100 — THREE PHASE MOTOR. HORSEPOWER AS NOTED
- HP — SINGLE PHASE MOTOR. HORSEPOWER AS NOTED
- ELECTRICAL PLUG
- DISCONNECT SWITCH
- F — FUSED DISCONNECT SWITCH
- COMBINATION MOTOR STARTER AND DISCONNECT SWITCH

RECEPTACLES AND JUNCTION BOX SYMBOLS

- J — CEILING JUNCTION BOX
- J — WALL JUNCTION BOX
- J — FLOOR JUNCTION BOX
- DUPLEX WALL RECEPTACLE , 120V
  - WP = WEATHERPROOF
  - G = GROUNDED
  - IG = ISOLATED GROUND
  - GF = GROUND FAULT INTERRUPTER
- DOUBLE DUPLEX
- SINGLE RECEPTACLE, 120V
- SINGLE RECEPTACLE, 208V
- DUPLEX FLOOR RECEPTACLE, 120V
- SPECIAL PURPOSE WALL RECEPTACLE, RATING AS NOTED
- CLOCK
- TV — TELEVISION
- TELEPHONE
- TELEPHONE/DATA WITH CABLE
- TELEPHONE/DATA WITHOUT CABLE

SWITCH OUTLETS

- S — STANDARD SWITCH, 120VAC, 20 AMP
- S_3 / 3WAY — 3–WAY SWITCH, 120VAC, 20 AMP
- S_{HOA} / HOA — 3–POSITION SWITCH, 120VAC, 20 AMP, LABEL SWITCH POSITION HAND–OFF–MOTION OR PHOTO

S_{DEE}	SINGLE–POLE	S_P	PILOT–LIGHTED
S_2	DOUBLE–POLE	S_K	KEY–OPERATED
S_3	THREE WAY	S_{LV}	LOW VOLTAGE
S_4	FOUR WAY	S_M	MASTER
S_D	DIMMER		PUSHBUTTON

LIGHTING FIXTURES/DEVICES

- FLUORESCENT FIXTURE
- WALL/CEILING MOUNTED FIXTURE
- EMERGENCY LIGHT WITH SELF CONTAINED BATTERY
- SURFACE OR PENDANT MOUNTED FIXTURE
- RECESSED FIXTURE
- MD — MOTION DETECTOR
- PC — PHOTO CONTROL CELL

FIRE SYSTEM SYMBOLS

- H — HEAT DETECTOR
- S — SMOKE DETECTOR
- D — FIRE ALARM DISPATCH STROBE ALARM
- A — FIRE ALARM AUDIBLE/VISUAL ALARM
- F — FIRE ALARM MANUAL PULL STATION

ADDITIONAL SYMBOLS

- S — SOUND SYSTEM SPEAKER
- V — SOUND SYSTEM VOLUME CONTROL
- B — DOORBELL

VALVE SYMBOLS

- PILOT VALVE SOLENOID
- VALVE
- CHECK VALVE
- CONTROL VALVE

PID FORMAT

- SUPERSCRIPT
- XYZ / ABC — INSTRUMENT BUBBLE
- X=MEASURED OR INITIATING VARIABLE
- Y=READOUT OR FUNCTION
- Z=MODIFIER
- ABC=LOOP NUMBER

ISA STANDARDS FOR P&ID

	1st LETTER (MEASURED OR INITIATING VARIABLE)	2nd LETTER (READOUT OR FUNCTION)	3rd LETTER (MODIFIER)
A	ANALYSIS	ALARM	
B	BURNER		
C	COMMUNICATION	CONTROL	CLOSED
D	DENSITY		
E	VOLTAGE		
F	FLOW		FAIL
G	GAS		GREEN BULB
H	HAND	MANUAL	HIGH
	CURRENT	INDICATE	
J	POWER		
K	TIME	CONTROL STATION	
L	LEVEL	LIGHT	LOW
M	MOTION		MIDDLE
N	USERS CHOICE		
O	USERS CHOICE		OPEN
P	PRESSURE		
Q	QUANTITY	TOTALIZE	
R	RADIATION	RECORD	RED BULB
S	SPEED	SWITCH	SOLENOID
T	TEMPERATURE	TRANSMITTER	
U	MULTI VARIABLE	MULTI FUNCTION	
V	VISCOSITY	VALVE	
W	WEIGHT		
X	UNCLASSIFIED		
Y	USERS CHOICE	RELAY	
Z	POSITION		

ABBREVIATIONS

- SPDT – SINGLE POLE, DOUBLE THROW
- SPST – SINGLE POLE, SINGLE THROW
- DPST – DOUBLE POLE, SINGLE THROW
- WP – WEATHER–PROOF
- GFI – GROUND FAULT INTERRUPT
- P – POWER
- C – CONTROL
- J – INSTRUMENTATION
- PC – POWER & CONTROL
- CJ – CONTROL & INSTRUMENTATION
- CKT. – CIRCUIT
- C.O. – CONDUIT ONLY
- N.L. – NIGHT LIGHT
- AL. – ALUMINUM
- CU. – COPPER

- HOA — HAND–OFF–AUTO SWITCH
- ETM — RUN TIME METER
- OC — OPERATION COUNTER
- MRIL — MOTOR RUN INDICATION LIGHT
- SFIL — SEAL FAIL INDICATION LIGHT
- SFTR — SEAL FAIL TRIP RESET
- OTIL — OVER TEMPERATURE INDICATION LIGHT
- MOIL — MOTOR OVERLOAD INDICATION LIGHT

INDICATE TYPE BY LETTER / INSTRUMENT METER

- V, AH
- A – AMMETER
- AH – AMPERE–HOUR
- PF – POWER FACTOR
- V – VOLTMETER
- VA – VOLT AMMETER
- VAR – VARMETER
- VARH – VARHOUR METER
- W – WATTMETER
- WH – WATTHOUR METER

RACEWAY LEGEND

ONE-LINE LEGEND
- PROPOSED POWER
- EXISTING OR FUTURE POWER

SITE PLAN LEGEND
- P — PROPOSED POWER
- TEL — PROPOSED TELEPHONE
- TELM — PROPOSED INSTRUMENTATION
- FO — PROPOSED FIBER OPTIC

BUILDING OR FACILITY PLAN LEGEND
- 480 VOLT EXPOSED RACEWAY
- 480 VOLT WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- 120/208/240 VOLT EXPOSED RACEWAY
- 120/208/240V WIRING CONCEALED, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- CONTROL OR INSTRUMENTATION EXPOSED RACEWAY
- CONTROL OR INSTRUMENTATION, UNDERGROUND, EMBEDDED, OR CONCRETE ENCASED RACEWAY
- HOME RUN TO PANELBOARD OR AS INDICATED
- CONDUIT RUN, BROKEN AND CONTINUED SAME SHEET OR AS NOTED
- FLEXIBLE CONDUIT
- CONDUIT RUN. HATCH MARKS INDICATE NUMBER OF CONDUCTORS
- ½" GRC, 2–#12 — CALLOUT INDICATING CONDUIT SIZE, NUMBER AND SIZE OF WIRE.
- XXX — CALLOUT INDICATING CONDUIT PER SCHEDULE
- CONDUIT BENT UP OR TOWARD
- CONDUIT BENT DOWN OR AWAY
- CAPPED CONDUIT

ELECTRICAL & SIGNAL PLAN DEVICES

SV	SOLENOID VALVE COIL	ZS (S)	INTRUSION SWITCH
MV	MOTORIZED VALVE COIL	MD	MOTION DETECTOR
M	MOTOR	LT	LEVEL TRANSDUCER
FS	FLOOD SWITCH	HE	HEATING ELEMENT
LS	LIMIT SWITCH	PS	PRESSURE SWITCH
PB	PANIC BUTTON	PE	PRESSURE ELEMENT
T	THERMOSTAT SWITCH	FE	FLOW ELEMENT
ZS (KEY)	INTRUSION SWITCH – KEY	AE	ANALYSIS ELEMENT

LADDER LOGIC SYMBOL LEGEND

- INDICATOR LIGHT — INDICATOR LIGHT
  - A – AMBER, G – GREEN
  - B – BLUE, R – RED
  - C – CLEAR, W – WHITE
- LIMIT SWITCH — LIMIT SWITCH, NORMALLY OPEN
- LIMIT SWITCH — LIMIT SWITCH, NORMALLY CLOSED
- TIME DELAY CONTACT — TIME DELAY CONTACT, NORMALLY OPEN, TIME TO CLOSE
- TIME DELAY CONTACT — TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO OPEN
- TIME DELAY CONTACT — TIME DELAY CONTACT, NORMALLY OPEN, TIME TO OPEN
- TIME DELAY CONTACT — TIME DELAY CONTACT, NORMALLY CLOSED, TIME TO CLOSE
- RELAY CONTACT, NC / RELAY CONTACT, NO — RELAY CONTACT, INSTANTANEOUS CHANGE
- PRESSURE SWITCH — PRESSURE SWITCH, NORMALLY OPEN
- PRESSURE SWITCH — PRESSURE SWITCH, NORMALLY CLOSED
- LADDER LOGIC LINETYPES
  - COMPONENT INSTALLED INSIDE ENCLOSURE
  - COMPONENT INSTALLED ON FRONT OF ENCLOSURE
  - FIELD CONNECTED COMPONENT
- RELAY (XYZ 123) — RELAY
  - TR – Timed relay
  - CR – Control relay
- FLOAT SWITCH — FLOAT SWITCH, NORMALLY OPEN
- FLOAT SWITCH — FLOAT SWITCH, NORMALLY CLOSED
- PUSHBUTTON — PUSHBUTTON, NORMALLY CLOSED
- PUSHBUTTON — PUSHBUTTON, NORMALLY OPEN
- THERMOSTAT — THERMO SWITCH, NORMALLY OPEN
- THERMOSTAT — THERMO SWITCH, NORMALLY CLOSED
- FLOWSWITCH — FLOWSWITCH, NORMALLY OPEN
- FLOWSWITCH — FLOWSWITCH, NORMALLY CLOSED
- 2 POLE SWITCH
- 3 POLE SWITCH

P&ID BUBBLE IDENTIFICATION CHART

EXISTING	FUNCTION
	INSTRUMENT IDENTIFICATION BUBBLE
	FIELD MOUNTED DEVICE OR INSTRUMENT
	FRONT PANEL MOUNTED INSTRUMENT OR DEVICE (LOCAL PANEL)
	BACK PANEL MOUNTED INSTRUMENT OR DEVICE (LOCAL PANEL)
	FRONT PANEL MOUNTED INSTRUMENT OR DEVICE (LAB ROOM PANEL)
	OPERATOR INTERFACE DISPLAY (LOCAL PANEL)
	OPERATOR INTERFACE DISPLAY (LAB ROOM PANEL)

GENERAL NOTES

1. THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS PAGE WILL APPEAR IN THIS SET OF PLANS.

2. THESE DRAWINGS ARE DIAGRAMMATIC ONLY; EXACT LOCATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. THE INSTALLATION OF ALL EQUIPMENT SHOWN ON THESE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE LATEST EDITIONS OF ALL APPLICABLE CODES AND UTILITY COMPANY STANDARDS. CONTACT THE UTILITY COMPANY REPRESENTATIVES AND VERIFY THEIR REQUIREMENTS.

3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED OR IF PROBLEMS ARISE DUE TO FIELD CONDITIONS, LACK OF INFORMATION OR ANY OTHER REASON. NO PAYMENT WILL BE MADE FOR CHANGES WHICH HAVE NOT BEEN REVIEWED BY THE ENGINEER.

CHRISTOPHER M. ROBERTS, STATE OF WASHINGTON, 45317, REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

TONY V. PARDI, STATE OF WASHINGTON, 26978, REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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CITY OF LYNNWOOD LIFT STATION 16
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LYNNWOOD WASHINGTON

ELECTRICAL LEGEND

ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC01.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
4	11/20/15	CONSTRUCTION SET	MRJF\CGR	RJF\JMC
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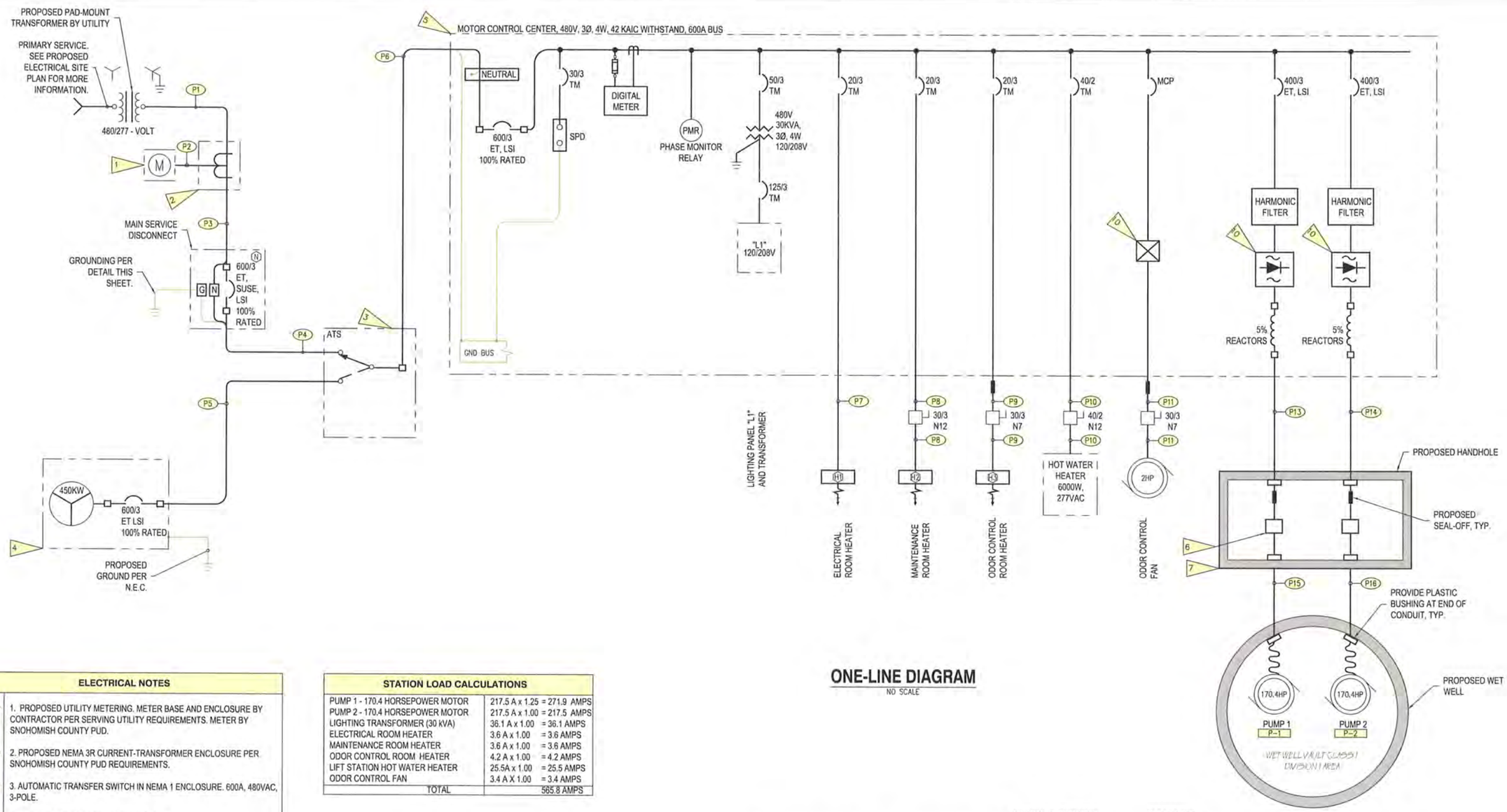
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E01
SHEET NO.: 20 / 39

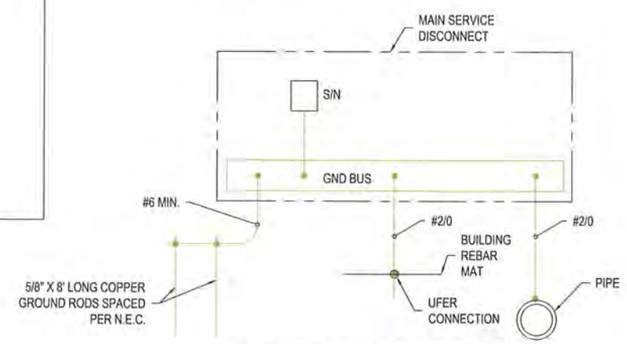


ONE-LINE DIAGRAM

NO SCALE

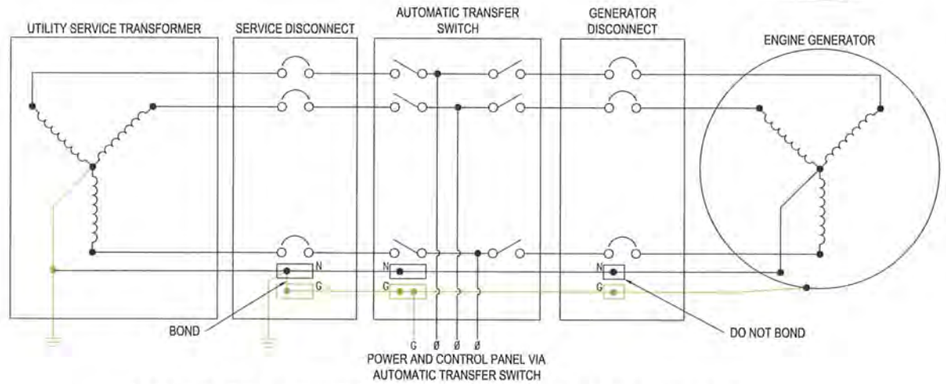
ELECTRICAL NOTES	
1	1. PROPOSED UTILITY METERING. METER BASE AND ENCLOSURE BY CONTRACTOR PER SERVING UTILITY REQUIREMENTS. METER BY SNOHOMISH COUNTY PUD.
2	2. PROPOSED NEMA 3R CURRENT-TRANSFORMER ENCLOSURE PER SNOHOMISH COUNTY PUD REQUIREMENTS.
3	3. AUTOMATIC TRANSFER SWITCH IN NEMA 1 ENCLOSURE. 600A, 480VAC, 3-POLE.
4	4. STANDBY GENERATOR, 480/277VAC, 60Hz.
5	5. NEMA 1A MOTOR CONTROL CENTER.
6	6. WATERPROOF SPLICE, TYP. SEE DETAIL ON DWG NO. E11.
7	7. ELECTRICAL HANDHOLE, SEE DETAIL ON DWG NO. E11.
(8)	8. SEE DWG NO. E13 FOR ELECTRICAL EQUIPMENT AND INSTRUMENTATION SCHEDULE.
(XX)	9. SEE DWG NO. E12 FOR CONDUIT/CONDUCTOR SCHEDULES.
10	10. SEE DWG NO. E07 AND E08 FOR CONTROL LOGIC DIAGRAMS.

STATION LOAD CALCULATIONS	
PUMP 1 - 170.4 HORSEPOWER MOTOR	217.5 A x 1.25 = 271.9 AMPS
PUMP 2 - 170.4 HORSEPOWER MOTOR	217.5 A x 1.00 = 217.5 AMPS
LIGHTING TRANSFORMER (30 kVA)	36.1 A x 1.00 = 36.1 AMPS
ELECTRICAL ROOM HEATER	3.6 A x 1.00 = 3.6 AMPS
MAINTENANCE ROOM HEATER	3.6 A x 1.00 = 3.6 AMPS
ODOR CONTROL ROOM HEATER	4.2 A x 1.00 = 4.2 AMPS
LIFT STATION HOT WATER HEATER	25.5A x 1.00 = 25.5 AMPS
ODOR CONTROL FAN	3.4 A X 1.00 = 3.4 AMPS
TOTAL	565.8 AMPS



LIFT STATION GROUNDING

NO SCALE



GENERATOR & TRANSFER SWITCH CONNECTION DIAGRAM

NO SCALE

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

ROGER M. ROBERTS — 45317 — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

TONY V. PARRY — 35975 — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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ONE-LINE DIAGRAM

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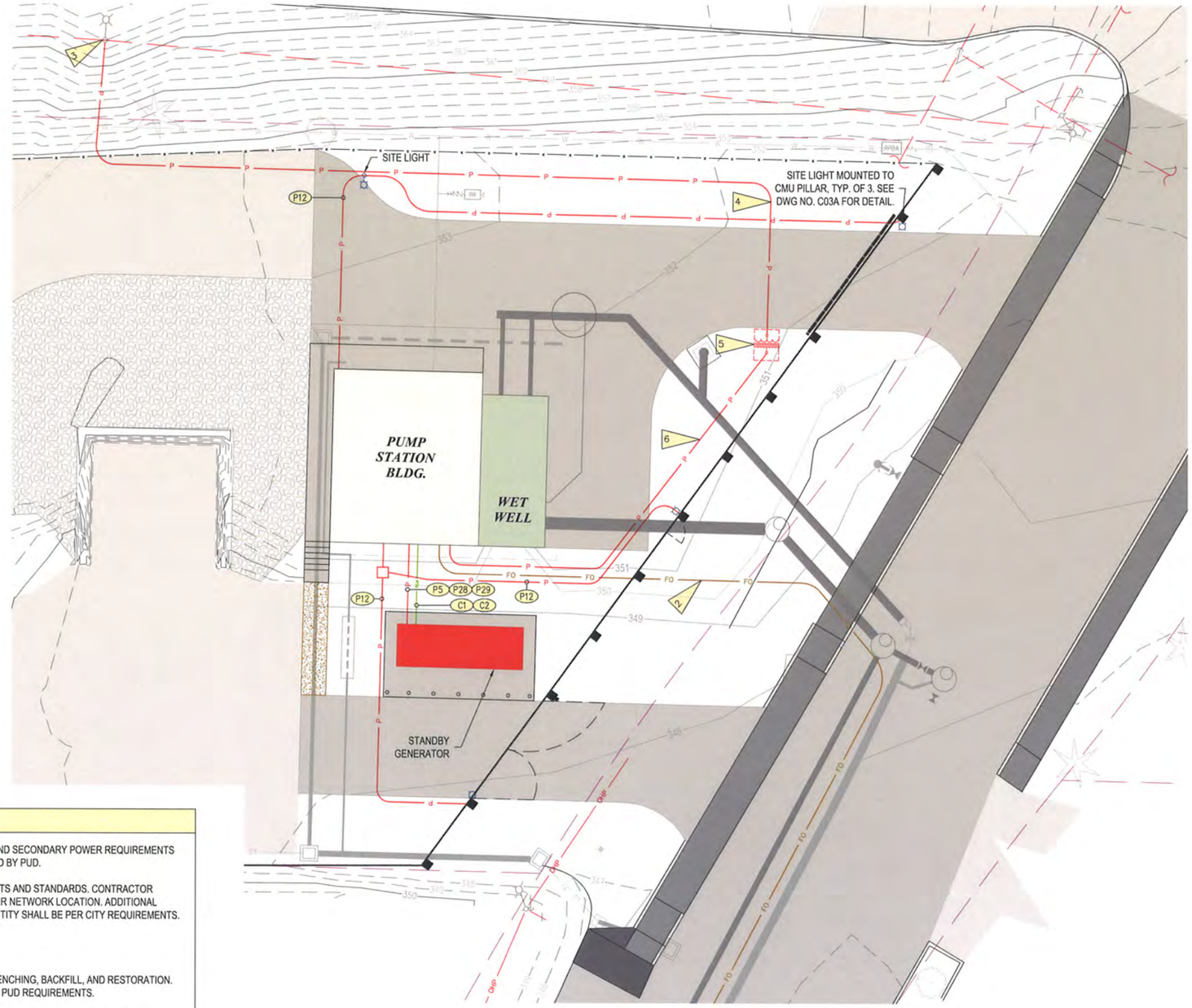
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E02

SHEET NO.: 21 / 39



ELECTRICAL NOTES

1. CONTRACTOR SHALL COORDINATE PRIMARY POWER, TRANSFORMER INSTALLATION AND LOCATION, AND SECONDARY POWER REQUIREMENTS WITH SNOHOMISH COUNTY PUD. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NOT PERFORMED BY PUD.

2. CONTRACTOR SHALL COORDINATE FIBER OPTIC INSTALLATION PER CITY OF LYNNWOOD REQUIREMENTS AND STANDARDS. CONTRACTOR SHALL INSTALL FIBER OPTIC CONDUIT AND CONDUCTORS IN FORCEMAIN TRENCH TO NEAREST CITY FIBER NETWORK LOCATION. ADDITIONAL TRENCHING MAY BE REQUIRED. CONDUIT SIZE, CONDUIT MATERIAL, CONDUCTOR MATERIALS, AND QUANTITY SHALL BE PER CITY REQUIREMENTS. ALL COORDINATION AND WORK SHALL BE PERFORMED BY CONTRACTOR.

3. PROPOSED UTILITY POLE BY PUD.

4. PROPOSED UNDERGROUND PRIMARY POWER SERVICE. CONTRACTOR SHALL PROVIDE RACEWAY, TRENCHING, BACKFILL, AND RESTORATION. PUD SHALL PROVIDE CONDUCTORS. CONTRACTOR SHALL PROVIDE SIZE AND TYPE OF RACEWAY(S) PER PUD REQUIREMENTS.

5. PROPOSED PAD MOUNT TRANSFORMER BY PUD. VAULT PROVIDED AND INSTALLED BY CONTRACTOR PER SNOHOMISH COUNTY PUD REQUIREMENTS. CONTRACTOR SHALL PROVIDE EXCAVATION AND RESTORATION FOR INSTALLATION OF TRANSFORMER VAULT PER PUD REQUIREMENTS. CONTRACTOR SHALL PROVIDE BOLLARDS AS REQUIRED BY PUD.

6. PROPOSED SECONDARY POWER SERVICE , (P1), BY CONTRACTOR.

(XXX) 7. SEE DWG NO. E12 FOR CONDUIT/CONDUCTOR SCHEDULE.

ELECTRICAL SITE PLAN

1" = 10'

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LYNNWOOD

ELECTRICAL SITE PLAN

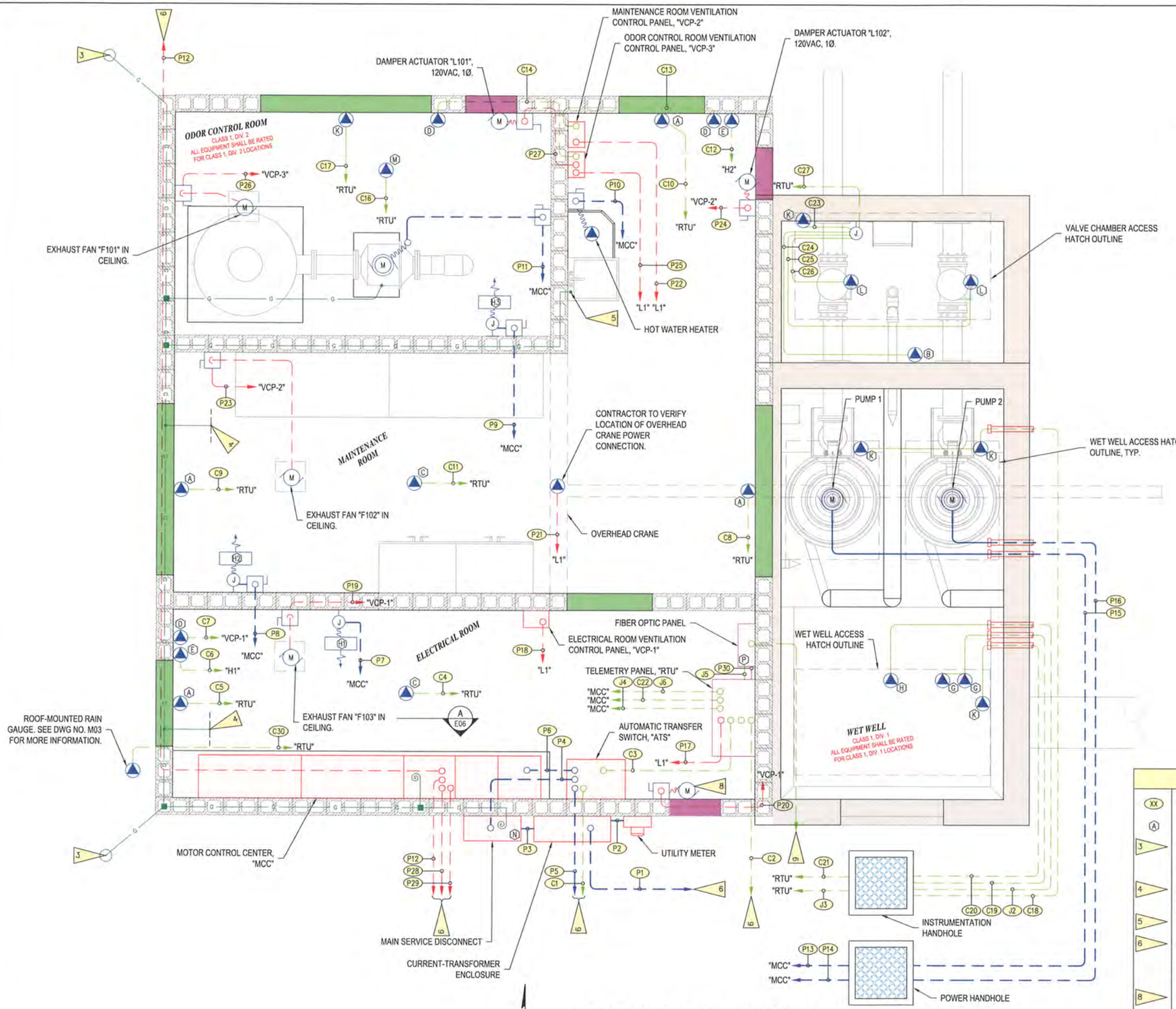
ENGINEER: MWB
REVIEWED: CMR
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-ELEC03.DWG
JOB NO.: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
1	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

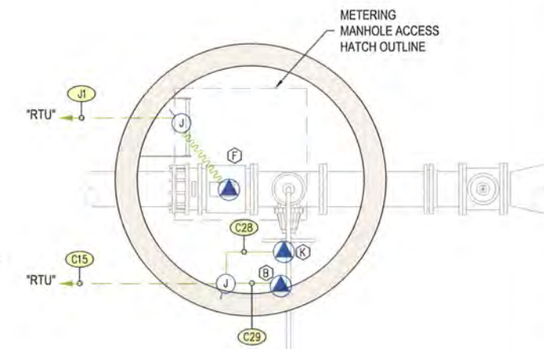
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E03
SHEET NO.: 22



PUMP STATION BUILDING POWER DISTRIBUTION & SIGNAL PLAN

1/2" = 1'-0"



METER MANHOLE POWER DISTRIBUTION & SIGNAL PLAN

1/2" = 1'-0"

ELECTRICAL NOTES

XX	1. SEE DWG NO. E12 FOR CONDUIT AND CONDUCTOR SCHEDULES.
A	2. SEE DWG NO. E13 FOR ELECTRICAL EQUIPMENT AND INSTRUMENTATION SCHEDULE.
3	3. GROUND ROD PER N.E.C. (TYPICAL), TYP OF 2. USE EXOTHERMIC WELD CONNECTION AT THE GROUND ROD. SEE DWG NO. E10 FOR ADDITIONAL DETAIL. LOCATE GROUND RODS 2' MINIMUM FROM BUILDING.
4	4. CONNECTION TO REINFORCEMENT GRID (TYPICAL OF 2 LOCATIONS). SEE DWG NO. E10 FOR ADDITIONAL DETAIL.
5	5. BOND GROUND SYSTEM TO WATER PIPING.
6	6. SEE ELECTRICAL SITE PLAN, DWG NO. E03, FOR CONTINUATION.
	7. PROVIDE SEAL-OFFS AND INTRINSICALLY SAFE RELAYS FOR ALL EQUIPMENT AND INSTRUMENTATION LOCATED IN CLASSIFIED AREAS AS REQUIRED BY THE N.E.C.
8	8. DAMPER ACTUATOR "L103", 120VAC, 1Ø.
9	9. FIBER OPTIC CONDUIT; SEE ELECTRICAL SITE PLAN DWG NO. E03 FOR MORE INFORMATION.

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PUMP STATION POWER DISTRIBUTION AND SIGNAL PLAN

ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC04.DWG

REVISIONS

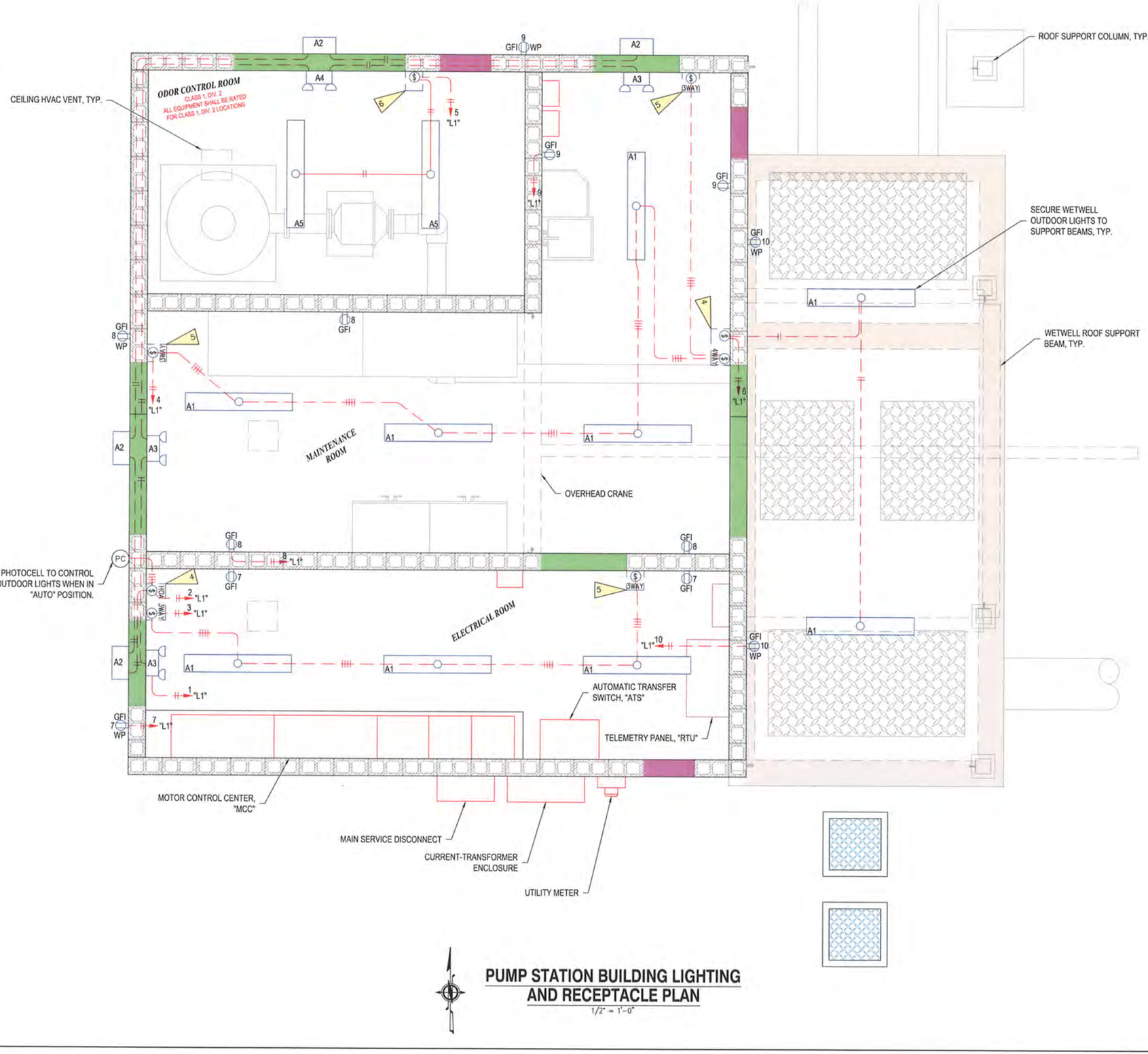
NO.	DATE	DESCRIPTION	BY	REVIEW
2	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
1	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
0	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E04 | SHEET NO.: 23 | 39



PUMP STATION BUILDING LIGHTING AND RECEPTACLE PLAN

1/2" = 1'-0"

ELECTRICAL NOTES

1. PROVIDE AND INSTALL LABELS FOR ALL LIGHT SWITCHES. LABELS SHALL INDICATE THE DEVICE CONTROLLED BY THE SWITCH.
2. LOCATE ALL LIGHT FIXTURES, SWITCHES, AND DEVICES IN LOCATION SHOWN ON THE PLANS USING ENGINEERING SCALE. ADJUST LOCATION AS NECESSARY TO AVOID INTERFERENCE WITH OTHER EQUIPMENT.
3. SEE DWG NO E13 FOR LIGHTING FIXTURE SCHEDULE.
4. DOUBLE GANG BOX AND SWITCH RECESSED IN WALL.
5. SINGLE GANG BOX AND SWITCH RECESSED IN WALL.
6. SINGLE GANG BOX SURFACE MOUNTED TO WALL.

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M. V. PARKER — STATE OF WASHINGTON — 26978 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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PUMP STATION LIGHTING AND RECEPTACLE PLAN

ENGINEER: MWB
REVIEWED: CMR
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-ELEC06.DWG
JOB NO.: 114-005

REVISIONS

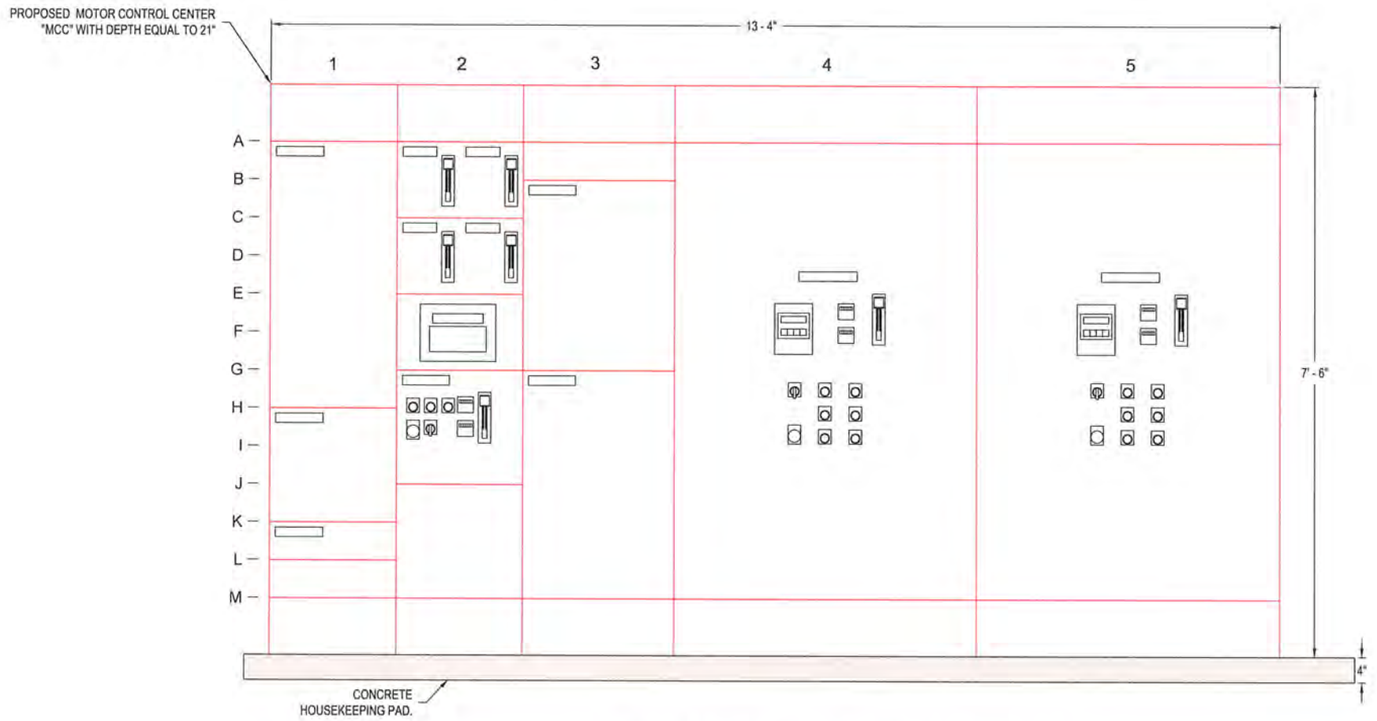
NO.	DATE	DESCRIPTION	BY	REVIEW
	11/2/2015	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

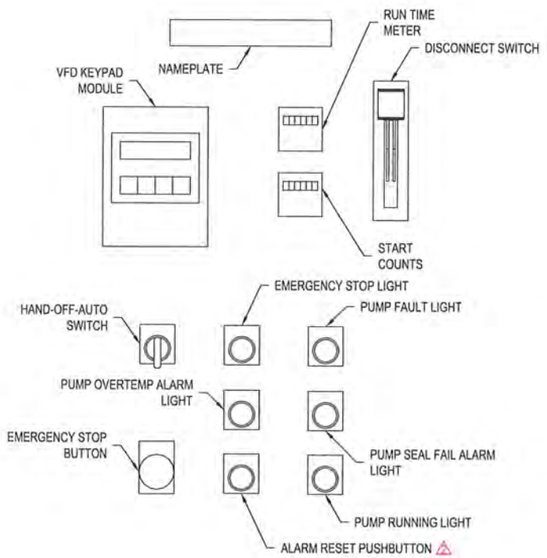
DWG NO.: E05
SHEET NO.: 24 / 39



MOTOR CONTROL CENTER LAYOUT

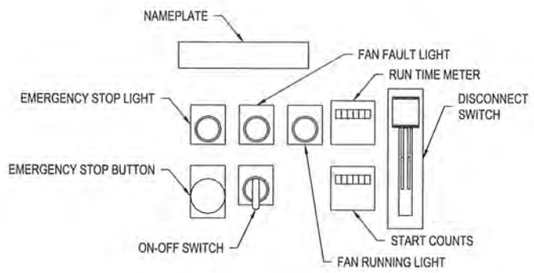
1"=1'-0"

A / E04



PUMP VFD PANEL LAYOUT

NOT TO SCALE



MOTOR STARTER PANEL LAYOUT

NOT TO SCALE

MCC CONTROL DEVICES	
MCC SECTION	NAMEPLATE SCHEDULE
1A	MCC MAIN DISCONNECT
1H	SURGE PROTECTION DEVICE (SPD)
1K	PHASE MONITOR RELAY
2AL	ELECTRICAL ROOM HEATER DISCONNECT
2AR	MAINTENANCE ROOM HEATER DISCONNECT
2CL	ODOR CONTROL ROOM HEATER DISCONNECT
2CR	HOT WATER HEATER DISCONNECT
2E	POWER MONITOR
2G	ODOR CONTROL FAN ELAPSED TIME (HOURS) START COUNTS EMERGENCY STOP FAN RUNNING FAN FAULT FAN OFF-ON EMERGENCY STOP
3B	PANEL "L1"
3G	LIGHTING TRANSFORMER AND DISCONNECT
4A	PUMP 1, P-1 ELAPSED TIME (HOURS) START COUNTS EMERGENCY STOP PUMP RUNNING PUMP FAULT PUMP HAND-OFF-AUTO PUMP OVERTEMP ALARM PUMP SEAL FAIL ALARM EMERGENCY STOP ALARM RESET
5A	PUMP 2, P-2 ELAPSED TIME (HOURS) START COUNTS EMERGENCY STOP PUMP RUNNING PUMP FAULT PUMP HAND-OFF-AUTO PUMP OVERTEMP ALARM PUMP SEAL FAIL ALARM EMERGENCY STOP ALARM RESET

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MOTOR CONTROL CENTER DETAILS

ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC09.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E06 | SHEET NO.: 25 / 39

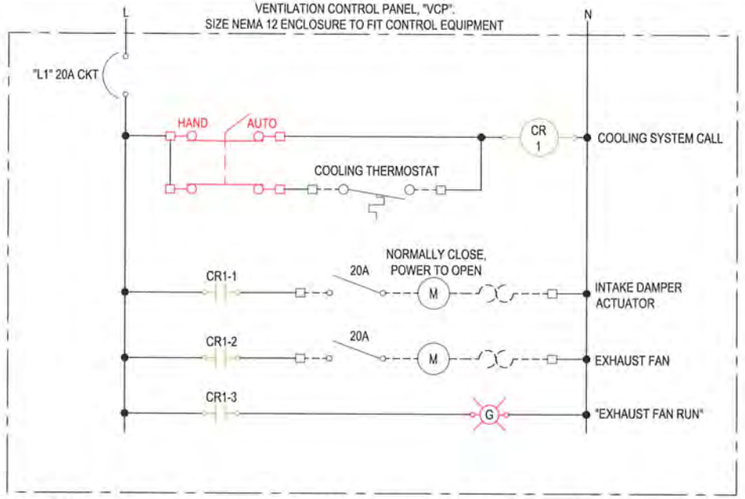

DIAGRAM 1: PUMP STATION VENTILATION CONTROL PANEL, "VCP-1", "VCP-2", "VCP-3"

NO SCALE

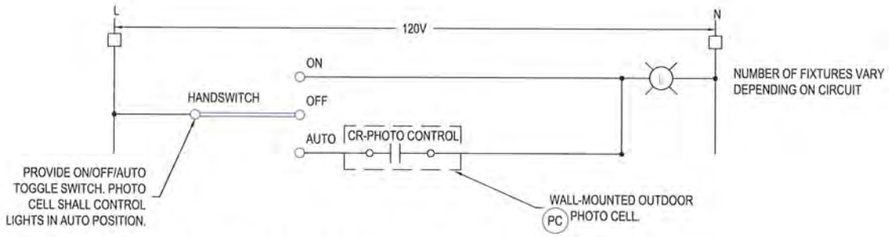

DIAGRAM 2: OUTDOOR LIGHTING CIRCUIT DIAGRAM

NO SCALE

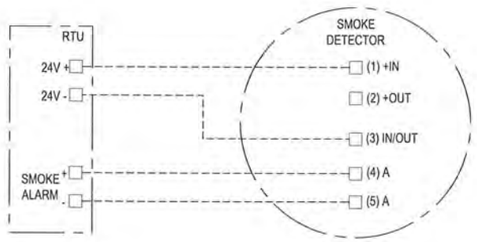

DIAGRAM 3: SMOKE DETECTOR CIRCUIT

NO SCALE

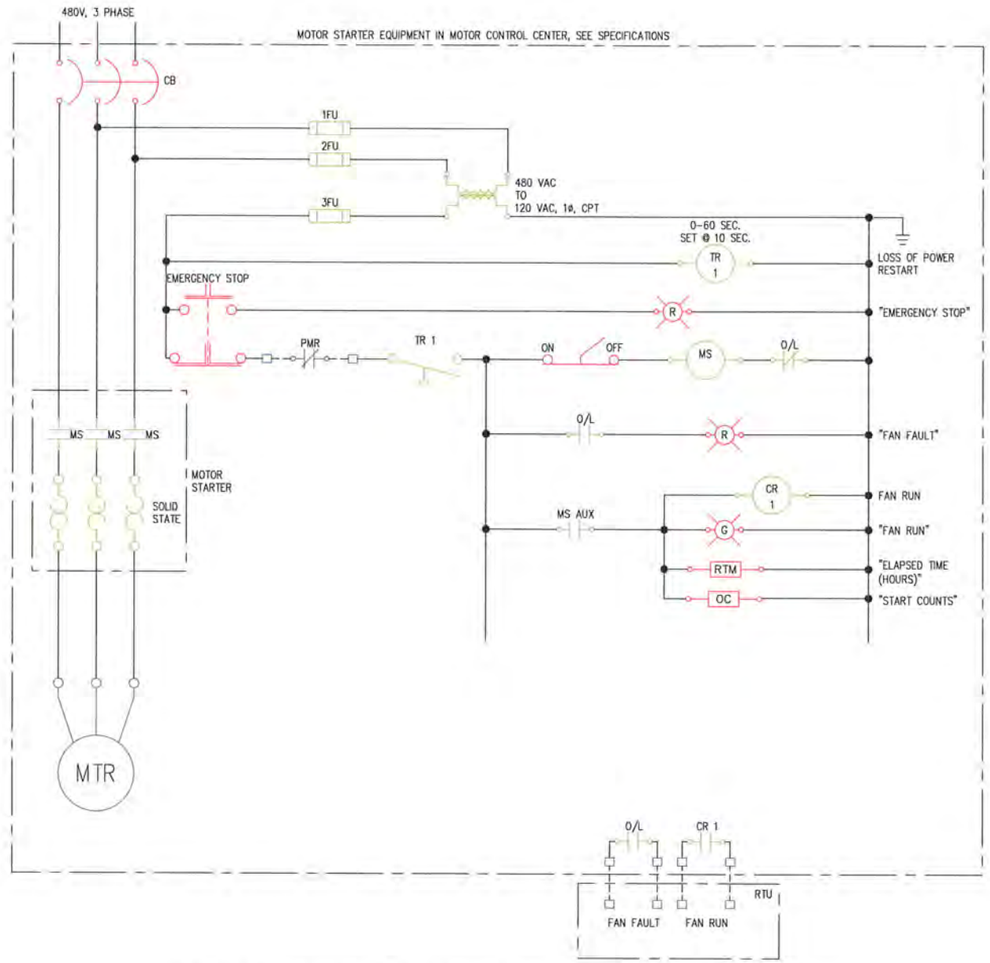

DIAGRAM 4: ODOR CONTROL FAN CONTROL LOGIC

NO SCALE

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CONTROL LOGIC DIAGRAMS 1

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SIGNED: 11/20/15

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ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC10.DWG

REVISIONS

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1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E07 | SHEET NO.: 26 | 39

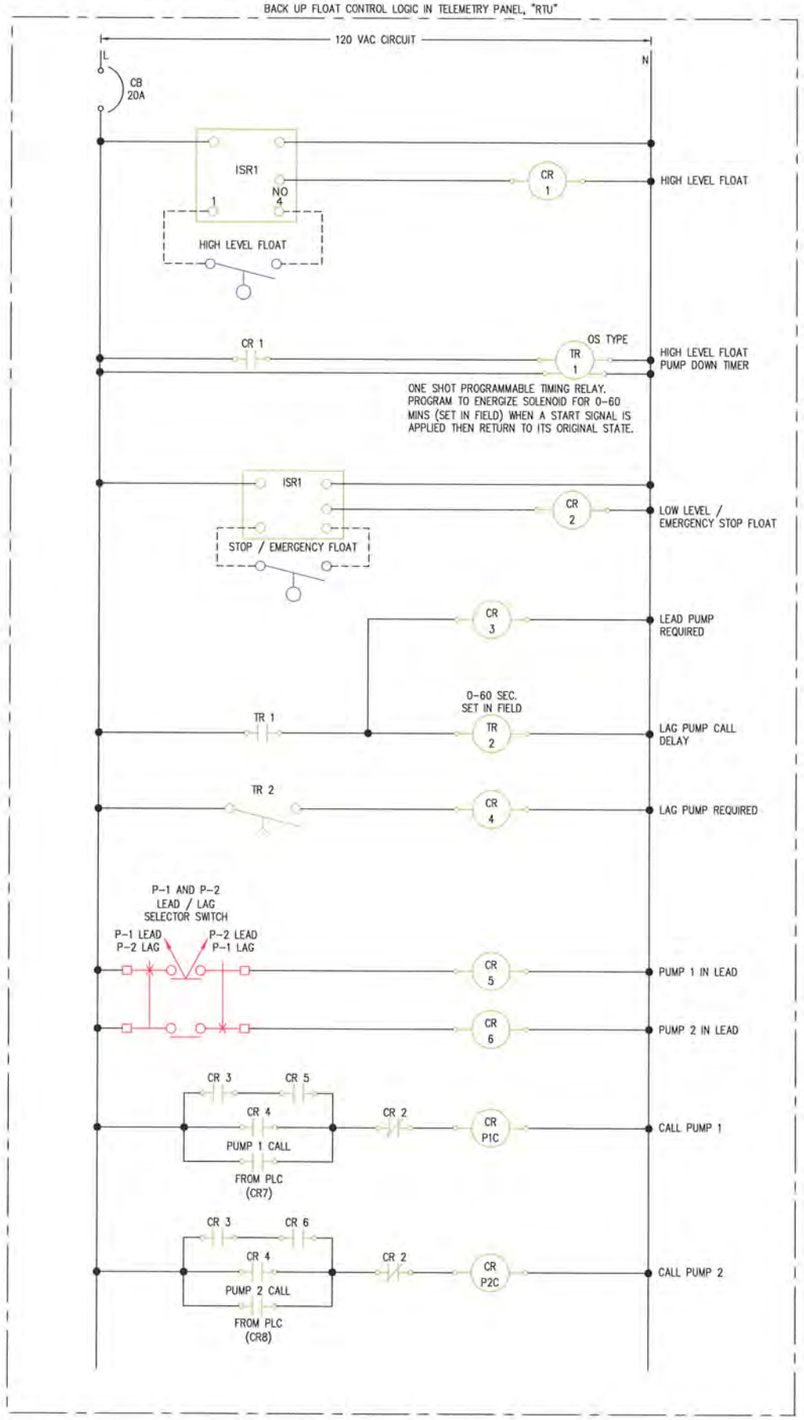

DIAGRAM 5: BACKUP FLOAT CONTROL

NO SCALE

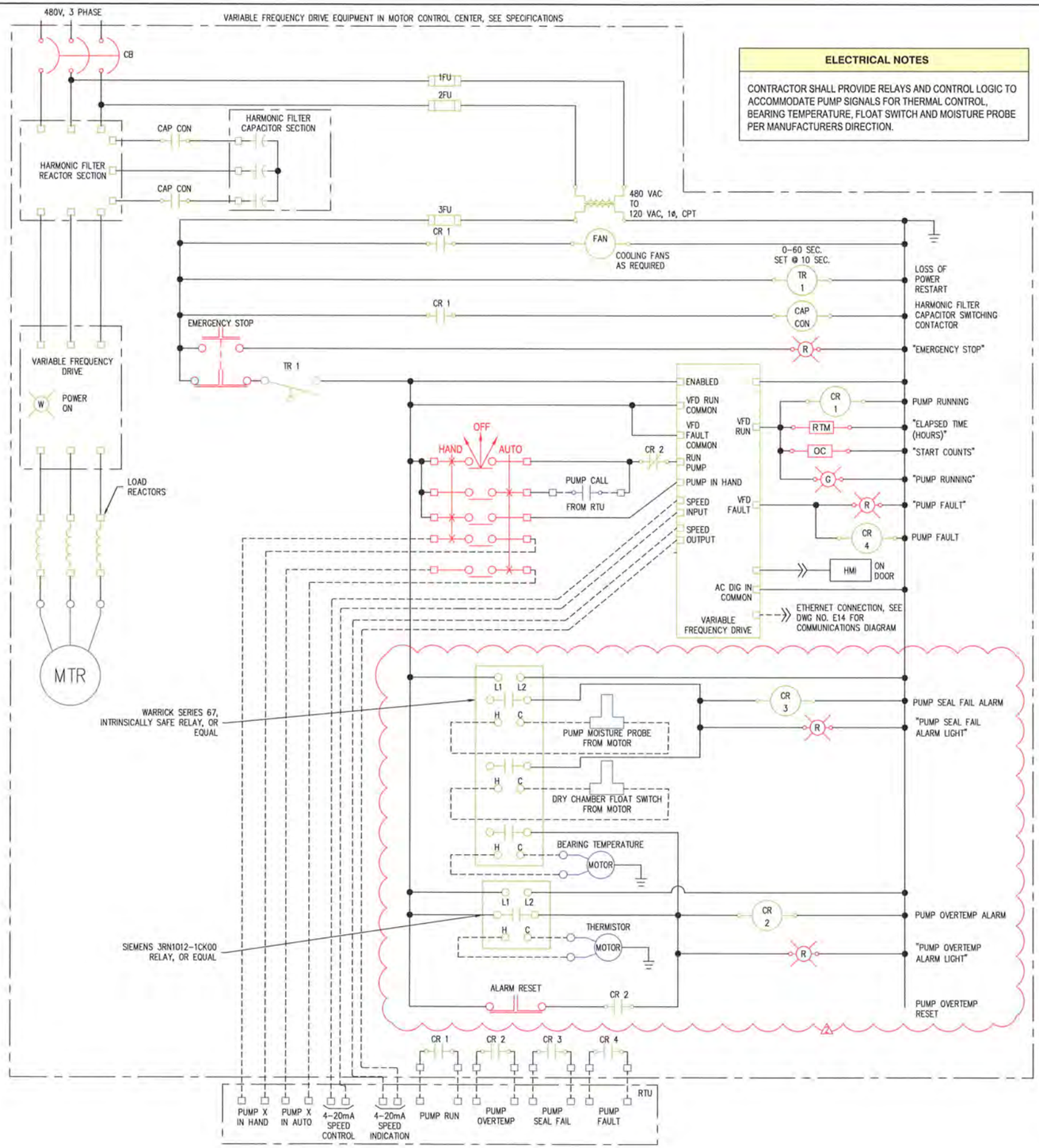

DIAGRAM 6: PUMP P-1, P-2 CONTROL

NO SCALE

ELECTRICAL NOTES

CONTRACTOR SHALL PROVIDE RELAYS AND CONTROL LOGIC TO ACCOMMODATE PUMP SIGNALS FOR THERMAL CONTROL, BEARING TEMPERATURE, FLOAT SWITCH AND MOISTURE PROBE PER MANUFACTURERS DIRECTION.

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CONTROL LOGIC DIAGRAMS 2

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ANTHONY V. PARDO — 26978 — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — SIGNED: 11/20/15

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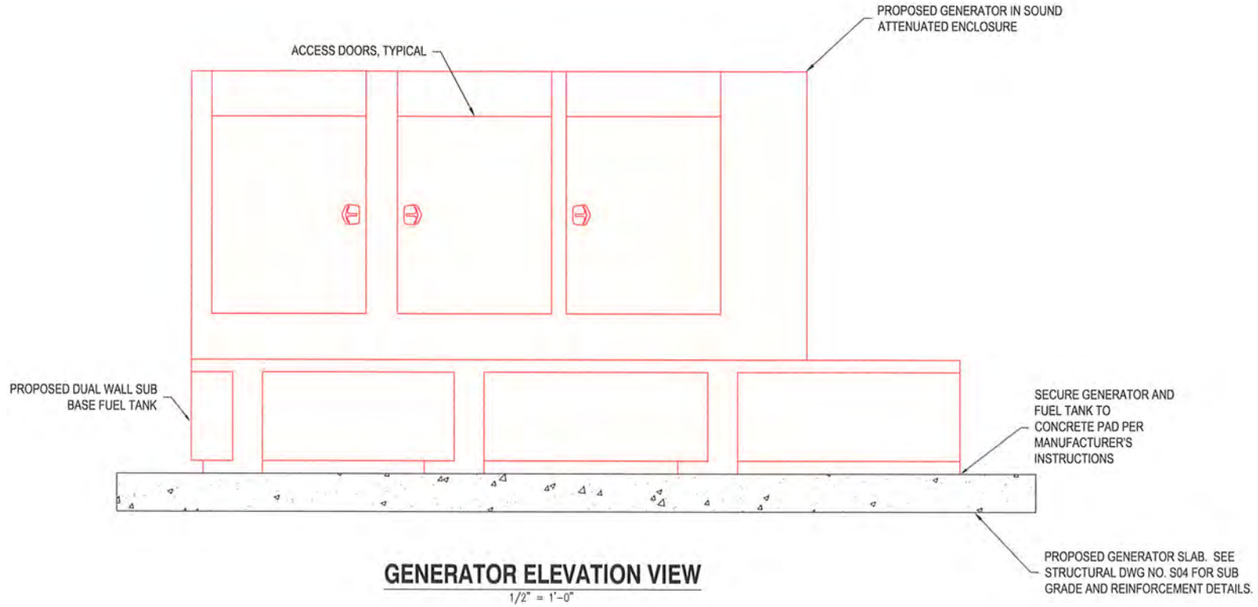
2	09/19/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF | CDR

REVISIONS

JOB NO.: 114-005
CLIENT: TRANE
FILENAME: LS16-D-ELEC10.DWG
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
ENGINEER: MWB
REVIEWED: CMR

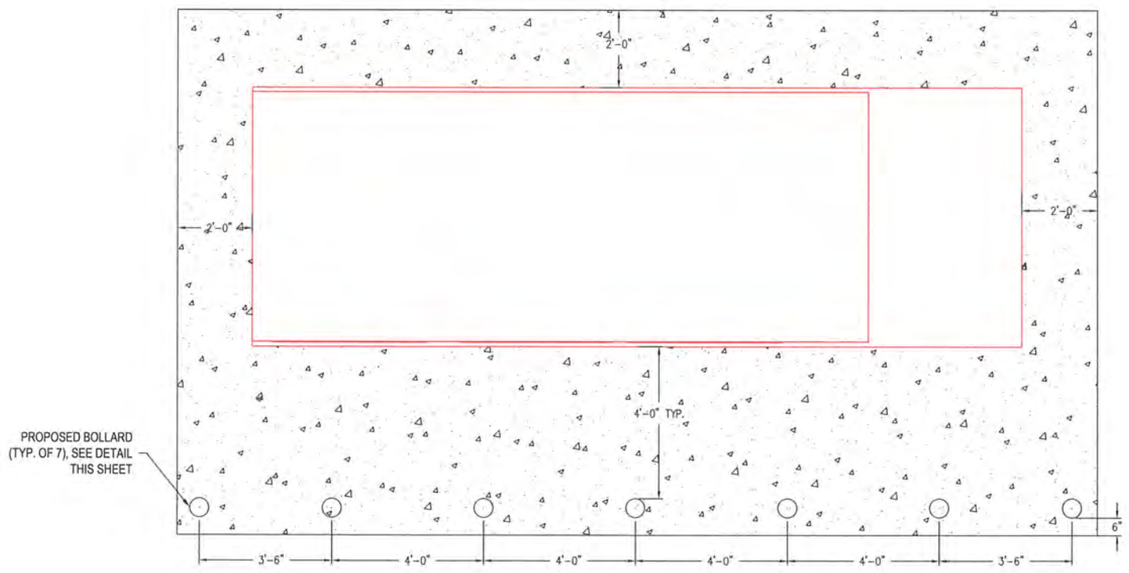
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E08
SHEET NO.: 27 39



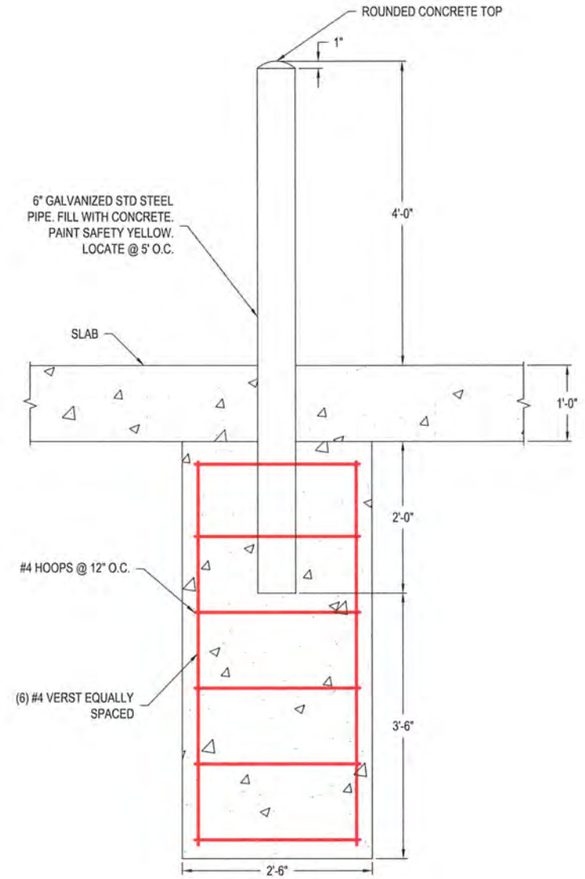
GENERATOR ELEVATION VIEW

1/2" = 1'-0"



GENERATOR PLAN VIEW

1/2" = 1'-0"



BOLLARD DETAIL

1" = 1'-0"

1 / E09

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GENERATOR DETAILS

SIGNED: 11/20/15

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NO.	DATE	DESCRIPTION	BY
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	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	RJF \ JMC
	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	RJF \ JMC

ENGINEER: MWB
REVIEWED: CMR
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-ELEC11.DWG
JOB NO.: 114-005

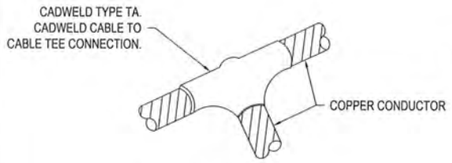
SCALE: SHOWN

0" 1" 2"

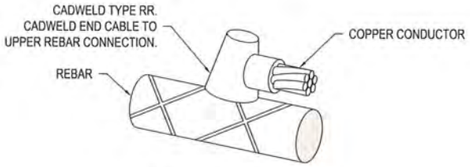
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E09

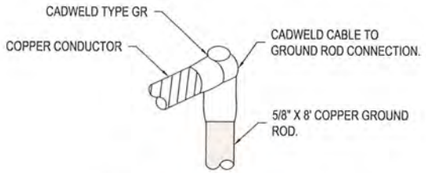
SHEET NO.: 28 / 39



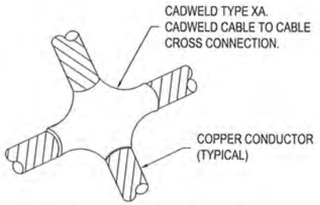
GROUND TEE DETAIL
NO SCALE



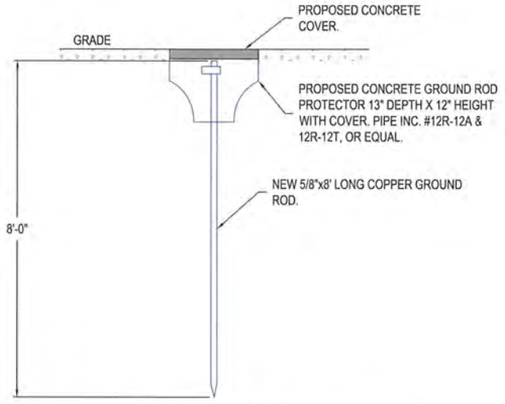
GROUND REBAR DETAIL
NO SCALE



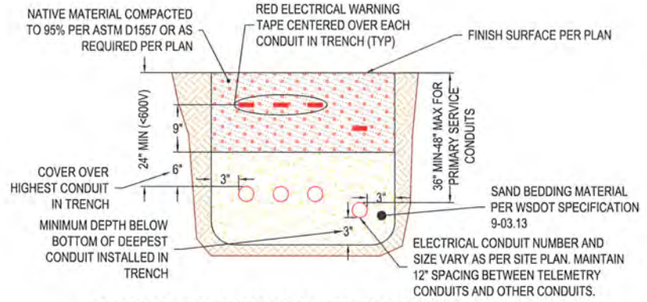
GROUND TEE DETAIL
NO SCALE



GROUNDING CROSS DETAIL
NO SCALE

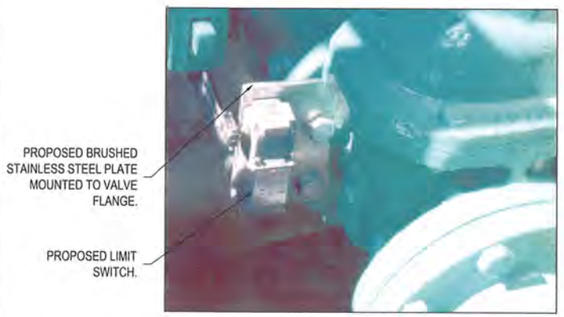


GROUNDING ROD DETAIL
NO SCALE



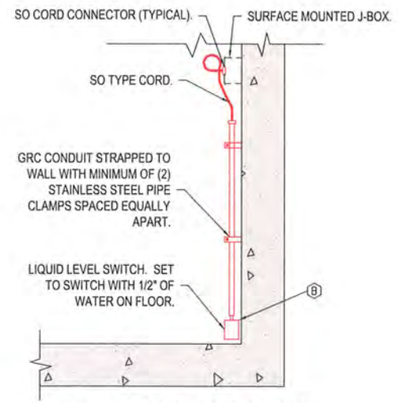
TYPICAL ELECTRICAL TRENCH DETAIL
NOT TO SCALE

NOTE: BURY DEPTH OF CONDUIT AND HORIZONTAL SPACING SHALL BE CONFIRMED WITH SERVING UTILITY BEFORE CONSTRUCTION.

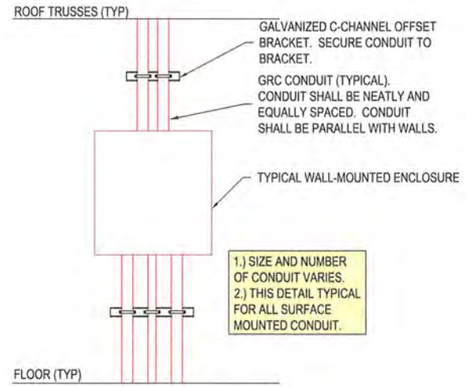


PROPOSED LIMIT SWITCH DETAIL
NOT TO SCALE

INTRUSION SWITCH DETAIL
NOT TO SCALE



FLOOD SWITCH DETAIL
NOT TO SCALE



SURFACE MOUNTED CONDUIT DETAIL
NOT TO SCALE

CHRISTOPHER M. ROBERTS — STATE OF WASHINGTON — 40531 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

JOHN V. PARDEE — STATE OF WASHINGTON — 20976 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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AND FORCEMAIN IMPROVEMENTS
LYNNWOOD

ELECTRICAL DETAILS 1

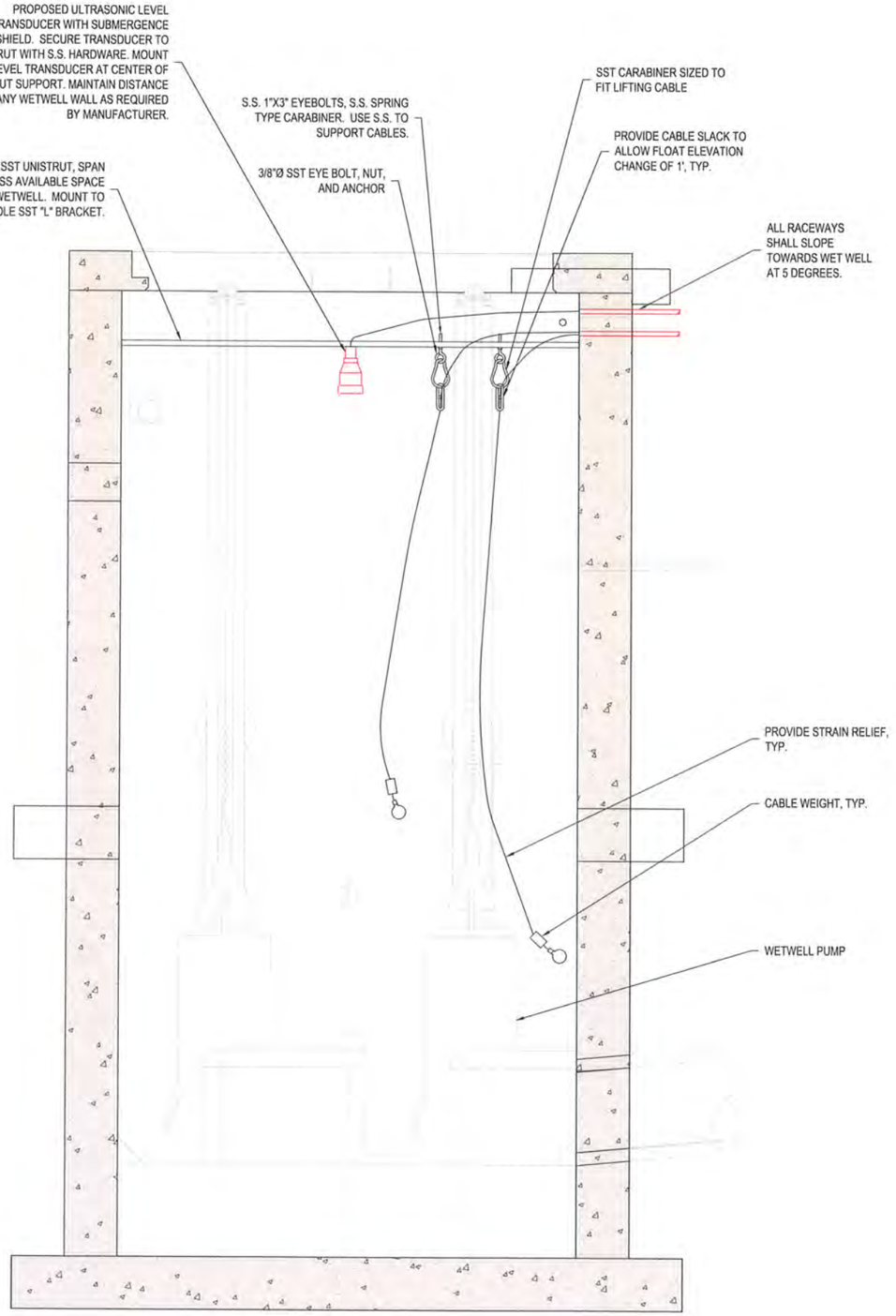
ENGINEER: MWB
REVIEWED: CMR
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-ELEC12.DWG
JOB NO.: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

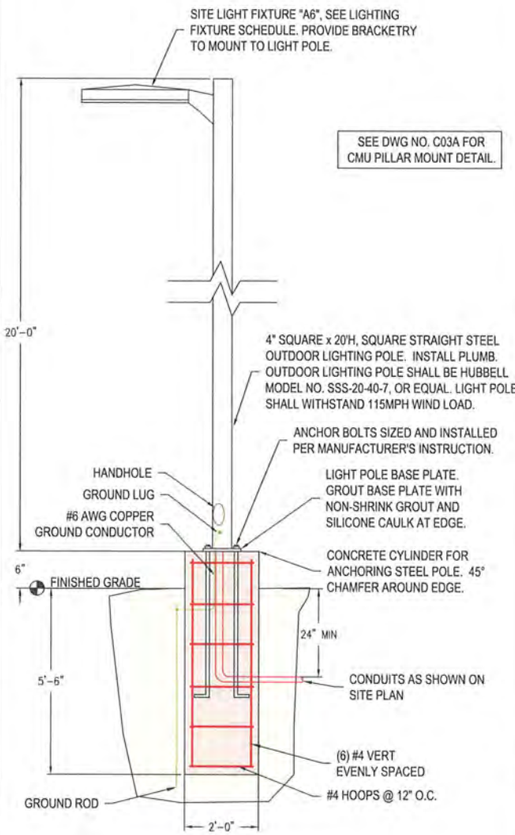
SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E10
SHEET NO.: 29
39



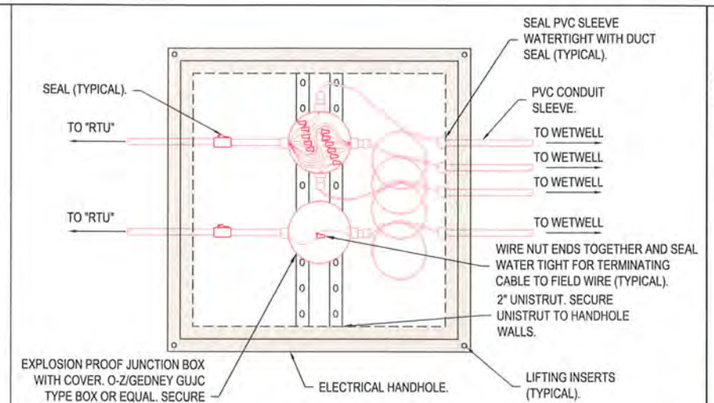
LEVEL TRANSMITTER AND FLOAT SWITCH DETAIL

NOT TO SCALE



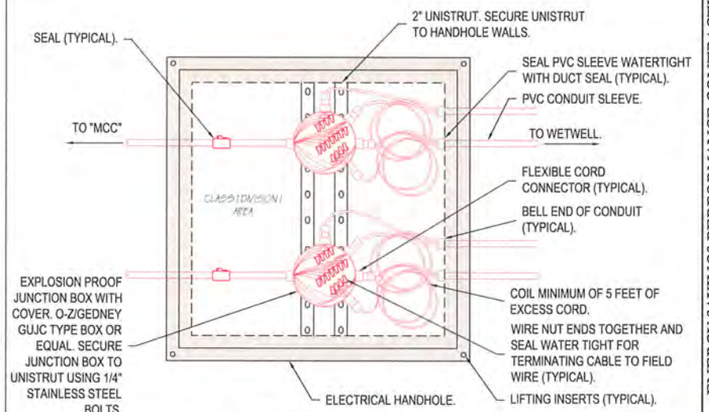
OUTDOOR SITE LIGHT DETAIL

NOT TO SCALE



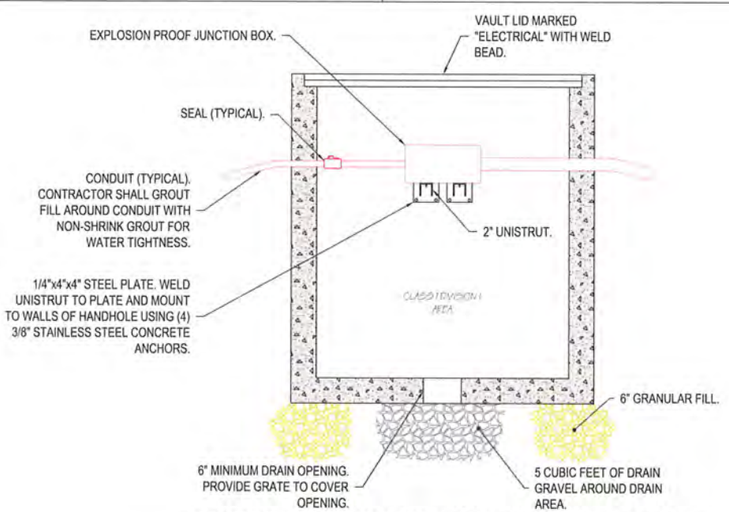
FLOAT/LEVEL TRANSMITTER SPLICE HANDHOLE PLAN

NOT TO SCALE



MOTOR SPLICE HANDHOLE PLAN DETAIL

NOT TO SCALE



MOTOR/FLOAT SPLICE HANDHOLE ELEVATION

NOT TO SCALE

CHRISTOPHER J. ROBERTS, 45517, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15
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RH2 ENGINEERING, INC. www.rh2.com 1.800.720.8052 22722 29th Drive SE, Suite 210 BOTHELL, WA

ENERGY SAVINGS PERFORMANCE CONTRACTING INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16 AND FORCEMAIN IMPROVEMENTS
LYNNWOOD WASHINGTON

ELECTRICAL DETAILS 2

ENGINEER: MWB	SAVE DATE: Nov 18, 2015	CLIENT: TRANE	JOB NO.: 114-005
REVIEWED: CMR	PLOT DATE: Nov 18, 2015	FILENAME: LS16-D-ELEC12.DWG	

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
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	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E11

SHEET NO.: 30 / 39

POWER CONDUIT AND CONDUCTORS SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
P1	UTILITY TRANSFORMER	CURRENT TRANSFORMER ENCLOSURE	(2) 3"	(3) - #350 MCM, (1) - #350 MCM N	PARALLEL CONDUCTORS
P2	CURRENT TRANSFORMER ENCLOSURE	UTILITY METER	1 1/4"	(13) - #14	
P3	CURRENT TRANSFORMER ENCLOSURE	MAIN SERVICE DISCONNECT SWITCH	(2) 3"	(3) - #350 MCM, (1) - #350 MCM N	PARALLEL CONDUCTORS
P4	MAIN SERVICE DISCONNECT SWITCH	AUTOMATIC TRANSFER SWITCH, "ATS"	(2) 3"	(3) - #350 MCM, (1) - #350 MCM N, (1) - #1 GRD	PARALLEL CONDUCTORS
P5	AUTOMATIC TRANSFER SWITCH, "ATS"	STANDBY GENERATOR	(2) 3"	(3) - #350 MCM, (1) - #350 MCM N, (1) - #1 GRD	PARALLEL CONDUCTORS
P6	AUTOMATIC TRANSFER SWITCH, "ATS"	MOTOR CONTROL CENTER, "MCC"	(2) 3"	(3) - #350 MCM, (1) - #350 MCM N, (1) - #1 GRD	PARALLEL CONDUCTORS
P7	MOTOR CONTROL CENTER, "MCC"	ELECTRICAL ROOM HEATER, "H1"	3/4"	(3) - #12, (1) - #12 GRD	
P8	MOTOR CONTROL CENTER, "MCC"	MAINTENANCE ROOM HEATER, "H2"	3/4"	(3) - #12, (1) - #12 GRD	
P9	MOTOR CONTROL CENTER, "MCC"	ODOR CONTROL ROOM HEATER, "H3"	3/4"	(3) - #12, (1) - #12 GRD	
P10	MOTOR CONTROL CENTER, "MCC"	LIFT STATION HOT WATER HEATER	3/4"	(2) - #8, (1) - #10 GRD	
P11	MOTOR CONTROL CENTER, "MCC"	ODOR CONTROL FAN	3/4"	(3) - #12, (1) - #12 GRD	
P12	LIGHTING PANEL, "L1"	SITE LIGHTING	1"	(2) - #10, (1) - #10 GRD	
P13	MOTOR CONTROL CENTER, "MCC"	POWER HANDHOLE	3"	(3) - #300 MCM, (1) - #3 GRD, (11) - #14	
P14	MOTOR CONTROL CENTER, "MCC"	POWER HANDHOLE	3"	(3) - #300 MCM, (1) - #3 GRD, (11) - #14	
P15	POWER HANDHOLE	PUMP NO. 1	(2) 3 1/2"	(1) PUMP POWER CABLE, (1) PUMP CONTROL CABLE	PARALLEL CONDUITS
P16	POWER HANDHOLE	PUMP NO. 2	(2) 3 1/2"	(1) PUMP POWER CABLE, (1) PUMP CONTROL CABLE	PARALLEL CONDUITS
P17	LIGHTING PANEL, "L1"	TELEMETRY PANEL, "RTU"	3/4"	(4) - #12, (1) - #12 GRD	
P18	LIGHTING PANEL, "L1"	VENTILATION CONTROL PANEL, "VCP-1"	3/4"	(2) - #12, (1) - #12 GRD	
P19	VENTILATION CONTROL PANEL, "VCP-1"	ELECTRICAL ROOM EXHAUST FAN, "F103"	3/4"	(2) - #12, (1) - #12 GRD	
P20	VENTILATION CONTROL PANEL, "VCP-1"	DAMPER ACTUATOR, "L103"	3/4"	(2) - #12, (1) - #12 GRD	
P21	LIGHTING PANEL, "L1"	OVERHEAD CRANE	3/4"	(2) - #10, (1) - #10 GRD	
P22	LIGHTING PANEL, "L1"	VENTILATION CONTROL PANEL, "VCP-2"	3/4"	(2) - #12, (1) - #12 GRD	
P23	VENTILATION CONTROL PANEL, "VCP-2"	MAINTENANCE ROOM EXHAUST FAN, "F102"	3/4"	(2) - #12, (1) - #12 GRD	
P24	VENTILATION CONTROL PANEL, "VCP-2"	DAMPER ACTUATOR, "L102"	3/4"	(2) - #12, (1) - #12 GRD	
P25	LIGHTING PANEL, "L1"	VENTILATION CONTROL PANEL, "VCP-3"	3/4"	(2) - #12, (1) - #12 GRD	
P26	VENTILATION CONTROL PANEL, "VCP-3"	ODOR CONTROL ROOM EXHAUST FAN, "F101"	3/4"	(2) - #12, (1) - #12 GRD	
P27	VENTILATION CONTROL PANEL, "VCP-3"	DAMPER ACTUATOR, "L101"	3/4"	(2) - #12, (1) - #12 GRD	
P28	LIGHTING PANEL, "L1"	STANDBY GENERATOR BATTERY CHARGER	3/4"	(2) - #10, (1) - #12 GRD	
P29	LIGHTING PANEL, "L1"	STANDBY GENERATOR BLOCK HEATER	3/4"	(2) - #10, (1) - #10 GRD	
P30	TELEMETRY PANEL, "RTU"	FIBER OPTIC PANEL	3/4"	(2) - #12, (1) - #12 GRD	

CONTROL CONDUIT AND CONDUCTORS SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
C1	AUTOMATIC TRANSFER SWITCH, "ATS"	STANDBY GENERATOR	3/4"	(3) - #14, (1) - #14 GRD	
C2	TELEMETRY PANEL, "RTU"	STANDBY GENERATOR	1"	(10) - #14, (1) - #14 GRD	
C3	TELEMETRY PANEL, "RTU"	AUTOMATIC TRANSFER SWITCH, "ATS"	3/4"	(8) - #14, (1) - #14 GRD	
C4	TELEMETRY PANEL, "RTU"	ELECTRICAL ROOM SMOKE DETECTOR	3/4"	(4) - #14, (1) - #14 GRD	
C5	TELEMETRY PANEL, "RTU"	ELECTRICAL ROOM INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C6	ELECTRICAL ROOM HEATER, "H1"	ELECTRICAL ROOM HEATING THERMOSTAT	3/4"	(2) - #14, (1) - #14 GRD	
C7	VENTILATION CONTROL PANEL, "VCP-1"	ELECTRICAL ROOM COOLING THERMOSTAT	3/4"	(2) - #14, (1) - #14 GRD	
C8	TELEMETRY PANEL, "RTU"	MAINTENANCE ROOM EAST INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C9	TELEMETRY PANEL, "RTU"	MAINTENANCE ROOM WEST INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C10	TELEMETRY PANEL, "RTU"	MAINTENANCE ROOM NORTH INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C11	TELEMETRY PANEL, "RTU"	MAINTENANCE ROOM SMOKE DETECTOR	3/4"	(4) - #14, (1) - #14 GRD	
C12	MAINTENANCE ROOM HEATER, "H2"	MAINTENANCE ROOM HEATING THERMOSTAT	3/4"	(2) - #14, (1) - #14 GRD	
C13	VENTILATION CONTROL PANEL, "VCP-2"	MAINTENANCE ROOM COOLING THERMOSTAT	3/4"	(2) - #14, (1) - #14 GRD	
C14	VENTILATION CONTROL PANEL, "VCP-3"	ODOR CONTROL ROOM COOLING THERMOSTAT	3/4"	(2) - #14, (1) - #14 GRD	
C15	TELEMETRY PANEL, "RTU"	METERING MANHOLE JUNCTION BOX	3/4"	(4) - #14, (1) - #14 GRD	
C16	TELEMETRY PANEL, "RTU"	ODOR CONTROL ROOM SMOKE DETECTOR	3/4"	(4) - #14, (1) - #14 GRD	
C17	TELEMETRY PANEL, "RTU"	ODOR CONTROL ROOM INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C18	INSTRUMENTATION HANDHOLE	WET WELL INTRUSION SWITCHES	3/4"	(4) - #14, (1) - #14 GRD	
C19	INSTRUMENTATION HANDHOLE	WET WELL FLOATS	1 1/4"	FLOAT CABLES	
C20	INSTRUMENTATION HANDHOLE	WET WELL INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C21	TELEMETRY PANEL, "RTU"	INSTRUMENTATION HANDHOLE	3/4"	(10) - #14, (1) - #14 GRD	
C22	TELEMETRY PANEL, "RTU"	MOTOR CONTROL CENTER, "MCC"	1 1/4"	(40) - #14, (1) - #14 GRD	
C23	VALVE CHAMBER JUNCTION BOX	VALVE CHAMBER INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C24	VALVE CHAMBER JUNCTION BOX	VALVE CHAMBER FLOOD SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C25	VALVE CHAMBER JUNCTION BOX	CHECK VALVE LIMIT SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C26	VALVE CHAMBER JUNCTION BOX	CHECK VALVE LIMIT SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C27	TELEMETRY PANEL, "RTU"	VALVE CHAMBER JUNCTION BOX	3/4"	(8) - #14, (1) - #14 GRD	
C28	METERING MANHOLE JUNCTION BOX	METERING MANHOLE INTRUSION SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C29	METERING MANHOLE JUNCTION BOX	METERING MANHOLE FLOOD SWITCH	3/4"	(2) - #14, (1) - #14 GRD	
C30	TELEMETRY PANEL, "RTU"	RAIN GAUGE	3/4"	(2) - #14, (1) - #14 GRD	

INSTRUMENTATION CONDUIT AND CONDUCTORS SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
J1	TELEMETRY PANEL, "RTU"	METERING MANHOLE FLOW METER	(2) 1 1/2"	MANUFACTURER'S CABLES	
J2	INSTRUMENTATION HANDHOLE	ULTRASONIC LEVEL TRANSDUCER	1"	MANUFACTURERS'S TRANSDUCER CABLE	
J3	TELEMETRY PANEL, "RTU"	INSTRUMENTATION HANDHOLE	1"	MANUFACTURERS'S TRANSDUCER CABLE	
J4	TELEMETRY PANEL, "RTU"	MOTOR CONTROL CENTER, "MCC"	1 1/2"	(4) 2-CONDUCTOR SHIELDED CABLES	
J5	TELEMETRY PANEL, "RTU"	FIBER OPTIC PANEL	1"	(1) - CAT 5E ETHERNET CABLE	
J6	TELEMETRY PANEL, "RTU"	MOTOR CONTROL CENTER, "MCC"	1 1/2"	(3) - CAT 5E SHIELDED ETHERNET CABLES	

CHRISTOPHER M. ROBERTS — 20978 — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

ANTHONY V. PARDO — 20978 — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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ENERGY SAVINGS PERFORMANCE CONTRACTING
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CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

CONDUIT SCHEDULES

ENGINEER: MWB | DRAWN BY: CMR | SIRE DATE: Nov 18, 2015 | PLOT DATE: Nov 18, 2015 | CLIENT: TRANE | FILENAME: LS16-D-ELEC13.DWG | JOB NO.: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF\ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF\ CGR	RJF \ JMC
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SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E12 | SHEET NO.: 31 | 39

ELECTRICAL EQUIPMENT AND INSTRUMENTATION SCHEDULE

ITEM	DESCRIPTION	MANUFACTURER	MODEL NO.
(A)	INTRUSION ALARM SWITCH - CONTRACTOR SHALL SELECT ACTUATOR LEVER ARM BEST SUITED FOR MOUNTING CONFIGURATION.	SQUARE D	HEAVY DUTY TYPE C, CLASS 9007 OR EQUAL
(B)	FLOOD SWITCH - N.O. REED TYPE FLOAT SWITCH, 20 VA. SEE DWG NO. E10 FOR DETAIL.	OMEGA MODEL	LVN-20 OR EQUAL
(C)	PHOTO ELECTRIC SMOKE DETECTOR - 24 V POWERED, WITH LOCAL AND AUDIBLE ALARM SIGNAL AND CONTACTS FOR REMOTE ANNUCIATION THROUGH FOUR WIRE CONNECTION TO RTU.	SYSTEMS SENSOR	4WTAR-B OR EQUAL
(D)	WALL MOUNTED COOLING THERMOSTAT - SNAP ACTION, SPDT LINE VOLTAGE AIR SWITCH CONTROLLER. RANGE: -30° - 100°F, SET AT 75°F. MOUNT 4 FEET ABOVE FINISHED FLOOR.	HONEYWELL	T775A2009/U OR EQUAL
(E)	WALL MOUNTED HEATING THERMOSTAT - 24V, SPST, RANGE 40° - 99°F, SET AT 60°F, MOUNT 4 FEET ABOVE FINISHED FLOOR.	HONEYWELL	TH6110D1005/U OR EQUAL
(F)	FLOW METER	SEE SPECIFICATIONS	SEE SPECIFICATIONS
(G)	WET WELL LEVEL FLOAT SWITCH	SEE SPECIFICATIONS	SEE SPECIFICATIONS
(H)	ULTRASONIC LEVEL TRANSMITTER	SEE SPECIFICATIONS	SEE SPECIFICATIONS
(K)	ACCESS HATCH AND ODOR CONTROL ROOM INTRUSION ALARM SWITCH - WATERTIGHT FOR HAZARDOUS LOCATION TYPE. NEMA TYPE 7. CONTRACTOR SHALL SELECT ACTUATOR LEVEL ARM BEST SUITED FOR MOUNTING CONFIGURATION.	ALLEN-BRADLEY	BULLETIN 802X OR EQUAL
(L)	CHECK VALVE LIMIT SWITCH	SEE SPECIFICATIONS	SEE SPECIFICATIONS
(M)	EXPLOSION PROOF SMOKE DETECTOR. PHOTOELECTRIC WITH LIGHT SENSING PHOTOVOLTAIC CELL. N.O. CONTACT, 24 VDC, CSA CERTIFIED FOR USE IN CLASS 1, DIVISION 2 HAZARDOUS LOCATIONS.	SECUTRON	PYROTECTOR 3003 OR EQUAL
(N)	MAIN DISCONNECT SWITCH, NEMA 4X STAINLESS STEEL ENCLOSURE, HEAVY DUTY BREAKER, ELECTRONIC TRIP, 600 AMP, 100% RATED, 600 VOLT, 65 KAIC WITHSTAND, WITH FLEX HANDLE, CIRCUIT BREAKER SWITCH	SIEMENS	SHLD6 OR EQUAL
(P)	FIBER OPTIC PANEL WITH FIBER TERMINATION PANEL, FIBER MODEM, AND DEDICATED MODEM RECEPTACLE. PANEL SHALL BE NEMA 12, 24" T, 20" W, 8" D. PANEL SHALL BE DESIGNED AND CONSTRUCTED IN CONFORMANCE WITH ALL CITY OF LYNNWOOD SPECIFICATIONS.	PER CITY OF LYNNWOOD SPECIFICATIONS	PER CITY OF LYNNWOOD SPECIFICATIONS

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER NAME	MANUFACTURER CATALOG NO.	* LAMP QTY.	* LAMP CATALOG NO.	REMARKS
A1	FLUORESCENT, LIGHT FIXTURE, 120 VAC, 4'-2" LONG, HIGH-IMPACT ACRYLIC LENS, MOLDED FIBERGLASS REINFORCED POLYESTER HOUSING, (2)-32W LAMPS, ENERGY SAVING BALLAST, CEILING MOUNTED, U.L. LISTED FOR WET LOCATIONS.	LITHONIA	DMW 2 32 ARDP 120	2	32WT8 32 WATT	
A2	LED OUTDOOR WALL LUMINAIRE - (2) LED ENGINE (10 LEDS PER ENGINE), 700 mA, 5000K COLOR TEMPERATURE. 120VAC, WITH FUSE PROTECTION. PROVIDE FIXTURE WITH VANDAL GUARD. TWO PIECE DIS-CAST ALUMINUM HOUSING, MOUNT BOTTOM OF FIXTURE 1'-0" ABOVE DOOR, U.L. LISTED FOR WET LOCATIONS.	LITHONIA	DSXW1 LED 20C 700 50K T3M 120 SF VG DBLXD	N/A	INTEGRATED LED DRIVER	
A3	DUAL HEAD EMERGENCY LIGHT - (2)-1.8W LED LAMPS, DUAL-VOLTAGE INPUT 120 VAC, THERMOPLASTIC HOUSING, INTEGRATED RECHARGEABLE BATTERY WITH TEST SWITCH, MOUNT BOTTOM OF FIXTURE 1'-0" ABOVE DOOR, U.L. LISTED FOR INDOOR LOCATIONS.	LITHONIA	EU2 LED M12	N/A	1.8 WATT LED	
A4	HAZARDOUS AREA LED EXIT LIGHT WITH EMERGENCY LIGHTING. 120VAC, WITH IMPACT RESISTANT FIBERGLASS REINFORCED POLYESTER HOUSING. LED ILLUMINATED GREEN EXIT SIGN AND 8 WATT HALOGEN EMERGENCY LAMPS. INTERNAL SEALED LEAD-CALCIUM BATTERY. U.L. LISTED FOR CLASS 1, DIV. 1/2 AREAS.	LITHONIA	LHZ618 S 1 G H0806	2	PAR36 8 WATT	
A5	HAZARDOUS AREA FLUORESCENT LIGHT FIXTURE, 120VAC, 4'-2" LONG, THREADED O-RING GASKETED COVER, SPRING LOADED SOCKET. (2) - 32W LAMPS. U.L. LISTED FOR CLASS 1, DIV. 1/2 AREAS.	HUBBELL	HL-HFX-265-1-2-WL	2	32WT8 32 WATT	
A6	LED AREA ILUMINAIRE. (2) LED ENGINE (20 LEDS PER ENGINE), 1000 mA, 5000K COLOR TEMPERATURE. 208VAC, WITH FUSE PROTECTION. SINGLE PIECE DIE-CAST ALUMINUM HOUSING WIT HEAT SINK FINS. PROVIDE FIXTURE WITH BRACKETRY TO MOUNT TO LIGHT POLE. PROVIDE FIXTURE WITH INTEGRATE PHOTO CELL CONTROL. U.L. LISTED FOR WET LOCATIONS.	LITHONIA	DSX1 LED 40C 1000 50K T4M 208 SPA PER DF DBLXD	N/A	INTEGRATED LED DRIVER	PROVIDE WITH PHOTOCELL CONTROL

★ NUMBER OF LAMPS PER FIXTURE

HEATER SCHEDULE

ITEM	DESCRIPTION	MANUFACTURER	MODEL NO.
(H1)	ELECTRICAL HEATER WITH UNIVERSAL MOUNTING BRACKET - 3KW, 480V, THREE PHASE, WITH 24V CONTROL TRANSFORMER AND POWER CONTACTOR FOR THERMOSTAT CONNECTION. MOUNT BOTTOM OF HEATER 7'-0" ABOVE FLOOR.	QMARK	MUH0341
(H2)	ELECTRICAL HEATER WITH UNIVERSAL MOUNTING BRACKET - 3KW, 480V, THREE PHASE, WITH 24V CONTROL TRANSFORMER AND POWER CONTACTOR FOR THERMOSTAT CONNECTION. MOUNT BOTTOM OF HEATER 7'-0" ABOVE FLOOR.	QMARK	MUH0341
(H3)	HAZARDOUS AREA ELECTRICAL HEATER WITH UNIVERSAL MOUNTING BRACKET - 3KW, 480V, THREE PHASE, WITH INTEGRATED THERMOSTAT. U.L. LISTED FOR CLASS 1, DIV. 1/2 AREAS. MOUNT BOTTOM OF HEATER 7'-0" ABOVE FLOOR.	QMARK	GUX3004832

PANEL SCHEDULE L1

NO. L1 — LOCATION: MOTOR CONTROL CENTER — SERVING: PUMP STATION BUILDING

120/208 VOLTS 4 WIRE — 125 AMP MAIN

CIRCUIT DESCRIPTION	KVA	AMP			AMP	KVA	CIRCUIT DESCRIPTION
EMERGENCY LIGHTING	0.01	20	1	2	20	0.34	BUILDING OUTDOOR LIGHTING
ELECTRICAL ROOM LIGHTING	0.20	20	3	4	20	0.27	MAITNENANCE ROOM LIGHTING
ODOR CONTROL ROOM LIGHTING	0.13	20	5	6	20	0.13	WETWELL LIGHTING
ELECTRICAL ROOM RECEPTACLES	0.54	20	7	8	20	0.72	MAINTENANCE ROOM RECEPTACLES
MAINTENANCE ROOM RECEPTACLES	0.36	20	9	10	20	0.36	WETWELL OUTDOOR RECEPTACLES
TELEMETRY PANEL, "RTU"	0.50	20	11	12	20	0.50	VENTILATION CONTROL PANEL, "VCP-1"
OVERHEAD CRANE	1.40	30	13	14	20	0.50	VENTILATION CONTROL PANEL, "VCP-2"
VENTILATION CONTROL PANEL, "VCP-3"	0.50	20	15	16	20	0.60	STANDBY GENERATOR BATTERY CHARGER
STANDBY GENERATOR BLOCK HEATER	2.81	30	17	18	20	0.65	SITE LIGHTING
	–	2P	19	20	2P	–	
BACKUP FLOAT CONTROL IN "RTU"	0.50	20	21	22	20	–	SPARE
SPARE	–	20	23	24	20	–	SPARE
SPARE	–	20	25	26	20	–	SPARE
SPARE	–	20	27	28	20	–	SPARE
SPARE	–	20	29	30	20	–	SPARE

CONNECTION LOAD: 11.02 KVA 30.62 AMPS

DEMAND: LIGHTING AND CONTROL LOAD

DEMAND LOAD: 11.02 KVA 30.62 AMPS

CHRISTOPHER M. ROBERTS — 43531 — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

ANDREW V. PARDUE — 29978 — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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LYNNWOOD

ELECTRICAL SCHEDULES

ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC13.DWG

REVISIONS

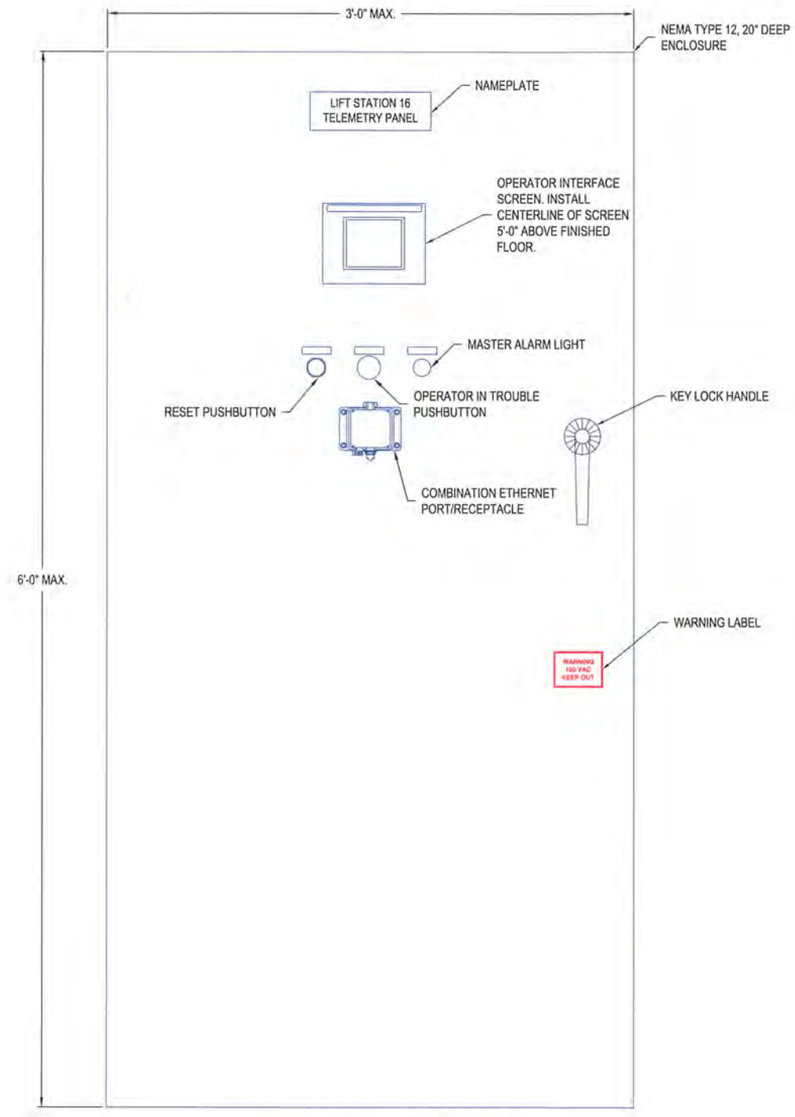
NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E13 — SHEET NO.: 32 — 39



RTU PANEL EXTERIOR LAYOUT

NOT TO SCALE

ENERGY SAVINGS PERFORMANCE CONTRACTING
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CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

TELEMETRY PANEL LAYOUT

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BOTHELL, WA
22722 29th Drive SE, Suite 210

SIGNED: 11/20/15

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ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC14.DWG

REVISIONS

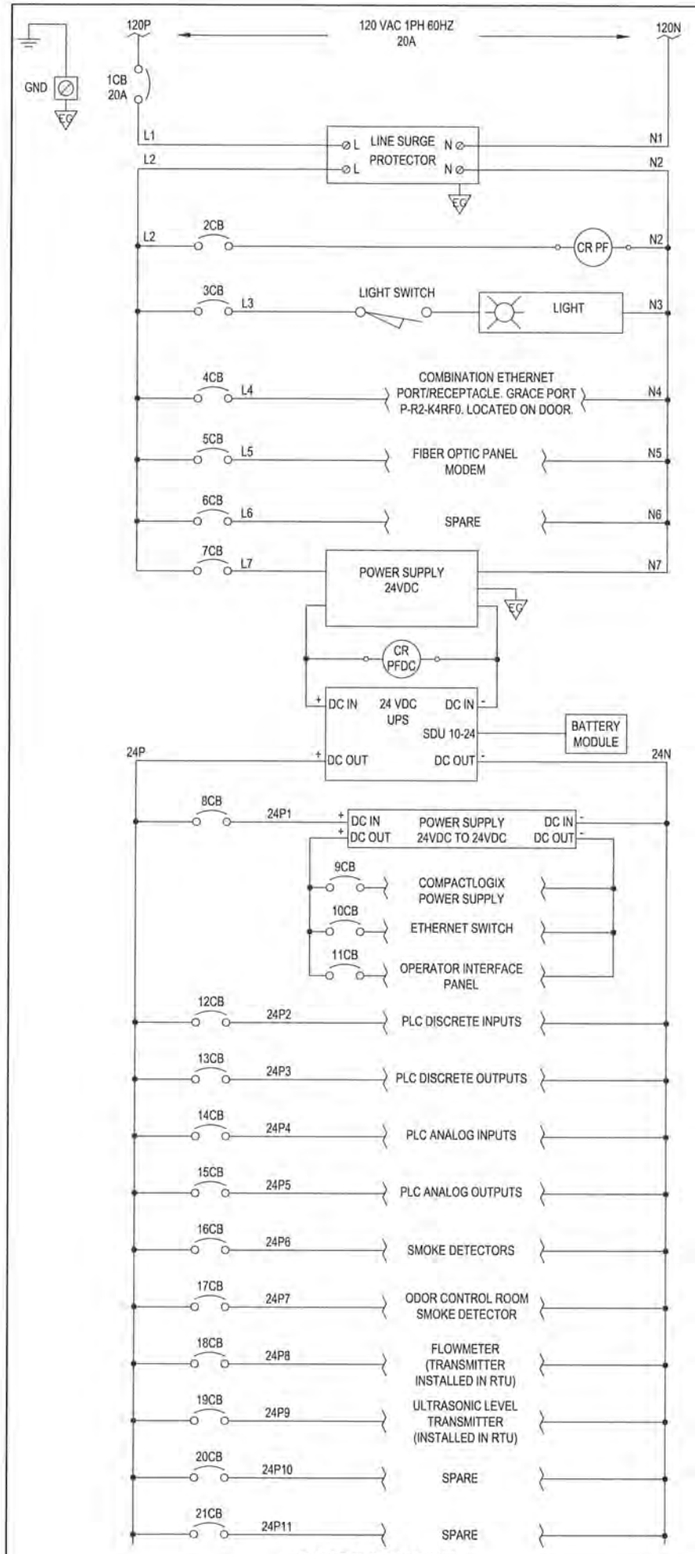
NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0' 1' 2'

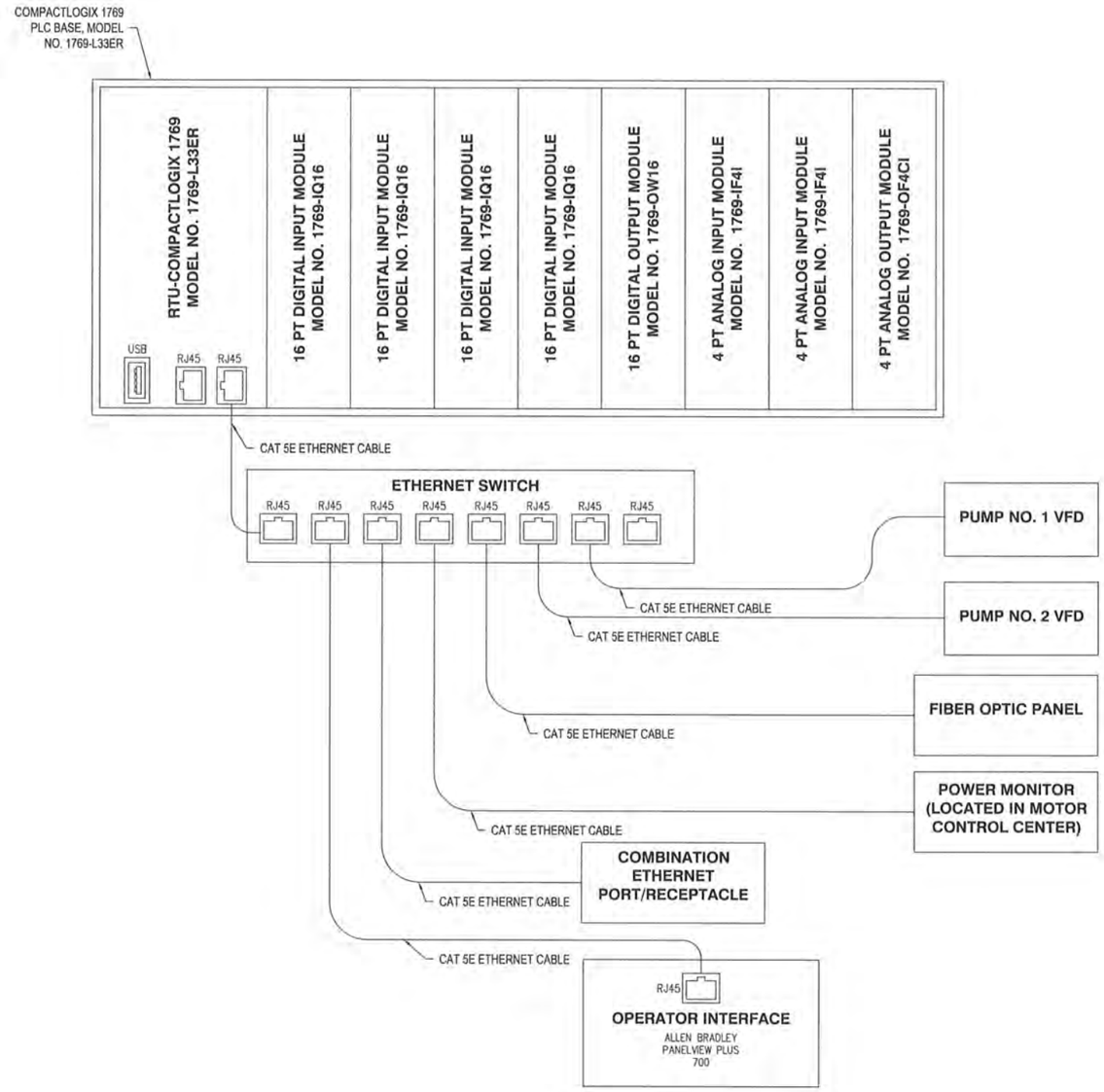
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E14 | SHEET NO.: 33 / 39



POWER LAYOUT

NOT TO SCALE



COMMUNICATIONS LAYOUT

NOT TO SCALE

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LYNNWOOD WASHINGTON

POWER AND COMMUNICATIONS DIAGRAM

ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC15.DWG

REVISIONS

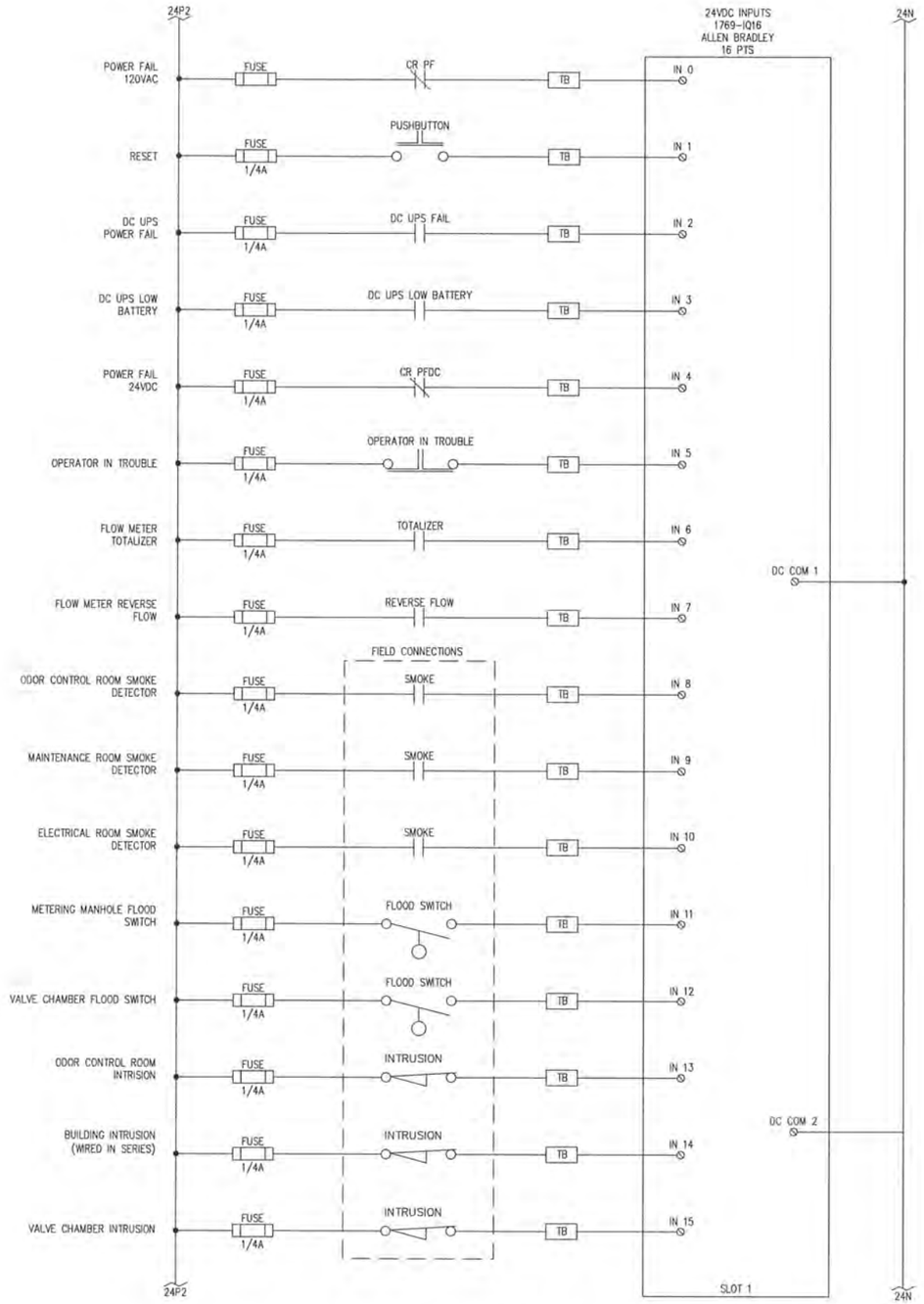
NO.	DATE	DESCRIPTION	BY	REVIEW
2	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
3	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
1	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

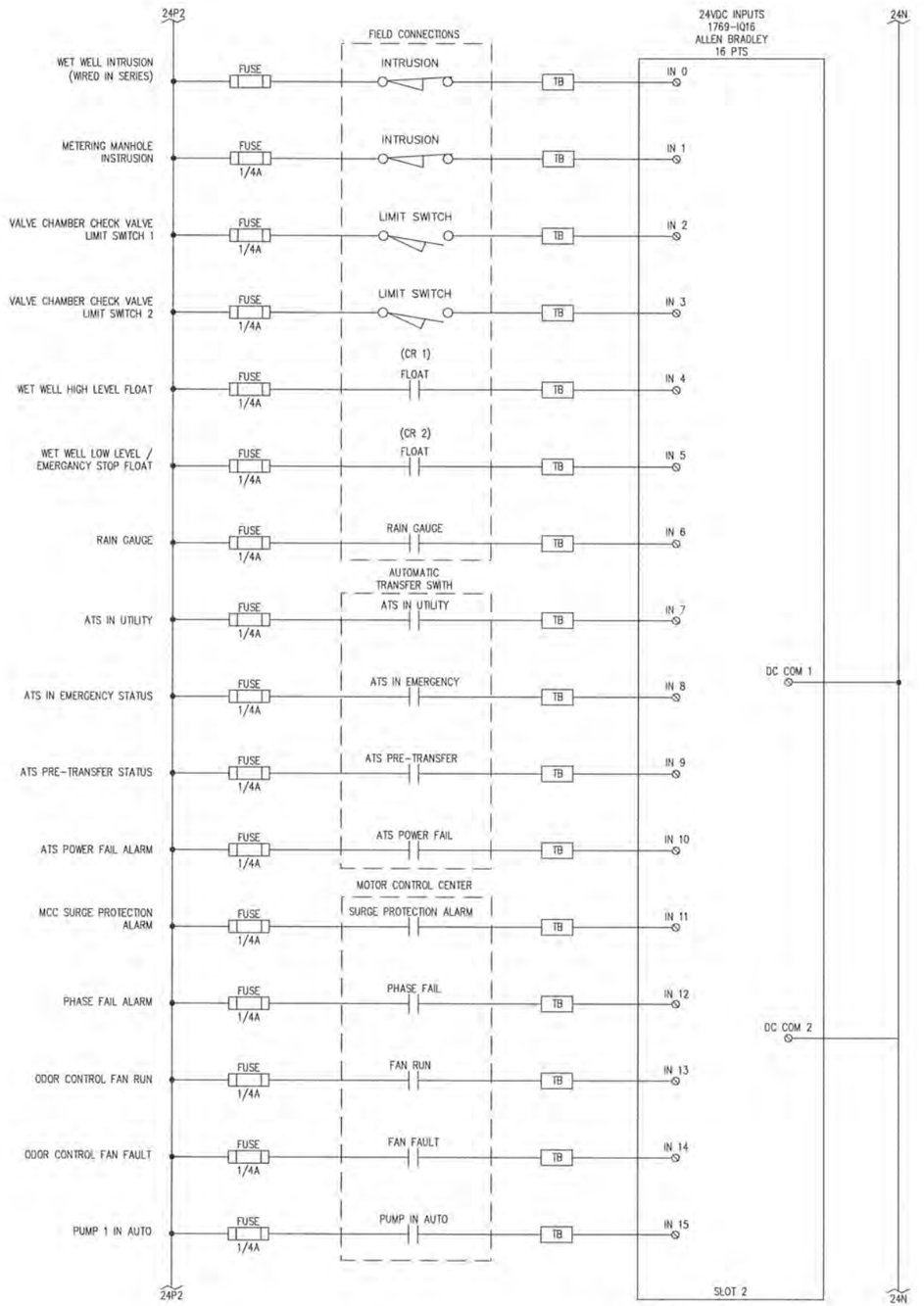
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E15 | SHEET NO.: 34 | 39



DIGITAL INPUTS, EXPANSION SLOT 1

NOT TO SCALE



DIGITAL INPUTS, EXPANSION SLOT 2

NOT TO SCALE

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CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD WASHINGTON

TELEMETRY PANEL - INPUT AND OUTPUT WIRING 1

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BOTHELL, WA

SIGNED: 11/20/15

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ENGINEER: MWB | SAVE DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16-D-ELEC16.DWG

REVISIONS

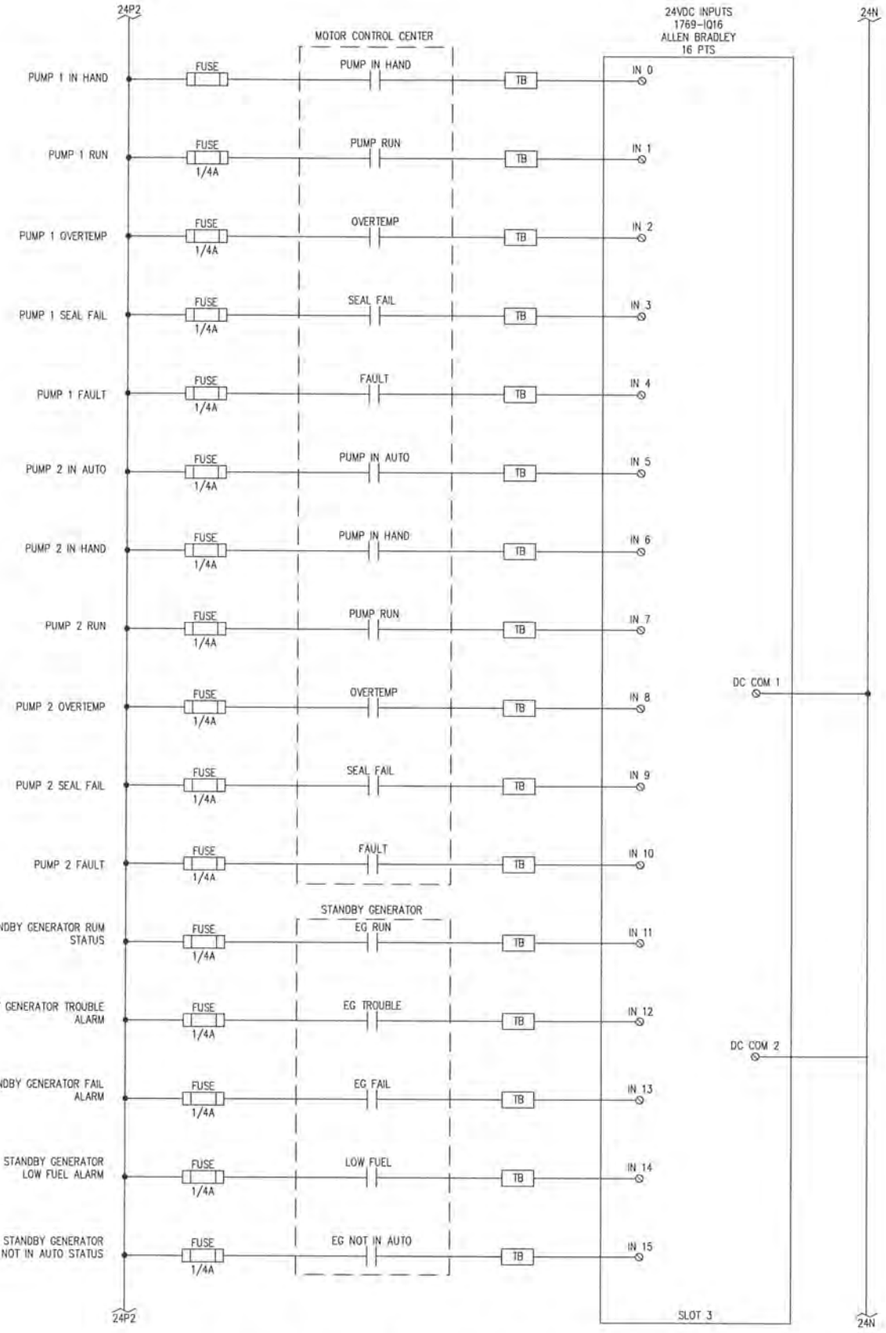
NO.	DATE	DESCRIPTION	BY	REVIEW
2	11/20/15	CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
1	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
0	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

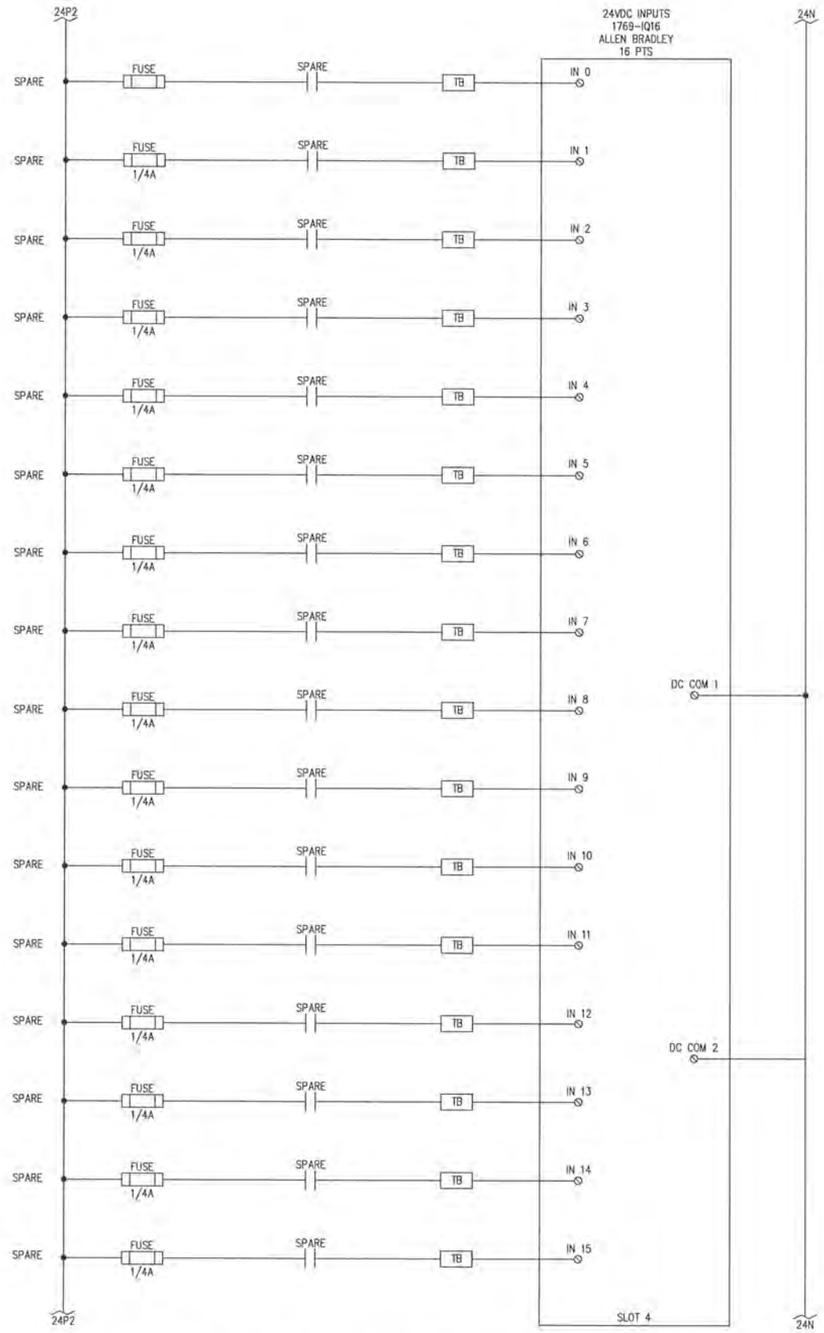
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E16 | SHEET NO.: 35 / 39



DIGITAL INPUTS, EXPANSION SLOT 3

NOT TO SCALE



DIGITAL INPUTS, EXPANSION SLOT 4

NOT TO SCALE

ENERGY SAVINGS PERFORMANCE CONTRACTING
INVESTMENT GRADE AUDIT
CITY OF LYNNWOOD LIFT STATION 16
AND FORCEMAIN IMPROVEMENTS

LYNNWOOD

TELEMETRY PANEL - INPUT AND OUTPUT WIRING 2

CHRISTOPHER M. ROBERTS — STATE OF WASHINGTON — 45317 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

TROY V. PARKER — STATE OF WASHINGTON — 26978 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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BOTHELL, WA
22722 29th Drive SE, Suite 210

ENGINEER: MWB | DATE: Nov 18, 2015 | CLIENT: TRANE | JOB NO.: 114-005
REVIEWED: CMR | PLOT DATE: Nov 18, 2015 | FILENAME: LS16D-ELEC17.DWG

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
	11/20/15	CONSTRUCTION SET	MRJF\ CGR	RJF\ JMC
	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF\ CGR	RJF\ JMC
	08/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF\ CGR	RJF\ JMC

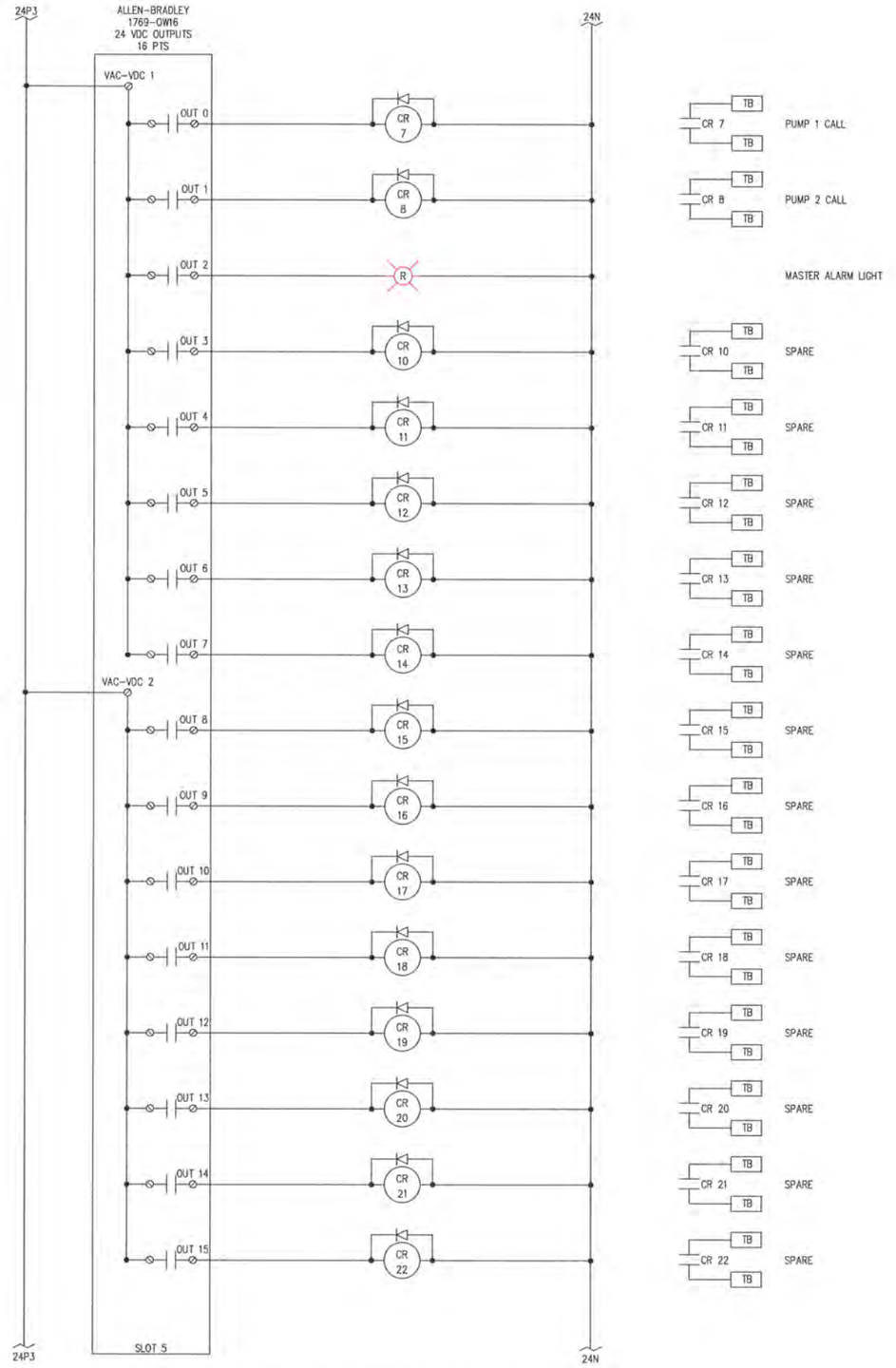
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E17

SHEET NO.: 36 / 39



DIGITAL OUTPUTS, EXPANSION SLOT 5

NOT TO SCALE

CHRISTOPHER M. ROBERTS — STATE OF WASHINGTON — 45317 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

ANTHONY V. PARDO — STATE OF WASHINGTON — 26978 — REGISTERED PROFESSIONAL ENGINEER — SIGNED: 11/20/15

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TELEMETRY PANEL - INPUT AND OUTPUT WIRING 3

ENGINEER: MWB
RENEWED: CMR
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-ELEC18.DWG
JOB NO.: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
		CONSTRUCTION SET	MRJF \ CGR	RJF \ JMC
1	11/20/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRJF \ CGR	RJF \ JMC
2	09/23/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRJF \ CGR	RJF \ JMC

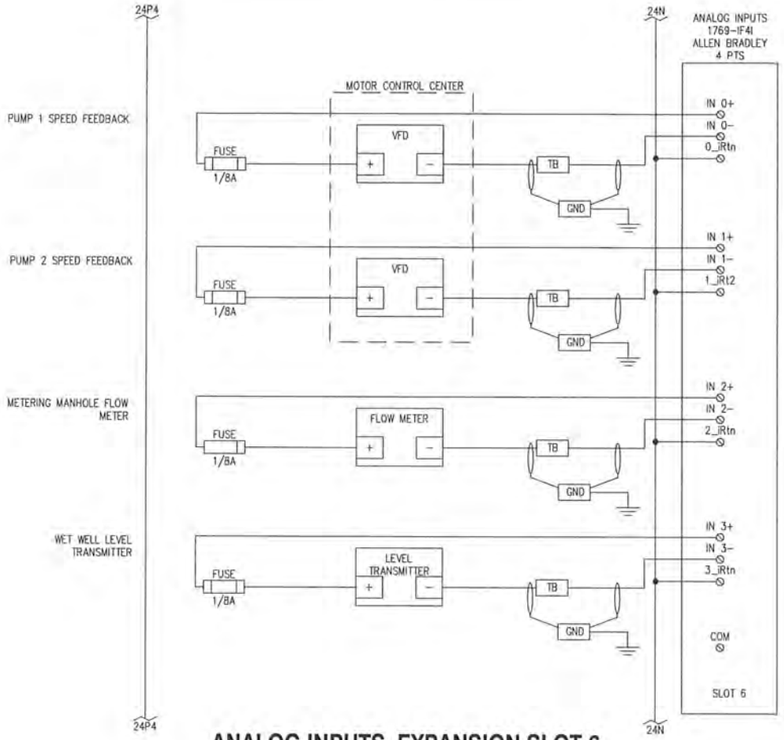
SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

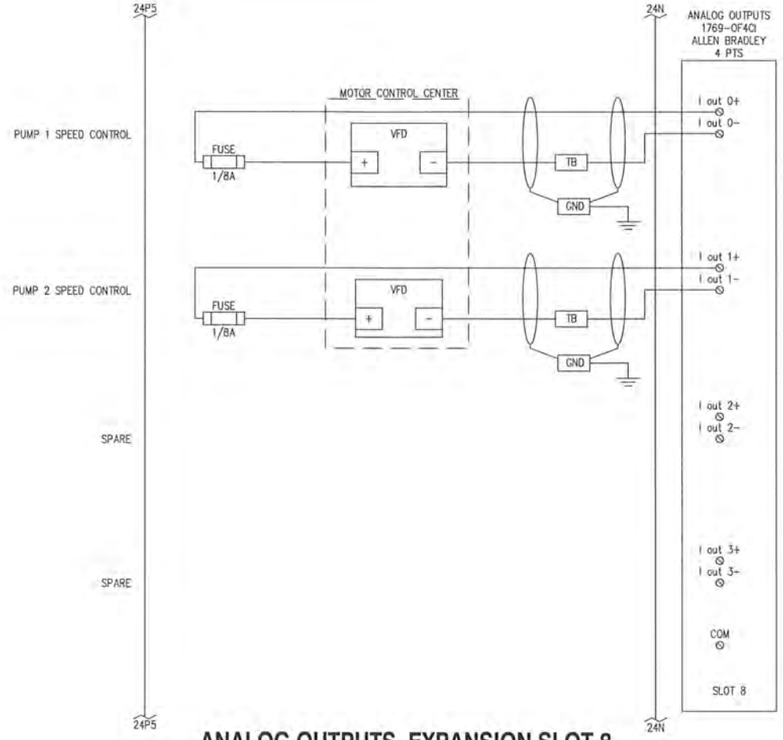
DWG NO.: E18

SHEET NO.: 37 / 39



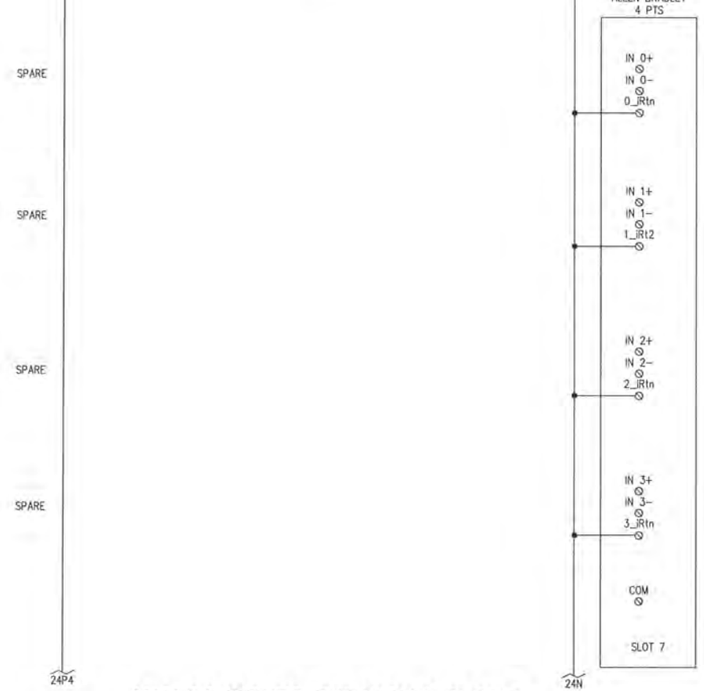
ANALOG INPUTS, EXPANSION SLOT 6

NOT TO SCALE



ANALOG OUTPUTS, EXPANSION SLOT 8

NOT TO SCALE



ANALOG INPUTS, EXPANSION SLOT 7

NOT TO SCALE

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ANTHONY V. PARDO — 26978 — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — SIGNED: 11/20/15

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TELEMETRY PANEL - INPUT AND OUTPUT WIRING 4

ENGINEER: MWB
REVIEWED: CMR
SAVE DATE: Nov 18, 2015
PLOT DATE: Nov 18, 2015
CLIENT: TRANE
FILENAME: LS16-D-ELEC16.DWG
JOB NO: 114-005

REVISIONS

NO.	DATE	DESCRIPTION	BY	REVIEW
1	11/20/15	CONSTRUCTION SET	MRUF \ CGR	RJF \ JMC
2	09/23/15	REVISED PER BUILDING PERMIT REVIEW COMMENTS	MRUF \ CGR	RJF \ JMC
3	09/18/15	POST BUILDING PERMIT SUBMITTAL DESIGN REVISIONS	MRUF \ CGR	RJF \ JMC

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E19

SHEET NO.: 38