

CODE COMPLIANCE DATA:

- GOVERNING CODES:
  - International Building Code, 2018 Edition, with Georgia Amendments (2020)
  - International Residential Code, 2018 Edition, with Georgia Amendments (2020)
  - International Fire Code, 2018 Edition (Contact State Fire Marshal Below)
  - International Plumbing Code, 2018 Edition, with Georgia Amendments (2020)
  - International Mechanical Code, 2018 Edition, with Georgia Amendments (2020)
  - International Fuel Gas Code, 2018 Edition, with Georgia Amendments (2020)
  - National Electrical Code, 2017 Edition (No Georgia Amendments)
  - International Energy Conservation Code, 2015 Edition, with Georgia Supplements and Amendments (2020)
  - International Swimming Pool and Spa Code, 2018 Edition, with Georgia Amendments (2020)
  - NFPA 101, Life Safety Code 2018 Edition with State Amendments (2020)

PROJECT GENERAL NOTES:

- ANY REVISION TO THE PLANS AFTER THE INITIAL SUBMITTAL, OTHER THAN THE RESPONSE TO THE PLAN REVIEW COMMENTS, WILL BE INDICATED ON REVISIONS AND SUBMITTED WITH A WRITTEN EXPLANATION OF THE REVISIONS AND THE REASONS.
- ANY VARIATIONS FROM THE PERMITTED PLANS, CHANGES IN DESIGN RESULTING FROM FIELD CONDITIONS, OR SUBSTITUTION OF CONSTRUCTION MATERIALS ARE TO BE REVIEWED AND APPROVED BY THE RESPONSIBLE DESIGN ENGINEER AND CLAYTON COUNTY LAND DEVELOPMENT.
- PLANS ARE REVIEWED IN GENERAL. SPECIFIC DETAILS AND CALCULATIONS MAY NOT BE CHECKED. THE ENGINEERS STAMP AND SIGNATURE GUARANTEES THE ACCURACY OF THE CALCULATIONS AND DESIGN. PLAN APPROVAL DOES NOT OBLIGATE THE COUNTY TO ACCEPT THE WORK, NOR DOES IT RELIEVE THE DEVELOPER AND/OR ENGINEER FROM COMPLIANCE WITH ANY OTHER COUNTY, STATE OR FEDERAL ORDINANCES AND LAWS. PLAN APPROVAL DOES NOT RELIEVE THE DEVELOPER FROM THE RESPONSIBILITY FOR DAMAGES TO ADJACENT OR DOWNSTREAM PROPERTY RESULTING FROM THIS DEVELOPMENT.
- SITE ADDRESS (MAIN GATE FOR DELIVERIES AND SITE ACCESS) IS 82 NORTHBRIDGE RD. PARCEL ADDRESS IS 275 HAMPTON RD.

NOTICE

THESE CONTRACT DRAWINGS HAVE BEEN REVISED TO REFLECT CHANGES AND REVISIONS INCLUDED IN ALL ADDENDA AND MAY NOT REPRESENT THE CONTRACT DRAWINGS IN CONTENT. THESE REVISED DOCUMENTS ARE SOLELY FOR THE CONVENIENCE OF THE OWNER, ENGINEER AND CONTRACTOR AND ARE NOT WARRANTED TO BE COMPLETE AND ACCURATE IN ALL RESPECTS.

REFERENCE SHALL ALWAYS BE MADE TO THE ORIGINAL BID DOCUMENTS AND ADDENDA FOR RESOLUTION OF CONFLICTS AND CLARIFICATIONS.

INDEX OF DRAWINGS

| DRAWING NUMBER   | DESCRIPTION                                       |
|------------------|---|
| GENERAL          |   |
| G000             | COVER SHEET                                       |
| G001             | ABBREVIATIONS, LEGEND, & SYMBOLS                  |
| MECHANICAL       |   |
| M001             | DEMOLITION PLAN                                   |
| M002             | DEMOLITION SECTIONS                               |
| M003             | PLAN  |
| M004             | SECTIONS  |
| STRUCTURAL       |   |
| S001             | NOTES, PLAN, SECTION, AND DETAILS                 |
| ELECTRICAL       |   |
| E001             | LEGEND AND SYMBOLS                                |
| E002             | ABBREVIATIONS AND NOTES                           |
| E003             | SINGLE LINE DIAGRAM (DEMOLITION)                  |
| E004             | SINGLE LINE DIAGRAM (MODIFIED)                    |
| E005             | MCC-1 AND MCC-2 ELEVATIONS                        |
| E006             | DEMOLITION PLAN                                   |
| E007             | MODIFIED PLAN                                     |
| E008             | BLOCK DIAGRAMS                                    |
| E009             | SCHEMATIC DIAGRAMS (1 OF 3)                       |
| E010             | SCHEMATIC DIAGRAMS (2 OF 3)                       |
| E011             | SCHEMATIC DIAGRAMS (3 OF 3)                       |
| E012             | PANEL SCHEDULES                                   |
| INSTRUMENTATION  |   |
| I001             | LEGEND AND GENERAL NOTES                          |
| I002             | SYSTEM ARCHITECTURE MODIFICATIONS                 |
| I003             | HIGH SERVICE PUMPS                                |
| HVAC             |   |
| H001             | DEMOLITION, PLAN, GENERAL NOTES AND ABBREVIATIONS |
| H002             | PLAN AND SECTION                                  |
| STANDARD DETAILS |   |
| SD001            | SHEET 1   |
| SD002            | SHEET 2   |

# CLAYTON COUNTY WATER AUTHORITY MORROW, GA



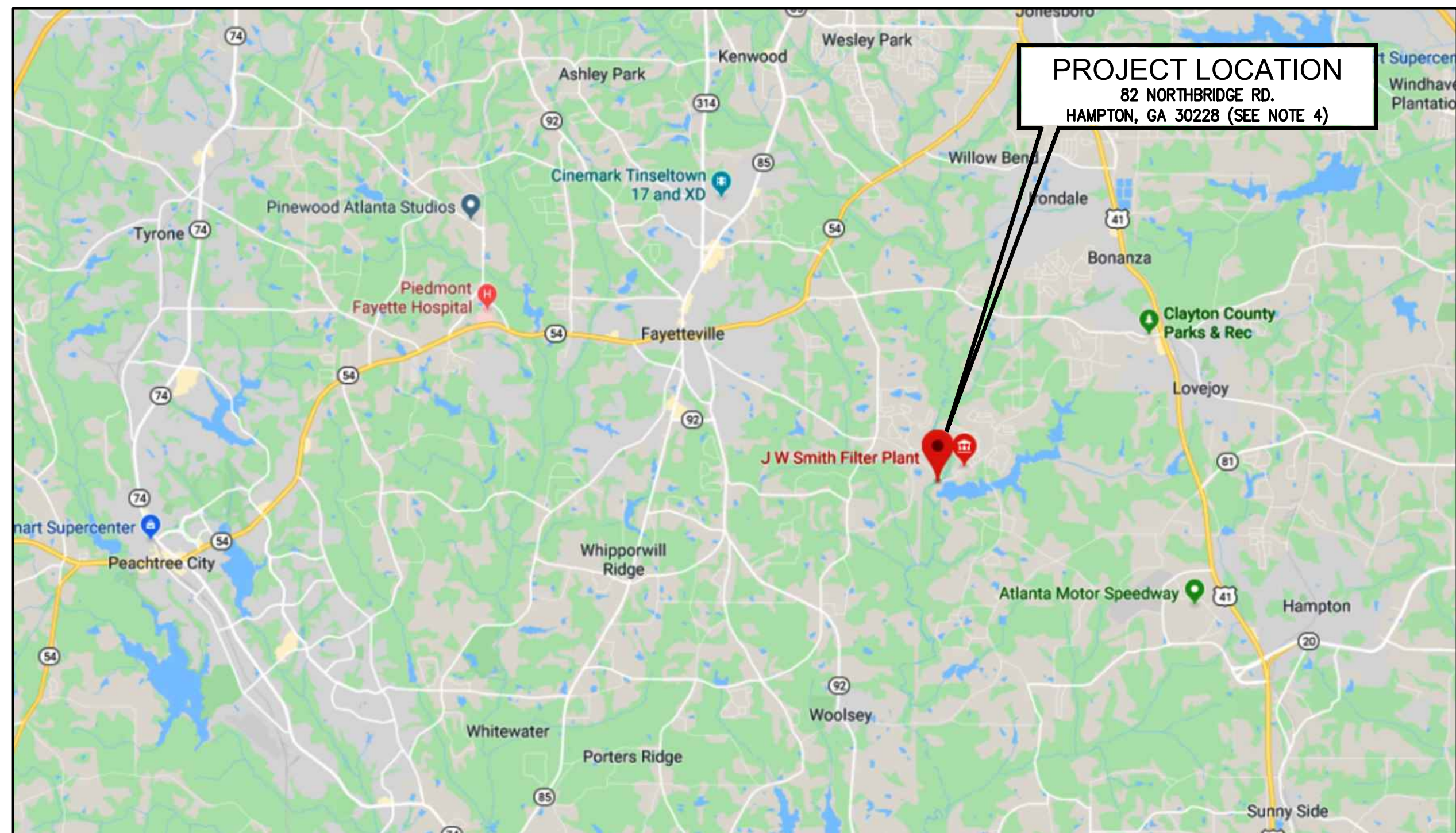
## J.W. SMITH WATER PRODUCTION PLANT HIGH SERVICE PUMP STATION UPGRADES

BID NUMBER: 2020-PME-17

HAZEN NO.: 32457-010

VOLUME 3 OF 3

SEPTEMBER 2020



LOCATION MAP

NOT TO SCALE



HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342  
404-459-6363

THIS DOCUMENT ORIGINALLY  
ISSUED FOR CONSTRUCTION  
AND SEALED BY EDWARD A.  
MCCALLUM, SEAL NUMBER  
034186. THIS MEDIA SHALL  
NOT BE CONSIDERED A  
CERTIFIED DOCUMENT.

GENERAL

EDWARD A. McCALLUM  
REGISTRATION No. 034186

MECHANICAL

EDWARD A. McCALLUM  
REGISTRATION No. 034186

STRUCTURAL

FREDERICK P. POWELL  
REGISTRATION No. 029283

ELECTRICAL

NUBEA LIMA  
REGISTRATION No. 024756

INSTRUMENTATION

NUBEA LIMA  
REGISTRATION No. 024756

HVAC

NORMAN BARTLEY  
REGISTRATION No.040348

PROJECT ENGINEER OF RECORD: EDWARD A. McCALLUM  
REGISTRATION No. 034186

CONFORMED SET - ISSUED FOR CONSTRUCTION

GBPE LIC #. PEF003685 EXP. 6/30/2022

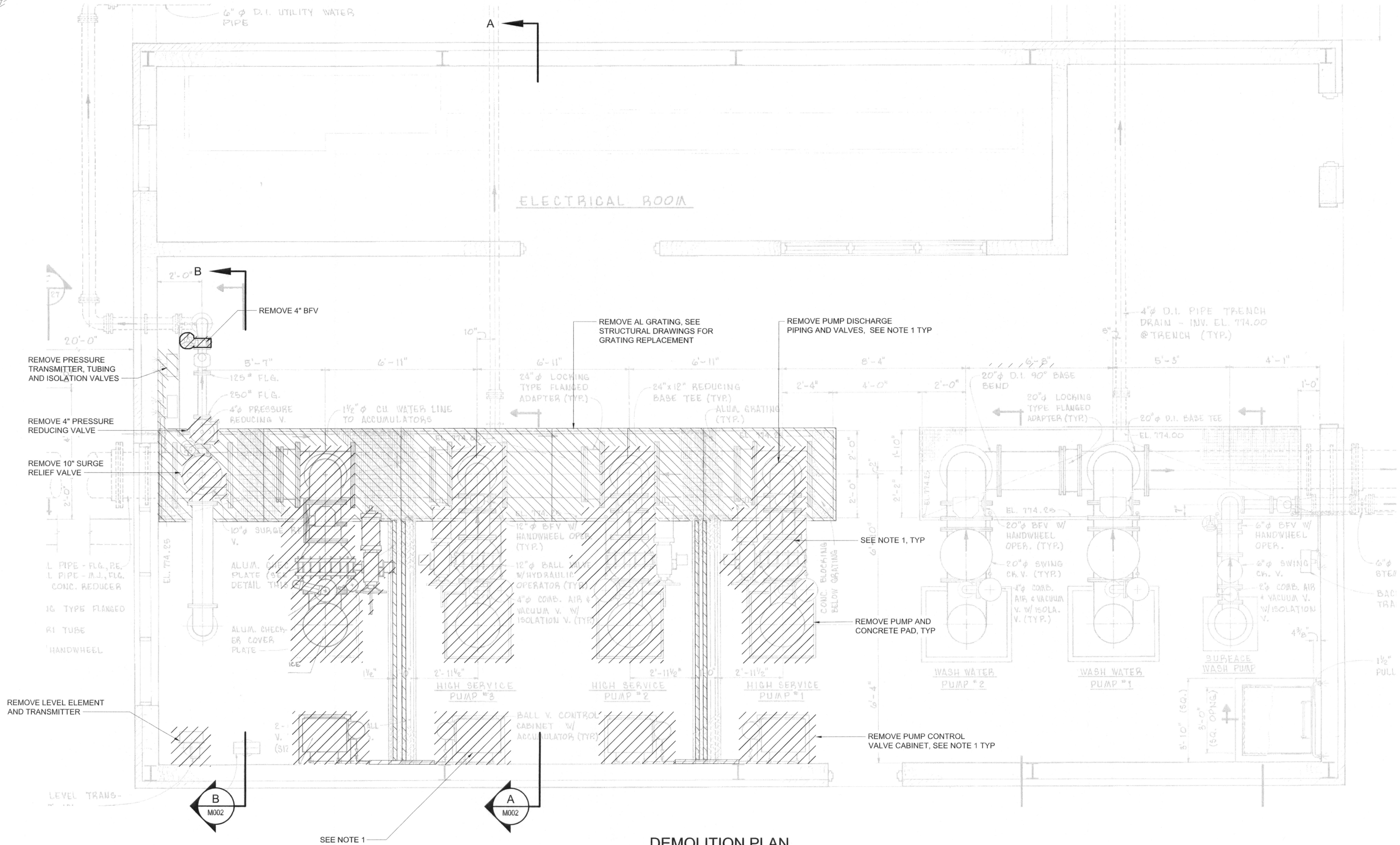


| ABBREVIATIONS |  |  |  |  |  |  |  |  |  | PROCESS PIPE DESIGNATIONS |  | LEGEND  |  |
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|               |  |  |  |  |  |  |  |  |  | PD<br>PW<br>UW            |  | PROCESS DRAIN<br>POTABLE WATER<br>UTILITY WATER |  |
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NOTES:

1. REMOVE EXISTING PIPING TO AND FROM EXISTING PUMP CONTROL VALVES (BALL VALVES) AND ASSOCIATED PUMP CONTROL VALVE CABINETS. EXISTING PIPING SHALL REMAIN IN PLACE UNTIL OWNER HAS AUTHORIZED CONTRACTOR TO REMOVE THE ASSOCIATED PUMP. SEE SECTION 01 14 00 COORDINATION WITH OWNER'S OPERATIONS.
2. THE EXISTING OPENINGS ABOVE CLEARWELL SHALL BE TEMPORARILY COVERED AND SEALED TO PROTECT THE WATER IN THE CLEARWELL FROM ANY CONTAMINATION AND DEBRIS THROUGHOUT THE DEMOLITION AND CONSTRUCTION PROCESS.
3. SEE DEMOLITION NOTES ON DRAWING S001.



|                               |            |         |     |
|-------------------------------|------------|---------|-----|
| PROJECT ENGINEER: E. MCCALLUM |            |         |     |
| DESIGNED BY: E. MCCALLUM      |            |         |     |
| DRAWN BY: R. SLADE            |            |         |     |
| CHECKED BY: A. BOWLING        |            |         |     |
| 1                             | BID        | 08/2020 | EAM |
| REV                           | ISSUED FOR | DATE    | BY  |

BID SET

GEORGIA REGISTERED PROFESSIONAL ENGINEER  
EDWARD A. MCCALLUM  
8/20/2020

GBPE LIC #. PEF003685 EXP. 6/30/2022

**Hazen**

HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA

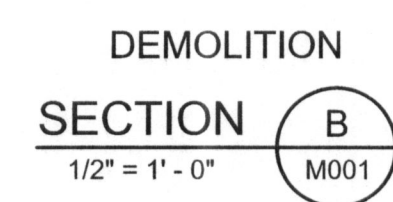
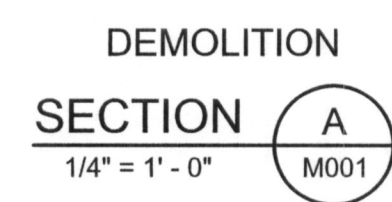
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES


HIGH SERVICE PUMP STATION  
MECHANICAL  
DEMOLITION PLAN

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | M001        |



1. PUMP 4 HAS 16" DISCHARGE PIPING AND VALVES. PUMPS 1, 2 AND 3 HAVE 12" DISCHARGE PIPING AND VALVES.



|     |            |         |     |   |                   |  |
|-----|------------|---------|-----|---|-------------------|--|
|     |            |         |     |   | PROJECT ENGINEER: | E. MCCALLUM  |
|     |            |         |     |   | DESIGNED BY:      | E. MCCALLUM  |
|     |            |         |     |   | DRAWN BY:         | R. SLADE   |
|     |            |         |     |   | CHECKED BY:       | A. BOWLING   |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |                   | <div style="display: flex; align-items: center;"> <div style="flex: 1; text-align: center;"> 0      1/2"      1" </div>  </div> |
| REV | ISSUED FOR | DATE    | BY  |   |                   |  |

**Hazen**

HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

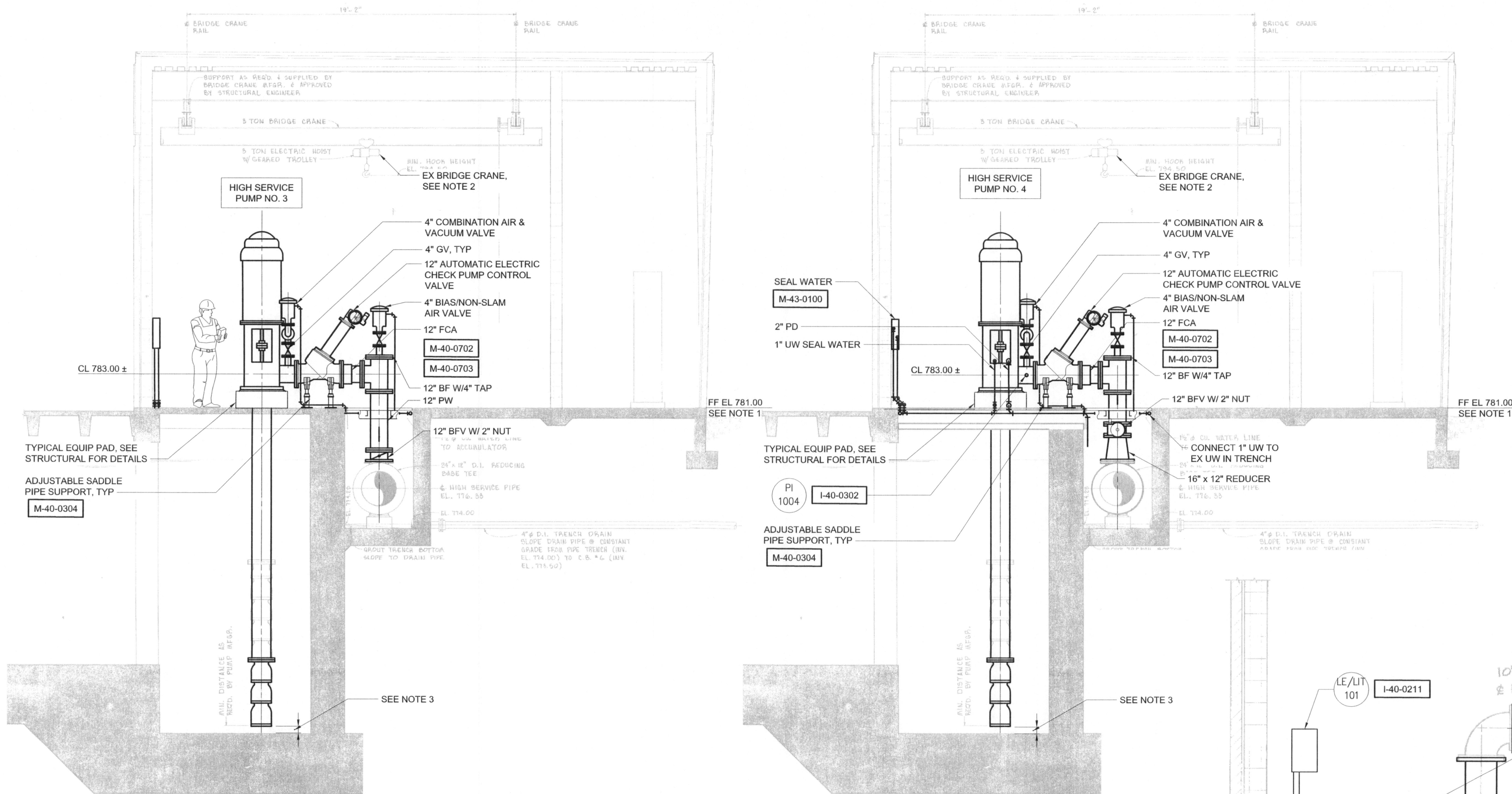
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| DATE:              | AUGUST 2020 |
| HAZEN NO.:         | 32457-010   |
| CONTRACT NO.:      | 01          |
| DRAWING<br>NUMBER: |             |

M002



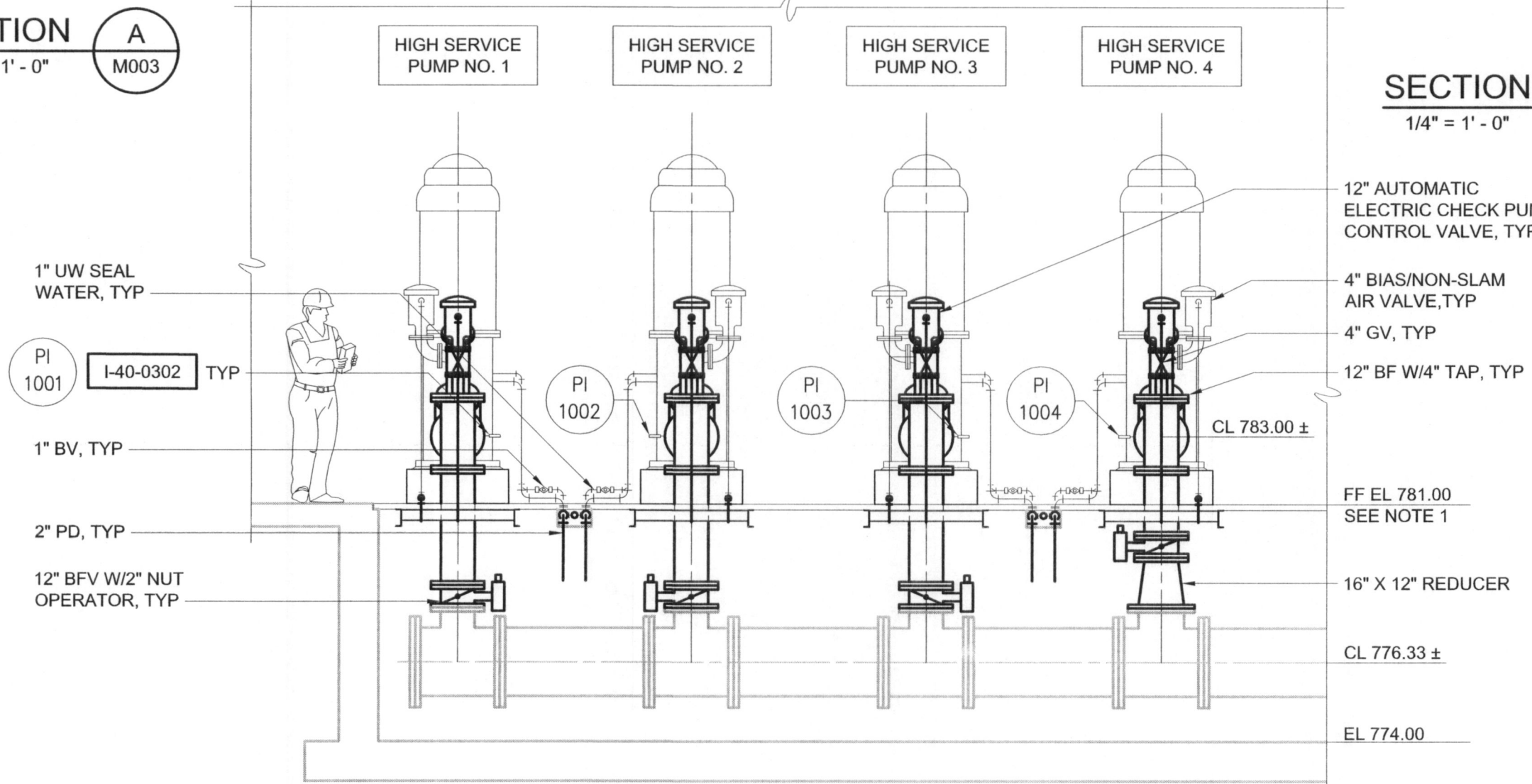




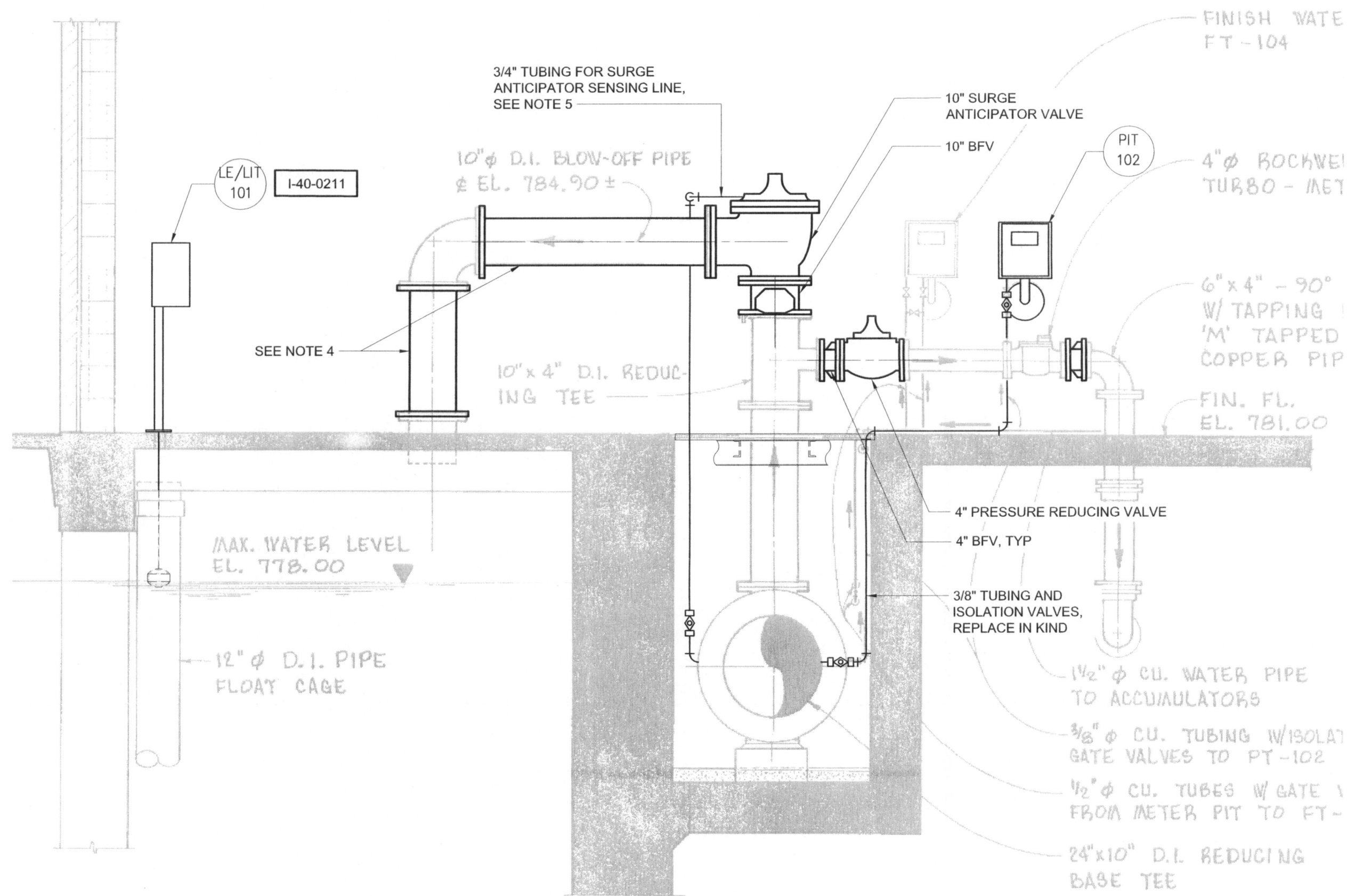


**SECTION A**  
1/4" = 1' - 0"

**SECTION C**  
1/4" = 1' - 0"



**SECTION D**  
1/4" = 1' - 0"



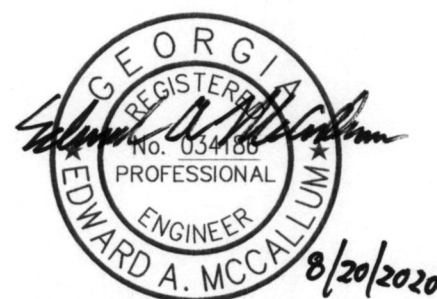
**SECTION B**  
1/2" = 1' - 0"

# NOTES:

- FF ELEV PER RECORD DWGS, SHOAL CREEK WATER TREATMENT PLANT, JUNE 1, 1983 BY ROBERT AND COMPANY ASSOCIATES. FF ELEV HAS NOT BEEN SURVEYED FOR THIS PROJECT.
- CONTRACTOR MAY USE EX BRIDGE CRANE TO INSTALL PUMPS, VALVES, AND PIPING. CONTRACTOR SHALL FIELD-VERIFY ALL CLEARANCE REQUIREMENTS, INCLUDING HIGH HOOK ELEV, BEFORE SUBMITTAL OF SHOP DRAWINGS. CONTRACTOR SHALL NOT EXCEED 3-TON CAPACITY OF EX HOIST. PUMPS WILL NEED TO BE ASSEMBLED IN PLACE DUE TO LIMITED CLEARANCE INSIDE EX BLDG.
- 0.3-0.5D, WHERE D = PUMP INLET BELL DIAMETER, OR ALTERNATE DIMENSION IF RECOMMENDED BY PUMP MANUFACTURER AND APPROVED BY ENGINEER.
- REPLACE EXISTING PIPING IF REQUIRED FOR INSTALLATION OF SURGE ANTICIPATOR VALVE.
- PROVIDE SENSING LINE FROM VALVE AND CONNECT TO EXISTING 24" PW AS RECOMMENDED BY SURGE ANTICIPATOR VALVE MANUFACTURER. LINE SHALL BE ROUTED TO AVOID ANY HIGH POINTS THAT COULD TRAP AIR POCKETS.

|   |             |
|---|-------------|
| PROJECT ENGINEER:   | E. MCCALLUM |
| DESIGNED BY:  | E. MCCALLUM |
| DRAWN BY:   | R. SLADE    |
| CHECKED BY:   | A. BOWLING  |
| IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE | 0 1/2" 1"   |
| 1   | BID         |
| REV   | ISSUED FOR  |
| 08/2020   | EAM         |
| DATE  | BY          |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

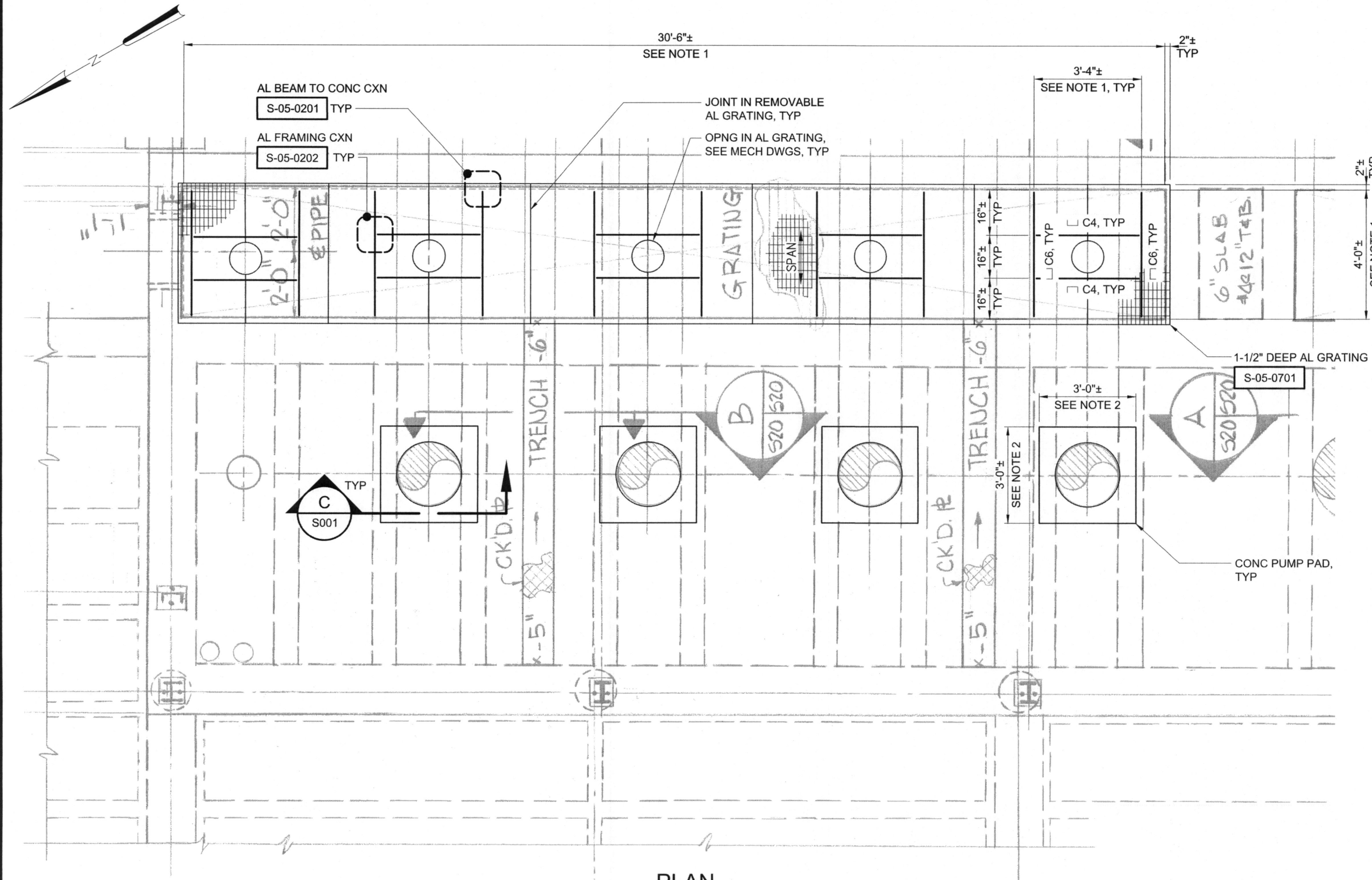
**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA  
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

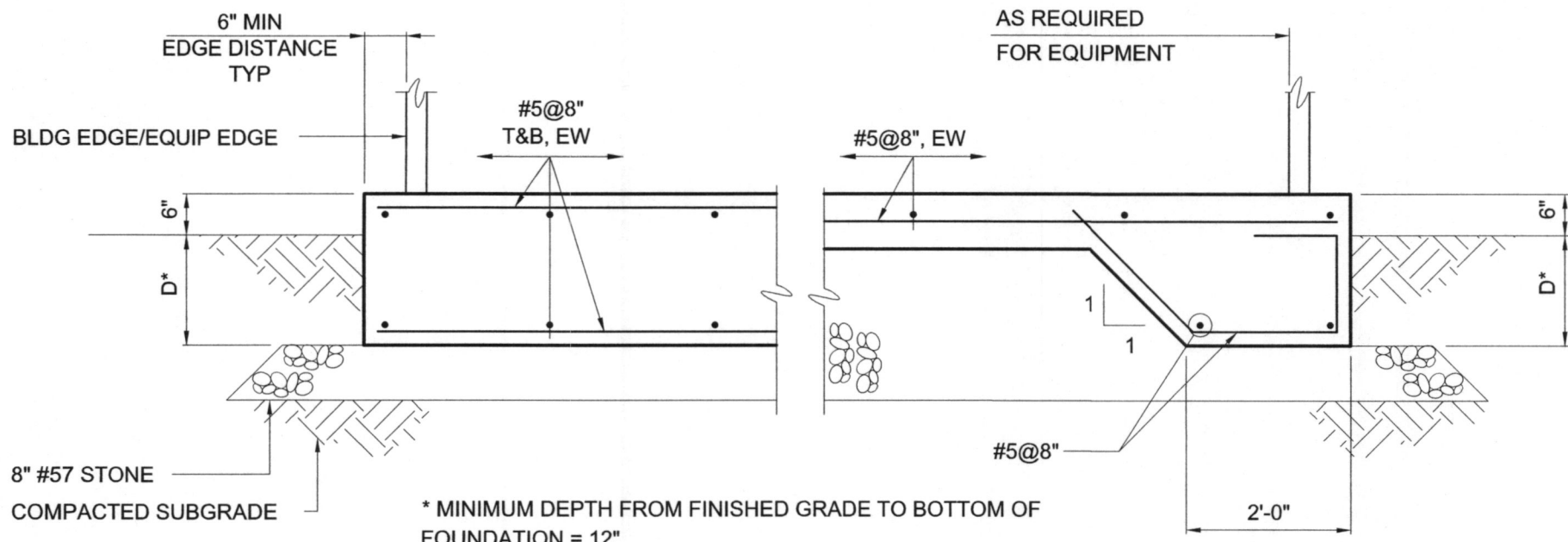
HIGH SERVICE PUMP STATION  
MECHANICAL  
SECTIONS

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | M004        |





PLAN  
3/8" = 1'-0"



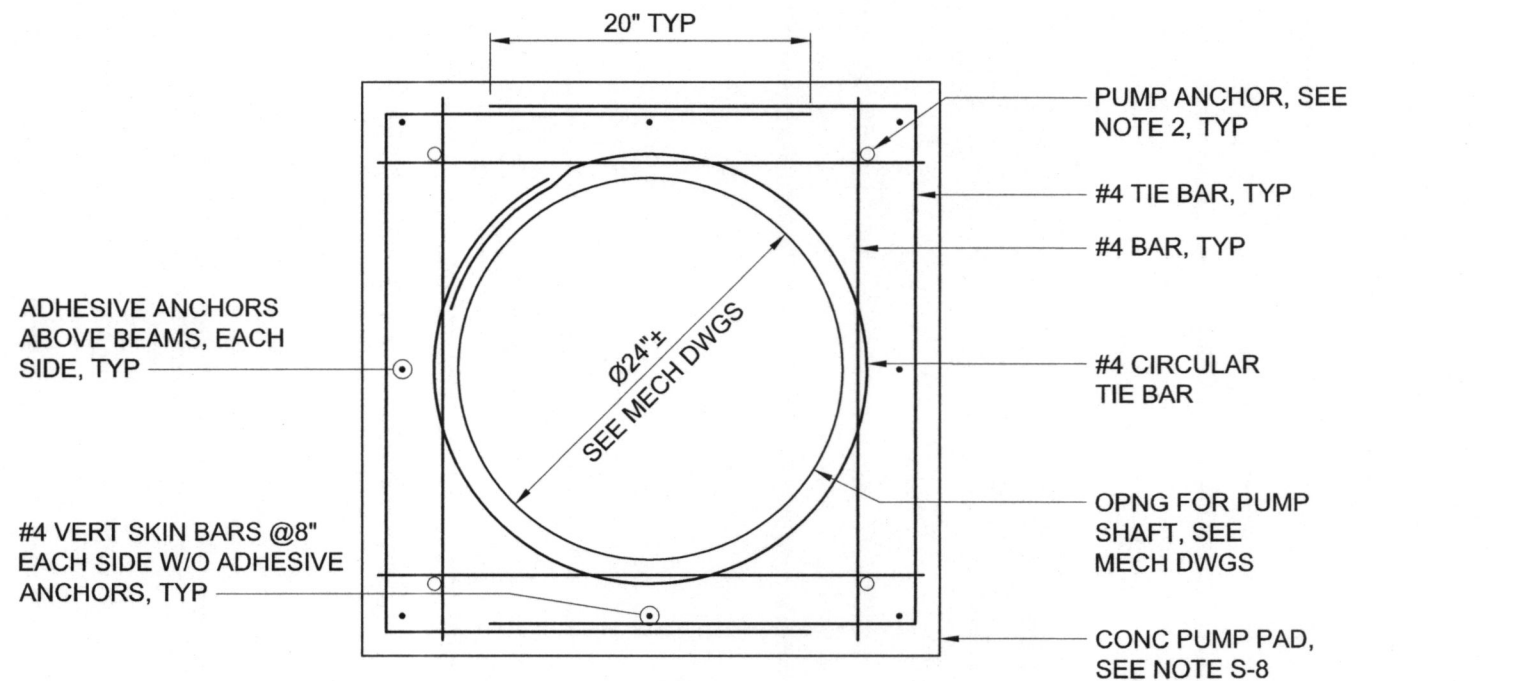
NOTES:  
1. UNLESS NOTED OTHERWISE, CONTRACTOR SHALL HAVE THE OPTION OF PLACING EQUIPMENT FOUNDATION WITH A CONSTANT THICKNESS OF D + 6" OR AS AN 8" SLAB WITH THICKENED EDGE AROUND THE FOUNDATION PERIMETER.

EXTERIOR EQUIPMENT FOUNDATION

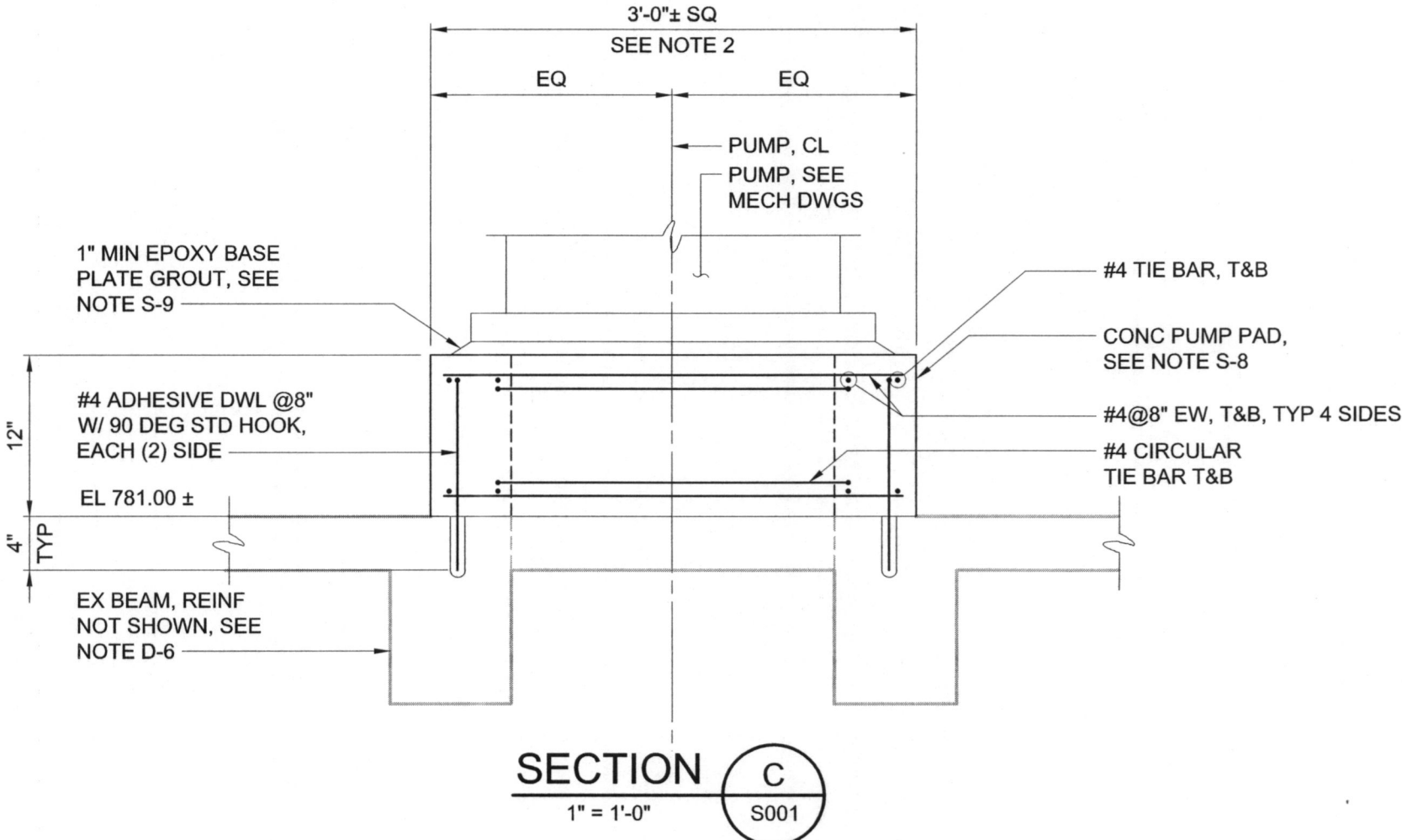
|        |      |
|--------|------|
| DETAIL | 1    |
| NTS    | H001 |

## DEMOLITION NOTES:

- D-1 FOR DEMOLITION REQUIREMENTS, REFER TO SPECIFICATION 02 41 00 - DEMOLITION.
- D-2 CONCRETE DEMOLITION WITHIN STRUCTURES BEING MODIFIED SHALL BE SELECTIVE DEMOLITION BY CORE DRILLING OR SAWCUTTING AND CAREFUL REMOVAL OF CONCRETE SHOWN TO BE REMOVED. NO OVER CUTTING OF AREAS TO BE DEMOLISHED SHALL BE PERMITTED. CONTRACTOR SHALL CORE DRILL CORNERS OF OPENING PRIOR TO SAWCUTTING. EXPLOSIVES AND VIBRATORY HAMMERS SHALL NOT BE USED FOR DEMOLITION WORK.
- D-3 UNLESS ANCHORING DEVICES AND/OR REINFORCEMENT IS NOTED TO REMAIN FOLLOWING DEMOLITION, REMOVE AND/OR BURN BACK ANCHORS AND REINFORCEMENT STEEL 1/2" MIN BELOW SURFACE AND VOIDS CREATED SHALL BE FILLED WITH EPOXY RESIN BINDER, SUCH AS "SIKADUR 52" BY SIKI CORPORATION, "DURALCRETE LV" BY EUCLID CHEMICAL COMPANY, OR EQUAL.
- D-4 EMBEDDED CONDUIT ENCOUNTERED DURING DEMOLITION WORK LIMITS SHALL BE PERMANENTLY REROUTED AS NECESSARY. CONTRACTOR SHALL SUBMIT PROPOSED MEANS OF REROUTING ANY INTERFERING CONDUIT.
- D-5 WHERE DRAWINGS INDICATE A CONCRETE EQUIPMENT PAD TO BE DEMOLISHED, THE FLOOR SLAB SURFACE SHALL BE REPAIRED AS APPROVED BY ENGINEER. FOLLOWING SELECT DEMOLITION AND REMOVAL OF THE EQUIPMENT PAD REMOVAL THE REPAIR SHALL BE:  
A. SAWCUT THE FLOOR AROUND THE EQUIPMENT PAD PERIMETER TO A DEPTH OF 1/4".  
B. SCARIFY AND REMOVE SLAB CONCRETE WITHIN THE PERIMETER TO A NOMINAL 1/4" DEPTH CLEAN AND REMOVE ALL CONCRETE LAITANCE.  
C. RESURFACE THE AREA BY APPLYING A POLYMER MODIFIED OR SILICA FUME ENHANCED CEMENTITIOUS REPAIR MORTAR, APPROVED BY THE ENGINEER, FOLLOWING THE MANUFACTURER'S SURFACE PREPARATION AND APPLICATION RECOMMENDATIONS. LEVEL AND FINISH THE SURFACE TO MATCH THE FLOOR SLAB SURROUNDING AREA.
- D-6 PRIOR TO DEMOLITION OF SMALL OPENINGS (LESS THAN 6 INCHES IN SIZE), AND PRIOR TO DRILLING OF HOLES FOR ADHESIVE ANCHORS AND DOWELS, CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT. OPENINGS AND HOLES SHALL BE LOCATED TO AVOID CUTTING THROUGH EXISTING REINFORCEMENT, IF POSSIBLE. EXISTING REINFORCEMENT SHALL NOT BE CUT WITHOUT APPROVAL OF ENGINEER.
- D-7 CONCRETE SURFACES LEFT EXPOSED FOLLOWING DEMOLITION SHALL BE SEALED WITH EPOXY RESIN COATING SUCH AS "SIKAGARD" BY SIKI CORPORATION, "DURACOTE 240" BY TAMMS INDUSTRIES, OR APPROVED EQUAL.
- D-8 DETAILED CONSTRUCTION AND DEMOLITION PLAN SHALL BE SUBMITTED TO THE ENGINEER AND APPROVED BY THE ENGINEER AND OWNER PRIOR TO BEGINNING CONSTRUCTION. ANY SHUTDOWNS SHALL BE SUBMITTED TO, COORDINATED WITH, AND APPROVED BY THE OWNER. ONCE APPROVED, CONTRACTOR SHALL PROVIDE A MINIMUM OF THREE (3) WEEKS NOTICE TO OWNER PRIOR TO SHUTDOWN.



PLAN



SECTION C

1" = 1'-0"

## SHEET NOTES:

1. DIMENSIONS OF EXISTING OPENING SHALL BE FIELD VERIFIED. CONTRACTOR SHALL COORDINATE GRATING DIMENSIONS, PIPE OPENING LOCATIONS AND ALUMINUM FRAMING MEMBER LENGTHS AND LOCATIONS WITH EXISTING CONDITIONS.
2. PUMP ANCHORAGE REQUIREMENTS, INCLUDING ANCHOR SIZE, QUANTITY, MINIMUM CONCRETE EDGE DISTANCE, EMBEDMENT, AND CONCRETE PUMP PAD DIMENSIONS, SHALL BE COORDINATED WITH PUMP MANUFACTURER. STEEL REINFORCEMENT SHALL BE PLACED TO AVOID CONFLICT WITH PUMP ANCHORS.
3. C6 INDICATES C6x2.83 AL.  
C4 INDICATES C4x1.85 AL.

## STRUCTURAL NOTES:

- S-1 DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE GEORGIA STATE MINIMUM STANDARD BUILDING CODE WHICH IS THE 2018 INTERNATIONAL BUILDING CODE WITH 2020 GEORGIA AMENDMENTS.
- S-2 WIND DESIGN CRITERIA:  
BASIC WIND SPEED = 118 MPH  
RISK CATEGORY = IV  
WIND EXPOSURE = C
- S-3 SEISMIC DESIGN CRITERIA:  
RISK CATEGORY = IV  
SEISMIC IMPORTANCE FACTOR (I<sub>e</sub>) = 1.50  
SITE CLASS = D  
MAPPED SPECTRAL RESPONSE ACCELERATIONS (S<sub>s</sub>/S<sub>1</sub>) = 0.218/0.090  
SPECTRAL RESPONSE ACCELERATIONS (S<sub>MS</sub>/S<sub>M1</sub>) = 0.350/0.216  
SPECTRAL RESPONSE COEFFICIENTS (S<sub>DS</sub>/S<sub>D1</sub>) = 0.233/0.144  
SEISMIC DESIGN CATEGORY = D
- S-4 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK.
- S-5 IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED.
- S-6 EQUIPMENT ANCHOR BOLT SIZES, TYPES, EMBEDMENT AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.
- S-7 ELECTRICAL EQUIPMENT PAD AND EXTERIOR EQUIPMENT FOUNDATION CONCRETE MIX SHALL BE 5,000 PSI SITE-MIXED CONCRETE, CONSISTING OF A PREBLENDED MIXTURE OF SAND, COARSE AGGREGATE, AND CEMENTITIOUS MATERIALS. PRODUCT SHALL BE QUIKRETE CONCRETE MIX 5000, SAKRETE 5000 PLUS CONCRETE MIX, OR APPROVED EQUAL. SURFACE PREPARATION, MIXING, APPLICATION AND CURING SHALL BE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. FINISH SHALL BE A SMOOTH RUBBED FINISH.
- S-8 PUMP PAD CONCRETE MIX SHALL BE "SIKATOP 111+" BY SIKI CORPORATION, "MASTERFLOW 928" BY MASTER BUILDERS, OR APPROVED EQUAL CERTIFIED SAFE FOR POTABLE WATER PER NSF/ANSI 61. PRODUCT SHALL BE EXTENDED WITH #89 COARSE AGGREGATE PER MANUFACTURER RECOMMENDATIONS. AGGREGATE SHOULD BE WASHED, GRADED, SATURATED SURFACE-DRY (SSD), HIGH-DENSITY, FREE FROM DELETERIOUS MATERIALS, AND SHALL COMPLY WITH THE REQUIREMENTS OF ASTM C33. SURFACE PREPARATION, MIXING, APPLICATION, AND CURING SHALL BE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. FINISH SHALL BE SMOOTH RUBBED.
- S-9 EPOXY BASE PLATE GROUT SHALL BE "SIKADUR 42, GROUT-PAK" BY SIKI CORPORATION, OR "MASTERFLOW 648" BY MASTER BUILDERS.
- S-10 NON-SHRINK GROUT SHALL CONFORM TO CRD-C 621 AND ASTM C-1107, GRADE B OR C AND HAVE A MINIMUM 28-DAY STRENGTH OF 7,000 PSI. NON-SHRINK GROUT SHALL BE, "EUCCO N-S" BY EUCLID CHEMICAL COMPANY, "MASTERFLOW 928" BY MASTER BUILDERS, OR "SIKAGROUT 212" BY SIKI CORPORATION.
- S-11 REINFORCING BARS ANCHORED INTO HARDENED CONCRETE WITH A DOWEL ADHESIVE SYSTEM SHALL USE A TWO-COMPONENT ADHESIVE MIX WHICH SHALL BE INJECTED WITH A STATIC MIXING NOZZLE FOLLOWING MANUFACTURER'S INSTRUCTIONS. THE EMBEDMENT DEPTH OF THE BAR SHALL BE A MINIMUM OF TWELVE (12) BAR DIAMETERS, UNLESS INDICATED OTHERWISE ON DRAWINGS. THE ADHESIVE SYSTEM SHALL BE "HIT HY-200 ADHESIVE ANCHORING SYSTEM" BY HILTI, INC., "SET-XP EPOXY ADHESIVE ANCHORS" BY SIMPSON STRONG-TIE CO., OR "PURE 110+ EPOXY ADHESIVE ANCHOR SYSTEM" BY DEWALT.
- S-12 STRUCTURAL ALUMINUM SHALL BE ALLOY 6061-T6 AND PER ASTM SPECIFICATION B308. ALL ALUMINUM SHALL BE PROVIDED WITH MILL FINISH UNLESS OTHERWISE NOTED. ALL BOLTED CONNECTIONS SHALL BE FASTENED WITH TYPE 304 STAINLESS STEEL BOLTS AND NUTS PER ASTM F593. FABRICATION SHALL BE IN ACCORDANCE WITH THE ALUMINUM ASSOCIATION "SPECIFICATIONS FOR ALUMINUM STRUCTURES." FABRICATION SHALL BEGIN AFTER SHOP DRAWING APPROVAL.
- S-13 CONCRETE ADHESIVE ANCHORS SHALL BE "HIT HY-200" BY HILTI, INC., "SET-XP" BY SIMPSON STRONG TIE CO., OR "PURE 110+" BY DEWALT. ANCHORS SHALL BE TYPE 304 STAINLESS STEEL UNLESS NOTED OTHERWISE.
- S-14 FIELD QUALITY CONTROL TESTS WILL BE PERFORMED BY A MATERIALS TESTING CONSULTANT EMPLOYED BY THE ENGINEER OR OWNER. CONTRACTOR SHALL BE CHARGED FOR THE COST OF ANY ADDITIONAL TESTS AND INVESTIGATION ON WORK PERFORMED WHICH DOES NOT MEET THE SPECIFICATIONS. THE TESTING AGENCY WILL REPORT AIR CONTENT, UNIT WEIGHT, SLUMP, AND TEMPERATURE OF CONCRETE DURING PLACEMENT. THE TESTING AGENCY WILL PREPARE A MINIMUM OF 8 4X8 TEST CYLINDERS FOR EACH DAY OF PLACEMENT IN ACCORDANCE WITH ASTM C31. 3 CYLINDERS ARE TO BE BROKEN AT 7 DAYS, 3 AT 28 DAYS, AND 2 HELD IN RESERVE. CONCRETE THAT DOES NOT MEET THE SPECIFIED REQUIREMENTS SHALL BE SUBJECT TO REMEDIATION OR REMOVAL AS DIRECTED BY THE ENGINEER.
- S-15 SHOP DRAWINGS FOR CONCRETE MIXES, GROUTS, ADHESIVE ANCHORS, ALUMINUM GRATING, ALUMINUM FRAMING FABRICATIONS AND ALL OTHER STRUCTURAL ITEMS INDICATED IN THE DRAWING SET SHALL BE PREPARED AND SUBMITTED IN ACCORDANCE WITH SECTION 01 33 00 - SUBMITTALS.

|     |            |         |     |
|-----|------------|---------|-----|
| 1   | BID        | 08/2020 | EAM |
| REV | ISSUED FOR | DATE    | BY  |

|   |             |
|---|-------------|
| PROJECT ENGINEER:   | E. MCCALLUM |
| DESIGNED BY:  | G. JOHNSON  |
| DRAWN BY:   | G. JOHNSON  |
| CHECKED BY:   | A. THURSTON |
| IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE | 0 1/2" 1"   |

BID SET



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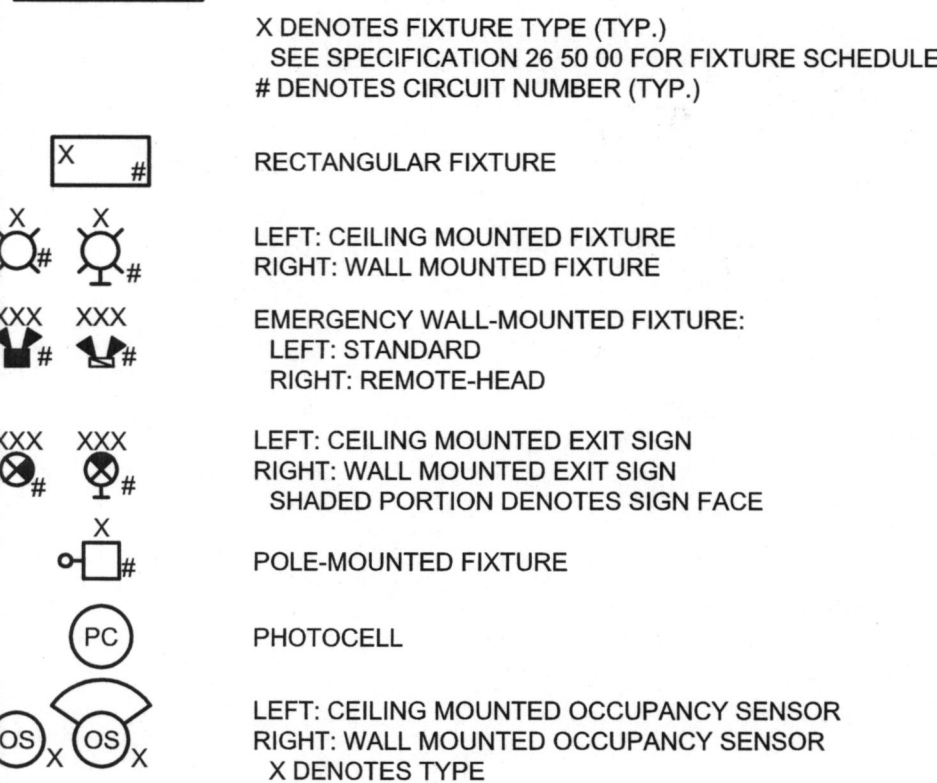
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

STRUCTURAL  
HIGH SERVICE PUMP STATION  
NOTES, PLAN, SECTION, AND  
DETAILS

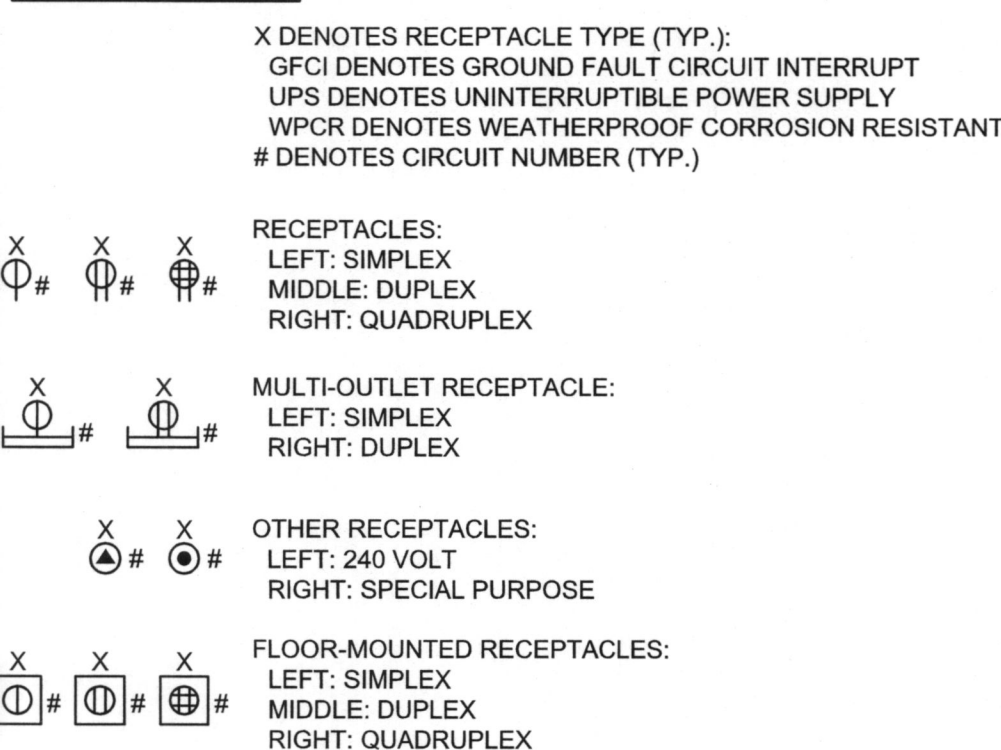
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| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | S001        |



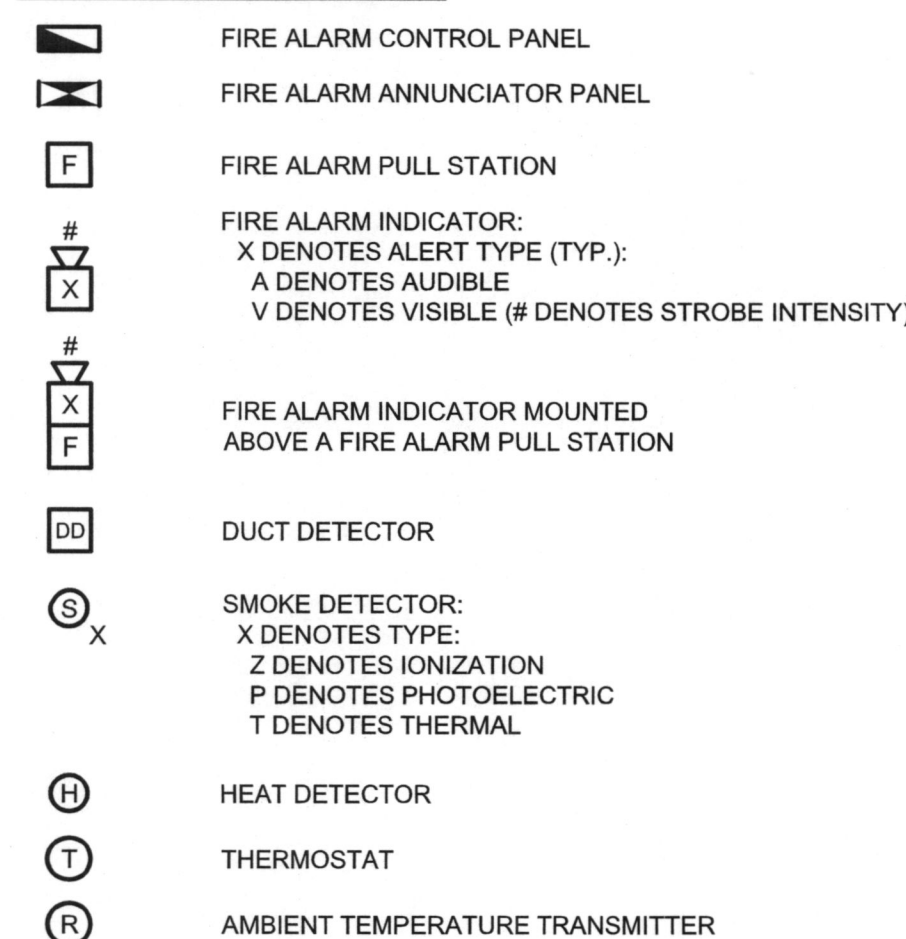
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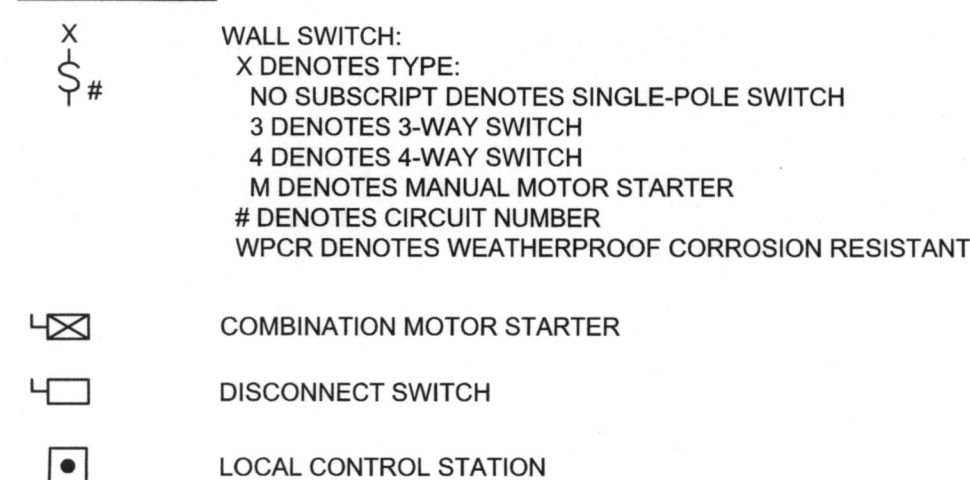
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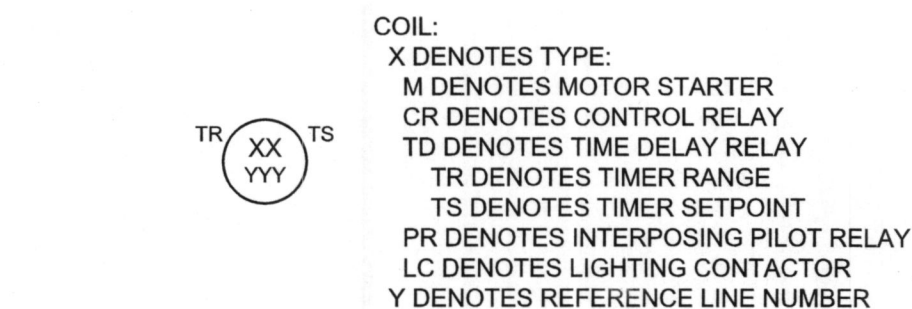
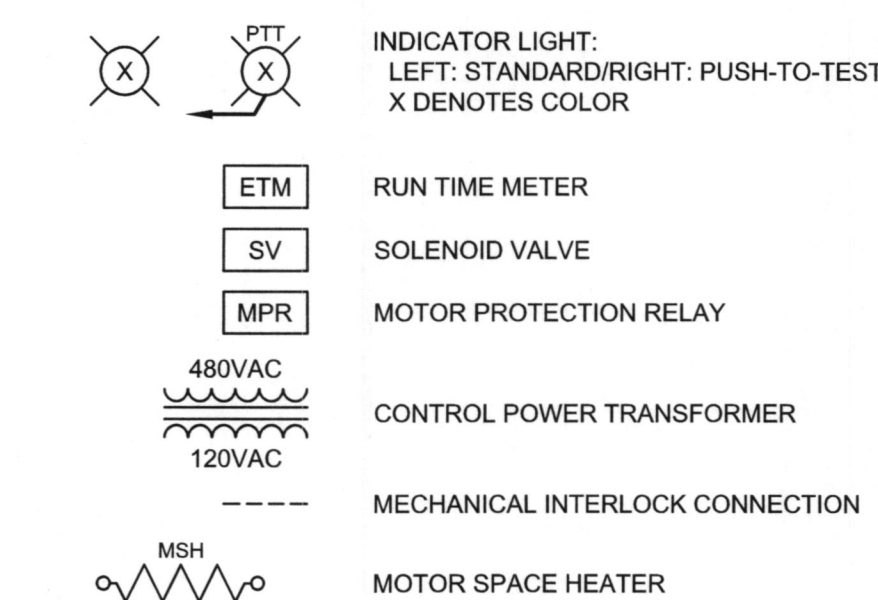
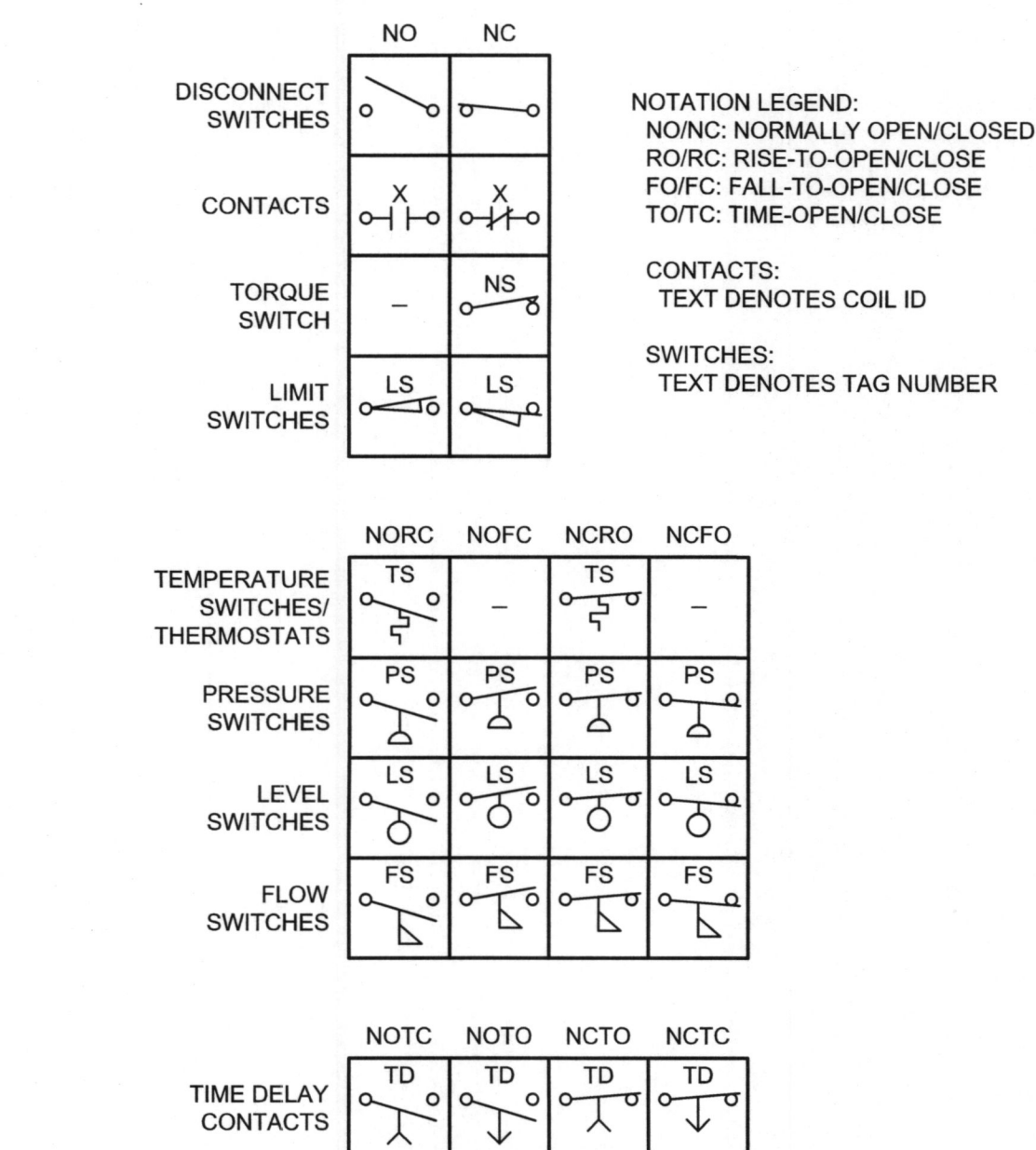
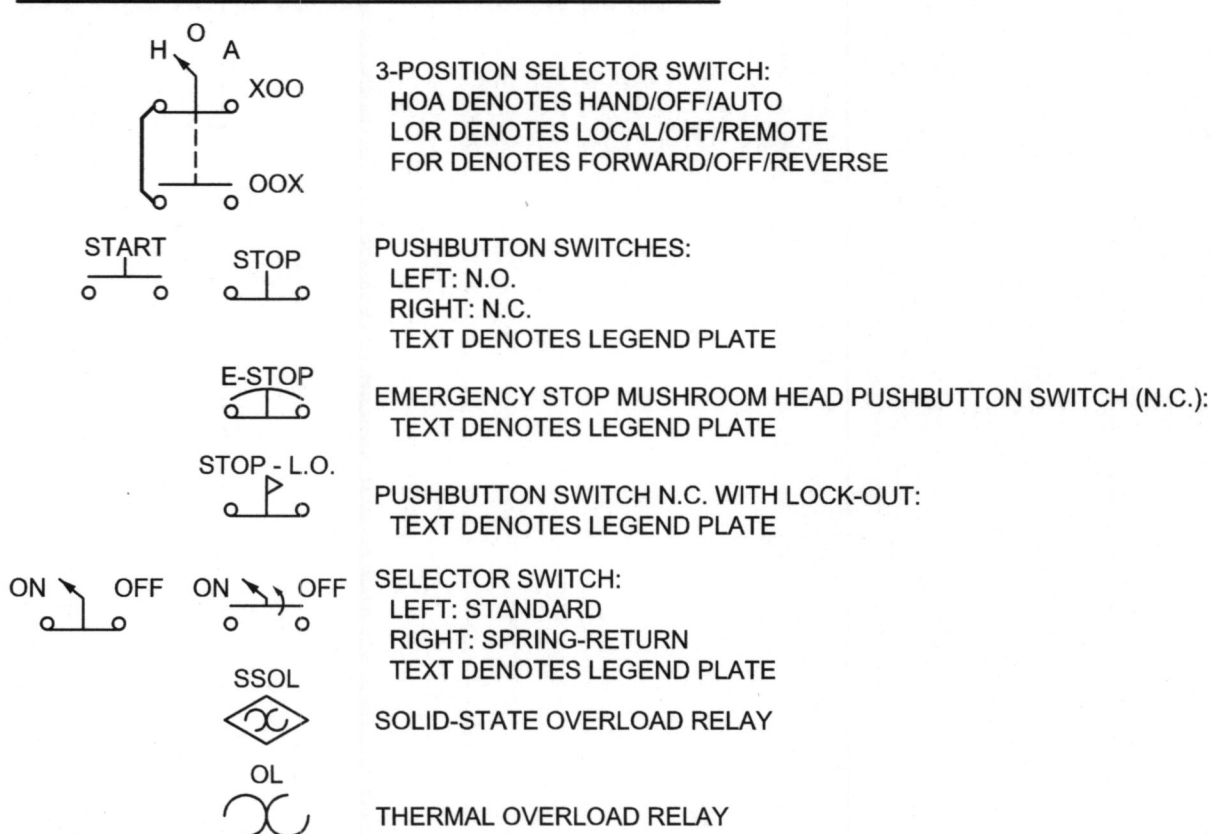
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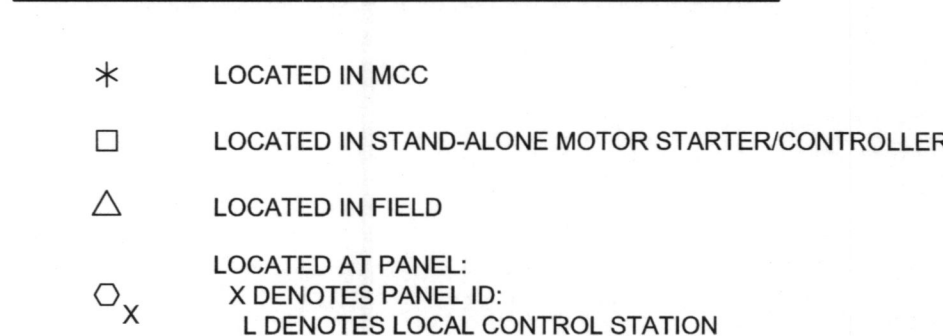
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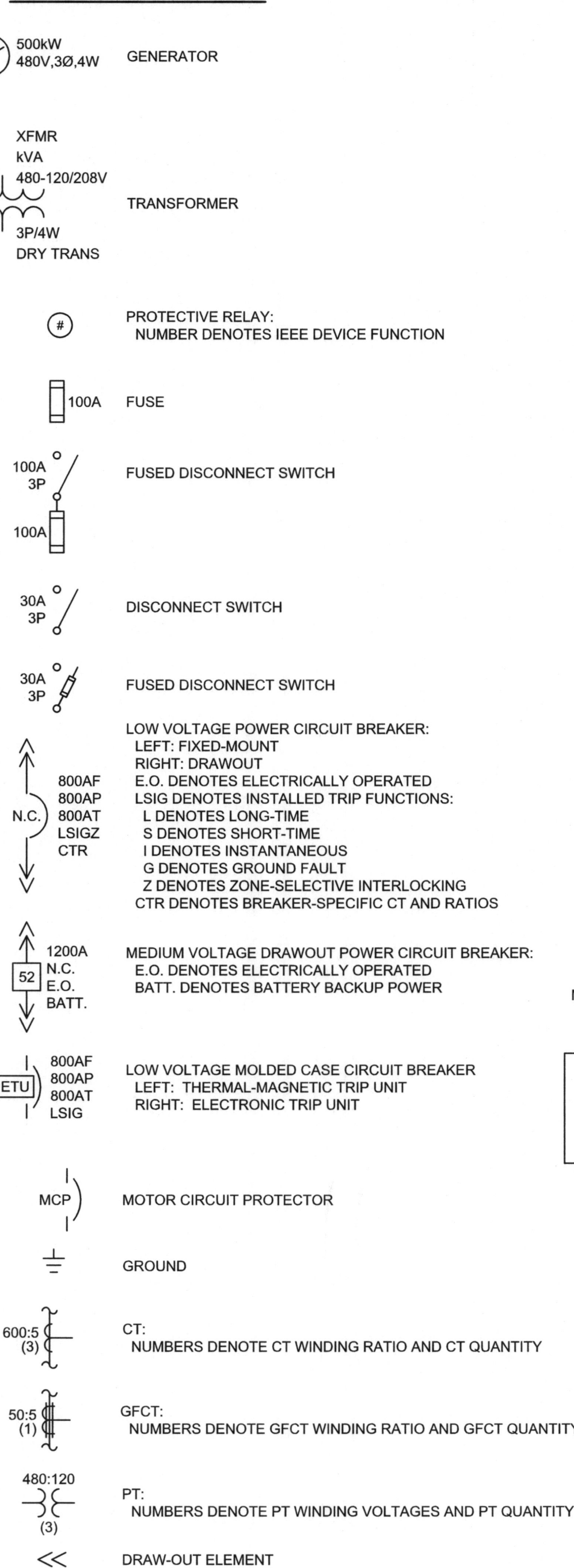
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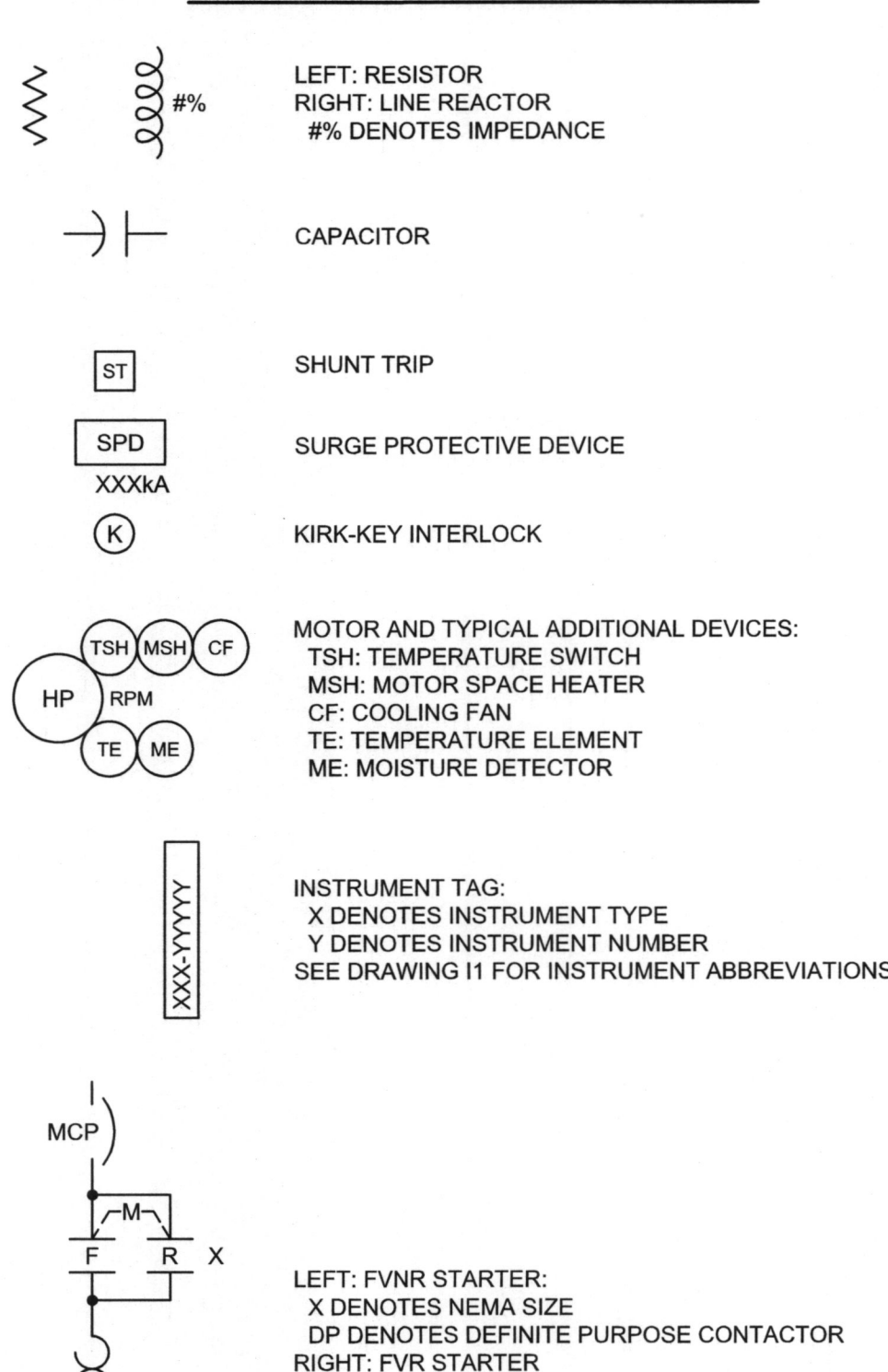
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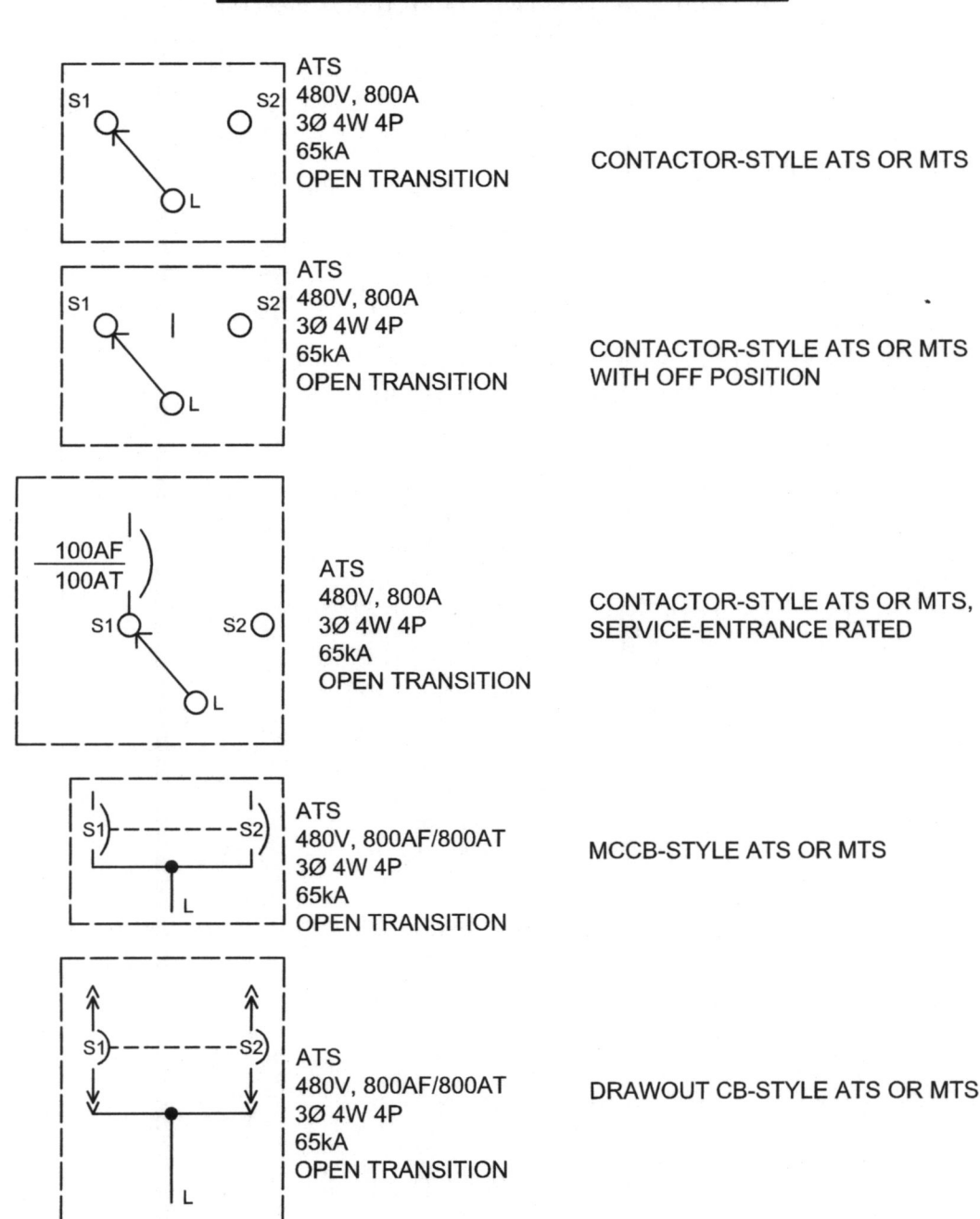
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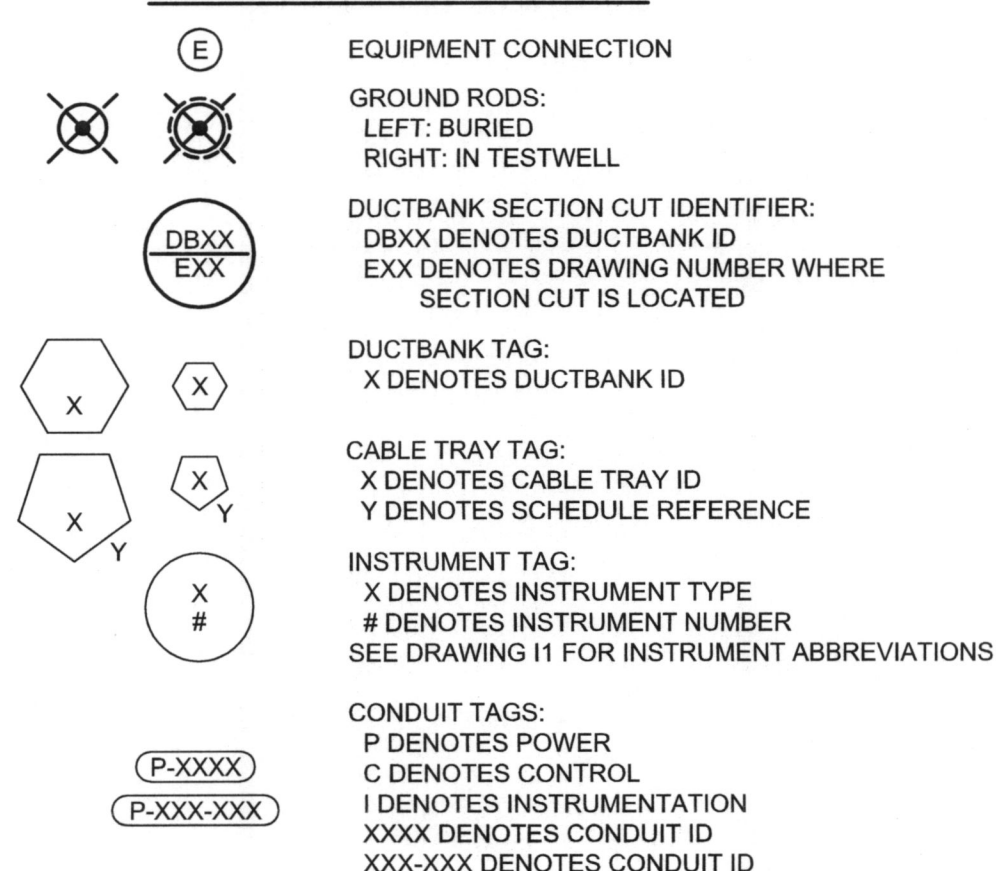
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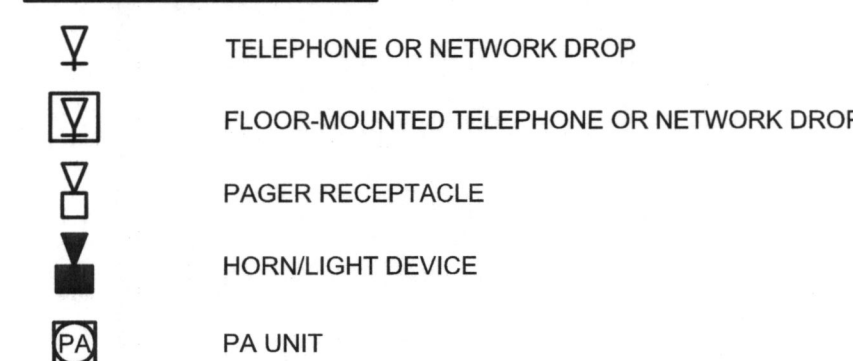
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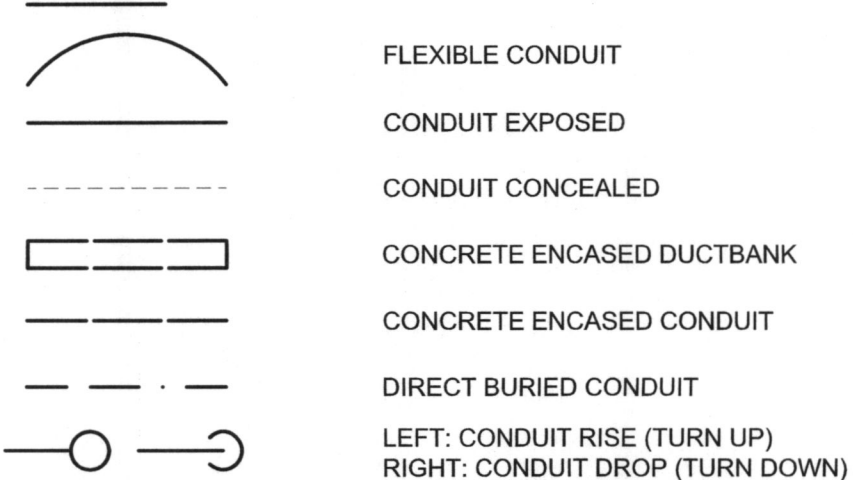
**MISC PLAN VIEW SYMBOLS**




**COMMUNICATIONS**



**WIRING**



|     |            |         |     |   |   |
|-----|------------|---------|-----|---|---|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM   |
|     |            |         |     | DESIGNED BY:  | N. LIMA   |
|     |            |         |     | DRAWN BY:   | V. KANCHEVA   |
|     |            |         |     | CHECKED BY:   | N. MEYER  |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE | 0 1/2" 1"   |
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CLAYTON COUNTY WATER AUTHORITY  
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J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

ELECTRICAL  
LEGEND AND SYMBOLS

|                 |             |
|-----------------|-------------|
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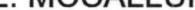


|         |   |
|---------|---|
|         | ANALYSIS ELEMENT                                  |
| AHU     | AIR HANDLING UNIT                                 |
| AIC     | AMPERE INTERRUPTING CAPACITY                      |
| AIT     | ANALYSIS INDICATING TRANSMITTER                   |
| ANSI    | AMERICAN NATIONAL STANDARDS INSTITUTE             |
| ASCE    | AMERICAN SOCIETY OF CIVIL ENGINEERS               |
| ASME    | AMERICAN SOCIETY OF MECHANICAL ENGINEERS          |
| AF      | AMPERE FRAME                                      |
| AT      | AMPERE TRIP                                       |
| ATS     | AUTOMATIC TRANSFER SWITCH                         |
| BC      | BYPASS CONTACTOR                                  |
| BKR     | BREAKER   |
| (LV)/CP | (LOCAL/VENDOR) CONTROL PANEL                      |
| CPT     | CONTROL POWER TRANSFORMER                         |
| CT      | CURRENT TRANSFORMER                               |
| DB      | DUCTBANK  |
| DSW     | DISCONNECT SWITCH                                 |
| (")HH   | HAND HOLE*  |
| (")MH   | MANHOLE*  |
| EO      | ELECTRICALLY OPERATED                             |
| ETM     | ELAPSED TIME METER                                |
| ETU     | ELECTRONIC TRIP UNIT                              |
| FAAP    | FIRE ALARM ANNUNCIATOR PANEL                      |
| FACP    | FIRE ALARM CONTROL PANEL                          |
| FS      | FLOW SWITCH                                       |
| FSL     | FLOW SWITCH LOW                                   |
| FVNR    | FULL VOLTAGE NON-REVERSING                        |
| FVR     | FULL VOLTAGE REVERSING                            |
| GFCI    | GROUND FAULT CIRCUIT INTERRUPTER                  |
| GfCT    | GROUND FAULT CURRENT TRANSFORMER                  |
| GNG     | GO-NO GO  |
| GND     | GROUND  |
| HOA     | HAND-OFF-AUTO                                     |
| HPU     | HYDRAULIC POWER UNIT                              |
| IC      | INPUT CONTACTOR                                   |
| IEEE    | INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS |
| ISO     | INTERNATIONAL ORGANIZATION FOR STANDARDIZATION    |
| (")JB   | JUNCTION BOX*                                     |
| LCS     | LOCAL CONTROL STATION                             |
| LP      | LIGHTING PANEL                                    |
| LS      | LEVEL SWITCH                                      |
| LSL     | LEVEL SWITCH LOW                                  |
| LSLL    | LEVEL SWITCH LOW-LOW                              |
| LSH     | LEVEL SWITCH HIGH                                 |
| LSHH    | LEVEL SWITCH HIGH-HIGH                            |
| LT      | LEVEL TRANSMITTER                                 |
| MFR     | MULTI-FUNCTION RELAY                              |
| MH      | MANHOLE   |
| MLO     | MAIN LUGS ONLY                                    |
| MOD     | MOTOR OPERATED DAMPER                             |
| MOG     | MOTOR OPERATED GATE                               |
| MOL     | MOTOR OPERATED LOUVER                             |
| MOV     | MOTOR OPERATED VALVE                              |
| MPR     | MOTOR PROTECTION RELAY                            |
| MTD     | MOUNTED   |
| MTS     | MANUAL TRANSFER SWITCH                            |
| MWTS    | MOTOR WINDING TEMPERATURE SWITCH                  |
| NC      | NORMALLY CLOSED                                   |
| NEC     | NATIONAL ELECTRICAL CODE                          |
| NEMA    | NATIONAL ELECTRICAL MANUFACTURERS ASSN            |
| NFPA    | NATIONAL FIRE PROTECTION ASSOCIATION              |
| NO      | NORMALLY OPEN                                     |
| NTS     | NOT TO SCALE                                      |
| OC      | OUTPUT CONTACTOR                                  |
| OL      | OVERLOAD  |

|        |                                   |
|--------|-----------------------------------|
| YPB    | PULLBOX*                          |
| PC     | PHOTOCELL                         |
| PCC    | POINT OF COMMON COUPLING          |
| PE     | PRESSURE ELEMENT                  |
| PIT    | PRESSURE INDICATING TRANSMITTER   |
| PLC    | PROGRAMMABLE LOGIC CONTROLLER     |
| PP     | POWER PANEL                       |
| PST    | PHASE SHIFTING TRANSFORMER        |
| PT     | POTENTIAL TRANSFORMER             |
| PTT    | PUSH TO TEST                      |
| RCS    | REMOTE CONTROL STATION            |
| RECP   | RECEPTACLE                        |
| RIO    | REMOTE I/O                        |
| RM     | ROOM                              |
| RTD    | RESISTANCE THERMAL DEVICE         |
| RTU    | REMOTE TELEMETRY UNIT             |
| RVAT   | REDUCED VOLTAGE AUTO TRANSFORMER  |
| RVSS   | REDUCED VOLTAGE SOLID STATE       |
| SA     | SUPPLY AIR                        |
| S.E.   | SERVICE ENTRANCE                  |
| SP. C. | SPARE CONDUIT                     |
| SPD    | SURGE PROTECTIVE DEVICE           |
| SSOL   | SOLID STATE OVERLOAD              |
| SST    | STAINLESS STEEL                   |
| TB     | TEST BLOCK                        |
| TC     | TIMED CLOSE                       |
| TO     | TIMED OPEN                        |
| TS     | TRANSFER SWITCH                   |
| TSH    | TWISTED SHIELDED                  |
| TX     | TRANSFORMER                       |
| Typ    | TYPICAL                           |
| UPS    | UNINTERRUPTIBLE POWER SUPPLY      |
| VFD    | VARIABLE FREQUENCY DRIVE          |
| WPCR   | WEATHER PROOF CORROSION RESISTANT |
| WT     | WALK THROUGH                      |
| XFMR   | TRANSFORMER                       |

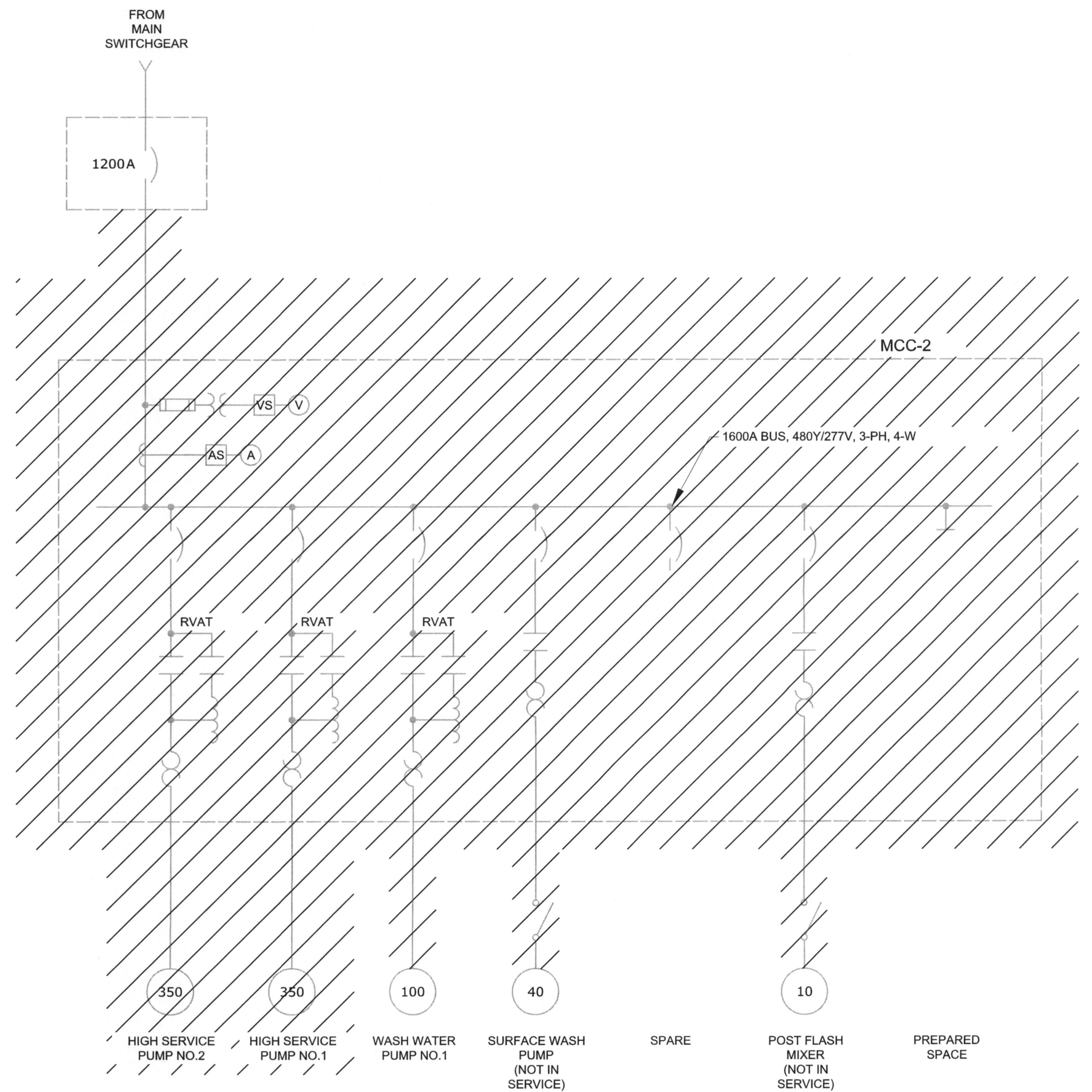
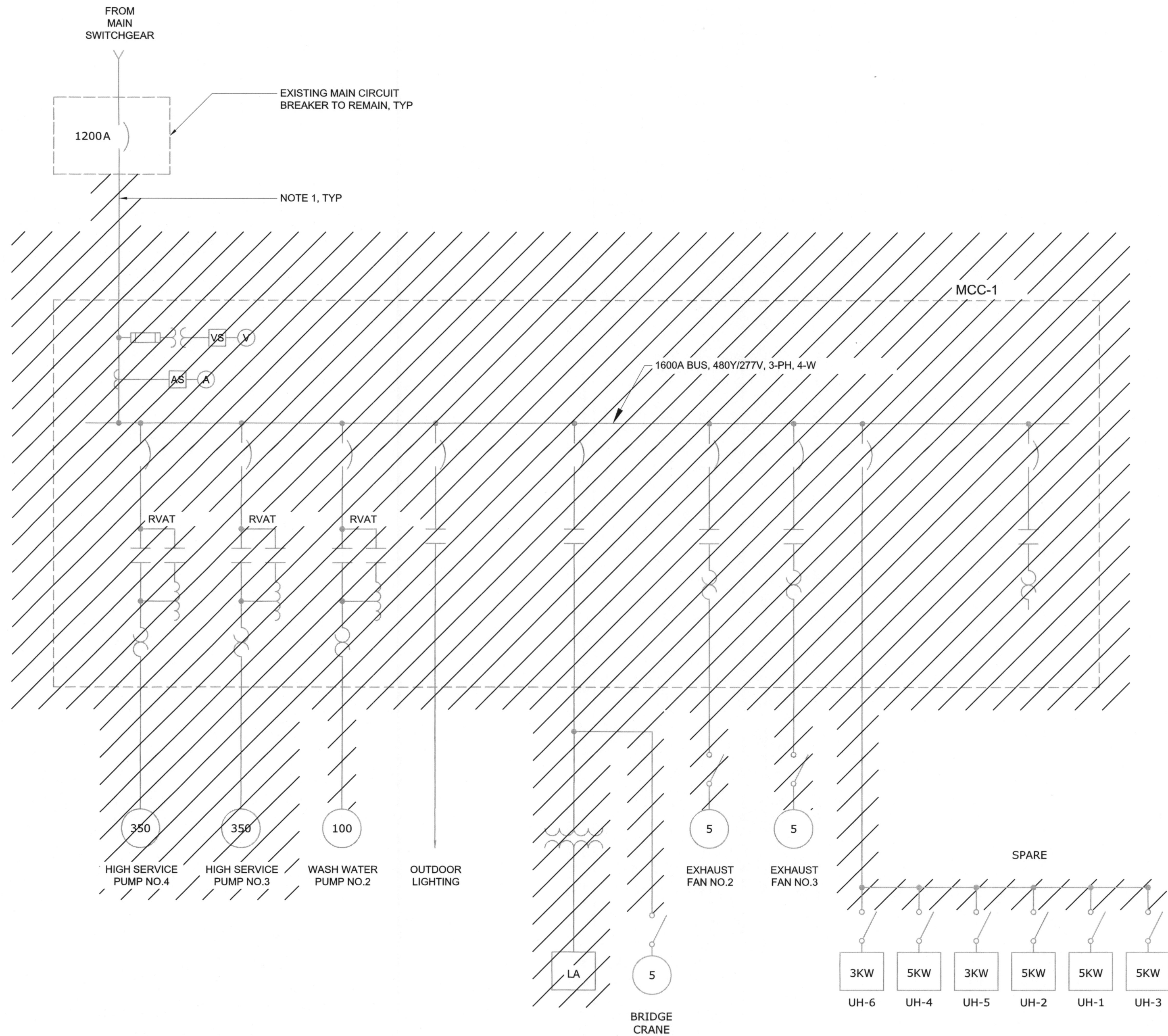
|   |                 |
|---|-----------------|
| E | ELECTRIC        |
| P | POWER           |
| C | CONTROL         |
| I | INSTRUMENTATION |
| F | FIBER           |

1. BOND ALL NEW CONCRETE ENCASED GROUND CONDUCTORS TO EXISTING GROUND CONDUCTORS IN ALL MANHOLES, PULL BOXES, CABLE TRAYS, AND SIMILAR LOCATIONS WHERE APPLICABLE.
2. UNLESS OTHERWISE SPECIFIED OR NOTED, ALL WALL MOUNTED ELECTRICAL PANELS, ENCLOSURES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED 6'-6" (MAX) FROM THE TOP OF THE PANEL TO FINISHED FLOOR OR GRADE.
3. UNLESS OTHERWISE NOTED, ALL LIGHTING SWITCHES, CONTROL SWITCHES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED WITH THEIR CENTERLINE APPROXIMATELY 4'-0" ABOVE FINISHED FLOOR, SLAB, OR GRADE.
4. A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH CIRCUIT (SEPARATE CONDUCTOR IN THE CONDUIT); THE CONDUCTOR SHALL BE TERMINATED AT THE PROPER DEVICE, TERMINAL OR LUG AT THE POWER SOURCE (MCC GROUND BUS, PANELBOARD GROUND BUS, ETC.). GROUND CONDUCTOR SIZE SHALL BE PER THE LATEST EDITION OF THE NEC.
5. UNLESS SPECIFICALLY NOTED OTHERWISE, EXISTING PAVEMENT SHALL BE SAW CUT AND REMOVED TO ALLOW FOR THE INSTALLATION OF NEW ELECTRICAL DUCTBANKS. AFTER INSTALLATION, REPLACE PAVEMENT WITH NEW TO MATCH ORIGINAL CONDITIONS.
6. REFERENCE SECTION 01 14 00 FOR CONSTRUCTION SEQUENCING REQUIREMENTS.
7. CONDUIT HOMERUNS ARE NOT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL REFER TO CONDUIT AND WIRE SCHEDULES, RISER DIAGRAMS, SINGLE LINE DIAGRAMS, AND OTHER DRAWINGS FOR CONDUIT AND WIRE REQUIREMENTS.
8. ALL ELECTRICAL NON-STRUCTURAL COMPONENTS ARE SUBJECT TO SEISMIC DESIGN CATEGORY 'D' WITH AN OCCUPANCY/RISK CATEGORY 'IV'. COMPONENTS WITH AN IMPORTANCE FACTOR OF  $I_p = 1.5$ , AND WHICH ALSO MEET THE STIPULATIONS LISTED IN SECTION 01 73 23 - SEISMIC ANCHORAGE AND BRACING, ARE EXEMPT FROM SEISMIC ANCHORAGE AND BRACING. ESSENTIAL COMPONENTS SHALL HAVE AN IMPORTANCE FACTOR OF  $I_p = 1.5$  AND SHALL BE DESIGNED, INSTALLED, ANCHORED, AND BRACED TO RESIST SEISMIC FORCES AS STIPULATED IN SECTION 01 73 23 - SEISMIC ANCHORAGE AND BRACING. ESSENTIAL COMPONENTS WITH  $I_p = 1.5$  SHALL BE FURNISHED WITH A MANUFACTURER'S CERTIFICATE OF SEISMIC QUALIFICATION.
9. NOT ALL OF THE REQUIRED JUNCTION AND PULL BOXES ARE SHOWN ON THE PLANS. CONTRACTOR SHALL PROVIDE AND FIELD LOCATE SUCH BOXES AS REQUIRED BY NEC, SITE CONDITIONS AND SPECIFICATIONS FOR PROPER PULLS AND BENDS AT NO ADDITIONAL COST TO THE OWNER. PROVIDE JUNCTION BOX FOR RUNS WITH MORE THAN THREE 90-DEGREE BENDS.
10. EXISTING EQUIPMENT IS SHOWN ON THE DRAWINGS WITH LIGHTER (SCREENED) LINE TYPE. NEW EQUIPMENT IS SHOWN WITH HEAVIER (BOLDER) LINE TYPE.

|     |            |         |     |                       |   |   |  |   |                                       |                   |
|-----|------------|---------|-----|-----------------------|---|---|--|---|---------------------------------------|-------------------|
|     |            |         |     |                       | PROJECT ENGINEER: E. MCCALLUM   | <div><br/>GBPE LIC #. PEF003685 EXP. 6/30/2022</div> | <div><h1>Hazen</h1><br/>HAZEN AND SAWYER<br/>5775 PEACHTREE DUNWOODY ROAD<br/>SUITE D-520<br/>ATLANTA, GEORGIA 30342</div> | CLAYTON COUNTY WATER AUTHORITY<br>MORROW, GEORGIA | ELECTRICAL<br>ABBREVIATIONS AND NOTES | DATE: AUGUST 2020 |
|     |            |         |     | DESIGNED BY: N. LIMA  | HAZEN NO.: 32457-010  |   |  |   |                                       |                   |
|     |            |         |     | DRAWN BY: V. KANCHEVA | BID SET   |   |  | CONTRACT NO.: 01                                  |                                       |                   |
|     |            |         |     | CHECKED BY: N. MEYER  | <div>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE</div> <div></div> |   |  | DRAWING NUMBER: E002                              |                                       |                   |
| 1   | BID        | 08/2020 | EAM |                       |   |   |  |   |                                       |                   |
| REV | ISSUED FOR | DATE    | BY  |                       |   |   |  |   |                                       |                   |



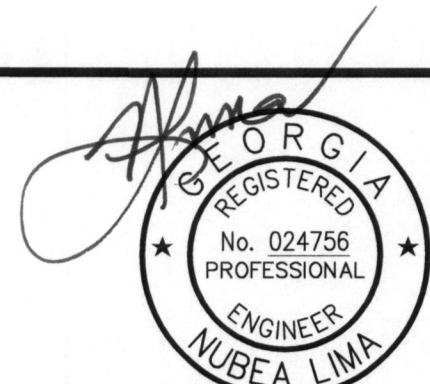
- NOTES:
1. REMOVE EXISTING WIRE AND SALVAGE CONDUIT TO BE RE-USED FOR NEW FEEDERS TO NEW MCCs.
  2. DEMOLISH ALL WIRE AND EXPOSED CONDUITS TO PUMPS, UNIT HEATERS, EXHAUST FANS, BRIDGE CRANE, AND MIXER.



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|     |            |         |     |   |             |
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|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM |
|     |            |         |     | DESIGNED BY:  | N. LIMA     |
|     |            |         |     | DRAWN BY:   | E. BODNAR   |
|     |            |         |     | CHECKED BY:   | N. MEYER    |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |             |
| REV | ISSUED FOR | DATE    | BY  |   |             |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA  
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

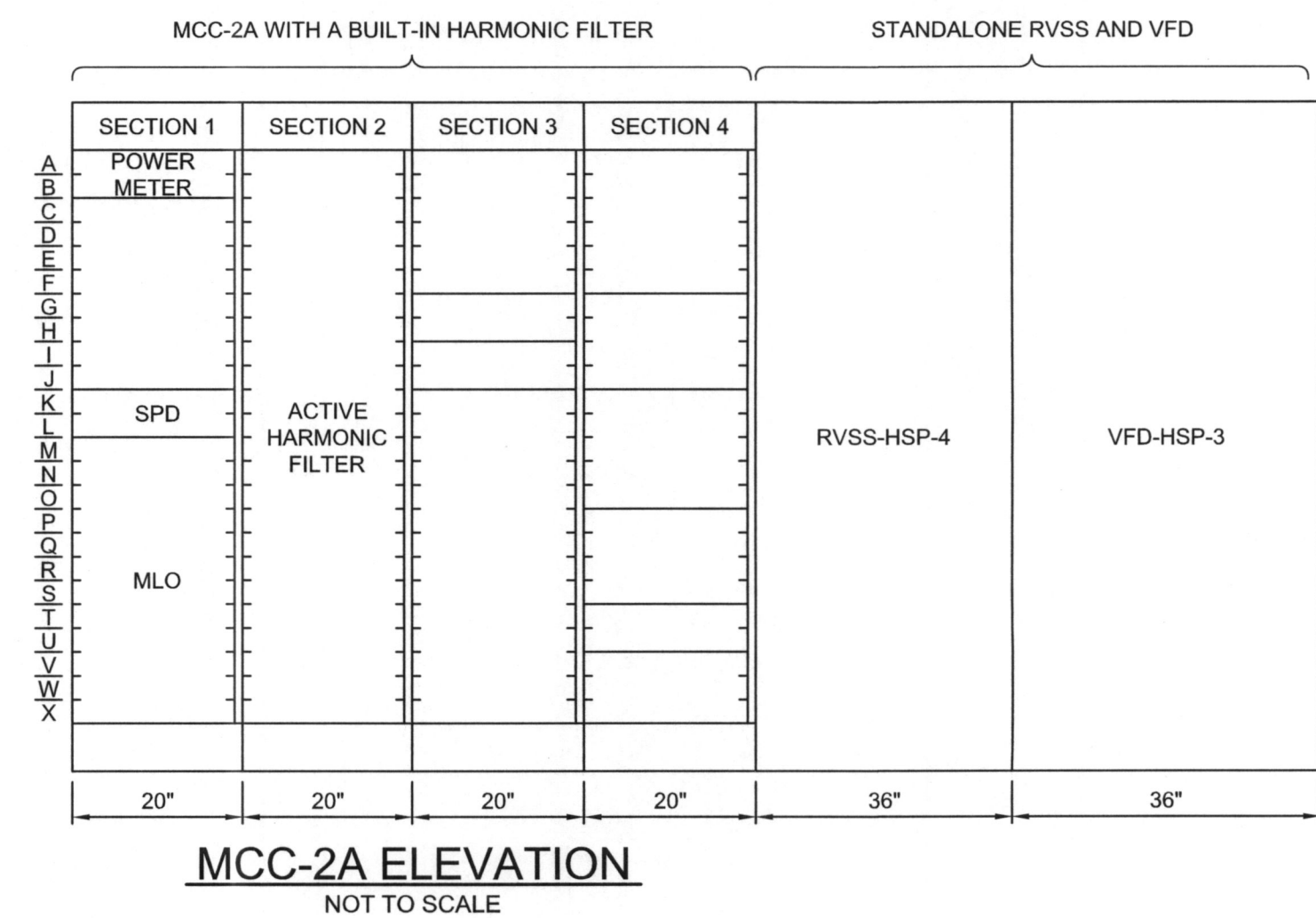
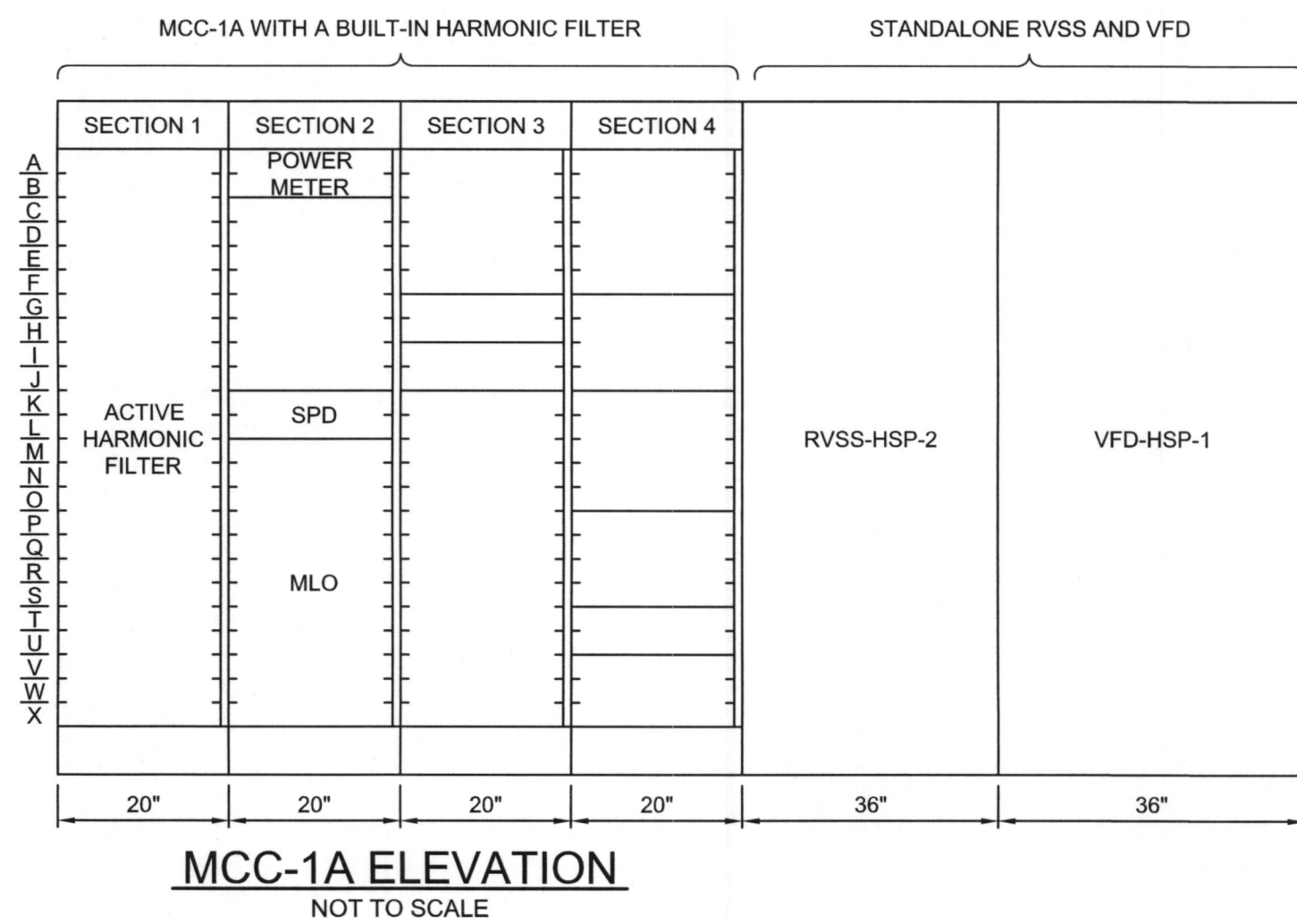
ELECTRICAL  
HIGH SERVICE PUMP STATION  
SINGLE LINE DIAGRAM (DEMOLITION)

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | E003        |





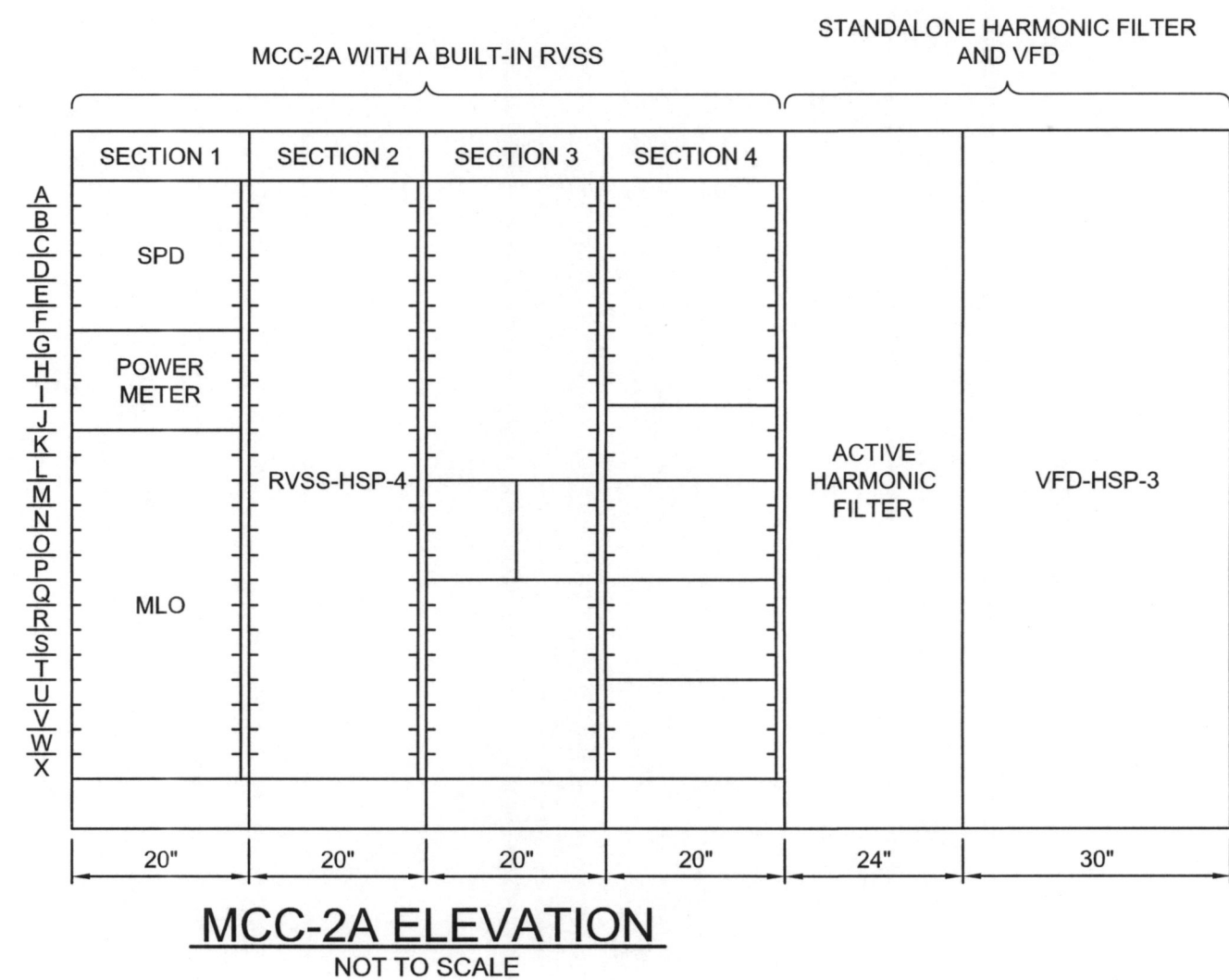
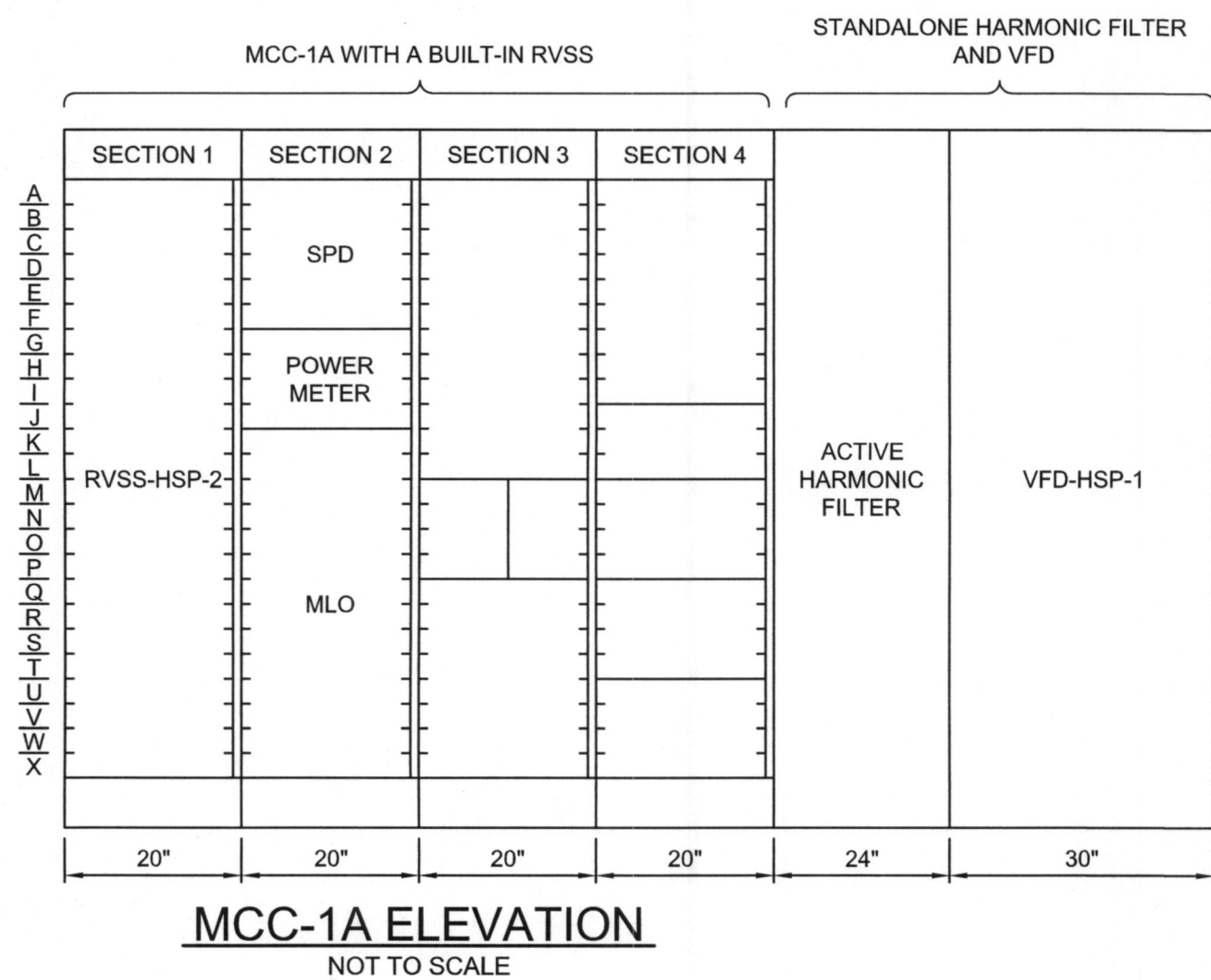




- NOTES:
1. ALTERNATIVE 1 IS BASED ON A SQUARE D PROPOSAL.
  2. THE MAIN SECTION SHALL ALIGN WITH THE EXISTING MAIN INCOMING CONDUITS WITHIN THE SLAB.
  3. THE HARMONIC FILTER SHALL BE PART OF THE MCC LINEUP.
  4. THE RVSS AND THE VFD SHALL BE STANDALONE UNITS AND CABLE CONNECTED TO THE MCC. THE RVSS AND THE VFD SHALL BE TOP ENTRY/EXIT.
  5. MCC INCOMING SHALL BE BOTTOM ENTRY. ALL OTHER MCC SECTIONS SHALL BE TOP EXIT TO EQUIPMENT.

**ALTERNATIVE 1 ELEVATIONS**

NOT TO SCALE



- NOTES:
1. ALTERNATIVE 2 IS BASED ON AN EATON PROPOSAL.
  2. THE MAIN SECTION SHALL ALIGN WITH THE EXISTING MAIN INCOMING CONDUITS WITHIN THE SLAB.
  3. THE RVSS SHALL BE PART OF THE MCC LINEUP.
  4. THE HARMONIC FILTER AND THE VFD SHALL BE STANDALONE UNITS AND CABLE CONNECTED TO THE MCC. THE HARMONIC FILTER AND THE VFD SHALL BE TOP ENTRY/EXIT.
  5. MCC INCOMING SHALL BE BOTTOM ENTRY. ALL OTHER MCC SECTIONS SHALL BE TOP EXIT TO EQUIPMENT.

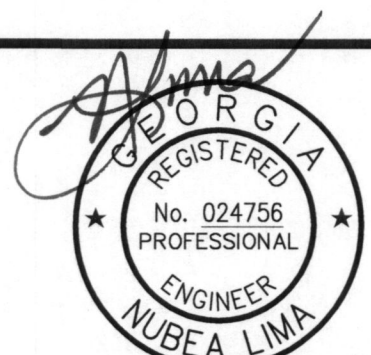
**ALTERNATIVE 2 ELEVATIONS**

NOT TO SCALE

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|-----|------------|---------|-----|---|-------------|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM |
|     |            |         |     | DESIGNED BY:  | N. LIMA     |
|     |            |         |     | DRAWN BY:   | E. BODNAR   |
|     |            |         |     | CHECKED BY:   | N. MEYER    |
|     |            |         |     | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE | 0 1/2" 1"   |
| 1   | BID        | 08/2020 | EAM |   |             |
| REV | ISSUED FOR | DATE    | BY  |   |             |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

**Hazen**

HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA

J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

ELECTRICAL  
HIGH SERVICE PUMP STATION  
MCC-1 AND MCC-2 ELEVATIONS

DATE: AUGUST 2020

HAZEN NO.: 32457-010

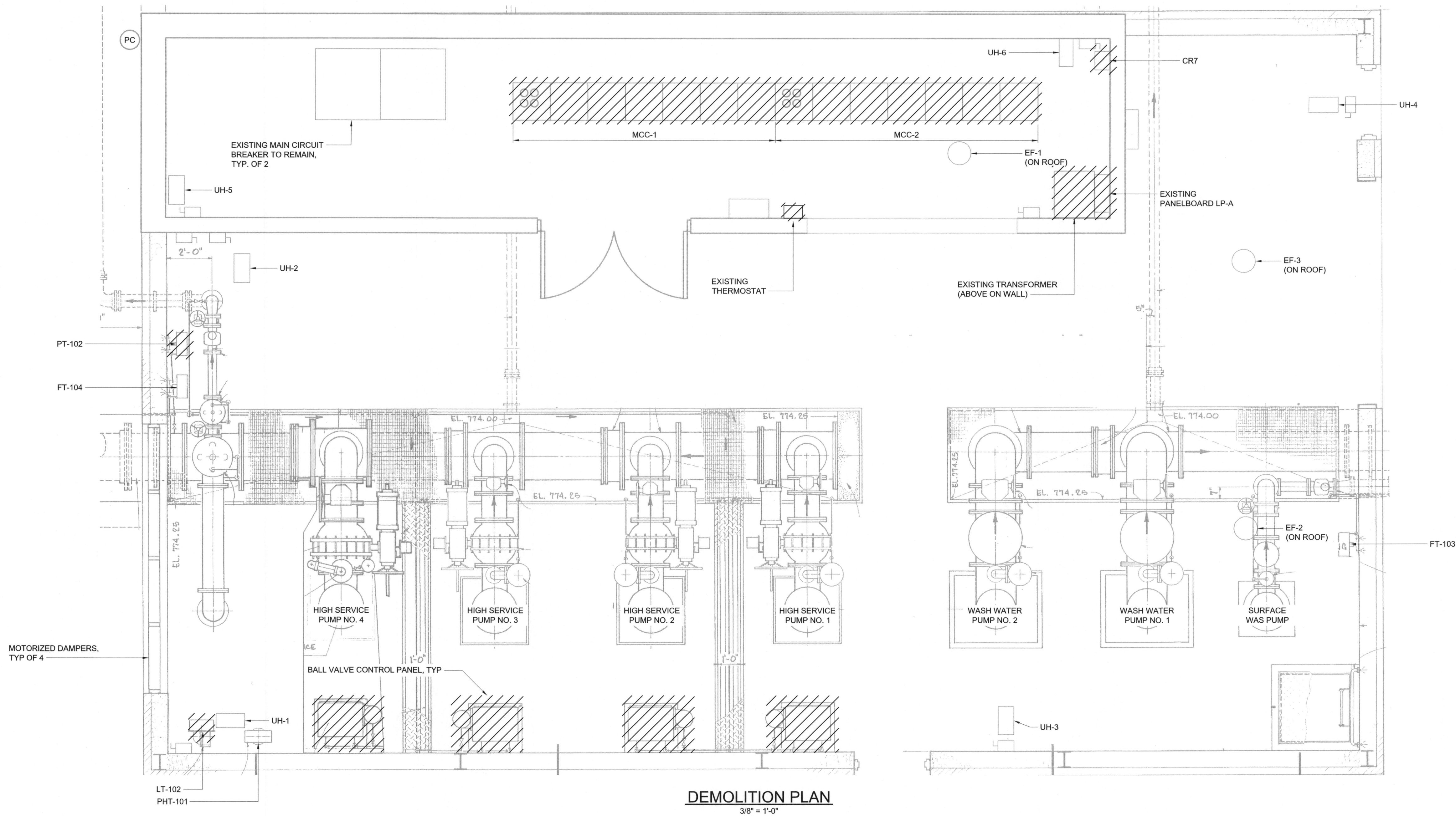
CONTRACT NO.: 01

DRAWING NUMBER: E005



NOTES:

- SEE MECHANICAL AND HVAC DRAWINGS FOR PROCESS AND HVAC EQUIPMENT TO BE DEMOLISHED AND PROVIDE ELECTRICAL SUPPORT AS REQUIRED.
- REMOVE ALL WIRING ASSOCIATED WITH DEMOLISHED EQUIPMENT TO THE POWER SOURCE, UNLESS OTHERWISE NOTED. REMOVE ALL ASSOCIATED EXPOSED CONDUITS.
- REMOVE WIRES AND EXPOSED CONDUITS FOR THE FOLLOWING EQUIPMENT:
  - HIGH SERVICE PUMPS NO. 1 THROUGH NO. 4
  - WASH WATER PUMP NO. 1 AND NO. 2
  - SURFACE WASH PUMP
  - POST FLASH MIXER
  - BALL VALVE CONTROL PANELS
  - EXHAUST FANS EF2 & EF-3, AND DAMPERS IN PUMP ROOM
  - UNIT HEATERS UH-1 THROUGH UH-6
  - CR7
  - BRIDGE CRANE
  - ALL INSTRUMENTS
- EXISTING EXHAUST FAN EF-1, ROOF-MOUNTED ABOVE THE ELECTRICAL ROOM SHALL BE ABANDONED IN PLACE. ABANDON THE ASSOCIATED DISCONNECT SWITCH IN PLACE (IN ELECTRICAL ROOM), DEMOLISH THE EXISTING THERMOSTAT AND ASSOCIATED WIRING.



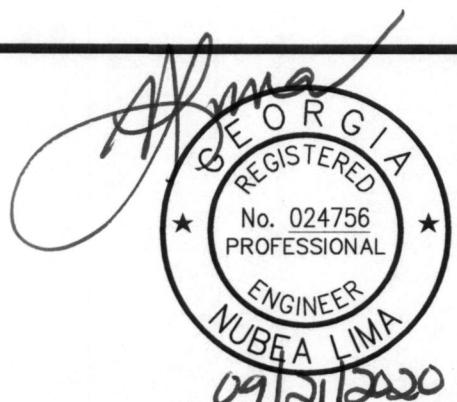
DEMOLITION PLAN  
3/8" = 1'-0"

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

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|     |            |         |     |   |             |
|-----|------------|---------|-----|---|-------------|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM |
|     |            |         |     | DESIGNED BY:  | N. LIMA     |
|     |            |         |     | DRAWN BY:   | V. KANCHEVA |
|     |            |         |     | CHECKED BY:   | N. MEYER    |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |             |
| REV | ISSUED FOR | DATE    | BY  |   |             |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

**Hazen**

HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

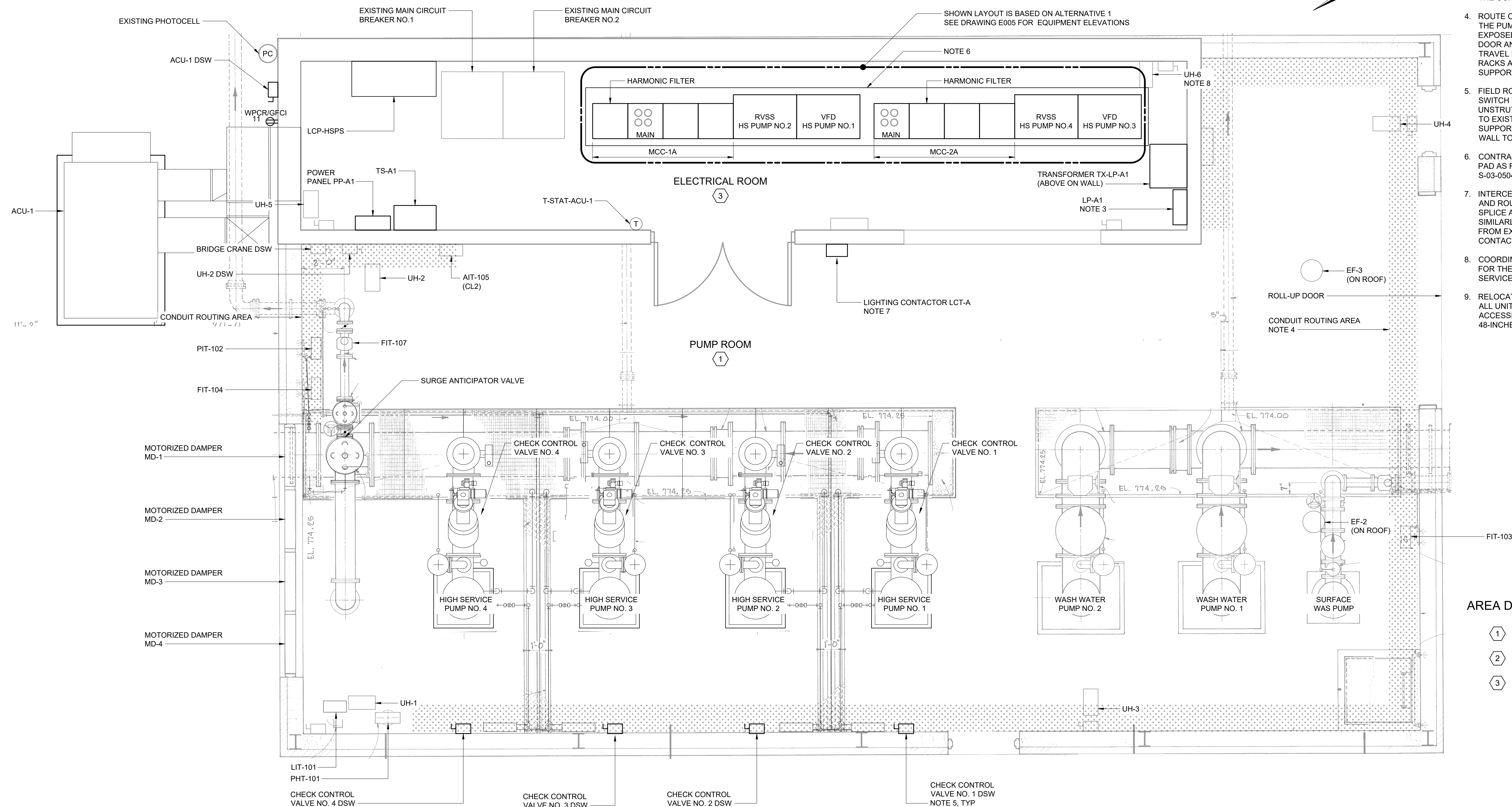
CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA

J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

ELECTRICAL  
HIGH SERVICE PUMP STATION  
DEMOLITION PLAN

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | E006        |



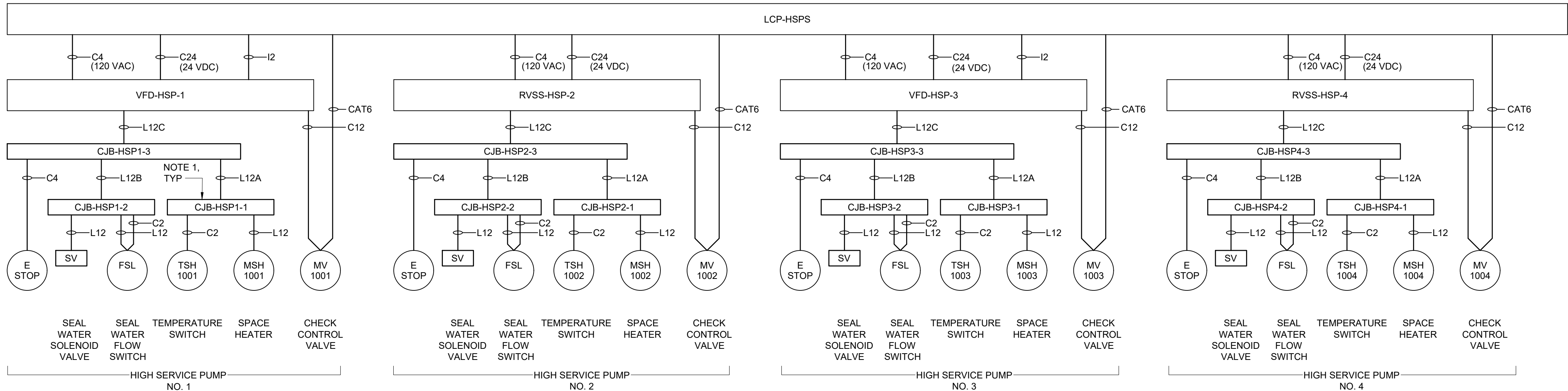


AREA DESIGNATIONS:

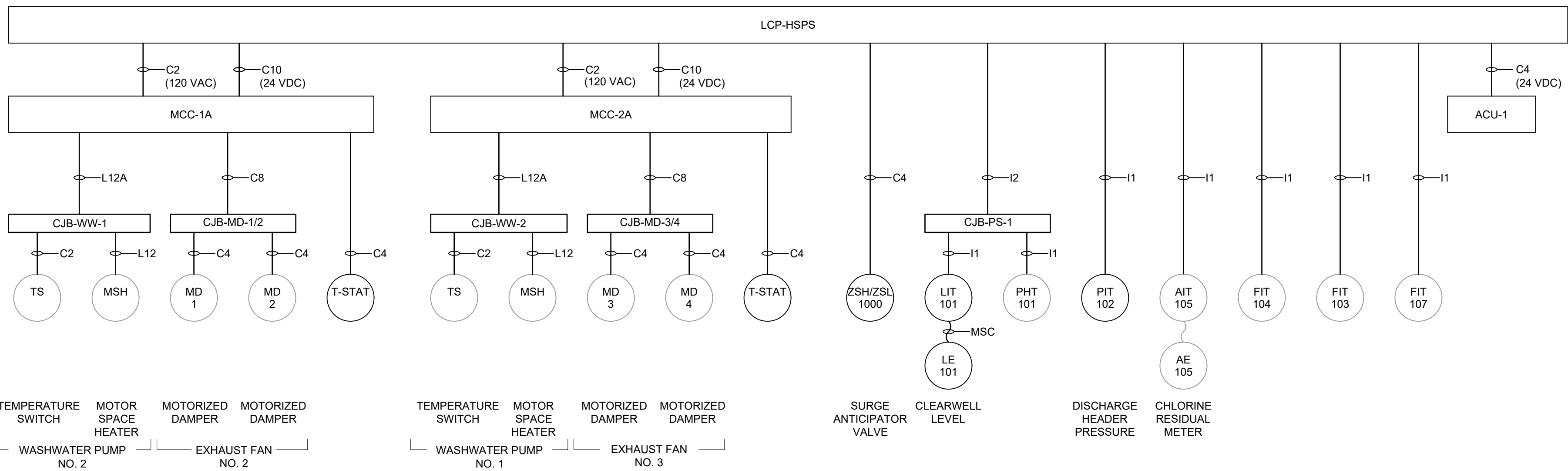
MODIFIED PLAN  
3/8" = 1'-0"

|     |               |         |     |   |             |
|-----|---------------|---------|-----|---|-------------|
|     |               |         |     | PROJECT ENGINEER:   | E. MCCALLUM |
|     |               |         |     | DESIGNED BY:  | N. LIMA     |
|     |               |         |     | DRAWN BY:   | V. KANCHEVA |
|     |               |         |     | CHECKED BY:   | N. MEYER    |
| 2   | CONFORMED SET | 03/2021 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |             |
| 1   | BID           | 08/2020 | EAM |   |             |
| REV | ISSUED FOR    | DATE    | BY  |   |             |

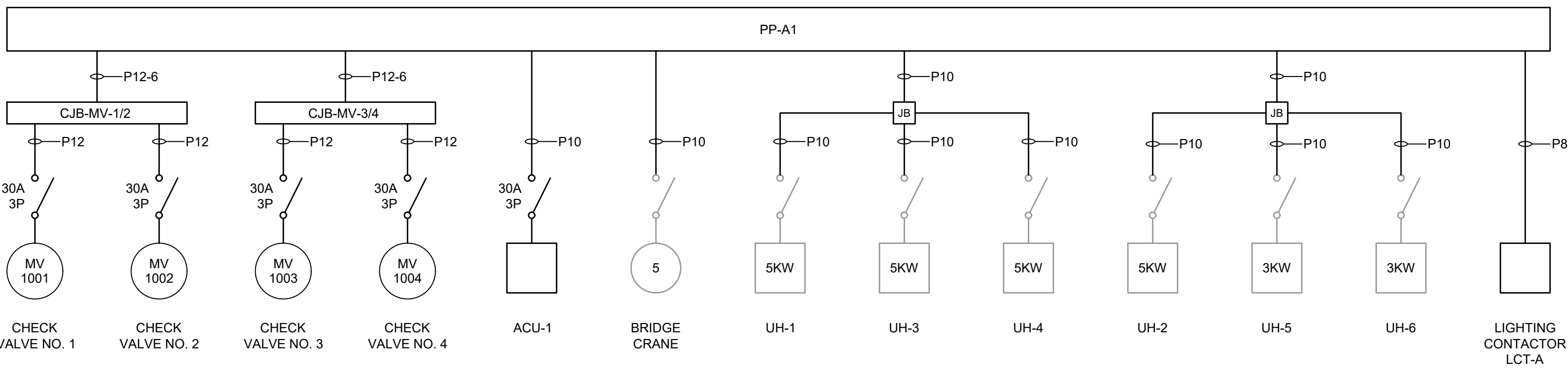




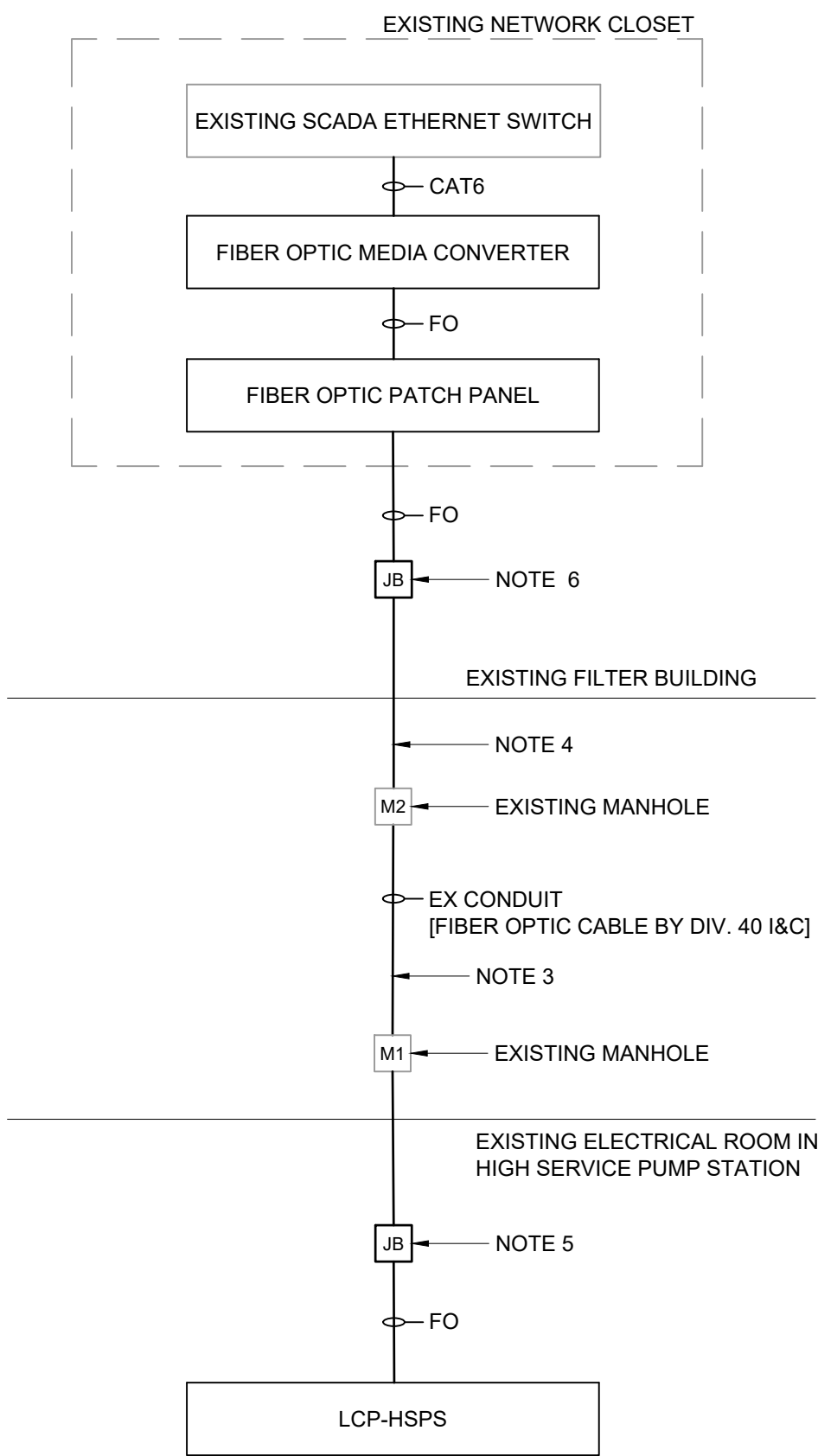
**HIGH SERVICE PUMPS CONTROL BLOCK DIAGRAM**  
(NOTE 2)



**MISCELLANEOUS INSTRUMENTS/EQUIPMENT CONTROL BLOCK DIAGRAM**



**PP-A1 POWER BLOCK DIAGRAM**



**COMMUNICATION BLOCK DIAGRAM**

**NOTES:**

1. FIELD LOCATE JUNCTION BOXES NEAR THE PUMPS.
2. PROVIDE CONDUITS AND WIRE FOR SEAL WATER CIRCUITS AS SHOWN IF THE HIGH SERVICE PUMPS ARE FURNISHED WITH SEAL WATER. COORDINATE WITH SPECIFIC EQUIPMENT FURNISHED.
3. CONTRACTOR TO REMOVE EXISTING FIVE (5) TWISTED SHIELDED PAIR INSTRUMENTATION CABLES FROM THE HIGH SERVICE PUMP STATION TO THE MAIN CONTROL PANEL IN THE FILTER BUILDING FOR INSTALLATION OF A FIBER OPTIC CABLE AS SHOWN ON DRAWING 1002. COORDINATE WORK WITH OPERATIONAL SEQUENCING CONSTRAINTS PER SECTION 01 14 00.
4. INSTALL A CLOTH TYPE INNER DUCT IN THE EXISTING CONDUIT WITH SEVEN (7) TWISTED SHIELDED PAIR INSTRUMENTATION CABLES FROM THE PUMP STATION BUILDING FOR INSTALLATION OF THE FIBER OPTIC CABLE. THE INNER DUCT SHALL BE INSTALLED IN THE CONDUIT BETWEEN MANHOLE M2 AND THE FILTER BUILDING.
5. PROVIDE A JUNCTION BOX IN THE PUMP BUILDING TO INTERCEPT THE EXISTING INSTRUMENTATION CONDUIT FROM THE FILTER BUILDING (SEE NOTE 3 ABOVE). EXTEND CONDUIT TO LCP-HSPS FOR INSTALLATION OF THE FIBER OPTIC CABLE AS SHOWN.
6. PROVIDE A JUNCTION BOX IN THE FILTER BUILDING TO INTERCEPT THE EXISTING INSTRUMENTATION CONDUIT FROM THE PUMP BUILDING (SEE NOTE 3 ABOVE). EXTEND CONDUIT TO LCP-HSPS FOR INSTALLATION OF THE FIBER OPTIC CABLE AS SHOWN.

**CIRCUIT LEGEND:**

- L12 - 3/4"C [2#12; #12GND]
- L12A - 3/4"C [2#12, 2#14; #12GND]
- L12B - 3/4"C [4#12, 2#14; #12GND]
- L12C - 1"C [6#12, 8#14; #12GND]
- P8 - 1"C [3#8; #10GND]
- P10 - 1"C [3#10; #10GND]
- P12 - 1"C [3#12; #12GND]
- P12-6 - 1"C [6#12; #12GND]
- C2 - 3/4"C [2#14; #14GND]
- C4 - 3/4"C [4#14; #14GND]
- C6 - 3/4"C [6#14; #14GND]
- C8 - 3/4"C [8#14; #14GND]
- C10 - 3/4"C [10#14; #14GND]
- C12 - 3/4"C [12#14; #14GND]
- C24 - 1"C [24#14; #14GND]
- I1 - 1"C [2/C#16TSH]
- I2 - 1"C [2-2/C#16TSH]
- CAT6 - 1"C [CAT6 ETHERNET CABLE]
- FO - 1"C [FIBER OPTIC CABLE BY DIV. 40 I&C]
- MSC - 1-1/2"C [MANUFACTURER SUPPLIED CABLE]

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|     |               |         |     |   |             |
|-----|---------------|---------|-----|---|-------------|
|     |               |         |     | PROJECT ENGINEER:   | E. MCCALLUM |
|     |               |         |     | DESIGNED BY:  | N. LIMA     |
|     |               |         |     | DRAWN BY:   | E. BODNAR   |
|     |               |         |     | CHECKED BY:   | N. MEYER    |
| 2   | CONFORMED SET | 03/2021 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |             |
| 1   | BID           | 08/2020 | EAM |   |             |
| REV | ISSUED FOR    | DATE    | BY  |   |             |

|                                      |  |   |
|--------------------------------------|--|---|
| CONFORMED SET                        |  | THIS DOCUMENT ORIGINALLY ISSUED FOR CONSTRUCTION AND SEALED BY NUBEA LIMA. SEAL NUMBER 024756. THIS MEDIA SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT. |
|                                      |  |   |
| GBPE LIC #. PEF003685 EXP. 6/30/2022 |  |   |

**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

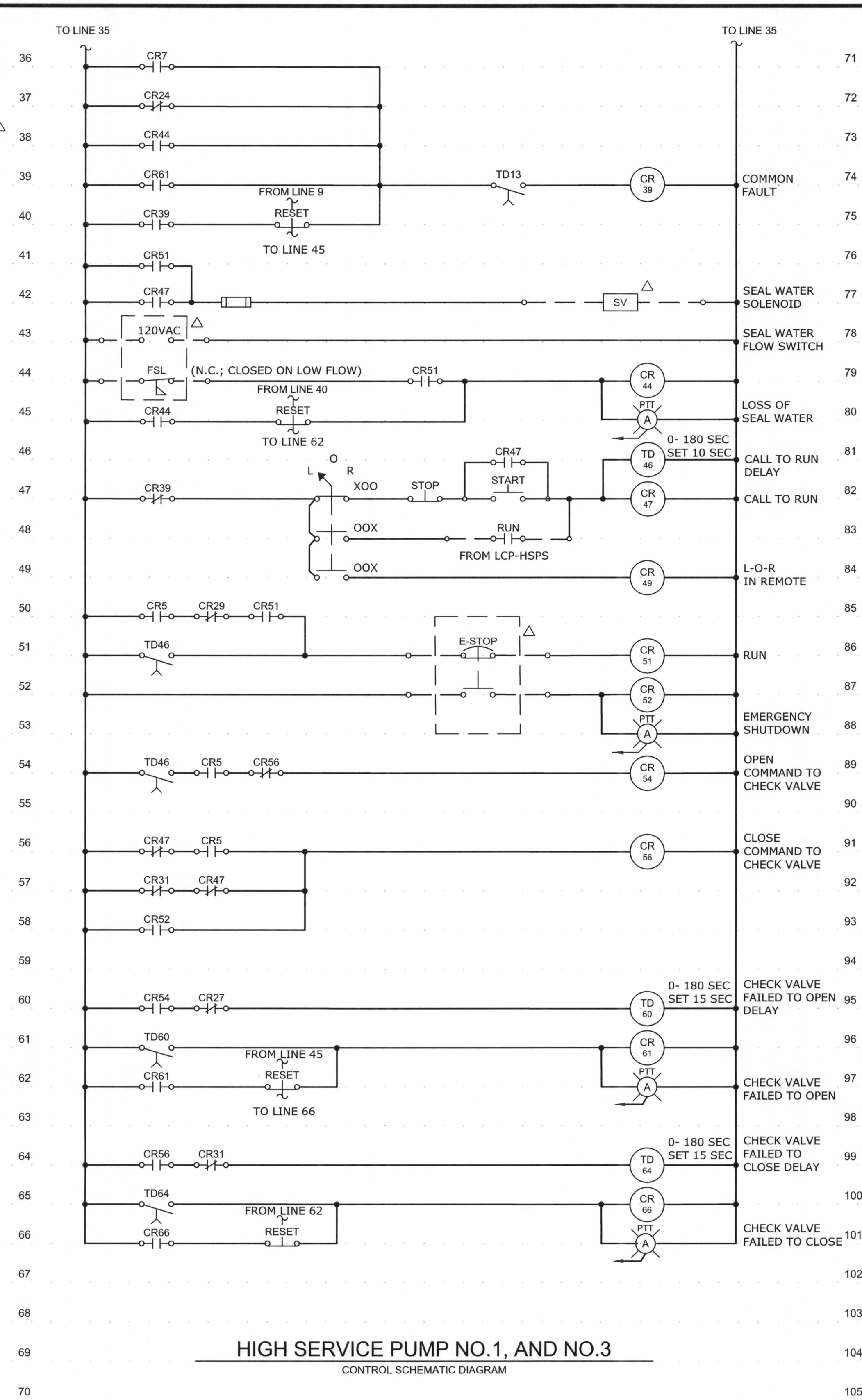
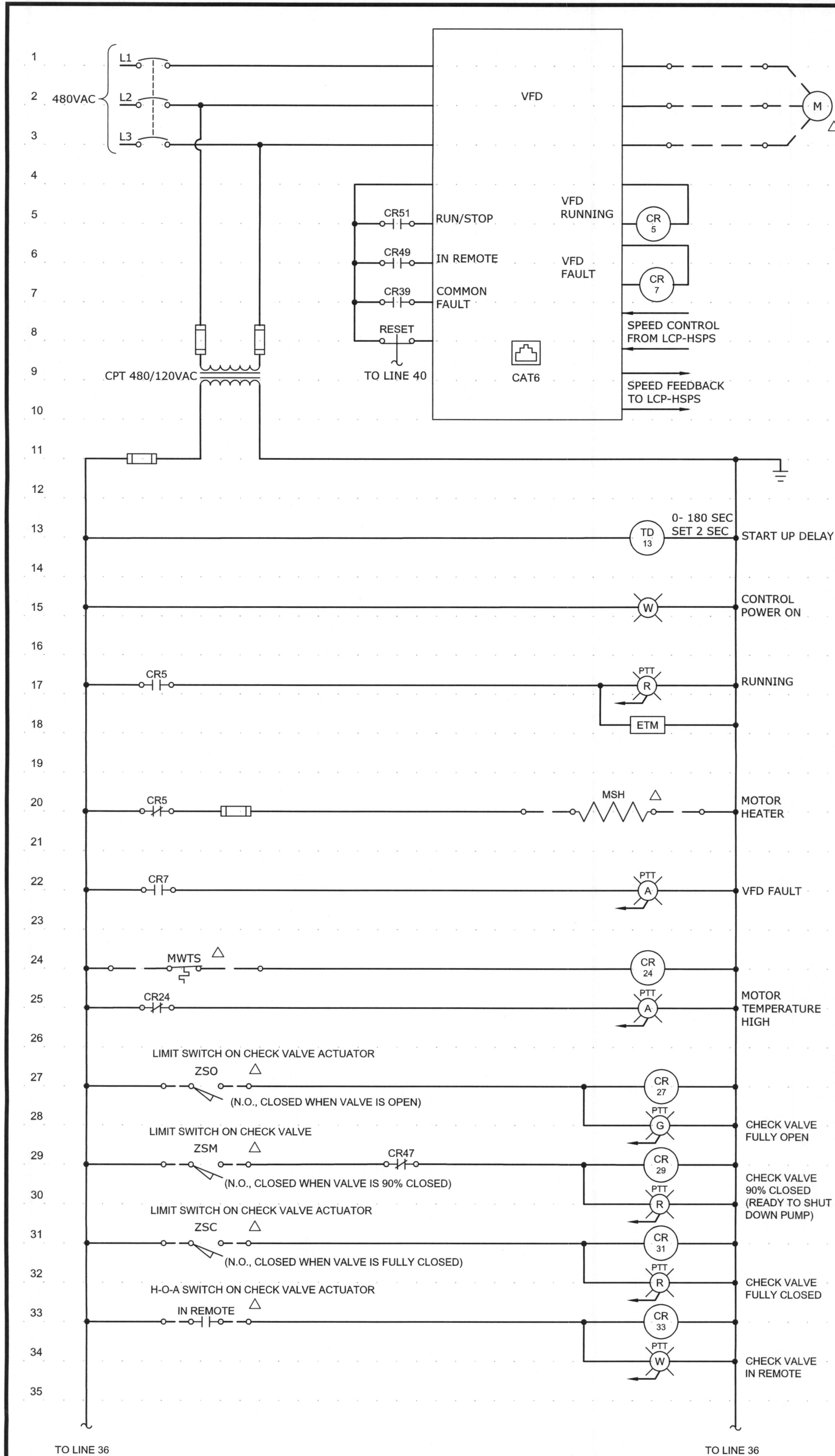
CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA  
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

ELECTRICAL  
HIGH SERVICE PUMP STATION  
BLOCK DIAGRAMS

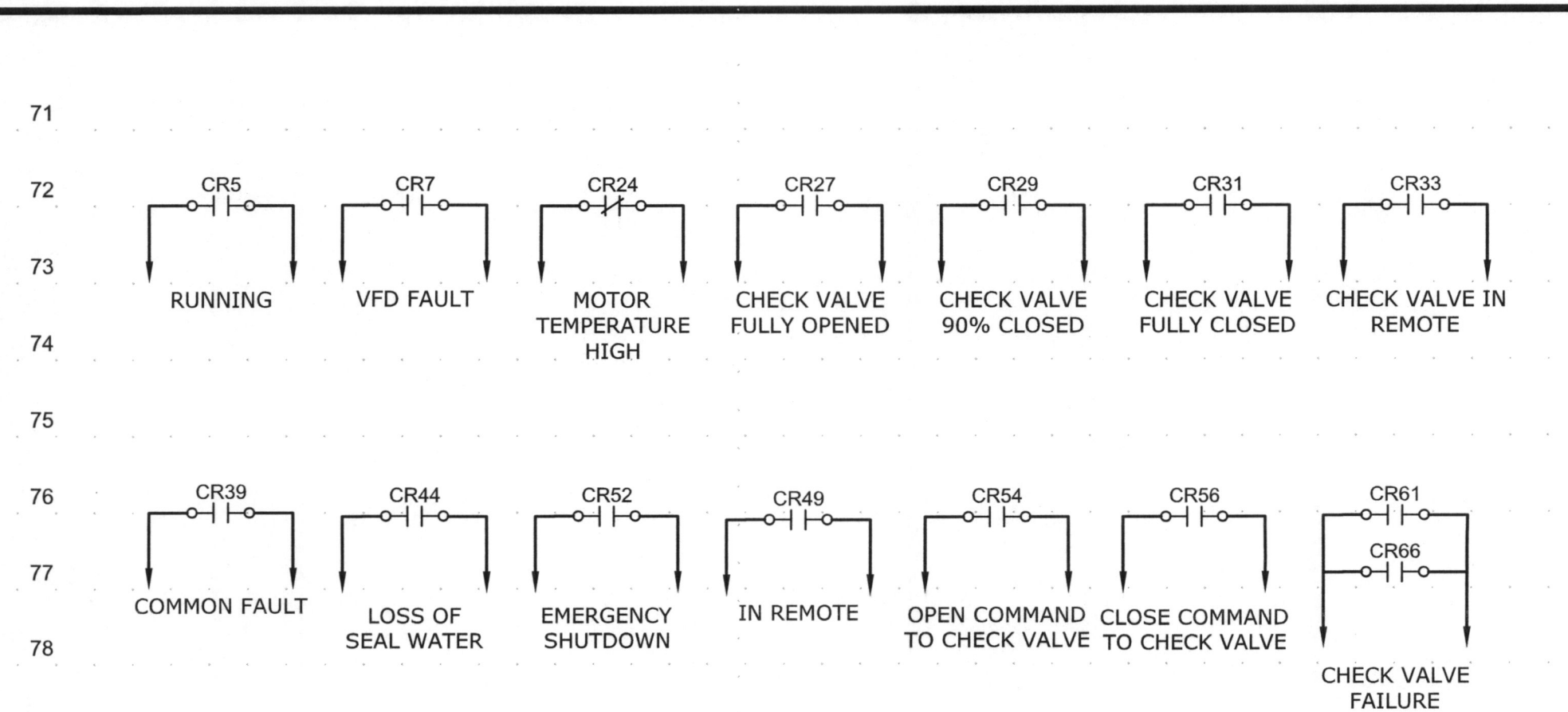
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| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | E008        |



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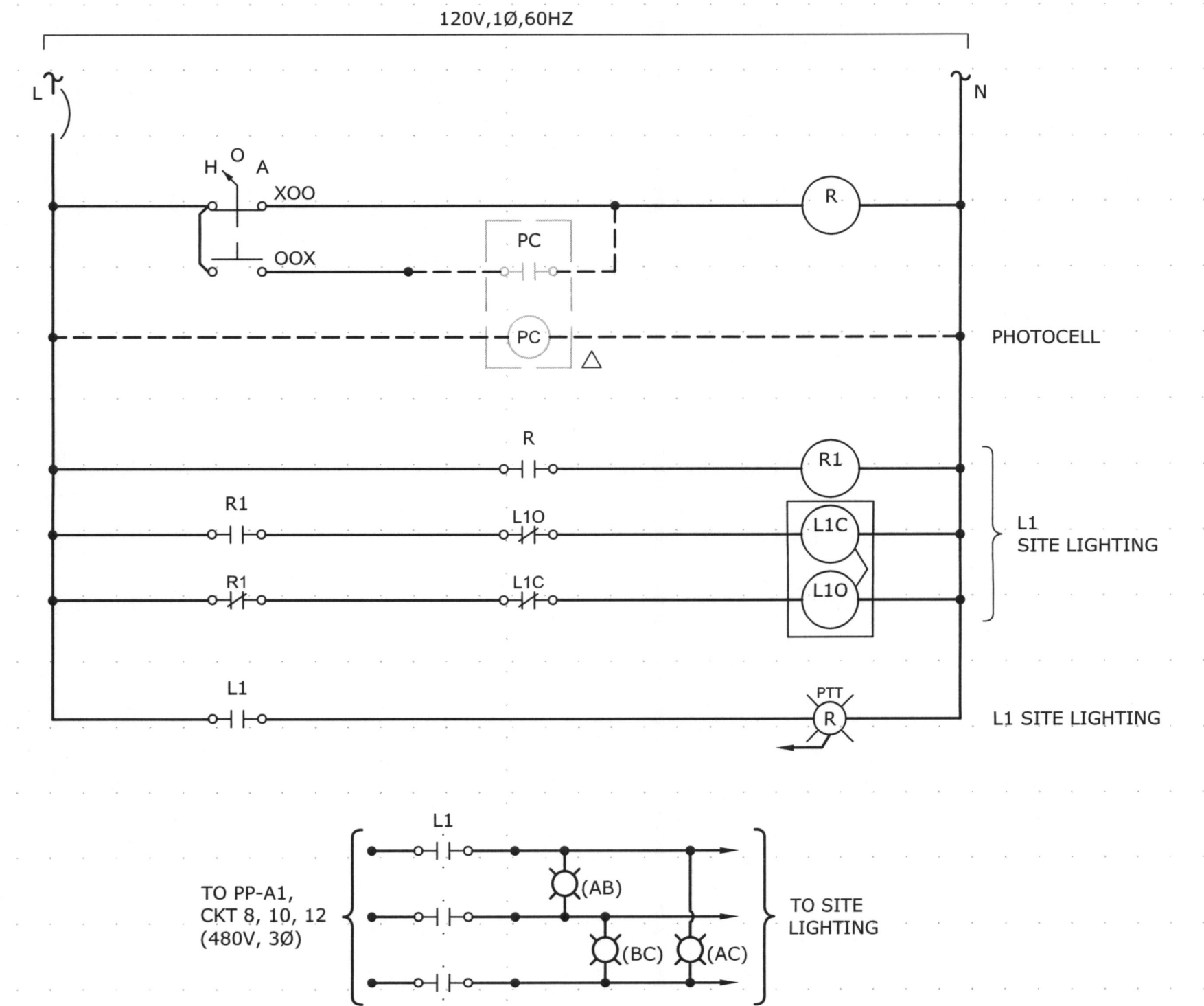
HIGH SERVICE PUMP NO.1, AND NO.3  
CONTROL SCHEMATIC DIAGRAM



NOTES:

1. PROVIDE SEAL WATER CIRCUITRY AS SHOWN IF PUMP IS PROVIDED WITH SEAL WATER.
2. REFER TO FUNCTIONAL DESCRIPTION IN SECTION 40 61 96, PROCESS CONTROL DESCRIPTIONS FOR PRECAUTIONS PERTAINING TO THE START-UP AND OPERATION OF THE PUMPS.


HIGH SERVICE PUMP NO.1, AND NO.3 (CONTINUATION)  
CONTROL SCHEMATIC DIAGRAM



NOTES:

1. L1 CONTACTOR SHALL BE RATED FOR 30A MINIMUM.
2. PROVIDE A 6 POLE LIGHTING CONTACTOR (3 SPARES).

LIGHTING CONTROLLER LCT-A  
CONTROL SCHEMATIC DIAGRAM

|     |            |         |     |   |                   |   |
|-----|------------|---------|-----|---|-------------------|---|
|     |            |         |     |   | PROJECT ENGINEER: | E. MCCALLUM   |
|     |            |         |     |   | DESIGNED BY:      | N. LIMA   |
|     |            |         |     |   | DRAWN BY:         | V. KANCHEVA   |
|     |            |         |     |   | CHECKED BY:       | N. MEYER  |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |                   | 0 1/2" 1  |
| REV | ISSUED FOR | DATE    | BY  |   |                   |  |

|                                      |
|--------------------------------------|
| BID SET                              |
| GBPE LIC #. PEF003685 EXP. 6/30/2022 |

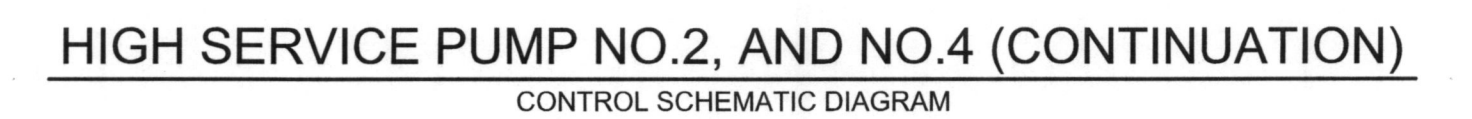
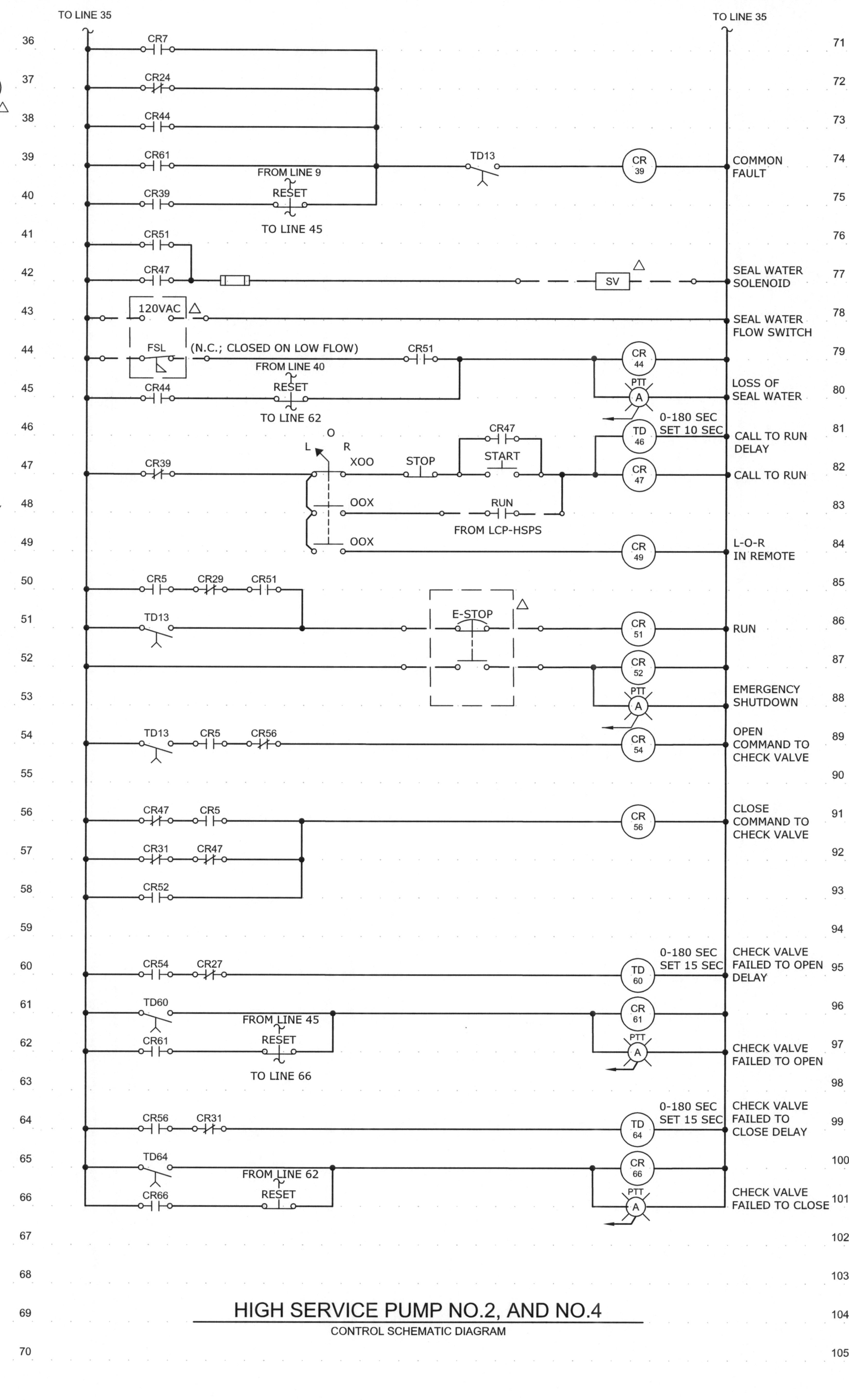
**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA  
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

ELECTRICAL  
HIGH SERVICE PUMP STATION  
SCHEMATIC DIAGRAMS (1 OF 3)

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | E009        |

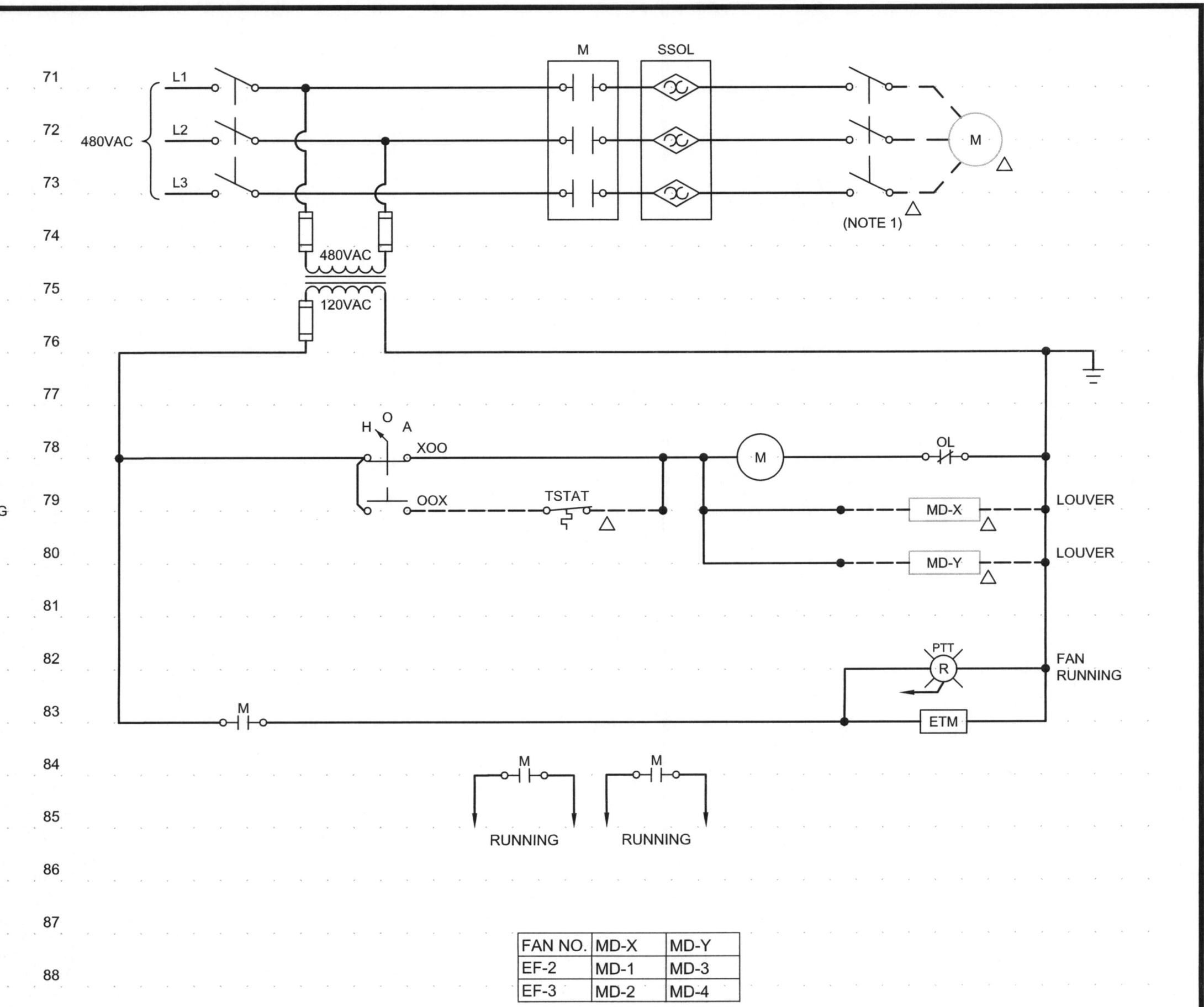
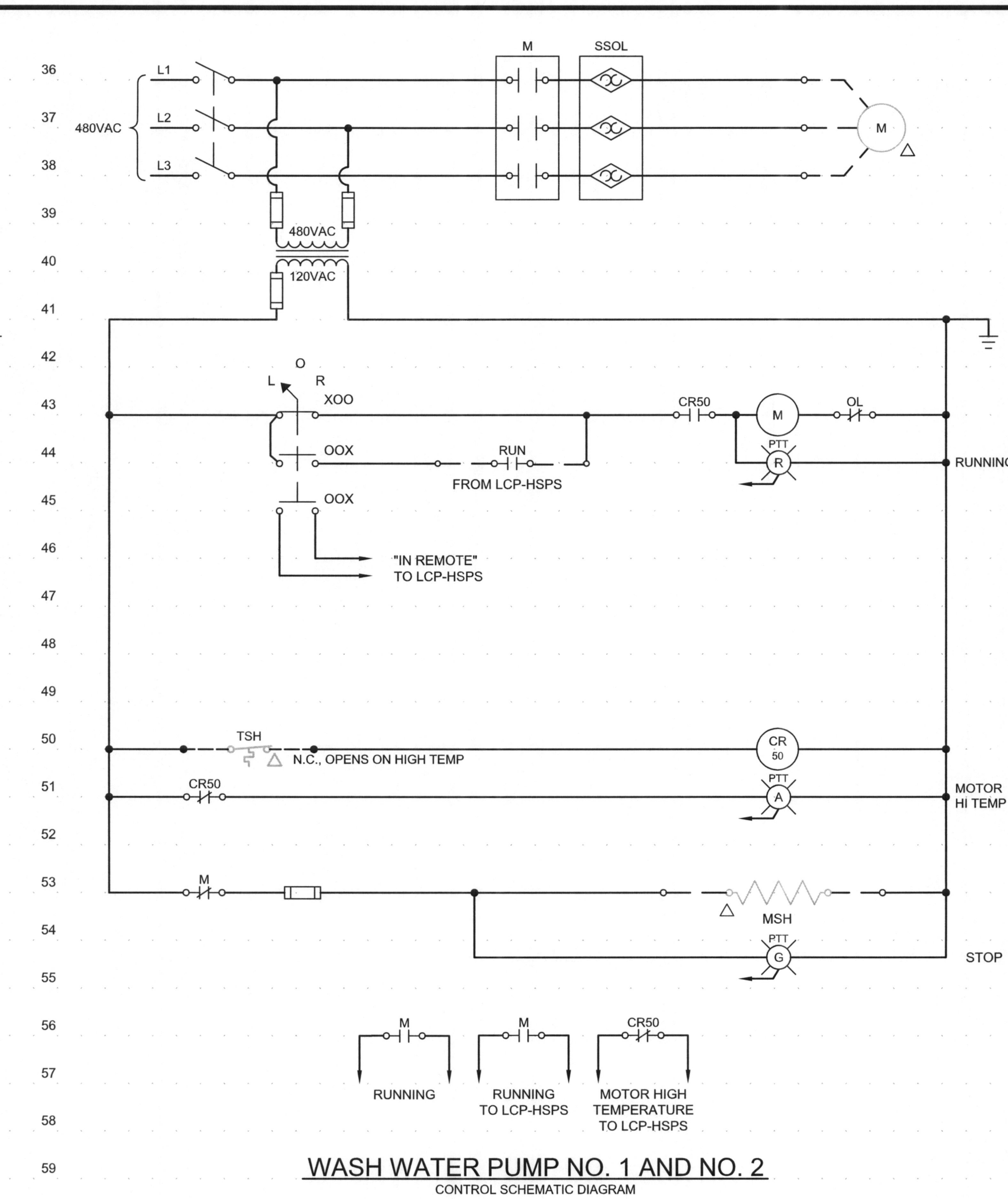
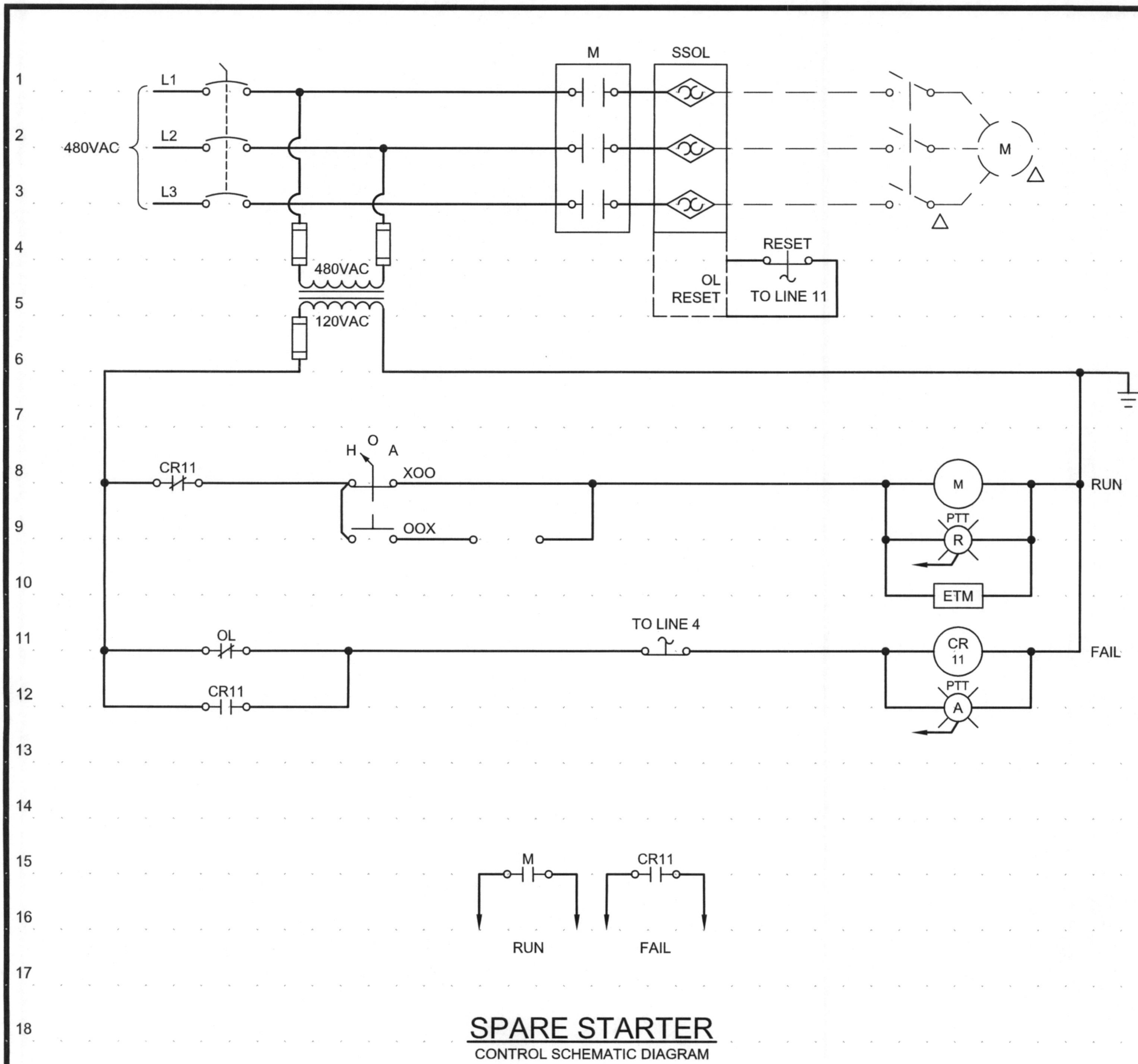




|                    |             |
|--------------------|-------------|
| DATE:              | AUGUST 2020 |
| HAZEN NO.:         | 32457-010   |
| CONTRACT NO.:      | 01          |
| DRAWING<br>NUMBER: | E010        |




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NOTES:

1. LOCATE DISCONNECT SWITCH ON THE ROOF NEAR THE EXHAUST FAN.

EXHAUST FAN EF-2 AND EF-3  
CONTROL SCHEMATIC DIAGRAM

|     |            |         |     |   |  |
|-----|------------|---------|-----|---|--|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM  |
|     |            |         |     | DESIGNED BY:  | N. LIMA  |
|     |            |         |     | DRAWN BY:   | E. BODNAR  |
|     |            |         |     | CHECKED BY:   | N. MEYER   |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE | 0 1/2" 1"<br> |
| REV | ISSUED FOR | DATE    | BY  |   |  |

|                                      |
|--------------------------------------|
| BID SET                              |
| GBPE LIC #. PEF003685 EXP. 6/30/2022 |

**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA  
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | E011        |



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| 480 VOLTS<br>3 PHASE, 3 WIRE                  |                   |        |      |      |         | PP-A1<br>MAIN BREAKER<br>225A 3P |        |        | TYPE: NEMA 12<br>MOUNT: SURFACE |        |        |         |      |      |        |                                  |      |
|---|-------------------|--------|------|------|---------|----------------------------------|--------|--------|---------------------------------|--------|--------|---------|------|------|--------|----------------------------------|------|
| MODS  | DESCRIPTION       | WIRE   | TRIP | POLE | CKT No. | VOLT-AMPERES                     |        |        | VOLT-AMPERES                    |        |        | CKT No. | POLE | TRIP | WIRE   | DESCRIPTION                      | MODS |
| -   | CHECK VALVE NO. 1 | NOTE 1 | 20   | 3    | 1       | 1,400                            |        |        | 5,500                           |        |        | 2       | 3    | 25   | NOTE 1 | ACU-1                            | -    |
|   |                   |        |      |      | 3       |                                  | 1,400  |        |                                 | 5,500  |        | 4       |      |      |        |                                  |      |
|   |                   |        |      |      | 5       |                                  |        | 1,400  |                                 |        | 5,500  | 6       |      |      |        |                                  |      |
| -   | CHECK VALVE NO. 2 | NOTE 1 | 20   | 3    | 7       | 1,400                            |        |        | -                               |        |        | 8       | 3    | 30   | NOTE 1 | SITE LIGHTING CONTACTOR<br>LCT-A | -    |
|   |                   |        |      |      | 9       |                                  | 1,400  |        |                                 | -      |        | 10      |      |      |        |                                  |      |
|   |                   |        |      |      | 11      |                                  |        | 1,400  |                                 |        | -      | 12      |      |      |        |                                  |      |
| -   | CHECK VALVE NO. 3 | NOTE 1 | 20   | 3    | 13      | 1,400                            |        |        | -                               |        |        | 14      | 3    | 30   | NOTE 1 | BRIDGE CRANE                     | -    |
|   |                   |        |      |      | 15      |                                  | 1,400  |        |                                 | -      |        | 16      |      |      |        |                                  |      |
|   |                   |        |      |      | 17      |                                  |        | 1,400  |                                 |        | -      | 18      |      |      |        |                                  |      |
| -   | CHECK VALVE NO. 4 | NOTE 1 | 20   | 3    | 19      | 1,400                            |        |        | 5,000                           |        |        | 20      | 3    | 30   | NOTE 1 | UH-1, UH-3, UH-4                 | -    |
|   |                   |        |      |      | 21      |                                  | 1,400  |        |                                 | 5,000  |        | 22      |      |      |        |                                  |      |
|   |                   |        |      |      | 23      |                                  |        | 1,400  |                                 |        | 5,000  | 24      |      |      |        |                                  |      |
| -   | SPARE             |        | 20   | 3    | 25      | -                                |        |        | 3,666                           |        |        | 26      | 3    | 30   | NOTE 1 | UH-2, UH-5, UH-6                 | -    |
|   |                   |        |      |      | 27      |                                  | -      |        |                                 | 3,666  |        | 28      |      |      |        |                                  |      |
|   |                   |        |      |      | 29      |                                  |        | -      |                                 |        | 3,666  | 30      |      |      |        |                                  |      |
| -   | SPARE             |        | 20   | 3    | 31      | -                                |        |        | -                               |        |        | 32      | 3    | 20   |        | SPARE                            | -    |
|   |                   |        |      |      | 33      |                                  | -      |        |                                 | -      |        | 34      |      |      |        |                                  |      |
|   |                   |        |      |      | 35      |                                  |        | -      |                                 |        | -      | 36      |      |      |        |                                  |      |
| -   | SPARE             |        | 40   | 3    | 37      | -                                |        |        | 500                             |        |        | 38      | 3    | 50   | NOTE 2 | TX-LP-1A                         | -    |
|   |                   |        |      |      | 39      |                                  | -      |        |                                 | 500    |        | 40      |      |      |        |                                  |      |
|   |                   |        |      |      | 41      |                                  |        | -      |                                 |        | 380    | 42      |      |      |        |                                  |      |
| TOTAL   |                   |        |      |      |         | 5,600                            | 5,600  | 5,600  | 14,666                          | 14,666 | 14,546 | TOTAL   |      |      |        |                                  |      |
|   |                   |        |      |      |         | PHASE TOTAL                      |        |        | TOTAL LOAD (VA)                 |        |        |         |      |      |        |                                  |      |
|   |                   |        |      |      |         | 20,266                           | 20,266 | 20,146 | 60,678                          |        |        |         |      |      |        |                                  |      |
|   |                   |        |      |      |         |                                  |        |        | TOTAL LOAD (A)                  |        |        |         |      |      |        |                                  |      |
|   |                   |        |      |      |         |                                  |        |        | 73                              |        |        |         |      |      |        |                                  |      |
| MODIFICATION (MODS) LEGEND:                   |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA) |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA) |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| LOD - LOCK-ON DEVICE                          |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| LFD - LOCK-OFF DEVICE                         |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| ETU - ELECTRONIC TRIP UNIT                    |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| NOTES:  |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| 65KA RMS SYMMETRICAL                          |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |
| SPD 100KA PER PHASE                           |                   |        |      |      |         |                                  |        |        |                                 |        |        |         |      |      |        |                                  |      |

| 208/120 VOLTS<br>3 PHASE, 4 WIRE |                  |        |      |      |         | LP-A1<br>MAIN BREAKER<br>100A 3P |    |    | TYPE: NEMA 12<br>MOUNT: SURFACE |     |    |         |      |        |               |                |      |
|----------------------------------|------------------|--------|------|------|---------|----------------------------------|----|----|---------------------------------|-----|----|---------|------|--------|---------------|----------------|------|
| MODS                             | DESCRIPTION      | WIRE   | TRIP | POLE | CKT No. | VOLT-AMPERES                     |    |    | VOLT-AMPERES                    |     |    | CKT No. | POLE | TRIP   | WIRE          | DESCRIPTION    | MODS |
|                                  |                  |        |      |      |         | A                                | B  | C  | A                               | B   | C  |         |      |        |               |                |      |
| -                                | LIGHTING         | NOTE 3 | 20   | 1    | 1       | EX                               |    |    |                                 |     | 2  | 1       | 20   | NOTE 3 | LIGHTING      | -              |      |
| -                                | LIGHTING         | NOTE 3 | 20   | 1    | 3       |                                  | EX |    |                                 | EX  |    | 4       | 1    | 20     | NOTE 3        | BATT. LIGHTING | -    |
| -                                | RECEPTACLE       | NOTE 3 | 20   | 1    | 5       |                                  |    |    | EX                              |     | 6  | 1       | 20   | L12    | FIT-104       | -              |      |
| -                                | RECEPTACLE       | NOTE 3 | 20   | 1    | 7       | EX                               |    |    |                                 |     | 8  | 1       | 20   | L12    | PHT-101       | -              |      |
| -                                | RECEPTACLE       | NOTE 3 | 20   | 1    | 9       |                                  |    | EX |                                 | EX  |    | 10      | 1    | 20     | L12           | FIT-103        | -    |
| -                                | ACU-1 RECEPTACLE | L12    | 20   | 1    | 11      |                                  |    |    |                                 | 200 | 12 | 1       | 20   | L12    | LIT-101       | -              |      |
| -                                | SPARE            |        | 20   | 1    | 13      | -                                |    |    |                                 |     | 14 | 1       | 20   | L12    | LCT-A         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 15      |                                  |    | -  |                                 |     | 16 | 1       | 20   | L12    | LCP-HSPS      | -              |      |
| -                                | SPARE            |        | 20   | 1    | 17      |                                  |    |    |                                 |     | 18 | 1       | 20   | L12    | AIT-105 (CL2) | -              |      |
| -                                | SPARE            |        | 20   | 1    | 19      | -                                |    |    |                                 |     | 20 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 21      |                                  |    | -  |                                 |     | 22 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 23      |                                  |    |    |                                 |     | 24 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 25      | -                                |    |    |                                 |     | 26 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 27      |                                  |    | -  |                                 |     | 28 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 29      |                                  |    |    |                                 |     | 30 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 31      | -                                |    |    |                                 |     | 32 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 33      |                                  |    | -  |                                 |     | 34 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 35      |                                  |    |    |                                 |     | 36 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 37      | -                                |    |    |                                 |     | 38 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 39      |                                  |    | -  |                                 |     | 40 | 1       | 20   |        | SPARE         | -              |      |
| -                                | SPARE            |        | 20   | 1    | 41      |                                  |    |    |                                 |     | 42 | 1       | 20   |        | SPARE         | -              |      |

TOTAL

00180

PHASE TOTAL

500500580

500500400TOTAL

TOTAL LOAD (VA)

1,580

TOTAL LOAD (A)

4

MODIFICATION (MODS) LEGEND:

EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)

GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)

LOD - LOCK-ON DEVICE

LFD - LOCK-OFF DEVICE

NOTES:

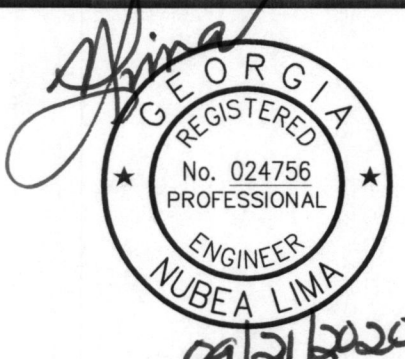

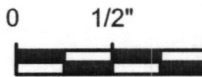
10kA RMS SYMMETRICAL

SPD 100kA PER PHASE

- NOTES:
- SEE DRAWING E008 FOR CONDUIT AND WIRE REQUIREMENTS.
  - SEE DRAWING E004 FOR CONDUIT AND WIRE REQUIREMENTS.
  - MATCH THE WIRE SIZE OF EXISTING CONDUCTOR.

CIRCUIT LEGEND:

L12 - 1°C [2#12; #12GND]

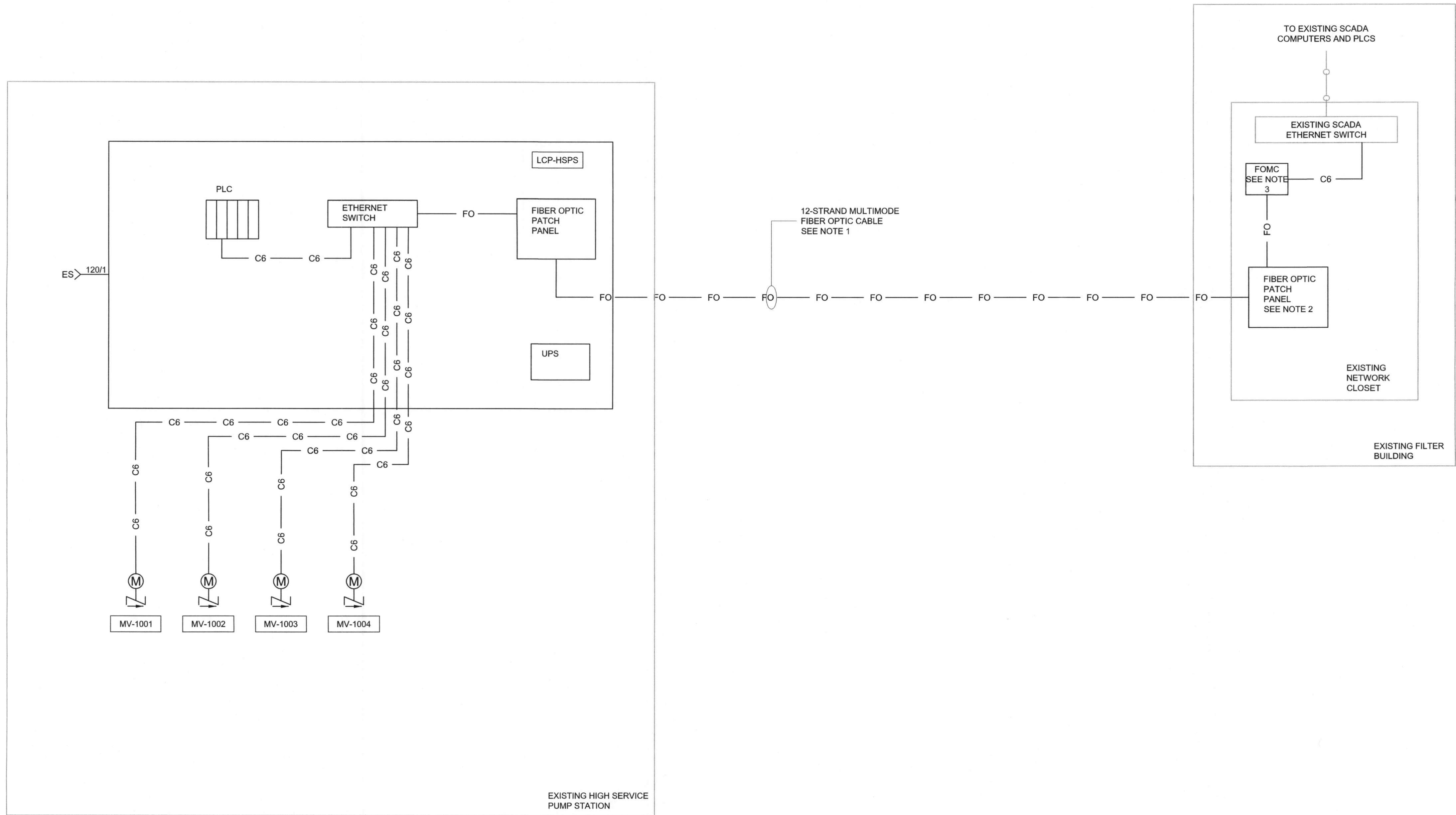
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|-----|------------|---------|-----|---|-------------|---------|---|---|---|--|--|-----------------|-------------|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM | BID SET |  |            | CLAYTON COUNTY WATER AUTHORITY<br>MORROW, GEORGIA | J.W. SMITH WATER PRODUCTION PLANT<br>HIGH SERVICE PUMP STATION<br>UPGRADES | ELECTRICAL<br>HIGH SERVICE PUMP STATION<br>PANEL SCHEDULES | DATE:           | AUGUST 2020 |
|     |            |         |     | DESIGNED BY:  | N. LIMA     |         |   |   |   |  |  | HAZEN NO.:      | 32457-010   |
|     |            |         |     | DRAWN BY:   | E. BODNAR   |         |   |   |   |  |  | CONTRACT NO.:   | 01          |
|     |            |         |     | CHECKED BY:   | N. MEYER    |         |   |   |   |  |  | DRAWING NUMBER: | E012        |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |             |         |   |  |   |  |  |                 |             |
| REV | ISSUED FOR | DATE    | BY  | GBPE LIC #. PEF003685 EXP. 6/30/2022                              |             |         |   |   |   |  |  |                 |             |



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| INSTRUMENT AND FUNCTION SYMBOLS   |  |  |                               |          | VALVE, GATE, AND ACTUATOR SYMBOLS |                                |                                  |  |                               | PUMP AND EQUIPMENT SYMBOLS     |                               |  |                          |                                  | IDENTIFICATION LETTERS          |                                   |                                |                                |                                |                          |  |                    |
|---|--|--|-------------------------------|----------|-----------------------------------|--------------------------------|----------------------------------|--|-------------------------------|--------------------------------|-------------------------------|--|--------------------------|----------------------------------|---------------------------------|-----------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------|--|--------------------|
| LOCATION AND ACCESSIBILITY  | SHARED DISPLAY/SHARED CONTROL                  |  | COMPUTER SYSTEMS AND SOFTWARE | DISCRETE |                                   |                                |                                  |  |                               |                                |                               |  |                          | FIRST LETTERS                    |                                 | SUCCEEDING LETTERS                |                                |                                |                                |                          |  |                    |
|   | PRIMARY CHOICE OR BASIC PROCESS CONTROL SYSTEM | ALTERNATE CHOICE OR SAFETY INSTRUMENTED SYSTEM |                               |          |                                   |                                |                                  |  |                               |                                |                               |  |                          |                                  | MEASURED OR INITIATING VARIABLE | VARIABLE MODIFIER                 | READOUT/ PASSIVE FUNCTION      | OUTPUT/ ACTIVE FUNCTION        | FUNCTION MODIFIER              |                          |  |                    |
| - LOCATED IN FIELD<br>- NOT PANEL, CABINET, OR CONSOLE MOUNTED<br>- VISIBLE AT FIELD LOCATION<br>- NORMALLY OPERATOR ACCESSIBLE   |  |  |                               |          |                                   | GATE VALVE                     |                                  | PLUG VALVE                                   |                               | BACKFLOW PREVENTER             |                               | CENTRIFUGAL WET PIT PUMP (OR DRY-PIT SUBMERSIBLE)  |                          | BLOWER (CENTRIFUGAL)             |                                 | GEAR PUMP (POSITIVE DISPLACEMENT) |                                |                                |                                |                          |  |                    |
| - LOCATED IN OR ON FRONT OF CENTRAL OR MAIN PANEL OR CONSOLE<br>- VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY<br>- NORMALLY OPERATOR ACCESSIBLE AT PANEL FRONT OR CONSOLE   |  |  |                               |          |                                   | BALL VALVE                     |                                  | PRESSURE RELIEF VALVE                        |                               | VACUUM RELIEF VALVE            |                               | CHOPPER PUMP                                       |                          | PISTON PUMP                      |                                 | DIAPHRAGM PUMP                    |                                |                                |                                |                          |  |                    |
| - LOCATED IN REAR OF CENTRAL OR MAIN PANEL<br>- LOCATED IN CABINET BEHIND PANEL<br>- NOT VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY<br>- NORMALLY OPERATOR ACCESSIBLE AT PANEL FRONT OR CONSOLE  |  |  |                               |          |                                   | BUTTERFLY VALVE                |                                  | COMBINATION VACUUM AND PRESSURE RELIEF VALVE |                               | VACUUM RELIEF VALVE            |                               | ROTARY LOBE PUMP OR BLOWER (POSITIVE DISPLACEMENT) |                          | METERING PUMP                    |                                 | COMPRESSOR                        |                                |                                |                                |                          |  |                    |
| - LOCATED IN OR ON FRONT OF SECONDARY OR LOCAL PANEL OR CONSOLE<br>- VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY<br>- NORMALLY OPERATOR ACCESSIBLE AT PANEL FRONT OR CONSOLE  |  |  |                               |          |                                   | 3-WAY VALVE                    |                                  | PRESSURE-REDUCING REGULATOR                  |                               | BACKPRESSURE REGULATOR         |                               | PROGRESSIVE CAVITY PUMP                            |                          | VERTICAL PUMP                    |                                 | INLINE GRINDER                    |                                |                                |                                |                          |  |                    |
| - LOCATED IN REAR OF SECONDARY OR LOCAL PANEL<br>- LOCATED IN FIELD CABINET<br>- NOT NORMALLY OPERATOR ACCESSIBLE AT PANEL OR CONSOLE   |  |  |                               |          |                                   | NEEDLE VALVE                   |                                  | AIR RELEASE VALVE                            |                               | ROTARY MOTOR                   |                               | CENTRIFUGAL PUMP                                   |                          | SCREW CENTRIFUGAL PUMP           |                                 | MIXER                             |                                |                                |                                |                          |  |                    |
| <div><div><div><div><div><div></div><div>X</div></div><div><div></div><div></div></div><div><div></div><div>*</div></div><div><div></div><div>(ZZZ)</div></div></div><div><div>AHC - AUTO/HOLD/CLOSE</div><div>AM - AUTO/MANUAL</div><div>CALC - CALCULATION</div><div>DEV - DEVIATION</div><div>MOA - MANUAL/OFF/AUTO</div><div>HOR - HAND/OFF/REMOTE</div><div>LOS - LOCKOUT STOP</div><div>LR - LOCAL/REMOTE</div><div>LSR - LOCAL/STOP/REMOTE</div><div>00 - ON / OFF</div></div><div><div>OC - OPEN/CLOSE</div><div>OSC - OPEN/STOP/CLOSED</div><div>POT - POTENTIOMETER</div><div>RL - RAISE/LOWER</div><div>RS - RUN/STOP</div><div>RSL - RAISE/STOP/LOWER</div><div>SD - SHUTDOWN</div><div>SEL - SELECT</div><div>SP - SET POINT</div><div>SR - START/RESET</div><div>SS - STOP/START</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>INSTRUMENT WITH COMPUTING OR CONVERTING FUNCTION</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>CONTROL SYSTEM COMPUTING FUNCTION</div></div></div><div><div><div><div></div><div>E - VOLTAGE</div><div>I - CURRENT</div><div>P - PNEUMATIC</div><div>A - ANALOG</div><div>B - BINARY</div></div><div><div>H - HYDRAULIC</div><div>O - ELECTROMAGNETIC, SONIC</div><div>R - RESISTANCE (ELECT.)</div><div>D - DIGITAL</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>COMPUTE</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>DIFFERENCE</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>HIGH SELECTING</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>LOW SELECTING</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>INTEGRAL</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>COMPLEX FUNCTION</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div># = 1, 2, 3, etc.</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>REFER TO NOTE ON SAME SHEET FOR BRIEF DESCRIPTION</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>ELECTRICAL CONTROL INTERLOCK</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>COMPLEX INTERLOCK</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div># = 1, 2, 3, etc.</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>REFER TO NOTE ON SAME SHEET FOR BRIEF DESCRIPTION</div></div></div><div><div><div><div></div><div>*</div></div><div><div></div><div>*</div></div></div><div><div>PILOT LIGHT</div></div></div></div></div></div> |  |  |                               |          | MISCELLANEOUS SYMBOLS             |                                |                                  |  |                               |                                |                               |  |                          |                                  |                                 |                                   |                                |                                |                                |                          |  |                    |
|   |  |  |                               |          |                                   | BASKET STRAINER                |                                  | STRAINER                                     |                               | HORN/STROBE                    |                               | ELECTRIC MOTOR SPACE HEATER                        |                          | SILENCER                         |                                 | EQUIPMENT OR PANEL TAG            |                                | AIR FILTER                     |                                |                          |  |                    |
|   |  |  |                               |          |                                   | QUICK CONNECT                  |                                  | PULSATION DAMPENERS                          |                               | RUPTURE DISK                   |                               | FULL LINE OR TAPPED RING SEAL                      |                          | MOTOR                            |                                 | STATIC MIXER                      |                                | INJECTOR                       |                                |                          |  |                    |
|   |  |  |                               |          |                                   | BLIND FLANGE                   |                                  | EXPANSION TANK                               |                               | VENT                           |                               | DRAIN  |                          | FILTER                           |                                 | INJECTOR                          |                                |                                |                                |                          |  |                    |
|   |  |  |                               |          |                                   | FLEXIBLE HOSE                  |                                  | CALIBRATION CYLINDER                         |                               | HORN                           |                               | DRAIN  |                          | FILTER                           |                                 | INJECTOR                          |                                |                                |                                |                          |  |                    |
|   |  |  |                               |          |                                   | ELECTRIC MOTOR SPACE HEATER    |                                  | DIAPHRAGM SEAL                               |                               | FULL LINE OR TAPPED RING SEAL  |                               | DRAIN  |                          | FILTER                           |                                 | INJECTOR                          |                                |                                |                                |                          |  |                    |
|   |  |  |                               |          |                                   | MOTOR                          |                                  | FILTER                                       |                               | INJECTOR                       |                               | GUIDED WAVE RADAR LEVEL SENSOR                     |                          | SUBMERSIBLE LEVEL SENSOR         |                                 | FLOAT LEVEL SWITCH                |                                | CAPACITANCE LEVEL SENSOR       |                                |                          |  |                    |
|   |  |  |                               |          |                                   | AIR FILTER                     |                                  | STATIC MIXER                                 |                               | GUIDED WAVE RADAR LEVEL SENSOR |                               | SUBMERSIBLE LEVEL SENSOR                           |                          | FLOAT LEVEL SWITCH               |                                 | CAPACITANCE LEVEL SENSOR          |                                | GUIDED WAVE RADAR LEVEL SENSOR |                                |                          |  |                    |
|   |  |  |                               |          |                                   | SUBMERSIBLE LEVEL SENSOR       |                                  | FLOAT LEVEL SWITCH                           |                               | CAPACITANCE LEVEL SENSOR       |                               | GUIDED WAVE RADAR LEVEL SENSOR                     |                          | GUIDED WAVE RADAR LEVEL SENSOR   |                                 | GUIDED WAVE RADAR LEVEL SENSOR    |                                | GUIDED WAVE RADAR LEVEL SENSOR |                                |                          |  |                    |
|   |  |  |                               |          |                                   | GUIDED WAVE RADAR LEVEL SENSOR |                                  | GUIDED WAVE RADAR LEVEL SENSOR               |                               | GUIDED WAVE RADAR LEVEL SENSOR |                               | GUIDED WAVE RADAR LEVEL SENSOR                     |                          | GUIDED WAVE RADAR LEVEL SENSOR   |                                 | GUIDED WAVE RADAR LEVEL SENSOR    |                                | GUIDED WAVE RADAR LEVEL SENSOR |                                |                          |  |                    |
|   |  |  |                               |          | PRIMARY ELEMENT SYMBOLS           |                                |                                  |  |                               |                                |                               |  |                          |                                  |                                 |                                   |                                |                                |                                |                          |  |                    |
|   |  |  |                               |          |                                   | MAGNETIC FLOW METER            |                                  | TURBINE OR PROPELLER FLOW METER              |                               | VARIABLE AREA ROTAMETER(R)     |                               | VORTEX FLOW METER                                  |                          | POSITIVE DISPLACEMENT FLOW METER |                                 | ORIFICE PLATE                     |                                | ROTAMETER WITH INTEGRAL VALVE  |                                | SUBMERSIBLE LEVEL SENSOR |  | FLOAT LEVEL SWITCH |
|   | SONIC FLOW METER                               |  | VENTURI FLOW METER            |          | AVERAGING PITOT TUBE              |                                | ORIFICE PLATE                    |  | ROTAMETER WITH INTEGRAL VALVE |                                | SUBMERSIBLE LEVEL SENSOR      |  | FLOAT LEVEL SWITCH       |                                  | CAPACITANCE LEVEL SENSOR        |                                   | GUIDED WAVE RADAR LEVEL SENSOR |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  | ORIFICE PLATE                 |                                | ROTAMETER WITH INTEGRAL VALVE |  | SUBMERSIBLE LEVEL SENSOR |                                  | FLOAT LEVEL SWITCH              |                                   | CAPACITANCE LEVEL SENSOR       |                                | GUIDED WAVE RADAR LEVEL SENSOR |                          |  |                    |
|   | THERMAL MASS FLOW METER                        |  | TURBINE FLOW METER            |          | VORTEX FLOW METER                 |                                | POSITIVE DISPLACEMENT FLOW METER |  |                               |                                |                               |  |                          |                                  |                                 |                                   |                                |                                |                                |                          |  |                    |



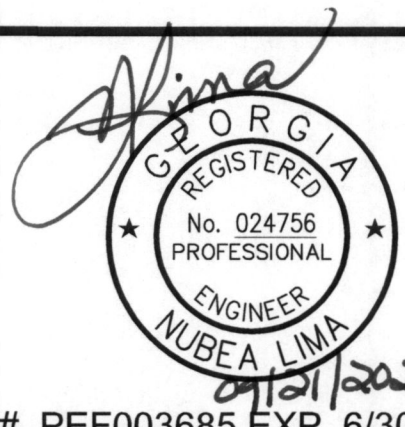


- NOTES:
- 1. INSTALL IN EXISTING DUCTBANKS CURRENTLY USED FOR HARDWIRED SIGNALS FROM EXISTING HIGH SERVICE PUMP STATION TO NETWORK CLOSET. FIBER OPTIC CABLE IS FURNISHED UNDER UNIT PRICE BID ITEM SECTION 00 41 00 - 3.03.a.
  - 1.1. COORDINATE CABLE ROUTE THROUGH EXISTING DUCTBANKS WITH OWNER.
  - 1.2. COORDINATE SERVICE OUTAGES FOR EXISTING HARDWIRED SIGNALS WITH CONTRACTOR AND WITH OWNER.
  - 2. FIELD LOCATE FIBER OPTIC PATCH PANEL IN EXISTING NETWORK CLOSET ON 2ND FLOOR OF EXISTING FILTER BUILDING.
  - 3. PROVIDE DC POWER SUPPLY IN NEMA 12 ENCLOSURE FOR FIBER OPTIC MEDIA CONVERTER (FOMC).
  - 3.1. FIELD-DETERMINE UPS-PROTECTED 120 VAC POWER SOURCE FOR FIBER OPTIC MEDIA CONVERTER. PROVIDE CONDUIT AND WIRE FOR THE POWER SUPPLY.
  - 4. ENTIRETY OF EXISTING PLANT CONTROL SYSTEM IS NOT SHOWN.

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PLOT DATE: 9/21/2020 3:42 PM BY: RSHERMAN

|     |            |         |     |   |             |
|-----|------------|---------|-----|---|-------------|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM |
|     |            |         |     | DESIGNED BY:  | R. SHERMAN  |
|     |            |         |     | DRAWN BY:   | R. SHERMAN  |
|     |            |         |     | CHECKED BY:   | M MCCANN    |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |             |
| REV | ISSUED FOR | DATE    | BY  |   |             |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA

J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

INSTRUMENTATION  
SYSTEM ARCHITECTURE MODIFICATIONS

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | 1002        |







The diagram illustrates the components of a ceiling diffuser symbol. At the top, a legend defines the symbols used in the unit designation: a circle with 'T' for Thermostat/Sensor/Control Unit, a circle with 'S' for Air Handling Unit, a hatched rectangle for Demolition, and a wavy rectangle for Area of Focus. Below this, a sample symbol is shown with the designation '(\*)C(\*)-AHU-1' above a hatched rectangle, and 'SG-1' below it. Arrows point from the text labels to the corresponding parts of the symbol: 'QUANTITY DESIGNATION' points to the first '(', 'EQUIPMENT DESIGNATION' points to 'C', 'BUILDING DESIGNATION WHEN APPLICABLE' points to 'AHU', 'SUPPLY AIR GRILLE' points to 'SG', and 'SUPPLY AIR GRILLE (TYPE 1)' points to '1'. Further down, another sample symbol is shown with 'RG-1' and 'ER1' to its left. Arrows point from the text labels to these parts: 'RETURN AIR GRILLE (TYPE 1)' points to 'RG-1', 'EXHAUST AIR GRILLE (TYPE 1)' points to 'ER1', '20X10 SR1' points to the grille size '20X10', '1000 CFM' points to the airflow rate '1000', 'LOUVERED FACE SIZE' points to '24X24', 'CEILING DIFFUSER (TYPE A)' points to 'CDA', 'CUBIC FEET PER MINUTE AIRFLOW RATE SETTING (MAX)' points to '8-300', and 'NECK DIAMETER' points to '300'.

**LEGEND:**

- (T) / (S) : THERMOSTAT/SENSOR/CONTROL UNIT
- AHU : AIR HANDLING UNIT
- BOB : BOTTOM OF DUCT
- RA : RETURN AIR
- SA : SUPPLY AIR

**SYMBOL COMPONENTS:**

- (\*)C(\*)-AHU-1 : QUANTITY DESIGNATION, EQUIPMENT DESIGNATION, BUILDING DESIGNATION WHEN APPLICABLE
- SG-1 : SUPPLY AIR GRILLE, SUPPLY AIR GRILLE (TYPE 1)
- RG-1 : RETURN AIR GRILLE (TYPE 1)
- ER1 : EXHAUST AIR GRILLE (TYPE 1)
- 20X10 SR1 : 20X10 NECK SIZE, SUPPLY GRILLE (TYPE 1)
- 1000 CFM : 1000 CUBIC FEET PER MINUTE AIRFLOW RATE
- 24X24 CDA : LOUVERED FACE SIZE, CEILING DIFFUSER (TYPE A)
- 8-300 : CUBIC FEET PER MINUTE AIRFLOW RATE SETTING (MAX), NECK DIAMETER

1. THE ENTIRE HVAC SYSTEM SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL MECHANICAL CODE.
2. THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.
3. EQUIPMENT SIZES AND LOCATIONS ARE APPROXIMATE. ACTUAL DIMENSIONS TO BE DETERMINED BY EQUIPMENT FURNISHED. COORDINATE HVAC WORK WITH THE WORK OF ALL OTHER TRADES.
4. FINAL OPENING DIMENSIONS, CONCRETE PAD SIZES, AND LOCATIONS MUST BE COORDINATED DURING CONSTRUCTION WITH APPROVED EQUIPMENT.
5. FINAL SIZES OF FLOOR OPENINGS, DUCT PLENUMS, TRANSITIONS AND PIPING CONNECTIONS TO ALL EQUIPMENT SHALL BE DETERMINED BY EQUIPMENT FURNISHED.
6. THE DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW INTENDED GENERAL LOCATION OF HVAC EQUIPMENT AND SYSTEMS. NOT ALL OFFSETS AND REQUIRED FITTINGS FOR ACTUAL FIELD INSTALLATION ARE INTENDED TO BE SHOWN FOR INSTALLATION OF SYSTEMS IN THE SPACE AVAILABLE IN CONSIDERATION OF WORK OF OTHER TRADES AND FIELD CONDITIONS. CONTRACTOR SHALL PROVIDE ADDITIONAL OFFSETS IN DUCTWORK AND PIPING AS REQUIRED TO AVOID SUCH INTERFERENCES OR FIELD CONDITIONS AT NO ADDITIONAL COST TO THE ORIGINAL CONTRACT AMOUNT.
7. FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED OR WIDTH OF DUCT IN PLAN VIEW.
8. COORDINATE THE REQUIREMENTS FOR HVAC OPENINGS AND SLEEVES IN BUILDING ELEMENTS WITH THE GC.
9. REFER TO ELECTRICAL DRAWINGS OR SPECIFICATIONS FOR INTERLOCKING WIRING REQUIREMENTS.
10. PROVIDE ADEQUATE SUPPORT, PER THE MANUFACTURER'S RECOMMENDATIONS, FOR ALL HVAC EQUIPMENT.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ELECTRICAL RATINGS FROM CERTIFIED DRAWINGS OF EQUIPMENT AND SHALL MAKE ANY BRANCH CIRCUIT DISTRIBUTION MODIFICATION REQUIREMENTS WITHOUT ANY ADDITIONAL COST TO OWNER. THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF SUCH CHANGES FOR APPROVAL BY ENGINEER.
12. WHEREVER THE REQUIREMENTS AND REGULATIONS OF STATE, FEDERAL, AND LOCAL AUTHORITIES HAVING JURISDICTION DIFFER FROM THE DRAWINGS OR SPECIFICATIONS, THEY SHALL TAKE PRECEDENCE AND SHALL BE MADE PART OF THE CONTRACT (EXCEPT WHERE THE DRAWINGS OR SPECIFICATIONS ARE MORE STRINGENT).
13. THERMOSTATS, SENSORS, AND/OR CONTROL PANEL LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE COORDINATED TO SUIT FIELD CONDITIONS.
14. INSTALL WALL MTD SENSORS, CONTROLS AND THERMOSTATS 5'-0" AFF UNLESS OTHERWISE NOTED. ALIGN WITH OTHER NEARBY ITEMS SUCH AS LIGHT SWITCHES. DO NOT INSTALL CLOSER THAN 6-INCHES FROM EDGE OF DOOR FRAME OR CORNER OF WALL AS SHOWN ON ARCH PLANS. WHERE CONFLICTS MAY OCCUR WITH ITEMS SUCH AS LIGHT SWITCHES, MOUNT THE SENSOR OR CONTROL DEVICE 4'-6" AFF CENTERED ABOVE THE LIGHT SWITCH.
15. PROVIDE ADEQUATE MEANS OF ACCESS CLEARANCE FOR ALL HVAC/MECHANICAL EQUIPMENT AND SYSTEMS THAT REQUIRE ACCESS FOR PROPER OPERATION, MAINTENANCE AND REPAIR PER RECOMMENDED MANUFACTURER CLEARANCES. PROVIDE ACCESS DOORS WHERE NECESSARY IN FINISHED WALLS OR DRYWALL CEILINGS FOR ACCESS TO VALVES, DAMPERS, OR CONTROL DEVICES.
16. COORDINATE THE REQUIREMENTS OF HVAC HANGERS AND SUPPORTS W/ OTHER PRIME CONTRACTORS PROVIDING STRUCTURAL AND/OR ARCHITECTURAL BUILDING ELEMENTS WHICH HVAC SUPPORTS SHALL INTERFACE.
17. CONTRACTOR SHALL OBTAIN AND PAY ALL FEES RELATED TO PERMITTING, AND INSPECTIONS.
18. FOR ADDITIONAL REQUIREMENTS REFER TO SPECIFICATIONS.
19. ALL DUCT DIMENSIONS ARE CLEAR DIMENSIONS TO INSIDE DUCT. DIMENSIONS TO DUCTS FROM FLOOR OR WALL SHALL BE THE OUTSIDE OF DUCT INSTALLATION.
20. CONTRACTOR SHALL COORDINATE DUCTWORK INSTALLATION WITH OTHER TRADES.

| TAG   | LOCATION                  | AREA            | MANUFACTURER |             | TYPE          | TOTAL COOLING CAPACITY (MBH) | SENSIBLE COOLING CAPACITY (MBH) | HEATING CAPACITY (MBH) | AIR FLOW (CFM) | E.S.P. ("WG) | OUTSIDE AIR (CFM) | COOLING COIL |      |          |       | EER  | IEER | WEIGHT (LBS) | POWER |    |    |     |      | NOTES |
|-------|---------------------------|-----------------|--------------|-------------|---------------|------------------------------|---------------------------------|------------------------|----------------|--------------|-------------------|--------------|------|----------|-------|------|------|--------------|-------|----|----|-----|------|-------|
|       |                           |                 | MAKE         | MODEL       |               |                              |                                 |                        |                |              |                   | EAT (°F)     |      | LAT (°F) |       |      |      |              | VOLT  | PH | HZ | MCA | MOCP |       |
|       |                           |                 |              |             |               |                              |                                 |                        |                |              |                   | DB           | WB   | DB       | WB    |      |      |              |       |    |    |     |      |       |
| ACU-1 | HIGH SERVICE PUMP STATION | ELECTRICAL ROOM | TRANE        | THC092F4R0A | PACKAGED UNIT | 90.1                         | 77.56                           | -                      | 2720           | 0.5          | 35                | 86.9         | 67.4 | 60.88    | 56.83 | 12.6 | 14.5 | 1228         | 460   | 60 | 3  | 20  | 25   | 1-9   |

1. HORIZONTAL DUCT CONNECTIONS
2. PROVIDE WITH ECONOMIZER CYCLE WITH DIFFERENTIAL ENTHALPY CONTROL
3. PROVIDE WITH MERV 8 FILTER
4. PROVIDE UV RESISTANT ENAMEL COATING
5. PROVIDE CIRCUIT BREAKER WITH CONVENIENCE OUTLET
6. PROVIDE MANUFACTURER'S ELECTRIC THERMOSTAT (REFER TO SPECIFICATION 23 09 01)
7. PROVIDE ANTI-SHORT CYCLE TIMING AND TIME DELAY BETWEEN COMPRESSORS
8. MANUFACTURER PROVIDED MOTOR STARTER
9. PROVIDE RELIATEL CONTROL PLATFORM

2. AIR HANDLER ACU-1 SHALL BE CONTROLLED BY A LOCAL ELECTRIC THERMOSTAT.
3. THE THERMOSTAT SHALL BE PROGRAMMABLE WITH SEPARATE "START" AND "STOP" COOLING SPACE TEMPERATURE SETPOINTS AND SEPARATE "START" AND "STOP" HEATING SPACE TEMPERATURE SETPOINTS TO ESTABLISH DEAD BAND TEMPERATURE RANGES TO MINIMIZE EXCESSIVE CYCLING OF THE UNIT. THE UNIT SHALL BE CONTROLLED TO HAVE A MINIMUM RUN TIME OF 10 MINUTES
4. THE COOLING MODE OF ACU-1 SHALL BE COMMANDED ON WHEN THE SPACE TEMPERATURE IS ABOVE THE "START" COOLING SET-POINT (85°F, ADJ.).
5. THE COOLING MODE OF ACU-1 SHALL BE COMMANDED OFF WHEN THE SPACE TEMPERATURE IS BELOW THE "STOP" COOLING SET-POINT (80°F, ADJ.).
6. ACU-1 SHALL BE PROVIDED WITH AN ECONOMIZER CYCLE WHICH OPERATES BASED ON DIFFERENTIAL ENTHALPY CONTROL.
7. ACU-1 SHALL COME EQUIPPED WITH A BAROMETRIC RELIEF DAMPER TO ALLOW SPACE PRESSURIZATION TO BE RELIEVED THROUGH THE RETURN DUCTWORK AND EXHAUSTED TO THE OUTSIDE THROUGH ACU-1 WHEN OPERATING IN ECONOMIZER MODE.
8. ALL ECONOMIZER MODE CONTROLS AND DAMPERS SHALL COME FACTORY EQUIPPED ON ACU-1.


1. CONTRACTOR TO VERIFY SIZE AND LOCATION OF OPENING.
2. EXISTING 3'-0" W X 14'-0" H WALL LOUVER TO BE REMOVED.
3. EXISTING THERMOSTAT TO BE REMOVED.
4. 4. EXISTING ROOF MOUNTED EXHAUST FAN TO BE ABANDONED IN PLACE



| TAG  | TYPE          | LOCATION                  | AREA SERVED     | UNIT SERVED | MANUFACTURER |       | AIRFLOW RANGE (CFM) | FACE HEIGHT |             | MATERIAL | MOUNTING SURFACE | NOTES |
|------|---------------|---------------------------|-----------------|-------------|--------------|-------|---------------------|-------------|-------------|----------|------------------|-------|
|      |               |                           |                 |             | MAKE         | MODEL |                     | WIDTH (IN)  | HEIGHT (IN) |          |                  |       |
| SG-1 | SUPPLY GRILLE | HIGH SERVICE PUMP STATION | ELECTRICAL ROOM | ACU-1       | TITUS        | 300RS | 2720                | 36          | 24          | ALUMINUM | DUCT             | 1-2   |
| RG-1 | RETURN GRILLE | HIGH SERVICE PUMP STATION | ELECTRICAL ROOM | ACU-1       | TITUS        | 350RS | 2685                | 48          | 18          | ALUMINUM | DUCT             | 1-2   |

1. REFER TO SPECIFICATION 23 31 13
2. MILL FINISH



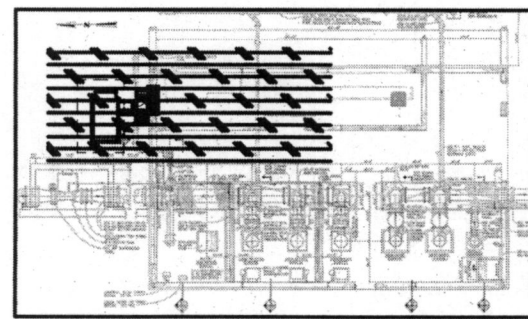
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|-----|------------|---------|-----|---|---|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM   |
|     |            |         |     | DESIGNED BY:  | J. POPE   |
|     |            |         |     | DRAWN BY:   | N. BURGER   |
|     |            |         |     | CHECKED BY:   | N. BARTLEY  |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE |   |
| REV | ISSUED FOR | DATE    | BY  |   |   |
|     |            |         |     |   | <div> <div>0</div> <div>1/2"</div> <div>1"</div> </div>  |


  
 GBPE LIC #. PEF003685 EXP. 6/30/2022

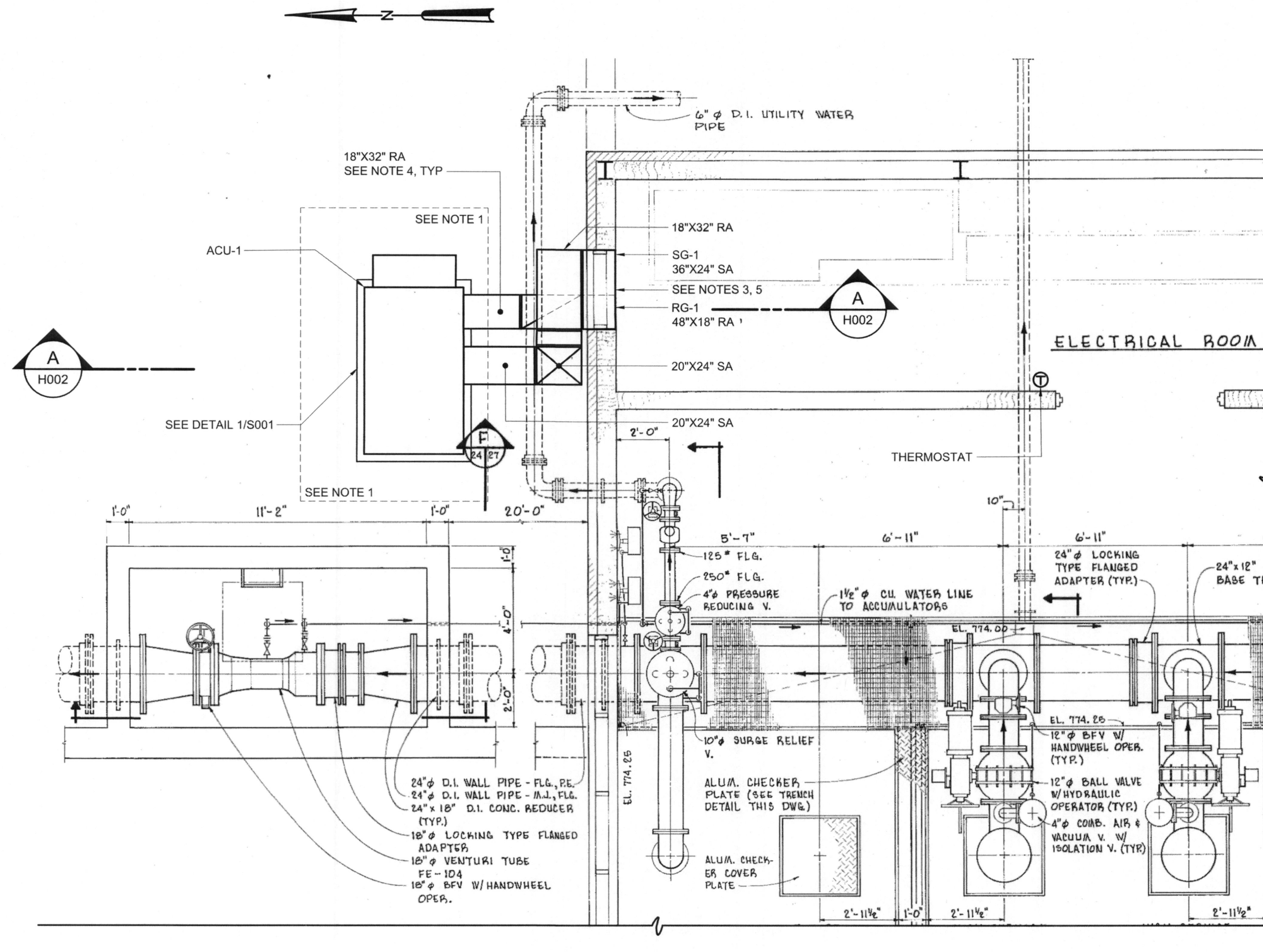
# J.W. SMITH WATER PRODUCTION PLANT HIGH SERVICE PUMP STATION UPGRADES

H001

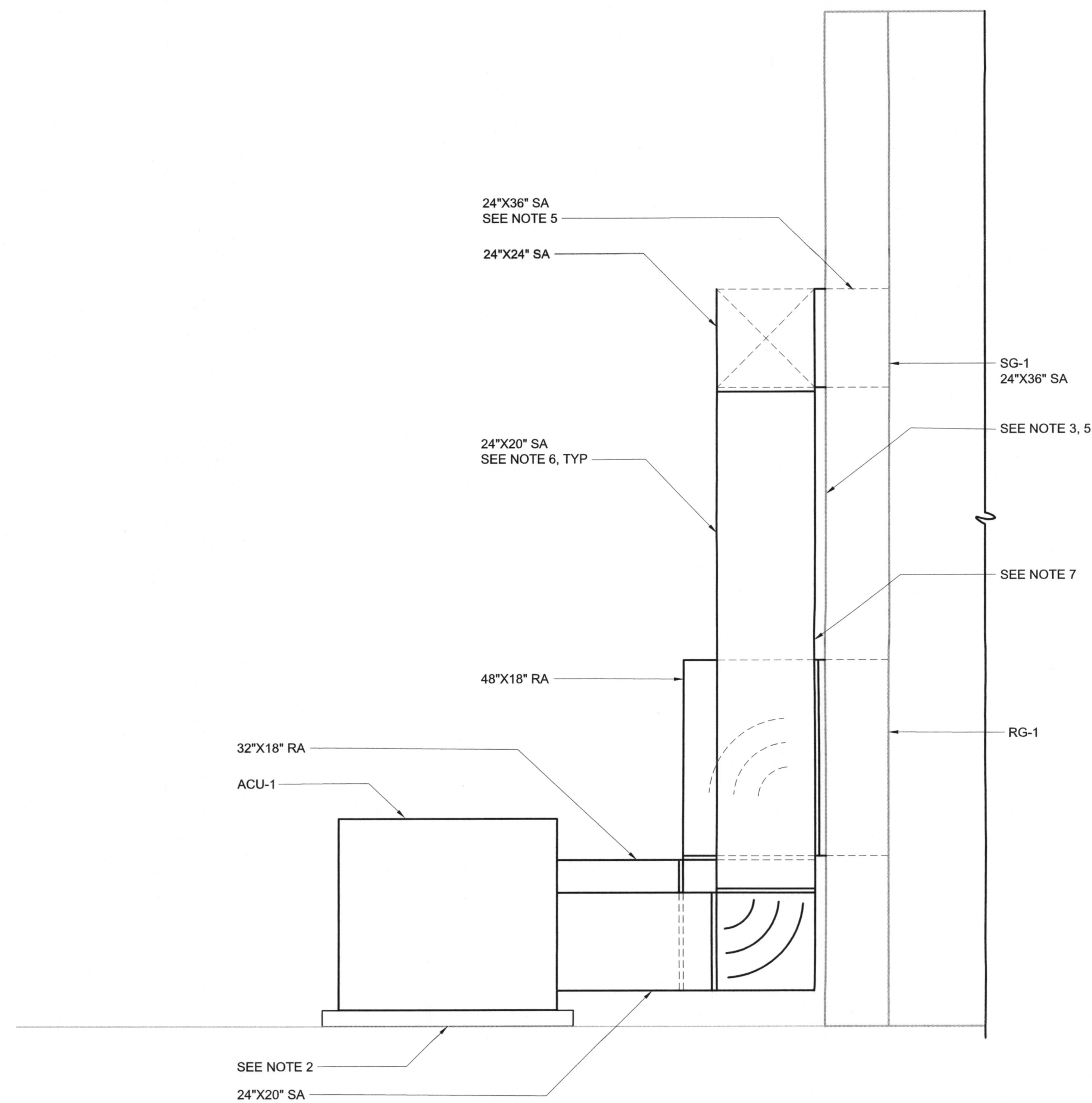




KEY PLAN  
NTS



PLAN VIEW  
1/4" = 1'-0"



SECTION A  
1/2" = 1'-0"

NOTES:

1. MANUFACTURER RECOMMENDED SERVICE CLEARANCE.
2. MOUNT ON EXTERIOR EQUIPMENT FOUNDATION. SEE STRUCTURAL DETAIL 1/S001.
3. FILL REMAINING PORTIONS OF WALL OPENING WITH INSULATED ALUMINUM BLANK OUT PANELS. PANELS SHALL BE DOUBLE SIDED, COLOR TO MATCH ADJACENT LOUVER. PROVIDE ANGLE FRAME AROUND OPENING AND DUCT PENETRATION TO SUPPORT PANELS AND DUCT.
4. PROVIDE INSULATION AND JACKETS TO ALL EXPOSED OUTDOOR DUCTWORK IN ACCORDANCE TO SPECIFICATION 23 31 13.
5. CONTRACTOR TO FIELD VERIFY SIZE OF EXISTING OPENING.
6. SUPPORT DUCTWORK FROM STRUCTURE WITH A SPACING OF NO GREATER THAN 8'-0" BETWEEN SUPPORTS.
7. CONTRACTOR TO PROVIDE SPACE FOR DUCT INSULATION AND JACKET.

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|     |            |         |     |   |             |
|-----|------------|---------|-----|---|-------------|
|     |            |         |     | PROJECT ENGINEER:   | E. MCCALLUM |
|     |            |         |     | DESIGNED BY:  | J. POPE     |
|     |            |         |     | DRAWN BY:   | N. BURGER   |
|     |            |         |     | CHECKED BY:   | N. BARTLEY  |
|     |            |         |     | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE | 0 1/2" 1"   |
| 1   | BID        | 08/2020 | EAM |   |             |
| REV | ISSUED FOR | DATE    | BY  |   |             |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA

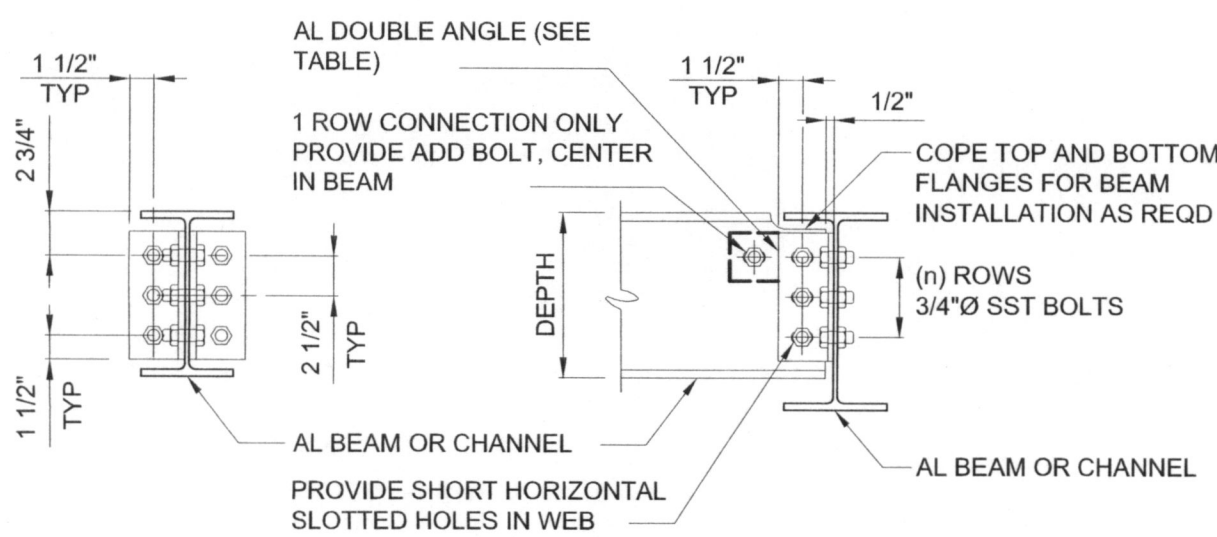
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

HIGH SERVICE PUMP STATION  
HVAC  
PLAN AND SECTION

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | H002        |

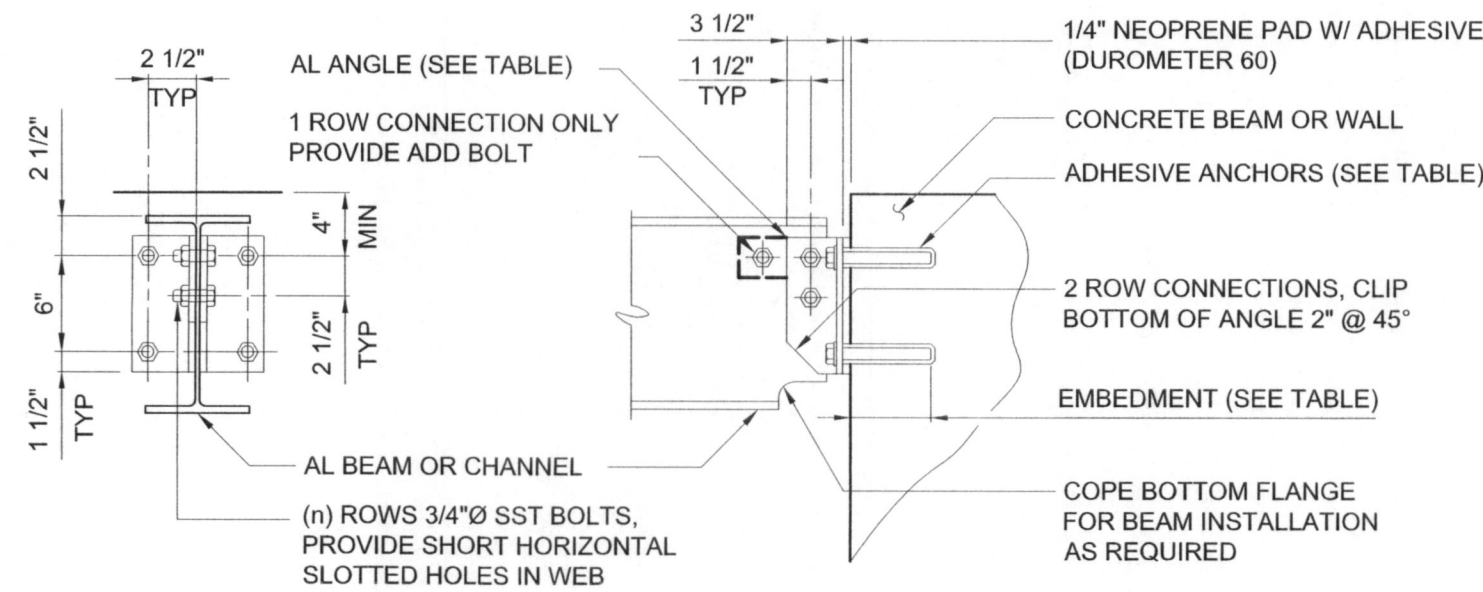


| AL MEMBER DEPTH | AL DOUBLE ANGLES      | (N) ROWS |
|-----------------|-----------------------|----------|
| 4", 5", 6"      | 2-L6x4x3/8x0'-3" LONG | 1        |
| 8"              | 2-L4x4x5/16x0'-5 1/2" | 2        |
| 10", 12", 15"   | 2-L4x4x5/16x0'-8"     | 3        |



ALUMINUM FRAMING CONNECTION  
S-05-0202

| AL MEMBER DEPTH | AL DOUBLE ANGLES     | (n) ROWS | SST ADHESIVE ANCHORS         | EMBEDMENT   |
|-----------------|----------------------|----------|------------------------------|-------------|
| 4", 5", 6"      | 2-L6x4x3/8x3" LONG   | 1        | 2-5/8"Ø SST ADHESIVE ANCHORS | 5", MIN     |
| 8"              | 2-L4x3 1/2x3/8x0'-9" | 2        | 4-5/8"Ø SST ADHESIVE ANCHORS | 5", MIN     |
| 10", 12", 15"   | 2-L4x3 1/2x3/8x0'-9" | 3        | 4-3/4"Ø SST ADHESIVE ANCHORS | 6 1/2", MIN |

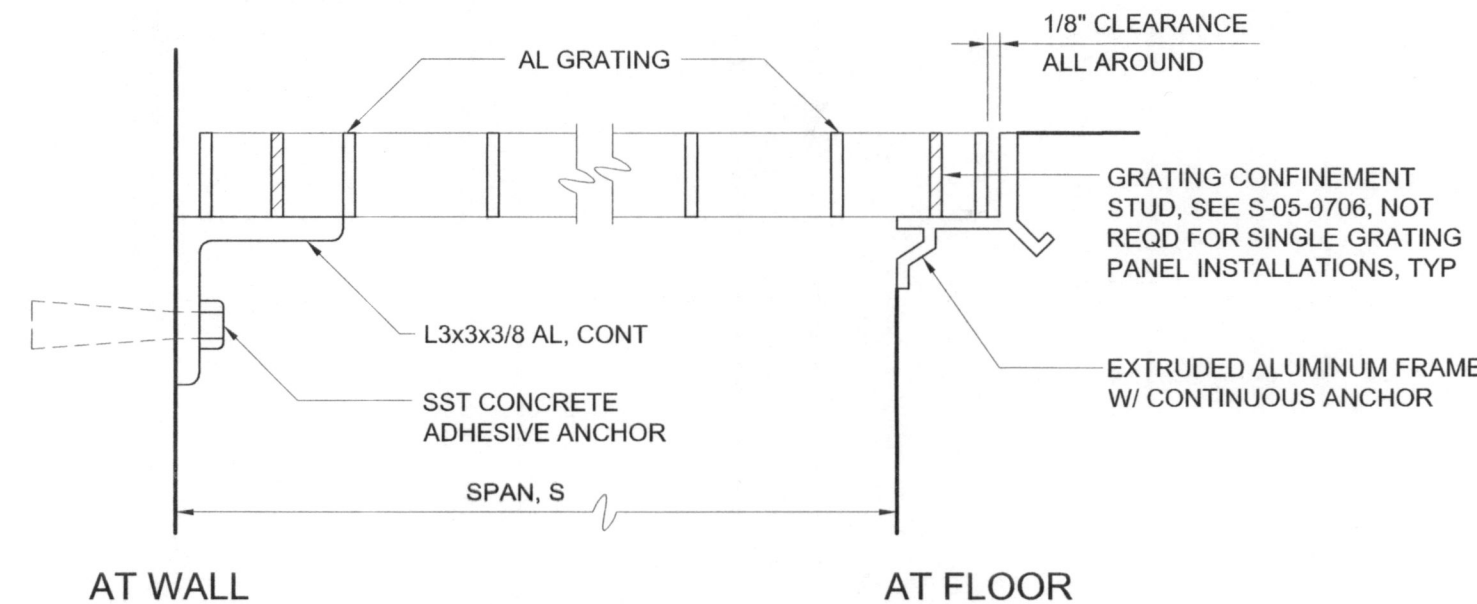


NOTE:  
DURING INSTALLATION OF ADHESIVE ANCHORS BEAM TOP REINFORCEMENT SHALL NOT BE CUT. PRIOR TO FABRICATION FIELD LOCATE REINFORCEMENT AND LENGTHEN ANGLES AS REQUIRED LOWER ANCHORS TO CLEAR REINFORCEMENT.

ALUMINUM BEAM TO CONCRETE CONNECTION  
S-05-0201

| SPAN, S           | DEPTH (MIN) | CONCRETE ANCHOR (SIZE AND SPACING) |
|-------------------|-------------|------------------------------------|
| 0'-0" < S ≤ 4'-0" | 1 1/2"      | 1/2"Øx5 1/2" @ 18"                 |
| 4'-0" < S ≤ 5'-0" | 1 3/4"      |                                    |
| 5'-0" < S ≤ 5'-6" | 2"          |                                    |
| 5'-6" < S ≤ 6'-0" | 2 1/4"      |                                    |
| 6'-0" < S ≤ 6'-6" | 2 1/2"      |                                    |

SCHEDULE BASED ON 150 PSF



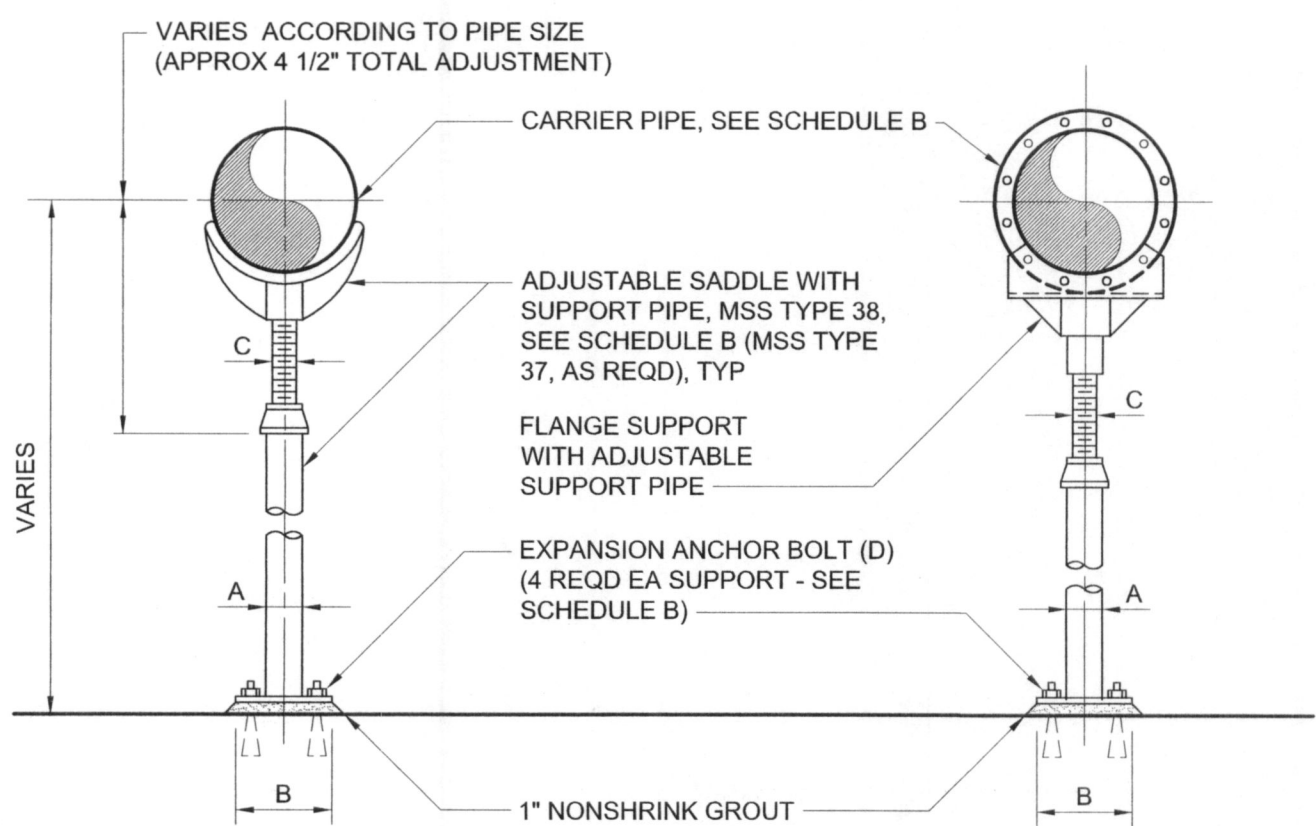
ALUMINUM GRATING  
S-05-0701

| PIPE SIZE | REQUIRED TIE QUANTITY FOR DESIGN PRESSURE |         |         |         |         | THREADED ROD SIZE, INCHES | TAB THICKNESS, INCHES |
|-----------|---|---------|---------|---------|---------|---------------------------|-----------------------|
|           | 50 PSI                                    | 100 PSI | 150 PSI | 200 PSI | 250 PSI |                           |                       |
| 3         | 2   | 2       | 2       | 2       | 2       | 5/8                       | 1/2                   |
| 4         | 2   | 2       | 2       | 2       | 2       | 5/8                       | 1/2                   |
| 6         | 2   | 2       | 2       | 2       | 2       | 5/8                       | 3/4                   |
| 8         | 2   | 2       | 2       | 3       | 3       | 5/8                       | 3/4                   |
| 10        | 2   | 2       | 2       | 3       | 3       | 3/4                       | 1                     |
| 12        | 2   | 2       | 2       | 3       | 3       | 7/8                       | 1                     |
| 14        | 2   | 2       | 2       | 3       | 3       | 1                         | 1                     |
| 16        | 2   | 2       | 2       | 3       | 4       | 1                         | 1                     |
| 18        | 2   | 2       | 3       | 4       | 5       | 1                         | 1                     |
| 20        | 2   | 3       | 4       | 5       | 6       | 1                         | 1                     |
| 24        | 2   | 3       | 5       | 6       | 9       | 1                         | 1                     |
| 30        | 2   | 3       | 5       | 6       | 9       | 1 1/4                     | 1 1/4                 |
| 36        | 3   | 5       | 7       | 9       | 12      | 1 1/4                     | 1 1/4                 |
| 42        | 3   | 6       | 9       | 12      | 16      | 1 1/4                     | 1 1/4                 |
| 48        | 3   | 6       | 8       | 11      | 15      | 1 1/2                     | 1 3/4                 |
| 54        | 4   | 7       | 10      | 14      | 18      | 1 1/2                     | 1 3/4                 |
| 60        | 5   | 9       | 13      | 17      | 23      | 1 1/2                     | 1 3/4                 |
| 64/66     | 4   | 8       | 11      | 15      | 20      | 1 3/4                     | 2                     |
| 72        | 5   | 9       | 13      | 18      | 24      | 1 3/4                     | 2                     |

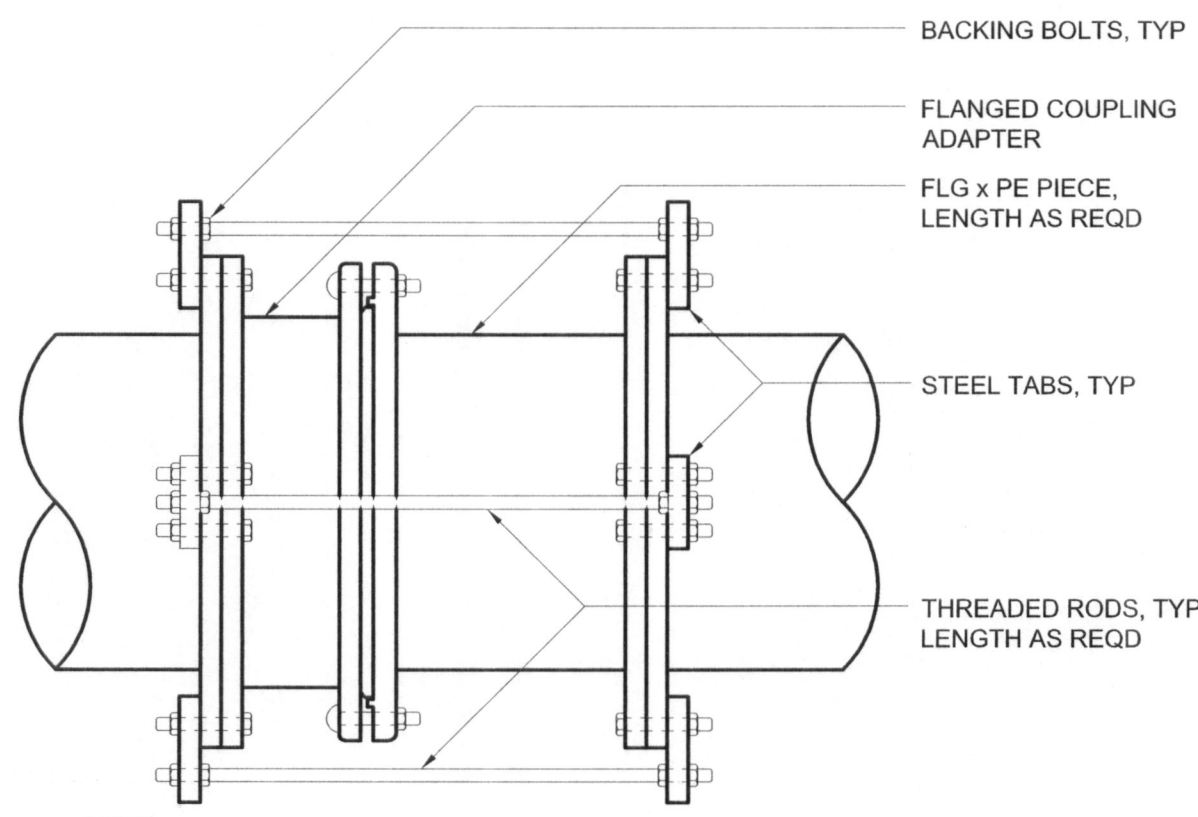
1. THREADED RODS FOR ALL PIPE DIAMETERS SHALL BE ASTM A193 (GRADE B7).
2. ALL TABS SHALL BE ASTM A36 STEEL.
3. ASTM A193 (GRADE B7) RODS SHALL BE LABELED AND BUNDLED SEPARATELY.
4. THIS SCHEDULE SHALL APPLY FOR HARNESSSED FLANGED ADAPTERS, HARNESSSED FLEXIBLE COUPLINGS AND ALL MECHANICAL JOINT COUPLINGS, SLEEVES ETC. THAT ARE REQUIRED TO BE HARNESSSED.
5. RODS THREADED AT ENDS (INCLUDING NUTS) SHALL BE EQUALLY SPACED AROUND PIPE BETWEEN ALL MECHANICAL JOINT FITTINGS (TEE, VALVES, BEND, PLUG, ETC.) OR AS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS. THREADED RODS SHALL BE AS SHOWN IN THE THREADED ROD SCHEDULE. SEE NOTE 6.
6. RODS, NUTS, ETC., IN CONTACT WITH SOIL SHALL BE PAINTED WITH TWO COATS COAL TAR (MIN 26 DRY MIL THICKNESS) TNEDEC 46-465 HI-BUILD OR EQUAL.

M-40-0780

| SCHEDULE A                        |       |        |        |            |
|-----------------------------------|-------|--------|--------|------------|
| BASE ELBOW (TEE) (DIM IN INCHES)  |       |        |        |            |
| PIPE SIZE                         | A     | B      | C      | D DIA x LG |
| 3                                 | 1 1/2 | 5      | 4 7/8  | 1/2 x 5    |
| 4                                 | 2     | 6      | 5 1/2  | 5/8 x 5    |
| 5-6                               | 2 1/2 | 7      | VARIES | 5/8 x 5    |
| 8-10                              | 4     | 9      | VARIES | 5/8 x 5    |
| 12-16                             | 6     | 11     | VARIES | 3/4 x 6    |
| 18-24                             | 8     | 13 1/2 | VARIES | 3/4 x 6    |
| 30                                | 10    | 16     | 23     | 7/8 x 7    |
| 36                                | 12    | 19     | 26     | 7/8 x 7    |
| SCHEDULE B                        |       |        |        |            |
| ADJUSTABLE SADDLE (DIM IN INCHES) |       |        |        |            |
| PIPE SIZE                         | A     | B      | C      | D DIA x LG |
| 3                                 | 2 1/2 | 7      | 1 1/2  | 5/8 x 5    |
| 4-12                              | 3     | 7 1/2  | 2 1/2  | 5/8 x 5    |
| 14-16                             | 4     | 9      | 3      | 5/8 x 5    |
| 18-20                             | 6     | 11     | 3 1/2  | 3/4 x 6    |
| 24-48                             | 6     | 11     | 4      | 3/4 x 6    |

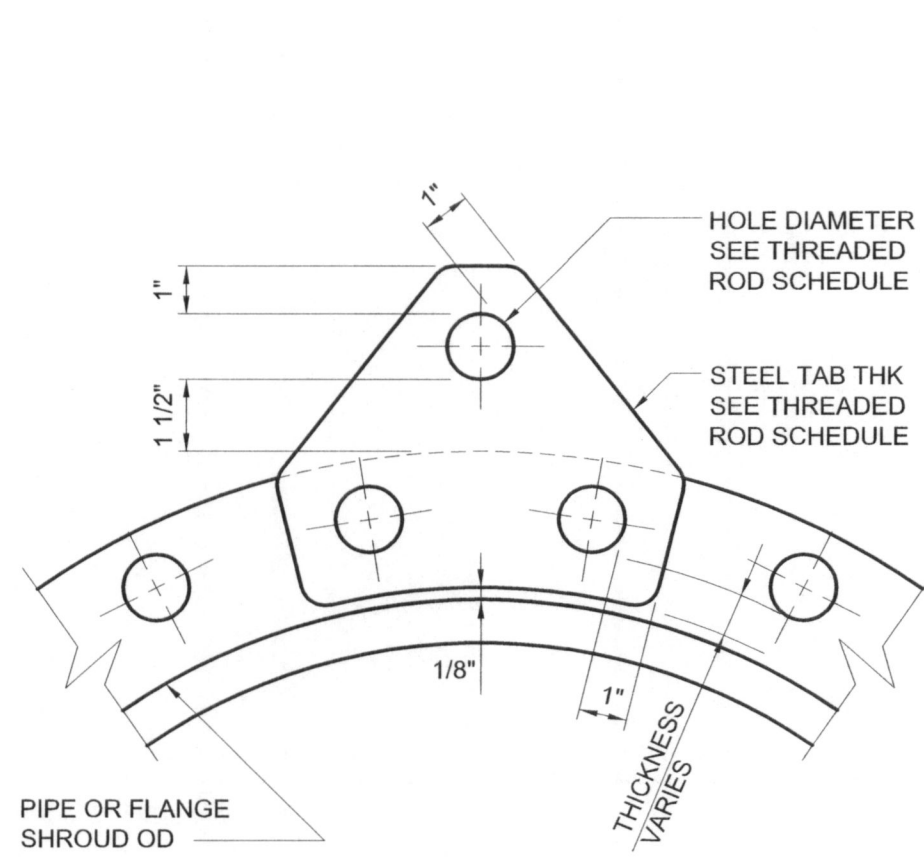


ADJUSTABLE SADDLE  
M-40-0304

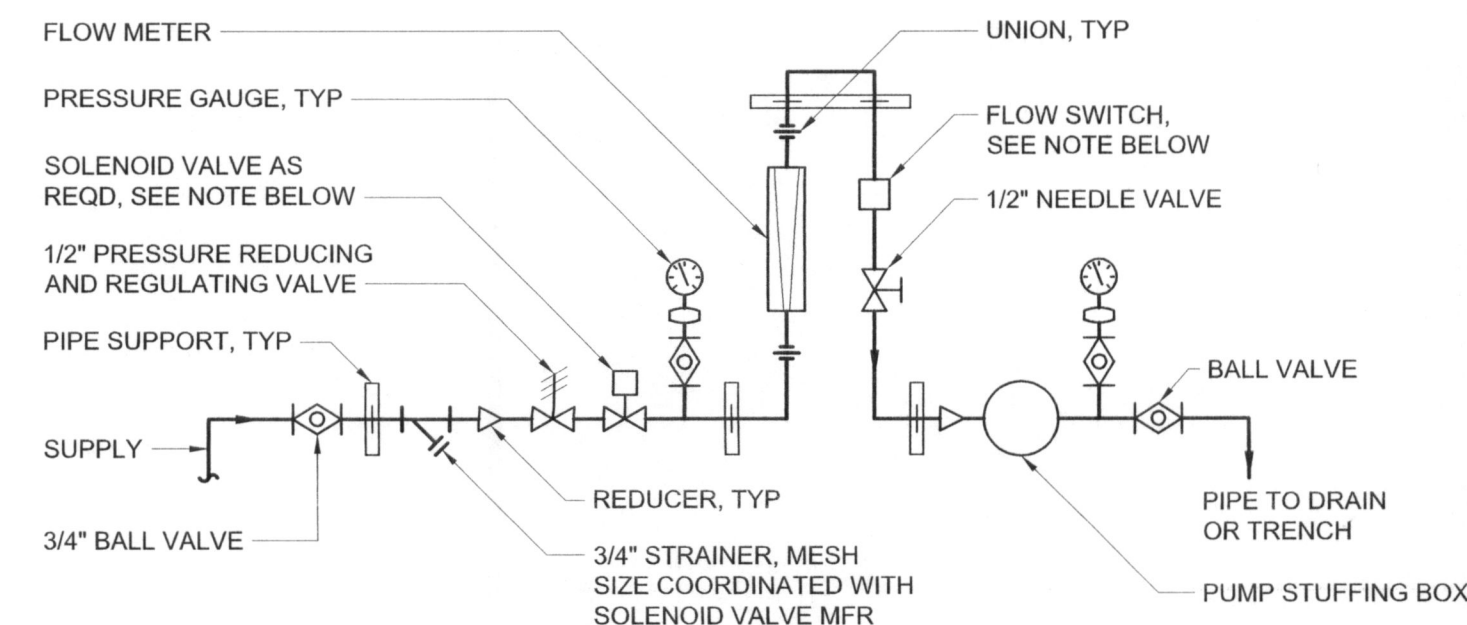


NOTE:  
ALL FLANGED COUPLING ADAPTERS SHALL BE HARNESSSED AND BACK BOLTED TO PREVENT MOVEMENT IN EITHER DIRECTION. SEE THREADED ROD SCHEDULE FOR ROD DIAMETER, MATERIAL AND STEEL TAB THICKNESS.

HARNESSSED FLANGED COUPLING ADAPTER  
M-40-0702



STEEL TAB  
M-40-0703



NOTE:  
SOLENOID VALVE AND FLOW SWITCH SHALL BE PROVIDED AND INTERLOCKED WITH THE PUMP CONTROLS WHEN REQUIRED BY THE PUMP MANUFACTURER OR BY THE ENGINEER.

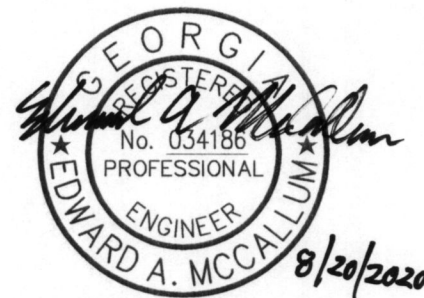
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| REV | ISSUED FOR | DATE     | BY  |
|-----|------------|----------|-----|
| 1   | BID        | 08/20/20 | EAM |

|   |             |
|---|-------------|
| PROJECT ENGINEER:   | E. MCCALLUM |
| DESIGNED BY:  | HAZEN       |
| DRAWN BY:   | HAZEN       |
| CHECKED BY:   | HAZEN       |
| IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE | 0 1/2" 1"   |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

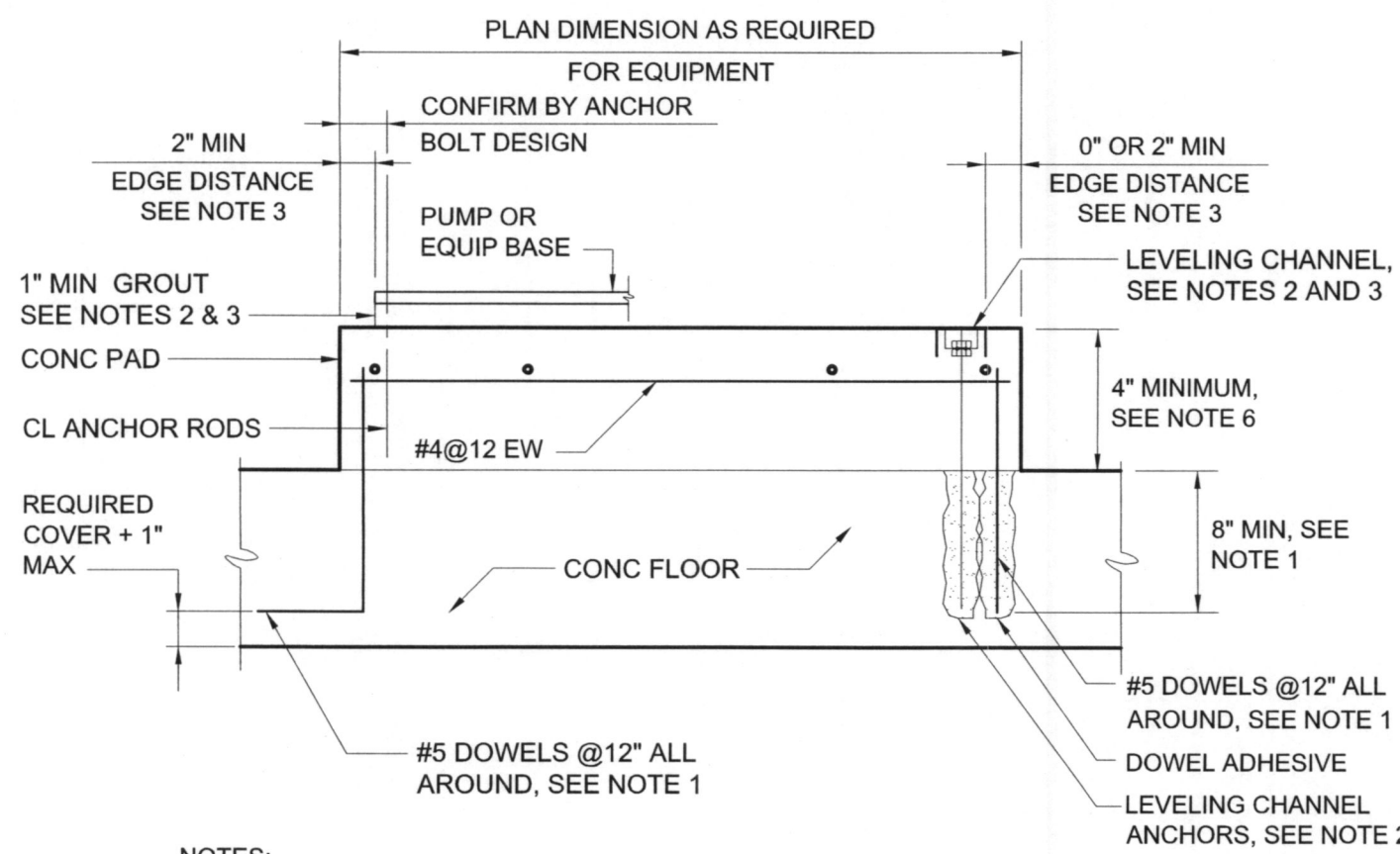
**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA  
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

STANDARD DETAILS  
SHEET 1

|                 |             |
|-----------------|-------------|
| DATE:           | AUGUST 2020 |
| HAZEN NO.:      | 32457-010   |
| CONTRACT NO.:   | 01          |
| DRAWING NUMBER: | SD001       |

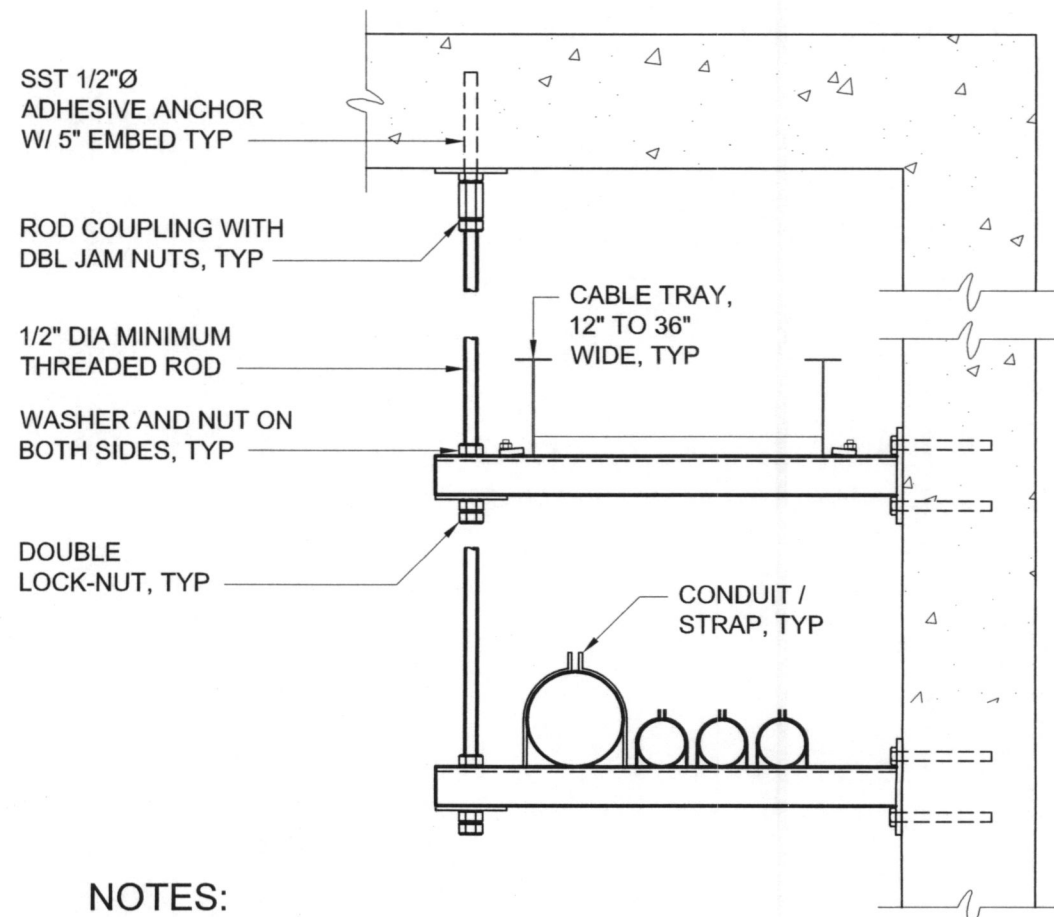




NOTES:

- DOWELS MAY BE CAST IN WITH 90° HOOK OR ANCHORED WITH DOWEL ADHESIVE AT CONTRACTOR'S OPTION. WHERE FLOOR IS 8" THICK OR LESS, USE #4 DOWELS EMBEDDED TO WITHIN 2" OF BOTTOM OF FLOOR SLAB.
- THE CONTRACTOR SHALL PROVIDE LEVELING CHANNELS AND LEVELING CHANNEL ANCHORS FOR SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS, AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S LEVELING TOLERANCES. THE CONTRACTOR SHALL PROVIDE 1" MINIMUM GROUT FOR PUMPS AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S UNIFORM BEARING AND LEVELING REQUIREMENTS.
- PRIOR TO PLACING CONCRETE PAD, LEVELING CHANNEL SIZE AND MEANS OF INSTALLATION, ANCHORAGE, GROUT, CONCRETE EDGE DISTANCE, AND CONCRETE BLOCKOUTS REQUIREMENTS SHALL BE COORDINATED WITH EQUIPMENT MANUFACTURER.
- COAT DISSIMILAR MATERIALS PER THE CONTRACT DOCUMENTS.
- STAGGER CHANNEL ANCHORS AND PAD DOWELS.
- FOR PADS 24" OR GREATER IN DEPTH, PROVIDE #4@8" HORIZONTAL SKIN REINFORCING AROUND PERIMETER OF PAD.

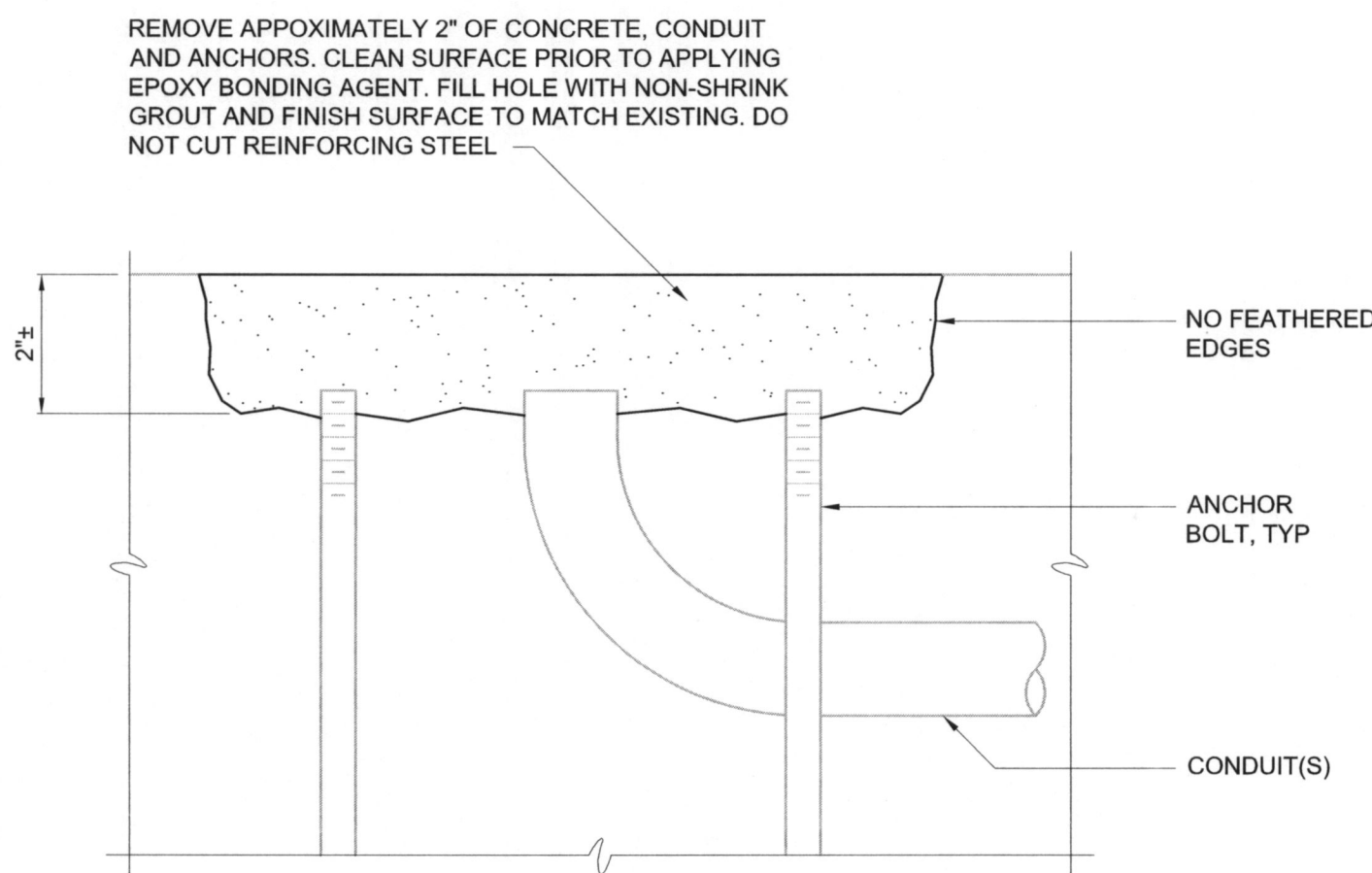
ELECTRICAL EQUIPMENT PAD  
S-03-0504



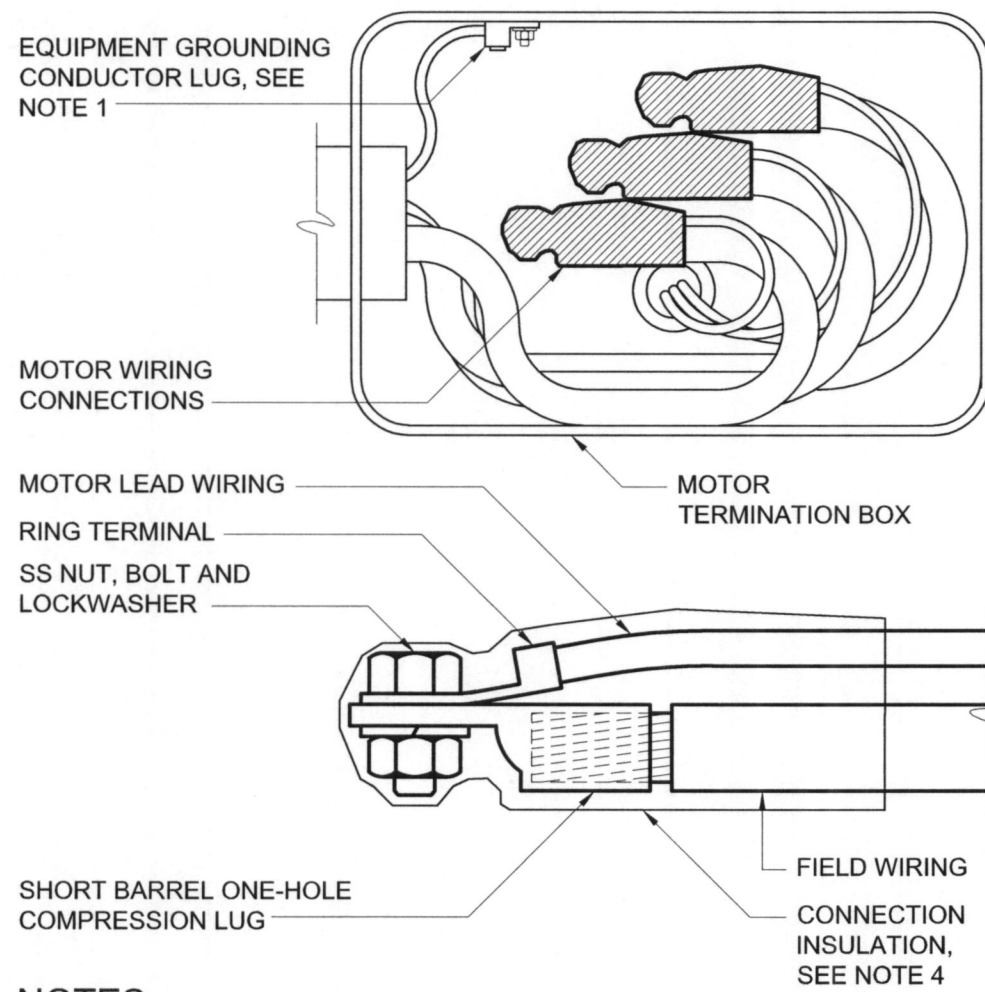
NOTES:

- SPACE SUPPORTS AT 5'-0" MAXIMUM. HANGER SPACING SHALL BE BASED ON MAXIMUM LOAD.
- ALL THREAD ROD SHALL BE USED ONLY FOR DUAL TRAY.
- REFER TO AREA DESIGNATION DRAWINGS AND SPECIFICATIONS FOR REQUIRED MATERIALS OF CONSTRUCTION.
- STRUT SHALL BE 12 GAUGE MINIMUM.

WALL MOUNTED RACEWAY SUPPORT RACK  
E-26-0202



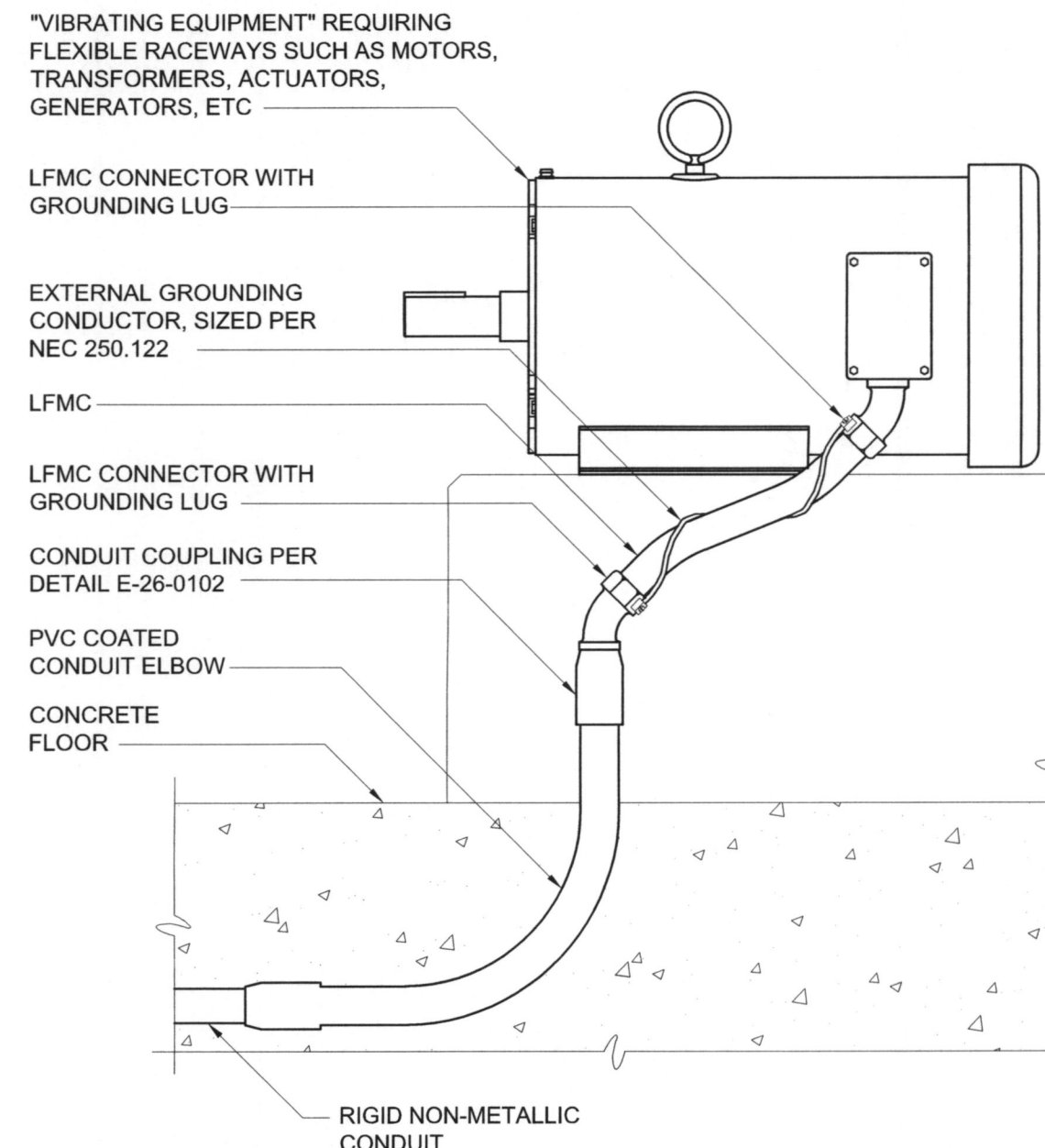
SEALING ABANDONED CONDUIT  
AND ANCHOR BOLTS  
E-26-0103



NOTES:

- EQUIPMENT GROUNDING CONDUCTOR LUG SHALL BE ATTACHED WITH NUT AND LOCKWASHER TO THE MOTOR GROUNDING STUD. WHERE PROVIDED, FACTORY INSTALLED EQUIPMENT GROUNDING CONDUCTOR LUGS ARE ACCEPTABLE IN LIEU OF THE FIELD INSTALLED EQUIPMENT GROUNDING CONDUCTOR LUG.
- RING TERMINALS ON MOTOR LEADS SHALL BE FACTORY INSTALLED BY THE MOTOR MANUFACTURER.
- INSTALL SHORT BARREL COMPRESSION CONNECTOR ON FIELD WIRING WITH MANUFACTURER'S RECOMMENDED COMPRESSION TOOL AND CRIMPING DIE. CONNECTORS SHALL HAVE SMOOTHLY ROUNDED EDGES.
- HEAT SHRINK OR COLD APPLIED CONNECTOR INSULATION LISTED FOR THE PURPOSE AND AS SPECIFIED.

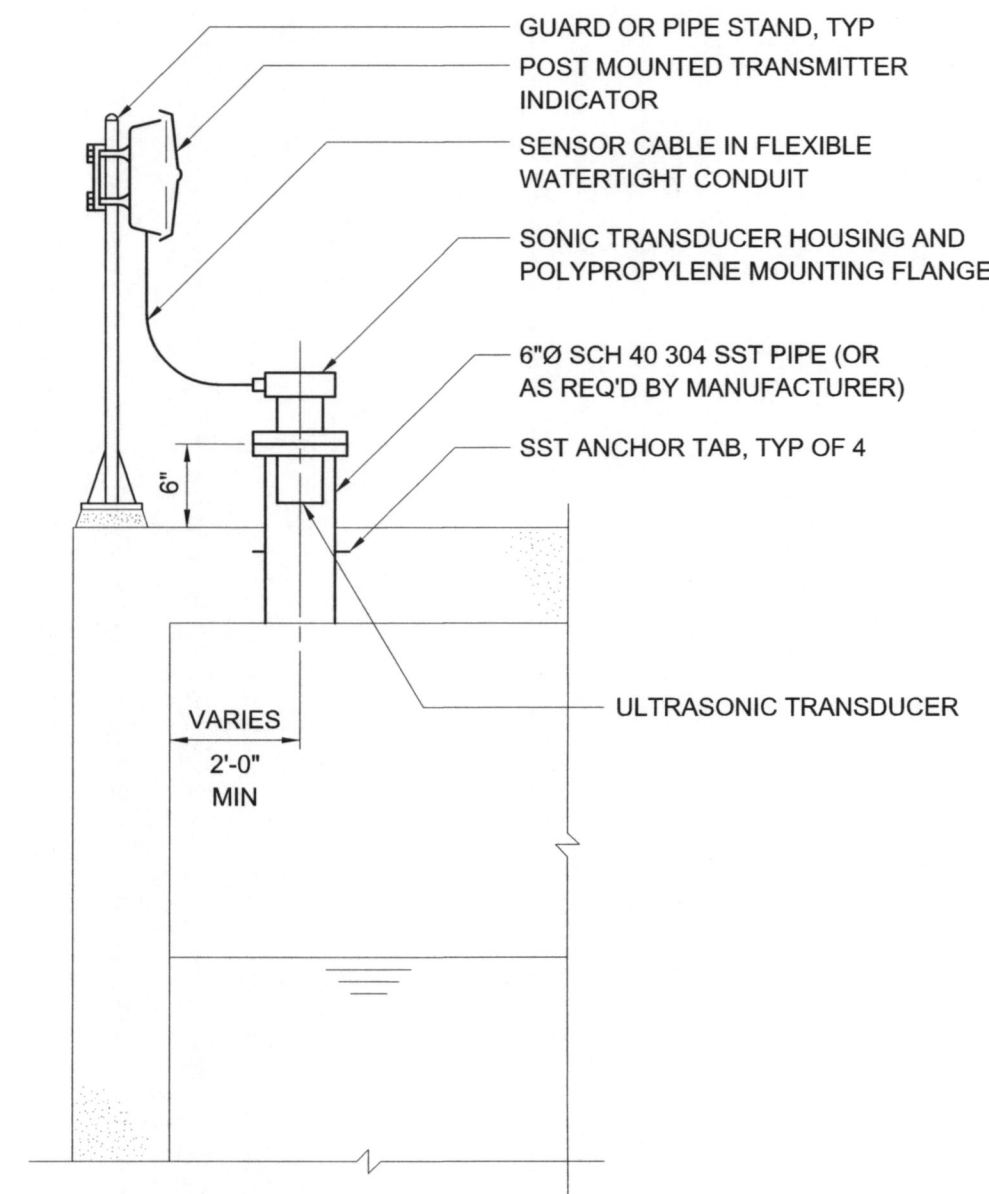
LOW VOLTAGE MOTOR TERMINATION  
E-26-0301



NOTES:

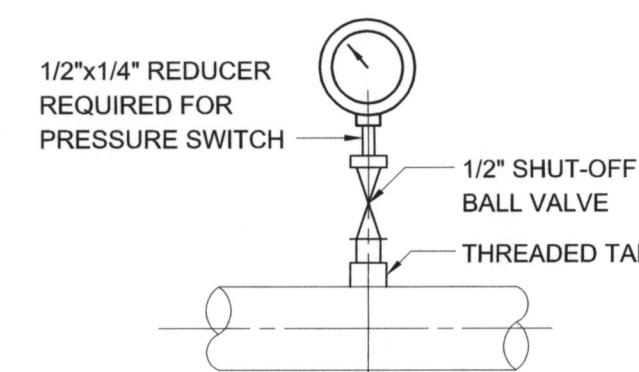
- WHERE NON-METALLIC CONDUIT TRANSITIONS TO RIGID METALLIC CONDUIT AND / OR LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC), TO FEED VIBRATING TYPE LOADS, THE CONTRACTOR SHALL FURNISH AND INSTALL AN EXTERNAL BARE COPPER GROUNDING CONDUCTOR AND APPROVED GROUNDING LFMC CONNECTORS TO ENSURE GROUND CONTINUITY TO THE RIGID METALLIC CONDUIT AS SHOWN. THE GROUNDING CONDUCTOR SHALL BE SIZED ACCORDING TO NEC 250.122 AND BE NEATLY WRAPPED AROUND LFMC AS SHOWN. LFMC INSTALLED IN THIS MANNER CANNOT BE USED FOR A CONTINUOUS GROUND PATH PER NEC 350.60.

LFMC CONDUIT GROUND STRAP  
E-26-0104



ULTRASONIC LEVEL  
TRANSDUCER DETAIL

I-40-0211



PRESSURE GAUGE OR SWITCH  
INSTALLATION WITH THREADED TAP  
(SHOWN WITHOUT DIAPHRAGM SEAL)  
USED FOR PIPES 2" AND LARGER

I-40-0302

File: 0132457-ATL32457-010CAD\_BIMSDetailsSD002 Saved by V.KANCHEVA Save date: 8/21/2020 2:50 AM  
PLOT DATE: 9/21/2020 3:51 PM BY: V.KANCHEVA

|     |            |         |     |   |             |
|-----|------------|---------|-----|---|-------------|
|     |            |         |     | PROJECT<br>ENGINEER:  | E. MCCALLUM |
|     |            |         |     | DESIGNED BY:  | HAZEN       |
|     |            |         |     | DRAWN BY:   | HAZEN       |
|     |            |         |     | CHECKED BY:   | HAZEN       |
| 1   | BID        | 08/2020 | EAM | IF THIS BAR DOES NOT<br>MEASURE 1" THEN DRAWING<br>IS NOT TO FULL SCALE | 0 1/2" 1"   |
| REV | ISSUED FOR | DATE    | BY  |   |             |

BID SET



GBPE LIC #. PEF003685 EXP. 6/30/2022

**Hazen**  
HAZEN AND SAWYER  
5775 PEACHTREE DUNWOODY ROAD  
SUITE D-520  
ATLANTA, GEORGIA 30342

CLAYTON COUNTY WATER AUTHORITY  
MORROW, GEORGIA  
J.W. SMITH WATER PRODUCTION PLANT  
HIGH SERVICE PUMP STATION  
UPGRADES

STANDARD DETAILS  
SHEET 2

|                    |             |
|--------------------|-------------|
| DATE:              | AUGUST 2020 |
| HAZEN NO.:         | 32457-010   |
| CONTRACT NO.:      | 01          |
| DRAWING<br>NUMBER: | SD002       |