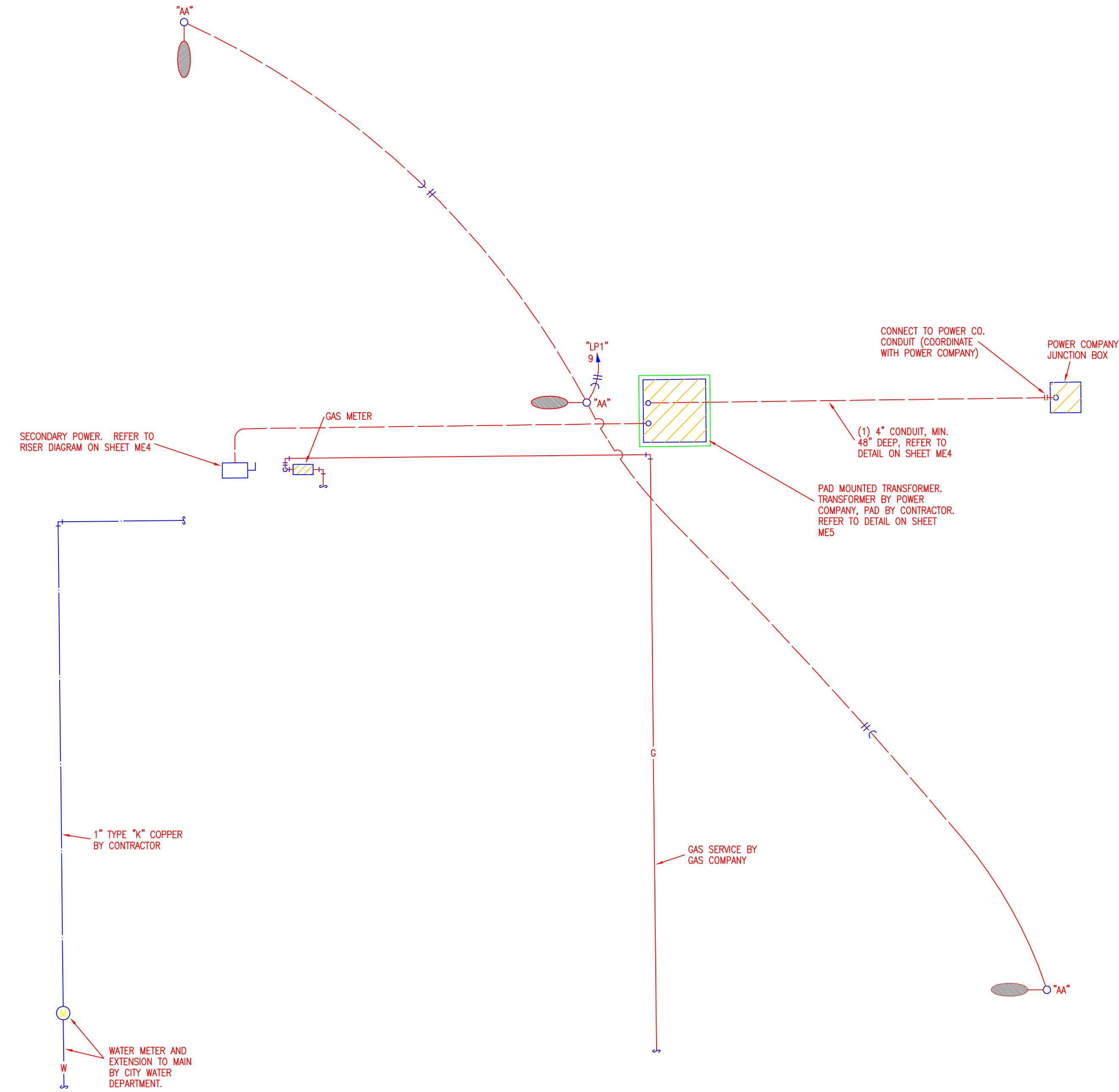


| F.H.W.A. REGION NO. | STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|--------|-----------------|------|-----------|--------------|
| 7 | KANSAS | 54-87 K-8258-03 | 2003 | 8 | 27 |

| DATE | BY | REFERENCE NOTED | REFERENCE CHECKED |
|------|----|-----------------|-------------------|
| | | | |



03/27/03 BA

Drawn by: _____
 Filed: _____
 SCALE: _____

LS & A
 Latimer, Sommers & Associates, P.A., Engineers
 3639 SW Summerfield Drive, Suite A
 Topeka, KS 66614-3972
 Telephone: (785) 233-3232 • FAX: (785) 233-0647
 Email: lsapa@lsapa.com

Cook, Flatt & Strobel
 ENGINEERS, P.A.

SITE PLAN
 1/8" = 1'-0"



KANSAS DEPARTMENT OF TRANSPORTATION

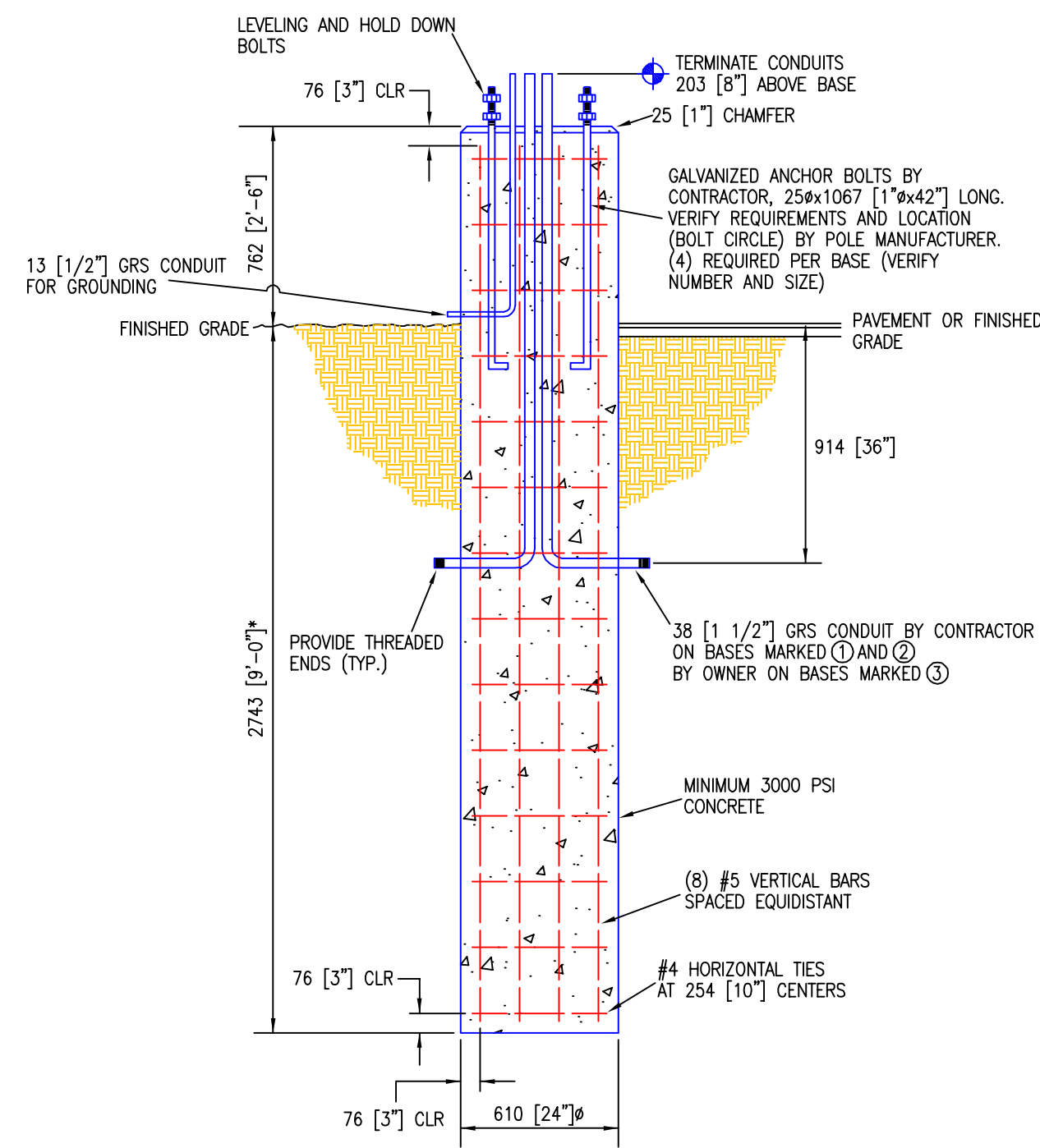
ROCK PUMP STATION
MECHANICAL/ELECTRICAL DETAILS

Wichita, Kansas

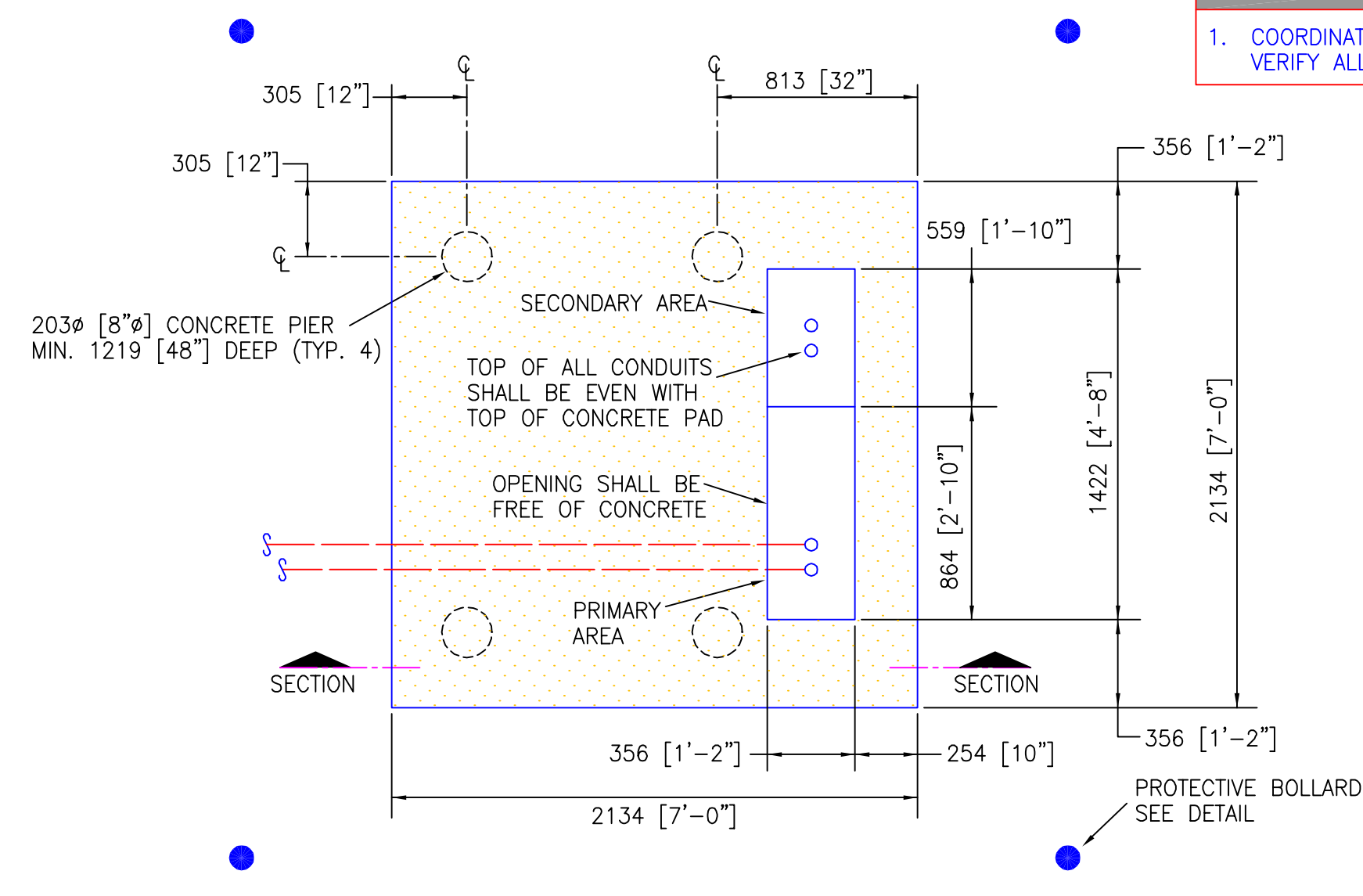
Sedgwick, Co.

| F.H.W.A. REGION NO. | STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|--------|-----------------|------|-----------|--------------|
| 7 | KANSAS | 54-87 K-8258-03 | 2003 | 9 | 27 |

| DATE | BY | REFERENCE NOTED | CHECKED |
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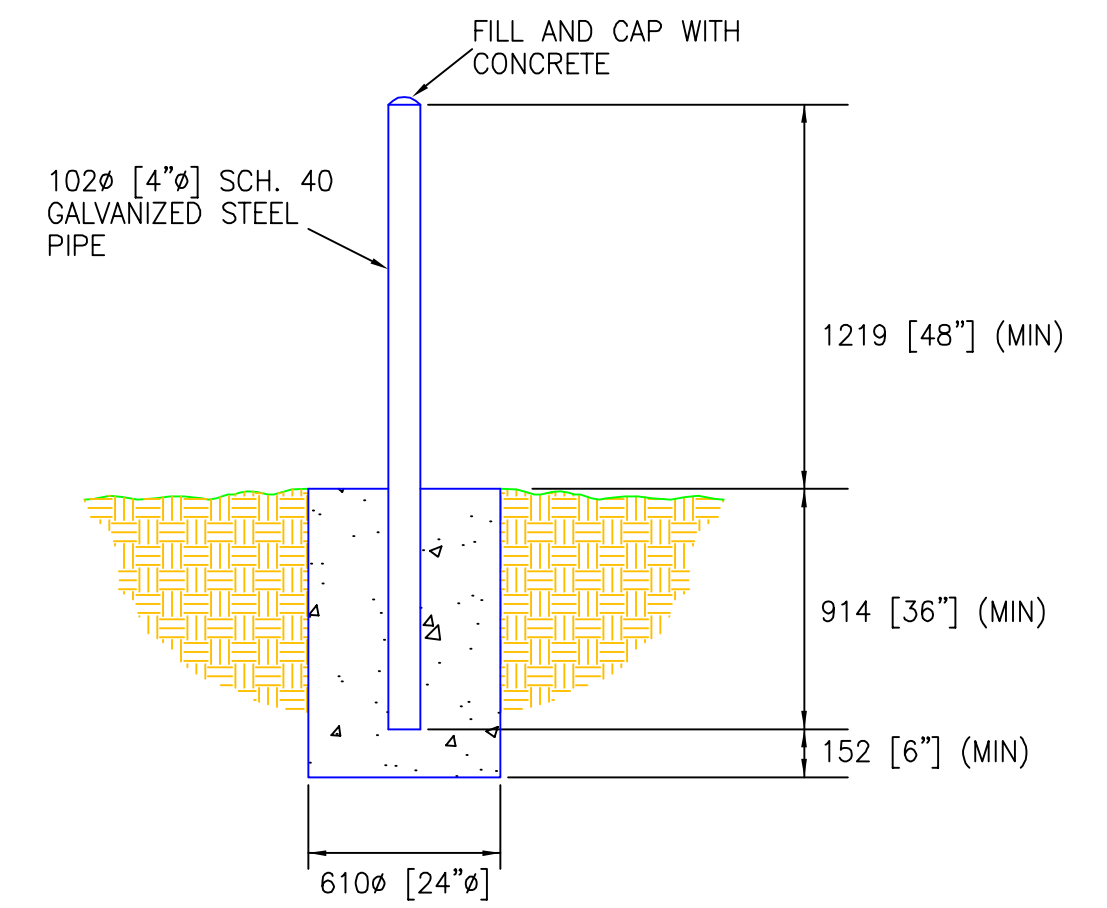
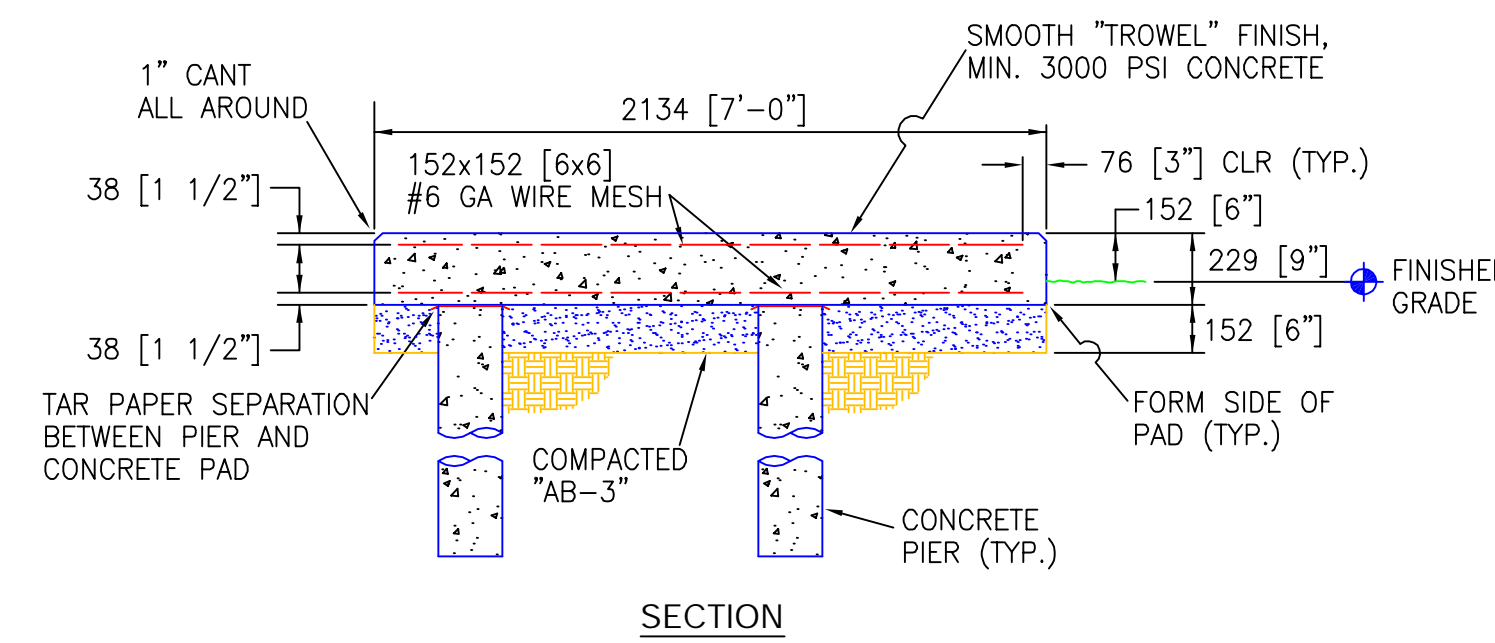


LIGHT POLE BASE DETAIL
1/2" = 1'-0" TYPE "AA"

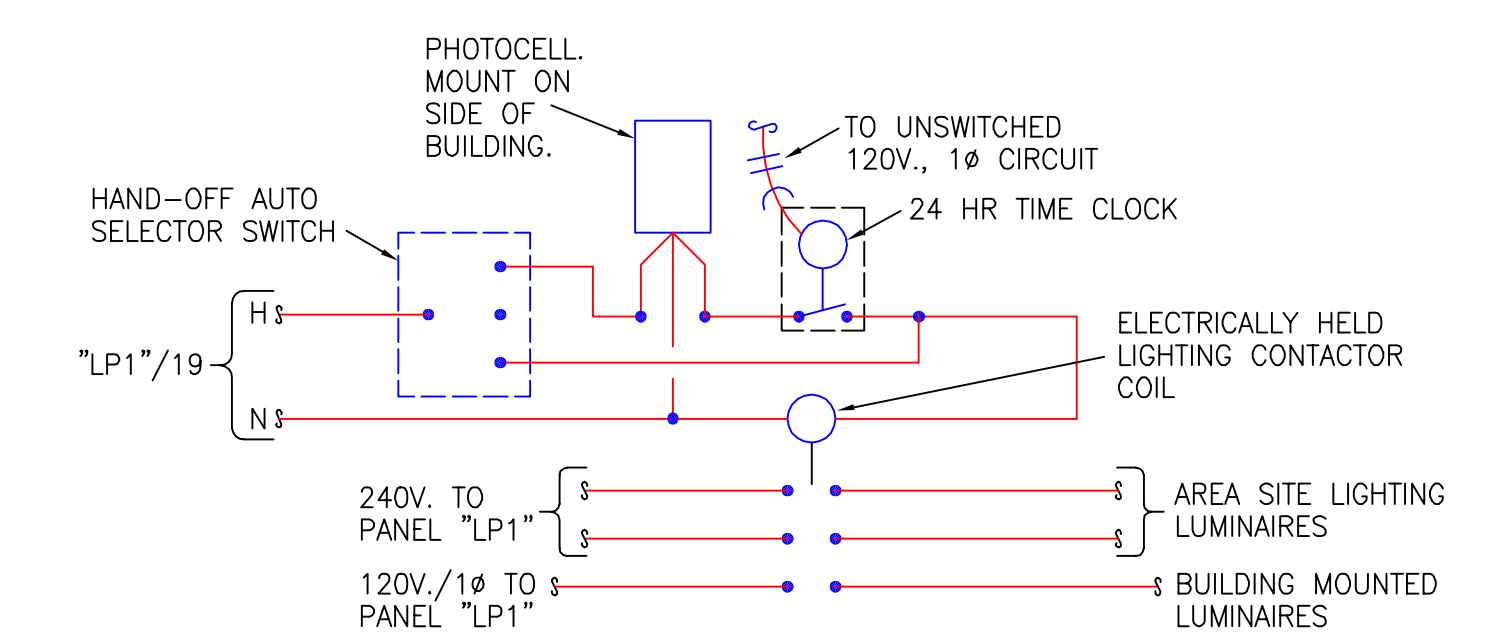


TRANSFORMER PAD DETAIL
1/2" = 1'-0"

NOTES:
1. COORDINATE PAD WITH WESTAR ENERGY
VERIFY ALL DIMENSIONS.



PIPE BOLLARD DETAIL
1/2" = 1'-0"



EXTERIOR LIGHTING CONTROL SCHEMATIC
NO SCALE

03/27/03 BA

Drawn by: _____
Plotted: _____
SCALE: _____

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KANSAS DEPARTMENT OF TRANSPORTATION
ROCK PUMP STATION
MECHANICAL/ELECTRICAL DETAILS
Wichita, Kansas Sedgwick, Co.

| F.H.W.A. REGION NO. | STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|--------|-----------------|------|-----------|--------------|
| 7 | KANSAS | 54-87 K-8258-03 | 2003 | 10 | 27 |

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| REFERENCE NOTED | REFERENCE CHECKED |
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| | |

| ITEM NO. | TAG NO. | DESCRIPTION | I/O ADDRESS | RANGE | UNITS | REMARKS |
|----------|---------|--------------------------------|-------------|-------|-------|------------------|
| 1 | | PUMP 1 RUNNING | | | | |
| 2 | | PUMP 1 OVERTEMP | | | | |
| 3 | | PUMP 1 LEAK DETECTION | | | | |
| 4 | | PUMP 1 FAIL | | | | |
| 5 | | PUMP 2 RUNNING | | | | |
| 6 | | PUMP 2 OVERTEMP | | | | |
| 7 | | PUMP 2 LEAK DETECTION | | | | |
| 8 | | PUMP 2 FAIL | | | | |
| 9 | | PUMP 3 RUNNING | | | | |
| 10 | | PUMP 3 OVERTEMP | | | | |
| 11 | | PUMP 3 LEAK DETECTION | | | | |
| 12 | | PUMP 3 FAIL | | | | |
| 13 | | HIGH LEVEL ALARM | | | | SUBM. TRANSDUCER |
| 14 | | LOW LEVEL ALARM | | | | SUBM. TRANSDUCER |
| 15 | | LOW WATER CUT OUT | | | | FLOAT SWITCH |
| 16 | | SUMP PUMP RUNNING | | | | |
| 17 | | SUMP PUMP FAIL | | | | |
| 18 | | GENERATOR RUNNING | | | | |
| 19 | | GENERATOR FAIL/ALARM | | | | |
| 20 | | LOW FUEL ALARM | | | | PRESSURE SWITCH |
| 21 | | POWER TRANSFER ALARM | | | | |
| 22 | | MANDOWN ALARM | | | | |
| 23 | | INTRUSION ALARM | | | | |
| 24 | | GENERATOR CHARGE CKT DISABLED | | | | |
| 25 | | GENERATOR BLOCK HEATER DISABLE | | | | |
| 26 | | OH DOOR CONTACT | | | | |
| 27 | | 3/O DOOR CONTACT | | | | |
| 28 | | MOTION SENSOR | | | | |
| 29 | | KEY PAD | | | | |
| 30 | | SPARE | | | | |
| 31 | | SPARE | | | | |
| 32 | | SPARE | | | | |

THE CONTROL SYSTEM WILL BE BASED ON A STANDARD 3-PUMP ALTERNATOR. THE INPUTS WILL BE MANIPULATED SO THAT ALL PUMPS CAN OPERATE AT ONCE.

FOUR FLOAT SWITCHES SHALL BE PROVIDE FOR BACK-UP OPERATOR. FLOAT SWITCHES MUST BE THE TYPE THAT INCORPORATE AN INTERNAL TIME DELAY TO AVOID NUISANCE SWITCHING.

LEVEL CONTROLS FOR PUMP OPERATION SHALL BE OF THE "GUARDED WAVE RADAR" DESIGN.

THE FIRST CONTROL INPUT WILL BE USED FOR "PUMP OFF" AND WILL RESET THE ALTERNATOR. THE NEXT THREE WILL BE THE "PUMP ONE ON", "PUMP TWO ON" AND "PUMP THREE ON" COMMANDS. THE PUMPS WILL THEN RUN UNTIL THE LEVEL IN THE WET WELL DROPS BELOW THE "PUMP OFF" LEVEL CONTROL. A HIGH WATER LEVEL CONTROL WILL BE PROVIDED FOR SENDING A "HIGH LEVEL" ALARM INDICATING THAT THE PUMPS CANNOT KEEP UP WITH THE FLOW OR THERE HAS BEEN AN EQUIPMENT FAILURE.

3-PUMP LIQUID LEVEL CONTROLLER PROVIDES CENTRAL OPERATING CONTROL OF TRIPLEX PUMPING SYSTEMS. THE SOLID-STATE ELECTRONIC CONTROLLER PROVIDES ALTERNATING OF PUMPS, LOW LEVEL CUTOFF AND HIGH LEVEL ALARM OUTPUTS. RUNTIME METERS SHALL BE PROVIDED FOR INSTANT VISUAL DATA ON THE TOTAL RUNNING TIME OF EACH PUMP MOTOR. INDICATOR LED'S SHALL BE PROVIDED TO SHOW ON/OFF STATUS OF EACH PUMP.

UNIT HAS FIVE LEVEL-SENSE INPUTS WHICH CAN BE ACTIVATED BY FLOAT SWITCHES OR OTHER LEVEL SENSING DEVICES WHICH PROVIDE A SWITCH CLOSURE. LEVEL 1 (LOW) WILL TURN OFF ALL PUMPING ACTION AND TRIGGER THE ALTERNATOR. LEVEL 2 TURNS ON WHICHEVER PUMP IS SELECTED (AUTOMATICALLY OR MANUALLY) AS THE LEAD PUMP. LEVELS 3 AND 4 (LAG AND LAG-LAG) TURN ON THE SECOND AND THIRP PUMPS. LEVEL 5 IS A HIGH LEVEL ALARM WHICH CLOSES OUTPUT CONTACTS FOR AUDIBLE AND VISUAL ALARMS.

WHEN THE 5TH LEVEL IS REACHED, TWO ALARM CONTACTS (BELL AND LIGHT) SHALL TRIP AND AN ALARM LIGHT ON THE PANEL SHALL ILLUMINATE. A FRONT PANEL SWITCH ALLOWS THE ALARM TO BE SILENCED LEAVING THE ALARM LIGHT OUTPUT ENERGIZED. AN ALARM RESET ON THE FRONT OF THE PANEL SHALL RESET ALL OUTPUTS AFTER THE FAULT IS CORRECTED. REMOTE ALARM CIRCUITS SHALL BE PROVIDED FOR EACH PUMP CONTROL PRESSURE SWITCH, TEMPERATURE SWITCH, OR OTHER MONITORING CONTROL. THESE CIRCUITS ARE NORMALLY CLOSED AND SHALL INHIBIT THE CORRESPONDING PUMP WHEN OPENED AND ILLUMINATE A REMOTE ALARM LIGHT ON THE PANEL AND CLOSE THE ALARM LIGHT AND BELL CONTACTS. A SPST NORMALLY CLOSED INTERNAL POWER FAIL CONTACT OPENS WHEN 120VAC POWER IS CONNECTED AND CLOSED IF POWER IS LOST OR REMOVED.

| BINARY OUTPUT SCHEDULE | | | | | | |
|------------------------|---------|--------------------|-------------|-------|-------|---------|
| ITEM NO. | TAG NO. | DESCRIPTION | I/O ADDRESS | RANGE | UNITS | REMARKS |
| 1 | | PUMP 1 REQUIRED | | | | |
| 2 | | PUMP 2 REQUIRED | | | | |
| 3 | | PUMP 3 REQUIRED | | | | |
| 4 | | SUMP PUMP REQUIRED | | | | |
| 5 | | GENERATOR REQUIRED | | | | |
| 6 | | SPARE | | | | |
| 7 | | SPARE | | | | |
| 8 | | SPARE | | | | |
| 9 | | SPARE | | | | |
| 10 | | SPARE | | | | |
| 11 | | SPARE | | | | |
| 12 | | SPARE | | | | |
| 13 | | SPARE | | | | |
| 14 | | SPARE | | | | |
| 15 | | SPARE | | | | |
| 16 | | SPARE | | | | |

| | |
|------------------------|------------------------------|
| INPUT VOLTAGE | 105-130 VAC |
| INPUT FREQUENCY | 47-66 Hz |
| POWER CONSUMPTION | 10 WATTS MAX. |
| CONTACT RATING | 10 AMPS AT 240 VAC RESISTIVE |
| TRANSIENT PROTECTION | 2500 VRMS FOR 10 ms |
| OPERATING TEMPERATURE | -40° TO 50°C. |
| FLOAT SWITCH POTENTIAL | 12 VDC AT .001 AMPS |
| DISPLAY | TO 99.999.9 NON-RESISTIVE |
| HUMIDITY TOLERANCE | 0-97% W/O CONDENSATION |
| CASE MATERIAL | 20 GA. STEEL |
| WEIGHT | 6.1 LBS. MAX. |
| LEVEL TRANSMITTERS | 24V. DC |

NOTE: AUTOMATIC PUMP STATION CONTROLLER SHALL BE AUTOCON, CLASS 9710.

1. GUIDED WAVE RADAR LEVEL TRANSMITTERS SHALL BE MAGNETROL MODEL 705 IN STAINLESS STEEL HOUSING. PROVIDE ALL REQUIRED ASSOCIATED EQUIPMENT AND MATERIAL FOR A COMPLETE AND OPERATIONAL SYSTEM.

| ITEM NO. | TAG NO. | DESCRIPTION | I/O ADDRESS | RANGE | UNITS | REMARKS |
|----------|---------|----------------|-------------|-------|-------|------------------|
| 1 | | WET WELL LEVEL | | 35' | | SUBM. TRANSDUCER |

NOTE: ALL AUTOMATIC CONTROL WIRING AND CABLES SHALL BE IN CONDUIT.

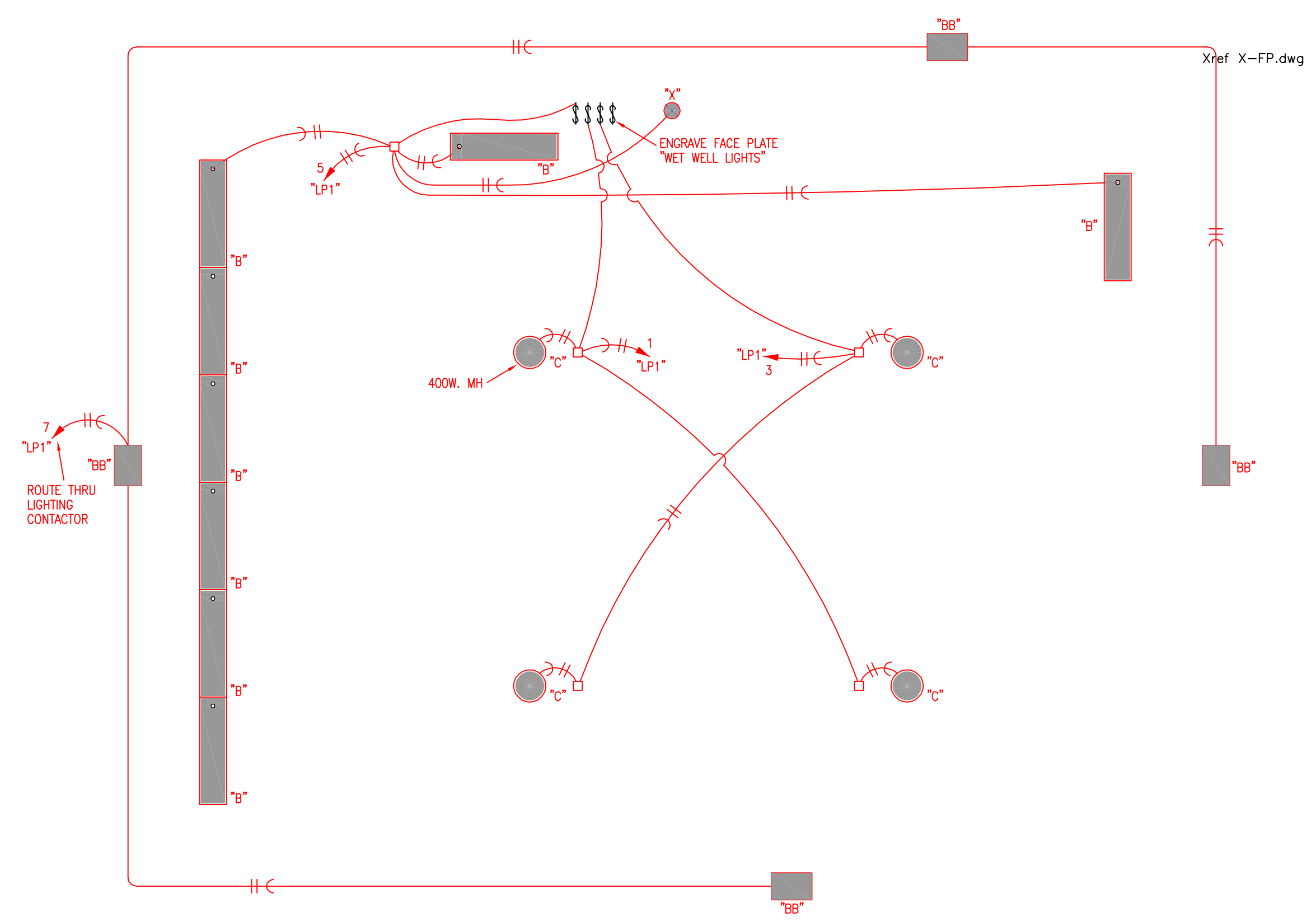
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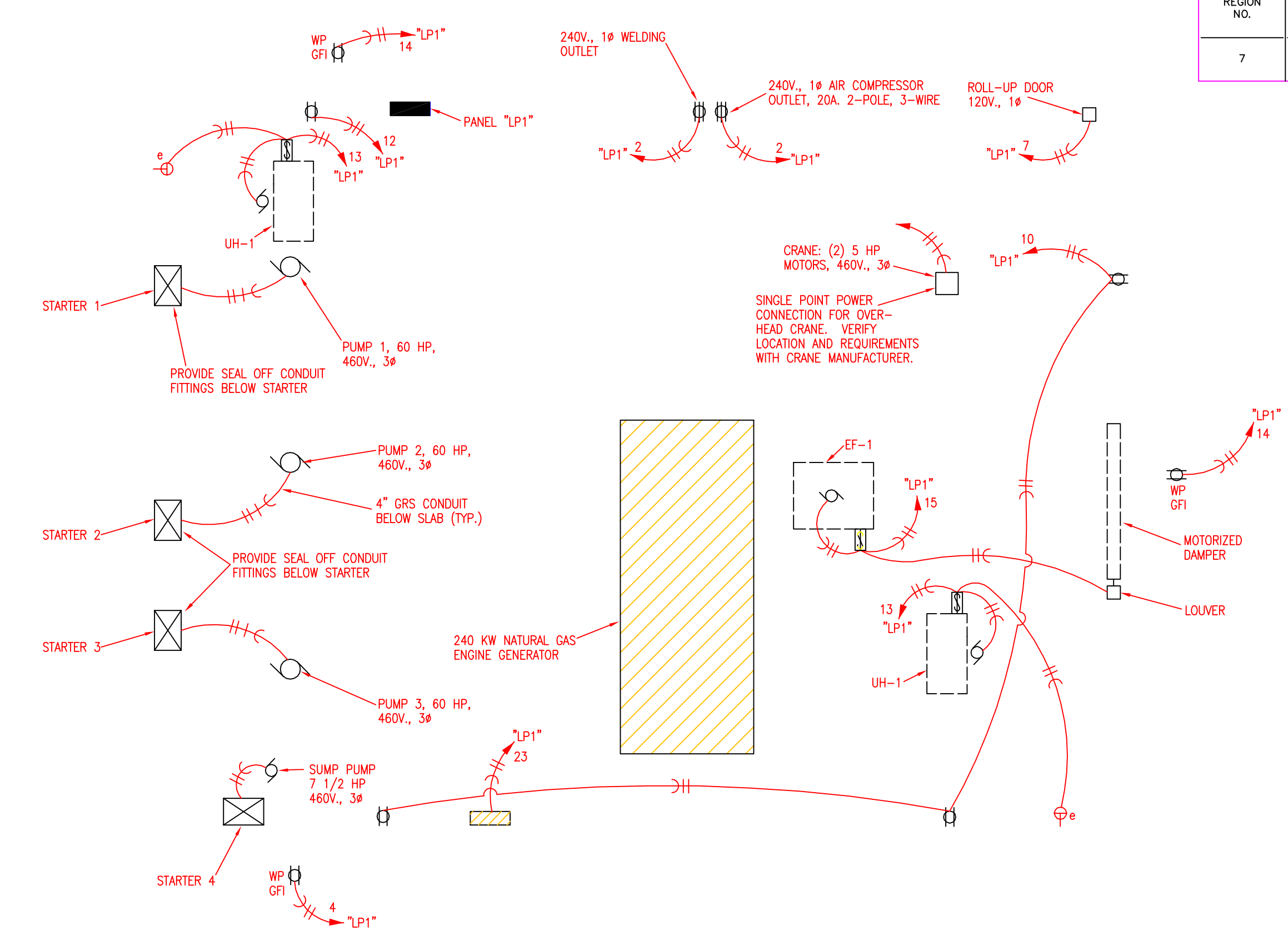
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KANSAS DEPARTMENT OF TRANSPORTATION
ROCK PUMP STATION
 MECHANICAL/ELECTRICAL DETAILS
 Wichita, Kansas Sedgwick, Co.

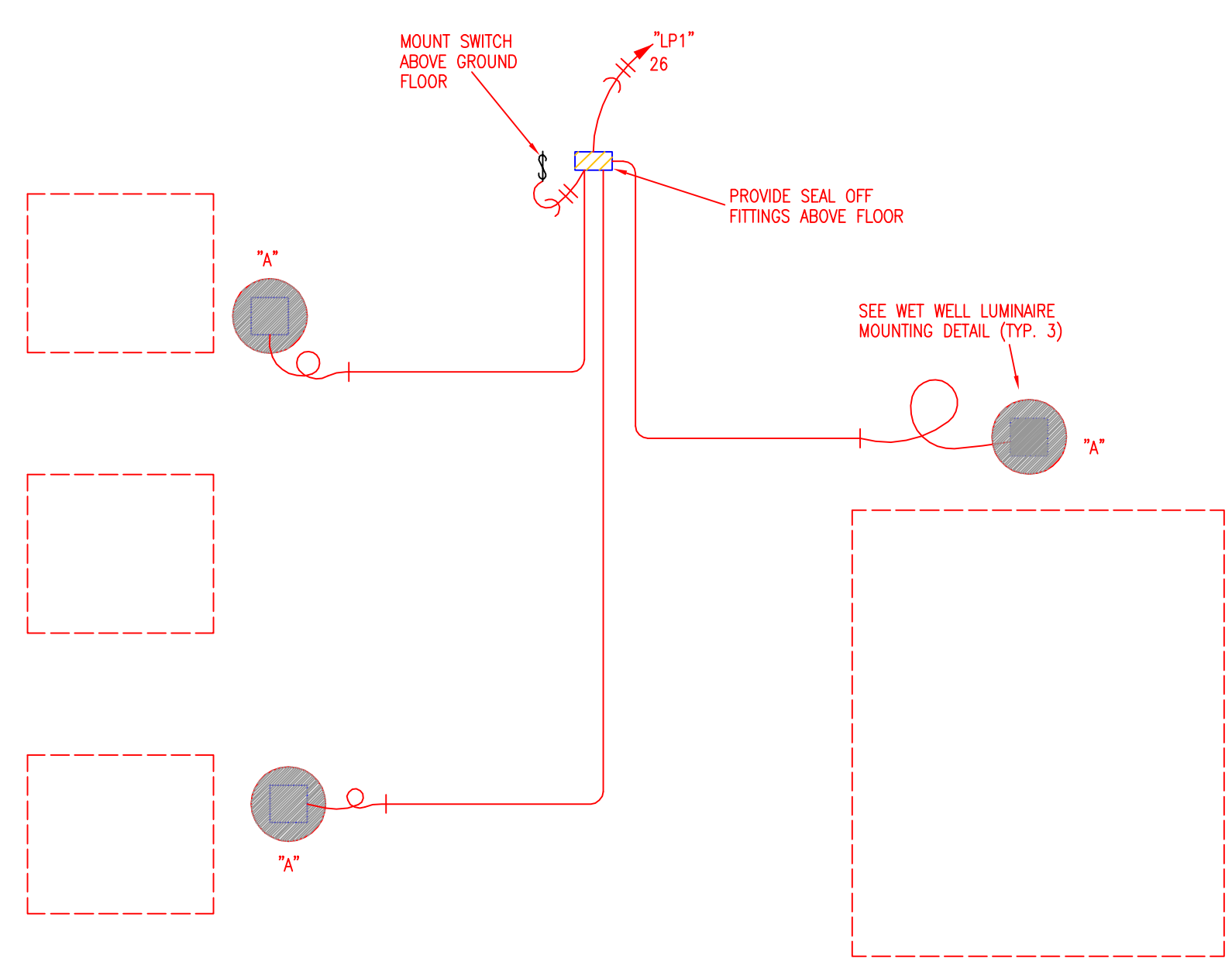
| F.H.W.A. REGION NO. | STATE | PROJECT NO. | YEAR | SHEET NO. | TOTAL SHEETS |
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| 7 | KANSAS | 54-87 K-8258-03 | 2003 | 11 | 27 |



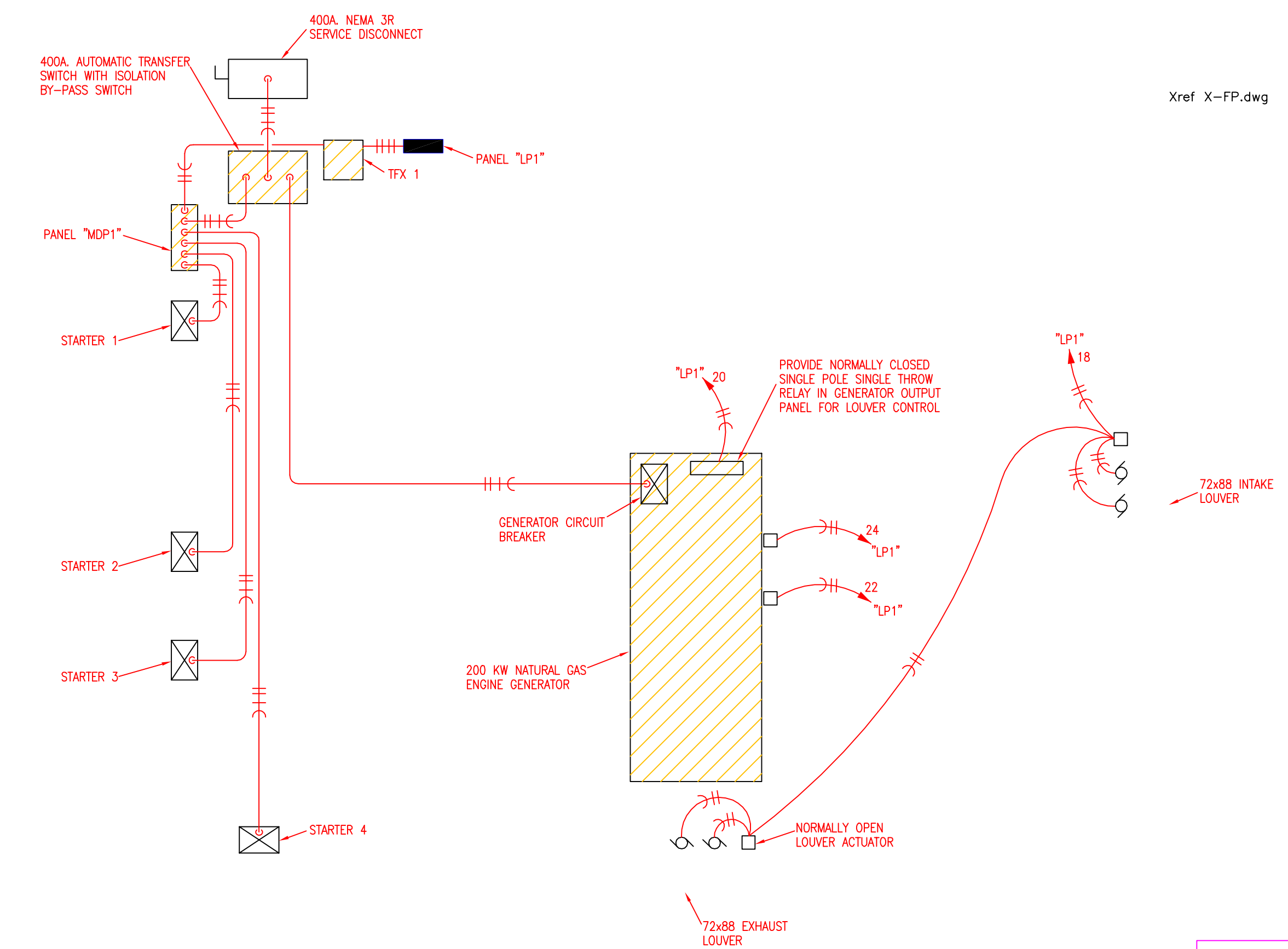
CONTROL BUILDING PLAN
LIGHTING
1/4" = 1'-0"
NORTH



CONTROL BUILDING PLAN
POWER
1/4" = 1'-0"
NORTH



WET WELL PLAN
LIGHTING
1/4" = 1'-0"
NORTH



Xref X-FP.dwg

Xref X-WELL-FP.dwg

| DATE | BY |
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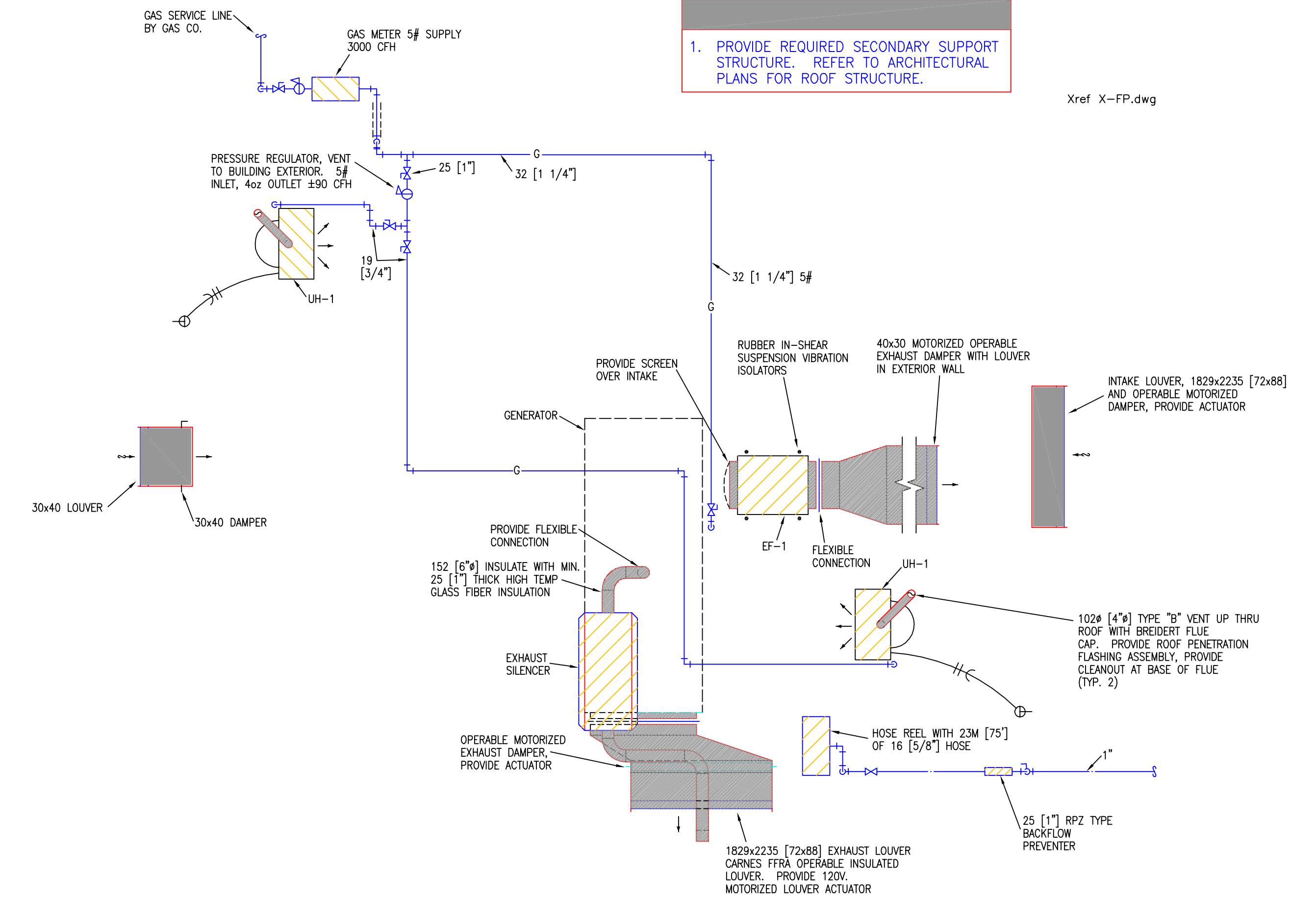
KANSAS DEPARTMENT OF TRANSPORTATION
ROCK PUMP STATION
MECHANICAL/ELECTRICAL DETAILS
Wichita, Kansas Sedgwick, Co.

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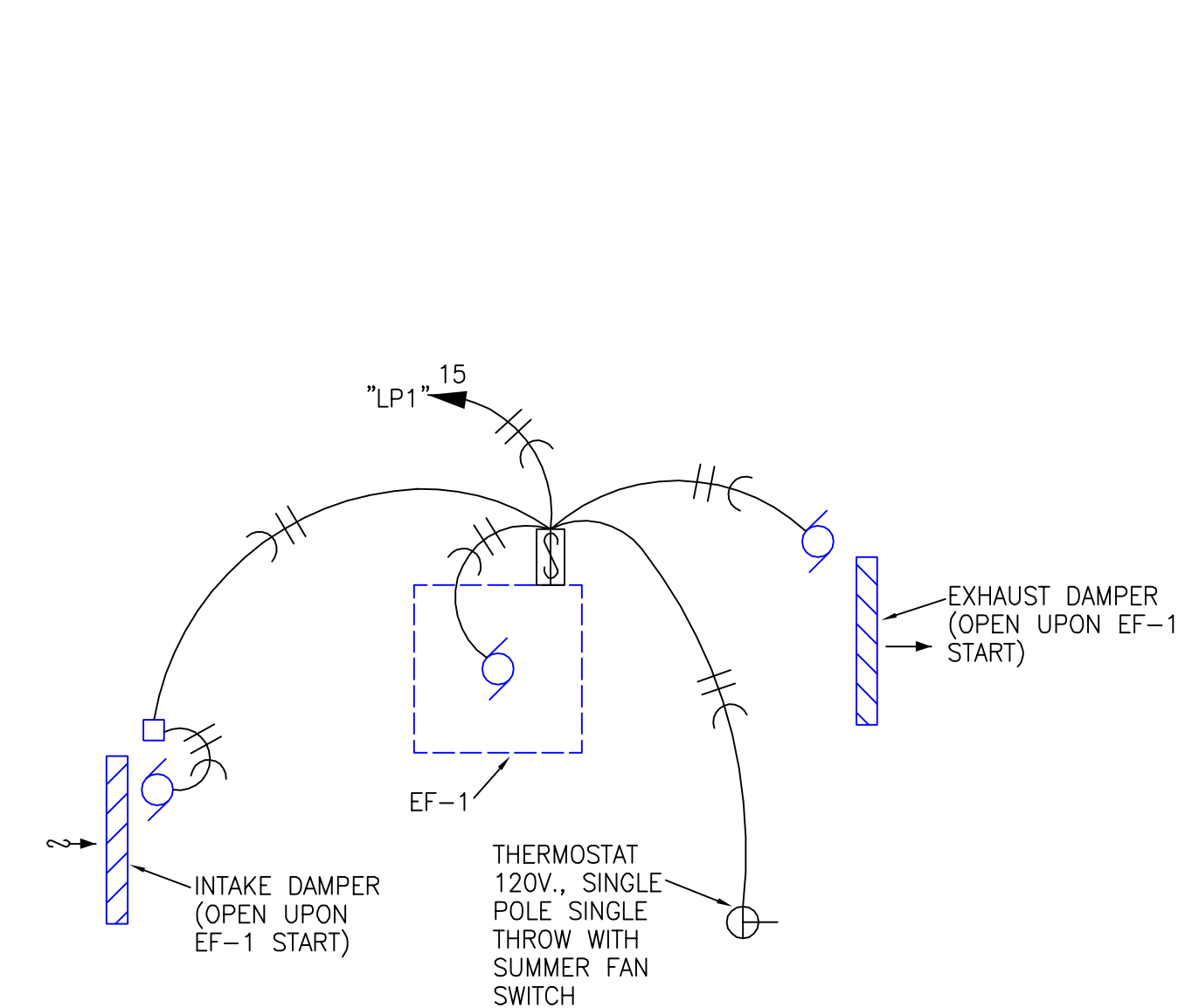
| MARK | MANUFACTURER | MODEL NUMBER | DESCRIPTION | LAMP TYPE AND NUMBER | REMARKS |
|------|--------------|----------------------|---|------------------------------|---|
| "A" | HUBBELL | HLEZ-40H-8-C2 | 120V. EXPLOSION PROOF DIECAST HOUSING AND COMPONENTS WITH BAKED EPOXY COATING. PROVIDE FLUTED PRISMATIC GLOBE AND OPTIONAL GUARD. | (1) 400W. METAL HALIDE | PROVIDE DEEP DOME REFLECTOR. PROVIDE MIN. 24" CHORD AND PLUG WITH POWER HOOK AND ATTACHMENT JUNCTION BOX AND RECEPTACLE ASSEMBLY, PROVIDE SAFETY CHAIN. |
| "B" | WILLIAMS | 82-4-332-WGII | TURRET INDUSTRIAL WITH 10% UP LIGHT AND 11ga. WIRE GUARD. | (3) 32W. T8 FLUORESCENT 35'K | PROVIDE (3) LAMP RAPID START ELECTRONIC BALLAST. |
| "C" | HUBBELL | BL-250H-8-WA | METAL HALIDE HIGH BAY WITH QUADTAP BALLAST AND CLEAR ACRYLIC REFRACTOR | (1) 250W. METAL HALIDE | PROVIDE 24" CHORD AND PLUG WITH POWER HOOK AND ATTACHMENT JUNCTION BOX AND RECEPTACLE ASSEMBLY, PROVIDE SAFETY CHAIN. |
| "AA" | HUBBELL | MSQA-250MH BLACK | SQUARE ONE PIECE ALUMINUM CUT OFF AREA LIGHTING LUMINAIRE. ARM MOUNT, GLASS GASKETED LENS. | (1) 250W. METAL HALIDE | PROVIDE 30" ROUND TAPERED ALUMINUM POLE. POLE SHALL BE CAPABLE OF SUPPORTING LUMINAIRE WITH EPA OF 4.0 AT 100 MPH WIND. |
| "BB" | HUBBELL | PGM-250H-128-1 120V. | WALL MOUNTED DIECAST ALUMINUM HOUSING PRISMATIC GLASS REFRACTOR. | (1) 250W. METAL HALIDE | |

| MARK | MANUFACTURER | MODEL NUMBER | CFM | EST. E.S.P. | ELECTRICAL CHARACTERISTICS | REMARKS |
|------|--------------|--------------|------|-------------|----------------------------|---|
| EF-1 | CARNES | VIDK 18 M4 | 2400 | .250 | 120V., 1 ϕ , 1/3 HP | PROVIDE ELECTRONIC SPEED CONTROL. PROVIDE RUBBER IN-SHERE VIBRATION ISOLATORS |

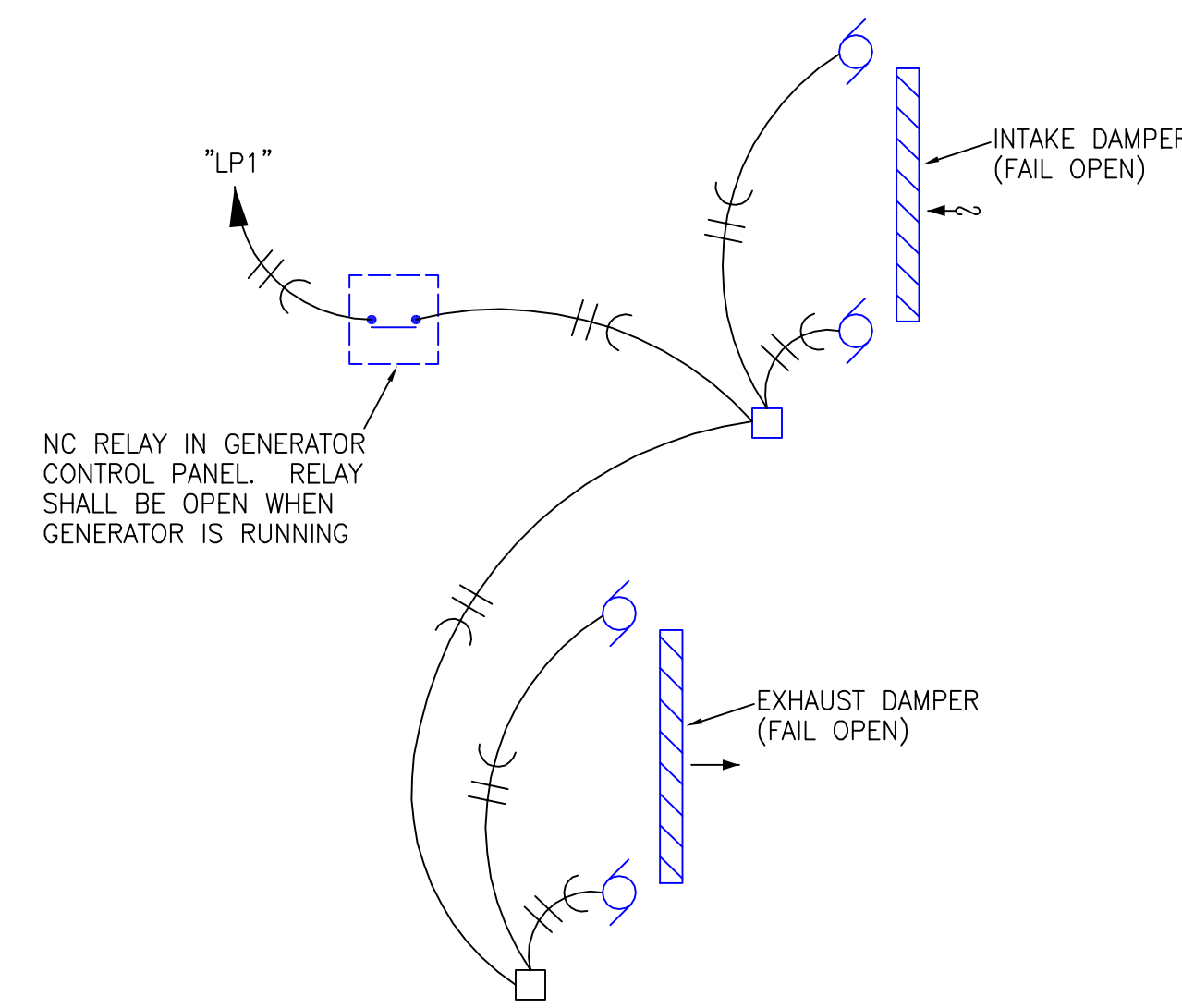
| MARK | MANUFACTURER | MODEL NUMBER | HEAT INPUT | HEAT OUTPUT | ELECTRICAL CHARACTERISTICS | AIR FLOW |
|------|--------------|--------------|-------------|-------------|----------------------------|----------|
| UH-1 | TRANE | 1PND004ADD30 | 45,000 BTUH | 36,000 | 120V., 1 ϕ ., 1/30 HP | 800 CFM |



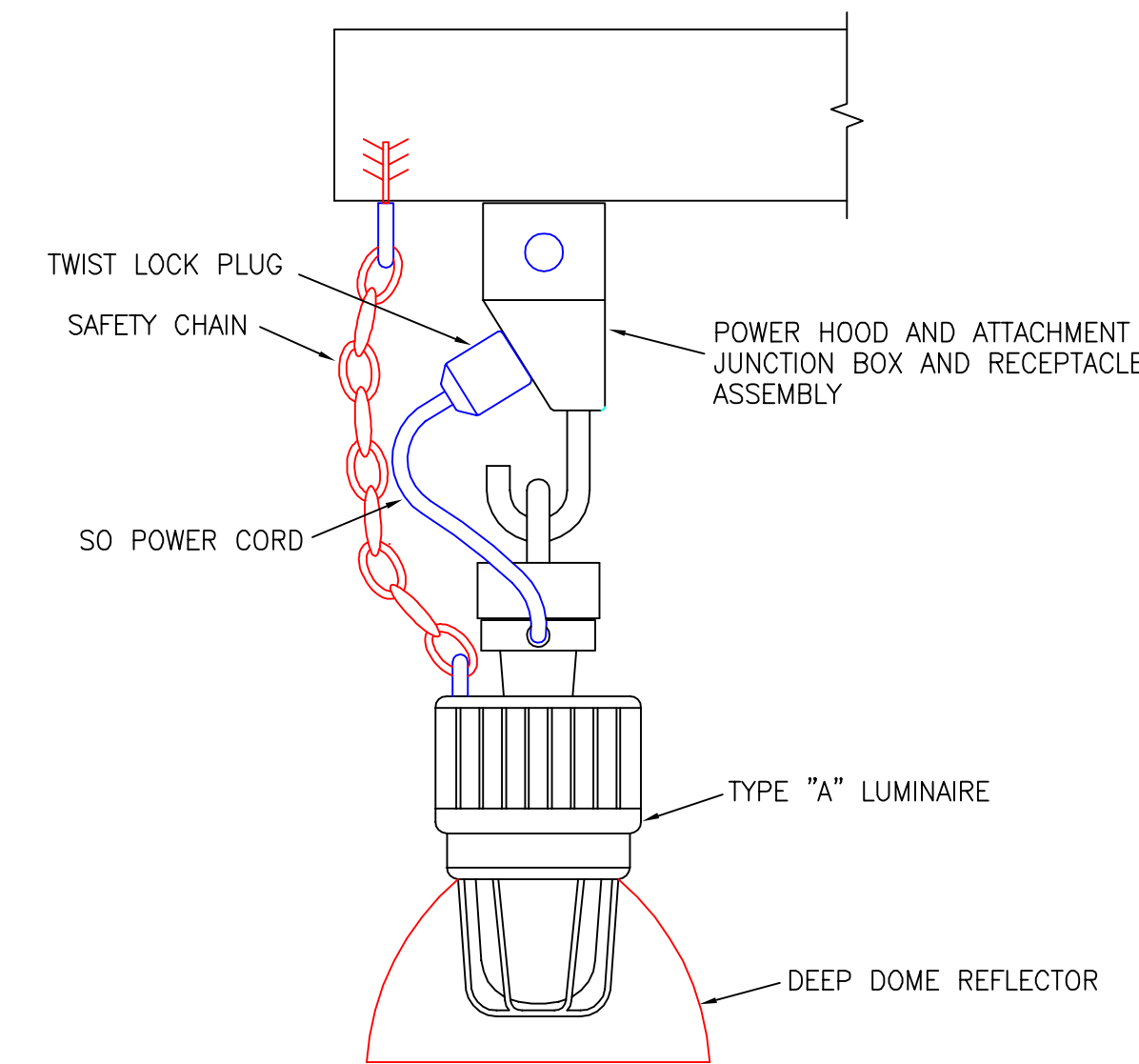
CONTROL BUILDING PLAN
MECHANICAL
1/4"=1'-0"



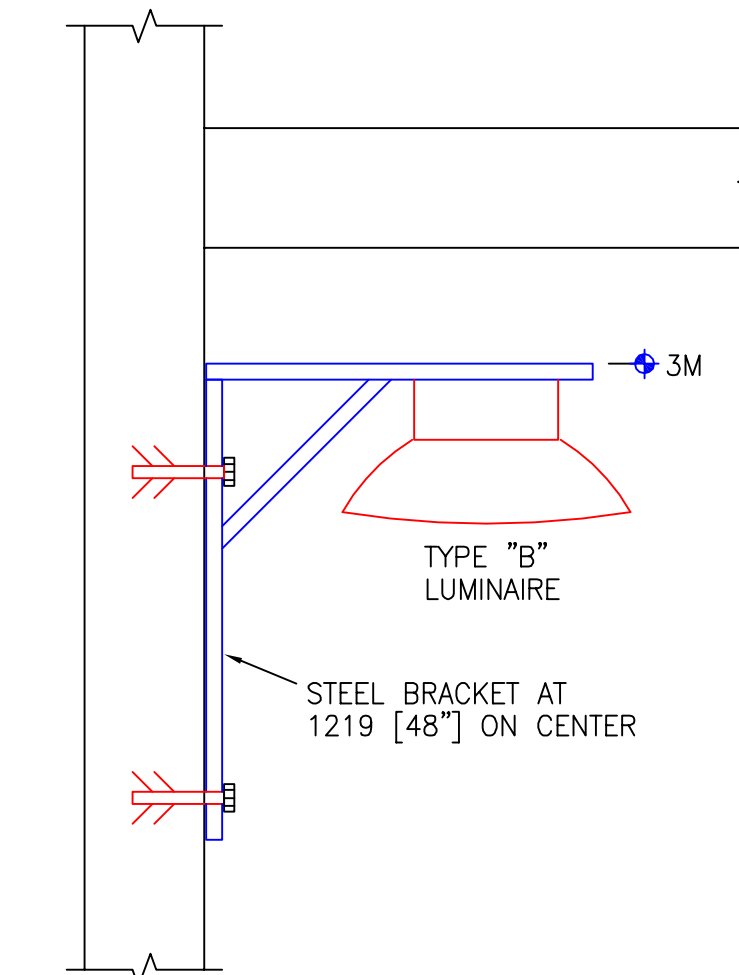
EXHAUST FAN WIRING SCHEMATIC
NO SCALE



ENGINE GENERATOR INTAKE AND EXHAUST LOUVERS
NO SCALE



WET WELL LUMINAIRE DETAIL
NO SCALE



TYPE "B" LUMINAIRE MOUNTING DETAIL
NO SCALE

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| DATE | |
| BY | |
| REFERENCE NOTED | |
| REFERENCE CHECKED | |

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Drawn by:
Filer:
SCALE

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KANSAS DEPARTMENT OF TRANSPORTATION

ROCK PUMP STATION
MECHANICAL/ELECTRICAL DETAILS

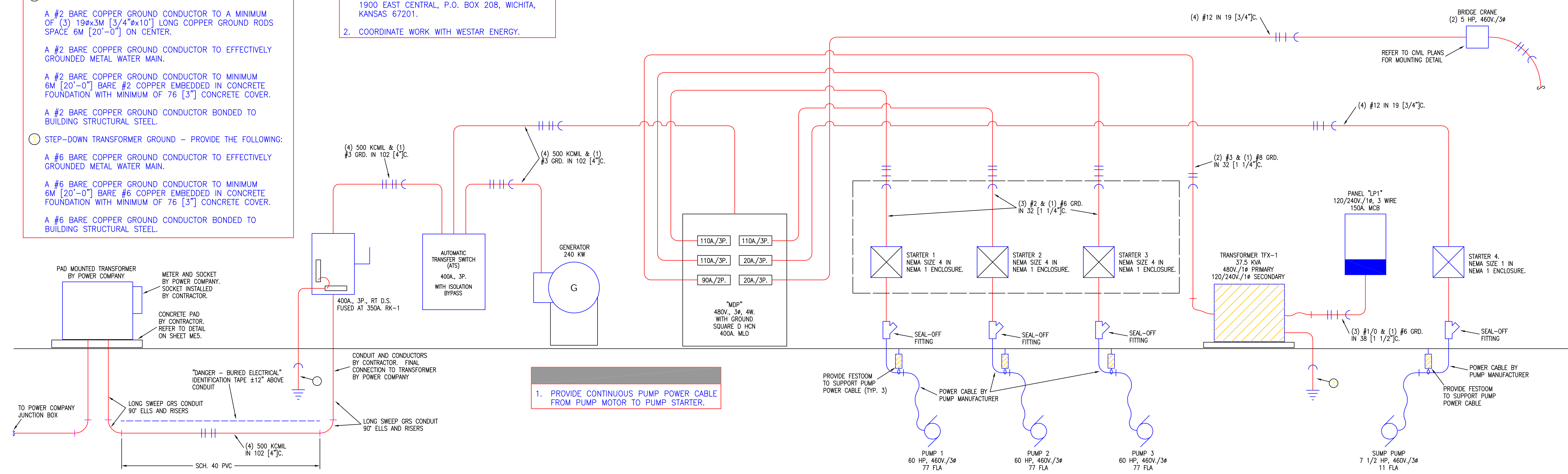
Wichita, Kansas

Sedgwick, Co.

- ① SERVICE GROUNDING - PROVIDE THE FOLLOWING:
- A #2 BARE COPPER GROUND CONDUCTOR TO A MINIMUM OF (3) 19#x3M [3/4"x10"] LONG COPPER GROUND RODS SPACE 6M [20'-0"] ON CENTER.
 - A #2 BARE COPPER GROUND CONDUCTOR TO EFFECTIVELY GROUNDED METAL WATER MAIN.
 - A #2 BARE COPPER GROUND CONDUCTOR TO MINIMUM 6M [20'-0"] BARE #2 COPPER EMBEDDED IN CONCRETE FOUNDATION WITH MINIMUM OF 76 [3"] CONCRETE COVER.
 - A #2 BARE COPPER GROUND CONDUCTOR BONDED TO BUILDING STRUCTURAL STEEL.
- ② STEP-DOWN TRANSFORMER GROUND - PROVIDE THE FOLLOWING:
- A #6 BARE COPPER GROUND CONDUCTOR TO EFFECTIVELY GROUNDED METAL WATER MAIN.
 - A #6 BARE COPPER GROUND CONDUCTOR TO MINIMUM 6M [20'-0"] BARE #6 COPPER EMBEDDED IN CONCRETE FOUNDATION WITH MINIMUM OF 76 [3"] CONCRETE COVER.
 - A #6 BARE COPPER GROUND CONDUCTOR BONDED TO BUILDING STRUCTURAL STEEL.

POWER COMPANY CONTACT:

- MILES CAPPS OR SHANE PRICE: WESTAR ENERGY
1900 EAST CENTRAL, P.O. BOX 208, WICHITA, KANSAS 67201.
- COORDINATE WORK WITH WESTAR ENERGY.

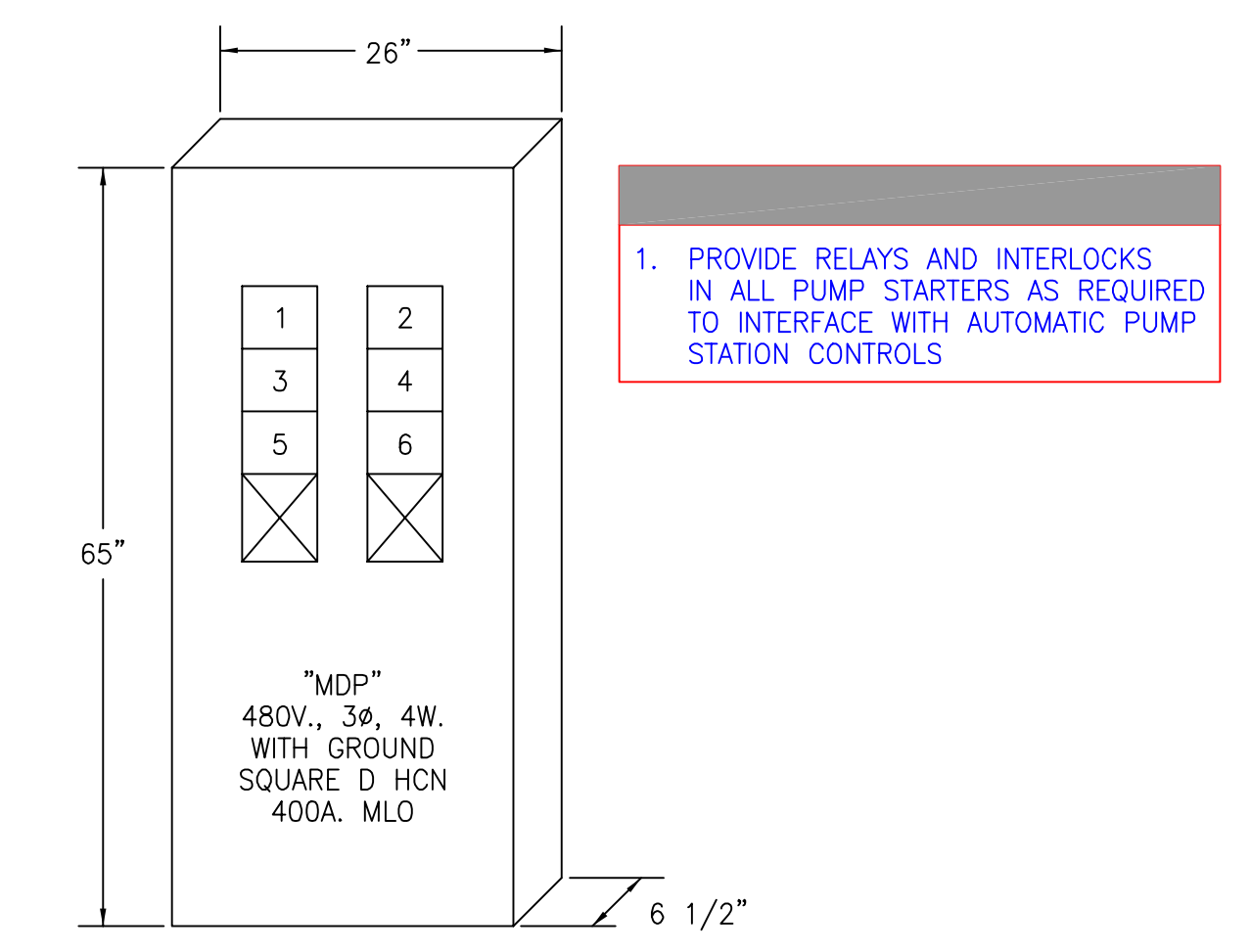


1. PROVIDE CONTINUOUS PUMP POWER CABLE FROM PUMP MOTOR TO PUMP STARTER.

ELECTRICAL DISTRIBUTION RISER DIAGRAM
NO SCALE

| PANEL NO.: | LOCATION: | KAIC: | | | |
|------------------------------|----------------|------------------|-------------|----|---------------------------|
| "LP1" | | | | | |
| PANEL TYPE: | VOLTS: 120/240 | PHASE: 1 | | | |
| | WIRE: 3 | MAINS: 150A, MCB | | | |
| DESCRIPTION | C/B TRIP | C/B TRIP | DESCRIPTION | | |
| LIGHTING - INTERIOR | 20 | 1 | 2 | 40 | WELDING RECEPTACLE |
| LIGHTING - INTERIOR | 20 | 3 | 4 | 2P | |
| LIGHTING - INTERIOR | 20 | 5 | 6 | 20 | AIR COMPRESSOR RECEPTACLE |
| LIGHTING - EXTERIOR BUILDING | 20 | 7 | 8 | 2P | |
| LIGHTING - EXTERIOR POLE | 20 | 9 | 10 | 20 | RECEPTACLES |
| | 2P | 11 | 12 | 20 | RECEPTACLES |
| UNIT HEATERS | 20 | 13 | 14 | 20 | EXTERIOR RECEPTACLES |
| EXHAUST FANS | 20 | 15 | 16 | 20 | PUMP CONTROL PANEL |
| OVERHEAD DOOR | 20 | 17 | 18 | 20 | GENERATOR DAMPERS |
| EXTERIOR LIGHTING CONTROL | 20 | 19 | 20 | 20 | GENERATOR CONTROL PANEL |
| AUTOMATIC CONTROLS | 20 | 21 | 22 | 20 | GENERATOR BATTERY CHARGER |
| WEATHER STATION | 20 | 23 | 24 | 20 | GENERATOR BLOCK HEATER |
| SPARE | 20 | 25 | 26 | 20 | WET WELL LIGHTS |
| SPARE | 20 | 27 | 28 | 20 | SPARE |
| SPARE | 20 | 29 | 30 | 20 | SPARE |

| MARK | LOAD | FLA | FRAME | POLES | TRIP RATING | CB TYPE |
|------|----------------------|-----|-------|-------|-------------|---------|
| 1 | PUMP 1 (60 HP) | 77 | 250 | 3 | 110 | KA |
| 2 | PUMP 2 (60 HP) | 77 | 250 | 3 | 110 | KA |
| 3 | PUMP 3 (60 HP) | 77 | 250 | 3 | 110 | KA |
| 4 | SUMP PUMP (7 1/2 HP) | 11 | 100 | 3 | 20 | FA |
| 3 | TFX-1 | 75 | 100 | 3 | 90 | FA |
| 4 | HOIST | | 100 | 3 | 15 | FA |



MAIN DISTRIBUTION PANEL
1"=1'-0"

| | |
|-----------------|--|
| DATE | |
| BY | |
| REFERENCE NOTED | |
| CHECKED | |

Plotted: .
SCALE: .
Drawn by: .
File: .

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