

CITY OF BIRCHWOOD VILLAGE, MINNESOTA

CONSTRUCTION PLANS FOR

WILDWOOD AVENUE LIFT STATION REPLACEMENT

2024

RESOURCE LIST

CITY OF BIRCHWOOD VILLAGE, MINNESOTA

City Hall
207 Birchwood Avenue,
Birchwood, MN 55110
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Mayor:
Margaret Ford

City Council Members:
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Ryan Hankins
Mark Foster
Justin McCarthy

City Engineer:
Marcus Johnson, PE
marcus.johnson@bolton-menk.com
Phone: (507)-440-0537

Project Engineer:
Jacob Humburg, PE
(Consultant)

Bolton & Menk, Inc.
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Utility Superintendent:

John Manship (Water)
Phone: (651) 775-4060

Dale Reed (Sewer)
Phone: (651) 747-2777

220 WILDWOOD AVE
BIRCHWOOD VILLAGE, MN 55110



SHEET INDEX

SHEET NO. GENERAL

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- G0.02 ABBREVIATIONS
- G0.03 LEGEND

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- C0.02 EXISTING/DEMOLITION - SECTION
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- E0.01 ELECTRICAL SYMBOLS AND ABBREVIATIONS
- E0.02 ELECTRICAL SITE PLAN - LIFT STATION
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NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

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SIGNATURE: *Jacob E. Humburg* TYPED OR PRINTED NAME: Jacob E. Humburg
DATE: 10/28/2024 LIC NO.: 56751



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CITY OF BIRCHWOOD VILLAGE, MINNESOTA
WILDWOOD AVENUE LIFT STATION REPLACEMENT
TITLE, LOCATION MAP, AND SHEET INDEX

SHEET

G0.01

PIPING & FITTING SYMBOLS

Table of piping and fitting symbols including Air Cock, Air Operation, Backflow Preventer, Blind Flange, Drip Trap, Exhaust to Atmosphere (Inside/Outside), Flame Trap, Flame Cell, Flanged Coupling Adapter (F.C.A.), Flexible Hose, Floor Drain - Size, Harnessed Sleeve Coupling (H.S.C.), Sleeve Coupling (S.C.), Hose Bib, 1-1/2" Hose Gate, Meter, Motor Operation, Normally Closed, Normally Open, Orifice, and Pump.

Pipe & Joint Designations

Table of pipe and joint designations including Bell & Spigot Joint, Flanged Adapter, Flanged Joint Fitting, Mechanical Joint Fitting, Wall Pipe, Wall Sleeve, Quick Disconnect Coupling, Reducer, Removable Cap, Removable Plug, Rupture Disc, Sediment Trap, Sight Flow Indicator, and Union.

VALVE SYMBOLS

Process Flow Diagram

Table of valve symbols for process flow diagrams including Angle Valve, Ball Valve, Butterfly Valve, Check Valve, Diaphragm Valve, Gate Valve, Globe Valve, Hose Gate Valve, Knife Gate Valve, Needle Valve, Pinch Valve, Plug Valve, RPZ (Reduced Pressure Zone), Pressure Regulating Valve, Pressure/Temperature Relief Valve, Relief or Safety Valve, Shear, Slide, Sluice or Stop Gate, 3-Way Plug Valve (2-Port), 3-Way Plug Valve (3-Port), 3-Way Valve, 3-Way Plug Valve (4-Port), Vent, Yard Hydrant, and Y-Type Strainer.

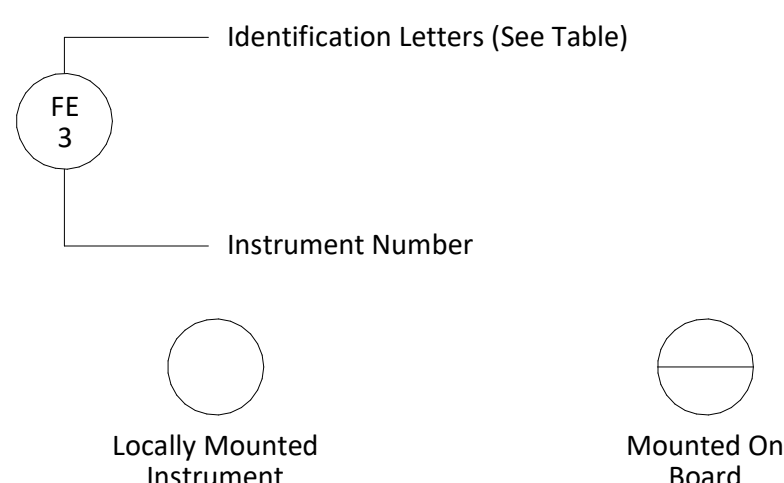
Plan Process Drawings

Table of valve symbols for plan process drawings including Ball Valve, Butterfly Valve, Check Valve, Gate Valve, and Plug Valve.

INSTRUMENT IDENTIFICATION LETTERS

Table of instrument identification letters with columns for First Letter, Measured or Initiating Variable, Modifier, Succeeding Letters, Readout or Passive Function, Output Function, and Modifier. Includes letters A through Z with their respective meanings.

INSTRUMENT IDENTIFICATION



VALVE OPERATORS

Table of valve operators including Cylinders, Chainwheel, Diaphragm, Electric, Float, Hydraulic, Handwheel, Lever, Motor, Pneumatic, and Solenoid.



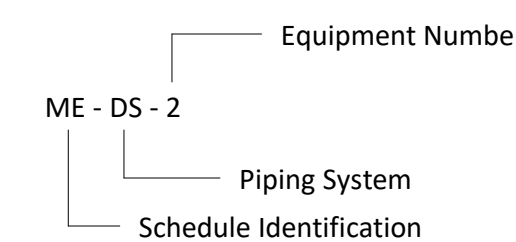
PIPING SCHEDULE

Table of piping schedule designations and fluids including Aeration, Compressed Air, Chlorine Gas, Chlorine Solution, Digester Gas, Digester Sludge, Ferric Chloride, Grit Washing, Grit Separation, Hot Water, Lagoon Return, Natural Gas, Non-Potable Water, Noxious Return, Polymer, Plant Drain, Process Piping, Primary Sludge, Potable Water, Recirculation, Return Activated Sludge, Sample, Scum, Sanitary Drain, Supernatant, Sludge Recirculation, Secondary Sludge, Sludge Transfer, Utility Water (Non-Potable Plant Water), Waste Activated Sludge, and Waste Water.

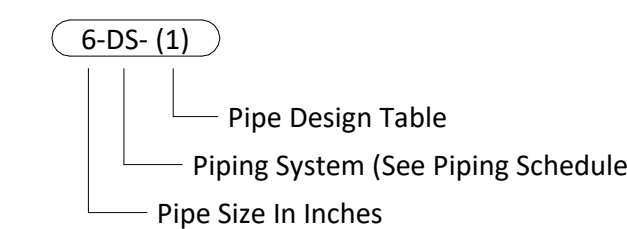
EQUIPMENT SCHEDULE

Table of equipment schedule designations and equipment types including Fan, Miscellaneous Equipment, Pump, Special, Stop Gate, shear gate, sluice gate, slide gate, flap gate, Unit Heater, and Valve (Valves 4" Diameter and Larger Included in Schedule).

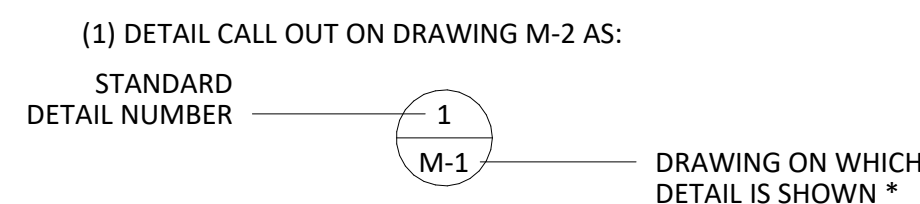
EQUIPMENT IDENTIFICATION



PIPE IDENTIFICATION



STANDARD DETAIL IDENTIFICATION

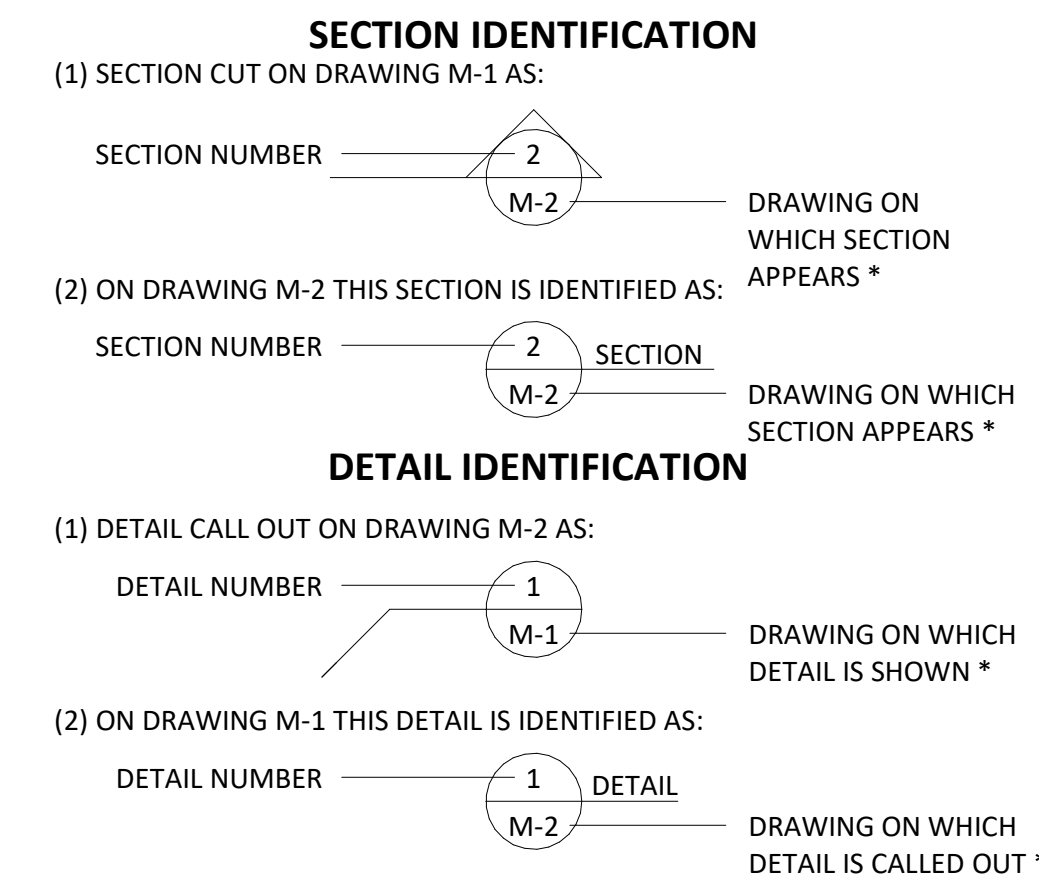


* NOTE: IF PLAN AND SECTION (OR DETAIL CALL-OUT AND DETAIL) ARE SHOWN ON THE SAME DRAWING, DRAWING NUMBER IS REPLACED BY A LINE.

PIPE DESIGN TABLE

Table of pipe design table including PDT No., Pipe Material, and Fitting Material. Lists various pipe materials like Ductile Iron, Carbon Steel, Polypropylene, and Stainless Steel with their respective specifications.

SECTION AND DETAIL IDENTIFICATION



Professional engineer certification statement for Jacob E. Humburg, dated 10/28/2024, with signature and license number 56751.



Company address: 3507 High Point Drive North, Bldg. 1 Suite E130, Oakdale, Minnesota 55337. Phone: (651) 704-9970. Email: oakdale@bolton-menk.com, www.bolton-menk.com

Table with project details: DESIGNED (JLL), NO. (0), ISSUED FOR (BID), DATE (10/28/2024), DRAWN (NLH), CHECKED (JEH), CLIENT PROJ. NO. (1131616).

CITY OF BIRCHWOOD VILLAGE, MINNESOTA
WILDWOOD AVENUE LIFT STATION REPLACEMENT

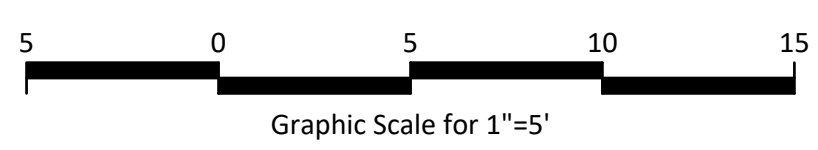
LEGEND

SHEET

G0.03



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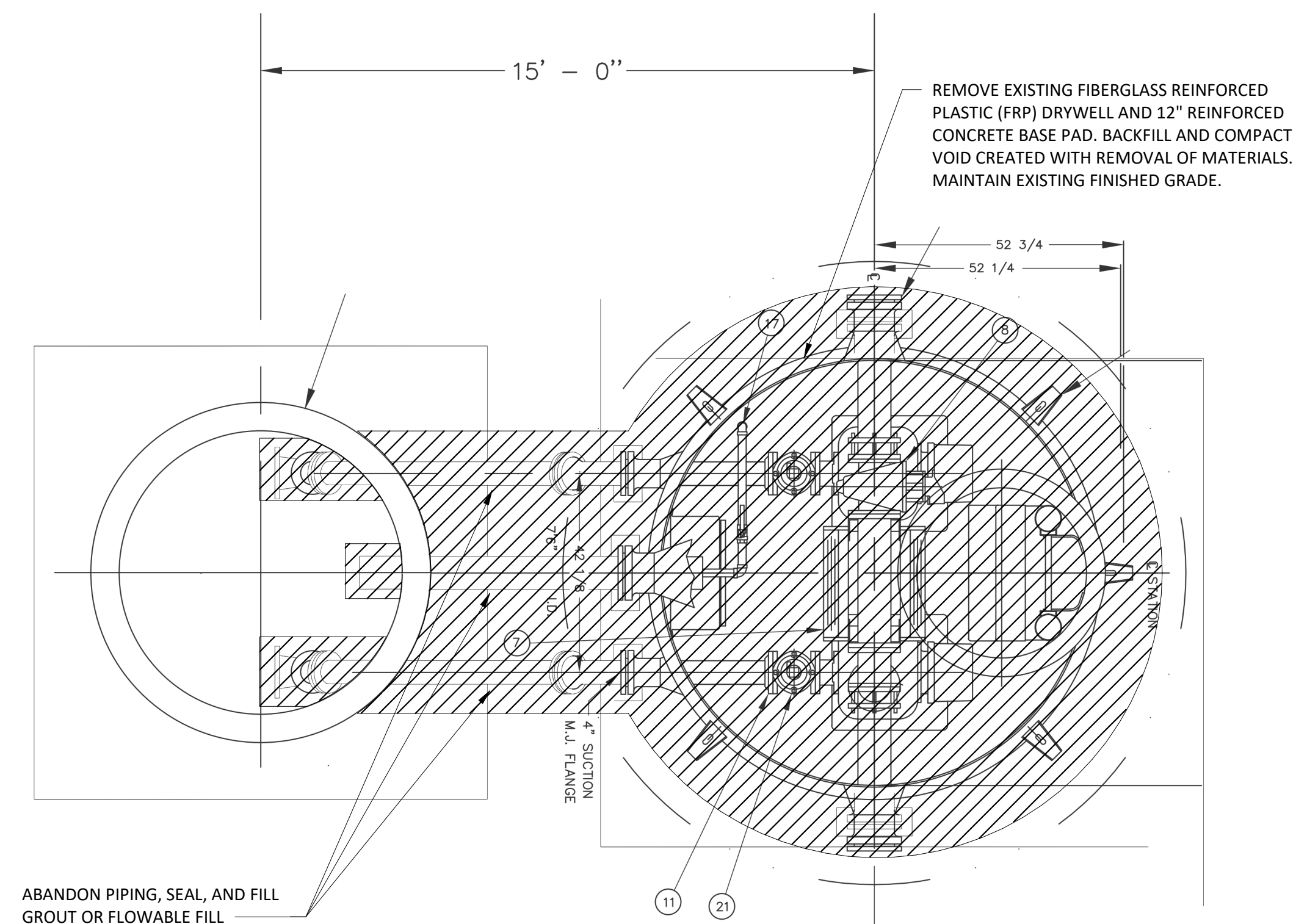
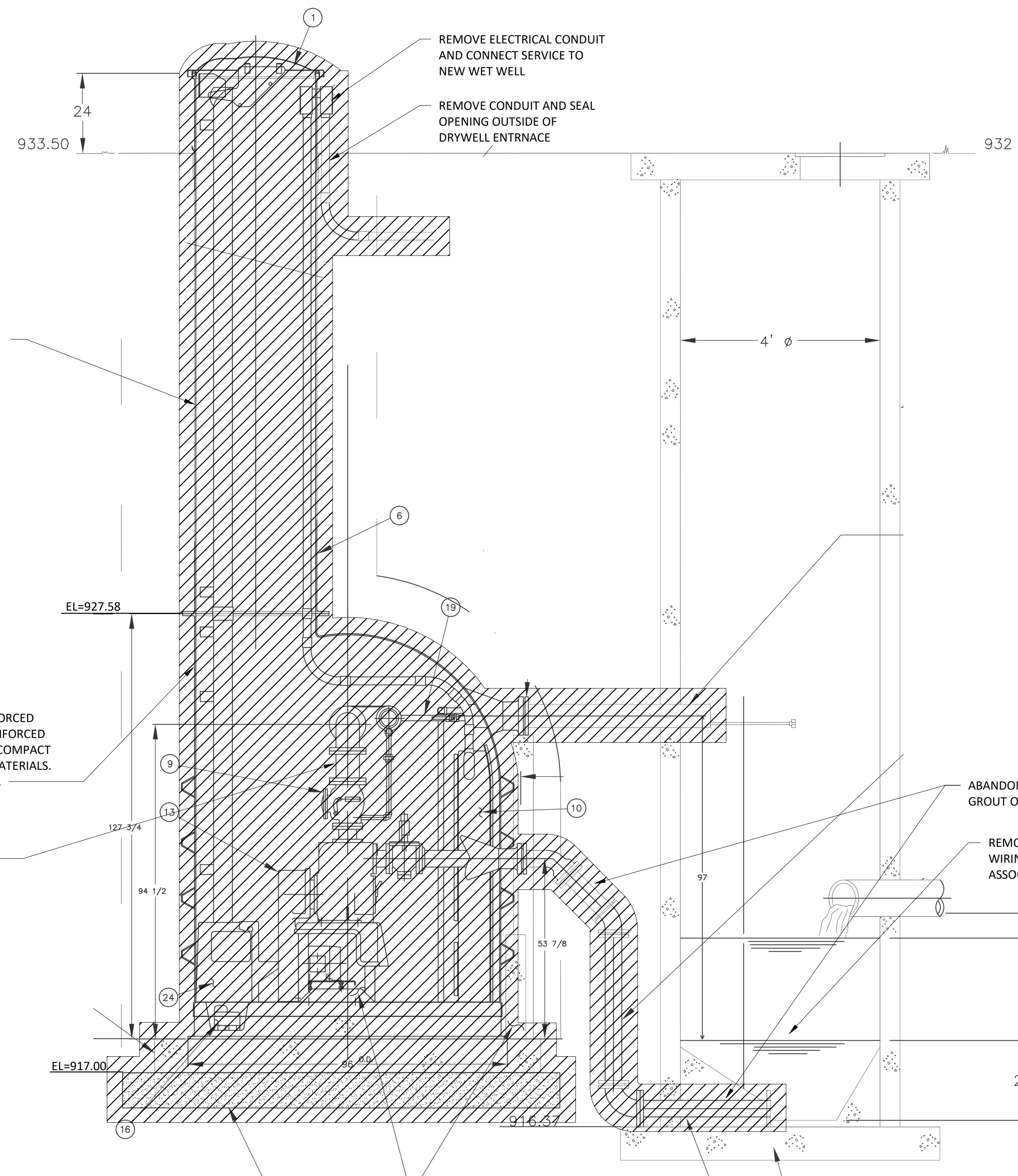
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CITY OF BIRCHWOOD, MINNESOTA
 WILDWOOD AVENUE LIFT STATION MODIFICATIONS
 EXISTING/DEMOLITION SITE - PLAN

SHEET
C0.01

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PLAN & SECTION
NOT TO SCALE

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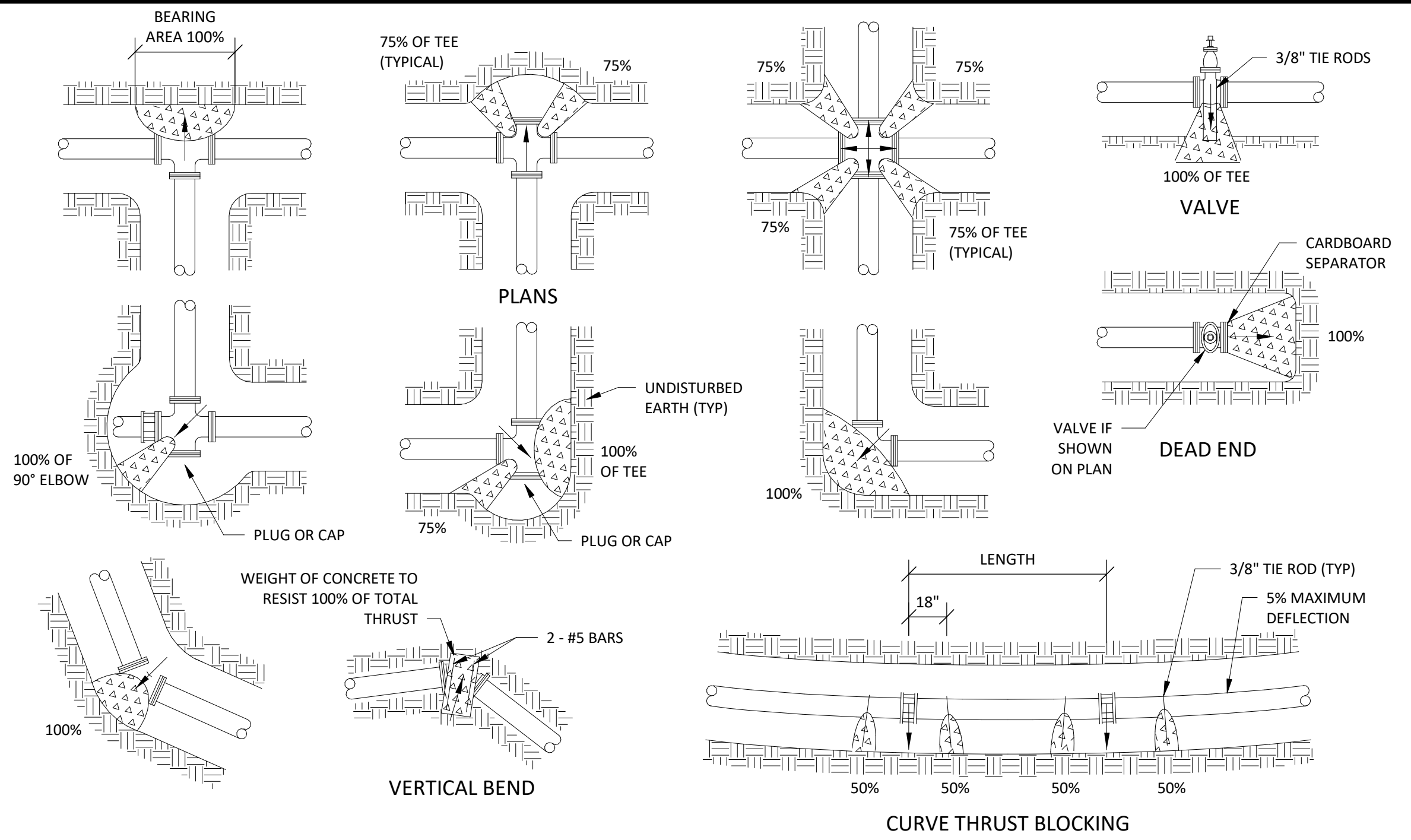
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CITY OF BIRCHWOOD VILLAGE, MINNESOTA
WILDWOOD AVENUE LIFT STATION REPLACEMENT
 EXISTING/DEMOLITION - SECTION

SHEET

C0.02



100% BEARING AREA (SQ. FT.)

PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2" ELBOW
4	2.4	3.4	1.9	0.9
6	4.9	6.9	3.8	1.9
8	8.4	11.8	6.4	3.4
10	13.7	19.3	10.5	5.4
12	19.4	27.3	14.9	7.7
14	26.3	37.0	20.1	10.3
16	34.0	47.9	26.2	13.3
18	43.9	61.8	33.7	17.2
20	54.3	76.4	41.7	21.2
24	77.9	109.8	59.8	30.5

NOTE: FIGURE (100%) AT THRUST BLOCK INDICATES PER CENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA.

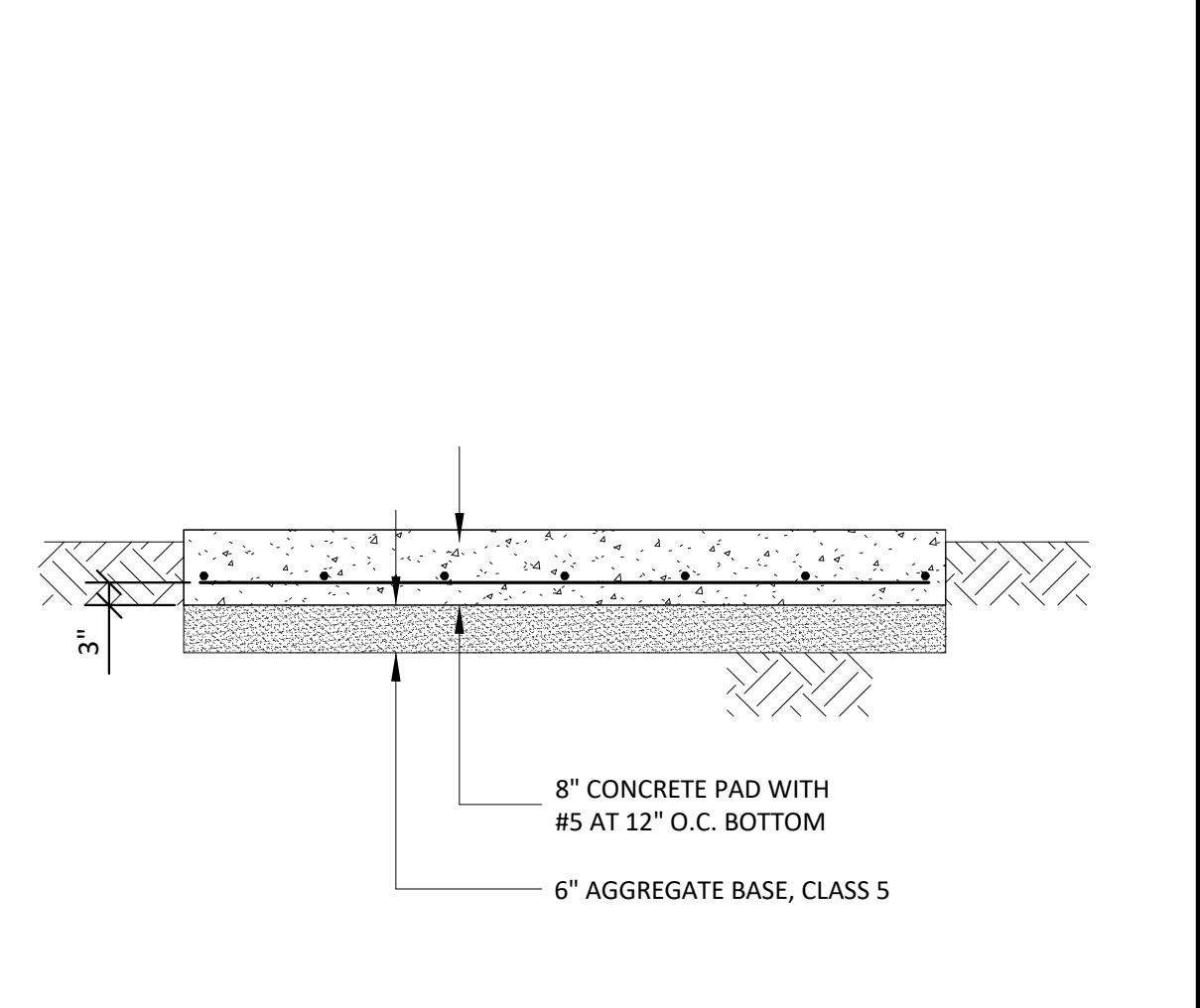
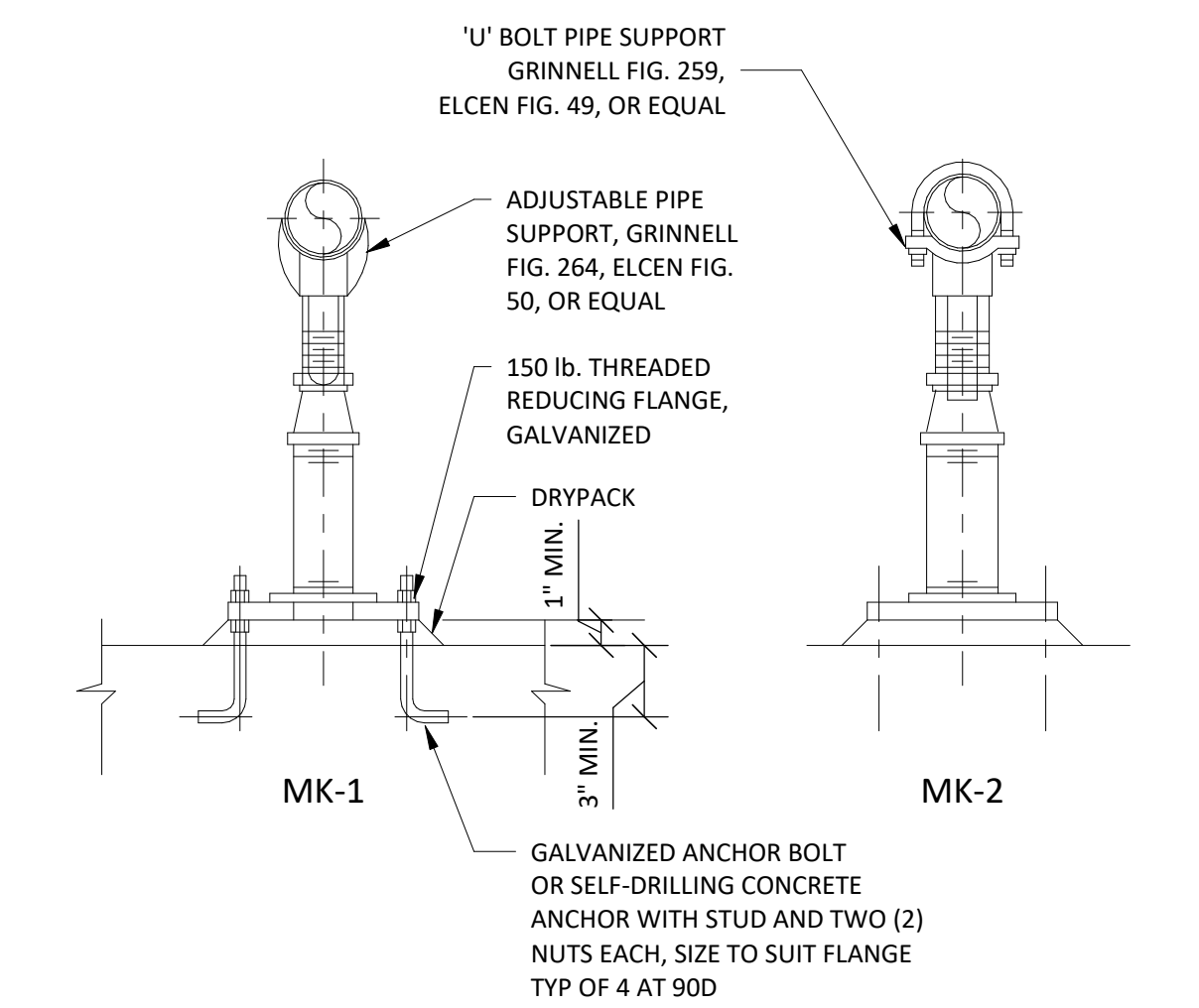
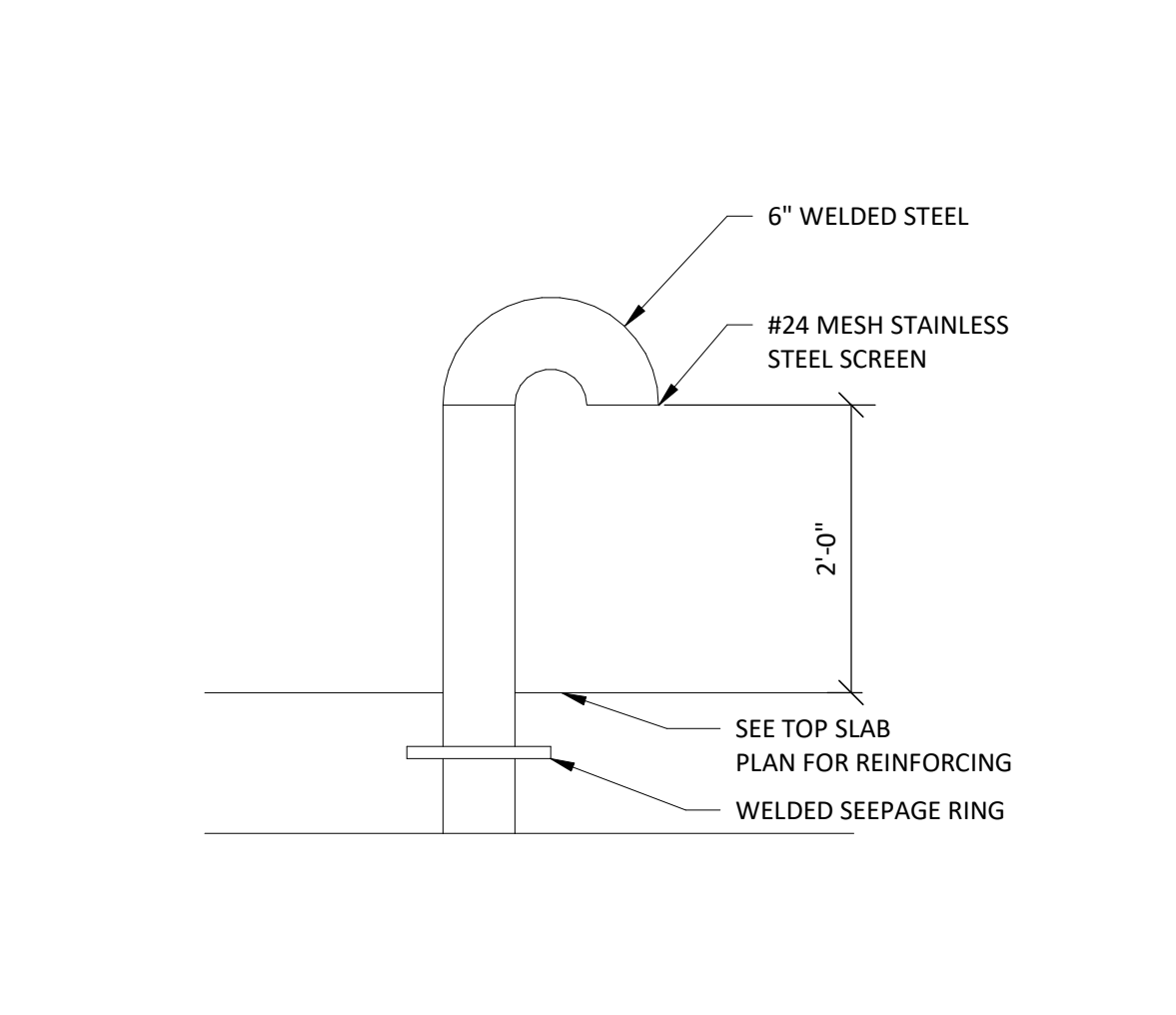
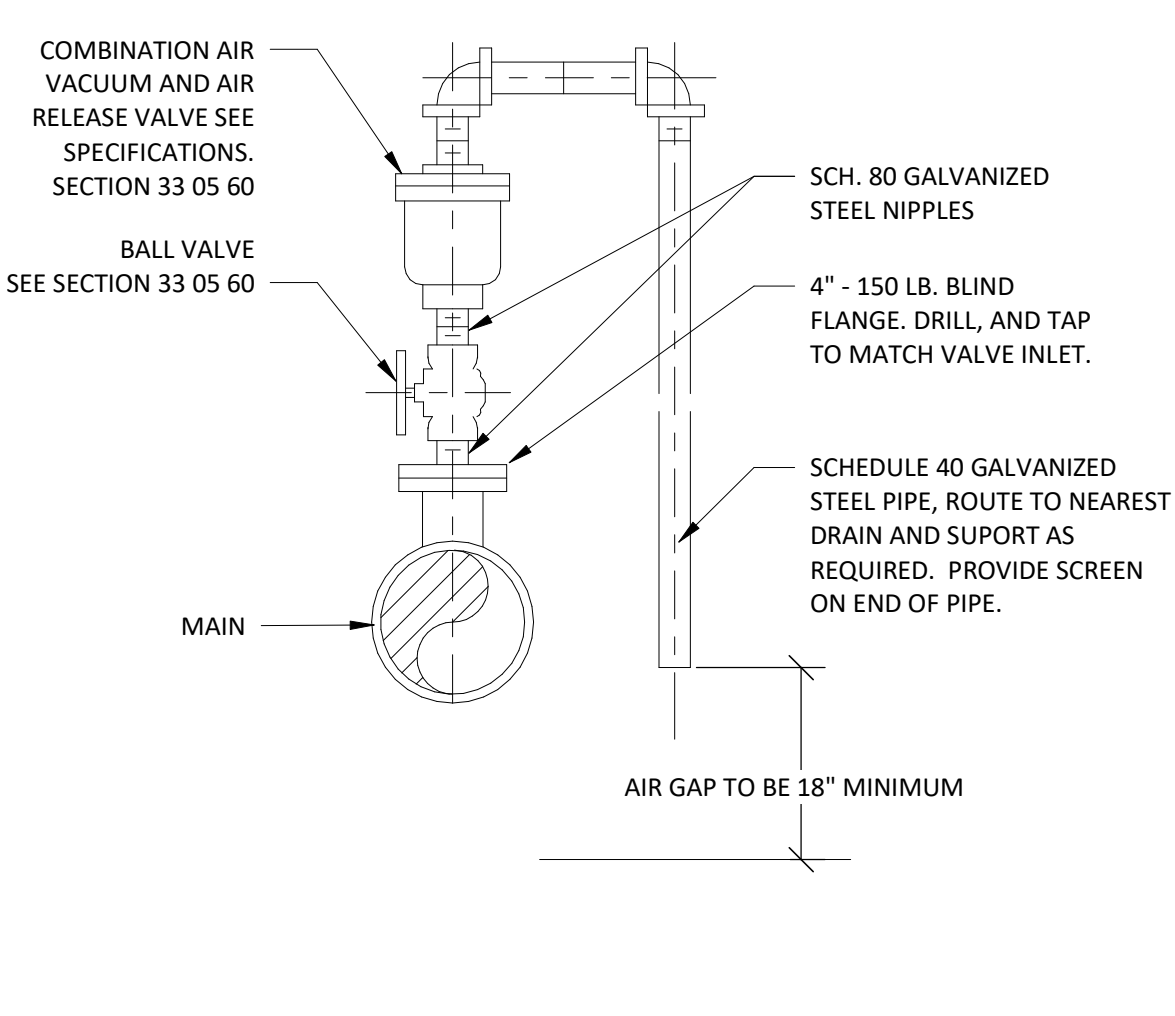
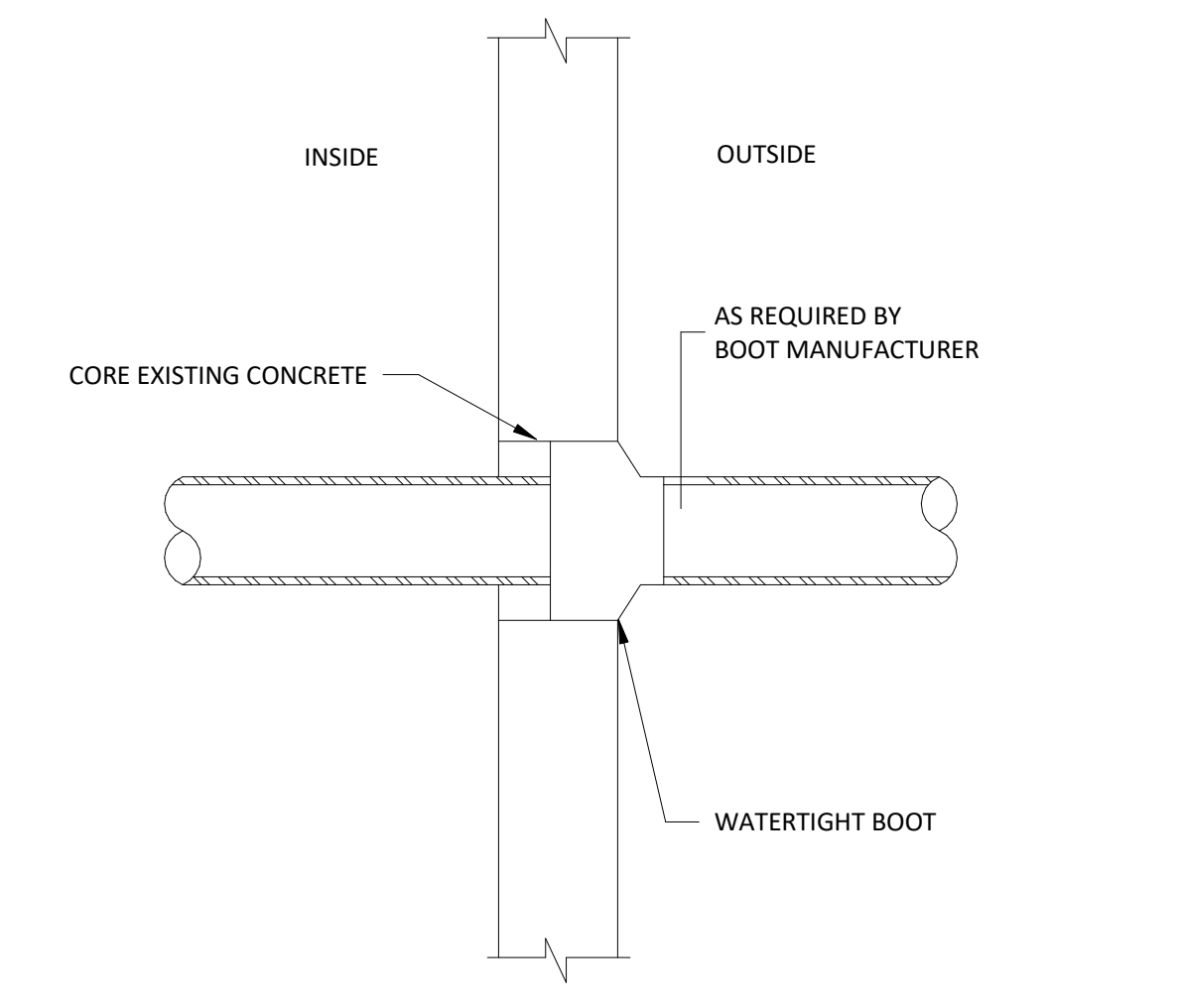
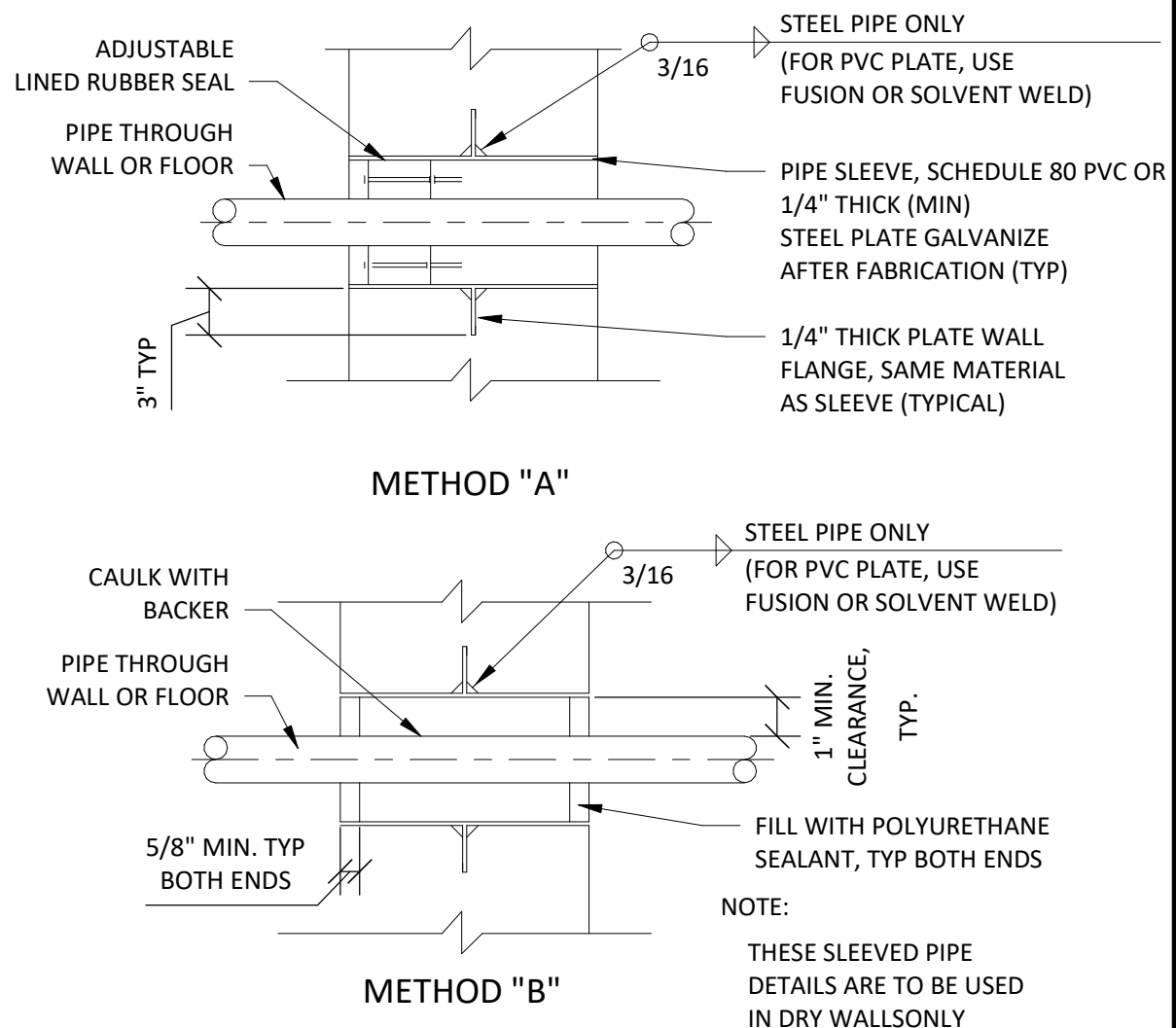
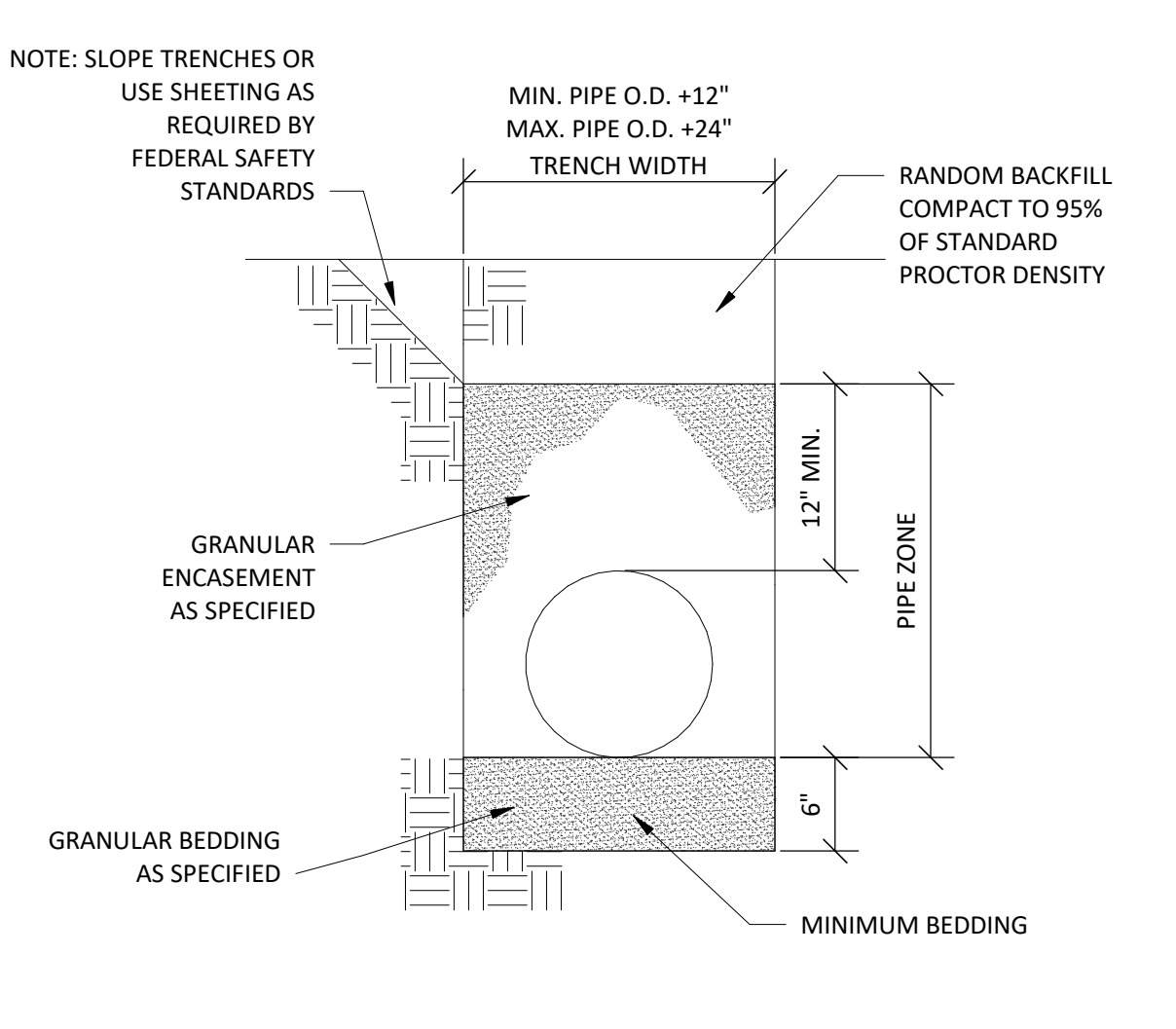
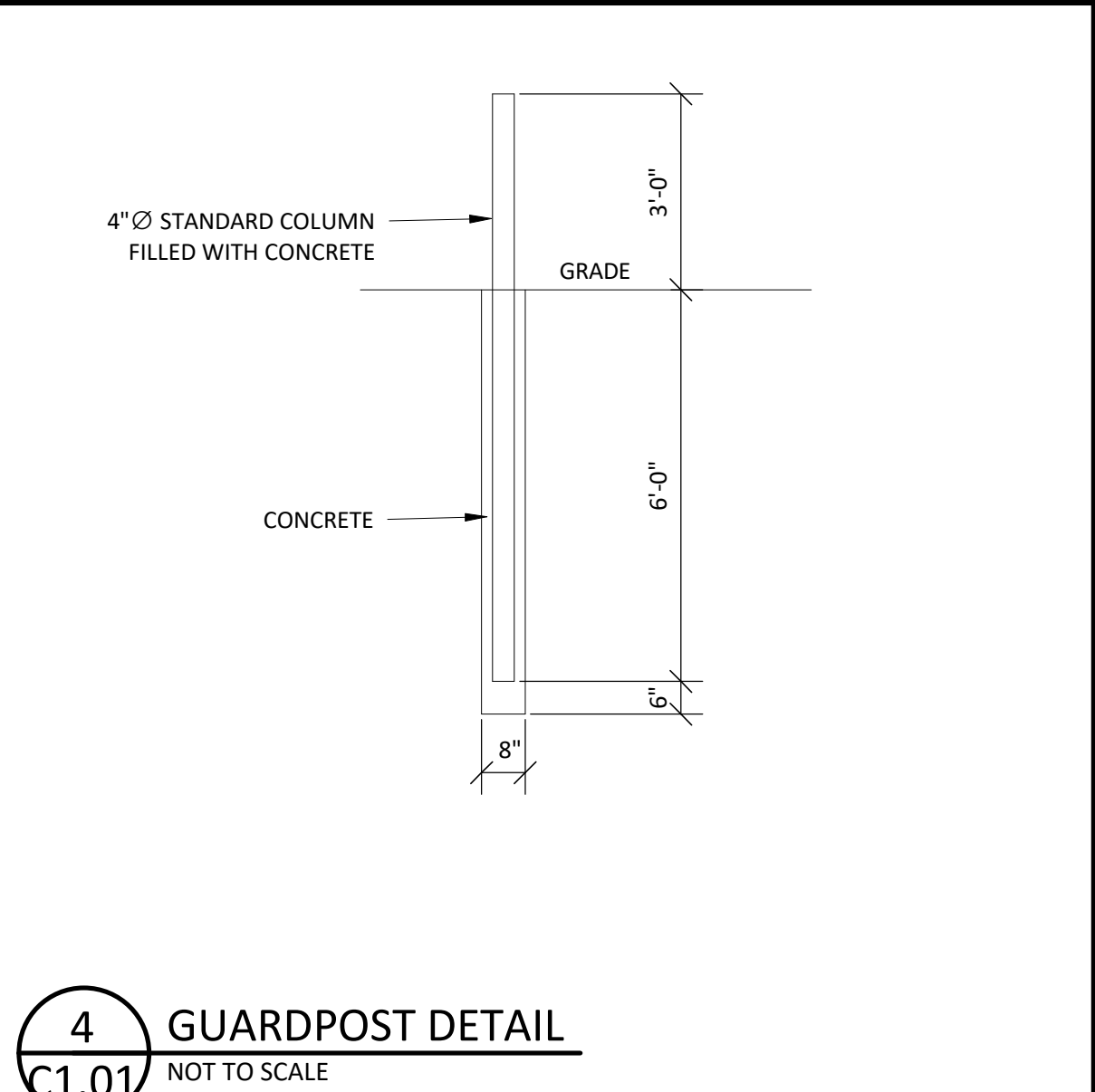
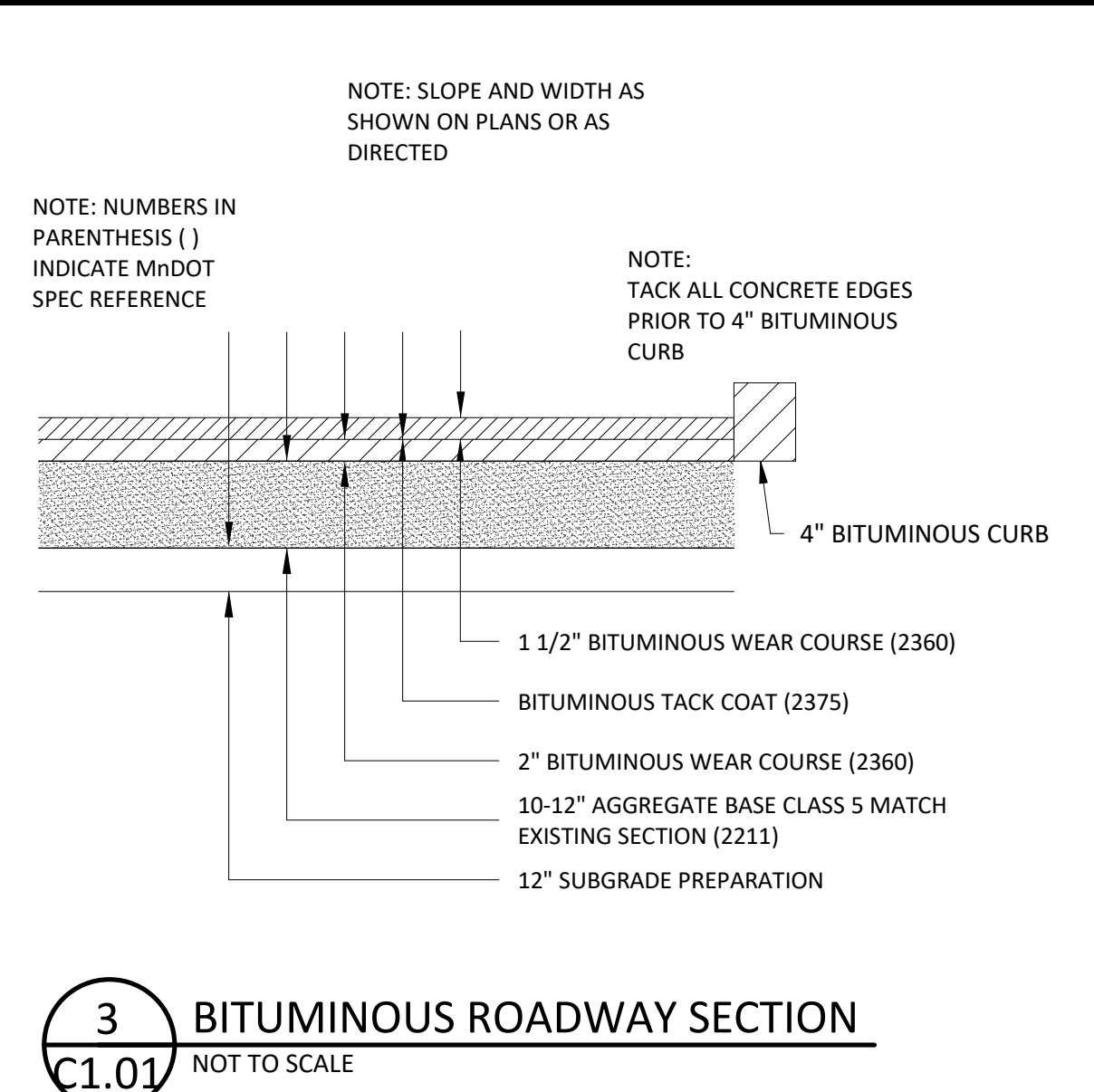
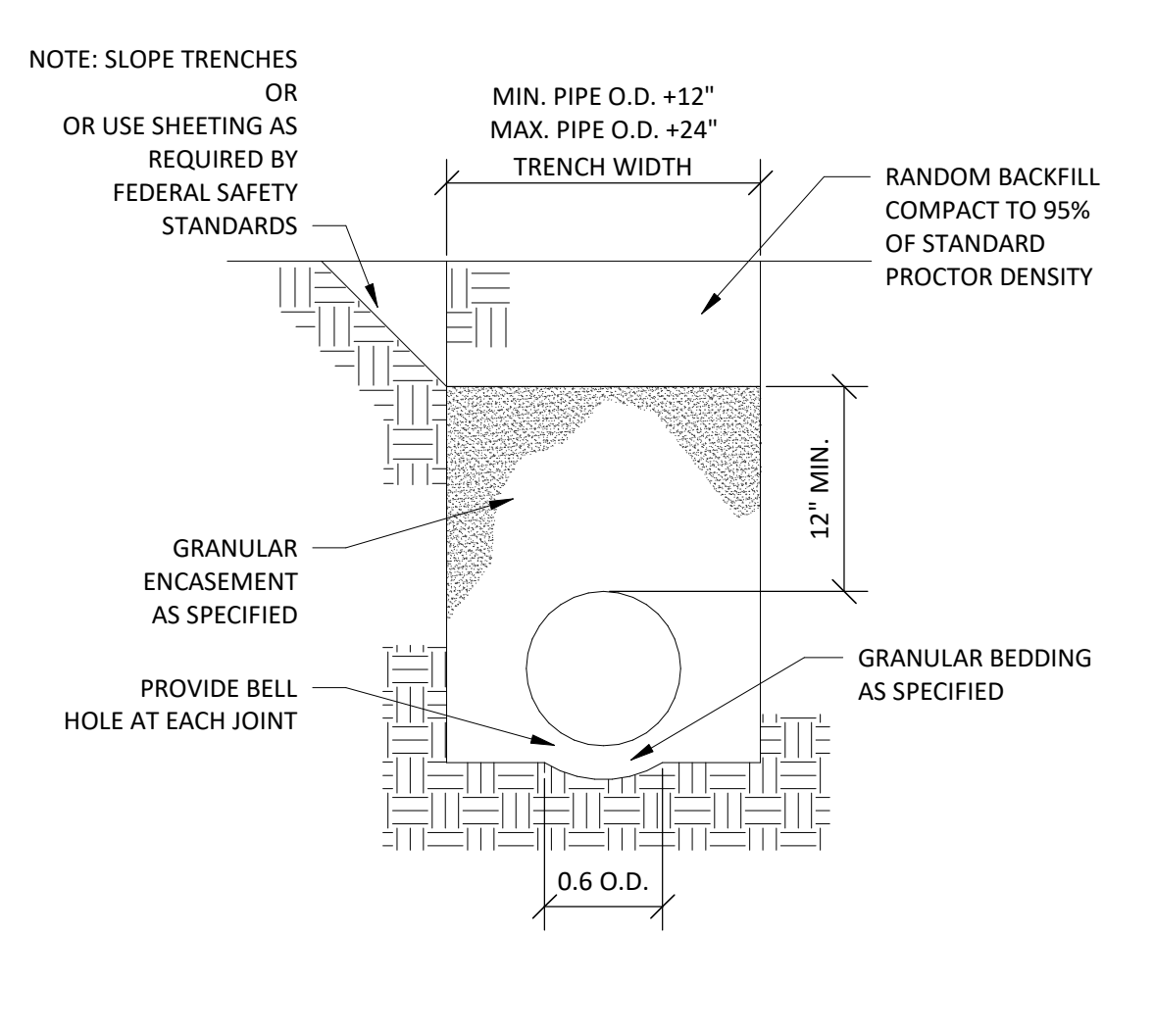
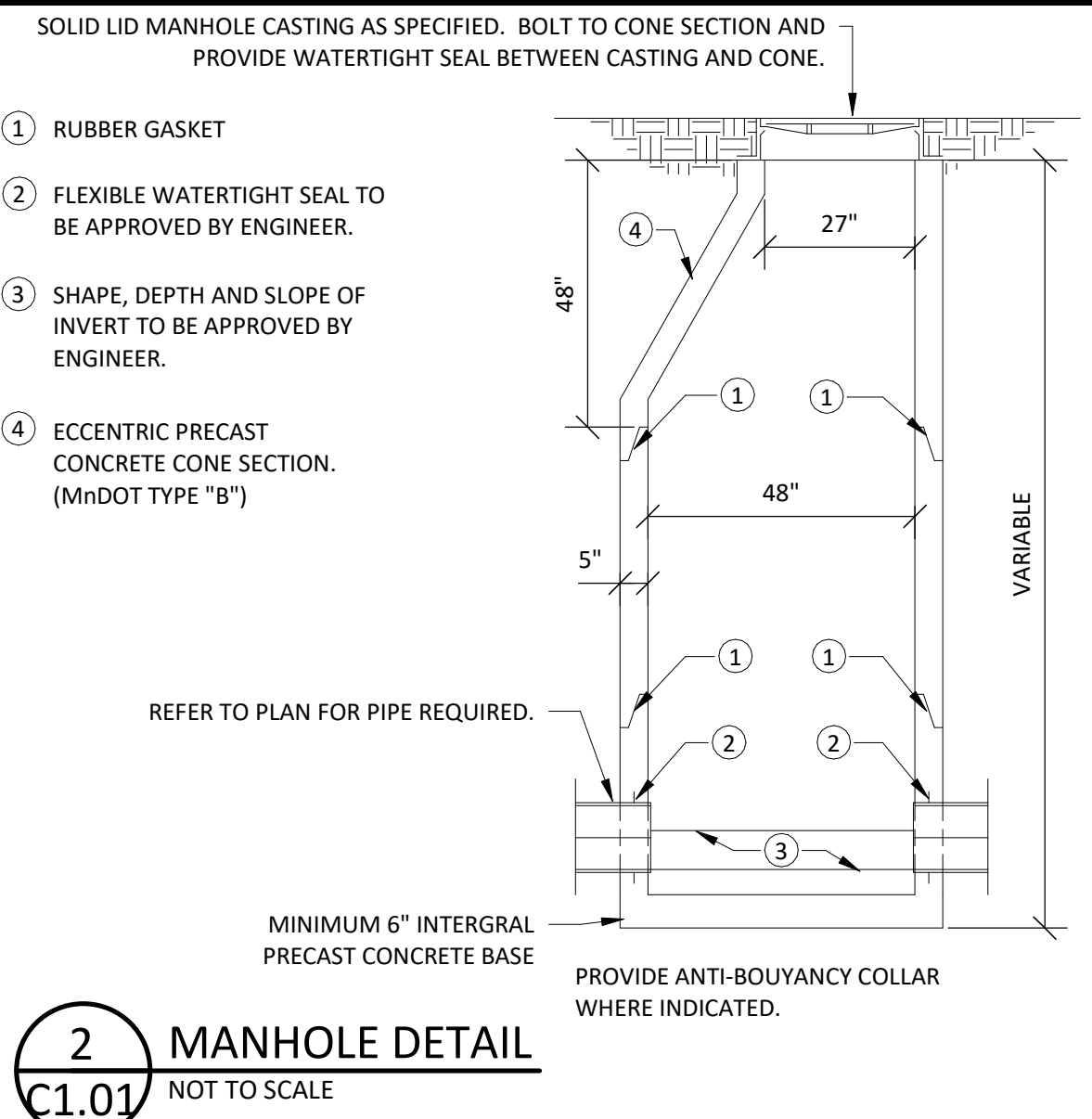
NOTE: ARROWS (→) INDICATE THRUST DIRECTION.

NOTE: CONCRETE FOR THRUST BLOCKS TO BE 2000 P.S.I.

NOTES:

- RESTRAINING RODS ARE REQUIRED AT ALL TEES AND AT BENDS DEFLECTING 22 1/2" OR MORE.
- WRAP THE PIPE WITH POLYETHYLENE WRAPPING PRIOR TO POURING THE THRUST BLOCK.
- SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL. IN ABSENCE OF A SOILS REPORT, AN AVERAGE SOIL (SPADEABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2000 P.S.I.
- THRUST BLOCKS ARE NOT REQUIRED ON P.V.C. WITH SOLVENT WELDED JOINTS.

1 CONCRETE THRUST BLOCKS FOR DUCTILE IRON AND PVC PIPE
C1.01 NOT TO SCALE



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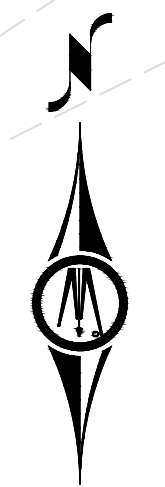
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WILDWOOD AVENUE LIFT STATION REPLACEMENT

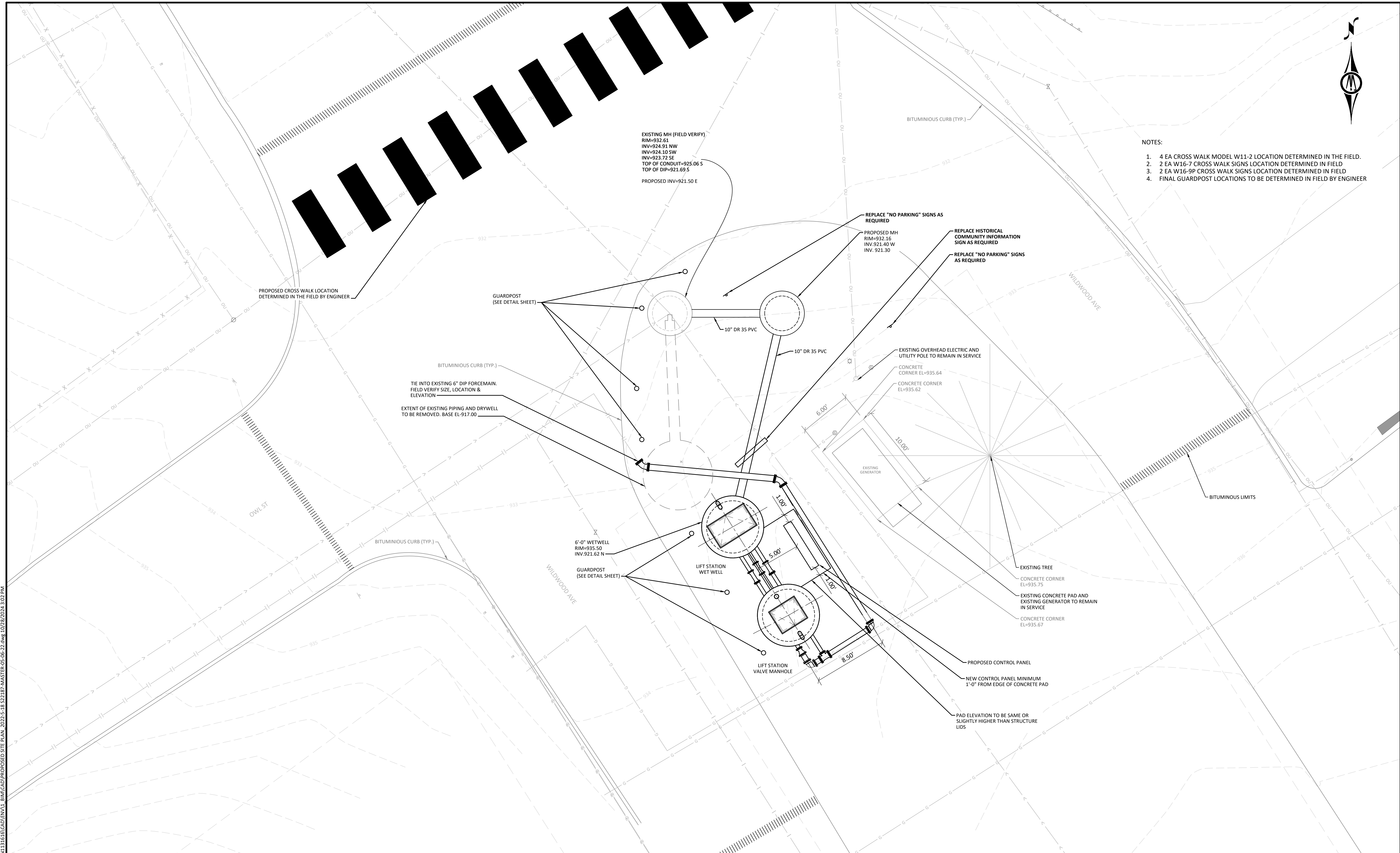
STANDARD DETAILS

SHEET
C1.01

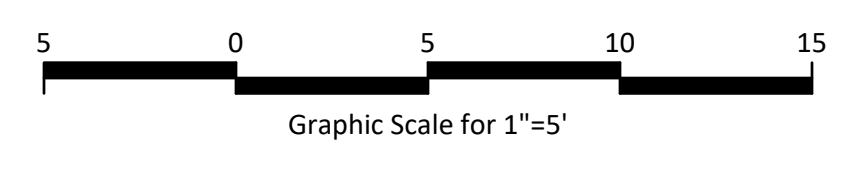
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- NOTES:
1. 4 EA CROSS WALK MODEL W11-2 LOCATION DETERMINED IN THE FIELD.
 2. 2 EA W16-7 CROSS WALK SIGNS LOCATION DETERMINED IN FIELD
 3. 2 EA W16-9P CROSS WALK SIGNS LOCATION DETERMINED IN FIELD
 4. FINAL GUARDPOST LOCATIONS TO BE DETERMINED IN FIELD BY ENGINEER



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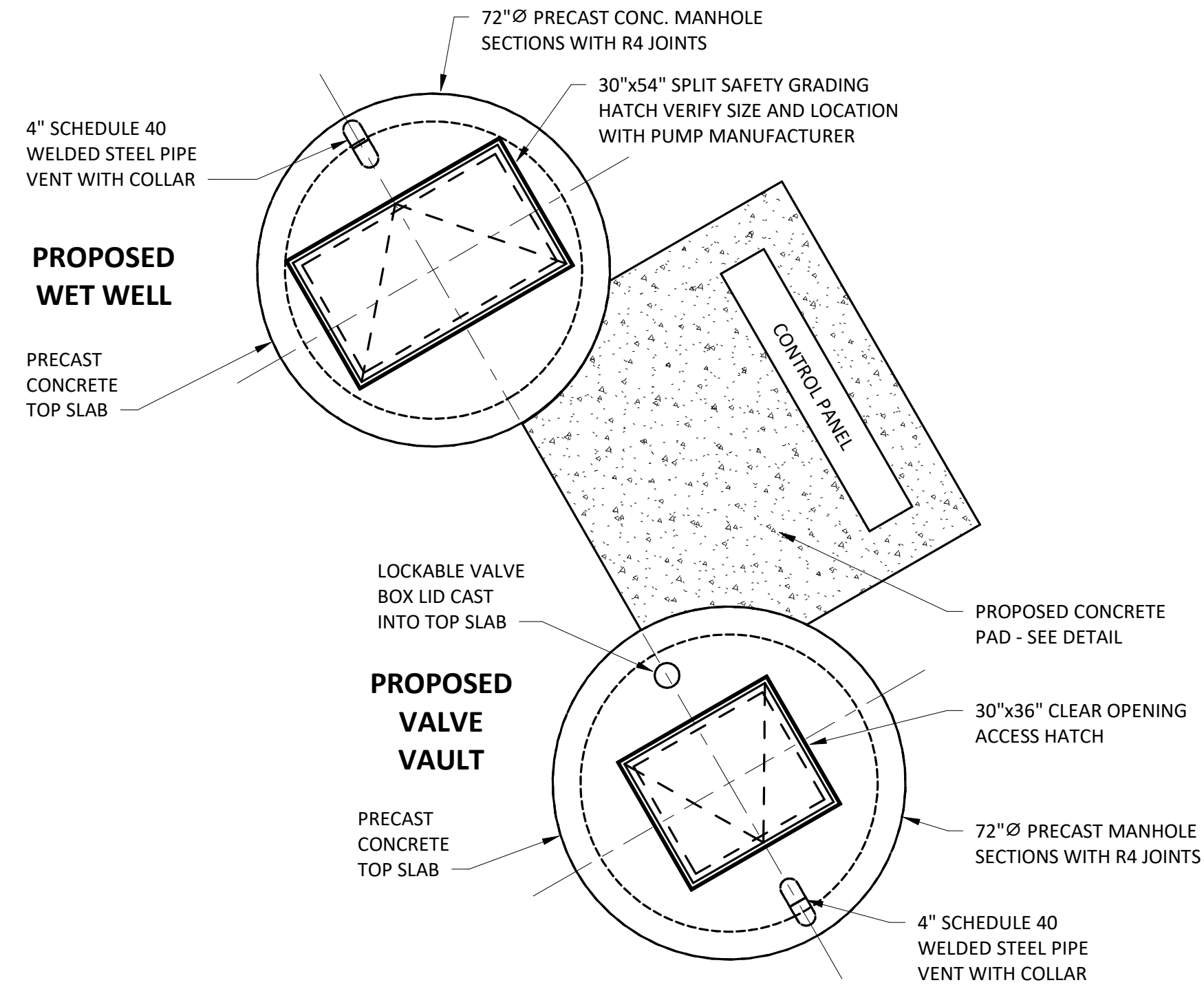


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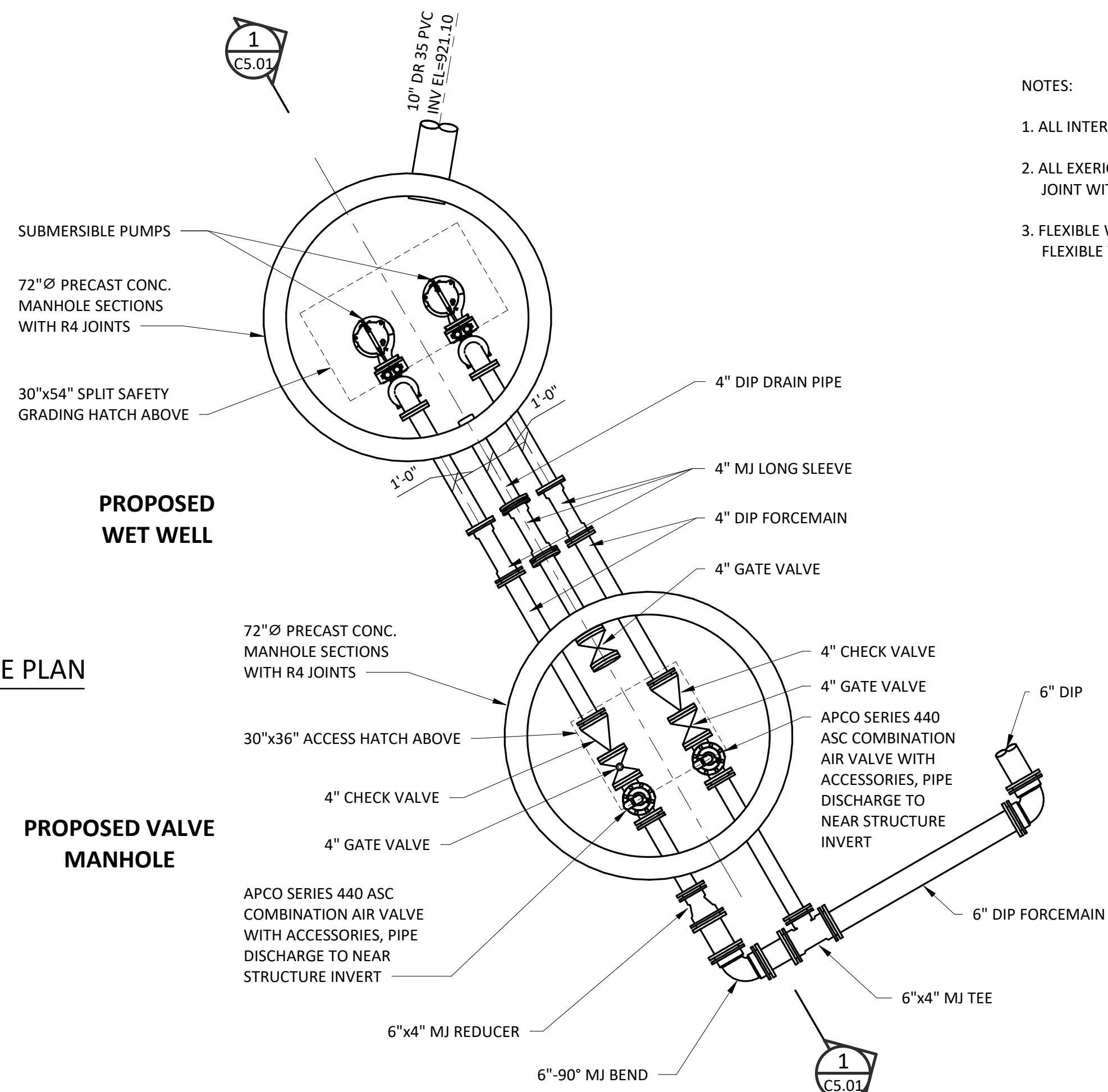
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CITY OF BIRCHWOOD, MINNESOTA
 WILDWOOD AVENUE LIFT STATION MODIFICATIONS
 PROPOSED SITE - PLAN

SHEET
C3.01

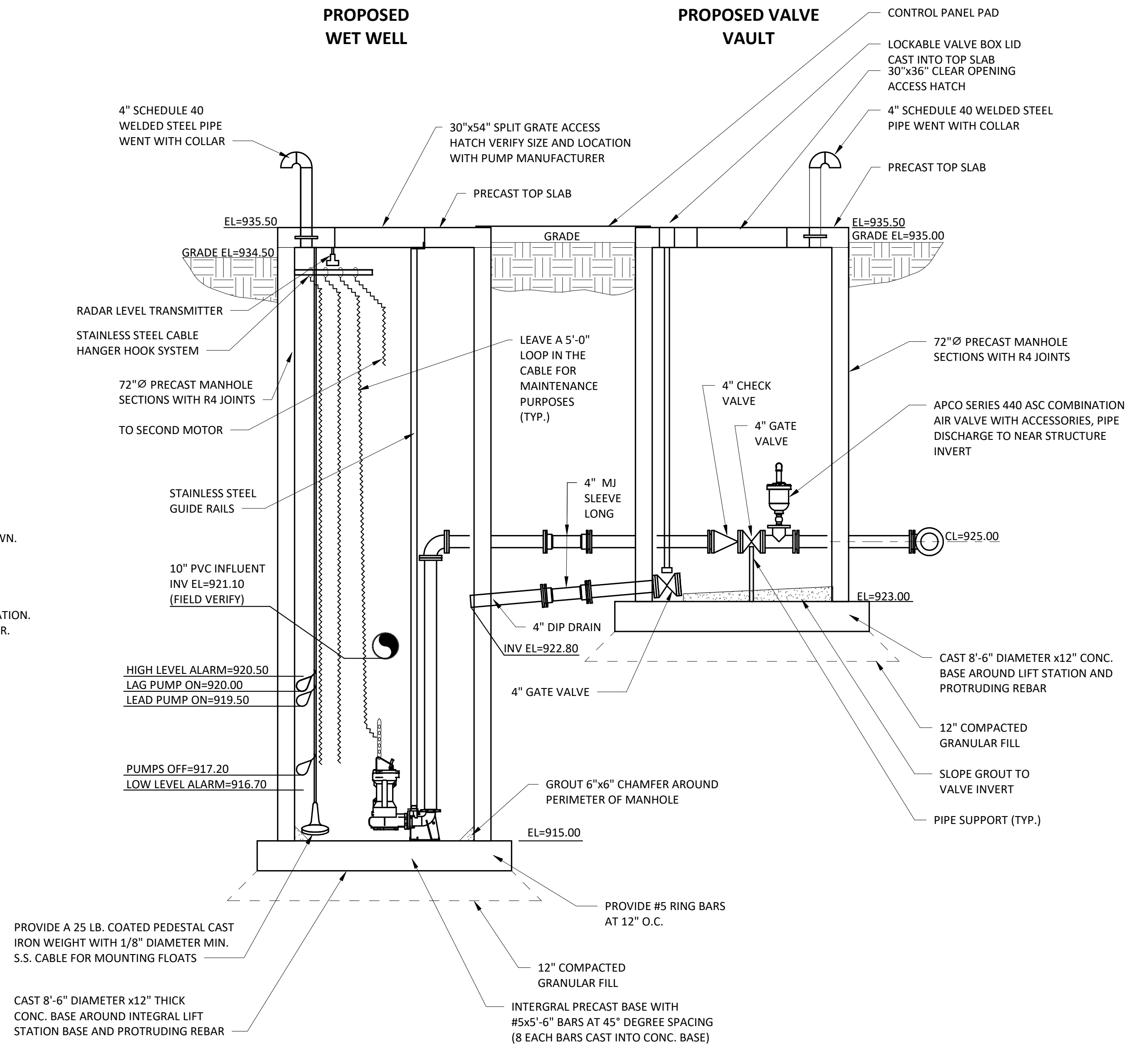


ABOVE GRADE PLAN
SCALE: 3/8" = 1'-0"



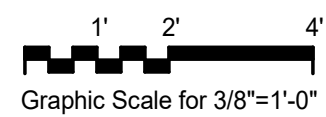
BELOW GRADE PLAN
SCALE: 3/8" = 1'-0"

- NOTES:
- ALL INTERIOR PIPING SHALL BE FLANGED FITTINGS AS SHOWN.
 - ALL EXTERIOR PIPING SHALL BE MECHANICAL JOINT WITH MEGALUG RESTRAINT JOINTS.
 - FLEXIBLE WATERTIGHT SEAL TO BE PROVIDED AND LIFT STATION. FLEXIBLE WATERTIGHT SEAL TO BE APPROVED BY ENGINEER.



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

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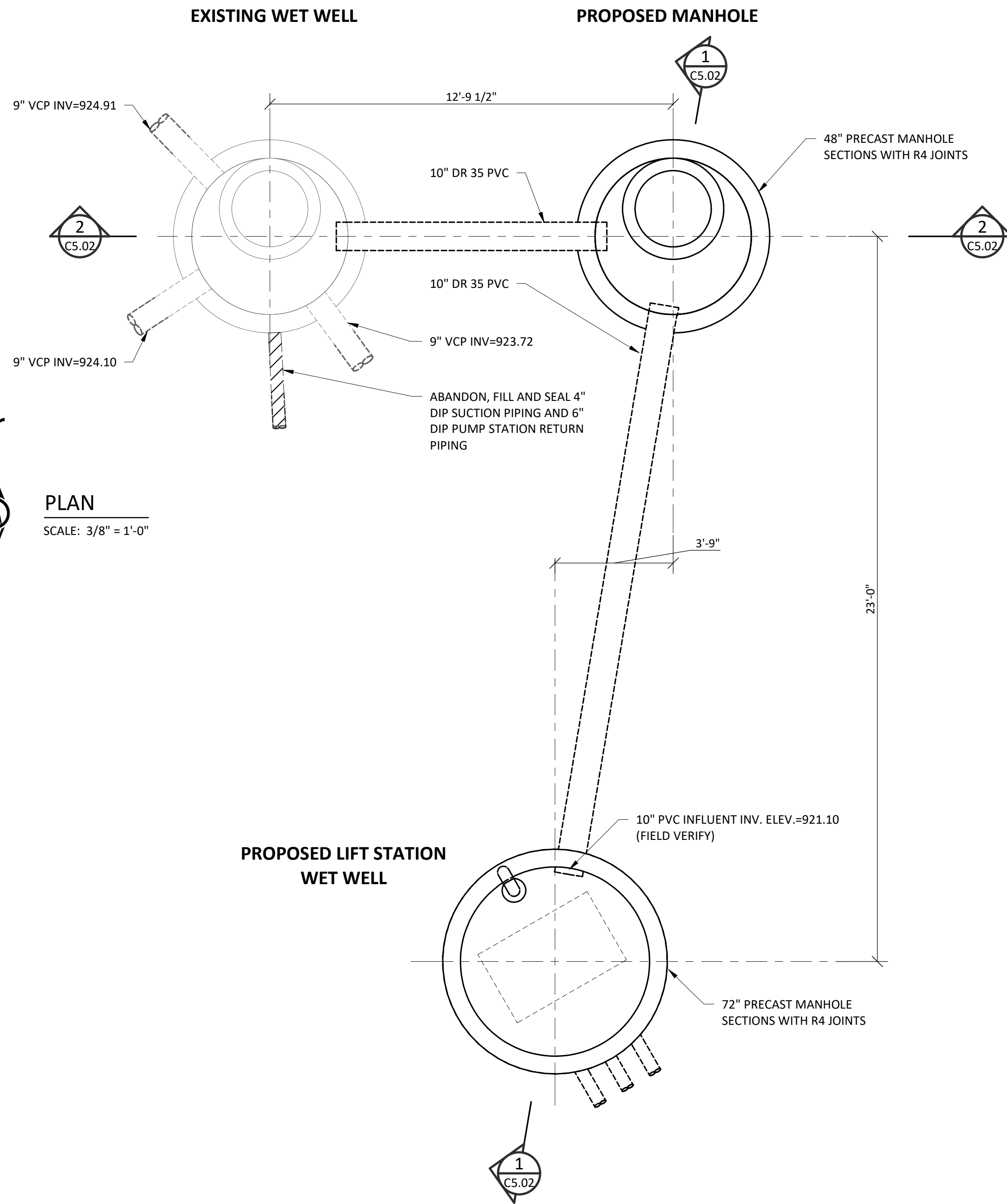
CITY OF BIRCHWOOD VILLAGE, MINNESOTA
WILDWOOD AVENUE LIFT STATION REPLACEMENT
PROPOSED LIFT STATION - PLAN AND SECTION

SHEET

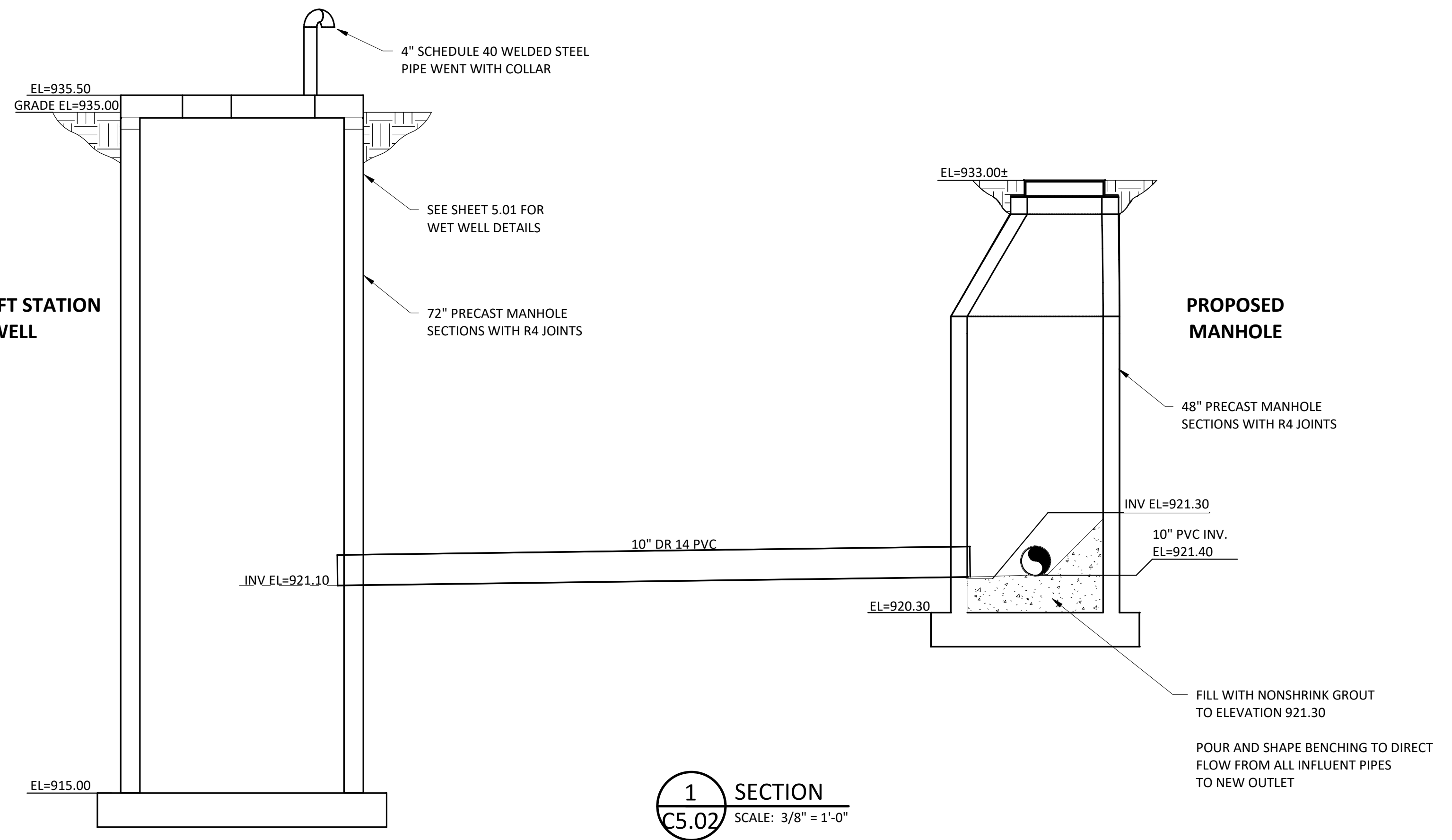
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NOTES:

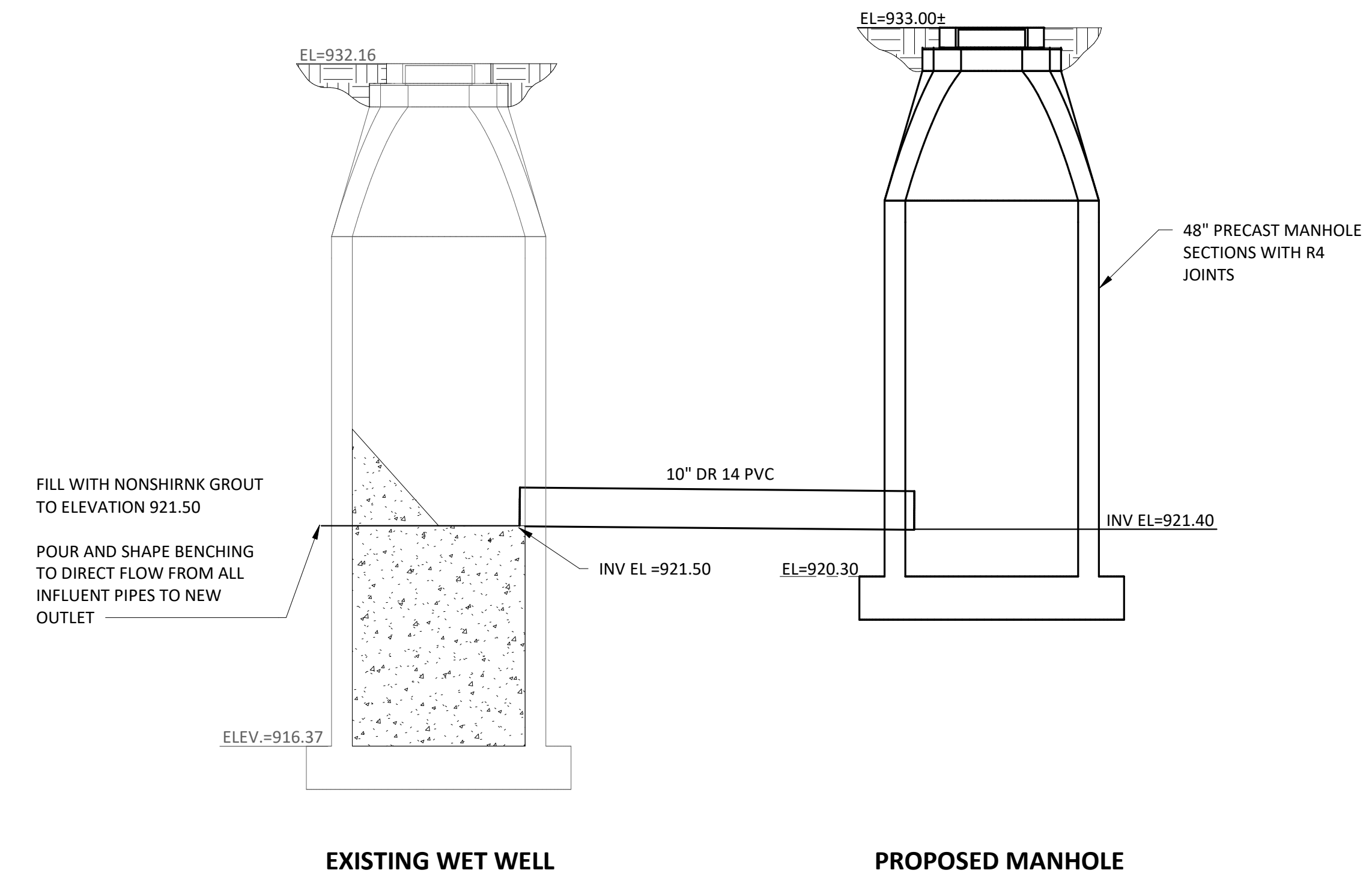
1. ALL INTERIOR PIPING SHALL BE FLANGED FITTINGS AS SHOWN.
2. ALL EXTERIOR PIPING SHALL BE MECHANICAL JOINTS WITH MEGALUG RESTRAINT JOINTS.
3. FLEXIBLE WATERTIGHT SEAL TO BE PROVIDED AND LIFT STATION. FLEXIBLE WATERTIGHT SEAL TO BE APPROVED BY ENGINEER.



PROPOSED LIFT STATION WET WELL

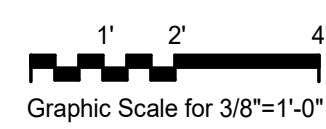


1 SECTION
C5.02 SCALE: 3/8" = 1'-0"



2 SECTION
C5.02 SCALE: 3/8" = 1'-0"

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 WILDWOOD AVENUE LIFT STATION REPLACEMENT
 PROPOSED MANHOLE - PLAN AND SECTION

SHEET
C5.02

LIGHTING	POWER	FIRE ALARM	PROCESS	SCHEMATIC SYMBOLS
LUMINAIRE LEGEND AE - FIXTURE ID 12 - 'E' DESIGNATES EMERGENCY LIGHT 12 - CIRCUIT NUMBER 2 - SWITCH CIRCUIT ID RECESSED LUMINAIRE	RECEPTACLE LABELS 36 G - GROUND FAULT CIRCUIT INTERRUPTER GFCI - GROUND FAULT CIRCUIT INTERRUPTER AC - MOUNT ABOVE COUNTER TOP USB - DEVICE WITH USB CHARGING PORT(S) OC - OCCUPANCY CONTROLLED X" = MOUNTING HEIGHT AFF -CIRCUIT IDENTIFIER	ALARM STROBE, WALL MOUNT ALARM STROBE, CEILING MOUNT ALARM STROBE & HORN/SPEAKER, WALL MOUNT ALARM STROBE & HORN/SPEAKER, CEILING MOUNT ALARM HORN/SPEAKER, WALL MOUNT ALARM HORN/SPEAKER, CEILING MOUNT PULL STATION BELL/CHIME SMOKE DETECTOR HEAT DETECTOR DUCT SMOKE DETECTOR MAGNETIC DOOR HOLD ALARM CONTROL RELAY FLOW SWITCH TAMPER SWITCH ELECTRIC HAND DRYER POWER POLE RETRACTABLE CORD REEL MULTI-OUTLET ASSEMBLY GROUNDING/ELECTRODE BOND POINT RECEPTACLE PEDESTAL IN-GRADE HANDHOLE WALL-MOUNT GROUND BUS RECESSED PANELBOARD PANELBOARD COMMUNICATIONS TELEPHONE OUTLET DATA OUTLET DATA OUTLET, FLOOR MOUNT TELEVISION OUTLET AUDIO/VIDEO OUTLET MICROPHONE OUTLET SPEAKER, WALL MOUNT SPEAKER, CEILING MOUNT PROJECTOR/SMART BOARD WALL MOUNT PROJECTOR, CEILING MOUNT PROJECTOR CONTROL OUTLET SMARTBOARD CONTROL OUTLET INTERCOM STATION BELL/CHIME CABLE TRAY	LEVEL TRANSDUCER FLOW METER TEMPERATURE TRANSDUCER SUSPENDED SOLIDS SENSOR DISSOLVED OXYGEN SENSOR GAS DETECTION SENSOR SLUDGE BLANKET SENSOR PH SENSOR SOLENOID MOTORIZED VALVE LIMIT SWITCH PRESSURE SWITCH THERMOSTAT FLOOD SWITCH FLOAT SWITCH MOTORIZED DAMPER SPEED SWITCH FLOW SWITCH TORQUE SWITCH HUMIDISTAT EMERGENCY STOP PUSHBUTTON CONTROL STATION CORD & PLUG STANDARD ROOM STATION BED AUDIO STATION MARQUEE NURSE LOCATOR DISCONNECT SWITCH - TYPE DESIGNATION STARTER / CONTACTOR CAPACITOR MOTOR STARTER OVERLOADS MOTOR HORSE POWER RATING TRANSFORMER CURRENT TRANSFORMER METER GENERATOR VFD MOTOR CONTROLLER SSRV MOTOR CONTROLLER SURGE PROTECTION DEVICE AUTOMATIC TRANSFER SWITCH LIGHTNING ARRESTOR HEATER CONDUIT/WIRE TAG CONDUIT STUB W/BUSHING	RELAY COIL (NUMBER DENOTED) NORMALLY OPEN CONTACT NORMALLY CLOSED CONTACT THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO DENOTED) TWO POSITION SELECTOR SWITCH (HAND-OFF-AUTO DENOTED) PUSH TO TEST PILOT LIGHT (COLOR DENOTED) PILOT LIGHT (COLOR DENOTED) PUSH BUTTON - NORMALLY CLOSED PUSH BUTTON - NORMALLY OPEN TIMING RELAY CLOSED SWITCH - TIME DELAY OPEN OPEN SWITCH - TIME DELAY CLOSED CLOSED SWITCH, TIME DELAY CLOSED OPEN SWITCH, TIME DELAY OPEN TEMPERATURE SWITCH - CLOSE ON RISING TEMPERATURE TEMPERATURE SWITCH - OPEN ON RISING TEMPERATURE SOLENOID CONTROL POWER TRANSFORMER GROUND HEATER TERMINAL BLOCK CONNECTION NODE ONE-LINE DIAGRAM INCOMING LINE CIRCUIT BREAKER FUSE SWITCH DISCONNECT SWITCH - TYPE DESIGNATION STARTER / CONTACTOR CAPACITOR MOTOR STARTER OVERLOADS MOTOR HORSE POWER RATING TRANSFORMER CURRENT TRANSFORMER METER GENERATOR VFD MOTOR CONTROLLER SSRV MOTOR CONTROLLER SURGE PROTECTION DEVICE AUTOMATIC TRANSFER SWITCH LIGHTNING ARRESTOR HEATER CONDUIT/WIRE TAG CONDUIT STUB W/BUSHING
EMERGENCY EGRESS/LIFE SAFETY SYMBOL NIGHT LIGHT SYMBOL NIGHT LIGHT AND EMERGENCY EGRESS PENDANT MOUNTED CRITICAL POWER RECESSED DOWNLIGHT (ROUND & SQUARE) RECESSED WALL WASH DOWNLIGHT SURFACE MOUNT LIGHT SURFACE MOUNT LIGHT WALL MOUNT LUMINAIRE TRACK LIGHTING EMERGENCY LIGHTING UNIT SHADED REGION INDICATES FACE EXIT SIGN STEM INDICATES WALL MOUNT EXIT SIGN, WITH EMERGENCY LIGHTING POLE MOUNTED LUMINAIRE LIGHT CONTROL DEVICE LABELS -DESCRIPTORS, REFER TO ABBREVIATIONS -SWITCH CIRCUIT IDENTIFIER -SWITCH TYPE: 2=TWO POLE, SINGLE THROW 3=THREE WAY 4=FOUR WAY D=DIMMER P=WITH PILOT LIGHT T=TIMER SP=SPEED CONTROL K=KEYED M=MOTOR HORSE POWER RATED MS=MANUAL MOTOR STARTER H/L=HIGH/LOW CONTROL	DUPLIX RECEPTACLE DOUBLE DUPLIX RECEPTACLE ISOLATED GROUND SWITCHED (SPLIT) RECEPTACLE GENERATOR POWER CIRCUIT CEILING MOUNT RECEPTACLE FLOOR MOUNT SPECIAL PURPOSE RECEPTACLE SIMPLEX RECEPTACLE MOTOR, SINGLE PHASE MOTOR, THREE PHASE DISCONNECT SWITCH DISCONNECT SWITCH, FUSED DISCONNECT SWITCH, ENCLOSED BREAKER COMBINATION MOTOR STARTER ELECTRIC HAND DRYER POWER POLE RETRACTABLE CORD REEL MULTI-OUTLET ASSEMBLY GROUNDING/ELECTRODE BOND POINT RECEPTACLE PEDESTAL IN-GRADE HANDHOLE WALL-MOUNT GROUND BUS RECESSED PANELBOARD PANELBOARD COMMUNICATIONS TELEPHONE OUTLET DATA OUTLET DATA OUTLET, FLOOR MOUNT TELEVISION OUTLET AUDIO/VIDEO OUTLET MICROPHONE OUTLET SPEAKER, WALL MOUNT SPEAKER, CEILING MOUNT PROJECTOR/SMART BOARD WALL MOUNT PROJECTOR, CEILING MOUNT PROJECTOR CONTROL OUTLET SMARTBOARD CONTROL OUTLET INTERCOM STATION BELL/CHIME CABLE TRAY	ALARM STROBE, WALL MOUNT ALARM STROBE, CEILING MOUNT ALARM STROBE & HORN/SPEAKER, WALL MOUNT ALARM STROBE & HORN/SPEAKER, CEILING MOUNT ALARM HORN/SPEAKER, WALL MOUNT ALARM HORN/SPEAKER, CEILING MOUNT PULL STATION BELL/CHIME SMOKE DETECTOR HEAT DETECTOR DUCT SMOKE DETECTOR MAGNETIC DOOR HOLD ALARM CONTROL RELAY FLOW SWITCH TAMPER SWITCH ELECTRIC DAMPER REMOTE ANNUNCIATOR CONTROL PANEL NOTIFICATION APPLIANCE CONTROL PANEL FLOW SWITCH TORQUE SWITCH HUMIDISTAT EMERGENCY STOP PUSHBUTTON CONTROL STATION CORD & PLUG PULL CORD STANDARD ROOM STATION BED AUDIO STATION MARQUEE NURSE LOCATOR DISCONNECT SWITCH - TYPE DESIGNATION STARTER / CONTACTOR CAPACITOR MOTOR STARTER OVERLOADS MOTOR HORSE POWER RATING TRANSFORMER CURRENT TRANSFORMER METER GENERATOR VFD MOTOR CONTROLLER SSRV MOTOR CONTROLLER SURGE PROTECTION DEVICE AUTOMATIC TRANSFER SWITCH LIGHTNING ARRESTOR HEATER CONDUIT/WIRE TAG CONDUIT STUB W/BUSHING	LEVEL TRANSDUCER FLOW METER TEMPERATURE TRANSDUCER SUSPENDED SOLIDS SENSOR DISSOLVED OXYGEN SENSOR GAS DETECTION SENSOR SLUDGE BLANKET SENSOR PH SENSOR SOLENOID MOTORIZED VALVE LIMIT SWITCH PRESSURE SWITCH THERMOSTAT FLOOD SWITCH FLOAT SWITCH MOTORIZED DAMPER SPEED SWITCH FLOW SWITCH TORQUE SWITCH HUMIDISTAT EMERGENCY STOP PUSHBUTTON CONTROL STATION CORD & PLUG STANDARD ROOM STATION BED AUDIO STATION MARQUEE NURSE LOCATOR DISCONNECT SWITCH - TYPE DESIGNATION STARTER / CONTACTOR CAPACITOR MOTOR STARTER OVERLOADS MOTOR HORSE POWER RATING TRANSFORMER CURRENT TRANSFORMER METER GENERATOR VFD MOTOR CONTROLLER SSRV MOTOR CONTROLLER SURGE PROTECTION DEVICE AUTOMATIC TRANSFER SWITCH LIGHTNING ARRESTOR HEATER CONDUIT/WIRE TAG CONDUIT STUB W/BUSHING	RELAY COIL (NUMBER DENOTED) NORMALLY OPEN CONTACT NORMALLY CLOSED CONTACT THREE POSITION SELECTOR SWITCH (HAND-OFF-AUTO DENOTED) TWO POSITION SELECTOR SWITCH (HAND-OFF-AUTO DENOTED) PUSH TO TEST PILOT LIGHT (COLOR DENOTED) PILOT LIGHT (COLOR DENOTED) PUSH BUTTON - NORMALLY CLOSED PUSH BUTTON - NORMALLY OPEN TIMING RELAY CLOSED SWITCH - TIME DELAY OPEN OPEN SWITCH - TIME DELAY CLOSED CLOSED SWITCH, TIME DELAY CLOSED OPEN SWITCH, TIME DELAY OPEN TEMPERATURE SWITCH - CLOSE ON RISING TEMPERATURE TEMPERATURE SWITCH - OPEN ON RISING TEMPERATURE SOLENOID CONTROL POWER TRANSFORMER GROUND HEATER TERMINAL BLOCK CONNECTION NODE ONE-LINE DIAGRAM INCOMING LINE CIRCUIT BREAKER FUSE SWITCH DISCONNECT SWITCH - TYPE DESIGNATION STARTER / CONTACTOR CAPACITOR MOTOR STARTER OVERLOADS MOTOR HORSE POWER RATING TRANSFORMER CURRENT TRANSFORMER METER GENERATOR VFD MOTOR CONTROLLER SSRV MOTOR CONTROLLER SURGE PROTECTION DEVICE AUTOMATIC TRANSFER SWITCH LIGHTNING ARRESTOR HEATER CONDUIT/WIRE TAG CONDUIT STUB W/BUSHING

ELECTRICAL ABBREVIATIONS

1P 2P 3P 4P	1 POLE 2 POLE 3 POLE 4 POLE	F FA FACP FBO FCU FIXT FLA FLR FLUOR FU FVR FVNR	FUSED OR FUSE FIRE ALARM FIRE ALARM CONTROL PANEL FURNISHED BY OTHERS FAN COIL UNIT FIXTURE FULL LOAD AMPS FLOOR FLUORESCENT FUSE FULL VOLTAGE REVERSING FULL VOLTAGE NON-REVERSING	N.C. NEC NEMA	NORMALLY CLOSED NATIONAL ELECTRICAL CODE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION	V VA VDT VERT VFD VFX VOL	VOLT VOLT-AMPERES VIDEO DISPLAY TERMINAL VERTICAL VARIABLE FREQUENCY DRIVE VERIFY VOLUME
A A/C AC ACLG ADO AIC	AMPERE OR AMP AIR CONDITIONER ABOVE COUNTER ABOVE CEILING AUTOMATIC DOOR OPENER AMPERE INTERRUPTING CAPACITY	GA GAL GALV GC GEN AMP AMPL ANNUN APPROX AQSTAT ARCH AS AT ATS AUTO AUX AV AWG	GROUND FAULT CIRCUIT INTERRUPTER GAUGE GALLON GALVANIZED GENERAL CONTRACTOR GENERATOR GROUND FAULT CIRCUIT INTERRUPTER GALV GROUND FAULT CIRCUIT INTERRUPTER GROUND FAULT PROTECTOR GROUND GALVANIZED RIGID STEEL (CONDUIT) GYPSUM BOARD	NIC NIU NL N.O. NPF NTS	NOT IN CONTRACT NETWORK INTERFACE UNIT NIGHT LIGHT NORMALLY OPEN NORMAL POWER FACTOR NOT TO SCALE	W W/ WG WH W/O WP	WATT OR WIRE WITH WIRE GUARD WATER HEATER WITHOUT WEATHERPROOF
AHU AL ALT AMP ANPL ANNUN APPROX AQSTAT ARCH AS AT ATS AUTO AUX AV AWG	AIR HANDLING UNIT ALUMINUM ALTERNATE AMPERE AMPLIFIER ANNUNCIATOR APPROXIMATELY AQUASTAT ARCHITECT, ARCHITECTURAL AMP SWITCH AMP TRIP AUTOMATIC TRANSFER SWITCH AUTOMATIC AUXILIARY AUDIO VISUAL AMERICAN WIRE GAUGE	HOA HORIZ HP HPF HSP HT HTG HTR HV HVAC HWP HZ	HAND-OFF-AUTOMATIC HORIZONTAL HORSEPOWER HIGH POWER FACTOR HIGH SERVICE PUMP HEIGHT HEATING HEATER HIGH VOLTAGE HEATING, VENTILATING AND AIR CONDITIONING HYDRONIC WATER PUMP HERTZ	OC OH OIT OL	OCCUPANCY CONTROLLED OVERHEAD OPERATOR INTERFACE TERMINAL OVERLOADS	XFMR XFR	TRANSFORMER TRANSFER
BAT BD BLDG BMS	BATTERY BOARD BUILDING BUILDING MANAGEMENT SYSTEM	IC JG JMC CONDUIT INCAND IR I/W	INTER interrupting CURRENT ISOLATED GROUND INTERMEDIATE METAL INCANDESCENT INFRARED INTERLOCK WITH	PWR	POWER	QTY QZ	QUANTITY QUARTZ
C CAB CAT CATV CB CCTV CKT CLG COMB CMPR CONN CONST CONT	CONDUIT CABINET CATALOG CABLE TELEVISION CIRCUIT BREAKER CLOSED CIRCUIT TELEVISION CIRCUIT CEILING COMBINATION COMPRESSOR CONNECTION CONSTRUCTION CONTINUATION OR CONTINUOUS CONTRACTOR CONVECTOR CIRCULATING PUMP CURRENT TRANSFORMER CENTER COPPER	J J-BOX JB KAIC KV KVA KVAR KW KWH	JUNCTION BOX JUNCTION BOX JUNCTION BOX KILOAMPS INTERRUPTING CAPACITY KILOVOLT KILOVOLT-AMPERE KILOVOLT-AMPERE REACTIVE KILOWATT KILOWATT HOUR	RCPT ROD RQD RM RSC RTU RTU	RECEPTACLE REQUIRED ROOM RIGID STEEL CONDUIT ROOF TOP UNIT REMOTE TELEMETRY UNIT	SC SCP SEC SHT SIM S/N SPEC SPKR SP SR SS SSRV	SURFACE CONDUIT SUPERVISORY CONTROL PANEL SECONDARY SHEET SIMILAR SOLID NEUTRAL SPECIFICATION SPEAKER SPARE SURFACE RACEWAY STAINLESS STEEL SOLID STATE REDUCED VOLTAGE
D DC DCP	DAMPER DIRECT CURRENT DOMESTIC WATER CIRCULATING PUMP	LCP LCS LOC LT LTG LTNG LV	LIGHTING CONTROL PANEL LOCAL CONTROL STATION LOCATE OR LOCATION LIGHT LIGHTING LIGHTNING LOW VOLTAGE	MAX M/C MC MCA MCB MCC MDC MDP MFR MH MIC MIN MISC MLO MOA MS MSBD MT MTS MTR	MAXIMUM MOMENTARY CONTACT MECHANICAL CONTRACTOR MAX CIRCUIT AMPACITY MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER MAIN DISTRIBUTION CENTER MAIN DISTRIBUTION PANEL MANUFACTURER MANHOLE MICROPHONE MINIMUM MISCELLANEOUS MAIN LUGS ONLY MULTIOUTLET ASSEMBLY MANUAL MOTOR STARTER MAIN SWITCHBOARD MOUNT MANUAL TRANSFER SWITCH MOTOR, MOTORIZED	TEL TERM TL TR TSTAT TTC	TELEPHONE TERMINAL TWIST LOCK TAMPER RESISTANT THERMOSTAT TELEPHONE TERMINAL CABINET TELEVISION TELEVISION TERMINAL CABINET TYPICAL
DEPT DET DIA DISC DIST DIV DN DPR DS DT DWG	DEPARTMENT DETAIL DIAMETER DISCONNECT DISTRIBUTION DIVISION DOWN DAMPER DISCONNECT/SAFETY SWITCH DOUBLE THROW DRAWING	EC EFC ELEC ELEV EM EMS EMT EP EQUIP EWC EXIST EXH EXP	ELECTRICAL CONTRACTOR EXHAUST FAN ELECTRIC, ELECTRICAL ELEVATOR EMERGENCY ENERGY MANAGEMENT SYSTEM ELECTRICAL METALLIC TUBING ELECTRIC PNEUMATIC EQUIPMENT ELECTRIC WATER COOLER EXISTING EXHAUST EXPLOSION PROOF	UC UE UG UH UNO USB UT UTIL UV	UNDER COUNTER UNDERGROUND ELECTRICAL UNDERGROUND UNIT HEATER UNLESS NOTED OTHERWISE WITH USB CHARGING PORT UNDERGROUND TELEPHONE UTILITY UNIT VENTILATOR OR ULTRAVIOLET		

PANELBOARD NAMING LEGEND:
 DP = DISTRIBUTION PANEL
 LP = LIGHTING PANELBOARD
 DP-X-Y : X = FLOOR LEVEL PANEL IS LOCATED
 Y = # OF PANEL ON THE FLOOR LEVEL

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CITY OF BIRCHWOOD, MINNESOTA
 WILDWOOD AVENUE LIFT STATION MODIFICATIONS
 ELECTRICAL SYMBOLS AND ABBREVIATIONS

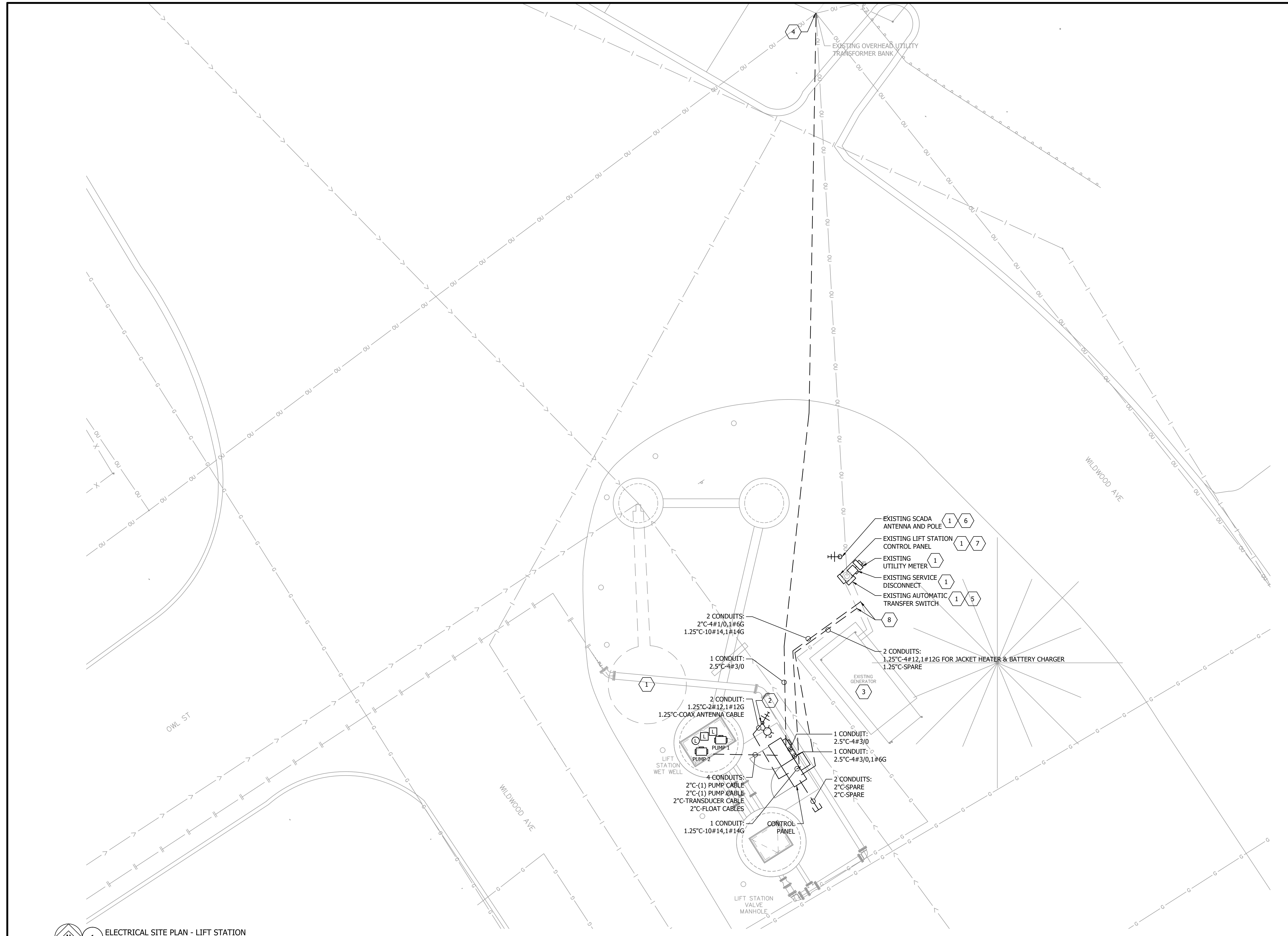
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GENERAL NOTES:

- COORDINATE FINAL LOCATION OF ELECTRIC UTILITY TRANSFORMER WITH ELECTRIC UTILITY, MAINTAIN ALL REQUIRED CLEARANCES PER UTILITY COMPANIES REQUIREMENTS.
- VERIFY LOCATIONS OF UNDERGROUND UTILITIES PRIOR TO PLACEMENT OF EQUIPMENT AND ANY EARTHWORK.
- COORDINATE FINAL LOCATION OF CONTROL PANEL WITH THE OWNER'S ON-SITE REPRESENTATIVE PRIOR TO INSTALLATION.
- COORDINATE DIMENSIONS OF PROVIDED EQUIPMENT WITH CONCRETE SUPPLIER.
- WETWELL INTERIOR IS CLASSIFIED AS A CLASS 1, DIVISION 1, GROUP D HAZARDOUS LOCATION. AREA 18" ABOVE TOP SLAB AND 3' FROM OPENINGS TO THE WETWELL IS A CLASS 1, DIVISION 2, GROUP D HAZARDOUS LOCATION. AREA IN A 3' DIAMETER FROM WETWELL VENT OPENING IS A CLASS 1, DIVISION 1, GROUP D HAZARDOUS LOCATION. AREA WITHIN A 3'-5' RADIUS FROM WETWELL VENT OPENING IS A CLASS 1, DIVISION II, GROUP D HAZARDOUS LOCATION.
- Vault interior is a CLASS 1, DIVISION 2, GROUP D HAZARDOUS LOCATION.
- DO NOT INSTALL ELECTRICAL EQUIPMENT IN HAZARDOUS LOCATIONS OTHER THAN CONDUIT TO WETWELL AND DEVICES/CABLING IN WETWELL.

KEYEDNOTES:

- DEMOLISH EXISTING LIFT STATION AND ALL ASSOCIATED ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO, PUMPS, CONTROL PANEL, FLOATS, SCADA ANTENNA/POLE, UTILITY POLE, AUTOMATIC TRANSFER SWITCH, UTILITY METER, AND SERVICE DISCONNECT COMPLETELY. ALL EXISTING LIFT STATION EQUIPMENT IS LOCATED IN UNDERGROUND LIFT STATION ENCLOSURE, EXCEPT SERVICE DISCONNECT, UTILITY METER, CONTROL PANEL, ANTENNA, AND AUTOMATIC TRANSFER SWITCH.
- PROVIDE YARD LIGHT - SCADA ANTENNA AND DIRECT BURIAL FIBERGLASS POLE. YARD LIGHT SHALL BE LITHONIA DSX1, OR EQUAL LED LUMINAIRE, 4000K, TYPE 4 OPTICS, 15,000 LUMEN OUTPUT, INTEGRAL DAYLIGHT AND MOTION SENSOR TO DIM LIGHT WHEN NO MOTION IS DETECTED. POLE SHALL BE 20'-0" TALL ABOVE GRADE, DIRECT BURY FIBERGLASS POLE, BLACK IN COLOR. PROVIDE SEPARATE RACEWAY UP THE INSIDE OF THE POLE FOR ANTENNA CABLING.
- EXISTING GENERATOR TO REMAIN AS IS.
- PROVIDE NEW UNDERGROUND RISER ON EXISTING UTILITY POLE TO FEED THE NEW LIFT STATION CONTROL PANEL. PROVIDE CONDUIT UP THE POLE WITH A WEATHERHEAD AS REQUIRED BY THE UTILITY COMPANY, COORDINATE WORK REQUIREMENTS WITH UTILITY COMPANY.
- SALVAGE AUTOMATIC TRANSFER SWITCH AND REINSTALL ON BACKSIDE OF THE NEW LIFT STATION CONTROL PANEL.
- SALVAGE EXISTING RADIO AND REINSTALL IN NEW LIFT STATION CONTROL PANEL.
- SALVAGE EXISTING SCADA ANTENNA AND INSTALL ON NEW DIRECT BURIAL POLE.
- INTERCEPT EXISTING GENERATOR CONDUITS WHERE POSSIBLE, CONTRACTOR SHALL VERIFY THE EXISTING CONDUIT QUANTITIES, ROUTING, AND SIZES ON SITE PRIOR TO PERFORMING WORK. WHERE EXISTING CONDUITS ARE NOT ABLE TO BE INTERCEPTED AND REUSED THE CONTRACTOR SHALL ENTER THE GENERATOR ENCLOSURE WITH THE NEW CONDUITS UNDERGROUND BENEATH AND THEN UP THROUGH THE EXISTING GENERATOR PAD.



1 ELECTRICAL SITE PLAN - LIFT STATION
 0 2.5' 5' 10'

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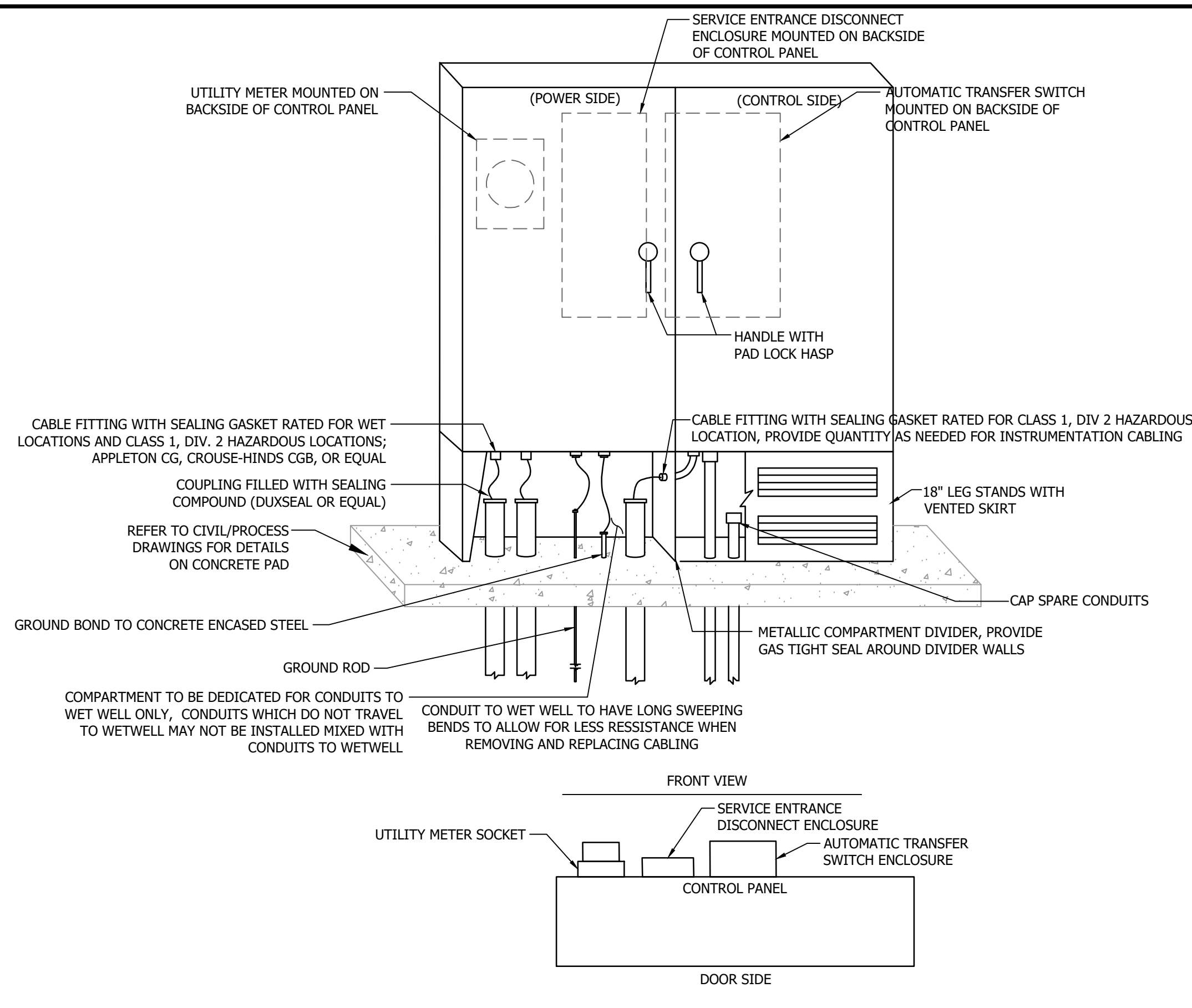
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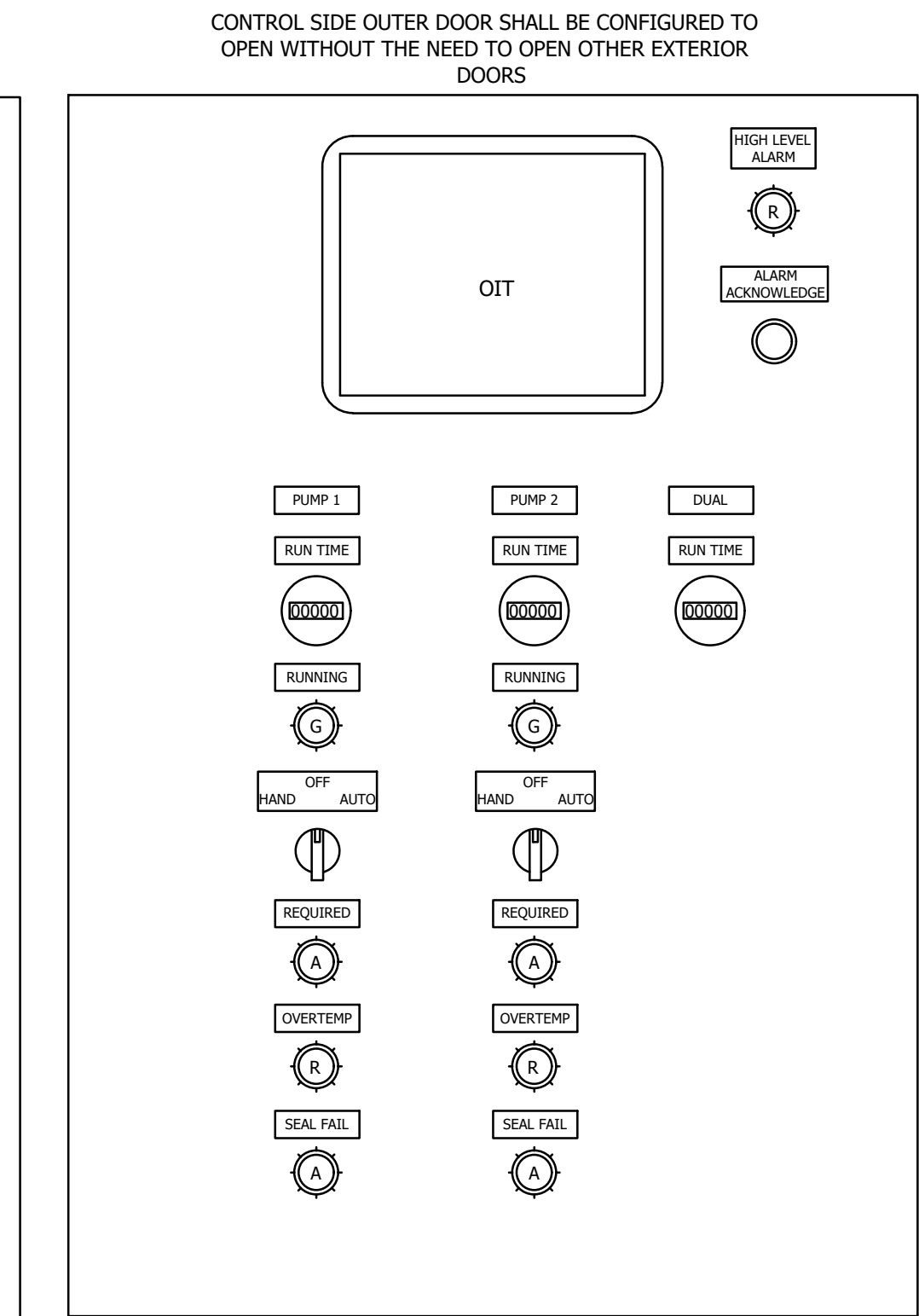
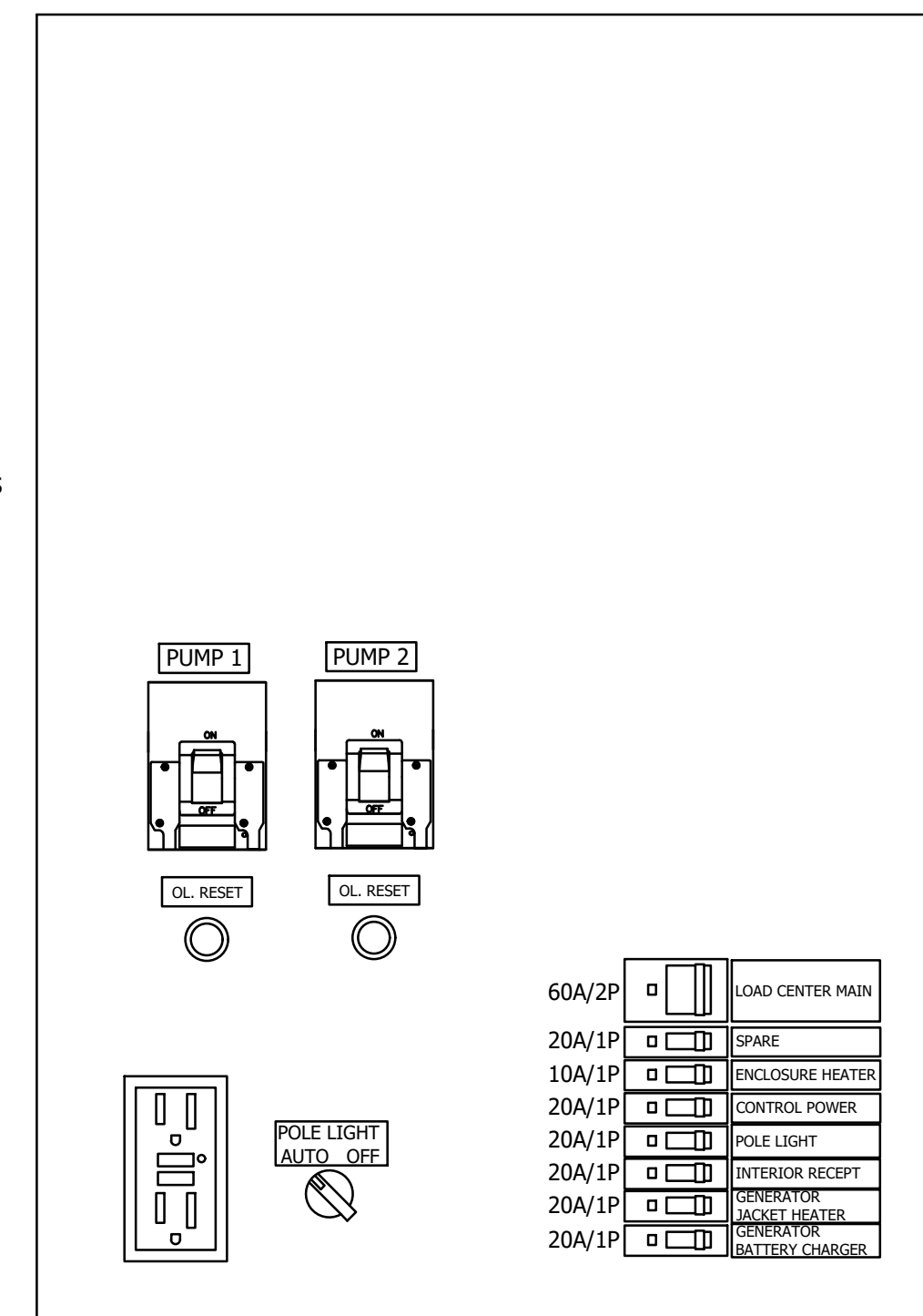
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CITY OF BIRCHWOOD, MINNESOTA
 WILDWOOD AVENUE LIFT STATION MODIFICATIONS
 ELECTRICAL SITE PLAN - LIFT STATION

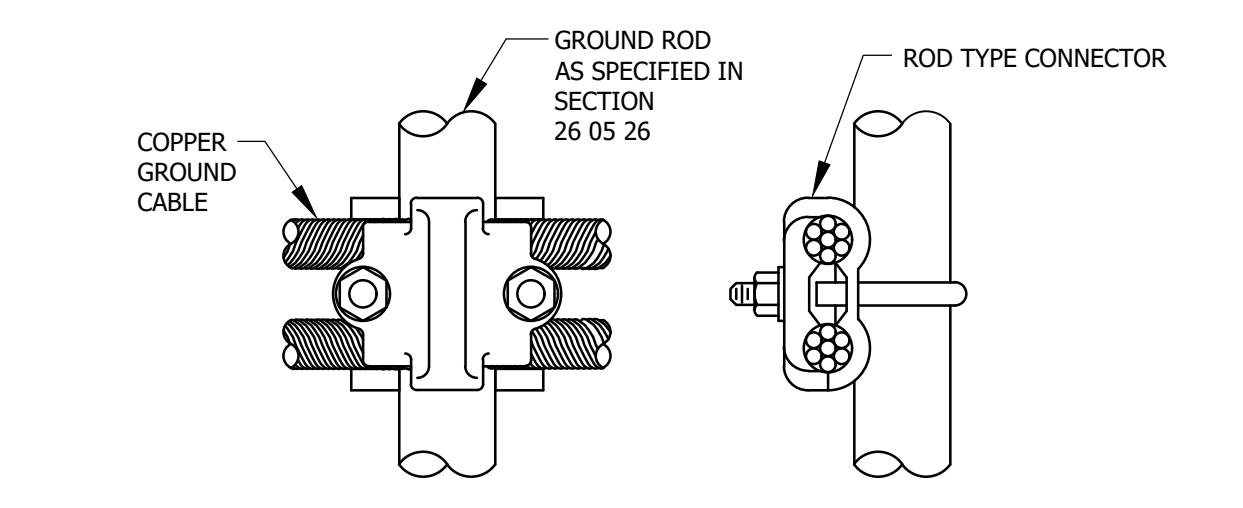
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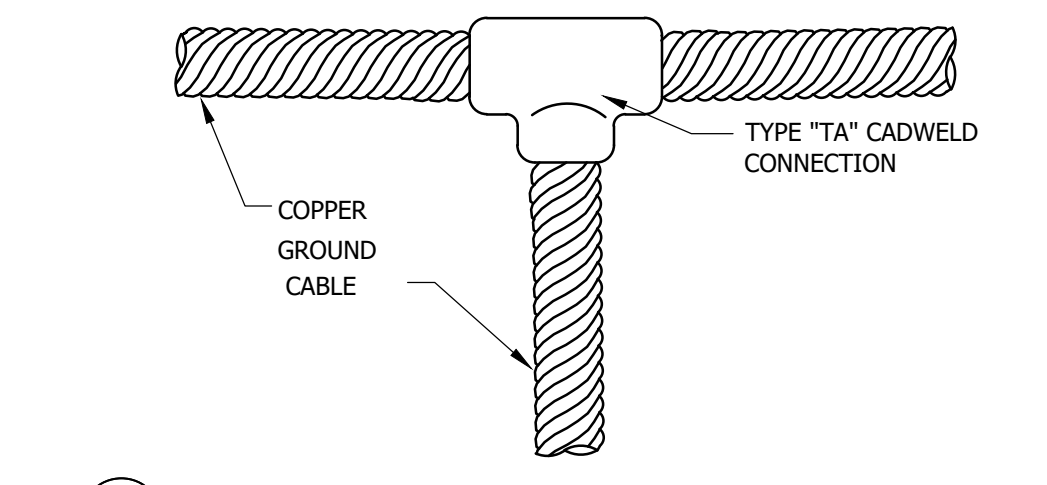
1 CONTROL PANEL ELEVATION
NOT TO SCALE



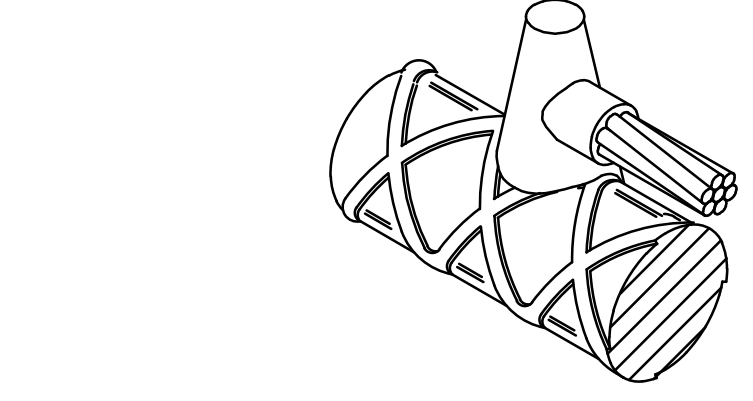
INNER DOORS



2 CABLE TO ROD CONNECTION DETAIL
NOT TO SCALE

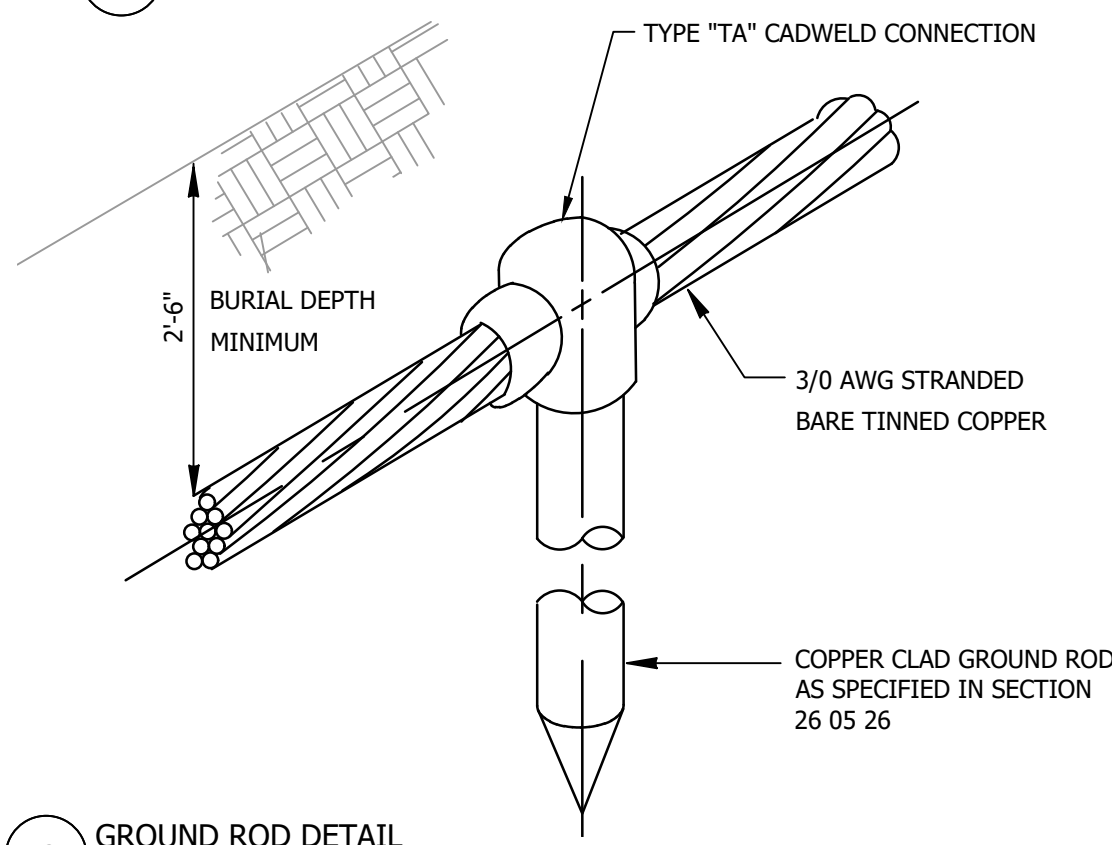


3 GROUND CABLE CONNECTION DETAIL
NOT TO SCALE

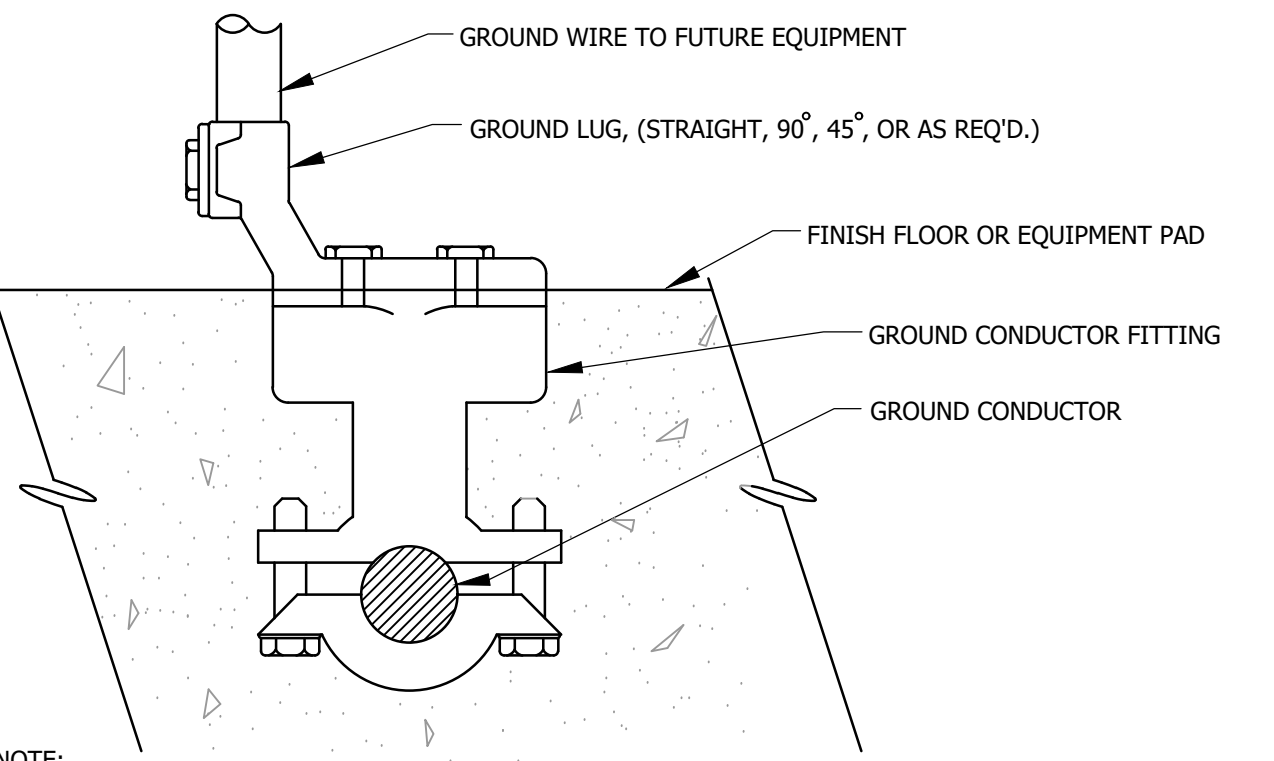


COPPER CONDUCTOR TAP TO HORIZONTAL REINFORCING BAR (REBAR) LOCATED NEAR THE BOTTOM OR VERTICALLY, WITHIN THAT PORTION OF CONCRETE FOUNDATION OR FOOTING. MAXIMUM CONDUCTOR SIZE IS 4/0 AWG. MINIMUM DIAMETER OF REBAR IS 1/2". MINIMUM LENGTH OF REBAR IS 20".

4 GROUNDING CABLE CADWELDED TO REBAR DETAIL
NOT TO SCALE

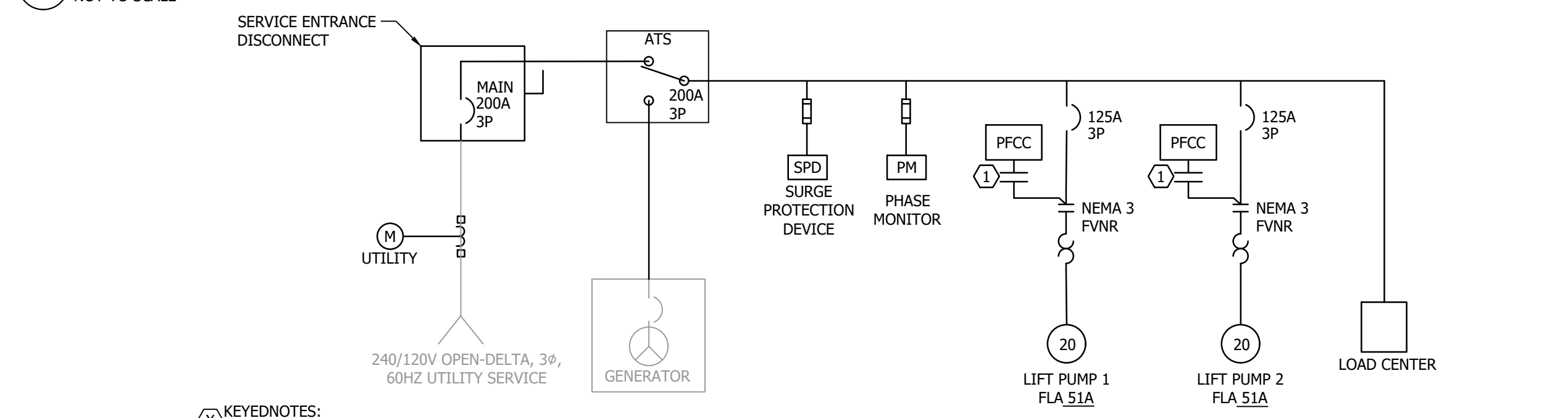


6 GROUND ROD DETAIL
NOT TO SCALE



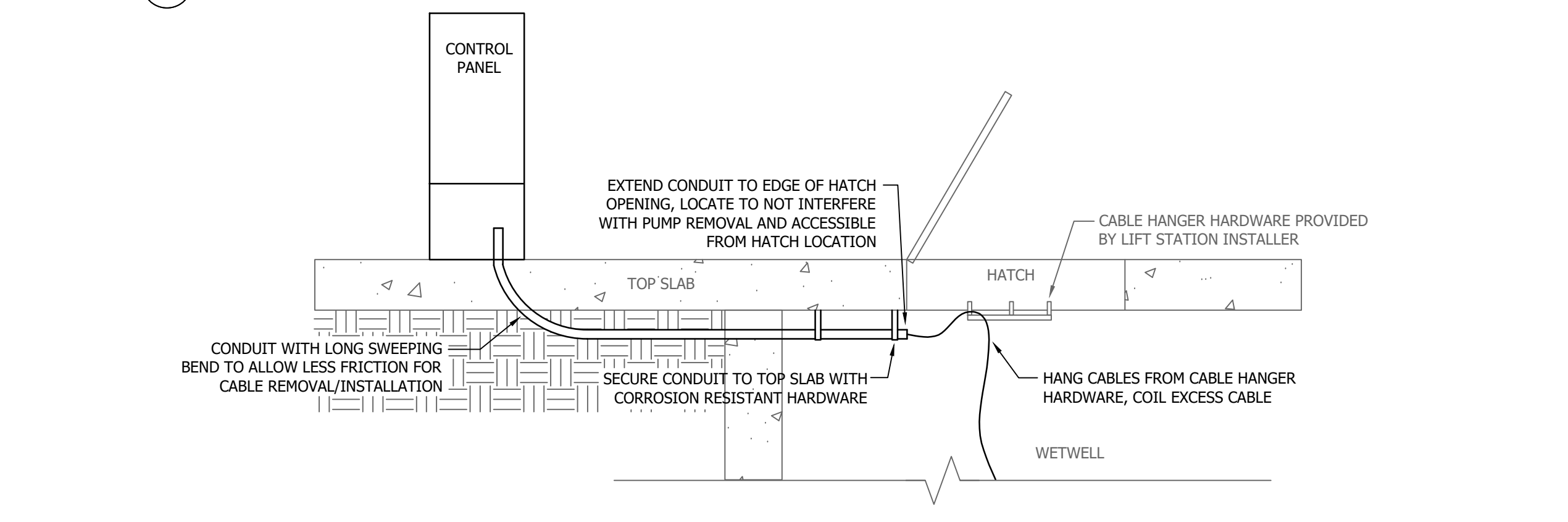
NOTE:
1. BOLTS SHALL BE INSERTED IN BOLT HOLES BEFORE CONNECTOR IS EMBEDDED.

9 GROUNDING INSERT DETAIL
NOT TO SCALE

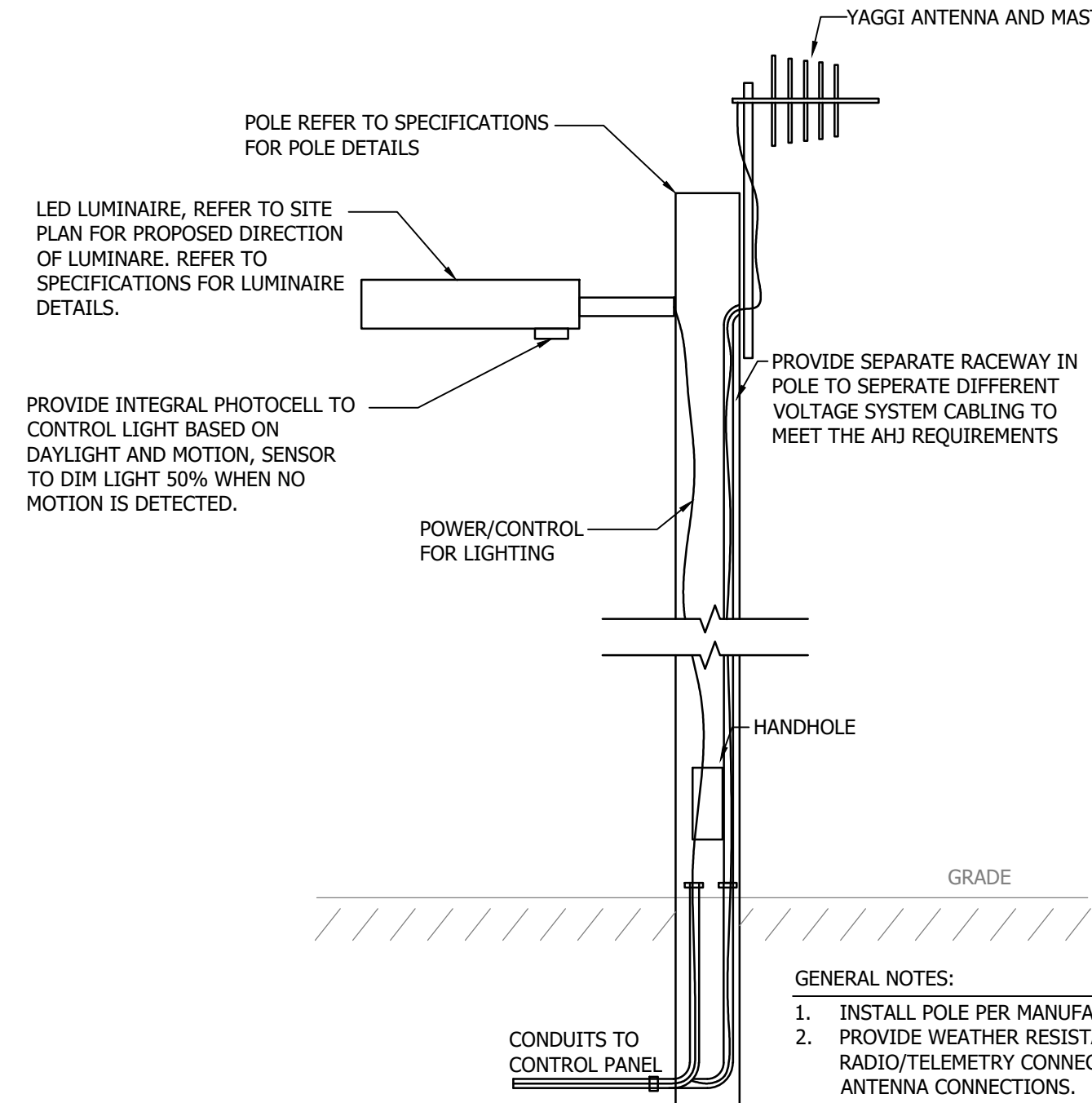


KEYEDNOTES:
1. ISOLATION CONTACTOR TO CLOSE WHEN MOTOR STARTER IS REQUIRED TO OPERATE PUMP.

5 ONE-LINE DIAGRAM
NOT TO SCALE



7 WET WELL CONDUIT INSTALLATION DETAIL
NOT TO SCALE



8 SITE LIGHT AND ANTENNA MOUNTING DETAIL
NOT TO SCALE

GENERAL NOTES:
1. INSTALL POLE PER MANUFACTURER RECOMMENDATIONS.
2. PROVIDE WEATHER RESISTANT AND WATER TIGHT RADIO/TELEMETRY CONNECTIONS ON ALL SCADA ANTENNA CONNECTIONS.

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