

BUFFALO SHORES PARK SANITARY SEWER SYSTEM

BUFFALO, IOWA

SHEET INDEX

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PROJECT LOCATION MAP

CIVIL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Signature: _____ Date: _____

Printed or typed name: **SHANE OYLER**

License Number: **20225**

My License Renewal Date is: **DECEMBER 31, 2020**

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ELECTRICAL ENGINEER

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT DESCRIBED BELOW WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

Signature: _____ Date: _____

Printed or typed name: **MITCHELL L. FRAZIER**

License Number: **21966**

My License Renewal Date is: **DECEMBER 31, 2021**

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THE UTILITIES AS SHOWN ON THIS DRAWING WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THIS IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. THE CONTRACTOR IS RESPONSIBLE FOR THE UTILITIES ON THE PROJECT PER ARTICLE 1107.15 OF THE STANDARD SPECIFICATIONS.

GENERAL INFORMATION

- CONSTRUCTION NOT SPECIFICALLY DETAILED OR SPECIFIED WITHIN THE PLANS SHALL CONFORM TO THE IOWA SUDAS, LATEST EDITION AND IOWA CODE CHAPTER 69.
- IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN EXISTING FIELD CONDITIONS BEFORE ORDERING MATERIALS, OR BEGINNING CONSTRUCTION AND SHALL NOTIFY OWNER OF ANY DISCREPANCIES OR CONFLICTS.
- GROUND ELEVATIONS FROM LIDAR. EXISTING UTILITIES SHOWN FOR CONVENIENCE FROM AVAILABLE INFORMATION AND MAY NOT BE COMPLETE OR ACCURATE. FIELD VERIFY EXISTING UTILITIES. PROTECT EXISTING UTILITIES DURING CONSTRUCTION.
- RESTORE SURFACES DISTURBED BY CONSTRUCTION

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SEAL

**BUFFALO SHORES PARK
SANITARY SEWER
SYSTEM
SCOTT COUNTY**

DRAWN:	MTS
APPROVED:	SDO
ISSUED FOR:	REVIEW
DATE:	02/03/2021
PROJECT NO:	3194430
FIELD BOOK:	
CLIENT NO:	

**COVER
C000**

GENERAL NOTES:

1. THE LOCATIONS OF UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING. THE VERIFICATION, EXISTENCE, AND THE DETERMINATION OF THE EXACT LOCATION OF UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE CONSTRUCTION CONTRACTOR(S).

SITE AND EARTHWORK NOTES:

- 1. EARTHWORK SHALL MEET THE REQUIREMENTS OF SUDAS SECTION 2010.
- 2. TRENCHING, BEDDING, AND BACKFILL SHALL MEET THE REQUIREMENTS OF SUDAS SECTION 3010 - TRENCH EXCAVATION AND BACKFILL, INCLUDING FIGURES 3010.10, 3010.103, 3010.104. PROVIDE CLASS F-3 BEDDING FOR GRAVITY SANITARY SEWER PIPE AND CLASS P-3 BEDDING FOR PRESSURE PIPE.
- 3. RESEED OR RESOD SITE PRIOR TO CONSTRUCTION COMPLETION, MEET REQUIREMENTS OF SUDAS SECTION 9010 OR SECTION 9020.

GRAVITY SEWER AND FORCE MAIN NOTES:

- 1. ≤ 6" PRESSURE PIPE, AND SEWER PIPE SHALL MEET APPLICABLE REQUIREMENTS OF SUDAS SECTION 4010 - SANITARY SEWERS, SECTION 5010 - WATER MAINS AND APPURTENANCES, AND THE FOLLOWING:
 - 1.1. SCHEDULE 40 PVC PIPE AND FITTINGS; WORKING PRESSURE RATING OF 220 PSI; MANUFACTURED FROM VIRGIN RIGID PVC COMPOUNDS WITH A CELL CLASS OF 12454 AS IDENTIFIED IN ASTM D 1784; IPS CONFORMING TO ASTM D 1785; INJECTION MOLDED PVC SCHEDULE 80 FITTINGS SHALL CONFORM ASTM D 2467; RESTRAINED, CEMENT WELDED JOINTS; THREADED FITTINGS SHALL CONFORM TO ASTM D 2464 AND USED ONLY TO CONNECT VALVES AND EQUIPMENT; PIPE AND FITTINGS SHALL BE MANUFACTURED AS A SYSTEM AND BE THE PRODUCT OF ONE MANUFACTURER.
 - 1.2. FORCE MAIN: HDPE IN ACCORDANCE WITH AWWA STANDARD C901, ASTM F714, AND ASTM D3035; SDR 9; 250 PSI PRESSURE RATING MINIMUM; PLAIN END BUTT FUSED FITTINGS AND ELECTROFUSION COUPLING; BUTT FUSION COMPLYING WITH ASTM D3261; ELECTROFUSION COMPLYING WITH WITH ASTM F1055. MECHANICAL (COMPRESSION) FITTINGS ONLY WHEN JOINING HDPE MATERIAL TO DIFFERENT PIPE MATERIALS AND APPROVED BY ENGINEER. MAXIMUM PIPE BENDING RADIUS SHALL BE IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATION FOR THE SPECIFIC DIAMETER AND DIMENSION RATIO (DR) OF THE PIPE
- 2. INSTALLATION OF 3" FORCE MAIN HORIZONTAL DIRECTIONAL DRILL AS SHOWN ON THE DRAWINGS. SEWER MAIN PIPE CARRIER PIPE SHALL BE INSTALLED WITHOUT CASING PIPE, UNLESS SHOWN OTHERWISE ON THE DRAWINGS
- 3. TRENCHING, BEDDING, AND BACKFILL: MEET REQUIREMENTS OF SUDAS SECTION 3010 - TRENCH EXCAVATION AND BACKFILL, INCLUDING DETAILS 3010.10, 3010.103, 3010.104. PROVIDE CLASS F-3 BEDDING FOR GRAVITY SANITARY SEWER PIPE AND CLASS P-3 BEDDING FOR PRESSURE PIPE.
- 4. TRENCHLESS CONSTRUCTION: IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF SUDAS SECTION 3020.
- 5. THRUST BLOCKING: REQUIRED WHERE PRESSURE PIPING CHANGES DIRECTION OR DEAD ENDS; CARRY TO UNDISTURBED EDGE OF TRENCH; SIZE AND LOCATION OF THRUST BLOCKING IN ACCORDANCE WITH SUDAS SECTION 5010 AND FIGURE 5010.101. SEE DETAIL D1 ON RW500.
- 6. MINIMUM COVER OF 3'-6" FEET IS REQUIRED ON ALL LIQUID CARRYING PIPES, UNLESS OTHERWISE NOTED BY PIPE ELEVATIONS. WHERE PIPE IS LESS THAN 3'-6" COVER, PROVIDE INSULATION BOARD ALONG SIDES AND TOP OF TRENCH (PRIOR TO BACKFILL).
- 7. CLEANING, INSPECTION, AND TESTING OF SEWERS - PROVIDE SANITARY SEWERS, FORCE MAIN, AND PRESSURE PIPES IN ACCORDANCE WITH SUDAS SECTION 4060 - CLEANING, INSPECTION, AND TESTING OF SEWERS. TEST PRESSURE FOR PRESSURE PIPE SHALL BE 50 PSI.
- 8. BALL VALVES: BRONZE BALL VALVE; SST BALL; TWO PIECE; STANDARD PORT; 600 PSI NONSHOCK WOG; THREADED ENDS; BLOW-OUT PROOF STEM; MILWAUKEE BA-100S, OR EQUAL.
- 9. CHECK VALVES: BRONZE CHECK VALVE; 200 PSI NON-SHOCK WOG; HORIZONTAL SWING; THREADED ENDS; MILWAUKEE 509, OR EQUAL.
- 10. AIR RELEASE VALVE: MEET REQUIREMENTS OF SUDAS 4010 - SANITARY SEWERS AND FIGURE 4010.203 EXCEPT AS MODIFIED ON THESE DRAWINGS; VALMATIC WASTEWATER AIR RELEASE VALVE, OR EQUAL.
- 11. MODULAR MECHANICAL SEAL FOR LIFT STATION CONNECTIONS: PRESSURE RESISTANT TO 20 PSIG (40 FT. OF HEAD); EPDM RUBBER; SST BOLTS AND NUTS; LINK-SEAL, OR EQUAL.
- 12. HATCHES: ALUMINUM ACCESS COVERS SHALL BE PROVIDED WITH A MINIMUM LIVE LOAD CAPACITY OF 300 LBS. PER SQUARE FOOT (PSF), OR H-20 LIVE LOADING WHERE INDICATED ON THE DRAWINGS, AND OF SIZES AS SHOWN ON THE DRAWINGS. ALL COVER AND FRAME COMPONENTS SHALL BE OF CORROSION RESISTANT MATERIALS. ALL FLAT SURFACES SHALL BE MANUFACTURED OF 1/4 INCH THICK ALUMINUM DIAMOND PLATE. THE FRAME SHALL BE 1/4 INCH EXTRUDED ALUMINUM. THE DOORS SHALL OPEN ON STAINLESS STEEL HINGES AND BE HELD OPEN BY A STAINLESS STEEL LOCKING ARM. THE DOORS SHALL BE PROVIDED WITH STAINLESS STEEL LIFTING HANDLE AND LOCKING BAR. THE DOORS SHALL MOUNT FLUSH TO THE FRAME WHEN IN THE DOWN AND LOCKED POSITION. HALLIDAY OR BILCO.

LIFT STATION (FOR DUMP STATION AND CENTRAL SERVICE STATION)

- 1.1. DUMP STATION LIFT STATION: TWO (2) GRINDER PUMPS ZOELLER MODEL 841 OR EQUAL. EACH PUMP SHALL BE EQUIPPED WITH A MINIMUM 2 HP, SUBMERSIBLE ELECTRIC MOTOR CONNECTED FOR OPERATION ON 240 VOLTS, SINGLE PHASE, 60 HERTZ, WITH 20 FEET OF SUBMERSIBLE CABLE (SUBCAB) SUITABLE FOR SUBMERSIBLE PUMP APPLICATIONS, AUTOMATIC THERMAL OVERLOAD PROTECTION. PUMP PERFORMANCE: DESIGN RATED CAPACITY 50 GPM AT 9 FT TOTAL DYNAMIC HEAD.
- 1.2. CENTRAL SERVICE STATION LIFT STATION: TWO (2) GRINDER PUMPS FLYGT MODEL M3085 OR EQUAL. EACH PUMP SHALL BE EQUIPPED WITH A MINIMUM 3 HP, SUBMERSIBLE ELECTRIC MOTOR CONNECTED FOR OPERATION ON 240 VOLTS, SINGLE PHASE, 60 HERTZ, WITH 20 FEET OF SUBMERSIBLE CABLE (SUBCAB) SUITABLE FOR SUBMERSIBLE PUMP APPLICATIONS, AUTOMATIC THERMAL OVERLOAD PROTECTION. PUMP PERFORMANCE: DESIGN RATE CAPACITY 50 GPM AT 56 FT TOTAL DYNAMIC HEAD.

1. PUMP CONTROL PANEL

- 1.1. A COMPLETE DUPLEX PUMP CONTROL PANEL AND ASSOCIATED LEVEL INSTRUMENTS SHALL BE FURNISHED BY THE PUMP SUPPLIER FOR EACH LIFT STATION.
- 1.2. UL LISTING: THE CONTROL PANEL UNIT SHALL BE THE PRODUCT OF A MANUFACTURER THAT IS AUTHORIZED BY UNDERWRITERS LABORATORIES, INC. TO BUILD PRODUCTS IN COMPLIANCE WITH UL STANDARD 698A (ENCLOSED INDUSTRIAL CONTROL PANEL - ENCLOSURE IN NON-HAZARDOUS AREA WITH EXTENSIONS INTO HAZARDOUS AREA). A UL LABEL SHALL BE AFFIXED TO THE COMPLETED CONTROL PANEL
- 1.3. ENCLOSURE: ENCLOSURE SHALL BE A NEMA 4X AND BE OF SUITABLE SIZE TO HOUSE ALL COMPONENTS
 - 1.3.1. CONTROLLER TO HAVE SINGLE POWER SOURCE FOR DUPLEX PUMPS AND A SEPARATE CIRCUIT FOR ALARM/CONTROL
 - 1.3.2. COMPONENTS INCLUDE BUT ARE NOT LIMITED TO: CIRCUIT BREAKERS, CABINET HEATER, LINE TERMINAL BLOCK, LIGHTNING PROTECTION, MOTOR CIRCUIT BREAKER WITH EACH PUMP MOTOR, MOTOR STARTERS, TRANSFORMER PRIMARY CIRCUIT BREAKER, CONTROL POWER TRANSFORMER, AUXILIARY POWER CIRCUIT BREAKER, CONTROL FUSING TO PROTECT ALL CIRCUITS, CONTROL TERMINAL BLOCK, ELAPSED TIME METER FOR EACH PUMP, HAND-OFF-AUTO SWITCHES, 2 PDT PLUG IN TYPE CONTROL RELAYS, RED - EXTERIOR ALARM LIGHT (COMMON FOR HIGH LEVEL AND PUMP FAIL), AND PILOT LIGHTS FOR PUMP RUN AND PUMP FAIL. CONTRACTOR TO PROVIDE GFCI CONVENIENCE RECEPTACLE.

- 1.3.3. LIFT STATIONS: WHEN IN AUTO POSITION, PUMPS WILL OPERATE IN LEAD/LAG MODE (WITH ALTERNATOR) BASED ON PRESSURE TRANSDUCER AND LEVEL FLOAT SWITCHES. PUMPS SHALL ALTERNATE LEAD-LAG AFTER EACH RUN CYCLE. IN HAND POSITION, PUMPS SHALL TURN ON, UNLESS OVERRIDDEN BY THE LOW-LEVEL FLOAT. IN OFF, PUMPS SHALL NOT RUN. THERE SHALL ALSO BE A HIGH-LEVEL ALARM FLOAT TO INITIATE AUDIBLE ALARM AND ALARM STROBE.

2. PUMP ACCESSORIES:

- 2.1. GUIDE BRACKET & RAIL SYSTEM: THE PUMP SHALL BE PROVIDED WITH A GUIDE SYSTEM TO ALLOW EASY REMOVAL WITHOUT ENTERING THE LIFT STATION. THE MAIN BASE FIXTURE SHALL BE BOLTED TO THE FLOOR AND SHALL INCLUDE A 90 DEGREE CAST IRON ELBOW AND MOUNTS FOR TWO SST RAILS OF STANDARD SCHEDULE 40 PIPE. THE BASE FIXTURE SHALL BE DESIGNED TO RECEIVE THE CONNECTING PUMP SLIDE BRACKET WITHOUT THE NEED FOR BOLTS, NUTS, OR CLAMPS. THE PUMP DISCHARGE WILL CONNECT TO A CAST IRON SLIDE BRACKET THAT SEALS AGAINST THE BASE FIXTURE BY THE WEIGHT OF THE PUMP. PROVIDE SST LIFTING CABLE OR CHAIN, SUPPORT BRACKETS, AND CONNECTIONS FOR EACH PUMP
- 2.2. FLOATS: FLOAT SWITCH: MECHANICALLY ACTUATED, SELF-COUNTER WEIGHTED, MERCURY FREE, POLYPROPYLENE ENCLOSURE, RATED FOR WASTEWATER AND WET WELL ENVIRONMENT, PVC CABLE, INTRINSIC SAFE APPROVED, POWERED FROM THE CONTROL PANEL.

LEGEND

UTILITIES		
EXISTING PLAN MARK	DESCRIPTION	PROPOSED PLAN MARK
∅	UTILITY POLE	∅
⊗	WATER SHUTOFF VALVE	⊗
⌒	FIRE HYDRANT	⌒
⊗	VALVE	⊗
○ ^{MH}	MANHOLE	○ ^{MH}
⊙	STORM MANHOLE	⊙
⊙	SANITARY MANHOLE	⊙
⌑	CURB INLET	⌑
☼	SHRUB	☼
○	DECIDUOUS TREE	○
⊗	CONIFEROUS TREE	⊗
—○—	SINGLE POLE SIGN	—○—
—□—	WOOD FENCE	—□—
—○—	CHAINLINK FENCE	—○—
---621---	MINOR CONTOUR	---621---
---620---	MAJOR CONTOUR	---620---

LEGEND

UTILITY LINES		
EXISTING LINE TYPE	DESCRIPTION	PROPOSED LINE TYPE
—OE—	ELECTRIC - OVERHEAD	—OE—
—E—	ELECTRIC - UNDERGROUND	—E—
—G—	GAS MAIN / SERVICE	—G—
—W—	WATER MAIN / SERVICE	—W—
—S—	SANITARY SEWER	—S—
—SS—	SANITARY SEWER FORCE MAIN	—SS—
—T—	STORM SEWER	—T—
—T—	TELEPHONE - UNDERGROUND	—T—

LEGEND

GENERAL SITE DESIGN	
PLAN MARK	DESCRIPTION
528.10	SPOT ELEVATION
TO GUT	TOP OF CURB AND GUTTER ELEVATION
2%	SLOPE ARROW
—→	FLOW ARROW

UTILITY NOTE

THE LOCATIONS OF UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO

EXISTING UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC., AND NOT SHOWN ON THIS DRAWING.

SEAL

BUFFALO SHORES PARK
SANITARY SEWER
TREATMENT SYSTEM
SCOTT COUNTY

DRAWN: MTS
APPROVED: SDO
ISSUED FOR: REVIEW
DATE: 02/03/2021
PROJECT NO: 3194320
FIELD BOOK: ---
CLIENT NO: ###

GENERAL NOTES

C001

REINFORCED CONCRETE

1. ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND ACI 301.
2. ALL CONCRETE SHALL BE STONE AGGREGATE UNLESS NOTED. SUBMIT DESIGN MIX AND DOCUMENTATION FOR APPROVAL PER ACI 318. MINIMUM CONCRETE 28 DAY COMPRESSIVE STRENGTH SHALL BE AS FOLLOWS:
 - A. 28-DAY SPECIFIED CONCRETE COMPRESSIVE STRENGTH (f_c) = 4000 PSI SUBMIT DESIGN MIX AND DOCUMENTATION FOR APPROVAL PER ACI 318.
3. REINFORCING STEEL: ASTM A615 - GRADE 60, DEFORMED BILLET STEEL BARS. WELDED WIRE REINFORCEMENT, PLAIN TYPE, ASTM A1064.
4. CAST-IN-PLACE ANCHOR RODS: ASTM F1554, F_y = 36 KSI UNLESS NOTED OTHERWISE. EMBED ANCHOR RODS AS INDICATED ON DRAWINGS.
5. REINFORCEMENT PROTECTION:
 - A. CONCRETE PLACED AGAINST EARTH. 3"
 - B. CONCRETE PLACED IN FORMS BUT EXPOSED TO WEATHER OR EARTH
BARS #5 AND SMALLER. 1-1/2"
BARS LARGER THAN #5 2"
STRUCTURAL SLABS (TOP AND BOTTOM) 1"
6. ALL SPLICES, STANDARD HOOKS, AND DEVELOPMENT LENGTHS TO BE PER THE LATEST EDITION OF ACI 318 BUT IN NO CASE LESS THAN 36 BAR DIAMETERS UNLESS NOTED OTHERWISE. MAKE BARS CONTINUOUS AROUND CORNERS. WHERE PERMITTED, PROVIDE SPLICES BY CONTACT LAP. WHERE CLASSES ARE NOT CALLED OUT ON DRAWINGS, PROVIDE A CLASS "B" SPLICE.
7. WHERE REQUIRED, DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE.
8. SUBMIT CONCRETE REINFORCEMENT SHOP DRAWINGS IN ACCORDANCE WITH ACI 315 FOR APPROVAL.
9. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL", PUBLICATION SP-66 AND THE LATEST EDITION OF ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
10. ROUGHEN ALL CONSTRUCTION JOINTS TO AN AMPLITUDE OF AT LEAST 1/4".
11. CONSTRUCTION:
 - A. CEMENT SHALL CONFORM TO ASTM C150 TYPE 1.
12. SAMPLES FOR STRENGTH TEST SHALL BE TAKEN IN ACCORDANCE WITH ASTM C172
13. CYLINDERS FOR STRENGTH TESTS SHALL BE IN ACCORDANCE WITH ASTM C31 AND TESTED IN ACCORDANCE WITH ASTM C39.
14. SAMPLES FOR STRENGTH TESTS SHALL BE IN ACCORDANCE WITH ACI 318 WITH A MINIMUM OF (4) CYLINDERS. (1) 7 DAY, (1) 14 DAY, AND (2) 28 DAY. PROVIDE A SET OF (4) CYLINDERS FOR EACH MAJOR POUR.
15. CONCRETE MIX - FOUNDATIONS

COARSE AGGREGATE	100% PASSING 1" SIEVE
FINE AGGREGATE	100% PASSING 3/8" SIEVE
WATER/CEMENT RATIO	0.45
SLUMP (NO WATER REDUCER)	4" +/- 1"
SLUMP (WITH WATER REDUCER)	4" TO 8"
AIR CONTENT	6% +/- 1.5%

SEAL

BUFFALO SHORES PARK
SANITARY SEWER
TREATMENT SYSTEM
SCOTT COUNTY

DRAWN: MTS
APPROVED: SDO
ISSUED FOR: REVIEW
DATE: 2/3/2021
PROJECT NO: 3194320
FIELD BOOK: --
CLIENT NO: ##

GENERAL NOTES

C002

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SEAL

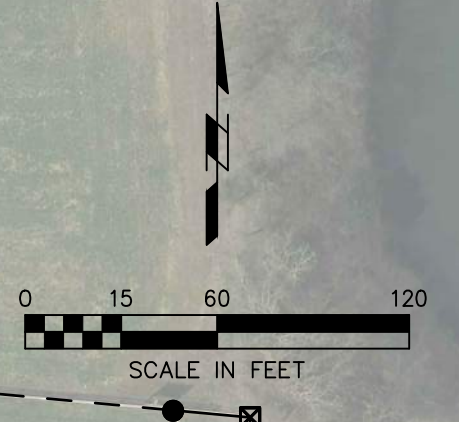
**BUFFALO SHORES PARK
SANITARY SEWER
TREATMENT SYSTEM**

SCOTT COUNTY

DRAWN:	MTS
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DATE:	01/19/2021
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SITE DEMOLITION

CD00



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SEAL

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 SANITARY SEWER
 TREATMENT SYSTEM**
 SCOTT COUNTY

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SITE LAYOUT

C100

A B C D E F

1

2

3

4



SEAL

SCOTT COUNTY
SITING LAYOUT
SANITARY SEWER
TREATMENT SYSTEM

CLIENT NO: ###
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SITE LAYOUT

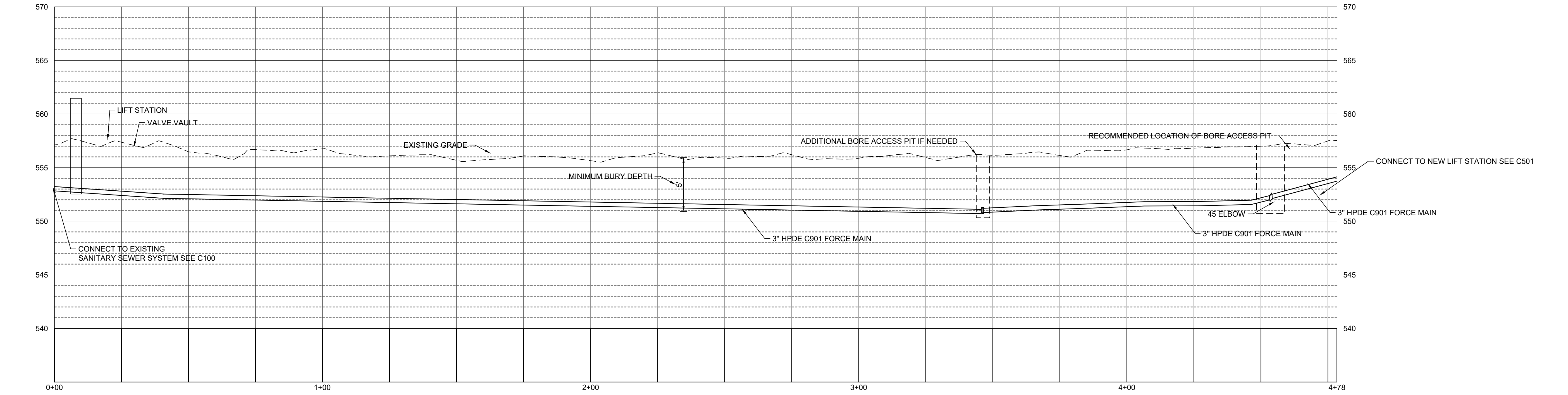
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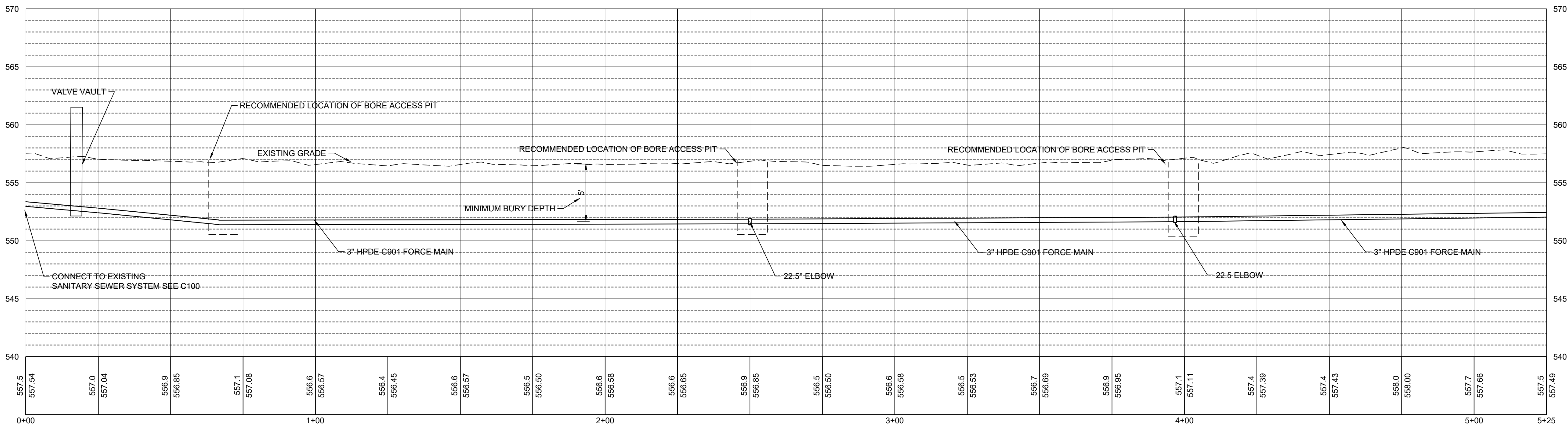
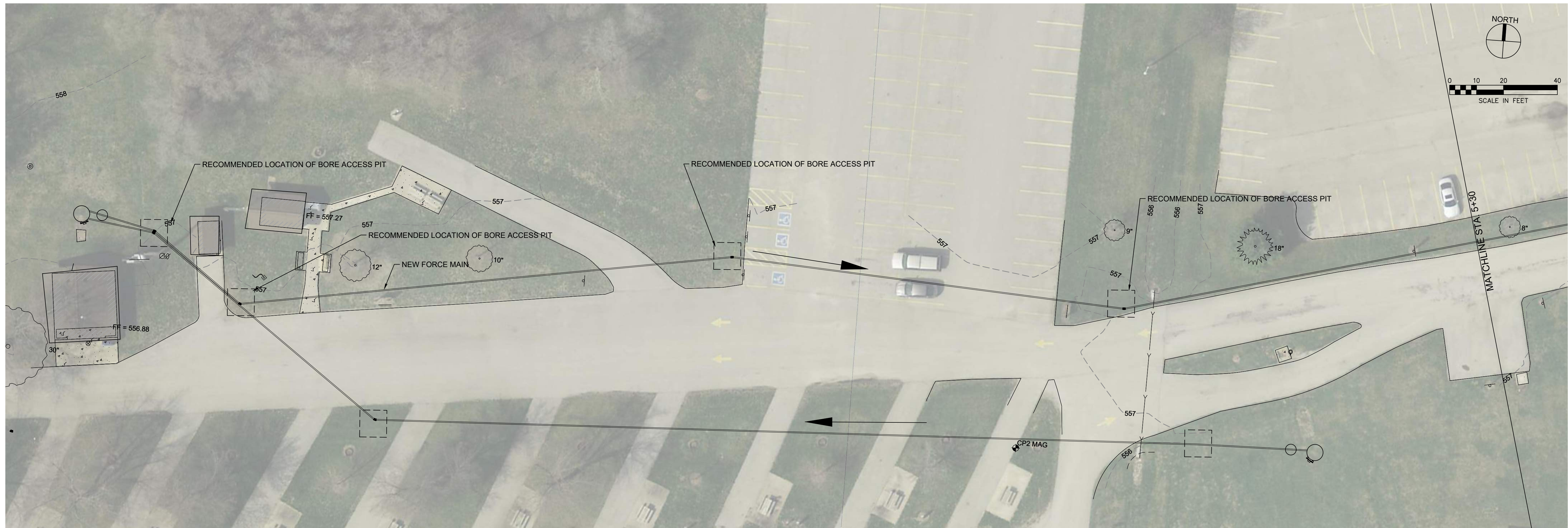
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DUMP STATION
 PIPE PLAN &
 PROFILE
C102



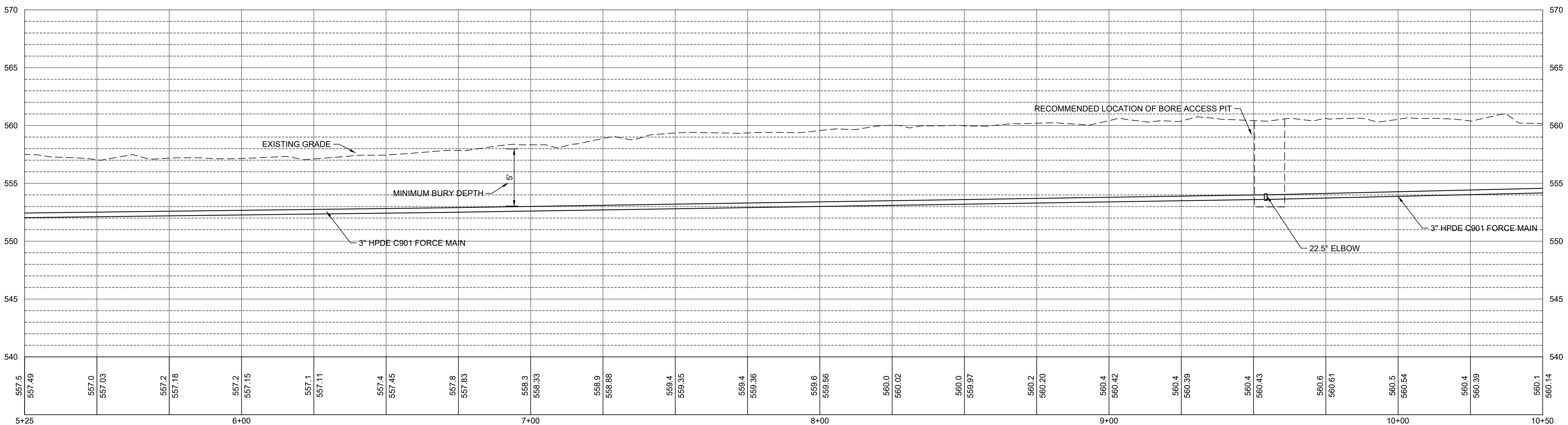
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**FORCE MAIN PLAN
 & PROFILE**
C103



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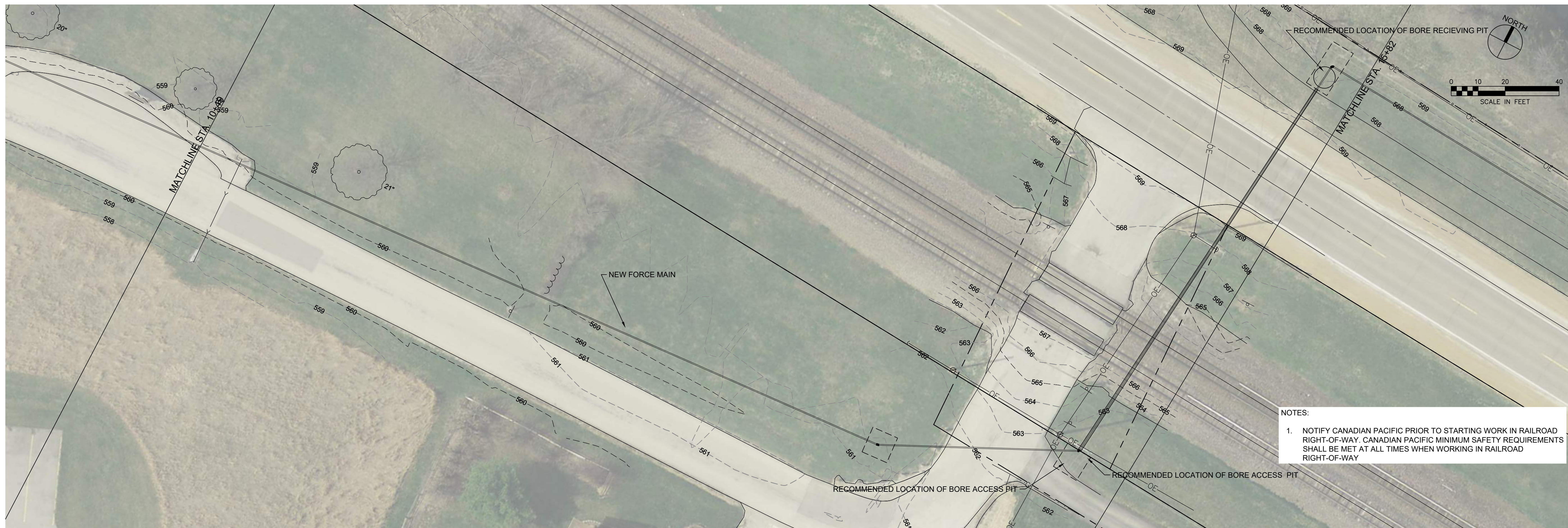
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SEAL

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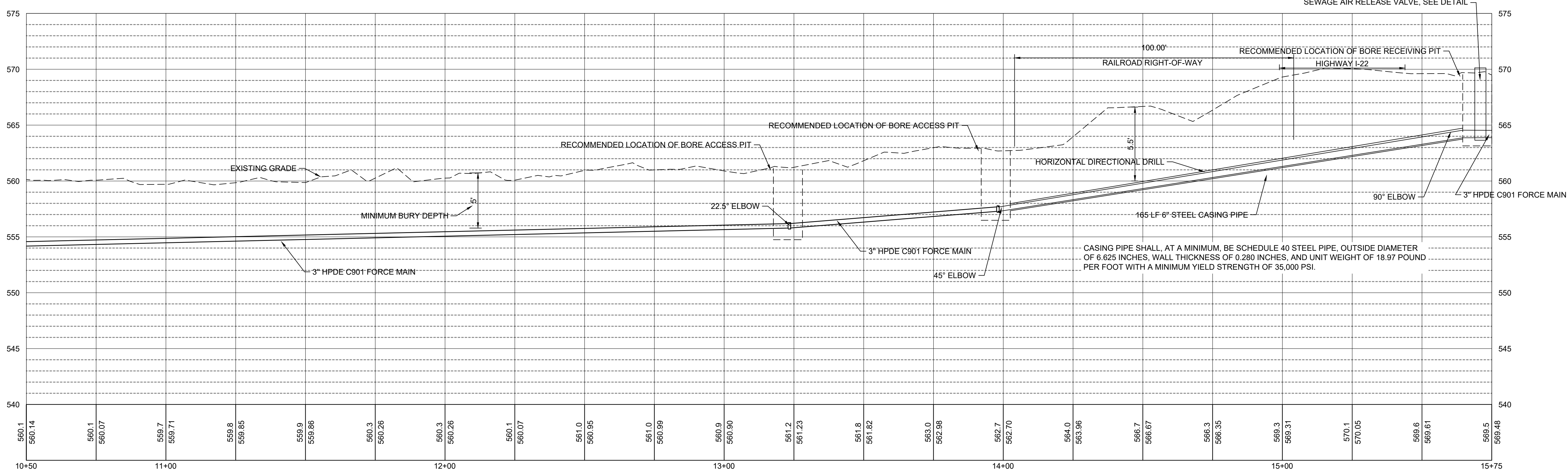
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FORCE MAIN PLAN
& PROFILE
C104



NOTES:

1. NOTIFY CANADIAN PACIFIC PRIOR TO STARTING WORK IN RAILROAD RIGHT-OF-WAY. CANADIAN PACIFIC MINIMUM SAFETY REQUIREMENTS SHALL BE MET AT ALL TIMES WHEN WORKING IN RAILROAD RIGHT-OF-WAY.



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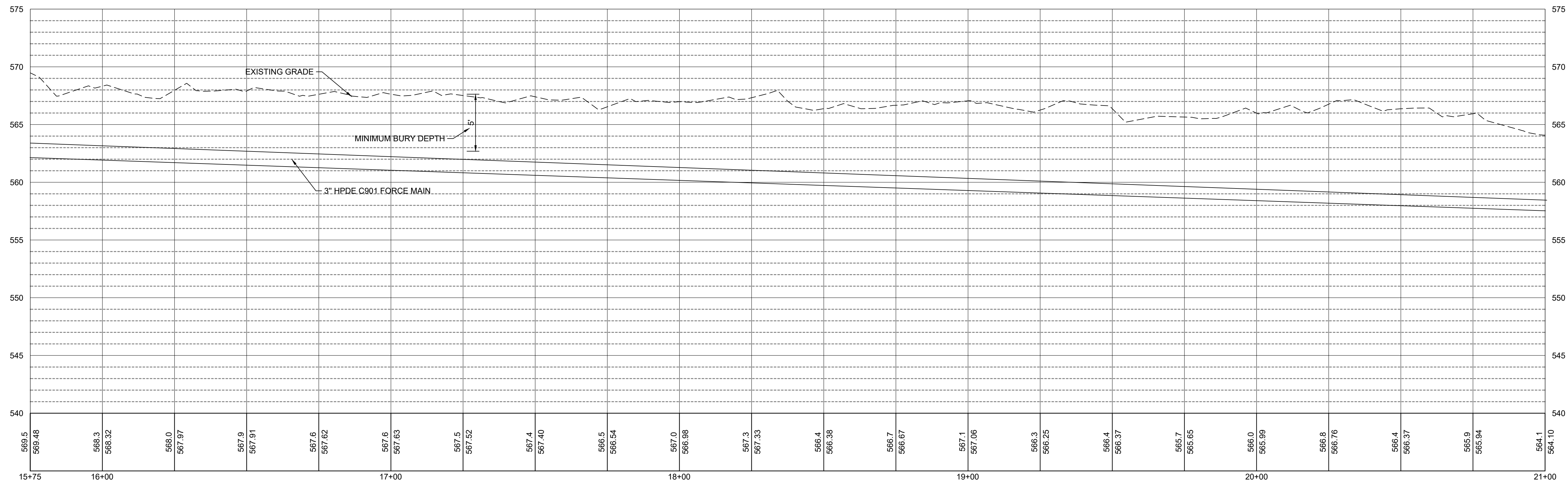
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SANITARY SEWER
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SCOTT COUNTY

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**FORCE MAIN PLAN
& PROFILE**

C105



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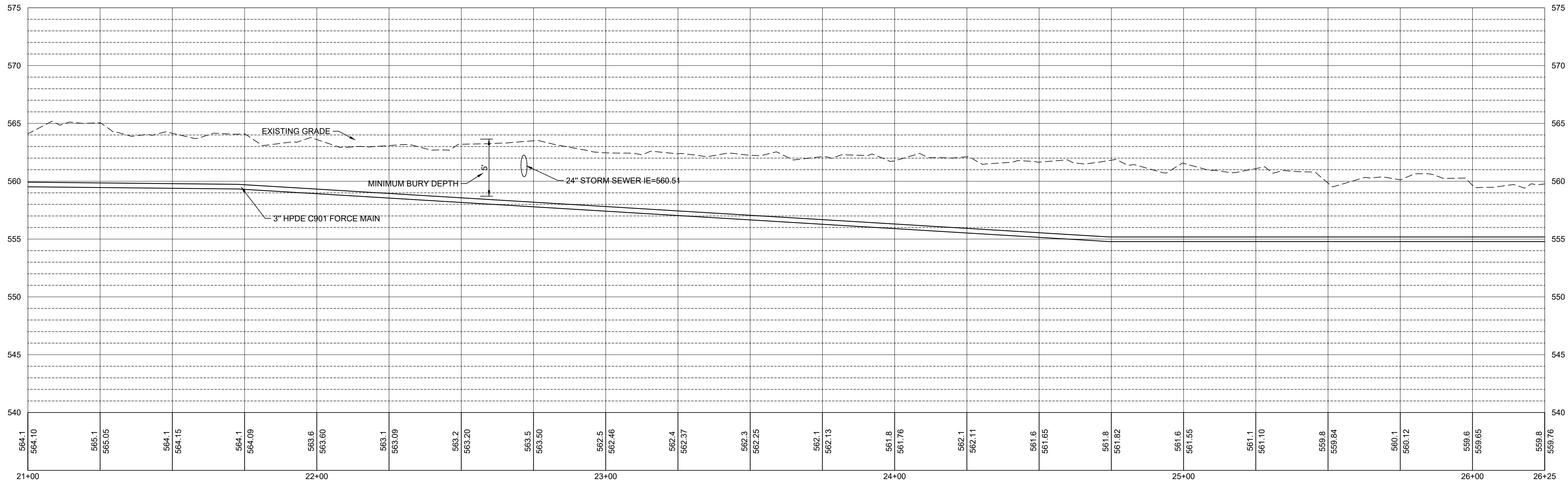
SEAL

**BUFFALO SHORES PARK
 SANITARY SEWER
 SYSTEM**
 SCOTT COUNTY

DRAWN:	MTS
APPROVED:	SDO
ISSUED FOR:	REVIEW
DATE:	02/03/2021
PROJECT NO.:	3194320
FIELD BOOK:	
CLIENT NO.:	

**FORCE MAIN PLAN
 & PROFILE**

C106



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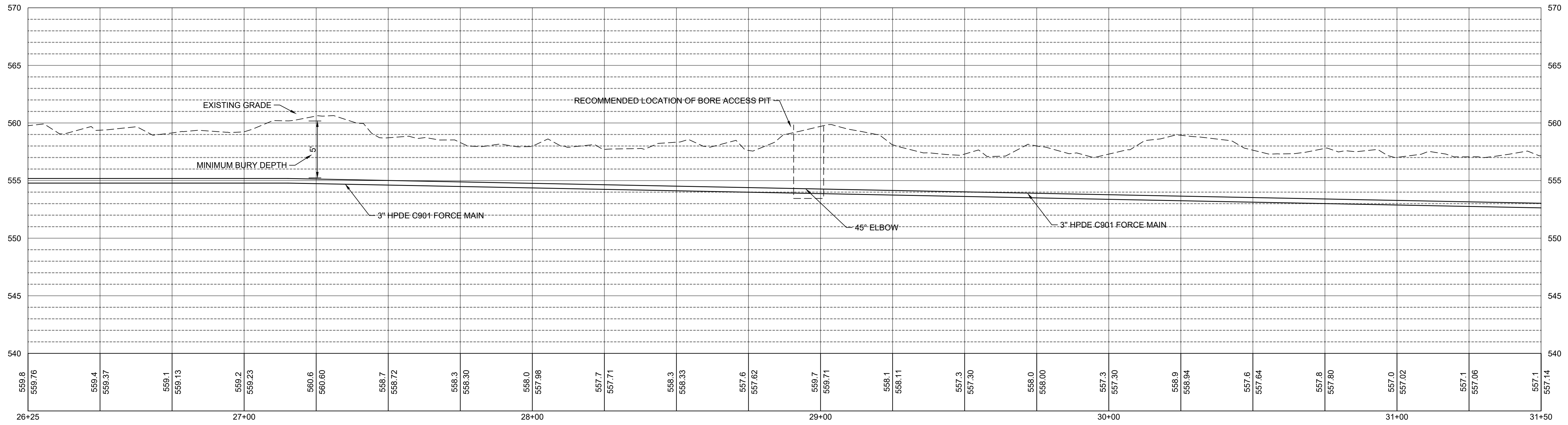
SEAL

**BUFFALO SHORES PARK
SANITARY SEWER
SYSTEM**
SCOTT COUNTY

DRAWN: MTS
APPROVED: SDO
ISSUED FOR: REVIEW
DATE: 02/03/2021
PROJECT NO: 3194320
FIELD BOOK:
CLIENT NO:

**FORCE MAIN PLAN
& PROFILE**

C107



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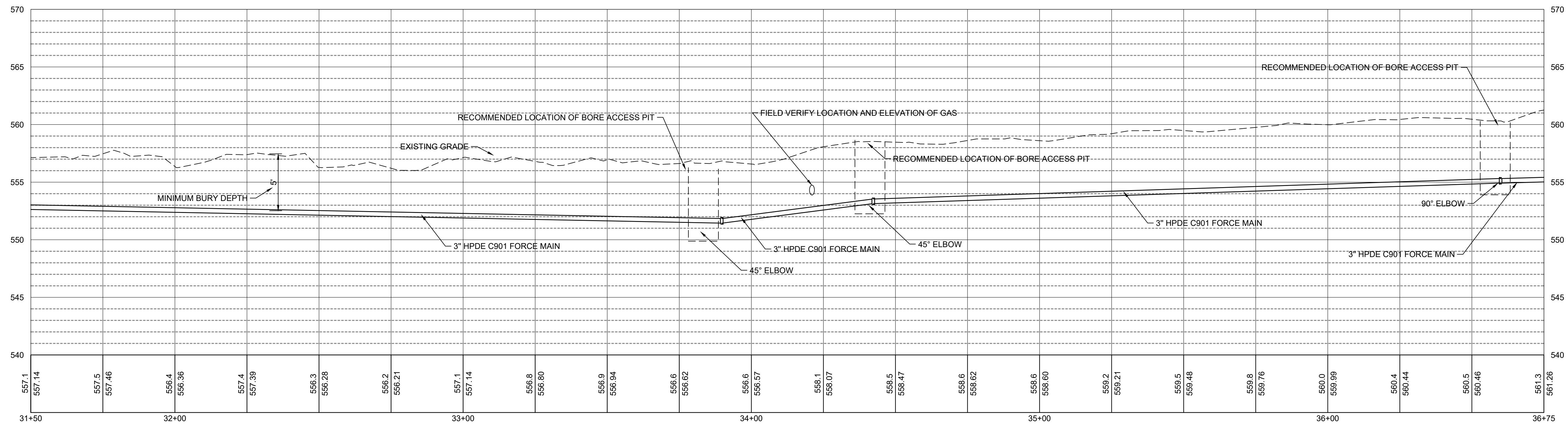
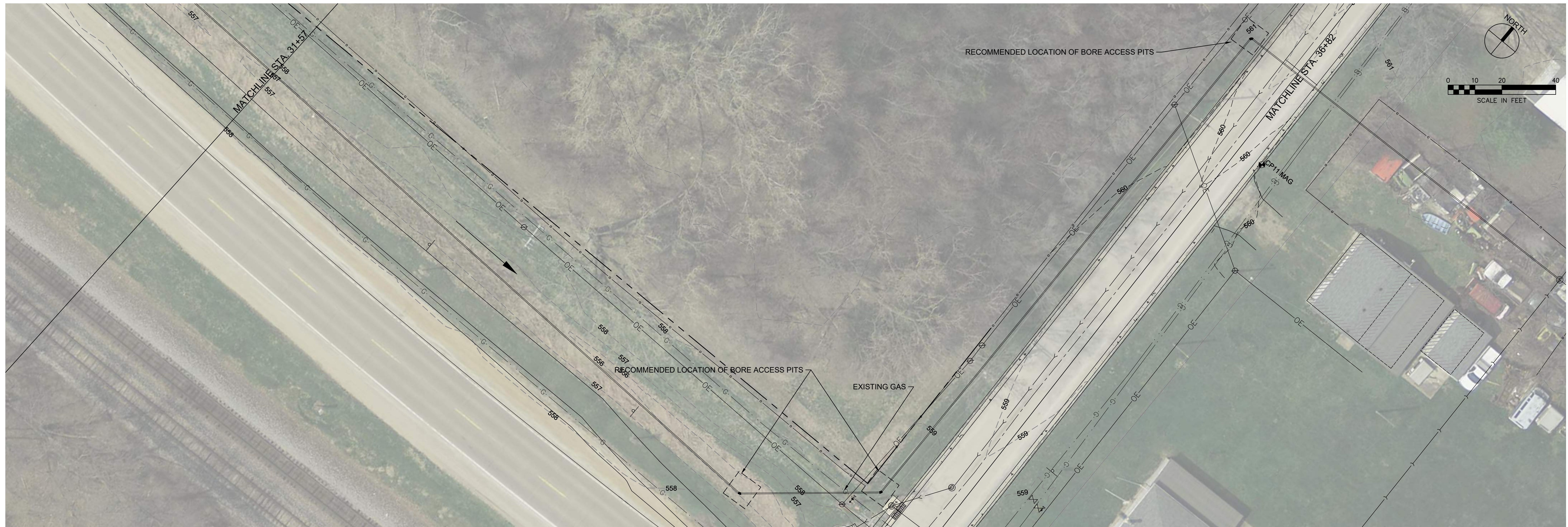
SEAL

BUFFALO SHORES PARK
SANITARY SEWER
SYSTEM
SCOTT COUNTY

DRAWN: MTS
APPROVED: SDO
ISSUED FOR: REVIEW
DATE: 02/03/2021
PROJECT NO: 3194320
FIELD BOOK:
CLIENT NO:

**FORCE MAIN PLAN
& PROFILE**

C108



NOTE:
 1. INSULATE ALL EXPOSED PIPING AND PIPING LESS THAN 5 FT DEEP FROM FINAL GRADE
 2. FIELD VERIFY FOR EXISTING UTILITIES

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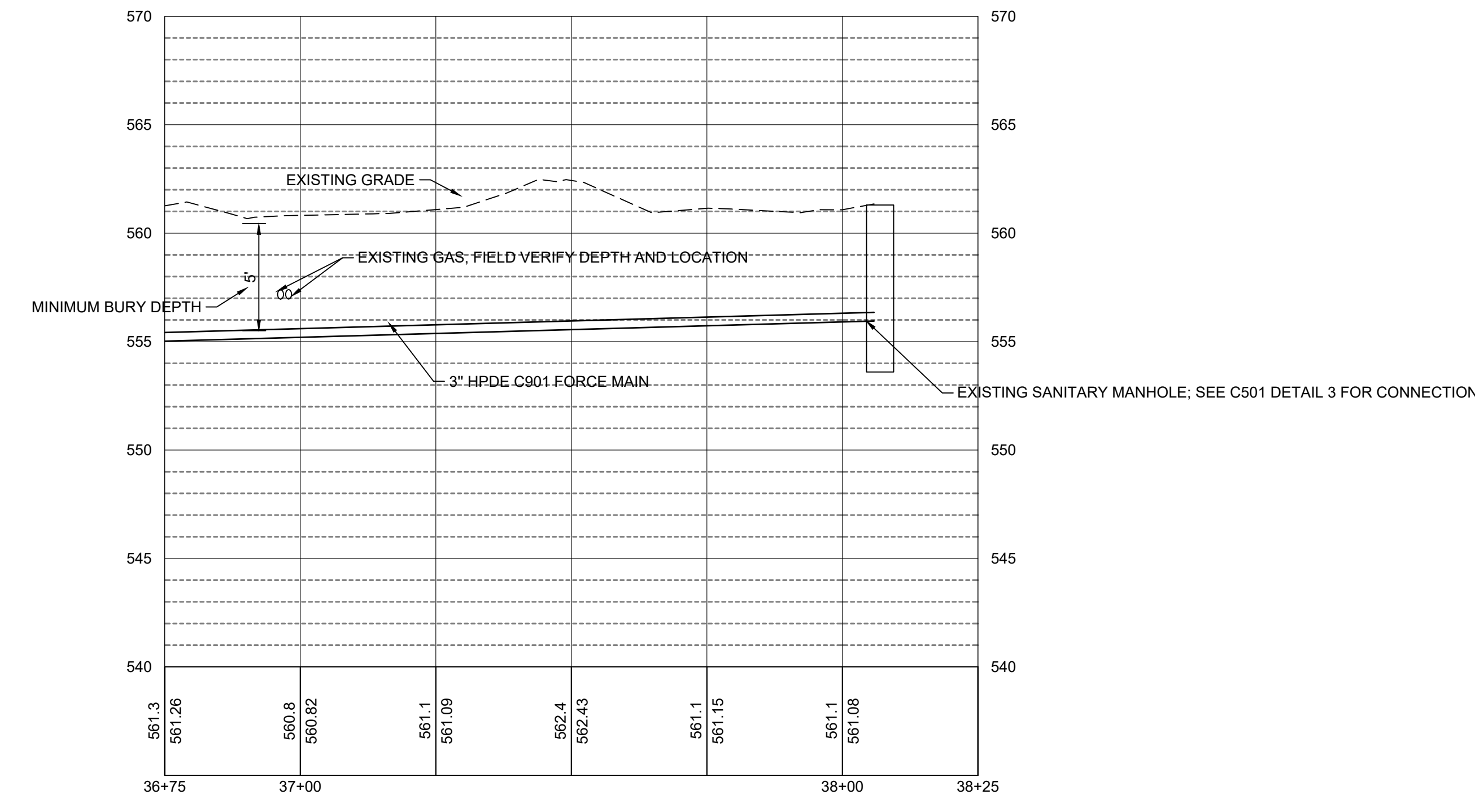
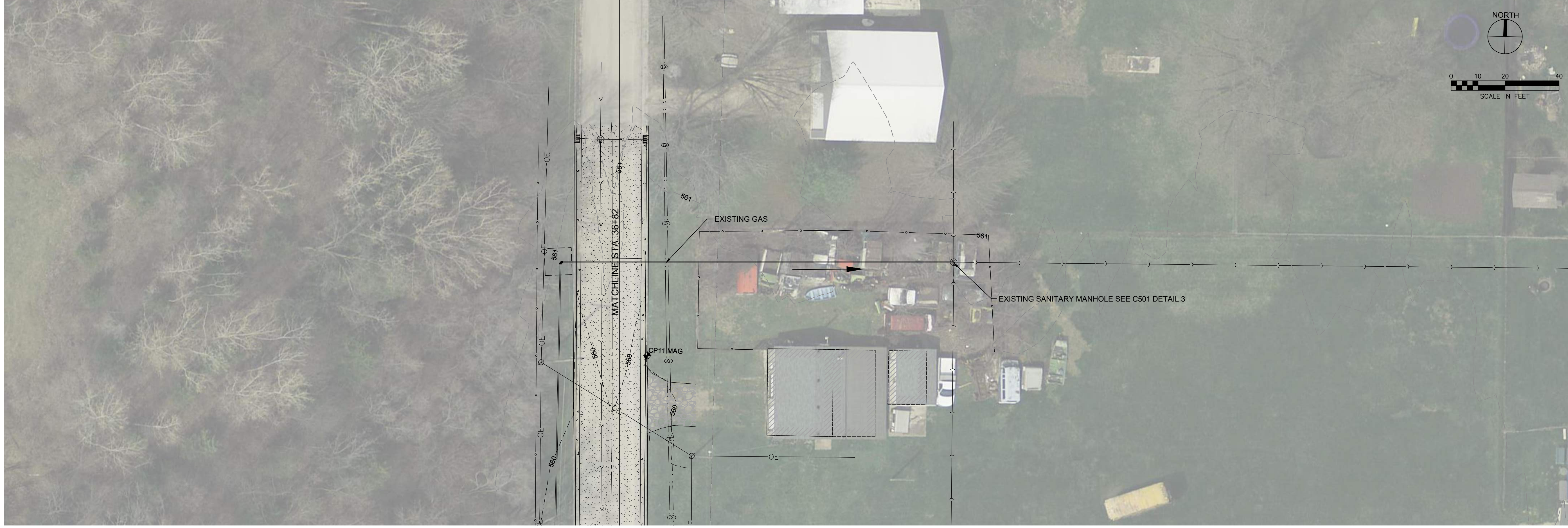
SEAL

**BUFFALO SHORES PARK
 SANITARY SEWER
 SYSTEM**
 SCOTT COUNTY

DRAWN: MTS
APPROVED: SDO
ISSUED FOR: REVIEW
DATE: 02/03/2021
PROJECT NO: 3194320
FIELD BOOK:
CLIENT NO:

**FORCE MAIN PLAN
 & PROFILE**

C109



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SHIVE-HATTERY
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 309.764.7650 | www.shive-hattery.com
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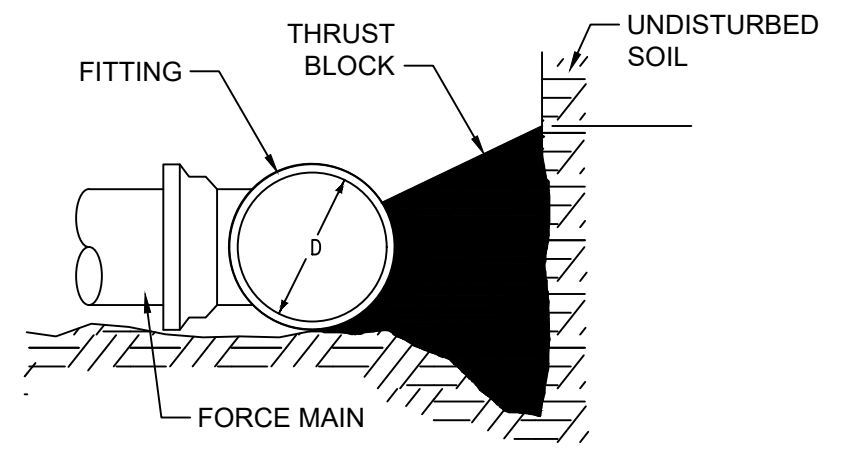
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**BUFFALO SHORES PARK
 SANITARY SEWER
 SYSTEM**
 SCOTT COUNTY

DRAWN:	MTS
APPROVED:	SBO
ISSUED FOR:	REVIEW
DATE:	02/03/2021
PROJECT NO.:	3194320
FIELD BOOK:	
CLIENT NO.:	

**FORCE MAIN PLAN
 & PROFILE**

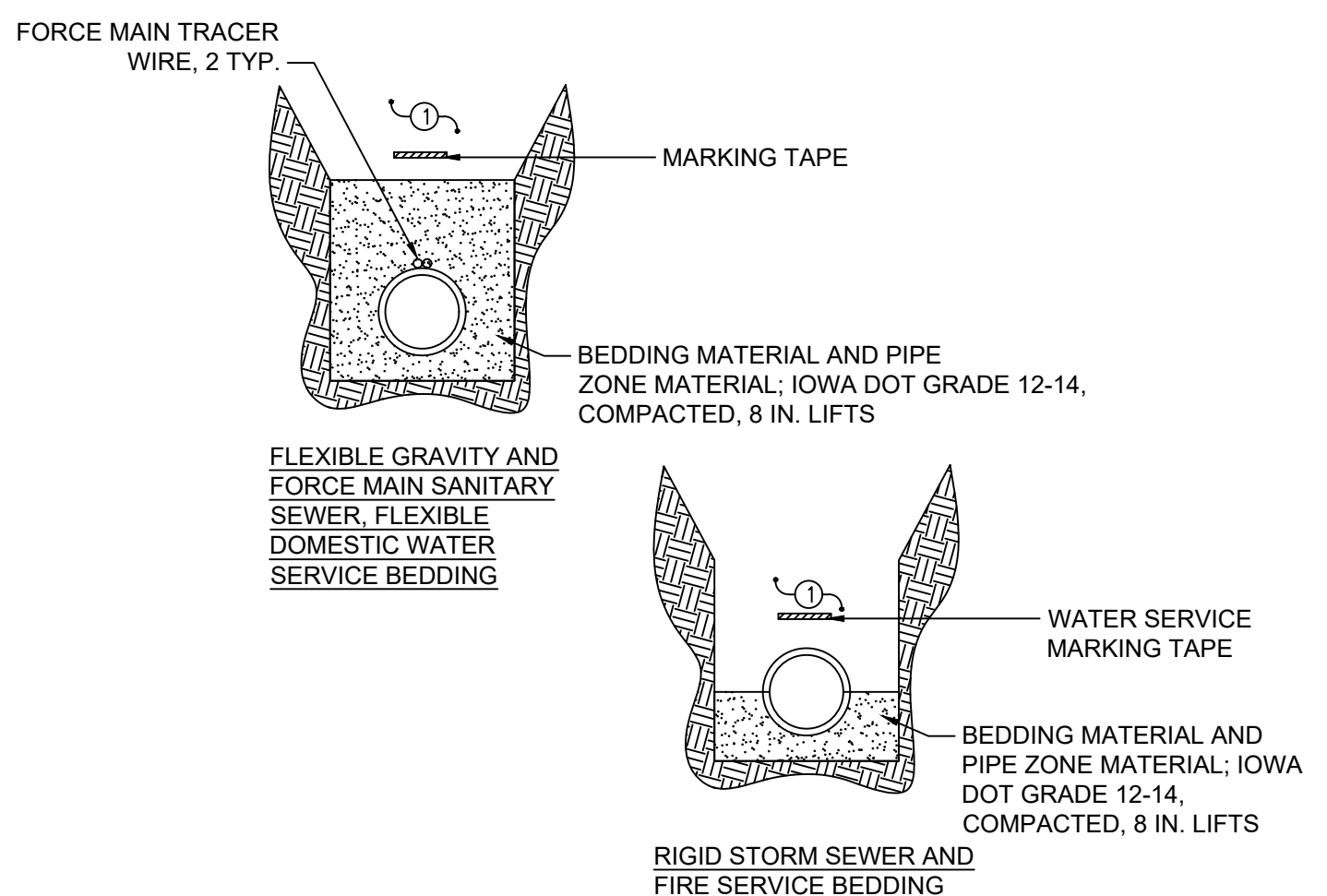
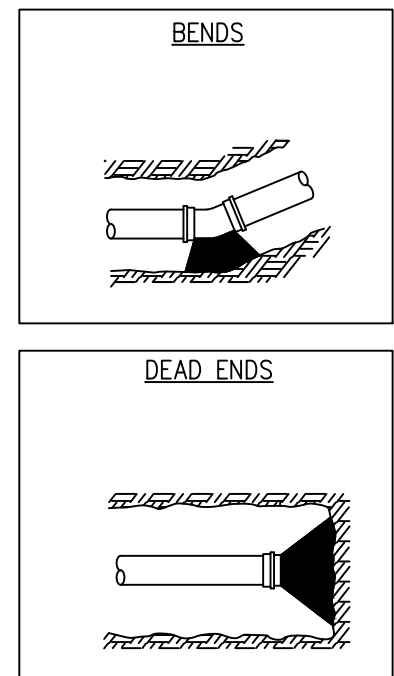
C110



TYPICAL SECTION

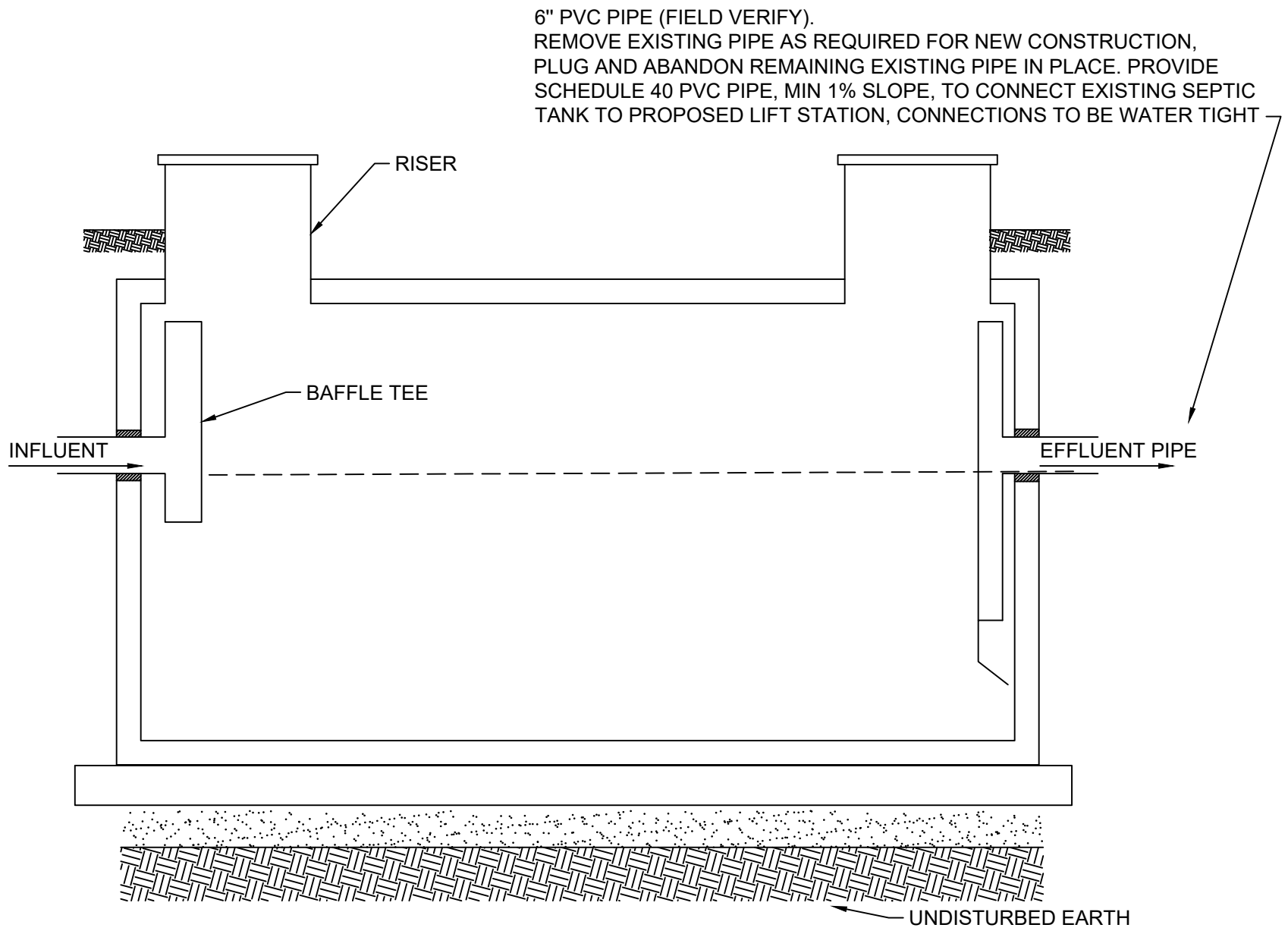
MINIMUM BEARING SURFACE (SF)				
PIPE DIA., IN.	BENDS			
	11.2500	22.5000	45	90
4	1	1	2	4

*MINIMUM SURFACE AREA BASED ON WATER PRESSURE OF 150 PSI AND ALLOWABLE SOIL PRESSURE OF 1,000 PSF.



NOTES:
 1. BACKFILL ILLINOIS DOT CA6 OR EQUIVALENT, COMPACTED IN 8IN. LIFTS UNDER PAVEMENT. ALL OTHER BACKFILL SHALL BE SUITABLE, CLEAN NATIVE MATERIAL

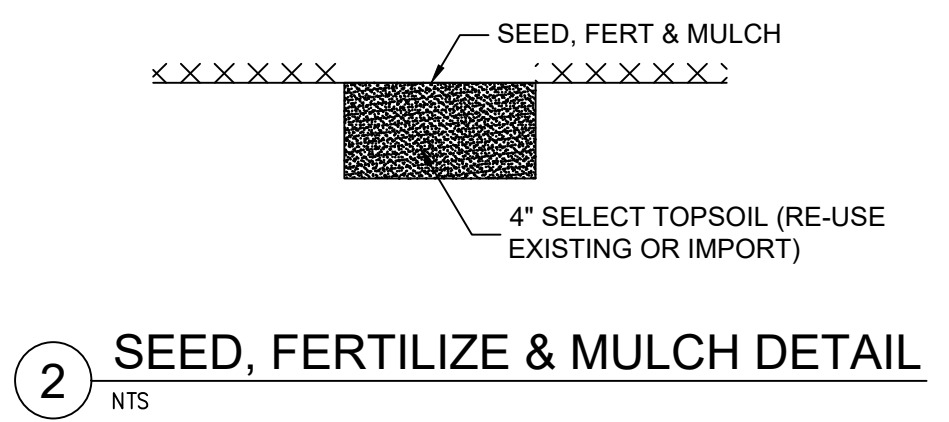
4 TRENCH BEDDING DETAIL
NTS



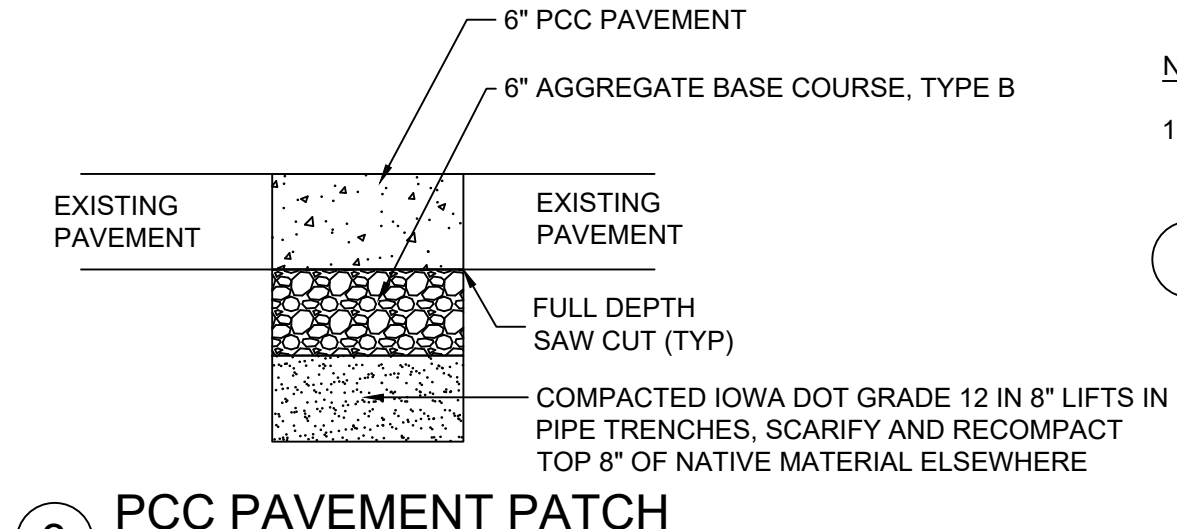
6" PVC PIPE (FIELD VERIFY). REMOVE EXISTING PIPE AS REQUIRED FOR NEW CONSTRUCTION. PLUG AND ABANDON REMAINING EXISTING PIPE IN PLACE. PROVIDE SCHEDULE 40 PVC PIPE, MIN 1% SLOPE, TO CONNECT EXISTING SEPTIC TANK TO PROPOSED LIFT STATION, CONNECTIONS TO BE WATER TIGHT

5 CONNECTION TO EXISTING SEPTIC TANKS
NTS

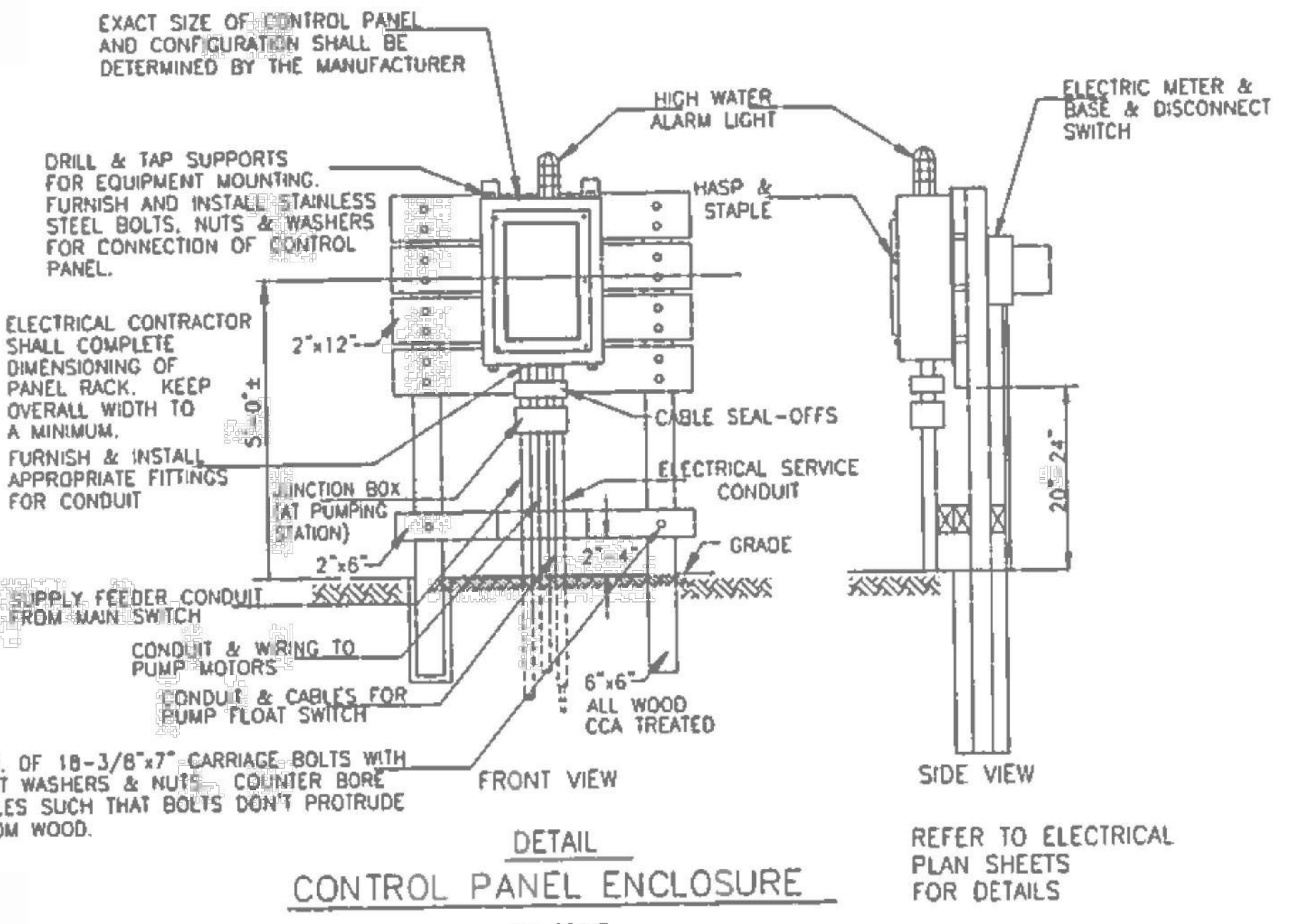
1 SEWER FORCE MAIN THRUST BLOCKING DETAIL
NTS



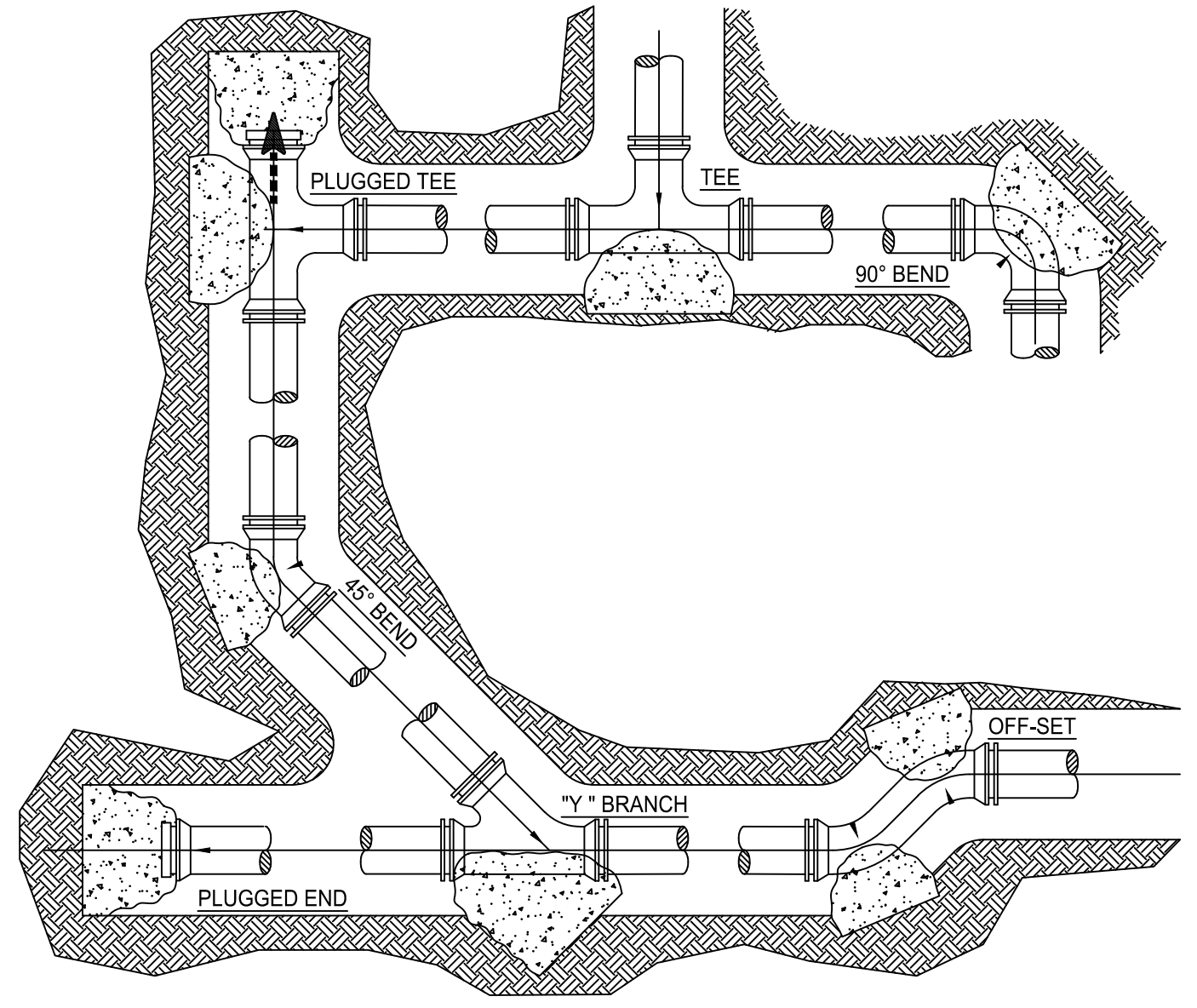
2 SEED, FERTILIZE & MULCH DETAIL
NTS



3 PCC PAVEMENT PATCH
NTS



6 PANEL INSTALLATION DETAIL
NTS

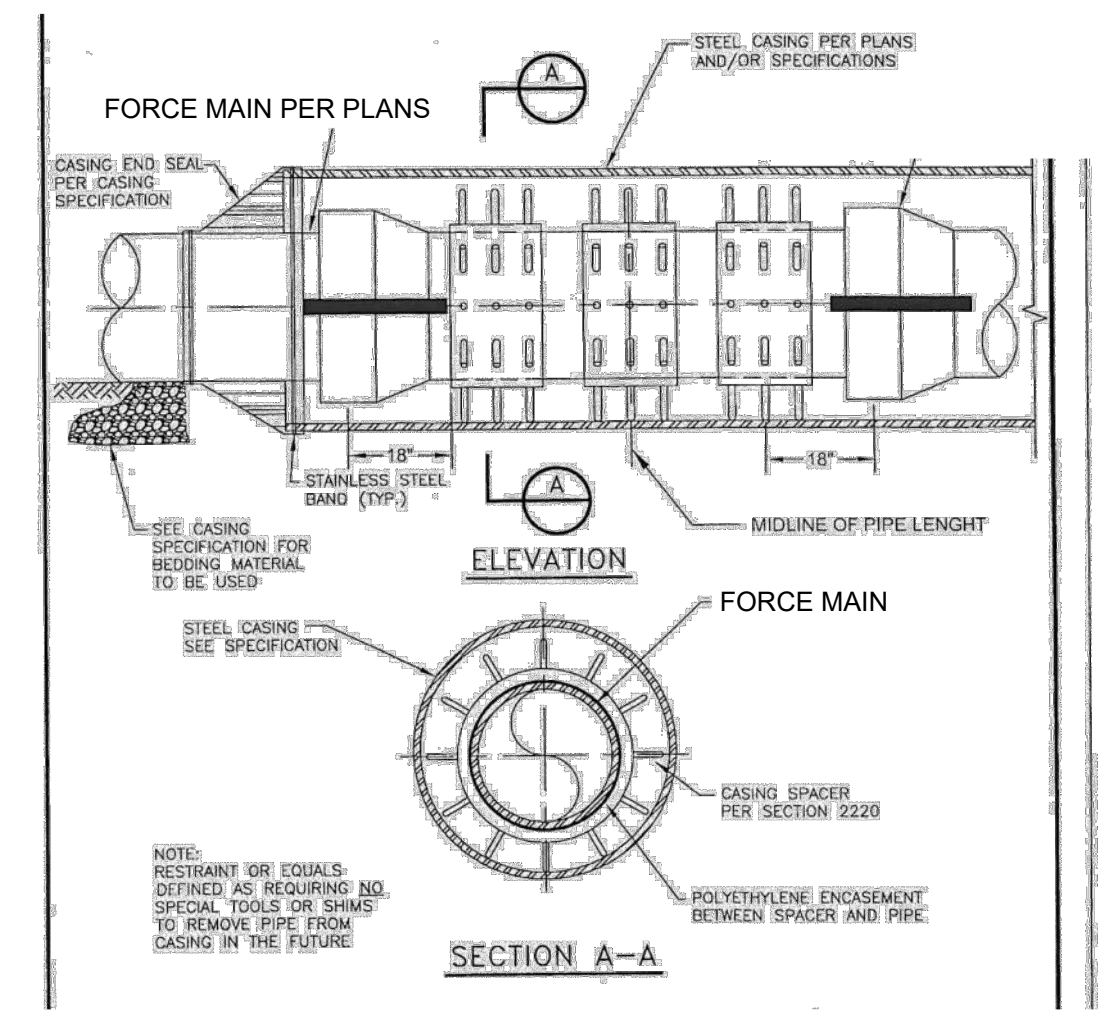


7 THRUST BLOCK BEARING AREA (IN SQ. FT.)
NOT TO SCALE

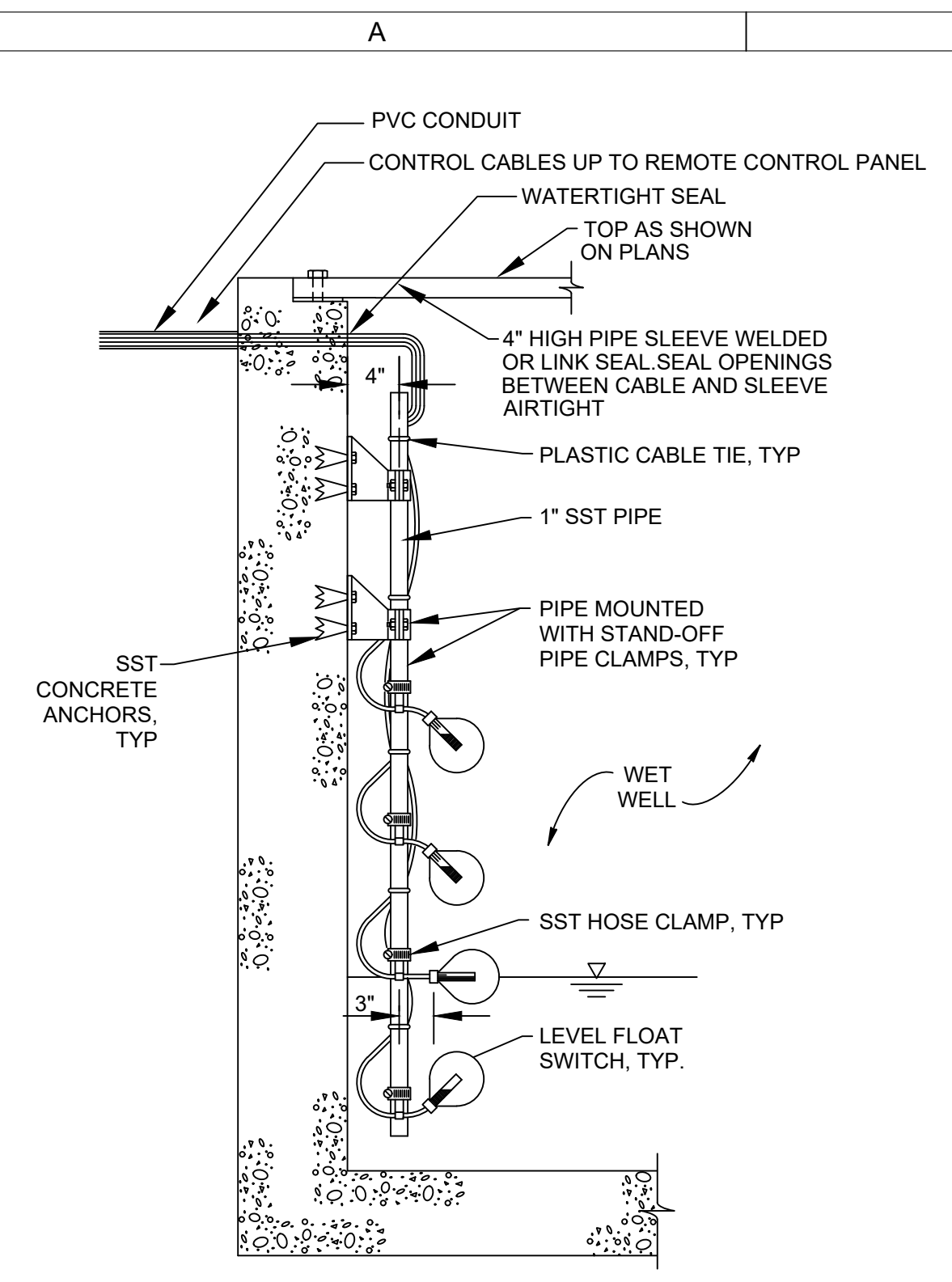
THRUST BLOCK DETAIL
 THRUST BLOCKS ARE REQUIRED AT PIPING DIRECTION CHANGES, AT DEAD ENDS, AND AT FIRE HYDRANTS. THRUST BLOCKS SHALL BE POURED-IN-PLACE CONCRETE 2,000 P.S.I. MINIMUM STRENGTH, A MINIMUM OF 18 INCHES THICK, AND SHALL BE CAST AGAINST A SOLID, UNDISTURBED EDGE OF TRENCH FOR BEARING. NO BOLTS, JOINTS OR DRAIN HOLES SHALL COME INTO CONTACT WITH THE CONCRETE THRUST BLOCK AND THE PIPE SHALL BE WRAPPED WITH A PLASTIC SHEET AT THE CONCRETE BEARING SURFACES. THE MINIMUM THICKNESS OF ANY THRUST BLOCK SHALL BE 18 INCHES.

SIZE INCHES	TEE OR DEAD END	90° BEND	45° BEND	22.5° BEND	11.25° BEND
4"	1.4	1.9	1.0	1.0	1.0
6"	2.8	4.0	2.1	1.1	1.0
8"	4.8	6.8	3.7	1.9	1.0
10"	7.3	10.3	5.6	2.8	1.4
12"	10.3	14.5	7.9	4.0	2.0

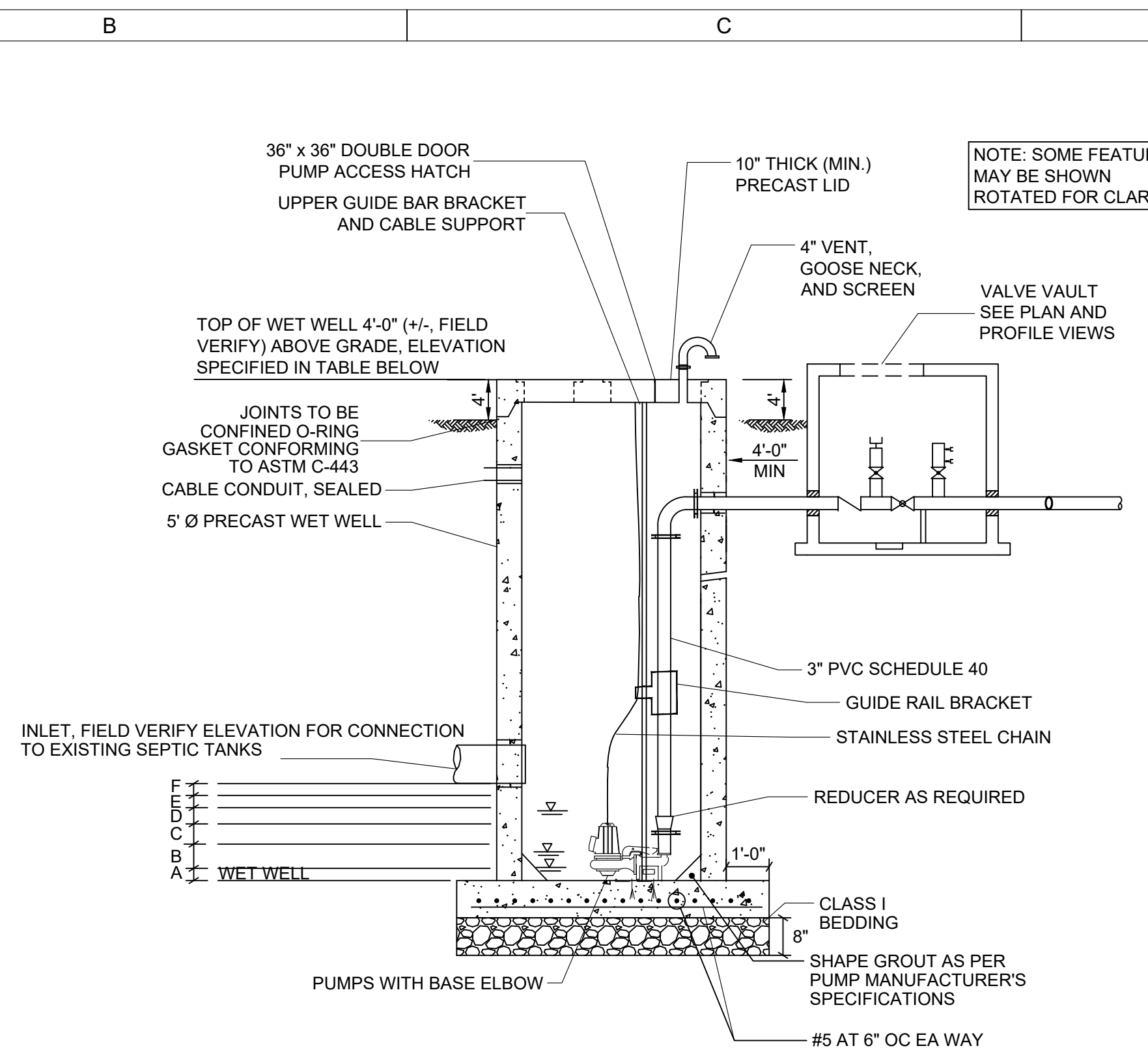
THE ABOVE AREAS ARE BASED UPON A SOIL BEARING CAPACITY OF 2000 PSF OF UNDISTURBED SOIL. IF ACTUAL SOIL BEARING STRENGTH IS LESS THAN 2000 PSF, THE THRUST BEARING AREA SHALL BE INCREASED BASED ON THE ACTUAL SOIL BEARING STRENGTH.



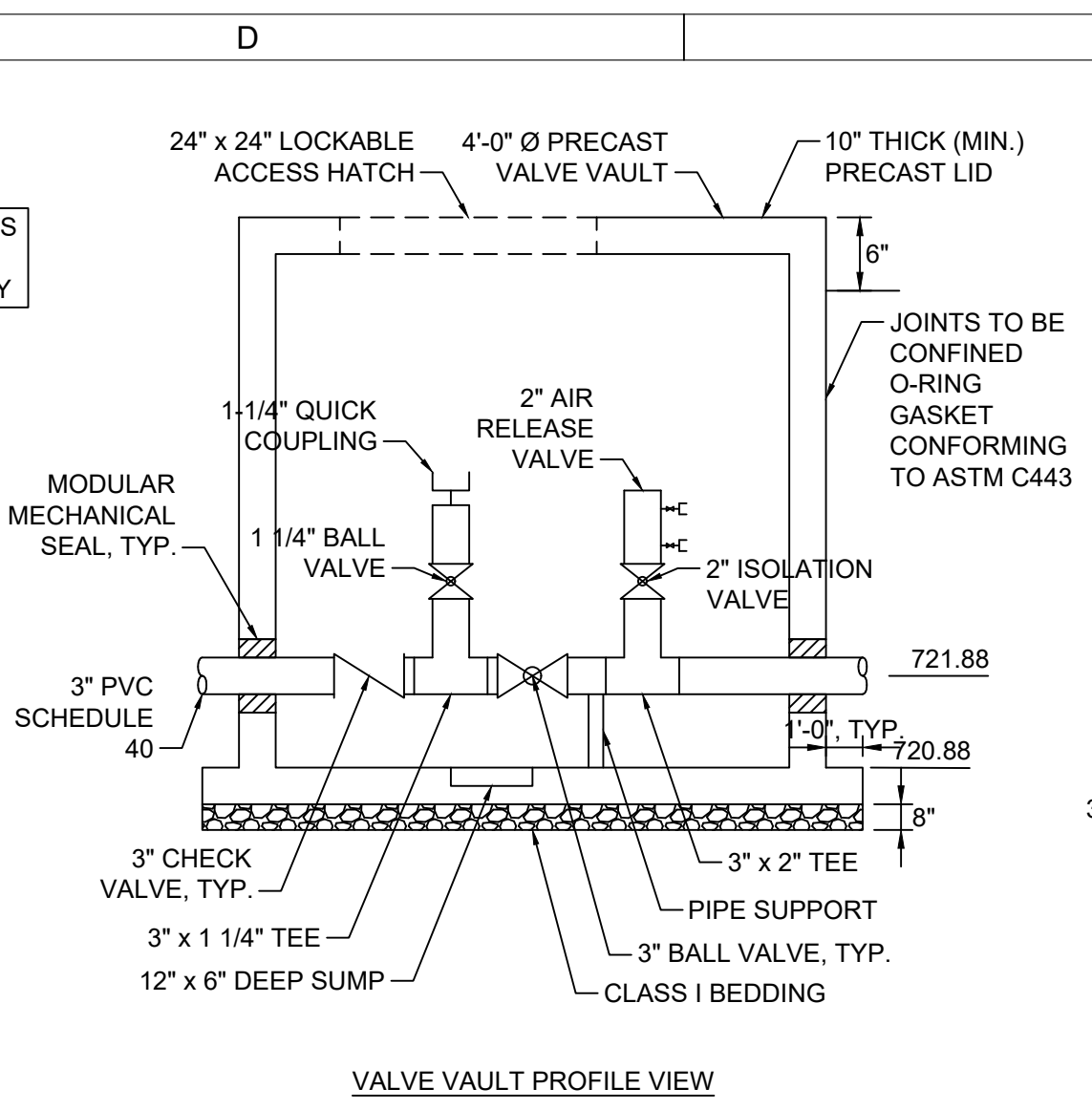
8 Highway and Railroad Crossing Casing Detail
NOT TO SCALE



1 PROPOSED FLOAT SWITCH DETAIL
NOT TO SCALE



2 LIFT STATION & VALVE VAULT
NOT TO SCALE



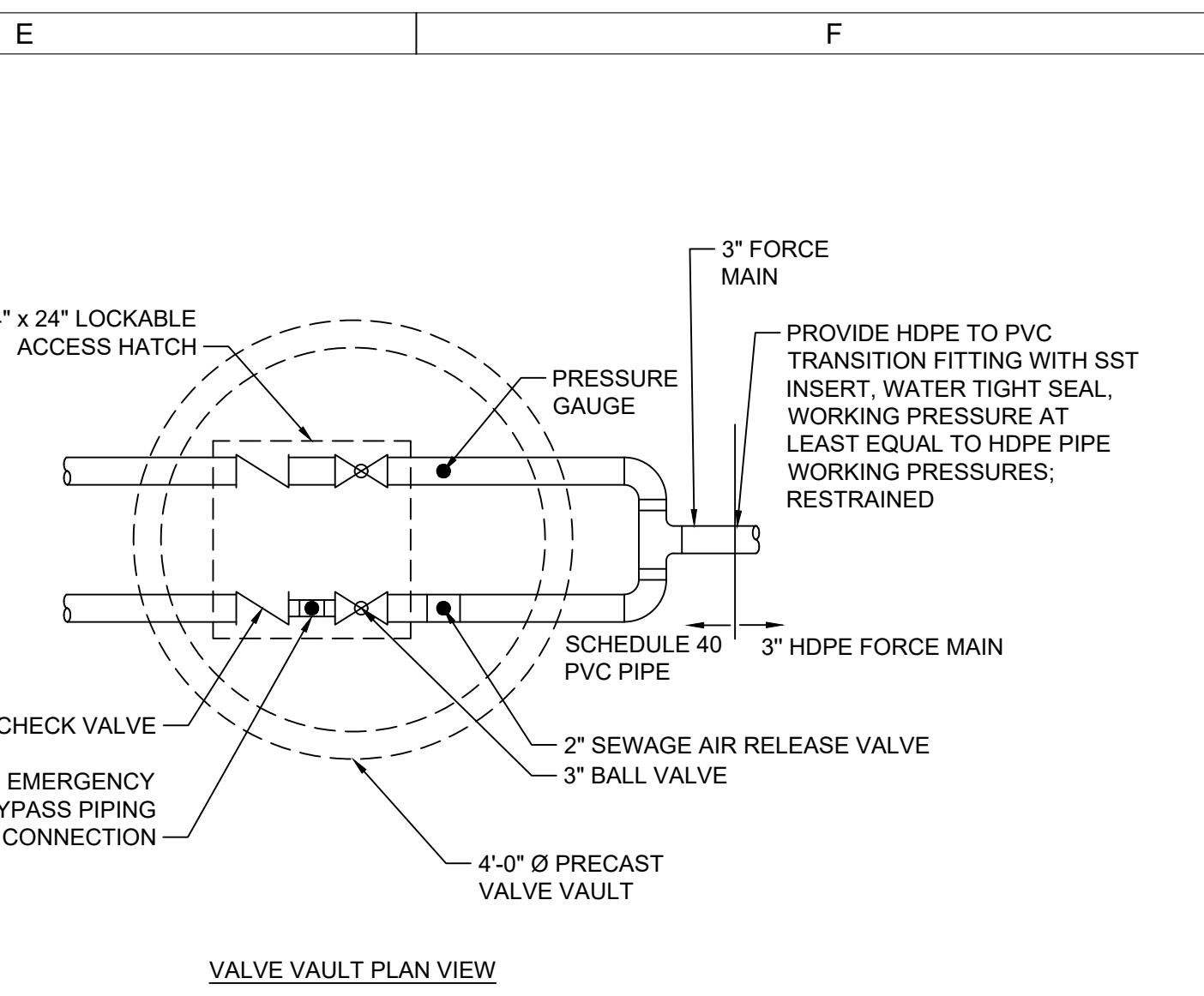
DUMP STATION FLOAT SWITCHES

DIMENSION	TYPE	CONTROL	ELEVATION
-	-	-	547.00
A	2.00 FT WET WELL INVERT	ALL PUMPS OFF LOW LEVEL ALARM	549.00
B	0.50 FT SUBMERSIBLE	ALL PUMPS OFF	549.50
C	0.50 FT PRESSURE	LEAD PUMP ON	550.00
D	0.50 FT TRANSDUCER	LAG PUMP ON	550.50
E	0.50 FT FLOAT SWITCH	ALL PUMPS ON HIGH LEVEL ALARM	551.00
F	0.25 FT FREEBOARD / INLET INVERT	-	551.25
-	-	-	561.50

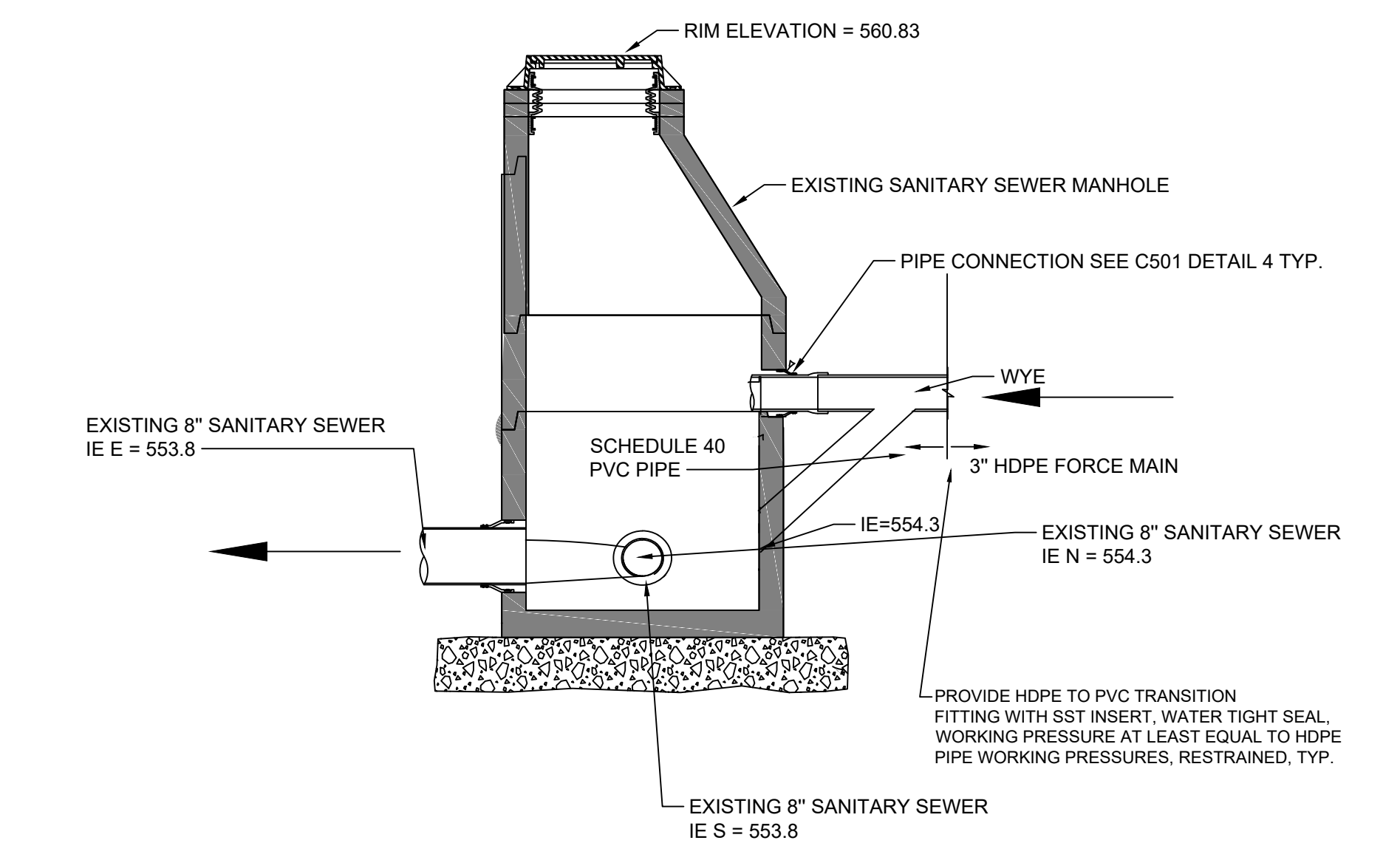
CENTRAL SERVICE STATION FLOAT SWITCHES

DIMENSION	TYPE	CONTROL	ELEVATION
-	-	-	547.00
A	2.00 FT WET WELL INVERT	ALL PUMPS OFF LOW LEVEL ALARM	549.00
B	0.50 FT SUBMERSIBLE	ALL PUMPS OFF	549.50
C	0.50 FT PRESSURE	LEAD PUMP ON	550.00
D	0.67 FT TRANSDUCER	LAG PUMP ON	550.67
E	0.50 FT FLOAT SWITCH	ALL PUMPS ON HIGH LEVEL ALARM	551.17
F	0.67 FT FREEBOARD / INLET INVERT	-	551.84
-	-	-	561.50

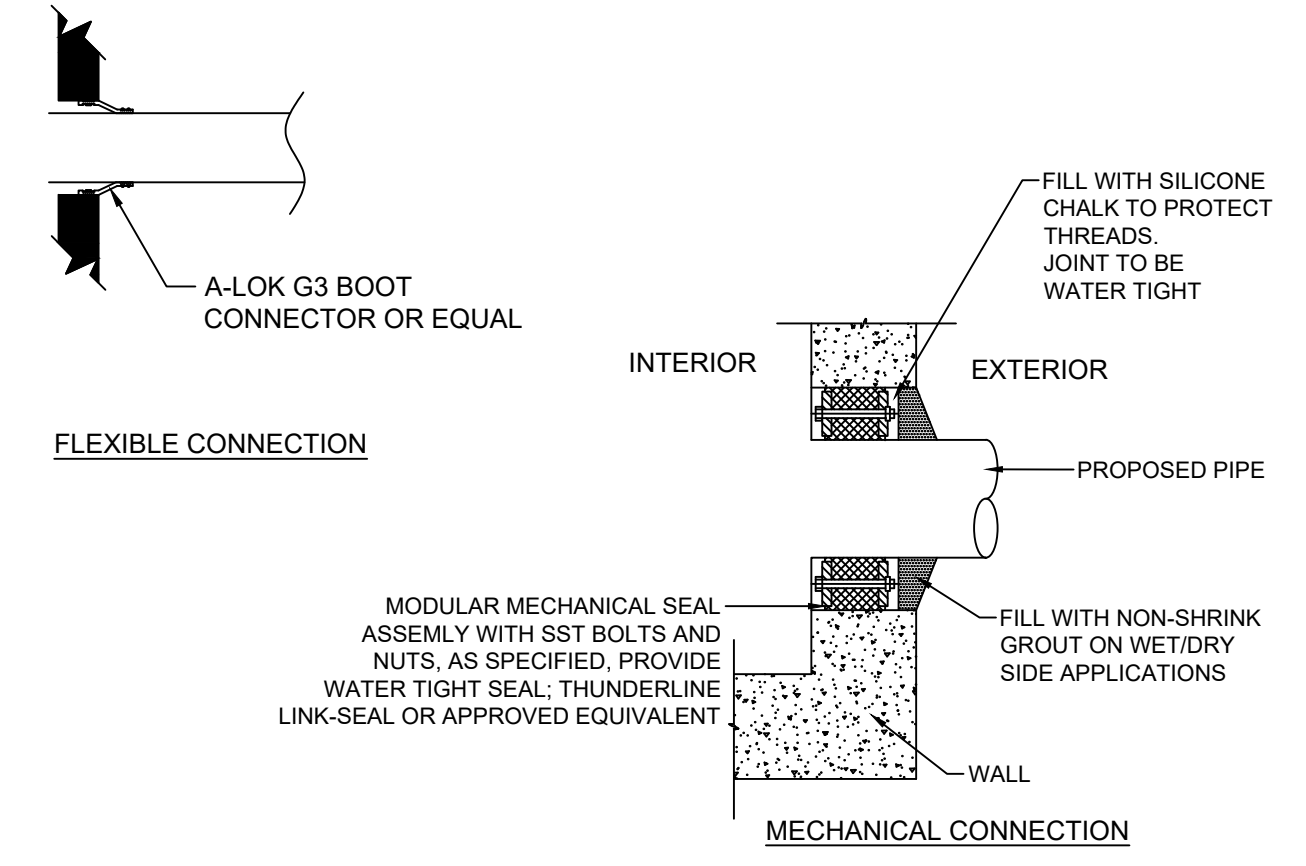
* FIELD VERIFY INLET INVERT ELEVATION, WET WELL INVERT, AND ASSOCIATED CONTROL ELEVATIONS BASED ON THE CONNECTION TO THE EXISTING SEPTIC TANK OUTLET ELEVATIONS.



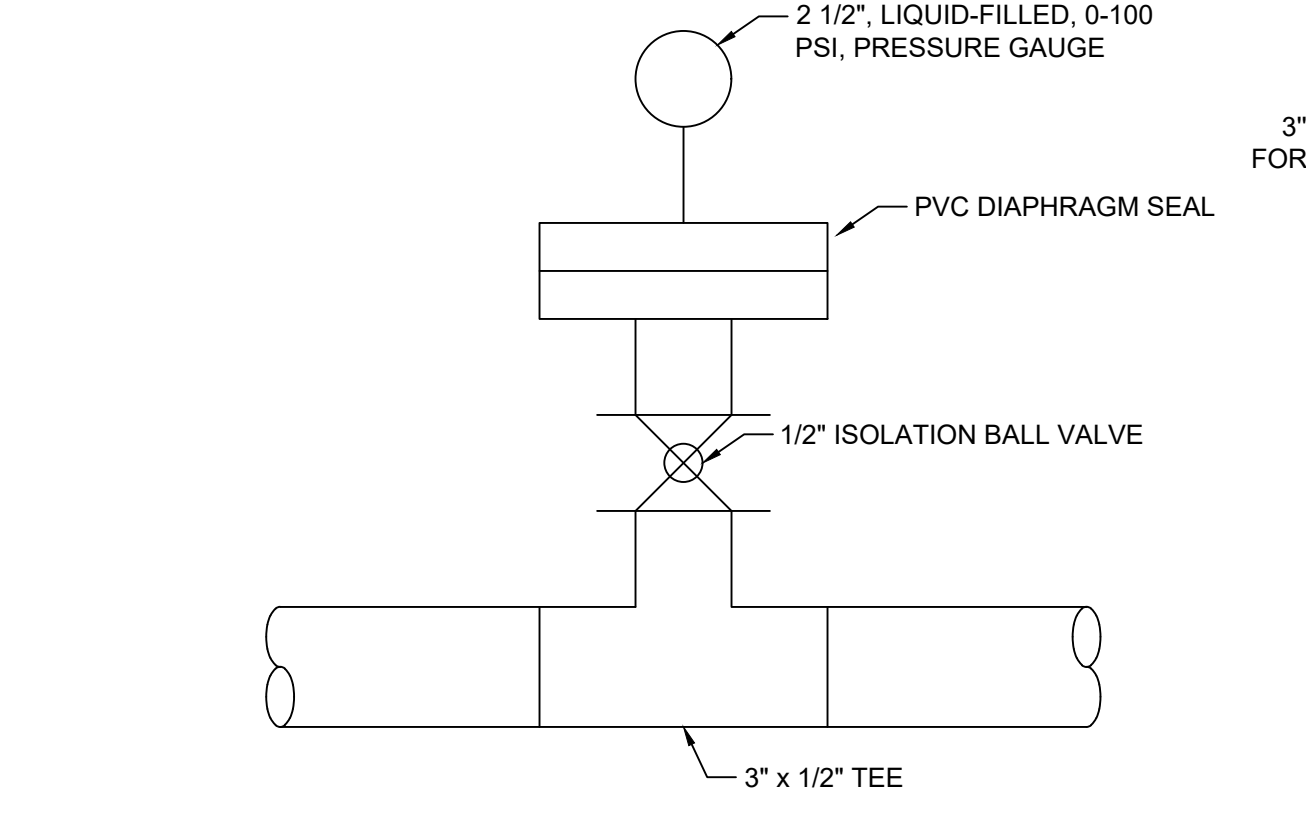
VALVE VAULT PLAN VIEW



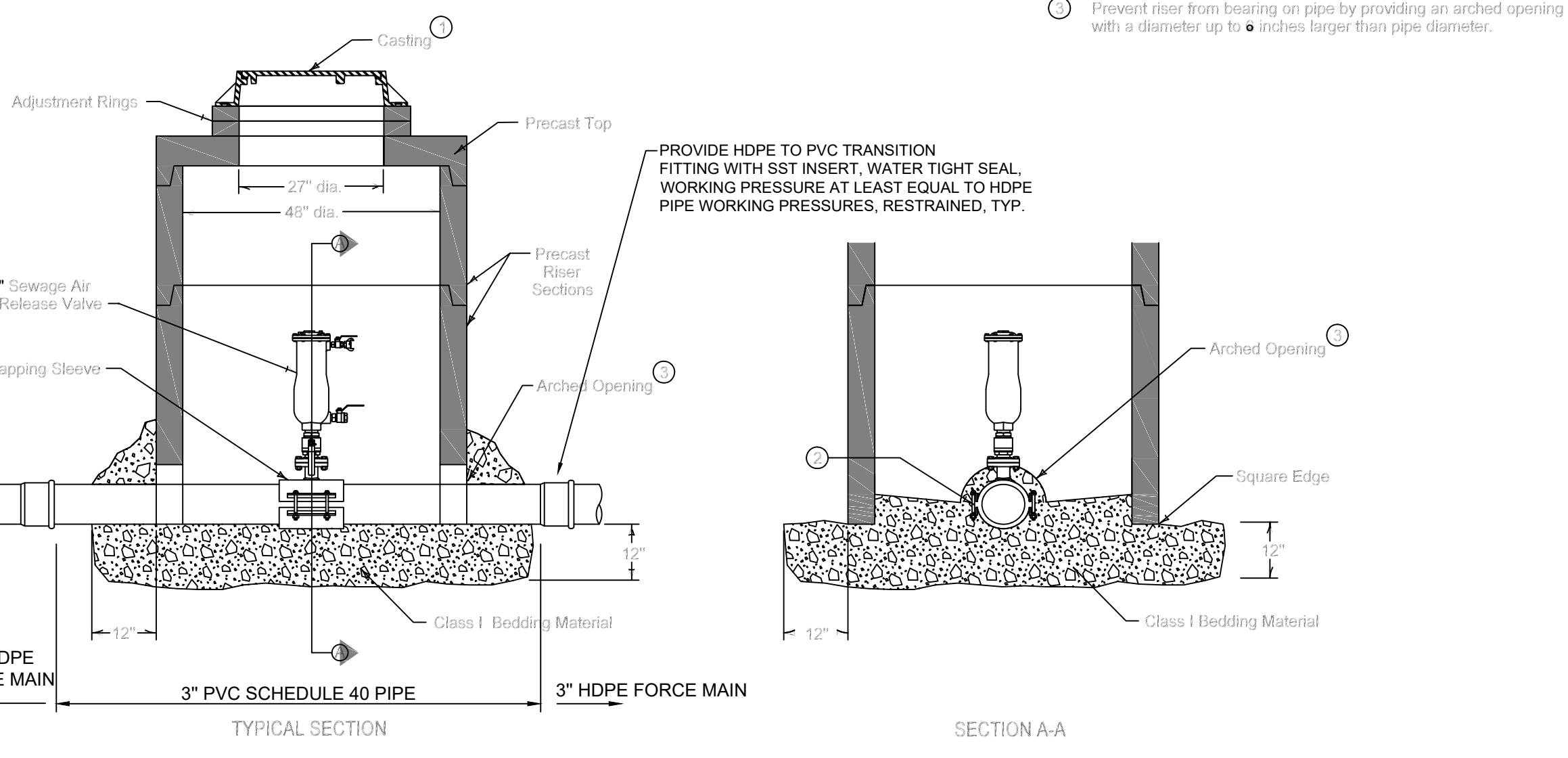
3 CONNECTION TO EXISTING SANITARY SEWER MANHOLE
NOT TO SCALE



4 PIPE CONNECTIONS
NOT TO SCALE



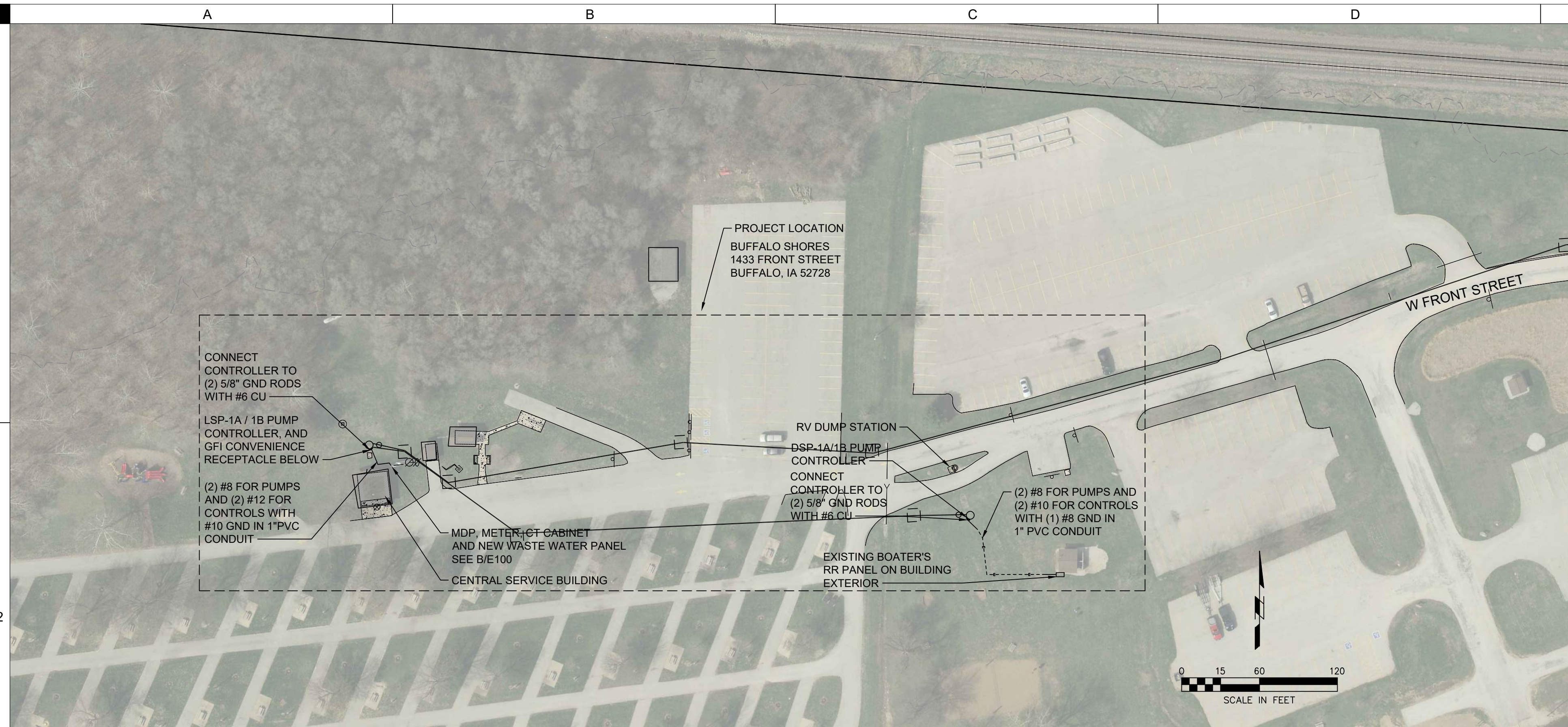
5 PRESSURE GAUGE DETAIL
NOT TO SCALE



KEY NOTES:
1. EAST JORDAN 1045Z MANHOLE FRAME WITH VENTED LID
2. PLACE BEDDING MATERIAL TO SPRINGLINE OF PIPE
3. PREVENT RISER FROM BEARING ON PIPE BY PROVIDING AN ARCHED OPENING WITH A DIAMETER UP TO 6" LARGER THAN PIPE DIAMETER

6 SEWAGE AIR RELEASE VALVE PIT
NOT TO SCALE

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PANELBOARD SCHEDULE - EXISTING									
LOCATION: UTILITY RACK									
120/240 VOLTS 1 PHASE 3 WIRE 800 AMPERES									
MAIN DISCONNECT: 800A MCB TYPE: NEMA 3R I-LINE MOUNTING: RACK AIC: 42KA									
REMARKS:									
LOAD: PHASE A	kVA	PHASE B	kVA	PHASE C	kVA	TOTAL	kVA		
LOAD DESCRIPTION	CKT NO.	O.C.P. DEVICE	kVA LOAD	PH.	kVA LOAD	O.C.P. DEVICE	CKT NO.	LOAD DESCRIPTION	
* WASTE WATER PANEL	1	100A/2	-	A	-	---	2	SPACE	
---	3	---	-	B	-	---	4	SPACE	
CAMPER'S RESTROOM	5	100A/2	-	A	60A/2	---	6	BOATER'S RESTROOM	
---	7	---	-	B	-	---	8	---	
FIRST ROW WEST	9	200A/2	-	A	200A/2	---	10	FIRST ROW EAST	
---	11	---	-	B	-	---	12	---	
SECOND ROW WEST	13	200A/2	-	A	200A/2	---	14	SECOND ROW EAST	
---	15	---	-	B	-	---	16	---	
THIRD ROW WEST	17	200A/2	-	A	200A/2	---	18	THIRD ROW EAST	
---	19	---	-	B	-	---	20	---	
FOURTH ROW (RIVER) WEST	21	200A/2	-	A	200A/2	---	22	FOURTH ROW (RIVER) EAST	
---	23	---	-	B	-	---	24	---	

PANELBOARD SCHEDULE - NEW									
LOCATION: UTILITY RACK									
120/240 VOLTS 1 PHASE 3 WIRE 100 AMPERES									
MAIN DISCONNECT: MLO TYPE: NEMA 3R QO MOUNTING: RACK AIC: 10KA									
REMARKS: FEED WITH (3) #3 AND #8 GND IN 1-1/4" RMC									
LOAD: PHASE A	kVA	PHASE B	kVA	PHASE C	kVA	TOTAL	kVA		
LOAD DESCRIPTION	CKT NO.	O.C.P. DEVICE	kVA LOAD	PH.	kVA LOAD	O.C.P. DEVICE	CKT NO.	LOAD DESCRIPTION	
LSP-1A / 1B LIFT PUMP	1	50A/2	-	A	-	20A/1	2	LSP-1A / 1B RECEPTACLE	
---	3	---	-	B	-	20A/1	4	RECP T BELOW	
LSP-ALARM / CONTROLLER	5	20A/1	-	C	-	20A/1	6	SPARE	
SPARE	7	20A/1	-	A	-	20A/1	8	SPARE	
SPARE	9	20A/1	-	B	-	20A/1	10	SPARE	
SPARE	11	20A/1	-	C	-	20A/1	12	SPARE	
SPARE	13	20A/1	-	A	-	20A/1	14	SPARE	
SPARE	15	20A/1	-	B	-	20A/1	16	SPARE	
SPARE	17	20A/1	-	C	-	20A/1	18	SPARE	
SPARE	19	20A/1	-	A	-	20A/1	20	SPARE	
SPACE	21	---	-	B	-	---	22	SPACE	
SPACE	23	---	-	C	-	---	24	SPACE	

PANELBOARD SCHEDULE - EXISTING									
LOCATION: BOATER'S RESTROOM									
120/240 VOLTS 1 PHASE 3 WIRE 60 AMPERES									
MAIN DISCONNECT: MLO TYPE: NEMA 3R QO MOUNTING: SURFACE AIC: 10KA									
REMARKS:									
LOAD: PHASE A	kVA	PHASE B	kVA	PHASE C	kVA	TOTAL	kVA		
LOAD DESCRIPTION	CKT NO.	O.C.P. DEVICE	kVA LOAD	PH.	kVA LOAD	O.C.P. DEVICE	CKT NO.	LOAD DESCRIPTION	
DSP-1A / 1B LIFT PUMP **	1	30A/2	-	A	-	20A/1	5	OUTLET	
---	2	---	-	B	-	20A/1	6	* FAN (SPARE)	
DSP-ALARM / CONTROLLER (FAN) *	3	20A/1	-	A	-	20A/1	7	INSIDE LIGHTS	
OUTSIDE LIGHTS	4	20A/1	-	B	-	---	8	SPACE	

NOTES:
 * RELOCATE EXISTING FAN TO SPARE BREAKER TO ALLOW FOR INSTALLATION OF LIFT PUMP ALARM
 ** PROVIDE NEW 30A/2P QO BREAKER FOR NEW PUMPS

MOTOR AND EQUIPMENT SCHEDULE										
DESIGNATION	LOAD	VOLTS	CIRCUIT NUMBER	DISCONNECT DEVICE / FUSE SIZE AT MOTOR LOCATION	WIRE SIZE	CONDUIT SIZE	DISC BY	MS BY	CONTROLS TYPE	REMARKS
DSP-1A / 1B	2HP	240/1	BR-1.2	30A/30AF	(2) #8 WITH #8 GND	1"	MC	MFEI	HOA,F	NOTE 7
DSP-ALARM/CNTRL	0.5HP	120/1	BR-3	30A/15AF	(2) #10 WITH #10 GND	1"	MC	MFEI	-	NOTE 7
LSP-1A / 1B	(2) 3HP	240/1	WW-1.3	60A/50AF	(2) #8 WITH #10 GND	1"	MC	MFEI	HOA,F	NOTE 7
LSP-ALARM/CNTRL	0.5HP	120/1	WW-5	30A/15AF	(2) #12 WITH #12 GND	1"	MC	MFEI	-	NOTE 7

MOTOR & EQUIPMENT SCHEDULE NOTES

- LOAD: A = AMPERES; FHP = FRACTIONAL HORSEPOWER; HP = HORSEPOWER; KW = KILOWATTS; W = WATTS.
- OVERCURRENT PROTECTION: 3P-60 = 3 POLE, 60 AMPERE CIRCUIT BREAKER; 60AF = 60 AMPERE FUSE(S).
- RESPONSIBILITY: E = ELECTRICAL CONTRACTOR; EX = EXISTING; G = GENERAL CONTRACTOR; INT = INTEGRAL WITH EQUIPMENT; M = MECHANICAL CONTRACTOR/EQUIPMENT SUPPLIER; O = OWNER. FURNISH AND INSTALL: XF INDICATES FURNISHED BY X AND Y1 INDICATES INSTALLED BY Y. (EXAMPLE: MFEI = MECHANICAL CONTRACTOR TO FURNISH AND ELECTRICAL CONTRACTOR TO INSTALL). SINGLE RESPONSIBILITY INDICATES BOTH FURNISH AND INSTALL.
- CONTROLS: F = FLOAT SWITCH; MAN = MANUAL; H.O.A. = MAGNETIC STARTER WITH HANDS-OFF-AUTO.
- MINIMUM WIRE SIZE SHALL BE NO. 12 AWG AND MINIMUM RACEWAY SHALL BE 3/4". SHALL APPLY WHERE SUCH IS OMITTED ON SCHEDULE.
- ALL CONDUCTORS SHALL BE COPPER AND INCLUDE A SEPARATE, GREEN, GROUNDING CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUIT CONDUIT. AND ALL CONDUITS SHALL BE RMC ABOVE GRADE AND PVC BELOW GRADE.
- PUMPS AND CONTROLS TO BE SUPPLIED BY EQUIPMENT SUPPLIER. CONTROLLER TO HAVE SINGLE POWER SOURCE FOR DUPLEX PUMPS AND A SEPARATE CIRCUIT FOR ALARM AND GFI RECEPTACLE. SEE CO01 FOR ADDITIONAL INFORMATION. PUMP AND ALARM CIRCUITS SHALL HAVE INTEGRAL DISCONNECTS. PROVIDE LOCK OFF KITS ON BREAKERS PER NEC 422.31. PROVIDE SEALOFFS FOR ALL CONDUITS INTO THE TANK PER NEC 501.15.



A ELECTRICAL PEDESTAL VIEW (FRONT)
 NOT TO SCALE



B ELECTRICAL PEDESTAL VIEW (BACK)
 NOT TO SCALE

DATE:	08/14/2020
PROJECT NO.:	3194320
FIELD BOOK:	---
CLIENT NO.:	---

DRAWN:	JCH
APPROVED:	MLF
ISSUED FOR:	BIDDING

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