ST. JOHNS COUNTY UTILITY DEPARTMENT
ST. JOHNS COUNTY, FLORIDA

SJCUD PROJECT NO. 4483-56302-6704-56302

Constantine Engineering

100 CENTER CREEK RD. SUITE 108
ST. AUGUSTINE, FL 32084
PH. 904-562-2185

TCG PROJECT NUMBER 100408.29

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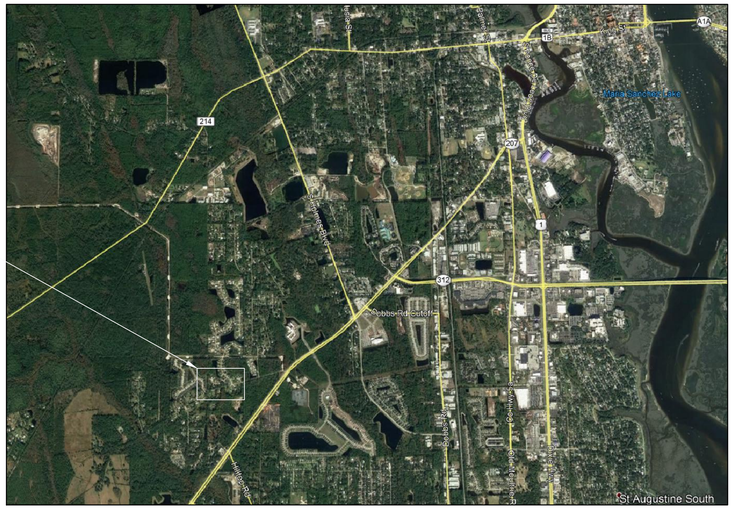
PINE LAKES PUMP STATION UPGRADE PROJECT

FEBRUARY 2020

PROJECT LOCATION



1585 Lightsey Road (LS 83)

ISSUED FOR BID

H:\PROJECT FILES\100408 ST JOHNS COUNTY UTILITIES\100408.29 PINE LAKES PS\3 DESIGN\100%\00 GENERAL\DRAWINGS\CADD\G-0.DWG\11/13/2019 2:19 PM

ST. JOHNS COUNTY UTILITY DEPARTMENT (SJCUD) GENERAL NOTES

GENERAL

1. TWO (2) COPIES OF THE SHOP DRAWINGS (STAMPED APPROVED BY THE ENGINEER) SHALL BE SUBMITTED TO SJCUD FOR REVIEW PRIOR TO SCHEDULING THE MANDATORY PRE-CONSTRUCTION CONFERENCE. THE INITIAL SHOP DRAWING REVIEW BY SJCUD WILL BE COMPLETED WITHIN FIFTEEN (30) WORKING DAYS.
2. A PRE-CONSTRUCTION CONFERENCE IS REQUIRED WITH THE ENGINEER OF RECORD, THE UTILITY CONTRACTOR AND THE SJCUD PRIOR THE START OF ANY CONSTRUCTION.
3. ALL WATER, SEWER. AND/OR REUSE CONSTRUCTION SHALL BE PERFORMED BY A CONTRACTOR LICENSED UNDER THE PROVISIONS OF CHAPTER 489, FLORIDA STATUTES. A COPY OF THE CONTRACTOR'S GENERAL LICENSE AND/OR UNDERGROUND UTILITY LICENSE SHALL BE PROVIDED AT THE PRE-CONSTRUCTION CONFERENCE.
4. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING THE SITE PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL LOCATIONS & ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. THE CONTRACTOR(S) SHALL LOCATE, VERIFY, AND IDENTIFY ALL EXISTING UTILITIES AND UNDERGROUND UTILITIES SHOWN OR NOT SHOWN ON THE PLANS PRIOR TO ANY EXCAVATING ACTIVITIES AND TAKE ALL MEASURES NECESSARY TO PROTECT UTILITIES DURING CONSTRUCTION. SHOULD ANY UTILITY LINE OR COMPONENT BECOME DAMAGED OR REQUIRE RELOCATION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE AFFECTED UTILITY COMPANY, ENGINEER OF RECORD, COUNTY, AND SJCUD.
7. THE WATER, SEWER, AND/OR REUSE SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SJCUD APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS. IF THERE IS ANY DEVIATION FROM THE APPROVED CONSTRUCTION DRAWINGS OR SPECIFICATIONS, WITHOUT PRIOR AUTHORIZATION AND CONSENT FROM THE SJCUD, THE CONTRACTOR SHALL REMOVE THE DEVIATION AND RESTORE IT TO THE APPROVED CONSTRUCTION DRAWING CONFIGURATION AT NO EXPENSE TO THE SJCUD. ANY DEVIATIONS FROM THE APPROVED DOCUMENTS WILL DELAY THE COC SUBMITTAL PROCESS.
8. THE CONTRACTOR SHALL FIELD VERIFY THE CONNECTION POINTS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER OF RECORD AND SJCUD IMMEDIATELY.
9. SHOULD CONDITIONS VARY FROM THOSE SHOWN ON THESE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SJCUD PRIOR TO CONTINUING CONSTRUCTION.
10. THE CONTRACTOR SHALL PROTECT SURVEY MARKERS, MONUMENTS, ETC. DURING CONSTRUCTION. THE CONTRACTOR SHALL RESTORE/REPLACE, AT NO ADDITIONAL EXPENSE TO THE OWNER, ANY DAMAGE DONE BY CONSTRUCTION ACTIVITIES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES CAUSED BY HIS OPERATIONS. ANY DAMAGE SHALL BE REPLACED/REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ANY UNSUITABLE MATERIAL FROM HIS OPERATION. FURNISHING AND COMPACTING SUITABLE REPLACEMENT BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
13. UNSUITABLE MATERIALS UNDER WATER, SEWER, AND/OR REUSE MAINS SHALL BE REMOVED AND REPLACED WITH SELECTED BACKFILL PROPERLY COMPACTED TO 95% OF MAXIMUM DENSITY. BACKFILL SHALL BE COMPACTED IN A MAXIMUM OF ONE FOOT (1) LIFTS. DENSITY TESTS SHALL BE TAKEN AFTER COMPACTION OF EVERY LIFT.
14. THE CONTRACTOR(S) SHALL NOTIFY ALL APPLICABLE UTILITY COMPANIES, THE ENGINEER OF RECORD AND THE PROPERTY OWNER 72 HOURS PRIOR TO INITIATING ANY EXCAVATION ACTIVITIES, OR AS SPECIFIED BY THE UTILITY COMPANIES AND THE PERMITS OBTAINED FOR THE WORK.
15. THE ENGINEER OF RECORD AND SJCUD SHALL BE GIVEN SEVENTY TWO HOURS (72-HR) NOTICE OF ALL REQUESTED MEETINGS AND/OR TESTING MEASURES.
16. ALL WORK, MATERIALS, AND EQUIPMENT SHALL BE IN COMPLETE ACCORDANCE WITH ALL RELEVANT ST. JOHNS COUNTY STANDARDS AND REQUIREMENTS AS WELL AS STATE AND LOCAL REGULATIONS.
17. ALL UNDERGROUND UTILITY EQUIPMENT, MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE MANUAL OF WATER, WASTEWATER. AND REUSE DESIGN STANDARDS & SPECIFICATIONS, ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, AND THE APPROVED SITE PLANS.
18. ALL ROCK AND UNSUITABLY SIZED STONES (AS DESCRIBED IN APPLICABLE AWWA AND ST. JOHNS COUNTY UTILITIES STANDARDS AND/OR PIPE MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES FOUND IN TRENCHES FOR NEW AND RELOCATED PIPE SHALL BE REMOVED TO A DEPTH OF AT LEAST SIX (6) INCHES BELOW THE BOTTOM OF THE PIPE. CONTINUOUS AND UNIFORM BEDDING SHALL BE PROVIDED FOR NEW AND RELOCATED PIPES. THE BACKFILL MATERIAL SHALL BE TAMPED IN LAYERS AROUND THE NEW AND RELOCATED PIPES AND TO A SUFFICIENT HEIGHT ABOVE SUCH PIPE TO ADEQUATELY SUPPORT AND PROTECT THE PIPE.
19. FOR WATER, WASTEWATER, AND REUSE MAINS SMALLER THAN 12 INCHES, THE MINIMUM COVER SHALL BE 36 INCHES.
20. FITTINGS SHALL BE USED AT LOCATIONS INDICATED ON THE PLANS, UNLESS OTHERWISE APPROVED BY THE ENGINEER. ALL FITTINGS SHALL BE RESTRAINED.
21. ALL UNDERGROUND VALVES SHALL BE INSTALLED WITH AN ADJUSTABLE CAST IRON VALVE BOX WITH THE TOP SET TO FINAL GRADE IN ACCORDANCE TO SJCUD DETAILS AND SPECIFICATIONS. ALL VALVES SHALL HAVE PEG LOCATORS (145.7 KILOHERTZ).
22. CONTRACTOR IS RESPONSIBLE FOR PROPER NOTIFICATION OF INSPECTING AUTHORITIES BEFORE AND DURING CONSTRUCTION.
23. CONTRACTOR SHALL PROVIDE A MINIMUM OF SEVEN (7) CALENDAR DAYS NOTICE TO SJCUD PRIOR TO SCHEDULING THE FINAL INSPECTION.
24. TIE-IN WORK OR SHUTDOWNS SHALL NOT OCCUR ON FRIDAYS.
25. A MAXIMUM OF 4 HOURS IS ALLOWED FOR PUMP STATION SHUTDOWN. THE CONTRACTOR SHALL COORDINATE SHUTDOWNS WITH SJCUD AND PROVIDE A MINIMUM OF 48 HOURS NOTICE.

POTABLE WATER SYSTEMS NOTES:

1. ALL WATER LINES 2" DIAMETER OR LESS SHALL BE PEX, CTS, SDR 9, COLOR "BLUE".
2. ALL CURB STOPS ARE TO BE FORD BALL-TYPE OR EQUAL WITH LOCKING CAPACITY. 1" MINIMUM.
3. THE SEPARATION REQUIREMENT BETWEEN POTABLE WATER MAINS AND OTHER UTILITIES SHALL BE PER CH. 62-555, FAC.
4. WHERE SOLVENT CONTAMINATION IS FOUND IN THE TRENCH, WORK WILL BE STOPPED AND THE PROPER AUTHORITIES NOTIFIED. WITH THE APPROVAL OF THE ST. JOHNS COUNTY HEALTH DEPARTMENT, DUCTILE IRON PIPE, FITTINGS AND APPROVED SOLVENT RESISTANT GASKET MATERIAL SHALL BE USED IN THE CONTAMINATED AREA. THE DUCTILE IRON PIPE WILL EXTEND AT LEAST 100 FEET BEYOND ANY DISCOVERED CONTAMINATION.
5. NO CONNECTION TO EXISTING POTABLE WATER SYSTEM SHALL BE ALLOWED UNTIL ALL PROPOSED WATER LINES HAVE BEEN PRESSURE TESTED, DISINFECTED, CLEARED FOR SERVICE AND ACCEPTED FOR MAINTENANCE BY THE SJCUD AND FDEP.
6. JUMPER CONNECTIONS WITH BACKFLOW PREVENTION DEVICE SHALL BE USED TO FILL OR FLUSH WATER MAINS
7. ALL NEW AND RELOCATED WATER MAIN PIPE, FITTINGS, VALVES, AND FIRE HYDRANTS SHALL BE IN CONFORMANCE WITH APPLICABLE AMERICAN WATER WORKS ASSOCIATION (AWWA) AND SJCUD STANDARDS.
8. ALL NEW AND RELOCATED WATER MAIN PIPE AND FITTINGS WILL COMPLY WITH THE LATEST FDEP AND AWWA STANDARDS FOR LEAD CONTENT.
9. ALL NEW AND RELOCATED WATER MAINS SHALL BE PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA STANDARD C605, LATEST EDITION.
10. ALL NEW AND RELOCATED WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C651 AND RULE 62-555.340, FAC.
11. ALL NEW AND RELOCATED WATER SERVICES SHALL BE IN CONFORMANCE WITH THE STATE PLUMBING CODE AND SJCUD STANDARDS.
12. THE BACTERIOLOGICAL SAMPLE POINTS SHALL BE INDICATED ON THE AS BUILT DRAWINGS, THE SAMPLE POINT NUMBERING AND STATIONING SHALL CORRESPOND TO THOSE ON THE BACTERIOLOGICAL SAMPLE CHAIN OF CUSTODY FORMS.

WASTEWATER SYSTEM NOTES:

1. INTERIOR LINERS SHALL BE SPECTRASHIELD OR EQUAL AS APPROVED BY SJCUD.
2. SANITARY SEWER FORCE MAIN 4" AND LARGER SHALL BE C900 DR25 PVC PIPE CONFORMING TO ASTM D-1784, D-1785, AND D-2241. DUCTILE IRON PIPE SHALL ONLY BE USED WITH PRIOR APPROVAL BY THE SJCUD. SANITARY FORCE MAIN SHALL BE COLOR CODED GREEN AND CLEARLY MARKED.

AS-BUILTS:

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRODUCE, SUBMIT AND OBTAIN APPROVAL OF REPRODUCIBLE "AS-BUILT" DRAWINGS FROM JURISDICTIONAL AGENCIES AS MAY BE REQUIRED.
2. "AS-BUILT" INFORMATION SHALL BE THE RESPONSIBILITY OR THE CONTRACTOR. CONTRACTOR SHALL EMPLOY THE SERVICES OF A SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO DETERMINE ALL "AS-BUILT" INFORMATION. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL PROVIDE UP TO SIX COPIES AND THE CAD FILE OF AS-BUILT DRAWINGS TO THE ENGINEER.
3. A MINIMUM OF FIVE WORKING DAYS PRIOR TO THE FINAL INSPECTION, TWO (2) SETS OF PRELIMINARY BLACKLINE "AS-BUILTS" AND COPY ON DISK IN AUTOCAO FORMAT SHOWING THE REQUIRED INFORMATION, SHALL BE SUBMITTED TO THE ENGINEER OF RECORD.
4. THE RECORD OR "AS BUILT" DRAWINGS TO BE PREPARED BY THE CONTRACTOR AND SUBMITTED AT THE TIME OF THE REQUEST FOR FINAL COMPLETION TO PLACE THE CONSTRUCTION INTO SERVICE WILL CLEARLY DEPICT THE VERTICAL CLEARANCES BETWEEN WATER, SEWER (INCLUDING STORM) AND REUSE LINES AT ALL CROSSING AND PARALLEL RUNS WHERE THE HORIZONTAL SEPARATION IS LESS THAN 10 FEET. IN ADDITION, THE CENTERING OF UNCUT LENGTHS OF PIPE (USUALLY 20 FEET) AT POINTS OF CROSSINGS WILL BE DOCUMENTED ON THE DRAWINGS AND ALL MITIGATING CONSTRUCTION MEASURES CLEARLY DEPICTED IN CASES WHERE A MINIMUM OF 18 INCHES OF VERTICAL CLEARANCE BETWEEN THE WATER AND SEWER (INCLUDING STORM) LINES IS NOT POSSIBLE.
5. AFTER SJCUD HAS APPROVED PRELIMINARY "AS BUILT", THREE (3) SETS OF BLACKLINE AS-BUILTS (SIGNED AND SEALED), ONE SET OF MYLARS AS BUILT (SIGNED), AND COPY ON DISK IN AUTOCAD FORMAT SHOWING THE REQUIRED INFORMATION, SHALL BE SUBMITTED TO SJCUD.

HYDROSTATIC TESTING NOTES:

1. AFTER ALL PRESSURE PIPES ARE INSTALLED, THE JOINTS COMPLETED, AND THE TRENCH BACKFILLED, THE NEWLY LAID PIPE AND APPURTENANCES SHALL BE SUBJECTED TO A HYDROSTATIC TEST FOR A PERIOD OF AT LEAST TWO (2) HOURS. THE ENGINEER AND THE SJCUD MUST BE NOTIFIED AT LEAST 72 HOURS BEFORE A TEST IS TO BE PERFORMED. TEST SHALL BE AS SET FORTH IN AWWA STANDARD C605. ANY LEAKS DETECTED SHALL BE CORRECTED AND THE SECTION OF PIPELINE RETESTED. THE TWO HOUR TEST PERIOD SHALL BEGIN WHEN ALL JOINTS HAVE BEEN DETERMINED TO BE WATER TIGHT. LEAKAGE SHALL BE LIMITED TO THAT ALLOWANCE SET FORTH IN SECTION 4 OF AWWA STANDARD C600 LATEST EDITION. HYDROSTATIC AND LEAKAGE TEST AND BLOW-DOWN (ZEROING OF GAGE) MUST OCCUR BEFORE SAMPLING FOR BACTERIOLOGICAL TEST. THE MAXIMUM ALLOWABLE PRESSURE LOSS IS 5 PSI.

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DESIGNER:	DAR
DRAWN BY:	RRP
CHECKED BY:	DRS
APPROVED BY:	DAR
DATE:	FEBRUARY 2020

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PINE LAKES PUMP STATION UPGRADE PROJECT

GENERAL NOTES

PROJECT NO.	100408.29
FILE NAME	G-1
SHEET NO.	G-1

ISSUED FOR BID

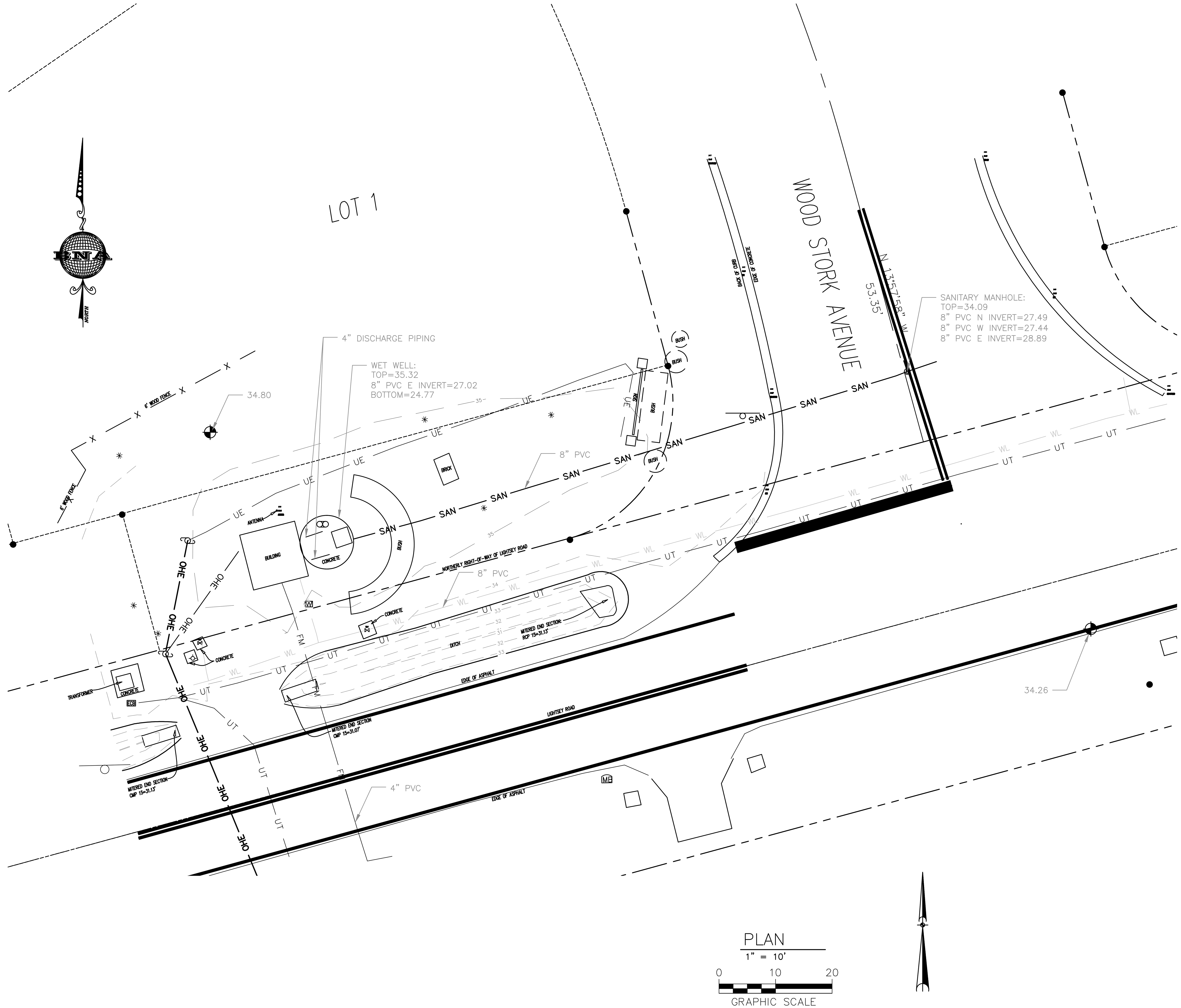

TABLE OF ABBREVIATIONS

- SET 1/2" IRON PIPE, LB 6824
- BENCHMARK
- FOUND 1/2" IRON PIPE AS NOTED
- FOUND 4"x4" CONCRETE MONUMENT, NO I.D.
- MAG NAIL
- P(GS) – PAGE, PAGES
- I.D. – IDENTIFICAITON
- R/W – RIGHT OF WAY
- C.B. – CHORD BEARING AND DISTANCE
- R – RADIUS
- D – DELTA ANGLE
- L – ARC LENGTH
- PC – POINT OF CURVE
- UTILITY POLE
- UTILITY POLE
- GUY ANCHOR
- OHE – OVERHEAD ELECTRIC
- SIGN
- ECB – ELECTRIC CONTROL CABINET
- FIRE HYDRANT
- VENT
- WV – WATER VALVE
- SANITARY MANHOLE
- TREE
- UE – UNDERGROUND ELECTRIC
- WL – WATER LINE
- UT – TELEPHONE LINE
- FM – FORCE MAIN
- FOC – FIBER OPTIC CABLE

BRADSHAW-NILES & ASSOCIATES, INC.
SURVEYING AND MAPPING CONSULTANTS
LICENSED BUSINESS NO. 6824
280 BUSINESS PARK CIRCLE, SUITE 410
ST. AUGUSTINE, FLORIDA 32095
(904) 829-2591 FAX: (904) 829-5070

CERTIFIED TO:

THIS SURVEY IS CERTIFIED FOR THE EXCLUSIVE USE OF THE CLIENT NAMED HEREON AND IS NOT VALID WITHOUT THE SIGNATURE AND RAISED SEAL OF THE PROFESSIONAL SURVEYOR AND MAPPER OF FLORIDA SHOWN HEREON.

DRAWN BY: A.D.B. & T.C.H.
CHECKED BY: A.D.B.
FIELD BOOK/PAGE(S): 395/41-43B, 395/72,74,77

REV	DATE	BY	CKD	DESCRIPTION

GENERAL NOTES:

1. ALL COORDINATES AND BEARINGS SHOWN HEREIN ARE REFERENCED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983-1990 ADJUSTMENT (N.A.D. 83/90) FOR THE EAST ZONE OF THE STATE OF FLORIDA, TRANSVERSE MERCATOR PROJECTION AND BASED ON NATIONAL GEODETIC SURVEY CONTROL POINTS AS FOLLOWS:

"JACKSONVILLE CORS ARP"
N 30°29'02.515"
W 081°42'05.330"
SCALE FACTOR CONVERGENCE=0.99999711
(THIS IS A GPS CONTINUOUSLY OPERATING REFERENCE STATION)

"GAINESVILLE CORS ARP"
N 29°41'11.557"
W 082°16'36.736"
SCALE FACTOR CONVERGENCE=0.99996288
(THIS IS A GPS CONTINUOUSLY OPERATING REFERENCE STATION)

BEARINGS BASED ON THE NORTHERLY LINE OF SECTION 35, AS BEING SOUTH 89°47'44" EAST.

2. THIS SURVEY WAS CONDUCTED FOR THE PURPOSE OF A BOUNDARY SURVEY ONLY AND IS NOT INTENDED TO DELINEATE THE REGULATORY JURISDICTION OF ANY FEDERAL, STATE, REGIONAL OR LOCAL AGENCY, BOARD, COMMISSION OR OTHER ENTITY.
3. NOT ABSTRACTED FOR EASEMENTS. NO ABSTRACT OF TITLE FURNISHED.
4. ALL ELEVATIONS ARE IN N.A.V.D. 88 AND ARE BASED IN U.S. SURVEY FEET. PRIMARY BENCHMARK "SJC 1000" ELEVATION=36.83'

THIS SURVEY MEETS THE STANDARDS OF PRACTICE FOR PROFESSIONAL SURVEYORS AND MAPPERS PURSUANT TO CHAPTERS 5J-17.051 & 5J-17.052 F.A.C.

08/16/2019
DATE OF SIGNATURE

ALBERT D. BRADSHAW, P.S.M., FLORIDA CERTIFICATION NO. 5257

NO.	BY	DATE	SYMBOL	REVISIONS
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DESIGNER:	DAR
DRAWN BY:	KWS
CHECKED BY:	DRS
APPROVED BY:	DAR
DATE:	FEBRUARY 2020

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PINE LAKES PUMP STATION UPGRADE PROJECT

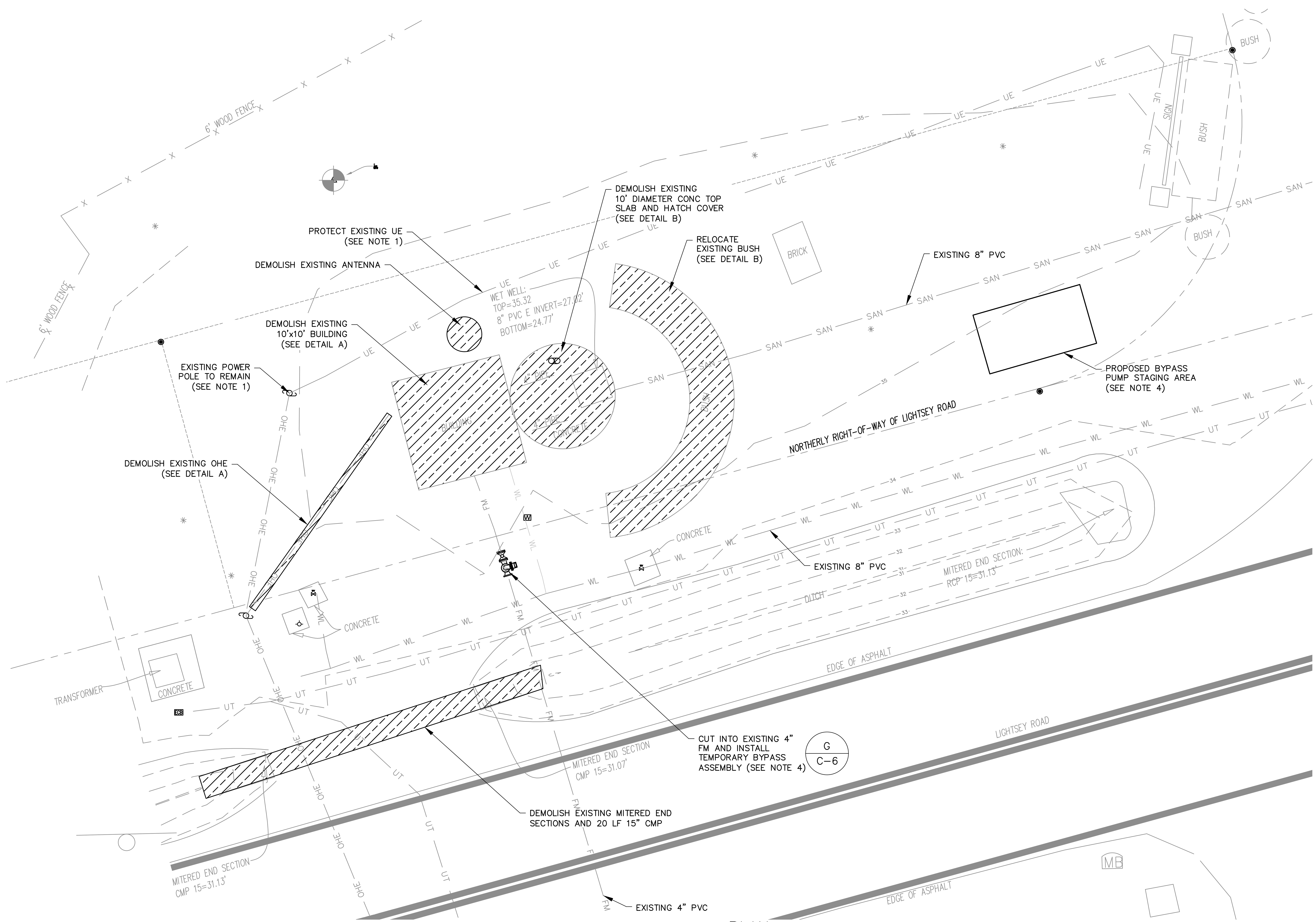
EXISTING SITE SURVEY AND PLAN

PROJECT NO.	100408.29
FILE NAME	C-1
SHEET NO.	C-1

ISSUED FOR BID

DETAILS A
NTS

DETAILS B
NTS



PLAN
1" = 5'

0 5' 10'
GRAPHIC SCALE

NOTES:

1. PUMP STATION DEMOLITION TO INCLUDE REMOVAL OF ALL EXISTING PUMPS, PIPING, VALVES, ELECTRICAL, AND CONCRETE.
2. PROTECT EXISTING POWER POLE AND UNDERGROUND ELECTRIC (UE) FOR THE DURATION OF CONSTRUCTION. CONTRACTOR SHALL REPAIR AT NO ADDITIONAL COST TO THE OWNER.
3. SEE SPECIFICATION SECTION 01100 FOR SHUTDOWN/STARTUP REQUIREMENTS.
4. PROPOSED LOCATIONS SHOWN. ALTERNATE LOCATIONS MAY BE ACCEPTABLE UPON COORDINATION WITH SJCUD.

[hatch] = DEMOLISH

NO.	BY	DATE	SYMBOL	REVISIONS
6.				
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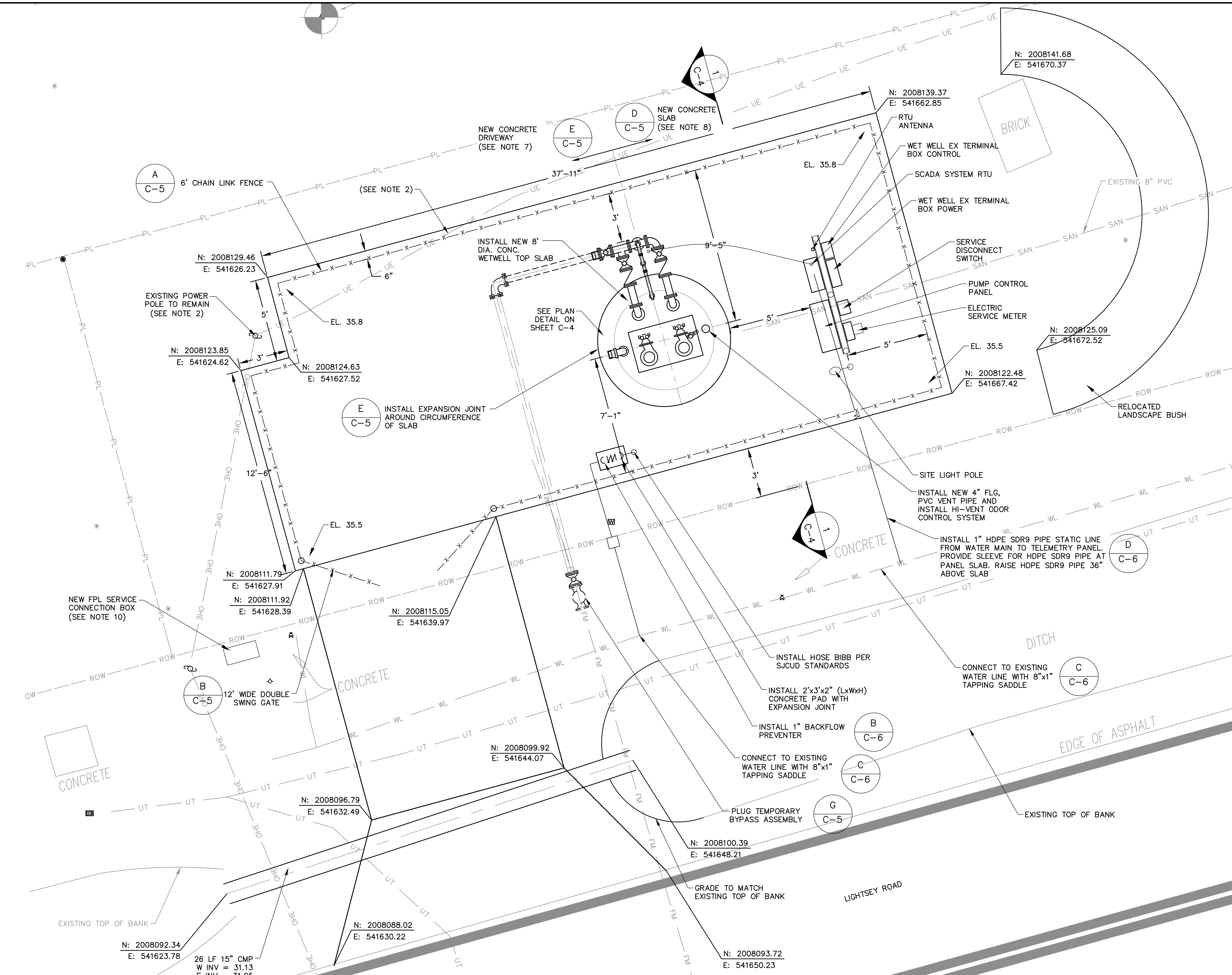
PINE LAKES PUMP STATION UPGRADE PROJECT

DEMOLITION AND BYPASS PLAN

PROJECT NO. 100408.29
FILE NAME C-2
SHEET NO.
C-2

ISSUED FOR BID



N: 2008141.68
E: 541670.37
BRICK
N: 2008139.37
E: 541662.85
NEW CONCRETE DRIVEWAY (SEE NOTE 7)
E C–5
D C–5
NEW CONCRETE SLAB (SEE NOTE 8)
1 C–4
RTU ANTENNA
WET WELL EX TERMINAL BOX CONTROL
SCADA SYSTEM RTU
WET WELL EX TERMINAL BOX POWER
SERVICE DISCONNECT SWITCH
PUMP CONTROL PANEL
ELECTRIC SERVICE METER
EL. 35.8
EL. 35.5
A C–5
6' CHAIN LINK FENCE
37'–11"
(SEE NOTE 2)
3'
INSTALL NEW 8' DIA. CONC. WETWELL TOP SLAB
9'–5"
N: 2008129.46
E: 541626.23
6"
EXISTING POWER POLE TO REMAIN (SEE NOTE 2)
5'
EL. 35.8
SEE PLAN DETAIL ON SHEET C–4
5'
N: 2008125.09
E: 541672.52
N: 2008123.85
E: 541624.62
3'
N: 2008124.63
E: 541627.52
N: 2008122.48
E: 541667.42
E C–5
INSTALL EXPANSION JOINT AROUND CIRCUMFERENCE OF SLAB
7'–1"
RELOCATED LANDSCAPE BUSH
12'–6"
SITE LIGHT POLE
INSTALL NEW 4" FLG, PVC VENT PIPE AND INSTALL HI-VENT ODOR CONTROL SYSTEM
EL. 35.5
1 C–4
CONCRETE
INSTALL 1" HDPE SDR9 PIPE STATIC LINE FROM WATER MAIN TO TELEMETRY PANEL. PROVIDE SLEEVE FOR HDPE SDR9 PIPE AT PANEL SLAB. RAISE HDPE SDR9 PIPE 36" ABOVE SLAB
D C–6
N: 2008111.79
E: 541627.91
N: 2008111.92
E: 541628.39
N: 2008115.05
E: 541639.97
NEW FPL SERVICE CONNECTION BOX (SEE NOTE 10)
DITCH
INSTALL HOSE BIBB PER SJCUD STANDARDS
CONNECT TO EXISTING WATER LINE WITH 8"x1" TAPPING SADDLE
C C–6
CONCRETE
B C–5
12' WIDE DOUBLE SWING GATE
INSTALL 2'x3'x2" (LxWxH) CONCRETE PAD WITH EXPANSION JOINT
INSTALL 1" BACKFLOW PREVENTER
B C–6
CONCRETE
N: 2008099.92
E: 541644.07
EDGE OF ASPHALT
CONNECT TO EXISTING WATER LINE WITH 8"x1" TAPPING SADDLE
C C–6
N: 2008096.79
E: 541632.49
PLUG TEMPORARY BYPASS ASSEMBLY
G C–5
EXISTING TOP OF BANK
N: 2008100.39
E: 541648.21
GRADE TO MATCH EXISTING TOP OF BANK
LIGHTSEY ROAD
EXISTING TOP OF BANK
N: 2008088.02
E: 541630.22
N: 2008092.34
E: 541623.78
26 LF 15" CMP
W INV = 31.13
E INV = 31.05
N: 2008093.72
E: 541650.23
EXISTING 8" PVC

PLAN
1" = 3'

0 3 6
GRAPHIC SCALE

NOTES:

1. REFER TO SHEETS C–7 AND C–8 FOR MOT REQUIREMENTS. CONTRACTOR SHALL REFER TO AND ABIDE BY ALL FDOT DESIGN STANDARDS FOR DURATION OF CONSTRUCTION.
2. PROTECT EXISTING POWER POLE AND UNDERGROUND ELECTRIC (UE) DURING CONSTRUCTION. RELOCATE THE EXISTING ELECTRICAL EQUIPMENT ON THE POLE TO MAINTAIN WORKING CLEARANCES (SEE SHEET E–1).
3. SOD ENTIRE PROJECT SITE AFTER PROJECT COMPLETION. SEE SPECIFICATION 02910 FOR ADDITIONAL REQUIREMENTS.
4. ALL BELOW GRADE PIPING SHALL BE RESTRAINED.
5. REFER TO SECTION 01573 TEMPORARY SANITARY SEWER FLOW CONTROL IN THE SPECIFICATIONS FOR BYPASS PUMPING REQUIREMENTS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF SEWERAGE AND DEBRIS FROM WETWELL.
7. CONCRETE SLAB WEST OF ℄ OF WETWELL SHALL BE 10" THICK AND IN ACCORDANCE WITH DETAIL E ON SHEET C–5.
8. CONCRETE SLAB EAST OF ℄ OF WETWELL SHALL BE 6" THICK AND IN ACCORDANCE WITH DETAIL D ON SHEET C–5.
9. CONCRETE WETWELL SLAB SHALL BE 8" THICK IN ACCORDANCE WITH DETAIL D ON SHEET C–5.
10. NEW FPL SERVICE CONNECTION BOX AT BASE OF THE EXISTING SERVICE POLE (SEE SHEET E–1).

NO.	BY	DATE	SYMBOL	REVISIONS
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DESIGNER:	DAR
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APPROVED BY:	DAR
DATE:	FEBRUARY 2020

DESIGN ENGINEER
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1205 STATE ROAD 16
ST AUGUSTINE, FLORIDA 32084-8646
Phone (904) 209-2700 • Fax. (904) 209-2702

PINE LAKES PUMP STATION UPGRADE PROJECT

PROPOSED SITE PLAN

PROJECT NO.	100408.29
FILE NAME	C-3
SHEET NO.	C-3

ISSUED FOR BID

MECHANICAL EQUIPMENT SCHEDULE

1. CHECK VALVE, SWING-TYPE LEVER FACING OUTSIDE, LEVER AND SPRING OPERATED, IRON BODY, BRONZE MOUNTED
2. PLUG VALVE, CAST IRON BODY, LEVER ACTUATED

2A. CONTRACTOR TO INSTALL:
(2) 1" STAINLESS STEEL BALL VALVE
(2) 1"x1" STAINLESS STEEL TEE
1"x1/2" DIAPHRAGM – SEE INSTRUMENTATION
1/2"x1/2" MALE TO MALE NIPPLE
1" PLUG

3. STAINLESS STEEL TEE
4. STAINLESS STEEL SHORT RADIUS 90° BEND
5. STAINLESS STEEL 45° BEND
6. 316 STAINLESS STEEL PIPE (SCH 40)
7. DUCTILE IRON PUMP BASE
8. INFLUENT PIPE (SEE PLANS)
9. CONCRETE WETWELL
10. FLYGT PUMP (AS APPROVED BY ST. JOHNS COUNTY UTILITY DEPARTMENT)
11. ALUMINUM WETWELL ACCESS COVER (OPENING PER PUMP MANUFACTURER)
12. STAINLESS STEEL GUIDE RAILS
13. FLOATS AND PUMP CONTROLS PROVIDED BY PUMP MANUFACTURER AS SPECIFIED IN ELECTRICAL DETAILS
14. PUMP MOTOR CABLE
15. PASSIVE ODOR NEUTRALIZATION DEVICE
16. STAINLESS STEEL CABLE HOLDER
17. 1" STAINLESS BLOW OFF LINE TO WETWELL–SECURE LINE TO WETWELL SLAB W/ UNISTRUT
18. 1/4" STAINLESS STEEL WITH 18" OF CHAIN LINKS

LIFT STATION

STATION ELEVATIONS

(A) TOP ELEVATION =	35.5 ±
(B) GRADE ELEVATION =	35.00 ±
(C) INFLUENT INVERT =	27.02 ±
(D) HIGH WATER ALARM =	28.5
(E) LAG PUMP ON (NO. 2) =	28.0
(F) LEAD PUMP ON (NO. 1) =	27.5
(G) ALL PUMPS OFF =	27.0
(H) BOTTOM OF WET WELL =	24.77 ±

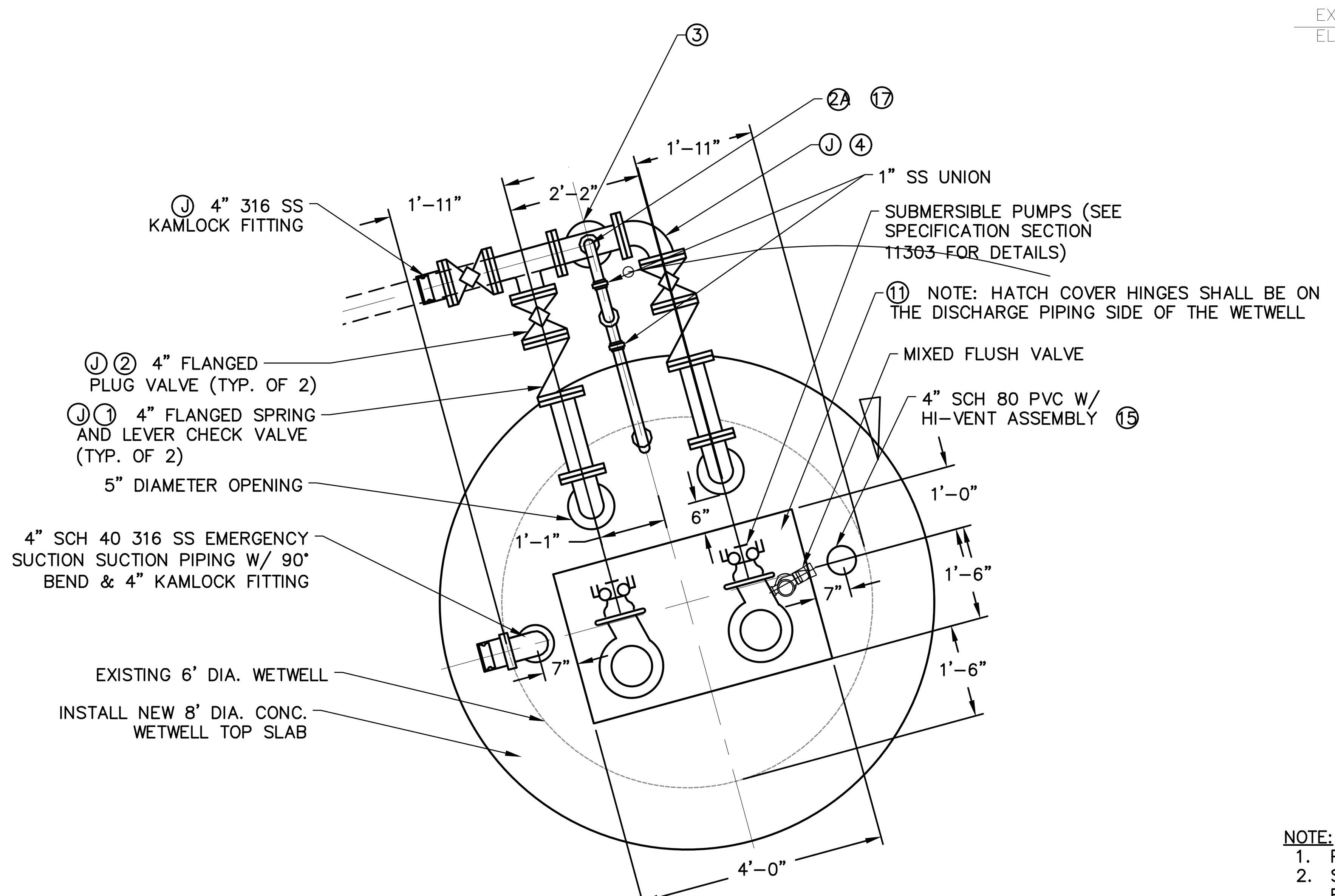
STATION INFORMATION

(I) PUMP DISCHARGE PIPING SIZE	4"
(J) FORCE MAIN PIPING SIZE	4"
(K) TOP SLAB THICKNESS (MIN)	8"
(L) SIDE WALL THICKNESS (MIN)	N/A
(M) BOTTOM SLAB THICKNESS	N/A
(N) BOTTOM SLAB DIAMETER (MIN)	N/A
(P) WET WELL DIAMETER	6'
(Q) EMERGENCY SUCTION PIPING SIZE	4"

PUMP INFORMATION

NUMBER OF PUMPS 2
PUMP MANUFACTURER FLYGT NON–CLOG SUBMERSIBLE
PUMP MODEL NP3085SH3–ADAPTIVE 255
IMPELLER ID 125
DISCHARGE 3 1/8" MOTOR RPM 3435
4 HP 230 VOLTS 3 PHASE 60 HZ
MANIFOLD COND. 162 GPM AT 50 FT.TDH
RUN–OUT COND. 333 GPM AT 9.5 FT.TDH
PUMP ACCESS HATCH SIZE 4' X 2'6" *

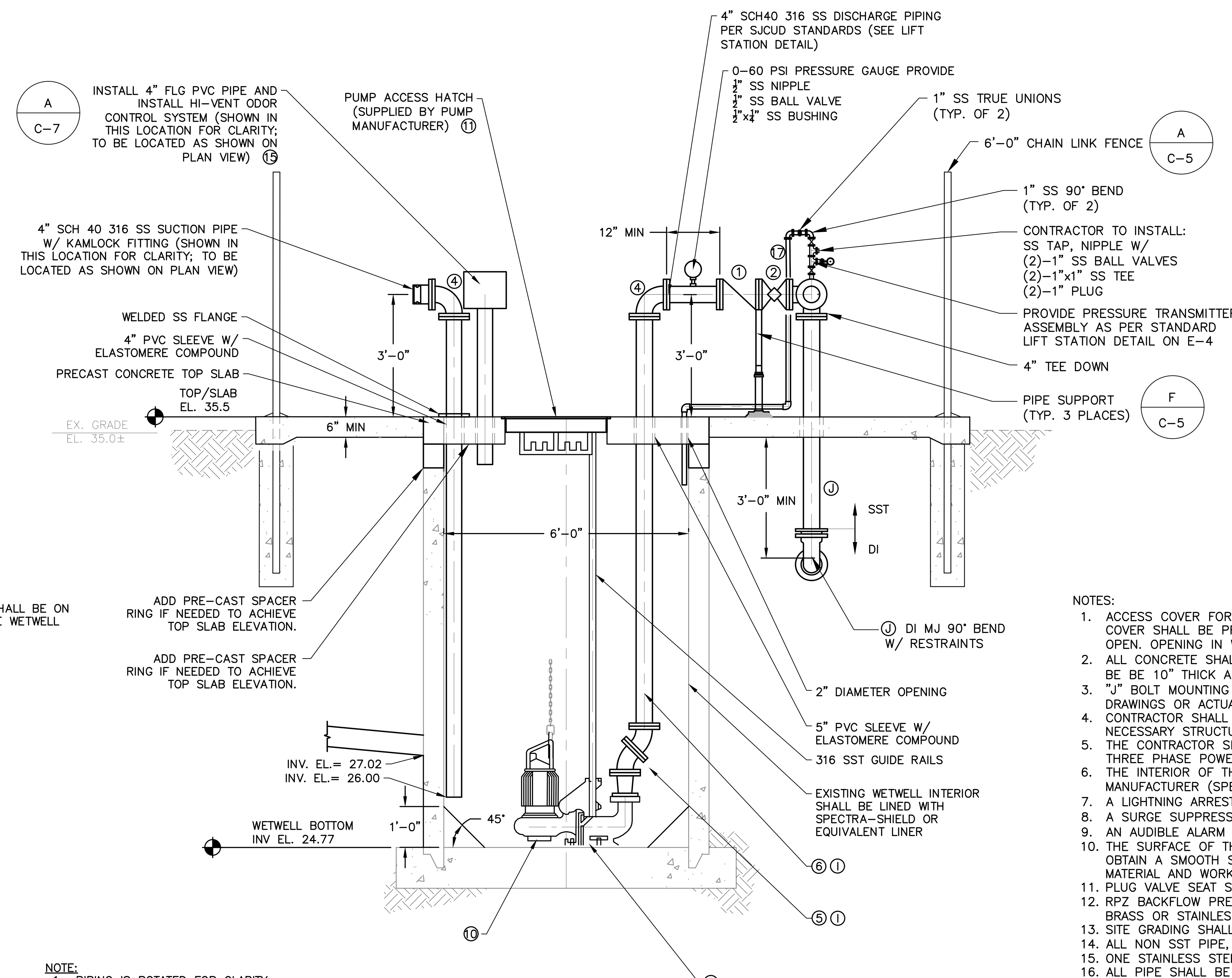
* TO BE CONFIRMED BY THE PUMP MANUFACTURER



PLAN

SCALE: 1"= 2'-0"

0 2 4
GRAPHIC SCALE



NOTE:
1. PIPING IS ROTATED FOR CLARITY.
2. SEE SPECIFICATION SECTION 11303 FOR PUMP DETAILS.
3. CONTRACTOR TO COORDINATE WITH PUMP MANUFACTURER ON ALL PUMP EQUIPMENT REQUIRED FOR COMPLETE INSTALLATION BASED ON SJCUD STANDARDS.

SECTIONAL ELEVATION

1 / C-3

SCALE: 1"= 2'-0"

0 4 2
GRAPHIC SCALE

NOTES:
1. ACCESS COVER FOR THE WETWELL SHALL BE 1/4" ALUM. TREAD PLATE WITH STAINLESS STEEL HARDWARE. COVER SHALL BE PROVIDED WITH LIFTING HANDLE. LCOKING HASP AND SAFETY LATCH TO HOLD COVERS OPEN. OPENING IN WETWELL SLAB AS PER MANUFACTURER'S SPECIFICATIONS.
2. ALL CONCRETE SHALL BE 6" THICK AND REINFORCED WITH 6x6 10/10 WWM EXCEPT DRIVEWAY WHICH SHALL BE BE 10" THICK AND WETWELL COVER WHICH SHALL BE 8" THICK.
3. "J" BOLT MOUNTING HOLE AND CONDUIT HOLES SHALL BE CORE DRILLED IN THE FIELD AS PER SHOP DRAWINGS OR ACTUAL FIELD REQUIREMENTS.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRECAST WETWELL. SHOP DRAWINGS SHALL INCLUDE ALL NECESSARY STRUCTURAL AND FLOTATION CALCULATIONS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ELECTRICAL POWER TO THE PUMPING STATION. THREE PHASE POWER IS REQUIRED. THIS WORK IS TO BE COORDINATED WITH FLORIDA POWER AND LIGHT.
6. THE INTERIOR OF THE WET WELL AND RECEIVING MANHOLE SHALL BE COATED WITH LINER BY APPROVED MANUFACTURER (SPECTRASHIELD, RAVEN, OR GREEN MONSTER).
7. A LIGHTNING ARRESTER SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
8. A SURGE SUPPRESSER SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
9. AN AUDIBLE ALARM SHALL BE SUPPLIED AND INSTALLED BY THE "SYSTEM" SUPPLIER.
10. THE SURFACE OF THE WET WELL SHALL FIRST BE PREPARED BY GROUTING THE WET WELL AS REQUIRED TO OBTAIN A SMOOTH SURFACE. THE COATING SHALL BE WARRANTED FOR A MINIMUM OF 10 YEARS FOR MATERIAL AND WORKMANSHIP.
11. PLUG VALVE SEAT SHALL BE INSTALLED ADJACENT TO CHECK VALVE REGARDLESS OF FLOW ARROW ON VALVE.
12. RPZ BACKFLOW PREVENTER (WILKINS MO. 975XL2) PIPING ABOVE GRADE SHALL BE THREADED BRASS WITH BRASS OR STAINLESS STEEL FITTING AND VALVES.
13. SITE GRADING SHALL PROVIDE FOR DRAINAGE OF WATER TO THE DRIVEWAY SIDE OF SITE.
14. ALL NON SST PIPE, VALVES, AND FITTINGS SHALL BE PAINTED FOREST GREEN (OIL BASED).
15. ONE STAINLESS STEEL SUPPORT SHALL BE INSTALLED UNDER EACH PLUG VALVE.
16. ALL PIPE SHALL BE FLANGED STAINLESS STEEL.
17. ALL FLANGES SHALL BE 150LB SLIP FLANGES.
18. ALL STAINLESS STEEL MUST BE SCHEDULE 40.
19. ROTATE THE PRESSURE TRANSMITTER MOUNTING TEE SUCH THAT THE PRESSURE TRANSMITTER DISPLAY FACES NORTH.
20. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL WITH ANTI–FREEZE COMPOUND INCLUDING, BUT NOT LIMITED TO, NUTS, BOLTS, AND BRACKETS.
21. FIELD VERIFY WETWELL FLOAT ELEVATIONS.

NO.	BY	DATE	SYMBOL	REVISIONS
6.				
5.				
4.				
3.				
2.				
1.	RRP			

DESIGNER:	DAR
DRAWN BY:	KWS
CHECKED BY:	DRS
APPROVED BY:	DAR
DATE:	FEBRUARY 2020

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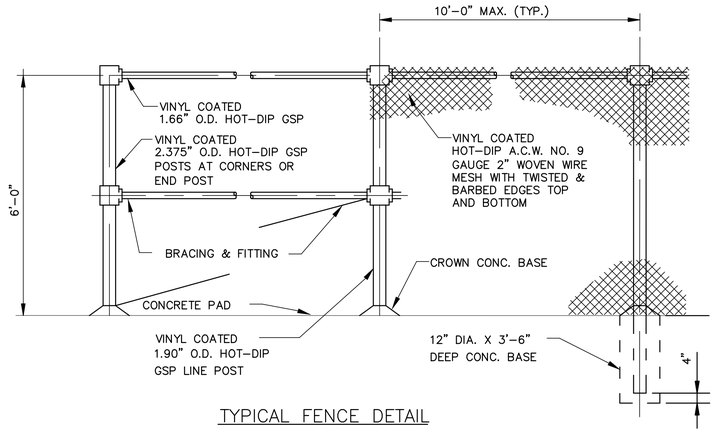
PINE LAKES PUMP STATION UPGRADE PROJECT

LIFT STATION PLAN, SECTION, AND DETAILS

PROJECT NO.	100408.29
FILE NAME	C-4
SHEET NO.	C-4

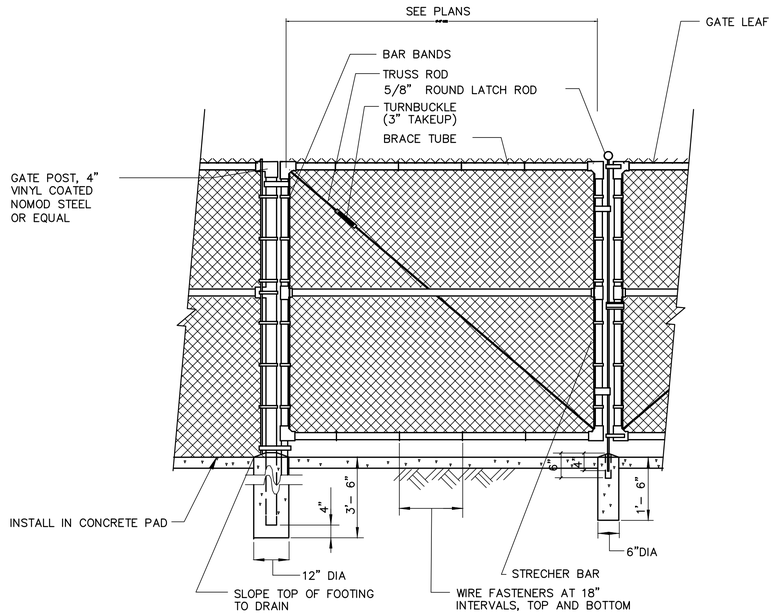
ISSUED FOR BID



TYPICAL FENCE DETAIL

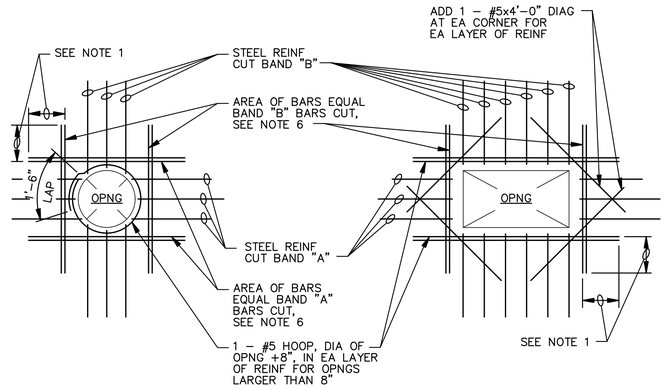
DETAIL A
NTS –

NOTES:
1. ALL FENCING AND POSTS SHALL BE BLACK VINYL COATED.
2. THE LOCK HASP SHALL BE CAPABLE OF ACCEPTING A STANDARD COUNTY PADLOCK.
3. PROVIDE BLACK VINYL PRIVACY SLATS FOR ENTIRE FENCE AND GATES.



CHAIN LINK FENCE-GATE

DETAIL B
NTS –

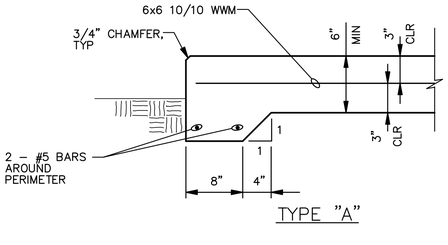


NOTES:

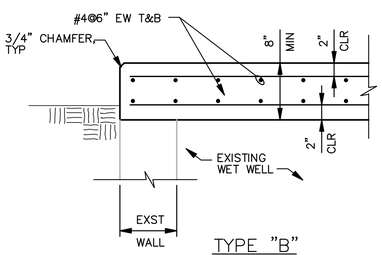
1. PROVIDE MINIMUM LAP, SEE GENERAL STRUCTURAL NOTES.
2. TYPICAL FOR ALL OPENINGS IN CONCRETE WALLS OF BELOW GRADE AND HYDRAULIC STRUCTURES AND ALL STRUCTURAL CONCRETE SLABS UNLESS INDICATED OTHERWISE ON PLANS.
3. DO NOT WELD REINFORCEMENT TO PIPE SLEEVES AND INSERTS.
4. PROVIDE A MINIMUM OF 2 "A" BARS AND 2 "B" BARS EACH SIDE OF OPENING (1 EACH FACE).
5. FOR OPENINGS LARGER THAN 8'-0", REINFORCE SAME AS FOR 8'-0" OPENINGS.
6. SPACE AT 3 BAR DIAMETERS (OR 3" MINIMUM) ON CENTER.
7. HOLES FOR PIPE PENETRATIONS IN NEW TOP SLABS SHALL BE PREFORMED AND REINFORCING ADJUSTED TO CLEAR THE OPENING BY 2".

TYPICAL OPENING REINFORCING DETAIL

DETAIL C
NTS –



TYPE "A"

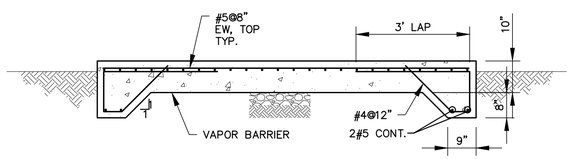


TYPE "B"

NOTE:
SEE PLANS FOR SPECIFIC CONDITIONS AND APPLICABLE EDGE OF SLAB TYPE.

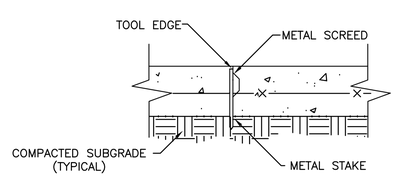
TYPICAL SLAB AND EDGE DETAILS

DETAIL D
NTS –



DRIVEWAY DETAIL

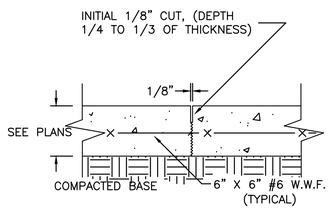
NOT TO SCALE



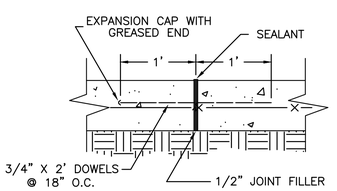
CONSTRUCTION JOINT

NOTE: APPLY CONSTRUCTION JOINT EVERY 20'-0".

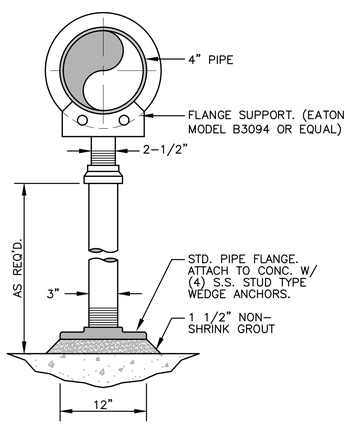
DRIVEWAY DETAIL E
NTS –



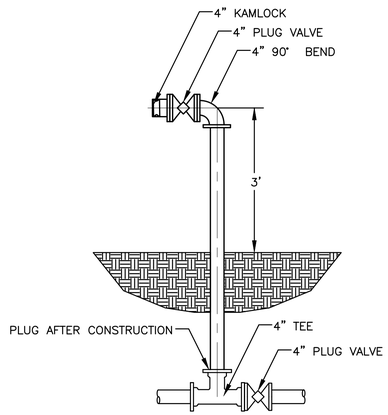
CONTRACTION JOINT



EXPANSION JOINT



PIPE SUPPORT DETAIL F
NTS –



TEMPORARY TEE CUT-IN DETAIL G
NTS –

NO.	BY	DATE	SYMBOL	REVISIONS
6.				
5.				
4.				
3.				
2.				
1.		RRP		

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DRAWN BY:	KWS
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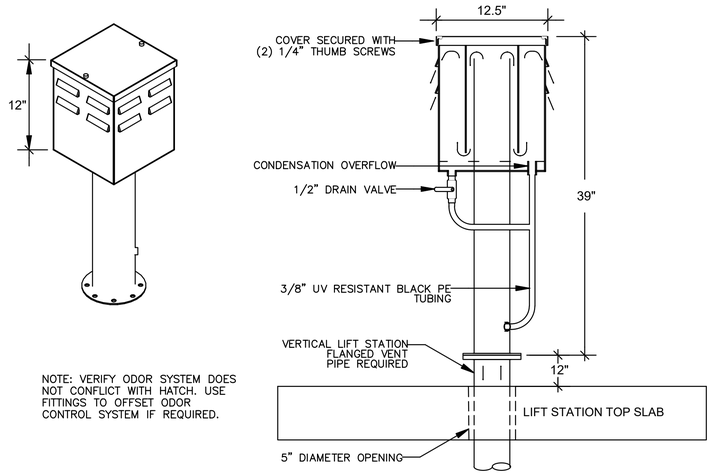
PINE LAKES PUMP STATION UPGRADE PROJECT
MISCELLANEOUS DETAILS I

PROJECT NO.	100408.29
FILE NAME	C-5
SHEET NO.	C-5

ISSUED FOR BID

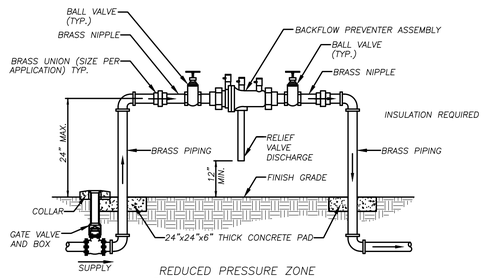


NOTE: VERIFY ODOR SYSTEM DOES NOT CONFLICT WITH HATCH. USE FITTINGS TO OFFSET ODOR CONTROL SYSTEM IF REQUIRED.

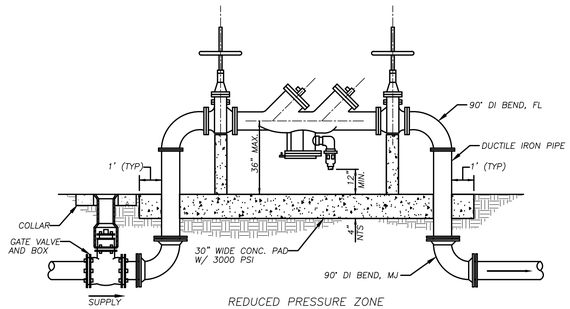
HIVENT ODOR CONTROL SYSTEM

NO SCALE

A / –



REDUCED PRESSURE ZONE BACKFLOW PREVENTER DETAIL 2" DIAMETER AND SMALLER



REDUCED PRESSURE ZONE BACKFLOW PREVENTER SIZES 4" & ABOVE

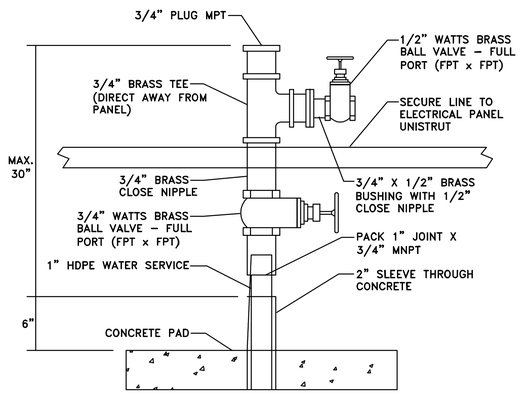
NOTE:
RECOMMEND USING PRESSURE RELIEF VALVE ON OUTLET SIDE FOR FREEZE PROTECTION.

WILKINS MO. 975XL2

TYPICAL REDUCED PRESSURE ZONE ASSEMBLY

NTS

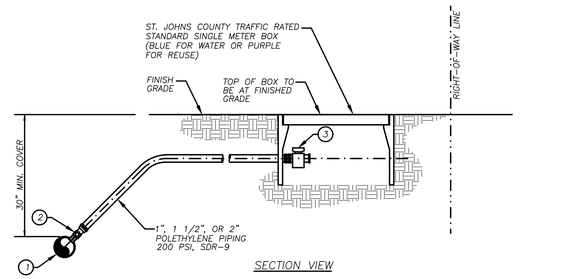
B / –



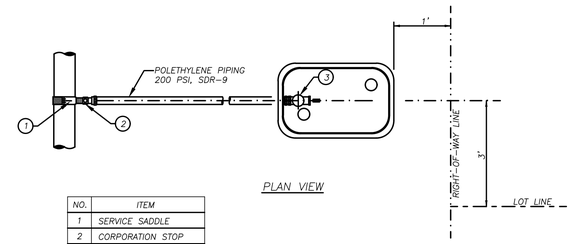
STATIC WATER LINE END CONNECTION

NTS

D / –



SECTION VIEW



PLAN VIEW

NO.	ITEM
1	SERVICE SADDLE
2	CORPORATION STOP
3	BALL YOKE VALVE

NOTES:

1. TO BE USED FOR ODD NUMBER OF LOTS OR SPECIAL APPLICATIONS WHERE A DOUBLE SERVICE IS NOT APPROPRIATE.
2. SEE SHEET W-10 FOR DOUBLE SERVICE.
3. ALL SERVICE LOCATIONS TO BE MARKED BY ETCHING A 3" HIGH "W" IN THE CONCRETE CURB AND PAINTING IT BLUE FOR WATER OR PURPLE "R" FOR REUSE..
4. IN CERTAIN CONDITIONS, THE WATER SERVICE MAY BE REQUIRED TO BE LARGER DUE TO SIZE OF HOME, DISTANCE TO HOME, ETC.
5. DO NOT INSTALL IN DRIVEWAYS OR SIDEWALKS.
6. FOR PHASED NON-RESIDENTIAL DEVELOPMENT, A MINIMUM 2" TAP MAY BE REQUIRED TO ACCOMODATE FUTURE EXPANSION.
7. ALL BRASS FITTINGS IN CONTACT WITH POTABLE WATER SHALL MEET NSF 61 REQUIREMENTS FOR NO LEAD.

WATER SERVICES SINGLE SERVICE

NTS

C / –

NO.	BY	DATE	SYMBOL	REVISIONS
6.				
5.				
4.				
3.				
2.				
1.		RRP		

DESIGNER:	DAR
DRAWN BY:	KWS
CHECKED BY:	DRS
APPROVED BY:	DAR
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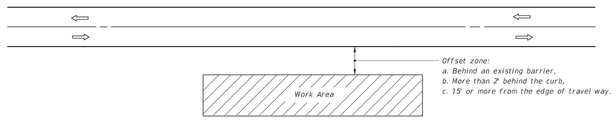
PINE LAKES PUMP STATION UPGRADE PROJECT
MISCELLANEOUS DETAILS II AND COUNTY DETAILS

PROJECT NO.	100408.29
FILE NAME	C-6
SHEET NO.	C-6

ISSUED FOR BID



GENERAL NOTES

1. If the work operation (excluding establishing and terminating the work area) requires that two or more work vehicles cross the offset zone in any one hour, traffic control will be in conformance with Index 102-602.
2. No special signing is required.
3. When a side road intersects the highway within the work area, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
4. When construction activities encroach on a sidewalk refer to Index 102-660.
5. For general TCZ requirements and additional information, refer to Index 102-600.

SYMBOLS

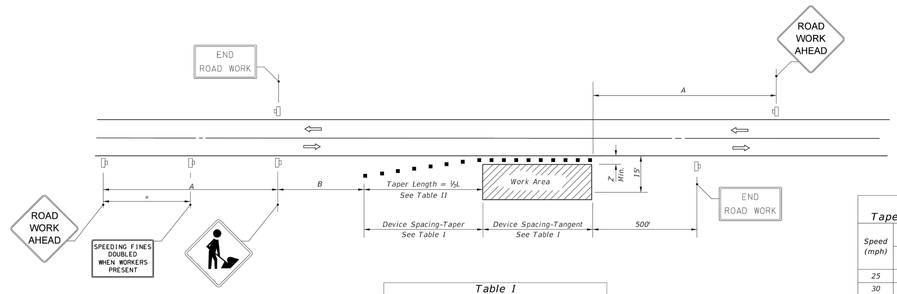
Work Area

Lane Identification + Direction of Traffic

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS AND THEIR ACTIVITIES ARE BEHIND AN EXISTING BARRIER, MORE THAN 2' BEHIND THE CURB, OR 15' OR MORE FROM THE EDGE OF TRAVEL WAY.

LAST REVISION	DESCRIPTION:	FDOT FY 2019-20 STANDARD PLANS	TWO-LANE, TWO-WAY, WORK OUTSIDE SHOULDER	INDEX 102-601	SHEET 1 of 1
11/01/17					



DISTANCE BETWEEN SIGNS

Speed	Spacing (ft.) A	Spacing (ft.) B
40 mph or less	200	200
45 mph	350	350
50 mph or greater	500	500

*Midway between signs.

Table I
Device Spacing

Speed (mph)	Max. Distance Between Devices (ft.) Cones or Tubular Markers Taper	Cones or Tubular Markers Tangent	Type I or Type II Barricades or Vertical Panels or Drums Taper	Type I or Type II Barricades or Vertical Panels or Drums Tangent
25	25	50	25	50
30 to 45	25	50	30	50
50 to 70	25	50	50	100

Table II
Taper Length - Shoulder

Speed (mph)	½L (ft) 8' Shldr.	10' Shldr.	12' Shldr.	Notes
25	28	35	42	L= WS²/60
30	40	50	60	
35	55	68	82	
40	72	90	107	
45	120	150	180	L=WS
50	133	167	200	
55	147	183	220	
60	160	200	240	
65	173	217	260	
70	187	233	280	

8' minimum shoulder width

½L = Length of shoulder taper in feet

W = Width of total shoulder in feet (combined paved and unpaved width)

S = Posted speed limit (mph)

SYMBOLS

Work Area

Channelizing Device (See Index No. 600)

Work Zone Sign

Lane Identification + Direction of Traffic

GENERAL NOTES

1. When four or more work vehicles enter the through traffic lanes in a one hour period or less (excluding establishing and terminating the work area), the advanced FLAGGER sign shall be substituted for the WORKERS sign. For location of Flaggers and FLAGGER signs, see Index No. 603.
2. SHOULDER WORK sign may be used as an alternate to the WORKER symbol sign only on the side where the shoulder work is being performed.
3. When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed in accordance with other applicable TCZ Indexes.
4. For general TCZ requirements and additional information, refer to Index No. 600.

DURATION NOTES

1. Signs and channelizing devices may be omitted if all of the following conditions are met:
   a. Work operations are 60 minutes or less.
   b. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.

CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

LAST REVISION	DESCRIPTION:	FDOT 2016 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK ON SHOULDER	INDEX NO. 602	SHEET NO. 1 of 1
07/01/15					

6/16/2015 10:43:36 AM

SJCUD NOTES:

1. THE CONTRACTOR SHALL CARRY ON THE WORK IN A MANNER, WHICH WILL CAUSE A MINIMUM OF INTERRUPTION TO TRAFFIC, WHERE TRAFFIC MUST CROSS OPEN TRENCHES, THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES AT STREET INTERSECTIONS AND DRIVEWAYS. THE CONTRACTION SHALL POST SUITABLE SIGNS INDICATING THAT A STREET IS CLOSED AND NECESSARY DETOUR SIGNS FOR THE PROPER MAINTENANCE OF TRAFFIC. PRIOR TO CLOSING OF ANY STREETS, THE CONTRACTOR SHALL NOTIFY AND OBTAIN THE APPROVAL OF RESPONSIBLE AUTHORITIES AND THE COUNTY.
2. UNLESS PERMISSION TO CLOSE A STREET IS RECEIVED IN WRITING FROM THE PROPER AUTHORITY (COUNTY, CITY, FDOT, ETC.), ALL EXCAVATED MATERIAL SHALL BE PLACED SO THAT VEHICULAR AND PEDESTRAIN TRAFFIC MAY BE MAINTAINED AT ALL TIMES.IF THE CONTRACTOR'S OPERATIONS CAUSE TRAFFIC HAZARDS, HE SHALL REPAIR THE ROAD SURFACE, PROVIDE TEMPORARY WAYS, ERECT WHEEL GUARDS OR FENCES, OR TAKE OTHER MEASURES FOR SAFETY SATISFACTORY TO THE COUNTY.
3. DETOURS AROUND CONSTRUCTION WILL BE SUBJECTED TO THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION AND THE COUNTY. WHERE DETOURS ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES AND SIGNS ARE REQUIRED TO DIVERT THE FLOW OF TRAFFIC. WHILE TRAFFIC IS DETOURED THE CONTRACTOR SHALL EXPEDITE CONSTRUCTION OPERATIONS. PERIODS WHEN TRAFFIC IS BEING DETOUR WILL BE STRICTLY CONTROLLED BY THE COUNTY.
4. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO TAKE PRECAUTIONS TO PREVENT INJURY TO THE PUBLIC DUE TO OPEN TRENCHES. NIGHT WATCHMEN MAY BE REQUIRED WHERE SPECIAL HAZARDS EXIST, OR POLICE PROTECTION PROVIDED FOR TRAFFIC WHILE WORK IS IN PROGRESS. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR DAMAGE OR INJURIES WHETHER OR NOT POLICE PROTECTION HAS BEEN PROVIDED.
5. CONTRACTOR SHALL COORDINATE WITH SJCUD RIGHT-OF-WAY INSPECTOR BEFORE PERFORMING WORK IN THE RIGHT-OF-WAY.

NO.	BY	DATE	SYMBOL	REVISIONS
6.				
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1.		RRP		

DESIGNER:	DAR
DRAWN BY:	KWS
CHECKED BY:	DRS
APPROVED BY:	DAR
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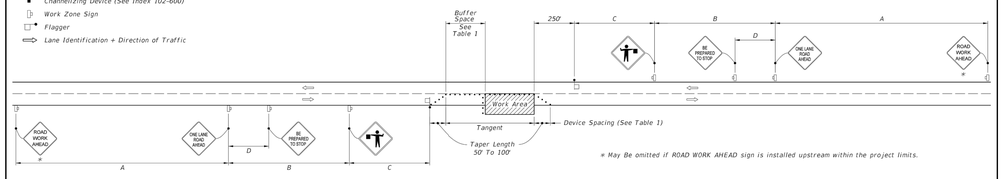
PINE LAKES PUMP STATION UPGRADE PROJECT
MAINTENANCE OF TRAFFIC DETAILS I

PROJECT NO.	100408.29
FILE NAME	C-7
SHEET NO.	C-7

ISSUED FOR BID

SYMBOLS:

Work Area
Channelizing Device (See Index 102-600)
Work Zone Sign
Flagger
Lane Identification + Direction of Traffic



* May Be omitted if ROAD WORK AHEAD sign is installed upstream within the project limits.

WITHOUT TEMPORARY RAISED RUMBLE STRIPS

GENERAL NOTES:

1. Special Conditions may be required in accordance with these notes and the following sheets:
   A. Railroad Crossings:
      a. If an active railroad crossing is located closer to the Work Area than the queue length plus 300 feet, extend the Buffer Space as shown on Sheet 3.
      b. If the queuing of vehicles across an active railroad crossing cannot be avoided, provide a uniformed traffic control officer or flagger at the highway-rail grade crossing to prevent vehicles from stopping within the highway-rail grade crossing, even if automatic train warning devices are in place.
   B. If the Work Area encroaches on the Centerline, use the Layout for Temporary Lane Shift to Shoulder on Sheet 3 only if the Existing Paved Shoulder width is sufficient to provide for an 11' lane between the Work Area and the Edge of Existing Paved Shoulder. Reduce the posted speed when appropriate.
2. Temporary Raised Rumble Strips:
   A. Use when both of the following conditions are met concurrently:
      a. Existing Posted Speed is 55 mph or greater;
      b. Work duration is greater than 60 minutes.
   B. Use a consistent Strip color throughout the work zone.
   C. Place each Rumble Strip Set transversely across the lane at locations shown.
   D. Use Option 1 or Option 2 as shown on Sheet 2. Use only one option throughout work zone.
3. Additional one-way control may be provided by the following means:
   A. Flag-carrying vehicle;
   B. Official vehicle;
   C. Pilot vehicles;
   D. Traffic signals.

   When flaggers are the sole means of one-way control, the flaggers must be in sight of each other or in direct communication at all times.
4. When a side road intersects the highway within the TTC zone, place additional TTC devices in accordance with other applicable TCZ Indexes.
5. The two channelizing devices directly in front of the work area may be omitted provided vehicles in the work area have high-intensity rotating, flashing, oscillating, or strobe lights operating.
6. When Buffer Space cannot be attained due to geometric constraints, use the greatest attainable length, not less than 200 ft, for posted speeds greater than 25 mph.
7. ROAD WORK AHEAD and the BE PREPARED TO STOP signs may be omitted if all of the following conditions are met:
   A. Work operations are 60 minutes or less.
   B. Speed limit is 45 mph or less.
   C. There are no sight obstructions to vehicles approaching the work area for a distance equal to the Buffer Space shown in Table 1.
   D. Vehicles in the work area have high-intensity, rotating, flashing, oscillating, or strobe lights operating.
   E. Volume and complexity of the roadway has been considered.
   F. If a railroad crossing is present, vehicles will not queue across rail tracks.
   G. AFADs are not in use.
8. See Index 102-600 for general TCZ requirements and additional information.
9. Automated Flagger Assistance Devices (AFADs) may be used in accordance with Specifications Section 102, 990 and the APL vendor drawings.

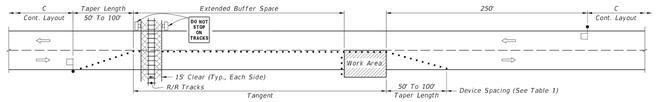
TABLE 1

Posted Speed	DEVICE SPACING: Maximum Spacing of Cones or Tubular Markers		Maximum Spacing of Type I or Type II Barricades/Panels/Drums		Distance Between Signs				Buffer Space
	On a Taper	On a Tangent	On a Taper	On a Tangent	A	B	C	D	
25	20'	50'	20'	50'	200'	200'	200'	100'	155'
30	20'	50'	20'	50'	200'	200'	200'	100'	200'
35	20'	50'	20'	50'	200'	200'	200'	100'	250'
40	20'	50'	20'	50'	200'	200'	200'	100'	305'
45	20'	50'	20'	50'	350'	350'	350'	175'	360'
50	20'	50'	20'	100'	500'	500'	500'	250'	425'
55	20'	50'	20'	100'	2640'	1500'	1000'	500'	495'
60	20'	50'	20'	100'	2640'	1500'	1000'	500'	570'
65	20'	50'	20'	100'	2640'	1500'	1000'	500'	645'
70	20'	50'	20'	100'	2640'	1500'	1000'	500'	730'

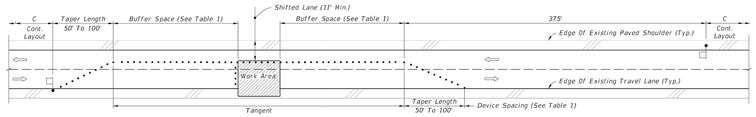
CONDITIONS

WHERE ANY VEHICLE, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH THE AREA BETWEEN THE CENTERLINE AND A LINE 2' OUTSIDE THE EDGE OF TRAVEL WAY.

LAST REVISION	DESCRIPTION:	FDOT	FY 2019-20 STANDARD PLANS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX	SHEET
11/01/17					102-603	1 of 3



TEMPORARY RAILROAD CROSSING BUFFER SPACE EXTENSION



TEMPORARY LANE SHIFT TO SHOULDER WHEN WORK AREA ENCROACHES ON THE CENTERLINE

SPECIAL CONDITIONS

Cross Reference:
1. See General Note 1, Sheet 1 for more information.

SPECIAL CONDITIONS

LAST REVISION	DESCRIPTION:	FDOT	FY 2019-20 STANDARD PLANS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX	SHEET
11/01/17					102-603	3 of 3

NO.	BY	DATE	SYMBOL	REVISIONS
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DESIGNER: DAR
DRAWN BY: KWS
CHECKED BY: DRS
APPROVED BY: DAR
DATE: FEBRUARY 2020

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PINE LAKES PUMP STATION UPGRADE PROJECT
MAINTENANCE OF TRAFFIC DETAILS II

PROJECT NO. 100408.29
FILE NAME C-8
SHEET NO. C-8

ISSUED FOR BID

NOTES:

1. DESIGN DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW THE GENERAL REQUIREMENTS. ALL EQUIPMENT AND INSTALLATION SHALL BE IN ACCORDANCE WITH ST. JOHNS COUNTY DESIGN STANDARDS AND SPECIFICATIONS.

2. ALL MATERIAL SHALL BE NEW AND SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS' LABORATORIES, INC., AMERICAN NATIONAL STANDARDS INSTITUTE, NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION, INSULATED POWER CABLE ENGINEERS ASSOCIATION, AND INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIALS IN QUESTION.

3. THE INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, APPLICABLE CITY, STATE, AND LOCAL CODES AND REGULATIONS AND OTHER APPLICABLE CODES, INCLUDING UTILITY COMPANY CODES.

4. ALL PERMITS REQUIRED BY STATE OR LOCAL ORDINANCES SHALL BE OBTAINED, AND AFTER COMPLETION OF THE WORK, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM THE ELECTRICAL INSPECTOR SHALL BE FURNISHED TO THE OWNER. ALL PERMITS FOR INSTALLATION, INSPECTIONS, CONNECTIONS, ETC., SHALL BE TAKEN OUT AND PAID FOR BY THE CONTRACTOR AS PART OF THE WORK UNDER THIS SECTION.

5. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY PART OF THE SYSTEM CONSIDERED DEFECTIVE BY THE ENGINEER WITHIN THE GUARANTEE PERIOD SHALL BE IMMEDIATELY REPLACED OR CORRECTED TO THE ENGINEER'S SATISFACTION WITHOUT FURTHER EXPENSE TO THE OWNER.

6. THE PROJECTS GROUNDING SYSTEM SHALL CONSIST OF A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH NEC SPECIFICATIONS, BONDED TO A MAIN GROUND BUS INTERCONNECTING ALL POWER DISTRIBUTION EQUIPMENT. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING SYSTEM.

7. UNLESS OTHERWISE INDICATED, ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE NEMA 12/3R ALUMINUM OR 316 STAINLESS STEEL; CONDUCTORS SHALL BE STRANDED AWG TYPE XHHW–2 COPPER; CONDUCTORS WITHIN THE WET WELL TERMINAL BOXES SHALL BE TYPE XHHW–2 TINNED COPPER. UNDERGROUND CONDUIT SHALL BE SCH 40 PVC; EXPOSED CONDUIT SHALL BE SCH 80 PVC; CONDUIT INTO THE WET WELL SHALL BE PVC COATED RIGID ALUMINUM; SUPPORT CHANNEL AND MOUNTING STRUT SHALL BE MINIMUM 1.5" x 1.5" ALUMINUM. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL, INCLUDING BUT NOT LIMITED TO NUTS, BOLTS, WASHERS, BRACKETS, ETC. NUTS AND BOLTS WITH ANTI–SEIZE COMPOUND SHALL BE USED. SCREWS ARE NOT ALLOWED. ALL MATERIALS AND INSTALLATION SHALL BE SUITABLE FOR "CORROSIVE ATMOSPHERES".

8. THE PUMP CONTROL PANEL WET WELL LEVEL CONTROL SYSTEM SHALL INCLUDE LEAD PUMP SELECTOR SWITCH AND AUTOMATIC ALTERNATOR FOR AUTOMAITIC LEAD/LAG PUMP CONTROL AND ALTERNATION; AND 24V CONTROL POWER TRANSFORMER AND HIGH/LAG/LEAD/OFF LEVEL FLOAT SWITCHES FOR PUMP CONTROL AND HIGH LEVEL ALARM.

9. DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE EQUIPMENT CABLE TERMINAL BOXES. ADDITIONALLY, DUCT SEAL IS REQUIRED AT ALL CONDUIT CONNECTIONS IN AND OUT OF THE PUMP CONTROL PANEL.

10. PROVIDE SITE LIGHT POLE WITH SERVICE FROM THE PUMP CONTROL PANEL (3/4"C, 3#12). PROVIDE WP DUPLEX GFI RECEPTACLE WITH CAST ALUMINUM BOX AND COVER, AND WP LIGHT SWITCH WITH CAST ALUMINUM BOX AND COVER, MOUNTED ADJACENT TO THE PUMP CONTROL PANEL. SITE LIGHT POLE SHALL BE FIBERGLASS DIRECT BURIED POLE WITH BLACK FINISH. LUMINAIRE SHALL BE AEL MODEL LNH2–LU5–MVOLT–R5–BA–SH WITH 18" LONG ALUMINUM SPOKE BRACKET ARM. LUMINAIRE MOUNTING HEIGHT SHALL BE 12'. LOCATE LIGHT POLE ON RIGHT–HAND SIDE OF THE PUMP CONTROL PANEL.

11. IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE NEW PUMP CONTROL PANEL, EXPLOSION PROTECTED TYPE EX TERMINAL BOXES, WET WELL LEVEL CONTROLS, AND UL SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH SHALL BE FURNISHED BY THE SJCUD APPROVED LIFT STATION ELECTRICAL EQUIPMENT SUPPLIER.

12. IN ACCORDANCE WITH THE LATEST ST. JOHNS COUNTY UTILITIES DEPARTMENT STANDARDS, THE SCADA SYSTEM RTU, ANTENNA MAST, AND ANTENNA, SHALL BE PROVIDED BY A SJCUD APPROVED SCADA SYSTEM INTEGRATOR. FOR STATIONS EQUIPPED WITH FORCE MAIN PRESSURE SENSORS AND/OR WATER MAIN PRESSURE SENSORS, THE PRESSURE SENSORS SHALL BE PROVIDED BY THE SCADA SYSTEM INTEGRATOR.

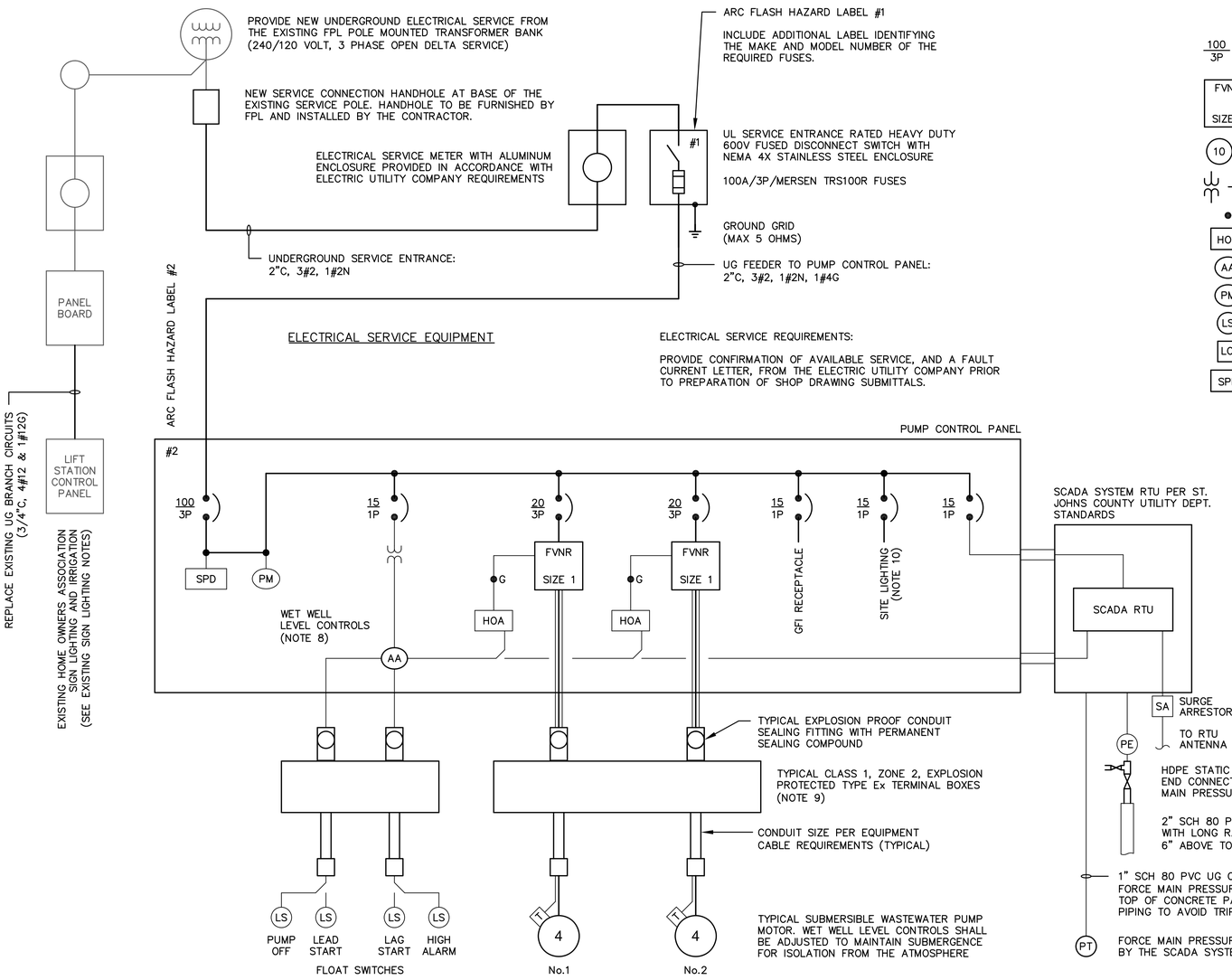
ELECTRICAL SYSTEMS ANALYSIS:

1. SJCUD SHALL OBTAIN THE SERVICES OF AN INDEPENDENT SPECIALTY ENGINEERING FIRM TO PROVIDE A PRELIMINARY AND A FINAL SHORT CIRCUIT, DEVICE EVALUATION, PROTECTIVE DEVICE COORDINATION, AND ARC FLASH STUDY OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM, IN ACCORDANCE WITH SJCUD STANDARDS

2. THE CONTRACTOR SHALL PROVIDE, WITH THE SHOP DRAWING SUBMITTALS, A LISTING OF THE FOLLOWING INFORMATION FOR EACH POWER DISTRIBUTION FEEDER: CONDUIT SIZE, CONDUIT TYPE, CONDUCTOR SIZE, CONDUCTOR TYPE, CONDUCTOR LENGTH.

3. THE SERVICE ENTRANCE MAIN FUSED DISCONNECT SWITCH FUSE SELECTION SHALL BE IN ACCORDANCE WITH THE SJCUD STANDARDIZED FUSES: FERRAZ SHAWMUT TRS100R AND TRS200R. HOWEVER, SELECTION OF AN INTERMEDIATE TRS–R FUSE SHALL BE UTILIZED WHEN POSSIBLE TO REDUCE THE DOWNSTREAM HAZARD RISK CATEGORY.

4. THE CONTRACTOR SHALL PROVIDE THE SERVICE ENTRANCE FUSE SIZE DETERMINED BY THE FINAL APPROVED ELECTRICAL SYSTEMS ANALYSIS.



ELECTRICAL LEGEND

- 100 / 3P — CIRCUIT BREAKER (TRIP RATING/POLES) "MCB" MAIN BREAKER, "ECB" EMERGENCY BREAKER "PCB" PUMP MOTOR BREAKER
- FVNR SIZE 1 — MAGNETIC TYPE COMBINATION MOTOR STARTER, NEMA SIZE AS INDICATED ("FV" FULL VOLTAGE, "RV" REDUCED VOLTAGE, "NR" NON–REVERSING, "SS" SOLID STATE SOFT START, "VFD" VARIABLE FREQUENCY DRIVE)
- 10 — MOTOR (NUMERAL INDICATES HORSEPOWER)
- CT — TRANSFORMER ("CT" CURRENT TRANSFORMER; "CPT" CONTROL POWER TRANSFORMER)
- G — GREEN "RUNNING" PILOT LIGHT (LED TYPE)
- HOA — HAND OFF AUTO SELECTOR SWITCH
- AA — AUTOMATIC ALTERNATOR
- PM — THREE PHASE POWER MONITOR
- LS — LEVEL SWITCH
- LC — LEVEL CONTROLLER
- SPD — SURGE PROTECTION DEVICE

ALL ALL EQUIPMENT LOCATED WITHIN THE WET WELL AND EXPOSED TO POTENTIAL HAZARDOUS CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS, SHALL BE RATED FOR CLASS I, DIVISION 1, GROUP D LOCATIONS. ALL ELECTRICAL EQUIPMENT AND INSTALLATION SHALL BE SUITABLE FOR CORROSIVE CONDITIONS.

PINE LAKES LIFT STATION – SINGLE LINE DIAGRAM

FPL ALLOWANCE:

1. THE CONTRACTOR SHALL INCLUDE A BID ALLOWANCE IN THE AMOUNT OF $2,500 AS A CONTRIBUTION IN AID OF CONSTRUCTION PAYMENT TO FPL TO PROVIDE THE MODIFICATIONS TO THE EXISTING ELECTRICAL SERVICE.

EXISTING SIGN LIGHTING NOTES:

1. MAINTAIN THE EXISTING SIGN LIGHTING SERVICE POLE. RELOCATE SERVICE MAST, SERVICE METER AND PANELBOARD TO THE NORTH SIDE OF THE POLE.
2. REPLACE THE EXISTING UG BRANCH CIRCUITS FROM THE PANELBOARD TO THE SIGN (3/4" SCH 40 PVC, 4#12 & 1#12G).

ELECTRICAL LOAD CALCULATIONS

LIFT STATION PUMP NO.1	4 HP	10 AMPS
LIFT STATION PUMP NO.2	4 HP	10 AMPS
TOTAL MOTOR LOAD		20 AMPS
LIGHTING AND CONTROLS	3 KVA	25 AMPS
TOTAL CONNECTED LOAD		45 AMPS
TOTAL NON–COINCIDENTAL LOAD		0 AMPS
PEAK DEMAND AMPS		45 AMPS
0.25 X LARGEST MOTOR		3 AMPS
MIN SERVICE AMPACITY 3 PHASE		48 AMPS
MIN MAIN BREAKER SIZE		57 AMPS

ELECTRICAL SERVICE:
100 AMP, 240/120 VOLT, 3 PHASE

NO.	BY	DATE	SYMBOL	REVISIONS
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DESIGNER:	WDL
DRAWN BY:	TCG
CHECKED BY:	WDL
APPROVED BY:	TCG
DATE:	FEBRUARY 2020

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PINE LAKES PUMP STATION UPGRADE PROJECT

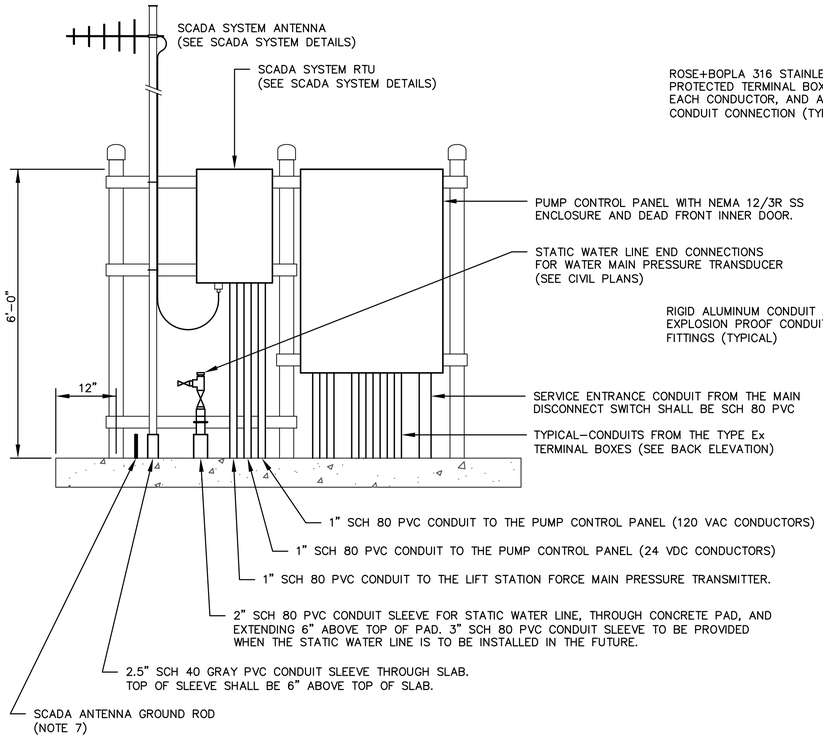
ELECTRICAL SINGLE LINE DIAGRAM

PROJECT NO.	100408.29
FILE NAME	852E00P4.DWG
SHEET NO.	E-1

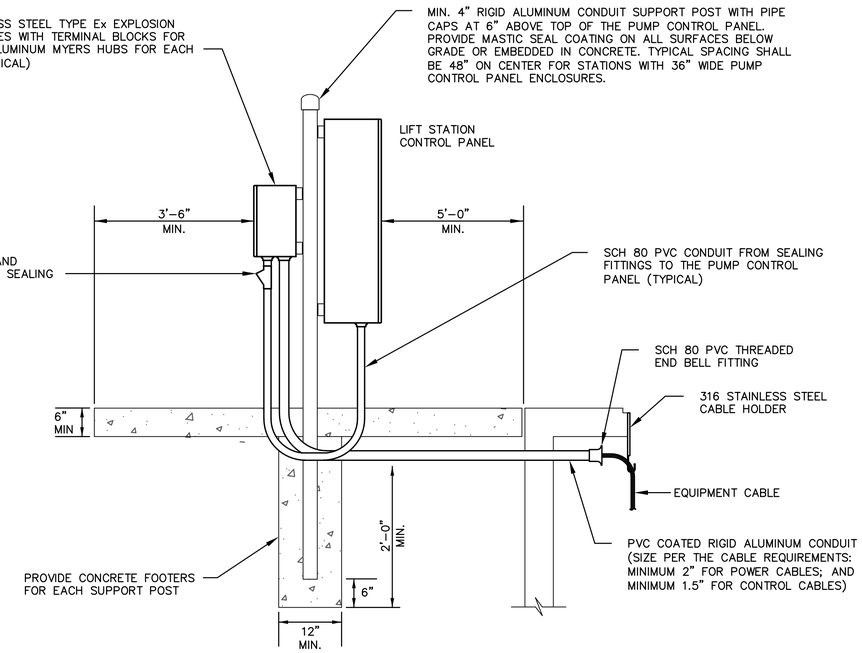
ISSUED FOR BID

NOTES:

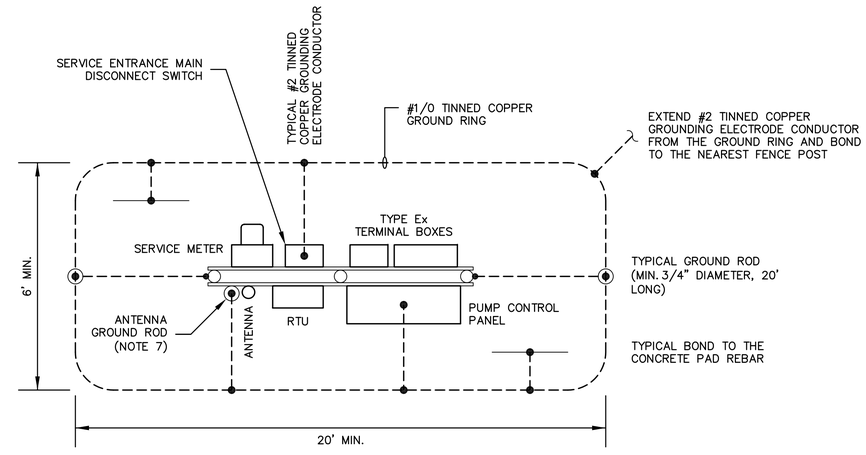
1. THE CONTRACTOR SHALL SCHEDULE AN ELECTRICAL PRE–CONSTRUCTION COORDINATION SITE MEETING WITH SJCUD AND THE ELECTRICAL DESIGN ENGINEER TO COORDINATE SITE SPECIFIC REQUIREMENTS OF THE ELECTRICAL EQUIPMENT INSTALLATION.
2. THE CONTRACTOR SHALL SCHEDULE AN ELECTRICAL ROUGH–IN SITE INSPECTION WITH SJCUD AND THE ELECTRICAL DESIGN ENGINEER TO INSPECT THE ELECTRICAL EQUIPMENT INSTALLATION PRIOR TO POURING CONCRETE.
3. GROUNDING ELECTRODE SYSTEM: PROVIDE A GROUND RING PER NEC 250.52, ENCIRCLING THE ELECTRICAL SERVICE EQUIPMENT, CONSISTING OF CONTINUOUS #1/0 TINNED COPPER CONDUCTOR AT 30" BELOW GRADE.
4. PROVIDE GROUND RODS (MINIMUM 3/4" DIAMETER, 20' LONG COPPER CLAD STEEL) BONDED TO EACH END OF THE GROUND RING, AT LEAST 20' APART. GROUND ROD SECTIONS SHALL BE COUPLED AND DRIVEN TO ESTABLISH A MAXIMUM RESISTANCE TO GROUND OF 5 OHMS THROUGHOUT THE GROUNDING ELECTRODE SYSTEM.
5. GROUNDING ELECTRODE CONDUCTOR: PROVIDE MINIMUM #2 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR FROM THE GROUND RING TO THE SERVICE ENTRANCE DISCONNECT SWITCH, PUMP CONTROL PANEL, RTU, SCADA SYSTEM ANTENNA TOWER, ELECTRICAL EQUIPMENT RACK END POSTS, AND FENCE. USE GROUND CLAMPS RATED FOR CONNECTIONS TO END POSTS AND FENCE POSTS. GROUND CLAMPS SHALL BE RATED FOR DIRECT BURIAL. INSTALL GROUNDING ELECTRODE CONDUCTORS IN 3/4" SCH 80 PVC CONDUIT SLEEVE FOR MECHANICAL PROTECTION.
6. THE CONTRACTOR SHALL REVIEW THE SCADA SYSTEM DETAILS AND SHALL MAKE ALL PROVISIONS REQUIRED FOR THE INSTALLATION OF THE SCADA SYSTEM RTU AND ANTENNA INCLUDING: SLEEVE FOR THE ANTENNA MAST, GROUND ROD FOR THE ANTENNA MAST, RTU POWER AND CONTROL CONDUITS, FORCE MAIN PRESSURE TRANSMITTER CONDUIT, AND THE WATER MAIN PRESSURE TRANSMITTER STATIC WATER LINE.
7. THE TOP OF THE GROUND ROD FOR THE SCADA SYSTEM ANTENNA SHALL EXTEND NO MORE THAN 6" AND NO LESS THAN 4" ABOVE THE CONCRETE SLAB.



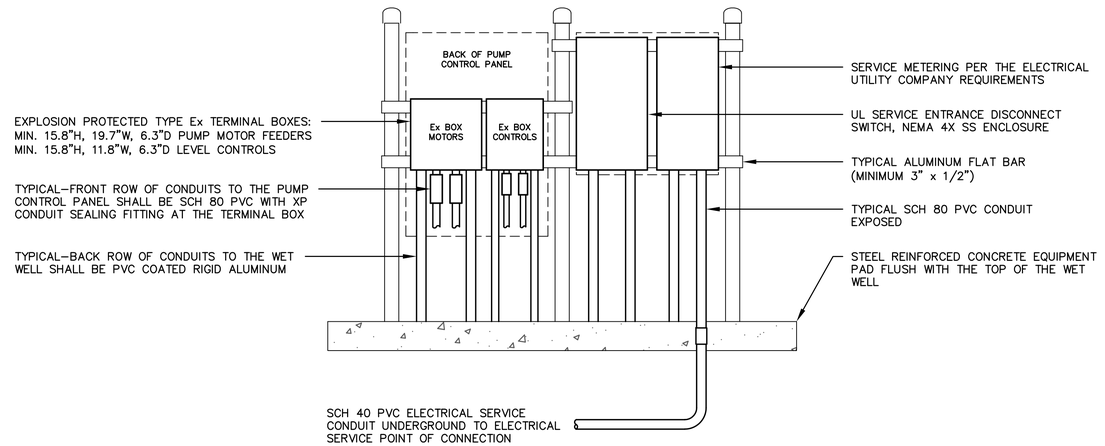
FRONT ELEVATION



SIDE VIEW



ELECTRICAL EQUIPMENT GROUNDING SYSTEM DETAIL
NOT TO SCALE



BACK ELEVATION

TYPICAL LIFT STATION ELECTRICAL EQUIPMENT INSTALLATION DETAIL
NOT TO SCALE

NO.	BY	DATE	SYMBOL	REVISIONS
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DESIGNER:	WDL
DRAWN BY:	TCG
CHECKED BY:	WDL
APPROVED BY:	TCG
DATE:	FEBRUARY 2020

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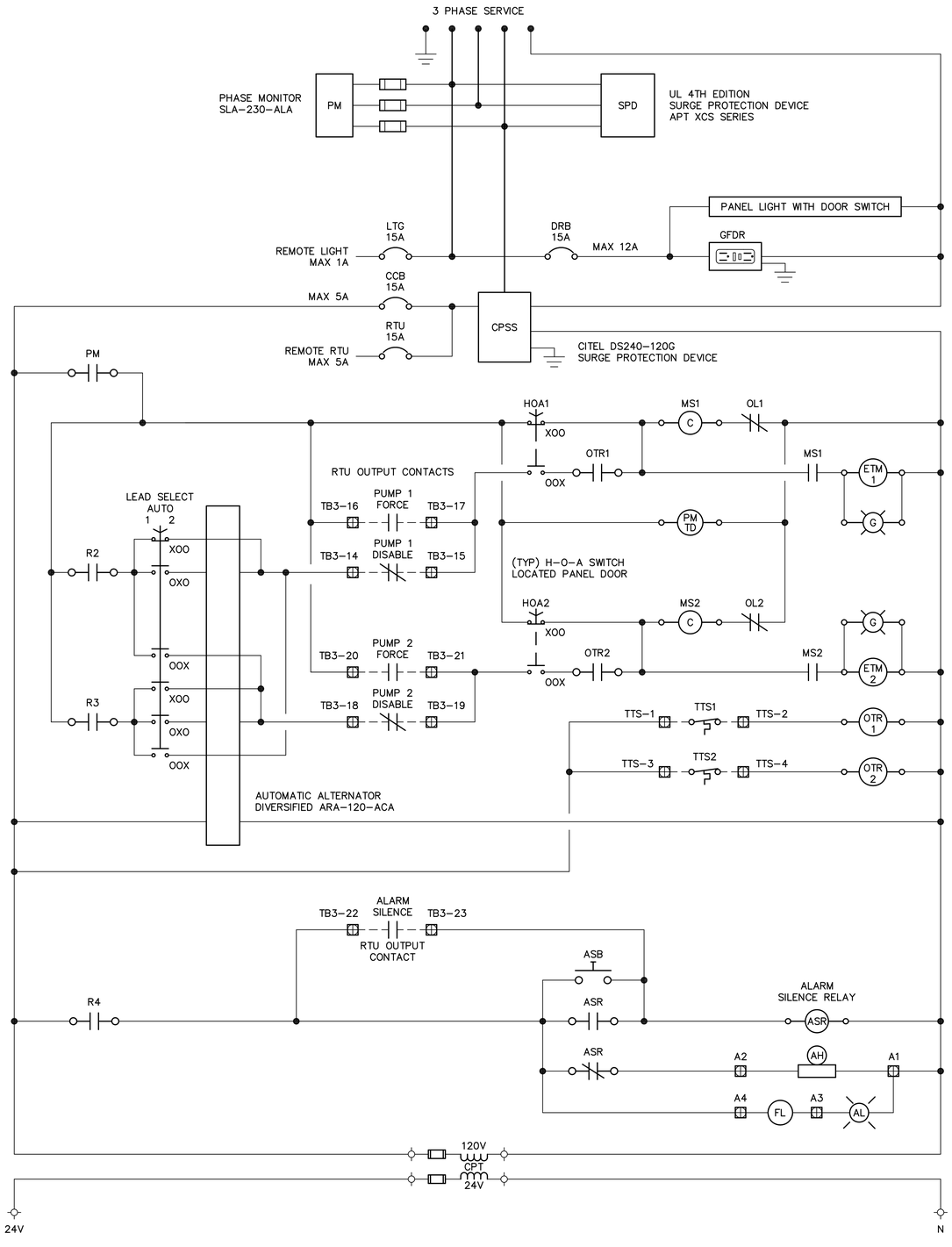
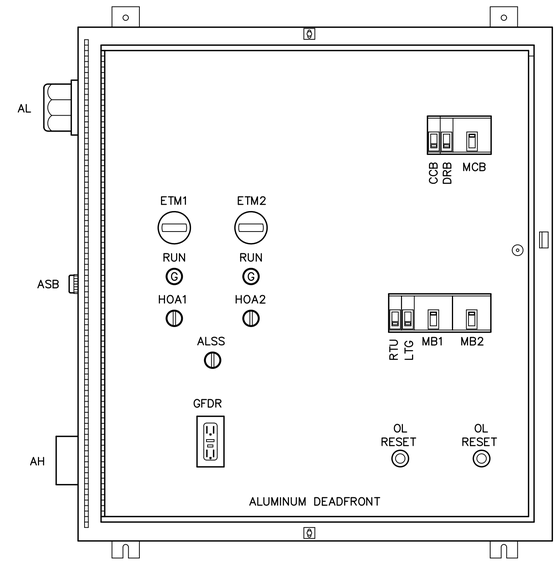
PINE LAKES PUMP STATION UPGRADE PROJECT

SJCUD STANDARD SUBMERSIBLE LIFT STATION
ELECTRICAL DETAILS

PROJECT NO.	100408.29
FILE NAME	852E00P4.DWG
SHEET NO.	E-2

ISSUED FOR BID





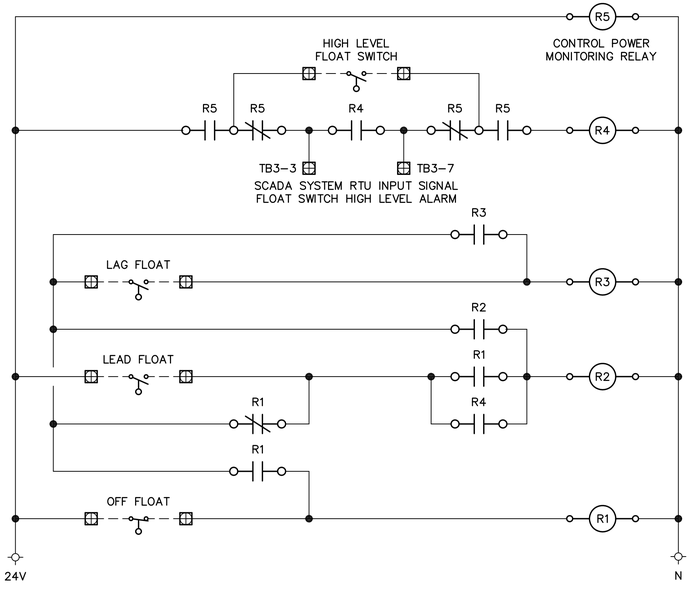
OUTER DOOR REMOVED TO SHOW DEADFRONT LAYOUT
NEMA TYPE 12/3R S.S. ENCL. WITH CONTINUOUS HINGE
ALL HARDWARE STAINLESS STEEL, WITH 3-PT LATCH

NOTES:

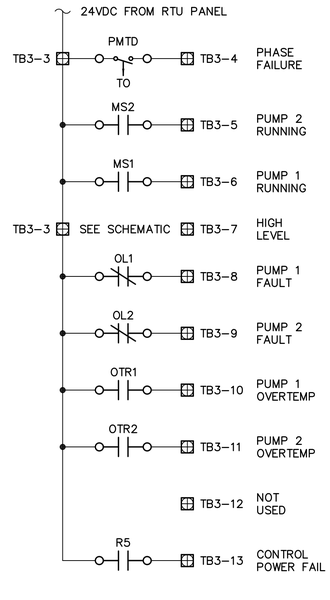
1. CONTROL PANEL TO BE UL AND SERVICE ENTRANCE RATED.
2. ALL CONTROL PANEL WIRING, RTU WIRING, AND ALL WIRING FROM THE CONTROL PANEL TO THE RTU, SHALL BE TINNED CONDUCTORS.
3. ALL CONTROL RELAYS SHALL BE TPDT.
4. POWER MONITOR TIME DELAY RELAY "PMTD" SHALL BE EATON TMR6 TIME DELAY ON DE-ENERGIZE RELAY PROVIDING OFF DELAY FUNCTION WITHOUT REQUIRING INPUT VOLTAGE DURING OFF TIME DELAY. SET OFF TIME DELAY AT 60 SECONDS.
5. FIELD TERMINAL BLOCKS SHALL BE ANGLE MOUNTED TO FACILITATE FIELD CONNECTIONS.
6. TERMINALS FOR PUMP CONTROLS (RTU OUTPUTS, 120VAC) TB3-14 THRU TB3-23 SHALL BE COLOR CODED RED. TERMINALS FOR SCADA SIGNALS (RTU INPUTS, 24VDC) TB3-3 THRU TB3-13 SHALL BE COLOR CODED BLUE.

CONTROL PANEL LEGEND

AH	–	ALARM HORN
AL	–	ALARM LIGHT
ASB	–	ALARM SILENCE BUTTON
ASR	–	ALARM SILENCE RELAY
ALSS	–	ALTERNATOR LEAD SELECTOR SWITCH
CPSS	–	CONTROL POWER SURGE SUPPRESSOR
CCB	–	CONTROL CIRCUIT BREAKER
DPDT	–	DOUBLE POLE DOUBLE THROW
DRB	–	DUPLEX RECEPTACLE BREAKER
ETM	–	ELAPSED TIME METER
F	–	FUSE
FB	–	FUSE BLOCK
FL	–	FLASHER
G	–	GREEN LED "RUNNING" PILOT LIGHT
GFDR	–	GROUND FAULT DUPLEX RECEPTACLE
LCB	–	LIGHTING CIRCUIT BREAKER
MB	–	MOTOR BREAKER
MCB	–	MAIN CIRCUIT BREAKER
MS	–	MOTOR STARTER
OL	–	OVERLOAD
OT	–	OVERTEMP
PB	–	POWER BLOCK
PM	–	PHASE MONITOR
R	–	RELAY
RCB	–	RTU CIRCUIT BREAKER
RL	–	RUNNING LIGHT
SPD	–	SURGE PROTECTION DEVICE
TB	–	TERMINAL BLOCK
TTS	–	THERMAL TERMINAL STRIP



SCADA SYSTEM RTU INPUT SIGNALS



NO.	BY	DATE	SYMBOL	REVISIONS
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DESIGNER:	WDL
DRAWN BY:	TCG
CHECKED BY:	WDL
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PINE LAKES PUMP STATION UPGRADE PROJECT

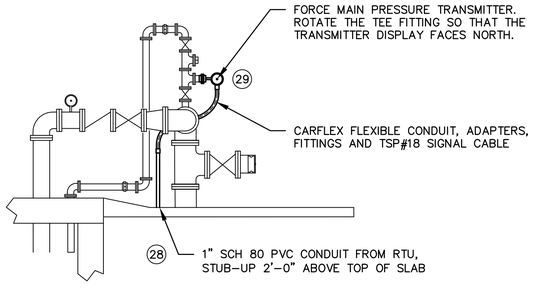
SJCUD STANDARD SUBMERSIBLE LIFT STATION
PUMP CONTROL PANEL DETAILS

PROJECT NO.	100408.29
FILE NAME	852E00P4.DWG
SHEET NO.	E-3

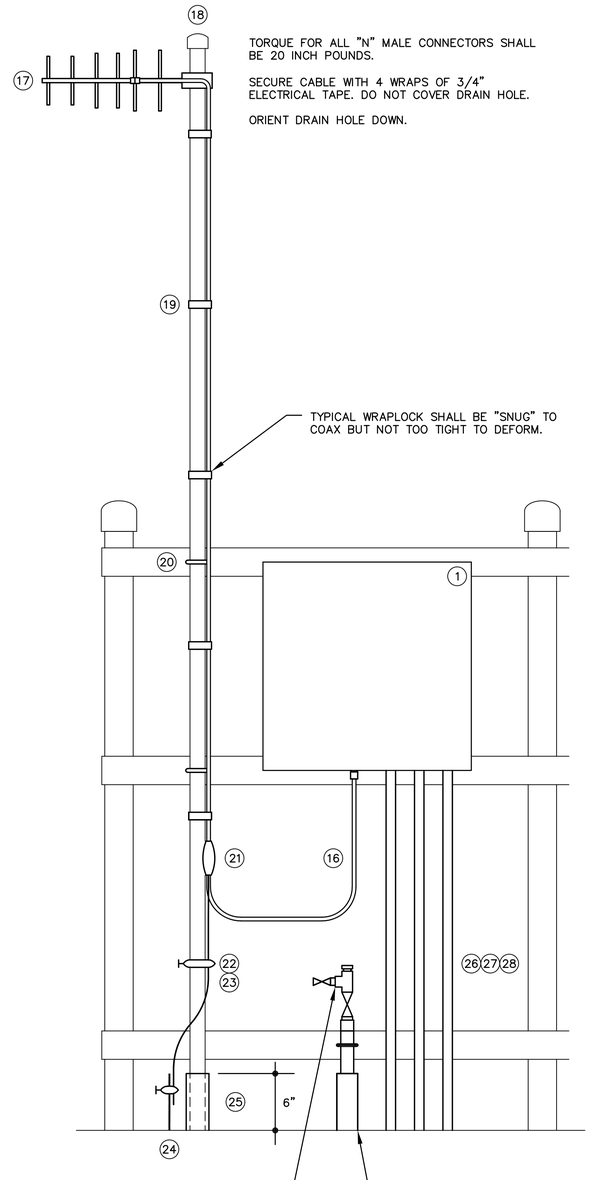
ISSUED FOR BID

SCADA SYSTEM NOTES:

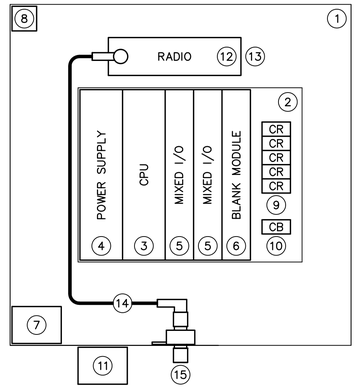
1. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A SJCUD PRE–APPROVED SCADA SYSTEM INTEGRATOR TO PERFORM ALL SCADA SYSTEM ADDITIONS AND MODIFICATIONS INCLUDING: NEW RTU, ANTENNA, AND ANTENNA MAST.
2. THE SCADA SYSTEM SUPPLIER SHALL MODIFY AND UPGRADE THE EXISTING SJCUD MASTER SCADA SYSTEM AS REQUIRED TO INCORPORATE THE NEW FACILITIES.
3. THE CONTRACTOR AND THE SCADA SYSTEM SUPPLIER SHALL COORDINATE ALL SCADA SYSTEM INSTALLATION WITH THE SJCUD SCADA SYSTEM SUPERVISOR.
4. THE SCADA SYSTEM RTU SHALL BE A SJCUD STANDARD LIFT STATION RTU WITH MOTOROLA ACE3600 RTU CONFIGURED WITH MIXED I/O MODULES AS INDICATED. PROVIDE POWER AND SIGNAL LINE SURGE PROTECTION.
5. PRIOR TO SHOP DRAWING SUBMITTALS, THE SCADA SYSTEM SUPPLIER SHALL CONFIRM RADIO/ANTENNA SELECTION WITH THE SJCUD SCADA SYSTEM SUPERVISOR.
6. IN ORDER TO MAINTAIN FCC PART 15 COMPLIANCE, ALL ANTENNA WORK MUST BE PERFORMED OR CERTIFIED BY AN FCC CERTIFIED TECHNICIAN. THE SJCUD SCADA SUPERVISOR WILL INSPECT AND CERTIFY (AT NO CHARGE) BUT WILL NOT PERFORM CORRECTIVE ACTIONS.
7. ANTENNA MAST GROUND ROD SHALL BE BONDED (UNDERGROUND) TO THE STATION ELECTRICAL SYSTEM GROUNDING GRID.
8. ALL GROUNDING CONDUCTORS SHALL HAVE AN EVEN SLOPE FROM POINT OF CONTACT TO THE GROUND ROD (NO 90° BENDS).
9. ALL GROUND CONTACT POINTS SHALL BE PROTECTED BY AN ANTI–OXIDATION COMPOUND.
10. ALL RF CONNECTORS SHALL BE TIGHTENED TO MANUFACTURER SPECIFICATIONS, AND SHALL BE PROPERLY SEALED. COLD SHRINK IS NOT ACCEPTABLE.
11. DRAIN HOLES ON ANTENNAS MUST BE ORIENTED DOWN.
12. ALL THREADED CONNECTIONS, EXCEPT ANTENNA CONNECTIONS, SHALL BE PROTECTED WITH ANTI–SEIZE TREATMENT.
13. THE "POWER" CONDUIT FROM THE RTU TO THE PUMP CONTROL PANEL SHALL BE USED FOR ALL 120 VAC CONDUCTORS, INCLUDING THE RTU INPUT POWER AND THE DIGITAL OUTPUT CONDUCTORS.
14. THE "CONTROL" CONDUIT FROM THE RTU TO THE PUMP CONTROL PANEL SHALL BE USED FOR ONLY 24 VDC CONDUCTORS, INCLUDING THE DIGITAL INPUT SIGNAL CONDUCTORS AND THE ANALOG INPUT SIGNAL CABLES. PROVIDE 1TSP#18 CABLE FOR EACH ANALOG INPUT SIGNAL.
15. PROVIDE DIN RAIL ON BACK PLANE AT THE RTU RADIO MOUNTING LOCATION FOR THE 4RF RADIO MOUNTING BRACKET. MOUNT THE DIN RAIL USING EXISTING TAPPED SCREW HOLES. DO NOT DRILL AND TAP NEW HOLES.
16. THE SCADA SYSTEM SUPPLIER SHALL PROVIDE THE FORCE MAIN PRESSURE TRANSMITTER, INCLUDING ASHCROFT TYPE 330 FLUSH DIAPHRAGM SEAL, AND ALUMINUM M20x1.5 METRIC TO 1/2" NPT CONDUIT CONNECTION ADAPTER.



FORCE MAIN PRESSURE TRANSMITTER DETAIL
NOT TO SCALE



SCADA SYSTEM ANTENNA DETAIL
NOT TO SCALE



SCADA SYSTEM RTU DETAIL
NOT TO SCALE

SCADA SYSTEM EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	
1	RTU ENCLOSURE, SCHAEFER'S ELECTRICAL ENCLOSURE MODEL SPN4AL–20208–735, DO NOT SUBSTITUTE, NEMA 12/3R ALUMINUM ENCLOSURE, PADLOCK PROVISIONS, ALUMINUM TOP, SIDES, AND DOOR SUN SHIELDS	
2	MOTOROLA ACE3600 METAL CHASSIS WITH 3 I/O SLOT FRAME	V214/V103
3	MOTOROLA ACE3600 RTU WITH UPGRADE TO CPU3680 AND SECURITY ENABLE OPTION	F7509/V448/VA00360AA
	MOTOROLA CPU PLUG–IN ETHERNET 10/100 M PORT	V212
4	MOTOROLA ACE3600 AC POWER SUPPLY WITH BATTERY CHARGER	V261
5	MOTOROLA ACE3600 MIXED I/O MODULE 16DI, 4DO EE, 4AI, ±20 mA WITH FLOATING POWER SUPPLY	V245/V260
6	MOTOROLA ACE3600 BLANK I/O MODULE	V20
7	MOTOROLA BATTERY POWER CABLE	FKN8376
	BATTERY BACKUP 12V, 7AH, SEALED RECHARGEABLE SLA BATTERY, TOYO–USP 6FMS7	
8	INTRUSION SWITCH WITH PULL TO DEFEAT FEATURE HONEYWELL MICRO SWITCH 1DM401	
9	DIN RAIL MOUNTED DIGITAL OUTPUT CONTROL RELAYS OMRON G2R–1–SNI–DC12–S, 12VDC, SPDT, PTT	
10	DIN RAIL MOUNTED CIRCUIT BREAKER SUPPLEMENTARY PROTECTOR EATON FAZ–C10/1–SP	
11	DITEK DTK–120HW SURGE PROTECTION DEVICE 120VAC	
12	4RF DIGITAL RADIO MODEL APSQ–N220–SSC–HD–22–ENAA 4RF DIGITAL RADIO DIN RAIL MOUNTING BRACKET APSB–MBRK–DIN (NOTE 15) RADIO POWER CABLE 12VDC WITH PLUG COMPATIBLE WITH MOTOROLA POWER SUPPLY	
13	RADIO COMMUNICATION CABLE TYPE 568B ETHERNET CABLE, 1M	
14	LMR–195 FLEXIBLE COAX, RIGHT ANGLE N MALE/RIGHT ANGLE TNC MALE CONNECTORS, 36" LONG	
15	TIMES MICROWAVE LP–HBX–NFF COAX SURGE ARRESTER	
16	TIMES MICROWAVE LMR–400–DB COAX, TYPE N MALE CONNECTORS EZ–400–NMH–D	
17	ASTRON MODEL 220–6H ANTENNA (Contact: Marina Burgstahler MBurgstahler@tasmllc.com) AMPHENOL PROCOM 7042220 YAGI ANTENNA & BRACKET KIT 0300064/00 (Contact: TESSCO 800–742–7373) COMTELCO Y6625DHD YAGI ANTENNA (Contact: Technical Field Service, Inc. 904–591–9579)	
18	ANTENNA MAST 2" x 20' LONG SCHEDULE 40 ALUMINUM PIPE, WHITE PVC CAP	
19	1/2" SS WRAPLOCK BANDS, 3' ON CENTER. TIE WRAPS ARE NOT ACCEPTABLE.	
20	3/8" SS U–BOLTS. ANTI–SEIZE MUST BE USED ON ALL THREADS.	
21	TESSCO GK–S38 COAX GROUND KIT	
22	GROUNDING CLAMP RATED FOR DIRECT BURIAL	
23	NO.2 AWG SOLID TINNED COPPER CONDUCTOR	
24	COPPER CLAD STEEL GROUND ROD, 3/4" DIAMETER, 20' LONG	
25	2.5" SCHEDULE 40 GRAY PVC CONDUIT SLEEVE THROUGH SLAB	
26	1" SCH 80 PVC "POWER" CONDUIT TO PUMP CONTROL PANEL, 120 VAC CONDUCTORS	
27	1" SCH 80 PVC "CONTROL" CONDUIT TO PUMP CONTROL PANEL, 24 VDC CONDUCTORS	
28	1" SCH 80 PVC CONDUIT TO THE LIFT STATION FORCE MAIN PRESSURE TRANSMITTER	
29	FORCE MAIN PRESSURE TRANSMITTER: WIKA UPT–20SS WITH STAINLESS STEEL HOUSING (SEE NOTE 16)	

RTU I/O SCHEDULE

MIXED I/O MODULE		MIXED I/O MODULE	
DI	SIGNAL DESCRIPTION	DI	SIGNAL DESCRIPTION
01	RTU INTRUSION SWITCH	01	SPARE
02	HIGH LEVEL	02	SPARE
03	PHASE FAILURE	03	SPARE
04	PUMP 1 RUNNING	04	SPARE
05	PUMP 2 RUNNING	05	SPARE
06	PUMP 1 FAIL	06	SPARE
07	PUMP 2 FAIL	07	SPARE
08	CONTROL POWER	08	SPARE
09	PUMP 1 OVERTEMP	09	SPARE
10	PUMP 2 OVERTEMP	10	SPARE
11	TRANSDUCER HIGH LEVEL	11	SPARE
12	SPARE	12	SPARE
13	SPARE	13	SPARE
14	SPARE	14	SPARE
15	SPARE	15	SPARE
16	SPARE	16	SPARE
DO	SIGNAL DESCRIPTION	DO	SIGNAL DESCRIPTION
01	PUMP 1 DISABLE	01	ALARM SILENCE
02	PUMP 2 DISABLE	02	SPARE
03	PUMP 1 REMOTE RUN	03	SPARE
04	PUMP 2 REMOTE RUN	04	SPARE
AI	SIGNAL DESCRIPTION	AI	SIGNAL DESCRIPTION
01	WET WELL LEVEL	01	SPARE
02	FORCE MAIN PRESSURE	02	SPARE
03	WATER MAIN PRESSURE	03	SPARE
04	SPARE	04	SPARE

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SCADA SYSTEM DETAILS

PROJECT NO.	100408.29
FILE NAME	852E00P4.DWG
SHEET NO.	E-4

ISSUED FOR BID