

# CONSTRUCTION PLANS FOR CAMP JOY UTILITY CONNECTIONS 5303 BAPTIST CAMP ROAD APOPKA, FL 32712

**SOURCE OF BENCH MARK  
DATUM FOR THIS PROJECT**

VERTICAL INFORMATION SHOWN HEREON REFERS TO ORANGE COUNTY BENCHMARK #172-395-007 AN "X" CUT ON THE EAST BOLT ON TOP FLANGE OF FIRE HYDRANT ON EAST SIDE OF ROCK SPRINGS ROAD 370'± SOUTH OF INTERSECTION OF ROCK SPRINGS AND KELLY PARK ROAD. ELEVATION=83.275 FEET NGVD 29 DATUM, WITH A CONVERSION FACTOR OF -0.963 FEET; NAVD 88 DATUM ELEVATION=82.314 FEET.

**STANDARDS AND SPECIFICATIONS:**

FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS FOR CONSTRUCTION AND MAINTENANCE ON THE STATE HIGHWAY SYSTEM (2017-18 EDITION).

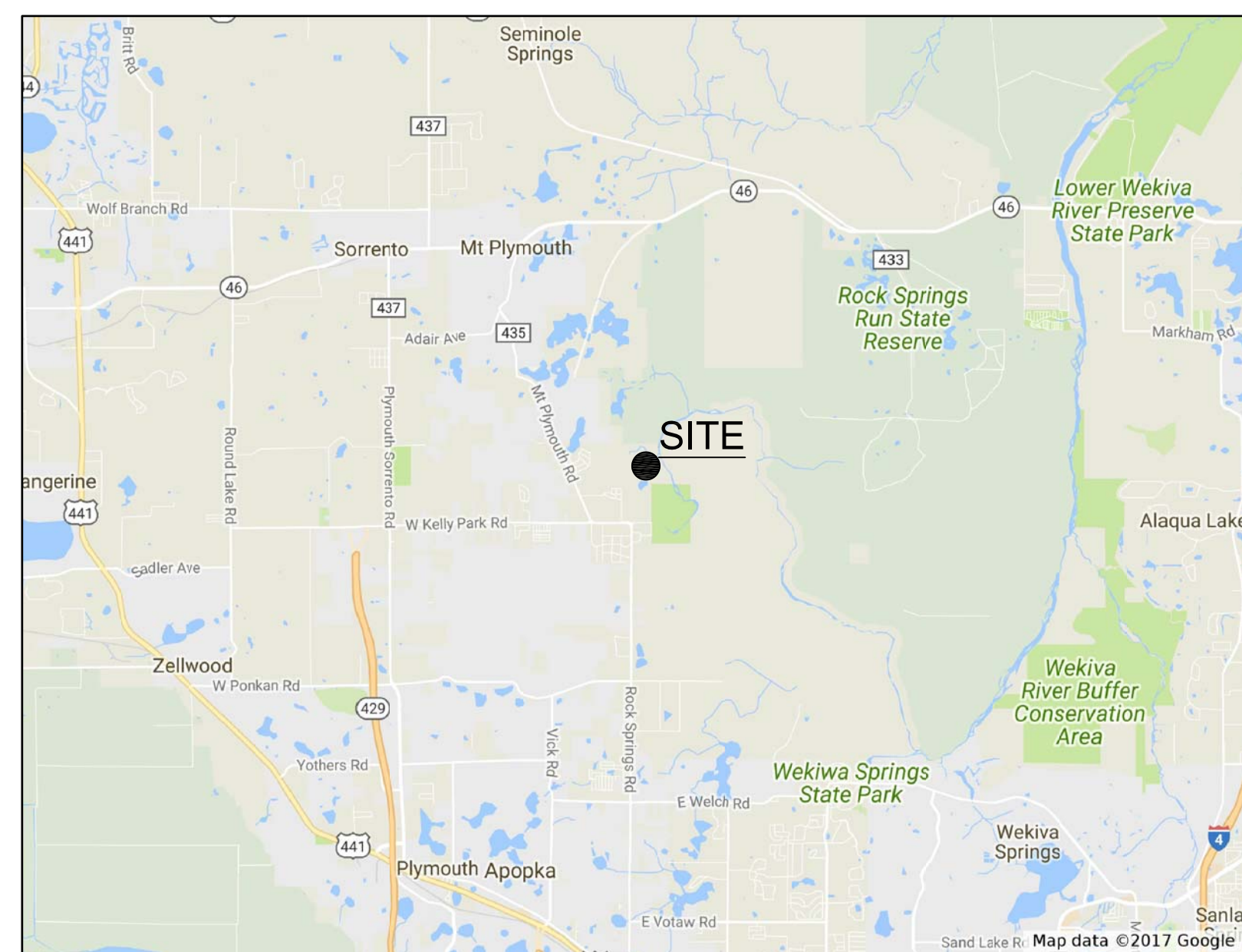
AND

FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2018 EDITION) AS AMENDED BY CONTRACT DOCUMENTS.

AND

THE CITY OF APOPKA UTILITIES DESIGN AND CONSTRUCTION STANDARDS MANUAL.

FLORIDA BUILDING CODE, SIXTH EDITION (2017)



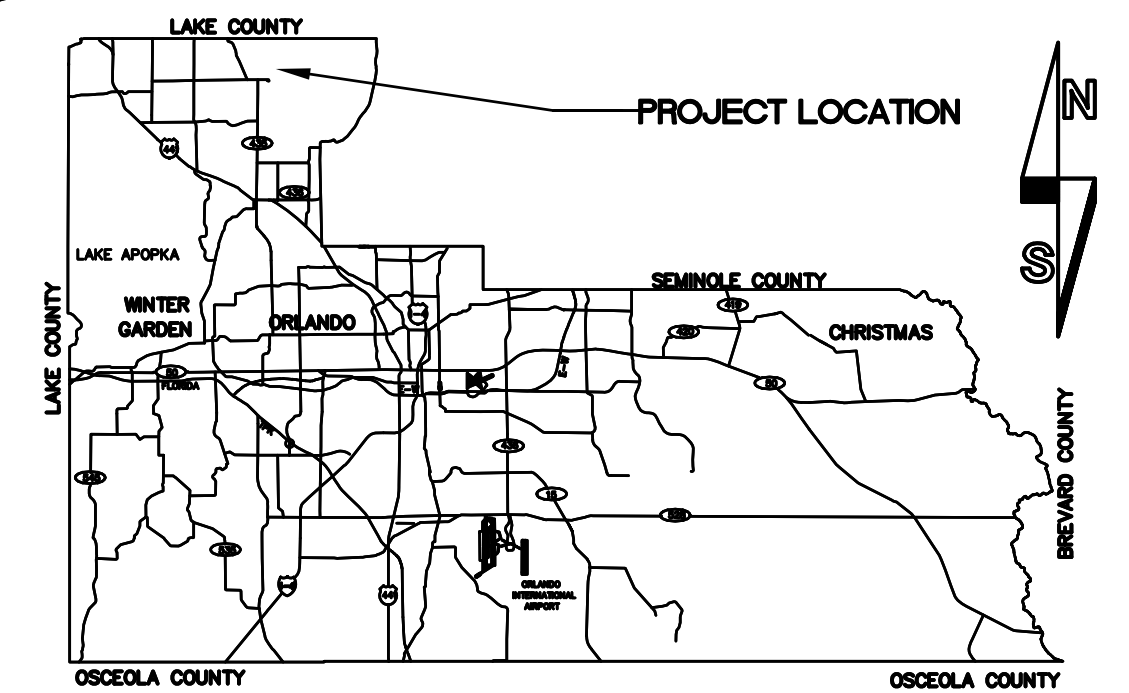
**VICINITY MAP**

NOT TO SCALE

**Permit/Bid Set**

**SITE DATA TABLE**

PARCEL ID#: 10-20-28-0000-00-006  
ADDRESS: 5303 BAPTIST CAMP ROAD  
ZONING: A-2  
FLU: PR-OS  
SITE AREA: 37.707 ACRES  
USE: RECREATIONAL



SECTIONS 9, TOWNSHIP 23 SOUTH, RANGE 30 EAST

**LOCATION MAP**

**INDEX OF SHEETS  
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C3.0	OFFSITE UTILITY EXTENSION
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C9.0	MAINTENANCE OF TRAFFIC PLANS

**UTILITIES ENCOUNTERED**

WATER & SEWER: CITY OF APOPKA	407-703-1700
ELECTRIC: DUKE ENERGY	407-464-1220
PHONE: TBD	

**BOARD OF COUNTY COMMISSIONERS**

TERESA JACOBS	COUNTY MAYOR
BETSY VANDERLEY	DISTRICT 1
ROD A. LOVE	DISTRICT 2
PETE CLARKE	DISTRICT 3
JENNIFER THOMPSON	DISTRICT 4
EMILY BONILLA	DISTRICT 5
VICTORIA P. SIPLIN	DISTRICT 6

**NOTE**

PLANS WERE PREPARED TO AVAILABLE INFORMATION TO ADEQUATELY ADDRESS CONDITIONS AS THEY EXISTED AT THE TIME OF PLANS PREPARATION. DEEDS, CONDITIONS AND OWNERSHIP OF PROPERTIES MAY HAVE CHANGED SINCE PROJECT DESIGN. THE COUNTY'S REPRESENTATIVE WILL ADDRESS CHANGES AND NEEDS WITH THE PROPERTY OWNER OR THEIR REPRESENTATIVES. CONTRACTOR SHALL WORK WITH THE COUNTY'S REPRESENTATIVE IN ADDRESSING AND MEETING NEEDS AND CONDITIONS THAT MAY HAVE CHANGED SINCE PLANS PREPARATION.

DATE: \_\_\_\_\_ ENGINEER: JEFFREY J. EARHART REG. NO. 49935

DESIGNED BY: JJE	DATE: 01/04/2018
DRAWN BY: JWK	DATE: 02/19/2018
CHECKED BY: JJE	DATE: 02/21/2018
PROJECT NO: 160016 CAMP JOY	

SHEET C0.0  
OF C9.0

GENERAL NOTES:

- 1. ALL DESIGN AND CONSTRUCTION SHALL MEET THE LATEST CODES, STANDARDS, REGULATIONS & REQUIREMENTS OF ORANGE COUNTY OR THE FLORIDA DEPARTMENT OF TRANSPORTATION... 2. THE LOCATION OF ALL EXISTING UTILITIES AND TOPOGRAPHIC FEATURES SHOWN ON THE PLANS... 3. THE CONTRACTOR SHALL ADEQUATELY PROTECT ALL EXISTING STRUCTURES AND UTILITIES FROM DAMAGE OR DISPLACEMENT DURING CONSTRUCTION... 4. THE CONTRACTOR SHALL NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES WHICH ARE OCCUPIED OR IN USE WITHOUT WRITTEN PERMISSION OF THE UTILITY COMPANY... 5. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER, ANY EXTRA WORK REQUESTED BY ANY REGULATORY AGENCY THAT IS NOT SHOWN ON THE PLANS... 6. DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO INSURE AGAINST POLLUTING, SILTING, OR DISTURBING TO SUCH AN EXTENT AS TO CAUSE AN INCREASE IN TURBIDITY TO EXISTING WATER BODIES... 7. FOR BENCHMARKS/HORIZONTAL CONTROL, CONTACT SOUTHEASTERN SURVEYING... 8. BENCHMARKS, SURVEY MONUMENTS AND/OR OTHER REFERENCE POINTS SHALL BE CAREFULLY MAINTAINED... 9. SOD SHALL BE PER ENGINEER'S SPECIFICATIONS, ALL SLOPES 4:1 OR STEEPER SLOPES SHALL BE SOODED... 10. ALL SOIL STRIPPINGS AND ANY UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER... 11. AS-BUILT MEASUREMENTS ARE TO BE PREPARED BY A FLORIDA REGISTERED SURVEYOR, REVIEWED BY THE CONTRACTOR, THEN SIGNED AND SEALED BY THE ENGINEER OF RECORD... 12. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PROTECT ALL TREES AND OTHER VEGETATION OUTSIDE THE LIMITS OF CONSTRUCTION... 13. ANY AND ALL PERMITS REQUIRED FOR CONSTRUCTION PURPOSES (LABOR, R/W, UTILIZATION, ETC.) SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR... 14. PRIOR TO STARTING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED... 15. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS AND/OR EASEMENTS BEFORE BEGINNING CONSTRUCTION... 16. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TRASH AND RUBBLE FROM THE SITE... 17. CONTRACTOR SHALL PROVIDE AN EROSION CONTROL PLAN TO THE COUNTY ENGINEER FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING... 18. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF APPROVED CONSTRUCTION PLANS ON THE JOB SITE DURING ALL PHASES OF CONSTRUCTION... 19. SHOP DRAWINGS OF ALL MATERIAL BEING USED FOR CIVIL SITE WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION... 20. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH CURRENT FOOT STANDARD INDEXES AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES... 21. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE OF THE SITE TO THE PROPOSED INLETS AND MITERED END SECTIONS AS SHOWN BY PROPOSED GRADES OR OTHERWISE INDICATED BY FLOW ARROWS... 22. FLORIDA STATUTE 553.851 (1978) REQUIRES THAT BEFORE EXCAVATION, NOTICE BE GIVEN TO THE UTILITY OWNER A MINIMUM OF TWO (2) DAYS AND A MAXIMUM OF FIVE (5) DAYS... 23. PRIOR TO COMMENCEMENT OF ANY EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH FLORIDA STATUTE 553.851 FOR THE PROTECTION OF UNDERGROUND GAS PIPELINES... 24. ALL DITCH BOTTOM INLETS AND MANHOLES SHALL HAVE TRAFFIC BEARING FRAMES AND COVERS OR GRATES MEETING HS-20 LOADING REQUIREMENTS... 25. CONTRACTOR IS TO ADJUST ANY UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE (CLEAN OUT MANHOLES, CATCH BASINS, INLETS, ETC.) THAT IS AFFECTED BY SITE WORK OR GRADE CHANGES... 26. ELECTRICAL, TELEPHONE, GAS AND CABLE TELEVISION SERVICE WILL BE PROVIDED BY THE APPROPRIATE UTILITY COMPANIES... 27. ALL CONSTRUCTION SHALL BE PER THE ORANGE COUNTY ENGINEERING STANDARDS MANUAL (ESM) AND LAND DEVELOPMENT CODE (LDC) STANDARDS... 28. ANY DRAINAGE PROBLEM CREATED BY CONSTRUCTION, OR EXISTING BEFORE CONSTRUCTION, NOT ALLEVIATED, SHALL BE BROUGHT TO THE ATTENTION OF PROJECT ENGINEER... 29. BAPTIST CAMP ROAD SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES... 30. CAMP JOY'S BUILDINGS AND SITE ARE TO BE KEPT OPERATIONAL AND ACCESSIBLE AT ALL TIMES...

WATER MAIN NOTES:

- 1. DUCTILE IRON PIPE SHALL CONFORM TO ANSI/AWWA A21.51/C151. PIPE OF NOMINAL DIAMETER FOUR (4) INCHES THROUGH TWELVE (12) INCHES SHALL BE PRESSURE CLASS 350... 2. EACH LENGTH OF PIPE SHALL BEAR THE NAME OR TRADEMARK OF THE MANUFACTURER... 3. JOINTS FOR DUCTILE IRON PIPE SHALL BE PUSH-ON OR MECHANICAL JOINTS CONFORMING TO ANSI/AWWA A21.11/C111... 4. DUCTILE IRON FITTINGS SHALL HAVE FUSION-BONDED EPOXY COATING IN ACCORDANCE WITH ANSI/AWWA C116... 5. DUCTILE IRON PIPE SHALL HAVE AN INTERIOR PROTECTIVE LINING OF CEMENT MORTAR WITH A SEAL COAT OF ASPHALTIC MATERIAL... 6. THE EXTERIOR OF DUCTILE IRON PIPE SHALL BE COATED WITH ASPHALTIC MATERIAL... 7. GATE VALVES SHALL BE RESILIENT SEAT GATE VALVES, MANUFACTURED TO MEET OR EXCEED THE REQUIREMENTS OF AWWA C509... 8. ALL WATER MAIN SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 6' FROM ANY EXISTING OR PROPOSED FORCE MAINS AND SANITARY SEWER MAINS... 9. ALL PIPE AND FITTINGS SHALL BE INSPECTED PRIOR TO LOWERING INTO THE TRENCH... 10. NO CONNECTION SHALL BE MADE TO THE EXISTING CITY SYSTEM WITHOUT FIRST OBTAINING FDEP PERMIT... 11. HYDROSTATIC TESTS SHALL CONSIST OF PRESSURE AND LEAKAGE TESTS... 12. POTABLE WATER CONSTRUCTION SHALL MEET THE LATEST CODES AND MANUALS OF THE CITY OF APOPKA.

FORCE MAIN NOTES:

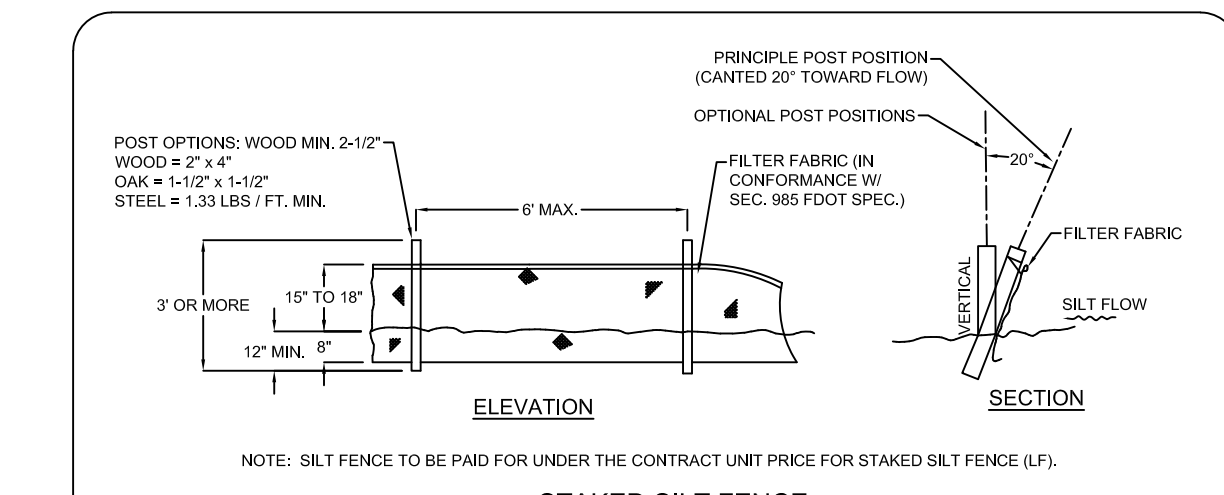
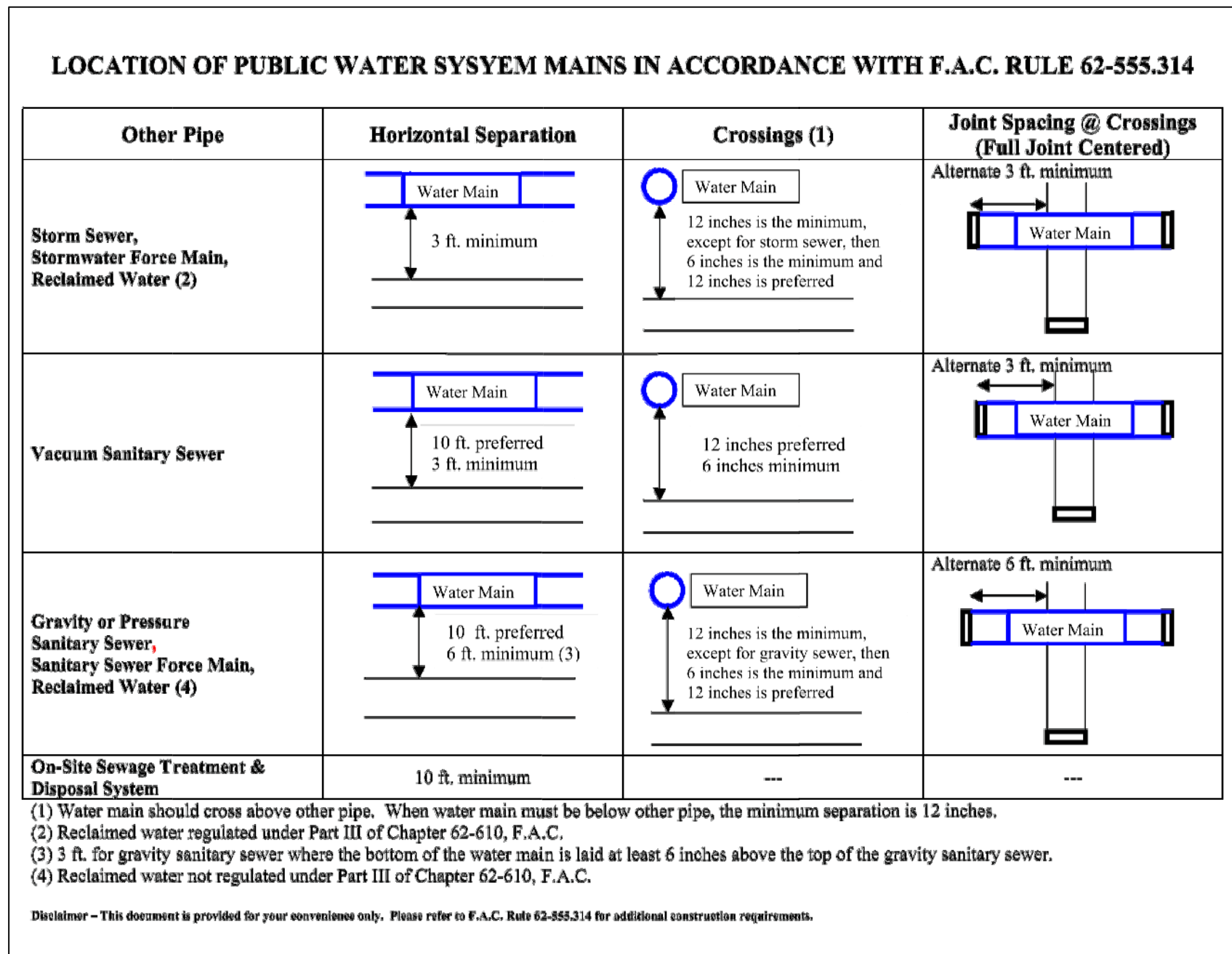
- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATERIALS FURNISHED AND STORAGE OF SAME, UNTIL THE DATE OF PROJECT COMPLETION... 2. PVC PIPE SHALL HAVE INTEGRAL BELL PUSH ON TYPE JOINTS CONFORMING TO ASTM D3139... 3. ALL PLUG VALVES SHALL BE INSTALLED SO THAT THE DIRECTION OF FLOW THROUGH THE VALVE IS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS... 4. IF HORIZONTAL SEPARATION IS NOT ATTAINABLE FOR NEW INSTALLATIONS OF POTABLE WATER AND SANITARY SEWER... 5. PRIOR TO FINAL INSPECTION AND ACCEPTANCE OF THE FORCE MAIN BY THE CITY... 6. UPON THE CITY'S FINAL INSPECTION OF THE PRESSURE PIPE SYSTEMS... 7. VALVES SHALL BE OF THE NON-LUBRICATED ECCENTRIC TYPE WITH RESILIENT FACED PLUGS... 8. VALVE BODIES SHALL BE OF ASTM A126, CLASS B SEMI-STEEL... 9. PORT AREAS FOR VALVES FOUR (4) INCHES THROUGH TWENTY (20) INCHES SHALL BE EIGHTY PERCENT (80%) NOMINAL PIPE DIAMETER... 10. VALVES SHALL BE FURNISHED WITH PERMANENTLY LUBRICATED STAINLESS STEEL OR OIL-IMPREGNATED BRONZE UPPER AND LOWER PLUG STEM BUSHINGS... 11. VALVE SHAFT SEALS SHALL BE ADJUSTABLE AND COMPLY WITH AWWA C507... 12. ALL FORCE MAIN SHALL HAVE A MINIMUM SEPARATION OF 6' FROM ANY EXISTING OR PROPOSED WATER LINES... 13. WASTEWATER CONSTRUCTION SHALL MEET THE LATEST CODES AND MANUALS OF THE CITY OF APOPKA.

EROSION CONTROL NOTES:

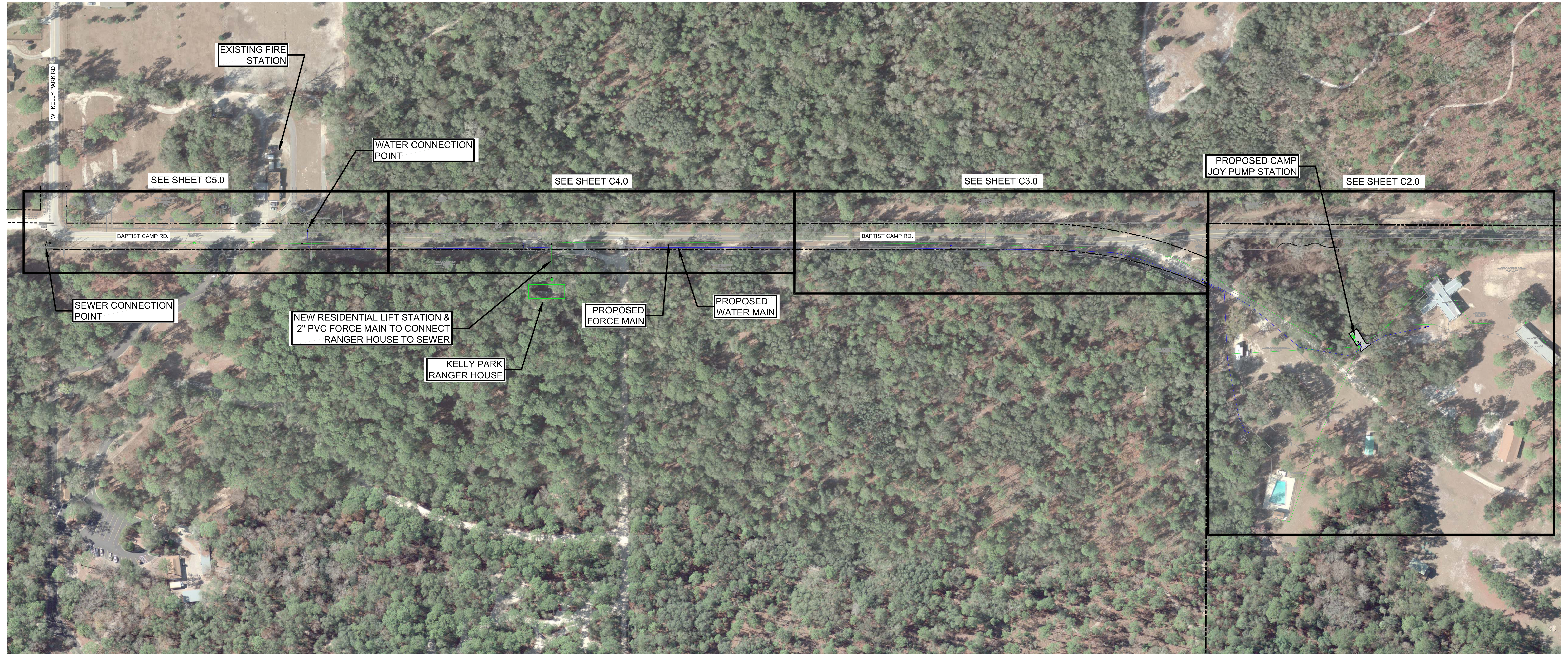
- (AN FDEP, NPDES, GENERAL PERMIT IS REQUIRED FOR SMALL ACTIVITIES - GREATER THAN 1 ACRE AND LESS THAN 5 ACRES, AND FOR LARGE ACTIVITIES - GREATER THAN 5 ACRES.) 1. A COPY OF THE NOTICE OF INTENT (NOI) OR LETTER FROM THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) CONFIRMING COVERAGE UNDER THIS GENERIC PERMIT SHALL BE POSTED AT THE CONSTRUCTION SITE... 2. THE DISCHARGE OF HAZARDOUS SUBSTANCES OR OIL IN THE STORMWATER DISCHARGE(S) FROM A FACILITY OR ACTIVITY SHALL BE PREVENTED OR MINIMIZED... 3. THE PERMITTEE SHALL PROVIDE FOR COMPLIANCE WITH THE TERMS AND SCHEDULE OF THIS PLAN BEGINNING WITH THE INITIATION OF CONSTRUCTION ACTIVITIES... 4. PERMITTEE SHALL ADHERE TO THE STATE OF FLORIDA DEP GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES... 5. PRESERVE EXISTING VEGETATION WHERE ATTAINABLE AND STABILIZE DISTURBED PORTIONS OF THE SITE TO PREVENT EROSION... 6. EACH PLAN SHALL INCLUDE A DESCRIPTION OF STRUCTURAL PRACTICES, TO DIVERT FLOWS FROM EXPOSED SOILS, STORE FLOWS, RETAIN SEDIMENT ON-SITE... 7. CONSTRUCT TEMPORARY SEDIMENT CONTROL BASINS AT EACH POINT OF DISCHARGE INTO D.R.A.'S... 8. CONTROLS FOR OTHER POLLUTANTS... 9. A QUALIFIED INSPECTOR (PROVIDED BY THE OPERATOR) SHALL INSPECT ALL POINTS OF DISCHARGE INTO SURFACE WATERS OF THE STATE... 10. THE PERMITTEE SHALL RETAIN COPIES OF STORMWATER POLLUTION PREVENTION PLANS AND ALL REPORTS... 11. THE PERMITTEE SHALL RETAIN A COPY OF THE STORMWATER POLLUTION PREVENTION PLAN AND ALL REPORTS, RECORDS AND DOCUMENTATION... 12. THE PERMITTEE SHALL SUBMIT A COMPLETED NOTICE OF TERMINATION (N.O.T.)... 13. A PERMITTEE SHALL SUBMIT A N.O.T. TO THE FOLLOWING ADDRESS: NPDES STORMWATER NOTICES CENTER, MS #2510... 14. PROJECTS THAT DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY TO A MUNICIPAL SEWER SYSTEM (MS4) SHALL SUBMIT A COPY OF THE NOT TO THE OPERATOR OF THE MS4... 15. REFER TO THE SITE PLANS FOR ADDITIONAL EROSION CONTROL MEASURES AND ADDITIONAL INFORMATION.

LEGEND & ABBREVIATIONS:

- X- = CHAINLINK FENCE [ ] = BURIED CABLE TV PEDESTAL [ ] = MAILBOX [ ] = BURIED ELECTRIC PEDESTAL [ ] = NAIL W/DISC [ ] = WIRE FENCE [ ] = BACKFLOW PREVENTER [ ] = UTILITY POLE [ ] = BURIED ELECTRIC LINE [ ] = BENCH [ ] = POST/BOLLARD [ ] = BURIED TELEPHONE LINE [ ] = BURIED TELEPHONE PEDESTAL [ ] = SANITARY MANHOLE [ ] = OVERHEAD UTILITY LINE [ ] = CONCRETE MONUMENT [ ] = NON-TRAFFIC SIGN [ ] = WATER LINE [ ] = CLEAN OUT [ ] = SEWER VALVE [ ] = UNKNOWN UTILITY LINE [ ] = ELECTRIC FIXTURE [ ] = TRAFFIC SIGN [ ] = OFFICIAL RECORDS BOOK [ ] = ELECTRIC SERVICE METER [ ] = SEPTIC TANK [ ] = PAGE(S) [ ] = FIRE HYDRANT [ ] = VAULT [ ] = TRAVERSE POINT [ ] = DOWN GUY [ ] = WELL [ ] = SSMC = SOUTHEASTERN SURVEYING & MAPPING CORPORATION [ ] = WATER SPIGOT [ ] = IRON ROD [ ] = SANITARY SEWER [ ] = COMBINATION UTILITY POLE [ ] = AIR CONDITIONING [ ] = PALM [ ] = TREE [ ] = CEDAR [ ] = OAK [ ] = PINE [ ] = UNKNOWN [ ] = TREE TO BE REMOVED



EROSION & SEDIMENT CONTROL  
PRIOR TO INITIATING CONSTRUCTION OF PLANNED IMPROVEMENTS, ALL WRAS WILL BE EXCAVATED AND ROUGH GRADED TO PROVIDE SEDIMENT AND RUNOFF CONTROL DURING CONSTRUCTION.  
ALL DISTURBED AREAS WILL BE BROUGHT TO FINAL GRADE AND SEEDED AND MULCHED AS SOON AS POSSIBLE.  
AREAS WHICH MAY ERODE DUE TO SLOPES OR CONCENTRATED RUNOFF DURING CONSTRUCTION WILL BE TREATED. TEMPORARY SLOPE DRAIN PROTECTION WILL BE PROVIDED PER DOT ROAD DESIGN STANDARD INDEX NO. 100.  
OFF-SITE DISCHARGE OF UNTREATED STORMWATER WILL BE PREVENTED USING TEMPORARY BERMS AND DIKES WHERE NEEDED. DEVICES CONSISTENT WITH DOT ROAD DESIGN STANDARD INDEX NO. 100 WILL BE USED.  
UPON COMPLETION OF SITE IMPROVEMENTS, THE WRAS, SWALES, AND OTHER STORMWATER MANAGEMENT DEVICES WILL BE FINAL GRADED AND SOODED AS SPECIFIED IN THE APPROVED CONSTRUCTION PLANS.  
EROSION & SEDIMENT CONTROL  
N.T.S.

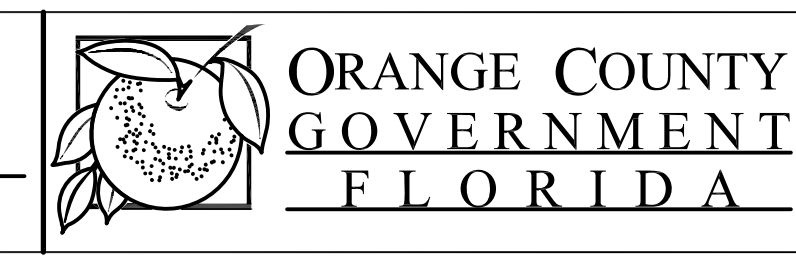


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OOA-28813

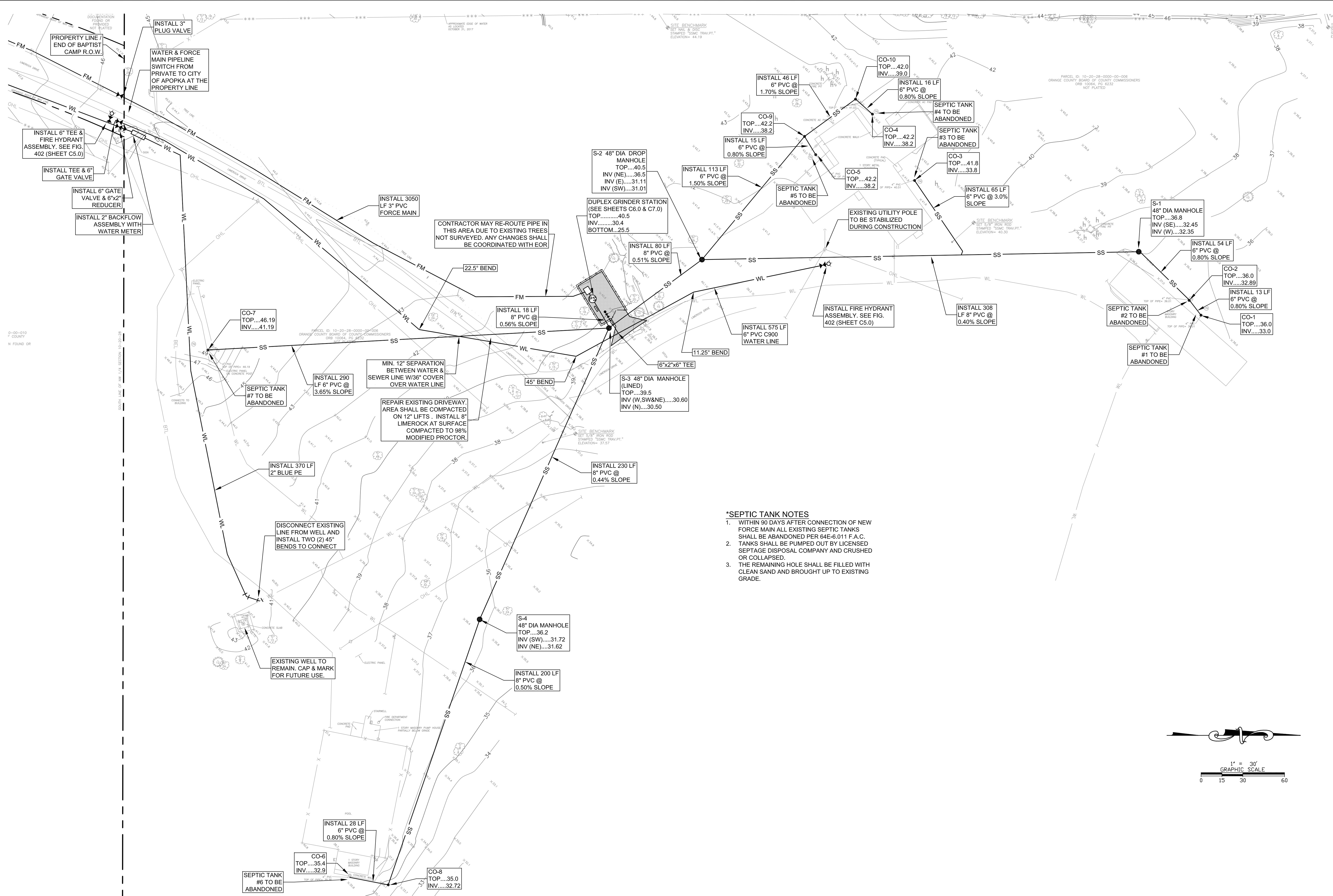
JEFFREY EARHART, PE, ENGINEER OF RECORD FLORIDA REG.  
PROF. ENGINEER No.: 49935



CAMP JOY  
UTILITY CONNECTIONS  
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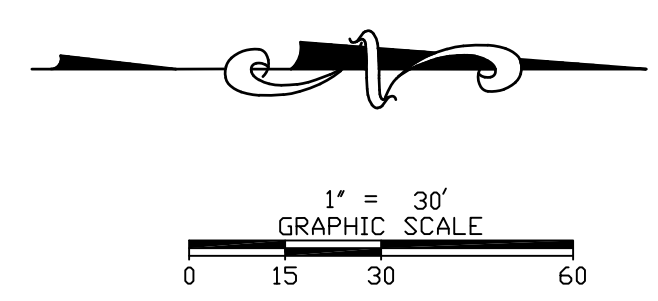
OVERALL PROJECT MAP

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**C1.0**  
OF 09.0 SHEETS



**\*SEPTIC TANK NOTES**

1. WITHIN 90 DAYS AFTER CONNECTION OF NEW FORCE MAIN ALL EXISTING SEPTIC TANKS SHALL BE ABANDONED PER 64E-6.011 F.A.C.
2. TANKS SHALL BE PUMPED OUT BY LICENSED SEPTAGE DISPOSAL COMPANY AND CRUSHED OR COLLAPSED.
3. THE REMAINING HOLE SHALL BE FILLED WITH CLEAN SAND AND BROUGHT UP TO EXISTING GRADE.



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CAA-28813

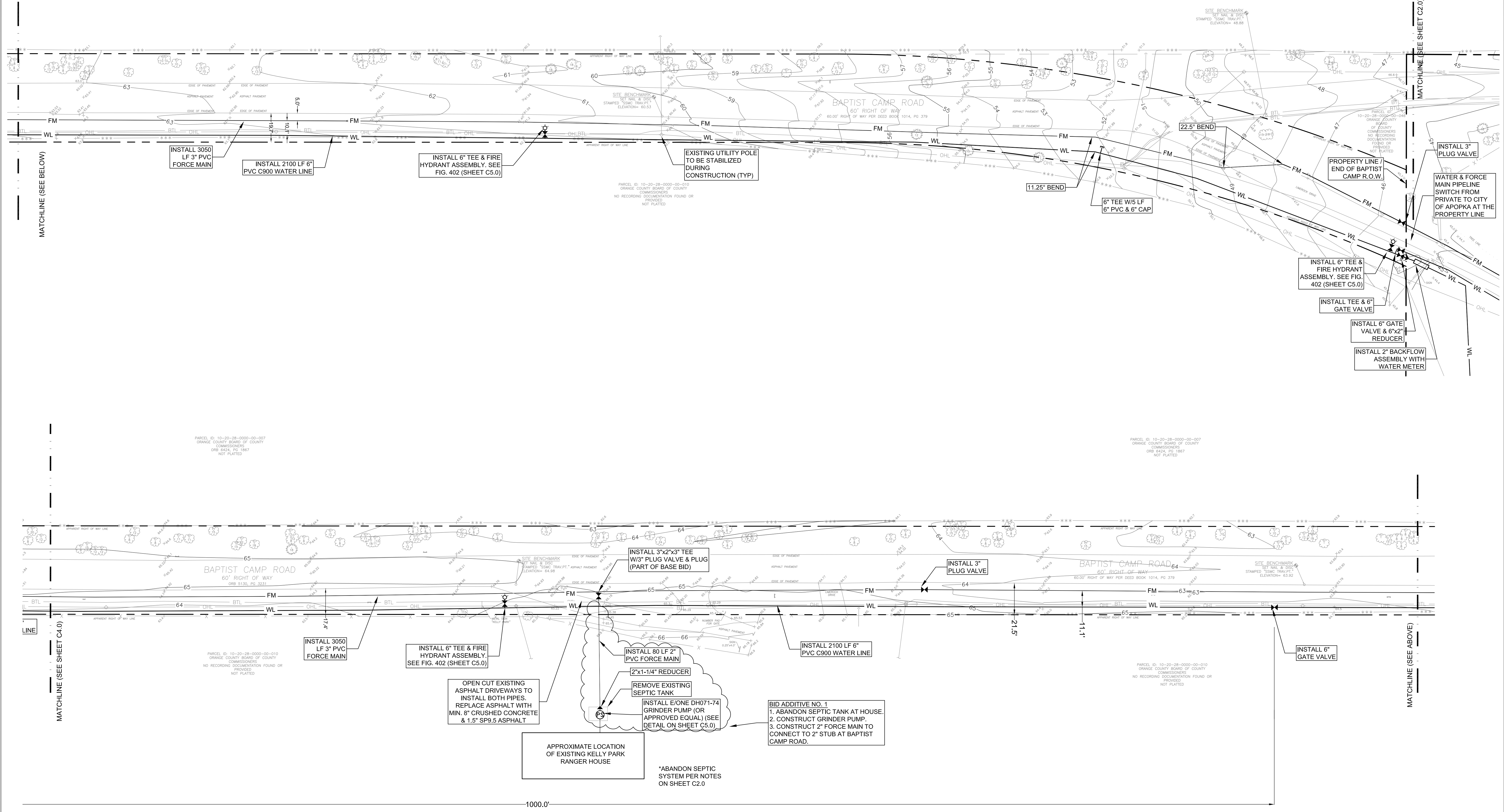
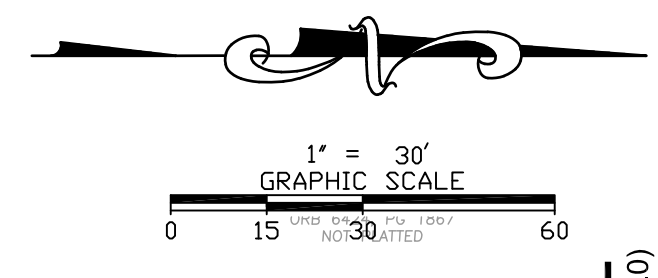
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**ORANGE COUNTY GOVERNMENT FLORIDA**

**CAMP JOY**  
UTILITY CONNECTIONS  
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**SITE UTILITY PLAN**

**SHEET NUMBER**  
C2.0  
OF C9.0 SHEETS



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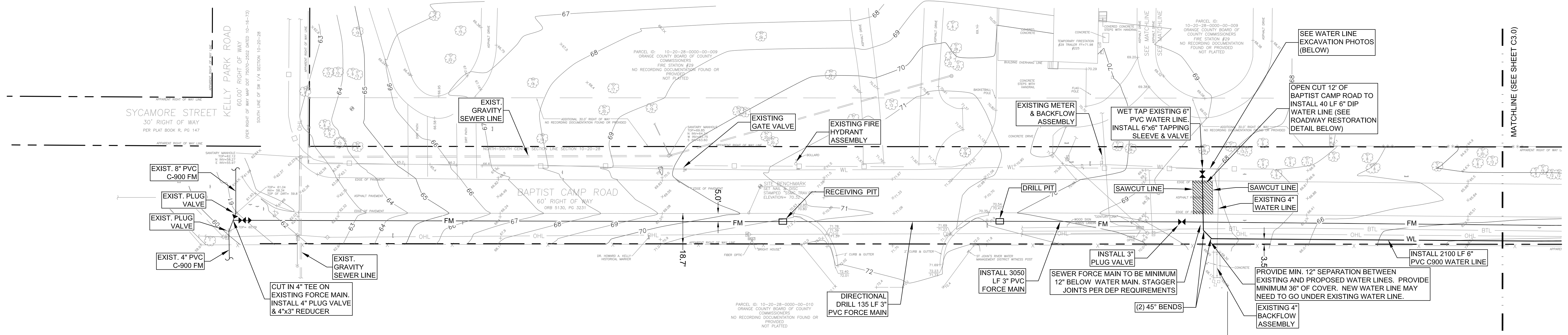
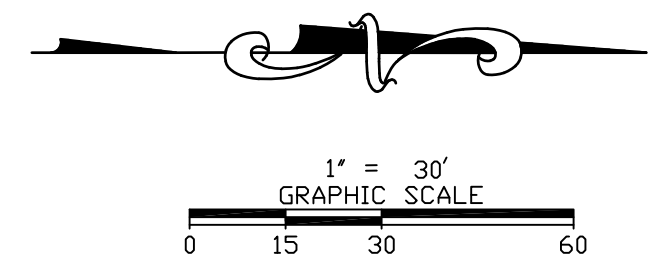
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**ORANGE COUNTY  
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FLORIDA**

**CAMP JOY**  
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**OFFSITE UTILITY EXTENSION**

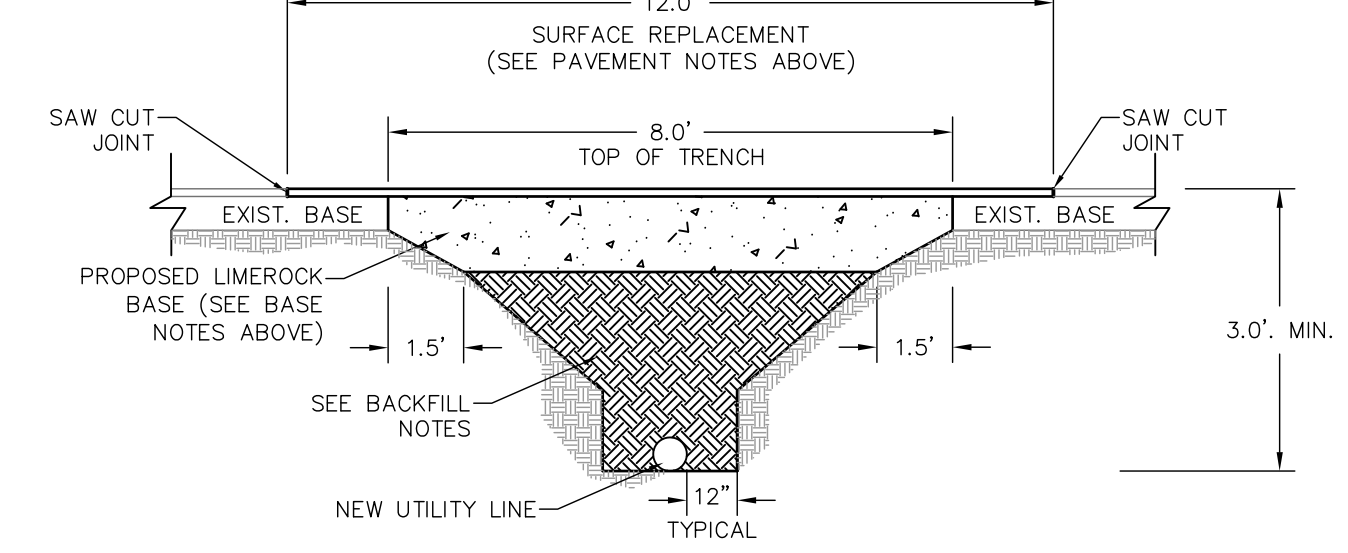
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**PAVEMENT AND BASE REPLACEMENT**  
 BASE INSTALLED TO A THICKNESS OF TWO TIMES THE THICKNESS OF THE EXISTING BASE OR 12" WHICHEVER IS GREATER, SHALL BE INSTALLED IN 6" LIFTS. THE BASE SHALL BE COMPACTED TO 98% THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-190-57. A MINIMUM OF TWO DENSITY TESTS PER LIFT IS REQUIRED. NINE (9) INCHES OF SUPERPAVE ASPHALT INSTALLED IN THREE (3) INCH LIFTS MAY BE SUBSTITUTED.  
 THE SURFACE COURSE SHALL BE F.D.O.T. SUPERPAVE AC WITH A THICKNESS EQUAL TO THE EXISTING OR 1-3/4", WHICHEVER IS GREATER. PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.  
 THE PATCH AREA SHALL BE A SMOOTH PLANE SUCH THAT A STRAIGHT EDGE PLACE ACROSS THE PATH, PARALLEL TO TRAFFIC FLOW AND EXTENDING TO UNDISTURBED PAVEMENT SHALL SHOW NO MORE THAN 1/4" IRREGULARITY. ANY IRREGULARITIES SHALL BE CORRECTED IN SUBSTANTIAL COMPLIANCE WITH F.D.O.T. SPECS.  
 DISTURBED ROADWAYS CONSTRUCTED OF FULL DEPTH ASPHALT SHALL BE REPLACED IN KIND.

**BACKFILL PROCEDURE**  
 THE BACKFILL AND BEDDING MATERIAL SHALL BE OF THE A-1, A-2, A-3, OR A-2.4 CLASSIFICATION AS PER AASHTO, UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.  
 THE BACKFILL SHALL BE COMPACTED IN 12" LAYERS WITH MECHANICAL TAMPERS TO THE FULL WIDTH OF THE TRENCH AND UP TO THE BOTTOM OF THE ROADWAY BASE. PARTICULAR ATTENTION MUST BE GIVEN TO THE ADEQUATE COMPACTION OF THE FILL BENEATH THE HAUNCHES OF THE PIPE. THE BACKFILL SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-190-57. ONE DENSITY TEST SHALL BE TAKEN AT THE SPRING LINE OF THE PIPE, AT ONE FOOT ABOVE THE CORNW OF THE PIPE, AND EVERY FOOT VERTICALLY THEREAFTER. A MINIMUM OF TWO COMPLETE SETS OF BACKFILL DENSITY TEST ARE REQUIRED. FLOWABLE FILL IN ACCORDANCE WITH SECTION 121 OF THE F.D.O.T. STANDARD SPECIFICATIONS MAY BE SUBSTITUTED.

IF WELL POINTS ARE USED TO PROVIDE A DRY TRENCH FOR LAYING THE UTILITY, THEY SHALL REMAIN IN OPERATION UNTIL THE BACKFILL IS COMPLETE AND TESTED.



**ROADWAY RESTORATION FOR NEW UTILITY LINES DETAIL**  
 NTS



**WATER LINE EXCAVATION PHOTO NO. 1 (ONSITE)**



**WATER LINE EXCAVATION PHOTO NO. 2**



**WATER LINE EXCAVATION PHOTO NO. 3**

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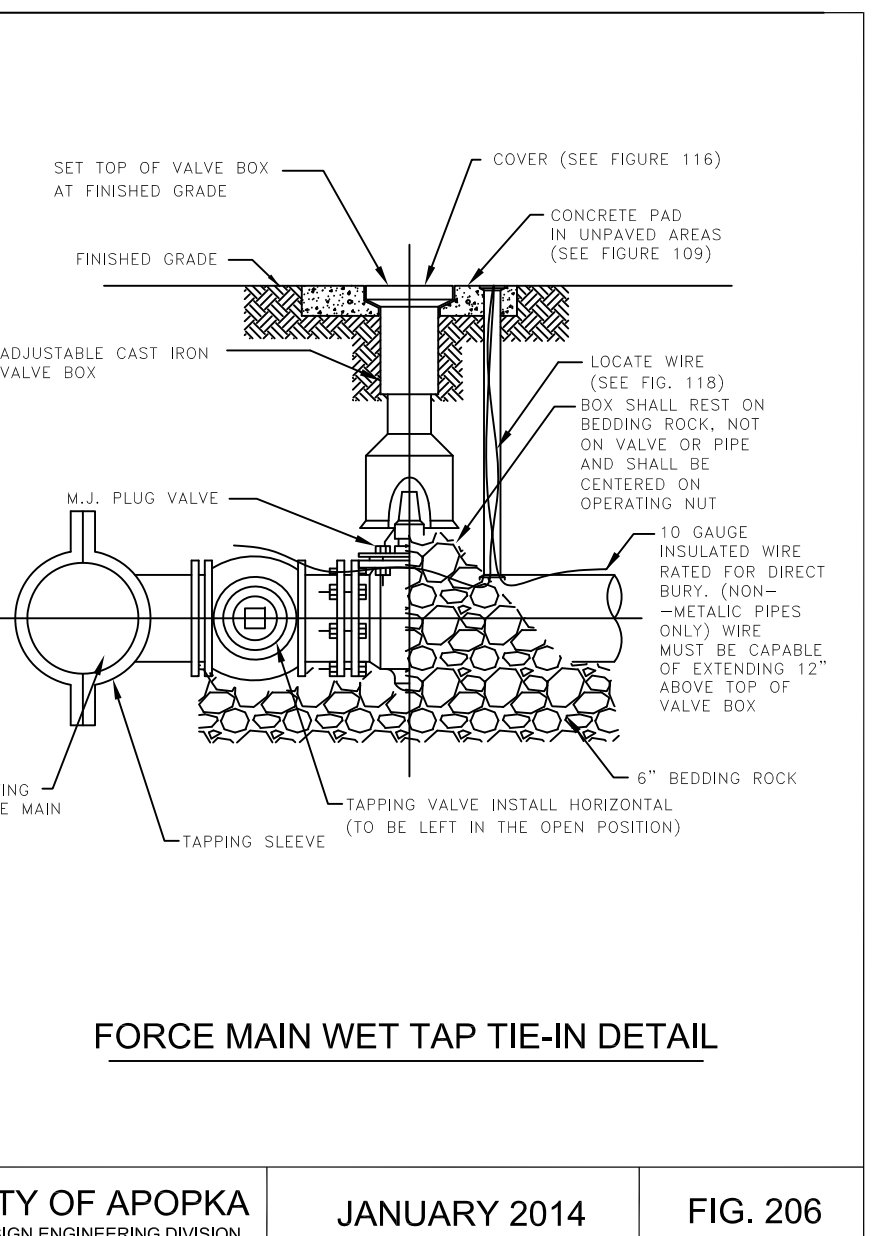
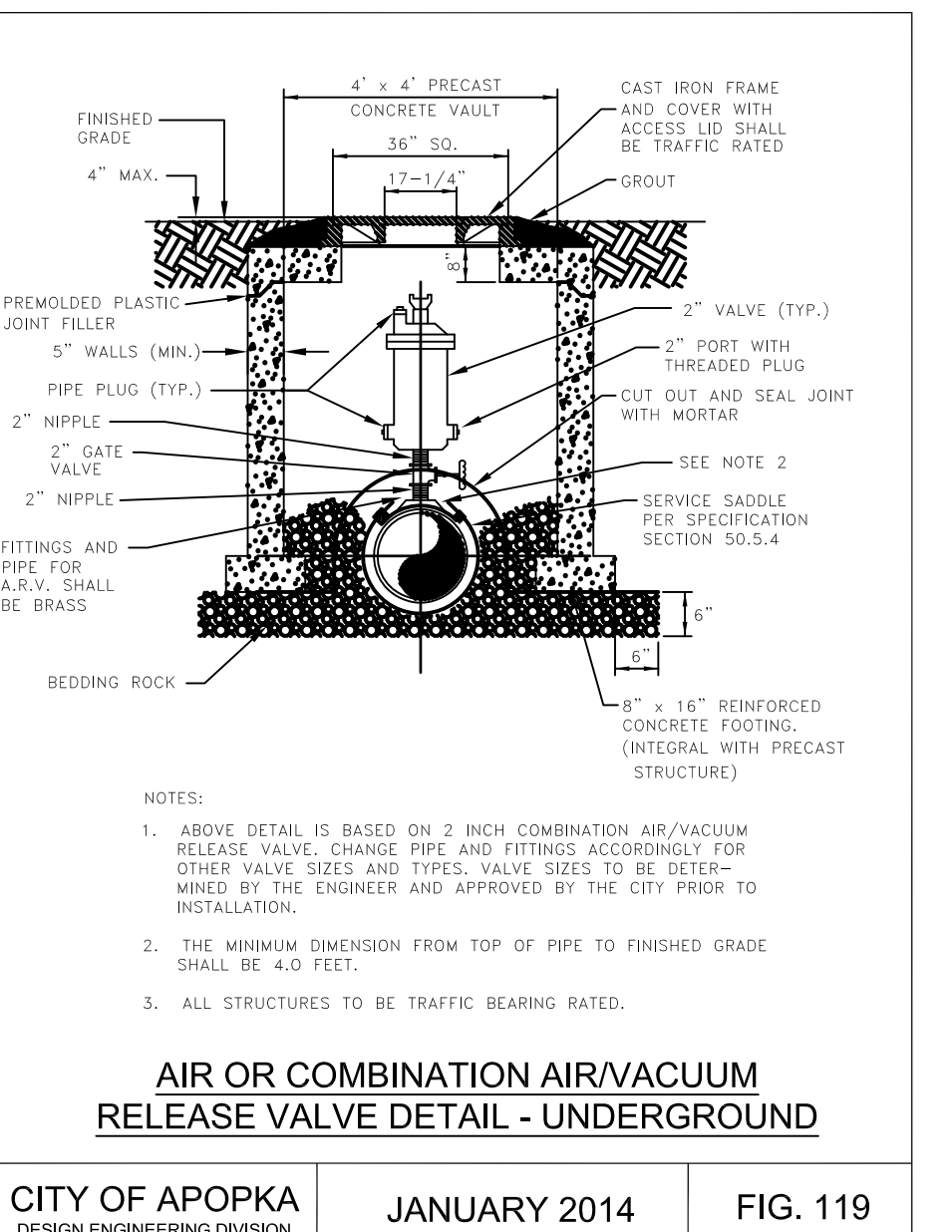
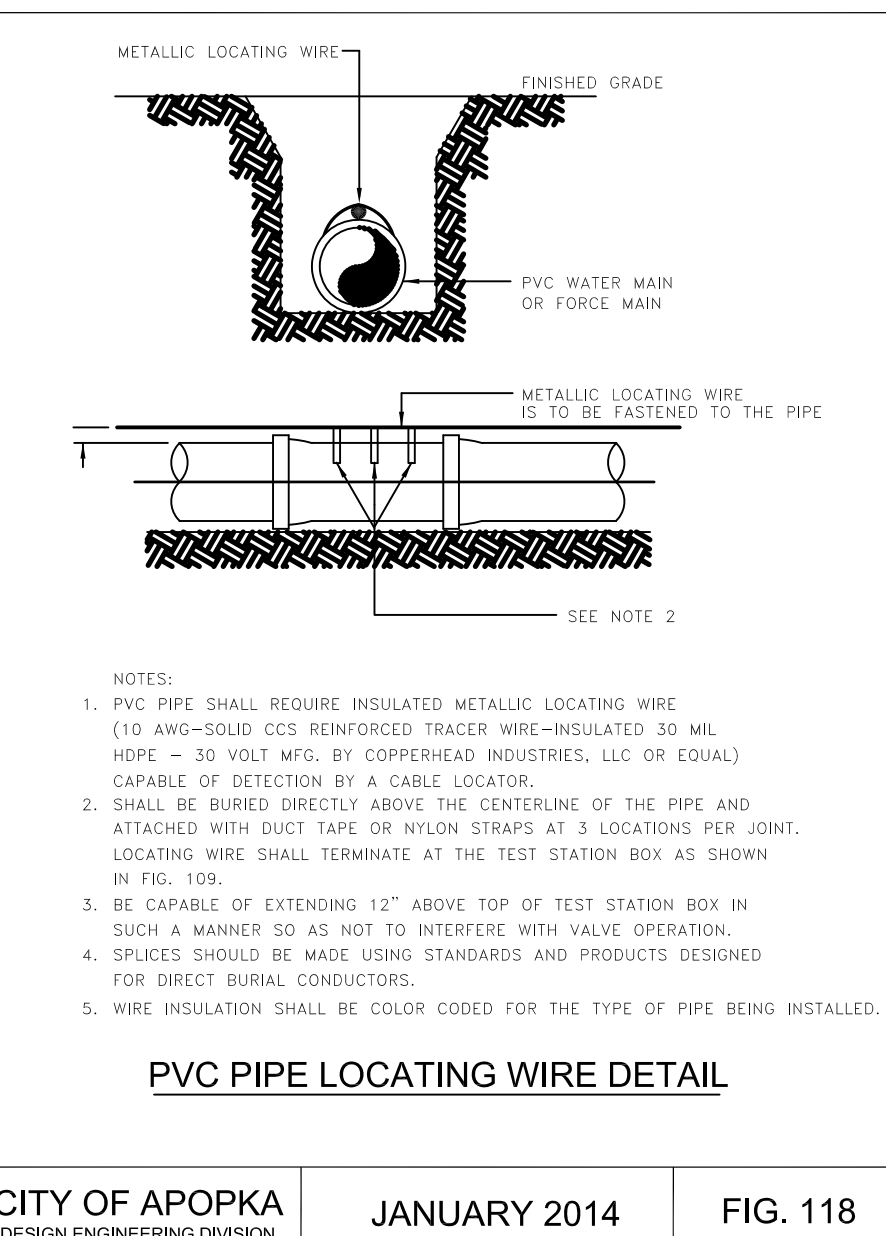
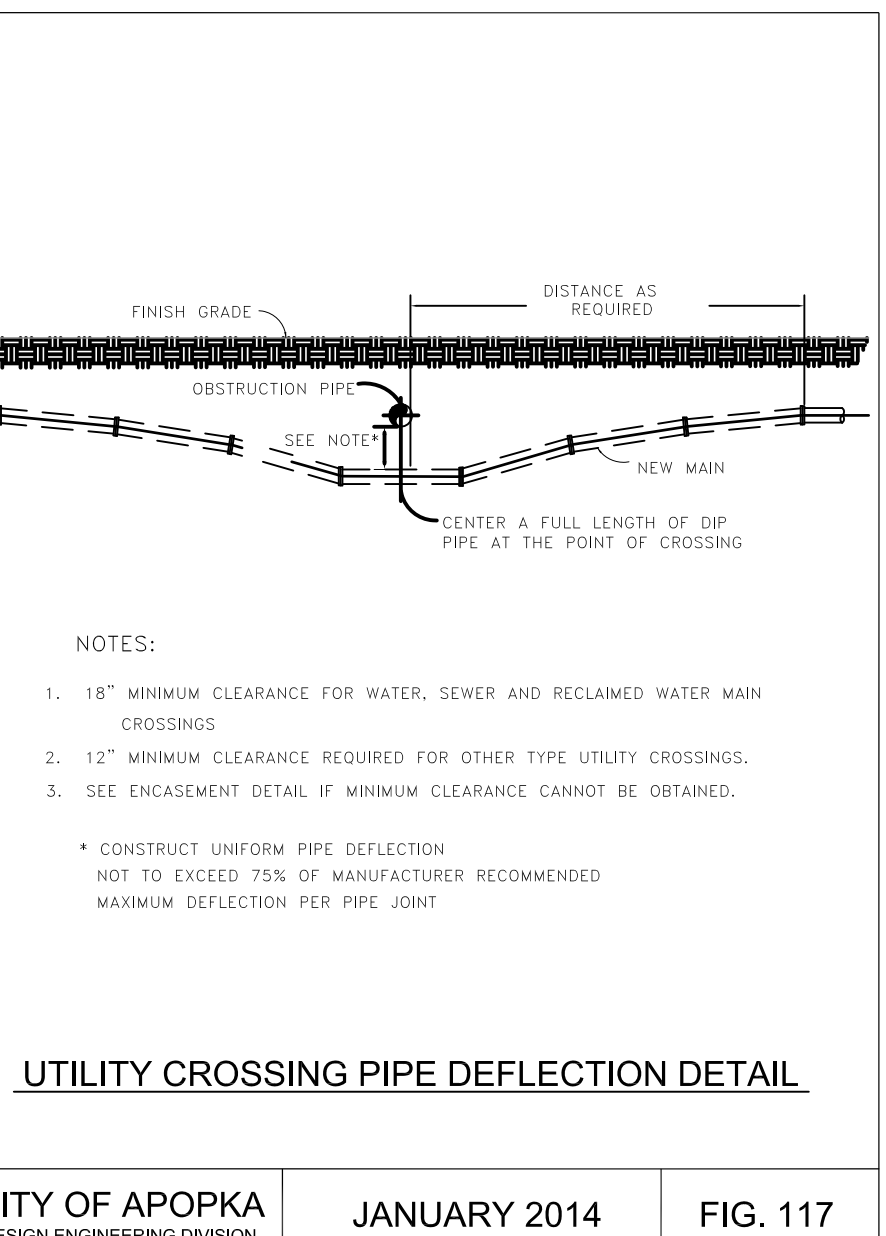
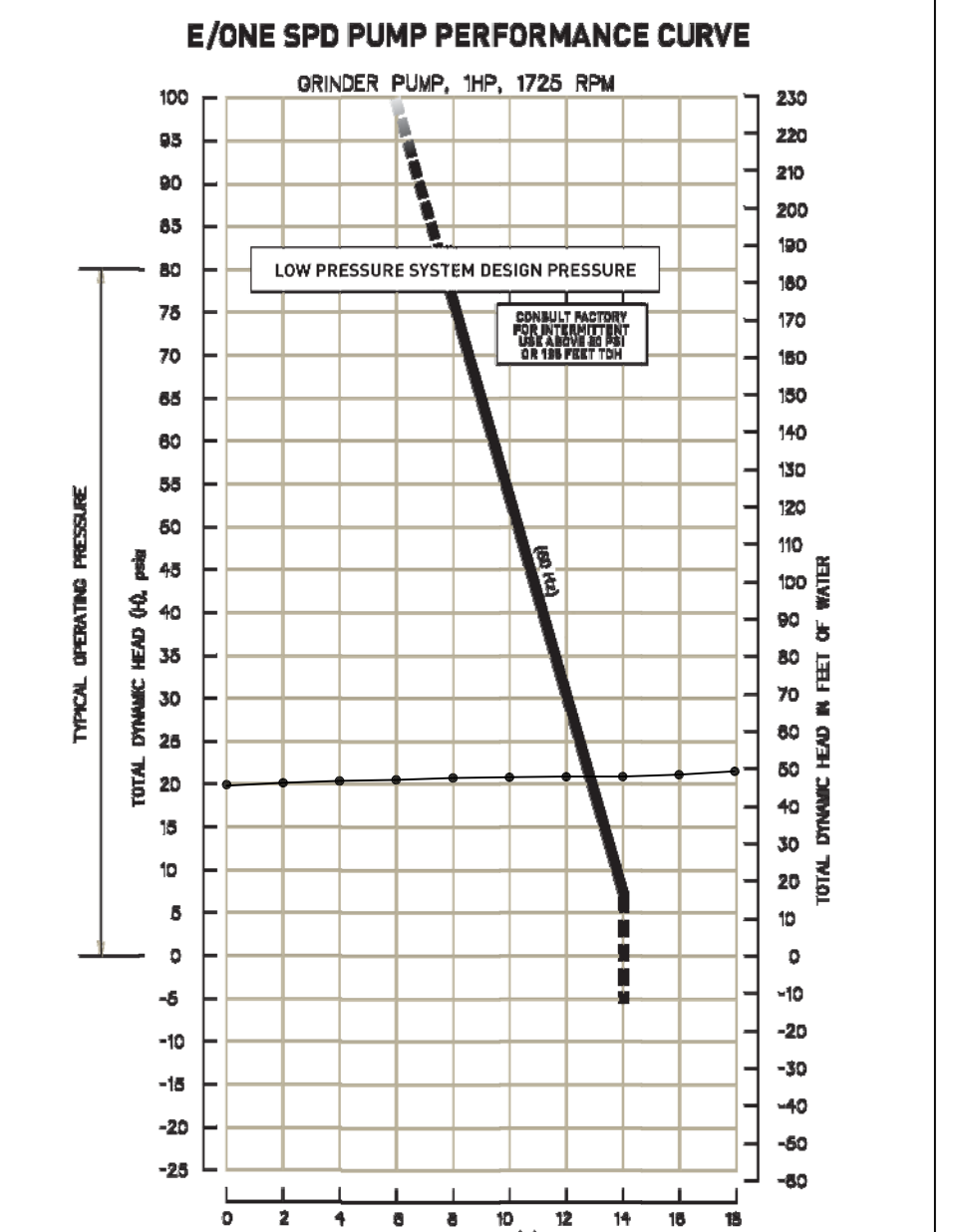
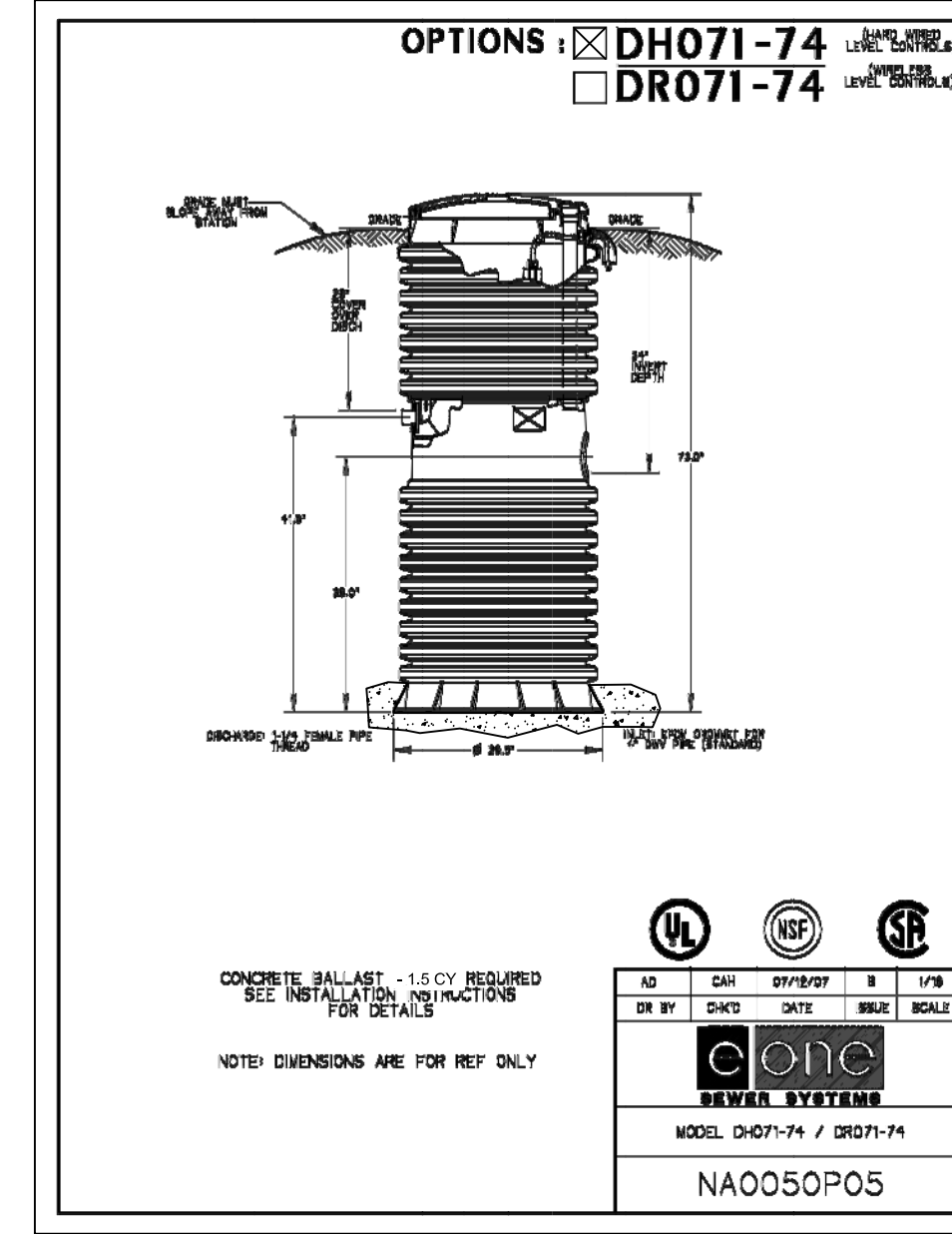
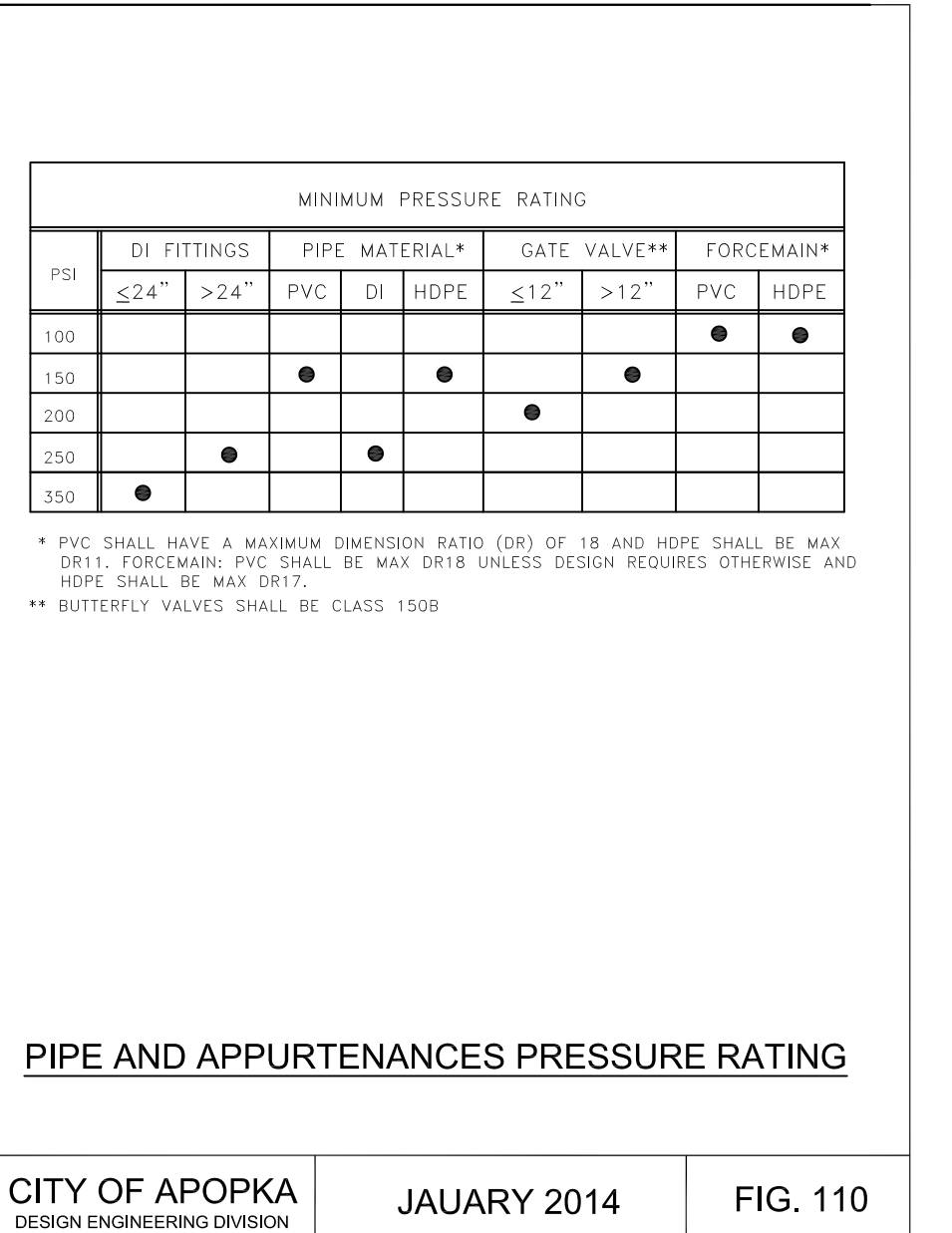
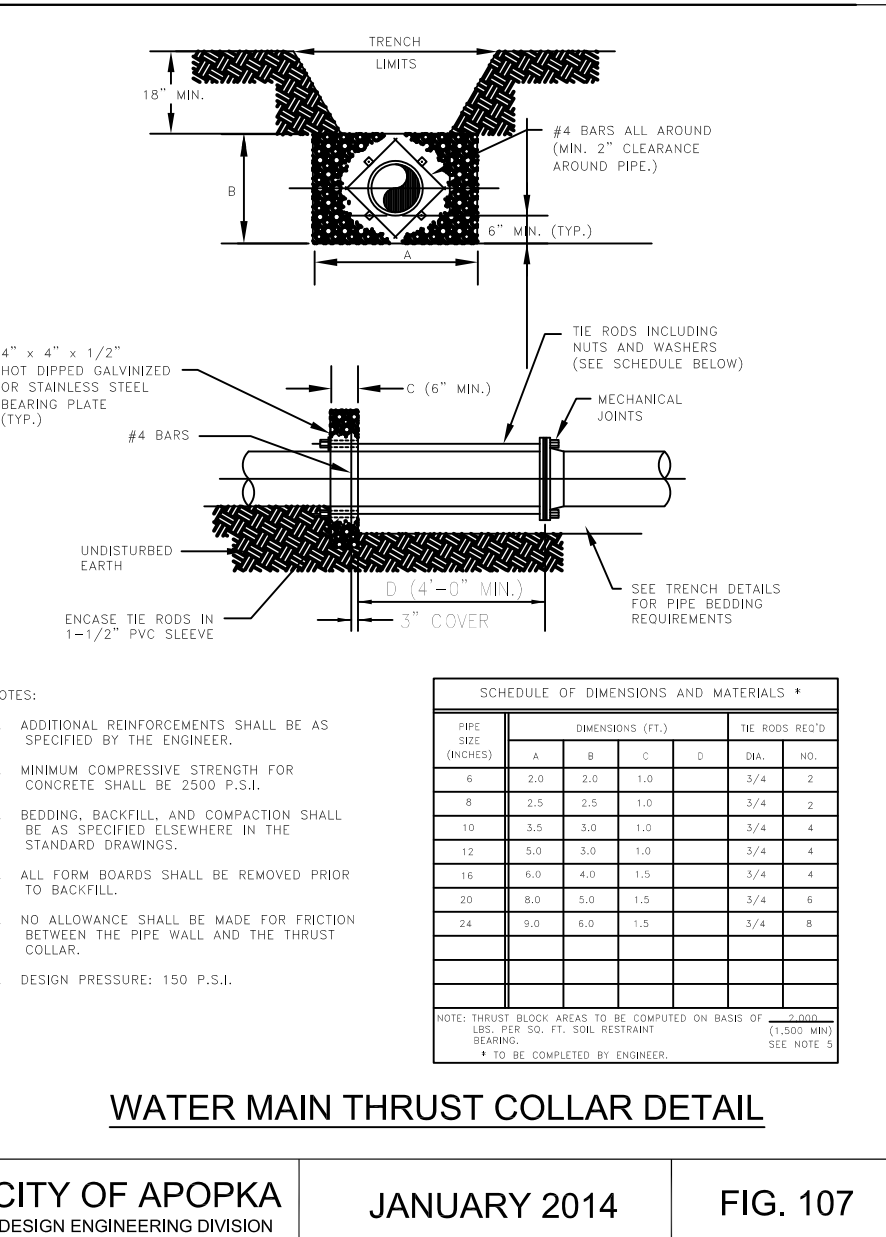
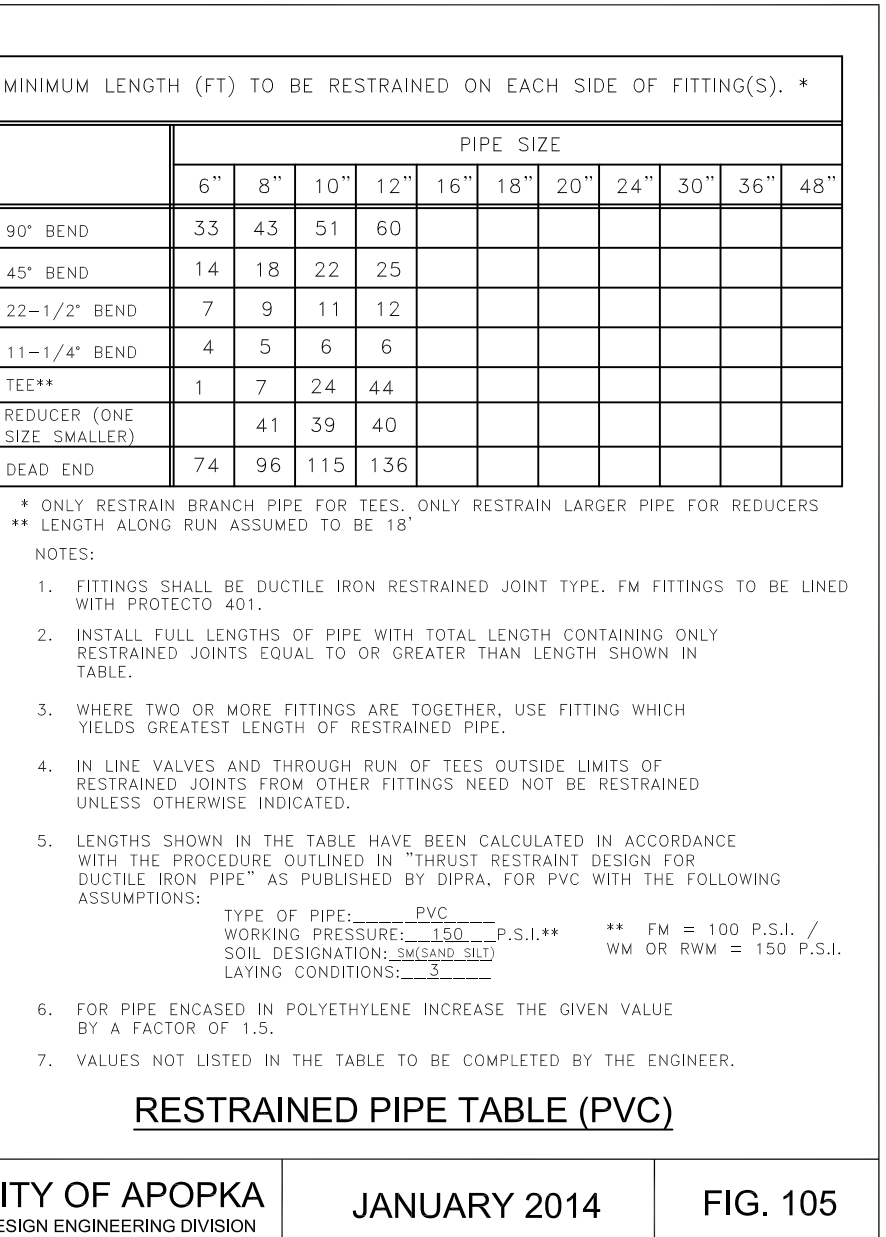
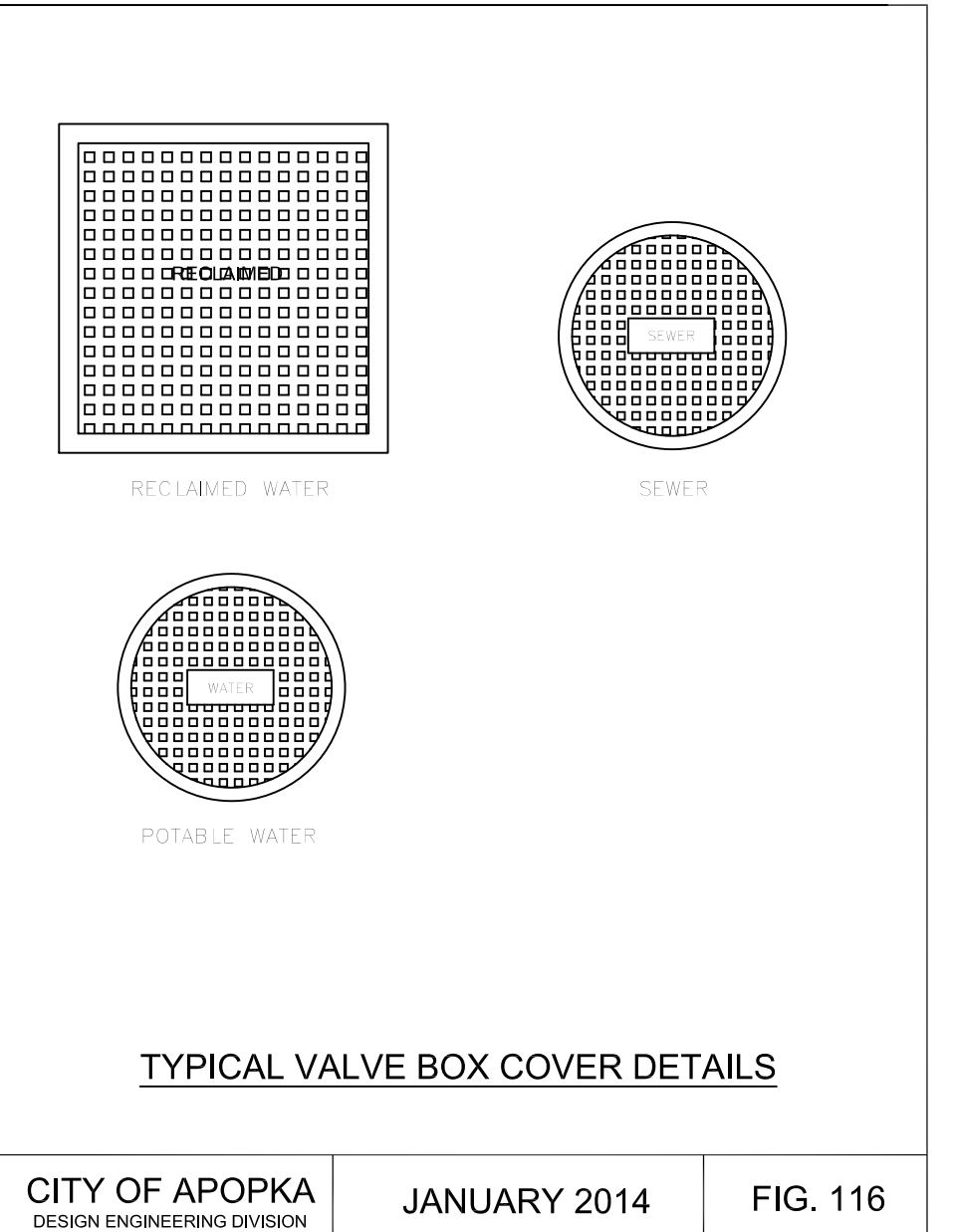
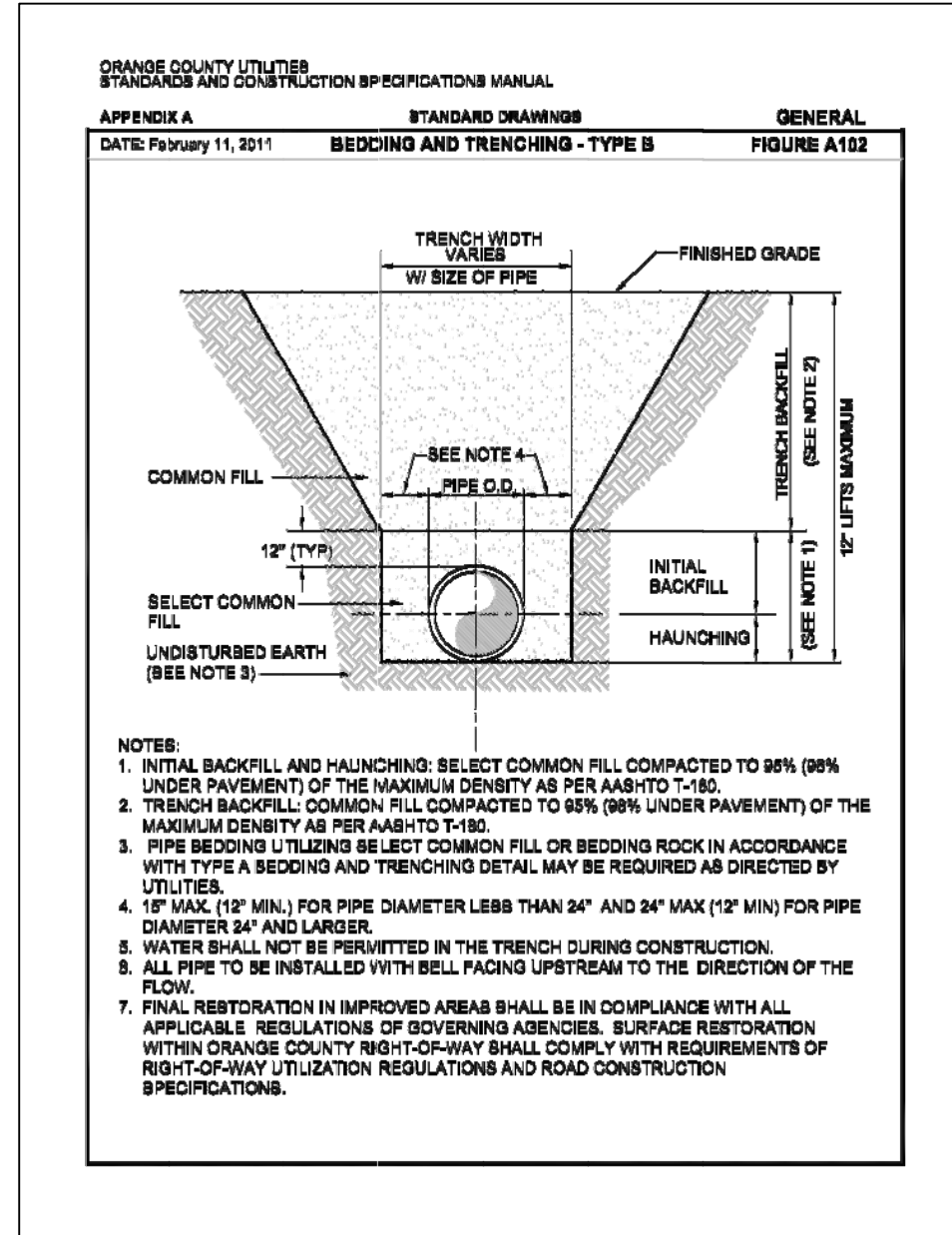
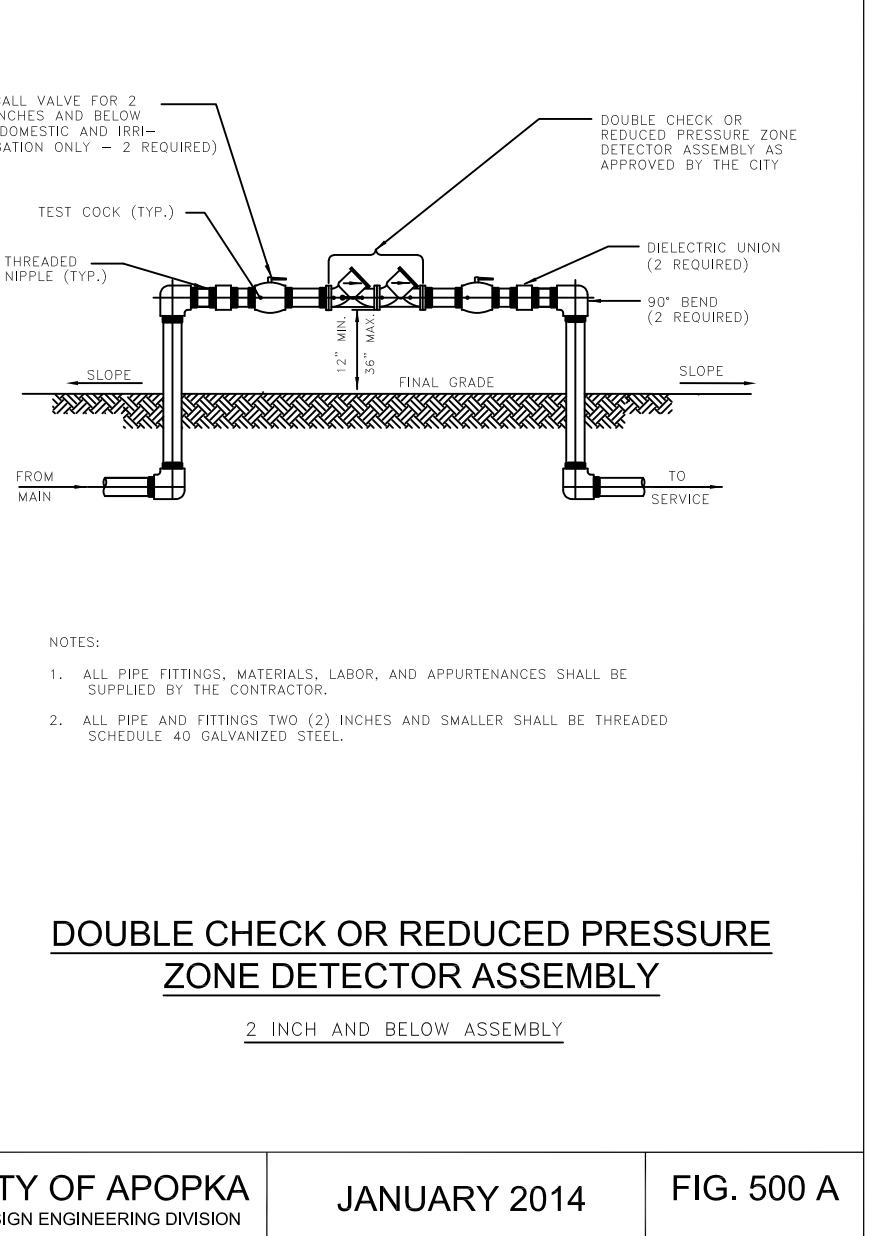
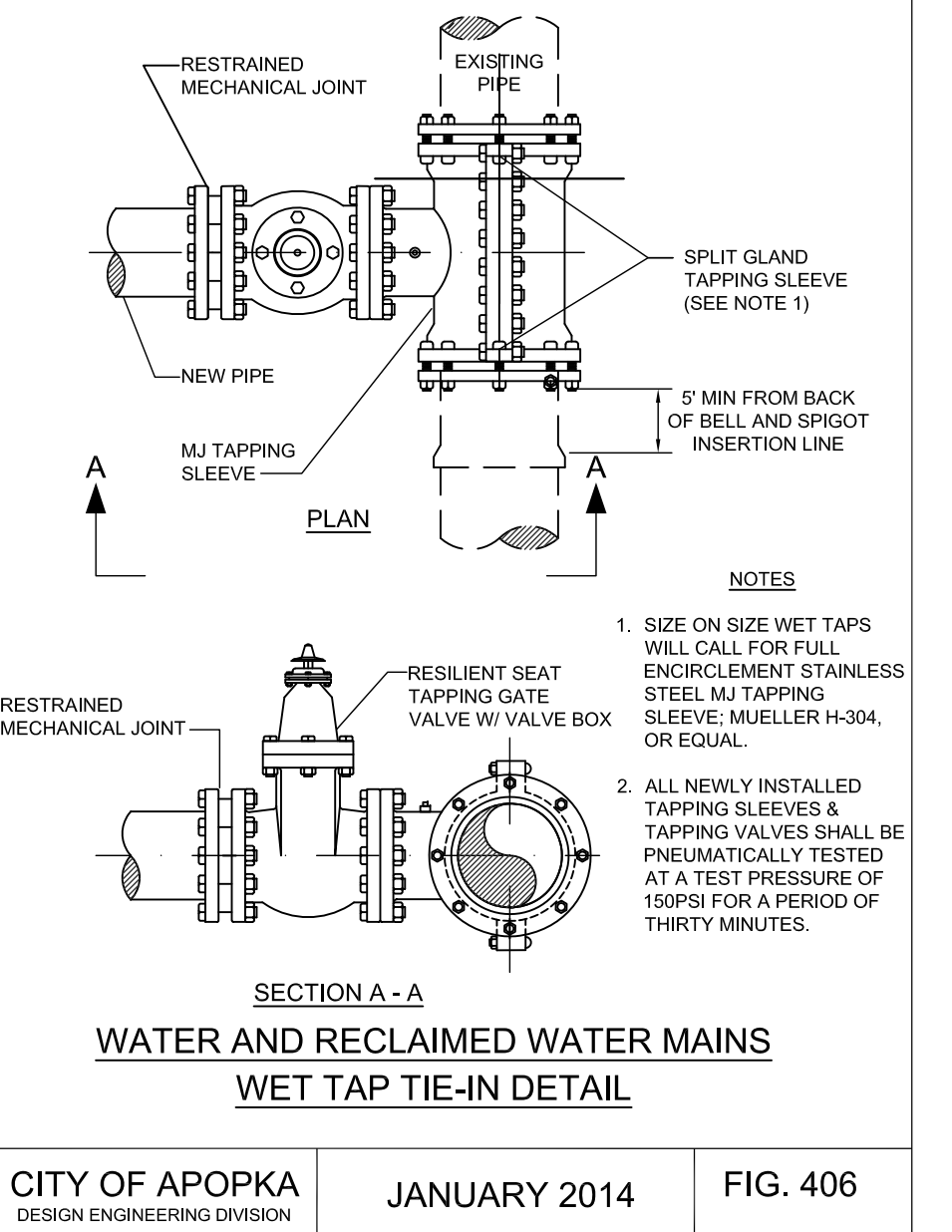
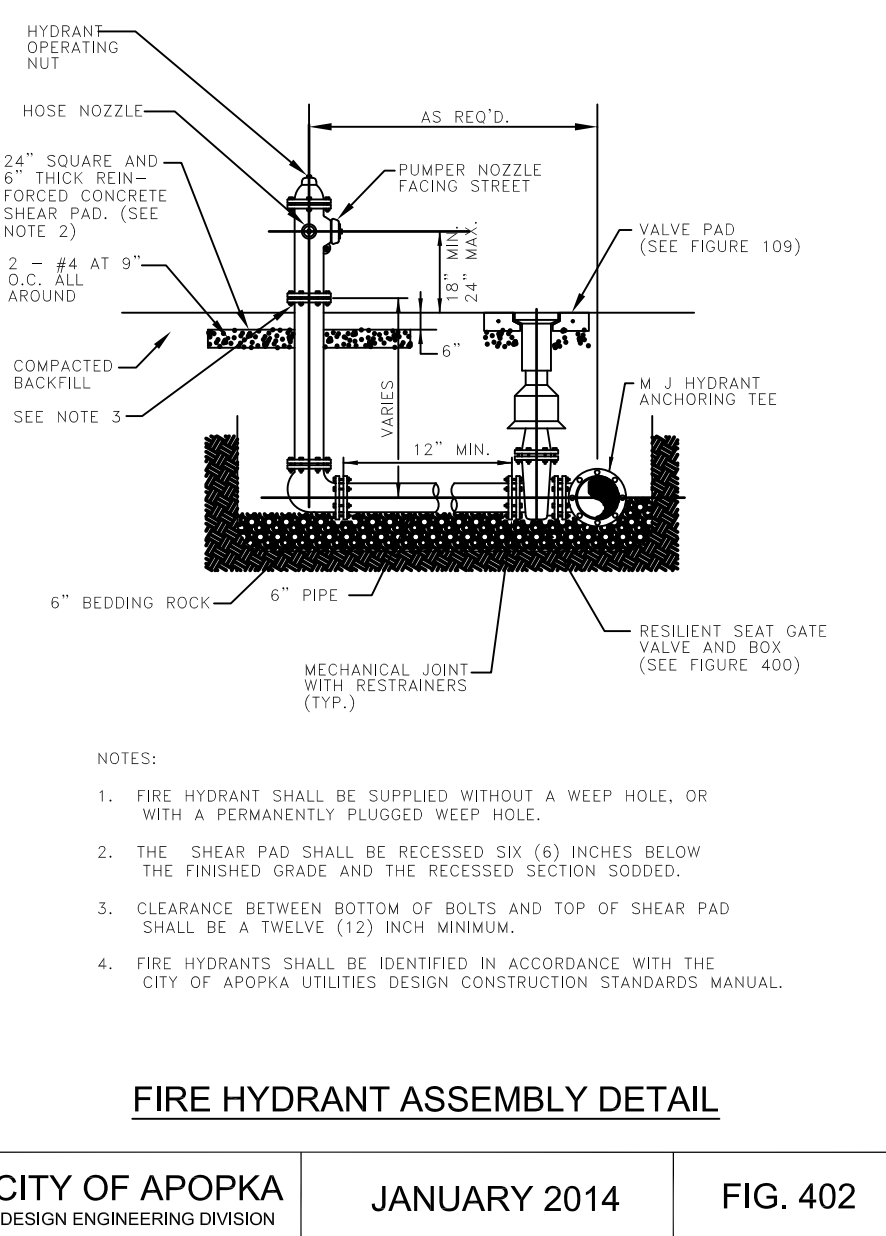
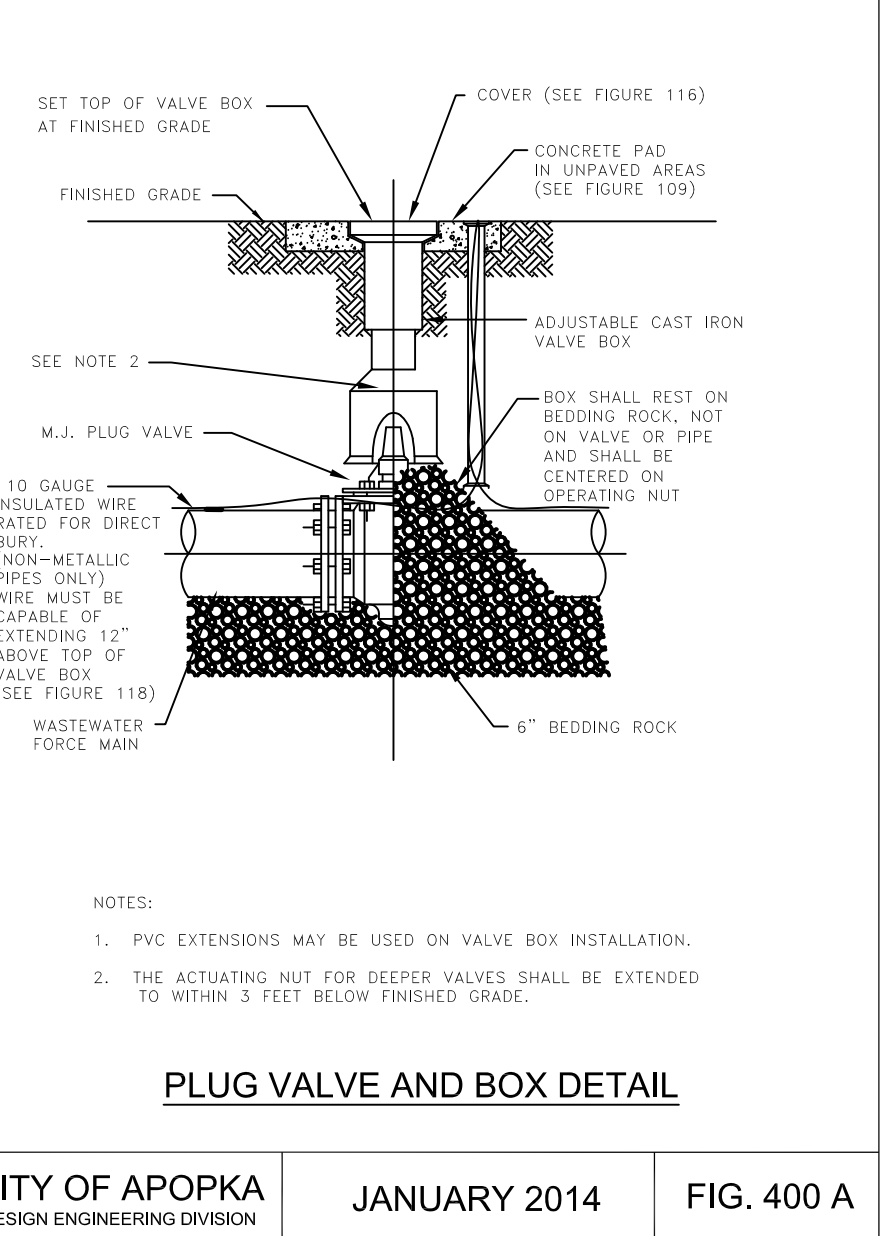
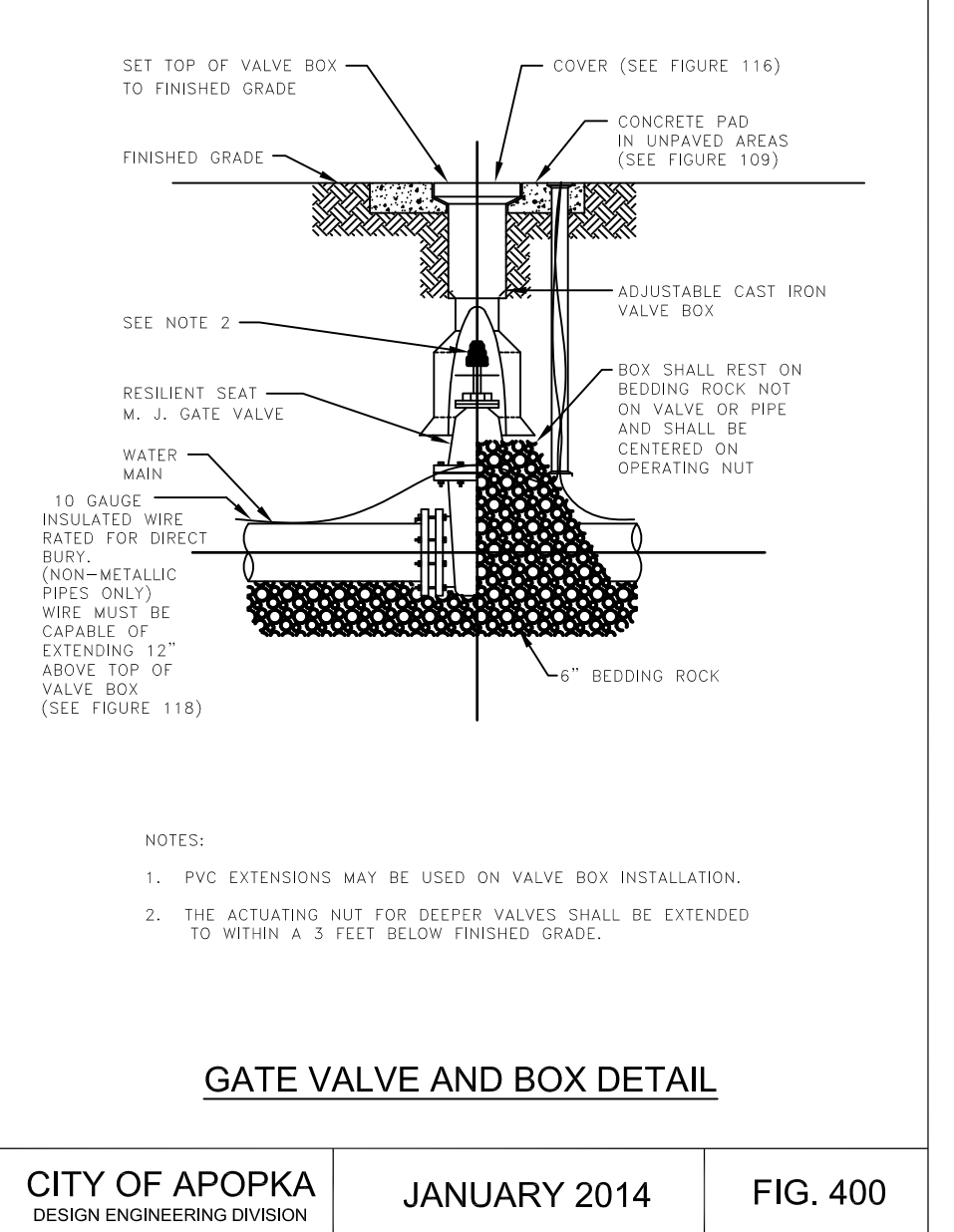
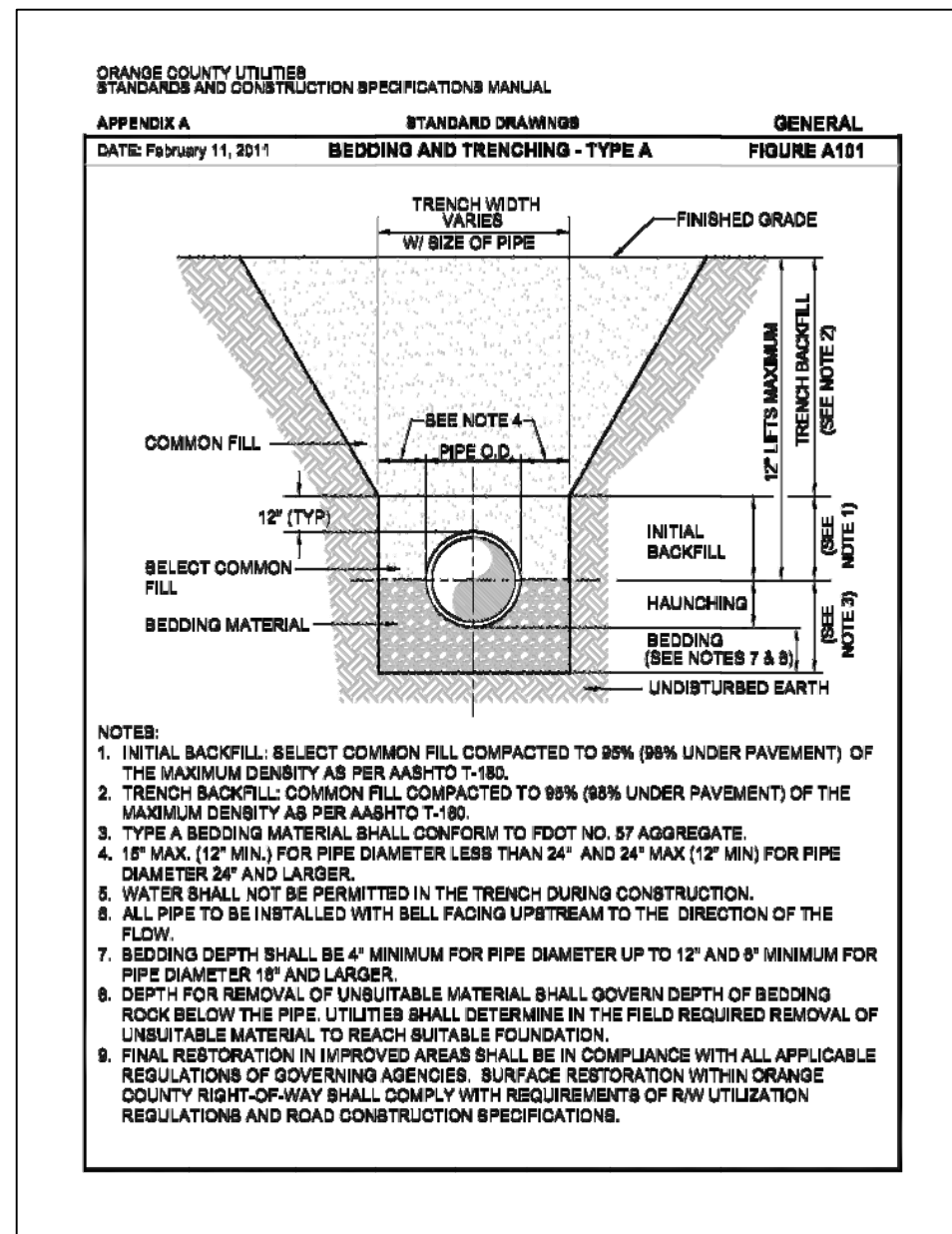
**JEFFREY EARHART, PE, ENGINEER OF RECORD FLORIDA REG. PROF. ENGINEER No.: 49935**

**ORANGE COUNTY GOVERNMENT FLORIDA**

**CAMP JOY**  
 UTILITY CONNECTIONS  
 5303 BAPTIST CAMP ROAD  
 APOPKA, FL 32712

**OFFSITE UTILITY EXTENSION**

SHEET NUMBER	C4.0
OF C9.0 SHEETS	



NO.	DATE	REVISION
0	06/25/2018	ISSUED FOR BID

**ADC**  
 ARCHITECTURAL DESIGN  
 COLLABORATIVE  
 945 N. PENNSYLVANIA AVENUE  
 WINTER PARK, FLORIDA 32789  
 (407) 926-1188

**TEAM Engineering, LLC**  
 TEAM ENGINEERING  
 2215 WEMBLEY PLACE  
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 OCA-28813

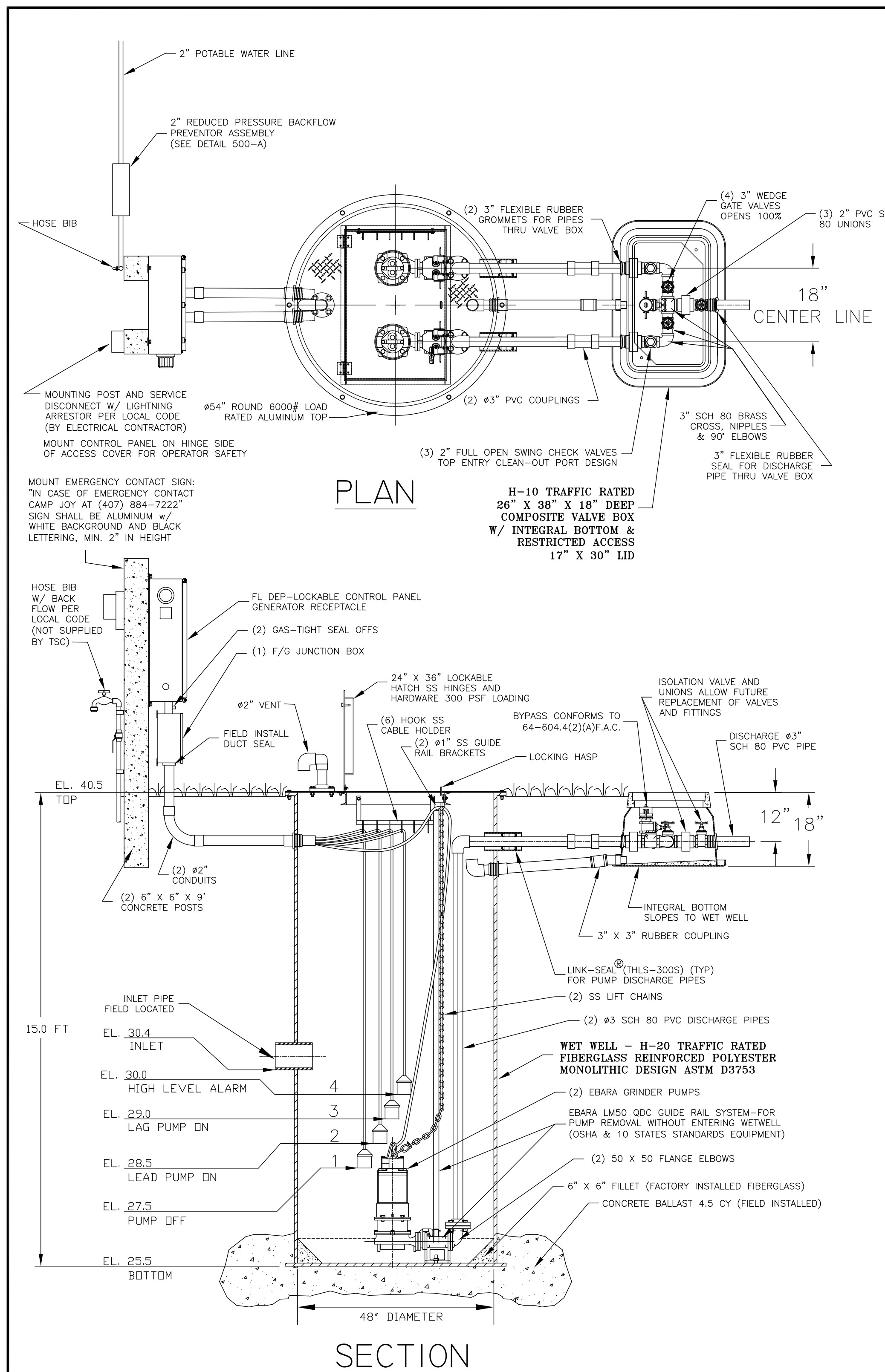
**JEFFREY EARHART, PE, ENGINEER OF RECORD FLORIDA REG.**  
 PROF. ENGINEER No.: 49935

**ORANGE COUNTY**  
**GOVERNMENT**  
**FLORIDA**

**CAMP JOY**  
 UTILITY CONNECTIONS  
 5303 BAPTIST CAMP ROAD  
 APOPKA, FL 32712

**UTILITY DETAILS**

SHEET NUMBER
C5.0
OF C9.0 SHEETS



**48" DUPLEX GRINDER STATION - 2" PIPING WITH SLIDE RAIL SYSTEM, V.B. AND F.D.E.P. PANEL TSC PRE-FAB PUMP SOLUTIONS**

MODEL TSC2-48.0 R4.dwg © REV 2005

- HOSE BIBB WITH REDUCED PRESSURE BACK FLOW PREVENTER FIELD INSTALL BY CONTRACTOR
- GROUT FILLET (1 TO 1 SLOPE TO "HOPPER" BOTTOM)
- LIFT STATION WILL BE PRIVATELY OWNED AND OPERATED BY ORANGE COUNTY FACILITIES MAINTENANCE.

**GENERAL NOTES**

FURNISH AND INSTALL EBARA SUBMERSIBLE GRINDER PUMPS:

**DESIGN CONDITION:**

MODEL	50DGF62.2S	3	HP
GPM	66	129	FT/TDH
VOLTAGE	208/230	SINGLE	PHASE
DISCHARGE	2"	6.5"	FULL TRIM IMPELLER

**SEWAGE GRINDER PUMP:** RATED FOR TWENTY (20) STARTS PER HOUR.

- AIR FILLED MOTOR DESIGNED FOR SEWAGE APPLICATION WITH CLASS F INSULATION.
- DUAL MECHANICAL SHAFT SEALS (SILICON CARBIDE / SILICON CARBIDE) LOCATED OUT OF THE PUMPAGE, IN A SEPARATE OIL FILLED CHAMBER.
- HIGH TEMPERATURE BALL BEARINGS B-10 RATING OF 60,000 HOURS, UPPER BEARING - SINGLE ROW AND LOWER BEARINGS - DOUBLE ROW TYPE.
- PUMP SHAFT HORSEPOWER (BHP) SHALL NOT EXCEED MOTOR RATED HORSEPOWER THROUGHOUT THE ENTIRE OPERATING RANGE OF THE PUMP PERFORMANCE CURVE.
- SINGLE PHASE MOTORS SHALL BE DUAL WOUND, CAPACITOR START-RUN AND CAPABLE OF OPERATING ON 208/230 VOLT WITH A 10% TOLERANCE VOLTAGE (190 TO 260). THREE PHASE MOTORS SHALL BE DUAL WOUND AND CAPABLE OF OPERATING ON 208/230 VOLT WITH A 10% TOLERANCE VOLTAGE (190 TO 260) OR OPERATE ON 460 VOLT BY CHANGING THE MOTOR LEADS INSIDE THE PUMP.

**FIBERGLASS WET WELL:** SHALL BE A ONE PIECE UNIT WITH INTEGRAL BOTTOM, WALL AND UPPER FLANGE. THE ENTIRE FIBERGLASS WET WELL SHALL HAVE A DYNAMIC LOAD RATING OF 16,000 FT/LBS. EACH UNIT MUST BE SERIAL NUMBERED TO IDENTIFY THE TEST PROCEDURE. ASTM D 3753 & H-20 SPECIFICATIONS SHALL BE REQUIRED AS MINIMUM.

**ALUMINUM HATCH:** TSC MODEL-54R (54") ROUND WITH 24" X 36" LOCKABLE HATCH, REINFORCED FOR LOAD RATING OF 300 LBS/FT WITH HOLD OPEN SAFETY ARM, LOCKING DEVICE FOR HASP TYPE PADLOCK AND STAINLESS STEEL HARDWARE.

**VALVE BOX:** FIBERGLASS COMPOSITE (H-10 TRAFFIC RATED) WITH INTEGRAL BOTTOM. (FOR 1 1/4" AND 2" DISCHARGE PIPING SXS HEADER SYSTEM) SHALL BE 26" X 38" X 18" WITH 17" X 30" LIMITED ACCESS LID

**ACCESSORIES:** #304 S/S - GUIDE RAILS, UPPER GUIDE RAIL BRACKETS, CABLE HOLDER, ANCHOR BOLTS AND PUMP LIFTING CHAINS.

**VALVES:** SHALL BE SEWAGE SERVICE DESIGN BRASS SWING CHECK VALVES WITH TOP ENTRY CLEAN-OUT PORT AND BRASS WEDGE GATE VALVES OPEN 100%.

**PIPING:** 3" SCHEDULE 80 PVC.

**FLOAT SWITCHES:** UL LISTED SJ ELECTRO MODEL (SJ 30 SWENO).

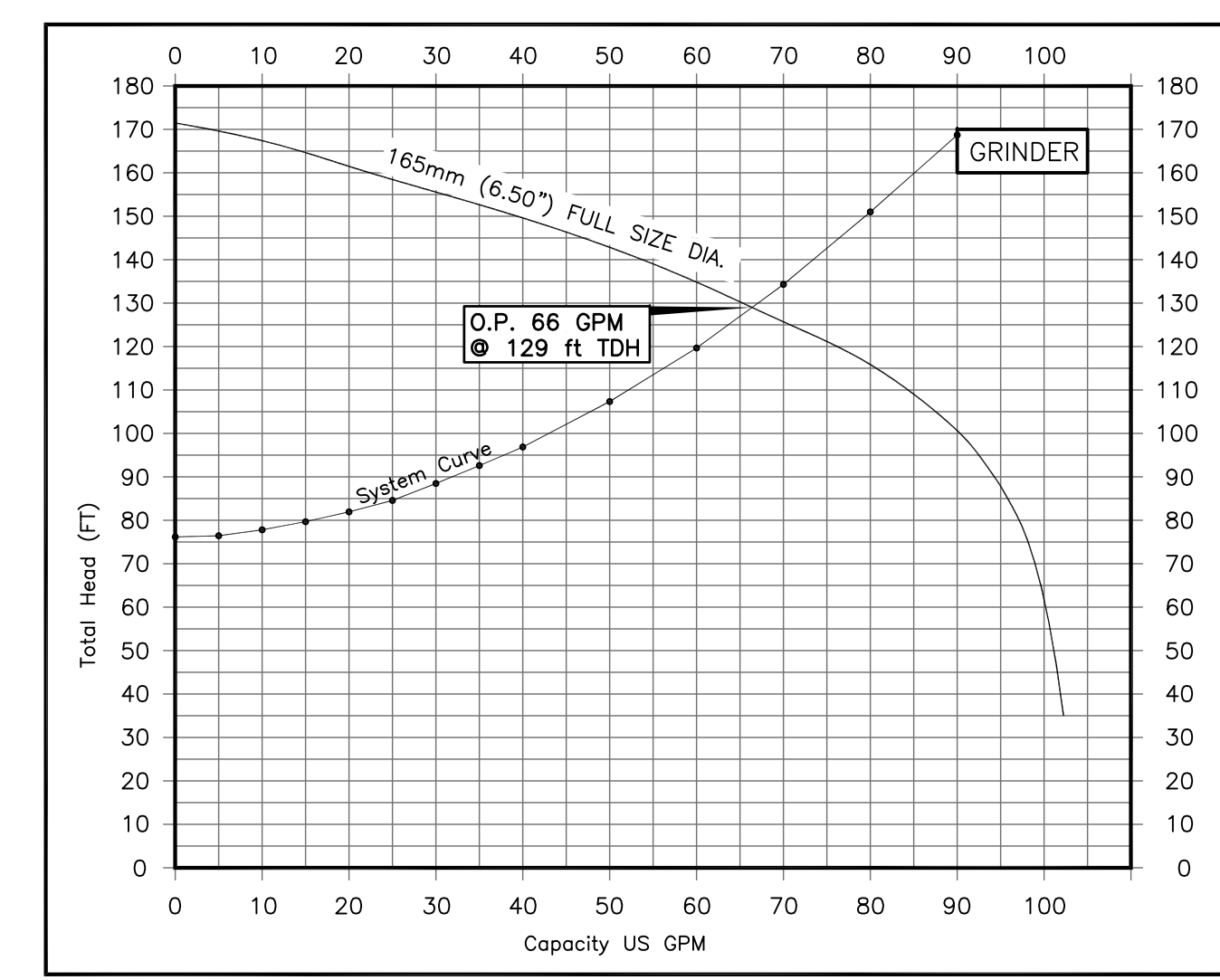
PUMP SUPPLIER SHALL PROVIDE SUBMERSIBLE PUMPS, SLIDE RAIL ASSEMBLIES, CONTROL PANEL, JUNCTION BOX, FLOAT SWITCHES, ALUMINUM HATCH AND ACCESSORIES TO INSURE PROPER OPERATION AND WARRANTY.

THE COMPLETE PACKAGE PUMPING STATION SHALL HAVE PUMP BASES, SLIDE RAIL ASSEMBLIES AND DISCHARGE PIPING ASSEMBLED BY TECHNICAL SALES CORPORATION READY TO SHIP FOR FIELD INSTALLATION. THE MANUFACTURER OF PRE-FAB PUMP SOLUTIONS.

TECHNICAL SALES CORPORATION, 4621 N. HALE AVE TAMPA, FL 33614 (813)876-9256

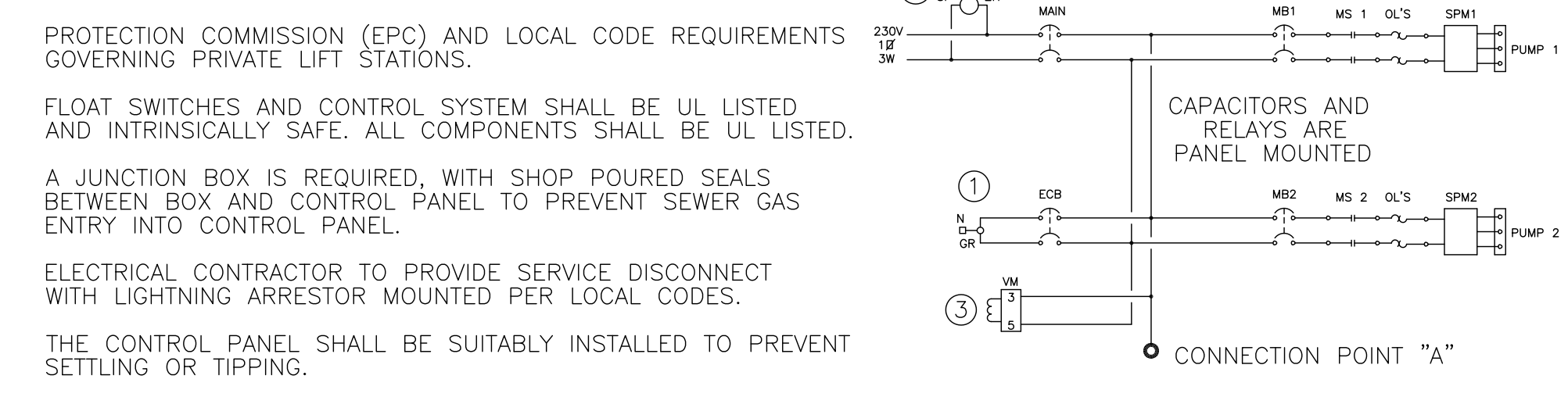
**Ebara Submersible Pumps**

EBARA 50DGF62.2 3 HP Synchronous Speed: 3600 RPM  
Single and Three Phase 2 Inch Discharge  
Design flow: 66 GPM @ 129 TDH/FT

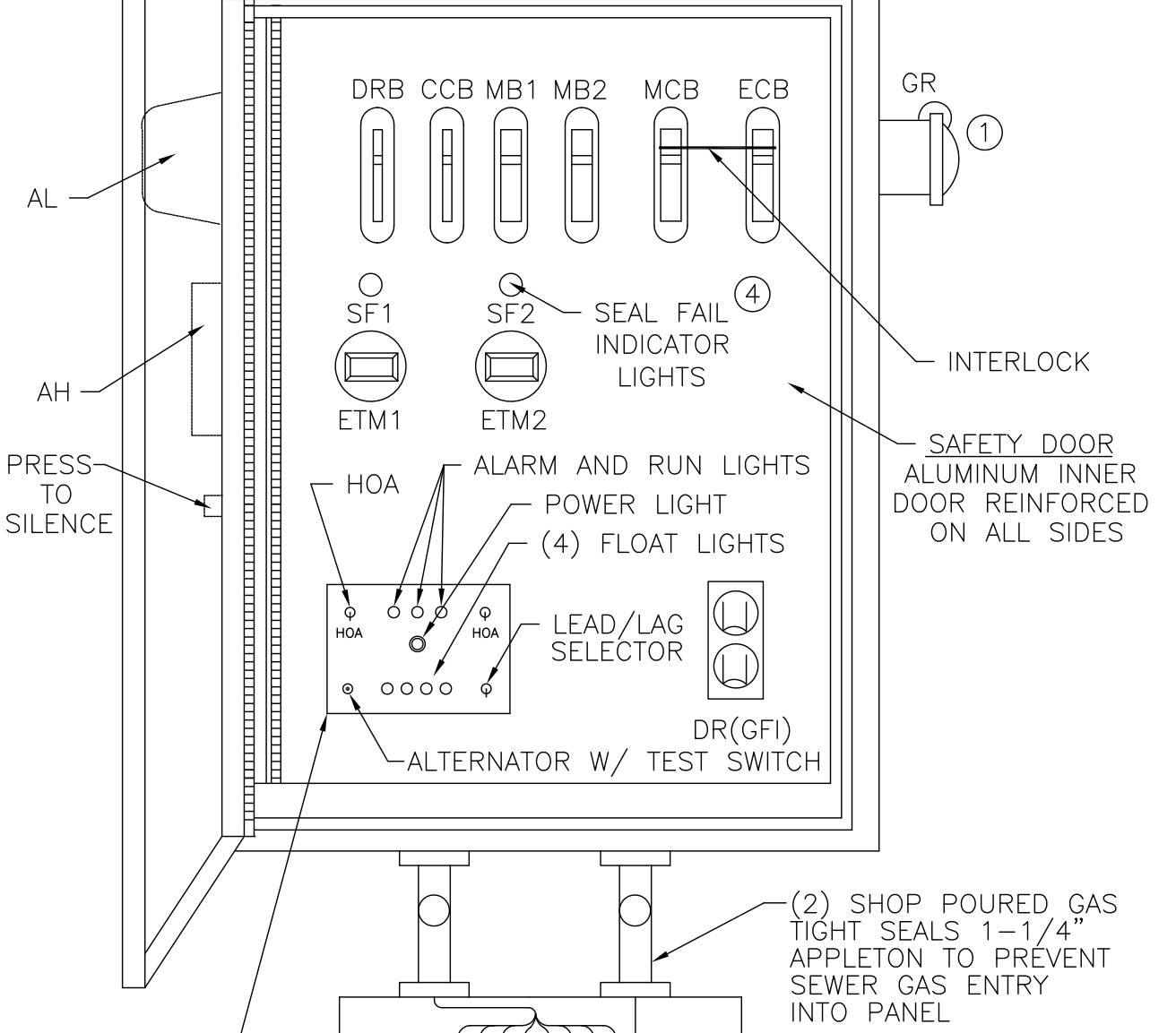


**PUMP PERFORMANCE CURVE**

**SINGLE PHASE WIRING DIAGRAM**  
U-RED V-WHITE Y-BLACK

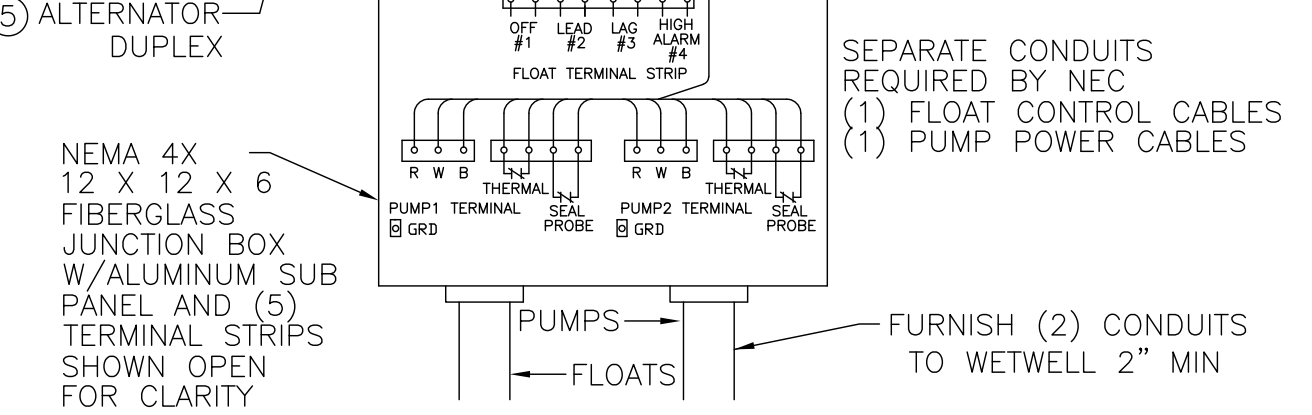


**CONTROL PANEL LAYOUT**



**LEGEND**

- AH ALARM HORN
- AL ALARM LIGHT
- ASB ALARM SILENCE BUTTON
- ATS ALTERNATOR W/ TEST SWITCH
- CCB CONTROL CIRCUIT BREAKER
- DR DUPLEX RECEPTACLE
- DRB DUPLEX RECEPTACLE BREAKER
- ECB EMERGENCY CIRCUIT BREAKER
- ETM ELAPSED TIME METER
- F FUSE
- FL FLASHER
- FS FLOAT SWITCH (REGULATOR)
- GR GRD GENERATOR RECEPTACLE
- GRD GROUND
- HOA HAND-OFF-AUTOMATIC SELECTOR
- LA LIGHTNING ARRESTOR
- MB MOTOR BREAKER
- MCB MAIN CIRCUIT BREAKER
- MS MOTOR STARTER
- N NEUTRAL
- OL'S OVERLOAD HEATERS
- PM PHASE MONITOR
- PTS PUMP TERMINAL STRIP
- R RELAY
- RC RUN CAPACITOR
- RD DISCHARGE RESISTOR
- RL PUMP RUN INDICATORS
- RTS REGULATOR TERMINAL STRIP
- SC START CAPACITOR
- SF SEAL FAIL (SHAFT)
- SR START RELAY
- SP SURGE PROTECTOR
- TTS THERMAL TERMINAL STRIP



**PANEL WIRING DIAGRAM**

- PANELS SHALL CONFORM TO FLORIDA DEP 64-604.400
- GENERATOR RECEPTACLE FOR EMERGENCY POWER CONNECTION WITH INTERLOCK
  - SURGE PROTECTION AND LIGHTNING PROTECTION ON ALL INCOMING LEGS
  - PHASE PROTECTION SHALL BE PROVIDED
  - SHAFT SEAL FAIL DETECTION
  - ALTERNATOR W/ TEST SWITCH
- PANEL MANUFACTURER SHALL BE A "UL" LISTED SHDP.

TSC DUPLEX GRINDER PUMP STATION  
FIBERGLASS WET WELL  
(OR APPROVED EQUAL)

**LIFT STATION**

NO.	DATE	REVISION
0	06/25/2018	ISSUED FOR BID

**ADC**  
ARCHITECTURAL DESIGN  
COLLABORATIVE  
945 N. PENNSYLVANIA AVENUE  
WINTER PARK, FLORIDA 32789  
(407) 626-1188

**TEAM Engineering, LLC**  
TEAM ENGINEERING  
2215 WEMBLEY PLACE  
ORLANDO, FL 32765  
(407) 267-9905  
OCA-28813

**JEFFREY EARTHART, PE, ENGINEER OF RECORD FLORIDA REG. PROF. ENGINEER No.: 49935**

**ORANGE COUNTY GOVERNMENT FLORIDA**

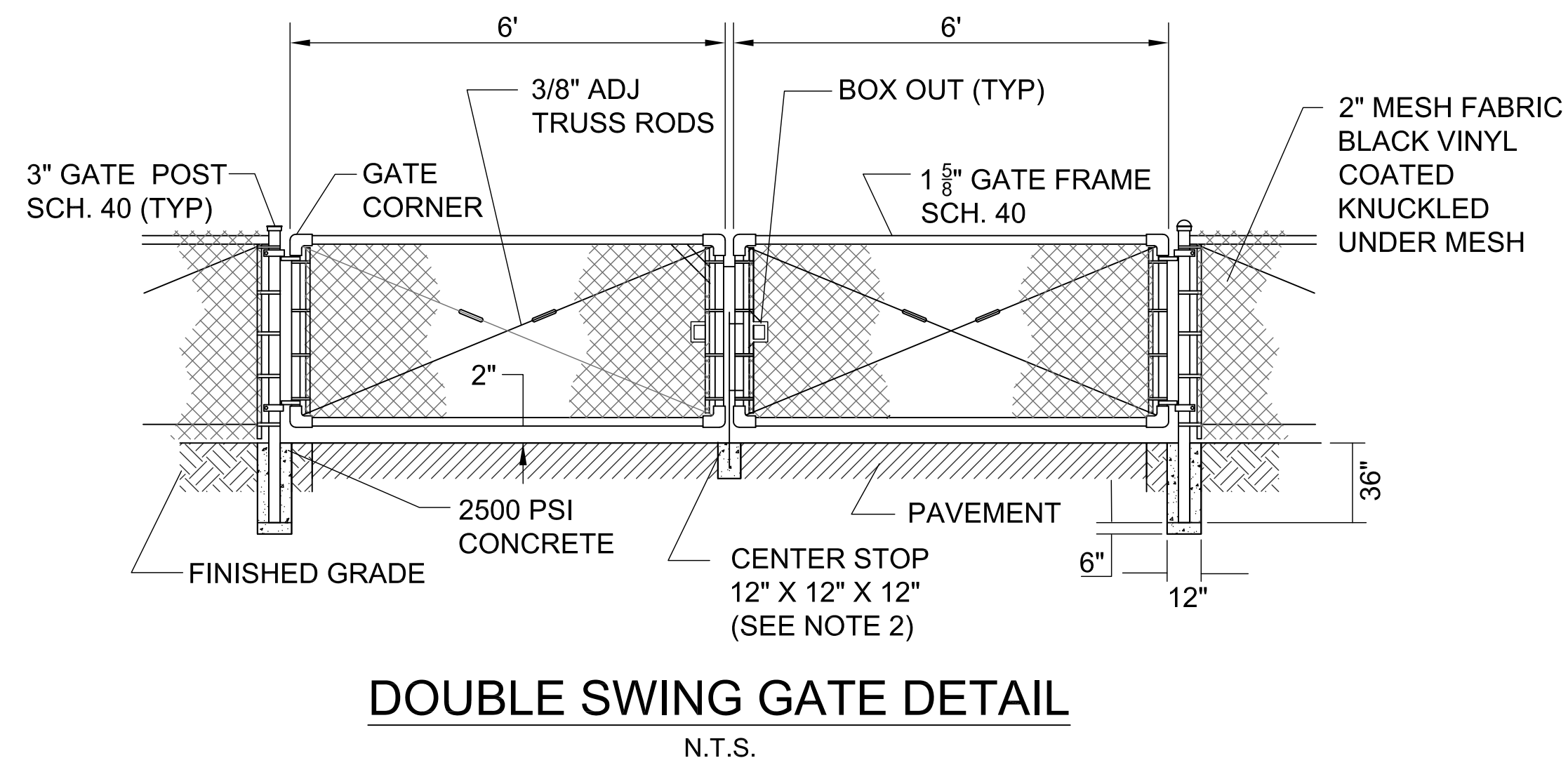
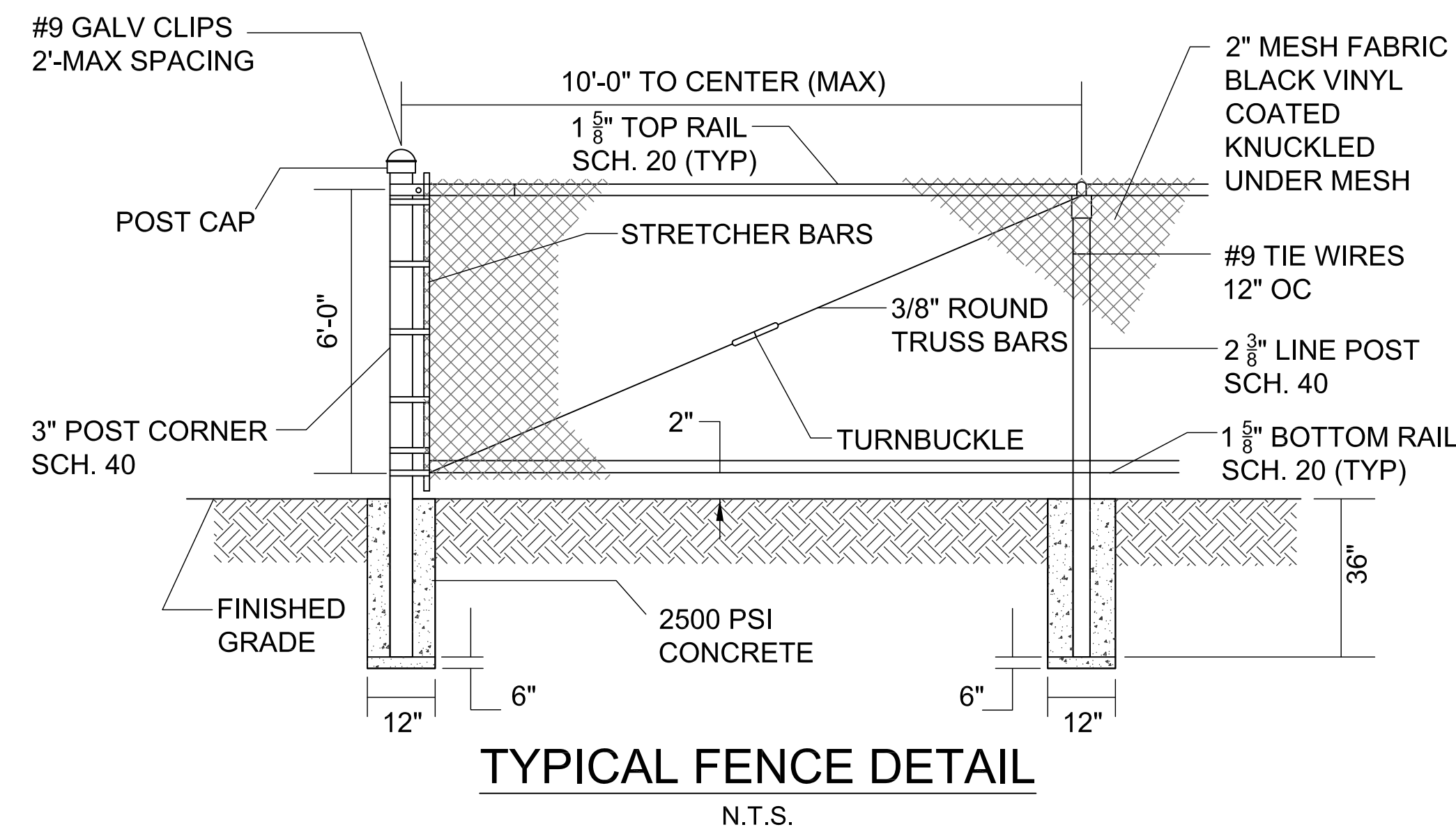
**CAMP JOY**  
UTILITY CONNECTIONS  
5303 BAPTIST CAMP ROAD  
APOPKA, FL 32712

**PUMP STATION SPECIFICATIONS**

SHEET NUMBER
C6.0

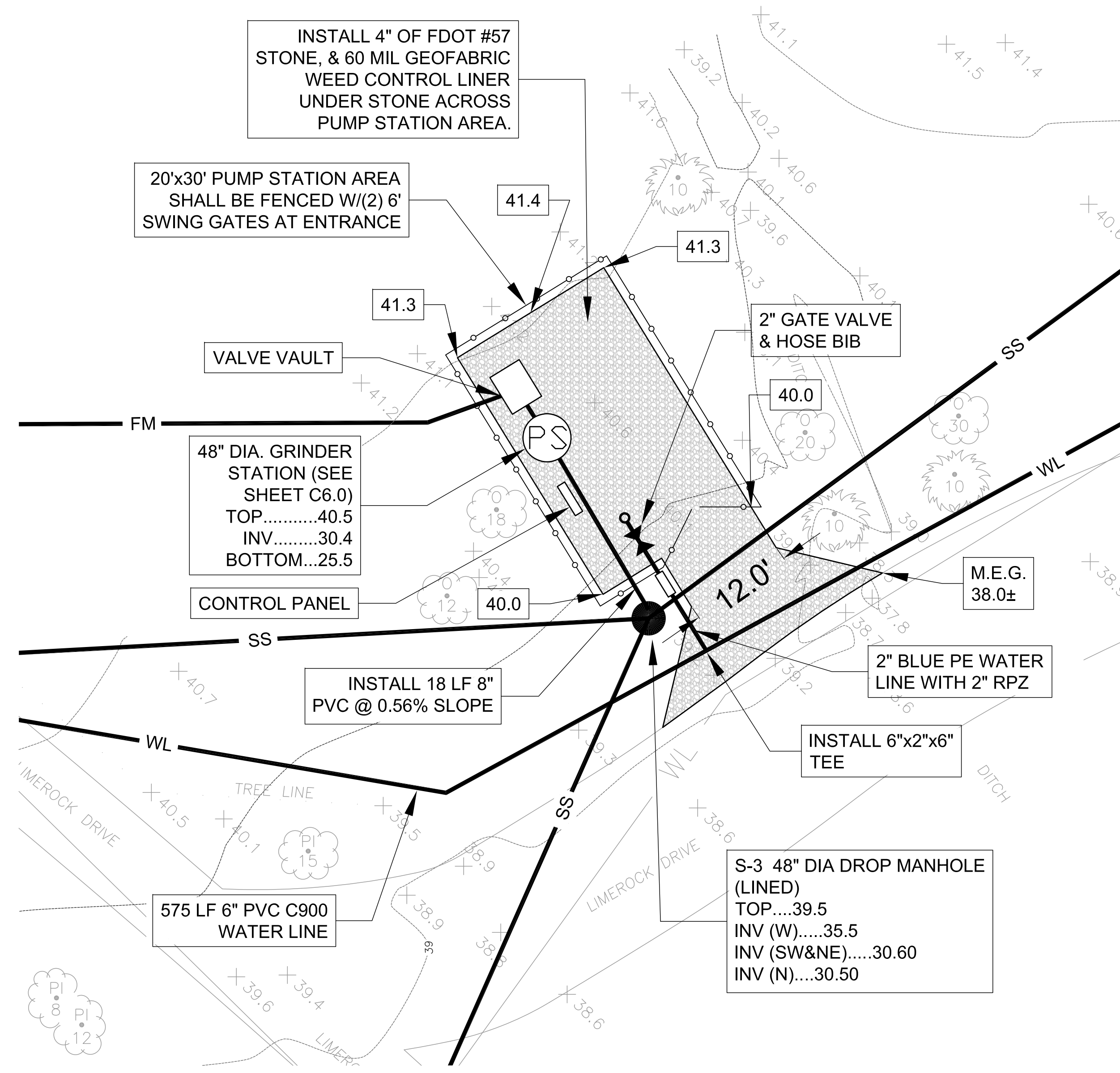
OF 09.0 SHEETS





**NOTES:**

1. TRUSS BARS ARE REQUIRED FOR EACH GATE SECTION AND THE FIRST SPAN ON EACH SIDE OF A CORNER POST ONLY.
2. PROVIDE CHAIN AND LOCK FOR SECURING GATE.
3. FENCING AND MESH SHALL BE BLACK, VINYL CLAD. KNUCKLED UNDER MESH. 9 GAUGE MESH BEFORE COATING. 6 GAUGE MESH AFTER COATING.
4. ALL OTHER HARDWARE TO BE BLACK POWDER COATED.
5. LIFT STATION ENCLOSURE SHALL HAVE WINDSCREEN WITH 100% OPACITY PROVIDING 100% VISUAL BLOCKAGE ON ALL FOUR SIDES. EACH PANEL SHALL BE HEMMED AND GROMMETED WITH 1" GROMMETS. ON LARGER PANELS, THE GROMMET SPACING SHOULD NOT EXCEED 4 FEET, WITH ALL FOUR CORNERS GROMMETED.



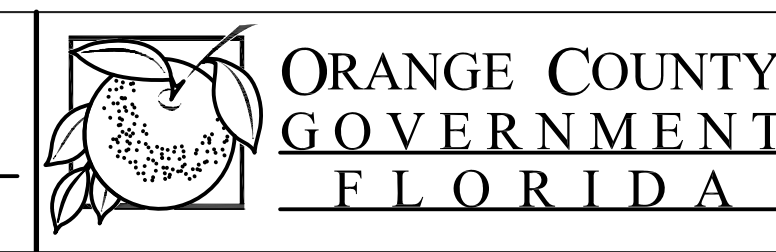
**PUMP STATION SITE PLAN**

SCALE: 1"=10'

NO.	DATE	REVISION
0	06/25/2018	ISSUED FOR BID



JEFFREY EARHART, PE, ENGINEER OF RECORD FLORIDA REG. PROF. ENGINEER No.: 49935



CAMP JOY  
UTILITY CONNECTIONS  
5303 BAPTIST CAMP ROAD  
APOPKA, FL 32712

**PUMP STATION SITE PLAN**

**DEFINITIONS**

**Regulatory Speed (In Work Zones)**

The maximum permitted travel speed posted for the work zone is indicated by the regulatory speed limit signs. The work zone speed must be shown or noted in the plans. This speed should be used as the minimum design speed to determine runoff lengths, departure rates, flare rates, lengths of need, clear zone widths, taper lengths, crash cushion requirements, marker spacings, superelevation and other similar features.

**Advisory Speed**

The maximum recommended travel speed through a curve or a hazardous area.

**Travel Way**

The portion of the roadway for the movement of vehicles. For traffic control through work zones, travel way may include the temporary use of shoulders and any other permanent or temporary surface intended for use as a lane for the movement of vehicular traffic.

a. **Travel Lane:** The designated width of roadway pavement marked to carry through traffic and to separate it from opposing traffic or traffic occupying other traffic lanes.

b. **Auxiliary Lane:** The designated width of roadway pavement marked to separate speed change, turning, passing and climbing maneuvers from through traffic.

**Detour, Lane Shift, and Diversion**

A detour is the redirection of traffic onto another roadway to bypass the temporary traffic control zone. A lane shift is the redirection of traffic onto a different section of the permanent pavement. A diversion is the redirection of traffic onto a temporary roadway, usually adjacent to the permanent roadway and within the limits of the right of way.

**Aboveground Hazard**

An aboveground hazard is any object, material or equipment other than traffic control devices that encroaches upon the travel way or that is located within the clear zone which does not meet the Department's safety criteria, i.e., anything that is greater than 4' in height and is firm and unyielding or does not meet breakaway requirements.

**TEMPORARY TRAFFIC CONTROL DEVICES**

All temporary traffic control devices shall be on the Department's Approved Products List (APL). Ensure the appropriate APL number is permanently marked on the device in a readily visible location.

All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

Arrow Boards, Portable Changeable Message Signs, Radar Speed Display Trailer, Portable Regulatory Signs, and any other trailer mounted device shall be delineated with a temporary traffic control device placed at each corner when in use and shall be moved outside the travel way and clear zone or be shielded by a barrier or crash cushion when not in use.

**PEDESTRIAN AND BICYCLIST**

When an existing pedestrian way or bicycle way is located within a traffic control work zone, accommodation must be maintained and provision for the disabled must be provided.

Only approved pedestrian longitudinal channelizing devices may be used to delineate a temporary traffic control zone pedestrian walkway.

Advanced notification of sidewalk closures and marked detours shall be provided by appropriate signs.

**OVERHEAD WORK**

Work is only allowed over a traffic lane when one of the following options is used:

**OPTION 1 (OVERHEAD WORK USING A MODIFIED LANE CLOSURE)**

- Overhead work using a modified lane closure is allowed if all of the following conditions are met:
  - a. Work operation is located in a signalized intersection and limited to signals, signs, lighting and utilities.
  - b. Work operations are 60 minutes or less.
  - c. Speed limit is 45 mph or less.
  - d. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
  - e. Aerial lift equipment is placed directly below the work area to close the lane.
  - f. Traffic control devices are placed in advance of the vehicle/equipment closing the lane using a minimum 100 foot taper.
  - g. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.

**OPTION 2 (OVERHEAD WORK ABOVE AN OPEN TRAFFIC LANE)**

- Overhead work above an open traffic lane is allowed if all of the following conditions are met:
  - a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
  - b. Work operations are 60 minutes or less.
  - c. Speed limit is 45 mph or less.
  - d. No encroachment by any part of the work activities and equipment within an area bounded by 2 feet outside the edge of travel way and 18 feet high.
  - e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
  - f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
  - g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
  - h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

**OPTION 3 (OVERHEAD WORK ADJACENT TO AN OPEN TRAFFIC LANE)**

- Overhead work adjacent to an open traffic lane is allowed if all of the following conditions are met:
  - a. Work operation is located on a utility pole, light pole, signal pole, or their appurtenances.
  - b. Work operations are 1 day or less.
  - c. Speed limit is 45 mph or less.
  - d. No encroachment by any part of the work activities and equipment within 2 feet from the edge of travel way up to 18 feet high.
  - e. Aerial lift equipment in the work area has high-intensity, rotating, flashing, oscillating, or strobe lights operating.
  - f. Volume or complexity of the roadway may dictate additional devices, signs, flagmen and/or a traffic control officer.
  - g. Adequate precautions are taken to prevent parts, tools, equipment and other objects from falling into open lanes of traffic.
  - h. Other Governmental Agencies, Rail facilities, or Codes may require a greater clearance. The greater clearance required prevails as the rule.

**OPTION 4 (OVERHEAD WORK MAINTAINING TRAFFIC WITH NO ENCROACHMENT BELOW THE OVERHEAD WORK AREA)**

Traffic shall be detoured, shifted, diverted or paced so as to not encroach in the area directly below the overhead work operations in accordance with the appropriate standard index drawing or detailed in the plans. This option applies to, but not limited to, the following construction activities:
 

- a. Beam, girder, segment, and bent/pier cap placement.
- b. Form and falsework placement and removal.
- c. Concrete placement.
- d. Retiling construction located at edge of deck.
- e. Structure demolition.

**OPTION 5 (CONDUCTOR/CABLE PULLING ABOVE AN OPEN TRAFFIC LANE)**

Overhead cable and/or de-energized conductor installations initial pull to proper location shall be done in accordance with the appropriate Standard Index or temporary traffic control plan.

Continuous pulling operations of secured cable and/or conductors are allowed over open lanes of traffic with no encroachment by any part of the work activities, materials or equipment within the minimal vertical clearance above the travel way. The utility shall take precautions to ensure that pull ropes and conductors/cables at no time fall below the minimum vertical clearance.

On Limited Access facilities, a site specific temporary traffic control plan is required. The temporary traffic control plan shall include:
 

- a. The temporary traffic control set up for the initial pulling of the pull rope across the roadway.
- b. During pulling operations, advance warning consisting of no less than a Changeable Message Sign upstream of the work area with alternating messages, "Overhead Work Ahead" and "Be Prepared to Stop" followed by a traffic control officer and police vehicle with blue lights flashing during the pulling operation.

**RAILROADS**

Railroad crossings affected by a construction project should be evaluated for traffic controls to reduce queuing on the tracks. The evaluation should include as a minimum: traffic volumes, distance from the tracks to the intersections, lane closure or taper locations, signal timing, etc.

**SIGHT DISTANCE**

Tapers: Transition tapers should be obvious to drivers. If restricted sight distance is a problem (e.g., a sharp vertical or horizontal curve), the taper should begin well in advance of the view obstruction. The beginning of tapers should not be hidden behind curves.

Intersections: Traffic control devices at intersections must provide sight distances for the road user to perceive potential conflicts and to traverse the intersection safely. Construction equipment and materials shall not restrict intersection sight distance.

**ABOVEGROUND HAZARD**

Aboveground hazards (see definitions) are to be considered work areas during working hours and treated with appropriate work zone traffic control procedures. During nonworking hours, all objects, materials and equipment that constitute an aboveground hazard must be stored/placed outside the travel way and clear zone or be shielded by a barrier or crash cushion.

For aboveground hazards within a work zone the clear zone required should be based on the regulatory speed posted during construction.

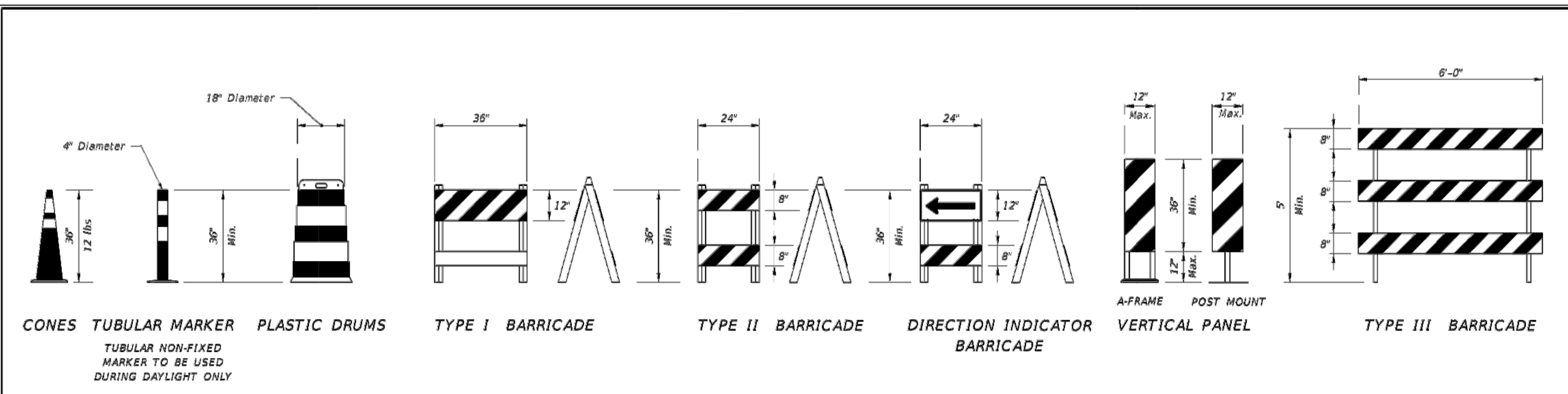
LAST REVISION	DESCRIPTION
07/01/15	

REVISION	DESCRIPTION



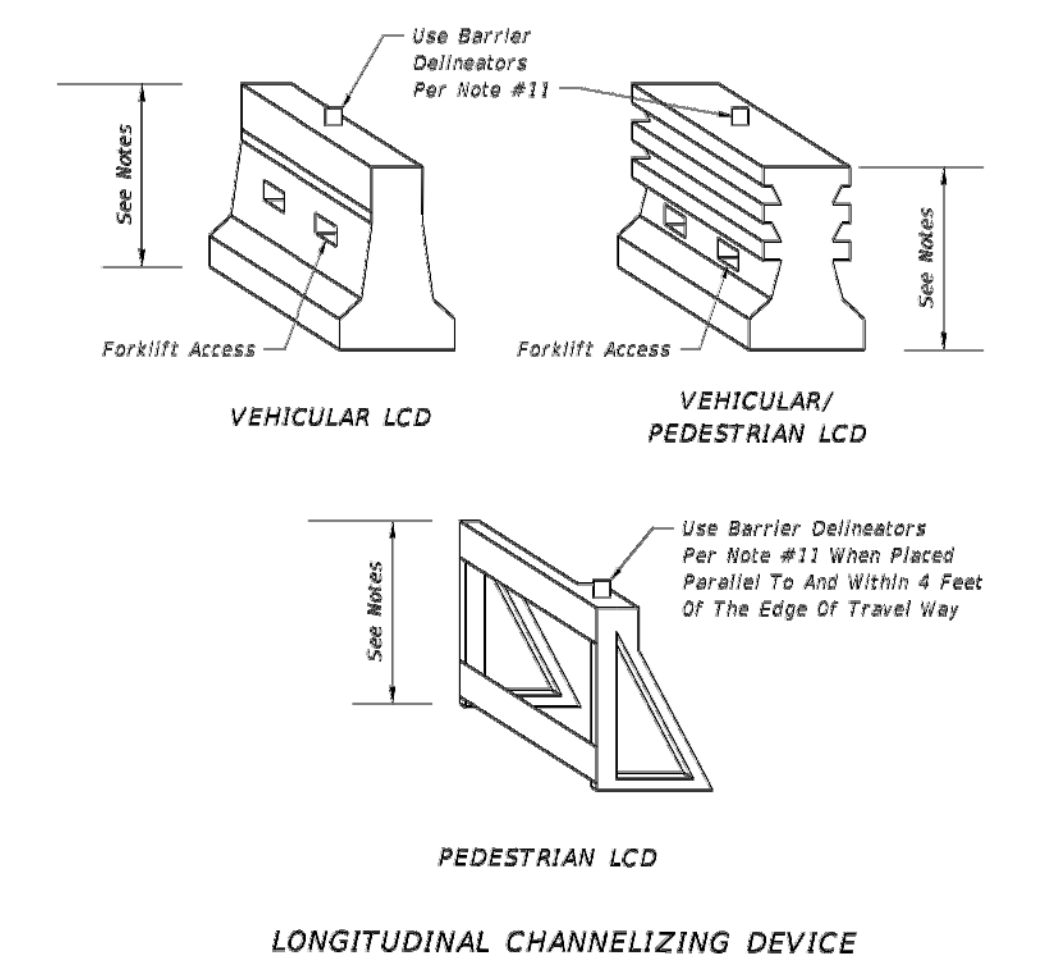
**GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES**

INDEX NO.	SHEET NO.
600	2 of 12



**IDENTIFICATIONS - CHANNELIZING DEVICES**

1. The details shown on this sheet are for the following purposes:
  - (a) For ease of identification and
  - (b) To provide information that supplements or supersedes that provided by the MUTCD.
2. The Type III Barricade shall have a unit length of 6'-0" only. When barricades of greater lengths are required those lengths shall be in multiples of the 6'-0" unit.
3. No sign panel should be mounted on any channelizing device unless the channelizing device/sign combination was found to be crashworthy and the sign panel is mounted in accordance with the vendor drawing for the channelizing device shown on the APL.
4. Ballast shall not be placed on top rails or any striped rails or higher than 13" above the driving surface.
5. The direction indicator barricade may be used in tapers and transitions where specific directional guidance to drivers is necessary. If used, direction indicator barricades shall be used in series to direct the driver through the transition and into the intended travel lane.
6. The splicing of sheeting is not permitted on either channelizing devices or MUT signs.
7. For rails less than 3'-0" long, 4" stripes shall be used.
8. Cones shall:
  - a. Be used only in active work zones where workers are present.
  - b. Not exceed 2 miles in length of use at any one time.
  - c. Be reflectorized as per the MUTCD with Department-approved reflective collars when used at night.
9. Vehicular longitudinal channelizing devices shall not exceed 36" in height. For vehicular longitudinal channelizing devices (LCDs) less than 32" in height, the LCD shall be supplemented with approved fixed (surface mounted) channelizing devices (tubular markers, vertical panels, etc.) along the run of the LCD, at the ends, at 50' centers on tangents, and 22' centers on radii. The cost of the fixed supplemental channelizing devices shall be included in the cost of the LCD. LCDs less than 32" in height shall not be used for speeds greater than 45 mph.
10. For pedestrian longitudinal channelizing devices, the device shall have a minimum of 6" continuous detectable edging above the walkway. A gap not exceeding a height of 2" is allowed to facilitate drainage. The top surface of the device shall be a minimum height of 32" and have a 1/8" or less difference in any plane at all connection points between the devices to facilitate hand trailing. The bottom and the top surface of the device shall be in the same vertical plane. If pedestrian drop-off protection is required, the device shall have a footprint or offset of at least 2', otherwise the device must be at least 42" in height above the walkway and be anchored or ballasted to withstand a 200 lb lateral point load at the top of the device.
11. Barrier Delineators: Meet Specifications Section 993. Place on top of unit so that retroreflective sheeting faces vehicular traffic. Spacing must be a maximum of 50' centers in transitions, 100' centers on curves and 200' centers on tangents. Color must match adjacent longitudinal pavement marking.



LAST REVISION	DESCRIPTION
11/01/16	

REVISION	DESCRIPTION



**GENERAL INFORMATION FOR TRAFFIC CONTROL THROUGH WORK ZONES**

INDEX NO.	SHEET NO.
600	11 of 12

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ARCHITECTURAL DESIGN COLLABORATIVE  
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**ORANGE COUNTY GOVERNMENT FLORIDA**

**CAMP JOY UTILITY CONNECTIONS**  
5303 BAPTIST CAMP ROAD  
APOPKA, FL 32712

**MAINTENANCE OF TRAFFIC NOTES & DETAILS**

**SHEET NUMBER C8.0 OF 09.0 SHEETS**

**SYMBOLS**  
 [Hatched Box] Work Area  
 [Arrow] Lane Identification + Direction of Traffic

**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 No. 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 No. 660.  
 5. For general TCZ requirements and additional information, refer to Index No. 600.

**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 07/01/05	DESCRIPTION: FDOT	FY 2017-18 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK OUTSIDE SHOULDER	INDEX NO. 601	SHEET NO. 1 of 1
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**SYMBOLS:**  
 [Hatched Box] Work Area  
 [Square] Channelizing Device (See Index No. 600)  
 [Triangle] Work Zone Sign  
 [Arrow] Flagger  
 [Arrow] Lane Identification + Direction of Traffic

**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 200 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 35 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 vehicles;  
 B. Official vehicles;  
 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 signs, 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 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  
DEVICE SPACING**

Posted Speed	Maximum Spacing of Cones or Tubular Markers				Maximum Spacing of Barricades/Panels/Drums				Distance Between Signs			Buffer Space	
	On a Taper		On a Tangent		On a Taper		On a Tangent		A	B	C		D
	A	B	A	B	A	B	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'	1300'	1000'	500'	495'				
60	20'	50'	20'	100'	2640'	1300'	1000'	500'	570'				
65	20'	50'	20'	100'	2640'	1300'	1000'	500'	645'				
70	20'	50'	20'	100'	2640'	1300'	1000'	500'	730'				

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

LAST REVISION 01/01/16	DESCRIPTION: FDOT	FY 2017-18 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK WITHIN THE TRAVEL WAY	INDEX NO. 603	SHEET NO. 1 of 3
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**SYMBOLS**  
 [Hatched Box] Work Area  
 [Square] Channelizing Device (See Index No. 600)  
 [Triangle] Work Zone Sign  
 [Arrow] 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 ENCRUCH THE AREA CLOSER THAN 15' BUT NOT CLOSER THAN 2' TO THE EDGE OF TRAVEL WAY.

**Table I  
Device Spacing**

Speed (mph)	Max. Distance Between Devices (ft.)			
	Cones or Tubular Markers		Type I or Type II Barricades or Vertical Panels or Drums	
	Taper	Tangent	Taper	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)	W <sub>s</sub> (ft.)			Notes
	8' Shldr.	10' Shldr.	12' Shldr.	
25	28	35	42	L=WS' 60
30	40	50	60	
35	55	68	82	L=WS
40	72	90	107	
45	120	150	180	
50	133	167	200	
55	147	183	220	
60	160	200	240	
65	173	217	260	
70	187	233	280	

W<sub>s</sub> = minimum shoulder width  
 W = Length of shoulder taper in feet  
 W = Width of total shoulder in feet (combined paved and unpaved width)  
 S = Posted speed limit (mph)

LAST REVISION 07/01/15	DESCRIPTION: FDOT	FY 2017-18 DESIGN STANDARDS	TWO-LANE, TWO-WAY, WORK ON SHOULDER	INDEX NO. 602	SHEET NO. 1 of 1
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NO.	DATE	REVISION
0	06/25/2018	ISSUED FOR BID

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**ORANGE COUNTY GOVERNMENT FLORIDA**

**CAMP JOY**  
 UTILITY CONNECTIONS  
 5303 BAPTIST CAMP ROAD  
 APOPKA, FL 32712

**MAINTENANCE OF TRAFFIC PLANS**

SHEET NUMBER	C9.0
OF C9.0 SHEETS	