

CONSTRUCTION DRAWINGS FOR

RIO PINAR LAKES

FORCE MAIN IMPROVEMENTS

DISTRICT 3

APRIL 2019

CAPITAL PROJECT No. 1539-0042

PROJECT SEQUENCE No. 93686

ORANGE COUNTY MAYOR

JERRY L. DEMINGS

BOARD OF COUNTY COMMISSIONERS

DISTRICT 1: COMMISSIONER BETSY VANDERLEY

DISTRICT 2: COMMISSIONER CHRISTINE MOORE

DISTRICT 3: COMMISSIONER MAYRA URIBE

DISTRICT 4: COMMISSIONER MARIBEL GOMEZ CORDERO

DISTRICT 5: COMMISSIONER EMILY BONILLA

DISTRICT 6: COMMISSIONER VICTORIA P. SIPLIN

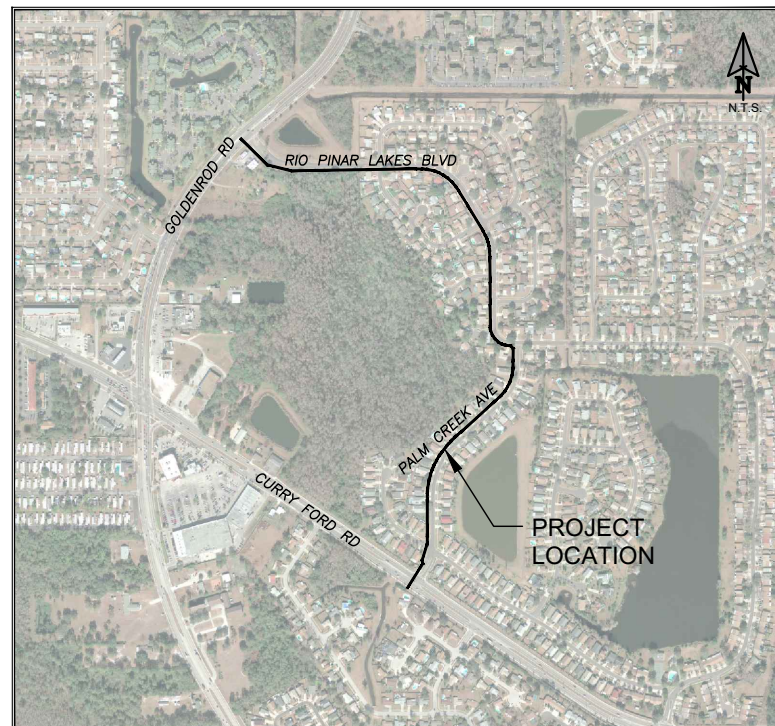
COUNTY ADMINISTRATOR: BYRON W. BROOKS, A.I.C.P.

UTILITIES DIRECTOR: RAYMOND E. HANSON, P.E.

ORANGE COUNTY UTILITIES

9150 CURRY FORD ROAD

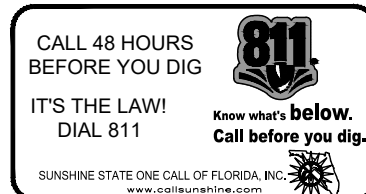
ORLANDO, FLORIDA 32825



VICINITY MAP

NTS

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA. DIMENSION INFORMATION SHOULD NOT BE OBTAINED BY SCALING THE PLANS.



BID SET

PREPARED BY:

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 Barnes, Ferland and Associates, Inc.
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 PH: (407) 896-8608 FAX: (407) 896-1882
 ENGINEERING BUSINESS No. 6899

ENGINEER OF RECORD
 CYNTHIA K. MALONE, P.E.

FLORIDA REGISTRATION No.
58685

LEGEND

- — — — — RIGHT OF WAY LINE
- — — — — LOT LINE
- . - . - . - . - . - . EASEMENT LINE
- — — — — X — — — — — EXISTING FENCE
- BTV---BTV---BTV--- EXISTING CABLE TV
- BFO---BFO---BFO--- EXISTING FIBER OPTIC CABLE
- BE---BE---BE--- EXISTING BURIED ELECTRIC
- FM---FM---FM--- EXISTING FORCE MAIN
- G---G---G--- EXISTING GAS
- IRR---IRR---IRR--- EXISTING IRRIGATION
- OHU---OHU---OHU--- EXISTING OVER HEAD UTILITY
- RWM---RWM---RWM--- EXISTING RECLAIMED WATER MAIN
- SAN---SAN---SAN--- EXISTING SANITARY SEWER
- STS---STS---STS--- EXISTING STORM WATER PIPE
- BT---BT---BT--- EXISTING BURRIED TELEPHONE
- W---W---W--- EXISTING WATER MAIN



REMOVE AND REPLACE EXISTING CONCRETE SURFACE



MILL AND RESURFACE ASPHALT PAVEMENT



REMOVE AND REPLACE EXISTING ASPHALT SURFACE



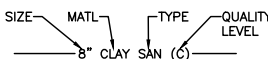
REMOVE AND REPLACE SIGNS

- X EXISTING PIPE TO BE REMOVED
- /// EXISTING PIPE TO BE ABANDONED IN PLACE (GROUT FILLED)
- TH TAPPING SLEEVE AND VALVE
- T TEE
- LS LINE STOP ASSEMBLY
- V VALVE (TYP)
- S SLEEVE
- HA HDPE / DI ADAPTER
- C CAP
- R REDUCER
- AIR AIR RELEASE VALVE ASSEMBLY
- FH FIRE HYDRANT ASSEMBLY

- (X) REMOVE AND RESET TREES
- (M) TREE - MAGNOLIA
- (M) TREE - MAPLE
- (M) TREE - CRAPE MYRTLE
- (M) TREE - OAK
- (M) TREE - OAK
- (LP) LIGHT POLE
- (PP) POWER POLE
- (MB) MAIL BOX (TYP)
- (TH-#) TEST HOLE (TH-1)

UNKNOWN ELEVATION OF EXISTING UTILITY AS INDICATED ON PROFILE SHEETS.

UTILITY PIPE DESIGNATION



NOTE: THIS DRAWING WAS PREPARED IN CONFORMANCE WITH ASCE STANDARD CE/ASCE 38-02 "AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA"

CI/ASCE 3802 SUBSURFACE UTILITY QUALITY LEVEL INDEX

- QUALITY LEVEL A (QLA):** UTILITY INFORMATION WHICH HAS BEEN VISUALLY VERIFIED, SURVEY LOCATED (BOTH HORIZONTALLY AND VERTICALLY) AND ACCURATELY REDUCED ONTO THE DRAWINGS. THIS IS TYPICALLY SHOWN AS A HV VERIFICATION EXCAVATION HOLE.
- QUALITY LEVEL B (QLB):** UTILITY INFORMATION DERIVED BY MARKING THE APPROXIMATE SURFACE HORIZONTAL LOCATION OF UTILITY USING ELECTRONIC METHODS BY THE UTILITY OWNER. MARKINGS BY UTILITY OWNERS ARE ASSUMED TO BE LOCATED BY ELECTRONIC METHODS AND SEPARATE LOCATES WILL NOT BE PERFORMED BY THE ENGINEER. MARKING IS SUBSEQUENTLY FIELD SURVEY LOCATED AND ACCURATELY REDUCED ONTO THE DRAWINGS.
- QUALITY LEVEL C (QLC):** UTILITY INFORMATION OBTAINED AS BELOW FOR QUALITY LEVEL D, PLOTTED TO CORRELATE WITH SURFACE UTILITY FEATURES WHICH HAVE BEEN FIELD VERIFIED, SURVEY LOCATED AND ACCURATELY REDUCED ONTO THE DRAWINGS. INCLUDED IN THIS CATEGORY ARE AERIAL UTILITY INFORMATION AND UTILITY DEPICTIONS, WHICH IN THE PROFESSIONAL OPINION OF THE SUBSURFACE UTILITY ENGINEER, REPRESENT THE MOST PROBABLE APPROXIMATE HORIZONTAL LOCATION, TYPE AND / OR EXISTENCE OF A UTILITY.
- QUALITY LEVEL D (QLD):** UTILITY INFORMATION PLOTTED ON THE DRAWING BASED SOLELY ON RECORD INFORMATION, INDIVIDUAL RECOLLECTIONS OR THE EXISTENCE OF UTILITY SERVICE. IT SHALL BE NOTED THAT ALL INFORMATION SHOWN (OTHER THAN AT TEST HOLE LOCATIONS, SEE QLA ABOVE) WITH REFERENCE TO A UTILITIES SIZE, CAPACITY, MATERIAL COMPOSITION, CONDITION OR SERVICE STATUS SHALL BE CONSIDERED QLD EVEN THOUGH THE UTILITY MAY BE PLOTTED AND LABELED QLC OR QLB.

REF:NNNN REFERENCE MADE TO AN APPLICABLE SECTION(S) OF THE TECHNICAL SPECIFICATIONS FOR THIS PROJECT.

ABBREVIATIONS

- | | | | |
|--------|------------------------------------|--------|------------------------------------|
| AC | ASBESTOS CEMENT, AIR CONDITIONER | MCC | MOTOR CONTROL CENTER |
| ADPT | ADAPTER | MES | MITERED END SECTION |
| ALT | ALTERNATE | MFR | MANUFACTURER |
| ALUM | ALUMINUM | MGD | MILLION GALLONS PER DAY |
| APPROX | APPROXIMATELY | MH | MANHOLE |
| ARV | AIR RELEASE VALVE ASSEMBLY | MIN | MINIMUM |
| ASPH | ASPHALT | MJ | MECHANICAL JOINT |
| ASSEM | ASSEMBLY | MOD | MODIFIED |
| AUX | AUXILIARY | MOT | MAINTENANCE OF TRAFFIC |
| BFO | BURIED FIBER OPTIC | MTD | MOUNTED |
| BFP | BACKFLOW PREVENTER | MTG | MOUNTING |
| BFV | BUTTERFLY VALVE | NG | NATURAL GROUND |
| BL | BASE LINE | NIC | NOT IN CONTRACT |
| BLDG | BUILDING | NO | NUMBER |
| BM | BENCHMARK | NOM | NOMINAL |
| BO | BLOW OFF | NPT | NATIONAL PIPE THREAD |
| BOT | BOTTOM | NPW | NON-POTABLE WATER |
| BRKT | BRACKET | NSP | NON-SLIP PAD |
| BV | BALL VALVE | NTS | NOT TO SCALE |
| CB | CATCH BASIN | OCU | ORANGE COUNTY UTILITIES |
| C/C | CENTER LINE TO CENTER LINE | OD | OUTSIDE DIAMETER |
| CFS | CUBIC FEET PER SECOND | OHU | OVERHEAD UTILITY |
| C&G | CURB AND GUTTER | O\E | OR EQUAL |
| CIP | CAST IRON PIPE | O\O | OUTSIDE TO OUTSIDE |
| CIS | CUT IN SLEEVE | OPER | OPERATOR |
| CL | CENTER LINE | OPNG | OPENING |
| CLF | CHAIN LINK FENCE | OUC | ORLANDO UTILITIES COMMISSION |
| CM | CONCRETE MONUMENT | PAVT | PAVEMENT |
| CMP | CORRUGATED METAL PIPE | PB | PULL BOX |
| CO | CLEAN OUT | PE | PLAIN END |
| CONC | CONCRETE | PG | PAGE |
| CONN | CONNECT | PI | POINT OF INTERSECTION |
| CONST | CONSTRUCT | PH | PHASE |
| CONT | CONTINUATION | PL | PROPERTY LINE |
| CORP | CORPORATION | PLS | PROFESSIONAL LAND SURVEYOR |
| CPLG | COUPLING | POLY | POLYETHYLENE |
| CULV | CULVERT | PP | POWER POLE |
| CV | CHECK VALVE | PROP | PROPOSED |
| CY | CUBIC YARD | PS | PUMP STATION |
| DBI | DITCH BOTTOM INVERT | PSI | POUNDS PER SQUARE INCH |
| DBL | DOUBLE | PSM | PROFESSIONAL SURVEYOR & MAPPER |
| DEFL | DEFLECTION | PUE | PERMANENT UTILITY EASEMENT |
| DHW | DESIGN HIGH WATER | PV | PLUG VALVE |
| DIA | DIAMETER | PVC | POLYVINYL CHLORIDE PIPE |
| DIM | DIMENSION | QTY | QUANTITY |
| DIP | DUCTILE IRON PIPE | RAD PT | RADIUS POINT |
| DWG | DRAWING | R | RADIUS |
| DWY | DRIVEWAY | RJ | RESTRAINED JOINT |
| ELEC | ELECTRIC | R\R | RAIL ROAD |
| EA | EACH | RCP | REINFORCED CONCRETE PIPE |
| EFF | EFFLUENT | RED | REDUCER |
| ELEV | ELEVATION | REINF | REINFORCED |
| EMB | EMBED OR EMBEDDED | REQ | REQUIRED |
| E\P | EDGE OF PAVEMENT | RESTR | RESTRAINED |
| ESMT | EASEMENT | RPZ | REDUCED PRESSURE ZONE |
| EW | EACH WAY | RT | RIGHT |
| EXIST | EXISTING | RW | RECLAIMED WATER |
| EXP JT | EXPANSION JOINT | R\W | RIGHT OF WAY |
| FD | FLOOR DRAIN | SAN | SANITARY SEWER |
| FDEP | FLORIDA DEPT OF ENVIRON PROTECTION | SB | SOIL BORING |
| FDOT | FLORIDA DEPT OF TRANSPORTATION | SCH | SCHEDULE |
| FA | FLANGED ADAPTER | SD | STORM DRAIN |
| FF | FINISH FLOOR | SECT | SECTION |
| FCA | FLANGED COUPLING ADAPTER | SF | SQUARE FEET |
| FHA | FIRE HYDRANT ASSEMBLY | SHT | SHEET |
| FIG | FIGURE | SLV | SLEEVE |
| FLG | FLANGE | SPECS | SPECIFICATIONS |
| FL | FLOW LINE | SQ | SQUARE |
| FM | FORCE MAIN | SS | STAINLESS STEEL |
| FT | FEET | STA | STATION |
| FTG | FOOTING | STD | STANDARD |
| GA | GAUGE | STL | STEEL |
| GAL | GALLON | STS | STORM WATER SYSTEM |
| GALV | GALVANIZED | SY | SQUARE YARDS |
| GEN | GENERATOR | SYS | SYSTEM |
| GRD | GROUND | T&B | TOP AND BOTTOM |
| GSP | GALVANIZED STEEL PIPE | TBM | TEMPORARY BENCHMARK |
| GM | GAS MAIN | TCE | TEMPORARY CONSTRUCTION EASEMENT |
| GPM | GALLONS PER MINUTE | TEL | TELEPHONE |
| GV | GATE VALVE | TEMP | TEMPORARY |
| HB | HOSE BIBB | THD | THREADED |
| HDWL | HEADWALL | THK | THICK |
| HFCA | HARNESSED FLANGE COUPLING ADAPTER | TOB | TOP OF BANK |
| HT | HEIGHT | TOS | TOP OF SLAB |
| HP | HORSE POWER | TOW | TOP OF WALL |
| HORIZ | HORIZONTAL | TS&V | TAPPING SLEEVE AND VALVE |
| HWL | HIGH WATER LEVEL | TYP | TYPICAL |
| ID | INSIDE DIAMETER | UG | UNDERGROUND |
| IN | INCHES | VCP | VITRIFIED CLAY PIPE |
| INV | INVERT | VERT | VERTICAL |
| IP | IRON PIPE | VH | VERIFIED VERTICALLY & HORIZONTALLY |
| IR | IRON ROD | w/ | WITH |
| JB | JUNCTION BOX | w/o | WITH OUT |
| JUNC | JUNCTION | WL | WATER LEVEL |
| LAT | LATERAL | WM | WATER MAIN |
| LF | LINEAR FEET | W\M | WATER METER |
| LS | LIFT STATION | WP | WALL PIPE |
| LT | LEFT | WRF | WATER RECLAMATION FACILITY |
| LWL | LOW WATER LEVEL | WS | WATER SERVICE |
| MAX | MAXIMUM | WS | WATER SURFACE |
| MATL | MATERIAL | WWF | WELDED WIRE FABRIC |

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No.	REVISIONS	BY	DATE
BID SET		CKM	4-5-2019

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED



ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825



RIO PINAR LAKES FORCE MAIN IMPROVEMENTS

LEGEND, ABBREVIATIONS AND INDEX OF DRAWINGS

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.

FLORIDA REGISTRATION No.
58685

PROJECT No.: 2017-29-02
PROJECT DATE: APR 2019
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN

DRAWING No.
G-101

SHEET
2 OF 29

*ALL WORK AND REQUIREMENTS FROM THE NOTES IN THIS PAGE SHALL BE A REQUIREMENT OF THE CONTRACT AND EXECUTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO ORANGE COUNTY.

OCU STANDARD GENERAL NOTES

1. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, GRAVITY MAINS AND RECLAIMED WATER MAINS. MAIN LOCATIONS SHOWN ON PLANS MAY NOT BE EXACT. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
2. SHOULD A PIPE EMERGENCY OCCUR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OCU DISPATCH OPERATOR (407-836-2777) AND THE OCU INSPECTOR.
3. THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST SEVEN DAYS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION PROJECT BY CALLING (407) 254-9798.
4. THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST 48 HOURS PRIOR TO ANY UTILITIES CONSTRUCTION BY CALLING (407) 254-9798.
5. THE MATERIALS, PRODUCTS, AND CONSTRUCTION OF ALL UTILITIES CONNECTING TO THE OCU SYSTEM SHALL BE IN CONFORMANCE WITH THE ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL.
6. ALL OCU MAINS AND FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION.
7. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO OCU MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY OCU, OCU MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE REPAIR.
8. THE CONTRACTOR SHALL ADJUST ALL EXISTING OCU MAINS AND FACILITIES IN CONFLICT WITH NEW GRADE, NEW OR ALTERED ROADWAYS, SIDEWALKS, DRIVEWAYS, OR STORM WATER IMPROVEMENTS. OCU FACILITIES TO BE ADJUSTED INCLUDE, BUT ARE NOT LIMITED TO PIPELINES, PUMP STATIONS, VALVE BOXES, AIR RELEASE VALVES, FIRE HYDRANTS, MANHOLE COVERS, AND METERS.
9. ONLY OCU SHALL OPERATE OCU WATER, WASTEWATER, AND RECLAIMED WATER VALVES. THE CONTRACTOR SHALL COORDINATE VALVE OPERATION WITH THE OCU INSPECTOR. FOR OPERATION OF MAINS NOT OWNED BY OCU, IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE APPROPRIATE UTILITY REPRESENTATIVE.
10. CONSTRUCTION ACTIVITIES SHALL NOT CAUSE INTERRUPTIONS IN WATER, WASTEWATER, OR RECLAIMED WATER SERVICE. THE CONTRACTOR SHALL COORDINATE PRE-APPROVED INTERRUPTIONS OF SERVICE WITH THE OCU INSPECTOR 7 WORKING DAYS IN ADVANCE.
11. THE CONTRACTOR SHALL PROVIDE FOR BYPASSING AND/OR HAULING WASTEWATER DURING APPROVED INTERRUPTIONS OF WASTEWATER FLOWS AND CONNECTIONS. THE CONTRACTOR SHALL SUBMIT A BYPASS PLAN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER TO OCU DEVELOPMENT ENGINEERING FOR APPROVAL PRIOR TO IMPLEMENTATION BY CONTRACTOR.
12. ALL VALVES INSTALLED AS PART OF THIS CONSTRUCTION PROJECT SHALL REMAIN CLOSED DURING CONSTRUCTION. KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT NEWLY CONSTRUCTED WATER MAINS TO ANY EXISTING WATER MAINS UNLESS CLEARED BY FDEP AND OCU.
13. THE CONTRACTOR SHALL PROVIDE A JUMPER ASSEMBLY WITH A BACKFLOW PREVENTER FOR MAKING TEMPORARY CONNECTIONS TO AN EXISTING POTABLE WATER SOURCE IN ORDER TO CHLORINATE AND FLUSH NEW WATER MAINS WITH POTABLE WATER. ANY TEMPORARY POTABLE WATER CONNECTIONS TO RECLAIMED WATER OR FORCEMAIN SHALL ALSO BE EQUIPPED WITH A BACKFLOW PREVENTER.
14. FOR PVC PIPE THAT WILL BE OWNED AND MAINTAINED BY OCU, NO PIPE BENDING IS ALLOWED. THE MAXIMUM ALLOWABLE TOLERANCE FOR JOINT DEFLECTION IS 0.75 DEGREES (3-INCHES PER JOINT PER 20 FT STICK OF PIPE.) ALIGNMENT CHANGE SHALL BE MADE ONLY WITH SLEEVES AND FITTINGS.
15. FOR NON-PVC PIPE THAT WILL BE OWNED AND MAINTAINED BY OCU, LONG RADIUS CURVES, EITHER HORIZONTAL OR VERTICAL, MAY BE INSTALLED WITH STANDARD PIPE BY DEFLECTIONS AT THE JOINTS. MAXIMUM DEFLECTIONS AT PIPE JOINTS, FITTINGS AND LAYING RADIUS FOR THE VARIOUS PIPE LENGTHS SHALL NOT EXCEED 75 PERCENT OF THE PIPE MANUFACTURER'S RECOMMENDATION.

PROJECT GENERAL NOTES

1. ALL UTILITIES FACILITIES CONSTRUCTION CONNECTING TO THE ORANGE COUNTY PUBLIC UTILITIES SYSTEM SHALL CONFORM TO THE ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL, AND BE ONE OF THE APPROVED PRODUCTS LISTED IN APPENDIX 'D' OF THE MANUAL.
2. COORDINATION AND COMMUNICATIONS WITH ORANGE COUNTY STAFF SHALL BE MADE THROUGH THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION INSPECTOR.
3. ORANGE COUNTY UTILITIES DEPARTMENT TELEPHONE NUMBERS:
 407-836-2777 ORANGE COUNTY UTILITIES DISPATCH
 407-254-9798 ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION
 407-254-9680 ORANGE COUNTY UTILITIES WATER RECLAMATION DIVISION
 407-254-9850 ORANGE COUNTY UTILITIES WATER DIVISION
 407-254-9900 ORANGE COUNTY UTILITIES ENGINEERING DIVISION
4. SUPPORT AND PROTECT ALL EXISTING UTILITIES. CONTRACTOR SHALL CONTACT UTILITY OWNERS FOR LOCATION OF ALL EXISTING FACILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH UTILITY OWNERS AND FOR PROVIDING TEMPORARY SUPPORT FOR THE UTILITY POLES, ANCHOR GUYS, AND ALL OTHER UTILITIES DURING CONSTRUCTION.
5. CONTRACTOR SHALL BE AWARE THAT EXISTING COMMUNICATION LINES WERE NOT DESIGNATED OR SURVEYED. THE EXISTING COMMUNICATION LINES THAT ARE SHOWN ON THE DRAWINGS ARE LEVEL D AND OBTAINED FROM RECORD DRAWING INFORMATION.
6. IMMEDIATELY AT ONSET OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES CRITICAL TO COMPLETING THE PROJECT (INCLUDING WATER, SEWER, RECLAIMED WATER, POWER, TELEPHONE, GAS, FIBER OPTIC AND CABLE TV) AND SHALL EVALUATE POTENTIAL CONFLICTS IN A WRITTEN REPORT. ANY CONFLICTS SHALL BE REPORTED TO ENGINEER/OWNER IMMEDIATELY UPON DISCOVERY AND DETAILED IN THE REPORT.
7. CONTRACTOR SHALL COORDINATE WITH ALL OTHER UTILITY OWNERS FOR RESOLUTION OF CONFLICTS. CONTRACTOR SHALL HAVE 48 HOURS TO DETERMINE THE RESOLUTION OF ANY UNKNOWN OR UNFORESEEN CONFLICTS. COSTS INCURRED SHALL BE BORNE BY THE UTILITY OWNER AND/OR CONTRACTOR AND NO CLAIMS MAY BE MADE AGAINST ORANGE COUNTY OR THE ENGINEER FOR THESE CONFLICTS. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THE PERIOD OF TIME TO RESOLVE ANY CONFLICTS.
8. USE EXTREME CAUTION WHEN EXCAVATING OR CONNECTING TO ASBESTOS CEMENT PIPE. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY TRUCKS CAPABLE OF PUMPING OUT THE PUMP STATION UPSTREAM FROM BREAKS OR CONNECTION POINT. WHEN CONNECTING TO ASBESTOS CEMENT WATER MAIN OR FORCE MAIN THE CONTRACTOR IS REQUIRED TO REPLACE ANY DAMAGED LENGTHS OF PIPE. THE AMOUNT OF REPLACED PIPE WILL BE DETERMINED BY THE ORANGE COUNTY UTILITIES INSPECTOR.
9. ALL EXISTING AND NEW OCU WATER AND SEWER VALVES, VALVE BOXES, AND MANHOLES SHALL BE PROTECTED AND ADJUSTED TO FINISHED GRADE AS SHOWN ON THE DRAWINGS. VALVE AND VALVE BOXES SHALL REMAIN ACCESSIBLE AT ALL TIMES. ANY VALVES THAT MIGHT BE COVERED DURING CONSTRUCTION SHALL BE MARKED WITH A MARKER (GREEN FOR SEWER, BLUE FOR WATER, AND PURPLE FOR RECLAIMED WATER MAIN), A MINIMUM OF FOUR (4) FEET ABOVE GRADE. ALL VALVES UNDER CONSTRUCTION ARE TO REMAIN CLOSED DURING CONSTRUCTION.
10. ALL PVC WATER AND SEWER MAIN AND RECLAIMED WATER MAIN SHALL CONFORM TO AWWA C900, DR 18, OR C905, DR 25. ALL DUCTILE IRON WATER MAIN PIPE SHALL CONFORM TO ANSI/AWWA A21.51/C151. ALL PVC PRESSURE PIPE SHALL USE DUCTILE IRON FITTINGS.
11. ALL PROPOSED DUCTILE IRON MECHANICAL JOINT FITTINGS, PIPES, OR PIPE RESTRAINTS WITHIN FORTY (40) FEET OF EXISTING GAS MAINS SHALL BE POLYETHYLENE ENCASED.
12. ALL BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY AS MEASURED BY AASHTO T-180 METHOD 'D' TEST (MODIFIED PROCTOR) IN OPEN AREAS AND TO NOT LESS THAN 98% MAXIMUM DRY DENSITY AS MEASURED BY AASHTO T-180 METHOD 'D' TEST (MODIFIED PROCTOR) UNDER ASPHALT OR CONCRETE PAVEMENT AND WITHIN 3-FT OF PAVEMENT. ALL SOIL TESTING TO BE CONDUCTED BY THE COUNTY. THE CONTRACTOR SHALL PROVIDE ALL REASONABLE ASSISTANCE DURING SOIL TESTING.
13. PIPE LENGTHS SHOWN ON PLANS ARE APPROXIMATE. ACTUAL LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION.

14. ALL NORTHING AND EASTING COORDINATES ARE BASED ON THE STATE PLANE COORDINATE SYSTEM. STATIONING IS FOR REFERENCE ONLY.
15. MAINTAIN EMERGENCY VEHICLE ACCESS TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.
16. IN AREAS WHERE CONSTRUCTION ACTIVITIES RESTRICT NORMAL ACCESS TO PROPERTIES, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALTERNATE ACCESS ROUTES WHICH ARE SUBJECT TO APPROVAL BY THE ENGINEER, AS PART OF THE M.O.T. PLAN.
17. LOCAL RESIDENTIAL ACCESS SHALL BE MAINTAINED AT ALL TIMES. PROVIDE WRITTEN NOTIFICATION TO RESIDENTS SEVEN (7) DAYS PRIOR TO IMPLEMENTING ANY ROADWAY OR DRIVEWAY CLOSURE.
18. ALL EXCAVATIONS SHALL BE BACK FILLED AT THE END OF EACH WORK DAY.
19. ALL PIPES SHALL BE RESTRAINED IN ACCORDANCE WITH THE RESTRAINT TABLES SHOWN ON THE DETAIL SHEETS. IN ADDITION, ALL FITTINGS SHALL BE MECHANICAL JOINT RESTRAINED. NO THRUST BLOCKS SHALL BE PERMITTED. RESTRAIN EXISTING PIPE WHERE REQUIRED IN ACCORDANCE WITH THE RESTRAINT TABLES AND THRUST COLLAR DETAIL.
20. PIPE SIZES SHOWN ON PLANS ARE NOMINAL DIAMETER.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DE-WATERING REQUIRED DURING CONSTRUCTION AND TO OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR THE TEMPORARY DE-WATERING.
22. REPLACEMENT WATER SERVICE CONNECTIONS SHALL INCLUDE THE REPLACEMENT OF THE EXISTING WATER METER BOXES WHICH ARE TO BE PROVIDED BY ORANGE COUNTY UTILITIES AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH COUNTY FOR THE SPECIFIC INSTALLATION LOCATION OF METER BOXES. FOR REROUTING WATER SERVICE ON PRIVATE PROPERTY THE CONTRACTOR SHALL RELOCATE EXISTING METERS TO NEW METER BOXES WHERE INDICATED ON THE DRAWINGS.
23. THE CONTRACTOR SHALL INSTALL LONG WATER SERVICE CONNECTION PIPING UNDER PAVEMENT USING TRENCHLESS CONSTRUCTION METHODS. WATER SERVICE CONNECTIONS CROSSING UNDER ANY PART OR ALL OF ROADS SHALL BE INSTALLED IN A PVC CASING PIPE.
24. WHERE SHOWN ON THE PLANS, LINE STOPS WILL BE USED TO ISOLATE PORTIONS OF THE EXISTING MAINS. THE ORANGE COUNTY INSPECTOR SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF LINE STOP INSTALLATION.
25. ALL CONNECTIONS TO EXISTING MAINS SHALL BE MADE BY THE CONTRACTOR ONLY AFTER THE PROPOSED CONNECTION PROCEDURE AND WORK SCHEDULE HAVE BEEN REVIEWED AND ACCEPTED BY THE OWNER. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST TO THE OWNER A MINIMUM OF SEVEN (7) WORKING DAYS PRIOR TO SCHEDULING ANY CONNECTIONS. THE REQUEST SHALL REFERENCE THE PROFESSIONAL LAND SURVEYOR CERTIFIED COMPLETED AS-BUILT RECORD DRAWINGS PREVIOUSLY SUBMITTED AND SHALL OUTLINE THE FOLLOWING:
 - A. POINTS OF CONNECTION, FITTINGS TO BE USED, METHODS OF FLUSHING AND DISINFECTION AND VERIFICATION OF RESTRAINT ON EXISTING PIPE.
 - B. ESTIMATED CONSTRUCTION TIME FOR THE CONNECTIONS.
 THE OWNER SHALL REVIEW THE SUBMITTAL WITHIN FIVE (5) WORKING DAYS AFTER RECEIVING IT AND INFORM THE CONTRACTOR REGARDING APPROVAL OR DENIAL OF THE REQUEST. IF THE OWNER REJECTS THE REQUEST, THE CONTRACTOR SHALL RESUBMIT THE REQUEST MODIFYING IT IN A MANNER ACCEPTABLE TO THE OWNER. ALL CONNECTIONS SHALL ONLY BE MADE ON THE AGREED UPON DATE AND TIME. SHOULD THE CONTRACTOR NOT INITIATE AND COMPLETE THE CONNECTION WORK IN THE AGREED UPON MANNER, HE SHALL BE REQUIRED TO RESCHEDULE THE CONNECTION BY FOLLOWING THE PROCEDURE OUTLINED ABOVE. THE CONTRACTOR SHALL NOT OPERATE ANY VALVES IN THE SYSTEM. MAINS SHALL NOT BE PLACED IN SERVICE UNTIL CLEARANCE IS RECEIVED FROM FDEP. AS-BUILT DRAWINGS MUST BE COMPLETED AND SUBMITTED PRIOR TO WATER MAIN CHLORINATION.
26. ALL EXISTING VALVES, VALVE BOXES, ARV'S AND VAULTS, AND FIRE HYDRANTS LOCATED ON PIPE DESIGNATED TO BE ABANDONED (OR RETIRED IN PLACE) SHALL BE REMOVED AND DISPOSED OF OR SALVAGED IN ACCORDANCE WITH THE SPECIFICATIONS.
27. EXISTING SIDEWALKS AND CURB RAMPS SCHEDULED TO BE REMOVED AND REPLACED SHALL BE RECONSTRUCTED TO CURRENT ADA STANDARDS. SIDEWALKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX 310, AND CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT INDEX 304.

No.	REVISIONS	BY	DATE
BID SET		CKM	4-5-2019

LINE IS 1 INCH
 AT FULL SIZE = 11X17
 (IF NOT SCALE ACCORDINGLY)

 SCALE: AS NOTED



ORANGE COUNTY UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825



RIO PINAR LAKES FORCE MAIN IMPROVEMENTS

GENERAL NOTES

DESIGN ENGINEER
 CYNTHIA K. MALONE, P.E.

 FLORIDA REGISTRATION No.
 58685

PROJECT No.: 2017-29-02
 PROJECT DATE: APR 2019
 DESIGNED BY: CKM
 DRAWN BY: JAB
 CHECKED BY: GJH
 DRAWING FILE: SEE MARGIN

DRAWING No.
G-102

 SHEET
 3 OF 29

*ALL WORK AND REQUIREMENTS FROM THE NOTES IN THIS PAGE SHALL BE A REQUIREMENT OF THE CONTRACT AND EXECUTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO ORANGE COUNTY.

GENERAL NOTES CONT'D

- 28. PROTECT EXISTING IMPROVEMENTS TO THE MAXIMUM EXTENT POSSIBLE. RESTORE ALL EXISTING IMPROVEMENTS AND DISTURBED AREAS TO ORIGINAL CONDITION. PAVEMENT TO BE RESTORED IN ACCORDANCE WITH THE PAVEMENT RESTORATION DETAILS SHOWN ON THE CONSTRUCTION DETAIL SHEETS. ALL DAMAGED MAILBOXES, IRRIGATION SYSTEMS, SOD, LANDSCAPING, FENCING, SIDEWALK, ROADWAY PAVEMENT AND OTHER IMPROVEMENTS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
- 29. FOR ALL COUNTY ROADS TO BE OPEN CUT, THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC (MOT) PLAN CONFORMING TO ORANGE COUNTY RIGHT-OF-WAY UTILIZATION REGULATIONS TO ORANGE COUNTY PUBLIC WORKS A MINIMUM OF FOURTEEN (14) DAYS PRIOR TO ANY WORK WITHIN COUNTY RIGHT-OF-WAY. A COPY OF THIS PLAN SHALL ALSO BE SUBMITTED TO THE ENGINEER AND UTILITY COUNTY INSPECTOR. NOTIFY THE COUNTY ENGINEER 48 HOURS PRIOR TO ANY OPEN CUT OF ROADWAYS WITHIN THE COUNTY RIGHT-OF-WAY. TWO WAY TRAFFIC MUST BE MAINTAINED AT ALL TIMES DURING THE COURSE OF CONSTRUCTION. MAINTAIN A SET OF COUNTY APPROVED CONSTRUCTION PLANS AND MOT PLANS AT THE CONSTRUCTION SITE AT ALL TIMES WHEN WORKING WITHIN THE COUNTY RIGHT-OF-WAY.
- 30. BENCHMARK LOCATIONS AND ELEVATIONS ARE SHOWN IN THE PLANS AS REPRESENTED BY THE SURVEYOR AT THE TIME OF SURVEY. CONTRACTOR SHALL VERIFY ITS CORRECTNESS AT THE TIME OF CONSTRUCTION AND INSTALL HIS OWN TEMPORARY BENCHMARKS. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OCU UTILITIES INSPECTOR.
- 31. NO VALVE BOXES, METERS, PORTIONS OF MANHOLES, OR OTHER APPURTENANCES OF ANY KIND RELATING TO ANY UNDERGROUND UTILITIES SHALL BE LOCATED IN ANY PORTION OF A CURB-AND-GUTTER SECTION. CONTRACTOR SHALL ADVISE ENGINEER IMMEDIATELY UPON DISCOVERY OF A POTENTIAL CONFLICT.
- 32. WHERE REQUIRED, AT NO ADDITIONAL COST TO THE COUNTY, THE CONTRACTOR SHALL USE TEMPORARY SHEETING OR TRENCH BOXES TO MINIMIZE THE SIZE OF EXCAVATIONS AND PROTECT EXISTING ROADWAYS, UTILITIES AND OTHER FACILITIES OR AS NEEDED TO REMAIN WITHIN THE LIMITS OF CONSTRUCTION. CONTRACTOR TO COMPLY WITH OSHA TRENCH SAFETY REQUIREMENTS AT ALL TIMES.
- 33. ALL EXISTING MAINS SHALL REMAIN IN SERVICE UNTIL THE PROPOSED MAIN(S) ARE ACCEPTED FOR SERVICE AND ALL SERVICES ARE TRANSFERRED TO THE MAIN(S).
- 34. CONTRACTOR SHALL APPLY FOR AND SECURE ALL NECESSARY PERMITS FROM STATE, COUNTY, AND LOCAL MUNICIPALITIES. PERMITS SHALL INCLUDE, BUT NOT BE LIMITED TO, RIGHT OF WAY USE, CONSTRUCTION, BUSINESS LICENSE, AND DEWATERING.
- 35. THE DISPOSAL OF ANY EXCESS EARTH WORK MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SALVAGE AND/OR DISPOSAL OF ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DIRECTED BY THE ORANGE COUNTY UTILITIES INSPECTOR.
- 37. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN CONSTRUCTION AND ARE THE MINIMUM REQUIRED. CONTRACTOR SHALL FURNISH ADDITIONAL CONTROLS AS NEEDED AT NO ADDITIONAL COST. MATERIALS FROM WORK ON THIS PROJECT SHALL BE CONTAINED AND NOT ALLOWED TO COLLECT ON ANY OFF PERIMETER AREAS OR IN WATERWAYS. SILK SCREENS, HAY BALES, AND TURBIDITY BARRIERS MUST REMAIN IN PLACE AND IN GOOD CONDITION AT ALL LOCATIONS IN PLANS OR AS REQUIRED UNTIL THE CONTRACT IS COMPLETED AND SOILS ARE STABILIZED AND VEGETATION IS ESTABLISHED. MEASURES SHOWN ON THE PLANS ARE MINIMUM REQUIRED, AND THE CONTRACTOR SHALL ENSURE THAT THERE IS NO DIRECT OR INDIRECT DISCHARGE OF CONSTRUCTION MATERIALS IN TURBID WATERS TO OFF SITE AREAS OR WATERWAYS.
- 38. THE CONTRACTOR SHALL COORDINATE WITH ORANGE COUNTY PUBLIC SCHOOLS (OCPS) TRANSPORTATION SERVICES TO ENSURE THAT ALL SCHOOL BUS STOPS WITHIN THE PROJECT LIMITS ARE NOT IMPACTED BY CONSTRUCTION. SHOULD TEMPORARY RELOCATION OF A SCHOOL BUS STOP BE NECESSARY, THE CONTRACTOR SHALL NOTIFY OCPS TRANSPORTATION SERVICES AT (407) 317-3800 A MINIMUM OF ONE (1) WEEK PRIOR TO BEGINNING CONSTRUCTION AT EACH LOCATION. RELOCATION OF THE BUS STOP AT PALM CREEK AVE AND ALTAVAN AVE IS REQUIRED.

- 39. ORANGE COUNTY PUBLIC WORKS (OCPW) HAS PROVIDED PRELIMINARY APPROVAL FOR THE CLOSURE OF PALM CREEK AVE BETWEEN CURRY FORD RD AND ALTAVAN AVE FOR CONSTRUCTION OF THE BORE AND JACK. THE CONTRACTOR IS REQUIRED TO PREPARE AND SUBMIT A MAINTENANCE OF TRAFFIC (MOT) PLAN TO OCPW. PALM CREEK AVE CANNOT BE CLOSED WITHOUT AN APPROVED MOT PLAN. AT A MINIMUM, VARIABLE MESSAGE BOARDS AND DETOUR ROUTE SIGNAGE WILL BE REQUIRED.
- 40. LOCAL RESIDENTIAL AND BUSINESS TRAFFIC (INCLUDING LYNX BUS SERVICE) SHALL BE MAINTAINED AT ALL TIMES. IF UNABLE TO DO SO, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFICATION OF AFFECTED RESIDENTS AND BUSINESSES (INCLUDING LYNX) A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF THE START OF ANY PHASE OF CONSTRUCTION, IN WRITING, TO COORDINATE ALTERNATIVE ACCESS ARRANGEMENTS. THE CONTRACTOR SHALL PROVIDE COPIES OF THE NOTIFICATIONS TO THE ORANGE COUNTY INSPECTOR PRIOR TO DISTRIBUTION. LYNX BUS SERVICE ROUTE #3 (CURRY FORD ROAD) AND ROUTE #15 (GOLDENROD ROAD) ARE LOCATED WITHIN OUR CONSTRUCTION AREA.
- 41. THE CONTRACTOR SHALL BE AWARE THERE IS PRIVATELY OWNED IRRIGATION SYSTEMS WITHIN THE RIGHT OF WAY AND UTILITY EASEMENTS. THE COST OF COORDINATING, PROTECTING, REPAIRING AND/OR REPLACING THESE IRRIGATION SYSTEMS SHALL BE INCLUDED IN THE APPLICABLE PAY ITEMS SPECIFIED IN SECTION 01025, MEASUREMENT AND PAYMENT.
- 42. ORANGE COUNTY PUMP STATION #3266 OPERATING CONDITION IS APPROXIMATELY 380 GPM AT 151 FT TDH. CONTRACTOR SHALL PROVIDE PUMP STATION BY-PASS AS REQUIRED FOR CONNECTION.
- 43. SUNCO PRIVATE PUMP STATION OPERATING CONDITION IS APPROXIMATELY 100 GPM AT 41 PSI PEAK PRESSURE. OCU WILL ACCEPT A PEAK OF 10 GPM FOR BY-PASS OF THIS STATION. CONTRACTOR SHALL PROVIDE PUMP STATION #10821 BY-PASS AS REQUIRED FOR CONNECTION.

UTILITY OWNER CONTACTS			
UTILITIES	ORANGE COUNTY DISPATCH	407-836-2777	(24 HOUR ASSISTANCE)
WASTEWATER	OCU WATER RECLAMATION DIVISION	407-254-9680	
WATER	ORANGE COUNTY UTILITIES	407-254-9850	
TRAFFIC SIGNALS & FIBER	ORANGE COUNTY PUBLIC WORKS	407-836-7804	
ELECTRIC	DUKE ENERGY (TRANSMISSION)	352-694-8521	
CATV	COMCAST CABLE COMMUNICATIONS (ORLANDO)	407-849-3611	
CATV, PHONE LINES - FIBER	CHARTER COMMUNICATIONS	407-532-8509	
FIBER OPTIC	SPRINT NEXTEL	321-287-9942	
FIBER AND TELEPHONE	CENTURY LINK WINTER GARDEN	407-814-5293	
TELEPHONE	AT&T DISTRIBUTION	516-997-0240	

SEQUENCE OF WORK

- 1. THE PROJECT SHALL BE CONSTRUCTED SEQUENTIALLY IN THE FOLLOWING GENERAL PHASES:
 - **PHASE 1 WORK:** PALM CREEK AVE FROM CURRY FORD RD TO PUMP STATION #3266 (DRAWINGS U-101 THROUGH U-104.) CONSTRUCT 12" FORCE MAIN.
 - **PHASE 2 WORK:** TESTING AND PLACING PALM CREEK AVE FORCE MAIN IN-SERVICE INCLUDING CONNECTION OF PUMP STATION #3266. ALSO PRIVATE PUMP STATION #10821 [DWG U-108] SHALL REMAIN IN SERVICE. INSTALL LINE STOP AND CAP @ STA. 79+41.
 - **PHASE 3 WORK:** RIO PINAR LAKES BLVD FROM PUMP STATION #3266 TO GOLDENROD RD (DRAWINGS U-104 THROUGH U-108.) REMOVE EXISTING 6" FORCE MAIN AND CONSTRUCT 12" FORCE MAIN.
- 2. THE CONTRACTOR WILL NOT BE PERMITTED TO MOVE TO THE RIO PINAR LAKES BLVD. SEGMENT UNTIL ALL RESTORATION ALONG PALM CREEK AVE. IS COMPLETE AND THE RPR HAS PROVIDED APPROVAL.
- 3. **DAILY CLEANUP:** THE CONTRACTOR SHALL CLEAN THE CONSTRUCTION AREA DAILY. THE WORK SITE SHALL BE KEPT FREE FROM ACCUMULATION OF WASTE MATERIALS, RUBBISH AND DEBRIS FROM AND ABOUT THE WORK SITE AND SHALL BE LEFT CLEAN AND SAFE AT ALL TIMES. ON A DAILY BASIS, ALL UNUSED MATERIALS AND EQUIPMENT SHALL BE RETURNED TO THE CONTRACTOR'S LONG-TERM STORAGE AND EQUIPMENT AREA. ALL EXCAVATIONS SHALL BE BACKFILLED OR PROPERLY PROTECTED AT THE END OF EACH WORK DAY.
- 4. TO FACILITATE THE FORCE MAIN BORE AND JACK OF CURRY FORD ROAD, THE CONTRACTOR SHALL ESTABLISH A WATER MAIN BY-PASS OPERATION TO TEMPORARILY STOP THE FLOW OF WATER IN THE EXISTING 24-INCH WATER MAIN AND ALLOW THE SETUP OF TEMPORARILY BY-PASSING WATER FLOW THROUGH THE LINE STOP HOUSING INTO THE 16-INCH BY-PASS PIPING; REMOVAL OF THE 24-INCH WATER MAIN; COMPLETION OF THE FORCE MAIN BORE AND JACK OF CURRY FORD RD.; REPLACEMENT, PRESSURE TESTING AND DISINFECTION OF THE REPLACEMENT 24-INCH WATER MAIN; AND SUBSEQUENT REMOVAL OF THE BY-PASS OPERATION.

No.	REVISIONS	BY	DATE
BID SET		CKM	4-5-2019

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

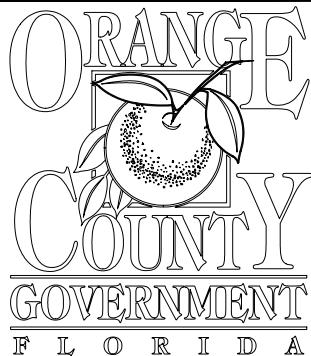


ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825



RIO PINAR LAKES FORCE MAIN IMPROVEMENTS
GENERAL NOTES AND UTILITY OWNER CONTACTS

DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019 DESIGNED BY: CKM DRAWN BY: JAB	DRAWING No. G-103
FLORIDA REGISTRATION No. 58685	CHECKED BY: GJH DRAWING FILE: SEE MARGIN	SHEET 4 OF 29



TOPOGRAPHIC SURVEY OF FORCE MAIN R&R EAST AREA 2 LOCATION 5 (RIO PINAR LAKES BLVD) LYING IN SECTION 02, TOWNSHIP 23 SOUTH, RANGE 30 EAST

GENERAL NOTES

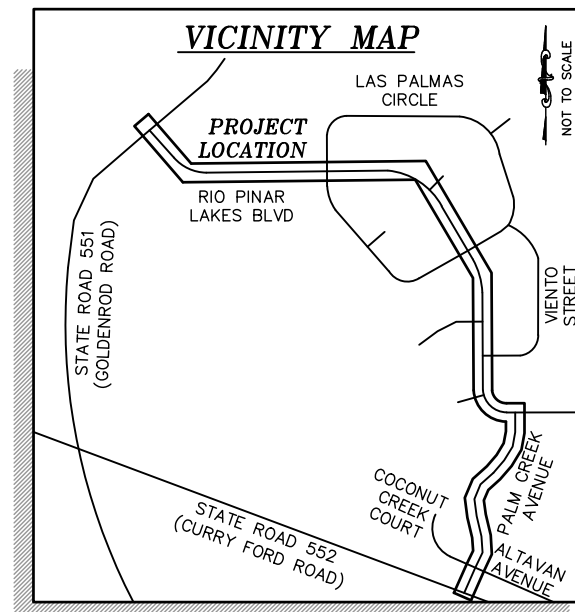
- THE PURPOSE OF SURVEY IS TO ESTABLISH THE EXISTING RIGHT OF WAY LINES OF RIO PINAR LAKES BOULEVARD FROM STATE ROAD 551 (GOLDENROD ROAD) HEADING EAST TO AN EXISTING LIFT STATION LYING WITHIN LOT 36, BLOCK "E", RIO PINAR LAKES UNIT ONE, AS RECORDED IN PLAT BOOK 9, PAGES 55 AND 56 OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, BY ESTABLISHING OR RE-ESTABLISHING CORNERS, MONUMENTS AND BOUNDARY LINES, AND TO ESTABLISH THE HORIZONTAL AND VERTICAL SPATIAL RELATIONSHIP OF THE NATURAL OR MANMADE FEATURES LYING WITHIN THE DEFINED LIMITS NOTED ABOVE AND TEN FEET OUTSIDE THE EXISTING RIGHT OF WAY WHERE ACCESSIBLE. FIELD SURVEY COMPLETED ON MAY 31, 2017.
AND
TO ESTABLISH THE EXISTING RIGHT OF WAY LINES OF PALM CREEK AVENUE AS RECORDED IN PLAT BOOK 9, PAGES 55 AND 56, AND PLAT BOOK 25, PAGES 96 AND 97 OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, BY ESTABLISHING OR RE-ESTABLISHING CORNERS, MONUMENTS AND BOUNDARY LINES, AND TO ESTABLISH THE HORIZONTAL AND VERTICAL SPATIAL RELATIONSHIP OF THE NATURAL OR MANMADE FEATURES LYING WITHIN THE DEFINED LIMITS NOTED ABOVE AND TEN FEET OUTSIDE THE EXISTING RIGHT OF WAY WHERE ACCESSIBLE.
- BEARINGS AND COORDINATES SHOWN HEREON ARE RELATIVE TO THE FLORIDA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983/2011 ADJUSTMENT (NAD83/2011), ZONE 901, FLORIDA EAST, WITH THE WEST LINE OF LOTS 40 AND 41, BLOCK "A", RIO PINAR LAKES UNIT ONE, AS RECORDED IN PLAT BOOK 9, PAGES 55 AND 56 OF THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, HAVING A BEARING OF SOUTH 00°18'11" EAST.
- ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AS ESTABLISHED FROM THE FOLLOWING ORANGE COUNTY BENCHMARKS:
S1277040: FOUND 3" ORANGE COUNTY ALUMINUM DISK IN A CURB INLET LOCATED ON THE EAST SIDE OF STATE ROAD 551 ACROSS FROM BARKSDALE DRIVE, 800 FEET ± NORTH OF CURRY FORD ROAD.
PUBLISHED ELEVATION = 89.769 FEET (NAVD88)
S1277043: FOUND BOX CUT IN CONCRETE SIDEWALK LOCATED ON THE EAST SIDE OF STATE ROAD 551 AT AN EXISTING CANAL CROSSING, 200 FEET ± SOUTH OF SILVER BOULEVARD.
PUBLISHED ELEVATION = 94.281 FEET (NAVD88)
- ALL RECORDING REFERENCES ON THIS SURVEY SHALL REFER TO THE PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, UNLESS OTHERWISE NOTED.
- UNLESS IT BEARS THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER, THIS DRAWING, SKETCH, PLAT, OR MAP IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT VALID.
- THE SURVEYOR HAS NOT ABSTRACTED THE LANDS SHOWN HEREON FOR EASEMENTS AND/OR RIGHT OF WAY RECORDS. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT.
- BORINGS SHOWN HEREON WERE DESIGNATED BY ANTILLIAN ENGINEERING ASSOCIATES, INC. AND FIELD LOCATED BY THIS FIRM.
- LOCATIONS OF UNDERGROUND UTILITIES WERE PROVIDED BY BARNES, FERLAND AND ASSOCIATES, INC.

LEGEND

- | | | |
|-------------------------------|--|---|
| —BE— = BURIED ELECTRIC LINE | ⊙ = LANDSCAPING LIGHT | ⊕ = SPOT ELEVATION |
| —FM— = BURIED FORCE MAIN | ⊙ = LIGHT POLE | ⊕ = TELEPHONE RISER |
| —WL— = BURIED WATER MAIN | ☐ = MAILBOX | ▼ = TRANSFORMER |
| ☐ = CABLE TELEVISION RISER | —DE— = OVERHEAD WIRE | ⊙ = TREE OAK |
| ⊙ = CLEANOUT | ◇ = POWER POLE | ⊙ = TREE PALM |
| ☐ = COLUMN (AS NOTED) | ⊥ = REFLECTOR | ⊙ = TREE/PLANT UNKNOWN (UNLESS OTHERWISE SPECIFIED) |
| ⊙ = DRAINAGE MANHOLE | ⊙ = SANITARY MANHOLE | ⊙ = TREE PINE |
| ■ = ELECTRIC METER | —SAN— = SANITARY SEWER LINE (GRAVITY) | ⊙ = TREE STUMP |
| ~ = END NOT FOUND/NOT LOCATED | ☐ = SERVICE BOX | ⊙ = TREE UNKNOWN (UNLESS OTHERWISE SPECIFIED) |
| ☐ = FIBER OPTIC CABLE RISER | ⊙ = SEWER VALVE | ■ = WATER METER |
| ⊙ = FIRE HYDRANT | ⊙ = SHRUB (UNLESS OTHERWISE SPECIFIED) | ⊙ = WATER VALVE |
| ⊙ = IRRIGATION CONTROL VALVE | ⊙ = SINGLE SUPPORT SIGN | ☐ = WIRE PULL BOX |

ABBREVIATIONS

- | | |
|---|--|
| AVE = AVENUE | MES = MITERED END SECTION |
| BL = BASELINE | N&D = NAIL & DISK |
| BFP = BACKFLOW PREVENTER | NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988 |
| BC = BACK OF CURB | N = NORTHING |
| BLVD = BOULEVARD | N/A = NOT APPLICABLE |
| BW = BRICK WALL | NO. = NUMBER |
| (C) = CALCULATED | NSP = NON SLIP PAD |
| CB = CHORD BEARING | ORB = OFFICIAL RECORDS BOOK |
| CD = CHORD DISTANCE | OC = ORANGE COUNTY |
| CLF = CHAIN LINK FENCE | PG = PAGE |
| CM = CONCRETE MONUMENT | PGS = PAGES |
| CONC = CONCRETE | PF = PLASTIC FENCE |
| CC = COPPER COATED | (P) = PLAT |
| COR = CORNER | PB = PLAT BOOK |
| CMP = CORRUGATED METAL PIPE | PI = POINT OF INTERSECTION |
| (D) = DEED | PVC = POLYVINYL CHLORIDE |
| Δ = DELTA | R = RADIUS |
| DMH = DRAINAGE MANHOLE | RCP = REINFORCED CONCRETE PIPE |
| DS = DRAINAGE STRUCTURE | RGE. = RANGE |
| E = EASTING | RT = RIGHT |
| EL = ELEVATION | R/W = RIGHT OF WAY |
| EP = EDGE OF PAVEMENT | SMH = SANITARY MANHOLE |
| (F) = FIELD | SEC. = SECTION |
| FDOT = FLORIDA DEPARTMENT OF TRANSPORTATION | STA = STATION |
| FND = FOUND | SWK = SIDEWALK |
| ID = IDENTIFICATION | TOE = TOE OF SLOPE |
| INV = INVERT | TOB = TOP OF BANK |
| IP = IRON PIPE | TWP. = TOWNSHIP |
| IR = IRON ROD | UD = UNDER DRAIN |
| IRC = IRON ROD & CAP | UM = UTILITY MARKER |
| LSA = LANDSCAPE AREA | VCP = VITRIFIED CLAY PIPE |
| L = LENGTH | W/ = WITH |
| LL = LANE LINE | WF = WOOD FENCE |
| LT = LEFT | |
| (M) = MAP DATA (PER FDOT R/W MAP OF SR 551, SECTION 75200-2512) | |



PREPARED FOR:

BARNES, FERLAND AND ASSOCIATES, INC.
ORANGE COUNTY ENGINEERING
PUBLIC WORKS ROADS AND DRAINAGE
DIVISION

SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY THAT A SURVEY OF THE PROPERTY SHOWN HEREON WAS MADE UNDER MY SUPERVISION AND THAT THIS SURVEY WAS PERFORMED IN ACCORDANCE WITH THE STANDARDS OF PRACTICE AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS, CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUTES AND THAT THE SKETCH HEREON IS A TRUE AND ACCURATE REPRESENTATION THEREOF TO THE BEST OF MY KNOWLEDGE AND BELIEF. SUBJECT TO NOTES AND NOTATIONS SHOWN

THIS DAY OF _____, 20__

H. Paul deVivero, Professional Land Surveyor No. 4990
Land Surveyor Business License No. 6556
VALID ONLY WITH SIGNATURE AND EMBOSSED SEAL

SHEET INDEX

SHEET	CONTENTS
1	COVER
2-9	DETAIL SHEETS
10	REFERENCES



GEODATA CONSULTANTS, INC.

SURVEYING & MAPPING

1349 SOUTH INTERNATIONAL PARKWAY
SUITE 2401

LAKE MARY, FLORIDA 32746

VOICE: (407) 732-6965 FAX: (407) 878-0841

No.	DATE	REVISION

DRAWN BY: RJG CHECKED BY: RJH

DATE OF FIELD SURVEY: DECEMBER 12, 2017

FIELD BOOK 17-03, PAGES 08-76
FIELD BOOK 17-16, PAGES 18-39

SEC. 02, TWP. 23 SOUTH, RGE. 30 EAST

ORANGE COUNTY, FLORIDA

DATE: JANUARY 18, 2018 SCALE: N/A

PROJECT No. B18-27 SHEET OF 10

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED



ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

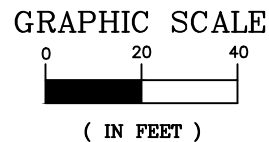


RIO PINAR LAKES FORCE MAIN IMPROVEMENTS

TOPOGRAPHICAL SURVEY

PROJECT No.: 2017-29-02
PROJECT DATE: APR 2019
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN

DRAWING No.
V-100
SHEET
5 OF 29

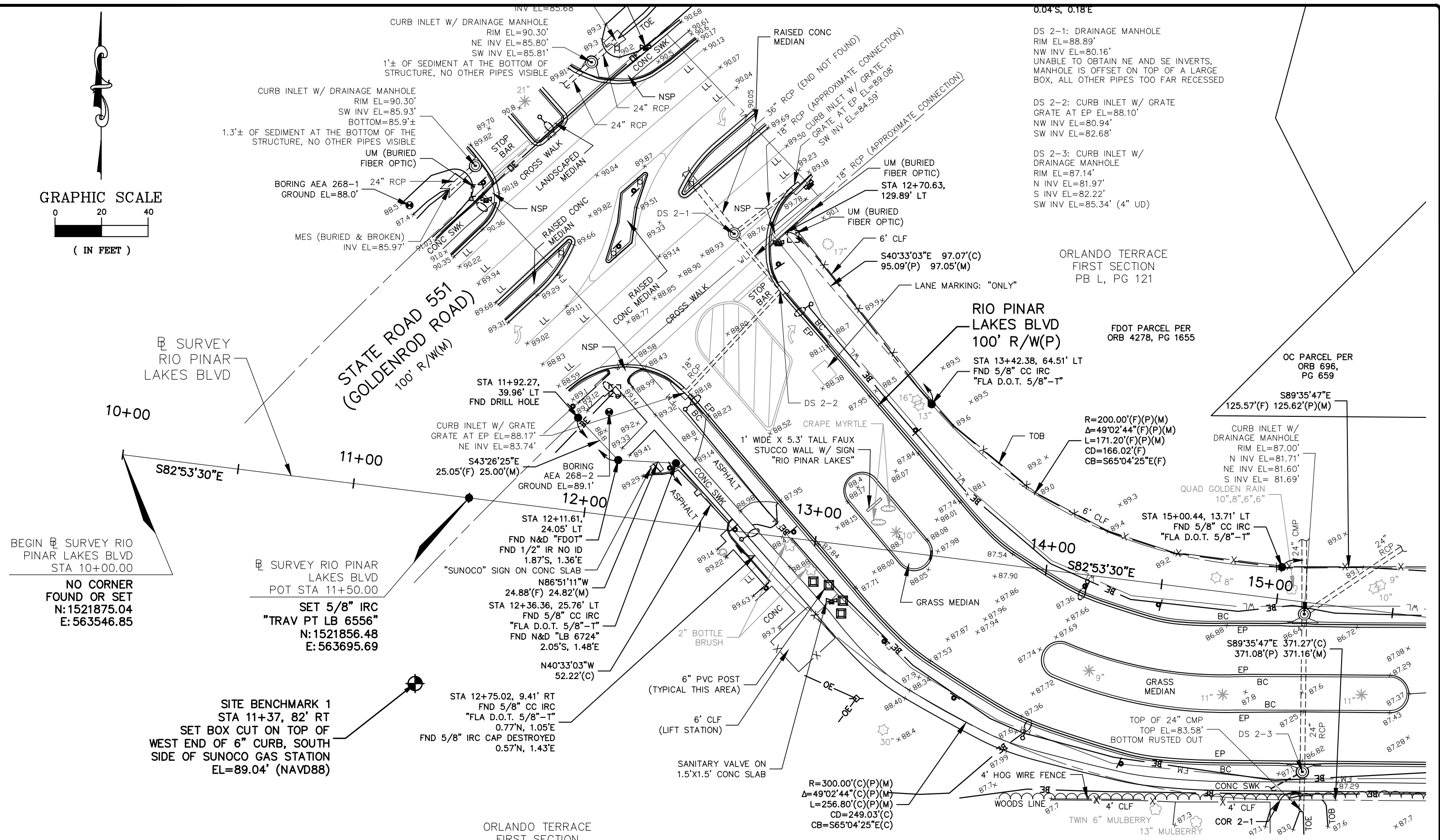


0.04'S, 0.18'E

DS 2-1: DRAINAGE MANHOLE
RIM EL=88.89'
NW INV EL=80.16'
UNABLE TO OBTAIN NE AND SE INVERTS,
MANHOLE IS OFFSET ON TOP OF A LARGE
BOX, ALL OTHER PIPES TOO FAR RECESSED

DS 2-2: CURB INLET W/ GRATE
GRATE AT EP EL=88.10'
NW INV EL=80.94'
SW INV EL=82.68'

DS 2-3: CURB INLET W/
DRAINAGE MANHOLE
RIM EL=87.14'
N INV EL=81.97'
S INV EL=82.22'
SW INV EL=85.34' (4" UD)



BEGIN SURVEY RIO PINAR LAKES BLVD STA 10+00.00
NO CORNER FOUND OR SET
N: 1521875.04
E: 563546.85

SURVEY RIO PINAR LAKES BLVD POT STA 11+50.00
SET 5/8" IRC "TRAV PT LB 6556"
N: 1521856.48
E: 563695.69

SITE BENCHMARK 1
STA 11+37, 82' RT
SET BOX CUT ON TOP OF WEST END OF 6" CURB, SOUTH SIDE OF SUNOCO GAS STATION
EL=89.04' (NAVD88)

STA 12+36.36, 25.76' LT
FND 5/8" CC IRC "FLA D.O.T. 5/8"-T"
FND N&D "LB 6724"
2.05'S, 1.48'E

STA 12+75.02, 9.41' RT
FND 5/8" CC IRC "FLA D.O.T. 5/8"-T"
0.77'N, 1.05'E
FND 5/8" IRC CAP DESTROYED
0.57'N, 1.43'E

ORLANDO TERRACE FIRST SECTION
PB L, PG 121

FDOT PARCEL PER ORB 4278, PG 1655

OC PARCEL PER ORB 696, PG 659

S89°35'47"E 125.57'(F) 125.62'(P)(M)

R=200.00'(F)(P)(M)
Δ=49°02'44"(F)(P)(M)
L=171.20'(F)(P)(M)
CD=166.02'(F)
CB=S65°04'25"E(F)

CURB INLET W/ DRAINAGE MANHOLE
RIM EL=87.00'
N INV EL=81.71'
NE INV EL=81.60'
S INV EL=81.69'
QUAD GOLDEN RAIN 10",8",6",6"

STA 15+00.44, 13.71' LT
FND 5/8" CC IRC "FLA D.O.T. 5/8"-T"

S89°35'47"E 371.27'(C) 371.08'(P) 371.16'(M)

R=300.00'(C)(P)(M)
Δ=49°02'44"(C)(P)(M)
L=256.80'(C)(P)(M)
CD=249.03'(C)
CB=S65°04'25"E(C)

SEE SHEET 1 FOR GENERAL NOTES & SURVEYOR'S CERTIFICATION

TOPOGRAPHIC SURVEY
DETAIL SHEET

GEODATA CONSULTANTS, INC.
SURVEYING & MAPPING
1349 S. INTERNATIONAL PARKWAY
SUITE 2401
LAKE MARY, FLORIDA 32746
VOICE: (407) 732-8985 FAX: (407) 878-0841

DATE: JANUARY 18, 2018
SCALE: 1"=40'
PROJECT No. B18-27
SHEET OF 10

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

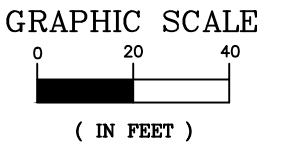


ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

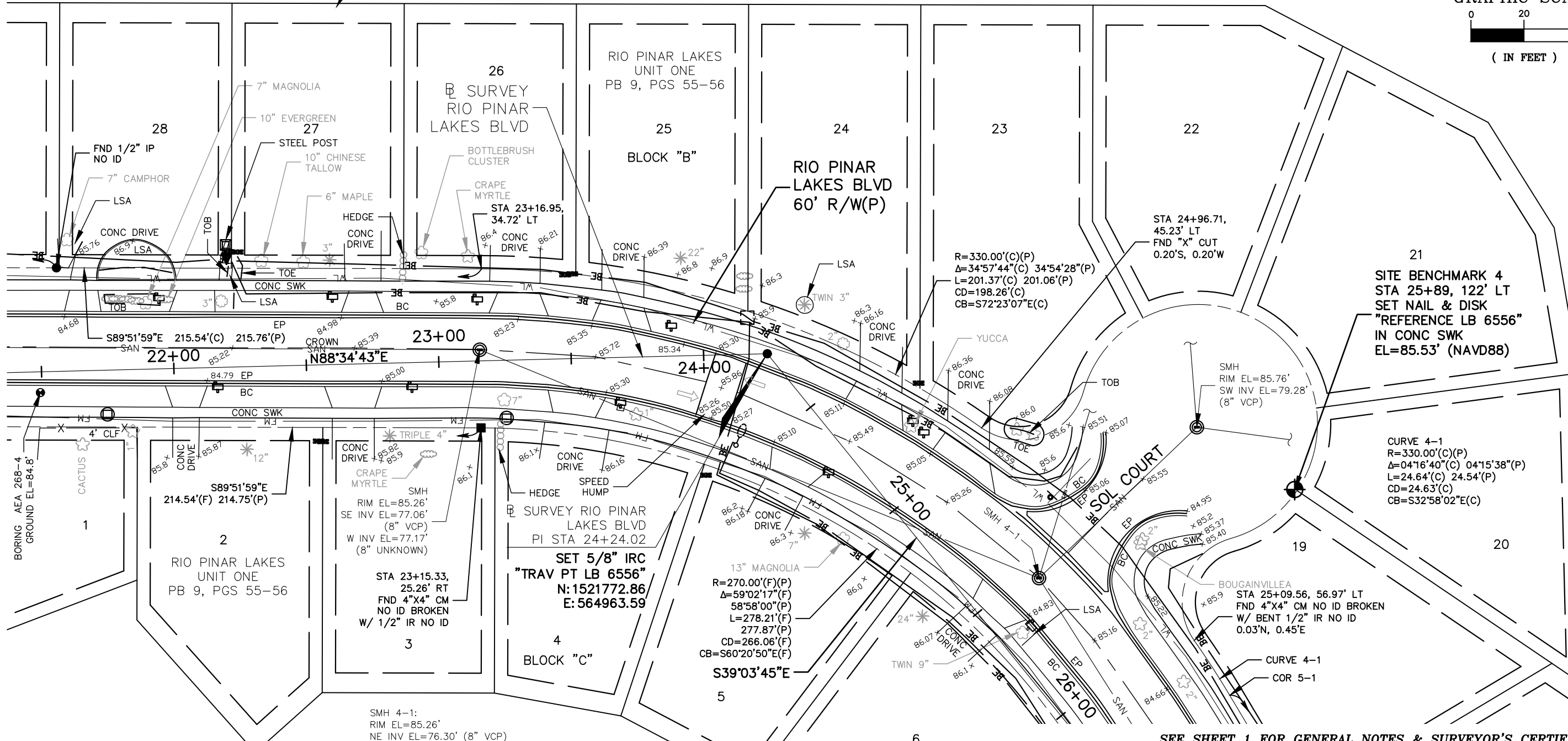
BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1830 E. Hillcrest Street, Ste 100, Orlando, FL 32803
ENGINEERING BUSINESS No. 6889

RIO PINAR LAKES FM
TOPOGRAPHICAL SURVEY

PROJECT No.: 2017-29-02
APR 2019
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN
DRAWING No. V-101
SHEET 6 OF 29



EASEMENT NOTE: ALL LOTS HAVE A 5' UTILITY EASEMENT ALONG THE FRONT AND SIDE LOT LINES, ALL LOTS HAVE A 7.5' UTILITY EASEMENT ALONG THE REAR LOT LINE



SEE SHEET 1 FOR GENERAL NOTES & SURVEYOR'S CERTIFICATION

TOPOGRAPHIC SURVEY DETAIL SHEET	 GEODATA CONSULTANTS, INC. SURVEYING & MAPPING 1349 S. INTERNATIONAL PARKWAY SUITE 2401 LAKE MARY, FLORIDA 32746 VOICE: (407) 732-6965 FAX: (407) 878-0841	DATE: JANUARY 18, 2018	SCALE: 1"=40'
		PROJECT No. B18-27	SHEET OF 10 4

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Bernes, Ferland and Associates, Inc.
1830 E. Hillcrest Street, Ste 100, Orlando, FL 32809
TEL: (407) 896-0000 FAX: (407) 896-0000
ENGINEERING BUSINESS No. 6869

PROJECT No.: 2017-29-02
PROJECT DATE: APR 2019
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN

DRAWING No.
V-103

SHEET
8 OF 29

S30°49'42"E, 0.22'

COR 5-2: STA 28+32.86, 25.59' LT
FND 4"x4" CM NO ID BROKEN

COR 5-3: STA 29+32.07, 11.21' LT
FND 4"x4" CM NO ID BROKEN
W/ BENT 3/8" IR NO ID

COR 5-4: STA 29+52.22, 47.03' RT
FND 5/8" IRC "LS"
CAP PARTIALLY ILLEGIBLE

COR 5-5: STA 29+55.87, 45.22' RT
FND N&D "GRUSSEN MEYER LB 3225"
0.23'N, 0.01'W

EASEMENT NOTE: ALL LOTS HAVE A 5' UTILITY EASEMENT
ALONG THE FRONT AND SIDE LOT LINES, ALL LOTS HAVE
A 7.5' UTILITY EASEMENT ALONG THE REAR LOT LINE

Δ=04'16.40'(C) 04'15.38'(P)
L=24.64'(C) 24.54'(P)
CD=24.63'(C)
CB=S32°58'02"E(C)

SITE BENCHMARK 5
STA 28+87, 53' LT
SET NAIL & DISK
"REFERENCE LB 6556"
EL=84.36' (NAVD88)

SET 5/8" IRC
"TRAV PT LB 6556"
N: 1521375.47
E: 565286.12

SITE BENCHMARK 6
STA 32+04, 63' RT
SET BOX CUT AT
BACK OF CONC SWK
EL=85.59' (NAVD88)

COR 5-6: STA 30+95.36, 17.88' RT
FND 5/8" IR NO ID LEANING SOUTH

COR 5-7: STA 31+78.20, 23.91' RT
FND 5/8" IRC CAP DESTROYED
1.10'N, 0.10'E

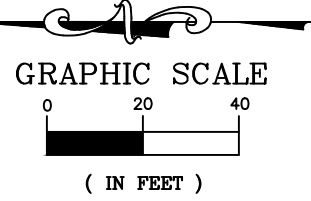
COR 5-8: STA 32+51.18, 54.30' RT
FND 4"x4" CM NO ID BROKEN
W/ BENT 3/8" IR NO ID

SMH 5-1:
RIM EL=84.33'
NE INV EL=75.07' (8" VCP)
NW INV EL=75.17' (8" VCP)
S INV EL=74.34' (8" UNKNOWN)
SE INV EL=75.03' (8" VCP)
SW INV EL=75.85' (8" VCP)

SMH 5-2:
RIM EL=84.62'
NE INV EL=74.46' (8" UNKNOWN)
NW INV EL=74.41' (8" UNKNOWN)
S INV EL=74.34' (8" UNKNOWN)
W INV EL=78.11' (8" VCP)
SW INV EL=73.82' (8" UNKNOWN)
(SIZES AND MATERIALS ARE
APPROXIMATE DUE TO DEPTH)

SMH 5-3:
RIM EL=85.24'
N INV EL=73.93' (8" UNKNOWN)
S INV EL=73.80' (8" UNKNOWN)
W INV EL=78.11' (8" VCP)
SW INV EL=73.82' (8" UNKNOWN)
(SIZES AND MATERIALS ARE
APPROXIMATE DUE TO DEPTH)

CURVE 5-1
R=270.00'(C)(P)
Δ=30°31'31"(C) 30°33'08"(P)
L=143.85'(C) 143.98'(P)
CD=142.15'(C)
CB=S15°33'57"E(C)



SEE SHEET 1 FOR GENERAL NOTES & SURVEYOR'S CERTIFICATION

**TOPOGRAPHIC SURVEY
DETAIL SHEET**

GEODATA CONSULTANTS, INC.
SURVEYING & MAPPING
1349 S. INTERNATIONAL PARKWAY
SUITE 2401
LAKE MARY, FLORIDA 32746
VOICE: (407) 732-6965 FAX: (407) 878-0841

DATE: JANUARY 18, 2018
SCALE: 1"=40'
PROJECT No. B18-27
SHEET OF 10

No.	REVISIONS	BY	DATE

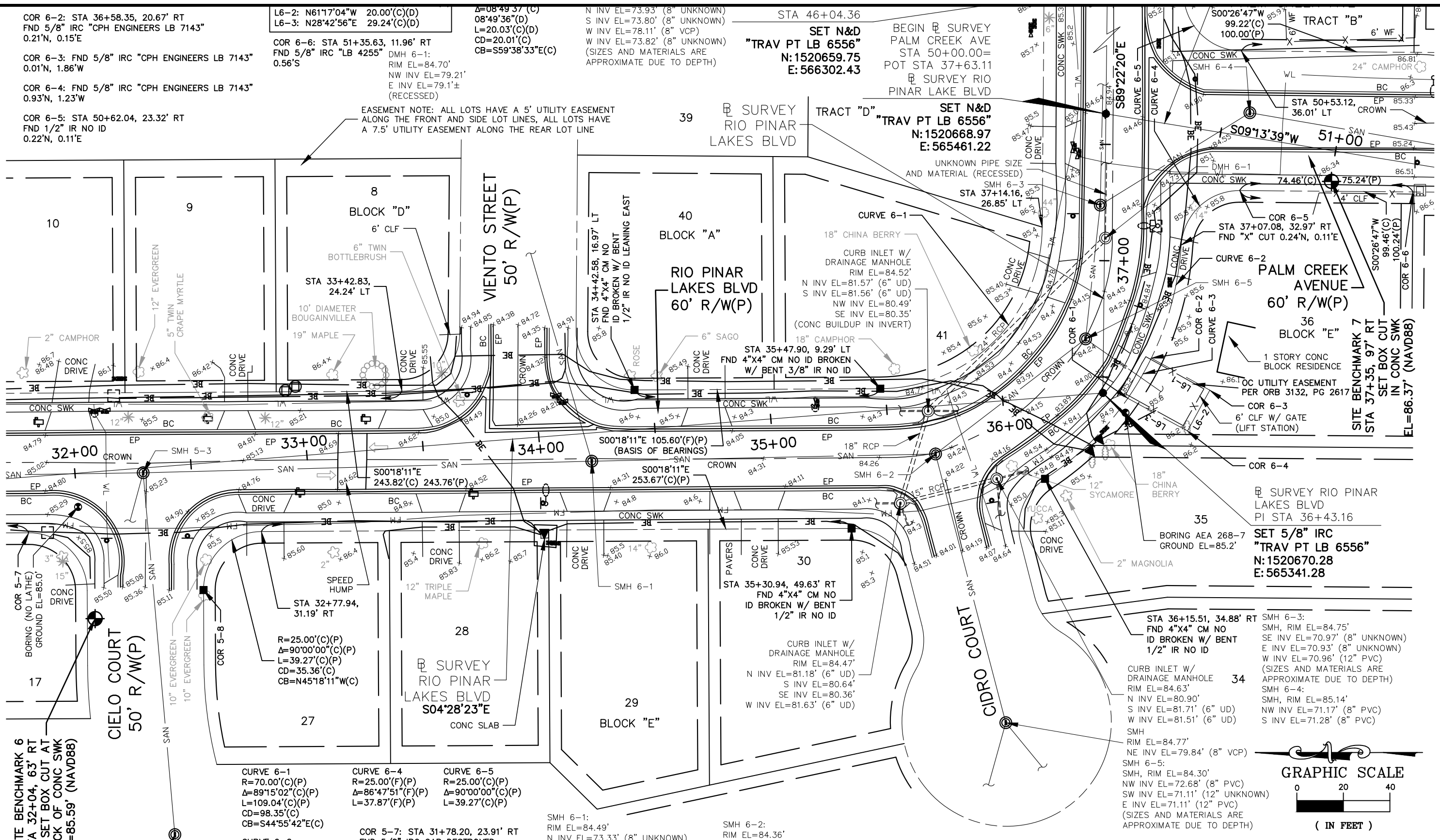
LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)
SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Bernes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32803
TEL: (407) 253-1111
ENGINEERING BUSINESS No. 6869

PROJECT No.: 2017-29-02
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN

DRAWING No. V-104
SHEET 9 OF 29
APRIL 2019 - BID SET



COR 6-2: STA 36+58.35, 20.67' RT
FND 5/8" IRC "CPH ENGINEERS LB 7143"
0.21'N, 0.15'E

COR 6-3: FND 5/8" IRC "CPH ENGINEERS LB 7143"
0.01'N, 1.86'W

COR 6-4: FND 5/8" IRC "CPH ENGINEERS LB 7143"
0.93'N, 1.23'W

COR 6-5: STA 50+62.04, 23.32' RT
FND 1/2" IR NO ID
0.22'N, 0.11'E

L6-2: N61°17'04"W 20.00'(C)(D)
L6-3: N28°42'56"E 29.24'(C)(D)

DMH 6-1:
RIM EL=84.70'
NW INV EL=79.21'
E INV EL=79.1'±
(RECESSED)

Δ=08'49'37"(C)
08'49'36"(D)
L=20.03'(C)(D)
CD=20.01'(C)
CB=S59°38'33"E(C)

STA 46+04.36

SET N&D
"TRAV PT LB 6556"
N: 1520659.75
E: 566302.43

BEGIN @ SURVEY
PALM CREEK AVE
STA 50+00.00=
POT STA 37+63.11
@ SURVEY RIO
PINAR LAKE BLVD

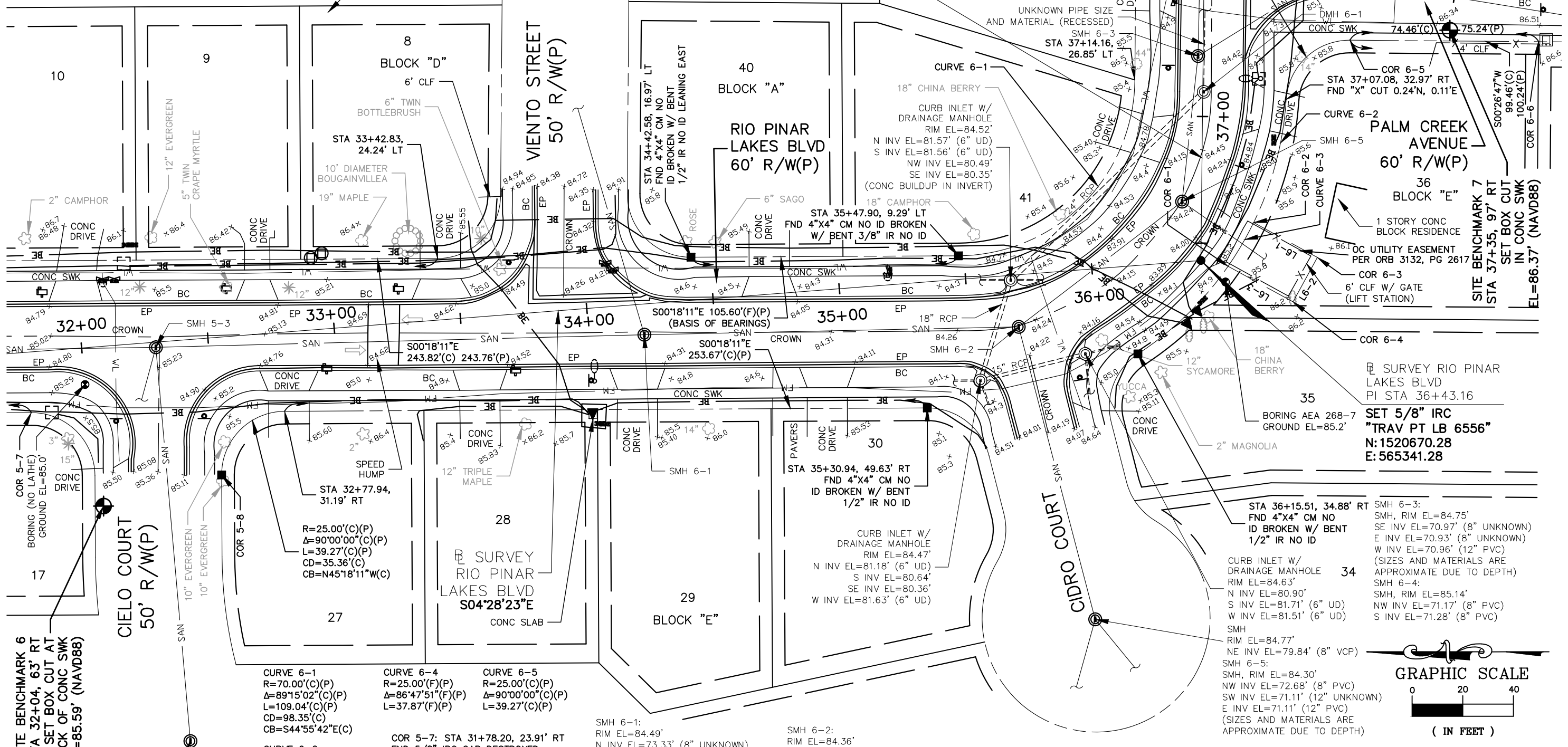
TRACT "D" SET N&D
"TRAV PT LB 6556"
N: 1520668.97
E: 565461.22

UNKNOWN PIPE SIZE
AND MATERIAL (RECESSED)
SMH 6-3
STA 37+14.16,
26.85' LT

TRACT "B"
500'26'47"W
99.22'(C)
100.00'(P)

TRACT "E"
S00°26'47"W
99.46'(C)
100.24'(P)

EASEMENT NOTE: ALL LOTS HAVE A 5' UTILITY EASEMENT
ALONG THE FRONT AND SIDE LOT LINES, ALL LOTS HAVE
A 7.5' UTILITY EASEMENT ALONG THE REAR LOT LINE



SITE BENCHMARK 6
STA 32+04, 63' RT
SET BOX CUT AT
BACK OF CONC SWK
EL=85.59' (NAVD88)

SMH
RIM EL=85.67'
E INV EL= 78.68' (8" VCP)

CURVE 6-1
R=70.00'(C)(P)
Δ=89°15'02"(C)(P)
L=109.04'(C)(P)
CD=98.35'(C)
CB=S44°55'42"E(C)

CURVE 6-2
R=130.00'(C)(P)
Δ=53°08'02"(C)(P)
L=120.56'(C) 120.55'(P)
CD=116.28'(C)
CB=S59°47'02"E(C)

CURVE 6-4
R=25.00'(F)(P)
Δ=86°47'51"(F)(P)
L=37.87'(F)(P)

CURVE 6-5
R=25.00'(C)(P)
Δ=90°00'00"(C)(P)
L=39.27'(C)(P)

COR 5-7: STA 31+78.20, 23.91' RT
FND 5/8" IRC CAP DESTROYED
1.10'N, 0.10'E

COR 5-8: STA 32+51.18, 54.30' RT
FND 4"X4" CM NO ID BROKEN
W/ BENT 3/8" IR NO ID

SMH 6-1:
RIM EL=84.49'
N INV EL=73.33' (8" UNKNOWN)
S INV EL=73.32' (8" UNKNOWN)
E INV EL=73.34' (8" UNKNOWN)
W INV EL=76.42' (8" PVC)
(SIZES AND MATERIALS ARE
APPROXIMATE DUE TO DEPTH)

SMH 6-2:
RIM EL=84.36'
N INV EL=73.04' (8" UNKNOWN)
SE INV EL=72.92' (8" UNKNOWN)
SW INV EL=74.68' (8" VCP)
(SIZES AND MATERIALS ARE
APPROXIMATE DUE TO DEPTH)

STA 36+15.51, 34.88' RT
FND 4"X4" CM NO
ID BROKEN W/ BENT
1/2" IR NO ID

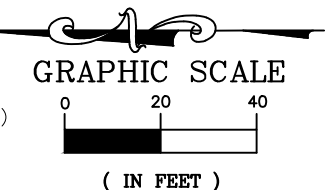
CURB INLET W/
DRAINAGE MANHOLE
RIM EL=84.63'
N INV EL=80.90'
S INV EL=81.71' (6" UD)
W INV EL=81.51' (6" UD)

SMH
RIM EL=84.77'
NE INV EL=79.84' (8" VCP)

SMH 6-5:
SMH, RIM EL=84.30'
NW INV EL=72.68' (8" PVC)
SW INV EL=71.11' (12" UNKNOWN)
E INV EL=71.11' (12" PVC)
(SIZES AND MATERIALS ARE
APPROXIMATE DUE TO DEPTH)

SMH 6-3:
SMH, RIM EL=84.75'
SE INV EL=70.97' (8" UNKNOWN)
E INV EL=70.93' (8" UNKNOWN)
W INV EL=70.96' (12" PVC)
(SIZES AND MATERIALS ARE
APPROXIMATE DUE TO DEPTH)

SMH 6-4:
SMH, RIM EL=85.14'
NW INV EL=71.17' (8" PVC)
S INV EL=71.28' (8" PVC)



SEE SHEET 1 FOR GENERAL NOTES & SURVEYOR'S CERTIFICATION

TOPOGRAPHIC SURVEY DETAIL SHEET		DATE: JANUARY 18, 2018	SCALE: 1"=40'
		PROJECT No. B18-27	SHEET OF 10 6

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

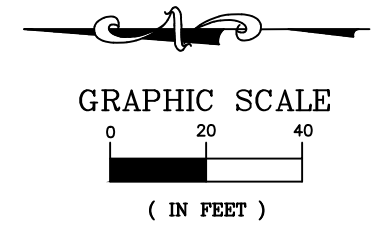
SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Bernes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32803
TEL: (407) 241-1111 FAX: (407) 241-1112
ENGINEERING BUSINESS No. 6889

RIO PINAR LAKES FM
TOPOGRAPHICAL SURVEY

PROJECT No.: 2017-29-02	DRAWING No. V-105
PROJECT DATE: APR 2019	DESIGNED BY: CKM
DRAWN BY: JAM	CHECKED BY: GJH
DRAWING FILE: SEE MARGIN	SHEET 10 OF 29



SURVEY
 PALM CREEK AVE
 PI STA 53+78.14
 SET 5/8" IRC
 "TRAV PT LB 6556"
 N: 1520295.72
 E: 565400.58

EASEMENT NOTE: THERE IS A 10.0' UTILITY EASEMENT ON ALL FRONT AND SIDE LOT LINES WHICH ABOUT A STREET RIGHT OF WAY, A 5.0' UTILITY EASEMENT ON ALL OTHER SIDE LOT LINES AND A 7.5' UTILITY EASEMENT ON ALL REAR LOT LINES UNLESS OTHERWISE SHOWN

R=256.83'(C)(P)
 Δ=47°05'43"(C)(P)
 L=211.10'(C)(P)
 CD=205.21'(C)
 CB=N23°59'36"E(C)
 SMH, RIM EL=85.23'
 N INV EL=71.78' (8" PVC)
 SW INV EL=71.83' (8" PVC)

SURVEY
 PALM CREEK AVE

- COR 7-1: STA 51+51.18, 51.16' LT
FND 5/8" IR NO ID
0.46'S, 0.42'W
- COR 7-2: STA 54+00.40, 0.83' LT
FND 1/2" IR NO ID
0.43'S, 0.47'W
- COR 7-3: STA 54+01.11, 59.17' RT
FND 1/2" IR NO ID, BENT
0.62'S, 0.30'W
- COR 7-4: STA 52+36.54, 52.70' LT
FND 1/2" IRC "LS 3182"
0.10'N, 0.36'W
- COR 7-5: STA 53+95.74, 0.74' LT
FND 5/8" IRC "LB 2966"
- COR 7-6: STA 53+55.93, 58.11' RT
FND 5/8" IRC "ANGLEWISE"

**TOPOGRAPHIC SURVEY
 DETAIL SHEET**

GEODATA CONSULTANTS, INC.
 SURVEYING & MAPPING
 1349 S. INTERNATIONAL PARKWAY
 SUITE 2401
 LAKE MARY, FLORIDA 32746
 VOICE: (407) 732-8985 FAX: (407) 878-0841

DATE:	JANUARY 18, 2018	SCALE:	1"=40'
PROJECT No.:	B18-27	SHEET	7
		OF 10	

No.	REVISIONS	BY	DATE

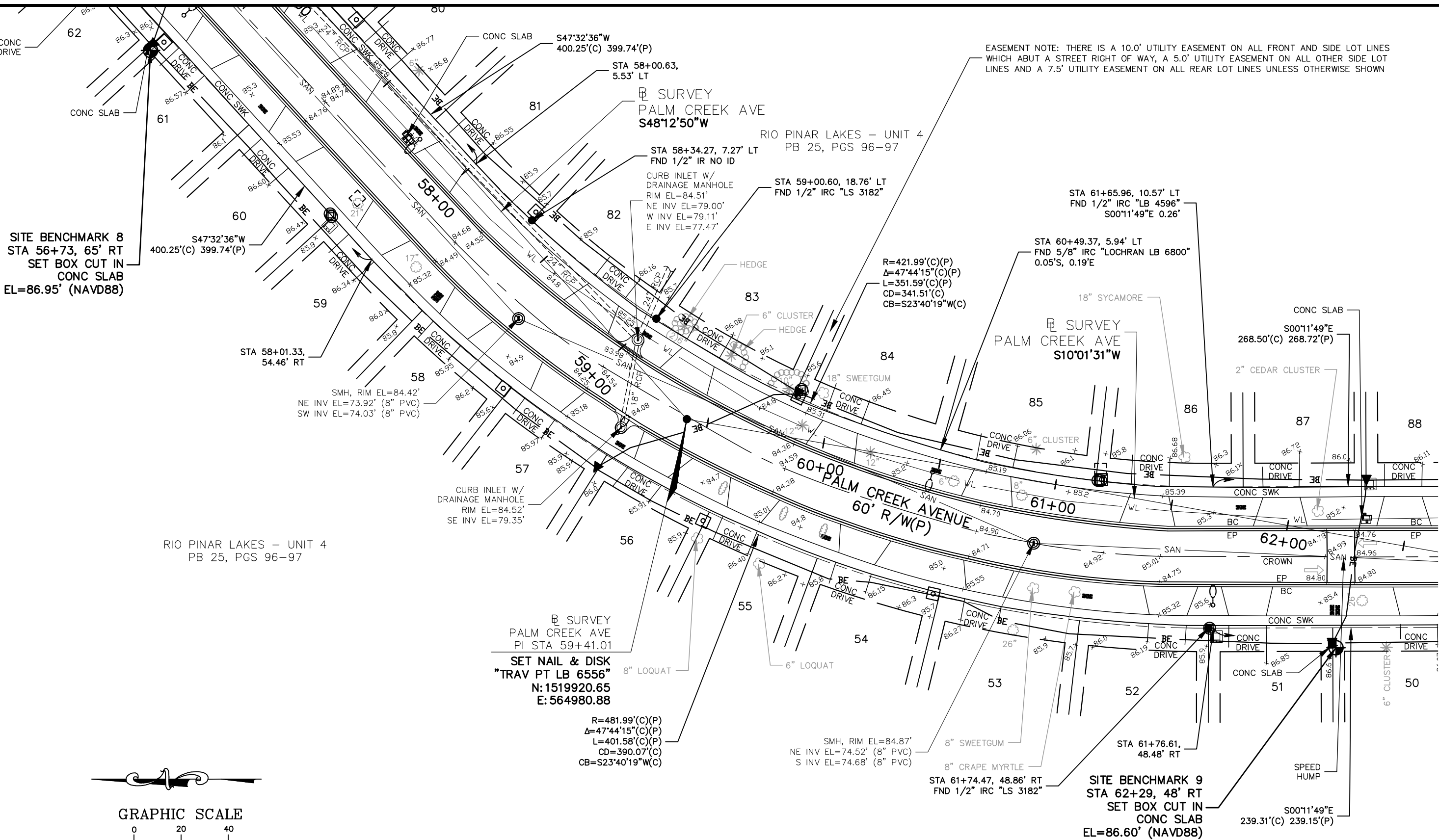
LINE IS 1 INCH
 AT FULL SIZE = 11X17
 (IF NOT SCALE ACCORDINGLY)
 SCALE: AS NOTED

ORANGE COUNTY
 ORANGE COUNTY UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

BFA Environmental Consultants
 Barnes, Ferland and Associates, Inc.
 1230 E. Hillcrest Street, Ste 100, Orlando, FL 32803
 ENGINEERING BUSINESS No. 6869

RIO PINAR LAKES FM
 TOPOGRAPHICAL SURVEY

PROJECT No.:	2017-29-02	DRAWING No.:	V-106
PROJECT DATE:	APR 2019		
DESIGNED BY:	CKM		
DRAWN BY:	JAB		
CHECKED BY:	GJH		
DRAWING FILE:	SEE MARGIN		



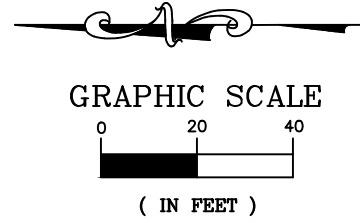
SITE BENCHMARK 8
STA 56+73, 65' RT
SET BOX CUT IN
CONC SLAB
EL=86.95' (NAVD88)

RIO PINAR LAKES - UNIT 4
PB 25, PGS 96-97

SET NAIL & DISK
"TRAV PT LB 6556"
N: 1519920.65
E: 564980.88

SITE BENCHMARK 9
STA 62+29, 48' RT
SET BOX CUT IN
CONC SLAB
EL=86.60' (NAVD88)

EASEMENT NOTE: THERE IS A 10.0' UTILITY EASEMENT ON ALL FRONT AND SIDE LOT LINES WHICH ABUT A STREET RIGHT OF WAY, A 5.0' UTILITY EASEMENT ON ALL OTHER SIDE LOT LINES AND A 7.5' UTILITY EASEMENT ON ALL REAR LOT LINES UNLESS OTHERWISE SHOWN



SEE SHEET 1 FOR GENERAL NOTES & SURVEYOR'S CERTIFICATION

TOPOGRAPHIC SURVEY DETAIL SHEET	GEODATA CONSULTANTS, INC. SURVEYING & MAPPING 1349 S. INTERNATIONAL PARKWAY SUITE 2401 LAKE MARY, FLORIDA 32746 VOICE: (407) 732-8985 FAX: (407) 878-0841	DATE: JANUARY 18, 2018	SCALE: 1"=40'
		PROJECT No. B18-27	SHEET 8 OF 10

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32803
TEL: (407) 898-0000 FAX: (407) 898-0000
ENGINEERING BUSINESS No. 6899

RIO PINAR LAKES FM

TOPOGRAPHICAL SURVEY

PROJECT No.: 2017-29-02	DRAWING No. V-107
PROJECT DATE: APR 2019	SHEET 12 OF 29
DESIGNED BY: CKM	CHECKED BY: GJH
DRAWN BY: JAB	DRAWING FILE: SEE MARGIN

L9-2: N34°10'46"E 35.87'(C)(P)

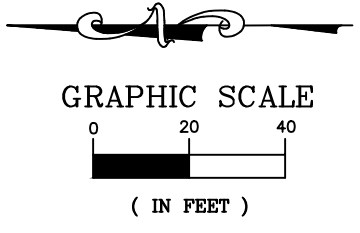
SET NAIL & DISK
"REFERENCE LB 6556"
EL=89.05' (NAVD88)

EASEMENT NOTE: THERE IS A 10.0' UTILITY EASEMENT ON ALL FRONT AND SIDE LOT LINES WHICH ABOUT A STREET RIGHT OF WAY, A 5.0' UTILITY EASEMENT ON ALL OTHER SIDE LOT LINES AND A 7.5' UTILITY EASEMENT ON ALL REAR LOT LINES UNLESS OTHERWISE SHOWN

DS9-1
BOTTOM EL=79.49'
PIPE HEADING SE
IS RECESSED UNABLE TO
VERIFY SIZE AND INVERTS

DS9-2
DRAINAGE MANHOLE
RIM EL=88.32'
BOTTOM EL=79.51'

DS9-3
DRAINAGE MANHOLE
RIM EL=88.35'
TOP OF 36" RCP EL=83.87'
36" RCP IS RUNNING
THROUGH STRUCTURE



END @ SURVEY
PALM CREEK AVE
STA 67+76.70

SET 5/8" IRC
"TRAV PT LB 6556"
N: 1519097.73
E: 564835.41

CURRY FORD ROAD
145' R/W(D)

HIDDEN HOLLOW
PB 8, PAGE 44

SEE SHEET 1 FOR GENERAL NOTES & SURVEYOR'S CERTIFICATION

TOPOGRAPHIC SURVEY
DETAIL SHEET

GEODATA CONSULTANTS, INC.
SURVEYING & MAPPING
1349 S. INTERNATIONAL PARKWAY
SUITE 2401
LAKE MARY, FLORIDA 32746
VOICE: (407) 732-6985 FAX: (407) 878-0841

DATE: JANUARY 18, 2018
SCALE: 1"=40'
PROJECT No. B18-27
SHEET OF 10

No.	REVISIONS	BY	DATE

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SCALE: AS NOTED



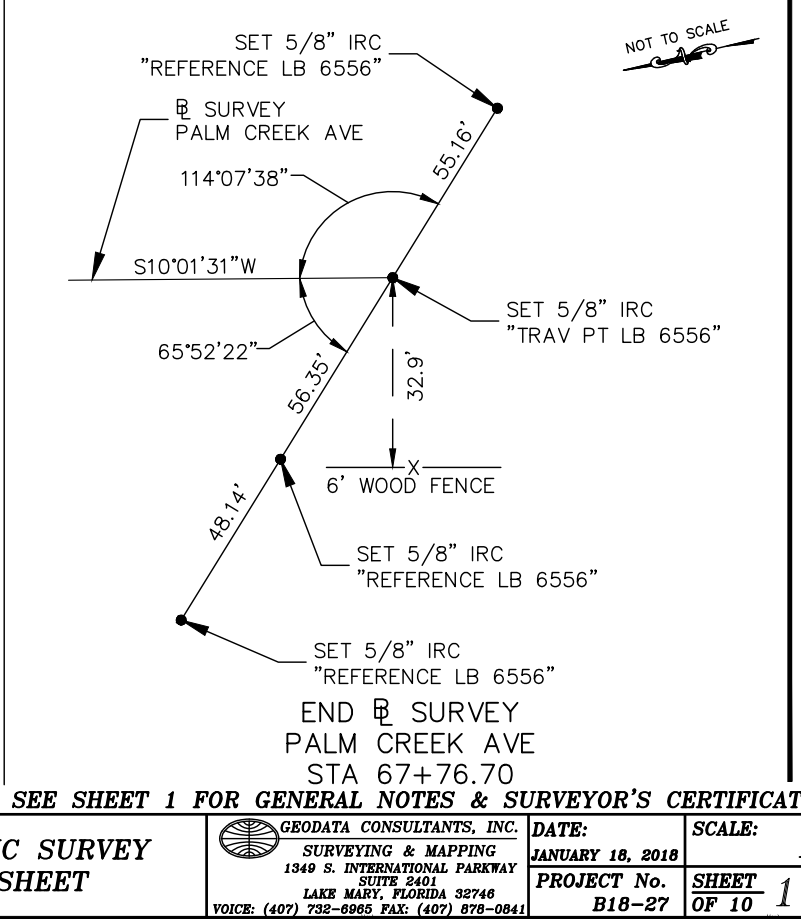
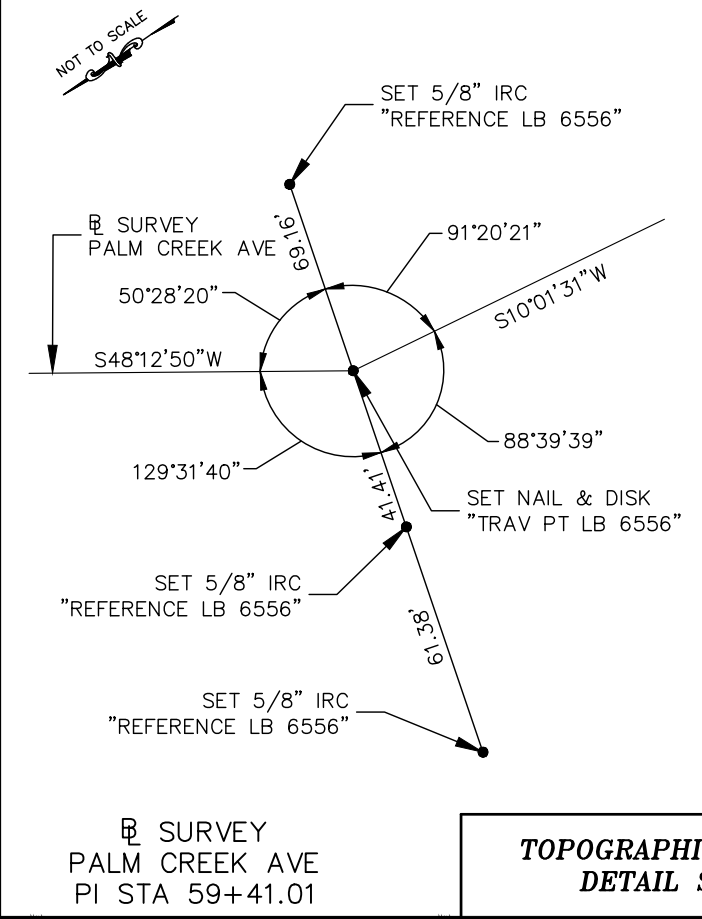
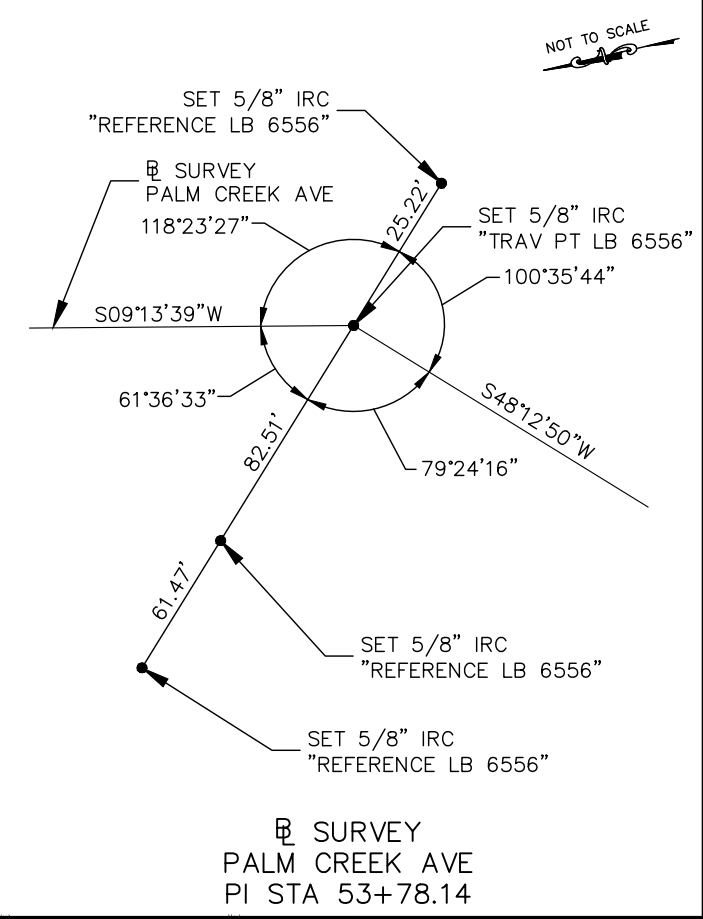
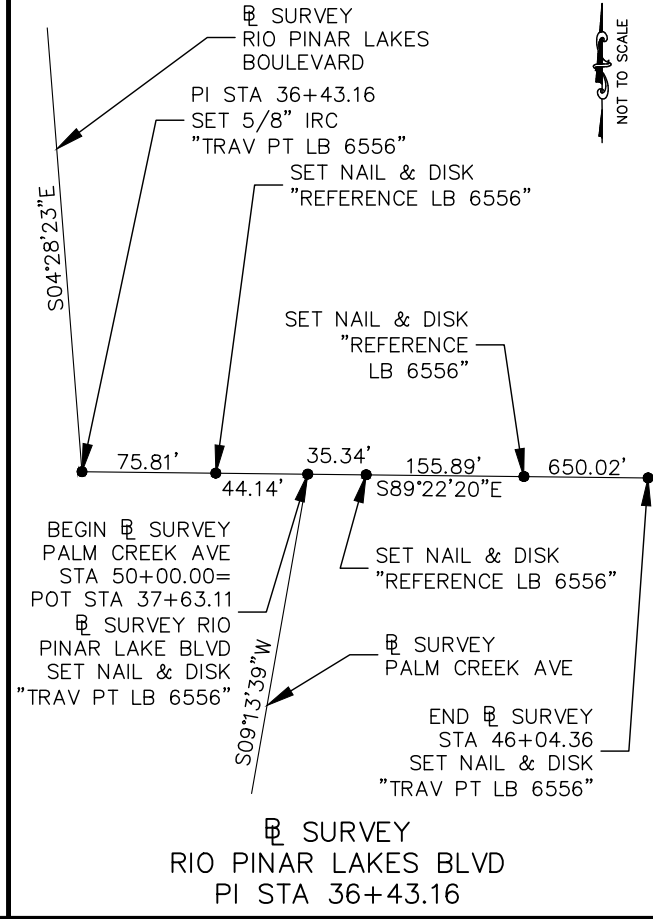
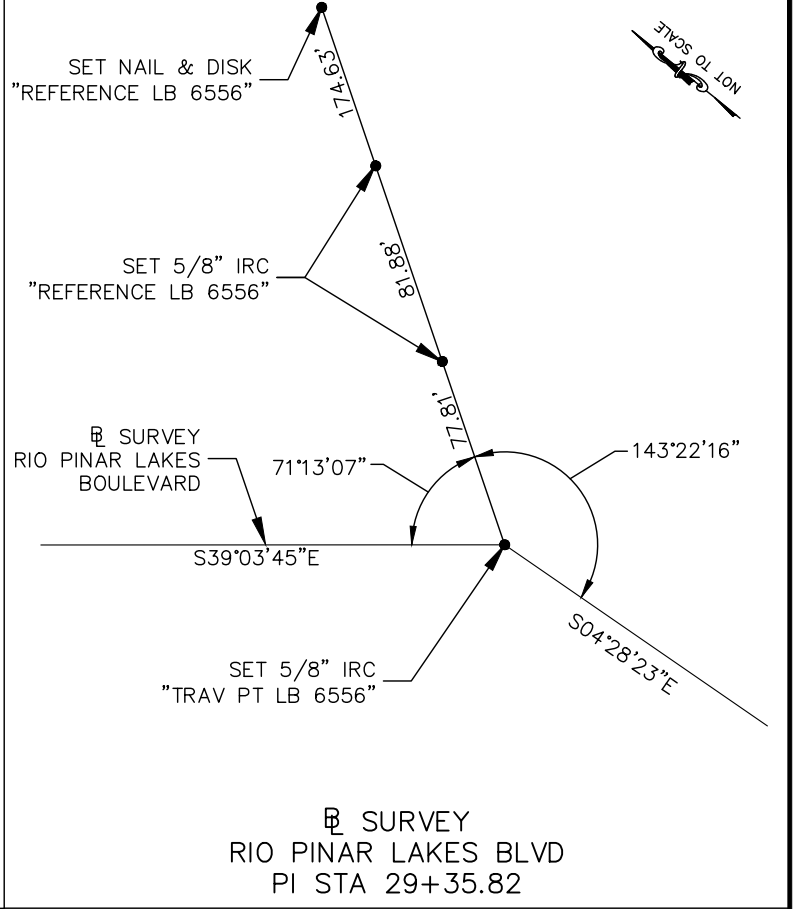
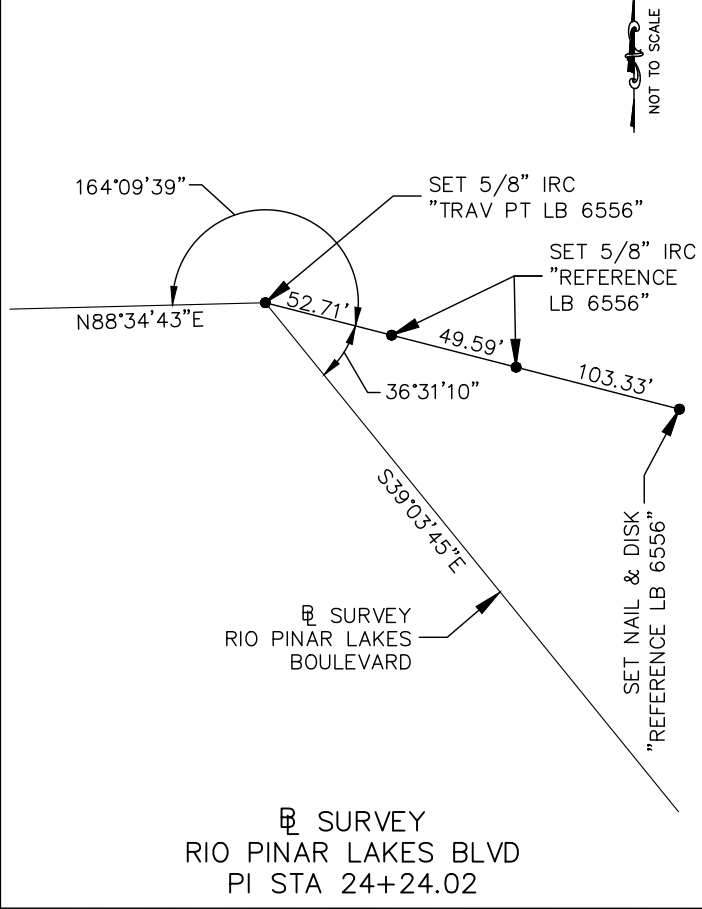
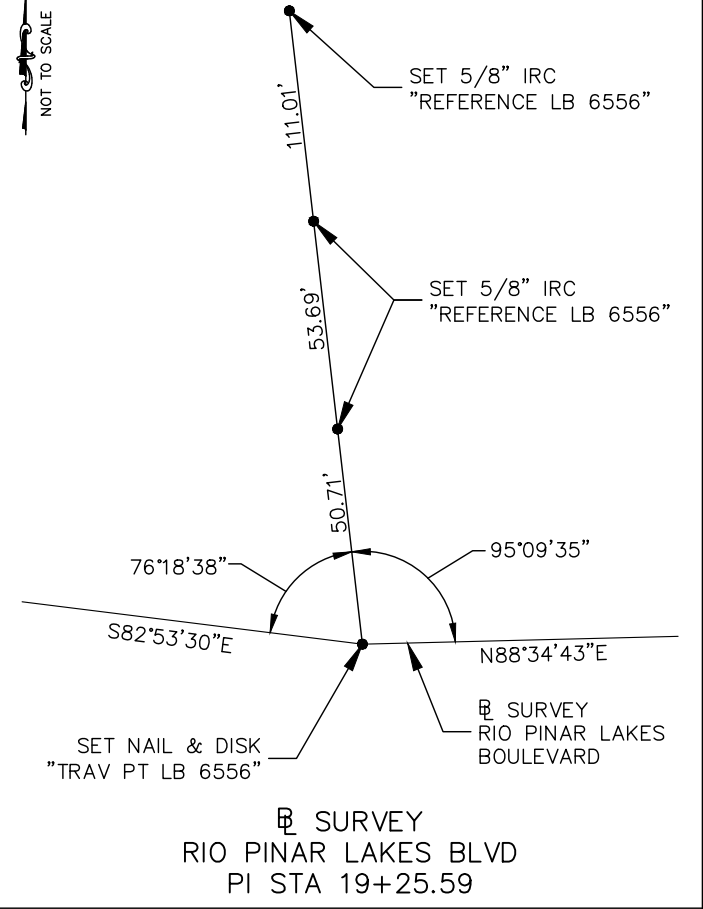
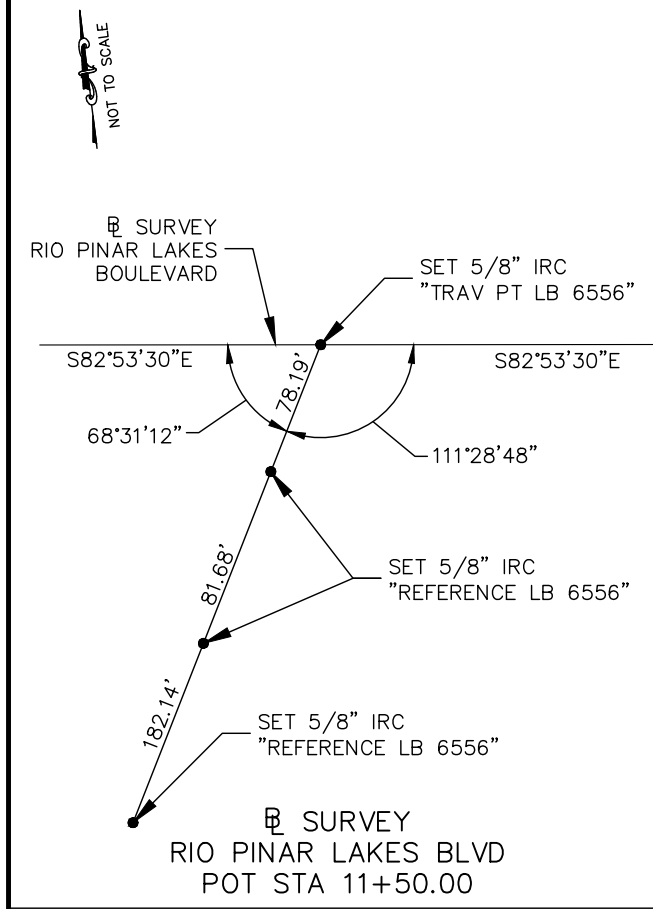
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Bernes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32803
TEL: (407) 251-1100
ENGINEERING BUSINESS No. 6889

RIO PINAR LAKES FM
TOPOGRAPHICAL SURVEY

PROJECT No.: 2017-29-02
PROJECT DATE: APR 2019
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN

DRAWING No.
V-108
SHEET
13 OF 29



SEE SHEET 1 FOR GENERAL NOTES & SURVEYOR'S CERTIFICATION

TOPOGRAPHIC SURVEY DETAIL SHEET	GEODATA CONSULTANTS, INC. SURVEYING & MAPPING 1349 S. INTERNATIONAL PARKWAY SUITE 2401 LAKE MARY, FLORIDA 32746 VOICE: (407) 732-8985 FAX: (407) 878-0841	DATE: JANUARY 18, 2018	SCALE: 1"=40'
	PROJECT No. B18-27		SHEET OF 10 10

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32803
TEL: (407) 846-0000 FAX: (407) 846-0000
ENGINEERING BUSINESS No. 6899

RIO PINAR LAKES FORCE MAIN IMPROVEMENTS

TOPOGRAPHICAL SURVEY

PROJECT No.: 2017-29-02	DRAWING No.: V-109
PROJECT DATE: APR 2019	SHEET 14 OF 29
DESIGNED BY: CKM	CHECKED BY: GJH
DRAWN BY: JAB	DRAWING FILE: SEE MARGIN

FORCE MAIN SAMPLE COLLECTION

To Be Submitted to the OWNER

Location : Rio Pinar Lakes Boulevard

Sample ID	Sheet	Pipe Diameter (inch)	STA approx.	Force Main ID	Date Submitted	X Coordinate	Y Coordinate
93686-J01	U-104	6	52+40	WWFM5268			
93686-J02	U-105	6	58+60	WWFM5268			
93686-J03	U-106	6	64+30	WWFM5268			
93686-J04	U-108	6	75+00	WWFM5268			

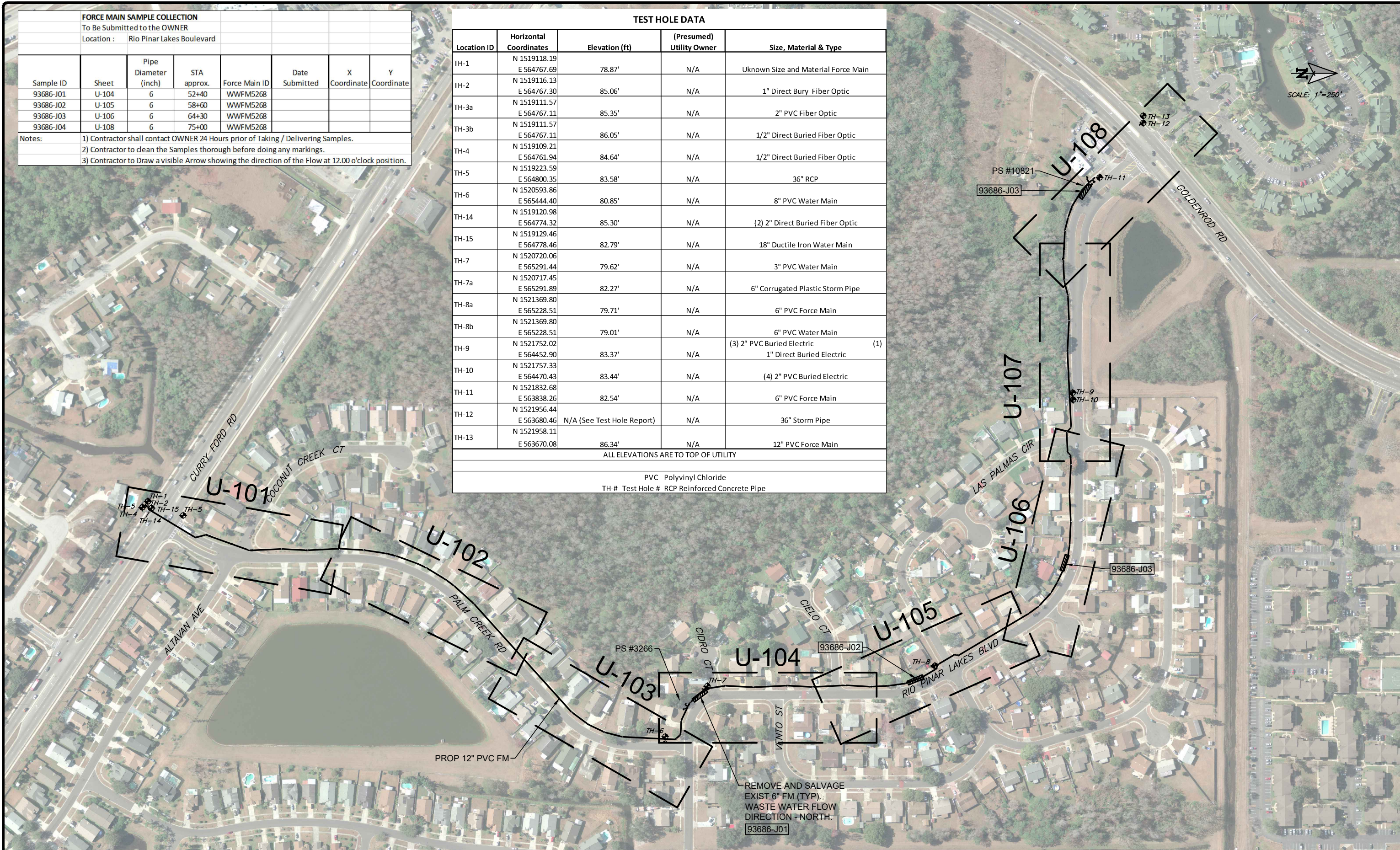
- Notes:
- 1) Contractor shall contact OWNER 24 Hours prior of Taking / Delivering Samples.
 - 2) Contractor to clean the Samples thorough before doing any markings.
 - 3) Contractor to Draw a visible Arrow showing the direction of the Flow at 12.00 o'clock position.

TEST HOLE DATA

Location ID	Horizontal Coordinates	Elevation (ft)	(Presumed) Utility Owner	Size, Material & Type
TH-1	N 1519118.19 E 564767.69	78.87'	N/A	Unknown Size and Material Force Main
TH-2	N 1519116.13 E 564767.30	85.06'	N/A	1" Direct Bury Fiber Optic
TH-3a	N 1519111.57 E 564767.11	85.35'	N/A	2" PVC Fiber Optic
TH-3b	N 1519111.57 E 564767.11	86.05'	N/A	1/2" Direct Buried Fiber Optic
TH-4	N 1519109.21 E 564761.94	84.64'	N/A	1/2" Direct Buried Fiber Optic
TH-5	N 1519223.59 E 564800.35	83.58'	N/A	36" RCP
TH-6	N 1520593.86 E 565444.40	80.85'	N/A	8" PVC Water Main
TH-14	N 1519120.98 E 564774.32	85.30'	N/A	(2) 2" Direct Buried Fiber Optic
TH-15	N 1519129.46 E 564778.46	82.79'	N/A	18" Ductile Iron Water Main
TH-7	N 1520720.06 E 565291.44	79.62'	N/A	3" PVC Water Main
TH-7a	N 1520717.45 E 565291.89	82.27'	N/A	6" Corrugated Plastic Storm Pipe
TH-8a	N 1521369.80 E 565228.51	79.71'	N/A	6" PVC Force Main
TH-8b	N 1521369.80 E 565228.51	79.01'	N/A	6" PVC Water Main
TH-9	N 1521752.02 E 564452.90	83.37'	N/A	(3) 2" PVC Buried Electric (1) 1" Direct Buried Electric
TH-10	N 1521757.33 E 564470.43	83.44'	N/A	(4) 2" PVC Buried Electric
TH-11	N 1521832.68 E 563838.26	82.54'	N/A	6" PVC Force Main
TH-12	N 1521956.44 E 563680.46	N/A (See Test Hole Report)	N/A	36" Storm Pipe
TH-13	N 1521958.11 E 563670.08	86.34'	N/A	12" PVC Force Main

ALL ELEVATIONS ARE TO TOP OF UTILITY

PVC Polyvinyl Chloride
TH-# Test Hole # RCP Reinforced Concrete Pipe



No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED



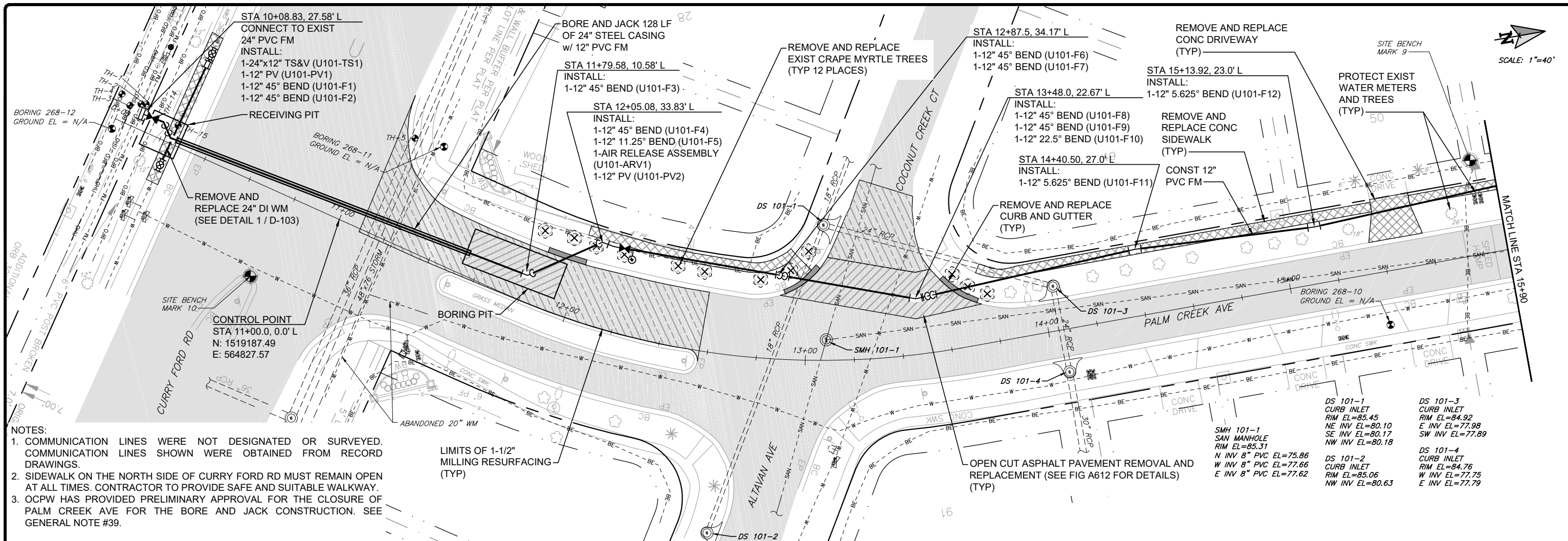
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32809
TEL: (407) 855-8888 FAX: (407) 855-8889
ENGINEERING BUSINESS No. 6899

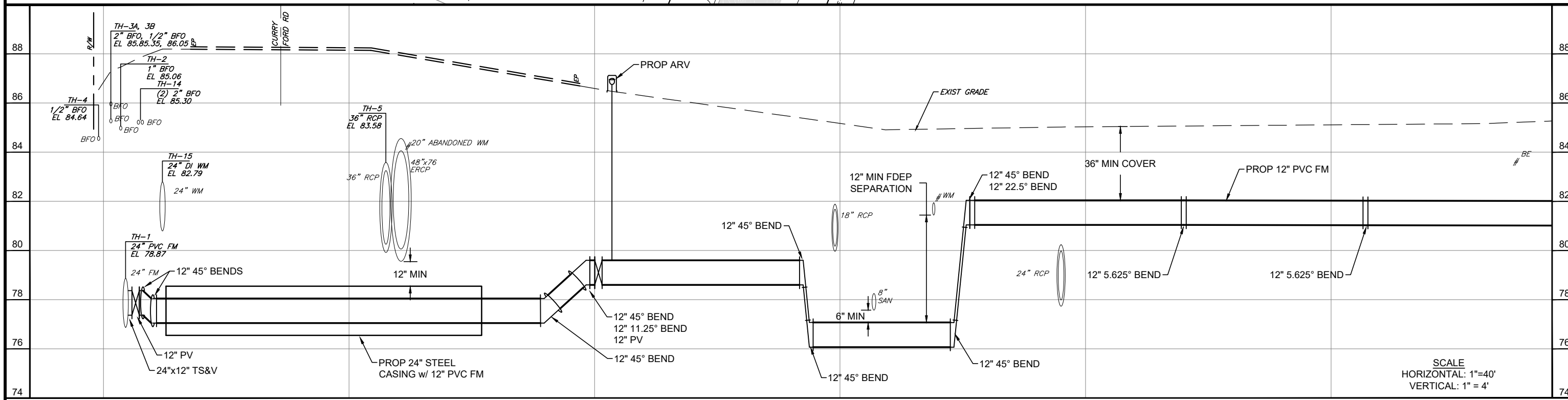
RIO PINAR LAKES FM

KEY MAP AND TEST HOLE DATA

DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019	DRAWING No. U-100
FLORIDA REGISTRATION No. 58885	DESIGNED BY: CKM DRAWN BY: JAB CHECKED BY: GJH	SHEET 15 OF 29
DRAWING FILE: SEE MARGIN		



- NOTES:
1. COMMUNICATION LINES WERE NOT DESIGNATED OR SURVEYED. COMMUNICATION LINES SHOWN WERE OBTAINED FROM RECORD DRAWINGS.
 2. SIDEWALK ON THE NORTH SIDE OF CURRY FORD RD MUST REMAIN OPEN AT ALL TIMES. CONTRACTOR TO PROVIDE SAFE AND SUITABLE WALKWAY.
 3. OCPW HAS PROVIDED PRELIMINARY APPROVAL FOR THE CLOSURE OF PALM CREEK AVE FOR THE BORE AND JACK CONSTRUCTION. SEE GENERAL NOTE #39.



No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

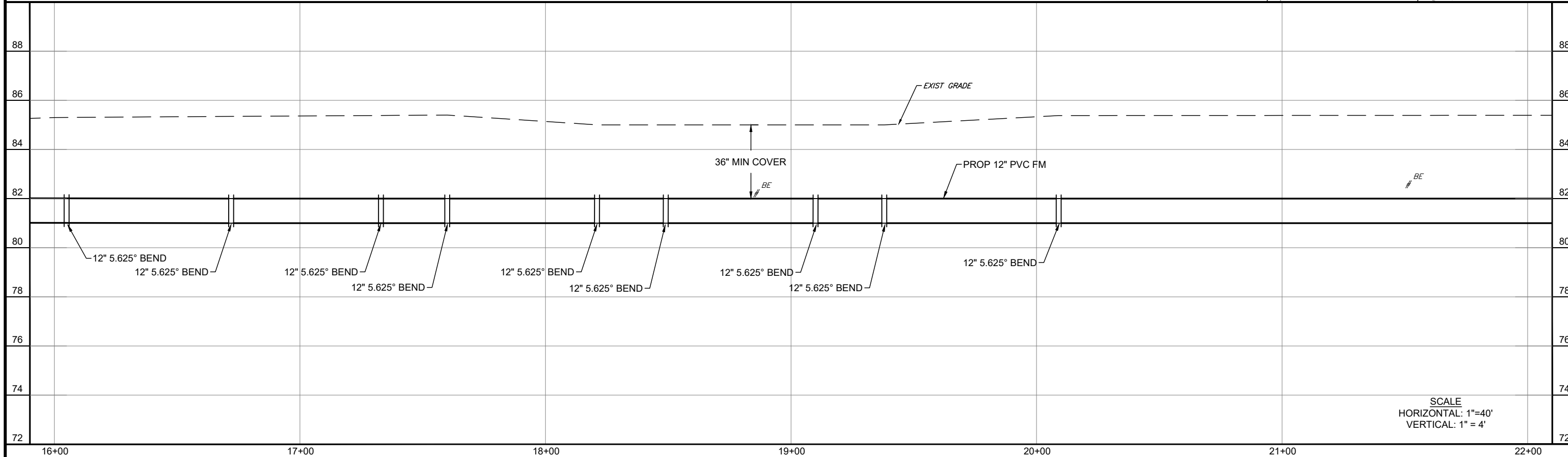
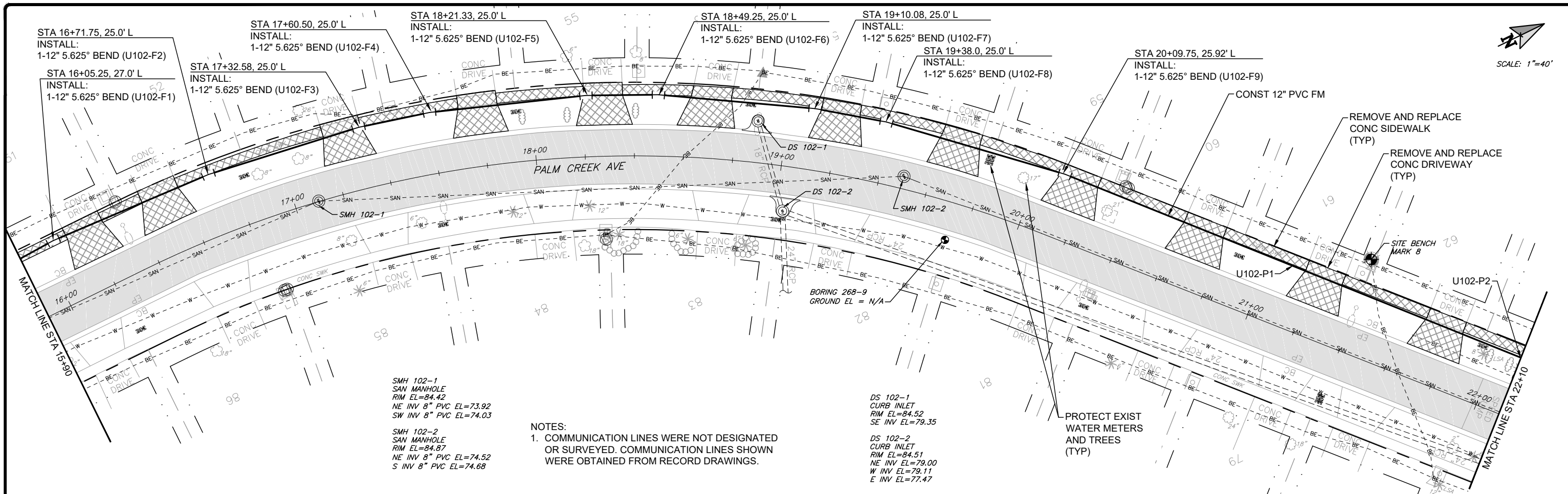
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32803
TEL: (407) 255-1100 FAX: (407) 255-1101
ENGINEERING BUSINESS No. 6899

RIO PINAR LAKES FM

PALM CREEK AVE PLAN AND PROFILE
STA 10+00 TO STA 15+00

DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019	DRAWING No. U-101
FLORIDA REGISTRATION No. 58685	DESIGNED BY: CKM DRAWN BY: JAB CHECKED BY: GJH DRAWING FILE: SEE MARGIN	SHEET 16 OF 29



No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1530 E. Hillcrest Street, Ste 100, Orlando, FL, 32809
TEL: (407) 896-0000 FAX: (407) 896-0002
ENGINEERING BUSINESS No. 6899

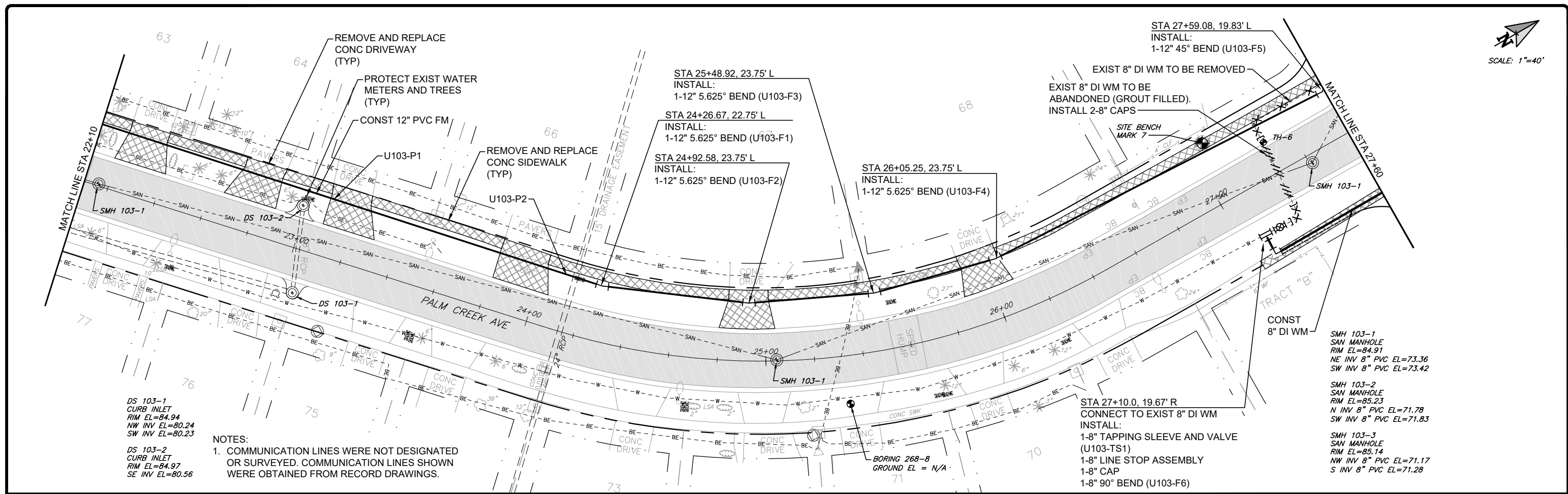
RIO PINAR LAKES FM

PALM CREEK AVE PLAN AND PROFILE
STA 15+90 TO STA 22+10

DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019	DRAWING No. U-102
FLORIDA REGISTRATION No. 58685	DESIGNED BY: CKM DRAWN BY: JAB CHECKED BY: GJH DRAWING FILE: SEE MARGIN	SHEET 17 OF 29



SCALE: 1"=40'



NOTES:
 1. COMMUNICATION LINES WERE NOT DESIGNATED OR SURVEYED. COMMUNICATION LINES SHOWN WERE OBTAINED FROM RECORD DRAWINGS.

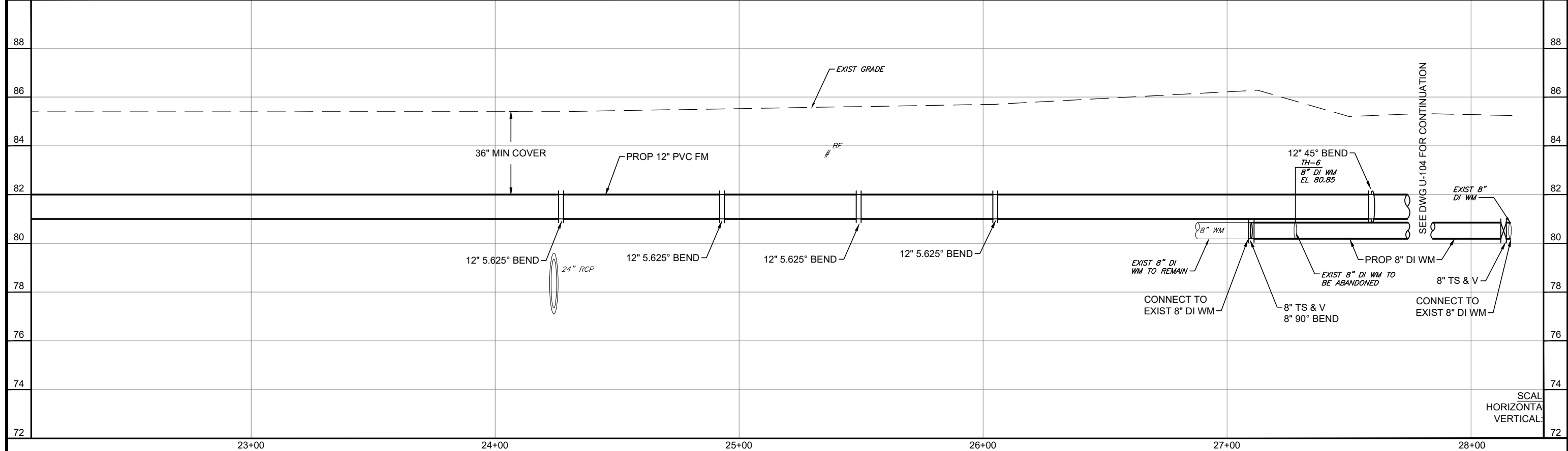
DS 103-1
 CURB INLET
 RIM EL=84.94
 NW INV EL=80.24
 SW INV EL=80.23

DS 103-2
 CURB INLET
 RIM EL=84.97
 SE INV EL=80.56

SMH 103-1
 SAN MANHOLE
 RIM EL=84.91
 NE INV 8" PVC EL=73.36
 SW INV 8" PVC EL=73.42

SMH 103-2
 SAN MANHOLE
 RIM EL=85.23
 N INV 8" PVC EL=71.78
 SW INV 8" PVC EL=71.83

SMH 103-3
 SAN MANHOLE
 RIM EL=85.14
 NW INV 8" PVC EL=71.17
 S INV 8" PVC EL=71.28



No.	REVISIONS	BY	DATE

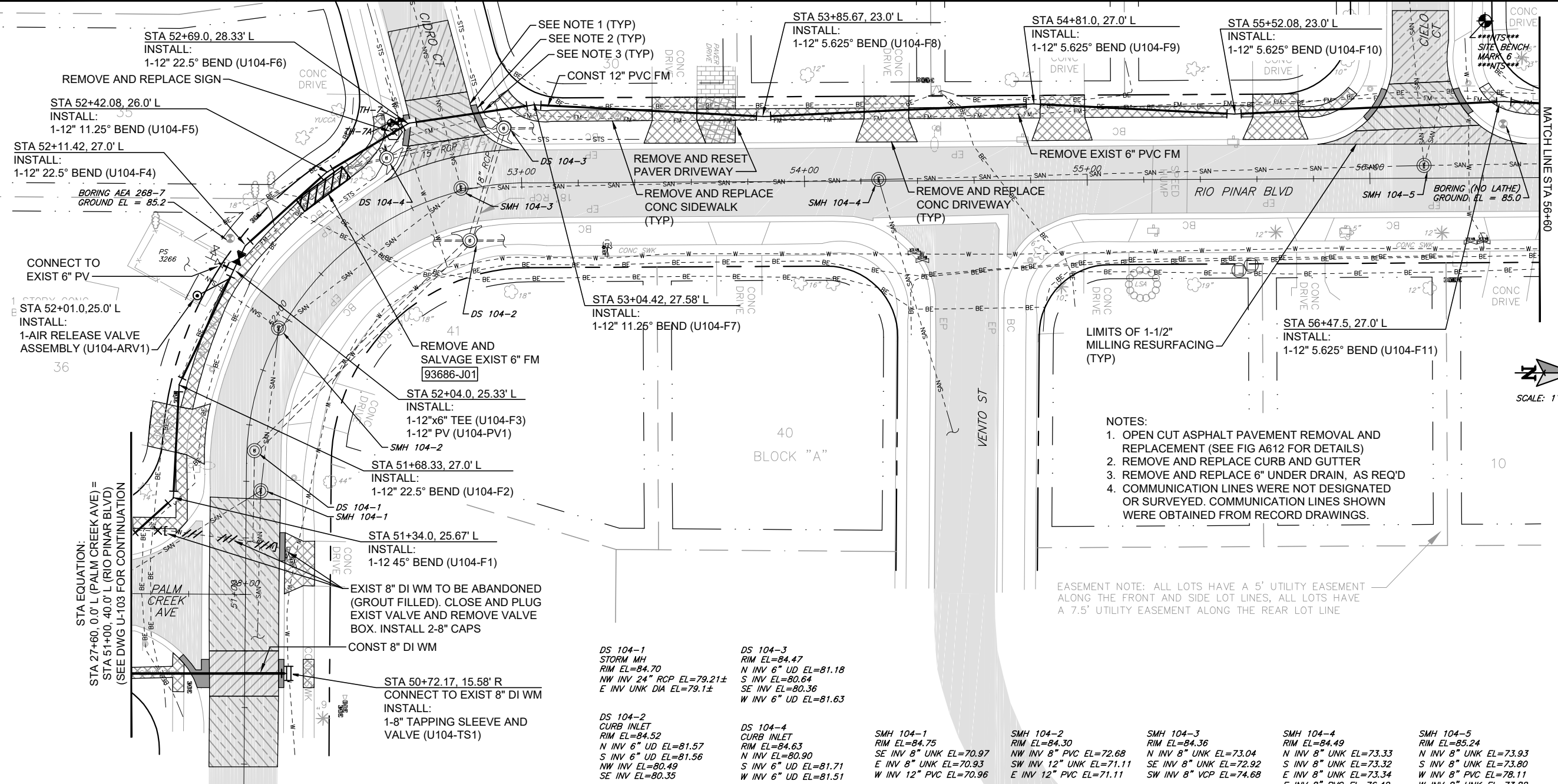
LINE IS 1 INCH
 AT FULL SIZE = 11X17
 (IF NOT SCALE ACCORDINGLY)
 SCALE: AS NOTED

ORANGE COUNTY
 GOVERNMENT
 UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

BFA Environmental Consultants
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 1230 E. Hillcrest Street, Ste 100, Orlando, FL 32805
 TEL: (407) 886-0000 FAX: (407) 886-0000
 ENGINEERING BUSINESS No. 6899

RIO PINAR LAKES FM
PALM CREEK AVE PLAN AND PROFILE
 STA 22+10 TO STA 27+60

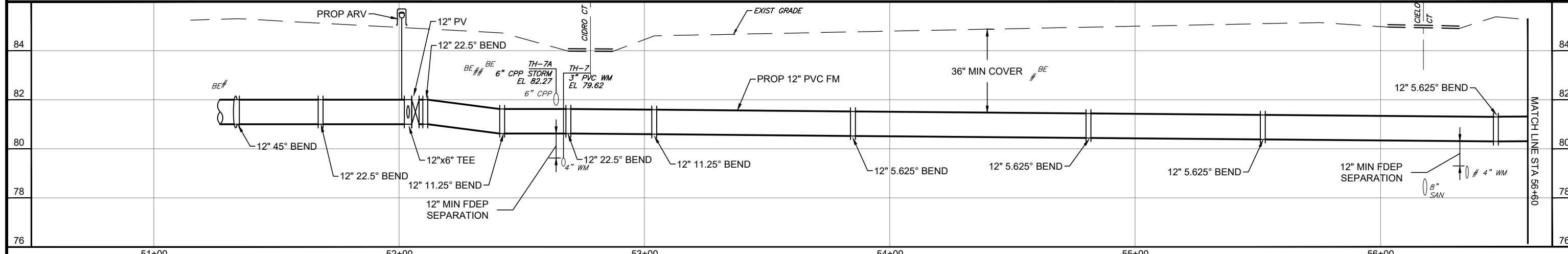
DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019	DRAWING No. U-103
FLORIDA REGISTRATION No. 58685	DESIGNED BY: CKM DRAWN BY: JAB CHECKED BY: GJH DRAWING FILE: SEE MARGIN	SHEET 18 OF 29



- NOTES:**
1. OPEN CUT ASPHALT PAVEMENT REMOVAL AND REPLACEMENT (SEE FIG A612 FOR DETAILS)
 2. REMOVE AND REPLACE CURB AND GUTTER
 3. REMOVE AND REPLACE 6" UNDER DRAIN, AS REQ'D
 4. COMMUNICATION LINES WERE NOT DESIGNATED OR SURVEYED. COMMUNICATION LINES SHOWN WERE OBTAINED FROM RECORD DRAWINGS.

EASEMENT NOTE: ALL LOTS HAVE A 5' UTILITY EASEMENT ALONG THE FRONT AND SIDE LOT LINES, ALL LOTS HAVE A 7.5' UTILITY EASEMENT ALONG THE REAR LOT LINE

<p>DS 104-1 STORM MH RIM EL=84.70 NW INV 24" RCP EL=79.21± E INV UNK DIA EL=79.1±</p>	<p>DS 104-3 RIM EL=84.47 N INV 6" UD EL=81.18 S INV EL=80.64 SE INV EL=80.36 W INV 6" UD EL=81.63</p>	<p>DS 104-2 CURB INLET RIM EL=84.52 N INV 6" UD EL=81.57 S INV 6" UD EL=81.56 NW INV EL=80.49 SE INV EL=80.35</p>	<p>DS 104-4 CURB INLET RIM EL=84.63 N INV EL=80.90 S INV 6" UD EL=81.71 W INV 6" UD EL=81.51</p>	<p>SMH 104-1 RIM EL=84.75 SE INV 8" UNK EL=70.97 E INV 8" UNK EL=70.93 W INV 12" PVC EL=70.96</p>	<p>SMH 104-2 RIM EL=84.30 NW INV 8" PVC EL=72.68 SW INV 12" UNK EL=71.11 E INV 12" PVC EL=71.11</p>	<p>SMH 104-3 RIM EL=84.36 N INV 8" UNK EL=73.04 S INV 8" UNK EL=72.92 SW INV 8" VCP EL=74.68</p>	<p>SMH 104-4 RIM EL=84.49 N INV 8" UNK EL=73.33 S INV 8" UNK EL=73.32 E INV 8" UNK EL=73.34 W INV 8" PVC EL=76.42</p>	<p>SMH 104-5 RIM EL=85.24 N INV 8" UNK EL=73.93 S INV 8" UNK EL=73.80 W INV 8" PVC EL=78.11 W INV 8" UNK EL=73.82</p>
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No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32805
FLORIDA REGISTRATION NO. 10000
ENGINEERING BUSINESS No. 6899

RIO PINAR LAKES FM

RIO PINAR LAKES BLVD PLAN AND PROFILE
STA 50+00 TO STA 56+00

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.

PROJECT No.: 2017-29-02
PROJECT DATE: APR 2019
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN

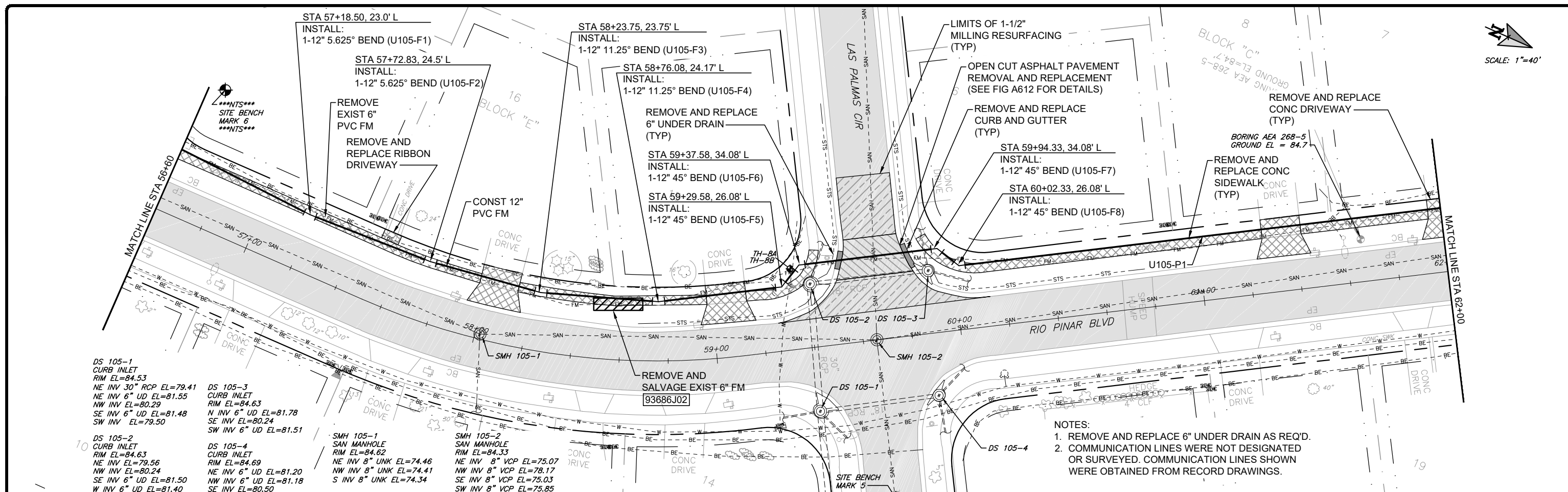
FLORIDA REGISTRATION No.
58685

DRAWING No.
U-104

SHEET
19 OF 29

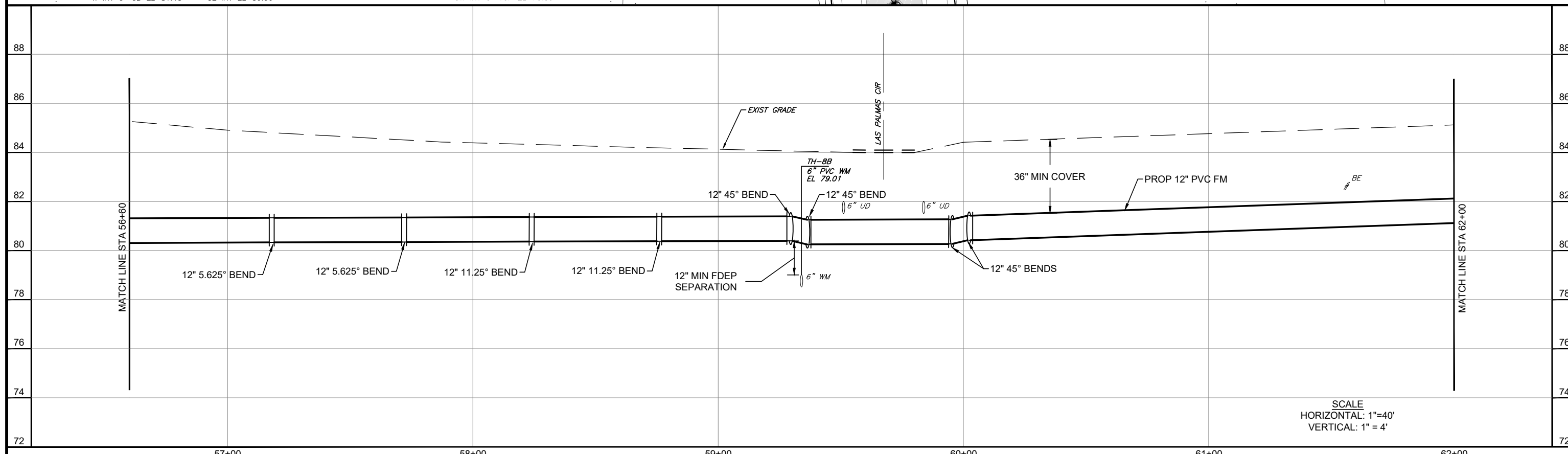


SCALE: 1"=40'



DS 105-1 CURB INLET RIM EL=84.53 NE INV 30" RCP EL=79.41 NE INV 6" UD EL=81.55 NW INV EL=80.29 SE INV 6" UD EL=81.48 SW INV EL=79.50	DS 105-3 CURB INLET RIM EL=84.63 N INV 6" UD EL=81.78 SE INV EL=80.24 SW INV 6" UD EL=81.51	DS 105-2 CURB INLET RIM EL=84.63 NE INV EL=79.56 NW INV EL=80.24 SE INV 6" UD EL=81.50 W INV 6" UD EL=81.40	DS 105-4 CURB INLET RIM EL=84.69 NE INV 6" UD EL=81.20 NW INV 6" UD EL=81.18 SE INV EL=80.50	SMH 105-1 SAN MANHOLE RIM EL=84.62 NE INV 8" UNK EL=74.46 NW INV 8" UNK EL=74.41 S INV 8" UNK EL=74.34	SMH 105-2 SAN MANHOLE RIM EL=84.33 NE INV 8" VCP EL=75.07 NW INV 8" VCP EL=78.17 SE INV 8" VCP EL=75.03 SW INV 8" VCP EL=75.85
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- NOTES:
1. REMOVE AND REPLACE 6" UNDER DRAIN AS REQ'D.
 2. COMMUNICATION LINES WERE NOT DESIGNATED OR SURVEYED. COMMUNICATION LINES SHOWN WERE OBTAINED FROM RECORD DRAWINGS.



SCALE
 HORIZONTAL: 1"=40'
 VERTICAL: 1"= 4'

No.	REVISIONS	BY	DATE

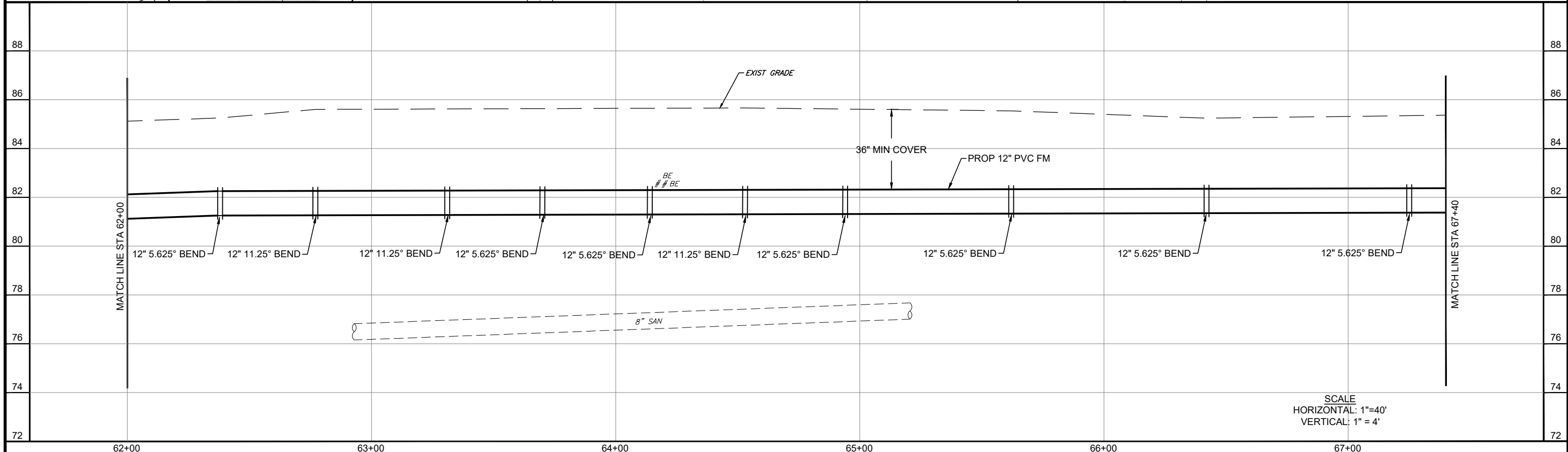
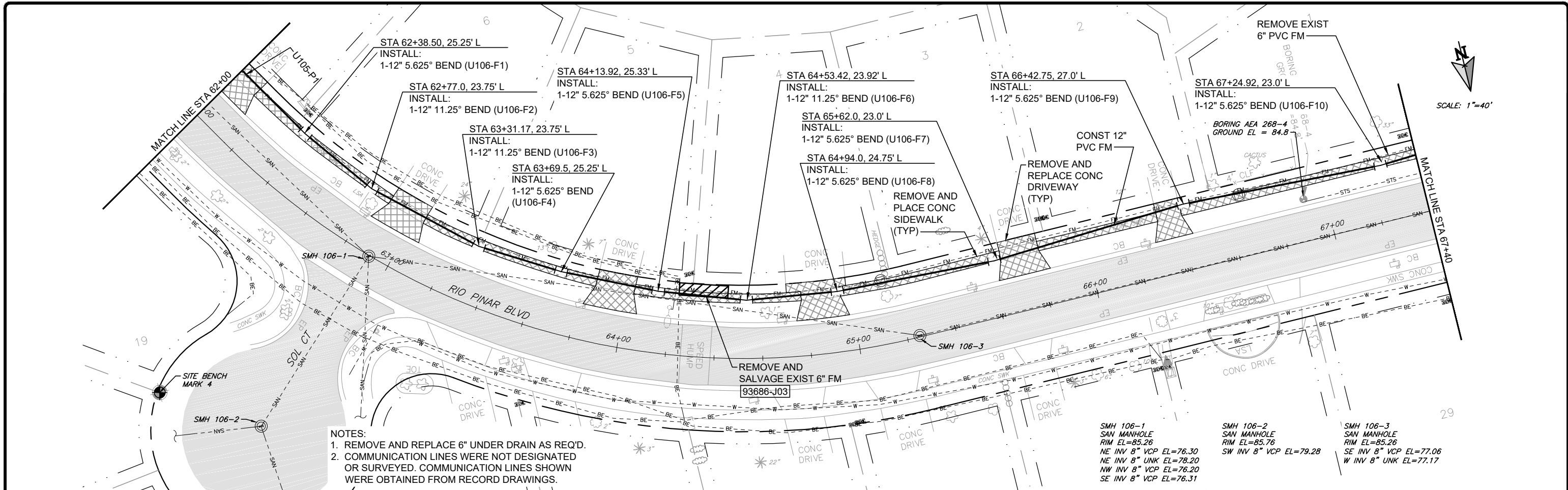
LINE IS 1 INCH
 AT FULL SIZE = 11X17
 (IF NOT SCALE ACCORDINGLY)
 SCALE: AS NOTED

ORANGE COUNTY UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

BFA Environmental Consultants
 Barnes, Ferland and Associates, Inc.
 1230 E. Hillcrest Street, Ste 100, Orlando, FL 32805
 ENGINEERING BUSINESS No. 6899

RIO PINAR LAKES FM
RIO PINAR LAKES BLVD PLAN AND PROFILE
 STA 56+60 TO STA 62+00

DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019	DRAWING No. U-105
FLORIDA REGISTRATION No. 58685	DESIGNED BY: CKM DRAWN BY: JAB CHECKED BY: GJH DRAWING FILE: SEE MARGIN	20 SHEET OF 29



No.	REVISIONS	BY	DATE
BID SET		CKM	4-5-2019

LINE IS 1 INCH
 AT FULL SIZE = 11X17
 (IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

BFA Environmental Consultants
 Barnes, Ferland and Associates, Inc.
 1230 E. Hillcrest Street, Ste 100, Orlando, FL, 32803
 407.440.0000
 ENGINEERING BUSINESS No. 6899

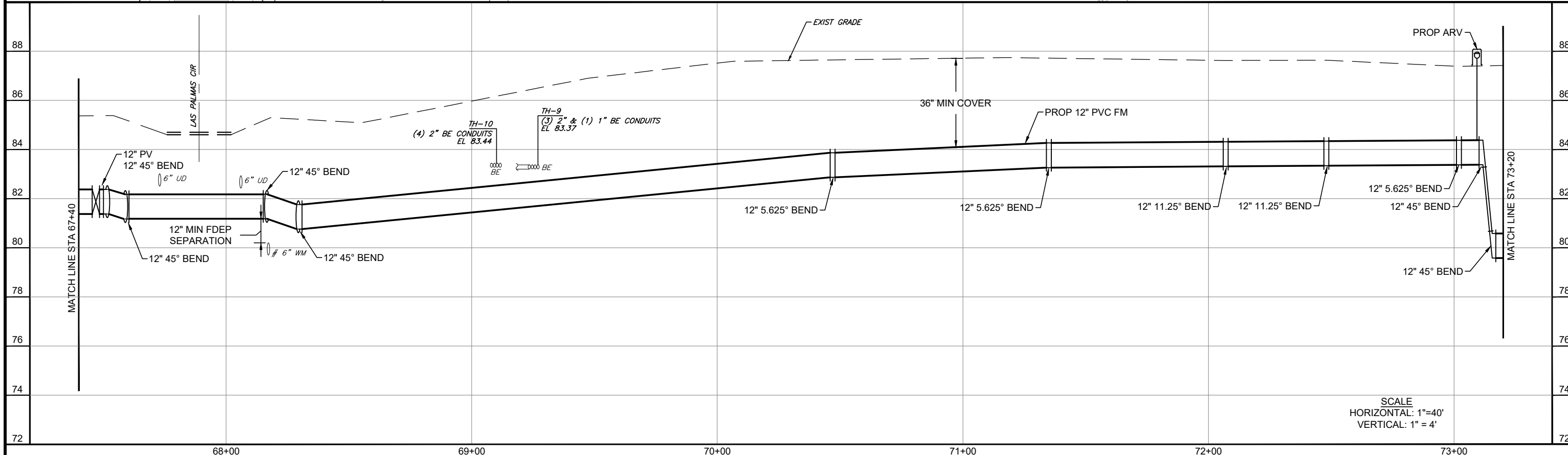
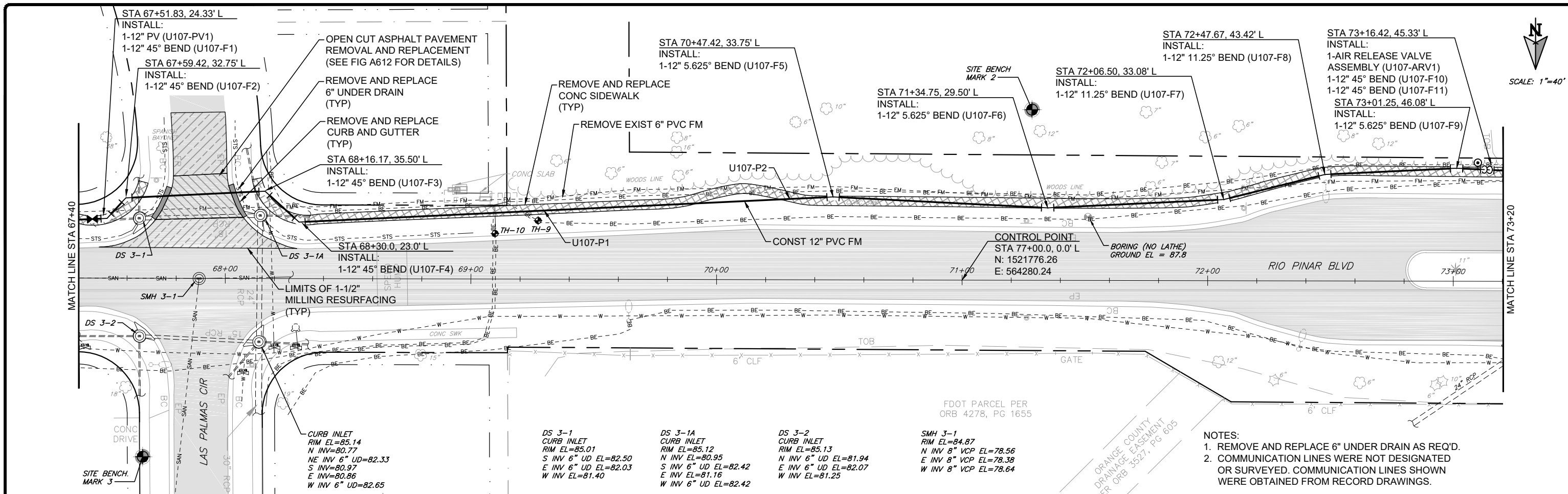
RIO PINAR LAKES FM
RIO PINAR LAKES BLVD PLAN AND PROFILE
 STA 62+00 TO STA 67+40

DESIGN ENGINEER
 CYNTHIA K. MALONE, P.E.

PROJECT No.: 2017-29-02
 PROJECT DATE: APR 2019
 DESIGNED BY: CKM
 DRAWN BY: JAB
 CHECKED BY: GJH
 DRAWING FILE: SEE MARGIN

FLORIDA REGISTRATION No.
 58685

DRAWING No.
U-106
 SHEET
 21 OF 29



No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

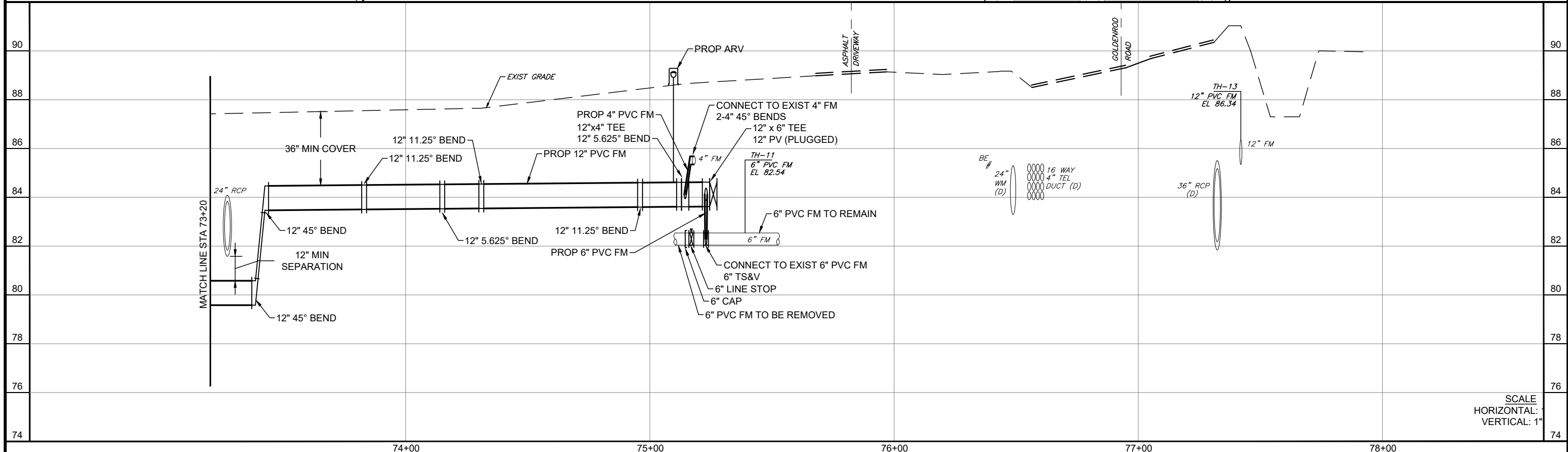
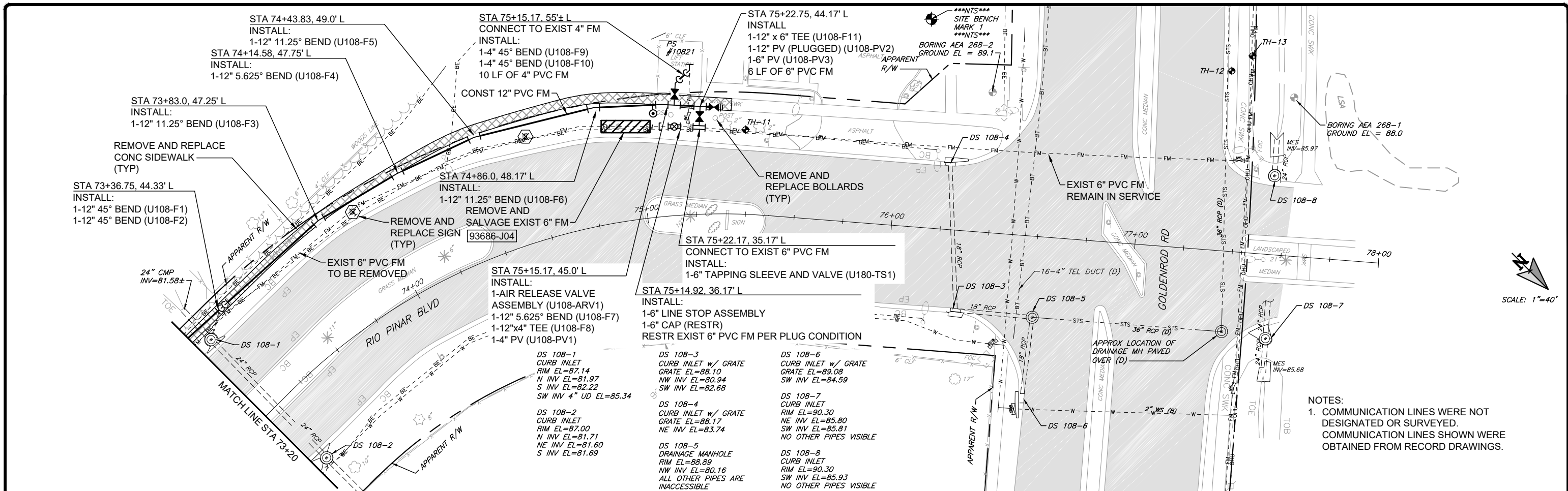
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1230 E. Hillcrest Street, Ste 100, Orlando, FL 32805
TEL: (407) 848-0888 FAX: (407) 848-0889
ENGINEERING BUSINESS No. 6899

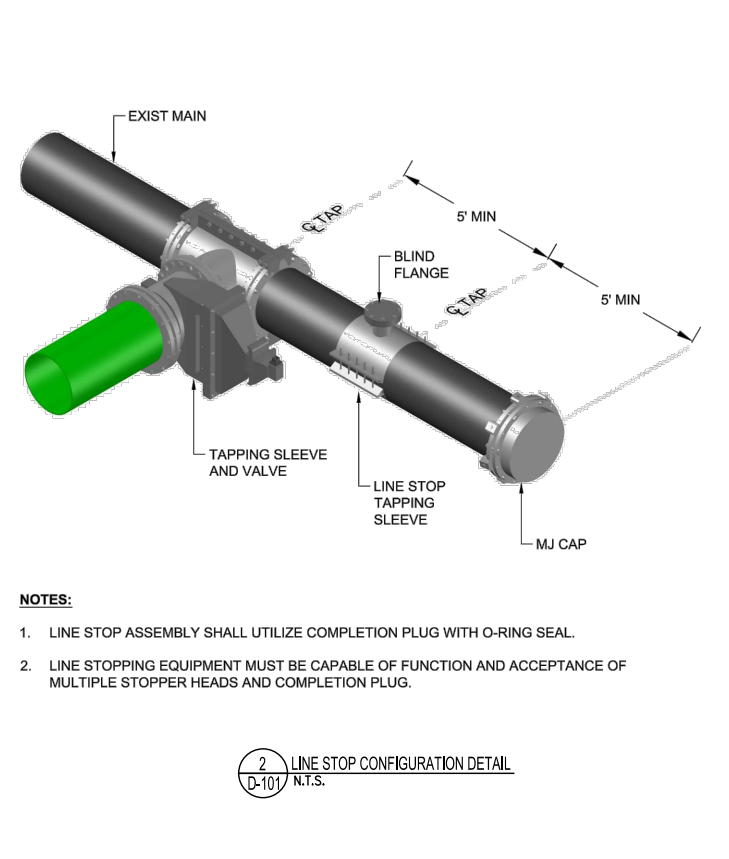
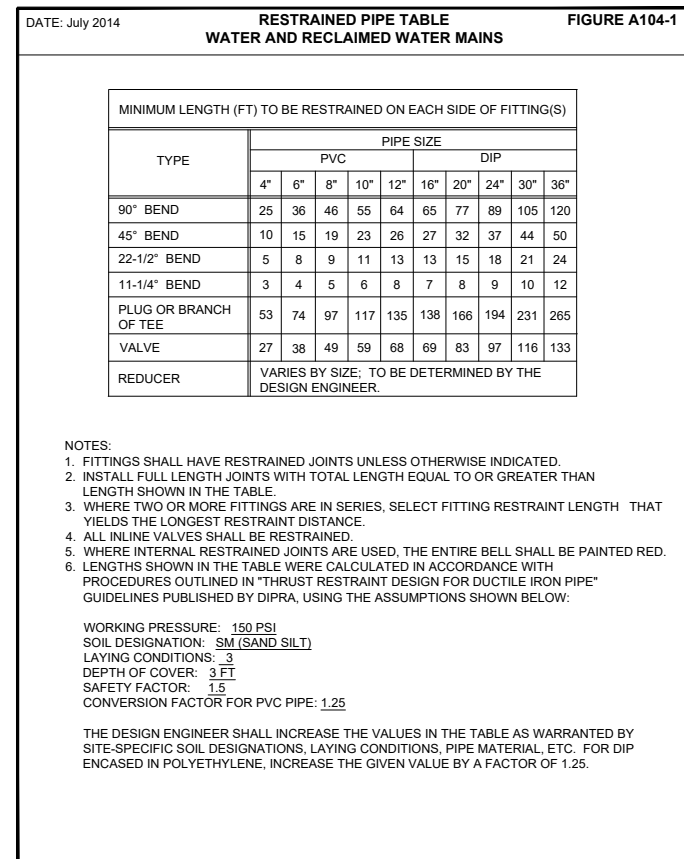
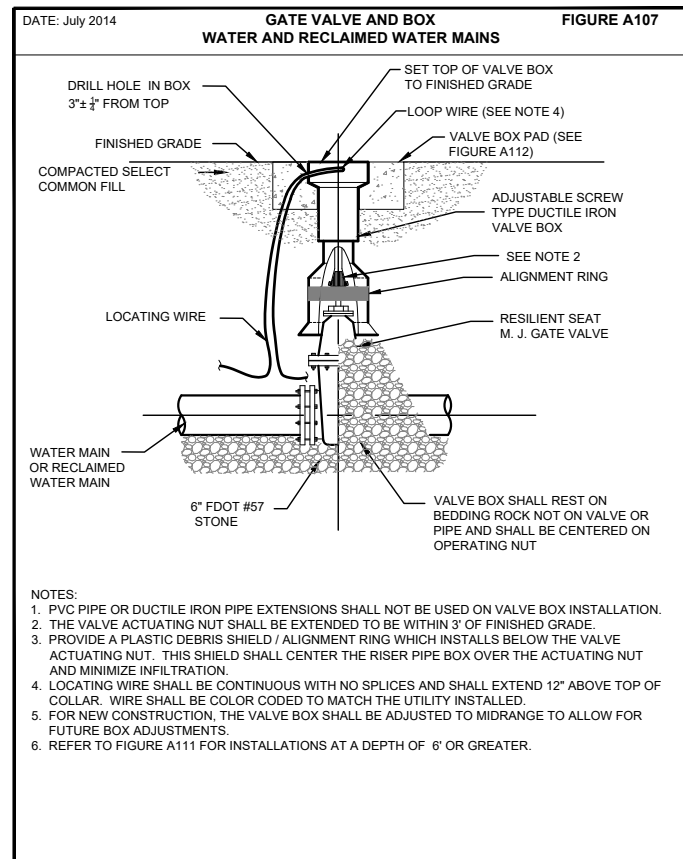
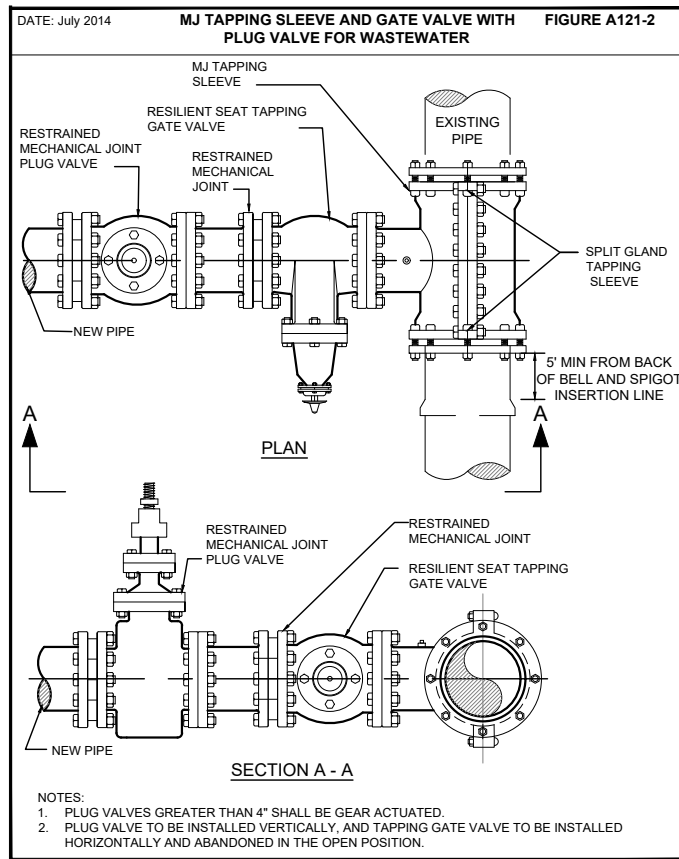
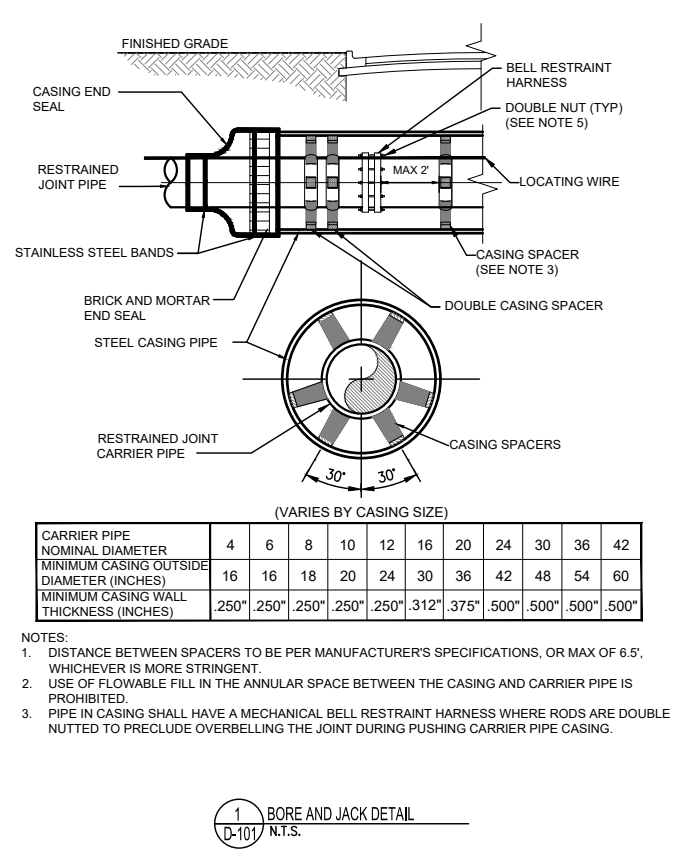
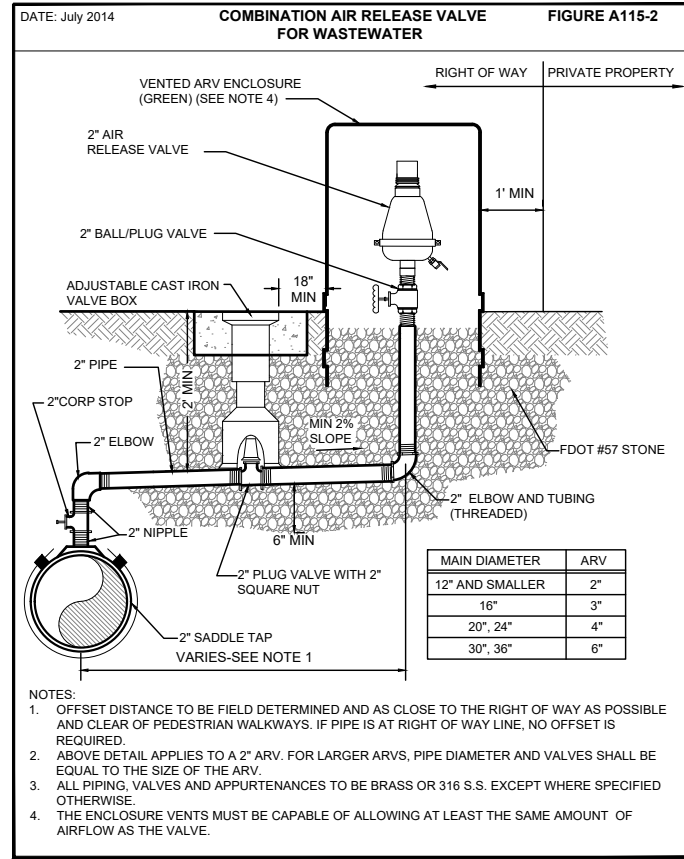
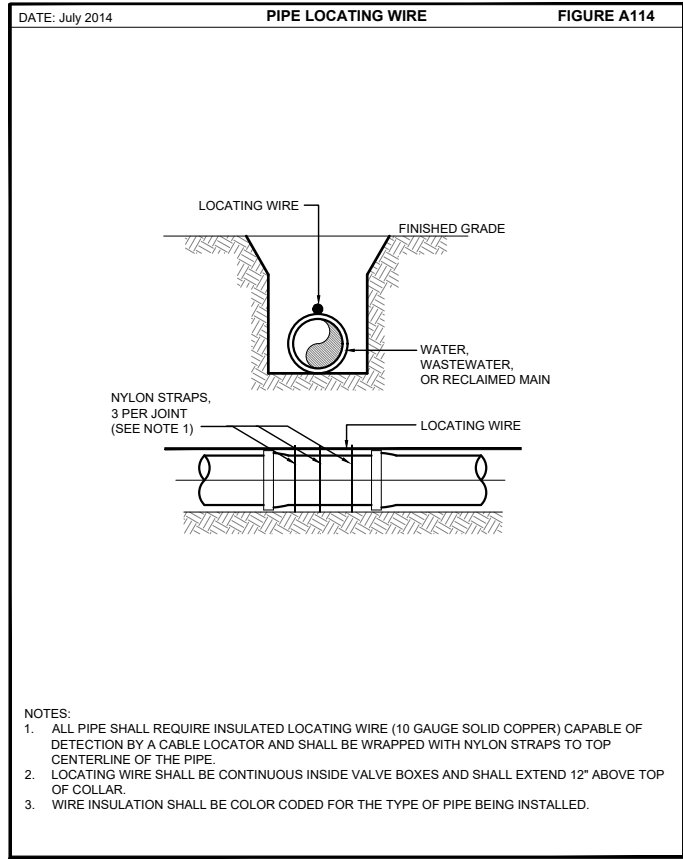
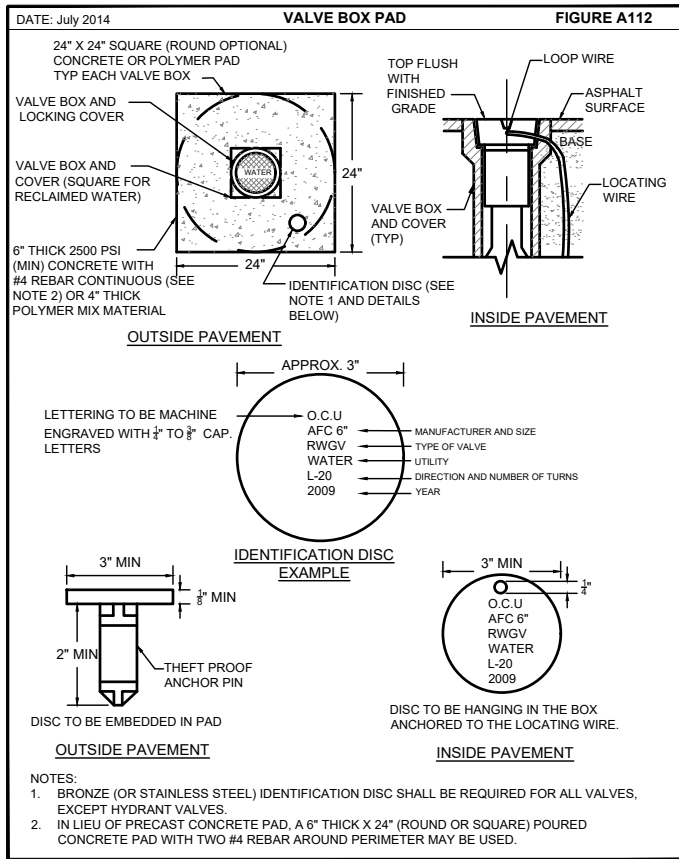
RIO PINAR LAKES FM

RIO PINAR LAKES BLVD PLAN AND PROFILE
STA 67+40 TO STA 73+20

DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019	DRAWING No. U-107
FLORIDA REGISTRATION No. 58685	DESIGNED BY: CKM DRAWN BY: JAB CHECKED BY: GJH DRAWING FILE: SEE MARGIN	SHEET 22 OF 29



No.	REVISIONS	BY	DATE	LINE IS 1 INCH AT FULL SIZE = 11X17 (IF NOT SCALE ACCORDINGLY)	ORANGE COUNTY UTILITIES 9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825	BFA Environmental Consultants Barnes, Ferland and Associates, Inc. 1530 E. Hillcrest Street, Ste 100, Orlando, FL 32809 ENGINEERING BUSINESS No. 6889	RIO PINAR LAKES FM RIO PINAR LAKES BLVD PLAN AND PROFILE STA 73+20 TO STA 78+00	DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019	DRAWING No. U-108
BID SET		CKM	4-5-2019	SCALE: AS NOTED				FLORIDA REGISTRATION No. 58685	CHECKED BY: GJH DRAWING FILE: SEE MARGIN	DRAWN BY: JAB



No.	REVISIONS	BY	DATE

BID SET CKM 4-5-2019

LINE IS 1 INCH
AT FULL SIZE = 1/16\"/>

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

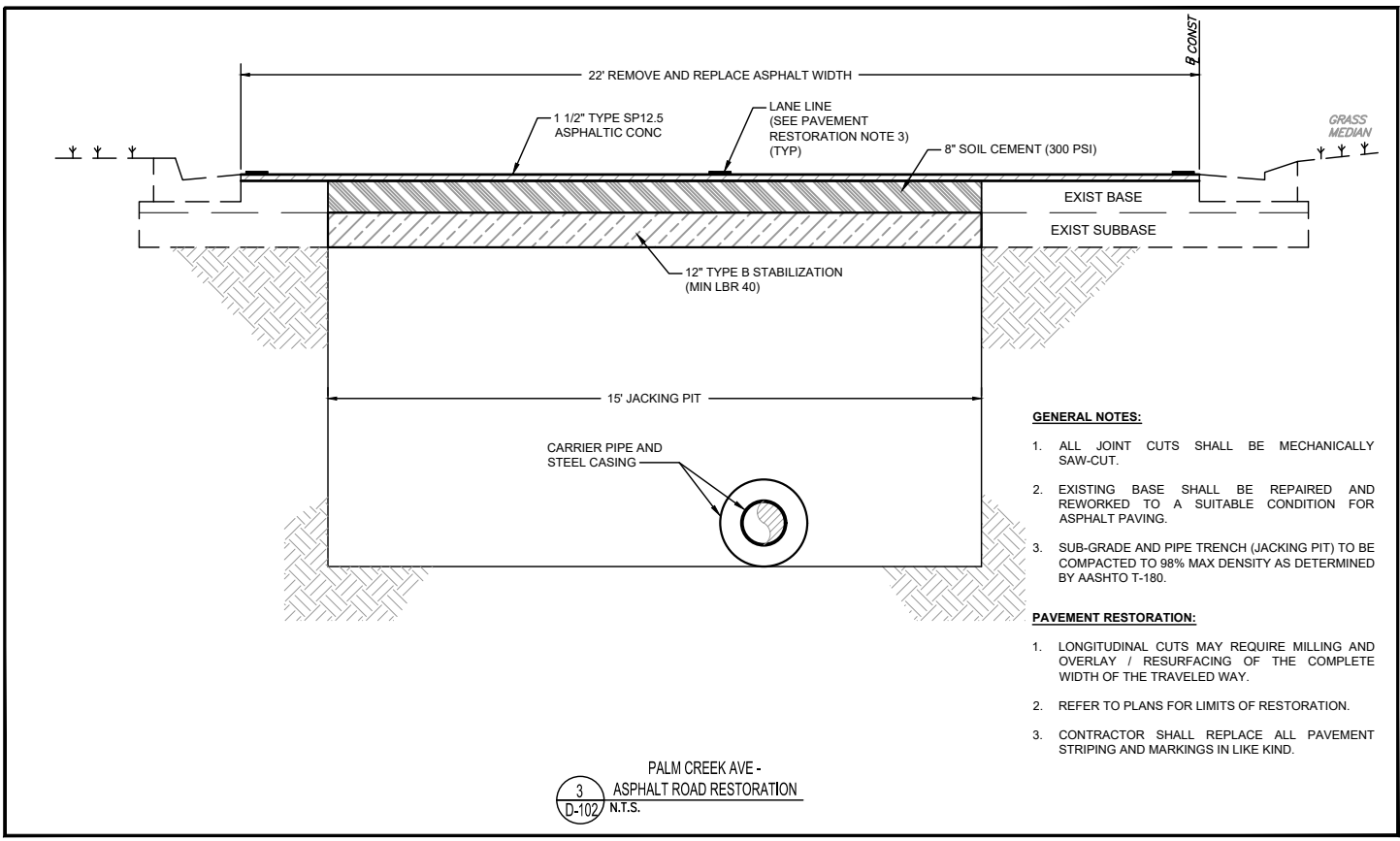
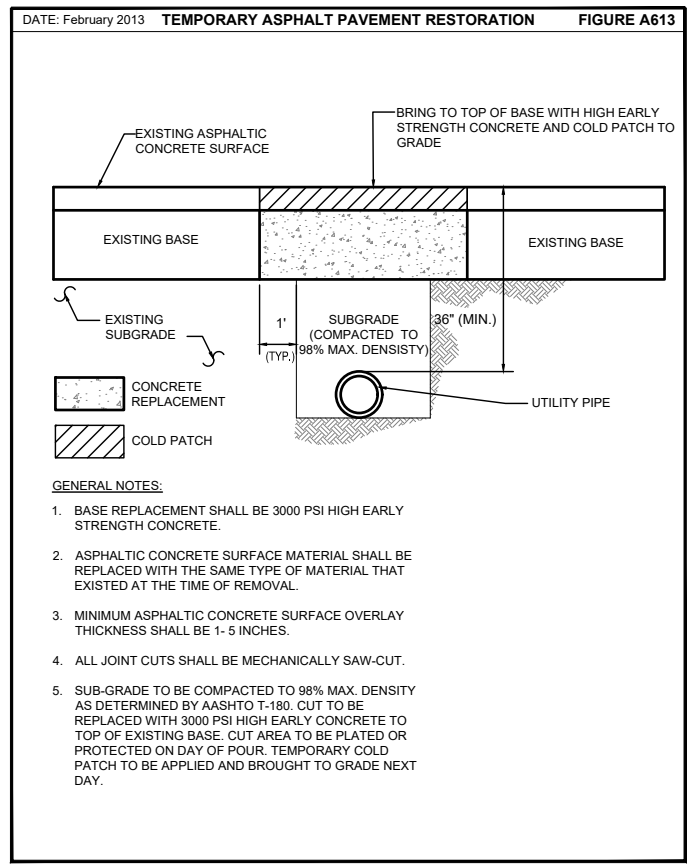
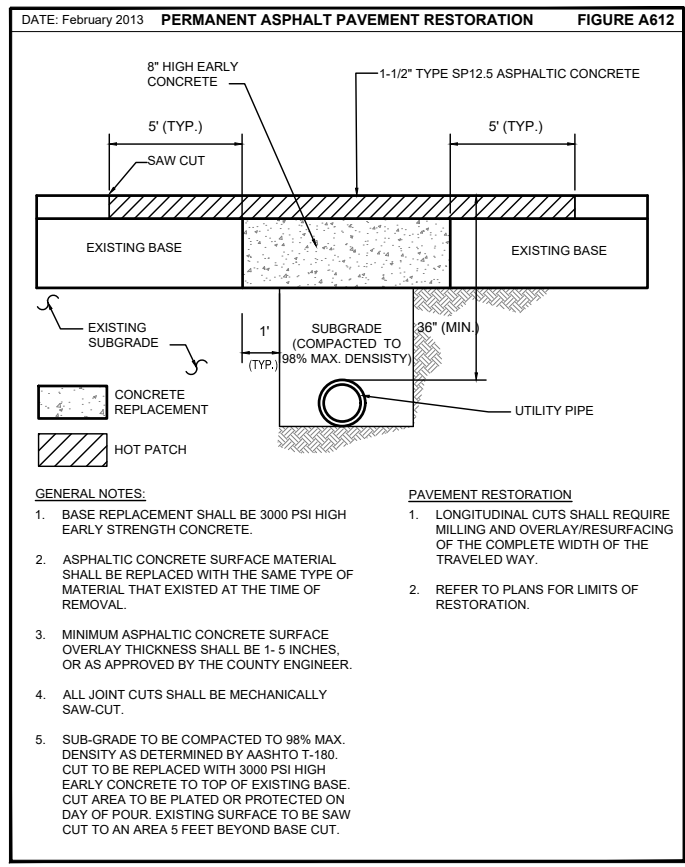
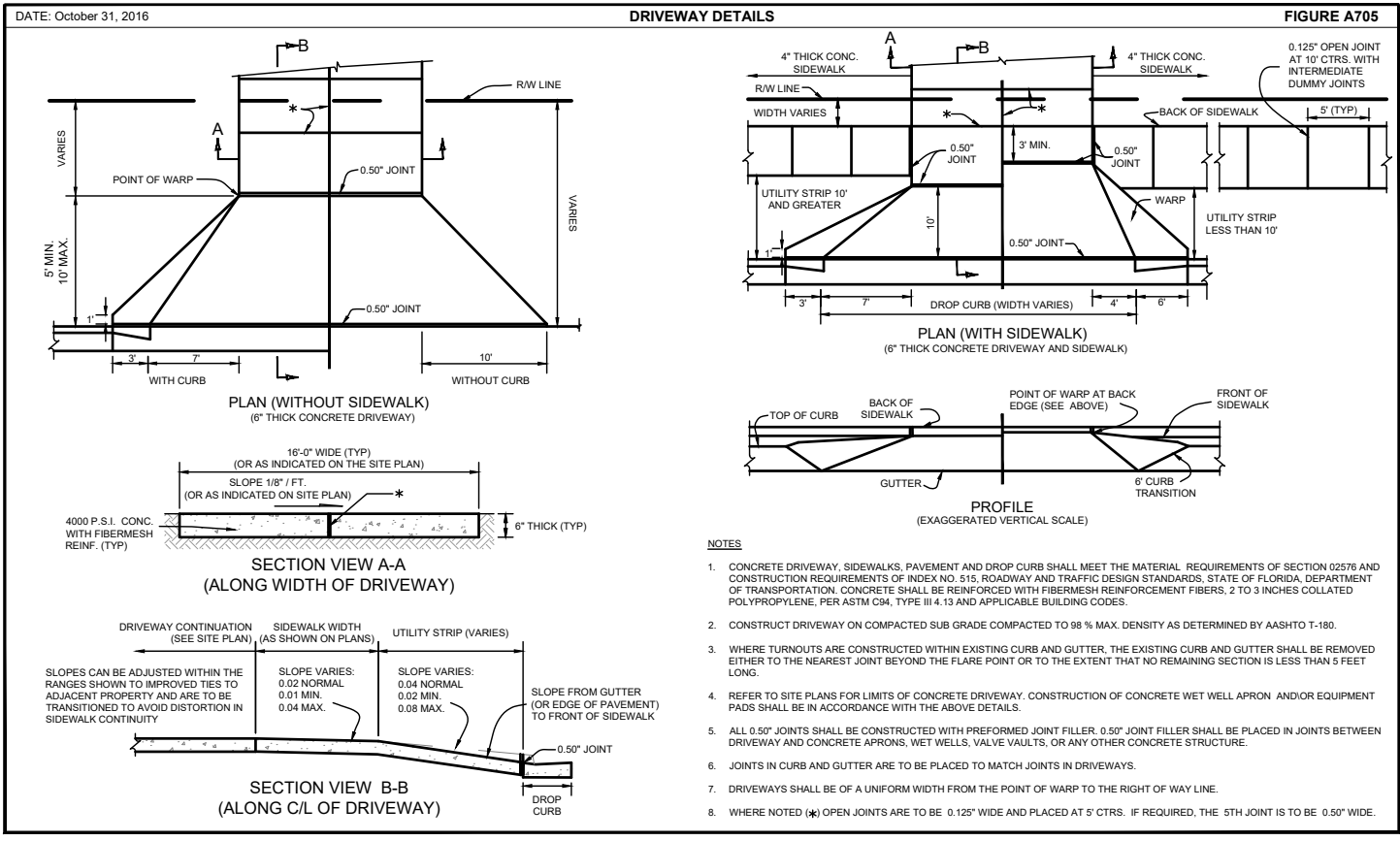
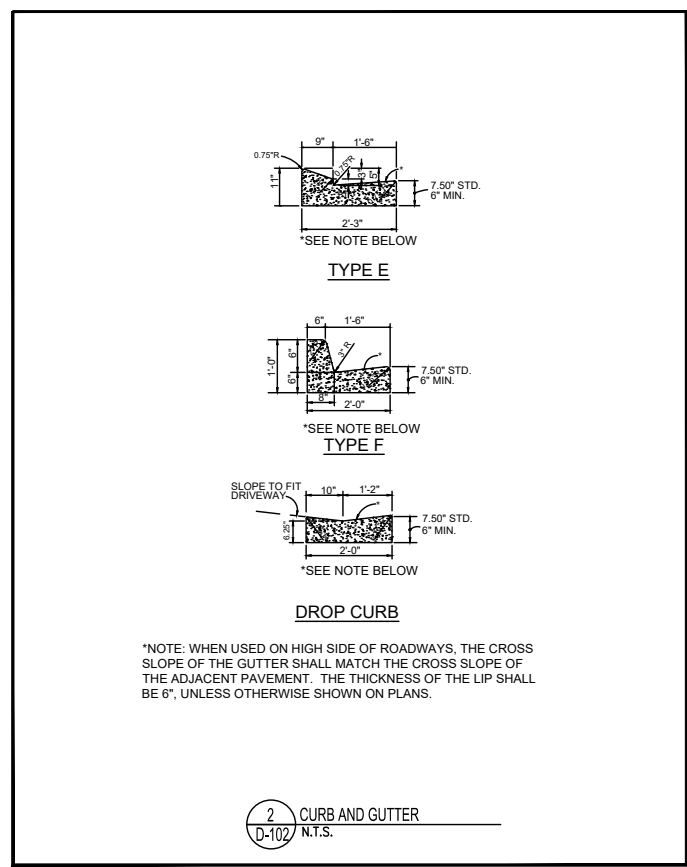
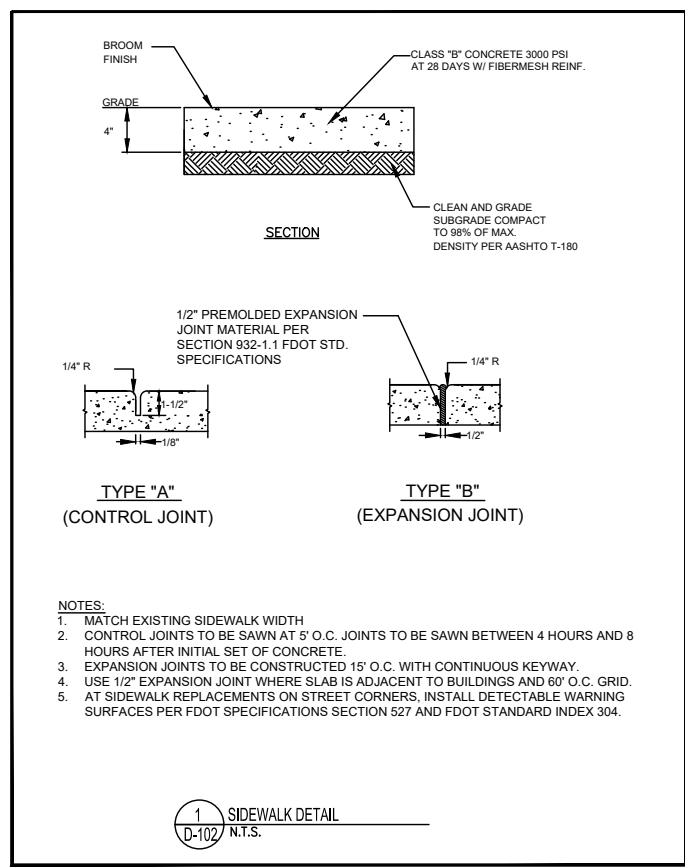
BFA Environmental Consultants
Bernes, Ferland and Associates, Inc.
1330 E. Hillcrest Street, Ste 100, Orlando, FL 32803
PH: (407) 853-8888
ENGINEERING BUSINESS No. 6869

RIO PINAR LAKES FM
CONSTRUCTION DETAILS

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.
FLORIDA REGISTRATION No. 58685

PROJECT No.: 2017-29-02
PROJECT DATE: APR 2019
DESIGNED BY: CKM
DRAWN BY: JAB
CHECKED BY: GJH
DRAWING FILE: SEE MARGIN

DRAWING No. **D-101**
SHEET 25 OF 29
APRIL 2019 - BID SET



No.	REVISIONS	BY	DATE

BID SET

BY: CKM
DATE: 4-5-2019

LINE IS 1 INCH
AT FULL SIZE = 11X17
(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED

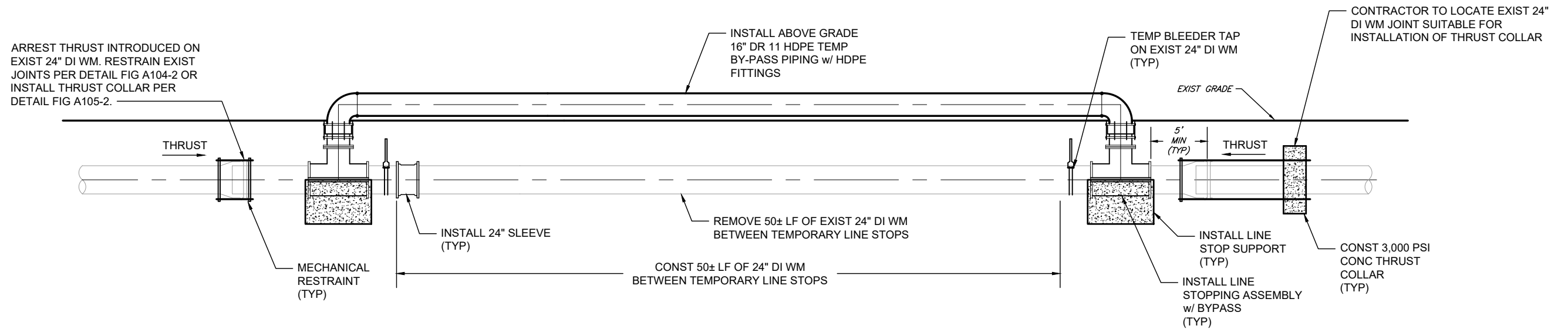
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Bernes, Ferland and Associates, Inc.
1830 E. Hillcrest Street, Ste 100, Orlando, FL 32803
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RIO PINAR LAKES FM

CONSTRUCTION DETAILS

DESIGN ENGINEER CYNTHIA K. MALONE, P.E.	PROJECT No.: 2017-29-02 PROJECT DATE: APR 2019 DESIGNED BY: CKM DRAWN BY: JAB	DRAWING No. D-102
FLORIDA REGISTRATION No. 58685	CHECKED BY: GJH DRAWING FILE: SEE MARGIN	SHEET 26 OF 29



DOUBLE LINE STOP WITH BY-PASS SCHEMATIC

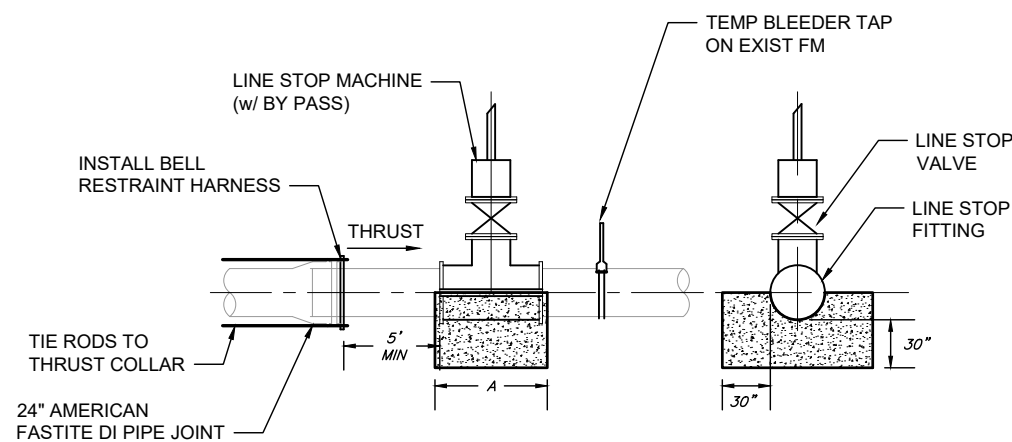
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DETAIL
N.T.S.

GENERAL NOTES

- PIPE LENGTHS SHOWN ON PLANS ARE APPROXIMATE. ACTUAL LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION.
- TEMPORARY 16 - INCH BY-PASS PIPING AND FITTINGS SHALL BE BUTT-FUSED DUCTILE IRON PIPE SIZE DR-11 HDPE PIPING. CONTRACTOR SHALL ROUTE TEMPORARY BYPASS PIPING SO THAT IT DOES NOT INTERFERE WITH CONSTRUCTION, STORM DRAINAGE, OR VEHICULAR TRAFFIC.
- EXISTING WATER MAIN IS REPORTED TO BE PRESSURE CLASS 200 DUCTILE IRON PIPE. JOINTS APPEAR TO BE RESTRAINED.
- EXISTING WATER MAIN ESTIMATED OPERATING PRESSURE IS 80 PSI.
- THE EXISTING WATER MAIN SHALL BE BYPASSED WITH THE INSTALLATION OF A DOUBLE LINE STOP WITH BYPASS THROUGH THE LINE STOP HOUSINGS. REFER TO SPECIFICATION SECTION 02668.
- PRIOR TO INSTALLING THE DOUBLE LINE STOP WITH BYPASS, THE CONTRACTOR SHALL INSTALL THRUST RESTRAINT ON THE 24 - INCH WATER MAIN IN ACCORDANCE WITH THE STANDARD DETAILS.
- LINE STOP FITTINGS SHALL BE SUPPORTED BY CONCRETE SUPPORT BLOCKS IN ACCORDANCE WITH THE STANDARD DETAILS.
- FOR THE LENGTH OF WATER MAIN REPLACEMENT, PROVIDE TEMPORARY BARRIER WALL PER FDOT INDEX 415 FOR PROTECTION OF 16-INCH HDPE BY-PASS PIPING FROM VEHICULAR TRAFFIC. PROVIDE MISCELLANEOUS ASPHALT UNDER BARRIER UNITS AS REQUIRED. (COST OF TEMPORARY BARRIER TO BE INCLUDED IN THE COST OF "WATER MAIN BY-PASS AND REPLACEMENT".)

GENERAL CONSTRUCTION SEQUENCE:

- CONTRACTOR SHALL INSTALL TEMPORARY LINE STOPS AND TEMPORARY 16-INCH BY-PASS PIPING.
- CONTRACTOR SHALL PRESSURE TEST, DISINFECT AND BACTERIOLOGICAL TEST THE TEMPORARY 16-INCH BY-PASS PIPING PRIOR TO PLACING IN-SERVICE. IN ACCORDANCE WITH SPECIFICATION 02660 - "POTABLE WATER SYSTEM".
- CONTRACTOR SHALL REMOVE EXISTING 24" WATER MAIN.
- CONTRACTOR TO CONSTRUCT FORCE MAIN BORE AND JACK AND CONNECT TO EXISTING 24" FORCE MAIN.
- CONTRACTOR TO CONSTRUCT NEW 24" DI WATER MAIN. PRESSURE TEST, DISINFECT AND BACTERIOLOGICAL TEST IN ACCORDANCE WITH SPECIFICATION 02660 - "POTABLE WATER SYSTEM".
- CONTRACTOR TO REMOVE TEMPORARY LINE STOPS AND PLACE NEW 24" WM IN SERVICE.
- CONTRACTOR TO REMOVE TEMPORARY 16-INCH BY-PASS PIPING AND RESTORE CONSTRUCTION AREA.

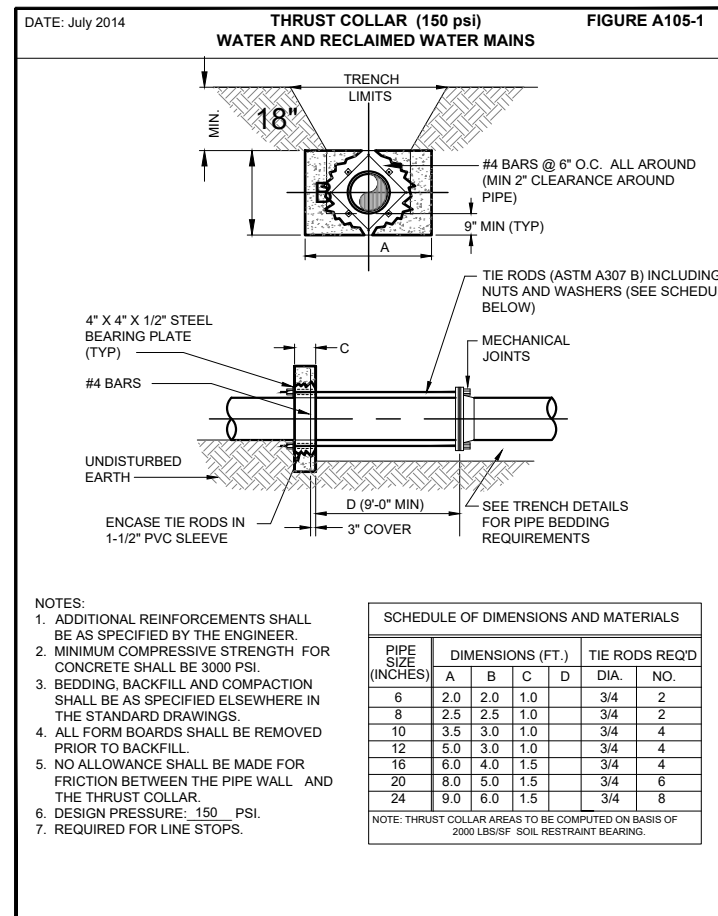


NOTES:

- FORM AND POUR CONCRETE SUPPORT BLOCK ON UNDISTURBED OR COMPACTED EARTH AFTER LINE STOP FITTING IS INSTALLED AND BEFORE LINE STOP MACHINE IS MOUNTED ON FITTING. A = LENGTH OF FITTING PLUS 6 INCHES.
- MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3,000 PSI.
- TEMPORARY BLEEDER TAP IS COMPRISED OF 2 INCH SERVICE SADDLE, 2 INCH CORP STOP, 2 INCH GALV STEEL PIPE, AND 2 INCH BALL VALVE.
- DETAIL IS TYPICAL OF LINE STOP AT SOUTH END. REVERSE FOR LINE STOP AT NORTH END.

LINE STOP SUPPORT

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DETAIL
N.T.S.



NOTES:

- ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
- MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 PSI.
- BEDDING, BACKFILL AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
- ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
- NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
- DESIGN PRESSURE: 150 PSI.
- REQUIRED FOR LINE STOPS.

SCHEDULE OF DIMENSIONS AND MATERIALS

PIPE SIZE (INCHES)	DIMENSIONS (FT.)				TIE RODS REQ'D	
	A	B	C	D	DIA.	NO.
6	2.0	2.0	1.0		3/4	2
8	2.5	2.5	1.0		3/4	2
10	3.5	3.0	1.0		3/4	4
12	5.0	3.0	1.0		3/4	4
16	6.0	4.0	1.5		3/4	4
20	8.0	5.0	1.5		3/4	6
24	9.0	6.0	1.5		3/4	8

NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

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RIO PINAR LAKES FM

WATER MAIN BY-PASS AND REPLACEMENT DETAIL

DESIGN ENGINEER
CYNTHIA K. MALONE, P.E.

PROJECT No.: 2017-29-02
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SHEET
27 OF 29

