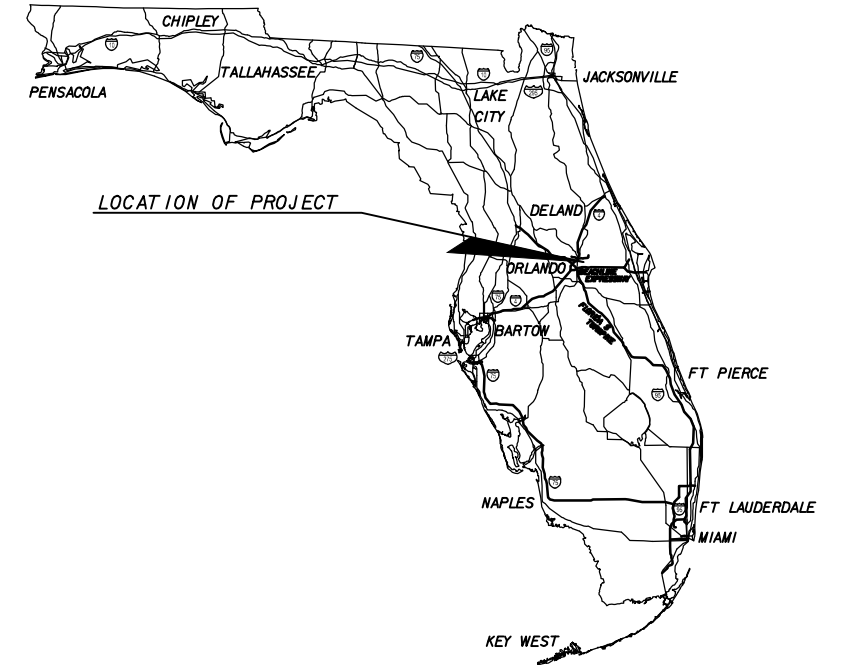


ORANGE COUNTY UTILITIES CONSTRUCTION PLANS FOR PRESIDENTS DRIVE (PS 3177 TO SAND LAKE ROAD) WASTEWATER SYSTEM IMPROVEMENTS ORANGE COUNTY, FLORIDA



INDEX OF UTILITY PLANS

| SHEET NO. | SHEET DESCRIPTION |
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BOARD OF COUNTY COMMISSIONERS

TERESA JACOBS
ORANGE COUNTY MAYOR

BETSY VANDERLEY
DISTRICT 1

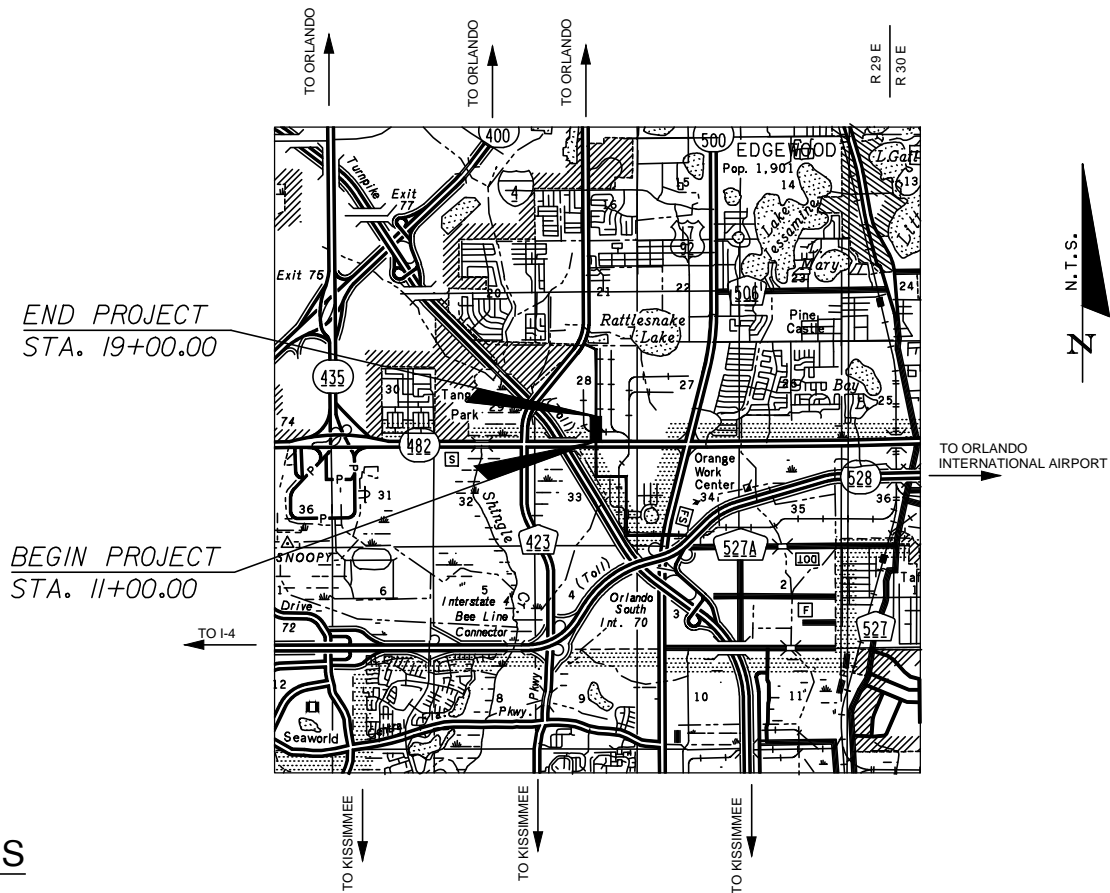
JENNIFER THOMPSON
DISTRICT 4

BRYAN NELSON
DISTRICT 2

EMILY BONILLA
DISTRICT 5

PETE CLARKE
DISTRICT 3

VICTORIA SIPLIN
DISTRICT 6



VICINITY MAP

GOVERNING STANDARDS AND SPECIFICATIONS:

FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS LATEST EDITION, AND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION LATEST EDITION, AS AMENDED BY CONTRACT DOCUMENTS.

ORANGE COUNTY UTILITIES STANDARDS AND CONSTRUCTION SPECIFICATION MANUAL.

ORANGE COUNTY PUBLIC WORKS.

PLANS PREPARED BY:

| | | |
|---|---|-----------|
| cph | A Full Service A & E Firm | |
| | Architects | M/E/P |
| | Engineers | Planners |
| | Environmental | Surveyors |
| www.cphcorp.com | Landscape Architects Traffic/Transportation | |
| 1117 E. Robinson, St. Orlando, FL 32801 | | |
| Ph: 407.425.0452 | | |
| Licenses: | | |
| Eng. C.O.A. No. 3215 | Arch. Lic. No. AA2600926 | |
| Survey L.B. No. 7143 | Landscp. Lic. No. LC0000298 | |

NOTE: THE SCALE OF THESE PLANS MAY HAVE CHANGED DUE TO REPRODUCTION.

BID SET

OCU FILE No. 65786
CIP FUNDING CODE 1500-08

| KEY SHEET REVISIONS | | |
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| DATE | BY | DESCRIPTION |
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UTILITY PLANS
ENGINEER OF RECORD: DAVID E. MAHLER, P.E.

P.E. NO. 50041

SHEET
NO.

1

GENERAL NOTES

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.

- ALL COORDINATION AND COMMUNICATIONS WITH ORANGE COUNTY STAFF SHALL BE MADE THROUGH THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION INSPECTOR. CONTACT THE OCU DISPATCH DURING EMERGENCIES.
- THE ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY, OR PRIOR TO ANY ACTIVITY REQUIRING THE PRESENCE OF OR AN ACTION BY UTILITIES STAFF SUCH AS SCHEDULING VALVE OPERATION, PRESSURE TESTING, PIPE CONNECTION, PUMP STATION OPERATIONS OR SHUTDOWNS, ETC.
- ORANGE COUNTY UTILITIES DEPARTMENT TELEPHONE NUMBERS:

ORANGE COUNTY UTILITIES DISPATCH 407-836-2777
ORANGE COUNTY UTILITIES CONSTRUCTION DIVISION 407-254-9798
ORANGE COUNTY UTILITIES WATER RECLAMATION DIVISION 407-254-9680
ORANGE COUNTY UTILITIES WATER DIVISION 407-254-9850
ORANGE COUNTY UTILITIES ENGINEERING DIVISION 407-254-9900
- THE CONTRACTOR SHALL PROVIDE FOR ALL BY-PASSING AND/OR HAULING OF WASTEWATER DURING ALL INTERRUPTIONS OF FLOWS AND/OR CONNECTIONS TO THE EXISTING WASTEWATER SYSTEM.
- WATER, WASTEWATER AND RECLAIMED WATER VALVES, PUMP STATIONS OR OTHER UTILITY INFRASTRUCTURE ARE TO OPERATED ONLY BY ORANGE COUNTY UTILITIES PERSONNEL. ALL VALVES BEING INSTALLED ARE TO REMAIN CLOSED DURING CONSTRUCTION
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, AND GRAVITY MAINS AND RECLAIMED WATER MAINS. WATER MAINS, FORCE MAINS, GRAVITY MAINS AND RECLAIMED WATER MAIN LOCATIONS SHOWN ON THE PLANS ARE NOT EXACT OR GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
- LOCATIONS OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTENCE AND LOCATION OF ALL ABOVEGROUND AND UNDERGROUND UTILITIES AND DETERMINE THE STATUS OF SAID UTILITY, PRIOR TO ANY DEMOLITION OR CONNECTION OF PROPOSED UTILITIES. CONTRACTOR SHALL CONTACT UTILITY OWNERS, INCLUDING FIBER OPTICS COMPANIES, AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION AND A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION. EXTREME CAUTION SHALL BE EXERCISED IN AREAS OF FIBER OPTICS.
- 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 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.
- 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.
- USE EXTREME CAUTION WHEN EXCAVATING OR CONNECTING TO ASBESTOS CEMENT PIPE. THE CONTRACTOR MAY BE REQUIRED TO SUPPLY TRUCKS CAPABLE OF PUMPING OUT THE PUMP STATION UPSTREAM FROM BREAKS OR CONNECTING 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.
- ALL ASBESTOS CEMENT PIPE TO BE TAKEN OUT OF SERVICE WILL BE REMOVED UNLESS OTHER WISE NOTED ON PLANS. ASBESTOS CEMENT PIPE WILL BE REMOVED AND DISPOSED OF ACCORDING TO STATE AND FEDERAL ORDINANCES AND REGULATIONS.
- ALL UTILITIES CONSTRUCTION CONNECTING TO THE ORANGE COUNTY UTILITIES SYSTEM SHALL CONFORM TO THE CURRENT ORANGE COUNTY MANUAL OF STANDARDS AND SPECIFICATIONS FOR WASTEWATER AND WATER MAIN CONSTRUCTION UNLESS OTHERWISE NOTED. ALL MATERIALS USED IN CONSTRUCTION SHALL BE ON THE APPROVED "APPENDIX D" LIST FROM THE CURRENT STANDARDS MANUAL MENTIONED PREVIOUSLY.
- 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 BE RESPONSIBLE FOR PROVIDING TEMPORARY SUPPORT FOR UTILITY POLES AND ALL OTHER UTILITIES DURING CONSTRUCTION.
- THE UTILITY IMPROVEMENTS AND ADJUSTMENTS SHOWN ON THESE DRAWINGS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE ORANGE COUNTY WATER, WASTEWATER AND RECLAIM WATER SYSTEMS. THE DRAWINGS DO NOT INCLUDE WORK PERFORMED ON OR FOR UTILITY SYSTEMS OWNED BY OTHERS, UNLESS STATED OTHERWISE ON THE DRAWINGS.
- FLUSHING, HYDROSTATIC TESTING MAINS SHALL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE CURRENT ORANGE COUNTY STANDARDS AND SPECIFICATIONS MANUAL. CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT, MATERIALS AND MANPOWER TO ACCOMPLISH THESE OPERATIONS. AUTHORIZED ORANGE COUNTY UTILITIES. DIVISION PERSONNEL SHALL BE PRESENT DURING THE TEST. COORDINATE WITH THE ORANGE COUNTY INSPECTOR AT LEAST SEVEN (7) DAYS PRIOR TO START OF THIS WORK.
- ALL EXISTING OCU VALVE BOXES, LOCATED ON EXISTING MAINS TO REMAIN, SHALL BE REPLACED WITH ADJUSTABLE SEALED VALVE BOX AS SHOWN N THE STANDARD DETAILS. ALL NEW AND EXISTING VALVES AND VALVE BOXES SHALL BE PROTECTED AND ADJUSTED TO FINISH GRADE AS SHOWN ON THE DRAWINGS. VALVE AND VALVE BOXES SHALL REMAIN ACCESSIBLE AT ALL TIMES.

- ALL PVC WATER MAIN, SEWER AND RECLAIMED WATER MAIN PIPE SHALL CONFORM TO AWWA C900, DR 21 OR C905. ALL DUCTILE IRON WATER MAIN AND RECLAIM WATER MAIN SHALL CONFORM TO ANSI/AWWA A21.51/C151. ALL PVC PRESSURE PIPES SHALL USE DUCTILE IRON FITTINGS. FITTINGS FOR ALL SERVICES SHALL BE BRASS.
- ALL PIPE, PIPE FITTINGS AND APPURTENANCES INSTALLED UNDER THIS PROJECT WILL BE COLOR CODED OR MARKED IN ACCORDANCE WITH SUBPARAGRAPH 62-555.320 (21) (b) 3, FAS, USING BLUE AS PREDOMINANT COLOR WATER; GREEN FOR WASTEWATER; AND PURPLE FOR RECLAIMED WATER.
- ALL BACKFILL SHOWN ON PLANS TO BE COMPACTED TO NOT LESS THAN 95% OF 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 THE SOIL TESTING.
- PIPE LENGTHS SHOWN ON PLANS ARE APPROXIMATE. ACTUAL LENGTHS ARE TO BE DETERMINED DURING CONSTRUCTION.
- ALL STATIONS AND OFFSETS REFER TO BASELINE OF STATIONING.
- MAINTAIN EMERGENCY VEHICLE ACCESS TO ALL BUSINESSES AND RESIDENCES AT ALL TIMES.
- ALL MAINS SHALL BE CONSTRUCTED AS SHOWN ON PLANS. A MINIMUM COVER OF 48 INCHES SHALL BE MAINTAINED ON ALL MAINS, WHERE IT IS NOT OTHERWISE SPECIFIED ON PLANS OR DIRECTED BY ENGINEER. FOR DUCTILE IRON PIPE, ALL DIRECTION CHANGES IN THE PIPE BOTH HORIZONTAL AND VERTICAL SHALL BE BY JOINT DEFLECTION UNLESS OTHERWISE NOTED OR DIRECTED BY ENGINEER. JOINT DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURER'S RECOMMENDED DEFLECTION. NO DEFLECTION OR BENDING OF ANY KIND SHALL BE PERMITTED FOR PVC PIPE.
- ALL PIPES SHALL BE RESTRAINED IN ACCORDANCE WITH THE RESTRAINT TABLES SHOWN ON DETAIL SHEETS. IN ADDITION, ALL FITTINGS SHALL BE MECHANICAL JOINT RESTRAINED. NO THRUST BLOCKS SHALL BE PERMITTED. RESTRAIN EXISTING PIPE WHERE NEW CONNECTIONS ARE MADE IN ACCORDANCE WITH THE RESTRAINT TABLE.
- PIPE SIZES SHOWN ON PLANS ARE MINIMUM INSIDE DIAMETER.
- KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP.
- 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 FIVE (5) 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:
 - POINTS OF CONNECTION, FITTINGS TO BE USED, METHODS OF FLUSHING AND TESTING AND VERIFICATION OF RESTRAINT ON EXISTING PIPE.
 - 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 PLACING MAIN INTO SERVICE.
- NO VALVE BOXES, METERS, PORTIONS OF MANHOLES OR OTHER APPURTENCES OF ANY KIND SHALL BE LOCATED IN ANY PORTION OF A CURB-AND-GUTTER SECTION. CONTRACTOR SHALL ADVISE ENGINEER IMMEDIATELY UPON DISCOVERY OF A POTENTIAL CONFLICT.
- CONTRACTOR SHALL PROVIDE DETAILED AS-BUILT DRAWINGS OF ALL UTILITIES UNCOVERED IN TRENCHES. THE AS-BUILT SHALL RECORD LOCATION, SIZE, TYPE, ELEVATION AND OWNER OF ALL UTILITY FACILITIES UNCOVERED.
- ALL EXISTING MAINS SHALL REMAIN IN SERVICE UNTIL THE PROPOSED MAINS ARE ACCEPTED FOR SERVICE AND ALL SERVICES ARE TRANSFERRED TO THE NEW MAIN.
- WORK ON THE UTILITIES OCCURS IN AND AROUND LANDSCAPED AREAS. CONTRACTOR SHALL REMOVE AND REPLACE ALL LANDSCAPING AS NEEDED FOR UTILITY WORK.
- FOR SUGGESTED CONSTRUCTION SEQUENCE, SEE SPECIFICATIONS SECTION 01010-1.17A.

CSX GENERAL NOTES

NO CONSTRUCTION OR ENTRY UPON CSXT'S CORRIDOR IS PERMITTED UNTIL,

- THE DOCUMENTS TRANSACTION IS COMPLETED.
- YOU ARE IN RECEIPT OF A FULL EXECUTED DOCUMENT.
- YOU HAVE OBTAINED AUTHORITY FROM CSXT'S LOCAL ROADMASTER AND / OR DESIGNATED FIELD REPRESENTATIVE.

ORANGE COUNTY UTILITIES
STANDARDS AND CONSTRUCTION SPECIFICATIONS MANUAL


APPENDIX A

DATE: February 11, 2011

OCU GENERAL NOTES:

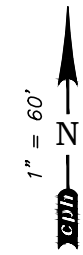
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING IN PROXIMITY OF WATER MAINS, WASTEWATER FORCE MAINS, GRAVITY MAINS AND RECLAIMED WATER MAINS. MAIN LOCATIONS SHOWN ON PLANS MAY NOT BE EXACT. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
- SHOULD A PIPE EMERGENCY OCCUR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OCU DISPATCH OPERATOR (407-836-2777) AND THE OCU INSPECTOR.
- THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST SEVEN DAYS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION PROJECT BY CALLING (407) 254-9798.
- THE CONTRACTOR SHALL NOTIFY THE OCU CONSTRUCTION DIVISION AT LEAST 48 HOURS PRIOR TO ANY UTILITIES CONSTRUCTION BY CALLING (407) 254-9798.
- 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.
- ALL OCU MAINS AND FACILITIES WITHIN THE LIMITS OF THE PROJECT SHALL BE SUPPORTED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

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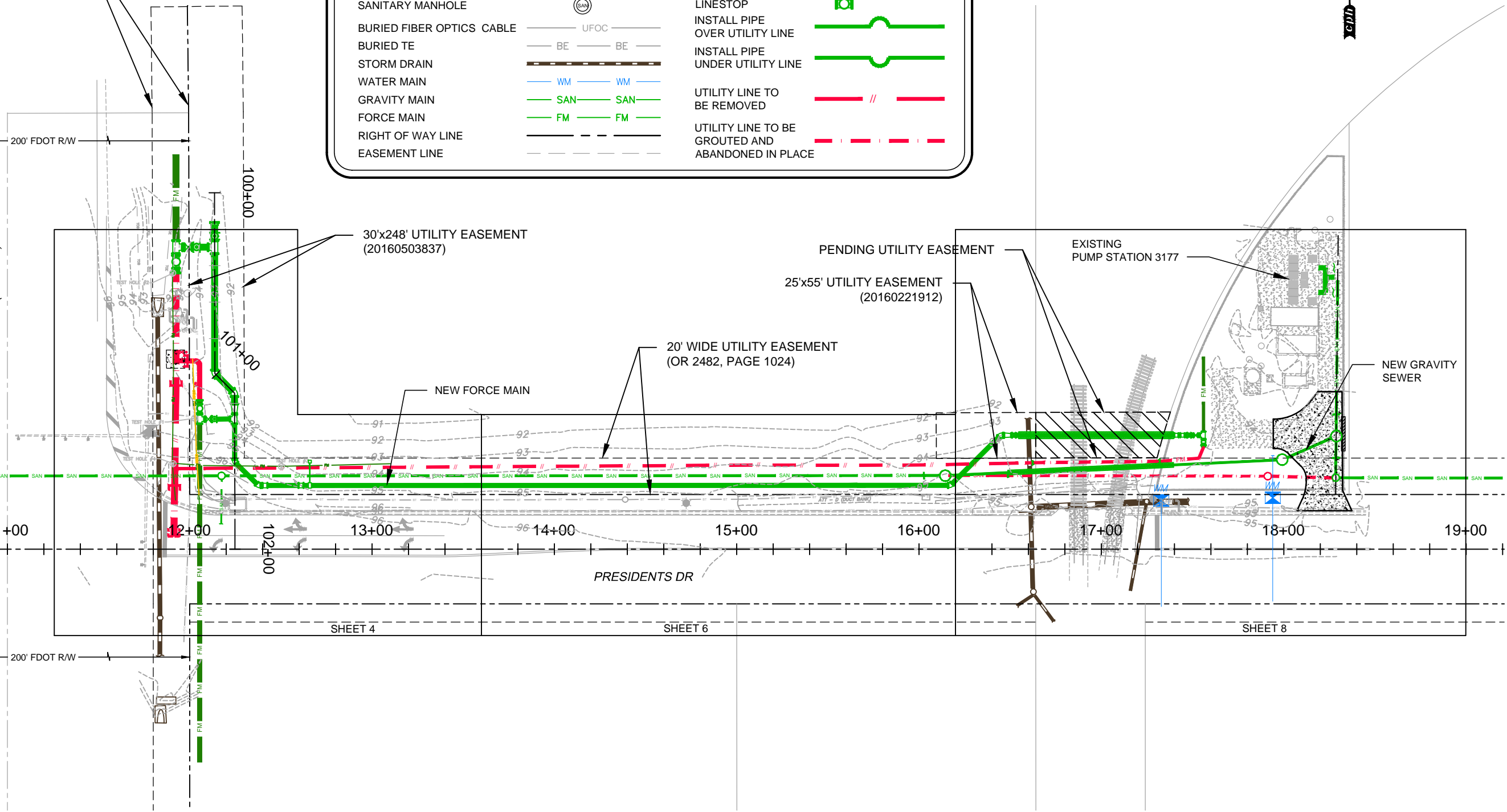
| <table border="1"> <thead> <tr> <th colspan="2">REVISIONS</th> <th>NAMES</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>DATE</td> <td>BY</td> <td>DESCRIPTION</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | REVISIONS | | NAMES | DATE | DATE | BY | DESCRIPTION | | | | | | <table border="1"> <tr> <td>DRAWN BY:</td> <td>GNP</td> <td>9/2016</td> </tr> <tr> <td>CHECKED BY:</td> <td>MG</td> <td>9/2016</td> </tr> <tr> <td>DESIGNED BY:</td> <td>MG</td> <td>9/2016</td> </tr> <tr> <td>CHECKED BY:</td> <td>DEM</td> <td>9/2016</td> </tr> <tr> <td>APPROVED BY:</td> <td colspan="2">DAVID E. MAHLER, P.E.</td> </tr> </table> | DRAWN BY: | GNP | 9/2016 | CHECKED BY: | MG | 9/2016 | DESIGNED BY: | MG | 9/2016 | CHECKED BY: | DEM | 9/2016 | APPROVED BY: | DAVID E. MAHLER, P.E. | |  <p>A Full Service A & E Firm</p> <p>Architects M / E / P Engineers Planners Environmental Surveyors Landscape Architects Traffic/Transportation</p> <p>www.cphcorp.com</p> | <p>Offices In:</p> <ul style="list-style-type: none"> Florida Puerto Rico Connecticut Maryland Texas | <p>ORANGE COUNTY</p> <table border="1"> <tr> <th>ROAD NO.</th> <th>COUNTY</th> <th>FINANCIAL PROJECT ID</th> </tr> <tr> <td></td> <td>ORANGE</td> <td></td> </tr> </table> | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | ORANGE | | <p>Plan Prepared By:</p> <p>CPH, Inc.</p> <p>1117 E. Robinson St. - Orlando, FL 32801 Ph: 407.425.0452</p> <p>Licenses:</p> <p>Eng. C.O.A. No. 3215 Survey L.B. No. 7143 Arch. Lic. No. AA2600926 Landscape Lic. No. LC0000298</p> | <p>SHEET TITLE:</p> <p>GENERAL NOTES</p> | <p>PROJECT TITLE:</p> <p>PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS</p> | <p>SHEET NO.</p> <p>2</p> |
|---|-----------------------|----------------------|------|-------|------|------|----|-------------|--|--|--|--|--|--|-----------|-----|--------|-------------|----|--------|--------------|----|--------|-------------|-----|--------|--------------|-----------------------|--|--|---|---|----------|--------|----------------------|--|--------|--|---|---|---|----------------------------------|
| REVISIONS | | NAMES | DATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DATE | BY | DESCRIPTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| DRAWN BY: | GNP | 9/2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CHECKED BY: | MG | 9/2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGNED BY: | MG | 9/2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CHECKED BY: | DEM | 9/2016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| APPROVED BY: | DAVID E. MAHLER, P.E. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ORANGE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

LEGEND

| EXISTING | | PROPOSED | |
|---------------------------|---------------|---|--|
| TREES | | FORCE MAIN OR GRAVITY SEWER | |
| POWER POLE | | FITTINGS | |
| HYDRANT | | PLUG VALVE | |
| WATER VALVE | | GATE VALVE | |
| STORM INLET | | CAP / PLUG | |
| SANITARY MANHOLE | | LINESTOP | |
| BURIED FIBER OPTICS CABLE | — UFOC — | INSTALL PIPE OVER UTILITY LINE | |
| BURIED TE | — BE — BE — | INSTALL PIPE UNDER UTILITY LINE | |
| STORM DRAIN | | UTILITY LINE TO BE REMOVED | |
| WATER MAIN | — WM — WM — | UTILITY LINE TO BE GROUDED AND ABANDONED IN PLACE | |
| GRAVITY MAIN | — SAN — SAN — | | |
| FORCE MAIN | — FM — FM — | | |
| RIGHT OF WAY LINE | — — — — | | |
| EASEMENT LINE | — — — — | | |

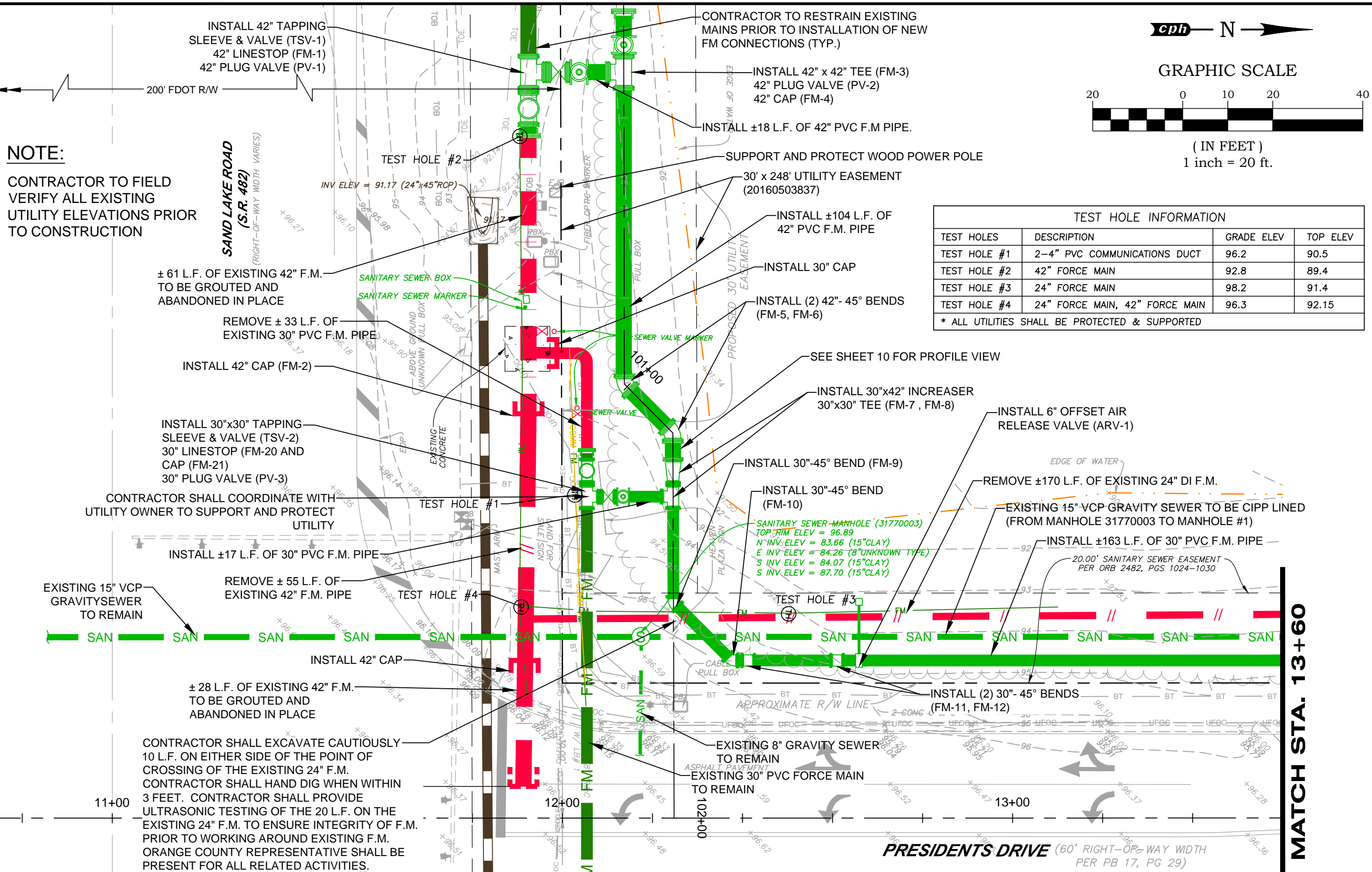


20' WIDE UTILITY EASEMENT
(OR 2482, PAGE 1024)

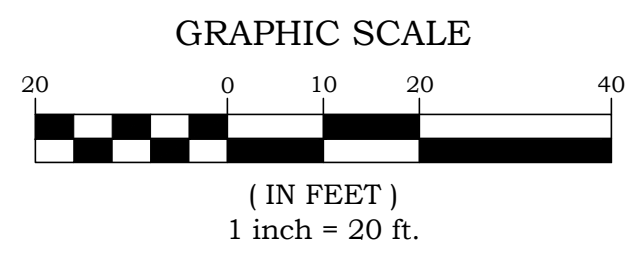
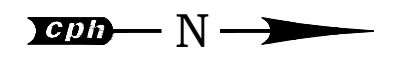


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| | | | | | | | | | | | | |
|------------------|----|--------------|--|--------------|-----------------------|---|----------------------|----------|---|----------------------|--|--|
| REVISIONS | | NAMES | | DATE | | A Full Service A & E Firm Offices In: • Florida • Puerto Rico • Connecticut • Maryland • Texas | ORANGE COUNTY | | Plan Prepared By: CPH, Inc. 1117 E. Robinson St. - Orlando, Fl. 32801 Ph: 407.425.0452 Licenses: Eng. C.O.A. No. 3215 Survey L.B. No. 7143 Arch. Lic. No. AA2600926 Lndscp. Lic. No. LC0000298 | | SHEET TITLE: PROJECT LAYOUT AND LEGEND | |
| DATE | BY | DESCRIPTION | | DRAWN BY: | GMP | | 9/2016 | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | |
| | | | | CHECKED BY: | MG | | 9/2016 | ORANGE | | | SHEET NO. 3 | |
| | | | | DESIGNED BY: | MG | | 9/2016 | | | | | |
| | | | | CHECKED BY: | DEM | | 9/2016 | | | | | |
| | | | | APPROVED BY: | DAVID E. MAHLER, P.E. | | www.cphcorp.com | | Landscape Architects Traffic/Transportation | | | |



NOTE:
 CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITY ELEVATIONS PRIOR TO CONSTRUCTION



| TEST HOLE INFORMATION | | | |
|-----------------------|--------------------------------|------------|----------|
| TEST HOLES | DESCRIPTION | GRADE ELEV | TOP ELEV |
| TEST HOLE #1 | 2-4" PVC COMMUNICATIONS DUCT | 96.2 | 90.5 |
| TEST HOLE #2 | 42" FORCE MAIN | 92.8 | 89.4 |
| TEST HOLE #3 | 24" FORCE MAIN | 98.2 | 91.4 |
| TEST HOLE #4 | 24" FORCE MAIN, 42" FORCE MAIN | 96.3 | 92.15 |

* ALL UTILITIES SHALL BE PROTECTED & SUPPORTED

CONTRACTOR SHALL COORDINATE WITH UTILITY OWNER TO SUPPORT AND PROTECT UTILITY

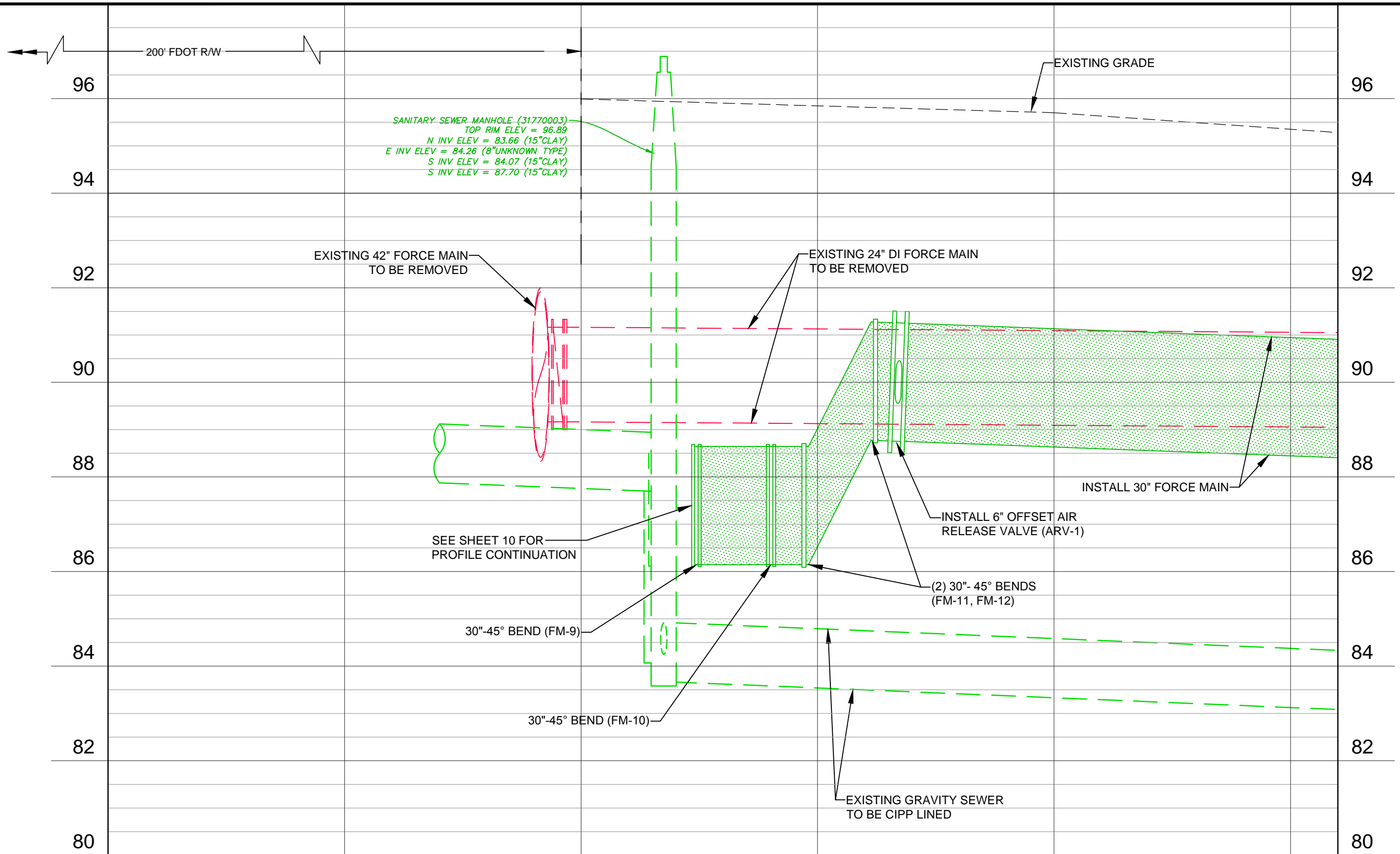
CONTRACTOR SHALL EXCAVATE CAUTIOUSLY 10 L.F. ON EITHER SIDE OF THE POINT OF CROSSING OF THE EXISTING 24" F.M. CONTRACTOR SHALL HAND DIG WHEN WITHIN 3 FEET. CONTRACTOR SHALL PROVIDE ULTRASONIC TESTING OF THE 20 L.F. ON THE EXISTING 24" F.M. TO ENSURE INTEGRITY OF F.M. PRIOR TO WORKING AROUND EXISTING F.M. ORANGE COUNTY REPRESENTATIVE SHALL BE PRESENT FOR ALL RELATED ACTIVITIES.

MATCH STA. 13+60

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| REVISIONS <table border="1"> <thead> <tr> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | | DATE | BY | DESCRIPTION | | | | <table border="1"> <thead> <tr> <th>NAMES</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>DRAWN BY: GNP</td> <td>9/2016</td> </tr> <tr> <td>CHECKED BY: MG</td> <td>9/2016</td> </tr> <tr> <td>DESIGNED BY: MG</td> <td>9/2016</td> </tr> <tr> <td>CHECKED BY: DEM</td> <td>9/2016</td> </tr> <tr> <td>APPROVED BY: DAVID E. MAHLER, P.E.</td> <td> </td> </tr> </tbody> </table> | | NAMES | DATE | DRAWN BY: GNP | 9/2016 | CHECKED BY: MG | 9/2016 | DESIGNED BY: MG | 9/2016 | CHECKED BY: DEM | 9/2016 | APPROVED BY: DAVID E. MAHLER, P.E. | | <p>A Full Service A & E Firm</p> <p>Architects M / E / P Engineers Planners Environmental Surveyors Landscape Architects Traffic/Transportation</p> <p>Offices In: • Florida • Puerto Rico • Connecticut • Maryland • Texas</p> | | <p>ORANGE COUNTY</p> <table border="1"> <thead> <tr> <th>ROAD NO.</th> <th>COUNTY</th> <th>FINANCIAL PROJECT ID</th> </tr> </thead> <tbody> <tr> <td> </td> <td>ORANGE</td> <td> </td> </tr> </tbody> </table> | | ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | ORANGE | | <p>Plan Prepared By: CPH, Inc. 1117 E. Robinson St. - Orlando, FL 32801 Ph: 407.425.0452 Licenses: Eng. C.O.A. No. 3215 Survey L.B. No. 7143 Arch. Lic. No. AA2600926 Landscp. Lic. No. LC0000298</p> | | <p>PLAN STA.11+00 TO STA. 13+60</p> <p>PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS</p> | | <p>SHEET NO. 4</p> |
|---|--------|----------------------|----|-------------|--|--|--|--|--|-------|------|---------------|--------|----------------|--------|-----------------|--------|-----------------|--------|------------------------------------|--|---|--|---|--|----------|--------|----------------------|--|--------|--|--|--|--|--|-------------------------------|
| DATE | BY | DESCRIPTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| NAMES | DATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ROAD NO. | COUNTY | FINANCIAL PROJECT ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | ORANGE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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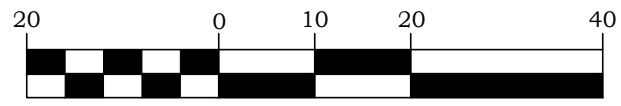
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 Survey L.B. No. 7143
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| | | |
|---|--|-----------------------|
| SHEET TITLE: PROFILE STA.11+0 TO STA. 13+60 | | SHEET NO. 5 |
| PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | | |



GRAPHIC SCALE



(IN FEET)
1 inch = 20 ft.

BLOCK "C"
ORLANDO CENTRAL PARK
NUMBER FIFTY-EIGHT
PB 17, PG 29

REMOVE AND REPLACE EXISTING MANHOLE
INSTALL 6' DIA. HDPE LINED SANITARY
MANHOLE MH # 1 (MH 31770002)
TOP RIM EL. = 95.07
S INVERT - EXISTING EL. = 82.04
N INVERT EL. = 81.94
W INVERT EL. CONTRACTOR TO VERIFY
INVERT PRIOR TO CONSTRUCTION

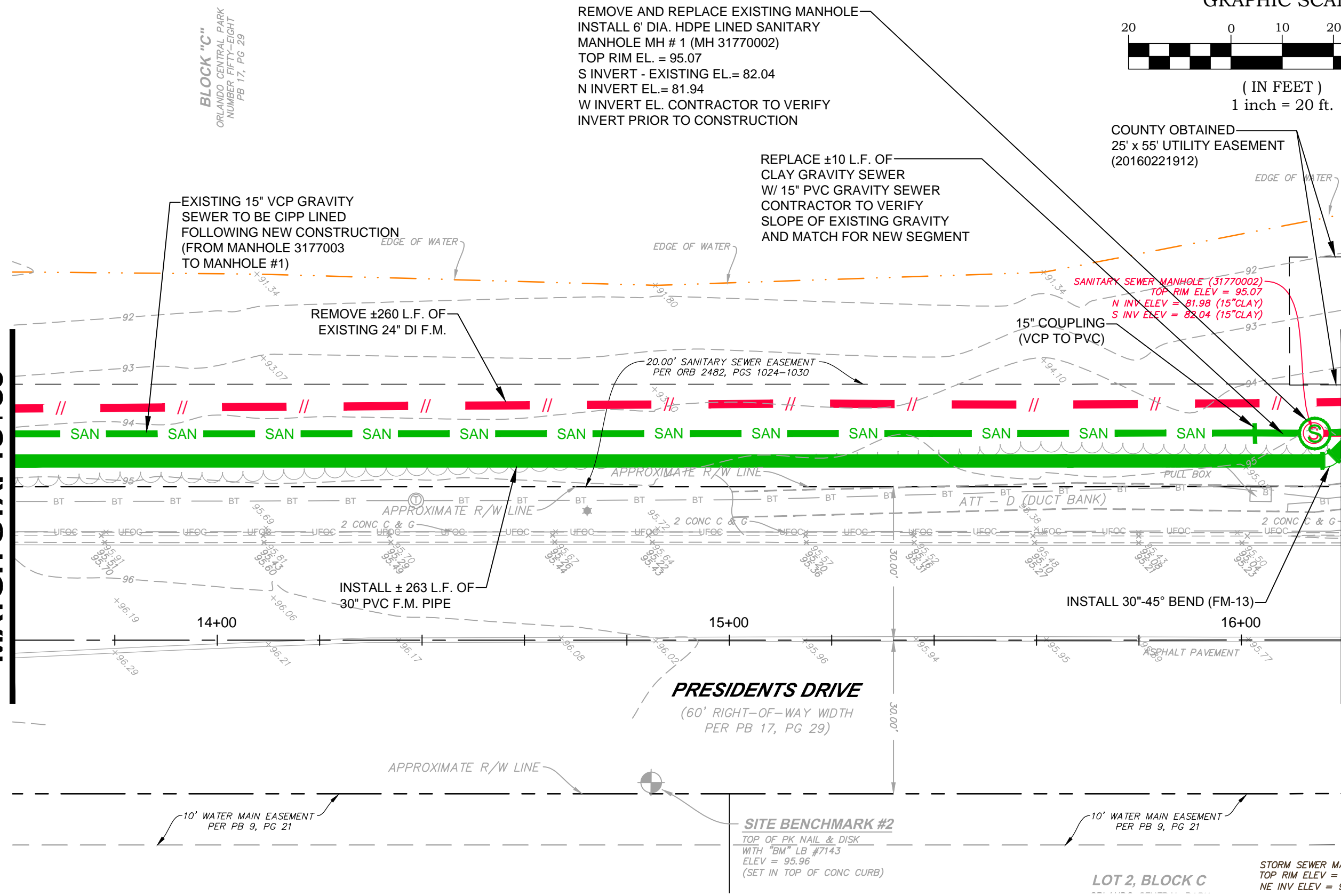
REPLACE ±10 L.F. OF
CLAY GRAVITY SEWER
W/ 15" PVC GRAVITY SEWER
CONTRACTOR TO VERIFY
SLOPE OF EXISTING GRAVITY
AND MATCH FOR NEW SEGMENT

EXISTING 15" VCP GRAVITY
SEWER TO BE CIPP LINED
FOLLOWING NEW CONSTRUCTION
(FROM MANHOLE 3177003
TO MANHOLE #1)

COUNTY OBTAINED
25' x 55' UTILITY EASEMENT
(20160221912)

MATCH STA. 13+60

MATCH STA. 16+20



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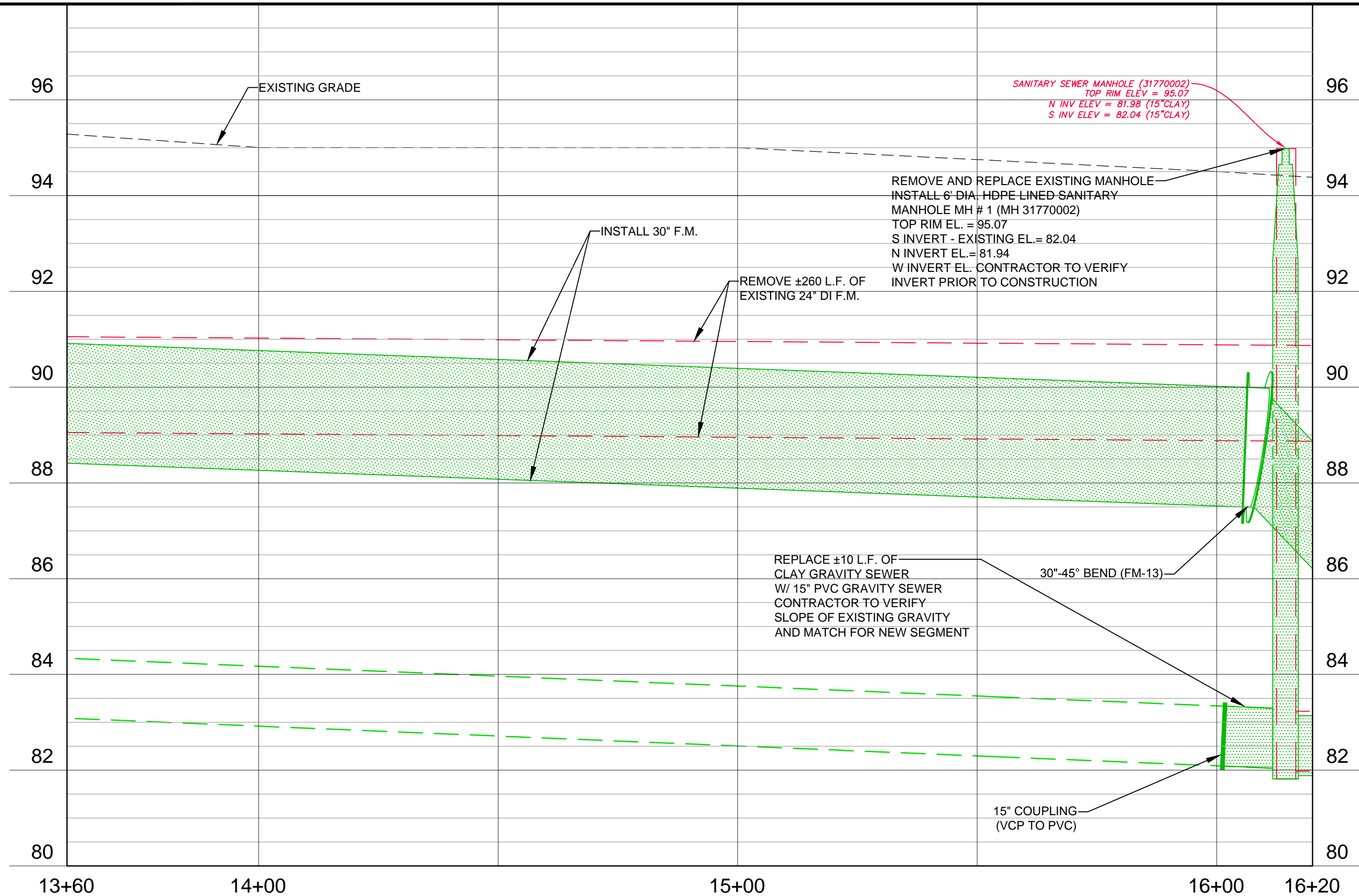
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Landscape Lic. No. LC0000298

SHEET TITLE:
PLAN
STA. 13+60 TO STA. 16+20
PROJECT TITLE:
PRESIDENTS DRIVE
WASTEWATER SYSTEM IMPROVEMENTS

SHEET NO.
6

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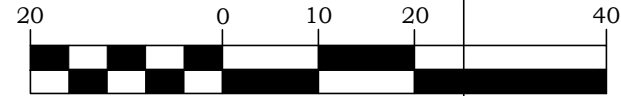
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PROFILE
 STA. 13+60 TO STA. 16+20
PRESIDENTS DRIVE
WASTEWATER SYSTEM IMPROVEMENTS

SHEET NO. 7

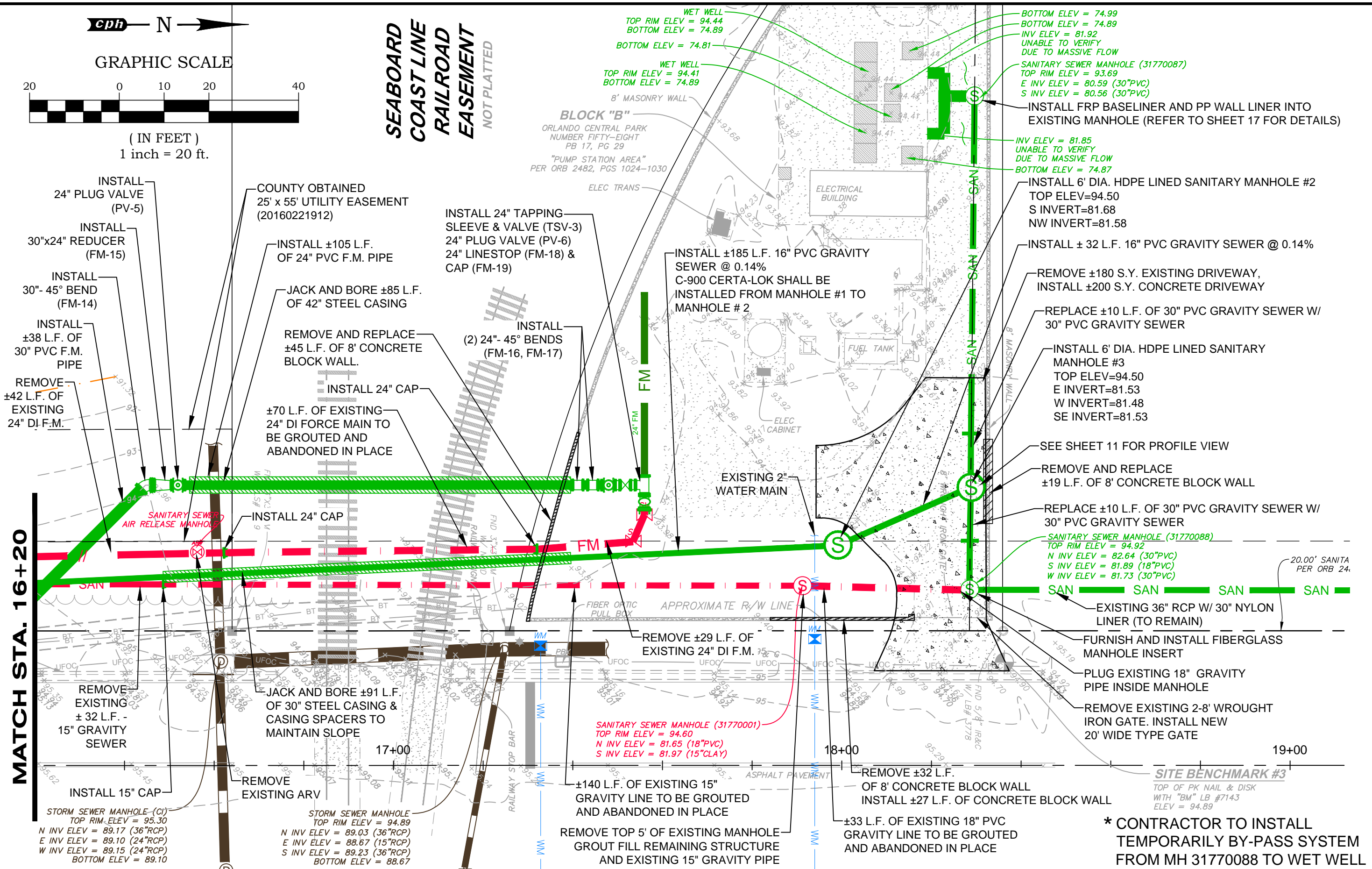


GRAPHIC SCALE



(IN FEET)
1 inch = 20 ft.

**SEABOARD
COAST LINE
RAILROAD
EASEMENT**
NOT PLATTED



MATCH STA. 16+20

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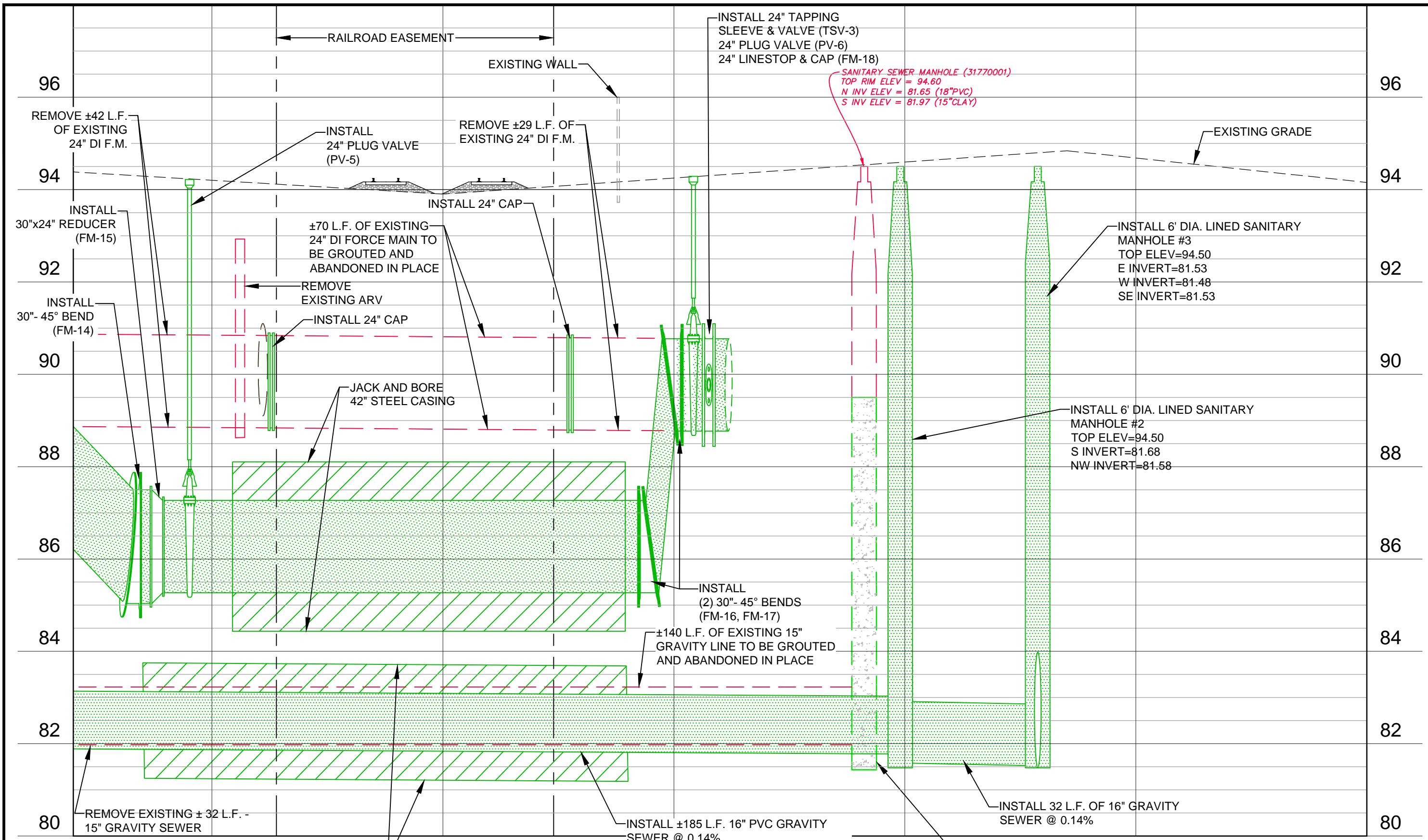
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Landscape Lic. No. LC0000298

| | | | |
|---|--|--|-----------------------|
| SHEET TITLE: PLAN STA. 16+20 TO STA. 19+00 | | PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | SHEET NO. 8 |
| * CONTRACTOR TO INSTALL TEMPORARILY BY-PASS SYSTEM FROM MH 31770088 TO WET WELL | | | |

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16+20 JACK AND BORE 30" STEEL CASING & CASING SPACERS TO MAINTAIN SLOPE

17+00

18+00 REMOVE TOP 5' OF EXISTING MANHOLE GROUT FILL REMAINING STRUCTURE

19+00

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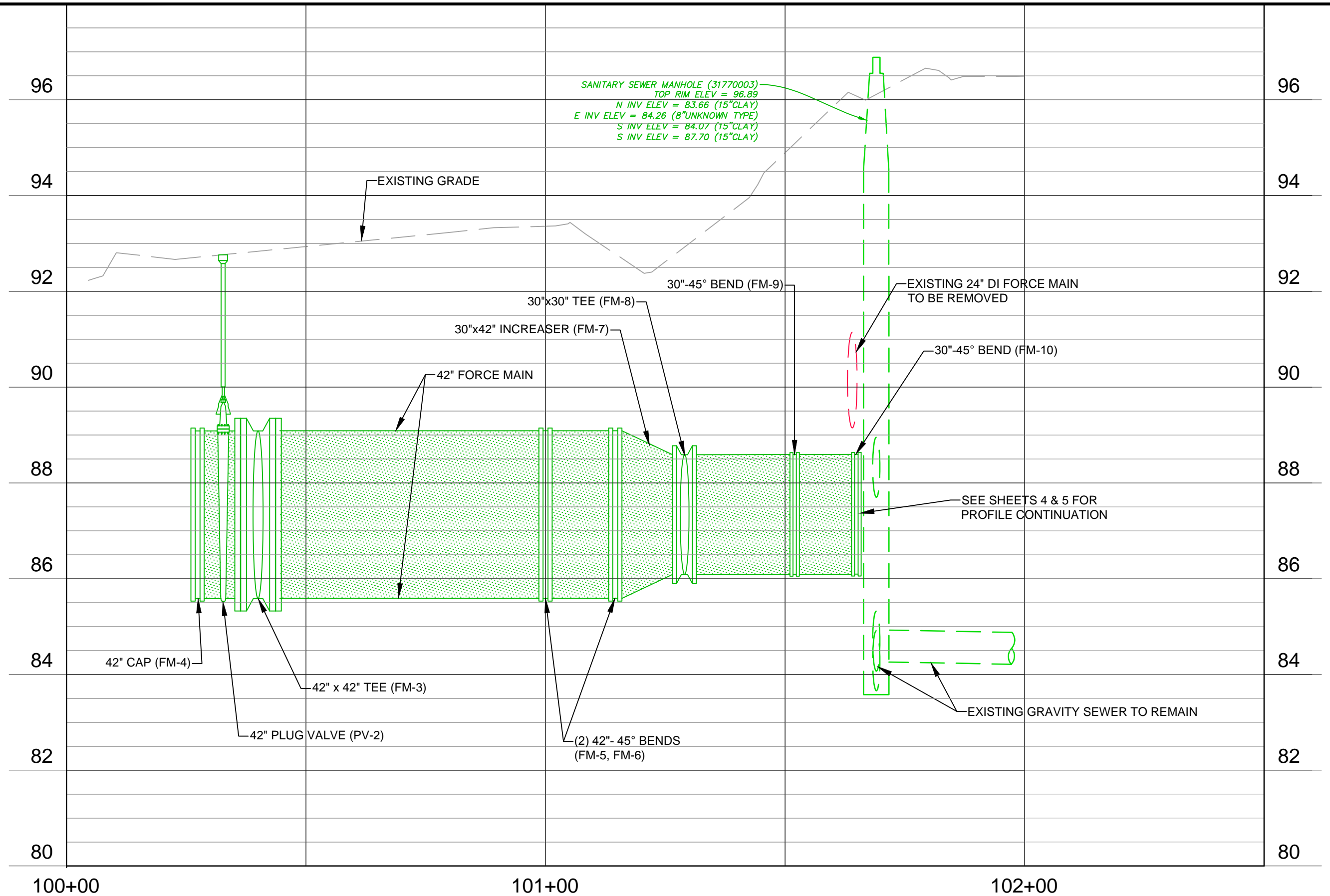
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SHEET TITLE: **PROFILE**
 STA. 16+20 TO STA. 19+00

PROJECT TITLE: **PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS**

SHEET NO. **9**

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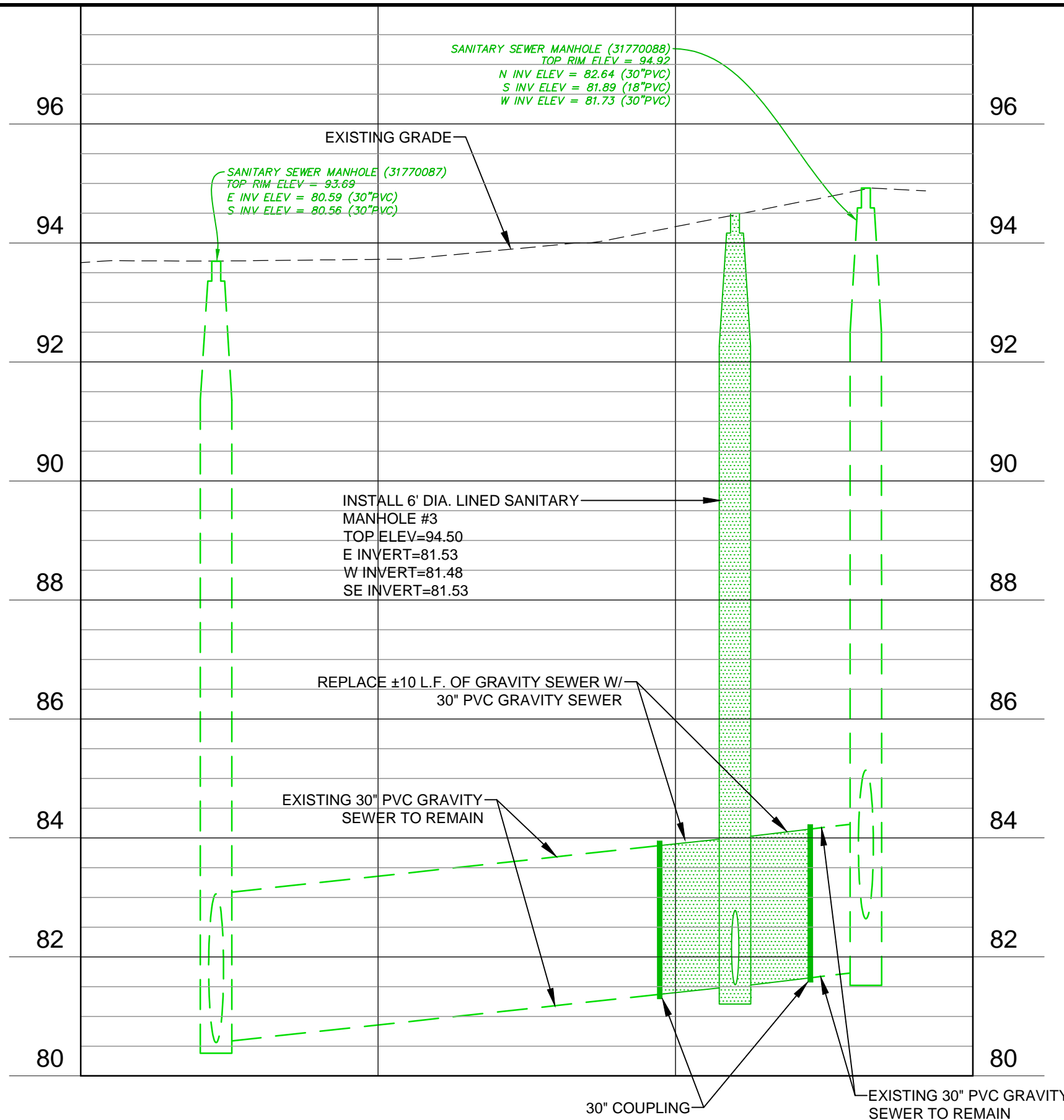
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|--|--|--|------------------------|
| SHEET TITLE: PROFILE STA. 100+0 TO STA. 102+00 | | PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | SHEET NO. 10 |
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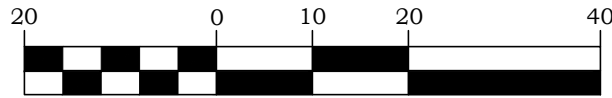
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| | | |
|----------------|---------------------------------------|--------------|
| SHEET TITLE: | GRAVITY SEWER PROFILE | |
| PROJECT TITLE: | PRESIDENTS DRIVE | SHEET NO. 11 |
| | WASTEWATER SYSTEM IMPROVEMENTS | |



GRAPHIC SCALE



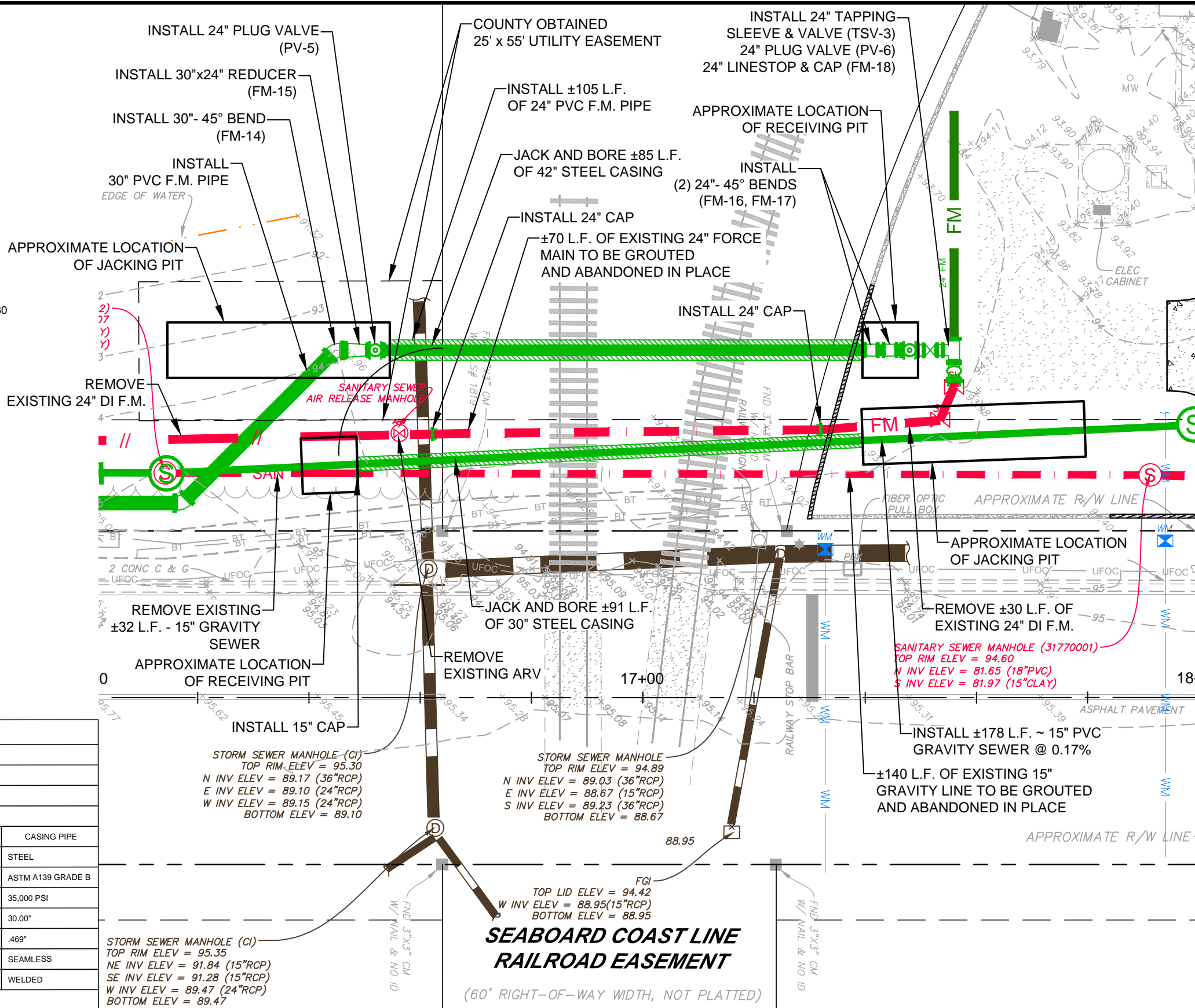
(IN FEET)
1 inch = 20 ft.

NOTES:

1. ALL WORK PERFORMED WITHIN THE FDOT RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF FDOT DESIGN STANDARDS, SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE UTILITY ACCOMMODATION MANUAL.
2. IF THE DEPARTMENT DETERMINES THAT AS-BUILT CONDITIONS VARY SIGNIFICANTLY FROM THE APPROVED PLANS, THE PERMITTEE SHALL PROVIDE AS-BUILT PLANS WITHIN 30 DAYS OF COMPLETING CONSTRUCTION.
3. IT WILL BE THE RESPONSIBILITY OF THE PERMITTEE TO REPAIR ANY DAMAGE TO FDOT FACILITIES BY CONSTRUCTION OF THE PROJECT.
4. CONTRACTOR TO FIELD VERIFY EXISTING UTILITIES PRIOR TO CASING INSTALLATION.

| PLAN LEGEND | | | |
|-------------|--|----------------------|----------------|
| LETTER | DESCRIPTION | FORCE MAIN | GRAVITY SEWER |
| (a) | DISTANCE FROM CROSSING TO NEAREST ACTUAL MILEPOST (MP) | X' | X' |
| (b) | WIDTH OF CSX R/W | 60' | 60' |
| (c) | DISTANCE FROM CENTERLINE OF TRACK TO R/W | 23' S 20' N | 23' S 18' N |
| (d) | TOTAL LENGTH OF PIPE ON CSX R/W | 70' | 65' |
| (e) | DISTANCE FROM CENTERLINE OF NEAREST TRACK TO FACE OF PITS OR POLES AT A 90 DEGREE ANGLE TO THE TRACK | 33' S 25' N | 39' S 28' N |
| (f) | ANGLE OF CROSSING | 90° | 92° 2' 22" |
| (g) | DISTANCE OF SHUT-OFF VALVES FROM CENTERLINE OF NEAREST TRACK | 35.75' S 34.25' N | NA |
| (h) | WIDTH OF LAUNCHING / RECEIVING PIT | 10'/10' | 10'/10' |
| (i) | LENGTH OF LAUNCHING / RECEIVING PIT | 40'/10' | 40'/10' |

| PIPELINE CONTENT DETAILS | | | | |
|---|-----------------------------------|-------------------|------------------------|-------------------|
| COMMODITY DESCRIPTION: | FORCE MAIN | GRAVITY SEWER | | |
| MAXIMUM OPERATING PRESSURE: | 100 PSI | NA | | |
| IS COMMODITY FLAMMABLE: | NO | NO | | |
| CARRIER/CASING PIPE DETAILS | | | | |
| | CARRIER PIPE | CASING PIPE | CARRIER PIPE | CASING PIPE |
| PIPE MATERIAL: | PVC | STEEL | PVC | STEEL |
| MATERIAL SPECIFICATIONS & GRADE: | AWWA C905 | ASTM A139 GRADE B | ASTMD-3034 | ASTM A139 GRADE B |
| SPECIFIED MINIMUM YIELD STRENGTH: | 100 PSI | 35,000 PSI | NA | 35,000 PSI |
| NOMINAL SIZE OUTSIDE DIAMETER (INCHES): | 25.8" | 42.00" | 15.3" | 30.00" |
| WALL THICKNESS (INCHES): | 1.433" | .625" | .437" | .469" |
| TYPE OF SEAM: | N/A | SEAMLESS | N/A | SEAMLESS |
| TYPE OF JOINTS: | INTEGRAL BELL, PUSH-ON RESTRAINED | WELDED | INTEGRAL BELL, PUSH-ON | WELDED |
| TUNNEL LINER PLATES REQUIRED: | N | | N | |
| CATHODIC PROTECTION: | N | | N | |
| PROTECTIVE COATING: | Y | TYPE: BITUMASTIC | N | TYPE: NA |
| TEMP. TRACK SUPPORT OR RIP-RAP REQ: | N | | N | |



*** CONTRACTOR TO INSTALL TEMPORARILY BY-PASS SYSTEM FROM MH 31770088 TO WET WELL**

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| | | CHECKED BY: DEM | 6/2017 |
| | | APPROVED BY: DAVID E. MAHLER, P.E. | |

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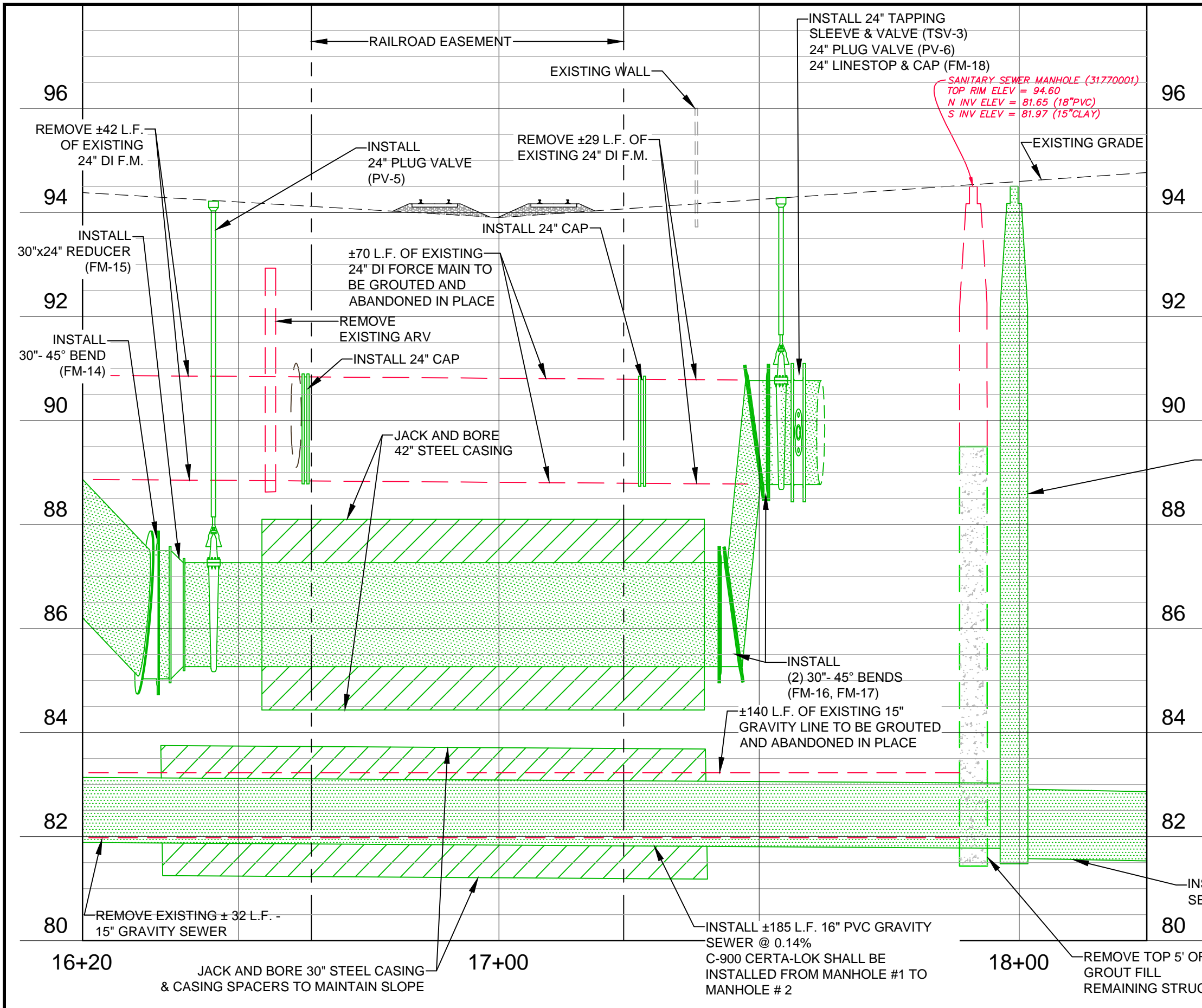
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| | | | |
|--|----|--|------------------------|
| SHEET TITLE: PLAN CSX CROSSING | | PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | SHEET NO. 12 |
| DATE | BY | | |

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| PROFILE LEGEND | | | |
|----------------|--|----------------|----------------|
| LETTER | DESCRIPTION | FORCE MAIN | GRAVITY SEWER |
| (a) | DISTANCE FROM CENTERLINE OF TRACK TO R/W | 23' S 20' N | 23' S 18' N |
| (b) | DISTANCE FROM BASE-OF-RAIL TO TOP-OF-CASING | 6.0' | 10.2' |
| (c) | DISTANCE FROM BASE-OF-DITCH TO TOP-OF-CASING | N/A | N/A |
| (d) | TOTAL LENGTH OF PIPE ON CSX R/W | 70' | 65' |
| (e) | DISTANCE FROM CENTERLINE OF NEAREST TRACK TO FACE OF PITS AT A 90 DEGREE ANGLE TO THE TRACK | 33' S 25' N | 39' S 28' N |
| (f) | DISTANCE FROM TOP-OF-VENT PIPE TO GROUND SURFACE | N/A | N/A |
| (g) | DISTANCE FROM CENTERLINE OF TRACK TO VENT PIPE AT A 90 DEGREE ANGLE TO THE TRACK | N/A | N/A |
| (h) | THEORETICAL EMBANKMENT LINE: STARTS 10' FROM CENTERLINE OF TRACK AND EXTENDS AWAY FROM TRACK AT A SLOPE OF 1.5' OVER AND 1' DOWN | N/A | N/A |
| (i) | CARRIER PIPE DIAMETER | 24" | 15" |
| (j) | CASING PIPE DIAMETER | 42" | 30" |
| (k) | DEPTH OF LAUNCHING / RECEIVING PIT | 10' / 10' | 14' / 14' |

INSTALL 6' DIA. LINED SANITARY MANHOLE #2
 TOP ELEV=94.50
 S INVERT=81.68
 NW INVERT=81.58

INSTALL 32 L.F. OF 16" GRAVITY SEWER @ 0.14%

| REVISIONS | |
|-----------|-------------|
| DATE | DESCRIPTION |
| | |

| NAMES | DATE |
|------------------------------------|--------|
| DRAWN BY: GNP | 6/2017 |
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| ORANGE COUNTY | | |
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| | ORANGE | |

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 Eng. C.O.A. No. 3215
 Survey L.B. No. 7143
 Arch. Lic. No. AA2600926
 Lndscp. Lic. No. LC0000298

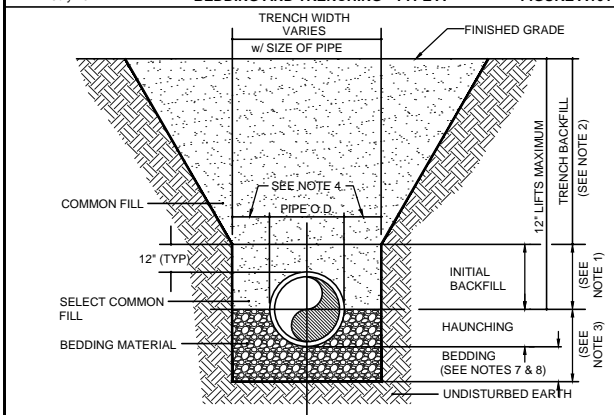
SHEET TITLE: **PROFILE CSX CROSSING**

PROJECT TITLE: **PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS**

SHEET NO. **13**

APPENDIX A STANDARD DRAWINGS GENERAL

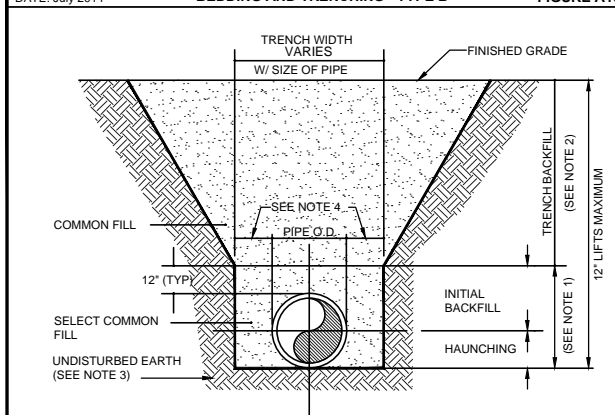
DATE: July 2014 BEDDING AND TRENCHING - TYPE A FIGURE A101



- NOTES:
- INITIAL BACKFILL: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - TYPE A BEDDING MATERIAL SHALL CONFORM TO FDOT NO. 57 AGGREGATE.
 - 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 - BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER UP TO 12" AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
 - DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. UTILITIES SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF R/W UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

APPENDIX A STANDARD DRAWINGS GENERAL

DATE: July 2014 BEDDING AND TRENCHING - TYPE B FIGURE A102



- NOTES:
- INITIAL BACKFILL AND HAUNCHING: SELECT COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (98% UNDER PAVEMENT) OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
 - PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY UTILITIES.
 - 15" MAX. (12" MIN.) FOR PIPE DIAMETER LESS THAN 24" AND 24" MAX (12" MIN) FOR PIPE DIAMETER 24" AND LARGER.
 - WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
 - ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN ORANGE COUNTY RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

APPENDIX A STANDARD DRAWINGS GENERAL

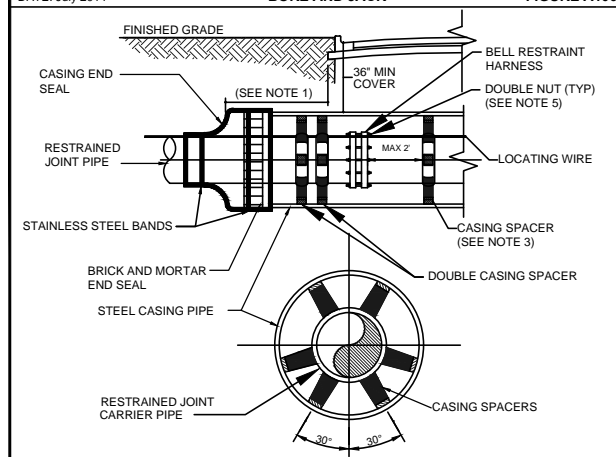
DATE: July 2014 RESTRAINED PIPE TABLE WASTEWATER FORCE MAINS FIGURE A104-2

| TYPE | PVC PIPE SIZE | | | | | | | | | | | |
|-----------------------|--|----|----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | 4" | 6" | 8" | 10" | 12" | 16" | 20" | 24" | 30" | 36" | 42" | |
| 90° BEND | 18 | 24 | 31 | 38 | 43 | 55 | 65 | 75 | 88 | 100 | 118 | |
| 45° BEND | 8 | 10 | 13 | 15 | 18 | 23 | 26 | 31 | 38 | 43 | 49 | |
| 22-1/2° BEND | 4 | 5 | 6 | 8 | 9 | 11 | 13 | 15 | 18 | 20 | 24 | |
| 11-1/4° BEND | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 10 | 11 | 13 | 16 | |
| PLUG OR BRANCH OF TEE | 38 | 50 | 65 | 79 | 90 | 117 | 139 | 163 | 194 | 223 | 260 | |
| VALVE | 19 | 25 | 32 | 40 | 45 | 59 | 70 | 82 | 98 | 112 | 128 | |
| REDUCER | VARIES BY SIZE. TO BE DETERMINED BY THE DESIGN ENGINEER. | | | | | | | | | | | |

- NOTES:
- FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
 - INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
 - WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
 - ALL INLINE VALVES SHALL BE RESTRAINED.
 - WHERE INTERNAL RESTRAINED JOINTS ARE USED, THE ENTIRE BELL SHALL BE PAINTED RED.
 - LENGTHS SHOWN IN THE TABLE WERE CALCULATED IN ACCORDANCE WITH PROCEDURES OUTLINED IN "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" GUIDELINES PUBLISHED BY DIPRA, USING THE ASSUMPTIONS SHOWN BELOW:
- WORKING PRESSURE: 100 PSI
SOIL DESIGNATION: SM (SAND SILT)
LAYING CONDITIONS: 3
DEPTH OF COVER: 3 FT
SAFETY FACTOR: 1.5
CONVERSION FACTOR FOR PVC PIPE: 1.25
- THE DESIGN ENGINEER SHALL INCREASE THE VALUES IN THE TABLE AS WARRANTED BY SITE-SPECIFIC PARAMETERS, SUCH AS SOIL DESIGNATIONS AND LAYING CONDITIONS.

APPENDIX A STANDARD DRAWINGS GENERAL

DATE: July 2014 BORE AND JACK FIGURE A106



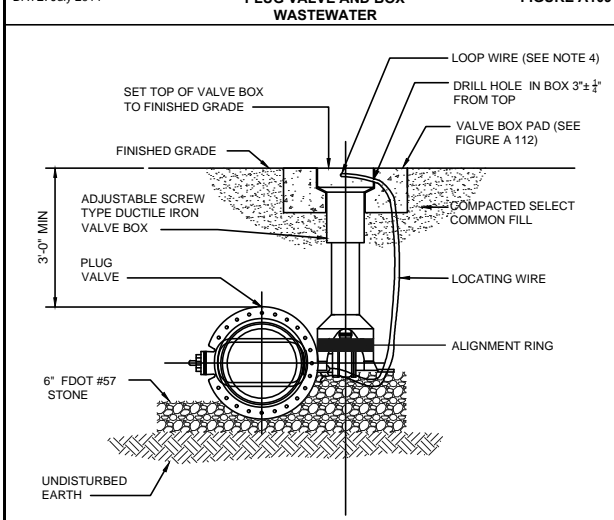
(VARIES BY CASING SIZE)

| CARRIER PIPE NOMINAL DIAMETER | 4 | 6 | 8 | 10 | 12 | 16 | 20 | 24 | 30 | 36 | 42 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| MINIMUM CASING OUTSIDE DIAMETER (INCHES) | 16 | 16 | 18 | 20 | 24 | 30 | 36 | 42 | 48 | 54 | 60 |
| MINIMUM CASING WALL THICKNESS (INCHES) | .250" | .250" | .250" | .250" | .250" | .312" | .375" | .500" | .500" | .500" | .500" |

- NOTES:
- CASING SHALL EXTEND A MINIMUM OF TEN FEET BEYOND THE EDGE OF PAVEMENT OR MEET FDOT REQUIREMENTS, WHICHEVER IS GREATER.
 - REQUIREMENTS OF OTHER JURISDICTIONS SHALL BE MET. WHEN CONSTRUCTION IS WITHIN FOOT JURISDICTION, ADDITIONAL REQUIREMENTS OF THE "FDOT UTILITY ACCOMMODATION GUIDE" SHALL BE MET.
 - DISTANCE BETWEEN SPACERS TO BE PER MANUFACTURER'S SPECIFICATIONS, OR MAX OF 6.5", WHICHEVER IS MORE STRINGENT.
 - USE OF FLOWABLE FILL IN THE ANNULAR SPACE BETWEEN THE CASING AND CARRIER PIPE IS PROHIBITED.
 - PIPE IN CASING SHALL HAVE A MECHANICAL BELL RESTRAINT HARNESS WHERE RODS ARE DOUBLE NUTTED TO PRECLUDE OVERBELLING THE JOINT DURING PUSHING CARRIER PIPE CASING.

APPENDIX A STANDARD DRAWINGS GENERAL

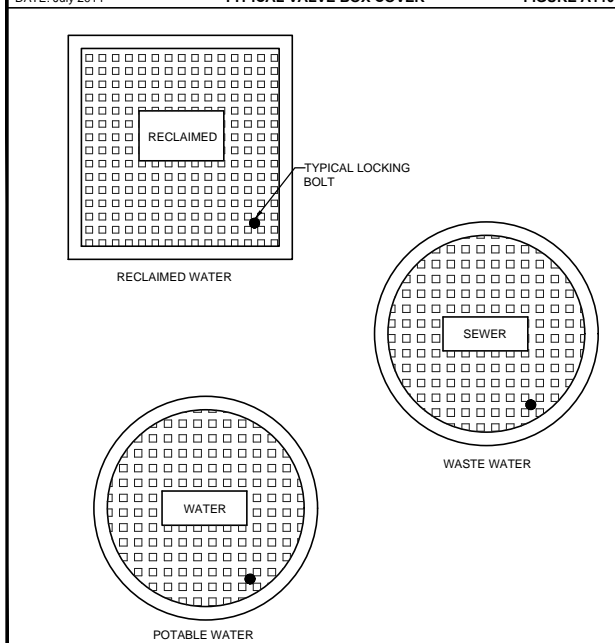
DATE: July 2014 PLUG VALVE AND BOX WASTEWATER FIGURE A109



- NOTES:
- PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
 - THE VALVE ACTUATING NUT SHALL BE EXTENDED TO BE WITHIN 3" OF FINISHED GRADE.
 - PROVIDE A PLASTIC DEBRIS SHIELD / ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE ACTUATING NUT AND MINIMIZE INFILTRATION.
 - LOCATING WIRE SHALL BE CONTINUOUS WITH NO SPLICES AND SHALL EXTEND 12" ABOVE TOP OF COLLAR. WIRE SHALL BE COLOR CODED TO MATCH THE UTILITY INSTALLED.
 - FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS.
 - REFER TO FIGURE A111 FOR INSTALLATIONS AT A DEPTH OF 6' OR GREATER.

APPENDIX A STANDARD DRAWINGS GENERAL

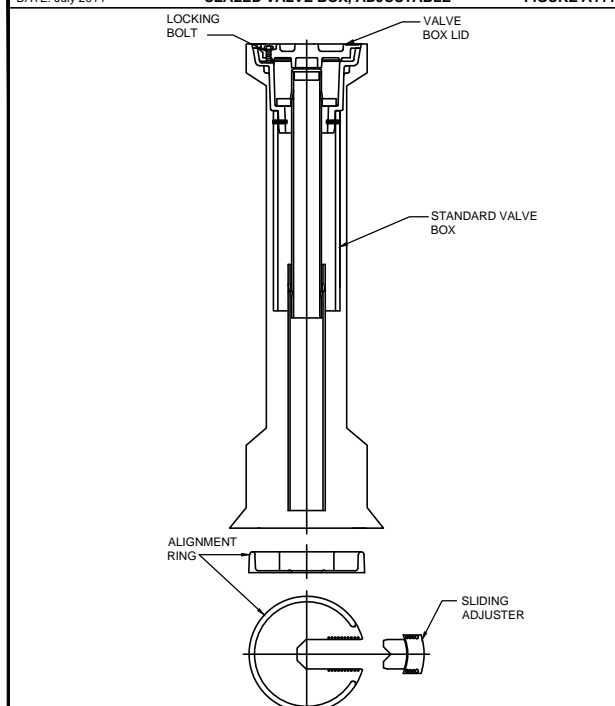
DATE: July 2014 TYPICAL VALVE BOX COVER FIGURE A110



- NOTE:
- LOCKING LIDS ARE REQUIRED ON ALL VALVE BOXES.

APPENDIX A STANDARD DRAWINGS GENERAL

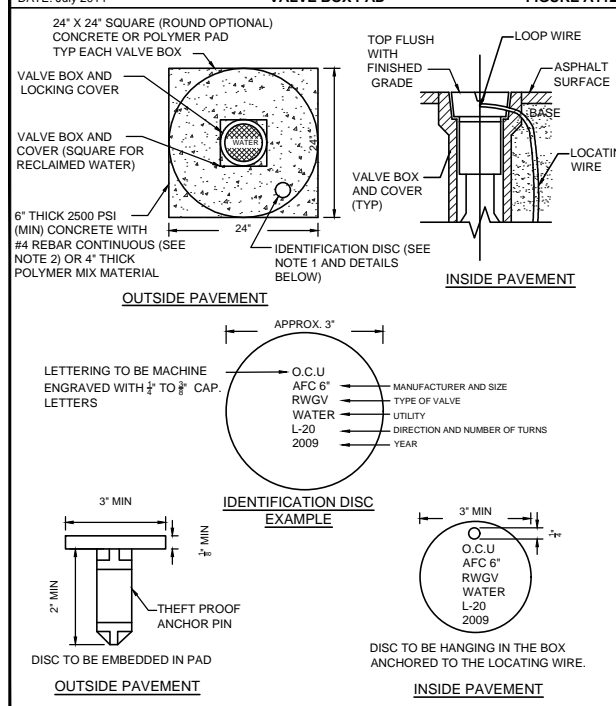
DATE: July 2014 SEALED VALVE BOX, ADJUSTABLE FIGURE A111



- NOTES:
- FOR ALL MAINS 6' DEEP OR GREATER.
 - FOR MAINS 16" IN DIAMETER OR GREATER REGARDLESS OF DEPTH.

APPENDIX A STANDARD DRAWINGS GENERAL

DATE: July 2014 VALVE BOX PAD FIGURE A112



- NOTES:
- BRONZE (OR STAINLESS STEEL) IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES, EXCEPT HYDRANT VALVES.
 - IN LIEU OF PRECAST CONCRETE PAD, A 6" THICK X 24" (ROUND OR SQUARE) POURED CONCRETE PAD WITH TWO #4 REBAR AROUND PERIMETER MAY BE USED.

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| REVISIONS | | NAMES | DATE |
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| DATE | BY | DESCRIPTION | |
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| | | DESIGNED BY: MG | 9/2016 |
| | | CHECKED BY: DEM | 9/2016 |
| | | APPROVED BY: DAVID E. MAHLER, P.E. | |

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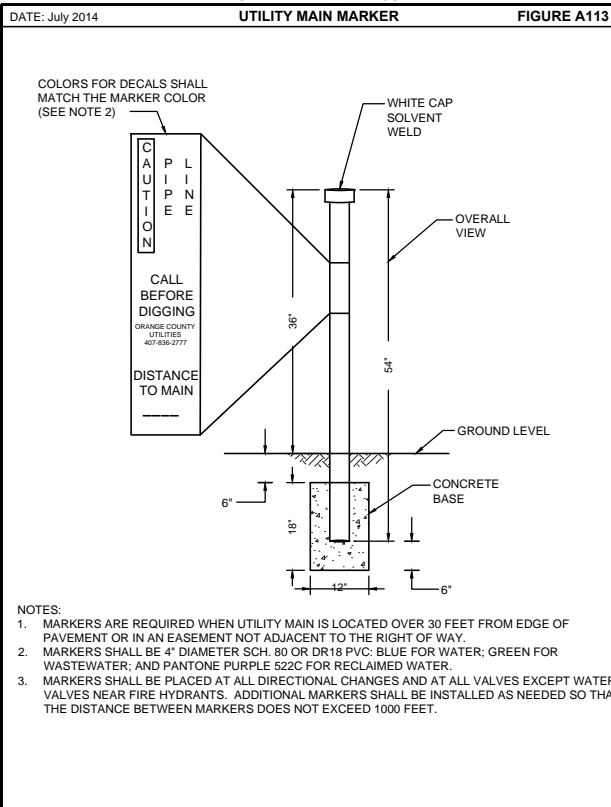
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SHEET TITLE: **CONSTRUCTION DETAILS**

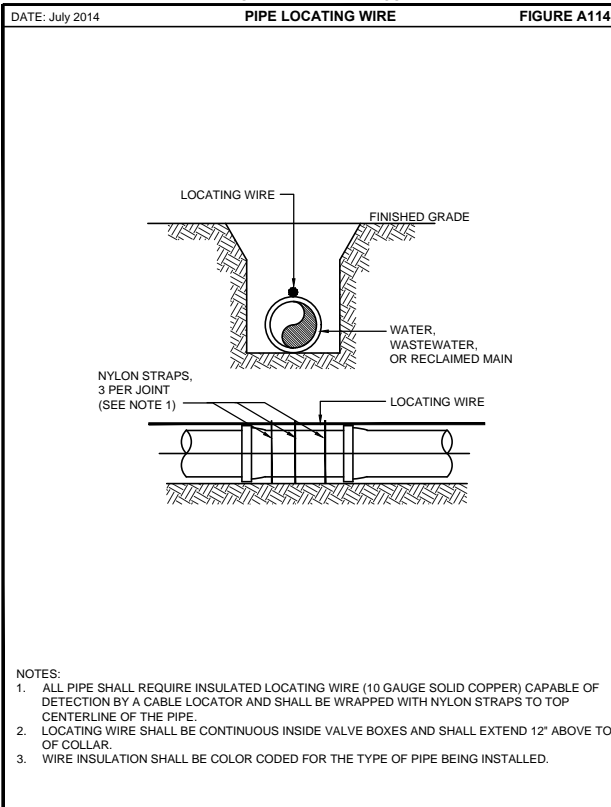
PROJECT TITLE: **PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS**

SHEET NO. **14**

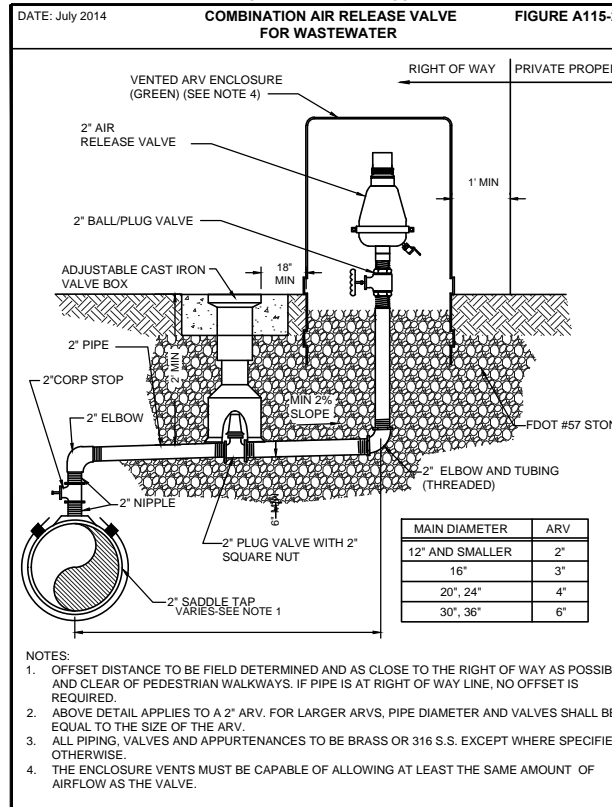
APPENDIX A STANDARD DRAWINGS GENERAL
UTILITY MAIN MARKER FIGURE A113



APPENDIX A STANDARD DRAWINGS GENERAL
PIPE LOCATING WIRE FIGURE A114



APPENDIX A STANDARD DRAWINGS GENERAL
COMBINATION AIR RELEASE VALVE FOR WASTEWATER FIGURE A115-2



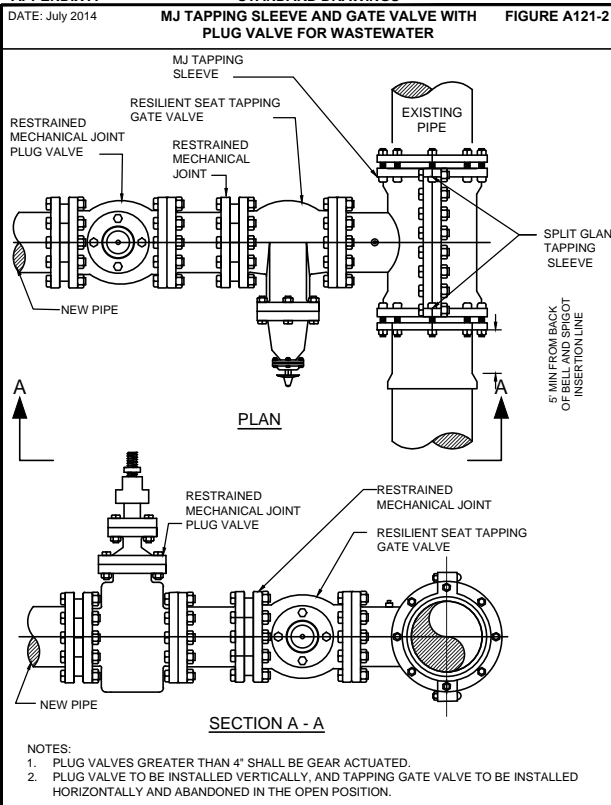
APPENDIX A STANDARD DRAWINGS GENERAL
SEPARATION REQUIREMENTS FOR WATER, WASTEWATER AND RECLAIMED WATER MAINS FIGURE A116

| PROPOSED UTILITY | HORIZONTAL & VERTICAL SEPARATION REQUIREMENTS | | | | | | | |
|-----------------------------|---|---------------|------------------|---------------|---------------------------|---------------|------------------|-----------------------|
| | POTABLE WATER | | RECLAIMED WATER | | WASTEWATER (GRAVITY & FM) | | STORM SEWER | |
| | HORIZ | VERT | HORIZ | VERT | HORIZ | VERT | HORIZ | VERT |
| POTABLE WATER | 3' NOTE 1 | 12" | 3' NOTE 1 & 3 | 12" NOTE 3 | 6' NOTE 3 | 12" NOTE 3 | 3' NOTE 1 & 3 | 12"/18" NOTE 2 & 3 |
| RECLAIMED WATER | 3' NOTE 1 & 3 | 12" NOTE 3 | 3' NOTE 1 | 12" | 3' NOTE 1 | 12" | 3' NOTE 1 | 12"/18" NOTE 2 |
| WASTEWATER (GRAVITY AND FM) | 6' NOTE 3 | 12" NOTE 3 | 3' NOTE 1 | 12" | 3' NOTE 1 | 12" | 3' NOTE 1 | 12"/18" NOTE 2 |
| RIGHT OF WAY | 3' NOTE 1 | N/A | 3' NOTE 1 | N/A | 3' NOTE 1 | N/A | N/A | N/A |

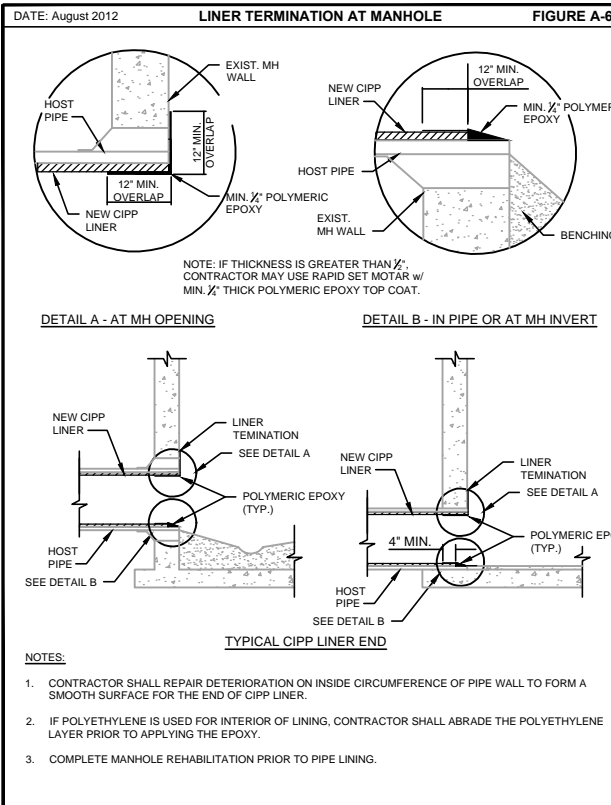
DATE: July 2014

NOTES:
1. THIS SEPARATION REQUIREMENT IS TO PROVIDE ACCESSIBILITY FOR CONSTRUCTION AND MAINTENANCE. THREE FEET OF HORIZONTAL SEPARATION IS THE MINIMUM FOR PIPES WITH THREE FEET OF COVER. FOR PIPES INSTALLED AT GREATER DEPTHS, PROVIDE AN ADDITIONAL FOOT OF SEPARATION FOR EACH ADDITIONAL FOOT OF DEPTH.
2. THE 18-INCH SEPARATION REQUIREMENT APPLIES WHEN THE STORM PIPE CROSSES ABOVE THE OCW MAIN, AND WHEN THE STORM PIPE HAS A DIAMETER EQUAL TO OR GREATER THAN 24 INCHES. OTHERWISE, THE REQUIRED SEPARATION IS 12 INCHES.
3. THIS SEPARATION REQUIREMENT COMPLIES WITH MINIMUM FDEP SEPARATION REQUIREMENTS OUTLINED IN 62-555.314, FAC. VARIANCES FROM THE FDEP REQUIREMENTS MUST COMPLY WITH 62-555.314(5), FAC AND MUST BE APPROVED INDIVIDUALLY BY BOTH FDEP AND OCW.
4. DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
5. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURE.

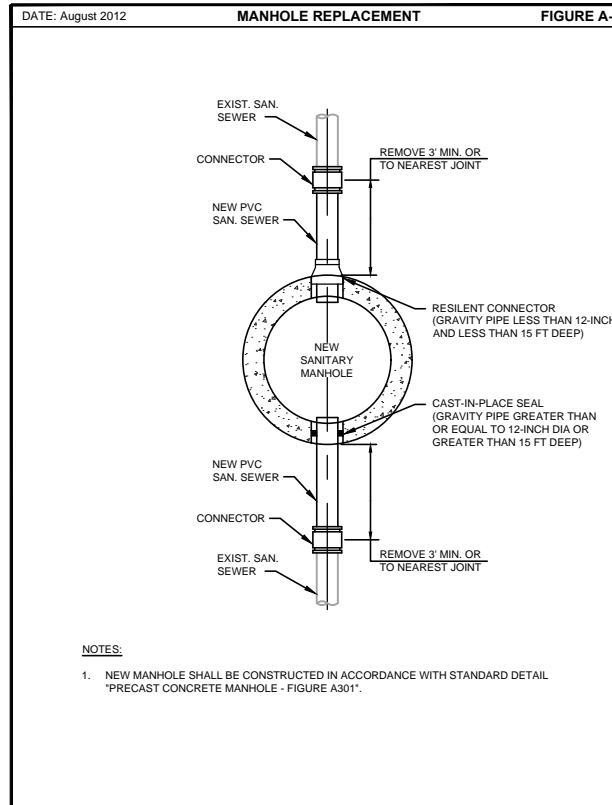
APPENDIX A STANDARD DRAWINGS GENERAL
MJ TAPPING SLEEVE AND GATE VALVE WITH PLUG VALVE FOR WASTEWATER FIGURE A121-2



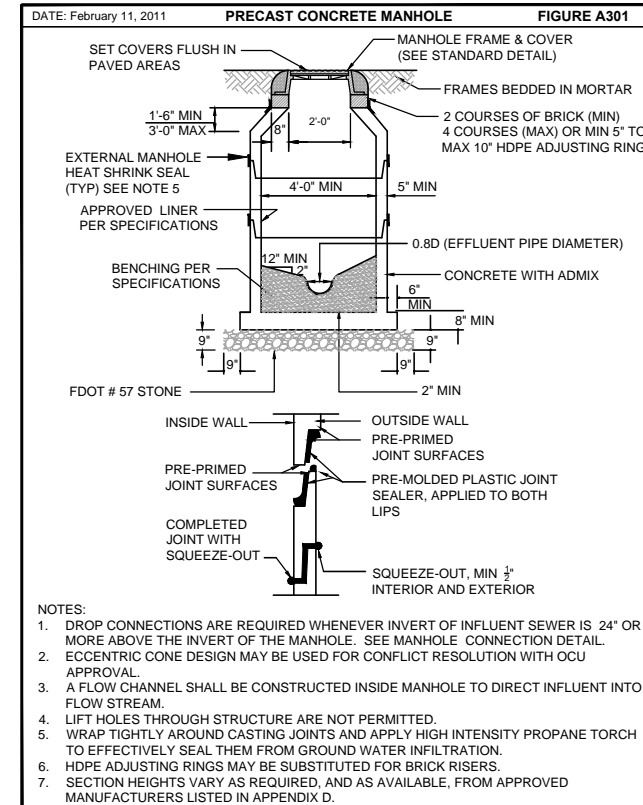
APPENDIX A STANDARD DRAWINGS GRAVITY R/R
LINER TERMINATION AT MANHOLE FIGURE A-604



APPENDIX A STANDARD DRAWINGS GRAVITY R/R
MANHOLE REPLACEMENT FIGURE A-607



APPENDIX A STANDARD DRAWINGS GENERAL
PRECAST CONCRETE MANHOLE FIGURE A301



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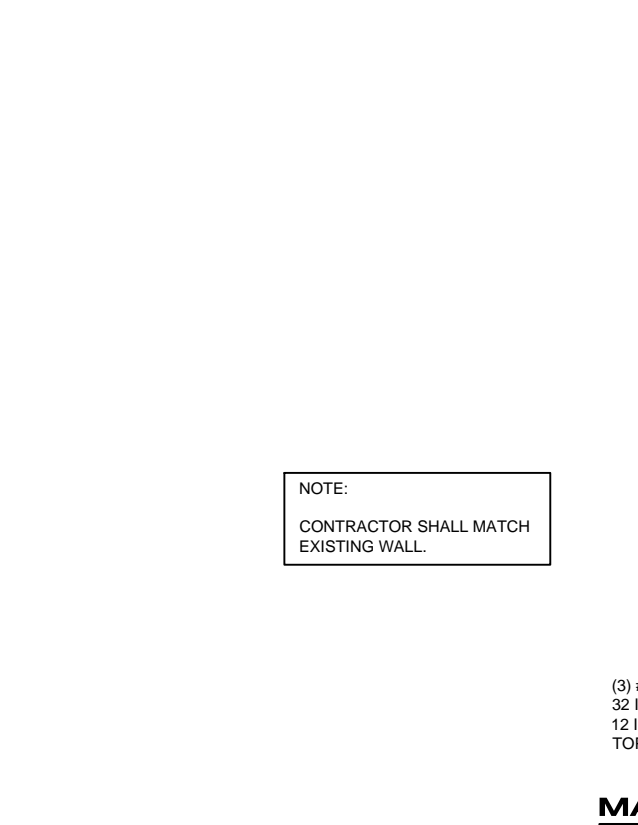
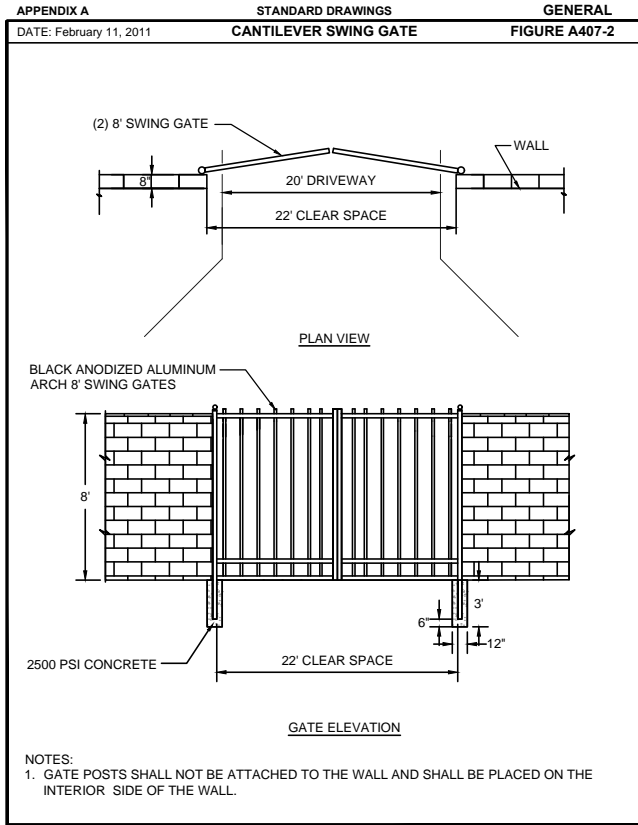
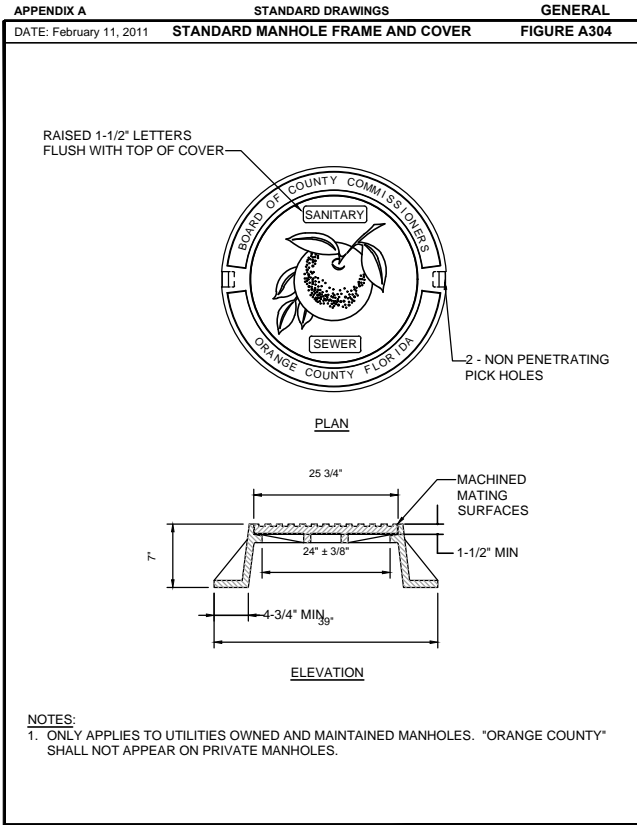
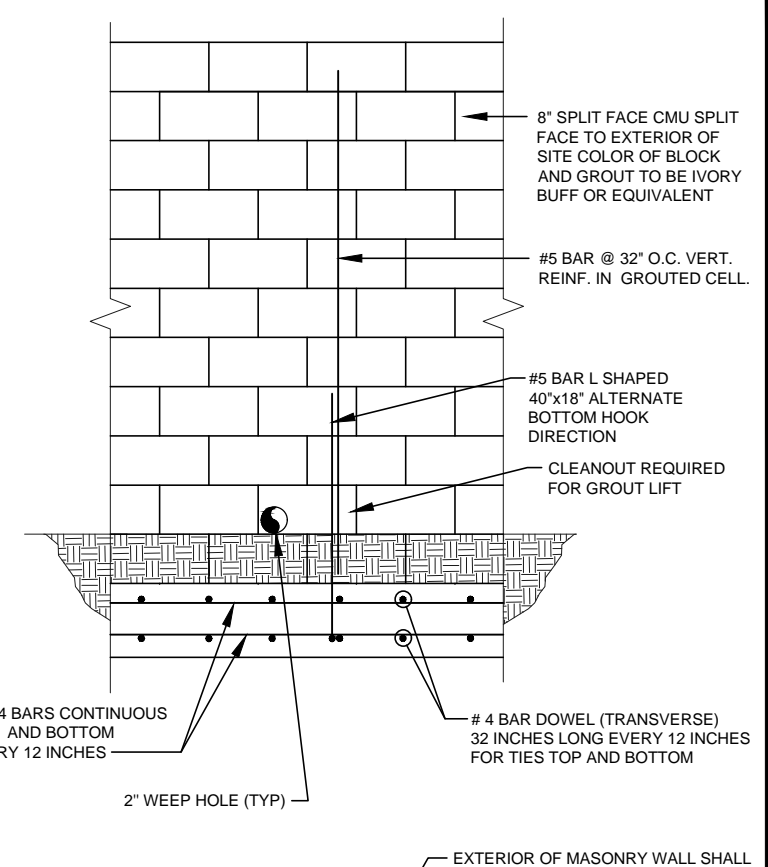
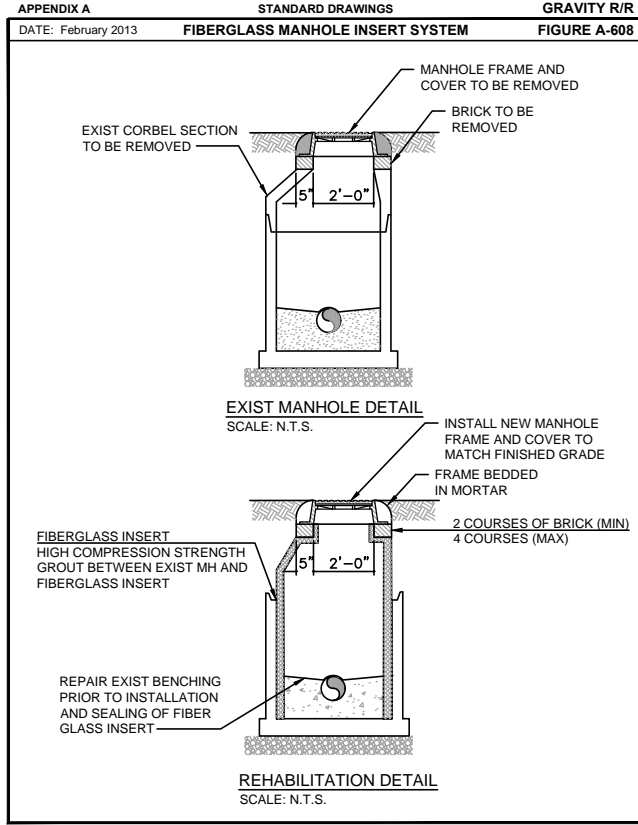
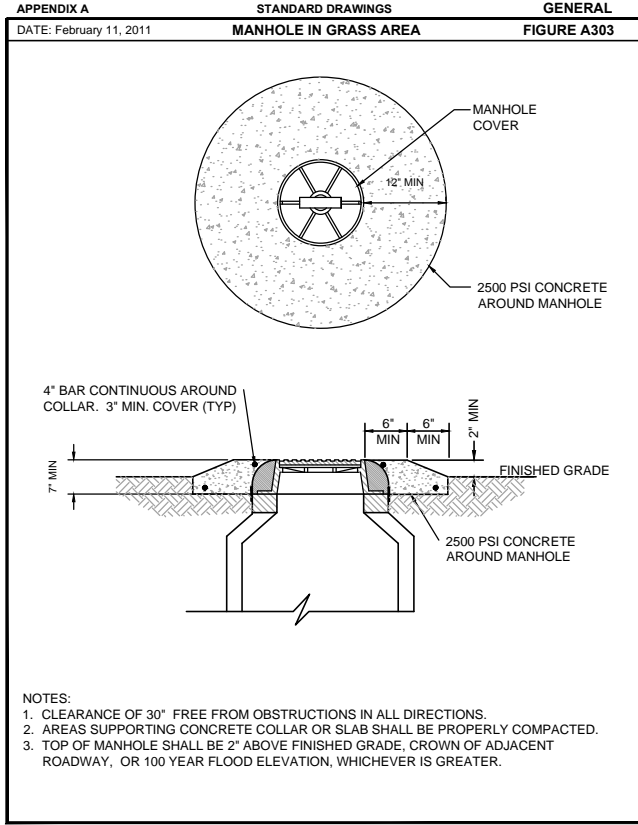
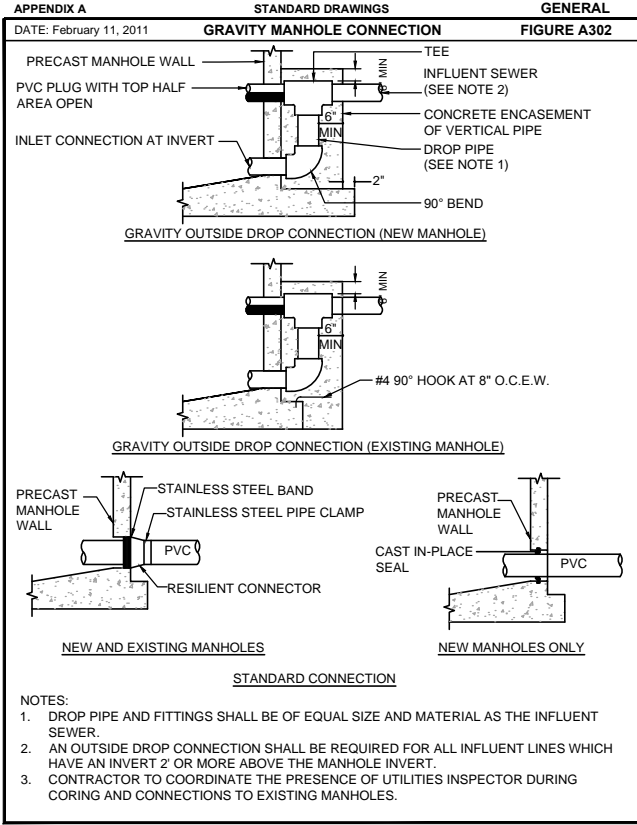
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SHEET TITLE: CONSTRUCTION DETAILS

PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS

SHEET NO. 15



MASONRY (CMU) PERIMETER WALL DETAIL
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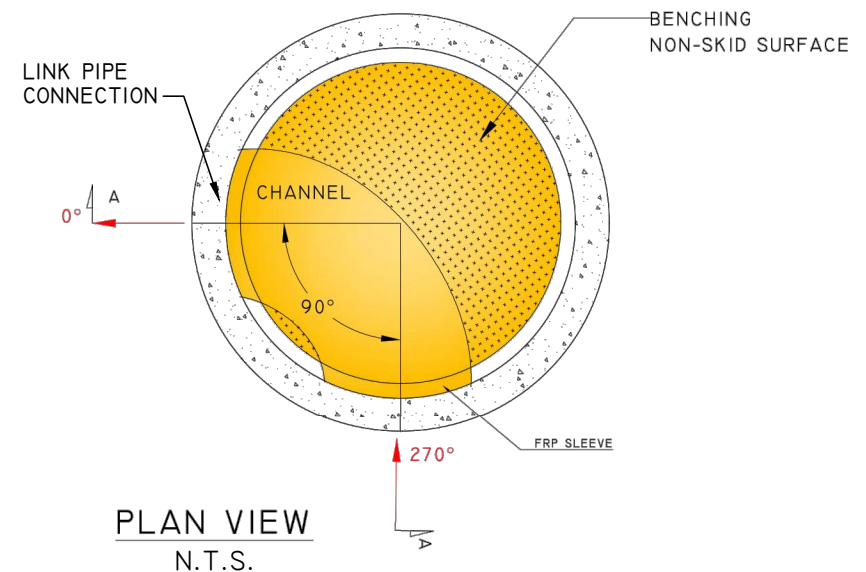
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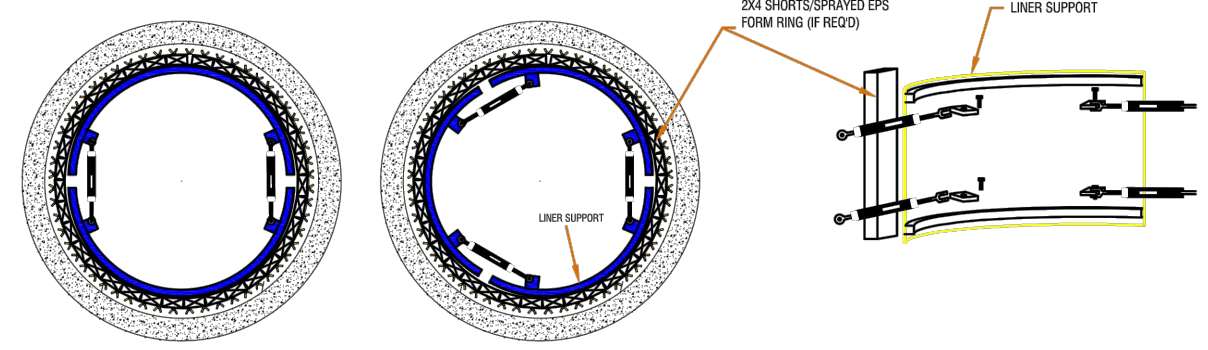
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| PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | SHEET NO. 16 |

NORTH

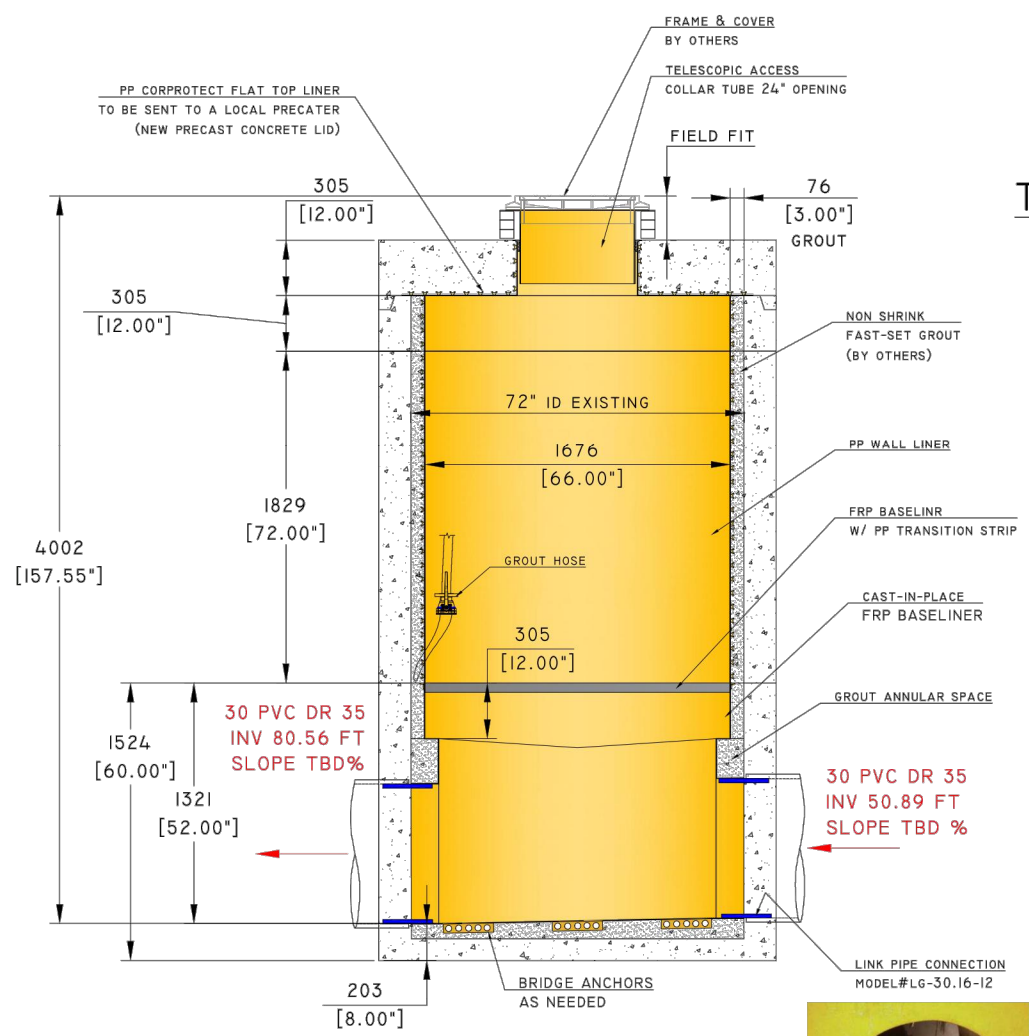


PLAN VIEW
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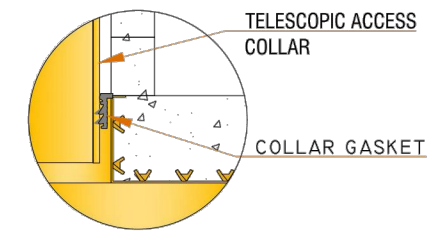


WALL LINER POURING SUPPORT OPTIONS

N.T.S.

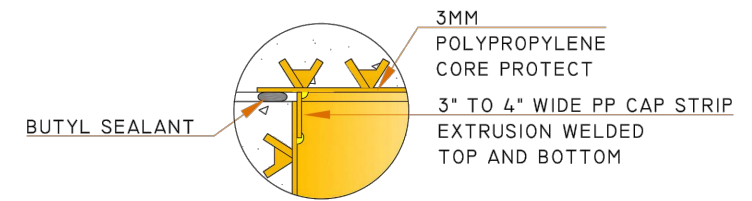


SECTION A-A
N.T.S.



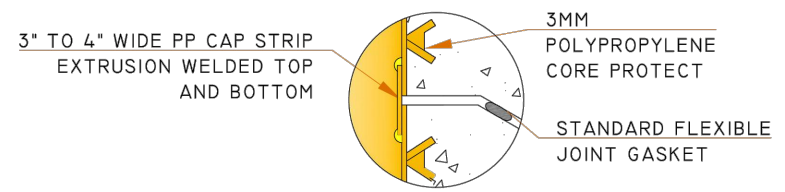
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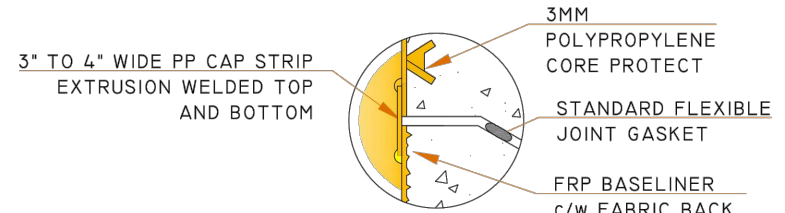
JOINT DETAIL A

CAP STRIP



JOINT DETAIL B

CAP STRIP



JOINT DETAIL C

CAP STRIP

FIBERGLASS REINFORCED POLYMER (FRP)

| TYPICAL PHYSICAL PROPERTIES | | | |
|---|---------------------------------------|------------------------------|-------------|
| (FOR COMPONENTS) TESTING METHOD | | COMP.A | COMP.B |
| VISCOSITY, CPS | BROOKFIELD L.V.F. SPINDLE #2 @ 30 RPM | 200 | 400 - 600 |
| SPECIFIC GRAVITY | ASTM D-1638 | 1.20 | 1.15 |
| WEIGHT PER GAL. LBS. | | 10.00 | 9.58 |
| COLOUR | VISUAL | DARK BROWN | LIGHT BROWN |
| STYRENE MONOMER CONTENT | ASTM D-1638 | 20 % IN SYSTEM | |
| MIX RATIO | BY WEIGHT | 31 | 69 |
| (FOR CURED MATERIAL) TESTING METHOD | | RESULTS (0% GLASS) | |
| TENSILE STRENGTH, PSI | ASTM D-638 | | 13,000 |
| TENSILE MODULUS, PSI | ASTM D-638 | | 450,000 |
| FLEXURAL STRENGTH, PSI | ASTM D-790 | | 28,000 |
| FLEXURAL MODULUS, PSI | ASTM D-790 | | 400,000 |
| HEAT DISTORTION TEMP. | ASTM D-648 | | 160° F |
| ELONGATION, % | ASTM D-638 | | 4 |
| BARCOL HARDNESS | | | 42 |
| SHORE D HARDNESS | | | 85 |
| LINEAR SHRINKAGE, % | ASTM D-2566-88 | | 85 |
| REACTIVITY DATA (100 GRAM MASS @ 74° F) | | | |
| DEMOLD TIME | | 10 - 15 MIN. | |
| GEL TIME | | 120 - 180 SECONDS | |
| PERFORMANCE CHARACTERISTICS | | | |
| FIBER WETTING | | EXCELLENT | |
| SAGGING / DRAINING | | MINIMAL | |
| FABRICATING METHOD | | ALL ROOM TEMPERATURE METHODS | |

SPECIFICATIONS

1. THIS DRAWING REPRESENTS THE CONCRETE PROTECTIVE LINER DESIGN. ALL CONCRETE DIMENSIONS TO BE VERIFIED FROM THE CONTRACTOR OR PRECAST CONCRETE MANUFACTURER.
2. ALL "PIPE TO MANHOLE" CONNECTIONS SHALL HAVE GASKETS AS SHOWN IN THE DRAWINGS UNLESS OTHERWISE NOTED.
3. ALL PIPE GASKETS SHALL BE INSTALLED USING THE MANDREL RECOMMENDED BY THE GASKET MANUFACTURER.
4. ONLY PREDL CERTIFIED WELDERS AND FABRICATORS ARE AUTHORIZED TO FABRICATE, REPAIR, WELD, OR TEST THE BASELINER, TELESCOPIC ACCESS COLLAR, AND WALL LINERS.
5. ALL LINER SECTIONS SHALL BE WELDED TOGETHER AS PER THE MANUFACTURER INSTRUCTIONS UNLESS OTHERWISE NOTED.
6. LINER IS NOT TO BE COMPROMISED BY DRILLING OR PUNCTURING UNLESS SPECIFIED AND APPROVED BY PREDL LINER MANUFACTURER. PERFORATION OF LINER TO INSTALL LADDER RUNGS IS NOT RECOMMENDED.
7. PREDL CONCRETE PROTECTIVE LINER (CPL) IS A NON-STRUCTURAL ELEMENT. ALL PRECAST CONCRETE SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH LOCAL STANDARDS PRIOR TO FINAL INSTALLATION AND TESTING OF CPL.
8. ROUND MANHOLE STRUCTURES TYPICALLY DESIGNED TO ASTM C478. NON-ROUND MANHOLE STRUCTURES TYPICALLY DESIGNED TO ASTM C913.
9. PRECAST CONCRETE STRUCTURE WITH INTEGRAL PREDL CPL TO BE VACUUM TESTED IN ACCORDANCE WITH ASTM C1244 PRIOR TO FINAL INSTALLATION AND TESTING OF CPL.

* PREDL MANUFACTURER FIELD REPRESENTATIVE SHALL BE REQUIRED TO BE PRESENT WHEN INSTALLING PREDL BASE LINER. FLORIDA AREA FIELD REPRESENTATIVE: WAYNE TURNER 386-804-1898

Drawing name: J:\028519\Civil\DWG\Design\028519 - Cover - notes - const details.dwg Nov 16, 2017

| REVISIONS | |
|-----------|-------------|
| DATE | DESCRIPTION |
| | |

| NAMES | DATE |
|------------------------------------|--------|
| DRAWN BY: GNP | 9/2016 |
| CHECKED BY: MG | 9/2016 |
| DESIGNED BY: MG | 9/2016 |
| CHECKED BY: DEM | 9/2016 |
| APPROVED BY: DAVID E. MAHLER, P.E. | |

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|---------------|--------|----------------------|
| ORANGE COUNTY | | |
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
| | ORANGE | |

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| | | | |
|---|--|--|------------------------|
| SHEET TITLE: CONSTRUCTION DETAILS | | PROJECT TITLE: PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | SHEET NO. 17 |
| | | | |

Drawing name: J:\028519\Civil\DWG\Design\028519 - Cover - notes - const details.dwg Nov 16, 2017

| UNIQUE ID No. | ASSET TYPE | COUNTY FEATURE No. | STATION | OFFSET | NORTHING | EASTING | ELEV. | SIZE |
|---------------|------------------------|--------------------|---------|---------|----------|---------|-------|-----------|
| TSV-1 | Tapping Sleeve & Valve | | 11+93 | 166' LT | | | | 42" x 42" |
| FM-1 | Linestop | | 11+93 | 166' LT | | | | 42" |
| FM-2 | Cap | | 11+93 | 90' LT | | | | 42" |
| PV-1 | Plug valve | | 12+04 | 166' LT | | | | 42" |
| FM-3 | Tee | | 12+14 | 166' LT | | | | 42" |
| PV-2 | Plug valve | | 12+14 | 172' LT | | | | 42" |
| FM-4 | Cap | | 12+14 | 180' LT | | | | 42" |
| FM-5 | 45° Bend | | 12+14 | 96' LT | | | | 42" |
| FM-6 | 45° Bend | | 12+25 | 86' LT | | | | 42" |
| TSV-2 | Tapping Sleeve & Valve | | 12+05 | 71' LT | | | | 30" |
| PV-3 | Plug valve | | 12+13 | 71' LT | | | | 30" |
| FM-7 | Increaser | | 12+25 | 71' LT | | | | 42"x30" |
| FM-8 | Tee | | 12+25 | 71' LT | | | | 30" |
| FM-9 | 45° Bend | | 12+25 | 51' LT | | | | 30" |
| FM-10 | 45° Bend | | 12+40 | 35' LT | | | | 30" |
| FM-11 | 45° Bend | | 12+44 | 35' LT | | | | 30" |
| FM-12 | 45° Bend | | 12+61 | 35' LT | | | | 30" |
| ARV-1 | Air Release Valve | | 12+65 | 35' LT | | | | 6" |
| FM-13 | 45° Bend | | 16+17 | 35' LT | | | | 30" |
| FM-14 | 45° Bend | | 16+45 | 62' LT | | | | 30" |
| FM-15 | Reducer | | 16+49 | 62' LT | | | | 30"x24" |
| PV-5 | Plug valve | | 16+52 | 62' LT | | | | 24" |
| FM-16 | 45° Bend | | 17+41 | 62' LT | | | | 24" |
| FM-17 | 45° Bend | | 17+44 | 62' LT | | | | 24" |
| FM-18 | Linestop | | 17+56 | 59' LT | | | | 24" |
| FM-19 | Cap | | 17+56 | 59' LT | | | | 24" |
| PV-6 | Plug valve | | 17+48 | 62' LT | | | | 24" |
| TSV-3 | Tapping Sleeve & Valve | | 17+56 | 63' LT | | | | 24" |
| FM-20 | Linestop | | 12+05 | 77' LT | | | | 30" |
| FM-21 | Cap | | 12+05 | 77' LT | | | | 30" |
| | | | | | | | | |

| REVISIONS | | DATE | BY | DESCRIPTION |
|-----------|--|------|----|-------------|
| | | | | |

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| DRAWN BY: GNP | 9/2016 |
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| SHEET TITLE: | PROJECT TITLE: | SHEET NO. |
|--------------|--|-----------|
| ASSET TABLE | PRESIDENTS DRIVE WASTEWATER SYSTEM IMPROVEMENTS | 18 |