

STATE OF FLORIDA
ORANGE COUNTY
CITY OF APOPKA
Indoor Foliage Capital of the World

CONSTRUCTION PLANS

RWS Extension Ocoee-Apopka Rd. / C.R. 437-A (Harmon Rd. - Alston Bay Blvd.)

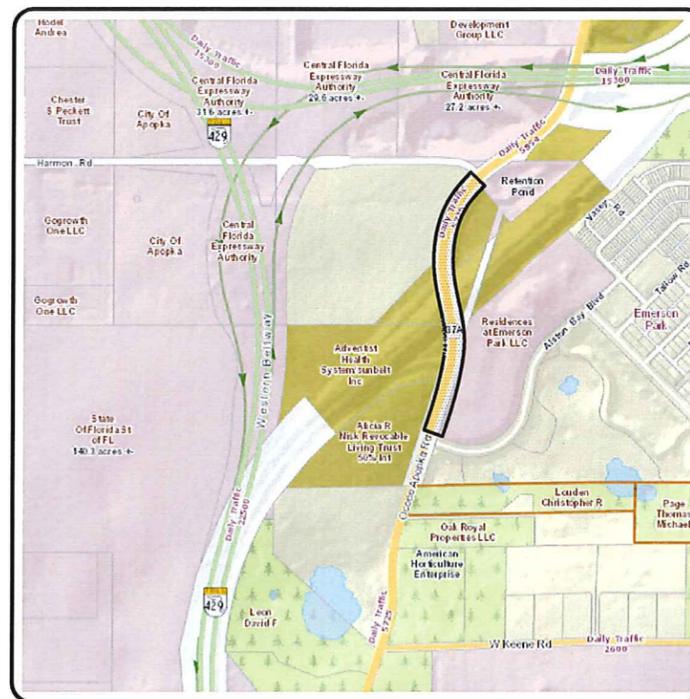


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2	GENERAL NOTES & SPECIFICATIONS
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PROJECT DESCRIPTION
30-inch Reclaimed Water Main = 2,230 LF (0.422 MILES)

GOVERNING DESIGN STANDARDS & SPECIFICATIONS
State of Florida DEP Rules & Regulations (2016 Edition)
State of Florida DOT Design Standards (2016 Edition)
FDOT Standard Specifications for Road and Bridge Construction (2016 Edition)
City of Apopka Utility Design and Construction Manual (2016 Edition)

UTILITY CONTACT INFORMATION	
UTILITY COMPANY NAME	TELEPHONE
City of Apopka (Public Services)	(407) 703-1731
Duke Energy	(407) 646-8569
CenturyLink	(407) 814-5310
Charter Com. (Bright House Networks)	(407) 532-8511
Lake Apopka Natural Gas	(407) 656-2734
Florida Gas Transmission	(407) 838-7362
Qwest Communications	(303) 992-2469



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PUBLIC SERVICES DIRECTOR
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DESIGN ENGINEERING DIVISION
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Naret Teran, P.E.
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SEPTEMBER, 2016

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PLANS PREPARED BY:
CITY OF APOPKA
PUBLIC SERVICES
DESIGN ENGINEERING DIVISION
748 E. CLEVELAND STREET
APOPKA, FLORIDA 32703
TEL: (407) 703-1731
FAX: (407) 703-1748

ENGINEER OF RECORD
NARET TERAN, P.E.
LICENSE NO. 73796

UTILITY NOTES

1. All construction shall conform with the standards and specifications set forth by local, state and federal regulations, which so ever are more stringent, shall be adhered to.
2. The contractor shall be responsible for locating and verifying (horizontally and vertically) all existing utilities prior to construction and for notifying various utility companies to make the necessary arrangements for any relocation, temporary distribution service or clarification of activity regarding said utility. The contractor shall exercise caution when crossing an underground utility, whether shown on these plans or filed located. All utilities, which interfere with the proposed construction, shall be relocated by the respective utility companies and the contractor shall cooperate with them fully during relocation operations. Any delay or inconvenience of the various utilities shall be incidental to the contract and no extra compensation will be allowed.
3. Provide minimum of 3 feet cover for all utilities unless otherwise noted in the construction plans.
4. Compact all utilities trenches within the roadways associated with this project to 98% of the proctor maximum density.
5. The specifications, notes and plans call attention to certain required features of the construction but do not purport to cover all details of design and construction. However, the contractor shall furnish and install the works in all details and ready for operation.
6. All equipment and material associated with any utility work on this project shall be handled, stored, installed, tested and operated in strict accordance with the applicable manufacturers instructions.
7. All utility work shall be accomplished to the highest quality craftsmanship standards.

Location of Public Water System (PWS) Mains (Pipe Separation Requirements)

The term "water mains" shall mean mains, including treatment plant process piping, conveying either raw, partially treated, or finished drinking water; fire hydrant leads; and service lines that are under the control of a public water system and that have an inside diameter of three (3) inches or greater.

1. Horizontal separation between underground water mains and sanitary or storm sewers, wastewater or storm water force mains, reclaimed water pipelines, and on-site sewage treatment and disposal systems.

a. New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three (3) feet between the outside of the water main and the outside of any existing or proposed storm sewer, storm water force main, or pipeline conveying reclaimed water regulated under part III of chapter 62-610, F.A.C.

b. New or relocated, underground water mains shall be laid to provide a horizontal distance of at least three (3) feet, and preferably ten (10) feet, between the outside of the water main and the outside of any existing or proposed vacuum-type sanitary sewer.

c. New or relocated, underground water mains shall be laid to provide horizontal distance of at least six (6) feet, and preferably ten (10) feet, between the outside of the water main and the outside of any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under part iii of chapter 62-610, F.A.C. the minimum horizontal separation distance between water mains and gravity-type sanitary sewers shall be reduced to three (3) feet where the bottom of the water main is laid at least six (6) inches above the top of the sewer.

d. New or relocated, underground water mains shall be laid to provide a horizontal distance of at least ten (10) feet between the outside of the water main and all parts of any existing or proposed "on-site sewage treatment and disposal system" as defined in section 381.0065(2), F.S., and rule 64E-6.002, F.A.C.

2. Vertical separation between underground water mains and sanitary or storm sewers, wastewater or storm water force mains, and reclaimed water pipelines.

a. New or relocated, underground water mains crossing any existing or proposed gravity- or vacuum type sanitary sewer or storm sewer shall be laid so the outside of the water main is at least six (6) inches, and preferably twelve (12) inches, above or at least twelve (12) inches below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.

b. New or relocated, underground water mains crossing any existing or proposed pressure-type sanitary sewer, wastewater or storm water force main, or pipeline conveying reclaimed water shall be laid so the outside of the water main is at least twelve (12) inches above or below the outside of the other pipeline. However, it is preferable to lay the water main above the other pipeline.

c. At the utility crossings described in paragraphs (a) and (b) above, one full length of water main pipe shall be centered above or below the other pipeline so the water main joints will be as far as possible from the other pipeline. Alternatively, at such crossings, the pipes shall be arranged so that all water main joints are at least three (3) feet from all joints in vacuum-type sanitary sewers, storm sewers, storm water force mains, or pipelines conveying reclaimed water regulated under part III of chapter 62-610, F.A.C., and at least six (6) feet from all joints in gravity- or pressure-type sanitary sewers, wastewater force mains, or pipelines conveying reclaimed water not regulated under part III of chapter 62-610, F.A.C.

3. Separation between water mains and sanitary or storm sewer manholes.

a. No water main shall pass through, or come into contact with, any part of a sanitary sewer manhole.

b. Effective August 28, 2003, water mains shall not be constructed or altered to pass through, or come into contact with, any part of a storm sewer manhole or inlet structure.

4. Separation between fire hydrant drains and sanitary or storm sewers, wastewater or storm water force mains, reclaimed water pipelines, and on-site sewage treatment and disposal systems. New or relocated fire hydrants with underground drains shall be located so that the drains are at least three (3) feet from any existing or proposed storm sewer, storm water force main, or pipeline conveying reclaimed water regulated under part iii of chapter 62-610, F.A.C.; at least three (3) feet, and preferably ten (10) feet, from any existing or proposed vacuum-type sanitary sewer; at least six (6) feet, and preferably ten (10) feet, from any existing or proposed gravity- or pressure-type sanitary sewer, wastewater force main, or pipeline conveying reclaimed water not regulated under part III of chapter 62-610, F.A.C.; and at least ten (10) feet from any existing or proposed "on-site sewage treatment and disposal system" as defined in section 381.0065(2), F.S., and rule 64E-6.002.

Service Pipe, Stops, Fittings and Service Saddles

1. Service Pipe: All service lines shall be 1", 1-1/2" or 2" polyethylene tubing, with NSF logo for potable water use, and must conform to specification in AWWA C800 and AWWA C901.

2. Stops Corporation: Stops shall be 1", 1-1/2" or 2" brass, equipped with connections compatible with the polyethylene tubing and threaded in accordance with specifications in AWWA C800 and AWWA C901. Curb stops shall be sized to match the meter size and conform to the specifications in AWWA C800 and AWWA C901.

3. Fittings: Fittings shall be brass, cast and machined in accordance with specifications in AWWA C800 and AWWA C901, with compatible polyethylene tubing connections.

4. Service Saddles: A service saddle shall be used for all service line traps. Service saddles shall be double strap, anchored by a minimum four (4) bolt pattern on a ductile iron saddle body. Service saddles for PVC pipes shall have the double strap sized exactly to the pipe outside diameter. Sealing gaskets shall be Buna-N rubber and straps shall be corrosion resistant alloy steel. The City may require a stainless steel strap and fusion epoxy or nylon coated ductile iron body with stainless steel hardware in areas designated as corrosive.

Thrust Blocks

a. Longitudinal thrust along pressurized pipe lines at bends, tees, reducers, and caps or plugs shall be counteracted by enough weight of concrete to counter balance the vertical and horizontal thrust force. Where undisturbed trench walls are not available for thrust blocking, the contractor shall furnish and install suitable pipe harnesses or ties designed and manufactured specifically for this purpose. Harnesses and/or ties shall be approved by the Engineer.

b. Joints shall be protected by felt roofing paper prior to placing concrete thrust block

c. Bearing area of thrust blocks shall be adequate to prevent any movement of the fitting and shall be of the size and dimensions as shown in the construction plans.

d. Concrete for thrust block shall be class C. Concrete shall be placed against undisturbed material, and shall not cover joints, bolts or nuts, or interfere with the removal of any joint. Wooden side forms shall be provided for thrust blocks. In lieu of thrust blocking and with the approval of the engineer, pipe harnesses and/or ties, or restrained push-on, or restrained mechanical joints may be used.

e. Restrained joints shall be used where shown in the construction plans.

Pressure and Leakage Test of Underground Pressure Piping

a. Hydrostatic pressure and leakage test shall conform with section 7.3 of AWWA C605 (PVC) and section 5.2 of AWWA C600 (DIP) specification with the exception that the contractor shall furnish all gauges, meters, pressure pumps and other equipment needed to test the line. Hydrostatic pressure and leakage test for polyethylene (PE) pressure pipe shall conform with chapter 9 of AWWA manual M55. No leakage is allowed during field pressure testing of PE pipes that are joined by thermal or fuse butt welding.

b. The pressure required for the field hydrostatic pressure test shall be 50% above the normal working pressure but not less than 150 psi. The contractor shall provide temporary plugs and blocking necessary to maintain the required test pressure. Corporation cocks at least 3/4-inch in diameter, pipe riser and angle globe valves shall be provided at each pipe dead-end in order to bleed air from the line. Duration of pressure test shall be at least two (2) hours with no drop in test pressure. The cost of these items shall be paid by the contractor.

c. The leakage test shall be conducted following the pressure test and shall be of not less than two (2) hours duration. All leaks evident at the surface shall be repaired and leakage eliminated regardless of total leakage as shown by test. Lines, which fail to meet tests, shall be repaired and retested as necessary until test requirements are met. Defective materials, pipes, valves, and accessories shall be removed and replaced. The pipe lines shall be tested in such sections as may be directed by the engineer by shutting valves or installing temporary plugs as required. The lines shall be filled with water, all air removed, and the test pressure shall be maintained in the pipe for the entire test period by means of a force pump to be furnished by the contractor. Accurate means shall be provided for measuring the water required to maintain this pressure. The amount of water required is a measure of the leakage.

d. The amount of leakage, which will be permitted, shall be in accordance with AWWA C600 standards for all pressure. No pipe installation shall be accepted if the leakage is greater than the following formula:

This formula shall be used for "PVC" pipe	This formula shall be used for "DIP" pipe
$L = N D \sqrt{\frac{P}{7,400}}$	$L = S D \sqrt{\frac{P}{133,000}}$
Where:	Where:
L = allowable leakage (gal/hour)	L = allowable leakage (gal/hour)
S = length of pipe tested (linear feet)	S = length of pipe tested (linear feet)
D = nominal diameter of pipe (inches)	D = nominal diameter of pipe (inches)
P = 150 psi for water mains	P = 150 psi for water mains
P = 100 psi for force mains	P = 100 psi for force mains
N = number of joints	N = number of joints

e. The contractor must submit his plan for testing to the Engineer for review at least ten (10) days before starting the test. The contractor shall remove and adequately dispose all blocking material and equipment after completion and acceptance of the field hydrostatic test, unless otherwise directed by the Engineer. Any damage to the pipe coating shall be repaired by the contractor. Lines shall be totally free and clean prior to final acceptance.

Disinfection

Prior to acceptance of the lines, and prior to use of said mains of domestic purposes, the contractor shall flush the line clear of foreign material and then sterilize the pipeline, including all valves and fittings, in accordance with AWWA C651.

Chlorination

The chlorinating agent shall be applied at the beginning of the section adjacent to the feeder connection and shall be injected through a corporation cock, hydrant or other connection insuring treatment of the entire line. The chlorinating agent shall be any compound specified by said AWWA C651 requirements, such as "HTH" or other approved chlorine-bearing compounds. Water shall be fed slowly into the new line with chlorine applied in amounts to produce a dosage of 40 to 50 ppm and a residual of not less than 50 ppm in all parts of the line after a 24-hour period has elapsed. During chlorination process, operate all valves and accessories.

Flushing the Water Mains

Care shall be taken to provide disinfections to the total system and extremities shall be carefully flushed to accomplish this end.

Connection to Existing Water Mains

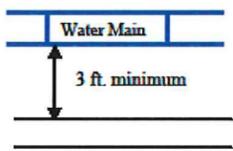
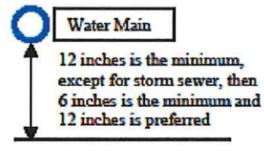
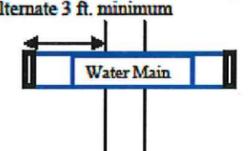
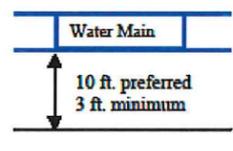
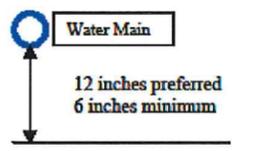
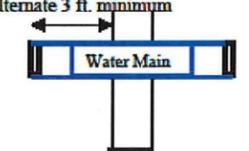
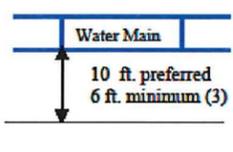
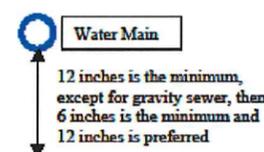
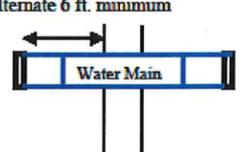
If the connection of proposed water main results in depressurization of existing water main below 20 psi, one of the following shall occur:

a. Precautionary boil water notice shall be issued in all areas where an interruption of water service that has been deemed a health threat by the Florida Department of Environmental Protection (FDEP) will occur, or will affect the bacteriological quality of the existing water main. The issuance of the boil water notices shall be handled in the field by the utility owner.

b. Advisories shall be issued if temporary changes in water quality are expected to occur and are not deemed an imminent public health threat. The advisories shall also be issued by the utility owner.

Table of Material Quantities			
ITEM NO.	DESCRIPTION	QTY	UNIT
1050-11-425	UTILITY PIPE (30" DI, C-151/A21.51, FC 250)	2,230	LF
1055-11-415	UTILITY FITTINGS (30" DI, 45° ELBOW)	2	EA
1080-11-504	UTILITY FIXTURES (30" BUTTERFLY VALVE ASSEMBLY)	1	EA
1080-11-506	UTILITY FIXTURES (30" VACUUM ASSEMBLY, 3" ARV)	3	EA
1080-11-509-A	UTILITY FIXTURES (30" MECHANICAL JOINT RESTRAINT, PPE)	3	EA
1080-11-509-B	UTILITY FIXTURES (30" MECHANICAL JOINT RESTRAINT, FITTING)	6	EA

LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314

Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)			
Vacuum Sanitary Sewer			
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)			
On-Site Sewage Treatment & Disposal System	10 ft. minimum	---	---

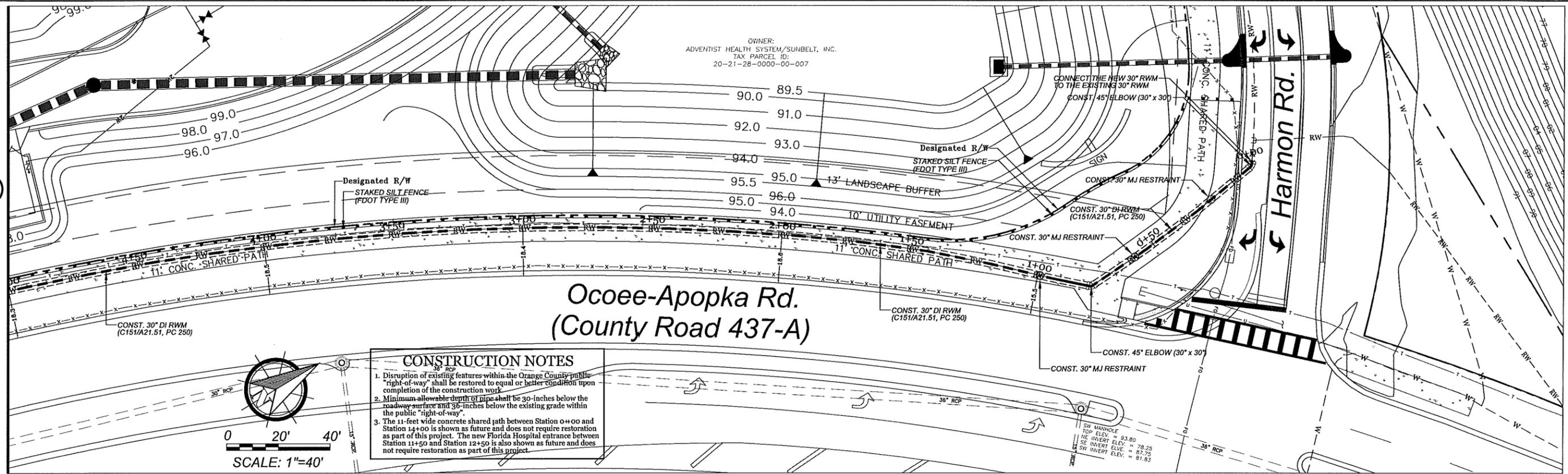
- (1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.
- (2) Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
- (3) 3 ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.
- (4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

Disclaimer - This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.

NO.	REVISIONS:	DATE:		CITY OF APOPKA PUBLIC SERVICES DEPARTMENT DESIGN ENGINEERING DIVISION 748 E. CLEVELAND STREET APOPKA, FLORIDA 32703 TEL: (407) 703-1731 FAX: (407) 703-1748	ENGINEER OF RECORD NARET TERAN, P.E. FBPE LICENSE NO. 73796 SIGNATURE _____ DATE _____	PROJECT NAME: Ocoee-Apopka Rd. - RWS Extension (Harmon Rd. - Alston Bay Blvd.)	SHEET DESCRIPTION: CONSTRUCTION PLANS GENERAL NOTES & SPECIFICATIONS (OCOEE-APOPKA RD., APOPKA, FL)	SHEET NO. 2
						SCALE: AS NOTED DATE: SEPTEMBER, 2016 DWG File: Sheet 2 (General Notes)		

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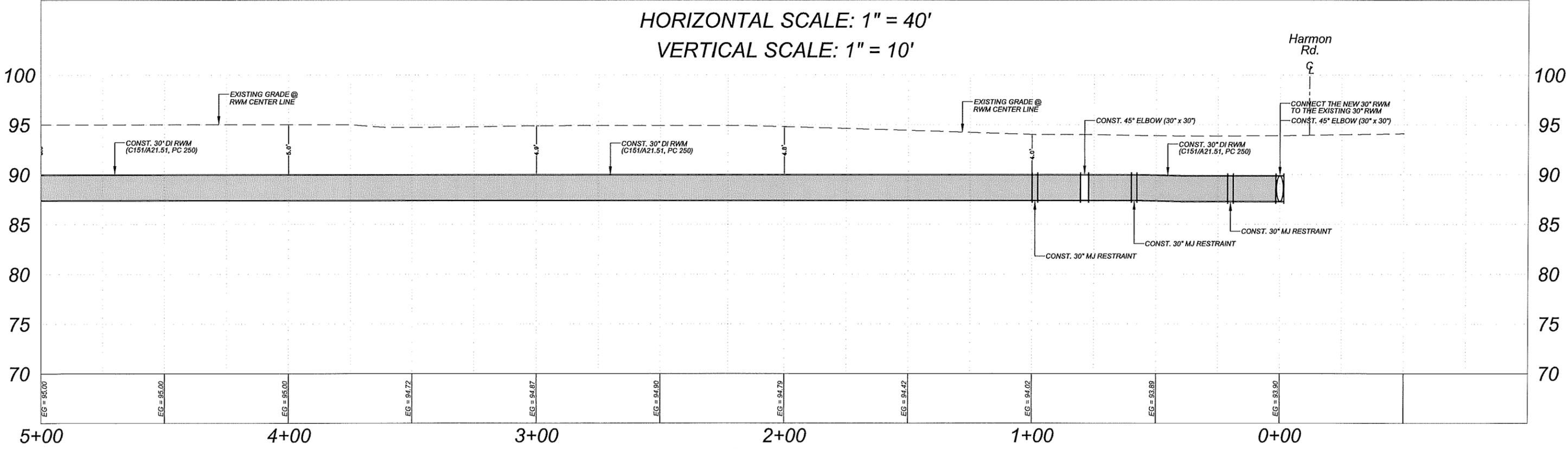
MATCH STA. 5+00 @ SHEET #4



CONSTRUCTION NOTES

1. Disruption of existing features within the Orange County public "right-of-way" shall be restored to equal or better condition upon completion of the construction work.
2. Minimum allowable depth of pipe shall be 30-inches below the roadway surface and 30-inches below the existing grade within the public "right-of-way".
3. The 11-foot wide concrete shared path between Station 0+00 and Station 14+00 is shown as future and does not require restoration as part of this project. The new Florida Hospital entrance between Station 11+50 and Station 12+50 is also shown as future and does not require restoration as part of this project.

HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 10'



NO.	REVISIONS:	DATE:



CITY OF APOPKA
PUBLIC SERVICES DEPARTMENT
DESIGN ENGINEERING DIVISION
748 E. CLEVELAND STREET
APOPKA, FLORIDA 32703
TEL: (407) 703-1731
FAX: (407) 703-1748

ENGINEER OF RECORD
NARET TERAN, P.E.
FBPE LICENSE NO. 73796

SIGNATURE _____
DATE _____

PROJECT NAME:
Ocoee-Apopka Rd. - RWS Extension
(Harmon Rd. - Alston Bay Blvd.)
SCALE: AS NOTED
DATE: SEPTEMBER, 2016
DWG File: Sheet 3-6 (Plan View)

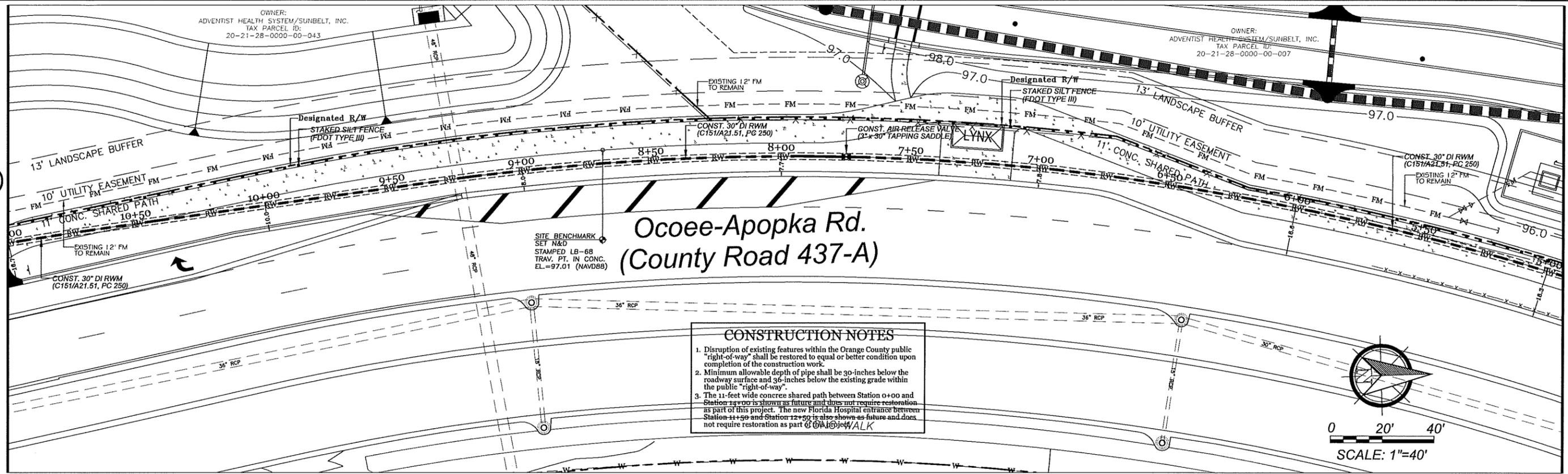
SHEET DESCRIPTION:
CONSTRUCTION PLANS
PLAN & PROFILE VIEW
STA. 0+00 - STA. 5+00
(OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
3

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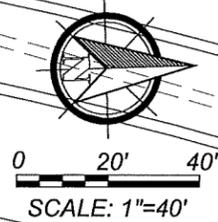
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MATCH STA. 5+00 @ SHEET #3

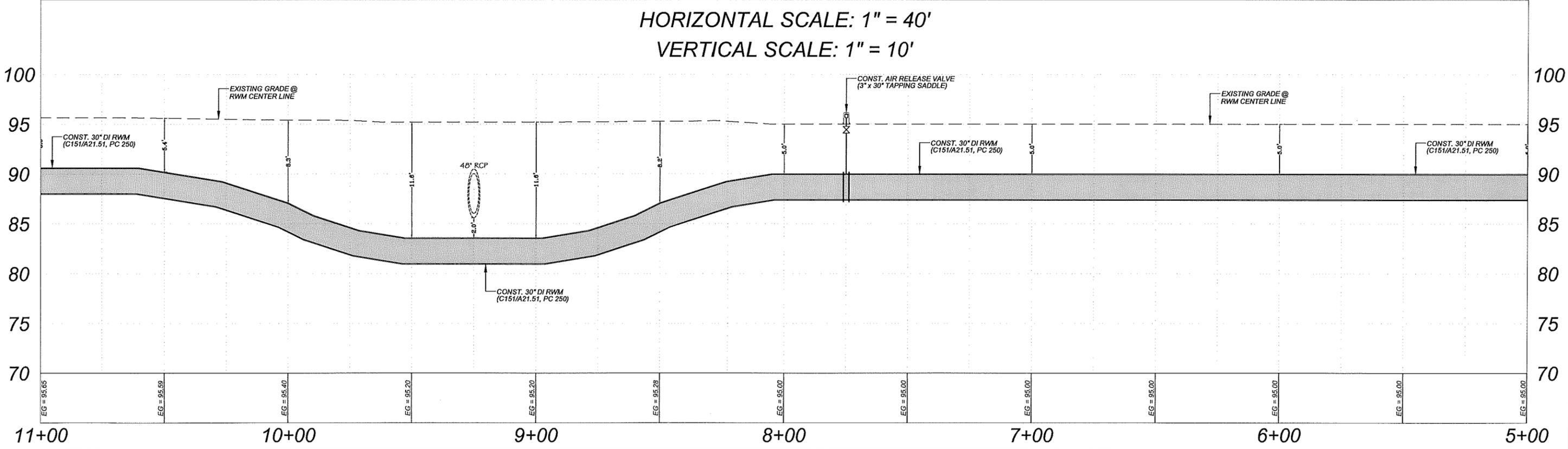


CONSTRUCTION NOTES

1. Disruption of existing features within the Orange County public "right-of-way" shall be restored to equal or better condition upon completion of the construction work.
2. Minimum allowable depth of pipe shall be 30-inches below the roadway surface and 36-inches below the existing grade within the public "right-of-way".
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SIGNATURE _____
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PROJECT NAME:
 Ocoee-Apopka Rd. - RWS Extension
 (Harmon Rd. - Alston Bay Blvd.)

SCALE: AS NOTED

DATE: SEPTEMBER, 2016

DWG File: Sheet 3-6 (Plan View)

SHEET DESCRIPTION:
 CONSTRUCTION PLANS
 PLAN & PROFILE VIEW
 STA. 5+00 - STA. 11+00
 (OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
4

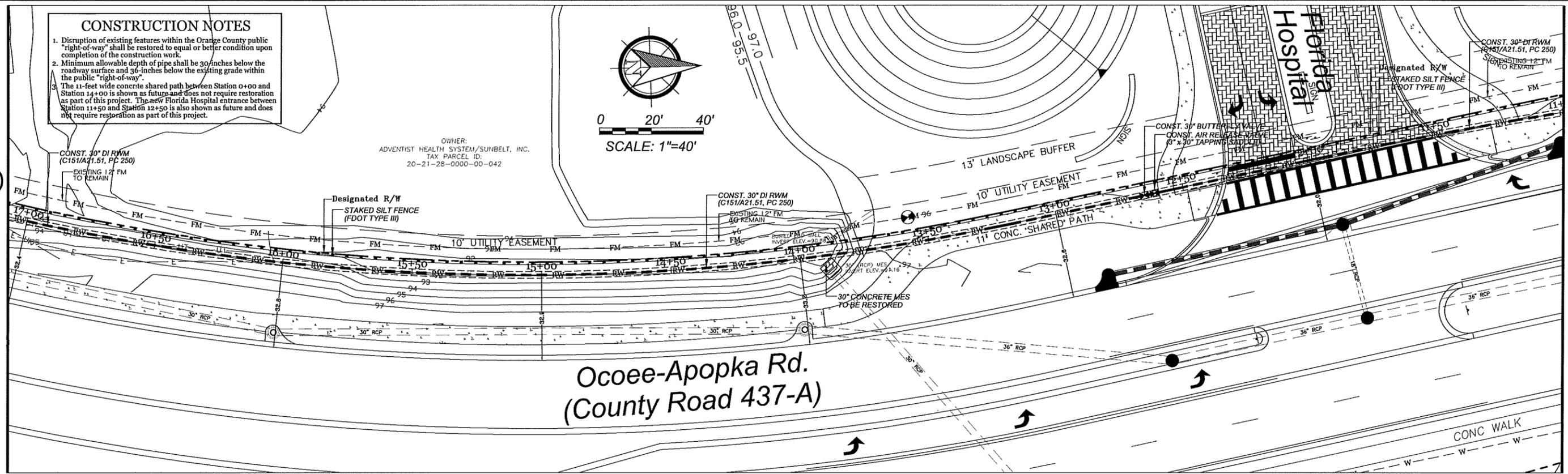
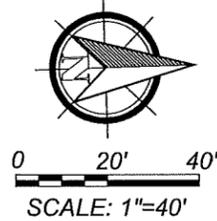
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MATCH STA. 11+00 @ SHEET #4

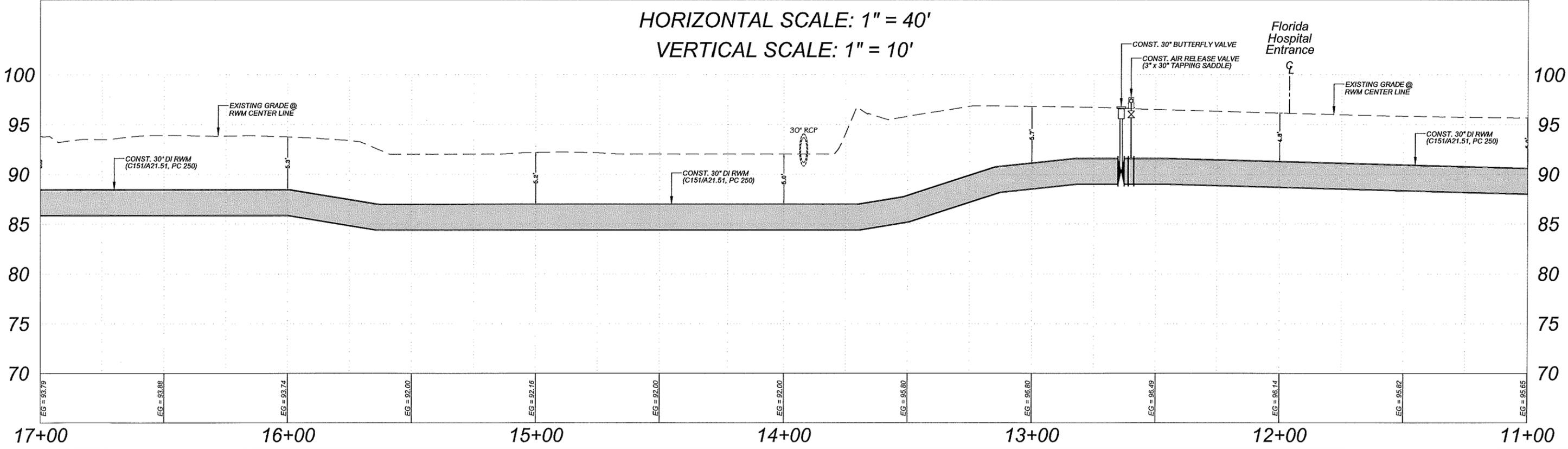
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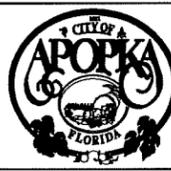
OWNER:
ADVENTIST HEALTH SYSTEM/SUNBELT, INC.
TAX PARCEL ID:
20-21-28-0000-00-042



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VERTICAL SCALE: 1" = 10'



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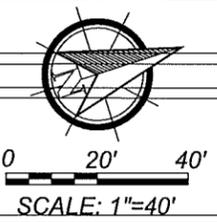
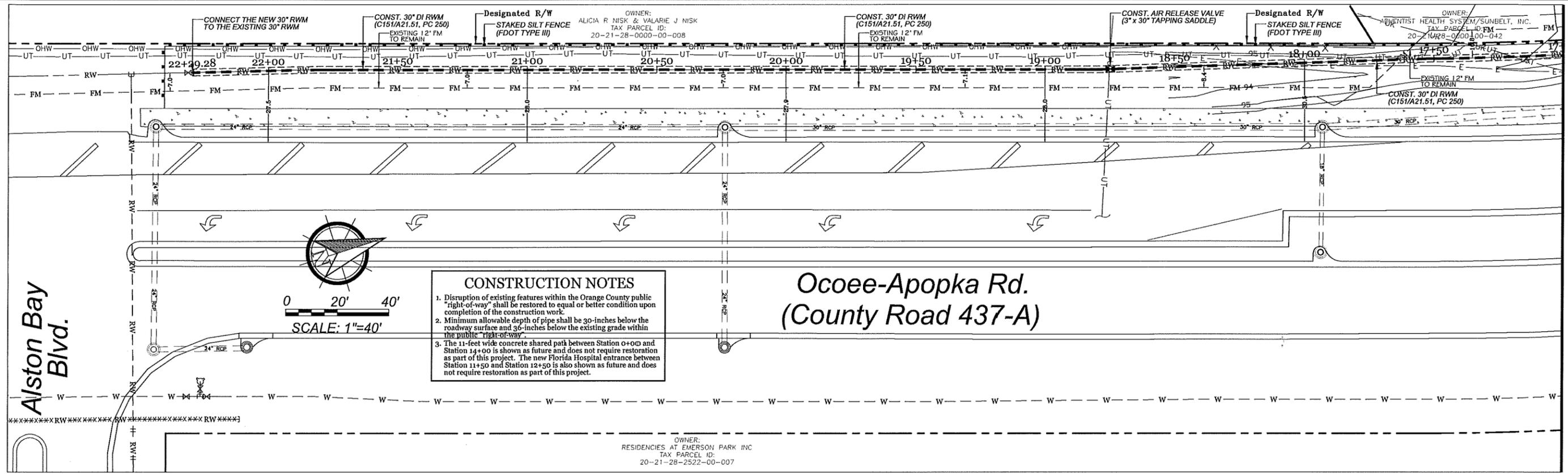
DATE: SEPTEMBER, 2016

DWG File: Sheet 3-6 (Plan View)

SHEET DESCRIPTION:
CONSTRUCTION PLANS
PLAN & PROFILE VIEW
STA. 11+00 - STA. 17+00
(OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
5

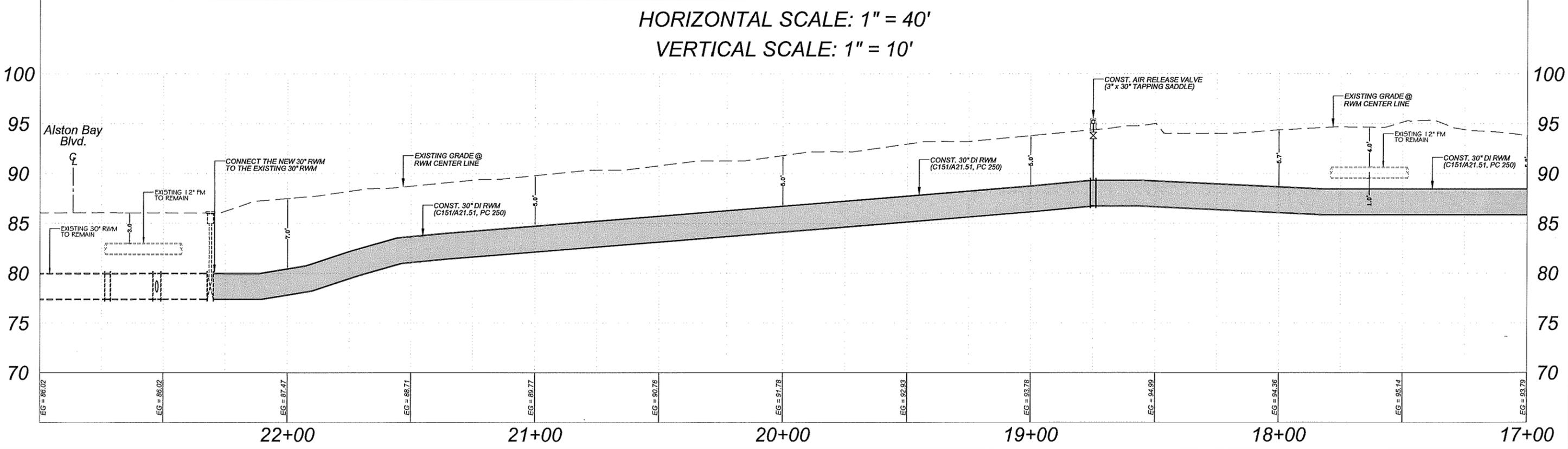
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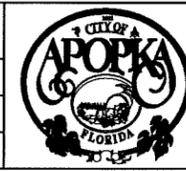
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DESIGN ENGINEERING DIVISION

748 E. CLEVELAND STREET
APOPKA, FLORIDA 32703
TEL: (407) 703-1731
FAX: (407) 703-1748

ENGINEER OF RECORD
NARET TERAN, P.E.
FBPE LICENSE NO. 73796

SIGNATURE _____
DATE _____

PROJECT NAME:
Ocoee-Apopka Rd. - RWS Extension
(Harmon Rd. - Alston Bay Blvd.)

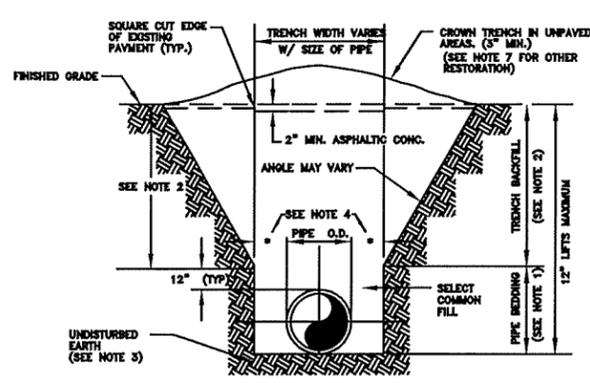
SCALE: AS NOTED

DATE: SEPTEMBER, 2016

DWG File: Sheet 3-6 (Plan View)

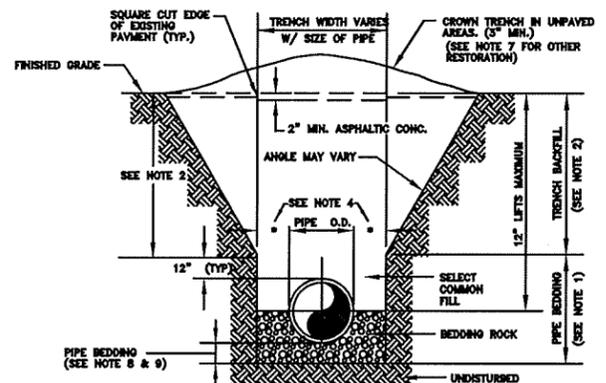
SHEET DESCRIPTION:
CONSTRUCTION PLANS
PLAN & PROFILE VIEW
STA. 17+00 - STA. 23+00
(OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
6



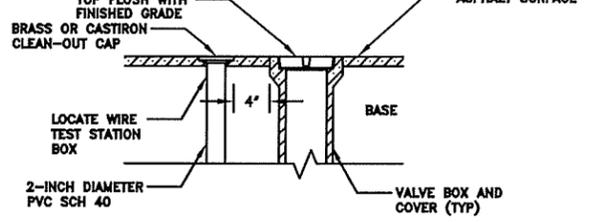
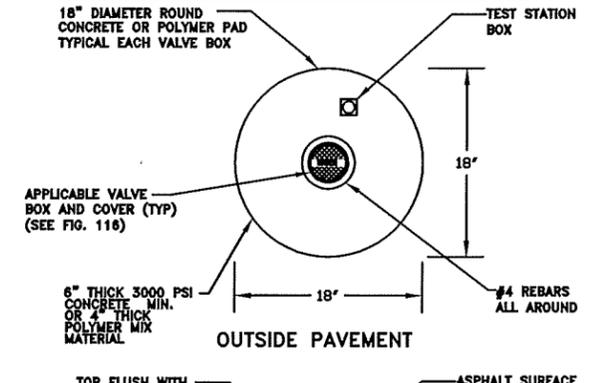
- NOTES:
- PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE CITY.
 - (*) 15" MAX. FOR PIPE DIAMETERS LESS THAN 24", AND 24" 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 CITY RIGHT-OF-WAY, SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS.
 - ALL UNPAVED DISTURBED AREAS SHALL BE SODDED TO MATCH ADJACENT DOMINANT GRASS SPECIES.

TYPE "B" BEDDING AND OPEN-CUT DETAIL

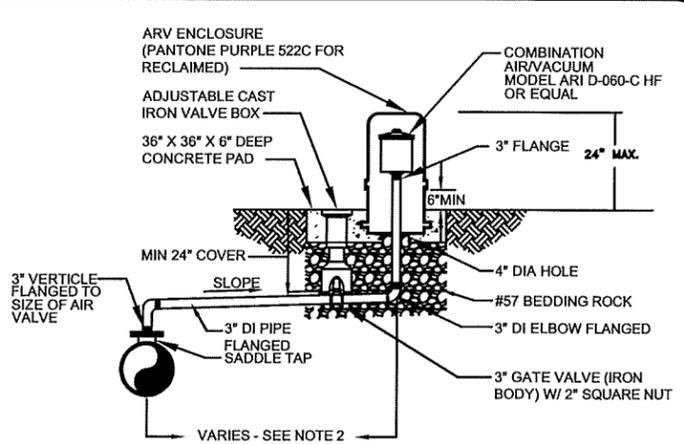


- NOTES:
- PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - USE OF TYPE A BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CITY.
 - (*) 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. 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.
 - GRAVITY SEWERS SHALL UTILIZE TYPE A BEDDING IF REQUIRED BY THE CITY. BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER LESS THAN 18" AND 6" MINIMUM FOR PIPE DIAMETER 18" AND LARGER.
 - DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. THE CITY SHALL DETERMINE IN THE FIELD IF REMOVAL OF UNSUITABLE MATERIAL IS REQUIRED TO REACH A SUITABLE FOUNDATION.
 - ALL UNPAVED DISTURBED AREAS SHALL BE SODDED TO MATCH ADJACENT DOMINANT GRASS SPECIES.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN CITY RIGHT-OF-WAY, SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS.

TYPE "A" BEDDING AND OPEN-CUT DETAIL



VALVE IDENTIFICATION TAG TO BE INSTALLED BY CITY & PAID FOR BY DEVELOPER
VALVE BOX



- NOTES:
- FOR RECLAIMED WATER USE ONLY.
 - OFFSET DISTANCE TO BE FIELD DETERMINED AND AS CLOSE TO THE R/W AS POSSIBLE.
 - ADJUST HORIZONTAL LOCATION OF SIDEWALK, AS REQUIRED TO AVOID ARV ENCLOSURE.
 - LOCATE ARV ENCLOSURE WITHIN 6" OF R/W LINE.

ABOVE GROUND 3" COMBINATION AIR/VACUUM RELEASE VALVE DETAIL (RECLAIMED WATER ONLY)

CITY OF APOPKA
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FIG. 100

CITY OF APOPKA
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FIG. 101

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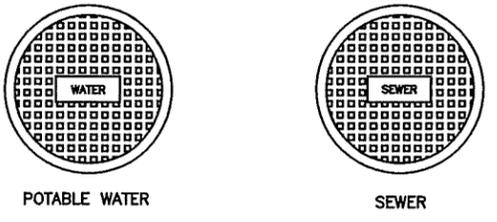
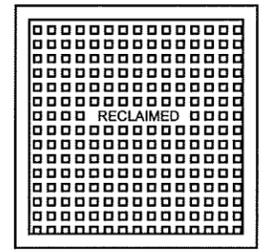
JANUARY 2016

FIG. 109

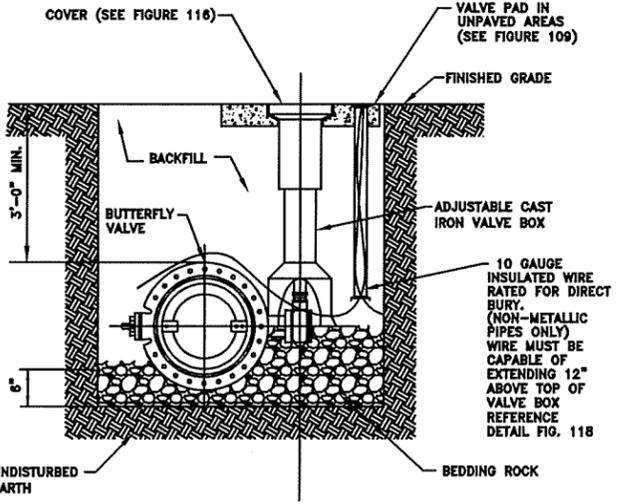
CITY OF APOPKA
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JANUARY 2016

FIG. 113A

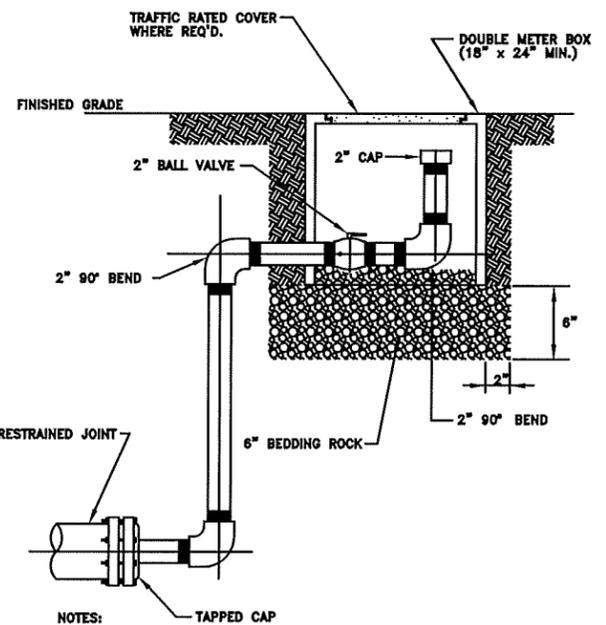


TYPICAL VALVE BOX COVER DETAILS



- NOTES:
- PVC EXTENSIONS MAY BE USED ON VALVE BOX INSTALLATION.
 - ALL WATER SHUT-OFF VALVES SIXTEEN (16) INCHES AND LARGER SHALL BE BUTTERFLY VALVES.
 - THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO WITHIN 3 FEET BELOW FINISHED GRADE.

BUTTERFLY VALVE AND BOX DETAIL



- NOTES:
- ALL 2 INCH PIPE AND FITTINGS SHALL BE SCHEDULE 40 GALVANIZED STEEL OR BRASS WITH THREADED (NPT) JOINTS. USE TEFLON TAPE ON JOINTS.
 - COLOR SHALL BE APPROPRIATE FOR USE.

BLOWOFF VALVE DETAIL

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FIG. 116

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FIG. 401

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FIG. 403

NO.	REVISIONS:	DATE:

CITY OF APOPKA
PUBLIC SERVICES DEPARTMENT
DESIGN ENGINEERING DIVISION
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FAX: (407) 703-1748

ENGINEER OF RECORD
NARET TERAN, P.E.
FBPE LICENSE NO. 73796

SIGNATURE _____
DATE _____

PROJECT NAME:
Ocoee-Apopka Rd. - RWS Extension
(Harmon Rd. - Alston Bay Blvd.)

SCALE: AS NOTED
DATE: SEPTEMBER, 2016
DWG File: Sheet 7 (Utility Details)

SHEET DESCRIPTION:
CONSTRUCTION PLANS
UTILITY DETAILS
(OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
7

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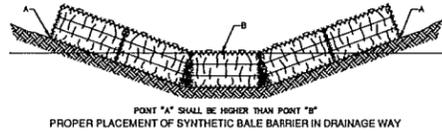
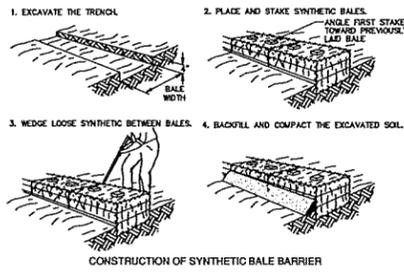
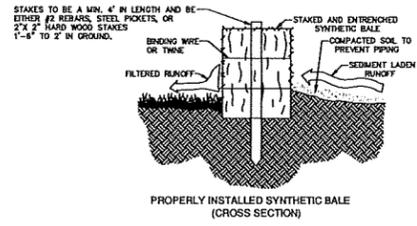
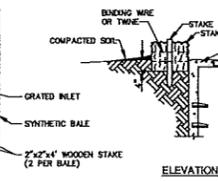
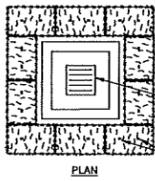


FIGURE 1
SYNTHETIC BALE BARRIER
N.T.S.



- GENERAL NOTES:
- BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED WITH THE BRIDGES ORIENTED AROUND THE SIDES RATHER THAN OVER AND UNDER THE BALES.
 - BALES SHALL BE PLACED LENGTHWISE IN A SINGLE ROW SURROUNDING THE INLET, WITH ENDS OF ADJACENT BALES PRESSED TOGETHER.
 - THE BALE SHALL BE EXTENDED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED AROUND THE BALE, THE WIDTH OF A BALE TO A MINIMUM DEPTH OF 4 INCHES. AFTER THE BALES ARE STAKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AND COMPACTED AGAINST THE FILTER.
 - EACH BALE SHALL BE SECURELY ANCHORED AND HELD IN PLACE BY AT LEAST TWO STAKES OR REBARS DRIVEN THROUGH THE BALE.
 - LOOSE SYNTHETIC SHALL BE WEDGED BETWEEN BALES TO PREVENT WATER FROM ENTERING BETWEEN BALES.

FIGURE 2
SYNTHETIC BALE INLET SEDIMENT FILTER
N.T.S.

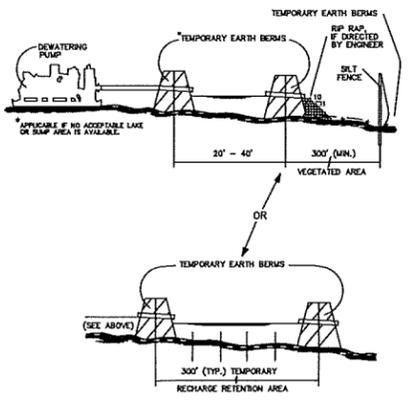
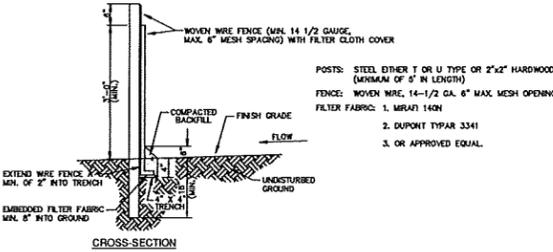
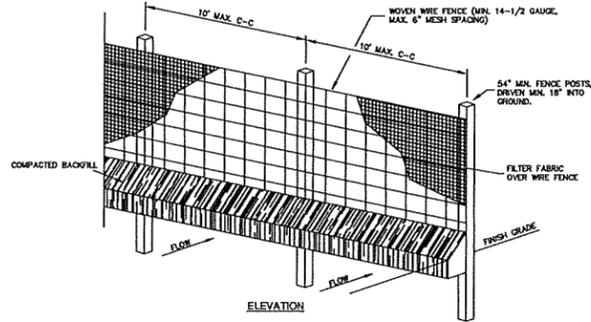


FIGURE 3
TYPICAL DEWATERING DISCHARGE PLAN
N.T.S.

THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. THE EROSION CONTROL SYSTEM DESCRIBED WITHIN THE CONSTRUCTION DOCUMENTS SHOULD BE CONSIDERED TO REPRESENT THE MINIMUM ACCEPTABLE STANDARDS FOR THIS PROJECT. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED DEPENDENT UPON THE STAGE OF CONSTRUCTION, THE SEVERITY OF THE RAINFALL EVENT AND/OR AS DEEMED NECESSARY AS A RESULT OF ON-SITE INSPECTIONS.

FIGURE 4
EROSION & SEDIMENTATION CONTROL NOTES
N.T.S.



- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJACENT EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN. COLLECTED MATERIAL SHALL BE REMOVED WHEN "MOUNDS" DEVELOP IN THE SILT FENCE.

FIGURE 5
SEDIMENTATION / SILT FENCE
N.T.S.

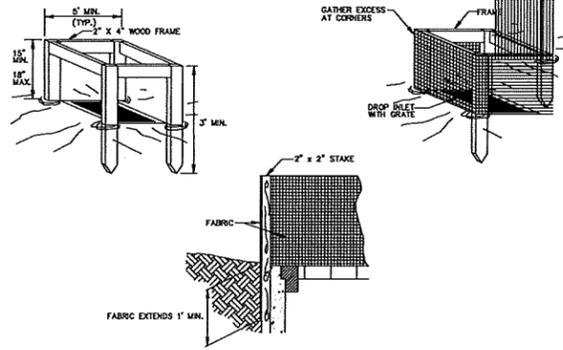
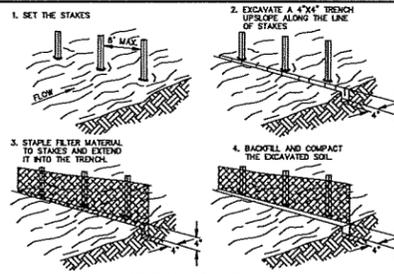


FIGURE 6
SILT FENCE INLET PROTECTION
N.T.S.



SHEET FLOW INSTALLATION (PERSPECTIVE VIEW)

FIGURE 7
SILT FENCE BARRIER
N.T.S.

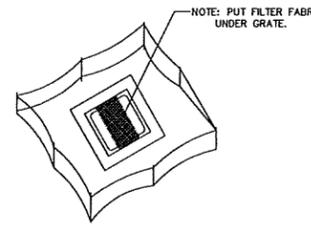


FIGURE 11
STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS
N.T.S.

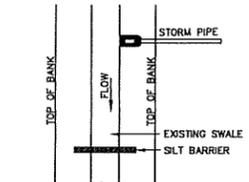


FIGURE 12
SILT BARRIER AT CONNECTION OF STORM PIPE TO EXISTING SWALE
N.T.S.

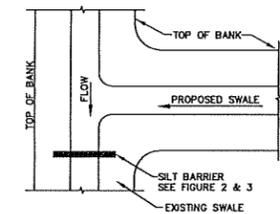


FIGURE 13
SILT BARRIER AT CONNECTION OF SWALE TO EXISTING SWALE
N.T.S.

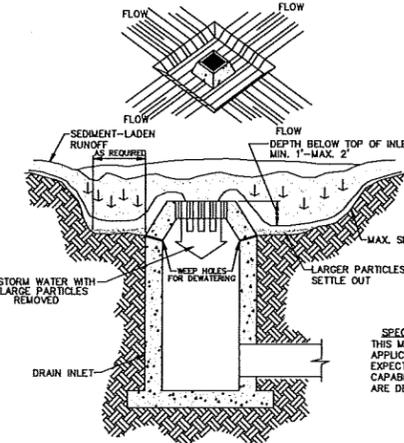


FIGURE 8
EXCAVATED INLET SEDIMENT TRAP
N.T.S.

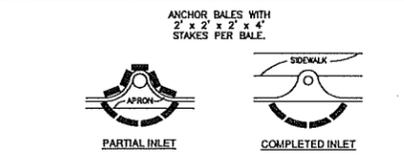


FIGURE 9
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES
N.T.S.

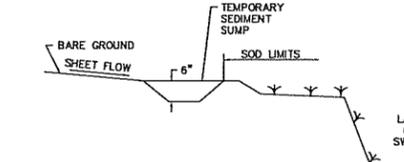


FIGURE 10
TEMPORARY SEDIMENT SUMP
N.T.S.

BEST MANAGEMENT PRACTICES

This plan has been prepared to ensure compliance with the Rules of the Florida Department of Environmental Protection, Chapter 17-25, F.A.C., and the St. John's River Water Management District, Chapter 40E-4, F.A.C. The plan addresses the following areas:

- Protection of preserved/conserved upland habitats during construction.
- General erosion control.
- Protection of surface water quality during and after construction.
- Control of wind erosion.

The various techniques or actions identified under each section indicate the appropriate situation when the techniques should be employed. Also identified is a cross-reference to a diagram or figure representing the technique.

It should be noted that the measures identified on this plan are only suggested BMP(s). The contractor shall provide pollution prevention and erosion control measures as specified in FDOT Index #100 and as necessary for each specific application.

SECTION 1 - PROTECTION OF PRESERVED/CONSERVED UPLAND HABITATS
N/A.

SECTION 2 - GENERAL EROSION CONTROL

- General erosion control BMPs shall be employed to minimize soil erosion and potential lake slope cave-ins. While the various techniques required will be site and plan specific, they should be employed as soon as possible during construction activities.
- Cleared site development areas not continuously scheduled for construction activities shall be covered with hay or grass seed and periodically watered sufficient to stabilize the temporary groundcover.
- Slopes of banks of retention/detention ponds shall be constructed not steeper than 4(H):1(V) from top of bank to two feet below normal water level.
- All grass slopes constructed steeper than 4(H):1(V) shall be sodded as soon as practical after their construction.
- Sod shall be placed for a 3-foot wide strip adjoining all curbing and around all inlets as shown in Figure 9. Sod shall be placed before silt barriers, shown in Figure 3, are installed.
- Where required to prevent erosion on sheet flow across bare ground from entering a lake or swale, a temporary sediment sump shall be constructed, as shown in Figure 11. The temporary sediment sump shall remain in place until vegetation is established on the ground draining to the sump.

SECTION 3 - PROTECTION OF SURFACE WATER QUALITY DURING AND AFTER CONSTRUCTION

- Surface water quality shall be maintained by employing the following BMPs in the construction planning and construction of all improvements.
 - Where practical, stormwater shall be conveyed by swales. Swales shall be constructed as shown in Figure 14.
 - Erosion control measures shall be employed to minimize turbidity of surface waters located downstream of any construction activity. While the various measures required will be site specific, they shall be employed as needed in accordance with the following:
 - In general, erosion shall be controlled at the furthest practical upstream location.
 - Stormwater inlets shall be protected during construction as shown in Figures 9 and 12. Protection measures shall be employed as soon as practical during the various stages of inlet construction. Silt barriers shall remain in place until sodding around inlets is complete.
 - Heavy construction equipment parking and maintenance areas shall be designed to prevent oil, grease, and lubricants from entering site drainage features including stormwater collection and treatment systems. Contractors shall provide broad dikes, synthetic bales or silt screens around, and sediment traps within, such areas as required to contain spills of oil, grease or lubricants. Contractors shall have available, and shall use absorbent filter pads to clean up spills as soon as possible after occurrence.
- Silt barriers, any silt which accumulates behind the barriers, and any fill used to anchor the barriers shall be removed promptly after the end of the maintenance period specified for the barriers.

SECTION 4 - CONTROL OF WIND EROSION

- Wind erosion shall be controlled by employing the following methods as necessary and appropriate:
 - Bare earth areas shall be watered during construction as necessary to minimize the transport of fugitive dust. It may be necessary to limit construction vehicle speed if bare earth has not been effectively watered. In no case shall fugitive dust be allowed to leave the site under construction.
 - As soon as practical after completion of construction, bare earth areas shall be vegetated.
 - At any time both during and after site construction that watering and/or vegetation on are not effective in controlling wind erosion and/or transport of fugitive dust, other methods as are necessary for such control shall be employed. These methods may include erection of dust control fences. If required, dust control fences shall be constructed in accordance with the detail for a silt fence shown in Figure 7 except the minimum height shall be 4 feet.

NO.	REVISIONS:	DATE:

CITY OF APOPKA
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PROJECT NAME:
Ocoee-Apopka Rd. - RWS Extension
(Harmon Rd. - Alston Bay Blvd.)

SCALE: AS NOTED

DATE: SEPTEMBER, 2016

DWG File: Sheet 8 (Pollution Prevention)

SHEET DESCRIPTION:
CONSTRUCTION PLANS
POLLUTION PREVENTION DETAILS
(OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
8