

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 (Alston Bay Blvd. - W. Keene Rd.)



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| 10 | POLLUTION PREVENTION DETAILS |

PROJECT DESCRIPTION

30-inch Reclaimed Water Main = 1,840 LF (0.348 MILES)
12-inch Reclaimed Water Main = 140 LF (0.027 MILES)

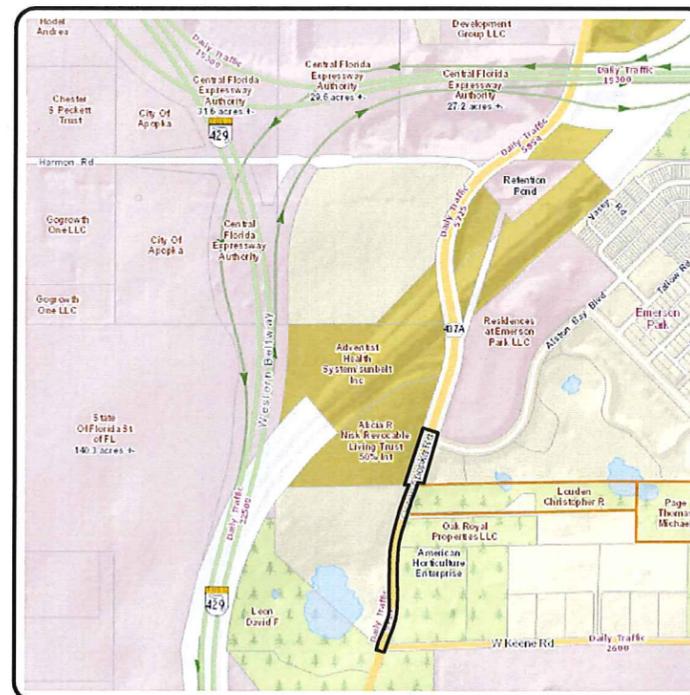
GOVERNING DESIGN STANDARDS & SPECIFICATIONS

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 |

SEPTEMBER, 2016



MAYOR
Joe Kilsheimer

COUNCIL MEMBERS

Billie L. Dean
Diane Velazquez
Doug Bankson
Kyle Becker



CITY ADMINISTRATOR
Glenn A. Irby

PUBLIC SERVICES DIRECTOR
R. Jay Davoll, P.E.
DESIGN ENGINEERING DIVISION
Vladimir Simonovski
Naret Teran, P.E.
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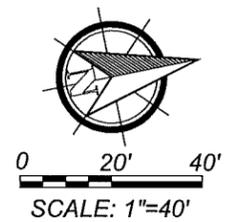
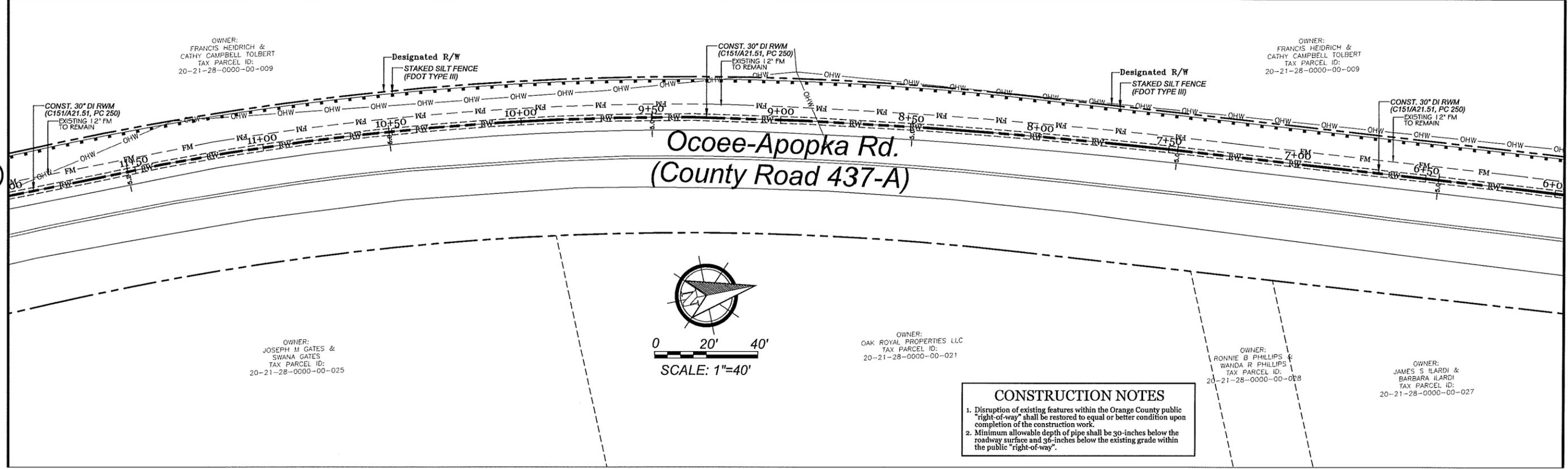
PLANS PREPARED BY:
CITY OF APOPKA
PUBLIC SERVICES
DESIGN ENGINEERING DIVISION

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

MATCH STA. 11+88 @ SHEET #5

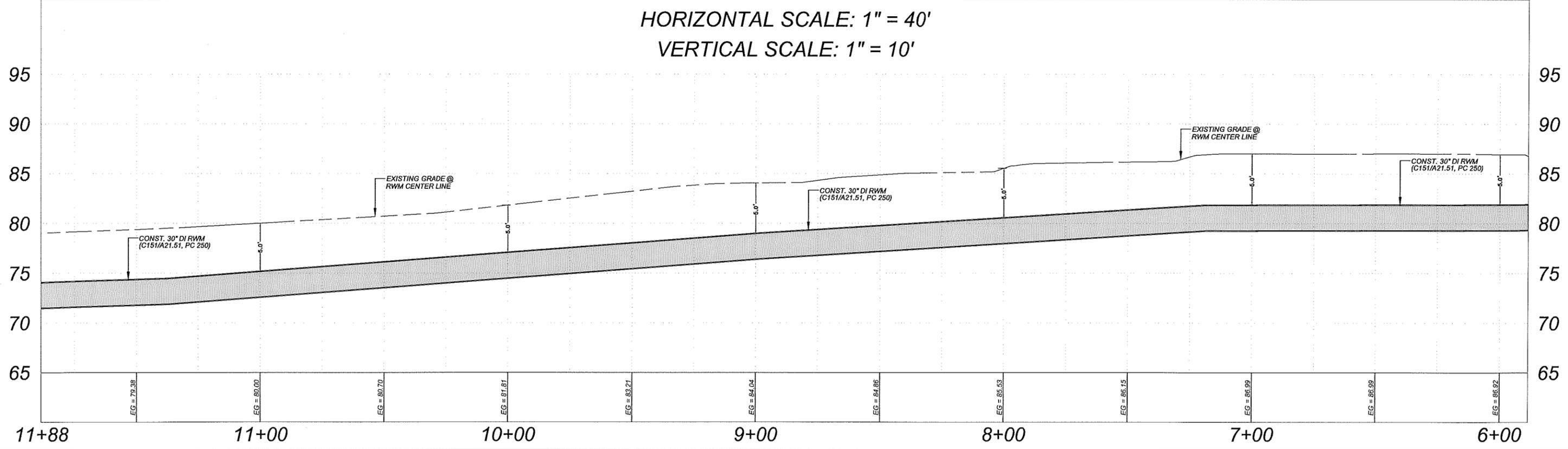
MATCH STA. 5+88 @ SHEET #3



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".

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



| NO. | REVISIONS: | DATE: |
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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 3-5 (Plan View)

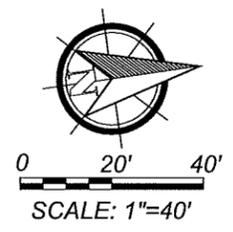
SHEET DESCRIPTION:
 CONSTRUCTION PLANS
 PLAN & PROFILE VIEW
 STA. 5+88 - STA. 11+88
 (OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
4

MATCH STA. 11+88 @ 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 36-inches below the roadway surface and 36-inches below the existing grade within the public "right-of-way".

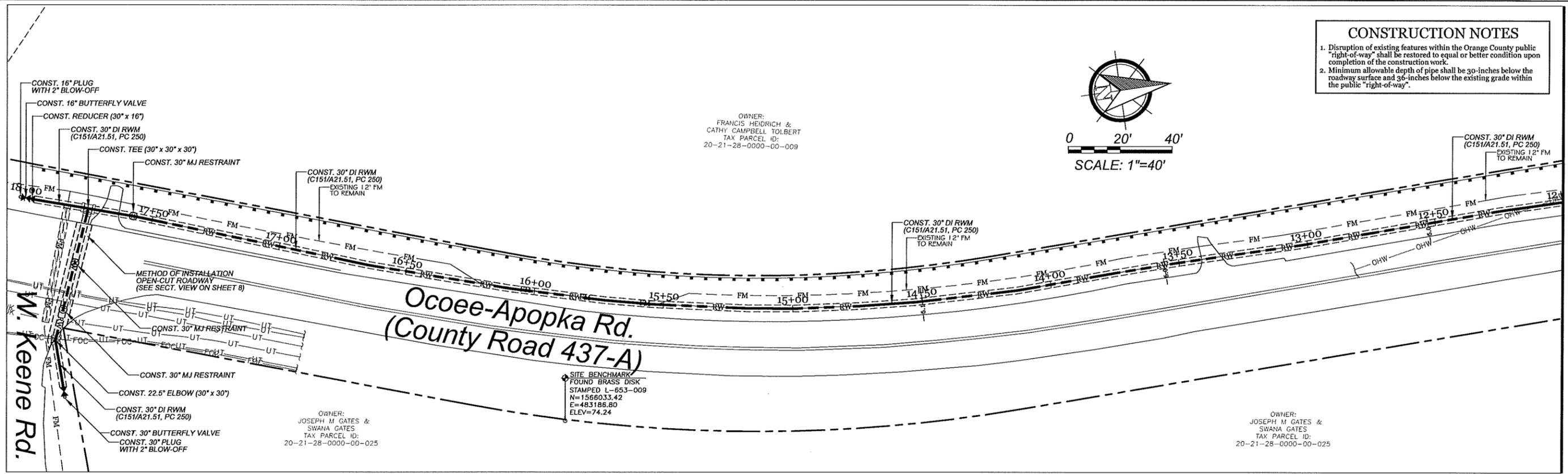


OWNER:
FRANCIS HEIDRICH &
CATHY CAMPBELL TOLBERT
TAX PARCEL ID:
20-21-28-0000-00-009

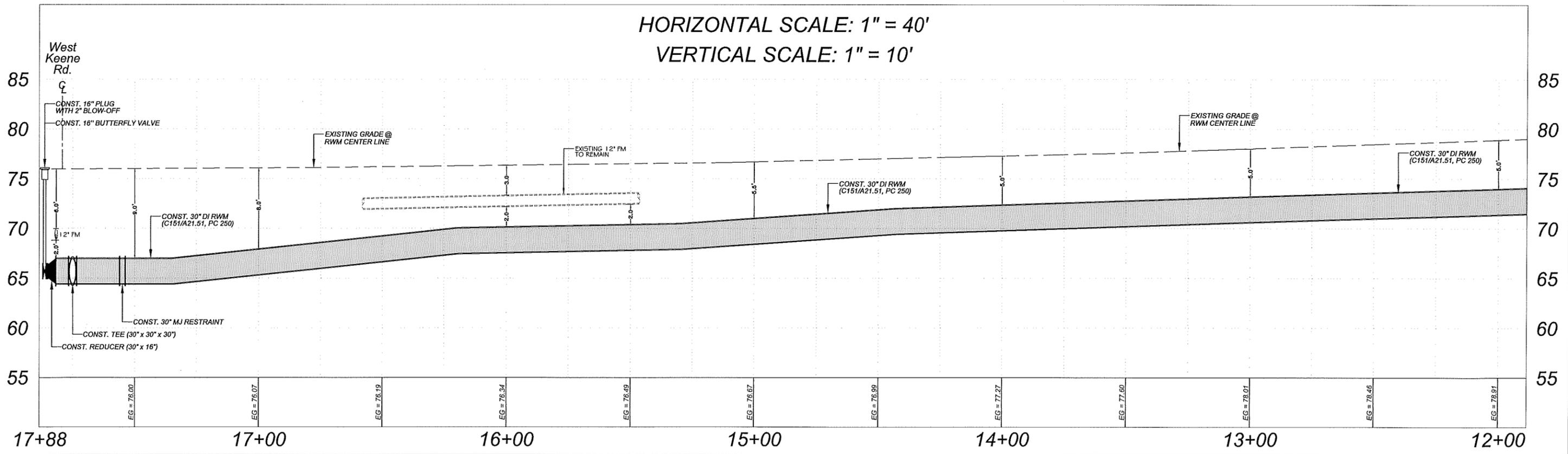
OWNER:
JOSEPH M. GATES &
SWANA GATES
TAX PARCEL ID:
20-21-28-0000-00-025

OWNER:
JOSEPH M. GATES &
SWANA GATES
TAX PARCEL ID:
20-21-28-0000-00-025

SITE BENCHMARK
FOUND BRASS DISK
STAMPED L-653-009
N=1566033.42
E=483186.80
ELEV=74.24



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



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| NO. | REVISIONS: | DATE: |  <p>CITY OF APOPKA PUBLIC SERVICES DEPARTMENT DESIGN ENGINEERING DIVISION 748 E. CLEVELAND STREET APOPKA, FLORIDA 32703 TEL: (407) 703-1731 FAX: (407) 703-1748</p> | ENGINEER OF RECORD NARET TERAN, P.E. FBPE LICENSE NO. 73796 | PROJECT NAME: Ocoee-Apopka Rd. - RWS Extension (Harmon Rd. - Alston Bay Blvd.) | SHEET DESCRIPTION: CONSTRUCTION PLANS PLAN & PROFILE VIEW STA. 11+88 - STA. 17+88 (OCOEE-APOPKA RD., APOPKA, FL) | SHEET NO. 5 |
| | | | | SIGNATURE | SCALE: AS NOTED | DATE: SEPTEMBER, 2016 | DWG File: Sheet 3-5 (Plan View) |

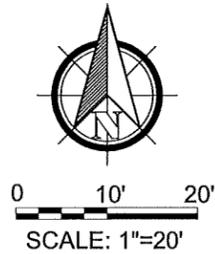
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OWNER:
FRANCIS HEIDRICH &
CATHY CAMPBELL TOLBERT
TAX PARCEL ID:
20-21-28-0000-00-009

OWNER:
JOSEPH M GATES &
SWANA GATES
TAX PARCEL ID:
20-21-28-0000-00-025

SELECTED AREA TO BE
MILLED & RESURFACED
APPROX. AREA = 540 (SY)

METHOD OF INSTALLATION
OPEN-CUT ROADWAY
(SEE FIG. 801 ON SHEET 9)



OWNER:
DAVID F. LEON &
MICHELLE P. LEON
TAX PARCEL ID:
19-21-28-0000-00-005

W. Keene Rd.

Ocoee-Apopka Rd.
(County Road 437-A)

SITE BENCHMARK
SET IRON ROD W/CAP
N=1565765.88
E=483090.28
ELEV=78.24

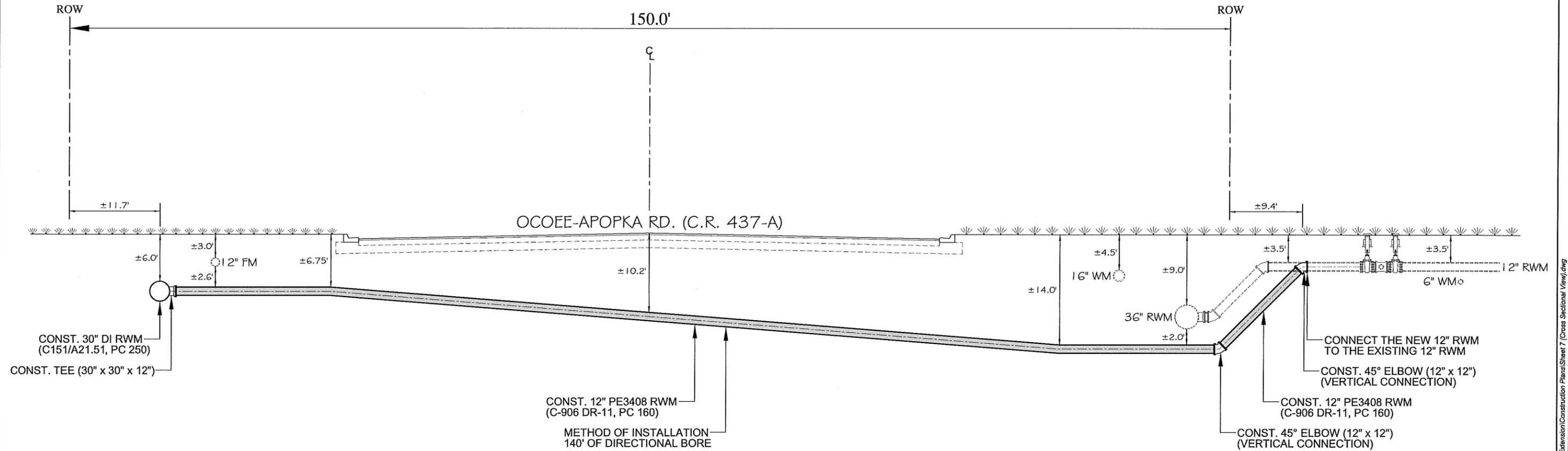
OWNER:
DARYL M CARTER TR
TAX PARCEL ID:
29-21-28-0000-00-003

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West

East



OCOEE-APOPKA RD. (C.R. 437-A) @ ALSTON BAY BLVD.
CROSS SECTIONAL VIEW

N.T.S.

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TEL: (407) 703-1731
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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 (Cross Sectional View)

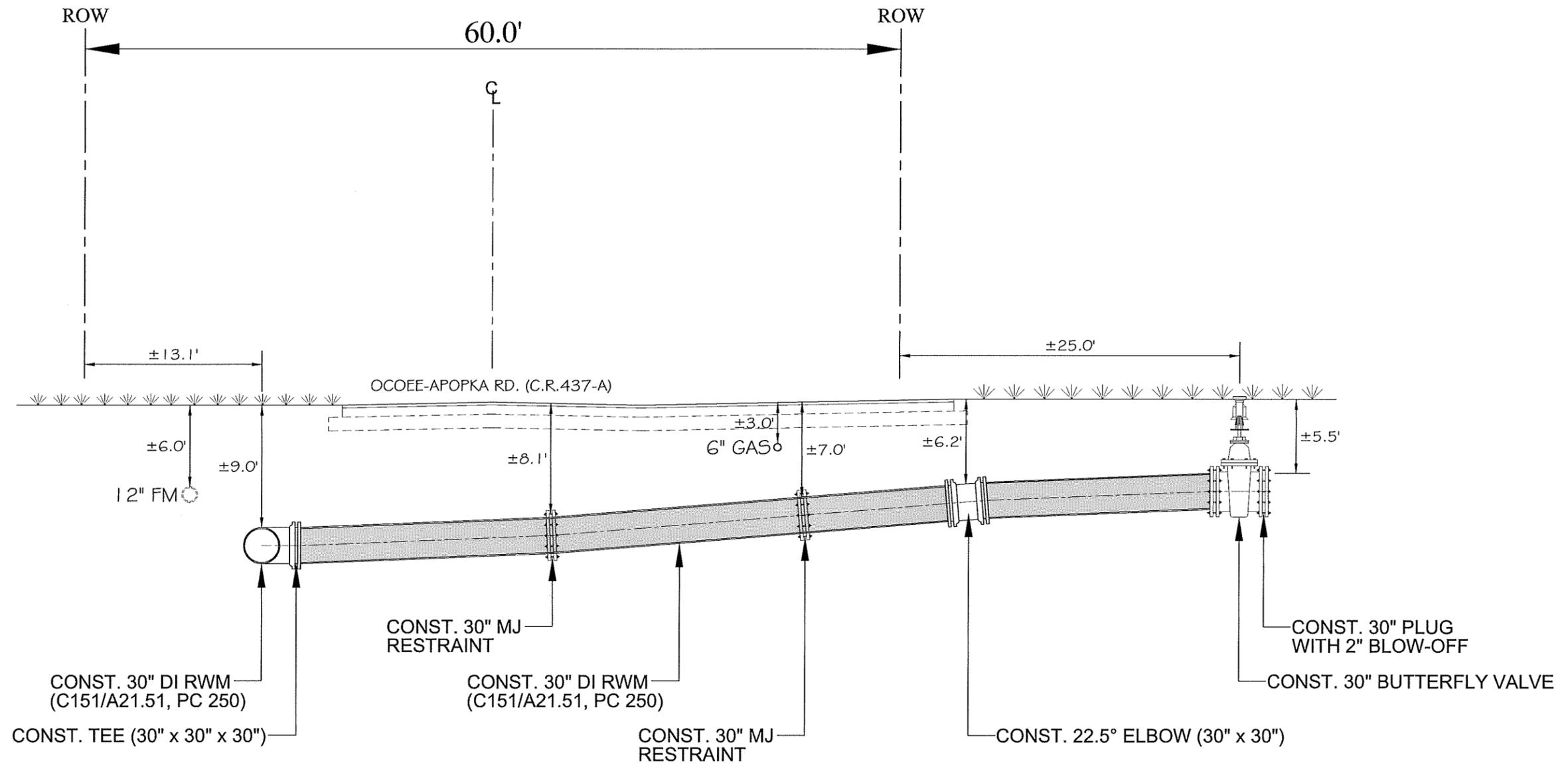
SHEET DESCRIPTION:
CONSTRUCTION PLANS
CROSS SECTIONAL VIEW
C.R. 437-A @ ALSTON BAY BLVD.
(OCOEE-APOPKA RD., APOPKA, FL)

SHEET NO.
7

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West

East

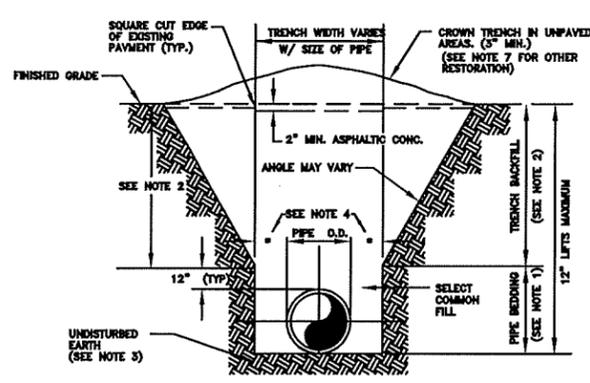


OCOEE-APOPKA RD. (C.R. 437-A) @ W. KEENE RD. CROSS SECTIONAL VIEW

N.T.S.

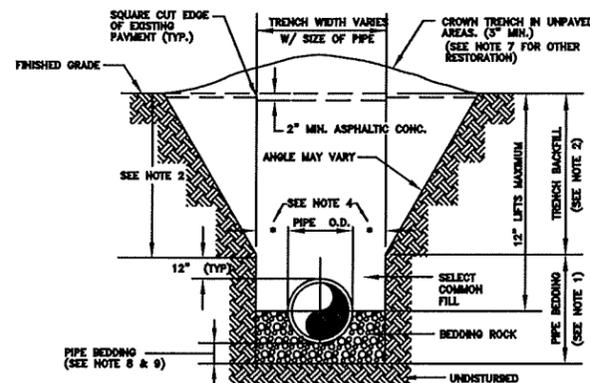
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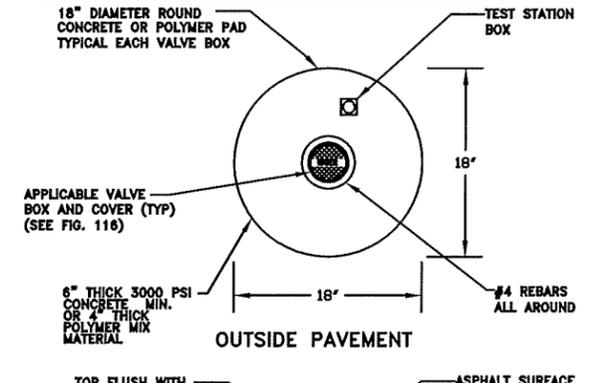
- NOTES:
- PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING 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 SOODED TO MATCH ADJACENT DOMINATE GRASS SPECIES.

TYPE "B" BEDDING AND OPEN-CUT DETAIL



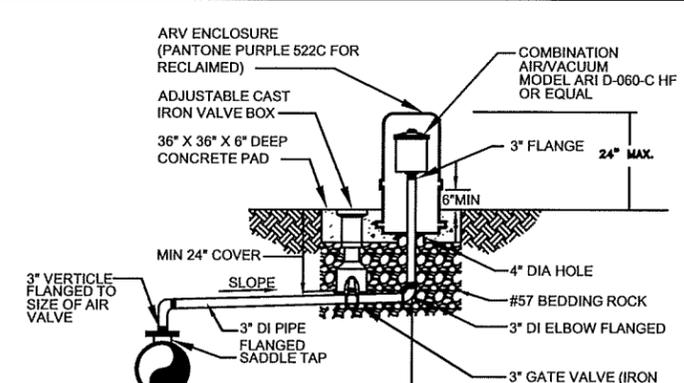
- NOTES:
- PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-100.
 - USE OF TYPE A BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CITY.
 - (*) 15" MAX. FOR PIPE 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 15" AND 6" MINIMUM FOR PIPE DIAMETER 15" 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 SOODED TO MATCH ADJACENT DOMINATE GRASS SPECIES.
 - FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF THE 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



- NOTES:
- 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.

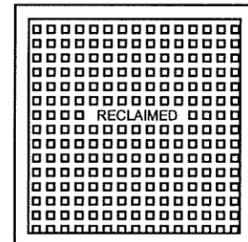
ABOVE GROUND 3" COMBINATION AIR/VACUUM RELEASE VALVE DETAIL (RECLAIMED WATER ONLY)

CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 100

CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 101

CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 109

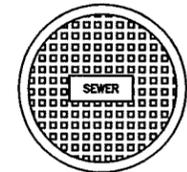
CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 113A



RECLAIMED WATER

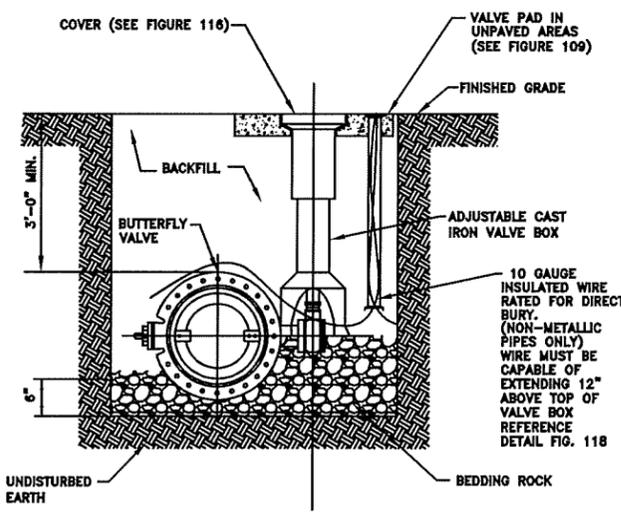


POTABLE WATER



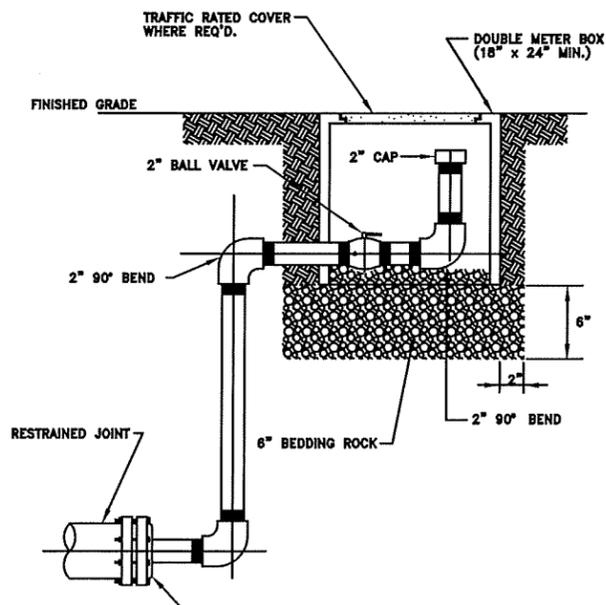
SEWER

TYPICAL VALVE BOX COVER DETAILS



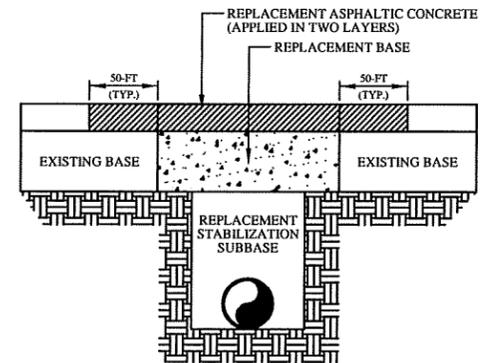
- NOTES:
- PVC EXTENSIONS MAY BE USED ON VALVE BOX INSTALLATION.
 - ALL WATER SHUT-OFF VALVES SIXTEEN (16) INCHES AND LARGER SHALL BE BUTTERFLY VALVES.
 - THE ACTUATING NUT FOR DEEPER VALVES SHALL BE EXTENDED TO WITHIN 3 FEET BELOW FINISHED GRADE.

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



- GENERAL NOTES:
- Stabilization subbase replacement shall be minimum 2-inch with top 6-inch of the stabilized layer compacted to a minimum of 95% AASHTO T99 density and minimum limerock bearing ratio - LBR100.
 - Base replacement shall be 8-inch limerock compacted to a minimum of 98% AASHTO T99 density and minimum limerock bearing ratio - LBR100.
 - Pavement replacement shall be 2.5-inch asphaltic concrete (Traffic C, AASHTO Type SP-9.5).
 - All joint cuts shall be mechanically saw-cut.

OCOEE-APOPKA RD. (C.R. 437-A) STANDARD ROADWAY OPEN-CUT DETAIL N.T.S.

CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 116

CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 401

CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 403

CITY OF APOPKA DESIGN ENGINEERING DIVISION JANUARY 2016 FIG. 801

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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 9 (Utility Details)

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

SHEET NO.
9

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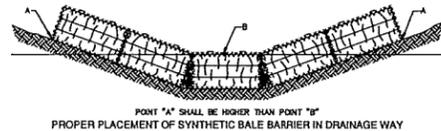
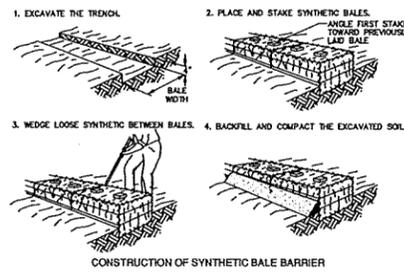
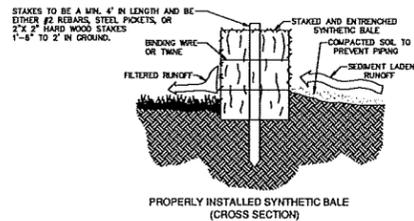
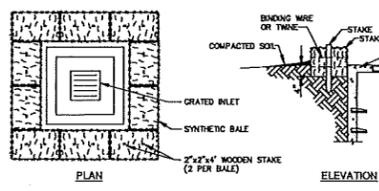


FIGURE 1
SYNTHETIC BALE BARRIER
N.T.S.



- GENERAL NOTES:
- BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED WITH THE BINDINGS 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 ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED AROUND THE INLET 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.

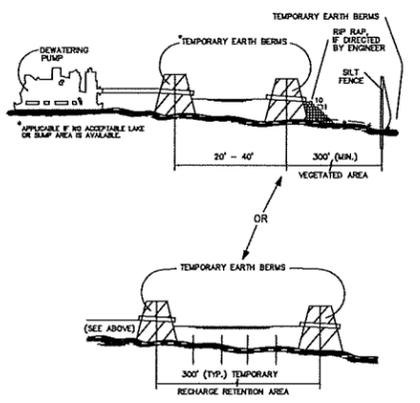
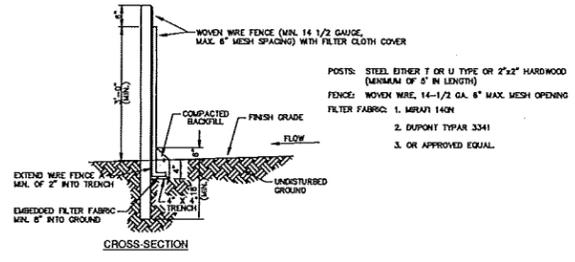
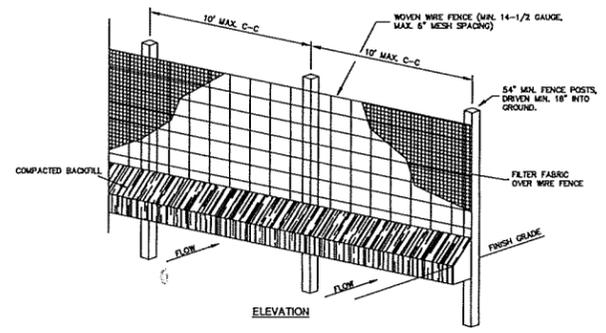


FIGURE 3
TYPICAL DEWATERING DISCHARGE PLAN
N.T.S.

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 ADJOIN 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 "BULGES" DEVELOP IN THE SILT FENCE.

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

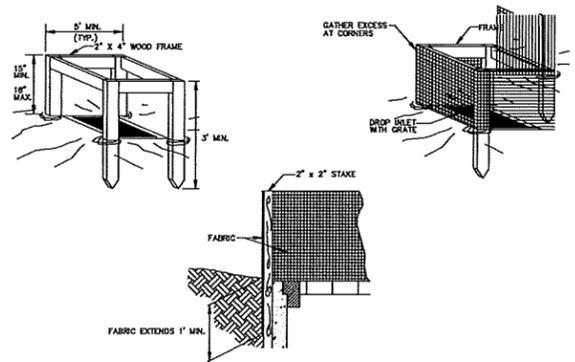


FIGURE 6
SILT FENCE INLET PROTECTION
N.T.S.

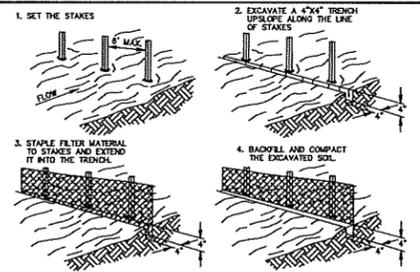


FIGURE 7
SILT FENCE BARRIER
N.T.S.

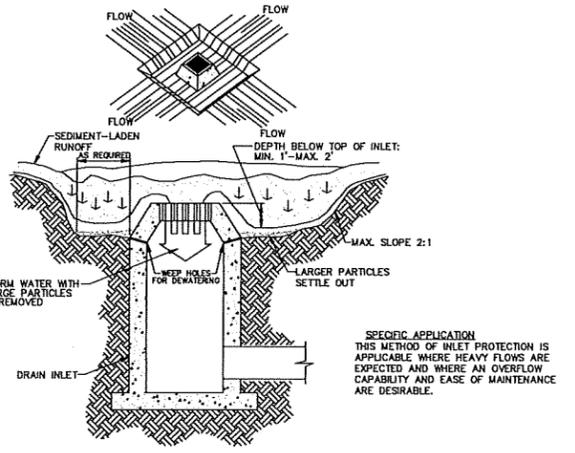
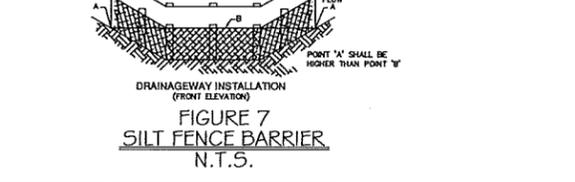


FIGURE 8
EXCAVATED INLET SEDIMENT TRAP
N.T.S.

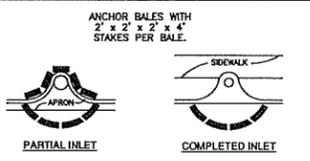


FIGURE 9
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES
N.T.S.

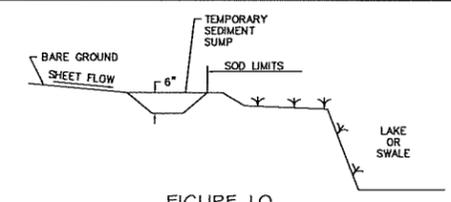


FIGURE 10
TEMPORARY SEDIMENT SUMP
N.T.S.

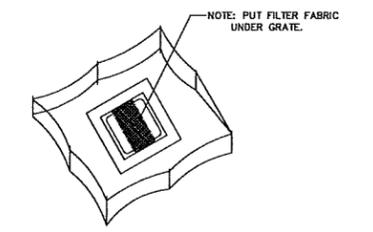


FIGURE 11
STAKED SILT BARRIER OR SILT FENCE PROTECTION AROUND DITCH BOTTOM INLETS
N.T.S.

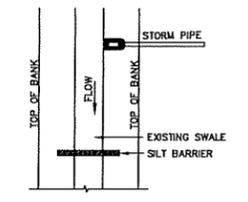


FIGURE 12
SILT BARRIER AT CONNECTION OF STORM PIPE TO EXISTING SWALE
N.T.S.

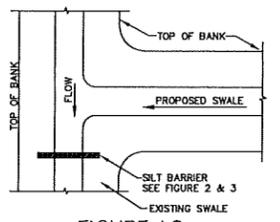


FIGURE 13
SILT BARRIER AT CONNECTION OF SWALE TO EXISTING SWALE
N.T.S.

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. Johns 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 position 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 BMP(s) shall be employed to minimize soil erosion and potential late 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 continually scheduled for construction activities shall be covered with hay or straw 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 cutting and around all inlets as shown in Figure 9. Sod shall be placed before silt barriers, shown in Figure 5, are installed.
- Where required to prevent erosion from 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 adjoining 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 sumps 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 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: |
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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. 73798

SIGNATURE

DATE

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

SCALE: AS NOTED

DATE: SEPTEMBER, 2016

DWG File: Sheet 10 (Pollution Prevention)

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

SHEET NO.
10