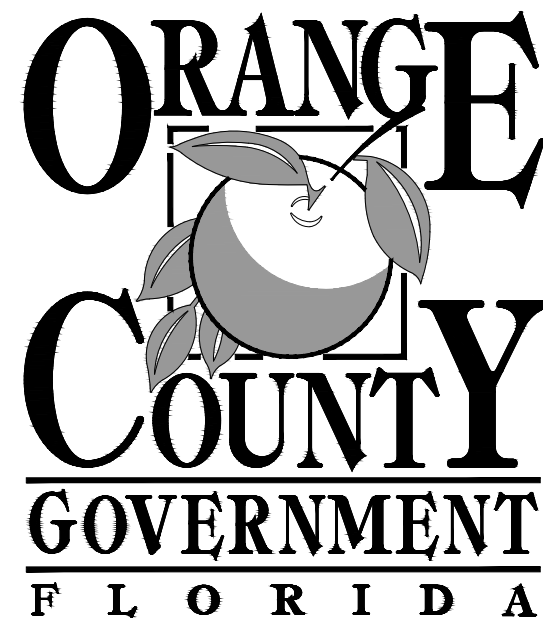


CONSTRUCTION DRAWINGS FOR

**FORCE MAIN R/R
DEERFIELD BOULEVARD FORCE MAIN**

DISTRICT 4

FEBRUARY 2018



CAPITAL PROJECT No. 1539-40

PROJECT SEQUENCE No. 93106

ORANGE COUNTY MAYOR

TERESA JACOBS

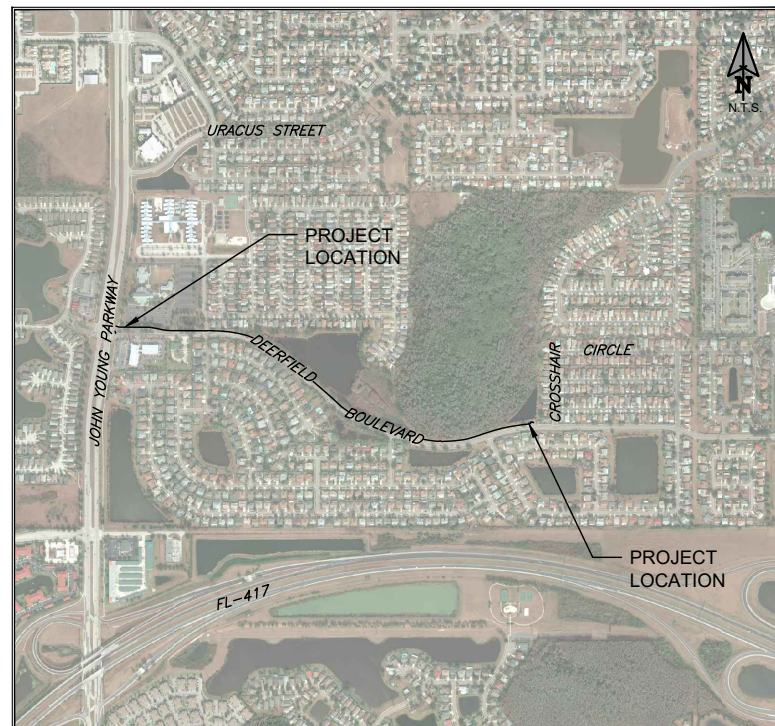
BOARD OF COUNTY COMMISSIONERS

- DISTRICT 1: COMMISSIONER BETSY VANDERLEY
- DISTRICT 2: COMMISSIONER BRYAN NELSON
- DISTRICT 3: COMMISSIONER PETE CLARKE
- DISTRICT 4: COMMISSIONER JENNIFER THOMPSON
- DISTRICT 5: COMMISSIONER EMILY BONILLA
- DISTRICT 6: COMMISSIONER VICTORIA P. SIPLIN

COUNTY ADMINISTRATOR: AJIT LALCHANDANI

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

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825



VICINITY MAP
NTS

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

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PH: (407) 896-8608 FAX: (407) 896-1822
ENGINEERING BUSINESS No. 6899

ENGINEER OF RECORD
GEOFFREY J. HENNESSY, P.E.

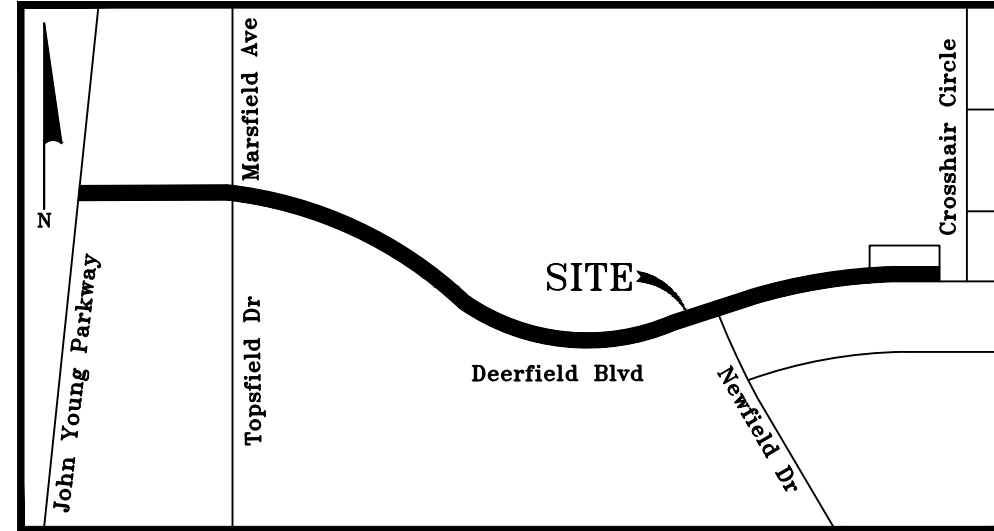
FLORIDA REGISTRATION No.
58637

TOPOGRAPHIC SURVEY

ORANGE COUNTY, FLORIDA.

TEST HOLE DATA

Location ID	Horizontal Coordinates	Elevation (ft)	(Presumed) Utility Owner	Size, Material & Type
TH-1a	N 1471625.61 E 519471.74	79.45	OCU	10" PVC Force Main
TH-1b	N 1471625.61 E 519471.74	84.55	OCU	3/4" Direct Bury Fiber Optic Cable (2)
TH-2a	N 1471614.03 E 519473.05	85.60	AT&T	1" Direct Bury Fiber Optic Cable
TH-2b	N 1471614.03 E 519473.05	86.45	AT&T	3/4" Direct Bury Fiber Optic Cable
TH-2c	N 1471614.03 E 519473.05	84.90	AT&T	3/4" Direct Bury Fiber Optic Cable
TH-3	N 1471569.81 E 520274.68	86.20	OUC WATER	12" Ductile Iron Water Line
TH-4a	N 1471559.67 E 520325.44	88.41	DUKE	2" Buried Electric
TH-4b	N 1471559.67 E 520325.44	87.68	AT&T	3/4" Direct Bury Fiber Optic Cable
TH-5	N 1470749.25 E 521718.65	87.16	OCU	8" White PVC Force Main
TH-6	N 1470724.35 E 521767.91	86.86	OCU	8" White PVC Force Main
TH-7	N 1470640.50 E 522027.01	87.52	DUKE	2" Buried Electric (2) & 1" Buried Electric
TH-8a	N 1470611.47 E 522123.42	89.78	AT&T	2" Direct Bury Fiber Optic Cable
TH-8b	N 1470611.47 E 522123.42	87.52	AT&T	4" Steel Casing Fiber Optic Cable
TH-9	N 1470711.94 E 523233.42	89.37	AT&T	1" Direct Bury Fiber Optic Cable
TH-10a	N 1471554.65 E 520136.03	87.45	AT&T	3/4" Direct Bury Fiber Optic Cable
TH-10b	N 1471554.65 E 520136.03	87.92	DUKE	2-1/2" PVC Buried Electric
TH-11	N 1470718.19 E 523281.73	86.18'	OCU	10" White PVC Force Main
TH-12	N 1470710.46 E 523235.77	83.88'	OCU	10" White PVC Force Main
ALL ELEVATIONS ARE TO TOP OF UTILITY				
Field work performed November 22, 2017				
PVC Polyvinyl Chloride				
TH-# Test Hole #				



LOCATION MAP
NOT TO SCALE

Surveyor's Notes

1. This Topographic Survey is not valid unless signed and embossed with the raised seal of a Florida licensed Surveyor and Mapper.
2. Lands were not researched by this firm for matters such as ownership, easements, right of way or other matters in the public records that may affect these lands. A title report was not provided for this survey.
3. Coordinates are relative to the Florida State Plane Coordinate System, East Zone, North American Datum of 1983/ 1990 Adjustment.
4. Elevations shown hereon are relative to North American Vertical Datum of 1988 (NAVD 88) with direct ties to the following published Orange County benchmarks:

A1481009 - Elevation 91.294'
 3 1/2" Orange County alum disc in concrete curb inlet at North side of "T" intersection of Deerfield Drive. & Newfield Drive. +/-25 ft north of the c/l of Deerfield Dr. +/-25 ft west of the c/l of Newfield Dr. (West).

A1481011 - Elevation 90.444'
 3 1/2" Orange County alum disc in concrete curb inlet at Northwest corner of "T" intersection of Deerfield Dr. & Crosshair Cr. +/-25 ft North of the c/l Deerfield Drive +/-35 ft West of the c/l of Crosshair Cr.

5. Last day in the field: November 22, 2017.
6. Graphic symbols shown hereon may not be to scale.
7. This Topographic Survey is certified true and correct to: Orange County Utilities.
8. Apparent Right of Way line determination is based on public record documents and recovered monumentation in the area of this survey.
9. This Topographic Survey is intended to depict existing features from the centerline of Deerfield Boulevard to at least ten feet beyond the northerly right of way.
10. Underground utilities were designate by this firm and depicted as Quality Level B. Excavated utilities are depicted by a test hole symbol that represents Quality Level A.

Surveyor Certification

This Topographic Survey was prepared under my direction and is true and correct to the best of my knowledge and belief. This Topographic Survey was performed in conformance with the "Standards of Practice" as contained in Chapter 5J-17, Florida Administrative Code, pursuant to Florida Statute 472.

 William L. Miller, PLS Date
 Florida Surveyor and Mapper LS 5010
 Barnes Ferland and Associates LB 7774

*Not valid without the signature and original raised seal of the Florida licensed surveyor and mapper

LEGEND

- ASPH - ASPHALT
- CONC - CONCRETE
- CPP - CORRUGATED PLASTIC PIPE
- RCP - REINFORCED CONCRETE PIPE
- INV - INVERT
- DE - DRAINAGE EASEMENT
- UE - UTILITY EASEMENT
- EL - ELEVATION
- PB - PLAT BOOK
- PG - PAGE
- R/W - RIGHT OF WAY
- IRC - IRON ROD AND CAP
- IP - IRON PIPE
- FND - FOUND
- LB - LICENSED BUSINESS
- ID - IDENTIFICATION
- MES - MITERED END SECTION
- WV - WATER VALVE
- WM - WATER METER
- IRV - IRRIGATION VALVE
- FH - FIRE HYDRANT
- EH - ELECTRIC HAND HOLE
- THH - TELEPHONE HAND HOLE
- CB - COMMUNICATIONS BOX
- TS - TRAFFIC SIGNAL BOX
- UP - UTILITY POLE
- LP - LIGHT POLE
- PK - PARKER KALON NAIL
- ND - NAIL AND DISK
- PCP - PERMANENT CONTROL POINT
- CTV - CABLE TV PEDESTAL
- DUE - DRAINAGE AND UTILITY EASEMENT
- ARV - AIR RELEASE VALVE
- RCWM - RECLAIM WATER METER
- RWV - RECLAIM WATER VALVE
- RCM - RECLAIM WATER MARKER
- FO - FIBER OPTIC MARKER
- IR - SET 5/8" IRON ROD & CAP LB#7774
- IN - SET NAIL & DISK LB#7774
- CN - CLEANOUT
- MS - METAL SIGN
- MB - MAIL BOX
- ET - ELECTRIC TRANSFORMER
- EB - ELECTRIC BOX
- SCP - SURVEY CONTROL POINT
- EM - ELECTRIC METER
- DM - DRAINAGE MANHOLE
- SM - SANITARY MANHOLE
- FOH - FIBER OPTIC HAND HOLE
- TP - TELEPHONE PEDESTAL
- DS - DOGGIE STATION
- OAK - TREE (SIZE, TYPE)
- TH9 - TEST HOLE
- OHU - OVERHEAD UTILITY LINE
- UNK - UNKNOWN
- WM (B) - WATER MAIN
- RWM (B) - RECLAIM WATER MAIN
- FM (B) - FORCE MAIN
- BT (B) - BURIED TELEPHONE LINE
- BE (B) - BURIED ELECTRICAL LINE

No.	REVISIONS	BY	DATE

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

SCALE: AS NOTED

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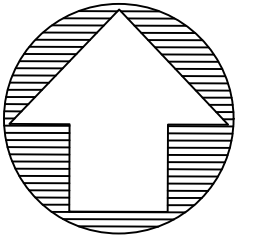
DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. V-100
FLORIDA REGISTRATION No. 5863Z	DESIGNED BY: WM DRAWN BY: MC CHECKED BY: WM DRAWING FILE: SEE MARGIN	SHEET 5 OF 27

TOPOGRAPHIC SURVEY

ORANGE COUNTY, FLORIDA.

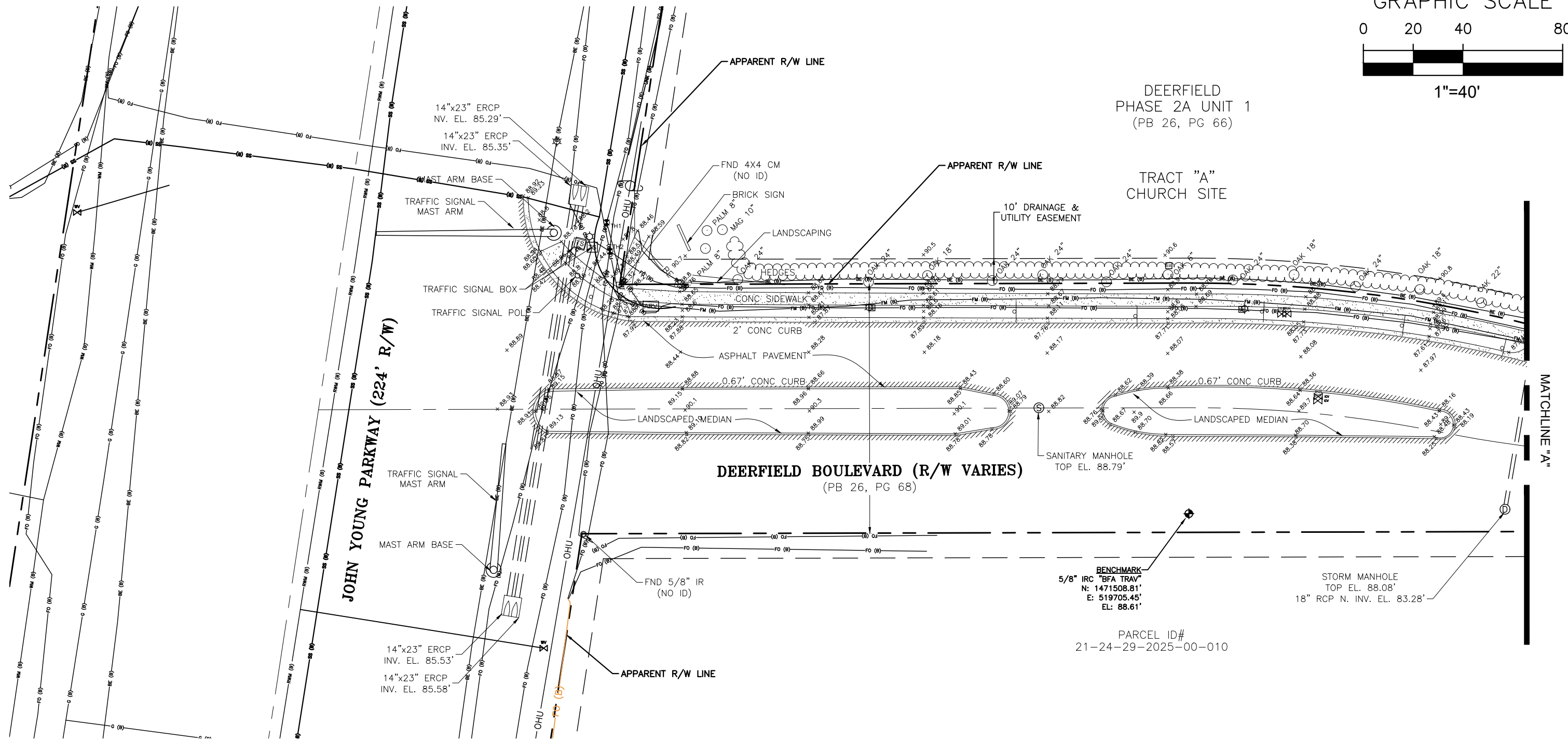


GRAPHIC SCALE

0 20 40 80



1"=40'



DEERFIELD
PHASE 2A UNIT 1
(PB 26, PG 66)

TRACT "A"
CHURCH SITE

DEERFIELD BOULEVARD (R/W VARIES)
(PB 26, PG 68)

BENCHMARK
5/8" IRC "BFA TRAV"
N: 1471508.81'
E: 519705.45'
EL: 88.61'

PARCEL ID#
21-24-29-2025-00-010

STORM MANHOLE
TOP EL. 88.08'
18" RCP N. INV. EL. 83.28'

No.	REVISIONS	BY	DATE

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

SCALE: AS NOTED

ORANGE COUNTY GOVERNMENT

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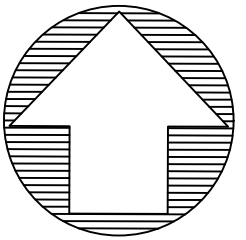
DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

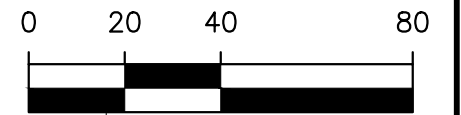
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FLORIDA REGISTRATION No. 58637	DESIGNED BY: WM DRAWN BY: MC CHECKED BY: WM DRAWING FILE: SEE MARGIN	SHEET 6 OF 27

TOPOGRAPHIC SURVEY

ORANGE COUNTY, FLORIDA.



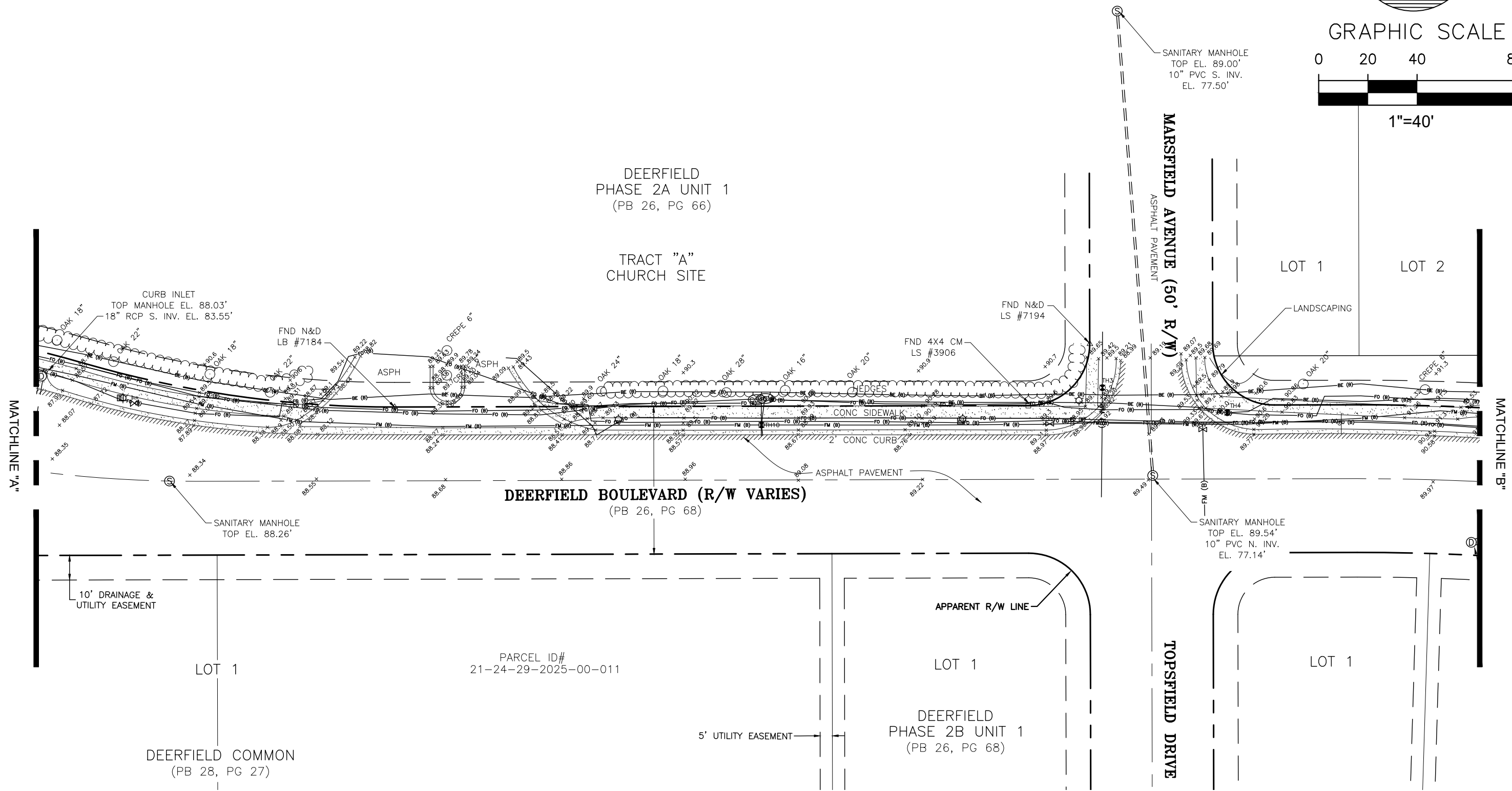
GRAPHIC SCALE



1"=40'

DEERFIELD
PHASE 2A UNIT 1
(PB 26, PG 66)

TRACT "A"
CHURCH SITE



No.	REVISIONS	BY	DATE

LINE IS 1 INCH
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DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

DESIGN ENGINEER
GEOFFREY J. HENNESSY, P.E.

FLORIDA REGISTRATION No.
58637

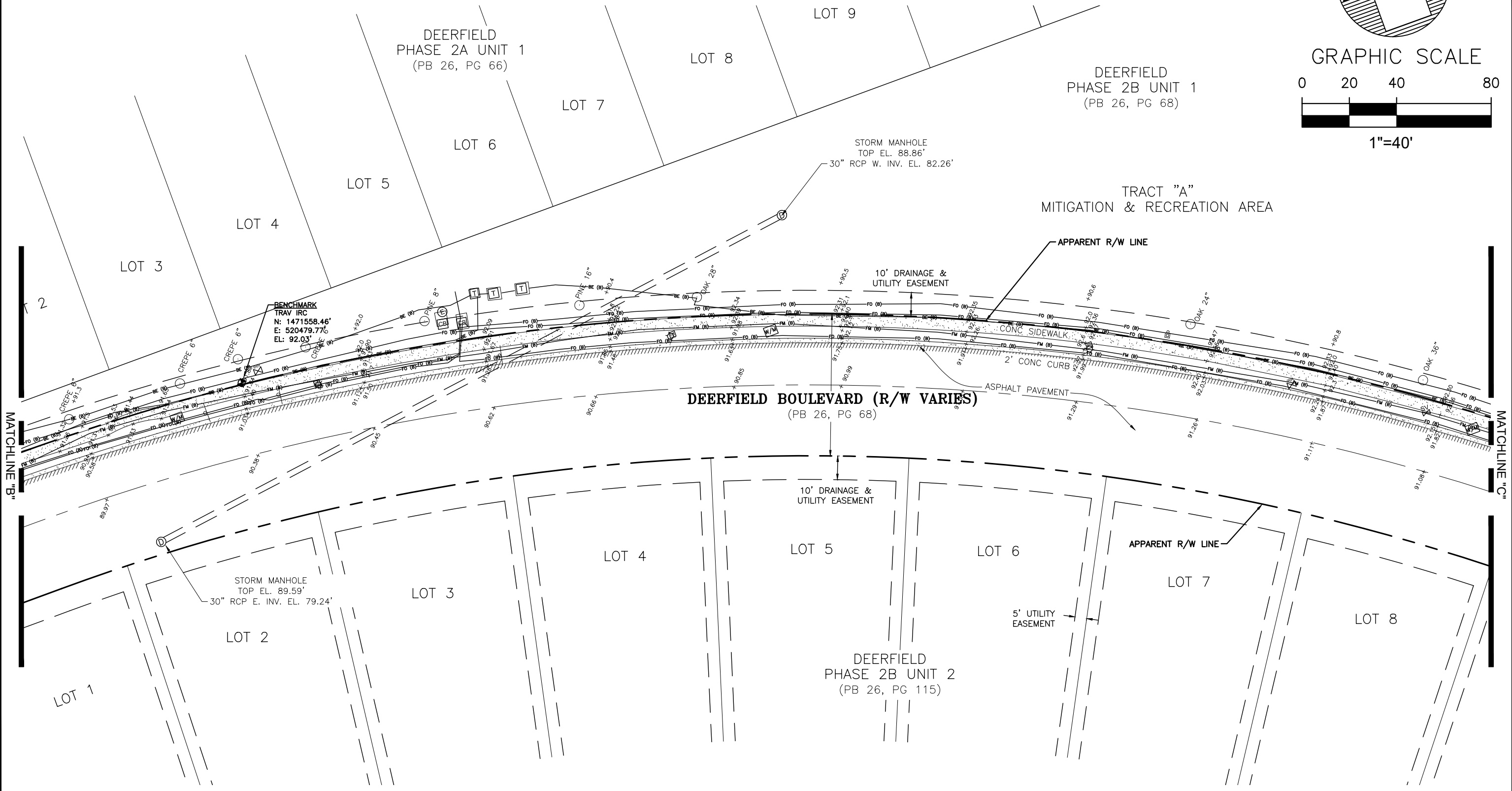
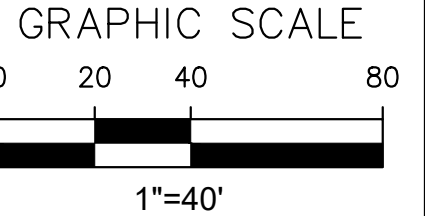
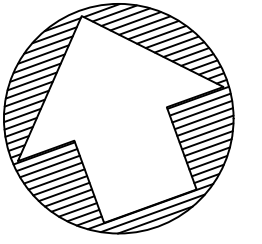
PROJECT No.: 2014-28-21
PROJECT DATE: FEB 2018
DESIGNED BY: WM
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DRAWING FILE: SEE MARGIN

DRAWING No.
V-102

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7 OF 27

TOPOGRAPHIC SURVEY

ORANGE COUNTY, FLORIDA.



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DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

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FLORIDA REGISTRATION No.
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PROJECT No.: 2014-28-21
PROJECT DATE: FEB 2018
DESIGNED BY: WM
DRAWN BY: MC
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DRAWING FILE: SEE MARGIN

DRAWING No.
V-103

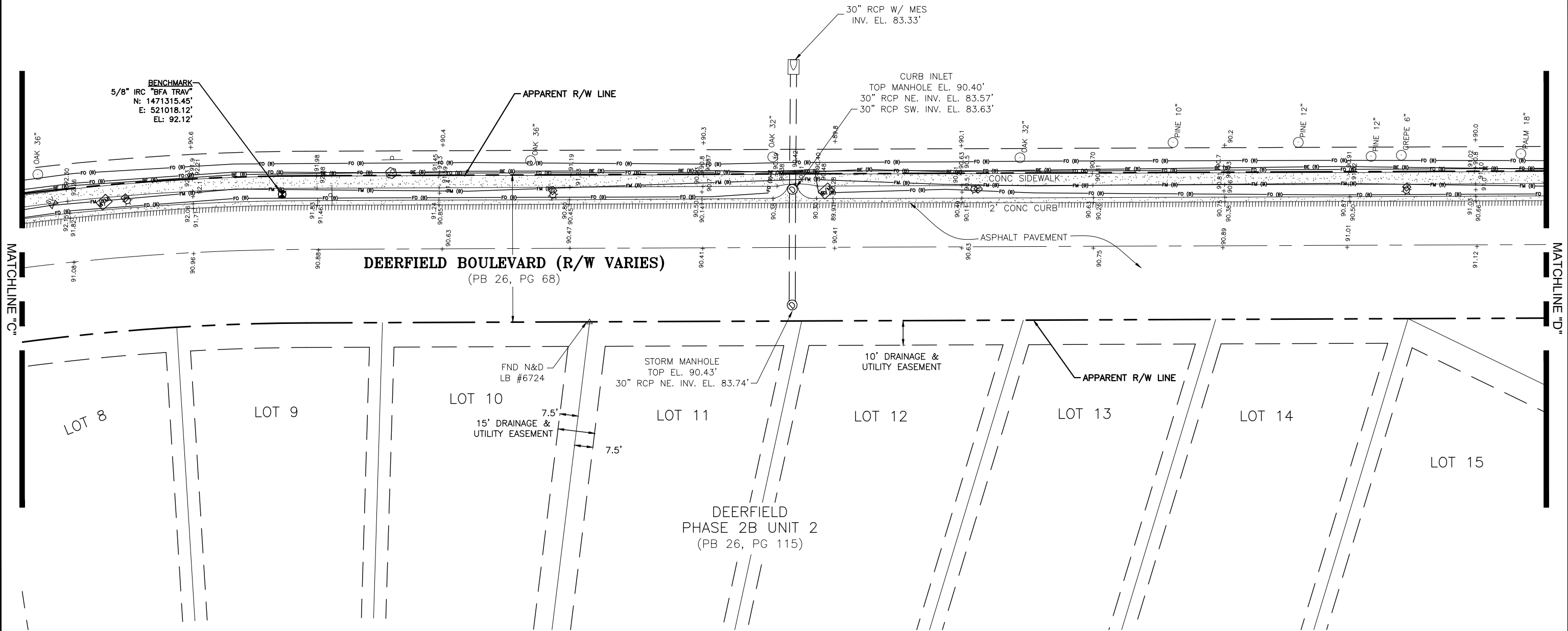
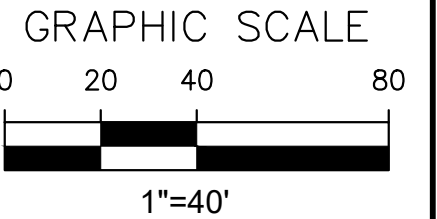
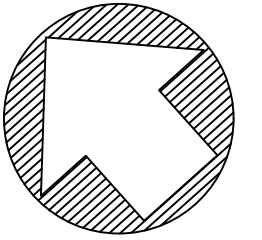
SHEET
8 OF 27

TOPOGRAPHIC SURVEY

ORANGE COUNTY, FLORIDA.

DEERFIELD
PHASE 2B UNIT 1
(PB 26, PG 68)

TRACT "A"
MITIGATION & RECREATION AREA



No.	REVISIONS	BY	DATE

LINE IS 1 INCH
AT FULL SIZE = 11X17
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ORANGE COUNTY
GOVERNMENT

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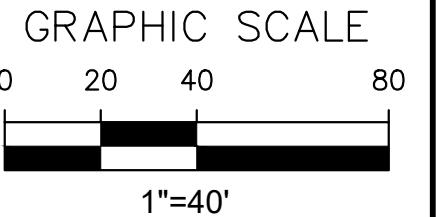
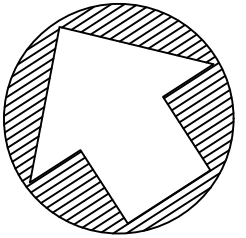
DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

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FLORIDA REGISTRATION No. 58637	DESIGNED BY: WM DRAWN BY: MC CHECKED BY: WM DRAWING FILE: SEE MARGIN	SHEET 9 OF 27

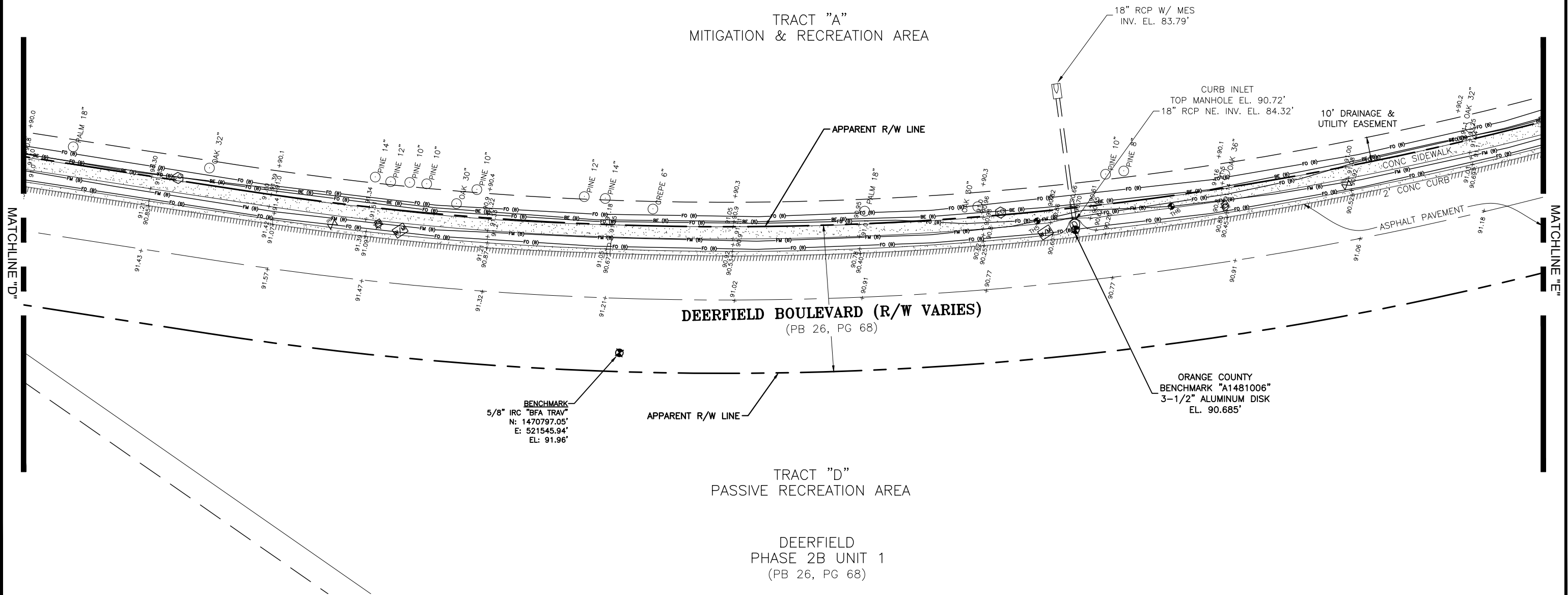
TOPOGRAPHIC SURVEY

ORANGE COUNTY, FLORIDA.



DEERFIELD
PHASE 2B UNIT 1
(PB 26, PG 68)

TRACT "A"
MITIGATION & RECREATION AREA



MATCHLINE "D"

MATCHLINE "E"

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
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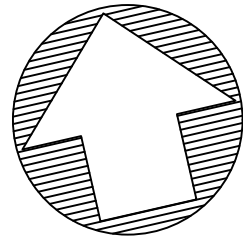
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DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

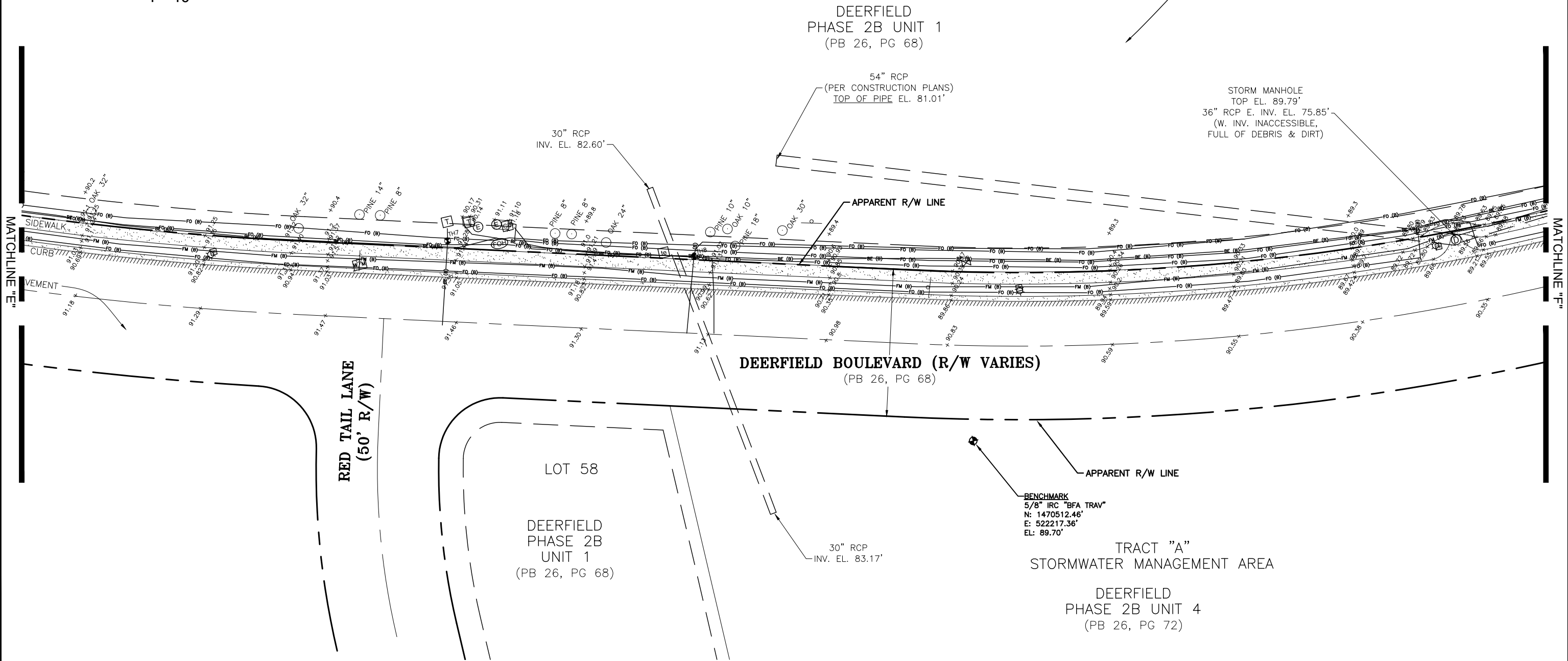
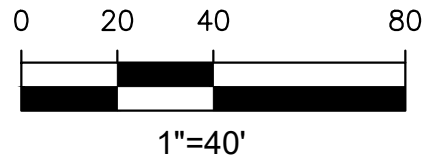
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TOPOGRAPHIC SURVEY

ORANGE COUNTY, FLORIDA.

GRAPHIC SCALE



No.	REVISIONS	BY	DATE

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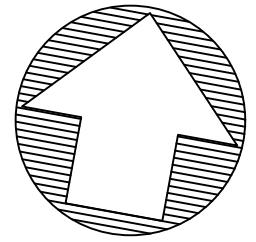
DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

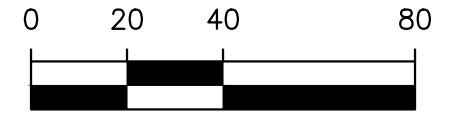
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FLORIDA REGISTRATION No. 58637	DESIGNED BY: WM DRAWN BY: MC CHECKED BY: WM DRAWING FILE: SEE MARGIN	SHEET 11 OF 27

TOPOGRAPHIC SURVEY

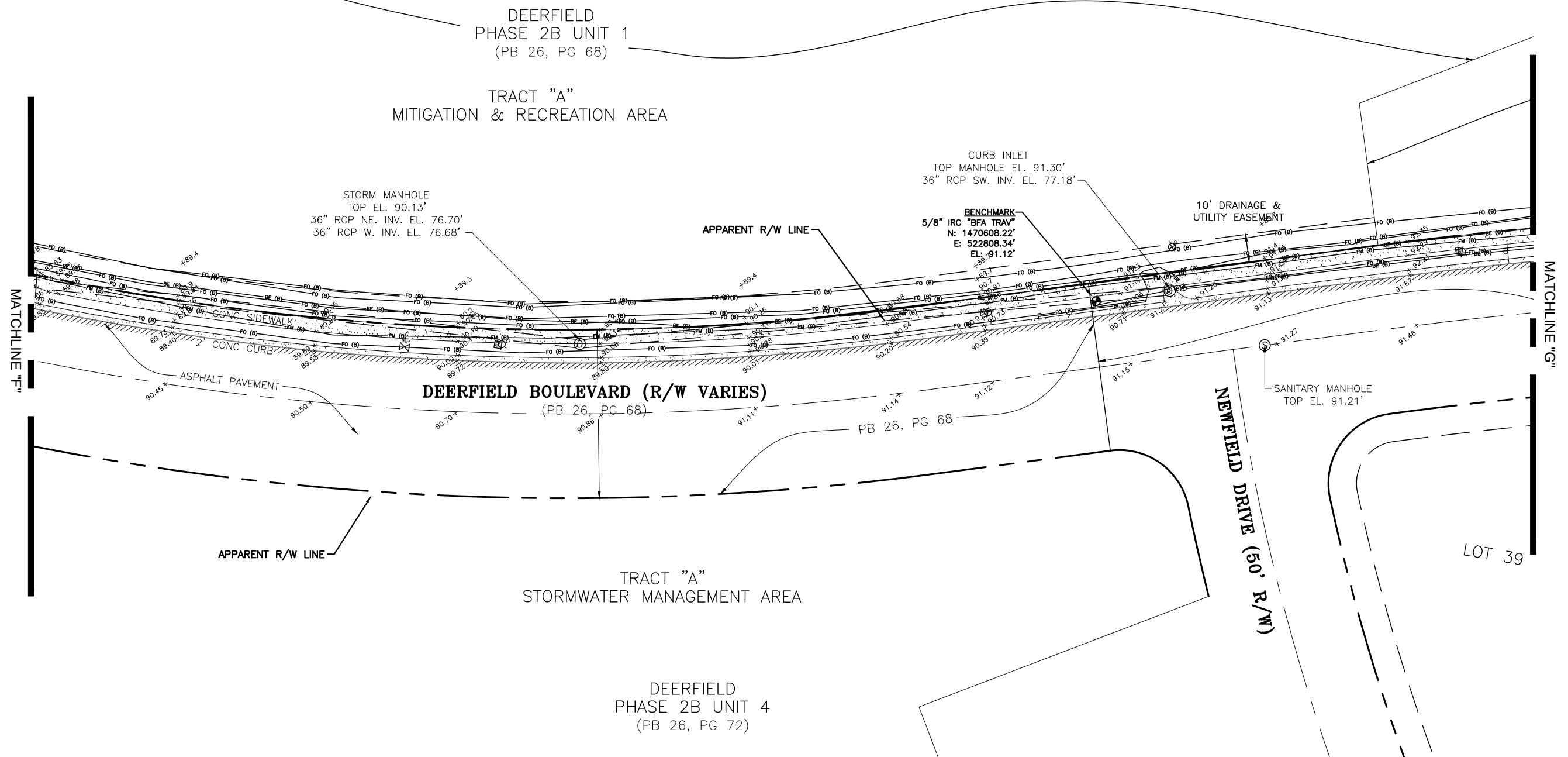
ORANGE COUNTY, FLORIDA.



GRAPHIC SCALE



1"=40'



No.	REVISIONS	BY	DATE

LINE IS 1 INCH
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(IF NOT SCALE ACCORDINGLY)

SCALE: AS NOTED



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DEERFIELD BLVD FORCE MAIN R/R

TOPOGRAPHIC SURVEY

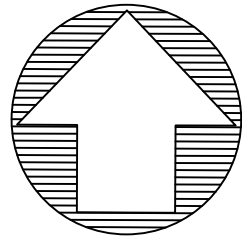
DESIGN ENGINEER
GEOFFREY J. HENNESSY, P.E.

FLORIDA REGISTRATION No.
58637

PROJECT No.: 2014-28-21
PROJECT DATE: FEB 2018
DESIGNED BY: WM
DRAWN BY: MC
CHECKED BY: WM
DRAWING FILE: SEE MARGIN

DRAWING No.
V-107

SHEET
12 OF 27

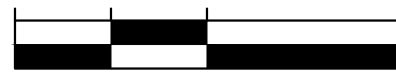


TOPOGRAPHIC SURVEY

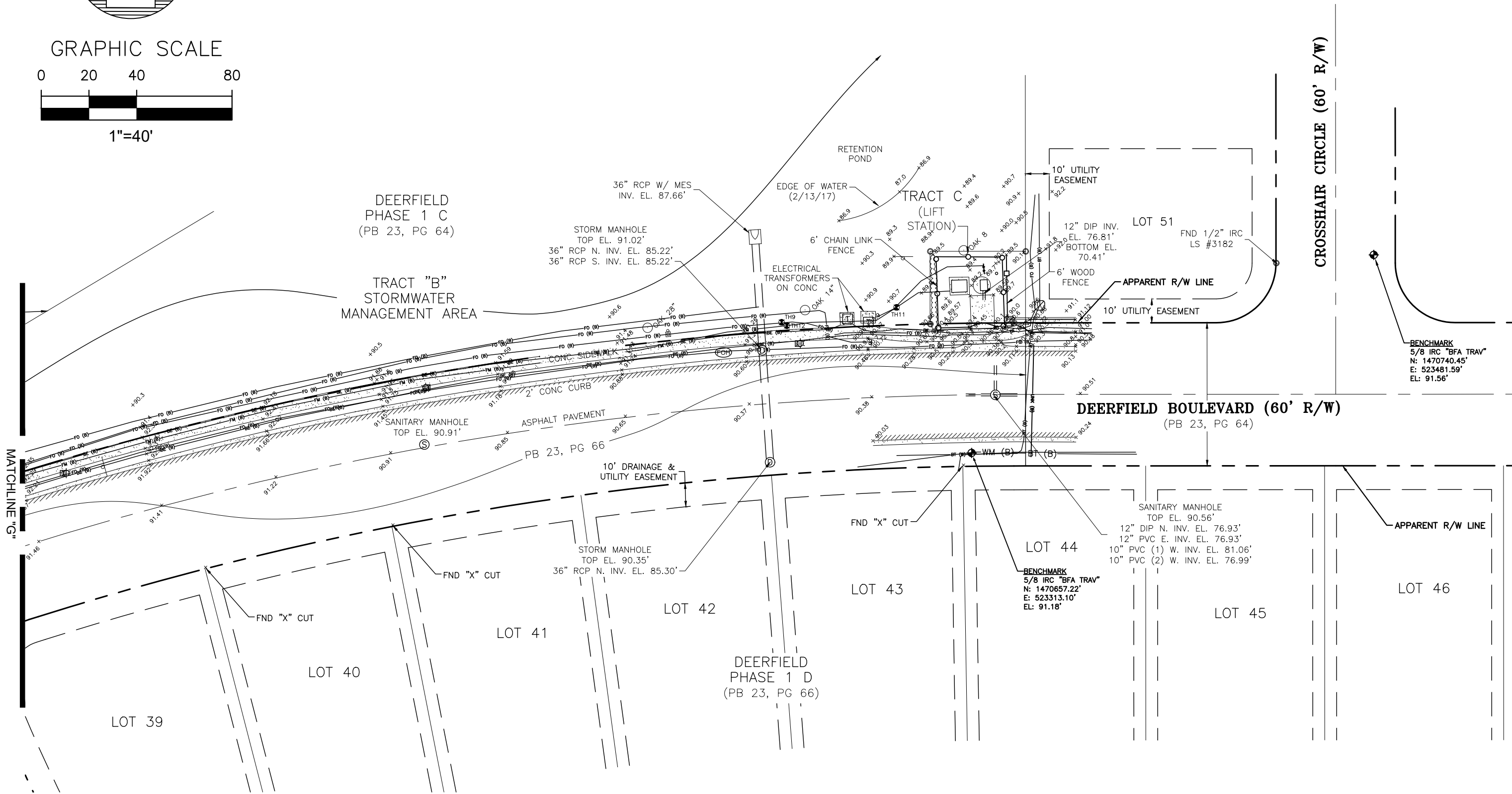
ORANGE COUNTY, FLORIDA.

GRAPHIC SCALE

0 20 40 80



1"=40'



MATCHLINE "G"

No.	REVISIONS	BY	DATE

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



ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
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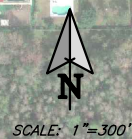
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ENGINEERING BUSINESS No. 6899

DEERFIELD BLVD FORCE MAIN R/R
TOPOGRAPHIC SURVEY

DESIGN ENGINEER
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FLORIDA REGISTRATION No.
58637

PROJECT No.: 2014-28-21
PROJECT DATE: FEB 2018
DESIGNED BY: WM
DRAWN BY: MC
CHECKED BY: WM
DRAWING FILE: SEE MARGIN

DRAWING No.
V-108
SHEET
13 OF 27



RECOMMENDED CONSTRUCTION PHASING:

THE PROJECT SHALL BE CONSTRUCTED SEQUENTIALLY IN THE FOLLOWING GENERAL PHASES:

PHASE 1 WORK: TEMPORARY BY-PASS PIPE, REMOVE EXISTING FORCE MAIN, CONSTRUCT 8-INCH FORCE MAIN, AND RESTORE DEERFIELD BOULEVARD FROM PUMP STATION #3468 TO APPROXIMATELY STATION 36+15 (SHEETS U-105 THROUGH U-108)

PHASE 2 WORK: TEMPORARY BY-PASS PIPE, REMOVE EXISTING FORCE MAIN, CONSTRUCT 8-INCH FORCE MAIN, AND RESTORE DEERFIELD BOULEVARD FROM APPROXIMATELY STATION 36+15 TO STATION 18+95 (SHEETS U102 THROUGH U-105).

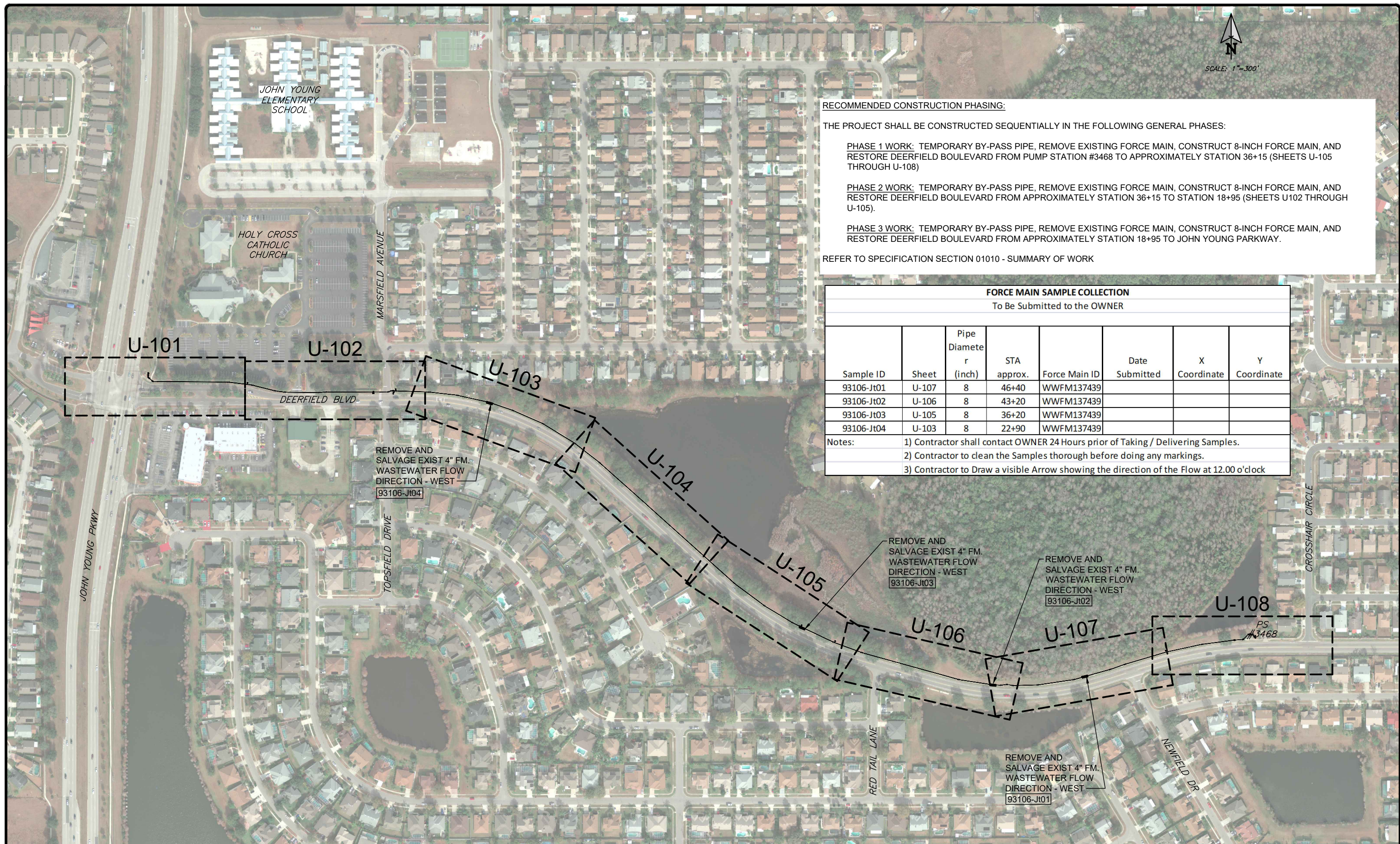
PHASE 3 WORK: TEMPORARY BY-PASS PIPE, REMOVE EXISTING FORCE MAIN, CONSTRUCT 8-INCH FORCE MAIN, AND RESTORE DEERFIELD BOULEVARD FROM APPROXIMATELY STATION 18+95 TO JOHN YOUNG PARKWAY.

REFER TO SPECIFICATION SECTION 01010 - SUMMARY OF WORK

FORCE MAIN SAMPLE COLLECTION							
To Be Submitted to the OWNER							
Sample ID	Sheet	Pipe Diameter (inch)	STA approx.	Force Main ID	Date Submitted	X Coordinate	Y Coordinate
93106-Jt01	U-107	8	46+40	WWFM137439			
93106-Jt02	U-106	8	43+20	WWFM137439			
93106-Jt03	U-105	8	36+20	WWFM137439			
93106-Jt04	U-103	8	22+90	WWFM137439			

Notes:

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



No.	REVISIONS	BY	DATE

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

SCALE: AS NOTED

ORANGE COUNTY
GOVERNMENT
FLORIDA

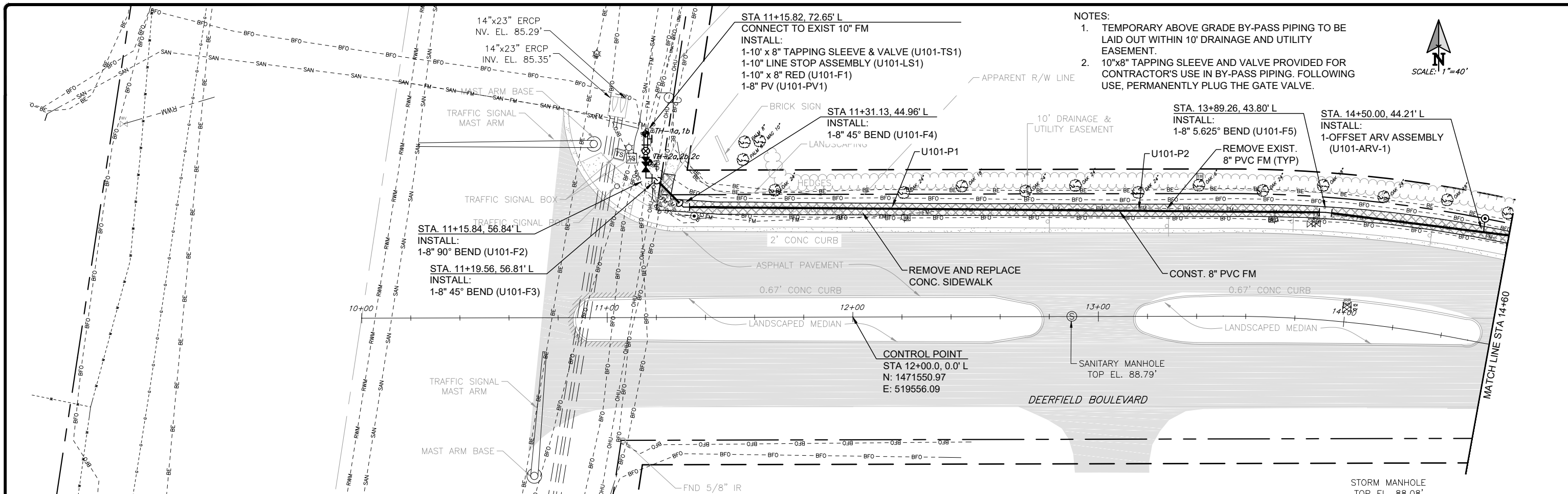
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1250 E. Hillcrest Street, Orlando, FL, 32803
P.O. BOX 1000-0000
ENGINEERING BUSINESS No. 6899

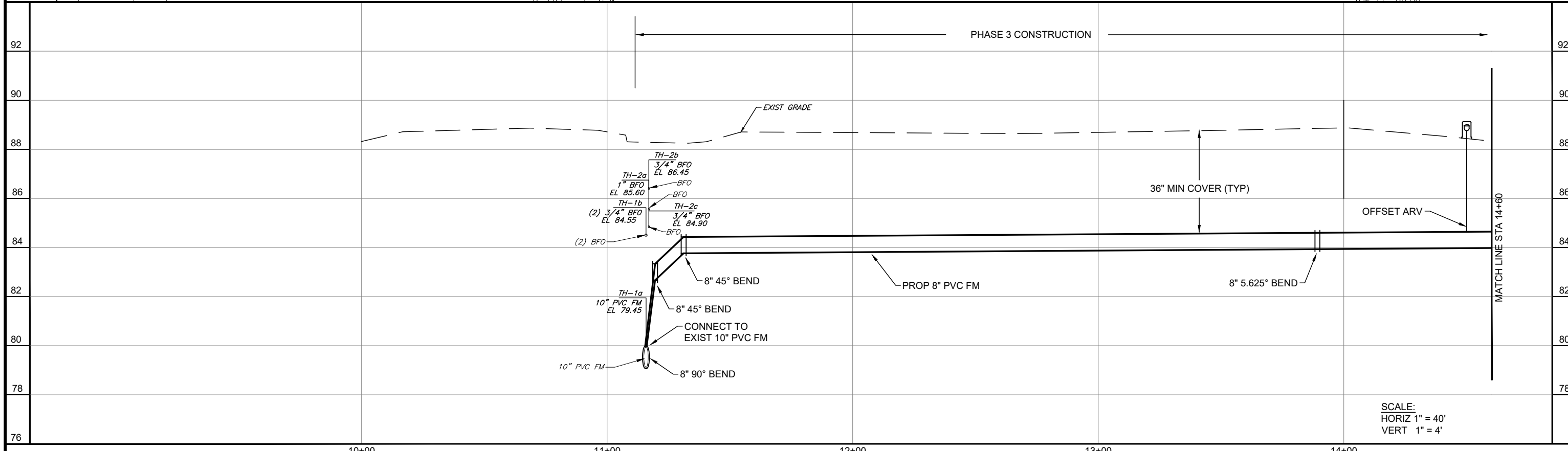
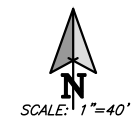
DEERFIELD BLVD FORCE MAIN R/R

KEY MAP

DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. U-100
FLORIDA REGISTRATION NO. 58637	DESIGNED BY: GJH DRAWN BY: JED CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 14 OF 27



NOTES:
 1. TEMPORARY ABOVE GRADE BY-PASS PIPING TO BE LAID OUT WITHIN 10' DRAINAGE AND UTILITY EASEMENT.
 2. 10"x8" TAPPING SLEEVE AND VALVE PROVIDED FOR CONTRACTOR'S USE IN BY-PASS PIPING. FOLLOWING USE, PERMANENTLY PLUG THE GATE VALVE.



No.	REVISIONS	BY	DATE

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

ORANGE COUNTY UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

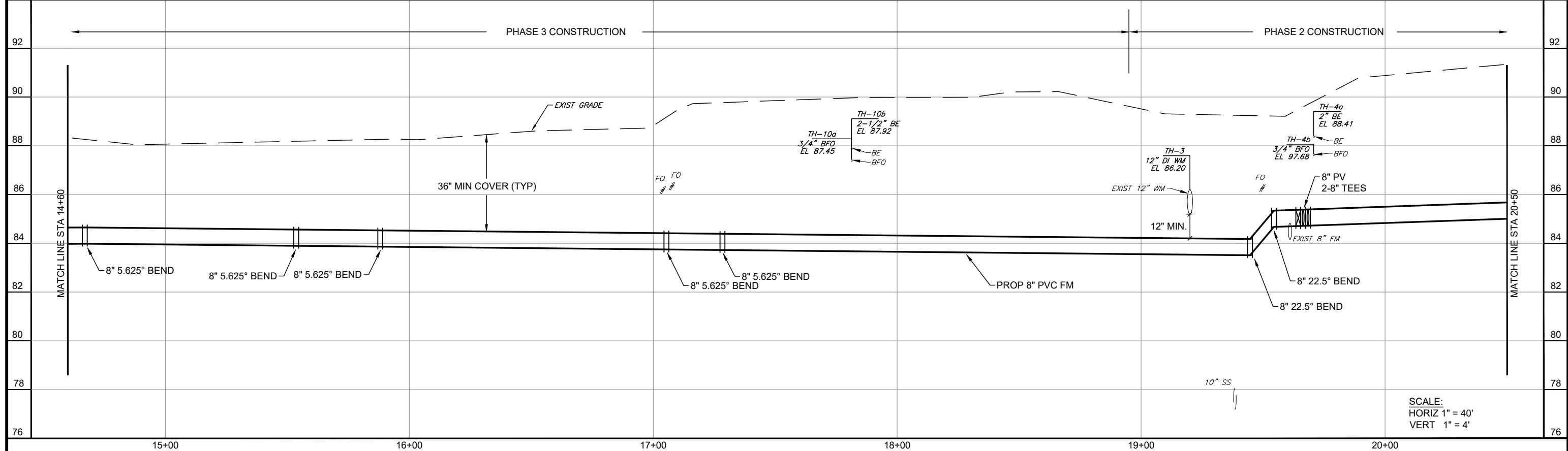
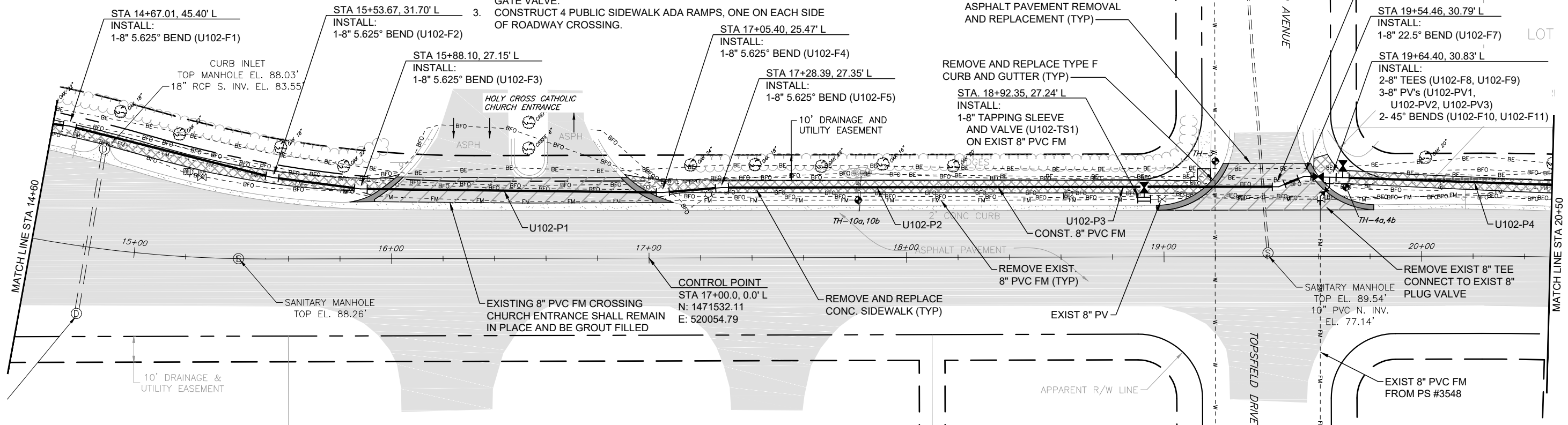
BFA Environmental Consultants
 Barnes, Ferland and Associates, Inc.
 1250 E. Hillcrest Street, Orlando, FL, 32803
 P.O. Box 1000, Orlando, FL 32802
 ENGINEERING BUSINESS No. 6899

DEERFIELD BLVD FORCE MAIN R/R
DEERFIELD BLVD PLAN AND PROFILE
 STA 10+00 TO STA 14+60

DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. U-101
FLORIDA REGISTRATION NO. 58637	DESIGNED BY: GJH DRAWN BY: JED CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 15 OF 27

TRACT "A"
CHURCH SITE

- NOTES:
1. TEMPORARY ABOVE GRADE BY-PASS PIPING TO BE LAID OUT WITHIN 10' DRAINAGE AND UTILITY EASEMENT (TEMP BURIED AT ROADWAY CROSSINGS).
 2. 8" TAPPING SLEEVE AND VALVE PROVIDED FOR CONTRACTOR'S USE IN BY-PASS PIPING. FOLLOWING USE, PERMANENTLY PLUG THE GATE VALVE.
 3. CONSTRUCT 4 PUBLIC SIDEWALK ADA RAMPS, ONE ON EACH SIDE OF ROADWAY CROSSING.



No.	REVISIONS	BY	DATE

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

SCALE: AS NOTED

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

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1250 E. Hillcrest Street, Orlando, FL, 32803
TEL: (407) 246-0000 FAX: (407) 246-0001
ENGINEERING BUSINESS No. 6899

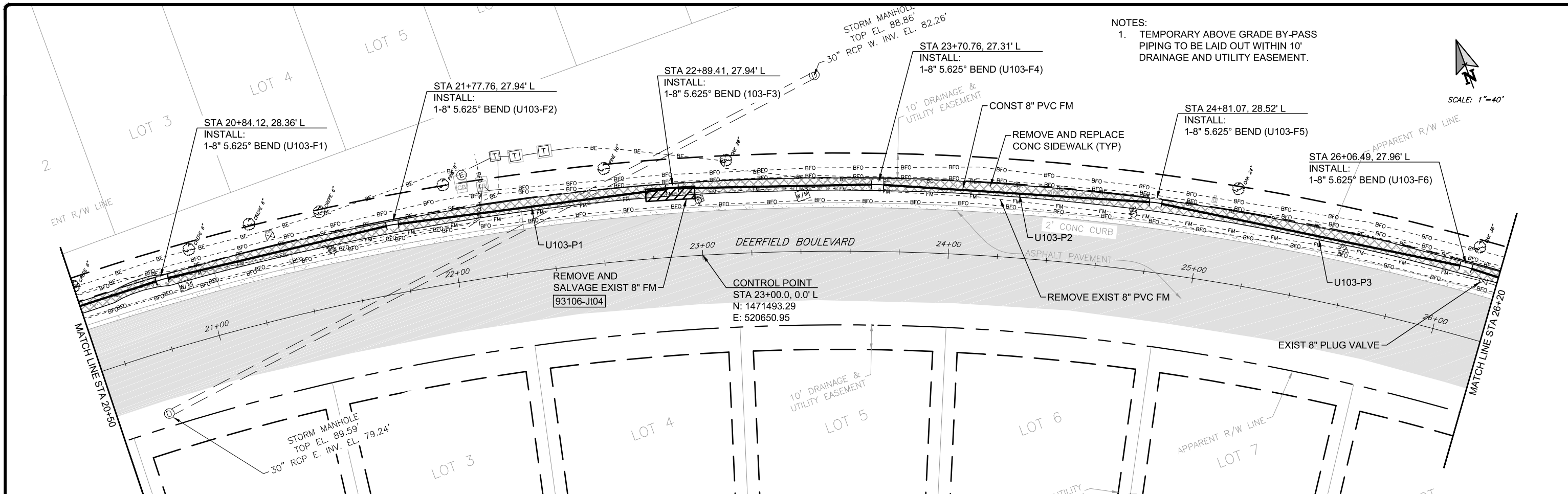
DEERFIELD BLVD FORCE MAIN R/R
DEERFIELD BLVD PLAN AND PROFILE
STA 14+60 TO STA 20+50

DESIGN ENGINEER
GEOFFREY J. HENNESSY, P.E.

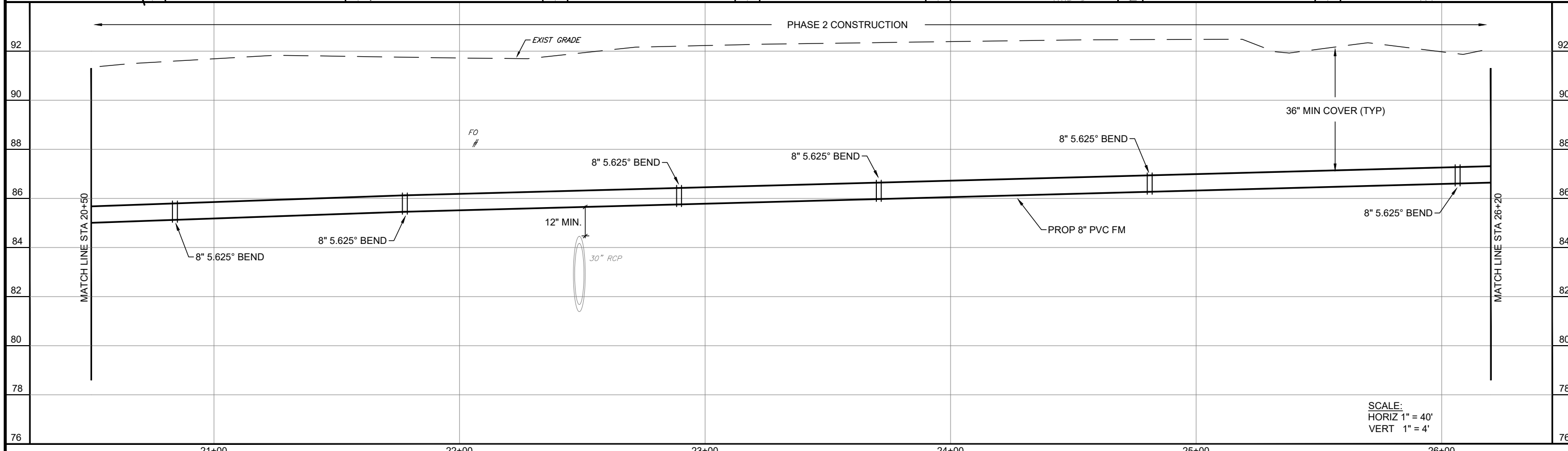
PROJECT No.: 2014-28-21
PROJECT DATE: FEB 2018
DESIGNED BY: GJH
DRAWN BY: JED
CHECKED BY: CKM
DRAWING FILE: SEE MARGIN

FLORIDA REGISTRATION NO.
58637

DRAWING No.
U-102
SHEET
16 OF 27



NOTES:
 1. TEMPORARY ABOVE GRADE BY-PASS PIPING TO BE LAID OUT WITHIN 10' DRAINAGE AND UTILITY EASEMENT.



No.	REVISIONS	BY	DATE

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

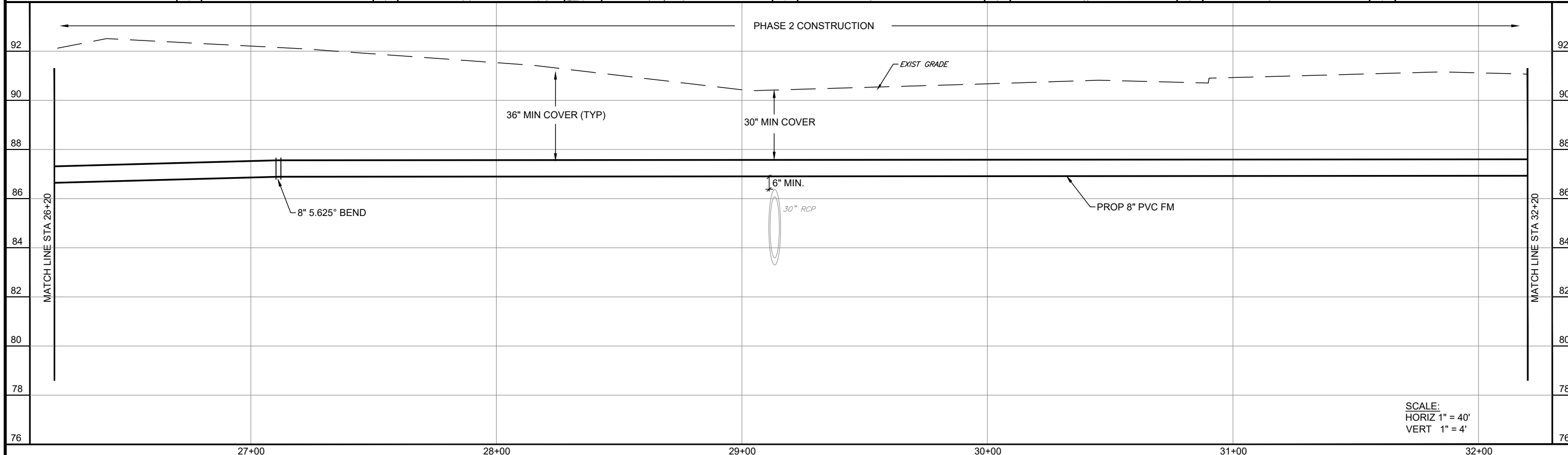
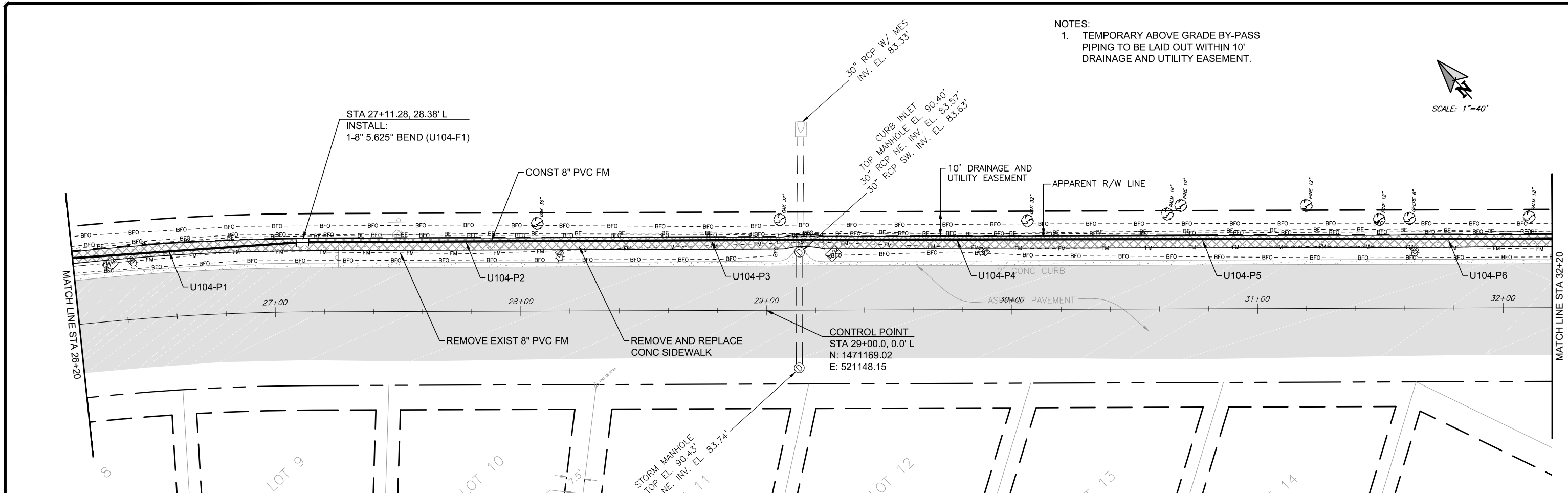
ORANGE COUNTY
 UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

BFA Environmental Consultants
 Barnes, Ferland and Associates, Inc.
 1250 E. Hillcrest Street, Orlando, FL 32803
 P.L.L.C. (ORANGE COUNTY)
 ENGINEERING BUSINESS No. 6899

DEERFIELD BLVD FORCE MAIN R/R
DEERFIELD BLVD PLAN AND PROFILE
 STA 20+50 TO STA 26+20

DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. U-103
FLORIDA REGISTRATION NO. 58637	DESIGNED BY: GJH DRAWN BY: JED CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 17 OF 27

NOTES:
 1. TEMPORARY ABOVE GRADE BY-PASS PIPING TO BE LAID OUT WITHIN 10' DRAINAGE AND UTILITY EASEMENT.



SCALE:
 HORIZ 1" = 40'
 VERT 1" = 4'

No.	REVISIONS	BY	DATE

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

ORANGE COUNTY GOVERNMENT

ORANGE COUNTY UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
 1250 E. Hillcrest Street, Orlando, FL, 32803
 P.O. BOX 1000-0000
 ENGINEERING BUSINESS No. 6899

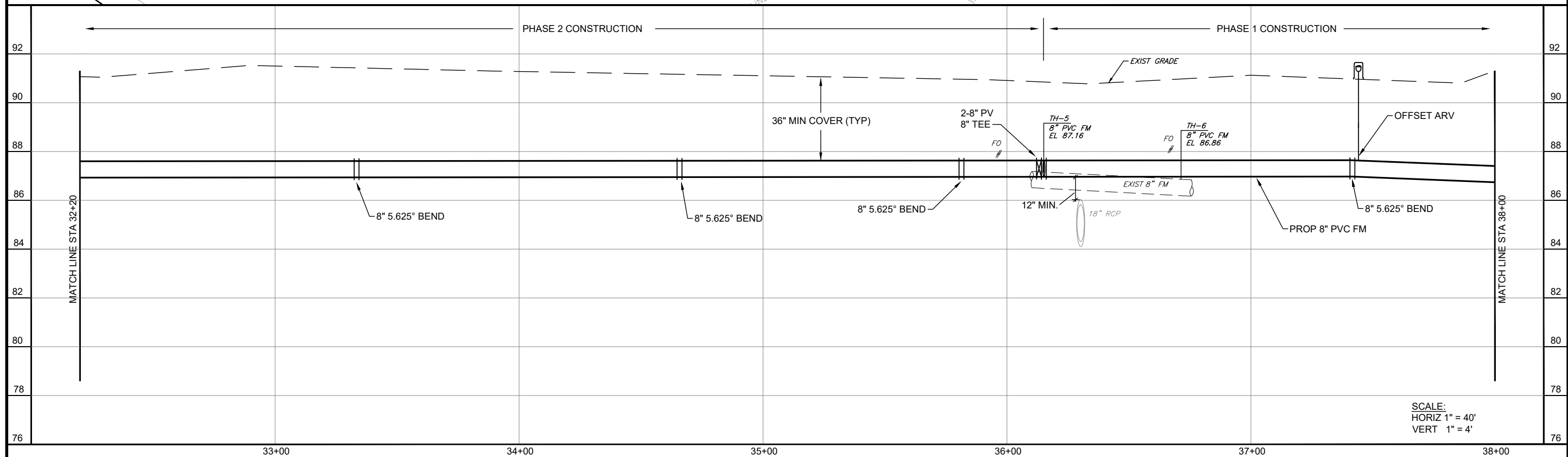
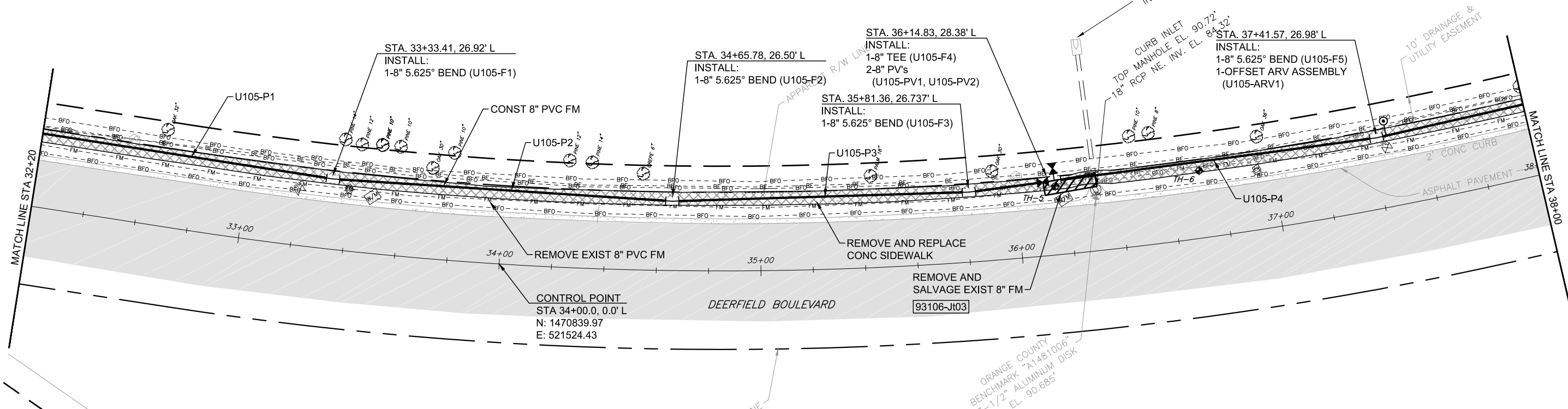
DEERFIELD BLVD FORCE MAIN R/R

DEERFIELD BLVD PLAN AND PROFILE
 STA 26+20 TO STA 32+20

DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. U-104
DESIGNED BY: GJH DRAWN BY: JED	CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 18 OF 27
FLORIDA REGISTRATION NO. 58637		

NOTES:

1. TEMPORARY ABOVE GRADE BY-PASS PIPING TO BE LAID OUT WITHIN 10' DRAINAGE AND UTILITY EASEMENT.
2. 8" PLUG VALVE PROVIDED FOR CONTRACTOR'S USE IN BY-PASS PIPING. FOLLOWING USE, PERMANENTLY PLUG THE PLUG VALVE.



SCALE:
HORIZ 1" = 40'
VERT 1" = 4'

No.	REVISIONS	BY	DATE

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

SCALE: AS NOTED

ORANGE COUNTY
GOVERNMENT
FLORIDA

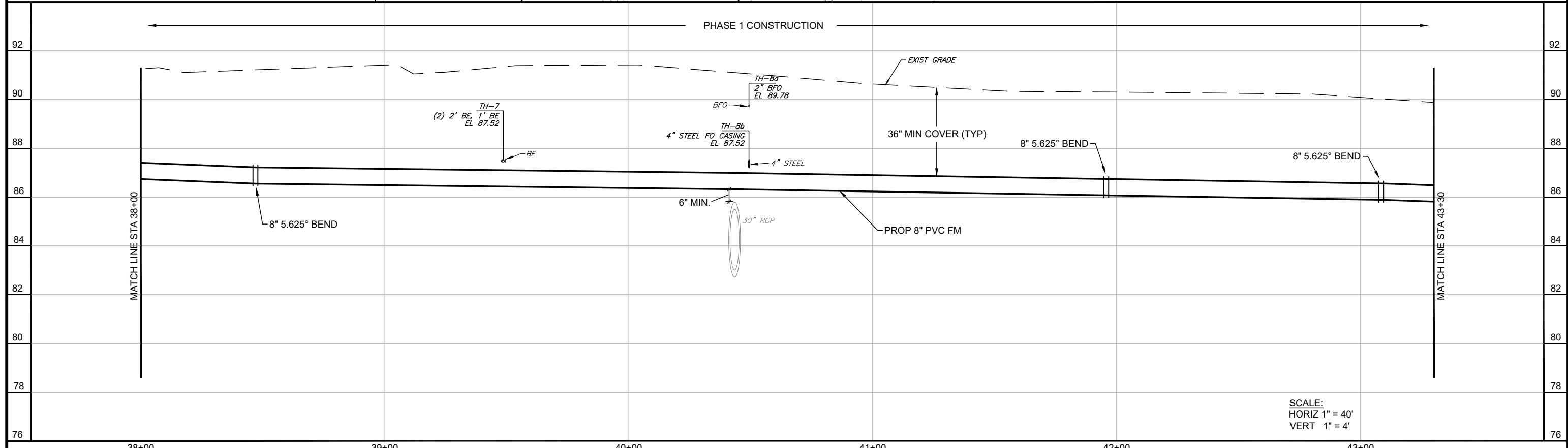
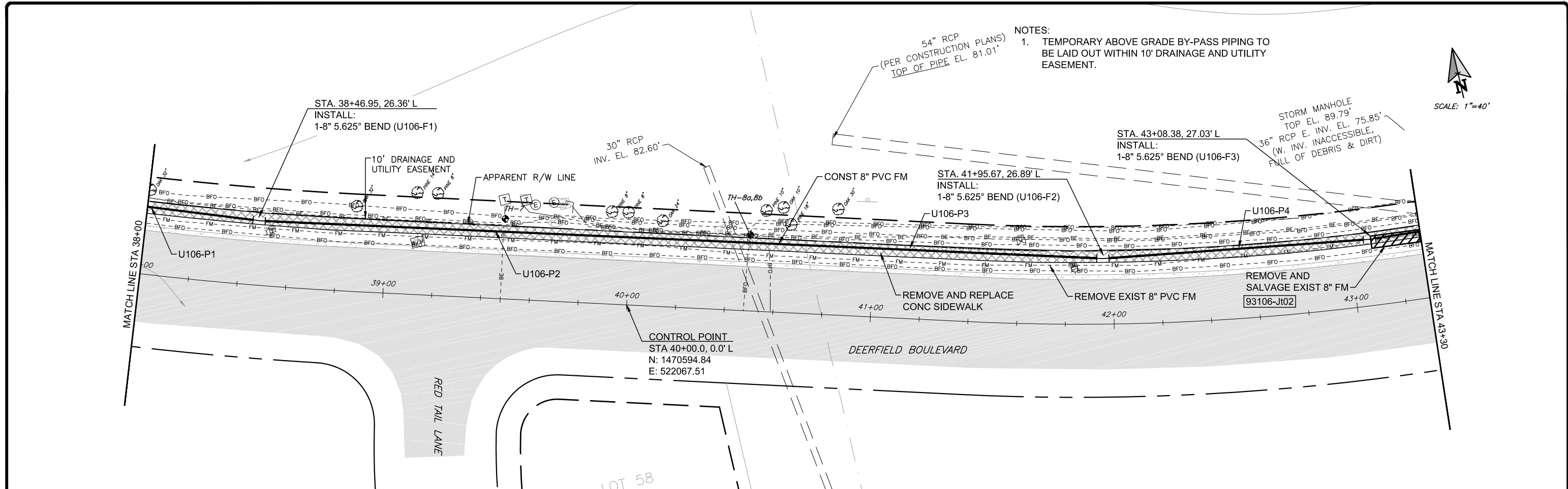
ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1250 E. Hillcrest Street, Orlando, FL 32803
TEL: (407) 246-0000 FAX: (407) 246-1222
ENGINEERING BUSINESS No. 6899

DEERFIELD BLVD FORCE MAIN R/R

DEERFIELD BLVD PLAN AND PROFILE
STA 32+20 TO STA 38+00

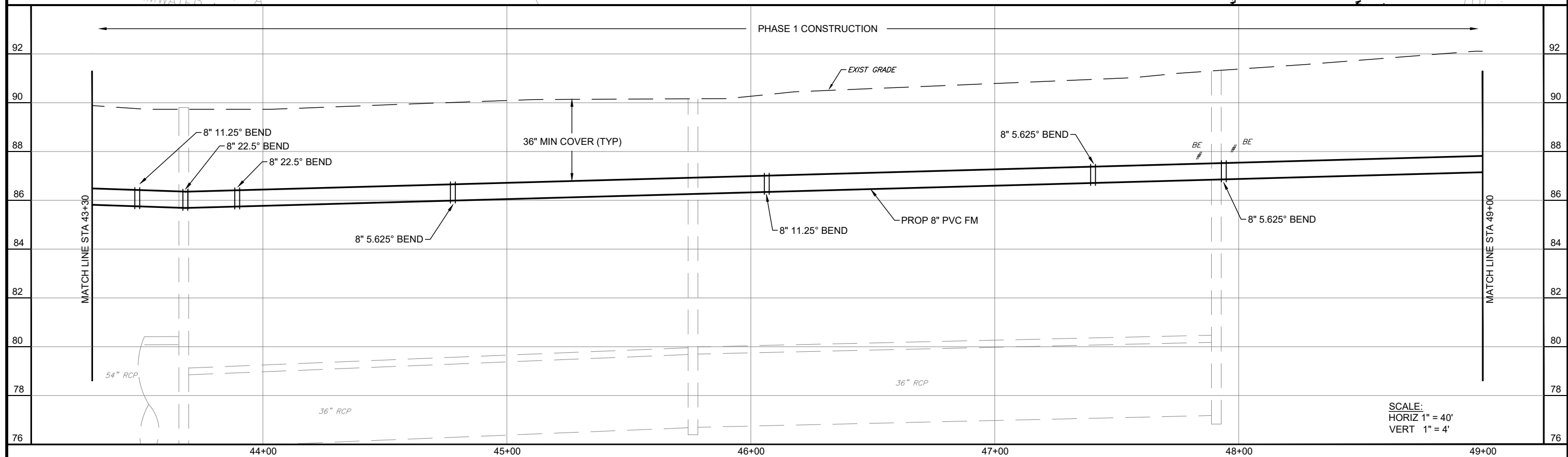
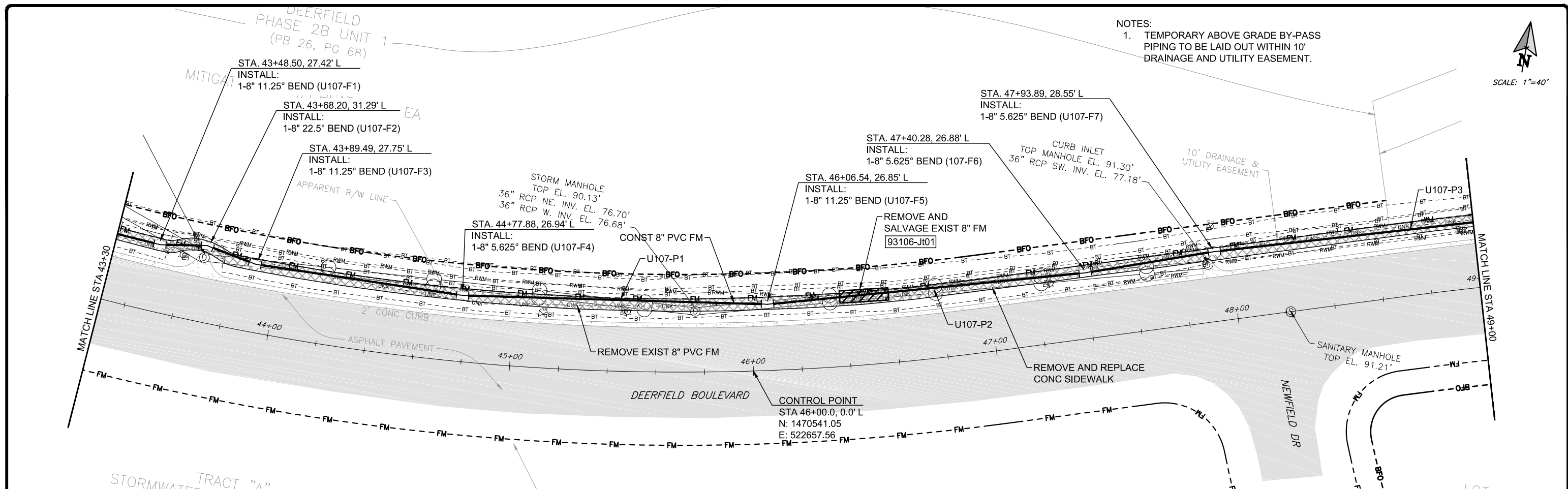
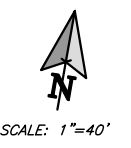
DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. U-105
FLORIDA REGISTRATION NO. 58637	DESIGNED BY: GJH DRAWN BY: JED	SHEET 19 OF 27
	CHECKED BY: CKM DRAWING FILE: SEE MARGIN	



No.	REVISIONS	BY	DATE	LINE IS 1 INCH AT FULL SIZE = 11X17 (IF NOT SCALE ACCORDINGLY)	<p>ORANGE COUNTY UTILITIES 9150 CURRY FORD ROAD ORLANDO, FLORIDA 32825</p>	<p>BFA Environmental Consultants Barnes, Ferland and Associates, Inc. 1250 E. Hillcrest Street, Orlando, FL 32803 TEL: (407) 255-0000 ENGINEERING BUSINESS No. 6899</p>	<p>DEERFIELD BLVD FORCE MAIN R/R</p> <p>DEERFIELD BLVD PLAN AND PROFILE STA 38+00 TO STA 43+30</p>	DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21	DRAWING No.
				FLORIDA REGISTRATION NO. 58637				PROJECT DATE: FEB 2018	DESIGNED BY: GJH	U-106
				SCALE: AS NOTED				CHECKED BY: CKM	DRAWN BY: JED	SHEET
								DRAWING FILE: SEE MARGIN		20 OF 27

DEERFIELD
PHASE 2B UNIT 1
(PB 26, PG 68)

NOTES:
1. TEMPORARY ABOVE GRADE BY-PASS
PIPING TO BE LAID OUT WITHIN 10'
DRAINAGE AND UTILITY EASEMENT.



No.	REVISIONS	BY	DATE

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

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

BFA Environmental Consultants
Barnes, Ferland and Associates, Inc.
1250 E. Hillcrest Street, Orlando, FL 32803
FLA. REG. NO. 58637
ENGINEERING BUSINESS No. 6899

DEERFIELD BLVD FORCE MAIN R/R
DEERFIELD BLVD PLAN AND PROFILE
STA 43+30 TO STA 49+00

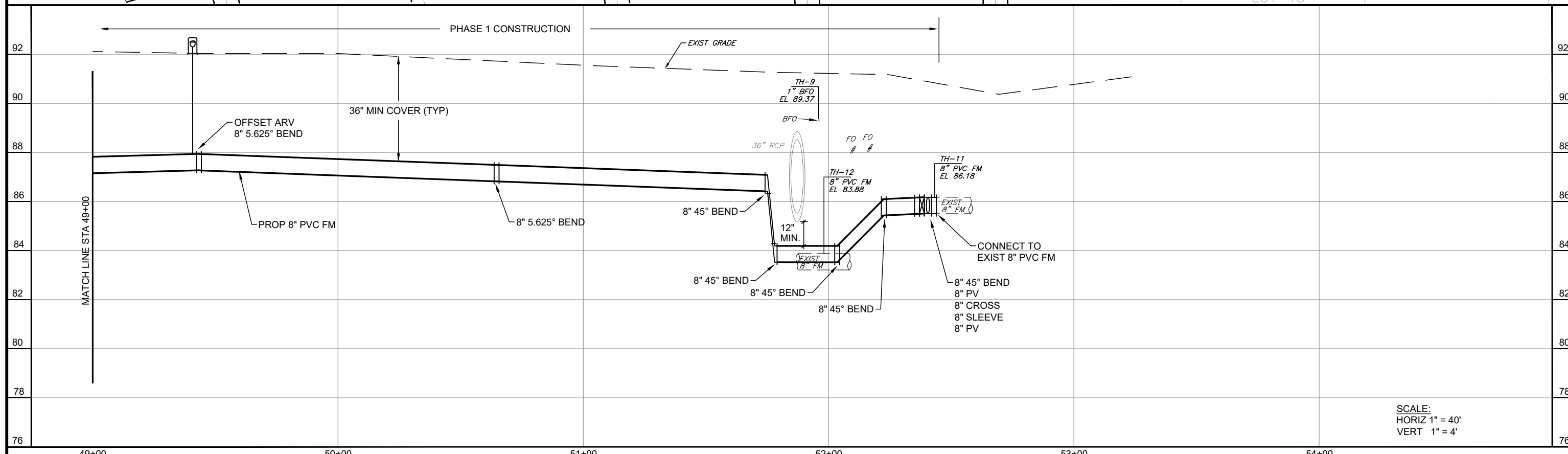
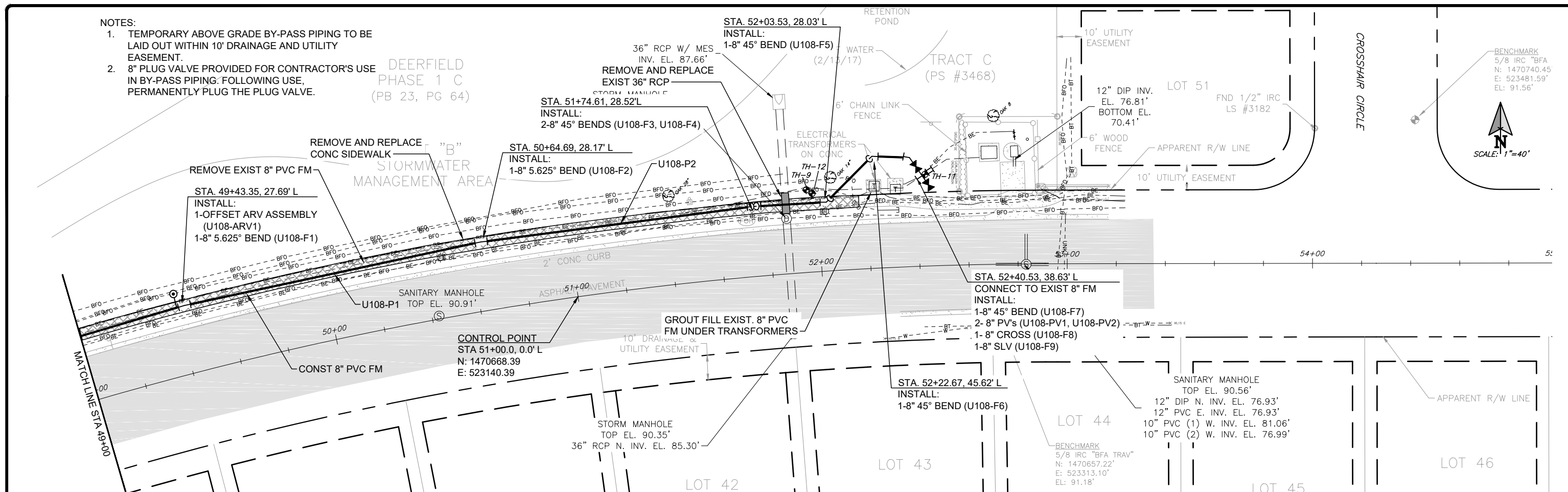
DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. U-107
FLORIDA REGISTRATION NO. 58637	DESIGNED BY: GJH DRAWN BY: JED CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 21 OF 27

NOTES:

1. TEMPORARY ABOVE GRADE BY-PASS PIPING TO BE LAID OUT WITHIN 10' DRAINAGE AND UTILITY EASEMENT.
2. 8" PLUG VALVE PROVIDED FOR CONTRACTOR'S USE IN BY-PASS PIPING. FOLLOWING USE, PERMANENTLY PLUG THE PLUG VALVE.

DEERFIELD
PHASE 1 C
(PB 23, PG 64)

STORMWATER
MANAGEMENT AREA



SCALE:
HORIZ 1" = 40'
VERT 1" = 4'

No.	REVISIONS	BY	DATE

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

SCALE: AS NOTED

ORANGE COUNTY UTILITIES
9150 CURRY FORD ROAD
ORLANDO, FLORIDA 32825

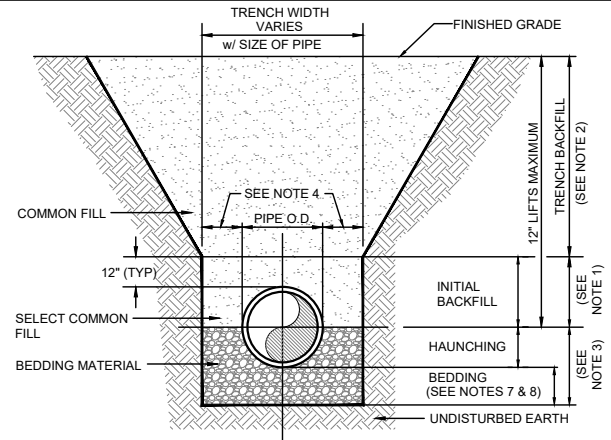
BFA Environmental Consultants
Barnes, Frazier and Associates, Inc.
1250 E. Hillcrest Street, Orlando, FL 32803
TEL: (407) 253-0000
ENGINEERING BUSINESS No. 6899

DEERFIELD BLVD FORCE MAIN R/R

DEERFIELD BLVD PLAN AND PROFILE
STA 49+00 TO STA 55+00

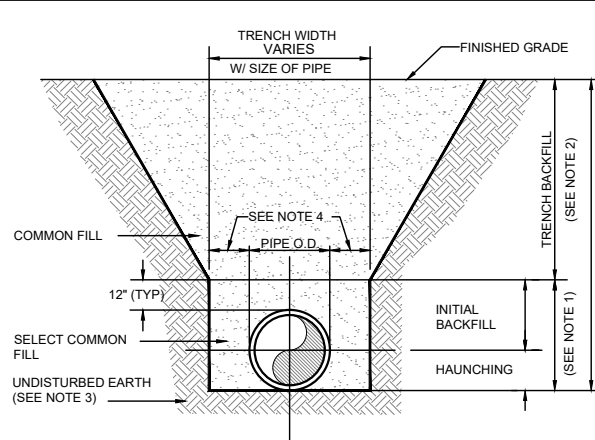
DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018	DRAWING No. U-108
FLORIDA REGISTRATION NO. 58637	DESIGNED BY: GJH DRAWN BY: JED CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 22 OF 27

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 RW UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

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.

DATE: July 2014 **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

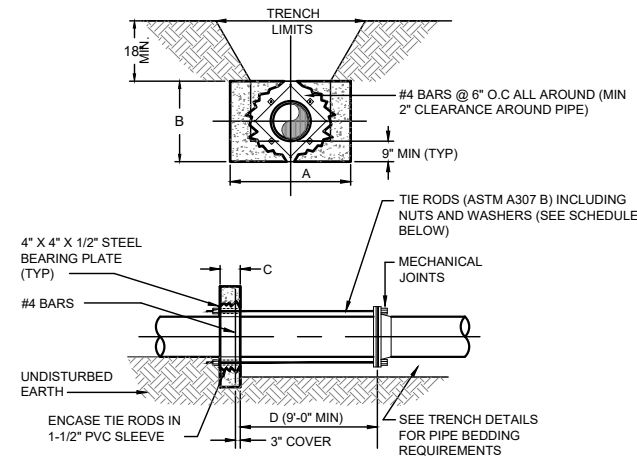
- NOTES:
- THIS SEPARATION REQUIREMENT IS TO PROVIDE ACCESSIBILITY FOR CONSTRUCTION AND MAINTENANCE. THREE FEET OF HORIZONTAL SEPARATION IS THE MINIMUM FOR PIPES WITH THREE FEET OF COVER. FOR PIPES INSTALLED AT GREATER DEPTHS, PROVIDE AN ADDITIONAL FOOT OF SEPARATION FOR EACH ADDITIONAL FOOT OF DEPTH.
 - THE 18-INCH SEPARATION REQUIREMENT APPLIES WHEN THE STORM PIPE CROSSES ABOVE THE OCU MAIN, AND WHEN THE STORM PIPE HAS A DIAMETER EQUAL TO OR GREATER THAN 24 INCHES. OTHERWISE, THE REQUIRED SEPARATION IS 12 INCHES.
 - 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 OCU.
 - DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
 - NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURE.

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

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

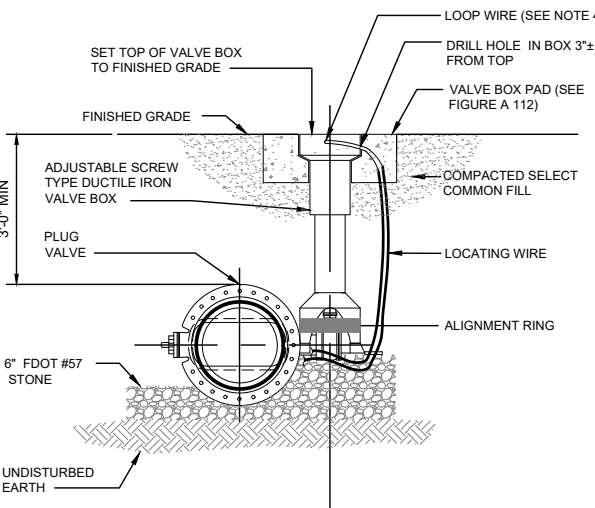
- NOTES:
- FITTINGS SHALL HAVE RESTRAINED JOINTS UNLESS OTHERWISE INDICATED.
 - INSTALL FULL LENGTH JOINTS WITH TOTAL LENGTH EQUAL TO OR GREATER THAN LENGTH SHOWN IN THE TABLE.
 - WHERE TWO OR MORE FITTINGS ARE IN SERIES, SELECT FITTING RESTRAINT LENGTH THAT YIELDS THE LONGEST RESTRAINT DISTANCE.
 - 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.

DATE: July 2014 **THRUST COLLAR (100 PSI) WASTEWATER FORCE MAINS** **FIGURE A105-2**



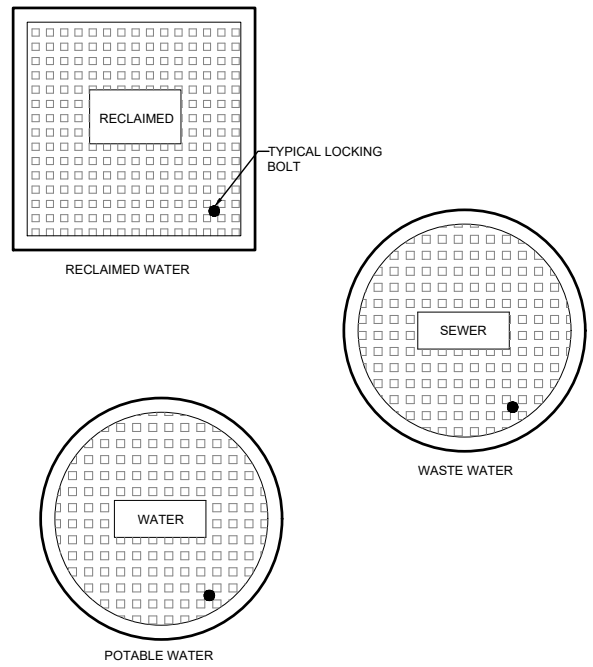
- NOTES:
- ADDITIONAL REINFORCEMENTS SHALL BE AS SPECIFIED BY THE ENGINEER.
 - MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE SHALL BE 3000 PSI.
 - BEDDING, BACKFILL, AND COMPACTION SHALL BE AS SPECIFIED ELSEWHERE IN THE STANDARD DRAWINGS.
 - ALL FORM BOARDS SHALL BE REMOVED PRIOR TO BACKFILL.
 - NO ALLOWANCE SHALL BE MADE FOR FRICTION BETWEEN THE PIPE WALL AND THE THRUST COLLAR.
 - DESIGN PRESSURE: 100 PSI.
 - REQUIRED FOR LINE STOPS.
- | SCHEDULE OF DIMENSIONS AND MATERIALS | | | | | | |
|--------------------------------------|------------------|-----|-----|-----|----------------|-----|
| PIPE SIZE (INCHES) | DIMENSIONS (FT.) | | | | TIE RODS REQ'D | |
| | A | B | C | D | DIA. | NO. |
| 6 | 2.0 | 2.0 | 1.0 | 3/4 | 3/4 | 2 |
| 8 | 2.5 | 2.5 | 1.0 | 3/4 | 3/4 | 2 |
| 10 | 3.0 | 2.5 | 1.0 | 3/4 | 3/4 | 4 |
| 12 | 4.0 | 3.0 | 1.0 | 3/4 | 3/4 | 4 |
| 16 | 5.5 | 3.5 | 1.5 | 3/4 | 3/4 | 4 |
| 20 | 7.5 | 4.0 | 1.5 | 3/4 | 3/4 | 4 |
| 24 | 8.5 | 5.0 | 1.5 | 3/4 | 3/4 | 6 |
- NOTE: THRUST COLLAR AREAS TO BE COMPUTED ON BASIS OF 2000 LBS/SF SOIL RESTRAINT BEARING.

DATE: July 2014 **PLUG VALVE AND BOX WASTEWATER** **FIGURE A109**



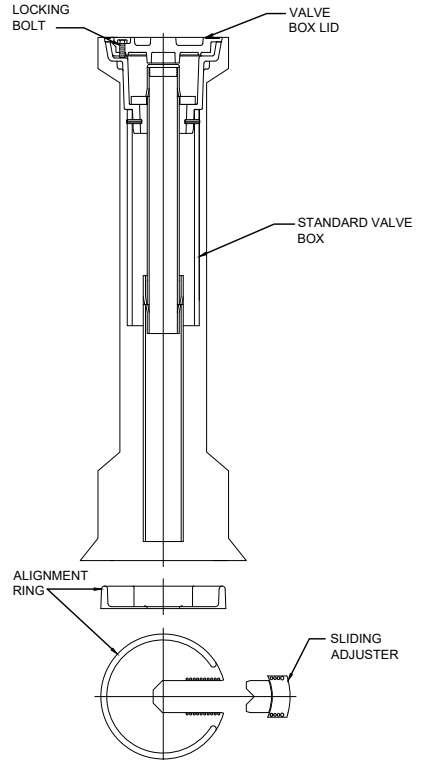
- NOTES:
- PVC PIPE OR DUCTILE IRON PIPE EXTENSIONS SHALL NOT BE USED ON VALVE BOX INSTALLATION.
 - THE VALVE ACTUATING NUT SHALL BE EXTENDED TO BE WITHIN 3" OF FINISHED GRADE.
 - PROVIDE A PLASTIC DEBRIS SHIELD / ALIGNMENT RING WHICH INSTALLS BELOW THE VALVE ACTUATING NUT. THIS SHIELD SHALL CENTER THE 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.

DATE: July 2014 **TYPICAL VALVE BOX COVER** **FIGURE A110**



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

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.

No.	REVISIONS	BY	DATE

LINE IS 1 INCH
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SCALE: AS NOTED

ORANGE COUNTY UTILITIES
 9150 CURRY FORD ROAD
 ORLANDO, FLORIDA 32825

BFA Environmental Consultants
 Barnes, Ferland and Associates, Inc.
 1250 E. Hillcrest Street, Orlando, FL, 32803
 P.O. BOX 10000
 ENGINEERING BUSINESS No. 6899

DEERFIELD BLVD FORCE MAIN R/R

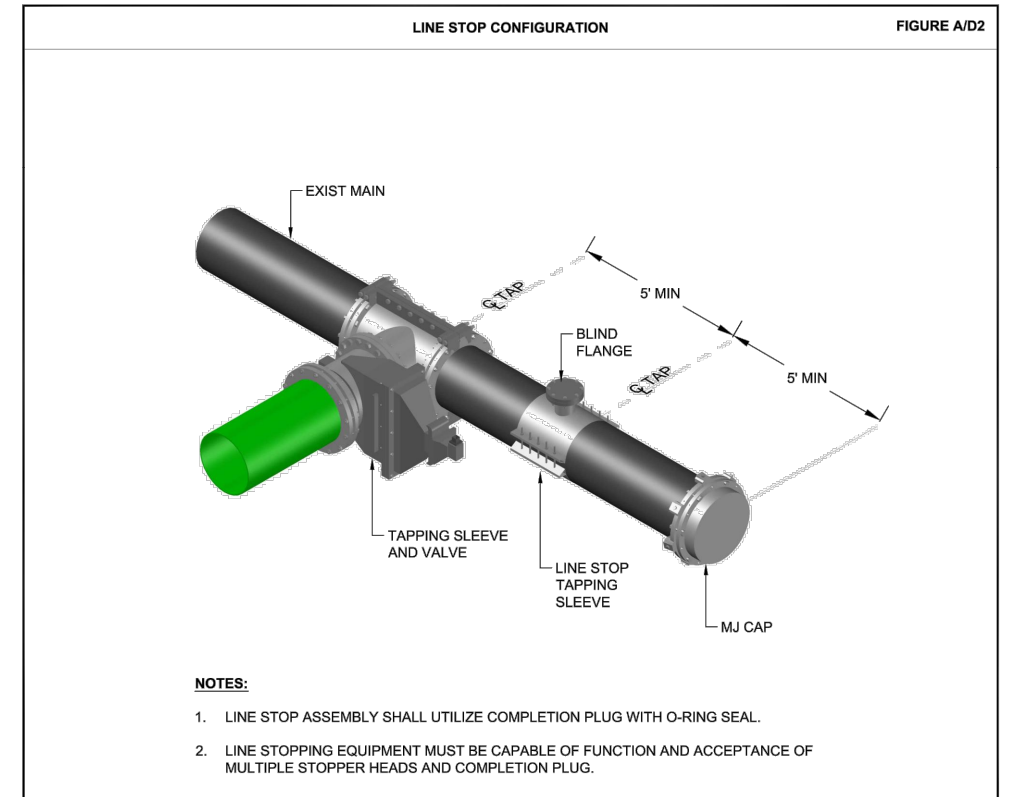
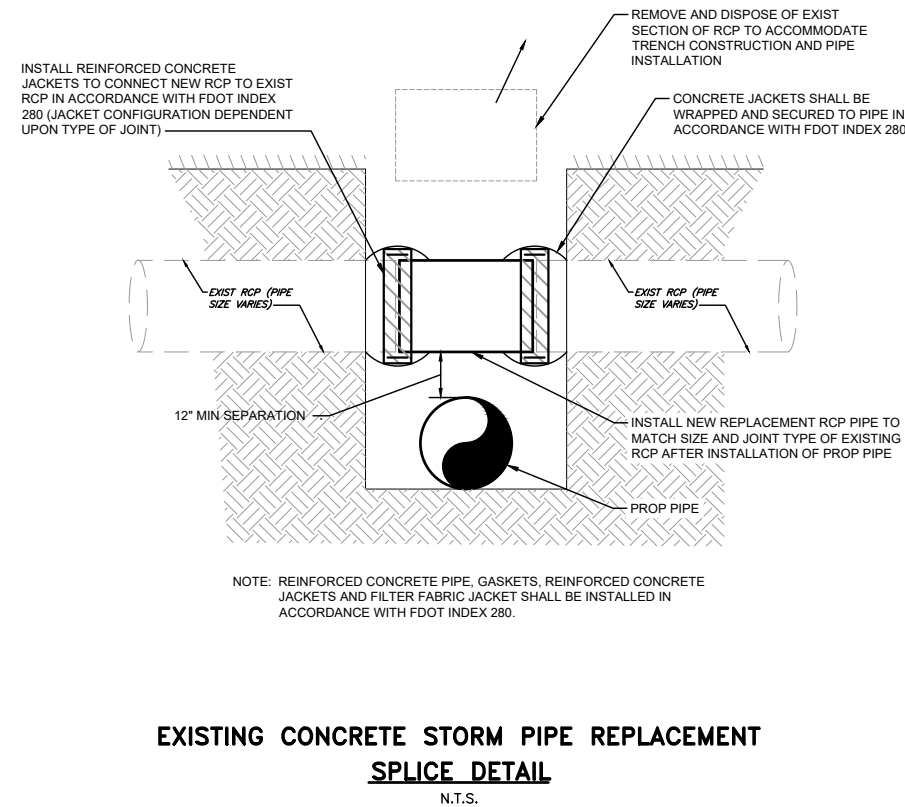
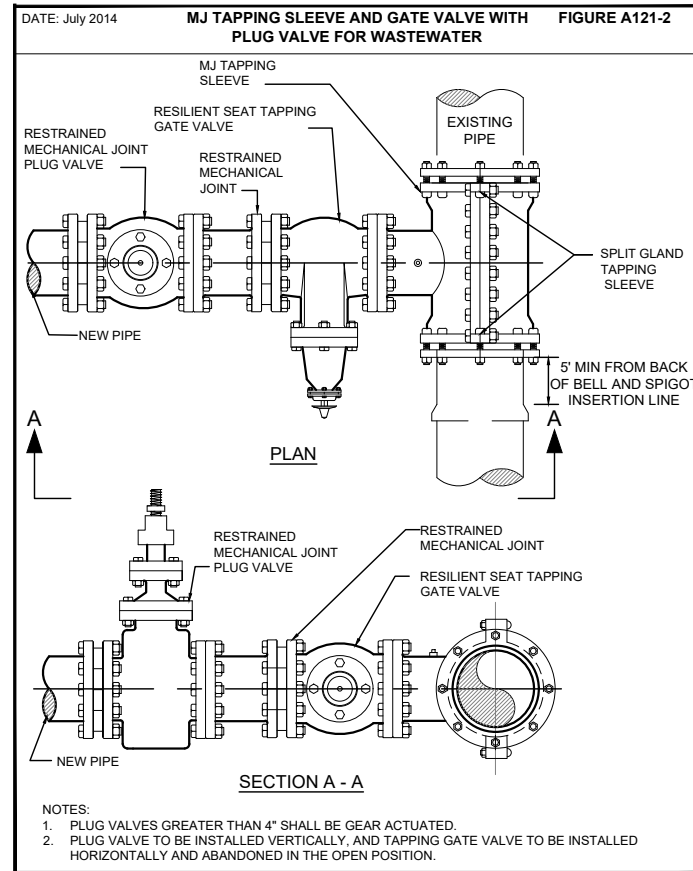
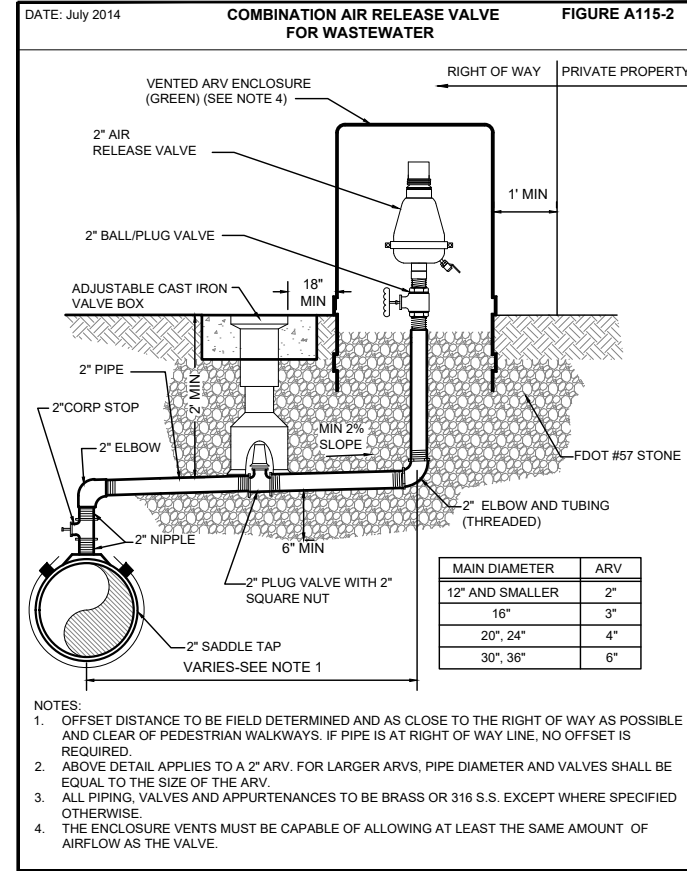
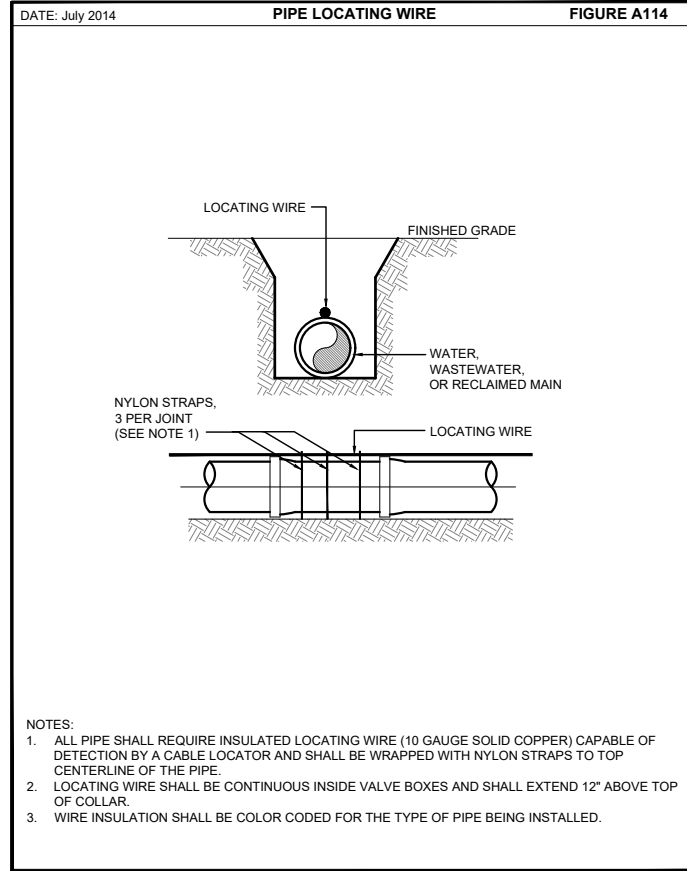
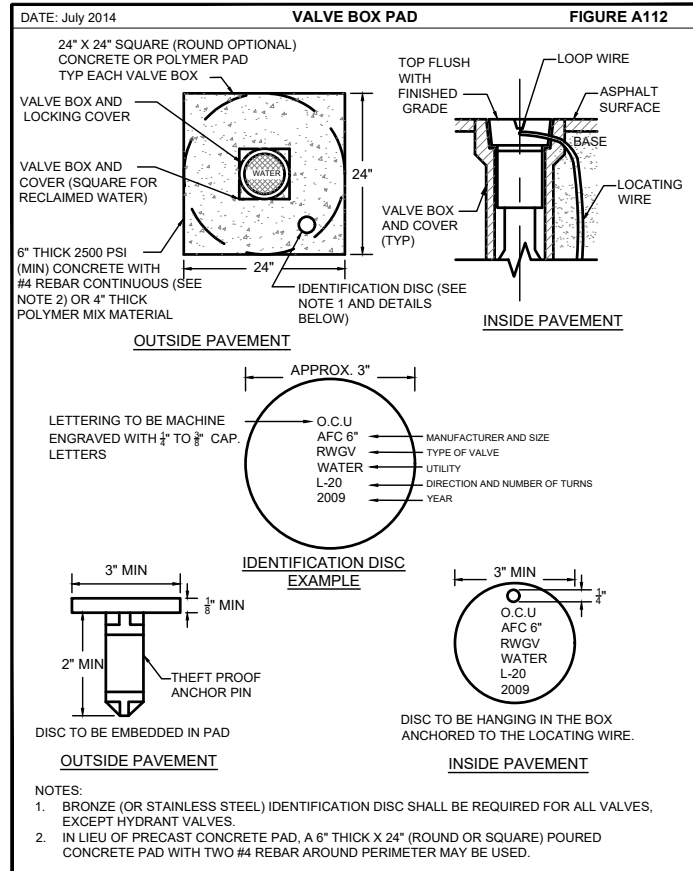
CONSTRUCTION DETAILS

DESIGN ENGINEER
 GEOFFREY J. HENNESSY, P.E.

PROJECT No.: 2014-28-21
 PROJECT DATE: FEB 2018
 DESIGNED BY: GJH
 DRAWN BY: JED
 CHECKED BY: CKM
 DRAWING FILE: SEE MARGIN

FLORIDA REGISTRATION NO.
 58637

DRAWING No.
D-100
 SHEET
 23 OF 27



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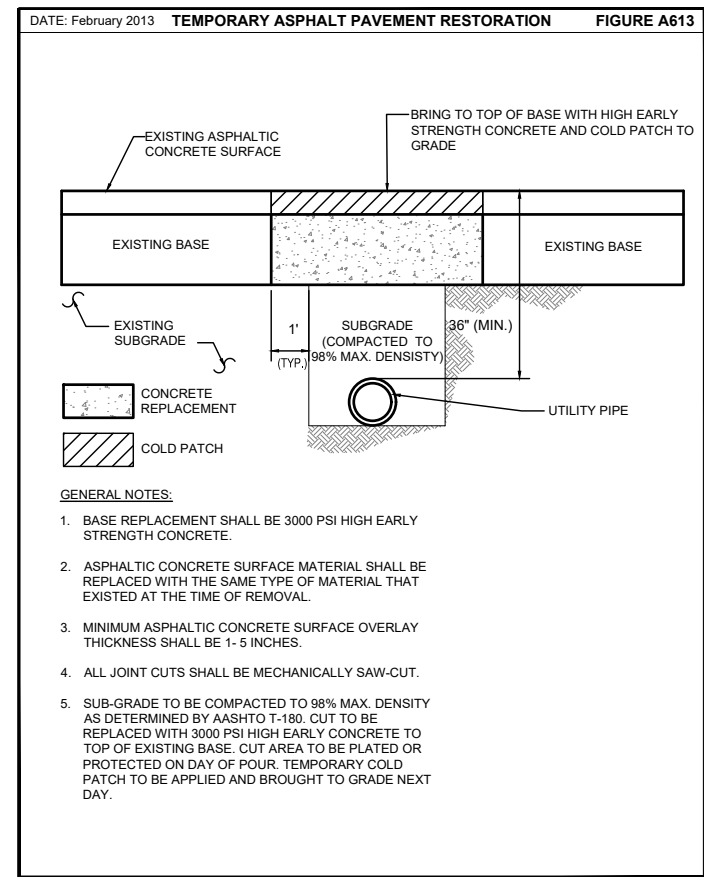
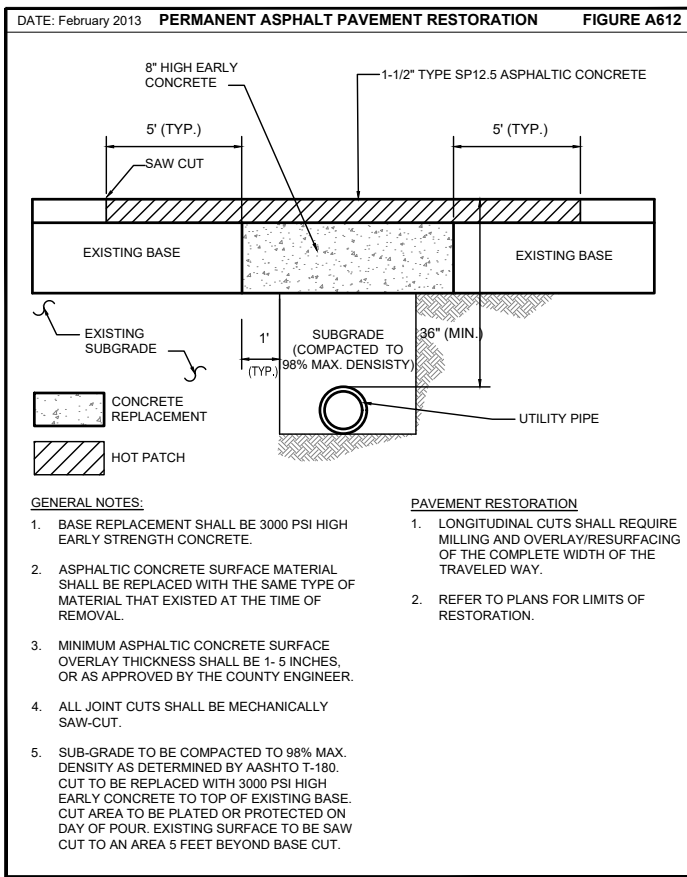
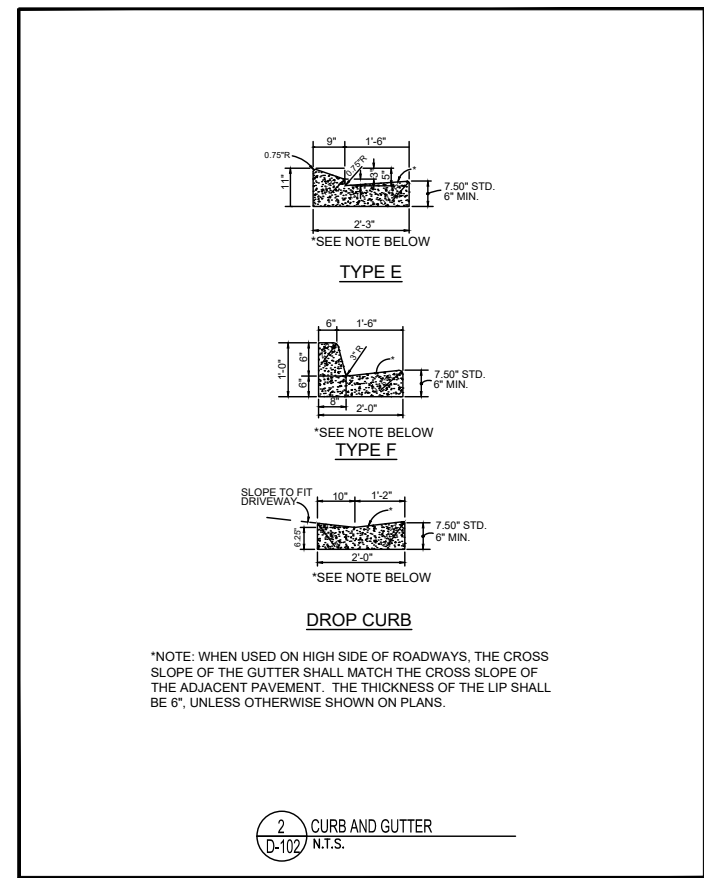
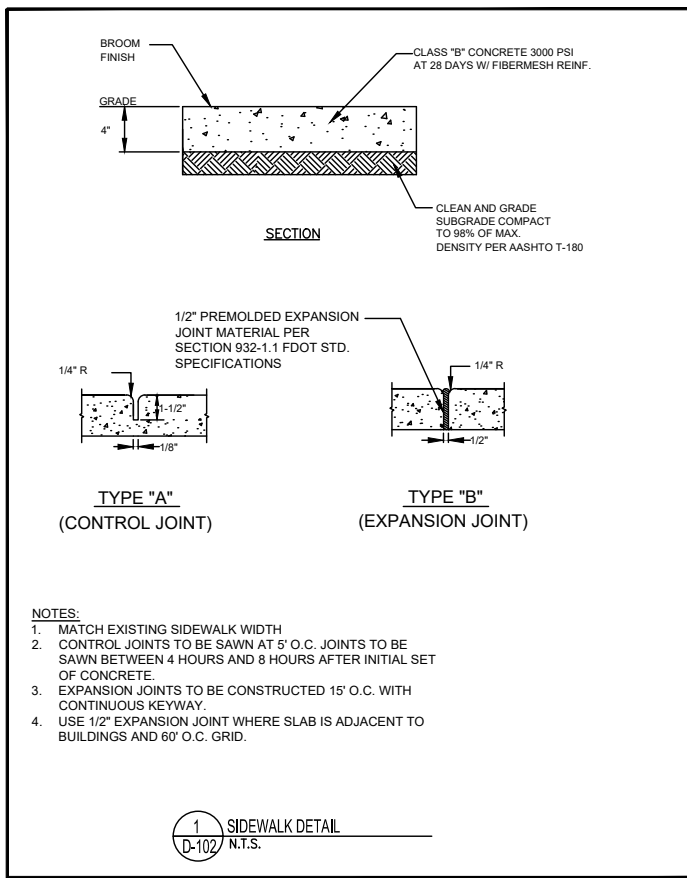
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DEERFIELD BLVD FORCE MAIN R/R
CONSTRUCTION DETAILS

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PROJECT No.: 2014-28-21
PROJECT DATE: FEB 2018
DESIGNED BY: GJH
DRAWN BY: JED
CHECKED BY: CKM
DRAWING FILE: SEE MARGIN

DRAWING No.
D-101
SHEET
24 OF 27



No.	REVISIONS	BY	DATE

BID SET

GJH FEB-2018

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DEERFIELD BLVD FORCE MAIN R/R

CONSTRUCTION DETAILS

DESIGN ENGINEER GEOFFREY J. HENNESSY, P.E.	PROJECT No.: 2014-28-21 PROJECT DATE: FEB 2018 DESIGNED BY: GJH DRAWN BY: JED	DRAWING No. D-102
FLORIDA REGISTRATION NO. 58637	CHECKED BY: CKM DRAWING FILE: SEE MARGIN	SHEET 25 OF 27

VALVE															
ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	VALVE TYPE	MAIN TYPE	VALVE SIZE	VALVE MFR	VALVE MODEL #	# OF TURNS TO CLOSE	GEAR ACTUATOR	GEAR RATIO	SIDE ACTUATOR	ACTUATOR MFR	COMMENTS
U101-TS1	U-101				8" TAPPING VALVE	FORCE MAIN									
U101-LS1	U-101				8" LINE STOP	FORCE MAIN									
U101-PV1	U-101				8" PLUG VALVE	FORCE MAIN									
U101-ARV1	U-101				2" AIR RELEASE	FORCE MAIN									
U102-TS1	U-102				8" TAPPING VALVE	FORCE MAIN									
U102-PV1	U-102				8" PLUG VALVE	FORCE MAIN									
U102-PV2	U-102				8" PLUG VALVE	FORCE MAIN									
U102-PV3	U-102				8" PLUG VALVE	FORCE MAIN									
U105-PV1	U-105				8" PLUG VALVE	FORCE MAIN									
U105-PV2	U-105				8" PLUG VALVE	FORCE MAIN									
U105-ARV1	U-105				2" AIR RELEASE	FORCE MAIN									
U108-PV1	U-108				8" PLUG VALVE	FORCE MAIN									
U108-PV2	U-108				8" PLUG VALVE	FORCE MAIN									
U108-ARV1	U-108				2" AIR RELEASE	FORCE MAIN									

PIPE											
ID NUMBER	PLAN SHEET #	EASTING	NORTHING	ELEVATION	MAIN TYPE	TYPE OF SHOT	CONSTRUCTION METHOD	MATERIAL	PRESSURE CLASS	MANUFACTURER	COMMENTS
U101-P1	U-101				FORCE MAIN	TOP OF PIPE					
U101-P2	U-101				FORCE MAIN	TOP OF PIPE					
U102-P1	U-102				FORCE MAIN	TOP OF PIPE					
U102-P2	U-102				FORCE MAIN	TOP OF PIPE					
U102-P3	U-102				FORCE MAIN	TOP OF PIPE					
U102-P4	U-102				FORCE MAIN	TOP OF PIPE					
U103-P1	U-103				FORCE MAIN	TOP OF PIPE					
U103-P2	U-103				FORCE MAIN	TOP OF PIPE					
U103-P3	U-103				FORCE MAIN	TOP OF PIPE					
U104-P1	U-104				FORCE MAIN	TOP OF PIPE					
U104-P2	U-104				FORCE MAIN	TOP OF PIPE					
U104-P3	U-104				FORCE MAIN	TOP OF PIPE					
U104-P4	U-104				FORCE MAIN	TOP OF PIPE					
U104-P5	U-104				FORCE MAIN	TOP OF PIPE					
U104-P6	U-104				FORCE MAIN	TOP OF PIPE					
U105-P1	U-105				FORCE MAIN	TOP OF PIPE					
U105-P2	U-105				FORCE MAIN	TOP OF PIPE					
U105-P3	U-105				FORCE MAIN	TOP OF PIPE					
U105-P4	U-105				FORCE MAIN	TOP OF PIPE					
U106-P1	U-106				FORCE MAIN	TOP OF PIPE					
U106-P2	U-106				FORCE MAIN	TOP OF PIPE					
U106-P3	U-106				FORCE MAIN	TOP OF PIPE					
U106-P4	U-106				FORCE MAIN	TOP OF PIPE					
U107-P1	U-107				FORCE MAIN	TOP OF PIPE					
U107-P2	U-107				FORCE MAIN	TOP OF PIPE					
U107-P3	U-107				FORCE MAIN	TOP OF PIPE					
U108-P1	U-108				FORCE MAIN	TOP OF PIPE					
U108-P2	U-108				FORCE MAIN	TOP OF PIPE					

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DEERFIELD BLVD FORCE MAIN R/R

COORDINATE ATTRIBUTE TABLES

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DRAWING No. X-101
SHEET 27 OF 27