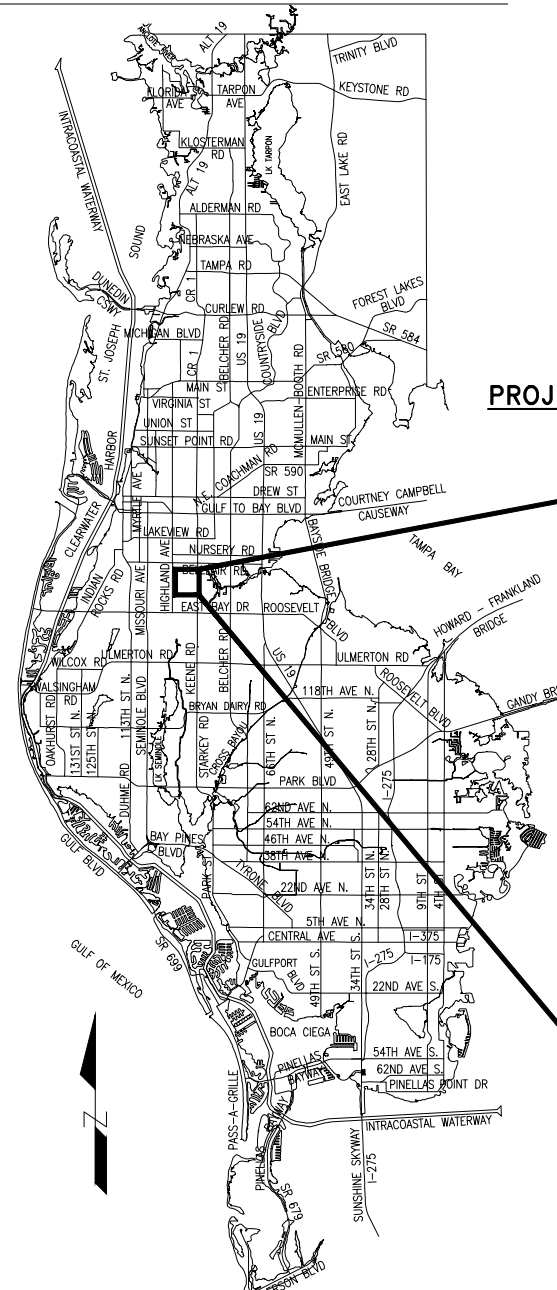




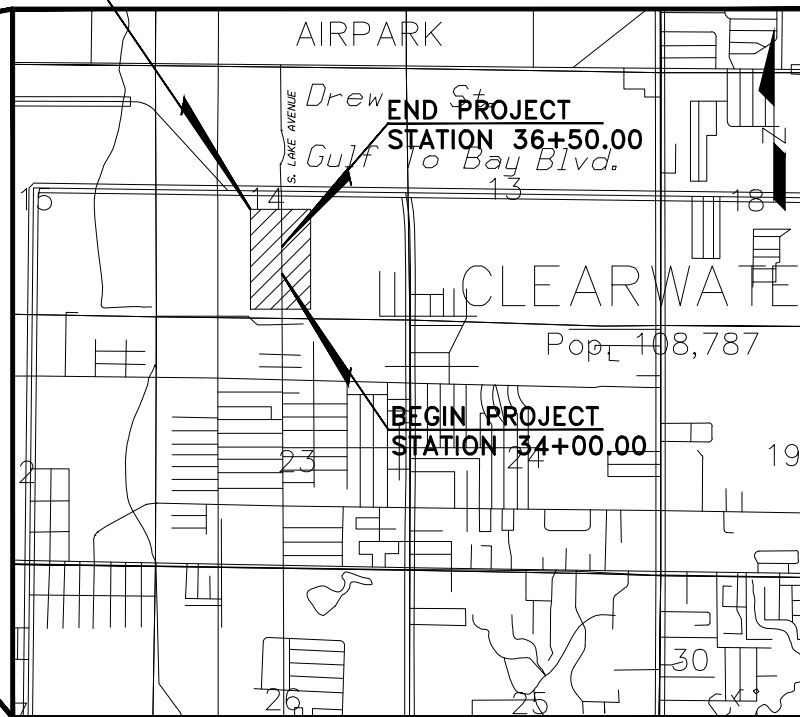
S. LAKE AVENUE CULVERT REPLACEMENT

COUNTY PID 002125A

PINELLAS COUNTY LOCATION MAP



PROJECT LOCATION



SECTION(S) 14 & 23, TOWNSHIP 29 SOUTH, RANGE 15 EAST

KEY MAP
NOT TO SCALE

INDEX OF PLANS

SHEET NO.	SHEET TITLE
1	KEY SHEET AND VICINITY MAP
2	SIGNATURE SHEET
3	DRAINAGE MAP
4	GENERAL NOTES
5	TYPICAL SECTIONS & PAY ITEM NOTES
5A	SUMMARY OF PAY ITEMS
6	PLAN & PROFILE
7	BACK-OF-SIDEWALK PROFILE
8-11	DRAINAGE STRUCTURES
12-15	CROSS SECTIONS
16	DRAINAGE STRUCTURES DETAILS
17	EROSION & SEDIMENT CONTROL DETAILS
18	EROSION & SEDIMENT CONTROL NOTES
19	EROSION & SEDIMENT CONTROL PLAN
20	BORING LOCATION PLAN
21	SOIL PROFILES (1)
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23	ORGANIC DELINEATION PLAN
24	TRAFFIC CONTROL PLAN - DETOUR (1 OF 2)
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26	UTILITY ADJUSTMENT SHEET
27	CULVERT ENDWALL DEMOLITION DETAILS (1 OF 2)
28	CULVERT ENDWALL DEMOLITION DETAILS (2 OF 2)
29	CULVERT ENDWALL DETAILS (1 OF 3)
30	CULVERT ENDWALL DETAILS (2 OF 3)
31	CULVERT ENDWALL DETAILS (3 OF 3)
1-4	TOPOGRAPHIC SURVEY

PROJECT MANAGER: JOHN A. CARPENTER, PE
(727)453-3350

PINELLAS COUNTY
14 SOUTH FORT HARRISON AVENUE
CLEARWATER, FLORIDA 33756
PHONE: (727)464-3588

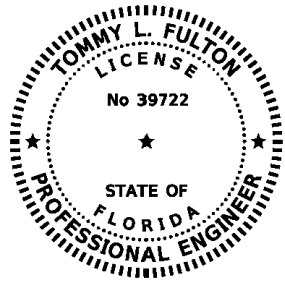
PREPARED BY:



HARDESTY & HANOVER, LLC
5510 EISENHOWER BLVD S, SUITE 310
TAMPA, FLORIDA 33634
CERTIFICATE OF AUTHORIZATION 29741
PHONE: (813)749-0823

ROADWAY PLANS
ENGINEER OF RECORD
TOMMY L. FULTON, P.E. NO. 39722

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:



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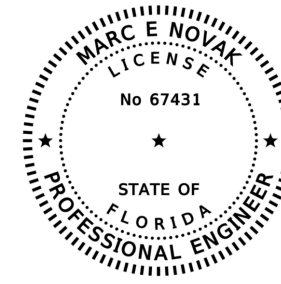
HARDESTY & HANOVER, LLC
5110 EISENHOWER BLVD,
SUITE 310
TAMPA, FL 33634
CERTIFICATE OF AUTHORIZATION NO. 29741
TOMMY L. FULTON, P.E. NO. 39722

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET AND VICINITY MAP
2	SIGNATURE SHEET
3	DRAINAGE MAP
4	GENERAL NOTES
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8 - 11	DRAINAGE STRUCTURES
12 - 15	CROSS SECTIONS
16	DRAINAGE STRUCTURES DETAILS
17	EROSION & SEDIMENT CONTROL DETAILS
18	EROSION & SEDIMENT CONTROL NOTES
19	EROSION & SEDIMENT CONTROL PLANS
24	TRAFFIC CONTROL PLAN - DETOUR (1 OF 2)
25	TRAFFIC CONTROL PLAN - DETOUR (2 OF 2)
26	UTILITY ADJUSTMENT SHEET

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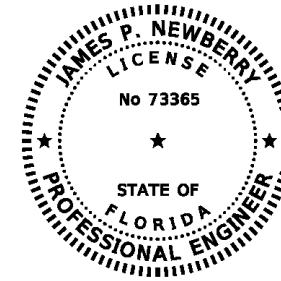
TIERRA
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FL 33837
CERTIFICATE OF AUTHORIZATION NO. 6486
MARC E. NOVAK, PH.D., P.E. NO. 67431

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ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
20	BORING LOCATION PLAN
21	SOIL PROFILES (1)
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23	ORGANIC DELINEATION PLAN

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HARDESTY & HANOVER, LLC
5110 EISENHOWER BLVD,
SUITE 310
TAMPA, FL 33634
CERTIFICATE OF AUTHORIZATION NO. 29741
JAMES P. NEWBERRY, P.E. NO. 73365

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

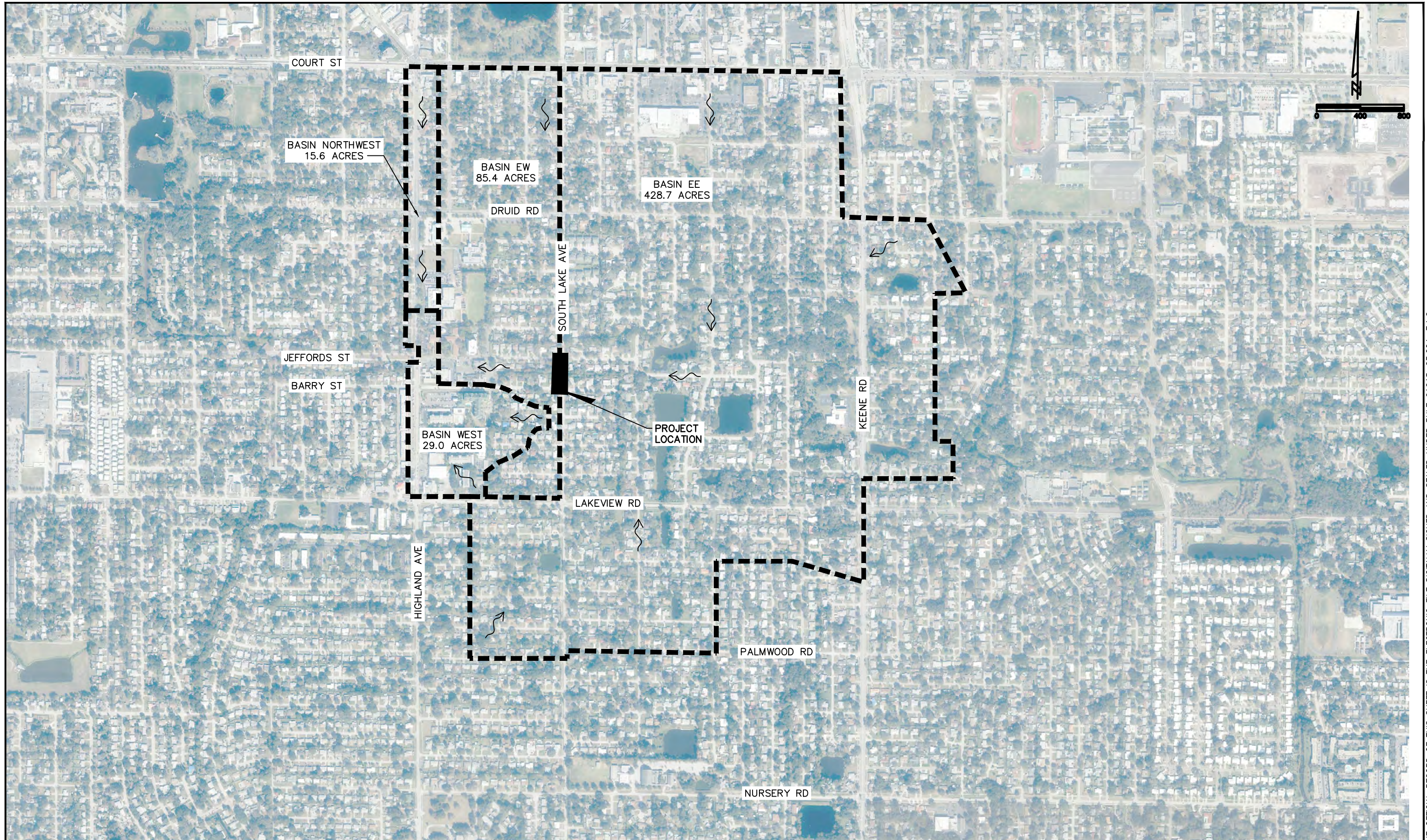
ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
27	CULVERT ENDWALL DEMOLITION DETAILS (1 OF 2)
28	CULVERT ENDWALL DEMOLITION DETAILS (2 OF 2)
29	CULVERT ENDWALL DETAILS (1 OF 3)
30	CULVERT ENDWALL DETAILS (2 OF 3)
31	CULVERT ENDWALL DETAILS (3 OF 3)

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DESIGNED	CMN		PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION: SIGNATURE SHEET	HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741		ENGINEER OF RECORD TOMMY L. FULTON, P.E. FLA. REG. NO 39722	DATE:	FEB 2017
DRAWN	MJ							PROJECT NO.	002125A
CHECKED	TLF							SHEET:	2 OF 31
REV. NO.	DATE	DESCRIPTION	REV. BY						

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REV. NO.	DATE	DESCRIPTION	REV. BY


DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT
REPLACEMENT

DESCRIPTION:
DRAINAGE MAP

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741


ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	3 OF 31

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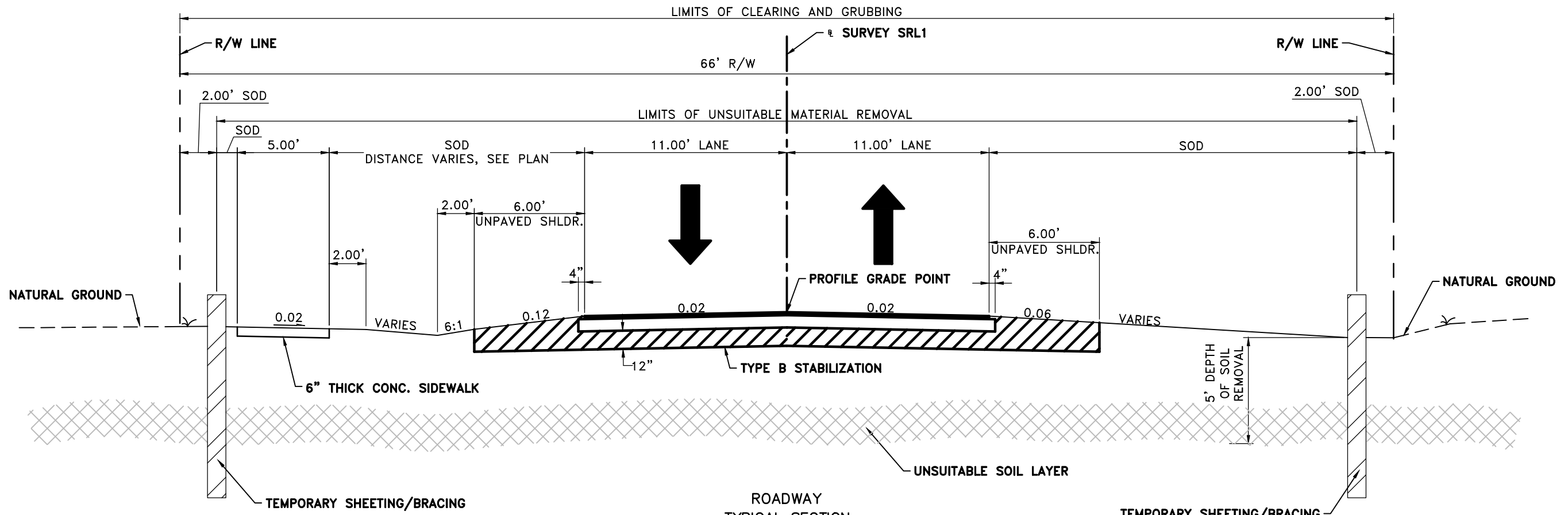
1. REMOVE ONLY TREES DESIGNATED FOR REMOVAL IN THE PLAN, OR AS DIRECTED BY THE ENGINEER. OBTAIN THE HABITAT MANAGEMENT PERMIT FROM PINELLAS COUNTY TRANSPORTATION & STORMWATER – NATURAL RESOURCES. TREE REMOVAL IS INCLUDED IN THE UNIT PRICE BID FOR CLEARING AND GRUBBING, UNLESS SEPARATE PAY ITEMS ARE PROVIDED.
2. ALL MATERIALS NOT CLAIMED BY THE COUNTY MUST BECOME THE PROPERTY OF THE CONTRACTOR, AND MUST BE DISPOSED OF BY THE CONTRACTOR IN AREAS PROVIDED BY THE CONTRACTOR. THE COST FOR THIS WORK IS INCLUDED IN THE UNIT PRICE BID FOR CLEARING AND GRUBBING. MATERIALS TO BE CLAIMED BY AND DELIVERED TO THE COUNTY ARE AS FOLLOWS:
EXCESS MILLING AND CONCRETE MATERIAL (CURB, SIDEWALLS, ETC.) THAT IS FREE FROM REINFORCEMENT MATERIAL.
3. ALL STATIONS AND OFFSETS REFER TO CONSTRUCTION BASE LINE, UNLESS OTHERWISE NOTED.
4. ALL EXISTING PIPES THAT ARE TO REMAIN IN SERVICE WITHIN THE RIGHT-OF-WAY CORRIDOR ARE TO REMAIN IN PLACE UNLESS OTHERWISE NOTED IN THE PLANS.
5. STORM DRAIN INLET AND MANHOLE STATION LOCATIONS REFERENCE THE CENTER OF THE SPECIFIED STRUCTURE BOTTOM.
6. ALL DISTURBED AREAS, INCLUDING AREAS OUTSIDE THE CONSTRUCTION LIMITS, MUST BE RETURNED TO THEIR PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL EXPENSE TO THE COUNTY. SEEDING MUST NOT BE USED AS FINAL GROUND COVER EXCEPT WHERE SPECIFICALLY SHOWN IN THE PLANS OR DIRECTED BY THE ENGINEER.
7. SHEETING, SHORING, AND BRACING MUST BE PROVIDED TO PROTECT ADJACENT STRUCTURES AND UTILITIES, OR TO MINIMIZE TRENCH WIDTH. THE COST OF ALL SHEETING, SHORING, AND BRACING REQUIRED IS INCLUDED IN THE UNIT PRICE BID FOR THE ITEM OF WORK FOR WHICH SHEETING, SHORING, AND BRACING IS REQUIRED, UNLESS OTHERWISE PROVIDED FOR SEPARATELY IN THE BID SUBMITTAL SHEETS.
8. THE ENGINEER MUST RECEIVE PERMISSION FROM THE PROPERTY OWNER THROUGH A RIGHT OF ENTRY AGREEMENT AND/OR A SIDEWALK, UTILITY, OR DRAINAGE EASEMENT PRIOR TO ANY GRADING OR CONSTRUCTION BEYOND THE RIGHT-OF-WAY..
9. ANY AND ALL EXISTING CONDITIONS MUST BE FIELD VERIFIED PRIOR TO COMMENCING CONSTRUCTION. THE ENGINEER MUST BE PROMPTLY NOTIFIED OF ANY DISCREPANCIES.
10. THE LOCATION(S) OF THE UTILITIES SHOWN IN THE PLANS ARE BASED ON LIMITED INVESTIGATION TECHNIQUES AND SHOULD BE CONSIDERED APPROXIMATE ONLY. THE VERIFIED LOCATIONS/ELEVATIONS APPLY ONLY AT THE POINTS SHOWN. INTERPOLATIONS BETWEEN THESE POINTS HAVE NOT BEEN VERIFIED.
11. SURFACING MUST NOT BE APPLIED TO ANY MANHOLE COVERS, FRAMES, VALVE BOXES, GAS DROPS, ETC.
12. SIDEWALK CURB RAMPS MUST BE PAID FOR AS DEFINED BY PINELLAS COUNTY SPECIFICATION 522 AND PINELLAS COUNTY STANDARD DETAIL 1360
13. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS MUST REMAIN UNLESS OTHERWISE NOTED IN THE PLANS, OR AS DIRECTED BY THE ENGINEER. PROPOSED SIGN LOCATIONS SHOWN ON PLANS ARE APPROXIMATE AND MAY REQUIRE FIELD ADJUSTMENT, AS DIRECTED BY THE ENGINEER.
14. BLUE, BI-DIRECTIONAL RPMS MUST BE INSTALLED ADJACENT TO ALL FIRE HYDRANTS, PLACED PER FDOT TRAFFIC ENGINEERING MANUAL, SECTION 4.3 – USE OF BLUE RAISED PAVEMENT MARKERS TO IDENTIFY FIRE HYDRANTS.

15. ABOVE GROUND AND/OR UNDERGROUND UTILITIES MAY BE IN THE AREA OF THIS PROJECT – PROCEED WITH CAUTION – CALL "SUNSHINE 811" IN ADVANCE OF BEGINNING WORK, IN ACCORDANCE WITH CHAPTER 556, FLORIDA STATUTES, UNDERGROUND FACILITY DAMAGE PREVENTION & SAFETY ACT. ALL UTILITY OWNERS MAY NOT BE A MEMBER, REQUIRING DIRECT CONTACT. FURTHER COORDINATION WITH UTILITY OWNERS MAY BE NECESSARY TO RESOLVE CONFLICTS THAT MAY ARISE IN THE FIELD DURING CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY UTILITIES DAMAGED AS A RESULT OF FAILURE TO CALL "SUNSHINE 811" AND THE UTILITY OWNERS.
16. THE RESPONSIBLE UTILITY OWNER MUST BE NOTIFIED FOR RELOCATION OF METER BOXES FOR POTABLE AND NON-POTABLE WATER SERVICE.
17. REMOVE EXISTING TREES AS INDICATED ON THE PLAN & PROFILE SHEET.

TYPE OF TREE	NO. OF TREES REMOVED	DESCRIPTION
RED MAPLE	1	18"
CHERRY LAUREL	1	10"

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DESIGNED	CMN		PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION: GENERAL NOTES	HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741		ENGINEER OF RECORD TOMMY L. FULTON, P.E. FLA. REG. NO 39722	DATE:	FEB 2017
DRAWN	MJ							PROJECT NO.	002125A
CHECKED	TLF							SHEET:	4 OF 31
REV. NO.	DATE	DESCRIPTION	REV. BY						



ROADWAY
TYPICAL SECTION
SOUTH LAKE AVE
STA. 34+14.00 TO STA. 36+35.00

NEW CONSTRUCTION
OPTIONAL BASE GROUP 6
[RECYCLED CONCRETE, LBR 150 (8 INCHES) OR
TYPE B 12.5 (5 INCHES) ONLY]
TYPE SP STRUCTURAL COURSE
(TRAFFIC C) (2")

DESIGN SPEED:
30 MPH

GENERAL NOTES:

1. WITHIN THE LIMITS OF RIGHT-OF-WAY, FROM BARRY STREET TO JEFFORDS STREET:
 - A. THE CONTRACTOR SHALL PROVIDE THE DESIGN AND INSTALLATION OF TEMPORARY SHEETING/BRACING 2.00 FEET FROM R/W LINE TO FACILITATE THE REMOVAL OF UNSUITABLE MATERIAL. SHEETING/BRACING TO FACILITATE CONSTRUCTION OF CULVERT HEADWALL TO BE PLACED AT R/W LINE AND DRAINAGE EASEMENT LINE TO PROVIDE A LARGE WORK AREA FOR CONSTRUCTION ACTIVITY. CONTRACTOR SHALL NOT ENCROACH INTO ADJACENT PROPERTY.
 - B. ALL EXISTING UTILITIES WILL EITHER BE RELOCATED OR REESTABLISHED (SEE UTILITY ADJUSTMENT SHEET).
 - C. ALL EXISTING DRAINAGE STRUCTURES WILL BE REMOVED, UNLESS OTHERWISE NOTED ON THE PLANS.

2. THE CONTRACTOR SHALL REMOVE THE UNSUITABLE SOIL LAYER BY EXCAVATING TO A DEPTH OF 5 FEET FOR THE ENTIRE R/W WIDTH, FROM BEGIN NEW CONSTRUCTION TO END NEW CONSTRUCTION LIMITS.

PAY ITEM NOTES:

120-4 VOLUME FOR EXCAVATION, UNSUITABLE MATERIAL IS BASED ON REMOVING SOIL TO A DEPTH OF 5 FT. FROM GROUND SURFACE. THE LIMITS WILL BE FROM TEMPORARY SHORING ALONG WEST R/W LINE TO TEMPORARY SHORING ALONG EAST R/W LINE. BEGIN UNSUITABLE EXCAVATION AT STA. 34+14.00 AND END EXCAVATION AT STA. 36+35.00.

102-71-11 TEMPORARY CONCRETE BARRIER WALL TO BE PLACED AT THE BEGIN AND END PROJECT TO BLOCK UNAUTHORIZED VEHICLES FROM TURNING INTO THE CONSTRUCTION ZONE AND EXCAVATION AREA.

121-70 FLOWABLE CONCRETE SHALL BE USED TO FILL NARROW SPACE BETWEEN STRUCTURES S-5A AND S-5B AND BETWEEN 66

INCH PIPES. FLOWABLE CONCRETE FILL MAY BE USED FOR OTHER APPLICATIONS ON THE PROJECT AS APPROVED BY THE ENGINEER.

125-3 BEDDING MATERIAL (CRUSHED STONE) TO BE USED FOR PREPARATION OF BEDDING UNDER THE DOUBLE 66-INCH RCP CULVERTS IF DE-WATERING EFFORTS ARE CONSIDERED INEFFECTIVE AND THE PIPE TRENCH CANNOT BE PROPERLY DRIED AND COMPACTED IN ACCORDANCE WITH SPECIFICATIONS.

455-133-2 PAYMENT FOR ALL WORK AND MATERIALS ASSOCIATED WITH TEMPORARY SHEETING/BRACING REQUIRED FOR EXCAVATION OF UNSUITABLE SOIL REMOVAL, EXCAVATION FOR REPLACEMENT OF EXISTING CULVERT AND ASSOCIATED ENDWALLS, AND STABILIZATION OF EXISTING CULVERT ENDWALL TO REMAIN, SHALL BE INCLUDED IN PAYMENT FOR PAY ITEM NO. 455-133-2.

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DESIGNED	CMN		PROJECT:	S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION:	TYPICAL SECTION & PAY ITEM NOTES	HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741		ENGINEER OF RECORD TOMMY L. FULTON, P.E. FLA. REG. NO 39722	DATE:	FEB 2017
DRAWN	MJ								PROJECT NO.	002125A	
CHECKED	TLF								SHEET:	5 OF 31	
REV. NO.	DATE	DESCRIPTION	REV. BY								

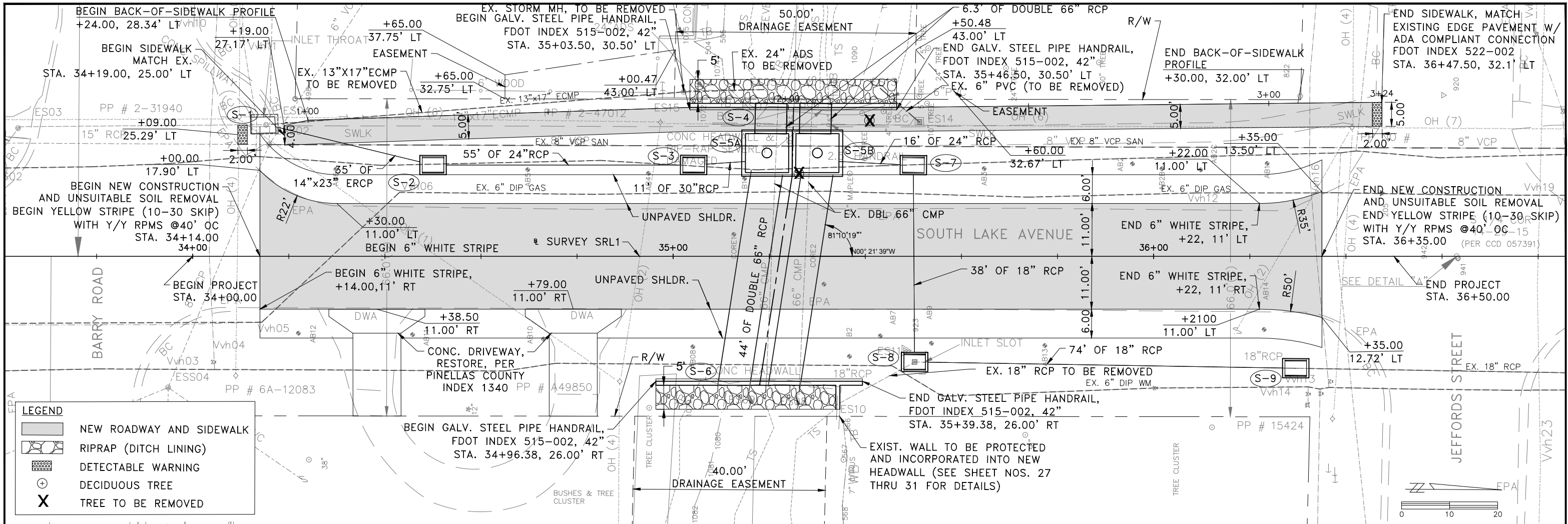
SUMMARY OF ROADWAY & CITY OF CLEARWATER

Pay Item Number	Applicable Pinellas County Specification	Description	Unit	Quantity	City of Clearwater Pay Item Number	Description	Unit	Quantity
101-1	101-0100	MOBILIZATION	LS	1.0	CLW-1	MOBILIZATION	LS	1
102-1	102-1000	MAINTENANCE OF TRAFFIC	LS	1.0	CLW-2	MAINTENANCE OF TRAFFIC	LS	1
102-99	102-1000	SIGN, VARIABLE MESSAGE (3 Lines) (Temporary)	ED	50.0	CLW-5	LINE STOP/6" x 6" WET TAP	EA	2
102-71-11	102-1000	CONCRETE BARRIER WALL (TEMPORARY)	LF	100.0	CLW-6	F&I 6" DI RESILIENT SEAT GV W/BOX & BLIND FLANGE	EA	2
104-1	104	PREVENTION, CONTROL, AND ABATEMENT OF EROSION & WATER POLLUTION	LS	1.0	CLW-7	CONSTRUCT THRUST COLLAR	EA	2
104-1-1	104	ARTIFICIAL COVERINGS/Rolled Erosion Control Products	SY	450.0	CLW-8	F&I 6" DI WM RJ; INCLUDING POLY WRAP, FITTINGS, & BENDS	LF	220
104-10-3	104	SEDIMENT BARRIER	LF	600.0	CLW-9	DEMO & DISPOSE EXISTING 6" WM	LF	220
104-11	104	TURBIDITY BARRIER, Floating	LF	100.0	CLW-10	F&I TEMP. B.O. & SAMPLE TAP INCLUDING APPURTENANCES, FITTINGS BENDS AND REMOVAL	EA	1
104-12	104	STAKED TURBIDITY BARRIER	LF	150.0	CLW-11	F&I TEMP. CL2 TAP INCLUDING APPURTENANCES, FITTINGS BENDS AND REMOVAL	EA	1
104-18	104	INLET PROTECTION SYSTEMS	EA	5.0	CLW-12	SANITARY SEWER BYPASS	EA	1
110-1-1	110	CLEARING & GRUBBING	LS	1.0	CLW-13	DEMO AND DISPOSE SANITARY SEWER PIPE	LF	280
120-3-1	900-1060	COFFERDAMS, CHANNEL DIVERSION, PUMPING, DEWATERING, AND DISCHARGE TREATMENT	LS	1.0	CLW-14	F&I 8" EPOXY LINED DIP GRAVITY SEWER	LF	280
120-4	120	EXCAVATION, Unsuitable Material	CY	2061.3	CLW-15	F&I 16" DIP CASING INCLUDING APPURTENANCES, SPACERS AND END SEALS	LF	25
120-6	120	EMBANKMENT	CY	2061.3	CLW-16	CONNECT TO EXISTING MH	EA	2
120-11002	120-1100	GRADING	LS	1.0				
121-70	121	FLOWABLE CONCRETE FILL (EXCAVATABLE)	CY	50.0				
125-3	125-3000	BEDDING MATERIAL (CRUSHED STONE No. 57) (10" DEPTH)	CY	65.0				
160-4	160	TYPE B STABILIZATION	SY	865.0				
285-7-06	234	OPTIONAL BASE GROUP 6, TYPE B-12.5, OR RECYCLED CONCRETE, LBR, 150 ONLY	SY	570.0				
334-1-13	334	SUPERPAVE ASPHALT CONCRETE, Type SP 9.5 or SP 12.5, Fine, Traffic Level C	TN	75.0				
350-4-1	350-0200	PAVEMENT, Reinforced Cement Concrete, 6" Min Thickness (Driveways)	SY	57.0				
400-2-2	400	CONCRETE CLASS II, Endwalls	CY	35.2				
415-1-1	415	REINFORCING STEEL, Roadway	LB	4353.0				
425-1-55	425	INLET, Ditch Bottom, FDOT Type E, <10' (TRAFFIC BEARING GRATE)	EA	5.0				
425-2-72	425	MANHOLE, FDOT TYPE J-7, >10', UTILITY CONFLICT STRUCTURE	EA	2.0				
430-175-118	430	PIPE CULVERT, CONCRETE, Round, 18" ID	LF	120.0				
430-175-124	430	PIPE CULVERT, CONCRETE, Round, 24" ID	LF	71.0				
430-175-130	430	PIPE CULVERT, CONCRETE, Round, 30" ID	LF	11.0				
430-175-166	430	PIPE CULVERT, CONCRETE, Round, 66" ID	LF	106.0				
430-175-218	430	PIPE CULVERT, CONCRETE, Elliptical, 14" x 23" ID	LF	35.0				
455-133-2	455	SHEET PILING STEEL, TEMPORARY	SF	8150.0				
515-2-211	515	HANDRAIL, Steel Pipe, Galvanized, FDOT Index 515-002, 42" Height	LF	90.0				
522-2	522	SIDEWALK, CONCRETE, 6" Min. Thickness	SY	150.0				
527-2	522	DETECTABLE WARNINGS	EA	3.0				
530-3-4	530	RIPRAP, Rubble, W/Filter Fabric (broken stone)	TN	32.0				
570-1-2	570-575	SODDING, Bahia	SY	1100.0				
575-0112	575	SODDING, ST. AUGUSTINE	SY	110.0				
706-3	705-710	PAVEMENT MARKERS, RETRO-REFLECTIVE	EA	6.0				
710-11-241	705-710	PAINTED PAVEMENT MARKING, STD, YELLOW, SKIP, 6"	LF	221.0				
710-23-61	705-710	TRAFFIC STRIPE-SOLID, WHITE/BLACK/BLUE, 6"	LF	400.0				

DESIGNED: CMN		PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION: SUMMARY OF PAY ITEMS	HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741 	DATE: FEB 2017
DRAWN: MJ					PROJECT NO. 002125A
CHECKED: TLF					SHEET: 5A OF 31

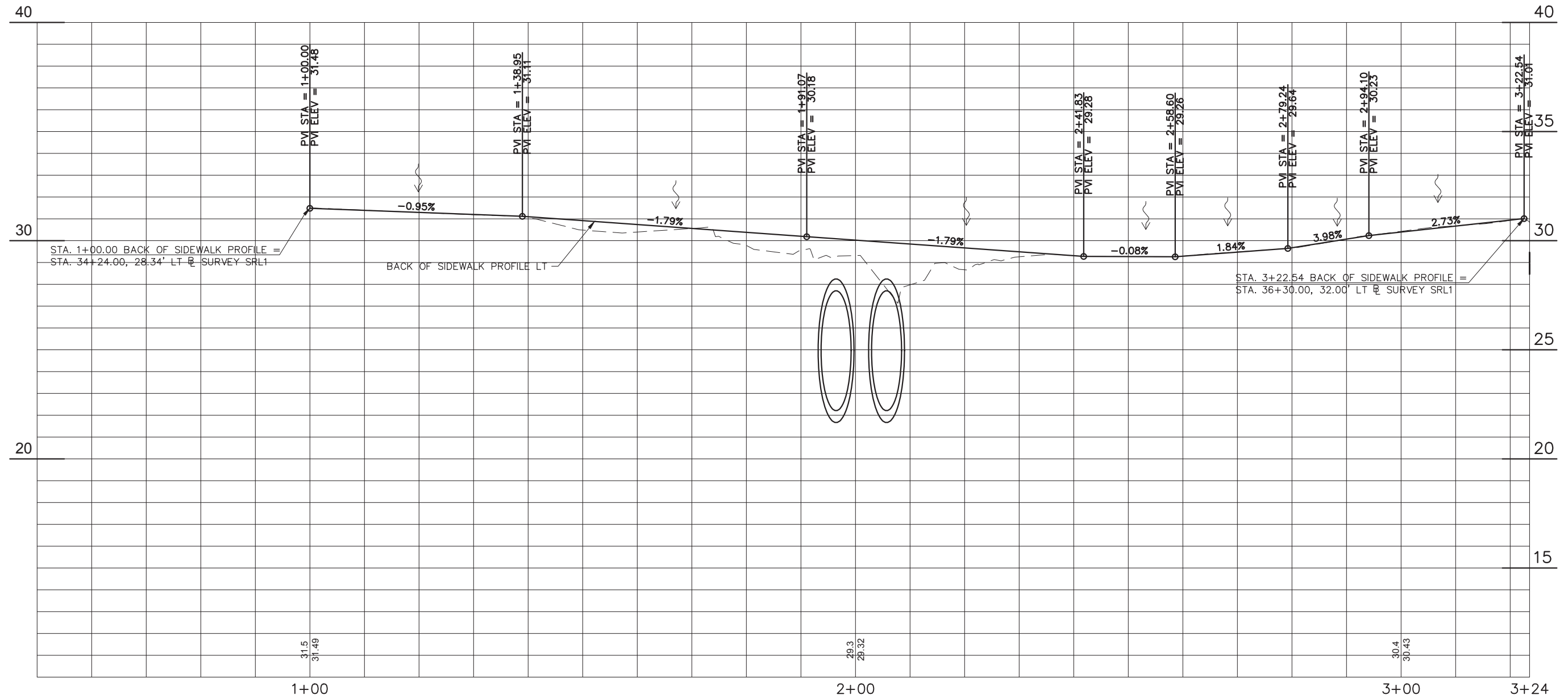
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Scale: 1"=20' Horiz.
1"=5' Vert.

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DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION:
BACK-OF-SIDEWALK PROFILE

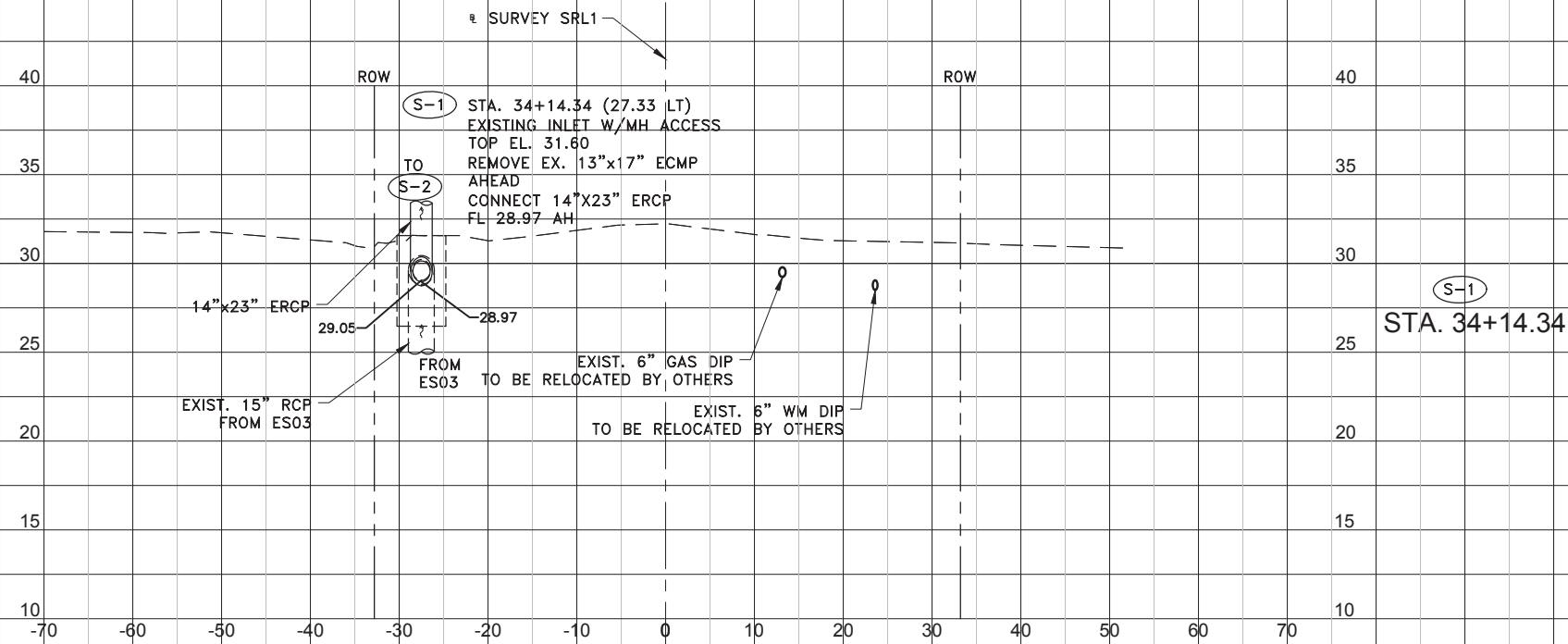
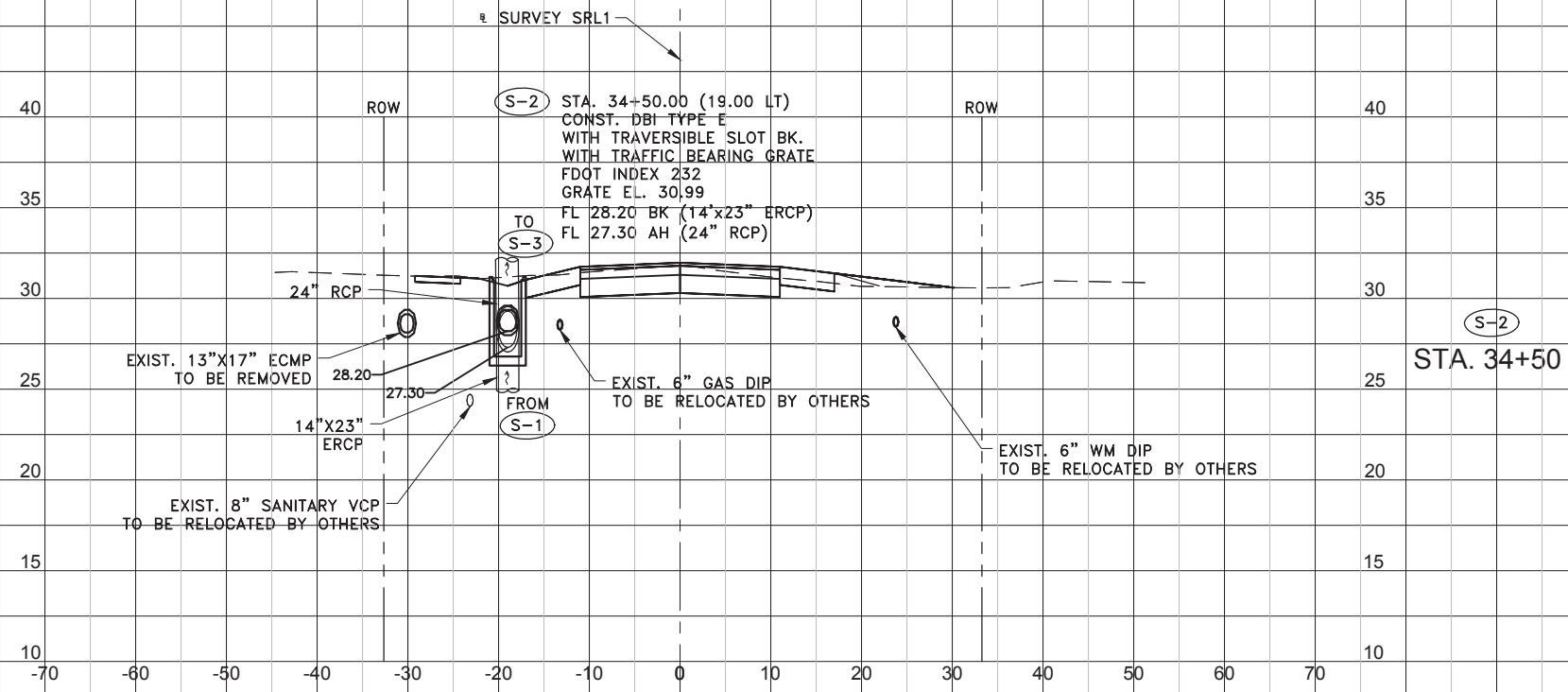
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	7 OF 31

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Scale: 1" = 20' Horiz.
 1" = 10' Vert.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
 S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION:
 DRAINAGE STRUCTURES (1)

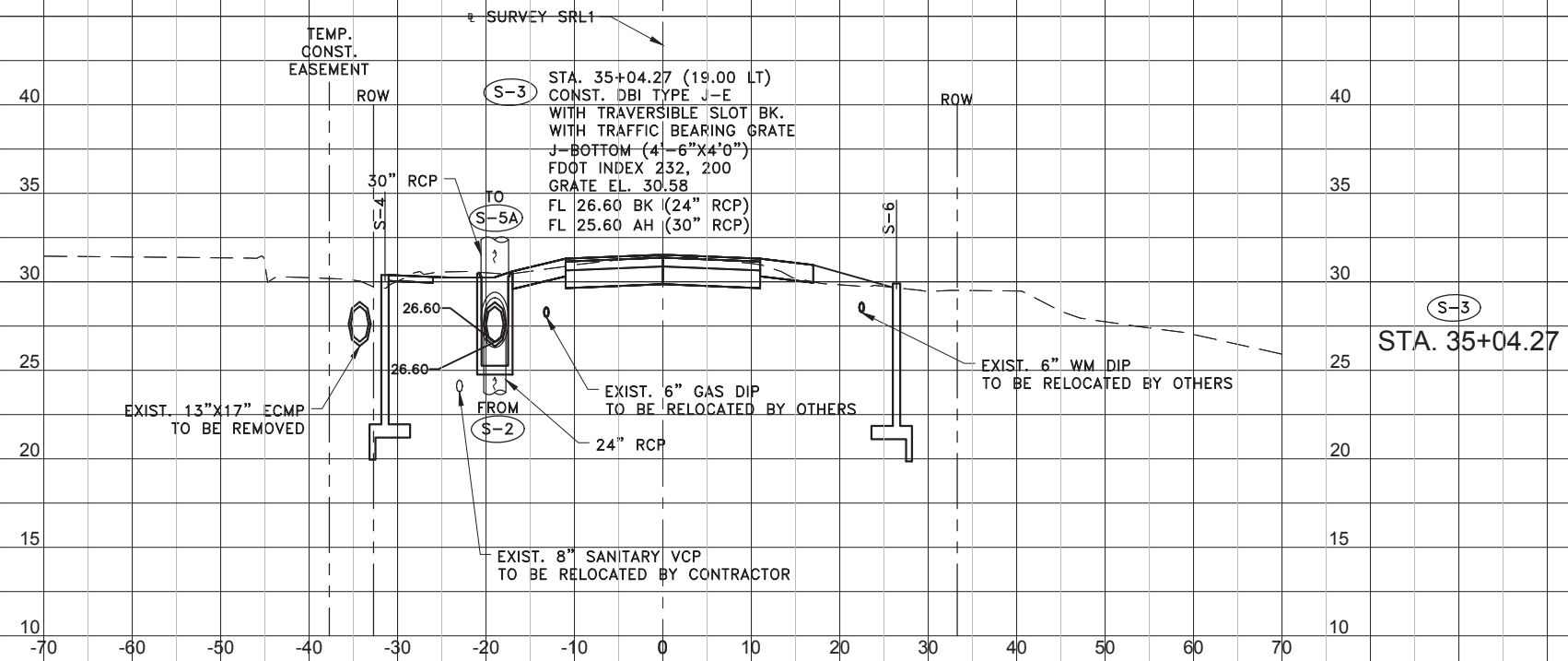
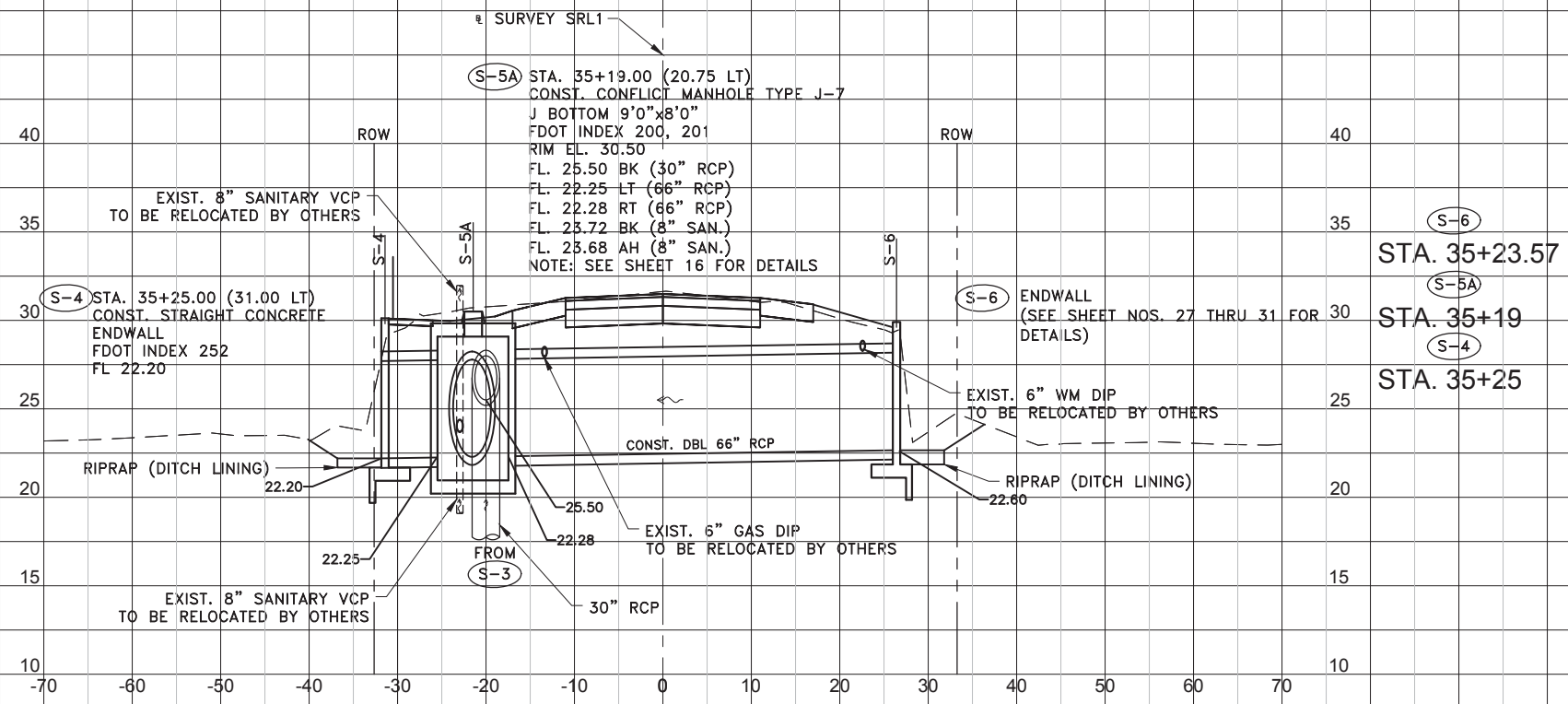
HARDESTY & HANOVER, LLC.
 5110 EISENHOWER BLVD.
 SUITE 310
 TAMPA, FL 33634
 CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
 TOMMY L. FULTON, P.E.
 FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	8 OF 31

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Scale: 1" = 20' Horiz.
1" = 10' Vert.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION:
DRAINAGE STRUCTURES (2)

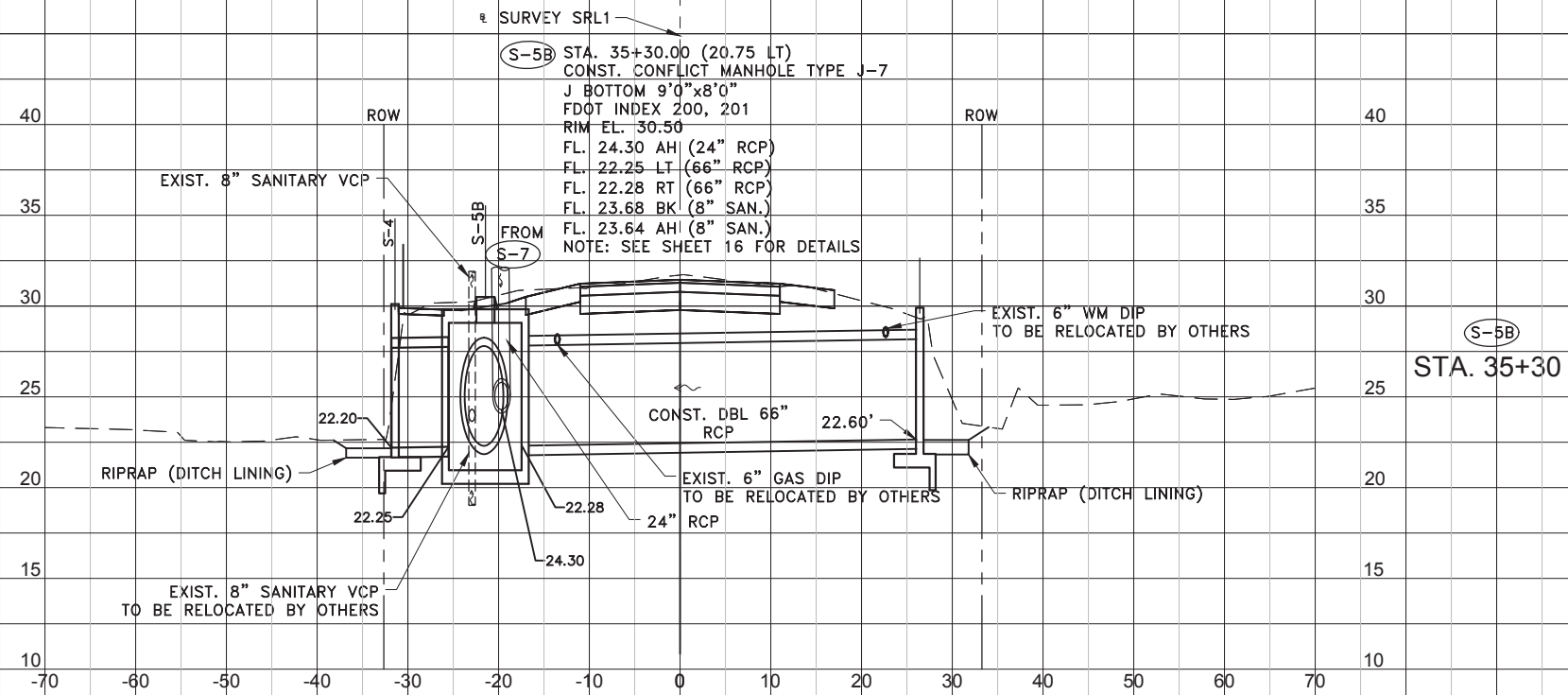
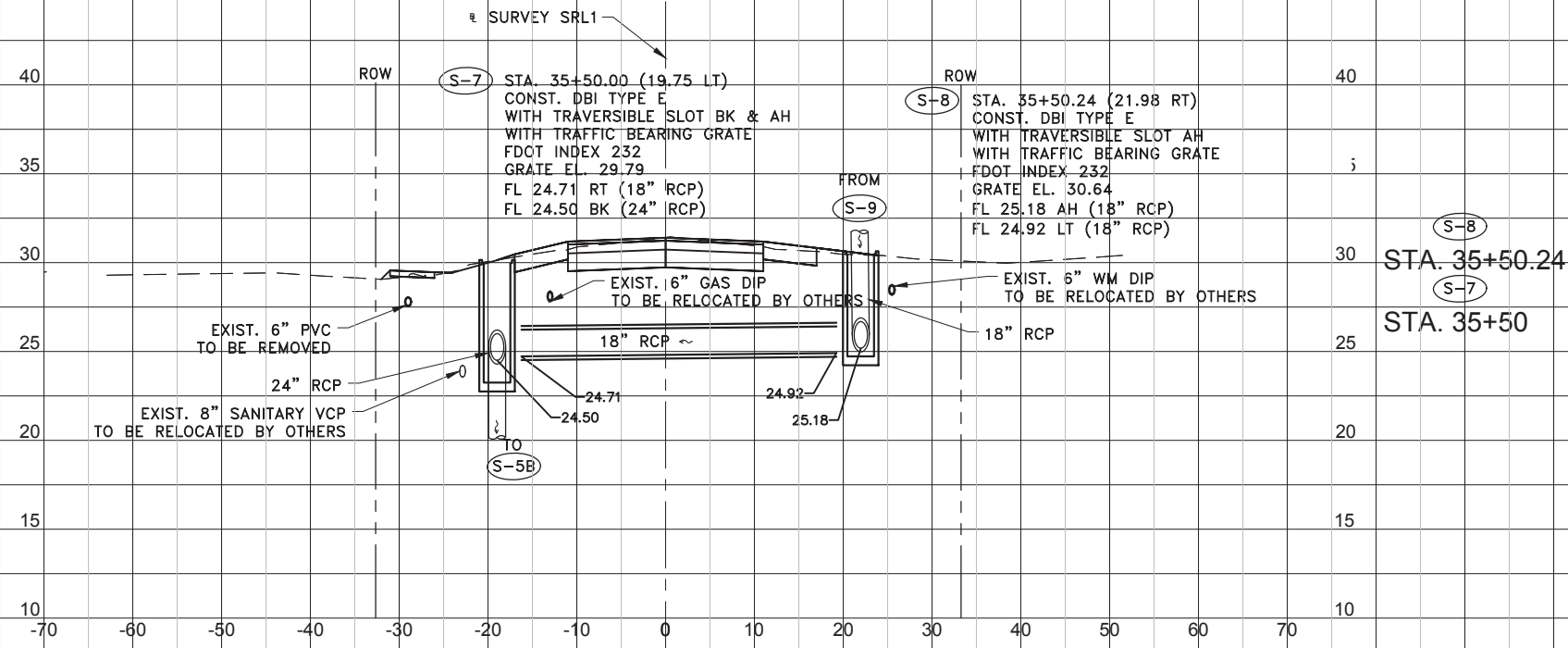
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	9 OF 31

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Scale: 1" = 20' Horiz.
1" = 10' Vert.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION:
DRAINAGE STRUCTURES (3)

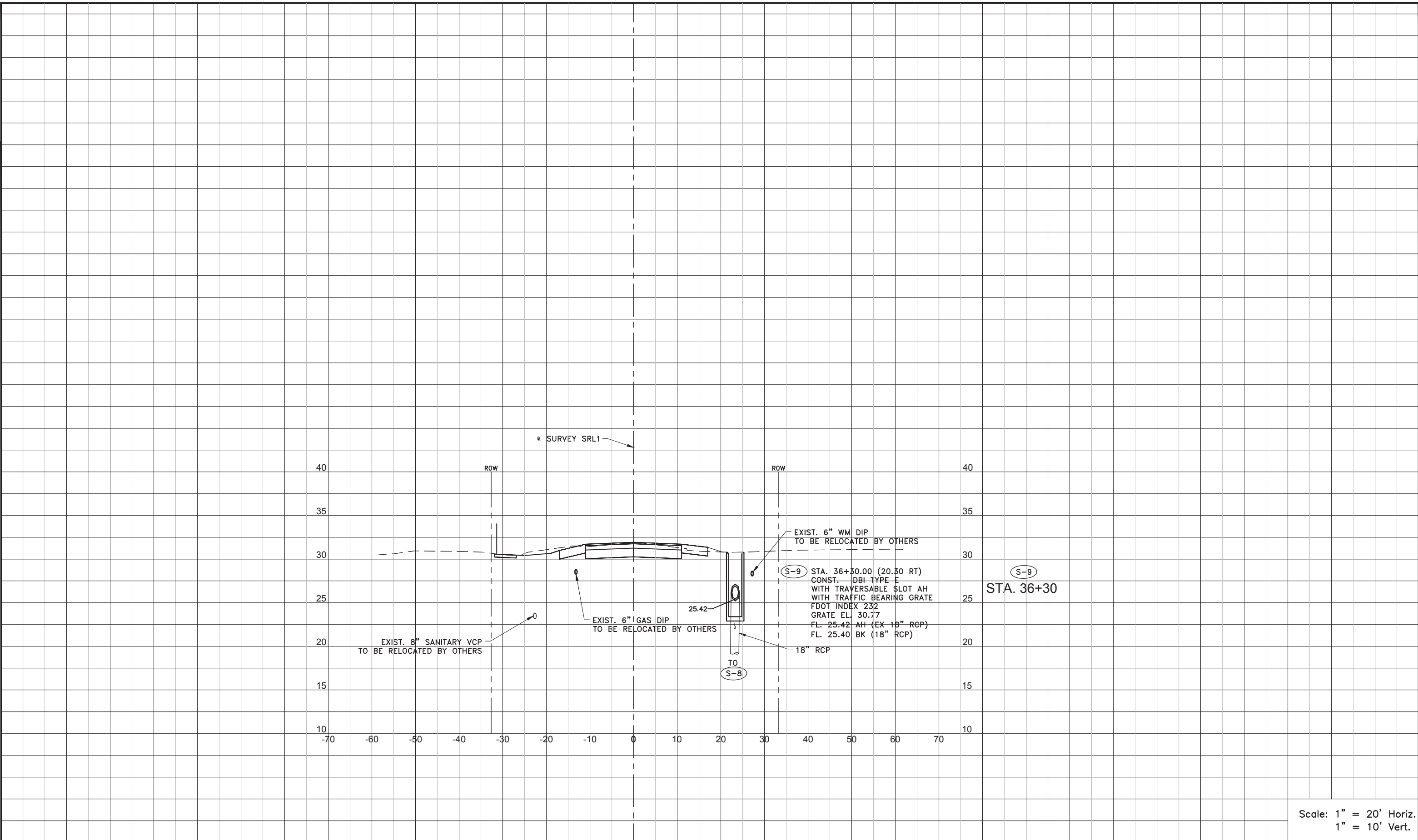
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	10 OF 31

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Scale: 1" = 20' Horiz.
1" = 10' Vert.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION:
DRAINAGE STRUCTURES (4)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

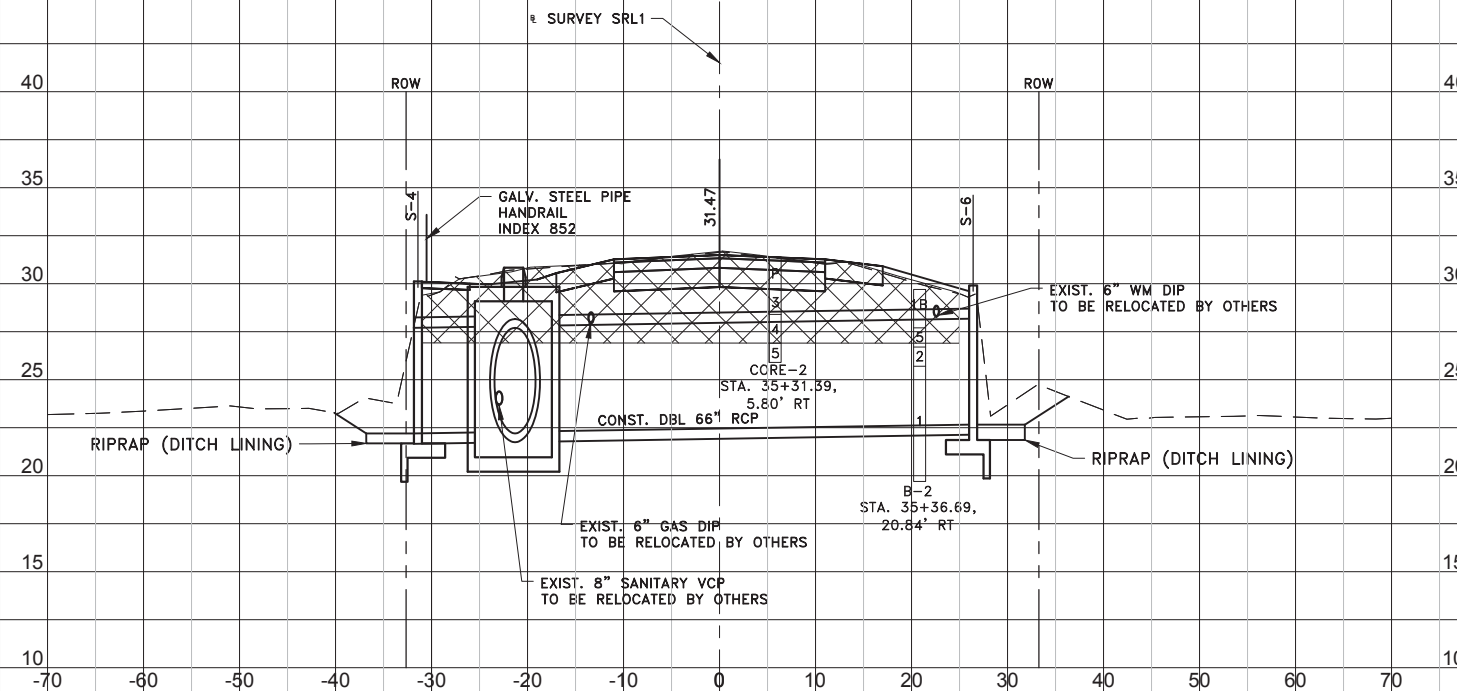
ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	11 OF 31

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SUBSOIL EXC. CUT FILL

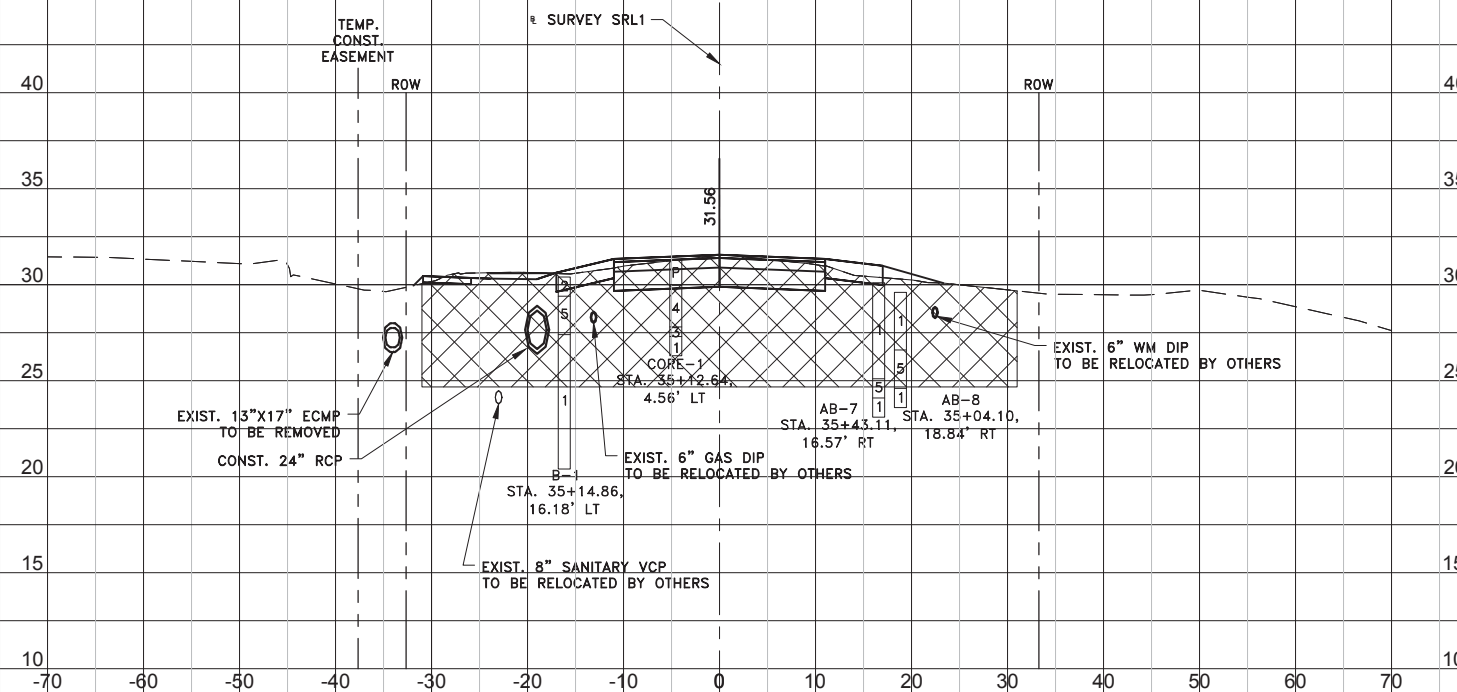
A V A V A V



STA. 35+24.25


296.2 169.2

TEMP SHEETING/SHORING IS
REQUIRED FOR EXCAVATION OF
UNSUITABLE SOILS



STA. 35+00

318.9 598.5

LEGEND:
 LIMITS OF REMOVAL
 OF UNSUITABLE MATERIAL

Scale: 1" = 20' Horiz.
1" = 10' Vert.

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REV. NO.	DATE	DESCRIPTION	REV. BY


DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT
REPLACEMENT

DESCRIPTION:
CROSS SECTIONS (2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

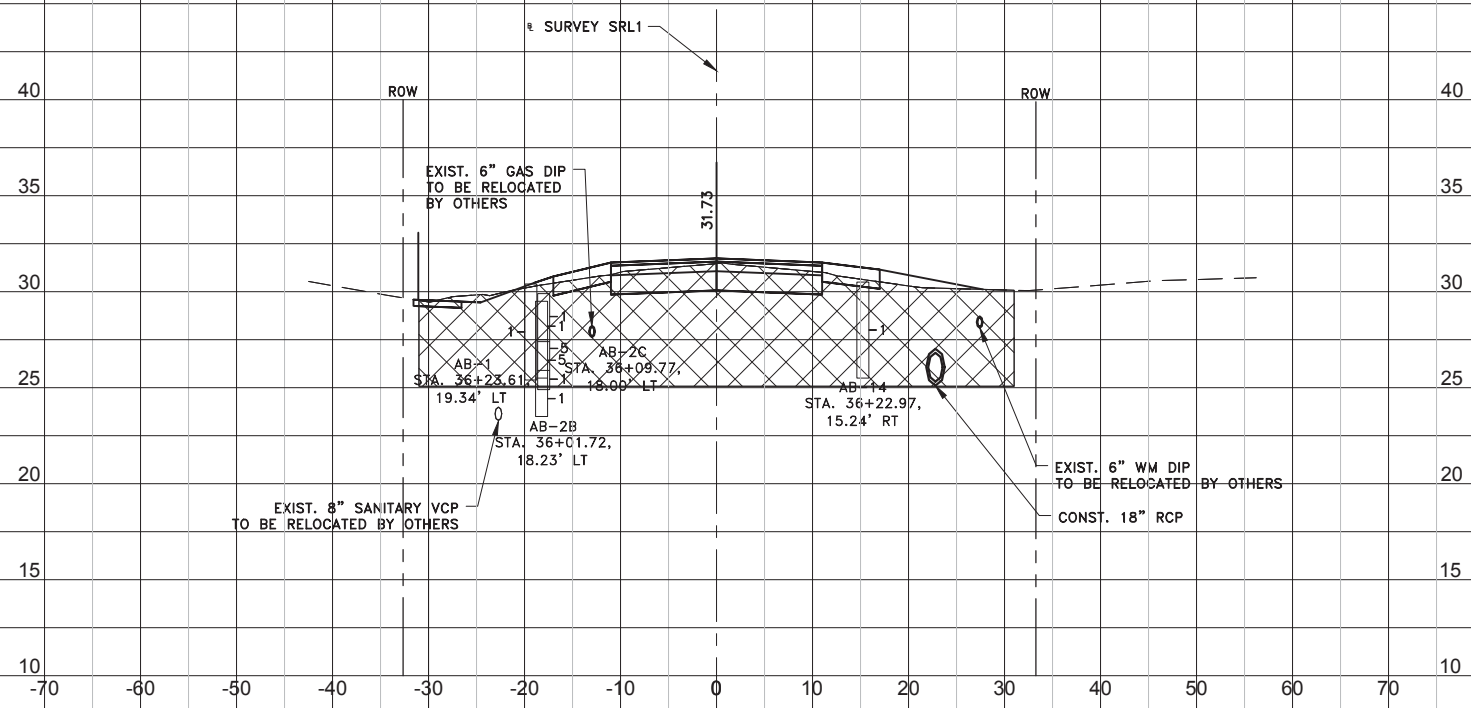

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	13 OF 31

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SUBSOIL EXC. CUT FILL

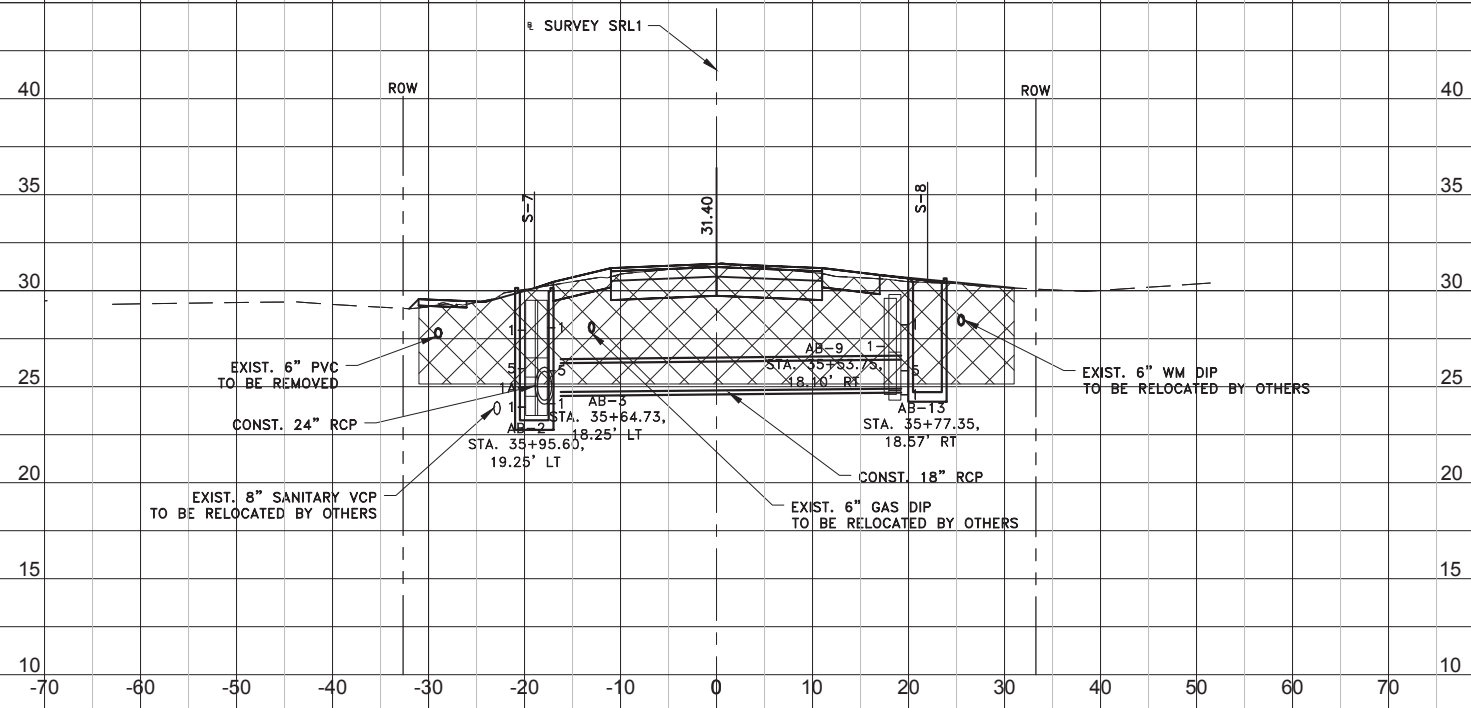
A V A V A V



STA. 36+00


301.9 574.0

TEMP SHEETING/SHORING IS
REQUIRED FOR EXCAVATION OF
UNSUITABLE SOILS



STA. 35+50

318.1 228.2

LEGEND:
 LIMITS OF REMOVAL
 OF UNSUITABLE MATERIAL

Scale: 1" = 20' Horiz.
1" = 10' Vert.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
**S. LAKE AVENUE CULVERT
REPLACEMENT**

DESCRIPTION:
CROSS SECTIONS (3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	14 OF 31

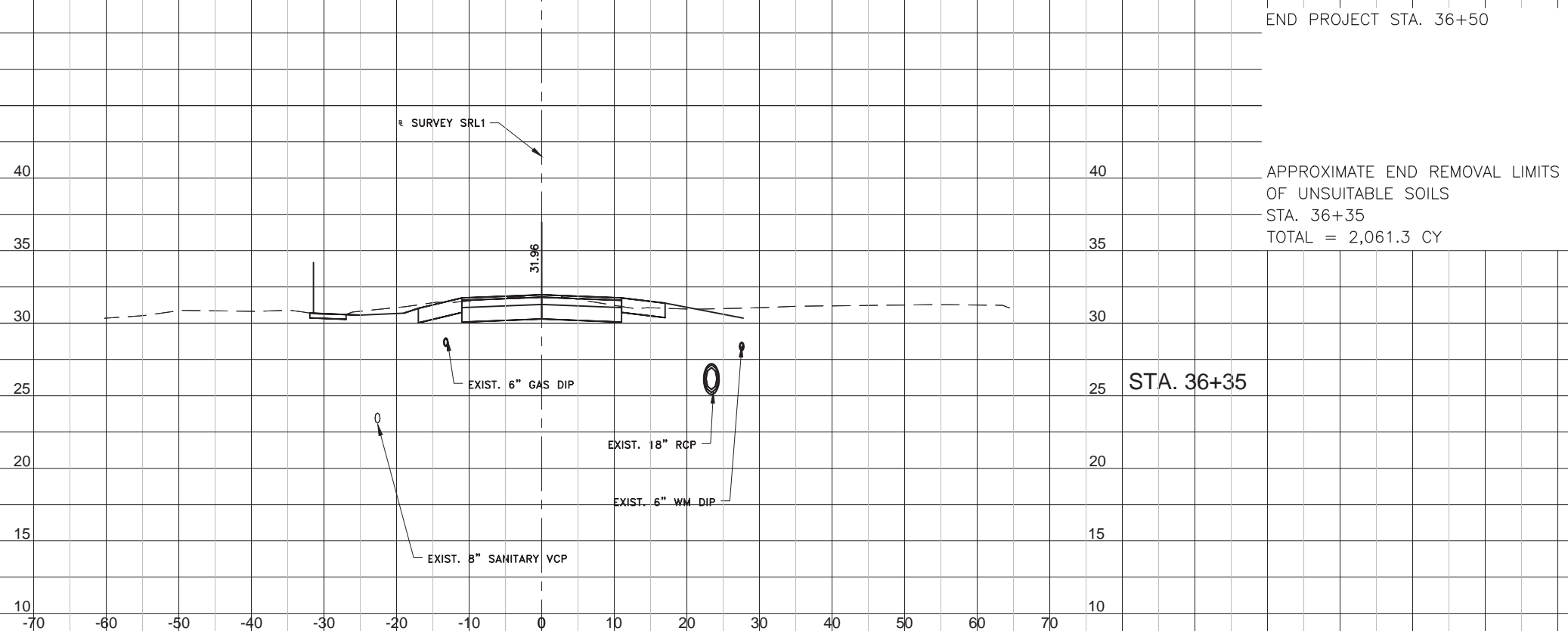
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SUBSOIL EXC. CUT FILL

A V A V A V

SUMMARY OF EARTHWORK			
PAY ITEM NO.	PAY ITEM DESCRIPTION	CY	
		P	F
120-4	Excavation, Unsuitable Material	2061.3	



END PROJECT STA. 36+50

APPROXIMATE END REMOVAL LIMITS
OF UNSUITABLE SOILS
STA. 36+35
TOTAL = 2,061.3 CY

STA. 36+35

331.5 61.1

Scale: 1" = 20' Horiz.
1" = 10' Vert.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

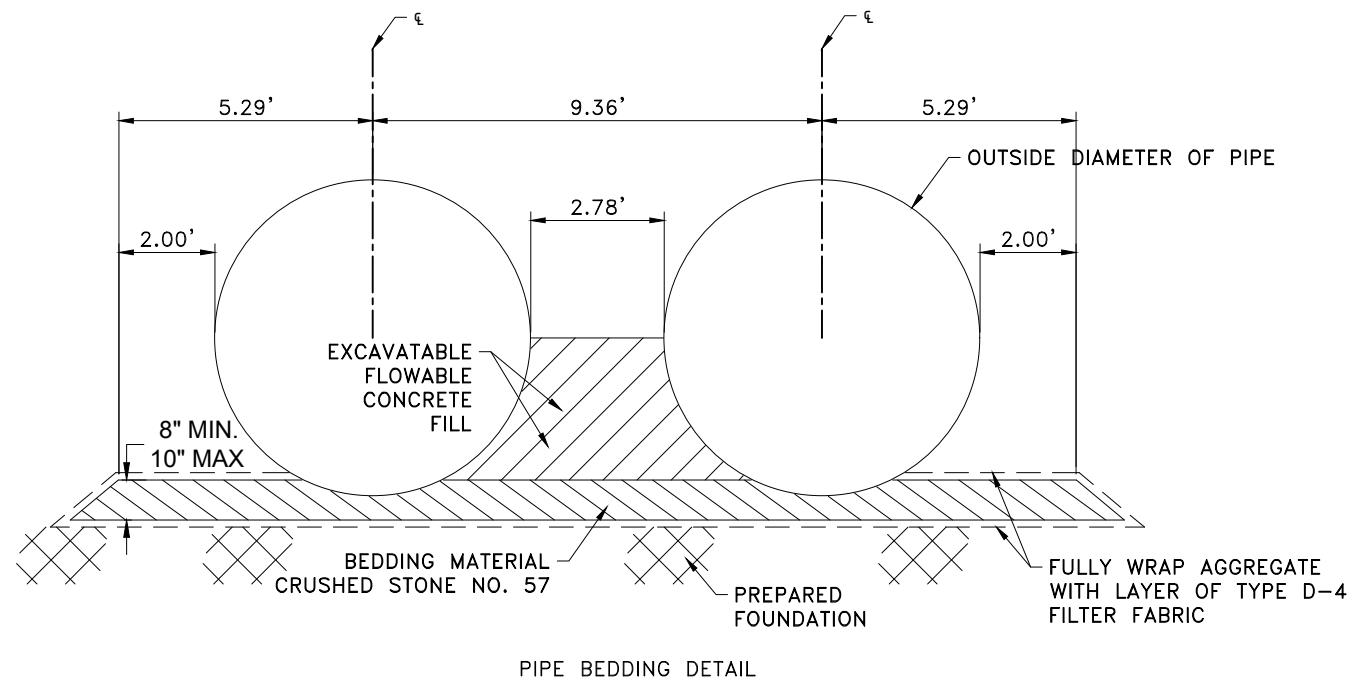
DESCRIPTION:
CROSS SECTIONS (4)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

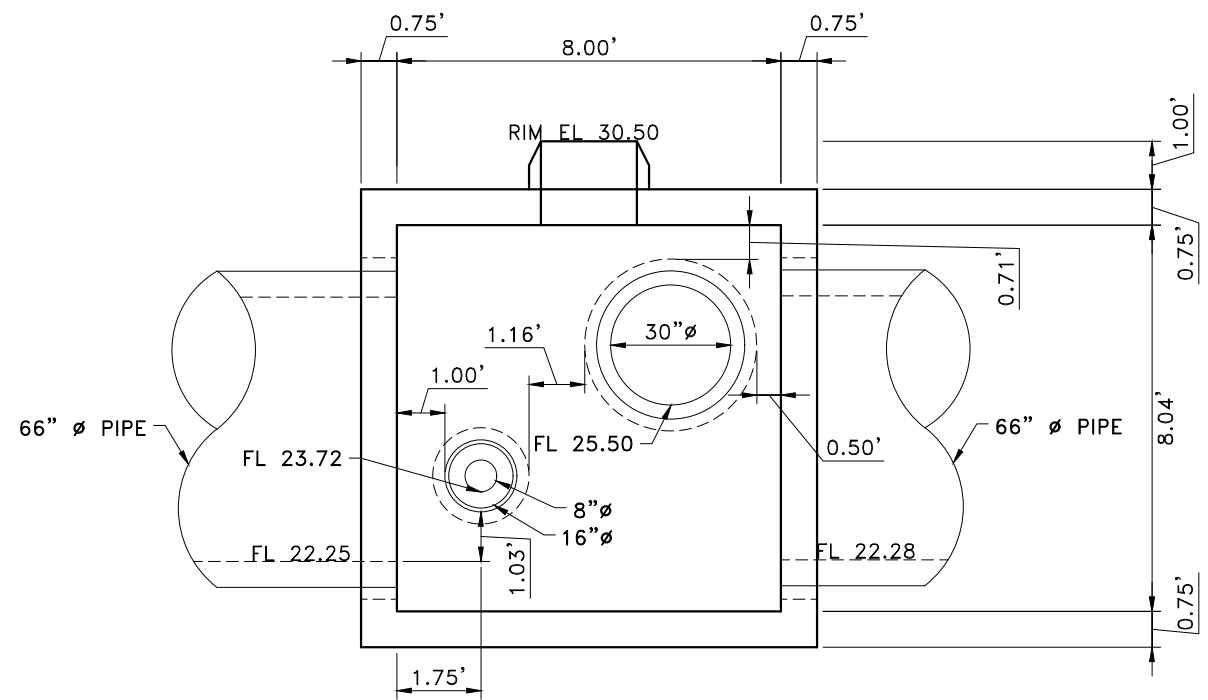
ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	15 OF 31

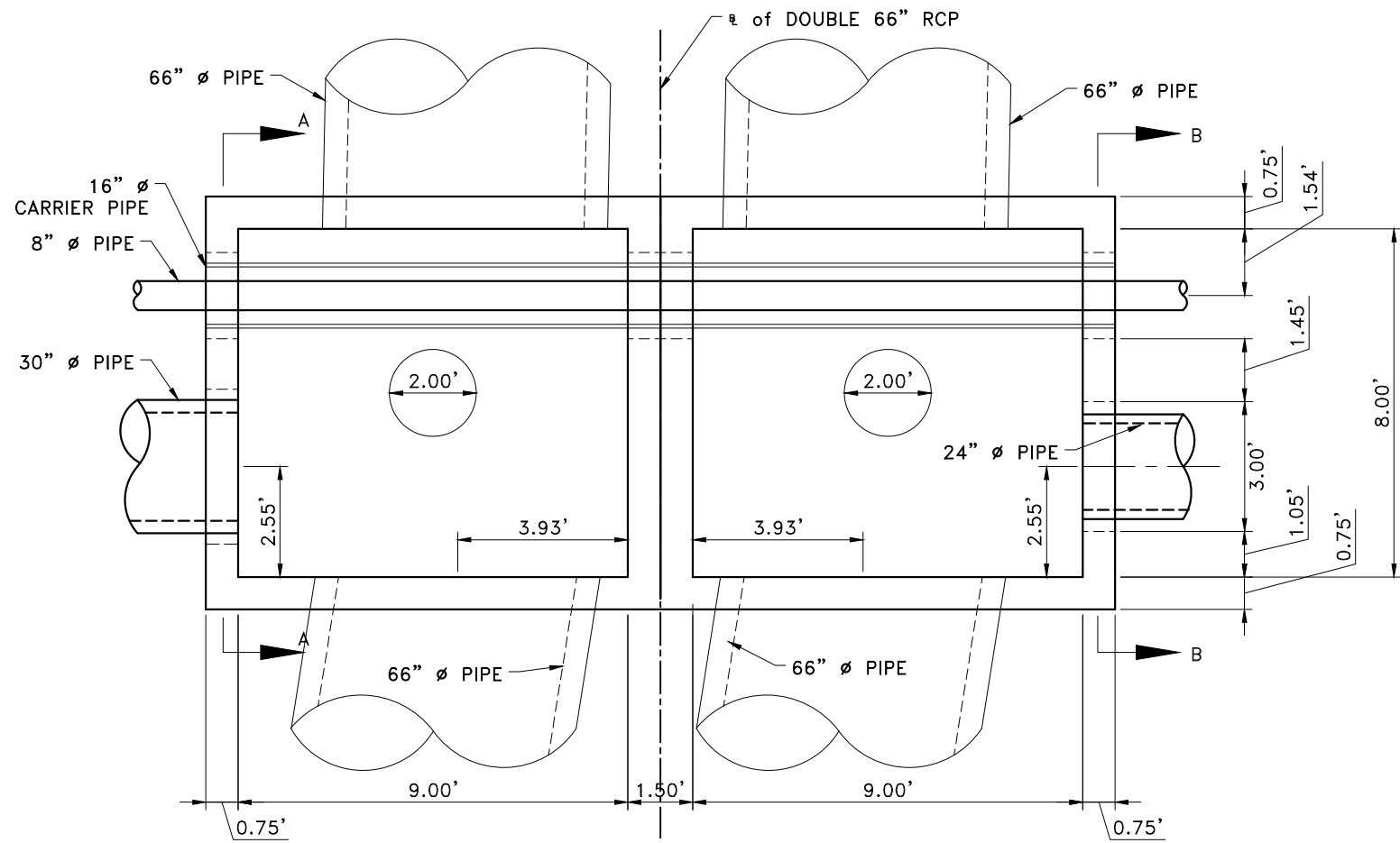
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PIPE BEDDING DETAIL

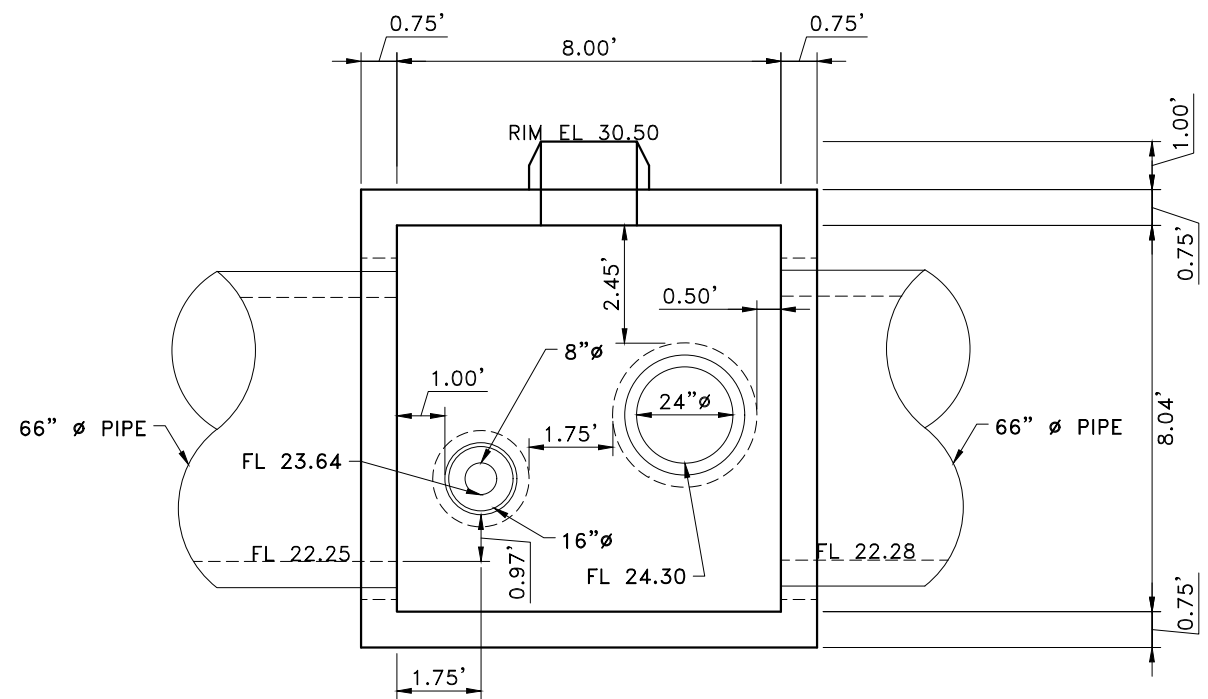


SECTION A-A



TOP PLAN
STRUCTURES S-5A & S-5B

N.T.S.



SECTION B-B

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT
REPLACEMENT

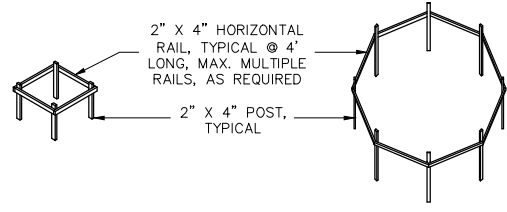
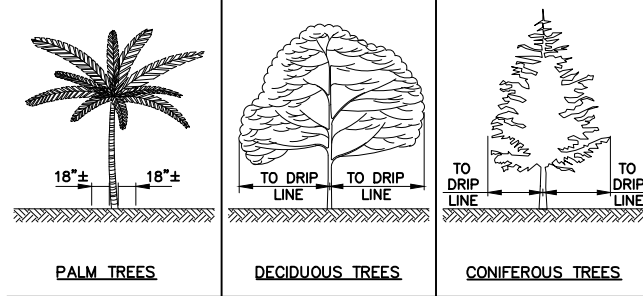
DESCRIPTION:
DRAINAGE STRUCTURES
DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	16 OF 31

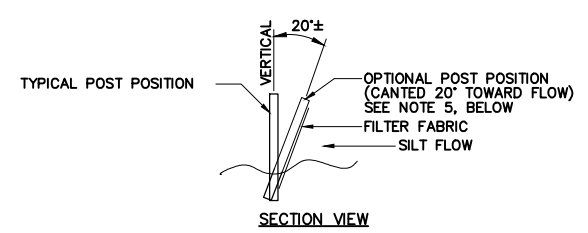
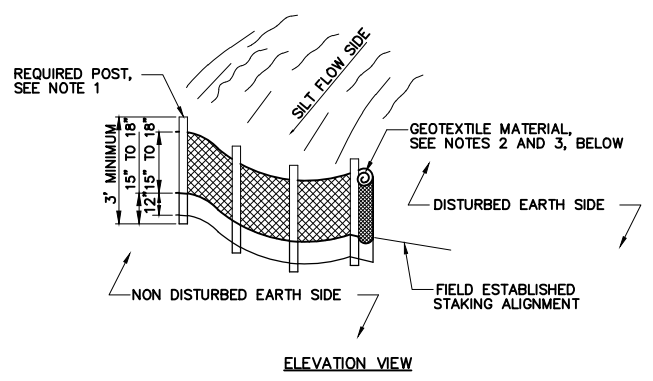
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PALMS AND SMALL TREES LARGE TREES AND BUSHES

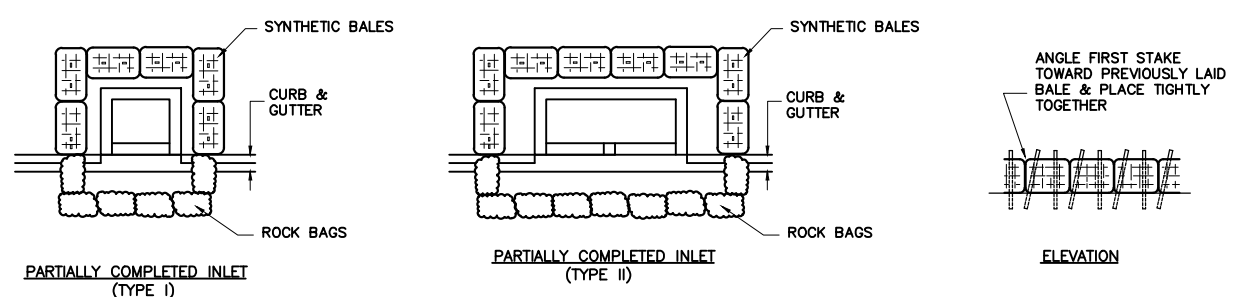
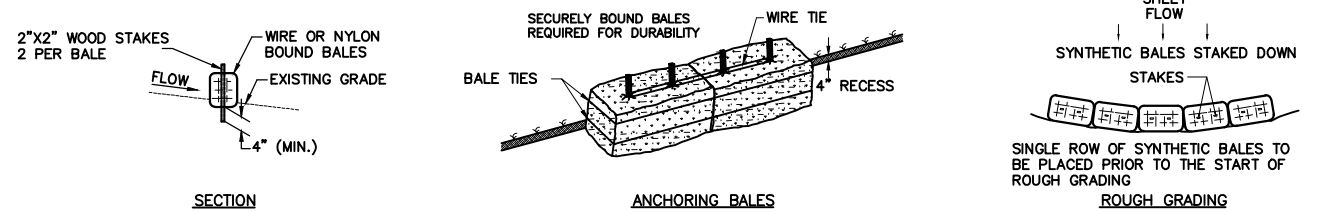
- NOTES:**
- NO TRUCKS OR HEAVY EQUIPMENT ALLOWED WITHIN BARRIERS, ONLY HAND LABOR ALLOWED.
 - NO CONSTRUCTION MATERIALS, SOILS DEPOSITS, OR SOLVENTS SHALL BE ALLOWED WITHIN BARRIERS.
 - BARRIERS ARE TO BE IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN TREE AREA.
 - BARRIERS ARE TO STAY IN PLACE UNTIL ALL PAVING, CONSTRUCTION, AND HEAVY EQUIPMENT IS REMOVED FROM THE AREA.

TREE PROTECTION BARRIERS DETAIL
NTS

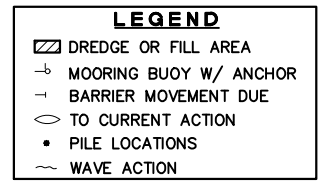
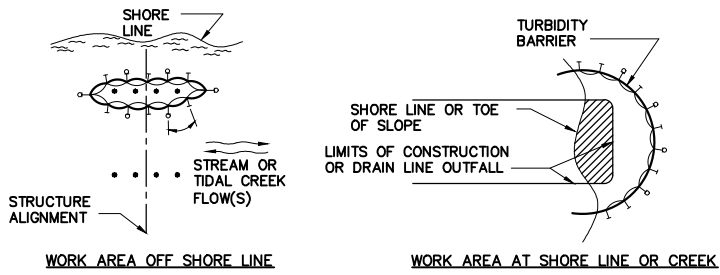


- NOTES:**
- POST: 2" X 2" WOOD, P.T. OR 2-1/2" # STEEL AT 6"-0" CENTERS MAXIMUM.
 - GEOTEXTILE: GRAB TENSILE AT 90 LBS, TRAPEZOIDAL TEAR AT 35 LBS, MULLEN BURST AT 180 PSI.
 - GEOTEXTILE MATERIAL SHALL BE BURIED IN THE GROUND A MINIMUM OF 12" AND BACK FILLED.
 - ALSO SEE FDOT INDEX 199, "GEOTEXTILE CRITERIA", EROSION CLASS.
 - OPTIONAL POST POSITION REQUIRED WHEN SLOPE IS GREATER THAN 1:2.

STAKED SILT BARRIER DETAIL
NTS

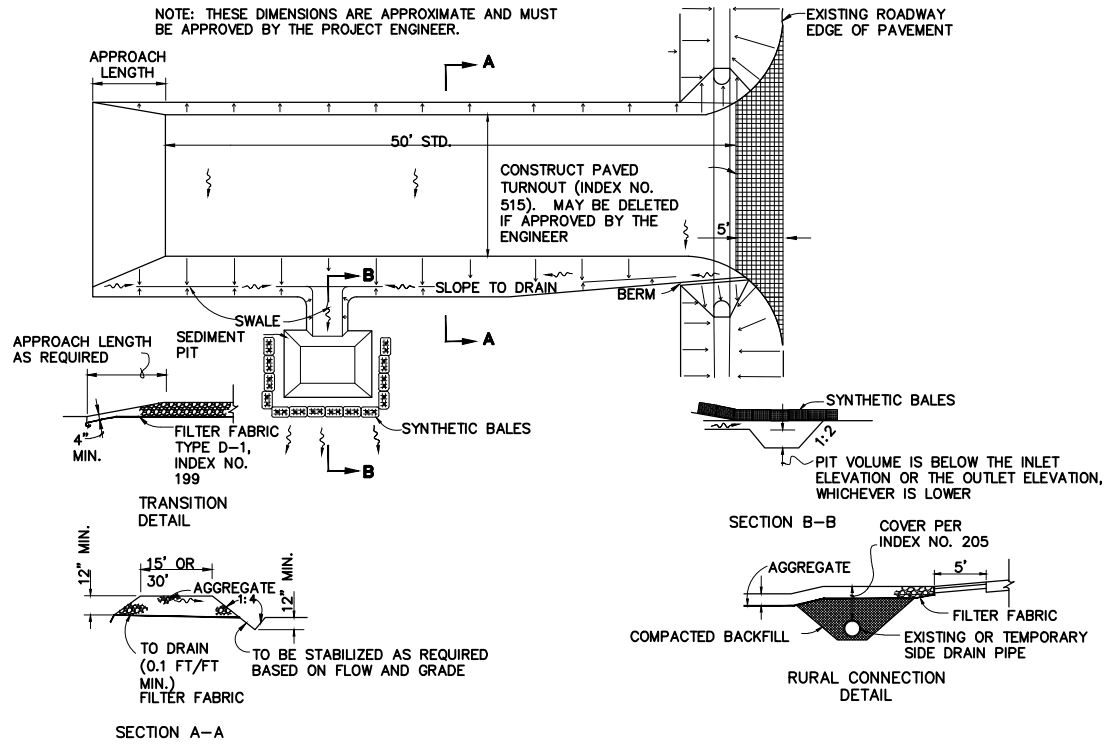


SYNTHETIC BALES OR APPROVED BARRIERS
NTS



- NOTES:**
- CURTAIN TO REACH THE BOTTOM UP TO DEPTHS OF 10', 2 PANELS ARE TO BE USED FOR DEPTHS GREATER THAN 10' UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY ARE CALLED FOR IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
 - COMPONENTS OF TYPES I AND TYPES II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND/OR TYPE II SHALL BE AS APPROVED BY THE ENGINEER.
 - TURBIDITY BARRIERS SHALL BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
 - NUMBER AND SPACING OF ANCHORS DEPENDENT ON CURRENT VELOCITIES.
 - DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VARY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
 - NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION ACTIVITIES.
 - FOR ADDITIONAL INFORMATION, SEE SECTION 104 OF THE STANDARD FDOT SPECIFICATIONS.

FLOATING TURBIDITY BARRIER DETAIL
NTS



SOIL TRACKING PREVENTION DEVICE TYPE A
NTS

- SOIL TRACKING PREVENTION DEVICE NOTES**
- A SOIL TRACKING PREVENTION DEVICE (STPD) SHALL BE CONSTRUCTED AT LOCATIONS DESIGNATED BY THE ENGINEER FOR POINTS OF EGRESS FROM UNSTABILIZED AREAS OF THE PROJECT TO PUBLIC ROADS WHERE OFF SITE TRACKING OF MUD COULD OCCUR. TRAFFIC FROM UNSTABILIZED AREAS OF THE CONSTRUCTION PROJECT SHALL BE DIRECTED THROUGH A STPD. BARRIERS, FLAGGING, OR OTHER POSITIVE MEANS SHALL BE USED AS REQUIRED TO LIMIT AND DIRECT VEHICULAR EGRESS ACROSS THE STPD.
 - THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE TECHNIQUE TO MINIMIZE OFF SITE TRACKING OF SEDIMENT. THE ALTERNATIVE MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ITS USE.
 - ALL MATERIALS SPILLED, DROPPED OR TRACKED ONTO PUBLIC ROADS (INCLUDING THE STPD AGGREGATE AND CONSTRUCTION MUD) SHALL BE REMOVED DAILY, OR MORE FREQUENTLY IF SO DIRECTED BY THE ENGINEER.
 - AGGREGATES SHALL BE DESCRIBED IN SECTION 901 EXCLUDING 901-2.3. AGGREGATES SHALL BE FDOT SIZE #1. IF THIS SIZE IS NOT AVAILABLE, THE NEXT AVAILABLE SMALLER SIZE AGGREGATE MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER. SIZES CONTAINING EXCESSIVE SMALL AGGREGATE WILL TRACK OFF THE PROJECT AND ARE NOT SUITABLE.
 - THE SEDIMENT PIT SHOULD PROVIDE A RETENTION VOLUME OF 3600 CUBIC FEET/ACRE OF SURFACE AREA DRAINING TO THE PIT. WHEN THE STPD IS ISOLATED FROM OTHER DRAINAGE AREAS, THE FOLLOWING PIT VOLUMES WILL SATISFY THIS REQUIREMENT:
15'X50'=100 FT.³
30'X50'=200 FT.³
AS AN OPTION TO THE SEDIMENT PIT, THE WIDTH OF THE SWALE BOTTOM CAN BE INCREASED TO OBTAIN THE VOLUME. WHEN THE SEDIMENT PIT OR SWALE VOLUME HAS BEEN REDUCED TO ONE HALF, IT SHALL BE CLEANED. WHEN A SWALE IS USED, SYNTHETIC BALES OR SILT FENCE SHALL BE PLACED ALONG THE ENTIRE LENGTH.
 - THE SWALE DITCH DRAINING THE STPD SHALL HAVE A 0.2% MINIMUM AND A 1.0% MAXIMUM GRADE ALONG THE STPD AND TO THE SEDIMENT PIT.
 - MITERED END SECTIONS ARE NOT REQUIRED WHEN THE SIDE DRAIN PIPE SATISFIES THE CLEAR ZONE REQUIREMENTS.
 - THE STPD SHALL BE MAINTAINED IN A CONDITION THAT WILL ALLOW IT TO PERFORM ITS FUNCTION. TO PREVENT OFFSET TRACKING, THE STPD SHALL BE RINSED (DAILY WHEN IN USE) TO MOVE ACCUMULATED MUD DOWNWARD THROUGH THE STONE. ADDITIONAL STABILIZATION OF THE VEHICULAR ROUTE LEADING TO THE STPD MAY BE REQUIRED TO LIMIT MUD TRACKED.
 - A STPD SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR SOIL TRACKING PREVENTION DEVICE, EA. THE UNIT PRICE SHALL CONSTITUTE FULL COMPENSATION FOR CONSTRUCTION, MAINTENANCE, REPLACEMENT OF MATERIALS, REMOVAL, AND RESTORATION OF THE AREA UTILIZED FOR THE STPD: INCLUDING BUT NOT LIMITED TO EXCAVATION, GRADING, TEMPORARY PIPE (INCLUDING M.E.S. WHEN REQUIRED), FILTER FABRIC, AGGREGATE, PAVED TURNOUT (INCLUDING ASPHALT AND BASE CONSTRUCTION), DITCH STABILIZATION, APPROACH ROUTE STABILIZATION, SEDIMENT REMOVAL AND DISPOSAL, WATER, RINSING AND CLEANING OF THE STPD AND CLEANING OF PUBLIC ROADS, GRASSING AND SOD. SYNTHETIC BALES SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR HAY OR STRAW BALE, EA. SILT FENCE SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED SILT FENCE, L.F.
 - THE NOMINAL SIZE OF A STANDARD STPD IS 15'X50' UNLESS OTHERWISE SHOWN IN THE PLANS. IF THE VOLUME OF ENTERING AND EXITING VEHICLES WARRANT, A 30' WIDTH STPD MAY BE USED IF APPROVED BY THE ENGINEER. WHEN A DOUBLE WIDTH (30') STPD IS USED, THE PAY QUANTITY SHALL BE 2 FOR EACH LOCATION.

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DESIGNED	CMN		PROJECT:	S. LAKE AVENUE CULVERT REPLACEMENT		DATE:	FEB 2017
DRAWN	MJ		DESCRIPTION:	EROSION & SEDIMENT CONTROL DETAILS		PROJECT NO.	002125A
CHECKED	TLF		HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741	ENGINEER OF RECORD TOMMY L. FULTON, P.E. FLA. REG. NO 39722		SHEET:	17 OF 31
REV. NO.	DATE	DESCRIPTION	REV. BY				

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1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL AND PREVENT EROSION AND THE TRANSPORTATION OF SEDIMENT TO SURFACE DRAINS AND OUTFALLS USING BEST MANAGEMENT PRACTICES. REFER TO CONSTRUCTION PLANS, DETAILS, SPECIFICATIONS AND APPROVED PERMITS FOR DETAILS. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN THEY REACH ONE HALF THE HEIGHT ON AN EROSION DEVICE OR AS DIRECTED BY THE ENGINEER.
2. DURING THE CONSTRUCTION OF DRAINAGE STRUCTURES, AND OTHER STRUCTURES REQUIRING EXCAVATION, THE CONTRACTOR SHALL PLACE APPROVED BARRIERS OR OTHER APPROVED DEVICES AROUND SUCH STRUCTURES TO PREVENT EROSION AND THE MIGRATION OF SEDIMENT TO POINTS OUTSIDE THE CONSTRUCTION AREA. THE APPROVED BARRIERS OR OTHER APPROVED DEVICES SHALL BE PLACED IN ACCORDANCE WITH REQUIREMENTS OF F.D.O.T. INDEX NO. 102 OR AS DIRECTED BY THE ENGINEER.
3. REQUIRED EROSION CONTROL MEASURES MUST REMAIN INTACT THROUGHOUT CONSTRUCTION. FAILURE TO INSTALL OR PROPERLY MAINTAIN REQUIRED EROSION CONTROL WILL RESULT IN ENFORCEMENT ACTION. ALL EROSION CONTROL MEASURES, SAND, SILT, AND DEBRIS SHALL BE REMOVED FROM ALL DRAINAGE PIPES AND STRUCTURES AFTER CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO COUNTY FINAL WALK-THROUGH.
4. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SILT/TURBIDITY BARRIERS TO CONTROL EROSION AND SEDIMENT FROM TAKING PLACE OUTSIDE THE PROJECT LIMITS. THE SILT/TURBIDITY BARRIERS SHALL BE PLACED IN ACCORDANCE WITH REQUIREMENTS OF F.D.O.T. INDEX NO. 102 & 103, AND "PINELLAS COUNTY PUBLIC WORKS STANDARD TECHNICAL SPECIFICATIONS FOR ROADWAY RELATED CONSTRUCTION" SECTION 104, THROUGHOUT THE DURATION OF THE PROJECT AND ALL ASPECTS OF CONSTRUCTION. ALL DAMAGED OR INEFFECTIVE EROSION CONTROL DEVICES SHALL BE REPLACED AT NO ADDITIONAL COST TO THE COUNTY.
5. EROSION CONTROL PLAN - ANY MODIFICATIONS TO THIS PLAN MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REPRESENTING THE CONTRACTOR. THESE MODIFICATIONS MUST BE APPROVED BY THE COUNTY AND THE PERMITTING AGENCY. NO CONTRACT DELAYS WILL BE ALLOWED FOR SUCH MODIFICATIONS OR APPROVALS.
6. OUTFALL PROTECTION - PROJECT PIPE OR DITCH DISCHARGES INTO OFF-SITE OUTFALLS SHALL BE INSPECTED DAILY FOR POSSIBLE SEDIMENT BUILDUP OR TRANSPORT. OUTFALLS SHALL BE PROTECTED THROUGH USE OF EROSION CONTROL FEATURES AS NECESSARY TO CONTAIN ANY SEDIMENT LOSS TO THE IMMEDIATE AREA OF THE PROJECT. ANY SEDIMENT BUILDUP OR TRANSPORT OFF-SITE SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMEDY. THE CONTRACTOR SHALL USE APPROPRIATE MEASURES AS DIRECTED BY THE PROJECT ENGINEER FOR OUTFALL PROTECTION.
7. APPROVED BARRIERS (OR OTHER APPROVED SEDIMENT CONTROL DEVICES) - THESE SHALL BE PLACED AT THE BASE OF ANY SLOPE WHERE A RAINFALL EVENT COULD ERODE A SLOPE AND TRANSPORT SEDIMENTS OFF-SITE. APPROVED BARRIERS SHALL BE DOUBLE STAKED IN ACCORDANCE WITH F.D.O.T. INDEX NO. 102. ANY DAMAGED OR INEFFECTIVE APPROVED BARRIERS ARE TO BE REPLACED WITH NEW ONES. THE LOCATION AND INSTALLATION OF APPROVED BARRIERS SHALL BE AS DIRECTED BY THE PROJECT ENGINEER.
8. BACK OF SIDEWALK INLETS OR MEDIAN INLETS - THESE SHALL BE PROTECTED FROM SEDIMENT INTAKE UNTIL PROJECT IS COMPLETE. ELEVATION OF GROUND OUTSIDE INLET TOP SHALL NOT BE HIGHER THAN INLET TOP WITHOUT EROSION PROTECTION. APPROVED BARRIERS OR OTHER APPROVED SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AROUND INLET TOP. A SECOND ROW OF APPROVED BARRIERS OR OTHER APPROVED SEDIMENT CONTROL DEVICES SHALL BE PLACED AROUND INLET APPROXIMATELY 24" OUTSIDE FIRST ROW. BETWEEN ROWS THERE SHALL BE A DEPRESSION TO ACT AS A SEDIMENT BASIN. COMPLETED INLETS IN PAVED AREAS SHALL ALSO BE PROTECTED WITH A SINGLE LINE OF APPROVED BARRIERS OR OTHER APPROVED SEDIMENT CONTROL DEVICES TO PREVENT SEDIMENT INTAKE FROM OTHER AREAS.
9. STOCKPILED MATERIALS SHALL BE PROTECTED BY COVER, APPROVED BARRIERS OR OTHER APPROVED SEDIMENT CONTROL DEVICES.
10. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 3 DAYS AFTER 1/2" RAIN EVENT DISTURBANCE.
11. SEDIMENT TRAPPING MEASURES: SEDIMENT BASINS AND TRAPS, PERIMETER BERMS, FILTER FENCES, BERMS, SEDIMENT BARRIERS, VEGETATIVE BUFFERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT AND/OR PREVENT THE TRANSPORT OF SEDIMENT INTO WATERS OF THE STATE OR NEIGHBORING PROPERTIES SHALL BE INSTALLED, CONSTRUCTED OR, IN THE CASE OF VEGETATIVE BUFFERS, PROTECTED FROM DISTURBANCE, AS A FIRST STEP IN THE LAND ALTERATION PROCESS.
12. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE NECESSARY DEWATERING PERMITS FROM THE LOCAL WATER MANAGEMENT DISTRICT OR OTHER REGULATORY AGENCY.
13. A DEWATERING PLAN MUST BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO DISCHARGE.
14. WHERE PUMPS ARE TO BE USED TO REMOVE TURBID WATER FROM THE CONSTRUCTION AREA, THE WATER SHALL BE TREATED TO REDUCE TURBIDITY TO STATE WATER QUALITY STANDARDS PRIOR TO DISCHARGE TO THE WETLANDS. TREATMENT METHODS INCLUDE, FOR EXAMPLE, TURBID WATER BEING PUMPED INTO GRASSED SWALES OR APPROPRIATE VEGETATED AREAS (OTHER THAN UPLAND PRESERVATION AREAS AND WETLAND BUFFERS), SEDIMENTS BASINS, OR AREAS CONFINED BY AN APPROPRIATE ENCLOSURE SUCH AS TURBIDITY BARRIERS, AND KEPT CONFINED UNTIL ITS TURBIDITY LEVEL MEETS STATE WATER QUALITY STANDARDS.
15. IF WIND EROSION BECOMES SIGNIFICANT DURING CONSTRUCTION, THE CONTRACTOR SHALL STABILIZE THE AFFECTED AREA USING SPRINKLING, IRRIGATION, OR OTHER ACCEPTABLE METHODS.
16. WHERE APPLICABLE, SOIL TRACKING PREVENTION DEVICES SHALL BE PROVIDED AND MAINTAINED PER SHEET 17.
17. THE EROSION CONTROL DEVICE QUANTITIES SHOWN ON THE BID FORMS ARE ESTIMATES OF THE ACTUAL QUANTITIES THAT MAY BE ENCOUNTERED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SPECIFY ACTUAL QUANTITIES AND COSTS ASSOCIATED WITH THIS SPECIFIC EROSION CONTROL IMPLEMENTATION SCHEDULE. EROSION CONTROL ITEMS MAY BE ADDED OR DELETED FROM THE PAY ITEM LIST AS THE EROSION CONTROL IMPLEMENTATION SCHEDULE PROVIDED BY THE CONTRACTOR IS MODIFIED TO MEET SITE SPECIFIC CONDITIONS.
18. ALL EROSION CONTROL FENCES, BARRIERS, AND SILTATION DEVICES SHALL BE ERECTED PRIOR TO ANY LAND ALTERATIONS, SHALL BE MAINTAINED IN GOOD WORKING ORDER DURING CONSTRUCTION, AND REMOVED FOLLOWING SOIL STABILIZATION AND FINAL DRESSING. STOCKPILE AREAS SHALL INCLUDE SILT FENCE AROUND THE PERIMETER.
19. THE CONTRACTOR SHALL NOT RESTRICT OR BLOCK THE EXISTING DRAINAGE FLOW OVERLAND OR WITHIN RESHAPED SWALES. FLOW WITHIN EXISTING DRAINAGE PIPES SHALL BE MAINTAINED AT ALL TIMES. STORMWATER WILL BE CONVEYED VIA EXISTING SWALES, DITCHES, OR PROPOSED DITCHES, EXISTING AND PROPOSED STORM SEWERS.
20. THERE IS TO BE NO DISCHARGE (I.E. PUMPING, SHEET FLOW, SWALE, DITCH, ETC.) INTO EXISTING DITCHES OR CANALS WITHOUT THE USE OF SETTLING PONDS. IF THE CONTRACTOR DESIRES TO DISCHARGE INTO EXISTING DITCHES OR CANALS A SETTLING POND PLAN PREPARED BY THE CONTRACTOR MUST BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD AND LOCAL REGULATORY AGENCY PRIOR TO CONSTRUCTION.
21. DURING DEWATERING OPERATIONS, THE CONTRACTOR SHALL NOT DISCHARGE DIRECTLY TO RECEIVING WATERS, EXISTING CONVEYANCES TO RECEIVING WATERS, OR WETLAND SYSTEMS. TEMPORARY SEDIMENT BASINS, TRAPS, OR SILTATION REDUCTION DEVICES SHALL BE UTILIZED TO COLLECT THE DISCHARGE FROM DEWATERING ACTIVITIES TO ELIMINATE THE POTENTIAL FOR OFF-SITE SEDIMENT TRANSPORT AND TO INSURE THAT DIRECT DISCHARGE DOES NOT OCCUR.
22. BANKS SHALL BE PROTECTED FROM EROSION OR COLLAPSE DURING CONSTRUCTION. BANK PROTECTION MATERIAL SHALL BE CAREFULLY PLACED FROM THE BANK AND NOT DUMPED FROM ABOVE IN AN UNCONTROLLED MANNER. EROSION CONTROL FABRIC SHALL BE USED FOR EROSION PROTECTION WHERE SOD WILL NOT HOLD OR BECOME ESTABLISHED IN TIME TO PROTECT THE BANKS. UNLESS OTHERWISE SPECIFIED IN THE PLANS, UPON COMPLETION OF CONSTRUCTION, ALL BANKS AND WATERWAYS SHALL BE RESTORED TO THEIR PRE-CONSTRUCTION CONFIGURATION AND PROTECTION FROM EROSION.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING POND FILTRATION SYSTEMS FROM BEING CLOGGED UNTIL PINELLAS COUNTY DETERMINES THE CONSTRUCTION IS COMPLETE. IF FILTER MATERIAL IS CONTAMINATED, IT SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT
REPLACEMENT

DESCRIPTION:
EROSION & SEDIMENT
CONTROL NOTES

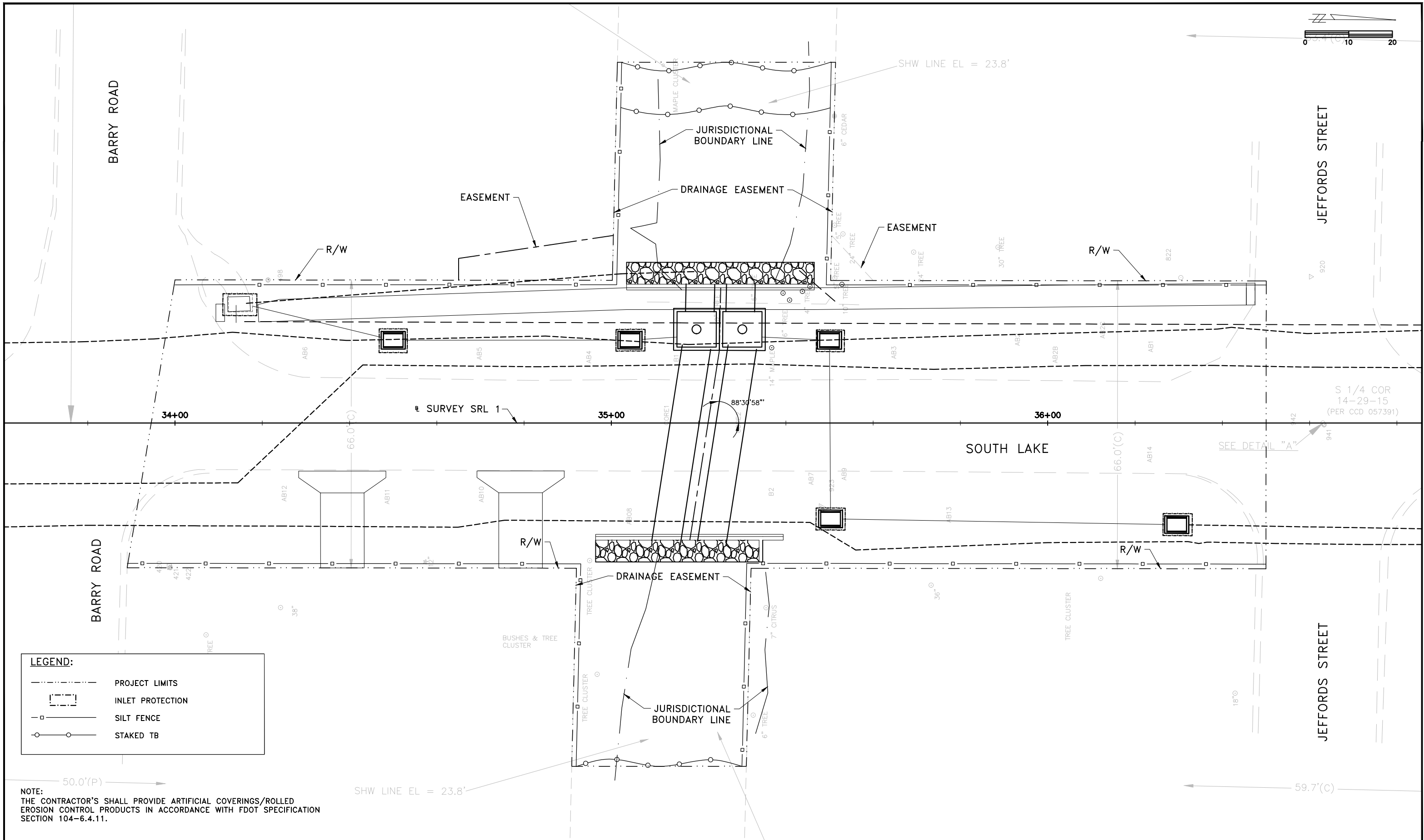
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE:	FEB 2017
PROJECT NO.	002125A
SHEET:	18 OF 31

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

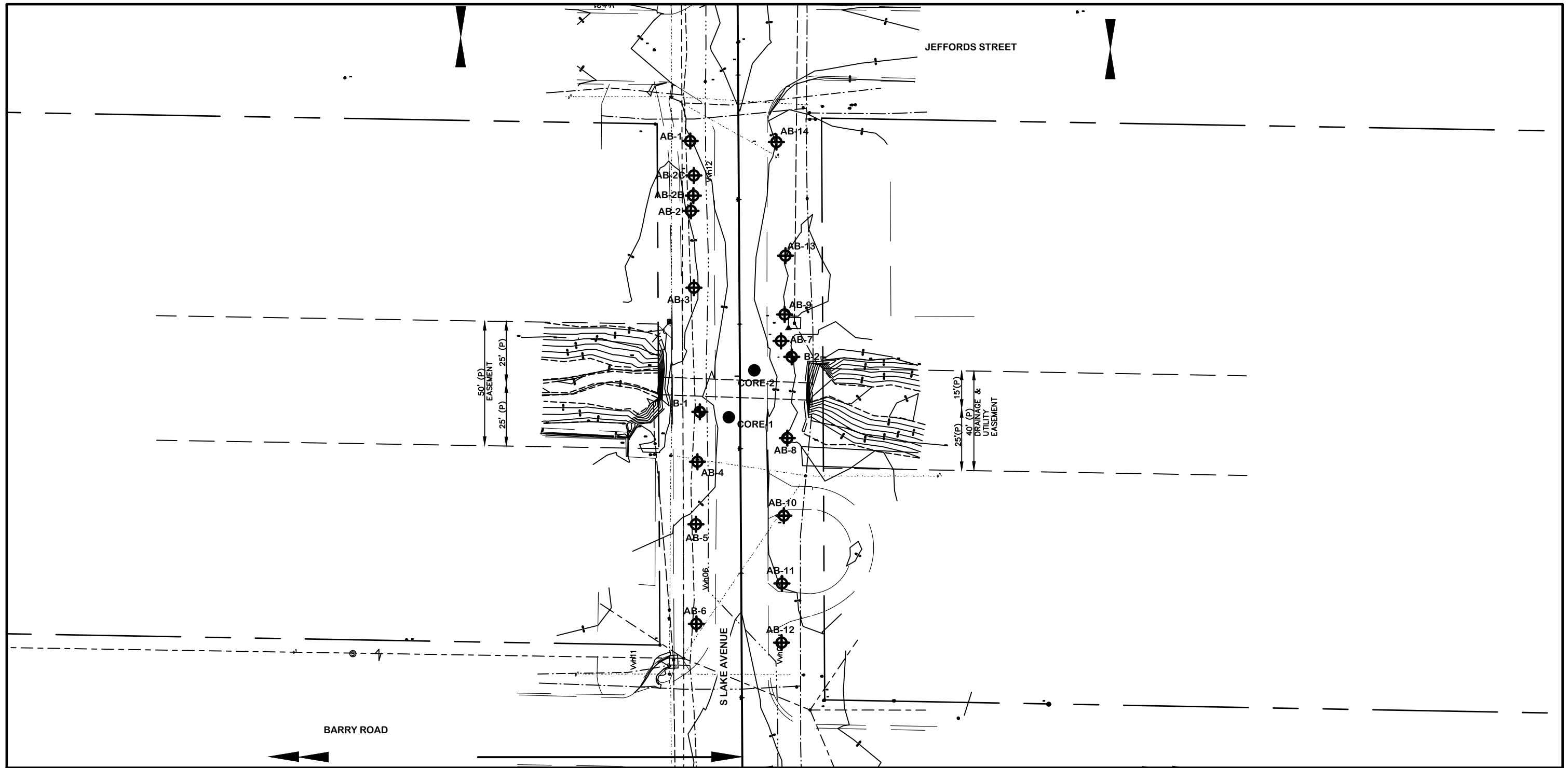
DESCRIPTION:
EROSION, SEDIMENT CONTROL & GRADING PLAN

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
TOMMY L. FULTON, P.E.
FLA. REG. NO 39722

DATE: FEB 2017
PROJECT NO. 002125A
SHEET: 19 OF 31

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LEGEND

- APPROXIMATE LOCATION OF PAVEMENT CORE
- ⊕ APPROXIMATE LOCATION OF AUGER BORING
- ◆ APPROXIMATE LOCATION OF SPT BORING

BORING LOCATION PLAN



- NOTES:
 1. BASE MAP WAS PROVIDED BY HARDESTY & HANOVER, LLC.
 2. THE BORING LOCATIONS WERE PROVIDED BY THE PROJECT SURVEYOR.

DESIGNED	SW		PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION: BORING LOCATION PLAN	 <small>7351 Temple Terrace Highway Tampa, Florida 33637 Phone: 813-989-1354 Fax: 813-989-1355 FL Cert. No.: 6466</small>	APPROVED BY:	DATE:
DRAWN	SW					MARC E. NOVAK, Ph.D., PE	FEB 2017
CHECKED	DRR					FLA. REG. NO 67431	002125A
REV. NO.	DATE	DESCRIPTION	REV. BY	DATE	SHEET:	20 OF 31	

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SOIL PROFILES

LEGEND

BOR # AB-1
EASTING 407228
NORTHING 1316501
ELEV. 30.4
DATE 1/10/2015

BOR # AB-2
EASTING 407228
NORTHING 1316473
ELEV. 29.5
DATE 1/10/2015

BOR # AB-2B
EASTING 407229
NORTHING 1316479
ELEV. 29.5
DATE 1/10/2015

BOR # AB-2C
EASTING 407229
NORTHING 1316487
ELEV. 29.9
DATE 1/10/2015

BOR # AB-3
EASTING 407229
NORTHING 1316442
ELEV. 29.5
DATE 1/10/2015

BOR # AB-4
EASTING 407230
NORTHING 1316372
ELEV. 30.3
DATE 1/10/2015

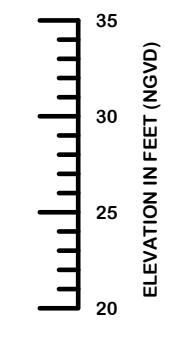
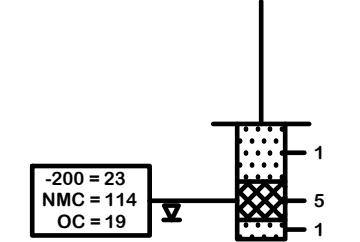
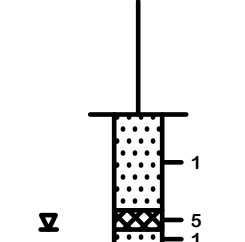
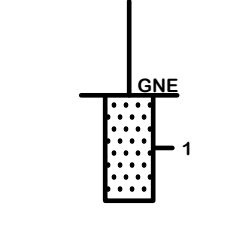
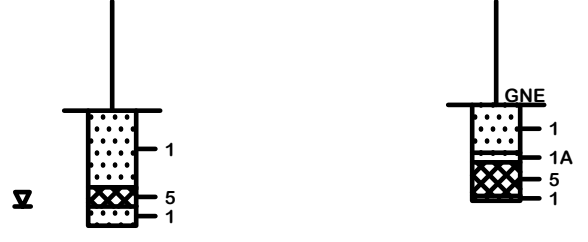
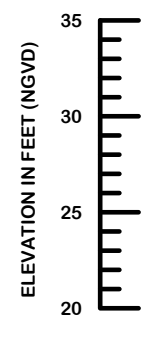
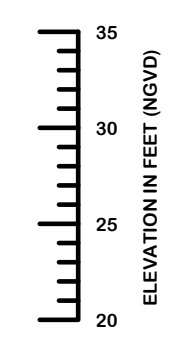
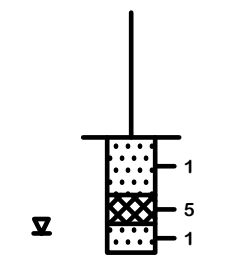
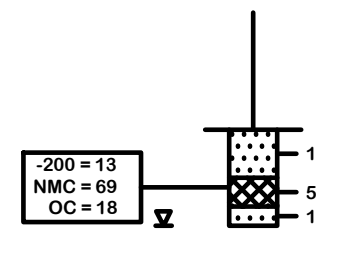
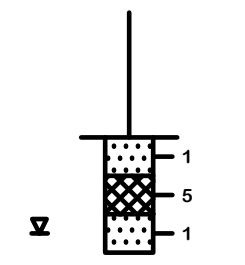
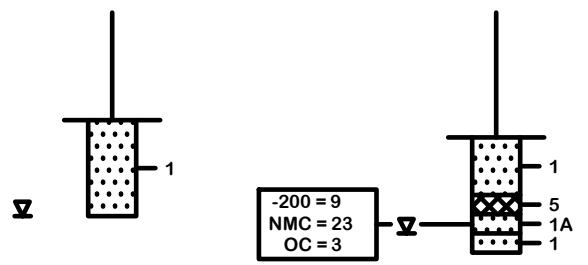
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EASTING 407230
NORTHING 1316347
ELEV. 30.6
DATE 1/26/2015

BOR # AB-6
EASTING 407230
NORTHING 1316307
ELEV. 31.1
DATE 1/26/2015

BOR # AB-7
EASTING 407264
NORTHING 1316420
ELEV. 30.1
DATE 1/10/2015

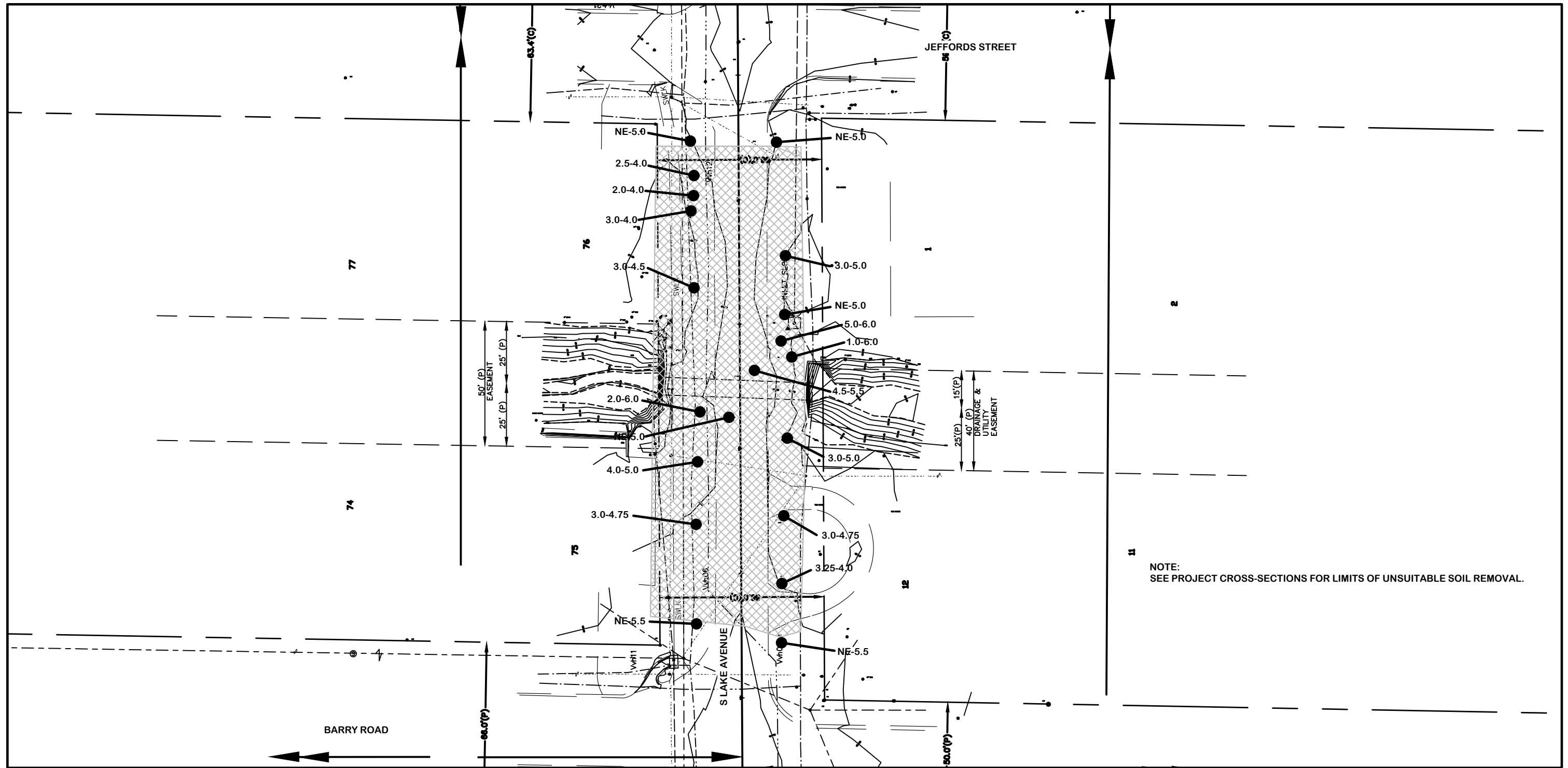
BOR # AB-8
EASTING 407266
NORTHING 1316381
ELEV. 29.6
DATE 1/10/2015

- 1 GRAY TO BROWN SAND TO SAND WITH SILT (A-3)
 - 2 GRAY SILTY SAND (A-2-4)
 - 3 LIGHT GRAY CLAYEY SAND (A-2-6)
 - 4 LIGHT GRAY TO BROWN SANDY CLAY TO CLAY (A-7)
 - 5 DARK BROWN TO BLACK ORGANIC SAND TO ORGANIC SILTY SAND (A-8)
 - P PAVEMENT AND BASE MATERIAL
- A - WITH ORGANIC TRACES
B - WITH ROCK FRAGMENTS
- GROUNDWATER LEVEL ENCOUNTERED DURING INVESTIGATION
 - ESTIMATED SEASONAL HIGH GROUNDWATER TABLE
 - N SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
 - A-3 AASHTO GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
 - GNE GROUNDWATER TABLE NOT ENCOUNTERED
 - HA HAND AUGERED TO VERIFY UTILITY CLEARANCES



- NOTES:
1. THE PROVIDED EASTING AND NORTHING COORDINATES (FLORIDA WEST NAD83) WERE PROVIDED BY THE PROJECT SURVEYOR.
 2. THE BORING LOCATIONS ARE PRESENTED ON THE BORING LOCATION PLAN.

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LEGEND

- NE 4.0 ● ORGANIC SOILS WERE NOT ENCOUNTERED FROM THE GROUND SURFACE TO A DEPTH OF 4.0 FEET
- 3.0-4.0 ● ORGANIC SOILS WERE ENCOUNTERED FROM A DEPTH OF 3.0 TO 4.0 FEET
- APPROXIMATE LIMITS OF ORGANIC SOIL

ORGANIC DELINEATION PLAN



REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	SW
DRAWN	SW
CHECKED	DRR



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION:
ORGANIC DELINEATION PLAN



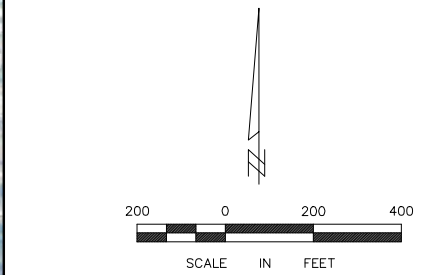
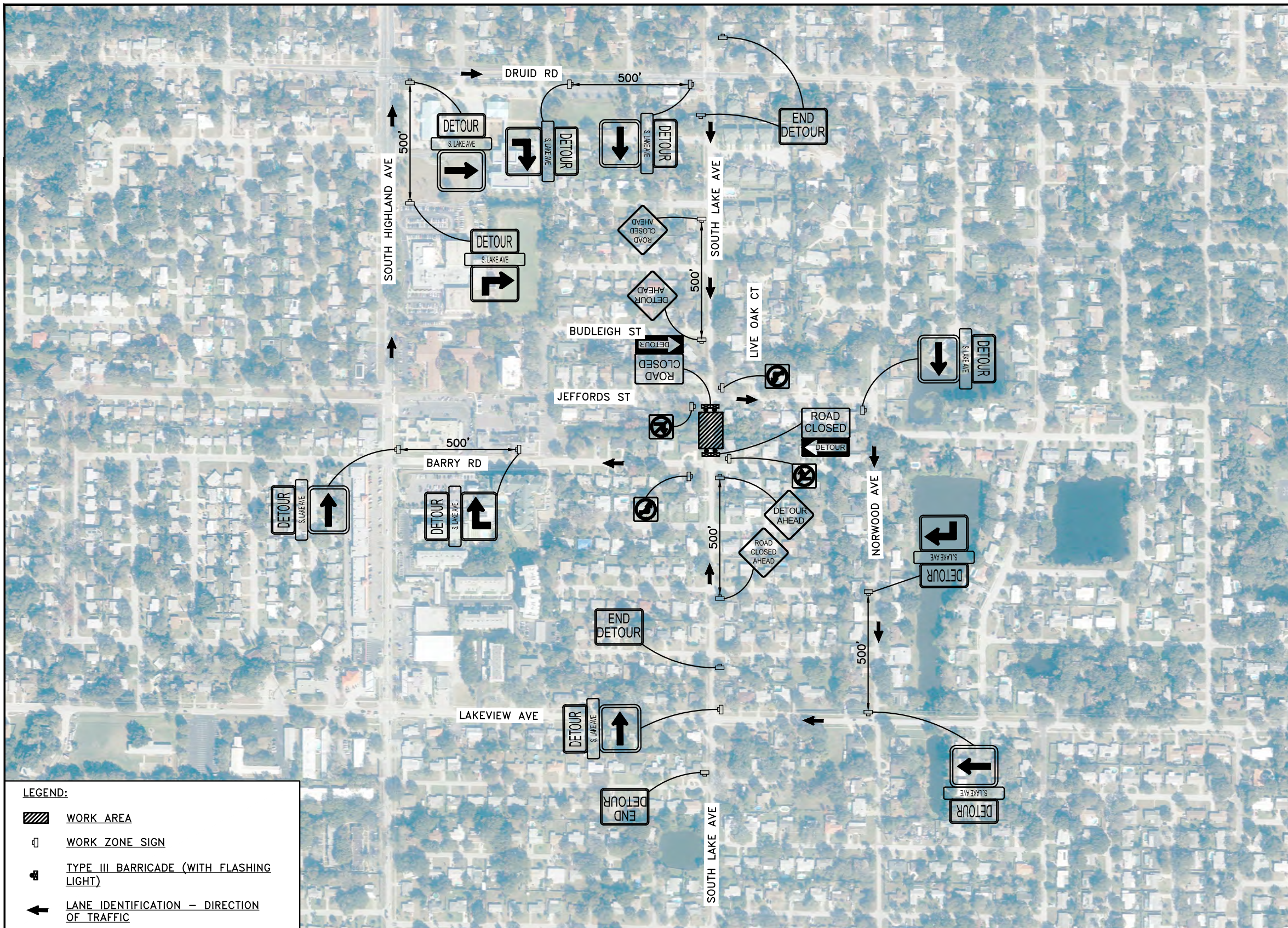
APPROVED BY:
MARC E. NOVAK, Ph.D., PE
FLA. REG. NO 67431

DATE

DATE: FEB 2017
PROJECT NO. 002125A
SHEET: 23 OF 31

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TEMPORARY TRAFFIC CONTROL GENERAL NOTES

1. THE PROJECT WILL REQUIRE CLOSURE OF THE EXISTING SIDEWALK LOCATED ALONG THE WEST SIDE OF SOUTH LAKE AVENUE FROM BARRY ROAD TO JEFFORDS STREET. SIDEWALK CLOSED SIGNS WILL BE REQUIRED AT BOTH ENDS OF THIS PROJECT. MAINTENANCE OF PEDESTRIAN TRAFFIC WILL BE REQUIRED AT ALL TIMES. PEDESTRIAN DETOURS SHALL BE PROVIDED TO DIRECT PEDESTRIANS AWAY FROM THE CONSTRUCTION AREA AND TO HIGHLAND AVENUE AS THE NORTH-SOUTH ALTERNATE PEDESTRIAN ROUTE AROUND THE WORK ZONE. BARRY ROAD AT THE SOUTH END OF THE WORK ZONE DOES NOT HAVE ADA COMPLIANT PEDESTRIAN FACILITIES AND THE PEDESTRIAN DETOUR WILL BE SIGNED ALONG LAKEVIEW AVENUE. JEFFORDS STREET AT THE NORTH END OF THE WORK ZONE DOES NOT HAVE ADA COMPLIANT PEDESTRIAN FACILITIES OR A PUBLIC CONNECTION TO HIGHLAND AVENUE AND THE PEDESTRIAN DETOUR WILL BE SIGNED ALONG DRUID ROAD. PEDESTRIAN DETOURS SHALL BE PROVIDED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLAN SHEET FOR DETOUR 2 OF 2 AND THE FDOT STANDARD INDEX 660.
2. THE PROJECT INVOLVES REMOVAL OF UNSUITABLE MATERIAL TO A DEPTH OF 5 FEET FROM BARRY ROAD TO JEFFORDS STREET AND FROM R/W TO R/W WHICH INVOLVES A DROP OFF CONDITION ADJACENT TO BARRY ROAD AND JEFFORDS STREET. THE DROP OFF CONDITION IS TO BE PROTECTED WITH BARRIERS OR WARNING DEVICES AS REQUIRED BY FDOT STANDARD INDEX 600.
3. WHEN THE WORK ZONE IS ADJACENT TO OR ENCLOSED INTO THE INTERSECTION AREAS AT BARRY ROAD AND JEFFORDS STREET ADVANCE WARNING SIGNS AND CHANNELIZING DEVICES SHALL BE PROVIDED IN COMPLIANCE WITH FDOT STANDARD INDEX NOS. 602 AND 605.
4. TWO PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) UNITS SHALL BE PROVIDED TO INFORM THE PUBLIC OF THE UPCOMING ROAD CLOSURE. ONE UNIT SHALL BE PROVIDED IN EACH DIRECTION ALONG LAKE AVENUE 500' IN ADVANCE OF THE ROAD CLOSURE LOCATION. THE PCMS UNITS SHALL BE INSTALLED TWO WEEKS IN ADVANCE OF THE START OF CONSTRUCTION AND REMAIN IN PLACE FOR A TWO WEEK PERIOD OR UNTIL CONSTRUCTION BEGINS AND DETOUR SIGNS ARE INSTALLED. THE TWO MESSAGES TO BE PROVIDED ON THE PCMS UNITS ARE AS FOLLOWS:

DISPLAY 1 LAKE AVE CONSTR AT BARRY RD	DISPLAY 2 DETOUR BEGINS MONTH/DAY/YR
--	---

LEGEND:

	WORK AREA
	WORK ZONE SIGN
	TYPE III BARRICADE (WITH FLASHING LIGHT)
	LANE IDENTIFICATION - DIRECTION OF TRAFFIC





DESIGNED: CMN		PROJECT:	S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION:	TRAFFIC CONTROL PLAN DETOUR (1 OF 2)	HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741		DATE:	FEB 2017
DRAWN: MJ		PROJECT NO.:		002125A					
CHECKED: TLF		SHEET:		24 OF 31					
REV. NO.	DATE	DESCRIPTION	REV. BY	ENGINEER OF RECORD	TOMMY L. FULTON, P.E. FLA. REG. NO 39722				

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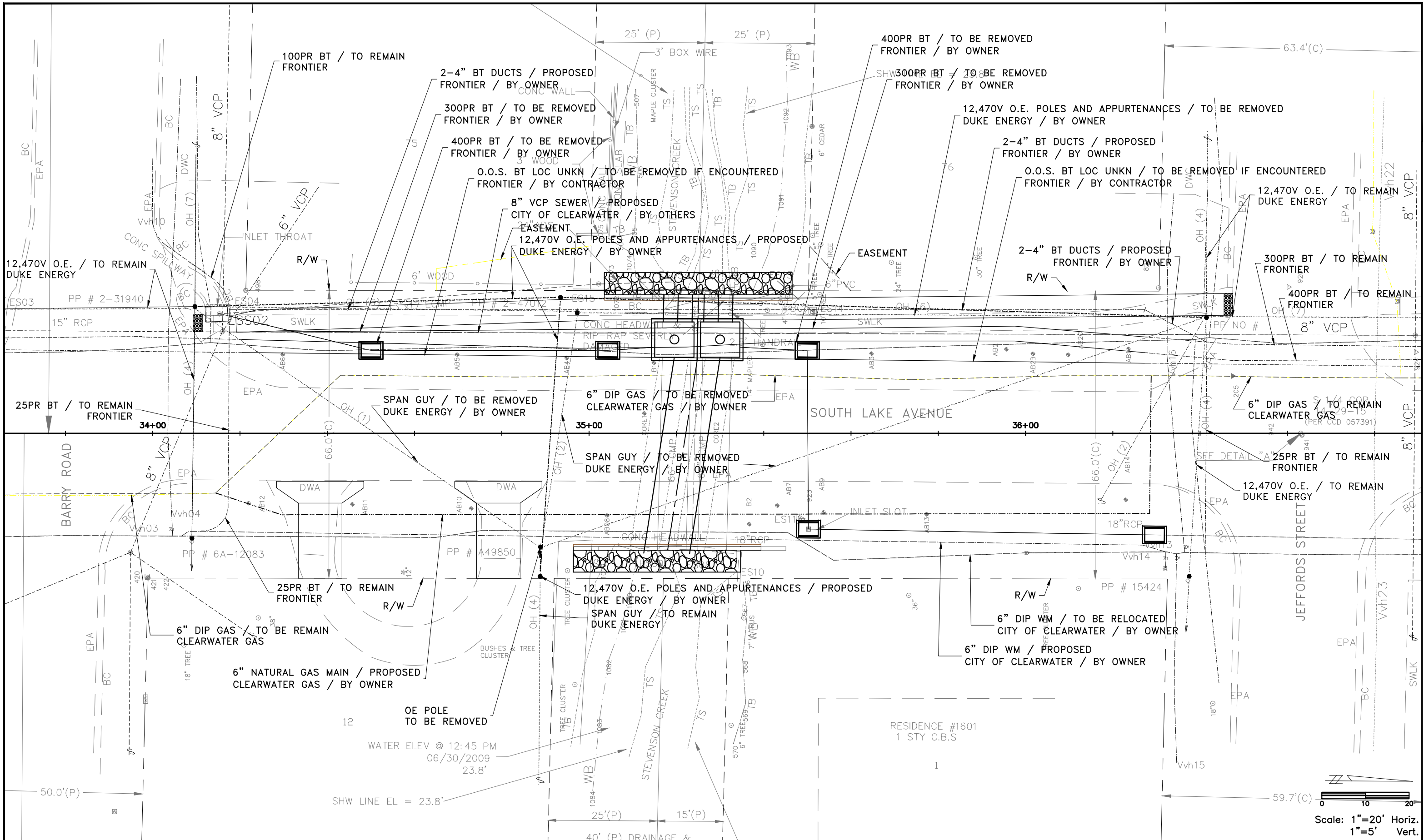
LEGEND:

-  WORK AREA
-  WORK ZONE SIGN
-  TYPE III BARRICADE (WITH FLASHING LIGHT)
-  LANE IDENTIFICATION - DIRECTION OF TRAFFIC

DESIGNED: CMN		PROJECT:	S. LAKE AVENUE CULVERT REPLACEMENT TRAFFIC CONTROL PLAN DETOUR (2 OF 2)	HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741		DATE:	FEB 2017
DRAWN: MJ		DESCRIPTION:				ENGINEER OF RECORD	
CHECKED: TLF		PROJECT NO.				002125A	
REV. NO.	DATE	DESCRIPTION	REV. BY			SHEET:	25 OF 31

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED	CMN
DRAWN	MJ
CHECKED	TLF



PROJECT:
S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION:
UTILITY ADJUSTMENT SHEET

HARDESTY & HANOVER, LLC.
 5110 EISENHOWER BLVD.
 SUITE 310
 TAMPA, FL 33634
 CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
 TOMMY L. FULTON, P.E.
 FLA. REG. NO 39722

DATE: FEB 2017
 PROJECT NO. 002125A
 SHEET: 26 OF 31

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4/9/2018 10:02:28 AM
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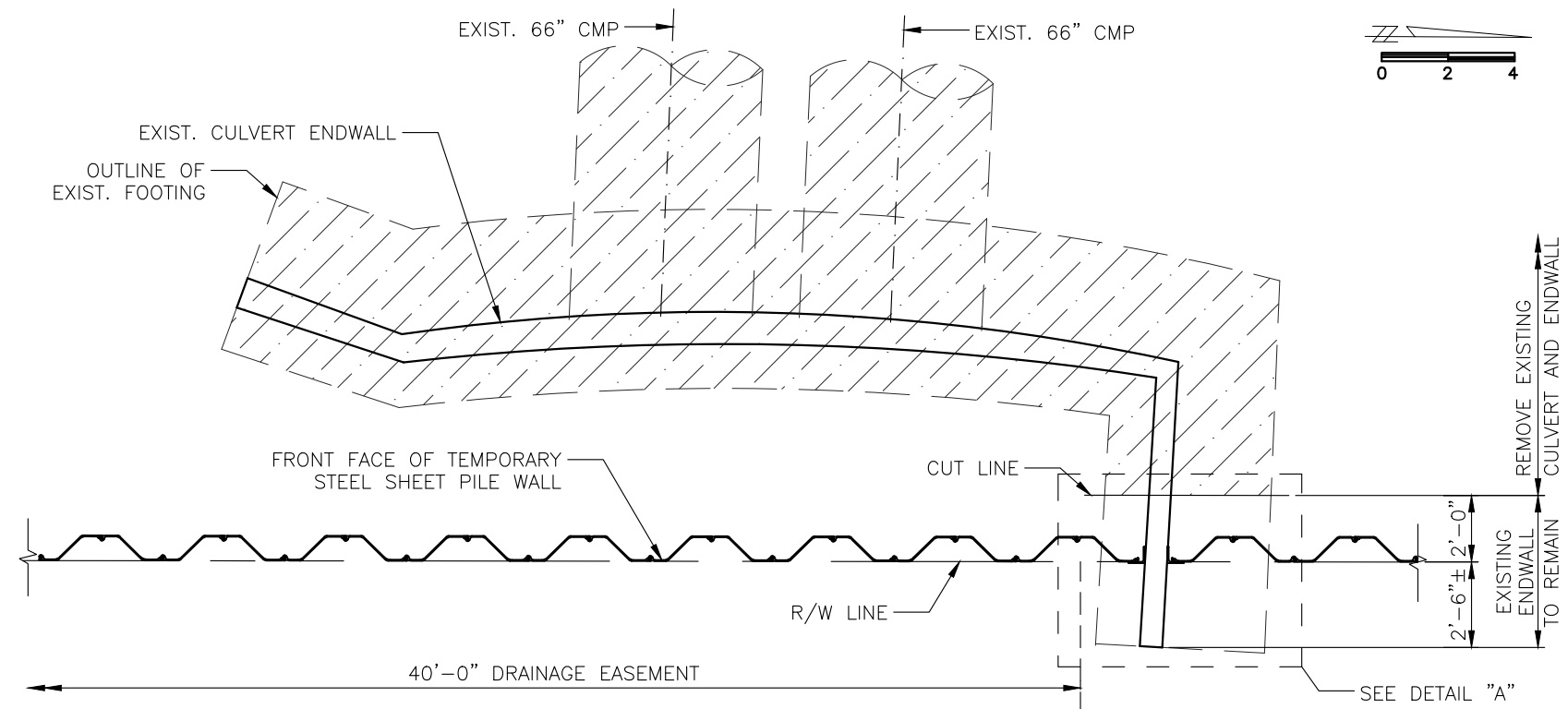
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ENDWALL DEMOLITION NOTES:

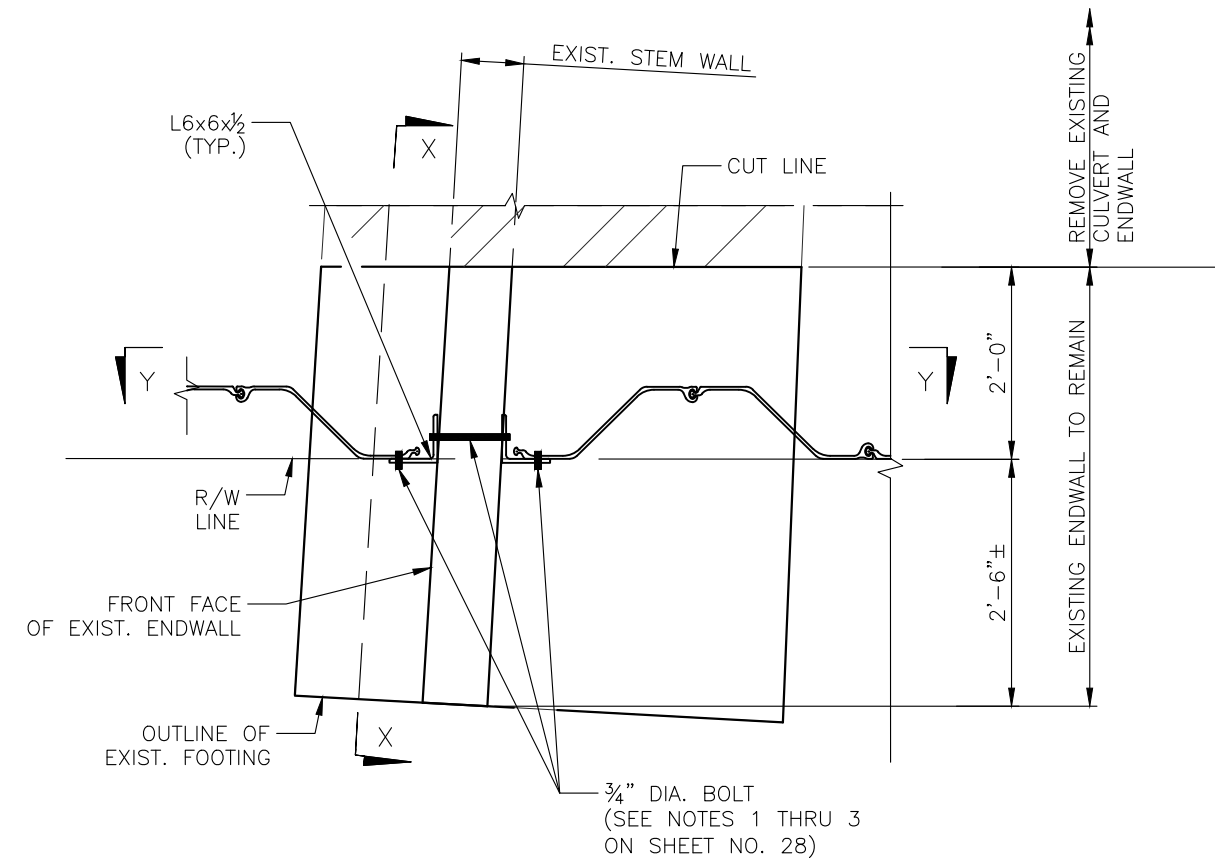
1. SUGGESTED CONSTRUCTION SEQUENCE:
 - A. INSTALL TEMPORARY STEEL SHEET PILE WALL ALONG R/W LINE AS SHOWN IN THE PLANS PRIOR TO EXCAVATION FOR REMOVAL OF UNSUITABLE SOIL LAYER, AND PRIOR TO EXCAVATION FOR REMOVAL OF EXISTING CULVERT.
 - B. AT LOCATION WHERE TEMPORARY SHEET PILE WALL INTERSECTS ENDWALL TO REMAIN, PLACE SHEET PILE TIPS IN DIRECT CONTACT WITH TOP OF ENDWALL FOOTING WITHOUT DRIVING FURTHER. AVOID DAMAGING EXISTING STRUCTURE DURING SHEET PILE INSTALLATION.
 - C. ANCHOR EXISTING ENDWALL TO REMAIN TO TEMPORARY STEEL SHEET PILE WALL AND EXCAVATE FILL TO BOTTOM OF EXISTING ENDWALL FOOTING AS SHOWN IN THE PLANS.
 - D. REMOVE EXISTING ENDWALL WITHIN THE LIMITS SHOWN IN THE PLANS. REMOVE CONCRETE AND EXPOSE EXISTING HORIZONTAL REINFORCING STEEL IN FOOTING AND STEM, AVOID DAMAGING REBAR.
 - E. CONSTRUCT PROPOSED CULVERT AND CULVERT ENDWALL.
 - F. BACKFILL SOIL TO FINISH GRADE.
 - G. REMOVE TEMPORARY STEEL SHEET PILE WALL.
 - H. FILL BOLT HOLES IN EXISTING ENDWALL TO REMAIN WITH AN APPROVED NON-SHRINK GROUT.
2. PREPARE AND SUBMIT A COMPLETE SET OF SHOP DRAWINGS AND DESIGN CALCULATIONS FOR THE TEMPORARY STEEL SHEET PILE WALL AND TEMPORARY SHORING REQUIRED FOR EXCAVATION OF THE PROPOSED CULVERT AND PROPOSED CULVERT ENDWALL, AND TO MAINTAIN STABILITY OF THE EXISTING ENDWALL TO REMAIN. SHOP DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA. TEMPORARY SHORING DESIGN INCLUDES PROPOSED STEEL ANGLES AND BOLTED CONNECTIONS TO THE EXISTING ENDWALL AND TEMPORARY SHEET PILE WALL.
3. CONTRACTOR MAY PROPOSE, AT HIS OWN EXPENSE, AN ALTERNATIVE TEMPORARY SHORING DESIGN TO MAINTAIN STABILITY OF THE EXISTING ENDWALL TO REMAIN. SUBMIT COMPLETE SET OF SHOP DRAWINGS AND DESIGN CALCULATIONS FOR THE ALTERNATIVE DESIGN, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
4. DESIGN MATERIALS FOR TEMPORARY STRUCTURES:
 - A. STEEL SHEET PILING: ASTM A572 GRADE 50
 - B. STRUCTURAL STEEL: ASTM A709 GRADE 50
 - C. BOLTS: ASTM A449 TYPE 1
 - D. NUTS AND WASHERS: ASTM A563 AND F436, RESPECTIVELY
5. MAINTAIN WATER FLOW ACROSS SOUTH LAKE AVENUE DURING ALL DEMOLITION AND CONSTRUCTION ACTIVITIES.
6. PRIOR TO BEGINNING OF CONSTRUCTION, FIELD VERIFY ALL DIMENSIONS OF EXISTING CULVERT ENDWALL, FOOTING AND STEM. REPORT ANY DISCREPANCIES TO THE ENGINEER.
7. PAYMENT FOR ALL WORK REQUIRED TO INSTALL TEMPORARY SHORING, INCLUDING ALL FIELD-DRILLING, AND ASSOCIATED MATERIALS, INCLUDING STEEL ANGLES, BOLTS, AND HARDWARE, SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM NO. 120-4 (SUBSOIL EXCAVATION). FOR ADDITIONAL PAY ITEM NOTES, SEE SHEET NO. 5.

LEGEND:

-  LIMITS OF REMOVAL
- CMP CORRUGATED METAL PIPE



PLAN - EXISTING CULVERT EAST ENDWALL



DETAIL "A"

DESIGNED	JPN		
DRAWN	AC		
CHECKED	RW		
REV. NO.	DATE	DESCRIPTION	REV. BY



PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT

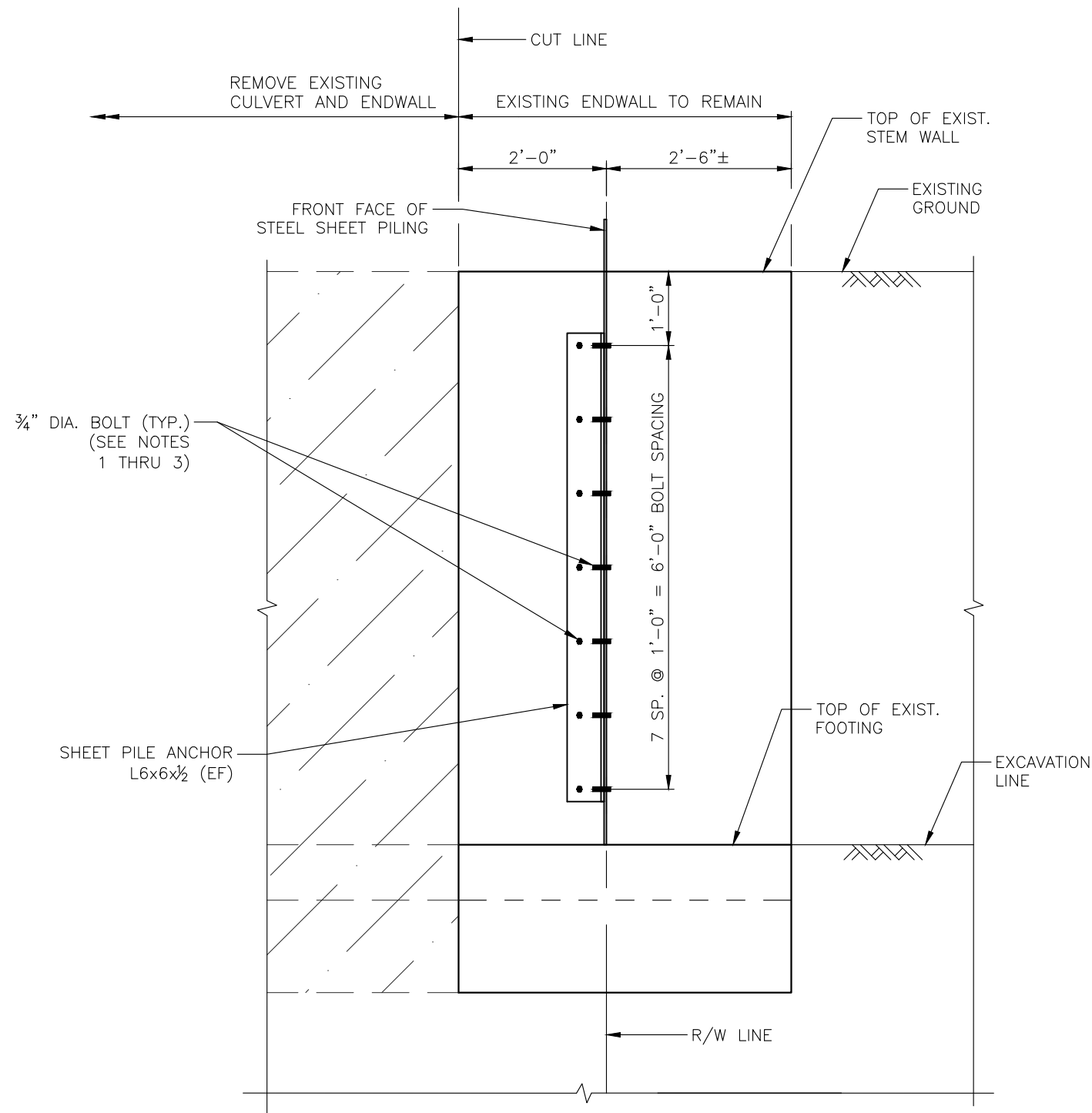
DESCRIPTION: ENDWALL DEMOLITION DETAILS (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

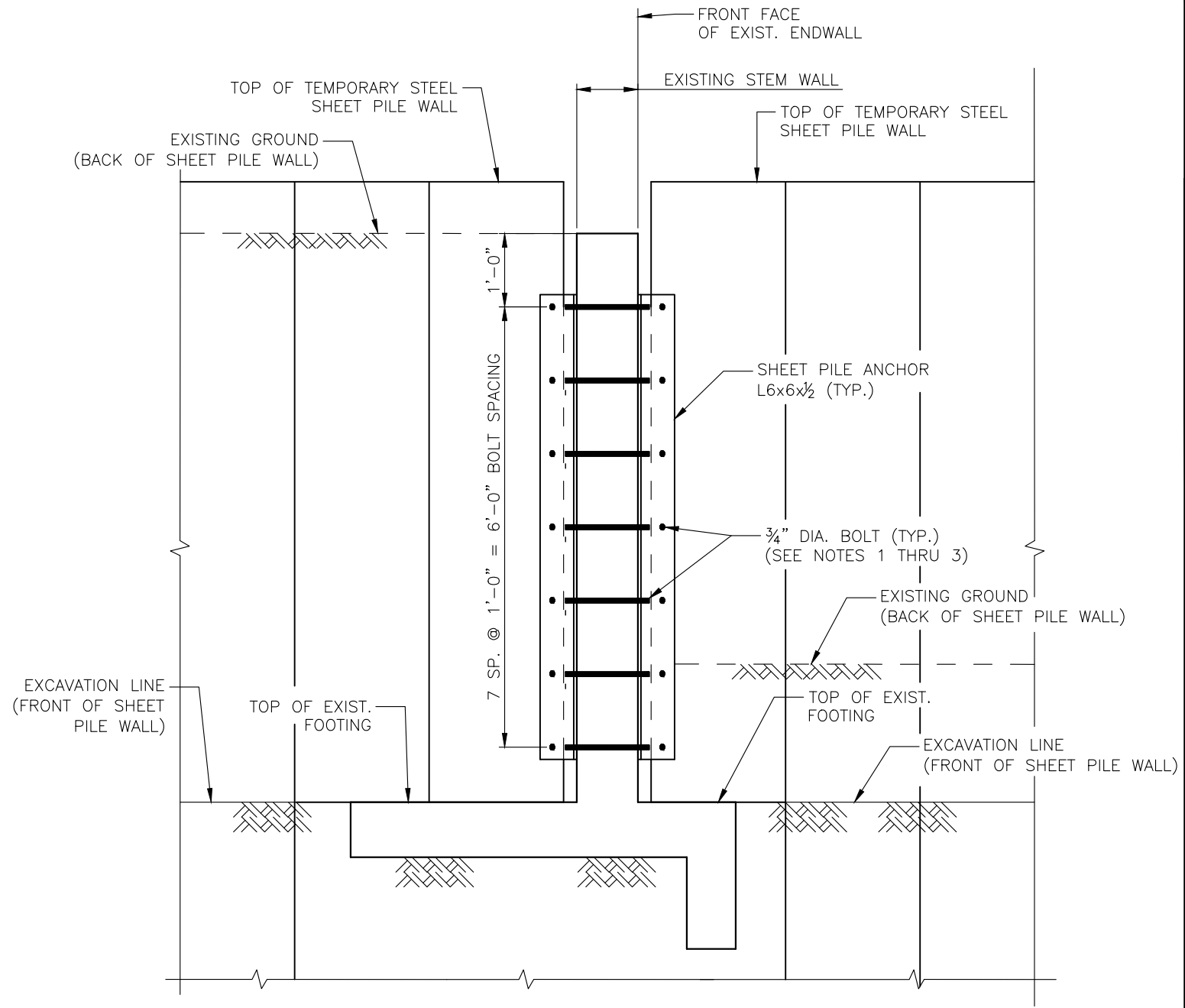
ENGINEER OF RECORD
JAMES P. NEWBERRY, PE
FLA. LIC. NO. 73365

DATE: 04/09/2018
PROJECT NO. 001037A
SHEET: 27 OF 31

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



SECTION X-X



SECTION Y-Y

NOTES:

1. FIELD DRILL THROUGH EXISTING CONCRETE END WALL, ANGLES, AND TEMPORARY STEEL SHEET PILE WALL. AVOID DRILLING THROUGH EXISTING REINFORCING STEEL IN ENDWALL.
2. PROVIDE 1 3/16" DIA. HOLES IN STEEL ANGLES FOR 3/4" DIA. BOLTED CONNECTION TO TEMPORARY STEEL SHEET PILE WALL, AND FOR CONNECTION TO ENDWALL.
3. PROVIDE MINIMUM BOLT EDGE DISTANCE OF 1" FROM \varnothing 3/4" DIA. BOLT TO EDGE OF TEMPORARY STEEL SHEET PILE WALL.

DESIGNED	JPN		
DRAWN	AC		
CHECKED	RW		
REV. NO.	DATE	DESCRIPTION	REV. BY



PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT

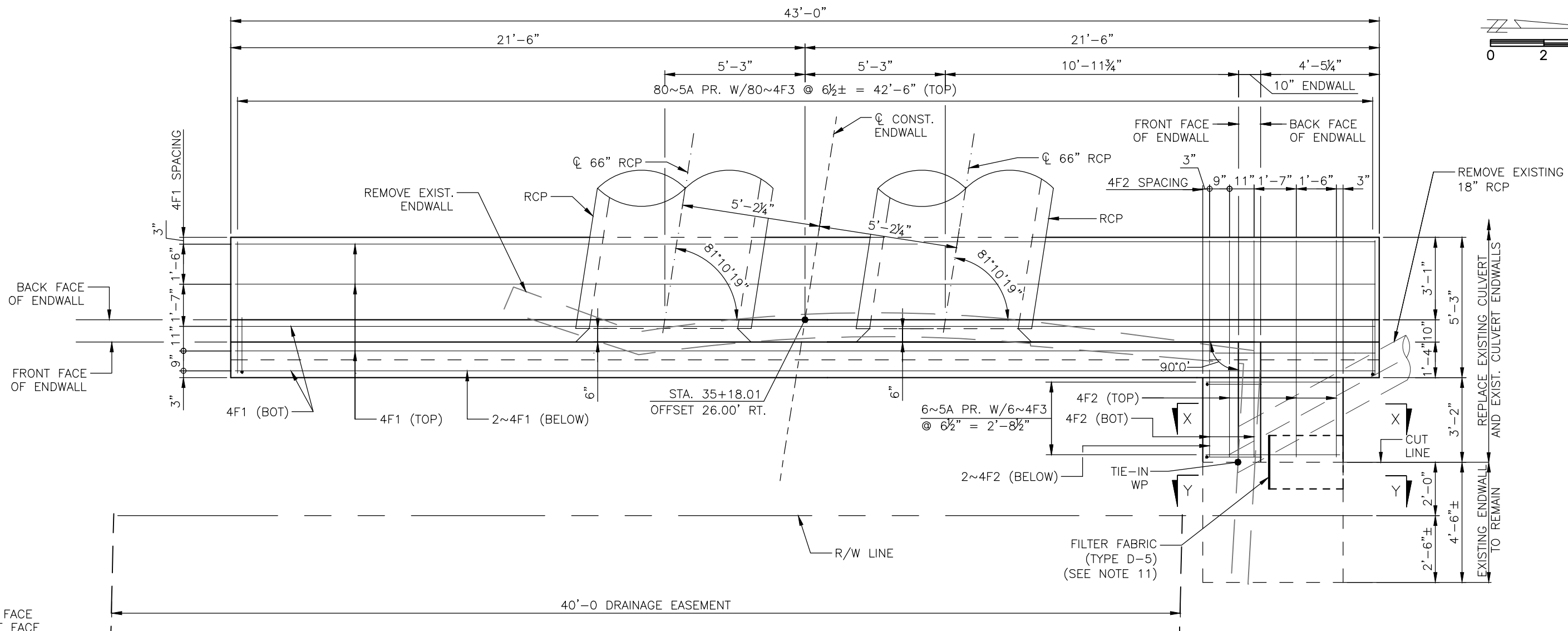
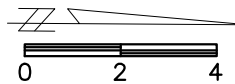
DESCRIPTION: ENDWALL DEMOLITION DETAILS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741



ENGINEER OF RECORD
JAMES P. NEWBERRY, PE
FLA. LIC. NO. 73365

DATE:	04/09/2018
PROJECT NO.	001037A
SHEET:	28 OF 31



LEGEND:

- NF NEAR FACE
- FF FRONT FACE
- EF EACH FACE
- WP WORKING POINT

GENERAL NOTES:

1. CUSTOM CULVERT ENDWALL DETAILS ARE REQUIRED FOR EAST ENDWALL, AND SHOWN ON SHEET NOS. 29 THRU 31.
2. AT WEST ENDWALL, MODIFY CUTOFF WALL VERTICAL DEPTH AT TOE OF FOOTING FROM STANDARD 2'-0" DIMENSION TO 2'-6". PROVIDE 80~4F3 BARS AND 2~4F1 BARS IN CUTOFF WALL, AND PLACE THEM AS SHOWN IN THE PLANS FOR EAST ENDWALL DETAILS. FOR ALL OTHER DETAILS AT WEST ENDWALL, SEE FDOT INDEX NO. 252. FOR WEST ENDWALL QUANTITIES, SEE SHEET NO. 31.
3. STRAIGHT CONCRETE ENDWALLS ARE INTENDED FOR USE OUTSIDE THE CLEAR ZONE.
4. ENDWALLS MAY BE CAST-IN-PLACE OR PRECAST CONSTRUCTION. CAST-IN-PLACE ENDWALLS SHALL CONFORM TO THE DETAILS ON THESE PLANS. PRECAST CONSTRUCTION WHICH ADHERES TO THESE PLANS, INCLUDING ANY ADDITIONAL REINFORCEMENT REQUIRED FOR HANDLING WHICH SHALL BE DETERMINED BY THE CONTRACTOR OR SUPPLIER, DOES NOT REQUIRE ADDITIONAL APPROVALS. DEVIATIONS FROM THESE PLANS, FOR PRECAST UNITS, SHALL REQUIRE THE APPROVAL OF THE COUNTY ENGINEER PRIOR TO CONSTRUCTION. FOR PRECAST CONSTRUCTION, SEE FDOT INDEX NO. 201 FOR OPENING AND GROUTING DETAILS.
5. REINFORCING STEEL SHALL BE GRADE 60.
6. CONCRETE SHALL BE FDOT CLASS II EXCEPT ASTM C478 (4000 PSI) CONCRETE MAY BE SUBSTITUTED FOR PRECAST ITEMS MANUFACTURED IN PLANTS MEETING THE REQUIREMENTS OF SECTION 449 OF THE FDOT STANDARD SPECIFICATIONS.
7. CHAMFER: ALL EXPOSED EDGES AND CORNERS TO BE CHAMFERED 3/4" UNLESS OTHERWISE SHOWN.
8. SODDING SHALL BE IN ACCORDANCE WITH FDOT INDEX NO. 281 AND PAID FOR UNDER PAY ITEM NO. 570-1-2 (SODDING, BAHIA, SY)
9. BASIS OF PAYMENT FOR EITHER CAST-IN-PLACE OR PRECAST CONSTRUCTION SHALL BE THE ESTIMATED QUANTITIES TABULATED ON THESE PLANS. CONCRETE AND REINFORCING STEEL SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICES FOR FDOT CLASS II CONCRETE (ENDWALLS), CY AND REINFORCING STEEL (ROADWAY), LB.
10. EXISTING CULVERT AND EXISTING CULVERT ENDWALL DETAILS ARE BASED ON SURVEY DATA AND MAY NOT REPRESENT AS-BUILT CONDITIONS. EXISTING PLANS ARE NOT AVAILABLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THIS DATA AND FIELD MEASURE EXISTING CULVERT AND EXISTING ENDWALL DIMENSIONS BEFORE BEGINNING CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
11. WRAP MIN. 2'-0" WIDTH TYPE D-5 GEOTEXTILE FILTER FABRIC AROUND BACK OF STEM WALL AND TOP OF FOOTING ALONG CUT LINE BETWEEN EXISTING ENDWALL AND PROPOSED ENDWALL. FILTER FABRIC SHALL BE PER FDOT SPECIFICATIONS SECTION 985.
12. BROKEN STONE RIPRAP IN FRONT OF ENDWALL NOT SHOWN.
13. FOR SECTIONS X-X AND Y-Y, SEE SHEET NO. 31.
14. FOR EXISTING ENDWALL DEMOLITION DETAILS, SEE SHEET NOS. 27 AND 28.

DESIGNED	JPN		
DRAWN	AC		
CHECKED	JES		
REV. NO.	DATE	DESCRIPTION	REV. BY



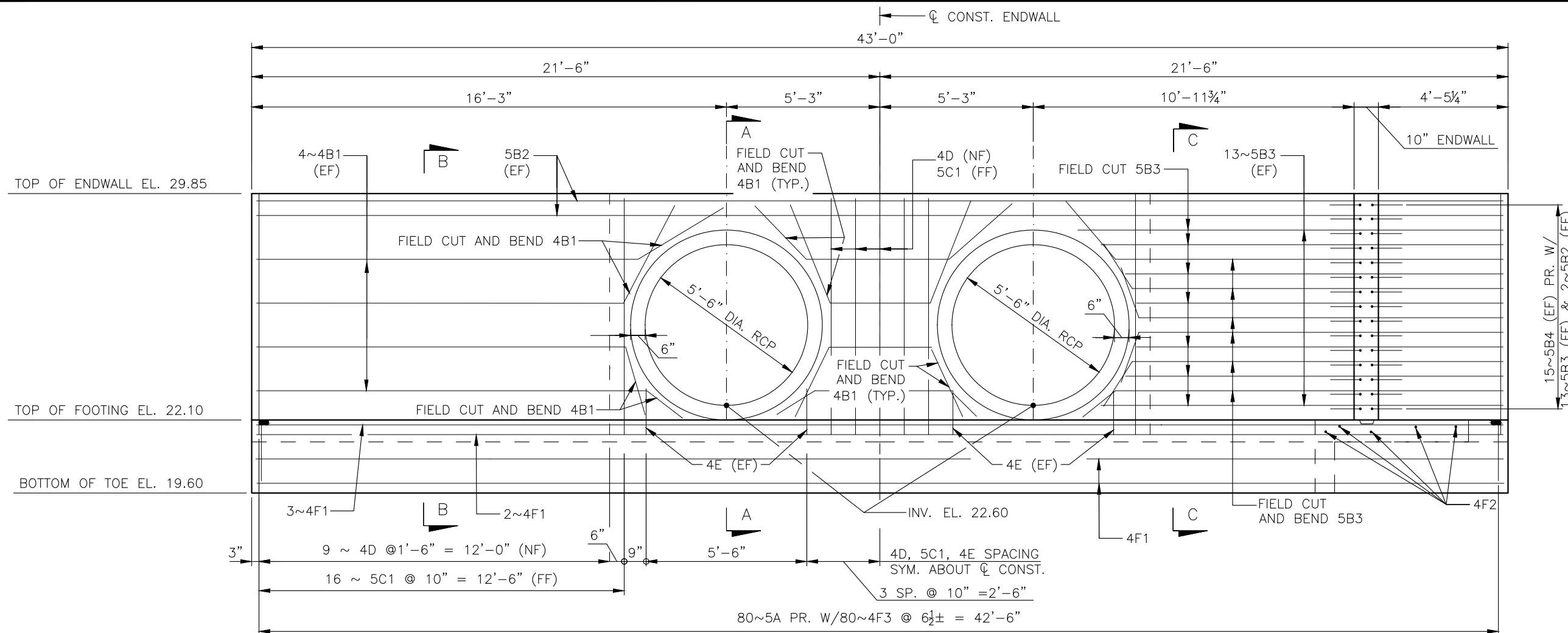
PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT

DESCRIPTION: CULVERT ENDWALL DETAILS (1 OF 3)

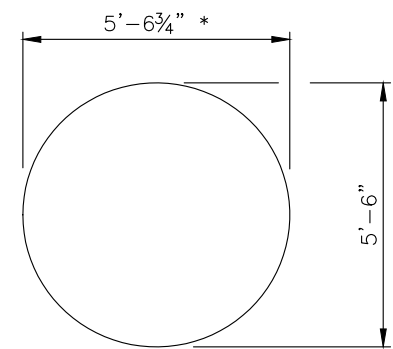
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES P. NEWBERRY, PE
FLA. LIC. NO. 73365

DATE: 04/09/2018
PROJECT NO. 001037A
SHEET: 29 OF 31

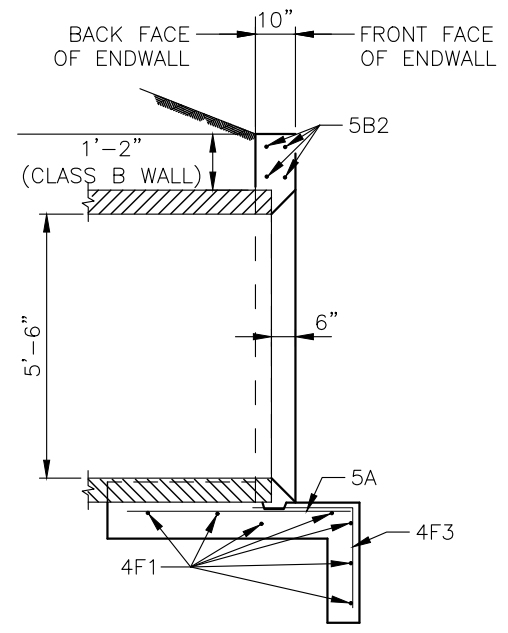


ELEVATION - EAST ENDWALL

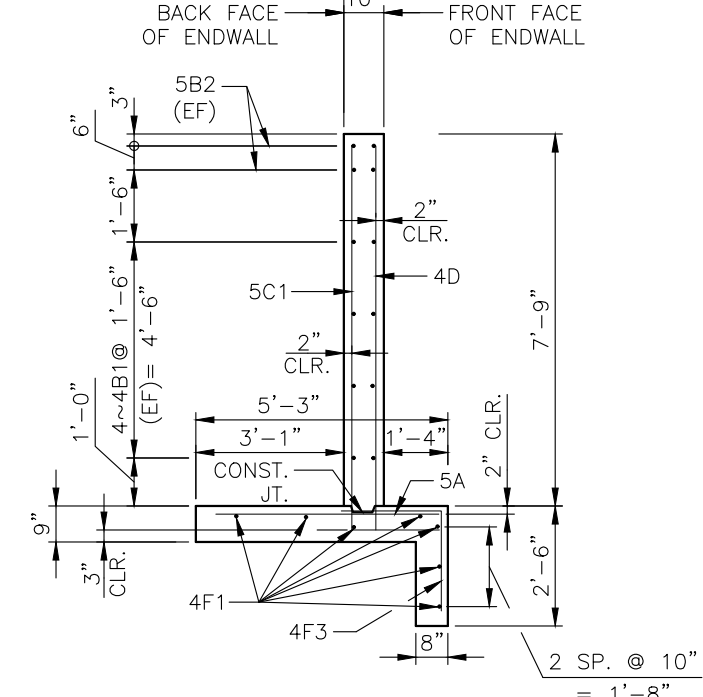


ENDWALL OPENING DETAIL

* ELONGATED DIMENSION DUE TO PIPE SKEW



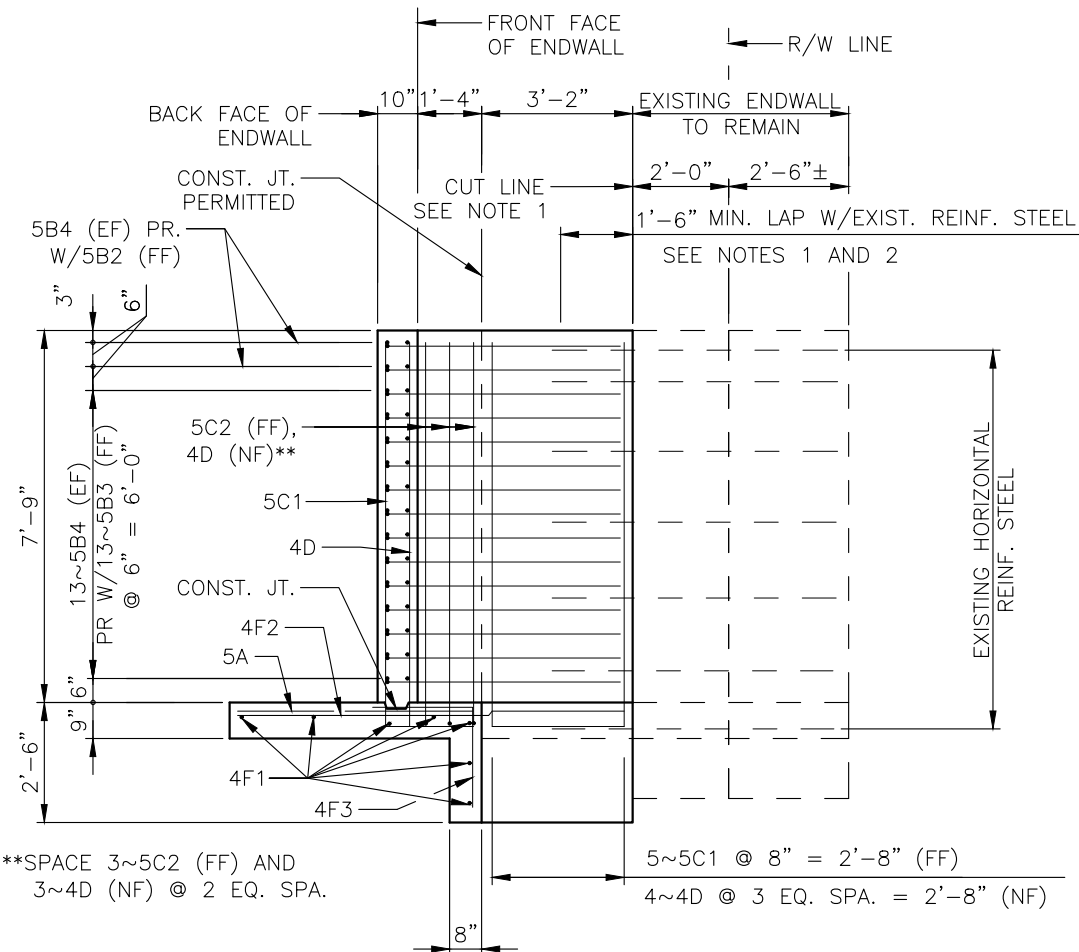
SECTION A-A



SECTION B-B

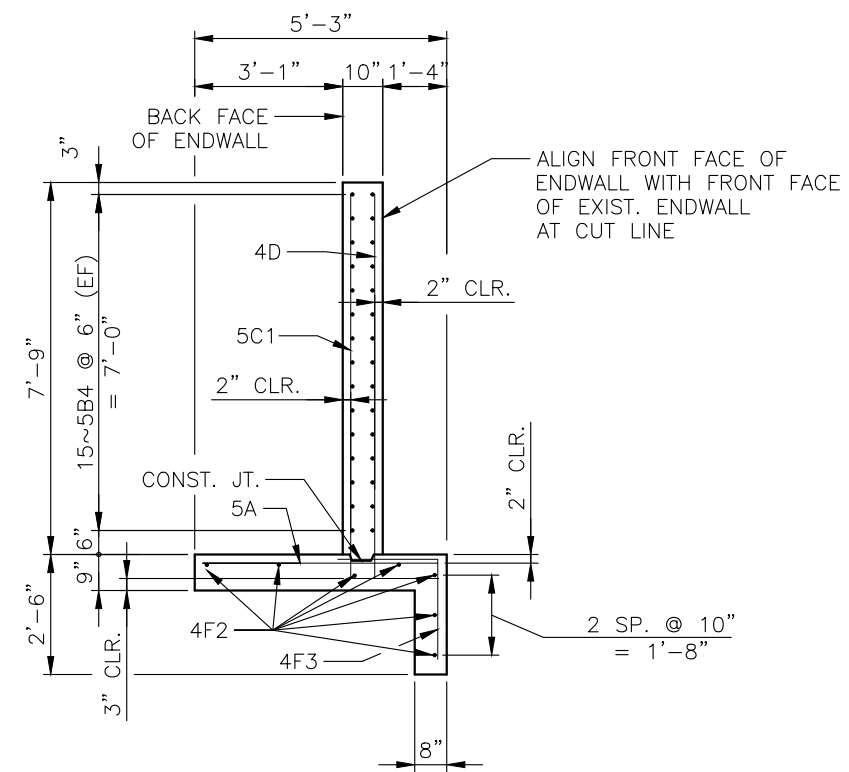
- NOTES:
1. FIELD CUT AND BEND BARS 4B1 AND 5B2 AS SHOWN.
 2. FOR SECTION C-C, SEE SHEET NO. 31.

DESIGNED	JPN		PROJECT:	S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION:	CULVERT ENDWALL DETAILS (2 OF 3)		DATE:	04/09/2018
DRAWN	AC			HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741	ENGINEER OF RECORD JAMES P. NEWBERRY, PE FLA. LIC. NO. 73365	PROJECT NO.		001037A	
CHECKED	JES					REV. BY			SHEET:
REV. NO.	DATE	DESCRIPTION	REV. BY						

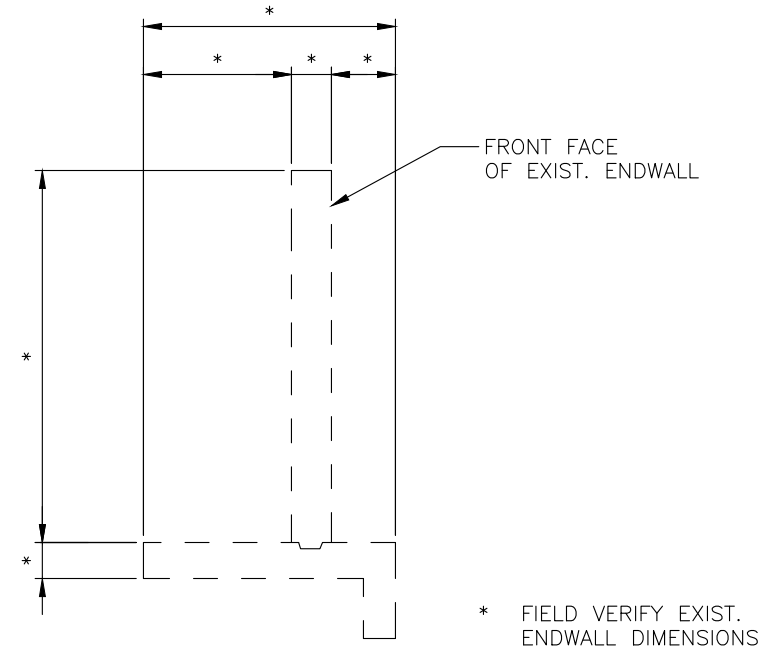


SECTION C-C

**SPACE 3~5C2 (FF) AND 3~4D (NF) @ 2 EQ. SPA.

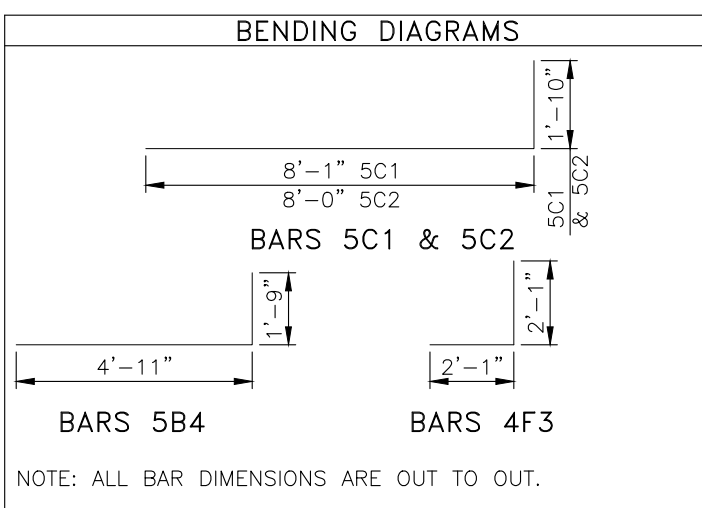


SECTION X-X



SECTION Y-Y

BILL OF REINFORCING STEEL					
MARK	SIZE	NO. REQD.	LENGTH	LOCATION	BENDING
A	5	86	4'-11"	FOOTING	STRAIGHT
B1	4	8	30'-0"	WALL	STRAIGHT
B2	5	4	42'-8"	WALL	STRAIGHT
B3	5	26	20'-0"	WALL	STRAIGHT
B4	5	30	6'-8"	WALL	BEND
C1	5	42	9'-11"	WALL	BEND
C2	5	3	9'-10"	WALL	BEND
D	4	30	8'-1"	WALL	STRAIGHT
E	4	8	1'-8"	WALL	STRAIGHT
F1	4	7	42'-8"	FOOTING	STRAIGHT
F2	4	7	8'-0"	FOOTING	STRAIGHT
F3	4	86	4'-2"	FOOTING	BEND



NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT.

ESTIMATED QUANTITIES			
LOCATION	ITEM	UNIT	RCP
EAST ENDWALL	CLASS II CONCRETE	CU. YD.	18.6
	REINFORCING STEEL	LB.	2341
WEST ENDWALL*	CLASS II CONCRETE	CU. YD.	16.5
	REINFORCING STEEL	LB.	1704

*FOR WEST ENDWALL DETAILS SEE FDOT INDEX NO. 252, AND NOTE 2 ON SHEET 29.

- NOTES:
- DURING DEMOLITION OF EXISTING ENDWALL, TAKE CARE NOT TO DAMAGE EXISTING HORIZONTAL REINFORCING STEEL IN EXISTING FOOTING AND WALL WHILE REMOVING EXISTING CONCRETE. CLEAN AND FIELD BEND EXISTING HORIZONTAL REINFORCING STEEL TO PROVIDE MINIMUM LAP SPLICE LENGTH AS SHOWN ON THIS SHEET.
 - AT CONTRACTOR'S OPTION, IN LIEU OF LAPPING EXISTING HORIZONTAL REINFORCING STEEL WITH REINFORCING STEEL IN PROPOSED ENDWALL, CONNECTION BETWEEN EXISTING ENDWALL AND PROPOSED ENDWALL AT CUT LINE MAY BE MADE WITH USE OF ADHESIVE DOWELS TO EXISTING CONCRETE.
 - CUT EXISTING HORIZONTAL REINFORCING ALONG CUT LINE.
 - PROVIDE A MINIMUM OF 6~#5 BARS @ 1'-0" MAX. SPACING VERTICALLY INTO CENTER OF EXISTING ENDWALL STEM. USE AN ADHESIVE BONDING MATERIAL SYSTEM IN ACCORDANCE WITH FDOT SPECIFICATIONS SECTION 416 & 937. PROVIDE 1'-0" MIN. EMBEDMENT INTO EXISTING ENDWALL.
 - PROVIDE A MINIMUM LAP SPLICE LENGTH AS SHOWN ON THIS SHEET.
 - ALL WORK ASSOCIATED WITH THIS ALTERNATIVE SHALL BE CONSIDERED INCIDENTAL TO PAY ITEM NO. 120-4 (SUBSOIL EXCAVATION).

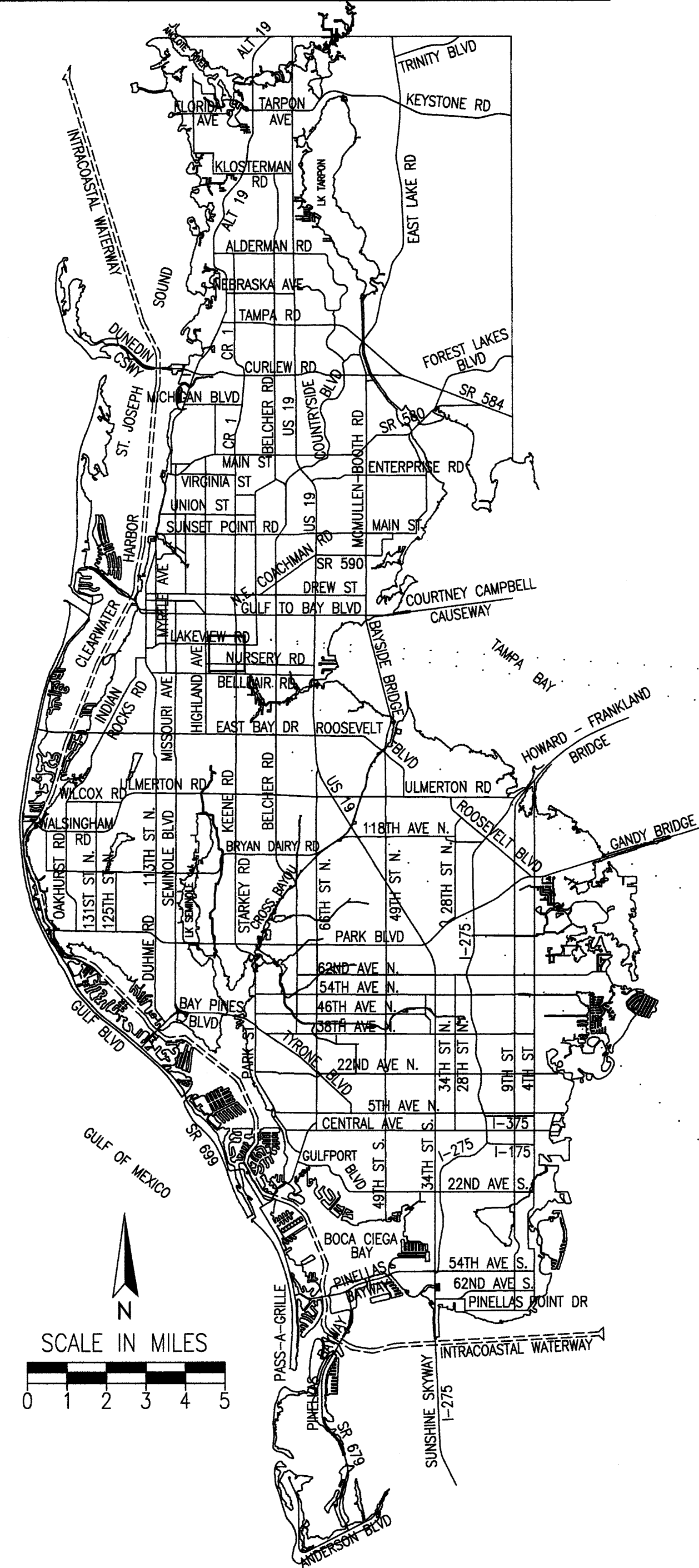
DESIGNED: JPN		PROJECT: S. LAKE AVENUE CULVERT REPLACEMENT	DESCRIPTION: CULVERT ENDWALL DETAILS (3 OF 3)	HARDESTY & HANOVER, LLC. 5110 EISENHOWER BLVD. SUITE 310 TAMPA, FL 33634 CERTIFICATION OF AUTHORIZATION # 29741		DATE: 04/09/2018	
DRAWN: AC						ENGINEER OF RECORD JAMES P. NEWBERRY, PE FLA. LIC. NO. 73365	PROJECT NO. 001037A
CHECKED: JES							SHEET: 31 OF 31
REV. NO.	DATE	DESCRIPTION	REV. BY				

PINELLAS COUNTY PUBLIC WORKS DIVISION OF SURVEY AND MAPPING STATE OF FLORIDA

Pinellas County Government is committed to progressive public policy, superior public service, courteous public contact, judicious exercise of authority and sound management of public resources, to meet the needs and concerns of our citizens today and tomorrow.



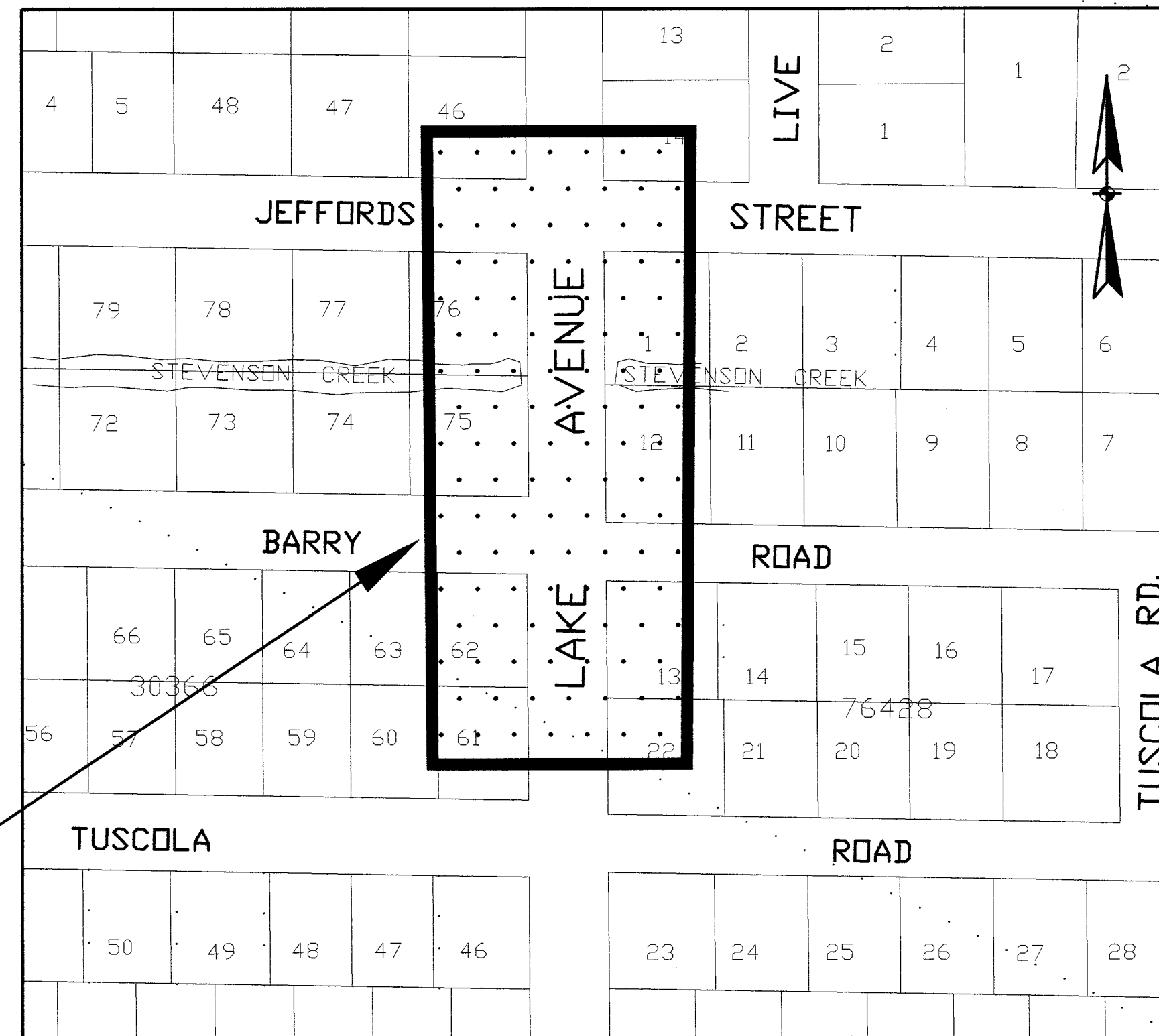
"Our Public Works Mission is to serve the citizens and visitors of Pinellas County by providing, implementing, operating, and maintaining coastal, surface water, and transportation programs, in a professional manner, which support economic and community growth".



TOPOGRAPHIC SURVEY OF: LAKE AVENUE from BARRY ROAD to JEFFORDS STREET

THE SURVEY DEPICTED HERE IS NOT COVERED BY PROFESSIONAL LIABILITY INSURANCE.
VICINITY MAP

NOT TO SCALE



PROJECT LOCATION

SECTION, 14 & 23 TOWNSHIP 29 SOUTH, RANGE 15 EAST

SHEET INDEX

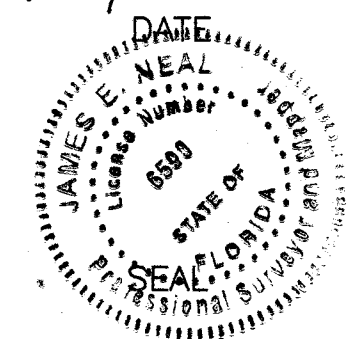
- 1 COVER SHEET / VICINITY MAP / GRAPHIC SYMBOLS
- 2 LAND SURVEYOR REPORT / ALIGNMENT/MONUMENTATION STRUCTURES / ABBREVIATION/WETLAND BOUNDARY/VVH
- 3 REFERENCES
- 4 TOPOGRAPHIC SURVEY

GRAPHIC SYMBOLS:

<p>CENTERLINE CONTOUR LINE EXISTING TOPOGRAPHIC FEATURE JURISDICTION LINE SURVEY REFERENCE LINE RIGHT-OF-WAY (EXISTING) RIGHT-OF-WAY LINE (PROPOSED) RIGHT-OF-WAY LINE (EXISTING W/ ACQUISITION)</p> <p>PROPERTY OR DEED LINE EASEMENT LINE SECTION LINE ORIGINAL LOT LINE/FORMER OWNERSHIP LINE/ VACATED EASEMENTS</p> <p>TREE LINE FENCE LINE CABLE TELEVISION TELEPHONE LINE TRAFFIC CONTROL LINE ELECTRIC POWER LINE/CABLE DRAINAGE (STORM SEWER) PIPE EXISTING TOP OF BANK AND TOE OF SLOPE</p>	<p>SANITARY SEWER GRAVITY LINE FORCE MAIN (SANITARY SEWER) GAS LINE HOT OIL LINE RECLAIMED WATER LINE POTABLE WATER UNKNOWN UTILITY</p> <p>FOUND CONCRETE MONUMENT FOUND NAIL & DISC/CAP BRASS DISC FOUND IRON ROD FOUND IRON PIPE FOUND PINCH PIPE SET CONCRETE MONUMENT SET NAIL & DISC/CAP BRASS DISC SET IRON ROD XCUT (FOUND) XCUT (SET)</p> <p>OWNER IDENTIFICATION SUBDIVISION BLOCK DESIGNATION</p>	<p>CENTERLINE SURVEY LINE PROPERTY LINE DELTA ANGLE FIRE HYDRANT GUY WIRE SEWER MANHOLE TELEPHONE MANHOLE DRAINAGE MANHOLE RECLAIMED WATER MANHOLE TRAFFIC SIGNAL PULL BOX SPRINKLER HEAD TRAFFIC SIGNAL POLE UNDERDRAIN BOX</p> <p>POLE/POST UTILITY POLE LIGHT POLE MAILBOX</p>	<p>SHRUB PALM TREE DECIDUOUS TREE (OAK UNLESS OTHERWISE ANNOTATED) EVERGREEN TREE WATER VALVE RECLAIMED WATER VALVE GATE VALVE GAS VALVE WATER METER RECLAIMED WATER METER GRATE INLET BENCHMARK TARGET MONITOR WELL ELECTRICAL OUTLET</p>	<p>CABLE TELEVISION BOX POWER BOX SANITARY SEWER CLEANOUT TELEPHONE BOX BACKFLOW PREVENTER HOSE BIB JUNCTION BOX SIGN</p>
--	---	---	--	---

James E. Neal
JAMES E. NEAL, P.S.M.
Florida Registered Professional Surveyor and Mapper
Certificate No. 6590
Pinellas County Public Works
Division of Survey and Mapping
22211 U.S. Hwy. 19 North
Clearwater, Florida 33765
Phone: (727)464-8904

01/30/2015



Revised	01/15
Revised	06/14
Revised sheets 2 thru 4	08/09
PID NO.: 002125A	DRAWING NO.:
CONTRACT NO.:	FILE NO.: SFN 1748
SHEET 01 OF 04	

SURVEYOR REPORT:

- 1. Type of Survey: Topographic Survey (Chapter 5J-17.050 (10) (k) F.A.C. formerly Chapter 61G17-6 F.A.C.) to establish geographic location of existing features to facilitate the design of sidewalk & drainage improvements at LAKE AVENUE FROM BARRY ROAD TO JEFFORDS STREET (SFN 1748)
2. Survey Date: July 8, 2009, June 24, 2014 & January 28, 2015
Date of Computations: July 17, 2009, August 2009, July 2014, January 2015
3. HORIZONTAL values established utilizing control points 42 thru 44 from BELLEAIR ROAD FROM MISSOURI AVENUE TO HIGHLAND AVENUE DRAINAGE IMPROVEMENTS (SFN 1499). Bearings are based on the State Plane Coordinate System for the West Zone of Florida, North American Datum 1983, 1990 Adjustment, on a line between "BREEZE D" to "BREEZE B" being N 00°14'17"E.
4. PARENT BENCHMARKS are National Geodetic Survey Monuments: "BREEZE 1973", having an elevation of 60.49 feet, North American Vertical Datum of 1988 and "BREEZE A", having an elevation of 56.40 feet, National American Vertical Datum of 1988.
5. ACCURACY STATEMENT: All measurements, distances, elevations and features shown were performed in strict accordance with the Minimum Technical Standards set forth in Chapter 5J-17, F.A.C. formerly Chapter 61G17-6, F.A.C.
6. Control points 204 & 205 serve as the project Control and Benchmarks for this survey as tabulated and/or delineated on sheets 2 thru 4 of this survey.
7. Abbreviation legend appears upon this sheet of the survey map.
8. INTENDED FEATURES: Topographic features such as edge of pavement, sidewalks, driveways, fences, walls, ditches, drainage structures and aboveground utilities are shown, however, other utilities may exist. Subsurface utility information provided at Quality Level B with specific verified vertical and horizontal (Vvh) locates at Quality Level A as shown on survey and tabulated on this sheet. Other subsurface utilities may exist.
9a. Wetland Boundary Line depicted and Elevation for Seasonal High Water was established by Steve Robinson, Pinellas County Natural Resources Division on June 30, 2014
9b. Boring Site locations provided by Daniel Ruel, E.I. Tierra, Inc., via Christina M. Newcomb, PE of The Heimburg Group, Inc.
9. The SURVEY REFERENCE LINE shown hereon is a calculated line and is not monumented.
10. SURVEY TECHNICIANS: B. Ellis, T. Murray, B. Davis, R. Dacke and, C. Martinez.
11. Not a Boundary Survey. Right-of-way, easements, land lines and property lines shown hereon are from the Pinellas County Property Appraiser Maps and are a graphic representation only and have not been calculated or field verified.
12. Not based on an abstract of title. Record instruments were provided. Other easements and/or restrictions may exist.
13. RESPONSIBILITY: The undersigned, James E. Neal P.S.M., is the responsible Surveyor and Mapper for all features and data contained on this Survey and Map.
14. Not valid without the Signature and the original raised Seal of a Florida Licensed Surveyor and Mapper.
15. THE SURVEY DEPICTED HERE IS NOT COVERED BY PROFESSIONAL LIABILITY INSURANCE.
16. Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.
17. Neither the map nor the report is full and complete without the other.

ALIGNMENT:

Project: sfn1748
Horizontal Alignment PI Station Report.
Alignment: SRL1
Desc: CALCULATED SURVEY REFERENCE LINE
Table with columns: PT #, Northing, Easting, Distance, Direction

WETLAND BOUNDARY:

Table with columns: POINT#, NORTHING, EASTING
List of points and coordinates for wetland boundary

MONUMENTATION/CONTROL POINT COORDINATES:

Table with columns: POINT#, LATITUDE (NORTH) FT., DEPARTURE (EAST) FT., ELEVATION, STATION, OFFSET, DESCRIPTION
List of control points with coordinates and descriptions

EXISTING STRUCTURES:

NOTE: ALL INSIDE BOX DIMENSIONS ARE LENGTH x WIDTH x DEPTH

DRAINAGE table with columns: NUMBER, STATION, OFFSET, DESCRIPTION
List of drainage structures including grates and CMP pipes

SANITARY SEWER table with columns: NUMBER, STATION, OFFSET, DESCRIPTION
List of sanitary sewer structures including manholes and pipes

VERIFIED VERTICAL AND HORIZONTAL table with columns: PT #, NUMBER, STATION, OFFSET, DESCRIPTION
List of vertical and horizontal pipe details

ABBREVIATIONS:

Extensive list of abbreviations for survey symbols and features such as DRIVEWAY, CONCRETE, LANE, etc.

REVISIONS table with columns: REVISIONS, BY, DATE, SURVEY BOOK No., SURVEY DIVISION, BY, DATE
Log of changes and updates to the survey

PINELLAS COUNTY, FLORIDA Public Works

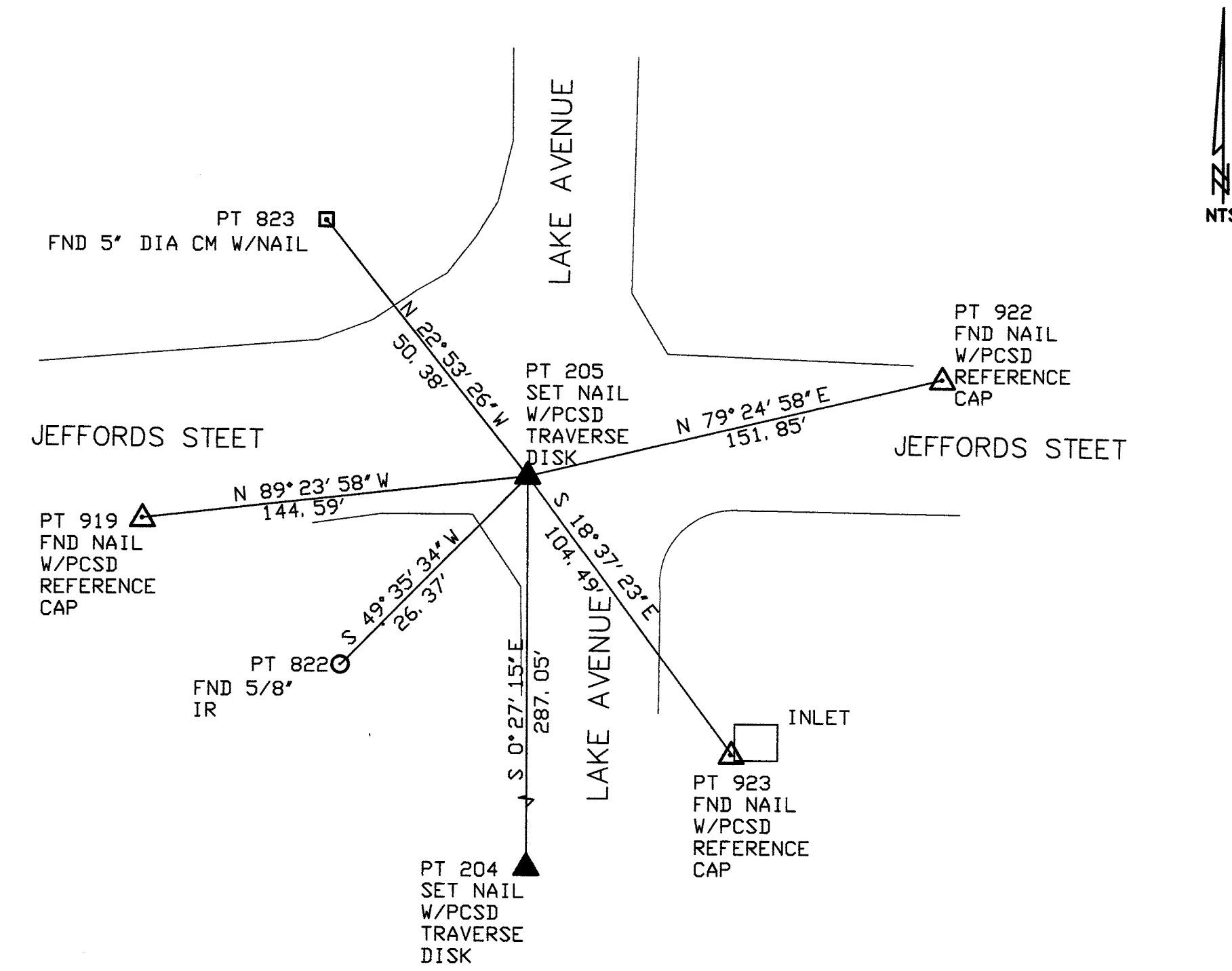
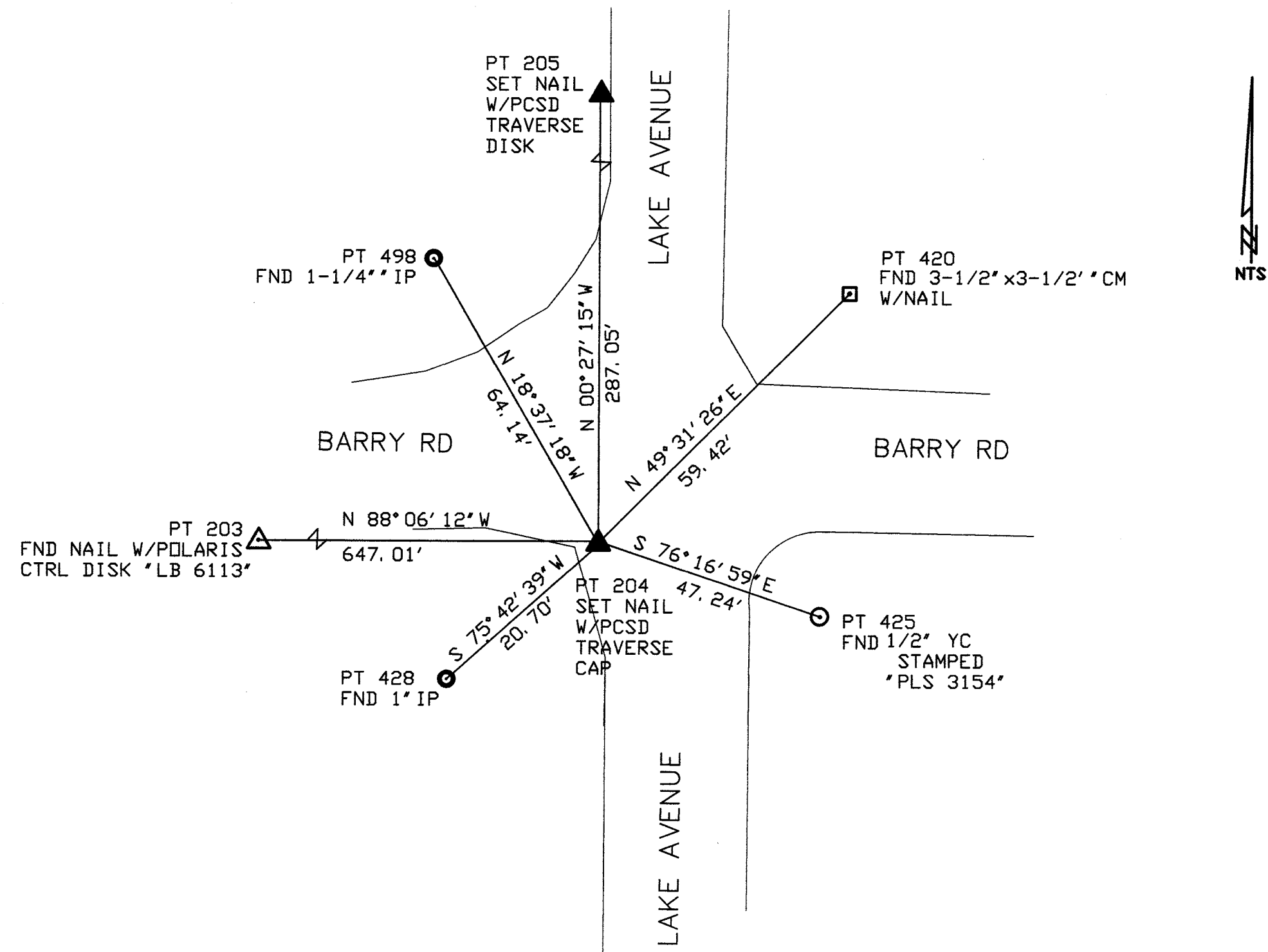
DIVISION OF SURVEY AND MAPPING 20211 U.S. HWY 19 NORTH CLEARWATER, FLORIDA 33758 PHONE (727) 464-8904

ENGINEERING DEPARTMENT 440 COURT STREET CLEARWATER, FLORIDA 33758 PHONE (727) 464-9251

LAKE AVENUE from BARRY ROAD to JEFFORDS STREET

LAND SURVEYOR REPORT DATE: JULY 17, 2009
Signature of James E. Neal, P.S.M.
Professional Surveyor and Mapper Certificate No. 6590
CONTRACT NO.:
SURVEY FILE NO.: 1748
SHEET 02 OF 04

REFERENCES:



REVISIONS	BY	DATE	SURVEY BOOK No.: YB 3078-2, 2983-23
△ Changed Sheet Title	JN	08/09	
			SURVEY DIVISION BY DATE
			SURVEYED B.E 07/09
			TECHNICIAN GM 07/09
			CHECKED JF 07/09
			DESIGN DIVISION
			DESIGNED
			DRAWN
			CHECKED

PINELLAS COUNTY, FLORIDA
Public Works

DIVISION OF SURVEY AND MAPPING
2221 U.S. HWY. 19 NORTH
CLEARWATER, FLORIDA 33765
PHONE (727) 464-8904

ENGINEERING DEPARTMENT
440 COURT STREET
CLEARWATER, FLORIDA 33766
PHONE (727) 464-3251

LAKE AVENUE
from
BARRY ROAD to
JEFFORDS STREET

△ REFERENCES

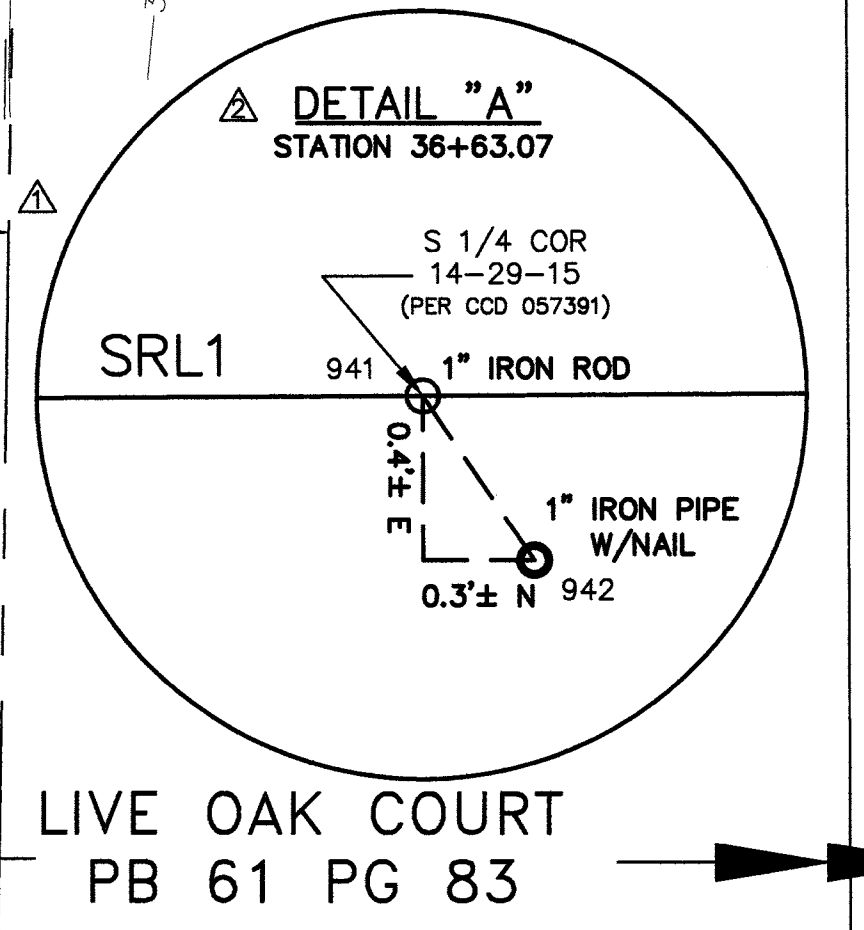
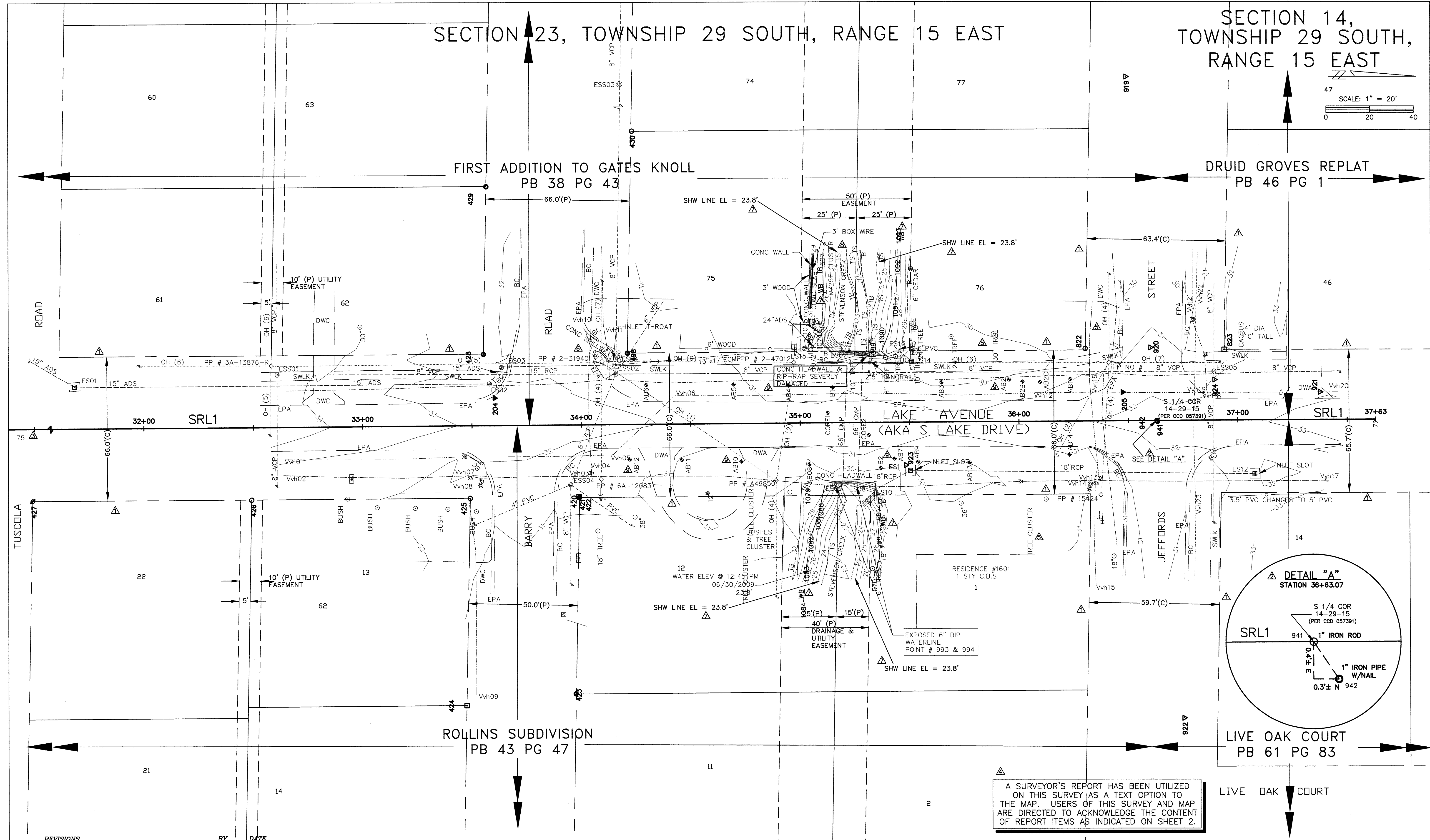
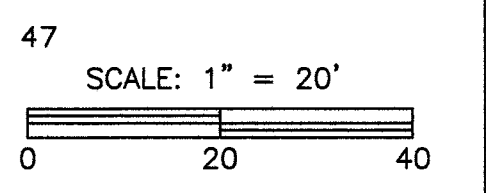
JAMES E. NEAL, P.S.M.
Professional Surveyor and Mapper
Certificate No. 6590

01/30/10 DATE

DATE: JULY 17, 2009
CONTRACT NO.:
SURVEY FILE NO.: 1748
SHEET 03 OF 04

SECTION 23, TOWNSHIP 29 SOUTH, RANGE 15 EAST

SECTION 14, TOWNSHIP 29 SOUTH, RANGE 15 EAST



A SURVEYOR'S REPORT HAS BEEN UTILIZED ON THIS SURVEY AS A TEXT OPTION TO THE MAP. USERS OF THIS SURVEY AND MAP ARE DIRECTED TO ACKNOWLEDGE THE CONTENT OF REPORT ITEMS AS INDICATED ON SHEET 2.

REVISIONS	BY	DATE	
Adjusted R/W Linework	JN	08/09	SURVEY BOOK No. TB 3076-2, 2003-23
Added Detail A	JN	08/09	SURVEY DIVISION BY DATE
Added Point # 75 & Station 31+00	JN	08/09	SURVEYED B.E 07/09
Added reference to surveyors report	JN	08/09	TECHNICIAN GM 07/09
Removed outdated topography	JF	06/14	CHECKED JF 07/09
Added updated topography	JF	06/14	DESIGN DIVISION
Added Wetland and Seasonal High Water lines	JF	06/14	DESIGNED
Added additional topography	JF	11/14	DRAWN
Added boring site locations	JF	01/15	CHECKED

LAKE AVENUE
from
BARRY ROAD to
JEFFORDS STREET

TOPOGRAPHIC SURVEY

PINELLAS COUNTY, FLORIDA
Department of Public Works
DIVISION OF SURVEY AND MAPPING
22211 U.S. HWY. 19 NORTH
CLEARWATER, FLORIDA 33765-2347
PHONE (727) 464-8904

JAMES E. NEAL, P.E., S.F.S.
Professional Surveyor and Mapper
Certificate No. 6588
STATE OF FLORIDA
DATE 01/30/2015

DATE: JULY 17, 2009
PROJECT I.D. .
SURVEY FILE NO.: 1748
SHEET: 04 of 04
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