

*STATE OF FLORIDA*  
*DEPARTMENT OF TRANSPORTATION*

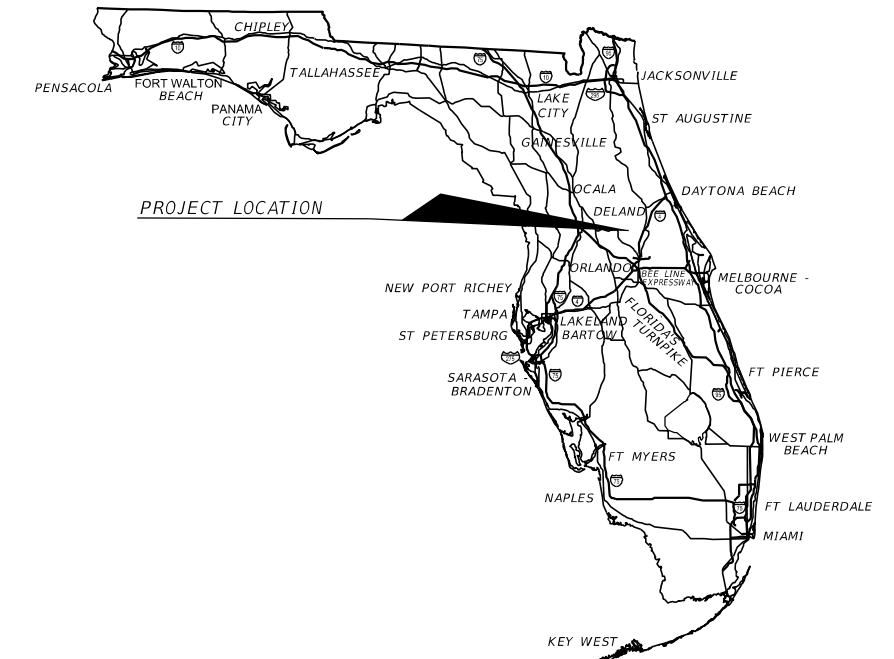
*CONTRACT PLANS*

FINANCIAL PROJECT ID 240200-2-52-01

SEMINOLE COUNTY (77320)

STATE ROAD NO. 429 (WEKIVA PARKWAY SECTION 7A)

*SIGNALIZATION PLANS*



**INDEX OF SIGNALIZATION PLANS**

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**SIGNALIZATION SHOP DRAWINGS  
TO BE SUBMITTED TO:**

CHRIS J. WALSH, P.E. PE NO. 57626  
TRAFFIC ENGINEERING DATA SOLUTIONS, INC.  
80 SPRING VISTA DRIVE  
DEBARY, FLORIDA 32720  
386.753.0558 (O) 386.753.0778 (F)

**PLANS PREPARED BY:**

TRAFFIC ENGINEERING DATA SOLUTIONS, INC.  
80 SPRING VISTA DRIVE  
DEBARY, FLORIDA 32720  
386.753.0558 (O) 386.753.0778 (F)

CONTRACT NO. C9B55  
VENDOR NO. F-208375642001  
CERTIFICATION OF AUTHORIZAION # 27932

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

**100% SUBMITTAL  
OCTOBER 2015**

KEY SHEET REVISIONS	
DATE	DESCRIPTION

SIGNALIZATION PLANS  
ENGINEER OF RECORD: CHRIS J. WALSH

P.E. NO.: 57626

FISCAL YEAR	SHEET NO.
18	T-1

FDOT PROJECT MANAGER: KEVIN MOSS, P.E.

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS														TOTAL THIS SHEET		GRAND TOTAL	
			T-3		T-4		T-5										PLAN	FINAL	PLAN	FINAL
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL						
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF			616		40										656		656	
630-2-12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF			350												350		350	
632-7-1	SIGNAL CABLE-NEW OR RECONSTRUCTED INTERSECTION, F&I	PI			1												1		1	
632-7-6	SIGNAL CABLE-INTERSECTION, REMOVE	PI			1												1		1	
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND, 2-12 FIBERS	LF			50		100										150		150	
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA					8										8		8	
633-3-11	FO CONNECTION, HARDWARE, F&I, SPLICE ENCLOSURE	EA					1										1		1	
633-3-12	FO CONNECTION, HARDWARE, F&I, SPLICE TRAY	EA					1										1		1	
633-3-15	FO CONNECTION, HARDWARE, F&I, PRETERM PATCH PANEL	EA			1												1		1	
634-4-600	SPAN WIRE ASSEMBLY, REMOVAL-POLES REMAIN	PI	1														1		1	
635-2-11	PULL & SPLICE BOX, F&I, 13"x24" COVER SIZE	EA			18												18		18	
635-2-12	PULL & SPLICE BOX, F&I, 24"x36" COVER SIZE	EA			1												1		1	
635-2-13	PULL & SPLICE BOX, F&I, 36" ROUND COVER SIZE	EA					1										1		1	
639-2-1	ELECTRICAL SERVICE WIRE	LF			13												13		13	
642-2-80	CONC STRAIN POLE REMOVAL COMPLETE DEEP 30' >	EA	4														4		4	
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	EA			7												7		7	
649-31-207	MAST ARM, F&I, WIND SPEED-130, SNGL ARM,W/ LUM, 46'	EA			2												2		2	
649-31-209	MAST ARM, F&I, WIND SPEED-130, SNGL ARM,W/LUM, 70.5'	EA			2												2		2	
649-36-500	MAST ARM, REMOVE DEEP/COMPLETE FOUND, BOLT ON ATTACHMENT	EA			4												4		4	
650-1-24	TRAFFIC SIGNAL, FURNISH & INSTALL, POLY W/ALUM TOP, 3 SEC, 1 WAY	AS			8												8		8	
650-1-26	TRAFFIC SIGNAL, FURNISH & INSTALL, POLY W/ALUM TOP, 4 SEC, 1 WAY	AS			4												4		4	
653-1-11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED CNTDWN, 1 WAY	AS			6												6		6	
653-1-12	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED CNTDWN, 2 WAY	AS			1												1		1	
660-1-101	LOOP DETECTOR INDUCTIVE, F&I, TYPE 1	EA			16												16		16	
660-1-102	LOOP DETECTOR INDUCTIVE, F&I, TYPE 2	EA			4												4		4	
660-2-102	LOOP ASSEMBLY - F&I, TYPE B	AS			10												10		10	
660-2-106	LOOP ASSEMBLY - F&I, TYPE F (20' AND 40')	AS			10												10		10	
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA			8												8		8	
670-5-110	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA	AS			1												1		1	
670-5-600	TRAFFIC CONTROLLER ASSEMBLY, REMOVE CONTROLLER WITH CABINET	AS	1		1												2		2	
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA			1												1		1	
700-5-22	INTERNALLY ILLUMINATED SIGN, F&I, OH MOUNT 12 - 18 SF	EA			4												4		4	
715-5-12	LUMINAIRE & BRACKET ARM, F&I,GALVANIZED STEEL	EA			4												4		4	

REVISIONS				CHRIS J. WALSH, P.E. PE NO. 57626 TRAFFIC ENGINEERING DATA SOLUTIONS, INC. 80 SPRING VISTA DRIVE DEBARY, FLORIDA 32720 386.753.0558 (O) 386.753.0778 (F) CERTIFICATION OF AUTHORIZATION # 27392	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			TABULATION OF QUANTITIES	SHEET NO. T-2
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					429	SEMINOLE	240200-2-52-01		

GENERAL

- 1. Unless otherwise noted all removed equipment shall be turned over to Seminole County Traffic Engineering at 140 Bush Loop, Sanford, FL as directed by the engineer, except concrete poles or foundations, which shall be disposed of by the contractor. Contractor to notify Seminole County Traffic Engineering Charles Wetzal at 407-665-5686 2 business days prior to beginning construction. Mast arms that are removed shall be delivered to Seminole County Traffic Engineering at 140 Bush Loop, Sanford, FL.
- 2. It should be noted that no test borings were made where conduit runs are to be installed by jacking, directional boring, or trenching.
- 3. The Contractor shall hand dig the first 4 feet at each pole location and the first 2 feet at each pedestal location to verify no utility conflicts.
- 4. The Contractor shall verify color codes for both signal cables and interconnect cable with Seminole County Traffic Engineering before ordering.
- 5. The Contractor is required to inspect the installation of the traffic signals. The Contractor shall coordinate the final acceptance inspection with the engineer at least ten days in advance. Seminole County Traffic Engineering and FDOT Traffic Signal Quality Assurance Manager at (386) 943-5318 should be contacted ten days before the inspection is to be performed so they may be present.
- 6. The local Permit Manager/ Project Administrator should be informed two business days before any directional bores.
- 7. In the event permanent vehicle detection is disrupted, provide an alternative means of detection to all lanes approaching the intersection, separating each movement which previously had detection. The type of detector shall be approved by the Engineer prior to installation. Equipment shall only detect the intended movement.

UTILITY OWNERS:

NUMBERS:

AT & T Corp	407-578-8000
AT & T FLORIDA	407-273-5084
BRIGHT HOUSE NETWORKS, LLC	407-532-8509
FLORIDA GAS TRANSMISSION	407-838-7171
FLORIDA POWER & LIGHT (D)	386-586-6432
FLORIDA PUBLIC UTILITIES	407-668-9842
SEMINOLE COUNTY (W, NPW,SS)	407-665-2267

CONTROLLER

- 1. The controller assembly shall consist of a NEMA TS2 cabinet type 6 with a TS 2 Type 2 controller. The controller assembly shall have all necessary hardware to communicate with Seminole County Traffic Engineering signal system. Any additional equipment and/or accessories required for the termination and operation of the fiber optic interconnect cable shall be furnished and installed as part of the controller assembly.
- 2. A manual push-button cord shall be furnished in the controller cabinet.
- 3. The controller cabinet shall be oriented so that the door opens away from the intersection.
- 4. The controller shall revert to time based coordination upon disconnecting the coordinating unit when loops are available on the non-coordinated approaches.

PED FEATURES

- 1. Three (3) spare conductors are to be run to the furthest pedestrian signal head.
- 2. Contractor to ensure that a 4-foot x 4-foot flat landing area is adjacent to all detectors for pedestrian access.

SIGNAL CABLE, LOOPS, CONDUIT, & PULL BOXES

- 1. Delay times for loops marked "delay" shall be set to 5 seconds. All others shall be set to zero.
- 2. Pull boxes and covers shall be non-metallic construction with recessed cover logo "Traffic Signal" or "Fiber Optic" as appropriate.
- 3. The far advanced Type "B" loops are to be wired to the system panel and shall function as both system loops and advanced loops. Additionally, each "B" loop shall have a separate detector channel.
- 4. Whenever possible, all loops and system sensors shall be cut into the asphaltic concrete structural course prior to placement of the friction course.
- 5. The 20' Type "F" loops shall be placed 2' behind stop bar while the 40' Type "F" loops shall be placed 5' in front of stop bar.

SIGNAL HEADS

- 1. All vehicular signal head assemblies shall be aluminum/poly.

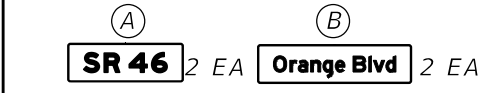
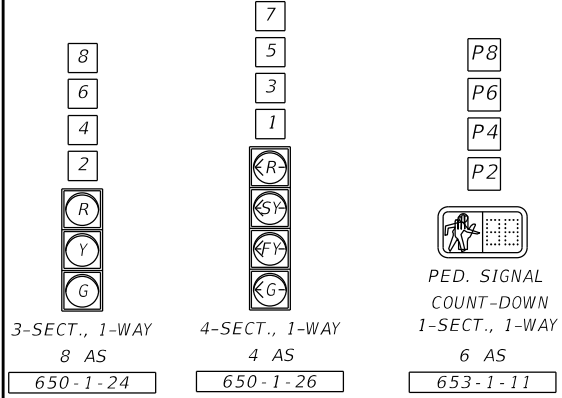
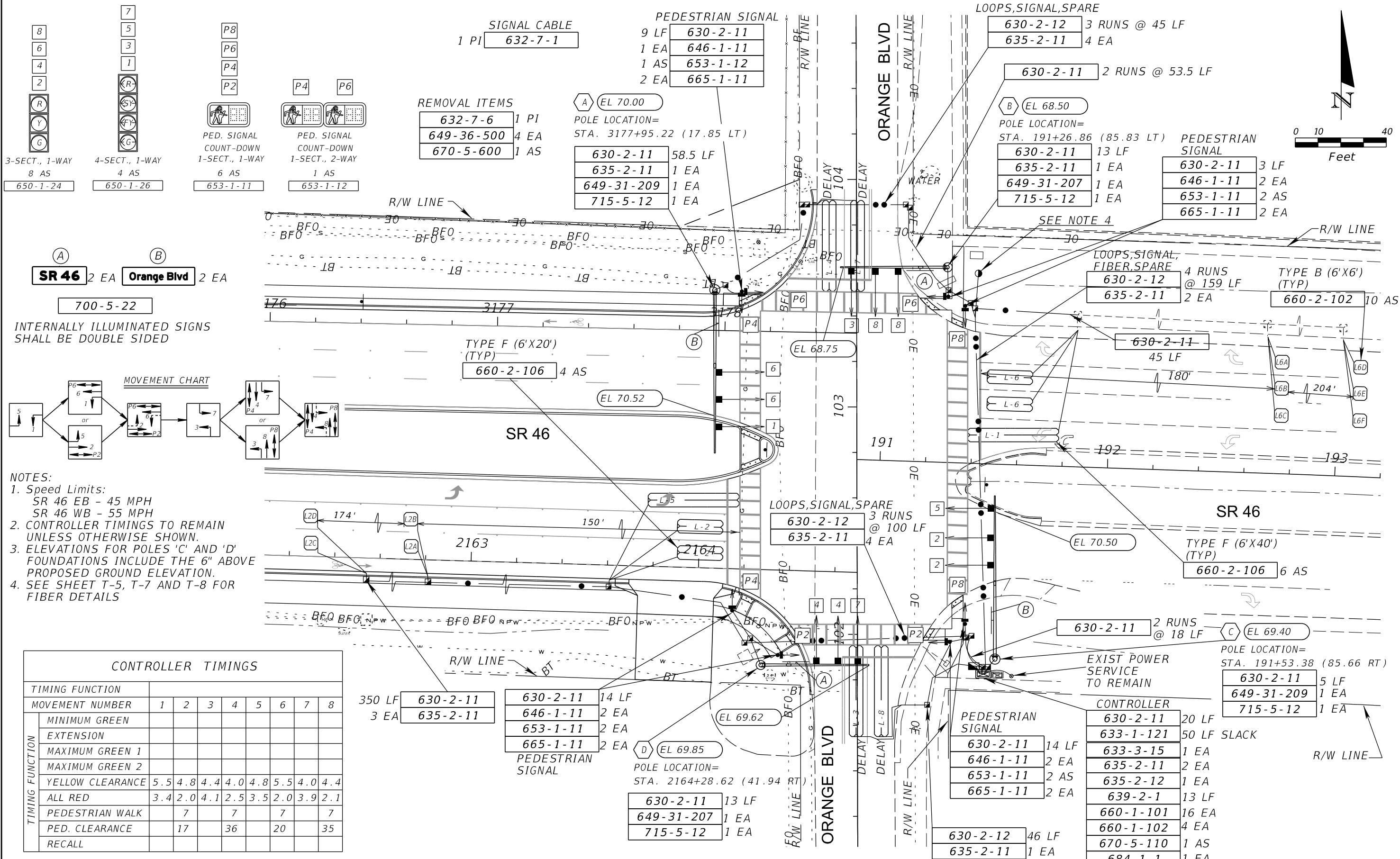
MAST ARMS

- 1. If a continuous run of signal cable is not possible from the cabinet to the signal head, then a terminal block shall be used to connect cables at the signal pole hand hole. At least 6' of slack cable shall be available for troubleshooting.
- 2. The cable grip shall be a sufficient size to not compromise the insulation on the signal cable.
- 3. For miscellaneous structures that have been completed and scheduled for acceptance, the Contractor shall contact District Five Structures Maintenance Office at (386) 740 3463 one month prior to completion of project to schedule an inspection of structures including cable signs, cantilever signs, truss signs, high mast light poles, ITS, DMS and traffic signal mast arms.
- 4. The contractor shall be responsible for supplying approved shop drawings showing the bolt pattern and arm orientation prior to the Pre-Drill Shaft Meeting.
- 5. The top of the traffic signal mast arm foundation should be at least 6 inches above grade to prevent the anchor bolts from being submerged in water and/or buried, unless it's adjacent to an existing, or proposed sidewalk, then the top of the foundation should be flushed with the sidewalk.

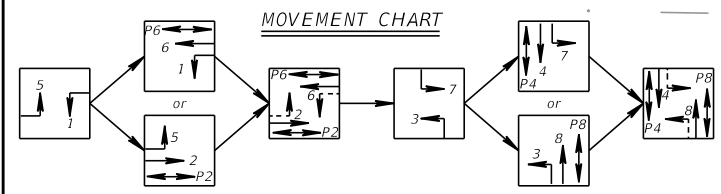
PAY ITEM NOTES

- 1. Pay item number 633-3-15 includes factory terminal fiber optic jumpers as required to provide the connections indicated in the plans.
- 2. Pay item numbers 634-4-600 and 642-2-80, and 670-5-600 includes the removal of the existing signal at SR 46 and Longwood Markham Rd.
- 3. Pay item number 646-1-11 to include the breakaway base and slip footer.
- 4. Pay item number 665-1-11 includes FTP-68b-06.
- 5. Pay item number 700-5-22 shall include a master photocell mounted near the electric service within reach of a lift truck. Photocell shall be installed where streetlights do not affect operation.

REVISIONS				CHRIS J. WALSH, P.E. PE NO. 57626 TRAFFIC ENGINEERING DATA SOLUTIONS, INC. 80 SPRING VISTA DRIVE DEBARY, FLORIDA 32720 386.753.0558 (O) 386.753.0778 (F) CERTIFICATION OF AUTHORIZATION # 27392	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					429	SEMINOLE	240200-2-52-01	GENERAL NOTES T-3



INTERNALLY ILLUMINATED SIGNS SHALL BE DOUBLE SIDED



- NOTES:
- Speed Limits:  
SR 46 EB - 45 MPH  
SR 46 WB - 55 MPH
  - CONTROLLER TIMINGS TO REMAIN UNLESS OTHERWISE SHOWN.
  - ELEVATIONS FOR POLES 'C' AND 'D' FOUNDATIONS INCLUDE THE 6" ABOVE PROPOSED GROUND ELEVATION.
  - SEE SHEET T-5, T-7 AND T-8 FOR FIBER DETAILS

CONTROLLER TIMINGS								
TIMING FUNCTION	1	2	3	4	5	6	7	8
MINIMUM GREEN								
EXTENSION								
MAXIMUM GREEN 1								
MAXIMUM GREEN 2								
YELLOW CLEARANCE	5.5	4.8	4.4	4.0	4.8	5.5	4.0	4.4
ALL RED	3.4	2.0	4.1	2.5	3.5	2.0	3.9	2.1
PEDESTRIAN WALK		7		7		7		7
PED. CLEARANCE		17		36		20		35
RECALL								

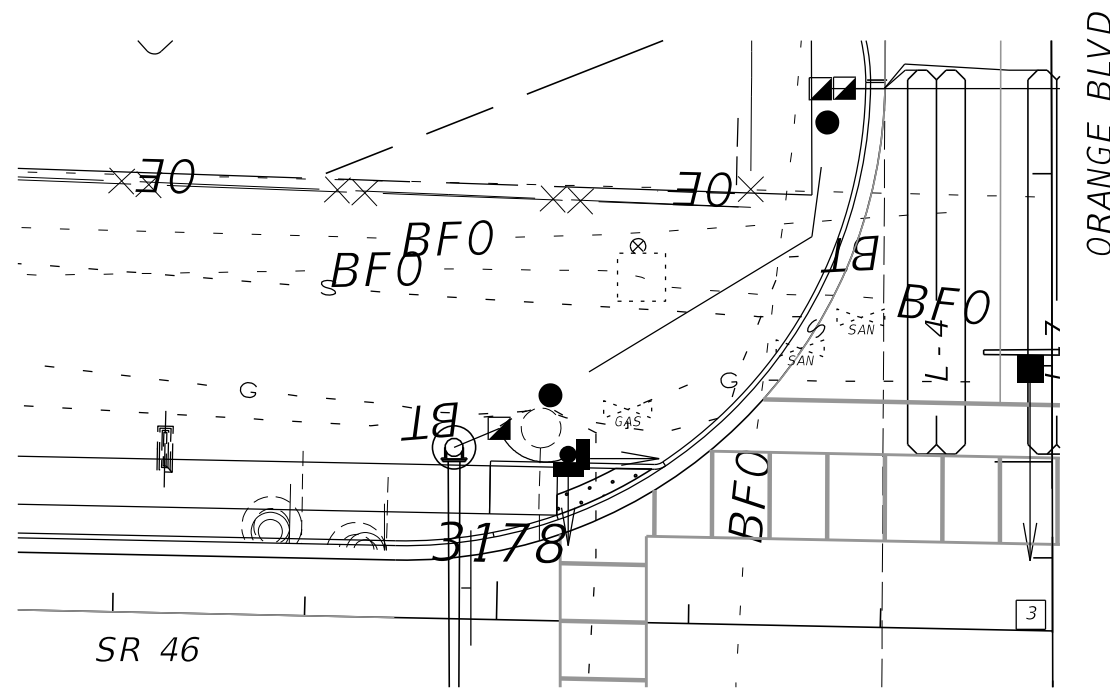
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

CHRIS J. WALSH, P.E. PE NO. 57626  
 TRAFFIC ENGINEERING DATA SOLUTIONS, INC.  
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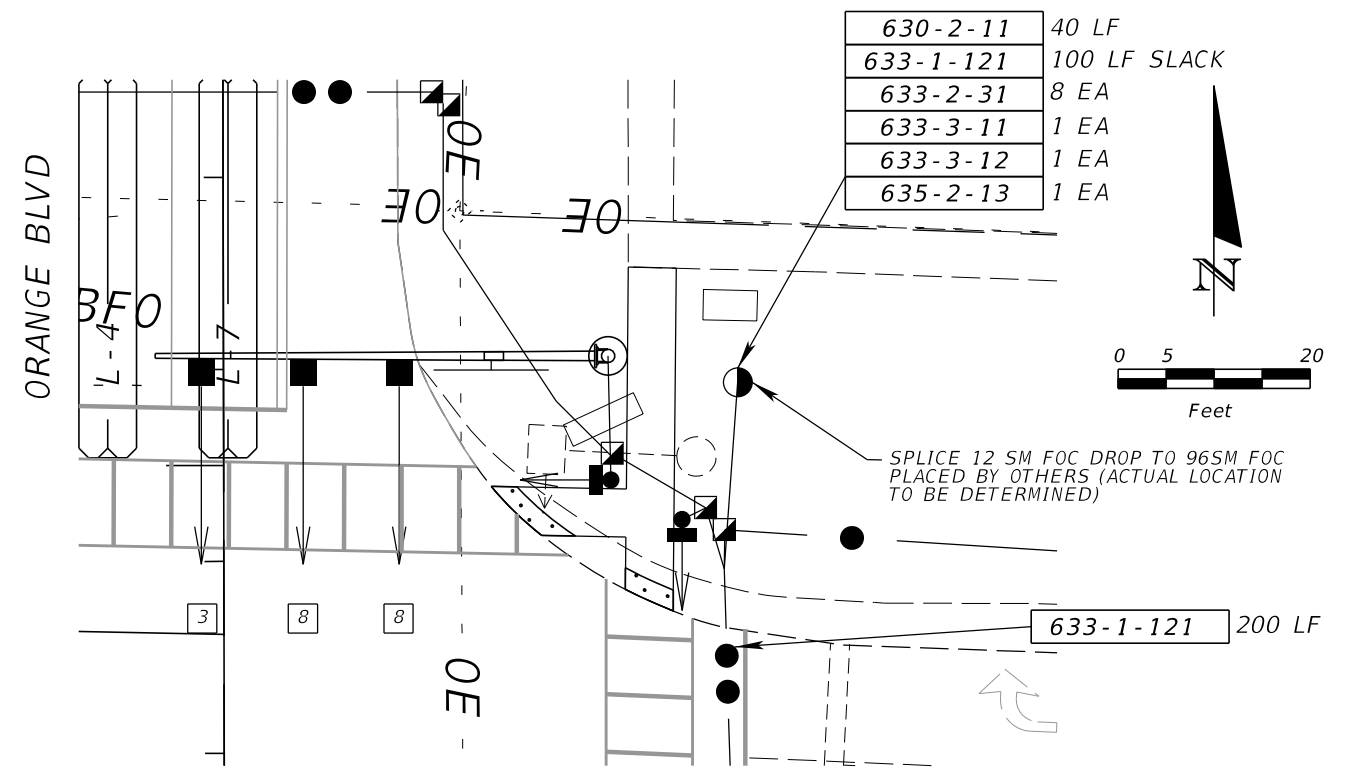
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
429	SEMINOLE	240200-2-52-01

**SIGNALIZATION PLAN**  
**SR 46 AT ORANGE BLVD**

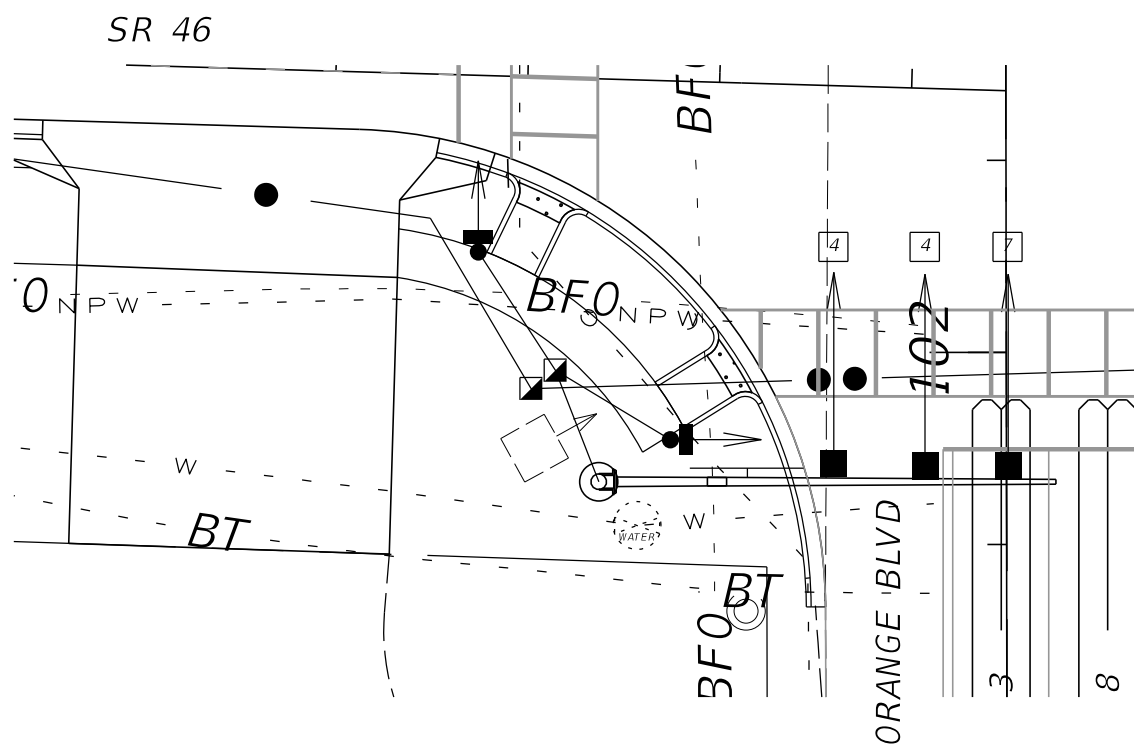
SHEET NO.  
 T-4



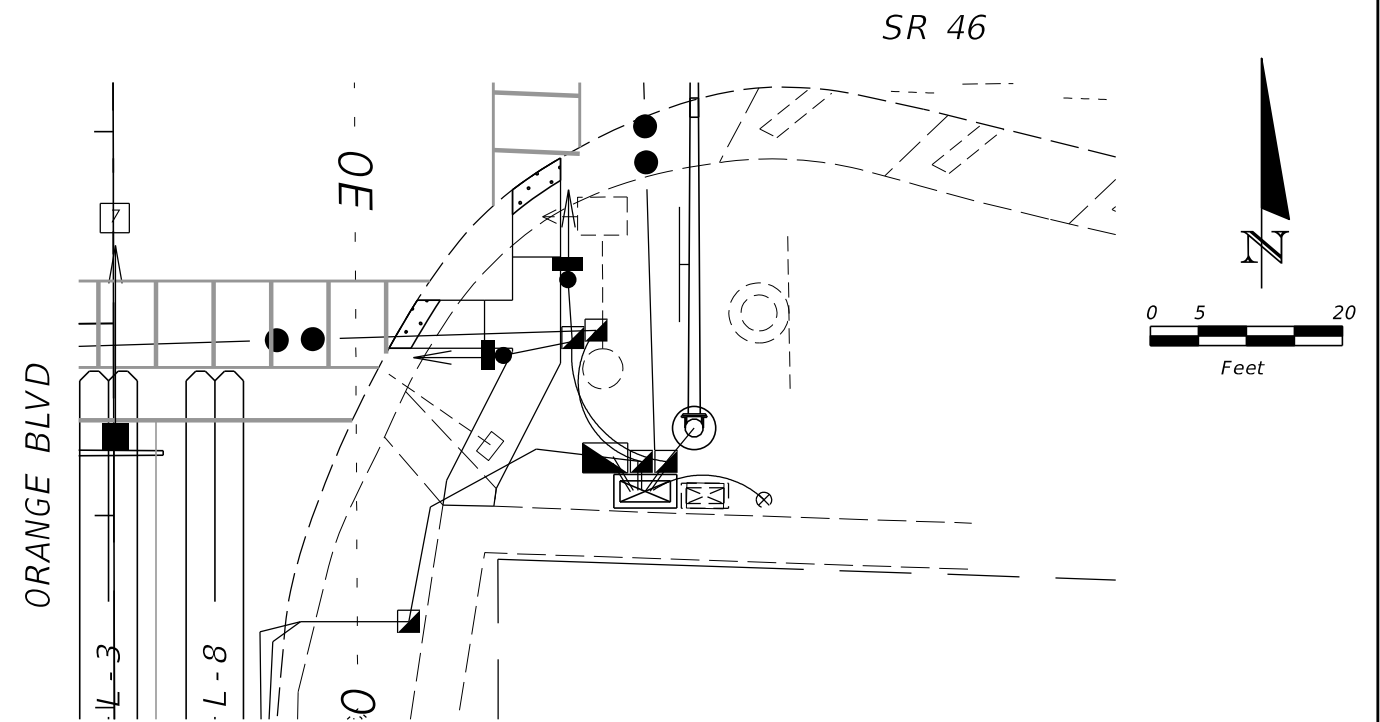
POLE A



POLE B



POLE D



POLE C

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

CHRIS J. WALSH, P.E. PE NO. 57626  
 TRAFFIC ENGINEERING DATA SOLUTIONS, INC.  
 80 SPRING VISTA DRIVE  
 DEBARY, FLORIDA 32720  
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
429	SEMINOLE	240200-2-52-01

**SIGNAL DETAILS**  
**SR 46 & ORANGE BLVD**

SHEET NO.  
 T-5



96 SM FIBER OPTIC CABLE (UNDERGROUND) (BY OTHERS)

96 SM FIBER OPTIC CABLE (UNDERGROUND) (BY OTHERS)

SM BLUE

SM BLUE

SM ORANGE  
SM GREEN  
SM BROWN  
SM SLATE  
SM WHITE  
SM RED  
SM BLACK

SM ORANGE  
SM GREEN  
SM BROWN  
SM SLATE  
SM WHITE  
SM RED  
SM BLACK

SR 46 WEST

SR 46 EAST

PROPOSED FIBER OPTIC SPLICE BOX

SPLICE ENCLOSURE

12 SM FOC

PROPOSED FIBER OPTIC PULL BOX

PROPOSED PATCH PANEL

PROPOSED SM JUMPERS

1 BLUE  
2 ORANGE  
3 GREEN  
4 BROWN  
5 SLATE  
6 WHITE  
7 RED  
8 BLACK  
9 YELLOW  
10 VIOLET  
11 ROSE  
12 AQUA

FIBER R1  
FIBER T1  
FIBER R2  
FIBER T2

RJ 45  
RJ 45  
RJ 45

CAT 5E STP

PROPOSED TRAFFIC CONTROLLER (NEMA TS2-TYPE 2)

PROPOSED MANAGED FIELD ETHERNET SWITCH (LAYER 2)

PROPOSED TRAFFIC CONTROLLER CABINET SR 46 AND ORANGE BLVD

BLUE  
ORANGE  
GREEN  
BROWN  
SLATE  
WHITE  
RED  
BLACK  
YELLOW  
VIOLET  
ROSE  
AQUA

R2  
T2  
(SPARE)

T1  
R1  
(SPARE)

BLUE  
ORANGE  
GREEN  
BROWN  
SLATE  
WHITE  
RED  
BLACK  
YELLOW  
VIOLET  
ROSE  
AQUA

BLUE  
ORANGE  
GREEN  
BROWN  
SLATE  
WHITE  
RED  
BLACK  
YELLOW  
VIOLET  
ROSE  
AQUA

LEGEND

- ⊗ BREAK EXISTING FUSION SPLICE
- FUSION SPLICE (PROPOSED)
- FUSION SPLICE (EXISTING)
- UNTERMINATED FIBER
- SM SINGLE MODE
- MM MULTI MODE
- FIBER
- - - - EXISTING FIBER

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

ALEXANDER TEAL MIMS, P.E. PE No. 77095  
Traffic Engineering Data Solutions, Inc.  
80 Spring Vista Drive Phone: 386.753.0558  
DeBary, FL 32713 Fax: 386.753.0778  
CERTIFICATION OF AUTHORIZATION # 27392

STATE OF FLORIDA  
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
429	SEMINOLE	240200-2-52-01

SPLICING DIAGRAM  
SR 46 & ORANGE BLVD

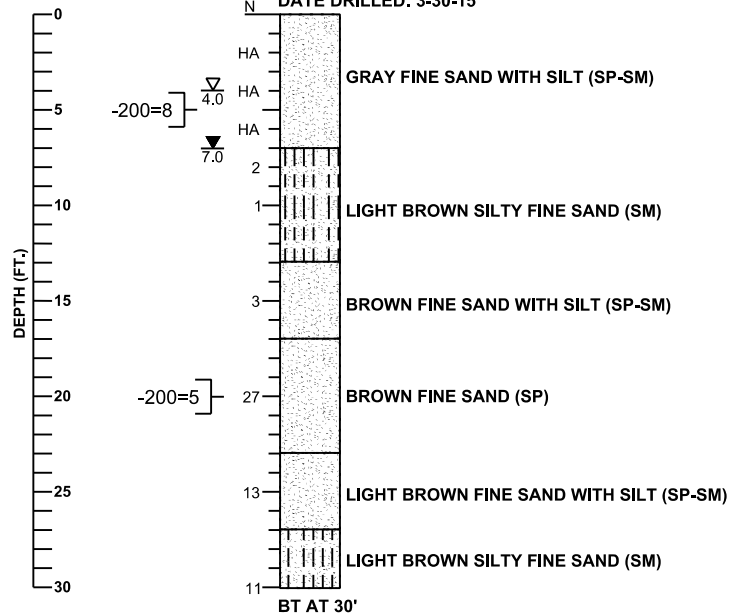
SHEET NO.  
T-7





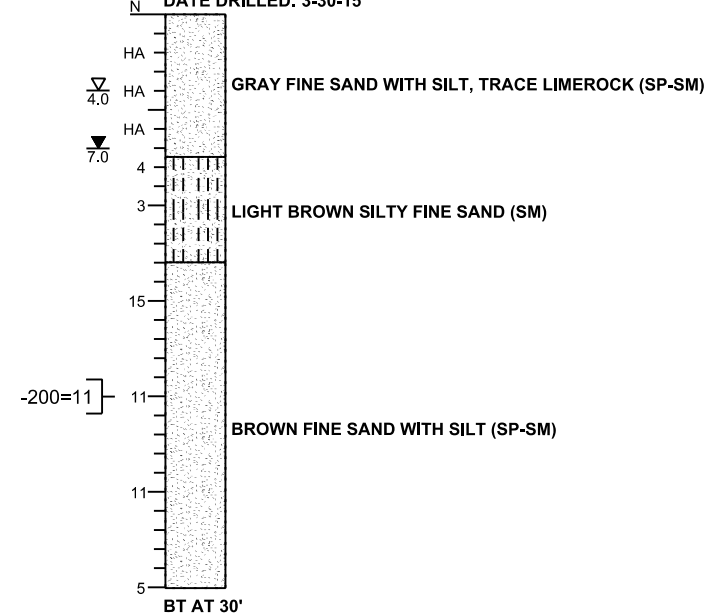
**MASP A (2164+04, 122' LEFT)**

SB-14  
 STA. 103+52, 62' LEFT  
 LAT: N28.81207  
 LONG: W81.36324  
 HAMMER TYPE: AUTOMATIC  
 DATE DRILLED: 3-30-15



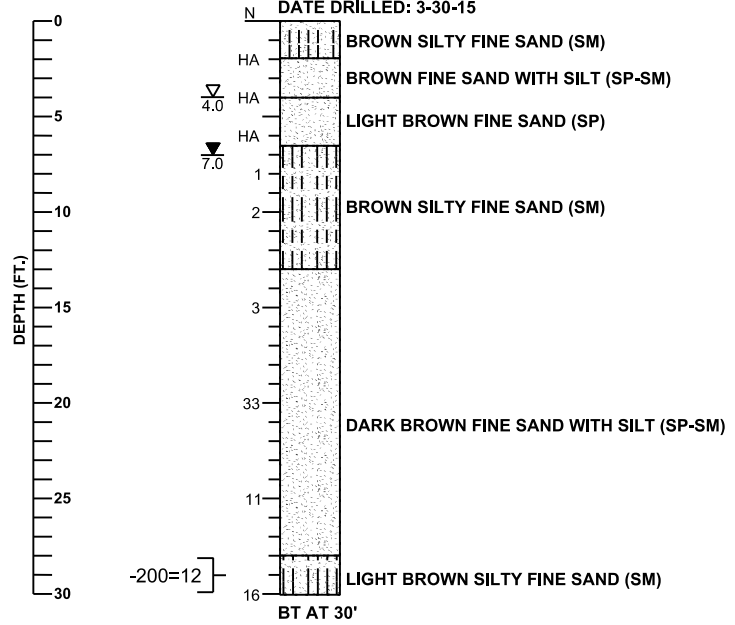
**MASP B (191+27, 86' LEFT)**

SB-15  
 STA. 103+57, 55' RIGHT  
 LAT: N28.81209  
 LONG: W81.36287  
 HAMMER TYPE: AUTOMATIC  
 DATE DRILLED: 3-30-15



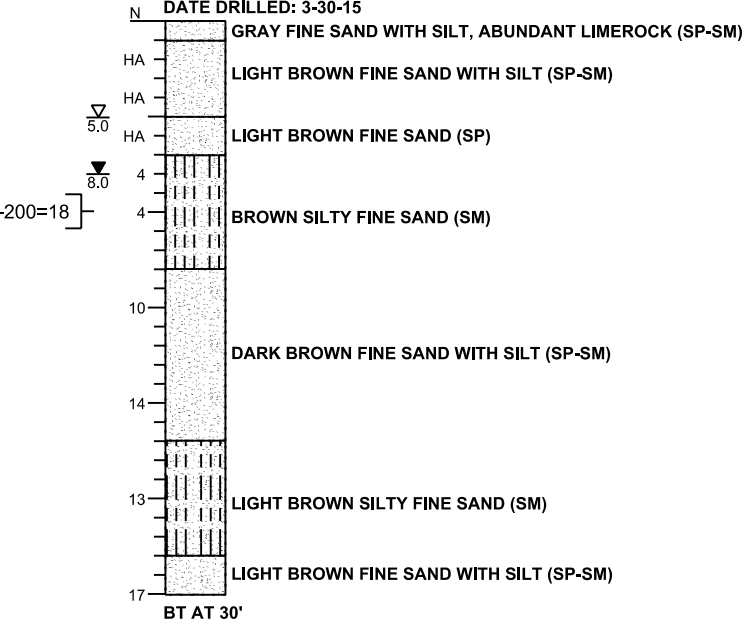
**MASP C (191+53, 86' RIGHT)**

SB-16  
 STA. 101+93, 71' RIGHT  
 LAT: N28.81164  
 LONG: W81.36282  
 HAMMER TYPE: AUTOMATIC  
 DATE DRILLED: 3-30-15



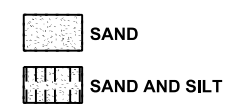
**MASP D (2164+29, 42' RIGHT)**

SB-17  
 STA. 101+76, 42' LEFT  
 LAT: N28.81159  
 LONG: W81.36317  
 HAMMER TYPE: AUTOMATIC  
 DATE DRILLED: 3-30-15



**LEGEND**

- N STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- HA HAND AUGERED FOR UTILITY CLEARANCE
- ▽ 4.0 ESTIMATED SEASONAL HIGH GROUNDWATER DEPTH (FT.)
- ▽ 7.0 ENCOUNTERED GROUNDWATER DEPTH (FT.) ON DATE DRILLED
- BT BORING TERMINATED AT DEPTH INDICATED
- 200= PERCENT PASSING NO. 200 U.S. STANDARD SIEVE



**GENERAL NOTES**

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS REPRESENT THE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN THE BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND THE LABORATORY TESTING SHOWN.

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN IN BLOWS PER FOOT UNLESS OTHERWISE NOTED.

THE BORING LOCATIONS WERE ESTABLISHED IN THE FIELD USING SUB-METER ACCURACY GPS UNIT (TRIMBLE GEO 7X). BORING LOCATIONS REFERENCE THE ORANGE BOULEVARD CENTERLINE.

BASED ON REVIEW OF THE U.S. GEOLOGICAL SURVEY MAP ENTITLED "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER IN ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND VICINITY, FLORIDA, SEPTEMBER 2008" FOR THE PROJECT AREA, THE MAXIMUM ELEVATION OF THE ARTESIAN HEAD IS ESTIMATED TO BE +29 FT. NAVD88. THE CONTRACTOR SHALL BE PREPARED TO HANDLE ARTESIAN HEAD LEVELS UP TO +29 FT. NAVD88.

**SPLIT SPOON SAMPLER:**  
 INSIDE DIAMETER: 1.375 IN.  
 OUTSIDE DIAMETER: 2.0 IN.  
 AVERAGE HAMMER DROP: 30 IN.  
 HAMMER WEIGHT: 140 LBS.  
 HAMMER TYPE: AUTOMATIC

**CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL**

GRANULAR SOILS	AUTOMATIC HAMMER N VALUE (blows per foot)	RELATIVE DENSITY
SANDS	0-3	VERY LOOSE
	3-8	LOOSE
	8-24	MEDIUM DENSE
	24-40	DENSE
	OVER 40	VERY DENSE
NON-GRANULAR SOILS	AUTOMATIC HAMMER N VALUE (blows per foot)	CONSISTENCY
SILTS, CLAYS, MUCK, PEAT	0-1	VERY SOFT
	1-3	SOFT
	3-6	FIRM
	6-12	STIFF
	12-24	VERY STIFF
	OVER 24	HARD

**SB-15 / SB-16**  
 SECTION: 30  
 TOWNSHIP: 19 SOUTH  
 RANGE: 30 EAST

**SB-14 / SB-17**  
 SECTION: 25  
 TOWNSHIP: 19 SOUTH  
 RANGE: 29 EAST

REVISIONS						GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS, INC.			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE:		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	919 Lake Baldwin Lane Orlando, FL 32814 T 407-898-1818 F 407-898-1837 Certificate of Authorization No. 5882 DANIEL C. STANFILL PE NO. 42763			ROAD NO. COUNTY FINANCIAL PROJECT ID			REPORT OF SPT BORINGS		
						429	SEMINOLE	240200-2-52-01	PROJECT NAME:		WEKIVA PARKWAY SECTION 7A		SHEET NO.	
													T-9	