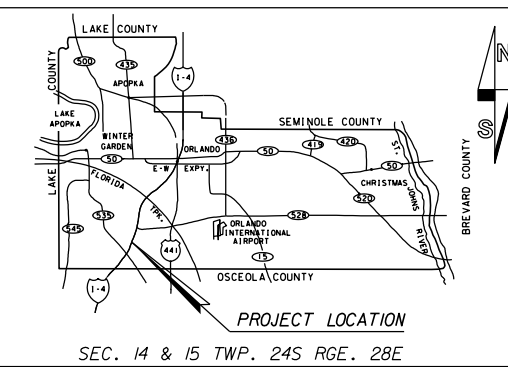


SIGNALIZATION PLANS CONNECTOR ROAD HILTON DRIVEWAY TO APOPKA-VINELAND RD.

PROJECT NO. : 5091
DISTRICT NO: 1
ORANGE COUNTY, FLORIDA



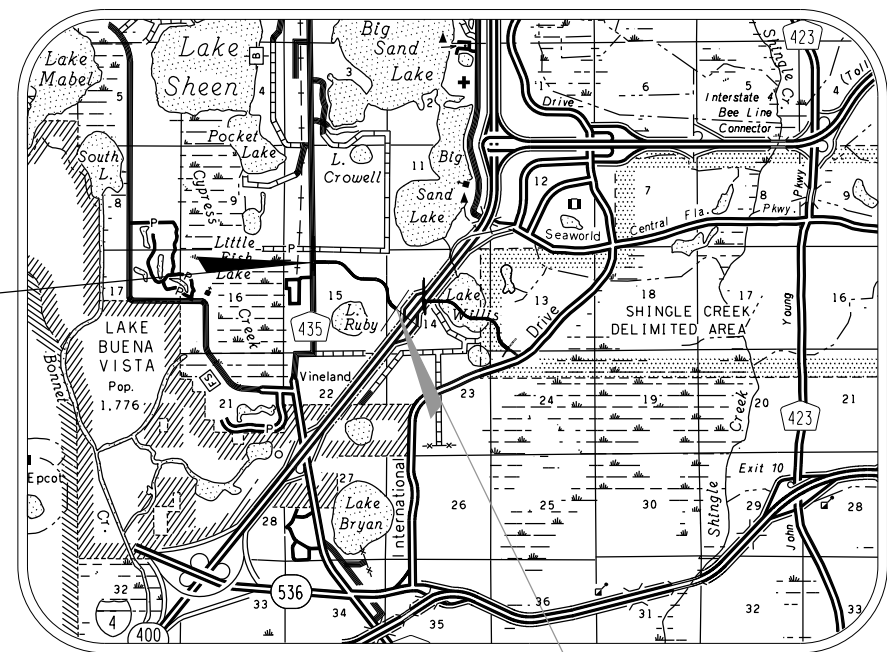
LOCATION MAP

INDEX OF SHEETS

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T-1	KEY SHEET
T-2	TABULATION OF QUANTITIES
T-3	GENERAL NOTES
T-4	SIGNALIZATION PLAN
T-5 TO T-7	COMMUNICATION PLAN
T-8	MAST ARM TABULATION
T-9	TABLE OF VARIABLES FOR STANDARD MAST ARM ASSEMBLIES
T-10	SPECIAL MAST ARM ASSEMBLIES DATA TABLE
T-11	MISCELLANEOUS DETAILS
T-12 TO T-14	SPLICE DETAIL A, B, & C

UTILITIES ENCOUNTERED

SEWER & ORANGE COUNTY UTILITIES	407-254-9865
WATER ORLANDO UTILITIES COMMISSION	407-236-9651
ORANGE COUNTY PUBLIC WORKS	407-836-7804
POWER: DUKE ENERGY (TRANSMISSION)	DEFTRANSMISSIONGOV@DUKE-ENERGY.COM
DUKE ENERGY (DISTRIBUTION)	DEFDISTRIBUTIONGOV@DUKE-ENERGY.COM
GAS: TECO PEOPLES GAS	407-420-2678
FLORIDA GAS TRANSMISSION	407-838-7171
TV: BRIGHT HOUSE NETWORKS	407-532-8511
COMCAST COMMUNICATIONS	407-849-3611
PHONE: SUMMIT BROADBAND	727-235-4362
AT&T FLORIDA	407-351-8180
CENTURY LINK	407-814-5383
SMART CITY TELECOM	407-828-6648
VERIZON BUSINESS	813-740-1231
SUNSHINE STATE ONE CALL OF FLORIDA, INC.	CALL 48 HRS BEFORE YOU DIG 1-800-432-4770



VICINITY MAP
PROJECT LOCATION
CONNECTOR ROAD AND
PALM PARKWAY

FINAL
SUBMITTAL
SEPTEMBER 2018

GOVERNING STANDARDS
AND SPECIFICATIONS :
FLORIDA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS FOR DESIGN, CONSTRUCTION,
MAINTENANCE AND UTILITY OPERATIONS
ON THE STATE HIGHWAY SYSTEM, DATED 2017 AND
STANDARD SPECIFICATIONS FOR ROAD AND
BRIDGE CONSTRUCTION, DATED 2017
AS AMENDED BY CONTRACT DOCUMENTS.

NOTE

PLANS WERE PREPARED ACCORDING TO AVAILABLE INFORMATION TO ADEQUATELY ADDRESS CONDITIONS AS THEY EXISTED AT THE TIME OF PLANS PREPARATION. NEEDS, CONDITIONS AND OWNERSHIP OF PROPERTIES MAY HAVE CHANGED SINCE PROJECT DESIGN. THE COUNTY'S REPRESENTATIVE WILL ADDRESS CHANGES AND NEEDS WITH THE PROPERTY OWNER OR THEIR REPRESENTATIVES. CONTRACTOR SHALL WORK WITH THE COUNTY'S REPRESENTATIVE IN ADDRESSING AND MEETING NEEDS AND CONDITIONS THAT MAY HAVE CHANGED SINCE PLANS PREPARATION.

CERTIFICATION TO PLANS

I HEREBY CERTIFY THAT THE DESIGN FOR THIS PROJECT AND THE ATTACHED CONSTRUCTION PLANS COMPLY WITH THE REQUIREMENTS OF SECTION 336.045 OF THE FLORIDA STATUTES AND ARE IN SUBSTANTIAL CONFORMANCE WITH THE STANDARDS CONTAINED IN THE EDITION OF THE "MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS" IN EFFECT ON THIS DATE AS ADOPTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION PURSUANT TO SUBSECTION 336.045(1) OF THE FLORIDA STATUTES.

DATE: _____ ENGINEER: _____
KENNETH K. SIU, ENGINEER
PROFESSIONAL ENGINEER, 74527
STATE OF FLORIDA

PROJECT LOCATION
APOPKA-VINELAND ROAD
AND CONNECTOR ROAD

JERRY DEMINGS, COUNTY MAYOR

BOARD OF COUNTY
COMMISSIONERS

BETSY VANDERLEY	DISTRICT 1
CHRISTINE MOORE	DISTRICT 2
MAYRA URIBE	DISTRICT 3
MARIBEL GOMEZ CORDERO	DISTRICT 4
EMILY BONILLA	DISTRICT 5
VICTORIA P. SIPLIN	DISTRICT 6
MARK V. MASSARO, P.E.	PUBLIC WORKS DIRECTOR

REVISIONS	DATE	BY

DESIGNED BY: HR	DATE: 11/07/2016
CHECKED BY: FB	DATE: 01/11/2018
APPROVED BY: KS	DATE: 01/18/2018

SHEET T-1
OF 14

TABULATION OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS												TOTAL THIS SHEET	
			T-4		T-5		T-6		T-7						PLAN	FINAL
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL		
630-2-11	CONDUIT, F&I, OPEN TRENCH	LF	145		2,480		2,614		200						5,439	
630-2-12	CONDUIT, F&I, DIRECTIONAL BORE	LF	435		-		-		-						435	
632-7-1	SIGNAL CABLE, FURNISH & INSTALL	PI	1		-		-		-						1	
633-1-121	FIBER OPTIC CABLE, F&I, UNDERGROUND, 2-12 FIBERS	LF	10		-		-		-						10	
633-1-123	FIBER OPTIC CABLE, F&I, UNDERGROUND, 49-96 FIBERS	LF	200		2,580		2,764		400						5,944	
633-2-31	FIBER OPTIC CONNECTION, INSTALL, SPLICE	EA	8		-		72		8						88	
633-3-11	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE ENCLOSURE	EA	1		-		1		1						3	
633-3-12	FIBER OPTIC CONNECTION HARDWARE, F&I, SPLICE TRAY	EA	1		-		1		1						3	
633-3-15	FIBER OPTIC CONNECTION HARDWARE, F&I, PRETERMINATED PATCH PANEL	EA	1		-		-		1						2	
635-2-11	PULL AND SPLICE BOX, F&I, 13" X 24" COVER SIZE	EA	10		-		-		-						10	
635-2-12	PULL AND SPLICE BOX, F&I, 24" X 36" COVER SIZE	EA	-		2		3		-						5	
635-2-13	PULL AND SPLICE BOX, F&I, 30" X 60" RECTANGULAR OR 36" ROUND COVER SIZE	EA	1		-		0		1						2	
639-1-122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	AS	1		-		-		-						1	
639-2-1	ELECTRICAL SERVICE WIRE	LF	300		-		-		-						300	
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II SERVICE POLE	EA	1		-		-		-						1	
646-1-11	ALUMINUM SIGNALS POLE	EA	2		-		-		-						2	
649-21-10	MAST ARM, F&I, WIND SPEED-150, SINGLE ARM 60'	AS	4		-		-		-						4	
650-1-14	TRAFFIC SIGNAL, F&I, 3 SECTION, 1 WAY, ALUMINUM	AS	11		-		-		-						11	
653-1-11	PEDESTRIAN SIGNAL, F&I, LED-COUNT DOWN, 1 DIRECTION	AS	2		-		-		-						2	
653-1-12	PEDESTRIAN SIGNAL, F&I, LED-COUNT DOWN, 2 DIRECTION	AS	3		-		-		-						3	
660-4-11	VEHICLE DETECTION SYSTEM- VIDEO, FURNISH & INSTALL CABINET EQUIPMENT	EA	1		-		-		-						1	
660-4-12	VEHICLE DETECTION SYSTEM- VIDEO, FURNISH & INSTALL ABOVE GROUND EQUIPMENT	EA	1		-		-		-						1	
663-1-111	SIGNAL PREEMPTION, F&I, OPTICAL, CABINET ELECTRONICS	AS	1		-		-		-						1	
663-1-112	SIGNAL PREEMPTION, F&I, OPTICAL, DETECTOR	AS	1		-		-		-						1	
665-1-11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	6		-		-		-						6	
670-5-111	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA, 1 PREEMPTION	AS	1		-		-		-						1	
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA	1		-		-		-						1	
700-5-22	INT. ILLUM. SIGN, F&I, ST NAME (DOUBLE-SIDED)	EA	4		-		-		-						4	
700-3-201	SIGN PANELS, F&I, 12 OR <	EA	1		-		-		-						1	

NOTE:

THE COST OF ALL THE ITEM NUMBERS, DESCRIPTIONS AND QUANTITIES SHOWN IN THE TABULATION OF QUANTITIES TABLE IS INCLUDED IN THE COST OF PAY ITEM 603-1, SIGNALIZATION - INTERSECTION - APOPKA-VINELAND ROAD, LUMP SUM.

633-1-121 THE NUMBER OF FIBER STRANDS SHALL BE 12 UNLESS OTHERWISE NOTED.

633-1-123 THE NUMBER OF FIBER STRANDS SHALL BE 72 UNLESS OTHERWISE NOTED.

650-1-14 ALL TRAFFIC SIGNALS SHALL INCLUDE REFLECTORIZED BACKPLATES.

653-1-IX PEDESTRIAN SIGNAL HEAD ASSEMBLIES SHALL BE L.E.D., COUNT-DOWN TYPE AND USE SOLID INTERNATIONAL SYMBOL DISPLAYS.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Certificate of Authorization No. 696
Kenneth K. Siu, P.E.
P.E. License No. 74527
3660 Maguire Boulevard, Suite 200
Orlando, Florida 32803

ORANGE COUNTY
DEPARTMENT OF PUBLIC WORKS

1) THE SIGNALIZATION PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION'S DESIGN STANDARDS, DATED 2017. GOVERNING SPECIFICATIONS ARE THE STATE OF FLORIDA, 2017 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND SUPPLEMENTS THERETO IF NOTED IN THE SPECIAL PROVISIONS FOR THIS PROJECT.

2) THESE PLANS REFLECT CONDITIONS KNOWN DURING PLAN DEVELOPMENT. IN THE EVENT ACTUAL PHYSICAL CONDITIONS PREVENT THE APPLICATION OR THE PROGRESSION OF ANY WORK SPECIFIED IN THESE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND PRIOR TO ANY FURTHER WORK ACTIVITY.

3) WHENEVER SIGNAL WORK IS BEING PERFORMED AT AN INTERSECTION (INSTALLING CONDUIT IN THE STREET, REMOVING EXISTING SIGNAL EQUIPMENT, INSTALLING NEW SIGNAL EQUIPMENT, INSTALLING LOOPS AND RUNS, AND TURNING ON NEW SIGNALS) WHERE A LANE IS CLOSED AN OFF-DUTY LAW ENFORCEMENT OFFICER SHALL DIRECT TRAFFIC. THE COST OF THE OFF-DUTY LAW ENFORCEMENT OFFICER SHALL BE INCIDENTAL TO THE WORK AND WILL NOT BE PAID SEPARATELY.

4) DURING NON-WORKING HOURS, NO EQUIPMENT, VEHICLES OR MATERIAL SHALL BE PARKED OR STORED WITHIN 30 FEET (9 METERS) OF THE ROADWAY CARRYING TRAFFIC. IF THE ABOVE IS NOT POSSIBLE, A STORAGE AREA WITH PROPER DELINEATION AND ADVANCED WARNING SHALL BE USED WITH THE APPROVAL OF THE ENGINEER.

5) THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY DEPARTMENT AT LEAST 48 HOURS IN ADVANCE OF POLE SETTING OPERATIONS WHERE A CONFLICT WITH OVERHEAD ELECTRICAL CONDUCTORS IS EXPECTED AND IN ALL CASES WHERE JOINT USE POLES ARE TO BE USED.

6) AT THE TIME OF FINAL PROJECT INSPECTION THE CONTRACTOR SHALL FURNISH TO THE INSPECTOR THREE COMPLETE SETS OF AS-BUILT PLANS. ONE SET SHALL BE LEFT IN THE CABINET FOR THE LOCAL MAINTAINING AGENCY, ORANGE COUNTY.

7) THE CONTRACTOR SHALL HAVE AN IMSA LEVEL II CERTIFIED SIGNAL TECHNICIAN ON CALL WITHIN A MAXIMUM OF TWO HOURS RESPONSE TIME.

8) THE CONTRACTOR SHALL NOTIFY ORANGE COUNTY TRAFFIC OPERATIONS (407-836-7890) AT LEAST 24 HOURS IN ADVANCE OF INSTALLING GROUND RODS, UNDERGROUND CONDUIT, MAST ARM FOUNDATIONS OR SETTING POLES SO THAT THESE OPERATIONS MAY BE OBSERVED.

9) IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING OR TRENCHING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE JOB SITE CONDITIONS BEFORE SUBMITTING BID PROPOSALS IN ACCORDANCE WITH SECTION 2-4 OF THE FDOT SPECIFICATIONS.

10) AS DIRECTED BY THE PROJECT ENGINEER, THE CONTRACTOR SHALL ADJUST CONDUIT VERTICALLY TO AVOID ANY POSSIBLE CONFLICTS WITH UNDERGROUND UTILITIES.

11) ALL CONDUITS TO BE INSTALLED UNDER PAVEMENT OR SIDEWALK SHALL BE INSTALLED PRIOR TO THE INSTALLATION OF THE BASE COURSE.

12) ALL CONDUIT SHALL BE SCHEDULE 40, 2 INCH (5 CM) DIA. MINIMUM UNLESS OTHERWISE SPECIFIED IN PLANS, EXCEPT ELECTRICAL POWER SERVICE DUCT.

13) THE CONTRACTOR SHALL INSTALL A CONDUIT STUB WITH CAP A MINIMUM OF 12 INCHES (30 CM) OUTSIDE THE POLE FOOTING COMPLETE WITH SWEEP UP INTO THE POLE, IN EACH CONDUIT ENTRANCE IN THE POLE. THE FOOTING, TOP OF SIDEWALK, SIDE OF POLE, ETC. SHALL BE MARKED WITH AN APPROPRIATE ETCHED "X" IN ORDER THAT IT MAY BE READILY LOCATED FOR FUTURE USE.

14) ALL ENDS OF CONDUITS IN PULL BOXES AND CABINETS SHALL BE SEALED WITH ELECTRICAL PUTTY AFTER WIRING IS COMPLETE.

15) TWO SPARE CABINET CONDUITS SHALL BE STUBBED AND CAPPED IN THE NEAREST PULL BOX.

16) PULL BOXES SHALL BE PLACED BEHIND CURB AND GUTTER. IF THERE IS NO CURB AND GUTTER, THEN PULL BOXES SHALL BE PLACED AT LEAST 7 FEET (2.1 METERS) FROM THE EDGE OF PAVEMENT.

17) UNLESS SPECIFIED OTHERWISE, ALL PULL BOX COVERS TO BE FURNISHED AND INSTALLED SHALL BE NON-METALLIC.

18) UNDER NO CIRCUMSTANCES SHALL ENERGIZED CABLE BE PLACED IN THE SAME CONDUIT OR PULL BOX AS LOOP LEAD-IN CABLE.

19) ALL CABLE SHALL BE PULLED IN THE CONDUIT WITH A CABLE GRIP DESIGNED TO PROVIDE A FIRM HOLD ON THE EXTERIOR COVERING OF THE CABLE. A WINCH WITH A SLIP CLUTCH SHALL BE USED TO INSURE THAT THE ALLOWABLE TENSION UNIT IS NOT EXCEEDED. AN APPROVED LUBRICANT SHALL BE USED TO FACILITATE THE PULLING OF THE CABLE.

20) THE CONTRACTOR SHALL VERIFY COLOR CODES FOR BOTH SIGNAL AND INTERCONNECT CABLE WITH ORANGE COUNTY BEFORE ORDERING. WIRING DIAGRAMS SHALL BE IN ACCORDANCE WITH ORANGE COUNTY SPECIFICATIONS.

21) ALL FIELD WIRING SHALL BE NEATLY BUNDLED AND CLEARLY IDENTIFIED WITH PERMANENT LEGIBLE, WEATHERPROOF TAGS THAT ARE SECURELY ATTACHED TO EACH CABLE. THE TAGGING SYSTEM PROPOSED SHALL BE SUBMITTED FOR APPROVAL WITH THE OTHER EQUIPMENT SUBMITTALS REQUIRED FOR THIS PROJECT.

22) FIBER OPTIC INTERCONNECT CABLE SHALL BE 36 SINGLE MODE FIBERS UNLESS SPECIFIED OTHERWISE. A COPPER TRACE/PULL WIRE SHALL BE INCLUDED WITH FIBER OPTIC CABLE INSTALLED IN UNDERGROUND CONDUIT.

23) THREE SPARE WIRES ARE REQUIRED PER SIGNAL CABLE. SPARES SHALL BE BOUND AND GROUNDED IN CABINET.

24) GROUND MOUNTED CONTROLLER CABINETS SHALL BE TYPE 5 MINIMUM, UNLESS OTHERWISE SPECIFIED IN THE PLANS.

25) THE MOUNTING OR ATTACHMENT OF THE ELECTRICAL SERVICE TO THE TRAFFIC SIGNAL CABINET SHALL BE PROHIBITED.

26) THE CONTROLLER BASE AND SERVICE PAD SHALL BE A MONOLITHIC CONCRETE POUR WITH 4 INCHES (10 CM) MINIMUM / 8 INCHES (20 CM) MAXIMUM ABOVE FINISHED GRADE.

27) THE CABINET DOOR SHALL OPEN AWAY FROM THE INTERSECTION UNLESS SPECIFIED OTHERWISE.

28) THE CONTROLLER ASSEMBLY SHALL BE TS-2 TYPE 1 OR TYPE 2 AND SHALL BE COMPATIBLE WITH ORANGE COUNTY'S SIGNAL SYSTEM.

29) A MANUAL PUSH CORD SHALL BE FURNISHED PER FDOT SPECIFICATION 676-3.3.

30) DURING TRAFFIC SIGNAL FLASHING OPERATION THE RED ARROW INDICATION OF ALL 3-SECTION LEFT TURN HEADS SHALL FLASH. UNLESS SPECIFIED OTHERWISE, FLASHING OPERATION SHALL BE AMBER FOR MOVEMENTS 2 & 6 AND RED FOR MOVEMENTS 4 & 8.

31) NO POLYCARBONATE HOUSING OR MOUNTING HARDWARE WILL BE PERMITTED FOR VEHICULAR OR PEDESTRIAN SIGNAL HEAD ASSEMBLIES. ALL LENSES FOR THESE HEADS SHALL BE LED. ALL SIGNAL HEADS SHALL BE BLACK ALUMINUM. TUNNEL VISORS AND BACKPLATES WITH YELLOW REFLECTORIZED BORDERS SHALL BE USED ON ALL SIGNAL SECTIONS, AND PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE SIGNAL HEADS.

32) ALL SIGNAL ASSEMBLIES SHALL HAVE A VERTICAL CLEARANCE OF 17.5 FEET (5.3 METERS) MINIMUM AND 19 FEET (5.8 METERS) MAXIMUM FROM THE BOTTOM OF THE ASSEMBLY TO THE ROAD.

33) UNLESS SPECIFIED OTHERWISE, CATENARY AND MESSENGER SPAN WIRES SHALL BE 3/8" (0.95 CM) DIAMETER.

34) CIRCULAR DRIP LOOPS (MINIMUM ONE CIRCLE) ARE TO BE PROVIDED AT ALL AERIAL DISCONNECT HANGER, INTERCONNECT JUNCTION BOX, ELECTRICAL SIGN AND POLE JUNCTIONS.

35) THE USE OF "JONES" PLUGS FOR SIGNAL INSTALLATIONS SHALL BE PROHIBITED.

36) ALL SIGNAL INDICATIONS SHALL BE LED. LED SIGNAL PRODUCT INFORMATION SHALL BE SUBMITTED TO ORANGE COUNTY FOR APPROVAL.

37) EXISTING SIGNALIZATION SHALL REMAIN IN PLACE TO THE EXTENT POSSIBLE AND SHALL BE USED FOR THE MAINTENANCE OF TRAFFIC AS REQUIRED. THE MAINTENANCE OF EXISTING SIGNALS, UNTIL REMOVED, SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.

38) ANY EXISTING LOOPS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST. TEMPORARY DETECTION WILL BE REQUIRED WHENEVER REPAIRS CANNOT BE MADE IN A TIMELY FASHION.

39) THE CONTRACTOR SHALL NOTIFY ORANGE COUNTY TRAFFIC OPERATIONS (407-836-7890) AT LEAST 24 HOURS IN ADVANCE OF LOOP CUTTING SO THAT COUNTY PERSONNEL MAY CHALK THE LOOPS AND OBSERVE THEIR INSTALLATION.

40) ALL TYPE F LOOPS SHALL BE 6 FEET (1.8 METERS) WIDE BY 40 FEET (12.2 METERS) LONG AND EXTEND 10 FEET (3 METERS) BEYOND THE STOP BAR UNLESS OTHERWISE NOTED IN THE PLANS.

41) ALL DETECTOR LOOPS OR SYSTEM SENSORS SHALL BE CUT ONTO THE ASPHALTIC CONCRETE STRUCTURAL COURSE WHENEVER POSSIBLE. ALL LOOP LEAD-IN CABLES SHALL BE PLACED IN CONDUIT. LOOP LEAD-IN CABLE SHALL NOT EXIT THE ROADWAY WITHIN THE CORNER RADIUS AT AN INTERSECTION.

42) EACH LOOP SHALL BE TREATED AS AN INDIVIDUAL LOOP WITH SEPARATE LEAD-INS FROM SPLICE POINT TO CABINET TERMINAL.

43) SHIELDED WIRING SHALL BE USED FOR ALL LOOP LEAD-IN CABLE FROM THE LOOP SPLICE POINT TO THE CABINET TERMINAL.

44) THE CONTRACTOR SHALL USE BELDON TYPE 9438 ROADWAY LOOP WIRE, OR EQUIVALENT TYPE XHHW HIGH DENSITY CROSSLINKED POLYETHYLENE INSULATED WIRE RATED 600 VOLTS.

45) SECTION 660-3.2 OF THE FDOT SPECIFICATIONS IS MODIFIED TO REQUIRE THAT ALL SAWCUTS FOR LOOP INSTALLATION SHALL BE CLEARED OF DUST, DIRT AND OTHER DEBRIS WITH A VACUUM CLEANER PRIOR TO THE INSTALLATION OF LOOP WIRE OR LEAD-IN CABLE. ALL SAWCUTS SHALL BE SEALED WITH AN APPROVED FLEXIBLE EPOXY.

46) SECTION 660-3.3 OF THE FDOT SPECIFICATIONS IS MODIFIED TO PROHIBIT THE USE OF TYPE III STEEP ASPHALT OR COAL TAR BASE CEMENT TO SEAL TRAFFIC DETECTOR LOOPS.

47) SECTION 660-6.2 OF THE FDOT SPECIFICATIONS IS MODIFIED TO REQUIRE THE INSULATION RESISTANCE OF EACH LOOP TO MEASURE GREATER THAN 100 MEGA OHMS WHEN USING A 500-VOLT DC INSULATION MEGGER.

48) THE COST OF FURNISHING AND INSTALLING THE FTP-47 & FTP-49 (INTERNATIONAL) SIGNS SHALL BE INCLUDED IN PAY ITEM NO. 2665-II OR 665-II.

49) PUSH BUTTONS SHALL BE CONSTRUCTED WITH MECHANICAL CONTACTS. MICROSWITCHES SHALL NOT BE USED.

50) THE CONTRACTOR SHALL INSTALL AND TEST IN PLACE THE INTERNALLY ILLUMINATED STREET NAME SIGNS. THE SIGNS ARE TO BE BURNED IN FOR 60 DAYS BEFORE FINAL ACCEPTANCE. THE SIGNS SHALL BE BREAKERED SEPARATELY FROM THE SIGNAL CABINET AND SHALL BE CONTROLLED BY ONE MASTER PHOTOCCELL.

51) UNLESS OTHERWISE NOTED, ALL REMOVED EQUIPMENT EXCEPT CONCRETE POLES SHALL BE DELIVERED TO THE MAINTAINING AGENCY. THE MAINTAINING AGENCY IS:
ORANGE COUNTY TRAFFIC OPERATIONS
4200 SOUTH JOHN YOUNG PARKWAY
ORLANDO, FLORIDA 32839-9205
(407) 836-7890

52) IF A FINISH COATING ON THE TRAFFIC SIGNAL MAST ARMS/POLES IS SPECIFIED, IT SHALL BE A TRIGLYCIDYL ISOCYANURATE OR URETHANE POLYESTER POWDER, FEDERAL STANDARD COLOR FS 27038 (SEMI-GLOSS BLACK). THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED BY HEATING. IF A FINISH IS NOT SPECIFIED, THEN THE SURFACES SHALL BE GALVANIZED ONLY.

53) NEW TRAFFIC SIGNALS SHALL INITIALLY OPERATE IN FLASH MODE FOR AT LEAST 7 CONSECUTIVE DAYS PRIOR TO NORMAL OPERATION.

54) ALL INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL BE DOUBLE FACED UNLESS STATED OTHERWISE IN THE PLANS, AND SHALL BE ILLUMINATED WITH WHITE LEDS.

55) THE SUPPORT ARM AND BRACKET FOR INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL BE DESIGNED TO SUPPORT A SIGN WEIGHING 75 LBS.

56) THE CONTRACTOR SHALL NOTIFY ORANGE COUNTY TRAFFIC ENGINEERING AT 407-836-7890 THAT A SIGNAL IS READY FOR INITIAL INSPECTION. TRAFFIC ENGINEERING WILL COMPLETE INITIAL INSPECTION WITHIN 7 DAYS OF NOTIFICATION AND ALLOW THE SIGNAL TO BE TURNED ON FLASHING MODE IF DETERMINED TO BE READY FOR FULL OPERATION. TRAFFIC ENGINEERING WILL ALLOW THE SIGNAL TO BE TURNED ON TO FULL OPERATION WHEN AUTHORIZED BY THE ENGINEER.


57) CONTRACTOR TO COORDINATE WITH DUKE ENERGY CUSTOMER SERVICE BY CALLING 1-866-372-4663 FOR ELECTRICAL SERVICE CONNECTION FOR THE SIGNALS. CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL FEES ASSOCIATED WITH OBTAINING ELECTRICAL POWER SERVICE, INCLUDING CONTRIBUTIONS IN AID OF CONSTRUCTION FEES AND INITIAL SERVICE CHARGES.

PAY ITEM FOOTNOTES:

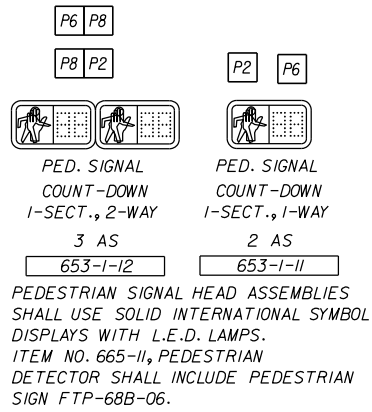
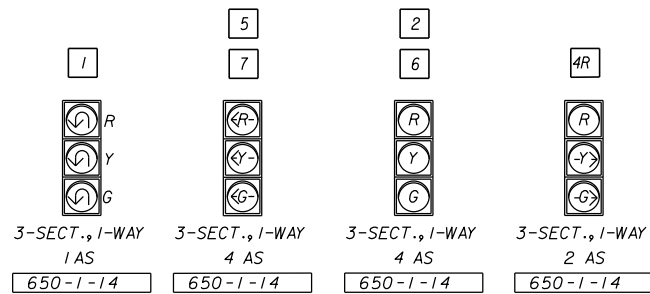
633-1-121: THE NUMBER OF FIBER STRANDS SHALL BE 12 UNLESS OTHERWISE NOTED.

633-1-123: THE NUMBER OF FIBER STRANDS SHALL BE 72 UNLESS OTHERWISE NOTED.

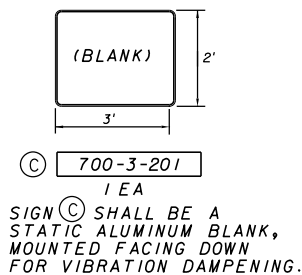
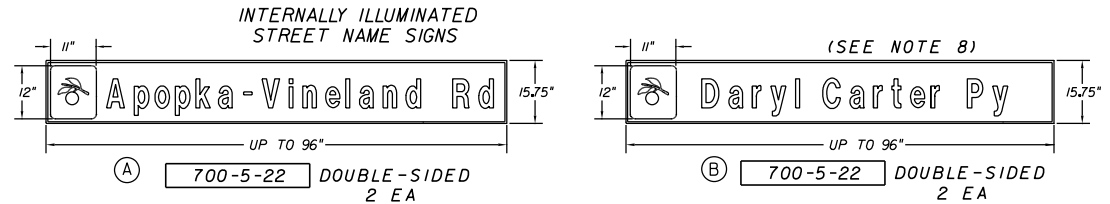
650-1-14: ALL TRAFFIC SIGNALS SHALL INCLUDE REFLECTORIZED BACKPLATES.

REVISIONS						 Certificate Of Authorization No. 696 Kenneth K. Siu, P.E. P.E. License No. 74527 3660 Maguire Boulevard, Suite 200 Orlando, Florida 32803	 ORANGE COUNTY DEPARTMENT OF PUBLIC WORKS	GENERAL NOTES	SHEET NO. T-3
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION				

SIGNAL DISPLAY DETAILS
ALL INDICATIONS SHALL BE L.E.D.

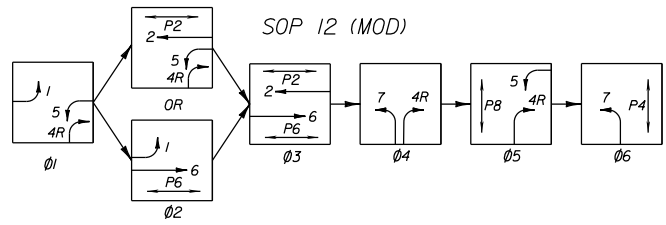
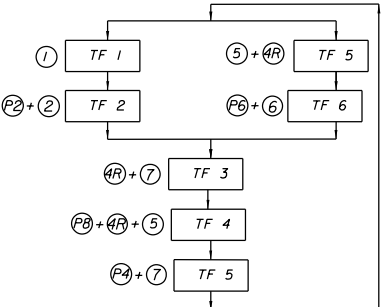


CAMERA	DETECT ZONE	SIZE	DETECTOR OPERATION	TIMING FUNCTION	DELAY (SEC)
1	5A, 5B	6' X 40'	NORMAL	5	-
1	2A, 2B	6' X 6'	NORMAL	2	-
1	2C, 2D	6' X 6'	NORMAL	2	-
2	7A, 7B	6' X 40'	NORMAL	3	-
2	4RA, 4RB	6' X 40'	NORMAL	3	-
3	1	6' X 40'	NORMAL	1	-
3	6A, 6B	6' X 6'	NORMAL	6	-
3	6C, 6D	6' X 6'	NORMAL	6	-

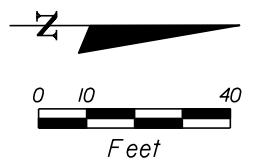
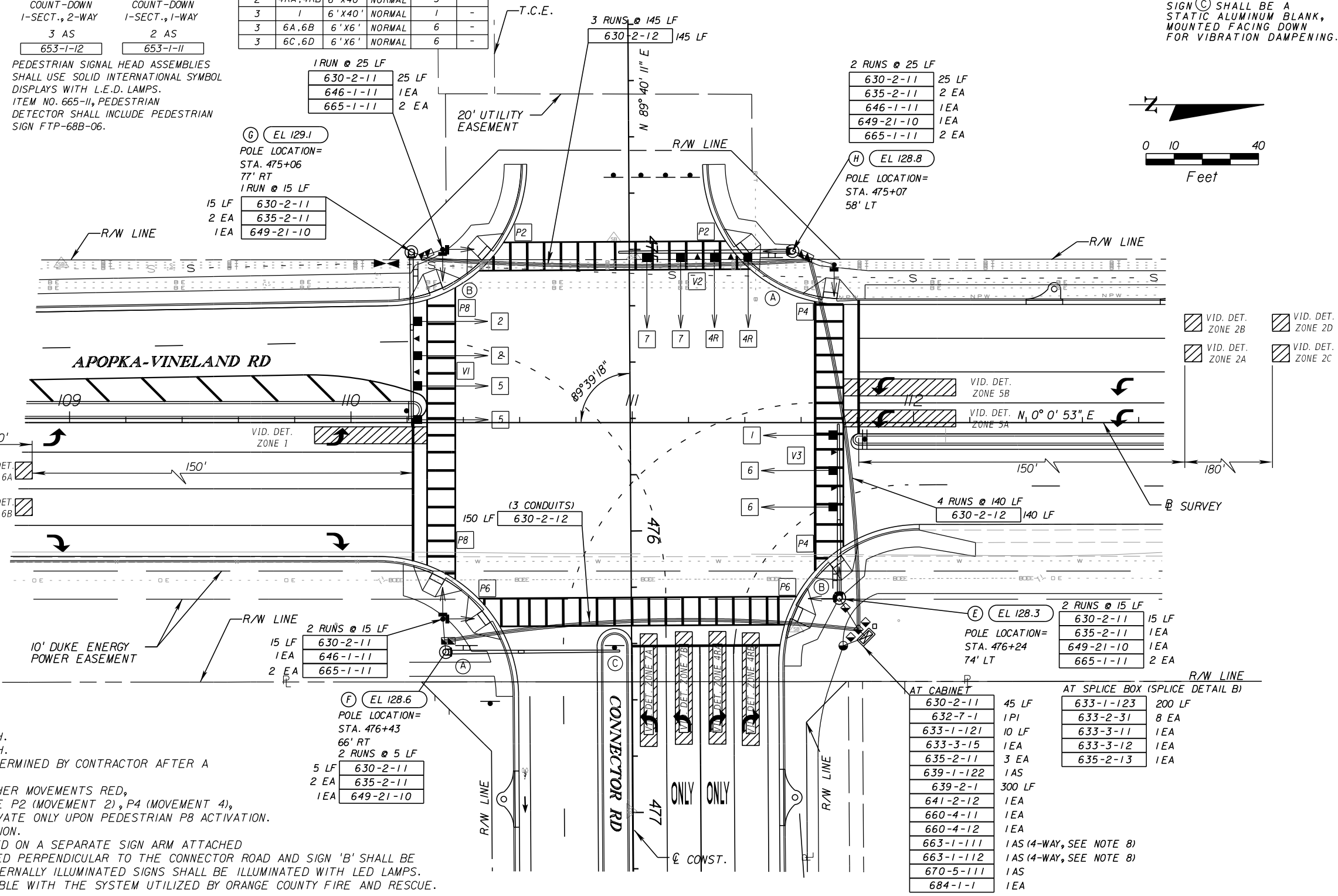


TIMING FUNCTION	1	2	3	4	5	6	8
MOVEMENT NUMBER	1	2	4R, 7	4R, 5, 4R	6	7, P4	
MINIMUM GREEN	5	20	10	5	5	20	5
EXTENSION	3	3	3	3	3	3	3
MAXIMUM GREEN 1	10	60	32	32	30	38	32
MAXIMUM GREEN 2	10	75	17	32	16	67	32
YELLOW CLEARANCE	4.8	4.8	4.4	4.8	4.8	4.8	4.8
ALL RED	2.3	2.4	3.2	2.4	2.4	2.4	2.4
PEDESTRIAN WALK	-	7	-	7	-	7	7
PED. CLEARANCE	-	21	-	24	-	26	24
RECALL	-	MIN	-	-	-	MIN	-

MAX. GREEN 2 SHALL OPERATE 4:00-7:00 P.M. WEEKDAYS.
MAX. GREEN 1 SHALL OPERATE AT ALL OTHER TIMES.



- NOTES :**
- MAJOR STREET IS APOPKA-VINELAND ROAD, POSTED 45 MPH. MINOR STREET IS DARYL CARTER PARKWAY, POSTED 40 MPH.
 - POWER SERVICE POINT IS PRELIMINARY AND SHALL BE DETERMINED BY CONTRACTOR AFTER A SITE VISIT WITH A POWER SERVICE REPRESENTATIVE.
 - FLASHING OPERATION: MOVEMENTS 2 AND 6 YELLOW. ALL OTHER MOVEMENTS RED.
 - S.O.P. 12 (MODIFIED) WITH CONCURRENT PEDESTRIAN PHASE P2 (MOVEMENT 2), P4 (MOVEMENT 4), P6 (MOVEMENT 6), AND P8 (MOVEMENT 8). TF4 SHALL ACTIVATE ONLY UPON PEDESTRIAN P8 ACTIVATION. TF5 SHALL ACTIVATE ONLY UPON PEDESTRIAN P4 ACTIVATION.
 - INTERNALLY ILLUMINATED STREET SIGNS SHALL BE MOUNTED ON A SEPARATE SIGN ARM ATTACHED TO THE MAST ARM UPRIGHTS. SIGN 'A' SHALL BE MOUNTED PERPENDICULAR TO THE CONNECTOR ROAD AND SIGN 'B' SHALL BE MOUNTED PERPENDICULAR TO APOPKA-VINELAND ROAD. INTERNALLY ILLUMINATED SIGNS SHALL BE ILLUMINATED WITH LED LAMPS.
 - THE 4-WAY OPTICOM SYSTEM PROVIDED SHALL BE COMPATIBLE WITH THE SYSTEM UTILIZED BY ORANGE COUNTY FIRE AND RESCUE.
 - REFER TO SHEET S-5 FOR SIGNING AND MARKING DETAILS.
 - CONTRACTOR TO COORDINATE WITH DUKE ENERGY CUSTOMER SERVICE BY CALLING 1-866-372-4663 FOR ELECTRICAL SERVICE CONNECTIONS FOR THE SIGNALS. CONTRACTOR SHALL BE RESPONSIBLE FOR PAYING ALL FEES ASSOCIATED WITH OBTAINING ELECTRICAL POWER SERVICE, INCLUDING CONTRIBUTIONS IN AID OF CONSTRUCTION FEES AND INITIAL SERVICE CHARGES.

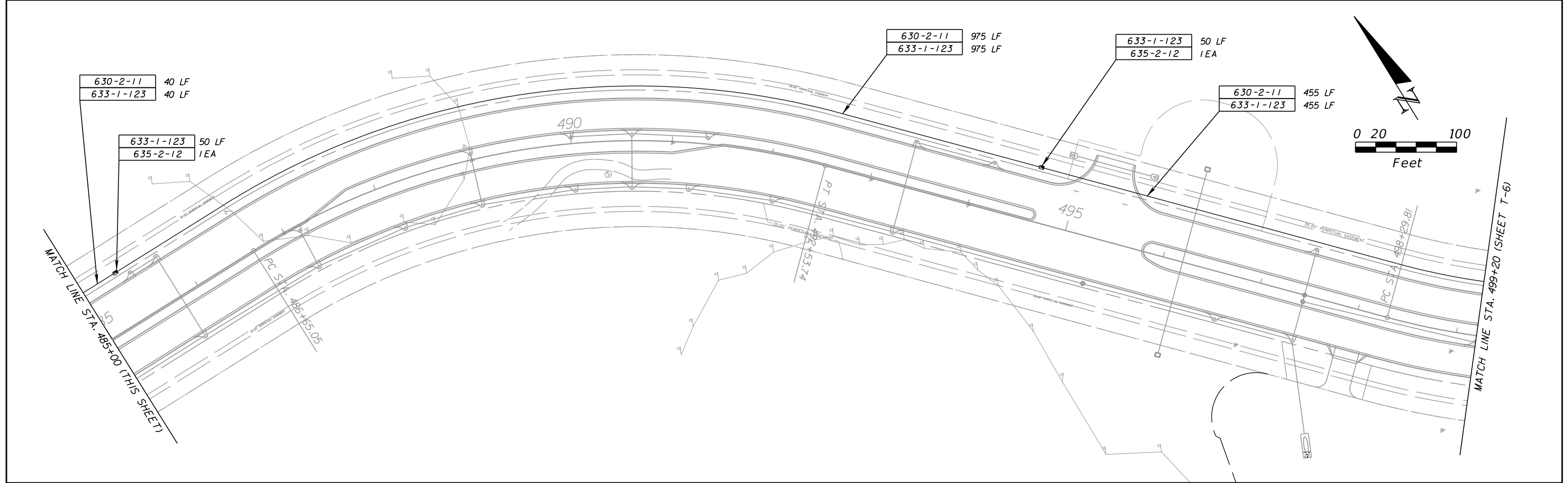
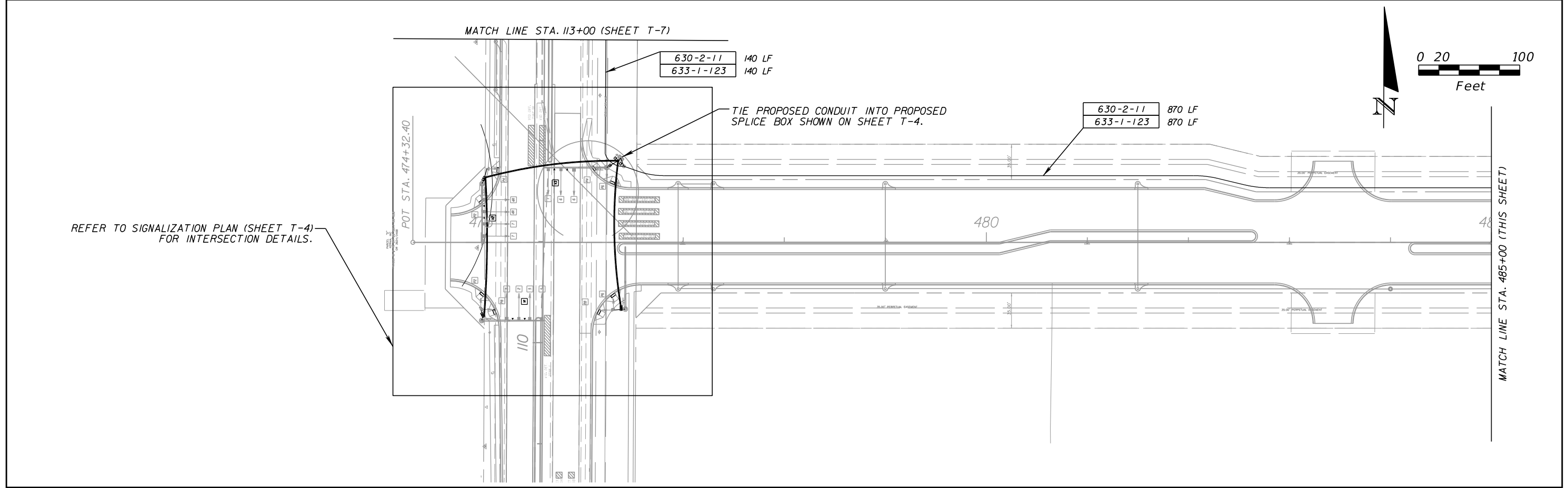


DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Kimley Horn
Certificate of Authorization No. 696
Kenneth K. Siu, P.E.
P.E. License No. 74527
3660 Maguire Boulevard, Suite 200
Orlando, Florida 32803

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ORANGE COUNTY
DEPARTMENT OF PUBLIC WORKS

SIGNALIZATION PLAN
SHEET NO. T-4



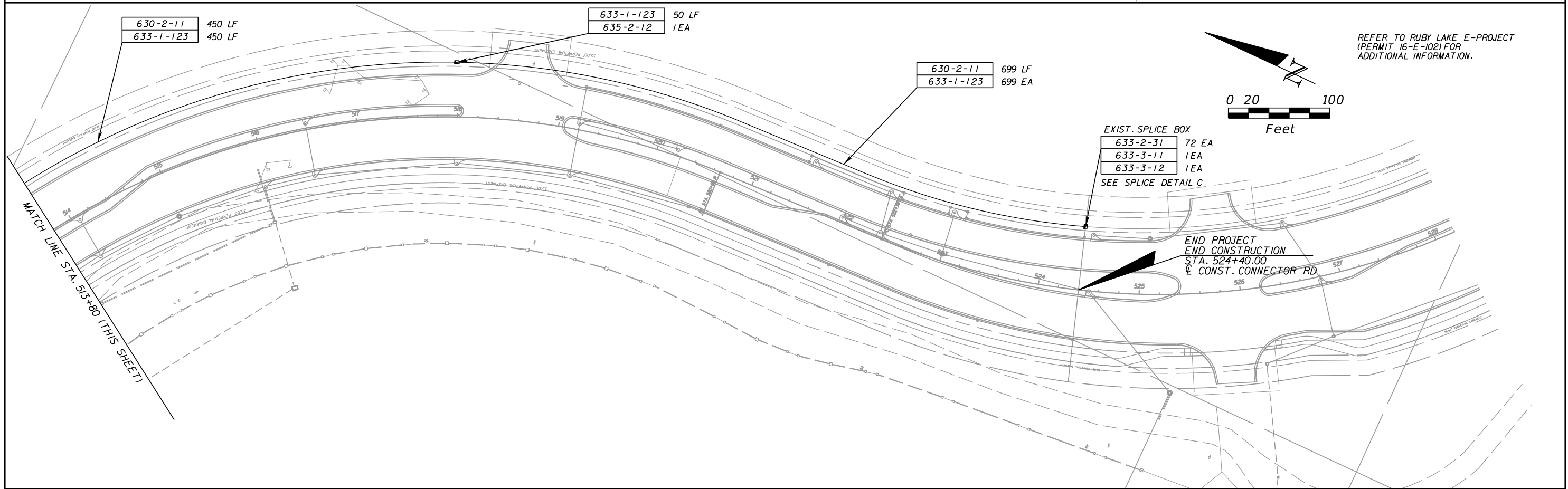
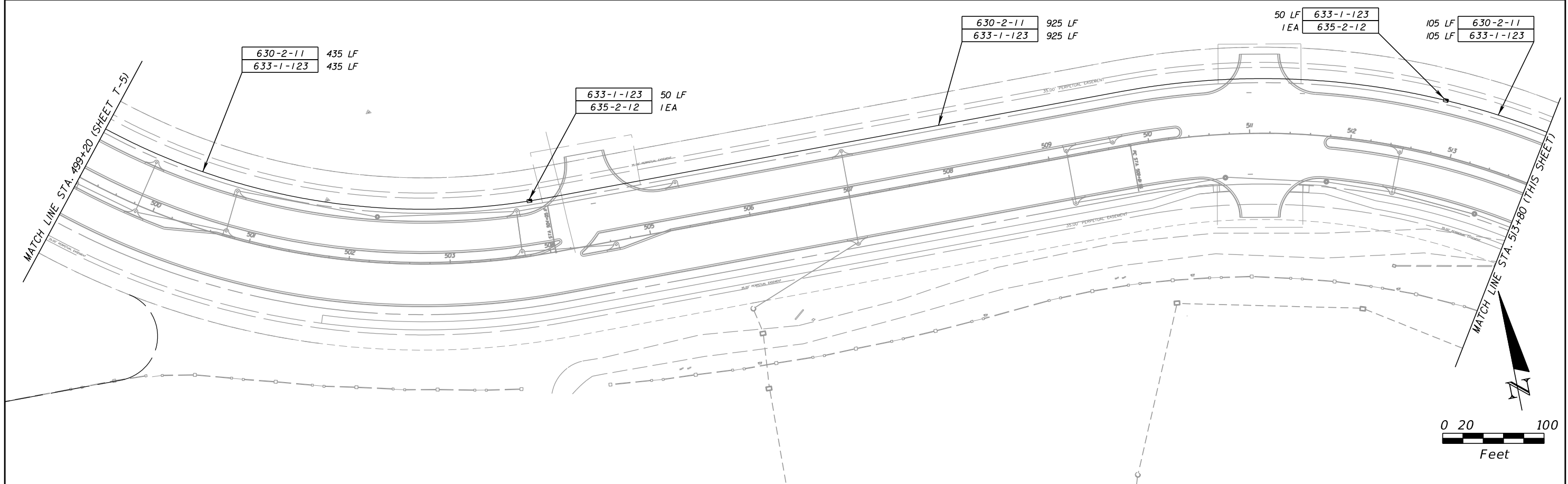
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kimley»Horn
 Certificate Of Authorization No. 696
 Kenneth K. Siu, P.E.
 P.E. License No. 74527
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

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 ORANGE COUNTY
 DEPARTMENT OF PUBLIC WORKS

COMMUNICATION PLAN

SHEET NO.
 T-5



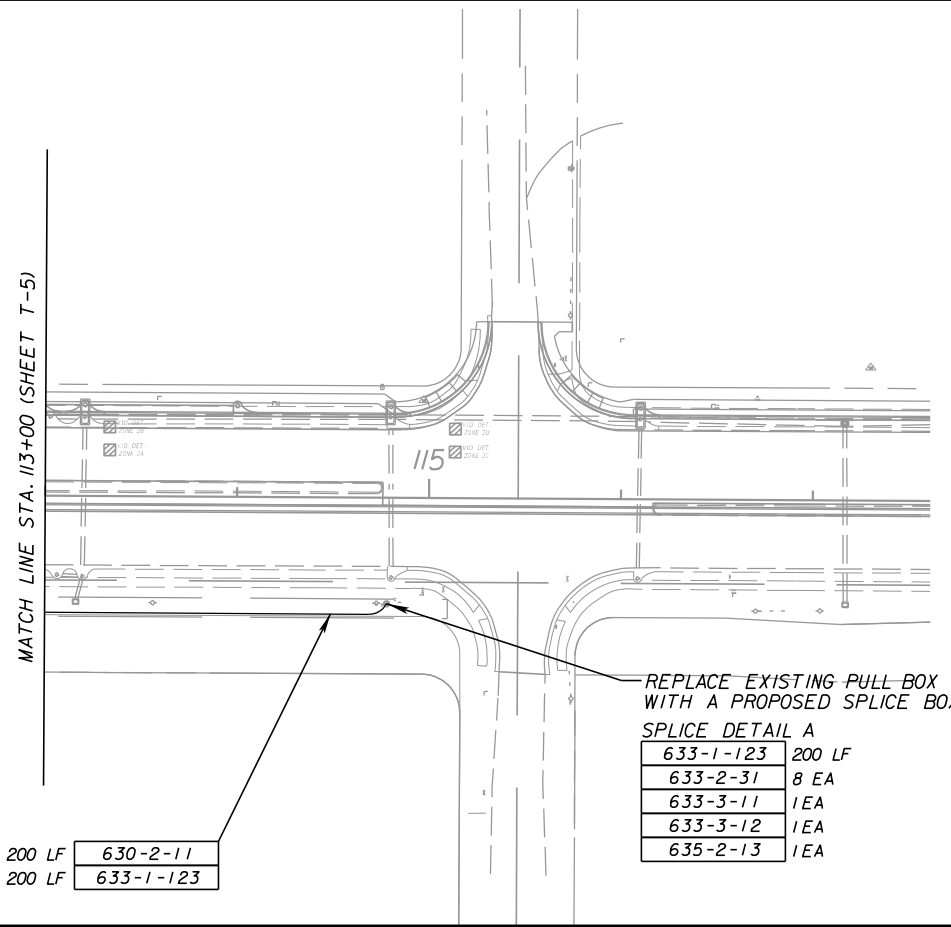
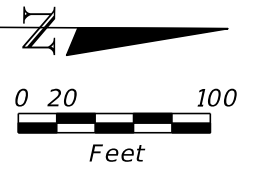
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Kimley»Horn
 Certificate Of Authorization No. 696
 Kenneth K. Siu, P.E.
 P.E. License No. 74527
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

ORANGE COUNTY GOVERNMENT
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COMMUNICATION PLAN

SHEET NO.
 T-6



200 LF	630-2-11
200 LF	633-1-123

REPLACE EXISTING PULL BOX WITH A PROPOSED SPLICE BOX.
SPLICE DETAIL A

633-1-123	200 LF
633-2-31	8 EA
633-3-11	1 EA
633-3-12	1 EA
635-2-13	1 EA

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Kimley»Horn
 Certificate of Authorization No. 696
 Kenneth K. Siu, P.E.
 P.E. License No. 74527
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

ORANGE COUNTY GOVERNMENT
 ORANGE COUNTY
 DEPARTMENT OF PUBLIC WORKS

COMMUNICATION PLAN

SHEET NO.
 T-7

STANDARD MAST ARM ASSEMBLIES DATA TABLE										Table Date 11-01-16	
STRUCTURE ID NUMBERS	DESIGNATION	FIRST ARM		SECOND ARM		UF (deg)	LL (deg)	POLE			DRILLED SHAFT ID
		ARM ID	FAA (ft.)	ARM ID	SAA (ft.)			POLE ID	UAA (ft.)	UB (ft.)	
E	A60/S-P4/S	A60/S	-	-	-	-	-	P4/S	24	21	*
F	A60/S-P4/S	A60/S	-	-	-	-	-	P4/S	24	21	*
G	A60/S-P4/S	A60/S	-	-	-	-	-	P4/S	23.5	20.5	*
H	A60/S-P4/S	A60/S	-	-	-	-	-	P4/S	24	21	*

* REFER TO SPECIAL MAST ARM ASSEMBLIES DATA TABLE, SHEET T-10 FOR SPECIAL DRILLED SHAFT INFORMATION

TABLE NOTES:

- IF AN ENTRY APPEARS IN COLUMNS "FAA", A SHORTER ARM IS REQUIRED. THIS IS OBTAINED BY REMOVING LENGTH FROM THE ARM TIP AND THE ARM LENGTH SHORTENED FROM "FA" TO "FAA". "SAA" SIMILAR.
- IF AN ENTRY APPEARS IN COLUMNS "UAA", A SHORTER POLE IS REQUIRED. THIS IS OBTAINED BY REMOVING LENGTH FROM THE POLE TIP AND THE POLE HEIGHT SHORTENED FROM "UA" TO "UAA".

GENERAL NOTES:

- WORK THIS SHEET WITH THE SIGNAL DESIGNER'S "MAST ARM TABULATION". SEE "MAST ARM TABULATION" FOR SPECIAL INSTRUCTIONS THAT INCLUDE NON-STANDARD HANDHOLE LOCATION, PAINT COLOR, TERMINAL COMPARTMENT REQUIREMENT, AND PEDESTRIAN FEATURES.
- WORK WITH FDOT 2018-19 DESIGN STANDARDS INDEX 649-030 AND 649-031.
- CONTRACTOR MUST VERIFY THAT SOIL CONDITIONS MEET THE MINIMUM SPECIFICATIONS LISTED ON THIS SHEET (FOUNDATION NOTE 2). IF THE SOIL CONDITIONS ARE LOWER THAN THOSE SHOWN, A SPECIAL FOUNDATION MAY BE REQUIRED.
- NATURAL SLURRY SHALL NOT BE RELIED UPON TO PREVENT CAVING OF SOILS AND MAINTAINING AN OPEN HOLE. ANTICIPATE THE USE OF SURFACE CASING AND/OR DRILLING MUD. OTHERWISE, DRILLED SHAFTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 455.
- THE USE OF SPECIAL UNDERWATER CONCRETE PLACEMENT TECHNIQUES MAY BE REQUIRED. SEE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL NOTE THAT THE TOP OF DRILLED SHAFT ELEVATION IS APPROXIMATELY 1 FOOT ABOVE PROPOSED GRADE WHERE THE SHAFT IS NOT ADJACENT TO THE SIDEWALK.
- DESIGN WIND SPEED = 150MPH - ORANGE COUNTY
- CONTRACTOR SHALL INSTAL VERMIN SCREEN AS PER FDOT SPECIFICATION 649.
- STRUCTURE ID NUMBERS "A" AND "B" ARE EXISTING MAST ARMS TO REMAIN.

FOUNDATION NOTES:

- GEOTECHNICAL INFORMATION PROVIDED BY ARDAMAN & ASSOCIATES DATED APRIL 14, 2008. FILE NO. 06-6546.
- THE FOUNDATIONS FOR STANDARD MAST ARM ASSEMBLIES ARE PRE-DESIGNED AND ARE BASED UPON THE FOLLOWING CONSERVATIVE SOIL CRITERIA WHICH COVERS THE GREAT MAJORITY OF SOIL TYPES FOUND IN FLORIDA. ONLY COMPLETE THE "SPECIAL DRILLED SHAFT" DATA INFORMATION IF SITE CONDITIONS DICTATE DRILLED SHAFTS WITH ADDITIONAL FOUNDATION CAPACITY.

CLASSIFICATION= COHESIONLESS (FINE SAND)
 FRICTION ANGLE= 30 DEGREES (30°)
 UNIT WEIGHT= 50 LBS. / CU. FT. (ASSUMED SATURATED)
 N-SPT # = 8.5

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

Kimley»Horn
 CERTIFICATE OF AUTHORIZATION NO. 696
 JOSEPH A. ROBERTS JR., P.E.
 P.E. LICENSE NO. 78547
 189 S. ORANGE AVE, SUITE 1000
 ORLANDO, FLORIDA 32801

ORANGE COUNTY GOVERNMENT
 ORANGE COUNTY
 DEPARTMENT OF PUBLIC WORKS

TABLE OF VARIABLES FOR
 STANDARD MAST ARM ASSEMBLIES

SHEET NO.
 T-9

SPECIAL MAST ARM ASSEMBLIES DATA TABLE																								
NUMBER OF LOCATIONS	STRUCTURE NUMBER	FIRST ARM				FIRST ARM EXTENSION				SECOND ARM				SECOND ARM EXTENSION				POLE						
		FA(ft)	FB(in)	FC(in)	FD(in)	FE(ft)	FF(in)	FG(in)	FH(in)	SA(ft)	SB(in)	SC(in)	SD(in)	SE(ft)	SF(in)	SG(in)	SH(in)	UA(ft)	UB(ft)	UC(in)	UD(in)	UE(in)	UF(deg)	UG(ft)
1	E	-	-	-	-	-	-	-	-									-	-	-	-	-	-	-
1	F	-	-	-	-	-	-	-	-									-	-	-	-	-	-	-
1	G	-	-	-	-	-	-	-	-									-	-	-	-	-	-	-
1	H	-	-	-	-	-	-	-	-									-	-	-	-	-	-	-

SPECIAL MAST ARM ASSEMBLIES DATA TABLE (CONT.)																						
STRUCTURE NUMBER	FIRST ARM CONNECTION (in) First Arm Camber Angle = 2 Degrees											SECOND ARM CONNECTION (in) Second Arm Camber Angle = 2 Degrees										
	#Bolts	HT	FJ	FK	FL	FN	FO	FP	FR	FS	FT	#Bolts	HT	SJ	SK	SL	SN	SO	SP	SR	SS	ST
E	-	-	-	-	-	-	-	-	-	-	-											
F	-	-	-	-	-	-	-	-	-	-	-											
G	-	-	-	-	-	-	-	-	-	-	-											
H	-	-	-	-	-	-	-	-	-	-	-											

SPECIAL MAST ARM ASSEMBLIES DATA TABLE (CONT.)																						
STRUCTURE NUMBER	POLE BASE CONNECTION (in)					SHAFT AND REINF.						LUMINAIRE AND LUMINAIRE CONNECTION										
	#Bolts	BA	BB	BC	BF	DA(ft)	DB(ft)	RA	RB	RC	RD(in)	LA(ft)	LB(ft)	LC(in)	LD(in)	LE	LF(ft)	LG(in)	LH(in)	LI(in)	LK(in)	LL(deg)
E	-	-	-	-	-	16	4.5	11	15	8	12	-	-	-	-	-	-	-	-	-	-	-
F	-	-	-	-	-	17	4.5	11	15	8	12	-	-	-	-	-	-	-	-	-	-	-
G	-	-	-	-	-	18	4.5	11	15	8	12	-	-	-	-	-	-	-	-	-	-	-
H	-	-	-	-	-	17	4.5	11	15	8	12	-	-	-	-	-	-	-	-	-	-	-

NOTES:
 1. WORK WITH INDEX 649-031.
 2. DESIGN WIND SPEED = 150 MPH

FOUNDATION NOTES:
 1. SEE SHEET T-9.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

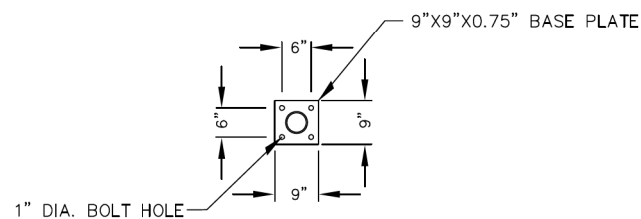
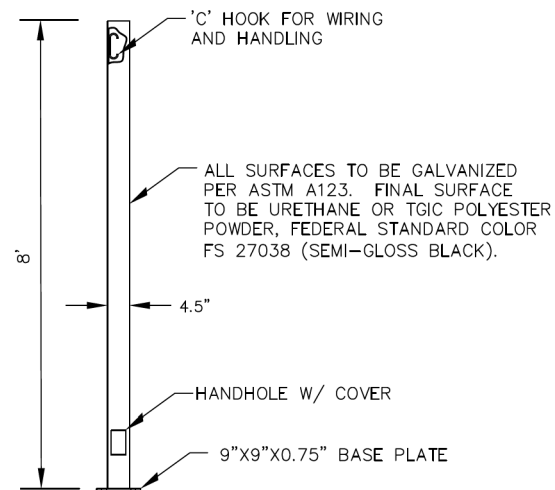
Kimley»Horn
 CERTIFICATE OF AUTHORIZATION NO. 696
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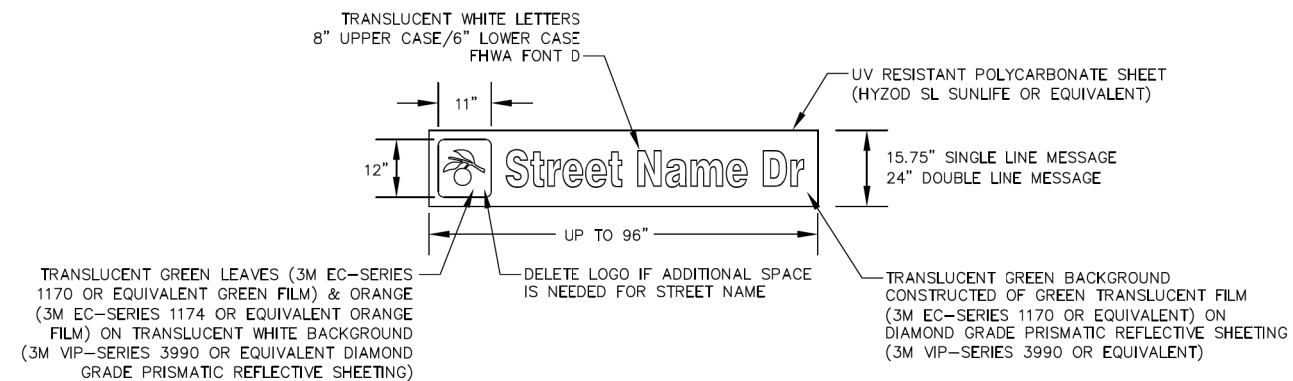
ORANGE COUNTY
 DEPARTMENT OF PUBLIC WORKS

SPECIAL MAST ARM ASSEMBLIES DATA TABLE

SHEET NO.
T-10



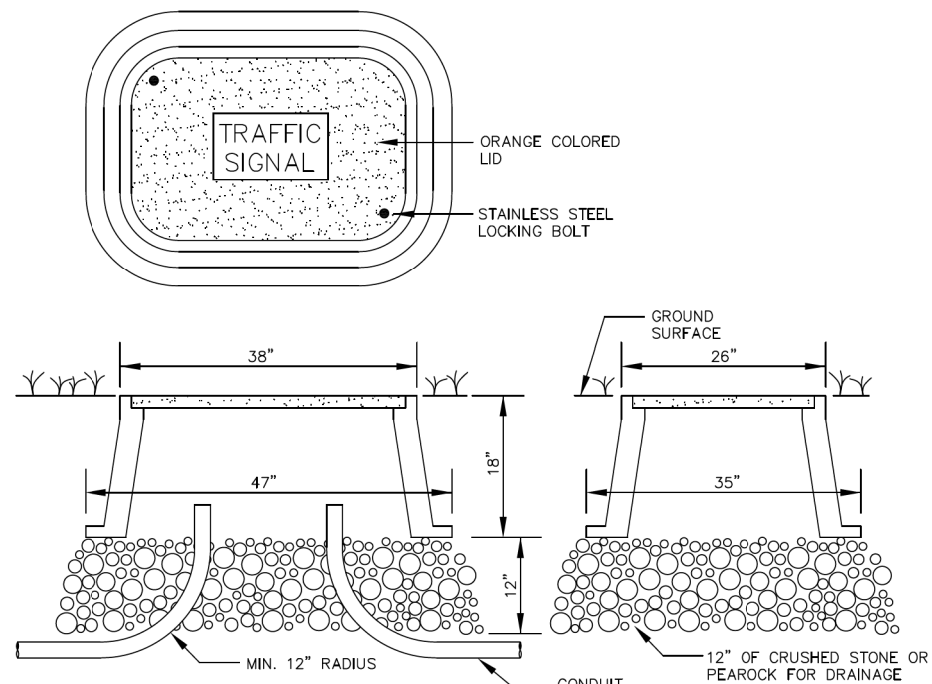
STEEL PEDESTAL POLE FOR PEDESTRIAN SIGNALS LOCATED OUTSIDE CLEAR ZONE



NOTES

1. INTERNALLY ILLUMINATED STREET NAME SIGN ASSEMBLIES SHALL BE DOUBLE FACED UNLESS SINGLE FACED SIGNS ARE SPECIFICALLY CALLED FOR IN THE PLANS.
2. SIGNS, SIGN SUPPORT ARMS AND BRACKETS SHALL BE DESIGNED TO WITHSTAND A 130 MPH WIND LOAD.
3. SIGNS SHALL BE ILLUMINATED BY WHITE LED LAMPS.

INTERNALLY ILLUMINATED STREET NAME SIGN



FIBER OPTIC PULL BOX

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

These details provided by the Orange County Traffic Engineering Department



ORANGE COUNTY DEPARTMENT OF PUBLIC WORKS

MISCELLANEOUS DETAILS

SHEET NO.

T-II

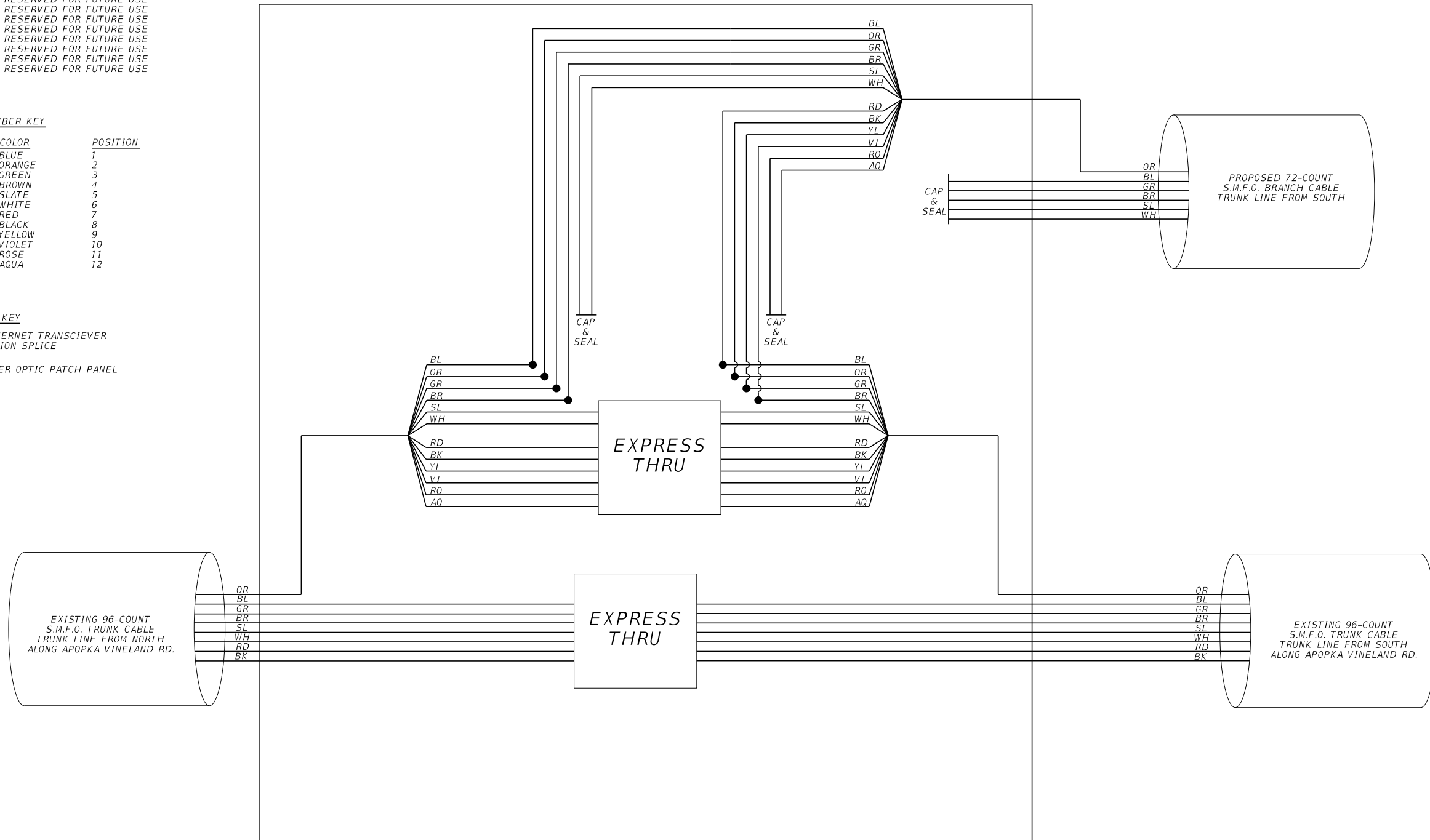
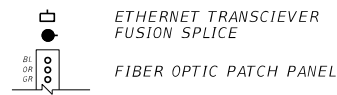
BUFFER TUBE DESIGNATIONS

COLOR	DESIGNATION
BLUE (BL)	RESERVED FOR FUTURE USE
ORANGE (OR)	ORANGE COUNTY PUBLIC WORKS COMMUNICATIONS
GREEN (GR)	RESERVED FOR FUTURE USE
BROWN (BR)	RESERVED FOR FUTURE USE
SLATE (SL)	RESERVED FOR FUTURE USE
WHITE (WH)	RESERVED FOR FUTURE USE
RED (RD)	RESERVED FOR FUTURE USE
BLACK (BK)	RESERVED FOR FUTURE USE
YELLOW (YL)	RESERVED FOR FUTURE USE
VIOLET (VI)	RESERVED FOR FUTURE USE
ROSE (RO)	RESERVED FOR FUTURE USE
AQUA (AQ)	RESERVED FOR FUTURE USE

FIBER KEY

CODE	COLOR	POSITION
BL	BLUE	1
OR	ORANGE	2
GR	GREEN	3
BR	BROWN	4
SL	SLATE	5
WH	WHITE	6
RD	RED	7
BK	BLACK	8
YL	YELLOW	9
VI	VIOLET	10
RO	ROSE	11
AQ	AQUA	12

EQUIPMENT KEY



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kimley»Horn
 Certificate Of Authorization No. 696
 Kenneth K. Siu, P.E.
 P.E. License No. 74527
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

ORANGE COUNTY
GOVERNMENT
FLORIDA

ORANGE COUNTY
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SPlice DETAIL A

SHEET NO.
T-12

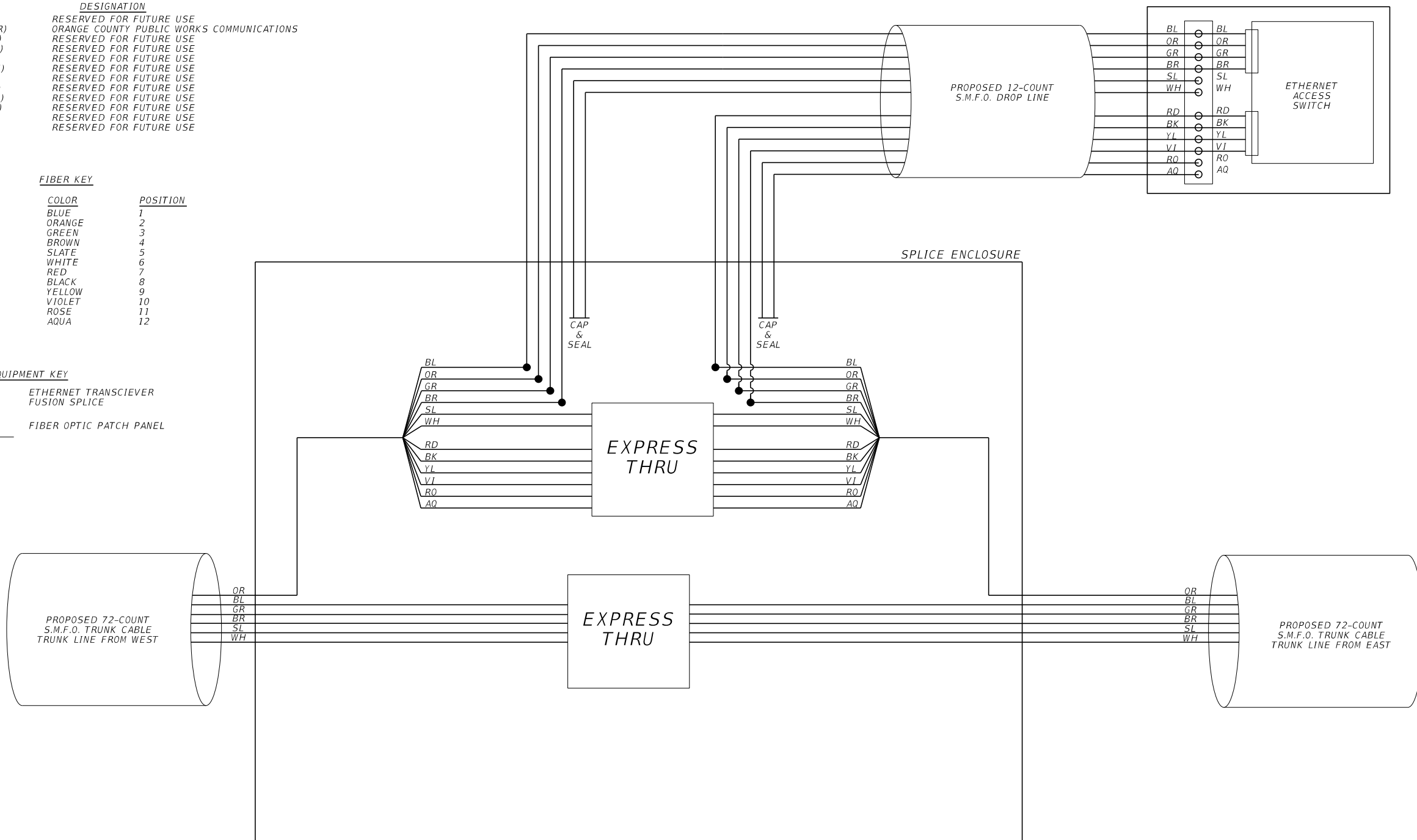
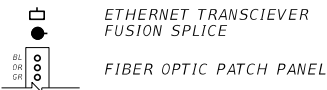
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FIBER KEY

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EQUIPMENT KEY



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 Certificate Of Authorization No. 696
 Kenneth K. Siu, P.E.
 P.E. License No. 74527
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

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FLORIDA

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SPLICE DETAIL B

SHEET NO.
T-13

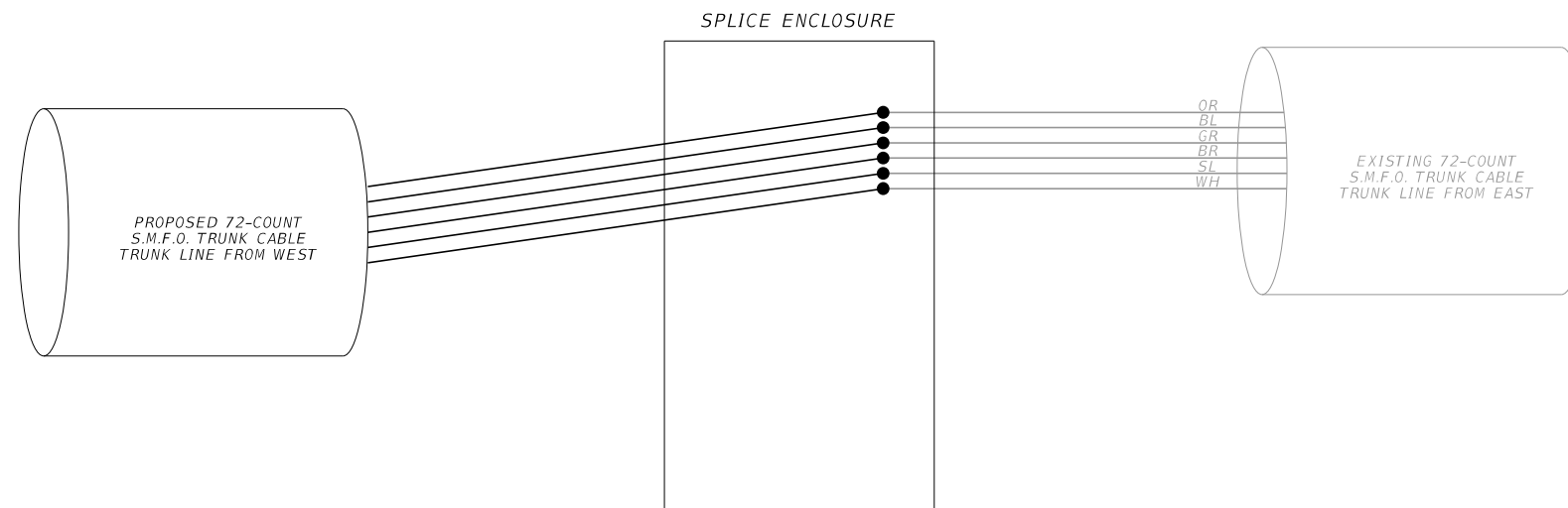
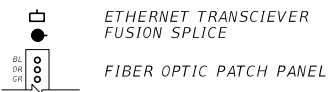
BUFFER TUBE DESIGNATIONS

COLOR	DESIGNATION
BLUE (BL)	RESERVED FOR FUTURE USE
ORANGE (OR)	ORANGE COUNTY PUBLIC WORKS COMMUNICATIONS
GREEN (GR)	RESERVED FOR FUTURE USE
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VIOLET (VI)	RESERVED FOR FUTURE USE
ROSE (RO)	RESERVED FOR FUTURE USE
AQUA (AQ)	RESERVED FOR FUTURE USE

FIBER KEY

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BR	BROWN	4
SL	SLATE	5
WH	WHITE	6
RD	RED	7
BK	BLACK	8
YL	YELLOW	9
VI	VIOLET	10
RO	ROSE	11
AQ	AQUA	12

EQUIPMENT KEY



REFER TO RUBY LAKE E-PROJECT
(PERMIT 16-E-102) FOR
ADDITIONAL INFORMATION.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kimley»Horn
 Certificate Of Authorization No. 696
 Kenneth K. Siu, P.E.
 P.E. License No. 74527
 3660 Maguire Boulevard, Suite 200
 Orlando, Florida 32803

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SPLICE DETAIL C

SHEET NO.
T-14