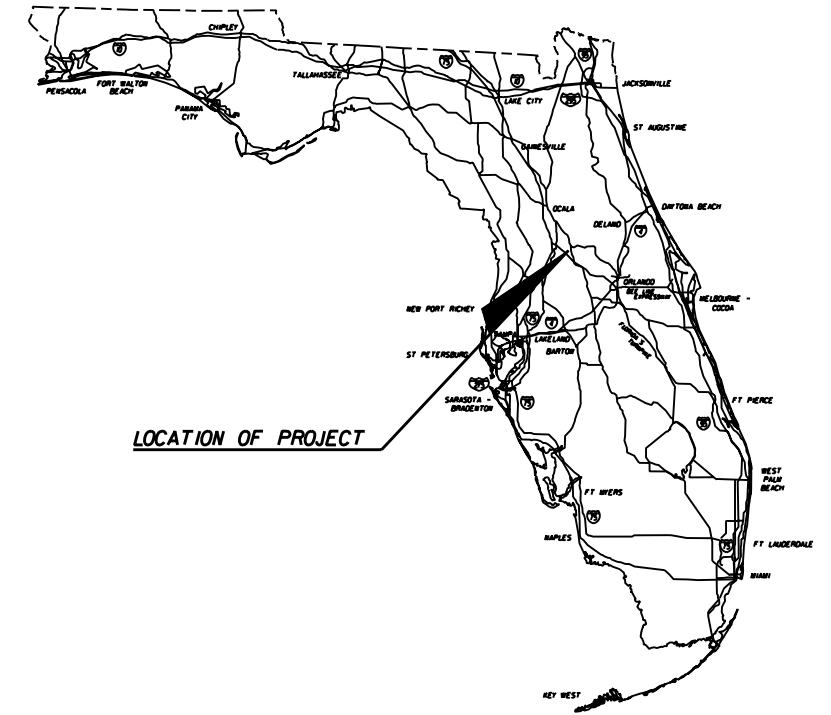


LAKE COUNTY
CONTRACT PLANS

SIGNALIZATION PLANS

CR 455
AND
STREET A



LOCATION OF PROJECT

INDEX OF SIGNALIZATION PLANS

SHEET NO.	SHEET DESCRIPTION
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T-6	MAST ARM TABULATION
T-7	MAST ARM VARIABLES

SIGNALIZATION SHOP DRAWINGS
TO BE SUBMITTED TO:

Kathryn L. Lee, P.E.
3751 Maguire Boulevard, Suite III
Orlando, FL 32803
Phone: 407-898-5424 Fax: 407-898-5425

PLANS PREPARED BY:



GMB Engineers & Planners, Inc.
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Phone: 407-898-5424 Fax: 407-898-5425

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

60% SUBMITTAL 3/15/06

GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION,
ROADWAY AND TRAFFIC DESIGN STANDARDS
DATED JANUARY 2004, AND
STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE
CONSTRUCTION DATED 2004
AS AMENDED BY CONTRACT DOCUMENTS.

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

SIGNALIZATION PLANS
ENGINEER OF RECORD: KATHRYN L. LEE, P.E.

P.E. NO. 62420

DATE: _____

SHEET
NO.

T-1

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS												GRAND TOTAL		REF. SHEET
			T-4		T-5										PLAN	FINAL	
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL					
102-1	MAINTENANCE OF TRAFFIC	LS/DA															
630-1-12	CONDUIT (F & I) (UNDERGROUND)	LF															
630-1-14	CONDUIT (F & I) (UNDERGROUND - JACKED)	LF															
632-7-1	CABLE (SIGNAL) (F & I)	PI															
635-1-11	PULL AND JUNCTION BOXES (F & I) (PULL BOX)	EA															
639-1-22	ELECTRICAL POWER SERVICE WIRE (F & I)	AS															
639-2-1	ELECTRICAL SERVICE WIRE (F & I)	LF															
641-11-111	PRESTRESSED CONC. POLES (F&I) (TYPE N-11 SEERVICE POLE)	EA															
649-733-008	MAST ARM ASSEMBLY (F & I) (SINGLE ARM) (C3) (R22 LUM)	EA															
649-735-009	MAST ARM ASSEMBLY (F & I) (SINGLE ARM) (C5) (R23 LUM)	EA															
650-51-311	TRAFFIC SIGNAL, STANDARD (F & I) (3 SECTION, 1 WAY)	AS															
650-51-511	TRAFFIC SIGNAL, STANDARD (F & I) (5 SECTION, 1 WAY)	AS															
653-181	PEDESTRIAN SIGNAL (F & I) (LED) (1 WAY) (COUNTDOWN)	AS															
653-182	PEDESTRIAN SIGNAL (F & I) (LED) (2 WAY) (COUNTDOWN)	AS															
659-107	SIGNAL HEAD AUXILIARIES (F & I) (ALUMINUM PEDESTAL)	EA															
660-1-109	INDUCTIVE LOOP DETECTOR (F&I) (TYPE 9, 2 CH, SS, RM)	EA															
660-1-110	INDUCTIVE LOOP DETECTOR (F&I) (TYPE 10, 2 CH, SS, RM, TD)	EA															
660-2-102	LOOP ASSEMBLY (F & I) (TYPE B) (6' X 6')	AS															
660-2-106	LOOP ASSEMBLY (F & I) (TYPE F) (6' X 40')	AS															
665-11	PEDESTRIAN DETECTOR (F & I) (POLE OR CONTROLLER MOUNTED DETECTOR STATION)	EA															
670-5-111	ACTUATED SOLID STATE CONTROLLER ASSEMBLY (F & I) (NEMA) (1 PRE-EMPT)	AS															
699-1-1	SIGN, INTERNALLY ILLUMINATED	EA															
700-46-11	SIGN EXISTING (REMOVAL)	AS															
702-7	PAVEMENT MARKING REMOVAL	SF															
711-35-121	SOLID TRAFFIC STRIPE THERMOPLASTIC (WHITE) (12")	LF															
711-35-241	SOLID TRAFFIC STRIPE THERMOPLASTIC (WHITE) (24")	LF															

PAY ITEM NOTES:

1. LUMP SUM MAINTENANCE OF TRAFFIC (102-1) SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE MAINTENANCE OF TRAFFIC IN THE WORK ZONE. THIS INCLUDES SIGNS, WARNING DEVICES AND ALL OTHER ITEMS REQUIRED FOR THE INSTALLATION OF THE TRAFFIC SIGNAL.

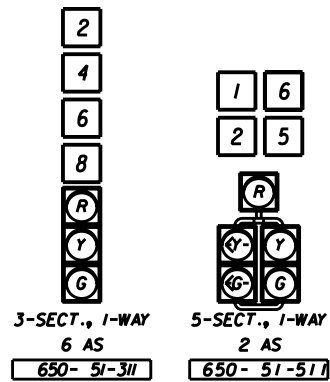
REVISIONS						DESIGNED BY	DATE	DRAWN BY	DATE	GMB Engineers & Planners, Inc. 3751 Maguire Boulevard, Suite 111 Orlando, FL 32803 Phone: 407-898-5424 Fax: 407-898-5425	LAKE COUNTY	TABULATION OF QUANTITIES	SHEET NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	AJD	3/06	AJD	3/06				T-2

GENERAL NOTES

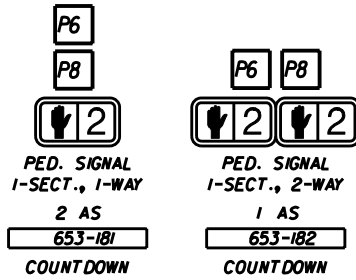
1. IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING AND TRENCHING AND/OR WHERE POLE INSTALLATIONS ARE LOCATED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE JOB SITE CONDITIONS BEFORE SUBMITTING BID PROPOSALS IN ACCORDANCE WITH SECTION 2-4 OF THE SPECIFICATIONS. THE CONTRACTOR SHALL HAND DIG THE FIRST 4' AT EACH POLE LOCATION TO VERIFY NO UTILITY CONFLICT.
2. ALL CONDUIT EXCEPT ELECTRICAL POWER SERVICE CONDUIT SHALL BE 2 INCH MINIMUM UNLESS OTHERWISE SPECIFIED IN THE PLANS.
3. PULL BOXES SHALL BE PLACED BEHIND CURB AND GUTTER. IF THERE IS NO CURB AND GUTTER THEN PULL BOXES SHALL BE PLACED AT LEAST 10 FEET FROM THE EDGE OF PAVEMENT.
4. THE BASE OF THE CONTROLLER CABINETS SHALL BE EQUAL TO OR GREATER THAN THE ELEVATION OF THE ROADWAY.
5. THE CABINET DOOR SHALL OPEN AWAY FROM THE INTERSECTION.
6. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AT LEAST 48 HOURS IN ADVANCE OF LOOP CUTTING. THE PROJECT ENGINEER WILL CONTACT THE COUNTY TRAFFIC ENGINEER WHO MAY CHALK THE LOOPS AND OBSERVE THEIR INSTALLATION IF HE SO DESIRES.
7. ALL LOOPS TO HAVE INDIVIDUAL LEAD-INS TO CABINET. LOOP SPLICES TO BE ACCORDING TO FDOT SPECIFICATIONS.
8. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY DEPARTMENT, MAINTAINING AGENCY AND THE FDOT 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.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING THE PROPER AMOUNT OF RAKE WITH RESPECT TO LOADING TO BE USED ON POLES AT TIME OF INSTALLATION. THIS INFORMATION IS AVAILABLE FROM THE POLE MANUFACTURER.
10. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AT LEAST 48 HOURS IN ADVANCE OF ANY LANE CLOSURES ON SR 50. NO LANE CLOSURES FROM 6:00 AM - 8:00 PM EASTBOUND AND WESTBOUND. THE TIMES MAY BE ADJUSTED BY THE PROJECT ENGINEER IF NECESSARY TO MEET FIELD CONDITIONS, LANE CLOSURES ARE REQUIRED FOR OVERHEAD SIGNAL WORK AND LOOP INSTALLATION AND SHALL FOLLOW THE FDOT ROADWAY AND TRAFFIC DESIGN STANDARDS (2004).
11. WHEN THE CONTRACTOR IS PERFORMING SIGNAL WORK IN AN INTERSECTION (INSTALLING CONDUIT IN THE STREET, REMOVING EXISTING SIGNAL EQUIPMENT, INSTALLING NEW SIGNAL EQUIPMENT, INSTALLING LOOPS AND RUNS, AND TURNING ON OF NEW SIGNALS) WHERE A LANE IS CLOSED AN OFF-DUTY LAW ENFORCEMENT OFFICER IS INCIDENTAL TO THE COST OF THE PROJECT.
12. 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 ENSURE THAT THE ALLOWABLE TENSION LIMIT IS NOT EXCEEDED. AN APPROVED LUBRICANT SHALL BE USED TO FACILITATE THE PULLING OF THE CABLE.
13. AS DIRECTED BY THE PROJECT ENGINEER, THE CONTRACTOR SHALL ADJUST CONDUIT VERTICALLY TO AVOID ANY POSSIBLE CONFLICTS WITH UNDERGROUND UTILITIES.
14. ALL PULL BOX COVERS SHALL BE FDOT APPROVED OF NON METALLIC CONSTRUCTION WITH RECESSED COVER LOGO "TRAFFIC SIGNAL" OR "FIBER OPTIC" AS APPROPRIATE.
15. THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE EXACT LOCATIONS OF UNDERGROUND UTILITIES PRIOR TO DIGGING.
16. SIGNAL CABLE AND SPAN WIRE INSTALLATION SHALL BE A TWO POINT ATTACHMENT.
17. TYPE F LOOPS SHALL BE 6'X40' AND EXTEND 5' BEYOND THE STOP BAR.
18. FOR MULTIPLE RUNS OF UNDER PAVEMENT CONDUIT, ONLY ONE RUN WILL BE PAID FOR AS UNDER PAVEMENT AND ADDITIONAL RUNS WILL BE PAID FOR AS UNDERGROUND.
19. TRAFFIC SIGNAL MAINTAINING AGENCY IS LAKE COUNTY TRAFFIC DEPARTMENT LOCATED AT:
123 N. SINCLAIR AVENUE
TAVARES, FL. 32778
PHONE (352) 253-4944
20. SIGNAL DISCONNECT SHALL BE 12"w x 6"h x 1/2"d, WITH HINGED DOOR AND 18 POSITION TERMINAL STRIP. NO CINCH JONES PLUGS WILL BE ACCEPTED.
21. THE CONTRACTOR SHALL VERIFY SIGNAL CABLE COLOR CODES WITH LAKE COUNTY BEFORE ORDERING.
22. THE CONTROLLER CABINET ASSEMBLY SHALL BE A NAZTEC TS 2, TYPE 2 AND HAVE ALL NECESSARY HARDWARE TO COMMUNICATE WITH LAKE COUNTY CLOSED LOOP SYSTEM AND SHALL USE THE APPROPRIATE COMMUNICATION PROTOCOL TO CONFORM TO THE RCSS REQUIREMENTS. THE ADDITIONAL EQUIPMENT AND ACCESSORIES FOR THE FIBER OPTIC CABLE INTERCONNECT SHALL BE FURNISHED AND INSTALLED AS PART OF THE CONTROLLER ASSEMBLY.
23. THE TRAFFIC SIGNAL SHALL FLASH NO LESS THAN 7 DAYS AND NO MORE THAN 14 DAYS PRIOR TO THE TURN-ON INSPECTION. THE CONTRACTOR SHALL CONTACT THE PERMIT ENGINEER 48 HOURS PRIOR TO TURNING THE SIGNAL ON FLASH.
24. SIGNAL CABLE AND LOOP WIRES TO BE IN SEPARATE PULL BOXES.
25. DELAY DETECTORS SHALL BE SET TO 5 SECONDS.
26. A SIGNAL INSPECTION IS TO BE SCHEDULED WITH MR. RAY MARLIN AT (386) 943-5318, OF TRAFFIC OPERATIONS, 10 DAYS PRIOR TO THE SIGNAL BEING PLACED INTO OPERATION.
27. ANY NEW OR EXISTING STRIPING CUT BECAUSE OF LOOP PLACEMENT SHALL BE RESTRIPE PRIOR TO ACCEPTANCE.
28. PRE-EMPTION SYSTEM SHALL BE COMPATIBLE WITH MAINTAINING AGENCY'S EXISTING SYSTEM.
29. OVERHEAD BELDON TO BE UV RATED.
30. VEHICLE SIGNAL HEAD ASSEMBLIES SHALL BE BLACK, CAST ALUMINUM, WITH TUNNEL VISORS, AND LED'S FOR ALL INDICATIONS, UNLESS OTHERWISE NOTED.
31. A MANUAL PUSH BUTTON CORD SHALL BE FURNISHED IN ALL CONTROLLER CABINETS.
32. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS, INCLUDING THE ELECTRIC PERMIT AND FOR COORDINATING APPLICATION FOR POWER.
33. INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL HAVE A SEPARATE CIRCUIT BREAKER, PHOTOCCELL, AND BYPASS SWITCH, INSIDE THE CABINET.
34. THE CONTRACTOR SHALL NOTIFY LAKE COUNTY TRAFFIC OPERATIONS (352) 742-1766 AT LEAST 24 HOURS IN ADVANCE OF INSTALLING SIGNAL POLES, GROUND RODS, UNDERGROUND CONDUIT, AND SEALING SIGNAL HEAD ASSEMBLIES SO THAT THESE OPERATIONS CAN BE OBSERVED.
35. A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH LAKE COUNTY TRAFFIC OPERATIONS, (352) 742-1766, PRIOR TO ANY CONSTRUCTION.
36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY PROVIDING THE ELECTRICAL POWER, TO DETERMINE IF ANY ADDITIONAL FEES ARE REQUIRED TO CONNECT POWER AND FOR CONNECTION OF POWER. IF REQUIRED THE FEE SHALL BE INCLUDED AS PART OF THE BID ITEM PAYMENT FOR ELECTRICAL SERVICE ASSEMBLY.
37. THE INSIDE LANE DISCONNECT SHALL BE WIRED FOR FUTURE 5 SECTION HEADS.
38. LOOP HOME RUNS SHALL NOT BE CUT INTO THE RADIUS.
39. A GENERATOR SWITCH BOX ASSEMBLY SHALL BE INSTALLED, RELIANCE CONTROLS CSR301 WITH POWER INDICATOR LIGHT, OR EQUIVALENT.
40. A GENERATOR PAD, 3'X3'X4" CONCRETE WITH TWO EYEBOLTS SHALL BE INSTALLED. PAYMENT FOR THE CONCRETE PAD AND INSTALLATION SHALL BE INCLUDED UNDER PAY ITEM NUMBER 670-5-ABC.
41. THE FIRST BUFFER OF SINGLE MODE AND MULTI MODE FIBER SHALL BE TERMINATED IN THE CABINET USING ST CONNECTORS.
42. INTERNALLY ILLUMINATED STREET NAME SIGN SHALL BE INSTALLED 1' BELOW THE MESSENGER CABLE WHERE POSSIBLE, POWERED BY A SEPARATE CIRCUIT BREAKER, AND SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH LAKE COUNTY PUBLIC WORKS INTERNALLY ILLUMINATED STREET NAME SIGN DETAIL.
43. AS PHOTOCCELL SHALL BE INSTALLED INSIDE THE CABINET WITH A 2" PLEXIGLASS WINDOW, OR NEAR THE ELECTRIC SERVICE WITHIN REACH OF A LIFT TRUCK. CARE TO BE GIVEN TO INSTALL WHERE STREET LIGHTING DOES NOT AFFECT OPERATION.
44. THE CONTRACTOR SHALL FURNISH LAKE COUNTY TRAFFIC OPERATIONS WITH EMERGENCY CONTACTS AND PHONE NUMBERS AND HAVE AN IMSA LEVEL II CERTIFIED SIGNAL TECHNICIAN ON CALL WITHIN A TWO HOUR MINIMUM RESPONSE TIME.
45. THE CONTRACTOR SHALL FURNISH LAKE COUNTY TRAFFIC OPERATIONS TWO COMPLETE SETS OF AS-BUILT PLANS THAT INCLUDE CONDUIT AND PULL BOX LOCATIONS AT FINAL INSPECTION.
46. THE INSIDE LANE DISCONNECT SHALL BE WIRED FOR FUTURE 5 SECTION HEADS.
47. A FIBER PULL BOX AND CONDUIT INTO THE CONTROLLER ASSEMBLY SHALL BE INSTALLED.
48. ANY LANDSCAPING DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.

REVISIONS									GMB		LAKE COUNTY		GENERAL NOTES		SHEET NO.	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE					T-3
						CHECKED BY	KLL	3/06	CHECKED BY	KLL	3/06					
						SUPERVISED BY: KATHRYN L. LEE, P.E. *62420										

TRAFFIC SIGNAL DETAIL



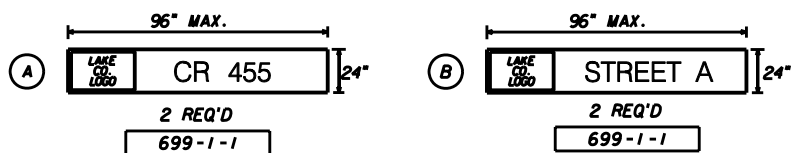
PEDESTRIAN SIGNAL DETAIL



LOOPS FOR DETECTORS

LOOP NUMBER	NO. OF LOOPS	NO. OF DETS.	DELAY (SECS.)
L1, L5	2	1	5
L2, L6	4	2	-
L3, L8	2	1	-
L4	1	1	-

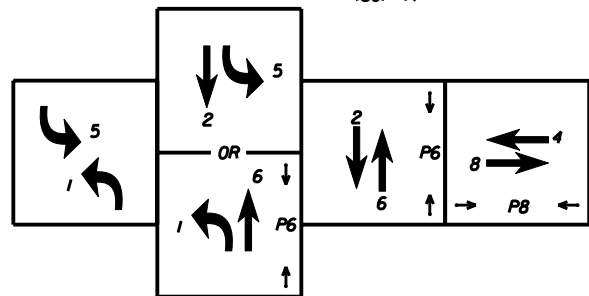
INTERNALLY ILLUMINATED STREET NAME SIGNS



1) SIGNS ARE TO BE DOUBLE SIDED WITH 10" UPPER AND 6" LOWER CASE, E-MODIFIED STYLE, LETTERS. SEE LAKE COUNTY INTERNALLY ILLUMINATED STREET NAME SIGN SPECIFICATIONS FOR FURTHER DETAILS.
2) SIGNS SHALL BE CANTILEVER MOUNTED.

MOVEMENT DIAGRAM

(SOP 7)



CONTROLLER TIMING PLAN

TIMING INTERVAL	TIMING FUNCTION							
	1	2	3	4	5	6	7	8
MINIMUM GREEN (INITIAL)	5	15	-	5	5	15	-	5
EXTENSION (PASSAGE)	3	3	-	3	3	3	-	3
MAXIMUM GREEN I	20	50	-	50	20	50	-	50
MAXIMUM GREEN II	-	-	-	-	-	-	-	-
YELLOW	4	4	-	5	4	4	-	5
ALL RED	2	2	-	4	2	2	-	4
PEDESTRIAN WALK	-	7	-	7	-	7	-	7
PEDESTRIAN CLEAR	-	22	-	34	-	27	-	34
RECALL	-	MIN	-	-	-	MIN	-	-
DETECTOR FUNCTION	-	L	-	NL	-	L	-	-

NOTES:

- ADVANCE LOOP SPACING BASED ON A POSTED SPEED LIMIT OF 45MPH
- MAJOR STREET IS CR 455 AND MINOR STREET IS STREET A.
- DURING FLASH OPERATION, SIGNAL HEADS 2 & 6 SHALL FLASH YELLOW AND ALL OTHERS SHALL FLASH RED.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DESIGNED BY	DATE	DRAWN BY	DATE
AJD	3/06	AJD	3/06
CHECKED BY		CHECKED BY	
RLL	3/06	RLL	3/06
SUPERVISED BY: KATHRYN L. LEE, P.E. *62420			



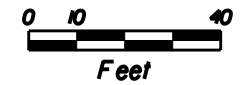
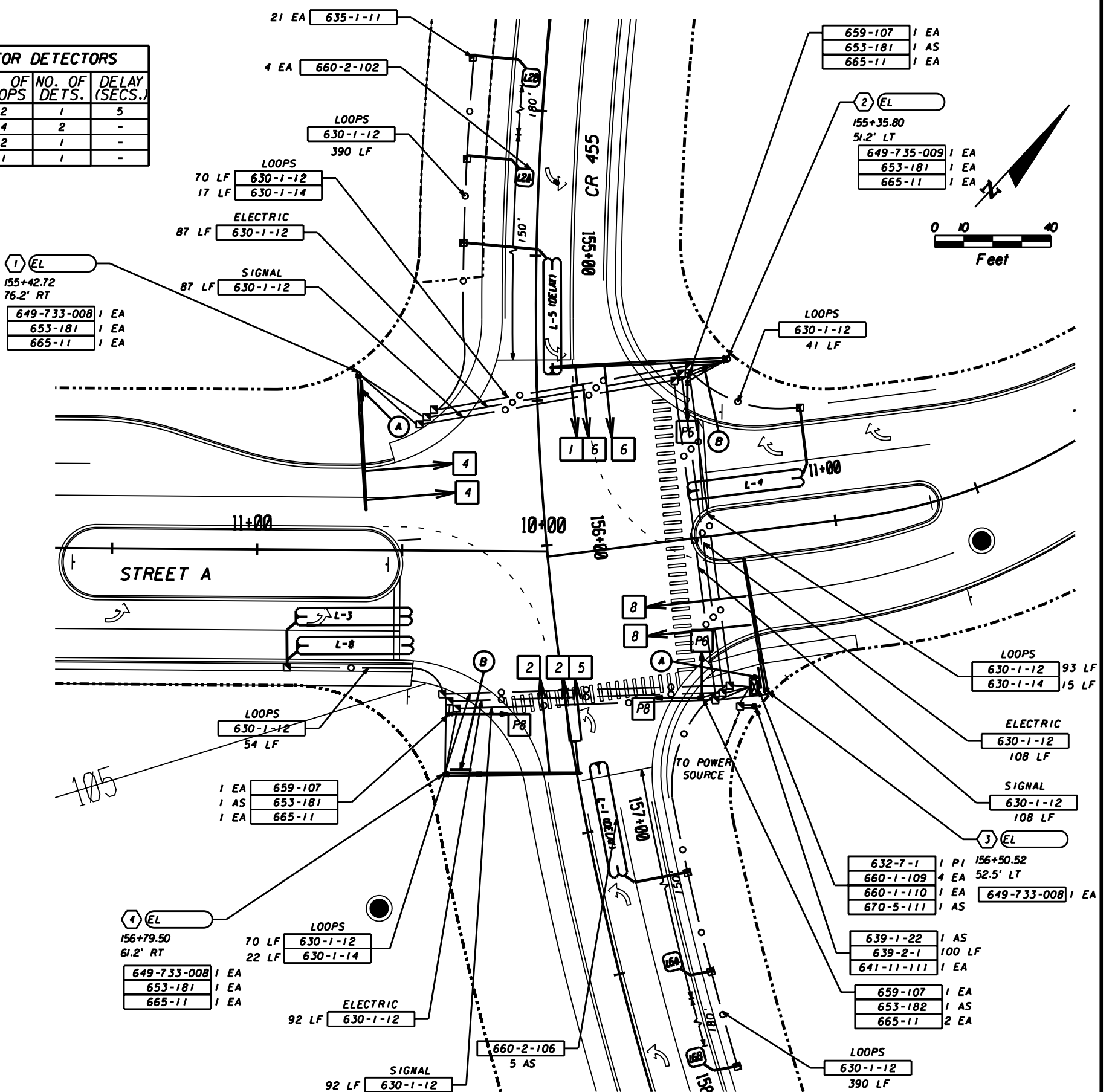
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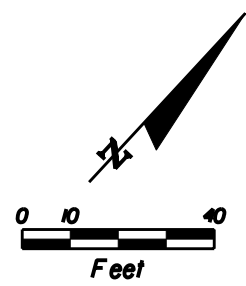
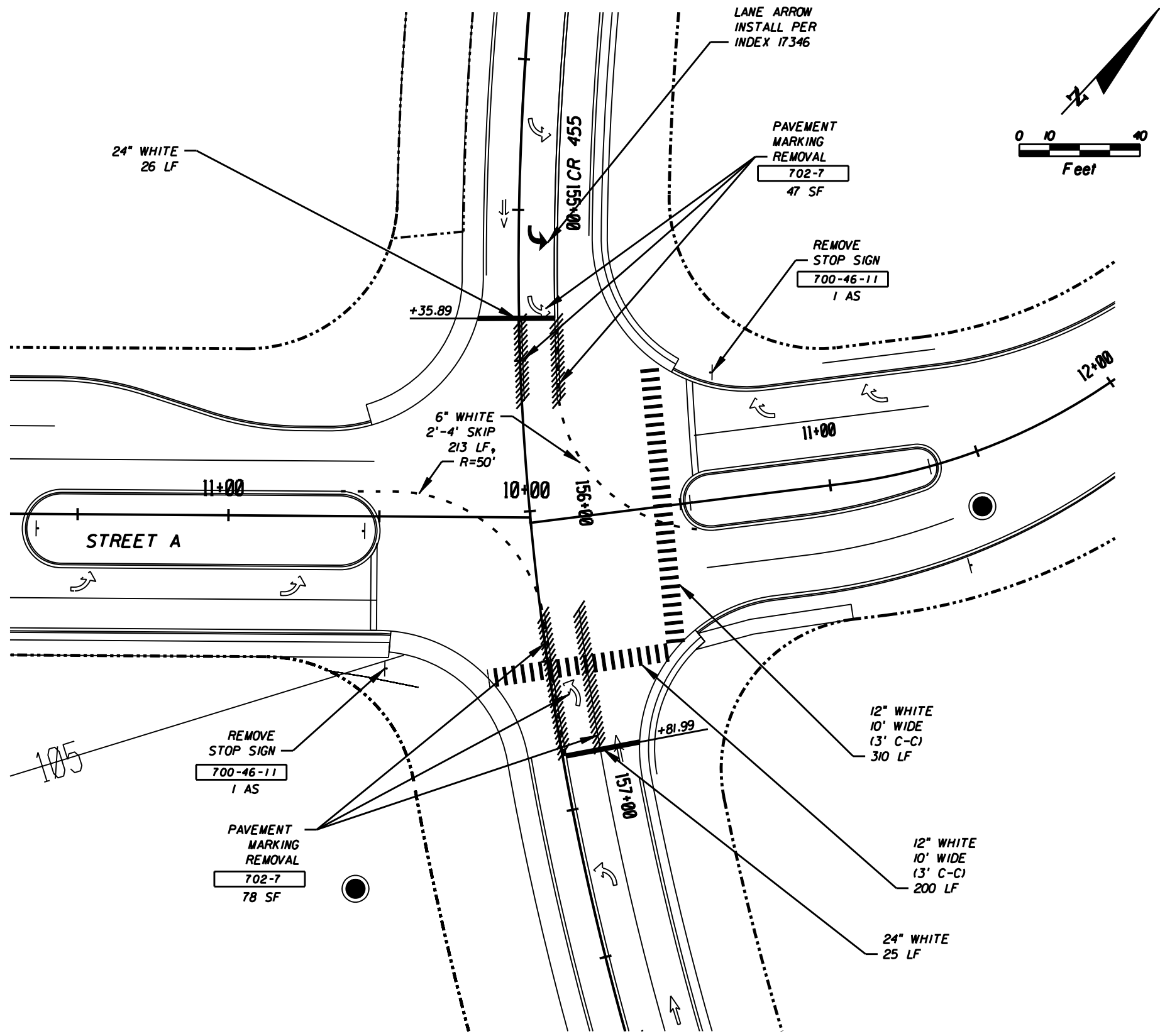
LAKE COUNTY

SIGNALIZATION PLAN


SHEET NO.

T-4





NOTES:
 1. CROSSWALK SHALL BE CENTERED ON THE CURB CUT RAMPS.

REVISIONS						NAME	DATE	NAME	DATE	 GMB <small>ENGINEERS & PLANNERS, INC.</small>	GMB Engineers & Planners, Inc. <small>3751 Maguire Boulevard, Suite 111 Orlando, FL 32803 Phone: 407-898-5424 Fax: 407-898-5425</small>	LAKE COUNTY	SIGNING AND PAVEMENT MARKING PLAN	SHEET NO.	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DESIGNED BY	DATE	DRAWN BY	DATE					T-5	
						AJD	3/06	AJD	3/06						
						RLK	3/06	RLK	3/06						
						SUPERVISED BY: KATHRYN L. LEE, P.E. *62420									

