
CENTRAL
FLORIDA
EXPRESSWAY
AUTHORITY

*SIGNAL DESIGN
DETAILS*

FOR DESIGN AND CONSTRUCTION ON THE CFX SYSTEM

MARCH 2022

CENTRAL FLORIDA EXPRESSWAY AUTHORITY
4974 ORL TOWER RD.
ORLANDO, FL 32807
PHONE NUMBER: (407) 690-5000
FAX NUMBER: (407) 690-5011

\$FILES
\$TIMES
\$DATES
\$USERS

MAINTAINENCE OF TRAFFIC

1.

SUBMIT A TRAFFIC CONTROL PLAN TO THE CEI ENGINEER AND CFX FOR APPROVAL WHICH CONSISTS OF UNMODIFIED FDOT STANDARD PLANS (102-600 SERIES); OTHERWISE PROVIDE A TRAFFIC CONTROL PLAN WHICH IS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF FLORIDA. ONCE APPROVED BY THE CEI ENGINEER AND CFX, THE TRAFFIC CONTROL PLAN MUST BE IN PLACE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES. ALL COSTS ASSOCIATED WITH THE MAINTENANCE OF TRAFFIC MUST BE INCLUDED IN PAY ITEM 102-1 MAINTENANCE OF TRAFFIC (LUMP SUM).
2.

MAINTAIN TRAFFIC IN ACCORDANCE WITH FDOT STANDARD PLANS, INDEX 102-600 SERIES.
3.

LANE WIDTH MUST NOT BE LESS THAN 11 FEET. LANES MUST BE PROPERLY DELINEATED DURING ALL PHASES OF CONSTRUCTION.
4.

MAINTAIN THE FOLLOWING REGULATORY SPEED LIMITS DURING CONSTRUCTION:

- SR 408 (EAST-WEST EXPRESSWAY) 60 MPH TO 65 MPH

- SR 414 (MAITLAND BOULEVARD EXTENSION) 65 MPH

- SR 417 (CENTRAL FLORIDA GREENWAY) 70 MPH

- SR 429 (DANIEL WEBSTER WESTERN BELTWAY) 70 MPH

- SR 429 (WEKIVA PARKWAY) 70 MPH

- SR 451 (WESTERN EXPRESSWAY EXTENSION) 45 MPH TO 65 MPH

- SR 528 (MARTIN ANDERSON BEACHLINE EXPRESSWAY) 55 MPH TO 70 MPH

- CR 522 (OSCEOLA PARKWAY) 55 MPH

- SR 538 (POINCIANA PARKWAY) 45 MPH TO 65 MPH

- SR 551 (GOLDENROD ROAD) 45 MPH

- SR 453 (MOUNT DORA CONNECTOR) 35 MPH TO 65 MPH

FOR ADDITIONAL SIGN INFORMATION, INCLUDING SIZES, REFER TO FDOT STANDARD PLANS AND STANDARD HIGHWAY SIGNS MANUAL SPECIFIED IN THE MUTCD.
5.

REMOVE ALL UNUSED BARRICADES SIGNS, AND/OR WARNING DEVICES TO THE APPROPRIATE STORAGE FACILITY UPON COMPLETION OF THEIR USE FOR THE DESIGNED TRAFFIC CONTROL OPERATION DURING RESTRICTED HOURS OF OPERATION. UNUSED MOT SIGNS MAY REMAIN IN PLACE BUT MUST NOT FACE TRAFFIC AND MUST BE COMPLETELY COVERED SO AS NOT TO BE READABLE.
6.

EQUIPMENT, VEHICLES OR MATERIAL MUST NOT BE PARKED OR STORED WITHIN THE CLEAR ZONE.
7.

NO MORE THAN ONE (1) LANE AND/OR RAMP WILL BE CLOSED AT ONE TIME UNLESS WRITTEN APPROVAL IS PROVIDED BY CFX. COORDINATE LOCAL ROAD CLOUSRES WITH APPROPRIATE LOCAL AGENCY AND CFX.
8.

FOR LANE CLOSURES THAT OCCUR OUTSIDE THE PERMITTED LANE CLOSURE HOURS, A LANE RENTAL FEE WILL BE ASSESSED TO THE CONTRACTOR IN THE AMOUNT OF \$1,000 PER LANE/RAMP FOR EACH MINUTE THAT ANY LANE/RAMP IS NOT OPEN TO TRAFFIC. LANE RENTAL FEES WILL CONTINUE TO ACCRUE UNTIL SUBJECT LANE/RAMP IS OPEN TO A TRAFFIC FLOW AS RECORDED BY CFX. CFX HAS THE RIGHT TO APPLY AS PAYMENT ON SUCH FEES ANY MONEY THAT IS DUE TO THE CONTRACTOR BY CFX. AT THE DISCRETION OF THE DIRECTOR OF CONSTRUCTION AND/OR CFX DESIGNEE, LANE RENTAL FEES WILL NOT BE CHARGED FOR FAILURE TO OPEN TRAFFIC LANES/RAMPS IF SUCH CAUSE IS BEYOND THE CONTROL OF THE CONTRACTOR, I.E. CATASTROPHIC EVENTS, AND ACCIDENTS NOT RELATED OR CAUSED BY THE CONTRACTOR'S OPERATIONS.
9.

COORDINATE WITH TOLL PLAZA MANAGERS 72 HOURS PRIOR TO PERFORMING ANY WORK WITHIN 1/2 MILES OF A MAINLINE OR RAMP TOLL PLAZA. RESTORE CFX PROPERTY AFFECTED BY THE CONSTRUCTION WORK TO A CONDITION EQUAL TO OR BETTER THAN EXISTING PRE-CONSTRUCTION CONDITION. ALL COSTS ARE INCIDENTAL TO EXISTING PAY ITEMS.
10.

LANE CLOSURES ARE PERMITTED AT THE FOLLOWING TIMES:

- SR 408 - FLORIDA TURNPIKE TO I-4: 9 PM TO 6 AM

- SR 408 - I-4 TO SR 417: 10 PM TO 6 AM

- SR 408 - SR 417 TO SR 50: 11 PM TO 6 AM

- SR 417 - I-DRIVE TO FLORIDA'S TURNPIKE: 11 PM TO 6 AM

- SR 417 - FLORIDA'S TURNPIKE TO ORANGE/SEMINOLE COUNTY LINE: 10 PM TO 6 AM

- SR 429 - SEIDEL RD SR 46: 10 PM TO 6 AM

- SR 414 - SR 429/ 414 SYSTEMS INTERCHANGE TO US 441: 9 PM TO 6 AM

- SR 451 - SR 429 TO US 441: 9 PM TO 6 AM

- SR 453 - SR 429 TO SR 46: 9 PM TO 6 AM

- SR 528 - BOGGY CREEK RD TO SR 417: 11 PM TO 6 AM

- SR 528 - SR 417 TO SR 520: 10 PM TO 6 AM

- SR 538 9 PM TO 5 AM

- SR 551 9 PM TO 5 AM
11.

LANE CLOSURES ARE NOT PERMITTED FROM 5:00 A.M. TO 11:00 P.M. ON ENTRY OR EXIT RAMPS. IF THE DIRECTOR OF CONSTRUCTION OR CEI ENGINEER DETERMINES ANY LANE CLOSURE IS CAUSING EXTENDED TRAFFIC CONGESTION, THE DIRECTOR OF CONSTRUCTION OR CEI ENGINEER MAY DIRECT THE CONTRACTOR TO OPEN THE LANE CLOSURE UNTIL TRAFFIC RETURNS TO AN ACCEPTABLE FLOW.

CONDUIT

1.

ALL COMMUNICATION CONDUIT MUST BE PVC SCHEDULE 40 OR HDPE SDR11, 2 INCH DIA. MINIMUM, AND ALL ABOVE GROUND CONDUIT MUST BE GALVANIZED STEEL UNLESS OTHERWISE SPECIFIED IN PLANS. PLACE AT A MINIMUM DEPTH OF THREE FEET BELOW FINISHED GRADE.

PULL BOXES

1.

PULL BOX COVERS MUST BE NON-METALLIC, ON THE APL, AND HAVE THEIR SHOP DRAWINGS SUBMITTED FOR REVIEW. COORDINATE WITH CFX, CEI ENGINEER AND THE MAINTAINING AGENCY FOR APPROPRIATE COVER MARKINGS BEFORE SUBMITTAL OF SHOP DRAWINGS.
2.

DO NOT PLACE PULL BOXES IN SIDEWALK UNLESS CONDITIONS WILL NOT PERMIT OTHERWISE. UNDER NO CIRCUMSTANCES ARE PULLBOXES PERMITTED TO BE INSTALLED WITHIN A.D.A RAMPS AND DETECTABLE WARNING SURFACES.

TRAFFIC SIGNAL CABINETS

1.

ALL TRAFFIC SIGNAL CABINETS MUST HAVE A TOP OF FOUNDATION AND CONCRETE ACCESS PAD ELEVATIONS GREATER THAN OR FLUSH WITH THE TOP OF THE NEAREST CURB IN ROADWAY SECTIONS WITH CURB AND GUTTER. FOR ROADWAY SECTIONS WITHOUT CURB AND GUTTER, THE TOP OF TRAFFIC SIGNAL CABINET FOUNDATION AND CONCRETE ACCESS PAD MUST HAVE AN ELEVATION GREATER THAN OR FLUSH WITH THE ADJACENT HIGH POINT OF PAVEMENT OF THE EXISTING/PROPOSED ROADWAY CROSS SECTION.

CABLE

1.

DO NOT PLACE ENERGIZED CABLE, INCLUDING LIGHTING CONDUCTORS, IN THE SAME CONDUIT OR PULL BOX AS DETECTION CABLES, LOW VOLTAGE CABLES, OR FIBER OPTIC CABLES.
2.

PULLING INSTRUCTIONS FOR POWER CONDUCTORS: CONNECT PULLING DEVICES TO COPPER WIRE AND NOT TO JACKET AND MEET MANUFACTURERS REQUIREMENTS. USE PULLING COMPOUND PER MANUFACTURES REQUIREMENTS. ALL BENDS SHALL NOT BE LESS THAN RECOMMENDED BY N.E.C. OR N.E.S.C. FOR CABLE USED.
3.

THE FIBER OPTIC CABLE INSTALLATION TECHNIQUES AND PROCEDURES MUST BE AS SPECIFIED BY THE CABLE MANUFACTURER & INDUSTRY STANDARDS AND MUST BE SUCH THAT THE OPTICAL AND MECHANICAL CHARACTERISTICS OF THE CABLES ARE NOT DEGRADED AT THE TIME OF INSTALLATION. THE CENTRAL STRENGTH MEMBER AND ARAMID YARN MUST BE ATTACHED DIRECTLY TO THE PULLING EYE DURING CABLE PULLING. "BASKET GRIP" OR "CHINESE FINGER" TYPE ATTACHMENTS TO THE CABLE MUST NOT EXCEED THE CABLES OUTSIDE TENSILE RATING ON ALL PULLS.
4.

VERIFY COLOR CODES FOR BOTH SIGNAL AND INTERCONNECT CABLE WITH MAINTAINING AGENCY AND CEI ENGINEER BEFORE ORDERING. WIRING DIAGRAMS MUST BE APPROVED BY THE MAINTAINING AGENCY.
5.

ALL FIELD WIRING MUST BE NEATLY BUNDLED AND CLEARLY IDENTIFIED WITH PERMANENT LEGIBLE, WEATHERPROOF TAGS SECURELY ATTACHED TO EACH CABLE. FIELD WIRING IDENTIFICATION MUST BE INCLUDED WITHIN ALL PULL BOXES, MAST ARM HAND HOLES, CABINETS, ETC.
6.

WHERE TERMINAL BLOCKS ARE USED, SIX FEET OF ADDITIONAL SIGNAL CABLE SLACK MUST BE PROVIDED WITHIN THE UPRIGHT SUCH THAT THE TERMINAL BLOCK CAN BE REMOVED FROM THE UPRIGHT TO ALLOW FOR TROUBLE SHOOTING.
7.

SPARE CONDUCTORS WITHIN TRAFFIC SIGNAL AND PEDESTRIAN SIGNAL HEADS MUST BE CAPPED. NO SPARE CONDUCTORS ARE PERMITTED TO BE TAPED.
8.

NEATLY WIND AND ZIPTIE ALL CABLE SLACK IN A MANNER THAT STILL ALLOWS THE SIGNAL HEAD TO BE OPENED AND MAINTAINED.

VEHICULAR SIGNAL HEADS

1.

DURING TRAFFIC SIGNAL FLASHING OPERATION, THE RED ARROW INDICATION OF ALL 3-SECTION LEFT TURN HEADS MUST FLASH.
2.

ALL DARK INSTALLED SIGNAL INDICATIONS NOT IN OPERATION MUST BE COVERED, TO INCLUDE REFLECTORIZED BACK-PLATES.

PEDESTRIAN SIGNAL HEADS

1.

ENSURE THAT THE INSTALLED PEDESTRIAN SIGNAL HEAD ASSEMBLY IS SEALED TO EXCLUDE DUST AND MOISTURE. DRILL TWO, 1/4 INCH DRAIN HOLES IN THE BOTTOM OF THE INSTALLED SIGNAL HEAD ASSEMBLY.

SPAN WIRES

1.

PROVIDE CIRCULAR DRIP LOOPS (MINIMUM ONE CIRCLE) AT ALL AERIAL DISCONNECT HANGER, INTERCONNECT JUNCTION BOX, ELECTRICAL SIGN AND POLE JUNCTIONS.

PREEMPTION

1.

SIGNAL PRE-EMPTION EQUIPMENT USED MUST BE LISTED IN THE APPLICABLE LOCAL JURISDICTION'S QUALIFIED/APPROVED PRODUCTS LIST, SPECIFICATIONS, AND/OR SPECIAL PROVISIONS. ALL INSTALLATIONS MUST BE COMPATIBLE WITH THE RESPONSIBLE AGENCIES' FIRE DEPARTMENT STANDARDS AND APPLICABLE LOCAL OPTICOM CENTRAL MANAGEMENT SYSTEMS THROUGH AN ETHERNET CONNECTION AND INTERFACE MODULE. THE COST MUST INCLUDE ALL COMPONENTS, ACTIVATION AND TESTING TO MAKE A FULLY OPERATIONAL SYSTEM.

REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP CERTIFICATE OF AUTHORIZATION 00009999	SIGNAL DESIGN DETAILS		<div>CENTRAL FLORIDA EXPRESSWAY AUTHORITY</div>	GENERAL NOTES SIGNALIZATION		SHEET NO.	
DATE	DESCRIPTION	DATE	DESCRIPTION								
					ROAD NO.	PROJECT NO.				2	

NOTES TO DESIGNER - TRAFFIC SIGNAL CABINETS
(NOT TO BE INCLUDED IN PLAN SHEET GENERAL NOTES SHEET)

PRIORITY #1. PLACING TRAFFIC SIGNAL CABINETS OUTSIDE OF AN ERRANT VEHICLE STRIKE ZONE. THESE ARE THE CORNERS WHERE THE MAJOR STREET LEFT TURNS TO THE MINOR STREET. THESE CORNERS ARE MORE SUBJECTED TO A VEHICLE'S HIGHER SPEED TRYING TO CATCH A YELLOW LIGHT AND LOSING CONTROL.

PRIORITY #2. PLACING TRAFFIC SIGNAL CABINETS IN A LOCATION WHERE A TECHNICIAN CAN SEE THE MOST AMOUNT OF PHASES FROM THE TRAFFIC SIGNAL CABINET LOCATION.

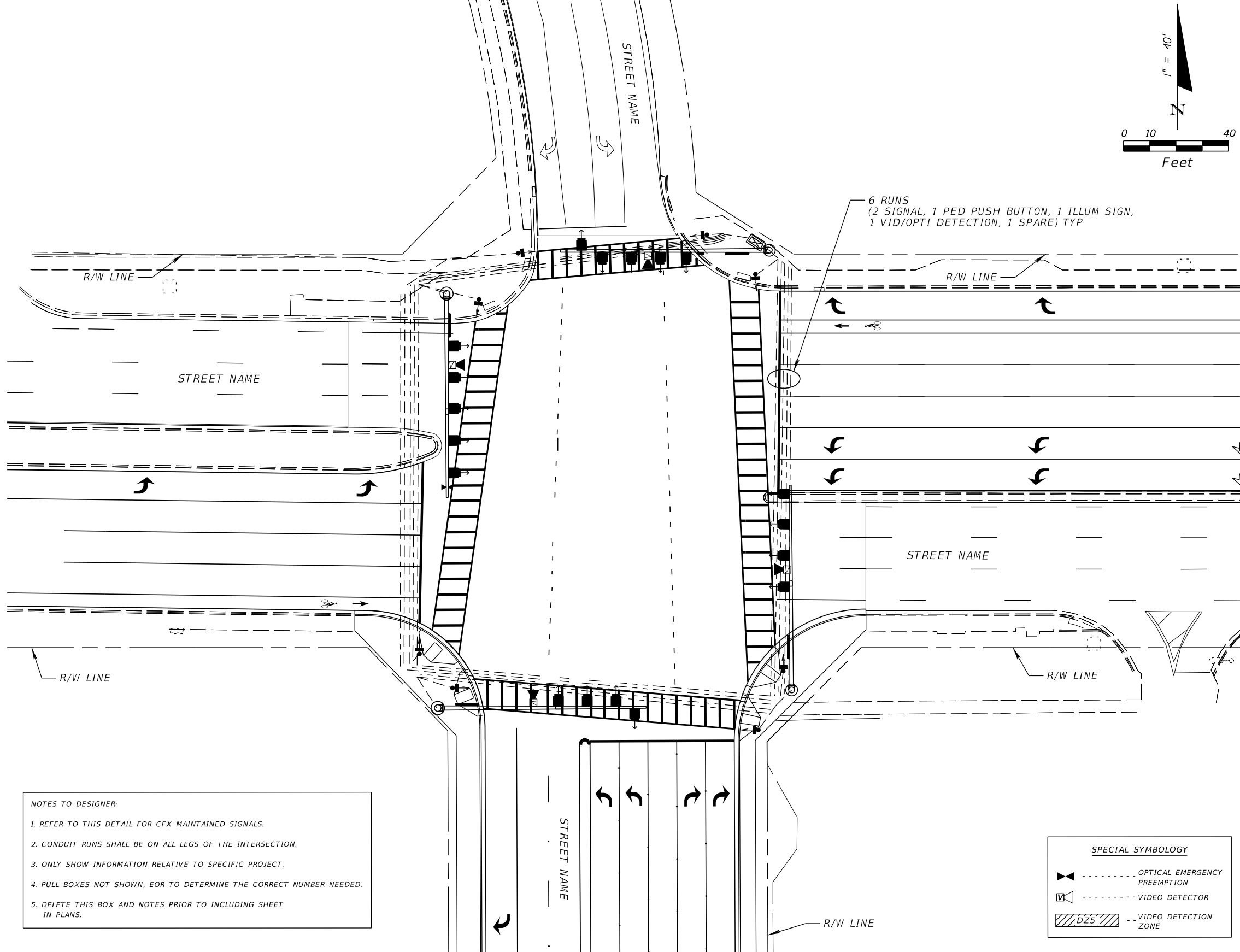
PRIORITY #3. PLACING TRAFFIC SIGNAL CABINETS IN A LOCATION WHERE THERE IS EXISTING SHADE AND EASILY ACCESSIBLE WITH A WORK TRUCK (NOT HAVING TO PARK ON A SIDE WALK, ETC.)

PRIORITY #4. PLACING SIGNAL CABINET IN A LOCATION WHERE THE TECHNICIAN HAS ENOUGH ROOM TO OPEN THE CABINET DOOR AND STILL BE IN THE RIGHT OF WAY AS THEY ACCESS THE CABINET.

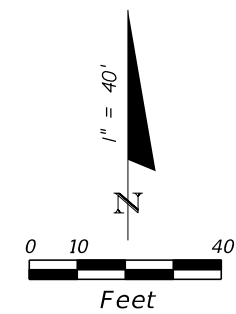
NOTES TO DESIGNER




REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP CERTIFICATE OF AUTHORIZATION 00009999	SIGNAL DESIGN DETAILS		<div>CENTRAL FLORIDA EXPRESSWAY AUTHORITY</div>	GENERAL NOTES SIGNALIZATION		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION							3
					ROAD NO.	PROJECT NO.				


SDATES\$ STIMES\$ SFILES\$ SUSERS\$



REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP CERTIFICATE OF AUTHORIZATION 00009999	SIGNAL DESIGN DETAILS		CENTRAL FLORIDA EXPRESSWAY AUTHORITY	SIGNALIZATION PLAN SHEET PLUS INTERSECTION DETAIL		SHEET NO.	
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.					
										4	

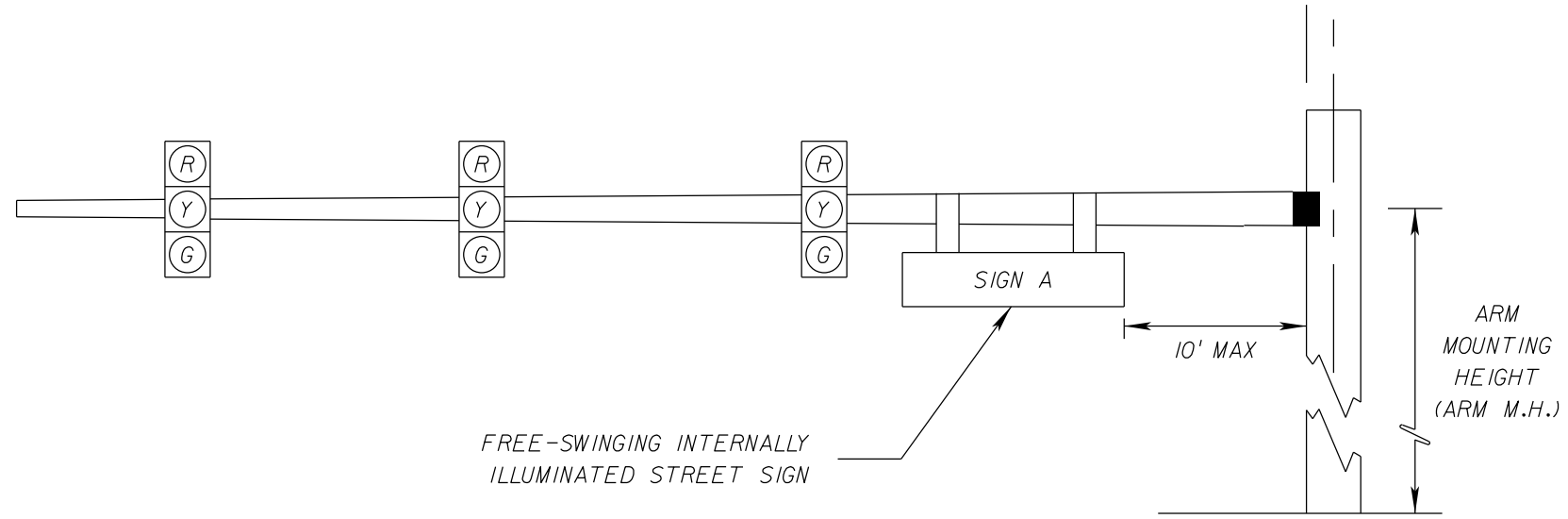


- SPECIAL SYMBOLOGY
-  OPTICAL EMERGENCY
PREEMPTION
-  VIDEO DETECTOR
-  VIDEO DETECTION
ZONE

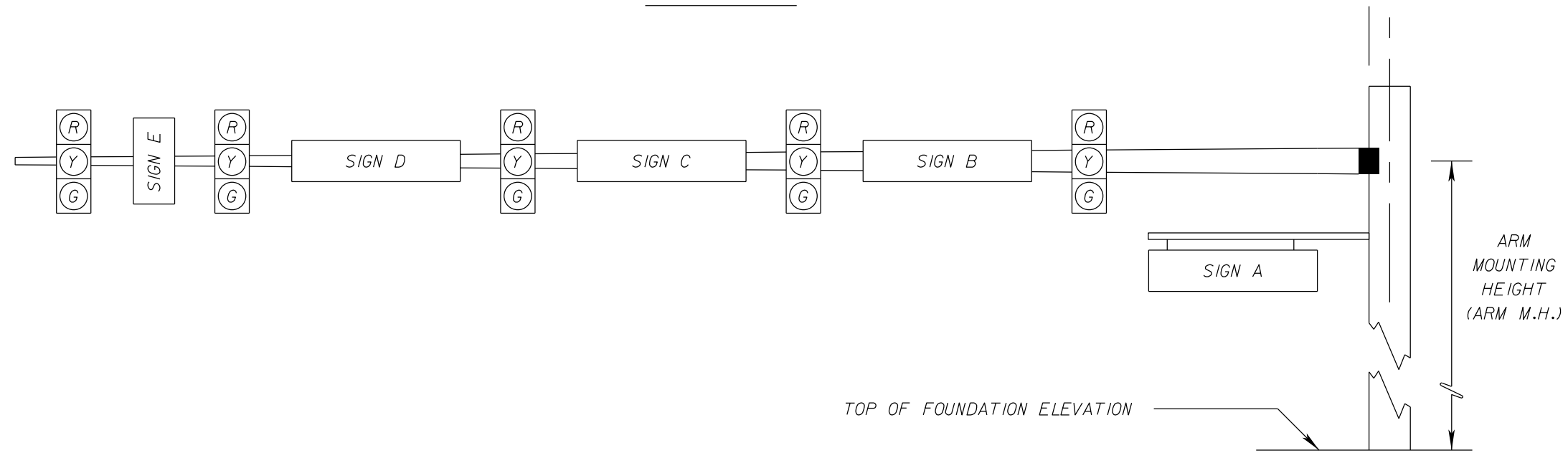
REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP CERTIFICATE OF AUTHORIZATION 00009999	SIGNAL DESIGN DETAILS			SIGNALIZATION PLAN SHEET T INTERSECTION DETAIL	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION						ROAD NO.

SDATES\$ STIMES\$ \$FILES\$ \$USERS\$

OPTION 1



OPTION 2



REVISIONS				ENGINEER OF RECORD FULL NAME, P.E. P.E. LICENSE NUMBER 99999 ENGINEER OF RECORD COMPANY NAME ENGINEER OF RECORD COMPANY STREET ENGINEER OF RECORD CITY, STATE AND ZIP CERTIFICATE OF AUTHORIZATION 00009999	SIGNAL DESIGN DETAILS		<div>CENTRAL FLORIDA EXPRESSWAY AUTHORITY</div>	INTERNALLY ILLUMINATED SIGN PLACEMENT DETAIL	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	PROJECT NO.			6