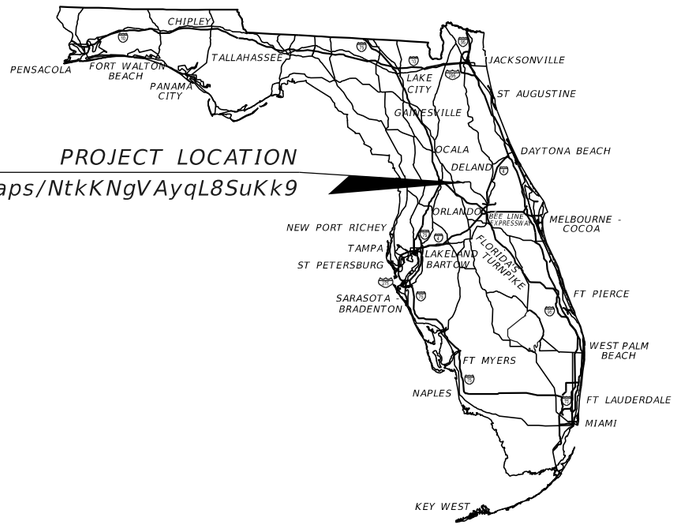
LAKE COUNTY

ENGINEERING DIVISION

CONTRACT PLANS

LAKE COUNTY PROJECT NO. 21-0940A #11

CR 19A AT
LAKE CENTER DRIVE / TRIANGLE DRIVE
SIGNAL DESIGN



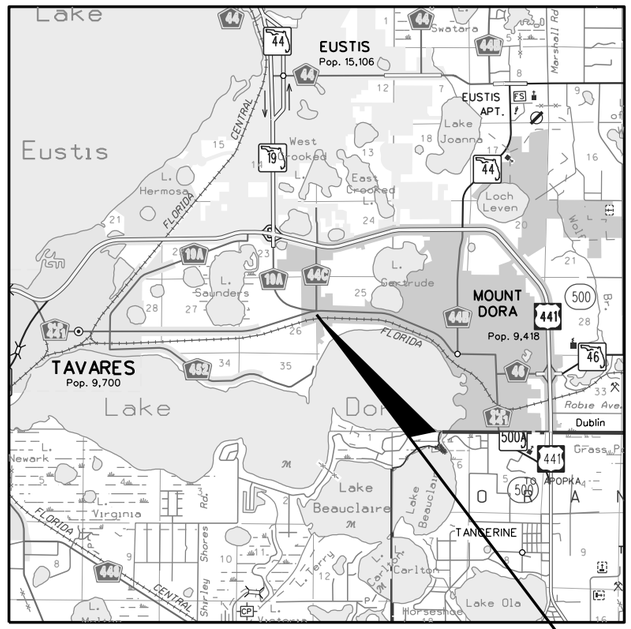
PROJECT LOCATION

https://goo.gl/maps/NtkKNgVAyqL8SuKk9

INDEX OF PLANS

* SHOWN FOR REFERENCE (INDEX 641-010)

R-26-E / R-27-E



T-19-S / T-20-S

R-26-E / R-27-E

LOCATION OF PROJECT

90% SUBMITTAL
OCT 16, 2025

GOVERNING STANDARD PLANS:

Florida Department of Transportation, FY2025-26 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, FY2025-26 Standard Specifications for Road and Bridge Construction at the following website:
http://www.fdot.gov/programmanagement/Implemented/SpecBooks

PLANS PREPARED BY:

METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224
TEL. (407) 644-1898

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

ENGINEER OF RECORD: RICARDO J. GONZALEZ, P.E.
P.E. NO.: 66564

LAKE COUNTY PROJECT MANAGER:

JEFF EARHART, P.E.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
	26	1

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

RICARDO J. GONZALEZ
LICENSE
No 66564
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

SIGNATURE MUST BE VERIFIED IN THE ELECTRONIC DOCUMENTS.

METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224
TEL. (407) 644-1898
RICARDO J. GONZALEZ, P.E. NO. 66564

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

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SIGNATURE SHEET
3	GENERAL NOTES
9	TABULATION OF QUANTITIES
10	SIGNING AND PAVEMENT MARKING PLAN
11	SIGNALIZATION PLAN
12	SIGNAL HEAD LOCATION PLAN
13	GUIDE SIGN WORKSHEET
18	SUMMARY OF VERIFIED UTILITIES

WILLIAM SCOTT DAVIS JR.
LICENSE
No 90549
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

SIGNATURE MUST BE VERIFIED IN THE ELECTRONIC DOCUMENTS.

METRIC ENGINEERING, INC.
13405 PANAMA CITY BEACH PARKWAY
SUITE D & E
PANAMA CITY BEACH, FLORIDA 32407
WILLIAM S. DAVIS JR., P.E. NO. 90549

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

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
4	TYPICAL SECTION
5	ROADWAY PLAN
6	CROSS SECTION
7	TEMPORARY TRAFFIC CONTROL NOTES
8	UTILITY ADJUSTMENT SHEET

PETER J. MEDICO
LICENSE
No 42654
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

SIGNATURE MUST BE VERIFIED IN THE ELECTRONIC DOCUMENTS.

METRIC ENGINEERING, INC.
525 TECHNOLOGY PARK, SUITE 153
LAKE MARY, FLORIDA 32746
TEL. (407) 644-1898
PETER J. MEDICO, P.E. NO. 42654

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

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
14	CONCRETE STRAIN POLE SCHEDULE

GODWIN N NNADI
LICENSE
No 50637
STATE OF FLORIDA
PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

SIGNATURE MUST BE VERIFIED IN THE ELECTRONIC DOCUMENTS.

NADIC ENGINEERING SERVICES, INC.
601 NORTH HART BOULEVARD
ORLANDO, FLORIDA 32818
GODWIN N NNADI, PH.D, P.E. NO. 50637

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

SHEET NO.	SHEET DESCRIPTION
2	SIGNATURE SHEET
15 - 17	REPORT SPT BORINGS RESULTS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

N/A

RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	COUNTY PROJECT NO.
CR 19A	LAKE	21-0940A #11

SIGNATURE SHEET

SHEET NO. 2

GENERAL NOTES:

1. A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH LAKE COUNTY TRAFFIC OPERATIONS, (352) 742-1766, PRIOR TO ANY CONSTRUCTION.

2. IT SHALL BE NOTED THAT NO TEST BORINGS HAVE BEEN MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE JOB SITE CONDITIONS PRIOR TO SUBMITTING BID PROPOSALS.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING LAKE COUNTY TRAFFIC OPERATIONS, AT 352-742-1766, 48 HOURS IN ADVANCE OF ALL PHASES OF CONSTRUCTION INCLUDING AND NOT LIMITED TO, ANY UNDERGROUND WORK, INSTALLING SIGNAL POLES, GROUND RODS, UNDERGROUND CONDUIT, SIGNAL HEAD ASSEMBLIES, AND LOOP INSTALLATION.

4. DURING CONSTRUCTION TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE FDOT TRAFFIC DESIGN STANDARDS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS INCLUDING THE ELECTRIC PERMIT. THE APPLICATION FOR POWER SHOULD BE COORDINATED WITH LAKE COUNTY TRAFFIC OPERATIONS.

6. 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. IF REQUIRED, THE FEE SHALL BE INCLUDED AS PART OF BID ITEM PAYMENT FOR ELECTRICAL SERVICE ASSEMBLY.

7. THE EXACT LOCATIONS OF ALL UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR PRIOR TO BEGINNING OF CONSTRUCTION.

8. THE CONTRACTOR SHALL STAKE ALL POLE LOCATIONS AND HAVE IT APPROVED BY LAKE COUNTY TRAFFIC OPERATIONS.

9. 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 WHEN JOINT USE POLES ARE TO BE USED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING THE PROPER AMOUNT OF RAKE WITH RESPECT TO LOADING TO BE USED ON POLES AT THE TIME OF INSTALLATION.

11. ALL MATERIALS AND HARDWARE SHALL BE F.D.O.T. APPROVED, AND PRE-APPROVED BY LAKE COUNTY TRAFFIC OPERATIONS.

12. ANY STRIPING/PAVEMENT MARKINGS OR LANDSCAPING DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.

13. THE COST FOR THE USE OF "TRAFFIC CONTROL OFFICER" IN THE EVENT OF LANE CLOSURES SHALL BE INCIDENTAL TO THE WORK AND WILL NOT BE PAID SEPARATELY.

14. 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 MAXIMUM TWO HOUR RESPONSE TIME.

PULL BOXES:

15. PULL BOX COVERS SHALL BE FDOT APPROVED NON METALLIC WITH RECESSED COVER LOGO "TRAFFIC SIGNAL" OR "FIBER OPTICS" AS APPROPRIATE.

16. PULL BOXES SHALL BE LOCATED AWAY FROM EDGE OF PAVEMENT, OR BEHIND A CURB WHEN POSSIBLE, ATTEMPTING TO KEEP FROM THE BOTTOM OF A DITCH OR RETENTION AREA, AND WHERE LARGE VEHICLES PARK.

17. MULTIPLE CONDUITS IN THE SAME RUN SHALL BE PAID FOR AS DIRECTIONAL BORED OR JACK AND BORED FOR THE FIRST CONDUIT ONLY, ALL OTHERS WILL BE PAID FOR AS UNDERGROUND. ALL FIBER OR FUTURE USE CONDUIT SHALL HAVE A LOCATE WIRE INSTALLED.

CABINET/CONTROLLER:

18. THE CABINET ASSEMBLY TEMPLE MODEL TF5116TFL02 - NEMA TS2 ELS1008FLG2 DOUBLE DOOR CABINET, 67" H, FRONT & BACK DOORS, TS2-1; OR TCS 676-023-008 TRANSPORTATION CONTROL SYSTEMS (TCS) WIRED CABINET ASSEMBLY TS-2 SIZE 6 ZFDOT-4, OR TRAFFICWARE 70006-TS2/FL TYPE-6 WITH REAR DOOR TS2-1: NEMA, TYPE 6 STRETCH, FRONT/REAR DOOR, PEC, WHITE INSIDE / WITH A TS2-1 INTELIGHT-QFREE CONTROLLER XN-1 OR XN-2 CONTROLLER ETHERNET ENABLED FOR COUNTY CLOSED LOOP SYSTEM, TO INCLUDE AN ETHERNET SWITCH WITH BYPASS CAPABILITIES, TO INCLUDE A GENERATOR SWTICH BOX PANEL. TYPE 6 CABINET. UNINTERRUPTABLE POWER SUPPLY (UPS) SHALL BE STAND ALONE WITHIN ITS OWN CABINET, INSTALLED ON A CONCRETE PAD ADJACENT TO THE CABINET BASE. THE UNINTERRUPTABLE POWER SUPPLY SHALL BE ON THE FDOT APPROVED PRODUCTS LIST (APL).

19. A GENERATOR PAD, 3'X3'X4" CONCRETE SHALL BE INSTALLED WITH 5/8" EYEBOLT INSTALLED IN THE PAD ADJACENT TO CABINET BASE.

20. THE CABINET CONCRETE BASE SHALL BE A MINIMUM OF 32"X48" TO ACCOMMODATE TYPE 6 CABINETS.

21. GROUNDING FOR THE CONTROLLER ASSEMBLY SHALL MEASURE 25 OHMS. OR LESS.

22. THE CABINET DOOR SHALL OPEN AWAY FROM THE INTERSECTION WHEN POSSIBLE.

23. THE MOUNTING OF THE ELECTRICAL SERVICE TO THE TRAFFIC SIGNAL CABINET SHALL BE PROHIBITED.

24. AN ELECTRIC SERVICE DISCONNECT WITH A 30 AMP BREAKER FOR THE TRAFFIC SIGNAL AND A 20 AMP BREAKER FOR THE OVERHEAD INTERNALLY ILLUMINATED STREET SIGNS SHALL BE INSTALLED AT THE TRAFFIC SIGNAL CABINET ON A SEPARATE POLE.

25. THE INSIDE LANE DISCONNECT SHALL BE WIRED FOR FUTURE 5 SECTION HEADS.

26. A MANUAL PUSH BUTTON CORD SHALL BE FURNISHED IN ALL CONTROLLER CABINETS.

27. A CONDUIT WITH AT LEAST A #6 GROUND WIRE SHALL BE PROVIDED FROM THE SIGNAL CABINET TO THE POWER METER LOCATION. THE #6 GROUND WIRE SHALL BE CONNECTED TO THE POWER COMPANY MULTI-GROUND NEUTRAL (MGN) GROUND LOCATED BENEATH THE EARTH AT THE POWER METER. THE OTHER END SHALL BE CONNECTED TO THE THE GROUNDING BUSS LOCATED INSIDE THE SIGNAL CABINET.

SIGNAL HEADS:

28. SIGNAL HEADS SHALL BE WIRED DIRECTLY TO THE TERMINAL BLOCKS. THE USE OF "JONES" PLUGS IS PROHIBITED.

29. DISCONNECTS SHALL OPEN FROM THE SIGNAL FACE. (NOT FROM THE REAR)

30. SIGNAL HEADS SHALL BE WIRED PER IMSA NEMA PHASING, PHASE 2 AND 6 ARE TYPICALLY ASSIGNED TO MAJOR-STREET WITH PHASE 2 BEING SOUTH OR WEST BOUND THROUGH MOVEMENTS. THE USUAL CONVENTION IS FOR THROUGH PHASES TO BE NUMBERED IN THE CLOCKWISE DIRECTION STARTING WITH PHASE 2, AND THE LEFT-TURN PHASES TO BE NUMBERED IN THE CLOCKWISE DIRECTION, WITH PHASE 1 BEING ACCOMPANYING LEFT-TURN TO PHASE 6.

31. VEHICLE SIGNAL HEAD ASSEMBLIES SHALL BE BLACK, CAST ALUMINUM, WITH TUNNEL VISORS, AND LED'S FOR ALL INDICATIONS, UNLESS OTHERWISE NOTED.

32. SIGNAL CABLE SHALL BE ATTACHED TO MESSENGER WIRE USING PROPER SIZE SPIRAL WRAP.

33. FOR SPAN WIRE ASSEMBLIES, THE DUAL POINT SPAN WIRE ATTACHMENT, FDOT DESIGN STANDARDS INDEX 634-001 DSR REQUIRING A TRI-STUD ADJUSTABLE HANGER, EXTENSION CONNECTOR, SPAN WIRE CLAMP AND MESSENGER WIRE CLAMP SHALL BE USED.

ILLUMINATED STREET SIGNS:

34. INTERNALLY ILLUMINATED STREET NAME SIGNS (LED), SHALL BE INSTALLED 1' BELOW THE MESSENGER CABLE WHERE POSSIBLE, POWERED BY A SEPARATE CIRCUIT BREAKER, AND BE DESIGNED AND INSTALLED IN ACCORDANCE WITH LAKE COUNTY PUBLIC WORKS INTERNALLY ILLUMINATED STREET NAME SIGN DETAIL. A PHOTOCELL SHALL BE INSTALLED NEAR THE ELECTRIC SERVICE WITHIN REACH OF A LIFT TRUCK. CARE TO BE GIVEN TO INSTALL WHERE STREET LIGHTING DOES NOT AFFECT OPERATION.

35. 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.

OTHER:

36. A NTCIP CCTV ASSEMBLY SHALL BE FURNISHED AND INSTALLED AT A LOCATION FOR OPTIMAL PERFORMANCE. IT MUST BE COMPATIBLE WITH OUR CURRENT SYSTEM. THE CAMERA WILL HAVE ELECTRONIC IMAGE STABILIZATION AND PTZ CONTROL. THE ASSEMBLY WILL INCLUDE A SURGE PANEL, A VIDEO CONVERTER AND SPECIAL MOUNTING HARDWARE IF NEEDED TO GET OPTIMAL PERFORMANCE.

37. OPTICOM PREEMPTION OR EQUIVALENT SHALL BE USED WHEN EMERGENCY PREEMPTION IS REQUESTED.

38. A FIBER OPTIC VAULT AND CONDUIT INTO THE CONTROLLER ASSEMBLY SHALL BE INSTALLED.

NOTE: ALL DAMAGED/DESTROYED CONDUITS DURING CONSTRUCTION SHALL BE REPLACED BY CONTRACTOR.

PAY ITEM NOTES:

1. 684-6-1 WIRELESS COMMUNICATIONS TO INCLUDE 2 YEAR SUBSCRIPTION.

UTILITIES:

1. THE LOCATION(S) OF THE UTILITIES SHOWN IN THE PLANS (INCLUDING THOSE DESIGNATED Vv, Vh, and Vvh 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.

2. UTILITY/AGENCY OWNERS:

COMPANY	CONTACT	TELEPHONE OR EMAIL
CENTURYLINK	KURT E. JUDD	(352) 401-6555
CITY OF MOUNT DORA - ELECTRIC	WAYNE ZIMMERMAN	(352) 735-7154, X1318 (352) 630-9487
CITY OF MOUNT DORA - FIBER	JASON MARLAR	MARLARJ@CITYOFMOUNTDORA.COM
CITY OF MOUNT DORA - WATER & WASTEWATER	JOSH KRAMM	(352) 516-3691
CITY OF TAVARES	PHIL CLARK	(352) 742-6485
COMCAST COMMUNICATIONS	SCOTT OSEBOLD	(352) 315-8527
DUKE ENERGY DISTRIBUTION	ALEXANDER CHARTERS	(407) 319-4469
DUKE ENERGY - FIBER	MARK HURST	(727) 820-5208
SUMMIT BROADBAND	MICHELLE DANIEL	(407) 996-1183
TECO PEOPLE'S GAS	BRUCE STOUT	(407) 420-2678

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 51G15-23.004, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

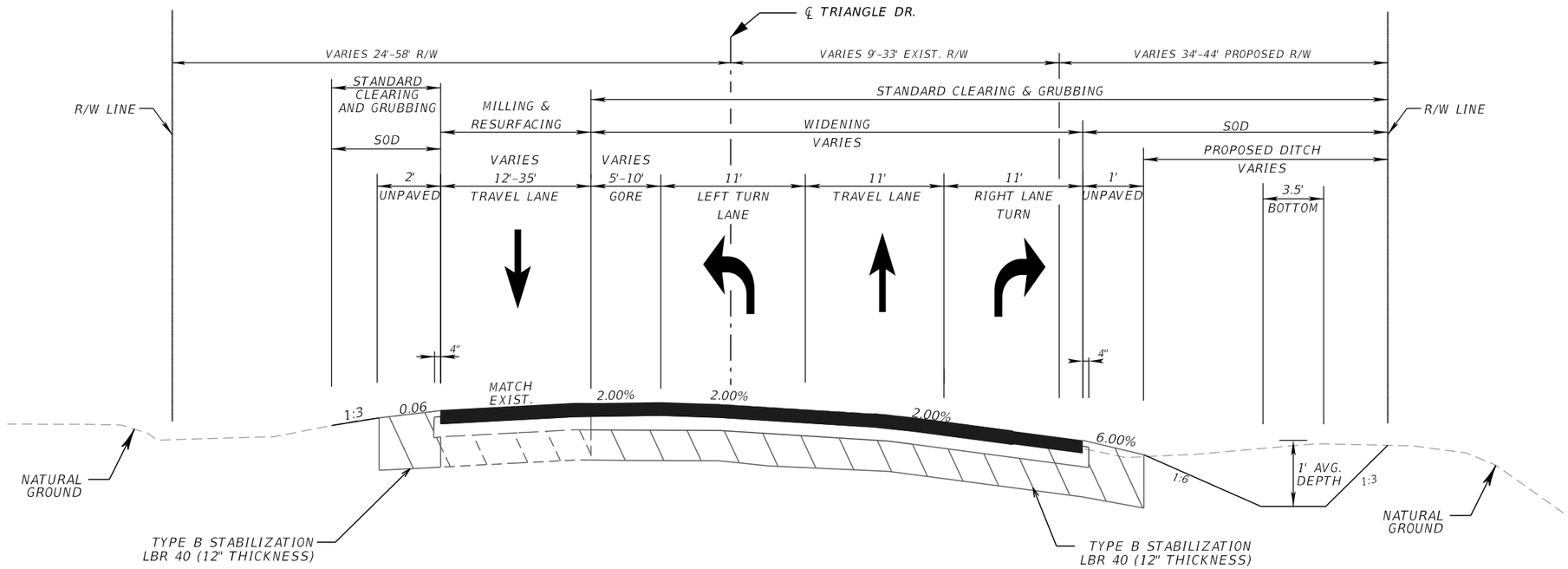
RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

GENERAL NOTES

SHEET NO. 3



STA. 405+65.06 – STA. 407+83.50

MILLING AND RESURFACING

MILL EXISTING ASPHALT PAVEMENT (1 ½" DEPTH)

FRICTION COURSE FC-12.5 (TRAFFIC C) (1 ½") (PG 76-22)

WIDENING

OPTIONAL BASE GROUP 9

TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2")

FRICTION COURSE FC-12.5 (TRAFFIC C) (1 ½") (PG 76-22)

COMMERCIAL DRIVEWAY

OPTIONAL BASE GROUP 2

TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2")

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

WILLIAM SCOTT DAVIS JR., P.E.
LICENSE NUMBER: 90549
METRIC ENGINEERING INC.
13940 SW 136TH ST, SUITE 200
MIAMI, FLORIDA 33186

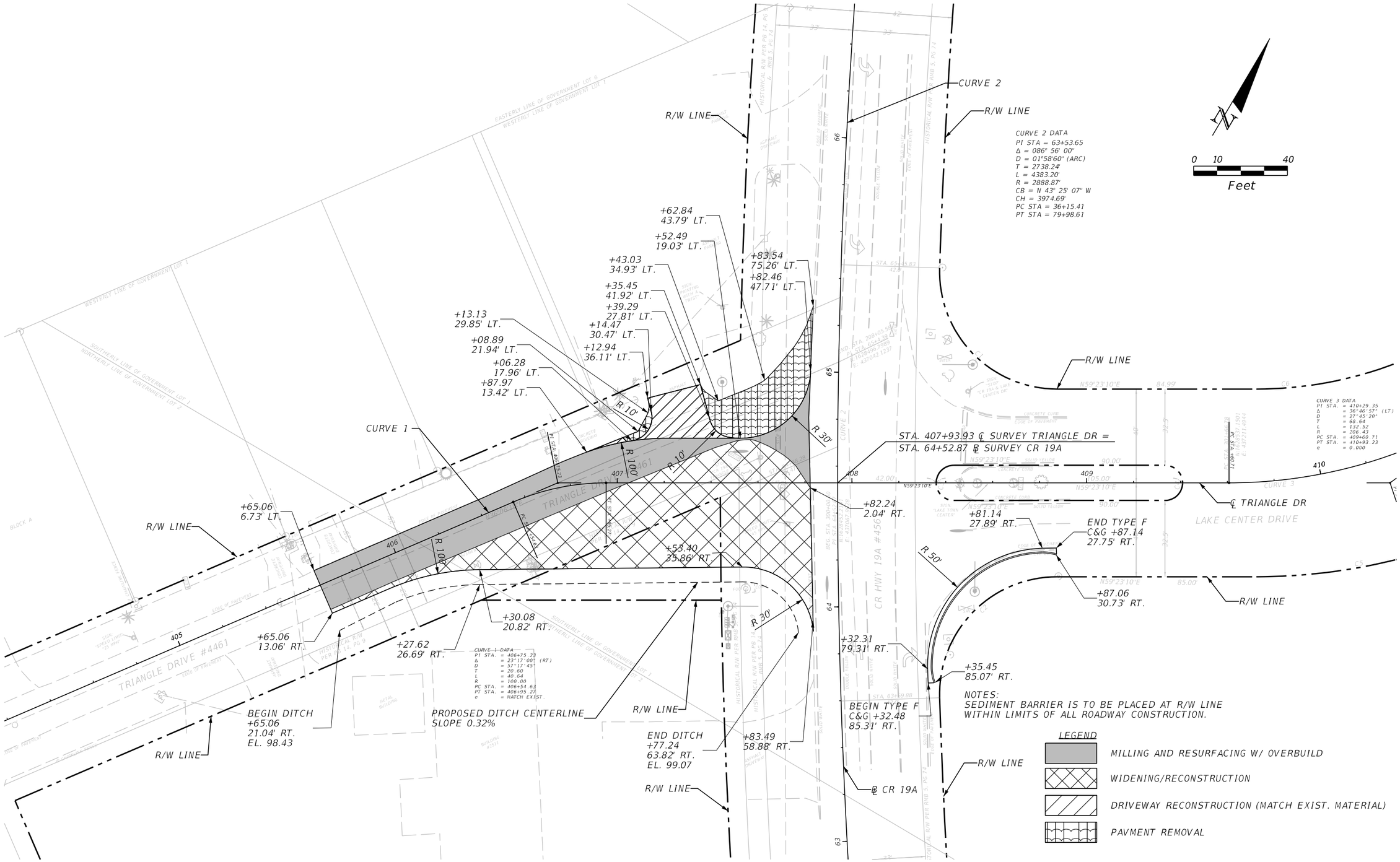
LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

TYPICAL SECTION

SHEET NO. 4

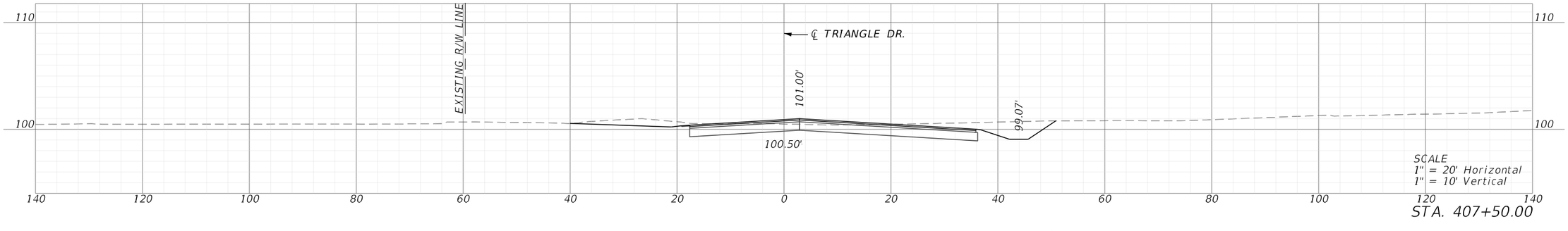
c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\john.battle@metriceng.com\dms58824\TYPSRD01.dgn : TYPICALSHEET 1
William.Davis 10/16/2025 1:17:42 PM



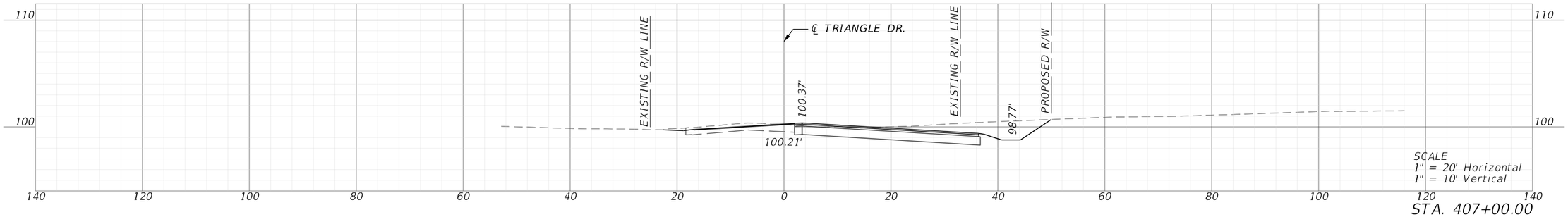
REVISIONS				ENGINEER OF RECORD	LAKE COUNTY ENGINEERING DIVISION				SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	WILLIAM SCOTT DAVIS JR., P.E. LICENSE NUMBER: 90549 METRIC ENGINEERING INC. 13940 SW 136TH ST, SUITE 200 MIAMI, FLORIDA 33186	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	ROADWAY PLAN	5
					CR 19A	LAKE	21-0940A #11		

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

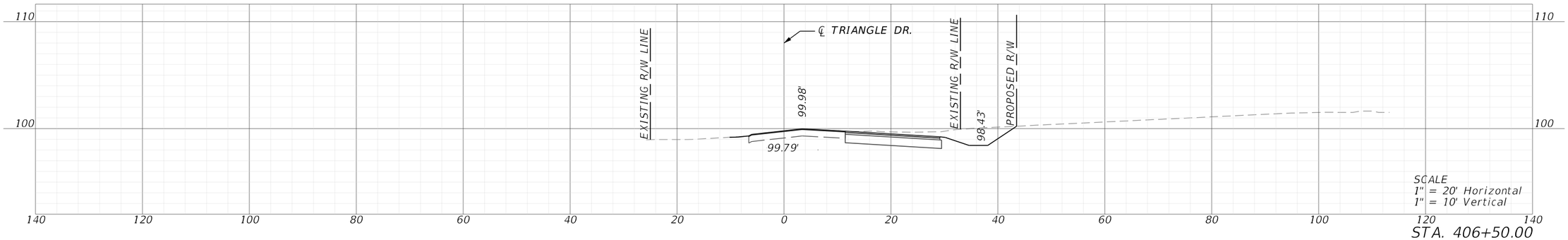
c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\william.davis@metriceng.com\dms58824\PLANRD01.dgn : UNTITLED-1 [SHEET]
William.Davis 10/16/2025 1:26:51 PM



STA. 407+50.00



STA. 407+00.00



STA. 406+50.00

REVISIONS				ENGINEER OF RECORD	LAKE COUNTY ENGINEERING DIVISION			CROSS SECTIONS	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	WILLIAM SCOTT DAVIS JR., P.E. LICENSE NUMBER: 90549 METRIC ENGINEERING INC. 13940 SW 136TH ST, SUITE 200 MIAMI, FLORIDA 33186	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		6
					CR 19A	LAKE	21-0940A #11		

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

c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\william.davis@metriceng.com\dms58824\RDXSRD01.dgn : CL TRIANGLE DR.-1 - 406+50.00 [SHEET]
William.Davis 10/16/2025 1:15:32 PM

TRAFFIC CONTROL NOTES

1. CONTRACTOR TO ENSURE THAT INGRESS/EGRESS FOR DRIVEWAYS AND SIDE STREETS IS MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
2. IF SIGNALIZATION FEATURES ARE NOT ACTIVATED AND FUNCTIONING DURING TRAFFIC PATTERNS SHIFT, INSTALL OR RELOCATE EXISTING STOP SIGNS.

TRAFFIC CONTROL PHASES

PHASE I

1. INSTALL ADVANCE WARNING SIGNAGE BEFORE BEGINNING ANY WORK ON THIS PROJECT (USE INDEXES 102-600 AND 102-602).
2. INSTALL EROSION CONTROL DEVICES (USE INDEXES 102-600 AND 102-601, 102-602 OR 102-603 AS APPLICABLE).

PHASE II

1. CONSTRUCT MISC. DRAINAGE AND DRIVEWAY IMPROVEMENTS (USE INDEXES 102-600, 102-601, 102-602 OR 102-603 AS APPLICABLE).
2. CONSTRUCT WIDENING AREAS THROUGH STRUCTURAL COURSE ASPHALT, APPLY TEMPORARY PAINTED PAVEMENT MARKINGS (USE INDEXES 102-600 AND 102-602, 102-603 OR 102-604 AS APPLICABLE).
3. INSTALL PROPOSED SIGNAL STRAIN POLES AND CABINET.
4. PERFORM 48-HOUR TEST FOR SIGNAL INSTALLATION PER FDOT STANDARD SPECIFICATION 611-4.1.

PHASE III

1. PERFORM MILLING AND RESURFACING OPERATIONS (INCLUDING OVERBUILD WHERE APPLICABLE) ON TRIANGLE DR TRAVEL LANES AND APPLY PAINTED PAVEMENT MARKINGS TO FRICTION COURSE – FINAL SURFACE APPLICATION (USE TEMPORARY TRAFFIC CONTROL DETAIL AND INDEXES 102 – 600 AND 102 – 603 OR 102 – 604 AS APPLICABLE).
2. REMOVE ALL EROSION AND SEDIMENT CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL DEVICES (USE TEMPORARY TRAFFIC CONTROL DETAIL AND INDEXES 102-600 AND 102-601, 102-602 OR 102-603 AS APPLICABLE).

NOTE: PHASE DESIGNATIONS ARE FOR REFERENCE ONLY AND ARE NOT INTENDED TO PRESCRIBE THE SEQUENCE OF CONSTRUCTION. SEQUENCING OF PHASES MAY BE ALTERED AS NECESSARY TO MEET THE CONTRACT REQUIREMENTS.

PORTABLE CHANGEABLE MESSAGE SIGN DISPLAYS

1. USE PORTABLE CHANGEABLE MESSAGE SIGN AT BEGIN AND END PROJECT, 500' BEFORE SIGNAGE, FOURTEEN (14) DAYS PRIOR TO CONSTRUCTION WITH THE FOLLOWING MESSAGE:

MESSAGE A	MESSAGE B
CR 19A RD WORK BEGINS	MONTH DAY YEAR

CR 19A PCMS DISPLAY

14 DAYS PRIOR TO CONSTRUCTION (NTS)

MESSAGE A	MESSAGE B
TRIANGLE RD WORK BEGINS	MONTH DAY YEAR

TRIANGLE DR PCMS DISPLAY

14 DAYS PRIOR TO CONSTRUCTION (NTS)

2. USE PORTABLE CHANGEABLE MESSAGE SIGN AT BEGIN AND END ACTIVE WORK ZONE, 500' BEFORE LANE CLOSURES:

MESSAGE A	MESSAGE B
LANE CLOSURE AHEAD	EXPECT DELAYS

CR 19A PCMS DISPLAY

DURING LANE CLOSURES (NTS)

MESSAGE A	MESSAGE B
LANE CLOSURE AHEAD	EXPECT DELAYS

TRIANGLE DR PCMS DISPLAY

DURING LANE CLOSURES (NTS)

3. USE PORTABLE CHANGEABLE MESSAGE SIGN, 500' BEFORE BEGIN AND END ACTIVE WORK ZONE, THROUGHOUT CONSTRUCTION:

MESSAGE A	MESSAGE B
ROAD WORK AHEAD	USE CAUTION

CR 19A PCMS DISPLAY

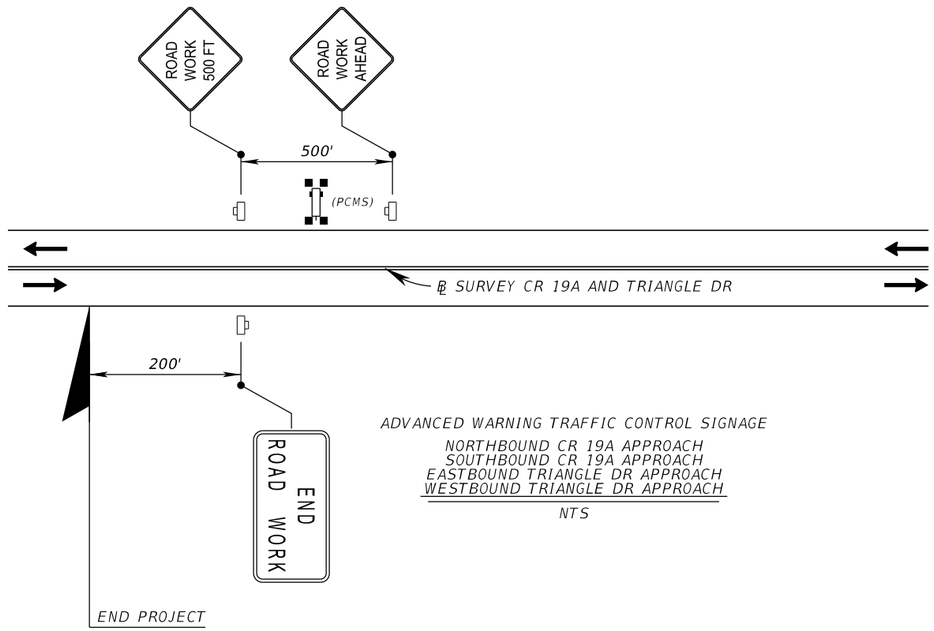
DURING CONSTRUCTION (NTS)

MESSAGE A	MESSAGE B
ROAD WORK AHEAD	USE CAUTION

TRIANGLE DR PCMS DISPLAY

DURING CONSTRUCTION (NTS)

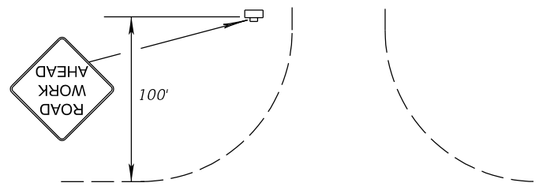
OTHER MESSAGES PERMISSABLE AS APPROVED BY THE PROJECT ENGINEER.



ADVANCED WARNING TRAFFIC CONTROL SIGNAGE

NORTHBOUND CR 19A APPROACH
SOUTHBOUND CR 19A APPROACH
EASTBOUND TRIANGLE DR APPROACH
WESTBOUND TRIANGLE DR APPROACH

NTS



TRIANGLE DR

TYPICAL TRAFFIC CONTROL SIGNAGE FOR SIDE ROADS RIGHT & LEFT

NTS

SIDE ROADS

NAME	STATION	SIDE
OAK DR	400+00	RT
SHORT ST	401+80	LT
AZAELEA	403+60	RT

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

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

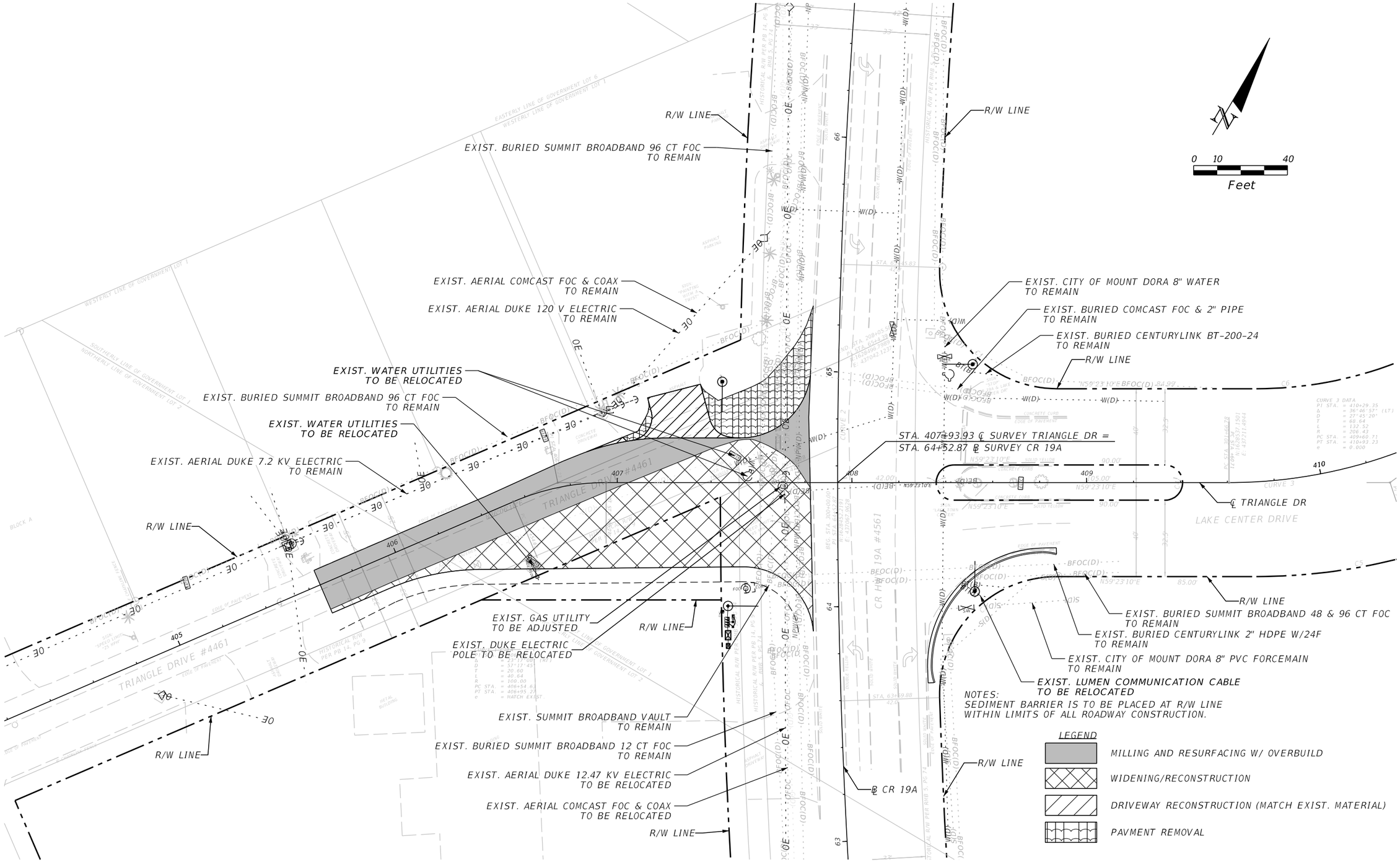
WILLIAM SCOTT DAVIS JR., P.E.
LICENSE NUMBER: 90549
METRIC ENGINEERING INC.
13940 SW 136TH ST, SUITE 200
MIAMI, FLORIDA 33186

LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

TEMPORARY TRAFFIC CONTROL NOTES

SHEET NO. 7



NOTES:
SEDIMENT BARRIER IS TO BE PLACED AT R/W LINE WITHIN LIMITS OF ALL ROADWAY CONSTRUCTION.

LEGEND

- MILLING AND RESURFACING W/ OVERBUILD
- WIDENING/RECONSTRUCTION
- DRIVEWAY RECONSTRUCTION (MATCH EXIST. MATERIAL)
- PAVMENT REMOVAL

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

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

WILLIAM SCOTT DAVIS JR., P.E.
LICENSE NUMBER: 90549
METRIC ENGINEERING INC.
13940 SW 136TH ST, SUITE 200
MIAMI, FLORIDA 33186

LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

UTILITY ADJUSTMENT

SHEET NO. 8

c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\john.battle@metriceng.com\dms58846\UTADRD01.dgn : UNTITLED-1 [SHEET]
William.Davis 10/16/2025 1:19:32 PM

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS														TOTAL THIS SHEET		GRAND TOTAL	
			10		11															
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL
110-22	TREE ROOT AND BRANCH PRUNING	EA			1												1		1	
630-2-11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF			335												335		335	
630-2-14	CONDUIT, FURNISH & INSTALL, ABOVEGROUND	LF			30												30		30	
632-7-1	SIGNAL CABLE- NEW OR RECONSTRUCTED INTERSECTION, FURNISH & INSTALL	PI			1												1		1	
634-4-153	SPAN WIRE ASSEMBLY, F&I, TWO POINT, BOX OR DROP BOX	PI			1												1		1	
635-2-11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA			5												5		5	
639-1-121	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER FURNISHED BY POWER COMPANY	AS			1												1		1	
639-2-1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF			320												320		320	
639-3-11	ELECTRICAL SERVICE DISCONNECT, F&I, POLE MOUNT	EA			2												2		2	
641-2-12	PRESTRESSED CONCRETE POLE, F&I, TYPE P-II SERVICE POLE	EA			3												3		3	
641-2-18	PRESTRESSED CONCRETE POLE, F&I, TYPE P-VIII	EA			4												4		4	
650-1-14	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 3 SECTION, 1 WAY	AS			8												8		8	
650-1-16	VEHICULAR TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 4 SECTION, 1 WAY	AS			3												3		3	
660-4-11	VEHICLE DETECTION SYSTEM - VIDEO, FURNISH & INSTALL CABINET EQUIPMENT	EA			1												1		1	
660-4-12	VEHICLE DETECTION SYSTEM- VIDEO, FURNISH & INSTALL ABOVE GROUND EQUIPMENT	EA			4												4		4	
663-1-111	SIGNAL PRIORITY AND PREEMPTION SYSTEM, F&I, OPTICAL, CABINET ELECTRONICS	EA			1												1		1	
663-1-112	SIGNAL PRIORITY AND PREEMPTION SYSTEM, F&I, OPTICAL, DETECTOR	EA			4												4		4	
663-1-122	SIGNAL PRIORITY AND PREEMPTION SYSTEM, FURNISH AND INSTALL, GPS, DETECTOR	EA			1												1		1	
663-1-123	SIGNAL PRIORITY AND PREEMPTION SYSTEM, FURNISH AND INSTALL, GPS, CABINET ELECTRONICS	EA			1												1		1	
670-5-161	TRAFFIC CONTROLLER ASSEMBLY, F&I, NEMA W/STANDARD LOCK, 1 PREEMPTION	AS			1												1		1	
682-1-173	ITS CCTV CAMERA, NON-PRESSURIZED, IP, HIGH DEFINITION	EA			1												1		1	
684-1-1	MANAGED FIELD ETHERNET SWITCH, FURNISH & INSTALL	EA			1												1		1	
684-6-1	WIRELESS COMMUNICATION SYSTEM DEVICE, FURNISH & INSTALL WITH 2 YEAR SUBSCRIPTION	EA			1												1		1	
685-1-13	UNINTERRUPTIBLE POWER SUPPLY, FURNISH AND INSTALL, LINE INTERACTIVE WITH CABINET	EA			1												1		1	
700-1-500	SINGLE COLUMN GROUND SIGN ASSEMBLY, RELOCATE	EA	1														1		1	
700-1-600	SINGLE COLUMN GROUND SIGN ASSEMBLY, REMOVE	EA	2														2		2	
700-5-22	INTERALLY ILLUMINATED SIGN, FURNISH & INSTALL, OVERHEAD MOUNT, 12-18 SF	EA			4												4		4	
706-1-3	RAISED PAVEMENT MARKER, TYPE B	EA	66														66		66	
710-11-101	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID, 6"	GM	0.116														0.116		0.116	
710-11-125	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR STOP LINE OR CROSSWALK, 24"	LF	36														36		36	
710-11-170	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, ARROWS	EA	6														6		6	
710-11-201	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	GM	0.116														0.116		0.116	
710-11-224	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID FOR DIAGONAL OR CHEVRON, 18"	LF	98														98		98	
711-11-125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE AND CROSSWALK	LF	100														100		100	
711-11-170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA	9														9		9	
711-11-224	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	98														98		98	
711-16-101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM	0.136														0.136		0.136	
711-16-201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM	0.120														0.120		0.120	
711-17-1	THERMOPLASTIC, REMOVE EXISTING THERMOPLASTIC PAVEMENT MARKINGS- SURFACE TO REMAIN	SF	83														83		83	

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

TABULATION OF QUANTITIES

SHEET NO. 9

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDE RULE 51G15-23.004, F.A.C.

c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\nickolas.rodd@metriceng.com\dms58829\CESSSG01.dgn : PAYITEMSHEETS
Nickolas.Rodd 10/16/2025 2:53:54 PM

711-17-1 83 SF

TRIANGLE DR (25 MPH)

496

6" DBL. YELLOW W/Y-Y RPMs 40' OC

R/W LINE

R/W LINE

6" WHITE

R/W LINE

6" WHITE W/W-R RPMs 20' OC

6" DBL. YELLOW W/Y-Y RPMs 8" OC

TO BE RELOCATED
FROM STA. 64+35, 21' LT;
TO STA. 63+87, 22' LT
700-1-500 1 AS

18" YELLOW @ 45° 10' OC

6" DBL. YELLOW W/Y-Y RPMs 10' OC

SPEED LIMIT 45

STOP

CR 19A

TRIANGLE DR

TO BE REMOVED
700-1-600 1 AS

R/W LINE

24" WHITE

6" WHITE

6" WHITE W/W-R RPMs 20' OC

6" DBL. YELLOW W/Y-Y RPMs 40' OC

R/W LINE

R/W LINE

R/W LINE

24" WHITE

CR 19A (45 MPH)

62 63 64 65 66 67

℄ CR 19A

℄ TRIANGLE DR

N39°23'10"E

408

409

LAKE CENTER DR (25 MPH)

R/W LINE

24" WHITE

6" WHITE

R/W LINE

LAKE CENTER DR

CR 19A

TO BE REMOVED
700-1-600 1 AS

STOP

R/W LINE

N

0 10 40
Feet

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

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

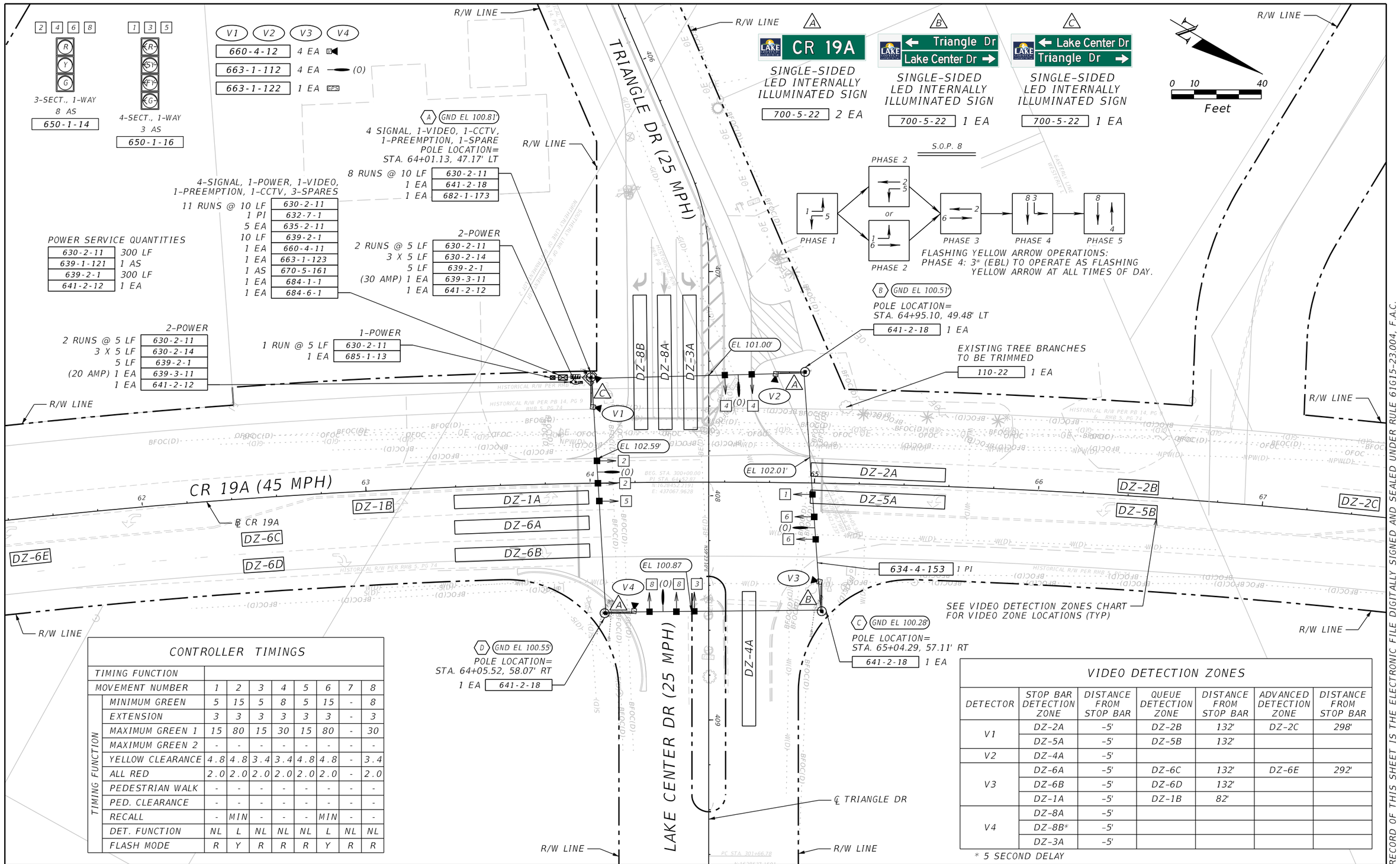
LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

SIGNING & PAVEMENT MARKING PLAN

SHEET NO. 10

c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\john.battle@metriceng.com\dms58831\PLANSP01.dgn : BL CR 19A - PLAN 5 [SHEET]
Nickolas.Rodd 10/16/2025 1:33:05 PM



CONTROLLER TIMINGS

TIMING FUNCTION									
MOVEMENT NUMBER		1	2	3	4	5	6	7	8
TIMING FUNCTION	MINIMUM GREEN	5	15	5	8	5	15	-	8
	EXTENSION	3	3	3	3	3	3	-	3
	MAXIMUM GREEN 1	15	80	15	30	15	80	-	30
	MAXIMUM GREEN 2	-	-	-	-	-	-	-	-
	YELLOW CLEARANCE	4.8	4.8	3.4	3.4	4.8	4.8	-	3.4
	ALL RED	2.0	2.0	2.0	2.0	2.0	2.0	-	2.0
	PEDESTRIAN WALK	-	-	-	-	-	-	-	-
	PED. CLEARANCE	-	-	-	-	-	-	-	-
	RECALL	-	MIN	-	-	-	MIN	-	-
	DET. FUNCTION	NL	L	NL	NL	NL	L	NL	NL
	FLASH MODE	R	Y	R	R	R	Y	R	R

VIDEO DETECTION ZONES

DETECTOR	STOP BAR DETECTION ZONE	DISTANCE FROM STOP BAR	QUEUE DETECTION ZONE	DISTANCE FROM STOP BAR	ADVANCED DETECTION ZONE	DISTANCE FROM STOP BAR
V1	DZ-2A	-5'	DZ-2B	132'	DZ-2C	298'
	DZ-5A	-5'	DZ-5B	132'		
V2	DZ-4A	-5'				
V3	DZ-6A	-5'	DZ-6C	132'	DZ-6E	292'
	DZ-6B	-5'	DZ-6D	132'		
	DZ-1A	-5'	DZ-1B	82'		
V4	DZ-8A	-5'				
	DZ-8B*	-5'				
	DZ-3A	-5'				

* 5 SECOND DELAY

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

LAKE COUNTY
ENGINEERING DIVISION

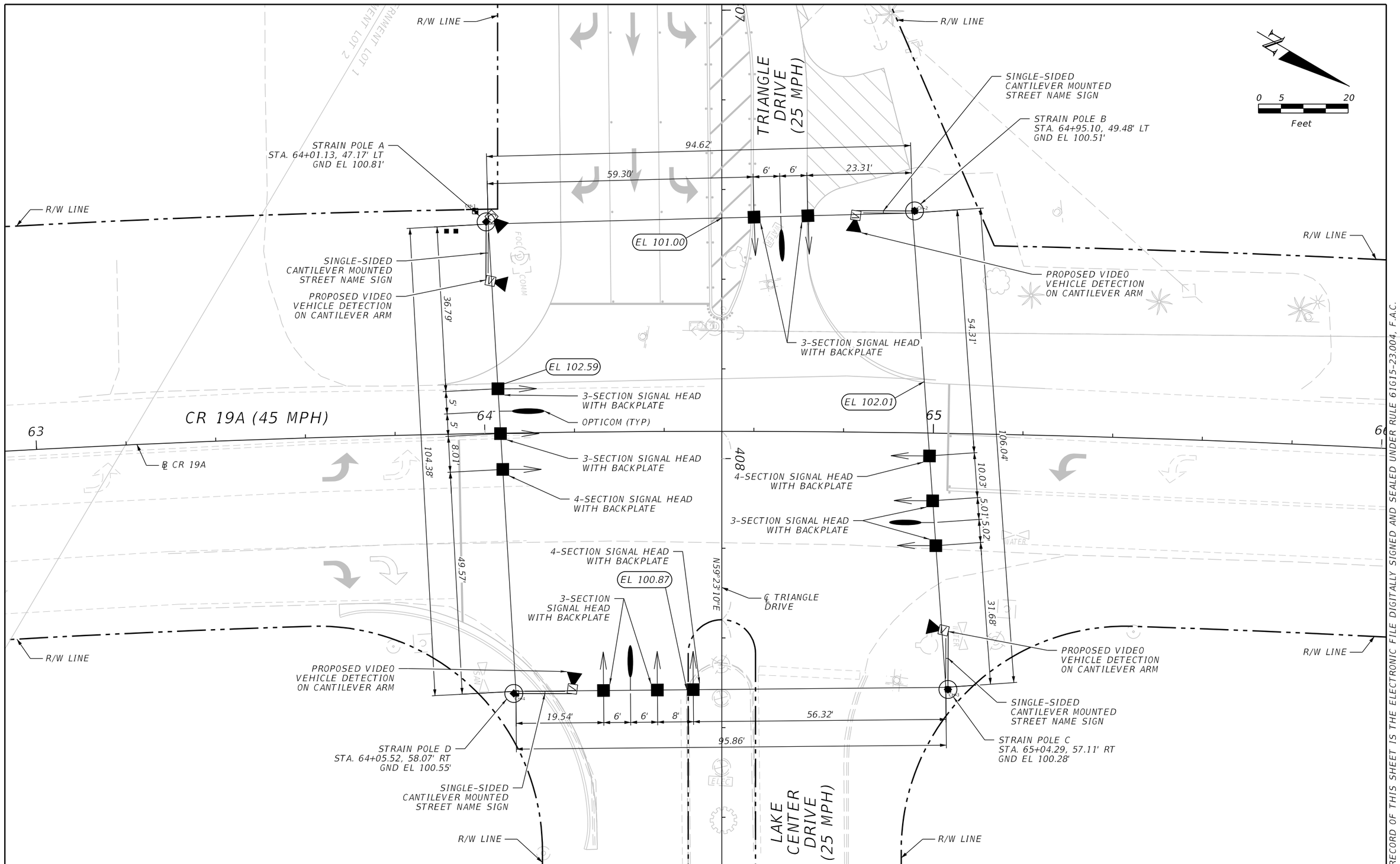
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

SIGNALIZATION PLAN

SHEET NO. 11

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

c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\nickolas.rodd@metriceng.com\dms58829\PLANSG01.dgn : UNTITLED-1 [SHEET]
Nickolas.Rodd 10/16/2025 2:55:25 PM



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

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD

RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

SIGNAL HEAD LOCATION PLAN

SHEET NO. 12

c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\john.battle@metriceng.com\dms58829\PLANSG02.dgn : UNTITLED-1 [SHEET]
Nickolas.Rodd 10/16/2025 1:33:55 PM

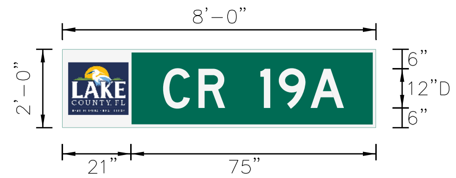
Sign A

SIGN NAME	A	QTY	2	SIGN NUMBER	STATION(S)

PANEL		BORDER	
WIDTH	8'-0"	WIDTH	1"
HEIGHT	2'-0"	RADII	0"
LEGEND	White	COLOR	White
COLOR	Green		

SYMBOL(S)	ANGLE	X	Y	WID	HT
LC_LOGO	0	1	2	19	20

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY		C	R		1	9	A		L
SPACE	30.84	10.79	8.76	10.2	5.63	9.72	10.2	9.86	55.3

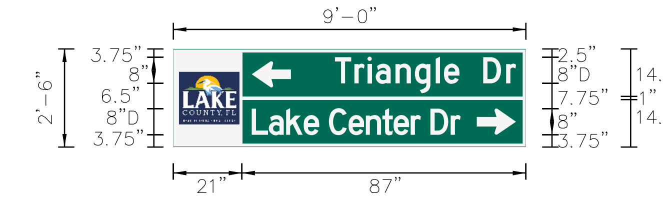
Sign B

SIGN NAME	B	QTY	1	SIGN NUMBER	STATION(S)

PANEL		BORDER	
WIDTH	9'-0"	WIDTH	1"
HEIGHT	2'-6"	RADII	0"
LEGEND	White	COLOR	White
COLOR	Green		

SYMBOL(S)	ANGLE	X	Y	WID	HT
AR_Type D	90	24	18.25	8	12
AR_Type D	270	93	3.75	8	12
LC_LOGO	0	1	5	19	20

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY		T	r	i	a	n	g	l	e		D	r		L		
SPACE	49.48	6	4	2.48	6.08	5.92	6.4	2.56	5.04	6.96	7.04	3.04	3.02	55.5		
COPY		L	a	k	e		C	e	n	t	e	r		D	r		L
SPACE	24	5.26	5.27	5.42	4.72	3	6.04	5.24	5.09	3.46	5.24	3.04	3	6.18	3.04	20	64

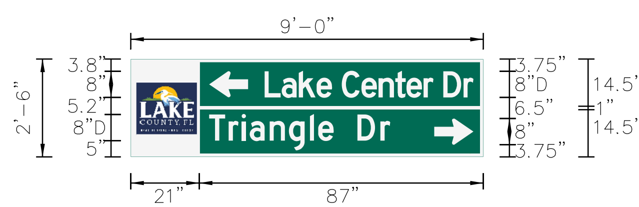
Sign C

SIGN NAME	C	QTY	1	SIGN NUMBER	STATION(S)

PANEL		BORDER	
WIDTH	9'-0"	WIDTH	1"
HEIGHT	2'-6"	RADII	0"
LEGEND	White	COLOR	White
COLOR	Green		

SYMBOL(S)	ANGLE	X	Y	WID	HT
AR_Type D	90	24	18.25	8	12
AR_Type D	270	93	3.75	8	12
LC_LOGO	0	1	5	19	20

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE		AVERAGE LENGTH



NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY		L	a	k	e		C	e	n	t	e	r		D	r		L
SPACE	41	5.26	5.27	5.42	4.72	3	6.04	5.24	5.09	3.46	5.24	3.04	3	6.18	3.04	3	64
COPY		T	r	i	a	n	g	l	e		D	r		L			
SPACE	24	6	4	2.48	6.08	5.92	6.4	2.56	5.04	6.96	7.04	3.04	28.5	55.5			

(Blank sign)

SIGN NAME		QTY		SIGN NUMBER	STATION(S)

PANEL		BORDER	
WIDTH		WIDTH	
HEIGHT		RADII	
LEGEND		COLOR	
COLOR			

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	NUMBER OF POSTS	CLEARANCE Edge Of Lane	COLUMN SIZE		AVERAGE LENGTH

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDE RULE 5J17-23.004, F.A.C.

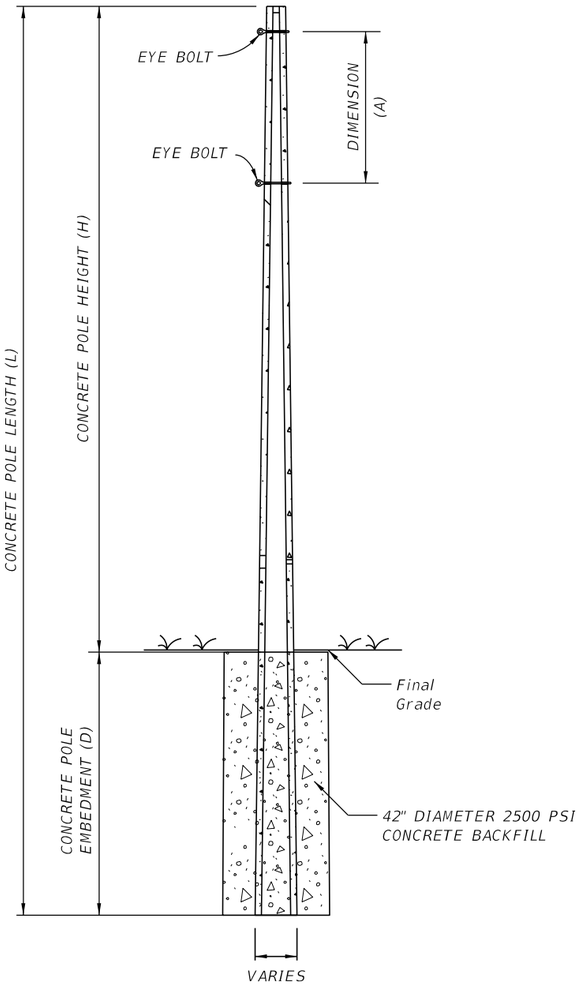
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

GUIDE SIGN WORKSHEET



CONCRETE STRAIN POLE DIMENSIONS
TYPES P-III THROUGH P-VIII

CONCRETE STRAIN POLE SCHEDULE

ID NO.	SHEET NO.	POLE LOCATION		FINAL GRADE ELEVATION	CROWN ELEVATION	POLE TYPE	POLE LENGTH (L)	CONCRETE POLE EMBEDMENT (D)	CONCRETE POLE HEIGHT (H)	ATTACHMENT POINT DIST. (A)	PAY ITEM NUMBER
		STATION	OFFSET								
A	12	64+01.13	47.17' LT	100.81'	102.59'	P-VIII	53.00	18.40	34.60	6.36	641-2-18
B	12	64+95.10	49.48' LT	100.51	102.01	P-VIII	53.00	18.75	34.25	6.18	641-2-18
C	12	65+04.29	57.11' RT	100.28	102.01	P-VIII	55.25	20.15	35.10	7.00	641-2-18
D	12	64+05.52	58.07' RT	100.55	102.59	P-VIII	55.50	19.80	35.70	7.00	641-2-18

Messenger Wire Diameter : ½" Utility Grade
Catenary Wire Diameter : ⅜" Utility Grade
Foundation Design is based on the following Soil Parameters:

ID NO.	Effective Soil Unit Weight (PCF)	Angle of Internal Friction (Deg.)
A	42.6	29.0
B	40.9	28.7
C	38.4	28.0
D	39.3	28.3

1. For use with FDOT Standard Plans – FY 2025-2026
2. Design Wind Speed = 140 mph.
3. The method of attachment is two -point overhead assembly as specified in Standard Plan 634-001.
4. Layers of hard material such as cemented soils and hardpan were not encountered at the strain pole structure locations. However, such materials may be encountered during shaft excavations and/or temporary casing installation. The contractor shall expect to encounter these types of materials at any shaft locations and shall use specialized equipment and/or procedures as necessary to facilitate shaft excavation and/or temporary casing installation. When temporary casing is used; the casing tip shall be reinforced and casing thickness shall be adequate to prevent casing damage/deformation during installation through hard layers.
5. Drilled shaft bottoms shall be relatively clean of loose soil cuttings prior to concrete placement.
6. Natural Slurry shall not be relied upon to prevent caving of soils and maintaining an open hole. If mineral slurry, Section 455-15-8, is used, desanding equipment is required.
7. Artesian conditions were not noted by the driller during drilling. However, based on review of the Upper Floridian Aquifer Potentiometric Surface map for the project area, the potential artesian head elevation is estimated to be at about +70 feet, NAVD-88.
8. The contractor shall be prepared to use temporary casing or other methods as necessary to control artesian water up to a head elevation of approximately +70 feet, NAVD-88.

REVISIONS				ENGINEER OF RECORD	LAKE COUNTY ENGINEERING DIVISION				SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	PETER J. MEDICO, P.E. LICENSE NUMBER: 42654 METRIC ENGINEERING, INC. 525 TECHNOLOGY PARK, SUITE 153 LAKE MARY, FLORIDA 32746	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	CONCRETE STRAIN POLE SCHEDULE	14
					CR 19A	LAKE	21-0940A #11		

NADIC ENGINEERING SERVICES, INC

ROADWAY CROSS SECTION OF SOIL SURVEY

REPORT OF TESTS

PROJECT No.: PR.GEO-RD25020
PROJECT DESCRIPTION: CR 19A & TRIANGLE DRIVE INTERSECTION IMPROVEMENT
SUBMITTED BY: NADIC

QUADRANGLE: EUSTIS, FLORIDA
SECTION: 26
TOWNSHIP: 19 SOUTH
RANGE: 26 EAST

DATE REPORTED: SEPTEMBER, 2025

	ORGANIC CONTENT		MOISTURE CONTENT		SIEVE ANALYSIS RESULTS % PASSING						ATTERBERG LIMITS (%)					CORROSION TEST RESULTS					SUBSTRUCTURE ENVIRONMENTAL CLASSIFICATION	
STRATUM NO.	No. OF TESTS	% ORGANIC	No. OF TESTS	% MOISTURE CONTENT	No. OF TESTS	% PASSING 10 MESH	% PASSING 40 MESH	% PASSING 60 MESH	% PASSING 100 MESH	% PASSING 200 MESH	No. OF TESTS	LIQUID LIMIT	PLASTICITY INDEX	AASHTO GROUP	DESCRIPTION	No. OF TESTS	pH	RESISTIVITY OHM-CM	CHLORIDES PPM	SULFATE PPM	CONCRETE	STEEL
1	-	-	1	3	1 (FULL)	100	90	42	11	3	-	-	-	A-3	LIGHT GRAY SAND	-	-	-	-	-	-	-

NOTES:

(1) STRATA BOUNDARIES ARE APPROXIMATE AND REPRESENT SOIL STRATA AT EACH TEST HOLE LOCATION ONLY. ANY STRATUM CONNECTING LINES SHOWN ARE FOR ESTIMATING EARTHWORK ONLY AND DO NOT INDICATE ACTUAL STRATUM LIMITS. SUBSURFACE VARIATIONS BETWEEN BORINGS SHOULD BE ANTICIPATED AS INDICATED IN FDOT SECTION 2-4. FOR FURTHER DETAILS SEE FDOT STANDARD SPECIFICATIONS SECTION 120-3.

(2) SOIL PARAMETER NOT TESTED DENOTED AS "-" ABOVE.

(3) ▼ INDICATES WATER TABLE WHERE ENCOUNTERED AT THE TIME OF SURVEY.
GNE INDICATES GROUNDWATER LEVEL NOT ENCOUNTERED AT THE TIME OF SURVEY.
▽ INDICATES ESTIMATED SEASONAL HIGH WATER LEVEL.

(4) REMOVAL OF PLASTIC AND HIGH PLASTIC MATERIAL OCCURING WITHIN THE ROADWAY SHALL BE ACCOMPLISHED IN ACCORDANCE WITH FDOT STANDARD INDEX No. 120-002 UNLESS OTHERWISE STATED IN THE PLANS. THE MATERIAL UTILIZED IN EMBANKMENT CONSTRUCTION SHALL BE IN ACCORDANCE WITH FDOT STANDARD INDEX No. 120-001.

(5) STRATUM 1 SHALL BE TREATED AS SELECT (S) MATERIALS PER FDOT STANDARD INDEX No. 120-001.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

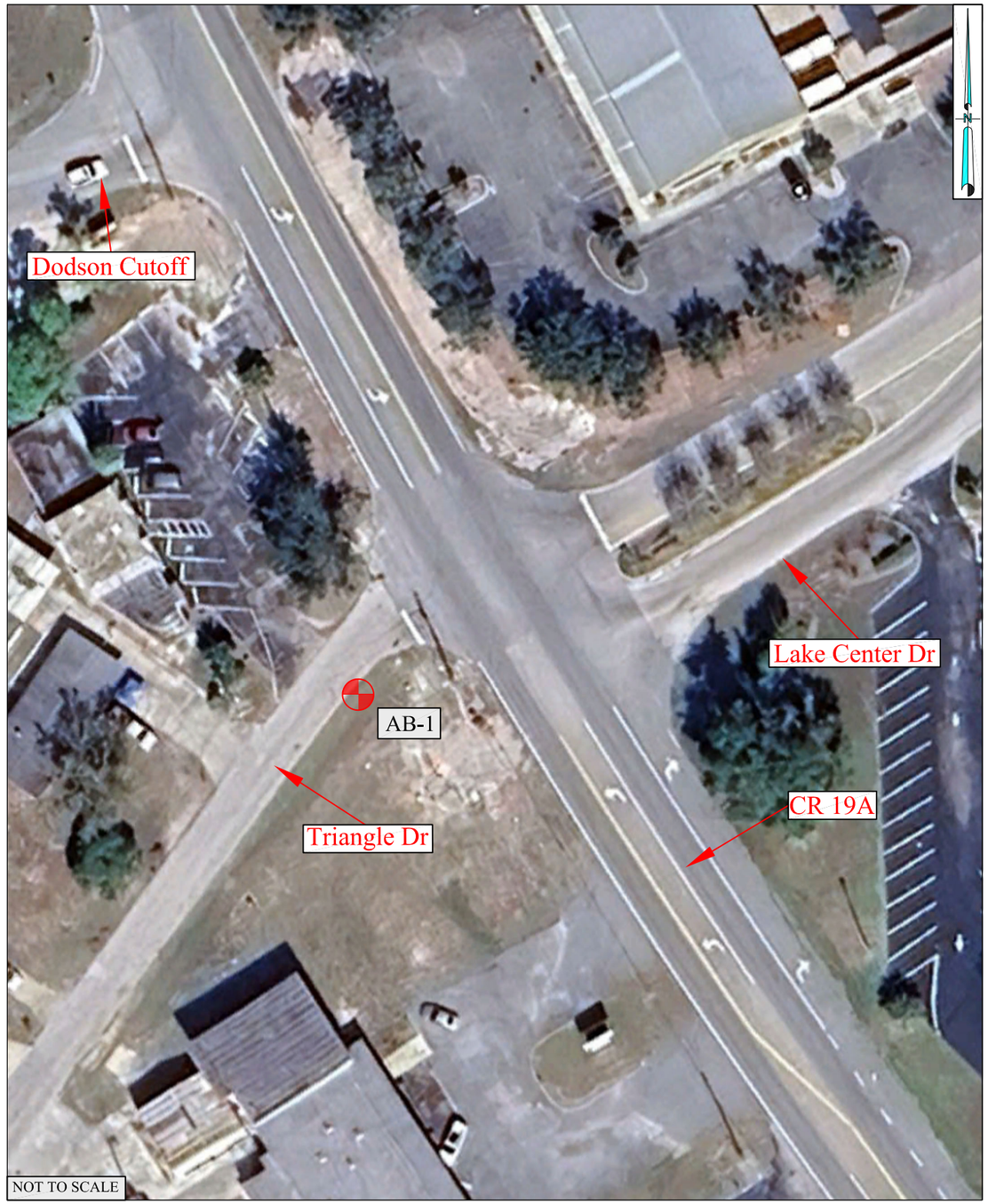
GODWIN N. NNADI, P.E.
P.E. LICENSE NUMBER 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
CERTIFICATE OF AUTHORIZATION 00008214

LAKE COUNTY ENGINEERING DIVISION

COUNTY	INTERSECTION	COUNTY PROJECT NO.
LAKE	COUNTY ROAD 19A TRIANGLE DRIVE	21-0940A

REPORT OF SPT BORINGS
COUNTY ROAD 19A & TRIANGLE DR ROAD INTERSECTION IMPROVEMENT

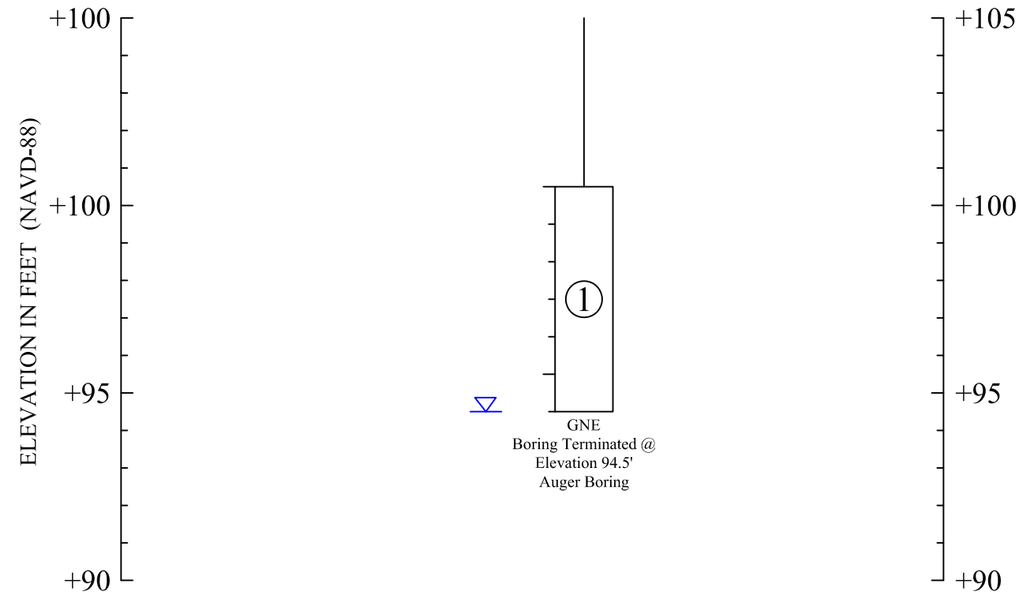
SHEET NO. 15



LEGEND

①	Light gray SAND, (A-3)
AB-1	Approximate Boring Location
(A-3)	A.A.S.H.T.O.: Soil classification group symbol as determined by visual examination
12/21/2023	Groundwater level encountered on date shown
	Estimated seasonal high groundwater level
GNE	Groundwater not encountered

Boring No.:	**AB - 1**
Approx. Station:	407+33.14
Approx. Offset:	5.1' LT
Approx. Northing:	1628425.7'
Approx. Easting:	437013.0'
Approx. Elevation:	+100.5'
Date Drilled:	9/23/2025



NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.003, F.A.C.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

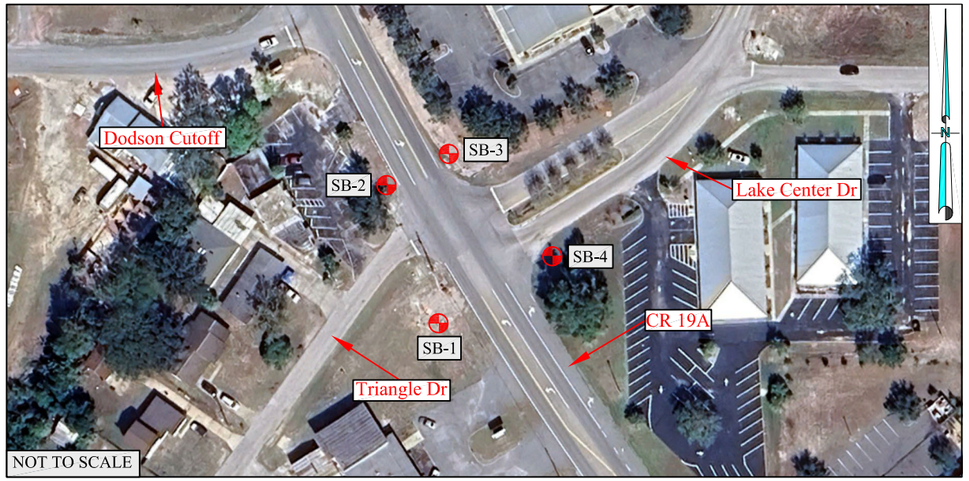
GODWIN N. NNADI, P.E.
P.E. LICENSE NUMBER 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
CERTIFICATE OF AUTHORIZATION 00008214

LAKE COUNTY
ENGINEERING DIVISION

COUNTY	INTERSECTION	COUNTY PROJECT NO.
LAKE	COUNTY ROAD 19A TRIANGLE DRIVE	21-0940A

REPORT OF SPT BORINGS
COUNTY ROAD 19A & TRIANGLE DR ROAD INTERSECTION IMPROVEMENT

SHEET NO. **16**



LEGEND

SAND

(SP) Unified soil classification group symbol

W = Natural Moisture Content (%) (FM 1-T265)
-200 = Percent passing no. 200 U.S. standard sieve (FM 1-T088)
OC = Organic Content (%) (FM 1-T267)

08/07/2024 Groundwater level encountered on date shown

Estimated seasonal high groundwater level

S-1 Approximate Boring Location

Standard Penetration Test Data

N Standard penetration resistance in blows per foot (18" spoon ASTM D-1586)

Spoon Inside Diameter 1 3/8 in.
Spoon Outside Diameter 2 in.
ASTM Standard Drop Safety Hammer (Rope-Cathead)
Average Hammer Drop 30 in.
Hammer Weight 140 lbs.

NOTES

1. Standard Penetration Test borings were performed in accordance with ASTM D-1586. Standard Penetration Resistance are shown on the borings at the test depths in blows per foot unless otherwise noticed
2. Subsurface conditions shown on the boring do not represent conditions between boring locations. Actual conditions between the borings may vary from those shown.
3. Unified Soil Classifications shown on the boring are based on visual examination and limited laboratory testing

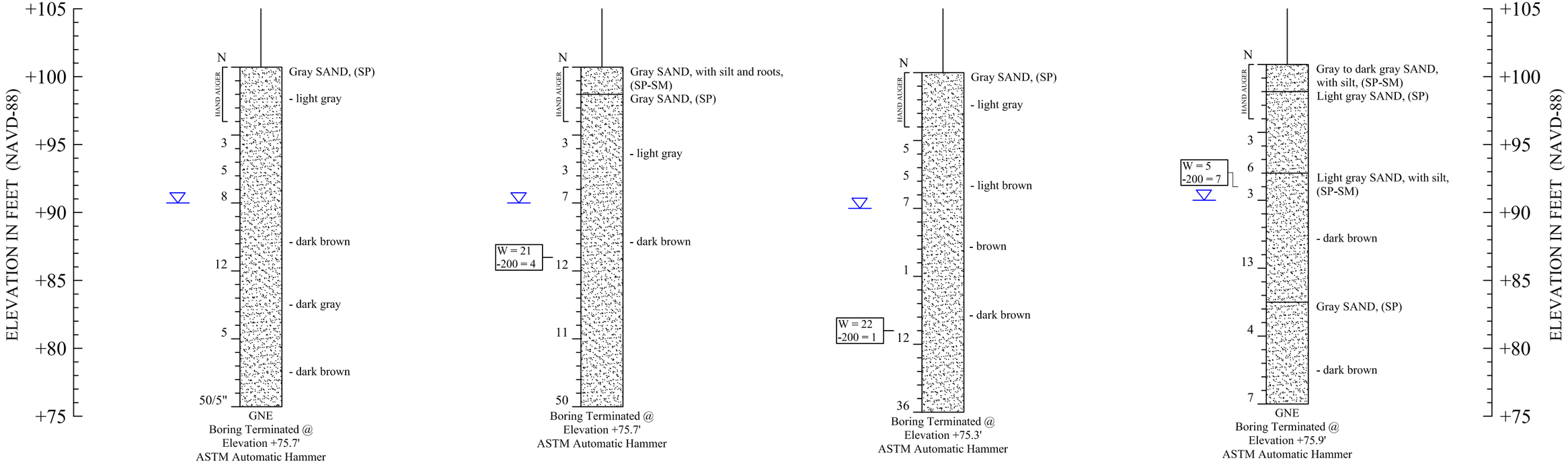
GRANULAR MATERIALS

RELATIVE DENSITY	Drop Safety Hammer SPT (BLOWS/FT.)	Automatic Hammer SPT (BLOWS/FT.)
Very loose	Less than 4	Less than 3
Loose	4-10	3-7
Medium Dense	10-30	7-21
Dense	30-50	21-35
Very Dense	Greater than 50	Greater than 35

SILTS AND CLAYS

CONSISTENCY	Drop Safety Hammer SPT (BLOWS/FT.)	Automatic Hammer SPT (BLOWS/FT.)
Very soft	Less than 2	Less than 1
Soft	2-4	1-3
Firm	4-8	3-6
Stiff	8-15	6-11
Very Stiff	15-30	11-21
Hard	Greater than 30	Greater than 21

Boring No.:	SB - 1	SB - 2	SB - 3	SB - 4
Approx. Station:	407+44.82	407+44.82	408+54.76	408+55.67
Approx. Offset:	54.93' RT	43.36' LT	43.36' LT	49.0' RT
Approx. Northing:	1628379.9'	1628464.5'	1628520.5'	1628441.5'
Approx. Easting:	437053.7'	437003.6'	437098.2	437146.0'
Approx. Elevation:	+100.7'	+100.7	+100.3	+100.9'
Date Drilled:	9/17/2025	9/17/2025	9/17/2025	9/17/2025



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

GODWIN N. NNADI, P.E.
P.E. LICENSE NUMBER 50637
NADIC ENGINEERING SERVICES, INC.
601 N. HART BOULEVARD
ORLANDO FL, 32818
CERTIFICATE OF AUTHORIZATION 00008214

LAKE COUNTY
ENGINEERING DIVISION

COUNTY	INTERSECTION	COUNTY PROJECT NO.
LAKE	COUNTY ROAD 19A TRIANGLE DRIVE	21-0940A

REPORT OF SPT BORINGS COUNTY ROAD 19A & TRIANGLE DR ROAD INTERSECTION IMPROVEMENT

SHEET NO. 17

SUMMARY OF VERIFIED UTILITIES

Vvh #	UTILITY DESCRIPTION (Owner, Type)	SIZE	MATERIALS	℄ and/or ℄ STATION	℄ and/or ℄ OFFSET	℄ and/or ℄ LT/RT	EXISTING GROUND ELEVATION	TOP ELEVATION	COMMENTS
CH-1	EXPLORATORY	N/A	N/A	63+98.81	49.6	LT	100.82	N/A	NO CONFLICT WAS FOUND
CH-2	EXPLORATORY	N/A	N/A	64+95.10	49.5	LT	100.51	N/A	NO CONFLICT WAS FOUND
CH-3	COMMUNICATION, EXPLORATORY	(1) 1"	BLACK DIRECT BURIED CABLE	65+04.29	57.1	RT	100.28	N/A	FIRST HOLE DUG WE FOUND A CONFLICT, (1) 1" DIRECT BURIED CABLE COMMUNICATION. MOVED HOLE 0.5' NORTH FROM THE CONFLICT AND DUG A NEW HOLE, NO CONFLICT WAS FOUND
CH-4	COMMUNICATION	(1) 1 1/2" (2) 2"	ORANGE HDPE	64+06.03	58.1	RT	100.55	98.28 94.57	CONFLICT HOLE: FOUND (1) 1 1/2" ORANGE HDPE COMM. T.C. - 2.27'. FOUND (2) 2" ORANGE HDPE COMM. T.C. - 5.98'

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
RICARDO J. GONZALEZ, P.E.
LICENSE NUMBER: 66564
METRIC ENGINEERING, INC.
11760 MARCO BEACH DRIVE, SUITE 1
JACKSONVILLE, FLORIDA 32224

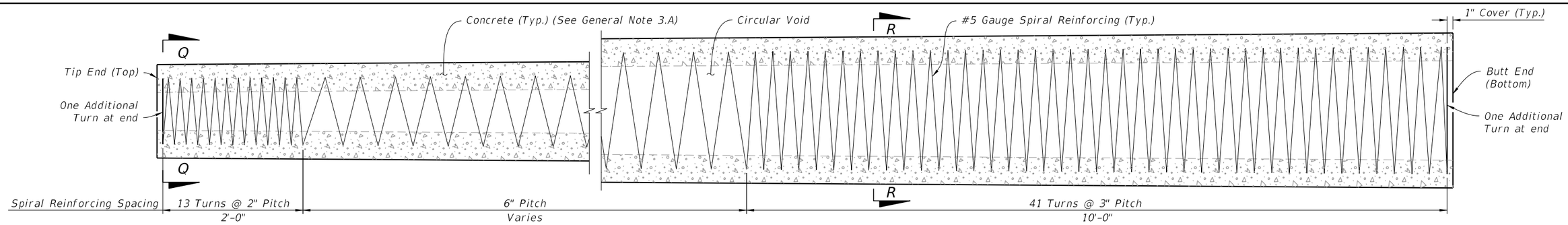
LAKE COUNTY
ENGINEERING DIVISION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
CR 19A	LAKE	21-0940A #11

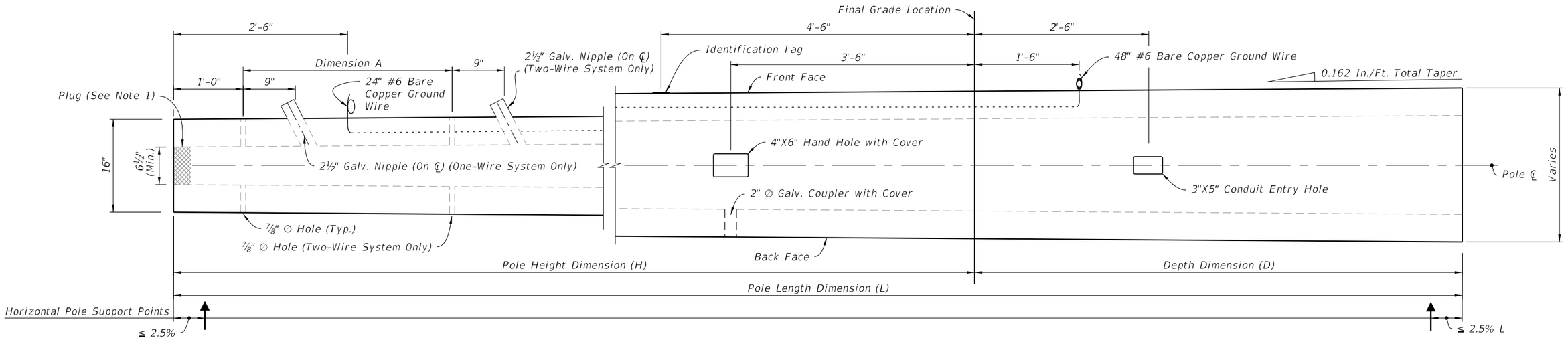
SUMMARY OF VERIFIED UTILITIES

SHEET NO. 18

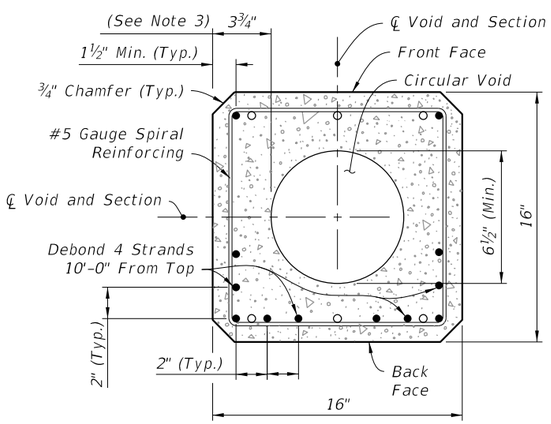
c:\pwworkingdir\metric-pw.bentley.com_metric-pw-01\john.battle@metriceng.com\dms58824\SBVHRD01.dgn : SUMMARY OF VERIFIED UTILITIES [SHEET]
Nickolas.Rodd 10/16/2025 1:34:47 PM



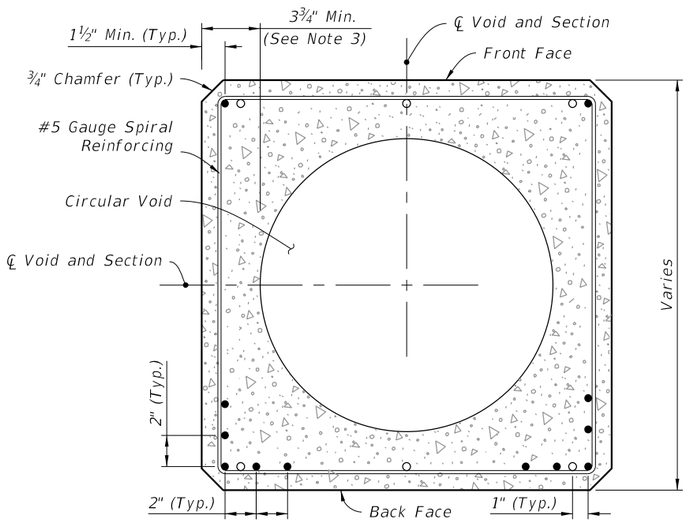
SPIRAL REINFORCING ELEVATION
(Strands, Holes, and Fixtures Not Shown)



POLE ELEVATION
(Strands And Reinforcing Not Shown)



SECTION Q-Q (Tip End)



SECTION R-R (Typical Square Section)

NOTES:

1. Provide a minimum 3" concrete plug at the Tip End.
2. For final erection, tilt pole upright with single point attachment located a distance of 10% L from the Tip End.
3. Dimension may vary from 3¾" to 5" to accommodate smaller radius of optional stepped (PVC) void. The minimum void diameter is 6½".
4. Strands shown are continuous from Tip End to Butt End.
5. Strands are not shown in the elevation views for clarity.

LEGEND:

- ● Prestressed Strand: 0.5 in. ~ 31 kips before transfer (12 strands total)
- ○ Dormant Strand: 0.5 in. (6 strands total) One 24" splice allowed per strand

STRAIN POLE TYPE P-VIII

9/10/2024 2:23:29 PM

LAST REVISION	REVISION	DESCRIPTION:	FY 2025-26 STANDARD PLANS	CONCRETE POLES	INDEX	SHEET
11/01/22					641-010	19