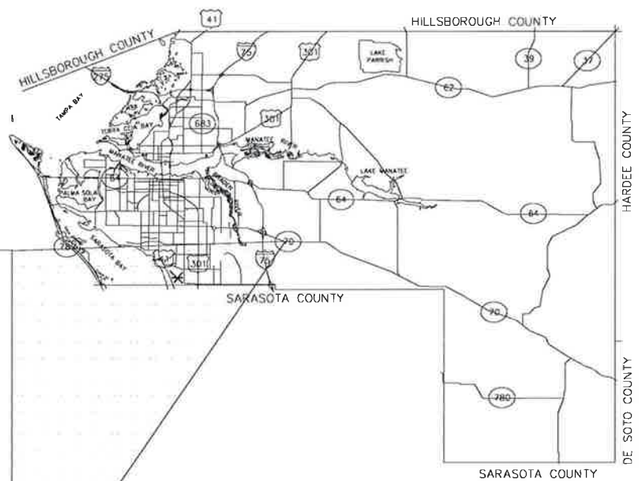
MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

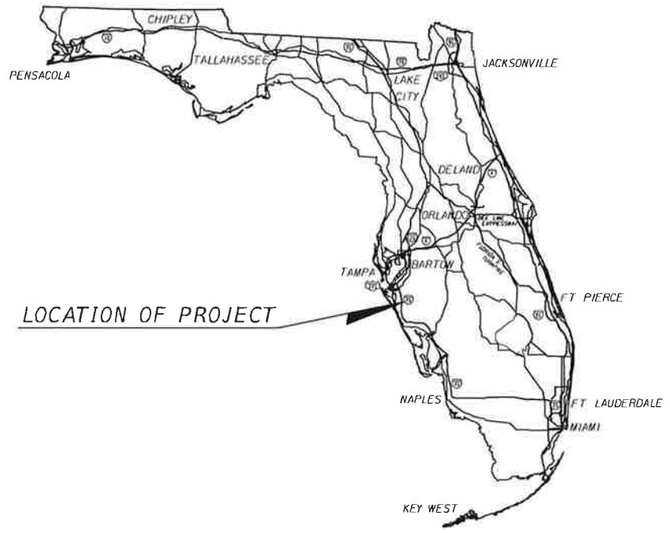
CONTRACT PLANS

FINANCIAL PROJECT ID (431019-1-58-01)
MANATEE COUNTY (13160)
(FEDERAL FUNDS)
ONECO-MYAKKA CITY RD (SR 70)
AT LAKEWOOD RANCH BLVD (M.P. 7.448)
COUNTY PROJECT 6084460

SIGNALIZATION PLANS

INDEX OF SIGNALIZATION PLANS





SIGNALIZATION SHOP DRAWINGS
TO BE SUBMITTED TO:
SUJEEVA A. WEERASURIYA, P.E.
HDR ENGINEERING, INC.
5426 BAY CENTER DRIVE, STE. 400
TAMPA, FLORIDA 33609-3444
PHONE NO. (813) 282-2300

PLANS PREPARED BY:
HDR ENGINEERING, INC.
2601 CATTLEMEN ROAD., STE. 400
SARASOTA, FLORIDA 34232-6233
PHONE NO. (941) 342-2700
FAX (941) 342-6589
CONTRACT NO. 12348
VENDOR NO. VF-470680568
CERTIFICATE OF AUTHORIZATION No. 4213

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

GOVERNING STANDARDS AND SPECIFICATIONS:
Florida Department of Transportation 2013 Design Standards and revised Index Drawings, as appended herein, and applicable Articles and Subarticles of Division I and all of Divisions II & III of the 2013 Standard Specifications for Road and Bridge Construction, as amended by Contract Documents.

For Design Standards click on the ""Design Standards""link at the following web site: http://www.dot.state.fl.us/rddesign/

For the Standard Specifications for Road and Bridge Construction click on the ""Specifications""link at the following web site: http://www.dot.state.fl.us/specificationsoffice/

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

SIGNALIZATION PLANS
ENGINEER OF RECORD: SUJEEVA A. WEERASURIYA, P.E.
Aug 01, 2013

P.E. NO.: 57629

FISCAL YEAR	SHEET NO.
14	T-1

MANATEE COUNTY PROJECT MANAGER: KENT BONTRAGER, P.E.

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBERS T-6 PLAN	T-6 FINAL	TOTAL THIS SHEET PLAN	TOTAL THIS SHEET FINAL	GRAND TOTAL PLAN	GRAND TOTAL FINAL	REF. SHEET
101-1	MOBILIZATION	LS	1		1		1		
102-1	MAINTENANCE OF TRAFFIC	LS	1		1		1		
102-14	TRAFFIC CONTROL OFFICER	MH	10		10		10		
102-60	WORK ZONE SIGN	ED	36		36		36		
102-74-1	TEMPORARY BARRICADE-DRUM	ED	474		474		474		
102-74-2	BARRICADE-TYPE III, 6'	ED	4		4		4		
102-76	ADVANCE WARNING ARROW BOARD	ED	4		4		4		
102-77	HIGH INTENSITY FLASHING TYPE B LIGHT	ED	16		8		8		
102-104	TEMPORARY SIGNALIZATION AND MAINTENANCE	ED	35		35		35		
102-107-1	TEMPORARY TRAFFIC DETECTION AND MAINTENANCE	ED	35		35		35		
630-2-11	CONDUIT (F & I) (UNDERGROUND)	LF	103		103		103		
630-2-12	CONDUIT (F & I) (DIRECTIONAL BORE)	LF	533		533		533		
632-7-1	CABLE, SIGNAL (F&I)	PI	1		1		1		
635-2-11	PULL & SPLICE BOXES (F&I) (PULL BOX)	EA	1		1		1		
639-1-122	ELECTRICAL POWER SERVICE (F&I) (UNDERGROUND) METER	AS	1		1		1		
	PURCHASED BY CONTRACTOR								
639-3-11	ELECTRICAL SERVICE DISCONNECT (F&I) (POLE MOUNT)	EA	1		1		1		
641-2-12	PRESTRESSED CONCRETE POLE (F&I) (TYPE P-11 SRV. POLE.)	EA	1		1		1		
649-31-299	MAST ARM (F&I)(WS - 130)(DOUBLE ARM) (W/ LUM.)(78')	EA	4		4		4		
650-1-311	TRAFFIC SIGNAL (F&I) (3 SECT) (1 WAY) (STANDARD)	AS	28		28		28		
653-191	PEDESTRIAN SIGNAL (F&I) (LED-COUNTDOWN) (1 WAY)	AS	7		7		7		
660-4-11	VEHICLE DETECTION SYSTEM (F&I) (CABINET)	EA	1		1		1		
660-4-12	VEHICLE DETECTION SYSTEM (F&I) (ABOVE GROUND)	EA	6		6		6		
665-13	PEDESTRIAN DETECTOR (F&I) (DETECTOR WITH SIGN ONLY)	EA	8		8		8		
670-5-410	TRAFFIC CONTROLLER ASSEMBLY (MODIFY)	AS	1		1		1		
690-10	TRAFFIC SIGNAL HEAD ASSEMBLY, REMOVAL	EA	20		20		20		
690-20	SIGNAL PEDESTRIAN ASSEMBLY, REMOVE	EA	7		7		7		
690-34-1	POLE REMOVAL - DEEP (DIRECT BURIAL)	EA	4		4		4		
690-60	DETECTOR VEHICLE ASSEMBLY, REMOVE	EA	16		16		16		
690-70	DETECTOR PEDESTRIAN ASSEMBLY, REMOVE	EA	8		8		8		
690-80	SPAN WIRE ASSEMBLY REMOVE	EA	1		1		1		
690-90	REMOVE CONDUIT & CABLING	PI	1		1		1		
690-100	SIGNAL EQUIPMENT, MISCELLANEOUS REMOVE	PI	1		1		1		
699-1-1	INTERNALLY ILLUMINATED SIGN (F&I)	EA	4		4		4		

Sujeeva Weerasuriya
Aug 01, 2013

No.	REVISIONS	DATE	BY

SCALE AS NOTED
DESIGNED BY ETL
DRAWN BY ETL
CHECKED BY SAW

HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233
FBPR Certificate of
Authorization No. 4213

DATE 8/1/13
PROJECT NO. 6084460

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER SUJEEVA A. WEERASURIYA
FL. LICENSE NO. 57629

TABULATION OF QUANTITIES

SHEET NO. T-2

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GENERAL NOTES

1. THE CONTRACTOR SHALL CONTACT THE ENGINEER, IN CONJUNCTION WITH MANATEE COUNTY'S PROJECT MANAGEMENT DIVISION BEFORE STARTING WORK.

2. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, IN CONJUNCTION WITH MANATEE COUNTY'S TRAFFIC ENGINEERING DIVISION (941-749-3502 EXT. 7817), AT LEAST TWO WEEKS, BEFORE ANY CABINET MODIFICATIONS ARE TO BE PERFORMED. THE ENGINEER, IN CONJUNCTION WITH MANATEE COUNTY ENGINEERING DIVISION PERSONNEL WILL REVIEW, ASSIST AND PROVIDE TECHNICAL SUPPORT RELEVANT TO ANY FIELD MODIFICATIONS THAT ARE NECESSARY.

3. AT LEAST TWO (2) FULL BUSINESS DAYS PRIOR TO BEGINNING THE TRAFFIC SIGNAL INSTALLATION, PERMITTEE TO CONTACT THE TRAFFIC SIGNAL INSPECTOR/LIASON:

   MR. CARLOS CABRERA
   FLORIDA DEPARTMENT OF TRANSPORTATION
   SARASOTA OPERATIONS CENTER
   1840 61ST STREET
   SARASOTA, FL 34243
   PH: (941) 359-7317

4. ONE WEEK PRIOR TO THE BEGINNING OF THE TRAFFIC SIGNAL INSTALLATION OR TURN ON OF A NEW SIGNAL, THE CONTRACTOR SHALL NOTIFY THE ENGINEER:

   MANATEE COUNTY PROJECT MANAGEMENT DIVISION
   KENT BONTRAGER
   1026 26TH AVENUE EAST
   BRADENTON, FLORIDA 34208
   PHONE: 941-708-7450 EXT. 7331

   MANATEE COUNTY TRAFFIC ENGINEERING DIVISION
   VISHAL KAKKAD
   2101 47TH TERRACE EAST
   BRADENTON, FLORIDA 34203
   PHONE: 941-749-3500 EXT. 7812

5. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR THE SIGNAL MAINTENANCE, TIMING AND OPERATION OF ALL SIGNALS AND SIGNAGE FROM THE COMMENCEMENT OF WORK TO FINAL ACCEPTANCE OF THE PROJECT (I.E. EXISTING LOOPS CUT, SYSTEM COMMUNICATION TERMINATED, LANE OR PAVEMENT MODIFICATIONS, PEDESTRIAN MODIFICATIONS). MANATEE COUNTY WILL ASSIST IN PROVIDING EXISTING SYSTEM TIMING WHEN POSSIBLE.

6. THE CONTRACTOR SHALL HAVE AN I.M.S.A. CERTIFIED LEVEL II (ELECTRONICS OR ELECTRICAL TECHNICIAN) ON THE JOB SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED. ALL SIGNAL INSTALLATION TECHNICIANS SHALL HAVE A MINIMUM OF I.M.S.A. LEVEL I CERTIFICATION (ELECTRONICS OR ELECTRICAL TECHNICIAN.) CERTIFICATIONS OF ALL TECHNICIANS SHALL BE PROVIDED TO THE ENGINEER PRIOR TO BEGINNING WORK.

   UPON PROJECT COMMENCEMENT THE SIGNAL SUBCONTRACTOR SHALL BE AVAILABLE TO RESPOND TO ALL SIGNAL RELATED MALFUNCTIONS AND POWER OUTAGES. THE CONTRACTOR SHALL MAINTAIN A ADEQUATE REPAIR INVENTORY, EQUIPMENT AND NEARBY PERSONNEL TO RESPOND AND CORRECT TRAFFIC SIGNAL MALFUNCTIONS AND MOT RELATED PHASING AND TIMING ISSUES FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL PROVIDE A QUALIFIED SIGNAL TECHNICIAN WHO CAN RESPOND WITHIN A MINIMUM OF TWO HOURS, 24 HOURS A DAY, 7 DAYS A WEEK.

   FAILURE TO MEET THE TIME REQUIREMENTS SHALL GIVE THE ENGINEER, AT HIS DISCRETION, THE RIGHT TO REQUEST ASSISTANCE FROM THE MANATEE COUNTY SHERIFF'S DEPARTMENT TO CONTROL TRAFFIC FOR THE PERIOD OF TIME UNTIL THE CONTRACTOR RESPONDS AND MAKES THE NEEDED REPAIRS. THE COST FOR THE MANATEE COUNTY SHERIFF'S OFFICE SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

7. PRIOR TO ORDERING MATERIALS, THE SIGNAL CONTRACTOR SHALL CONTACT THE TRAFFIC OPERATIONS DIVISION THROUGH THE PROJECT MANAGEMENT DIVISION AND VERIFY CURRENT COLOR CODES TO BE USED FOR SIGNAL CABLE.

8. WHEN A CONTRACTOR IS WORKING ON A SIGNAL IN AN INTERSECTION (INSTALLING CONDUIT IN THE STREET, REMOVING EXISTING SIGNAL EQUIPMENT, INSTALLING SIGNAL EQUIPMENT, REMOVING OR INSTALLING LOOPS, HOMERUNS OR TURNING ON OF NEW SIGNAL) WHERE A LANE IS CLOSED, THE ENGINEER MAY REQUIRE AN OFF DUTY LAW ENFORCEMENT OFFICER TO DIRECT TRAFFIC. PAYMENT OF ALL DIRECT AND INDIRECT COSTS FOR A TRAFFIC CONTROL OFFICER ARE PAID UNDER BID ITEM 102-14.

9. DELIVER THREE SETS OF RECORD DRAWINGS TO MR. VISHAL KAKKAD, THE MANATEE COUNTY TRAFFIC ENGINEERING DIVISION MANAGER AT 2101 47TH TERRACE EAST BRADENTON, FL 34203. RECORD DRAWINGS MUST BE DELIVERED TO THE COUNTY 48 HOURS PRIOR TO SCHEDULING THE FINAL INSPECTION.

10. UPON PASSING THE FINAL INSPECTION THE CONTRACTOR SHALL SEND A WRITTEN REQUEST TO THE PROJECT MANAGEMENT DIVISION AND THE TRANSPORTATION DIVISION TO TRANSFER MAINTENANCE FROM THE CONTRACTOR TO MANATEE COUNTY. MANATEE COUNTY WILL RESPOND WITHIN 5 WORKING DAYS TO ESTABLISH A TIME TABLE FOR THE TRANSFER OF MAINTENANCE RESPONSIBILITY.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE LOCAL POWER COMPANY PROVIDING ELECTRICAL POWER TO DETERMINE IF A SERVICE PROCESSING FEE IS REQUIRED. ANY FEE SHALL BE INCLUDED AS PART OF PAYMENT FOR THE ELECTRICAL POWER SERVICE ASSEMBLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS OF THE ELECTRICAL SERVICE. THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION, INSPECTION AND ENERGIZING OF THE NEW POWER SERVICE IN A TIMELY MANNER IN ORDER TO PROMOTE PROJECT COMPLETION WITHIN CONTRACT TIME.

12. THE LOCATION OF UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR, VIA SUNSHINE STATE ONE CALL OF FLORIDA, INC AT 811 OR 1-800-432-4770, IN COORDINATION WITH UNDERGROUND AND OVERHEAD UTILITY OWNERS. A MINIMUM OF 2 FULL BUSINESS DAYS PRIOR TO DIGGING IS REQUIRED.

13. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS IN ADVANCE OF POLE SETTING OPERATIONS WHERE CONFLICT WITH OVERHEAD ELECTRICAL CONDUCTORS IS EXPECTED AND IN ALL CASES WHERE JOINT USE POLES ARE CALLED FOR.

    THE CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY FOR ITS ASSISTANCE IN PERFORMING ALL NECESSARY WORK UNDER POWER LINES AT SIGNAL POLES SUCH AS THE INSTALLATION OF SIGNAL CABLE, FIBERGLASS INSULATORS, AND SIGNAL POLES.

    AT LOCATIONS WHERE THE REQUIRED VERTICAL CLEARANCE TO THE POWER LINES CANNOT BE MAINTAINED, A QUALIFIED REPRESENTATIVE FROM THE POWER COMPANY SHALL BE PRESENT DURING ALL WORK UNDER POWER LINES. ANY COST ASSOCIATED WITH THIS SHALL BE INCLUDED IN THE RELATED PAY ITEMS.

14. THE CONTRACTOR SHALL HAND DIG THE FIRST 48 INCHES OF THE HOLE FOR THE POLE FOUNDATION OR CONDUIT RUN WHERE UTILITIES ARE IN CLOSE PROXIMITY.

15. THE CONTRACTOR IS TO DE-WATER THE POLE FOUNDATION EXCAVATION IF THE ELEVATION OF WATER IS HIGHER THAN THE ELEVATION OF THE FOUNDATION BASE.

16. ALL MATERIALS, EQUIPMENT, AND OTHER CONTRACTOR SUPPLIED ITEMS SHALL BE INSTALLED AND MAINTAINED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS, UNLESS SPECIFICALLY DIRECTED OTHERWISE BY THE ENGINEER.

17. #14 XHHW PULL WIRE SHALL BE INSTALLED IN ALL CONDUITS. AT LEAST 2 FEET OF PULL WIRE SHALL BE ACCESSIBLE AT EACH CONDUIT TERMINATION AND SECURED IN THE PULL BOX OR PLACE OF TERMINATION.

18. UNLESS OTHERWISE NOTED ALL REMOVED EQUIPMENT EXCEPT CONCRETE POLES SHALL BE TURNED OVER TO MANATEE COUNTY AND DELIVERED TO THE TRAFFIC OPERATIONS DIVISION LOCATED AT 2904 12TH STREET COURT EAST, BRADENTON, FLORIDA 34208, AS DIRECTED BY THE ENGINEER. CONCRETE POLES SHALL BE DISPOSED OF BY THE SIGNAL CONTRACTOR IN AREAS PROVIDED BY THE CONTRACTOR.

19. ALL ELECTRICAL WIRING SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION.

20. GROUNDING: ALL COSTS FOR GROUNDING SHALL BE INCLUDED IN THE COST OF THE ITEM BEING GROUNDED. ALL GROUND ROD ASSEMBLIES FOR POLES, SERVICES, CABINETS, AND OTHER RELATED EQUIPMENT SHALL BE BONDED TOGETHER TO FORM AN INTEGRATED GROUNDING SYSTEM USING #6 AWG THHN COPPER WIRE. THE UPPER END OF ALL GROUND RODS SHALL BE 18 INCHES BELOW GROUND ELEVATION. MARK GROUND ROD LOCATION WITH PERMANENT MARKER SUCH AS AN EPOXIED STICKER LOCATED ON THE NEAREST CURB, AND PROVIDE AS-BUILT DRAWINGS WITH THE LOCATION OF GROUND RODS MARKED. GROUNDING CONDUCTOR MUST BE #6 OR LARGER INSULATED COPPER.

21. CONNECTING DEVICES SHALL BE NON-CORROSIVE SPLIT BOLTS, CLAMPS, PRESSURE CONNECTORS, OR OTHER APPROVED MEANS TO ENSURE A POSITIVE CONNECTION.

22. GROUND RESISTANCE TESTER, OR OTHER APPROVED MEANS WILL BE USED TO ACQUIRE THE GROUND ROD RESISTANCE. THE ENGINEER, OR A REPRESENTATIVE OF THE ENGINEER FROM THE TRAFFIC OPERATIONS DIVISION STAFF SHALL BE PRESENT DURING THE TEST.

23. ELEVATION OF THE TOP OF THE MAST ARM FOUNDATION SHALL BE THREE INCHES ABOVE EXISTING GRADE. SEE FOUNDATION OUT OF GROUND (#) ON "MAST ARM TABULATION" SHEET. IF LOCATED DIRECTLY BACK OF SIDEWALK, THE FOUNDATION ELEVATION SHALL MATCH SIDEWALK GRADE.

24. IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING OR BORING.

25. CONTRACTOR SHALL SUPPLY ALL MATERIAL SUBMITTALS TO THE ENGINEER PRIOR TO CONSTRUCTION FOR APPROVAL.

26. THE TYPE OF EQUIPMENT USED IN THE INSTALLATION OF MAST ARMS/ FOUNDATIONS SHALL MEET THE FOLLOWING REQUIREMENTS: 1) OVERHEAD LINES SHALL STAY IN PLACE BOTH VERTICALLY AND HORIZONTALLY; AND 2) CONTRACTOR SHALL MEET ALL APPLICABLE OSHA REQUIREMENTS. ANY COST ASSOCIATED WITH THE TYPE OF EQUIPMENT REQUIRED FOR THIS INSTALLATION SHALL BE INCLUDED IN THE RELATED PAY ITEMS.

27. CONTRACTOR SHALL UTILIZE FDOT STANDARD INDEX 600, 615, 616, 617 AND 660 AS APPLICABLE DURING MAINTAINANCE OF TRAFFIC OPERATIONS.

28. EXISTING SPEED LIMITS ARE AS FOLLOWS:
    50 MPH ON ONECO-MYAKKA CITY RD (SR 70)
    45 MPH ON LAKEWOOD RANCH BLVD. NORTHBOUND
    35 MPH ON LAKEWOOD RANCH BLVD. SOUTHBOUND

    FOR MOT PURPOSES, REGULATORY SPEEDS SHOULD BE MAINTAINED.

29. MANATEE COUNTY'S CURRENT VIDEO DETECTION USES THE ITERIS VANTAGE VIDEO DETECTION SYSTEM WITH ITERIS VANTAGE RZ4 ADVANCED WIDE DYNAMIC RANGE COLOR CAMERAS MOUNTED ON PELCO MAST ARM CAMERA BRACKETS. THE VIDEO DETECTION SYSTEM INSTALLED MUST BE FULLY COMPATIABLE WITH MANATEE COUNTY'S EXISITING TRAFFIC CONTROL SYSTEM.

30. AT THE COMPLETION OF THE PROJECT, PROVIDE AS-BUILT PLANS IN ELECTRONIC FORM (PDF) TO:

    FDOT TRAFFIC OPERATIONS
    RENJAN JOSEPH, P.E., TRAFFIC SIGNAL SYSTEM MANAGER
    801 N. BROADWAY AVE
    P.O. BOX 1249
    BARTOW, FL 33830-1249
    EMAIL: RENJAN.JOSEPH@DOT.STATE.FL.US
    PHONE: 863-519-2746

Sujeeva Weerasuriya
Aug 01, 2013

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: ETL
DRAWN BY: ETL
CHECKED BY: SAW

HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233
FBPR Certificate of
Authorization No. 4213

DATE: 8/1/13
PROJECT NO.: 6084460

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: SUJEEVA A. WEERASURIYA
FL. LICENSE NO.: 57629

GENERAL NOTES

SHEET NO.: T-3

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PAY ITEM NOTES

1. 630-2-11 & 630-2-12:
CONDUITS INSTALLED WITH THE DIRECTIONAL BORE METHOD SHALL BE HDPE WITH A MINIMUM SIZE OF 2" UNLESS OTHERWISE NOTED IN THE PLANS. COST OF PULL WIRE SHALL BE INCLUDED UNDER THIS PAY ITEM.

ALL CONDUIT RUNS SHOWN ON THE PLANS ARE SCHEMATIC AND FIELD ADJUSTMENTS MAY BE NECESSARY. WITH THE EXCEPTION OF ELECTRICAL POWER SERVICE DUCTS, JACK & BORE SLEEVES, AND DIRECTIONAL BORE CONDUITS, ALL UNDERGROUND AND UNDER PAVEMENT CONDUITS SHALL BE SCHEDULE 40 PVC WITH A MINIMUM SIZE OF 2" UNLESS OTHERWISE SPECIFIED IN THE PLANS. COST OF PULL WIRE SHALL BE INCLUDED UNDER THIS PAY ITEM.

TWO SEPARATE UNDERGROUND CONDUIT RUNS LOCATED 180 DEGREES APART ARE REQUIRED FOR ALL MAST ARMS. THE SPARE CONDUIT SHALL BE CAPPED IN THE NEAREST PULL BOX. THERE SHALL BE A MINIMUM OF TWO RUNS OF 2" CONDUIT BETWEEN THE LAST LOW VOLTAGE PULL BOX LOCATED NEAR THE CONTROLLER CABINET & THE CONTROLLER CABINET, ITSELF.

2. 632-7-1:
USE A MINIMUM OF 7 CONDUCTOR SIGNAL CABLES FOR SIGNAL HEADS AND PEDESTRIAN HEADS.

3. 635-2-11:
PULL BOXES SHALL BE TRAFFIC BEARING, ALL POLYMER CONSTRUCTION (NOT CONCRETE), PULL BOXES AND LIDS. (QUAZITE OR ANOTHER EQUIVALENT FDOT APPROVED MANUFACTURER). PULL BOXES ARE TO BE PLACED BEHIND CURB AND GUTTER. IF THERE IS NO CURB AND GUTTER, PULL BOXES SHALL BE PLACED A MINIMUM OF 7' FROM THE EDGE OF PAVEMENT.

4. 639-1-122:
THIS PAY ITEM SHALL INCLUDE THE COST OF ALL SPECIAL IMPACT CONNECTION FEES CHARGED BY LOCAL POWER COMPANIES FOR ELECTRICAL SERVICE CONNECTION . ANY CHARGES BY PRECO (PEACE RIVER ELECTRIC COORPERATIVE, INC) TO BE ON SITE TO DE-ENERGIZE ELECTRIC SERVICE LINES AND MONITOR WORK WHILE LINES ARE REROUTED ONTO THE NEW SERVICE POLE WILL BE INCLUDED UNDER THIS PAYMENT ITEM.

IT SHALL ALSO INCLUDE THE COST OF INSTALLING SERVICE RISER ON PRECO SERVICE POLE. THE SERVICE RISER MUST HAVE A WEATHERHEAD TERMINATING AT A POINT 40" MINIMUM BELOW THE BOTTOM OF PRECO TRANSFORMER.

THE EXISTING UNDERGROUND SERVICE TO REMAIN. THIS PAY ITEM IS TO COVER METER AND SERVICE DISCONNECT. THE NEW POWER SERVICE METER BASE AND DISCONNECT ON NEW SERVICE POLE SHOULD BE CONNECTED USING EXISTING CONDUIT THAT IS TO BE DISCONNECTED FROM EXISTING STRAIN POLE AND REROUTED THROUGH PULL BOX UTILIZING AVAILABLE SLACK.

5. 649-31-299:
THE CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY FOR THEIR ASSISTANCE IN PERFORMING ALL NECESSARY WORK UNDER POWER LINES AT SIGNAL POLE(S), SUCH AS THE INSTALLATION OF MAST ARM FOUNDATIONS OR POLES. USE THREE 2" AND ONE ¾" CONDUIT STUBBED OUT THROUGH THE MAST ARM POLE FOUNDATION AND TEMPORARILY SEAL. THE COST OF THIS PAY ITEM SHALL ALSO INCLUDE 10 FOOT LUMINAIRE ARM AND 250W LUMINAIRES. THE LUMINAIRES SHALL BE 250 WATT HIGH PRESSURE SODIUM LUMINAIRE DESIGNED FOR FULL CUTOFF AND 110 VOLT OPERATION.

6. 650-1-311:
USE SIGNAL HEAD SUPPORTING TUBE THAT IS CAPABLE OF ADJUSTING VERTICALLY A MINIMUM OF 1.5'.

ALL SIGNAL HEADS SHALL HAVE ALUMINUM LOUVERED BACK PLATES INSTALLED. BACKPLATES SHALL BE MANUFACTURED FOR THE SIGNAL HEADS USED & INSTALLED AS PER MANUFACTURES RECOMMENDATIONS. THE BACK PLATE SHALL HAVE A 2" YELLOW REFLECTORIZED (TYPE III REFLECTIVITY) OUTER EDGE BORDER UNLESS SPECIFIED OTHERWISE IN THE PLANS.

THE EXTERNAL COLOR OF SIGNAL HOUSING SHALL BE BLACK. ALL TRAFFIC SIGNAL HEAD INDICATIONS SHALL BE 12" LED. ALL SIGNAL HEADS SHALL HAVE TUNNEL VISORS. THE COST FOR THE TUNNEL VISORS SHALL BE INCLUDED UNDER THIS PAY ITEM.

7. 653-191:
PEDESTRIAN SIGNAL HEADS TO BE 16" INTERNATIONAL SYMBOL, LED COUNTDOWN TYPE.

8. 660-4-11 & 660-4-12:
THE CONTRACTOR SHALL INSTALL A VIDEO DETECTION SYSTEM IN STRICT ACCORDANCE WITH THE GUIDANCE CONTAINED IN THE VIDEO DETECTION SYSTEM'S INSTALLATION MANUALS. THE CONTRACTOR SHALL ONLY USE MANUFACTURER APPROVED CABLING CONNECTORS AND COMPONENTS TO COMPLETE THE INSTALLATION OF THE VIDEO DETECTION SYSTEM. THE CONTRACTOR SHALL INSTALL A RACK MOUNT LCD MONITOR DRAWER IN THE CABINET. THE SIGNAL CONTRACTOR SHALL CONSULT WITH THE TECHNICAL REPRESENTATIVES PRIOR TO ORDERING THE SYSTEM COMPONENTS AND TO OBTAIN OPTIMUM CAMERA PLACEMENT AND MOUNTING HEIGHT FOR EACH CAMERA PRIOR TO INSTALLATION. AFTER THE SYSTEM INSTALLATION IS COMPLETE THE CONTRACTOR SHALL REQUEST A SYSTEM CRITIQUE FROM THE VIDEO DETECTION EQUIPMENT SUPPLY MANUFACTURER. THE RESULTS OF THE SYSTEM CRITIQUE SHALL BE PROVIDED, IN WRITING, TO MANATEE COUNTY PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL SYSTEM.

SEE PLAN SHEETS FOR THE NUMBER OF VIDEO CAMERAS INCLUDED IN THE VIDEO DETECTION ASSEMBLY. THE VIDEO DETECTION SYSTEM INSTALLED MUST BE FULLY COMPATIABLE WITH MANATEE COUNTY'S EXISITING TRAFFIC CONTROL SYSTEM.

THE COST OF THIS ITEM SHALL ALSO INCLUDE A FACTORY CERTIFIED REPRESENTATIVE FROM THE SUPPLIER TO BE ON-SITE DURING INSTALLATION & SETUP.

9. 665-13:
SHALL INCLUDE ADDITIONAL COST OF LABOR AND MATERIALS REQUIRED FOR INSTALLATION OF PEDESTRIAN SIGNAL SIGN FTP-68B-06. THIS SIGN SHALL BE MOUNTED ABOVE EACH PEDESTRIAN DETECTOR. ALL PEDESTRIAN PUSH BUTTONS SHALL BE A.D.A. COMPLIANT. STREET NAMES SHALL BE IN ACCORDANCE WITH THE STREET NAMES ON THE PLAN SHEETS.

10. 670-5-410:
MODIFY EXISTING CONTROLLER TO ADD VIDEO DETECTION AND PERFORM ANY CABINET AND FIELD WIRING NECESSARY.

CORE-DRILL EXISTING CONTROLLER CABINET BASE AND INSTALL NEW CONDUITS IF SPARE CONDUIT STUB-OUTS CANNOT BE USED. INSTALL NEW CONDUITS INTO THE EXISTING FOUNDATION AS REQUIRED IN PLANS. WHEN ADDITIONAL CONDUITS ARE REQUIRED, THE CONDUIT SHALL BE A MINIMUM OF 3" IN DIAMETER. LOCATE NEW CONDUITS SO THEY WILL NOT OBSTRUCT THE MAINTENANCE OF EQUIPMENT IN THE CABINET OR THE ANCHORING OF THE CABINET FLANGE TO THE CONCRETE FOUNDATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING INTERNAL CABINET AND EQUIPMENT FROM DUST AND DEBRIS CAUSED BY CORE DRILLING.

THE CONTRACTOR SHALL PERFORM ANY WORK NECESSARY TO MODIFY THE CONTROLLER IN A MANNER TO ENSURE THAT THE CONTROLLER IS FULLY FUNCTIONAL AFTER MODIFICATIONS ARE COMPLETE.

THIS PAY ITEM COVERS ANY COSTS AND EFFORT ASSOCIATED WITH OBTAINING SIGNAL COORDINATION TIMINGS FROM FDOT TRAFFIC SIGNAL SYSTEM MANAGER, PROGRAMMING THE CONTROLLER, AND PROVIDING FDOT A COPY OF THE PROPOSED TIMINGS.

11. 699-1-1:
ALL INTERNALLY ILLUNMINATED STREET NAME SIGNS SHALL BE EDGE LIT LED TYPE AND SHALL BE LISTED IN THE FDOT APPROVED PRODUCT LIST. THE COST OF THIS ITEM SHALL INCLUDE PROPERLY DESIGNED AND SIZED ADJUSTABLE HANGERS, BRACKETS, CLAMPS, AND ALL MISCELLANEOUS HARDWARE NECESSARY TO RIGID MOUNT THE SIGNS AS SHOWN IN THE PLANS. THE SIGNS SHALL BE POWERED USING IMSA 50-2 CABLE. THIS ITEM SHALL ALSO INCLUDE INSTALLATION OF THE PHOTOCELL ON THE SERVICE POLE.

Sujeeva Weerasuriya
Aug 01, 2013

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: ETL
DRAWN BY: ETL
CHECKED BY: SAW

HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233
FBPR Certificate of
Authorization No. 4213

DATE: 8/1/13
PROJECT NO.: 6084460

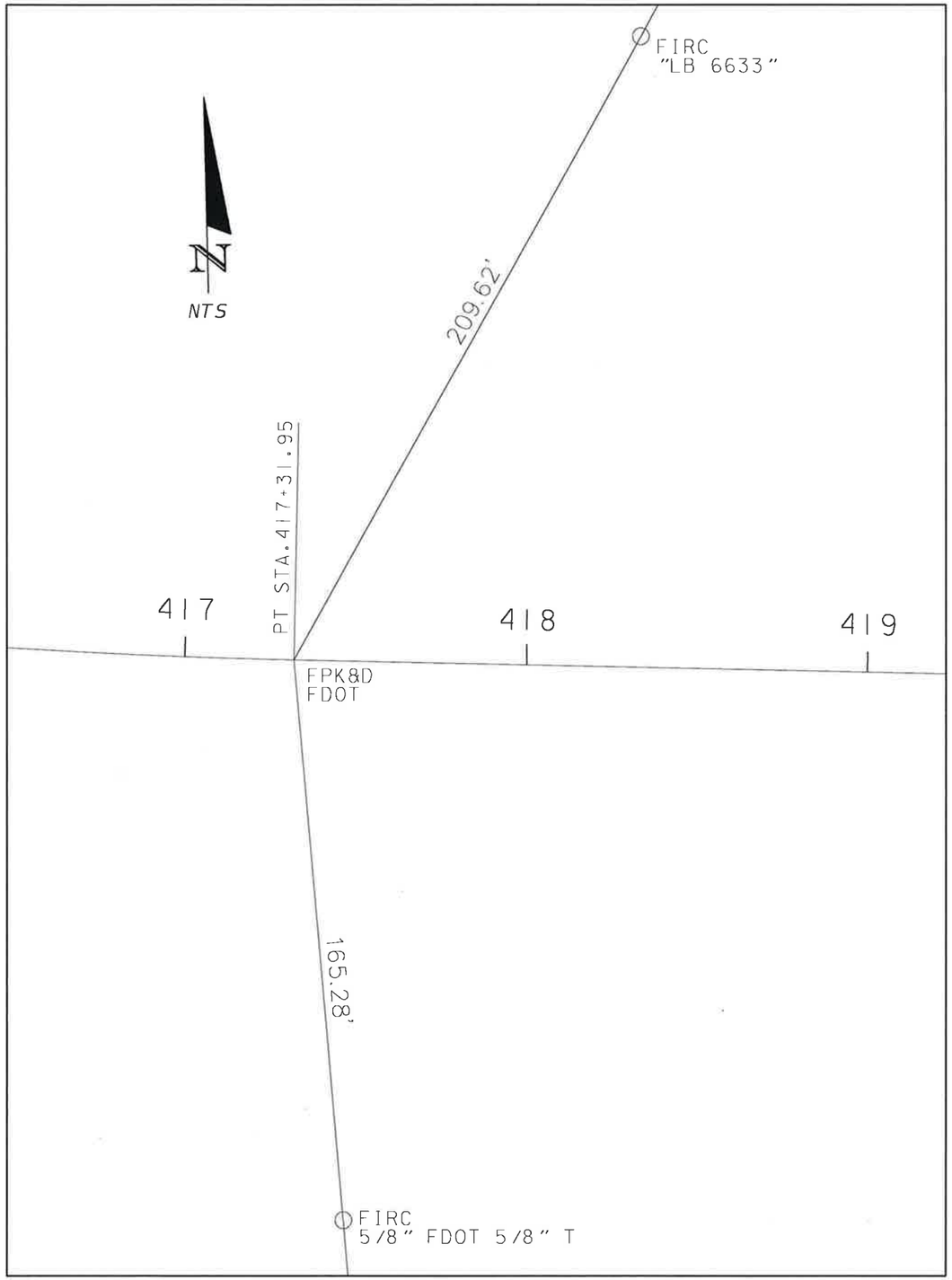
MANATEE COUNTY PUBLIC WORKS

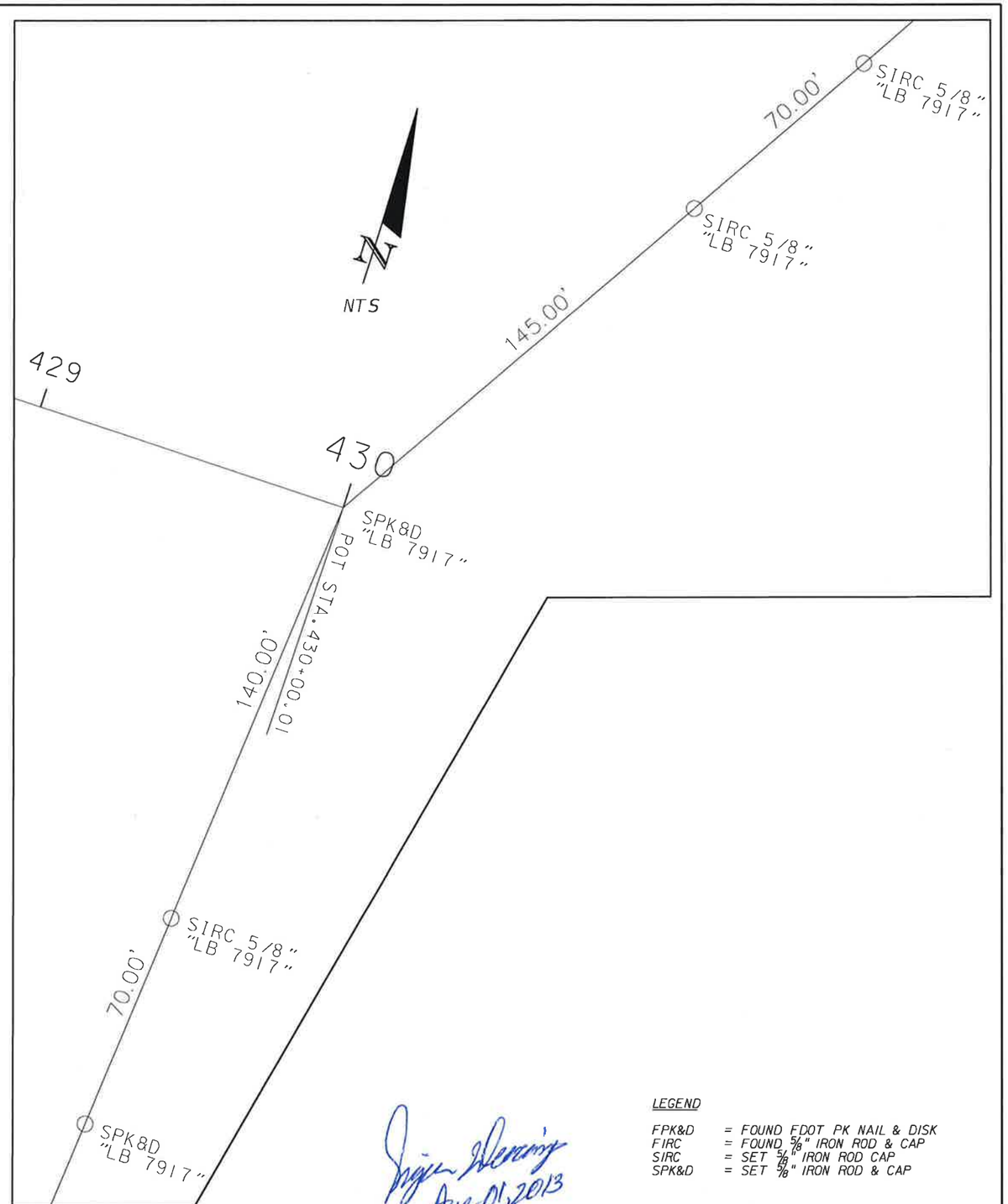
DESIGN ENGINEER: SUJEEVA A. WEERASURIYA
FL. LICENSE NO.: 57629

PAY ITEM NOTES

SHEET NO.: T-4

12:37:28 PM 8/1/2013
PW:\007982\CON0044618\0000000001970094v3.00_CAD\2345678\Signals\GNNTSG01.DGN





Inga Fleming
Aug 01, 2013

LEGEND

FPK&D	=	FOUND FDOT PK NAIL & DISK
FIRC	=	FOUND 5/8" IRON ROD & CAP
SIRC	=	SET 5/8" IRON ROD CAP
SPK&D	=	SET 5/8" IRON ROD & CAP

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MANATEE COUNTY
PUBLIC WORKS

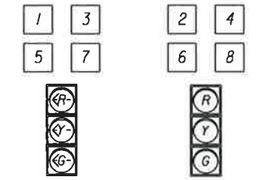
DESIGN ENGINEER: SUJEEVA A. WEERASURIYA
FL. LICENSE NO.: 57629

SURVEY REFERENCE POINTS

SHEET NO.: T-5

12:37:41 PM 8/1/2013 PW:\007982\CON00446\8\000000001\97009V3.00_CAD\2345678\survey\CTLSRD01.DGN

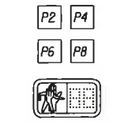
SIGNAL HEAD DETAILS



3-SECT., 1-WAY
12 AS
650-1-311

3-SECT., 1-WAY
16 AS
650-1-311

PEDESTRIAN HEAD DETAILS



PED. SIGNAL
COUNT-DOWN
1-SECT., 1-WAY
7 AS
653-191

PEDESTRIAN DETECTOR SIGN

8 EA
FTP-68B-06
9" x 18"

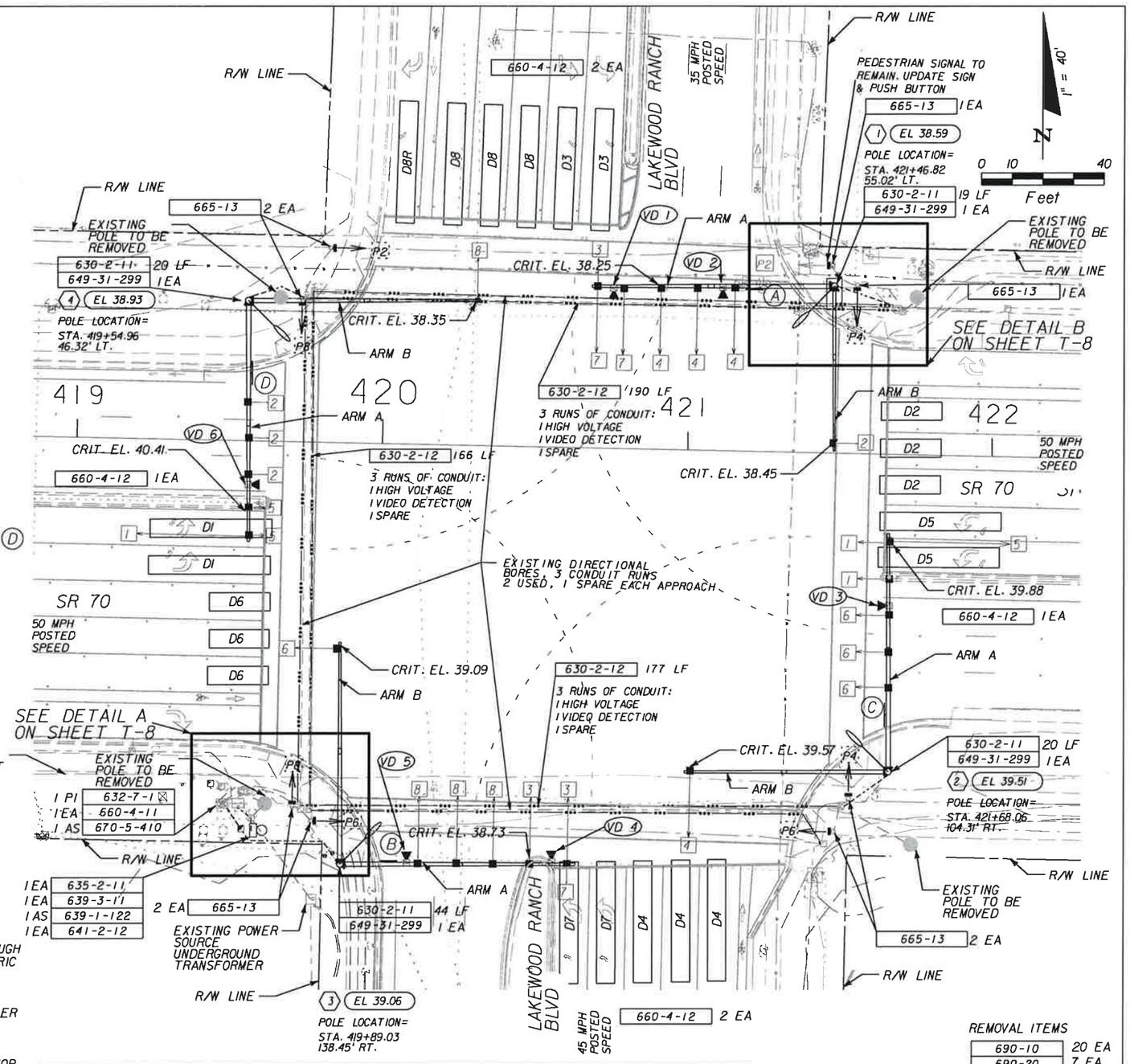
SR 70
11400 11500 (A)

SR 70
11500 11400 (B)

Lakewood Ranch
6000 Blvd 6100 (C)

Lakewood Ranch
6100 Blvd 6000 (D)

699-1-1 4 EA



NOTES TO CONTRACTOR:

1. LOCATION OF EXISTING CONDUITS AND PULL BOXES SHOWN ARE APPROXIMATE ONLY AND THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATIONS.
2. INSTALL NEW CONDUITS AS SHOWN. CONNECT NEW SIGNAL WITH THE EXISTING CONTROLLER THROUGH EXISTING PULL BOXES AND CONDUITS.
3. POWER SERVICE METER BASE AND DISCONNECT SHALL BE INSTALLED ON THE CONCRETE SERVICE POLE AS SHOWN ON THE PLANS AND PER INDEX NUMBERS 17504 AND 17736.
4. THE NEW POWER SERVICE METER BASE AND DISCONNECT ON NEW SERVICE POLE SHOULD BE CONNECTED USING EXISTING CONDUIT THAT IS TO BE DISCONNECTED FROM EXISTING STRAIN POLE AND REROUTED THROUGH PULL BOX UTILIZING AVAILABLE SLACK. CONTRACTOR SHOULD COORDINATE WITH PRECO (PEACE RIVER ELECTRIC COOPERATIVE, INC) TO HAVE LINE DE-ENERGIZED WHILE THIS INSTALLATION TAKES PLACE.

   CONTRACTOR SHOULD ENSURE THAT THE CCTV POWER IS RECONNECTED AFTER THE RELOCATION OF THE POWER SERVICE DISCONNECT. CURRENTLY POWER TO CCTV COMES FROM DISCONNECT THAT SERVES CONTROLLER CABINET.
5. EXISTING PEDESTRIAN SIGNAL POLES TO REMAIN IN PLACE. INSTALL NEW COUNTDOWN TYPE SIGNAL HEADS UNLESS NOTED OTHERWISE ON PLANS. REMOVE EXISTING PEDESTRIAN PUSH BUTTONS. INSTALL NEW DETECTOR PUSH BOTTONS SO THAT FACE OF BUTTON IS PARALLEL TO THE CROSSWALK TO BE USED. SEE DETAIL ON SHEET T-7.
6. CONTRACTOR SHALL MAINTAIN ALL SIDEWALKS AND PEDESTRIAN FACILITIES OR PROVIDE AND MAINTAIN SAFE ALTERNATIVE DURING CONSTRUCTION PER INDEX NUMBER 660.
7. CONTRACTOR SHOULD DIG WITH CAUTION IN SOUTHWEST CORNER AS THERE MAY BE IRRIGATION LINES IN THE VICINITY OF THE PROPOSED POLE LOCATION.

LEGEND

- D — DETECTION ZONE (VIRTUAL LOOPS) (40' x 6') POSITIONED 2' BEYOND STOP BAR
- D — DETECTION ZONE (VIRTUAL LOOPS) (20' x 6') POSITIONED 2' BEYOND STOP BAR
- VIDEO VEHICLE DETECTOR
- NEW PEDESTRIAN SIGNAL
- EXISTING SIGNAL POLE TO BE REMOVED
- 250w HPS LUMINAIRE DESIGNED TO OPERATE AT 110V

REMOVAL ITEMS

690-10	20 EA
690-20	7 EA
690-34-1	4 EA
690-60	16 EA
690-70	8 EA
690-80	1 EA
690-90	1 PI
690-100	1 PI

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MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: SUJEEVA A. WEERASURIYA
FL. LICENSE NO.: 57629

SIGNALIZATION PLAN LAKEWOOD RANCH BLVD. AND SR 70

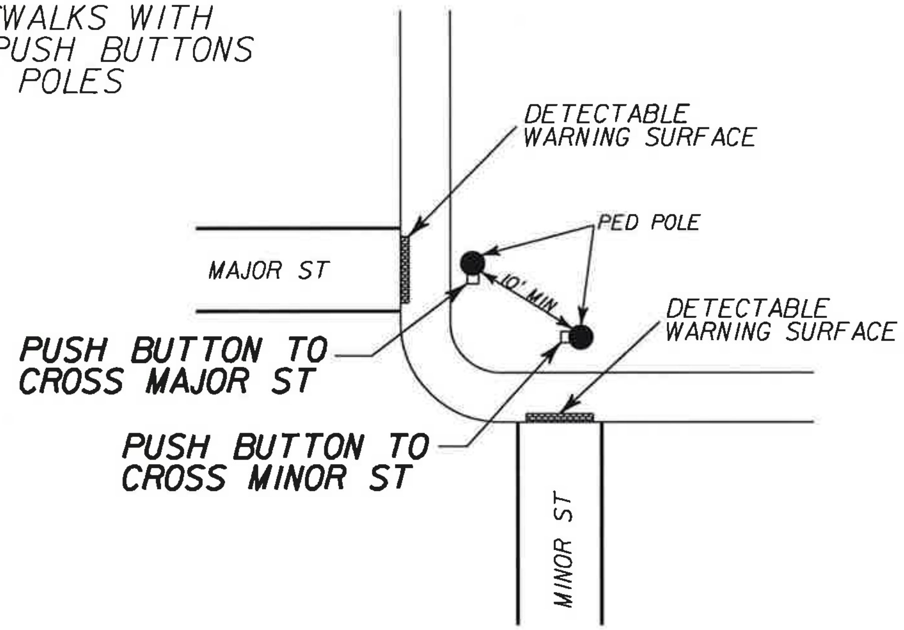
SHEET NO.: T-6

12:38:11 PM 8/1/2013 PW:\007982\CON00446\8\00000000\97009\V3.00_CAD\2345678\Signals\PLANSG01.DGN

TYPICAL PEDESTRIAN DETECTOR ORIENTATION DETAILS

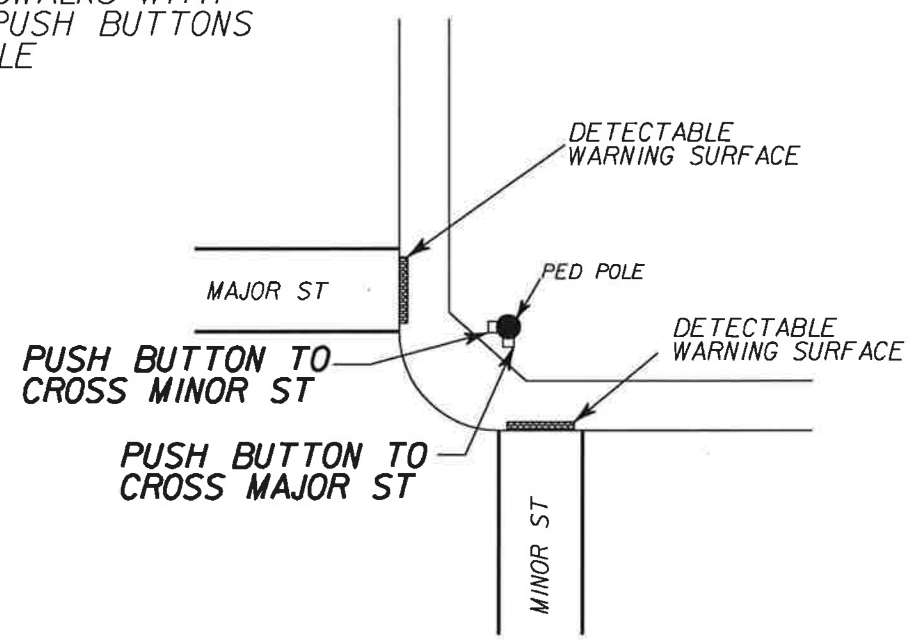
(N.T.S.)

CASE 1: CROSSWALKS WITH PEDESTRIAN PUSH BUTTONS ON SEPARATE POLES



FACE OF BUTTON SHALL BE PARALLEL TO CROSSWALK TO BE USED

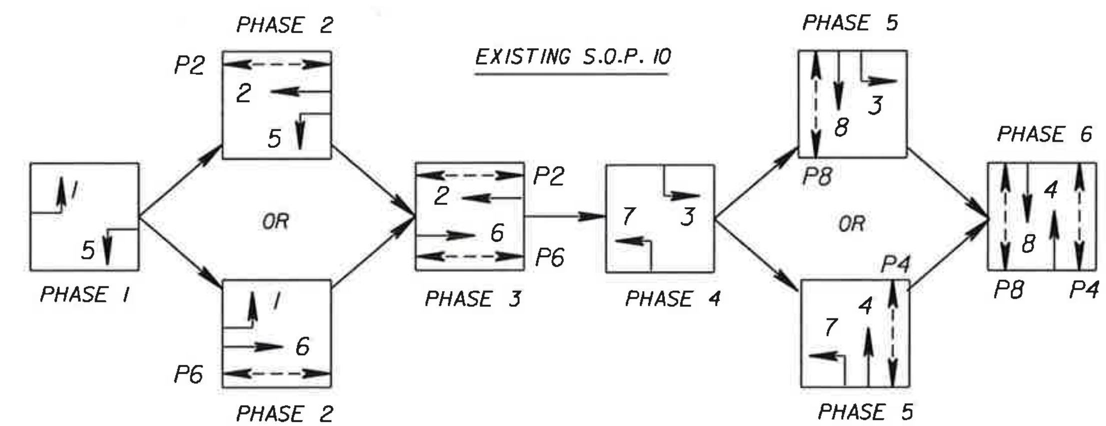
CASE 2: CROSSWALKS WITH PEDESTRIAN PUSH BUTTONS ON SINGLE POLE



FACE OF BUTTON SHALL BE PARALLEL TO CROSSWALK TO BE USED

CONTROLLER OPERATIONS:

1. MAJOR STREET IS SR 70/ONECO-MYAKKA CITY RD. (MOVEMENTS 2 AND 6) AND MINOR STREET IS LAKEWOOD RANCH BLVD. (MOVEMENTS 4 AND 8).
2. EXISTING SIGNAL OPERATION PLAN (S.O.P 10) AND SIGNAL TIMINGS TO REMAIN.
3. WHILE IN FLASH MODE, MOVEMENTS 2 & 6 SHALL FLASH YELLOW. ALL OTHER MOVEMENTS SHALL FLASH RED.



EXISTING CONTROLLER TIMINGS									
TIMING FUNCTION									
MOVEMENT NUMBER		1	2	3	4	5	6	7	8
TIMING FUNCTION	MINIMUM GREEN	7	20	7	7	7	20	7	7
	EXTENSION	3	5	3	3	3	5	3	3
	MAXIMUM GREEN 1	25	40	20	30	15	40	20	30
	MAXIMUM GREEN 2	35	90	25	35	25	90	30	25
	YELLOW CLEARANCE	5	5	4	4	5	5	4	4
	ALL RED	3.5	3.5	6.0	4.5	3.5	3.0	6.0	4.5
	PEDESTRIAN WALK	—	8	—	8	—	8	—	8
	PED. CLEARANCE	—	38	—	40	—	41	—	39
	RECALL	—	MIN	—	—	—	MIN	—	—

VIDEO VEHICLE DETECTION ASSIGNMENTS		
VIDEO DETECTION	DETECTION ZONE	DELAY TIME (SECS.)
VD 1	D 7	
VD 2	D 4	
VD 3	D 1, D 6	
VD 4	D 3	5
VD 5	D 8R	8
VD 5	D 8	
VD 6	D 2, D 5	

DELAY TIME IS INITIAL AND MAY REQUIRE FIELD ADJUSTING AS DIRECTED BY PROJECT ENGINEER.

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MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER SUJEEVA A. WEERASURIYA
FL. LICENSE NO. 57629

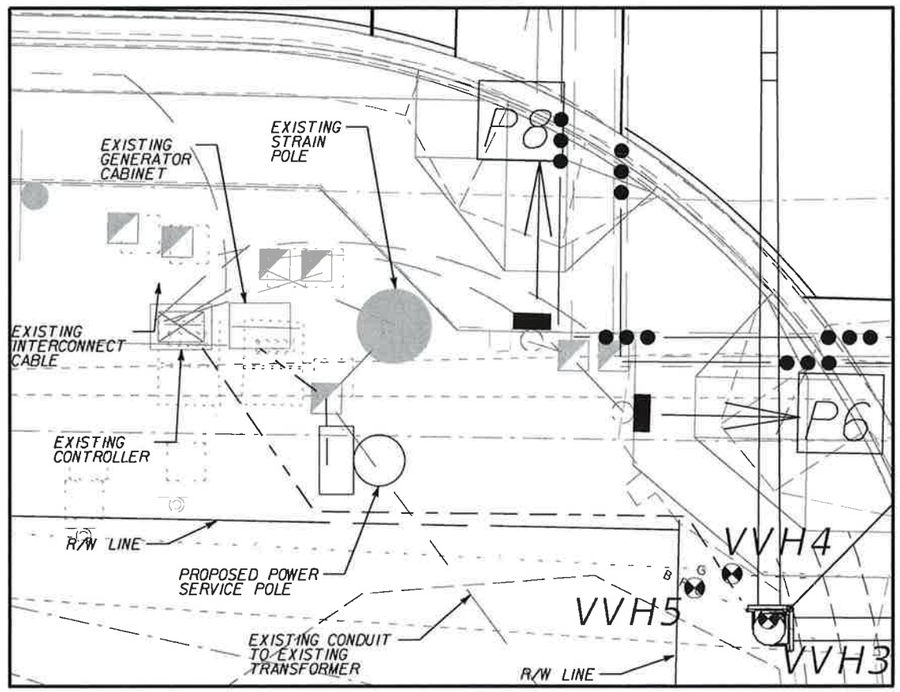
SIGNALIZATION PLAN
LAKEWOOD RANCH BLVD. AND SR 70

SHEET NO. T-7

12:38:17 PM 8/1/2013 PW:\007982\C0I0044618\0000000001970093.00_CAD\2345678\signals\PLANSG01.DGN

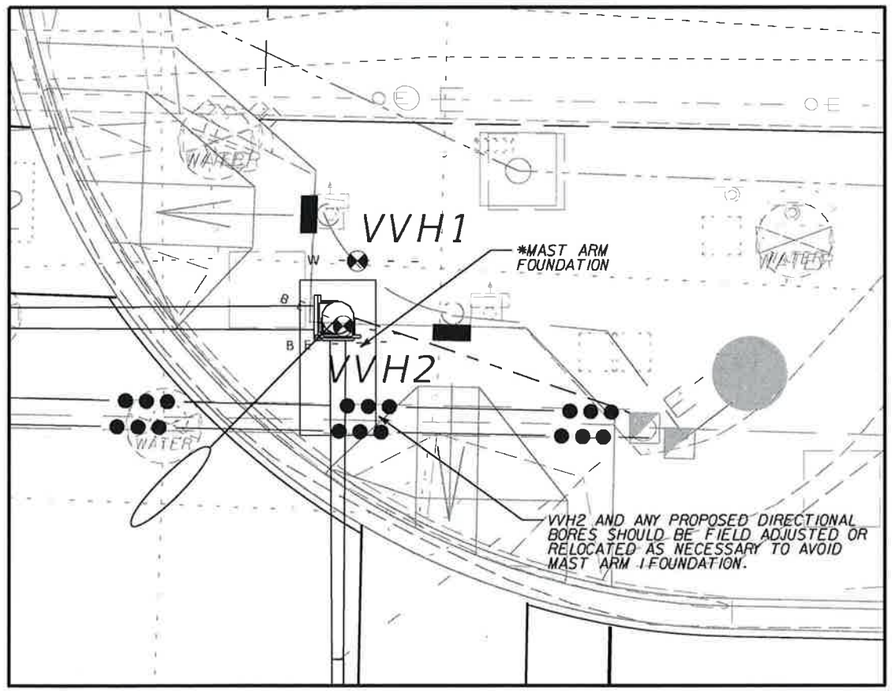
KNOWN UTILITIES NEAR PROPOSED POLE LOCATIONS					
VVH #	STATION	OFFSET	UTILITY TYPE	UTILITY COVER	SIZE
1	421+48.03	58.78'	WM	7.90'	36"
2	421+47.18	54.47'	BPWR	1.66'	2"
3	419+89.02	137.75'	BFO	3.04'	1¼"
4	419+86.58	134.85'	GM	2.98'	4"
5	419+84.15	135.83'	BFO	3.26'	1¼"

DETAIL A (N.T.S)



N

DETAIL B (N.T.S)



*FOR SPECIAL MAST ARM FOUNDATION, SEE "FOUNDATION DETAILS FOR POLE 1" SHEET.

Sujeeva Weerasuriya Aug 01, 2013

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MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: SUJEEVA A. WEERASURIYA
FL. LICENSE NO.: 57629

UTILITY PLAN LAKEWOOD RANCH BLVD. AND SR 70

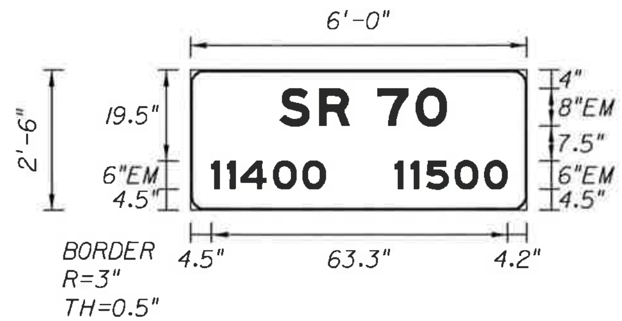
SHEET NO.: T-8

12:38:22 PM 8/1/2013 PW:\007982\CON\004618\0000000001970094\3.00_CAD\2345678\Signals\PLANSG01.DGN

SIGN NAME	A	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			421+46
WIDTH	6'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

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



SIGN ASSEMBLY SHALL BE SINGLE-PANEL, ONE-WAY, LED INTERNALLY ILLUMINATED STREET SIGN ASSEMBLY.

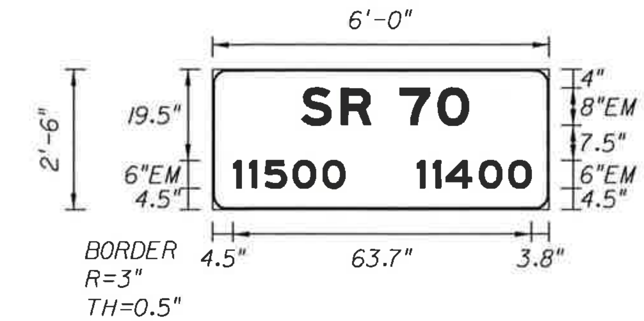
NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY		S	R		7	0		L
SPACE	19.1	8.5	6.5	6	8.1	6.7	17.1	35.8
COPY		1	1	4	0	0		L
SPACE	4.5	3.4	2.8	7	6.2	5	43	24.5
COPY		1	1	5	0	0		L
SPACE	43.7	3.4	3.3	6.1	6.2	5	4.2	24.1
COPY								
SPACE								
COPY								
SPACE								
COPY								
SPACE								

SIGN NAME	B	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			419+89
WIDTH	6'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

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



SIGN ASSEMBLY SHALL BE SINGLE-PANEL, ONE-WAY, LED INTERNALLY ILLUMINATED STREET SIGN ASSEMBLY.

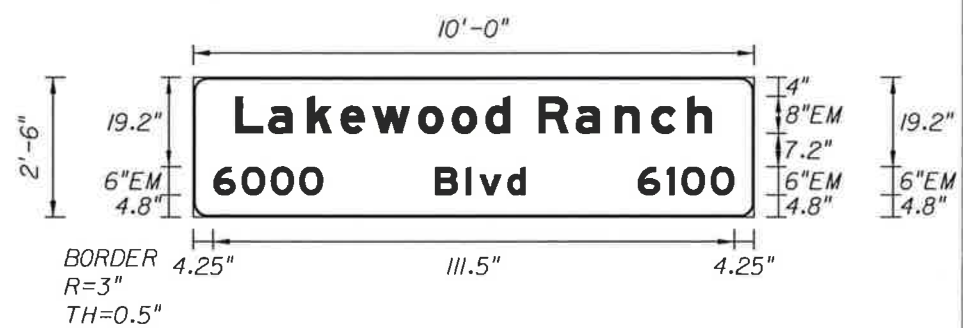
NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY		S	R		7	0		L
SPACE	19.1	8.5	6.5	6	8.1	6.7	17.1	35.8
COPY		I	I	5	0	0		I
SPACE	4.5	3.4	3.3	6.1	6.2	5	43.4	21.1
COPY		1	1	4	0	0		L
SPACE	43.7	3.4	2.8	7	6.2	5	3.8	24.5
COPY								
SPACE								
COPY								
SPACE								
COPY								
SPACE								

SIGN NAME	C	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			421+68
WIDTH	10'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

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



SIGN ASSEMBLY SHALL BE SINGLE-PANEL, ONE-WAY, LED INTERNALLY ILLUMINATED STREET SIGN ASSEMBLY.

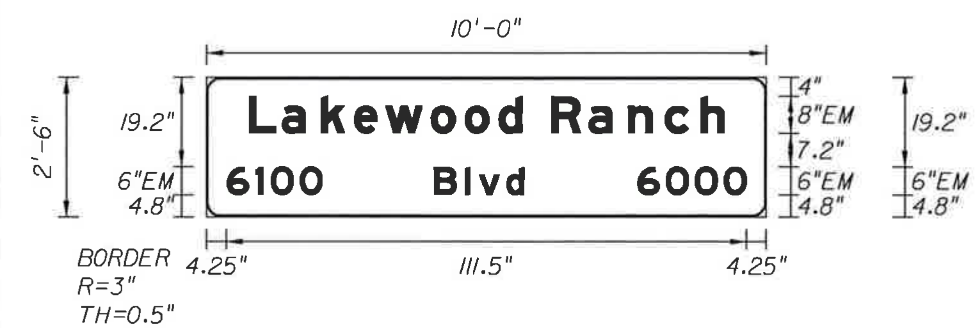
NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY		L	a	k	e	w	o	o	d		R	a	n	c	h		L
SPACE	9	7	8.5	7	6.9	9.8	7.2	7.2	5.3	6	7.9	8.5	7.8	7.8	5.3	9	102
COPY		6	0	0	0		B	l	v	d		6	1	0	0		L
SPACE	4.2	6.1	6.2	6.2	5	24	6.5	2.9	5.8	4	24	6.2	3.2	6.2	5	4.2	111.5
COPY																	
SPACE																	
COPY																	
SPACE																	
COPY																	
SPACE																	
COPY																	
SPACE																	

SIGN NAME	D	QTY	1	SIGN NUMBER	STATION(S)
PANEL		BORDER			419+54
WIDTH	10'-0"	WIDTH	0.5"		
HEIGHT	2'-6"	RADII	3"		
LEGEND	White	COLOR	White		
COLOR	Green				

SYMBOL(S)	ANGLE	X	Y	WID	HT

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



SIGN ASSEMBLY SHALL BE SINGLE-PANEL, ONE-WAY, LED INTERNALLY ILLUMINATED STREET SIGN ASSEMBLY.

NO. OF LIGHT FIXTURES		FIXTURE SPACING		PHOTOMETRIC CURVE		WATT		VOLTAGE	

COPY		L	a	k	e	w	o	o	d		R	a	n	c	h		L
SPACE	9	7	8.5	7	6.9	9.8	7.2	7.2	5.3	6	7.9	8.5	7.8	7.8	5.3	9	102
COPY		6	1	0	0		B	l	v	d		6	0	0	0		L
SPACE	4.2	6.2	3.2	6.2	5	24	6.5	2.9	5.8	4	24	6.1	6.2	6.2	5	4.2	111.5
COPY																	
SPACE																	
COPY																	
SPACE																	
COPY																	
SPACE																	
COPY																	
SPACE																	

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FL. LICENSE NO. 57629

GUIDE SIGN WORKSHEET

SHEET NO. T-9

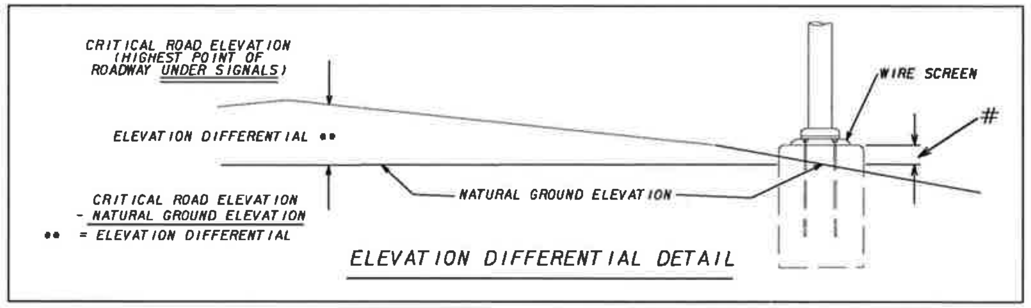
** A POSITIVE ELEVATION DIFFERENTIAL INDICATES THE POLE LOCATION IS LOWER THAN THE CRITICAL ROADWAY ELEVATION. SEE ELEVATION DIFFERENTIAL DETAIL.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE ELEVATION DIFFERENTIAL PRIOR TO POLE MANUFACTURING.

CONTRACTOR SHALL ALSO INSURE THAT TOP OF POLE FOUNDATION WILL NOT BE INSTALLED BELOW NATURAL GROUND LEVEL.

INFORMATION BELOW IS FOR DESIGN PURPOSES ONLY. FIELD ADJUSTMENTS MAY BE REQUIRED.

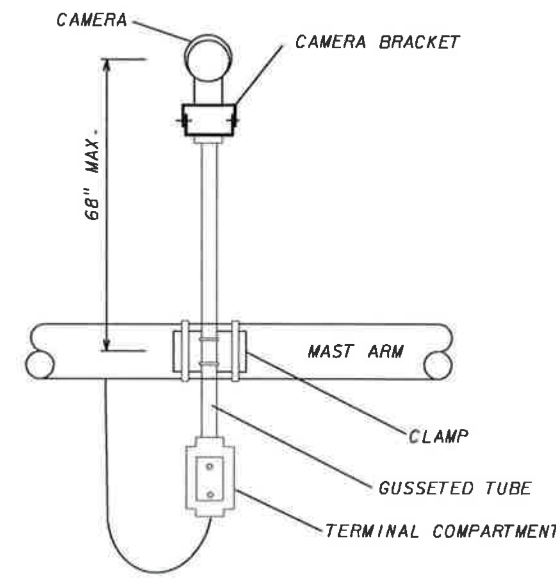
SEE APPROPRIATE PLAN SHEET FOR PROPOSED SIGNAL HEAD ALIGNMENTS AND SIGN CONFIGURATION/LOCATION.



ELEVATION DIFFERENTIAL DETAIL

SPECIAL REQUIREMENTS:

A. ANCHOR BOLT COVERS (ORNAMENTAL, NON-ORNAMENTAL, AND/OR PAINTED) SHALL BE GALVANIZED STEEL OR CAST ALUMINUM AND SHALL BE SECURED BY A MINIMUM OF TWO (2) THREADED FASTENERS. THE BOLT COVERS SHALL BE OF SUFFICIENT SIZE SO THAT THERE IS NO GAP BETWEEN ITSELF AND THE POLE SHAFT.



CAMERA MOUNTING DETAIL
(CONTACT MAINTAINING AGENCY FOR MOUNTING PREFERENCES.)

SPECIAL INSTRUCTIONS			
ID NO.	PED. BUTTON	PED. SIGNALS	HANDHOLE LOCATION

* DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY
*** PER FDOT PRACTICES, ARM "A" IS THE ARM WITH THE MOST STRUCTURAL LOADING

STRUCT. ID. NO.	LOC. NO.	SHEET NO.	LOCATION BY STA.	# FOUNDATION OUT OF GROUND	** RDWY ARM	** EL. DIFF.	SIGNAL DATA: SIGNAL V/H	BACK PLATES Y/N	PED. SIGNAL Y/N	DISTANCE FROM POLE: 1	*	2	*	3	*	4	*	5	*	6	*	7	*	8	*	TOTAL ARM LENGTH	ARM M.H.	∠ BETWEEN DUAL ARMS 90/270
1	1	T-6	421+46.82	0	A	-0.34	V	Y	N	31	3	43	3	55	3	67	3	77	3	77	3					78	20	90°
					B	-0.14	V	Y	N	51	3															53	20	
2	1	T-6	421+68.06	0	A	0.37	V	Y	N	26	3	38	3	50	3	62	3	74.5	3	74.5	3					76	20.5	90°
					B	0.06	V	Y	N	64	3															66	20.5	
3	1	T-6	419+89.03	0	A	-0.33	V	Y	N	24	3	37	3	49	3	61	3	73	3	73	3					75	20	90°
					B	0.03	V	Y	N	70	3															71	20	
4	1	T-6	419+54.96	0.25	A	1.48	V	Y	N	32	3	44	3	56	3	67	3	76	3	76	3					78	21.75	90°
					B	-0.58	V	Y	N	74	3															75	19	

**** LUMINAIRE ANGLE MEASURED COUNTER CLOCKWISE FROM ARM A

STRUCT. ID. NO.	** RDWY ARM	SIGN DATA — DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN: A	H1	W1	B	H2	W2	C	H3	W3	D	H4	W4	E	H5	W5	VIDEO DISTANCE FROM POLE: 1	2	LUMINAIRE DATA: MOUNTING HEIGHT	**** ANGLE
1	A	26	2.5	6													36	70	40	45°
	B																			
2	A	17	2.5	10													53		40	45°
	B																			
3	A	15	2.5	6													21	68	40	45°
	B																			
4	A	22	2.5	10													59		40	45°
	B																			

[illegible signature] Aug 01, 2013

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DESIGN ENGINEER SUJEEVA A. WEERASURIYA
FL. LICENSE NO. 57629

MAST ARM TABULATION

SHEET NO. T-10

12:38:47 PM 8/1/2013 PW:\007982\CON004618\0000000000197009\3.00_CAD\2345678\signals\MSGSG01.DGN

SPECIAL MAST ARM ASSEMBLIES DATA TABLE

Table Date 01-01-12

NUMBER OF LOCATIONS	POLE #	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	POLE 1	13M139	40	9.94	15.54	0.1793	40	14.90	20.50	0.375	29	8.94	13	0.1793	26	12.36	16	0.375	39	20	20.54	26	0.375	90	37.50
1	POLE 2	13M139	38	10.22	15.54	0.1793	40	14.90	20.50	0.375	34.9	10.12	15	0.1793	33.1	14.37	19	0.375	39	20.50	20.54	26	0.375	90	37.50
1	POLE 3	13M139	37	10.36	15.54	0.1793	40	14.90	20.50	0.375	39.9	9.41	15	0.1793	33.1	14.37	19	0.375	39	20	20.54	26	0.375	90	37.50
1	POLE 4	13M139	40	9.94	15.54	0.1793	40	14.90	20.50	0.375	37	8.82	14	0.1793	40	13.40	19	0.375	39	*	21.54	27	0.375	90	37.50

SHINJI KONNO * LICENSE * No. 39536 * STATE OF FLORIDA * PROFESSIONAL ENGINEER
10/08/2013

* ARM A = 21.75 FT.
ARM B = 19.00 FT.

** SEE SHEET T-12.

SPECIAL MAST ARM ASSEMBLIES DATA TABLE (CONT.)

Table Date 01-01-12

POLE #	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
POLE 1	13M139	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50
POLE 2	13M139	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50
POLE 3	13M139	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50
POLE 4	13M139	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50	6	32	38	3.5	0.75	0.50	23.5	1.50	2.5	12.50	0.50

NOTES:
1. Work with Index 17745.
2. Design Wind Speed = 130 mph
3. Contractor shall coordinate anchor bolt requirements with fabricator.
4. Contractor shall identify Structures Numbers and submit detailed shop drawings.
5. Arm A = First arm
   Arm B = Second arm

SPECIAL MAST ARM ASSEMBLIES DATA TABLE (CONT.)

Table Date 01-01-12

POLE #	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)	LJ(in)	LK(in)	LL(deg)
POLE 1	13M139	6	44	2.50	2.25	45	**	**	**	**	**	**	40	10	3	0.125	0.50	8	0.50	0.75	0.25	0.25	45
POLE 2	13M139	6	44	2.50	2.25	45	29	5	11	18	16	8	40	10	3	0.125	0.50	8	0.50	0.75	0.25	0.25	45
POLE 3	13M139	6	44	2.50	2.25	45	24	5	11	18	16	8	40	10	3	0.125	0.50	8	0.50	0.75	0.25	0.25	45
POLE 4	13M139	6	45	2.50	2.25	45	28	5	11	18	30	6	40	10	3	0.125	0.50	8	0.50	0.75	0.25	0.25	45

FOUNDATION NOTES:
1. Design based on Borings taken March 29, 2013 and March 30, 2013 sealed by Erick M. Fredrick, P.E. (Tierra Inc.)
2. Assumptions and Values used in design:
   Soil Type - Cohesionless Sand
   Soil Layer Thickness = 35 ft.
   Soil Friction Angle = 29 deg.
   Soil Weight = 42.6 pcf
   Design Water Table is taken at ground surface.
3. Based on a review of the "Potentiometric Surface of the Upper Floridian Aquifer, West-Central Florida" maps published by the USGS, the potentiometric surface elevation of the Upper Floridian Aquifer at the project site is approximately +20 feet, NGVD. Although the borings performed did not encounter artesian conditions, the Contractor's tools and dewatering equipment should be prepared to handle a potentiometric level of up to +20 feet, NGVD, at no additional cost to the owner.
4. The length of drilled shaft shown in the table is longer than the calculated length in order to penetrate through the weak clay layer with N-value of 3 or less.

No.	REVISIONS	DATE	BY

SCALE: NTS
DESIGNED BY: KD
DRAWN BY: DH
CHECKED BY: CAS

HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233
FBPR Certificate of
Authorization No. 4213

DATE: 8/1/13
PROJECT NO.: 6084460

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: SHINJI KONNO
FL. LICENSE NO.: 39536

MAST ARM ASSEMBLIES DATA TABLE (SPECIAL)

SHEET NO.: T-11

12:39:00 PM 8/1/2013
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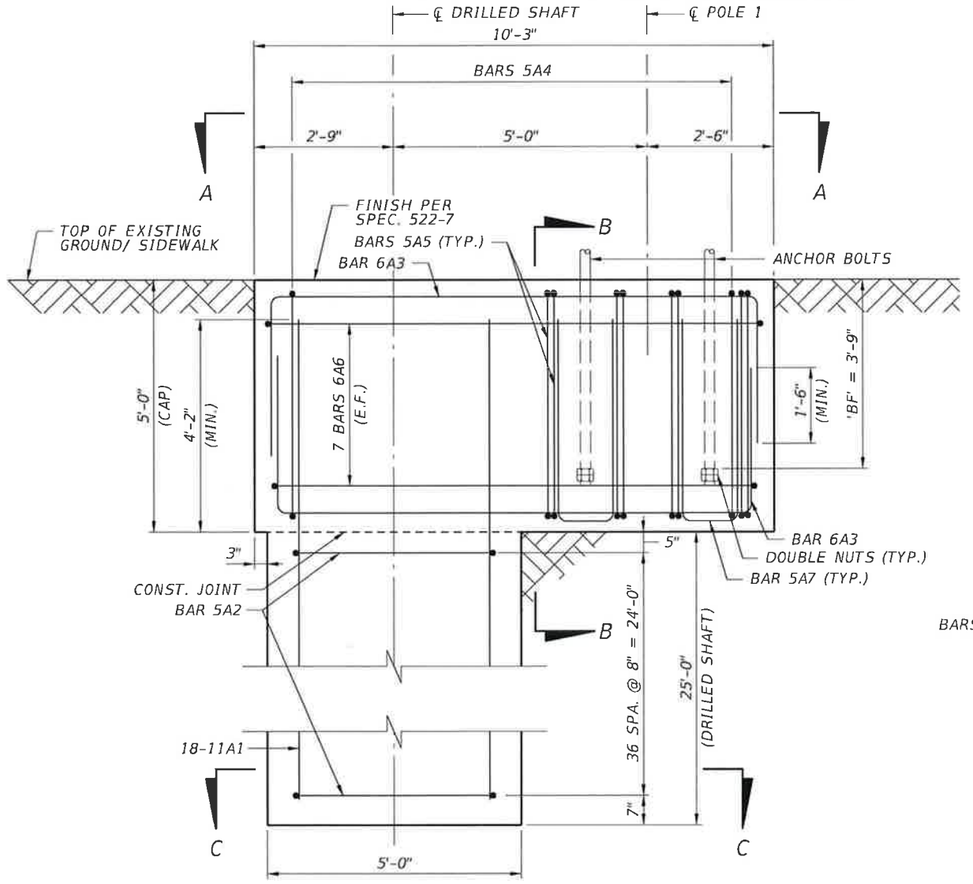
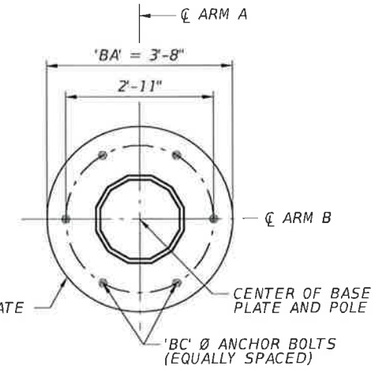
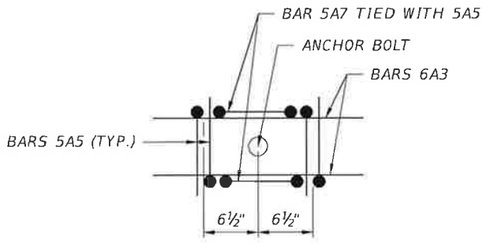


ELEVATION



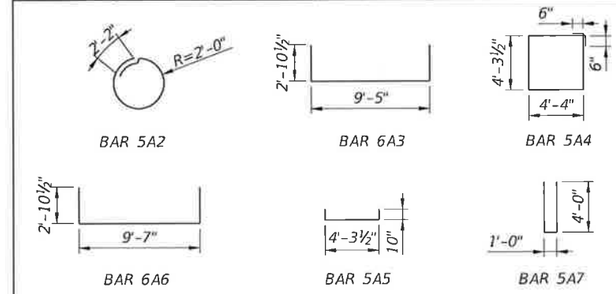
BASE PLATE DETAIL



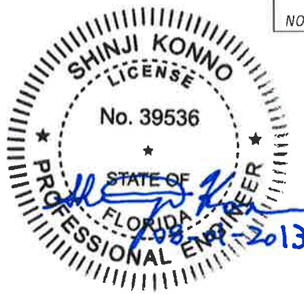
DETAIL A

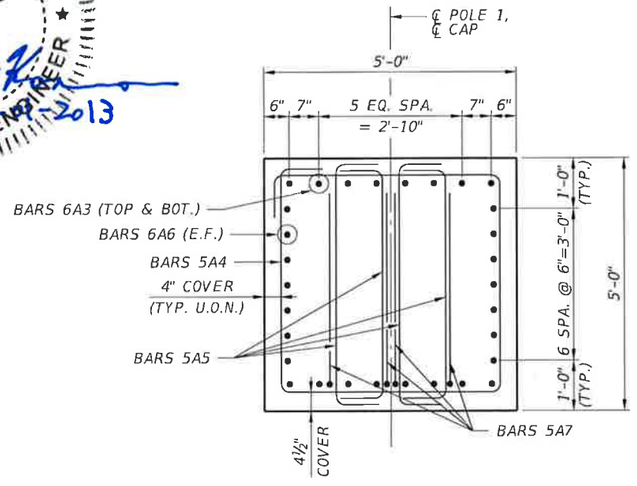
BILL OF REINFORCING STEEL

MARK	SIZE	NO. REQD.	LENGTH	LOCATION	BENDING
11A1	11	18	28'-8"	SHAFT	STRAIGHT
5A2	5	37	14'-9"	SHAFT	BEND
6A3	6	16	15'-2"	CAP	BEND
5A4	5	10	18'-3"	CAP	BEND
5A5	5	24	6'-0"	CAP	BEND
6A6	6	14	15'-4"	CAP	BEND
5A7	5	12	9'-0"	CAP	BEND

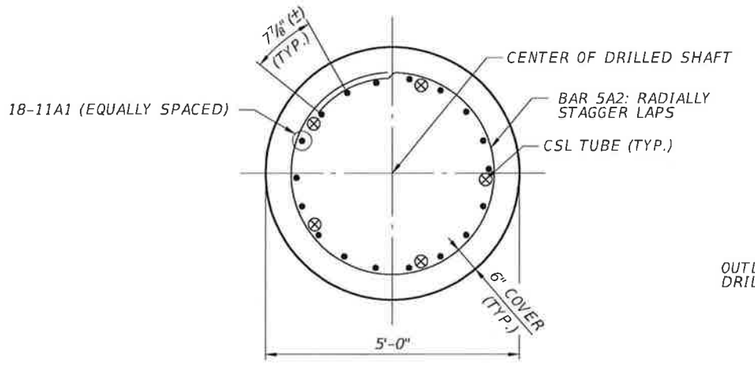


NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT.

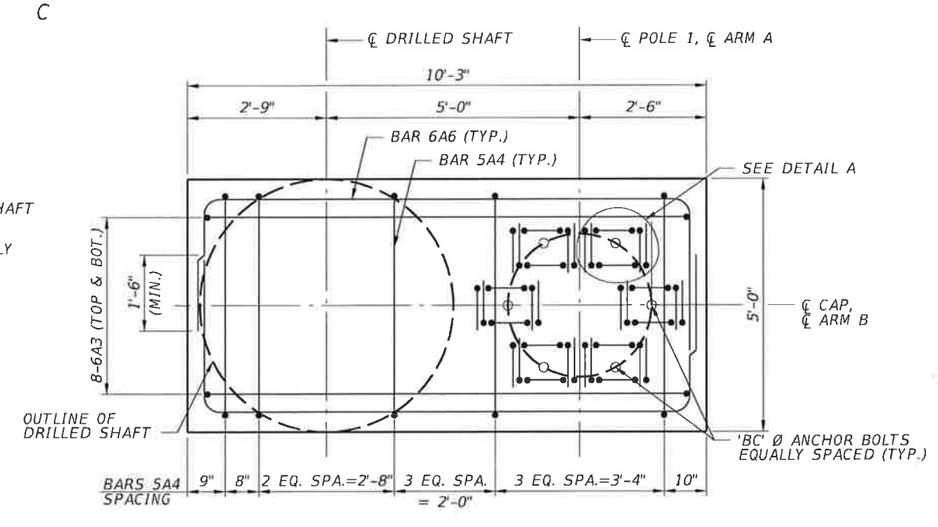




SECTION B-B



SECTION C-C



VIEW A-A

(DRILLED SHAFT REINFORCEMENT NOT SHOWN FOR CLARITY)

NOTES:

1. PLACE THE BARS 5A4 IN CAP TO AVOID INTERFERENCE WITH ANCHOR BOLTS AND BARS 11A1 OF DRILLED SHAFT.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 KSI.
3. CONCRETE MATERIAL:
   DRILLED SHAFT: CLASS IV (DRILLED SHAFT)-4000 PSI.
   CAP: CLASS IV-5500 PSI.
4. MATERIALS INCLUDING CONCRETE AND REINFORCING STEEL AND CONSTRUCTION/ INSTALLATION OF DRILLED SHAFT AND CAP SHOWN ON THIS SHEET ARE INCLUDED IN THE COST OF POLE 1.

No.	REVISIONS	DATE	BY

SCALE: NTS
DESIGNED BY: KD
DRAWN BY: DH
CHECKED BY: CAS

HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233
FBPR Certificate of
Authorization No. 4213

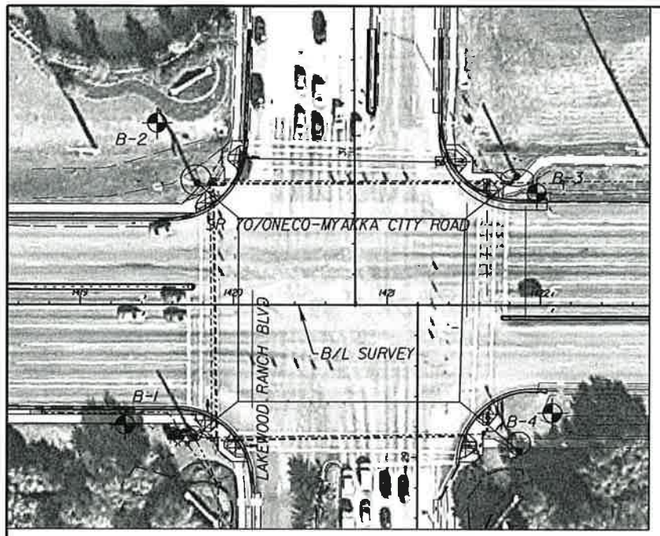
DATE: 8/1/13
PROJECT NO.: 6084460

MANATEE COUNTY PUBLIC WORKS

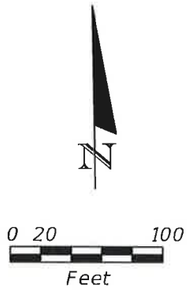
DESIGN ENGINEER: SHINJI KONNO
FL. LICENSE NO.: 39536

FOUNDATION DETAILS FOR POLE 1

SHEET NO.: T-12



BORING LOCATION PLAN



LEGEND

- GRAY TO BROWN FINE SAND TO SAND WITH SILT (SP/SP-SM)
- GRAY SILTY SAND SOMETIMES WITH PHOSPHATE FRAGMENTS (SM)
- LIGHT GRAY TO GRAY CLAYEY SAND TO SANDY CLAY TO CLAY SOMETIMES WITH PHOSPHATE FRAGMENTS (SC/CL/CH)
- APPROXIMATE SPT BORING LOCATION
- ▽ GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS
- B/L SURVEY — BASELINE OF SURVEY OF SR 70

SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING
N	NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
HA	HAND AUGERED TO VERIFY UTILITY CLEARANCE
NGVD	NATIONAL GEODETIC VERTICAL DATUM OF 1929
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)

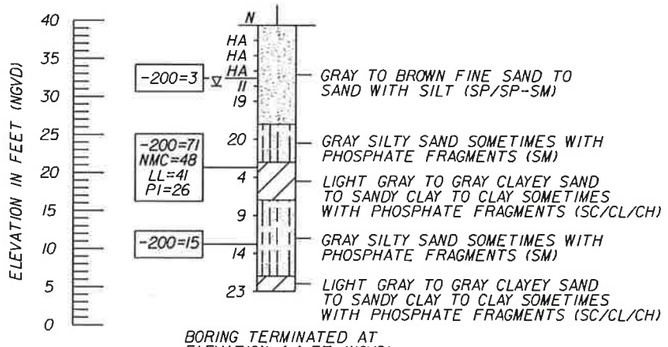
NOTES:
1. THE LOCATION OF THE SPT BORINGS PERFORMED WERE DETERMINED USING HAND HELD GLOBAL POSITIONING SYSTEM EQUIPMENT IN THE FIELD AND SHOULD BE CONSIDERED APPROXIMATE.
2. THE STATIONS, OFFSETS AND ELEVATIONS PROVIDED ARE BASED ON CONVERTING THE GPS COORDINATES COLLECTED AT EACH BORING LOCATION UTILIZING THE MICROSTATION DESIGN FILES PROVIDED BY HDR.
3. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER, WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER AT THE PROJECT SITE IS APPROXIMATELY +20 FEET, NGVD. ALTHOUGH THE BORINGS PERFORMED DID NOT ENCOUNTER ARTESIAN CONDITIONS, THE CONTRACTOR'S TOOLS AND DEWATERING EQUIPMENT SHOULD BE PREPARED TO CONTROL A POTENTIOMETRIC LEVEL OF UP TO +20 FEET, NGVD, AT NO ADDITIONAL COST TO THE OWNER.

RECOMMENDED SOIL PARAMETERS

BORING NUMBER	DEPTH (FT)	N	SOIL CLASSIFICATION	SOIL UNIT WEIGHT (PCF)		SOIL ANGLE OF FRICTION (DEGREES)	COHESION (PSF)	EARTH PRESSURE COEFFICIENT	
				ɣ SAT	ɣ SUB			ACTIVE (Ka)	PASSIVE (Kp)
B-1	0 TO 6	HA	SP/SP-SM	105	42.6	29	0	0.347	2.88
	6 TO 18	11 TO 20	SP/SP-SM/SM	110	47.6	30	0	0.333	3.00
	18 TO 23	4	SC/CL/CH	115	52.6	0	500	1.000	1.00
	23 TO 33	9 TO 14	SM	110	47.6	30	0	0.333	3.00
	33 TO 35	23	SC/CL/CH	125	62.6	0	2875	1.000	1.00
B-2	0 TO 6	HA	SP/SP-SM	105	42.6	29	0	0.347	2.88
	6 TO 18	11 TO 14	SP/SP-SM	110	47.6	30	0	0.333	3.00
	18 TO 23	4	SC/CL/CH	115	52.6	0	500	1.000	1.00
	23 TO 28	8	SM	105	42.6	29	0	0.347	2.88
	28 TO 33	11	SC/CL/CH	120	57.6	0	1375	1.000	1.00
	33 TO 35	56	SM	125	62.6	34	0	0.283	3.54

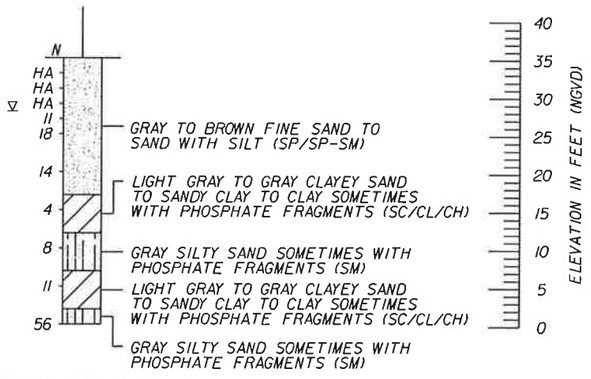
EARTH PRESSURE COEFFICIENTS ARE BASED ON FLAT NON SLOPING GROUND

BOR # B-1
STA. 1419+29
REF. B/L SURVEY
OFF 79' RT.
ELEV. 39.4
DATE 3/29/2013
DRILLER I. POORAN
HAMMER SAFETY
RIG D-25



BORING TERMINATED AT ELEVATION 4.4 FT. (NGVD)
LATITUDE: N 27.43193
LONGITUDE: W 82.42877

BOR # B-2
STA. 1419+50
REF. B/L SURVEY
OFF 119' LT.
ELEV. 35.3
DATE 3/29/2013
DRILLER I. POORAN
HAMMER SAFETY
RIG D-25



BORING TERMINATED AT ELEVATION 0.3 FT. (NGVD)
LATITUDE: N 27.43247
LONGITUDE: W 82.42870

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS - RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	16 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

ERICK M FREDERICK LICENSE No 63920 STATE OF FLORIDA PROFESSIONAL ENGINEER 4/30/2013

SR 70 AT LAKEWOOD RANCH BOULEVARD

No.	REVISIONS	DATE	BY

SCALE AS NOTED
DESIGNED BY BJS
DRAWN BY BJS
CHECKED BY EMF

E.O.R.: ERICK M. FREDERICK, P.E.
P.E. LICENSE NUMBER 63920
TIERRA INC
7351 TEMPLE TERRACE HIGHWAY, TAMPA, FL. 33637
CERTIFICATE OF AUTHORIZATION: 6486

DATE 4/13
PROJECT NO. 6084460

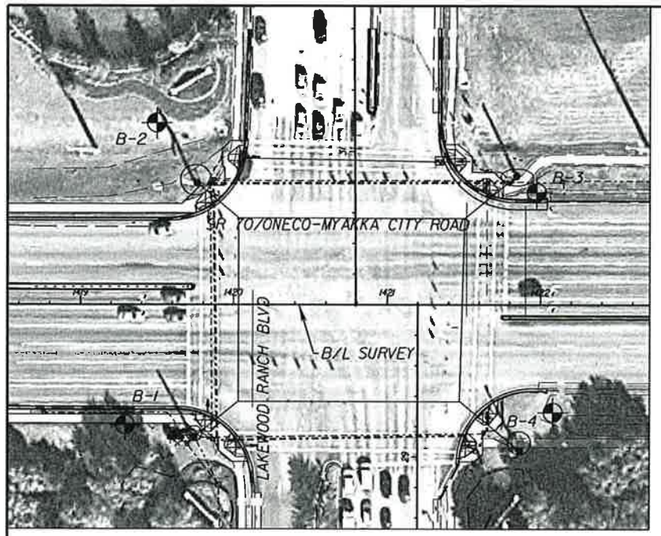
MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER Erick M. Frederick, P.E.
FL. LICENSE NO. 63920

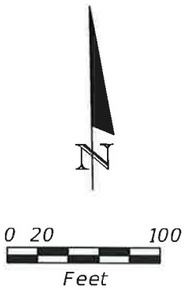
REPORT OF CORE BORINGS

SHEET NO. G-1

8:34:26 AM 4/30/2013 J:\6511\2013 Files\6511-13-012_SR 70 at Lakewood\Microstation\Roadway\sggeo01.dgn



BORING LOCATION PLAN



LEGEND

- GRAY TO BROWN FINE SAND TO SAND WITH SILT (SP/SP-SM)
- GRAY SILTY SAND SOMETIMES WITH PHOSPHATE FRAGMENTS (SM)
- LIGHT GRAY TO GRAY CLAYEY SAND TO SANDY CLAY TO CLAY SOMETIMES WITH PHOSPHATE FRAGMENTS (SC/CL/CH)
- APPROXIMATE SPT BORING LOCATION
- ▽ GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS
- B/L SURVEY — BASELINE OF SURVEY OF SR 70

SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND/OR LABORATORY TESTING
N	NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).
HA	HAND AUGERED TO VERIFY UTILITY CLEARANCE
NGVD	NATIONAL GEODETIC VERTICAL DATUM OF 1929
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)

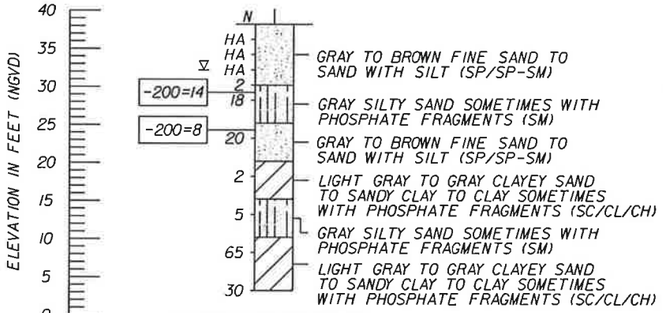
NOTES:
1. THE LOCATION OF THE SPT BORINGS PERFORMED WERE DETERMINED USING HAND HELD GLOBAL POSITIONING SYSTEM EQUIPMENT IN THE FIELD AND SHOULD BE CONSIDERED APPROXIMATE.
2. THE STATIONS, OFFSETS AND ELEVATIONS PROVIDED ARE BASED ON CONVERTING THE GPS COORDINATES COLLECTED AT EACH BORING LOCATION UTILIZING THE MICROSTATION DESIGN FILES PROVIDED BY HDR.
3. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER, WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER AT THE PROJECT SITE IS APPROXIMATELY +20 FEET, NGVD. ALTHOUGH THE BORINGS PERFORMED DID NOT ENCOUNTER ARTESIAN CONDITIONS, THE CONTRACTOR'S TOOLS AND DEWATERING EQUIPMENT SHOULD BE PREPARED TO CONTROL A POTENTIOMETRIC LEVEL OF UP TO +20 FEET, NGVD, AT NO ADDITIONAL COST TO THE OWNER.

RECOMMENDED SOIL PARAMETERS

BORING NUMBER	DEPTH (FT)	N	SOIL CLASSIFICATION	SOIL UNIT WEIGHT (PCF)		SOIL ANGLE OF FRICTION (DEGREES)	COHESION (PSF)	EARTH PRESSURE COEFFICIENT	
				% SAT	% SUB			ACTIVE (Ka)	PASSIVE (Kp)
B-3	0 TO 8	HA TO 2	SP/SP-SM	105	42.6	29	0	0.347	2.88
	8 TO 18	18 TO 20	SP/SP-SM/SM	110	47.6	30	0	0.333	3.00
	18 TO 23	2	SC/CL/CH	110	47.6	0	200	1.000	1.00
	23 TO 28	5	SM	105	42.6	29	0	0.347	2.88
	28 TO 35	30 TO 65	SC/CL/CH	125	62.6	0	3750	1.000	1.00
B-4	0 TO 6	HA	SP/SP-SM	105	42.6	29	0	0.347	2.88
	6 TO 13	18 TO 20	SP/SP-SM/SM	110	47.6	30	0	0.333	3.00
	13 TO 23	4 TO 14	SC/CL/CH	115	52.6	0	500	1.000	1.00
	23 TO 35	10 TO 26	SM	110	47.6	30	0	0.333	3.00

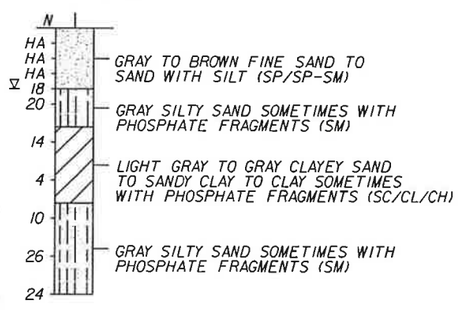
EARTH PRESSURE COEFFICIENTS ARE BASED ON FLAT NON SLOPING GROUND

BOR # B-3
STA. 1421+97
REF. B/L SURVEY
OFF 73' LT.
ELEV. 38.2
DATE 3/29/2013
DRILLER I. POORAN
HAMMER SAFETY
RIG D-25



BORING TERMINATED AT ELEVATION 3.2 FT. (NGVD)
LATITUDE: N 27.43233
LONGITUDE: W 82.42794

BOR # B-4
STA. 1422+08
REF. B/L SURVEY
OFF 71' RT.
ELEV. 37.9
DATE 3/30/2013
DRILLER I. POORAN
HAMMER SAFETY
RIG D-25



BORING TERMINATED AT ELEVATION 2.9 FT. (NGVD)
LATITUDE: N 27.43194
LONGITUDE: W 82.42791

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS- RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	16 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

SR 70 AT LAKEWOOD RANCH BOULEVARD

No.	REVISIONS	DATE	BY

SCALE: AS NOTED
DESIGNED BY: BJS
DRAWN BY: BJS
CHECKED BY: EMF

E.O.R.: ERICK M. FREDERICK, P.E.
P.E. LICENSE NUMBER 63920
TIERRA INC
7351 TEMPLE TERRACE HIGHWAY, TAMPA, FL. 33637
CERTIFICATE OF AUTHORIZATION: 6486

DATE: 4/13
PROJECT NO.: 6084460

MANATEE COUNTY PUBLIC WORKS

DESIGN ENGINEER: Erick M. Frederick, P.E.
FL. LICENSE NO.: 63920

REPORT OF CORE BORINGS

SHEET NO.: G-2

8:34:40 AM 4/30/2013 J:\6511\2013 Files\6511-13-012_SR 70 at Lakewood\Microstation\Roadway\sggeo02.dgn