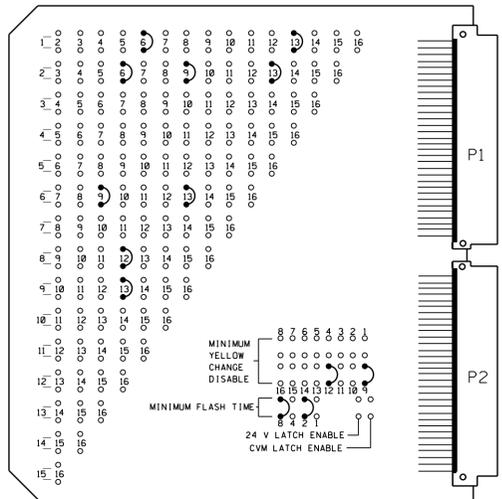


**EDI MODEL MMU2-16LEip
MALFUNCTION MANAGEMENT UNIT
PROGRAMMING DETAIL**

(program card and tables as shown below)



MMU PROGRAMMING CARD

**FIELD CHECK ENABLE
DUAL IND ENABLE
RED FAIL ENABLE**

CHANNEL NUMBER	ENABLE/DISABLE
1	ENABLE
2	ENABLE
3	DISABLE
4	DISABLE
5	DISABLE
6	ENABLE
7	DISABLE
8	ENABLE
9	ENABLE
10	DISABLE
11	DISABLE
12	ENABLE
13	ENABLE
14	DISABLE
15	DISABLE
16	DISABLE

UNIT OPTIONS	
OPTION	SETTING
RECURRENT PULSE	ON
WALK DISABLE	OFF
LOG CVM FAULTS	ON
EXTERN WATCHDOG	OFF
24V-2=12VDC	OFF
PCM CARD MEMORY	ON
LEDguard	ON
FORCE TYPE 16	OFF
TYPE12-SDLC	OFF
VM 3x/Day Latch	ON

FLASHING YELLOW ARROW	
CONFIG MODE	B
ENABLE CHANNEL PAIR, FYA	
CH 1-13	ON
CH 3-14	OFF
CH 5-15	OFF
CH 7-16	OFF
RED/YEL INPUT ENABLE	
CH 1	ON
CH 3	OFF
CH 5	OFF
CH 7	OFF
FLASH RATE FAULT	
FYA TRAP DETECT	ON

MMU PROGRAMMING NOTE

ENSURE YELLOW CHANGE PLUS RED CLEARANCE MONITORING IS ENABLED FOR ALL CHANNELS.

NOTES

- To prevent "Flash-conflict" problems, wire all unused load switches to flash red. Verify that signal heads flash in accordance with the signal plans.
- To prevent red failures on unused monitor channels, tie unused load switch red outputs 3,4,5,7,10,11,14,15 and 16 to load switch AC+ by inserting a jumper plug in the unused load switch socket from pin 1 (LS AC+) to pin 3 (red out). Make sure all flash transfer relays are in place.
- Program controller to start up in phases 2 Walk and 6 Green.
- Set power-up flash time to 10 seconds and implement on the Malfunction Management Unit. Set controller power-up flash time to 0 seconds.
- Enable simultaneous gap-out feature, on controller unit, for all phases.
- Program detectors in accordance with the manufacturer's instructions to accomplish the detection schemes shown on the signal design plans.
- Program detector call delay and extension timing on the controller, unless otherwise specified.
- Set all detector card unit channels to "presence" mode.
- Program phases 2 and 6 for volume density operation.
- This controller and cabinet are part of the Cary Signal System.

SIGNAL HEAD HOOK-UP CHART

PHASE	1	2	3	4	5	6	7	8	2 PED	4 PED	6 PED	8 PED	OLA	OLB	OLC	OLD	
SIGNAL HEAD NO.	11★	82	21,22	NU	NU	NU	61,62	NU	81,82	P21, P22	NU	NU	P81, P82	11★	NU	NU	NU
RED	*		2R				6R		8R								
YELLOW			2Y				6Y		8Y								
GREEN			2G				6G		8G								
RED ARROW																	13R
YELLOW ARROW																	13Y
FLASHING YELLOW ARROW																	13G
GREEN ARROW	1G	1G															
Hand													9R				12R
Foot													9G				12G

NU = Not Used

* Denotes install Load Resistor, see Load Resistor installation detail this sheet.
★ See pictorial of head wiring detail this sheet.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

DETECTOR RACK SET-UP DETAIL

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

BIU	CH1	CH1	CH1	CH1	SLOT	CH1	SLOT	SLOT	CHA	CHC	SLOT
	L3	L1	L7	L5		L9			EVP 3	EVP5	
	∅ 1	∅ 1	∅ 6	∅ 2		∅ 8			∅ 1.6	∅ 8	
			**	**							
	CH2	CH2	CH2	CH2	EMPTY	CH2	EMPTY	EMPTY	CHB	NOT	EMPTY
	NOT USED	∅ 6	∅ 6	∅ 2		EVP 4			USED	∅ 2.6		USED
		*	**	**							

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
1A	L1A, L1B L2A, L2B
1B	L3A, L3B L4A, L4B
2A	L5A, L5B
2B	L6A, L6B
6A	L7A, L7B
6B	L8A, L8B
8A	L9A, L9B
	L10A, L10B
	L11A, L11B
	L12A, L12B
	L13A, L13B
	L14A, L14B
	L15A, L15B
	L16A, L16B

NOTE
BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME (SEC)
1	∅ 1	DELAY	15
* 2	∅ 6	DELAY	3
3	∅ 1	DELAY	15
4	∅		
** 5	∅ 2		
** 6	∅ 2		
** 7	∅ 6		
** 8	∅ 6		
9	∅ 8		
10			
11			
12			
13			
14			
15			
16			

EQUIPMENT INFORMATION

CONTROLLER.....2070LN2
CABINET[TS-2]
SOFTWAREASC/3-2070
CABINET MOUNT.....BASE
LOADBAY POSITIONS.....16
LOAD SWITCHES USED.....1,2,6,8,9,12,13
PHASES USED.....1,2,2 PED,6,8,8 PED
OLA.....*
OLB.....NOT USED
OLC.....NOT USED
OLD.....NOT USED

*See Sheet 2 for Econolite ASC/3-2070 Overlap Programming Detail.

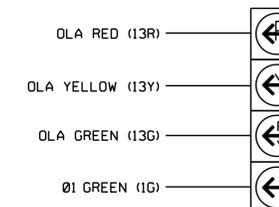
LOAD SWITCH ASSIGNMENT DETAIL

(program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION
1	∅ 1
2	∅ 2
3	∅ 3
4	∅ 4
5	∅ 5
6	∅ 6
7	∅ 7
8	∅ 8
9	∅ 2 PED
10	∅ 4 PED
11	∅ 6 PED
12	∅ 8 PED
13	OLA
14	OLB
15	OLC
16	OLD

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



11

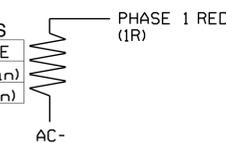
NOTE

See Sheet 2 Econolite ASC/3-2070 Overlap Programming Detail.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

ACCEPTABLE VALUES	
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0711
DESIGNED: July 2015
SEALED: 10-13-15
REVISED: N/A

Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 3977 (SW Cary Parkway) at W. Chatham Street	SEAL
	Division 5 Wake County Cary PLAN DATE: August 2015 REVIEWED BY: T. Joyce PREPARED BY: James Peterson REVIEWED BY:	REVISIONS INIT. DATE _____ _____ _____	DocuSigned by: Keith M. Miras 10/30/2015 DATE _____ SIG. INVENTORY NO. 05-0711

30-001-2015 08-16
S:\ITS\ASB\ITS_Sig\015\work\gpc\0510_May\eter\son\050711_sml.ele_xxx.dgn
T.peterson

* Detector Type - G
** Detector Type - N

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

From Main Menu select 2 (CONTROLLER)

MAIN MENU	
1. CONFIGURATION	6. DETECTORS
2. CONTROLLER	7. STATUS DISPLAY
3. COORDINATOR	8. UTILITIES
4. PREEMPTOR/TSP	9. DIAGNOSTICS
5. TIME BASE	

PRESS KEYS 1 . . .9 TO SELECT

From Controller Submenu select 2 (VEHICLE OVERLAPS)

CONTROLLER SUBMENU	
1. TIMING PLANS	5. START/FLASH
2. VEHICLE OVERLAPS	6. OPTION DATA
3. VEH/PED OVERLAPS	7. PRE-TIMED
4. GUAR MIN TIME	8. PHASE RECALL

PRESS KEYS 1 . . .8 TO SELECT

OVERLAP A

Select TMG VEH OVLP [A] AND PPLT FYA

TMG VEH OVLP . . . [A]	TYPE:	[PPLT FYA]
PROTECTED PHASE (LEFT TURN). 1		
PERMISSIVE PHASE (OPPOSING THRU). 2		
FLASHING ARROW OUTPUT.CH13 ISOLATE		
DELAY START OF: FYA . . . 0.0 CLEARANCE. . . 0.0		
ACTION PLAN SF BIT DISABLE 0		

END OVERLAP PROGRAMMING

ECONOLITE ASC/3-2070 SPECIAL MMU PROGRAMMING

(program controller as shown below)

From Main Menu select 1 (CONFIGURATION)

MAIN MENU	
1. CONFIGURATION	6. DETECTORS
2. CONTROLLER	7. STATUS DISPLAY
3. COORDINATOR	8. UTILITIES
4. PREEMPTOR/TSP	9. DIAGNOSTICS
5. TIME BASE	

PRESS KEYS 1 . . .9 TO SELECT

From Configuration Submenu select 4 (PORT 1 SDLC)

CONFIGURATION SUBMENU	
1. CONTROLLER SEQ	5. COMMUNICATIONS
2. PHASE IN USE/PED	6. ENABLE LOGGING
3. LOAD SW ASSIGN	7. DISPLAY/ACCESS
4. PORT 1 (SDLC)	8. LOGIC PROCESSOR

PRESS KEYS 1 . . .8 TO SELECT

CAUTION!

Set intersection to Flash before attempting to enter or change any MMU programming data.

This programming and that of the MMU programming card must match exactly. If they do not, the intersection will be placed into Flash.

From Port 1 (SDLC) Submenu select 2 (MMU PROGRAM)

PORT 1 (SDLC) SUBMENU	
1. SDLC OPTIONS	
2. MMU PROGRAM	
3. COLOR CHECK ENABLE	
4. SECONDARY STATION/TESTS	

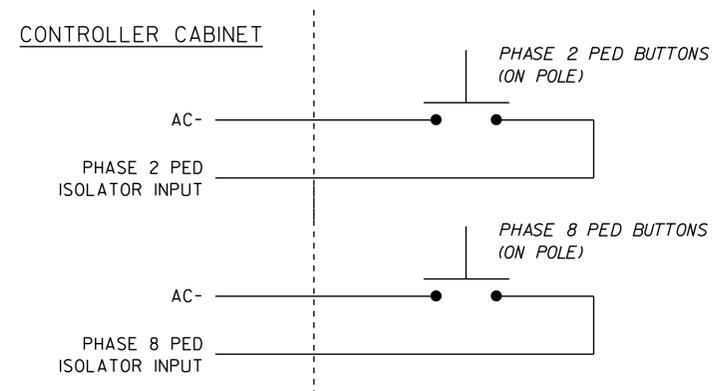
PRESS KEYS 1 . . .4 TO SELECT

MMU PROGRAM	[MANUAL]														
CH	6	5	4	3	2	1	0	9	8	7	6	5	4	3	2
1	. . .	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	X	. . .	. . .	. . .	. . .
2	. . .	X	. . .	. . .	. . .	X	. . .	. . .	X	. . .	. . .	. . .	. . .	. . .	. . .
3
4
5
6	. . .	X	. . .	. . .	. . .	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
7
8	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
9	. . .	X	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
10
11
12
13
14
15

END MMU PROGRAMMING

PEDESTRIAN PUSH-BUTTON WIRING DETAIL

(wire push-buttons as shown below)



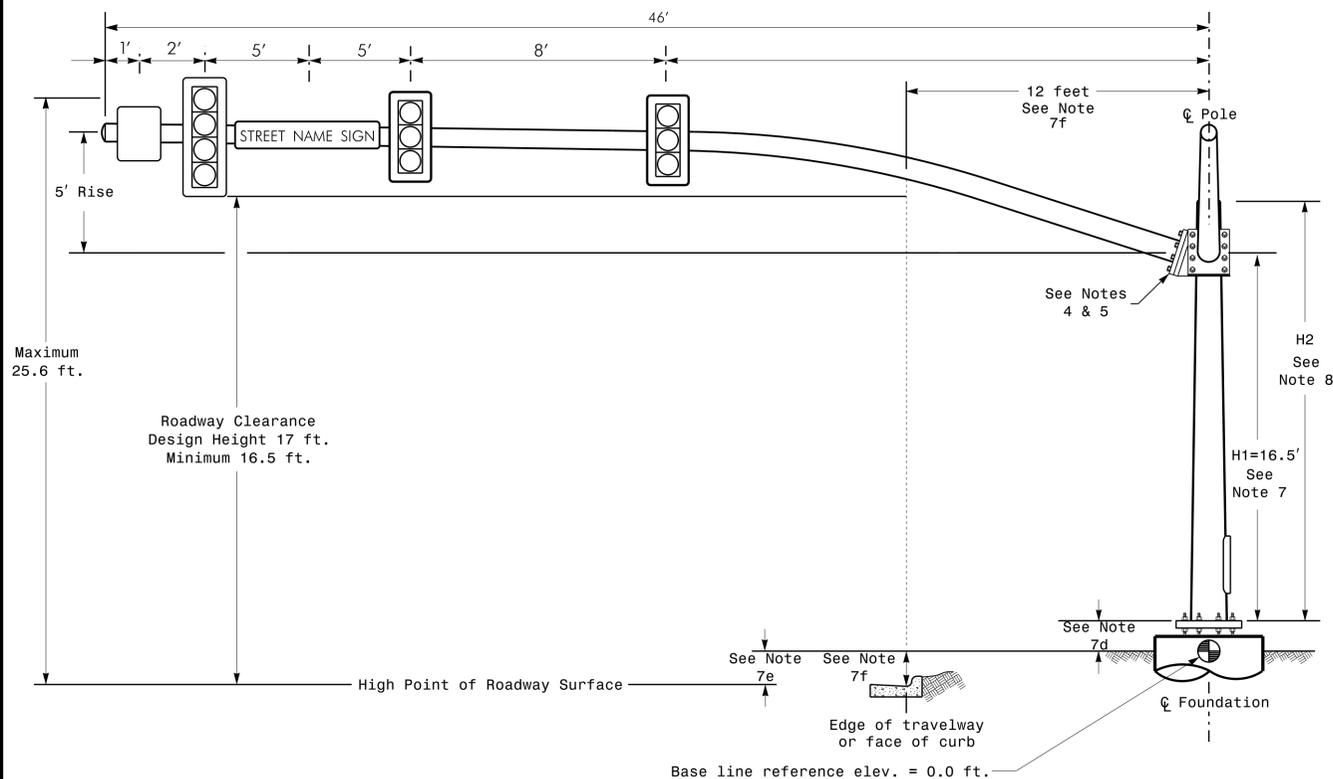
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0711
 DESIGNED: July 2015
 SEALED: 10-13-15
 REVISED: N/A

Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:  750 N. Grantfield Pkwy, Garner, NC 27529	SR 3977 (SW Cary Parkway) at W. Chatham Street	SEAL  KEITH M. MIMS ENGINEER
	Division 5 Wake County Cary PLAN DATE: August 2015 REVIEWED BY: T. Joyce PREPARED BY: James Peterson REVIEWED BY:	REVISIONS INIT. DATE _____ _____

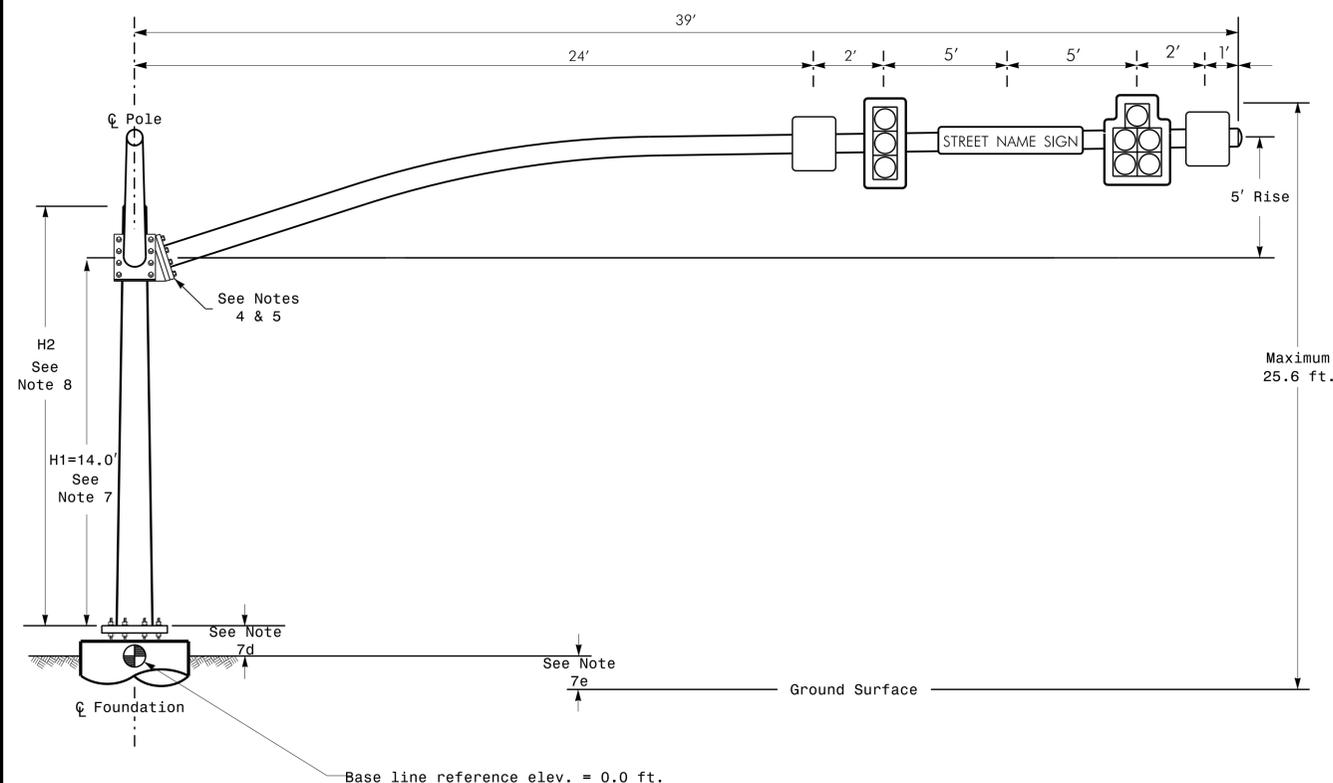
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 J. Peterson

Design Loading for METAL POLE NO. 1, MAST ARM A



Elevation View @ 270°

Design Loading for METAL POLE NO. 1, MAST ARM B



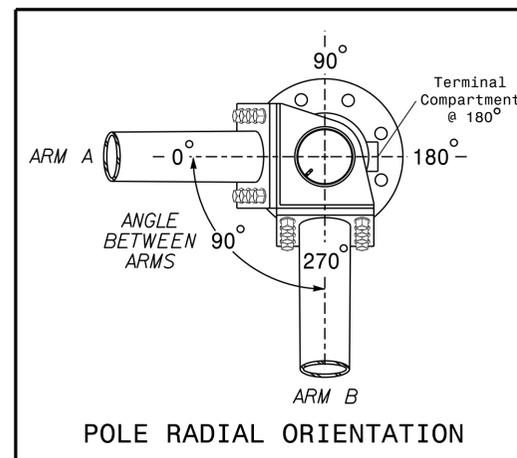
Elevation View @ 0°

SPECIAL NOTE

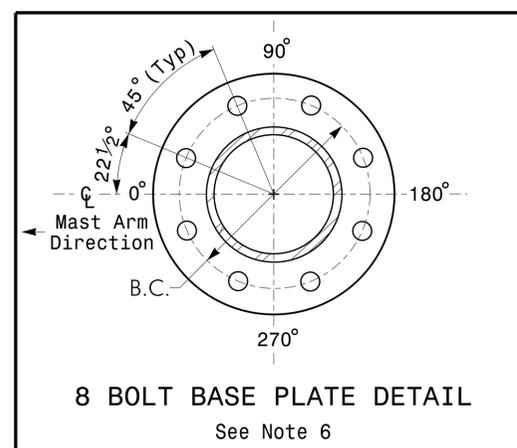
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Arm "A"	Arm "B"
Baseline reference point at Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+2.1 ft.	N/A
Elevation difference at Edge of travelway or face of curb	+1.5 ft.	N/A

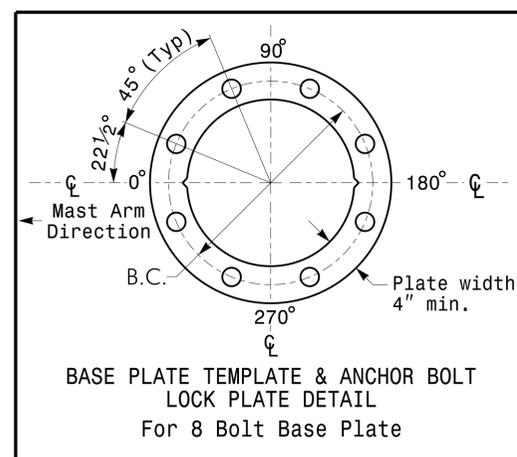


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	SIGNAL HEAD 12"-5 SECTION-WITH BACKPLATE AND ASTRO-BRAC	16.3 S.F.	42.0" W X 56.0" L	103 LBS
	SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE AND ASTRO-BRAC	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE AND ASTRO-BRAC	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	SIGN RIGID MOUNTED WITH ASTRO-SIGN-BRAC	5.0 S.F.	24.0" W X 30.0" L	11 LBS
	STREET NAME SIGN RIGID MOUNTED WITH ASTRO-SIGN-BRAC	12.0 S.F.	18.0" W X 96.0" L	27 LBS

NOTES

Design Reference Material

- Design the traffic signal structure and foundation in accordance with:
 - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
 - The 2012 NCDOT "Standard Specifications for Roads and Structures". The latest addenda to these specifications can be found in the traffic signal project special provisions.
 - The 2012 NCDOT Roadway Standard Drawings.
 - The traffic signal project plans and special provisions.
 - The NCDOT "Metal Pole Standards" located at the following NCDOT website: <http://www.ncdot.org/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html>

Design Requirements

- Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "Design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- Design all signal supports using stress ratios that do not exceed 0.9.
- The camber design for mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
- A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate arm connection points.
- Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- The mast arm attachment height (H1) shown is based on the following design assumptions:
 - Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
 - Signal heads attached to the mast arm are rigid mounted and vertically centered on the arm.
 - The roadway clearance height for design is as shown in the elevation views.
 - The top of the pole base plate is .75 feet above the ground elevation.
 - Refer to the Elevation Data chart for elevation differences between the proposed foundation ground level and the high point on the roadway.
- The pole manufacturer will determine the total height (H2) of the pole using the greater of the following:
 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- If pole location adjustments are required, the contractor must gain approval from the engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Structural Engineer for assistance at (919) 773-2800.
- The contractor is responsible for verifying that the mast arm lengths shown will allow proper positioning of the signal heads over the roadway.
- The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 4 (90 mph)

	SR 3977 (SW Cary Parkway) at W. Chatham Street		SEAL
	Division 5 Wake County Cary PLAN DATE: July 2015 REVIEWED BY: PREPARED BY: C.E. Carter REVIEWED BY:	REVISIONS INIT. DATE	
SCALE N/A 0 N/A		SIG. INVENTORY NO. 05-0711	

13-0072-2015-14-55
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SPECIAL NOTE
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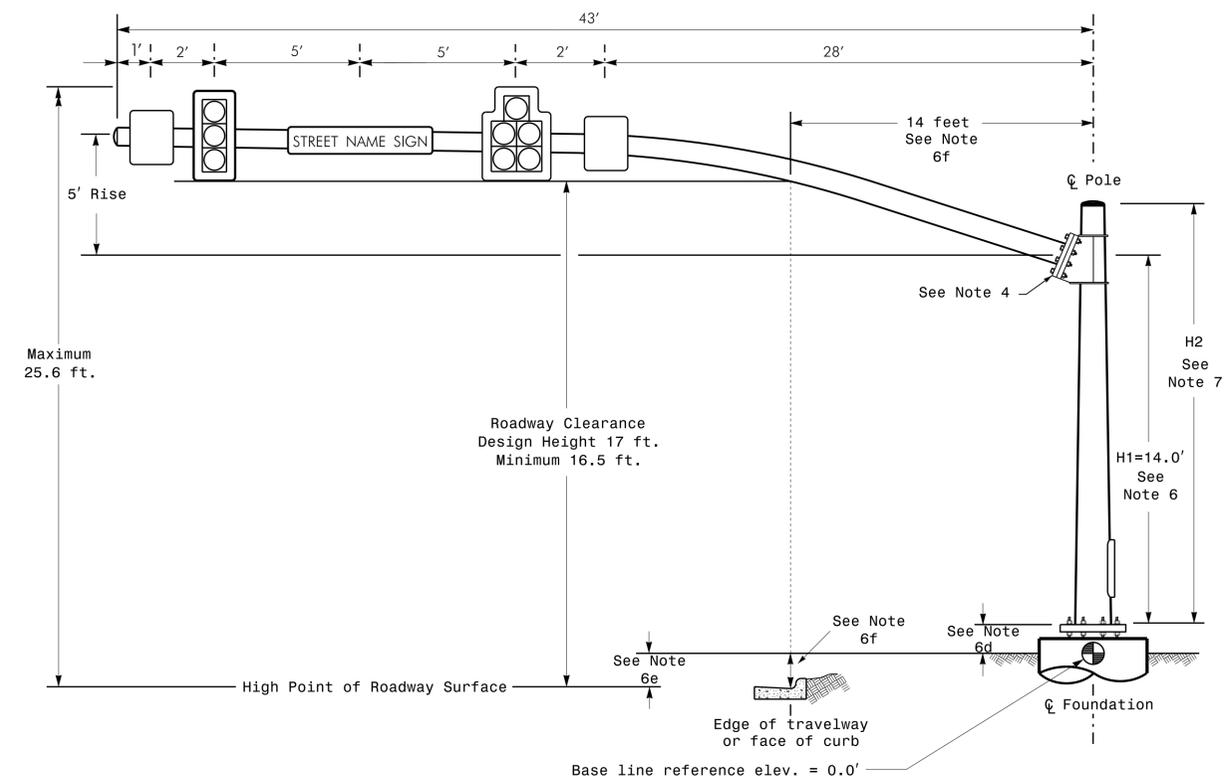
Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 2	-
Baseline reference point at ϕ Foundation @ ground level	0.0 ft.	-
Elevation difference at High point of roadway surface	-0.4 ft.	-
Elevation difference at Edge of travelway or face of curb	-0.4 ft.	-

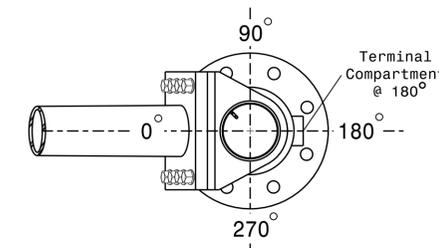
MAST ARM LOADING SCHEDULE

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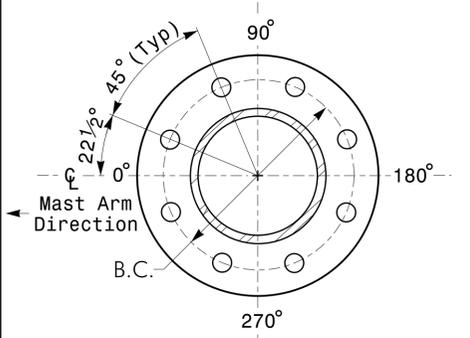
Design Loading for METAL POLE NO. 2



ELEVATION VIEW

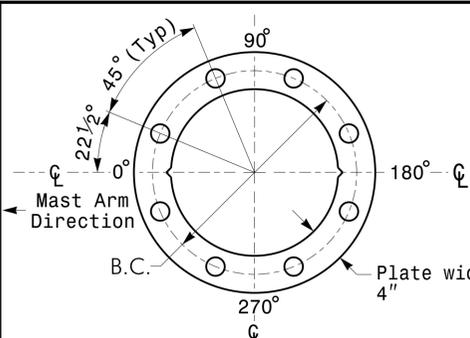


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

NOTES

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NCDOT Wind Zone 4 (90 mph)

<p>Prepared In the Offices of: TRANSPORTATION MOBILITY AND SAFETY DIVISION DIVISION OF TRANSPORTATION Signal Design Section 750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SR 3977 (SW Cary Parkway) at W. Chatham Street</p>		<p>SEAL</p> <p>RYAN W. HOUGH ENGINEER 036833 10/13/2015</p>		
	<p>Division 5 Wake County Cary</p> <p>PLAN DATE: July 2015 REVIEWED BY:</p> <p>PREPARED BY: C.E. Carter REVIEWED BY:</p>	<p>REVISIONS</p> <table border="1"> <tr> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>		INIT.	DATE
INIT.	DATE				
<p>SCALE</p> <p>0 N/A</p> <p>N/A</p>	<p>SIG. INVENTORY NO. 05-0711</p>		<p>DATE</p>		

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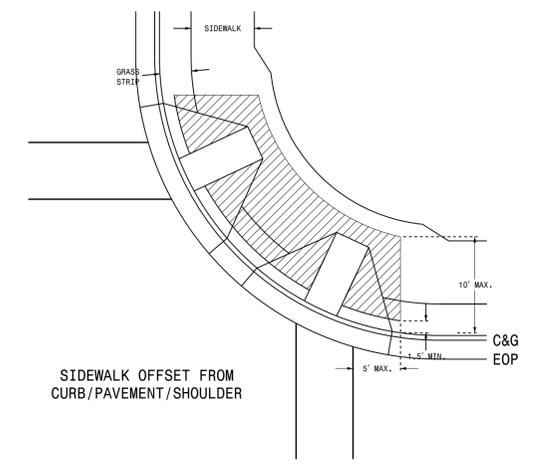
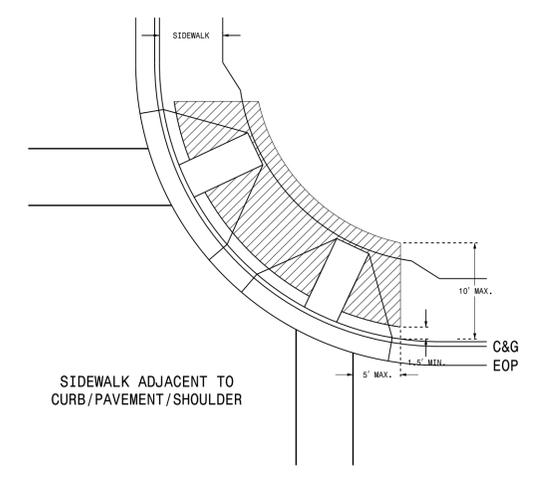
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

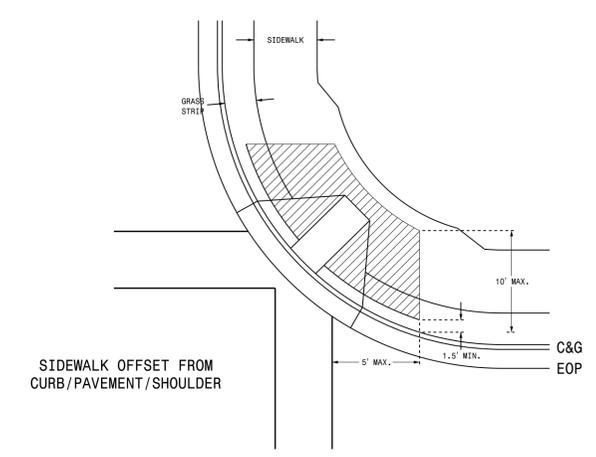
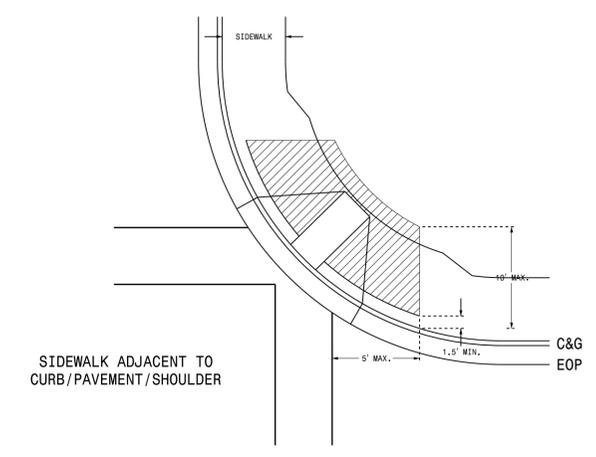
ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 1 OF 3
1705D01

PUSHBUTTON PLACEMENT
SEPARATE CURB RAMPS



PUSHBUTTON PLACEMENT
SHARED CURB RAMP



- NOTES**
1. Pushbutton pedestals should not be located further than 10 feet from the edge of curb, shoulder, or pavement.
 2. The face of the pushbutton should be parallel to the applicable crosswalk.
 3. Separate pushbuttons used on the same corner should be separated by a distance of at least 10 feet.
 4. Pushbuttons shall be installed adjacent to a level surface with a maximum reach distance of 10 inches.
 5. Maintain 4 feet of clearance around pedestal if located in sidewalk.
 6. Refer to section 1705 of the 2012 NCDOT Roadway Standard Drawings for Pushbutton Assembly details.
 7. Refer to section 1743 of the 2012 NCDOT Roadway Standard Drawings for Pedestal details.
 8. Contact Division Traffic Engineer for pushbutton location approval prior to installation.
 9. Curb ramps are for symbolic use only and may not reflect actual design or field conditions.

PROPOSED	LEGEND
	Signal Pole
	Type I Pushbutton Post
	Type II Signal Pedestal
	Pushbutton & Sign
	Pedestrian Signal Head
	Curb Ramp
	Pushbutton Location Area

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 1 OF 3
1705D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

DocuSigned by:
Robert J. Ziemba
18084828744604

SIGNATURE

6/17/2014
DATE

06-AUG-2014 16:37
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 rz1emba

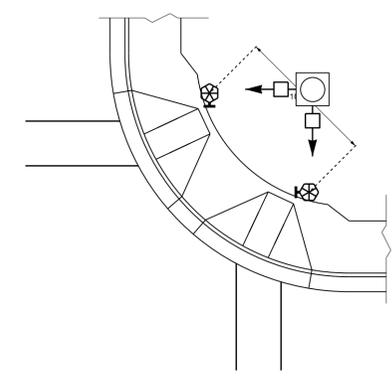
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

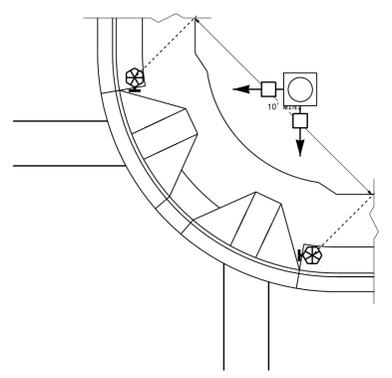
ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 2 OF 3
1705D01

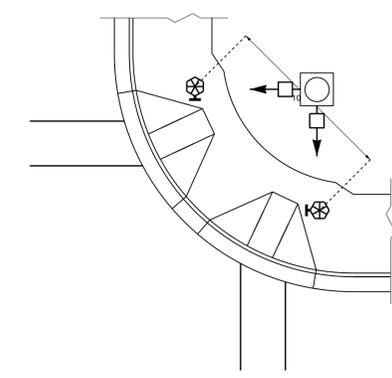
TYPICAL PUSHBUTTON LOCATIONS (CASE I)
SEPARATE CURB RAMPS W/ TYPE I PEDESTALS



BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER



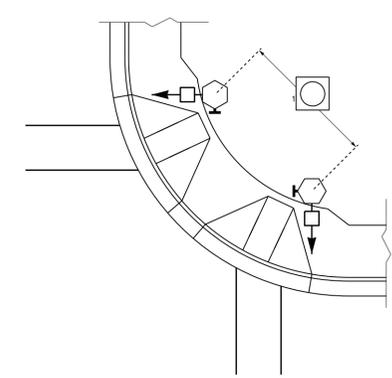
PUSHBUTTON PLACEMENT IN WIDE SIDEWALK

PROPOSED

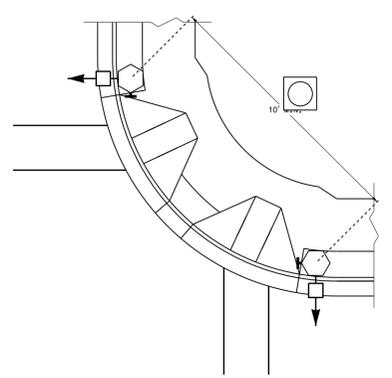
- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

LEGEND

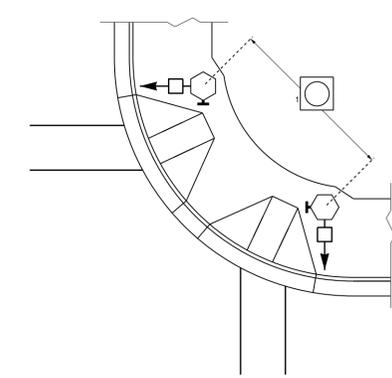
TYPICAL PUSHBUTTON LOCATIONS (CASE II)
SEPARATE CURB RAMPS W/ TYPE II PEDESTALS



BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER

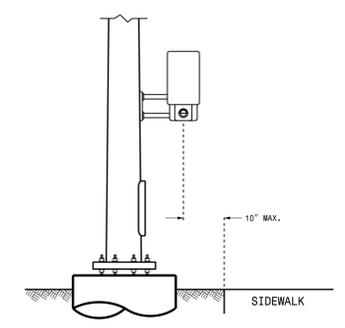


GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER



PUSHBUTTON PLACEMENT IN WIDE SIDEWALK

OPTIONAL PUSHBUTTON EXTENSION
FACE OF PUSHBUTTON PARALLEL TO APPLICABLE CROSSWALK



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 2 OF 3
1705D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

DocuSigned by:
Robert J. Ziemba
188B486274464

SIGNATURE

6/17/2014
DATE

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 rz1emba

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 3 OF 3
1705D01

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

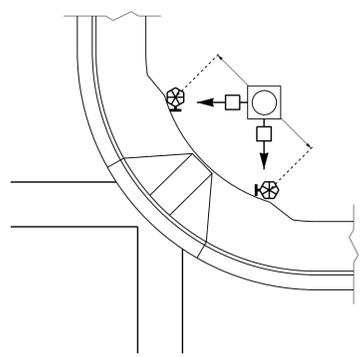
06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

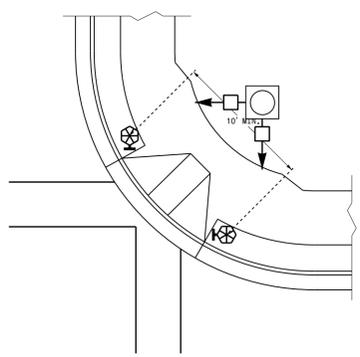
SHEET 3 OF 3
1705D01

TYPICAL PUSHBUTTON LOCATIONS (CASE III)

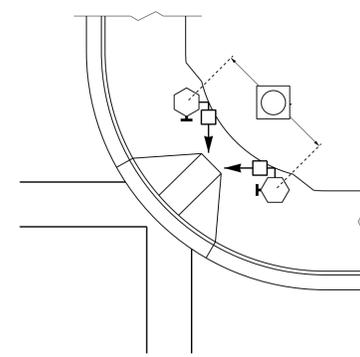
SHARED CURB RAMPS



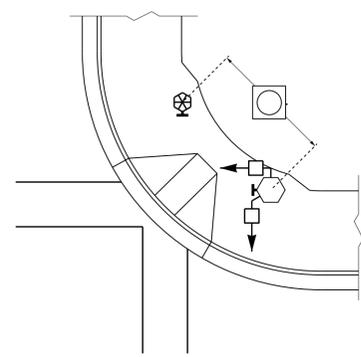
BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER

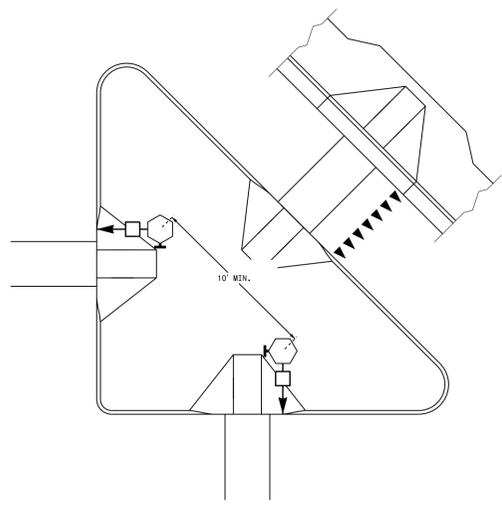


PUSHBUTTON PLACEMENT IN WIDE SIDEWALK (CORRESPONDING PUSHBUTTONS AND SIGNAL HEADS ON DIFFERENT PEDESTALS)

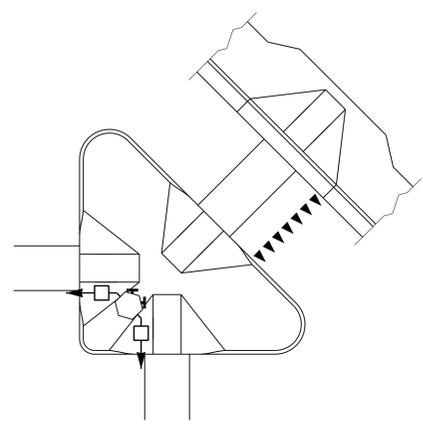


PUSHBUTTON PLACEMENT WITH SHARED TYPE II SIGNAL PEDESTAL AND TYPE I PUSHBUTTON POST

TRAFFIC ISLAND PUSHBUTTON LOCATIONS



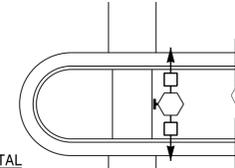
PUSHBUTTON PLACEMENT IN LARGE "PORK CHOP ISLAND" WITH SEPARATE PEDESTALS



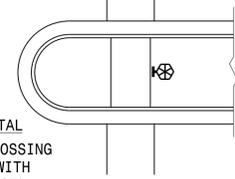
PUSHBUTTON PLACEMENT IN SMALL "PORK CHOP ISLAND" WITH SHARED PEDESTAL

PUSHBUTTON PLACEMENT IN MEDIAN

TYPE II PEDESTAL (FOR STAGED OR MULTI-PHASE CROSSING)



TYPE I PEDESTAL (FOR COMPLETE CROSSING CURB TO CURB WITH OPTIONAL REFUGE)



PROPOSED

- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

LEGEND

06-AUG-2014 16:39
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 rz1emba

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Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

DocuSigned by:
Robert J. Ziemba
18084982744494

SIGNATURE

6/17/2014
DATE

- 1 INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL REA, PE - 38, (FIGURE 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 3 INSTALL REA, PE - 39, (UNDERGROUND) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 27 INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPLICE CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPLICE ENCLOSURE
- 30 INSTALL AERIAL SPLICE ENCLOSURE
- 31 INSTALL POLE MOUNTED SPLICE CABINET
- 32 INSTALL BASE MOUNTED SPLICE CABINET
- 33 REMOVE EXISTING SPLICE CABINET

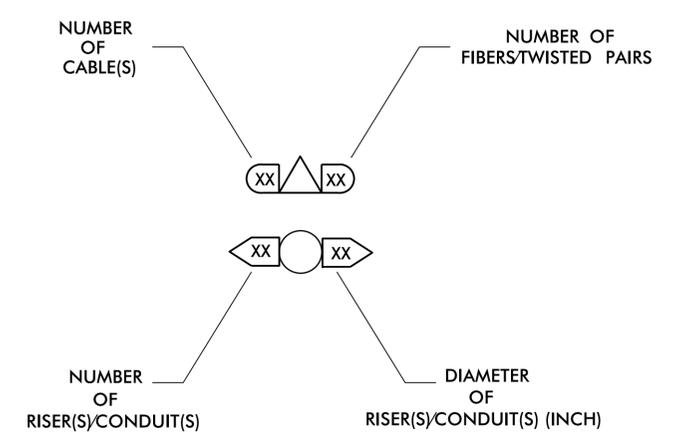
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 49 REMOVE EXISTING MESSENGER CABLE
- 50 INSTALL TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 20 FEET OF COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE

LEGEND

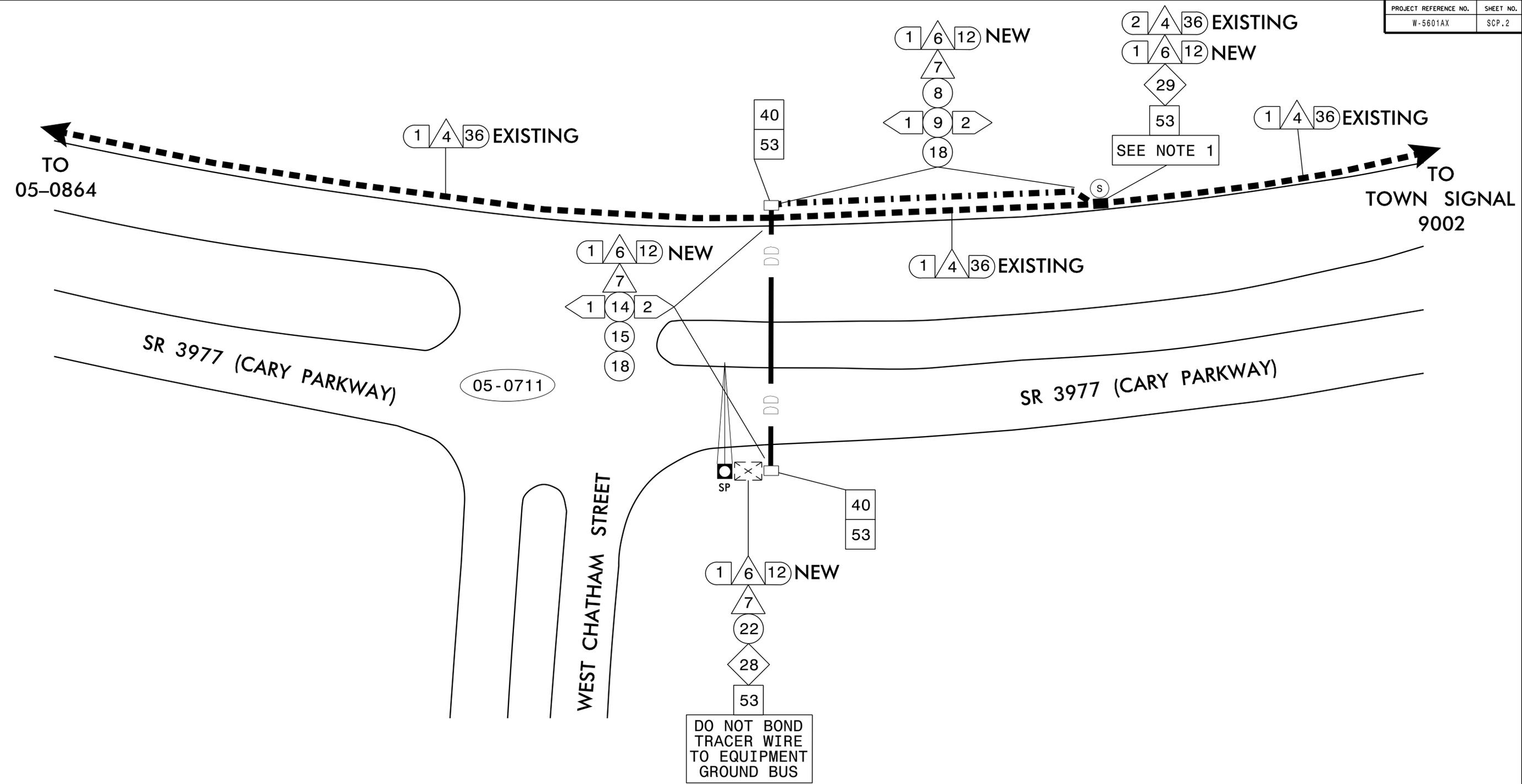
	NEW FIBER OPTIC COMMUNICATIONS CABLE
	NEW TWISTED PAIR COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
	NEW AERIAL GUY ASSEMBLY
	NEW CONDUIT
	EXISTING CONDUIT
	NEW DIRECTIONAL DRILLED CONDUIT
	NEW BORED AND JACKED CONDUIT
	NEW JUNCTION BOX
	EXISTING JUNCTION BOX
	NEW WOOD POLE
	EXISTING WOOD POLE
	AERIAL SPLICE ENCLOSURE
	NEW METAL POLE
	EXISTING METAL POLE
	NEW CCTV ASSEMBLY
	NEW STANDARD GUY ASSEMBLY
	NEW SIDEWALK GUY ASSEMBLY
	NEW CABLE STORAGE RACKS (SNOW SHOES)
	EXISTING CONTROLLER AND CABINET
	EXISTING SPLICE CABINET
	NEW SPLICE CABINET
	SIGNAL POLE
	SIGNAL INVENTORY NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

- INDICATES NUMBER OF CABLES, LOOPS, ETC.
- INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)



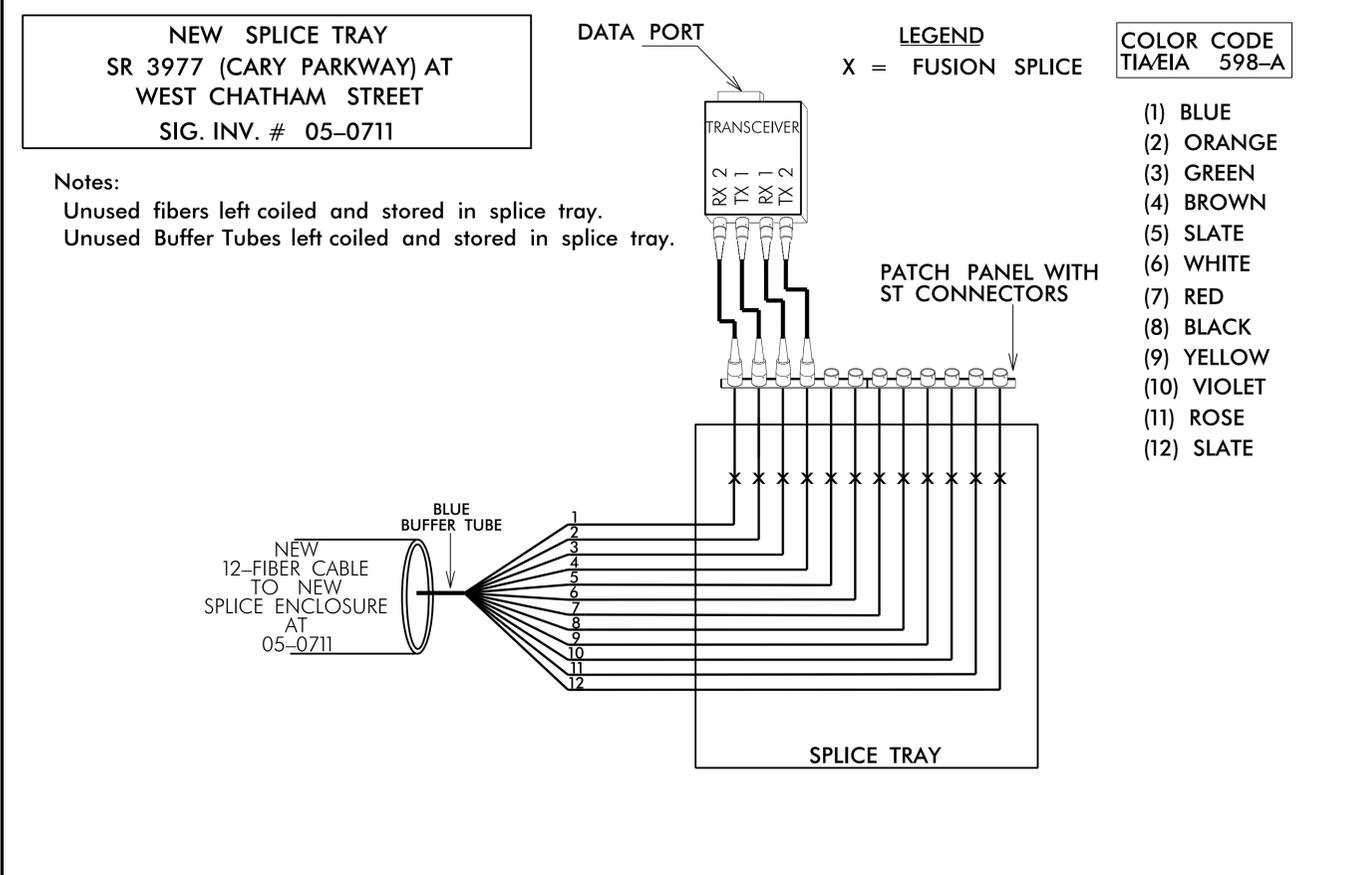
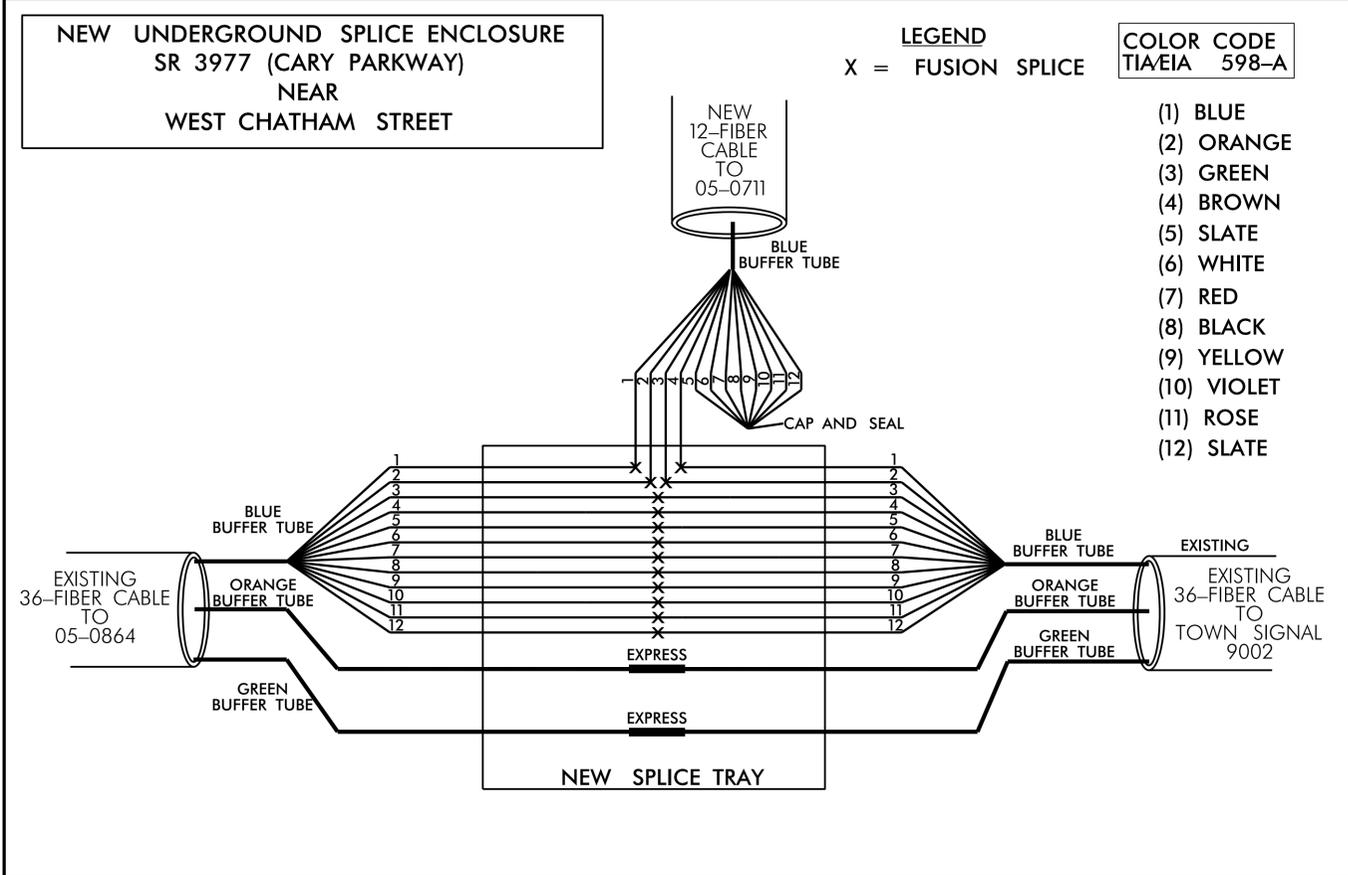
	CONSTRUCTION NOTES		
	DIVISION 05 WAKE COUNTY PLAN DATE: AUGUST 2015 PREPARED BY: A. J. SKUCE REVIEWED BY: <i>Neil Avery</i> REVISIONS: _____ INIT. DATE: _____		



NOTES:

- 1) SPLICE NEW 12 FIBER CABLE IN NEW UNDERGROUND SPLICE ENCLOSURE IN ACCORDANCE WITH THESE PLANS.
- 2) NOTIFY THE TOWN OF CARY TRANSPORTATION ENGINEER, DAVID SPENCER, AT (919) 462-3833 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEMS COMMUNICATION CABLE. NOTIFY THE TOWN TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY.

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	DIVISION 05 WAKE COUNTY PLAN DATE: AUGUST 2015 PREPARED BY: A. J. SKUCE REVISIONS: _____ INIT. DATE: _____			DocuSigned by: CARY REVIEWED BY: Mel Avery REVIEWED BY: _____
750 N. Greenfield Pkwy., Garner, NC 27529 SCALE: 1" = 20' 		DocuSigned by: Gregory A. Fuller 8/14/2015 CADD Filename: _____	



NOTES:

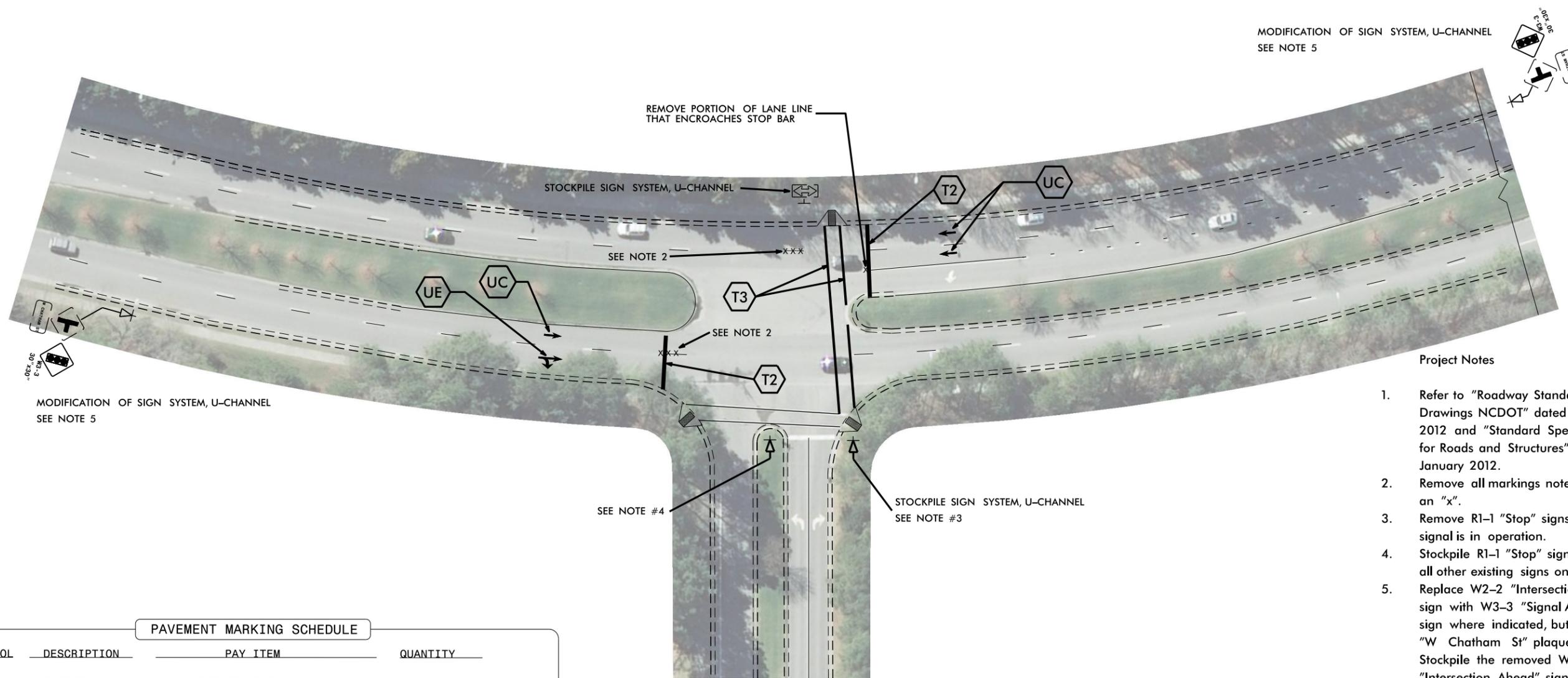
- 1) TRANSCEIVER TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.
- 2) NOTIFY THE TOWN OF CARY TRANSPORTATION ENGINEER, DAVID SPENCER, AT (919) 462-3833 5 DAYS PRIOR TO BEGINNING WORK ON SIGNAL SYSTEMS COMMUNICATION CABLE. NOTIFY THE TOWN TRANSPORTATION ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY.
- 3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"
 - 1) SPLICE LOCATION
 - 2) DATE
 - 3) COMPANY NAME
 - 4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

 Prepared in the Offices of: 750 N. Greenfield Pkwy., Garner, NC 27529	SPLICE DETAILS		SEAL  SEAL 023919 GREGORY A. FULLER ENGINEER
	DIVISION 05 WAKE COUNTY PLAN DATE: AUGUST 2015 PREPARED BY: A. J. SKUCE REVISIONS: _____ INIT. DATE _____		



MODIFICATION OF SIGN SYSTEM, U-CHANNEL
 SEE NOTE 5



MODIFICATION OF SIGN SYSTEM, U-CHANNEL
 SEE NOTE 5

Project Notes

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Remove all markings noted with an "x".
3. Remove R1-1 "Stop" signs once signal is in operation.
4. Stockpile R1-1 "Stop" sign, but retain all other existing signs on this system.
5. Replace W2-2 "Intersection Ahead" sign with W3-3 "Signal Ahead" sign where indicated, but retain the "W Chatham St" plaque below. Stockpile the removed W2-2 "Intersection Ahead" signs.

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	QUANTITY
T2	WHITE STOPBAR	THERMOPLASTIC(24", 120 MIL)	70 LF
T3	WHITE CROSSWALK LINE	THERMOPLASTIC(8", 120 MIL)	195 LF
UC	STRAIGHT ARROW	THERMOPLASTIC(90 MIL)	3 EA
T3	COMBINATION RIGHT/STRAIGHT ARROW	THERMOPLASTIC(90 MIL)	1 EA

SW CARY PARKWAY (SR 3977)
 AND W CHATHAM STREET
 CARY, WAKE COUNTY, NC
 PAVEMENT MARKING /
 SIGN PLACEMENT PLAN
 DIVISION 05 WAKE COUNTY

REVISIONS	REV.	DATE

N.C. DEPARTMENT of TRANSPORTATION
 DIVISION of HIGHWAYS
 DIVISION FIVE TRAFFIC ENGINEERING

SCALE: 60' = 1" DATE: 8 MAR 2016
 PREPARED BY: SJL
 REVIEWED BY: