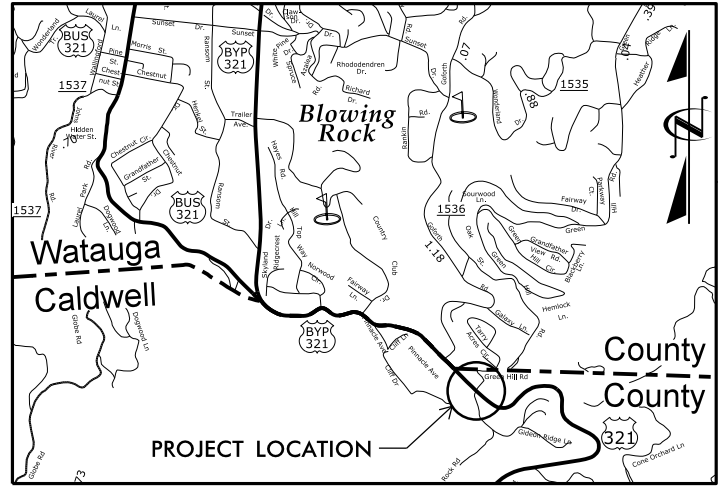


09/08/99

See Sheet 1A For Index of Sheets



VICINITY MAP (not to scale)

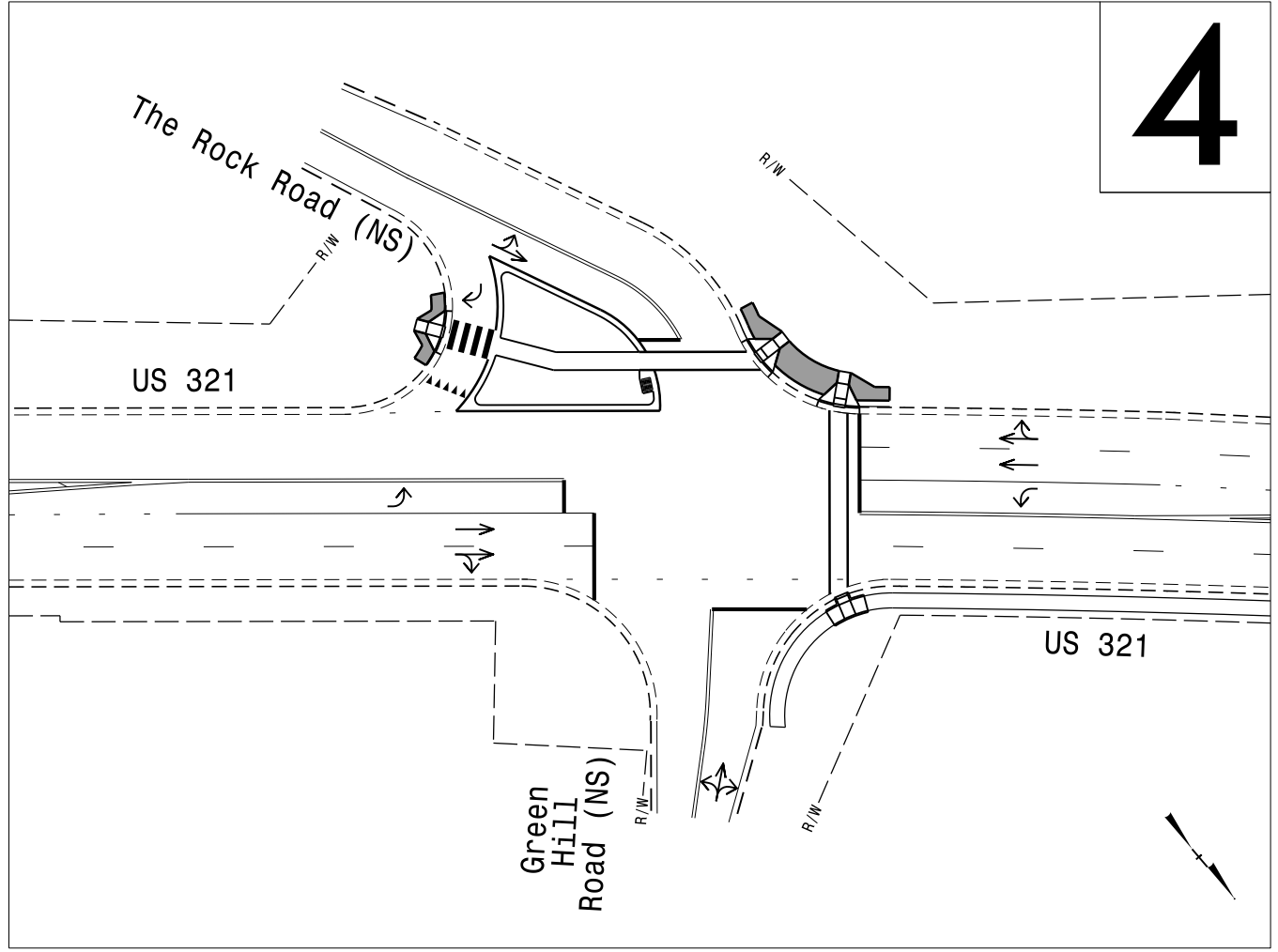
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CALDWELL COUNTY**

LOCATION: US 321 (BLOWING ROCK ROAD)  
GREEN HILL ROAD/THE ROCK ROAD

TYPE OF WORK: TRAFFIC SIGNAL, PAVEMENT MARKINGS, SIDEWALK  
AND INSTALLATION OF CONCRETE CURB RAMPS

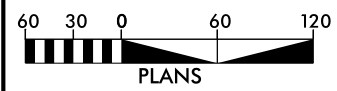
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS#49912	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	



STATE PROJECT #: 49912

CONTRACT: DK00327

GRAPHIC SCALES



DESIGN DATA

ADT 2020 = 8600  
ADT =  
K = NA %  
D = NA %  
T = NA % \*  
V = 35 MPH  
\* TTST = NA DUAL NA  
FUNC CLASS =  
PRINCIPAL ARTERIAL

PROJECT LENGTH

TOTAL LENGTH PROJECT 49912 = 0.08 MILES

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
801 STATESVILLE ROAD, NORTH WILKESBORO NC, 28659

2018 STANDARD SPECIFICATIONS

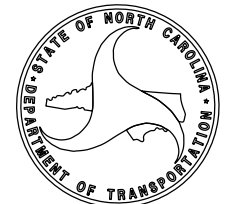
RIGHT OF WAY DATE:  
N/A

LETTING DATE:  
MARCH 17th, 2022

PROJECT DESIGN ENGINEER

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.



10-FEB-2022 11:06  
\\11459\_BlowingRock-t.shn.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2C-1	SPECIAL DETAILS
4	PLAN SHEET
SIG-1.0 THRU SIG-3.0	SIGNAL PLANS

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

9/10/2021

*Note: Not to Scale*

**BOUNDARIES AND PROPERTY:**

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin (EIP)	
Computed Property Corner	
Existing Concrete Monument (ECM)	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

**BUILDINGS AND OTHER CULTURE:**

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

**HYDROLOGY:**

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

**RAILROADS:**

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

**RIGHT OF WAY & PROJECT CONTROL:**

Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Secondary Horiz and Vert Control Point	
Vertical Benchmark	
Existing Right of Way Monument	
Proposed Right of Way Monument (Rebar and Cap)	
Proposed Right of Way Monument (Concrete)	
Existing Permanent Easement Monument	
Proposed Permanent Easement Monument (Rebar and Cap)	
Existing C/A Monument	
Proposed C/A Monument (Rebar and Cap)	
Proposed C/A Monument (Concrete)	
Existing Right of Way Line	
Proposed Right of Way Line	
Existing Control of Access Line	
Proposed Control of Access Line	
Proposed ROW and CA Line	
Existing Easement Line	
Proposed Temporary Construction Easement	
Proposed Temporary Drainage Easement	
Proposed Permanent Drainage Easement	
Proposed Permanent Drainage/Utility Easement	
Proposed Permanent Utility Easement	
Proposed Temporary Utility Easement	
Proposed Aerial Utility Easement	

**ROADS AND RELATED FEATURES:**

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

**VEGETATION:**

Single Tree	
Single Shrub	
Hedge	

Woods Line	
Orchard	
Vineyard	

**EXISTING STRUCTURES:**

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

**UTILITIES:**

\* SUE - Subsurface Utility Engineering  
LOS - Level of Service - A,B,C or D (Accuracy)

**POWER:**

Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line Test Hole (SUE - LOS A)*	
U/G Power Line (SUE - LOS B)*	
U/G Power Line (SUE - LOS C)*	
U/G Power Line (SUE - LOS D)*	

**TELEPHONE:**

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Test Hole (SUE - LOS A)*	
U/G Telephone Cable (SUE - LOS B)*	
U/G Telephone Cable (SUE - LOS C)*	
U/G Telephone Cable (SUE - LOS D)*	
U/G Telephone Conduit (SUE - LOS B)*	
U/G Telephone Conduit (SUE - LOS C)*	
U/G Telephone Conduit (SUE - LOS D)*	
U/G Fiber Optics Cable (SUE - LOS B)*	
U/G Fiber Optics Cable (SUE - LOS C)*	
U/G Fiber Optics Cable (SUE - LOS D)*	

**WATER:**

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line Test Hole (SUE - LOS A)*	
U/G Water Line (SUE - LOS B)*	
U/G Water Line (SUE - LOS C)*	
U/G Water Line (SUE - LOS D)*	
Above Ground Water Line	

**TV:**

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Test Hole (SUE - LOS A)*	
U/G TV Cable (SUE - LOS B)*	
U/G TV Cable (SUE - LOS C)*	
U/G TV Cable (SUE - LOS D)*	
U/G Fiber Optic Cable (SUE - LOS B)*	
U/G Fiber Optic Cable (SUE - LOS C)*	
U/G Fiber Optic Cable (SUE - LOS D)*	

**GAS:**

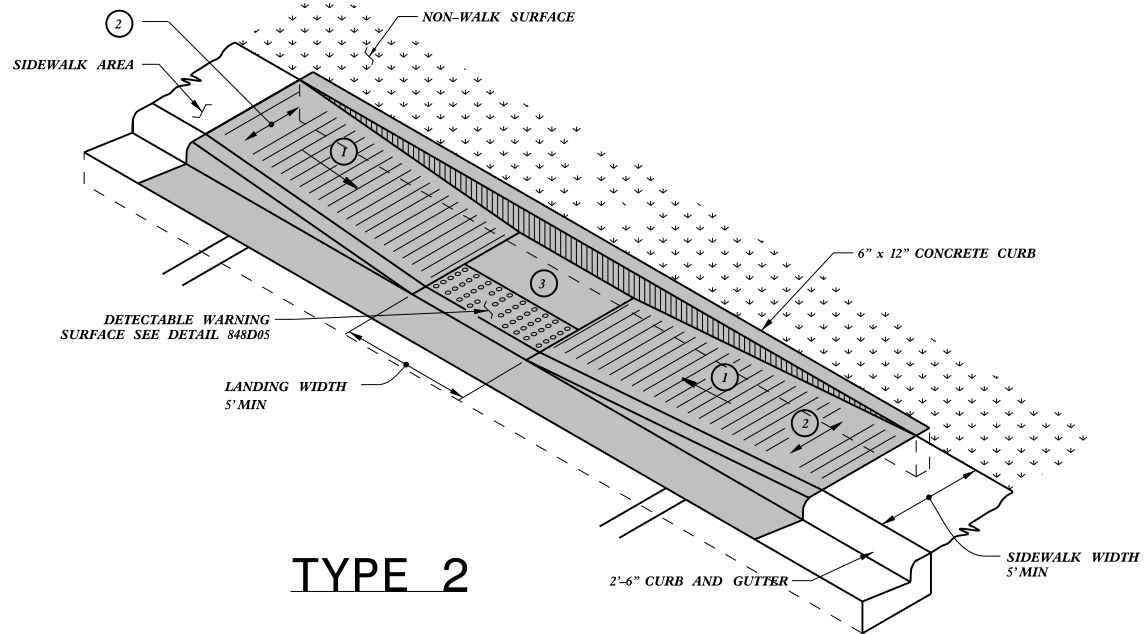
Gas Valve	
Gas Meter	
U/G Gas Line Test Hole (SUE - LOS A)*	
U/G Gas Line (SUE - LOS B)*	
U/G Gas Line (SUE - LOS C)*	
U/G Gas Line (SUE - LOS D)*	
Above Ground Gas Line	

**SANITARY SEWER:**

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Force Main Line Test Hole (SUE - LOS A)*	
SS Force Main Line (SUE - LOS B)*	
SS Force Main Line (SUE - LOS C)*	
SS Force Main Line (SUE - LOS D)*	

**MISCELLANEOUS:**

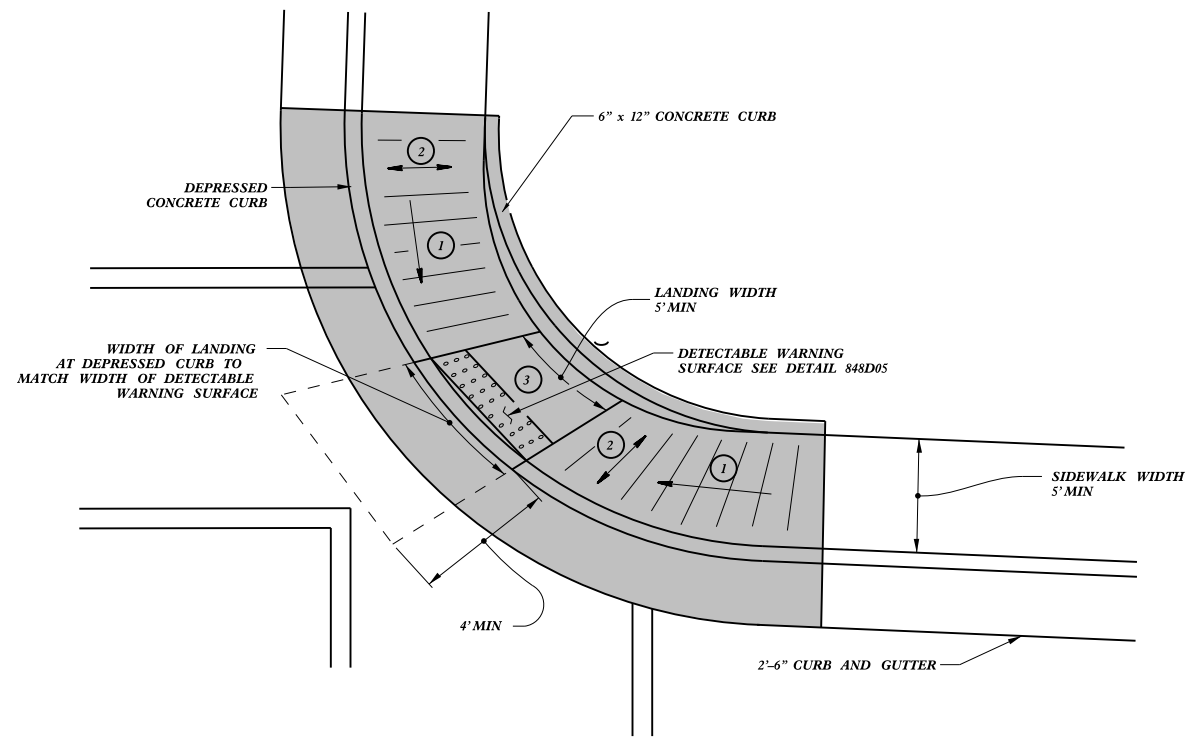
Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line (SUE - LOS B)*	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
Abandoned According to Utility Records	
End of Information	



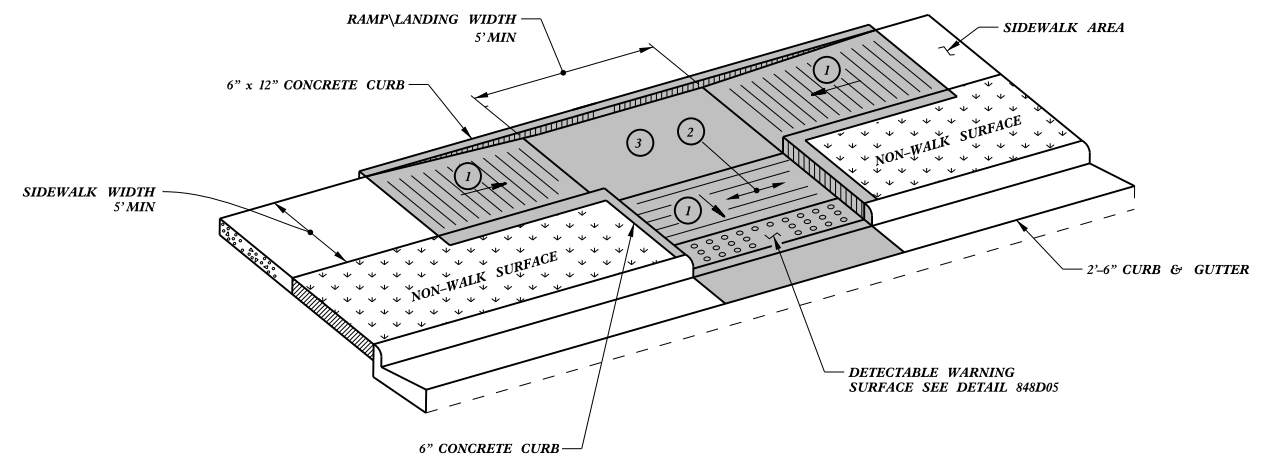
**TYPE 2**

**PAY LIMITS FOR CURB RAMP**

- ① 8.33% (12:1) MAX RAMP SLOPE
- ② CROSS SLOPE: 2.00%
- ③ CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



**TYPE 2A**



**TYPE 3**

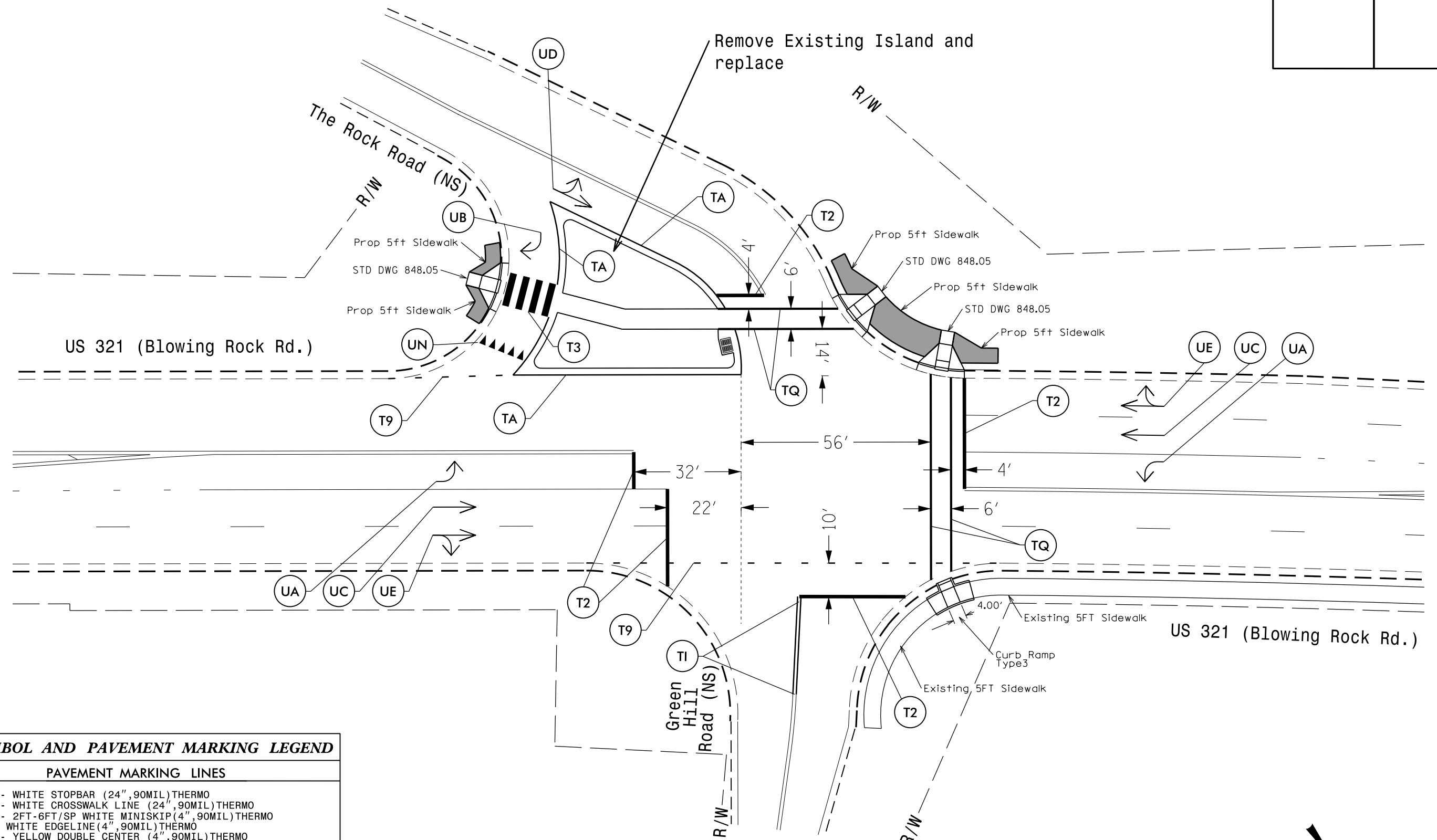
<b>CONTRACT STANDARDS AND DEVELOPMENT UNIT</b>	
Office 919-707-6950	FAX 919-250-4119
<b>CURB RAMPS</b>	
Parallel Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC: sstds/2012CurbRamp/CurbRampDetails.dwg	

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

23-MAR-2012 15:07 C:\Contracts\Special Details\2012 Standard Drawings\Curb Ramp Special Details\Curb Ramp Details.dwg J.Howerton AT C5023750

8/17/99

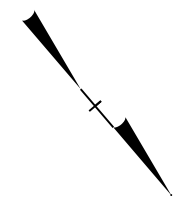
REVISIONS

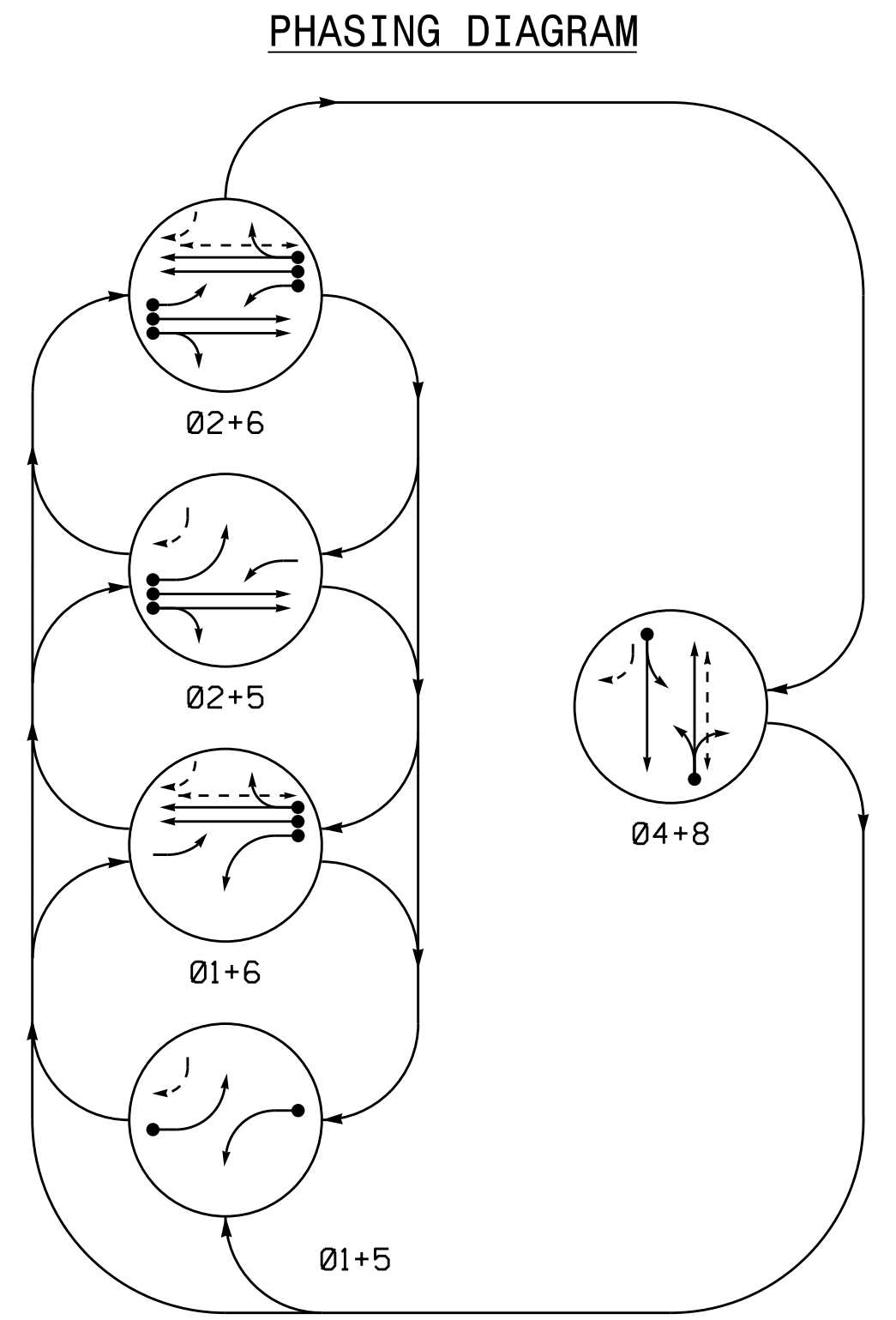


**SYMBOL AND PAVEMENT MARKING LEGEND**

PAVEMENT MARKING LINES	
T2	-- WHITE STOPBAR (24", 90MIL) THERMO
T3	-- WHITE CROSSWALK LINE (24", 90MIL) THERMO
T9	-- 2FT-6FT/SP WHITE MINISKIP (4", 90MIL) THERMO
TA	-- WHITE EDGELINE (4", 90MIL) THERMO
TI	-- YELLOW DOUBLE CENTER (4", 90MIL) THERMO
TQ	-- WHITE CROSSWALK LINE (8", 90MIL) THERMO
UN	-- 24" YEILD LINBE TRIANGLE (90MIL) THERMO
PAVEMENT MARKING SYMBOLS	
UA	-- LEFT TURN ARROW (90MIL) THERMO
UB	-- RIGHT TURN ARROW (90MIL) THERMO
UC	-- STRAIGHT ARROW (90MIL) THERMO
UD	-- COMBO. LEFT/STRAIGHT ARROW (90MIL) THERMO
UE	-- COMBO. RIGHT/STRAIGHT ARROW (90MIL) THERMO

01FFB-2002.MXD Rev: dsm.dgn  
 \$\$\$\$\$\$  
 \$\$\$\$\$\$

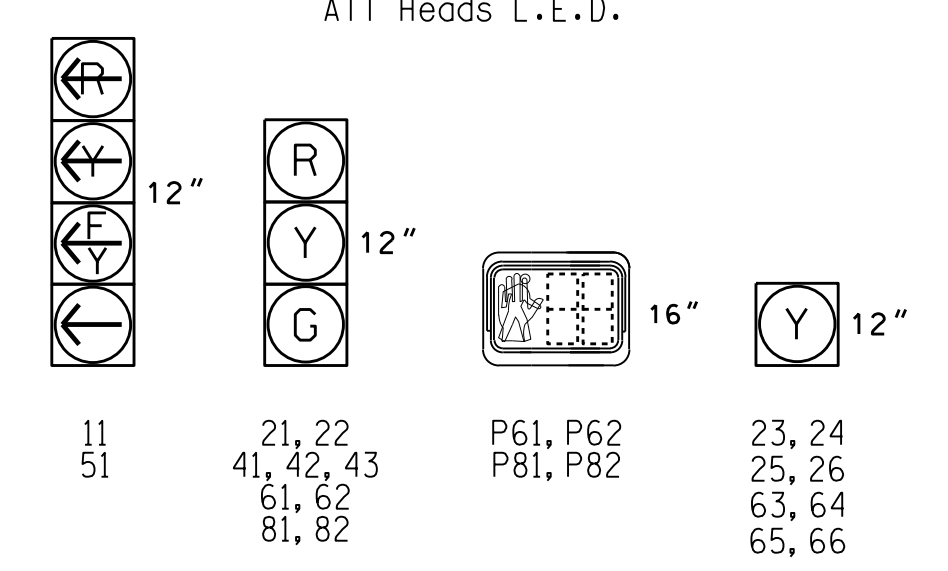




SIGNAL FACE	PHASE				
	01+5	01+6	02+5	02+6	04+8
11	←	←	←	←	←
21, 22	R	R	G	G	R
41, 42, 43	R	R	R	R	G
51	←	←	←	←	←
61, 62	R	G	R	G	R
81, 82	R	R	R	R	G
P61, P62	DW	W	DW	W	DRK
P81, P82	DW	DW	DW	DW	DRK

SIGNAL FACE	INTERVAL	
	1	2
23, 25	ON	OFF
24, 26	OFF	ON
63, 65	ON	OFF
64, 66	OFF	ON

SIGNAL FACE I.D.

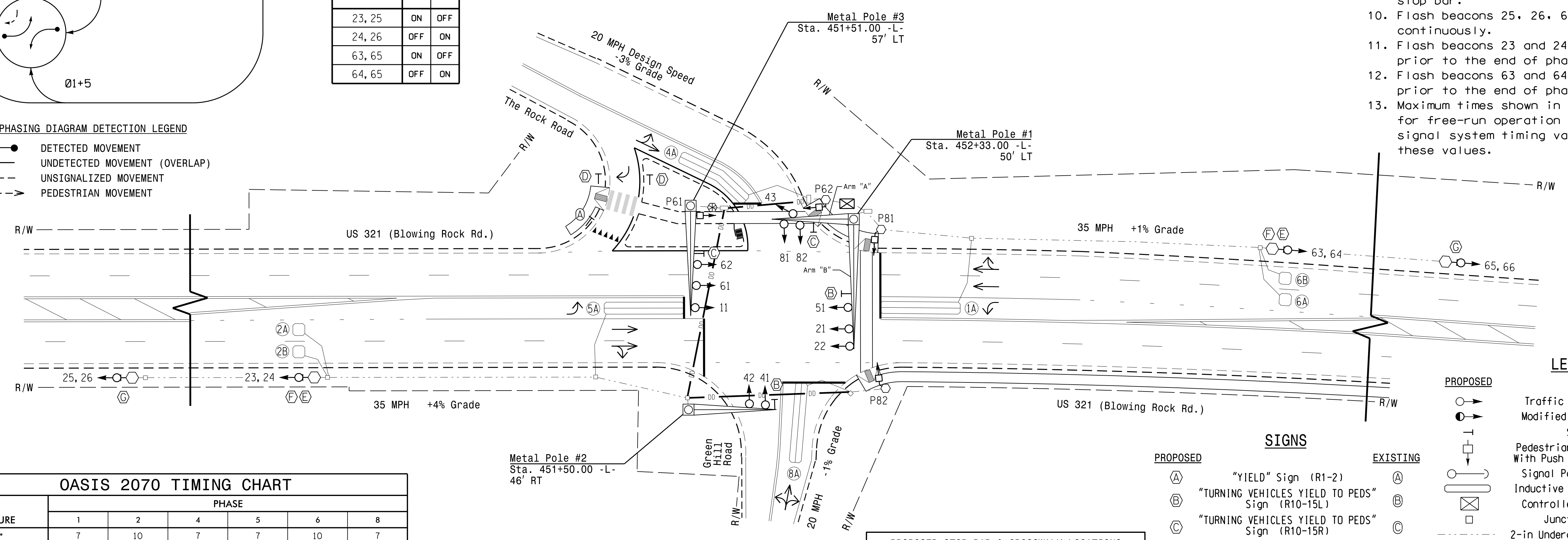
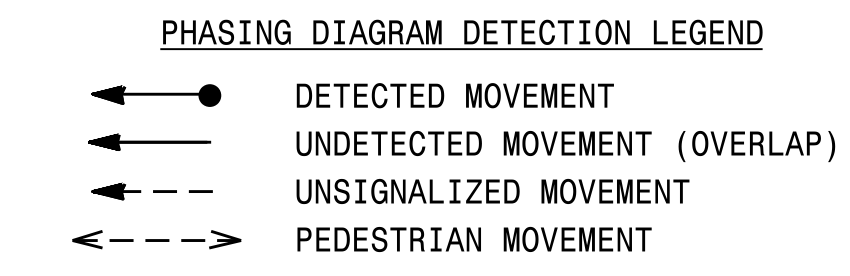


LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING					
					PHASE	CALLING EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	
1A	6X40	0	2-4-2	Y	1	Y	Y	-	15	-
2A	6X6	200	3	Y	2	Y	Y	-	3	-
2B	6X6	200	3	Y	2	Y	Y	-	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	3	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	15	-
6A	6X6	200	5	Y	2	Y	Y	-	3	-
6B	6X6	200	5	Y	6	Y	Y	-	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	5	-

5 Phase Fully Actuated D11-08\_Blowing Rock

NOTES

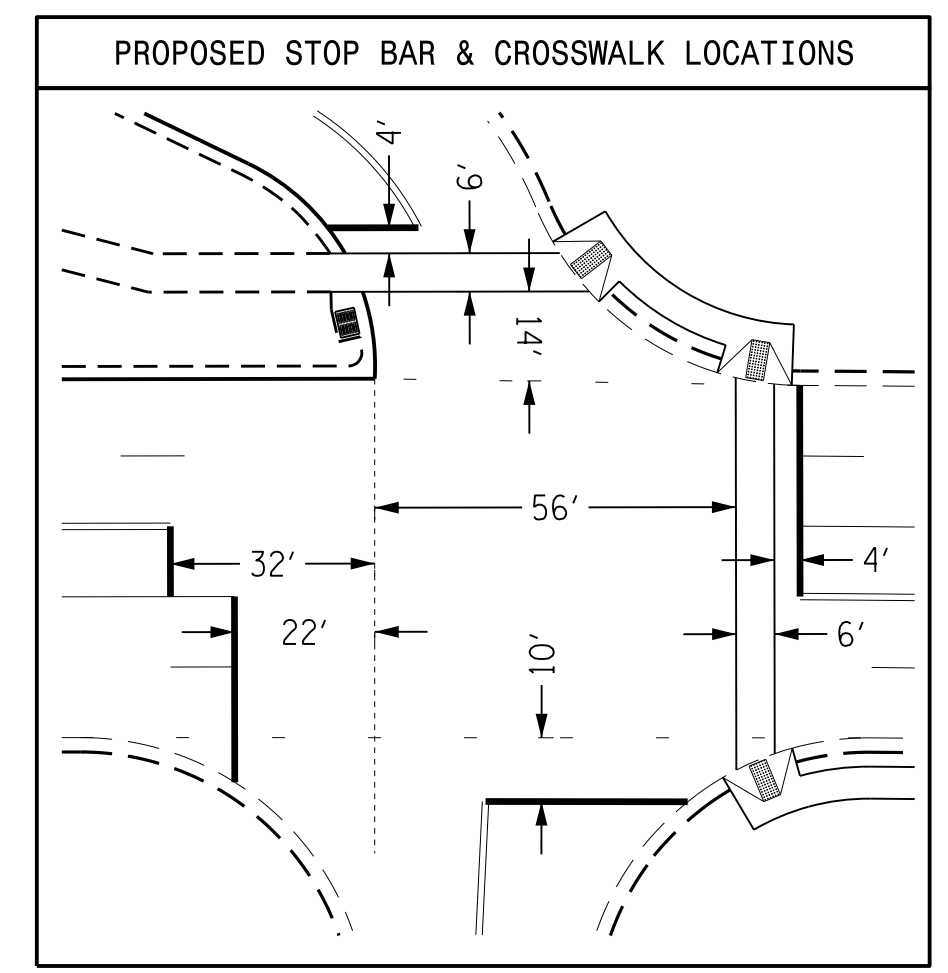
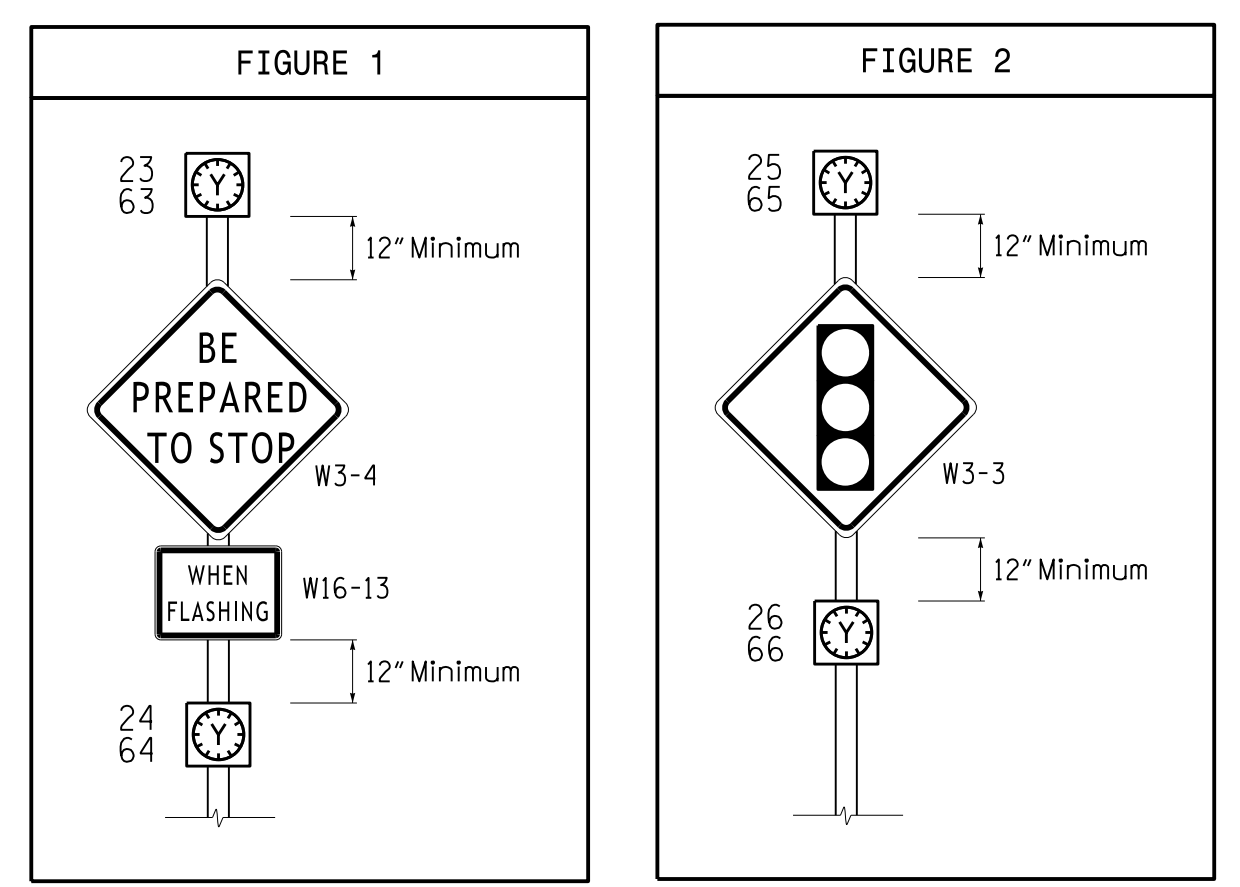
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Install Signs "E" & "F" 200 ft. +/- from the stop bar.
- Install Signs "G" 550 ft. +/- from the stop bar.
- Flash beacons 25, 26, 65, and 66 continuously.
- Flash beacons 23 and 24 three (3) seconds prior to the end of phase 2 green.
- Flash beacons 63 and 64 three (3) seconds prior to the end of phase 6 green.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



**LEGEND**

PROPOSED	EXISTING
(A) Traffic Signal Head	(A) Traffic Signal Head
(B) Modified Signal Head	(B) Modified Signal Head
(C) Pedestrian Signal Head With Push Button & Sign	(C) Pedestrian Signal Head With Push Button & Sign
(D) Signal Pole with Guy	(D) Signal Pole with Guy
(E) Inductive Loop Detector	(E) Inductive Loop Detector
(F) Controller & Cabinet	(F) Controller & Cabinet
(G) Junction Box	(G) Junction Box
(H) 2-in Underground Conduit	(H) 2-in Underground Conduit
(I) Right of Way	(I) Right of Way
(J) Directional Arrow	(J) Directional Arrow
(K) Directional Drill	(K) Directional Drill
(L) Type I Pushbutton Post	(L) Type I Pushbutton Post
(M) Type II Signal Pedestal	(M) Type II Signal Pedestal
(N) Metal Pole with Mastarm	(N) Metal Pole with Mastarm
(O) Curb Ramp	(O) Curb Ramp

FEATURE	OASIS 2070 TIMING CHART							
	PHASE							
Min Green 1*	7	10	7	7	10	7	-	-
Extension 1*	2.0	5.0	2.0	2.0	5.0	2.0	-	-
Max Green 1*	15	90	25	15	90	25	-	-
Yellow Clearance	3.0	3.8	3.0	3.0	3.8	3.0	-	-
Red Clearance	2.1	1.8	3.6	2.4	1.8	3.6	-	-
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	-	-
Walk 1*	-	-	-	-	7	7	-	-
Don't Walk 1	-	-	-	-	8	15	-	-
Seconds Per Actuation*	-	1.5	-	-	1.5	-	-	-
Max Variable Initial*	-	24	-	-	24	-	-	-
Time Before Reduction*	-	15	-	-	15	-	-	-
Time To Reduce*	-	45	-	-	45	-	-	-
Minimum Gap	-	3.0	-	-	3.0	-	-	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-	-	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-	-	-
Dual Entry	-	-	ON	-	-	ON	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	-	-



- SIGNS**
- (A) "YIELD" Sign (R1-2)
  - (B) "TURNING VEHICLES YIELD TO PEDS" Sign (R10-15L)
  - (C) "TURNING VEHICLES YIELD TO PEDS" Sign (R10-15R)
  - (D) Pedestrian Crossing Sign (W11-2) w/ Downward Arrow Plaque (W16-7P)
  - (E) "BE PREPARED TO STOP" Sign (W3-4) See Figure 1
  - (F) "WHEN FLASHING" Sign (W16-13P) See Figure 1
  - (G) Signal Ahead Sign (W3-3) See Figure 2

New Installation

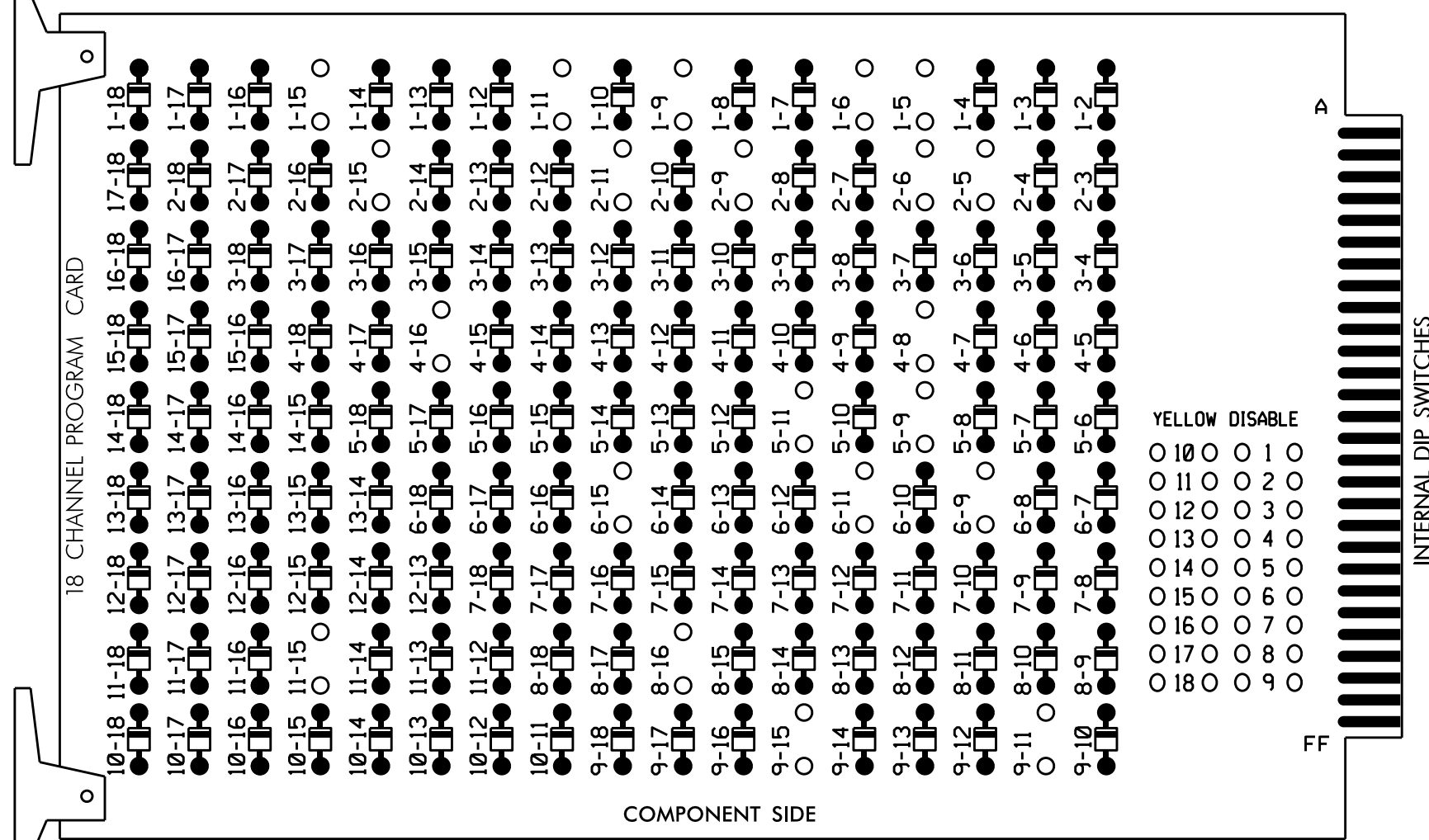
	<b>US 321 (Blowing Rock Rd.)</b> at <b>Green Hill Road/The Rock Road</b>		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  SEAL NORTH CAROLINA PROFESSIONAL ENGINEER RICHARD N. ZINSER License No. 043914
	Division 11 Caldwell County Blowing Rock PLAN DATE: December 2021 REVIEWED BY: T.J. Williams PREPARED BY: R.N. Zinser REVIEWED BY:	SCALE: 1"=30' REVISIONS:	

27-Jan-2023 15:57  
 S:\P\2651\15 Signal\Signal\Eastern\_Reg\con401v-11\11-1459a\2021-11\11459a.sig.dsn, 20230105.dgn  
 rnz:insr

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

**EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL**  
(remove jumpers and set switches as shown)

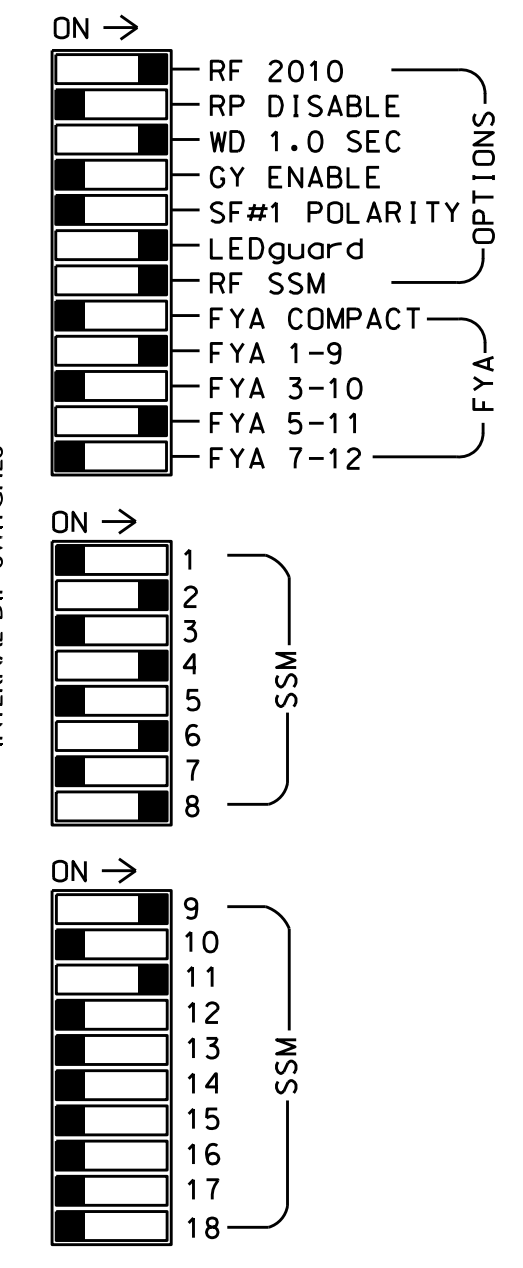
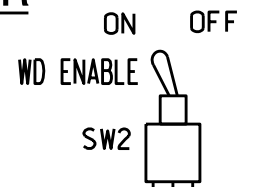
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-15, 4-8, 4-16, 5-9, 5-11, 6-9, 6-11, 6-15, 8-16, 9-11, 9-15 and 11-15.



REMOVE JUMPERS AS SHOWN

**NOTES:**

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.



■ = DENOTES POSITION OF SWITCH

**NOTES**

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all Phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phase 2 for Startup In Green and phase 6 for Startup In Walk.
- Program phases 6 and 8 for Startup Ped Call.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the D11-08\_Blowing Rock System.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070  
 CABINET.....332 W/ AUX  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,\*S3,S5,\*S6,S7,S8,\*\*S9,  
 S11,\*\*S12,AUX S1,AUX S4  
 PHASES USED.....1,2,4,5,6,8  
 OVERLAP "A".....1+2  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....5+6  
 OVERLAP "D".....NOT USED  
 \* USED FOR ADVANCE BEACONS, PHASE 2 AND PHASE 6 APPROACH  
 \*\* USED FOR PED AND ADVANCE BEACON

**SIGNAL HEAD HOOK-UP CHART**

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6				
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18				
PHASE	1	2	2 PED ADVANCE BEACON	3	4	4 PED ADVANCE BEACON	5	6	6 PED ADVANCE BEACON	7	8	8 PED ADVANCE BEACON	OLA	OLB	SPARE	OLC	OLD	SPARE				
SIGNAL HEAD NO.	11	21,22	NU	23	NU	41, 42,43	63	51	61,62	P61, P62	24	NU	81,82	P81, P82	64	11	NU	51	NU			
RED		128			101				134			107										
YELLOW	*	129			102			*	135			108										
GREEN		130			103				136			109										
RED ARROW																			A121	A114		
YELLOW ARROW																				A122	A115	
FLASHING YELLOW ARROW																				A123	A116	
GREEN ARROW	127								133													
PED YELLOW																						
						**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
						*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

NU = Not Used

- \* Denotes install load resistor. See load resistor installation detail this sheet.
- \*\* Advance Beacons will be wired to S3-Y(114), S6-Y(105), S9-Y(120), and S12-Y(111). See wiring and programming details on sheets 3 and 4.
- ★ See pictorial of head wiring in detail below.

**INPUT FILE POSITION LAYOUT (front view)**

FILE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 2	∅ 3	∅ 4	∅ 5	∅ 6	∅ 7	∅ 8	∅ 9	∅ 10	∅ 11	∅ 12	∅ 13	∅ 14
L	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A	13A	14A
	NOT USED	∅ 2	∅ 3	NOT USED	∅ 5	∅ 6	∅ 7	NOT USED	∅ 9	∅ 10	∅ 11	∅ 12	∅ 13	∅ 14
		2B	3B		5B	6B	7B		9B	10B	11B	12B	13B	14B

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

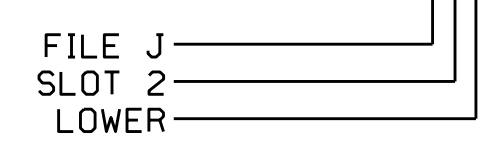
⊗ Wired Input - Do not populate slot with detector card

**INPUT FILE CONNECTION & PROGRAMMING CHART**

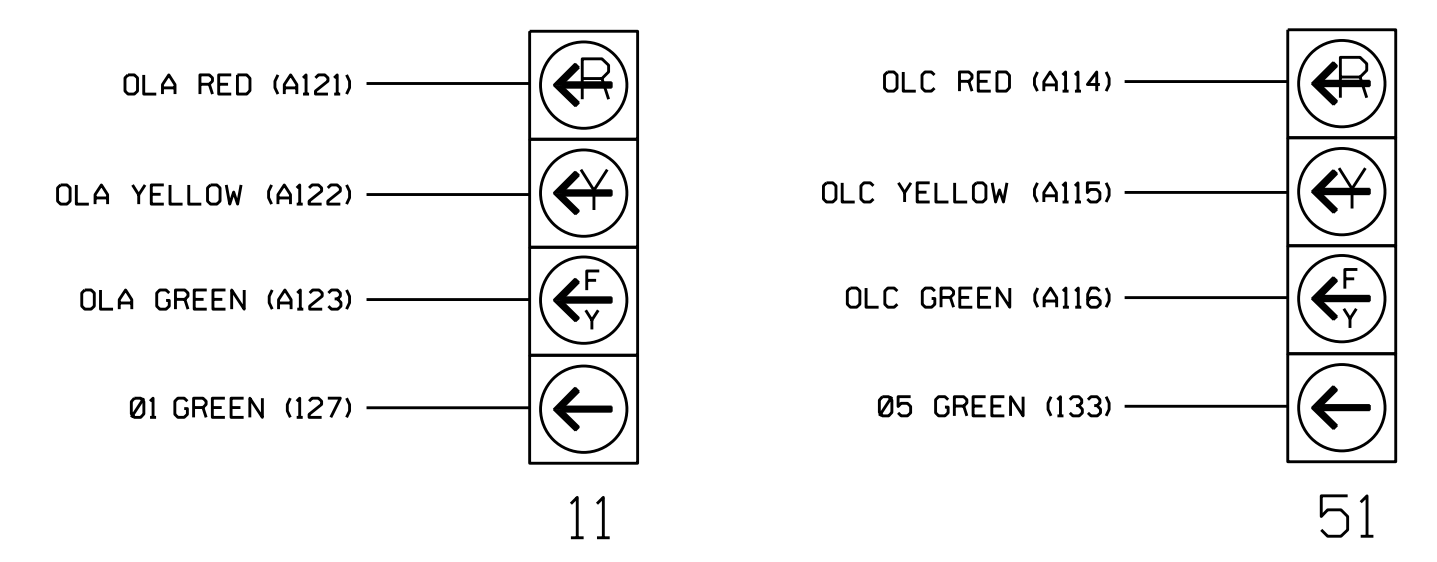
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A <sup>1</sup>	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
5A <sup>2</sup>	TB3-1,2	J1U	55	17	5	5	Y	Y	Y		15
	-	I4U	47	9	22	2	Y	Y	Y		3
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			5
PED PUSH BUTTONS											
P61,P62	TB8-7,9	I13U	68	30	PED 6	6	PED				
P81,P82	TB8-8,9	I13L	70	32	PED 8	8	PED				

NOTE:  
 INSTALL DC ISOLATOR IN INPUT FILE SLOT 113.

**INPUT FILE POSITION LEGEND: J2L**



**FYA SIGNAL WIRING DETAIL (wire signal heads as shown)**

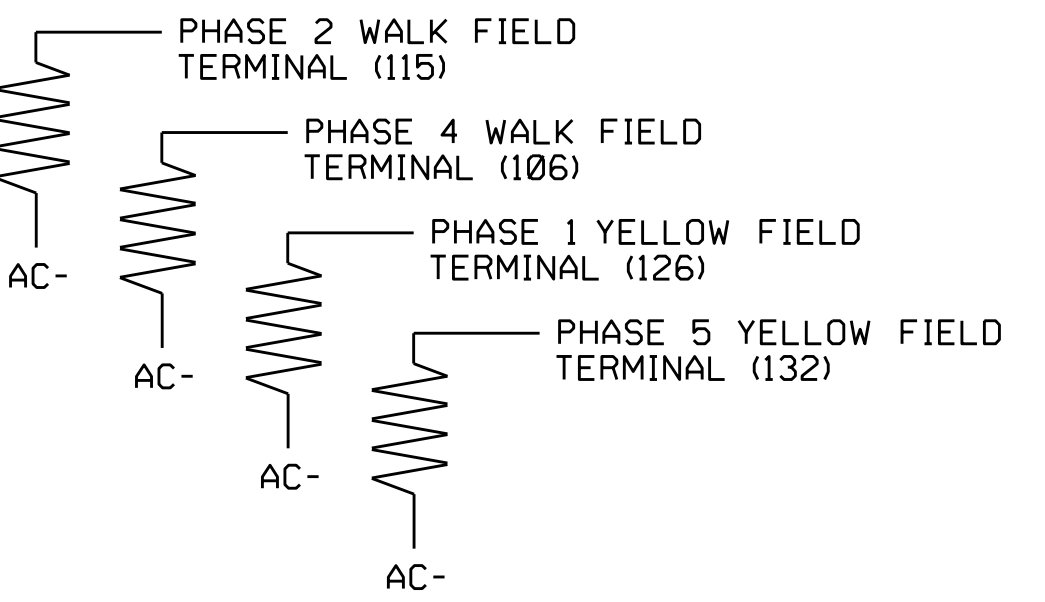


**NOTE**

The sequence display for signal heads 11 and 51 requires special logic programming. See sheet 2 for programming instructions.

**LOAD RESISTOR INSTALLATION DETAIL (install resistors as shown below)**

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



Electrical Detail - Sheet 1 of 4

Electrical and Programming Details for: **US 321 (Blowing Rock Rd.) at Green Hill Road/The Rock Road**

Prepared In the Offices of: **North Carolina Professional Engineer Keith M. Mims**

Division 11 Caldwell County Blowing Rock

PLAN DATE: December 2021 REVIEWED BY: K. Mims

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS: \_\_\_\_\_ INIT. DATE

DocuSigned by: **Keith M. Mims** 01/27/2022

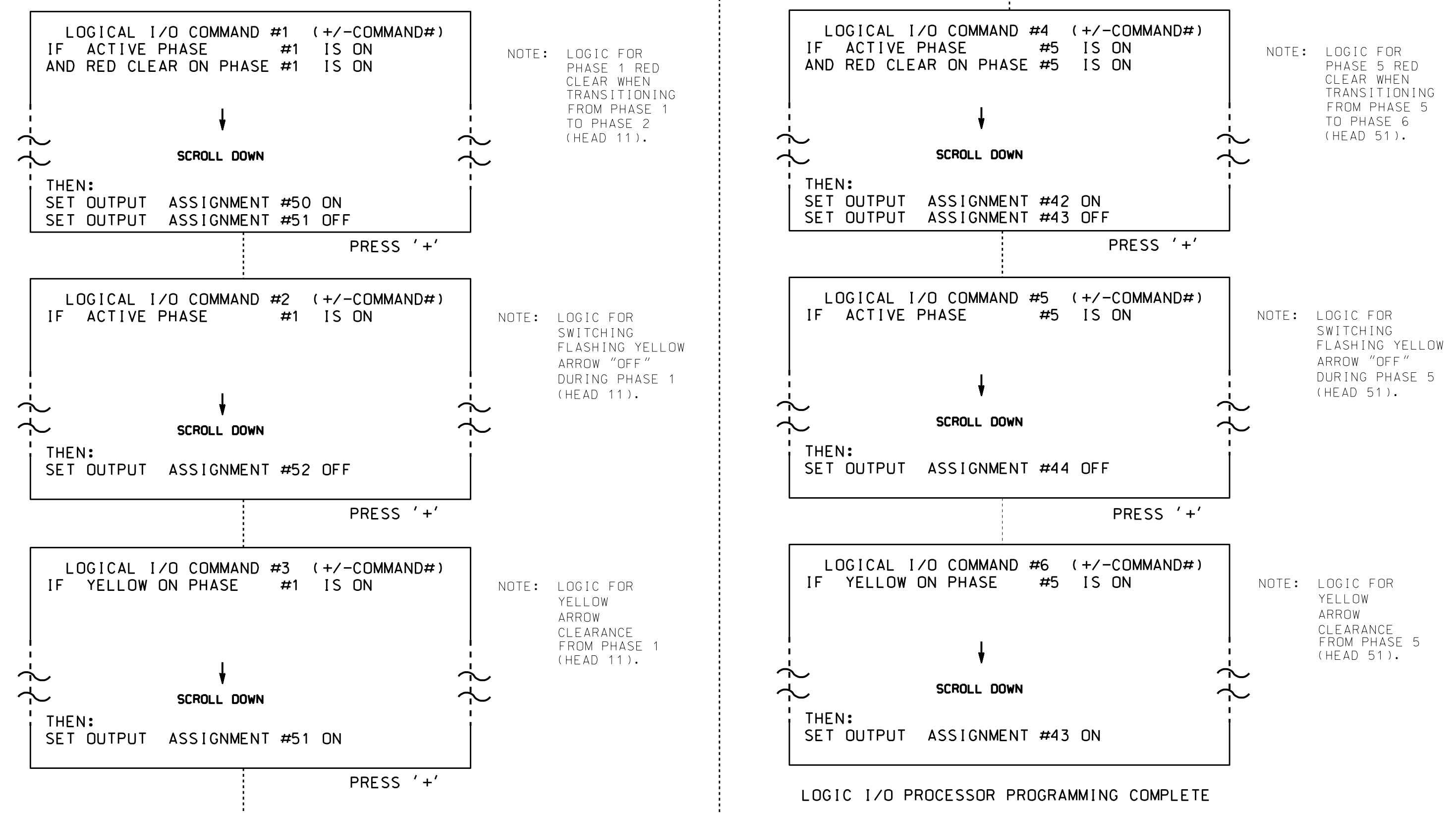
SIG. INVENTORY NO. 11-1459

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## LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS), SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



OUTPUT REFERENCE SCHEDULE	
OUTPUT 42 =	Overlap C Red
OUTPUT 43 =	Overlap C Yellow
OUTPUT 44 =	Overlap C Green
OUTPUT 50 =	Overlap A Red
OUTPUT 51 =	Overlap A Yellow
OUTPUT 52 =	Overlap A Green

## OVERLAP PROGRAMMING DETAIL (program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT: X
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS:  _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

← NOTICE 3 SECOND GREEN EXTENSION

PRESS '+' TWICE

```

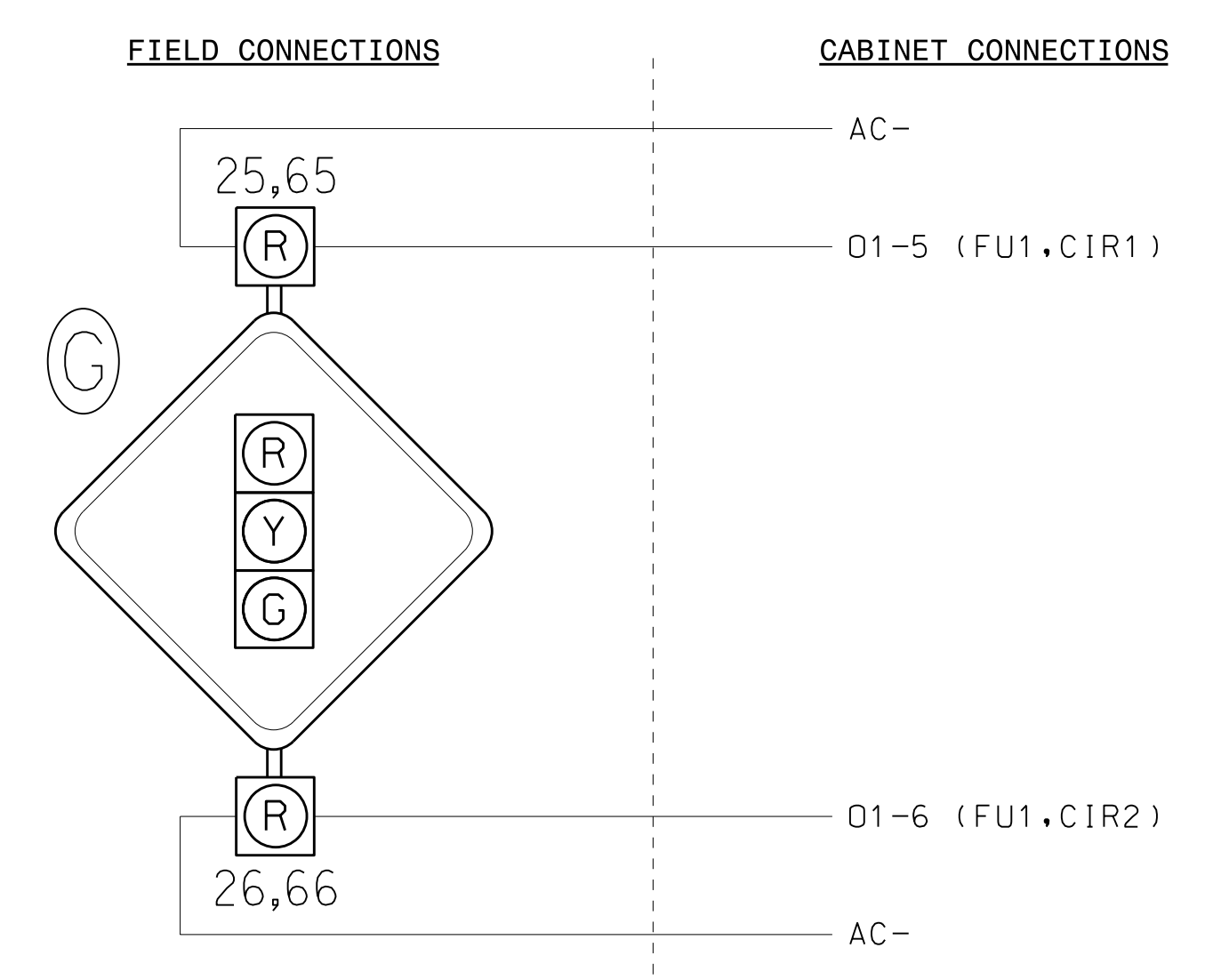
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT: X
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS:  _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

← NOTICE 3 SECOND GREEN EXTENSION

OVERLAP PROGRAMMING COMPLETE

## BEACON WIRING DETAIL (wire flasher as shown below)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 11-1459  
DESIGNED: December 2021  
SEALED: 1/25/2022  
REVISED:

Electrical Detail - Sheet 2 of 4		US 321 (Blowing Rock Rd.) at Green Hill Road/The Rock Road	SEAL NORTH CAROLINA PROFESSIONAL ENGINEER KEITH M. MIMS 036880
Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	Division 11 Caldwell County Blowing Rock PLAN DATE: December 2021 REVIEWED BY: K. Mims PREPARED BY: C. Strickland REVIEWED BY:		
REVISIONS		INIT. DATE	DocuSigned by: Keith M. Mims 01/27/2022 2520726E6C273465 DATE
			SIG. INVENTORY NO. 11-1459

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C:\Users\cstrickland



**OUTPUT ASSIGNMENT PROGRAMMING DETAIL  
FOR PHASE 2 ADVANCE BEACON APPROACH**  
(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), PRESS '+' UNTIL OUTPUT #33 (PIN 35) IS REACHED.

```

PAGE:1 C1 PIN:35 NOT ENABLED
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH).....1
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE FIRST THREE PROGRAMMING ROWS DEFINE THE OUTPUT TO FLASH, ALONG WITH THE RATE IN WHICH IT WILL FLASH.

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```

PAGE:1 C1 PIN:35 NOT ENABLED
SELECT BEACON INDEX (1-4).....1
    
```

WHEN A 'Y' IS ENTERED FOR 'ADVANCE BEACON' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'ADVANCE BEACON' AS SHOWN BELOW.

```

PAGE:1 C1 PIN:35 ADVANCE BEACON
OUTPUT ASSIGNMENT #.....33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...1.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...50
MODE (0=SOLID,1=FLASH).....1
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....Y
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS), PRESS '+' UNTIL OUTPUT #34 (PIN 36) IS REACHED.

```

PAGE:1 C1 PIN:36 NOT ENABLED
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

THE NOT ENABLED 'Y' WILL REMAIN UNTIL THE FUNCTION OF THIS OUTPUT IS CHANGED. DO NOT ENTER AN 'N'.

```

PAGE:1 C1 PIN:36 NOT ENABLED
SELECT OUTPUT ASSIGNMENT (1-64).....33
    
```

WHEN A 'Y' IS ENTERED FOR 'OUT OF PHASE FLASHER' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

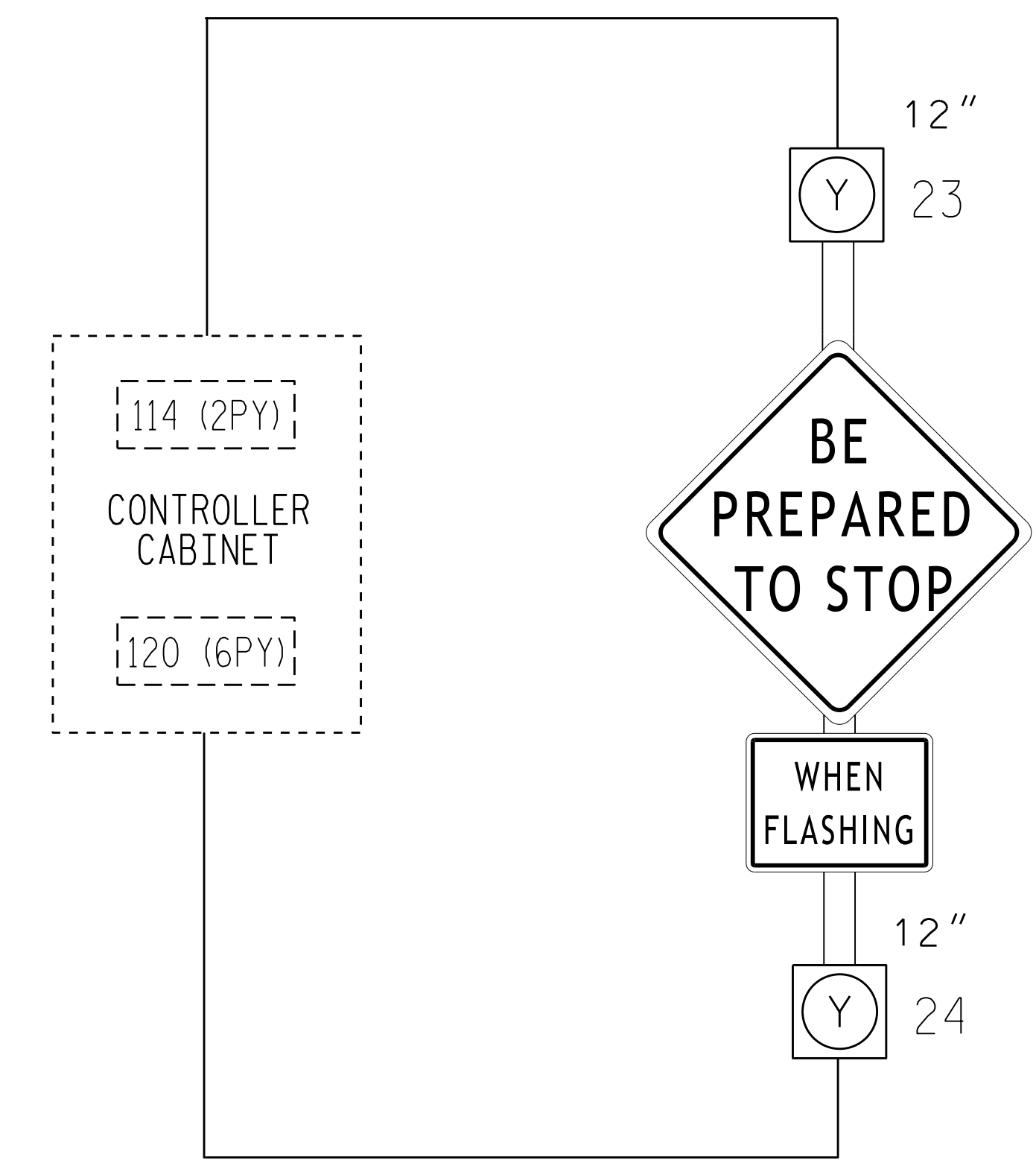
PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'OUT OF PHASE FLASHER' AS SHOWN BELOW.

```

PAGE:1 C1 PIN:36 OUT OF PHASE FLASHER
OUTPUT ASSIGNMENT #.....34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).....0
SELECT ASSIGNMENT:
NOT ENABLED.....
VEHICLE PHASE.....
PEDESTRIAN PHASE.....
VEHICLE OVERLAP.....
PEDESTRIAN OVERLAP.....
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....Y
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

**ADVANCE BEACON WIRING DETAIL  
FOR PHASE 2 APPROACH**  
(wire flashers as shown below)



**IMPORTANT**

1. IF PRESENT, REMOVE, TAPE AND LABEL CONFLICT MONITOR WIRE ATTACHED TO THE REAR OF TERMINAL 114 (2PY) AND TERMINAL 120 (6PY).
2. INSTALL LOAD SWITCHES IN OUTPUT FILE SLOTS S3 AND S9.
3. MAKE SURE LOAD RESISTORS ARE IN PLACE AS SHOWN IN LOAD RESISTOR INSTALLATION DETAIL ON SHEET 1.
4. TO ACTIVATE ADVANCE BEACON OPERATION AS INDICATED ON THE SIGNAL PLAN, RE-ASSIGN OUTPUT 33 AND 34 AS SHOWN ON THIS SHEET.

**ADVANCE BEACON PROGRAMMING DETAIL  
FOR PHASE 2 AND PHASE 6 APPROACH**  
(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '2' (OUTPUT BEACON SETTINGS).

```

          OUTPUT BEACON SETTINGS
TRIGGER PHASES: 12345678910111213141516
BEACON #1 OFF   X
BEACON #2 OFF           X
BEACON #3 OFF
BEACON #4 OFF
          BEACON | 1  2  3  4
OFF DELAY TIME (0-255); 0  0  0  0
ON DELAY TIME (0-255);  0  0  0  0
STOP-TIME HOLD (0-255); 3  3  0  0
    
```

SCROLL DOWN TO VIEW ALL DATA

ADVANCE BEACON PROGRAMMING COMPLETE

NOTICE STOP-TIME HOLD SETTINGS FOR BEACON #1 AND BEACON #2

NOTE: AN OUTPUT HAS TO BE ASSIGNED AS AN ADVANCE BEACON IN ORDER FOR PROPER OPERATION TO OCCUR. SEE OUTPUT ASSIGNMENT DETAIL FOR PHASE 2 APPROACH ON THIS SHEET, AND FOR PHASE 6 APPROACH ON SHEET 4.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 11-1459  
DESIGNED: December 2021  
SEALED: 1/25/2022  
REVISED:

Electrical Detail - Sheet 3 of 4

Prepared In the Offices of:  
Caldwell County Signal Management Solutions  
750 N. Greenfield Pkwy, Garner, NC 27529

US 321 (Blowing Rock Rd.)  
at  
Green Hill Road/The Rock Road

Division 11 Caldwell County Blowing Rock  
PLAN DATE: December 2021 REVIEWED BY: K. Mims  
PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by:  
Keith M. Mims 01/27/2022  
2F80786E8C03445 DATE

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SEAL  
NORTH CAROLINA PROFESSIONAL ENGINEER  
SEAL 036880  
KEITH M. MIMS

SIG. INVENTORY NO. 11-1459





