09/08/99

TIP PROJECT: I-5760

CONTRACT: C203868

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

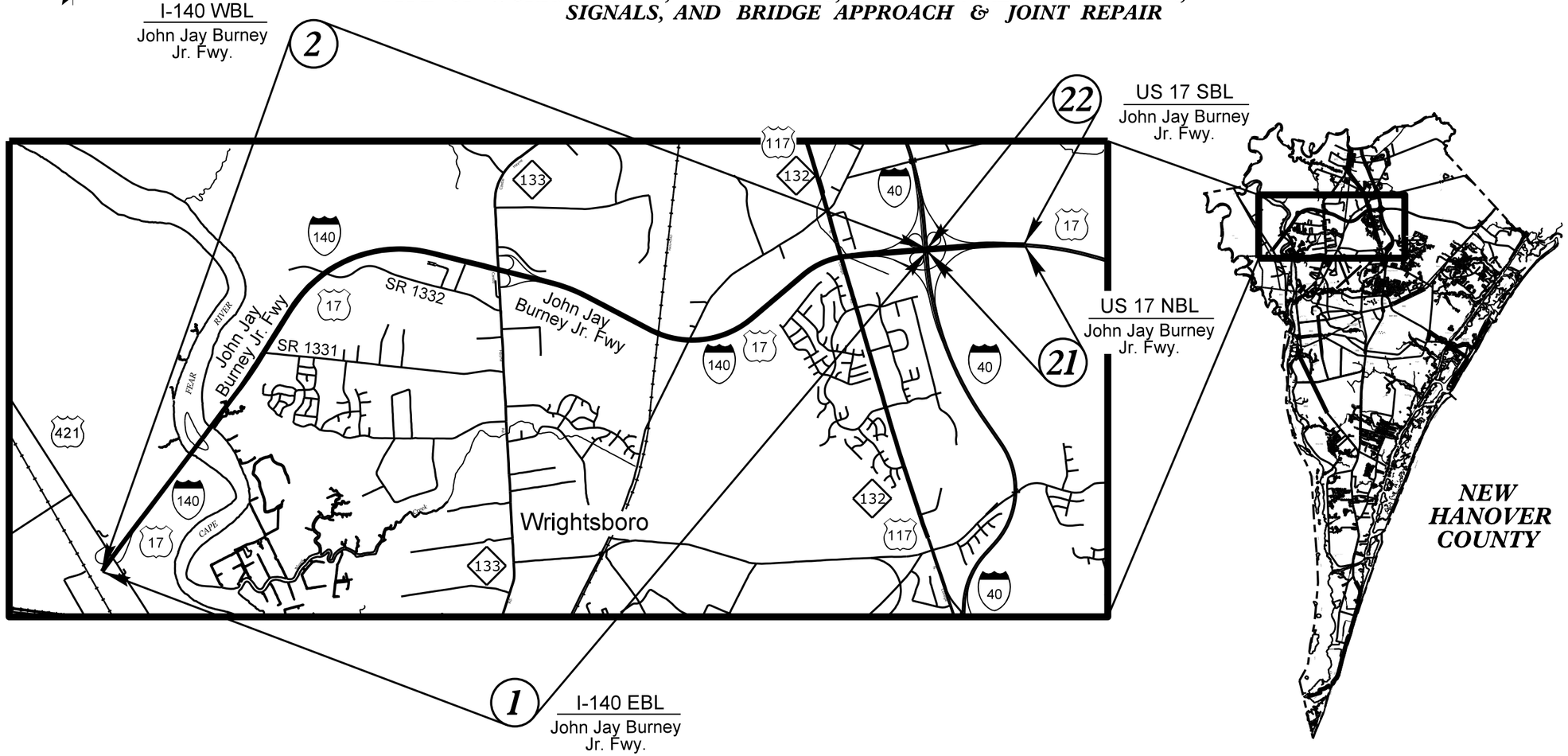
NEW HANOVER COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5760	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
52038.1.1	NHPP-0040(017)	P.E.
52038.3.1	NHPP-0040(017)	CONST.

LOCATION: I-140 FROM US 421 TO 0.64 MILES EAST OF I-40

TYPE OF WORK: MILLING, RESURFACING, SHOULDER RECONSTRUCTION, SIGNALS, AND BRIDGE APPROACH & JOINT REPAIR



PROJECT LENGTH

MAP NO. 1 – I-140 (EB) & MAP NO. 2 – I-140 (WB) =	*6.802 MI.*
MAP NO. 21 – US 17 (NB) & MAP NO. 22 – US 17 (SB) =	*0.640 MI.*
TOTAL LENGTH OF PROJECT =	*7.442 MI.*

Prepared In the Office of:
DIVISION OF HIGHWAYS
5501 Barbados Blvd., Castle Hayne, NC 28429

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:
AUGUST 16, 2016

PROJECT ENGINEER

MARY KIMMEL
PROJECT DESIGN TECHNICIAN

NICK DREES
PROJECT DESIGN TECHNICIAN

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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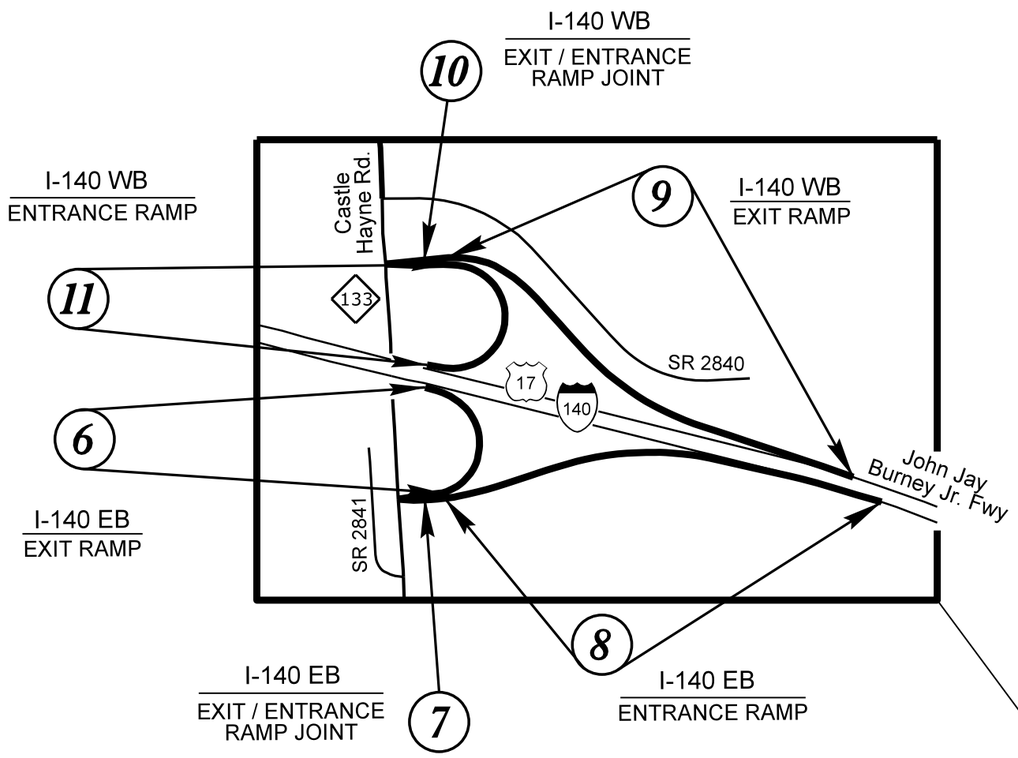
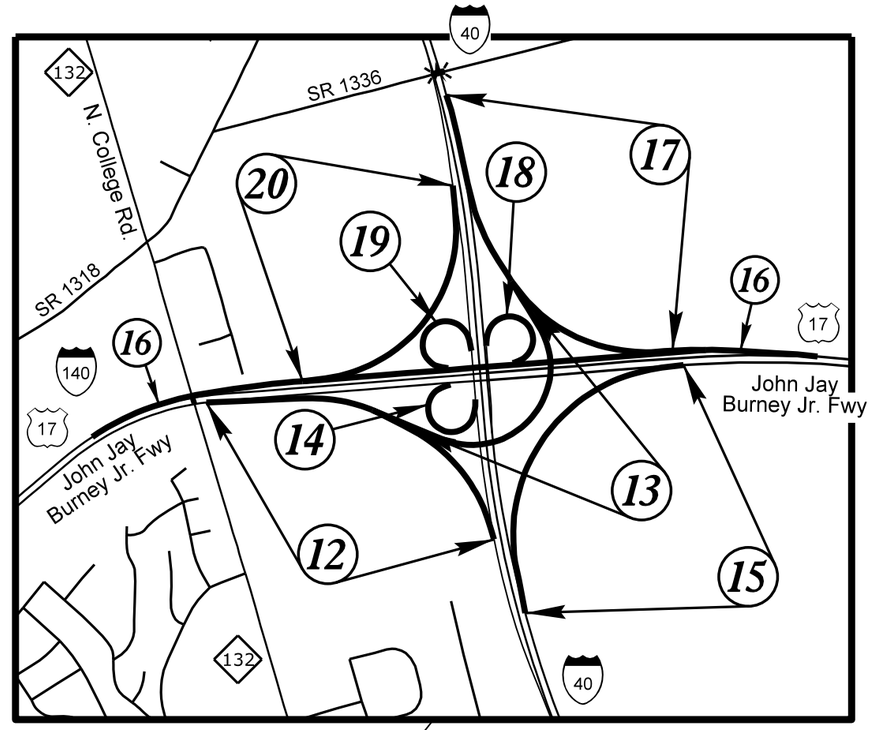
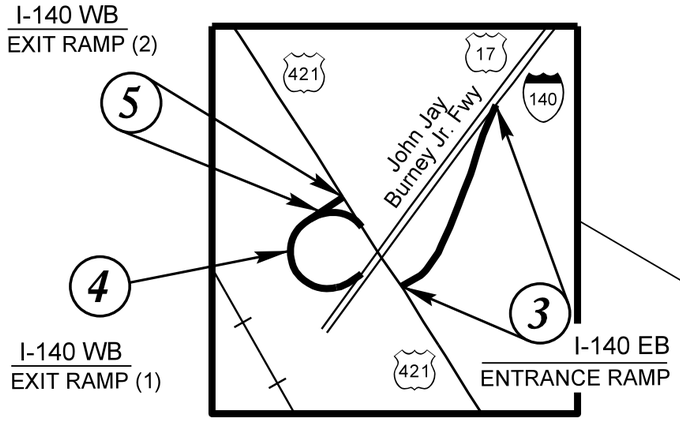
PROJECT REFERENCE NO.	SHEET NO.
I-5760	2

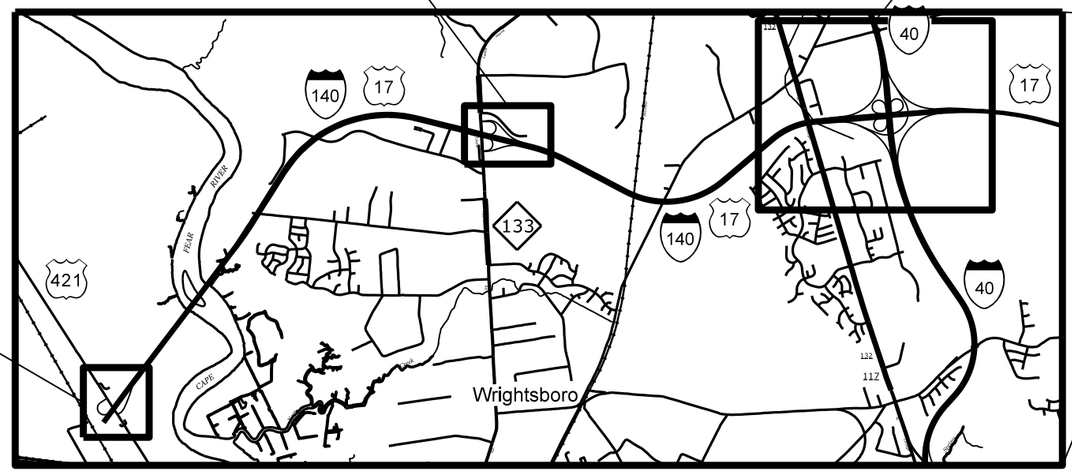
NEW HANOVER COUNTY – CONT.

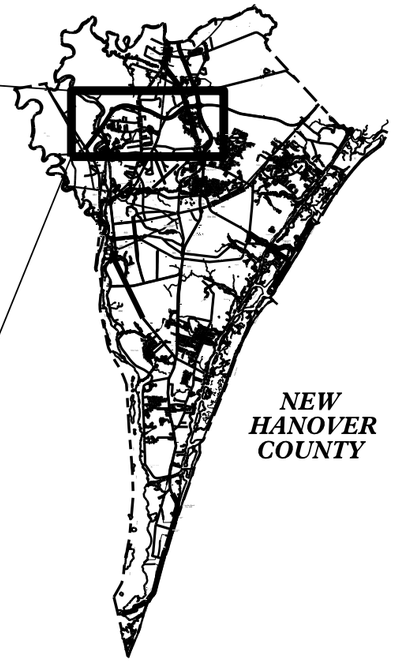




I-140 RAMPS AT THE
INTERSECTION OF I-40







REVISIONS 8/17/99

I-140_Resurfacing_I-5760\I-5760_I-140_Rdy_tsh.dgn
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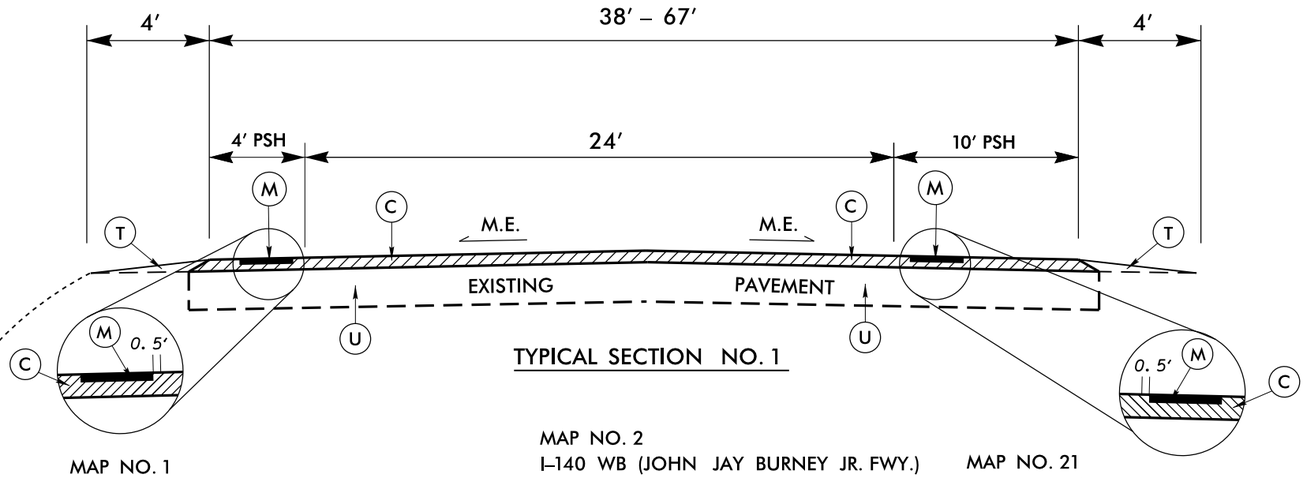
PROJECT REFERENCE NO.	SHEET NO.
I-5760	3



TYPICAL SECTION NO. 1

MAP NO. 1
I–140 EB (JOHN JAY BURNEY JR. FWY.)
MP 0.000 – MP 1.880
MP 2.880 – MP 6.791

I–140 EB BRIDGES:

NO ASPHALT WORK: DAN CAMERON BRIDGE (MP 0.000 – MP 1.400)

#104 MP 1.717 – MP 1.741
#118 MP 3.614 – MP 3.646
#120 MP 4.766 – MP 4.813
#122 MP 4.998 – MP 5.028
#96 MP 6.739 – MP 6.791

MAP NO. 2
I–140 WB (JOHN JAY BURNEY JR. FWY.)
MP 0.000 – MP 1.729
MP 2.729 – MP 6.812

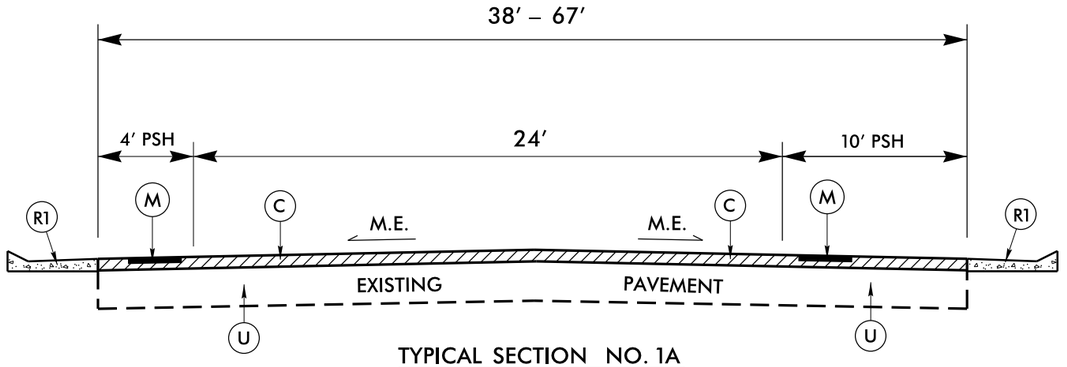
I–140 WB BRIDGES:

NO ASPHALT WORK: DAN CAMERON BRIDGE (MP 5.412 – MP 6.812)

#105 MP 5.082 – MP 5.106
#119 MP 3.158 – MP 3.190
#121 MP 1.990 – MP 2.038
#123 MP 1.768 – MP 1.800
#95 MP 0.000 – MP 0.005

MAP NO. 21
US 17 NBL (JOHN JAY BURNEY JR. FWY.)
MP 10.604 – MP 11.244
(NO ASPHALT WORK BRIDGE #100
MP 10.706 – MP 10.730)

MAP NO. 22
US 17 SBL (JOHN JAY BURNEY JR. FWY.)
MP 6.465 – MP 7.105
(NO ASPHALT WORK BRIDGE #99
MP 6.567 – MP 6.592)



TYPICAL SECTION NO. 1A

SHOULDER BERM GUTTER LOCATIONS

MAP NO. 1
I–140 EB (JOHN JAY BURNEY JR. FWY.)
MP 1.393 – MP 1.453 (RT.)
MP 1.741 – MP 1.849 (RT.)
MP 3.316 – MP 3.614 (RT.)
MP 3.646 – MP 3.674 (RT.)
MP 4.529 – MP 4.766 (RT.)
MP 4.813 – MP 4.859 (RT.)
MP 4.984 – MP 4.998 (RT.)
MP 5.028 – MP 5.075 (RT.)

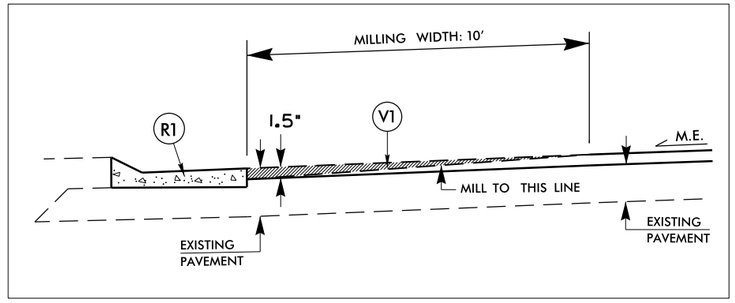
MAP NO. 2
I–140 WB (JOHN JAY BURNEY JR. FWY.)
MP 5.406 – MP 5.415 (RT.)
MP 5.106 – MP 5.153 (RT.)
MP 5.082 – MP 4.983 (RT.)
MP 3.508 – MP 3.190 (RT.)
MP 3.158 – MP 3.149 (RT.)

PAVEMENT SCHEDULE

C	PROP. APPROX. 1½″ DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
D	PROP. APPROX. 2½″ DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS.PER SQ.YD.
M	MILLED RUMBLE STRIP
R1	EXISTING SHOULDER BERM GUTTER
R2	EXISTING CONCRETE 2′-6″ CURB & GUTTER
R3	EXISTING CONCRETE MONOLITHIC ISLAND
T	AGGREGATE SHOULDER BORROW (ASB)
U	EXISTING PAVEMENT
V1	MILLING ASPHALT PAVEMENT, 0″ - 1½″ DEPTH
V2	MILLING ASPHALT PAVEMENT, 2½″ DEPTH
V3	FINE MILLING ASPHALT PAVEMENT, 1½″ DEPTH

PAVEMENT EDGE SLOPES ARE 1:1, EXCEPT FINAL SURFACE COURSE. SEE SHOULDER WEDGE DETAIL.

SEE STD. DRAWING 1205.01, SHEET 2 OF 2, TABLE 1 FOR EDGE LINE OFFSETS.



DETAIL FOR TYPICAL NO. 1A & 2A

MILLING 0″ – 1.5″ AT SHOULDER BERM GUTTER
(EB & WB DIRECTIONS)

REVISIONS

8/17/99

I-140 Resurfacing_I-5760\RALEIGH REVISIONS\I-5760_I-140_Rdy_typ_REV 2.dgn

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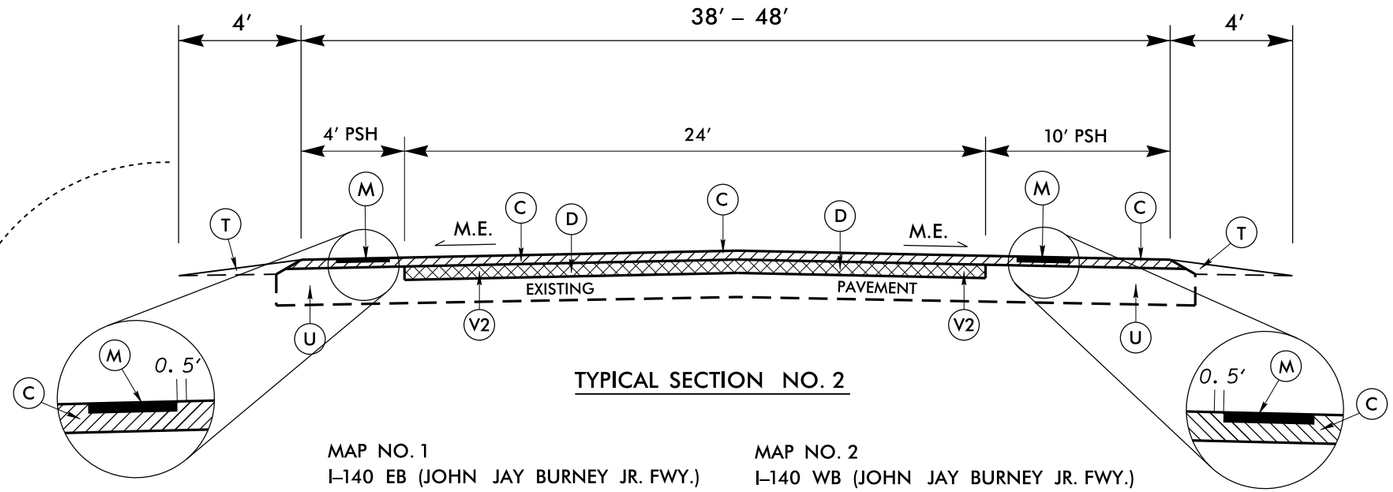


TYPICAL SECTION NO. 2

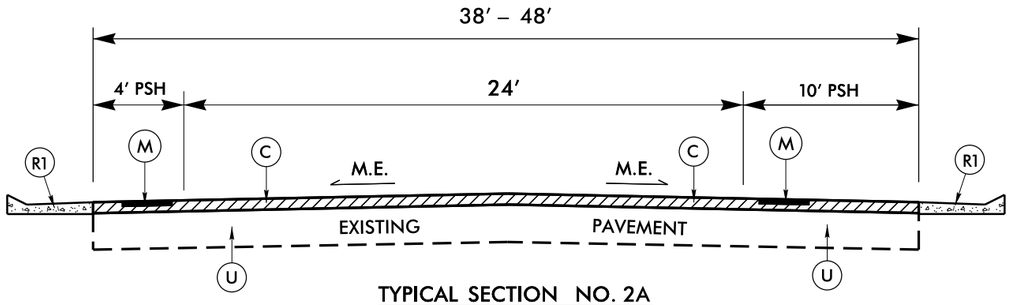
MAP NO. 1
I–140 EB (JOHN JAY BURNEY JR. FWY.)
MP 1.880 – MP 2.880

MAP NO. 2
I–140 WB (JOHN JAY BURNEY JR. FWY.)
MP 1.729 – MP 2.729

PAVEMENT SCHEDULE	
C	1½″ S9.5C
D	2½″ I19.0C
M	MILLED RUMBLE STRIP
R1	EXIST. SHOULDER BERM GUTTER
T	AGGREGATE SHOULDER BORROW (ASB)
U	EXISTING PAVEMENT
V1	MILLING ASPHALT PVMT 0″ - 1½″ DEPTH
V2	MILLING ASPHALT PVMT 2½″ DEPTH

NOTE: PAVEMENT EDGE SLOPES ARE 1:1, EXCEPT FINAL SURFACE COURSE. SEE SHOULDER WEDGE DETAIL.

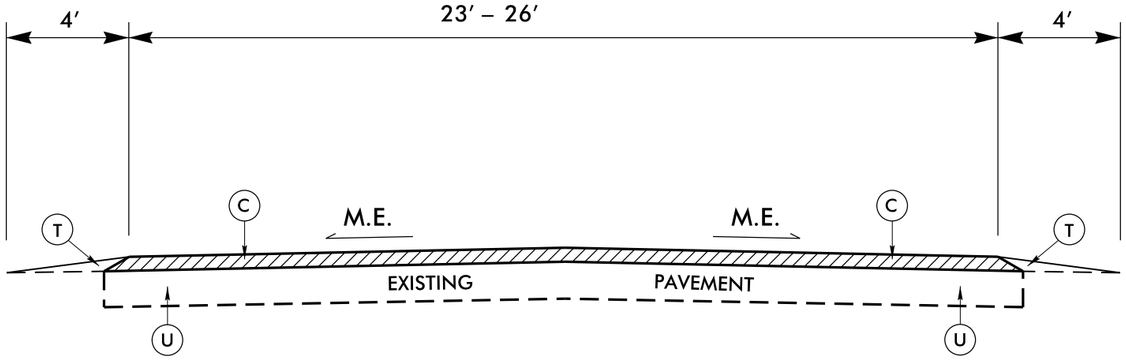
SEE STD. DRAWING 1205.01, SHEET 2 OF 2, TABLE 1 FOR EDGE LINE OFFSETS.



TYPICAL SECTION NO. 2A

SHOULDER BERM GUTTER LOCATIONS

MAP NO. 2 – I–140 WB (JOHN JAY BURNEY JR. FWY.)
MP 2.038 – MP 2.029 (LT.) MP 2.282 – MP 2.038 (RT.)



TYPICAL SECTION NO. 3

MAP NO. 3
I–140 EB ENTRANCE RAMP
MP 0.000 – MP 0.241

MAP NO. 5
I–140 WB EXIT RAMP
MP 0.000 – MP 0.025

MAP NO. 8
I–140 EB ENTRANCE RAMP
MP 0.000 – MP 0.203

MAP NO. 9
I–140 WB EXIT RAMP
MP 0.000 – MP 0.279

MAP NO. 12
I–140 EB EXIT RAMP
MP 0.000 – MP 0.455

MAP NO. 13
I–140 EB EXIT RAMP
MP 0.000 – MP 0.502
((NO ASPHALT WORK BRIDGE #101 MP 0.152 – MP 0.202)

MAP NO. 15
I–140 EB ENTRANCE RAMP
MP 0.000 – MP 0.455

MAP NO. 16
I–140 WB EXIT / ENTRANCE RAMP
MP 0.000 – MP 0.999
(NO ASPHALT WORK BRIDGE #98 MP 0.233 – MP 0.258 & BRIDGE #97 MP 0.360 – MP 0.412)

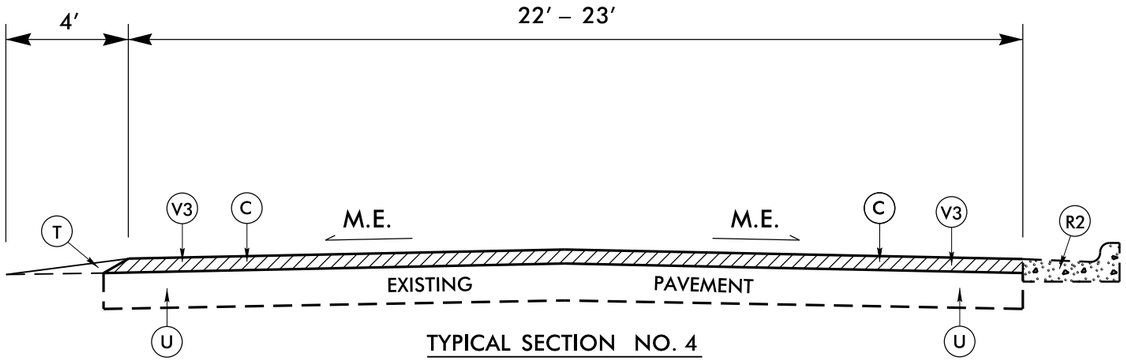
MAP NO. 17
I–140 WB EXIT RAMP
MP 0.000 – MP 0.369

MAP NO. 20
I–140 WB ENTRANCE RAMP
MP 0.000 – MP 0.390

REVISIONS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5760	5



TYPICAL SECTION NO. 4

MAP NO. 4
I–140 WB EXIT RAMP
MP 0.000 – MP 0.199

MAP NO. 6
I–140 EB EXIT RAMP
MP 0.000 – MP 0.099

MAP NO. 11
I–140 WB ENTRANCE RAMP
MP 0.000 – MP 0.133

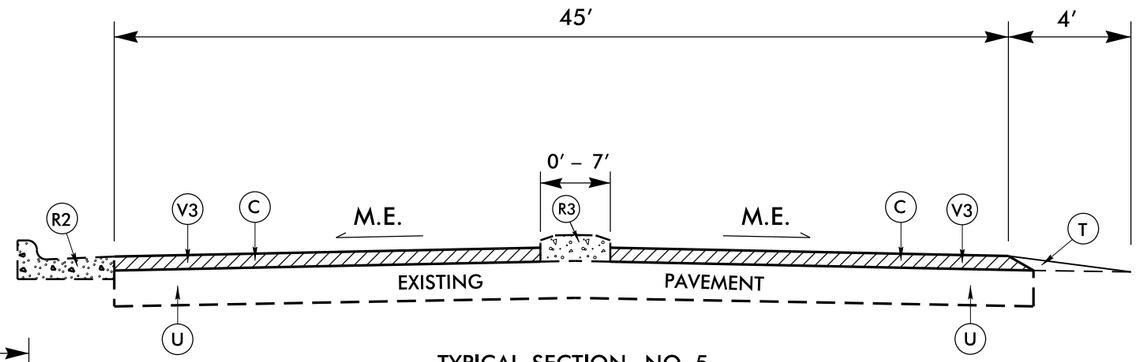
MAP NO. 14
I–140 EB ENTRANCE RAMP
MP 0.000 – MP 0.185

MAP NO. 18
I–140 WB ENTRANCE RAMP
MP 0.000 – MP 0.185

MAP NO. 19
I–140 WB EXIT RAMP
MP 0.000 – MP 0.180

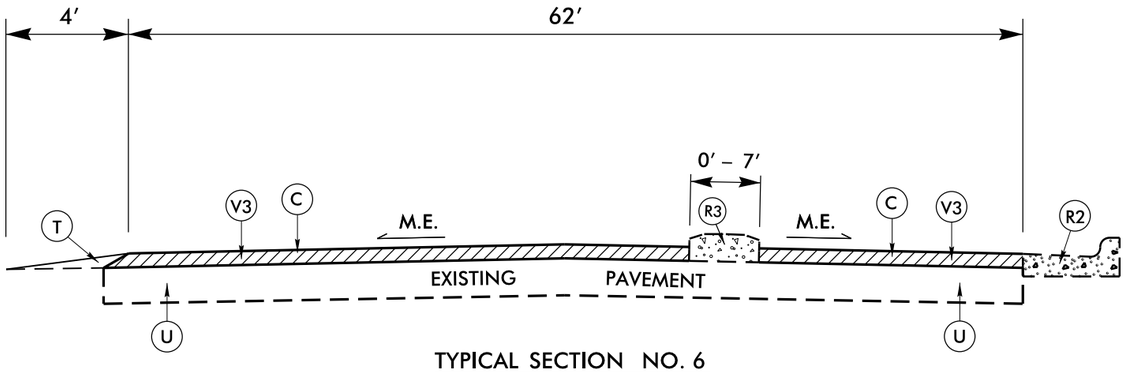
PAVEMENT SCHEDULE	
C	1½″ S9.5C
R2	EXIST. 2′-6″ C & G
R3	CONC. MONOLITHIC IS.
T	AGGREGATE SHOULDER BORROW (ASB)
U	EXISTING PAVEMENT
V3	FINE MILLING 1½″ DEPTH

SEE STD. DRAWING 1205.01, SHEET 2 OF 2, TABLE 1 FOR EDGE LINE OFFSETS.



TYPICAL SECTION NO. 5

MAP NO. 7
I–140 EB ENTRANCE /EXIT RAMP
MP 0.000 – MP 0.040



TYPICAL SECTION NO. 6

MAP NO. 10
I–140 WB ENTRANCE /EXIT RAMP
MP 0.000 – MP 0.066

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch – N.C. Department of Transportation – Raleigh, N.C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO. TITLE

DIVISION 6 – ASPHALT BASES AND PAVEMENTS
665.01 Asphalt Shoulders – Milled Rumble Strips

DIVISION 8 – INCIDENTALS
862.01 Guardrail Placement
862.02 Guardrail Installation

DIVISION 11 – WORK ZONE TRAFFIC CONTROL
1101.02 Temporary Lane Closures (Sheet 9 & 10 of 15)

REVISIONS 8/17/99

I-140 Resurfacing I-5760\RALEIGH REVISIONS\I-5760 I-140 Rdy typ REV 2.dgn
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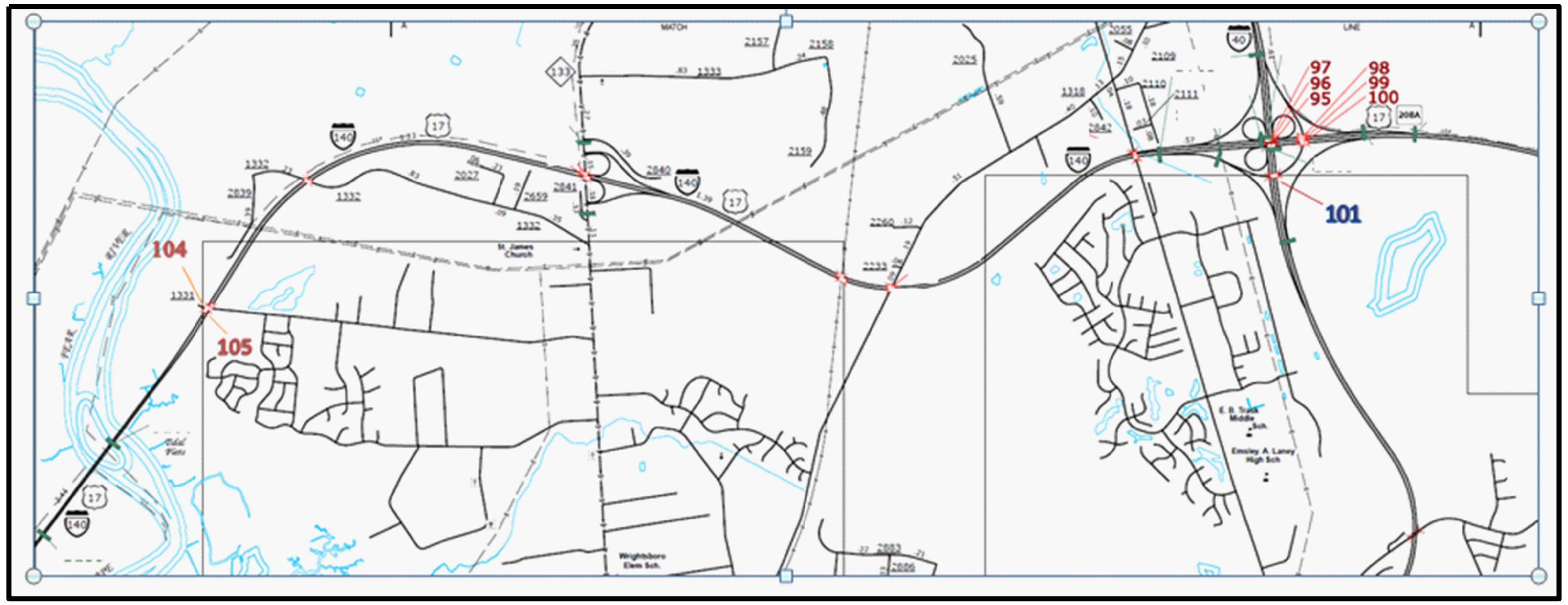
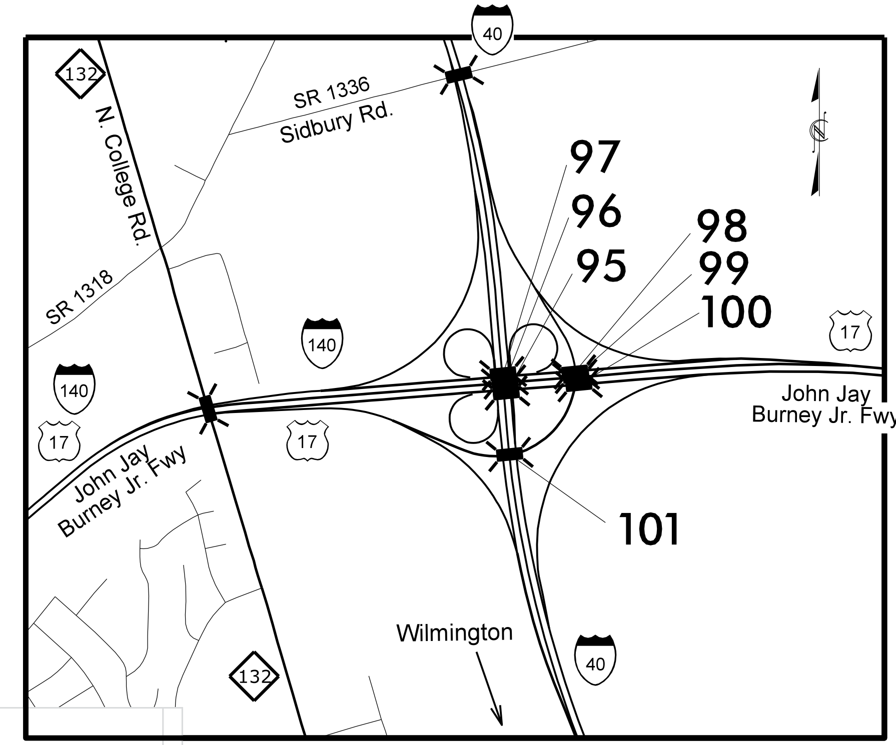
BRIDGE LOCATION MAPS, JOINT REPAIR & BRIDGE APPROACH TABLES





I-140 Bridge Joint Repair

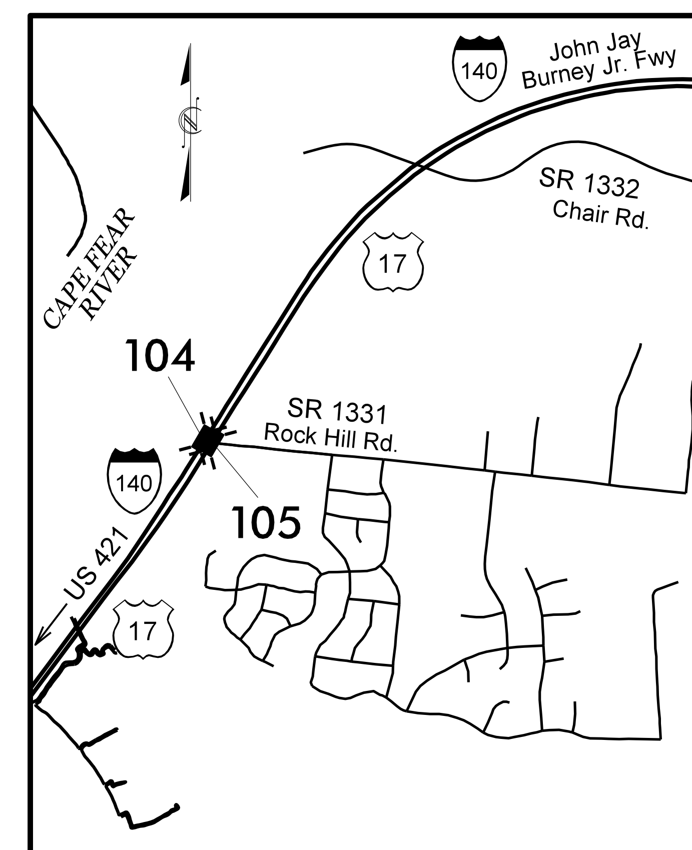
Map #	Bridge #	# Joints	Width		Foam Seal Jt. Replacement (LF)	Elastomeric Joint Repair (CF)
2	104	4	40		160	54
1	105	4	40		160	54
13	101	4	40		160	54
21	100	2	47		94	32
22	99	2	40		80	27
16	98	2	28		56	19
16	97	4	45		180	60
2	96	4	40		160	54
1	95	4	40		160	54
				Total:	**1210**	**408**

I-140 Bridge Approach and Slope Protection Investigation

Map #	Bridge #	# Approaches	# Slopes	Approach and Slope Location		Approach Investigation (EACH)	Slope Investigations (EACH)
1	98	2	2	Leading/Trailing		10	4
2	96	1	1	Leading		10	3
16	95	1	1	Leading		10	3
					Total:	**30**	**10**

I-140 Bridge Approach and Slope Protection Repair

Map #	Bridge #		Soil Stabilization Foam(GAL)	Foam Void Fill (Gal)	#57 Stone (TON)
1	98		600	4	1
2	96		600	3	1
16	95		600	3	1
		Total:	**1800**	**10**	**3**



REVISIONS

8/17/99

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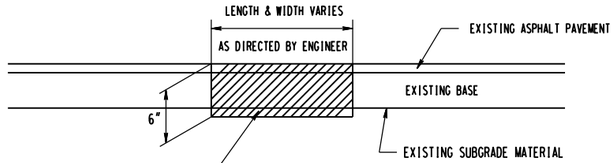
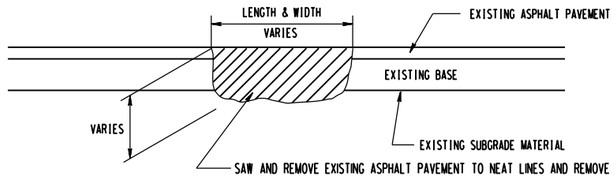
PROJECT REFERENCE NO.	SHEET NO.
I-5760	7

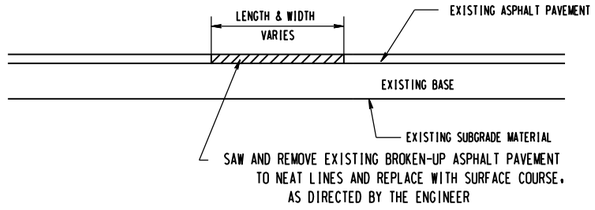
DETAILS OF REPAIRING EXISTING PAVEMENT PRIOR TO RESURFACING FOR FULL DEPTH AND MILLING



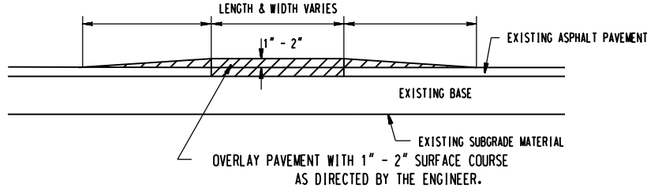
DETAIL NO. 1



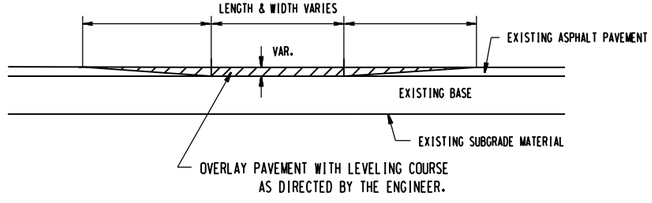
DETAIL NO. 2



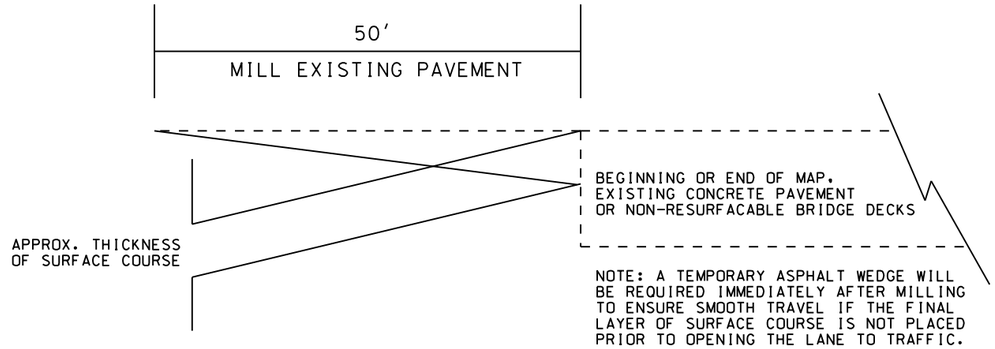
DETAIL NO. 3



DETAIL NO. 4

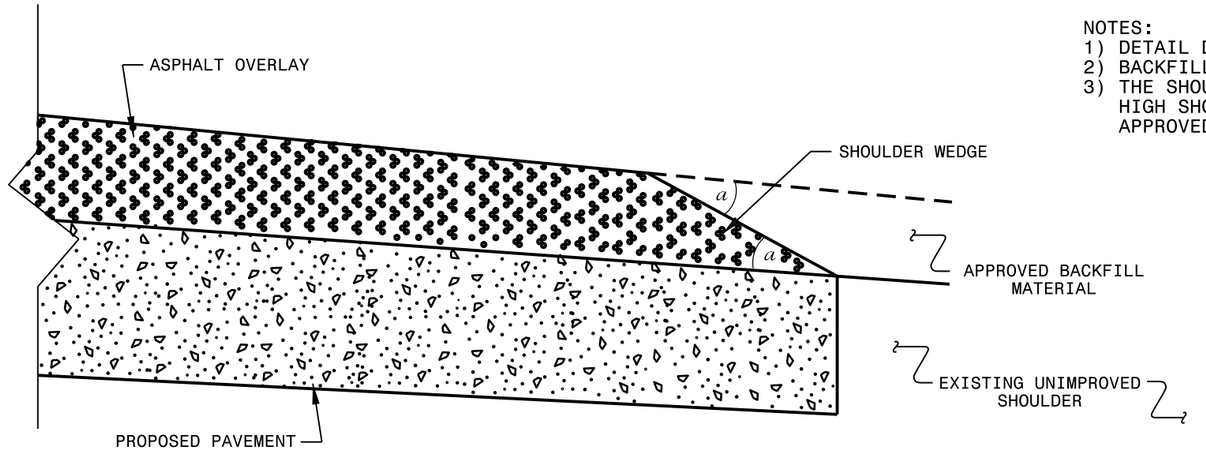


DETAIL NO. 5



DETAIL FOR INCIDENTAL MILLING:
MAY BE USED AT THE BEGINNING & END OF MAPS
AND AT APPROACH & TRAILING ENDS OF BRIDGES

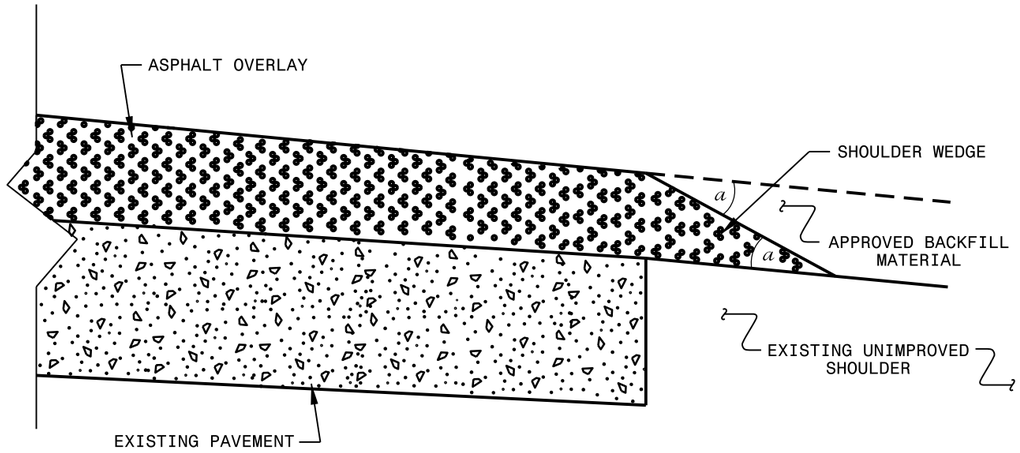
PROJECT REFERENCE NO.	SHEET NO.
I-5760	8



NOTES:
1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.

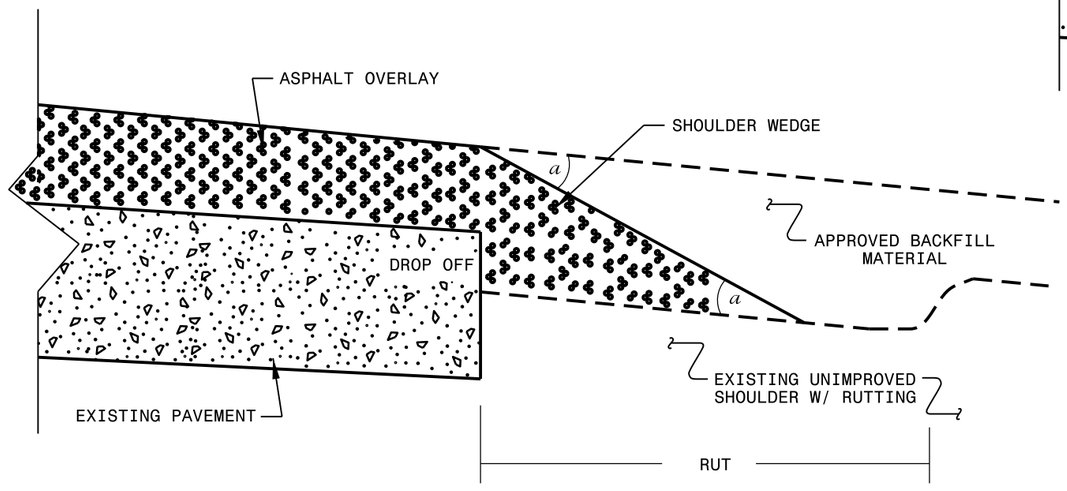
SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SHOULDER WEDGE DETAILS

ORIGINAL BY:	T.SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	2/2/16
CHECKED BY:		DATE:	
FILE SPEC.:	s:usr/details/stand/shoulderwedgedetail.dgn		

24-MAY-2016 06:47
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$$$$USERNAME$$$$

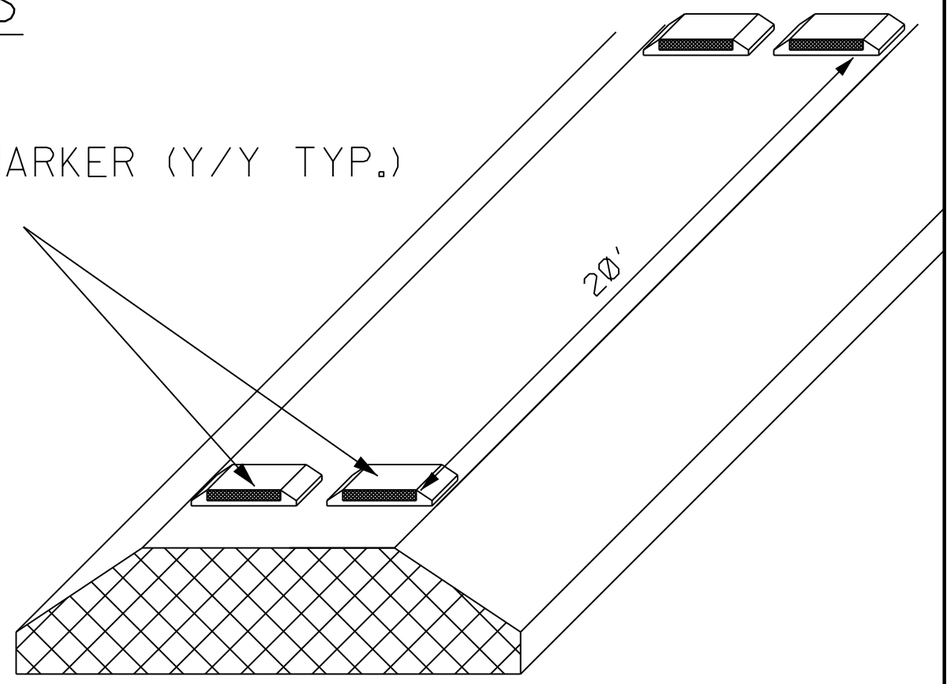
PROJECT REFERENCE NO.	SHEET NO.
I-5760	9

PAVEMENT MARKING DETAIL

PAVEMENT MARKER DETAIL
FOR CONCRETE ISLANDS

RAISED PAVEMENT MARKER (Y/Y TYP.)
(STD. DWG 1251.01)

*DIMENSIONS FOR ISLANDS LESS THAN 4'-0"



MONOLITHIC CONCRETE ISLAND

(SEE STANDARD DRAWINGS 852.01, 852.02, & 852.06 FOR DETAILS.)

REVISIONS 8/17/99

11-FEB-2015 11:45
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dkumpf

PROJECT NO.	SHEET NO.
I-5760	10

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	BRIDGE APPROACH SLAB INVESTIGATION EA	BRIDGE SLOPE PROTECTION INVESTIGATION BRG EA	DEBRIS REMOVAL EXISTING SHOULDER BERM GUTTER LF	FOAM SEAL JOINT REPLACEMENT LF	STRUCTURAL FOAM VOID FILL/STABILIZATION GAL	SOIL STABILIZATION FOAM GAL	AGGREGATE SHOULDER BORROW TON	#57 STONE TON	SHOULDER RECONST. SMI	2 1/2" MILLING SY	0" - 1.5" MILLING SY	INC. MILLING SY	INT. COURSE, I19.0C TONS	SURFACE COURSE, S9.5C TONS	LEVELING COURSE, S9.5C TONS	ASPHALT BINDER FOR PLANT MIX TON	MILLED RUMBLE STRIPS LF	PATCHING EXISTING PAVEMENT (FULL DEPTH) TON	PATCHING EXISTING PAVEMENT (MILL) TON
52038.1.1	NewHanover	1	I-140 EB (JOHN JAY BURNEY JR. FWY)	FROM US 421 TO I-40 (MP 0.000 - MP 6.791)	1, 1A, 2	2	2WD	NO	NO	6.791	38 - 67	10.00	3.00	4,220	320.00	3.00	600.00	392	1	13.60	14,080	3,175	4,450	2,111	10,219	100	711.00	71,713	200	200
TOTAL FOR MAP NO. 1										**6.791**		**10.00**	**3.00**	**4,220**	**320.00**	**3.00**	**600.00**	**392**	**1**	**13.60**	**14,080**	**3,175**	**4,450**	**2,111**	**10,219**	**100**	**711.00**	**71,713**	**200**	**200**
52038.1.1	New Hanover	2	I-140 WB (JOHN JAY BURNEY JR. FWY)	FROM I-40 TO US 421 (MP 0.000 - MP 6.812)	1, 1A, 2, 2A	2	2WD	NO	NO	6.812	38 - 67	10.00	3.00	4,520	320.00	3.00	600.00	393	1	13.60	14,080	3,515	4,450	2,111	10,254	100	713.00	71,935	200	200
TOTAL FOR MAP NO. 2										**6.812**		**10.00**	**3.00**	**4,520**	**320.00**	**3.00**	**600.00**	**393**	**1**	**13.60**	**14,080**	**3,515**	**4,450**	**2,111**	**10,254**	**100**	**713.00**	**71,935**	**200**	**200**
52038.1.1	NewHanover	3	I-140 EB ENTRANCE RAMP AT US 421	FROM US 421 TO I-140 (MP 0.000 - MP 0.241)	3	1	2WD	NO	NO	0.241	24							18		0.12			200		301		18.00		5	5
TOTAL FOR MAP NO. 3										**0.241**								**18**		**0.12**			**200**		**301**		**18.00**		**5**	**5**
52038.1.1	NewHanover	4	I-140 WB EXIT RAMP AT US 421	FROM I-140 WB TO US 421 (MP 0.000 - MP 0.199)	4	1	2WD	NO	NO	0.199	23							15		0.20			50		238		14.00		2	5
TOTAL FOR MAP NO. 4										**0.199**								**15**		**0.20**			**50**		**238**		**14.00**		**2**	**5**
52038.1.1	NewHanover	5	I-140 WB EXIT RAMP LEG AT US 421	FROM MAP 4 TO US 421 (MP 0.000 - MP 0.025)	3	1	2WD	NO	NO	0.025	24							2		0.08			50		31		2.00			5
TOTAL FOR MAP NO. 5										**0.025**								**2**		**0.08**			**50**		**31**		**2.00**			**5**
52038.1.1	New Hanover	6	I-140 EB EXIT RAMP	FROM 1-140 EB TO MAP 7 (MP 0.000 - MP 0.099)	4	1	2WD	NO	NO	0.099	22							8		0.09			20		113		7.00			5
TOTAL FOR MAP NO. 6										**0.099**								**8**		**0.09**			**20**		**113**		**7.00**			**5**
52038.1.1	New Hanover	7	I-140 EB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 6 / 8 TO US 133 (CASTLE HAYNE RD.) [MP 0.000 - MP 0.040]	5	2	2WD	NO	NO	0.04	45							5		0.04					93		6.00			5
TOTAL FOR MAP NO. 7										**0.04**								**5**		**0.04**					**93**		**6.00**			**5**
52038.1.1	New Hanover	8	I-140 EB ENTRANCE RAMP	FROM MAP 7 TO I-140 EB (MP 0.000 - MP 0.203)	3	1	2WD	NO	NO	0.203	24							15		0.41					253		15.00			5
TOTAL FOR MAP NO. 8										**0.203**								**15**		**0.41**					**253**		**15.00**			**5**
52038.1.1	New Hanover	9	I-140 WB EXIT RAMP	FROM 1-140 WB TO MAP 10 (MP 0.000 - MP 0.279)	3	1	2WD	NO	NO	0.279	24							21		0.56					348		21.00			5
TOTAL FOR MAP NO. 9										**0.279**								**21**		**0.56**					**348**		**21.00**			**5**
52038.1.1	New Hanover	10	I-140 WB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 9 / 11 TO NC 133 (CASTLE HAYNE RD.) [MP 0-000 - MP 0.066]	6	2	2WD	NO	NO	0.066	62							5		0.07			200		212		13.00			5
TOTAL FOR MAP NO. 10										**0.066**								**5**		**0.07**			**200**		**212**		**13.00**			**5**
52038.1.1	New Hanover	11	I-140 WB ENTRANCE RAMP	FROM MAP 10 TO I-140 WB (MP 0.000 - MP 0.133)	4	1	2WD	NO	NO	0.133	23							10		0.13					159		9.00			5
TOTAL FOR MAP NO. 11										**0.133**								**10**		**0.13**					**159**		**9.00**			**5**
52038.1.1	New Hanover	12	I-140 EB EXIT RAMP AT I-40 EB	FROM I-140 EB TO I-40 EB (MP 0.000 - MP 0.455)	3	1	2WD	NO	NO	0.455	25							34		0.91					592		35.00			5
TOTAL FOR MAP NO. 12										**0.455**								**34**		**0.91**					**592**		**35.00**			**5**
52038.1.1	New Hanover	13	I-140 EB EXIT RAMP AT I-40 WB	FROM MAP 12 AT GORE TO MAP 17 AT GORE (MP 0.000 - MP 0.502)	3	1	2WD	NO	NO	0.502	25				160.00			38		1.00			450		653		39.00			5
TOTAL FOR MAP NO. 13										**0.502**					**160.00**			**38**		**1.00**			**450**		**653**		**39.00**			**5**
52038.1.1	New Hanover	14	I-140 EB ENTRANCE RAMP AT I-40 EB	I-40 EB GORE TO I-140 EB GORE (MP 0.00O - MP 0.185)	4	1	2WD	NO	NO	0.185	23							14		0.19					221		13.00			5
TOTAL FOR MAP NO. 14										**0.185**								**14**		**0.19**					**221**		**13.00**			**5**
52038.1.1	New Hanover	15	I-140 EB ENTRANCE RAMP AT I-40 WB	FROM I-40 WB TO I-140 EB (MP 0.000 - MP 0.455)	3	1	2WD	NO	NO	0.455	26							34		0.91					615		36.00			5
TOTAL FOR MAP NO. 15										**0.455**								**34**		**0.91**					**615**		**36.00**			**5**
52038.1.1	New Hanover	16	I-140 EXIT/ENTRANCE LANE AT US 17 SB	FROM US 17 SB TO I-140 WB (MP 0.000 - MP 0.999)	3	1	2WD	NO	NO	0.999	25	10.00	4.00		236.00	4.00	600.00	76	1	1.70			425		1,401		83.00			5
TOTAL FOR MAP NO. 16										**0.999**		**10.00**	**4.00**		**236.00**	**4.00**	**600.00**	**76**	**1**	**1.70**			**425**		**1,401**		**83.00**			**5**
52038.1.1	New Hanover	17	I-140 WB EXIT RAMP TO I-40 WB	FROM MAP 16 AT GORE TO I-40 WB (MP 0.000 - MP 0.369)	3	1	2WD	NO	NO	0.369	23							28		0.74					532		31.00			5
TOTAL FOR MAP NO. 17										**0.369**								**28**		**0.74**					**532**		**31.00**			**5**
52038.1.1	New Hanover	18	I-140 WB ENTRANCE RAMP OFF I-40 WB	FROM GORE AT I-40 WB TO GORE AT I-140 WB (MP 0.000 - MP 0.185)	4	1	2WD	NO	NO	0.185	23							14		0.19					221		13.00			5
TOTAL FOR MAP NO. 18										**0.185**								**14**		**0.19**					**221**		**13.00**			**5**
52038.1.1	New Hanover	19	I-140 WB EXIT RAMP AT I-40 EB	FROM GORE AT I-140 WB TO GORE AT I-40 EB (MP 0.000 - MP 0.180)	4	1	2WD	NO	NO	0.18	23							14		0.18					215		13.00			5
TOTAL FOR MAP NO. 19										**0.18**								**14**		**0.18**					**215**		**13.00**			**5**
52038.1.1	New Hanover	20	I-140 WB ENTRANCE RAMP	FROM GORE AT I-40 EB TO GORE AT MAP 16 (MP 0.000 - MP 0.390)	3	1	2WD	NO	NO	0.39	24							29		0.78					487		29.00			5
TOTAL FOR MAP NO. 20										**0.39**								**29**		**0.78**					**487**		**29.00**			**5**
52038.1.1	New Hanover	21	US 17 NB (JOHN JAY BURNEY JR. FWY)	FROM I-40/1-140 INTERSECTION TO 0.64 MI. NORTH (MP 10.604- MP 11.244)	1	2	2WD	NO	NO	0.64	38 - 67				94.00			48		1.28			250		1,263	25	76.00	6,758	5	5
TOTAL FOR MAP NO. 21										**0.64**					**94.00**			**48**		**1.28**			**250**		**1,263**	**25**	**76.00**	**6,758**	**5**	**5**
52038.1.1	New Hanover	22	US 17 SB (JOHN JAY BURNEY JR. FWY)	FROM O.64 MI. SOUTH OF I-40/I-140 TO I-40/ I-140 INTERSECTION (MP 6.465 - MP 7.105)	1	2	2WD	NO	NO	0.64	38 - 67				80.00			48		1.28			250		1,263	50	78.00	6,758	5	5
TOTAL FOR MAP NO. 22										**0.64**					**80.00**			**48**		**1.28**			**250**		**1,263**	**50**	**78.00**	**6,758**	**5**	**5**
TOTAL FOR PROJ NO. 52038.1.1										**19.888**		**30.00**	**10.00**	**8,740**	**1,210.00**	**10.00**	**1,800.00**	**1,261**	**3**	**38.04**	**28,160**	**6,690**	**10,795**	**4,222**	**29,684**	**275**	**1,975.00**	**157,164**	**417**	**500**
GRAND TOTAL										**19.888**		**30.00**	**10.00**	**8,740**	**1,210.00**	**10.00**	**1,800.00**	**1,261**	**3**	**38.04**	**28,160**	**6,690**	**10,795**	**4,222**	**29,684**	**275**	**1,975.00**	**157,164**	**417**	**500**

PROJECT NO.	SHEET NO.
I-5760	11

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	FINE MILLING 1 1/2" SY	REM & RPL SHOULDER BERM GUT LF	GR ANCHOR UNITS,TYPE CAT-1 EA	REMOVE & REPLACE EXISTING GR LF	TEMP. SILT FENCE LF	STONE FOR EC CLASS B TON	SEDIMENT CONTROL STONE TON	TEMP. MULCHING ACR	SEED FOR TEMP. SEEDING LBS	FERTILIZER FOR TEMP. SEEDING TON	MATTING FOR EROSION CONTROL SY	1/4" HARDWARE CLOTH LF	WATTLE LF	SEED & MULCHING AC	SEED FOR REPAIR SEEDING LB	FERTILIZER FOR REPAIR SEEDING TON	RESPONSE FOR EROSION CONTROL EA	JUNCTION BOX (STANDARD SIZE) EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN Cable (14-2) LF	JOINT REPAIR USING ELASTOMERIC CONCRETE CF
52038.1.1	NewHanover	1	I-140 EB (JOHN JAY BURNEY JR. FWY)	FROM US 421 TO I-40 (MP 0.000 - MP 6.791)	1, 1A, 2	2	2WD	NO	NO	6.791	38 - 67		25			681	170	170	6.60	341	1.70	50	341	110	6.60	341	1.70	10					108.00
TOTAL FOR MAP NO. 1										**6.791**			**25**			**681**	**170**	**170**	**6.60**	**341**	**1.70**	**50**	**341**	**110**	**6.60**	**341**	**1.70**	**10**					**108.00**
52038.1.1	New Hanover	2	I-140 WB (JOHN JAY BURNEY JR. FWY)	FROM I-40 TO US 421 (MP 0.000 - MP 6.812)	1, 1A, 2, 2A	2	2WD	NO	NO	6.812	38 - 67		25	1.00	100.00	681	170	170	6.60	341	1.70	50	110		6.60	341	1.70	10					108.00
TOTAL FOR MAP NO. 2										**6.812**			**25**	**1.00**	**100.00**	**681**	**170**	**170**	**6.60**	**341**	**1.70**	**50**	**110**		**6.60**	**341**	**1.70**	**10**					**108.00**
52038.1.1	NewHanover	3	I-140 EB ENTRANCE RAMP AT US 421	FROM US 421 TO I-140 (MP 0.000 - MP 0.241)	3	1	2WD	NO	NO	0.241	24					24	6	6	0.24	12	0.06	10	12	10	0.17	12	0.06					
TOTAL FOR MAP NO. 3										**0.241**						**24**	**6**	**6**	**0.24**	**12**	**0.06**	**10**	**12**	**10**	**0.17**	**12**	**0.06**					
52038.1.1	NewHanover	4	I-140 WB EXIT RAMP AT US 421	FROM I-140 WB TO US 421 (MP 0.000 - MP 0.199)	4	1	2WD	NO	NO	0.199	23	2,685				20	5	5	0.10	10	0.06	10	10	10	0.15	10	0.05					
TOTAL FOR MAP NO. 4										**0.199**		**2,685**				**20**	**5**	**5**	**0.10**	**10**	**0.06**	**10**	**10**	**10**	**0.15**	**10**	**0.05**					
52038.1.1	NewHanover	5	I-140 WB EXIT RAMP LEG AT US 421	FROM MAP 4 TO US 421 (MP 0.000 - MP 0.025)	3	1	2WD	NO	NO	0.025	24					3	1	1	0.03	2	0.01	10	2	10	0.02	2	0.01					
TOTAL FOR MAP NO. 5										**0.025**						**3**	**1**	**1**	**0.03**	**2**	**0.01**	**10**	**2**	**10**	**0.02**	**2**	**0.01**					
52038.1.1	New Hanover	6	I-140 EB EXIT RAMP	FROM 1-140 EB TO MAP 7 (MP 0.000 - MP 0.099)	4	1	2WD	NO	NO	0.099	22	1,278				10	2	2	0.10	5	0.02	10	5	10	0.05	5	0.03					
TOTAL FOR MAP NO. 6										**0.099**		**1,278**				**10**	**2**	**2**	**0.10**	**5**	**0.02**	**10**	**5**	**10**	**0.05**	**5**	**0.03**					
52038.1.1	New Hanover	7	I-140 EB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 6 / 8 TO US 133 (CASTLE HAYNE RD.) [MP 0.000 - MP 0.040]	5	2	2WD	NO	NO	0.04	45	1,056				4	1	1	0.02	2	0.01	10	2	10	0.03	2	0.01			800	200	
TOTAL FOR MAP NO. 7										**0.04**		**1,056**				**4**	**1**	**1**	**0.02**	**2**	**0.01**	**10**	**2**	**10**	**0.03**	**2**	**0.01**			**800**	**200**	
52038.1.1	New Hanover	8	I-140 EB ENTRANCE RAMP	FROM MAP 7 TO I-140 EB (MP 0.000 - MP 0.203)	3	1	2WD	NO	NO	0.203	24					20	5	5	0.20	10	0.05	10	10	10	0.15	10	0.05					
TOTAL FOR MAP NO. 8										**0.203**						**20**	**5**	**5**	**0.20**	**10**	**0.05**	**10**	**10**	**10**	**0.15**	**10**	**0.05**					
52038.1.1	New Hanover	9	I-140 WB EXIT RAMP	FROM 1-140 WB TO MAP 10 (MP 0.000 - MP 0.279)	3	1	2WD	NO	NO	0.279	24					28	7	7	0.28	14	0.07	10	14	10	0.20	14	0.07					
TOTAL FOR MAP NO. 9										**0.279**						**28**	**7**	**7**	**0.28**	**14**	**0.07**	**10**	**14**	**10**	**0.20**	**14**	**0.07**					
52038.1.1	New Hanover	10	I-140 WB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 9 / 11 TO NC 133 (CASTLE HAYNE RD.) [MP 0-000 - MP 0.066]	6	2	2WD	NO	NO	0.066	62	2,401				7	2	2	0.03	3	0.02	10	3	10	0.05	3	0.02		1	800	200	
TOTAL FOR MAP NO. 10										**0.066**		**2,401**				**7**	**2**	**2**	**0.03**	**3**	**0.02**	**10**	**3**	**10**	**0.05**	**3**	**0.02**		**1**	**800**	**200**	
52038.1.1	New Hanover	11	I-140 WB ENTRANCE RAMP	FROM MAP 10 TO I-140 WB (MP 0.000 - MP 0.133)	4	1	2WD	NO	NO	0.133	23	1,795				13	3	3	0.06	7	0.03	10	7	10	0.09	7	0.03					
TOTAL FOR MAP NO. 11										**0.133**		**1,795**				**13**	**3**	**3**	**0.06**	**7**	**0.03**	**10**	**7**	**10**	**0.09**	**7**	**0.03**					
52038.1.1	New Hanover	12	I-140 EB EXIT RAMP AT I-40 EB	FROM I-140 EB TO I-40 EB (MP 0.000 - MP 0.455)	3	1	2WD	NO	NO	0.455	25					45	11	11	0.45	23	0.11	10	23	10	0.33	23	0.11					
TOTAL FOR MAP NO. 12										**0.455**						**45**	**11**	**11**	**0.45**	**23**	**0.11**	**10**	**23**	**10**	**0.33**	**23**	**0.11**					
52038.1.1	New Hanover	13	I-140 EB EXIT RAMP AT I-40 WB	FROM MAP 12 AT GORE TO MAP 17 AT GORE (MP 0.000 - MP 0.502)	3	1	2WD	NO	NO	0.502	25					50	13	13	0.50	25	0.13	10	25	10	0.36	25	0.13					54.00
TOTAL FOR MAP NO. 13										**0.502**						**50**	**13**	**13**	**0.50**	**25**	**0.13**	**10**	**25**	**10**	**0.36**	**25**	**0.13**					**54.00**
52038.1.1	New Hanover	14	I-140 EB ENTRANCE RAMP AT I-40 EB	I-40 EB GORE TO I-140 EB GORE (MP 0.000 - MP 0.185)	4	1	2WD	NO	NO	0.185	23	2,496				19	5	5	0.09	10	0.05	10	9	10	0.09	10	0.05					
TOTAL FOR MAP NO. 14										**0.185**		**2,496**				**19**	**5**	**5**	**0.09**	**10**	**0.05**	**10**	**9**	**10**	**0.09**	**10**	**0.05**					
52038.1.1	New Hanover	15	I-140 EB ENTRANCE RAMP AT I-40 WB	FROM I-40 WB TO I-140 EB (MP 0.000 - MP 0.455)	3	1	2WD	NO	NO	0.455	26					45	11	11	0.45	23	0.11	10	23	10	0.33	23	0.11					
TOTAL FOR MAP NO. 15										**0.455**						**45**	**11**	**11**	**0.45**	**23**	**0.11**	**10**	**23**	**10**	**0.33**	**23**	**0.11**					
52038.1.1	New Hanover	16	I-140 EXIT/ENTRANCE LANE AT US 17 SB	FROM US 17 SB TO I-140 WB (MP 0.000 - MP 0.999)	3	1	2WD	NO	NO	0.999	25					100	25	25	1.00	50	0.25	10	50	20	0.73	50	0.25					79.00
TOTAL FOR MAP NO. 16										**0.999**						**100**	**25**	**25**	**1.00**	**50**	**0.25**	**10**	**50**	**20**	**0.73**	**50**	**0.25**					**79.00**
52038.1.1	New Hanover	17	I-140 WB EXIT RAMP TO I-40 WB	FROM MAP 16 AT GORE TO I-40 WB (MP 0.000 - MP 0.369)	3	1	2WD	NO	NO	0.369	23					37	9	9	0.37	19	0.09	10	19	10	0.27	19	0.09					
TOTAL FOR MAP NO. 17										**0.369**						**37**	**9**	**9**	**0.37**	**19**	**0.09**	**10**	**19**	**10**	**0.27**	**19**	**0.09**					
52038.1.1	New Hanover	18	I-140 WB ENTRANCE RAMP OFF I-40 WB	FROM GORE AT I-40 WB TO GORE AT I-140 WB (MP 0.000 - MP 0.185)	4	1	2WD	NO	NO	0.185	23	2,496				19	5	5	0.09	10	0.05	10	10	10	0.09	10	0.05					
TOTAL FOR MAP NO. 18										**0.185**		**2,496**				**19**	**5**	**5**	**0.09**	**10**	**0.05**	**10**	**10**	**10**	**0.09**	**10**	**0.05**					
52038.1.1	New Hanover	19	I-140 WB EXIT RAMP AT I-40 EB	FROM GORE AT I-140 WB TO GORE AT I-40 EB (MP 0.000 - MP 0.180)	4	1	2WD	NO	NO	0.18	23	2,429				18	5	5	0.09	9	0.05	10	9	10	0.09	9	0.05					
TOTAL FOR MAP NO. 19										**0.18**		**2,429**				**18**	**5**	**5**	**0.09**	**9**	**0.05**	**10**	**9**	**10**	**0.09**	**9**	**0.05**					
52038.1.1	New Hanover	20	I-140 WB ENTRANCE RAMP	FROM GORE AT I-40 EB TO GORE AT MAP 16 (MP 0.000 - MP 0.390)	3	1	2WD	NO	NO	0.39	24					39	10	10	0.39	20	0.10	10	20	10	0.28	20	0.10					
TOTAL FOR MAP NO. 20										**0.39**						**39**	**10**	**10**	**0.39**	**20**	**0.10**	**10**	**20**	**10**	**0.28**	**20**	**0.10**					
52038.1.1	New Hanover	21	US 17 NB (JOHN JAY BURNEY JR. FWY)	FROM I-40/1-140 INTERSECTION TO 0.64 MI. NORTH (MP 10.604- MP 11.244)	1	2	2WD	NO	NO	0.64	38 - 67					64	16	16	0.62	32	0.16	10	32	10	0.62	32	0.16					32.00
TOTAL FOR MAP NO. 21										**0.64**						**64**	**16**	**16**	**0.62**	**32**	**0.16**	**10**	**32**	**10**	**0.62**	**32**	**0.16**					**32.00**
52038.1.1	New Hanover	22	US 17 SB (JOHN JAY BURNEY JR. FWY)	FROM O.64 MI. SOUTH OF I-40/I-140 TO I-40/ I-140 INTERSECTION (MP 6.465 - MP 7.105)	1	2	2WD	NO	NO	0.64	38 - 67					64	16	16	0.62	32	0.16	10	32	10	0.62	32	0.16					27.00
TOTAL FOR MAP NO. 22										**0.64**						**64**	**16**	**16**	**0.62**	**32**	**0.16**	**10**	**32**	**10**	**0.62**	**32**	**0.16**					**27.00**
TOTAL FOR PROJ NO. 52038.1.1										**19.888**		**16,636**	**50**	**1.00**	**100.00**	**1,991**	**498**	**498**	**18.93**	**1,000**	**4.98**	**300**	**768**	**320**	**17.92**	**1,000**	**4.97**	**20**	**1**	**1,600**	**400**	**408.00**
GRAND TOTAL										**19.888**		**16,636**	**50**	**1.00**	**100.00**	**1,991**	**498**	**498**	**18.93**	**1,000**	**4.98**	**300**	**768**	**320**	**17.92**	**1,000**	**4.97**	**20**	**1**	**1,600**	**400**	**408.00**

PROJECT NO.	SHEET NO.
I-5760	12

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4400000000-E WORK ZONE SIGNS (STATIONARY) SF	4405000000-E WORK ZONE SIGNS (PORTABLE) SF	4410000000-E WORK ZONE SIGNS (BARRICADE MOUNTED) SF	4415000000-N FLASHING ARROW BOARD EA	4420000000-N PORTABLE CHANGABLE MSG SIGN EA	4422000000-N PORTABLE CHANGABLE MSG SIGN (SHORT TERM) DAY	4430000000-N DRUMS EA	4445000000-E BARRICADES (TYPE III) LF	4480000000-N TMA EA	4510000000-N LAW ENFORCEMENT HR	4600000000-N GENERIC TRAFFIC CONTROL ITEM DIGITAL SPEED LIMIT SIGN EA	4650000000-N TEMPORARY RAISED PAVEMENT MARKERS EA	4688000000-E 6" X90 M YELLOW THERMO LF	4688000000-E 6" X 90 M WHITE THERMO LF
52038.1.1	NewHanover	1	I-140 EB (JOHN JAY BURNEY JR. FWY)	FROM US 421 TO I-40 (MP 0.000 - MP 6.791)	1, 1A, 2	2	2WD	6.791	38 - 67	406	485	32	2	3	30	200	36	1	100	3	1,358	35,582	35,533
TOTAL FOR MAP NO. 1								**6.791**		**406**	**485**	**32**	**2**	**3**	**30**	**200**	**36**	**1**	**100**	**3**	**1,358**	**35,582**	**35,533**
52038.1.1	New Hanover	2	I-140 WB (JOHN JAY BURNEY JR. FWY)	FROM I-40 TO US 421 (MP 0.000 - MP 6.812)	1, 1A, 2, 2A	2	2WD	6.812	38 - 67										100			35,582	35,533
TOTAL FOR MAP NO. 2								**6.812**											**100**			**35,582**	**35,533**
52038.1.1	NewHanover	3	I-140 EB ENTRANCE RAMP AT US 421	FROM US 421 TO I-140 (MP 0.000 - MP 0.241)	3	1	2WD	0.241	24													1,300	1,300
TOTAL FOR MAP NO. 3								**0.241**														**1,300**	**1,300**
52038.1.1	NewHanover	4	I-140 WB EXIT RAMP AT US 421	FROM I-140 WB TO US 421 (MP 0.000 - MP 0.199)	4	1	2WD	0.199	23													1,100	
TOTAL FOR MAP NO. 4								**0.199**														**1,100**	
52038.1.1	NewHanover	5	I-140 WB EXIT RAMP LEG AT US 421	FROM MAP 4 TO US 421 (MP 0.000 - MP 0.025)	3	1	2WD	0.025	24													300	220
TOTAL FOR MAP NO. 5								**0.025**														**300**	**220**
52038.1.1	New Hanover	6	I-140 EB EXIT RAMP	FROM 1-140 EB TO MAP 7 (MP 0.000 - MP 0.099)	4	1	2WD	0.099	22													900	
TOTAL FOR MAP NO. 6								**0.099**														**900**	
52038.1.1	New Hanover	7	I-140 EB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 6 / 8 TO US 133 (CASTLE HAYNE RD.) [MP 0.000 - MP 0.040]	5	2	2WD	0.04	45													300	200
TOTAL FOR MAP NO. 7								**0.04**														**300**	**200**
52038.1.1	New Hanover	8	I-140 EB ENTRANCE RAMP	FROM MAP 7 TO I-140 EB (MP 0.000 - MP 0.203)	3	1	2WD	0.203	24													1,100	1,100
TOTAL FOR MAP NO. 8								**0.203**														**1,100**	**1,100**
52038.1.1	New Hanover	9	I-140 WB EXIT RAMP	FROM 1-140 WB TO MAP 10 (MP 0.000 - MP 0.279)	3	1	2WD	0.279	24													1,475	1,475
TOTAL FOR MAP NO. 9								**0.279**														**1,475**	**1,475**
52038.1.1	New Hanover	10	I-140 WB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 9 / 11 TO NC 133 (CASTLE HAYNE RD.) [MP 0-000 - MP 0.066]	6	2	2WD	0.066	62													300	450
TOTAL FOR MAP NO. 10								**0.066**														**300**	**450**
52038.1.1	New Hanover	11	I-140 WB ENTRANCE RAMP	FROM MAP 10 TO I-140 WB (MP 0.000 - MP 0.133)	4	1	2WD	0.133	23													650	
TOTAL FOR MAP NO. 11								**0.133**														**650**	
52038.1.1	New Hanover	12	I-140 EB EXIT RAMP AT I-40 EB	FROM I-140 EB TO I-40 EB (MP 0.000 - MP 0.455)	3	1	2WD	0.455	25													2,150	2,400
TOTAL FOR MAP NO. 12								**0.455**														**2,150**	**2,400**
52038.1.1	New Hanover	13	I-140 EB EXIT RAMP AT I-40 WB	FROM MAP 12 AT GORE TO MAP 17 AT GORE (MP 0.000 - MP 0.502)	3	1	2WD	0.502	25													1,175	1,175
TOTAL FOR MAP NO. 13								**0.502**														**1,175**	**1,175**
52038.1.1	New Hanover	14	I-140 EB ENTRANCE RAMP AT I-40 EB	I-40 EB GORE TO I-140 EB GORE (MP 0.000 - MP 0.185)	4	1	2WD	0.185	23													1,050	25
TOTAL FOR MAP NO. 14								**0.185**														**1,050**	**25**
52038.1.1	New Hanover	15	I-140 EB ENTRANCE RAMP AT I-40 WB	FROM I-40 WB TO I-140 EB (MP 0.000 - MP 0.455)	3	1	2WD	0.455	26													2,300	2,300
TOTAL FOR MAP NO. 15								**0.455**														**2,300**	**2,300**
52038.1.1	New Hanover	16	I-140 EXIT/ENTRANCE LANE AT US 17 SB	FROM US 17 SB TO I-140 WB (MP 0.000 - MP 0.999)	3	1	2WD	0.999	25													5,300	5,000
TOTAL FOR MAP NO. 16								**0.999**														**5,300**	**5,000**
52038.1.1	New Hanover	17	I-140 WB EXIT RAMP TO I-40 WB	FROM MAP 16 AT GORE TO I-40 WB (MP 0.000 - MP 0.369)	3	1	2WD	0.369	23													1,100	1,100
TOTAL FOR MAP NO. 17								**0.369**														**1,100**	**1,100**
52038.1.1	New Hanover	18	I-140 WB ENTRANCE RAMP OFF I-40 WB	FROM GORE AT I-40 WB TO GORE AT I-140 WB (MP 0.000 - MP 0.185)	4	1	2WD	0.185	23													1,050	25
TOTAL FOR MAP NO. 18								**0.185**														**1,050**	**25**
52038.1.1	New Hanover	19	I-140 WB EXIT RAMP AT I-40 EB	FROM GORE AT I-140 WB TO GORE AT I-40 EB (MP 0.000 - MP 0.180)	4	1	2WD	0.18	23													1,050	25
TOTAL FOR MAP NO. 19								**0.18**														**1,050**	**25**
52038.1.1	New Hanover	20	I-140 WB ENTRANCE RAMP	FROM GORE AT I-40 EB TO GORE AT MAP 16 (MP 0.000 - MP 0.390)	3	1	2WD	0.39	24													2,060	2,060
TOTAL FOR MAP NO. 20								**0.39**														**2,060**	**2,060**
52038.1.1	New Hanover	21	US 17 NB (JOHN JAY BURNEY JR. FWY)	FROM I-40/1-140 INTERSECTION TO 0.64 MI. NORTH (MP 10.604- MP 11.244)	1	2	2WD	0.64	38 - 67													3,379	3,379
TOTAL FOR MAP NO. 21								**0.64**														**3,379**	**3,379**
52038.1.1	New Hanover	22	US 17 SB (JOHN JAY BURNEY JR. FWY)	FROM O.64 MI. SOUTH OF I-40/I-140 TO I-40/ I-140 INTERSECTION (MP 6.465 - MP 7.105)	1	2	2WD	0.64	38 - 67													3,379	3,379
TOTAL FOR MAP NO. 22								**0.64**														**3,379**	**3,379**
TOTAL FOR PROJ NO. 52038.1.1								**19.888**		**406**	**485**	**32**	**2**	**3**	**30**	**200**	**36**	**1**	**200**	**3**	**1,358**	**102,582**	**96,679**
																							199,261
GRAND TOTAL								**19.888**		**406**	**485**	**32**	**2**	**3**	**30**	**200**	**36**	**1**	**200**	**3**	**1,358**	**102,582**	**96,679**
																							199,261

PROJECT NO.	SHEET NO.
I-5760	13

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4690000000-E 6" X 120 M WHITE THERMO LF	4700000000-E 12" X 90 M WHITE THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4725000000-E MERGE ARROW 90 M EA	4725000000-E RAMP ARROW 90 M EA	4725000000-E THERMO LT ARROW 90 M EA	4725000000-E THERMO STR ARROW 90 M EA	4725000000-E THERMO RT ARROW 90 M EA	4770000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE IV (4") LF	4780000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE IV (8") LF	4805000000-N COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE IV EA	4805000000-N COLD APPLIED PLASTIC MERGE ARROW, TYPE II EA	4810000000-E 4" WHITE PAINT LF	4810000000-E 4" YELLOW PAINT LF	4820000000-E 8" WHITE PAINT LF	4835000000-E 24" WHITE PAINT LF	4845000000-N MERGE ARROW EA	4845000000-N PAINT RAMP ARROW EA	4845000000-N PAINT STR ARROW EA	4845000000-N PAINT LT ARROW EA	4845000000-N PAINT RT ARROW EA
52038.1.1	NewHanover	1	I-140 EB (JOHN JAY BURNEY JR. FWY)	FROM US 421 TO I-40 (MP 0.000 - MP 6.791)	1, 1A, 2	2	2WD	6.791	38 - 67	9,480	4,450		9					10,655	500	3	3	45,013	35,582	4,450		9				
TOTAL FOR MAP NO. 1								**6.791**		**9,480**	**4,450**		**9**					**10,655**	**500**	**3**	**3**	**45,013**	**35,582**	**4,450**		**9**				
52038.1.1	New Hanover	2	I-140 WB (JOHN JAY BURNEY JR. FWY)	FROM I-40 TO US 421 (MP 0.000 - MP 6.812)	1, 1A, 2, 2A	2	2WD	6.812	38 - 67	9,480	4,450		6					11,275		5	5	45,013	35,582	4,450		6				
TOTAL FOR MAP NO. 2								**6.812**		**9,480**	**4,450**		**6**					**11,275**		**5**	**5**	**45,013**	**35,582**	**4,450**		**6**				
52038.1.1	NewHanover	3	I-140 EB ENTRANCE RAMP AT US 421	FROM US 421 TO I-140 (MP 0.000 - MP 0.241)	3	1	2WD	0.241	24													1,300	1,300							
TOTAL FOR MAP NO. 3								**0.241**														**1,300**	**1,300**							
52038.1.1	NewHanover	4	I-140 WB EXIT RAMP AT US 421	FROM I-140 WB TO US 421 (MP 0.000 - MP 0.199)	4	1	2WD	0.199	23	40	150											40	1,100	150						
TOTAL FOR MAP NO. 4								**0.199**		**40**	**150**											**40**	**1,100**	**150**						
52038.1.1	NewHanover	5	I-140 WB EXIT RAMP LEG AT US 421	FROM MAP 4 TO US 421 (MP 0.000 - MP 0.025)	3	1	2WD	0.025	24					1								220	300				1			
TOTAL FOR MAP NO. 5								**0.025**						**1**								**220**	**300**				**1**			
52038.1.1	New Hanover	6	I-140 EB EXIT RAMP	FROM 1-140 EB TO MAP 7 (MP 0.000 - MP 0.099)	4	1	2WD	0.099	22					1									900				1			
TOTAL FOR MAP NO. 6								**0.099**						**1**									**900**				**1**			
52038.1.1	New Hanover	7	I-140 EB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 6 / 8 TO US 133 (CASTLE HAYNE RD.) [MP 0.000 - MP 0.040]	5	2	2WD	0.04	45			30										200	300		30					
TOTAL FOR MAP NO. 7								**0.04**				**30**										**200**	**300**		**30**					
52038.1.1	New Hanover	8	I-140 EB ENTRANCE RAMP	FROM MAP 7 TO I-140 EB (MP 0.000 - MP 0.203)	3	1	2WD	0.203	24													1,100	1,100							
TOTAL FOR MAP NO. 8								**0.203**														**1,100**	**1,100**							
52038.1.1	New Hanover	9	I-140 WB EXIT RAMP	FROM 1-140 WB TO MAP 10 (MP 0.000 - MP 0.279)	3	1	2WD	0.279	24													1,475	1,475							
TOTAL FOR MAP NO. 9								**0.279**														**1,475**	**1,475**							
52038.1.1	New Hanover	10	I-140 WB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 9 / 11 TO NC 133 (CASTLE HAYNE RD.) [MP 0-000 - MP 0.066]	6	2	2WD	0.066	62	600		50			2	2	2					1,050	300		50			2	2	2
TOTAL FOR MAP NO. 10								**0.066**		**600**		**50**			**2**	**2**	**2**					**1,050**	**300**		**50**			**2**	**2**	**2**
52038.1.1	New Hanover	11	I-140 WB ENTRANCE RAMP	FROM MAP 10 TO I-140 WB (MP 0.000 - MP 0.133)	4	1	2WD	0.133	23														650							
TOTAL FOR MAP NO. 11								**0.133**															**650**							
52038.1.1	New Hanover	12	I-140 EB EXIT RAMP AT I-40 EB	FROM I-140 EB TO I-40 EB (MP 0.000 - MP 0.455)	3	1	2WD	0.455	25		350											2,400	2,150	350						
TOTAL FOR MAP NO. 12								**0.455**			**350**											**2,400**	**2,150**	**350**						
52038.1.1	New Hanover	13	I-140 EB EXIT RAMP AT I-40 WB	FROM MAP 12 AT GORE TO MAP 17 AT GORE (MP 0.000 - MP 0.502)	3	1	2WD	0.502	25									250				1,175	1,175							
TOTAL FOR MAP NO. 13								**0.502**										**250**				**1,175**	**1,175**							
52038.1.1	New Hanover	14	I-140 EB ENTRANCE RAMP AT I-40 EB	I-40 EB GORE TO I-140 EB GORE (MP 0.00O - MP 0.185)	4	1	2WD	0.185	23													25	1,050							
TOTAL FOR MAP NO. 14								**0.185**														**25**	**1,050**							
52038.1.1	New Hanover	15	I-140 EB ENTRANCE RAMP AT I-40 WB	FROM I-40 WB TO I-140 EB (MP 0.000 - MP 0.455)	3	1	2WD	0.455	26													2,300	2,300							
TOTAL FOR MAP NO. 15								**0.455**														**2,300**	**2,300**							
52038.1.1	New Hanover	16	I-140 EXIT/ENTRANCE LANE AT US 17 SB	FROM US 17 SB TO I-140 WB (MP 0.000 MP 0.999)	3	1	2WD	0.999	25	460	1,300							800				5,460	5,300							
TOTAL FOR MAP NO. 16								**0.999**		**460**	**1,300**							**800**				**5,460**	**5,300**							
52038.1.1	New Hanover	17	I-140 WB EXIT RAMP TO I-40 WB	FROM MAP 16 AT GORE TO I-40 WB (MP 0.000 - MP 0.369)	3	1	2WD	0.369	23	190			3									1,290	1,100			3				
TOTAL FOR MAP NO. 17								**0.369**		**190**			**3**									**1,290**	**1,100**			**3**				
52038.1.1	New Hanover	18	I-140 WB ENTRANCE RAMP OFF I-40 WB	FROM GORE AT I-40 WB TO GORE AT I-140 WB (MP 0.000 - MP 0.185)	4	1	2WD	0.185	23													25	1,050							
TOTAL FOR MAP NO. 18								**0.185**														**25**	**1,050**							
52038.1.1	New Hanover	19	I-140 WB EXIT RAMP AT I-40 EB	FROM GORE AT I-140 WB TO GORE AT I-40 EB (MP 0.000 - MP 0.180)	4	1	2WD	0.18	23													25	1,050							
TOTAL FOR MAP NO. 19								**0.18**														**25**	**1,050**							
52038.1.1	New Hanover	20	I-140 WB ENTRANCE RAMP	FROM GORE AT I-40 EB TO GORE AT MAP 16 (MP 0.000 - MP 0.390)	3	1	2WD	0.39	24													2060	2060							
TOTAL FOR MAP NO. 20								**0.39**														**2,060**	**2,060**							
52038.1.1	New Hanover	21	US 17 NB (JOHN JAY BURNEY JR. FWY)	FROM I-40/1-140 INTERSECTION TO 0.64 MI. NORTH (MP 10.604- MP 11.244)	1	2	2WD	0.64	38 - 67				3					265				3379	3379			3				
TOTAL FOR MAP NO. 21								**0.64**					**3**					**265**				**3,379**	**3,379**			**3**				
52038.1.1	New Hanover	22	US 17 SB (JOHN JAY BURNEY JR. FWY)	FROM O.64 MI. SOUTH OF I-40/I-140 TO I-40/ I-140 INTERSECTION (MP 6.465 - MP 7.105)	1	2	2WD	0.64	38 - 67									260				3379	3379							
TOTAL FOR MAP NO. 22								**0.64**										**260**				**3,379**	**3,379**							
TOTAL FOR PROJ NO. 52038.1.1								**19.888**		**20,250**	**10,700**	**80**	**21**	**2**	**2**	**2**	**2**	**23,505**	**500**	**8**	**8**	**116,929**	**102,582**	**9,400**	**80**	**21**	**2**	**2**	**2**	**2**
													29									**219,511**				**29**				
GRAND TOTAL								**19.888**		**20,250**	**10,700**	**80**	**21**	**2**	**2**	**2**	**2**	**23,505**	**500**	**8**	**8**	**116,929**	**102,582**	**9,400**	**80**	**21**	**2**	**2**	**2**	**2**
													29									**219,511**				**29**				

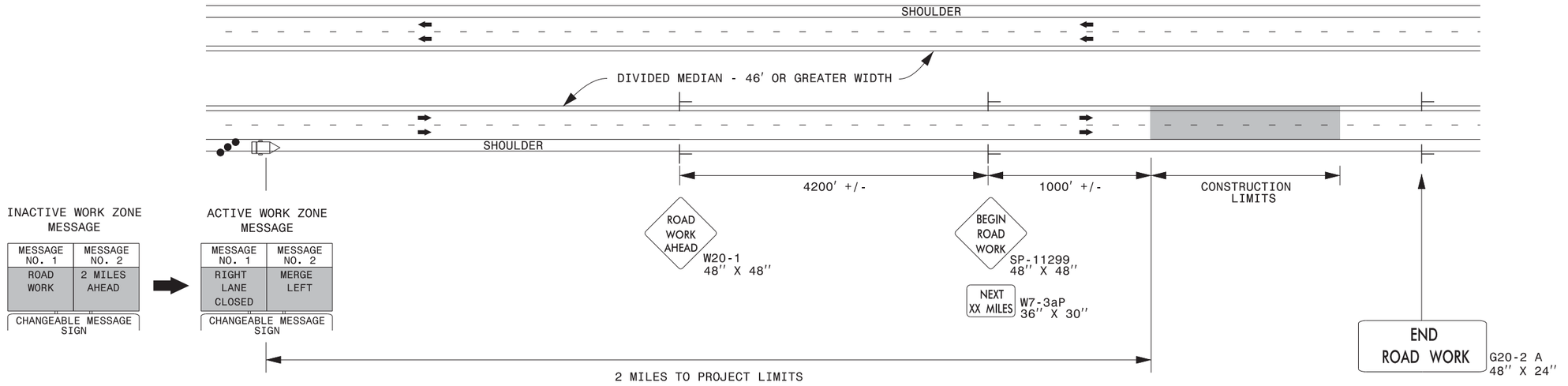
PROJECT NO.	SHEET NO.
I-5760	14

THERMOPLASTIC AND PAINT QUANTITIES

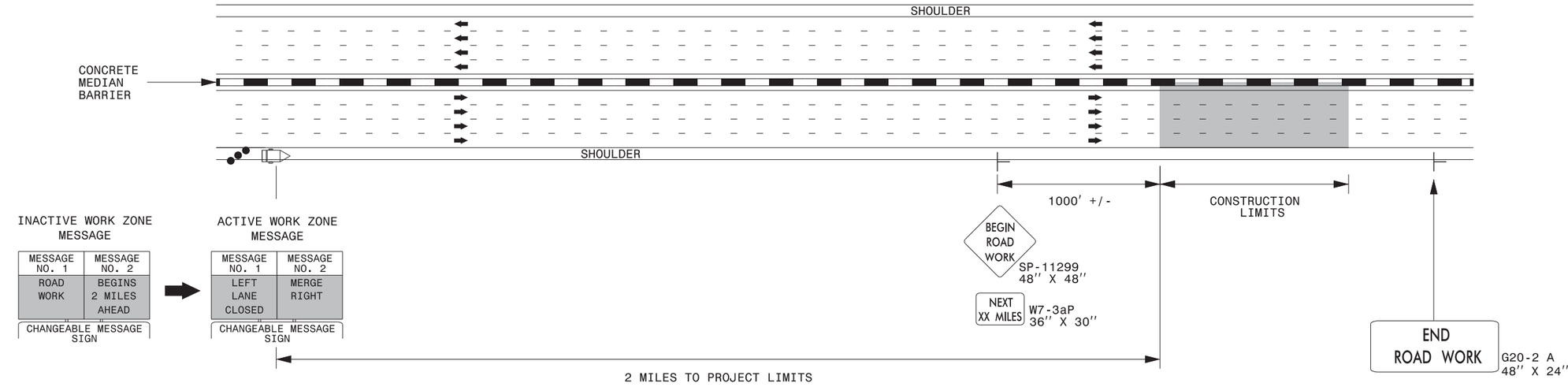
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4847100000-E 6" YELLOW POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	4847100000-E 6" WHITE POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	4847120000-E 12" WHITE POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	4850000000-E REMOVAL OF PAVEMENT MARKING LINES (4") LF	4865000000-E REMOVAL OF PAVEMENT MARKING LINES (12") LF	4890000000-E 6" BLACK POLYUREA LF	4900000000-N CRYSTAL & RED MARKERS EA	4900000000-N YELLOW & YELLOW MARKERS EA	4905000000-N SNOW PLOWABLE MARKERS (C/R) EA	4905000000-N SNOW PLOWABLE MARKERS (Y/Y) EA
52038.1.1	NewHanover	1	I-140 EB (JOHN JAY BURNEY JR. FWY)	FROM US 421 TO I-40 (MP 0.000 - MP 6.791)	1, 1A, 2	2	2WD	6.791	38 - 67	4,418	6,237	500	9,035	500	1,620	60		559	
TOTAL FOR MAP NO. 1								**6.791**		**4,418**	**6,237**	**500**	**9,035**	**500**	**1,620**	**60**		**559**	
52038.1.1	New Hanover	2	I-140 WB (JOHN JAY BURNEY JR. FWY)	FROM I-40 TO US 421 (MP 0.000 - MP 6.812)	1, 1A, 2, 2A	2	2WD	6.812	38 - 67	4,418	6,857		12,895		1,620	60		434	
TOTAL FOR MAP NO. 2								**6.812**		**4,418**	**6,857**		**12,895**		**1,620**	**60**		**434**	
52038.1.1	NewHanover	3	I-140 EB ENTRANCE RAMP AT US 421	FROM US 421 TO I-140 (MP 0.000 - MP 0.241)	3	1	2WD	0.241	24										
TOTAL FOR MAP NO. 3								**0.241**											
52038.1.1	NewHanover	4	I-140 WB EXIT RAMP AT US 421	FROM I-140 WB TO US 421 (MP 0.000 - MP 0.199)	4	1	2WD	0.199	23									10	
TOTAL FOR MAP NO. 4								**0.199**										**10**	
52038.1.1	NewHanover	5	I-140 WB EXIT RAMP LEG AT US 421	FROM MAP 4 TO US 421 (MP 0.000 - MP 0.025)	3	1	2WD	0.025	24										
TOTAL FOR MAP NO. 5								**0.025**											
52038.1.1	New Hanover	6	I-140 EB EXIT RAMP	FROM 1-140 EB TO MAP 7 (MP 0.000 - MP 0.099)	4	1	2WD	0.099	22										
TOTAL FOR MAP NO. 6								**0.099**											
52038.1.1	New Hanover	7	I-140 EB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 6 / 8 TO US 133 (CASTLE HAYNE RD.) [MP 0.000 - MP 0.040]	5	2	2WD	0.04	45								14		12
TOTAL FOR MAP NO. 7								**0.04**									**14**		**12**
52038.1.1	New Hanover	8	I-140 EB ENTRANCE RAMP	FROM MAP 7 TO I-140 EB (MP 0.000 - MP 0.203)	3	1	2WD	0.203	24										
TOTAL FOR MAP NO. 8								**0.203**											
52038.1.1	New Hanover	9	I-140 WB EXIT RAMP	FROM 1-140 WB TO MAP 10 (MP 0.000 - MP 0.279)	3	1	2WD	0.279	24										
TOTAL FOR MAP NO. 9								**0.279**											
52038.1.1	New Hanover	10	I-140 WB ENTRANCE / EXIT RAMP JOINT	FROM MAPS 9 / 11 TO NC 133 (CASTLE HAYNE RD.) [MP 0-000 - MP 0.066]	6	2	2WD	0.066	62								34	28	8
TOTAL FOR MAP NO. 10								**0.066**									**34**	**28**	**8**
52038.1.1	New Hanover	11	I-140 WB ENTRANCE RAMP	FROM MAP 10 TO I-140 WB (MP 0.000 - MP 0.133)	4	1	2WD	0.133	23										
TOTAL FOR MAP NO. 11								**0.133**											
52038.1.1	New Hanover	12	I-140 EB EXIT RAMP AT I-40 EB	FROM I-140 EB TO I-40 EB (MP 0.000 - MP 0.455)	3	1	2WD	0.455	25										
TOTAL FOR MAP NO. 12								**0.455**											
52038.1.1	New Hanover	13	I-140 EB EXIT RAMP AT I-40 WB	FROM MAP 12 AT GORE TO MAP 17 AT GORE (MP 0.000 - MP 0.502)	3	1	2WD	0.502	25	125	125		250		25				
TOTAL FOR MAP NO. 13								**0.502**		**125**	**125**		**250**		**25**				
52038.1.1	New Hanover	14	I-140 EB ENTRANCE RAMP AT I-40 EB	I-40 EB GORE TO I-140 EB GORE (MP 0.000 - MP 0.185)	4	1	2WD	0.185	23										
TOTAL FOR MAP NO. 14								**0.185**											
52038.1.1	New Hanover	15	I-140 EB ENTRANCE RAMP AT I-40 WB	FROM I-40 WB TO I-140 EB (MP 0.000 - MP 0.455)	3	1	2WD	0.455	26										
TOTAL FOR MAP NO. 15								**0.455**											
52038.1.1	New Hanover	16	I-140 EXIT/ENTRANCE LANE AT US 17 SB	FROM US 17 SB TO I-140 WB (MP 0.000 - MP 0.999)	3	1	2WD	0.999	25	400	400		800		25			129	
TOTAL FOR MAP NO. 16								**0.999**		**400**	**400**		**800**		**25**			**129**	
52038.1.1	New Hanover	17	I-140 WB EXIT RAMP TO I-40 WB	FROM MAP 16 AT GORE TO I-40 WB (MP 0.000 - MP 0.369)	3	1	2WD	0.369	23										
TOTAL FOR MAP NO. 17								**0.369**											
52038.1.1	New Hanover	18	I-140 WB ENTRANCE RAMP OFF I-40 WB	FROM GORE AT I-40 WB TO GORE AT I-140 WB (MP 0.000 - MP 0.185)	4	1	2WD	0.185	23										
TOTAL FOR MAP NO. 18								**0.185**											
52038.1.1	New Hanover	19	I-140 WB EXIT RAMP AT I-40 EB	FROM GORE AT I-140 WB TO GORE AT I-40 EB (MP 0.000 - MP 0.180)	4	1	2WD	0.18	23										
TOTAL FOR MAP NO. 19								**0.18**											
52038.1.1	New Hanover	20	I-140 WB ENTRANCE RAMP	FROM GORE AT I-40 EB TO GORE AT MAP 16 (MP 0.000 - MP 0.390)	3	1	2WD	0.39	24										
TOTAL FOR MAP NO. 20								**0.39**											
52038.1.1	New Hanover	21	US 17 NB (JOHN JAY BURNEY JR. FWY)	FROM I-40/1-140 INTERSECTION TO 0.64 MI. NORTH (MP 10.604- MP 11.244)	1	2	2WD	0.64	38 - 67	129	136		265		10	5			
TOTAL FOR MAP NO. 21								**0.64**		**129**	**136**		**265**		**10**	**5**			
52038.1.1	New Hanover	22	US 17 SB (JOHN JAY BURNEY JR. FWY)	FROM O.64 MI. SOUTH OF I-40/I-140 TO I-40/ I-140 INTERSECTION (MP 6.465 - MP 7.105)	1	2	2WD	0.64	38 - 67	125	135		260		10	5			
TOTAL FOR MAP NO. 22								**0.64**		**125**	**135**		**260**		**10**	**5**			
TOTAL FOR PROJ NO. 52038.1.1								**19.888**		**9,615**	**13,890**	**500**	**23,505**	**500**	**3,310**	**130**	**48**	**1,160**	**20**
										23,505						**178**		**1,180**	
GRAND TOTAL								**19.888**		**9,615**	**13,890**	**500**	**23,505**	**500**	**3,310**	**130**	**48**	**1,160**	**20**
										23,505						**178**		**1,180**	

PROJ. REFERENCE NO.	SHEET NO.
I-5760	TMP-1

DIVIDED MEDIANS WITH WIDTHS 46′ OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46′ OR WITH PERMANENT MEDIAN BARRIER



NOTES:

1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6′ AS MEASURED FROM THE EDGE OF PAVEMENT.
2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
3) FOR MEDIAN WIDTHS LESS THAN 46′ (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
5) INSTALL "ROAD WORK AHEAD"(W20-1) ALONG ENTRANCE RAMPS 500′ PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMPS WITHIN THE WORK ZONE.
6) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER AND WITH DIVIDED MEDIANS OF 46′ OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM

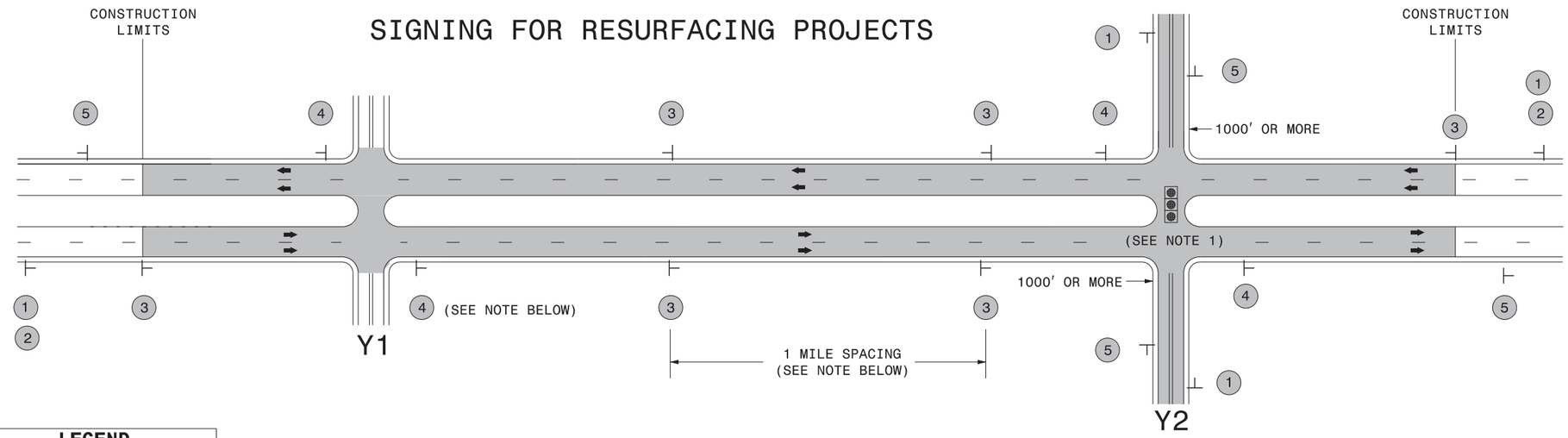
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

RESURFACING ADVANCE WARNING SIGNS FOR HIGH SPEED FACILITIES ≥ 60 MPH

3/23/2015
C:\Users\rmgarrett\Downloads\Resurfacing_AdvWarn_HSpd.dgn
User:rmgarrett

PROJ. REFERENCE NO.	SHEET NO.
I-5760	TMP-2

SIGNING FOR RESURFACING PROJECTS



LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1	ROAD WORK AHEAD W20-1 48″ X 48″	PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.
2	NEXT XX MILES W7-3aP 24″ X 18″	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER.(NO FRACTIONAL OR DECIMAL NUMBERS)
3	LOW/SOFT SHOULDER SP 13107 48″ X 48″	PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET ½ MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.
4	ROAD UNDER CONST SP 13106 48″ X 48″	THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500′ +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500′ OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.
5	END ROAD WORK G20-2 A 48″ X 24″	PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS.

-Y- LINE SIGNING

NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:

1) LESS THAN 1000′ OF RESURFACING ALONG -Y- LINE
2) SUBDIVISION ROADS
3) DEAD END ROADS

WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

ROAD WORK AHEAD W20-1 48″ X 48″ — PLACED 500′ IN ADVANCE OF FLAGGER.

W20-7 A 48″ X 48″ — PLACED 250′ IN ADVANCE OF FLAGGER.

NOTES:

1) MAY USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AS DIRECTED BY THE ENGINEER. PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500′ IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

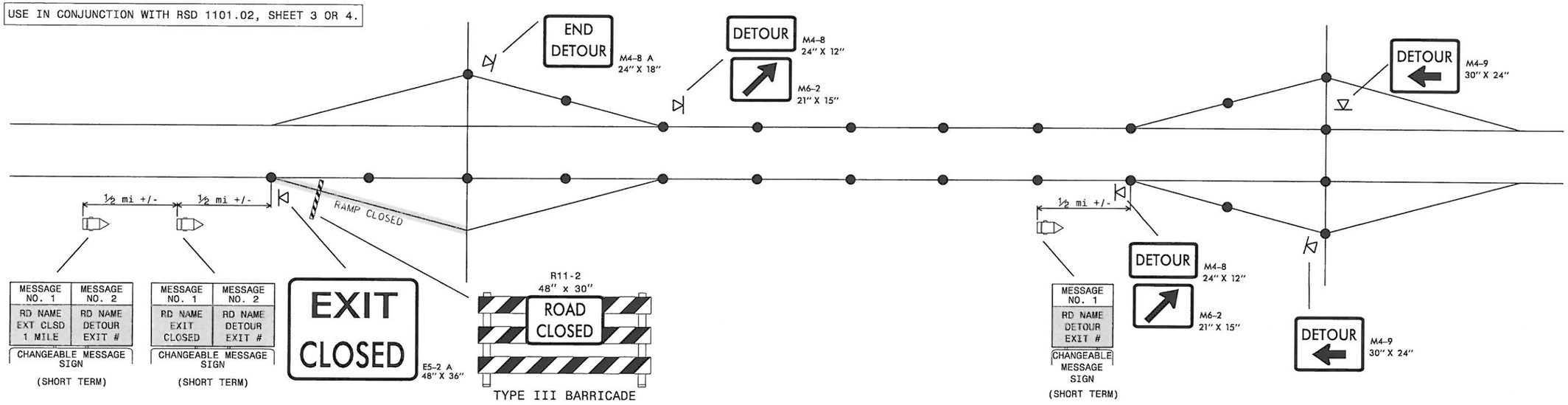
RESURFACING
ADVANCE WARNING SIGNS
FOR RURAL AND SUBURBAN
MULTI-LANE ROADWAYS
W/ SHOULDER SECTIONS

3/23/2015
C:\Users\rmgarrett\Downloads\Resurfacing_AdvWarn_UrSu_Shldr.dgn
User:rmgarrett

PROJ. REFERENCE NO.	SHEET NO.
I-5760	TMP-3

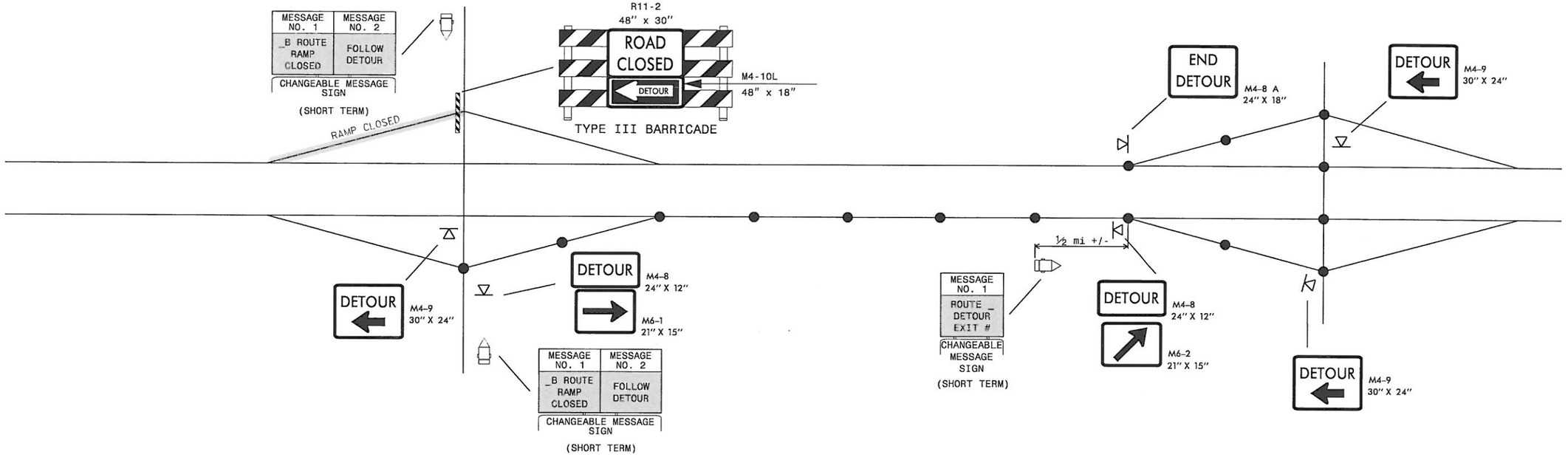
SHORT TERM CLOSURE AND DETOUR OF OFF-RAMP TO ADJACENT INTERCHANGE

USE IN CONJUNCTION WITH RSD 1101.02, SHEET 3 OR 4.



SHORT TERM CLOSURE AND DETOUR OF ON-RAMP TO ADJACENT INTERCHANGE

USE IN CONJUNCTION WITH RSD 1101.02, SHEET 3 OR 4.



GENERAL NOTES:

1. THIS DRAWING IS INTENDED FOR USE DURING SHORT TERM CLOSURES OF INTERSTATE AND FREEWAY RAMPS.
2. RAMP CLOSURES SHALL BE APPROVED BY THE ENGINEER.
3. IF RAMP CLOSURE RESTRICTIONS APPLY, SEE SPECIAL PROVISION, "INTERMEDIATE CONTRACT TIMES AND LIQUIDATED DAMAGES".
4. ADDITIONAL CHANGEABLE MESSAGE SIGNS AND POSSIBLE DETOUR SIGNS MAY BE NECESSARY FOR MORE COMPLEX CLOSURES/DETOURS. COMPENSATION FOR ADDITIONAL DEVICES SHALL BE MADE BASED ON THE UNIT BID PRICE FOR THE RESPECTIVE DEVICE.

LEGEND

PORTABLE SIGN

CHANGEABLE MESSAGE SIGN

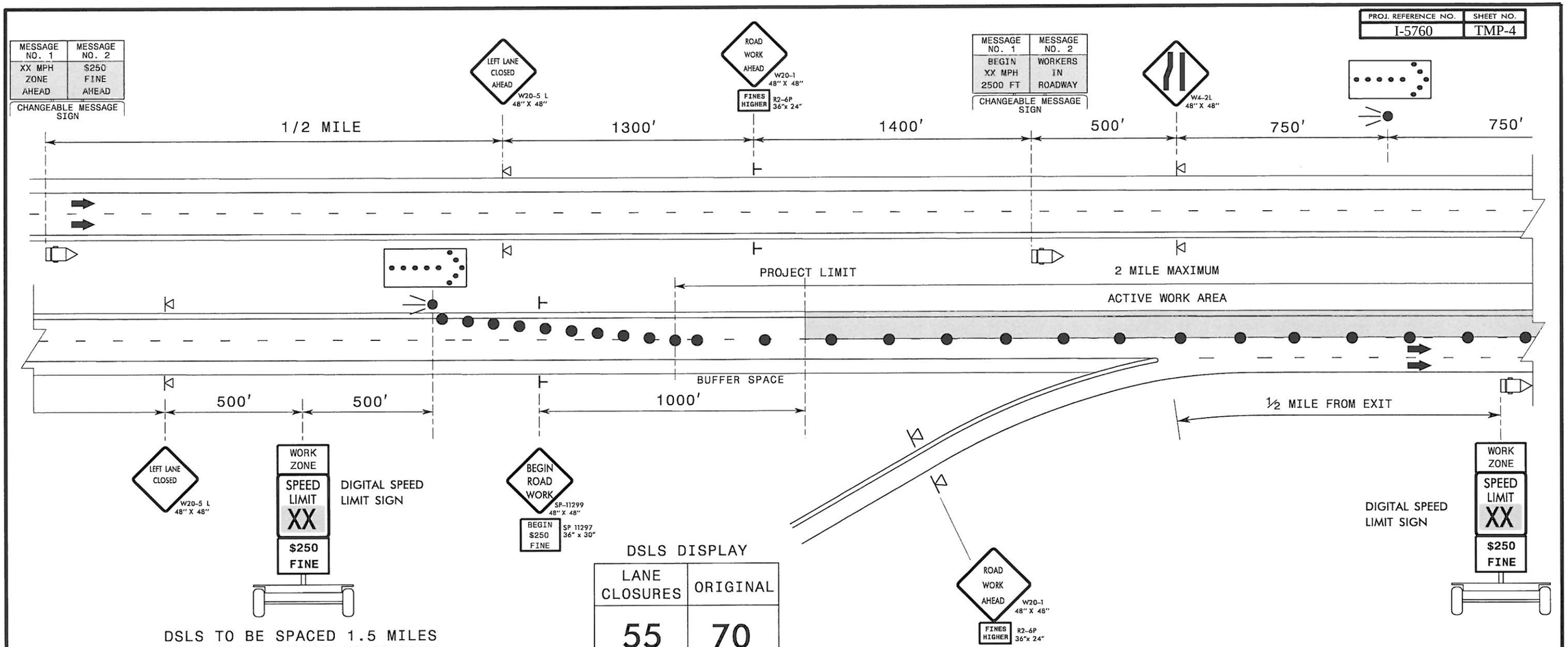
DETOUR ROUTE

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

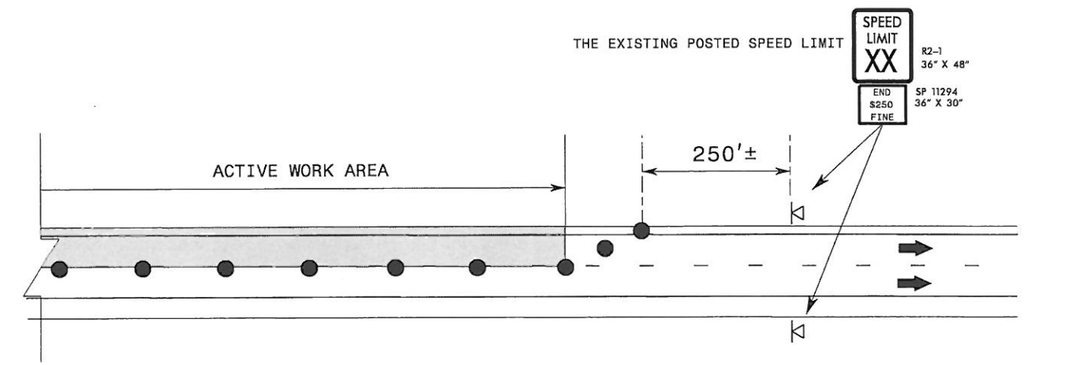
SHORT TERM CLOSURE AND DETOUR OF INTERSTATE/FREEWAY RAMPS

6/18/2016
S:\TMG\WZTC\DesignGroup\DG150B\Parker\New Interstate Resurfacing\TypicalOff-Ramp Detour.dgn
User:dgparker

PROJ. REFERENCE NO.	SHEET NO.
I-5760	TMP-4



DSLS TO BE SPACED 1.5 MILES THROUGHOUT ACTIVE WORK ZONE



GUIDELINES

1. NCDOT HAS SOLE AUTHORITY OF THE SPEED LIMITS DISPLAYED ON THE DIGITAL SPEED LIMIT SIGNS.
2. THE WORK ZONE VARIABLE SPEED LIMIT REDUCTION ("WZVSLR") IS FOR USE ONLY AFTER AN ENGINEERING INVESTIGATION HAS BEEN PERFORMED BY THE REGIONAL TRAFFIC ENGINEER, THE DIVISION AND THE WORK ZONE TRAFFIC CONTROL SECTION.
3. THE "WZVSLR" IS INTENDED FOR USE ON FREEWAYS WITH ORIGINAL SPEED LIMITS 60 MPH OR GREATER. THE POSTED SPEED LIMITS DISPLAYED WITHIN THE ACTIVE WORK ZONE MAY VARY BETWEEN 55 MPH TO 70 MPH, DEPENDENT UPON ROAD WORK CONDITIONS AND THE ORIGINAL SPEED LIMIT OF THE FACILITY.
4. THIS APPLICATION IS FOR SHORT-TERM ACTIVITIES (i.e. LANE CLOSURES AND ROAD CLOSURES). THE MAXIMUM LANE CLOSURE LENGTH IS 2 MILES UNLESS OTHERWISE SHOWN IN THE PLANS. THE "WZVSLR" SHALL NOT BE IN OPERATION CONTINUOUSLY (24/7) FOR A PERIOD EXCEEDING 30 CALENDAR DAYS.
5. ALL ORIGINAL SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED. THE DIGITAL SPEED LIMIT SIGNS WILL TAKE THE PLACE OF ALL ORIGINAL STATIONARY SPEED LIMIT SIGNS. THE DIGITAL SPEED LIMIT SIGNS MAY BE TRAILER MOUNTED OR STATIONARY MOUNTED.
6. THE STATE TRAFFIC ENGINEER HAS TO ORDINANCE THE "WZVSLR" IN ORDER FOR THE REDUCTION AND/OR $250 SPEEDING FINE TO BE VALID AND ENFORCEABLE. NO SPEED LIMIT MESSAGES/SIGNS SHALL BE INSTALLED PRIOR TO RECEIVING A SIGNED ORDINANCE. IN ADDITION, THE $250 SPEEEDING FINE ALSO REQUIRES A SEPARATE SIGNED ORDINANCE BY THE STATE TRAFFIC ENGINEER.
6. EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "WZVSLR". THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.

DIVISION OF HIGHWAYS • STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION • WORK ZONE TRAFFIC CONTROL

WORK ZONE "VARIABLE" SPEED LIMIT REDUCTION USING DIGITAL SPEED LIMIT SIGNS

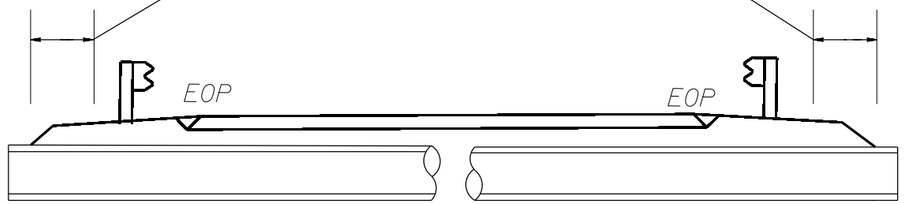
PROJECT REFERENCE NO.	SHEET NO.
I-5760	EC-1

NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle, Silt Fence or Hardened Aggregate.

EROSION CONTROL DETAIL

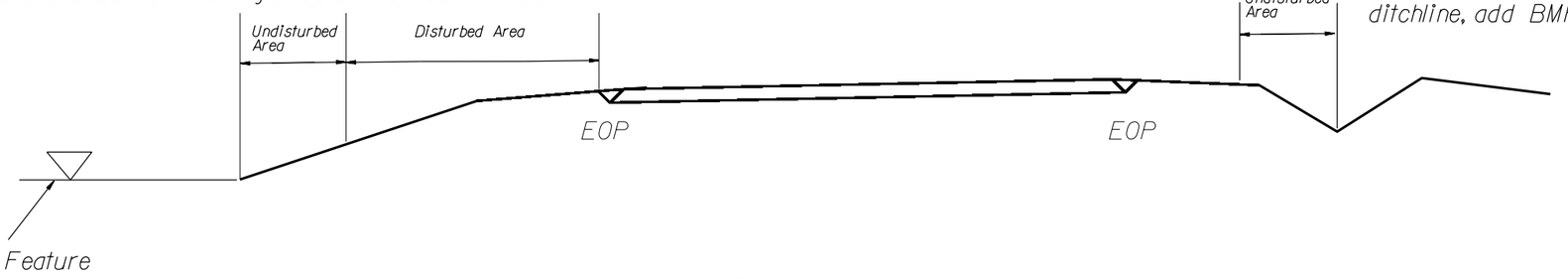
< 5' - 10' Undisturbed buffer add BMP



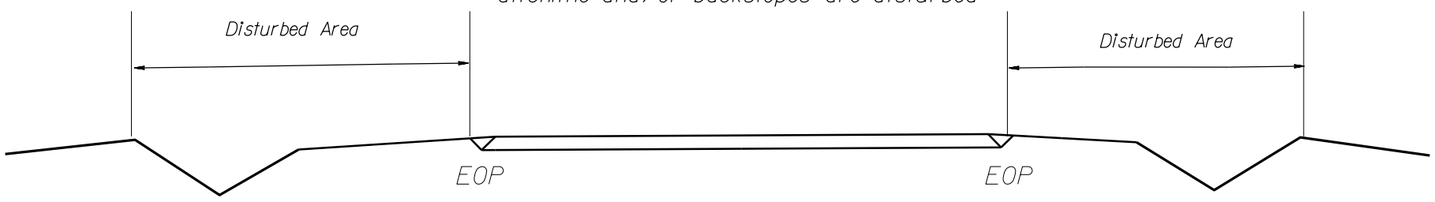
Pipe/Culvert

< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP

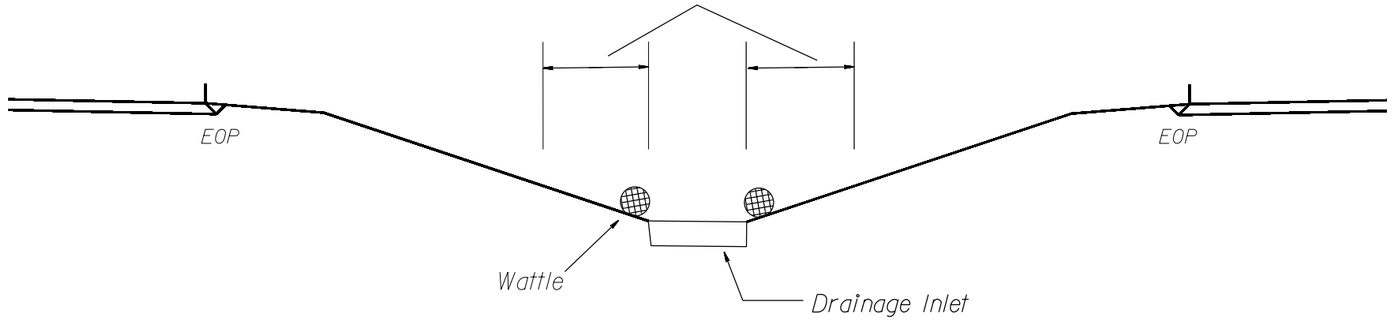
< 5' - 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed



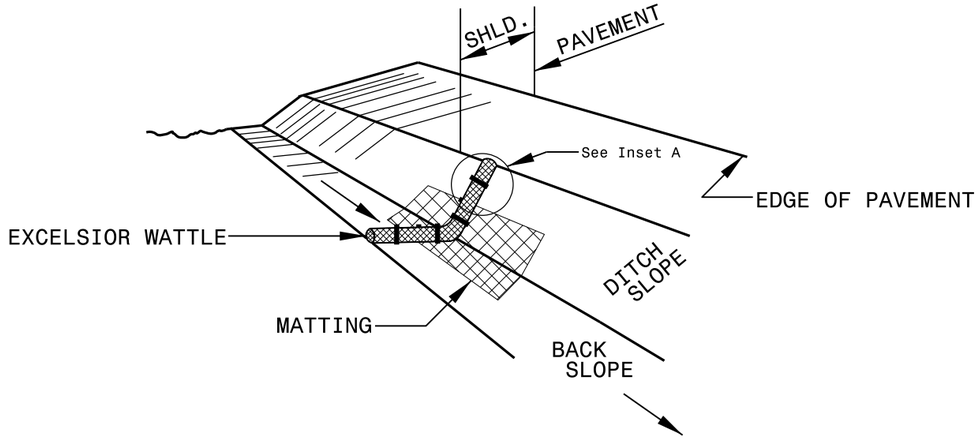
< 5' - 10' Undisturbed buffer from inlet, add wattle



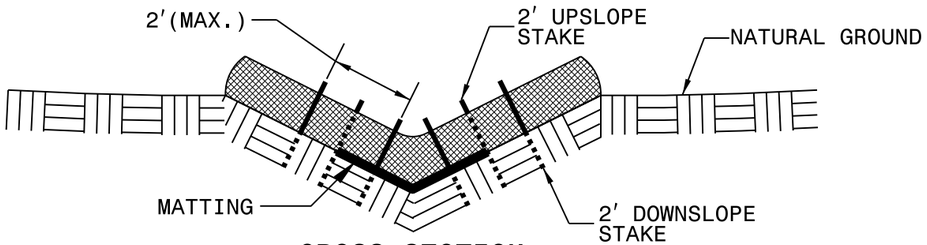
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
I-5760	EC-2

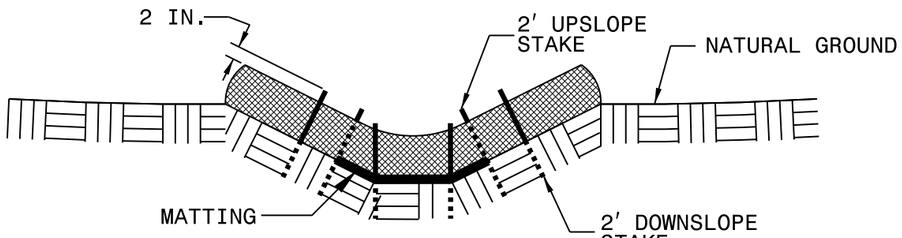
WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

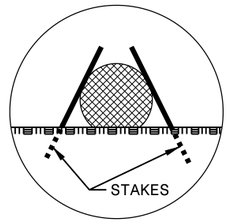
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

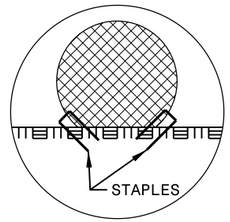
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

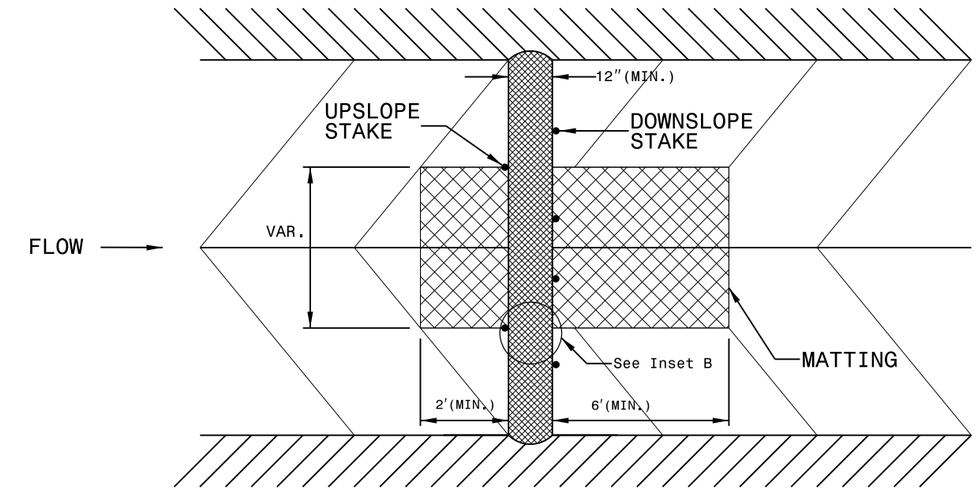
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
I-5760	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

Project No.	Sheet No.
I–5760	Sig. 1.0

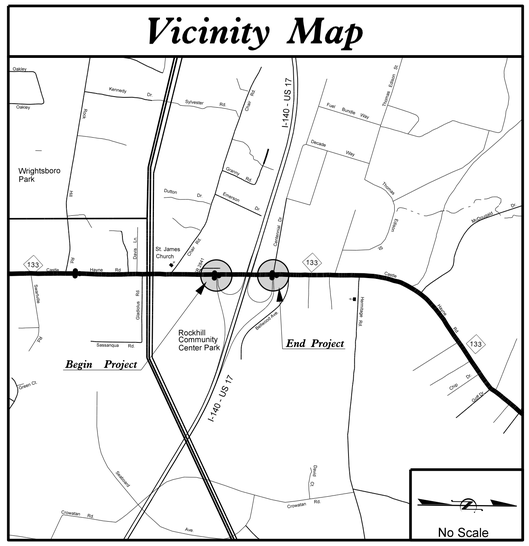
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

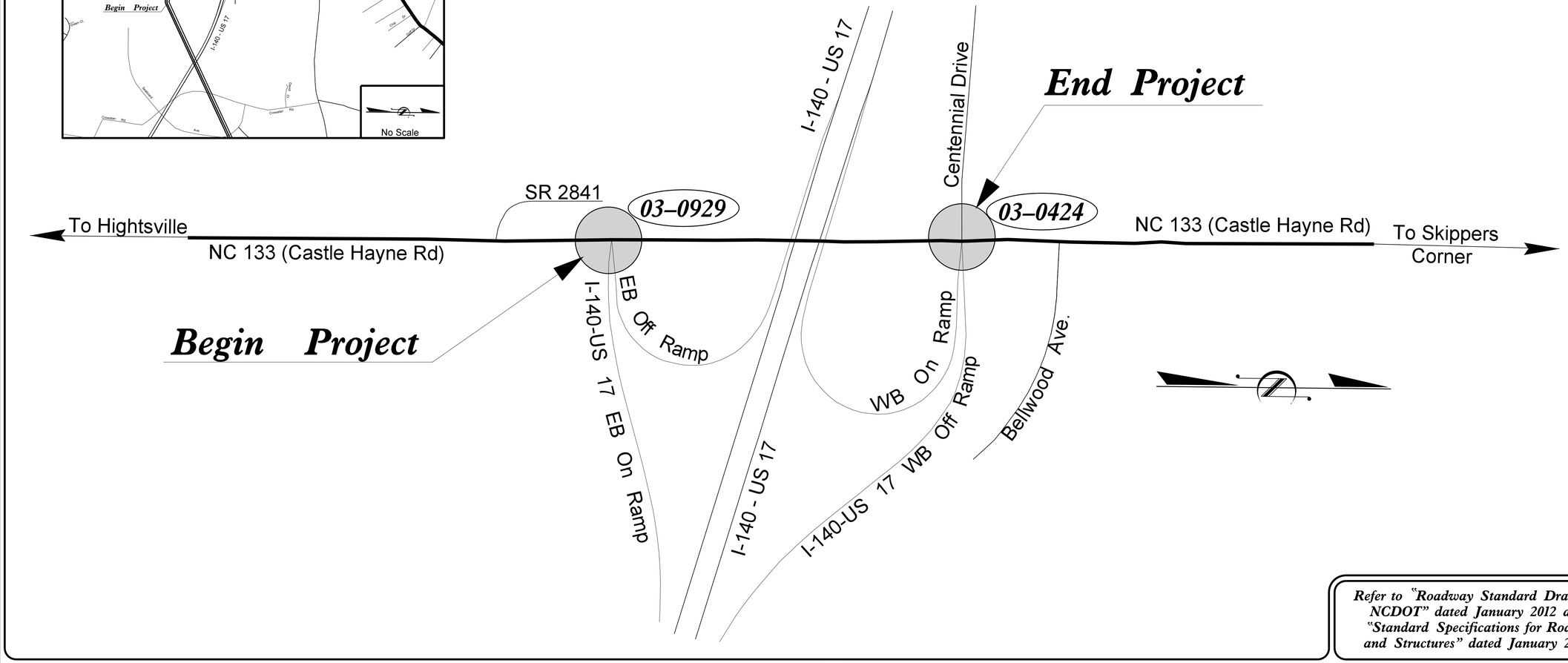
NEW HANOVER COUNTY

LOCATION: NC 133 (Castle Hayne Rd) From I–140 – US 17 Eastbound On/Off Ramps to I–140 – US 17 Westbound On/Off Ramps at Centennial Drive

TYPE OF WORK: Traffic Signals

Vicinity Map





Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.

Index of Plans

Sheet #	Reference #	Location/Description
Sig. 1.0	--------	Title Sheet
Sig. 2.0–2.5	03–0424	NC 133 (Castle Hayne Rd) at I – 140–US 17 WB Off/On Ramps /Centennial Dr
Sig. 3.0–3.4	03–0929	NC 133 (Castle Hayne Rd) at I – 140–US 17 EB Off/On Ramps

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

Pamela L. Alexander, PE – Eastern Region Signals Engineer
Keith M. Mims, PE – Signal Equipment Design Engineer

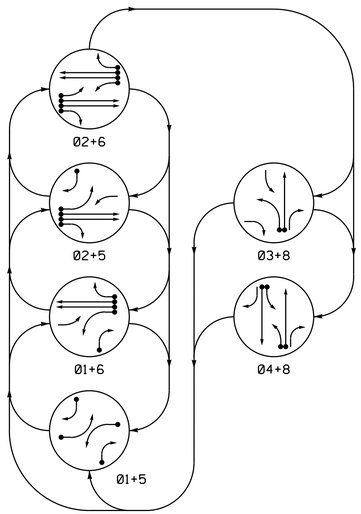
Prepared in the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY DIVISION
ITS and Signals Unit
750 N. Greenfield Parkway, Garner, NC 27529

Project: I–5760

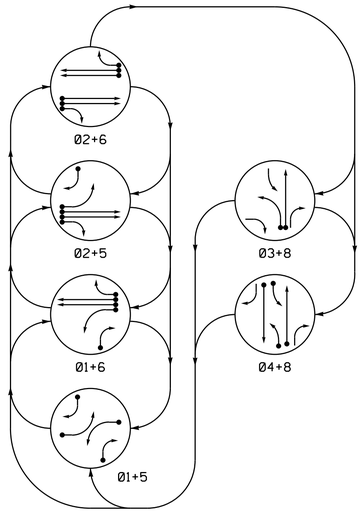
Project: 52038.3.1

PROJECT REFERENCE NO.	SHEET NO.
I-5760	Sig. 2.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

DEFAULT TABLE OF OPERATION

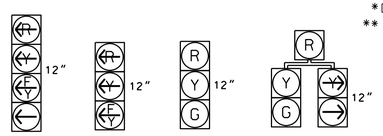
SIGNAL FACE	PHASE 01+05	01+06	02+05	02+06	03+08	04+08	FLASH
11	~~←~~	~~←~~	~~F~~	~~F~~	~~R~~	~~R~~	~~Y~~
21	R	R	G	G	R	R	Y
22	R	R	G	G	R/←	R	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~F~~	~~R~~
41	~~R~~	~~R~~	~~R~~	~~R~~	~~F~~	~~F~~	~~R~~
42	R	R	R	R	R	G	R
43	R/←	R	R/←	R	R	G	R
51	~~←~~	~~F~~	~~←~~	~~F~~	~~R~~	~~R~~	~~Y~~
61,62	R	G	R	G	R	R	Y
81	R	R	R	R	G	G	R
82	R/←	R/←	R	R	G	G	R

ALTERNATE TABLE OF OPERATION

SIGNAL FACE	PHASE 01+05	01+06	02+05	02+06	03+08	04+08	FLASH
11	~~←~~	~~←~~	~~R~~	~~R~~	~~R~~	~~R~~	~~Y~~
21	R	R	G	G	R	R	Y
22	R	R	G	G	R/←	R	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	~~←~~	~~F~~	~~R~~
41	~~R~~	~~R~~	~~R~~	~~R~~	~~F~~	~~F~~	~~R~~
42	R	R	R	R	R	G	R
43	R/←	R	R/←	R	R	G	R
51	~~←~~	~~R~~	~~←~~	~~R~~	~~R~~	~~R~~	~~Y~~
61,62	R	G	R	G	R	R	Y
81	R	R	R	R	G	G	R
82	R/←	R/←	R	R	G	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

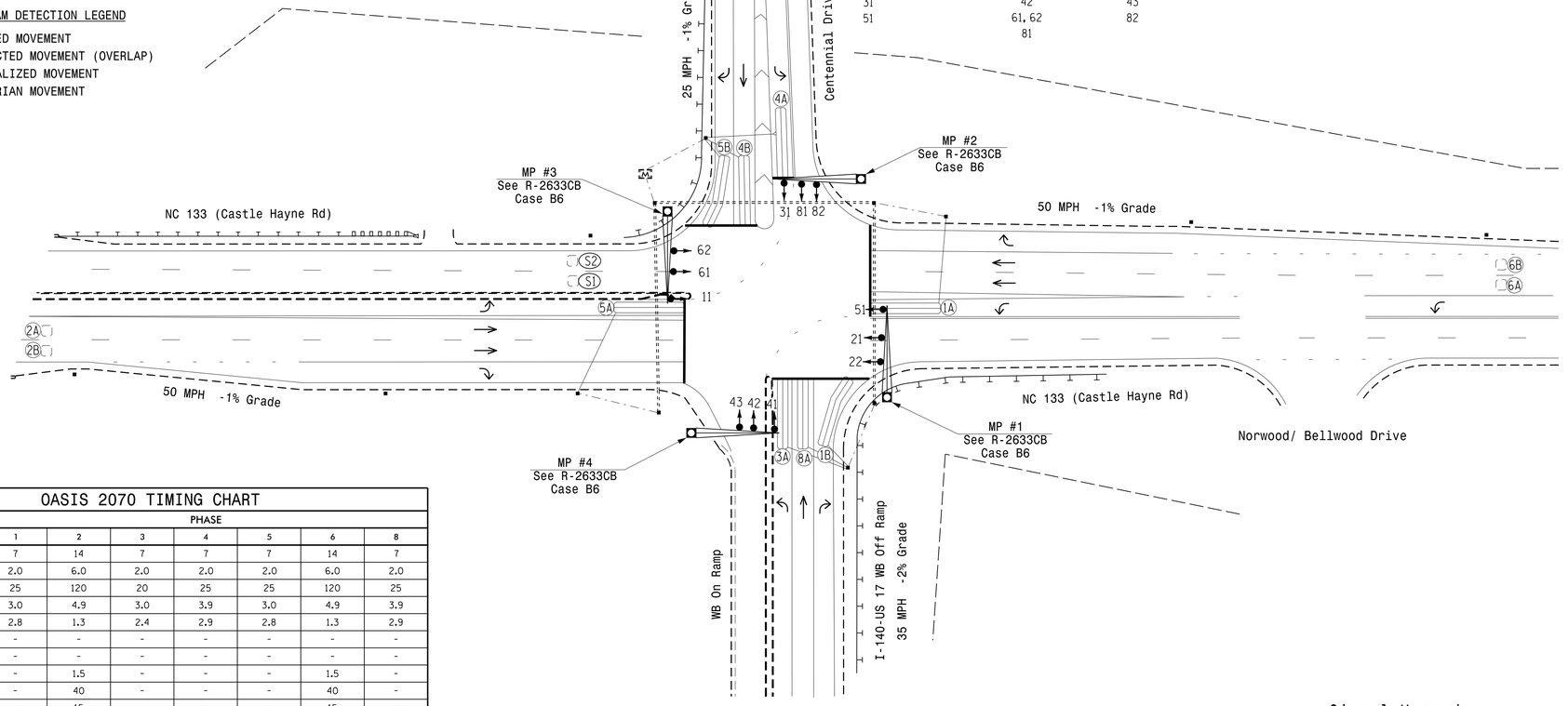
INDUCTIVE LOOPS: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	*15	-	-
					**6	Y	Y	Y	-	3	-	-
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	-
2A,2B	6X6	355	5	-	2	Y	Y	-	-	-	-	-
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	15	-	-
					8	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	*15	-	-
					**2	Y	Y	Y	-	3	-	-
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	-
6A,6B	6X6	355	5	-	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	-
S1	6X6	+160	4	-	-	-	-	-	-	-	Y	-
S2	6X6	+160	4	-	-	-	-	-	-	-	Y	-

*Disable delay during alternate phasing operation.
** Disable phases 2 and 6 call during alternate phasing operation.

6 Phase
Fully Actuated
NC 133 (Castle Hayne Rd) CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 may be lagged.
5. Set all detector units to presence mode.
6. The Division Traffic Engineer will determine the hours of use for each phasing plan.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data: Master Asset #10327. Controller Asset #0424.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○→ ○↓	Signal Pole with Guy	●→ ●↓
○→ ○↓	Signal Pole with Sidewalk Guy	●→ ●↓
○ ▱	Metal Pole with Mastarm	○ ▱
▭	Inductive Loop Detector	▭
Ⓜ	Master Controller & Cabinet	Ⓜ
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	— — — —
→	Directional Arrow	→
N/A	Guard Rail	⊥
□ ========= □	2-2" Rigid Metal Conduit	■ ========= ■

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	8
Min Green 1 *	7	14	7	7	7	14	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0
Max Green 1 *	25	120	20	25	25	120	25
Yellow Clearance	3.0	4.9	3.0	3.9	3.0	4.9	3.9
Red Clearance	2.8	1.3	2.4	2.9	2.8	1.3	2.9
Walk 1 *	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-
Max Variable Initial *	-	40	-	-	-	40	-
Time Before Reduction *	-	15	-	-	-	15	-
Time To Reduce *	-	30	-	-	-	30	-
Minimum Gap	-	3.1	-	-	-	3.1	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-
Dual Entry	-	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON

* 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.

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road)
at
I-140-US 17 WB Ramps/
Centennial Drive
Division 3 New Hanover County Wilmington

PLAN DATE: January 2016 REVIEWED BY: PLA, PE
PREPARED BY: EM Minshew REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 023489 ENGINEER PAMELA L ALEXANDER

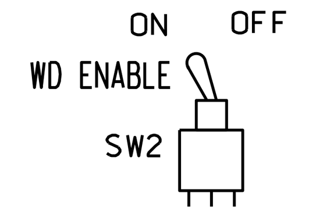
DocuSigned by: P L Alexander B475E6D0CE4E46D... 2/16/16 DATE

SIG. INVENTORY NO. 03-0424

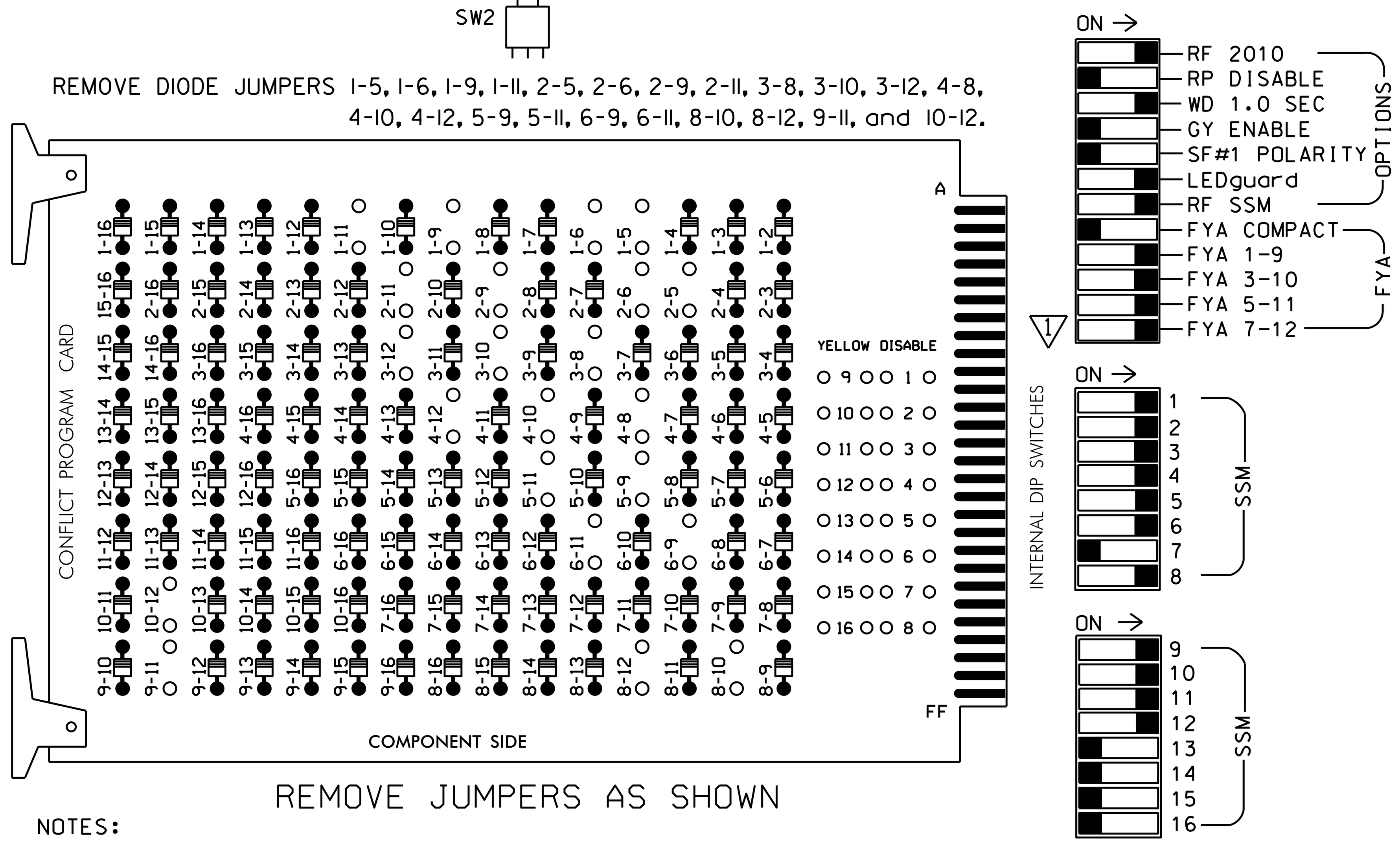
09-MAR-2016 07:05
S:\#TISG\Traffic Signals\Signal Design Section\Eastern Region\Div-03\03-0424\030424_sig_dsn_2016mmdd.dgn
emminshew

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-8, 3-10, 3-12, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 8-10, 8-12, 9-11, and 10-12.



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

NOTES

1. 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.
2. To prevent red failures on unused monitor channels, see Red Monitor Board Programming Detail this sheet.
3. Program phases 2 and 6, on the controller unit, for Start Up In Green.
4. Enable Simultaneous Gap-Out, on the controller unit, for all phases.
5. Program phases 4 and 8, on the controller unit, for Dual Entry.
6. Program phases 2 and 6, on the controller unit, for Variable Initial and Gap Reduction.
7. The cabinet and controller are part of the NC 133 (Castle Hayne Rd) CLS.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1		S2	S2P	S3		S4	S4P	S5		S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	1		2	2 PED	3		4	4 PED	5		6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	82	21,22	NU	22	31★	42,43	NU	43	51★	61,62	NU	NU	81,82	NU	11★	31★	NU	51★	41★	NU
RED		✳	128		✳		101		✳		134			107							
YELLOW			129				102				135			108							
GREEN			130				103				136			109							
RED ARROW																A121	A124		A114	A101	
YELLOW ARROW		126			117				132							A122	A125		A115	A102	
FLASHING YELLOW ARROW																A123	A126		A116	A103	
GREEN ARROW	127	127			118	118			133	133											

NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail on this sheet.

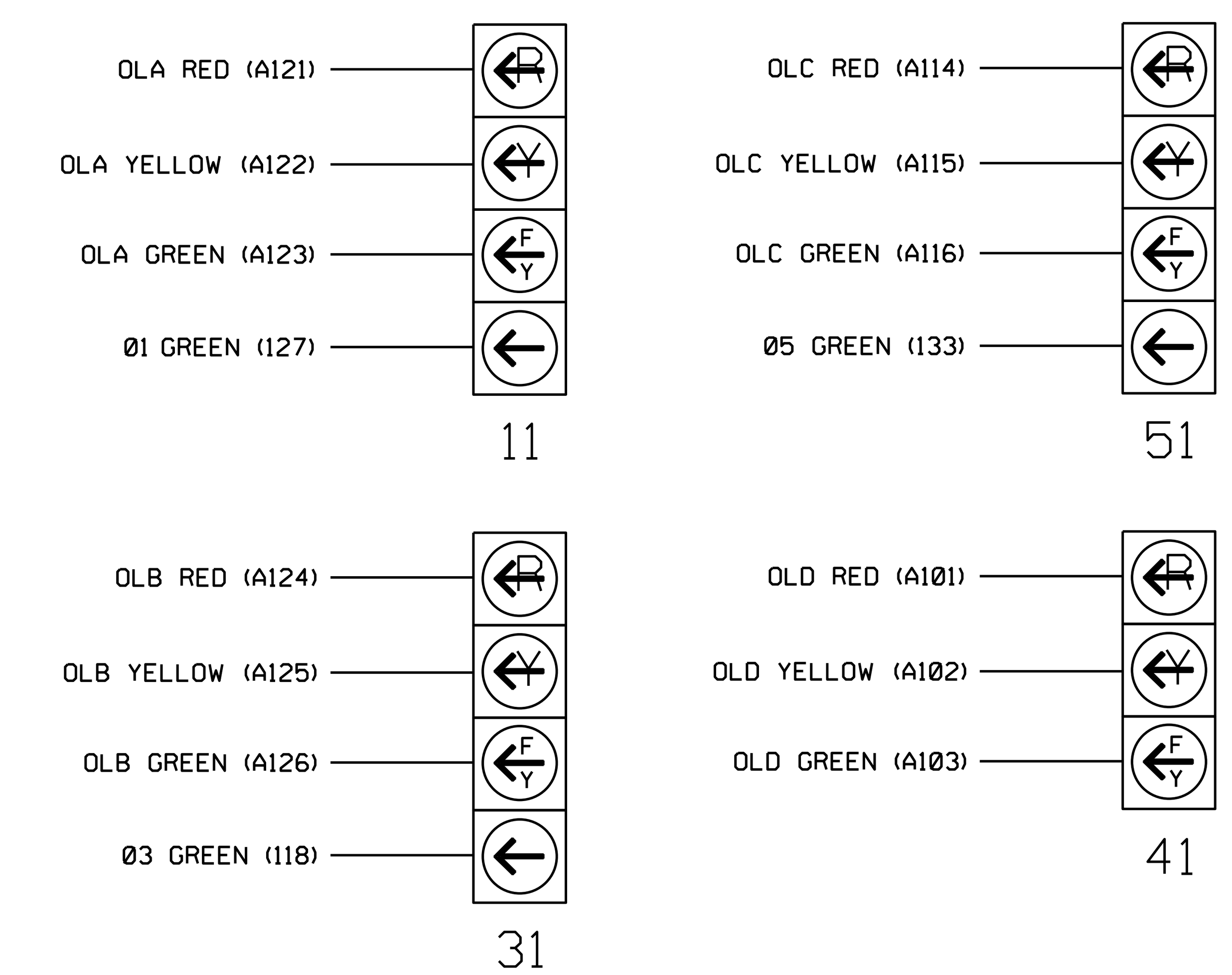
★ See pictorial of head wiring in detail below.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................McCAIN/CONTROL TECHNOLOGIES
DWG.NO.9500-332-NCDOT /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S3,S4,S5,S6,S8,S9,S10,S12,S13
PHASES USED.............1,2,3,4,5,6,8
OVERLAP "A".............1+2
OVERLAP "B".............3+4
OVERLAP "C".............5+6
△1 OVERLAP "D".............8

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for signal heads 11, 31, and 51 requires special logic programming. See sheet 2 of 5 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	Ø 1 1A	Ø 1 1B	SLOT EMPTY	WIRED INPUT ⊗	Ø 3 3A	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S1	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
"I"	L	NOT USED	Ø 2 2A,2B			NOT USED	Ø 4 4B			SYS. DET. S2					ST DC ISOLATOR
"J"	U	Ø 5 5A	Ø 5 5B	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø 8 8A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L	NOT USED	Ø 6 6A,6B				NOT USED								

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

⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

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[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10★	26	6	Y	Y	Y		3
	-	I1U	56	18★	51	1	Y	Y			
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			15
2A,2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
3A[2]	TB4-5,6	I5U	58	20	3	3	Y	Y			15
	-	J8U	50	12	28	8	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
5A[3]	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9★	22	2	Y	Y	Y		3
	-	J1U	55	17★	55	5	Y	Y			
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			15
6A,6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
✳ S1	TB6-9,10	I9U	60	22	11	SYS					
✳ S2	TB6-11,12	I9L	62	24	13	SYS					

[1] Add jumper from I1-W to J4-W, on rear of input file.

[2] Add jumper from I5-W to J8-W, on rear of input file.

[3] Add jumper from J1-W to I4-W, on rear of input file.

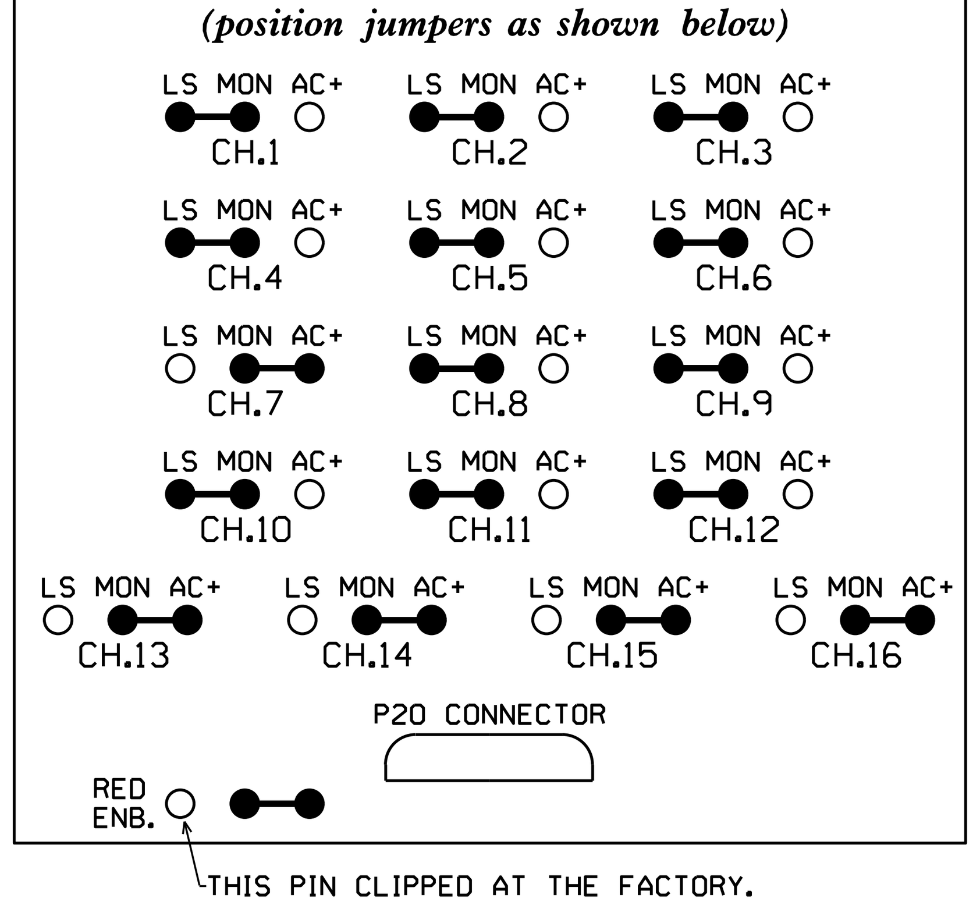
✳ System detector only. Remove the vehicle phase assigned to this detector in the default programming.

★ See Input Page Assignment programming details on sheets 3 and 4.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

RED MONITOR BOARD PROGRAMMING

(position jumpers as shown below)

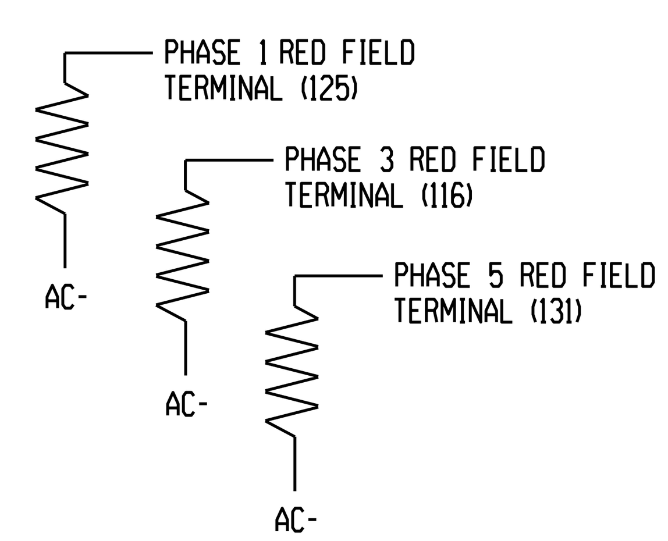


LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

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



△1 THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0424
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

Electrical Detail - Sheet 1 of 5

REVISION △1 SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims 2F80...
SIGNATURE 3-03-16 DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of: Transportation Mobility and Safety Division, Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road) at I-140-US 17 WB Ramps/ Centennial Drive

Division 03 New Hanover County Wilmington

PLAN DATE: September 2009 REVIEWED BY: T. Joyce

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS	INIT.	DATE
△1 Added alternate phasing and revised overlap programming. (JP)	KMM	3-03-16

SEAL

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by George C. Brown, PE #022013, on 09/29/09. This document is only certified as to the revisions.

SIGNATURE DATE

SIG. INVENTORY NO. 03-0424

10-MAR-2016 13:47
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jtpeterson

PROJECT REFERENCE NO.	SHEET NO.
I-5760	Sig. 2.2

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

(program controller as shown below)

1. 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, 6, 7, 8, AND 9.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #50 ON
SET OUTPUT  ASSIGNMENT #51 OFF
                PRESS '+'
```
NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #52 OFF
                PRESS '+'
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #51 ON
                PRESS '+'
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON
AND RED CLEAR ON PHASE #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #42 ON
SET OUTPUT  ASSIGNMENT #43 OFF
                PRESS '+'
```
NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #44 OFF
                PRESS '+'
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE    #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #43 ON
                PRESS '+'
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

```
LOGICAL I/O COMMAND #7  (+/-COMMAND#)
IF  ACTIVE PHASE       #3  IS ON
AND RED CLEAR ON PHASE #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #47 ON
SET OUTPUT  ASSIGNMENT #48 OFF
                PRESS '+'
```
NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

```
LOGICAL I/O COMMAND #8  (+/-COMMAND#)
IF  ACTIVE PHASE       #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #49 OFF
                PRESS '+'
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

```
LOGICAL I/O COMMAND #9  (+/-COMMAND#)
IF  YELLOW ON PHASE    #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #48 ON
                PRESS '+'
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

(program controller as shown below)

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

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:|XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
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
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

PRESS '+'

```
PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:|  XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:   _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........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

PRESS '+'

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:|    XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
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
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

PRESS '+'

```
PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:|      X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:   _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........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

OVERLAP PROGRAMMING COMPLETE

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

1 THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0424
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

REVISION 1 SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims 3-03-16
SIGNATURE DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division, North Carolina Department of Transportation, Signals Management Section

750 N.Greenfield Pkwy.Garner,NC 27529

NC 133 (Castle Hayne Road)
at
I-140-US 17 WB Ramps/
Centennial Drive

Division 03 | New Hanover County | Wilmington

PLAN DATE:	September 2009	REVIEWED BY:	T. Joyce
PREPARED BY:	S. Armstrong	REVIEWED BY:	

REVISIONS	INIT.	DATE
1 Added alternate phasing and revised overlap programming. (JP)	KMM	3-03-16

SEAL

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by George C. Brown, PE #022013, on 09/29/09. This document is only certified as to the revisions.

SIGNATURE DATE

SIG. INVENTORY NO. 03-0424

▽ INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 1A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #10 (DETECTOR 26) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 6 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 51 TO INPUT #18 SO THAT THE DELAY ON LOOP 1A CAN BE REDUCED FROM 15 SECONDS TO 0 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 10 IS REACHED.

```
PAGE: 2 C1 PIN:48  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............26
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER A 'Y' FOR NOT ENABLED →

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 1A - PHASE 6)

```
PAGE: 2 C1 PIN:48  NOT ENABLED
INPUT ASSIGNMENT #..................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64)............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 18

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............1
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER '51' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT →

(LOOP 1A - PHASE 1)

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............51
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 1A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #51.

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                           (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

→ ENTER 'Y' FOR ENABLE DETECTOR →

ENTER '1' FOR PHASES ASSIGNED →

ENSURE DELAY IS '0' →

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                           (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦X
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0424
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

Electrical Detail - Sheet 3 of 5

REVISION ▽1 SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims 3-03-16
2F8076... SIGNATURE DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of: Transportation Mobility and Safety Division, State of North Carolina Department of Transportation, Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road) at I-140-US 17 WB Ramps/ Centennial Drive

Division 03 New Hanover County Wilmington

PLAN DATE: September 2009	REVIEWED BY: T. Joyce
PREPARED BY: S. Armstrong	REVIEWED BY:

REVISIONS	INIT.	DATE
▽1 Added alternate phasing and revised overlap programming. (JP)	KMM	3-03-16

SEAL

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SIGNATURE DATE

SIG. INVENTORY NO. 03-0424

▽ INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 5A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #9 (DETECTOR 22) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 2 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 55 TO INPUT #17 SO THAT THE DELAY ON LOOP 5A CAN BE REDUCED FROM 15 SECONDS TO 0 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 9 IS REACHED.

```
PAGE: 2 C1 PIN:47  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................9
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................Y
VEHICLE DETECTOR (1-64).............22
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

➡ ENTER A 'Y' FOR NOT ENABLED ➡

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 5A - PHASE 2)

```
PAGE: 2 C1 PIN:47  NOT ENABLED
INPUT ASSIGNMENT #.................9
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................Y
VEHICLE DETECTOR (1-64)............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 17

```
PAGE: 2 C1 PIN:55  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................17
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............5
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

➡ ENTER '55' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT ➡

(LOOP 5A - PHASE 5)

```
PAGE: 2 C1 PIN:55  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................17
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............55
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................._
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)......................_
FLASH SENSE (Y/N)...................._
DOOR OPEN (Y/N)......................_
MANUAL CONTROL ENABLE (Y/N).........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 5A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #55.

```
VEHICLE DETECTOR #55  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

➡ ENTER 'Y' FOR ENABLE DETECTOR ➡

ENTER '5' FOR PHASES ASSIGNED ➡

ENSURE DELAY IS '0' ➡

```
VEHICLE DETECTOR #55  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦    X
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

▽ THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0424
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

Electrical Detail - Sheet 4 of 5

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims 3-03-16
SIGNATURE DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of: Transportation Mobility and Safety Division, Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road) at I-140-US 17 WB Ramps/ Centennial Drive

Division 03 New Hanover County Wilmington

PLAN DATE: September 2009	REVIEWED BY: T. Joyce
PREPARED BY: S. Armstrong	REVIEWED BY:

REVISIONS	INIT.	DATE
▽ Added alternate phasing and revised overlap programming. (JP)	KMM	3-03-16

SEAL

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SIGNATURE DATE

SIG. INVENTORY NO. 03-0424

10-MAR-2016 13:51
S:\ITS&SU\ITS Signals\Workgroups\Sig Man\Peterson\030424_sm_ele_20160303.dgn
jpeterson

PROJECT REFERENCE NO.	SHEET NO.
I-5760	Sig. 2.5

▽1 ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING COORDINATION - SELECT ALL PAGE CHANGES (AS SHOWN BELOW) WITHIN COORDINATION PLAN PROGRAMMING.

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM PAGE CHANGES (SHOWN BELOW) IN SEPARATE TIME OF DAY EVENTS. IF PAGE 1 IS USED, NO EVENT PROGRAMMING IS NECESSARY FOR THAT PARTICULAR PAGE.

PHASING	INPUTS PAGE	OVERLAPS PAGE
ACTIVE PAGES REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PAGES REQUIRED TO RUN ALTERNATE PHASING	2	2

NOTE: PAGES NOT SHOWN (i.e. sequence, phase control, etc.) SHOULD REMAIN AS '1', OR AS DEFINED BY TIMING ENGINEER.

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY PAGE CHANGE EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN PAGE CHANGE EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN THESE OVERLAP/INPUT PAGE CHANGES ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAPS PAGE 2: Modifies overlap parent phases for heads 11 and 51 to run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

▽1 OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS). PRESS 'NEXT' TO ADVANCE TO PAGE 2.

NOTICE PAGE 2 →

```
PAGE 2: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          :12345678910111213141516
VEH OVL PARENTS::X
VEH OVL NOT VEH::
VEH OVL NOT PED::
VEH OVL GRN EXT::
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........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
```

PRESS '+'

NOTICE PAGE 2 →

```
PAGE 2: VEHICLE OVERLAP 'B' SETTINGS
PHASE:          :12345678910111213141516
VEH OVL PARENTS:: XX
VEH OVL NOT VEH::
VEH OVL NOT PED::
VEH OVL GRN EXT::
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........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

PRESS '+'

NOTICE PAGE 2 →

```
PAGE 2: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          :12345678910111213141516
VEH OVL PARENTS::    X
VEH OVL NOT VEH::
VEH OVL NOT PED::
VEH OVL GRN EXT::
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........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
```

PRESS '+'

NOTICE PAGE 2 →

```
PAGE 2: VEHICLE OVERLAP 'D' SETTINGS
PHASE:          :12345678910111213141516
VEH OVL PARENTS::       X
VEH OVL NOT VEH::
VEH OVL NOT PED::
VEH OVL GRN EXT::
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........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

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0424
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

Electrical Detail - Sheet 5 of 5

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MINKS

DocuSigned by: Keith M. Minks 3-03-16
SIGNATURE DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road) at I-140-US 17 WB Ramps/ Centennial Drive

Division 03 | New Hanover County | Wilmington

PLAN DATE:	September 2009	REVIEWED BY:	T. Joyce
PREPARED BY:	S. Armstrong	REVIEWED BY:	

REVISIONS	INIT.	DATE
▽1 Added alternate phasing and revised overlap programming. JJP	KMM	3-03-16

SEAL

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by George C. Brown, PE #022013, on 09/29/09. This document is only certified as to the revisions.

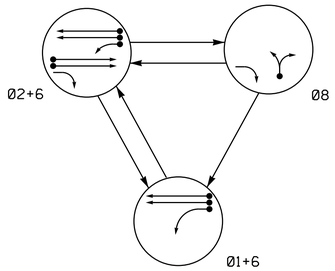
SIGNATURE DATE

SIG. INVENTORY NO. 03-0424

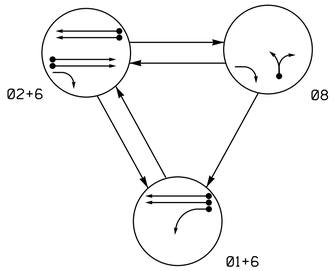
10-MAR-2016 13:53
S:*TISGUI\TIS Signals\Workgroups\Sig Mon\Peterson\03424_sm_ele_20160303.dgn
jtpeterson

PROJECT REFERENCE NO.	SHEET NO.
I-5760	Sig. 3.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



DEFAULT TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 08	PHASE FLASH
11	~~←~~	~~F~~	~~R~~	~~Y~~
21	R	G	R	Y
22	R	G	R	Y
61,62	G	G	R	Y
81,82	R	R	G	R

ALTERNATE TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 08	PHASE FLASH
11	~~←~~	~~R~~	~~R~~	~~Y~~
21	R	G	R	Y
22	R	G	R	Y
61,62	G	G	R	Y
81,82	R	R	G	R

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

	INDUCTIVE LOOPS				DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	*20	-	-
					**6	Y	Y	Y	-	3	-	-
2A	6X6	355	4	-	2	Y	Y	-	-	-	-	-
2B	6X6	355	4	-	2	Y	Y	-	-	-	-	-
6A	6X6	355	4	-	6	Y	Y	-	-	-	-	-
6B	6X6	355	4	-	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	-
S3	6X6	+160	4	-	-	-	-	-	-	-	Y	-
S4	6X6	+160	4	-	-	-	-	-	-	-	Y	-

* Disable delay during alternate phasing operation

** Disable phase 6 call during alternate phasing operation

3 Phase
Fully Actuated
NC 133 (Castle Hayne Rd) CLS

NOTES

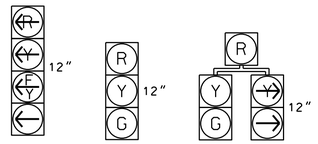
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Set all detector units to presence mode.
5. The Division Traffic Engineer will determine the hours of use for each phasing plan.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Closed loop system data: Controller Asset #0929.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.

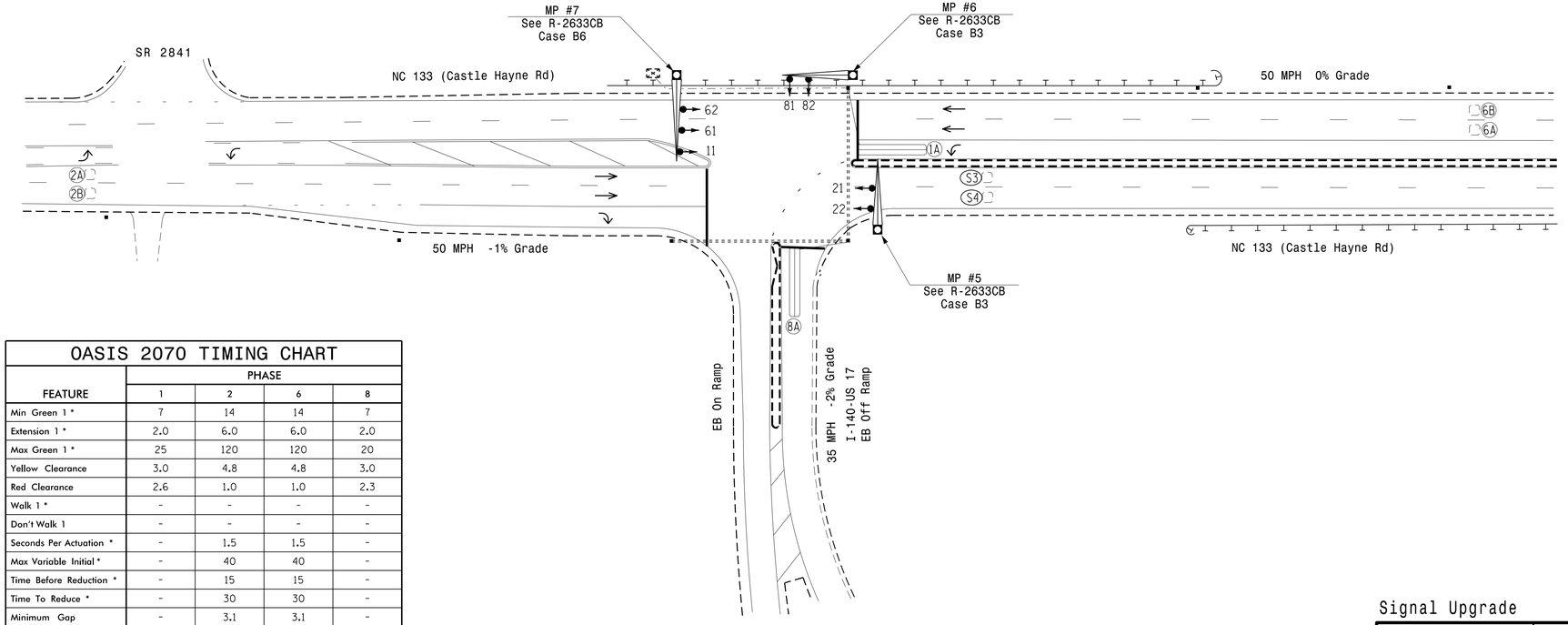
All Heads L.E.D.



11

21
61, 62
81, 82

22



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 6	PHASE 8
Min Green 1 *	7	14	14	7
Extension 1 *	2.0	6.0	6.0	2.0
Max Green 1 *	25	120	120	20
Yellow Clearance	3.0	4.8	4.8	3.0
Red Clearance	2.6	1.0	1.0	2.3
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	1.5	1.5	-
Max Variable Initial *	-	40	40	-
Time Before Reduction *	-	15	15	-
Time To Reduce *	-	30	30	-
Minimum Gap	-	3.1	3.1	-
Recall Mode	-	MIN RECALL	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	YELLOW	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* 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.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Metal Pole with Mastarm	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guard Rail	
	2-2" Rigid Metal Conduit	

Signal Upgrade

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

NC 133 (Castle Hayne Road)
at
I-140-US 17 EB Ramps

Division 3 New Hanover County Wilmington

PLAN DATE: January 2016 REVIEWED BY: PLA, PE

PREPARED BY: EW Minshew REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 023489 ENGINEER PAMELA L. ALEXANDER

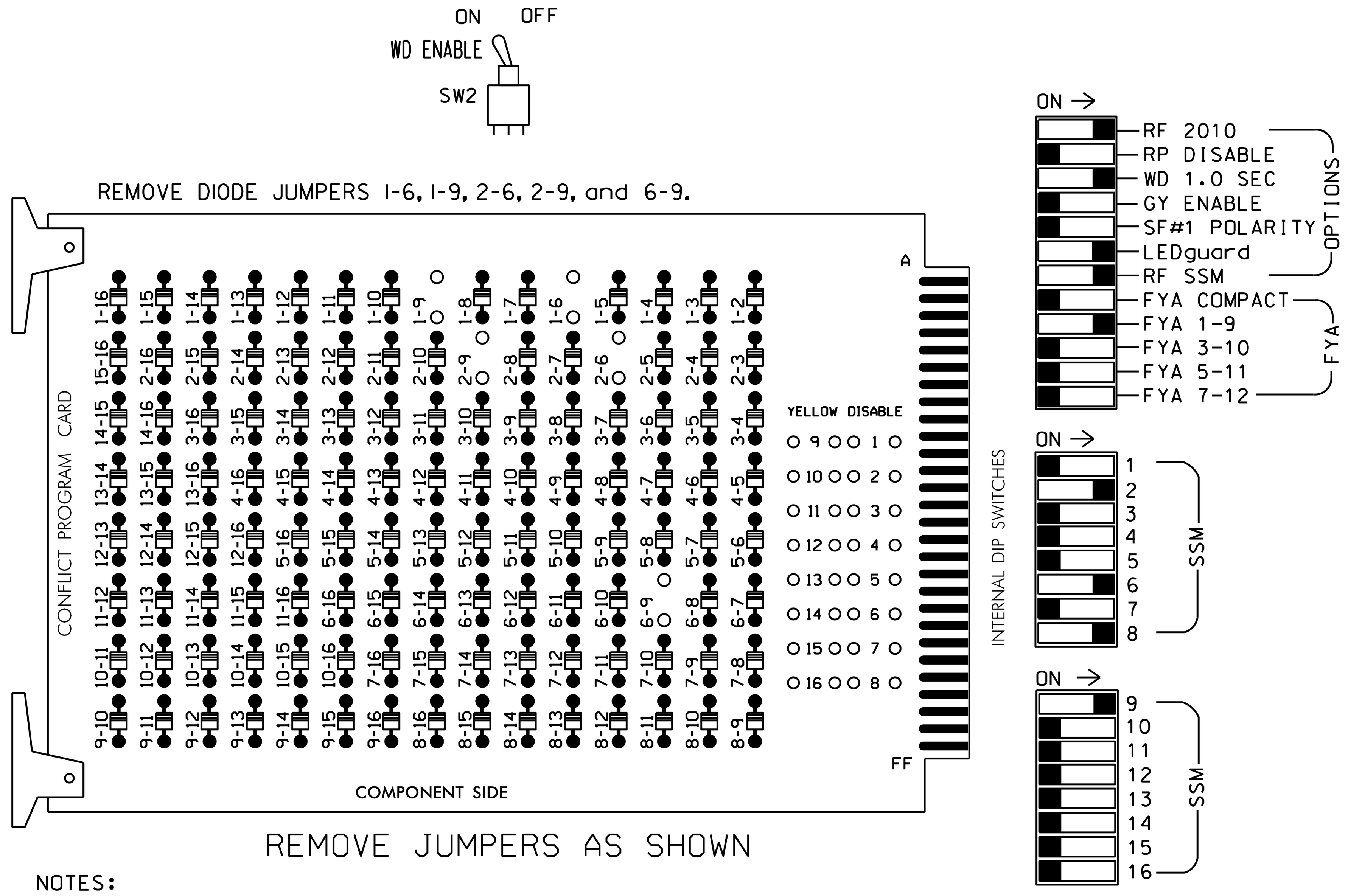
DocuSigned by: P L Alexander B4756E00CE4E46D... 2/16/16 DATE

SIG. INVENTORY NO. 03-0929

09-MAR-2016 07:07
S:\ATTSSUM\TS\Signals\Signal Design Section\Eastern Region\Div-03\03-0929\03093_sig_dsn_2016mod.dgn
emminshew

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SYS. DET. S3	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø 2 2B							SYS. DET. S4					ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø 6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø 6 6B				NOT USED								

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

⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

▽1 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[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			20
	-	J4U	48	10	26★	6	Y	Y	Y		3
	-	I1U	56	18	51★	1	Y	Y			
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
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			10
✱ S3	TB6-9,10	I9U	60	22	11	SYS					
✱ S4	TB6-11,12	I9L	62	24	13	SYS					

[1] Add jumper from I1-W to J4-W, on rear of input file.

✱ System detector only. Remove the vehicle phase assigned to this detector in the default programming.

★ See input Page Assignment programming detail on sheet 3.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

NOTES

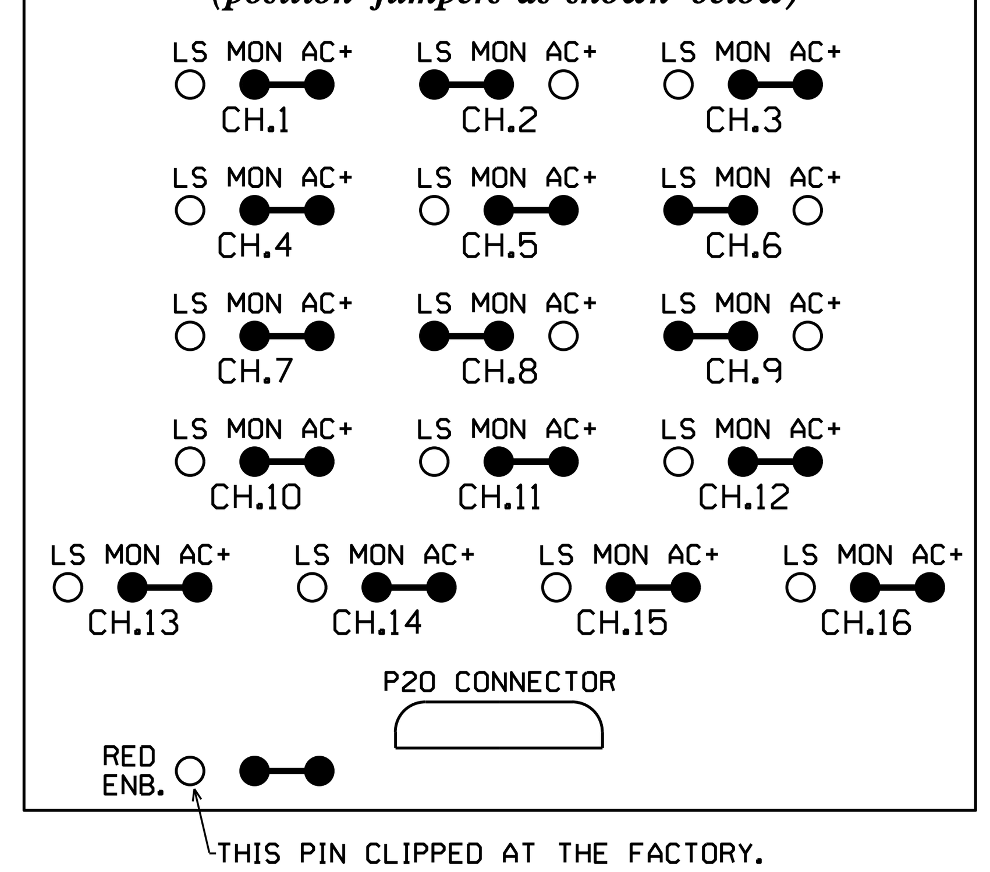
1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. To prevent red failures on unused monitor channels, see Red Monitor Board Programming Detail this sheet.
3. Program phases 2 and 6, on the controller unit, for Start Up In Green.
4. Enable Simultaneous Gap-Out, on the controller unit, for all phases.
5. Program phases 2 and 6, on the controller unit, for Variable Initial and Gap Reduction.
6. The cabinet and controller are part of the NC 133 (Castle Hayne Rd.) CLS.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................McCAIN/CONTROL TECHNOLOGIES
DWG.NO.9500-332-NCDOT /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S6,S8,S9
PHASES USED.............1,2,6,8
OVERLAP "A".............1+2
OVERLAP "B".............NOT USED
OVERLAP "C".............NOT USED
OVERLAP "D".............NOT USED

RED MONITOR BOARD PROGRAMMING

(position jumpers as shown below)



SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8		S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8		8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	NU	NU	NU	NU	NU	61,62	NU	NU	22	81,82	NU	11★	NU	NU	NU	NU	NU
RED		128						134				107							
YELLOW	✱	129						135				108							
GREEN		130						136				109							
RED ARROW														A121					
YELLOW ARROW											108			A122					
FLASHING YELLOW ARROW														A123					
GREEN ARROW	127										109								

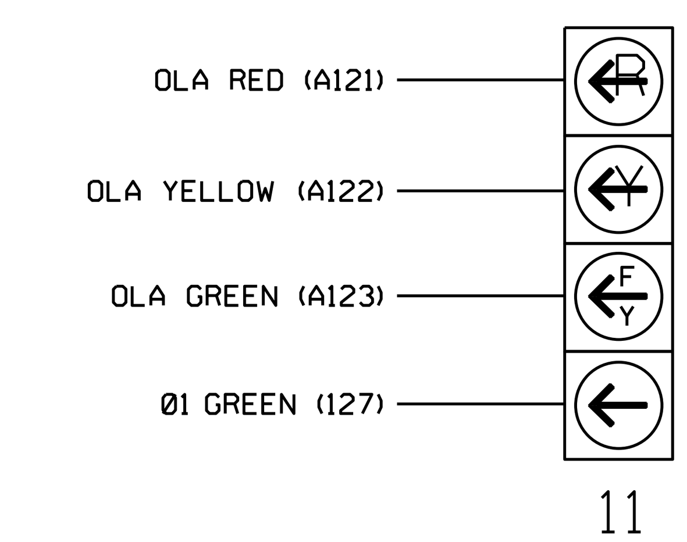
NU = Not Used

✱ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal head as shown)



NOTE

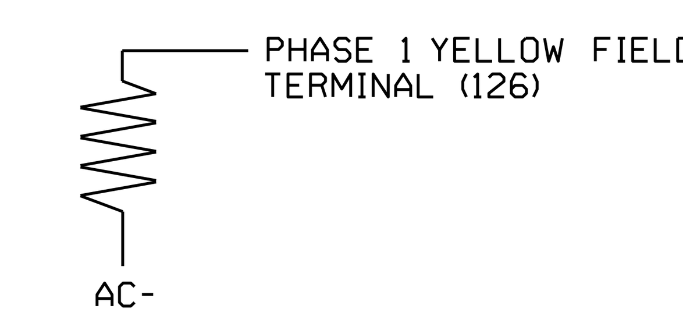
1. The sequence display for signal head 11 requires special logic programming. See sheet 2 of 4 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

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

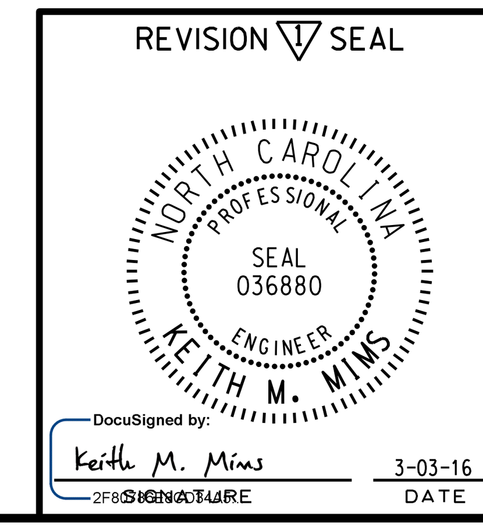


▽1 THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0929
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISION ▽1 SEAL



ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road) at I-140-US 17 EB Ramps

Division 03 New Hanover County Wilmington

PLAN DATE: September 2009	REVIEWED BY: T. Joyce
PREPARED BY: S. Armstrong	REVIEWED BY:

REVISIONS	INIT.	DATE
▽1 Added alternate phasing and updated overlap programming.(JP)	KMM	3-03-16

SEAL

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by George C. Brown, PE #022013, on 09/29/09. This document is only certified as to the revisions.

SIGNATURE DATE

SIG. INVENTORY NO. 03-0929

11-MAR-2016 07:32
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jlpeterson

PROJECT REFERENCE NO.	SHEET NO.
I-5760	Sig. 3.2

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

(program controller as shown below)

1. 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, AND 3.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
  LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON

            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #50 ON
 SET OUTPUT  ASSIGNMENT #51 OFF
```

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
  LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON

            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #52 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
  LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #1  IS ON

            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #51 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

OVERLAP PROGRAMMING DETAIL
FOR DEFAULT PHASING

(program controller as shown below)

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

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:          |1234567891011121314151 6
VEH OVL PARENTS: |XX
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
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
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

OVERLAP PROGRAMMING COMPLETE

▽ OVERLAP PROGRAMMING DETAIL
FOR ALTERNATE PHASING

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS).
THEN '1' (VEHICLE OVERLAP SETTINGS).
PRESS 'NEXT' TO ADVANCE TO PAGE 2.

NOTICE PAGE 2 →

```
 PAGE 2: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:          |1234567891011121314151 6
VEH OVL PARENTS: |X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
-------------------------------------------
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........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
```

OVERLAP PROGRAMMING COMPLETE

▽ THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0929
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

Electrical Detail - Sheet 2 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims — SIGNATURE — 3-03-16 DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of: Transportation Mobility and Safety Division, North Carolina Department of Transportation, Traffic Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road) at I-140-US 17 EB Ramps

Division 03 — New Hanover County — Wilmington

PLAN DATE: September 2009	REVIEWED BY: T. Joyce
PREPARED BY: S. Armstrong	REVIEWED BY:

REVISIONS	INIT.	DATE
▽ Added alternate phasing and updated overlap programming.JJP	KMM	3-03-16

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SIGNATURE — DATE

SIG. INVENTORY NO. 03-0929

PROJECT REFERENCE NO.	SHEET NO.
I-5760	Sig. 3.3

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 1A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #10 (DETECTOR 26) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 6 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 51 TO INPUT #18 SO THAT THE DELAY ON LOOP 1A CAN BE REDUCED FROM 20 SECONDS TO 0 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 10 IS REACHED.

```
PAGE: 2 C1 PIN:48  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............26
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#..._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER A 'Y' FOR NOT ENABLED

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 1A - PHASE 6)

```
PAGE: 2 C1 PIN:48  NOT ENABLED
INPUT ASSIGNMENT #..................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64)............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#..._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 18

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............1
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#..._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER '51' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT

(LOOP 1A - PHASE 1)

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............51
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE)..._  OFFSET#..._
CHANGE PHASE SEQUENCE PAGE (1-12)...._
CHANGE PHASE TIMING PAGE (1-4)......._
CHANGE PHASE CONTROL PAGE (1-4)......_
CHANGE OVERLAP CONTROL PAGE (1-4)...._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 1A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #51.

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          |12345678910111213141516
PHASES ASSIGNED |
SWITCH/DUPLICATE|
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

ENTER 'Y' FOR ENABLE DETECTOR

ENTER '1' FOR PHASES ASSIGNED

ENSURE DELAY IS '0'

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                          (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          |12345678910111213141516
PHASES ASSIGNED |X
SWITCH/DUPLICATE|
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0929
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail - Sheet 3 of 4

REVISION 1 SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

DocuSigned by: Keith M. Mims 3-03-16

SIGNATURE DATE

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division - State of North Carolina Department of Transportation - Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 133 (Castle Hayne Road) at I-140-US 17 EB Ramps

Division 03 New Hanover County Wilmington

PLAN DATE: September 2009	REVIEWED BY: T. Joyce
PREPARED BY: S. Armstrong	REVIEWED BY:

REVISIONS	INIT.	DATE
1 Added alternate phasing and updated overlap programming.(JP)	KMM	3-03-16

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SIG. INVENTORY NO. 03-0929

PROJECT REFERENCE NO.	SHEET NO.
I-5760	Sig. 3.4

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING COORDINATION - SELECT ALL PAGE CHANGES (AS SHOWN BELOW) WITHIN COORDINATION PLAN PROGRAMMING.

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM PAGE CHANGES (SHOWN BELOW) IN SEPARATE TIME OF DAY EVENTS. IF PAGE 1 IS USED, NO EVENT PROGRAMMING IS NECESSARY FOR THAT PARTICULAR PAGE.

PHASING	INPUTS PAGE	OVERLAPS PAGE
ACTIVE PAGES REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PAGES REQUIRED TO RUN ALTERNATE PHASING	2	2

NOTE: PAGES NOT SHOWN (i.e. sequence, phase control, etc.) SHOULD REMAIN AS '1', OR AS DEFINED BY TIMING ENGINEER.

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY PAGE CHANGE EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN PAGE CHANGE EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN THESE OVERLAP/INPUT PAGE CHANGES ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAPS PAGE 2: Modifies overlap parent phases for head 11 to run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0929
DESIGNED: January 2016
SEALED: 2-16-16
REVISED: N/A

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REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036880 ENGINEER KEITH M. MIMS

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