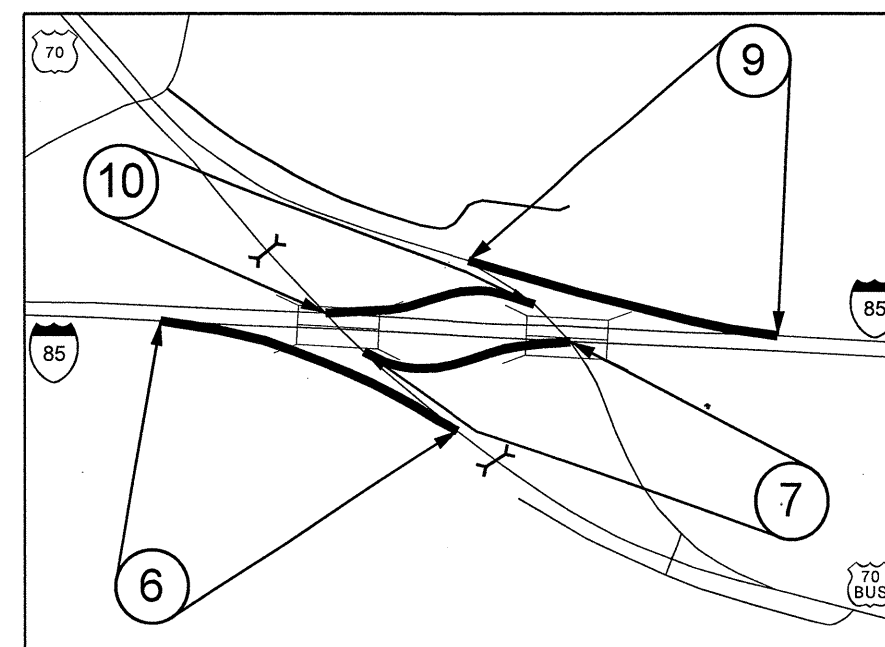
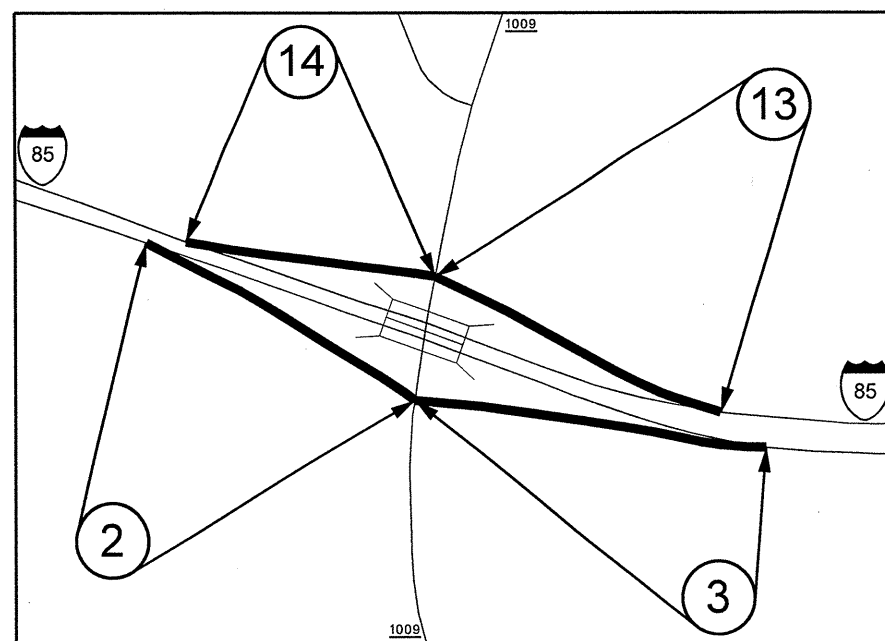
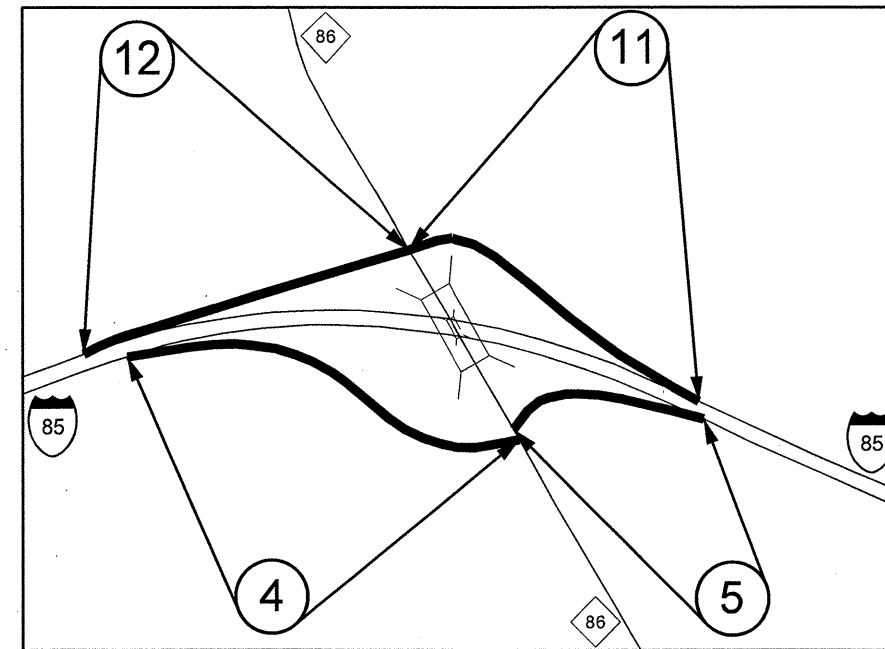
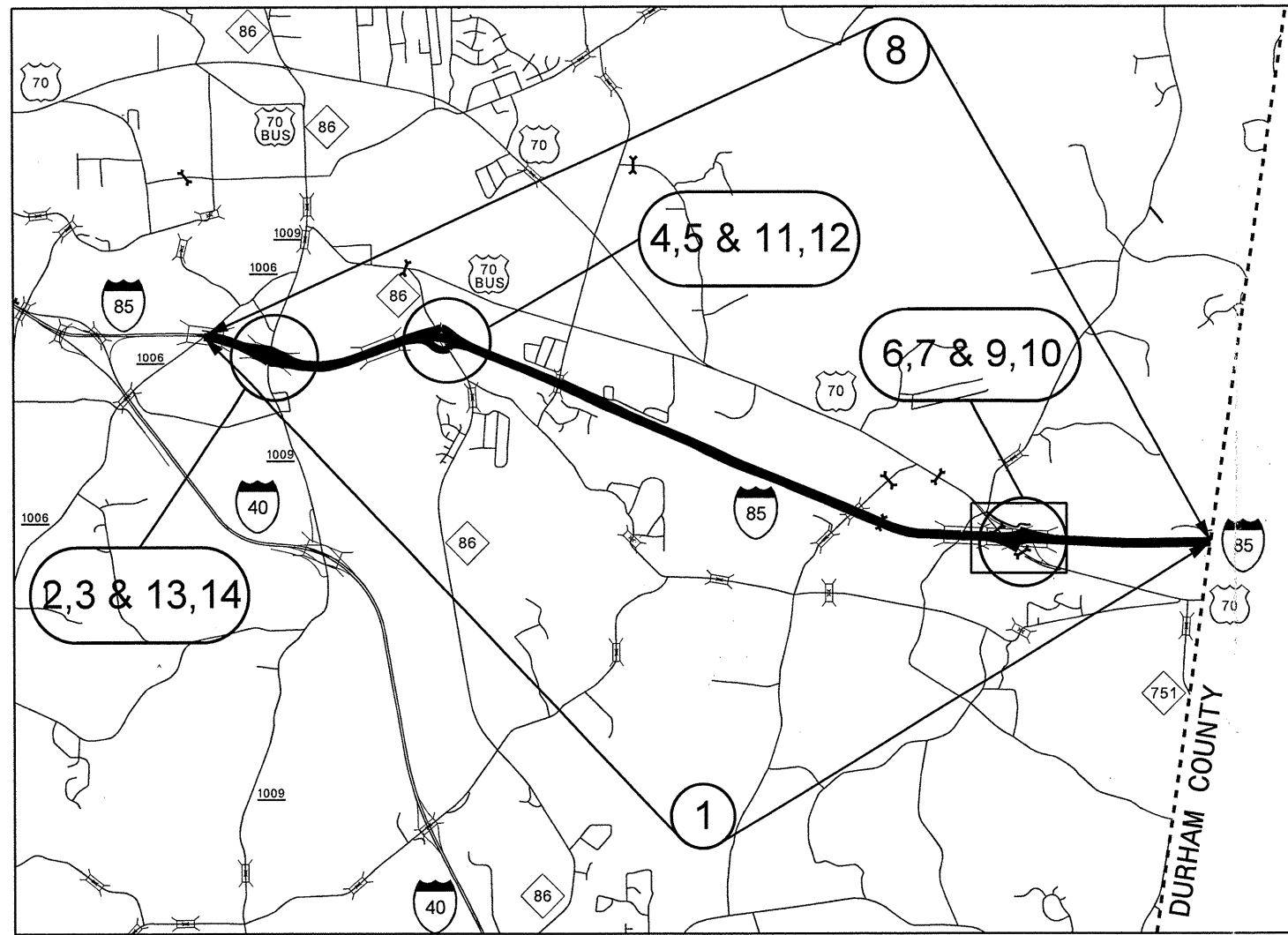


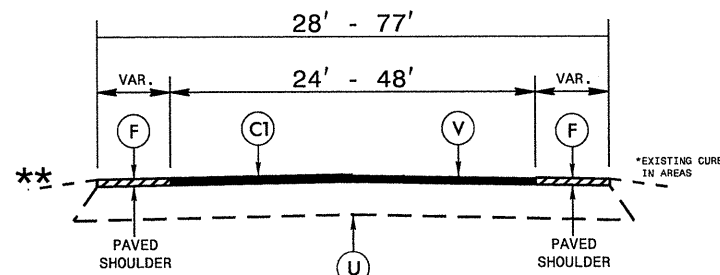
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5312	1	
F.A. PROJ. NO.			

2014 ORANGE COUNTY



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STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5312	2	



TYPICAL SECTION NO. 1

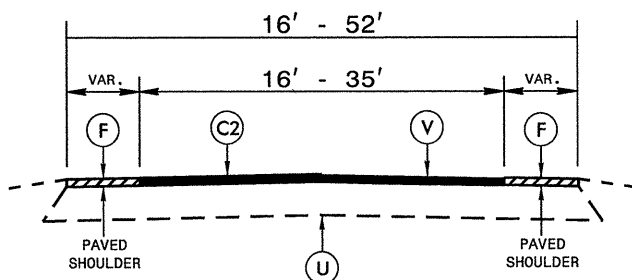
TO BE USED ON MAPS 1 AND 8

- *NOTE: TYPICAL SECTION CONSTRUCTION SEQUENCE:
 1. MILL TRAVEL LANES 1 1/2" AND FILL WITH 1 1/2" SURFACE COURSE, TYPE S9.5D
 2. OVERLAY SHOULDERS WITH FOG SEAL

**NOTE: NO PAVEMENT ON SECTION
 MAP 1: STA. 0+00 TO STA. 2+55
 MAP 8: STA. 390+00 TO STA. 392+58

***NOTE: USE BRIDGE DETAIL 1
 MAP 1: MILL AND FILL FULL WIDTH ON BRIDGES:
 BRIDGE #83: STA. 26+15 TO STA. 27+65
 BRIDGE #91: STA. 70+15 TO STA. 71+70
 BRIDGE #103: STA. 318+55 TO STA. 321+00
 BRIDGE #110: STA. 328+20 TO STA. 330+05
 MAP 8: MILL AND FILL FULL WIDTH ON BRIDGES:
 BRIDGE #111: STA. 64+35 TO STA. 66+50
 BRIDGE #106: STA. 76+35 TO STA. 78+00
 BRIDGE #93: STA. 322+80 TO STA. 324+35
 BRIDGE #87: STA. 365+90 TO STA. 367+45

****NOTE: USE BRIDGE DETAIL 2
 MAP 1: OVERLAY FULL WIDTH ON BRIDGES:
 BRIDGE #98: STA. 302+45 TO STA. 304+50
 MAP 8: OVERLAY FULL WIDTH ON BRIDGES:
 BRIDGE #100: STA. 89+15 TO STA. 91+20



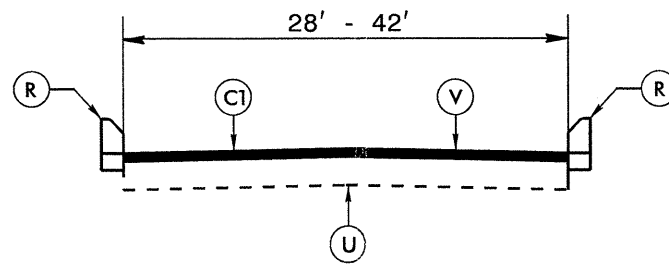
TYPICAL SECTION NO. 2

TO BE USED ON MAPS 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, AND 14

- *NOTE: TYPICAL SECTION CONSTRUCTION SEQUENCE:
 1. MILL TRAVEL LANES 1 1/2" AND FILL WITH 1 1/2" SURFACE COURSE, TYPE S9.5B
 2. OVERLAY SHOULDERS WITH FOG SEAL

**NOTE: NO PAVEMENT ON SECTION:
 MAP 3: STA. 0+00 TO STA. 7+20
 MAP 4: STA. 1+65 TO STA. 6+20
 MAP 11: STA. 1+40 TO STA. 3+20
 MAP 12: STA. 0+00 TO STA. 6+65
 MAP 14: STA. 0+00 TO STA. 7+00

BRIDGE DETAIL 1

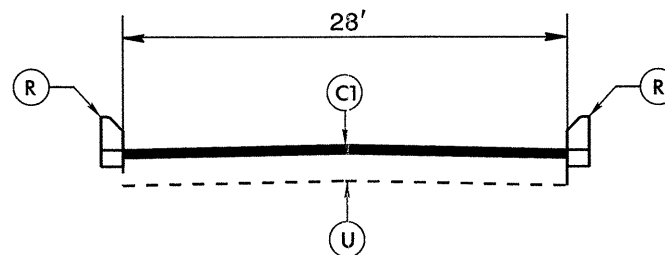


MILL 1 1/2" AND FILL 1 1/2"

MILL EXISTING ASPHALT PAVEMENT 1 1/2" AND FILL WITH 1 1/2" SURFACE COURSE, TYPE S9.5D AT LOCATIONS AS DIRECTED BY THE ENGINEER.

NOTE: TO BE USED IN CONJUNCTION WITH:
 TS. NO. 1 ON MAP 1 STA. 26+15 TO STA. 27+65
 TS. NO. 1 ON MAP 1 STA. 70+15 TO STA. 71+70
 TS. NO. 1 ON MAP 1 STA. 318+55 TO STA. 321+00
 TS. NO. 1 ON MAP 1 STA. 328+20 TO STA. 330+05
 TS. NO. 1 ON MAP 8 STA. 64+35 TO STA. 66+50
 TS. NO. 1 ON MAP 8 STA. 76+35 TO STA. 78+00
 TS. NO. 1 ON MAP 8 STA. 322+80 TO STA. 324+35
 TS. NO. 1 ON MAP 8 STA. 365+90 TO STA. 367+45

BRIDGE DETAIL 2

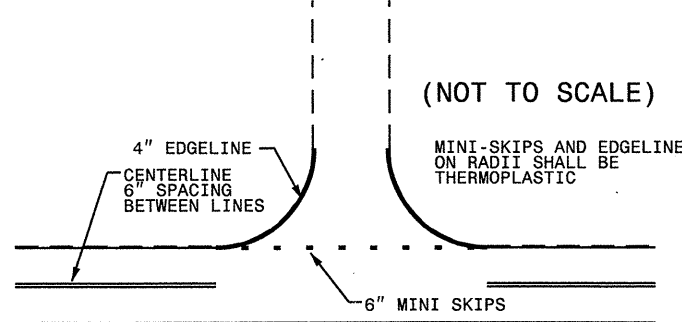


OVERLAY 1 1/2"

OVERLAY WITH 1 1/2" SURFACE COURSE, TYPE S9.5D AT LOCATIONS AS DIRECTED BY THE ENGINEER.

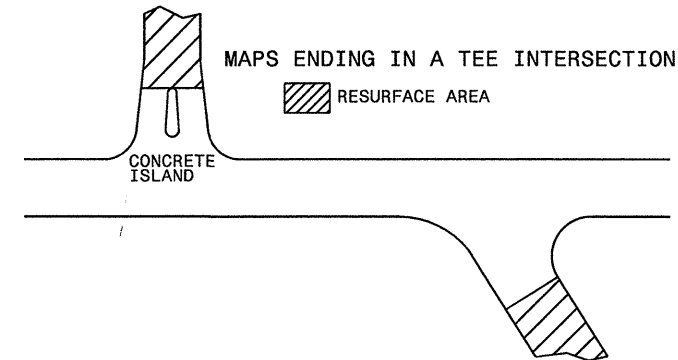
NOTE: TO BE USED IN CONJUNCTION WITH:
 TS. NO. 1 ON MAP 1 STA. 302+45 TO STA. 304+50
 TS. NO. 1 ON MAP 8 STA. 89+15 TO STA. 91+20

TO BE USED AT ALL NON-SIGNALIZED INTERSECTIONS



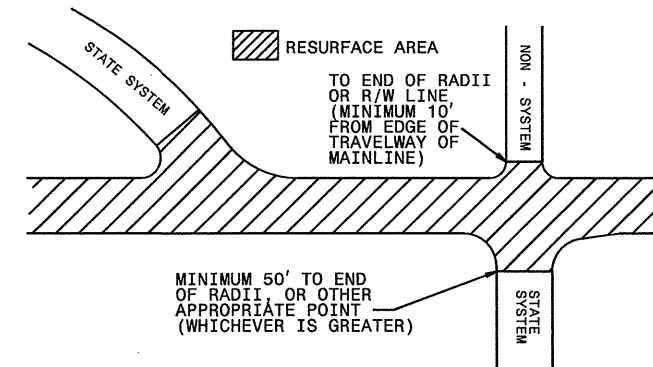
NOTE: MINI SKIPS SHALL BE PLACED ON A 10' CYCLE, CONTAINING AN 8' AND 2' SKIP, THE WIDTH OF THE SKIP SHALL BE 6".

PAVING DETAIL 1
 MAIN LINE IS NOT BEING RESURFACED



PAVING DETAIL 2
 MAIN LINE IS BEING RESURFACED

NOTE: NON-SYSTEM (CITY STREET, PRIVATE DRIVE, SCHOOL BUS DRIVE)



PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
F	PROPOSED FOG SEAL TO BE APPLIED TO THE EXISTING SHOULDER
R	EXISTING CONCRETE STRUCTURE
U	EXISTING PAVEMENT.
V	1 1/2" MILLING

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PROJECT NO.	SHEET NO.	TOTAL NO.
I-5312	3	

SUMMARY OF QUANTITIES

PROJECT NO.	COUNTY	MAP NO.	ROUTE	DESCRIPTION	TYP NO.	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	MILLING ASPHALT PAVEMENT, 1 1/2" DEPTH SY	ASPHALT CONC SURFACE COURSE, TYPE S9.5B TONS	SURFACE COURSE, S9.5D TON	ASPHALT BINDER FOR PLANT MIX TONS	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX TONS	FOG SEAL SY	PORTABLE LIGHTING LS	TRENCHING (UNPAVED) (1 2") LF	JUNCTION BOX (STANDARD SIZE) EA	INDUCTIVE LOOP SAW CUT LF	LEAD-IN CABLE (14-2) LF				
I-5312	Orange	1	I-85 NORHTBOUND	SKIP	1	NO	NO	0.048	28-31															
				FROM JOINT AT BRIDGE #81 OVER SR 1006 (ORANGE GROVE ROAD) - 8.64 TO DURHAM COUNTY LINE - 16.11	1	NO	NO	0.031	31-40	436		37			2	211								
					1	NO	NO	0.147	40	2,070		175			10	1,378								
					1	NO	NO	0.122	40-73	3,078		259			15	968								
					1	NO	NO	0.105	40	1,478		125			7	987								
					1	NO	NO	0.042	28-40	591		50			3	244								
				BRIDGE #83	1	NO	NO	0.028	28	460		39			2									
					1	NO	NO	0.042	28-40	591		50			3	244								
					1	NO	NO	0.124	40	1,746		147			8	1,164								
					1	NO	NO	0.149	40-69	3,671		309			18	1,090								
					1	NO	NO	0.456	40	6,420		542			31	4,284								
					1	NO	NO	0.034	28-40	479		40			2	200								
				BRIDGE #91	1	NO	NO	0.029	28	476		40			2									
					1	NO	NO	0.018	28-40	253		21			1	106								
					1	NO	NO	0.116	40	1,633		138			8	1,093								
					1	NO	NO	0.12	40-74	3,168		267			15	882								
					1	NO	NO	0.325	40	4,576		386			22	3,049								
					1	NO	NO	0.057	46-71	1,639		138			8	317								
					1	NO	NO	0.031	46	655		55			3	183								
					1	NO	NO	0.04	40-46	704		59			3	303								
					1	NO	NO	3.611	40	50,843		4,293			245	33,893								
					1	NO	NO	0.052	28-40	732		62			4	306								
				BRIDGE #98	1	NO	NO	0.039	28			54			3									
					1	NO	NO	0.024	28-40	338		29			2	139								
					1	NO	NO	0.101	40	1,422		120			7	951								
					1	NO	NO	0.093	40-72	2,401		202			12	681								
					1	NO	NO	0.048	28-40	676		57			3	283								
				BRIDGE #103	1	NO	NO	0.046	28	756		64			4									
					1	NO	NO	0.021	28-40	296		25			1	122								
					1	NO	NO	0.082	40	1,155		97			6	773								
					1	NO	NO	0.033	40-67	910		77			4	136								
				BRIDGE #110	1	NO	NO	0.035	40	821		69			4									
					1	NO	NO	0.025	40-46	543		46			3	94								
					1	NO	NO	0.045	46	977		82			5	240								
					1	NO	NO	0.043	40-46	782		66			4	313								
					1	NO	NO	1.103	40	15,530		1,311			75	10,356								
				TOTAL FOR MAP NO. 1								7.465		112,306		9,531		545	64,990					
				2	OFF RAMP	FROM I-85 NORTHBOUND TO SR 1009 (OLD NC 86)	2	NO	NO	0.105	20	986	83		5	247								
							2	NO	NO	0.023	20-24	270	23		1	27								
							2	NO	NO	0.027	24	380	32		2						25	1	142	25
				TOTAL FOR MAP NO. 2								0.155		1,636	138		8	274		25	1	142	25	
				3	ON RAMP	SKIP	2	NO	NO	0.136	16													
						FROM CONCRETE JOINT AT SR 1009 (OLD NC 86) TO I-85 NORTHBOUND	2	NO	NO	0.015	20	141	12		1	36								
				TOTAL FOR MAP NO. 3								0.151		141	12		1	36						
				4	OFF RAMP	FROM I-85 NORTHBOUND TO NC 86	2	NO	NO	0.031	20-27	327	28		2	110								
						SKIP	2	NO	NO	0.086	16													
							2	NO	NO	0.025	25	249	21		1	116								
							2	NO	NO	0.035	25-32	431	36		2	164								
							2	NO	NO	0.031	32	436	37		2	147					100	1	200	100
				TOTAL FOR MAP NO. 4								0.208		1,443	122		7	537		100	1	200	100	
				5	ON RAMP	FROM NC 86 TO I-85 NORTHBOUND	2	NO	NO	0.013	52	336	28		2	62								
							2	NO	NO	0.051	24-52	898	76		5	240								
							2	NO	NO	0.031	24	291	25		1	147								
				TOTAL FOR MAP NO. 5								0.095		1,525	129		8	449						
				6	OFF RAMP	FROM I-85 NORTHBOUND TO US 70	2	NO	NO	0.162	23	1,806	153		9	380								
				TOTAL FOR MAP NO. 6								0.162		1,806	153		9	380						
				7	ON RAMP	FROM US 70 TO I-85 NORTHBOUND	2	NO	NO	0.067	24-30	590	50		3	493								
							2	NO	NO	0.031	20	218	19		1	147								
				TOTAL FOR MAP NO. 7								0.098		808	69		4	640						

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5312	4	

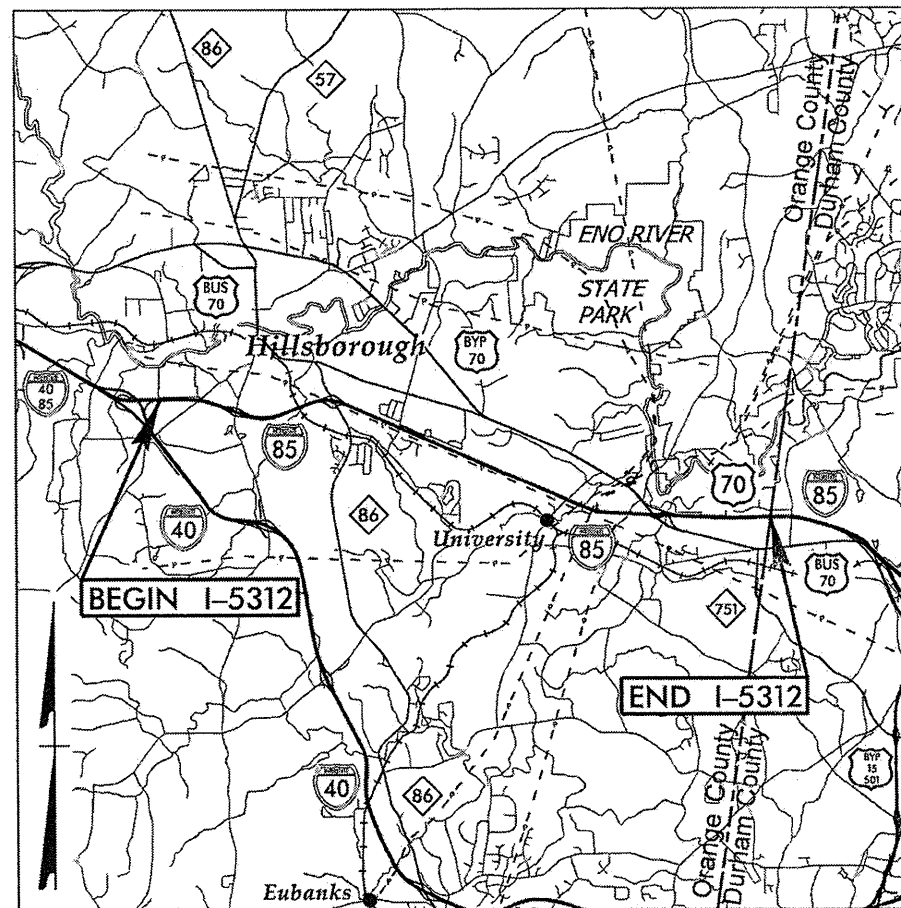
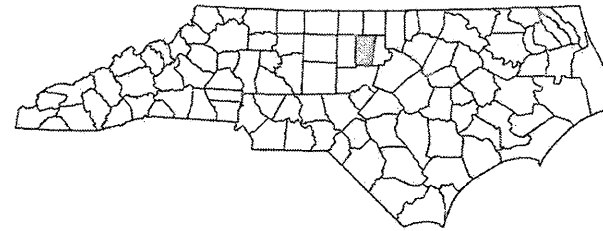
SUMMARY OF QUANTITIES

PROJECT NO.	COUNTY	MAP NO.	ROUTE	DESCRIPTION	TYP	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	MILLING ASPHALT PAVEMENT, 1 1/2" DEPTH SY	ASPHALT CONC SURFACE COURSE, TYPE S9.5B TONS	SURFACE COURSE, S9.5D TON	ASPHALT BINDER FOR PLANT MIX TONS	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX TONS	FOG SEAL SY	PORTABLE LIGHTING LS	TRENCHING (UNPAVED) (1) (2") LF	JUNCTION BOX (STANDARD SIZE) EA	INDUCTIVE LOOP SAW CUT LF	LEAD-IN CABLE (14-2) LF				
I-5312	Orange	8	I-85 SOUTHBOUND	FROM DURHAM COUNTY LINE - 0.00 TO JOINT AT BRIDGE #82 OVER SR 1006 (ORANGE GROVE ROAD) - 7.44	1	NO	NO	1.063	40	14,967		1,264		72	9,973									
					1	NO	NO	0.087	40-77	2,348		198			11	664								
					1	NO	NO	0.031	40	436		37			2	293								
					1	NO	NO	0.038	28-40	535		45			3	222								
					BRIDGE #111	1	NO	NO	0.041	28	674		57			3								
						1	NO	NO	0.021	28-40	296		25			1	122							
						1	NO	NO	0.08	40	1,126		95			5	756							
						1	NO	NO	0.085	42-69	2,443		206			12	325							
					BRIDGE #106	1	NO	NO	0.031	42	764		64			4								
						1	NO	NO	0.004	42-46	87		7				16							
						1	NO	NO	0.07	46	1,478		125			7	411							
						1	NO	NO	0.039	40-46	686		58			3	296							
						1	NO	NO	0.064	40	901		76			4	604							
						1	NO	NO	0.034	28-40	479		40			2	200							
					BRIDGE #100	1	NO	NO	0.039	28			54			3								
						1	NO	NO	0.024	28-40	338		29			2	139							
						1	NO	NO	3.711	40	52,251		4,412			251	34,836							
						1	NO	NO	0.087	40-77	2,297		193			11	716							
						1	NO	NO	0.322	40	4,534		383			22	3,022							
						1	NO	NO	0.112	40-67	2,628		221			13	918							
						1	NO	NO	0.105	40	1,478		125			7	987							
						1	NO	NO	0.026	28-40	366		31			2	150							
					BRIDGE #93	1	NO	NO	0.029	28	476		40			2								
						1	NO	NO	0.02	28-40	282		24			1	117							
						1	NO	NO	0.502	40	7,068		597			34	4,711							
						1	NO	NO	0.116	40-75	3,062		258			15	847							
						1	NO	NO	0.119	40	1,676		141			8	1,120							
						1	NO	NO	0.03	28-40	422		36			2	178							
					BRIDGE #87	1	NO	NO	0.029	28	476		40			2								
						1	NO	NO	0.018	28-40	253		21			1	106							
						1	NO	NO	0.136	40	1,915		162			9	1,280							
						1	NO	NO	0.058	45-64	1,565		132			8	305							
						1	NO	NO	0.027	45	570		48			3	145							
						1	NO	NO	0.049	40-45	862		73			4	361							
						1	NO	NO	0.1	40	1,408		119			7	942							
						1	NO	NO	0.038	31-40	535		45			3	256							
					SKIP	1	NO	NO	0.049	28-31														
								TOTAL FOR MAP NO. 8				7.434		111,682		9,481		539	65,018					
					9	OFF RAMP		FROM I-85 SOUTHBOUND TO US 70	2	NO	NO	0.182	27	1,815	154		9		1,067					
								TOTAL FOR MAP NO. 9				0.182		1,815	154		9	1,067						
					10	ON RAMP		FROM US 70 TO I-85 SOUTHBOUND	2	NO	NO	0.096	25	788	67		4		617					
								TOTAL FOR MAP NO. 10				0.096		788	67		4	617						
					11	OFF RAMP		FROM I-85 SOUTHBOUND TO NC 86	2	NO	NO	0.027	20-26	269	23		1		93					
								SKIP	2	NO	NO	0.034	17											
									2	NO	NO	0.091	17-31	1,175	99		6		133					
									2	NO	NO	0.025	31	367	31		2		87					
								TOTAL FOR MAP NO. 11				0.177		1,811	153		9	313						
					12	ON RAMP		FROM CONCRETE JOINT AT NC 86 TO I-85 SOUTHBOUND	2	NO	NO	0.126	16											
								TOTAL FOR MAP NO. 12				0.142		150	13		1	38						
					13	OFF RAMP		FROM I-85 SOUTHBOUND TO SR 1009 (OLD NC 86)	2	NO	NO	0.024	19-21	197	17		1		83					
									2	NO	NO	0.08	19	704	60		4		189					
									2	NO	NO	0.022	19-25	258	22		1		26					
									2	NO	NO	0.026	25	381	32		2							
								TOTAL FOR MAP NO. 13				0.152		1,540	131		8	298						
					14	ON RAMP		FROM CONCRETE JOINT AT SR 1009 (OLD NC 86) TO I-85 SOUTHBOUND	2	NO	NO	0.133	16											
								TOTAL FOR MAP NO. 14				0.147		140	12		1	33						
								GRAND TOTAL FOR PROJ NO. I-5312				16.664		237,591	1,153	19,012	69	1,084	134,690	1	250	4	962	225

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ORANGE COUNTY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-3	PHASING
TMP-4	ALTERNATE DETOUR ROUTE FOR I-85 TRAFFIC
TMP-5	DETAIL

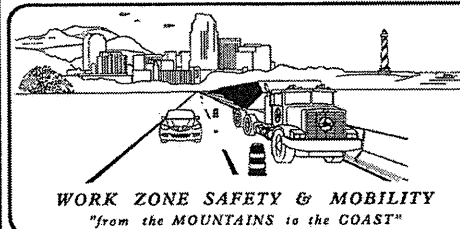
SHEET NO.

TMP-1

I-5312

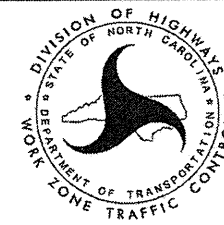
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6/19/2013
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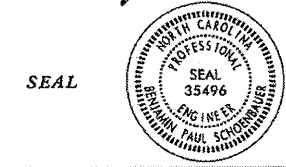


N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
JOSEPH ISHAK, P.E. TRAFFIC CONTROL PROJECT ENGINEER
BEN SCHOENBAUER, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
ALLA LYUDMIRSKAYA TRAFFIC CONTROL DESIGN ENGINEER



APPROVED: *Ben Schoenbauer*
DATE: *June 19, 2013*



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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:

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMP
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

6/19/2013 P:\TIP\Projects\N5312\TrafficControl\TCP\I-5312-TC-TMP-1A.dgn User:xyudml

APPROVED: DATE: 6/19/13 SEAL 		ROADWAY STANDARD DRAWINGS & LEGEND
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MANAGEMENT STRATEGIES

THE OBJECTIVE OF THIS PROJECT IS MILLING AND RESURFACING OF THE EXISTING PAVEMENT ON I-85, RUNS EAST/WEST IN ORANGE COUNTY. IT JOINS I-40 JUST WEST OF HILLSBOROUGH INTERSECTS OLD NC 86, NC 86 AND US 70 MOVING EAST TO THE ORANGE/DURHAM COUNTY LINE. THE EXISTING ROADWAY IS A 4-LANE GRASS MEDIAN DIVIDED FREEWAY THROUGHOUT THIS SECTION.

THE PROPOSED PAVEMENT REHABILITATION ON I-85 WILL BE CONSTRUCTED USING A COMBINATION OF LANE CLOSURES, ROAD CLOSURES AND FOLLOWING THE REQUIREMENTS OF PROJECT GENERAL NOTES.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
I-85 & ALL RAMPS	SUNDAY THROUGH THURSDAY FROM 6:00 A.M. TO 8:00 P.M. AND FRIDAY THROUGH SATURDAY FROM 6:00 A.M. TO 10:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
I-85 & ALL RAMPS

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 8:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00 P.M. THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 8:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 8:00 P.M. TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 8:00 P.M. TUESDAY.
- FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 8:00 P.M. MONDAY.
- FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

GENERAL NOTES CONTINUE

- C) DO NOT CLOSE ROADS AS FOLLOWS:
- | ROAD NAME | DAY AND TIME RESTRICTIONS |
|------------------|--|
| I-85 & ALL RAMPS | SUNDAY THROUGH THURSDAY
FROM 6:00 A.M. TO 8:00 P.M.
AND
FRIDAY THROUGH SATURDAY
FROM 6:00 A.M. TO 10:00 P.M. |

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- I) DO NOT INSTALL MORE THAN ONE LANE CLOSURE OR ROAD CLOSURE IN ANY ONE DIRECTION ON I-85.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
- BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
- BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
- BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- K) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (WB-11) 500 FEET IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

- L) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- M) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- N) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.
- PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- O) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.
- COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- P) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- Q) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.
- R) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- S) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

T) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

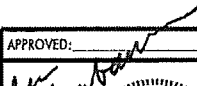
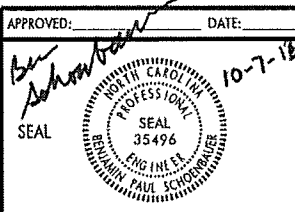
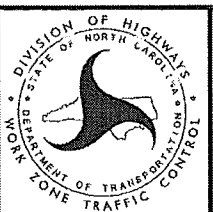
ROAD NAME	MARKING	MARKER
I-85 & ALL RAMPS	PAINT	N/A

- U) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- V) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- W) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MISCELLANEOUS

- X) WORK IN A CONTINUOUS MANNER WHEN ROAD CLOSURES ARE IN PLACE. RESTORE SAFE CONDITIONS, REMOVE ALL CLOSURES, AND RESTORE TRAFFIC TO ORIGINAL PATTERNS AT THE END OF EACH WORK PERIOD.
- Y) FINISH THE WIDENING OF BOTH SIDES OF THE ENTIRE WIDTH OF EXISTING ROADWAY AND ALL PATCHING BEFORE PLACING THE SURFACE COURSES IN THE ORDER AS AGREED UPON WITH THE ENGINEER AT THE FIRST PRE-CONSTRUCTION MEETING.
- Z) FOR GUARDRAIL (OR OTHER POSITIVE PROTECTION) REPLACEMENT: EACH SECTION OF POSITIVE PROTECTION THAT HAS BEEN REMOVED FROM ANY LOCATION MUST BE REPLACED WITHIN THE SAME WORK PERIOD UNLESS PROTECTED BY TEMPORARY POSITIVE PROTECTION AS DIRECTED BY THE ENGINEER. SHOULDER CLOSURES MUST REMAIN IN PLACE UNTIL POSITIVE PROTECTION REPLACEMENT HAS BEEN COMPLETED.

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APPROVED:  SEAL	DATE: 10-7-13			<h2 style="margin: 0;">TRANSPORTATION OPERATION PLAN</h2>
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PHASING

NOTE:
 INSTALL PORTABLE CHANGEABLE MESSAGE SIGNS (CMS) AT ALL REQUIRED LOCATIONS BEFORE CLOSING A LANE OR A ROAD (SEE SHEET TMP-4)

STEP 1:
 USING RSD 1101.02, RSD 1101.03, RSD 1101.04, SHEETS TMP-4 AND TMP-5, INSTALL AND COVER REQUIRED STATIONARY WARNING AND DETOUR SIGNS.

STEP 2 AND STEP 3 OPERATIONS MAY BE REPEATED IN ANY ORDER, BUT MAY NOT BE CONDUCTED SIMULTANEOUSLY

NOTES:

- WORK IN CONTINUOUS MANNER WHEN ROAD CLOSURES ARE IN PLACE
- MILL AND PAVE BACK BY THE END OF EACH WORK PERIOD OR AS DIRECTED BY THE ENGINEER
- ALL PAVING OPERATIONS SHALL HAVE TEMPORARY PAVEMENT MARKINGS PLACED PRIOR TO REOPENING I-85 TO TRAFFIC
- MILLING AND RESURFACING OPERATIONS WILL BE CONDUCTED UNDER ROAD CLOSURES.
- WORK WILL BE RESTRICTED TO ONE DIRECTION AT A TIME.
- ROAD WILL BE CLOSED AT THE NEAREST EXIT AHEAD OF WORK AREA AND REOPENED THE NEXT EXIT AFTER WORK AREA.

STEP 2 (IN EACH SEGMENT OF RESURFACING ON I-85):
 AWAY FROM TRAFFIC, PERFORM THE FOLLOWING:

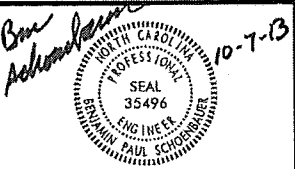
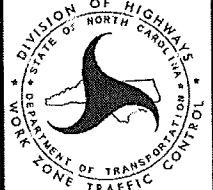
- A) ACTIVATE CMSS, UNCOVER REQUIRED STATIONARY WARNING AND DETOUR SIGNS, INSTALLED IN STEP 1. USING RSD 1101.02, INSTALL PORTABLE SIGNS. PLACE TYPE III BARRICADES TO CLOSE THE APPROPRIATE SECTION OF I-85 AND DETOUR THE I-85 TRAFFIC OFF-SITE VIA I-40;
- B) AWAY FROM TRAFFIC, MILL AND RESURFACE AN APPROPRIATE SECTION OF I-85;
- C) DEACTIVATE CMSS, COVER OR REMOVE ALL CLOSURE SIGNS AND DEVICES, AND RESTORE TRAFFIC TO THE ORIGINAL PATTERN AT THE END OF EACH WORK PERIOD.

STEP 3 (ALL OPERATIONS UNDER LANE CLOSURES):

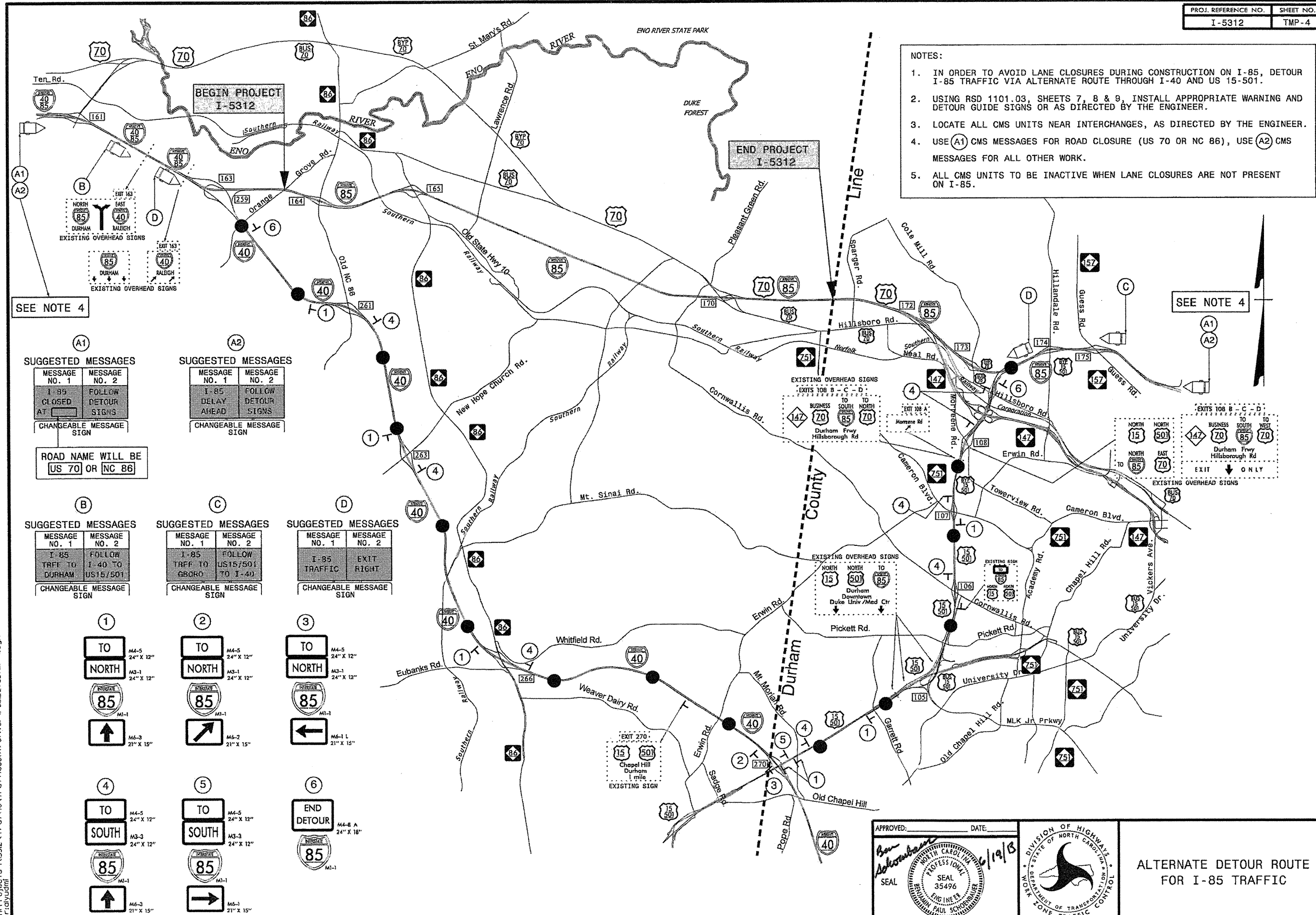
- A) USING RSD 1101.02, INSTALL REQUIRED SIGNING AND TRAFFIC CONTROL DEVICES TO COMPLETE ANY WORK THAT REQUIRES LANE CLOSURES OTHER THAN MILLING AND PAVING ON I-85 OR AS DIRECTED BY THE ENGINEER;
- B) REMOVE ALL TRAFFIC CONTROL DEVICES AND RESTORE TRAFFIC TO THE ORIGINAL PATTERN AT THE END OF EACH WORK PERIOD.

STEP 4:
 REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

10/7/2013
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 User:ajudmi

APPROVED: _____ DATE: _____ 		<h1 style="margin: 0;">PHASING</h1>
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- NOTES:
1. IN ORDER TO AVOID LANE CLOSURES DURING CONSTRUCTION ON I-85, DETOUR I-85 TRAFFIC VIA ALTERNATE ROUTE THROUGH I-40 AND US 15-501.
 2. USING RSD 1101.03, SHEETS 7, 8 & 9, INSTALL APPROPRIATE WARNING AND DETOUR GUIDE SIGNS OR AS DIRECTED BY THE ENGINEER.
 3. LOCATE ALL CMS UNITS NEAR INTERCHANGES, AS DIRECTED BY THE ENGINEER.
 4. USE (A1) CMS MESSAGES FOR ROAD CLOSURE (US 70 OR NC 86), USE (A2) CMS MESSAGES FOR ALL OTHER WORK.
 5. ALL CMS UNITS TO BE INACTIVE WHEN LANE CLOSURES ARE NOT PRESENT ON I-85.



SEE NOTE 4

SEE NOTE 4

(A1) SUGGESTED MESSAGES

MESSAGE NO. 1	MESSAGE NO. 2
I-85 CLOSED AT []	FOLLOW DETOUR SIGNS

CHANGEABLE MESSAGE SIGN

ROAD NAME WILL BE US 70 OR NC 86

(A2) SUGGESTED MESSAGES

MESSAGE NO. 1	MESSAGE NO. 2
I-85 FOLLOW AHEAD	FOLLOW DETOUR SIGNS

CHANGEABLE MESSAGE SIGN

(B) SUGGESTED MESSAGES

MESSAGE NO. 1	MESSAGE NO. 2
I-85 TRAFF TO DURHAM	FOLLOW I-40 TO US15/501

CHANGEABLE MESSAGE SIGN

(C) SUGGESTED MESSAGES

MESSAGE NO. 1	MESSAGE NO. 2
I-85 TRAFF TO GBORO	FOLLOW I-40 TO US15/501

CHANGEABLE MESSAGE SIGN

(D) SUGGESTED MESSAGES

MESSAGE NO. 1	MESSAGE NO. 2
I-85 TRAFFIC	EXIT RIGHT

CHANGEABLE MESSAGE SIGN

(1) TO NORTH

M4-5 24" X 12"
M3-1 24" X 12"
M1-1
M6-3 21" X 15"

(2) TO NORTH

M4-5 24" X 12"
M3-1 24" X 12"
M1-1
M6-2 21" X 15"

(3) TO NORTH

M4-5 24" X 12"
M3-1 24" X 12"
M1-1
M6-1 L 21" X 15"

(4) TO SOUTH

M4-5 24" X 12"
M3-3 24" X 12"
M1-1
M6-3 21" X 15"

(5) TO SOUTH

M4-5 24" X 12"
M3-3 24" X 12"
M1-1
M6-1 21" X 15"

(6) END DETOUR

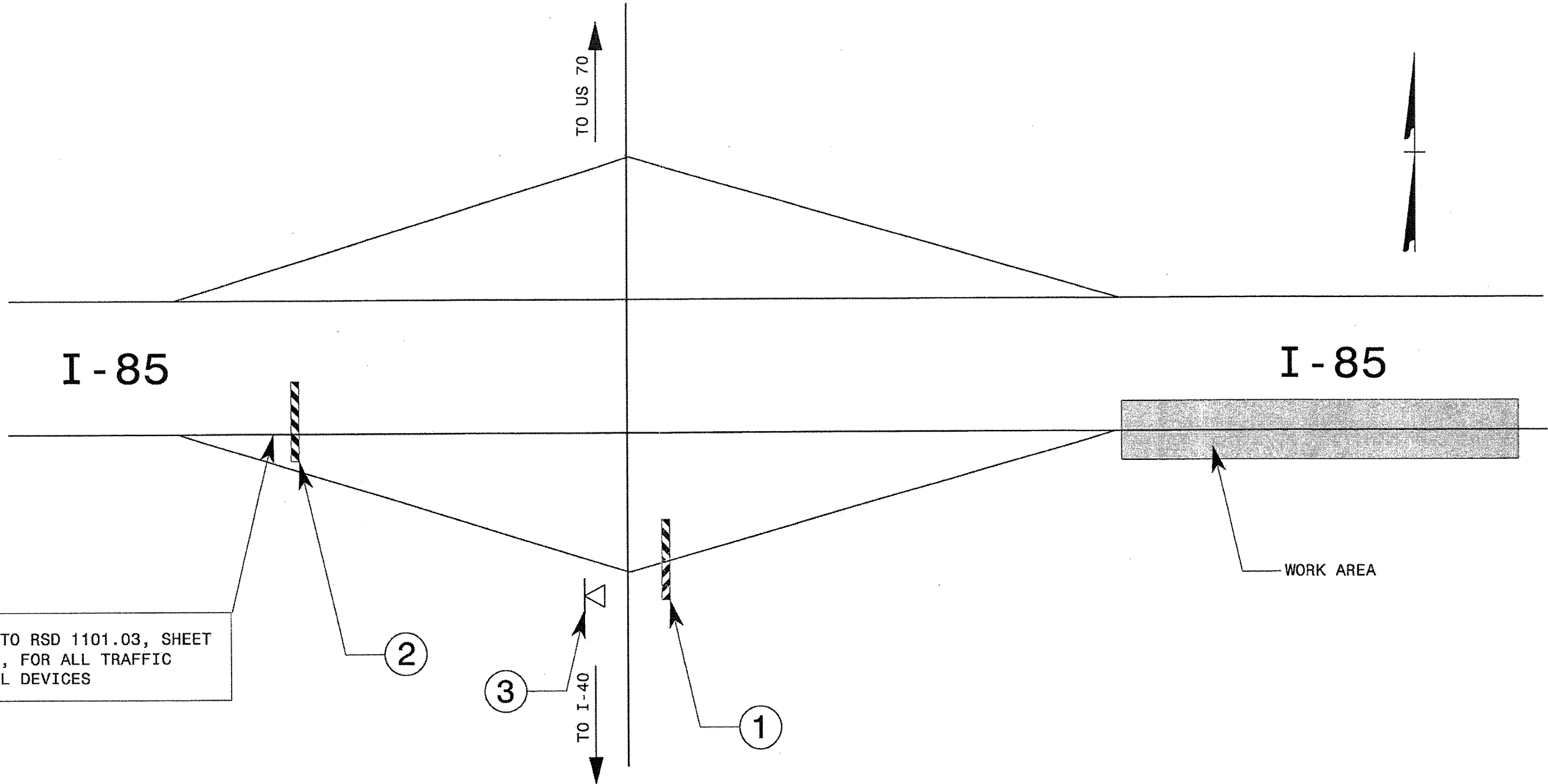
M4-8 A 24" X 18"
M1-1

APPROVED: *[Signature]* DATE: 6/19/15

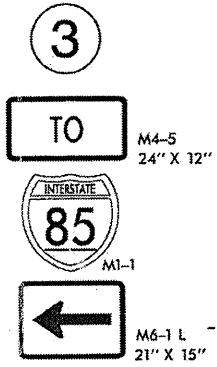
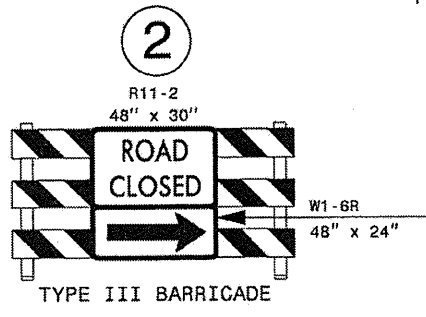
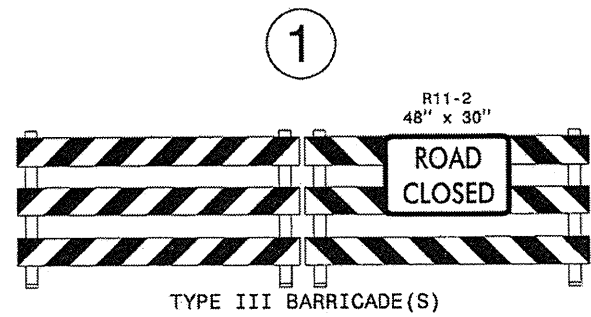
SEAL: PROFESSIONAL ENGINEER, STATE OF NORTH CAROLINA, NO. 35496



ALTERNATE DETOUR ROUTE FOR I-85 TRAFFIC



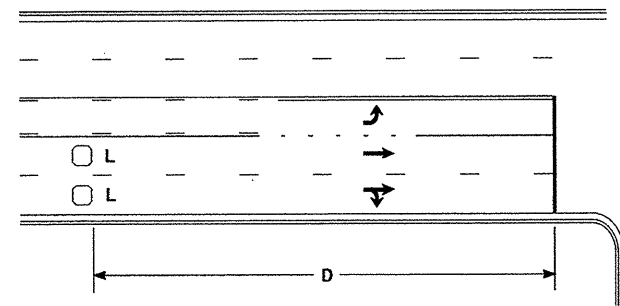
REFER TO RSD 1101.03, SHEET 7 OF 9, FOR ALL TRAFFIC CONTROL DEVICES



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APPROVED: <i>Ben Schmitt</i> SEAL	DATE: 6/19/13	DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL	DETAIL
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High Speed Detection [≥40 mph (64 km/hr)]

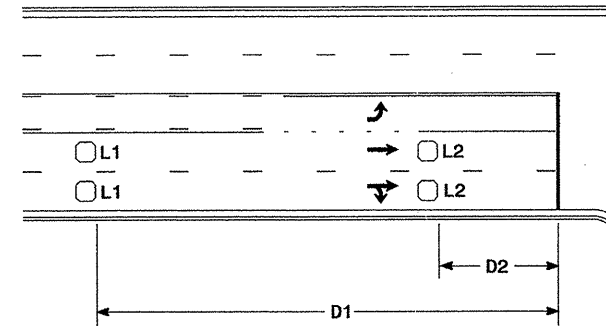


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

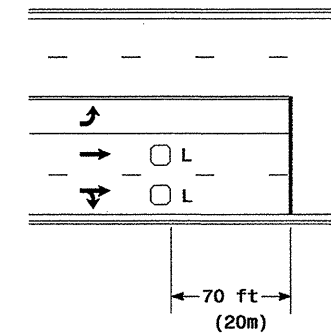


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

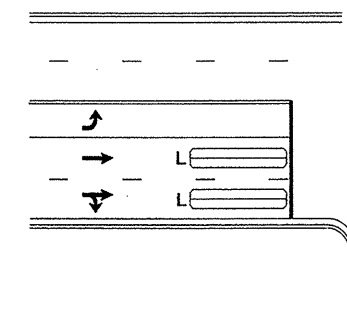
"Stretch" Operation

Low Speed Detection [≤35 mph (56 km/hr)]



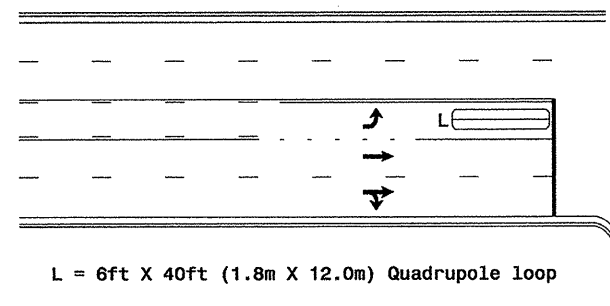
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

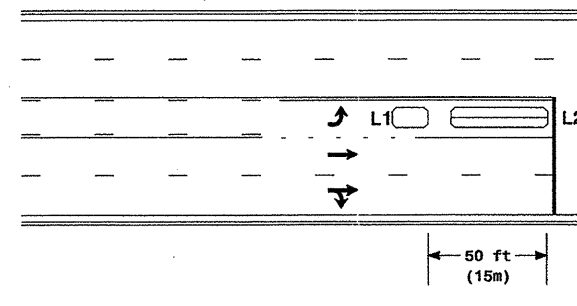
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole Loop

Presence Loop Detection

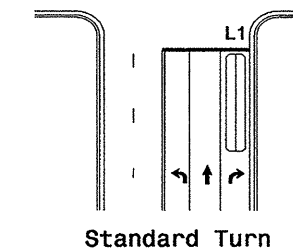
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

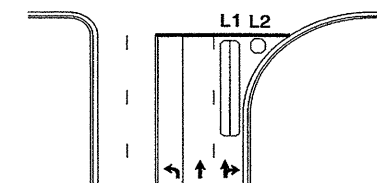
Queue Loop Detection

Right Turn Lane Detection

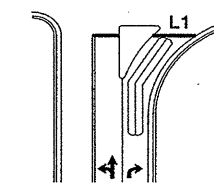


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

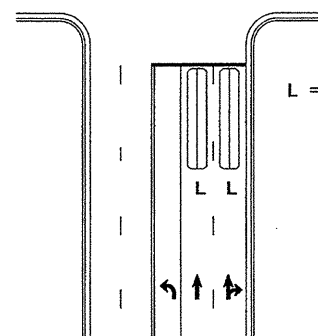


Wide Radius Turn



Channelized Turn

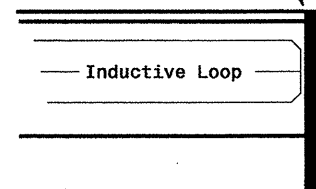
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines

Locate loop slightly
behind leading
edge of stop line



Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

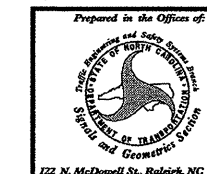
Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

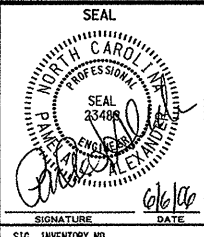
Quadrupole loops: Use 2-4-2 turns

6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns



Typical Loop Locations

PLAN DATE: June 2006	REVIEWED BY:
PREPARED BY: P. L. Alexander	REVIEWED BY:
REVISIONS	INT. DATE
Revise pavement markings	12/1/06
SIGNATURE	DATE



SIG. INVENTORY NO.