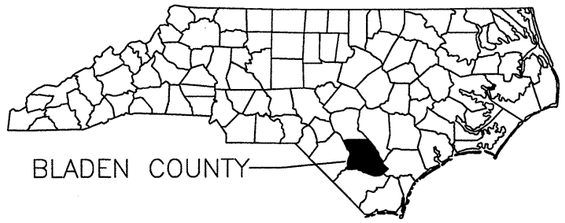
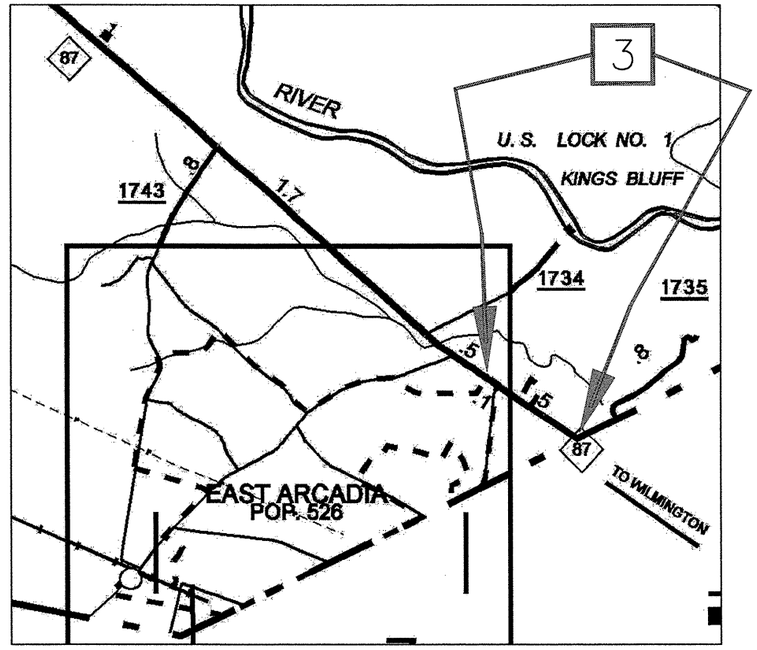
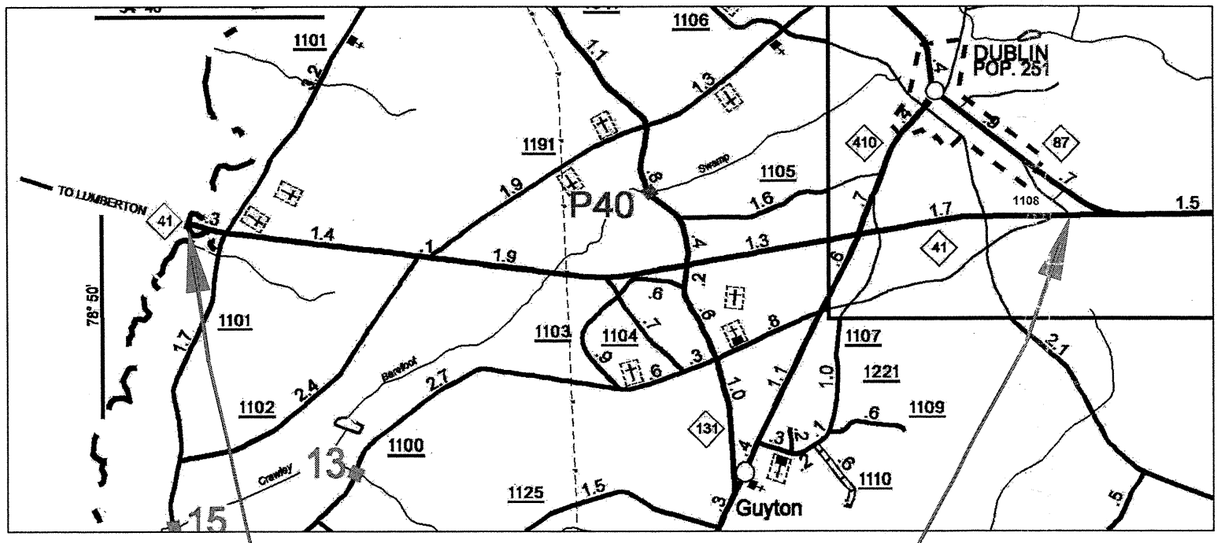
PROJECT REFERENCE NO.	SHEET NO.
6CR.10091.79, ETC.	1

RESURFACING MAPS – BLADEN COUNTY

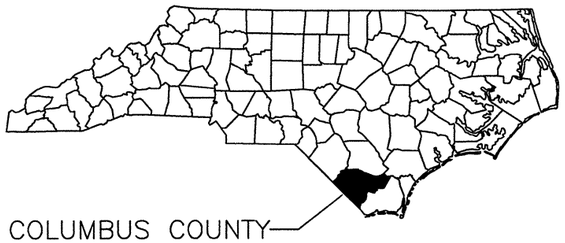


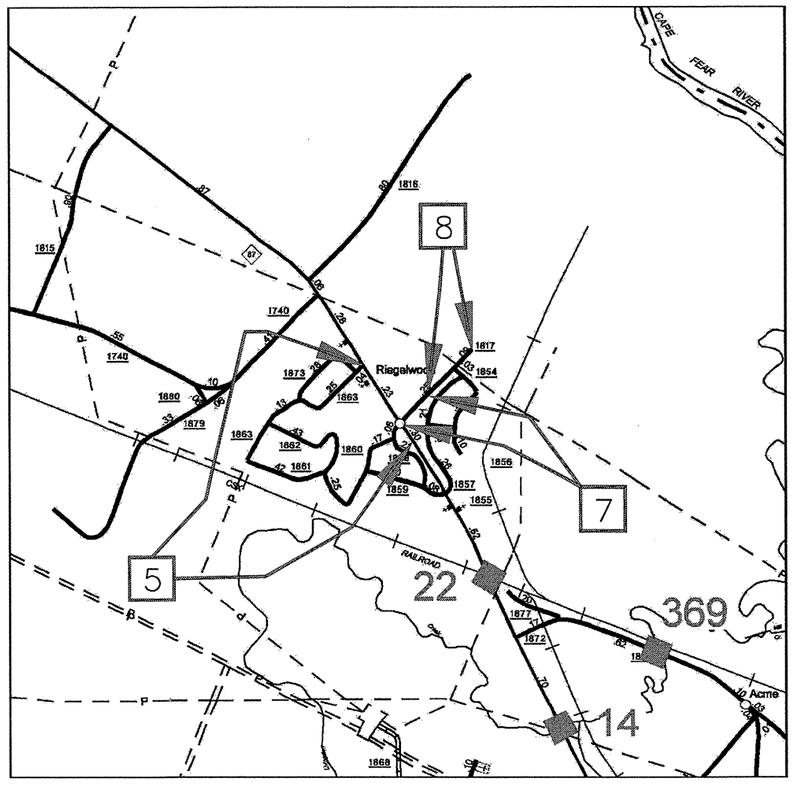


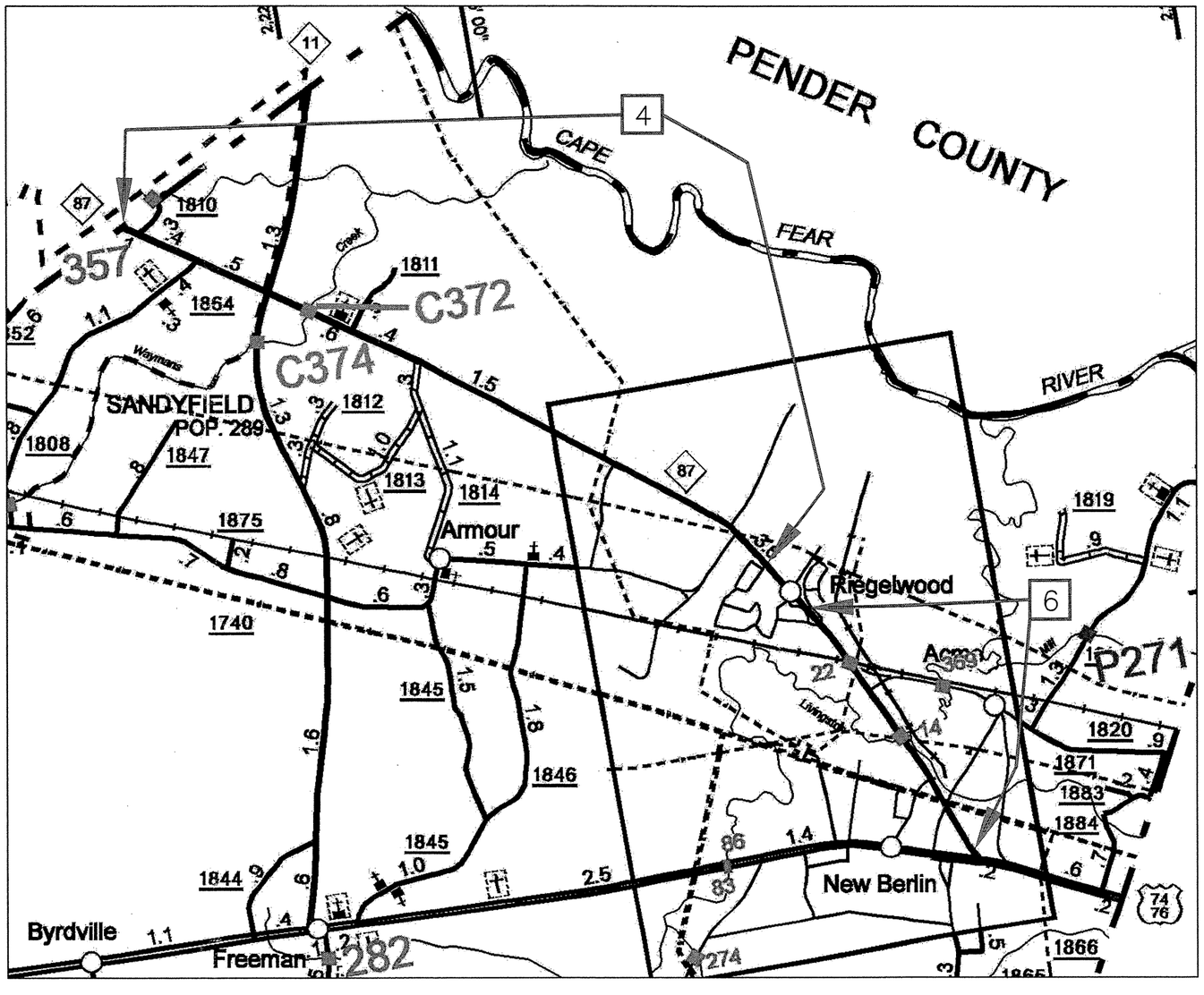


PROJECT REFERENCE NO.	SHEET NO.
6CR.10091.79, ETC.	2

RESURFACING MAPS – COLUMBUS COUNTY

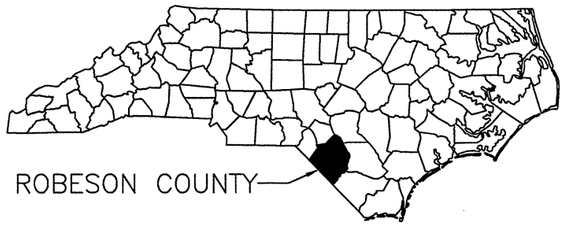


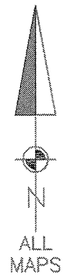


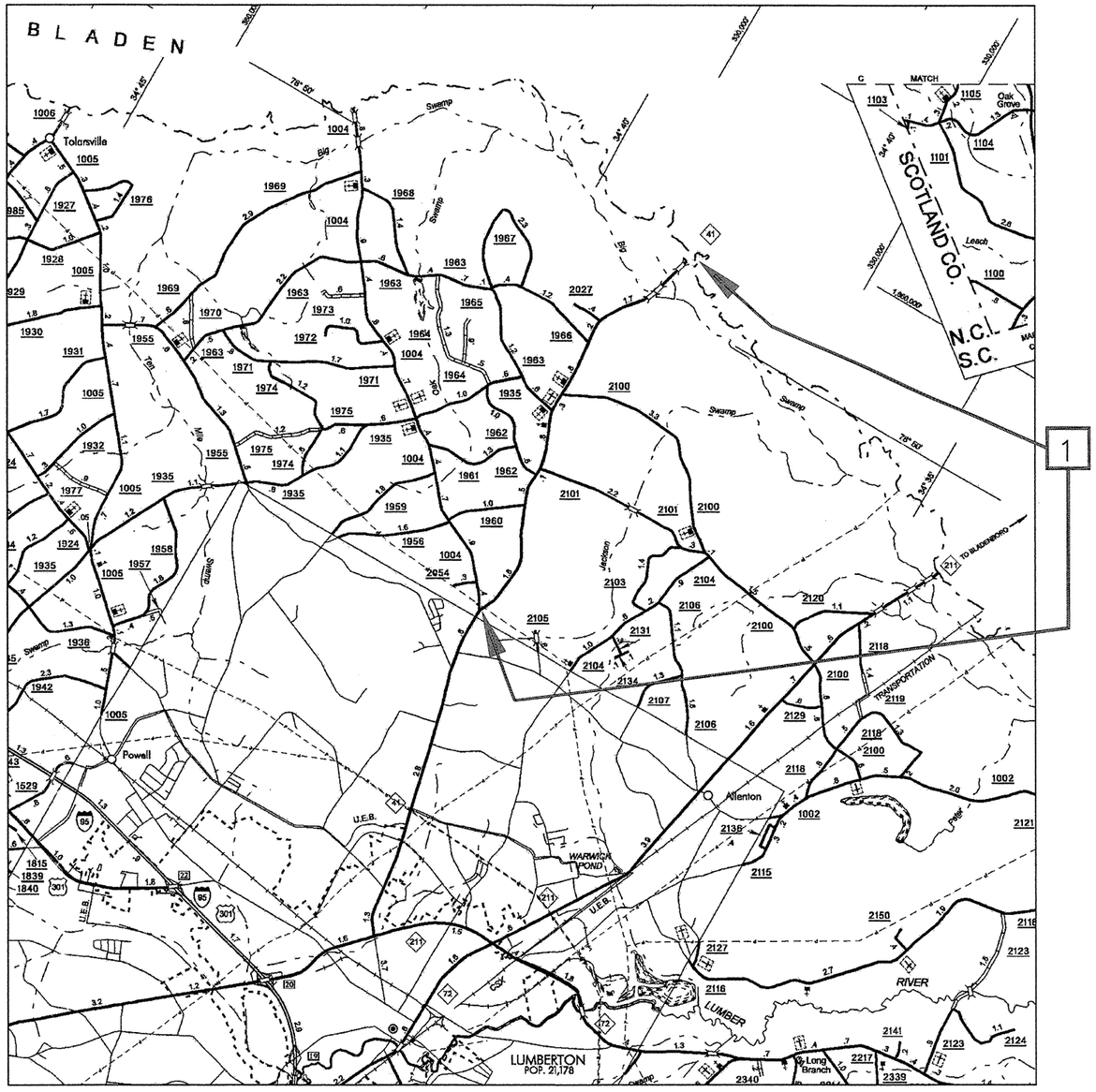


PROJECT REFERENCE NO.	SHEET NO.
6CR.10091.79, ETC.	3

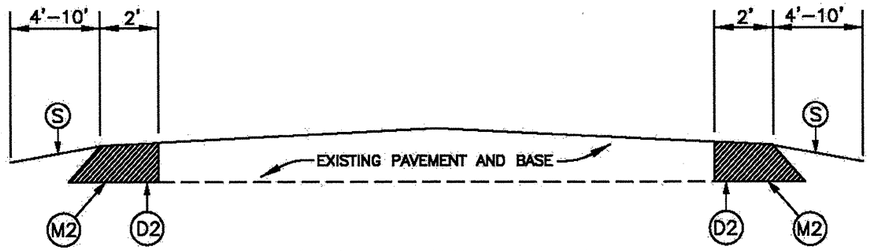
RESURFACING MAPS – ROBESON COUNTY





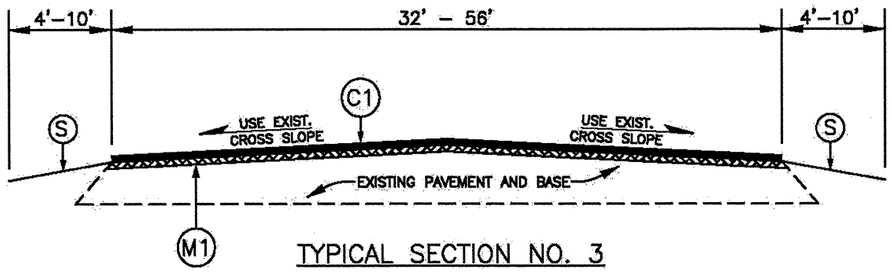


		TYPICAL NO. 1	TYPICAL NO. 2	TYPICAL NO. 3	TYPICAL NO. 4	TYPICAL NO. 5	TYPICAL NO. 6
COLUMBUS	PRIMARY			NC 87–A & C	NC 87–B		
	SECONDARY					SR 1817–A	SR 1817–B
BLADEN		TYPICAL NO. 1	TYPICAL NO. 2	TYPICAL NO. 3	TYPICAL NO. 4	TYPICAL NO. 5	TYPICAL NO. 6
	PRIMARY		NC 41	NC 87			
ROBESON		TYPICAL NO. 1	TYPICAL NO. 2	TYPICAL NO. 3	TYPICAL NO. 4	TYPICAL NO. 5	TYPICAL NO. 6
	PRIMARY	NC 41					



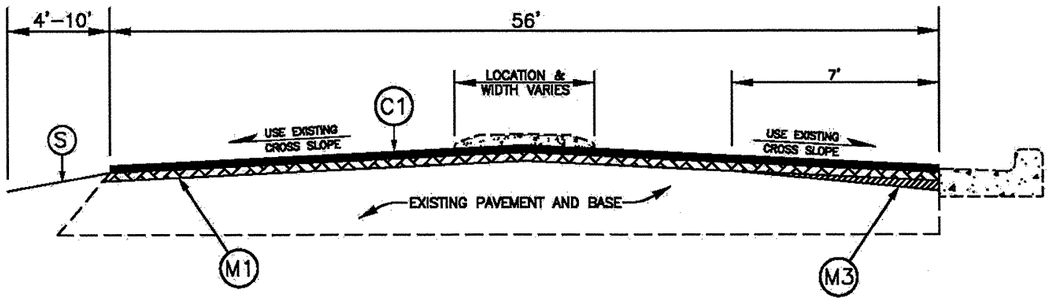
TYPICAL SECTION NO. 1

NOTES:
1. EXISTING DITCHES WILL NOT BE RELOCATED, UNLESS DIRECTED BY ENGINEER.
2. INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE–INS, CURB RADII, AND ROAD INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 2.



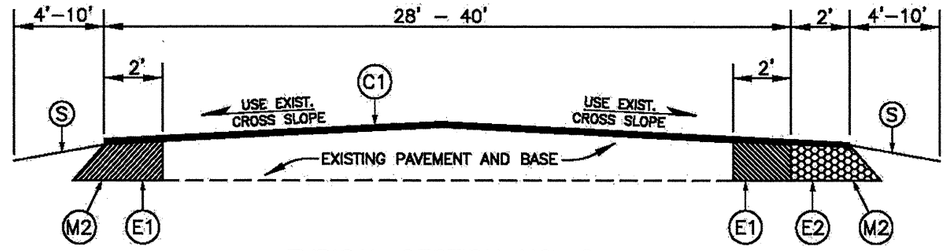
TYPICAL SECTION NO. 3

NOTES:
1. INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE–INS, CURB RADII, AND ROAD INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 2.
2. INCLUDES MILL & FILL PAVEMENT REPAIR WHERE IDENTIFIED BY ENGINEER. SEE DETAIL 4.
3. INCLUDES MILLING ON ASPHALT BRIDGE DECKS & BRIDGE APPROACHES, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 3.



TYPICAL SECTION NO. 4

NOTES:
1. INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE–INS, CURB RADII, AND ROAD INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 2.
2. INCLUDES MILL & FILL PATCHING WHERE IDENTIFIED BY ENGINEER. SEE DETAIL 4.
3. WHERE CONCRETE MONOLITHIC ISLANDS OCCUR, MILL FROM THE EDGE OF THE ISLAND TO THE OUTSIDE EDGE OF PAVEMENT. OTHERWISE MILL THE ENTIRE WIDTH OF PAVEMENT.



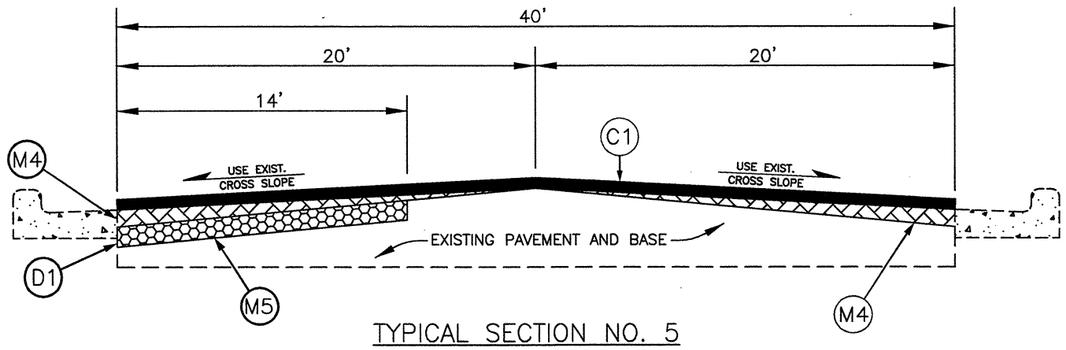
TYPICAL SECTION NO. 2

NOTES:
1. INCLUDES 2' WIDENING ON THE INSIDE RADIUS OF ALL CURVES, PROVIDED ADEQUATE SHOULDER WIDTH EXISTS. ENGINEER WILL IDENTIFY CURVES TO BE WIDENED IN THE FIELD. SEE DETAIL 1.
2. INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE–INS, CURB RADII, AND ROAD INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 2.
3. INCLUDES MILL & FILL PAVEMENT REPAIR WHERE IDENTIFIED BY ENGINEER. SEE DETAIL 4.

PAVEMENT SCHEDULE

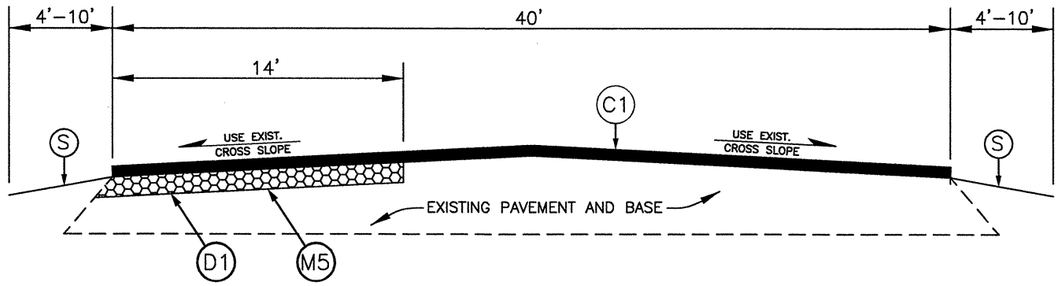
C1	Proposed approximately 1½" of Asphalt Concrete Surface Course, Type S–9.5–B, at an average rate of 168 pounds per square yard.
D1	Proposed approximately 2½" of Asphalt Concrete Intermediate Course, Type I–19.0–B, at an average rate of 285 pounds per square yard.
D2	Proposed approximately 5" of Asphalt Concrete Intermediate Course, Type I–19.0–B, at an average rate of 570 pounds per square yard for symmetrical 2' widening.
E1	Proposed approximately 5½" of Asphalt Concrete Base Course, Type B–25.0–B, at an average rate of 627 pounds per square yard for symmetrical 2' widening.
E2	Proposed approximately 5½" of Asphalt Concrete Base Course, Type B–25.0–B, at an average rate of 627 pounds per square yard for 2' widening at inside curve radii, as Directed by the Engineer.
M1	Milling existing asphalt to a depth of ½" for the entire width of the roadway, or as Directed by the Engineer, for roadway profile correction.
M2	Milling existing soil shoulder, to a depth of 5" to 5½" with a width of 2' or 4', where indicated by Typical, for symmetrical & inside curve widening.
M3	Milling Depth 0" – 1½" at the edge of Curb & Gutter. Milling shall extend below the lip of the Curb & Gutter by the thickness of the Proposed Overlay, or as Directed by the Engineer.
M4	Milling Depth 0" – 1½" from the centerline of roadway to the edge of Curb & Gutter. Milling shall extend below the lip of the Gutter Pan by the thickness of the Proposed Overlay, or as Directed by the Engineer.
M5	Milling Depth of an additional 2½" for a width of 14' from the edge of the Gutter Pan or Shoulder, or as Directed by the Engineer.
M6	Milling Depth 2½" at all designated distressed areas, with a variable width from 9' to 12', or as Directed by the Engineer.
M7	Incidental Milling 0" – 1½" at all Bridge Approaches and Railroad Track Approaches, for the entire width of the roadway, or as Directed by the Engineer.
S	Shoulder Reconstruction to be performed by State Forces. Contractor shall coordinate with NCDOT units as needed.

DRAWINGS NOT TO SCALE



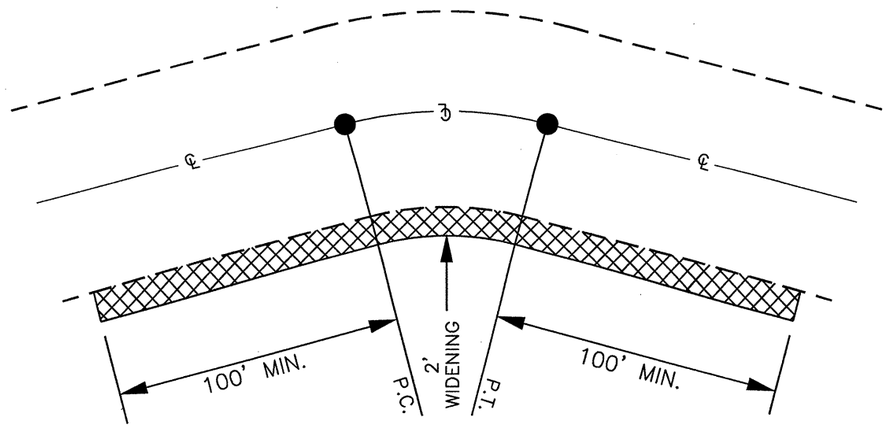
TYPICAL SECTION NO. 5

NOTES:
1. INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE–INS, CURB RADII, AND ROAD INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 2.
2. INCLUDES DISTRESSED AREAS REQUIRING MILL & FILL PAVEMENT REPAIR, AS SHOWN IN TYPICAL.
3. FILL DEEP MILLED AREA WITH 2½" ASPHALT INTERMEDIATE COURSE, BACK FLUSH WITH THE EXISTING ASPHALT LEFT IN PLACE AFTER CURB MILLING, BUT PRIOR TO PLACEMENT OF PROPOSED ASPHALT SURFACE COURSE.



TYPICAL SECTION NO. 6

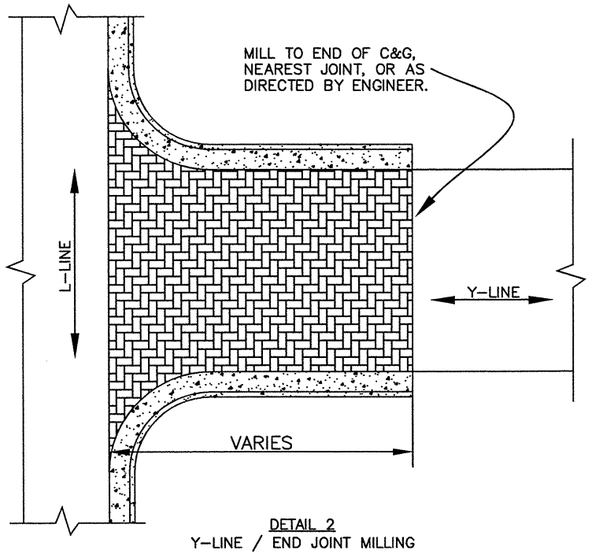
NOTES:
1. INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE–INS, CURB RADII, AND ROAD INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 2.
2. INCLUDES DISTRESSED AREAS REQUIRING MILL & FILL PAVEMENT REPAIR, AS SHOWN IN TYPICAL.
3. FILL DEEP MILLED AREA WITH 2½" ASPHALT INTERMEDIATE COURSE, BACK FLUSH WITH THE EXISTING ASPHALT LEFT IN PLACE AFTER CURB MILLING, BUT PRIOR TO PLACEMENT OF PROPOSED ASPHALT SURFACE COURSE.



DETAIL 1
2' INSIDE CURVE WIDENING

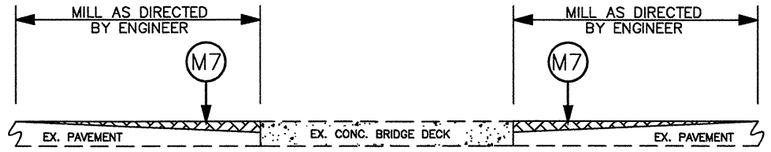
PAVEMENT SCHEDULE	
C1	Proposed approximately 1½" of Asphalt Concrete Surface Course, Type S–9.5–B, at an average rate of 168 pounds per square yard.
D1	Proposed approximately 2½" of Asphalt Concrete Intermediate Course, Type I–19.0–B, at an average rate of 285 pounds per square yard.
D2	Proposed approximately 5" of Asphalt Concrete Intermediate Course, Type I–19.0–B, at an average rate of 570 pounds per square yard for symmetrical 2' widening.
E1	Proposed approximately 5½" of Asphalt Concrete Base Course, Type B–25.0–B, at an average rate of 627 pounds per square yard for symmetrical 2' widening.
E2	Proposed approximately 5½" of Asphalt Concrete Base Course, Type B–25.0–B, at an average rate of 627 pounds per square yard for 2' widening at inside curve radii, as Directed by the Engineer.
M1	Milling existing asphalt to a depth of ½" for the entire width of the roadway, or as Directed by the Engineer, for roadway profile correction.
M2	Milling existing soil shoulder, to a depth of 5" to 5½" with a width of 2' or 4', where indicated by Typical, for symmetrical & inside curve widening.
M3	Milling Depth 0" – 1½" at the edge of Curb & Gutter. Milling shall extend below the lip of the Curb & Gutter by the thickness of the Proposed Overlay, or as Directed by the Engineer.
M4	Milling Depth 0" – 1½" from the centerline of roadway to the edge of Curb & Gutter. Milling shall extend below the lip of the Gutter Pan by the thickness of the Proposed Overlay, or as Directed by the Engineer.
M5	Milling Depth of an additional 2½" for a width of 14' from the edge of the Gutter Pan or Shoulder, or as Directed by the Engineer.
M6	Milling Depth 2½" at all designated distressed areas, with a variable width from 9' to 12', or as Directed by the Engineer.
M7	Incidental Milling 0" – 1½" at all Bridge Approaches and Railroad Track Approaches, for the entire width of the roadway, or as Directed by the Engineer.
S	Shoulder Reconstruction to be performed by State Forces. Contractor shall coordinate with NCDOT units as needed.

DRAWINGS NOT TO SCALE



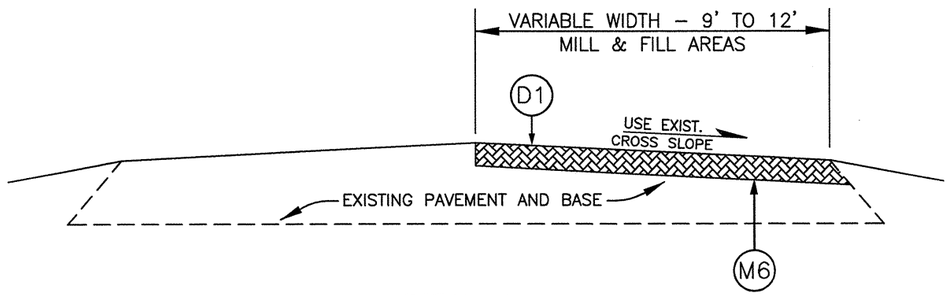
DETAIL 2
Y–LINE / END JOINT MILLING

NOTE: INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE–INS, CURB RADII, AND STREET INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THIS DETAIL.



DETAIL 3
MILLING APPROACHES

NOTE:
MILLING SHALL BE PERFORMED AT BRIDGE APPROACHES AS DIRECTED BY THE ENGINEER, IN ACCORDANCE WITH THIS DETAIL.



DETAIL 4
MILL & FILL PAVEMENT REPAIR

NOTES:

1. DISTRESSED AREAS TO BE REPAIRED BY MILL & FILL SHALL BE DESIGNATED BY THE ENGINEER.
2. FILL MILLED AREAS WITH ASPHALT INTERMEDIATE COURSE BACK FLUSH WITH THE EXISTING ASPHALT LEFT IN PLACE, PRIOR TO PLACEMENT OF PROPOSED ASPHALT SURFACE COURSE.

PAVEMENT SCHEDULE	
C1	Proposed approximately 1½" of Asphalt Concrete Surface Course, Type S–9.5–B, at an average rate of 168 pounds per square yard.
D1	Proposed approximately 2½" of Asphalt Concrete Intermediate Course, Type I–19.0–B, at an average rate of 285 pounds per square yard.
D2	Proposed approximately 5" of Asphalt Concrete Intermediate Course, Type I–19.0–B, at an average rate of 570 pounds per square yard for symmetrical 2' widening.
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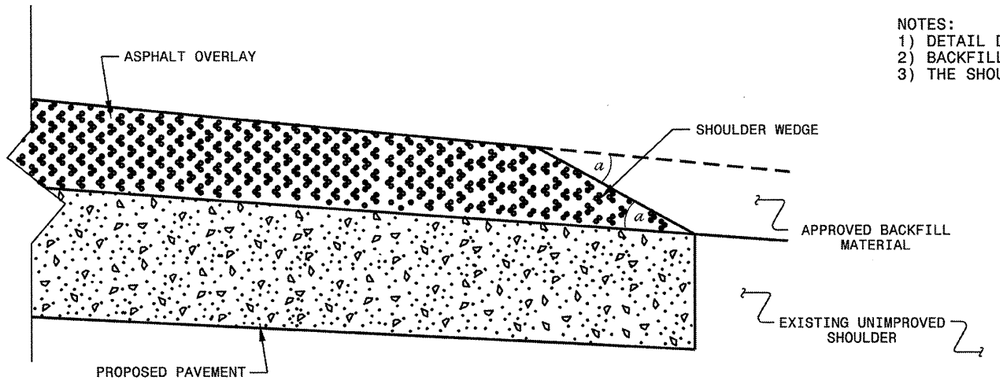
M2	Milling existing soil shoulder, to a depth of 5" to 5½" with a width of 2' or 4', where indicated by Typical, for symmetrical & inside curve widening.
M3	Milling Depth 0" – 1½" at the edge of Curb & Gutter. Milling shall extend below the lip of the Curb & Gutter by the thickness of the Proposed Overlay, or as Directed by the Engineer.
M4	Milling Depth 0" – 1½" from the centerline of roadway to the edge of Curb & Gutter. Milling shall extend below the lip of the Gutter Pan by the thickness of the Proposed Overlay, or as Directed by the Engineer.
M5	Milling Depth of an additional 2½" for a width of 14' from the edge of the Gutter Pan or Shoulder, or as Directed by the Engineer.
M6	Milling Depth 2½" at all designated distressed areas, with a variable width from 9' to 12', or as Directed by the Engineer.
M7	Incidental Milling 0" – 1½" at all Bridge Approaches and Railroad Track Approaches, for the entire width of the roadway, or as Directed by the Engineer.
S	Shoulder Reconstruction to be performed by State Forces. Contractor shall coordinate with NCDOT units as needed.
DRAWINGS NOT TO SCALE	

PROJECT REFERENCE NO.	SHEET NO.
6CR.10091.79, ETC.	7

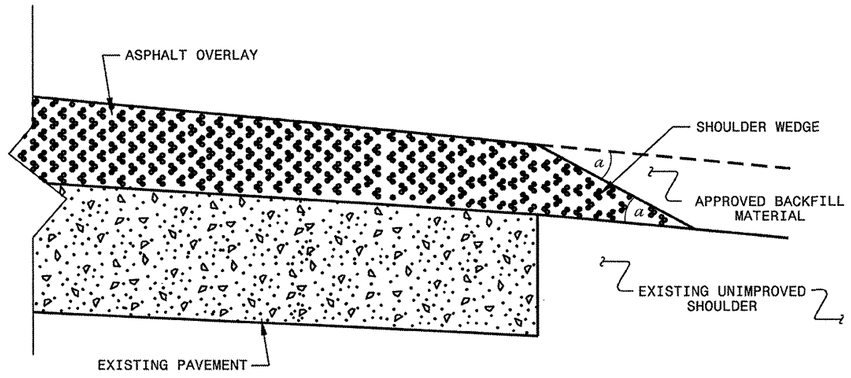
PROJECT REFERENCE NO.	SHEET NO.

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 AND SIDE STREETS.



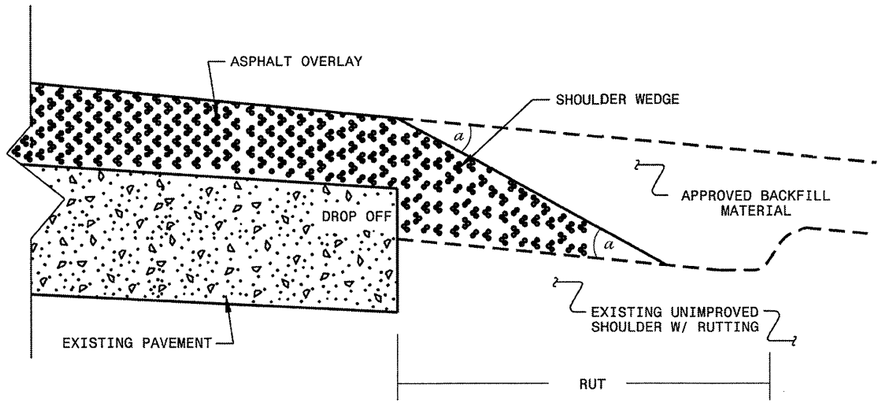
SHOULDER WEDGE DETAIL

(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:	10/16/12
CHECKED BY:		DATE:	
FILE SPEC.:	s:\usr\details\stand\shoulderwedgedetail.dgn		

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10091.79, 6CR.10241.79	8	
6CR.10781.79, ETC.		

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	2.5" MILLING SY	0.5" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTERMEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	LEVELING COURSE, S9.5B TONS	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	PAVED TRENCHING (1 CONDUIT-2") LF	UNPAVED TRENCHING (1 CONDUIT-2") LF	JUNCTION BOX (STANDARD SIZE) EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY) EA	2" RISER WITH WEATHERHEAD EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2) LF
6CR.10091.79	Bladen	2	NC 41	FROM ROBESON CO LINE (MP 0.00) TO SR 1108 (MP 6.73)	2	NO	NO	6.73	24	1,056			2,267	5,817	150	10,157	118	880	202			10	100	1	1	1	1,000	100
TOTAL FOR MAP NO. 2								**6.73**		**1,056**			**2,267**	**5,817**	**150**	**10,157**	**118**	**880**	**202**			**10**	**100**	**1**	**1**	**1**	**1,000**	**100**
6CR.10091.79	Bladen	3	NC 87	FROM WCL OF EAST ARCADIA (MP 0.00) TO COLUMBUS CO LINE (MP 0.72)	3	NO	NO	0.72	32	704	13,517		400		100	1,185	47	79	29									
TOTAL FOR MAP NO. 3								**0.72**		**704**	**13,517**		**400**		**100**	**1,185**	**47**	**79**	**29**									
TOTAL FOR PROJ NO. 6CR.10091.79								**7.45**		**1,760**	**13,517**		**2,667**	**5,817**	**250**	**11,342**	**165**	**959**	**231**			**10**	**100**	**1**	**1**	**1**	**1,000**	**100**
6CR.10241.79	Columbus	4	NC87-A	FROM BLADEN CO LINE (MP 0.00) TO CHURCH RD (MP 4.75)	3	NO	NO	4.75	32	1,408	89,173		1,200		201	7,679	89	476	190									
TOTAL FOR MAP NO. 4								**4.75**		**1,408**	**89,173**		**1,200**		**201**	**7,679**	**89**	**476**	**190**									
6CR.10241.79	Columbus	5	NC 87-B	FROM CHURCH RD (MP 4.75) TO END 4 LANE SECT (MP5.07)	4	NO	NO	0.32	56	211	12,484	821	667		30	1,049	18	60	13	2	1							
TOTAL FOR MAP NO. 5								**0.32**		**211**	**12,484**	**821**	**667**		**30**	**1,049**	**18**	**60**	**13**	**2**	**1**							
6CR.10241.79	Columbus	6	NC 87-C	FROM END 4 LANE SECT (MP 5.07) TO US 74 (MP 7.00)	3	NO	NO	1.71	32	352	32,102	1,502	800		50	2,911	59	181	68									
		"	"	FROM END 4 LANE SECT (MP 5.07) TO US 74 (MP 7.00)	3	NO	NO	0.22	44		5,679					482		29	9									
TOTAL FOR MAP NO. 6								**1.93**		**352**	**37,781**	**1,502**	**800**		**50**	**3,393**	**59**	**210**	**77**									
TOTAL FOR PROJ NO. 6CR.10241.79								**7**		**1,971**	**139,438**	**2,323**	**2,667**		**281**	**12,121**	**166**	**746**	**280**	**2**	**1**							
6CR.10781.79	Robeson	1	NC 41	FROM SR 1004 (MP 26.67) TO BLADEN CO LINE (MP 32.41)	1	NO	NO	5.74	4						3,839			184				10	100	1	1	1	350	100
TOTAL FOR MAP NO. 1								**5.74**							**3,839**			**184**				**10**	**100**	**1**	**1**	**1**	**350**	**100**
TOTAL FOR PROJ NO. 6CR.10781.79								**5.74**							**3,839**			**184**				**10**	**100**	**1**	**1**	**1**	**350**	**100**
6CR.20241.79	Columbus	7	SR 1817 A	FROM NC 87 (MP 0.00) TO END C&G (MP 0.10)	5	NO	NO	0.1	40	704		2,347	44		100	212	12	18	5									
TOTAL FOR MAP NO. 7								**0.1**		**704**		**2,347**	**44**		**100**	**212**	**12**	**18**	**5**									
6CR.20241.79	Columbus	8	SR 1817 B	FROM END C&G (MP 0.10) TO END MAINT (MP 0.28)	6	NO	NO	0.18	40	1,267			44		181	371	18	32	9									
TOTAL FOR MAP NO. 8								**0.18**		**1,267**			**44**		**181**	**371**	**18**	**32**	**9**									
TOTAL FOR PROJ NO. 6CR.20241.79								**0.28**		**1,971**		**2,347**	**88**		**281**	**583**	**30**	**50**	**14**									
GRAND TOTAL								**20.47**		**5,702**	**152,955**	**4,670**	**5,422**	**5,817**	**4,651**	**24,046**	**361**	**1,939**	**525**	**2**	**1**	**20**	**200**	**2**	**2**	**2**	**1,350**	**200**

PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10091.79, 6CR.10241.79	9	
6CR.10781.79, ETC.		

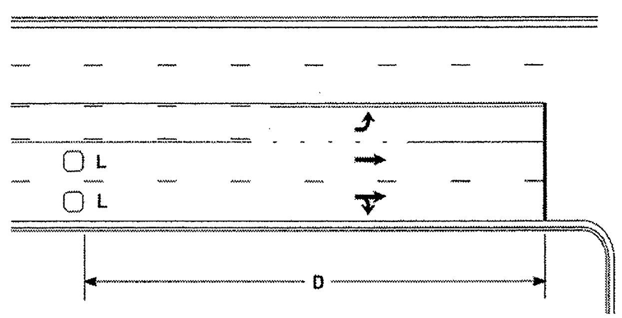
THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH	WIDTH	4413000000-E WORK ZONE ADV./GEN. WARNING SIGNING SF	4457000000-N TEMP. TRAFFIC CONTROL LS	4510000000-N LAW ENFORCEMENT HR	4685000000-E 4" X 90 M WHITE THERMO LF	4686000000-E 4" X 120 M WHITE THERMO LF	4686000000-E 4" X 120 M YELLOW THERMO LF	4695000000-E 8" X 90 M WHITE THERMO LF	4695000000-E 8" X 90 M YELLOW THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4725000000-E THERMO LT ARROW 90 M EA	4725000000-E THERMO RT ARROW 90 M EA	4725000000-E THERMO STR ARROW 90 M EA	4725000000-E THERMO STR & RT ARROW 90 M EA	4725000000-E THERMO STR & LT ARROW 90 M EA	4810000000-E 4" YELLOW PAINT LF	4810000000-E 4" WHITE PAINT LF	4900000000-N CRYSTAL & RED MARKERS EA	4900000000-N YELLOW & YELLOW MARKERS EA
6CR.10091.79	Bladen	2	NC 41	FROM ROBESON CO LINE (MP 0.00) TO SR 1108 (MP 6.73)	2	6.73	24	311.4	1	40	68,000	1,250	63,800	630	1,610		15	7						70	470
TOTAL FOR MAP NO. 2						**6.73**		**311.4**	**1**	**40**	**68,000**	**1,250**	**63,800**	**630**	**1,610**		**15**	**7**						**70**	**470**
6CR.10091.79	Bladen	3	NC 87	FROM WCL OF EAST ARCADIA (MP 0.00) TO COLUMBUS CO LINE (MP 0.72)	3	0.72	32	311.4	*		8,000		6,400									6,400			50
TOTAL FOR MAP NO. 3						**0.72**		**311.4**	*		**8,000**		**6,400**									**6,400**			**50**
TOTAL FOR PROJ NO. 6CR.10091.79						**7.45**		**622.8**	*	**40**	**76,000**	**1,250**	**70,200**	**630**	**1,610**		**15**	**7**				**6,400**		**70**	**520**
												71,450		**2,240**			**22**					**6,400**		**590**	
6CR.10241.79	Columbus	4	NC87-A	FROM BLADEN CO LINE (MP 0.00) TO CHURCH RD (MP 4.75)	3	4.75	32	311.4	*		50,000		43,100		210							43,100			335
TOTAL FOR MAP NO. 4						**4.75**		**311.4**	*		**50,000**		**43,100**		**210**							**43,100**			**335**
6CR.10241.79	Columbus	5	NC 87-B	FROM CHURCH RD (MP 4.75) TO END 4 LANE SECT (MP5.07)	4	0.32	56	31.5	*		4,000	1,080	5,300			70	11	4	2	2		5,300	1,080	50	45
TOTAL FOR MAP NO. 5						**0.32**		**31.5**	*		**4,000**	**1,080**	**5,300**			**70**	**11**	**4**	**2**	**2**		**5,300**	**1,080**	**50**	**45**
6CR.10241.79	Columbus	6	NC 87-C	FROM END 4 LANE SECT (MP 5.07) TO US 74 (MP 7.00)	3	1.71	32	311.4	*		22,000	325	18,700	70		30	2					18,700	325	15	140
		"	"	FROM END 4 LANE SECT (MP 5.07) TO US 74 (MP 7.00)	3	0.22	44	31.5	*																
TOTAL FOR MAP NO. 6						**1.93**		**342.9**	*		**22,000**	**325**	**18,700**	**70**		**30**	**2**					**18,700**	**325**	**15**	**140**
TOTAL FOR PROJ NO. 6CR.10241.79						**7**		**685.8**	*		**76,000**	**1,405**	**67,100**	**70**	**210**	**100**	**13**	**4**	**2**	**2**		**67,100**	**1,405**	**65**	**520**
												68,505		**280**			**21**					**68,505**		**585**	
6CR.10781.79	Robeson	1	NC 41	FROM SR 1004 (MP 26.67) TO BLADEN CO LINE (MP 32.41)	1	5.74	4	312.32	*	40	62,000					150									
TOTAL FOR MAP NO. 1						**5.74**		**312.32**	*	**40**	**62,000**					**150**									
TOTAL FOR PROJ NO. 6CR.10781.79						**5.74**		**312.32**	*	**40**	**62,000**					**150**									
6CR.20241.79	Columbus	7	SR 1817 A	FROM NC 87 (MP 0.00) TO END C&G (MP 0.10)	5	0.1	40	31.5	*			125	1,250	100		75	4	3	2		1			25	15
TOTAL FOR MAP NO. 7						**0.1**		**31.5**	*			**125**	**1,250**	**100**		**75**	**4**	**3**	**2**		**1**			**25**	**15**
6CR.20241.79	Columbus	8	SR 1817 B	FROM END C&G (MP 0.10) TO END MAINT (MP 0.28)	6	0.18	40	31.5	*		2,000	145	2,300		60		5							15	18
TOTAL FOR MAP NO. 8						**0.18**		**31.5**	*		**2,000**	**145**	**2,300**		**60**		**5**							**15**	**18**
TOTAL FOR PROJ NO. 6CR.20241.79						**0.28**		**63**	*		**2,000**	**270**	**3,550**	**100**	**60**	**75**	**9**	**3**	**2**		**1**			**40**	**33**
												3,820		**160**			**15**							**73**	
GRAND TOTAL						**20.47**		**1683.92**	**1**	**80**	**216,000**	**2,925**	**140,850**	**800**	**1,880**	**325**	**37**	**14**	**4**	**2**	**1**	**73,500**	**1,405**	**175**	**1,073**
												143,775		**2,680**			**58**					**74,905**		**1,248**	

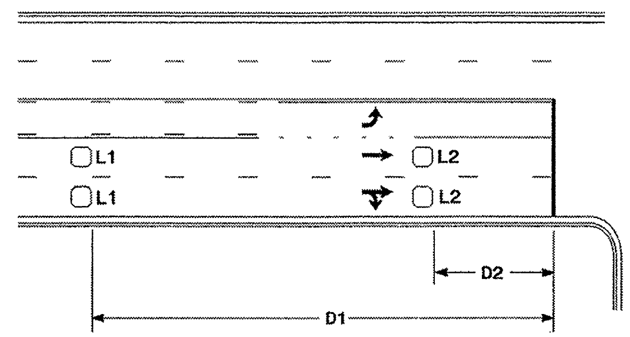
PROJECT REFERENCE NO.	SHEET NO.
6CR.10091.79	SIG 1

6CR.10241.79
6CR.20241.79
6CR.10781.79

High Speed Detection
[≥40 mph (64 km/hr)]



OR



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

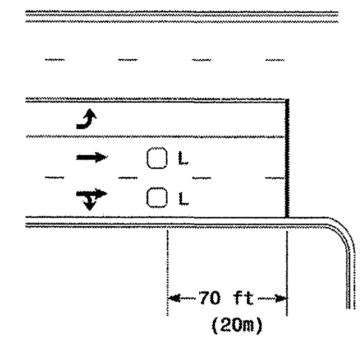
Speed Limit mph (km/hr)	D1 ft	(m)	D2 ft	(m)
40 (64)	250	(75)	80	(25)
45 (72)	300	(90)	90	(27)
50 (80)	355	(110)	100	(30)
55 (88)	420	(130)	110	(35)

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)]



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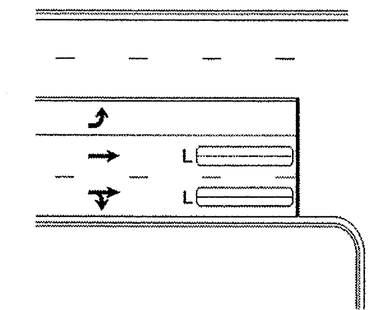
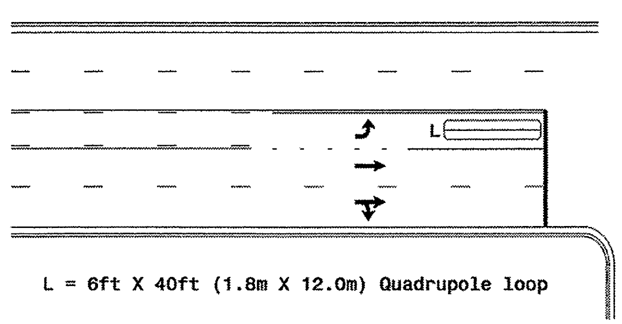


L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

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

Left Turn Lane Detection



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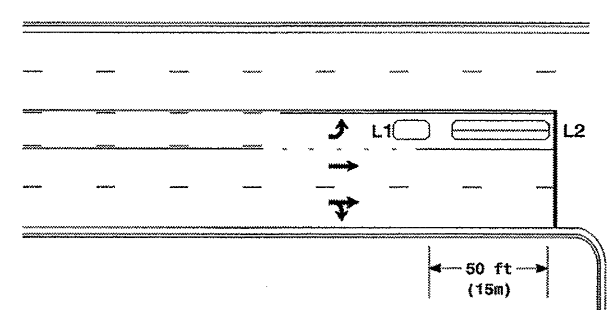


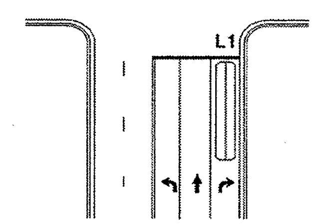
L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

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

Presence Loop Detection

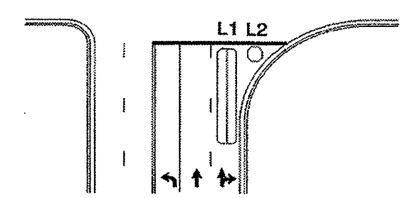
Queue Loop Detection

Right Turn Lane Detection

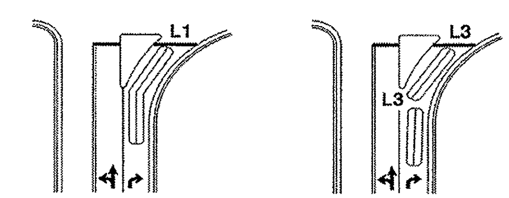


Standard Turn

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

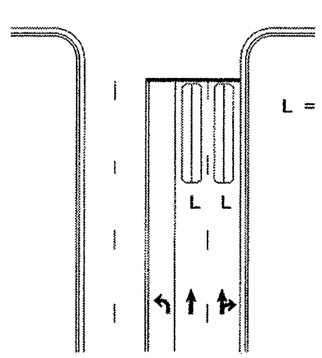


Wide Radius Turn



Channelized Turn

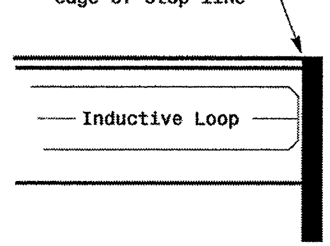
Side Street Detection



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

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
State of North Carolina Department of Transportation
Signals and Geometrics Section
122 N. McDowell St., Raleigh, NC 27603

SCALE
N/A

Typical Loop Locations

PLAN DATE:	June 2006	REVIEWED BY:	
PREPARED BY:	P L Alexander	REVIEWED BY:	

REVISIONS	INIT.	DATE
▽ Revise pavement markings	aa	12/19/06

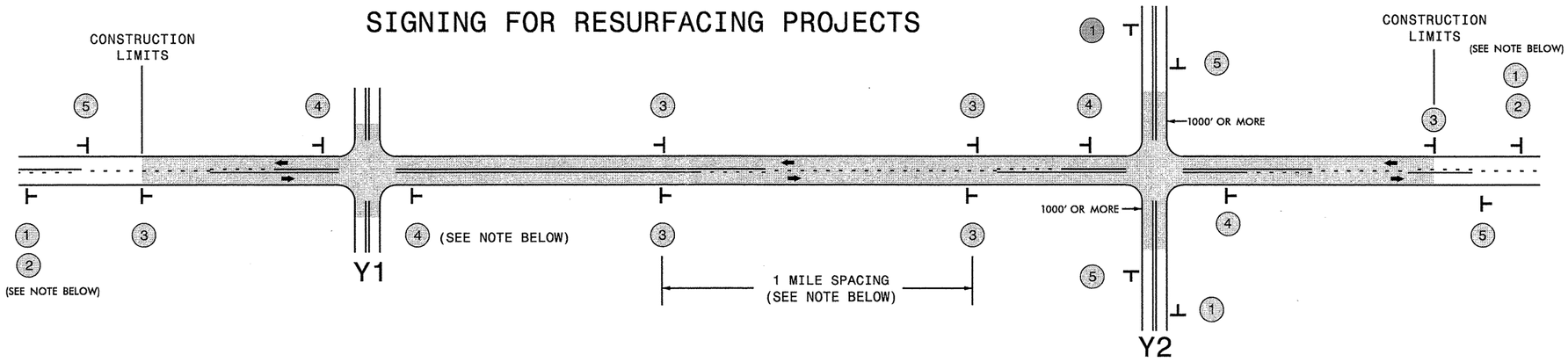
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23489 PAMELA A. ALEXANDER
SIGNATURE
DATE 6/6/06
SIG. INVENTORY NO.

19-DEC-2006 14:29
palexander

PROJ. REFERENCE NO.	SHEET NO.
SEE BELOW	1

6CR.10091.79
6CR.10241.79
6CR.20241.79
6CR.10781.79

SIGNING FOR RESURFACING PROJECTS



LEGEND
- ⊢ STATIONARY SIGN
- ← DIRECTION OF TRAFFIC FLOW

SIGNING NOTES AND PLACEMENT PER DIRECTION

MAINLINE (-L-) SIGNING

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.

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

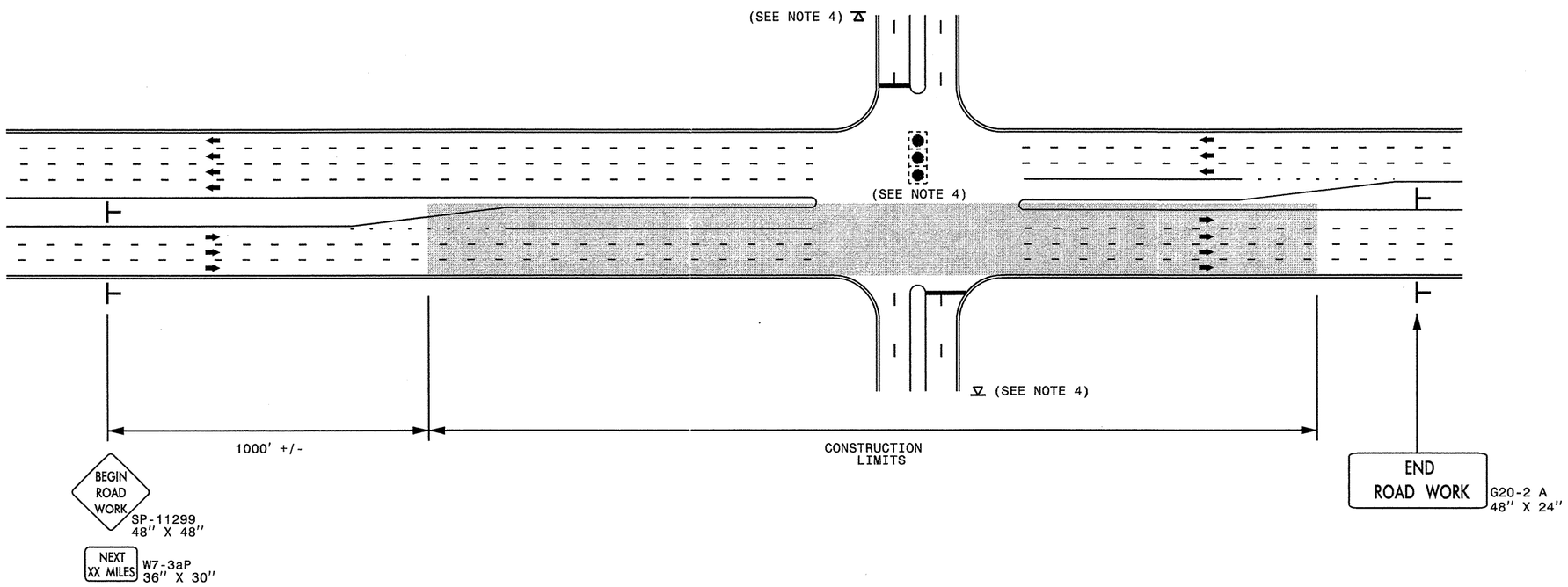
RESURFACING
ADVANCE WARNING SIGNS
FOR
RURAL AND SUBURBAN
2 LANE ROADWAYS

30-SEP-2013 15:32
\\DOT\DFSROOT01\GROUPS-WZTCCC\TMU\WZTC\Resurfacing\2013Resurfacing\2013Eastern\2013_Div06\C203461A-D_6CR.10091.79x4_Bladen-Columbus-Robeson_NC-41_etc_m20.47_sg\Resurfacing_AdvWarn_2Ln.dgn
sngreen AT TE26581

PROJ. REFERENCE NO.	SHEET NO.
SEE BELOW	2

6CR.10091.79
6CR.10241.79
6CR.20241.79
6CR.10781.79

URBAN / SUBURBAN WORKZONES



NOTES:

1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
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) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
4) USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AND PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
8) 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 WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS.THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

⊢ STATIONARY SIGN

➡ DIRECTION OF TRAFFIC FLOW

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

RESURFACING ADVANCE WARNING SIGNS FOR URBAN / SUBURBAN FACILITIES

30-SEP-2013 15:33
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sngreen AT TE26581