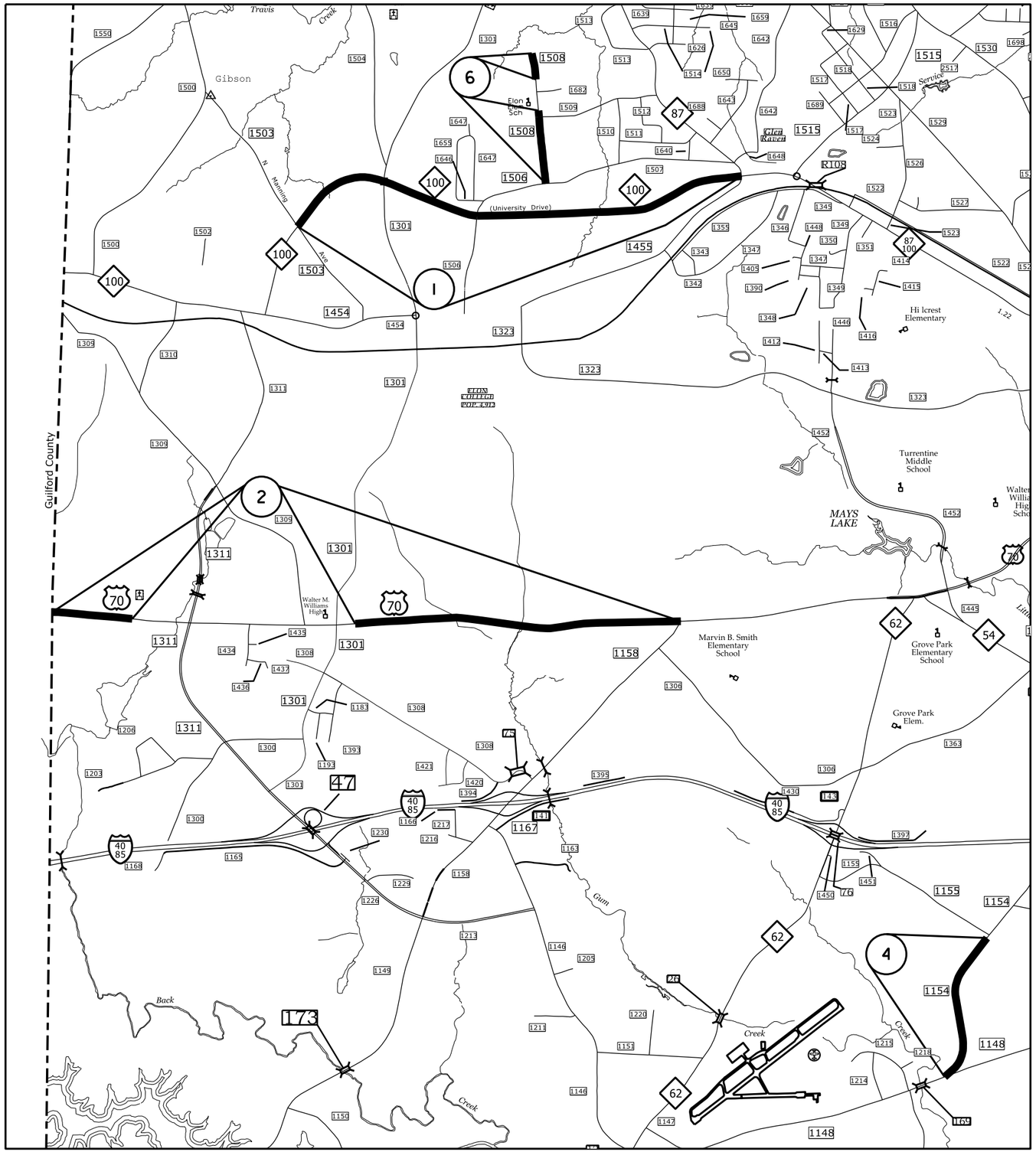
PROJECT REFERENCE NO.	SHEET NO.
2022CPT.07.14.10011 2022CPT.07.14.20011	1



Map 1 NC 100 (University Drive)
Resurface from pavement joint east of SR 1503 N. Manning Ave. to edgeline of NC 87

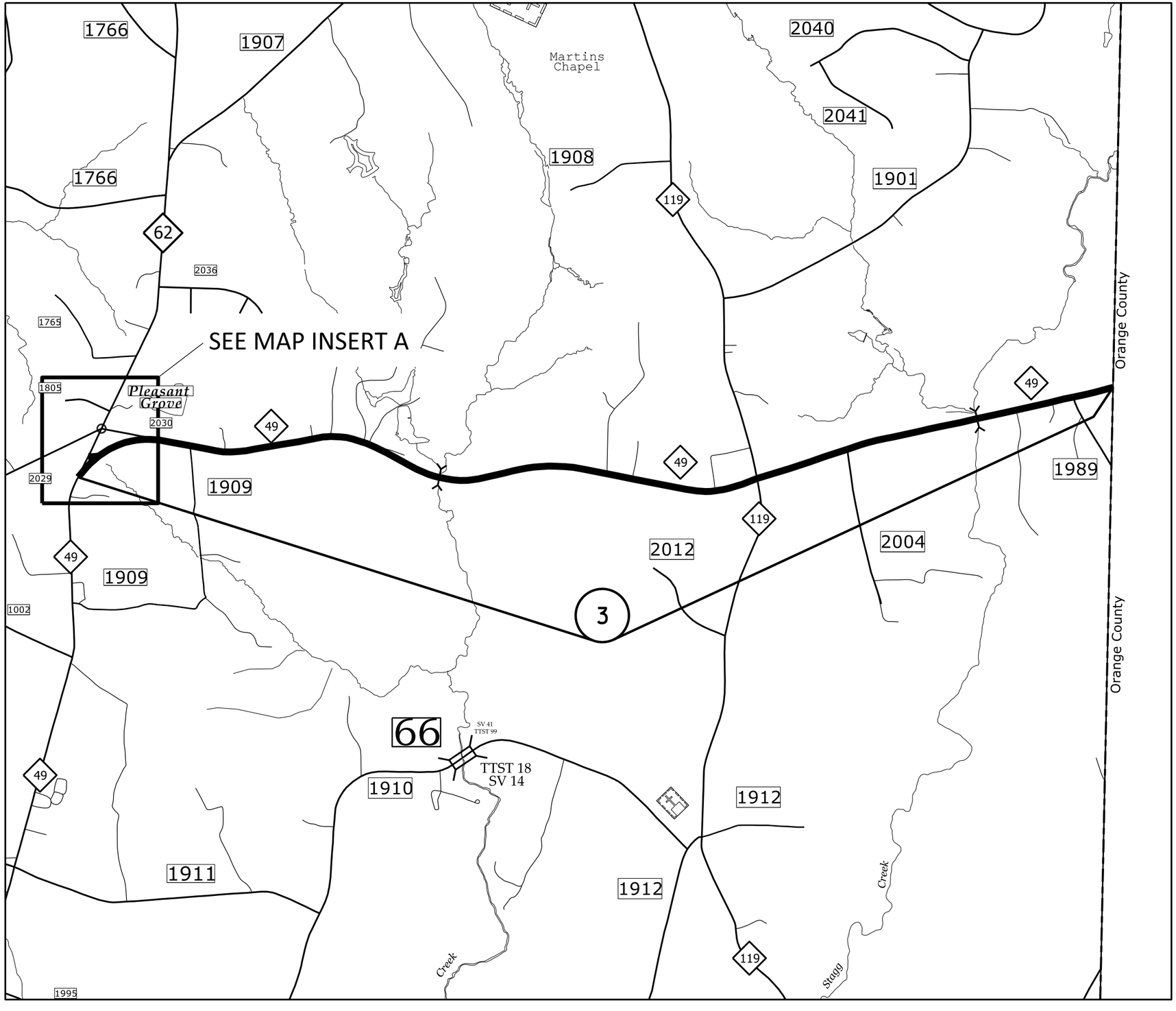
Map 2 US 70
Note:
Coordinate Tie in with Contractor on STIP Project U-6010
for the intersection of US 70 and SR 1311 University Dr.,
move ahead approximately 5900 feet to skip project, continue Map approximately
500 feet east of SR 1301 St. Marks Church Rd. at
pavement joint continue to end Map at SR 1158 Huffman Mill Rd.
Seal and Overlay from Guilford Co. Line,
East to where curb and gutter begins then Mill and Fill curb section to SR 1158 Huffman Mill Rd.
Mill and Replace in sections where asphalt exists in gutter.
DO NOT Overlay gutter without asphalt.

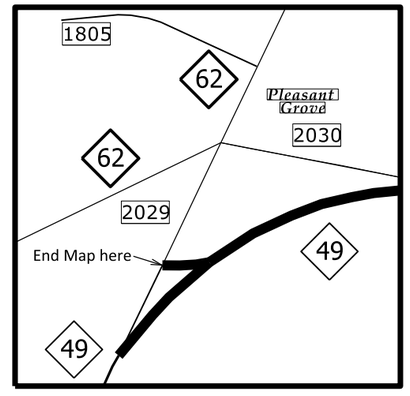
Map 4 SR 1154 - Tucker St
From Joint south of SR 1155 Hatchery Rd to SR 1148 Anthony Rd
Overlay both ways to SR 1148 Anthony Rd. and tie to edge of pavement.

Map 6 SR 1508 - Walker Rd.
Skip, DO NOT pave new pavement section in front of Elon Elementary School

ALAMANCE COUNTY
NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
2022CPT.07.14.10011 2022CPT.07.14.20011	2



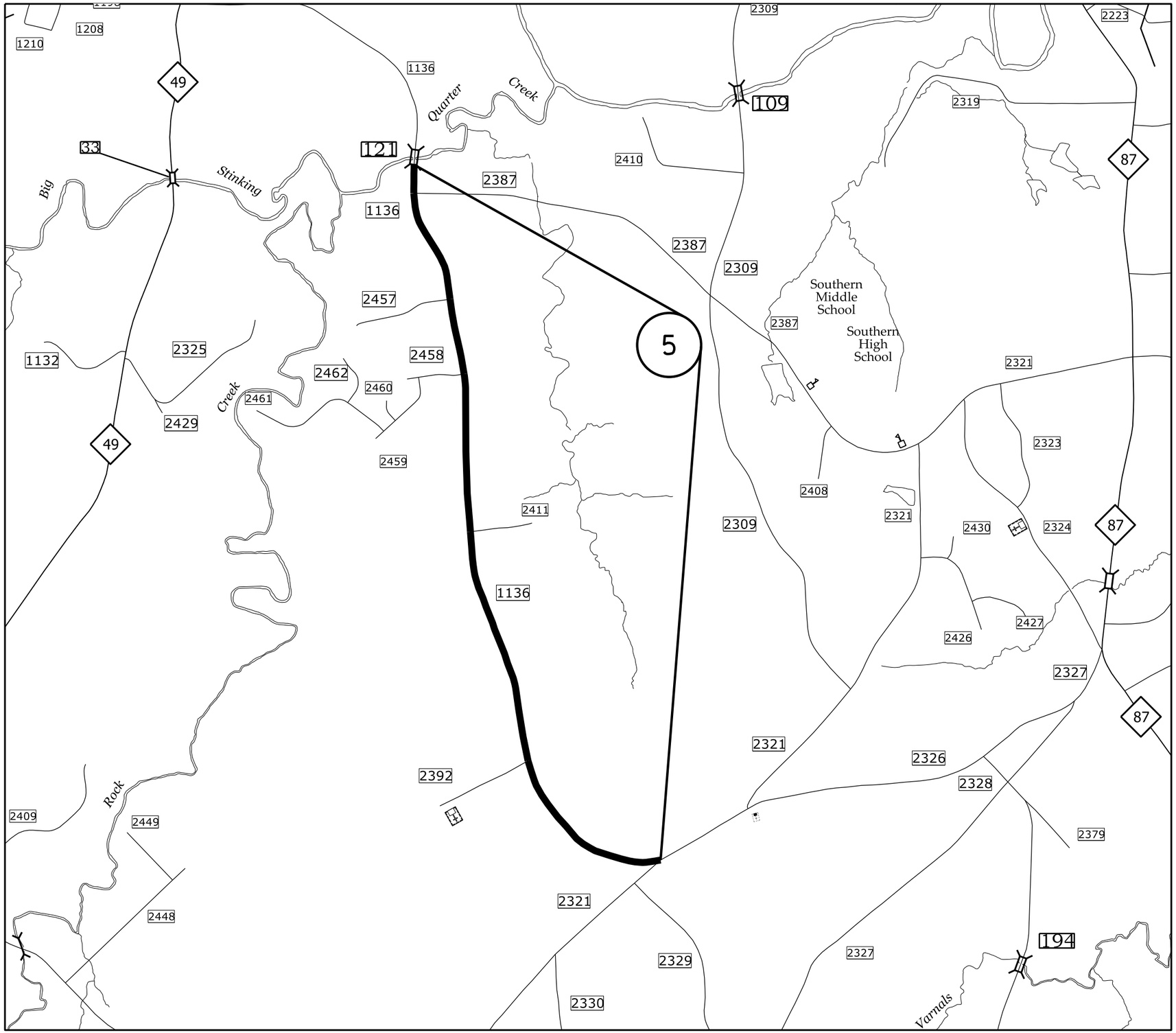


MAP INSERT A

Map 3 NC 49
Begin where NC 49 y's off to the Northeast
continue to Orange County Line.
Pave through intersection with NC 119.
End west bound at intersection of SR 2029.
see Map Insert A above

ALAMANCE COUNTY
NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
2022CPT.07.14.10011 2022CPT.07.14.20011	3



Map 5 SR 1136 - Bellemont Mt Hermon Rd
Tie In / Mill south side of Bridge # 121 - Do not pave bridge
Tie In / Mill at End of Map

ALAMANCE COUNTY
NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
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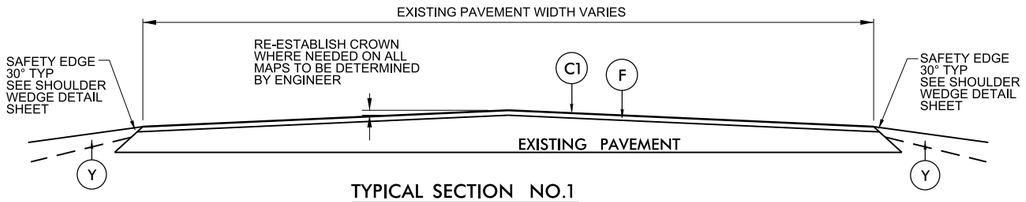
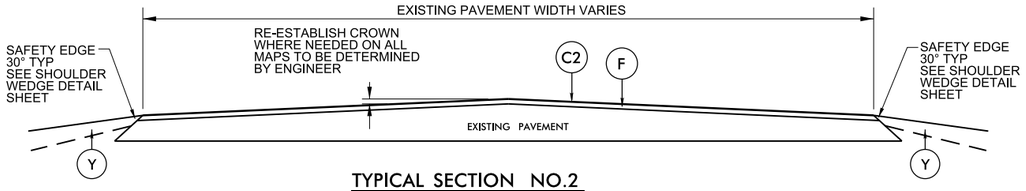
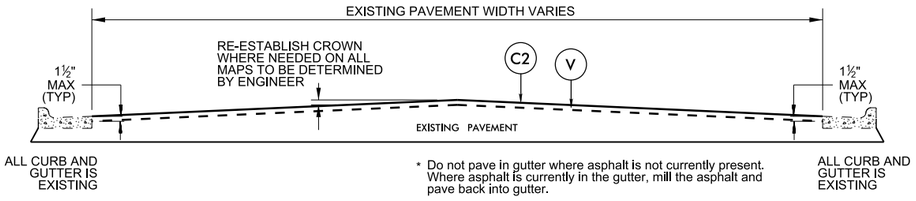


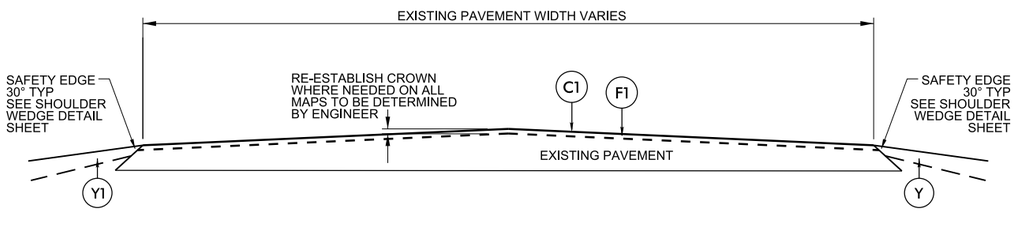
TYPICAL SECTION NO.1
Map 1 NC 100



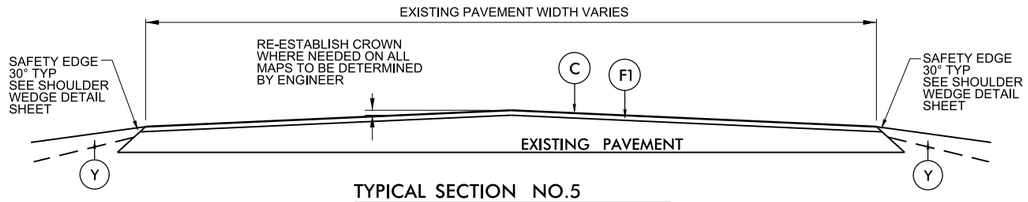
TYPICAL SECTION NO.2
Map 2 NC 70
Map 3 NC 49



TYPICAL SECTION NO.3
Map 2 NC 70



TYPICAL SECTION NO.4
Map 4 SR 1154 Tucker St.
Map 6 SR 1508 Walker Rd.

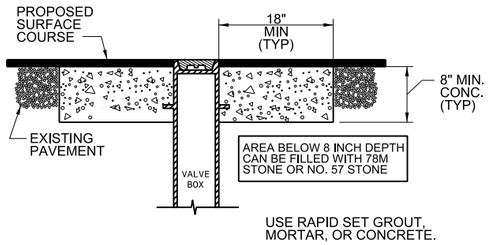


TYPICAL SECTION NO.5
Map 5 SR 1136 Bellemont Mt Hermon Rd

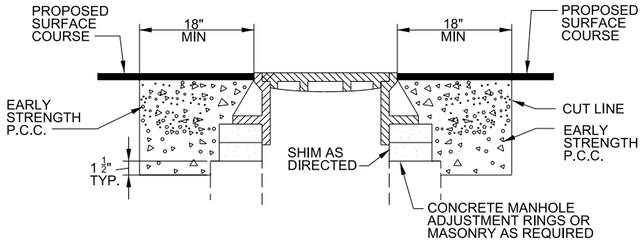
PAVEMENT SCHEDULE

C	PROP. APPROX. $1\frac{1}{4}$" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B TO BE APPLIED AT AN AVERAGE RATE OF 137.5 LBS PER SQ YD.
C1	PROP. APPROX. $1\frac{1}{2}$" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, TO BE APPLIED AT AN AVERAGE RATE OF 165 LBS PER SQ YD.
C2	PROP. APPROX. $1\frac{1}{2}$" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5.C, TO BE APPLIED AT AN AVERAGE RATE OF 168 LBS PER SQ YD.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
F	AST MAT COAT, #67
F1	AST MAT COAT, #78M
U	EXISTING PAVEMENT
V	MILL ASPHALT PAVEMENT, $1\frac{1}{2}$" DEPTH
V1	MILL ASPHALT PAVEMENT, 4" DEPTH
Y	SHOULDER WEDGE (SEE DETAIL)

PROJECT REFERENCE NO.	SHEET NO.
2022CPT.07.14.10011 2022CPT.07.14.20011	5

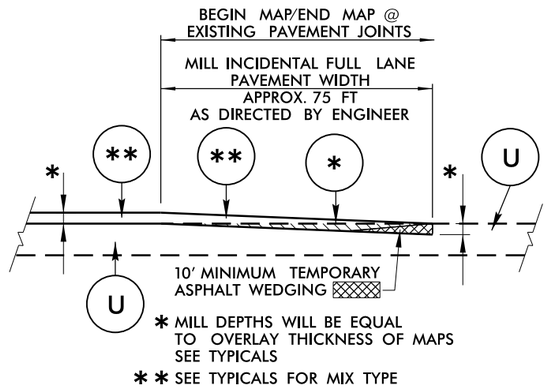


STANDARD CONCRETE ENCASEMENT FOR VALVE CASTINGS IN PAVEMENT

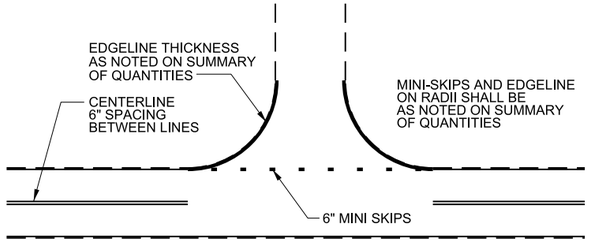


NOTES:
1. MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
2. ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
3. EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
4. RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.

STANDARD CONCRETE ENCASEMENT FOR MANHOLE CASTINGS IN PAVEMENT



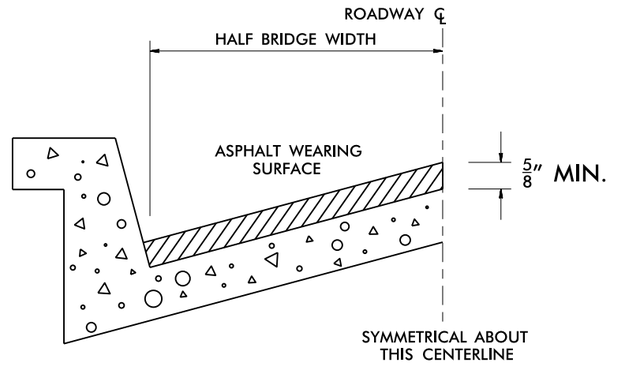
INCIDENTAL MILLING AT TIE–IN DETAIL



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

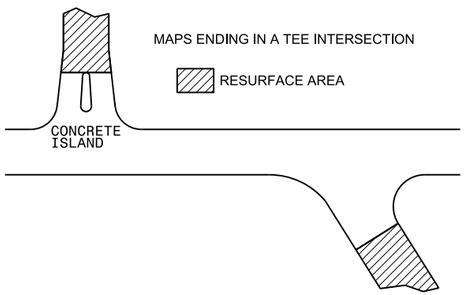
NON–SIGNALIZED INTERSECTIONS

TO BE USED AS DIRECTED BY ENGINEER

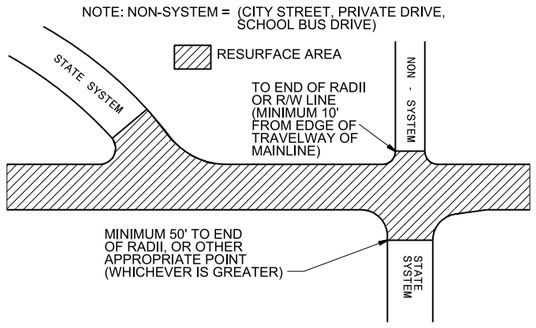


BRIDGE HALF TYPICAL SECTION

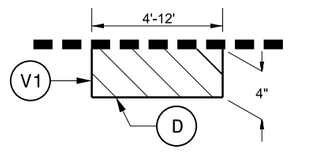
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN. THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. A THICKNESS OF NOT LESS THAN *" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1–1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.



PAVING DETAIL 1 MAIN LINE NOT BEING RESURFACED



PAVING DETAIL 2 MAIN LINE IS BEING RESURFACED

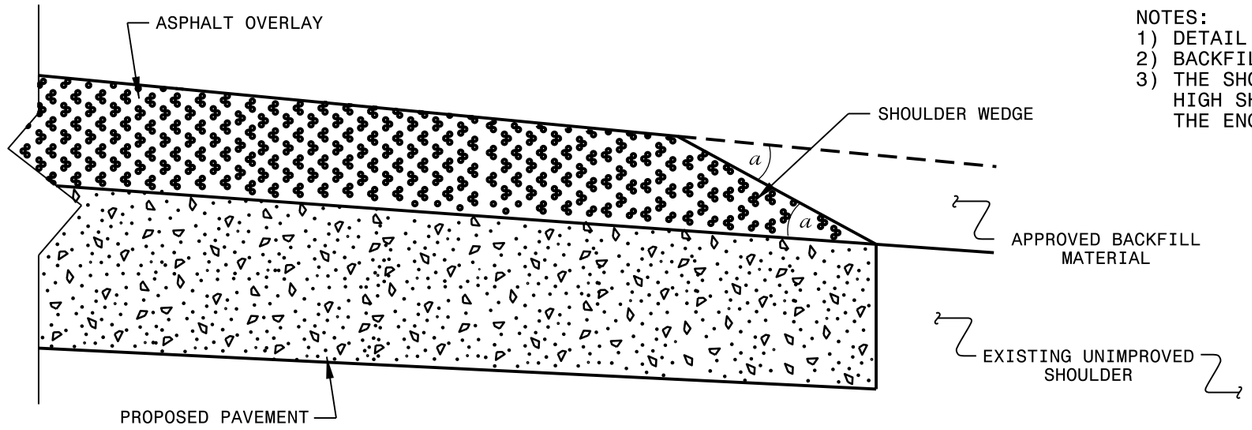


MILL FILL WITH INTERMEDIATE COURSE, TYPE I19.0C AT LOCATIONS AS DIRECTED BY THE ENGINEER.

PATCHING EXISTING PAVEMENT DETAIL

PAVEMENT SCHEDULE	
C	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B TO BE APPLIED AT AN AVERAGE RATE OF 137.5 LBS PER SQ YD.
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, TO BE APPLIED AT AN AVERAGE RATE OF 165 LBS PER SQ YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5.C, TO BE APPLIED AT AN AVERAGE RATE OF 168 LBS PER SQ YD.
D	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
F	AST MAT COAT, #67
F1	AST MAT COAT, #78M
U	EXISTING PAVEMENT
V	MILL ASPHALT PAVEMENT, 1½" DEPTH
V1	MILL ASPHALT PAVEMENT, 4" DEPTH
Y	SHOULDER WEDGE (SEE DETAIL)

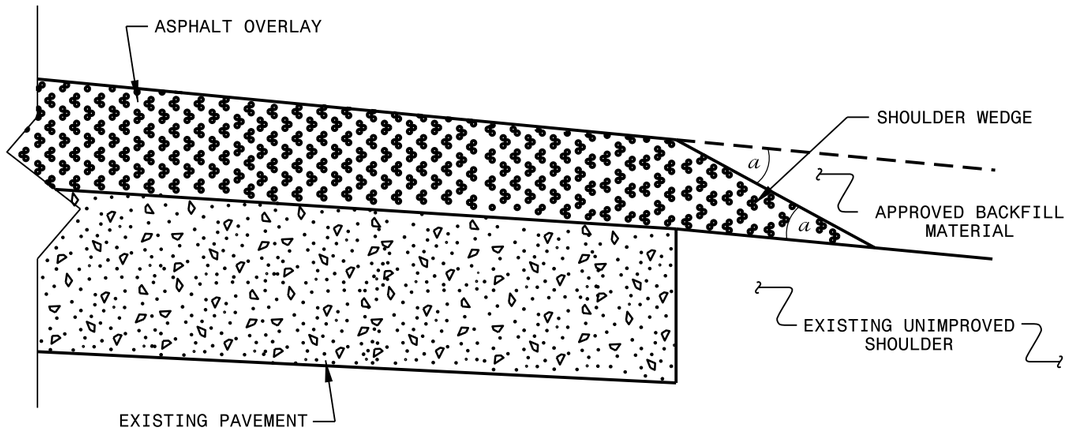
PROJECT REFERENCE NO.	SHEET NO.
2022CPT.07.14.10011 2022CPT.07.14.20011	6



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, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS DIRECTED BY THE ENGINEER.

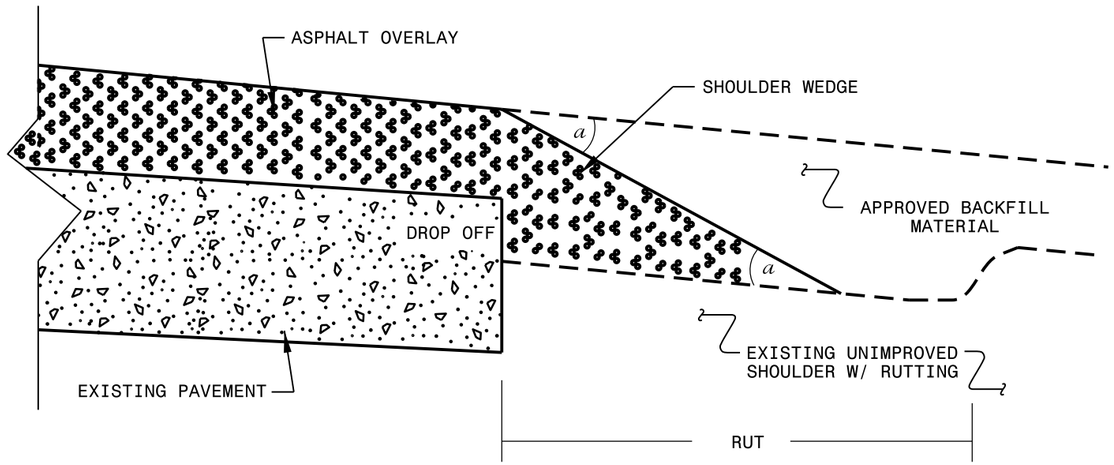
SHOULDER WEDGE DETAIL

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

PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.07.14.10011 , 2022CPT.07.14.20011	7	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	1220000000-E INCIDENTAL STONE	1297000000-E MILLING ASPHALT PAVEMENT, ***"DEPTH (1 1/2")	1330000000-E INCIDENTAL MILLING	1519000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5B	1523000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5C	1575000000-E ASPHALT BINDER FOR PLANT MIX	1704000000-E PATCHING EXISTING PAVEMENT	1775000000-E ASPHALT SURFACE TREATMENT, MAT COAT, #78M STONE	1775500000-E ASPHALT SURFACE TREATMENT, MAT COAT, #67 STONE	1838000000-E EMULSION FOR ASPHALT SURFACE TREATMENT	2830000000-N ADJ. OF MANHOLES	2845000000-N ADJUSTMENT OF METER BOXES OR VALVE BOXES	7444000000-E INDUCTIVE LOOP SAW CUT
										MI	FT	TONS	SY	SY	TONS	TONS	TON	TONS	SY	SY	GAL	EA	EA	LF
2022CPT.07.14.10011	Alamance	1	NC 100 UNIVERSITY DRIVE	FROM SR 1503 - N MANNING AV TO NC 87	1	2	2WU	NO	NO	2.328	33-90			1,121	5,056		339	16		55,537	21,104	1		5,000
TOTAL FOR MAP NO. 1										**2.328**				**1,121**	**5,056**		**339**	**16**		**55,537**	**21,104**	**1**		**5,000**
2022CPT.07.14.10011	Alamance	2	US 70 CHURCH ST.	FROM GUILFORD CO TO HUFFMAN MILL ROAD	2,3	2	2WU	NO	NO	2.006	28-75	20	61,225	6,558		6,445	387	60		5,513	2,095	30	55	5,950
TOTAL FOR MAP NO. 2										**2.006**		**20**	**61,225**	**6,558**		**6,445**	**387**	**60**		**5,513**	**2,095**	**30**	**55**	**5,950**
2022CPT.07.14.10011	Alamance	3	NC 49	FROM NC 62 TO ORANGE CO	2	2	2WU	NO	NO	4.015	25-38	163		558		6,247	375	48		67,310	25,578			
TOTAL FOR MAP NO. 3										**4.015**		**163**		**558**		**6,247**	**375**	**48**		**67,310**	**25,578**			
TOTAL FOR PROJ NO. 2022CPT.07.14.10011										**8.349**		**183**	**61,225**	**8,237**	**5,056**	**12,692**	**1,101**	**124**		**128,360**	**48,777**	**31**	**55**	**10,950**
2022CPT.07.14.20011	Alamance	4	SR 1154 - TUCKER ST	FROM SR 1155-JOINT TO SR 1148- ANTHONY RD	4	2	2WU	NO	NO	0.767	21-37	9		375	1,295		87	20	14,204		4,687	1	7	
TOTAL FOR MAP NO. 4										**0.767**		**9**		**375**	**1,295**		**87**	**20**	**14,204**		**4,687**	**1**	**7**	
2022CPT.07.14.20011	Alamance	5	SR 1136 - BELLEMONT MT HERMON RD	FROM Bridge #121, NW of SR 2387 Southern Alamance High School Rd. TO SR 2321 MT Hermon Rock Creek Rd	5	2	2WU	NO	NO	2.492	21-24	210		350	2,452		164	30	32,275		10,651			
TOTAL FOR MAP NO. 5										**2.492**		**210**		**350**	**2,452**		**164**	**30**	**32,275**		**10,651**			
2022CPT.07.14.20011	Alamance	6	SR 1508 - WALKER RD	FROM SR 1506 - POWER LINE RD TO END OF MAINT (SKIP NEW PVMT. IN FRONT OF ELON ELEMENTARY SCHOOL)	4	2	2WU	NO	NO	0.549	20	33			624		42	48	6,837		2,256			
TOTAL FOR MAP NO. 6										**0.549**		**33**			**624**		**42**	**48**	**6,837**		**2,256**			
TOTAL FOR PROJ NO. 2022CPT.07.14.20011										**3.808**		**252**		**725**	**4,371**		**293**	**98**	**53,316**		**17,594**	**1**	**7**	
GRAND TOTAL										**12.157**		**435**	**61,225**	**8,962**	**9,427**	**12,692**	**1,394**	**222**	**53,316**	**128,360**	**66,371**	**32**	**62**	**10,950**

PROJECT NO.	SHEET NO.	TOTAL NO.
2022CPT.07.14.10011 , 2022CPT.07.14.20011	8	

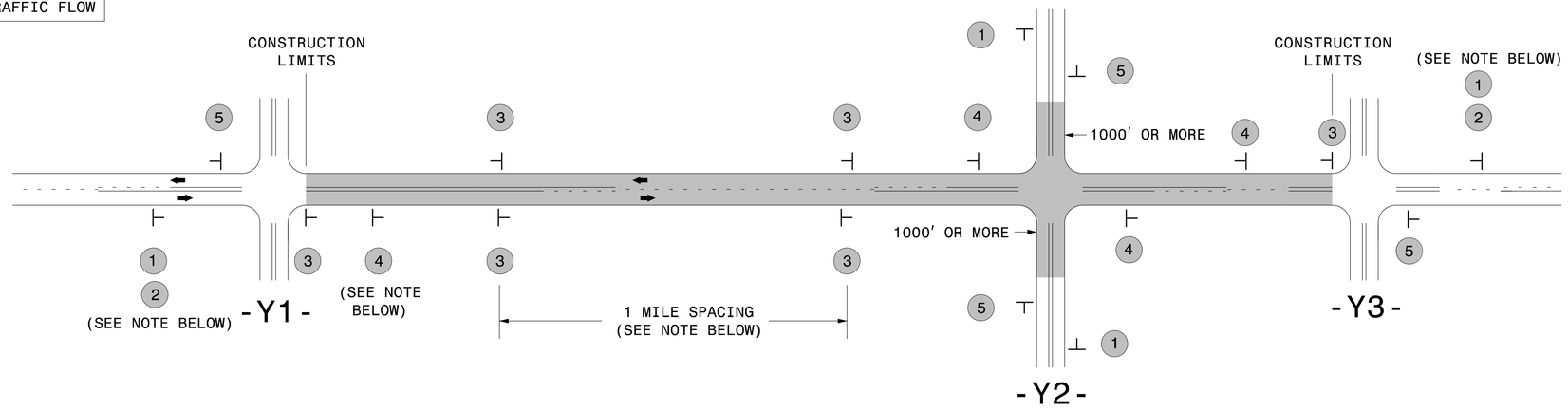
THERMOPLASTIC AND PAINT QUANTITIES

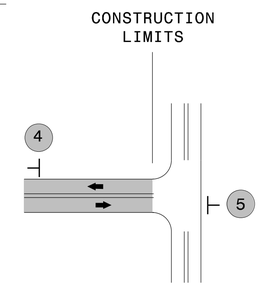
										4413000000-E	4457000000-N	4687000000-E	4688000000-E		4695000000-E		4720000000-E			4725000000-E					4890000000-E				4891000000-E		4905000000-N	
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	4" X 240 MILS WHITE THERMO	6" X 90 M WHITE THERMO	6" X 90 M YELLOW THERMO	8" X 90 M YELLOW THERMO	8" X 90 M WHITE THERMO	THERMO MSG STOP 90 M	THERMO MSG AHEAD 90 M	THERMO MSG SCHOOL 90 MILS	THERMO LT ARROW 90 M	THERMO STR ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO STR & LT ARROW 90 M	GENERIC MARKING, 4" 50 MILS HOT SPRAY THERMO (WHITE)	GENERIC MARKING, 4" 50 MILS HOT SPRAY THERMO (YELLOW)	GENERIC MARKING, 8" 50 MILS HOT SPRAY THERMO (YELLOW)	GENERIC MARKING, 6" 50 MILS HOT SPRAY THERMO (WHITE)	GENERIC MARKING, 24" X 90 M WHITE THERMO	GENERIC MARKING, 24" X 90 M YELLOW THERMO	SNOWPLOWABLE PAVEMENT MARKERS CRYSTAL/RED	SNOWPLOWABLE PAVEMENT MARKERS YELLOW/YELLOW
								MI	FT	SF	LS	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	EA	EA
2022CPT.07.14.10011	Alamance	1	NC 100 UNIVERSITY DRIVE	FROM SR 1503 - N MANNING AV TO NC 87	1	2	2WU	2.328	33-90	265	1.00		27,000	32,000	250					15	9	7							400		80	300
TOTAL FOR MAP NO. 1								**2.328**		**265**	**1**		**27,000**	**32,000**	**250**					**15**	**9**	**7**							**400**		**80**	**300**
2022CPT.07.14.10011	Alamance	2	US 70 CHURCH ST.	FROM GUILFORD CO TO HUFFMAN MILL ROAD	2,3	2	2WU	2.006	28-75	235			9,000	20,000	160	900				68	17	6	17	1					1,000		275	200
TOTAL FOR MAP NO. 2								**2.006**		**235**			**9,000**	**20,000**	**160**	**900**				**68**	**17**	**6**	**17**	**1**					**1,000**		**275**	**200**
2022CPT.07.14.10011	Alamance	3	NC 49	FROM NC 62 TO ORANGE CO	2	2	2WU	4.015	25-38	454		506	45,000	37,000	50	500	24	10											165			265
TOTAL FOR MAP NO. 3								**4.015**		**454**		**506**	**45,000**	**37,000**	**50**	**500**	**24**	**10**											**165**			**265**
TOTAL FOR PROJ NO. 2022CPT.07.14.10011								**8.349**		**954**	**1**	**506**	**81,000**	**89,000**	**460**	**1,400**	**24**	**10**		**83**	**26**	**13**	**17**	**1**					**1,565**		**355**	**765**
													170,000		**1,860**		**34**			**140**									**1,565**		**1,120**	
2022CPT.07.14.20011	Alamance	4	SR 1154 - TUCKER ST	FROM SR 1155-JOINT TO SR 1148- ANTHONY RD	4	2	2WU	0.767	21-37	86										12					8,250	7,650	725			24		
TOTAL FOR MAP NO. 4								**0.767**		**86**										**12**					**8,250**	**7,650**	**725**			**24**		
2022CPT.07.14.20011	Alamance	5	SR 1136 - BELLEMONT MT HERMON RD	FROM Bridge #121, NW of SR 2387 Southern Alamance High School Rd. TO SR 2321 MT Hermon Rock Creek Rd	5	2	2WU	2.492	21-24	279															27,500	25,000		120				
TOTAL FOR MAP NO. 5								**2.492**		**279**															**27,500**	**25,000**		**120**				
2022CPT.07.14.20011	Alamance	6	SR 1508 - WALKER RD	FROM SR 1506 - POWER LINE RD TO END OF MAINT (SKIP NEW PVMT. IN FRONT OF ELON ELEMENTARY SCHOOL)	4	2	2WU	0.549	20	62									12					6,000	5,800		38	100			
TOTAL FOR MAP NO. 6								**0.549**		**62**									**12**					**6,000**	**5,800**		**38**	**100**			
TOTAL FOR PROJ NO. 2022CPT.07.14.20011								**3.808**		**427**									**12**	**12**					**41,750**	**38,450**	**725**	**158**	**100**	**24**		
																	12			**12**					**81,083**				**124**			
GRAND TOTAL								**12.157**		**1,381**	**1**	**506**	**81,000**	**89,000**	**460**	**1,400**	**24**	**10**	**12**	**95**	**26**	**13**	**17**	**1**	**41,750**	**38,450**	**725**	**158**	**1,665**	**24**	**355**	**765**
													170,000		**1,860**		**46**			**152**					**81,083**				**1,689**		**1,120**	

PROJ. REFERENCE NO.	SHEET NO.
2022CPT.07.14.10011 2022CPT.07.14.20011	9

SIGNING FOR RESURFACING PROJECTS

LEGEND
- ⊢ STATIONARY SIGN
- ⬅ DIRECTION OF TRAFFIC FLOW





TEE INTERSECTION

MAINLINE (-L-) SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION

1 — ROAD WORK AHEAD — W20-1, 48″ X 48″
2 — NEXT XX MILES — W7-3aP, 24″ X 18″

PLACE 1000′ PRIOR TO BEGINNING OF CONSTRUCTION LIMITS.
ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000′ ALONG -Y- LINE.

#2 SIGN ONLY USED WHEN CONSTRUCTION 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 SPACE 1 MILE APART THEREAFTER.
- AT TEE INTERSECTIONS INSTALL INITIALLY ½ MILE FROM INTERSECTION AND SPACE 1 MILE APART 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.
- FOR TEE INTERSECTIONS, INSTALL WITHIN 500′ +/- OF THE INTERSECTION ALONG -L- LINE.

5 — END ROAD WORK — G20-2 A, 48″ X 24″

PLACE 500′ FOLLOWING THE END OF CONSTRUCTION LIMITS OR AS SHOWN WHEN WORK ENDS AT A 3-WAY TEE INTERSECTION.

THE ABOVE SIGNS ARE ALL THAT ARE REQUIRED FOR A CONTRACTOR TO BEGIN A RESURFACING CONTRACT. ANY ADDITIONAL SIGNS REQUESTED BY NCDOT DIVISIONS SHALL BE INSTALLED WITHIN 7 BUSINESS DAYS OF THE START OF CONTRACT WORK.

MAPS LESS THAN 2 MILES

FOR RESURFACING MAPS WITH CONSTRUCTION LIMITS LESS THAN 2 MILES IN LENGTH, NO STATIONARY SIGNS ARE REQUIRED. USE PORTABLE "ROAD UNDER CONSTRUCTION" OR "ROAD WORK AHEAD" SIGNS IN LIEU OF STATIONARY ADVANCE WARNINGS SIGNS.

-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, PORTABLE ADVANCE WARNING SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.

PLACED 500′ IN ADVANCE OF FLAGGER.

PLACED 250′ IN ADVANCE OF FLAGGER.

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

ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2-LANE ROADWAY RESURFACING

5/15/2017
SATMU\WZTC\Resurfacing\2L2W & AST Resurfacing Details\Resurfacing_AdvWarn_2Ln.dgn
User:kedavis

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

ENGLISH STANDARD DRAWING FOR

DEEP-CUT INDUCTIVE DETECTION LOOPS

(FOR INSTALLATION PRIOR TO MILLING)

SHEET 1 OF 1

NOTES

-OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.

-MAINTAIN 12″ SPACING BETWEEN LOOP WIRE TAIL SECTIONS.

-WIRE LOOPS CONNECTED TO THE SAME DETECTOR IN SERIES.

-LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS.

-USE A SERIES OF ONE INCH PIECES OF BACKER ROD SPACED ONE FOOT APART ALONG THE ENTIRE LENGTH OF THE FEEDER SLOT AND LOOP SAW SLOT.

-CONSULT LOOP SEALANT MANUFACTURER TO DETERMINE CURING TIME REQUIRED PRIOR TO MILLING.

-REFER TO STANDARD DRAWING 1725.01 SHEETS 2 AND 3 FOR ADDITIONAL REQUIREMENTS.

SAW SLOT DEPTH CHART

ASSUMING 2″ MILLING DEPTH

DEPTH (IN)	MAX NO. OF WIRE LAYERS				
	2	3	4	5	6
SAW SLOT DEPTH	4.0	4.5	5.0	5.0	5.0
MINIMUM TOTAL ASPHALT DEPTH REQUIRED	5.0	5.5	6.0	6.0	6.0

LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE

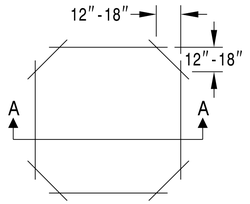
CORRECT WAY TO TWIST WIRE

CONVENTIONAL 4-SIDED LOOP

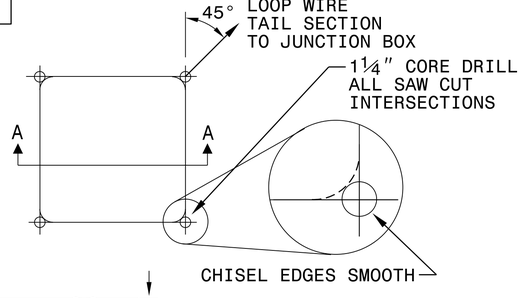
SAW CUT OPTIONS

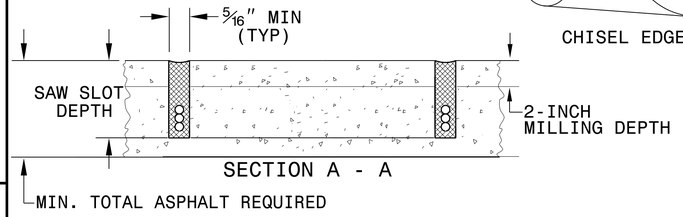
OPTION 1

INSTALL 1″ SECTIONS OF BACKER ROD ON 1 FOOT CENTERS

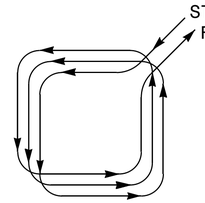


OPTION 2 (POOR PAVEMENT)

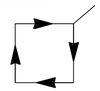




LOOP WINDING METHOD



WHEN INSTALLING 2 OR MORE LOOPS IN ADJACENT LANES, WIND LOOPS IN ALTERNATE DIRECTIONS



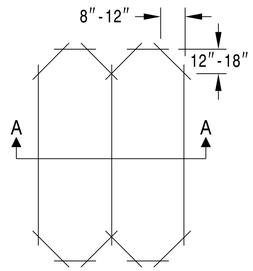
QUADRUPOLE LOOP

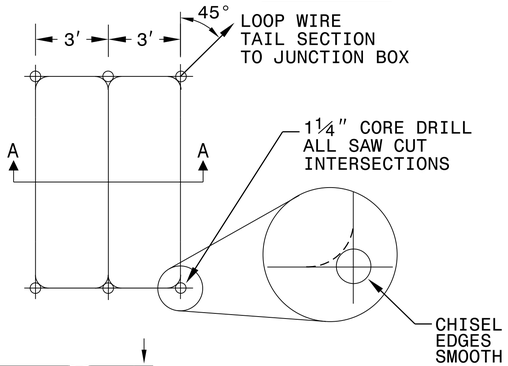
SAW CUT OPTIONS

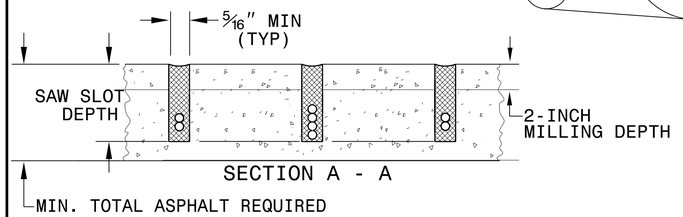
OPTION 1

OPTION 2 (POOR PAVEMENT)

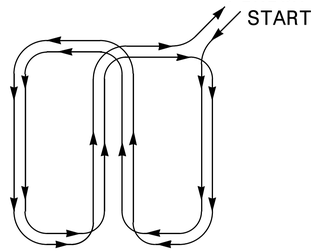
INSTALL 1″ SECTIONS OF BACKER ROD ON 1 FOOT CENTERS







LOOP WINDING METHOD



REVISIONS

1. REMOVED TWISTING NOTES FROM TAIL SECT. TO JUNCTION BOX. 2/26/08 MWH
2. REVISED SECTION A - A DETAILS. 6/29/15 JTP

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

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 016286 ENGINEER MILTON I. DEAN

DocuSigned by: Milton I. Dean
SIGNATURE
7/1/2015
DATE

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

ENGLISH STANDARD DRAWING FOR

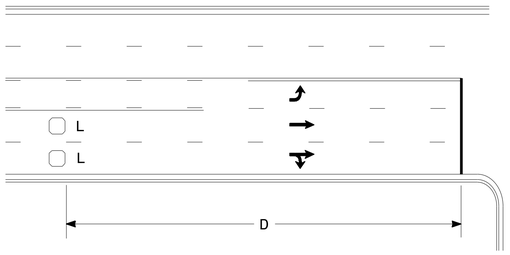
DEEP-CUT INDUCTIVE DETECTION LOOPS

(FOR INSTALLATION PRIOR TO MILLING)

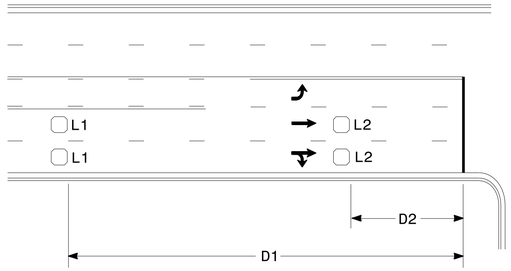
SHEET 10 OF

PROJECT REFERENCE NO.	SHEET NO.
2022CPT.07.14.10011 2022CPT.07.14.20011	11

High Speed Detection
(≥40 mph)



OR



Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

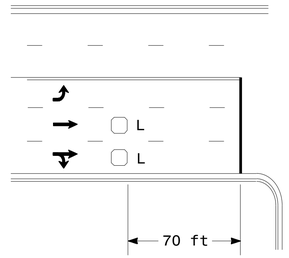
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series

L2 = 6ft X 6ft
Wired in series

"Stretch" Operation

Low Speed Detection
(≤35 mph)



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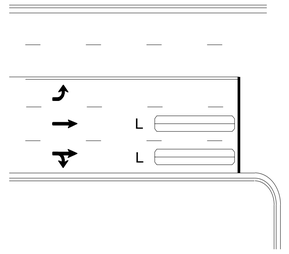
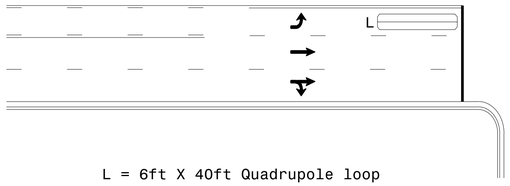


L = 6ft X 6ft
Wired in series

L = 6ft X 40ft
Quadrupole loop, wired separately

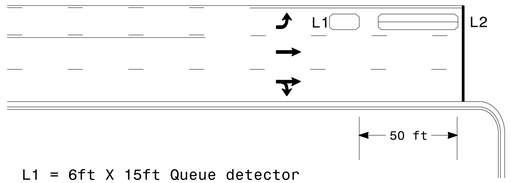
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

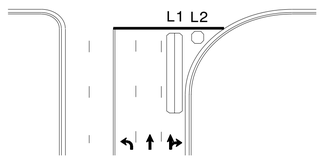
OR



L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

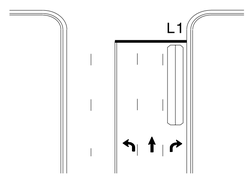
Queue Loop Detection

Right Turn Lane Detection

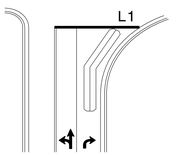


Shared Lane/
Wide Radius Turn

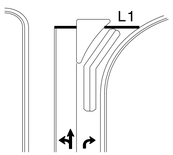
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

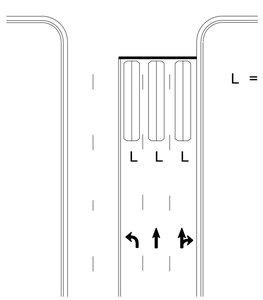


Wide Radius Turn



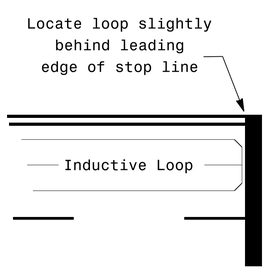
Channelized Turn

Side Street Detection



L = 6ft X 40ft
Quadrupole loop
Wired to separate detectors/channels

Presence Loop Placement at Stop Lines



Note:
Loop may be located in advance of stop line under any of the following conditions:
1) stop line is greater than 15′ from edge of intersecting roadway
2) loop detects a permissive or protected/permissive left turn
3) for an exclusive right turn lane

Recommended Number of Turns

Single 6′ X 6′ loop
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6′ X 15′ Loops:
Lead-in < 150′, use 2 turns
Lead-in > 150′, use 3 turns

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

Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:

SCALE
N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 23489 ENGINEER PAMELA L. ALEXANDER

DocuSigned by: P L Alexander B4756E00CE4E46D...
1/30/2015
DATE

SIG. INVENTORY NO.

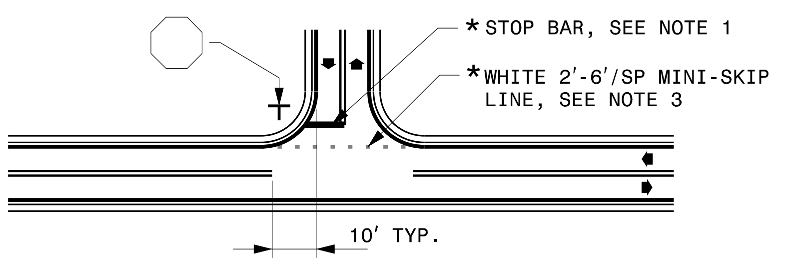
30-JAN-2015 12:39
S:\NCDOT\Traffic Signal\Signal Design Section\Eastern Region\loop typical 2015.dgn
palexander

TIP NO. SHEET NO.
DocuSigned by:
APPROVED: Matthew V. Springer
DATE: 8/13/2019 BC60F6E8B584403...
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 042546 ENGINEER MATTHEW V. SPRINGER

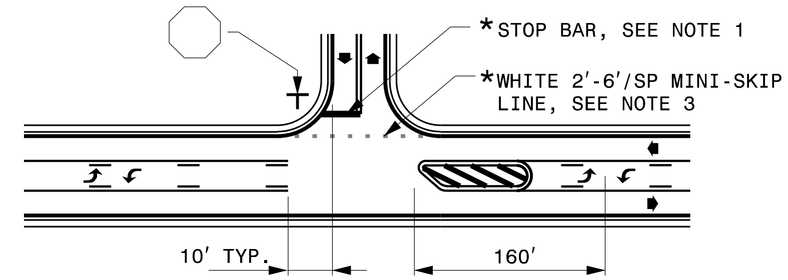
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

8-19

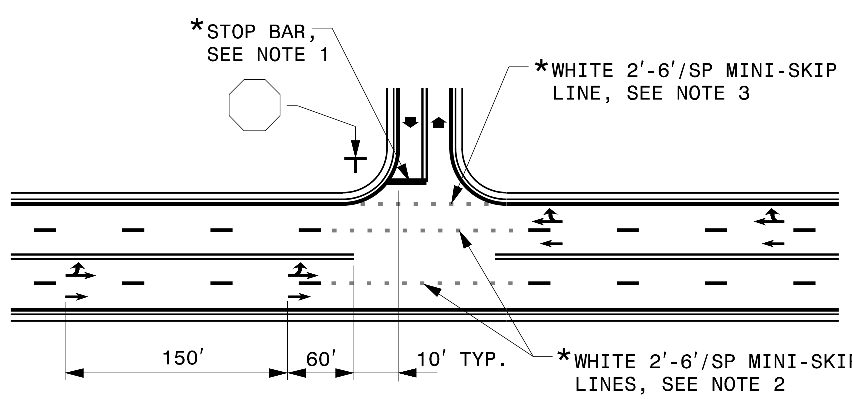
TWO-LANE, TWO-WAY ROADWAY



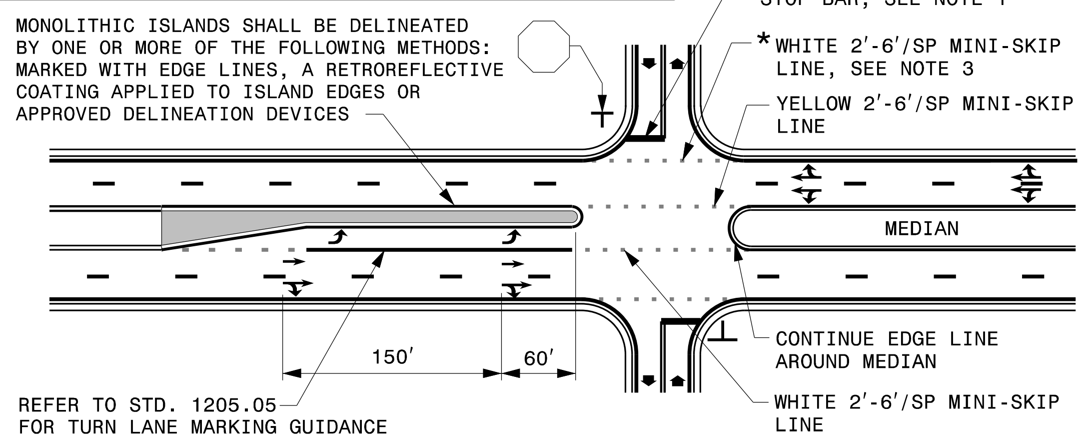
TWO-LANE, TWO-WAY ROADWAY WITH TWO-WAY LEFT TURN LANE



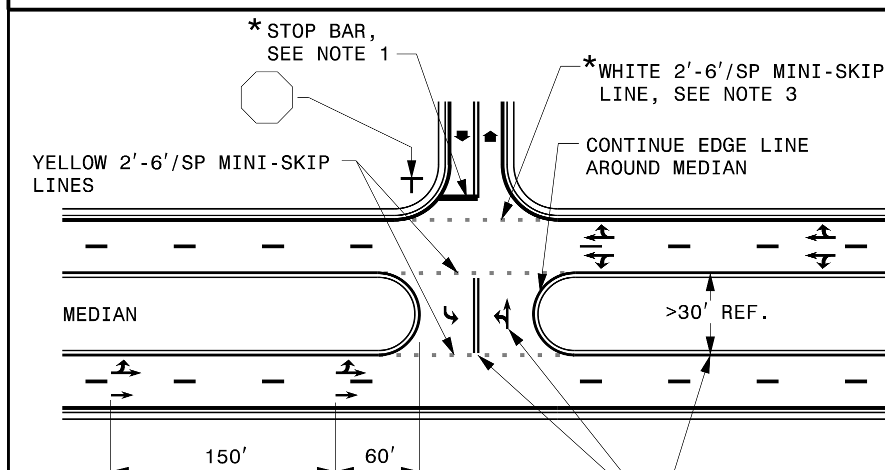
UNDIVIDED MULTI-LANE ROADWAY



DIVIDED MULTI-LANE ROADWAY WITH TURN BAY



DIVIDED MULTI-LANE ROADWAY WITH WIDE MEDIAN CROSSOVER



USE DOUBLE YELLOW CENTER LINE AND ARROW SYMBOLS IN MEDIAN CROSSOVER WHEN WIDTH OF MEDIAN EXCEEDS 30 FT, OTHERWISE THEY ARE NOT REQUIRED.

GENERAL NOTES:

1- PLACEMENT OF STOP BARS AT NON-SIGNALIZED INTERSECTIONS IS OPTIONAL AND USED WHERE IT IS IMPORTANT TO INDICATE THE POINT WHICH VEHICLES ARE REQUIRED TO STOP. PLACE STOP BARS NO LESS THAN 4 FEET AND NO MORE THAN 30 FEET FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY. USE 10 FEET AS THE TYPICAL SETBACK DISTANCE OR AS DIRECTED BY THE ENGINEER.

2- MINI-SKIP LANE LINE EXTENSIONS SHOULD BE USED AT INTERSECTIONS THAT HAVE REDUCED VISIBILITY CONDITIONS SUCH AS OFFSET, SKEWED, OR CURVED ROADWAYS.

3- MINI-SKIP EDGE LINE EXTENSIONS MAY BE PLACED THROUGH INTERSECTIONS AND MAJOR DRIVEWAYS.

4- REFER TO ROADWAY STANDARD DRAWINGS 1205.01, 1205.02, 1205.05, 1205.08 AND 1205.09 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

LEGEND	
STOP SIGN	STATIONARY SIGN
DIRECTION OF TRAFFIC FLOW	PAVEMENT MARKING SYMBOLS
* OPTIONAL	

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
INTERSECTIONS

SHEET 2 OF 2
1205D04

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

8-19

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
INTERSECTIONS

SHEET 2 OF 2
1205D04

REVISED PAVEMENT MARKING
ROADWAY STANDARD DRAWING

8-13-19