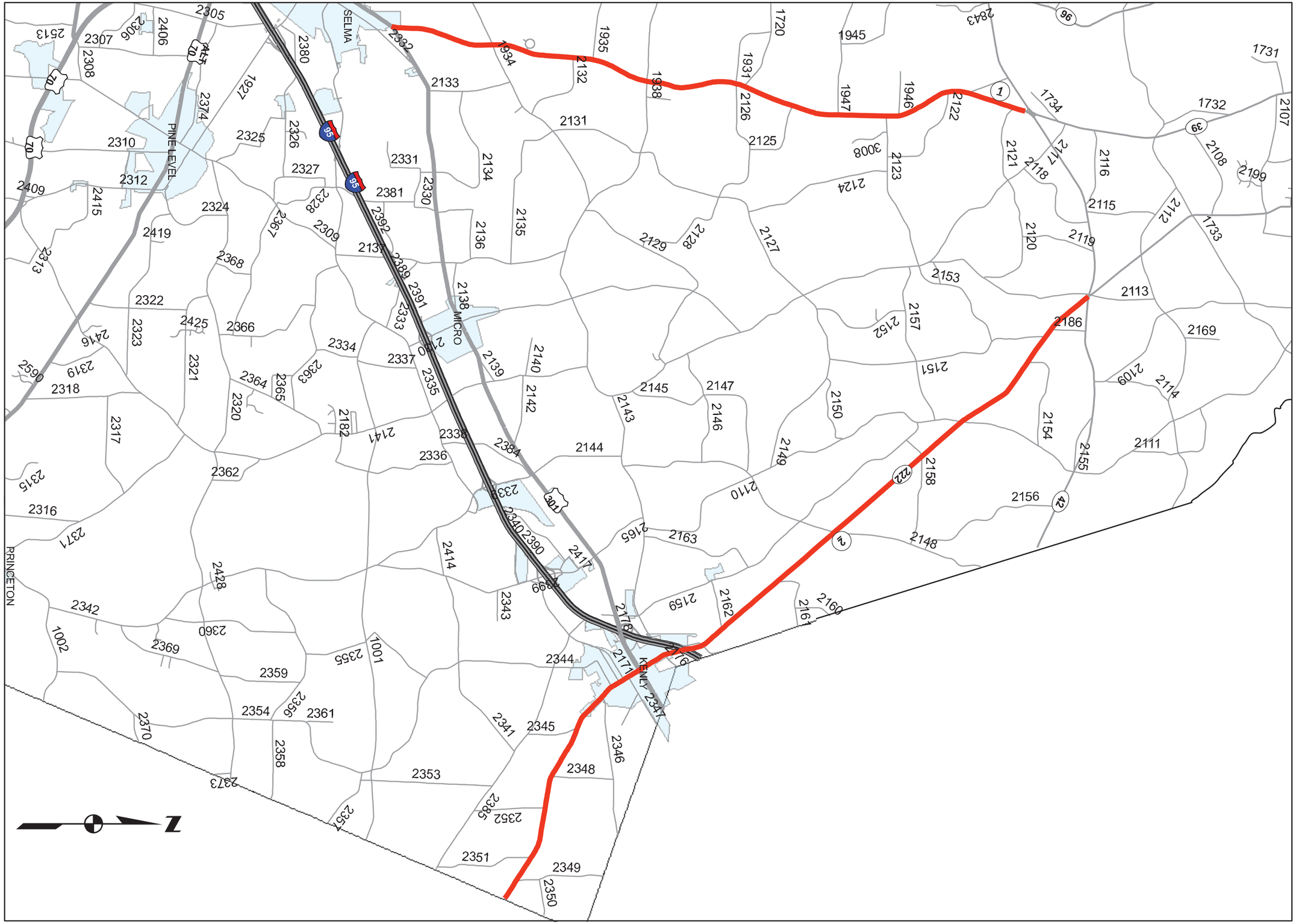
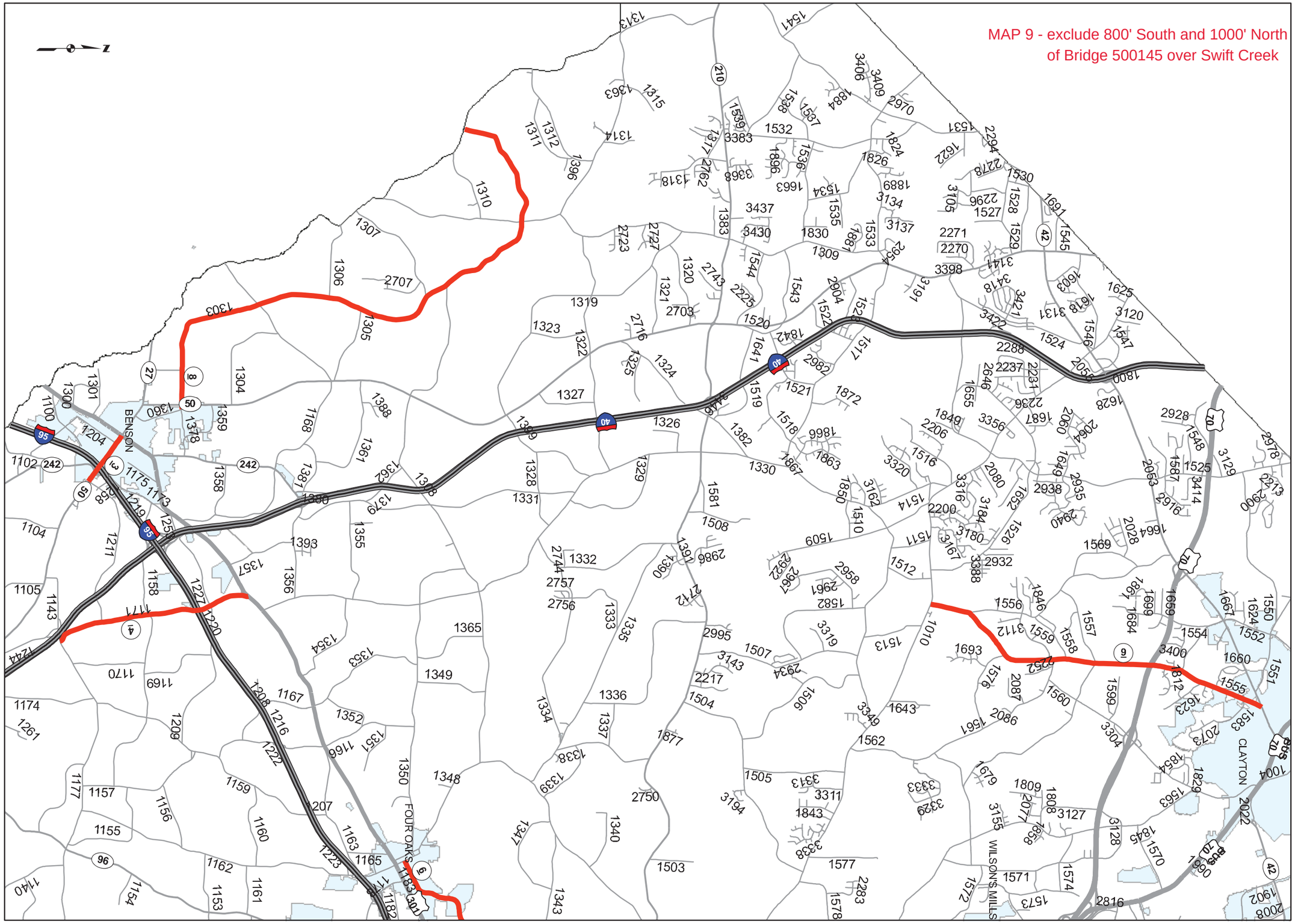
JOHNSTON COUNTY

2020CPT.04.05.10511, ETC

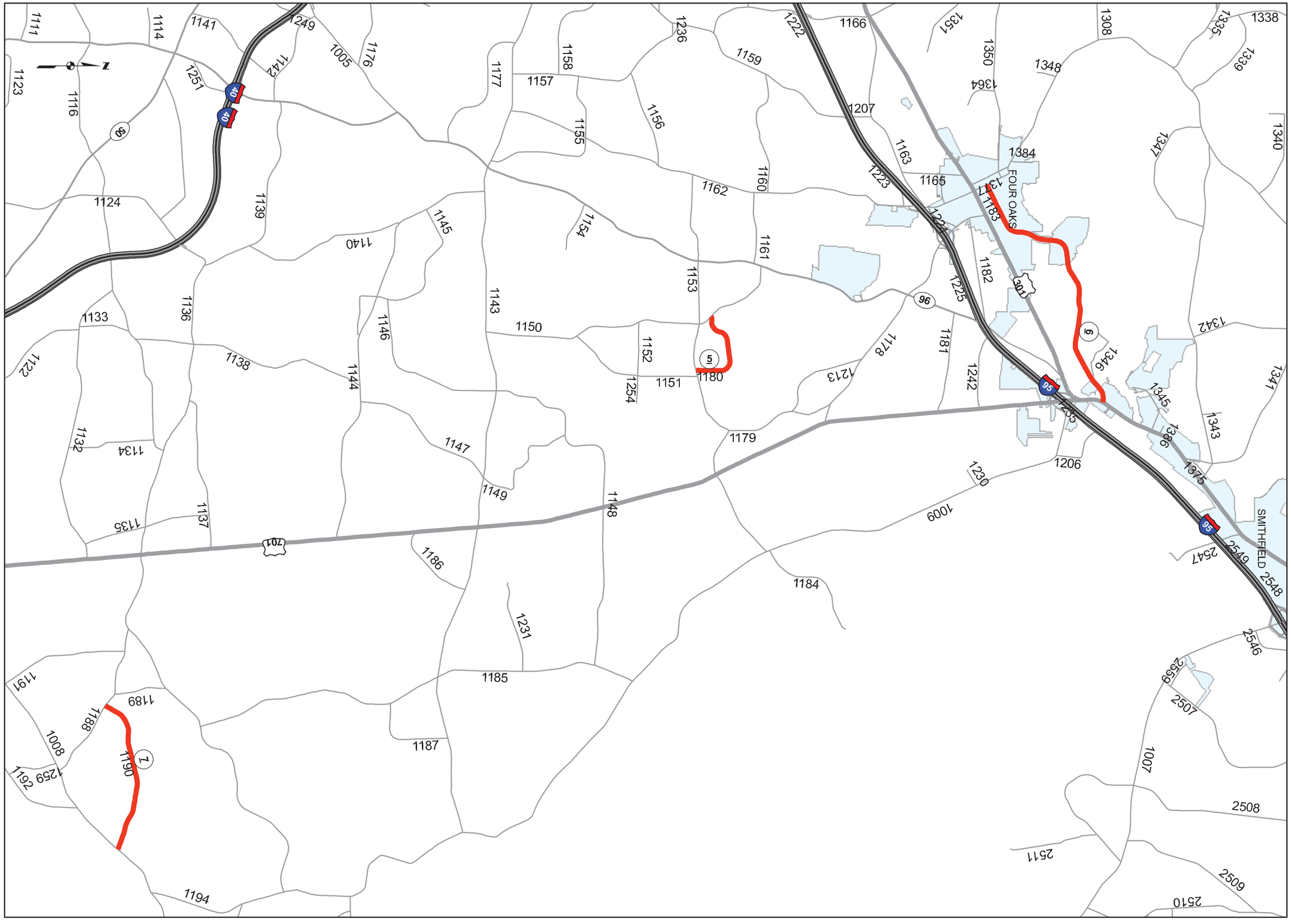
Sheet No. 1



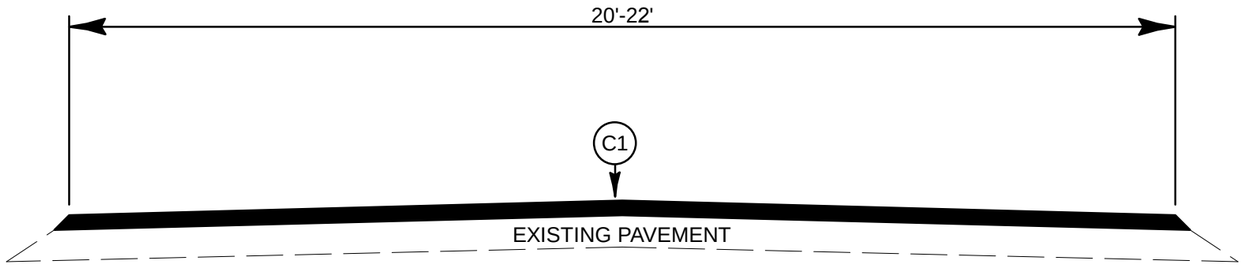
MAP 9 - exclude 800' South and 1000' North of Bridge 500145 over Swift Creek



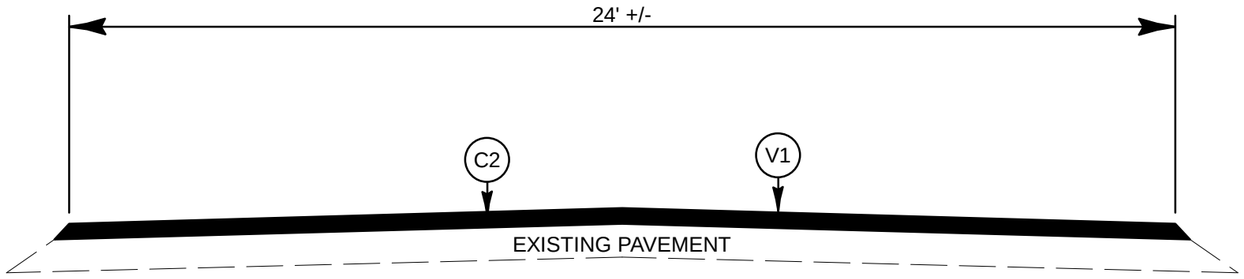
JOHNSTON COUNTY



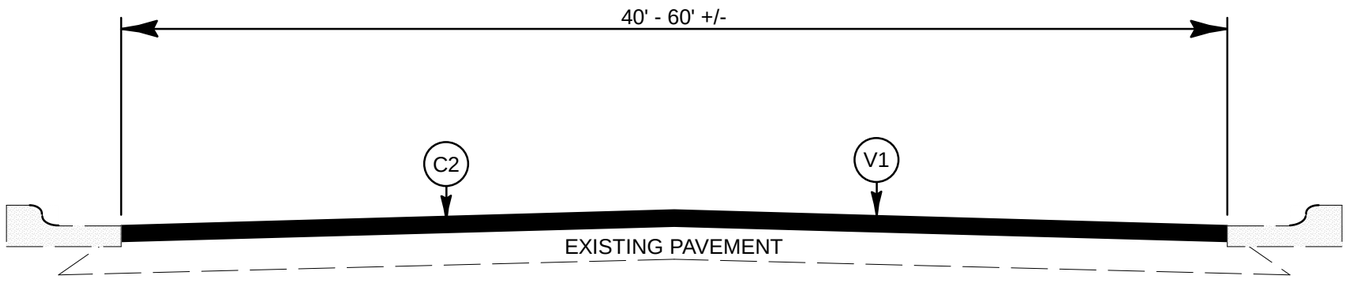
PROJECT NO.	SHEET NO.	TOTAL SHEETS
2020CPT.04.05.10511 2020CPT.04.05.20511	4	



TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2



TYPICAL SECTION NO. 3

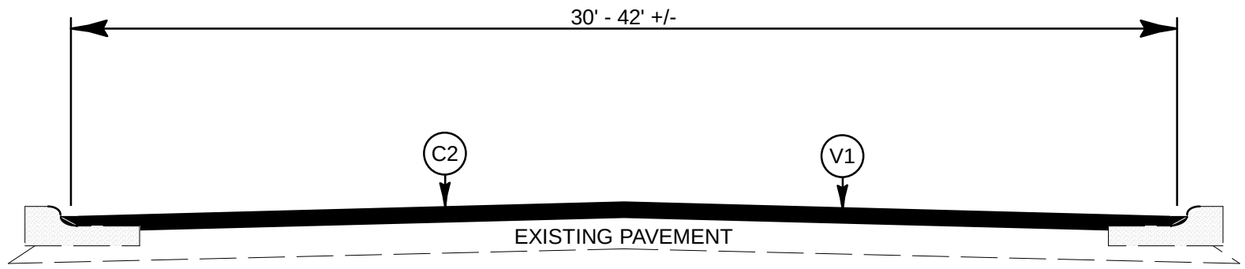
NOTE:

1. All widths are approximate. SR routes may be less than 20'. Contractor is responsible for appropriate size paving equipment.

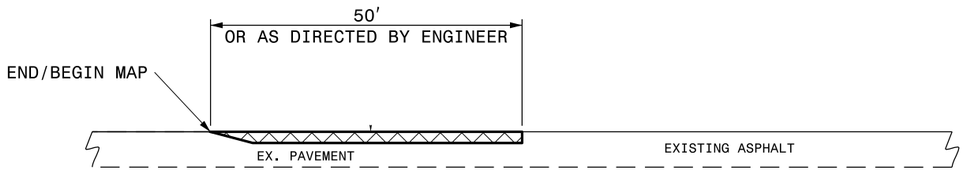
2. Shoulder Reconstruction will be by NCDOT forces.

PAVEMENT SCHEDULE	
C1	APPROX. 1.5" OF S9.5B AT AN AVERAGE RATE OF 165 LB/SY
C2	APPROX. 1.5" OF S9.5C AT AN AVERAGE RATE OF 168 LB/SY
V1	MILL 1.5" PRIOR TO RESURFACING

PROJECT NO.	SHEET NO.	TOTAL SHEETS
2020CPT.04.05.10511 2020CPT.04.05.20511	5	



TYPICAL SECTION NO. 4



DETAIL 1

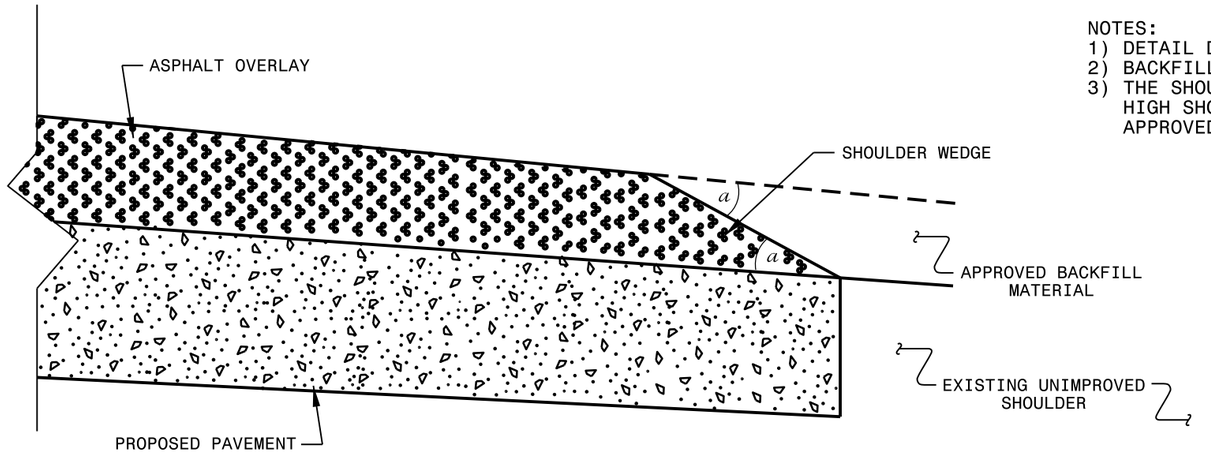
INCIDENTAL MILLING

NOTE:

1. **PERFORM INCIDENTAL MILLING AT THE TIE INS, RAILROADS, BRIDGE DECKS AND APPROACHES AT THE DIRECTION OF THE ENGINEER**

PAVEMENT SCHEDULE	
C1	APPROX. 1.5" OF S9.5B AT AN AVERAGE RATE OF 165 LB/SY
C2	APPROX. 1.5" OF S9.5C AT AN AVERAGE RATE OF 168 LB/SY
V1	MILL 1.5" PRIOR TO RESURFACING

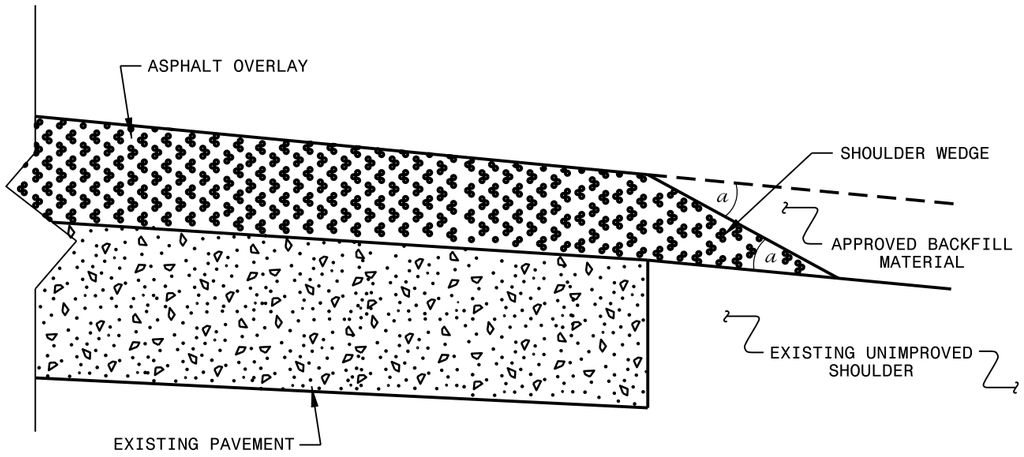
PROJECT REFERENCE NO.	SHEET NO.
2020CPT.04.05.10511, etc	6



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, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.

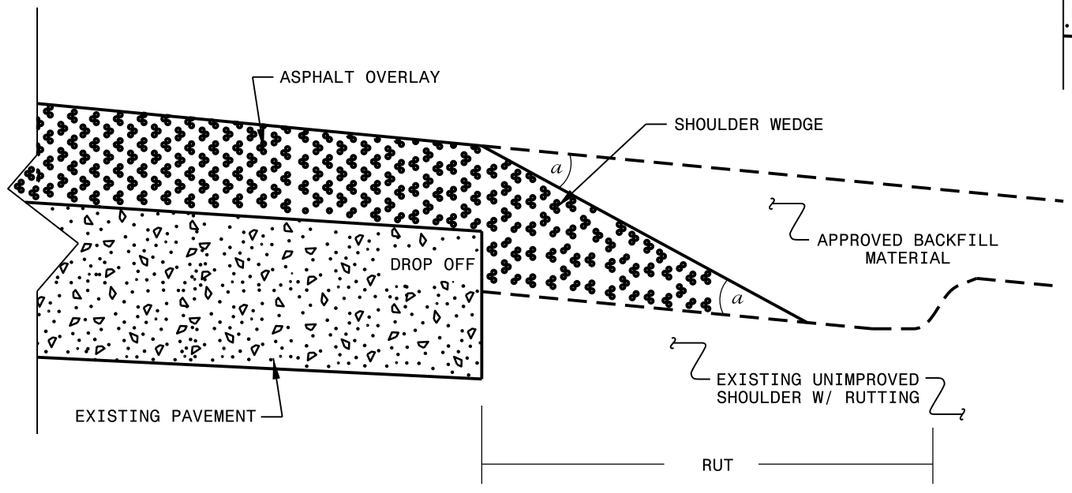
SHOULDER WEDGE DETAIL

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



SHOULDER WEDGE DETAIL

(Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL

(Resurfacing Adjacent to Rutted Shoulder)

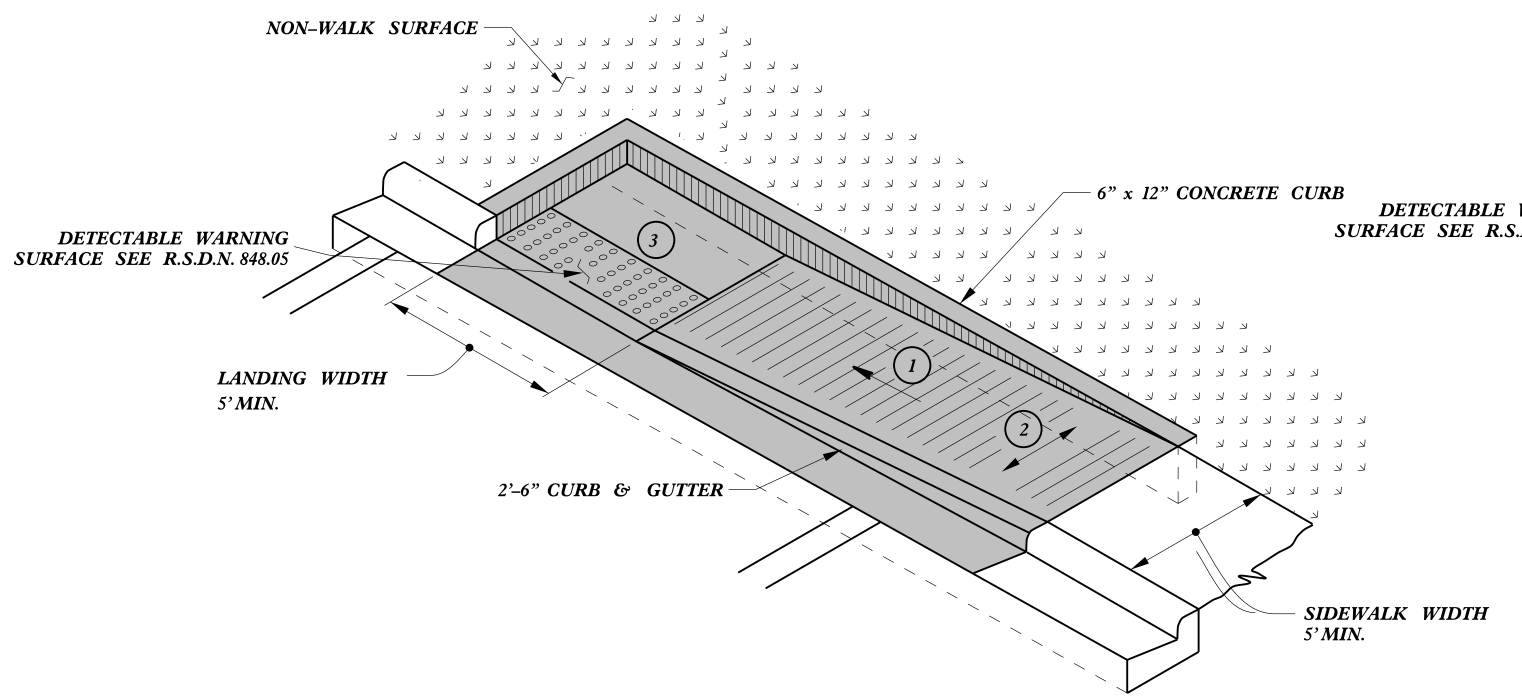
- SHOULDER WEDGE ANGLE = 30°

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

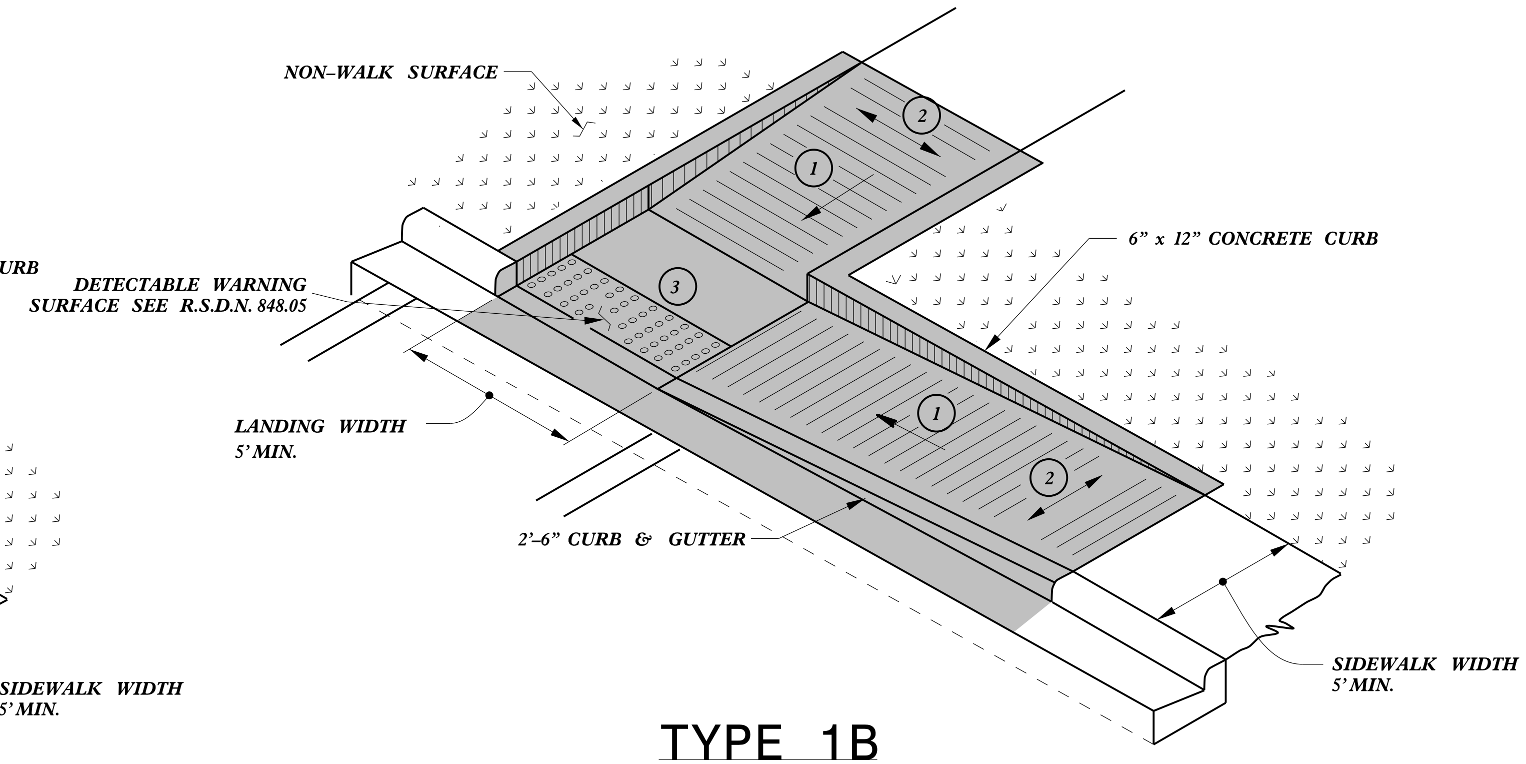
SHOULDER WEDGE DETAILS

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

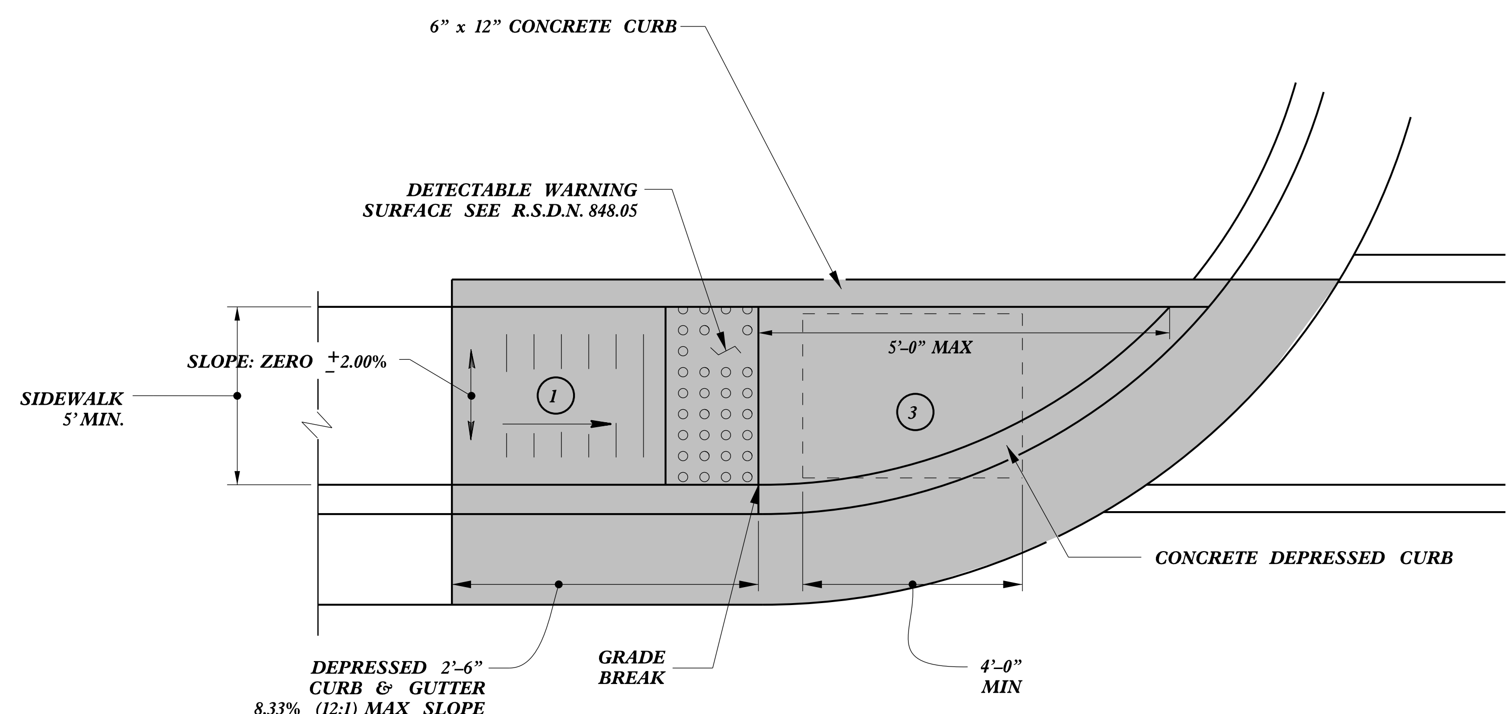
22-JAN-2018 09:41
S:\Contracts\Contracts\Resurfacing Projects\Division 4\I-5937 Wilson March 2018\Revised Shoulder Wedge Detail.dgn
pporter AI CSD-2925/2



TYPE 1A



TYPE 1B



TYPE 1

PAY LIMITS FOR 1 CURB RAMP

(1) *8.33% (12:1) MAX RAMP SLOPE*

(2) *CROSS SLOPE: 2.00%*

(3) *CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by:
Joel S Howerton
449E8E25522144F...
11/18/2015

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

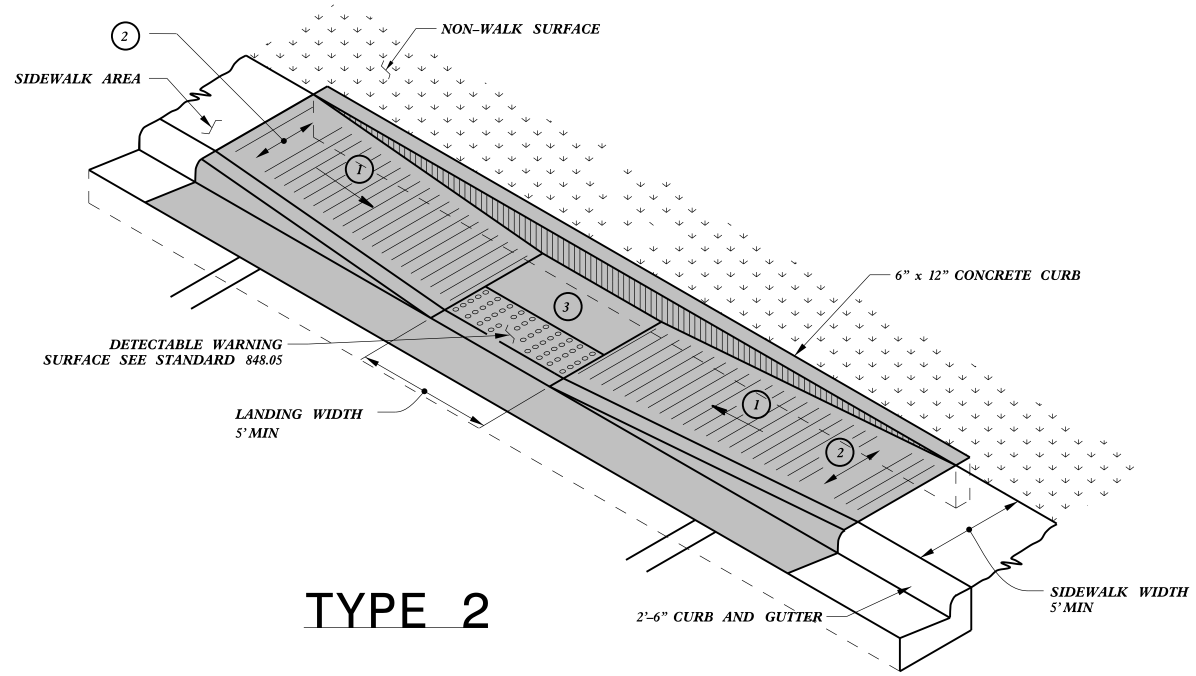
CURB RAMPS

Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: ______ DATE: ______
CHECKED BY: ______ DATE: ______
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

5/14/99

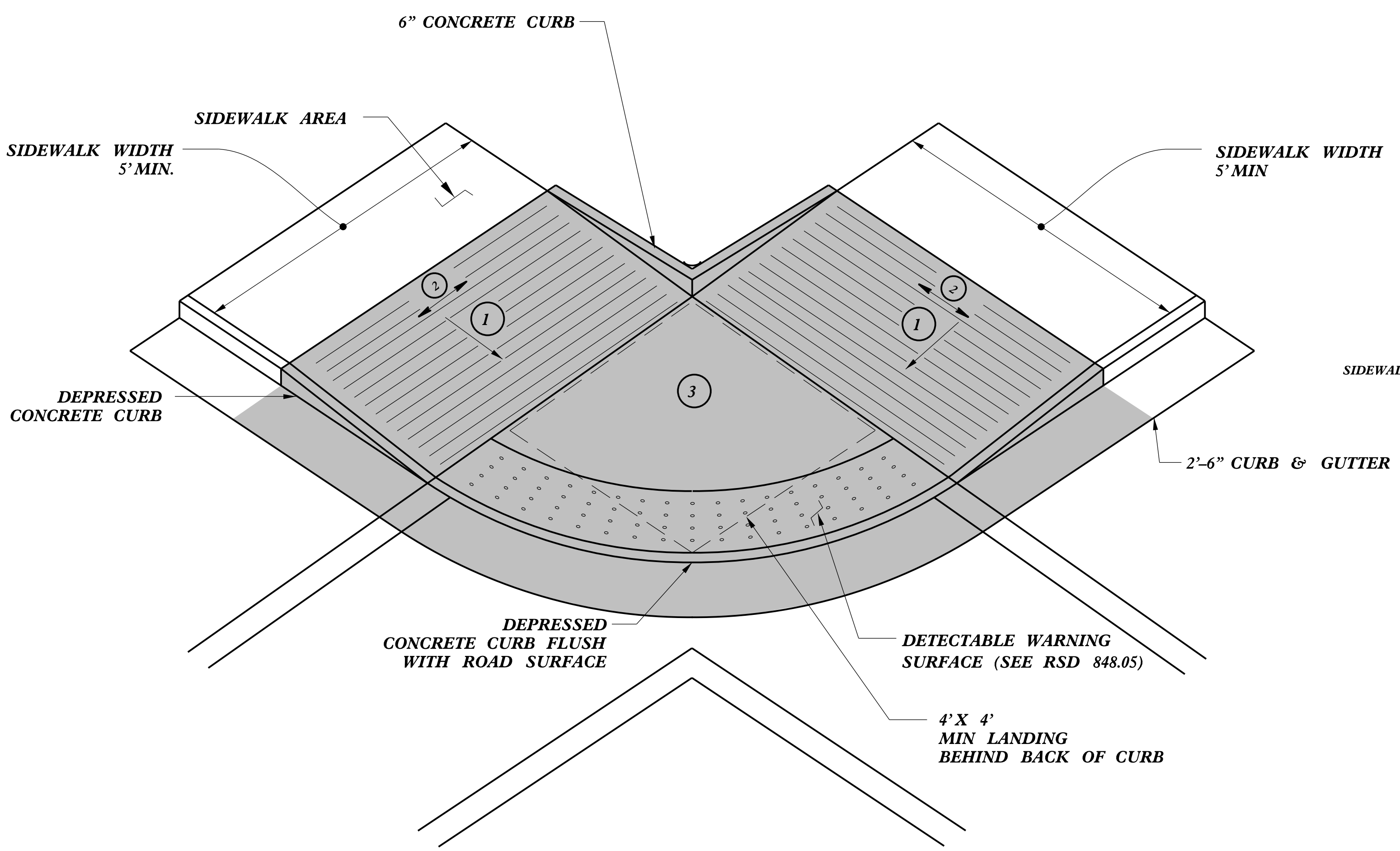
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$



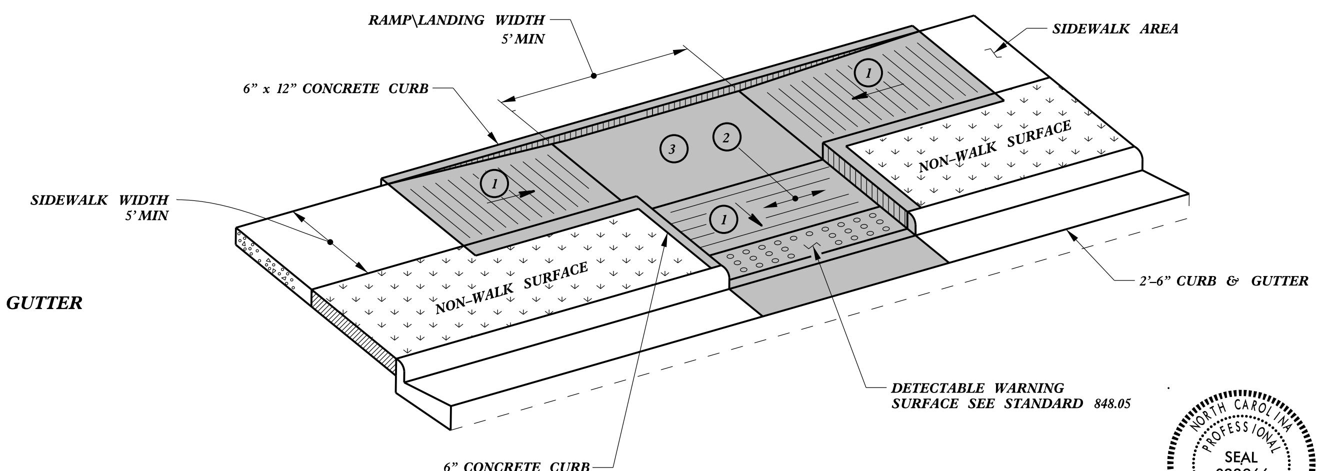
TYPE 2

PAY LIMITS FOR 1 CURB RAMP

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



TYPE 2A



TYPE 3

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel S Howerton
449E8E25522144F...

11/18/2015

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Parallel Ramps

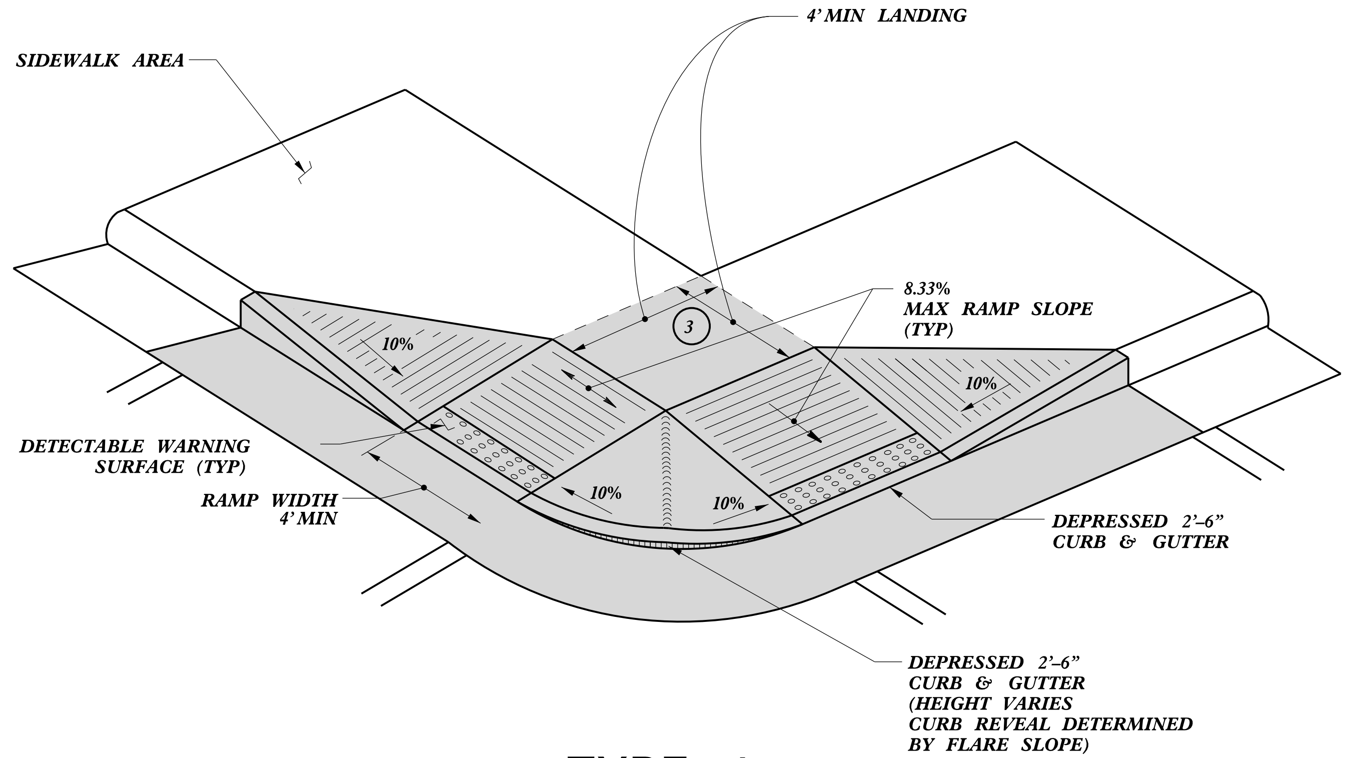
ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

5/14/99

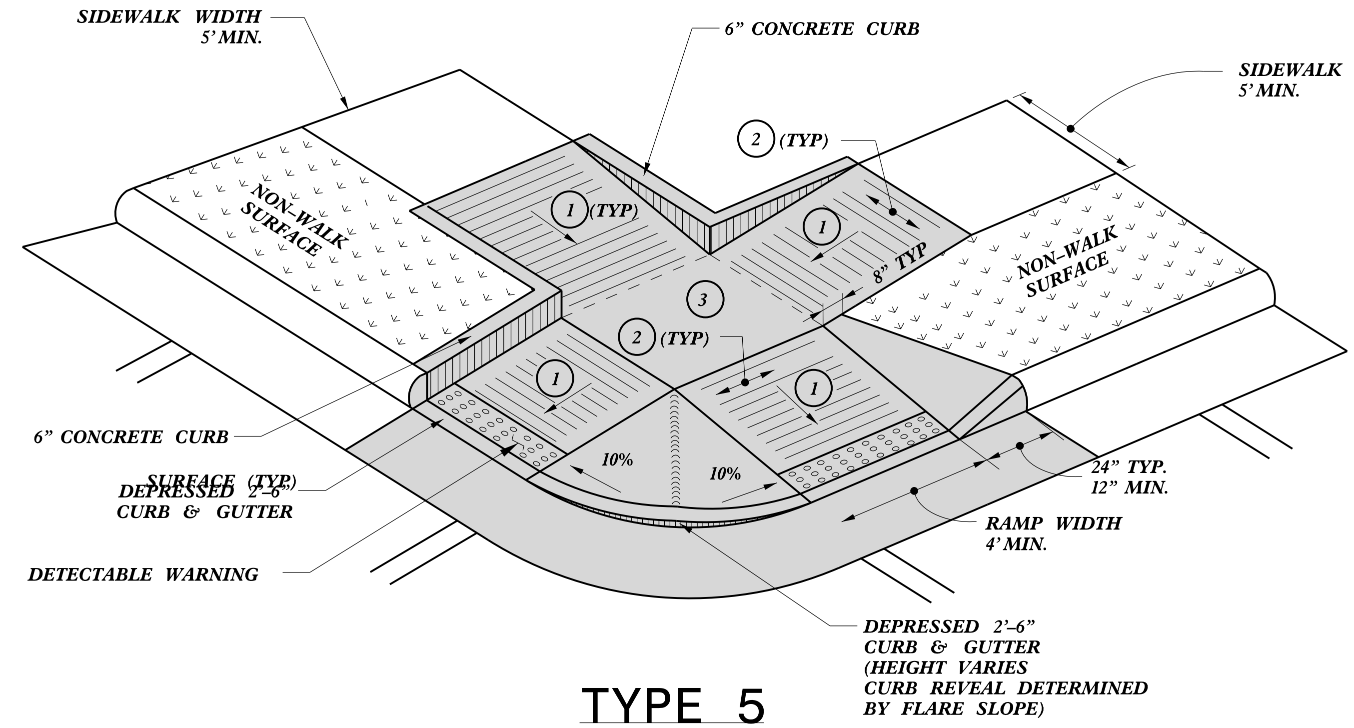
$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

5/14/99

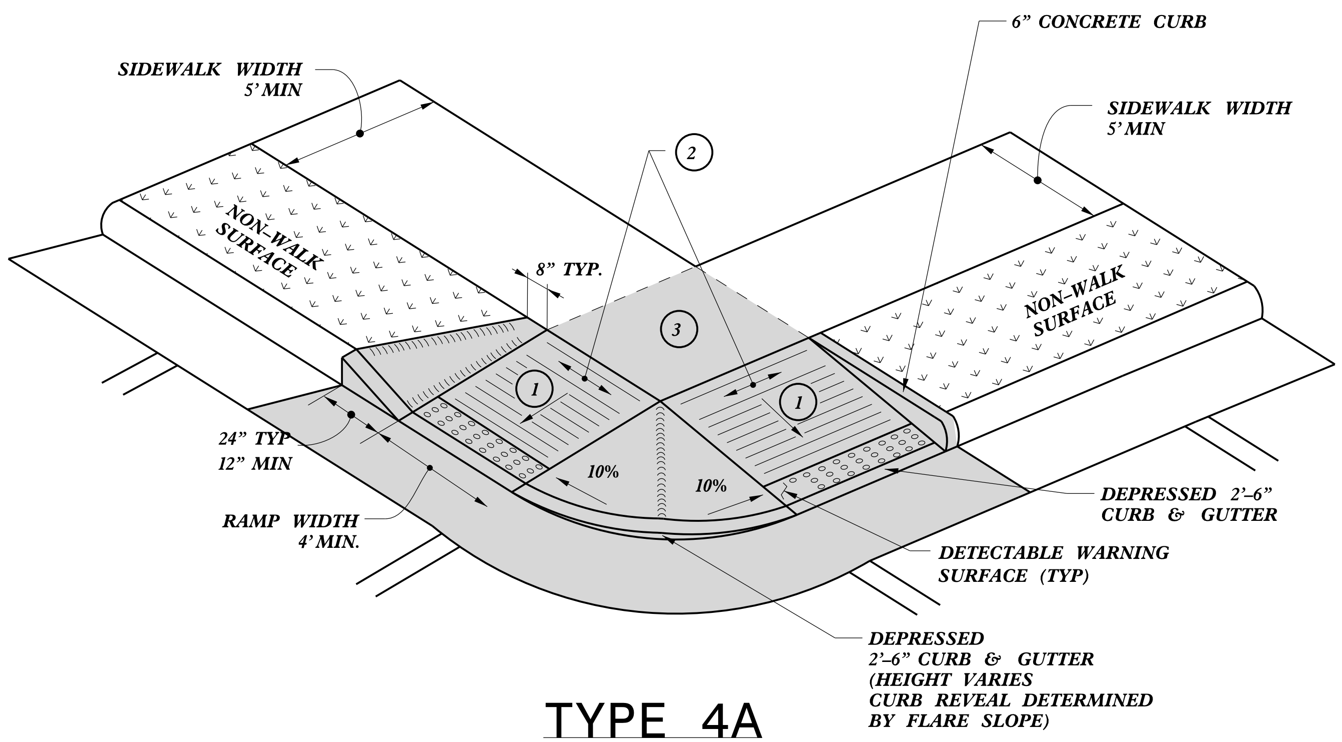
PAY LIMITS FOR 2 CURB RAMPS



TYPE 4



TYPE 5



TYPE 4A

(1) 8.33% (12:1) MAX RAMP SLOPE

(2) CROSS SLOPE: 2.00%

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

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

DocuSigned by:
Joel S Howerton
449E8E25522144F...

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

11/18/2015

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Shared Landing

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: ________ DATE: ________
CHECKED BY: ________ DATE: ________
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT NO.	SHEET NO.	TOTAL NO.
2020CPT.04.05.10511, etc	10	

SUMMARY OF QUANTITIES

PROJECT	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	INCIDENTAL STONE BASE	1½" MILLING	INCI-DENTAL MILLING	SURFACE COURSE, S9.5B	SURFACE COURSE, S9.5C	ASPHALT BINDER FOR PLANT MIX	CONCRETE CURB RAMPS	REMOVE AND REPLACE CURB RAMPS	ADJ. OF MANHOLES	ADJ. OF METER OR VALVE BOXES	PORTABLE LIGHTING	INDUCTIVE LOOP
										MI	FT	TONS	SY	SY	TONS	TONS	TONS	EA	EA	EA	EA	LS	LF
2020CPT.04.05.10511	Johnston	1	NC 39	FROM US 301 TO JOINT NEAR ROUNDABOUT @ NC 42	2	2	2WU	NO	NO	8.52	24	100	128,679			11,121	667						
		2	NC 222	FROM WAYNE CL TO BEGIN CURB & GUTTER	2	2	2WU	NO	NO	3	24	50	45,321			3,883	233						
		"	"	FROM BEGIN CURB & GUTTER TO END CURB & GUTTER	3	2	2WU	NO	NO	0.7	40		18,381			1,575	95	16	18	9	11		600
		"	"	FROM END CURB & GUTTER TO NC 42	2	2	2WU	NO	NO	7.4	24	50	111,403			9,545	573						
		TOTAL FOR MAP NO. 2								11.1		100	175,105			15,003	901	16	18	9	11		600
		3	NC 50 (5 LANE)	FROM BEGIN CURB & GUTTER TO FAYETTEVILLE ST.	3	5	MU	NO	NO	0.4	60		14,402			1,209	73				2	*	1,000
		"	"	FROM FAYETEVILLE ST. TO N. DUNN ST	3	4	MU	NO	NO	0.05	50		1,500			126	8						
		"	"	FROM N. DUNN ST. TO 150' EAST OF US 301	4	3	MU	NO	NO	0.45	30		10,634			963	58			14	15		4,000
		TOTAL FOR MAP NO. 3								0.9			26,536			2,298	139			14	17		5,000
TOTAL FOR PROJ NO. 2020CPT.04.05.10511										**20.52**		**200**	**330,320**			**28,422**	**1,707**	**16**	**18**	**23**	**28**		**5,600**
2020CPT.04.05.20511	Johnston	4	SR 1171 - HANNAH CREEK RD.	FROM US 301 TO SR 1143	1	2	2WU	NO	NO	3.1	21			1,300	3,462		232			1			
		5	SR 1180 - GO CART RD.	FROM SR 1153 TO SR 1150	1	2	2WU	NO	NO	0.98	20			250	974		65						
		6	SR 1183 - THUNDER RD. (SANDERS ST.)	FROM US 301 TO SR 1162 (MAIN ST.)	1	2	2WU	NO	NO	2.9	22			250	3,249		218	2	4				
		7	SR 1190 - BATTLEFIELD RD.	FROM SR 1188 TO SR 1008	1	2	2WU	NO	NO	1.7	20			250	1,689		113						
		8	SR 1303 - BENSON HARDEE RD.	FROM SR 1360 TO HARNETT CL	1	2	2WU	NO	NO	9.4	21			1,350	10,170		681						
		9	SR 1555 - BARBER MILL RD.	FROM SR 1010 TO NC 42	1	2	2WU	NO	NO	5.65	22			750	6,883		461						
TOTAL FOR PROJ NO. 2020CPT.04.05.20511										**23.73**				**4,150**	**26,427**		**1,770**	**2**	**4**	**1**			
GRAND TOTAL										**44.25**		**200**	**330,320**	**4,150**	**26,427**	**28,422**	**3,477**	**18**	**22**	**24**	**28**	**1**	**5,600**

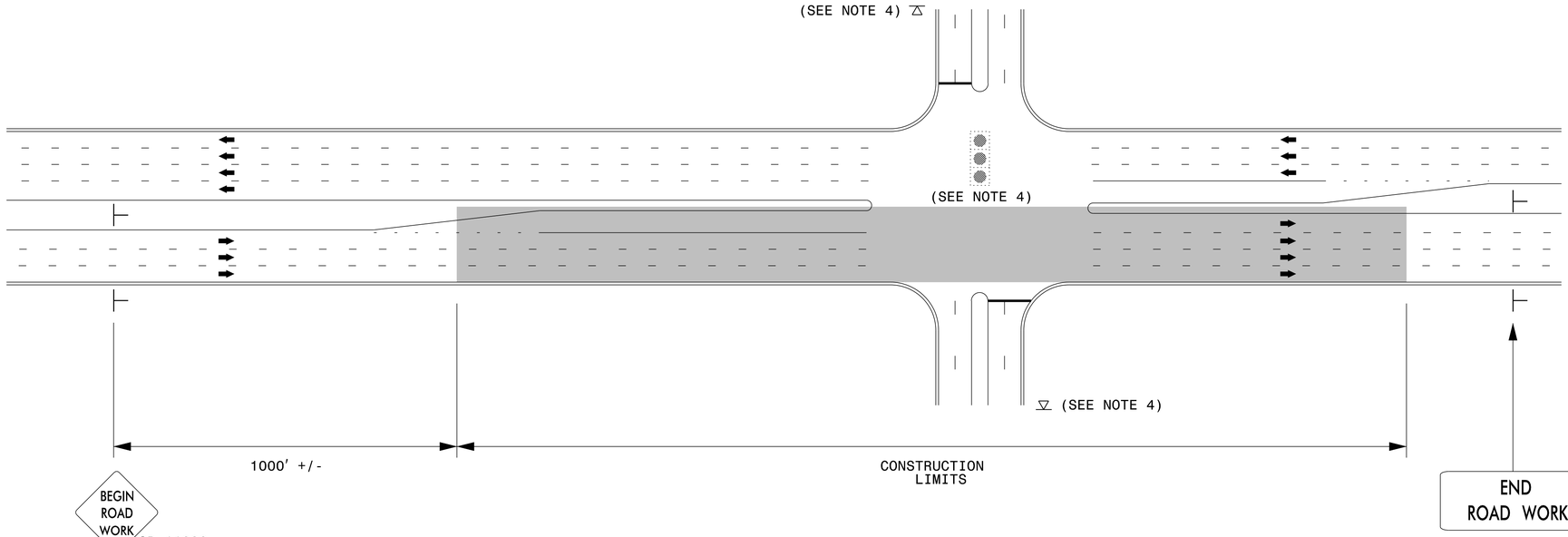
PROJECT NO.	SHEET NO.	TOTAL NO.
2020CPT.04.05.10511, etc	11	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYPNO	LANES	LANE TYPE	LENGTH	WIDTH	4413000 WZ ADV/ GEN WARN. SIGN'G	44200 PORTABLE CMS	4457000 TEMP. TRAFFIC CONTROL	45100 LAW ENFORCEMENT	4585000000 4" X 90 M WHITE THERMO	4686000000-E 4" X 120 M WHITE THERMO	4686000000-E 4" X 120 M YELLOW THERMO	4695000 8" X 90 M YELLOW THERM	4697000000-E 8" X 120 M YELLOW THERMO	4697000000-E 8" X 120 M WHITE THERMO	4705000 16" X 120 M WHITE THERMO	4710000 24" X 120 M WHITE THERMO	4721000000-E THERMO MSG SCHOOL 120	4721000000-E THERMO RXR 120 M	4721000000-E THERMO MSG ONLY 120 M	4725000000-E THERMO LT ARROW 90 M	4725000000-E THERMO STR & RT ARROW 90	4725000000-E THERMO STR ARROW 90 M	4725000000-E THERMO RT ARROW 90 M	4725000000-E THERMO MERGE ARROW 90	4770000000-E 4" WHITE COLD APPL PLASTIC TYPE II	4770000000-E 4" YELLOW COLD APPL PLASTIC TYPE II	4810000000-E 4" WHITE PAINT	4810000000-E 4" YELLOW PAINT	4820000000-E 8" YELLOW PAINT	4820000000-E 8" WHITE PAINT	48300 16" WHITE PAINT	48350 24" WHITE PAINT	4840000000-N PAINT MSG SCHOOL	4845000000-N PAINT MSG RXR	4845000000-N PAINT MSG ONLY	4845000000-N PAINT MERGE ARR	4845000000-N PAINT LT ARROW	4845000000-N PAINT STR & RT ARROW	4845000000-N PAINT RT ARROW	4845000000-N PAINT STR ARROW	4850000 4" LINE REMOVAL	4900000000-N YELLOW & YELL. MARKERS	4900000000-N CRYSTAL & RED MARKERS
								MI	FT	SF	EA	LS	HR	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA
2020CPT.04.05.10511	Johnston	1	NC 39	FROM US 301 TO JOINT NEAR ROUNDABOUT @ NC 42	2	2	2WU	8.52	24	954				89,971	400	89,971	150				98	6		6								90,371	89,971	150			98	6			6				582	20
		2	NC 222	FROM WAYNE CL TO BEGIN CURB & GUTTER	2	2	2WU	3	24	336				31,680		26,840															31,680	26,840												200	
		"	"	FROM BEGIN CURB & GUTTER TO END CURB & GUTTER	3	2	2WU	0.7	40	78				7,392		7,392				184	150		4		4	4					7,392	7,392			184	150		4		4	4			46	10
		"	"	FROM END CURB & GUTTER TO NC 42	2	2	2WU	7.4	24	830		*		78,144		48,840											900	900			78,144	48,840												1,800	488	
		TOTAL FOR MAP NO. 2						11.1		1,244				117,216		83,072				184	150		4		4	4			900	900	117,216	83,072			184	150		4		4	4			1,800	734	10
		3	NC 50 (5 LANE)	FROM BEGIN CURB & GUTTER TO FAYETTEVILLE ST.	3	5	MU	0.4	60	606					1,056	5,280		130			150			16	15	7	13		5	640	470	1,056	5,280	130			150			16		15	7	5	13	1,110	212	
		"	"	FROM FAYETEVILLE ST. TO N. DUNN ST	3	4	MU	0.05	50	286					132	528					80				2		3		2			132	528				80				2	2					
		"	"	FROM N. DUNN ST. TO 150' EAST OF US 301	4	3	MU	0.45	30	766	2		80	1,370		5,940			820	200	420		8								1,370	5,940		820	200	420		8								
		TOTAL FOR MAP NO. 3						0.9		1,658	2		80	1,370	1,188	11,748		130	820	200	650		8	16	17	7	16		7	640	470	2,558	11,748	130	820	200	650		8	16	2	17	7	5	13	1,110	212	
TOTAL FOR PROJ NO. 2020CPT.04.05.10511								**20.52**		**3,856**	**2**		**80**	**208,557**	**1,588**	**184,791**	**150**	**130**	**820**	**384**	**898**	**6**	**12**	**16**	**27**	**11**	**16**		**7**	**1,540**	**1,370**	**210,145**	**184,791**	**280**	**820**	**384**	**898**	**6**	**12**	**16**	**2**	**27**	**11**	**5**	**13**	**2,910**	**1,528**	**30**
															186,379			**950**				**34**			**61**					**2,910**		**394,936**		**1,100**				**34**			**58**					**1,558**	
2020CPT.04.05.20511	Johnston	4	SR 1171 - HANNAH CREEK RD.	FROM US 301 TO SR 1143	1	2	2WU	3.1	21	347																					65,472	65,472	150	180		92	6			4		2				
		5	SR 1180 - GO CART RD.	FROM SR 1153 TO SR 1150	1	2	2WU	0.98	20	110																					20,698	20,698														
		6	SR 1183 THUNDER RD (SANDERS ST)	FROM US 301 TO SR 1162 (MAIN ST.)	1	2	2WU	2.9	22	325		*																			61,248	61,248														
		7	SR 1190 - BATTLEFIELD RD.	FROM SR 1188 TO SR 1008	1	2	2WU	1.7	20	190																					36,584	35,904														
		8	SR 1303 - BENSON HARDEE RD.	FROM SR 1360 TO HARNETT CL	1	2	2WU	9.4	21	1,053																					198,528	198,528														
		9	SR 1555 - BARBER MILL RD.	FROM SR 1010 TO NC 42	1	2	2WU	5.65	22	633																					122,288	120,088									9		2			
TOTAL FOR PROJ NO. 2020CPT.04.05.20511								**23.73**		**2,658**																					**504,818**	**501,938**	**150**	**180**		**92**	**6**			**13**		**4**				
																															1,006,756		**330**				**6**			**17**						
GRAND TOTAL								**44.25**		**6,514**	**2**	**1**	**80**	**208,557**	**1,588**	**184,791**	**150**	**130**	**820**	**384**	**898**	**6**	**12**	**16**	**27**	**11**	**16**		**7**	**1,540**	**1,370**	**714,963**	**686,729**	**430**	**1,000**	**384**	**990**	**12**	**12**	**16**	**2**	**40**	**11**	**9**	**13**	**2,910**	**1,528**	**30**
															186,379			**950**				**34**			**61**					**2,910**		**1,401,692**		**1,430**				**40**			**75**					**1,558**	

PROJ. REFERENCE NO.	SHEET NO.
2020CPT.04.05.10511, etc	TMP-1

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

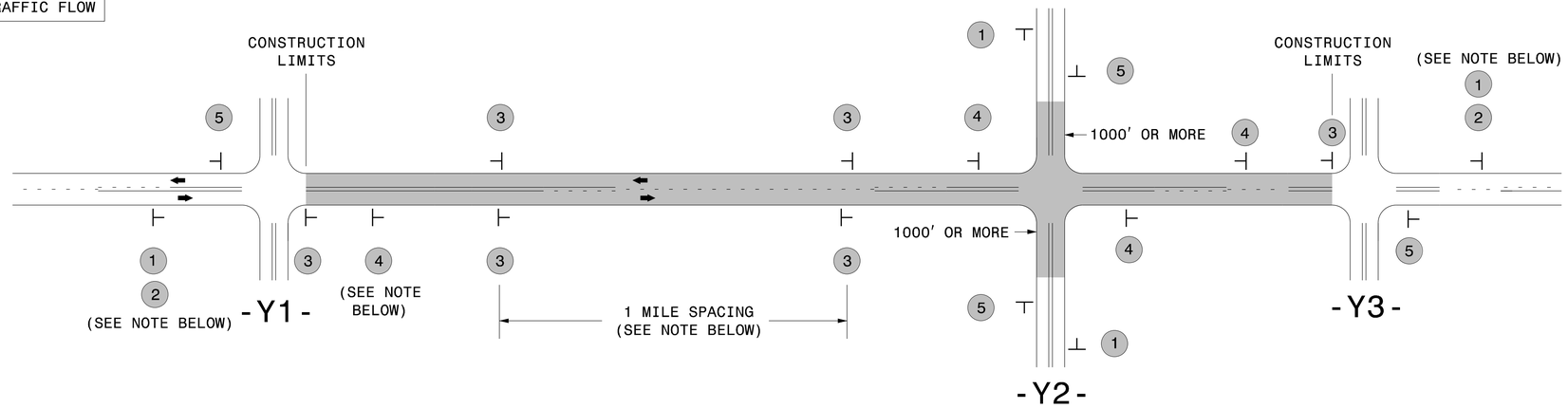
RESURFACING ADVANCE WARNING SIGNS FOR URBAN / SUBURBAN FACILITIES

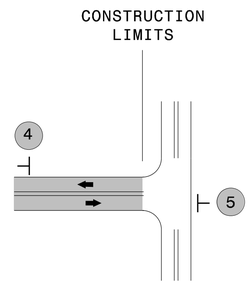
4/8/2015
C:\Users\rmgarrett\Downloads\Resurfacing_AdvWarn_UrSu (2).dgn
User:rmgarrett

PROJ. REFERENCE NO.	SHEET NO.
2020CPT.04.05.10511, etc	TMP-2

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″	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 CONSTRUCTION LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER.(NO FRACTIONAL OR DECIMAL NUMBERS)
3	LOWSOFT 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.

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

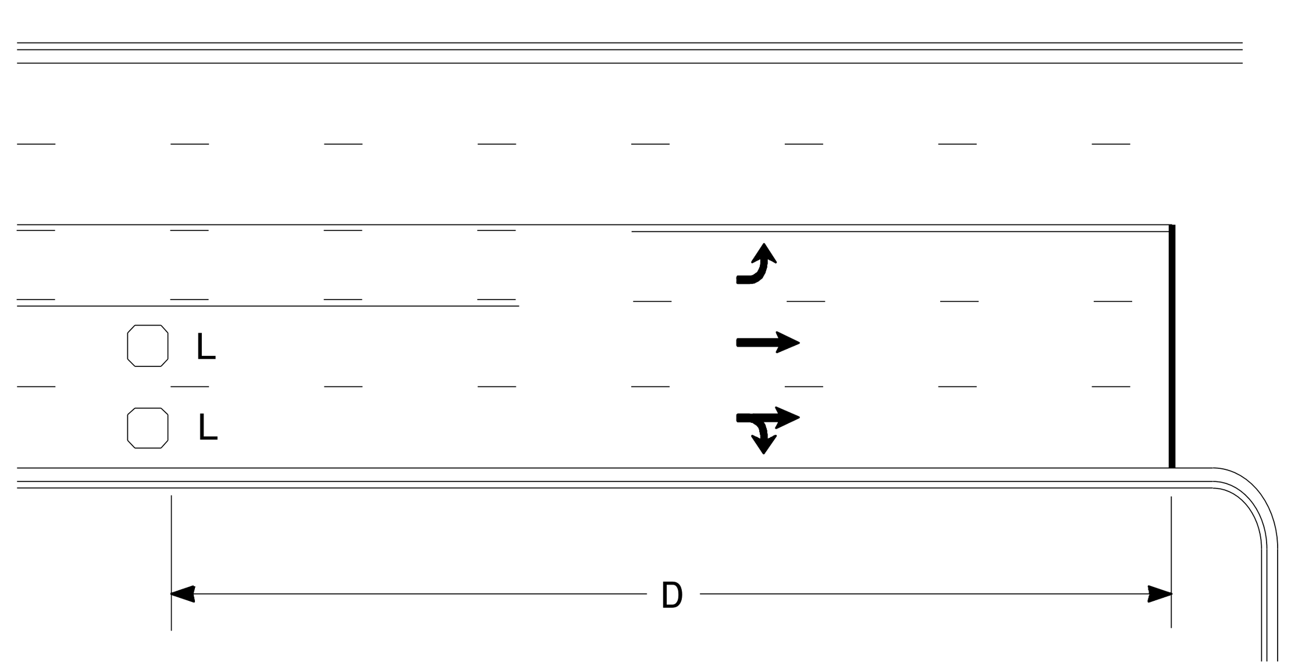
W20-7 A 48″ X 48″
PLACED 250′ IN ADVANCE OF FLAGGER.

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

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:keddis

High Speed Detection
(≥40 mph)



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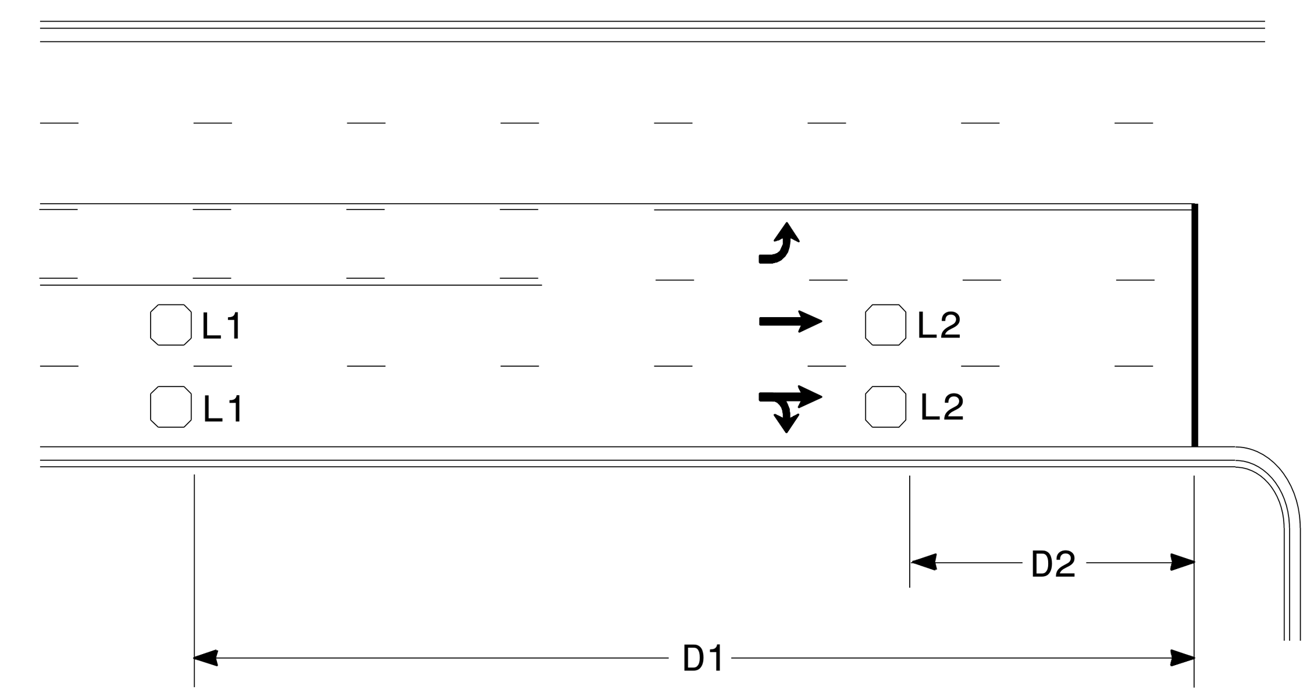


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

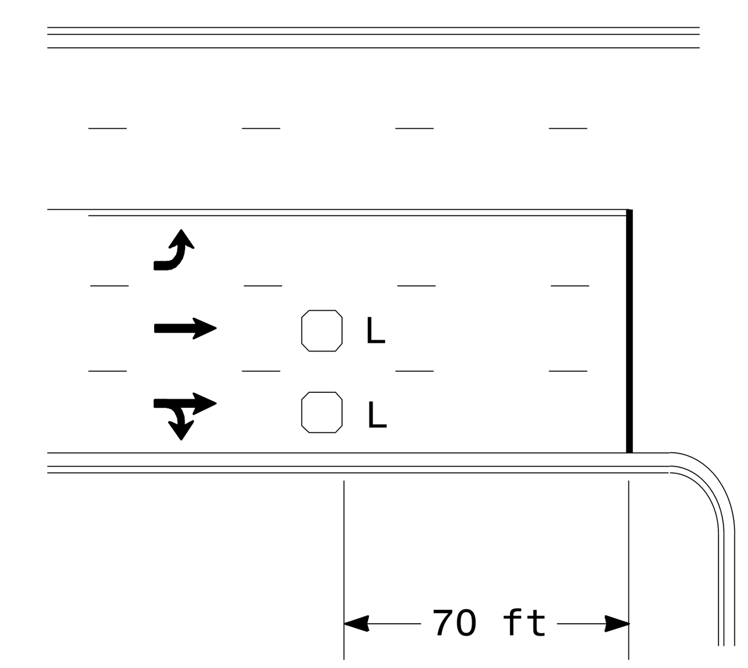
Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

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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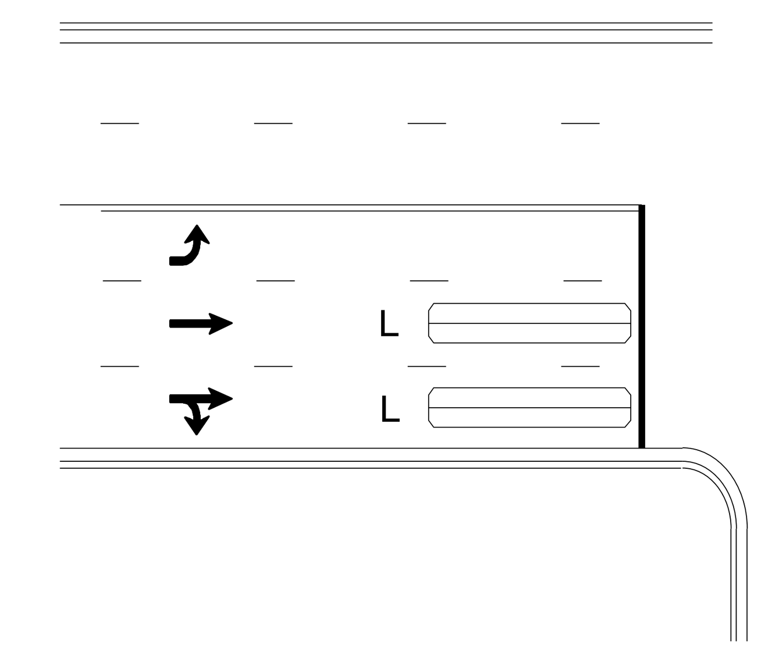
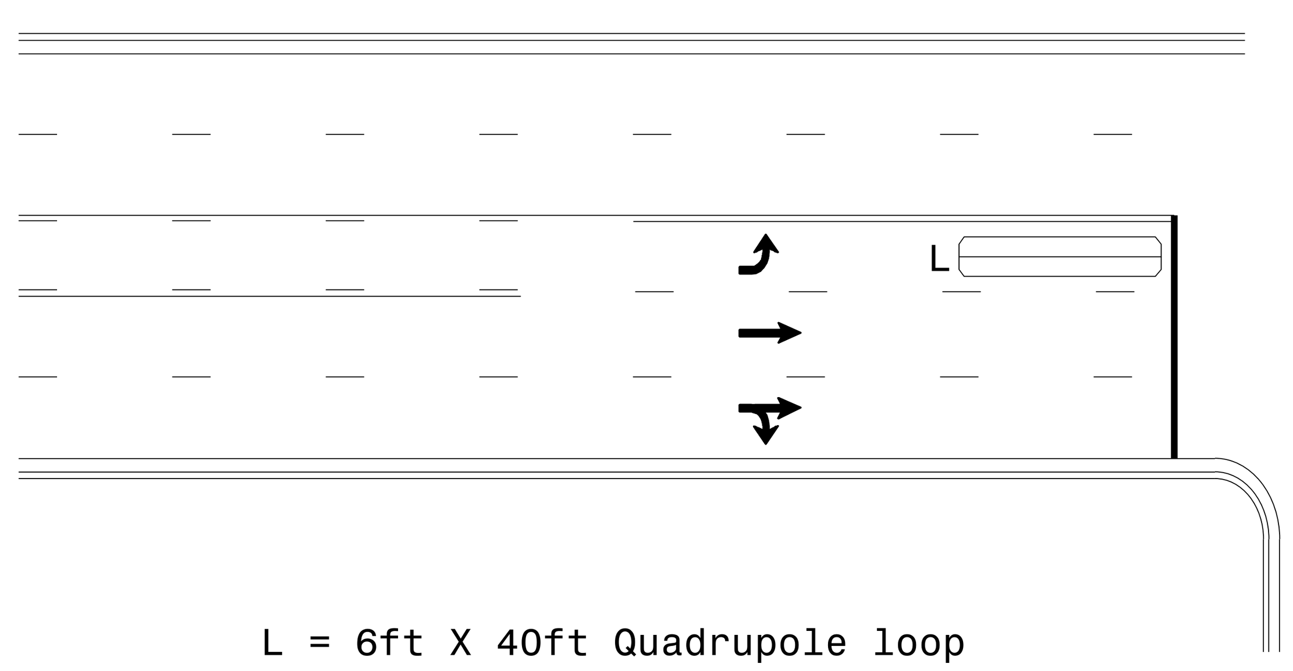


L = 6ft X 6ft
Wired in series

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

Left Turn Lane Detection



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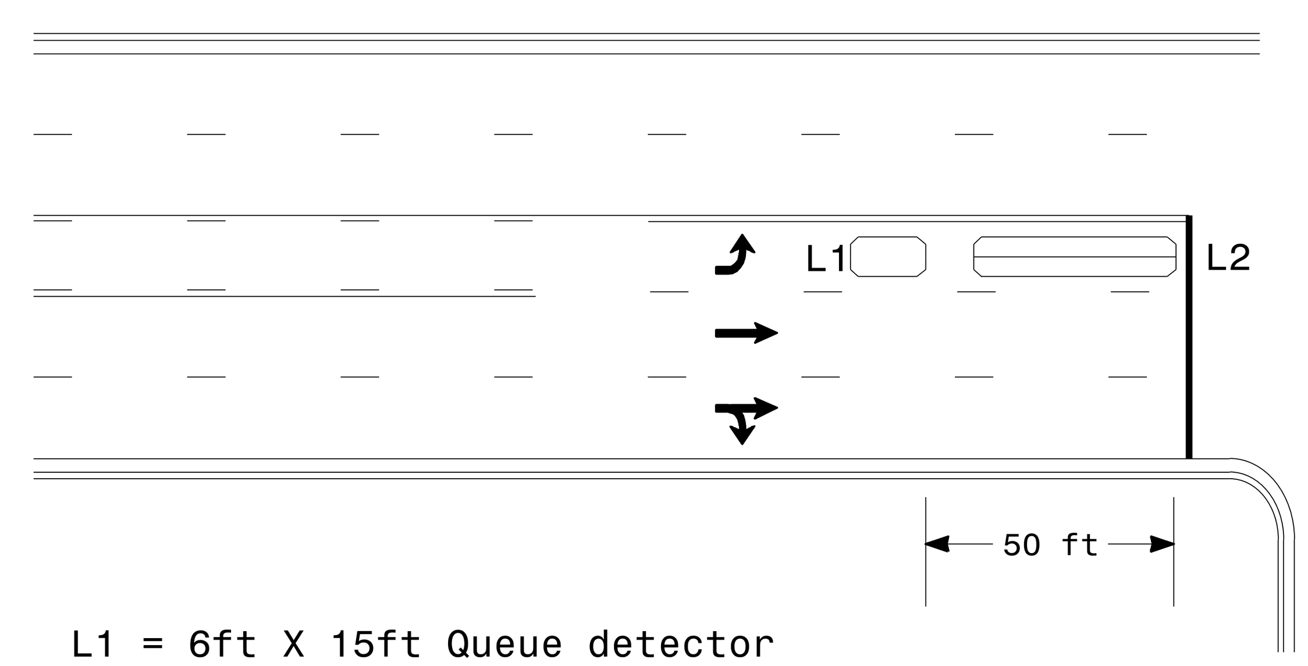


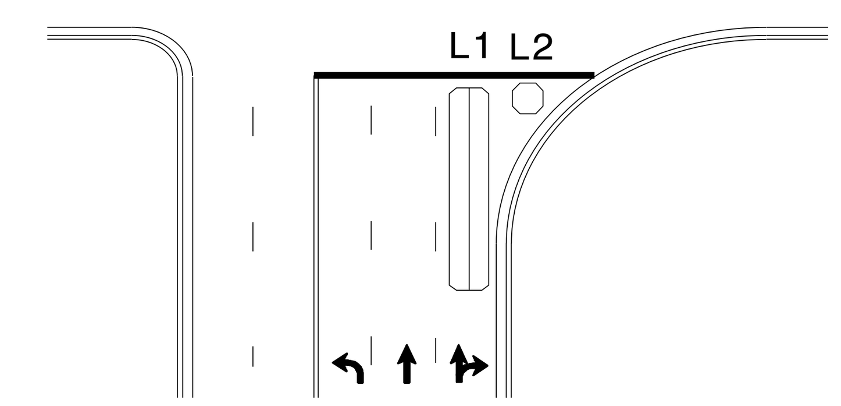
L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

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

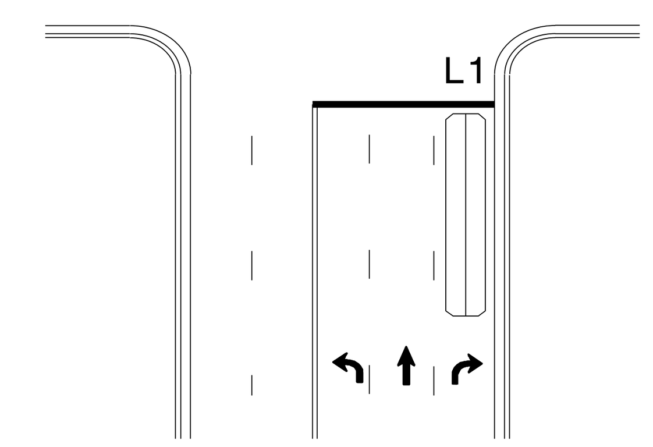
Queue Loop Detection

Right Turn Lane Detection

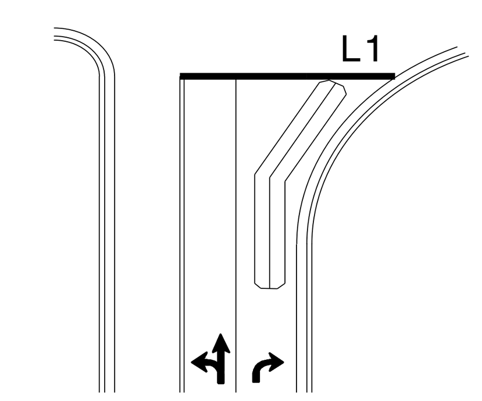


Shared Lane/
Wide Radius Turn

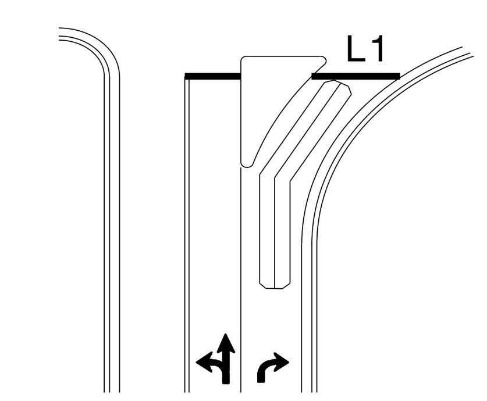
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

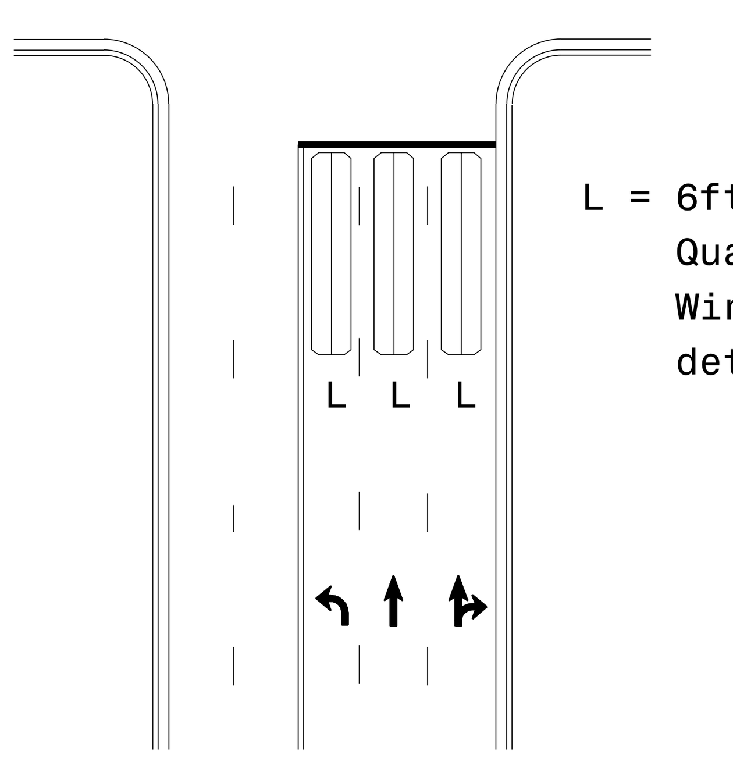


Wide Radius Turn



Channelized Turn

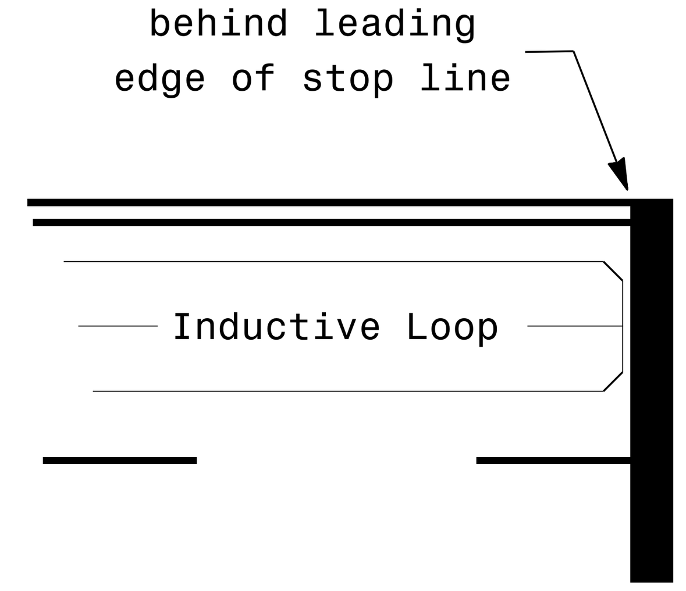
Side Street Detection



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

Presence Loop Placement at Stop Lines

Locate loop slightly behind leading edge of stop line



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
State of 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:*ITS&SU*ITS Signals*Signal Design Section*Eastern Region*looptypical2015.dgn
palexander