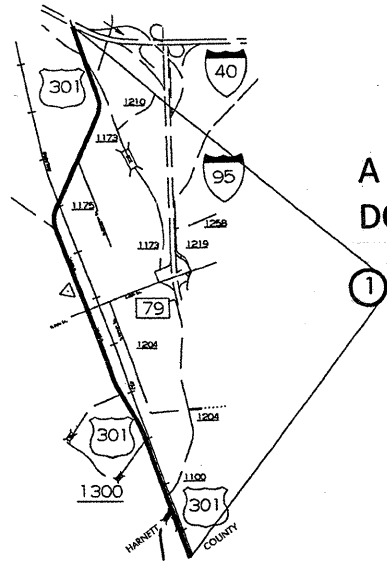
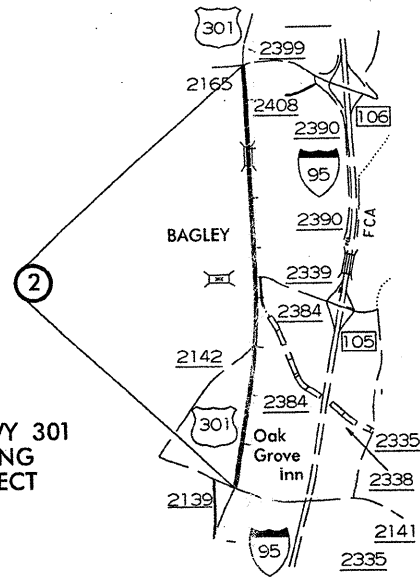


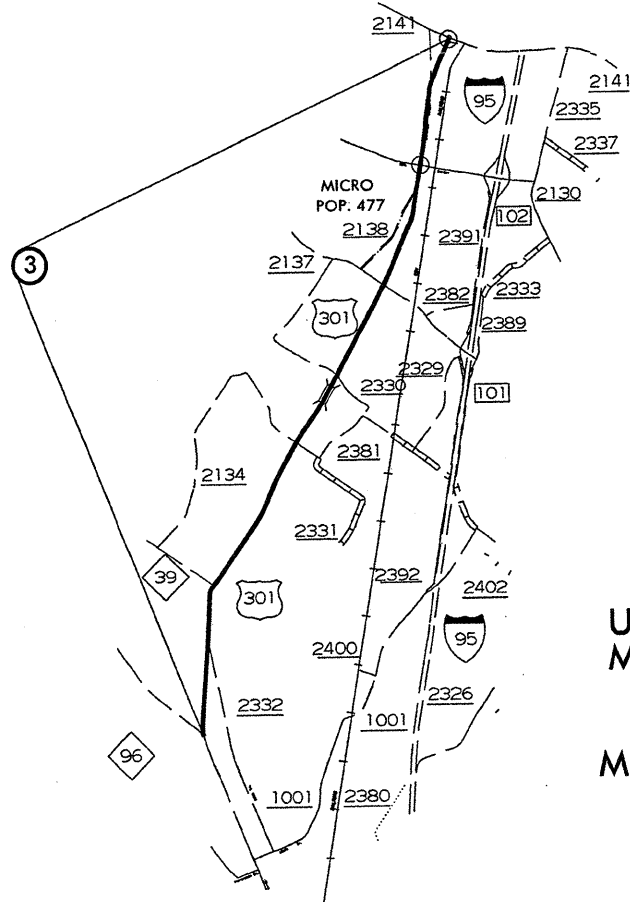
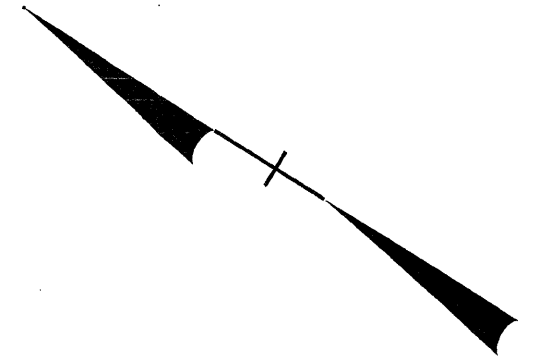
WBS ELEMENT		SHEET NO.	TOTAL SHEETS
4CR.10511.26		1	
PRIMARY	F. A. PROJ. NO.	DESCRIPTION	



A PORTION OF MAP 1 IS CURB AND GUTTER.
DO NOT PAVE INTO THE CURB AND GUTTER.



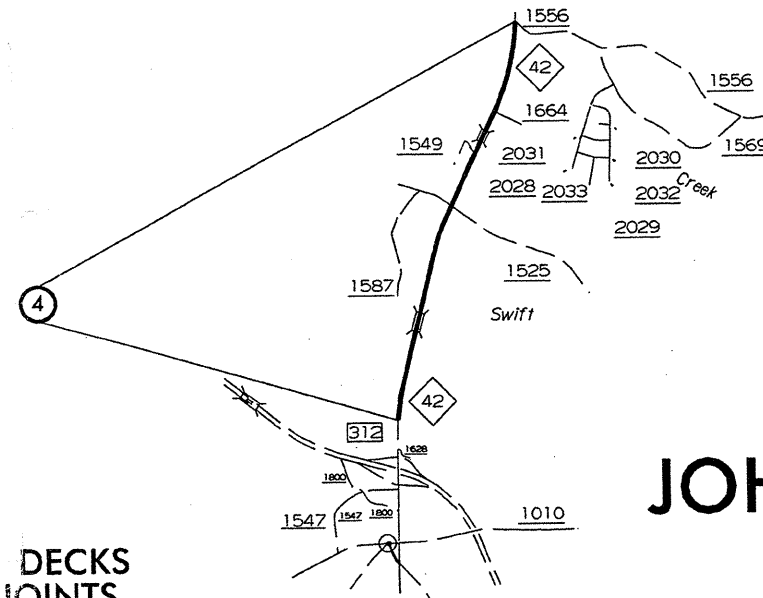
OMIT SECTION OF US HWY 301
THAT WAS PAVED DURING
CONSTRUCTION PROJECT



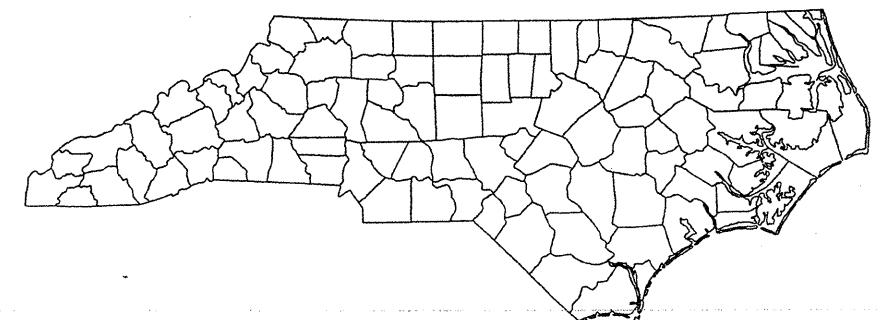
USE CAUTION WHEN MILLING, BRIDGE DECKS
MAY HAVE METAL PLATES ON BRIDGE JOINTS

MILL AND FILL BRIDGES ON MAPS 3 & 4
UNLESS OTHERWISE NOTED

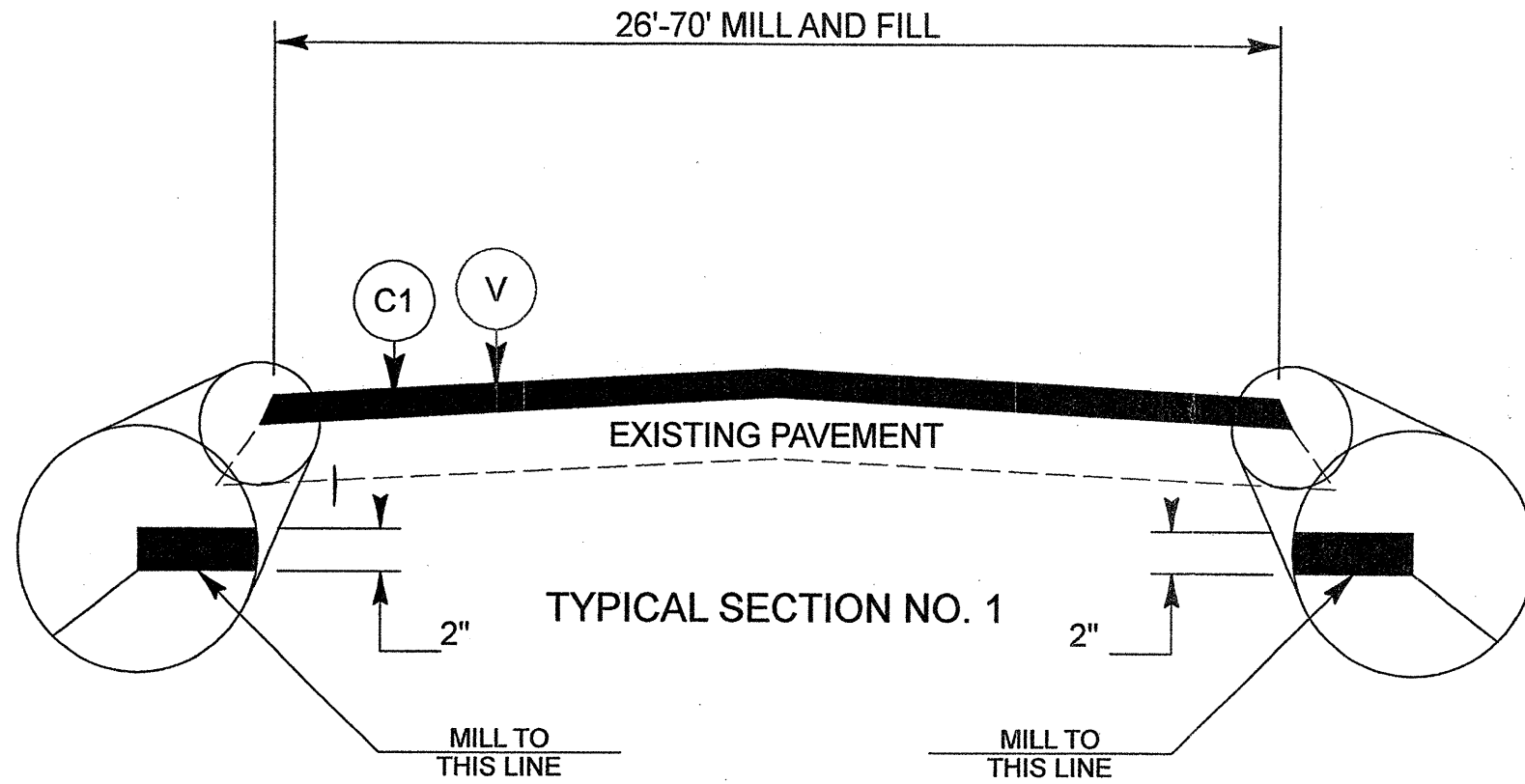
DO NOT PAVE INTO CURB AND GUTTER



JOHNSTON COUNTY NORTH CAROLINA

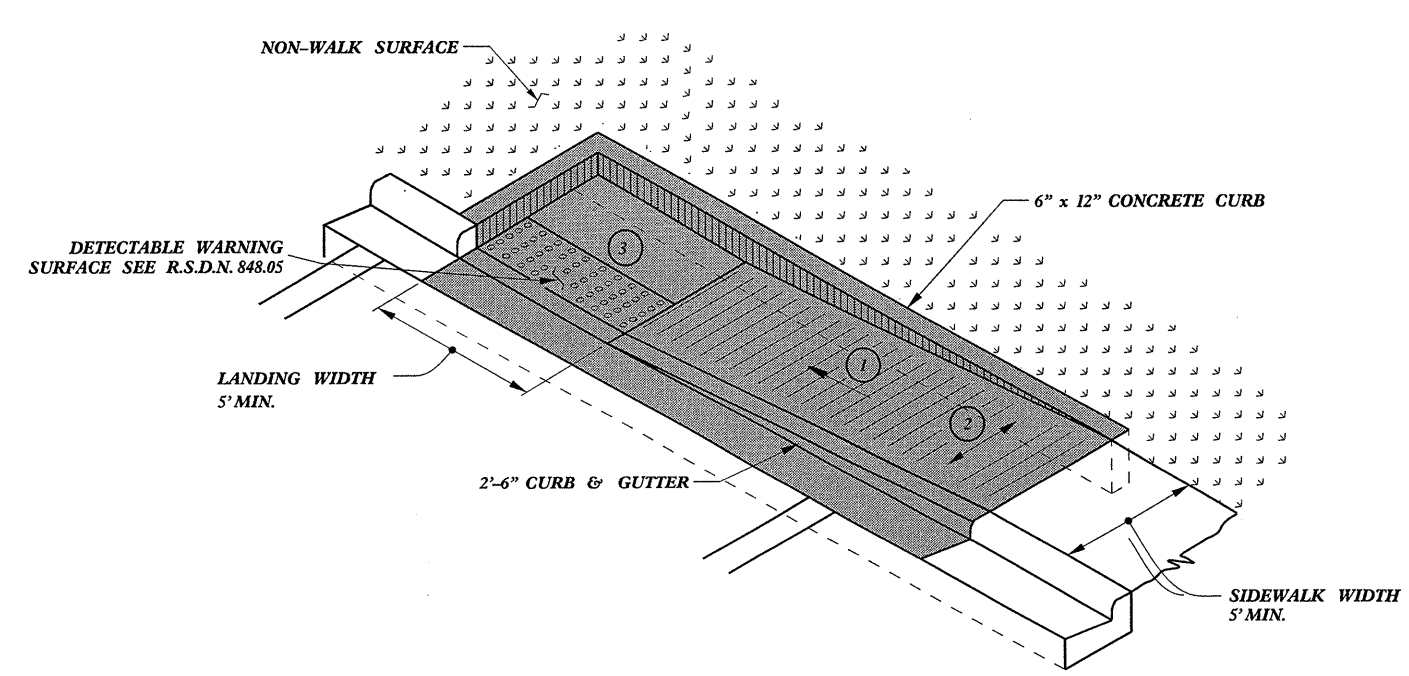


PROJECT NO.	SHEET NO.	TOTAL SHEETS
4 CR.10511.26	2	



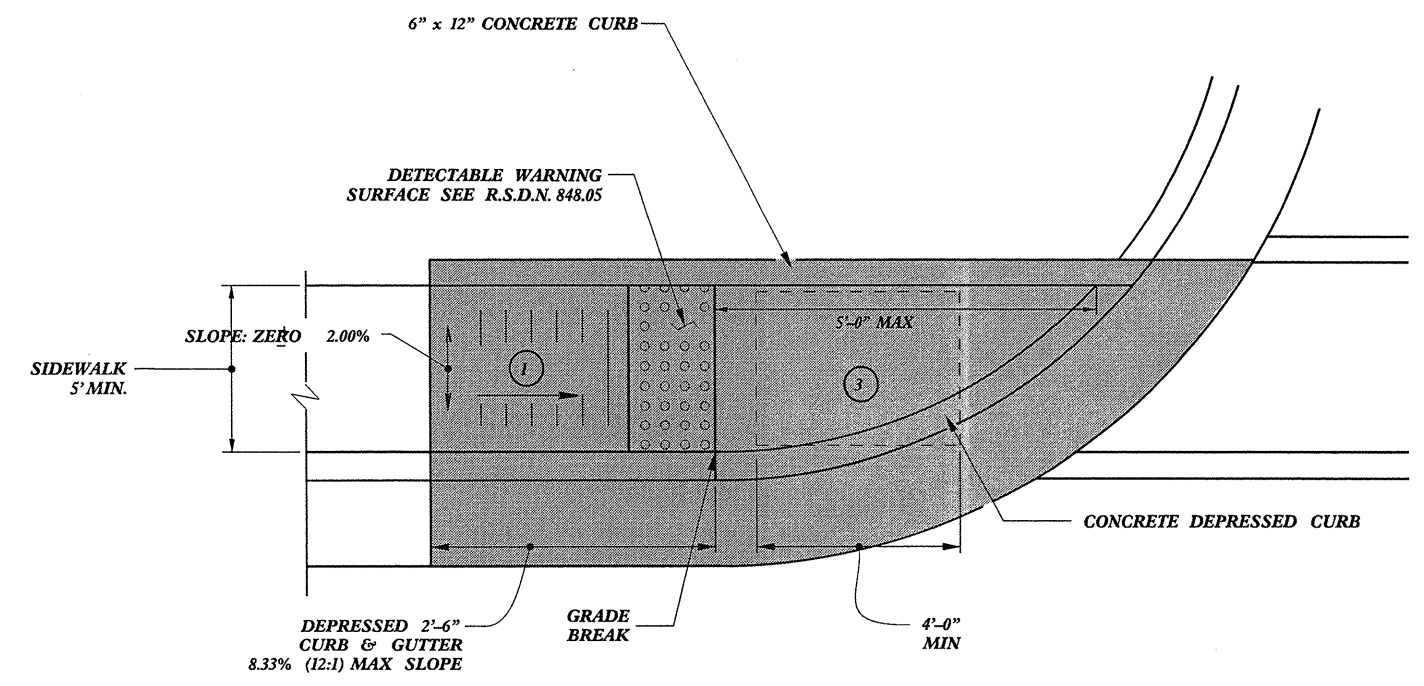
PAVEMENT SCHEDULE	
C1	APPROX 2" OF S9.5B AT AN AVERAGE RATE OF 224 LBS /SY
V	MILL APPROX. 2"

5/14/99
 22-MAY-2016 15:05
 S:\Projects\2012 Standard Drawings\2012 Standard Drawings\2012 Curb Ramp Special Details\Curb Ramp Details.dgn
 J.Howerton
 AT CS0237501



TYPE 1A

PAY LIMITS FOR CURB RAMP



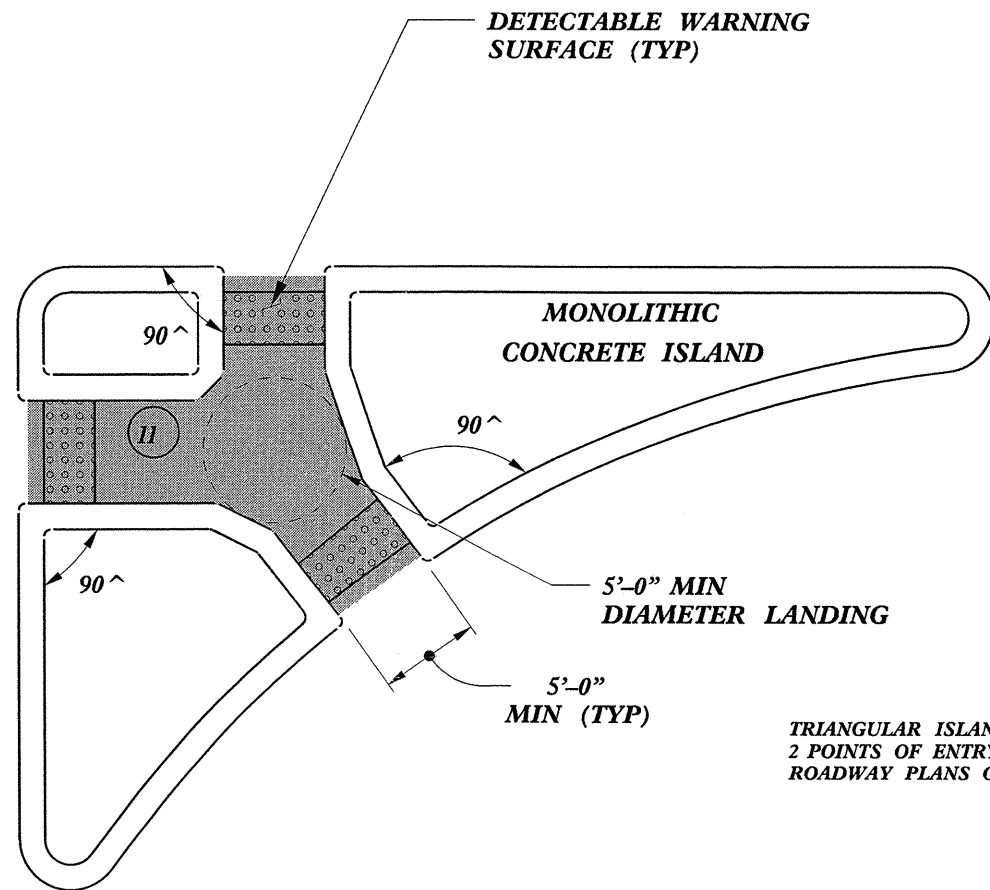
TYPE 1

- 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

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	

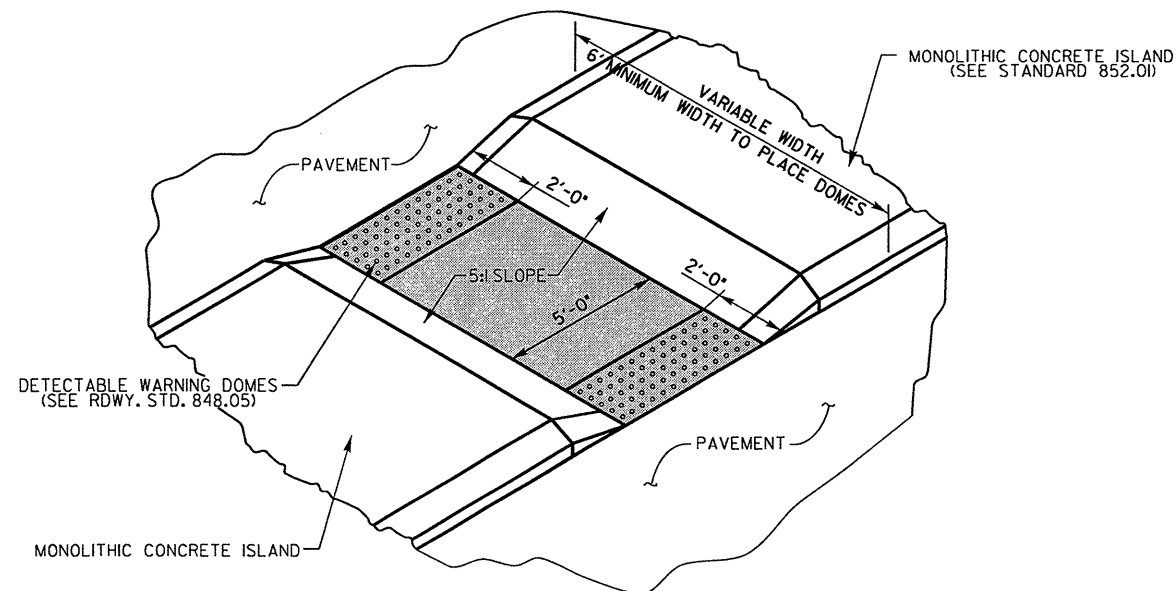
5/14/99



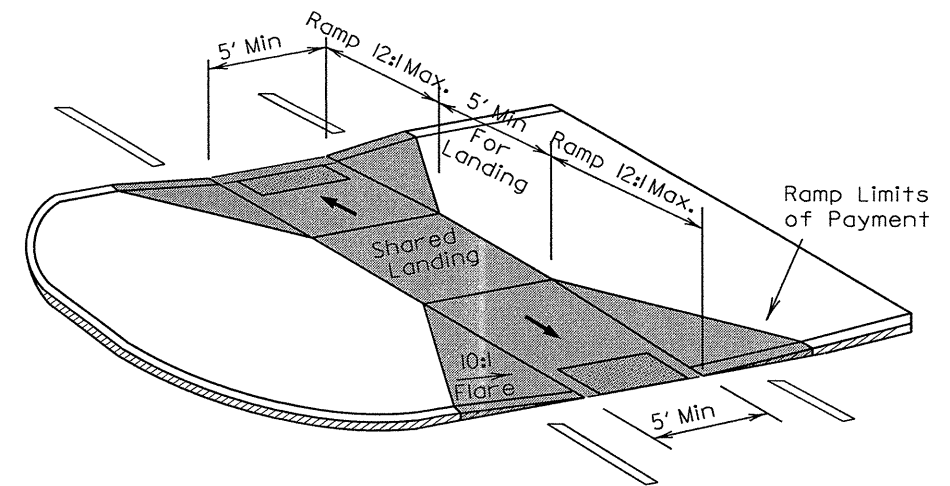
PAY LIMITS FOR 1 CURB RAMP

TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



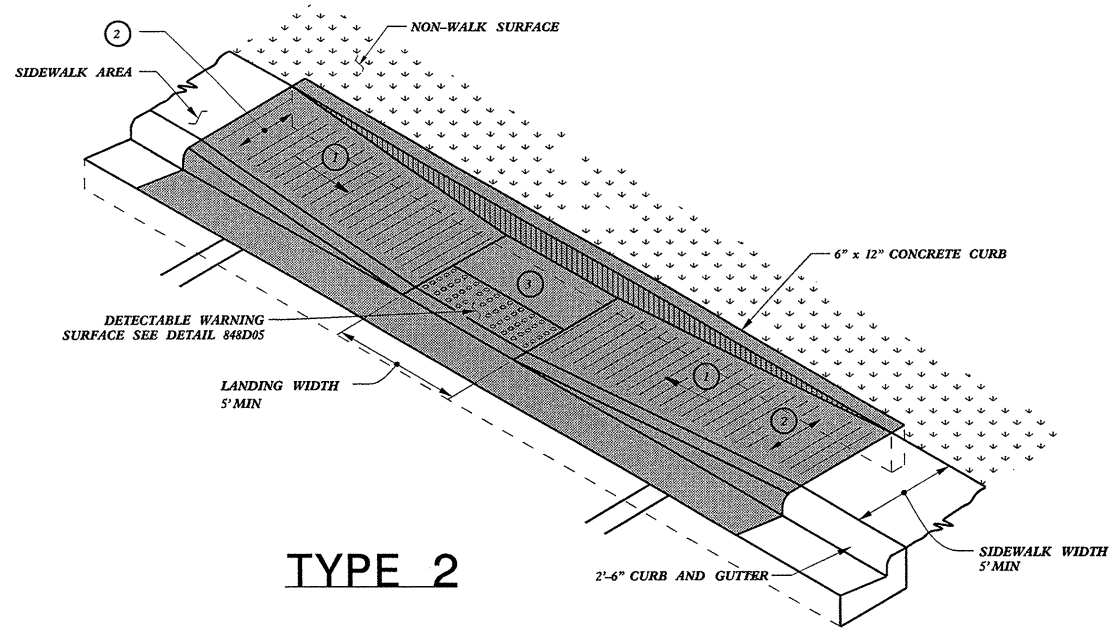
MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Median or Turn Lane Islands	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: sids/2012CurbRamp/CurbRampDetails.dwg	

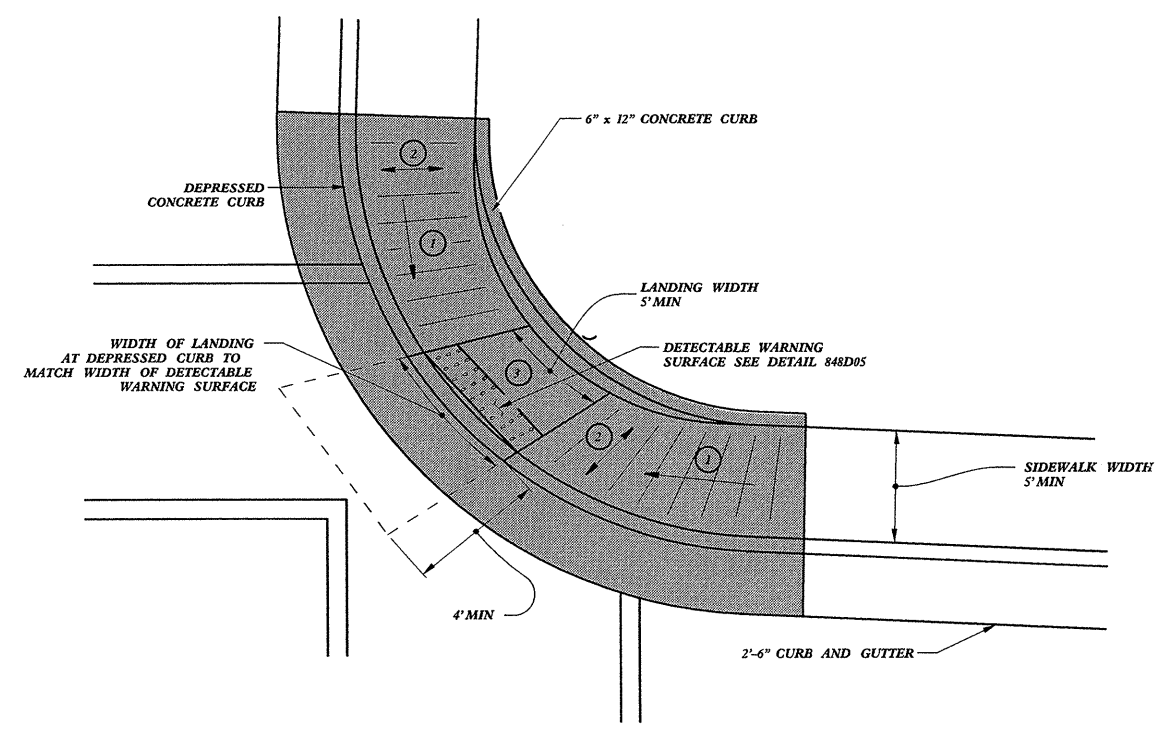
SYSTEMS



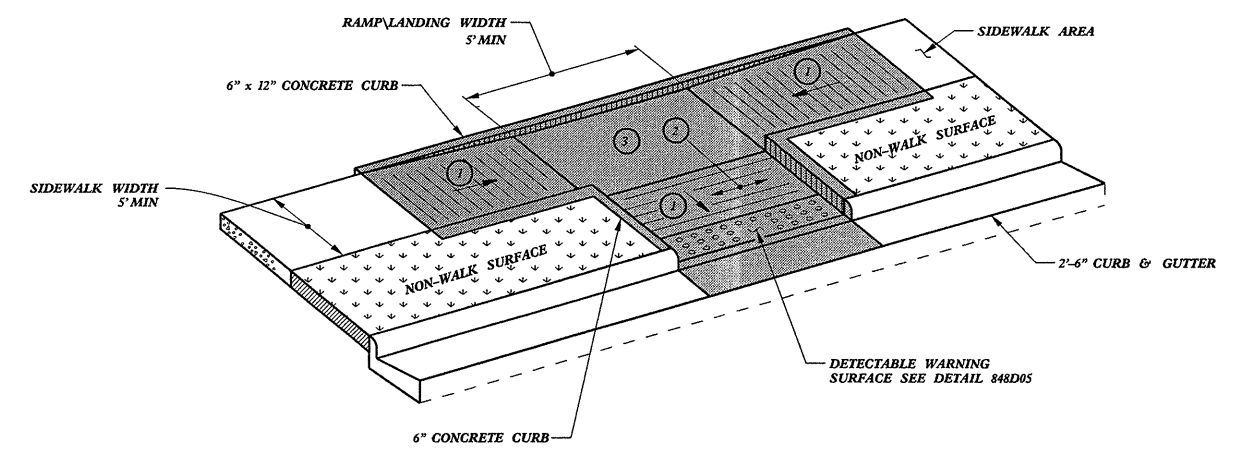
TYPE 2

PAY LIMITS FOR 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

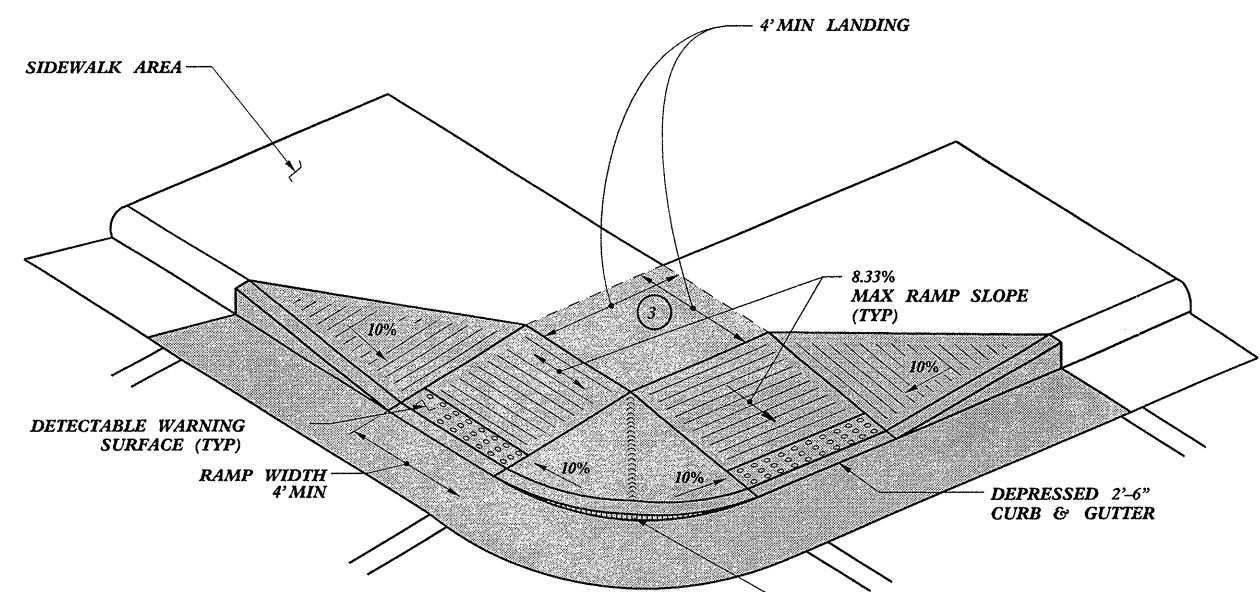


TYPE 3

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

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.dwg	

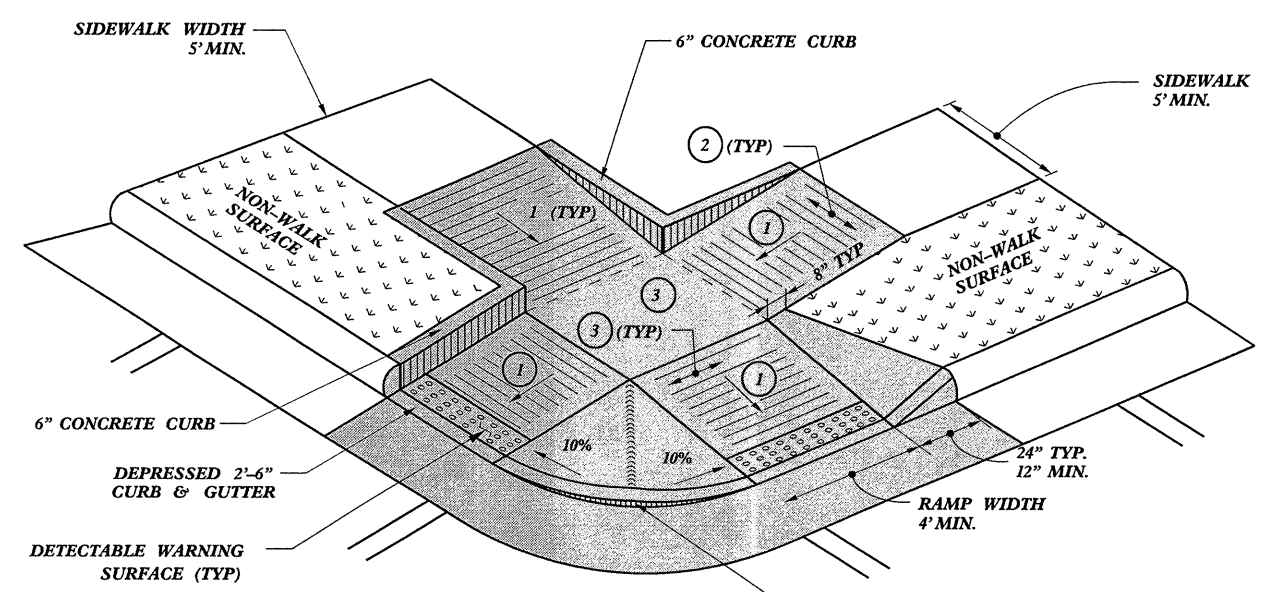
5/14/99
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 J.Howerton



TYPE 4

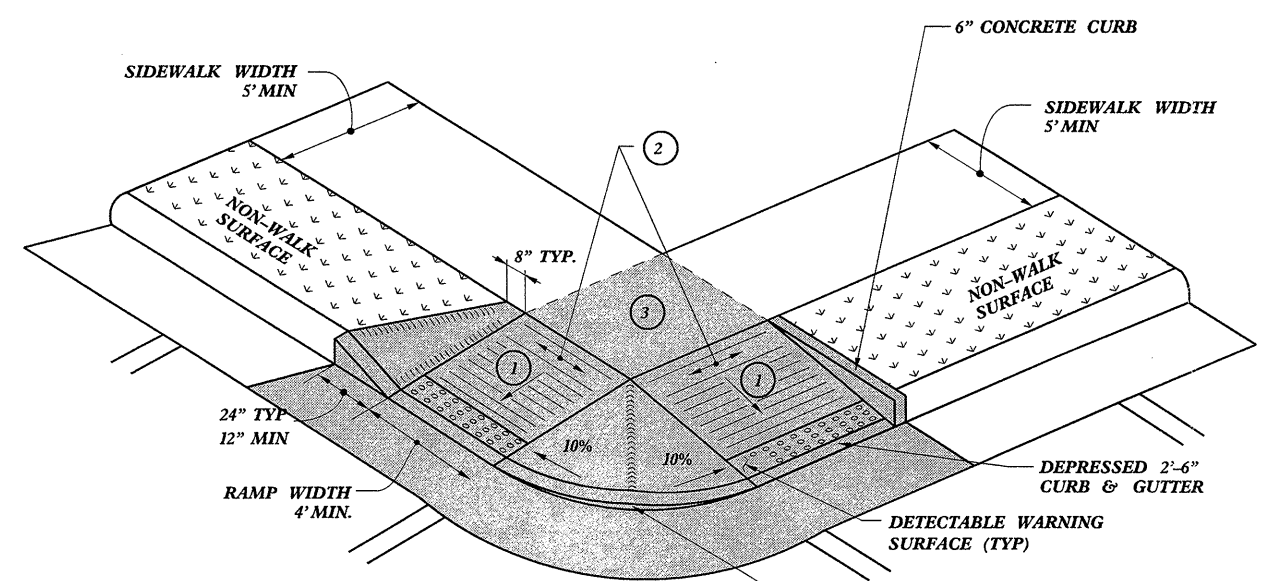
DEPRESSED 2'-6" CURB & GUTTER (HEIGHT VARIES CURB REVEAL DETERMINED BY FLARE SLOPE)

PAY LIMITS FOR CURB RAMP



TYPE 5

DEPRESSED 2'-6" CURB & GUTTER (HEIGHT VARIES CURB REVEAL DETERMINED BY FLARE SLOPE)



TYPE 4A

DEPRESSED 2'-6" CURB & GUTTER (HEIGHT VARIES CURB REVEAL DETERMINED BY FLARE SLOPE)

- 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

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.dwg	

22-MAR-2012 15:08
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 J.Howerton
 At CS0237501

PROJECT NO.	SHEET NO.	TOTAL NO.
4CR.10511.26	8	

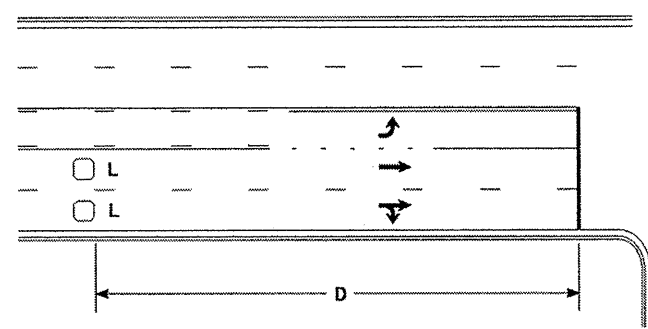
SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	2.0" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, \$9.58 TONS	ASPHALT BINDER TONS	CURB RAMPS EA	ADJ. OF DROP INLET EA	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVE BOX EA	INDUCTIVE LOOP LF
4CR.10511.26	Johnston	1	US HWY 301 (THRU BENSON TO COUNTY LINE)	FROM I-40 BRIDGE TO HARNETT COUNTY LINE	1	2		NO	NO	3.151	26	56,885	1,200	6,999	420	16	7	19	13	1,500
4CR.10511.26	Johnston	2	US HWY 301 (KENLY THRU BAGLEY TOWARDS MICRO)	FROM SR 2399 (TRUCK STOP RD) TO SR 2141 (OAK GROVE INN RD)	1	2		NO	NO	2.012	24	30,797	1,200	3,571	214					
4CR.10511.26	Johnston	3	US HWY 301 (THRU MICRO TO SELMA)	FROM SR 2141 (OAK GROVE INN RD) TO NC HWY 96 (W RICHARDSON ST)	1	2		NO	NO	5.233	28	96,450	600	11,072	664		17	2	11	1,200
4CR.10511.26	Johnston	4	NC HWY 42 (EAST OF I-40, WEST OF US 70 BYPASS)	FROM BRATTON DR TO PJT @ SR 1556 (GOVERNMENT RD)	1	2		NO	NO	1.709	25	38,300	1,800	6,307	378			4	12	2,250
TOTAL FOR PROJ NO. 4CR.10511.26										12.105		222,432	4,800	27,949	1,676	16	24	25	36	4,950
GRAND TOTAL										12.105		222,432	4,800	27,949	1,676	16	24	25	36	4,950

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4510000000-N	4810000000-E		4820000000-E	4830000000-E	4835000000-E	4840000000-N		4845000000-N			
										WORK ZONE ADV./GENWARNING SIGNING SF	TEMP. TRAFFIC CONTROL LS	LAW ENFORCEMENT HR	4" WHITE PAINT LF	4" YELLOW PAINT LF	8" YELLOW PAINT LF	16" WHITE PAINT LF	24" WHITE PAINT LF	PAINT MSG RXR EA	PAINT MSG SCHOOL EA	PAINT LT ARROW EA	PAINT RT ARROW EA	PAINT STR & RT ARROW EA	PAINT STR ARROW EA
4CR.10511.26	Johnston	1	US HWY 301 (THRU BENSON TO COUNTY LINE)	FROM I-40 BRIDGE TO HARNETT COUNTY LINE	1	2		3.151	26	311.50	1	110	67,810	41,593	1,150	50	197	2	12	41	2	9	
4CR.10511.26	Johnston	2	US HWY 301 (KENLY THRU BAGLEY TOWARDS MICRO)	FROM SR 2399 (TRUCK STOP RD) TO SR 2141 (OAK GROVE INN RD)	1	2		2.012	24	311.50	*	110	43,298	26,558	800		100		12	4			
4CR.10511.26	Johnston	3	US HWY 301 (THRU MICRO TO SELMA)	FROM SR 2141 (OAK GROVE INN RD) TO NC HWY 96 (W RICHARDSON ST)	1	2		5.233	28	311.50	*	110	112,614	69,076	600		270		18	12			
4CR.10511.26	Johnston	4	NC HWY 42 (EAST OF I-40, WEST OF US 70 BYPASS)	FROM BRATTON DR TO PJT @ SR 1556 (GOVERNMENT RD)	1	2		1.709	25	311.50	*	110	36,778	22,559	3,085		192		25	4	4	15	
TOTAL FOR PROJ NO. 4CR.10511.26										12.105		440	260,500	159,786	5,635	50	759	2	42	82	6	13	15
GRAND TOTAL										12.105		440	260,500	159,786	5,635	50	759	2	42	82	6	13	15

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

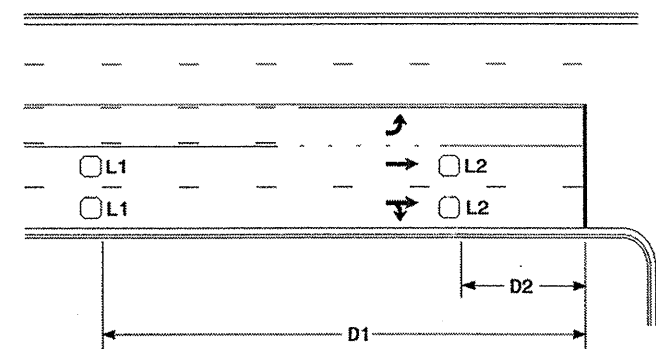


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

Volume Density Operation

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

OR

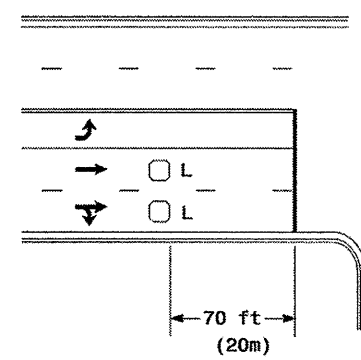


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

"Stretch" Operation

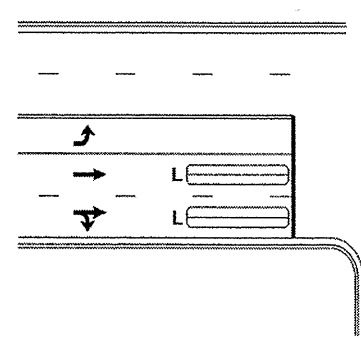
L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

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



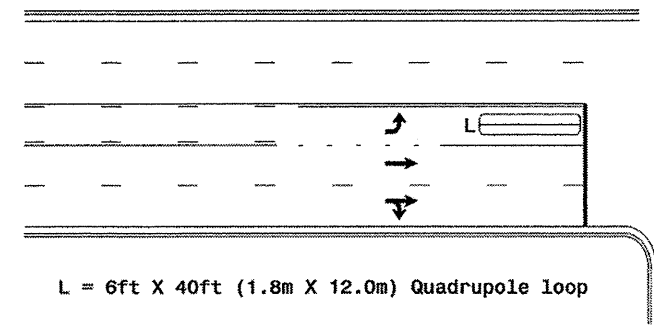
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

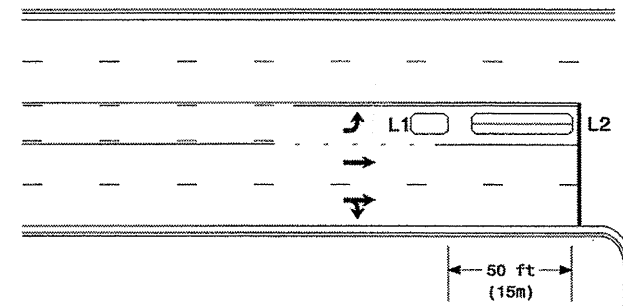
Left Turn Lane Detection



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

Presence Loop Detection

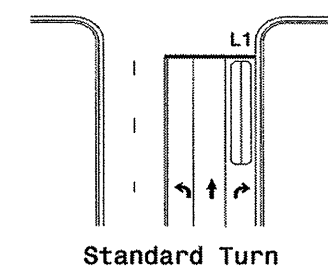
OR



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

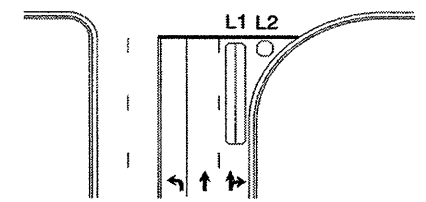
Queue Loop Detection

Right Turn Lane Detection

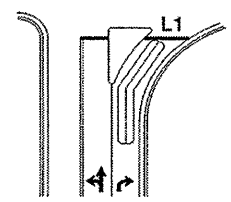


Standard Turn

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

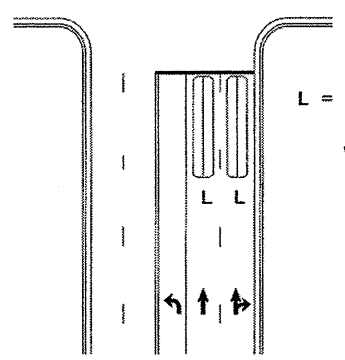


Wide Radius Turn



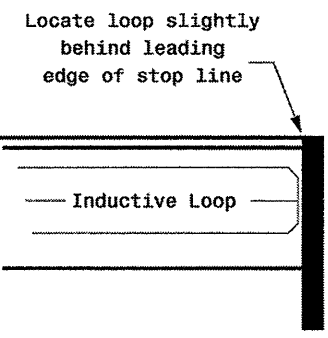
Channelized Turn

Side Street Detection



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

Presence Loop Placement at Stop Lines



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

Recommended Number of Turns

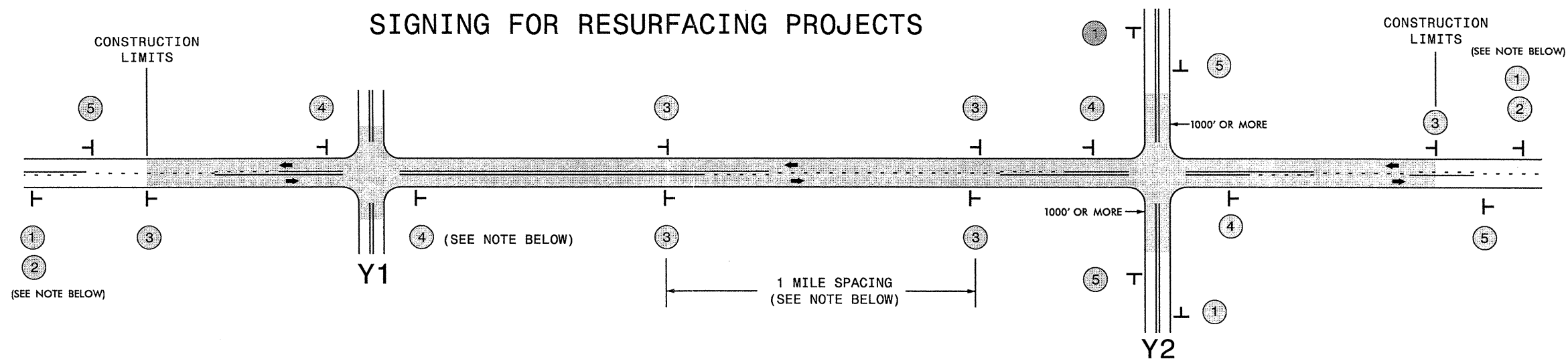
Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

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

Quadrupole loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

	Typical Loop Locations		
	PLAN DATE: June 2006 PREPARED BY: P. L. Alexander	REVIEWED BY: REVIEWED BY:	

SIGNING FOR RESURFACING PROJECTS



LEGEND	
┆	STATIONARY SIGN
←	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	1	 <small>W20-1 48" X 48"</small>	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.		
	2	 <small>W7-3aP 24" X 18"</small>	#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	 <small>SP 13107 48" X 48"</small>	PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.		
	4	 <small>SP 13106 48" X 48"</small>	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	 <small>G20-2 A 48" X 24"</small>	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.		

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

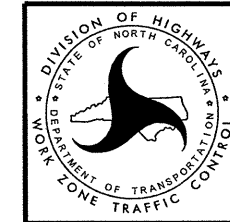
- 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE
- 2) SUBDIVISION ROADS
- 3) DEAD END ROADS

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.



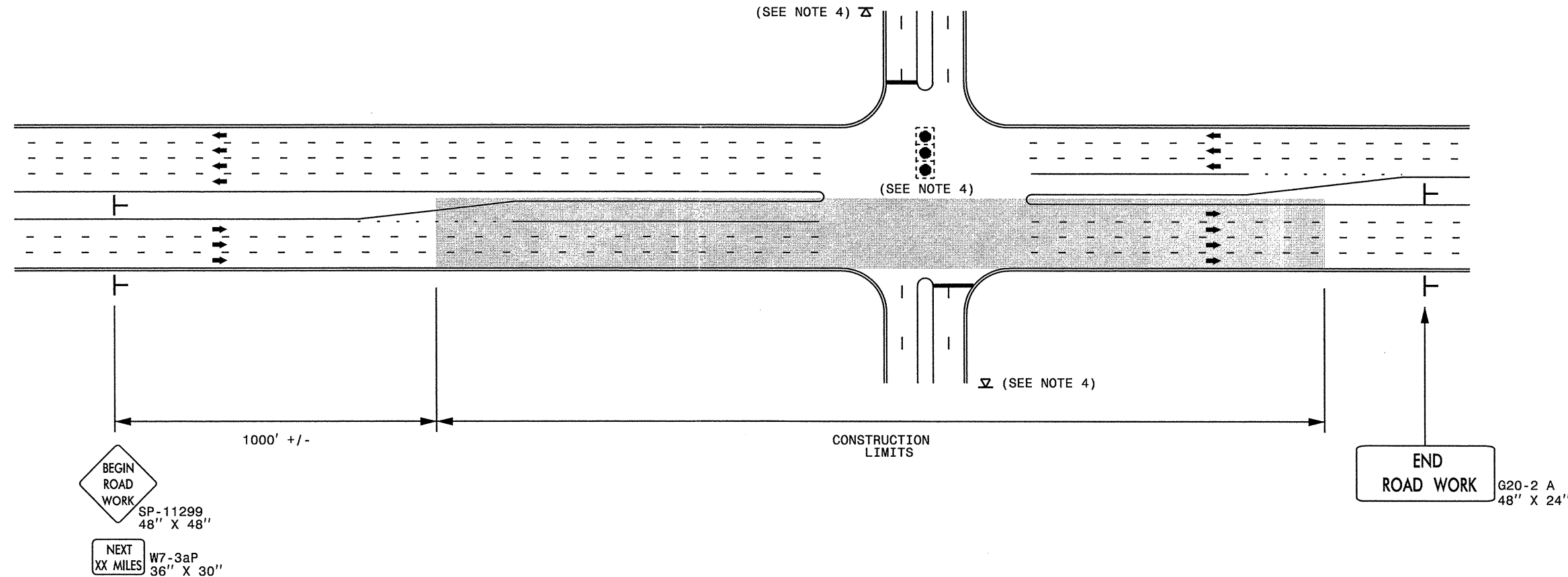
PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.

22-NOV-2013 12:00
 \\DOT\DFSR\DOT\GROUPS-WZTCCC-TMUN\WZTC\Resurfacing\2013Easter\2013Easter\2013.Div04\C203476-4CR.10511.26-Johnston.US301.NC42.mil2.il.sg\Resurfacing_AdvWarn_2Ln.dgn
 sngreen AT TE26587



**RESURFACING
 ADVANCE WARNING SIGNS
 FOR
 RURAL AND SUBURBAN
 2 LANE ROADWAYS**

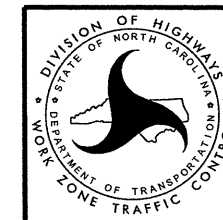
URBAN / SUBURBAN WORKZONES



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	
T	STATIONARY SIGN
➔	DIRECTION OF TRAFFIC FLOW



**RESURFACING ADVANCE
WARNING SIGNS FOR
URBAN / SUBURBAN
FACILITIES**