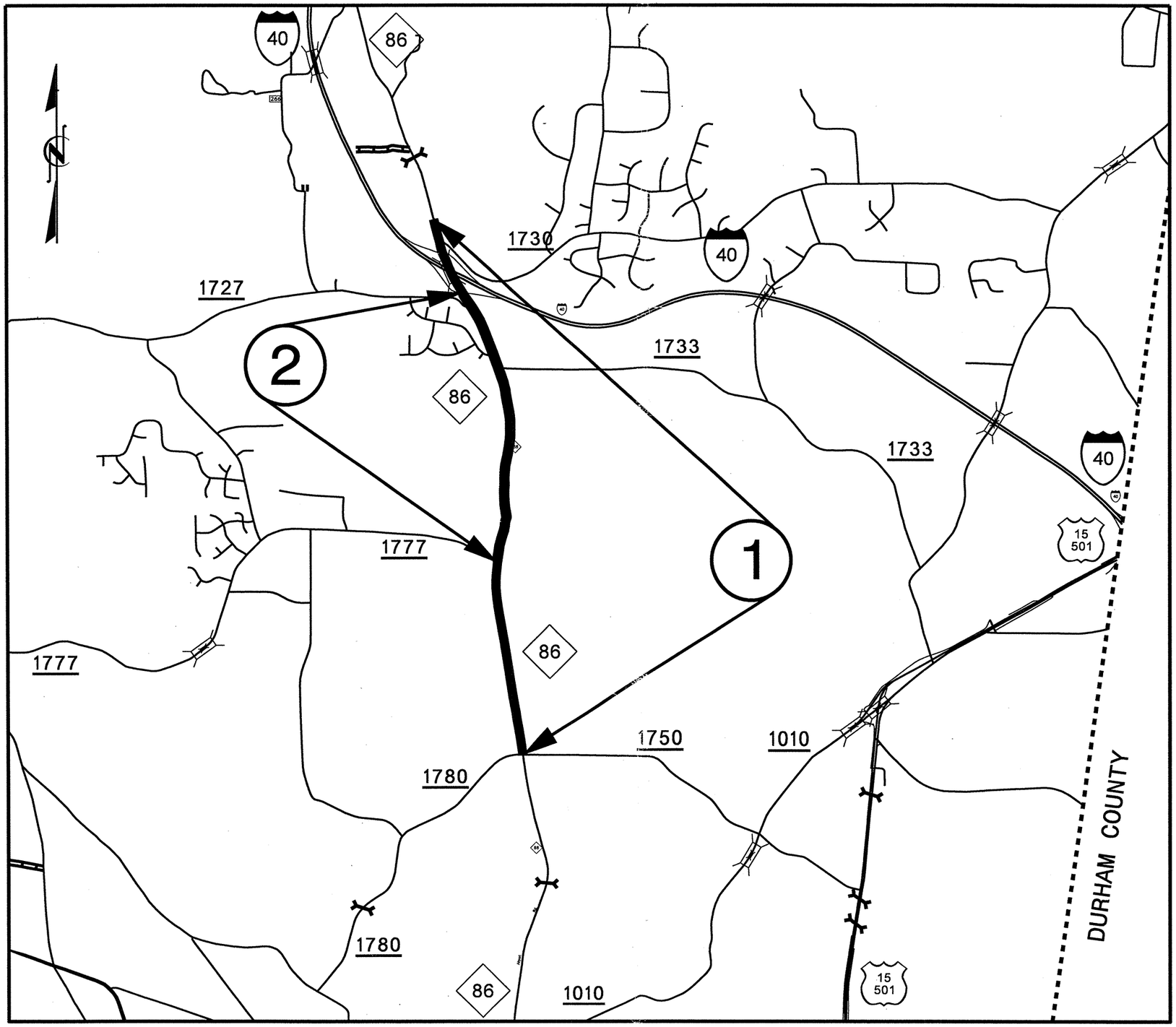
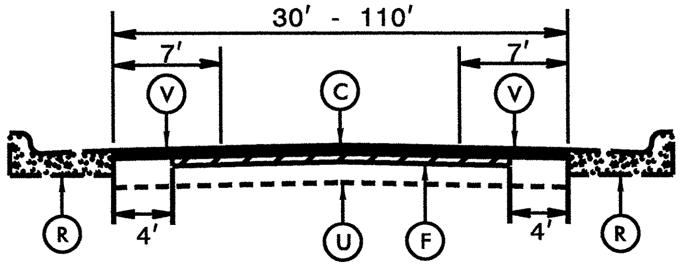
2012 ORANGE COUNTY

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.37	1	



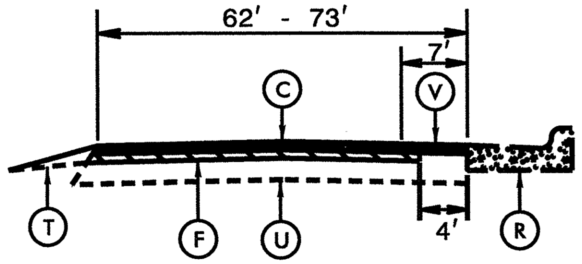
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.37	2	



**NOTE: NO PAVEMENT ON SECTIONS
MAP 1: STA. 101+60 TO STA. 111+10
MAP 2: STA. 18+05 TO STA. 25+35

TYPICAL SECTION NO. 1

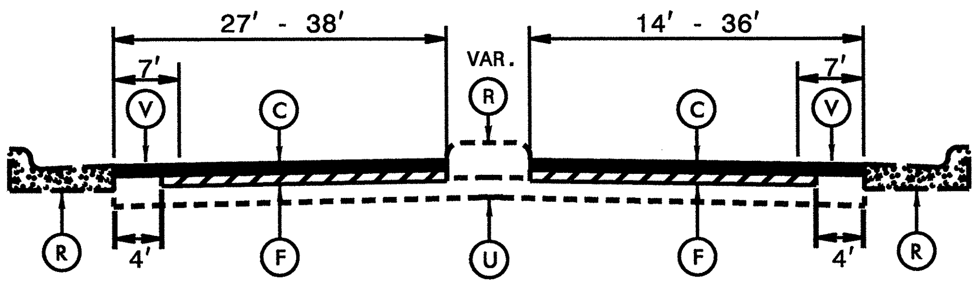
TO BE USED ON MAPS 1 AND 2
MAP 1: STA. 0+00 TO STA. 1+50
STA. 20+15 TO STA. 20+55
STA. 41+20 TO STA. 42+20
STA. 48+00 TO STA. 129+05
STA. 139+35 TO STA. 143+00
STA. 146+80 TO STA. 151+30



*NOTE: NO PAVEMENT ON BRIDGE #266

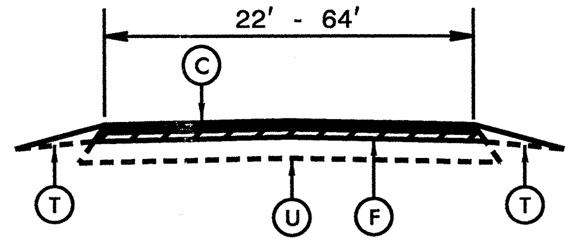
TYPICAL SECTION NO. 2

TO BE USED ON MAP 1
STA. 1+50 TO STA. 8+30
STA. 8+80 TO STA. 20+15
STA. 21+25 TO STA. 29+25
STA. 35+70 TO STA. 38+10
STA. 129+05 TO STA. 139+35



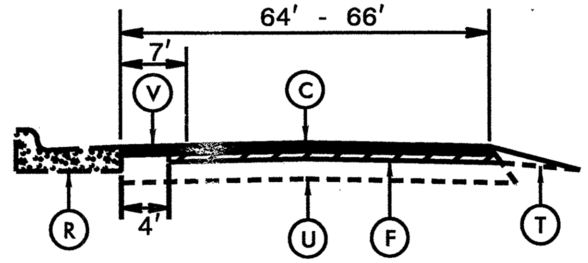
TYPICAL SECTION NO. 3

TO BE USED ON MAP 1
STA. 8+30 TO STA. 8+80
STA. 20+55 TO STA. 21+25
STA. 143+00 TO STA. 146+80



TYPICAL SECTION NO. 4

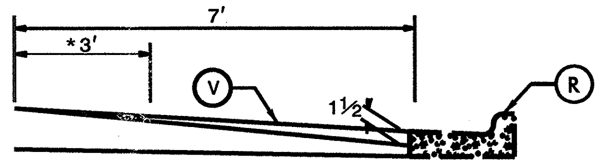
TO BE USED ON MAP 1
STA. 29+25 TO STA. 35+70
STA. 151+30 TO STA. 156+30



TYPICAL SECTION NO. 5

TO BE USED ON MAP 1
STA. 38+10 TO STA. 41+20
STA. 42+20 TO STA. 48+00

MILLING DETAIL 1



PROFILE MILLING 0 - 1½″

*IF #67 STONE OR 78M SEAL IS INVOLVED OVERLAP 3′.
PROFILE MILL EXISTING ASPHALT PAVEMENT
0 - 1½″ AT LOCATIONS AS DIRECTED BY THE
ENGINEER.

NOTE: TO BE USED IN CONJUCTION WITH:

TS. NO. 1 ON MAP 1 STA. 0+00 TO STA. 1+50 LT & RT
TS. NO. 1 ON MAP 1 STA. 20+15 TO STA. 20+55 LT & RT
TS. NO. 1 ON MAP 1 STA. 41+20 TO STA. 42+20 LT & RT
TS. NO. 1 ON MAP 1 STA. 48+00 TO STA. 129+05 LT & RT
TS. NO. 1 ON MAP 1 STA. 139+35 TO STA. 143+00 LT & RT
TS. NO. 1 ON MAP 1 STA. 146+80 TO STA. 151+30 LT & RT
TS. NO. 1 ON MAP 2 STA. 0+00 TO STA. 76+15 LT & RT
TS. NO. 2 ON MAP 1 STA. 1+50 TO STA. 8+30 RT
TS. NO. 2 ON MAP 1 STA. 8+80 TO STA. 20+15 RT
TS. NO. 2 ON MAP 1 STA. 21+25 TO STA. 29+25 RT
TS. NO. 2 ON MAP 1 STA. 35+70 TO STA. 38+10 RT
TS. NO. 2 ON MAP 1 STA. 129+05 TO STA. 139+35 RT
TS. NO. 3 ON MAP 1 STA. 8+30 TO STA. 8+80 LT & RT
TS. NO. 3 ON MAP 1 STA. 20+55 TO STA. 21+25 LT & RT
TS. NO. 3 ON MAP 1 STA. 143+00 TO STA. 146+80 LT & RT
TS. NO. 5 ON MAP 1 STA. 38+10 TO STA. 41+20 LT
TS. NO. 5 ON MAP 1 STA. 42+20 TO STA. 48+00 LT

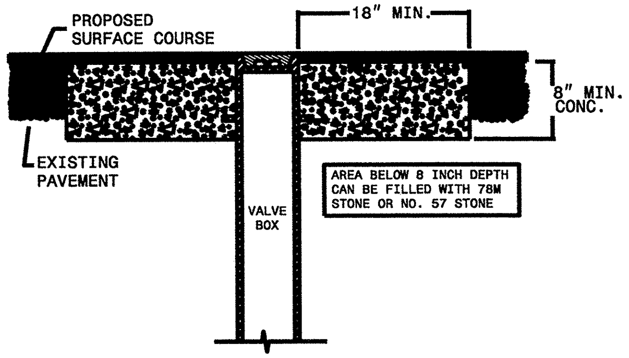
PAVEMENT SCHEDULE

C	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
F	AST MAT COAT #78M STONE
U	EXISTING PAVEMENT.
R	EXISTING CURB AND GUTTER
T	INCIDENTAL STONE BASE IN LOW SHOULDER AREAS, AS DIRECTED BY THE ENGINEER
V	0″ - 1½″ MILLING

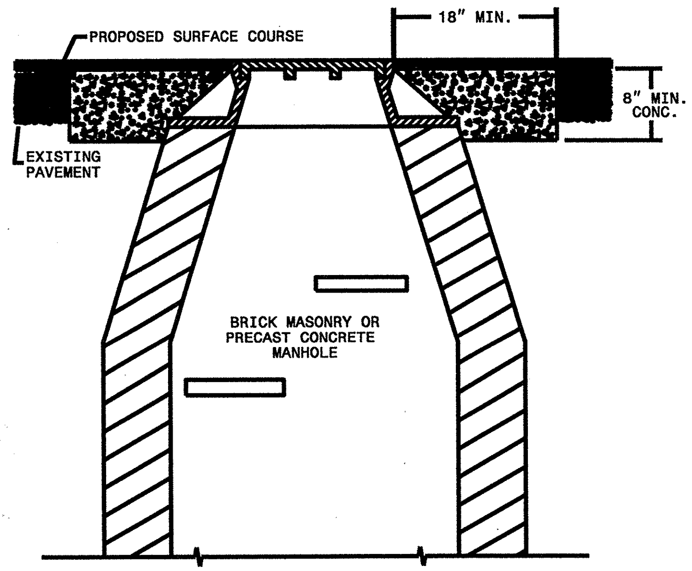
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	7CR.10681.37	3	

STANDARD CONCRETE ENCASEMENT FOR MANHOLE & VALVE CASTINGS IN PAVEMENT

DETAIL DRAWING NO. 858.01

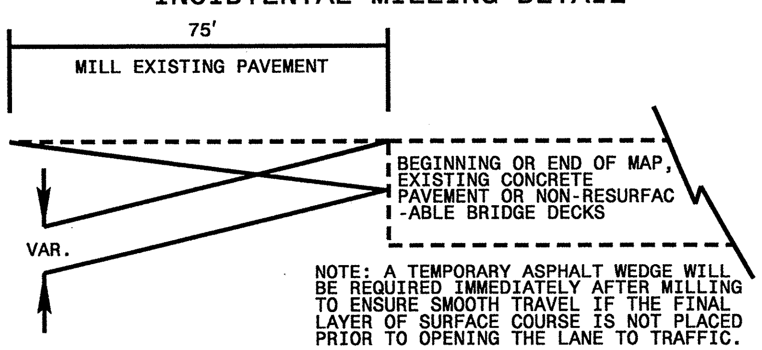


USE RAPID SET GROUT, MORTAR, OR CONCRETE
CLASS B CONCRETE MAY BE USED WHEN ADJUSTMENTS ARE NOT IN THE TRAVEL LANE.



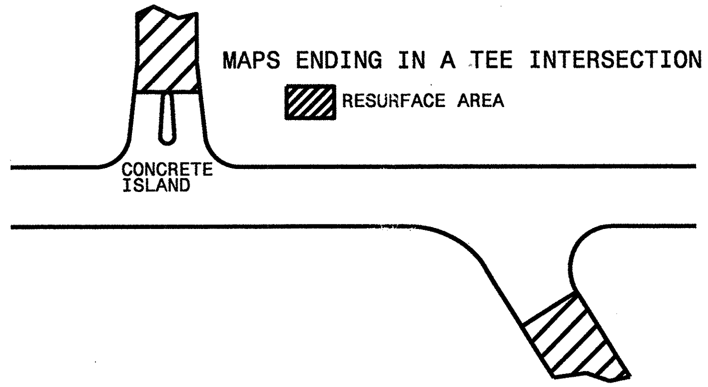
NOTES:
1. MORTAR SHALL BE MIXED TO NCDOT SPECIFICATIONS.
2. ALL FAULTY EXISTING BRICKWORK TO BE REMOVED AND REPLACED WITH NEW BRICK MASONRY.
3. EXCAVATION FOR THE ADJUSTMENT SHALL BE SHEER CUT ON ALL SIDES.
4. RAPID SET GROUT, MORTAR, OR CONCRETE SHALL BE USED

INCIDTENTAL MILLING DETAIL



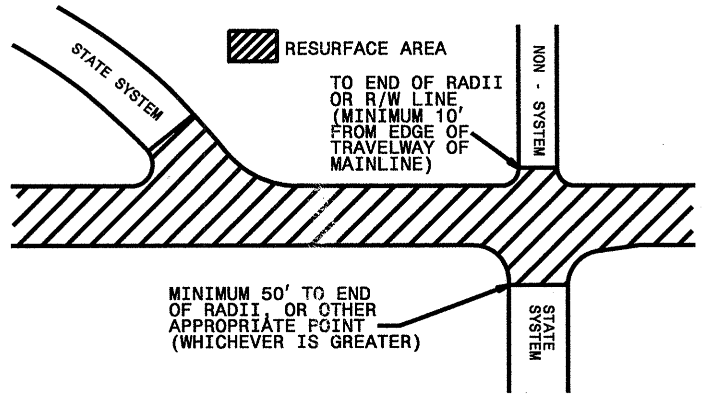
NOTE: A TEMPORARY ASPHALT WEDGE WILL BE REQUIRED IMMEDIATELY AFTER MILLING TO ENSURE SMOOTH TRAVEL IF THE FINAL LAYER OF SURFACE COURSE IS NOT PLACED PRIOR TO OPENING THE LANE TO TRAFFIC.

PAVING DETAIL 1
MAIN LINE IS NOT BEING RESURFACED

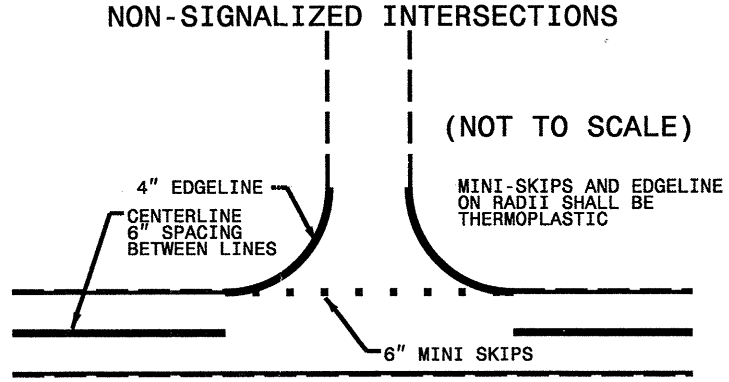


PAVING DETAIL 2
MAIN LINE IS BEING RESURFACED

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

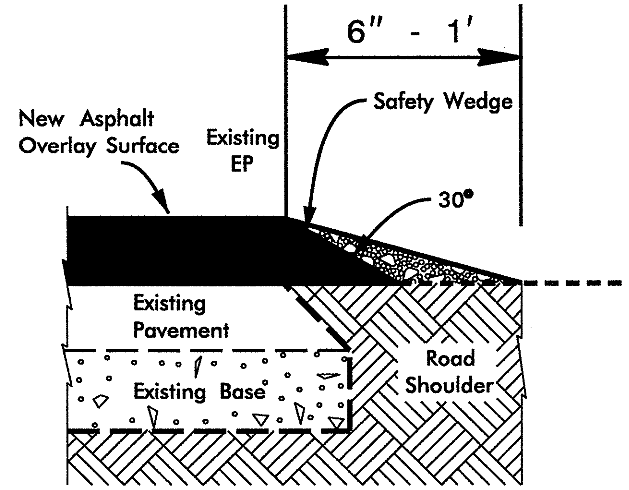


TO BE USED AT ALL NON-SIGNALIZED INTERSECTIONS



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

INCIDENTAL STONE SHOULDER DETAIL WITH SHOULDER WEDGE



NOTE: ASB OR ABC STONE SHOULD BE PLACE AT THE DISCRETION OF THE ENGINEER

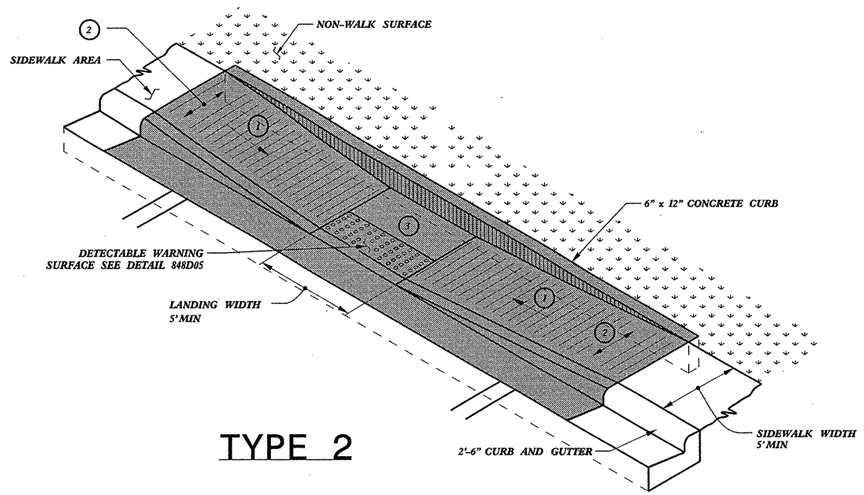
NEW ASPHALT OVERLAY SURFACE CAN VARY IN DEPTH

PAVEMENT SCHEDULE

C	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
F	AST MAT COAT #78M STONE
U	EXISTING PAVEMENT.
R	EXISTING CURB AND GUTTER
T	INCIDENTAL STONE BASE IN LOW SHOULDER AREAS, AS DIRECTED BY THE ENGINEER
V	0" - 1½" MILLING

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

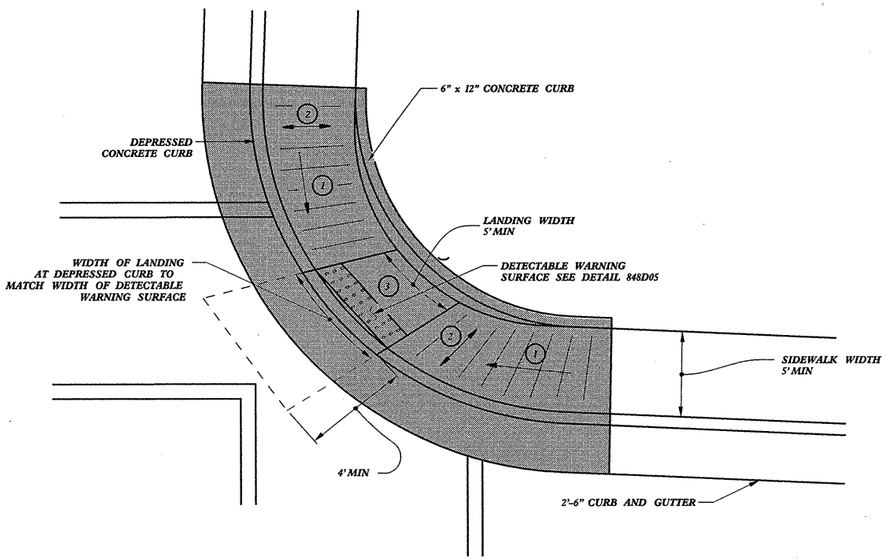
PROJECT REFERENCE NO.	SHEET NO.
TCR.106 31.37	4



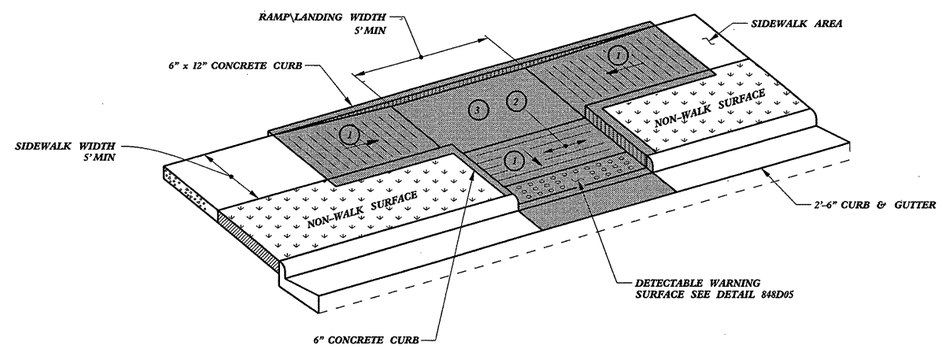
TYPE 2

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.dgn

5/14/99

22-MAR-2012 15:07
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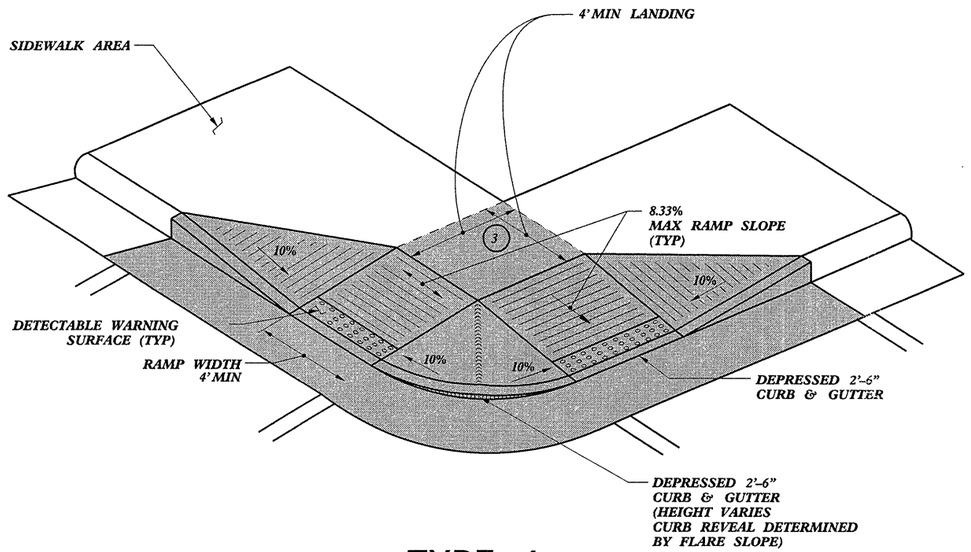
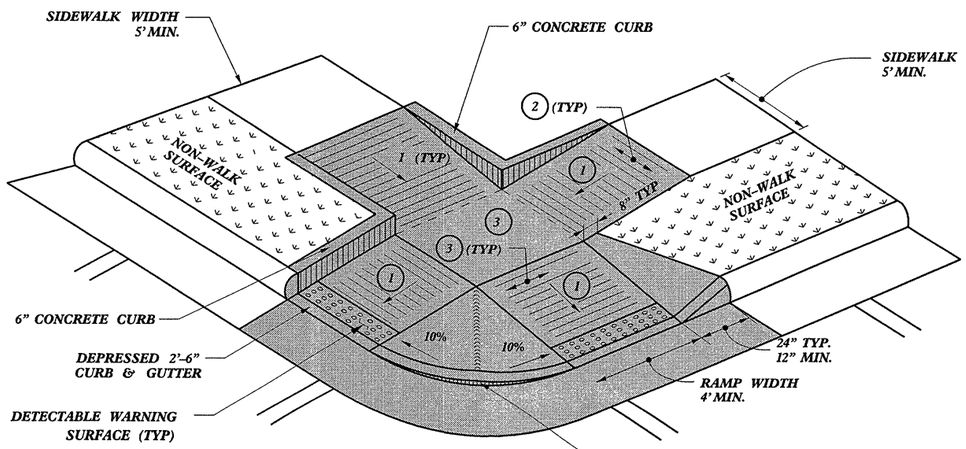
jhowerton AT 5302379681

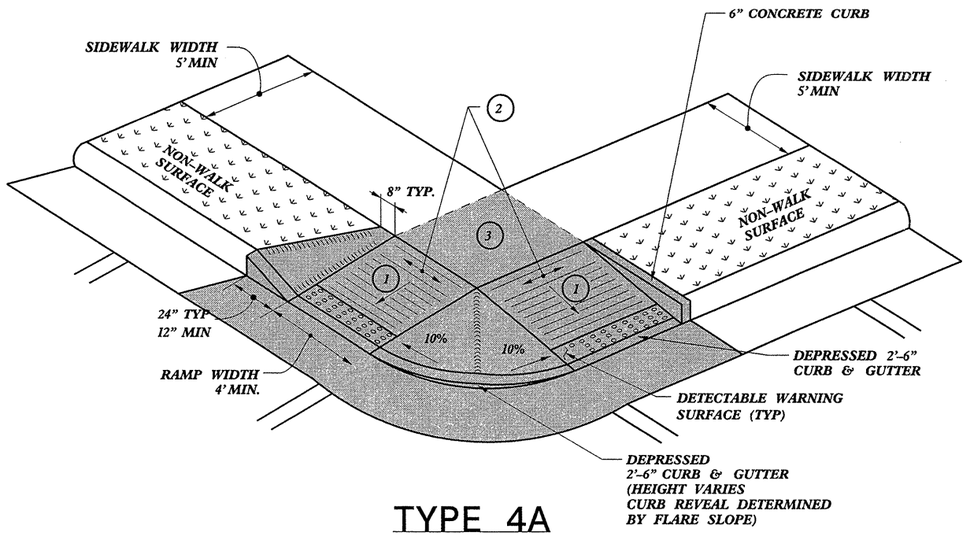
PROJECT REFERENCE NO.	SHEET NO.
TCR. 1063.37	5



TYPE 4



TYPE 5



TYPE 4A

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.

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.dgn

5/14/99
22-MAR-2012 15:08
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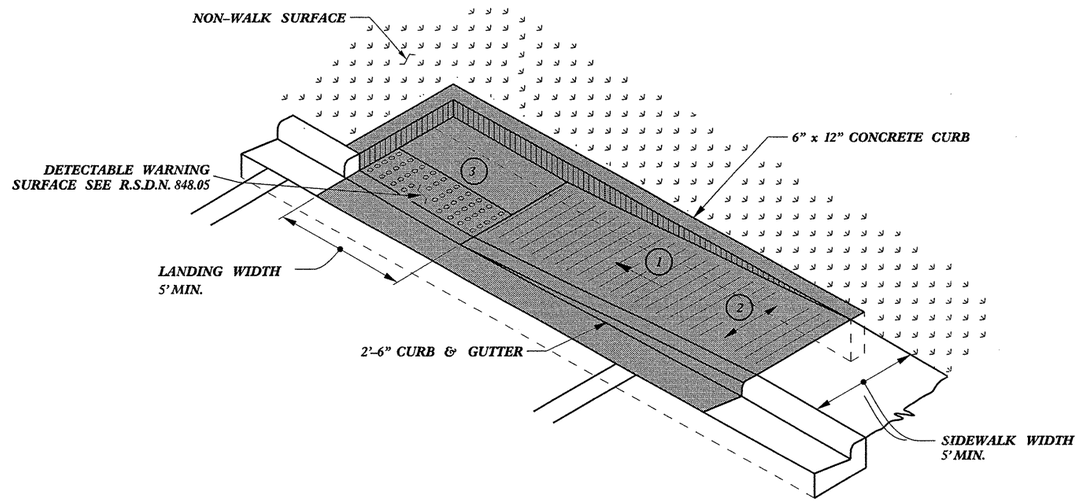
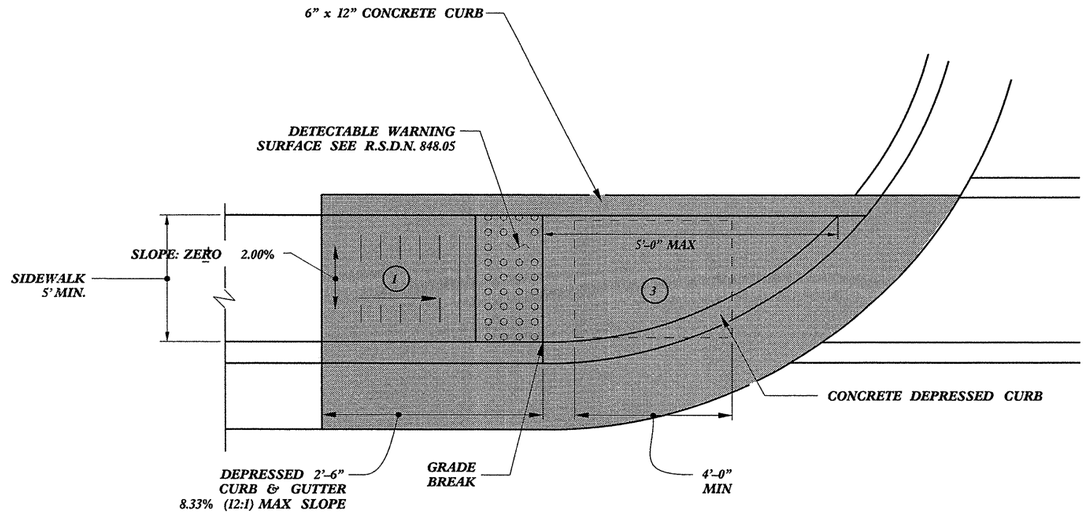
jhowerton
Al 1502037501

PROJECT REFERENCE NO.	SHEET NO.
7CR, 10681.37	6

PAY LIMITS FOR CURB RAMP



TYPE 1A



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

22-MAR-2012 15:06
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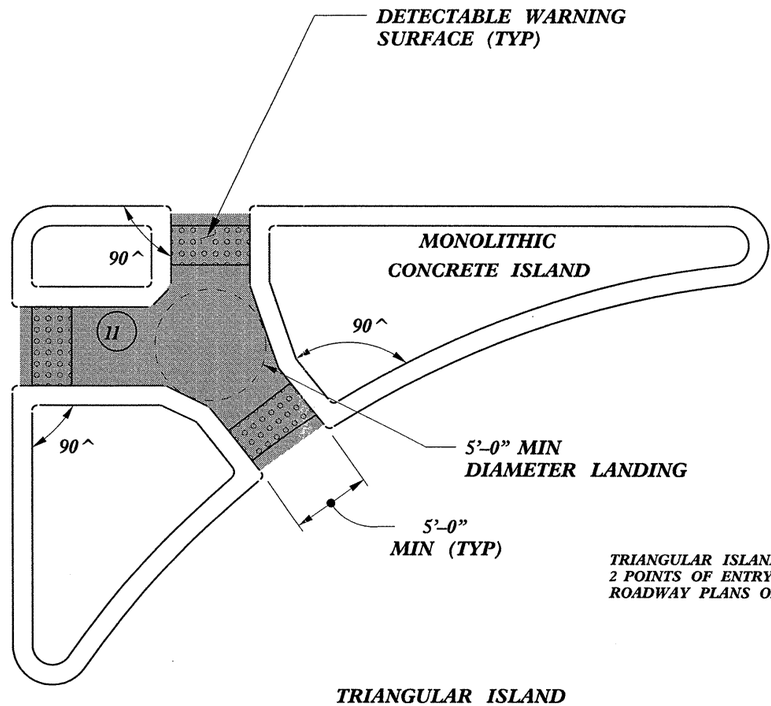
jhowerton AI CSD23798

PROJECT REFERENCE NO.	SHEET NO.
TCR.1069.37	7

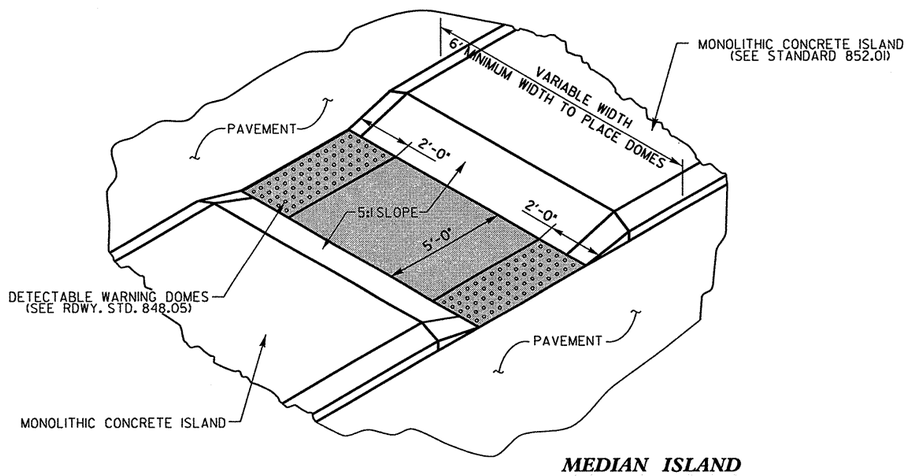
5/14/99

PAY LIMITS FOR 1 CURB RAMP

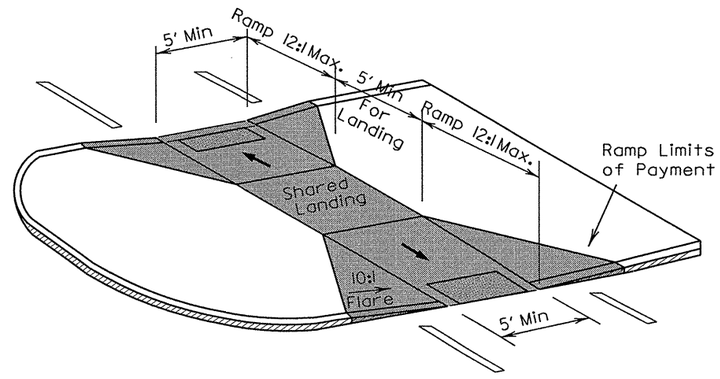


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

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.: stds/2012CurbRamp/CurbRampDetails.dgn

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

PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.10681.37	8	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	MILLING ASPHALT PAVEMENT, 0" TO 1 1/2" DEPTH SY	INCIDENTAL MILLING SY	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	ASPHALT SURFACE TREATMENT, MAT COAT, #78M STONE SY	RETROFITTING EXISTING CURB RAMPS EA	ADJ. OF MANHOLES EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES EA	PORTABLE LIGHTING LS	TRENCHING (UNPAVED) (1)(2") LF	JUNCTION BOX (STANDARD SIZE) EA	2" RISER W/ WEATHERHEAD EA	INDUCTIVE LOOP SAW CUT LF	LEAD-IN CABLE (14-2) LF
7CR.10681.37	Orange	1	NC 86 NORHTBOUND (MARTIN LUTHER KING BOULEVARD)	FROM SR 1750 (ESTES DRIVE) - 3.08 TO JOINT 500' NORTH OF SR 1730 (WHITFIELD ROAD) - 6.04	1	NO	0.028	64	35	230	533	167	11	933	2	1	3	1	1,000	19	4	1,900	2,000
					2	NO	0.108	64		444		335	22	3,800		1							
					2	NO	0.021	64-69		86		68	5	764									
					3	NO	0.009	54-58		74		24	2	267		1							
					2	NO	0.185	64		760		634	42	6,500	6	3	1		1,200	6	3	1,200	1,850
					2	NO	0.03	64-73		123		100	7	1,147									
					1	NO	0.008	73		66		28	2	289									
					3	NO	0.013	63		107		40	3	428									
					2	NO	0.13	73		534		480	32	5,252	4	1							
					2	NO	0.022	64-73		90		74	5	824									
					4	NO	0.122	64				389	26	4,581			5						
					2	NO	0.045	62		185		155	10	1,547		1	1						
					5	NO	0.059	64		242		203	14	2,067		1	1						
					1	NO	0.019	64		156		99	7	622		2	3		500	5	3	700	1,000
					5	NO	0.11	66		452		352	24	3,996	2								
					1	NO	0.031	66		255		99	7	1,063									
					1	NO	0.009	66-83		74		33	2	333									
					1	NO	0.006	83		49		24	2	250									
					1	NO	0.012	72-83		99		45	3	502									
					1	NO	0.042	72		345		147	10	1,564									
					1	NO	0.02	110		164		177	12	1,190		2	4		700	10	4	1,700	2,200
					1	NO	0.021	42		172		43	3	416									
					1	NO	0.013	30-42		107		23	2	218									
					1	NO	0.269	30		2,209		412	28	3,471	2		2						
					1	NO	0.038	30-54		312		77	5	756									
					1	NO	0.059	54		485		195	13	1,584	2		4						
					1	NO	0.022	41		181		44	3	422									
					1	NO	0.01	30-41		82		17	1	168									
					1	NO	0.049	30		862		71	5	636									
					1	NO	0.039	30-41		320		68	5	626									
					1	NO	0.034	41		279		88	6	660	2		2						
					1	NO	0.127	30		1,043		185	12	1,638									
					1	NO	0.015	30-41		123		26	2	244									
					1	NO	0.009	41		74		18	1	183		1							
					1	NO	0.009	30-41		74		16	1	138									
					1	NO	0.042	30		345		61	4	538									
					1	NO	0.021	30-42		172		37	2	342									
					1	NO	0.119	42		977	350	263	18	2,380	4	1	3		600	5	4	600	1,460
				SKIP	1	NO	0.18	42															
					1	NO	0.221	42		1,815	350	481	32	4,401	6				700	5	5	900	1,600
					1	NO	0.027	42-52		222		62	4	628									
					1	NO	0.067	52		550		169	11	1,736		1			700	5	1	800	1,550
					1	NO	0.025	42		205		71	5	491									
					2	NO	0.123	64		505	533	422	28	4,333					700	4	2	950	1,300
				BRIDGE #266	2	NO	0.072	64															
					1	NO	0.06	64		493	533	186	12	1,960									
					1	NO	0.009	82		74		76	5	411					700	4	3	900	1,000
					3	NO	0.043	52		353		128	9	1,100									
					3	NO	0.029	52-64		238		82	5	861									
					1	NO	0.085	72		698		337	23	3,200					700	5	2	700	700
					4	NO	0.03	56				81	5	986									
					4	NO	0.04	35-56				89	6	1,080									
					4	NO	0.025	22-35			242	35	2	425									
TOTAL FOR MAP NO. 1							**2.961**		**35**	**17,505**	**2,541**	**7,536**	**506**	**73,951**	**30**	**16**	**29**	**1**	**7,500**	**68**	**31**	**10,350**	**14,660**

PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.10681.37	9	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	MILLING ASPHALT PAVEMENT, 0" TO 1 1/2" DEPTH SY	INCIDENTAL MILLING SY	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	ASPHALT SURFACE TREATMENT, MAT COAT, #78M STONE SY	RETROFITTING EXISTING CURB RAMPS EA	ADJ. OF MANHOLES EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES EA	PORTABLE LIGHTING LS	TRENCHING (UNPAVED) (1)(2") LF	JUNCTION BOX (STANDARD SIZE) EA	2" RISER W/ WEATHERHEAD EA	INDUCTIVE LOOP SAW CUT LF	LEAD-IN CABLE (14-2) LF
				FROM CONCRET ISLAND AT I-40 EAST BOUND RAMPS - 21.75 TO SR 1777 (HOMESTEAD ROAD) - 23.19	1	NO	0.223	42		1,832		515	34	4,439		1								
					1	NO	0.021	39-42		172		42	3	397									
					1	NO	0.009	39-49		74		19	1	200									
					1	NO	0.016	49		131		38	3	387									
					1	NO	0.008	36-49		66		17	1	153									
					1	NO	0.027	36		222		57	4	436									
					1	NO	0.039	30-45		320	317	72	5	672									
				SKIP	1	NO	0.138	30-45															
					1	NO	0.069	30		567	250	101	7	892									
					1	NO	0.027	30-41		222		47	3	428									
					1	NO	0.081	41		665		171	11	1,577									
					1	NO	0.143	30		1,175		209	14	1,846									
					1	NO	0.012	30-41		99		21	1	199									
			NC 86 SOUTHBOUND (MARTIN LUTHER KING BOULEVARD)		1	NO	0.009	41		74		18	1	183									
					1	NO	0.011	30-41		90		19	1	183									
					1	NO	0.035	30		287		51	3	452									
					1	NO	0.05	30-41		411		87	6	810									
					1	NO	0.029	41		238		98	7	568	2								
					1	NO	0.036	30		296		52	4	464									
					1	NO	0.032	30-42		263		56	4	529									
					1	NO	0.04	42		329		82	5	793									
					1	NO	0.025	50		205		81	5	607									
					1	NO	0.022	41		181		44	3	422									
					1	NO	0.017	30-41		140		30	2	275									
					1	NO	0.229	30		1,881		334	22	2,958		5							
					1	NO	0.034	30-42		279		59	4	560		1							
					1	NO	0.03	42-62		246		76	5	782									
					1	NO	0.029	62		238		87	6	930									
		TOTAL FOR MAP NO. 2					**1.441**			**10,703**	**567**	**2,483**	**165**	**22,142**	**2**	**7**							
TOTAL FOR PROJ NO. 7CR.10681.37							**4.402**		**35**	**28,208**	**3,108**	**10,019**	**671**	**96,093**	**32**	**23**	**29**	**1**	**7,500**	**68**	**31**	**10,350**	**14,660**
GRAND TOTAL							**4.402**		**35**	**28,208**	**3,108**	**10,019**	**671**	**96,093**	**32**	**23**	**29**	**1**	**7,500**	**68**	**31**	**10,350**	**14,660**

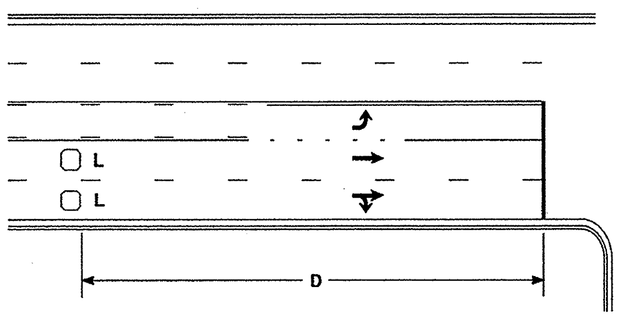
PROJECT NO.	SHEET NO.	TOTAL NO.
7CR.10681.37	10	

THERMOPLASTIC AND PAINT QUANTITIES

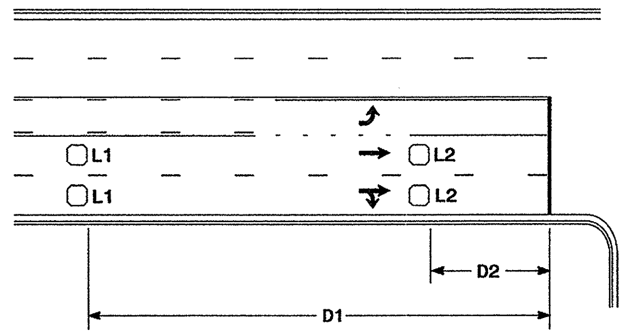
PROJECT	COUNTY	MAP	ROUTE	DESCRIPTION	LENGTH	WIDTH	4399000000-N	4685000000-E		4686000000-E		4697000000-E	4702000000-E	4710000000-E	4721000000-E	4725000000-E								4905000000-N
							TEMP. TRAFFIC CONTROL	4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	8" X 120 M WHITE THERMO	12" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO MSG ONLY 120 M	THERMO STR ARROW 90 M	THERMO LT ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO STR & LT ARROW 90 M	THERMO MERGE LEFT ARROW 90 M	THERMOPLASTIC PAVEMENT MARKINGSYMBOL (24" YIELD LINE SYMBOL)	THERMO BICYCLE SYMBOL	SNOWPLOWABLE PAVEMENT MARKERS
NO		NO					LS	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
7CR.10681.37	Orange	1	NC 86 NORHTBOUND (MARTIN LUTHER KING BOULEVARD)	FROM SR 1750 (ESTES DRIVE) - 3.08 TO JOINT 500' NORTH OF SR 1730 (WHITFIELD ROAD) - 6.04	2.961	30-110	1	12,600	8,180	12,288	19,410	1,132	225	1,019	32	57	65	26	18	2	3	74	14	550
		TOTAL FOR MAP NO. 1			2.961		1	12,600	8,180	12,288	19,410	1,132	225	1,019	32	57	65	26	18	2	3	74	14	550
		2	NC 86 SOUTHBOUND (MARTIN LUTHER KING BOULEVARD)	FROM CONCRET ISLAND AT I-40 EAST BOUND RAMPS - 21.75 TO SR 1777 (HOMESTEAD ROAD) - 23.19	1.441	30-62		6,750	7,615	3,941	100	540		393		17	14	6	2				10	125
		TOTAL FOR MAP NO. 2			1.441			6,750	7,615	3,941	100	540		393		17	14	6	2				10	125
TOTAL FOR PROJ NO. 7CR.10681.37					4.402		1	19,350	15,795	16,229	19,510	1,672	225	1,412	32	74	79	32	20	2	3	74	24	675
								35,145		35,739						308								
GRAND TOTAL					4.402		1	19,350	15,795	16,229	19,510	1,672	225	1,412	32	74	79	32	20	2	3	74	24	675
								35,145		35,739						308								

PROJECT REFERENCE NO.	SHEET NO.
7CR.10681.37	SIG 1

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

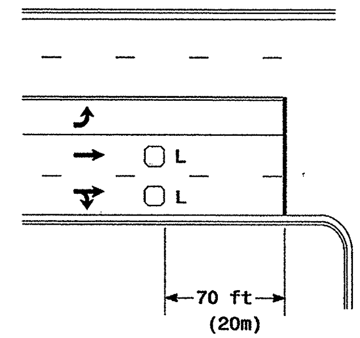
Speed Limit mph (km/hr)		D1 ft	(m)	D2 ft	(m)
40	(64)	250	(75)	80	(25)
45	(72)	300	(90)	90	(27)
50	(80)	355	(110)	100	(30)
55	(88)	420	(130)	110	(35)

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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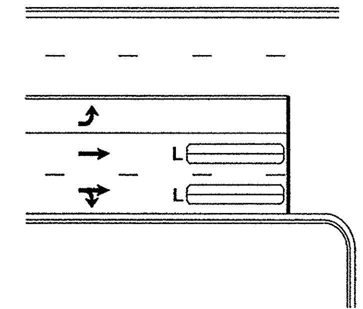
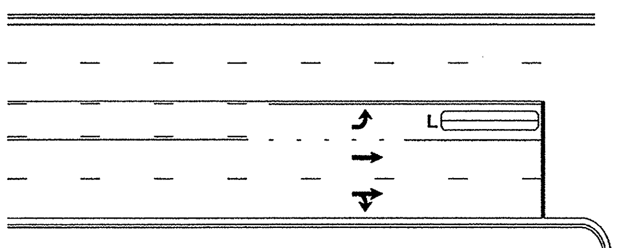


L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

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

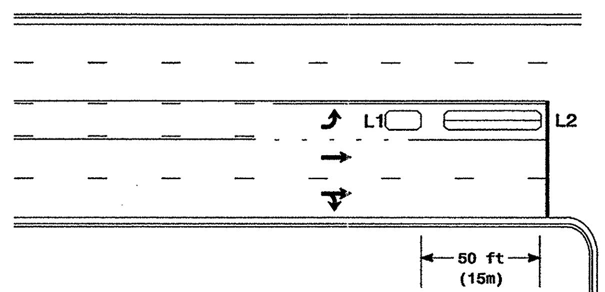
Left Turn Lane Detection



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

Presence Loop Detection

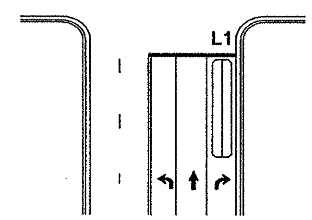
OR



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

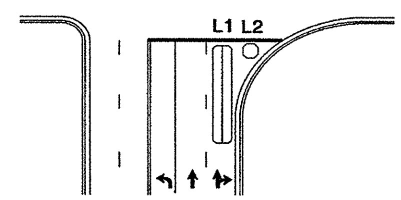
Queue Loop Detection

Right Turn Lane Detection

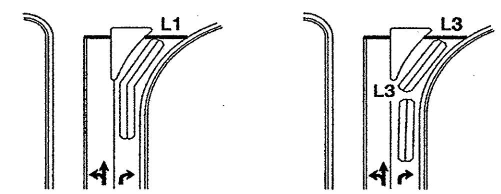


Standard Turn

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

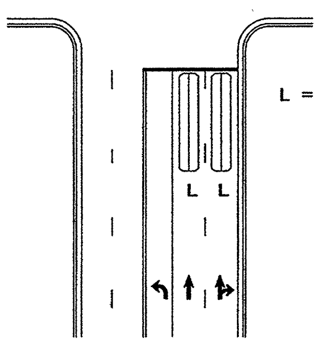


Wide Radius Turn



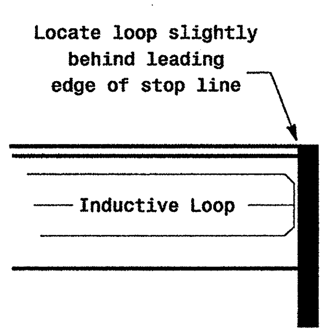
Channelized Turn

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

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

Typical Loop Locations

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

SCALE
N/A

REVISIONS	INIT.	DATE
Revise pavement markings	[illegible]	12/1/06

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
23488
ENGINEER
PAMELA A. ALEXANDER

[illegible]
SIGNATURE
6/6/06
DATE

SIG. INVENTORY NO.

19-DEC-2006 14:29
s:*its signals*lib turn ln*misc*looptypical2006.dgn
palexander