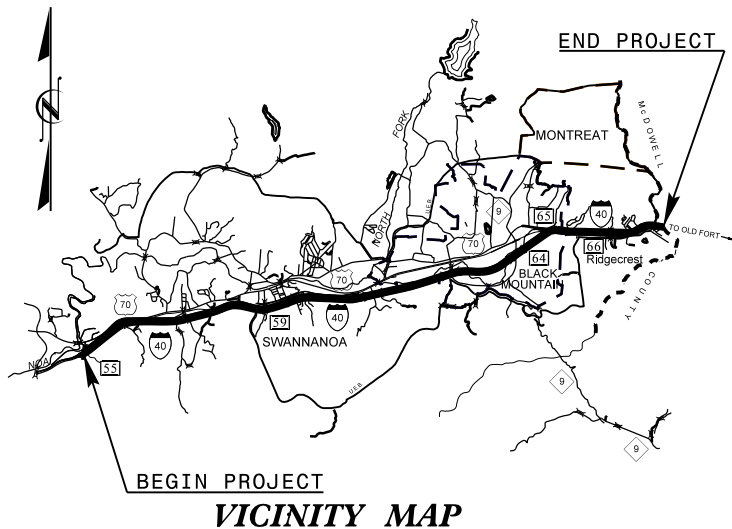


TIP PROJECT: I-5890

CONTRACT: C204242



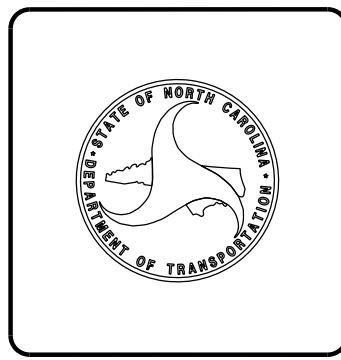
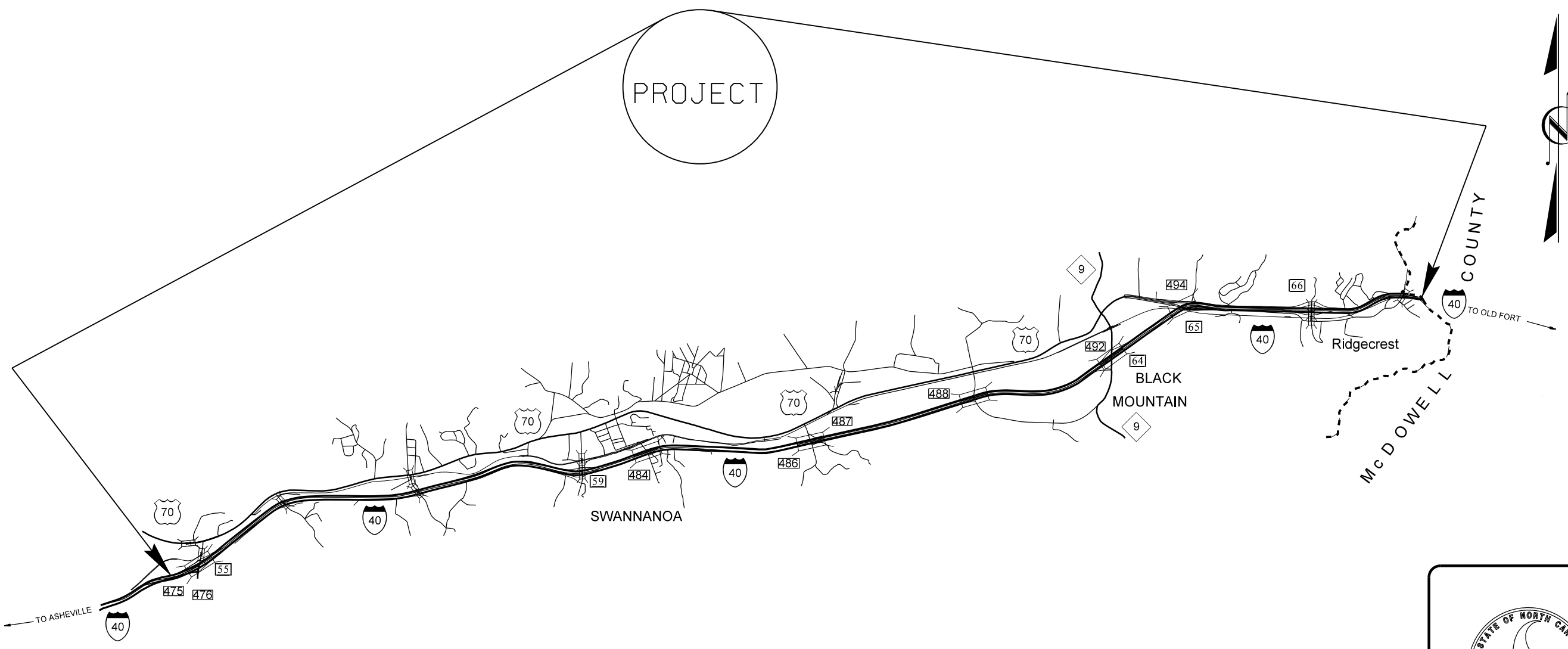
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

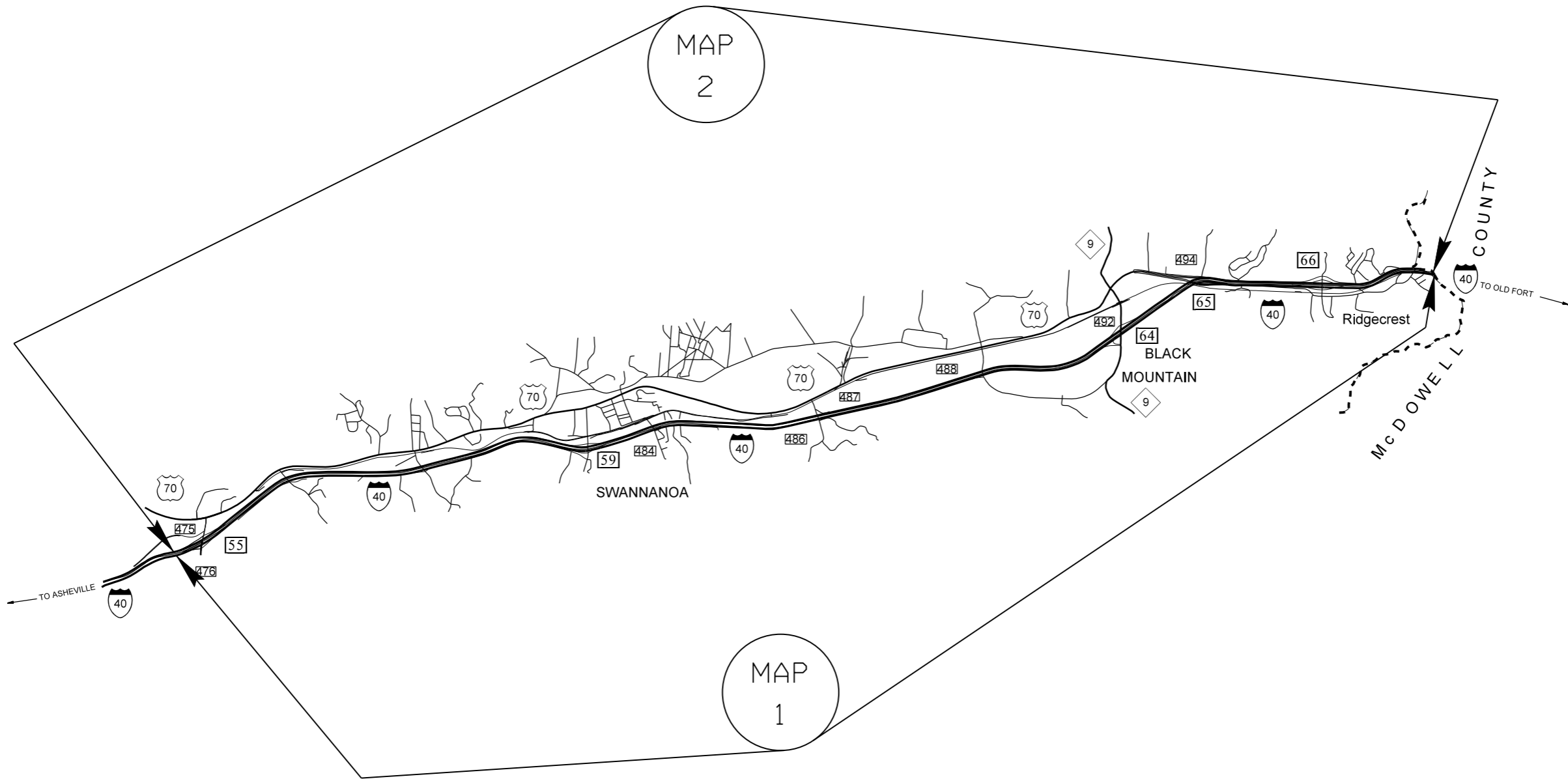
LOCATION: BUNCOMBE COUNTY I-40 MILE POST 55 TO MCDOWELL COUNTY LINE MILE POST 67.5

TYPE OF WORK: PAVEMENT REHABILITATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5890	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46410.1.1	NHPIM-004(063)	PE	
46410.3.1	NHPIM-004(063)	CONST.	



PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5890	2	

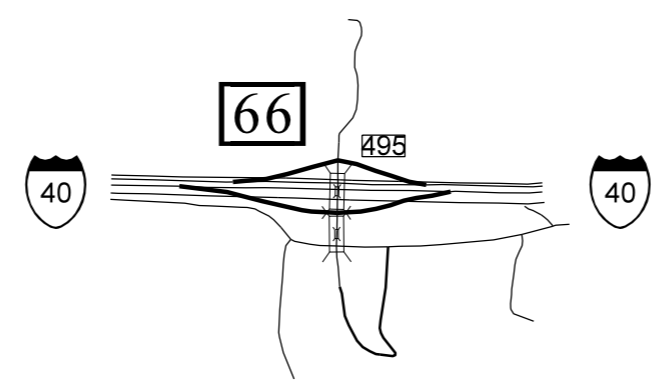
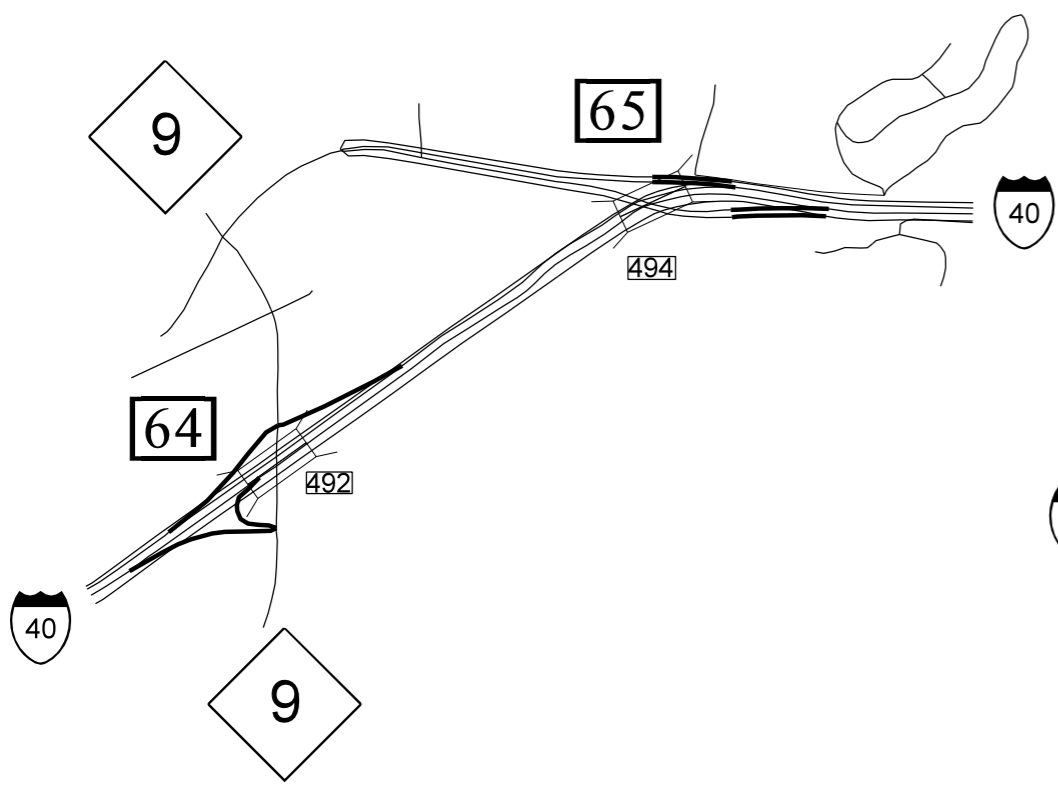
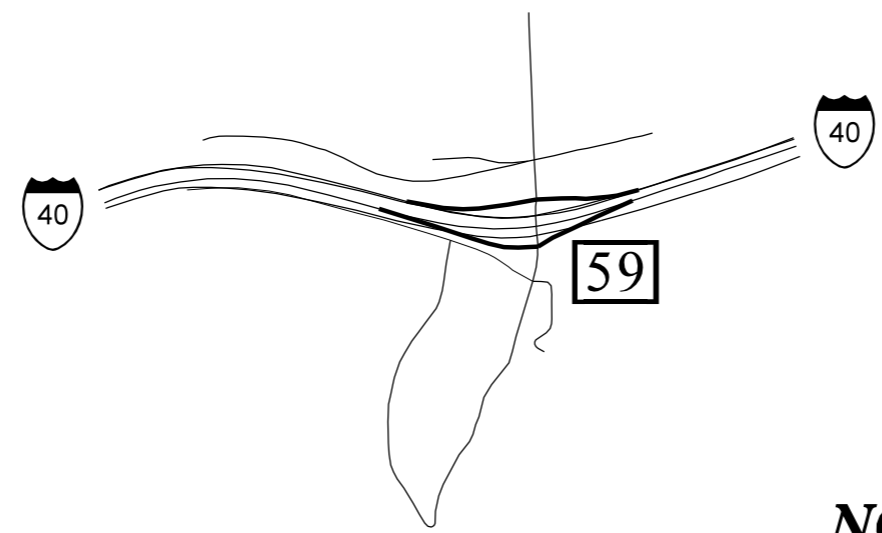
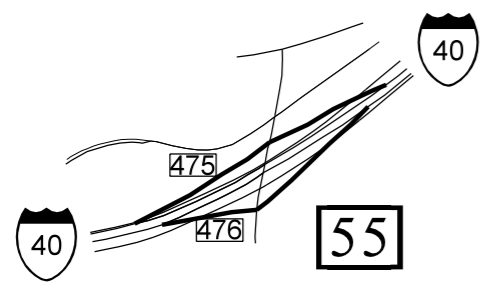


BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5890	3	

FULL LENGTH RAMP REHAB

MAP 3

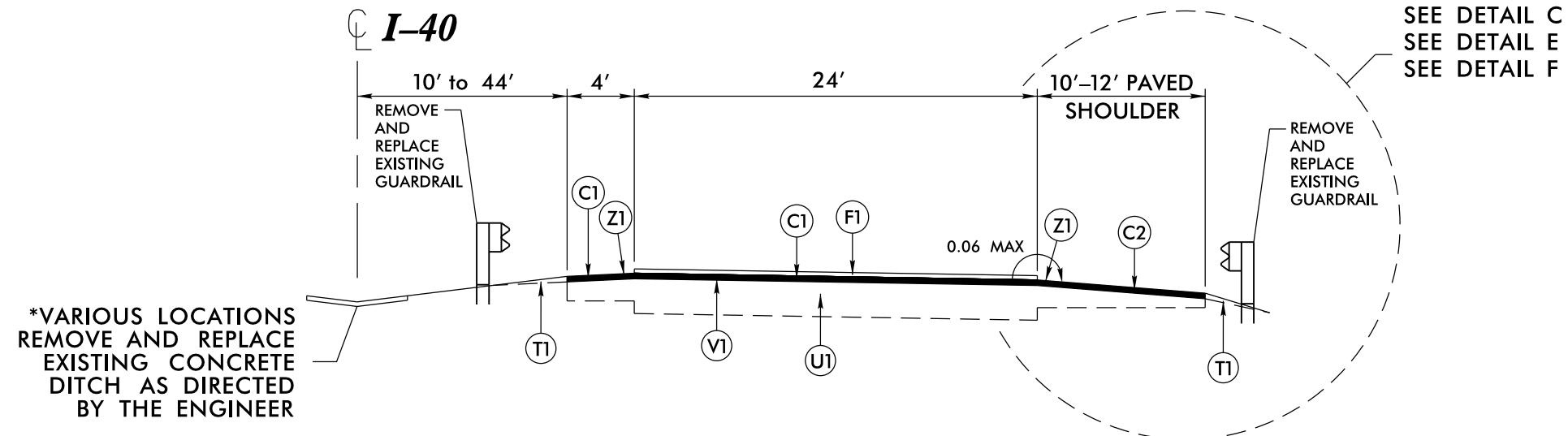


NOTES:

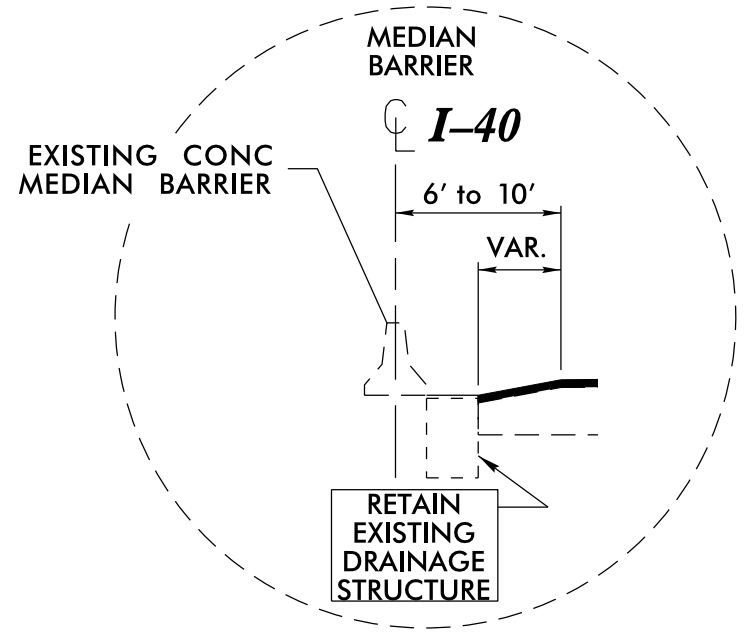
- AT EXIT 55, REHAB ONLY THE PAVED PORTIONS OF THE ROADWAY AND SHOULDERS. THE ONLY WORK TO BE PERFORMED ON THE CONCRETE PORTIONS OF THE ROADWAY IS REMOVAL OF EXISTING PAVEMENT MARKINGS AND INSTALLATION OF NEW PAVEMENT MARKINGS.
- ITEMS ASSOCIATED WITH THE REMOVAL AND REPLACEMENT OF THE 5" CONCRETE ISLAND AND 1'-6" CURB AND GUTTER ARE SPECIFIC TO EXIT 55 RAMP INTERSECTIONS.
- SEE LIST OF PIPES AND EARTHWORK SUMMARY FOR DITCH REPAIR QUANTITIES AT EXIT 55 WEST BOUND ON-RAMP.

BUNCOMBE COUNTY

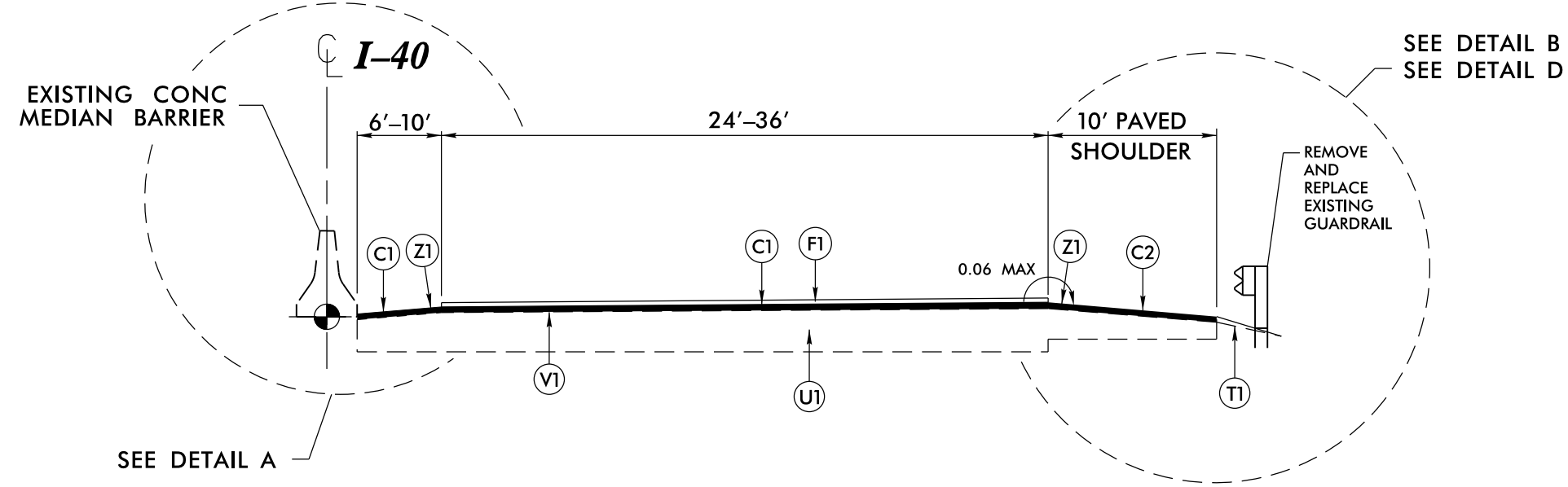
PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5890	4	



TYPICAL SECTION NO. 1



DETAIL A

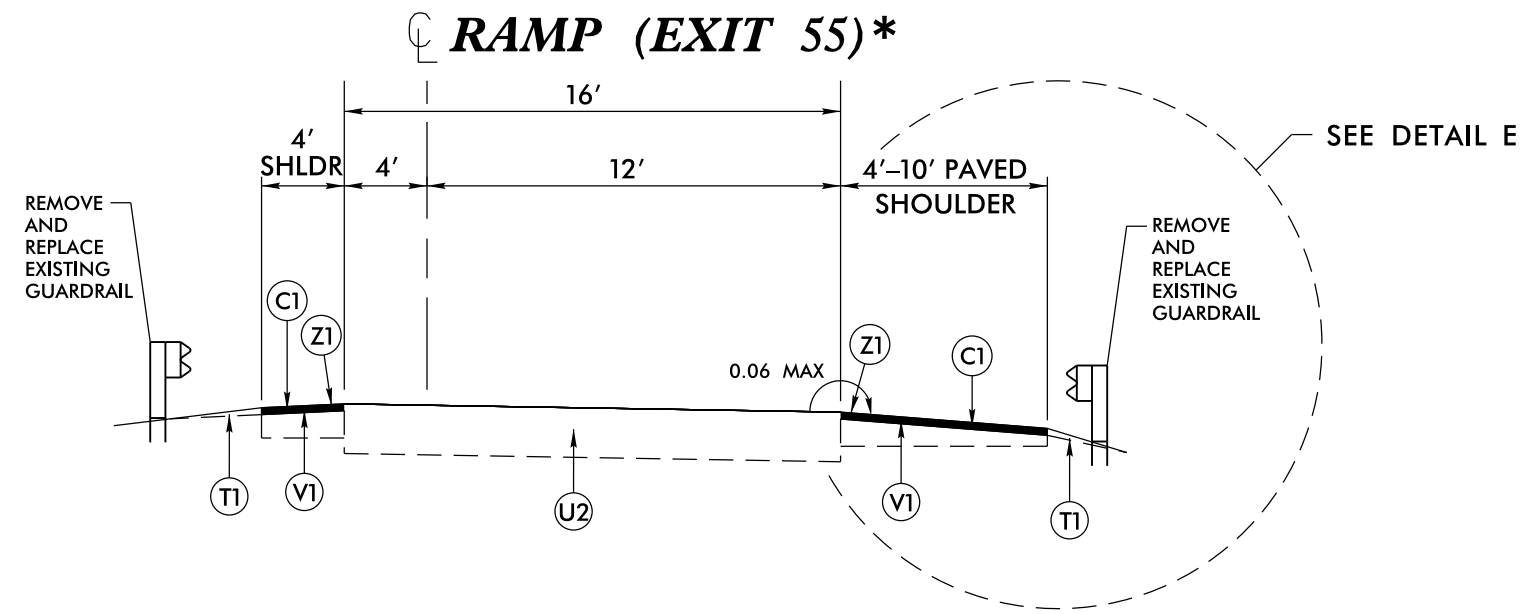


TYPICAL SECTION NO. 2

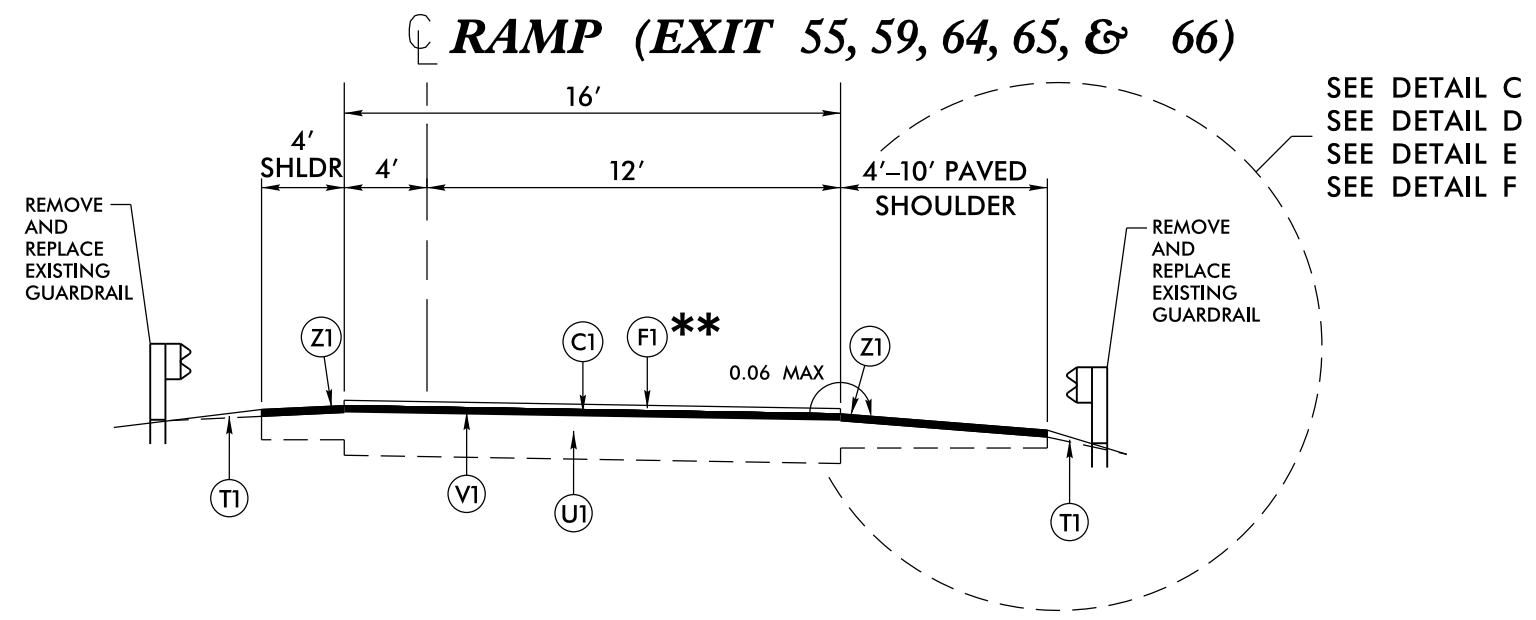
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
F1	PROP. APPROX. 5/8" ULTRA-THIN BONDED WEARING COURSE AT AN AVERAGE RATE OF 70 LBS. PER SQ. YD.
T1	SHOULDER RECONSTRUCTION
U1	EXISTING ASPHALT PAVEMENT
U2	EXISTING CONCRETE ROADWAY
V1	MILL ASPHALT PAVEMENT, 2" DEPTH
Z1	MILLED RUMBLE STRIPS

BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5890	5	



TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4

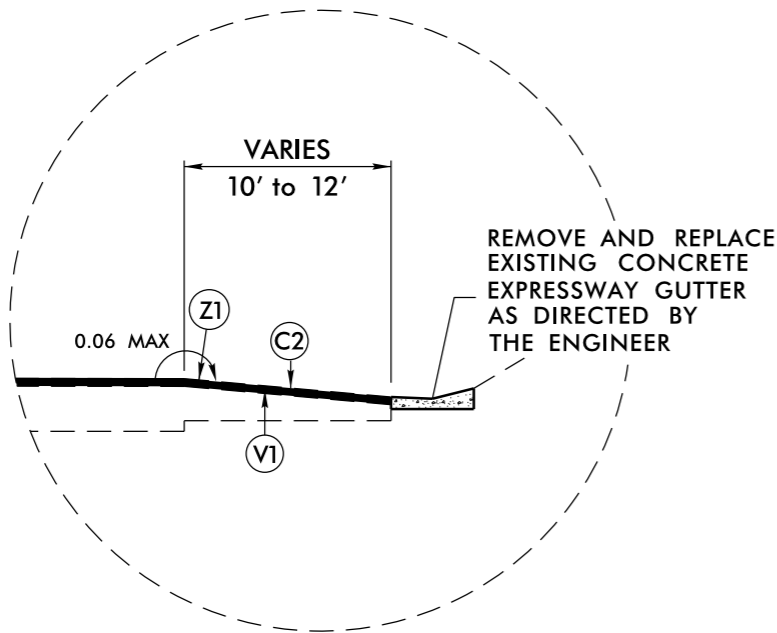
NOTES:

- * - USE TYPICAL 3 FOR CONCRETE ROADWAY SECTIONS AT EXIT 55 ONLY.
- ** - ULTRA-THIN BONDED WEARING COURSE SHALL ONLY BE PLACED TO THE END OF THE GORE AREA ON THE RAMPS.

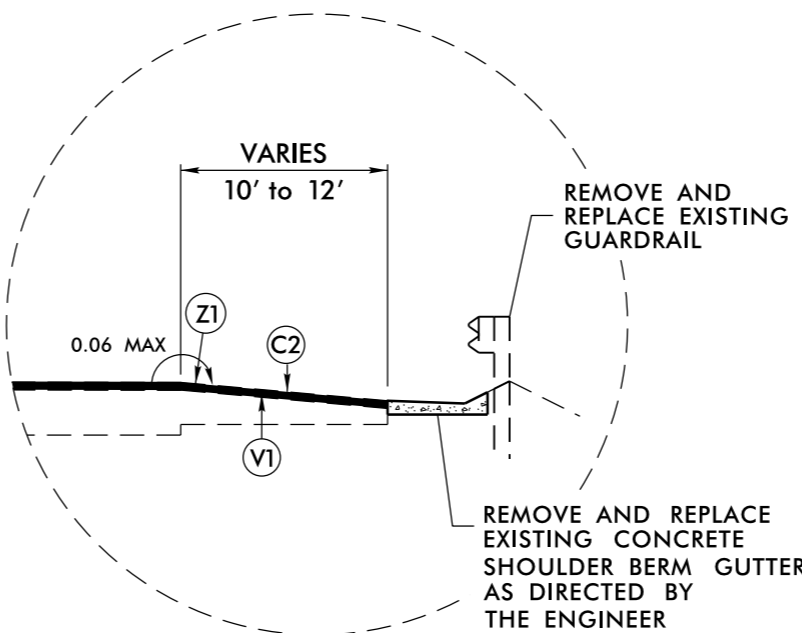
BUNCOMBE COUNTY

	PAVEMENT SCHEDULE
C1	2" TYPE S9.5D
F1	ULTRA-THIN BONDED WEARING COURSE
T1	SHOULDER RECONSTRUCTION
U1	EXISTING ASPHALT PAVEMENT
U2	EXISTING CONCRETE ROADWAY
V1	MILL ASPHALT PAVEMENT, 2" DEPTH
Z1	MILLED RUMBLE STRIPS

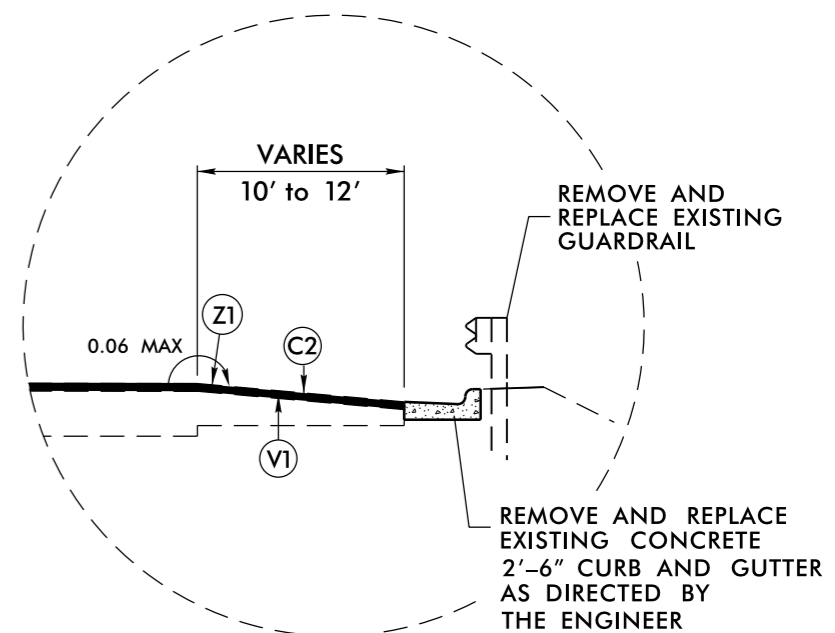
DETAILS



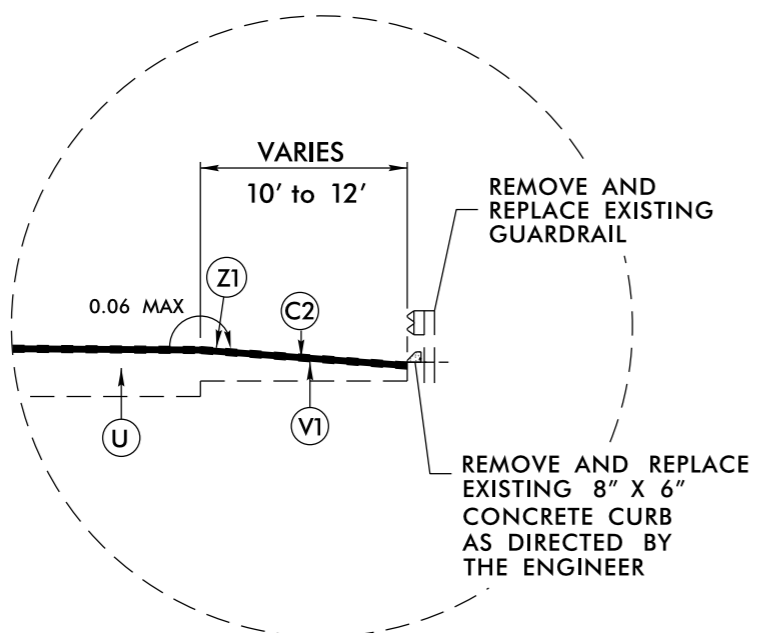
DETAIL B



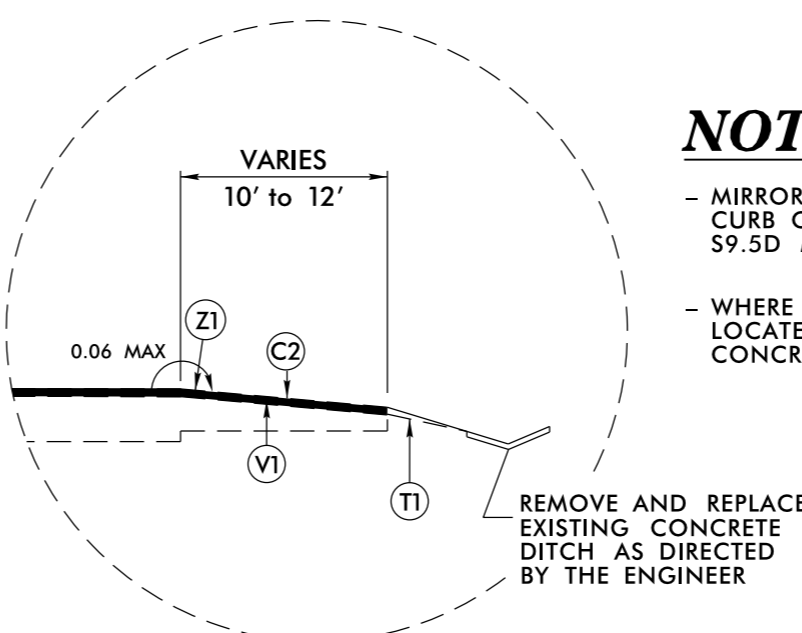
DETAIL C



DETAIL D



DETAIL E



DETAIL F

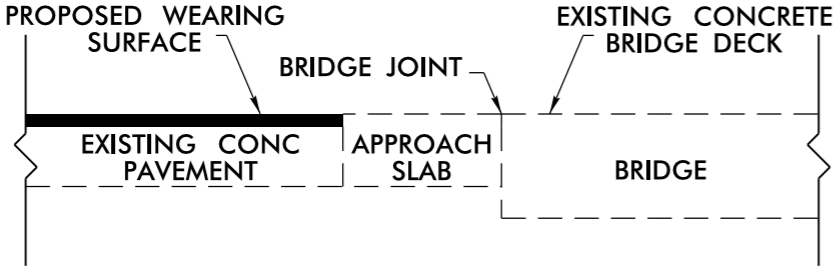
NOTES:

- MIRROR DETAILS D & F FOR EXISTING CURB ON INSIDE SHOULDER USING S9.5D MIX IN LIEU OF S9.5C.
- WHERE EXISTING ASPHALT CURB IS LOCATED, REMOVE AND INSTALL 8" X 6" CONCRETE CURB.

	PAVEMENT SCHEDULE
C2	2" TYPE S9.5C
T1	SHOULDER RECONSTRUCTION
U1	EXISTING ASPHALT PAVEMENT
U2	EXISTING CONCRETE ROADWAY
V1	MILL ASPHALT PAVEMENT, 2" DEPTH
Z1	MILLED RUMBLE STRIPS

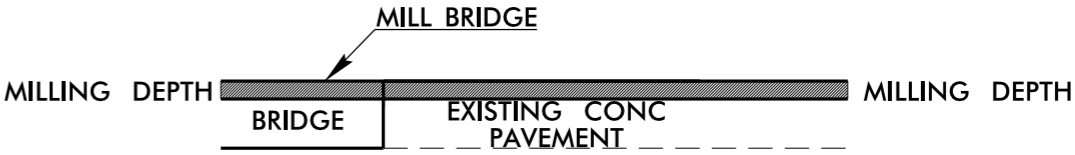
PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5890	7	

DETAILS



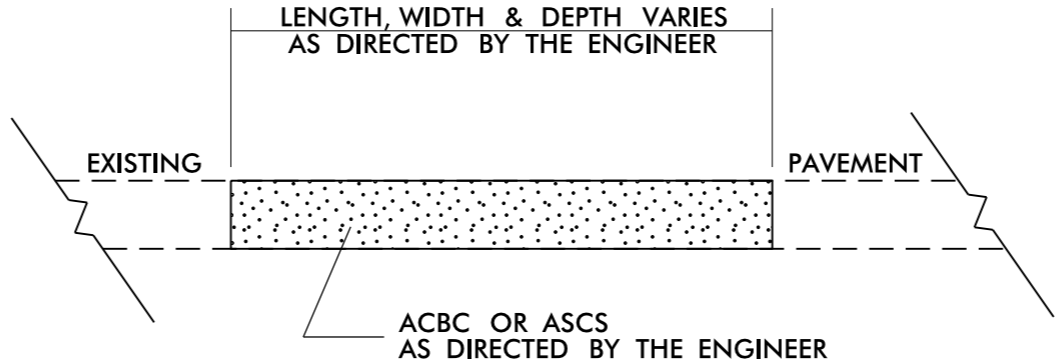
TIE-IN DETAIL AT BRIDGES

TIE PROPOSED WEARING SURFACE TO EXISTING CONC OVERLAY ON BRIDGE DECKS AND APPROACH SLABS.
 BRIDGE #'s 484, 486, 487, 488, 492 & 494



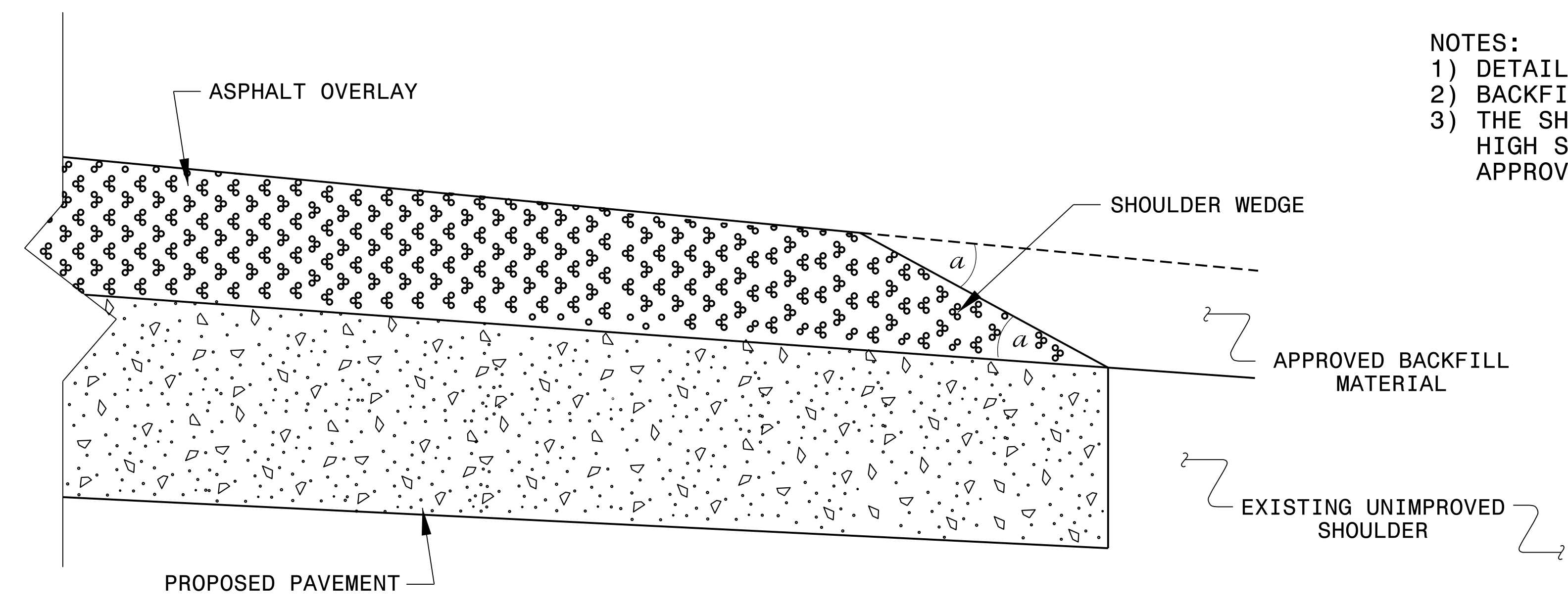
MILLING DETAIL AT BRIDGES

WHERE BRIDGES WILL BE MILLED THEN RESURFACED
 MILL 2 +/-" OFF EXISTING PAVEMENT
 OR AS DIRECTED BY ENGINEER
 BRIDGE #'s 475 AND 476

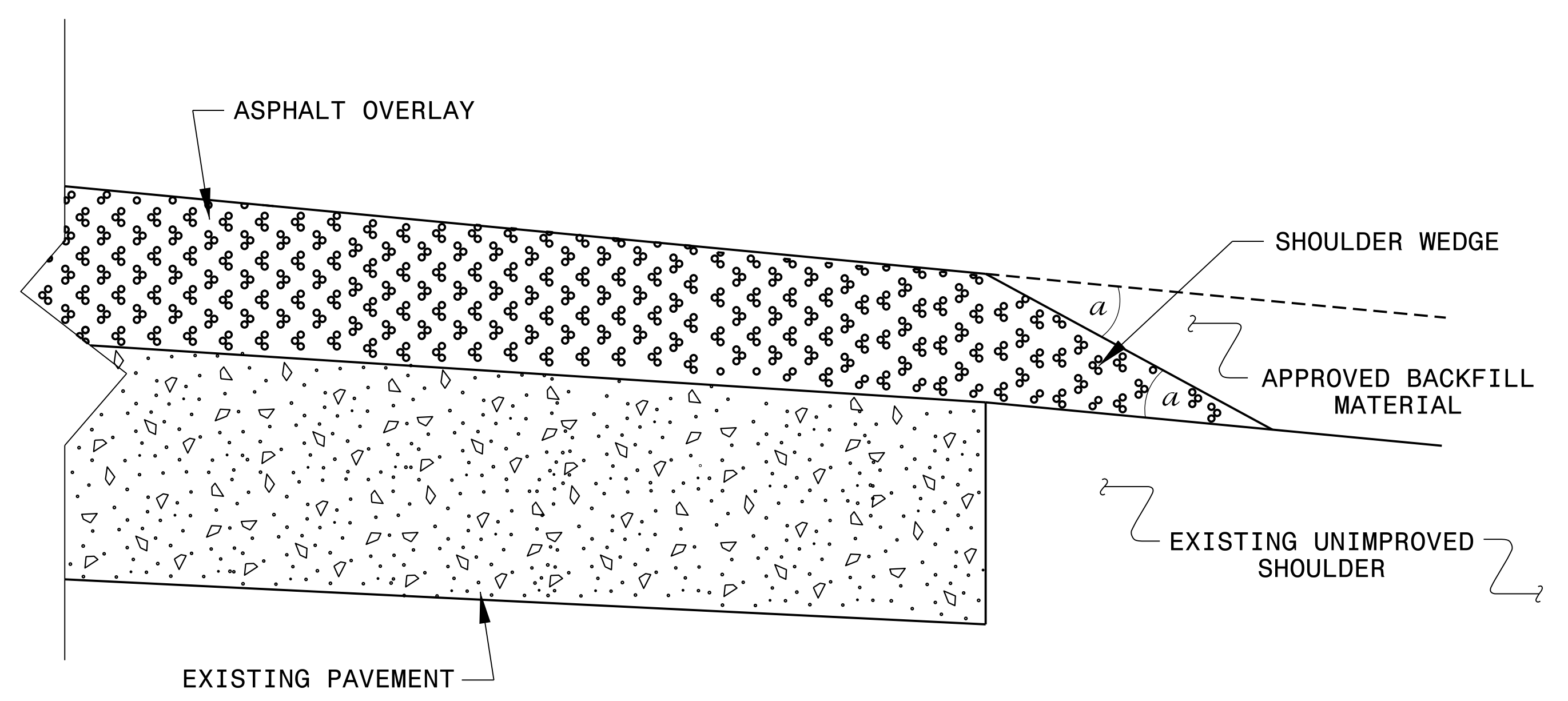


PATCHING EXISTING PAVEMENT

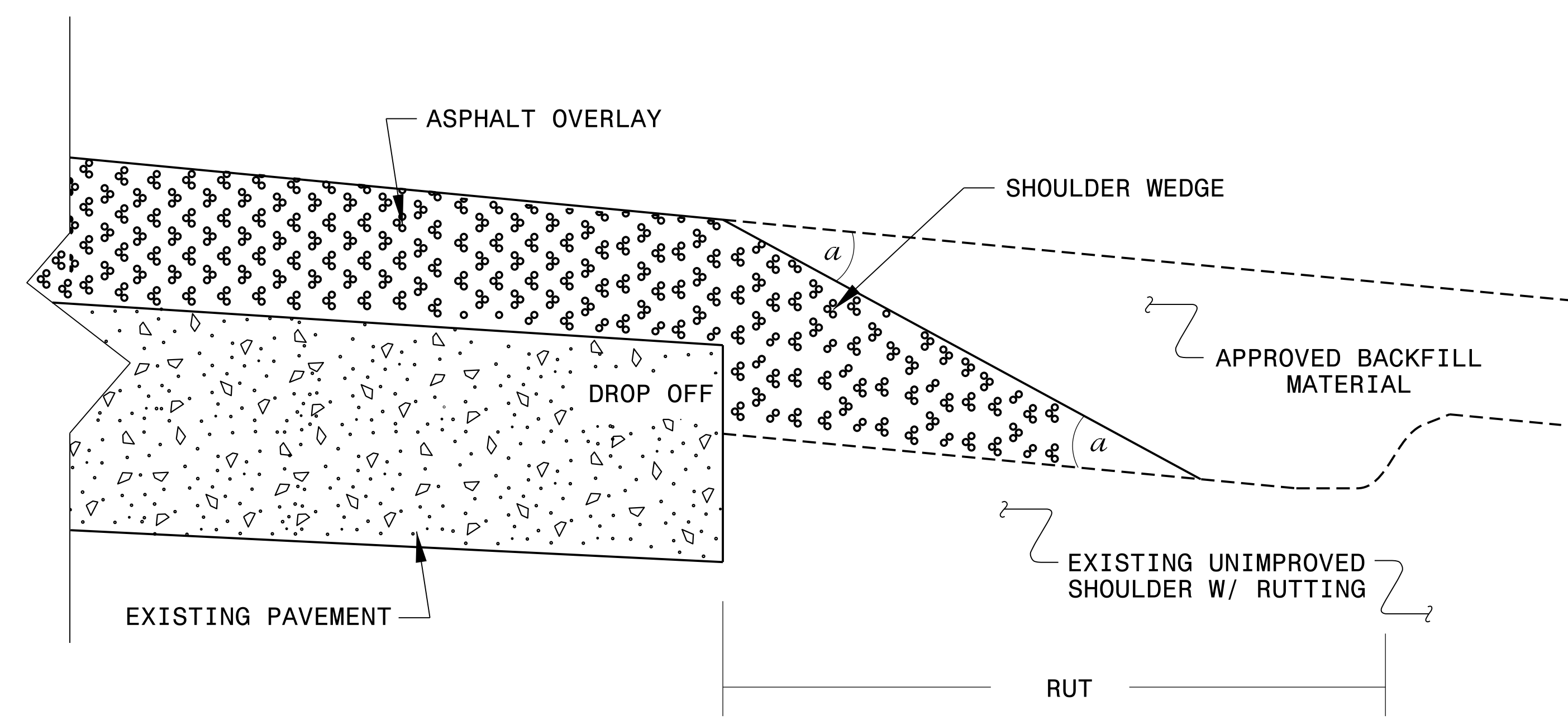
- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFD AND ULTRA-THIN BONDED WEARING COURSE.
 - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



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	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

I2-SEP-2018 10:10 S:\Contracts\Resurfacing Projects\Shoulder Wedge Details\Revised Shoulder Wedge Detail.dgn J:\over-ton AT_CSD-232595

PROJECT NO.		SHEET NO.	TOTAL NO.
I-5890		10	

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	0043000000-N	0106000000-E	0318000000-E	0320000000-E	0576000000-E	0636000000-E	1245000000-E	1260000000-E	1297000000-E	1523000000-E	1524200000-E	1575000000-E	1577000000-E	1704000000-E	1839140000-E	1840000000-E	2286000000-N	2365000000-N							
												GRADING	BORROW EXCAVATION	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	FOUNDATION CONDITIONING GEOTEXTILE	42" CS PIPE CULVERTS, 0.109" THICK	42" CS PIPE ELBOWS, 0.109" THICK	SHOULDER RECONSTRUCTION	AGGREGATE SHOULDER BORROW	MILLING ASPHALT PAVEMENT, 2" DEPTH	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	ASPHALT CONC SURFACE COURSE, TYPE S9.5D	ASPHALT BINDER FOR PLANT MIX	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	ULTRA-THIN BONEDED WEARING COURSE	MILLED RUMBLE STRIPS (ASPHALT CONCRETE)	MASONRY DRAINAGE STRUCTURES	FRAME WITH TWO GRATES, STD 840.22							
											MI	FT	LS	CY	TON	SY	LF	EA	SMI	TON	SY	TON	TON	TON	TON	TON	TON	TON	EA	EA						
I-5890	Buncombe	1	I-40 EB	I-40 EB FROM MP 55 - MP 67	1	2	MD	NO	NO	12	24							24.00	3,120	267,520	8,818	24,430	529	1,731	238	6,505	118,625									
I-5890	Buncombe	2	I-40 WB	I-40 WB FROM MP 55 - MP 67	1	2	MD	NO	NO	12	24							24.00	3,120	267,520	8,818	24,430	529	1,743	240	6,736	118,625									
I-5890	Buncombe	3	I-40 RAMPS	I-40 EB/WB RAMPS MP 55 TO 67	3	2		NO	NO	5.66	12	1.00	2,000.00	30.00	70.00	200.00	2.00	7.38	1,472	77,660		9,568		579	3,760	652	16,189	1.00	1.00							
TOTAL FOR PROJ NO. I-5890																																				
GRAND TOTAL											29.66		1.00	2,000.00	30.00	70.00	200.00	2.00	55.38	7,712	612,700	17,636	58,428	1,058	4,053	4,238	13,893	253,439	1.00	1.00						

PROJECT NO.		SHEET NO.	TOTAL NO.
I-5890		11	

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	2473000000-N				2484000000-E	2535000000-E	2738000000-E				2752000000-E				2753000000-E	3001000000-N	3045000000-E	3195000000-N	3210000000-N	3287000000-N	3317000000-N	3319000000-N	3420000000-E
												GENERIC DRAINAGE ITEM REMOVE AND REPLACE CONCRETE APRON	GENERIC DRAINAGE ITEM, REMOVE AND REPLACE METAL FUNNELS	GENERIC DRAINAGE ITEM, REMOVE AND REPLACE 12" Funnel Drain Pipe Elbows	GENERIC DRAINAGE ITEM REMOVE AND REPLACE 12" FUNNEL DRAIN PIPE	8"X 6" CONCRETE CURB	GENERIC PAVING AND REPL 4" CONC PAVED DITCH	REMOVE AND REPLACE 5" CONCRETE ISLAND	REMOVE AND REPLACE CURB AND GUTTER	REMOVE AND REPLACE SHOULDER BERM GUTTER	GENERIC PAVING AND REPLACE 8" X 6" CONCRETE CURB	REMOVE AND REPLACE 1' 6" CURB AND GUTTER	REMOVE AND REPLACE EXPRESSWAY GUTTER	IMPACT ATTENUATOR UNITS, TYPE TL-3	STEEL BM GUARDRAIL, SHOP CURVED	GUARDRAIL END UNITS, TYPE AT-1	GUARDRAIL END UNITS, TYPE CAT-1	GUARDRAIL END UNITS, TYPE TL-3	GUARDRAIL ANCHOR UNITS, TYPE B 77	GUARDRAIL ANCHOR UNITS, TYPE B 83	GENERIC GUARDRAIL ITEM REMOVE AND REPLACE EXISTING GUARDRAIL			
												EA	EA	EA	LF	LF	SY	SY	LF	LF	LF	LF	EA	LF	EA	EA	EA	EA	EA	EA	EA	EA		
I-5890	Buncombe	1	I-40 EB	I-40 EB FROM MP 55 - MP 67	1	2	MD	NO	NO	12	24	3				725		45			180						21.00	20.00	1.00	9.00	89,203.25			
I-5890	Buncombe	2	I-40 WB	I-40 WB FROM MP 55 - MP 67	1	2	MD	NO	NO	12	24	7				2,700			4,735	2,688		2,691	3.00			18.00	28.00	2.00	8.00	71,640.00				
I-5890	Buncombe	3	I-40 RAMPS	I-40 EB/WB RAMPS MP 55 TO 67	3	2		NO	NO	5.66	12	18	11.00	11.00	350.00	1,545	1,084	650	75	80	110	690	50		193.75	4.00	10.00	11.00		7.00	14,215.50			
TOTAL FOR PROJ NO. I-5890										29.66		28	11.00	11.00	350.00	1,545	4,509	650	120	4,815	2,798	690	2,921	3.00	193.75	4.00	49.00	59.00	3.00	24.00	175,058.75			
GRAND TOTAL										29.66		28	11.00	11.00	350.00	1,545	4,509	650	120	4,815	2,798	690	2,921	3.00	193.75	4.00	49.00	59.00	3.00	24.00	175,058.75			

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5890	12	

SUMMARY OF QUANTITIES

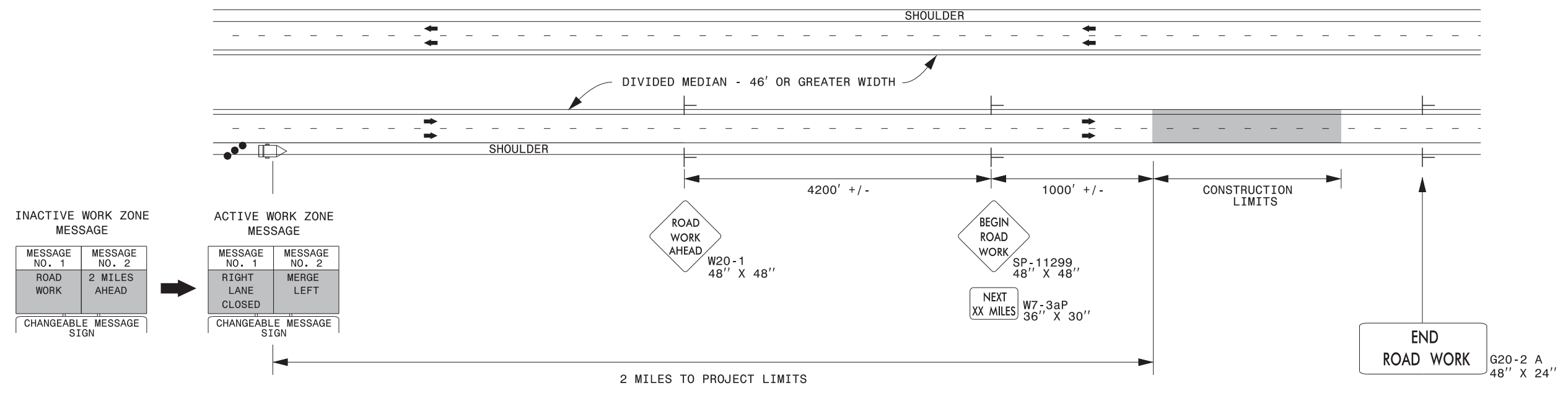
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	3435000000-N	3635000000-E	3656000000-E	4434000000-N	4424000000-N	4423000000-N	4600000000-N	6000000000-E	6012000000-E	6036000000-E	6045000000-E	6084000000-E	6111000000-E	6117000000-N	6132000000-N	7444000000-E					
												BRIDGE DECK ANCHORED GUARDRAIL POST	RIP RAP, CLASS II	GEOTEXTILE FOR DRAINAGE	SEQUENTIAL FLASHING WARNING LIGHTS	WORK ZONE PRESENCE LIGHTING	WORK ZONE DIGITAL SPEED LIMIT SIGNS	LANE CLOSURE	RAMP/ LOOP CLOSURES	TEMPORARY SILT FENCE	SEDIMENT CONTROL STONE	MATTING FOR EROSION CONTROL	24" TEMPORARY PIPE	SEEDING & MULCHING	IMPERVIOUS DIKE	RESPONSE FOR EROSION CONTROL	CONCRETE WASHOUT STRUCTURE	INDUCTIVE LOOP SAWCUT				
												MI	FT	EA	TON	SY	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA
I-5890	Buncombe	1	I-40 EB	I-40 EB FROM MP 55 - MP 67	1	2	MD	NO	NO	12	24	71.00				16	15	4	62									2				
I-5890	Buncombe	2	I-40 WB	I-40 WB FROM MP 55 - MP 67	1	2	MD	NO	NO	12	24	71.00							62													
I-5890	Buncombe	3	I-40 RAMPS	I-40 EB/WB RAMPS MP 55 TO 67	3	2		NO	NO	5.66	12			35	75					32	150	20	350	200.00	0.50	25	2		1,200			
TOTAL FOR PROJ NO. I-5890												29.66		142.00	35	75	16	15	4	124	32	150	20	350	200.00	0.50	25	2	2	1,200		
GRAND TOTAL												29.66		142.00	35	75	16	15	4	124	32	150	20	350	200.00	0.50	25	2	2	1,200		

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5890	13	

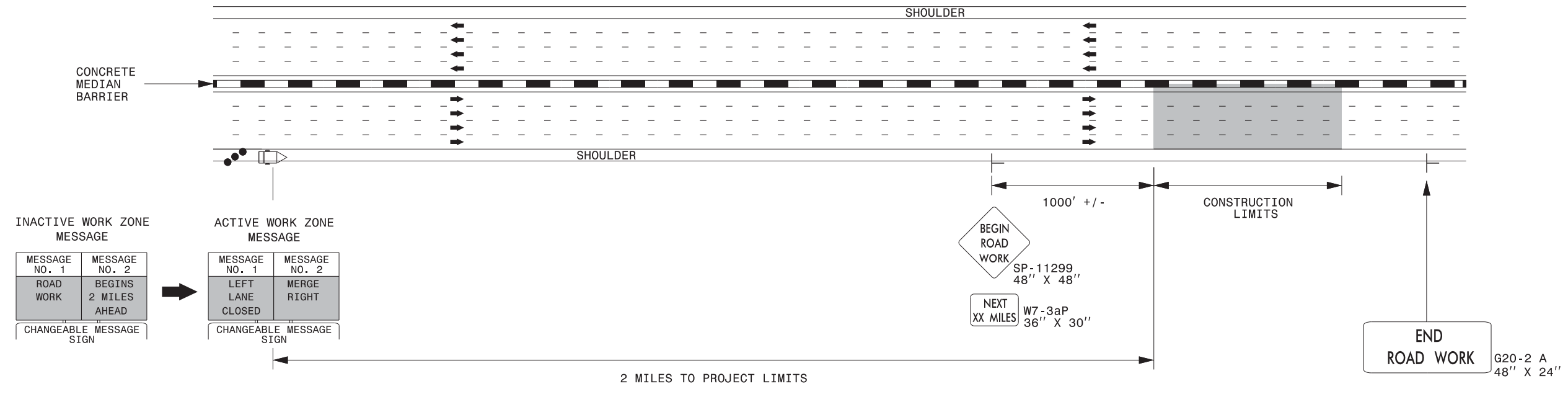
THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4400000000-E	4510000000-N	4710000000-E	4725000000-E			4810000000-E		4820000000-E	4847030000-E		4847040000-E		4847080000-E	4855000000-E	4890000000-E	4905000000-N	5255000000-N	
										WORK ZONE SIGNS (STATIONARY)	LAW ENFORCEMENT	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS) WHITE	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) LT ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) RT ARROW	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) MERGE ARROW	PAINT PAVEMENT MARKING LINES (4") WHITE	PAINT PAVEMENT MARKING LINES (4") YELLOW	PAINT PAVEMENT MARKING LINES (8") WHITE	POLYUREA PAVEMENT MARKING WHITE LINES (6", 20 MILS) (HIGHLY REFLECTIVE MEDIA)	POLYUREA PAVEMENT MARKING YELLOW LINES (6", 20 MILS) (HIGHLY REFLECTIVE MEDIA)	POLYUREA PAVEMENT MARKING WHITE LINES (6", 30 MILS) (HIGHLY REFLECTIVE MEDIA)	POLYUREA PAVEMENT MARKING YELLOW LINES (6", 30 MILS) (HIGHLY REFLECTIVE MEDIA)	POLYUREA PAVEMENT MARKING LINES (12", 30 MILS) (HIGHLY REFLECTIVE MEDIA)	REMOVAL OF PAVEMENT MARKING LINES (6")	PAINT 1'-6" CONCRETE CURB AND GUTTER	SNOWPLOWABLE PAVEMENT MARKERS	PORTABLE LIGHTING	
MI	FT	SF	HR	LF	EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA
I-5890	Buncombe	1	I-40 EB	I-40 EB FROM MP 55 - MP 67	1	2	MD	12	24	590	352					72,500	63,360				72,500	63,360		2,809		792		
TOTAL FOR MAP NO. 1								12		590	352					72,500	63,360				72,500	63,360		2,809		792		
I-5890	Buncombe	2	I-40 WB	I-40 WB FROM MP 55 - MP 67	1	2	MD	12	24							72,500	63,360				72,500	63,360		2,934		792		
TOTAL FOR MAP NO. 2								12								72,500	63,360				72,500	63,360		2,934		792		
I-5890	Buncombe	3	I-40 RAMP	I-40 EB/WB RAMP MP 55 TO 67	3	2		5.66	12			143	2	2	18	32,517	13,170	11,210	8,906	13,170	23,611		11,210	8,555	690	632		
TOTAL FOR MAP NO. 3								5.66				143	2	2	18	32,517	13,170	11,210	8,906	13,170	23,611		11,210	8,555	690	632		
TOTAL FOR PROJ NO. I-5890								29.66		590	352	143	2	2	18	177,517	139,890	11,210	8,906	13,170	168,611	126,720	11,210	14,298	690	2,216	1	
GRAND TOTAL								29.66		590	352	143	2	2	18	177,517	139,890	11,210	8,906	13,170	168,611	126,720	11,210	14,298	690	2,216	1	

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

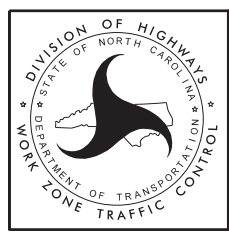


NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 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) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMP 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMP WITHIN THE WORK ZONE.
- 6) 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 AND WITH DIVIDED MEDIANS OF 46' OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



**RESURFACING ADVANCE
WARNING SIGNS FOR
HIGH SPEED FACILITIES
≥ 60 MPH**

3/23/2015 C:\Users\rmgarrrett\Downloads\Resurfacing_AdvWarn_HSpd.dgn User:rmgarrrett

SIGN NUMBER: SP11294
 TYPE: E
 QUANTITY: SEE PLANS

BACKG COLOR: White
 COPY COLOR: Black

DESIGN BY: cwj
 PROJECT ID: ALL

CHECKED BY: C. Howard
 DIV: ALL

DATE: Jul 26, 2011

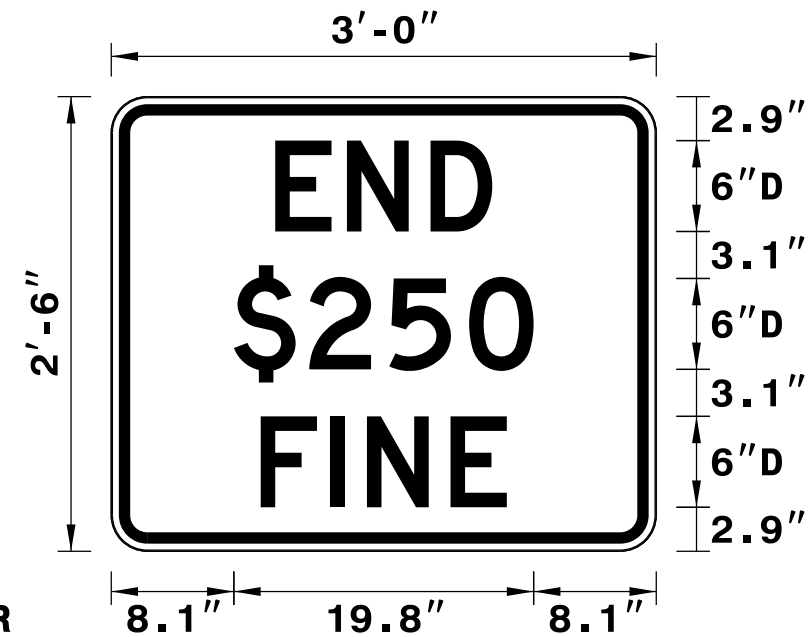
SIGN WIDTH: 3'-0"
 HEIGHT: 2'-6"
 TOTAL AREA: 7.5 Sq.Ft.

SYMBOL	X	Y	WID	HT

BORDER TYPE: INSET
 RECESS: 0.5"
 WIDTH: 0.75"
 RADII: 1.88"

NO. Z BARS:
 LENGTH:

MAT'L: 0.080" (2.0 mm) ALUMINUM



BORDER
 R=1.88"
 TH=0.75"
 IN=0.5"

1. Legend and border shall be black.
2. Background shall be Grade C white reflective sheeting.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter																Series/Size	
																Text Length	
		E	N	D													D 2000
10.8	4.7	5.5	4.1	10.8													14.3
		\$	2	5	0												D 2000
8.1	5	5.3	5.3	4.3	8.1												19.8
		F	I	N	E												D 2000
9.9	4.6	2.4	5.5	3.7	9.9												16.3

SIGN NUMBER: SP11297
 TYPE: E
 QUANTITY: SEE PLANS

BACKG COLOR: White
 COPY COLOR: Black

DESIGN BY: cwj
 PROJECT ID: ALL

CHECKED BY: C. Howard
 DIV: ALL

DATE: Jul 26, 2011

SIGN WIDTH: 3'-0"
 HEIGHT: 2'-6"
 TOTAL AREA: 7.5 Sq.Ft.

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

BORDER TYPE: FLUSH
 RECESS: 0.5"
 WIDTH: 0.75"
 RADII: 1.88"

NO. Z BARS:
 LENGTH:

1. Legend and border shall be black.
2. Background shall be Grade C white reflective sheeting.



BORDER
 R=1.88"
 TH=0.75"
 IN=0.5"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter																	Series/Size	
																	Text Length	
		B	E	G	I	N												D 2000
	7.2	5.1	4.6	5.4	2.4	4.1	7.2											21.6
		\$	2	5	0													D 2000
	8.1	5	5.3	5.3	4.3	8.1												19.8
		F	I	N	E													D 2000
	9.9	4.6	2.4	5.5	3.7	9.9												16.3

SIGN NUMBER: 11299
 TYPE: B
 QUANTITY: SEE PLANS

BACKG COLOR: Fluorescent Orange
 COPY COLOR: Black

DESIGN BY: WJ
 PROJECT ID: ALL

CHECKED BY:
 DIV: ALL

DATE: Jun 22, 2011

SIGN WIDTH: 5'-6"
 HEIGHT: 5'-6"
 TOTAL AREA: 30.5 Sq.Ft.

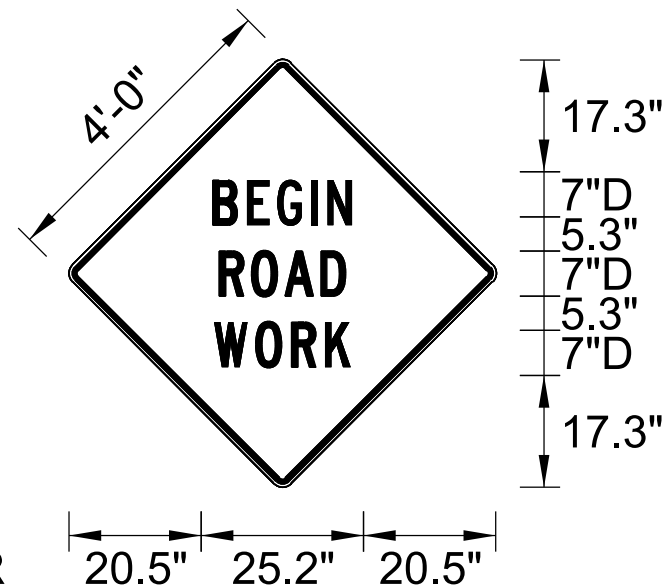
SYMBOL	X	Y	WID	HT

BORDER TYPE: INSET
 RECESS: 0.59"
 WIDTH: 0.75"
 RADII: 1.38"

NO. Z BARS: N/A
 LENGTH: N/A

MAT'L: 0.125" (3.2 mm) ALUMINUM

SP 11299



BORDER
 R=1.38"
 TH=0.75"
 IN=0.59"

Spacing Factor is 1 unless specified otherwise

USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be Type VII, VIII, or IX (prismatic) fluorescent orange retroreflective sheeting.

LETTER POSITIONS

Letter spacings are to start of next letter																	Series/Size	
																	Text Length	
		B	E	G	I	N												D 2000
	20.5	6	5.4	6.3	2.8	4.8	20.5											25.2
		R	O	A	D													D 2000
	21.4	5.8	5.9	7	4.8	21.4												23.5
		W	O	R	K													D 2000
	20.9	7.1	6.5	5.9	4.9	20.9												24.5

SIGN NUMBER: SP13106
 TYPE: STATIONARY
 QUANTITY: SEE PLANS

BACKG COLOR: Fluorescent Orange
 COPY COLOR: Black

DESIGN BY: B. RASHID
 PROJECT ID:

CHECKED BY: AIA
 DIV:

DATE: Apr 26, 2013

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 4'-0"
 HEIGHT: 4'-0"
 TOTAL AREA: 16.00 Sq.Ft.

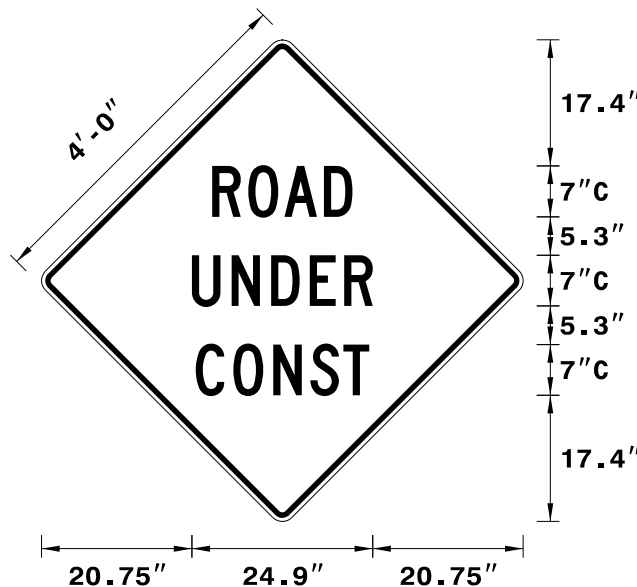
BORDER TYPE: INSET
 RECESS: 0.75"
 WIDTH: 1.25"
 RADII: 3"

MAT'L: 0.080" (2.0 mm) ALUMINUM

NO. Z BARS:
 LENGTH:

USE NOTES: 1,2

- Legend and border shall be direct applied black non-reflective sheeting.
- Background shall be NC GRADE B fluorescent orange retroreflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

Letter spacings are to start of next letter																		Series/Size Text Length
		R	O	A	D													C 2000
	23.5	5	5	5.5	3.9	23.5												19.3
		U	N	D	E	R												C 2000
	20.7	5.5	5.5	5.3	4.8	3.9	20.7											24.9
		C	O	N	S	T												C 2000
	21.2	5.2	5.5	5.1	4.6	3.6	21.2											23.9

SIGN NUMBER: SP13107 **BACKG COLOR:** Fluorescent Orange
TYPE: STATIONARY **COPY COLOR:** Black
QUANTITY: SEE PLANS

SYMBOL	X	Y	WID	HT

SIGN WIDTH: 4'-0"
HEIGHT: 4'-0"
TOTAL AREA: 16.00 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.75"
WIDTH: 1.25"
RADII: 3"

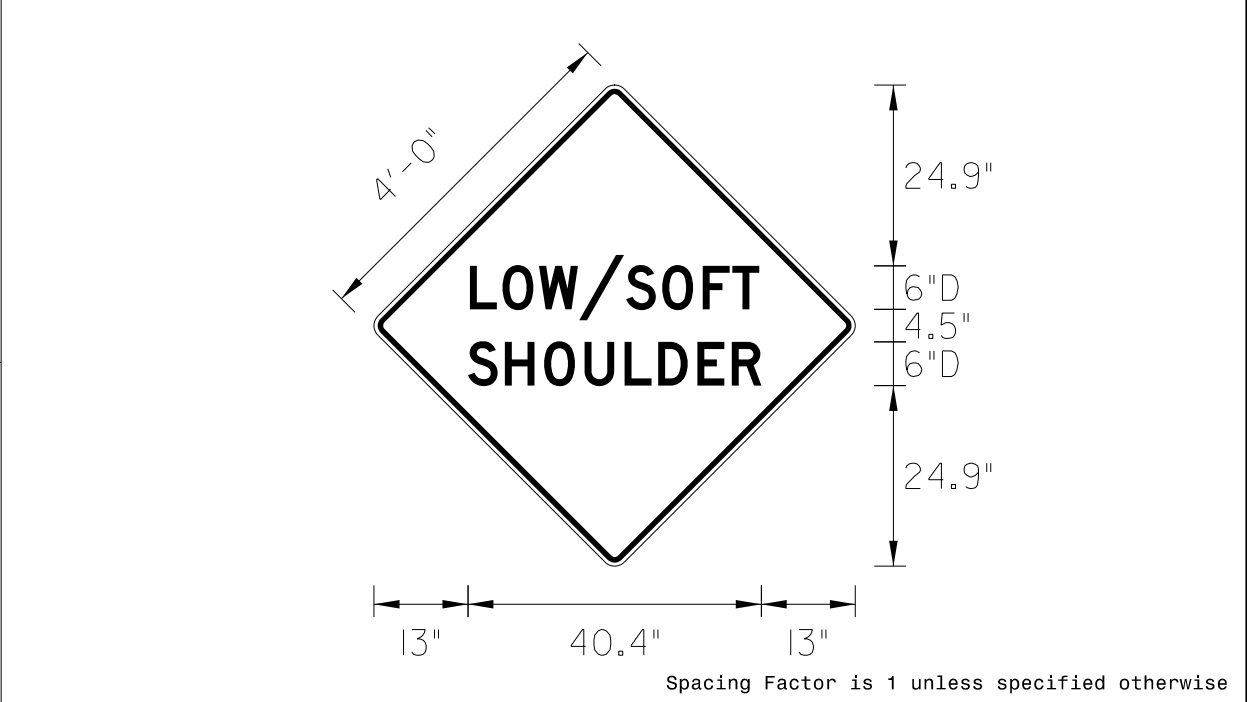
MAT'L: 0.080" (2.0 mm) ALUMINUM

NO. Z BARS: **LENGTH:**

DESIGN BY: B. RASHID **CHECKED BY:** AIA
PROJECT ID: **DIV:** **DATE:** Apr 26, 2013

USE NOTES: 1,2

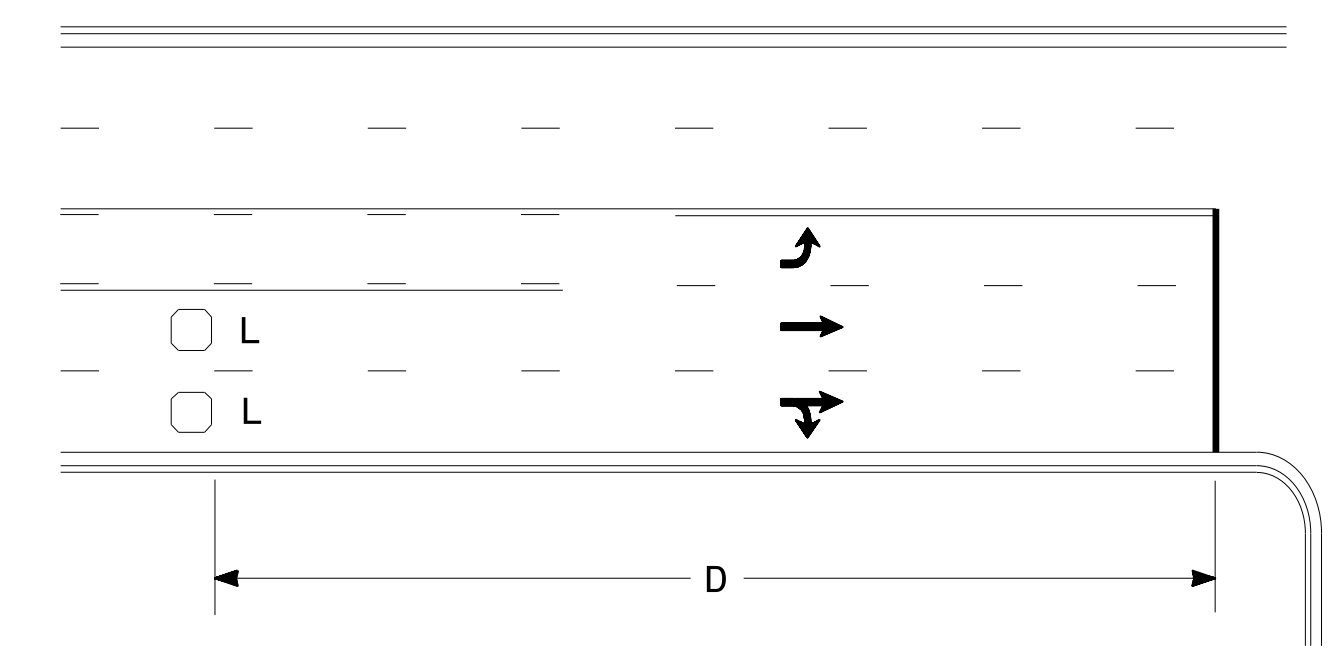
1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.



LETTER POSITIONS

Letter spacings are to start of next letter														Series/Size	
														Text Length	
	L	O	W	/	S	O	F	T							D 2000
13.2	4.5	5	5.5	6.5	5	5.6	4.1	3.7	13.2						39.9
	S	H	O	U	L	D	E	R							D 2000
13	5.1	5.4	5.6	5.5	4.6	5.4	4.7	4.1	13						40.4

High Speed Detection (≥40 mph)

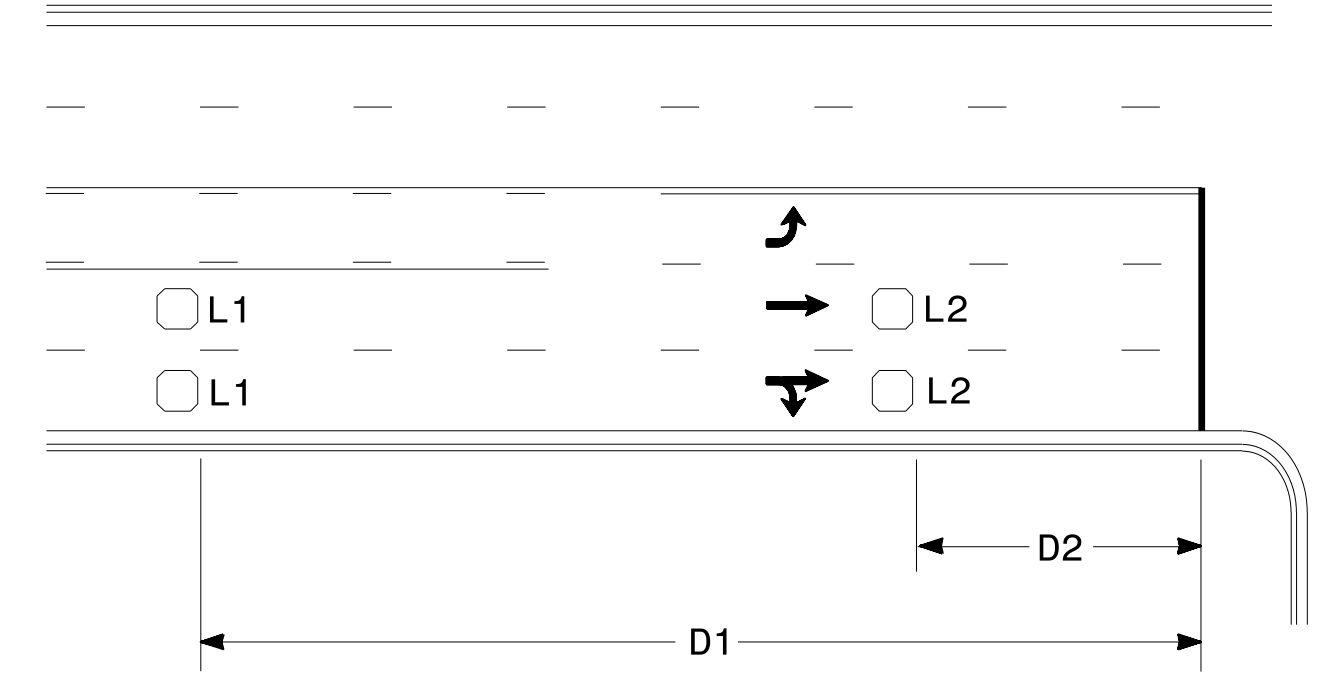


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

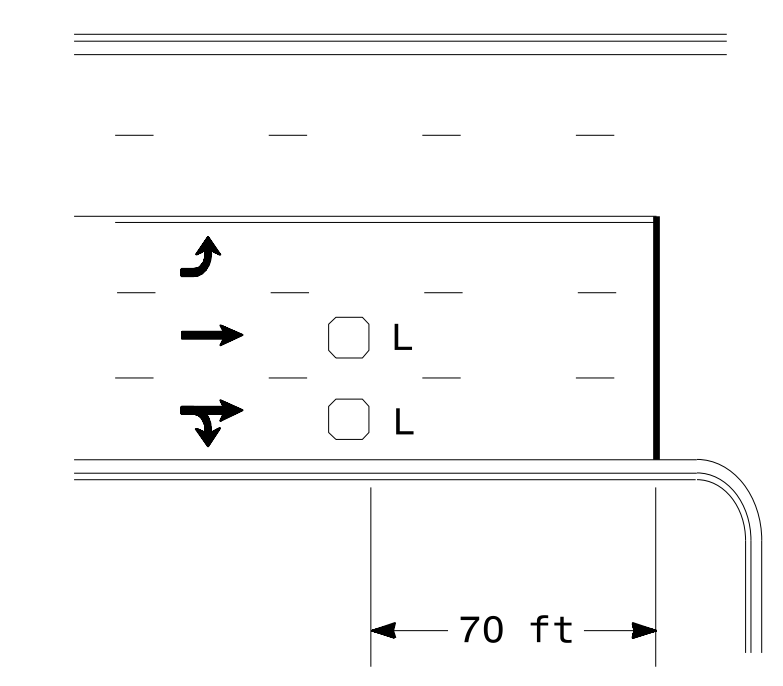


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series
L2 = 6ft X 6ft
Wired in series

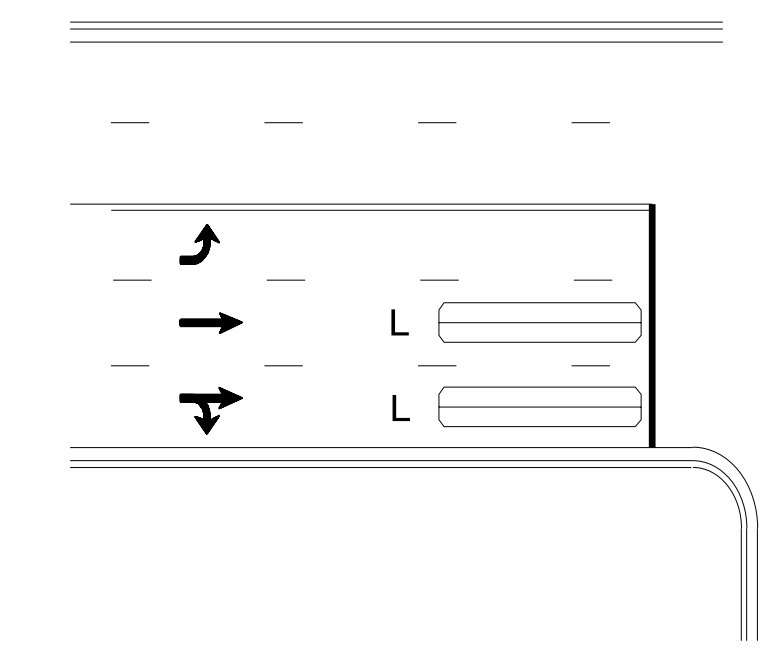
"Stretch" Operation

Low Speed Detection (≤35 mph)



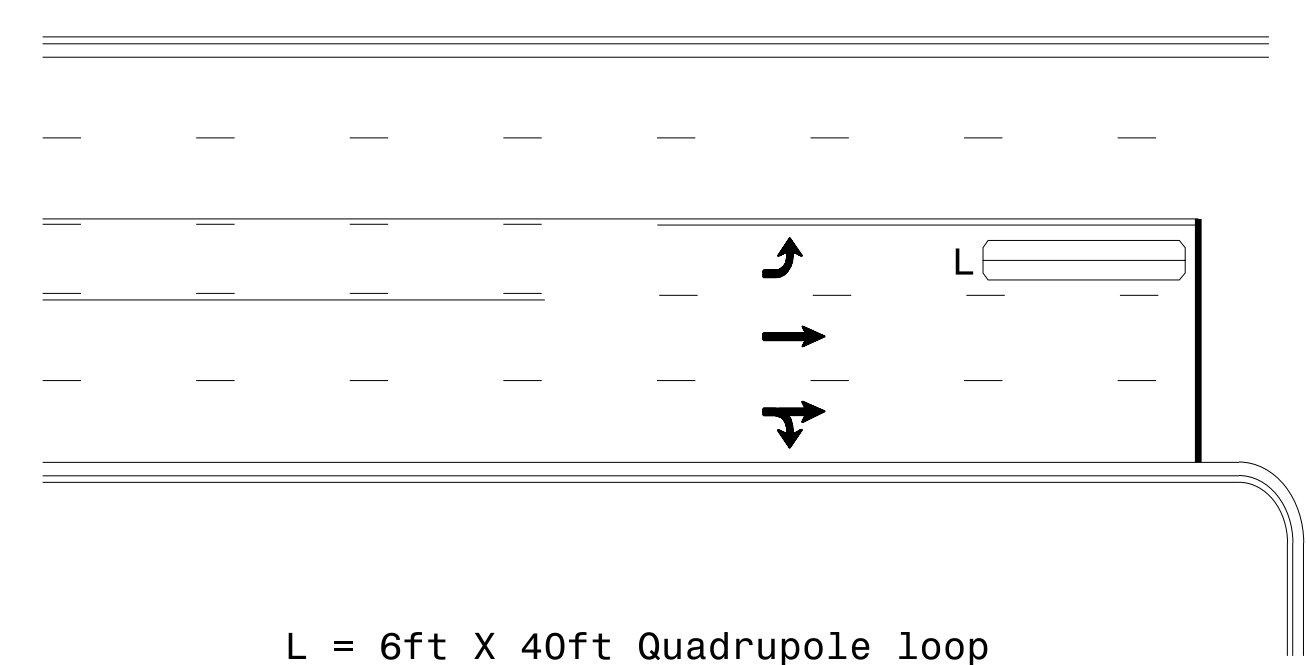
L = 6ft X 6ft
Wired in series

OR



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

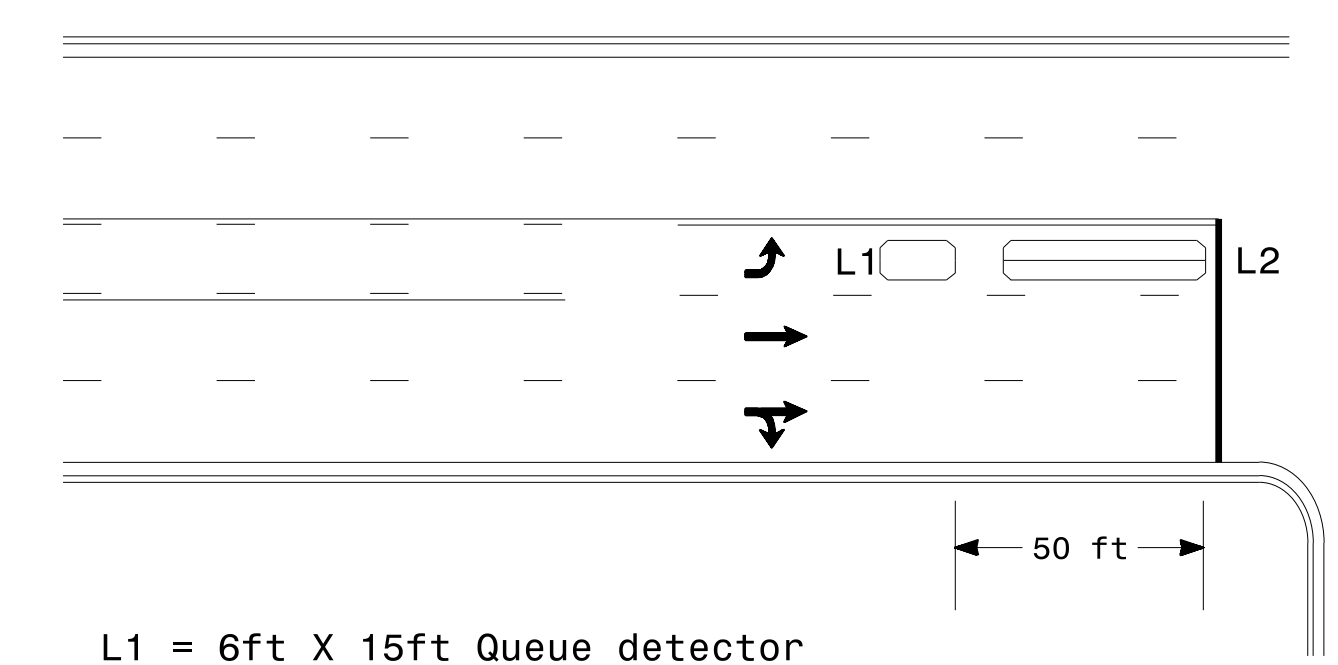
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

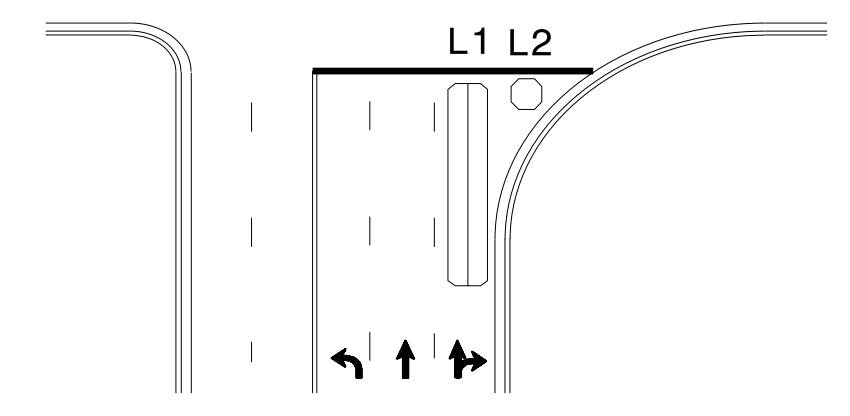
OR



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

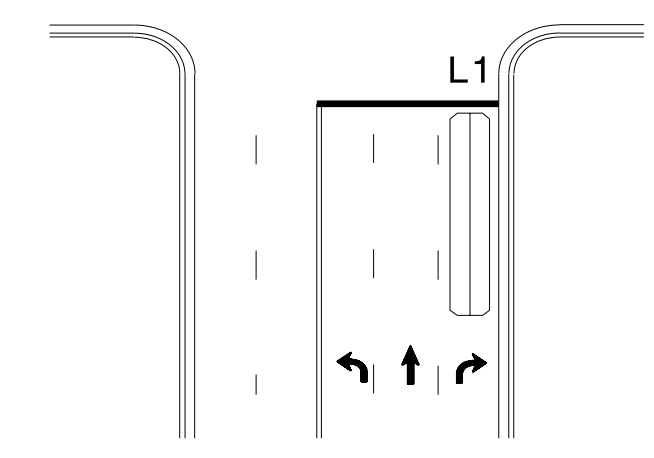
Queue Loop Detection

Right Turn Lane Detection

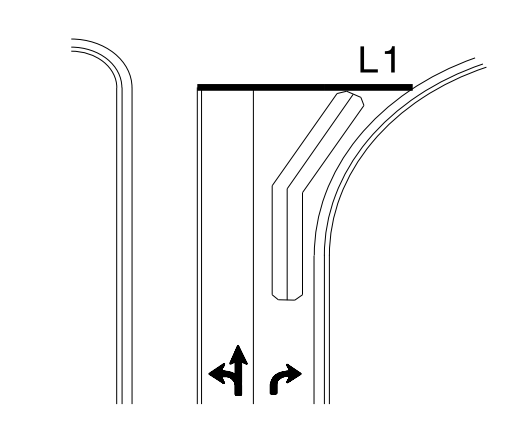


Shared Lane/
Wide Radius Turn

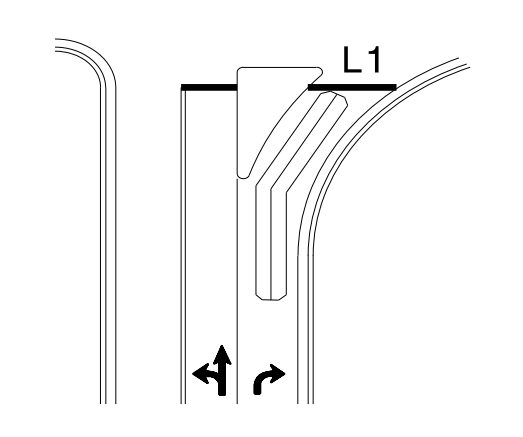
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

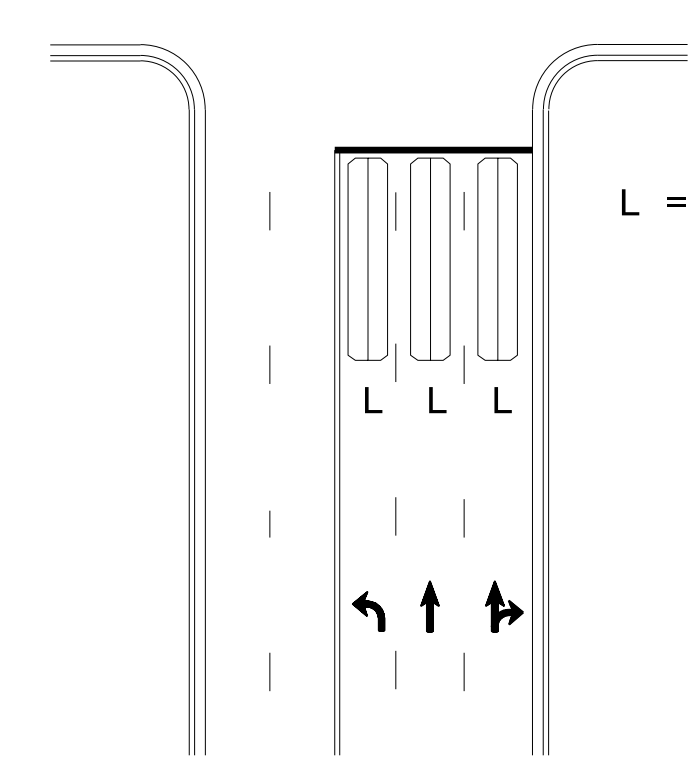


Wide Radius Turn



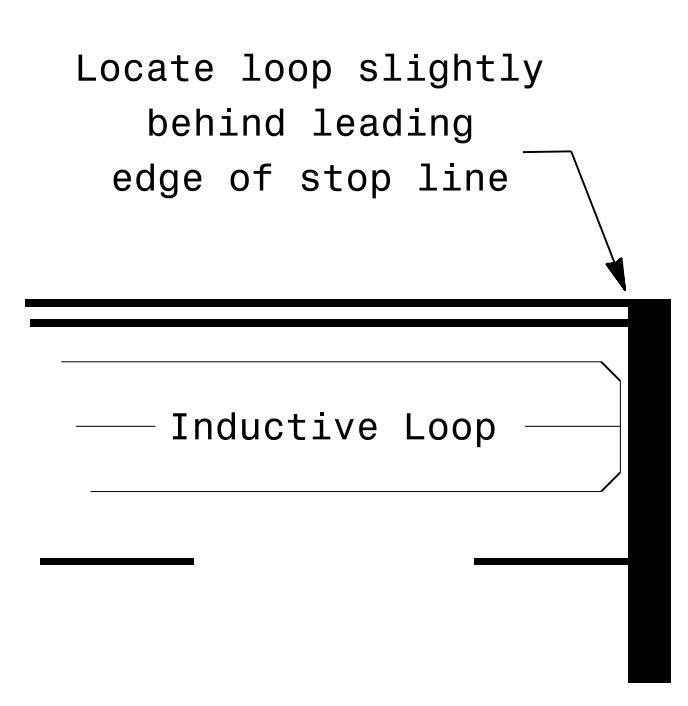
Channelized Turn

Side Street Detection



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

Presence Loop Placement at Stop Lines



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

750 N. Greenfield Pkwy, Garner, NC 27529

Typical Signal Loop Locations

PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
REVISIONS	INIT. DATE

SEAL
NORTH CAROLINA
PROFESSIONAL ENGINEER
PAMELA L. ALEXANDER
23489

DocuSigned by:
P. Alexander
1/30/2015 10:44:44 AM
B4756E00CE4E4ED
SIG. INVENTORY NO.