

WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

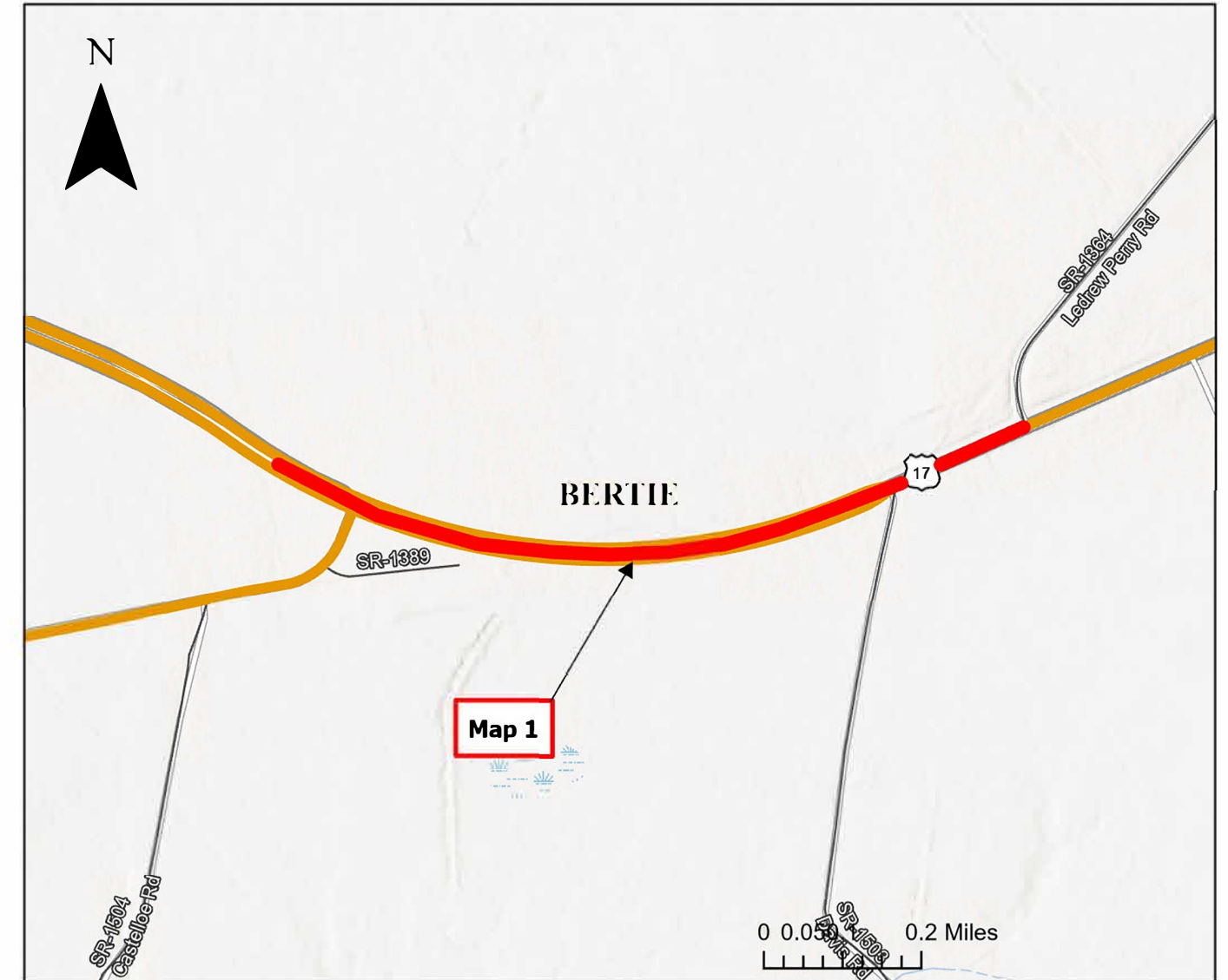
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BERTIE**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	1
STATE PROJECT NUMBER		DESCRIPTION
48965.3.1		PE., CONST.
		PE., CONST.
		PE., CONST.
		PE., CONST.

TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS

Map	Route	From	To
1	US 17	SR 1364 LEDREW PERRY RD	BEGIN FREEWAY



PROJECT LENGTH	
Map 1	0.81 Miles

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**DIVISION OF HIGHWAYS**  
113 AIRPORT DR., EDENTON, NC 27932

**B. N. BRASWELL, PE**  
DIV. PROJ. DEVELOPMENT ENGINEER

**C. E. SLACHTA**  
DIVISION CONTRACT ENGINEER

**J. S. ABEL, JR.**  
DIVISION PROJECT TEAM LEAD

**D. H. STALLINGS**  
DIVISION DESIGN ENGINEER



WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

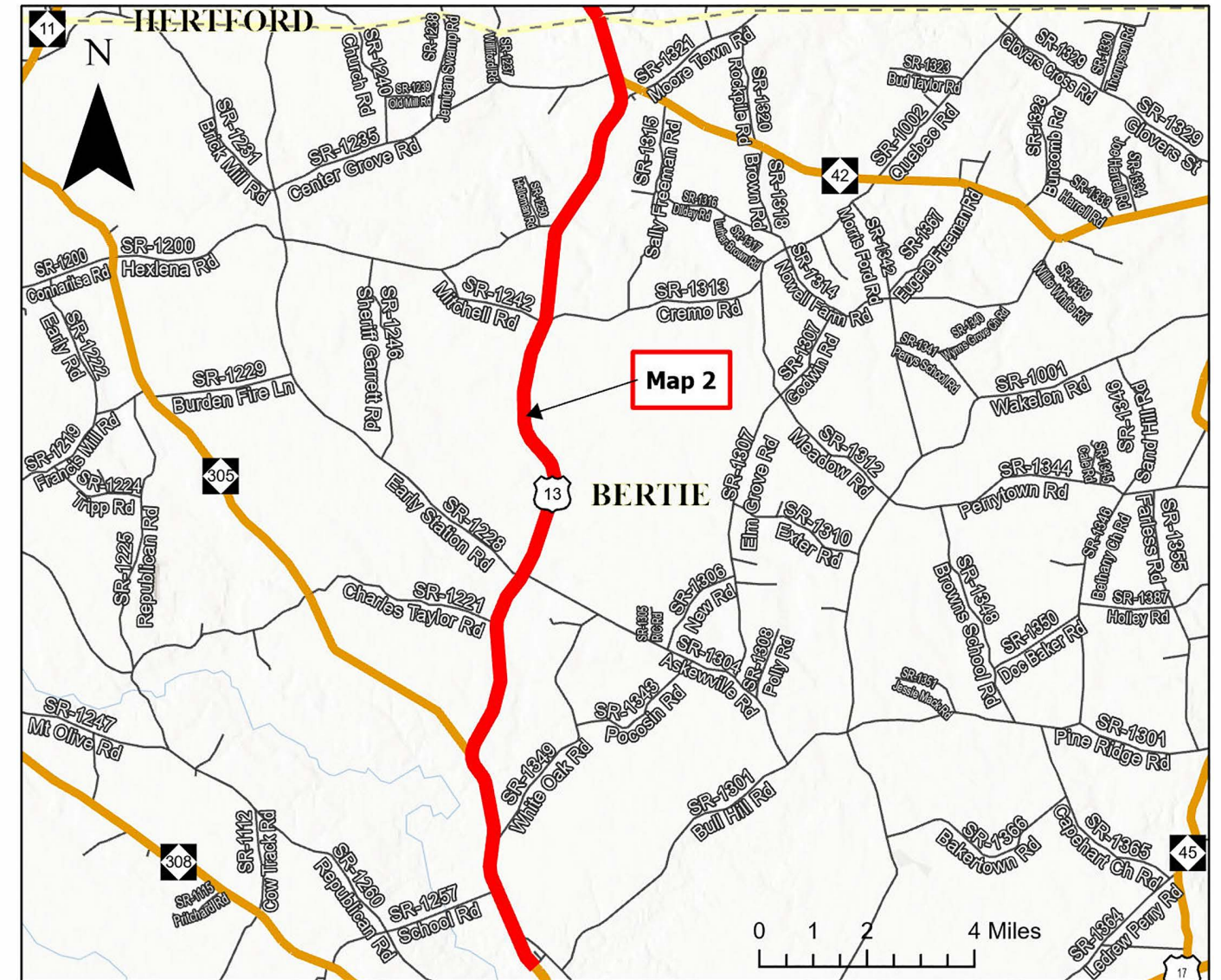
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BERTIE**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	2
STATE PROJECT NUMBER		DESCRIPTION
49296.1.8, 49296.3.8		PE., CONST.
		PE., CONST.
		PE., CONST.
		PE., CONST.

TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS

Map	Route	From	To
2	US 13	SR 1302 Lea Lumber Co. Rd	Hertford County



PROJECT LENGTH	
Map 2	15.28 Miles

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WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

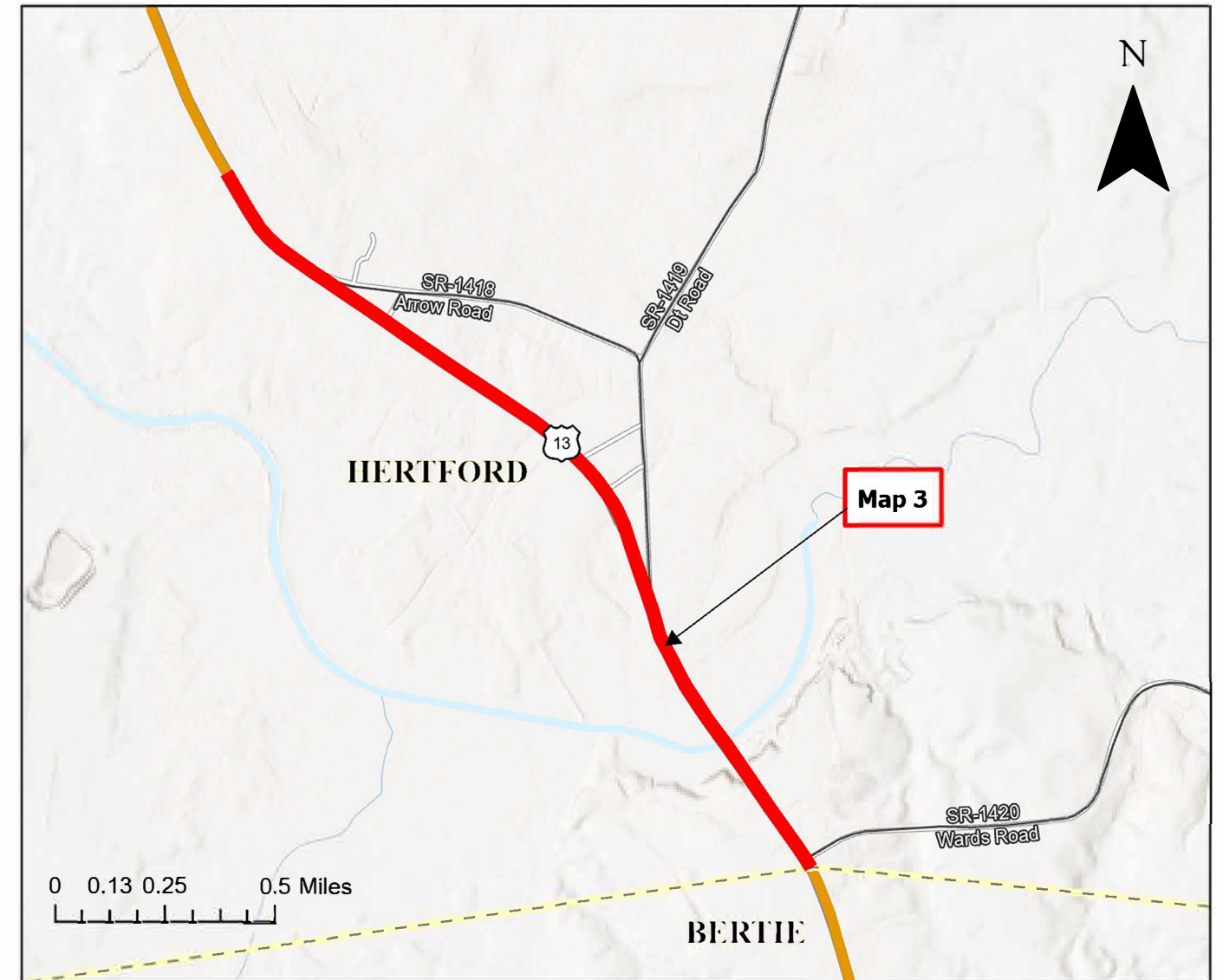
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**HERTFORD**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	3
STATE PROJECT NUMBER		DESCRIPTION
49296.1.8, 49296.3.8		PE., CONST.
		PE., CONST.
		PE., CONST.
		PE., CONST.

*TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS*

Map	Route	From	To
3	US 13	Bertie County	0.25 Miles North of SR 1418 (Arrow Rd)



**PROJECT LENGTH**

Map 3	1.66 Miles
-------	------------

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WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

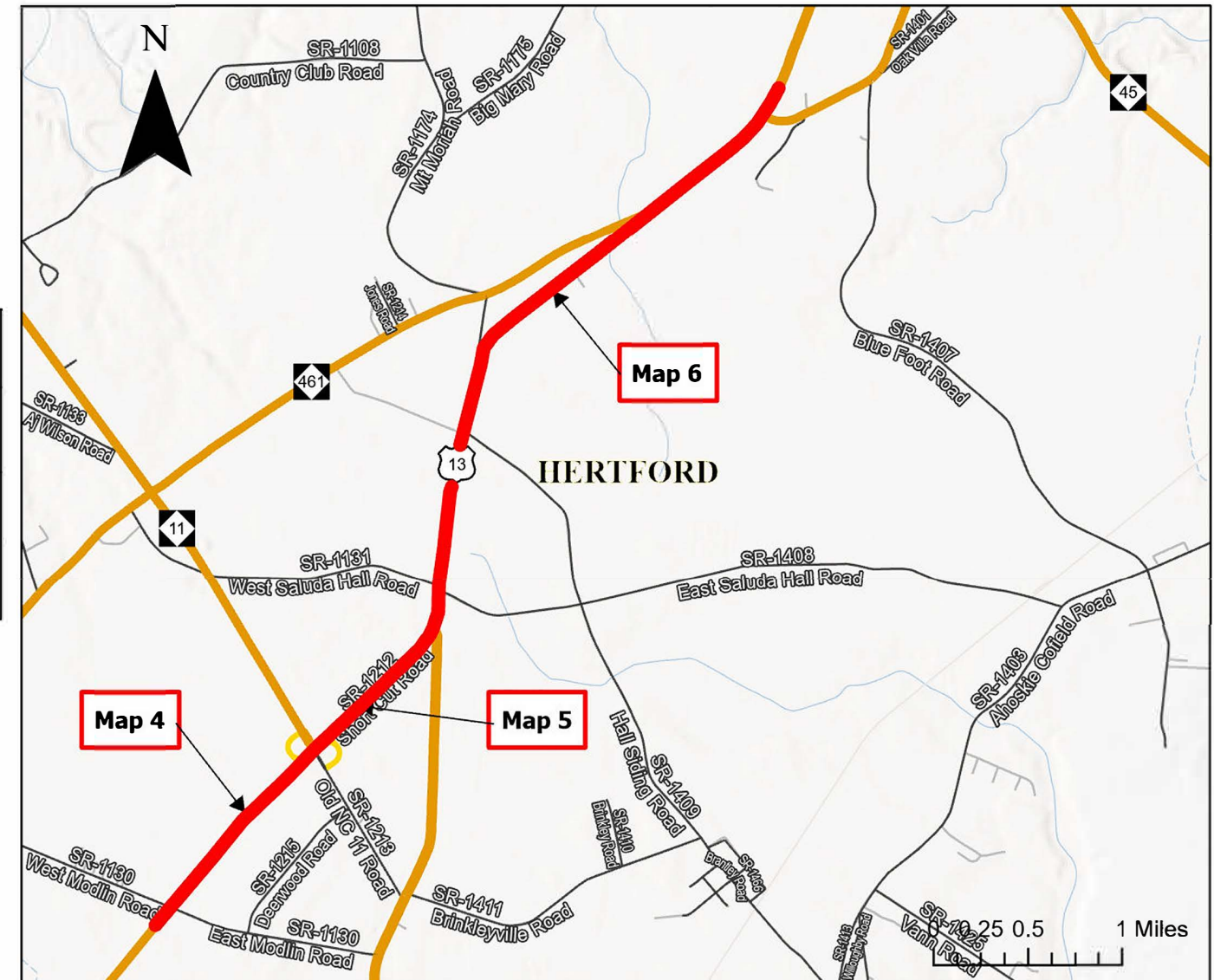
**STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS**

**HERTFORD**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	4
STATE PROJECT NUMBER		DESCRIPTION
49296.1.8, 49296.3.8		PE., CONST.
		PE., CONST.
		PE., CONST.
		PE., CONST.

*TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS*

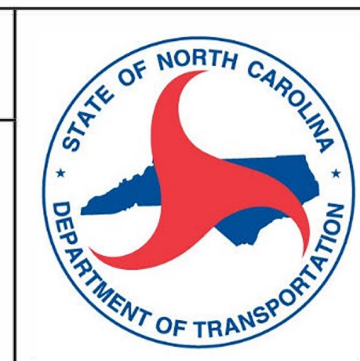
Map	Route	From	To
4	NC 11	450 Ft South of SR 1130	SR 1212 Shortcut Rd
5	SR 1212 Shortcut Rd	NC 11	US 13
6	US 13	SR 1212 Shortcut Rd	1 Mile North of NC 461



<i>PROJECT LENGTH</i>	
Map 4	0.98 Miles
Map 5	0.73 Miles
Map 6	3.38 Miles

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<p><b>B. N. BRASWELL, PE</b> DIV. PROJ. DEVELOPMENT ENGINEER</p> <p><b>C. E. SLACHTA</b> DIVISION CONTRACT ENGINEER</p>	<p><b>J. S. ABEL, JR.</b> DIVISION PROJECT TEAM LEAD</p> <p><b>D. H. STALLINGS</b> DIVISION DESIGN ENGINEER</p>
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WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

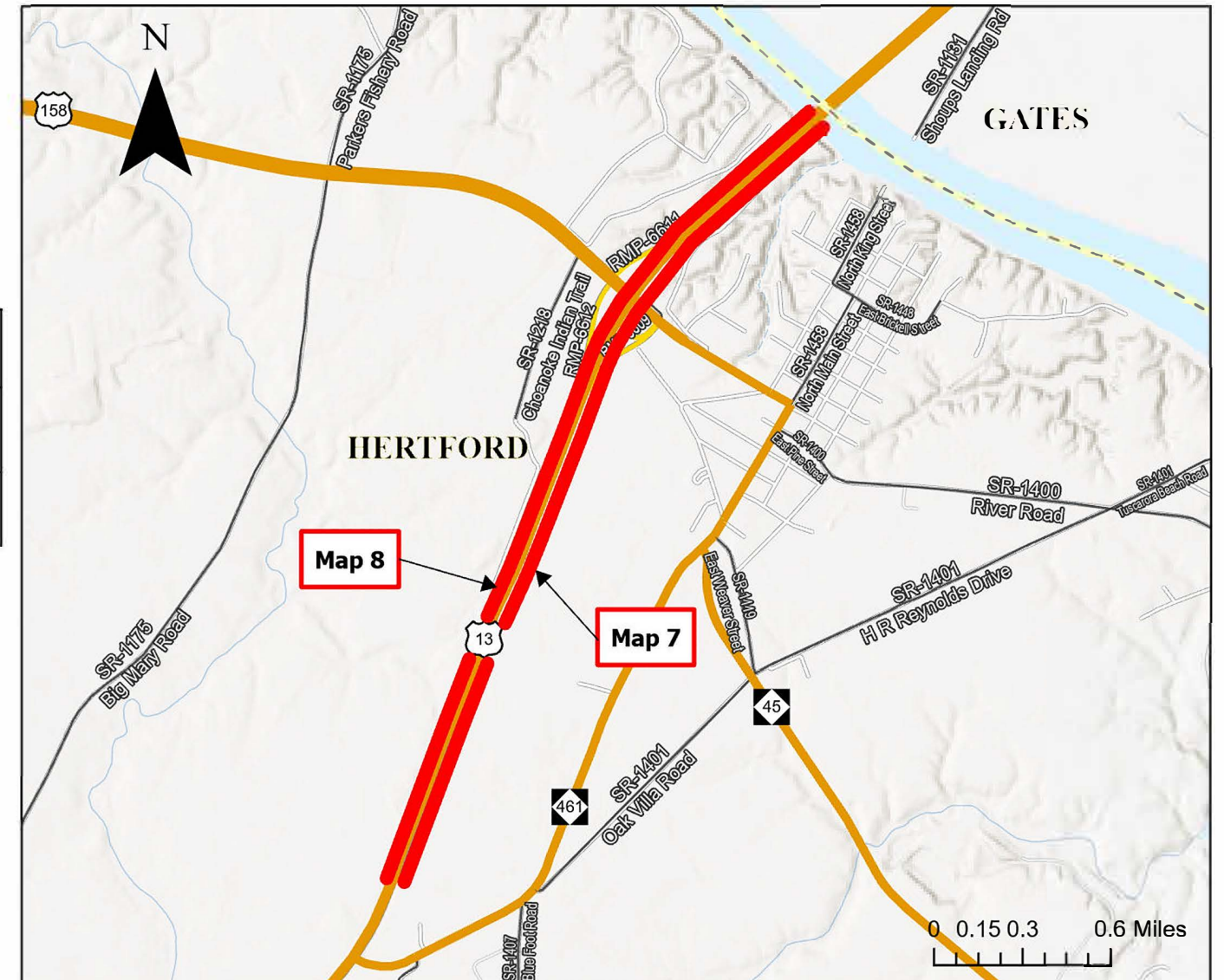
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**HERTFORD**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	5
STATE PROJECT NUMBER		DESCRIPTION
49296.1.8, 49296.3.8		PE., CONST.
		PE., CONST.
		PE., CONST.
		PE., CONST.

TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS

Map	Route	From	To
7	US 13 NBL	1 Mile North of NC 461	Gates County
8	US 13 SBL	Gates County	1 Mile North of NC 461



PROJECT LENGTH	
Map 7	2.27 Miles
Map 8	2.27 Miles

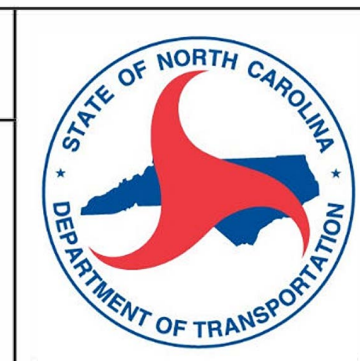
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**D. H. STALLINGS**  
DIVISION DESIGN ENGINEER



WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

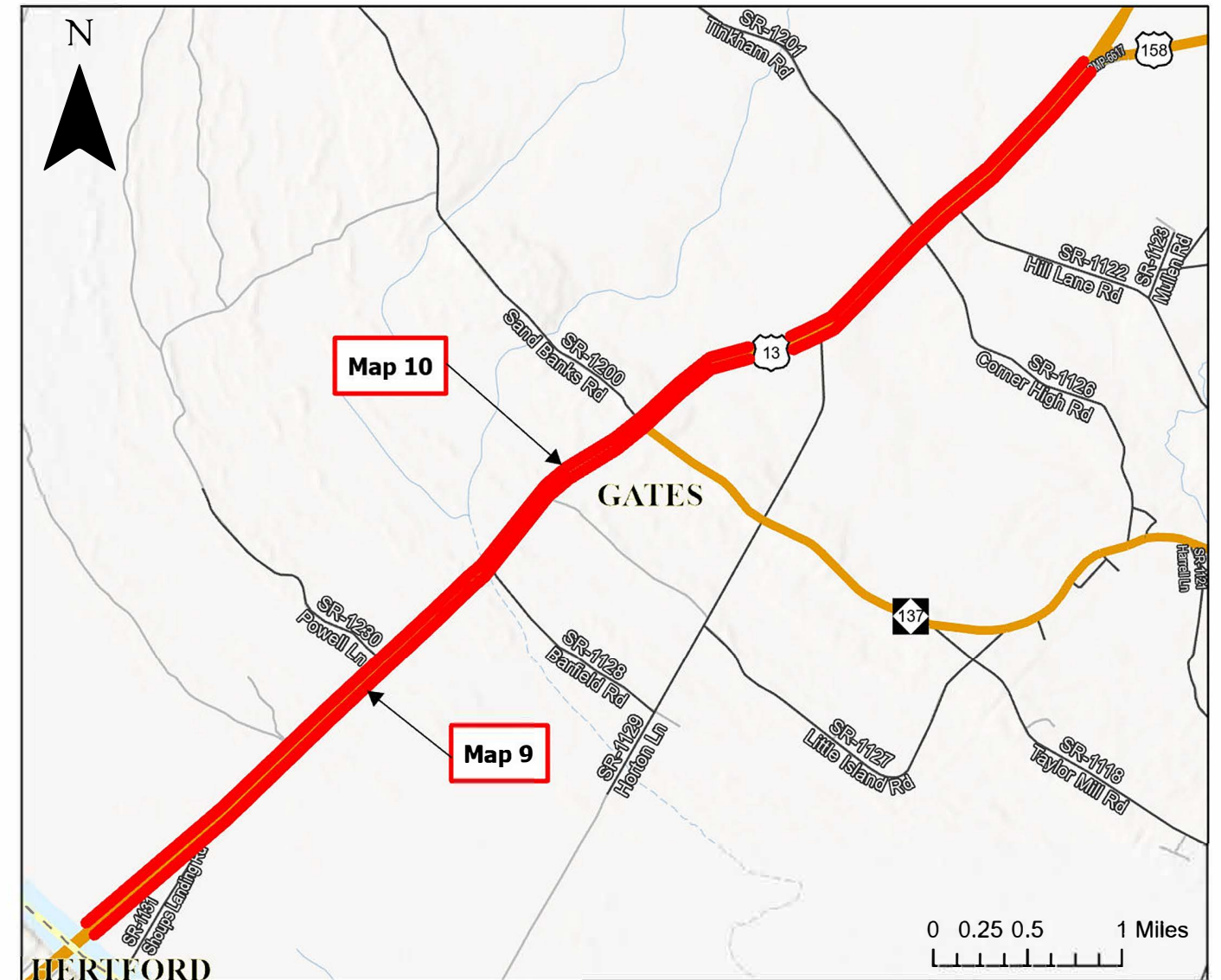
**STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS**

**GATES**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	6
STATE PROJECT NUMBER		DESCRIPTION
49296.1.8, 49296.3.8		PE., CONST.
		PE., CONST.
		PE., CONST.
		PE., CONST.

*TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS*

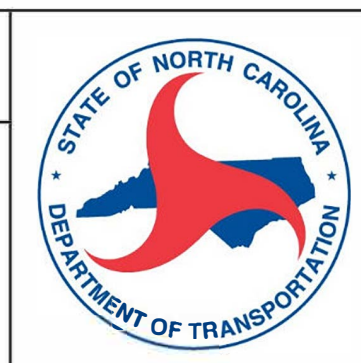
Map	Route	From	To
9	US 13 NBL	Hertford County	US 158
10	US 13 SBL	US 158	Hertford County



<i>PROJECT LENGTH</i>	
Map 9	5.69 Miles
Map 10	5.69 Miles

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<u>C. E. SLACHTA</u> DIVISION CONTRACT ENGINEER	<u>D. H. STALLINGS</u> DIVISION DESIGN ENGINEER





WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

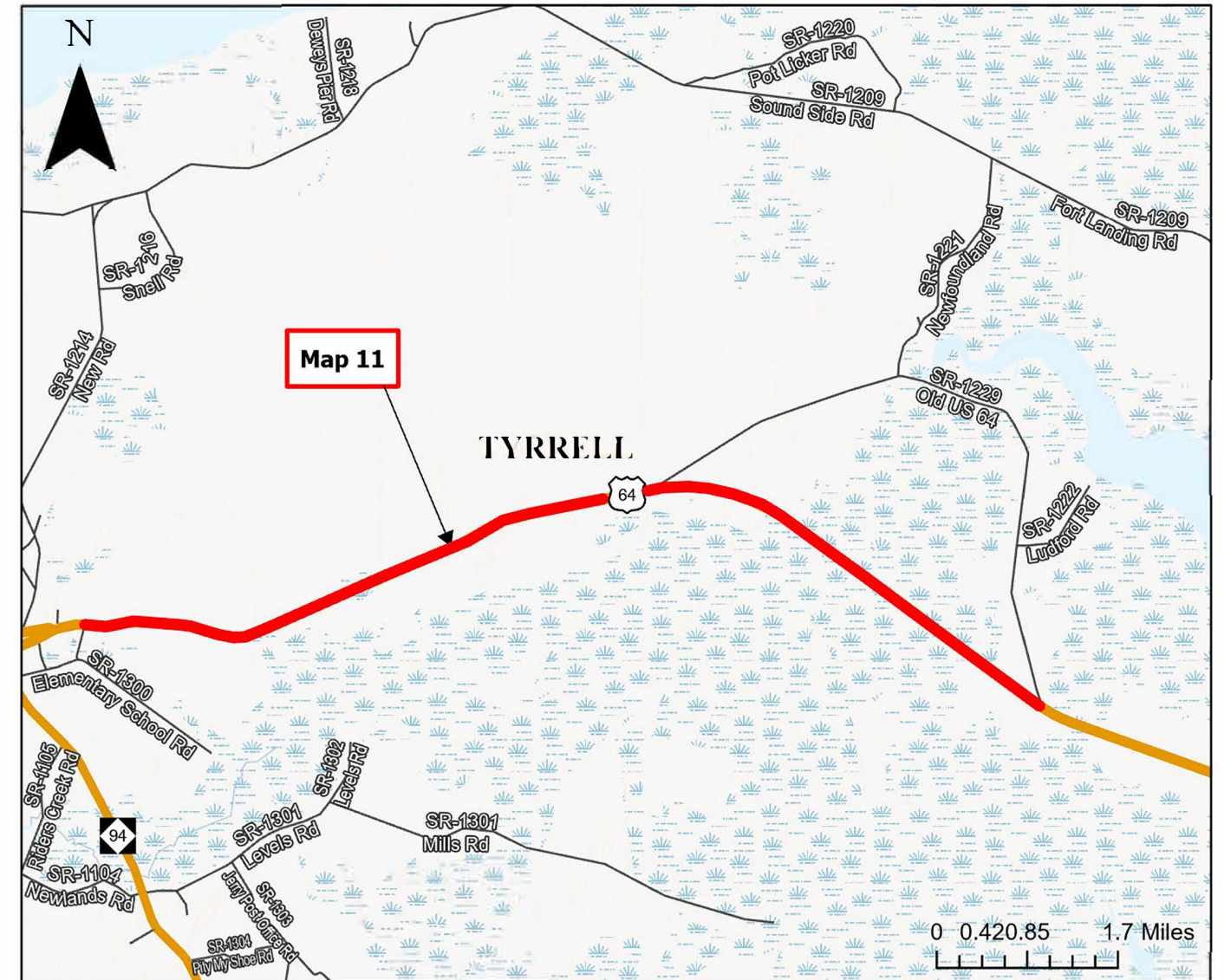
**STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS**

**TYRRELL**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	7
STATE PROJECT NUMBER		DESCRIPTION
49296.1.9 , 49296.3.9		P.E., CONST.
		P.E., CONST.
		P.E., CONST.
		P.E., CONST.

*TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS*

Map	Route	From	To
11	US 64	0.85 Miles East of SR 1326	SR 1229 (East)



<i>PROJECT LENGTH</i>	
Map 11	8.00 Miles

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DIVISION DESIGN ENGINEER



WBS NO: 48965.3.1, ETC.

CONTRACT: DA00588

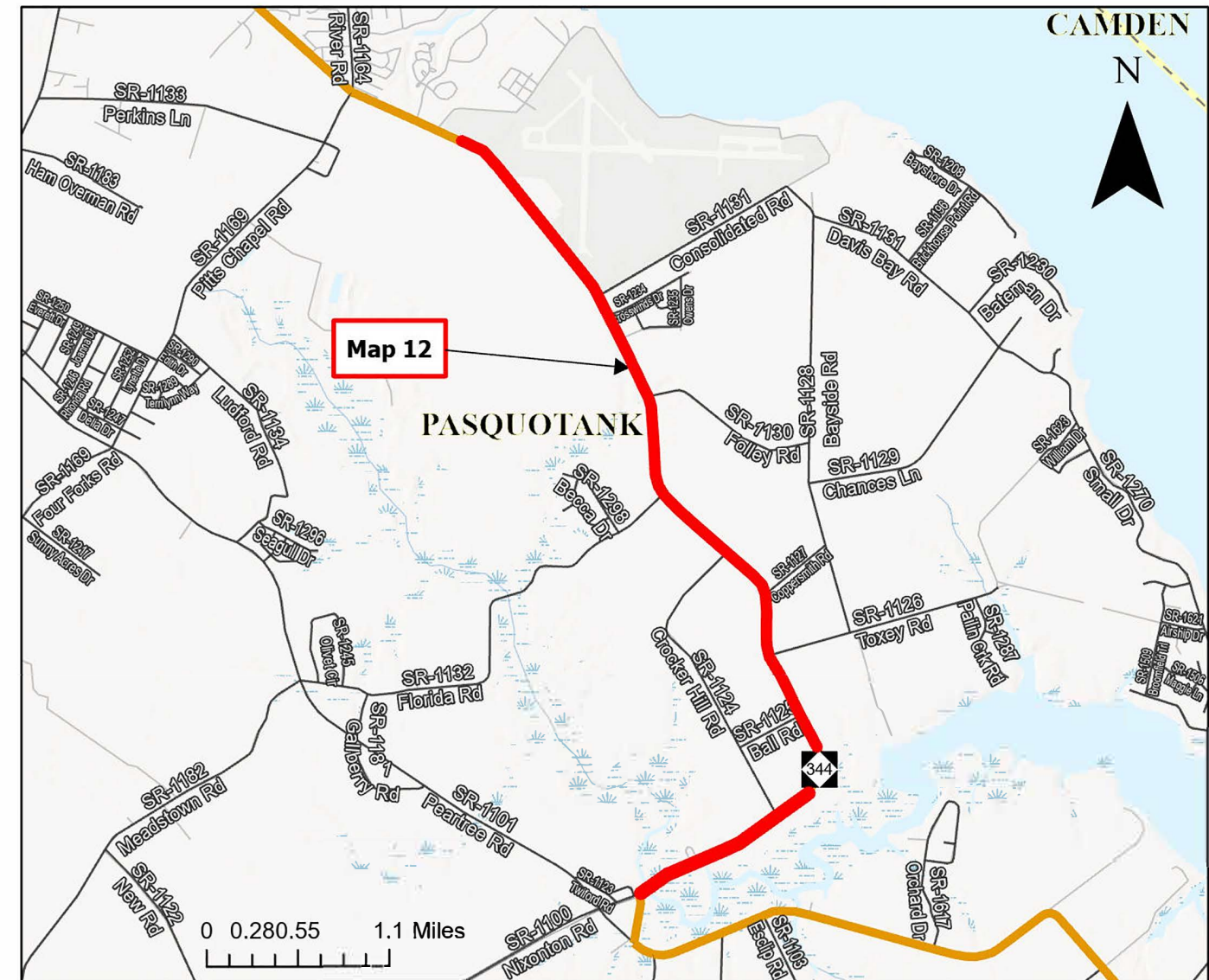
**STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS**

**PASQUOTANK**

STATE	STATE PROJECT REFERENCE NUMBER	SHEET NO.
NC	HS-2001G, ETC.	8
STATE PROJECT NUMBER		DESCRIPTION
49296.1.10, 49296.3.10		P.E., CONST.
		P.E., CONST.
		P.E., CONST.
		P.E., CONST.

*TYPE OF WORK: SINUSOIDAL RUMBLE STRIPS WITH LONG LIFE PAVEMENT MARKINGS*

Map	Route	From	To
12	NC 344	730 Ft South of Airport	SR 1100



<i>PROJECT LENGTH</i>	
Map 12	4.73 Miles

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**DIVISION OF HIGHWAYS**  
113 AIRPORT DR., EDENTON, NC 27932

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<u><b>C. E. SLACHTA</b></u> DIVISION CONTRACT ENGINEER	<u><b>D. H. STALLINGS</b></u> DIVISION DESIGN ENGINEER











PAVEMENT SCHEDULE

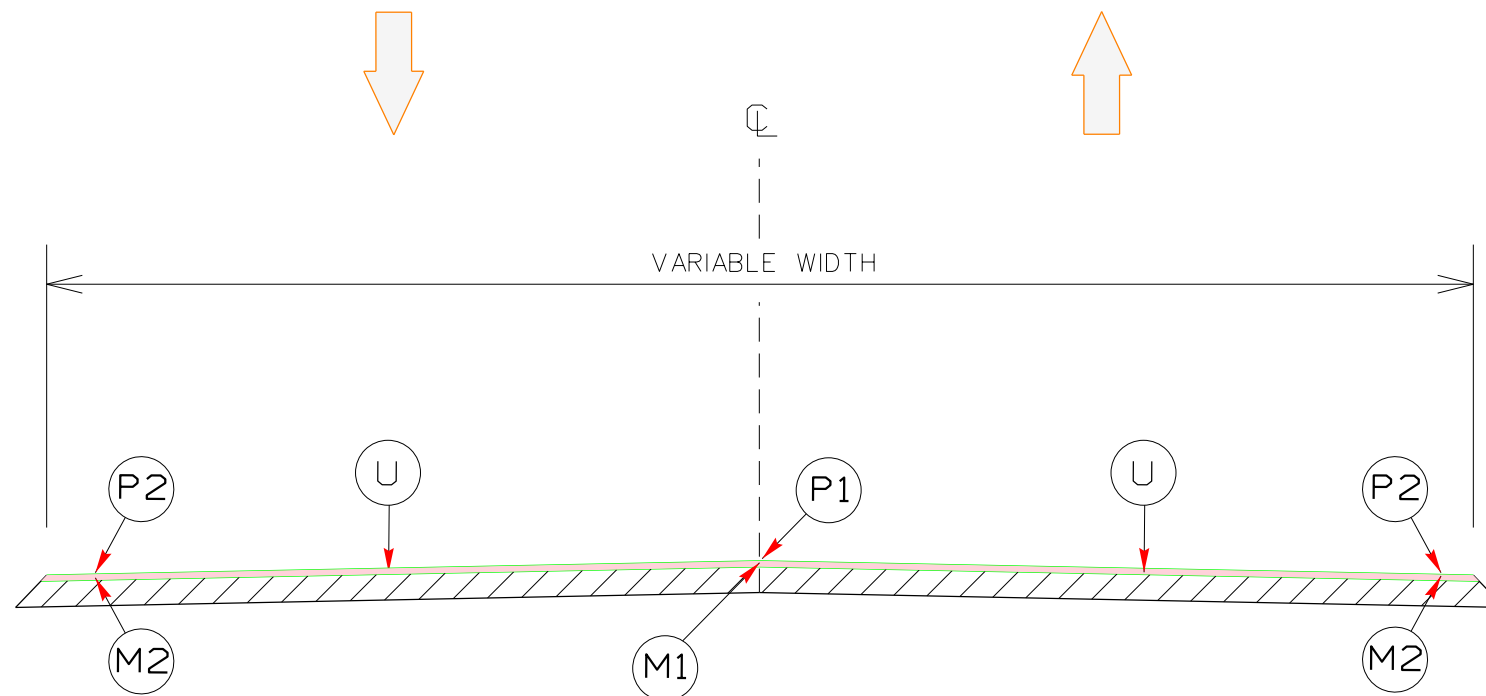
PROJECT REFERENCE NO.	SHEET NO.
48965.3.1, ETC.	11

P1	PROP. APPROX. 6" , 55 MIL YELLOW HOT SPRAY THERMOPLASTIC PAVEMENT MARKING LINES PLACED ON CENTERLINE
P2	PROP. APPROX. 6" , 55 MIL WHITE HOT SPRAY THERMOPLASTIC PAVEMENT MARKING LINES PLACED ON EDGE LINES
M1	PROP. APPROX. 18" SINUSOIDAL RUMBLE STRIPS
M2	PROP. APPROX. 8" SINUSOIDAL RUMBLE STRIPS
U	EXISTING PAVEMENT.

PAVEMENT MARKING NOTES:

PLACE SINUSOIDAL RUMBLE STRIPS AND HOT SPRAY THERMOPLASTIC MARKING LINES ON CENTERLINE AND EDGE LINES

\*MAPS 4, 5, & 6 NOT AVAILABLE UNTIL JUNE 1, 2024



TYPICAL SECTION NO. 2

USE WITH MAPS 2-6 & 11-13

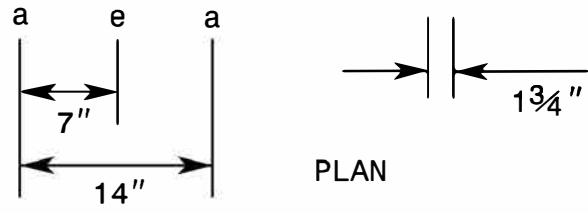
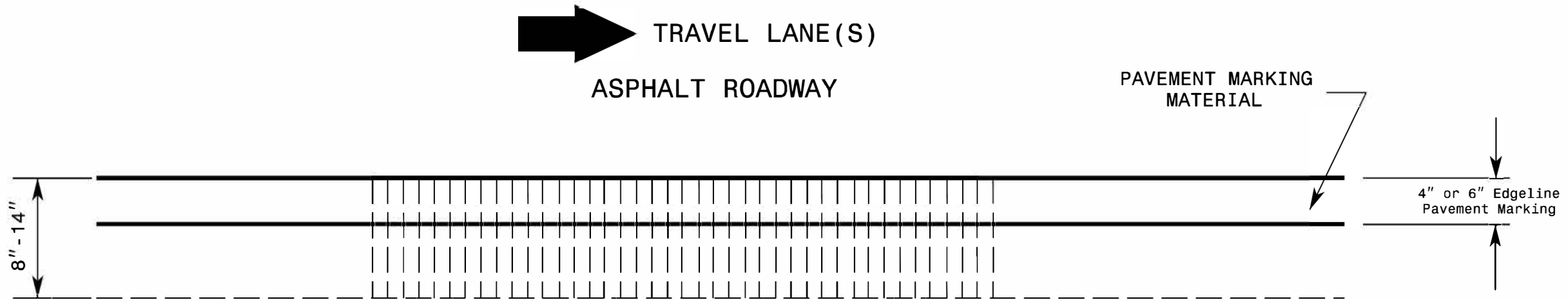
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\$\$\$\$\$LUNUM\$\$\$\$\$

NTS

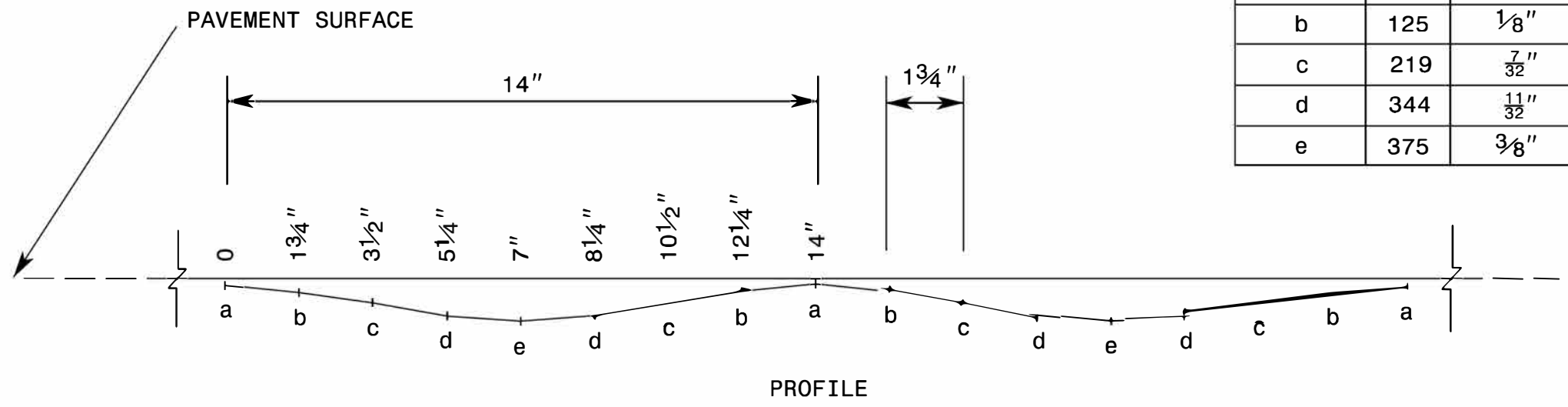




# Sinusoidal Edgeline Rumble Stripe



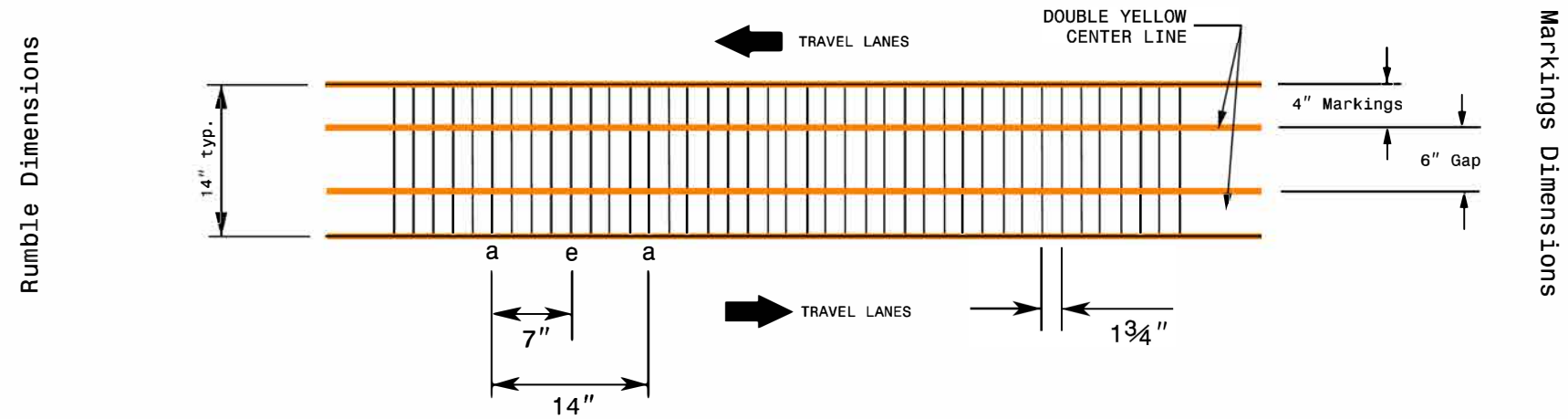
LOCATION	DEPTH	
	MIL	INCHES
a	62.5	1/16"
b	125	1/8"
c	219	7/32"
d	344	11/32"
e	375	3/8"



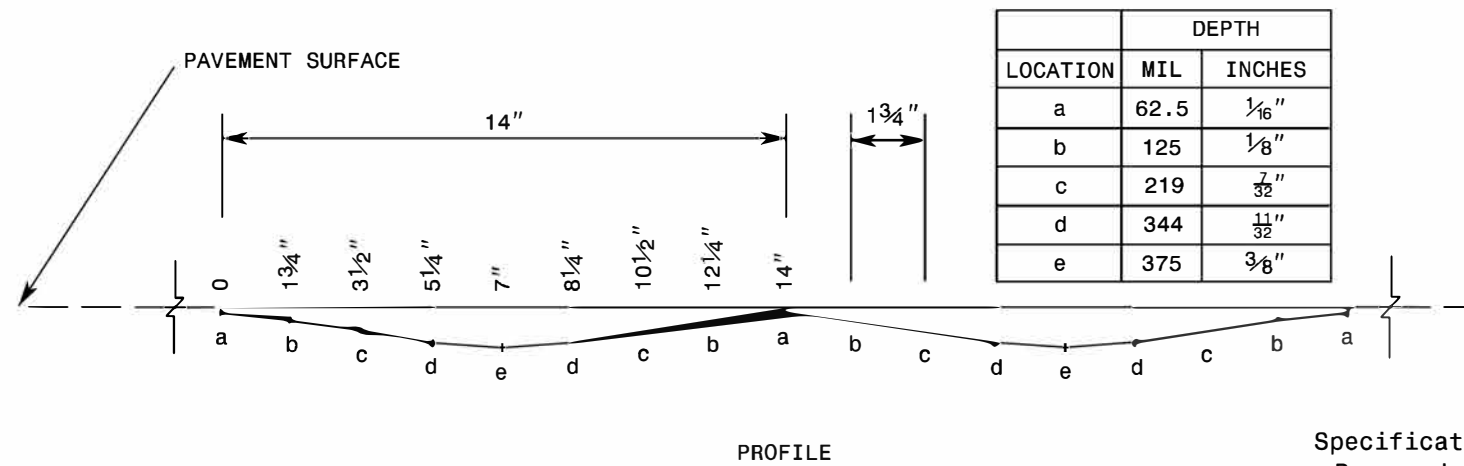
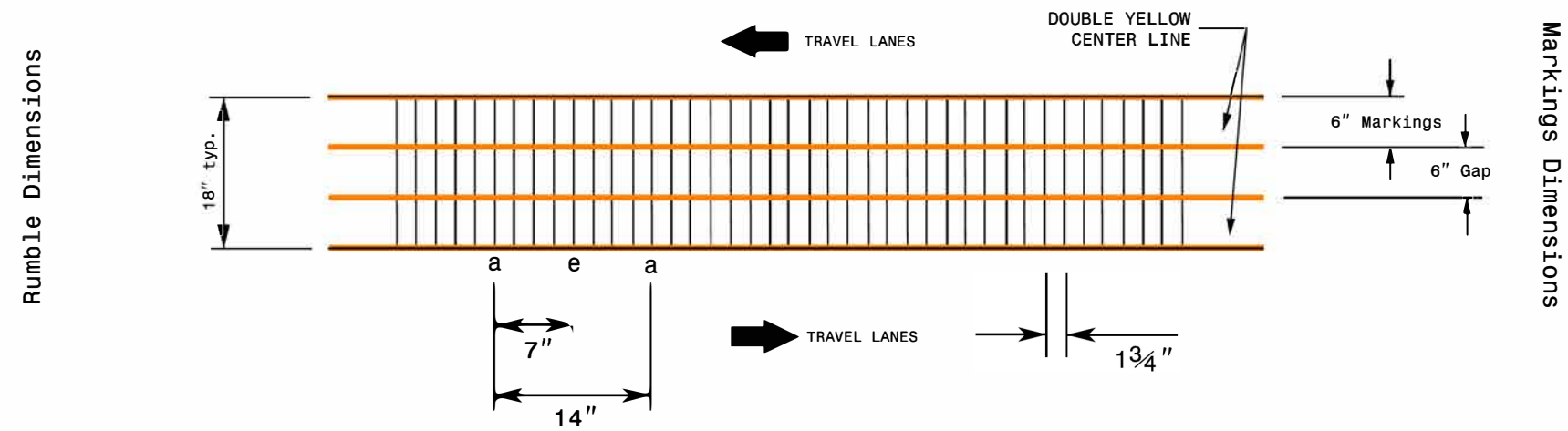
Specifications in table taken from MNDOT  
Research Project Final Report 2016-23:  
*Sinusoidal Rumble Strip Design Optimization Study*  
BY: Terhaar et. al, June 2016

# Sinusoidal Centerline Rumble Stripe

If 4" Markings will be used:



If 6" Markings will be used:



Specifications in table taken from MNDOT Research Project Final Report 2016-23:  
*Sinusoidal Rumble Strip Design Optimization Study*  
 BY: Terhaar et. al, June 2016

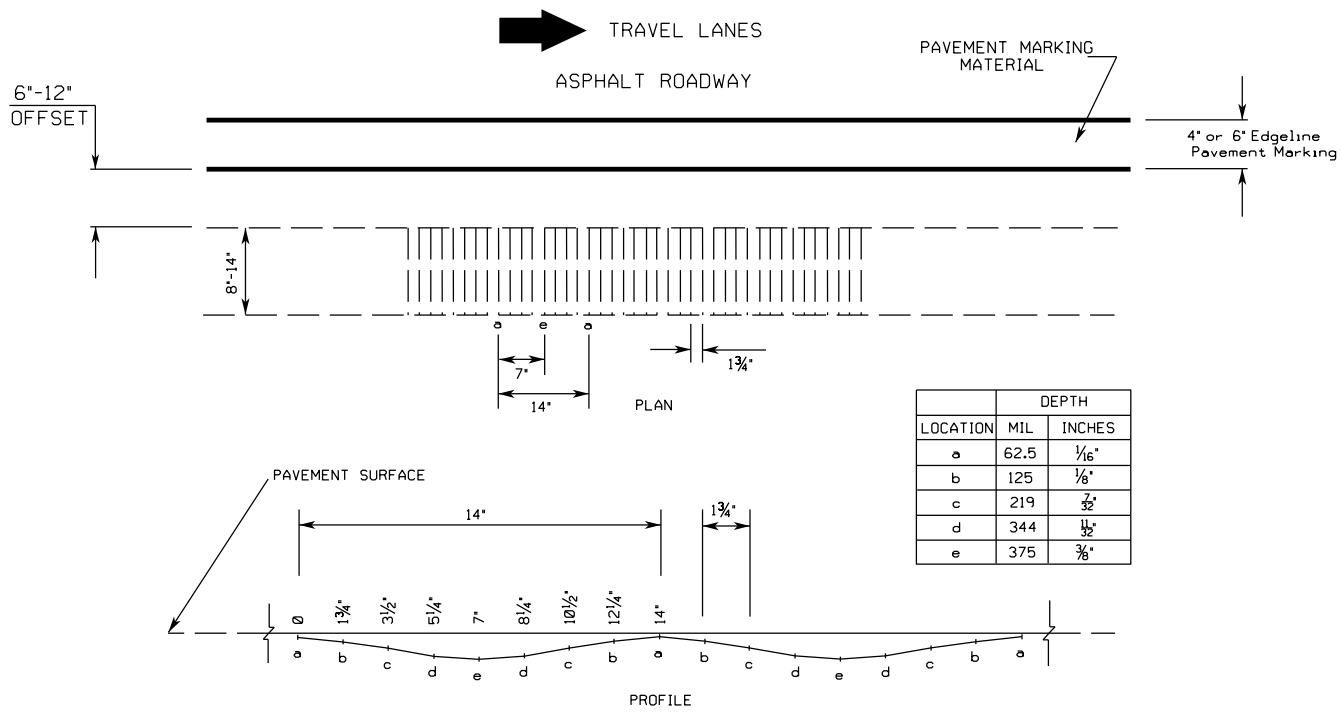


D-118

ENGLISH DETAIL DRAWING FOR  
RUMBLE STRIPS / STRIPES  
SINUSOIDAL SHOULDER RUMBLE STRIP

D-118

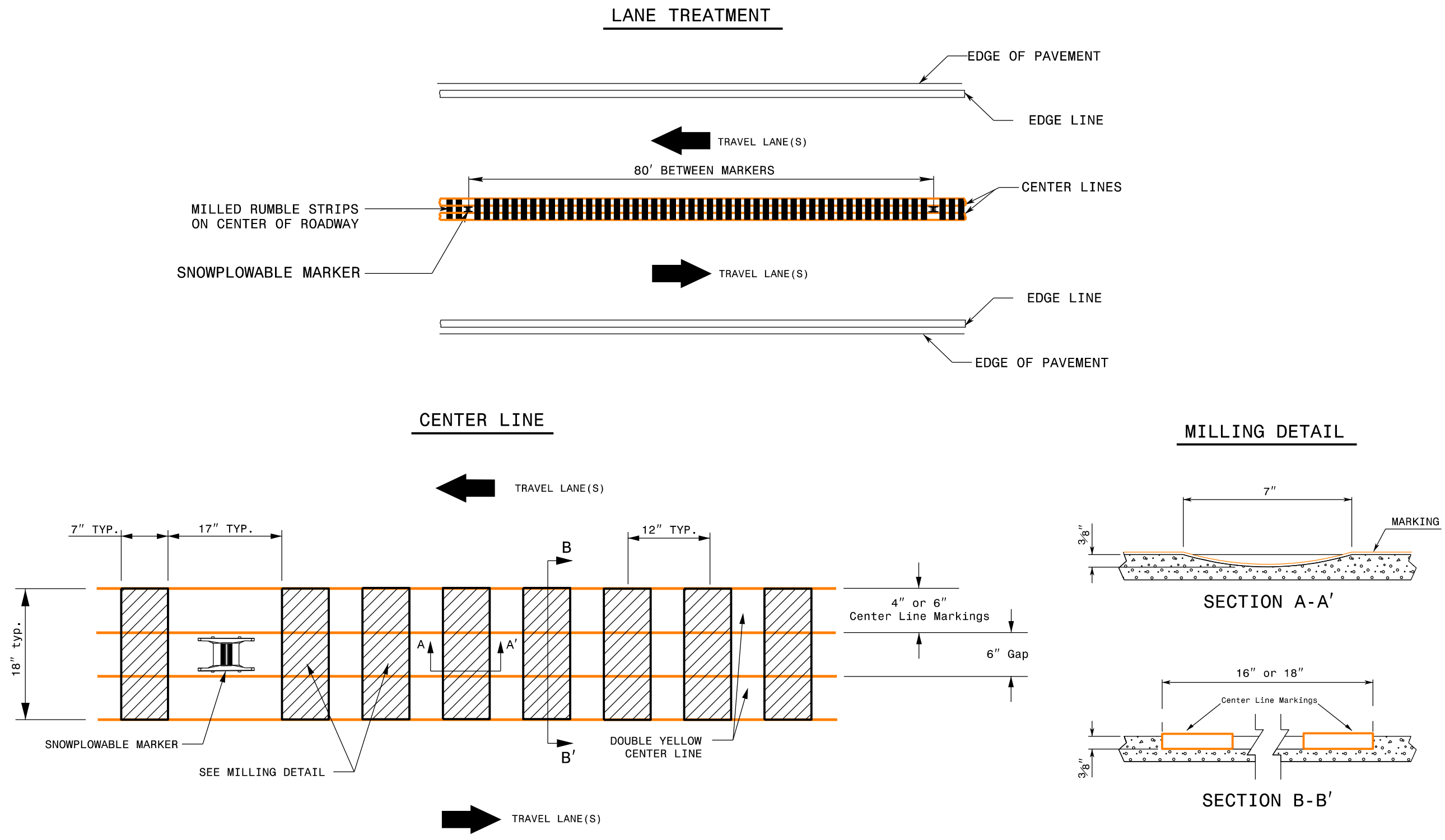
ENGLISH DETAIL DRAWING FOR  
RUMBLE STRIPS / STRIPES  
SINUSOIDAL SHOULDER RUMBLE STRIP



GENERAL NOTES:

1- Specification in table taken from MDOT Research Project Final Report 2016-23: *Sinusoidal Rumble Strip Design Optimization Study By Fortner et al. June 2016*

See Table 2 within Rumble Strip Policy for Design Guidance



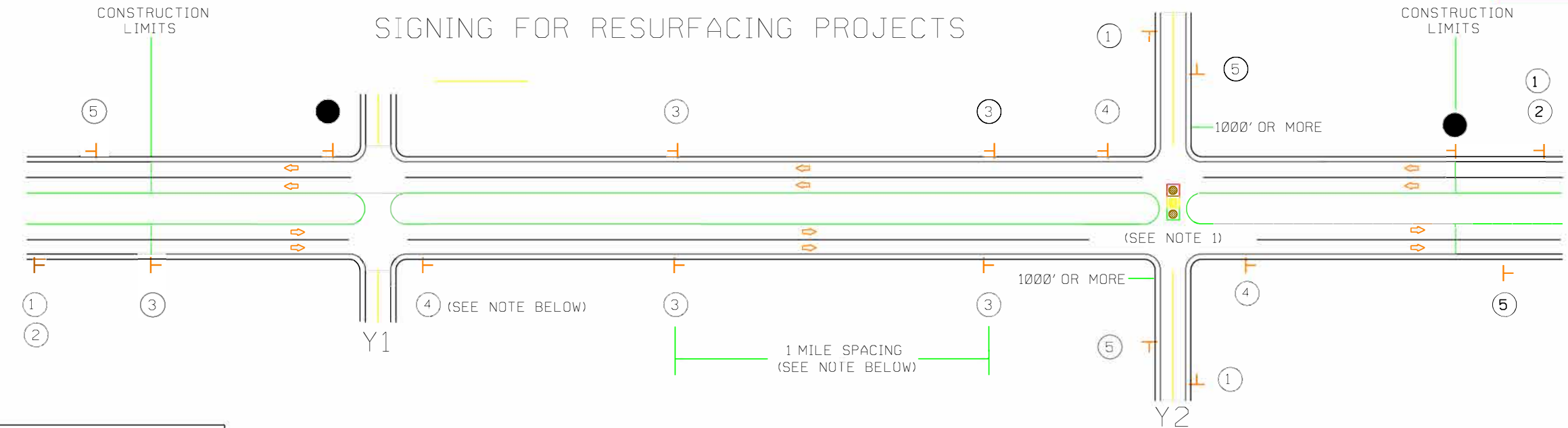
REFERENCE DRAWING ID: Trad.CL with Snowplowable Markers

NOTES:

- 1) USING A VACUUM, REMOVE ALL DEBRIS FROM THE MILLINGS JUST PRIOR TO PLACING ANY PAVEMENT MARKINGS.
- 2) ENSURE GLASS BEADS ARE SPREAD UNIFORMLY OVER THE ENTIRE SURFACE OF THE PAVEMENT MARKING MATERIAL.
- 3) INSTALL SNOWPLOWABLE MARKERS AT APPROXIMATELY 80' INCREMENTS. DO NOT MILL RUMBLE STRIPS IN SECTION WHERE SNOWPLOWABLE MARKERS ARE INSTALLED.







LEGEND	
T	STATIONARY SIGN
→	DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

SIGNING NOTES AND PLACEMENT PER DIRECTION	①	 W20-1 48" X 48" NEXT W7-3aP #2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. XX MILES 24" X 18" ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	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.   W20-1 48" X 48"  W20-7 A 48" X 48"  PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.
	③	 UNMARKED PAVEMENT SP 48" X 48"	- PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACE 1 MILE APART THEREAFTER. - AT TEE INTERSECTIONS INSTALL INITIALLY 1/2 MILE FROM INTERSECTION AND SPACE 1 MILE APART THEREAFTER.	
	●	 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.	
	⑤	 END ROAD WORK G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.	
			NOTES: 1) 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.	

\$\$\$\$SYTIME\$\$\$\$  
 \$\$\$SUBSERIAL#\$\$\$

RESURFACING  
 ADVANCE WARNING SIGNS  
 FOR RURAL AND SUBURBAN  
 MULTI-LANE ROADWAYS  
 W/ SHOULDER SECTIONS



PROJECT NO.	SHEET NO.	TOTAL NO.
48965.3.1, ETC.	19	

### 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	0000100000-N	1881000000-E	1881000000-E	4413000000-E	4457000000-N	4810000000-E	4890000000-E	4905100000-N	4905500000-N			
												MOBILIZATION	GENERIC PAVING ITEM (SINUSOIDAL MILLED RUMBLE STRIP 18")	GENERIC PAVING ITEM (SINUSOIDAL MILLED RUMBLE STRIP 8")	WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL (SP)	PAINT PAVEMENT MARKING LINES (4") WHITE	PAINT PAVEMENT MARKING LINES (4") YELLOW	GEN PAVEMENT MARKING ITEM, THERMO HOT SPRAY LINES (6" 55 MILS) WHITE	GEN PAVEMENT MARKING ITEM, THERMO HOT SPRAY LINES (6" 55 MILS) YELLOW	NON-CAST IRON SNOWPLOWABLE PAVEMENT MARKERS	REPLACE SNOWPLOWABLE PAVEMENT MARKER REFLECTOR (CRYSTAL)	REPLACE SNOWPLOWABLE PAVEMENT MARKER REFLECTOR (RED)
												LS	LF	LF	SF	LS	LF	LF	LF	LFT	EA	EA	EA
48965.3.1	Bertie	1	US-17	FROM END FREEWAY TO SR 1364 LEDREW PERRY RD	1	5	MU	NO	NO	0.81	68	1	8,554	8,554	450	1	10,692	10,692	10,692	10,692			
<b>TOTAL FOR PROJ NO. 48965.3.1</b>										0.81		*	8,554	8,554	450	*	10,692	10,692	10,692	10,692			
																	21,384	21,384					
49296.3.8	Bertie	2	US-13 BERTIE CD	FROM SR 1302 LEA LUMBER CO. RD TO HERTFORD COUNTY	2	2	2WU	NO	NO	15.28	28	*	80,678	161,357	450	*	161,357	100,848	161,357	100,848	1,024		
49296.3.8	Hertford	3	US-13 HERTFORD CO	FROM BERTIE COUNTY TO 0.25 MILES NORTH OF SR 1418 ARROW RD	2	2	2WU	NO	NO	1.66	28	*	8,765	17,530	350	*	17,530	17,530	17,530	17,530	110		
49296.3.8	Hertford	4	NC-11	FROM 450 FT SOUTH OF SR 1130 MODUN RD TO SR 1212 SHORTCUT RD	2	2	2WU	NO	NO	0.98	32	*	5,174	10,349	350	*	10,349	6,468	10,349	6,468	65		
49296.3.8	Hertford	5	SR-1212 / SHORT CUT ROAD	FROM NC 11 TO US 13	2	2	2WU	NO	NO	0.73	32	*	3,854	7,709	300	*	7,709	4,818	7,709	4,818	48		
49296.3.8	Hertford	6	US-13	FROM SR 1212 SHORTCUT RD TO 1 MILE NORTH OF NC 461	2	2	2WU	NO	NO	3.38	32	*	17,846	35,693	400	*	35,693	22,308	35,693	22,308	223		
49296.3.8	Hertford	7	US-13 NBL	FROM 1 MILE NORTH OF NC 461 TO GATES COUNTY	3	2	MD	YES	NO	2.27	32	*		23,971	300	*	14,982	11,986	14,982	11,986		150	150
49296.3.8	Hertford	8	US-13 SBL	FROM GATES COUNTY TO 1 MILE NORTH OF NC 461	3	2	MD	NO	NO	2.27	32	*		23,971	300	*	14,982	11,986	14,982	11,986		150	150
49296.3.8	Gates	9	US-13 NBL	FROM HERTFORD COUNTY TO US 158	3	2	MD	NO	NO	5.69	32	*		60,086	300	*	37,554	30,043	37,554	30,043		376	376
49296.3.8	Gates	10	US-13 SBL	FROM US 158 TO HERTFORD COUNTY	3	2	MD	NO	NO	5.69	32	*		60,086	300	*	37,554	30,043	37,554	30,043		376	376
<b>TOTAL FOR PROJ NO. 49296.3.9</b>										37.95		*	116,317	400,752	3,050	*	337,710	236,030	337,710	236,030	1,470	1,052	1,052
																	573,740	573,740				2,104	
49296.3.9	Tyrrell	11	US-64	FROM 0.85 MILES EAST OF SR 1326 TO SR 1229 OLD US 64 (EAST)	2	2	2WU	NO	NO	8	28	*	42,240	84,480	300	*	84,480	52,800	84,480	52,800			
<b>TOTAL FOR PROJ NO. 49296.3.10</b>										8		*	42,240	84,480	300	*	84,480	52,800	84,480	52,800			
																	137,280	137,280					
49296.3.10	Pasquotank	12	NC-344	FROM 730 FT SOUTH OF AIRPORT TO SR 1100 SAWMILL RD	2	2	2WU	NO	NO	4.73	28	*	24,974	49,949	300	*	49,949	31,218	49,949	31,218	312		
<b>TOTAL FOR PROJ NO. 49296.3.11</b>										4.73		*	24,974	49,949	300	*	49,949	31,218	49,949	31,218	312		
																	81,167	81,167					
50861	Pasquotank	13	SR-1139 / BODY RD	FROM SR 1144 SIMPSON DITCH RD TO NC 344	2	2	2WU	NO	NO	2.36	20	*	12,461	24,922	300	*	24,922	15,576	24,922	15,576			
<b>TOTAL FOR PROJ NO. 50861</b>										2.36		*	12,461	24,922	300	*	24,922	15,576	24,922	15,576			
																	40,498	40,498					
<b>GRAND TOTAL</b>										53.85		1	204,546	568,657	4,400	1	507,753	346,316	507,753	346,316	1,782	2,104	
																	854,069	854,069					