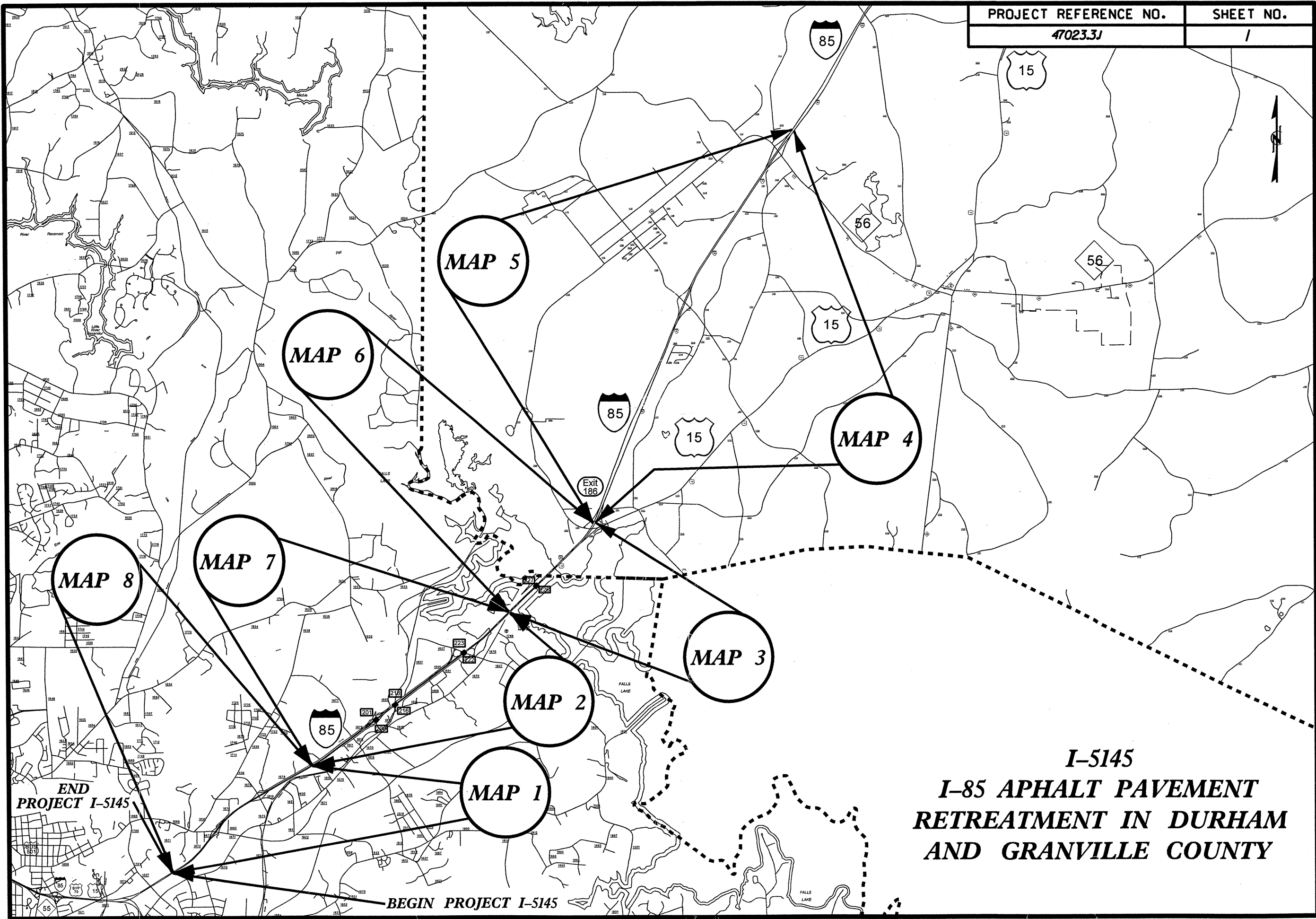


PROJECT REFERENCE NO.  
47023.3J

SHEET NO.  
1



END  
PROJECT I-5145

BEGIN PROJECT I-5145

**I-5145  
I-85 ASPHALT PAVEMENT  
RETREATMENT IN DURHAM  
AND GRANVILLE COUNTY**

PROJECT REFERENCE NO.	SHEET NO.
47023.3.1	2



**SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER**

**AFTER MILLING OPERATION  
SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AS DIRECTED BY ENGINEER.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER**

**CLUB BLVD  
INTERCHANGE**





AFTER MILLING OPERATION  
 SEAL JOINTS AND PERFORM CRACK REPAIR  
 ON CONCRETE RAMPS AS DIRECTED BY ENGINEER.  
 PERFORM SHOULDER RECONSTRUCTION  
 AS DIRECTED BY THE ENGINEER

SEAL JOINTS AND PERFORM CRACK REPAIR  
 ON CONCRETE RAMPS AND  
 REPLACE 4' ASPHALT SHOULDERS  
 ON INSIDE AND OUTSIDE.  
 PERFORM SHOULDER RECONSTRUCTION  
 AS DIRECTED BY THE ENGINEER

SEAL JOINTS AND PERFORM CRACK REPAIR  
 ON CONCRETE RAMPS AND  
 REPLACE 4' ASPHALT SHOULDERS  
 ON INSIDE AND OUTSIDE.  
 PERFORM SHOULDER RECONSTRUCTION  
 AS DIRECTED BY THE ENGINEER

AFTER MILLING OPERATION  
 SEAL JOINTS AND PERFORM CRACK REPAIR  
 ON CONCRETE RAMPS AS DIRECTED BY ENGINEER.  
 PERFORM SHOULDER RECONSTRUCTION  
 AS DIRECTED BY THE ENGINEER

**GLENN SCHOOL  
 INTERCHANGE**



SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER

INSTALL NEW 9"X12"  
CONCRETE CURB AT  
EXISTING EARTH ISLAND

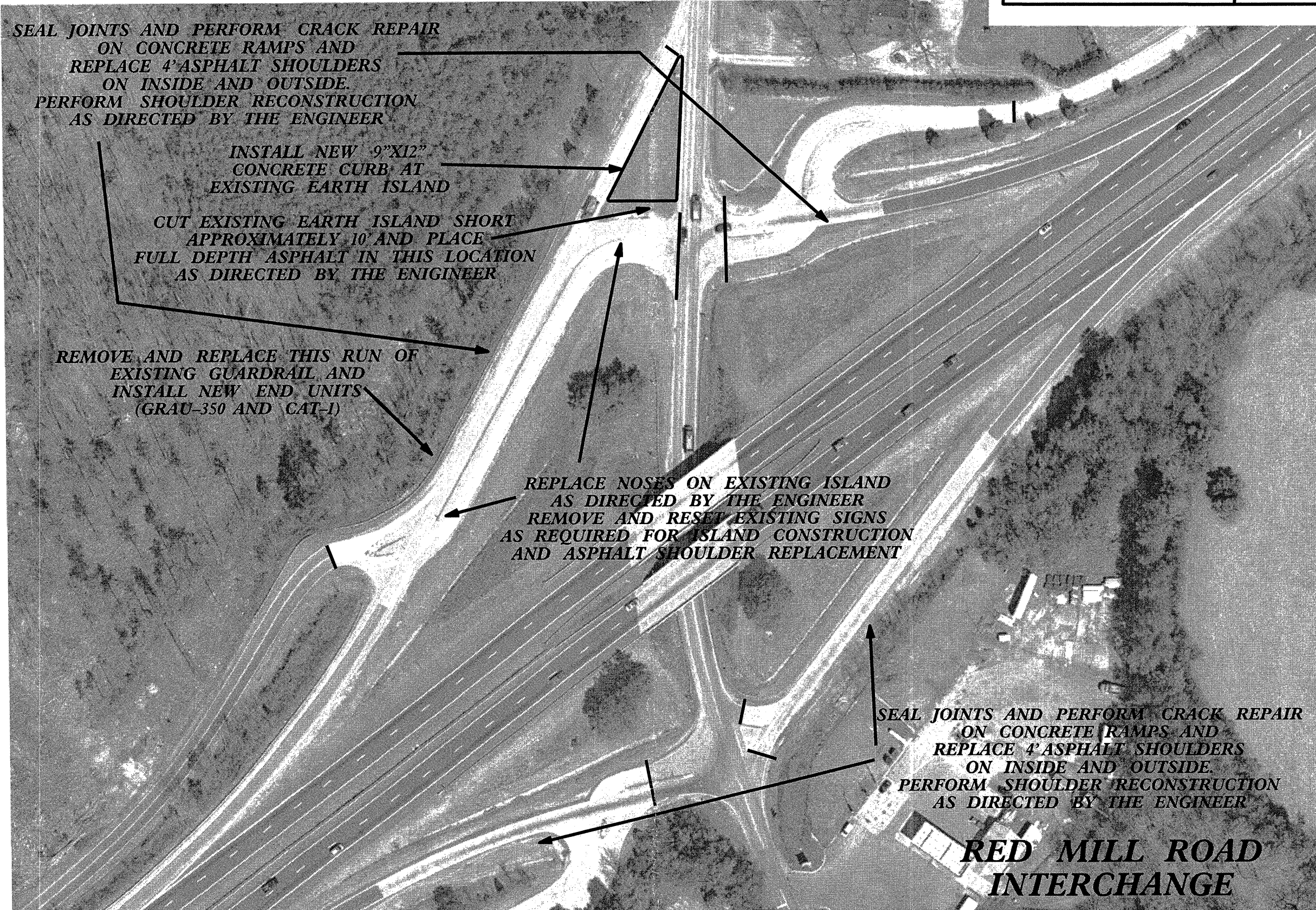
CUT EXISTING EARTH ISLAND SHORT  
APPROXIMATELY 10' AND PLACE  
FULL DEPTH ASPHALT IN THIS LOCATION  
AS DIRECTED BY THE ENGINEER

REMOVE AND REPLACE THIS RUN OF  
EXISTING GUARDRAIL AND  
INSTALL NEW END UNITS  
(GRAU-350 AND CAT-1)

REPLACE NOSES ON EXISTING ISLAND  
AS DIRECTED BY THE ENGINEER  
REMOVE AND RESET EXISTING SIGNS  
AS REQUIRED FOR ISLAND CONSTRUCTION  
AND ASPHALT SHOULDER REPLACEMENT

SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER

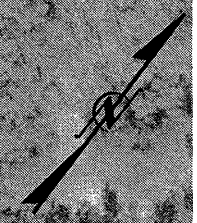
**RED MILL ROAD  
INTERCHANGE**



SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER

INSTALL NEW 9"x12"  
CONCRETE CURB AT  
EXISTING EARTH ISLAND  
REMOVE AND RESET EXISTING  
SIGN AS REQUIRED FOR  
ISLAND CONSTRUCTION

# REDWOOD ROAD INTERCHANGE

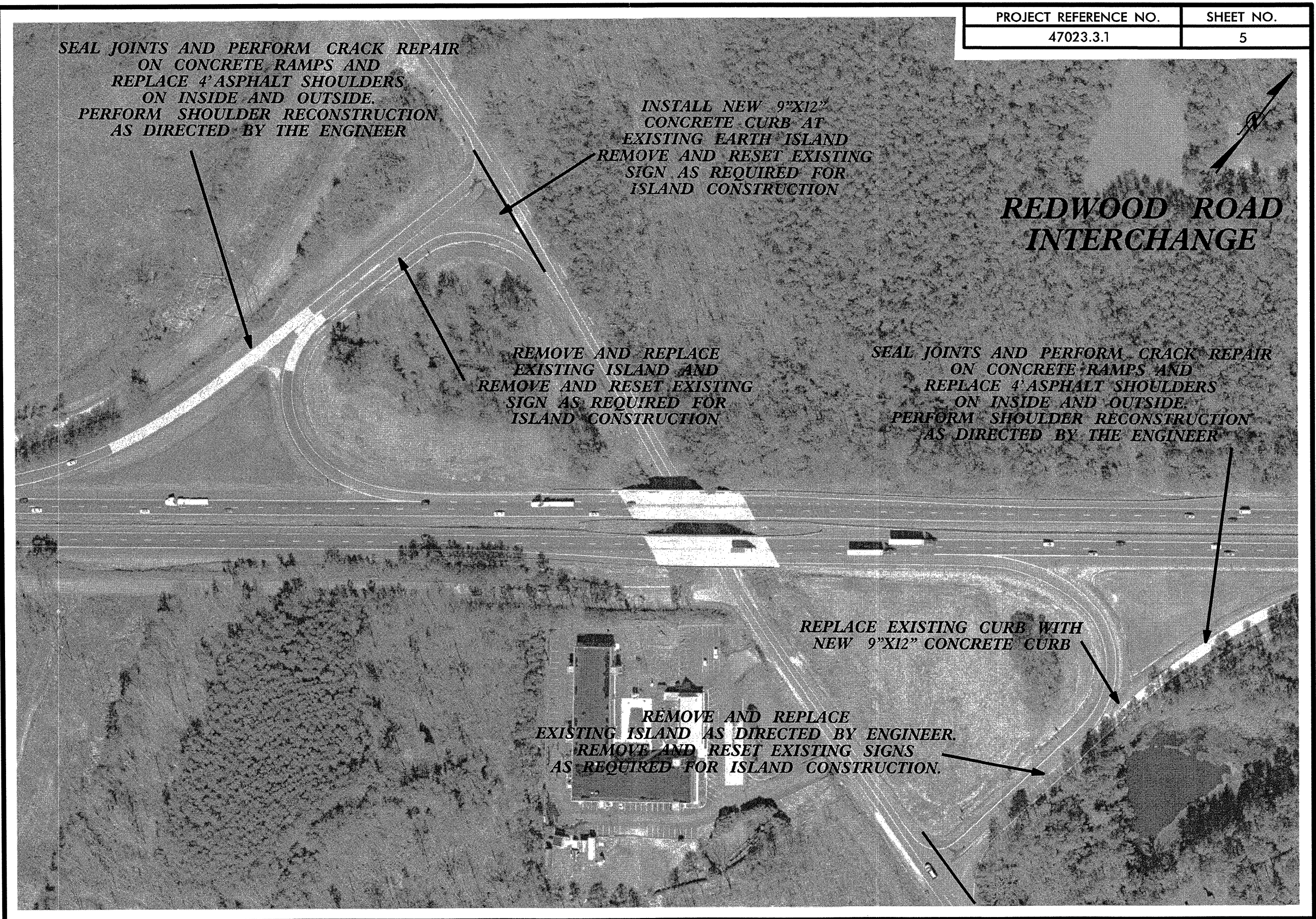


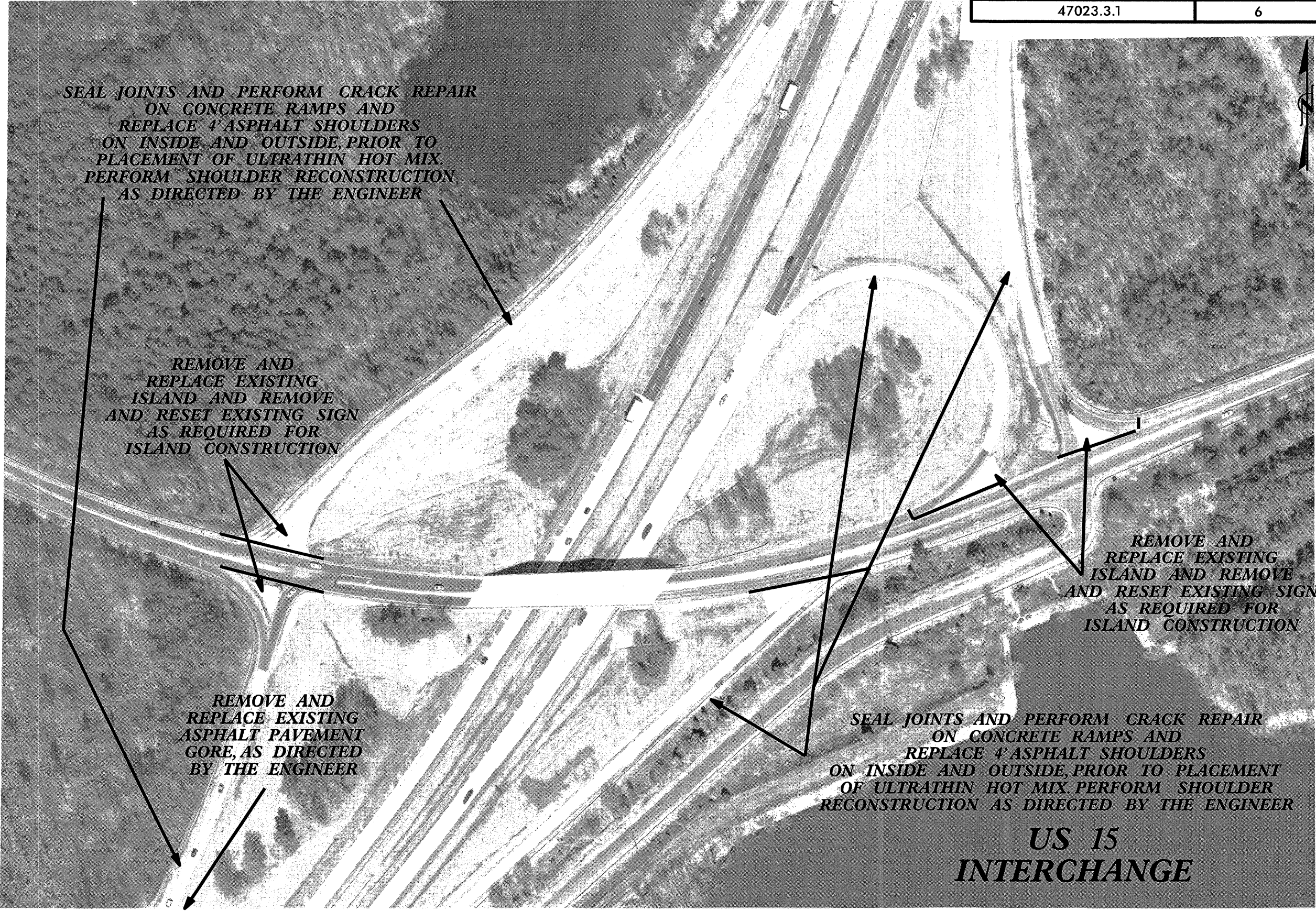
REMOVE AND REPLACE  
EXISTING ISLAND AND  
REMOVE AND RESET EXISTING  
SIGN AS REQUIRED FOR  
ISLAND CONSTRUCTION

SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER

REPLACE EXISTING CURB WITH  
NEW 9"x12" CONCRETE CURB

REMOVE AND REPLACE  
EXISTING ISLAND AS DIRECTED BY ENGINEER.  
REMOVE AND RESET EXISTING SIGNS  
AS REQUIRED FOR ISLAND CONSTRUCTION.





SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE, PRIOR TO  
PLACEMENT OF ULTRATHIN HOT MIX.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER

REMOVE AND  
REPLACE EXISTING  
ISLAND AND REMOVE  
AND RESET EXISTING SIGN  
AS REQUIRED FOR  
ISLAND CONSTRUCTION

REMOVE AND  
REPLACE EXISTING  
ISLAND AND REMOVE  
AND RESET EXISTING SIGN  
AS REQUIRED FOR  
ISLAND CONSTRUCTION

REMOVE AND  
REPLACE EXISTING  
ASPHALT PAVEMENT  
GORE, AS DIRECTED  
BY THE ENGINEER

SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE, PRIOR TO PLACEMENT  
OF ULTRATHIN HOT MIX. PERFORM SHOULDER  
RECONSTRUCTION AS DIRECTED BY THE ENGINEER

**US 15  
INTERCHANGE**



See Typical  
3, 4, & 5

**SR 1103  
INTERCHANGE**

SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE OR PERFORM  
2" MILL AND FILL.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER

SEAL JOINTS AND PERFORM CRACK REPAIR  
ON CONCRETE RAMPS AND  
REPLACE 4' ASPHALT SHOULDERS  
ON INSIDE AND OUTSIDE.  
PERFORM SHOULDER RECONSTRUCTION  
AS DIRECTED BY THE ENGINEER

NC 56  
INTERCHANGE

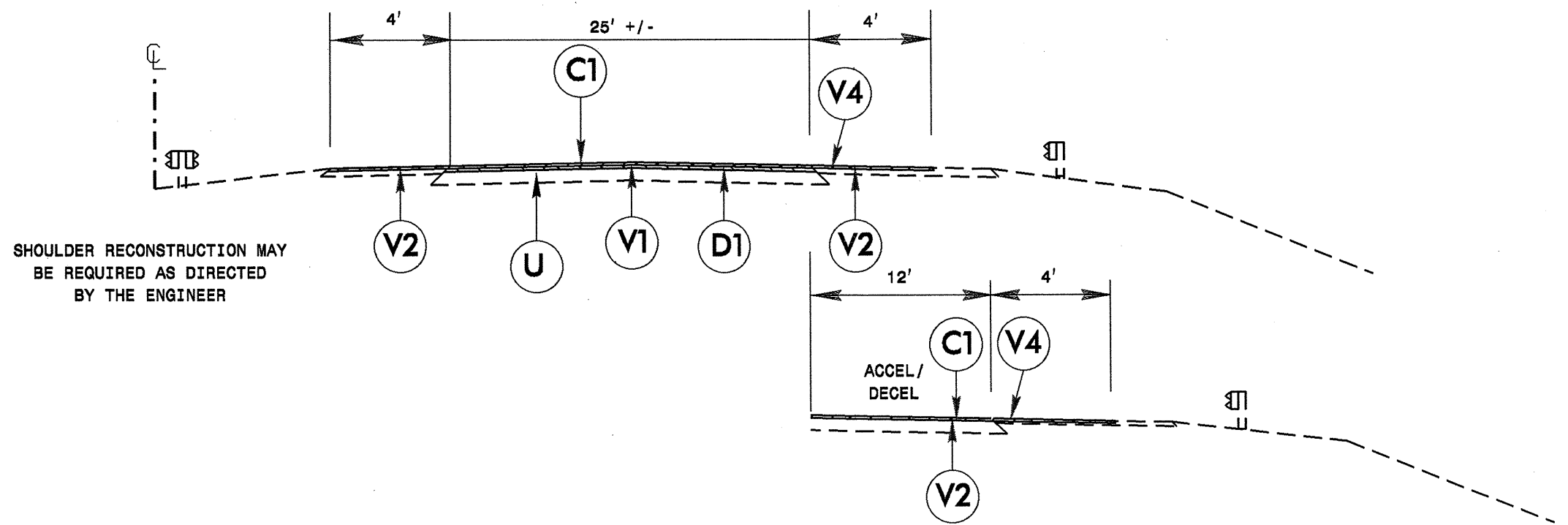




# PAVEMENT SCHEDULE

PROJECT REFERENCE NO. 1-5145,47023.3J SHEET NO. 9

B	5/8" ULTRA-THIN HOT-MIX ASPHALT, TYPE B	S	SPOT SHOULDER RECONSTRUCTION BY CONTRACTOR, AS DIRECTED BY THE ENGINEER
C1	PROP. APPROX. 1 1/2" S9.5C, AT AN AVG. RATE OF 168 LBS PER SQ. YD.	V1	PROP. 4" MILLING
C2	PROP. APPROX. 2" S9.5C AT AN AVG. RATE OF 224 LBS PER SQ. YD.	V2	PROP. 1 1/2" MILLING
D1	PROP. APPROX. 2 1/2" I19.0C AT AN AVG. RATE OF 285 LBS PER SQ. YD.	V3	PROP. 2" MILLING
D2	PROP. APPROX. 6" I19.0C AT AN AVG. RATE OF 342 LBS PER SQ. YD., IN EACH OF TWO LIFTS	V4	PROP. CONTINUOUS MILLED RUMBLE STRIP
D3	PROP. APPROX. 4" I19.0C AT AN AVG. RATE OF 456 LBS PER SQ. YD.	V5	PROP. 6" MILLING, 6' OR 12' WIDTH
E	PROP. APPROX. 6" B25.0C AT AN AVG. RATE OF 342 LBS PER SQ. YD. IN EACH OF TWO LIFTS	Y	SEALING EXISTING PAVEMENT CRACKS POLYMER PATCH AND/OR PATCHING CONCRETE PAVEMENT SPALLS AND/OR JOINT CONSTRUCTION REPAIR AND SEALING, AS DIRECTED BY THE ENGINEER
J	PROP. 6" OF AGGREGATE BASE COURSE, AS DIRECTED BY THE ENGINEER		
U	EXISTING PAVEMENT		

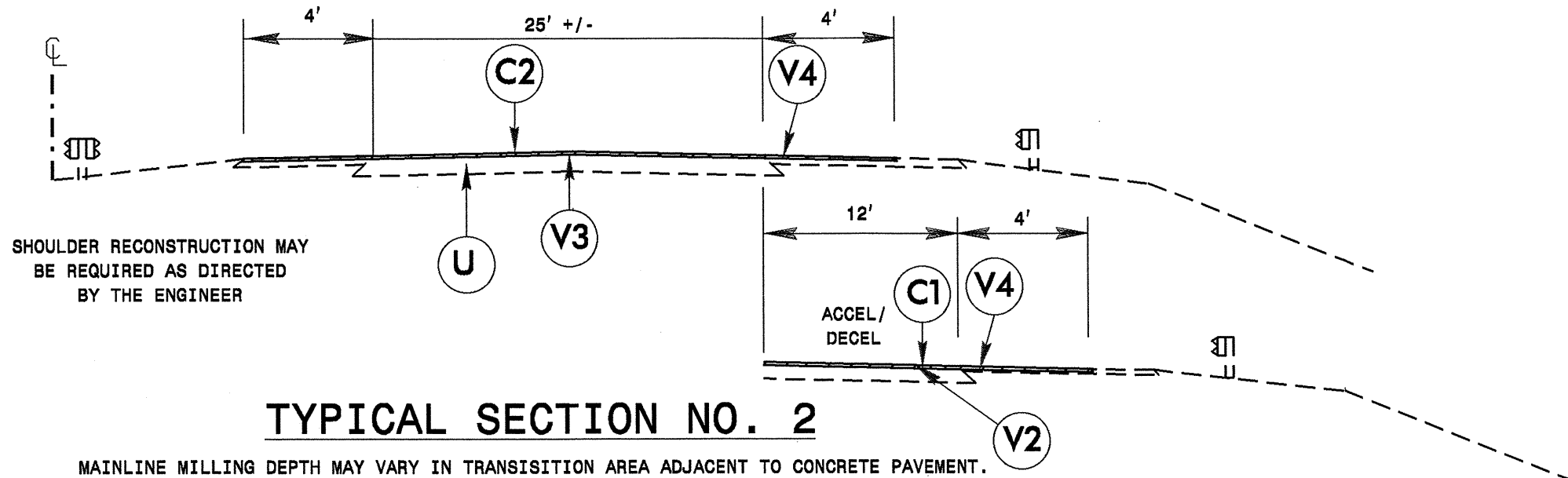


## TYPICAL SECTION NO. 1

SHOULDER AND MAINLINE MILLING OPERATIONS SHALL BE PERFORMED IN THE SAME OPERATION.

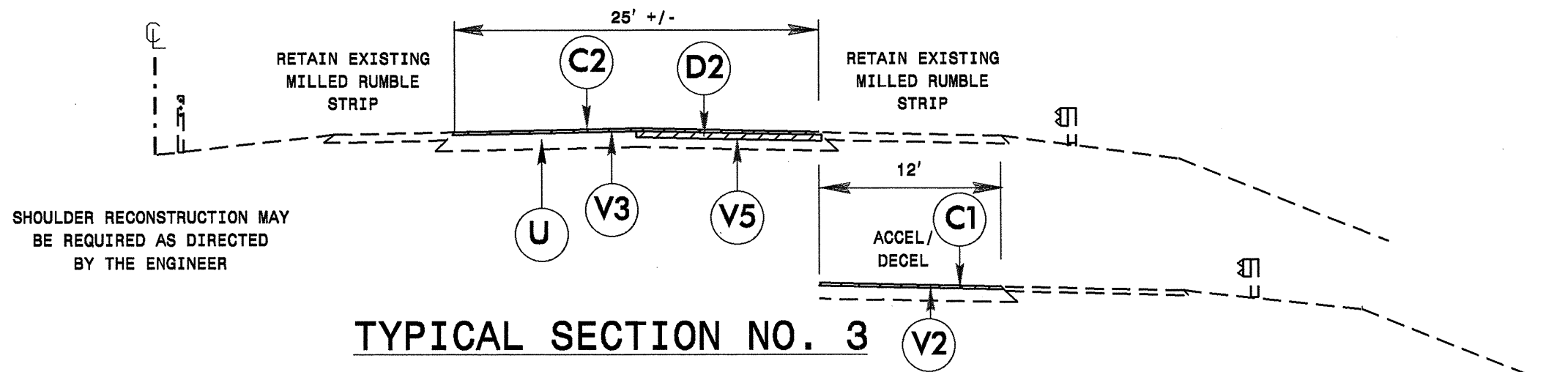
**PAVEMENT SCHEDULE**

B	5/8" UTHMA, TYPE B
C1	1 1/2" S9.5C
C2	2" S9.5C
D1	2 1/2" I19.0C
D2	6" I19.0C
D3	4" I19.0C
E	6" B25.0C
J	6" ABC
U	EXISTING PAVEMENT
S	SPOT SHOULDER RECON.
V1	4" MILLING
V2	1 1/2" MILLING
V3	2" MILLING
V4	MILLED RUMBLE STRIP
V5	6" MILLING
Y	CRACK/SPALL/JOINT REPAIRS



**TYPICAL SECTION NO. 2**

MAINLINE MILLING DEPTH MAY VARY IN TRANSITION AREA ADJACENT TO CONCRETE PAVEMENT. MILLING OPERATION SHALL REMOVE ALL ASPHALT IN THIS TRANSITION AREA, AS DIRECTED BY THE ENGINEER.



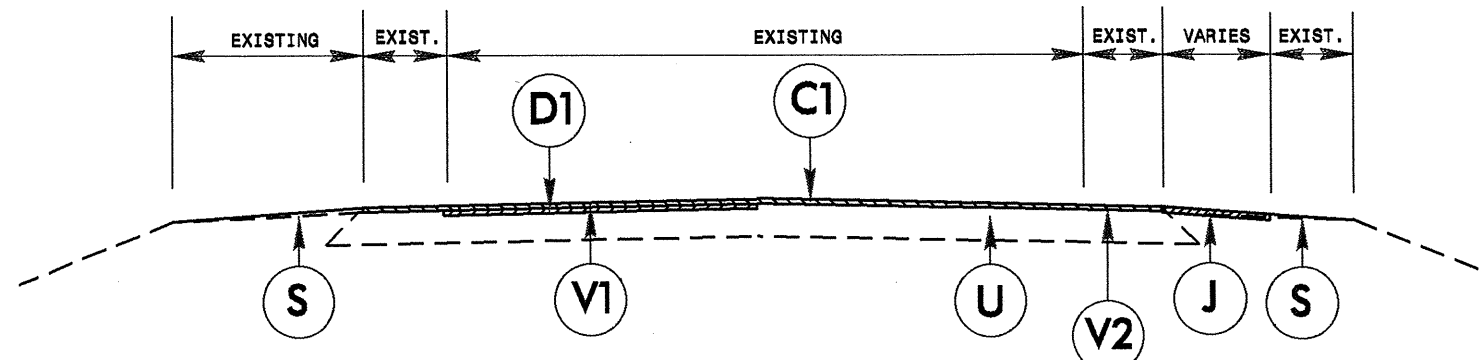
**TYPICAL SECTION NO. 3**

6" MILL/PATCH TO BE DONE PRIOR TO 2" MILL AND REPLACE. 2" MILL AND REPLACE WILL REMOVE TOP 2" OF PATCH. PAYMENT WILL BE MADE FOR BOTH OPERATIONS.

**PAVEMENT SCHEDULE**

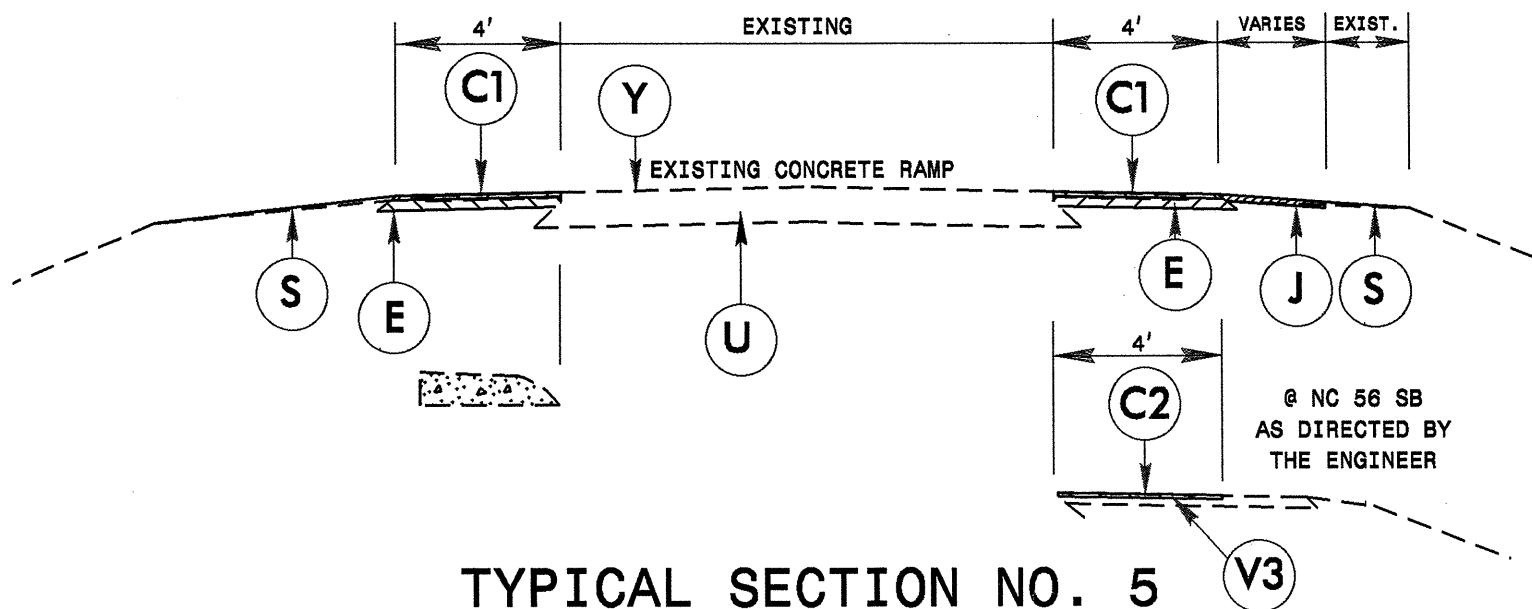
B	5/8" UTHMA, TYPE B
C1	1 1/2" S9.5C
C2	2" S9.5C
D1	2 1/2" I19.0C
D2	6" I19.0C
D3	4" I19.0C
E	6" B25.0C
J	6" ABC
U	EXISTING PAVEMENT
S	SPOT SHOULDER RECON.
V1	4" MILLING
V2	1 1/2" MILLING
V3	2" MILLING
V4	MILLED RUMBLE STRIP
V5	6" MILLING
Y	CRACK/SPALL/JOINT REPAIRS

PROJECT REFERENCE NO. 1-5145, 47023.3J SHEET NO. 11



**TYPICAL SECTION NO. 4**

\* CONTRACTOR SHALL USE THIS TYPICAL FOR THE ASPHALT RAMPS  
4" MILL AND FILL WITH INTERMEDIATE ONLY AS DIRECTED BY THE ENGINEER



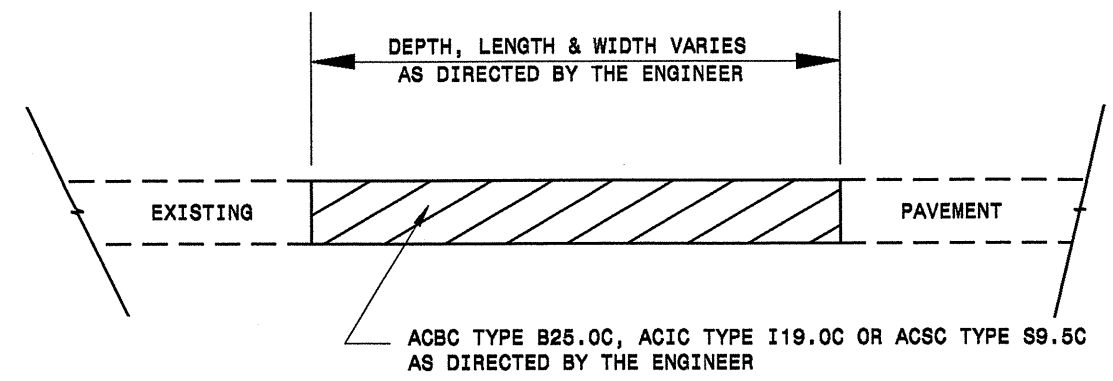
**TYPICAL SECTION NO. 5**

\* CONTRACTOR SHALL USE THIS TYPICAL FOR THE CONCRETE RAMP/LOOP WITH ASPHALT SHOULDERS

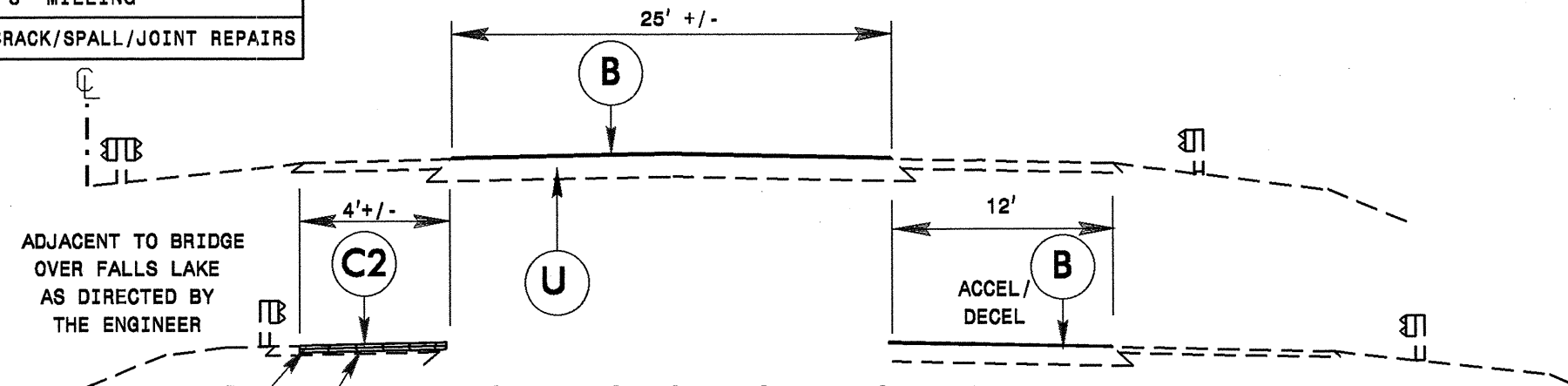
**PAVEMENT SCHEDULE**

B	5/8" UTHMA, TYPE B
C1	1 1/2" S9.5C
C2	2" S9.5C
D1	2 1/2" I19.0C
D2	6" I19.0C
D3	4" I19.0C
E	6" B25.0C
J	6" ABC
U	EXISTING PAVEMENT
S	SPOT SHOULDER RECON.
V1	4" MILLING
V2	1 1/2" MILLING
V3	2" MILLING
V4	MILLED RUMBLE STRIP
V5	6" MILLING
Y	CRACK/SPALL/JOINT REPAIRS

PROJECT REFERENCE NO. 1-5145,47023.3J SHEET NO. 12

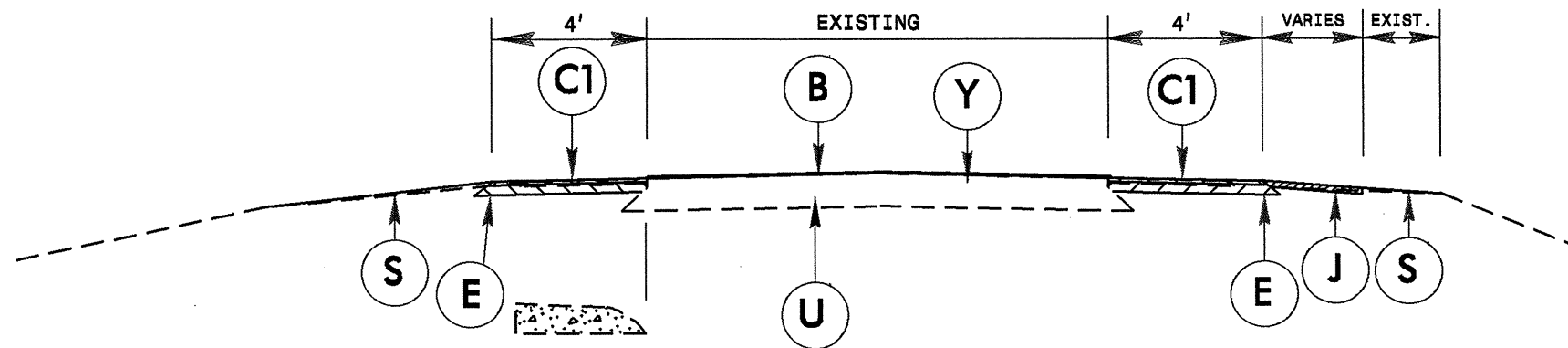


**PATCHING EXISTING PAVEMENT**



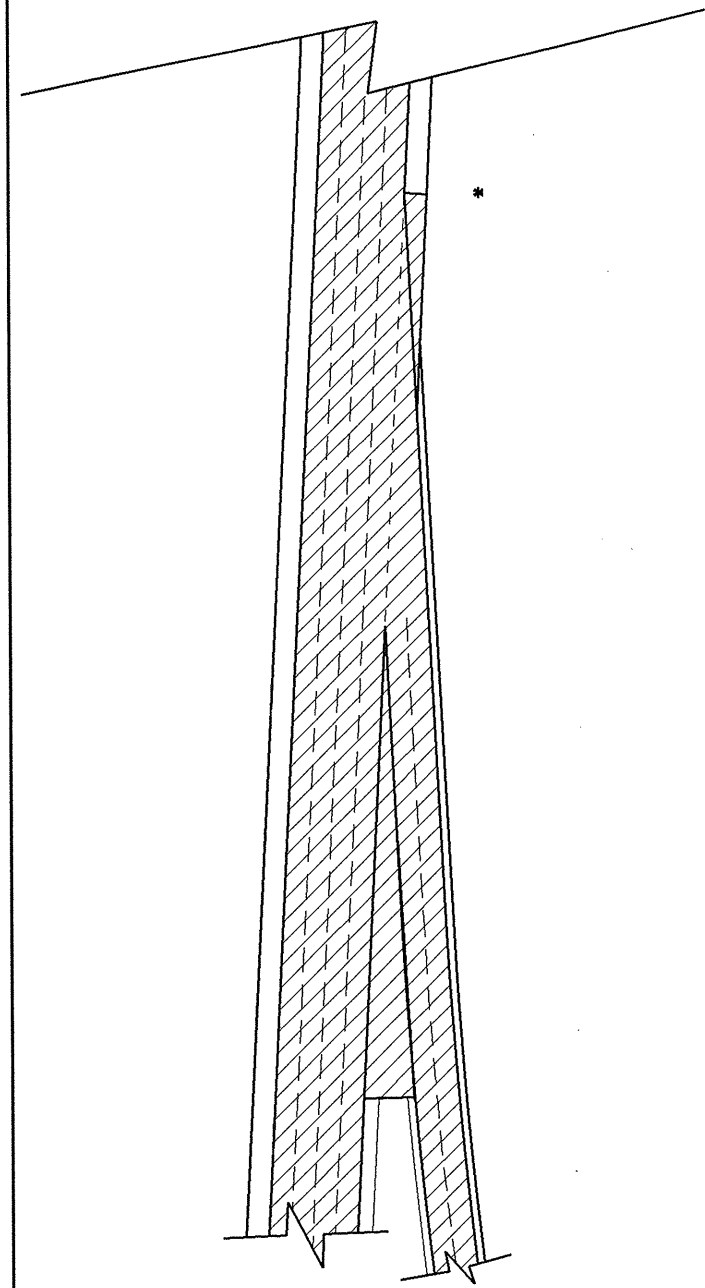
**TYPICAL SECTION NO. 6**

\* CONTRACTOR SHALL PERFORM SHOULDER STRENGTHENING WORK PRIOR TO PLACING ANY TRAFFIC ON SHOULDER, AS DIRECTED BY ENGINEER



**TYPICAL SECTION NO. 7**

\* CONTRACTOR SHALL USE THIS TYPICAL FOR THE CONCRETE RAMPS/LOOP AT US 15



**DETAIL OF PLACEMENT AT ACCELERATION AND DECELERATION LANES**

\* SQUARED OFF JOINTS AT END OF TAPER ARE ACCEPTABLE

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5145 47023.3.1	13	

## SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT ALLOWED	LENGTH MI	WIDTH FT	REMOVE AND REPLACE 9" X 12" CONCRETE CURB LF	BORROW CY	SEALING EXISTING PAVEMENT CRACKS, POLYMER PATCH LB	SEALING EXISTING PAVEMENT CRACKS LF	AGGREGATE BASE COURSE TONS	SHOULDER RECONSTRUCTION SMI	4" MILLING SY	1 1/2" MILLING SY	2" MILLING SY	6" MILLING SY	BASE COURSE, B25.0C TONS	INTER-MEDIATE COURSE, I19.0C TONS	SURFACE COURSE, S9.5C TONS	PG 64-22 PLANT MIX TONS	PG 70-22 PLANT MIX TONS	PG 70-28 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS
47023.3.1	Durham	1	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF MIDLAND TERRACE TO MILE MARKER 181	1,4,5	YES	NO	2.2	33		207	120		560	1.30	32,267	8,468			105	4,636	4,488	222	269		10
TOTAL FOR MAP NO. 1								2.2	33		207	120		560	1.30	32,267	8,468			105	4,636	4,488	222	269		10
		2	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT SOUTH OF FALLS LAKE	2,4,5	NO	NO	3.1	33	30	342	160		609	1.55	1,333	7,360	60,016		219	190	7,641	18	458		10
TOTAL FOR MAP NO. 2								3.1	33	30	342	160		609	1.55	1,333	7,360	60,016		219	190	7,641	18	458		10
		3	I-85 NB AND RAMPS	CONCRETE PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO JOINT NORTH OF US 15	6,7,4	NO	NO	1.6	25		160	400	15,972	866	1.10		3,039		53	350	12	356	15	21	56	
TOTAL FOR MAP NO. 3								1.6	25		160	400	15,972	866	1.10		3,039		53	350	12	356	15	21	56	
	Granville	4	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT NORTH OF NC 56	3,4,5	NO	NO	5.7	25		238	200		1,283	1.62		12,020	83,600	1,334	487	456	10,990	42	659		
TOTAL FOR MAP NO. 4								5.7	25		238	200		1,283	1.62		12,020	83,600	1,334	487	456	10,990	42	659		
		5	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF NC 56 TO JOINT NORTH OF US 15	3,4,5	NO	NO	5.7	25		231	200		1,247	1.57		11,007	83,600		605		10,927	26	656		
TOTAL FOR MAP NO. 5								5.7	25		231	200		1,247	1.57		11,007	83,600		605		10,927	26	656		
	Durham	6	I-85 SB AND RAMPS	CONCRETE PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT SOUTH OF FALLS LAKE	6,7,4	NO	NO	1.6	25		150	400	15,972	818	1.03		2,287		53	383	12	294	16	17	55	
TOTAL FOR MAP NO. 6								1.6	25		150	400	15,972	818	1.03		2,287		53	383	12	294	16	17	55	
		7	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO MILE MARKER 181	1,4,5	YES	NO	3.1	33		352	280		668	1.62	45,467	7,626			391	6,533	5,791	324	347		10
TOTAL FOR MAP NO. 7								3.1	33		352	280		668	1.62	45,467	7,626			391	6,533	5,791	324	347		10
		8	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT NORTH OF MIDLAND TERRACE	1,4,5	YES	NO	2.2	33		284	120		660	1.38	32,267	6,323			332	4,636	4,258	232	255		10
TOTAL FOR MAP NO. 8								2.2	33		284	120		660	1.38	32,267	6,323			332	4,636	4,258	232	255		10
TOTAL FOR PROJ NO. 47023.3.1								25.2		30	1,964	1,880	31,944	6,711	11.17	111,334	58,130	227,216	1,440	2,872	16,475	44,745	895	2,682	111	40
GRAND TOTAL								25.2		30	1,964	1,880	31,944	6,711	11.17	111,334	58,130	227,216	1,440	2,872	16,475	44,745	895	2,682	111	40

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	PATCHING CONCRETE PAVEMENT SPALLS SF	ULTRATHIN HOT MIX, TYPE B TONS	APPLICATION OF ULTRATHIN HOT MIX SY	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE) LF	9" X 12" CONCRETE CURB LF	REMOVE AND REPLACE 5" MONOLITHIC CONCRETE ISLAND SY	JOINT CONSTRUCTION, REPAIR AND SEALING LF	STEEL BEAM GUARDRAIL LF	GUARDRAIL ANCHOR UNIT - CAT-1 EA	GUARDRAIL ANCHOR UNIT - TYPE 350 EA	REMOVE EXISTING GUARDRAIL LF	TEMPORARY SILT FENCE LF	WATTLE LF	SEED & MULCHING AC	INDUCTIVE LOOP LF	GROOVING BRIDGE FLOORS SF	EVAZOTE JOINT SEALS LS	LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH CY	PLACEMENT OF EPOXY OVERLAY SF	CLASS II CONCRETE DECK REPAIR FOR EPOXY/ ASPHALT OVERLAY SF	SCARIFYING BRIDGE DECK SY	PLACING & FINISHING LATEX MOD CONC OVERLAY - VERY EARLY STRENGTH SY	HYDRO-DEMOLITION OF BRIDGE DECK SY	
47023.3.1	Durham	1	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF MIDLAND TERRACE TO MILE MARKER 181				23,232			858					42	110	0.84	584									
TOTAL FOR MAP NO. 1								23,232			858					42	110	0.84	584									
		2	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT SOUTH OF FALLS LAKE	16			32,736		150	920					59	150	0.59		9,552	*	87	12,960	133	1,061	1,044	1,061	
TOTAL FOR MAP NO. 2					16		32,736		150	920					59	150	0.59		9,552	*	87	12,960	133	1,061	1,044	1,061		
		3	I-85 NB AND RAMPS	CONCRETE PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO JOINT NORTH OF US 15	50	1,085	30,989			406	1,789					20	50	0.20		18,481	*	141			2,054	2,035	2,054	
TOTAL FOR MAP NO. 3					50	1,085	30,989			406	1,789					20	50	0.20		18,481	*	141			2,054	2,035	2,054	
	Granville	4	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT NORTH OF NC 56							1,609					30	80	0.30										
TOTAL FOR MAP NO. 4										1,609						30	80	0.30										
		5	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF NC 56 TO JOINT NORTH OF US 15							1,584					20	50	0.20										
TOTAL FOR MAP NO. 5										1,584						20	50	0.20										
	Durham	6	I-85 SB AND RAMPS	CONCRETE PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT SOUTH OF FALLS LAKE	50	1,066	30,463			265	2,340					20	50	0.20		18,481	*	141			2,054	2,035	2,054	
TOTAL FOR MAP NO. 6					50	1,066	30,463			265	2,340					20	50	0.20		18,481	*	141			2,054	2,035	2,054	
		7	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO MILE MARKER 181	16			32,736	615	171	2,282	500	1	1	545	59	150	1.18				*	22,000	222				
TOTAL FOR MAP NO. 7					16		32,736	615	171	2,282	500	1	1	545	59	150	1.18						*	22,000	222			
		8	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT NORTH OF MIDLAND TERRACE				23,232			952					42	110	1.14	584									
TOTAL FOR MAP NO. 8							23,232			952						42	110	1.14	584									
TOTAL FOR PROJ NO. 47023.3.1					132	2,151	61,452	111,936	615	992	12,334	500	1	1	545	292	750	4.65	1,168	46,514	1	369	34,960	355	5,169	5,114	5,169	
GRAND TOTAL					132	2,151	61,452	111,936	615	992	12,334	500	1	1	545	292	750	4.65	1,168	46,514	1	369	34,960	355	5,169	5,114	5,169	

## THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	436000000-N	451000000-N	458900000-N	468500000-E		468600000-E	468800000-E		469000000-E	469500000-E	470000000-E	471000000-E	472500000-E					479500000-E
					REMOVE AND RESET EXISTING SIGN	LAW ENFORCEMENT	TRAFFIC CONTROL	4" X 90 M YELLOW THERMO	4" X 90 M WHITE THERMO	4" X 120 M WHITE THERMO	6" X 90 M WHITE THERMO	6" X 90 M YELLOW THERMO	6" X 120 M WHITE THERMO	8" X 90 M WHITE THERMO	12" X 90 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO STR ARROW 90 M	THERMO RT ARROW 90 M	THERMO STR & LT ARROW 90 M	THERMO YIELD TRIANGLE 90M EA	THERMO LT ARROW 90 M	24" WHITE COLD APPLIED PLASTIC, TYPE 2 LF
EA	HR	LS	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA				
47023.3.1	Durham	1	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF MIDLAND TERRACE TO MILE MARKER 181		125	*	1,590	1,515	175	12,056	11,616	3,166		1,590	60	7	4	4	6		
TOTAL FOR MAP NO. 1						125	1	1,590	1,515	175	12,056	11,616	3,166		1,590	60	7	4	4	6		
		2	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT SOUTH OF FALLS LAKE	2	125	*	740	1,400		16,988	16,368	4,393		2,125		6					
TOTAL FOR MAP NO. 2					2	125	1	740	1,400		16,988	16,368	4,393		2,125		6					
		3	I-85 NB AND RAMPS	CONCRETE PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO JOINT NORTH OF US 15	1	125	*	3,065	3,065		8,768	8,448	2,556	220	1,375	20						
TOTAL FOR MAP NO. 3					1	125	1	3,065	3,065		8,768	8,448	2,556	220	1,375	20						
	Granville	4	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT NORTH OF NC 56		125	*	2,700	2,700	25	31,236	30,096	7,895		2,060	30				1	30	
TOTAL FOR MAP NO. 4						125	1	2,700	2,700	25	31,236	30,096	7,895		2,060	30				1	30	
		5	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF NC 56 TO JOINT NORTH OF US 15		125	*	2,215	2,215	76	31,236	30,096	7,930		2,050					1	30	
TOTAL FOR MAP NO. 5						125	1	2,215	2,215	76	31,236	30,096	7,930		2,050					1	30	
	Durham	6	I-85 SB AND RAMPS	CONCRETE PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT SOUTH OF FALLS LAKE	1	125	*	2,725	2,725		8,768	8,448	2,442		1,105	60	3	1		6	1	
TOTAL FOR MAP NO. 6					1	125	1	2,725	2,725		8,768	8,448	2,442		1,105	60	3	1		6	1	
		7	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO MILE MARKER 181	3	125	*	815	1,515		16,988	16,368	4,508		1,715		6					
TOTAL FOR MAP NO. 7					3	125	1	815	1,515		16,988	16,368	4,508		1,715		6					
		8	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT NORTH OF MIDLAND TERRACE		125	*	1,230	1,230	138	12,056	11,616	3,072		1,910	42	5	1	1			
TOTAL FOR MAP NO. 8						125	1	1,230	1,230	138	12,056	11,616	3,072		1,910	42	5	1	1			
TOTAL FOR PROJ NO. 47023.3.1					7	1,000	1	15,080	16,365	414	138,096	133,056	35,962	220	13,930	212	27	8	5	12	3	60
GRAND TOTAL					7	1,000	1	15,080	16,365	414	138,096	133,056	35,962	220	13,930	212	27	8	5	12	3	60

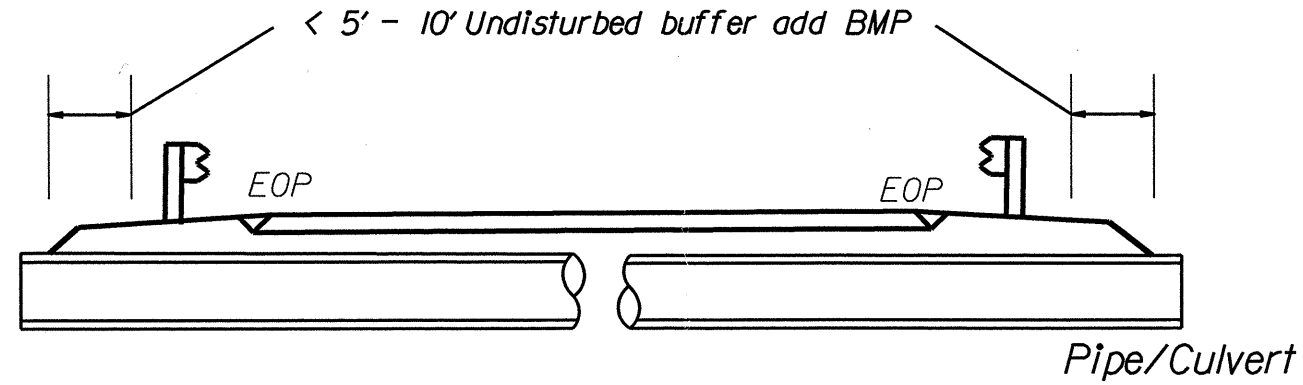
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	480500000-N			481000000-E		481500000-E		484700000-E		484710000-E		485000000-E	485500000-E	487000000-E	487500000-N	490000000-N	490500000-N
					COLD APPLIED PLASTIC LEFT ARROW, TYPE 2	COLD APPLIED PLASTIC STR LEFT ARROW, TYPE 2	COLD APPLIED PLASTIC RT ARROW, TYPE 2	4" YELLOW PAINT	4" WHITE PAINT	6" YELLOW PAINT	6" WHITE PAINT	4" WHITE POLYUREA HIGHLY REFLECTIVE	4" YELLOW POLYUREA HIGHLY REFLECTIVE	6" WHITE POLYUREA HIGHLY REFLECTIVE	6" YELLOW POLYUREA HIGHLY REFLECTIVE	4" LINE REMOVAL	6" LINE REMOVAL	24" LINE REMOVAL	REML OF PVMT MRKG SYMBOLS & CHARACTERS	CRYSTAL & RED MARKERS	SNOW PLOWABLE MARKERS
EA	EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA				
47023.3.1	Durham	1	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF MIDLAND TERRACE TO MILE MARKER 181				13,206	16,912						630					290	
TOTAL FOR MAP NO. 1								13,206	16,912						630					290	
		2	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT SOUTH OF FALLS LAKE	1			740	1,400				1,070	1,070	768	575	2,140	1,343	1	13	371
TOTAL FOR MAP NO. 2					1			740	1,400				1,070	1,070	768	575	2,140	1,343	1	13	371
		3	I-85 NB AND RAMPS	CONCRETE PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO JOINT NORTH OF US 15				795	795						581	465		1,046		6	221
TOTAL FOR MAP NO. 3								795	795						581	465		1,046		6	221
	Granville	4	I-85 NB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT NORTH OF NC 56		2	3	2,700	2,725	500	625	1,590	1,590		3,180		30	5		555	
TOTAL FOR MAP NO. 4						2	3	2,700	2,725	500	625	1,590	1,590		3,180		30	5		555	
		5	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT NORTH OF NC 56 TO JOINT NORTH OF US 15		2	2	2,215	2,261			1,975	1,975		3,950		30	4		561	
TOTAL FOR MAP NO. 5						2	2	2,215	2,261			1,975	1,975		3,950		30	4		561	
	Durham	6	I-85 SB AND RAMPS	CONCRETE PAVEMENT FROM JOINT NORTH OF US 15 TO JOINT SOUTH OF FALLS LAKE				1,185	1,185					581	465	2,370	1,046		6	227	
TOTAL FOR MAP NO. 6								1,185	1,185					581	465	2,370	1,046		6	227	
		7	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM JOINT SOUTH OF FALLS LAKE TO MILE MARKER 181	1			17,183	23,108			1,875	525	768	575	2,400	1,343		1	13	372
TOTAL FOR MAP NO. 7					1			17,183	23,108			1,875	525	768	575	2,400	1,343		1	13	372
		8	I-85 SB AND RAMPS	ASPHALT PAVEMENT FROM MILE MARKER 181 TO JOINT NORTH OF MIDLAND TERRACE				12,846	16,496			1,500	1,080		2,580					284	
TOTAL FOR MAP NO. 8								12,846	16,496			1,500	1,080		2,580					284	
TOTAL FOR PROJ NO. 47023.3.1					2	4	5	50,870	64,882	500	625	8,325	6,555	2,698	2,080	17,250	4,778	60	11	38	2,881
GRAND TOTAL					2	4	5	50,870	64,882	500	625	8,325	6,555	2,698	2,080	17,250	4,778	60	11	38	2,881

NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

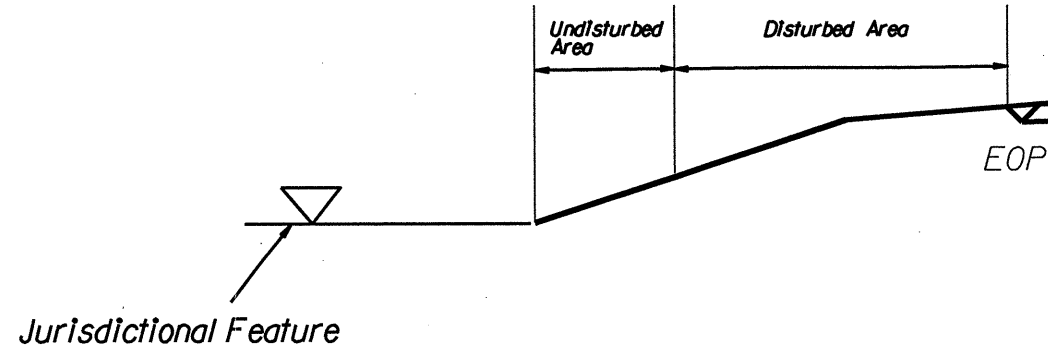
BMP Options: Wattle or Silt Fence

# EROSION CONTROL DETAIL

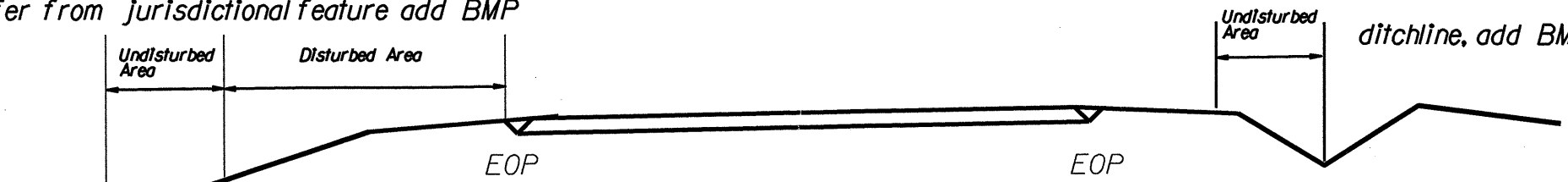
PROJECT REFERENCE NO. 1-5145 47023.3J	SHEET NO. EC-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



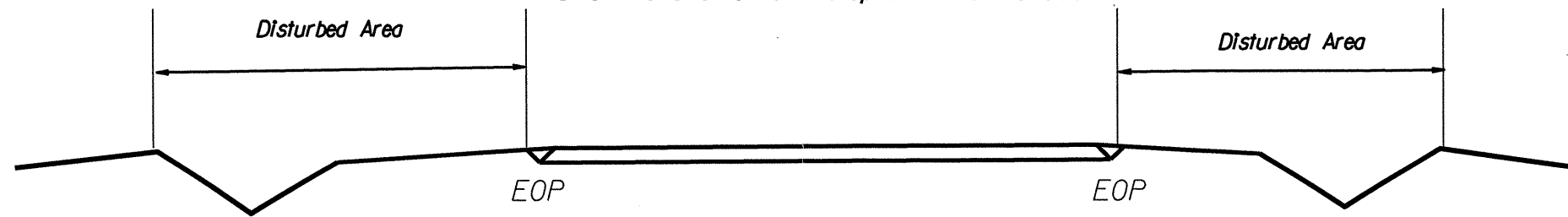
< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP



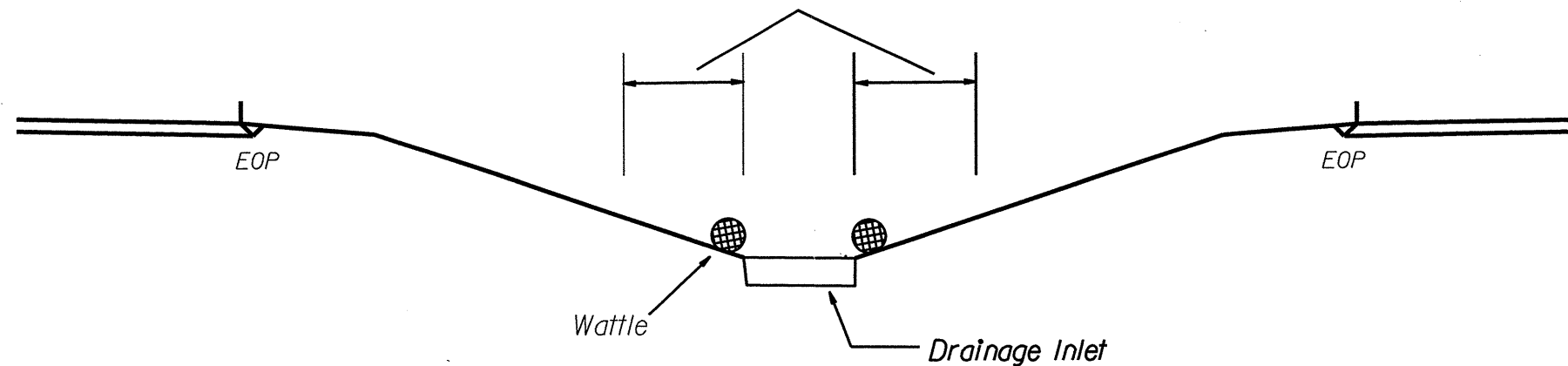
< 5' - 10' Undisturbed buffer from ditchline, add BMP



Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed

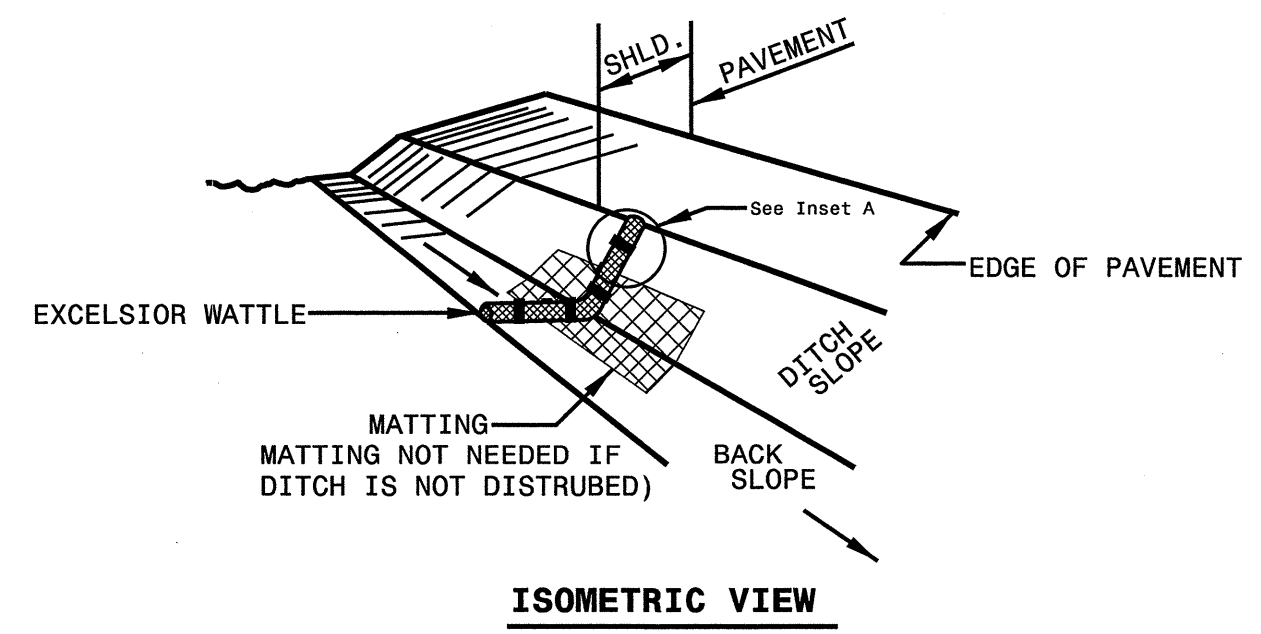


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

# WATTLE DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

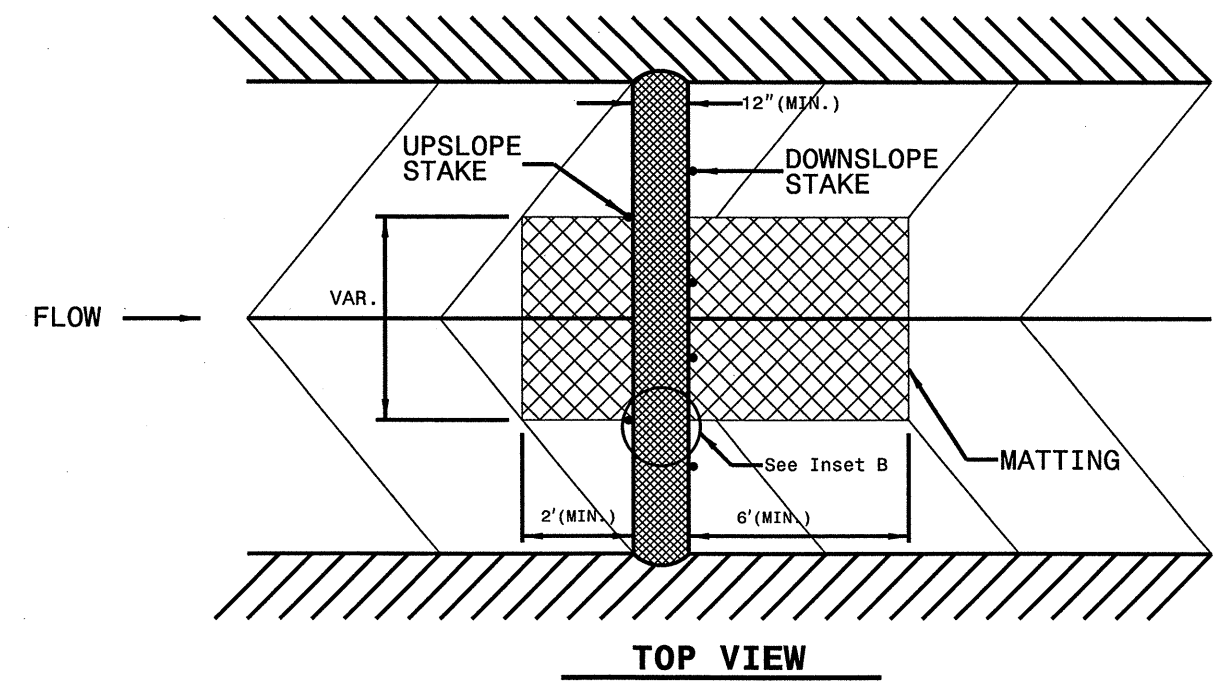
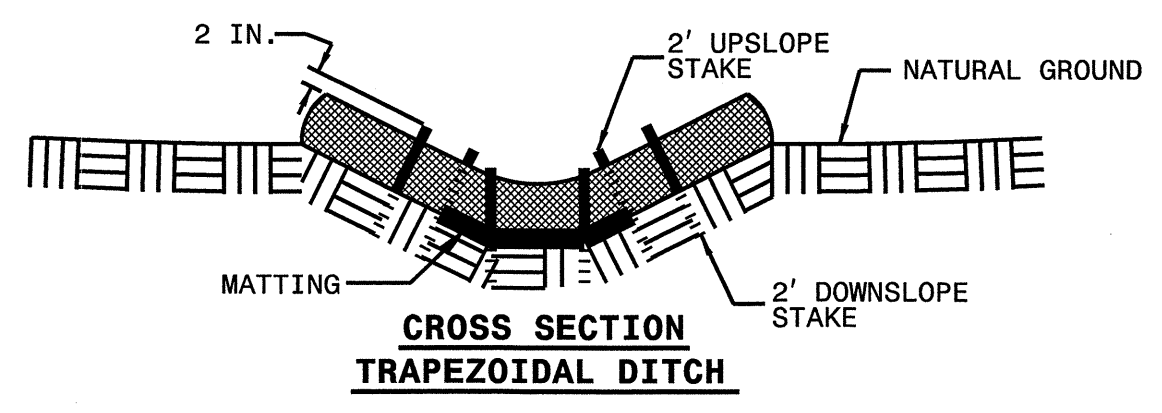
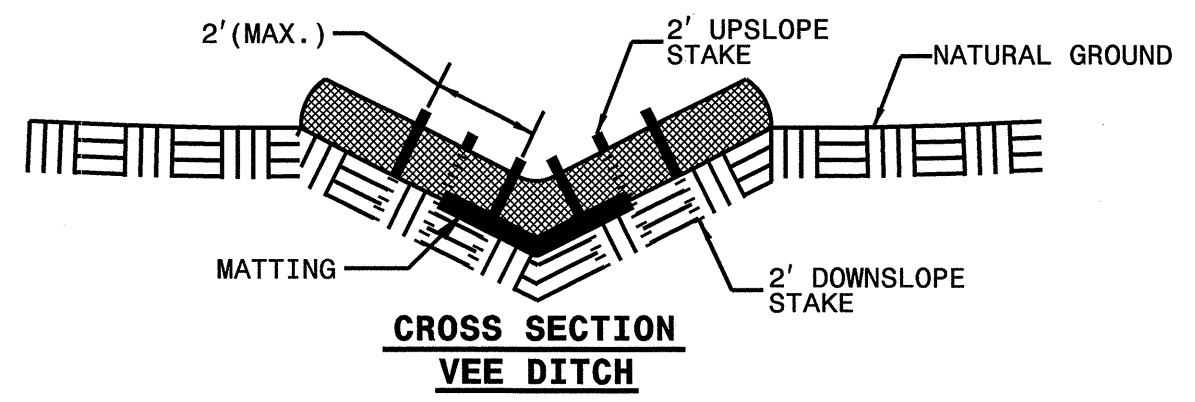
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

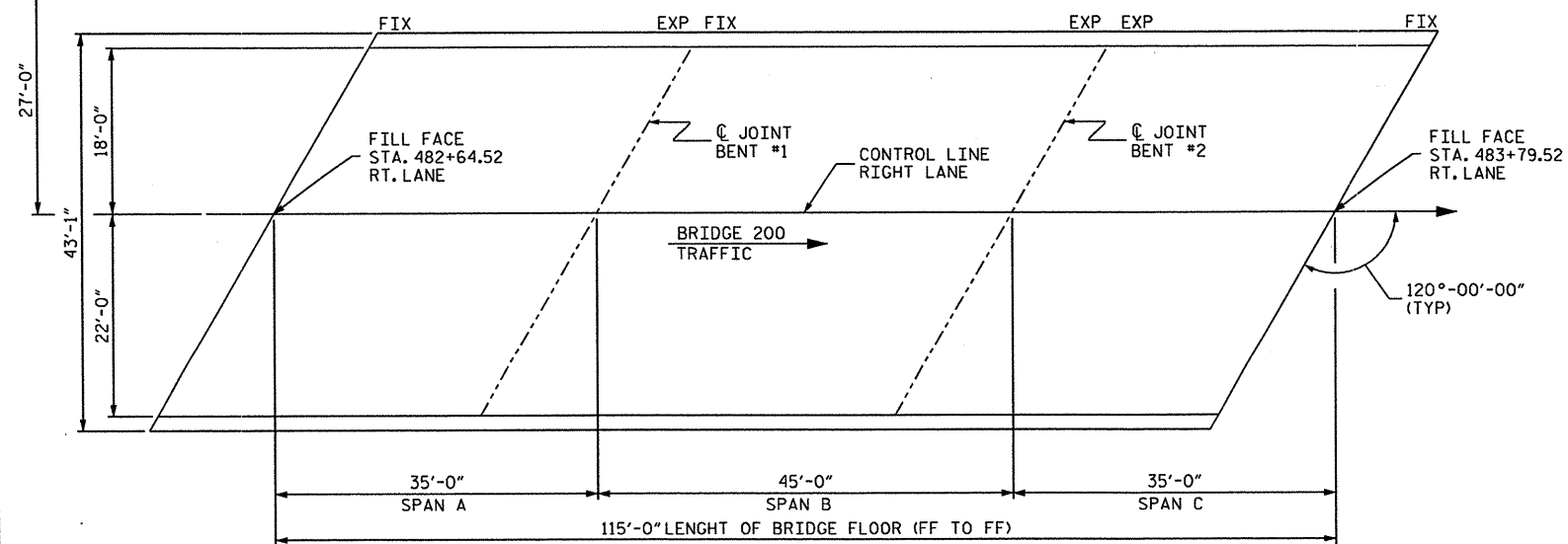
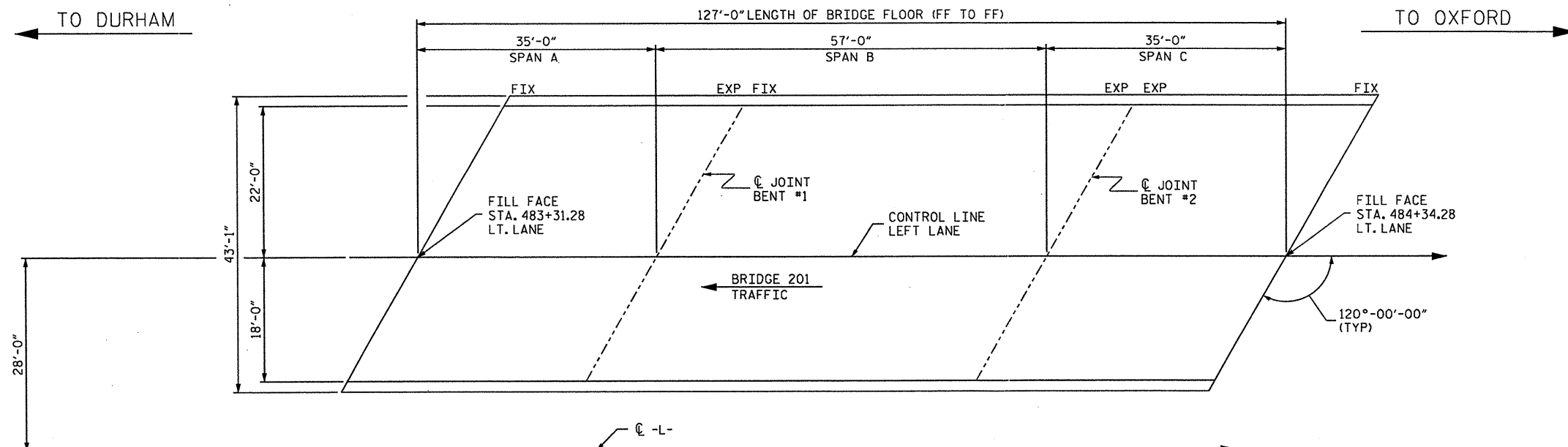
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

IF DITCH WILL BE DISTURBED, INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

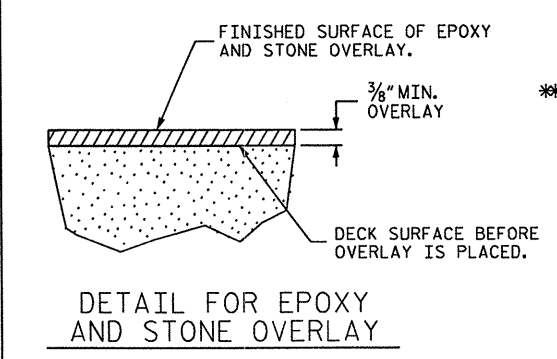




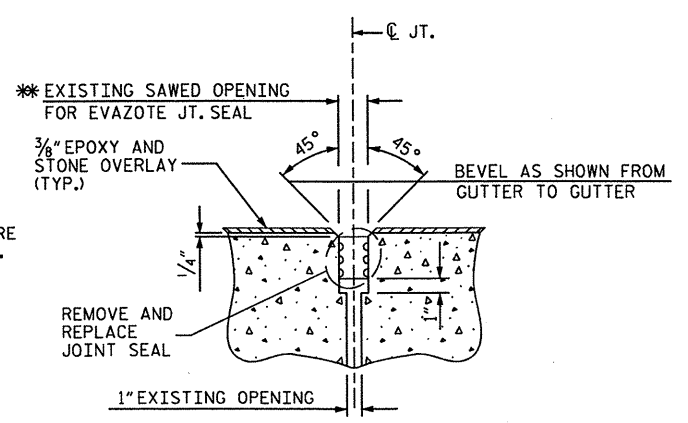


PLAN

\*\* OVER-SAW AS DIRECTED BY THE ENGINEER.

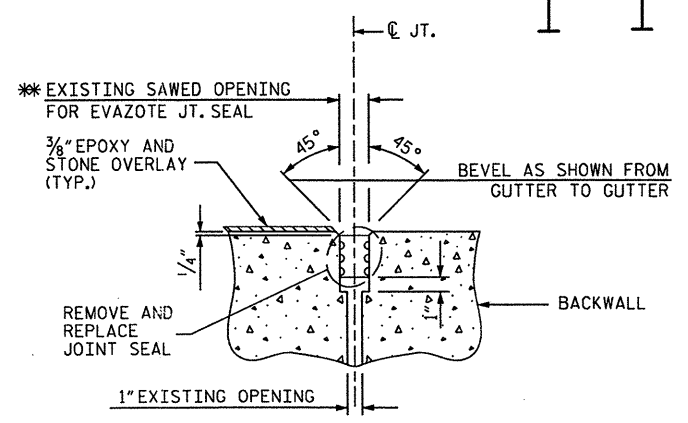


DETAIL FOR EPOXY AND STONE OVERLAY



JOINT DETAILS @ BENTS

EVAZOTE JOINT SEAL EXPANSION



JOINT DETAILS @ END BENTS

EVAZOTE JOINT SEAL EXPANSION

**NOTES**

FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.

SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.

THE QUANTITY FOR CLASS II DECK REPAIR IS ESTIMATED.

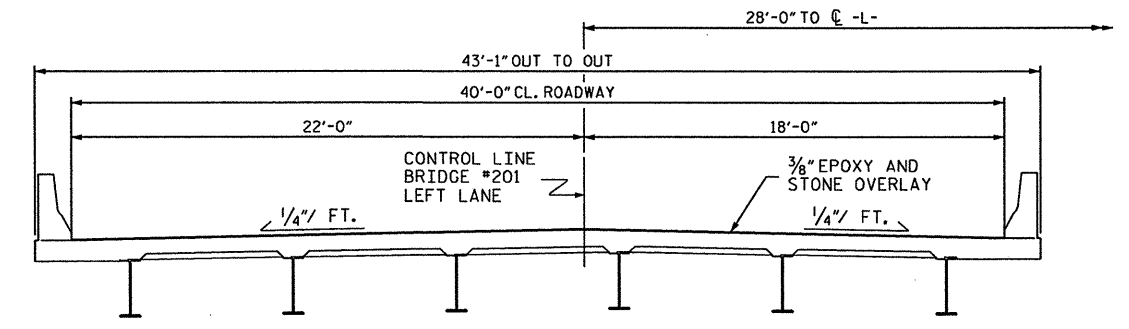
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2" @ END BENTS & BENT 1, 2 3/16" @ BENT 2.

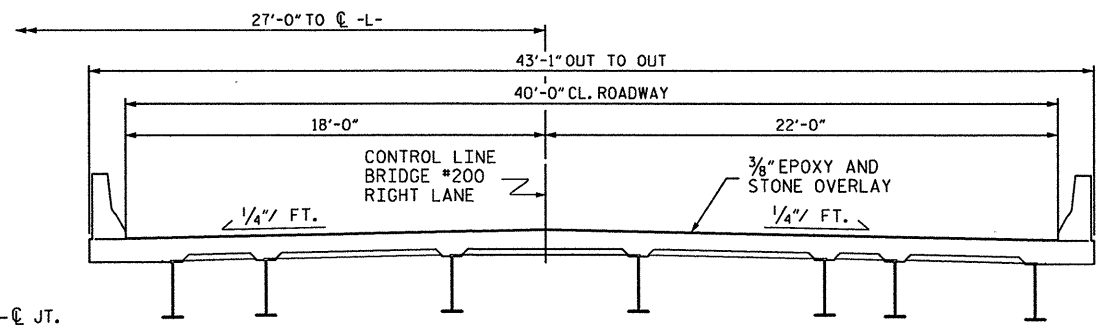
FOR OVER-SAWED JOINTS THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE DETERMINED BY THE ENGINEER.

TOTAL BILL OF MATERIAL		
FOR BRIDGES 200 & 201		
EPOXY/STONE OVERLAY	EVAZOTE JOINT SEALS	* CLASS II DECK REPAIRS
SO.FT.	LUMP SUM	SO.FT.
9680	LUMP SUM	100

\* ESTIMATED QUANTITY. SEE SPECIAL PROVISIONS.



TYPICAL SECTION



TYPICAL SECTION

PROJECT NO. 47023.3.1  
 COUNTY: DURHAM  
 DECK REPAIR BRIDGES: No. 200 & 201

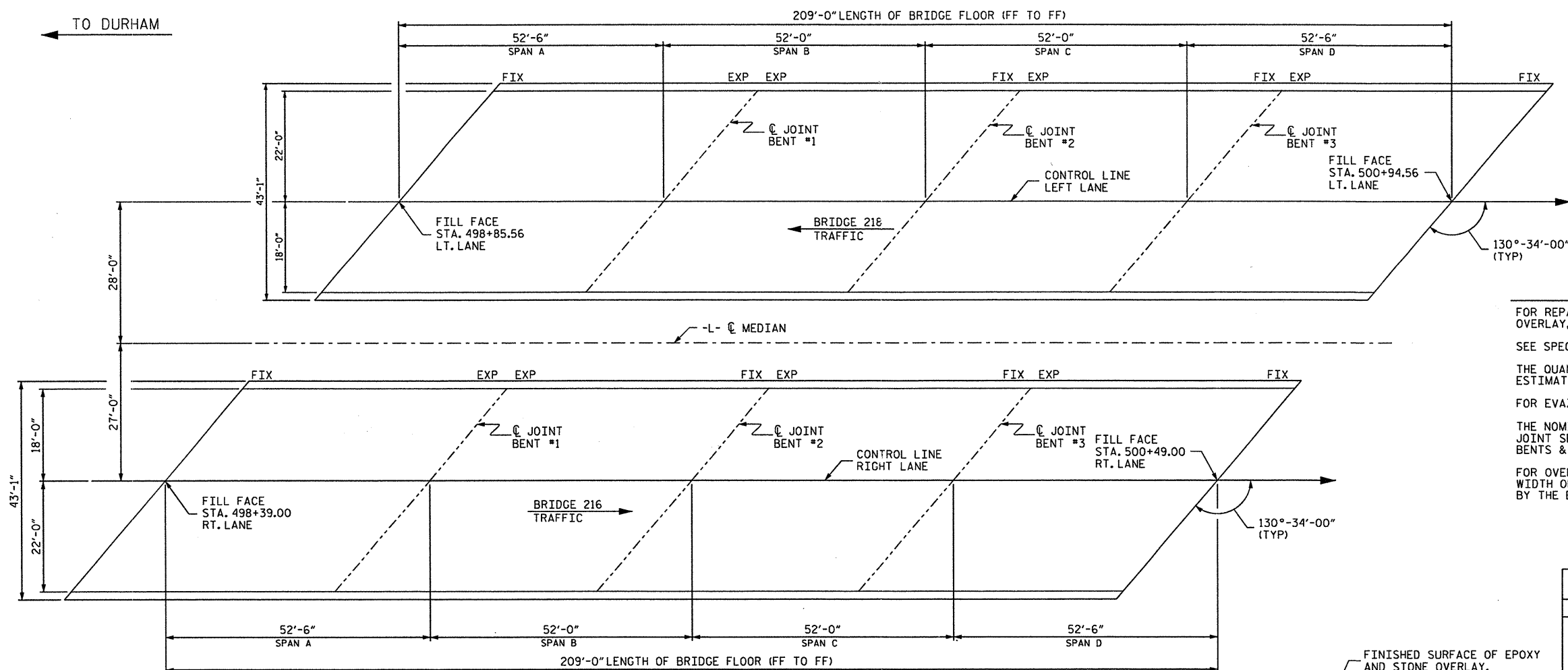


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGES #200 & 201  
 ON I-85  
 OVER RED MILL RD  
 40' CL. ROADWAY 120° SKEW

REVISIONS					TOTAL SHEETS
NO.	BY	DATE	NO.	BY	
1			3		TOTAL SHEETS
2			4		

DRAWN BY: CLB DATE: 01/11  
 CHECKED BY: EBN DATE: 01/11

\*\*\*\*\*SYSTEM\*\*\*\*\*



PLAN

**NOTES**

FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.

SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.

THE QUANTITY FOR CLASS II DECK REPAIR IS ESTIMATED.

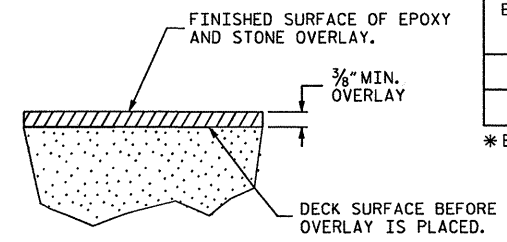
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 3/16" @ BENT 1, 2 1/2" @ THE END BENTS & BENTS 2 & 3.

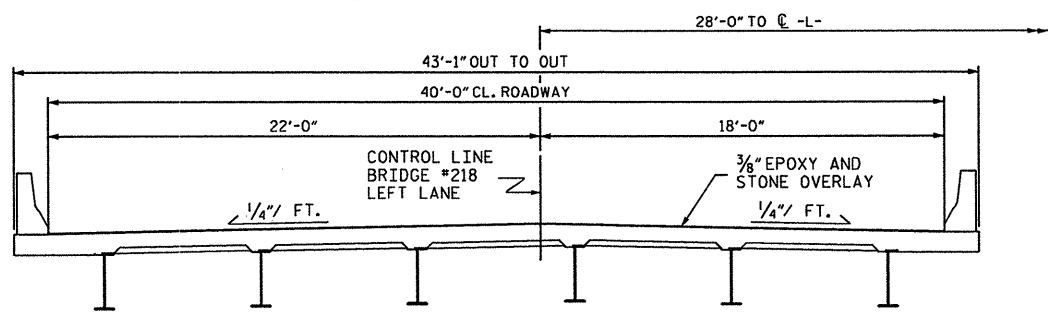
FOR OVER-SAWED JOINTS THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE DETERMINED BY THE ENGINEER.

TOTAL BILL OF MATERIAL FOR BRIDGES 216 & 218		
EPOXY/STONE OVERLAY	EVAZOTE JOINT SEALS	* CLASS II DECK REPAIRS
SO.FT.	LUMP SUM	SO.FT.
16720	LUMP SUM	170

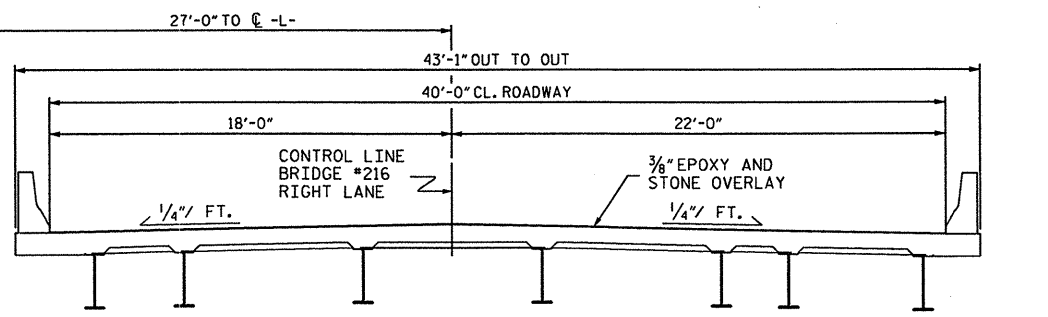
\* ESTIMATED QUANTITY. SEE SPECIAL PROVISIONS.



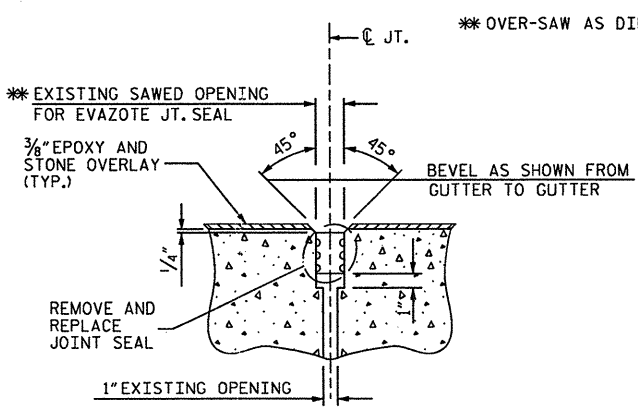
DETAIL FOR EPOXY AND STONE OVERLAY



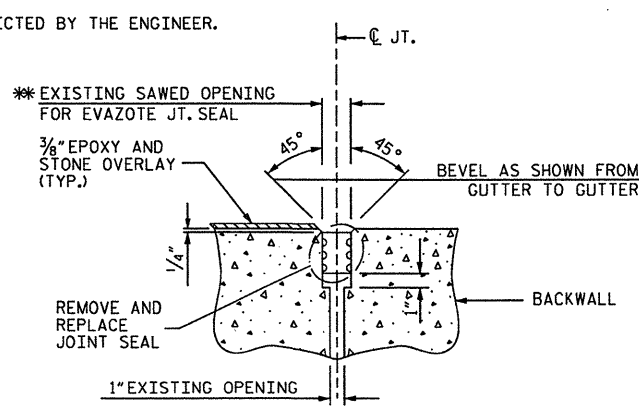
TYPICAL SECTION



TYPICAL SECTION



JOINT DETAILS @ BENTS  
EVAZOTE JOINT SEAL EXPANSION



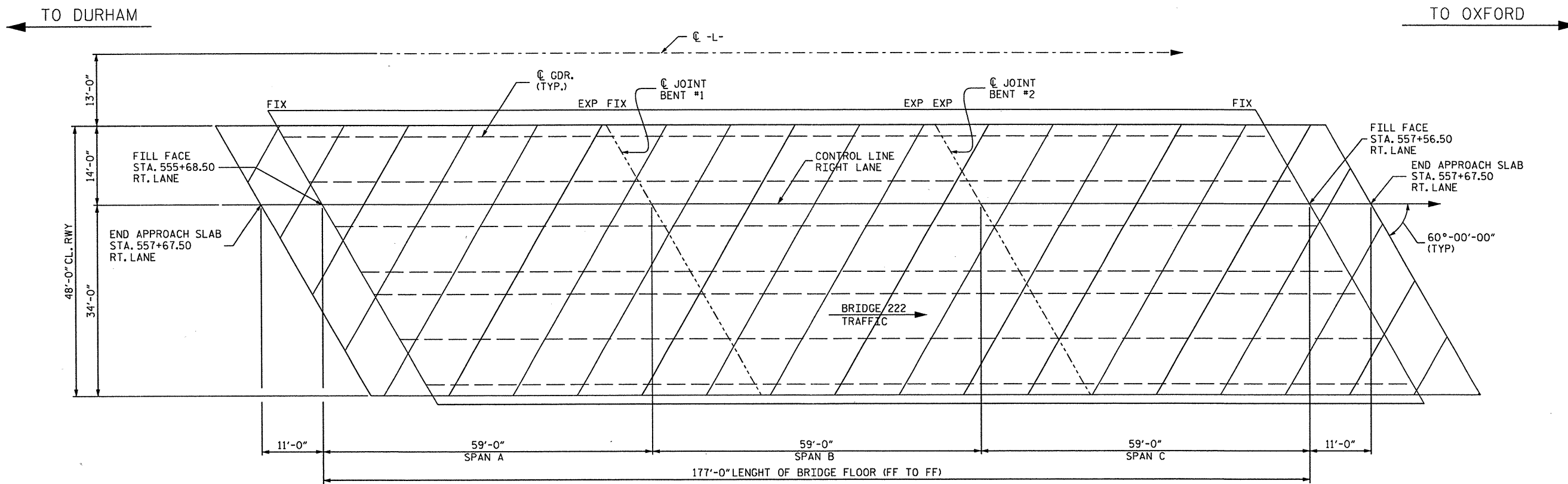
JOINT DETAILS @ END BENTS  
EVAZOTE JOINT SEAL EXPANSION

PROJECT NO. 47023.3.1  
 COUNTY: DURHAM  
 DECK REPAIR BRIDGES: No. 216 & 218

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGES #216 & 218  
 ON I-85 OVER  
 NORFOLK SOUTHERN R.R.  
 40' CL. ROADWAY 130°-34' SKEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			

DRAWN BY: CLB DATE: 01/11  
 CHECKED BY: EBN DATE: 01/11

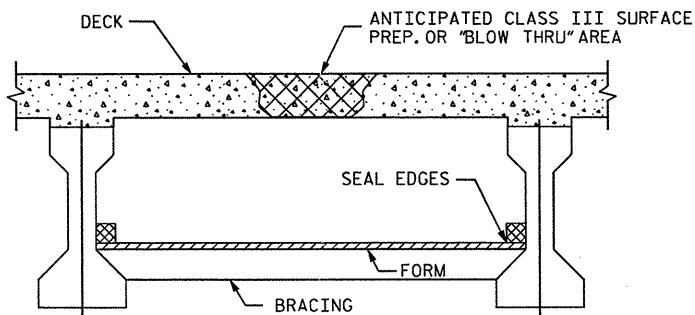


PLAN



NOTES

- FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- SEE SPECIAL PROVISIONS FOR SURFACE PREPARATION.
- FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS .
- FOR UNDER DECK CONTAINMENT SEE SPECIAL PROVISIONS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN -OFF WATER FROM THE HYDRO- DEMOLITION PROCESS, SEE SPECIAL PROVISIONS.
- THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE.
- FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

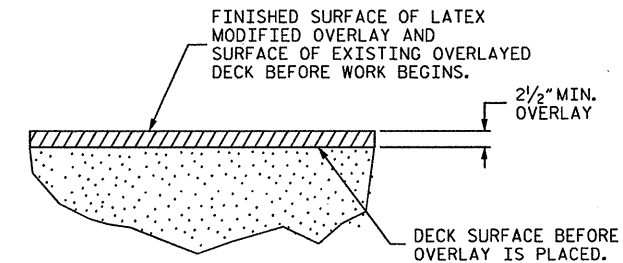


TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.

SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.

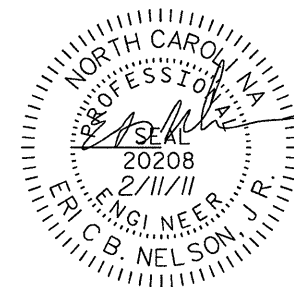
COST FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

TOTAL BILL OF MATERIAL								
** SCARIFYING BRIDGE DECK	* CLASS I SURFACE PREPARATION	* CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	** HYDRO-DEMOLITION OF BRIDGE DECK	** LATEX MODIFIED CONCRETE VERY EARLY STRENGTH	** PLACING & FINISHING LATEX MODIFIED CONCRETE VERY EARLY STRENGTH	EVAZOTE JOINT SEALS	** GROOVING BRIDGE FLOORS
SO.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	C.Y.	SO.YDS.	LUMP SUM	SO. FT.
1061	1061	0	0	1061	87	1044	LUMP SUM	9552

\* QUANTITY SHOWN IS FOR INFORMATION ONLY. \*\* INCLUDES APPROACH SLAB.

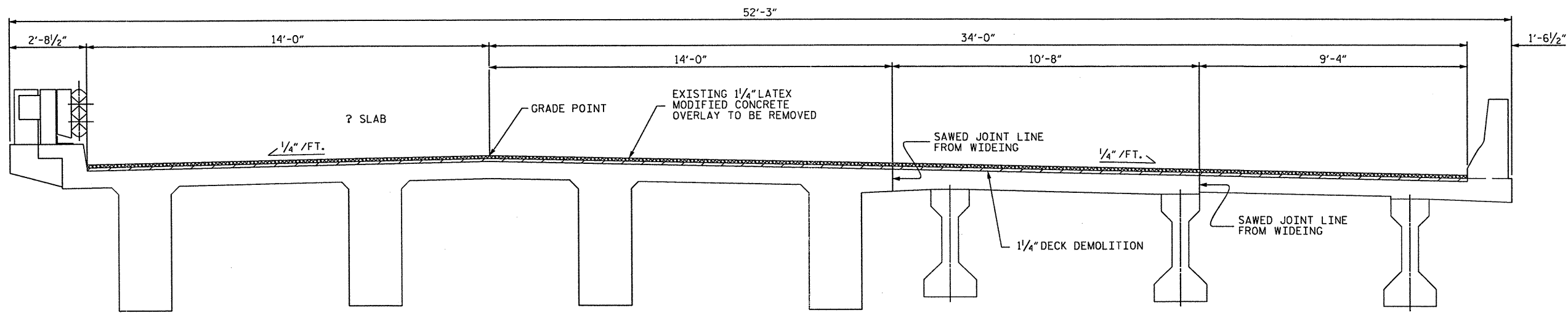


PROJECT NO. 47023.3.1  
 COUNTY: DURHAM  
 DECK REPAIR BRIDGE: No. 222

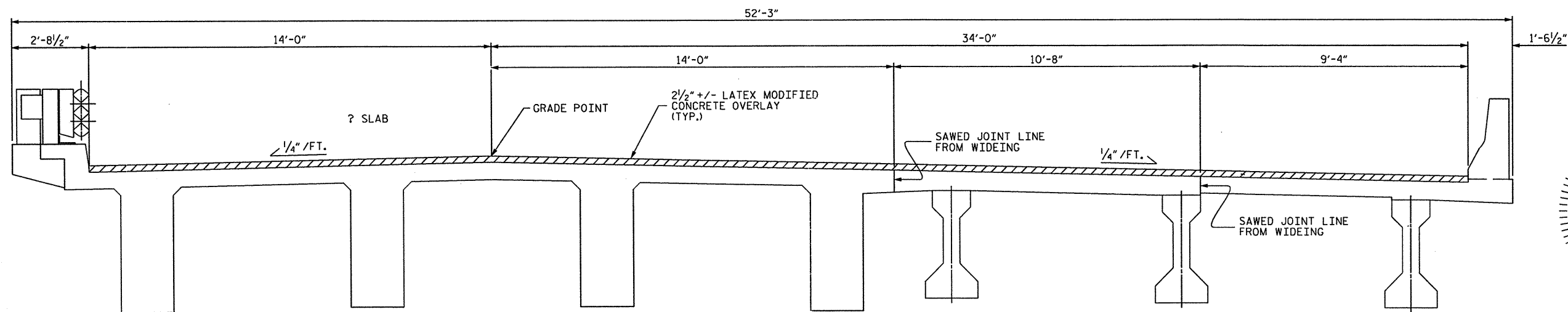
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 PLAN VIEW OF BRIDGE  
 #222 ON I-85  
 OVER REDWOOD RD  
 48' CL. ROADWAY 60° SKEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			

DRAWN BY: CLB DATE: 01/11  
 CHECKED BY: EBN DATE: 01/11



PLAN



PLAN

**NOTES**

FOR EVAZOTE JOINT SEAL, SEE SPECIAL PROVISIONS.

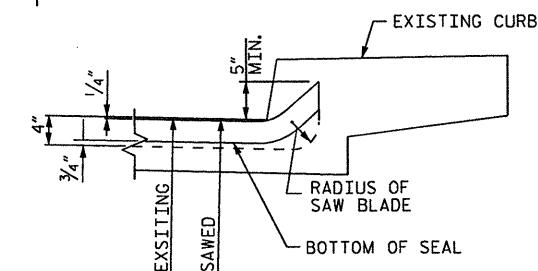
THE INSTALLED EVAZOTE JOINT SEALS SHALL BE WATERTIGHT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF EVAZOTE JOINT SEAL SHALL BE 2 1/2" @ THE END BENTS & BENT 1, 2 3/16" @ BENT 2.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE EVAZOTE JOINT SEAL IN LIEU OF SAWING THE JOINT.

ELASTOMERIC CONCRETE	
END BENTS	25.4 (CU. FT.)
BENTS	25.4 (CU. FT.)
<b>* TOTAL</b>	<b>50.8 (CU. FT.)</b>

\* BASED ON THE MINIMUM BLOCKOUT SHOWN.

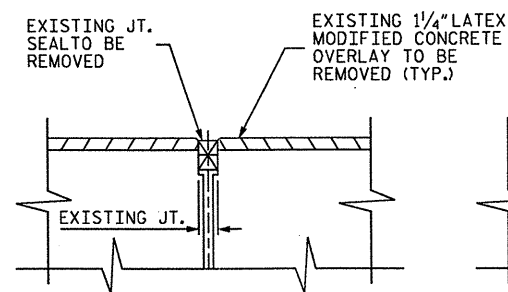


SECTION D-D

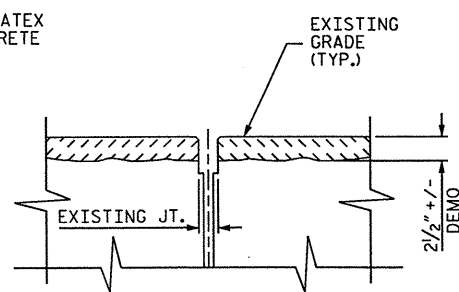
PROJECT NO. 47023.3.1  
 COUNTY: DURHAM  
 DECK REPAIR BRIDGE: No. 222

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 TYPICAL SECTION  
 &  
 JOINT DETAILS  
 48' CL. ROADWAY 60° SKEW

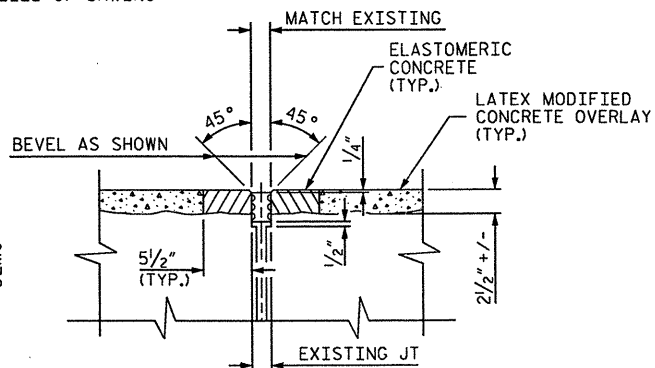
REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		



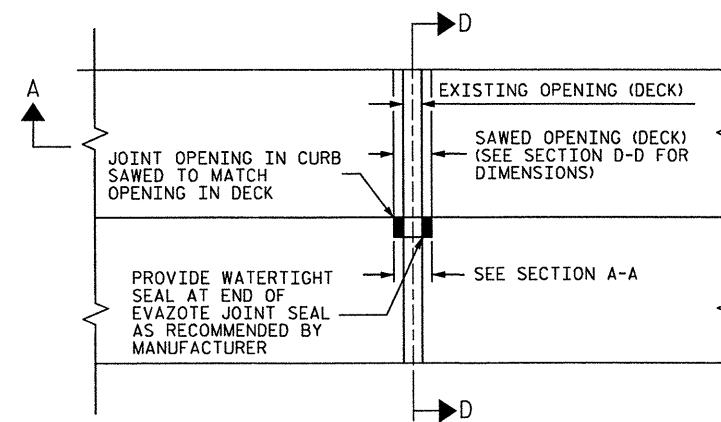
SECTION A-A  
(EXISTING JOINT)



SECTION A-A  
(MINIMUM EXISTING JOINT DEMOLITION)



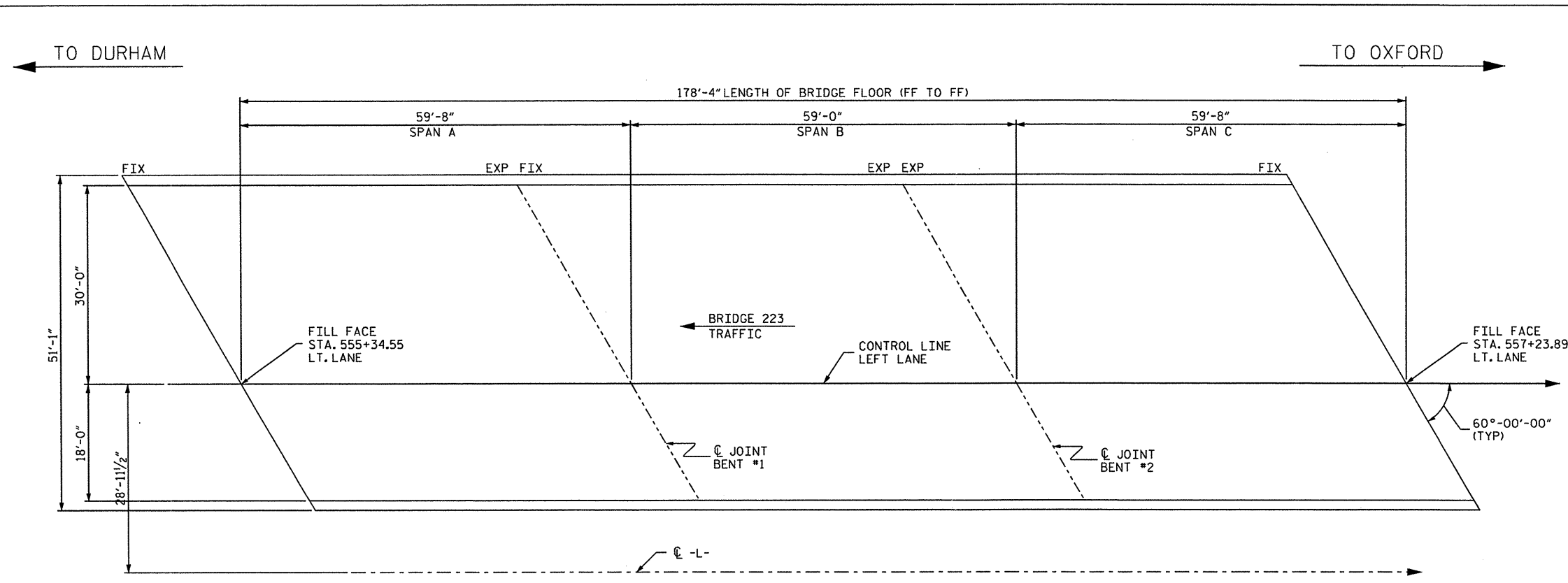
SECTION A-A  
(PROPOSED EVAZOTE JOINT SEAL EXPANSION)



PLAN

DRAWN BY: CLB DATE: 01/11  
 CHECKED BY: EBN DATE: 01/11

S-4



**NOTES**

FOR REPAIR OF BRIDGE WITH EPOXY AND STONE OVERLAY, SEE SPECIAL PROVISIONS.

SEE SPECIAL PROVISIONS FOR CLASS II DECK REPAIRS.

THE QUANTITY FOR CLASS II DECK REPAIR IS ESTIMATED.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2" @ END BENTS & BENT 1, 2 1/16" @ BENT 2.

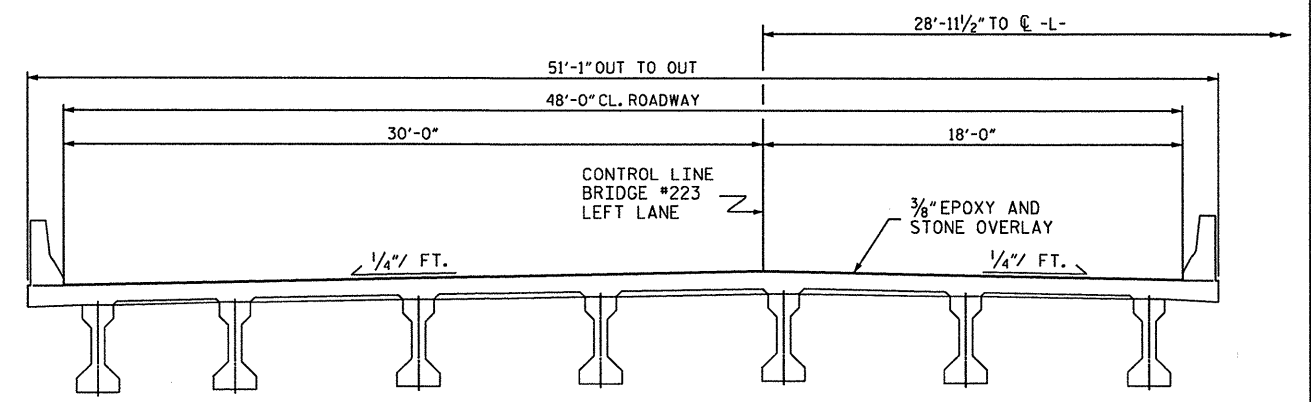
FOR OVER-SAWED JOINTS THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE DETERMINED BY THE ENGINEER.

**TOTAL BILL OF MATERIAL**  
FOR BRIDGE 223

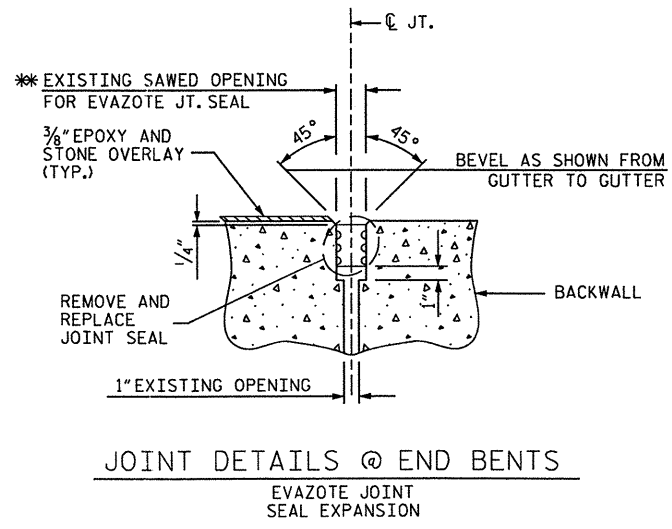
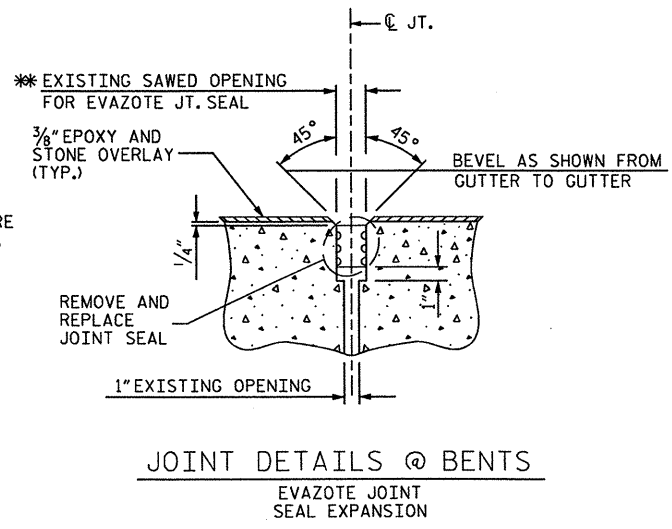
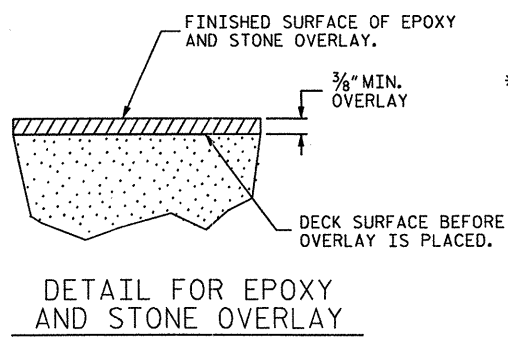
EPOXY/STONE OVERLAY	EVAZOTE JOINT SEALS	* CLASS II DECK REPAIRS
SQ.FT.	LUMP SUM	SQ.FT.
8560	LUMP SUM	85

\* ESTIMATED QUANTITY. SEE SPECIAL PROVISIONS.

**PLAN**



**TYPICAL SECTION**



\*\* OVER-SAW AS DIRECTED BY THE ENGINEER.



PROJECT NO. 47023.3.1  
 COUNTY: DURHAM  
 DECK REPAIR BRIDGE: No. 223

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

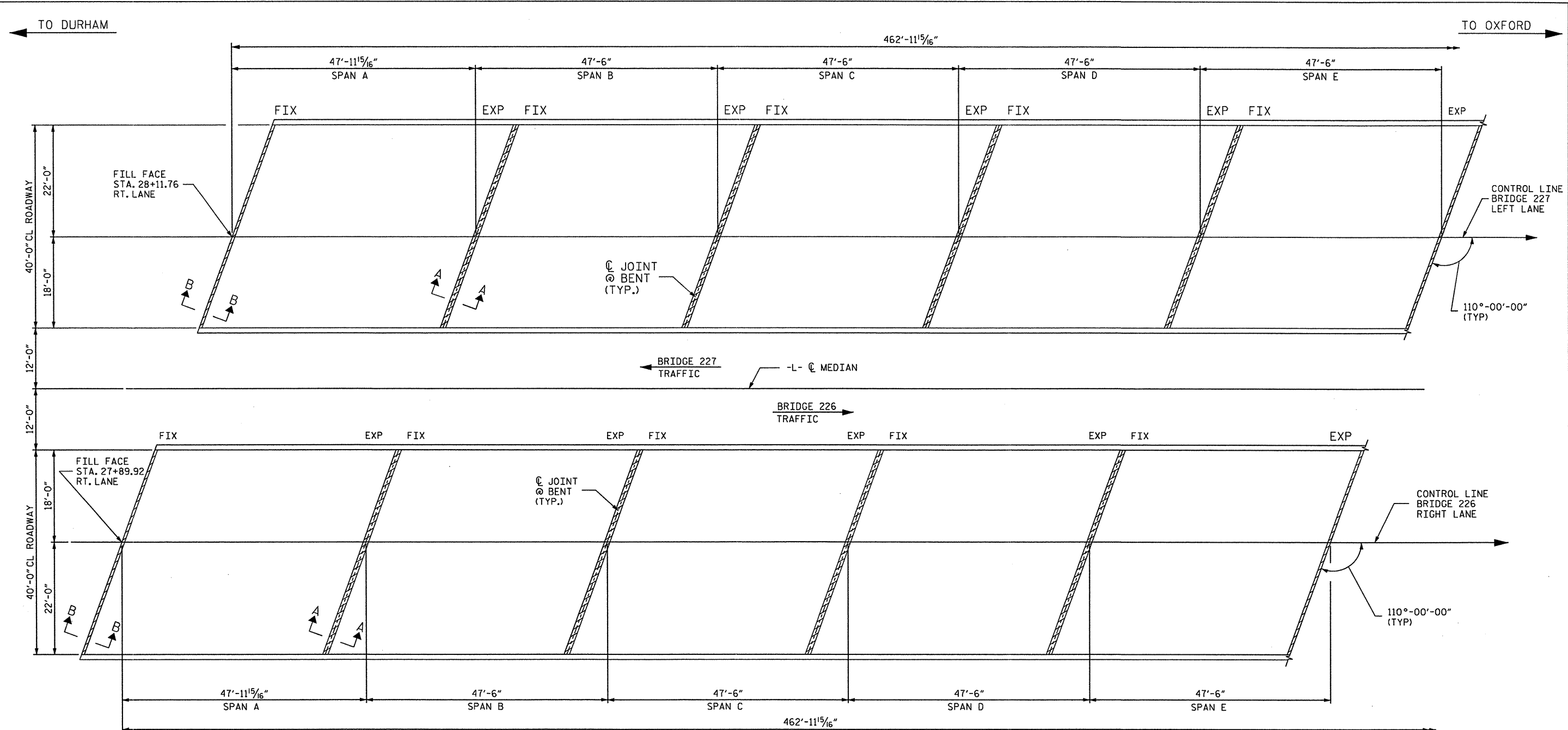
BRIDGE #223 ON I-85  
 OVER REDWOOD RD  
 48' CL. ROADWAY 60° SKEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS
2			4			

DRAWN BY: CLB DATE: 01/11  
 CHECKED BY: EBN DATE: 01/11

\*\*\*\*\*SYSTEM\*\*\*\*\*

S-5



APPROX. AREA: CLASS II REPAIR  
 APPROX. AREA: CLASS III REPAIR

PLAN

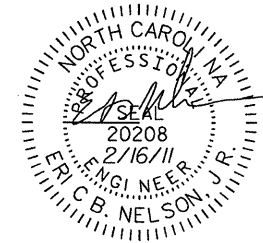
NOTES

FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.  
 SEE SPECIAL PROVISIONS FOR SURFACE PREPARATION.  
 FOR HYDRO-DEMOLITION, SEE SPECIAL PROVISIONS.  
 FOR UNDER DECK CONTAINMENT SEE SPECIAL PROVISIONS.  
 THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE SPECIAL PROVISIONS.  
 THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS III SURFACE PREPARATION ARE APPROXIMATE.  
 FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL								
SCARIFYING BRIDGE DECK	* CLASS I SURFACE PREPARATION	* CLASS II SURFACE PREPARATION	* CLASS III SURFACE PREPARATION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE VERY EARLY STRENGTH	PLACING & FINISHING LATEX MODIFIED CONCRETE VERY EARLY STRENGTH	EVAZOTE JOINT SEALS	GROOVING BRIDGE FLOORS
SO.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	SO.YDS.	C.Y.	SO.YDS.	LUMP SUM	SO. FT.
4108	4013	95	0	4108	282	4070	LUMP SUM	36962

\* QUANTITY SHOWN IS FOR INFORMATION ONLY.

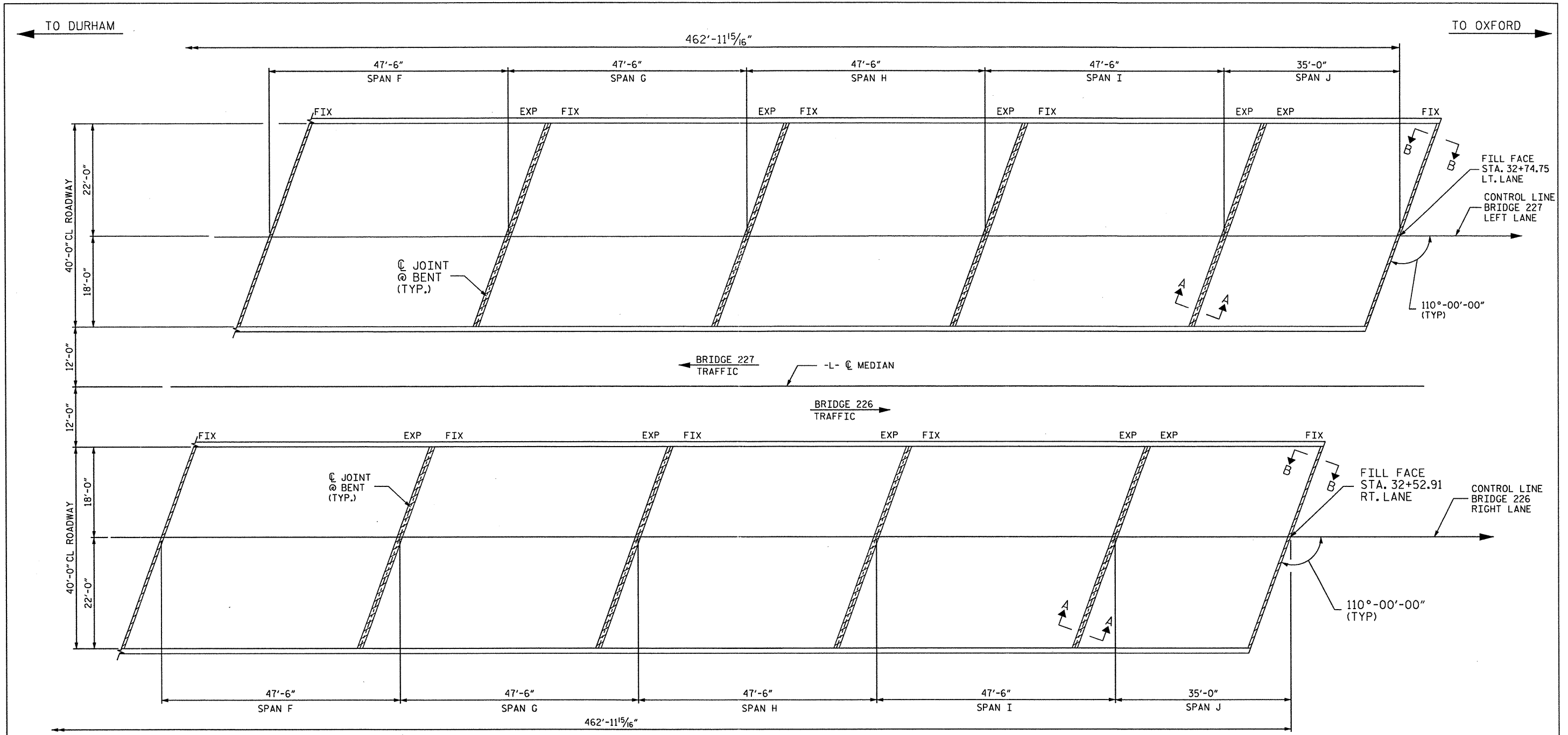
PROJECT NO. 47023.3.1  
 COUNTY: DURHAM  
 DECK REPAIR BRIDGES  
 No: 226 & 227



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGES #226 & 227  
 ON I-85 OVER  
 FALLS LAKE  
 40' CL. ROADWAY 110°-00' SKEW

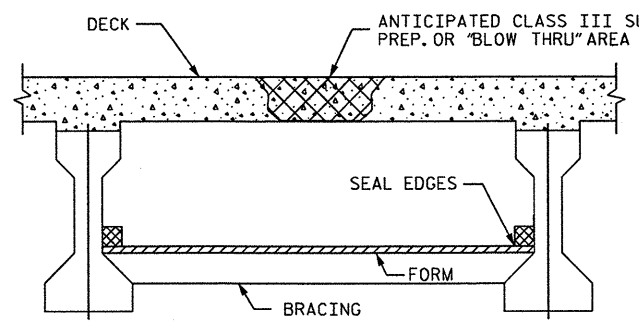
REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

DRAWN BY: CLB DATE: 01/11  
 CHECKED BY: EBN DATE: 01/11



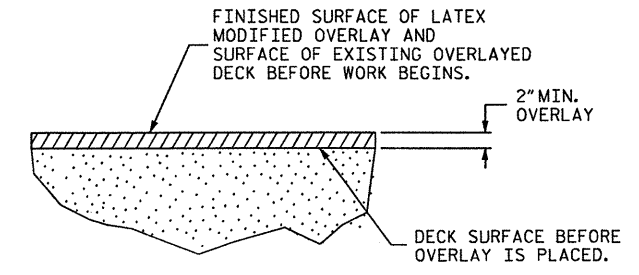
PLAN

- APPROX. AREA: CLASS II REPAIR
- APPROX. AREA: CLASS III REPAIR



TYP. "BLOW THRU" CONTAINMENT AND FORMWORK

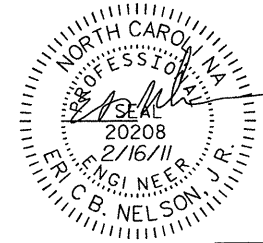
A METHOD TO CAPTURE WATER AND DEBRIS FROM BLOW THRU DURING HYDRO-DEMOLITION SHALL BE INSTALLED IN AREAS INDICATED AS CLASS III SURFACE PREPARATION.  
 SUBMIT DETAILS OF PROPOSED FORMWORK FOR APPROVAL PRIOR TO BEGINNING WORK.  
 COST FOR INSTALLING AND REMOVING FORMWORK SHALL BE INCIDENTAL TO THE PRICE PER SQ. YARD OF HYDRO-DEMOLITION.



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

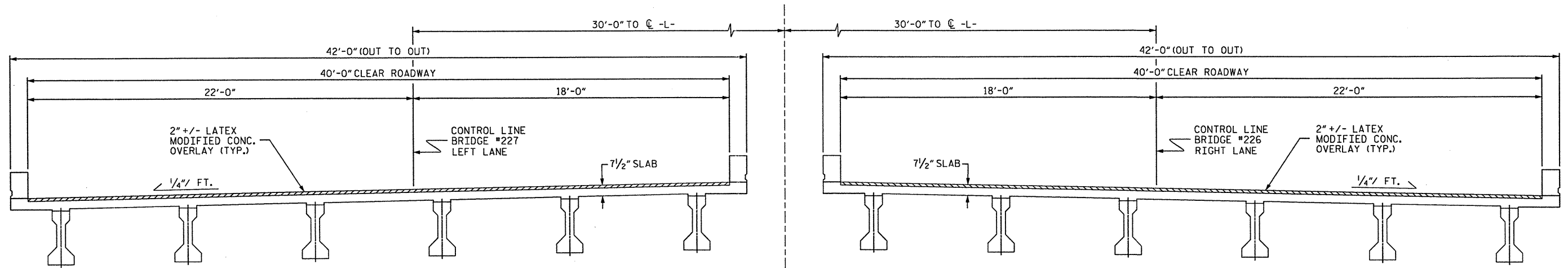
PROJECT NO. 47023.3.1  
 COUNTY: DURHAM  
 DECK REPAIR BRIDGES  
 No: 226 & 227

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGES #226 & 227  
 ON I-85 OVER  
 FALLS LAKE  
 40' CL. ROADWAY 110°-00' SKEW



REVISIONS				SHEET NO.	
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

DRAWN BY: CLB DATE: 01/11  
 CHECKED BY: EBN DATE: 01/11



TYPICAL SECTION

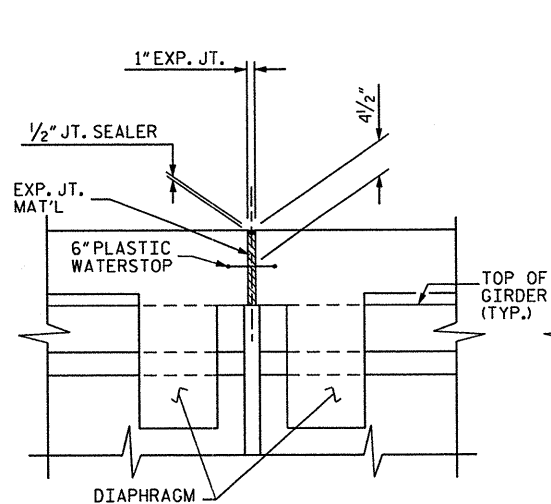
TYPICAL SECTION

NOTES

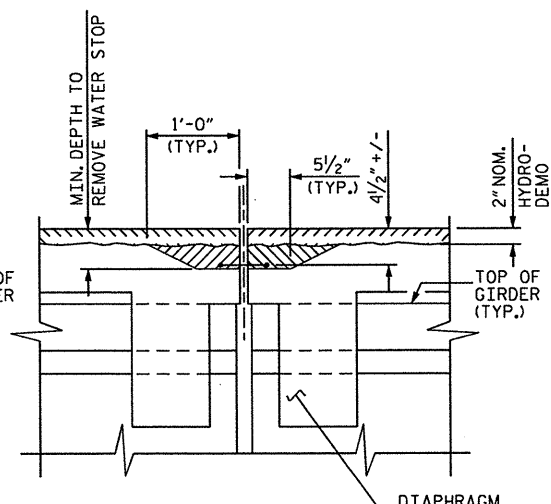
FOR EVAZOTE JOINT SEAL, SEE SPECIAL PROVISIONS.  
THE INSTALLED EVAZOTE JOINT SEALS SHALL BE WATERTIGHT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF EVAZOTE JOINT SEAL SHALL BE 2 1/2".

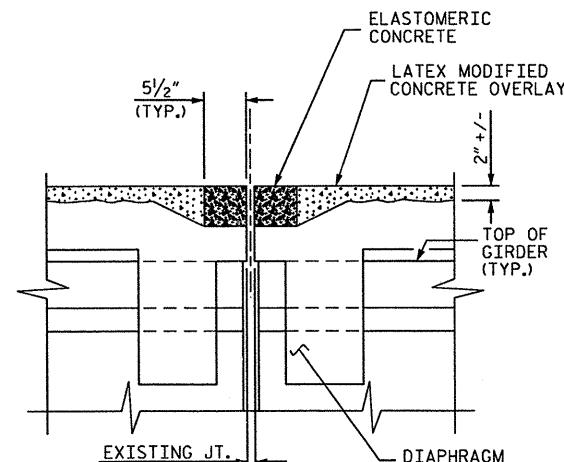
THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE EVAZOTE JOINT SEAL IN LIEU OF SAWING THE JOINT.



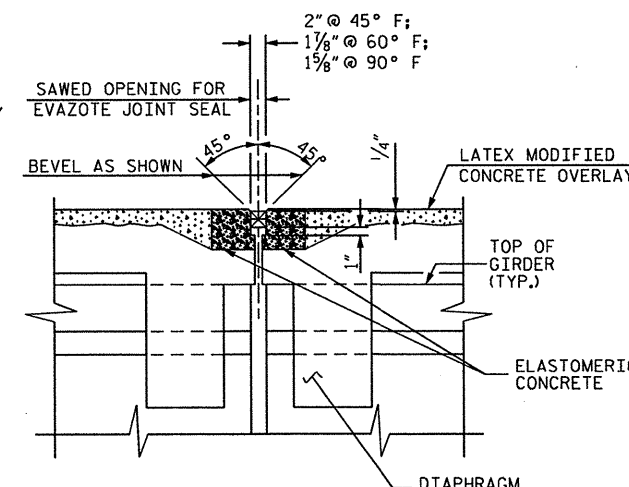
SECTION A-A  
(EXISTING JOINT)



SECTION A-A  
(MINIMUM EXISTING  
JOINT DEMOLITION)



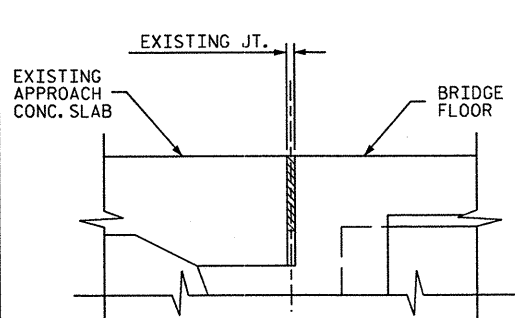
SECTION A-A  
(EVAZOTE JOINT SEAL  
(PRE-SAWED ELASTOMERIC  
CONCRETE DIMENSIONS))



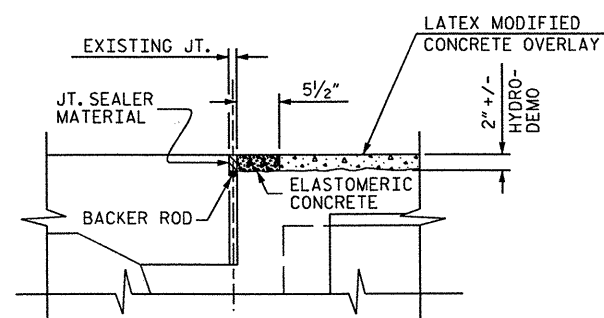
SECTION A-A  
(EVAZOTE JOINT SEAL  
EXPANSION)

ELASTOMERIC CONCRETE	
END BENTS	16.3 (CU. FT.)
BENTS	146.3 (CU. FT.)
<b>* TOTAL</b>	<b>162.6 (CU. FT.)</b>

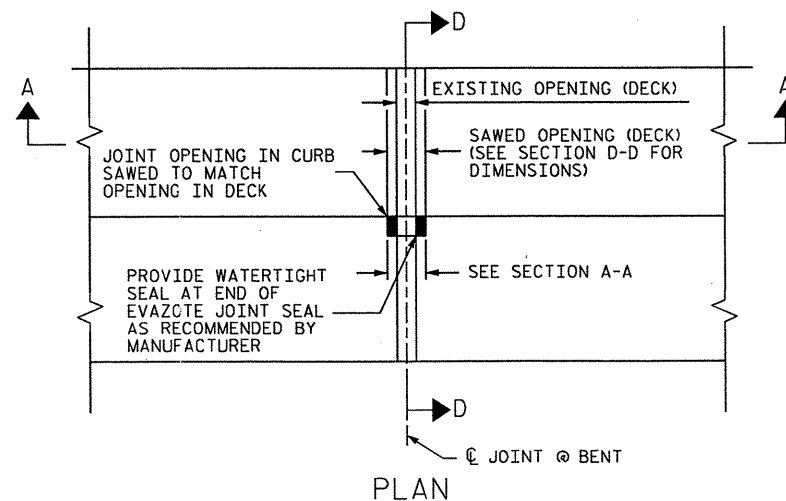
\* BASED ON THE MINIMUM BLOCKOUT SHOWN.



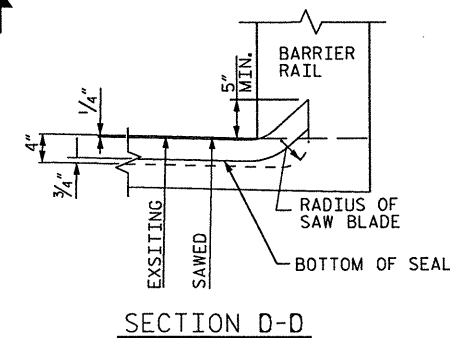
SECTION B-B  
(EXISTING JOINT)



SECTION B-B  
(PROPOSED JOINT)



PLAN



SECTION D-D

PROJECT NO. 47023.3.1  
COUNTY: DURHAM  
DECK REPAIR BRIDGES  
No: 226 & 227

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
TYPICAL SECTIONS  
&  
JOINT DETAILS  
40' CL. ROADWAY 110°-00' SKEW

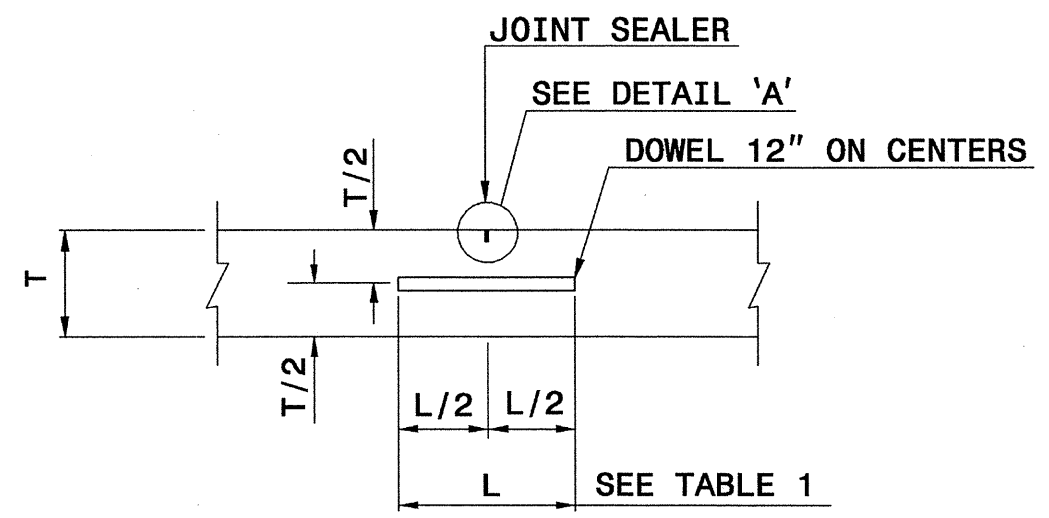
REVISIONS				SHEET NO.
NO.	BY	DATE	NO.	
1			3	TOTAL SHEETS
2			4	

DRAWN BY: CLB DATE: 01/11  
CHECKED BY: EBN DATE: 01/11

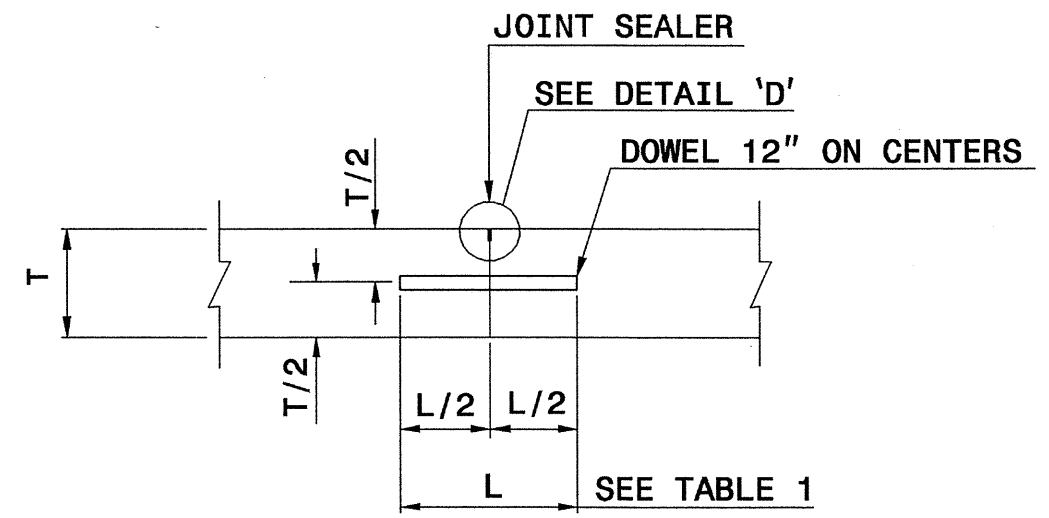
\*\*\*\*\*SYTIME\*\*\*\*\*

S-8



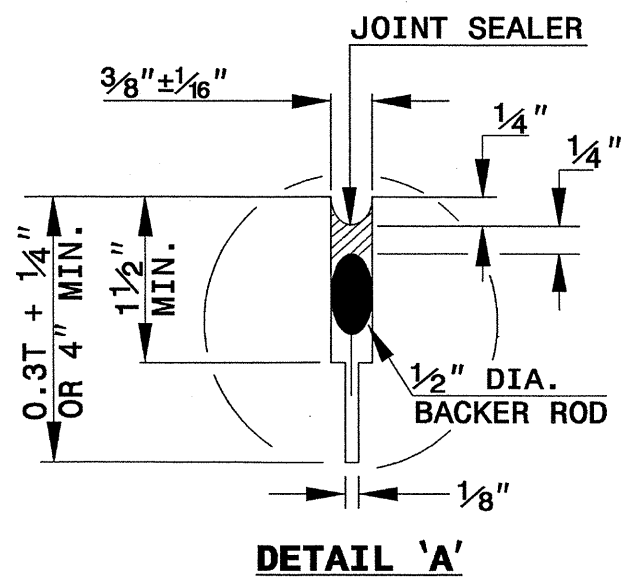


**TRANSVERSE CONTRACTION JOINT**

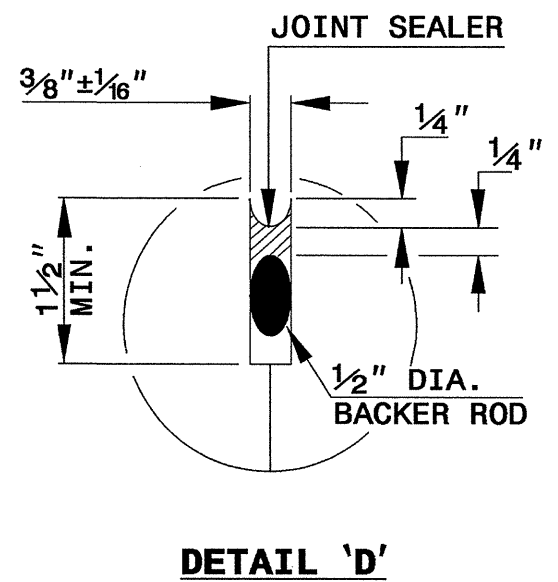


**PLANNED TRANSVERSE CONSTRUCTION JOINT**

- GENERAL NOTES:**
- FORM TRANSVERSE CONTRACTION JOINTS BY SAWING WITH APPROVED EQUIPMENT.
  - SPACE TRANSVERSE CONTRACTION JOINTS AT INTERVALS OF 15'.
  - USE A DOWEL ASSEMBLY OR OTHER APPROVED DOWEL INSERTION TECHNIQUE IN ALL TRANSVERSE CONTRACTION JOINTS. DOWEL ASSEMBLIES ARE COVERED IN DETAIL 700D03.
  - PROVIDE SMOOTH DOWEL BARS. PROVIDE DEFORMED TIE BARS.
  - WHEN UTILIZING AN EARLY ENTRY SAW, CUT THE JOINT TO A MINIMUM DEPTH OF 4".

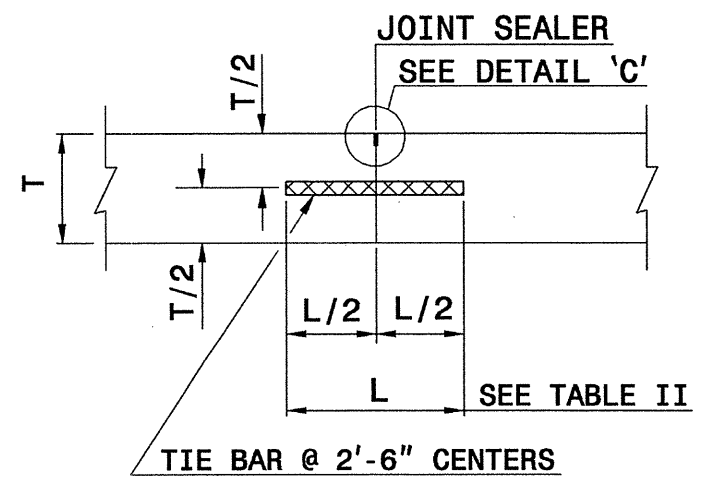


**DETAIL 'A'**

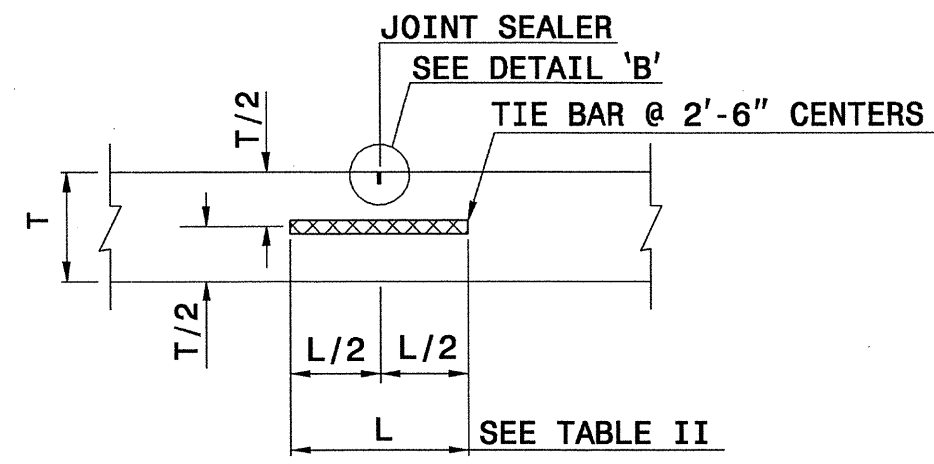


**DETAIL 'D'**

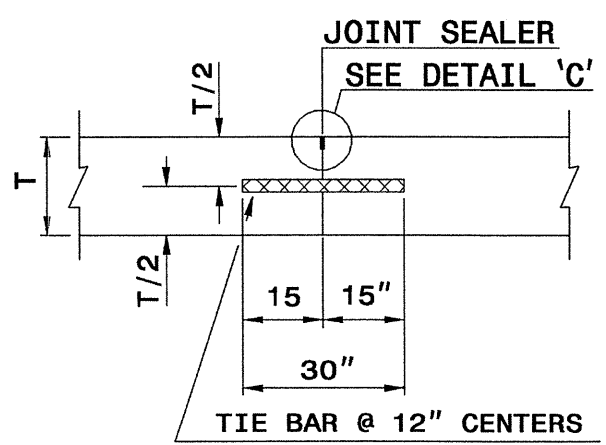
TABLE I - DOWEL BARS		
SLAB THICKNESS	DOWEL BAR "D"	DOWEL LENGTH "L"
8" OR LESS	1"	14"
8 1/2" TO 9 1/2"	1 1/8"	16"
10" TO 10 1/2"	1 1/4"	18"
11" AND ABOVE	1 1/2"	18"



**LONGITUDINAL CONSTRUCTION JOINT**



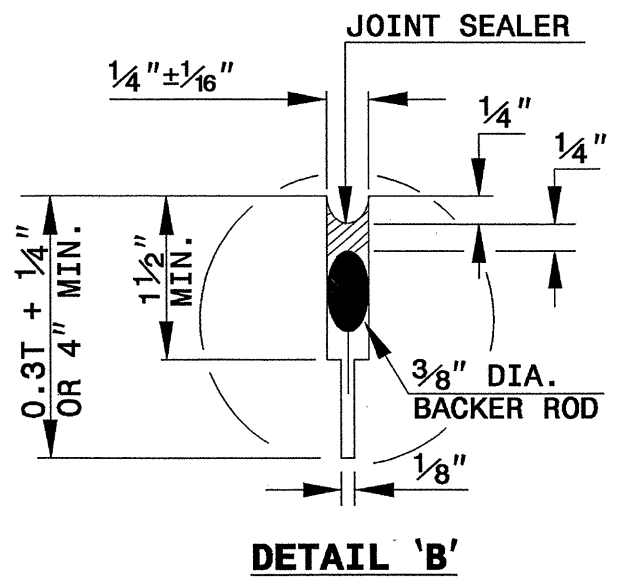
**LONGITUDINAL JOINT**



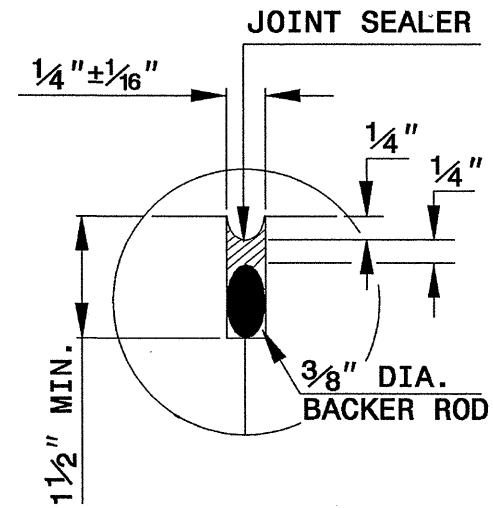
**EMERGENCY TRANSVERSE CONSTRUCTION JOINT**

**GENERAL NOTES:**

- CONSTRUCT TRANSVERSE CONSTRUCTION JOINTS AT THE END OF EACH DAY'S OPERATION (PLANNED JOINT) OR WHEN THE PLACING OF CONCRETE IS SUSPENDED FOR MORE THAN 30 MINUTES (EMERGENCY JOINT).
- USE AN APPROVED HEADER AT EMERGENCY JOINTS STD. DWG. 700.04 AND DESIGNED TO PERMIT THE PLACEMENT OF AND CORRECTLY HOLD IN PLACE TIE BARS.
- USE TIE BARS OF THE SAME DIAMETER AS DOWEL BARS FOR EMERGENCY TRANSVERSE CONSTRUCTION JOINTS.
- LOCATE PLANNED TRANSVERSE CONSTRUCTION JOINTS AT THE SPACING REQUIRED FOR CONTRACTION JOINTS. USE AN APPROVED METHOD OF INSTALLING DOWELS IN ALL PLANNED TRANSVERSE CONSTRUCTION JOINTS.
- DO NOT LOCATE EMERGENCY TRANSVERSE CONSTRUCTION JOINTS LESS THAN 6' FROM ANY CONTRACTION JOINT OR PLANNED CONSTRUCTION JOINT.
- DO NOT PLACE TIE BARS IN LONGITUDINAL JOINTS WITHIN 1'-4" OF A TRANSVERSE JOINT.
- WHEN UTILIZING AN EARLY ENTRY SAW, CUT THE JOINT TO A MINIMUM DEPTH OF 4".



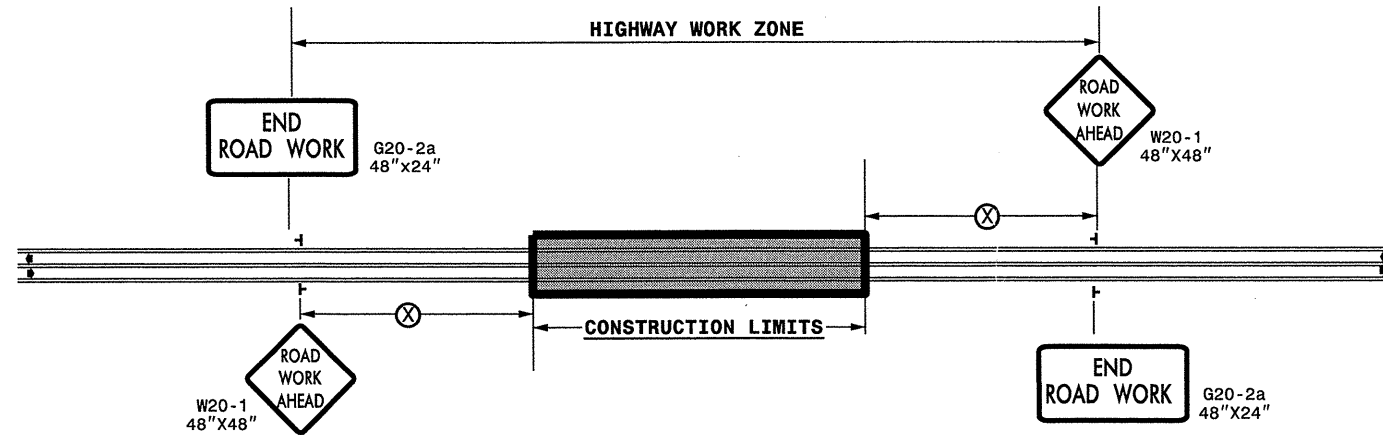
**DETAIL 'B'**



**DETAIL 'C'**

TABLE II - LONGITUDINAL TIE BARS		
SLAB THICKNESS	TIE BAR DIA. "D"	TIE BAR LENGTH "L"
8 1/2" OR LESS	1/2"	30"
9" OR ABOVE	5/8"	30"

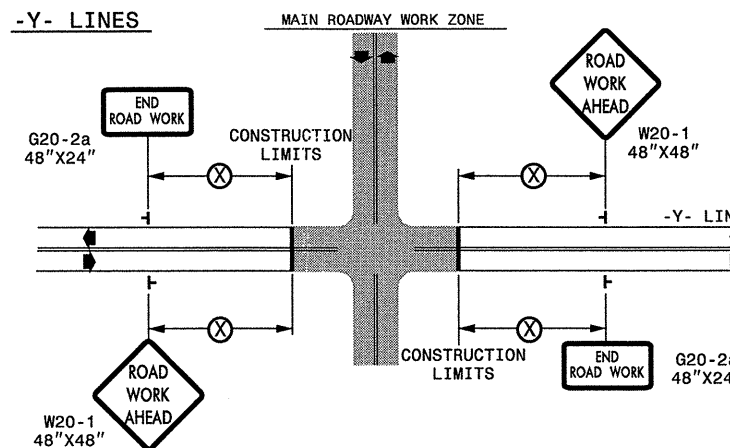
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
≤ 50	500'
≥ 55	1000'

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

**ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)**



**GENERAL NOTES**

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- \*\* TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

DETAIL DRAWING FOR  
TWO-WAY UNDIVIDED  
WORK ZONE WARNING SIGNS

**LEGEND**

┆ STATIONARY SIGN

◀ DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

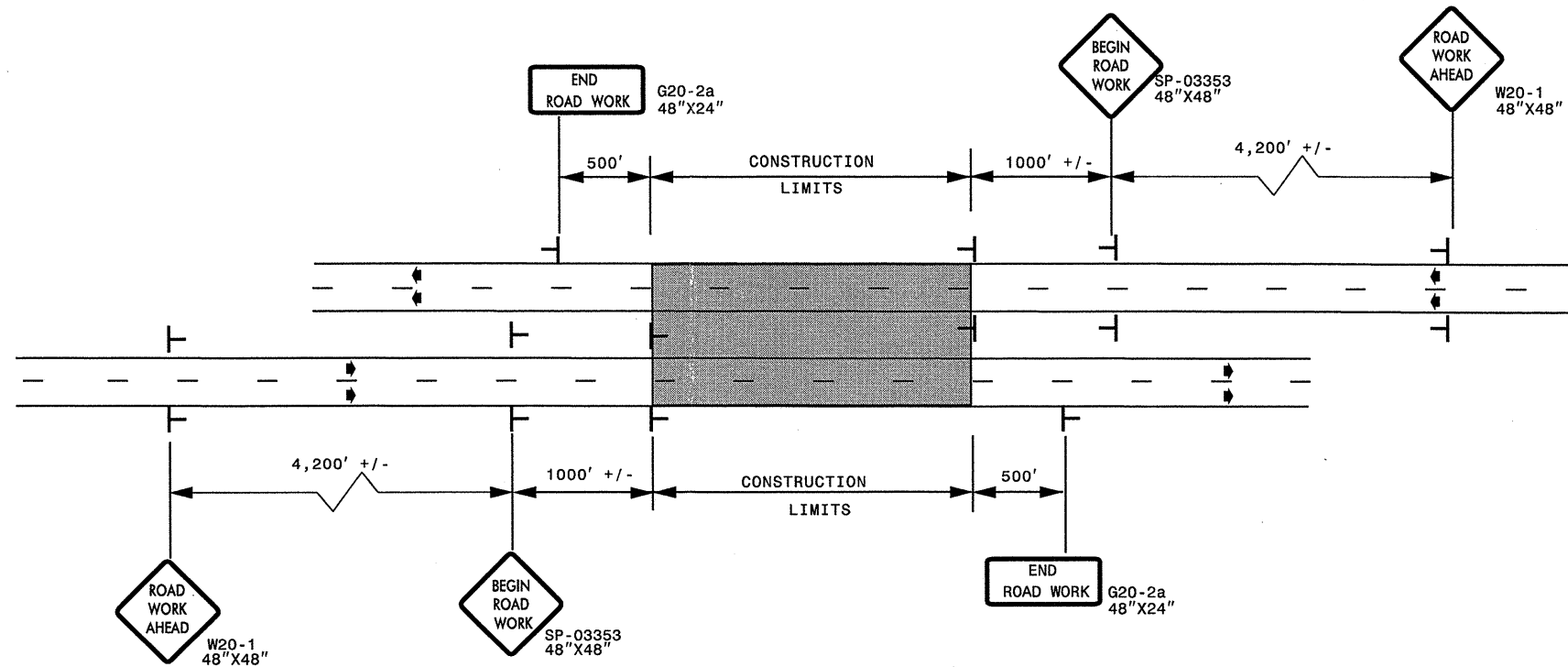
APPROVED: _____ DATE: _____	DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS ADVANCED WORK ZONE WARNING SIGNS	
SEAL	SCALE: NONE	REVISIONS
	DATE: _____	7-98 10/01
	DWG. BY: _____	10-98 03/04
	DESIGN BY: _____	01/01 11/04
REVIEWED BY: _____	CARD FILE	

O:\MAR-2011\5145\DOT\DOT\GROUPS\WTC\CC\WTC\Resurfacing\2011\Central\2011.DIV05\202620\_47023.3.L\I-5145\_DurhamGranville-J-85-AF\202620\_47023.3.L\I-5145\_DurhamGranville-J-85-2way-Undiv-&Urban-Fr.wys-station-bpschoenbauer AT TE24737

# ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

PROJ. REFERENCE NO.	SHEET NO.
I-5145	TCP-2
WBS 47023.3.1	

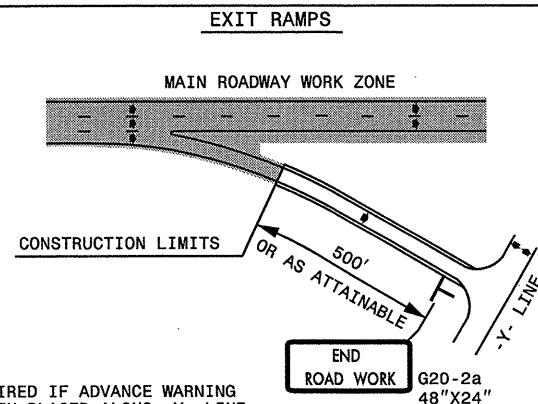
## DETAIL A



LEGEND	
	STATIONARY SIGN
◆	DIRECTION OF TRAFFIC FLOW

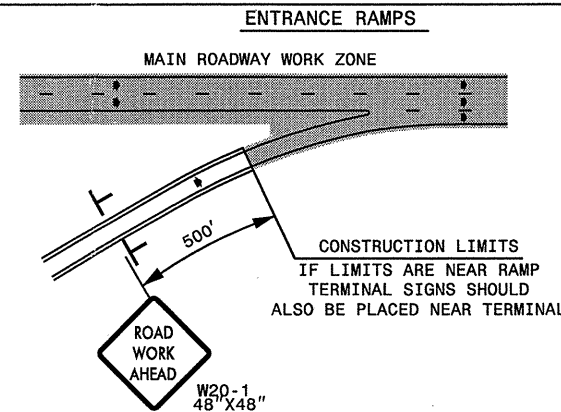
\* USE THE "\$250 SPEEDING PENALTY" SIGN, SPEED LIMIT SIGN, AND ORANGE PANEL; ONLY WHEN A "\$250 SPEEDING PENALTY" ORDINANCE HAS BEEN ISSUED BY THE REGIONAL TRAFFIC ENGINEER.

## DETAIL B

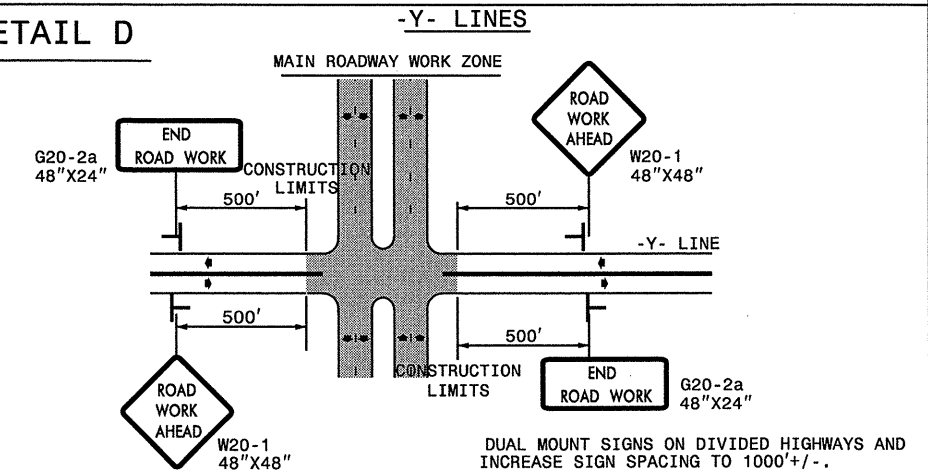


NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

## DETAIL C



## DETAIL D



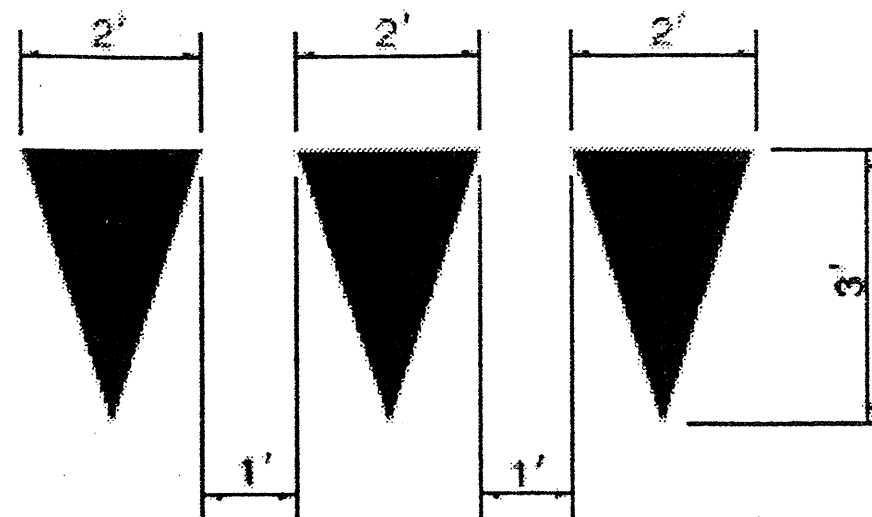
DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000'+/-.

## GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B); MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.

APPROVED: _____ DATE: _____	ADVANCED WORK ZONE WARNING SIGNS FOR FREEWAYS (4 LANES OR GREATER)	
<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; margin: 0 auto;"></div> SEAL	SCALE: NONE	REVISIONS
	DATE: 8/03	03/04
	DWG. BY: JI	
	DESIGN BY: JI	
REVIEWED BY: _____		CADD FILE

O:\MAR-2011\5145\RESUR\GROUPS-WZTC\TMC\WZTC\Resur\facimg\2011\Centra\2011\5145\DurhamGranville\_I-85\_AF\202620\_47023.3.1-I-5145\_DurhamGranville\_I-85\_freeways\_4lanes\_or\_greater\_start.dwg

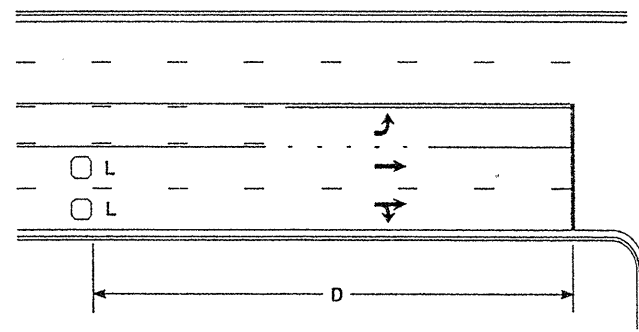


SPECIAL DETAIL FOR  
YIELD LINE

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YIELD LINE WILL BE PAID FOR AS  
THERMOPLASTIC AND/OR PAINT SYMBOLS (EACH)

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

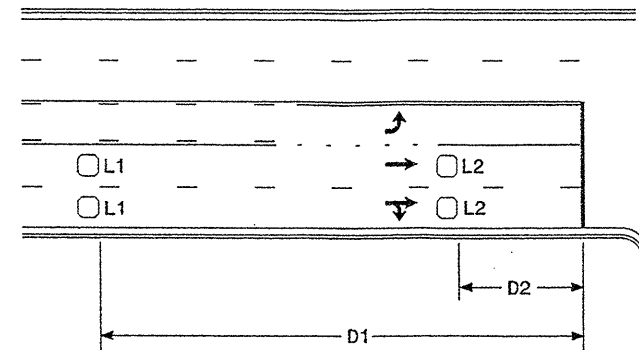


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

OR

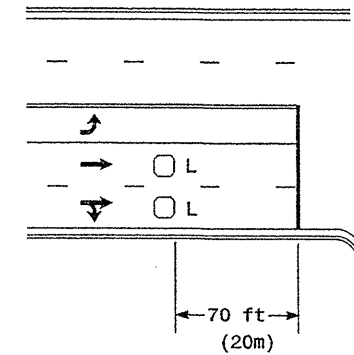


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

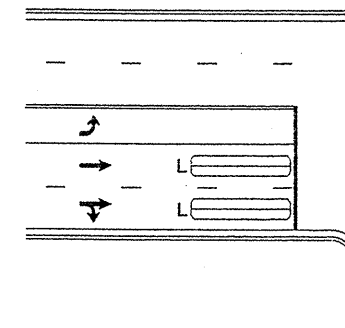
"Stretch" Operation

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



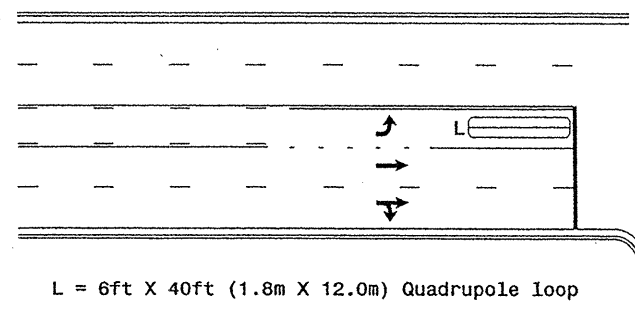
L = 6ft X 6ft (1.8m X 1.8m)  
Wired in series

OR



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

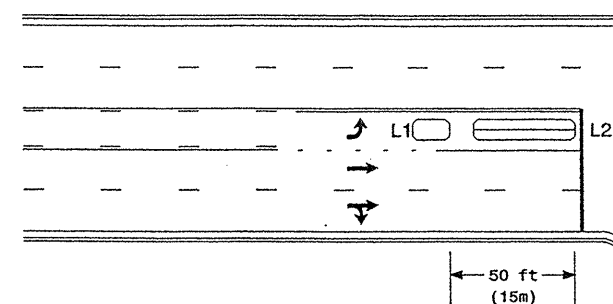
### Left Turn Lane Detection



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

Presence Loop Detection

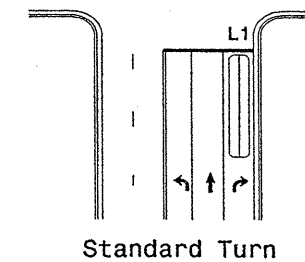
OR



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

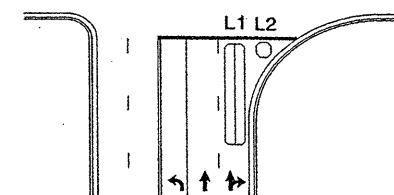
Queue Loop Detection

### Right Turn Lane Detection

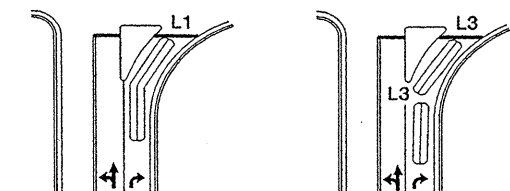


Standard Turn

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

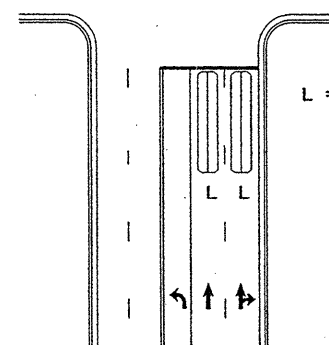


Wide Radius Turn



Channelized Turn

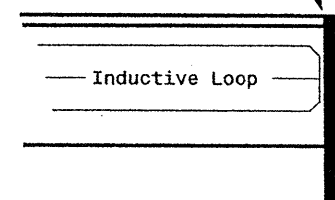
### Side Street Detection



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

### Presence Loop Placement at Stop Lines

Locate loop slightly  
behind leading  
edge of stop line



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 SCALE: N/A	REVIEWED BY: REVISIONS: 1. Revise pavement markings

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ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**

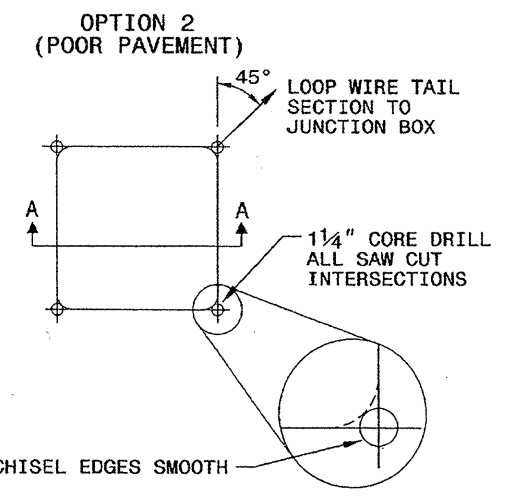
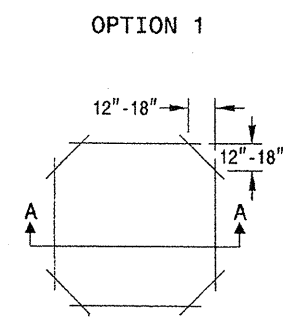
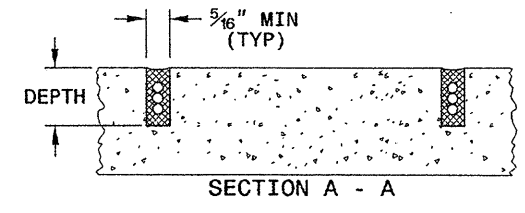
SHEET 1 OF 3  
**1725D01**

**CONVENTIONAL 4-SIDED LOOP**

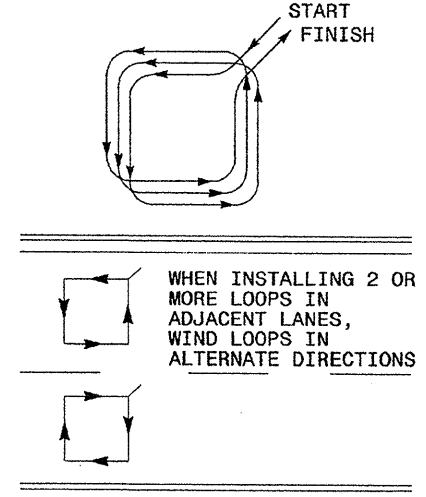
SAW CUT OPTIONS

SAW SLOT DEPTH CHART

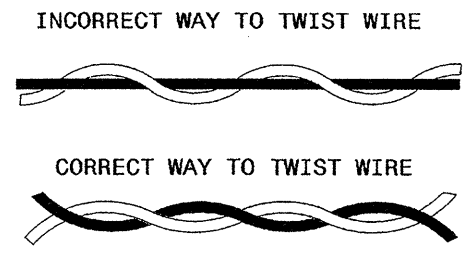
DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

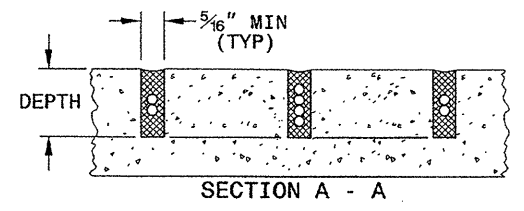
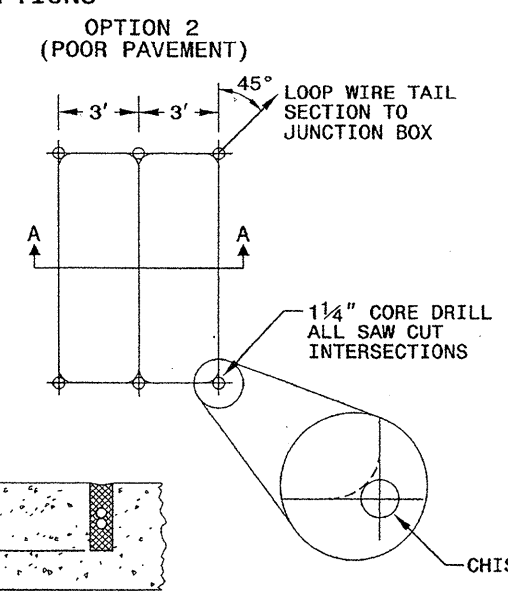
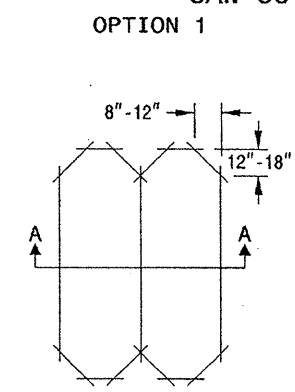


NOTES

1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

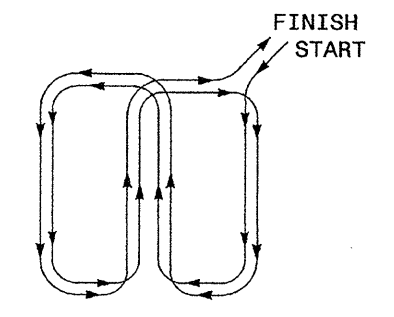
**QUADRUPOLE LOOP**

SAW CUT OPTIONS



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**

SHEET 1 OF 3  
**1725D01**

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Garner, NC 27529

SEAL

*Milton I. Dean* 11/24/08  
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DIVISION OF HIGHWAYS  
RALEIGH, N.C.

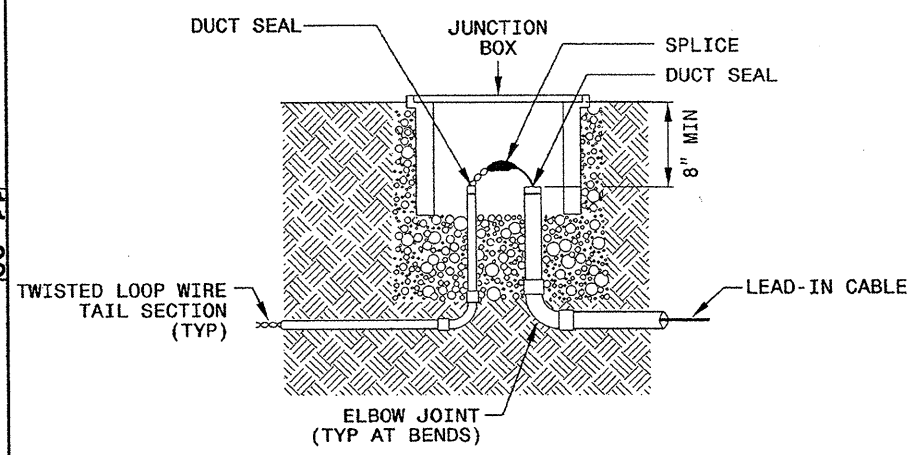
11-08

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
LOOP WIRE DETAILS

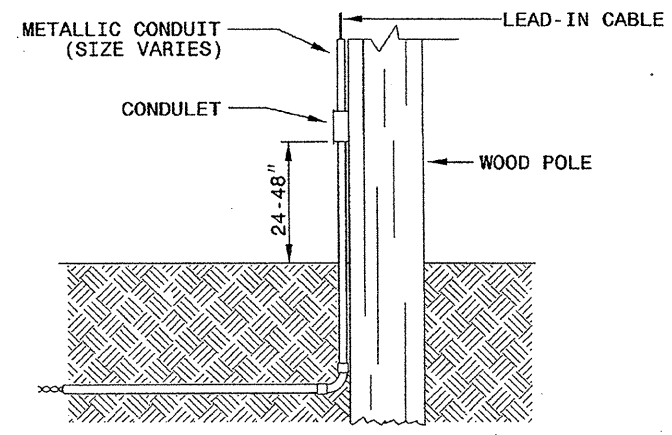
SHEET 2 OF 3  
**1725D01**

**LOOP WIRE SPLICE POINT DETAILS**

**LOOP WIRE AT JUNCTION BOX**



**LOOP WIRE AT POLE**

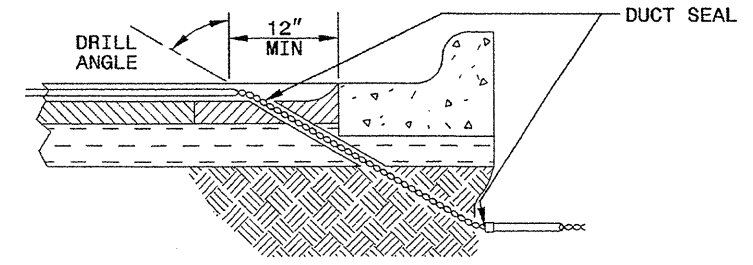


**NOTE**

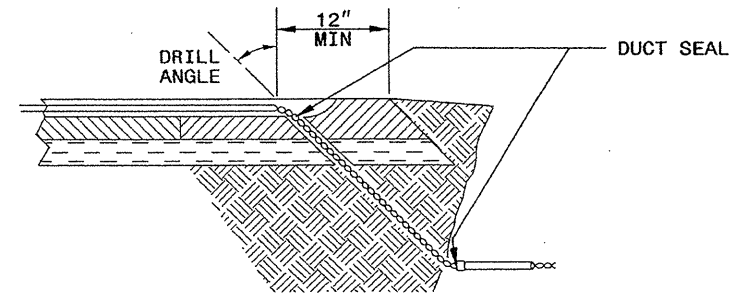
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

**LOOP WIRE PAVEMENT EDGE DETAILS**

**LOOP WIRE AT CURB & GUTTER SECTION**



**LOOP WIRE AT PAVEMENT SECTION**



**NOTES**

1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

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ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
LOOP WIRE DETAILS

SHEET 2 OF 3  
**1725D01**

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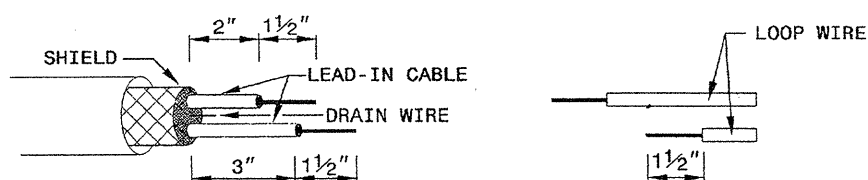
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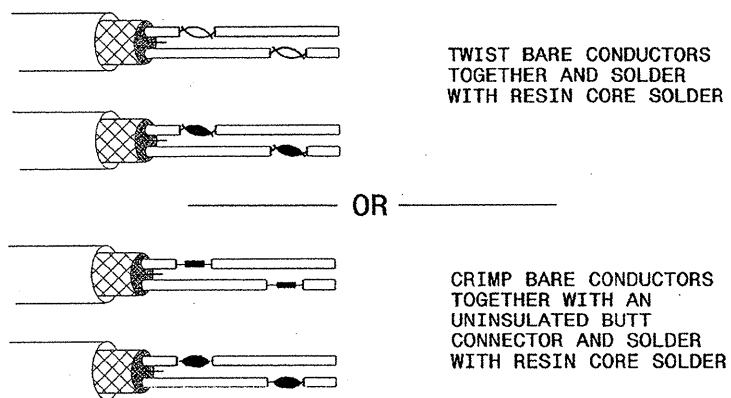
ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
**1725D01**

**STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE**

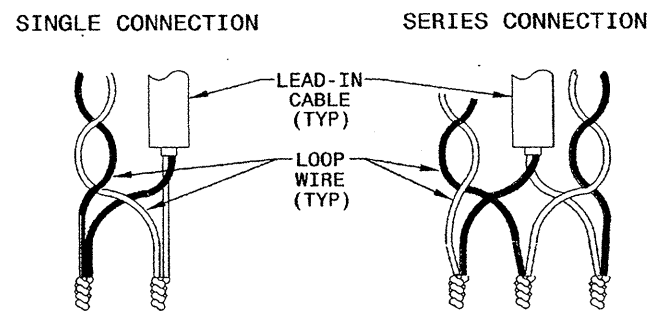


**STEP 2. CONNECT AND SOLDER**

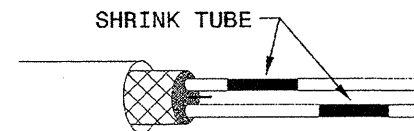


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

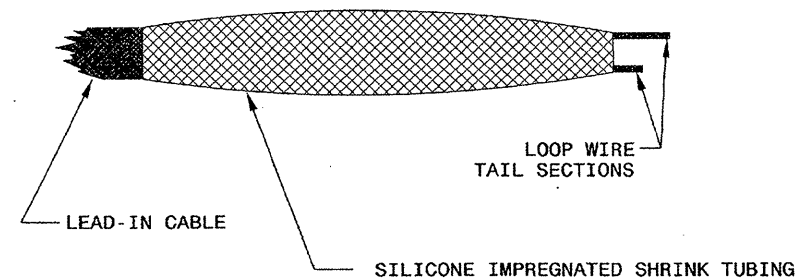
**LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS**



**STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY**



**STEP 4. ENVIRONMENTALLY PROTECT SPLICE**



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ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
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