

PLAN SYMBOLS

COUNTY LINE	---
TOWNSHIP OR RANGE LINE	---
SECTION LINE	---
QUARTER LINE	---
SIXTEENTH LINE	---
RIGHT OF WAY LINE	---
SLOPE CASEMENT	---
PRESENT RIGHT OF WAY	---
PROPERTY LINE	---
CORPORATE OR CITY LIMITS	---
RETAINING WALL	---
RAILROAD	---
RAILROAD RIGHT OF WAY	---
RIVER OR CREEK	---
DRAINAGE DITCH	---
CULVERT	---
DROP INLET	---
GAURD RAIL	---
BARBED WIRE FENCE	---
WOVEN WIRE FENCE	---
CHAIN LINK FENCE	---
WOOD FENCE	---
STONE WALL OR FENCE	---
HEDGE	---

LOWLAND	---
TIMBER	---
ORCHARD	---
BRUSH	---
NURSERY	---

CATTLE GAURD	---
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OVERPASS (Highway Over)	---
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UNDERPASS (Highway Under)	---
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BRIDGE	---
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BUILDING (One Story Frame)	---
F-FRAME C-CONCRETE	---
S-STONE T-TILE	---
B-BRICK ST-STUCCO	---

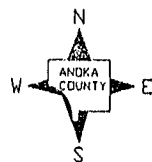
RAILROAD CROSSING BELL	---
RAILROAD CROSSING GATE	---
MANHOLE	---
CATCH BASIN	---
FIRE HYDRANT	---
CAST IRON MONUMENT	---
IRON PIT	---
GRAVEL PIT	---
SAND PIT	---
BORROW PIT	---
ROCKY QUARRY	---

UTILITY SYMBOLS

POWER POLE LINE	---
TELEPHONE OR TELEGRAPH POLE LINE	---
JOINT TELEPHONE & POWER ON POWER POLES	---
ON TELEPHONE POLES	---
ANCHOR	---
STEEL TOWER	---
STREET LIGHT	---
PEDESTAL (Cable Terminal)	---
GAS MAIN	---
WATERMAIN	---
TELEPHONE CABLE IN CONDUIT	---
ELECTRIC CABLE IN CONDUIT	---
TELEPHONE MANHOLE	---
ELECTRIC MANHOLE	---
BURIED TELEPHONE CABLE	---
BURIED ELECTRIC CABLE	---
AERIAL TELEPHONE CABLE	---
SEWER (Sanitary or Storm)	---
SEWER MANHOLE	---

SCALES

PLAN	0 50 100
PROFILE HORIZONTAL	0 50 100
VERTICAL	0 5 10
X-SECTIONS HORIZONTAL	0 10 20
VERTICAL	0 10 20
INDEX MAP	NOT TO SCALE



MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

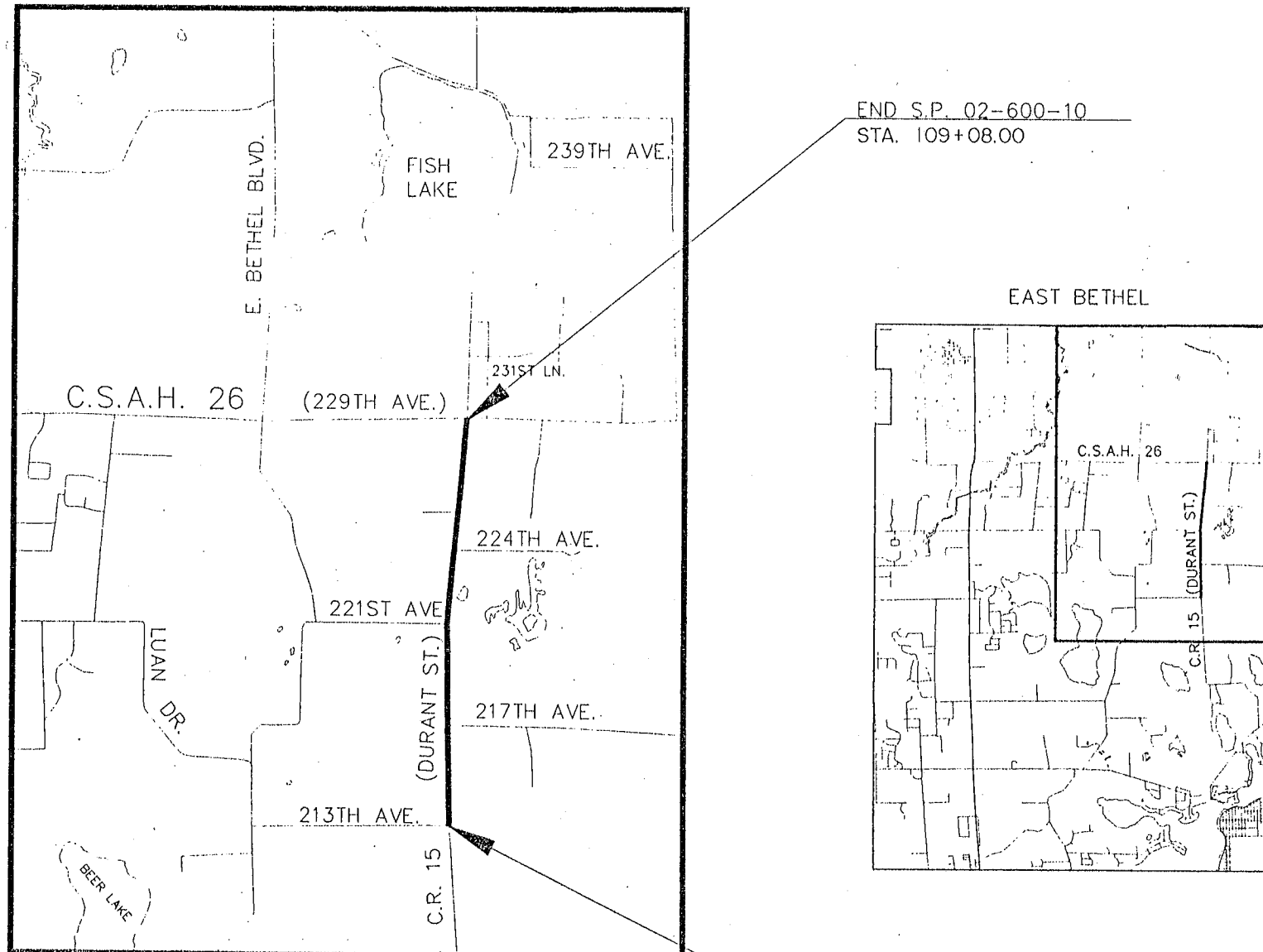
CONSTRUCTION PLAN FOR BITUMINOUS OVERLAY

LOCATED ON CR 15 IN THE CITY OF EAST BETHEL BETWEEN 213TH AVE. N.W. AND C.S.A.H. 26

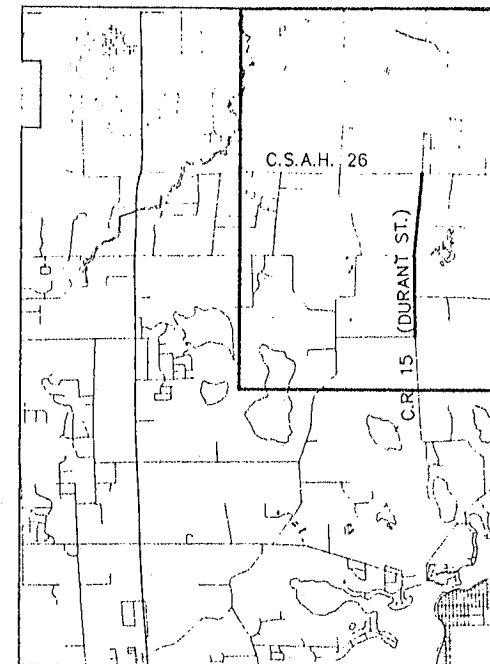
STATE AID PROJ. NO. 02-600-10 STATE AID PROJ. NO.

MN PROJ. NO.

GROSS LENGTH	10,908.00	FEET	2.066	MILES	GROSS LENGTH	FEET	MILES
BRIDGES--LENGTH		FEET		MILES	BRIDGES--LENGTH	FEET	MILES
EXCEPTIONS--LENGTH		FEET		MILES	EXCEPTIONS--LENGTH	FEET	MILES
NET LENGTH	10,908.00	FEET	2.066	MILES	NET LENGTH	FEET	MILES



END S.P. 02-600-10
STA. 109+08.00



BEGIN S.P. 02-600-10
STA. 0+00.00

MINN. PROJ. NO.
MINN. PROJ. NO. STP PAVE (010)

GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE JANUARY 2, 1991 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES
3	TABULATED QUANTITIES
4	TYPICAL SECTIONS
5	STANDARD DETAILS
6	TRAFFIC CONTROL

THIS PLAN CONTAINS 6 SHEETS

DESIGN DESIGNATION

§18₂₀ N/A
R VALUE N/A
ADT (1993)= 688
Proj. ADT (2013)= 1170
Proj. HCADT (2013)= 88
Soil Factor 50%
7 TON DESIGN
Shoulder Width 3FT

Functional Classification
No. of Traffic Lanes No. of Parking Lanes
Design Speed 55 MPH
Based on Stopping Sight Distance
Height of eye 3.5 Height of object 0.5
Design Speed not achieved at:
STA. 104+59 TO STA. 107+09 MPH 45
STA. TO STA. MPH
STA. TO STA. MPH

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 8/27/93 REG. NO. 20235 ENGR. *Richard H. Tricker*
ANOKA COUNTY DESIGN ENGINEER
DESIGN SQUAD. J. TRICK

Recommended for Approval *Michael R. Kelly* 8/27, 1993
Recommended for Approval *John K. Kuntz* 8/27, 1993
Recommended for Approval *John K. Kuntz* 8/27, 1993
Approved 8/30, 1993
Approved 9/10, 1993
Recommended for Approval *Mary E. Suringer* 11/10, 1993
Recommended for Approval *Mark J. Kubacki* 4-5, 1994
Approved 4/5, 1994

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

STATEMENT OF ESTIMATED QUANTITIES

CHART ID	ITEM NO.	ITEM	UNIT	TOTALS		S.P. 02-600-10		NON-PARTICIPATING	
				ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL
A	0015.601	COMPUTER EQUIPMENT	LUMP SUM	0.08		0.08			
D	2104.501	REMOVE PIPE CULVERTS	LIN FT	91					
D	2104.501	REMOVE RC CATTLE PASS	LIN FT	32					
D	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	197					
D	2104.509	REMOVE RC CATTLE PASS APRON	EACH	2					
A	2104.523	SALVAGE METAL APRON	EACH	2					
A	2105.523	COMMON BORROW (LV)	CU YD	507		507			
A	2211.501	AGGREGATE BASE CLASS 5	TON	99					
A	2232.501	MILL BITUMINOUS SURFACE	SQ YD	440		440			
A	2340.508	TYPE 41 WEAR COURSE MIXTURE	TON	2454		2454			
B	2340.514	TYPE 31 BASE COURSE MIXTURE	TON	40					
B	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	1475		1475			
B	0412.602	MAILBOX SUPPORT	EACH	21					
B	2451.509	AGGREGATE BEDDING (CV)	CU YD	36					
B	2501.501	CULVERT EXCAVATION CLASS U	CU YD	289		289			
A	2501.511	15" CS PIPE CULVERT	LIN FT	213		213			
A	2501.567	15" CS SAFETY APRON & GRATE DES 3128	EACH	20					
A	2501.567	36" CS SAFETY APRON & GRATE DES 3128	EACH	2					
D	2501.515	24" RC PIPE APRON	EACH	2					
D	2501.561	24" RC PIPE CULVERT DES 3006 CL II	LIN FT	52		52			
A	2501.573	INSTALL METAL APRON	EACH	2					
C	0563.601	TRAFFIC CONTROL	LUMP SUM	0.08		0.08			
C	2575.502	SEED MIXTURE 700	LB	7					
C	2575.505	SODDING TYPE EROSION	SQ YD	643		643			
C	2575.511	MULCH MATERIAL TYPE 1	TON	0.4					
C	2575.521	POLYPROPYLENE PLASTIC NETTING	SQ YD	803		803			
C	2575.532	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	LB	170					
C	0575.605	SEEDING	SQ YD	1000		1000			
C	0575.605	DISK ANCHORING	SQ YD	197		197			
C	2580.501	TEMPORARY LANE MARKING	ROAD STA	109		109			

- NOTES:
- ① ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING APPENDIX B. DATED NOVEMBER 1992.
 - ② PER STANDARD PLATE 3128
 - ③ INCLUDES ALL PIPE COUPLINGS AS REQUIRED.
 - ④ INCLUDES 54 TONS FOR STREET APPROACHES AND ENTRANCES.
 - ⑤ INCLUDES SALVAGING & INSTALLING OF EXISTING MAILBOX AND F&I NEW SUPPORT.
 - ⑥ MILL TOUCH DOWN AREAS (20' LONG, FULL WIDTH) AT BEGIN AND END POINTS.
 - ⑦ INCLUDES MATERIAL REQUIRED FOR CENTERLINE CULVERT REPLACEMENT (422 C.Y.) AND CULVERT EXTENSIONS. (85 C.Y.)
 - ⑧ FOR CENTERLINE CULVERT REPLACEMENT. (3 1/2" BIT. BASE, 6" AGGR. BASE)
 - ⑨ INCLUDES 10 GAL. ADD'L FOR CENTERLINE CULVERT REPLACEMENT.

BASIS OF QUANTITIES

TYPE 41 WEAR COURSE & TYPE 31 BASE COURSE: 110 LB/SY/INCH

BITUMINOUS MAT'L FOR TACK: 0.05 GAL/SY

SEED MIXTURE NO. 700: 35 LBS/ACRE

MULCH MAT'L TYPE 1: 2 TONS/ACRE

COMMERCIAL FERTILIZER, ANALYSIS 10-10-10: 500 LBS/ACRE

SEEDING: HORIZONTAL MEASUREMENT +10%

AGGREGATE BASE: 140 LBS/CU.FT.

BITUMINOUS MIXTURE DESIGNATION: 31 BBB 5000Y
41 WEA 50070Y

INDEX OF TABULATION CHARTS		
CHART ID	SHEET NO.	DESCRIPTION
A	3	ENTRANCE APPROACH IMPROVEMENTS
B	3	MAILBOX SUPPORTS
C	3	TURF ESTABLISHMENT
D	3	CENTERLINE CULVERT CONSTRUCTION

THESE STANDARD PLATES, AS APPROVED BY THE FHWA SHALL APPLY	
STANDARD PLATES	
0005 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 L	REINFORCED CONCRETE PIPE
3006 F	GASKET JOINT FOR R.C. PIPE
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3128 F	SAFETY APRON
3145 E	CONCRETE PIPE TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
8000 I	STANDARD BARRICADES
9102 D	TURF ESTABLISHMENT AREAS

ESTIMATED QUANTITIES

ENTRANCE APPROACH IMPROVEMENTS (A)														
STATION	LOC	ADDRESS	EXISTING CULVERT (2)		REMOVE		SALVAGE AND INSTALL APRON EACH	FURNISH AND INSTALL						
			SIZE	TYPE	CULV. LIN. FT	APRON EACH		15" CULV. LIN. FT	EXT. LT LIN. FT	EXT. RT LIN. FT	APRONS		EMBANKMENT	
											15' 36'	LEFT (CY)	RIGHT (CY)	
12+91	RT	21444	36'x67'	CMP									0.0	0.0
13+11	RT	21431											0.0	0.0
14+86	LT	21510	15'x31'	CMP									0.0	6.5
16+63	RT	21529	15'x30'	CMP	30	0							2.0	2.0
17+48	RT	21547	15'x30'	CMP	30	0							0.0	0.5
20+37	RT	21613	15'x30'	CMP									0.5	0.0
24+37	RT	21690	N/A										6.0	2.5
27+15	RT	21711	N/A										0.0	0.0
30+05	RT	21711 AVE											2.0	0.0
32+29	LT	F. ENT	15'x30'	CMP									0.5	3.0
33+29	RT	21751	15'x31'	CMP	31	0							1.0	1.5
35+27	RT	21811	15'x30'	CMP									0.0	0.0
39+19	RT	21849											1.0	2.0
42+47	RT	21929											0.0	0.0
53+80	RT	22051											0.0	0.0
54+20	LT	221ST AVE											0.0	0.0
56+14	RT	22117											0.0	0.0
57+95	LT	22146	15'x31'	CMP		0							1.0	2.5
58+50	RT	22157											0.0	0.5
61+48	LT	22206											0.5	0.5
63+63	RT	22223											0.0	0.0
67+37	RT	F. ENT											0.0	0.0
68+52	LT	22320	15'x30'	SMP		0							1.5	1.5
72+82	LT	22350	15'x30'	CMP		0							6.0	7.0
73+78	RT	224TH AVE											0.0	0.0
80+52	LT	F. ENT											0.5	0.0
83+20	RT	22525											0.0	0.0
83+50	LT	225TH LN											1.5	2.0
87+54	LT	22620											0.5	0.0
94+50	LT	HELEN RESERV											0.0	0.0
98+36	RT	22711	15'x31'	CMP		0							0.0	0.0
101+77	RT	22811											0.0	0.0
TOTALS					91	0	2	105	54	54	20	2	24.5	32.0

MAILBOX SUPPORT CHART (B)			
STATION	LOCATION	ADDRESS	RELOCATE
12+57	19.5' RT	21431/21510/21444	3
16+94	16.0' RT	21529	1
17+90	18.0' RT	21547	1
20+64	17.0' RT	21613	1
33+48	17.0' RT	21751	1
35+43	17.0' RT	21811	1
38+91	16.0' RT	21849	1
42+24	21.0' RT	21929	1
55+95	16.0' RT	22117	1
58+12	19.0' LT	22146	1
58+36	18.0' RT	22157	1
61+74	19.0' LT	22206	1
63+39	19.0' RT	22223	1
68+73	18.0' LT	22320	1
72+63	17.0' LT	22350	1
82+90	18.0' RT	22525	1
87+71	17.0' LT	22620	1
98+15	16.0' RT	22711	1
101+50	19.0' RT	22811	1
TOTALS			21

- ① EARTHWORK SUMMARY:
COMMON BORROW (LV) = EMBANKMENT x 1.5 = (24.5 + 32) x 1.5 = 84.75 CU. YD.
- ② CMP DESIGNATES METAL PIPE WITH A STANDARD 2-2/3' x 1/2' CORRUGATION.
SMP DESIGNATES METAL PIPE WITH A SPIRAL CORRUGATION.

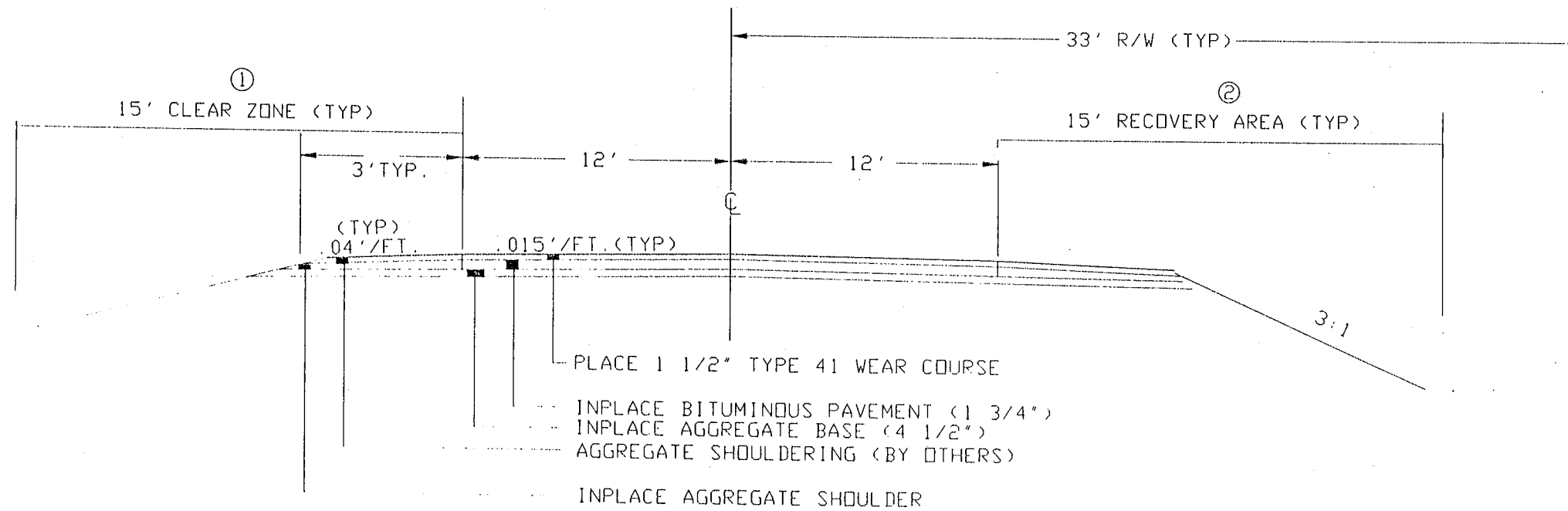
CENTERLINE CULVERT CONSTRUCTION (D)					
STATION	LOCATION	REMOVE CATTLE PASS		FURNISH AND INSTALL 24' RCP	
		LIN FT	APRON	LIN FT	APRON
TOTALS		32	2	52	2

TURF ESTABLISHMENT (C)								
LOCATION	LOC	SEEDING	SEED MIX 700	SODDING TYPE EROSION CONTROL	MULCH MATERIAL TYPE 1	DISK ANCHORING	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	POLYPROPYLENE PLASTIC NETTING
		SQ YD	LB.	SQ. YD.	TDN	SQ YD	LB.	SQ. YD.
13+11	RT			97			10.0	
14+86	LT			88			9.1	
16+63	RT			58			6.0	
17+48	RT			71			7.3	
20+37	RT	107	0.8		0.04		11.1	107
27+15	RT	103	0.7		0.04		10.6	103
30+05	RT	98	0.7		0.04		10.2	98
32+29	LT	33	0.2		0.01		3.4	33
35+27	RT			81			8.4	
57+95	LT			85			8.8	
61+48	LT			59			6.1	
64+09 TO 64+83	LT&RT	197	1.4		0.08	197	20.4	
68+52	LT	79	0.6		0.03		8.2	79
72+82	LT	152	1.1		0.06		15.7	152
80+52	LT	111	0.8		0.05		11.5	111
83+70	LT	120	0.9		0.05		12.4	120
87+54	LT			104			10.7	
TOTALS		1000	7.2	643	0.4	197	170	803

TABULATED QUANTITIES

TYPICAL SECTION

STATION 0+00 TO STATION 109+08

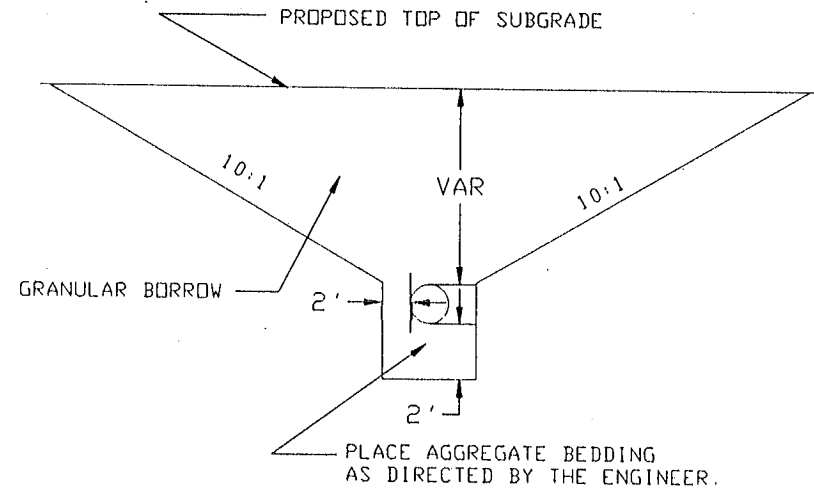


NOTES:

- ① PROVIDE OBSTACLE-FREE AREA WITHIN THIS ZONE.
- ② PROVIDE A 3:1 SHOULDER INSLOPE WITHIN RECOVERY AREA.

TYPICAL SECTION

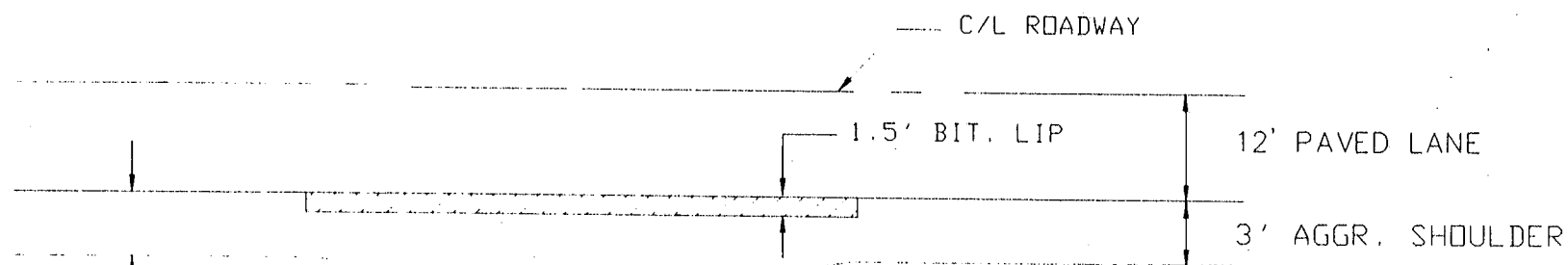
CENTERLINE CULVERT INSTALLATION



- NOTE:
- * FILL AND COMPACT GRANULAR TO 4' ABOVE FLOWLINE BEFORE PLACING CULVERT.
 - * AT CENTERLINE CULVERT LOCATIONS CULVERT EXCAVATION TO EXTEND 3' BEYOND END OF APRON.

TYPICAL ENTRANCES

PAVED AND UNPAVED STREETS AND ENTRANCES

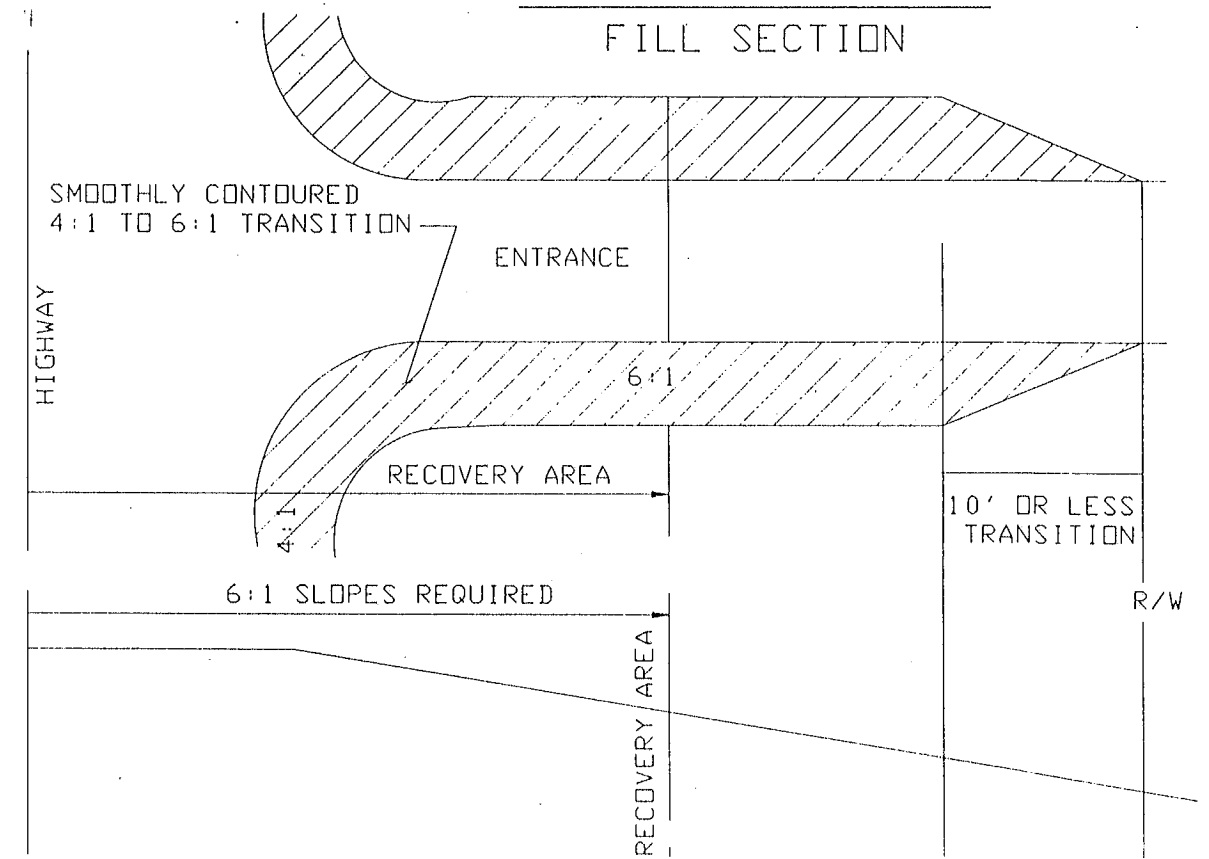


- NOTE:
- ON PAVED ENTRANCES TACK PAVEMENT & FEATHER BIT. TO BLEND WITH EXISTING DRIVEWAY.

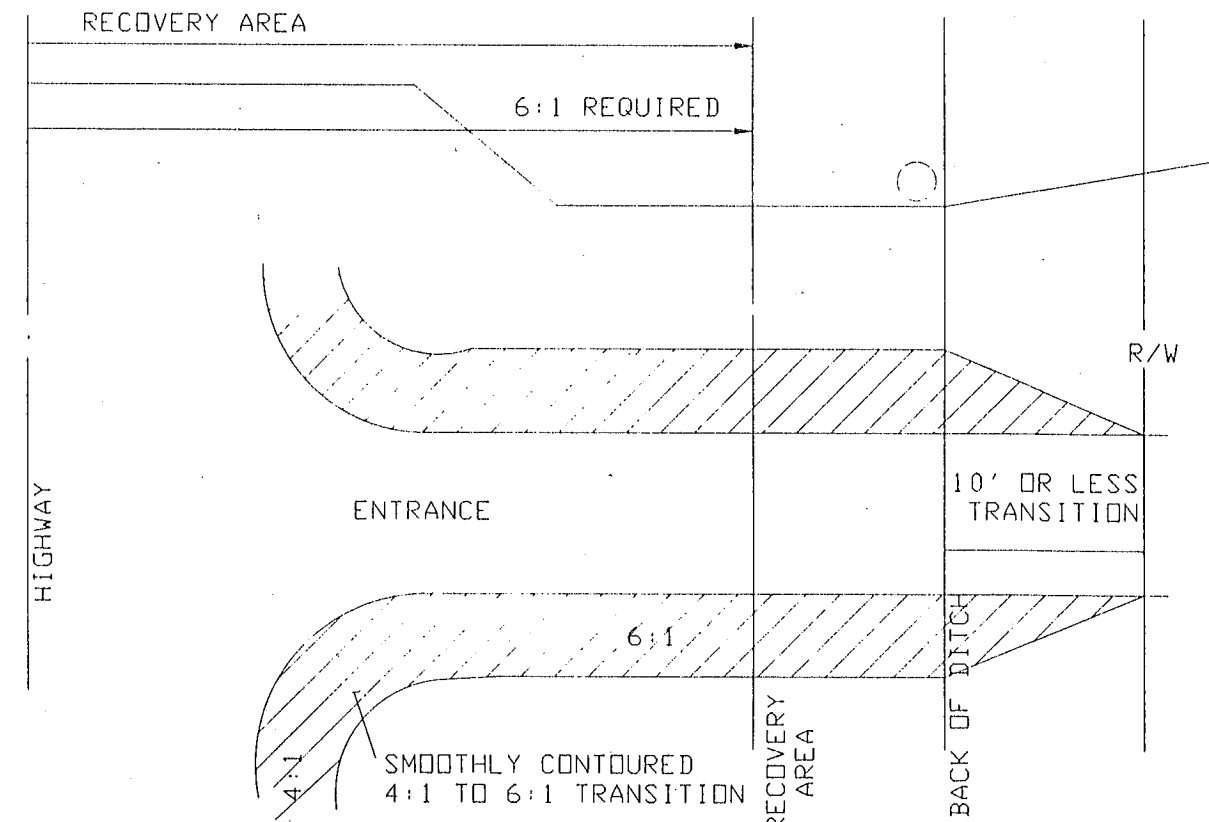
NOTE: NOT TO SCALE

ENTRANCE SLOPES

FILL SECTION

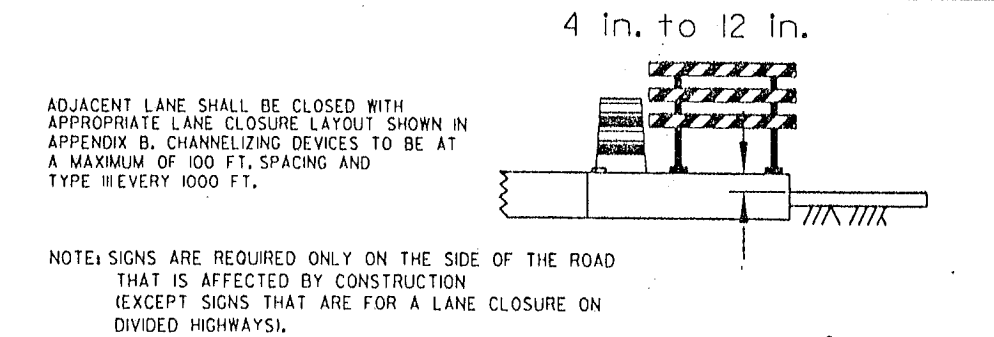
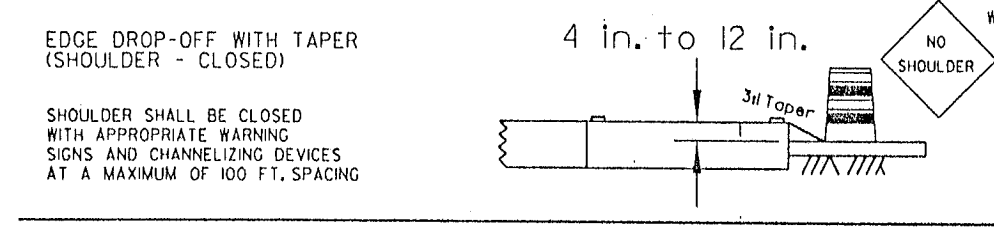
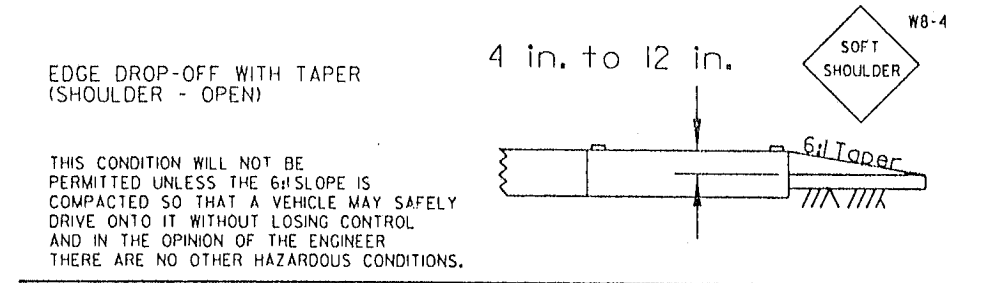
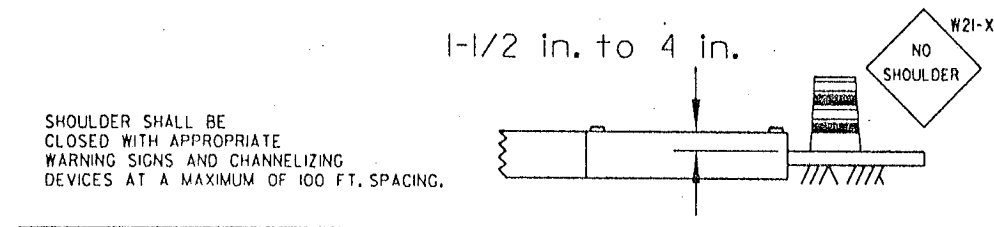
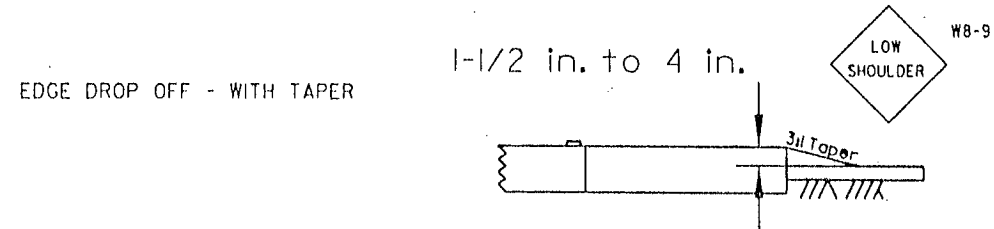
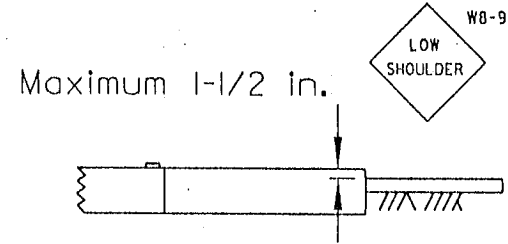


DITCH SECTION

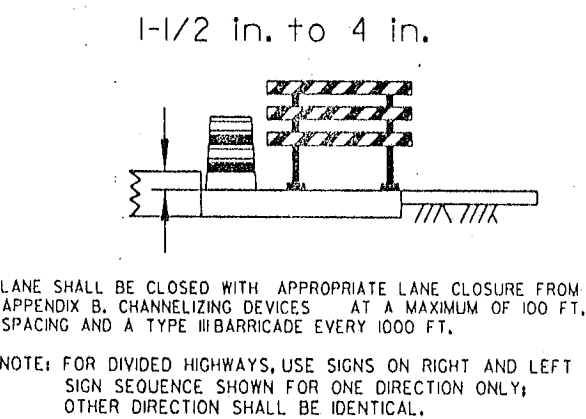
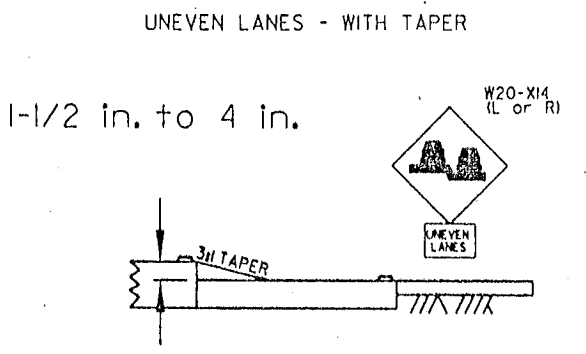
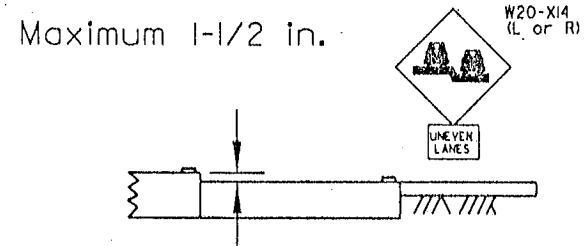


STANDARD DETAILS

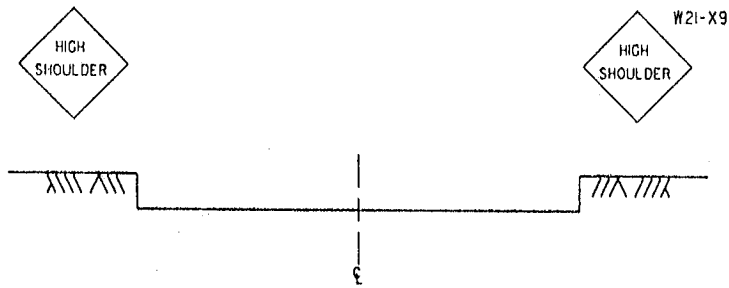
EDGE DROP OFF



UNEVEN LANES



MILLED EDGE



NOTE: MILLED EDGES SHOULD BE TREATED WITH TAPERS, CHANNELIZERS, AND SIGNING AS SHOWN ON EDGE DROP-OFF DETAILS.

NOTE: ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX B, DATED NOVEMBER 1992.

GUIDELINES

THESE GUIDELINES ARE INTENDED TO INCREASE TRAFFIC SAFETY USING TRAFFIC CONTROL DEVICES, SAFETY RELATED APPURTENANCES, AND CONSTRUCTION TECHNIQUES FOR UNEVEN LANES, MILLED EDGES, AND EDGE DROP-OFFS THAT OCCUR IN HIGHWAY WORK ZONES. THE BEST WAY TO INCREASE TRAFFIC SAFETY IS TO MAKE EVERY ATTEMPT TO MINIMIZE EXPOSURE TO UNEVEN LANES, MILLED EDGES, AND EDGE DROP-OFFS; HOWEVER, IT IS REALIZED THAT THIS IS OFTEN NOT POSSIBLE OR FEASIBLE. ONLY WHEN UNEVEN LANES, MILLED EDGES, OR EDGE DROP-OFFS ARE DEEMED NECESSARY, SHALL THE APPROPRIATE PORTION(S) OF THESE GUIDELINES BE APPLIED TO ENHANCE TRAFFIC SAFETY.

APPROPRIATE UNEVEN LANE WARNING SIGNS OR SHOULDER WARNING SIGNS SHALL BE REPEATED AFTER EACH INTERSECTION.

MAXIMUM WARNING SIGN SPACING SHALL BE:
 A - 1 MILE WHEN THE SPEED LIMIT IS GREATER THAN 30 MPH AND
 B - 1/4 MILE WHEN THE SPEED LIMIT IS 30 MPH OR LESS.

WHEN SPACE PERMITS, MINIMUM WARNING SIGN SIZE SHALL BE:
 A - 48 INCHES x 48 INCHES WHEN THE SPEED LIMIT IS GREATER THEN 30 MPH AND
 B - 36 INCHES x 36 INCHES WHEN THE SPEED LIMIT IS 30 MPH OR LESS.

- FOR DROP-OFFS OF 1-1/2 INCHES OR LESS, APPROPRIATE WARNING SIGNS SHALL BE PROVIDED.
- FOR DROP-OFFS GREATER THAN 1-1/2 INCHES UP TO 4 INCHES:
 A - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED; OR
 B - IF THE TAPER IS NOT PROVIDED, TRAFFIC SHALL NOT BE PERMITTED TO CROSS THE DROP-OFF AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND DEVICES.
- FOR DROP-OFFS GREATER THAN 4 INCHES UP TO 12 INCHES:
 A - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 6:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED, (6:1 TAPER SHALL NOT BE USED AS A TRAFFIC CARRYING LANE);
 B - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1, TRAFFIC SHALL NOT BE ALLOWED TO CROSS THE DROP-OFF, AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES; OR
 C - IF A TAPER IS NOT PROVIDED, THE TRAFFIC OR AUXILIARY LANE ADJACENT TO THE DROP-OFF SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES OR A POSITIVE BARRIER, SUCH AS A PORTABLE PRECAST CONCRETE BARRIER, SHALL BE PROVIDED TO PREVENT TRAFFIC FROM CROSSING THE DROP-OFF.
- FOR SHOULDER EDGE DROP-OFFS:
 A - 0-2 FOOT SHOULDER WIDTH AND A 0-12 INCH DROP-OFF; USE GUIDELINES AS SHOWN
 B - 2-8 FOOT SHOULDER WIDTH AND A 0-4 INCH DROP-OFF; INSTALL EDGELINE OR USE GUIDELINES AS SHOWN
 C - 8 FOOT OR GREATER SHOULDER WIDTH AND A 0-4 INCH DROP-OFF; NO TRAFFIC CONTROL REQUIRED
 D - GREATER THAN 2 FOOT SHOULDER WIDTH AND A 4-12 INCH DROP-OFF; USE GUIDELINES AS SHOWN
- DROP-OFFS GREATER THAN 4 INCHES ADJACENT TO TRAFFIC CARRYING LANES ARE PERMITTED WITHOUT TAPERS OR POSITIVE BARRIERS FOR:
 A - PROJECTS WITHIN URBAN AREA WHEN THE SPEED LIMIT IS 30 MPH OR LESS; OR
 B - SHORT TERM (7 CALENDAR DAYS OR LESS) CONCRETE OR UTILITY REPAIR, LESS THAN 50 FEET IN LENGTH WHEN THE SPEED LIMIT IS GREATER THAN 30 MPH.
- AT NO TIME SHALL THERE BE MORE THAN ONE UNEVEN LANE CONDITION BETWEEN THE TRAFFIC CARRYING LANES WHICH INCLUDE AUXILIARY LANES, TURN LANES, AND RAMP ACCESS OR EGRESS AREAS. WEATHER PERMITTING, ALL EXPOSED UNEVEN LANES CONDITIONS WITHIN THE TRAFFIC CARRYING LANES SHALL BE 'MATCHED' WITHIN 24 HOURS.
- MILLING OPERATIONS SHALL BE REQUIRED TO COMPLETE THE FULL WIDTH OF THE SECTION UNDER CONSTRUCTION AT THE END OF EACH WORK PERIOD.

Traffic Control Treatment of Longitudinal Joints and Edge Drop-offs in Work Zones