MCLEOD COUNTY

CONSTRUCTION PLAN FOR: BITUMINOUS MILLING, SHOULDER GRADING, AND CONCRETE PAVING

LOCATED ON: CSAH 2 FROM: 600' NORTH OF CSAH 3 TO: 1,000' SOUTH OF CSAH 24 ALONG CSAH 2 (GEOGRAPHIC DESCRIPTION)

FROM: 1,571.5' E. AND 552.9' N. OF N.E. COR. SEC. 10, T. 116 N., R.28 W. TO: 2,102.9' E. AND 29.2' N. OF S.E. COR SEC. 33, T. 117 N., R. 28 W. (LEGAL DESCRIPTION)

S.P. 43-602-24

GROSS LENGTH	18,480.00	ft.	3.500 miles
BRIDGES-LENGTH	0.00	ft.	0.00 miles
EXCEPTIONS-LENGTH	0.00	ft.	0.00 miles
NET LENGTH	18,480.00	ft.	3.500 miles

S.A.P. 43-602-25

GROSS LENGTH	21,560.00	ft.	4.083 miles
BRIDGES-LENGTH	144.50	ft.	0.027 miles
EXCEPTIONS-LENGTH	0.00	ft.	0.00 miles
NET LENGTH	21,415.50	ft.	4.056 miles

ROAD HISTORY

GRADED UNDER:

C.P. 53:03, 1953
S.A.P. 43-602-12, 1978
S.A.P. 43-602-19, 1988

BRIDGES:

BR 43508, S.A.P. 43-602-03, 1969

SURFACED UNDER:

C.P. 54:04A, 1954
S.A.P. 43-602-13, 1978

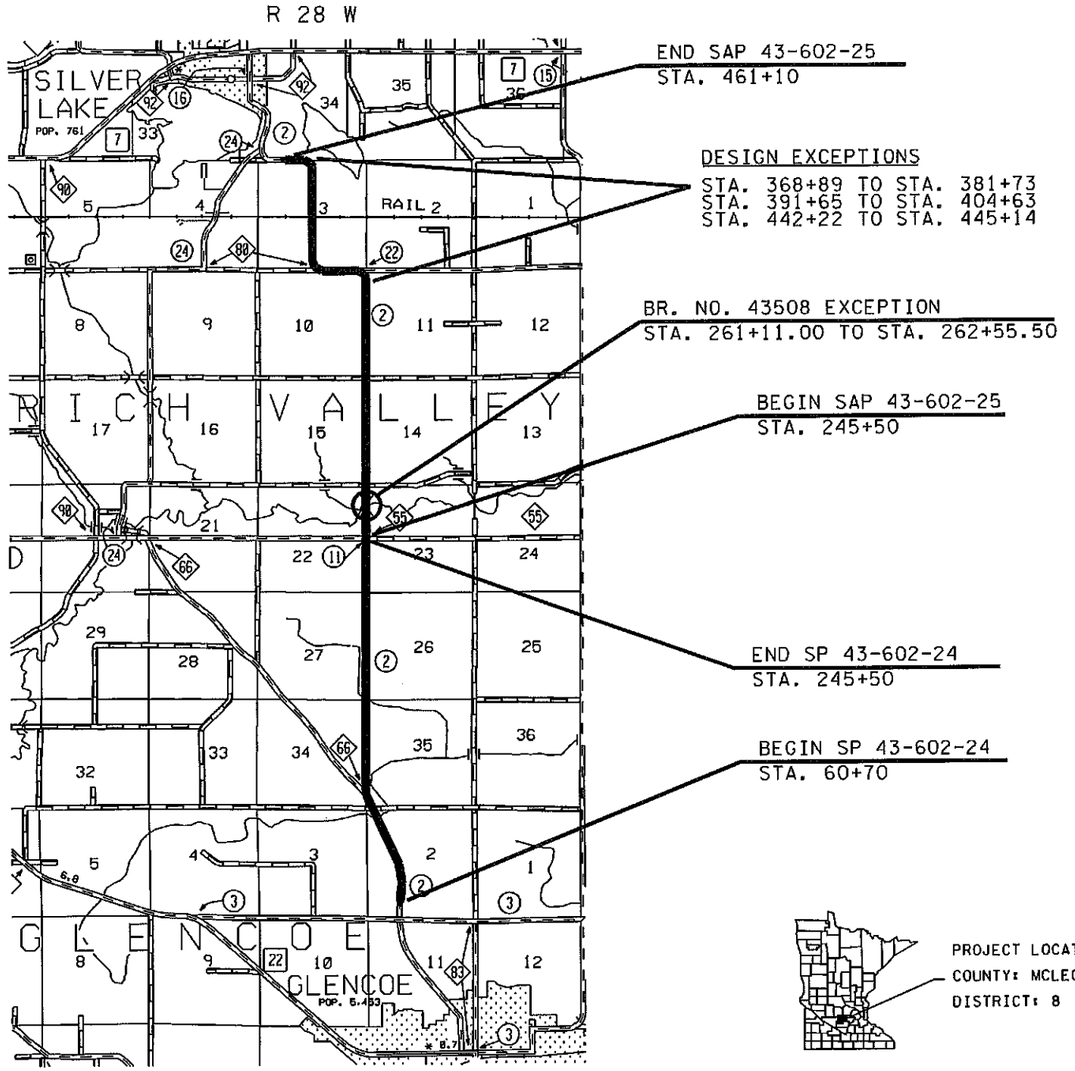
OVERLAYED UNDER:

S.A.P. 43-602-04, 1970
S.A.P. 43-602-17, 1987
S.A.P. 43-602-20, 1988

DESIGN DESIGNATION

ADT - CURRENT (2010)	=	1,608
ADT - FUTURE (2030)	=	2,573
HCADT - FUTURE (2030)	=	229
DESIGN SPEED	=	50 MPH
SOIL FACTOR	=	130%

BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE: 3.5 FT
HEIGHT OF OBJECT: 0.5 FT
DESIGN SPEED NOT ACHIEVED AT: N/A
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR
10 TON DESIGN
SHOULDER WIDTH: 8.0 FT



PROJECT LOCATION
COUNTY: MCLEOD
DISTRICT: 8

MINN. PROJ. NO. STPX 4310 (135)

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX OF SHEETS

THIS PLAN SET CONTAINS 34 SHEETS

MCLEOD COUNTY HIGHWAY DEPARTMENT
1400 ADAMS STREET HUTCHINSON, MN 55350
320-234-0220

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

TIMOTHY L. BECKER, McLEOD COUNTY PROJECT ENGINEER

DATE: 2/22/2010 LICENSE NO: 42764

John T Brunkhorst DATE: 2/23/10
McLEOD COUNTY ENGINEER: RECOMMENDED FOR APPROVAL

DATE: 3/17/10
DISTRICT STATE AID ENGINEER:
REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

DATE: 3/19/10
STATE AID ENGINEER:
APPROVED FOR FEDERAL AND STATE AID FUNDING

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THE PLAN WERE MADE BY ME OUR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN T. BRUNKHORST, McLEOD COUNTY ENGINEER

DATE: _____ LICENSE NO: 26890

8:38:54 AM 3/15/2010

ESTIMATED QUANTITIES

TAB SHEET	ITEM NOTES	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL	CSAH 2 SP 43-602-24	CSAH 2 SAP 43-602-25
		2011.601	CONSTRUCTION SURVEY	LS	1.0	0.45	0.55
	H	2105.525	TOPSOIL BORROW (LV)	CY	111	45	66
	M	2105.604	GEOTEXTILE FABRIC TYPE V	SY	1,303	0	1,303
	M,O	2106.607	COMMON EXCAVATION (P)	CY	970	0	970
3	A	2112.619	SHOULDER PREPARATION	RD. STA.	400	185	215
3	D	2118.501	AGGREGATE SURFACING, CLASS 5	TON	1,012	500	512
	M,N	2211.503	AGGREGATE BASE CLASS 5 (CV) (P)	CY	245	0	245
	M,N	2211.503	AGGREGATE BASE CLASS 3 (CV) (P)	CY	920	0	920
3	B,G	2232.501	MILL BITUMINOUS SURFACE (VAR. DEPTH) (P)	SY	111,449	51,184	60,265
4,5		2301.502	CONCRETE PAVEMENT , STANDARD WIDTH 5.0" (P)	SY	112,740	52,752	59,988
		2301.502	CONCRETE PAVEMENT, STANDARD WIDTH 7.0" (P)	SY	1,639	347	1,292
4,5		2301.502	CONCRETE PAVEMENT , STANDARD WIDTH 9.0" (P)	SY	534	0	534
4,5	I,J,L	2301.511	STRUCTURAL CONCRETE	CY	16,193	7,432	8,761
5		2301.531	EXPANSION JOINTS DESIGN E8S	LIN FT	52	0	52
4,5		2301.545	CONCRETE CORING	EACH	82	38	44
5,31,32		2301.551	BRIDGE APPROACH PANEL	EACH	2	0	2
3		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	872	372	500
3		2360.501	TYPE SP 12.5 WEARING COURSE MIXTURE (2,B)	TON	2,270	970	1,300
	F	2540.602	RELOCATE MAIL BOX	EACH	34	14	20
	E	2540.602	MAIL BOX	EACH	34	14	20
10	C	2563.601	TRAFFIC CONTROL	LS	1	0.45	0.55
	M	2575.555	TURF ESTABLISHMENT	LS	1	0	1
6		2582.502	6" SOLID LINE WHITE-EPOXY	LIN FT	80,080	36,960	43,120
6		2582.502	4" SOLID LINE YELLOW-EPOXY	LIN FT	8,535	4,360	4,175
6		2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	5,690	670	5,020
6		2582.502	4" BROKEN LINE YELLOW-EPOXY	LIN FT	6,870	3,562	3,308

ESTIMATED QUANTITIES - BID ALTERNATIVES

TAB SHEET	ITEM NOTES	ITEM NO.	CONTRACT ITEM	UNIT	TOTAL	CSAH 2 SP 43-602-24	CSAH 2 SAP 43-602-25
6	K	2582.602	FORMED 4" GROOVE FOR PAINT STRIPE	LIN FT	79,580	36,760	42,820
6	K	2582.602	FORMED 6" GROOVE FOR PAINT STRIPE	LIN FT	79,580	36,760	42,820

GENERAL CONSTRUCTION NOTES

1 TOTALS INCLUDE QUANTITIES FOR COUNTY & TOWNSHIP ROAD CONNECTIONS, RESIDENTIAL ENTRANCES, AND FIELD ENTRANCES.
2 ALL EXISTING ENTRANCES AND ROAD APPROACHES WILL BE PAVED UP TO THE R/W AND ALL BITUMINOUS EDGES SHALL BE TAPERED.
3 THE CONTRACTOR WILL EXCAVATE 4.5" DEEP AND TO THE R/W OR AS DIRECTED BY THE ENGINEER FOR ALL EXISTING AGGREGATE RESIDENTIAL ENTRANCES. EXCAVATION AND DISPOSAL OF MATERIAL FOR NEW ENTRANCES WILL BE INCIDENTAL TO BITUMINOUS MIXTURE.
4 VEGETATED INSLOPES SHALL BE PROTECTED BY THE CONTRACTOR AT ALL TIMES. ANY DAMAGE TO AREAS OUTSIDE OF THE EXISTING SHOULDER SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE AGENCY. DAMAGE INCLUDES BUT IS NOT LIMITED TO DISTURBED VEGETATION AND AGGREGATE SPILLAGE.

SPECIFIC ITEM NOTES

A SHOULDER PREPARATION IS FOR SHOULDER AREAS (ROAD STATION ITEM INCLUDES NORTH BOUND AND SOUTH BOUND SHOULDER)
B PLACEMENT AND COMPACTION OF THE BITUMINOUS MILLINGS SHALL BE INCIDENTAL TO THE BID PRICE FOR MILL BITUMINOUS SURFACE (VAR. DEPTH). SEE NOTE "G" ON THE TYPICAL SECTION PAGE FOR ADDITIONAL MILLING MATERIAL INFORMATION
C SEE TRAFFIC CONTROL PLAN FOR ADVANCED SIGNING. THE CONTRACTOR IS RESPONSIBLE FOR ALL DETOUR SIGNING AND TRAFFIC CONTROL.
D MATERIAL TO BE USED FOR DRIVEWAYS, FIELD ENTRANCES, AND INSIDE PAVED RADII OF CROSSROADS.
E THE CONTRACTOR SHALL FURNISH AND INSTALL NEW MAILBOX SUPPORTS AND TRANSFER EXISTING MAILBOXES TO THE NEW SUPPORTS.
F MAIL BOXES SHALL BE RELOCATED PRIOR TO CONCRETE PAVING. MAILBOXES SHALL BE PLACED AT LOCATIONS COORDINATED BETWEEN THE CONTRACTOR AND LOCAL POSTAL AUTHORITY.
G STOCKPILING OF MILLED BITUMINOUS MATERIAL MUST BE APPROVED BY THE ENGINEER PRIOR TO ANY STOCKPILING OPERATIONS.
H PLACEMENT AND SURFACE FINISHING OF TOPSOIL AROUND PAVED ENTRANCES SHALL BE INCIDENTAL TO THE BID PRICE FOR TOPSOIL BORROW. GRASS SEED TYPE 270 SHALL BE INCIDENTAL TO THE BID PRICE FOR TOPSOIL BORROW. SEED SHALL BE SPREAD AND RAKED IN AT A NOMINAL RATE OF 150 LBS PER ACRE OR AS DEEMED ACCEPTABLE BY THE ENGINEER IN THE FIELD.
I ADDITIONAL CONCRETE REQUIRED TO FILL EXISTING CRACKS OR DELAMINATED AREAS CREATED BY THE MILLING PROCESS SHALL BE CONSIDERED INCIDENTAL TO WHICH NO COMPENSATION WILL BE MADE ABOVE 102% OF THE PLANNED PCC QUANTITY.

THE FOLLOWING STANDARD PLATES APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

STANDARD PLATES

PLATE NO.	
8000I	STANDARD BARRICADES
9350A	MAILBOX SUPPORT (SWING-AWAY TYPE)

BASIS OF ESTIMATE

Aggregate Base & Surfacing	1 Ton = 0.55 Cubic Yard (CV)
Bituminous Mixture	2.0 Tons per Cubic Yard
Bituminous Tack Coat	0.05 Gallons per Square Yard

J THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE RESULTING PROFILE OF THE BITUMINOUS MILLING OPERATIONS. ADDITIONAL CONCRETE REQUIRED TO COMPENSATE FOR INCORRECT MILL DEPTH AND CROSS SLOPES SHALL BE CONSIDERED INCIDENTAL TO WHICH NO COMPENSATION WILL BE MADE ABOVE 102% OF THE PLANNED PCC QUANTITY.
K THE CONTRACTOR HAS THE OPTION OF GRINDING THE CONCRETE OR FORMING A GROOVE DURING THE FINISHING OPERATIONS. SEE PAGE 28 FOR ADDITIONAL DETAILS.
L AREAS WITH NO MILLING, DUE TO THE PROPOSED BOTTOM OF CONCRETE ELEVATION BEING ABOVE THE EXISTING BITUMINOUS SURFACE, WILL BE CALCULATED BY THE ENGINEER AND WILL BE INCLUDED IN ITEM 2301.511 STRUCTURAL CONCRETE. THESE LOCATIONS HAVE BEEN ESTIMATED ON THE CONCRETE TABULATION SHOWN ON SHEETS 4 & 5.
M SEE PAGE 32 FOR ADDITIONAL DETAILS
N COMPACTION SHALL BE OBTAINED BY THE QUALITY COMPACTION METHOD
O QAUNTITY INCLUDES TOPSOIL, COMMON, AND SUBGRADE EXCAVATION.

BASIS OF ESTIMATE

Aggregate Base & Surfacing	1 Ton = 0.55 Cubic Yard (CV)
Bituminous Mixture	2.0 Tons per Cubic Yard
Bituminous Tack Coat	0.05 Gallons per Square Yard

NO	DATE	BY	CKD	APPR	REVISION
1	2-26	TB	TB	TB	ADDED NOTES TO BR. APPROACH PANEL
2	3-2-10	PRS			SUBGRADE CORRECTION LOCATION CHANGE

I hereby certify that this plan, specification or report 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 3/15/2010 Reg. No. 42764

McLEOD COUNTY HIGHWAY DEPARTMENT

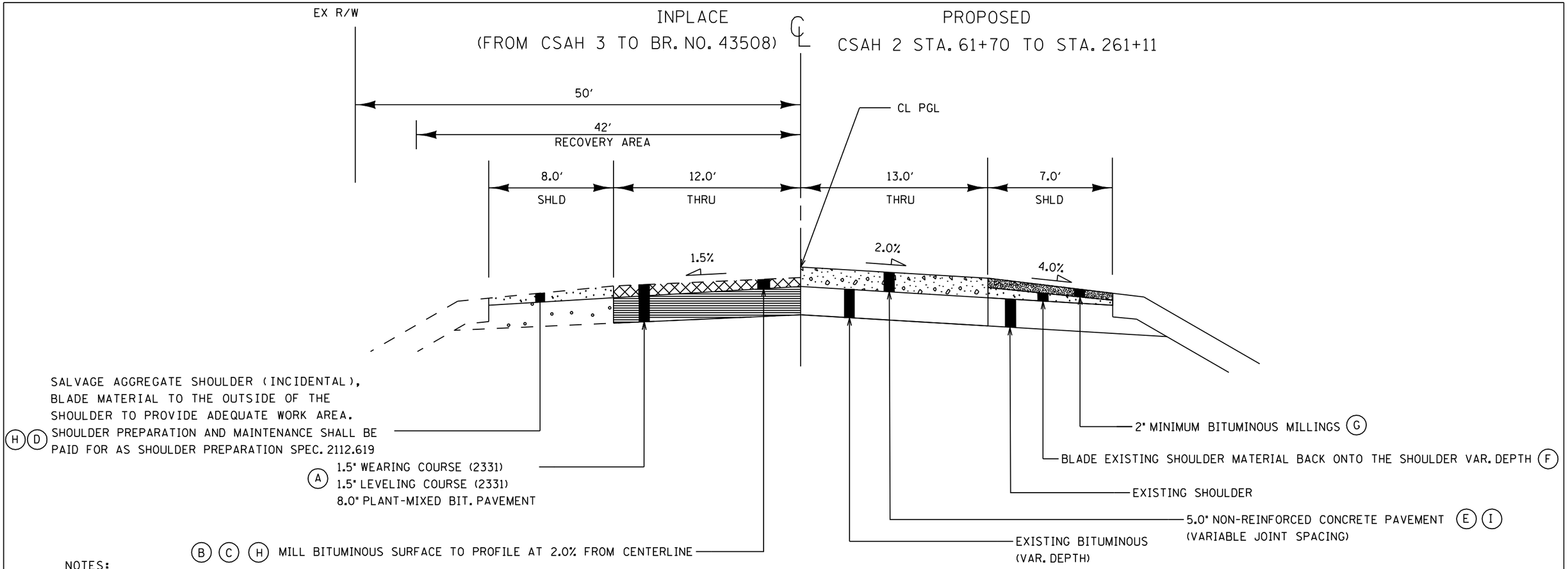
S.P. 43-602-24
C.P.
S.A.P. 43-602-25

CSAH 2

STATEMENT OF ESTIMATED QUANTITIES

SHEET 2 OF 34

S:\Projects\OVERLAYS\2010 Overlays\CSAH 2-43-602-24\PLAN\CSAH2_SEQ.dgn



NOTES:

(A) AGGREGATE BASE AND BITUMINOUS DEPTHS ARE APPROXIMATE. DEPTHS SHOWN ARE FROM EXISTING PLANS AND ACTUAL DEPTHS MAY VARY.

(B) THE MILLED MATERIAL SHALL BE PROCESSED TO PROVIDE A NOMINAL 1 INCH MAXIMUM SIZE. A TOLERANCE OF 10 PERCENT IN MATERIAL RETAINED ON A 1 INCH SIEVE WILL BE PERMITTED, PROVIDED ALL MATERIAL PASSES A 1 1/2 INCH SIEVE. CRUSHING OF OVERSIZED MATERIAL SHALL BE INCIDENTAL.

(C) PAID FOR AS MILL BITUMINOUS SURFACE. AVERAGE MILLING DEPTH STA 61+70 TO STA 461+10 IS APPROXIMATELY 3 INCHES.

(D) SHOULDER PREPARATION SHALL USE THE QUALITY COMPACTION METHOD.

(E) 9" NON-REINFORCED CONCRETE PAVEMENT FROM STA 259+91 TO STA 261+11 AND STA 262+55 TO STA 263+75.
7" NON-REINFORCED CONCRETE PAVEMENT FROM STA 61+70 TO STA 62+90, STA 287+44 TO 289+33, AND STA 459+90 TO STA 461+10.

(F) CONTRACTOR SHALL BLADE THE EXISTING AGGREGATE MATERIAL ONTO THE SHOULDER PRIOR TO SPREADING MILLED MATERIAL ON THE PROJECT.

(G) MILLED BITUMINOUS IS TO BE MIXED AND SPREAD TO REQUIRED WIDTH AND DEPTH OF NEW TYPICAL SECTION. SPREADING, MIXING, AND COMPACTION OF THE BITUMINOUS MILLINGS USED ON SHOULDERING SHALL BE INCIDENTAL TO ITEM 2232.501 MILL BITUMINOUS SURFACE. MILLINGS SHALL BE STOCKPILED AND PROCESSED OFF SITE AT A LOCATION TO BE DETERMINED BY THE CONTRACTOR. EXCESS BITUMINOUS MILLINGS SHALL BE HAULED TO COUNTY MAINTENANCE FACILITIES ACCORDING TO THE FOLLOWING SCHEDULE: 1,000 CY TO SILVER LAKE, 2,000 CY TO GLENCOE, AND REMAINING BITUMINOUS MILLINGS TO THE HATS FACILITY IN HUTCHINSON.

(H) HAULING AND STOCKPILING OF SHOULDER AND MILLED MATERIAL SHALL BE INCIDENTAL. HAULING AND STOCKPILING OF EXCESS MATERIAL TO THE COUNTY SHOPS SHALL BE INCIDENTAL.

(I) JOINT SPACING WILL BE VARIABLE TO MATCH TRANSVERSE CRACKS IN THE EXISTING BITUMINOUS PAVEMENT. JOINT SPACING WILL RANGE FROM 4' TO 8' AND JOINTS WILL BE PLACED AT LOCATIONS TO BEST MATCH AS MANY EXISTING CRACKS AS POSSIBLE. AREAS WITH NO TRANSVERSE CRACKING SHALL HAVE 6' JOINT SPACING.

NO	DATE	BY	CKD	APPR	REVISION
1	2-26	TB	TB	TB	REVISED NOTE H.

I hereby certify that this plan, specification or report 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 2/26/2010 Reg. No. 42764

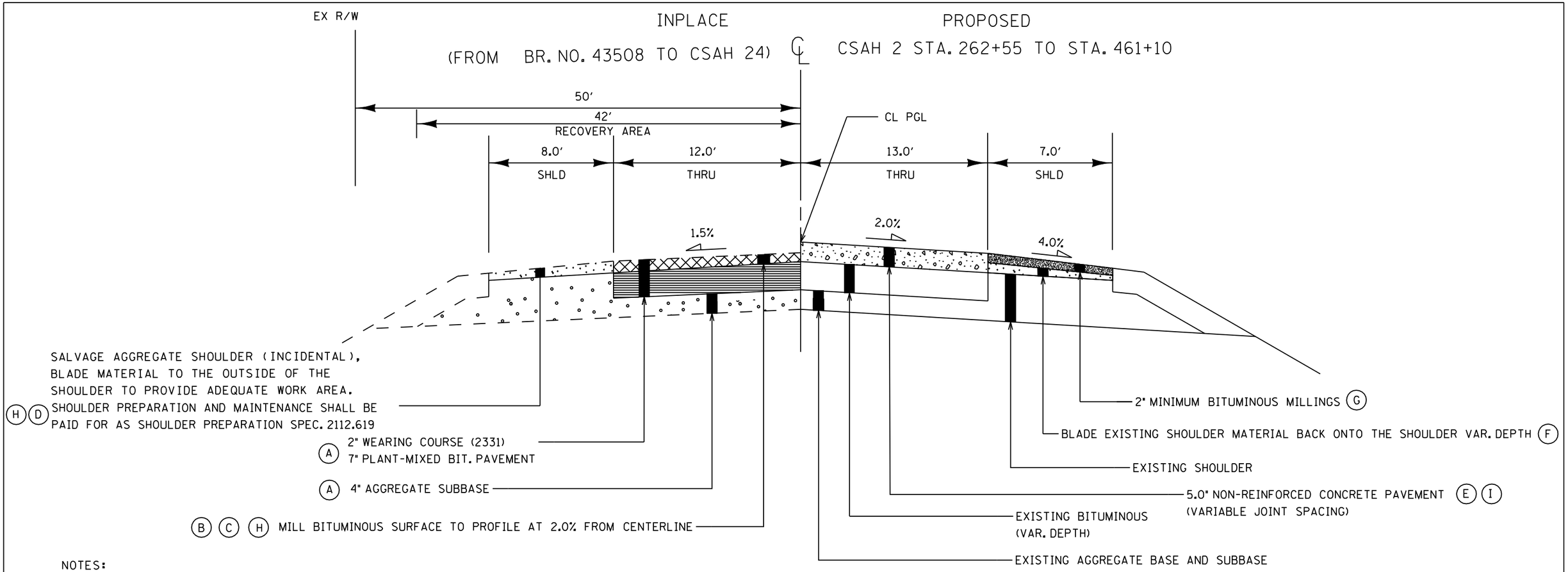
McLEOD COUNTY HIGHWAY DEPARTMENT

S.P. 43-602-24
C.P.
S.A.P. 43-602-25

CSAH 2

TYPICAL SECTION

SHEET 7 OF 34



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NO	DATE	BY	CKD	APPR	REVISION
1	2-26	TB	TB	TB	REVISED NOTE H.

I hereby certify that this plan, specification or report 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 2/26/2010 Reg. No. 42764

McLEOD COUNTY HIGHWAY DEPARTMENT

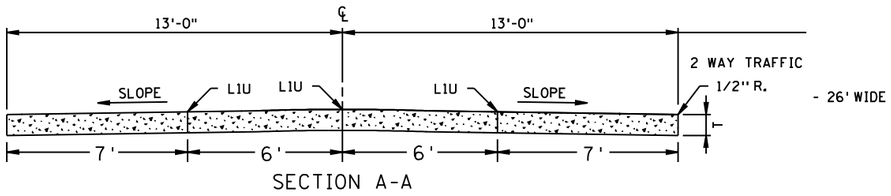
S.P. 43-602-24
C.P.
S.A.P. 43-602-25

CSAH 2

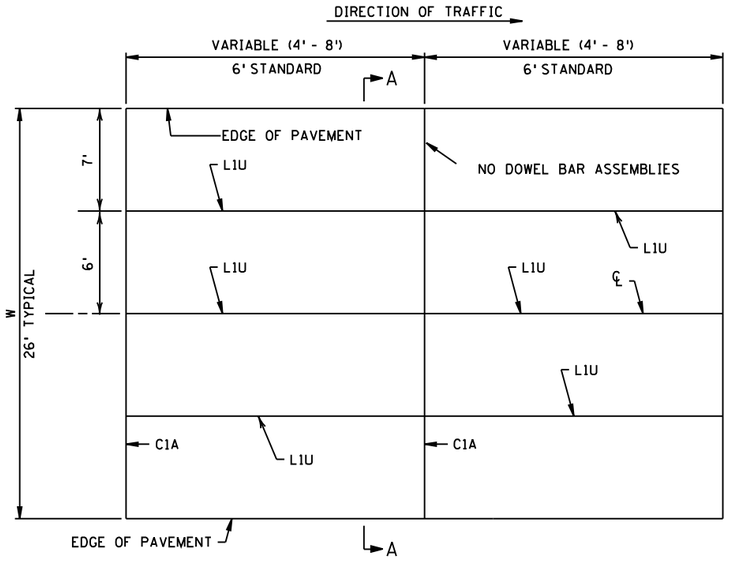
TYPICAL SECTION

SHEET 8 OF 34

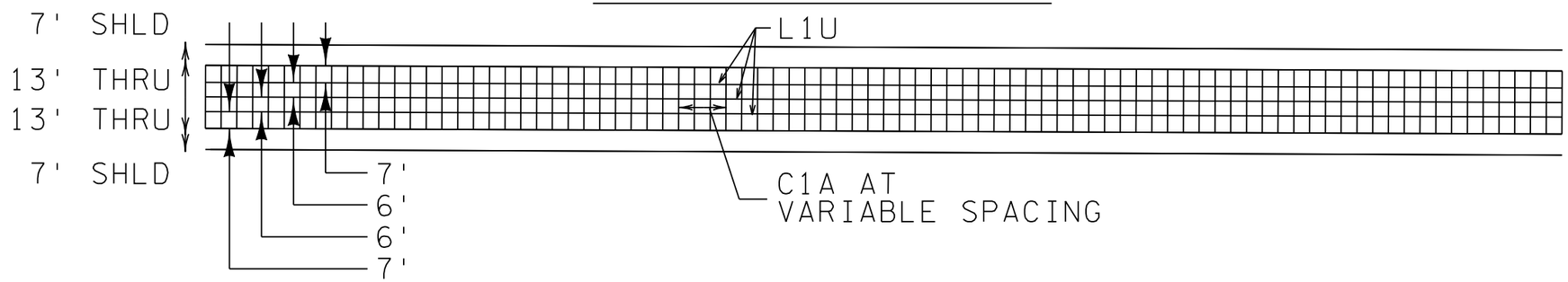
MAINLINE PAVEMENT
UNDOWELED



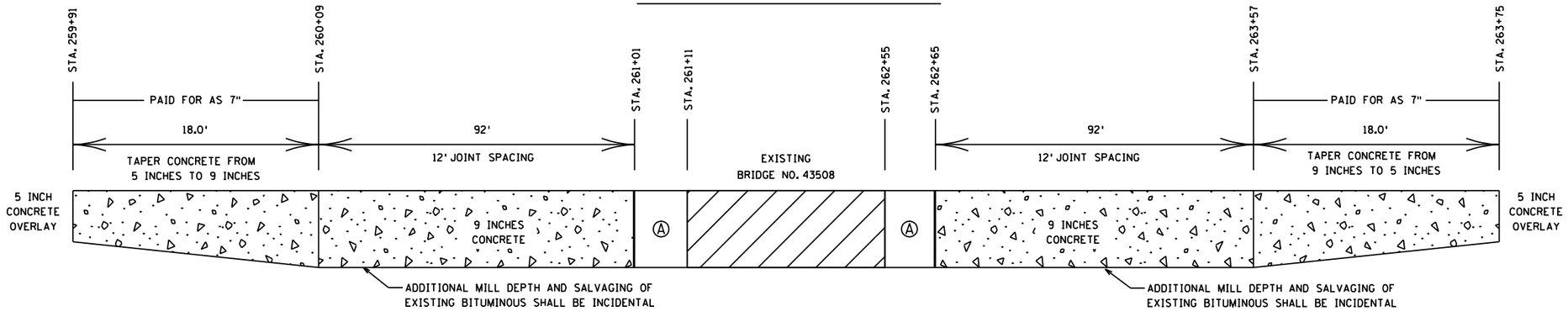
SECTION A-A



JOINT LAYOUT DETAIL



BRIDGE MATCH DETAIL



GENERAL NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, T.

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE 1070.

TIE BARS:
USE NO. 13 BARS 2'6" LONG, AT 2'6" SPACING.

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE(S) WHERE TIED PAVEMENT WIDTH EXCEEDS 4 LANES. USE NO. 13 BARS FOR PAVEMENT THICKNESS 10" OR LESS. USE NO. 16 BARS FOR PAVEMENT THICKNESS GREATER THAN 10". PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 1".

NO MORE THAN TWO LANES SHALL BE PAVED AT THE SAME TIME.

Ⓐ SEE APPROACH PANEL DETAILS LOCATED ON PAGES 31 AND 32 FOR DETAILED SECTION INFORMATION ON APPROACH PANELS.

NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification or report 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 2/22/2010 Reg. No. 42764

McLEOD COUNTY HIGHWAY DEPARTMENT

S.P. 43-602-24
C.P.
S.A.P. 43-602-25

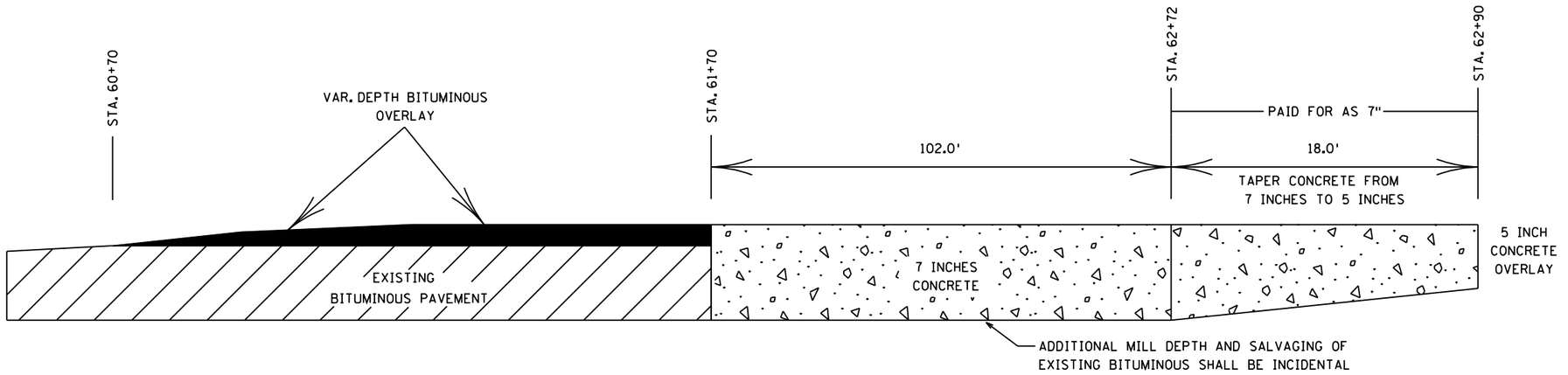
CSAH 2

CONCRETE DETAIL

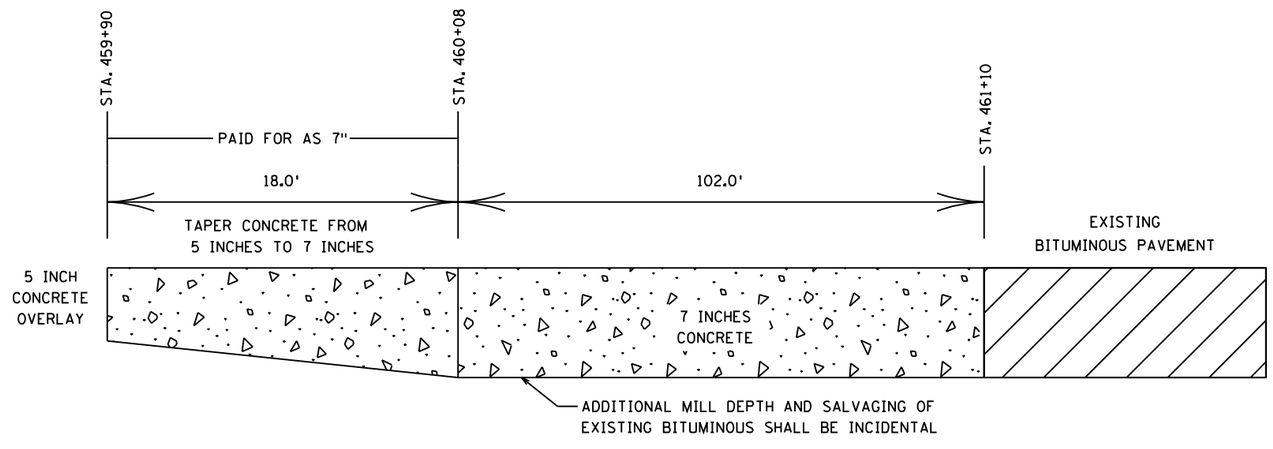
SHEET 26 OF 34

3:15:16 PM 2/22/2010

BEGIN PROJECT MATCH DETAIL



END PROJECT MATCH DETAIL



NO	DATE	BY	CKD	APPR	REVISION

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Date 2/22/2010 Reg. No. 42764

McLEOD COUNTY HIGHWAY DEPARTMENT

S.P. 43-602-24
C.P.
S.A.P. 43-602-25

CSAH 2

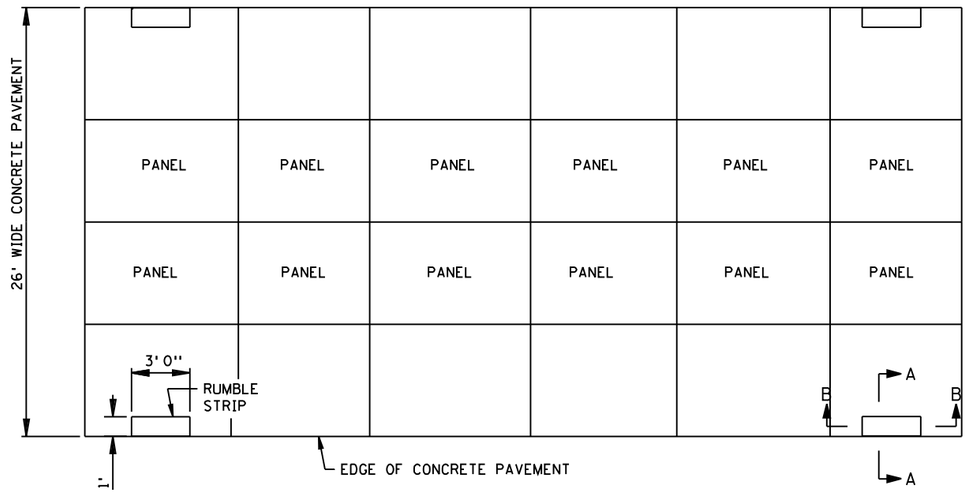
CONCRETE DETAIL

SHEET 27 OF 34

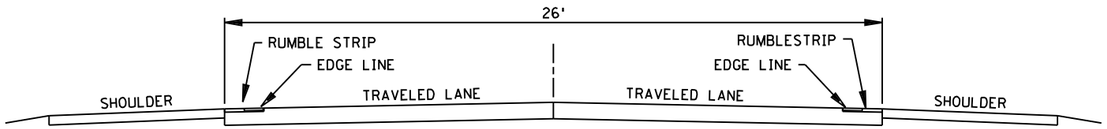
s:\projects\overlays\2010 overlays\csah 2_43_602_24\plan\CSAH2_CONC_DETAIL_E.dgn

RUMBLE STRIP - DETAIL

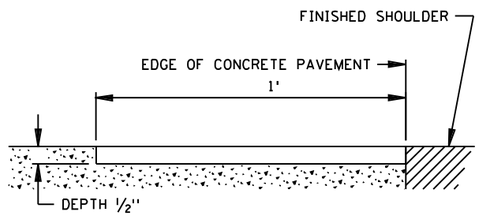
NOTE: RUMBLE STRIPS SHALL BE INCIDENTAL TO CONCRETE PAVEMENT CONSTRUCTION.



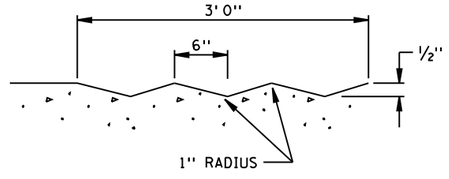
PLAN VIEW



SECTION VIEW OF ROADWAY



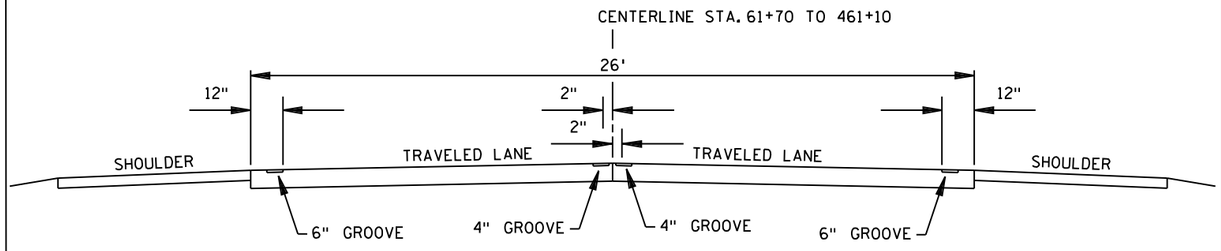
SECTION A-A



SECTION B - B

1. RUMBLE STRIPS SHALL BE OMITTED ON BOTH SIDES OF THE ROADWAY APPROXIMATELY 200' ON EACH SIDE OF RESIDENTIAL ENTRANCES.
2. RUMBLE STRIPS SHALL BE OMITTED AT ALL CROSSROADS.
3. RUMBLE STRIPS SHALL BE FORMED INTO THE PAVEMENT AT 30' INTERVALS, BUT NOT PLACED ON ANY SAWED TRANSVERSE JOINTS.

GROOVED PAINT STRIPE DETAIL



1. GROOVED PAINT AREA SHALL BE A MINIMUM OF 0.10 INCH TO A MAXIMUM OF 0.20 INCH IN DEPTH.
2. CONTRACTOR HAS THE OPTION OF GRINDING THE CONCRETE SURFACE OR FORMING A GROOVE IN THE FINISHING OPERATIONS.
3. THE CONTRACTOR SHALL BE REQUIRED TO HAULT OPERATIONS AND MAKE ADJUSTMENTS WHEN THE GROOVE DEPTH MEASURES GREATER THAN THE MAXIMUM TOLERANCE OF 0.20 INCH.
4. IF CONTRACTOR CHOOSES TO USE A GROOVED FORM, AREAS OUTSIDE OF THE GROOVE TOLERANCE SHALL BE GROUND TO AN ACCEPTABLE DEPTH. DEPTH MEASUREMENT OF GROOVES FOR ACCEPTANCE SHALL BE MADE AFTER THE CONCRETE PAVEMENT HAS CURED.
5. THE CONTRACTOR SHALL ELIMINATE CONCRETE EDGELINE GROOVES AT INTERSECTIONS AS DIRECTED BY THE ENGINEER IN THE FIELD.

NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification or report 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 2/22/2010 Reg. No. 42764

McLEOD COUNTY HIGHWAY DEPARTMENT

S.P. 43-602-24
C.P.
S.A.P. 43-602-25

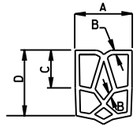
CSAH 2

CONCRETE DETAIL

SHEET 28 OF 34

REQUIRED DIMENSIONS

JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16" USE IN ALL 3/8" JOINTS
A	0.69" + 0.13" - 0.05"
B	0.08" ± 0.02"
C	0.25" MIN.
D	0.63" MIN.



SPEC. REFERENCE 3721

TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

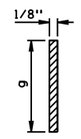
NOTES:

"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 1/8 IN., NOR MORE THAN 5/16 IN. BELOW THE PAVEMENT SURFACE.

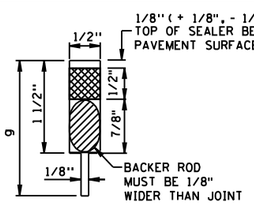
SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

CONTRACTION JOINT SEALER

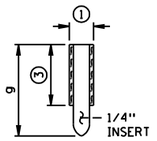
PREFORMED ELASTIC TYPE



DETAIL A
FORMED & SAWED



DETAIL B ②
SAWED



DETAIL C
FORMED
(INSERT TO BE REMOVED)

CONTRACTION JOINT CLASS DESIGNATION, DETAIL & SEALER SPEC. TABLE

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1A	C1A-D	A	UNSEALED
C2A	C2A-D	A	3725
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	3722

LEGEND

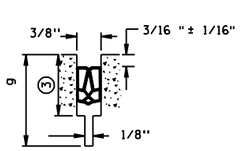
C = CONTRACTION JOINT
NO. = SEALANT TYPE
1 = UNSEALED
2 = 3725
3 = 3721
4 = 3722
LETTER = DETAIL
X = MORE THAN 1 DETAIL
-D = DOWEL BARS

EXAMPLE

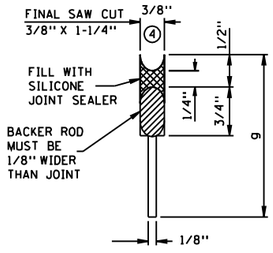
C2B-D

DOWEL BAR DIAMETER TABLE

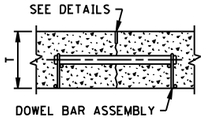
PAVEMENT THICKNESS T	DOWEL BAR DIAMETER
6" - 6 1/2"	1"
7" - 10"	1 1/4"
10 1/2" - 14"	1 1/2"



DETAIL D
SAWED



DETAIL E
SAWED



SECTION AT JOINT

NOTES:

① DESIGN C3X OR C3X-D - PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 3/8" BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.

DESIGN C2X OR C2X-D - PRIOR TO SEALING FORMED JOINT (DETAIL C) WITH HOT POUR SEALER THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 1/2", SAW ALONG THE FULL LENGTH OF THE FORMED JOINT TO DEPTH OF 3/4" (+ 1/8", - 1/16"). THE SEALER SHALL BE FILLED TO THE SAME DEPTH AS SHOWN IN DETAIL B.

② DESIGN C2B OR C2B-D - PRIOR TO SEALING JOINT (DETAIL B) WITH HOT POUR JOINT SEALER, A 5/8" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 5/8" BELOW THE SURFACE OF THE PAVEMENT.

③ WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH.

④ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4".

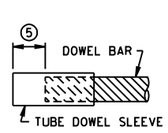
GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY. SEE STANDARD PLATE 1150, CONSTRUCTION OF HEADER JOINTS. SEE STANDARD PLANS 5-297.217 AND 5-297.219, CONCRETE MAINLINE/RAMP PAVEMENT.

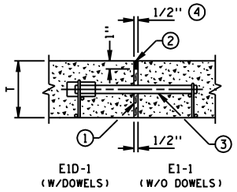
SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

FOR UNBONDED OVERLAYS, THE JOINT DEPTH "g" SHALL BE T/3.
FOR CONCRETE PAVEMENT, THE JOINT DEPTH "9" SHALL BE T/4.

CONTRACTION JOINTS
DESIGN C

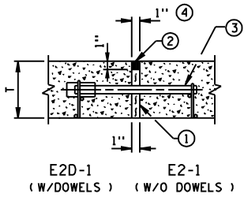


DOWEL BAR SLEEVE DETAIL



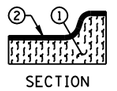
E1D-1 (W/DOWELS) E1-1 (W/O DOWELS)

DETAIL A

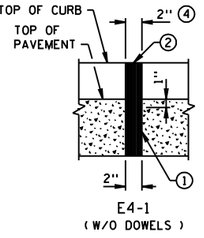


E2D-1 (W/DOWELS) E2-1 (W/O DOWELS)

DETAIL C



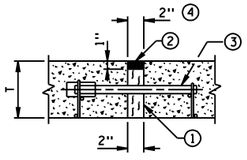
SECTION THRU CURB E2-1



E4-1 (W/O DOWELS)

DETAIL D

SECTION THRU CURB E4-1



E4D-1 (W/DOWELS)

DETAIL E

EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D-1	E1-1	A	3723
E2D-1	E2-1	C	3723
	E4-1	D	3723
E4D-1		E	3723
	E8S-1	⑥	3725

LEGEND

E = EXPANSION JOINT
NO. = JOINT REFERENCE ④
D = DOWEL BARS
S = CONCRETE SILL
-1 = HOT POURED SEAL

EXAMPLE

E1D-1
- HOT POURED SEAL
- DOWEL BARS
- JOINT REFERENCE
- EXPANSION JOINT

NOTES:

① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

② JOINT SEALER SPEC. 3723. TOP OF SEALER, SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE ± 1/8".

③ DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

④ THE FIRST NUMBER IN THE JOINT DESIGNATION IS EQUAL TO HALF OF THE JOINT NUMBER IN 1/2" INTERVALS (I.E. E1 = 1/2", E2 = 1", E4 = 2", AND E8 = 4").

⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.

⑥ SEE STANDARD PLAN 5-297.223 FOR E8S JOINT DETAIL.

EXPANSION JOINTS
DESIGN E

STANDARD SHEET NO. 5-297.221 (1 OF 2)	TITLE: PAVEMENT JOINTS CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)
STANDARD APPROVED: JUNE 6, 2005	
STATE PROJ. NO.	SHEET NO. OF SHEETS

FILE NAME S221IF05.SPN.DGN

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NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification or report 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 2/22/2010 Reg. No. 42764

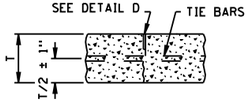
McLEOD COUNTY HIGHWAY DEPARTMENT

S.P. 43-602-24
C.P.
S.A.P. 43-602-25

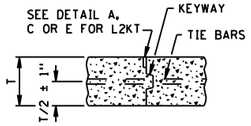
CSAH 2

CONCRETE DETAIL

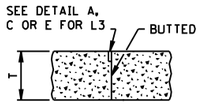
SHEET 29 OF 34



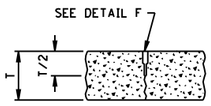
L1 & L1T



L2KT



L3



L4

LONGITUDINAL JOINT CLASS DESIGNATION, DETAIL & SEALER SPECIFICATION TABLE

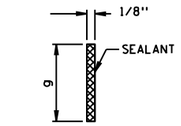
CLASS DESIGNATION				JOINT DETAIL	JOINT SEALER SPECIFICATION
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS	BUTTED		
L1H	L1TH			B	3723
		L2KTH		D OR E	3723
		L2KTS		C	3722
			L3H	D OR E	3723
			L3S	C	3722
L4S				F	3722

LEGEND

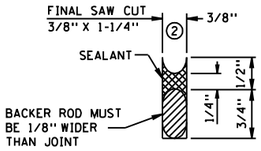
L = LONGITUDINAL JOINT
NO. = JOINT REFERENCE
K = KEYWAY
T = TIE BARS
U = UNSEALED
H = HOT POUR (SEALANT)
S = SILICONE (SEALANT)

JOINT REFERENCE NUMBERS

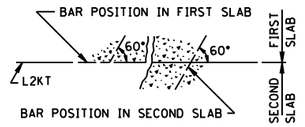
1 = SAWED TO A DEPTH OF T/3
2 = KEYED CONSTRUCTION JOINT
3 = BUTTED CONSTRUCTION JOINT
4 = SAWED TO A DEPTH OF T/2



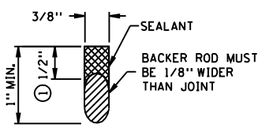
DETAIL B
(SAWED & SEALED WITH SPEC. 3723)



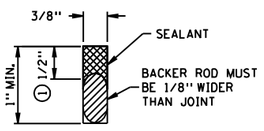
DETAIL C
(SAWED AND SEALED WITH SPEC. 3722)



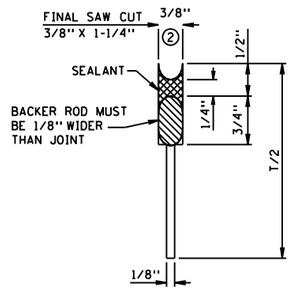
TIE BAR BENDING DETAIL



DETAIL D
(FORMED & SEALED WITH SPEC. 3723)



DETAIL E
(SAWED & SEALED WITH SPEC. 3723)



DETAIL F
(SAWED AND SEALED WITH SPEC. 3722)

LONGITUDINAL JOINT NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

THE TIE BAR SPACING FOR ALL L2KT JOINTS SHALL BE 2' - 6" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE NO. 13 X 2' - 6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED FOUR LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS + 1/16 IN. TO - 1/32 IN.

FOR CONCRETE PAVEMENT THE JOINT DEPTH "g" SHALL BE T/3 INCHES.

SPEC. 3723 SEALER - TOP OF SEALER FLUSH TO - 3/16 IN. BELOW TOP OF PAVEMENT SURFACE.

① THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING, PRIOR TO SEALING THE JOINT, A CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F, WITH A DIAMETER 1/8 IN. LARGER THAN THE JOINT OPENING, MAY BE PLACED 1/2 IN. BELOW THE TOP OF THE PAVEMENT.

② THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING, PRIOR TO SEALING THE JOINT, A 1/2 IN. DIAMETER CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2 IN. BELOW THE SURFACE OF THE PAVEMENT. NON-SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4 IN.

GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY. SEE STANDARD PLATE 1141, PAVEMENT KEYWAY. SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED & SPECIAL REINFORCEMENT REQUIRED.

STANDARD SHEET NO. 5-297.221 (2 OF 2)	TITLE: PAVEMENT JOINTS LONGITUDINAL (DESIGN L)
STANDARD APPROVED: JUNE 6, 2005	
STATE PROJ. NO.	SHEET NO. OF SHEETS

FILE NAME S2212F05_SPN.DGN

3:15:22 PM 2/22/2010

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NO	DATE	BY	CKD	APPR	REVISION

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Date 2/22/2010 Reg. No. 42764

McLEOD COUNTY HIGHWAY DEPARTMENT

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C.P.
S.A.P. 43-602-25

CSAH 2

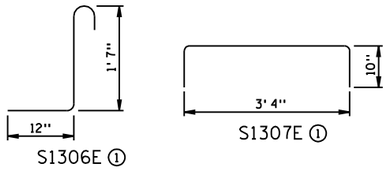
CONCRETE DETAIL

SHEET 30 OF 34

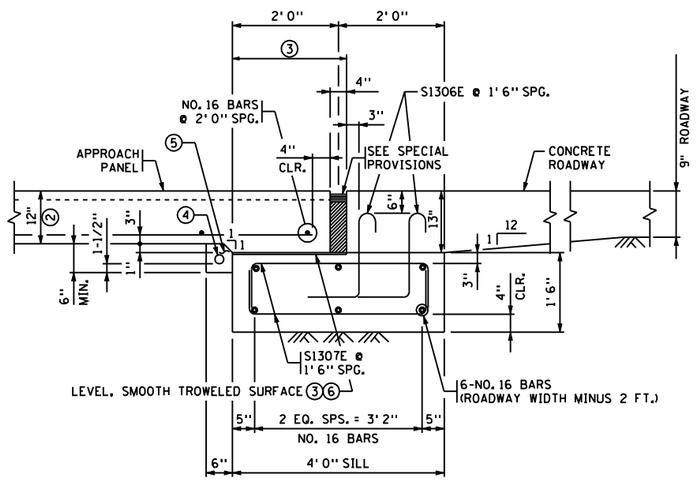
SUMMARY OF QUANTITES FOR BRIDGE APPROACH PANEL		
CONCRETE MIX NO. 3X42	31	CU. YD.
REINFORCEMENT BARS	3,607	LBS.

REINFORCEMENT BARS ESTIMATE

BAR	NO.	LENGTH (FT)	QNTY	TOTAL LENGTH (FT)	WT/FT (LB)	TOTAL WEIGHT (LB)
SILL LONGITUDINAL	16	24.0	12	288	1.043	300
S1306E	13	3.1	68	209	0.668	140
S1307E	13	5.0	68	340	0.668	227
A1903E	19	4.7	52	243	1.502	365
APPROACH LONGITUDINAL LOWER	19	10.0	100	1000	1.502	1502
APPROACH LONGITUDINAL UPPER	13	10.0	50	500	0.668	334
APPROACH TRANSVERSE LOWER	16	24.0	18	432	1.043	451
APPROACH TRANSVERSE UPPER	13	24.0	18	432	0.668	289
					TOTAL	3,607



S1306E ① S1307E ①



E8S JOINT DETAIL ①
USE AT JOINTLESS ABUTMENTS

NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

① ALL REINFORCEMENT IN APPROACH PANEL, SILL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.

② APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. CHECK BRIDGE PLANS FOR OVERLAYS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.

③ PLACE PLASTIC SHEETING SPEC. 3756 AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL.

④ 2 INCH OR 4 INCH NOMINAL DIA. THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. FURNISHING AND INSTALLING DRAIN SYSTEM SHALL BE INCIDENTAL, WITH NO DIRECT PAYMENT. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE.

⑤ BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0-3% PASSING A NO.200 SIEVE.

⑥ REQUIRED CONSTRUCTION JOINT.

NO	DATE	BY	CKD	APPR	REVISION

I hereby certify that this plan, specification or report 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 2/22/2010 Reg. No. 42764

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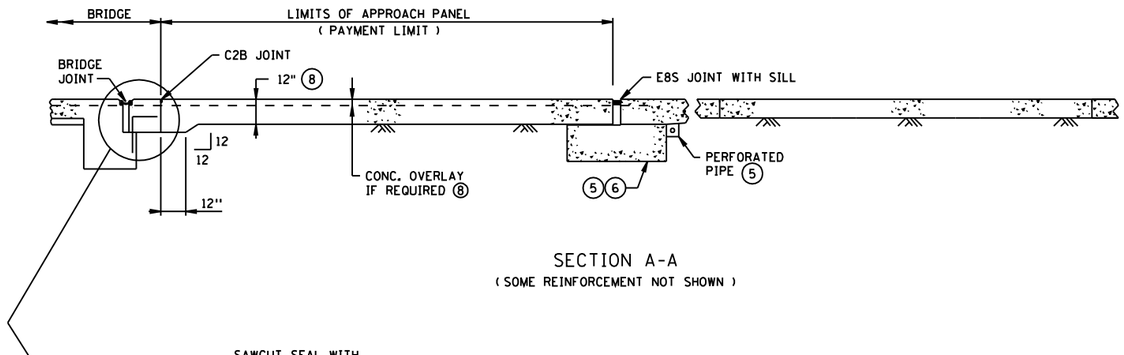
CSAH 2

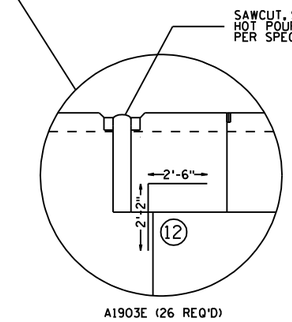
BRIDGE APPROACH PANEL DETAILS

SHEET 31 OF 34



SECTION A-A

(SOME REINFORCEMENT NOT SHOWN)



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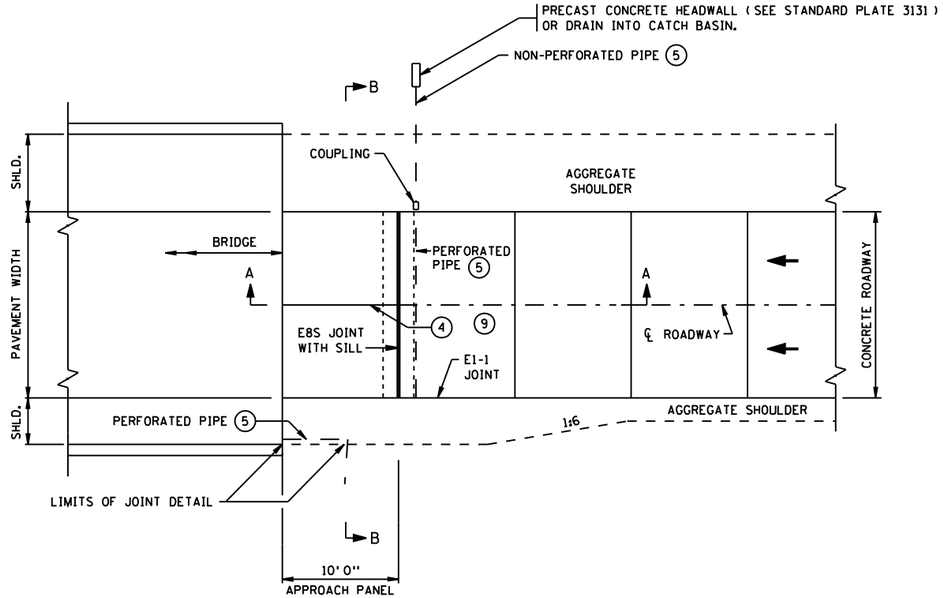
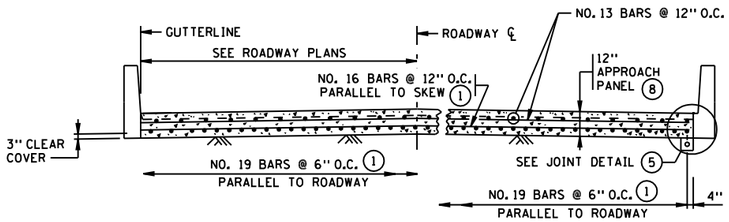


RURAL ROADWAY PLAN

PARALLEL & NONPARALLEL WINGWALLS



SECTION B-B

(SEE ROADWAY PLAN VIEW)

NOTES:

(1) ALL REINFORCEMENT IN APPROACH PANEL, SILL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.

~~(2) TRANSITION FACE OF 4" CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAILS SHEET.~~

~~(3) TRANSITION APPROACH PANEL CURB HEIGHT 4" TO 0" WHERE THERE IS NO ROADWAY CURB.~~

(4) L2KT OR L1T LONGITUDINAL JOINT IS REQUIRED. SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.

(5) SEE SHEET 31 FOR REQUIRED MISCELLANEOUS DETAILS NOT SHOWN.

(6) 18" x 4'0" CONCRETE SILL UNDER TRAFFIC LANES ONLY WHEN MAINLINE ROADWAY PAVEMENT IS CONCRETE. CONCRETE SILL AND CURBING IF REQUIRED IS INCLUDED IN APPROACH PANEL PAY ITEM.

~~(7) LOCATE BETWEEN GUARD RAIL POSTS OR AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL CHAPTER 7 FOR CATCH BASIN INFORMATION.~~

(8) APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. CHECK BRIDGE PLANS FOR OVERLAYS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.

(9) SEE SHEET 18 FOR BRIDGE APPROACH ROADWAY INFORMATION.

~~(10) CONCRETE SHOULDERS INCLUDED IN PAYMENT FOR APPROACH PANEL QUANTITY.~~

(11) C4E-D OR C2B-D JOINT.

(12) CONTRACTOR SHALL DRILL & GROUT STEEL REINFORCEMENT BARS INTO THE EXISTING ABUTMENT.

NO	DATE	BY	CKD	APPR	REVISION

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Date 2/23/2010 Reg. No. 42764

McLEOD COUNTY HIGHWAY DEPARTMENT

S.P. 43-602-24

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CSAH 2

BRIDGE APPROACH PANEL DETAILS

SHEET 32 OF 34

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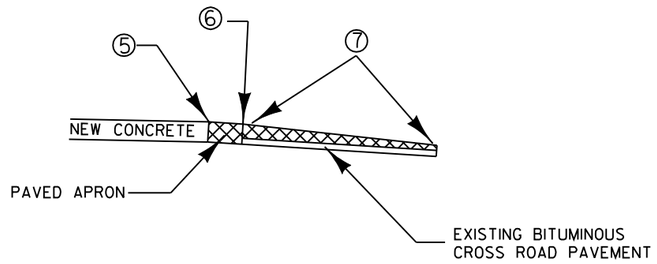
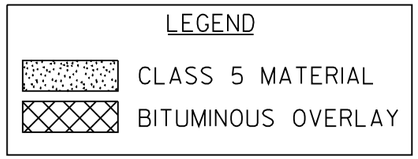
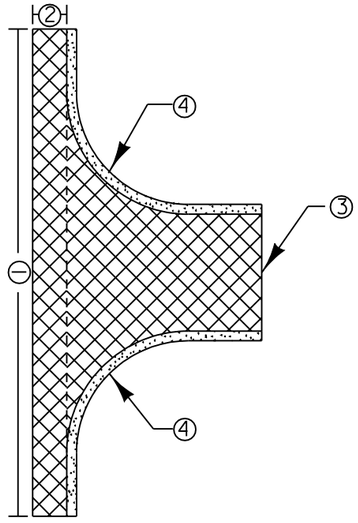


CROSS ROAD ELEVATION VIEW





CROSS ROAD PLAN VIEW

① BITUMINOUS APRONS SHALL BE PAVED TO COVER ALL EXISTING BITUMINOUS.
CROSS ROADS WITHOUT PAVED APRONS SHALL HAVE PAVED APRONS TO A MAXIMUM LENGTH OF 100 FEET.

② PAVED APRON WIDTH SHALL BE 7 FEET OR WIDE ENOUGH TO COVER EXISTING PAVEMENT.

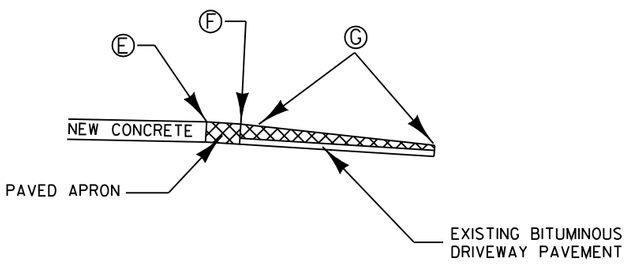
③ CROSS ROAD PAVEMENT SHALL EXTEND TO THE END OF EXISTING PAVEMENT OR THE EXISTING R/W, WHICHEVER IS LESS.
CLASS 5 AGGREGATE SURFACING SHALL BE PROVIDED WHERE PAVEMENT ENDS TO PROVIDE A SMOOTH TRANSITION FROM THE NEW PAVEMENT TO EXISTING AGGREGATE SURFACES.

④ CLASS 5 AGGREGATE SURFACING SHALL BE PROVIDED AT VARIABLE DEPTH AND WIDTH ALONG CROSS ROAD RADIUS TO BLEND THE RAISED PAVEMENT INTO THE SURROUNDING GROUND.

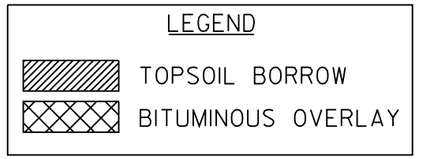
⑤ EXISTING BITUMINOUS APRONS SHALL BE MILLED OFF FULL WIDTH AT THE SAME GRADE AS THE MAINLINE PAVEMENT.

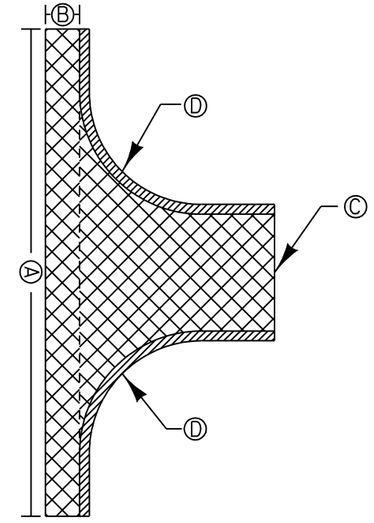
⑥ AT DRIVEWAY LOCATIONS IN WHICH THE MILL DEPTH APPROACHES OR EXCEEDS 3.5", CROSS ROAD MILLING WILL BE REQUIRED TO ALLOW FOR 1.5" OF BITUMINOUS OVERLAY.

⑦ NEW BITUMIOUS PAVEMENT SHALL TAPER FROM A VARIABLE DEPTH AT THE APRON EDGE TO 1.5" AT THE END OF THE EXISTING CROSS ROAD PAVEMENT.



DRIVEWAY ELEVATION VIEW





DRIVEWAY PLAN VIEW

Ⓐ BITUMINOUS APRONS SHALL BE PAVED TO COVER ALL EXISTING BITUMINOUS.
DRIVEWAYS WITHOUT PAVED APRONS SHALL HAVE PAVED APRONS TO A MAXIMUM LENGTH OF 90 FEET.

Ⓑ PAVED APRON WIDTH SHALL BE 7 FEET OR WIDE ENOUGH TO COVER EXISTING PAVEMENT.

Ⓒ DRIVEWAY PAVEMENT SHALL EXTEND TO THE END OF EXISTING PAVEMENT OR THE EXISTING R/W, WHICHEVER IS LESS IN LOCATIONS WHERE EXISTING DRIVEWAYS ARE PAVED.
NEW DRIVEWAY PAVEMENT SHALL EXTEND NO FURTHER THAN THE EXISTING R/W LINE.
CLASS 5 AGGREGATE SURFACING SHALL BE PROVIDED WHERE PAVEMENT ENDS TO PROVIDE A SMOOTH TRANSITION FROM THE NEW PAVEMENT TO EXISTING AGGREGATE SURFACES.

Ⓓ TOPSOIL BORROW AND SEED SHALL BE PROVIDED AT VARIABLE DEPTH AND WIDTH ALONG DRIVEWAY RADIUS TO BLEND THE RAISED PAVEMENT INTO THE SURROUNDING GROUND.

Ⓔ EXISTING BITUMINOUS APRONS SHALL BE MILLED OFF FULL WIDTH AT THE SAME GRADE AS THE MAINLINE PAVEMENT.

Ⓕ AT DRIVEWAY LOCATIONS IN WHICH THE MILL DEPTH APPROACHES OR EXCEEDS 3.5", DRIVEWAY MILLING WILL BE REQUIRED TO ALLOW FOR 1.5" OF BITUMINOUS OVERLAY.

Ⓖ NEW BITUMIOUS PAVEMENT SHALL TAPER FROM A VARIABLE DEPTH AT THE APRON EDGE TO 1.5" AT THE END OF THE EXISTING DRIVEWAY PAVEMENT.

NO	DATE	BY	CKD	APPR	REVISION

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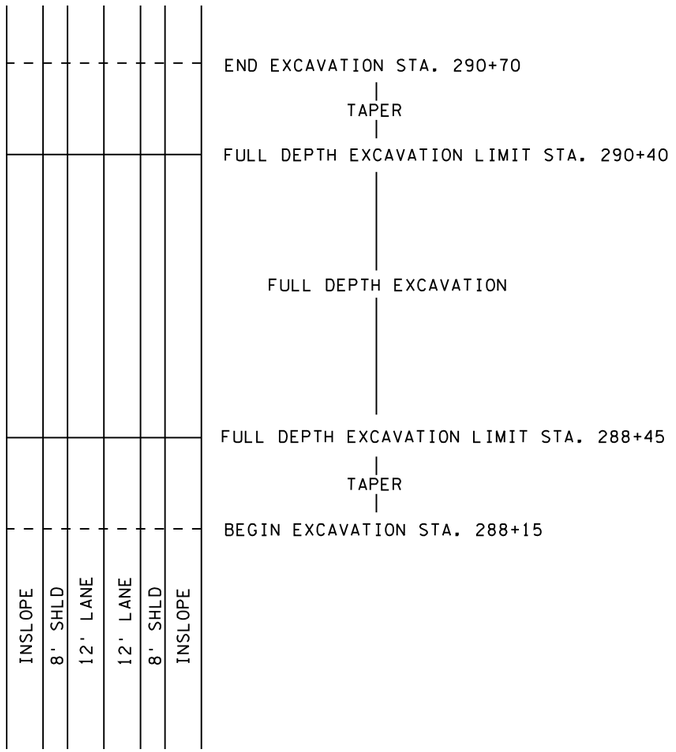
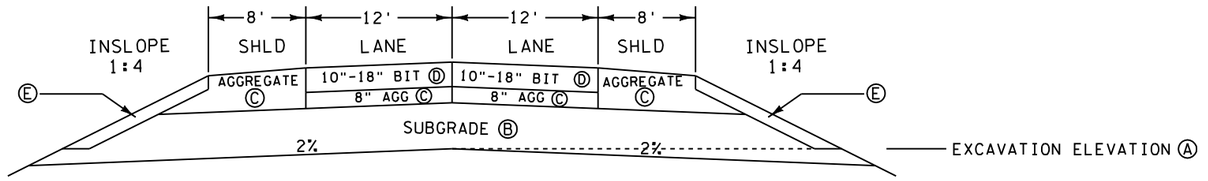
CSAH 2

DRIVEWAY DETAILS

SHEET 33 OF 34



EXISTING



Ⓐ EXCAVATE ENTIRE WIDTH TO A DEPTH APPROXIMATELY 0.75' ABOVE THE EXISTING DITCH BOTTOM. THE TOTAL EXCAVATION DEPTH SHOULD BE APPROXIMATELY 3' FROM EXISTING CENTERLINE FINISHED GRADE IN MOST AREAS.

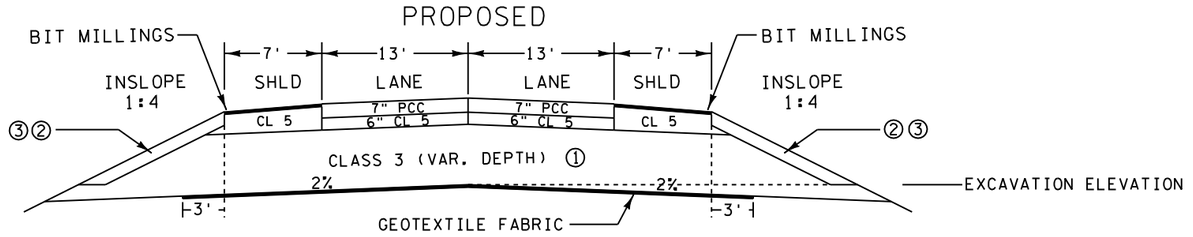
Ⓑ THE EXCAVATED SUBGRADE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF SITE.

Ⓒ THE CONTRACTOR SHALL SALVAGE EXISTING AGGREGATE AND STOCKPILE ON SITE FOR TRAFFIC CONTROL AND STAGING.

Ⓓ EXISTING BITUMINOUS PAVEMENT SHALL BE REMOVED AND PROCESSED WITH THE REST OF THE CSAH 2 BITUMINOUS MILLINGS. REMOVAL AND PROCESSING OF EXISTING BITUMINOUS SHALL BE INCIDENTAL TO ITEM 2232.501 MILL BITUMINOUS SURFACE (VAR. DEPTH).

Ⓔ THE CONTRACTOR SHALL STRIP AND SALVAGE EXISTING TOPSOIL FROM THE CORRECTION AREA.

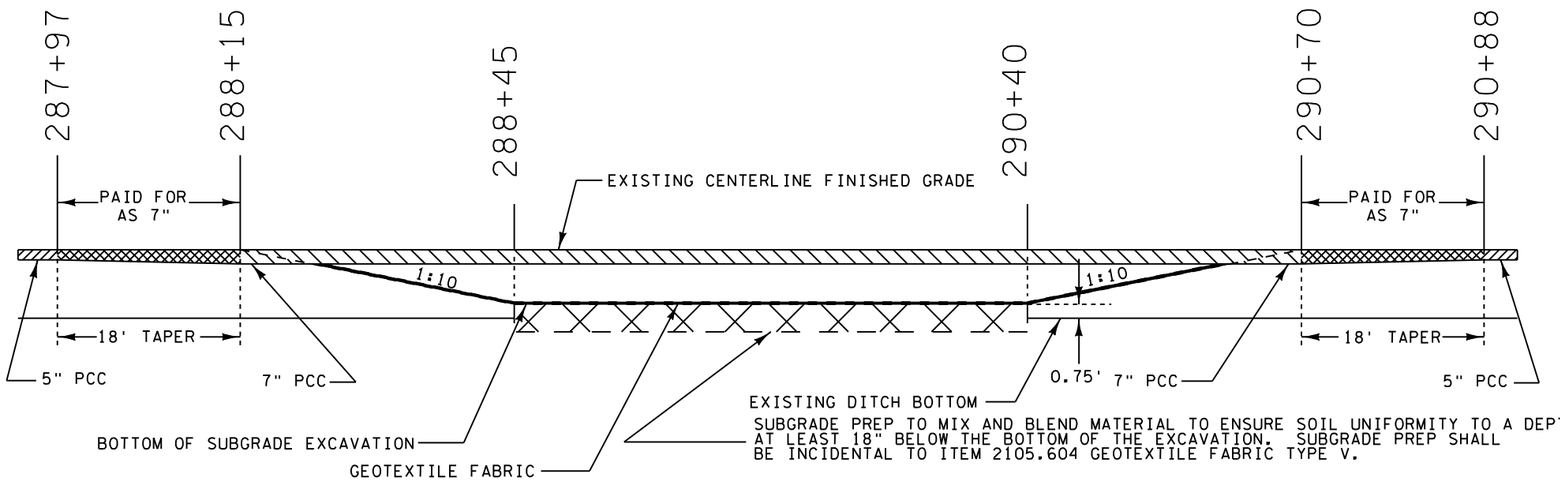
PROPOSED



① THE CONTRACTOR SHALL PROVIDE CLASS 3 FILL MATERIAL FROM EXCAVATION DEPTH TO AN ELEVATION LOCATED 13" BELOW PROPOSED FINISHED GRADE.

② THE CONTRACTOR SHALL REPLACE SALVAGED TOPSOIL ALONG INSLOPES.

③ TURF ESTABLISHMENT SHALL INCLUDE ALL AREAS DISTURBED BY CONSTRUCTION AND SHALL CONSIST OF SEED MIXTURE NO. 250 APPLIED AT 70 LB./ACRE, COMMERCIAL FERTALIZER TYPE 2 APPLIED AT 300 LB./ACRE, MULCH MATERIAL TYPE 1 APPLIED AT 2 TONS/ACRE AND DISK ANCHORING FOR APPROX. 0.20 ACRES.



APPROXIMATE GRADING QUANTITIES	
Ⓩ COMMON EXCAVATION	970 CY (IN PLACE)
BIT REMOVAL	230 CY (IN PLACE)
SALVAGE AGGREGATE	405 CY (IN PLACE)
AGGREGATE BASE CLASS 3	920 CY (CV)
AGGREGATE BASE CLASS 5	245 CY (CV)
GEOTEXTILE FABRIC TYPE V	1,303 SY

Ⓩ INCLUDES 260 CY OF SALVAGED TOPSOIL (ASSUMED 1' DEEP)

NO	DATE	BY	CKD	APPR	REVISION
1	3/2/10	PRS			SUBGRADE CORRECTION LOCATION CHANGE

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Date 3/15/2010 Reg. No. 42764

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SUBGRADE CORRECTION DETAILS

SHEET 34 OF 34

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