STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5346-I-71	—	

Index of Sheets

TOTAL SHEETS = 15

PLAN AND PROFILE OF PROPOSED

RUSSLAN COULEE ROAD

TOWN OF BARRE

TOWN ROAD

LA CROSSE COUNTY

STATE PROJECT NUMBER

5346-I-71

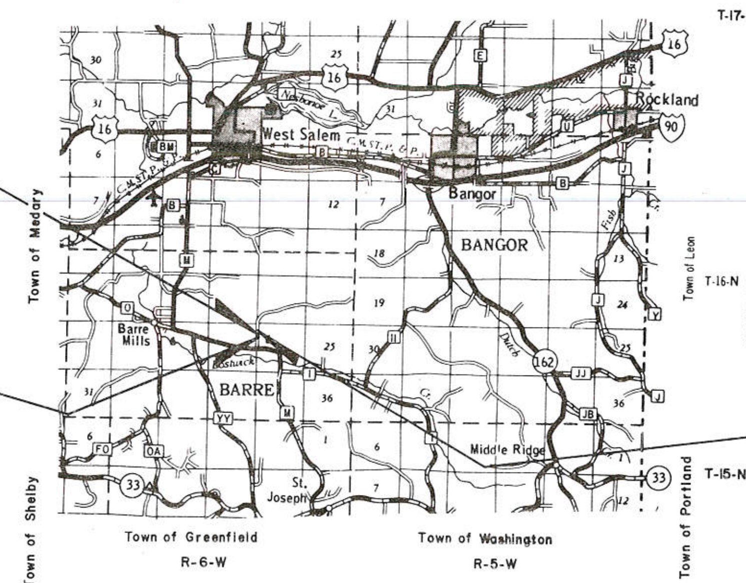
5 PLAN & PROFILE 50

10 CROSS SECTIONS 10

STRUCTURE C-32-45

BEGIN PROJECT
STA. 13+00.00
N= 672,050 (± 200')
E= 1,717,430 (± 200')

END PROJECT
STA. 21+00.00



Design Designation

A.D.T. 1975	= 50
A.D.T. 1995	= 80
D.H.V.	=
D.	= 60%
T.	=
V.	= 50 M.P.H.

Conventional Signs

County Line
Township or Range Line
Section Line
New Right of Way Line
Present Right of Way Line
Wire Fence (type)
Corporate or City Limits
Property Line P.L.
Traveled Way or P.E.
Railroads
Base or Survey Line
Caution Symbol (combustible fluids under pressure) CAUTION

Culverts in Place
Culverts Required
Drop Inlet
Power Pole
Telephone or Telegraph Pole
Right of Way Markers
Reference Stake for Hubs Only +61.7 25.9
Marsh
Hedge
Trees
Ground Elevation Datum Line 73.9
Grade Elevation Datum Line 76.8

Layout
Scale 0 1 2 MILES

Total Net Length of Centerline 0.152 Miles RURAL

ALL CO-ORDINATES SHOWN ON THIS PLAN ARE REFERENCED TO THE WISCONSIN CO ORDINATE SYSTEM, SOUTH ZONE, AND ARE SCALED FROM U S G S TOPOGRAPHIC MAP, ST. JOSEPH QUADRANGLE FOR IDENTIFICATION ONLY

APPROVED FOR LA CROSSE COUNTY
DATE 10-28-82 Harold J. McLean
HIGHWAY COMMISSIONER

APPROVED FOR TOWN OF BARRE
DATE 10/28/82 [signature]
TOWN CHAIRMAN

Plans Prepared by
PLEHN BRIDGE DESIGN AND ENGINEERING SERVICES
VERONA WISCONSIN

David L. Plehn

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Surveyor PLEHN ENG. District Checker A.L.P.
Designer PLEHN ENG. C.O. Checker BJE
District Supervisor G.W.P. C.O. Coordinator [signature]

Approved:
Date 11-30-82 James D. [signature]
District Transportation Director

Approved:
Date 12-23-82 D. D. Strand
Chief Design Engineer

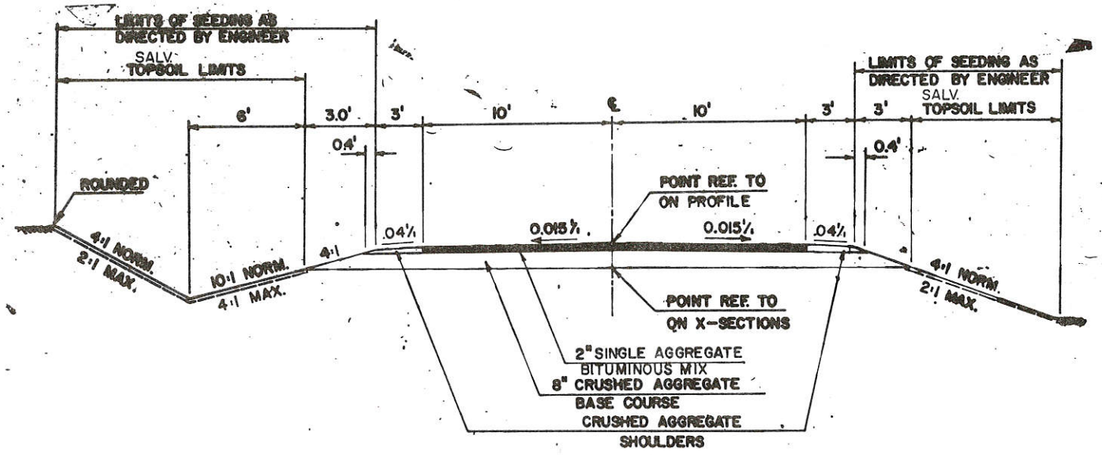
Approved:
Date 12/23/82 E. J. Rydeski
Director of Development

U S DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION 5 WISCONSIN DIVISION

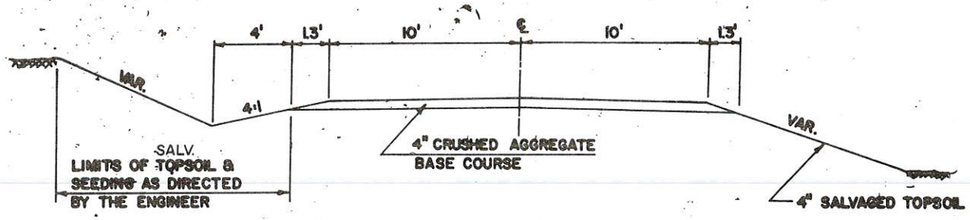
Approved:
Date
Division Engineer

STATE PROJECT NUMBER	SHEET NO.
§5346-1-71	2

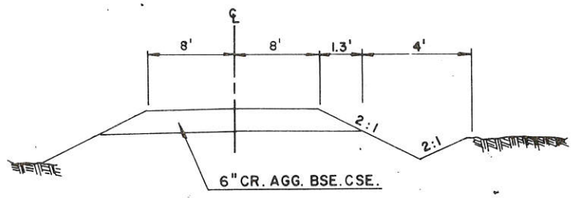
TYPICAL SECTIONS



TYPICAL TANGENT SECTION
RUSSLAN COULEE ROAD



TYPICAL P.E. SECTION



TYPICAL SECTION FOR BYPASS

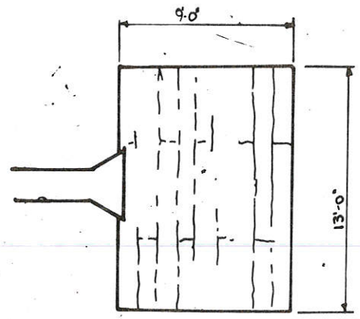
UTILITIES

NORTHERN STATES POWER
122 5TH AVE. NORTH
LA CROSSE, WIS.
608-782-8110
ATTN. KEN HILBY

LA CROSSE TELEPHONE COMPANY
206 5TH AVE. SOUTH
LA CROSSE WIS.
608-782-9980
ATTN. JERRY SCHULTZ

APPLICABLE STANDARD DETAIL DRAWINGS

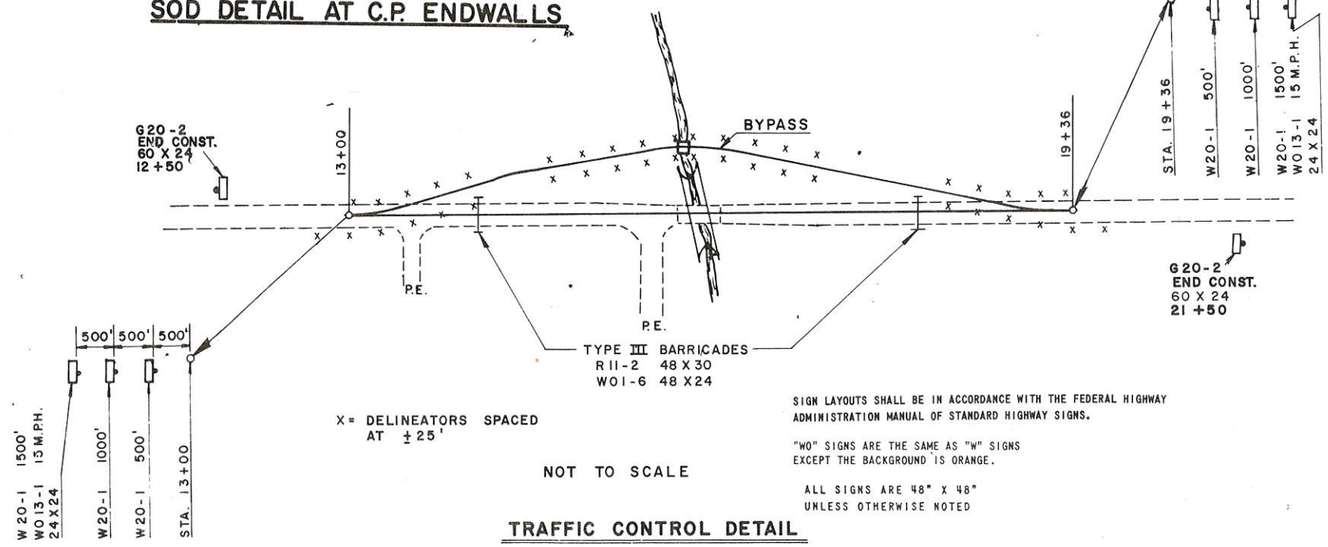
8E8 - 1	TYPICAL INSTALLATION OF EROSION BALE
8FI - 9	APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH
12A3 - 4	NAME PLATE (STRUCTURES)
15A2 - 2	DELINEATOR POSTS, MARKER POSTS & DELINEATORS
15CI - 7	CONSTRUCTION BARRICADES AND STANDARD SIGNS



SOD DETAIL AT C.P ENDWALLS

GENERAL NOTES

1. CURVE DATA IS BASED ON ARC DEFINITION.
2. NO TREES ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
3. DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREA WITHIN THE FINISHED SHOULDER POINTS, ARE TO BE FERTILIZED, MULCHED AND / OR SEEDED AS DIRECTED BY THE ENGINEER.
4. EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS BUT IS MEASURED AND PAID FOR AS UNCLASSIFIED EXCAVATION. THE LOCATION FOR EBS WILL BE DETERMINED BY THE ENGINEER.
5. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITIES LOCATED WITHIN THE PROJECT AREA THAT ARE NOT SHOWN
6. WHEN THE QUANTITY OF THE ITEMS OF SUBBASE BASE OR SURFACE COURSE IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL DIRECTED BY THE ENGINEER.
7. ALL EXISTING CULVERT PIPES SHALL BE REMOVED.
9. THE EXACT LOCATION OF PRIVATE ENTRANCES SHALL BE DETERMINED BY THE ENGINEER.
10. BEARINGS ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST 5 SECONDS.
11. EROSION BALES ARE TO BE PLACED AS DIRECTED BY THE ENGINEER.



X = DELINEATORS SPACED AT ±25'

NOT TO SCALE

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF STANDARD HIGHWAY SIGNS.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED

TRAFFIC CONTROL DETAIL

ESTIMATE OF QUANTITIES

GRADING, BASE, SURFACING
AND STRUCTURE C-32-45

PROJECT DESIGNATION	SHEET NO.
5346-1-71	3

STATION TO STATION	NET LENGTH OF CENTER LINE	CLEARING	GRUBBING		EXCAVATION UNCLASSIFIED	EXCAVATION BORROW	FINISHING ROADWAY	CRUSHED AGGREGATE BASE COURSE	CULVERT PIPE, CLASS III, 18"	APRON ENDWALLS FOR CULVERT PIPE, 18-INCH	DELINEATORS	DELINEATOR POSTS			MOBILIZATION		SALVAGED TOPSOIL	MULCHING	EROSION BALES	FERTILIZER TYPE, B		SEEDING
ITEM NO.		20101	20104		20503	20801	21301	30403	52003	52061	63305	63301			61910		62505	62702	62810	62905		63002
UNIT	LIN. FT.	STA.	STA.		C.Y.	C.Y.	L.S.	C.Y.	L.F	EA	EA.	EA.			L.S.		S.Y.	S.Y.	EACH	CWT.		LB.
13+00 – 21+00	800	2	2		1018	2376	1	1285	70	4	42	42			1		3900	3900	200	5		205
TOTAL	800	2	2		1018	2376	1	1285	70	4	42	42			1		3900	3900	200	5		205

STATION TO STATION	NET LENGTH OF CENTER LINE		REMOVING OLD BRIDGE, STA 16+07	CONCRETE MASONRY, CULVERTS	HIGH STRENGTH BAR STEEL REINFORCEMENT, CULVERTS	TREATED TIMBER PILING, DELIVERED	TREATED TIMBER PILING, DRIVEN	TREATED TIMBER TEST PILING, STRUCTURE C-32-45	HEAVY RIP RAP	EXCAVATION FOR STRUCTURES, CULVERTS C 32-45	TEMPORARY BRIDGE		SODDING	FIELD OFFICE TYPE "A"	TRAFFIC CONTROL	SINGLE AGGREGATE BITUMINOUS MIX	STRUCTURAL PLATE ARCH, 18 FOOT SPAN	
ITEM NO.			20351	50401	50505	50816	50820	50830	60602	20620	90002		63101	64201	64301	90089	90001	
UNIT	LIN. FT.		L.S.	C.Y.	LB.	L.F.	L.F	LS.	C.Y.	L.S.	L.S.		S.Y.	L.S.	L.S.	TON	L.F.	
C-32-45			1	45.8	1850	900	900	1	28	1	1		26	1	1	210	72	
TOTAL			1	45.8	1850	900	900	1	28	1	1		26	1	1	210	72	

STANDARD ABBREVIATIONS

ADT.	AVERAGE DAILY TRAFFIC	Δ	DELTA-INTERSECTION ANGLE	MAG.	MAGNETIC
AGG.	AGGREGATE	D	DEGREE OF CURVE-DIRECTION	MAT.	MATERIAL
AH.	AHEAD	D.H.V.	DESIGN HOURLY VOLUME	M.H.	MANHOLE
APP.	APPROXIMATE – LY	D.G.	DITCH GRADE	M.L.	MATCH LINE
AZ.	AZIMUTH	E.	EXTERNAL DISTANCE	MON.	MONUMENT
B.M.	BENCH MARK	ETAL.	AND OTHERS		
B.	BARN	EXC.	EXCAVATION	P.C.	POINT OF CURVATURE
BIT.	BITUMINOUS	F.E.	FIELD ENTRANCE	P.E.	PRIVATE ENTRANCE
BK.	BACK			PED.	PEDESTAL
B.R.M.	BITUMINOUS ROAD MIX	G	GARAGE	P.I.	POINT OF INTERSECTION
		GAL.	GALLON	P.L.	PROPERTY LINE
CONST.	CONSTRUCT – ...TION	H.	HOUSE	P.O.S.T.	POINT ON SUB TANGENT
C.&G.	CURB GUTTER	HYD.	HYDRANT	P.O.T.	POINT ON TANGENT
C.B.	CATCH BASIN			P.T.	POINT OF TANGENCY
CEM.	CEMETERY	I.	INTERSECTION ANGLE		
CH.	CHAINS	INL.	INLET	REQ'D.	REQUIRED
CL.	CLASS	I.P.	IRON PIPE OR PIN	REINF.	REINFORCED
℄	CENTERLINE	INT. EMB.	INTERCEPTING EMBANKMENT	R.	RADIUS-RANGE
C.M.C.P.	CORRUGATED METAL CULVERT PIPE	L	LENGTH OF CURVE	RD.	ROAD-RODS
CONN.	CONNECTION	L.H.E.	LIMITED HIGHWAY EASEMENT	R.H.F.	RIGHT HAND FORWARD
COR.	CORNER	L.H.F.	LEFT HAND FORWARD	R.	REFERENCE LINE
C.P.	CULVERT PIPE	L.F.	LINEAR FEET	R/W	RIGHT OF WAY
C.Y.	CUBIC YARDS	L.S.	LUMP SUM	RDWY.	ROADWAY
COMM.	COMMERCIAL				

STRUC.	STRUCTURE	TAV.	TAVERN
SURF.	SURFACE	TEL.	TELEPHONE
S.	SHED	T.H.	TRAILER HOUSE
SAN. S.	SANITARY SEWER	℄	TRANSIT LINE
SCH.	SCHOOL	TN.	TOWN
S.E.	SUPERELEVATION	TRANS.	TRANSITION
SEC.	SECTION	U.C.	UNDERGROUND
SHR.	SHRINKAGE	UNCL.	UNCLASSIFIED
SL.	SLOPE	VAR.	VARIABLE
S.S.	STORM SEWER	V.	VELOCITY
STA.	STATION	V.C.	VERTICAL CURVE
S.S.D.	STOPPING SIGHT DISTANCE	W.V.	WATER VALVE
SQ.YD.	SQUARE YARD		
T.	TANGENT DISTANCE - TRUCKS - TOWNSHIP		

DETAIL SUMMARY OF MISCELLANEOUS QUANTITIES

MINOR SIDE ROAD, PRIVATE ENTRANCES AND SLOPE DRAIN PIPES

STA	LOCATION	DIA	LENGTH	TYPE	CLASS	THICKNESS STEEL	THICKNESS ALUMINUM	END TREATMENT INLET	END TREATMENT DISCHARGE	TYPE	QUAN
13+50	P.E. Rt.	18"	30'	C.P.	III	.064	.06	X	X	APRON	2
15+65	P.E. Rt.	18"	40'	C.P.	III	.064	.06	X	X	APRON	2

CRUSHED AGGREGATE BASE COURSE

STA.-STA.	LOCATION	GRADATION #2 C.Y.	SHOULDER MATERIAL C.Y.
13+00-16+07	MAINLINE	290	16
16+07-21+00	MAINLINE	467	26
13+50	P.E. Rt.	14	
15+65	P.E. Rt.	17	
13+00-15+94	BYPASS	130	
16+12-19+36	BYPASS	130	
UNDISTRIBUTED		195	

SINGLE AGGREGATE BITUMINOUS MIX

STA. - STA.	TON
13+00 - 16+07	75
16+07 - 21+00	121
UNDISTRIBUTED	14

SODDING

STATION	LOCATION	S.Y.	REMARKS
13+50	P.E. Rt.	13	CULVERT PIPE ENDS
15+65	P.E. Rt.	13	CULVERT PIPE ENDS

EROSION BALES

STA. - STA.	SIDE	LOCATION	EA
13+00 - 16+07	Lt. & Rt.	MAINLINE	50
16+07 - 21+00	Lt. & Rt.	MAINLINE	50
13+99 - 15+90	Lt. & Rt.	BYPASS	50
15+90 - 18+22	Lt. & Rt.	BYPASS	50

SEEDING AND FERTILIZER

STA. - STA.	LOCATION	SEED LB.	FERTILIZER CWT.	REMARKS
13+00 - 16+07	MAINLINE	18	0.7	MIXTURE #2
16+07 - 21+00	MAINLINE	28	1.0	MIXTURE #2
13+99 - 18+22	BYPASS	36	0.8	MIXTURE #3
UNDISTRIBUTED		23	0.5	MIXTURE #3
BORROW PIT		100	2.0	

SCHEDULE OF LANDS AND INTERESTS REQUIRED

PARCEL NUMBER	OWNER	INTEREST REQUIRED	L.H.E. ACRES	ACRES REQUIRED			TOTAL REMAINING ACRES	OPERATIONS PROJECT NO.
				NEW R/W REQUIRED	EXISTING R/W	TOTAL R/W REQUIRED		
1	RALPH C. & LUCILLE MILLER	FEE & L.H.E.	0.115	0.314	0.454	0.768	159.16	5346-1-21
2	LA VERNE & ALVINA NIEMEIER	FEE	—	0.275	0.454	0.729	78.77	5346-1-21

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
5346-1-21		
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT OF WAY REQUIRED FOR

RUSSLAN COULEE ROAD

TOWN OF BARRE — LA CROSSE COUNTY

SCALE 0 50 100 Ft. — DATE 8-25-81

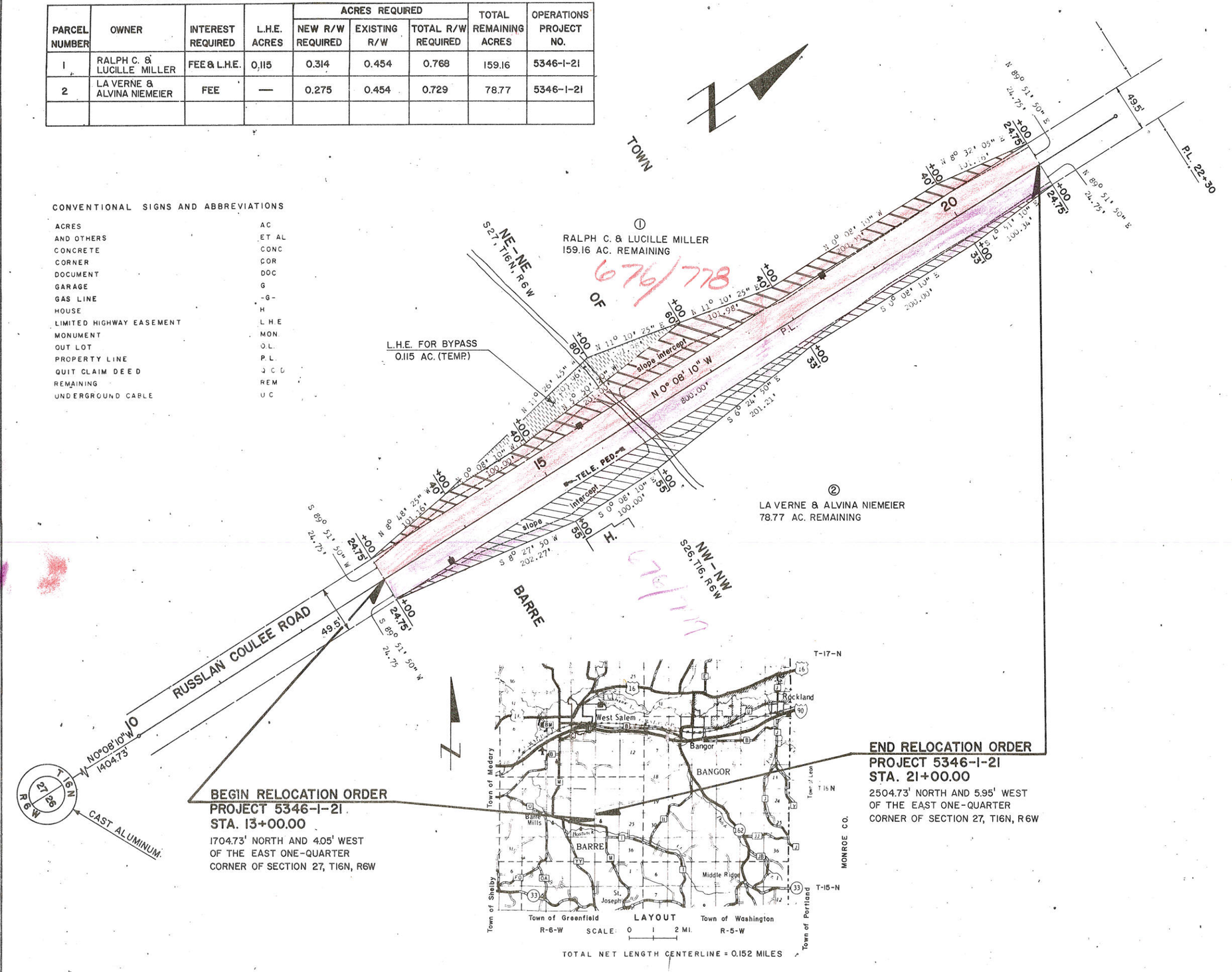
CONSTRUCTION PROJECT NUMBER

5346-1-71 — 4

BEARINGS SHOWN ON THIS PLAT ARE TRUE BEARINGS TO THE NEAREST 5 SECONDS. THE DIFFERENCE BETWEEN PLAT BEARINGS REPRESENTS PLANE ANGLES IN DEGREES, MINUTES, AND SECONDS TO THE NEAREST 5 SECONDS.

CONVENTIONAL SIGNS AND ABBREVIATIONS

ACRES	AC
AND OTHERS	ET AL
CONCRETE	CONC
CORNER	COR
DOCUMENT	DOC
GARAGE	G
GAS LINE	-G-
HOUSE	H
LIMITED HIGHWAY EASEMENT	L.H.E
MONUMENT	MON
OUT LOT	O.L.
PROPERTY LINE	P.L.
QUIT CLAIM DEED	Q.C.D.
REMAINING	REM
UNDERGROUND CABLE	U.C.



TOTAL NET LENGTH CENTERLINE = 0.152 MILES

PLAT PREPARED BY:
PLEHN BRIDGE DESIGN & ENGINEERING SERVICES

APPROVED FOR TOWN OF BARRE:

BY _____ 8-25-81
TOWN CHAIRMAN

APPROVED FOR LACROSSE COUNTY:

BY _____ 8-25-81
HIGHWAY COMMISSIONER

REVISION DATE	STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
11/23/82	APPROVED: DATE _____ DISTRICT TRANSPORTATION DIRECTOR APPROVED: DATE _____ DIRECTOR BUREAU OF REAL ESTATE
	U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION REGION 5
	APPROVED: DATE _____ DIVISION ADMINISTRATOR

STATE PROJECT NUMBER	SHEET NO.
5346-1-71	5

PLAN — SURVEYED / PLOTTED / NOTE BOOK / No. — BY / DATE / ALIGNMENT CHECKED / P. OF MAT. CHECKED

PK NAIL STA. 10+00
26.89'
74.88'
YELLOW PAINT MARK ON FENCE POST
40d NAIL BM IN POWER POLE

RALPH C. & LUCILLE MILLER

P.O.T. STA. 10+00.00

P.C. STA. 13+98.83 (BYPASS)

℄ BYPASS

WOODS

WOODS

± 18' X 20' TEMP. STRUCTURE

TEMPORARY EASEMENT FOR BYPASS CONSTRUCTION

STRUCTURE C-32-45

P.T. 19+47.8 BYPASS = 19+36.00 M.L.

EXISTING R/W

N 0° 06' 10" W

BRUSH

BRUSH

EXISTING R/W

EXISTING R/W

RUSSLAN COULEE ROAD

#1

#2

TELE. PED.

1-18"X 30' C.P. CLASS III REQ'D
2 APRON ENDWALLS REQ'D

1-18"X40' C.P. CLASS III REQ'D
2 APRON ENDWALLS REQ'D

P.E.

P.E.

H.

FLOW

LA VERNE & ALVINA NIEMEIER

BEGIN PROJECT 5346-1-71
STA. 13+00

1975 endproject

40d NAIL TOP OF GATE POST

PK NAIL STA. 21+93.43

29.70'

32.93

40d NAIL 10" ABOVE GROUND IN POST

P.O.T. STA. 21+93.43

END PROJECT 5346-1-71
STA. 21+00

BYPASS CURVE NOTES

PI =	13 + 24.00	14 + 52.69	16 + 10.16
Δ =	16°00'00"	6°15'00"	20°45'00"
D =	33°33'06"	20°00'00"	30°00'00"
R =	170.77'	286.48'	190.99'
T =	24.00'	15.64'	39.97'
L =	47.69'	31.25'	69.17'
PC =	13 + 00.00	14 + 37.05	15 + 75.19
PT =	13 + 47.69	14 + 68.30	16 + 44.36

BENCHMARKS

NO.	STA.	DESCRIPTION	ELEV.
1	10+70	40d NAIL IN POWER POLE 25' RT.	748.47
2	17+15	40d NAIL IN TREE STUMP 26' RT.	746.89

NET LENGTH OF CENTERLINE STA. 13+00 TO STA. 21+00 = 800 LIN. FT.

PROFILES ALONG TEMPORARY BYPASS
NOTE: FINAL GRADE TO BE FIXED IN FIELD BY ENGINEER

EXISTING RD.

H_w2 = EL. 737.4

GRADELINE

ORIGINAL GROUND

748.70 748.86 743.70 740.50 740.50 740.50 745.43 749.94 751.40

(STATIONING ALONG BYPASS ℄)

BYPASS YARDAGE

UNCL. EX. = 681 C.Y.
FILL = 131 C.Y. @ 30 % SHR.
WASTE = 511 C.Y.

MAINLINE YARDAGE

UNCL. EX. = 337 C.Y.
FILL = 2480 C.Y. @ 30% SHR.
BORROW = 2887 C.Y.

200' V.C.
S.S.D. = 350' +

P.C. STA. 15+87.00
EL. 748.81

P.T. STA. 17+87.00
EL. 749.9

+0.20%

+0.90%

FINISHED GRADE

ORIGINAL GROUND

H_w100 = EL. 740.17

EXISTING BRIDGE

WATER EL. 733.40
(7-29-79)

P.I. STA. 16+87.00
EL. 749.01

STREAMBED EL. 733.0

STA. 16+07
REMOVE EXISTING BRIDGE
1-39' SINGLE SPAN LOW TRUSS
WITH 15.5' CLEAR ROADWAY

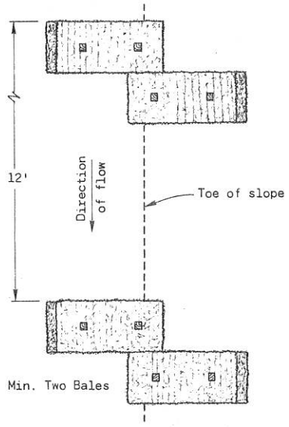
STA. 16+07
CONSTRUCT C-32-45
18'-0" x 8'-11" RISE x 72'-0"
STRUCTURAL PLATE ARCH
SKEW 13° R.H.F.
SEE DRAWINGS X67634 — X67636

MATCH EXISTING

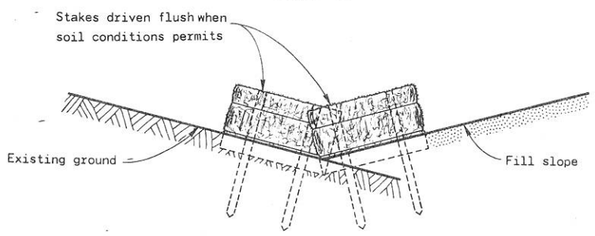
MATCH EXISTING

748.24 748.44 748.64 748.84 749.26 750.03 750.93 751.83 752.73

PROFILE — SURVEYED / PLOTTED / NOTE BOOK / No. — BY / DATE / GRADES CHECKED / B. M.'s NOTED / STRUCTURE NOTATIONS CHECKED

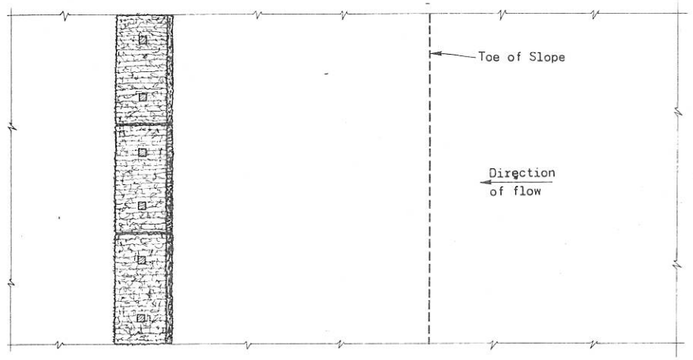


PLAN VIEW

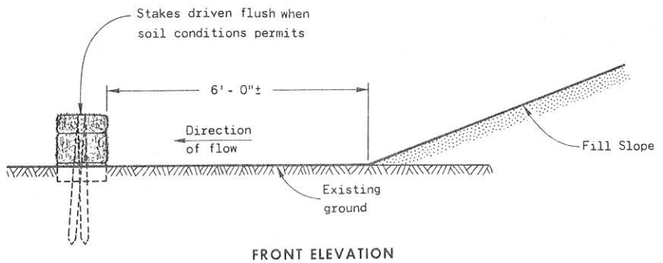


FRONT ELEVATION

WHEN EXISTING GROUND SLOPES TOWARD FILL SLOPE



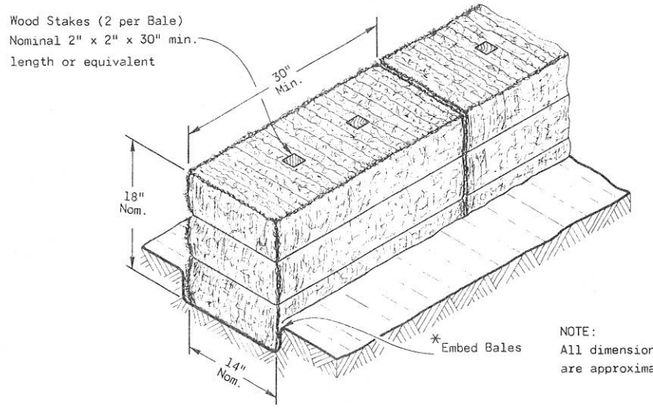
PLAN VIEW



FRONT ELEVATION

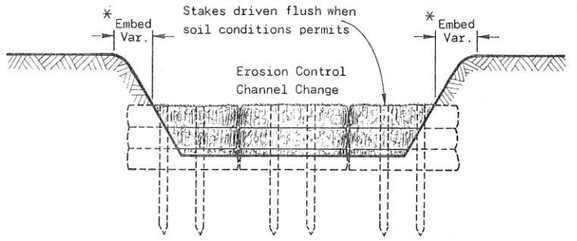
EROSION BALES AT TOE OF SLOPE

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

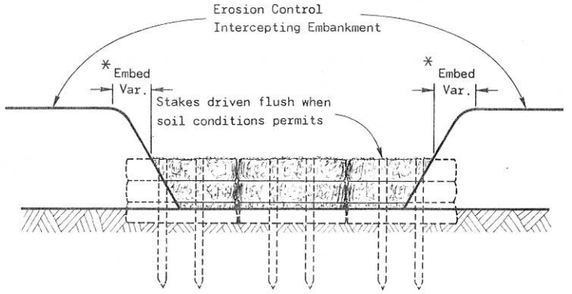


NOTE:
All dimensions are approximate

DETAIL OF EROSION BALE INSTALLATION

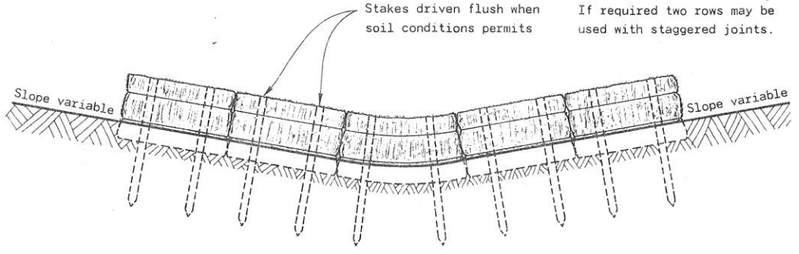


EROSION CONTROL CHANNEL CHANGE



EROSION CONTROL INTERCEPTING EMBANKMENT

PLAN VIEW



FRONT ELEVATION

EROSION BALES ACROSS DITCH BOTTOM

GENERAL NOTES

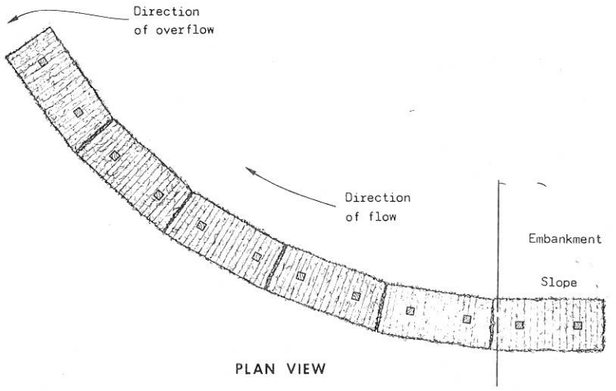
Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Bales shall be placed end to end or overlapping at right angles to the direction of flow and far enough up the sides of the ditch to prevent eroding around ends.

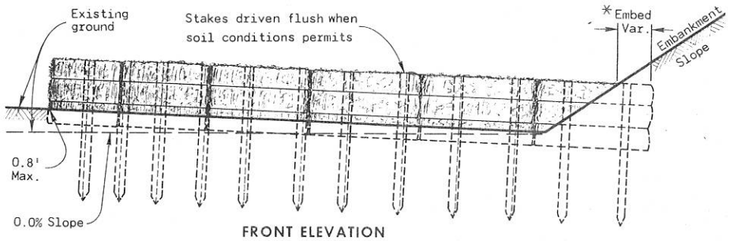
Bales shall be placed with twine or tie wires parallel to the ground.

Stakes to be battered in opposite directions.

* As determined by the Engineer.



PLAN VIEW



FRONT ELEVATION

EROSION BALES AT TOE OF SLOPE

TYPICAL INSTALLATIONS
OF EROSION BALES

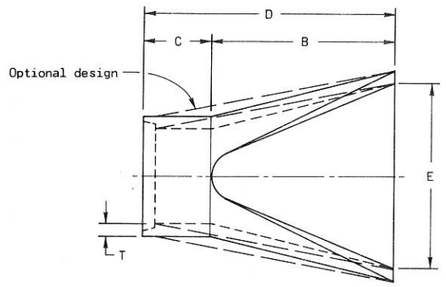
State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL:
10/14/75 DATE — J. C. Hennick, CHIEF of FACILITIES DEVELOPMENT

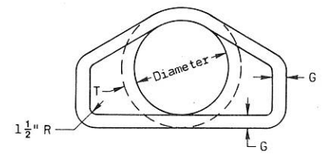
APPROVED
10/16/75 DATE — K. G. Sinclair, STATE HIGHWAY ENGINEER

S.D.D. 8E8-1

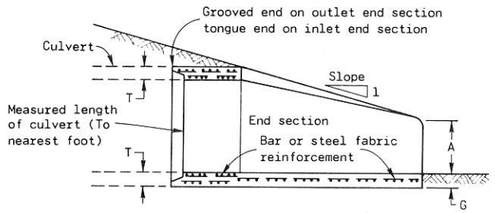
S.D.D. 8E8-1



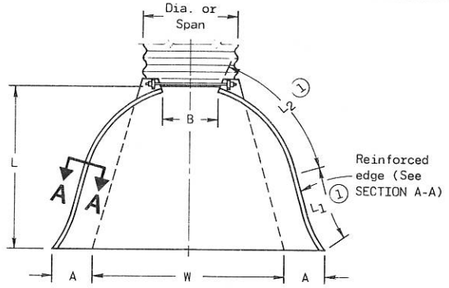
PLAN



END VIEW



LONGITUDINAL SECTION



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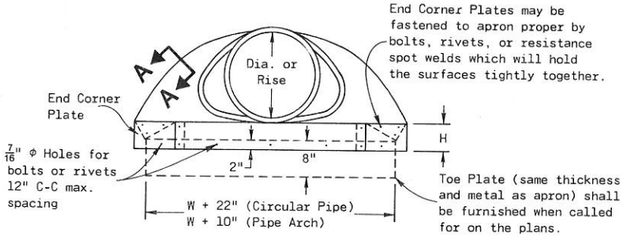
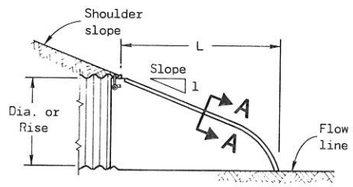
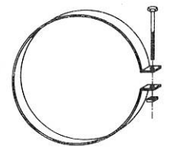


END VIEW

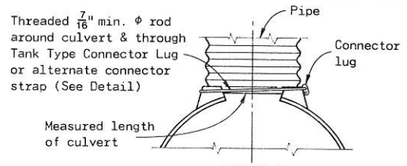


SIDE ELEVATION

1" Wide, 12 Ga. (0.109" thick) galvanized strap with standard 6" x ½" band bolt and nut.

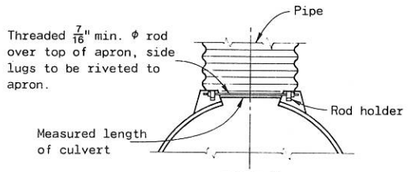


Alternate for Type 1 Connection
END SECTION CONNECTOR STRAP



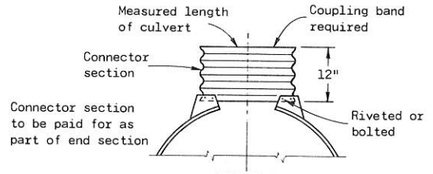
TYPE 1

For 12" thru 24" only (Circular pipe)



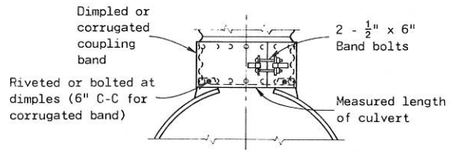
TYPE 2

For 30" & 36" only (Circular pipe)
For 17"x13" thru 57"x38" only (Pipe arch)



TYPE 3

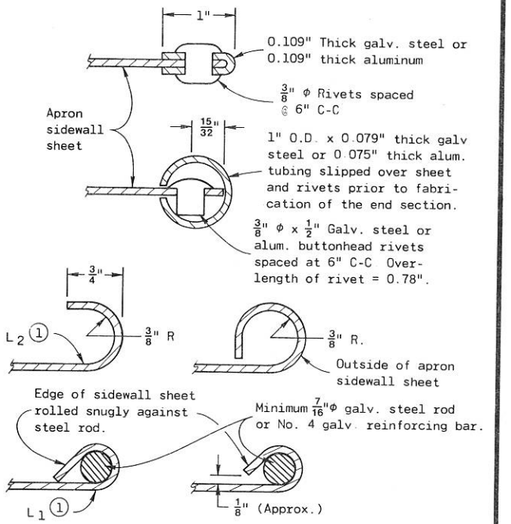
For 42" thru 84" only (Circular pipe)
For 64"x43" & 71"x47" (Pipe arch)



TYPE 5

Alternate for:
All sizes corrugated circular pipe & pipe arches

NOTE: Dimpled band fits over outside of endwall, and corrugated band fits inside endwall. Dimpled band may be used with helically corrugated pipe.



SECTION A-A

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Variations of the dimensions and designs shown hereon will be permitted providing equivalent capacity and structural integrity are attained, and prior approval of the Engineer is obtained.

Concrete culvert endwalls may not be used with galvanized steel or aluminum culvert pipe or vice versa.

Galvanized steel or aluminum endwalls shall normally be installed on culvert pipe of the same metal. The use of galvanized steel endwalls on aluminum pipes is permitted, provided the two metals at the joint interface are kept separated by a suitable insulating material approximately 1/16" thick or greater. Such material would be an asphalt impregnated fabric, a sheet plastic, a rubber gasket or other non-degradable material of substantial strength.

When two or more pipe arches with apron endwalls are to be laid adjacent to each other, they shall be separated by the following amount:

PIPES: Total width of apron endwall less the diameter of pipe plus 6 inches.

PIPE ARCHES: Total width of apron endwall less the span dimension of the pipe arch plus 6 inches.

1 A combination of steel rod rolled into edge sidewall (L_1), and 180° roll on edge of sidewall (L_2), is permitted for metal apron endwalls up to 60" diameter for circular pipe, and 77" x 52" for pipe arches.

CONNECTION DETAILS

CIRCULAR PIPE

For circumferentially corrugated pipe use Endwall Connection Details 1, 2, 3 or 5 as applicable.

For helically corrugated pipe use Endwall Connection Details 1, 2 or 5.

For helically corrugated pipes with two circumferential corrugations at each end use Endwall Connection Details 1, 2 or 3.

PIPE ARCH

Use Endwall Connection Details 2, 3 or 5 as applicable.

PIPE DIA. (In.)	APPROX. WEIGHT PER SECTION	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	530	2	4	24	48 7/8	72 7/8	24	2	3 to 1
15	740	2¼	6	27	46	73	30	2¼	↑
18	990	2½	9	27	46	73	36	2½	↑
21	1,280	2¾	9	36	37½	73½	42	2¾	↑
24	1,520	3	9½	43½	30	73½	48	3	↑
27	1,930	3¼	10½	49½	24	73½	54	3¼	↑
30	2,190	3½	12	54	19¾	73¾	60	3½	↑
36	4,100	4	15	63	34¾	97¾	72	4	↑
42	5,380	4½	21	63	35	98	78	4½	↓
48	6,550	5	24	72	26	98	84	5	3 to 1
54	8,040	5½	27	65	* 33¼ - ** 35	* 98¼ - ** 100	90	5	2⅖ to 1
60	8,730	6	* ** 30 - 35	60	39	99	96	5	2 to 1
66	10,630	6½	* ** 24 - 30	* ** 72 - 78	* ** 21 - 27	↑	102	5½	↑
72	12,520	7	* ** 24 - 36	78	21	↓	108	6	↑
78	14,430	7½	* ** 24 - 36	78	21	99	114	6½	2 to 1
84	18,160	8	36	90½	21	111½	120	6½	1½ to 1

* Minimum ** Maximum

REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (In.)	MIN. THICKNESS (Inches) STEEL	ALUM.	DIMENSIONS (Inches) A ±1"	B MAX.	H ±1"	L ±1½"	L_1 1	L_2 1	W ±2"	APPROX. SLOPE
12	0.064	0.060	6	6	6	21	12	17½	24	2½ to 1
15	↑	↑	7	8	↑	26	14	21¾	30	↑
18	↓	↓	8	10	↓	31	15	28¼	36	↑
21	↓	0.060	9	12	↓	36	18	29⅝	42	↑
24	0.064	0.075	10	13	6	41	18	37¼	48	↑
30	0.079	0.075	12	16	8	51	18	52¼	60	↑
36	0.079	0.105	14	19	9	60	24	59¾	72	↓
42	0.109	0.105	16	22	11	69	24	76⅝	84	2½ to 1
48	↑	0.135	18	27	12	78	24	81	90	2¼ to 1
54	↑	0.135	↑	30	↑	84	30	85½	102	2 to 1
60	↑	0.164	↑	33	↑	87	–	–	114	1¾ to 1
66	↑	↑	↑	36	↑	87	–	–	120	1½ to 1
72	↑	↑	↑	39	↑	87	–	–	126	1⅓ to 1
78	↓	↓	↓	42	↓	87	–	–	132	1¼ to 1
84	0.109	0.164	18	45	12	87	–	–	138	1¼ to 1

NOTE: All splices to be lap riveted or bolted.

METAL APRON ENDWALLS FOR CIRCULAR PIPE

PIPE-ARCH DIMENSIONS (Inches) SPAN	RISE	MIN. THICK. (Inches) STEEL	ALUM.	DIMENSIONS (Inches) A ±1"	B MAX.	H ±1"	L ±1½"	L_1 1	L_2 1	W ±2"	APPROX. SLOPE
17	13	0 064	0 060	7	9	6	19	14	16	30	2½ to 1
21	15	↑	0.060	7	10	↑	23	14	19 3/8	36	↑
24	18	↓	0.060	8	12	↓	28	18	21¾	42	↑
28	20	0.064	0.075	9	14	↓	32	18	27½	48	↑
35	24	0.079	0.075	10	16	6	39	18	37 5/8	60	↑
42	29	0 079	0.105	12	18	8	46	24	45⅜	75	↑
49	33	0.109	0.105	13	21	9	53	↑	54¾	85	↓
57	38	↑	0 135	18	26	12	63	↓	68	90	2½ to 1
64	43	↑	0 135	↑	30	↑	70	24	72¾	102	2¼ to 1
71	47	↑	0 164	↑	33	↑	77	30	82¼	114	2¼ to 1
77	52	↓	0.164	↓	36	↓	77	–	–	126	2 to 1
83	57	0 109	0.164	18	39	12	77	–	–	138	2 to 1

NOTE: All splices to be lap riveted or bolted.

METAL APRON ENDWALLS FOR PIPE ARCHES

APRON ENDWALLS FOR
CULVERT PIPE AND PIPE ARCHES

State of Wisconsin
Department of Transportation

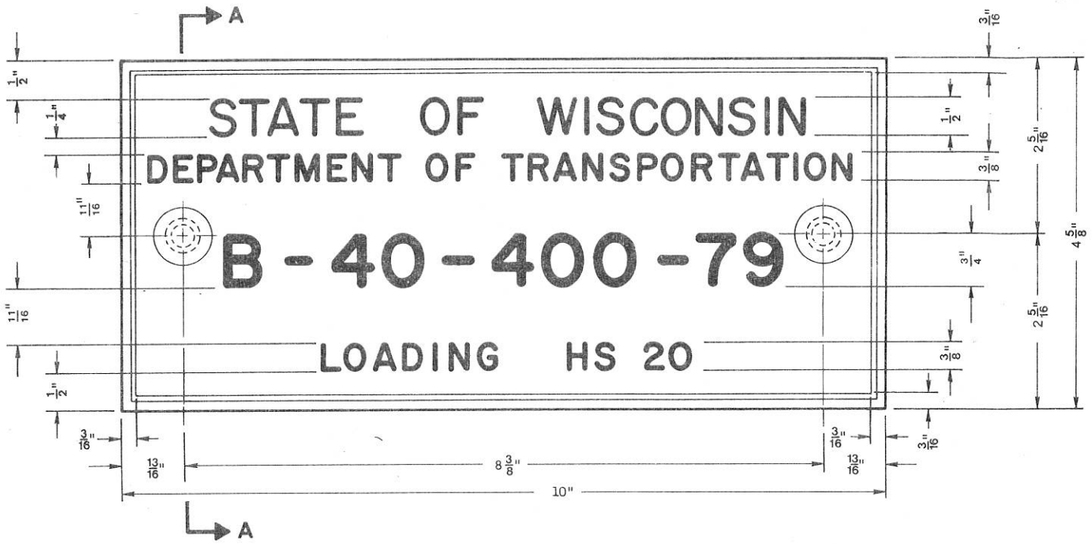
APPROVED 2-15-82 DATE

CHIEF DESIGN ENGINEER

FHWA

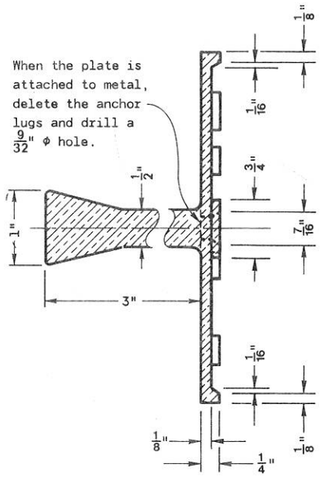
S.D.D. 8 F 1-9

S.D.D. 8 F 1-9

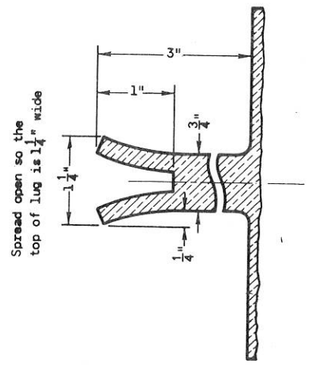


TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



SECTION A-A



ALTERNATE LUG

FOR MULTI-UNIT STRUCTURES LINES 4 AND 5 ABOVE SHALL READ:

B = Bridge
C = Culvert
RW = Retaining Wall

Year of Substantial Completion

County No.

Bridge No.

B-40-400-79

UNIT 1A HS 20M

Unit No. for Multiple Unit

Design Loading of Structure Indicated on the Plan

NUMBERING AND LOADING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

Name Plates to be installed on Bridges, Culverts, and Retaining Walls shall conform to the requirements of Section 506.2.4 of the Standard Specifications.

The Bridge Number and Design Loading shown on this drawing are examples only. See Construction Plans for individual numbering and design loading.

NAME PLATE
(STRUCTURES)

State of Wisconsin
Department of Transportation
Division of Transportation Facilities

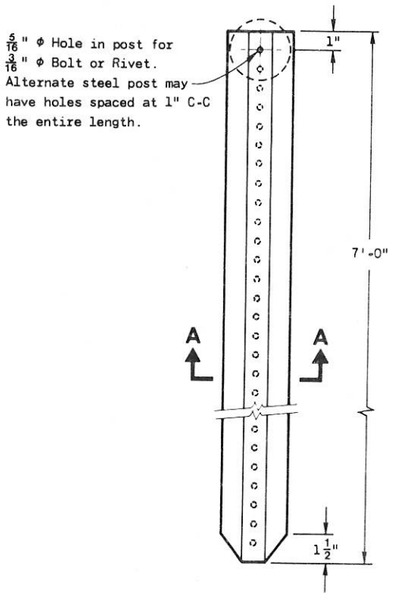
APPROVED 9-27-79
DATE

CHIEF DESIGN ENGINEER

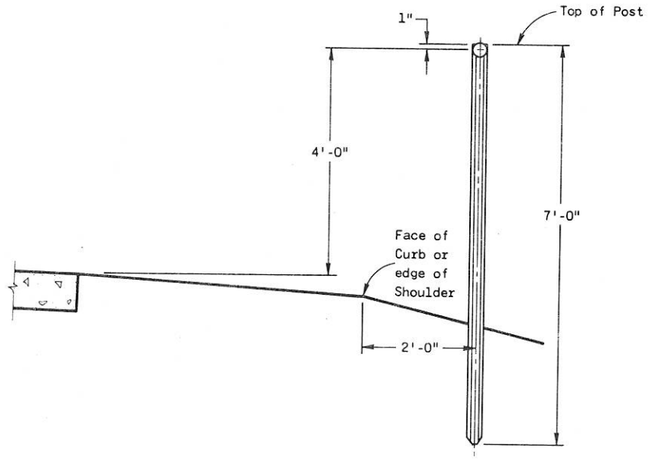
FHWA

S.D.D. 12 A 3-4

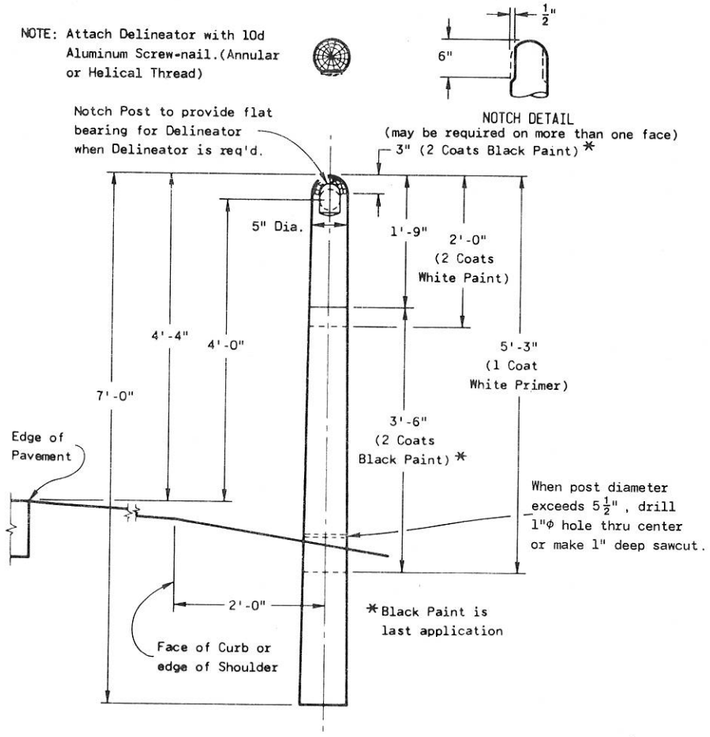
S.D.D. 12 A 3-4



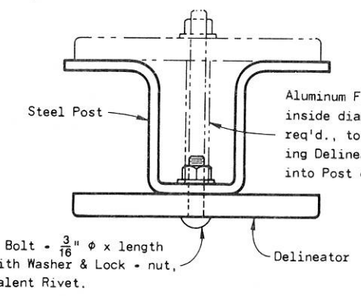
DELINEATOR POST



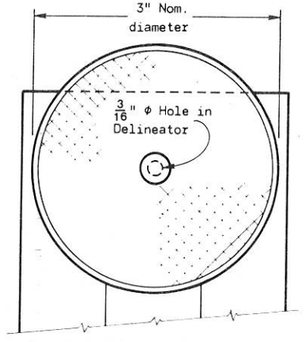
TYPICAL INSTALLATION OF DELINEATOR POSTS



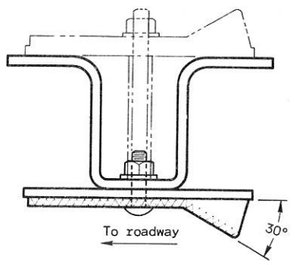
MARKER POST



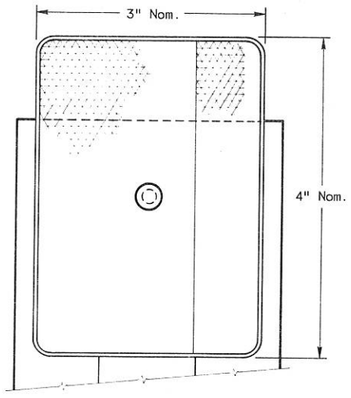
PLAN VIEW



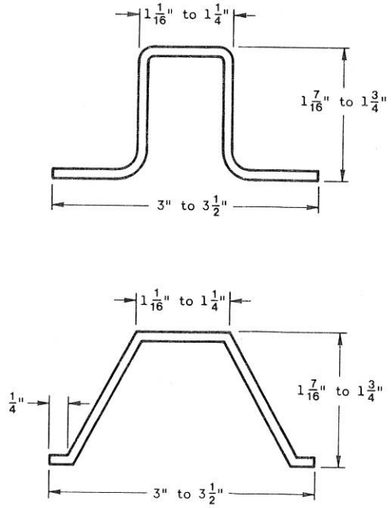
FRONT ELEVATION
3" CIRCULAR TYPE



PLAN VIEW



FRONT ELEVATION
3" X 4" RECTANGULAR TYPE



SECTION A-A
(Minimum weight 2.0 lbs. per ft.)

GENERAL NOTES

Details of construction not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

The rectangular delineator shall consist of an acrylic plastic wide angle reflex reflector housed in a material such as acrylontrile butadiene styrene and shall be permanently sealed against dust, water and vapor, and will not warp, crack or corrode under field conditions.

Detailed requirements for delineators,not shown on this drawing shall conform to Section 633 of the Standard Specifications and the current "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". The reflectors in the delineators shall be clear.

When the cross sectional area of the Marker Post measured at the ground line exceeds 24 square inches (5 1/2 inch diameter) the post shall be weakened near the ground line by either drilling a 1 inch diameter hole transversely through the center of the post or by making a transverse saw cut to a depth of approximately 1 inch on the side of the post facing traffic.

MOUNTING DETAILS FOR DELINEATORS

DELINEATOR POSTS
MARKER POSTS AND DELINEATORS

State of Wisconsin
Department of Transportation
Division of Transportation Facilities

APPROVED 5-2-79
DATE

CHIEF DESIGN ENGINEER

FHWA

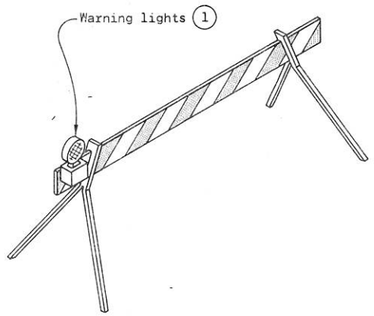
S.D.D. 15 A2-2

S.D.D. 15 A2-2

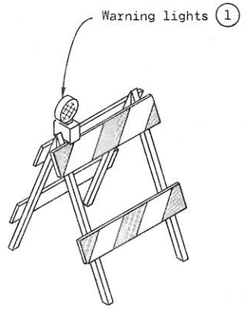
TABLE OF BARRICADE CHARACTERISTICS

BARRICADE TYPE	I	II	III
Height	3' Minimum		5' Minimum
*Rail Width	8" Minimum to 12" Maximum		
Rail Length	2' Minimum		4' Minimum
**Stripe Width	6" at 45° Angle		
Stripe Colors	Reflectorized Orange & White		

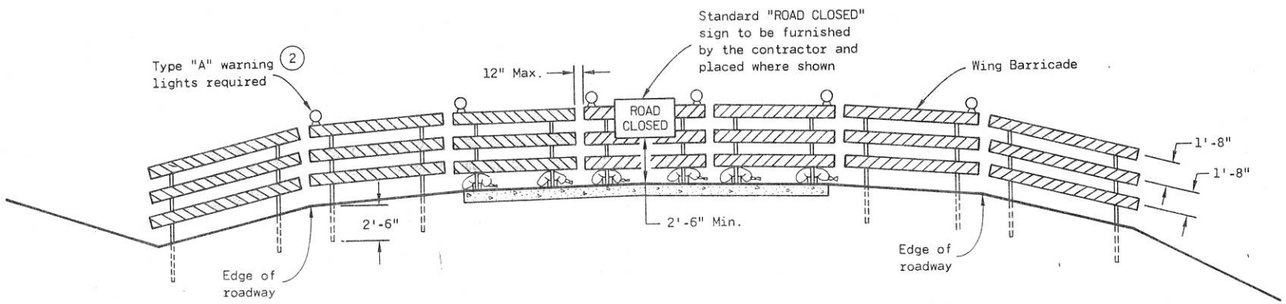
* Nominal dimensions when barricade is constructed of lumber.
** Shall be 4" for rail lengths less than 3'.



TYPICAL TYPE I BARRICADE



TYPICAL TYPE II BARRICADE



TYPICAL INSTALLATION SHOWING TYPE III BARRICADE

CONSTRUCTION BARRICADES

R11-2
48" x 30"
Black Lettering on Reflective White Background
Letter Series "D"
Letter height 8"

W20-3
48" x 48"
Black Lettering on Reflective Orange Background
Letter Series "D"
Letter height 7"

STANDARD SIGNS - TYPE II

GENERAL NOTES

The contractor shall furnish, erect and maintain barricades and signs. Details regarding location, spacing, dimensions, fabrication, material, sign lettering, lighting devices and color of barricades and signs shall conform to this drawing, the Manual On Uniform Traffic Control Devices, the Standard Specifications, Special Provisions and/or plans.

Type III Barricades and Signs shall be erected at the termini of projects and at other road or street locations where it is necessary to control or eliminate public access to the construction area.

Type I and II Barricades shall be used on projects when traffic is to be maintained through the construction area.

The actual field location of barricade installations and advance signs shall be as directed by the Engineer.

Each barricade shall have the name and telephone number of a person responsible for 24 hour emergency service printed in letters at least $\frac{3}{4}$ inch in height on the barricade rails. Prior to May 1, 1983, such information may be shown on either front or back faces of the barricade rails. After May 1, 1983, all printed information or identification markings shall be shown only on the back side of barricade rails.

Type I Barricades may include other unstriped horizontal panels necessary to provide stability.

On high speed expressways or in other situations where barricades may be susceptible to overturning in the wind, sandbags should be used for ballasting. Sandbags may be placed on lower parts of the frame or stays to provide the required ballast but shall not be placed on top of any striped rail.

(1) Unless otherwise provided elsewhere in the contract, warning lights are required on all barricades which will be located near traffic operations during periods of inclement weather or hours of darkness. Barricades used to shield isolated hazards shall be equipped with Type "A" (low intensity - flashing) lights unless Type "B" (high intensity)- flashing) lights are specified elsewhere in the contract documents. Barricades used for channelization or delineation of the travel path shall be equipped with Type "C" (steady burn) lights except for the initial barricade(s) in sequence, which shall be equipped with Type "A" or "B" lights as previously noted.

(2) Two warning lights shall be provided on the center barricade and at least one warning light shall be provided on each of the other barricades within the roadway limits. Spacing of the warning lights shall be uniform to the edge of roadway as shown.

CONSTRUCTION BARRICADES & STANDARD SIGNS

State of Wisconsin
Department of Transportation

APPROVED 9-14-81
DATE

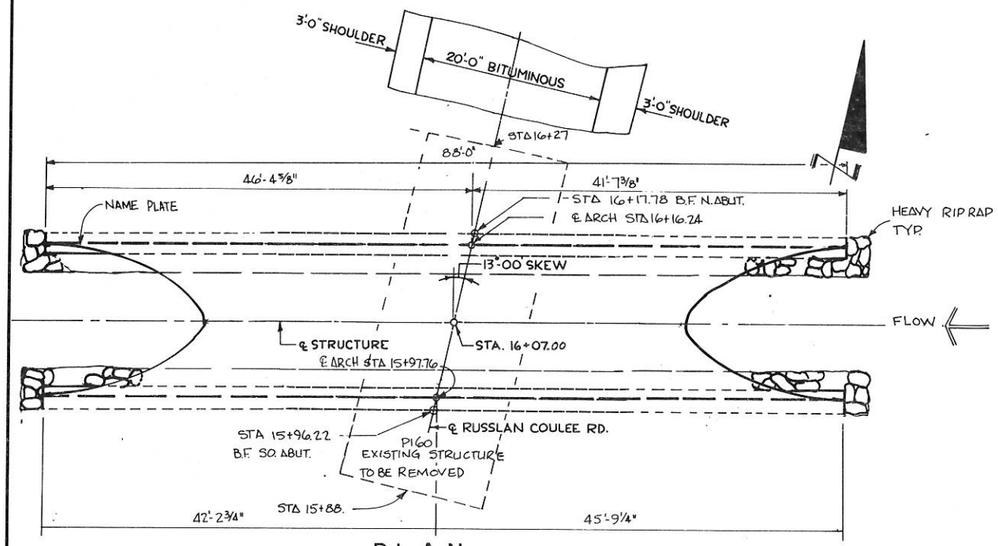
CHIEF DESIGN ENGINEER

FHWA

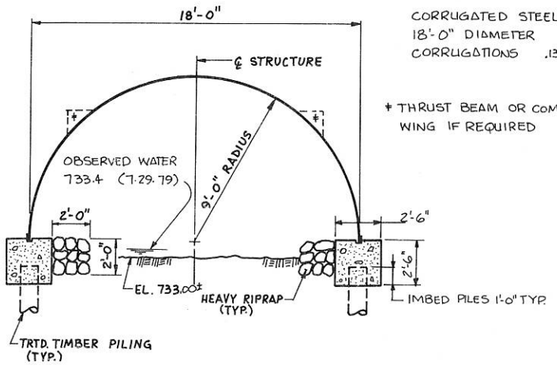
S.D.D. 15 C 1-7

S.D.D. 15 C 1-7

STATE PROJECT NUMBER	SHEET NO.
5346-1-71	8



PLAN
STRUCTURAL PLATE ARCH



* THRUST BEAM OR COMPACTION WING IF REQUIRED

CORRUGATED STEEL PLATE ARCH
18'-0" DIAMETER 6"x2"
CORRUGATIONS .138 " THICK PLATE.

SECTION THRU ARCH
18'-0" x 8'-11" RISE STRUCTURAL PLATE ARCH

LIST OF DRAWINGS

DESIGN DATA

LIVE LOAD H 20

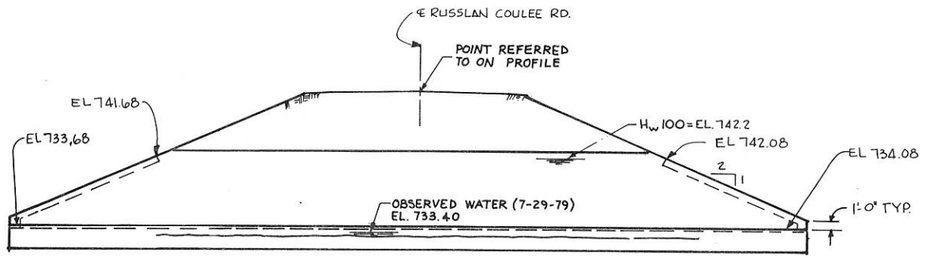
ALLOWABLE DESIGN STRESSES
- CONCRETE MASONRY f'_c 3,500 psi
- BAR STEEL REINFORCEMENT, GRADE 60 f_y 60,000 psi

TRAFFIC DATA
- ADT 1975 = 50
- ADT 1995 = 80
- RDS 50 MPH

HYDRAULIC DATA
- DRAINAGE AREA 2.9 SQ. MI.
- WATERWAY OPENING 130. SQ. FT.
- VELOCITY 8.4 F.P.S.
- Q_{100} 1100 C.F.S.
- HIGH WATER (R_{100}) 741.5+0.7 BW= 742.2
- OVERTOPPING ROADWAY N.A.

FOUNDATION DATA: PLACE FOOTINGS ON TREATED TIMBER PILING DRIVEN TO 30 TONS / PILE MINIMUM BEARING EST. LENGTH 30'-0"

RATINGS
- DESIGN H20
- INVENTORY HS 20
- OPERATING HS 30



SECTION A-A

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT		TOTAL
REMOVING OLD BRIDGE (PI60) STA 16+10	L. S.	1	1
EXCAVATION FOR STRUCTURES, CULVERTS C32.45	L. S.	1	1
CONCRETE MASONRY, CULVERTS	C. Y.	45.8	45.8
HIGH STRENGTH BAR STEEL REINFORCEMENT, CULVERTS	LB.	1850	1850
TREATED TIMBER PILING, DELIVERED	L. F.	900	900
TREATED TIMBER PILING, DRIVEN	L. F.	900	900
TREATED TIMBER TEST PILING *, STRUCTURE C32.45	L. S.	1	1
HEAVY RIPRAP	C. Y.	28	28
STRUCTURAL PLATE ARCH, 18 FT. SPAN	L. F.	72	72

DRIVE 1-45' TEST PILE AT EACH ABUTMENT

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

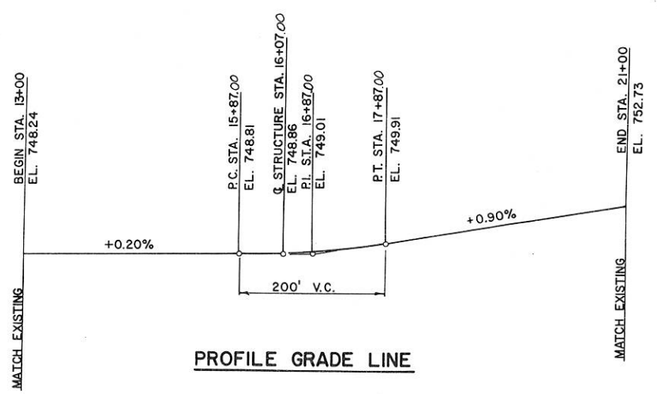
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" UNLESS OTHERWISE SHOWN OR NOTED.

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK DENOTES THE BAR SIZE.

THE STREAMBED ALONG THE FOOTINGS AND WINGWALLS SHALL BE COVERED WITH HEAVY RIPRAP AS SHOWN ON THIS SHEET.

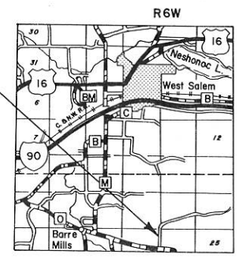
10 GAGE MATERIAL (THICKNESS 0.138") SHALL BE USED THROUGHOUT FOR STRUCTURAL PLATE ARCH.

THE MANUFACTURER SHALL PROVIDE A REPRESENTATIVE TO ASSIST THE ENGINEER IN MONITORING ALL PHASES OF CONSTRUCTION AS IT RELATES TO THE STRUCTURAL PLATE ARCH INSTALLATION, INCLUDING ALL PHASES OF BACKFILLING. THE COST OF THE MANUFACTURER PROVIDING A REPRESENTATIVE AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE BID PRICE FOR STRUCTURAL PLATE ARCH.



PROFILE GRADE LINE

PROJECT 5346-1-71
C 32.45



LAYOUT

PLEHN BRIDGE DESIGN and ENGINEERING SERVICES
Verona, Wisconsin
608-845-8270

No	Date	Revision	By

RUSSLAN COULEE ROAD OVER RUSSLAN COULEE

COUNTY	LA-CROSSE	TOWN ~~VILLAGE CITY~~	BARRE
DESIGN SPEC.	1977 AASHTO & INTERIMS	LOAD	H20
DESIGN BY	DLP	DESIGN CHECKED	RDK

APPROVED BY: Stanley W. Woods 1-7-83
CHIEF BRIDGE ENGINEER

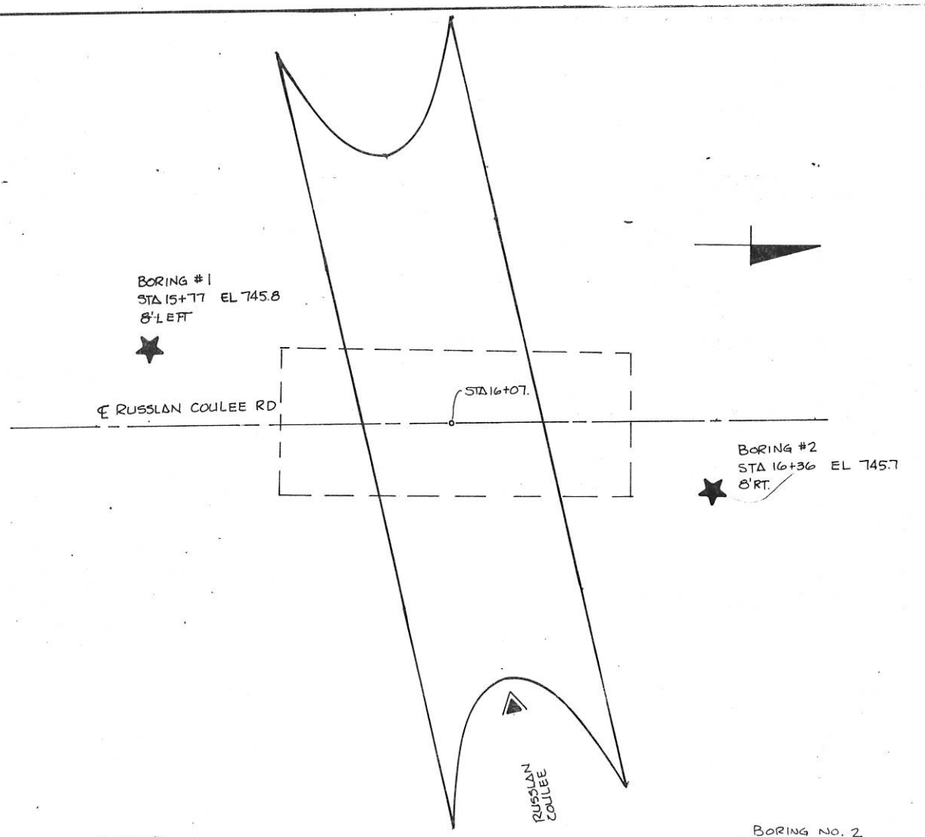
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

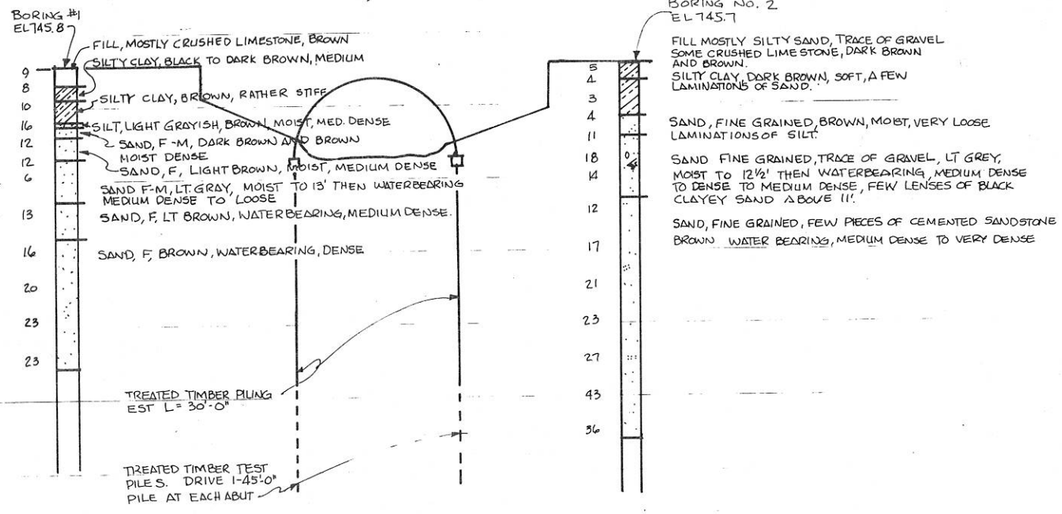
STRUCTURE C32-45

Const. Spec.	WIS. 1981	Drawn By	RDK	Plan Checked	PFW

GENERAL PLAN — SHEET 1 OF 3 — X67634

PROJECT I.D.	SHEET NUMBER	TOTAL SHEETS
5346 - 1 - 71	8.1	
FEDERAL PROJECT DESIGNATION		





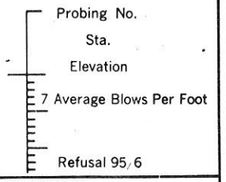
ABBREVIATIONS

F — Fine M — Medium C — Coarse
Ws — Weathered So — Sound

MATERIAL SYMBOLS

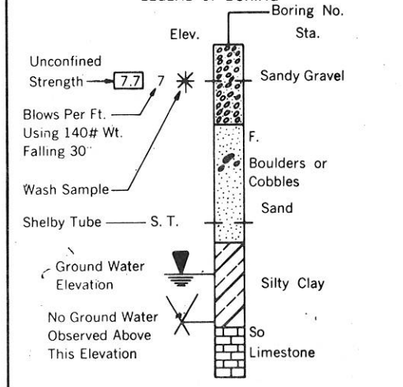
Topsoil, Sand, Gravel, Silt, Peat, Clay, Sandstone, Limestone, Igneous Rock

LEGEND OF PROBING



95/6=95 Blows for 6" Penetration
Probing taken with a 350# wt. Falling 18" on a 2" O. D. Point.

LEGEND OF BORING



Unless otherwise specified, the blows per foot at the locations indicated are based on driving a 2" O. D. x 1.4" I. D. split spoon sampler with a 140# hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pipe.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because the depths investigated are limited and the area of the borings and/or soundings is very small in relation to the entire area, the Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

No	Date	Revision	By

PLEHN BRIDGE DESIGN AND ENGINEERING SERVICES
MADISON WISCONSIN

STRUCTURE C32 - 45

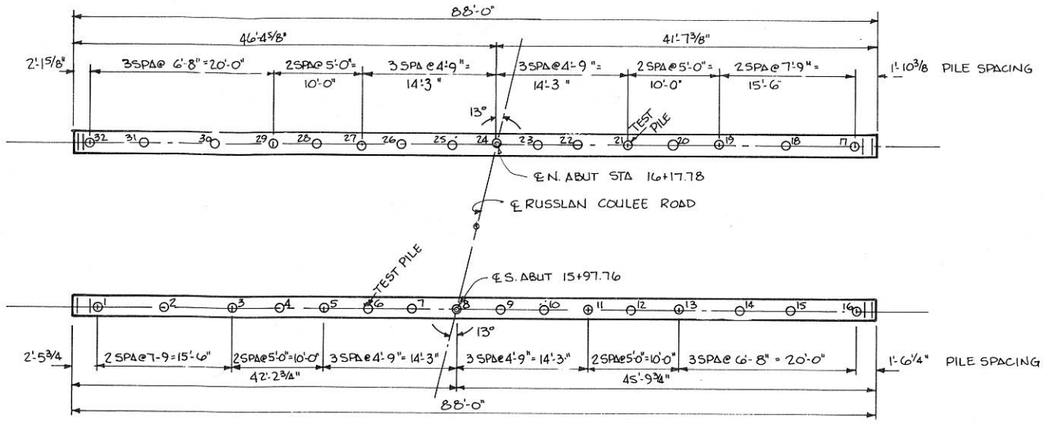
Const Spec 1981	Drawn By DLP	Plans Checked DLP

SUBSURFACE EXPLORATION

SHEET 2 OF 3

X61635

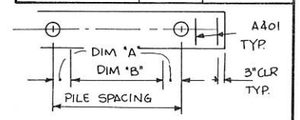
5346-1-71 8.2



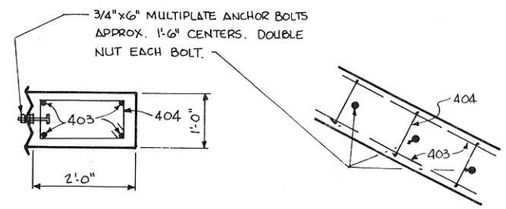
PILE PLAN

401 SPACING TABLE

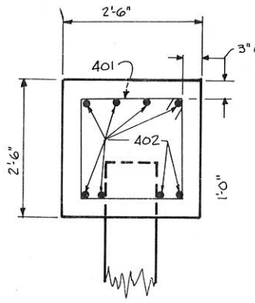
APPLIES TO NORTH & SOUTH ABUTMENT		
PILE SPACING	DIM "A"	DIM "B"
4'- 9"	10½"	2 SPA @ 1'-6" = 3'-0"
5'- 0"	1'- 0"	2 SPA @ 1'-6" = 3'-0"
6'- 8"	1'- 1"	3 SPA @ 1'-6" = 4'-6"
7'- 9"	1'-7½"	3 SPA @ 1'-6" = 4'-6"



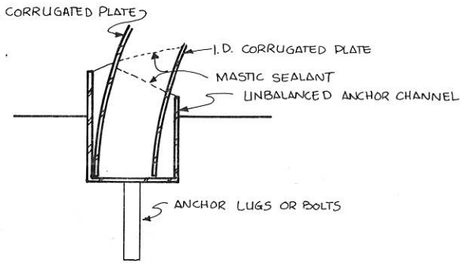
NOTE: ANCHOR CHANNEL WITH LUGS COST INCIDENTAL TO STRUCTURAL PLATE ARCH, 18' SPAN. ANCHOR DETAILS AS RECOMENDED BY MANUFACTURER AND APPROVED BY THE ENGINEER



SLOPE COLLAR DETAILS



ABUTMENT DETAILS

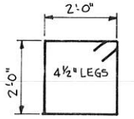


ANCHORAGE DETAIL

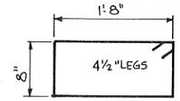
BILL OF BARS

WEIGHT 1850 LB.

MARK	SIZE	NO.	LENGTH	SPACING	LOCATION
401	4	108	8'-6"	SEE TABLE	FOOTING BETWEEN PILING
402	4	64	20'-8"	AS SHOWN	FOOTING, LONGITUDINAL
403	4	16	18'-0"	AS SHOWN	SLOPE COLLAR
404	4	48	5'-2"	1'-6"	SLOPE COLLAR



401



404

No	Date	Revision	By

PLEHN BRIDGE DESIGN AND ENGINEERING SERVICES
MADISON, WISCONSIN

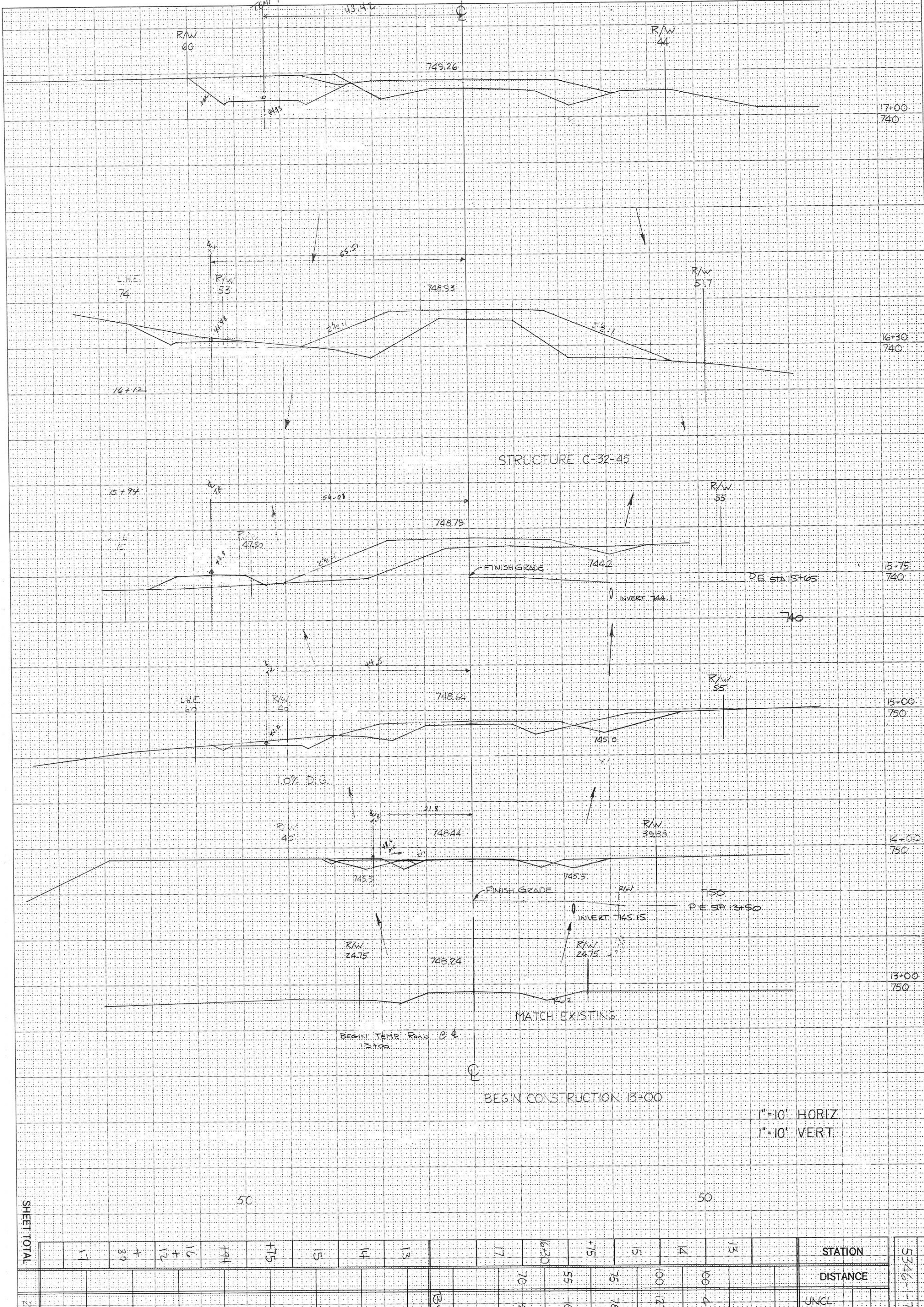
STRUCTURE C-32-45

Const. Spec. 1981	Drawn By DLP	Plan Checked DLP

STRUCTURAL DETAILS

SHEET 3 OF 3

X67636



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STATE PROJECT NUMBER: 5346-1-71

SHEET NUMBER: 9

YARDAGE — MAINLINE

STATION	DISTANCE	EXCAVATION UNCL. MAINLINE	FILL MAINLINE
13			
14	100	41	6
15	100	127	161
+75	75	78	367
16+30	55	10	535
17	70	12	621

BYPASS YARDAGE

STATION	UNCL	FILL
13	9	
14	63	
15	41	72
+75		37
+94		
16+12	20	
+30	228	
17		

SHEET TOTAL			
265	361	109	1706

STATE PROJECT NUMBER	SHEET NUMBER
5346-1-71	9

STATION	DISTANCE	YARDAGE EXCAVATION UNCL MASS	YARDAGE EXCAVATION UNCL BYPASS	YARDAGE EXCAVATION ROCK BYPASS	YARDAGE FILL
17					
	100	17			441
18					
	100	0			252
19					
	100	26			83
20					
	100	26			4
21					
17		BY PASS YARDAGES			
		294	11		
18					
		26	11		
19					
SHEET TOTAL		69	320	22	780

PLAN NO. 325

PLAN NO. 325