



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Inspection Report for B-36-091

IH 43 SB over CNW RR
Jul 18,2018



Type	Prior	Frequency (mos)	Performed
Routine	09-20-17	24	
Interim	06-16-16	0	X
Deck Evaluation	06-16-16	48	X
SIA Review	09-20-17	48	

Start Coordinates		End Coordinates (optional)	
Latitude	44°15'37.28"N	Latitude	
Longitude	87°46'55.22"W	Longitude	
Owner	STATE HIGHWAY DEPT	Maintainer	STATE HIGHWAY DEPT

Time Log

Hours	Minutes	Team members
1	0	AECOM NDT Group

Team members

Name	Number	Signature	Signature Date
Inspector			
RegionSET, Ne	3014	<i>Ne RegionSET</i> E-signed by Brady Seston(sestonb)	10-01-18

BRIDGE INSPECTION REPORT
Wisconsin Department of Transportation
DT2007 2003 s.84.17 Wis. Stats.

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Identification & Location

Feature On: IH 43 SB	Section Town Range: S25 T21N R22E	Structure Number:
Feature Under: CNW RR	County: MANITOWOC	B-36-091
Location 1.2M S JCT STH 147	Municipality: COOPERSTOWN	Structure Name:

Geometry

measurements in feet, except where noted

Approach Roadway Width: 40	Bridge Roadway Width: 40.0	Total Length: 219.2
Approach Pavement Width: 24	Deck Width: 43.0	Deck Area (sq ft): 9425

Traffic

	Lanes	ADT	ADT year	Traffic Pattern
On	2	9200	2017	ONE WAY TRAFFIC

Capacity

Load Rating

Inventory rating: HS19	Overburden depth (in): 2.0	Last rating date: 02-21-09	Controlling:
Operating rating: HS38	Deck surface material: CONCRETE	Re-rate for capacity (Y/N):	Control location:
Posting:	Re-rate notes:		

Hydraulic

Classification

Scour Critical Code(113): (N) NO WATERWAY	Q100 (ft3/sec): 0	
High water elevation (ft): 0.0	Velocity (ft/sec): 0.0	Sufficiency #: 86.9

Span(s)

Span #	Material	Configuration	Depth (in)	Length (ft)	Main
1	CONT PREST CONC	DECK GIRDER	45	70.6	
2	CONT PREST CONC	DECK GIRDER	45	71.2	Y
3	CONT PREST CONC	DECK GIRDER	45	70.6	

Expansion joint(s)

Temperature:

File: 72	New:
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Clearance

Item	File Measurement (ft)	File Date	New Measurement (ft)
Highway Min Vertical On Cardinal			
Horizontal On Cardinal			
Railroad Min Vertical Under	23.25		

Special Components

Component	Year	Work Performed	Note
OVERLAY - PROTECTO WRAP MEMBRANE			

Construction History

Year	Work Performed	FOS id
2010	OVERLAY - CONCRETE - NEW JOINTS	1227-10-60
1996	OVERLAY - BITUMINOUS	1225-02-71
1978	NEW STRUCTURE	1226-01-86

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Structure No.: **B-36-091**

Maintenance Items

Item	Priority	Recommended by	Status	Status change
Deck - Seal Surface Cracks	MEDIUM	Weber, Dale (3007)	DEFERRED	12/18/17
Epoxy Overlay - Program through Backbone				
Misc - Other Work	LOW	Weber, Dale (3007)	IDENTIFIED	09/21/17
Seal parapet w/pigmented sealer				

Elements

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State			
						1	2	3	4
X	12		Reinforced Concrete Deck	SF	9,425	9,361	60	4	0
		1080	Delamination - Spall - Patched Area CS-2(S3-4 SF) Solid patch - wood form still in place	SF		0	0	4	0
		1130	Cracking (RC) CS-2(S1-30 SF & S3-30 SF) Diag. cracking at abuts. w/eff.	SF		0	60	0	0
		8514	Concrete Overlay Concrete overlaid in 2010	SF	9,425	5,620	3,805	0	0
		3210	Debonding/Spall/Patched Area/Pothole 7/18/18 - Level 1 IR <2% Approximate 5 sqft of defects	SF		0	5	0	0
		3220	Crack (Wearing Surface) CS-2(3800 SF) Est. 40% map cracking	SF		0	3,800	0	0
	109		Prestressed Concrete Open Girder	LF	1,078	1,077	1	0	0
		1080	Delamination - Spall - Patched Area CS-2(S1-1') Minor spall at end of G1 at S abut.	LF		0	1	0	0
	205		Reinforced Concrete Column	EA	6	6	0	0	0
	215		Reinforced Concrete Abutment	LF	113	96	17	0	0
		1080	Delamination - Spall - Patched Area	LF		0	0	0	0
		1130	Cracking (RC) CS-2(S Abut 7 & N Abut 10') Vert. & horz. cracking	LF		0	17	0	0
	234		Reinforced Concrete Cap	LF	108	108	0	0	0
	300		Strip Seal Expansion Joint South & North Abutments Replaced in 2010	LF	131	131	0	0	0
	310		Elastomeric Bearing South & North Abutments	EA	10	10	0	0	0

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Structure No.: **B-36-091**

331		Reinforced Concrete Bridge Rail	LF	498	395	85	18	0
		Scaling & popouts throughout						
	1080	Delamination - Spall - Patched Area CS-2(W Side 8' & E Side 6') Solid patches CS-3(W Side 6' & E Side 12') Large spalling or delam.	LF		0	14	18	0
	1130	Cracking (RC) CS-2(W Side 14' & E Side 57') Vert. & horz. cracking	LF		0	71	0	0
8400		Integral Wingwall	EA	4	3	1	0	0
	8903	Wall Deterioration CS-2(1 EA) Se wing strapped	EA		0	1	0	0

Assessments

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State			
						1	2	3	4
9001			Drainage - Ends of Structure	EA	4	4	0	0	0
			Inlets at SE & SW quadrants						
9043			Slope Protection- Crushed Aggregate with Bit.	EA	2	2	0	0	0
			Repaired in 2010						
9168			Concrete Diaphragm	EA	20	18	2	0	0
			Light cracks and spalls @ south pier.						
9323			Approach Roadway - Asphalt	EA	2	2	0	0	0
			Replaced in 2010						

NBI Ratings

	File	New
Deck	7	7
Superstructure	7	7
Substructure	7	7
Culvert	N	N
Channel	N	N
Waterway	N	N

Structure Specific Notes

Inspection Specific Notes

10/1/18 - This evaluation is to upload IR data for future reference during routine inspections. The IR inspection occurred on 7/18/18.

Inspector Site-Specific Safety Considerations

Structure Inspection Procedures

Special Requirements

Chk Hours Cost Comments

Non-Image Documents

Type	Document	Document Comment/Description	Attached
Deck Evaluation	b36-091_18_Kd1.pdf		X

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Wisconsin Dept. of Transportation
Structure Inventory Data

Bridge B360091

Structure No.: B360091	Municipality: COOPERSTOWN	Section:	Town:	Range:	Maintenance Agency: STATE HIGHWAY DEPT	Owner: STATE HIGHWAY DEPT
Replaced Structure No.:	Historical Sig.: 5	Latitude: 441537. 28	Longitude: 874655.22	County: MANITOWOC (3 6)	District: 3	

ABUTMENT DATA (CARDINAL)

1. Abutment Type: SILL WITH BRGS
2. Pile Type: PILING - STEEL H
3. Pile Size: 254 OR 273 MM (10 OR 10-3/4")
4. Slope Protection Type: STAB CR STONE
5. Rdwy. Width: 40.0 ft
6. Deck Width: 43.0 ft
7. Wing Type:

ABUTMENT DATA (NON-CARDINAL)

1. Abutment Type: SILL WITH BRGS
2. Pile Type: PILING - STEEL H
3. Pile Size: 254 OR 273 MM (10 OR 10-3/4")
4. Slope Protection Type: STAB CR STONE
5. Rdwy. Width: 40.0 ft
6. Deck Width: 43.0 ft
7. Wing Type:

GEOMETRIC DATA

1. Structure Length: 219.2 ft (Back to Back Abuts. Along Rdwy. Centerline)
2. No. Lanes On: 2
3. L. Sdk. Width On: 0.0 ft
4. R. Sdk. Width On: 0.0 ft
5. Median Type:
6. Median Width: 0.0 ft
7. Skew Angle: 46 Deg.
8. Direction Skew Angle: LEFT
9. Horizontal Curve: 0.0 Radius, ft
10. Dir.-Hor. Curve:
11. Girder Spacing: 9.0 ft
12. Height: 45.0 ft (Top Pier Footing to Top Deck or Streambed Elev. to Top Deck)
13. NBI Bridge Length Met: true

APPROACH DATA

1. Appr. Pavement Width: 24 ft
2. Rt. Shoulder Width: 10 ft
3. Lt. Shoulder Width: 6 ft
4. Total Width (Sum Above): 40 ft
5. Guardrail Termination: 1
6. Guardrail Adequacy: 1
7. Railing Attachment Type: 5 - 22 MM (7/8") BOLTS
8. Railing Design Year: 1965 AASHO
9. Left Outer Railing Type:
10. Right Outer Railing Type:
11. Left Inner Railing Type:
12. Right Inner Railing Type:

CAPACITY DATA

1. Design MS: HS20M
2. Inventory MS: HS19
3. Operating MS: HS38
4. Max. Veh. Wt.: 250 kips
5. Load Rating Basis.: ASD
6. Load Governing Member: INTERIOR DECK GIRDER
7. Deck Composition: NONE
8a. Deck Membrane: NONE
8b. Deck Surface: CONCRETE

HYDRAULIC DATA

1. Design Flood Frequency: 0 yrs
2. Design Discharge: 0 cu-ft/s
3. Max. Velocity: 0.0 ft/s
4. Drainage Area: 0.0 sq. ft
5. High Water Elev.: 0.0 ft
6. Scour Critical Code: N
7. Scour Calculated?: false

STRUCTURE SERVICE DATA

1. Hwy. On Detour Length: 15 ft
2. Type Service On: HIGHWAY
3. Type Service Under: RAILROAD

APPRAISAL UPDATE

1. Load Capacity: 5-LEGAL LOAD STRESS NOT EXCEEDED
2. Geom. On: 7-COND BETTER THAN MIN CRITERIA
3. Geom. Under: 9-COND EXCEED DESIRABLE CRITERIA
4. Appr. Align: 8-COND EQUAL DESIRABLE CRITERIA
5. Horiz. Align:
6. Vert. Align:

PLANNING DATA

1. Functional Classification: INTERSTATE-RURAL (01)
2. ADT: 9200
3. ADT-Year: 2017
4. Truck ADT %: 16
5. Future ADT: 17202
6. Future ADT-Year: 2023

CONDITION DATA

Deck:	SuperStructure:	SubStructure:	Channel:
Culvert:	Waterway:		

Bridge B360091

CONSTRUCTION DATE

Project ID	Construction Contractor	Construction Designer	Construction Year	Plans Reel Number	Letting Date	Survey Received	Work Performed
1227-10-60	NORTHEAST ASPHALT, INC.	BRIDGE SECTION	2010		23-Jun-2009	31-Jul-2008	OVERLAY - CONCRETE - NEW JOINTS
1225-02-71	B.R. AMON & SONS, INC.	BRIDGE SECTION DESIGN UNIT 1	1996		19-Mar-1996	17-Feb-1995	OVERLAY - BITUMINOUS
1226-01-86	J D BONNESS	BRIDGE SECTION	1978	C159		01-Apr-1975	NEW STRUCTURE

CLEARANCE DATA

Clearance Lane Number	Minimum Vertical	Minimum Vertical Date	Minimum Horizontal Distance	Right Minimum Lateral
Left Minimum Lateral	Railroad Right Minimum Lateral	Railroad Left Minimum Lateral	Railroad Vertical Distance	Railroad Horizontal Distance
	22.6	23.1	23.25	45.7

ROUTE DATA

Number	Direction	Type	Structure Route On / Under	Structure Route Cardinal / NonCardinal
043	S		O	N
			U	
Number	Structure Route Location	Highway Feature Name	Structure Route Local System	Highway Feature Designation
043	1.2M S JCT STH 147	IH 43 SB	IH	MAINLINE
		CNW RR		RAILROAD
Number	Structure Route Primary Flag	Designed National Network Flag	Structure Defense Highway Designation	Highway On Inventory Route
043	Y	Y	1	NHI
	Y	N	0	

PIER DATA

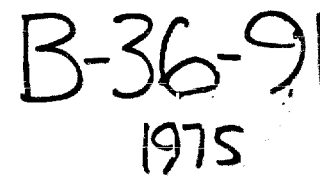
Number	Pier Type	Piling Type	Piling Size	Pier Skew Angle	Direction of Skew
1	ROUND COL BENT	PILING - STEEL H	254 OR 273 MM (10 OR 10-3/4")		
2	ROUND COL BENT	PILING - STEEL H	254 OR 273 MM (10 OR 10-3/4")		

SPAN DATA

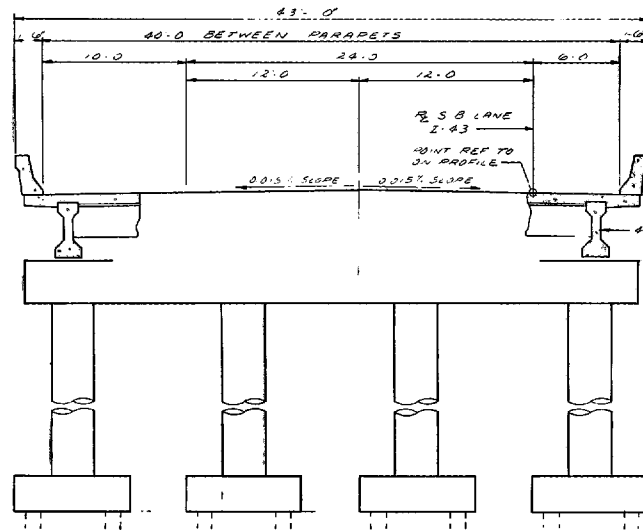
Number	Type	Length	Configuration	Material	Girder or Truss Height	Girder or Truss Spacing
1		70.6	DECK GIRDER	CONT PREST CONC	45.0	9.0
2		71.2	DECK GIRDER	CONT PREST CONC	45.0	9.0
3		70.6	DECK GIRDER	CONT PREST CONC	45.0	9.0

EXPANSIONJOINT DATA

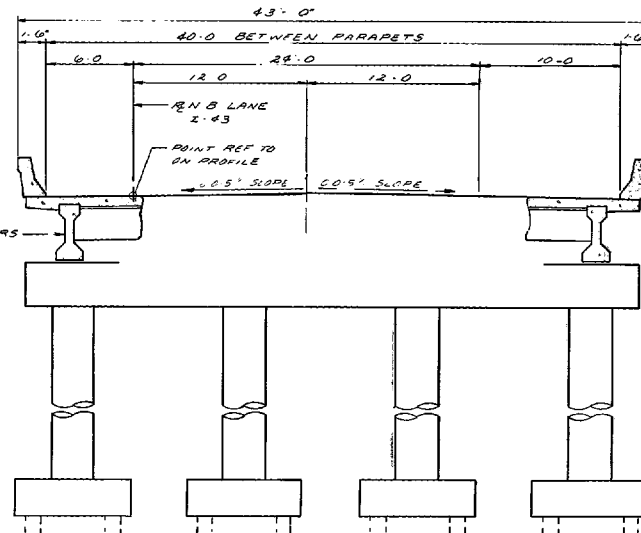
Number	Location	Type	Inactive Date
1	SOUTH ABUTMENT	STRIP SEAL	
2	NORTH ABUTMENT	STRIP SEAL	



PROJECT NO.	1226-1-86	SHEET NUMBER	71	TOTAL SHEETS	
DESIGN PROJECT DESIGNATION					



SOUTHBOUND LANE B-36-91

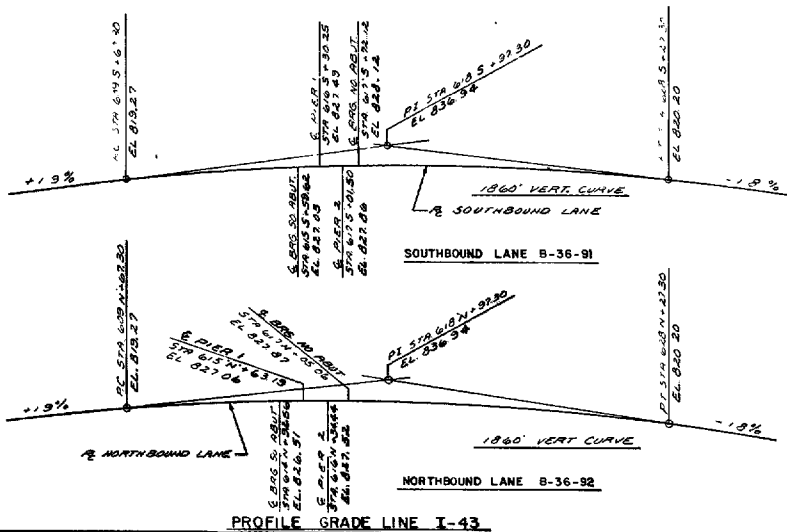


NORTHBOUND LANE B-36-92

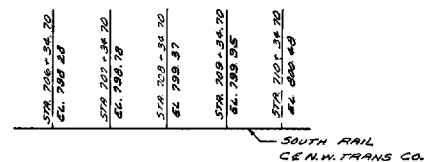
CROSS SECTION THRU ROADWAY LOOKING NORTH

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	SUPER	S ABUT	PIER 1	PIER 2	NO ABUT	TOTAL
EXCAVATION FOR STRUCTURES	L S						1
CONCRETE MASONRY	C Y	305.0	90.0	58.0	58.0	89.0	600.0
PRESTRESSED GIRDER TYPE 45	L F	100.5					100.5
HIGH STRENGTH BAR STEEL REINFORCEMENT	LBS	13,880	30,500	9,820	9,820	30,500	95,820
STRUCTURAL CARBON STEEL	LBS	1,700					1,700
STRUCTURAL LOW ALLOY STEEL	LBS	159					159
INSULATED BRONZE PLATES	S F	15					15
BEARING PADS, ELASTOMERIC	S F	30					30
PILE PILING, DELIVERED AND DRIVEN, HP 8142 PUND	L F		850	300	300	850	2,300
SLOPE PAVING, CRUSHED AGGREGATE	S Y		375			375	750
NON-BID ITEMS							
FILLER	SIZE	12" x 3/4"					12" x 3/4"
ALUMINUM OR ZINC PLATE	S F	30					30
POLYVINYL CHLORIDE WATERSTOP	L F		68			68	136



PROFILE GRADE LINE I-43

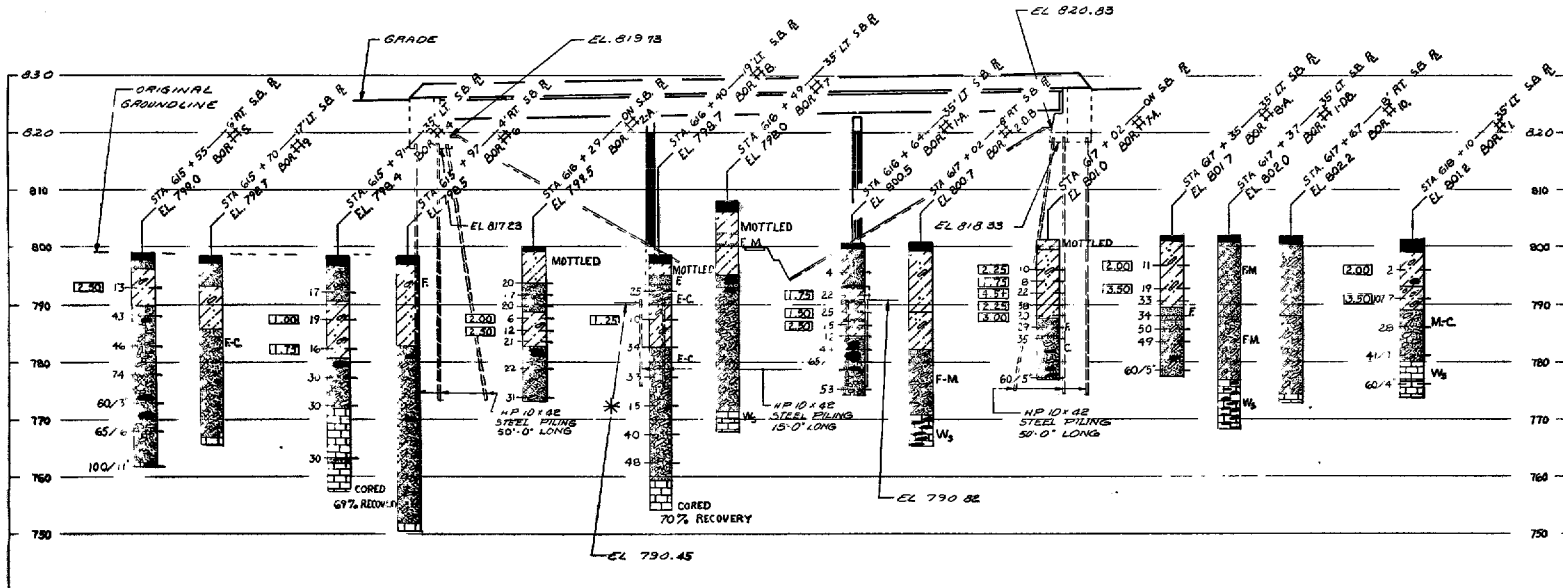
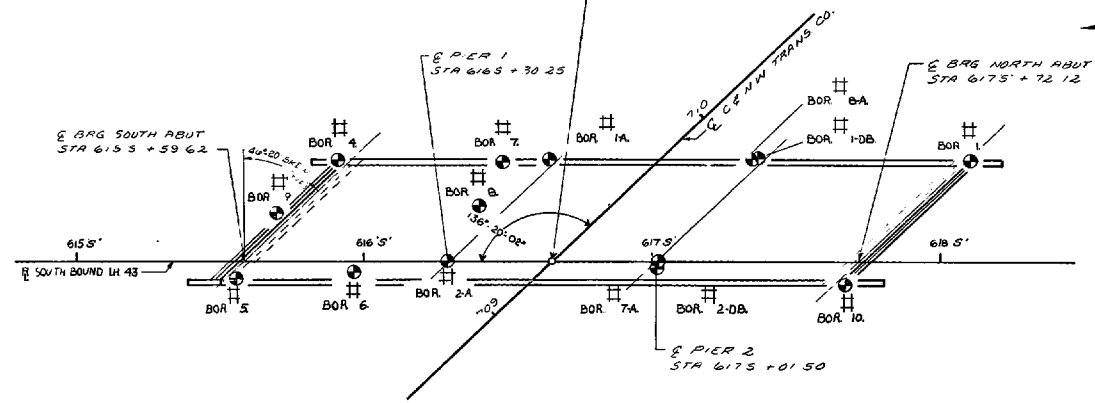


EXISTING ELEVATIONS C&NW TRANS CO.

No.	Date	Revision	By
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
DATE 1975	BY A G	CHIEF ENGINEER	OPS
GENERAL PLAN			SHEET 2 OF 14
			X 57606

B-36-
10

STA 616.5 + 65.87 E SB LANE I-43
STA 709 + 27.39 E CEN TRANS CO.



Project No.	1226-1-86
Sheet No.	72

ABBREVIATIONS		
F — Fine	M — Medium	C — Coarse
W — Weathered	So — Sound	
MATERIAL SYMBOLS		
Topsoil	Silt	Sandstone
Sand	Peat	Limestone
Gravel	Clay	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

Probing No.
Sta.
Elevation
7 Average Blows Per Foot
Ref: 95/6

LEGEND OF BORING

Unconfined Strength — 7.7
Blows Per Ft. Using 140# Wt. Falling 30"
Wash Sample — S. T.
Shelby Tube — S. T.
Ground Water Elevation
No Ground Water Observed Above This Elevation

Boring No.
Sta.
Elev.
Sandy Gravel
Boulders or Cobbles
Sand
Silty Clay
Limestone

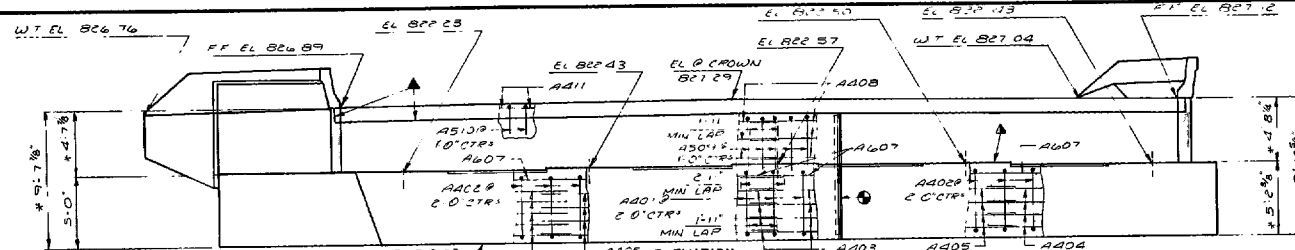
Unless otherwise specified the blows per foot at the locations indicated are based on drive of a 2" O.D. x 1.4" I.D. split spoon sampler with a 140# hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

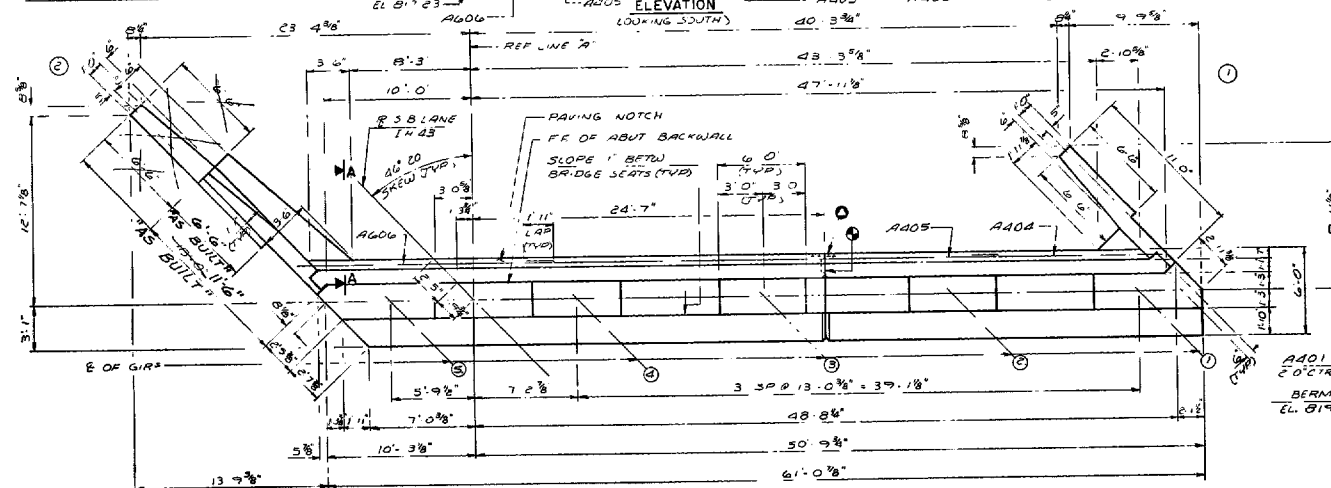
To obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing. The data presented herein represents the findings of the subsurface explorations made. However, because 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	Drawn by	Checked by
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
Scale 1"=20'	Sheet No. 45	Plan Date	DFS
SUBSURFACE EXPLORATION		SHEET 3 OF 14	
		X 57607	

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15

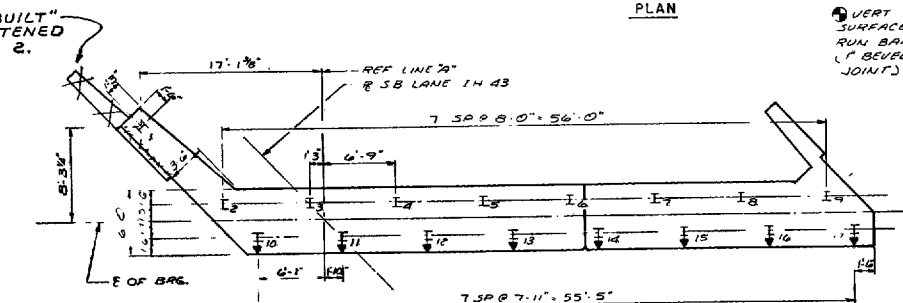


* DIM'S ARE GIVEN AT FF OF ABOUT BALKWAL.
▲ JOINT JOINT, DIMS CONC ABOVE THIS
JOINT AFTER SUPER CONC. IS IN PLACE
(STRIVE OFF AND LEAVE ROUGH)
▲ JOINT CONST JT FORMED BY SURFACED.
BEVELED 2" x 6" KEYWAY. (IF JOINT IS NOT
USED POLYVINYL CHLORIDE WATERSTOP
IS NOT REQ'D)
▲ POLYVINYL CHLORIDE WATERSTOP TO
EXTEND BETW INSIDE FACES OF
WINGS AND FROM BOT OF BODY
TO TOP OF BALKWAL ABOVE CONST.
JT. (TO BE WITH THE SURFACE OF
CONC.) (SEE DETAIL 547.8)
NOTE SPAD01 ADD TO MISS PILING.
NOTE FILL TO EL B1723 BEFORE DRIVING
PILES



PLAN

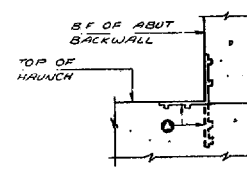
"AS BUILT"-
SHORTENED
WING 2.



PILE PLAN

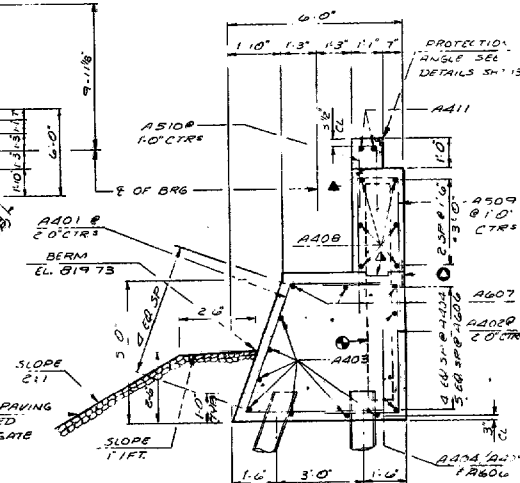
INDICATES DIRECTION OF
BATTERED PILES, BATTER
3" PER FOOT.

VERT CONST JT. FORMED BY
SURFACED BEVELED 2"x8" KEYWAY
RUN BAR STEEL THRU JOINT
(1" BEVEL AT FRONT FACE OF
JOINT)



SECTION A-A

SHOWING POLYVINYL
CHLORIDE WATERSTOP
PLACEMENT
NOTE TYP AT BOTH WINGS.

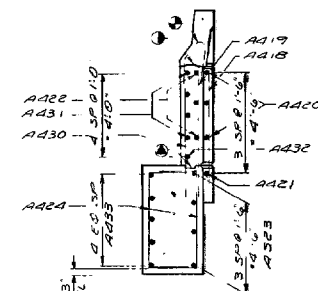
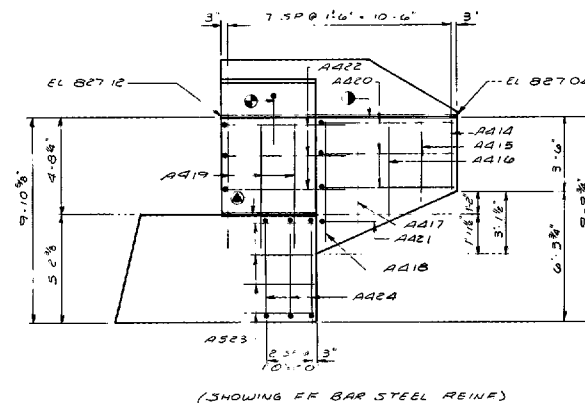
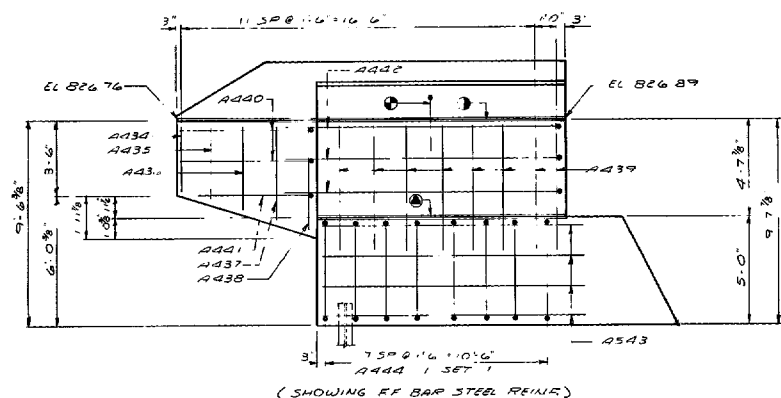


TYP SECTION THRU BODY

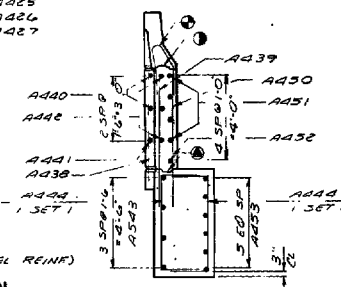
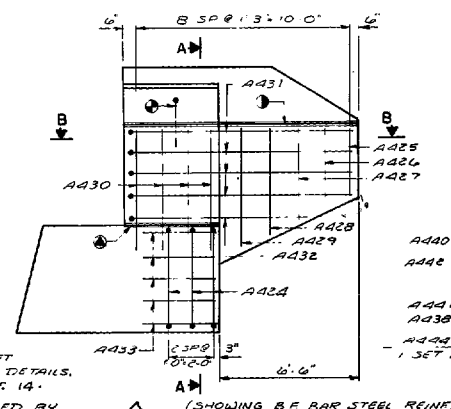
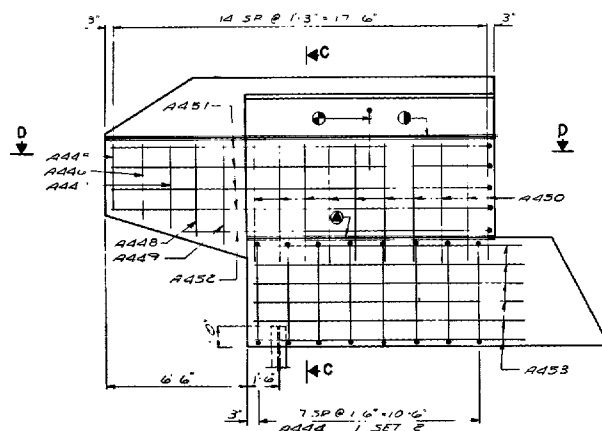
No.	Date	Revised			By
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS					
STRUCTURE B - 36 - 91					
Contract Type	1975	Drawn By	N & A	Plans Checked	JFS
SOUTH ABUTMENT				SHEET 4 OF 14	
				X57608	

B-36-⁹
1975

STATE PROJECT NUMBER	SHEET NO.
1226-1-86	7.4

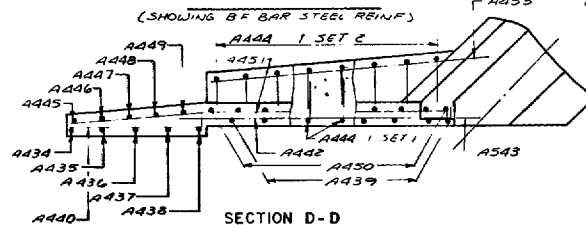


SECTION A-A



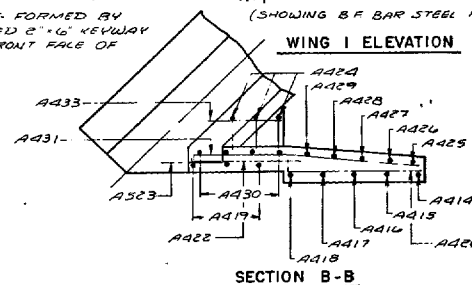
SECTION C-C

WING 2 ELEVATION



SECTION D-D

WING I ELEVATION



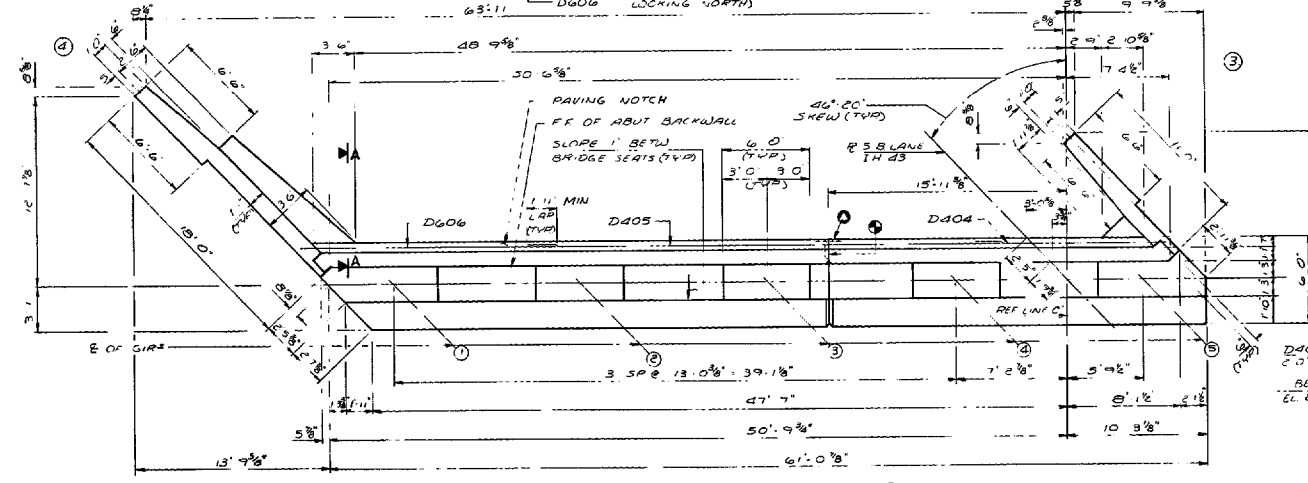
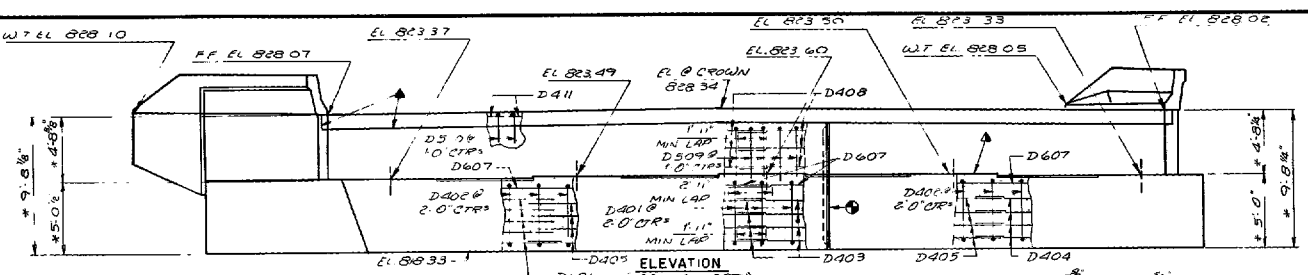
SECTION B-B

No.	Date	Revision	B.
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
Contract Spec.	1975	Drawn By N.A.	Being Checked D.F.S.
SOUTH ABUTMENT DETAILS			SHEET 5 OF 14 X 57609

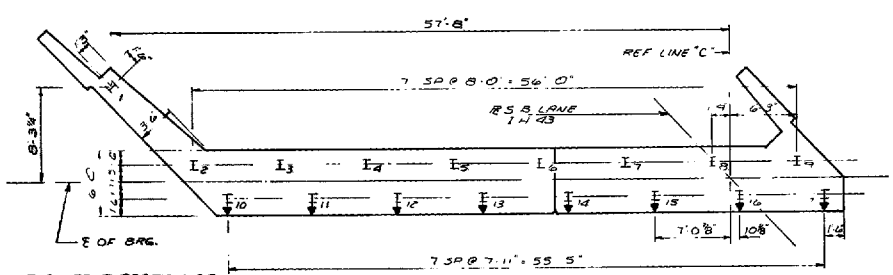
B-36-
10

STATE PROJECT NUMBER	SHEET NO
1276-1-86	75

* DIMS ARE GIVEN AT FF OF ABUT BALKWAL
 ▲ CONST JOINT: POUR CONC ABOVE THIS JOINT AFTER SUPER CONC IS IN PLACE (STAKE OFF AND LEAVE ROUGH)
 ▲ OPT CONST JT FORMED BY SURFACED, BEVELED 2" X KEYWAY (IF JOINT IS NOT USED POLYVINYL CHLORIDE WATERSTOP IS NOT REQ'D)
 ○ POLYVINYL CHLORIDE WATERSTOP TO EXTEND BETW INSIDE FACES OF WINGS AND FROM BOT OF BODY TO TOP OF BACKWALL ALONG VERT. CONST JT (TO BE FLUSH WITH SURFACE OF FORM) (SEE DETAIL 547-8)
 NOTE: 35 D401 + D402 TO MISS PILING. NOTE: FILL TO EL 828.33 BEFORE DRIVING FILES



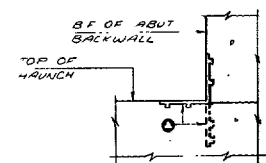
PLAN



PILE PLAN

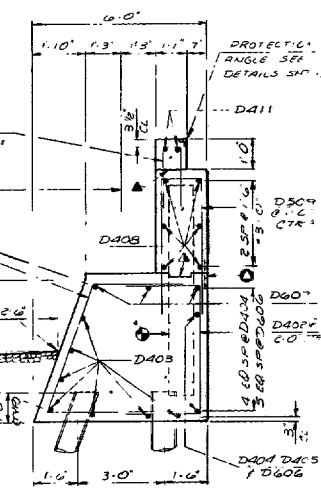
↑ INDICATES DIRECTION OF BATTERED PILES, BATTER 3" PER FOOT.

NOTE ABUT SUPPORTED ON HP10.42 STEEL PILES DRIVEN TO A MIN BRF VALUE OF 37 TONS PER PILE, EST 30' LG



SECTION A-A

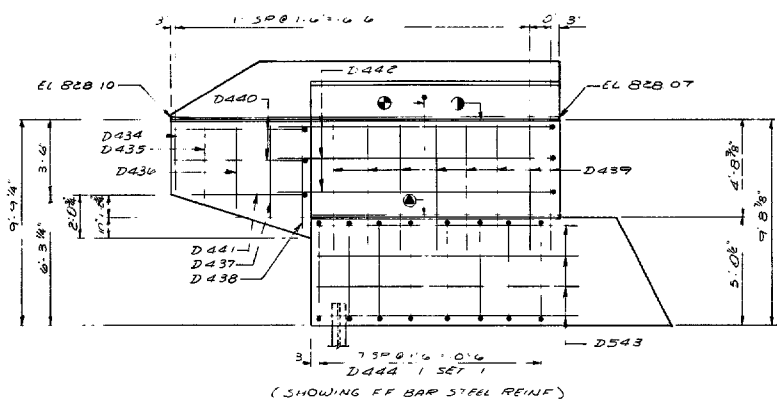
SHOWING POLYVINYL CHLORIDE WATERSTOP PLACEMENT
 NOTE TYP AT BOTH WINGS.



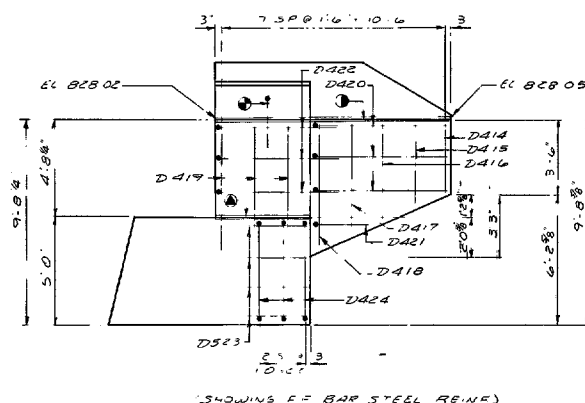
TYP SECTION THRU BODY

No.	Date	Revision	By
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
Scale	1/8" = 1'-0"	1/4" = 1'-0"	1/2" = 1'-0"
NORTH ABUTMENT		SHEET 6 OF 14 X57610	

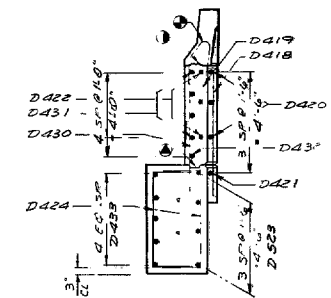
B-36-9
 1975



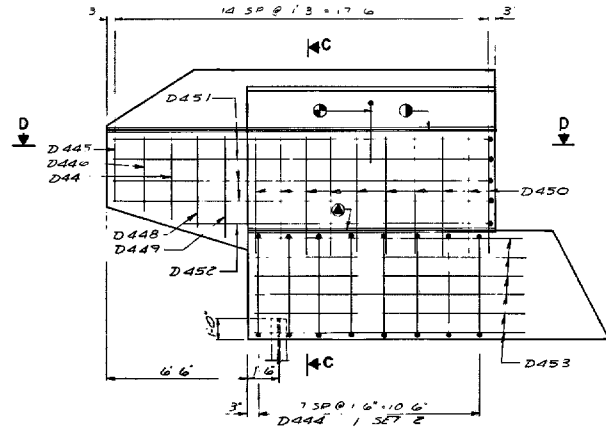
(SHOWING RE BAR STEEL REINF)



(SHOWING RE BAR STEEL REINF)

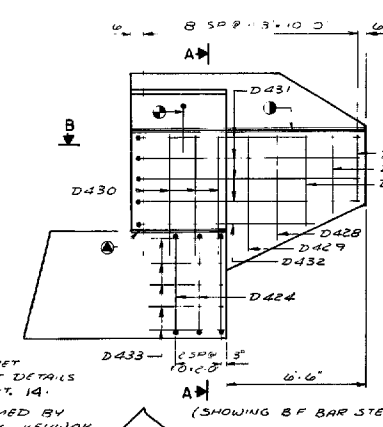


SECTION A-A



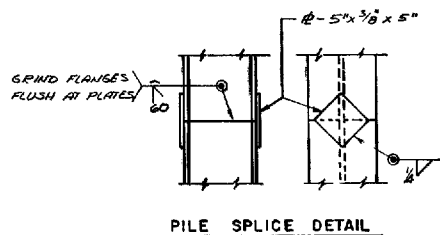
WING 4 ELEVATION

(SHOWING RE BAR STEEL REINF)



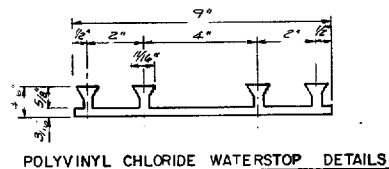
BILL OF BARS-SOUTH ABUTMENT

MARK	NO REQ'D	LENGTH	BENT	CUT DIA	LOCATION
A401	29	13.6	*		BODY FF VERT
A402	29	9.11	*		BF
A403	14	3.4	*		FF BOT HORIZ
A404	4	11.0	*		BF WING 1
A405	4	35.7	*		BF
A406	5	18.0	*		BF WING 2
A407	4	32.0	*		TOP
A408	12	30.4	*		BACKWALL
A409	59	10.11	*		VERT
A410	59	4.4	*		PAVING BLOCK
A411	14	7.1	*		HORIZ
A412	25	4.6	*		GRID
A413	25	5.8	*		WING 1 FF VERT
A414	1	3.6	*		
A415	1	3.0	*		
A416	1	5.2	*		
A417	1	5.2	*		
A418	1	5.0	*		
A419	3	5.8	*		
A420	3	6.11	*		HORIZ
A421	3	3.3	*		
A422	3	6.10	*		
A423	4	7.0	*		
A424	6	7.3	*		BASE VERT
A425	1	3.2	*		BF
A426	1	3.10	*		
A427	1	4.6	*		
A428	1	5.2	*		
A429	1	5.10	*		
A430	4	5.9	*		
A431	4	11.1	*		HORIZ
A432	1	8.11	*		
A433	5	3.4	*		
A434	1	3.0	*		FF VERT
A435	1	3.6	*		
A436	1	4.0	*		
A437	1	4.6	*		
A438	1	5.0	*		
A439	8	5.8	*		
A440	2	6.11	*		HORIZ
A441	1	5.10	*		
A442	3	13.1	*		
A443	4	14.0	*		
A444	8	18.11	*		BASE VERT
A445	1	3.0	*		BF
A446	1	3.6	*		
A447	1	4.0	*		
A448	1	4.6	*		
A449	1	5.0	*		
A450	10	5.8	*		
A451	4	18.1	*		HORIZ
A452	1	14.9	*		
A453	6	12.8	*		



BILL OF BARS-NORTH ABUTMENT

MARK	NO REQ'D	LENGTH	BENT	CUT DIA	LOCATION
D401	29	13.6	*		BODY FF VERT
D402	29	9.11	*		BF
D403	14	3.4	*		FF BOT HORIZ
D404	4	11.0	*		BF WING 3
D405	4	35.7	*		BF
D406	5	18.0	*		BF WING 4
D407	4	32.0	*		TOP
D408	12	30.4	*		BACKWALL
D409	59	10.11	*		VERT
D410	59	4.4	*		PAVING BLOCK
D411	14	7.1	*		HORIZ
D412	25	4.6	*		GRID
D413	25	5.8	*		WING 3 FF VERT
D414	1	3.2	*		
D415	1	3.10	*		
D416	1	4.6	*		
D417	1	5.2	*		
D418	1	5.10	*		
D419	3	5.8	*		
D420	3	6.11	*		HORIZ
D421	1	3.3	*		
D422	3	6.10	*		
D423	4	7.0	*		
D424	6	7.3	*		BASE VERT
D425	1	3.2	*		BF
D426	1	3.10	*		
D427	1	4.6	*		
D428	1	5.2	*		
D429	1	5.10	*		
D430	4	5.9	*		
D431	4	11.1	*		HORIZ
D432	1	8.11	*		
D433	5	3.4	*		
D434	1	3.0	*		FF VERT
D435	1	3.6	*		
D436	1	4.0	*		
D437	1	4.6	*		
D438	1	5.0	*		
D439	8	5.8	*		
D440	2	6.11	*		HORIZ
D441	1	5.10	*		
D442	3	13.1	*		
D443	4	14.0	*		
D444	8	18.11	*		BASE VERT
D445	1	3.0	*		BF
D446	1	3.6	*		
D447	1	4.0	*		
D448	1	4.6	*		
D449	1	5.0	*		
D450	10	5.8	*		
D451	4	18.1	*		HORIZ
D452	1	14.9	*		
D453	6	12.8	*		



NOTE DIM N BENDING DETAILS ARE OUT TO OUT OF BAR
NOTE THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE
BAR SIZE

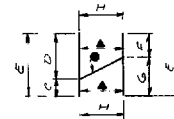
STATE PROJECT NUMBER
1226-1-86

SHEET NO
77

CUTTING DIAGRAM

"H" IS NO OF BARS REQ'D BEFORE CUTTING

MARK	SET NO	C	D	E	F	G	H	NO SETS REQ'D
A444	1	8.5	10.6	18.11	8.5	10.6	8	1
D444	1	8.5	10.6	18.11	8.5	10.6	8	1
D444	2							



▲ BUNDLE AND MARK CUT BARS WITH BAR AND SET NUMBER.

● MARK AND CUT ALL BARS ALONG THIS LINE MAKE ALL CUTS NORMAL TO BAR AXIS.

NOTE BENT BARS USED IN CUTTING DIAGRAM SHALL BE BENT AFTER CUTTING.

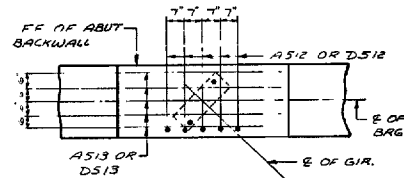
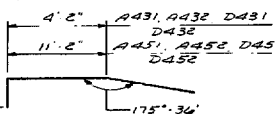
MARK	A
A402	1.6
A409	1.4
A421	10
A422	8
A440	10
A441	10
A442	8
D402	10
D403	10
D404	10
D405	10
D406	10
D407	10
D408	10
D409	10
D410	10
D411	10
D412	10
D413	10
D414	10
D415	10
D416	10
D417	10
D418	10
D419	10
D420	10
D421	10
D422	10
D423	10
D424	10
D425	10
D426	10
D427	10
D428	10
D429	10
D430	10
D431	10
D432	10
D433	10
D434	10
D435	10
D436	10
D437	10
D438	10
D439	10
D440	10
D441	10
D442	10
D443	10
D444	10
D445	10
D446	10
D447	10
D448	10
D449	10
D450	10
D451	10
D452	10
D453	10

MARK	B	C
A402	4.5	2.10
A409	1.4	2.11
A421	9	1.11
A422	4.9	2.4
D402	4.5	2.10
D502	1.4	4.11
D510	9	1.11
D424	3.1	2.3

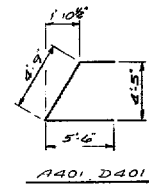


"W" VARIES FROM 2" TO 3" IN INCREMENTS OF 1/4".

A444 D444

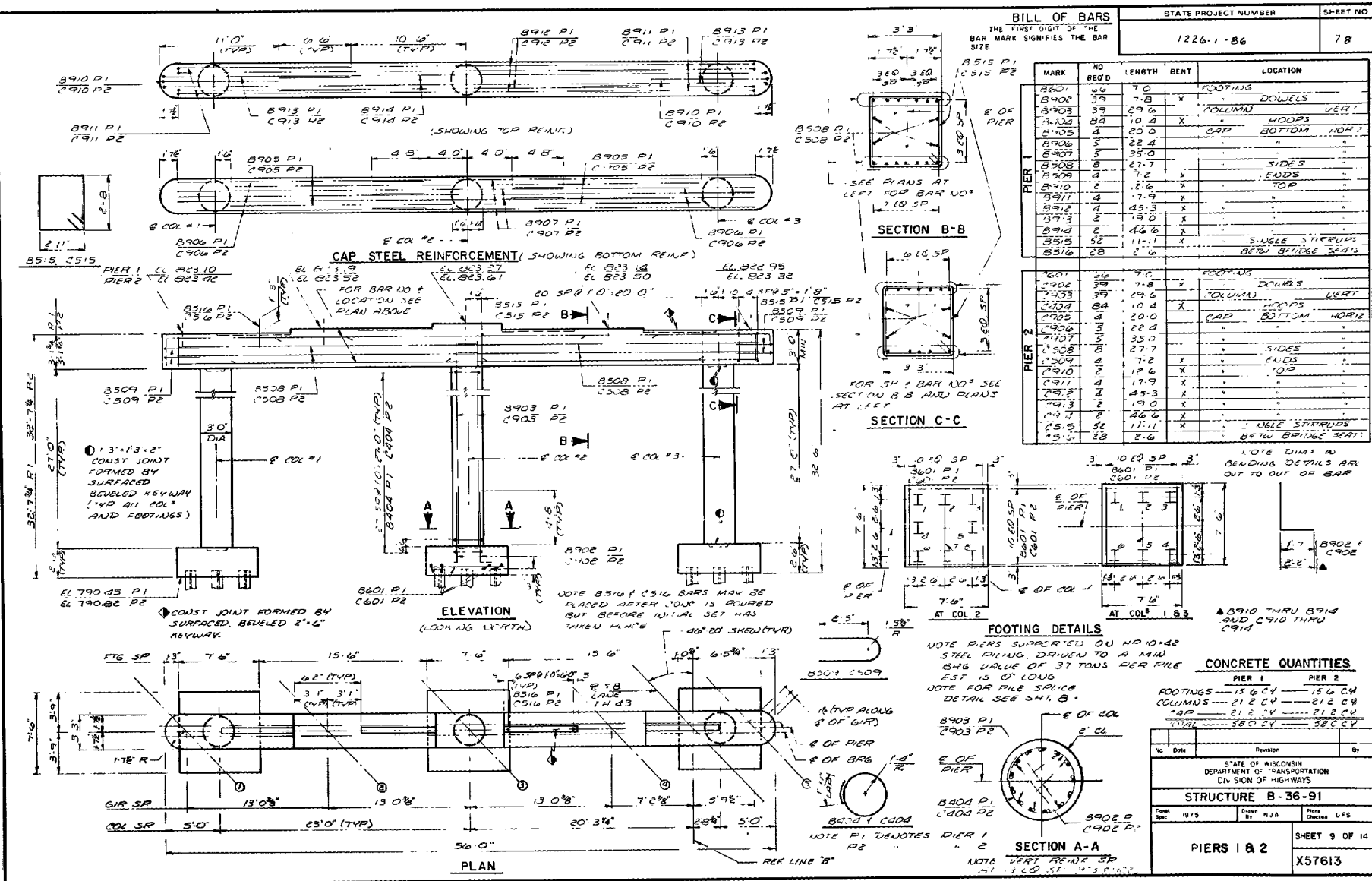


GRID DETAILS

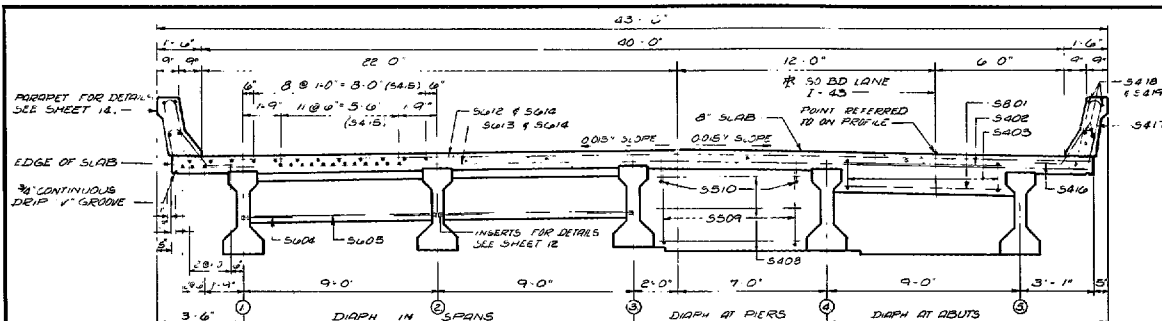


No.	Date	Revision	By
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
File No.	1975	Sheet No.	8 OF 14
ABUTMENT BILL OF BARS		X57612	

B-36-9
1975

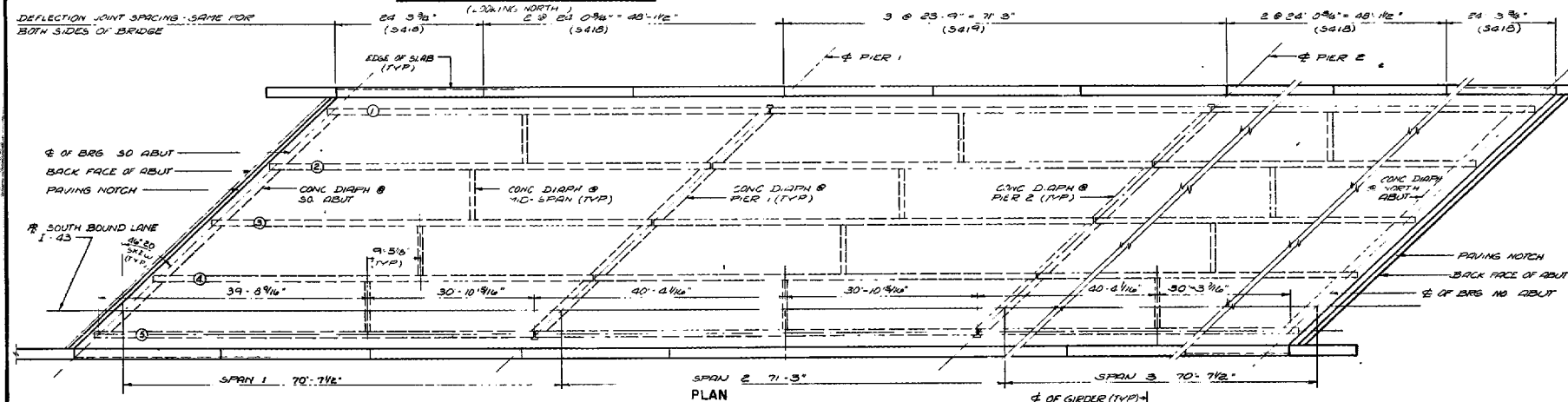


B-36-1
1975

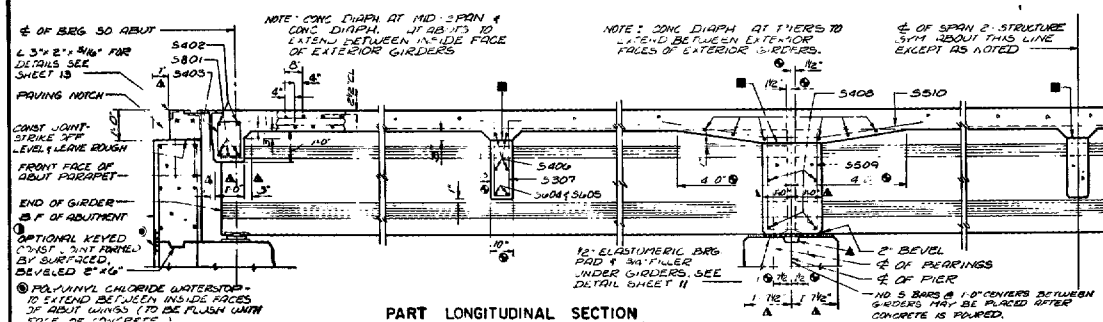


CROSS SECTION THRU ROADWAY

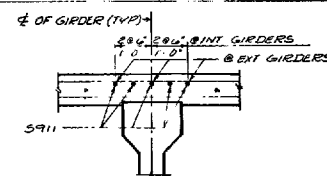
NOTE THE CONC IN ANY SPAN SHALL BE PLACED WITHIN FOUR HOURS OF THE DATE THAT CONCRETE WAS POURED UNDER AN ADJUSTED PIER
TOP FORMS SHALL BE PLACED WITHIN 15 MINUTES OF CONTINUOUS BAR CHAIRS
ON OR ADJACENT TO EACH SPAN AND BY INCL. DUAL BAR CHAIRS AT 3'-0" CTS
APPROX. ONLY AT THE 4.3 POINT BETWEEN SPAN'S
TOP CONTINUOUS BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS
AT 15'-0" MAX. PACE OF 4" CTS
THE 5' VERT. FACE OF PARAPET IS TO BE MAINTAINED AT ALL POINTS OF
BEARING.



PLAN



PART LONGITUDINAL SECTION



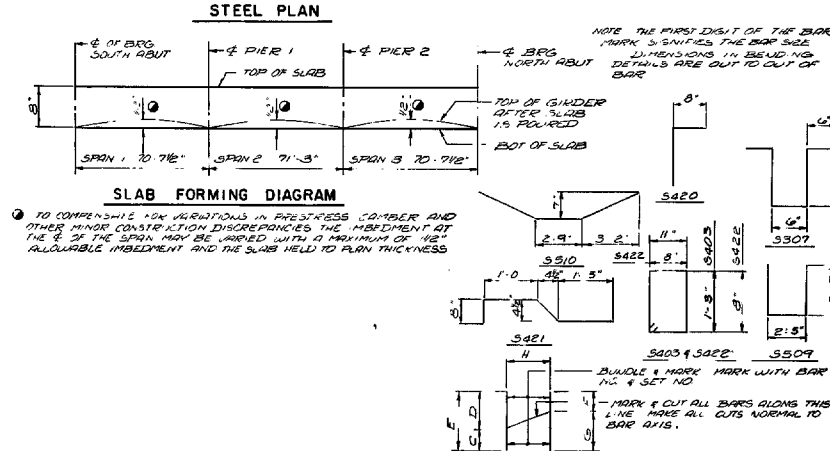
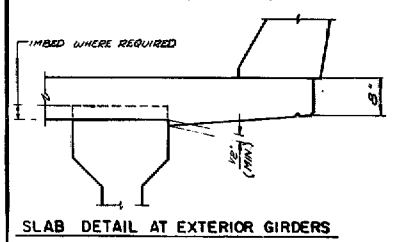
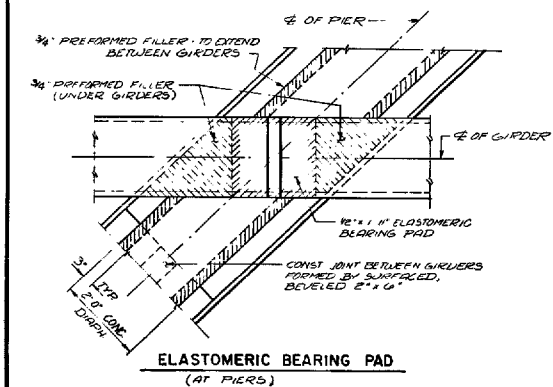
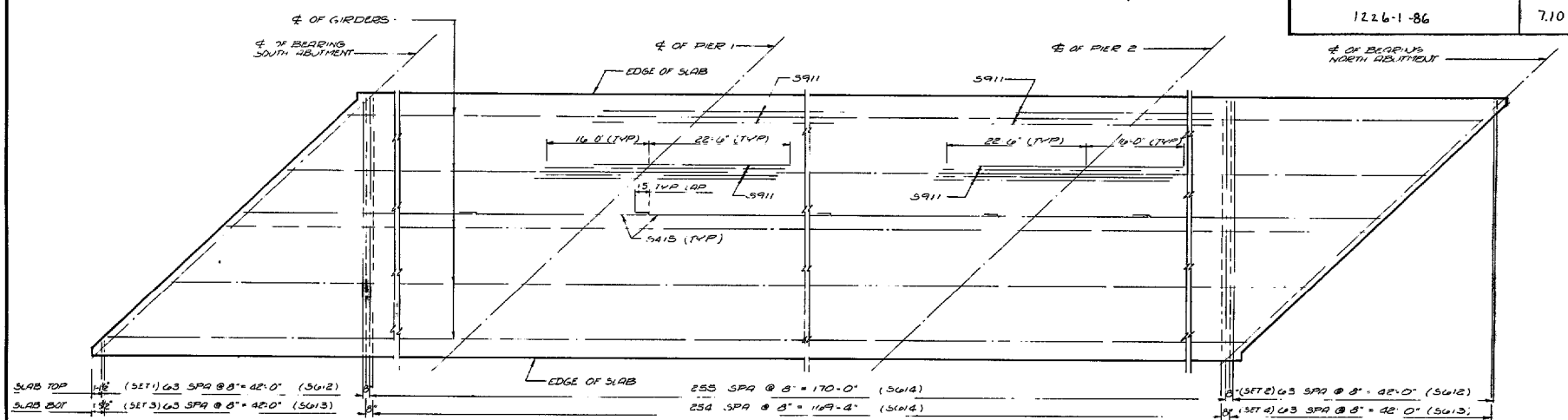
ADDITIONAL REINF. AT PIER
OVER GIRDERS TYP.

NOTE FOR PILASTER DETAIL SEE
SHEET 12

No	Date	Revised		By
STATE OF MISSISSIPPI DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS				
STRUCTURE B-36-91				
Initial Date	1975	Drawn By	A G	Per Checked DJS
SUPERSTRUCTURE			SHEET 10 OF 11	
			X 57614	

Form E-B 12-6

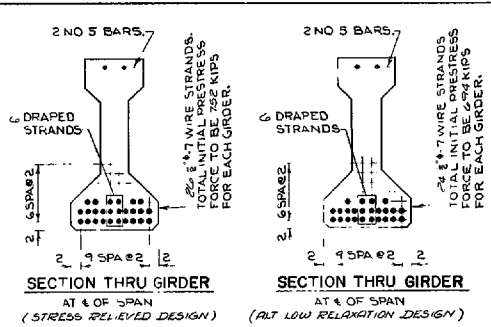
B-36-9
1975



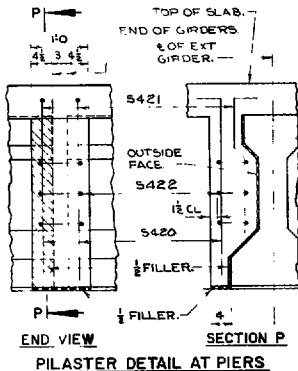
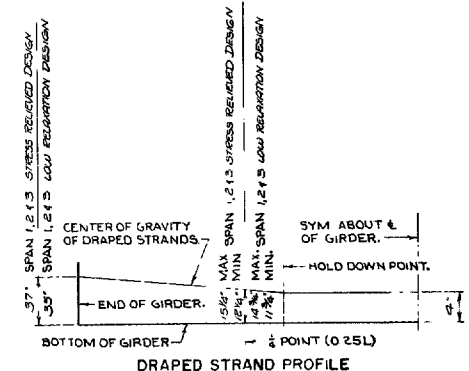
MARK	NO	LENGTH	BENT	CUT	LOCATION
5601	24	10'-11"			DIAPHRAGM AT ABUTTS
5602	16	10'-11"			"
5603	64	8'-10"	X		"
5604	48	8'-0"			DIAPHRAGM & MID SPAN PLAIN BAR
5605	24	8'-0"			THRUOUT ONE END OF DIAPHRAGM & MID SPAN
5606	48	7'-6"			"
5607	48	6'-8"	X		"
5608	80	10'-11"			PIERS
5609	64	9'-5"			"
5610	64	9'-5"	X		"
5611	48	39'-0"			SLAB OVER GIRDERS & BEAMS
5612	64	43'-7"	X		TOP OF SLAB TRANS SET 1 & 2
5613	64	43'-11"	X		BOT " " SET 3 & 4
5614	511	41'-10"			" " TOP OF SLAB TRANS
5615	576	37'-9"			ROW & BOT " " 48" LONGIT
5616	576	4'-3"	X		SLAB & PARAPET JERT
5617	576	5'-0"	X		"
5618	48	23'-10"			PARAPET LONGIT
5619	24	23'-5"			"
5620	8	4'-5"	X		PIER PLASTER JERT
5621	8	3'-5"	X		"
5622	12	3'-2"	X		"

No.	Date	Revised	By
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
Year 1975	Drawn A G	Checked DYS	
SUPERSTRUCTURE		SHEET 11 OF 14	
		X 57615	

B-36
197



ALL GIROERS SHALL BE CAST FULL LENGTH SHOWN.
PRESTRESSING STRANDS SHALL HAVE AN ULTIMATE STRENGTH OF
270,000 PS AND SHALL BE FUSH WITH THE ENDS OF THE GIRDER.
INSERTS SHALL BE PLACED ON 4" CENTERS SYMMETRICALLY ABOUT
THE E OF DIAPHRAGMS IN SPANS
ALL STRANDS SHALL BE IN PAIRS AND THE SPACING SHOWN IN "SIDE
VIEW" IS MAXIMUM. THE LOCATION SHALL BE SHOWN IN THE SHOD DRAWINGS.
BEND EACH END OF NO 4 AND NO 5 STIRRUPS 6" AND NO 6 STIRRUPS 6 1/2".
ENDS OF STRANDS SHALL BE PAINTED WITH NON-STAINING GRAY
NON BITUMINOUS JOINT SEALER. (THIS APPLIES
ONLY TO THOSE ENDS OF GIRDERS THAT ARE FUSED TO THE
TOP LONGITUDINAL BARS IN GIRDER MAY BE SPLICED BY USING 48
BAR DIAMETER LAPS
PLACE LAPS AT THE 1/3 RD POINTS OF GIRDER.

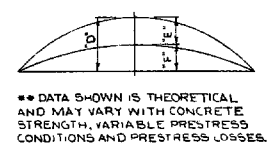


30

NO 4 BAR AT
TOP OF GIRDER

NO 4 BAR AT
BOTTOM OF GIRDER.

TOP VIEW OF
GIRDER ENDS



No.	Date	Revised on			By
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS					
STRUCTURE B- 36- 91					
Sheet Type	1976	Drawn By	A.G.	Checked By	JPS
PRESTRESSED GIRDER DETAILS				SHEET 12 OF 14 X 57616	

♦♦ DATA SHOWN IS THEORETICAL
AND MAY VARY WITH CONCRETE
STRENGTH, VARIABLE PRESTRESS
CONDITIONS AND PRESTRESS LOSSES.

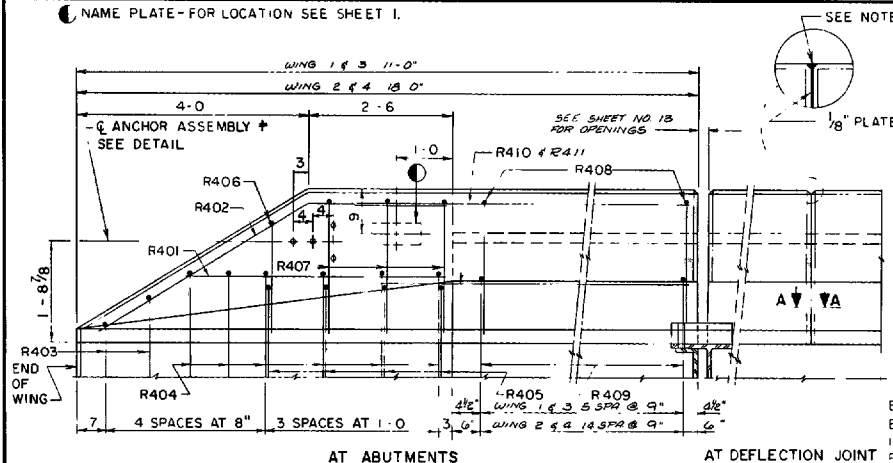
B-36-S
1975

B-36-91/
1975

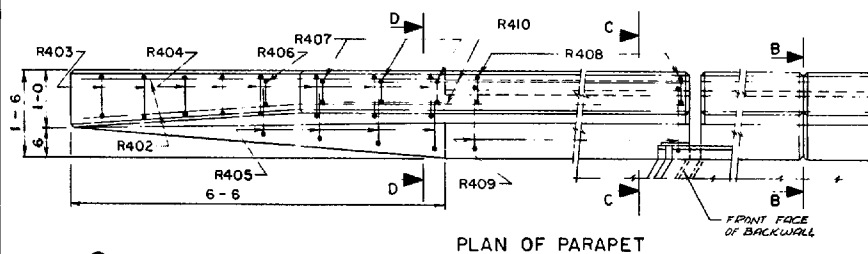
NAME PLATE - FOR LOCATION SEE SHEET I.

STATE PROJECT NUMBER
1224-1-86

SHEET NO.
7.13

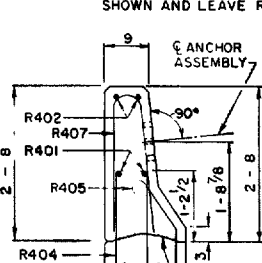


ELEVATION OF PARAPET

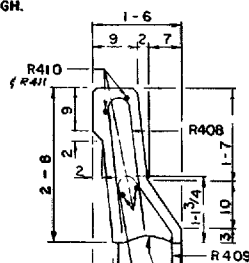


PLAN OF PARAPET

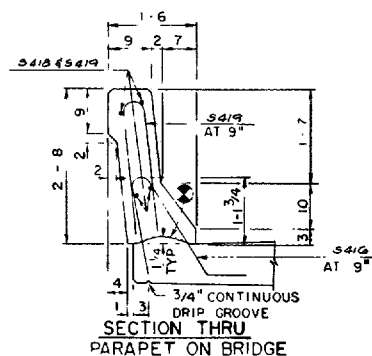
CONST JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.



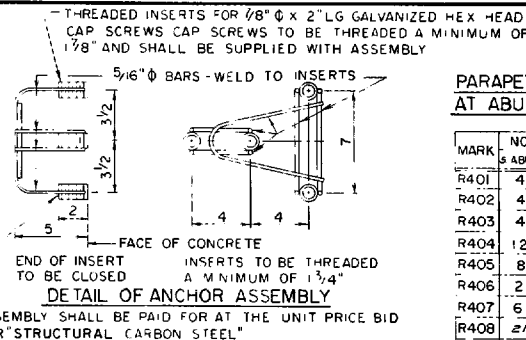
SECTION D



SECTION C



SECTION THRU PARAPET ON BRIDGE

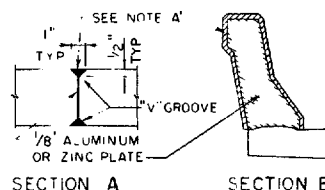


DETAIL OF ANCHOR ASSEMBLY
ASSEMBLY SHALL BE PAID FOR AT THE UNIT PRICE BID FOR STRUCTURAL CARBON STEEL

NOTES

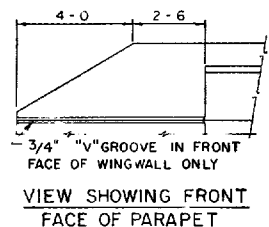
WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF 1/8" ALUMINUM OR ZINC PLATE CUT AS SHOWN IN SECTION 'B' BY SHADED AREA. IF CONSTRUCTION JOINTS IN PARAPETS ARE USED AT THE DEFLECTION JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH BITUMINOUS PAINT AND THE PLATE SEPARATORS MAY BE OMITTED.

NOTE A' - FILL WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER.
* PLACE ANCHOR ASSEMBLY AT ALL ABUTMENT WINGS WHERE ATTACHMENT FOR BEAM GUARD RAIL IS NEEDED SEE SHEET I.

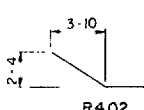


SECTION A

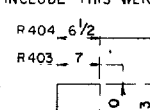
SECTION B



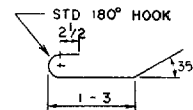
VIEW SHOWING FRONT FACE OF PARAPET



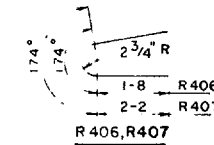
R402



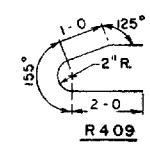
R403, R404



R405



R406, R407



R409

PARAPET BILL OF BARS AT ABUTMENTS

MARK	NO. REQ'D	LENGTH	BENT	LOCATION
R401	4	4'-6"		WINGS 1 THRU 4
R402	4	6'-8"	X	" " " "
R403	4	4'-1"	X	" " " "
R404	12	4'-11"	X	" " " "
R405	8	3'-1"	X	" " " "
R406	2	4'-0"	X	" " " "
R407	6	5'-0"	X	" " " "
R408	21	5'-0"	X	" " " "
R409	21	4'-7"	X	" " " "
R410	4	6'-6"		" 1 & 3
R411	4	13'-0"		" 2 & 4

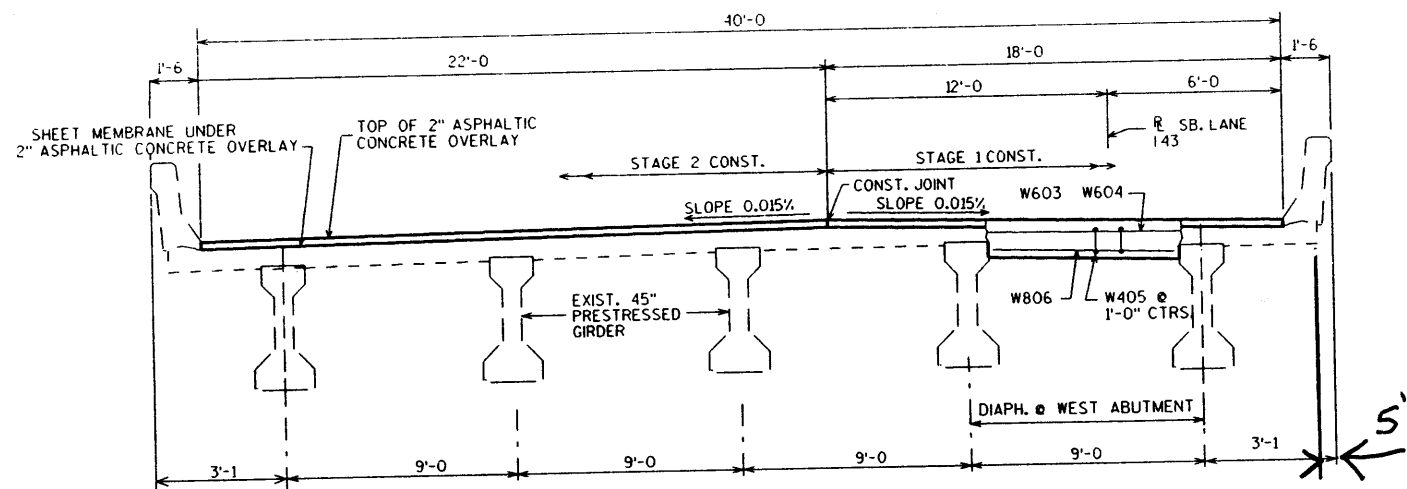
ABUTMENT TOTAL ESTIMATED QUANTITIES INCLUDE THIS WEIGHT

No.	Date	Revision	By
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
Case No.	1975	Drawn By	A.G.
Scale		Notes	DFS
SLOPED FACE PARAPET "B"			SHEET 14 OF 14
			X 57618

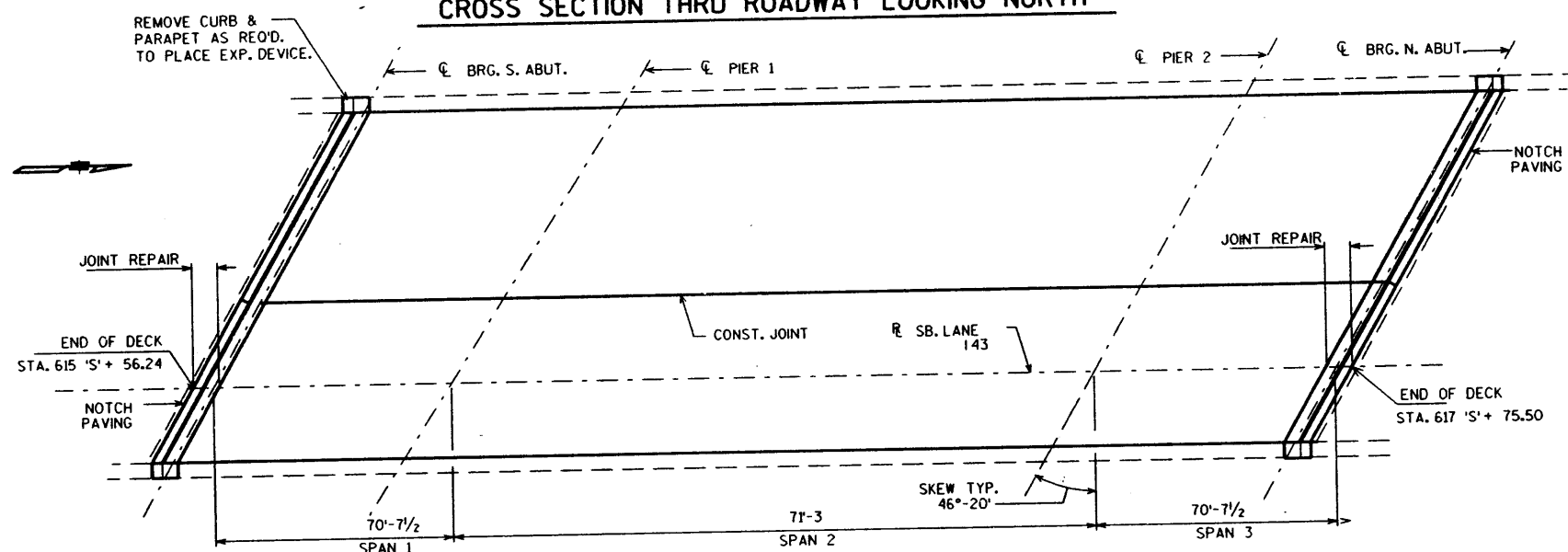
B-36-91
1975

1225-02-71

8.10



CROSS SECTION THRU ROADWAY LOOKING NORTH

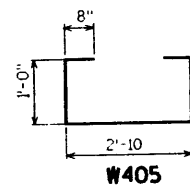
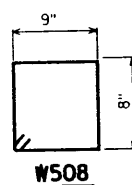


PLAN

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
W501		48	8-2		PAVING BLOCK HORIZ.
W402		16	10-2		SLAB @ JOINT HORIZ.
W603		18	27-6		SLAB STAGE 1 TRANS.
W604		18	31-10		SLAB STAGE 2 TRANS.
W405		80	5-10	X	DIAPH. ABUTS. VERT.
W806		48	10-2		DIAPH. ABUTS. HORIZ.
W507		20	1-6		PARAPET @ EXP. DEVICE
W508		112	3-4	X	PAVING BLOCK STIRRUP



DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-21
 OPERATIONAL RATING: HS-37
 MAXIMUM STANDARD PERMIT VEHICLE LOAD = 250 KIPS.
 ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SLAB $f'_c = 4,000$ P.S.I.
 BAR STEEL REINFORCEMENT, GRADE 60 $f_y = 60,000$ P.S.I.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

ALL DIMS. ARE PLUS (+) OR MINUS (-). THE CONTRACTOR SHALL VERIFY DIMENSIONS IN THE FIELD.

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR PAVING BLOCK AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "ASPHALTIC CONCRETE PAVEMENT".

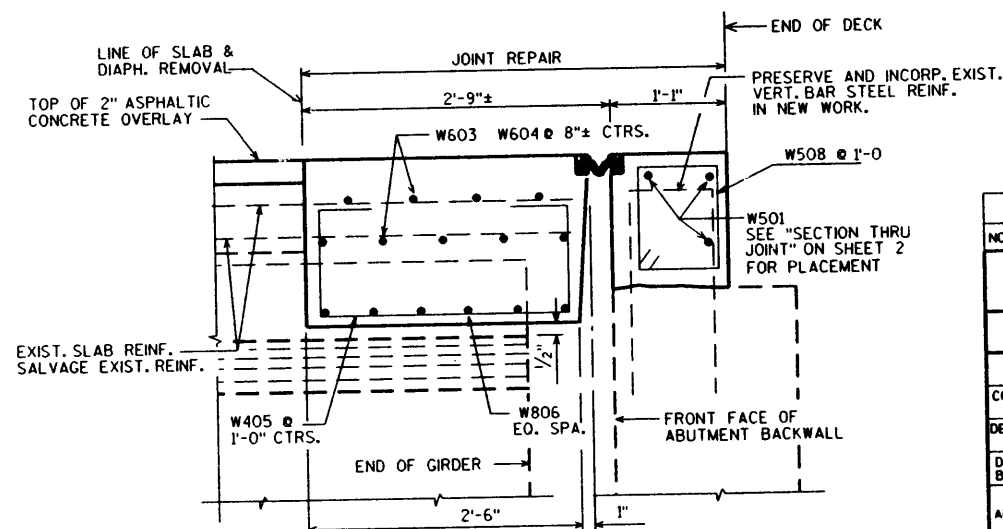
TOTAL ESTIMATED QUANTITIES

SURFACE PREPARATION FOR SHEET MEMBRANE WATERPROOFING	925	S.Y.
SHEET MEMBRANE WATERPROOFING	925	S.Y.
ASPHALTIC CONCRETE PAVEMENT, TYPE 'HV'	100	TON
ASPHALTIC MATERIAL FOR PLANT MIXES	6	TON
PREPARATION, DECKS	25	S.Y.
CONCRETE MASONRY, DECK PATCHING	3	C.Y.
SAWING PAVEMENT, DECK PREPARATION AREAS	225	L.F.
PARAPET RESURFACING	438	L.F.
PROTECTIVE SURFACE TREATMENT	4	GAL.
HIGH-STRENGTH BAR STEEL REINFORCEMENT, BRIDGES	4160	LB.
CONCRETE MASONRY, BRIDGES	20	C.Y.
EXPANSION DEVICE	1	L.S.
JOINT REPAIR	25	S.Y.
GROUTING BRIDGE DECK, B-36-91	1	EACH
LAMINATED ELASTOMERIC BEARING PADS	5	EACH
REMOVING BEARINGS	5	EACH

LIST OF DRAWINGS

- 1 ASPHALT OVERLAY
- 2 EXPANSION DEVICE
- 3 BEARING REPLACEMENT

BRIDGE OFFICE CONTACTS :
 FINN HUBBARD (608) 266-8489



TYPICAL SECTION THRU JOINT ABUTMENTS

NORMAL TO ϕ SUBSTRUCTURE.
 CONC. DIAPH. TO EXTEND BETWEEN INSIDE FACES OF EXTERIOR GIRDERS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
IH 43 SOUTHBOUND OVER C & NW RAILROAD			
COUNTY	MANITOWOC	TOWN/VILLAGE	COOPERSTOWN
DESIGN SPEC.	AASHTO 1995	LOAD	CONST. SPEC. 1989
DESIGNED BY	T.M.B. CK'D.	DRAWN BY	ZIRK
APPROVED	[Signature]		DATE 01-17-96
CHIEF BRIDGE DESIGN ENGINEER			
ASPHALT OVERLAY		SHEET 1 OF	
		DATE:	5-95

LEGEND

1. NEOPRENE STRIP SEAL & STEEL EXTRUSIONS D.S. BROWN
SSA-400A2, LEWIS ENGINEERING W-400L, STRUCTURAL
ACCESSORIES SA2-40SS, WATSON-BOWMAN-ACME COMPANIES A3-400SE.
EXTRUSIONS TO BE A.S.T.M. A36.
2. STUDS $\frac{3}{8}" \phi \times 6\frac{3}{8}"$ LONG AT 6" ALTERNATE CENTERS
WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
3. $\frac{3}{4}"$ DIA. THREADED ROD WITH 2 NUTS AND WASHERS. FIELD SET ON $\frac{1}{2}$
OF GIRDER A MINIMUM OF 4" FROM END OF GIRDER, ON ABUTMENT
SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN
ABUTMENT BACKWALL AS SHOWN.
4. $\frac{3}{4}"$ DIA. THREADED ROD WITH NUT, TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" $\times$ $\frac{1}{2}"$ BAR AS SHOWN OR EQUIVALENT.
ONE PER GIRDER PER SIDE. FIELD OR SHOE WELD TO NO. 1
PROVIDE $\frac{1}{2}" \phi$ HOLE FOR NO. 3 & 1" HOLE FOR NO. 4.
6. 3" $\times$ $\frac{1}{2}"$ ANCHOR PLATE WITH $\frac{3}{8}" \phi$ ROD. WELD ROD
TO ANCHOR PLATE. WELD ANCHOR PL. TO #1 AT 1'-6" CTRS.
BETWEEN GIRDERS.

NOTES

ONE FIELD SPLICE REQUIRED IN STEEL EXTRUSIONS. DETAILS SHALL BE SUBMITTED. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

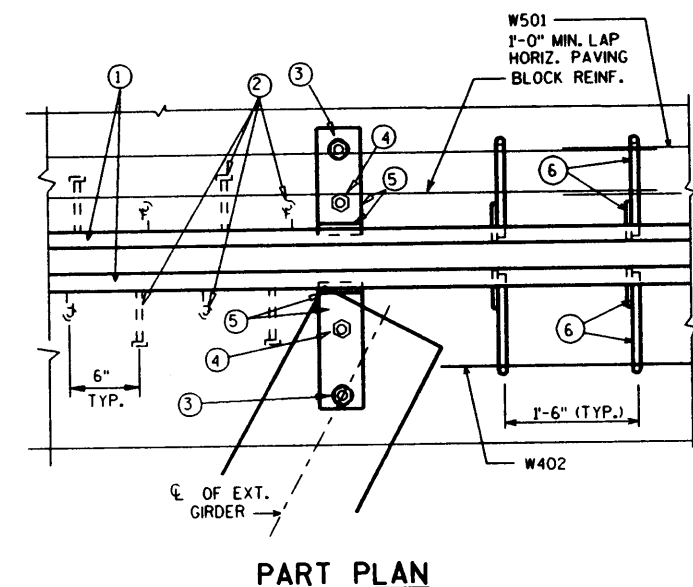
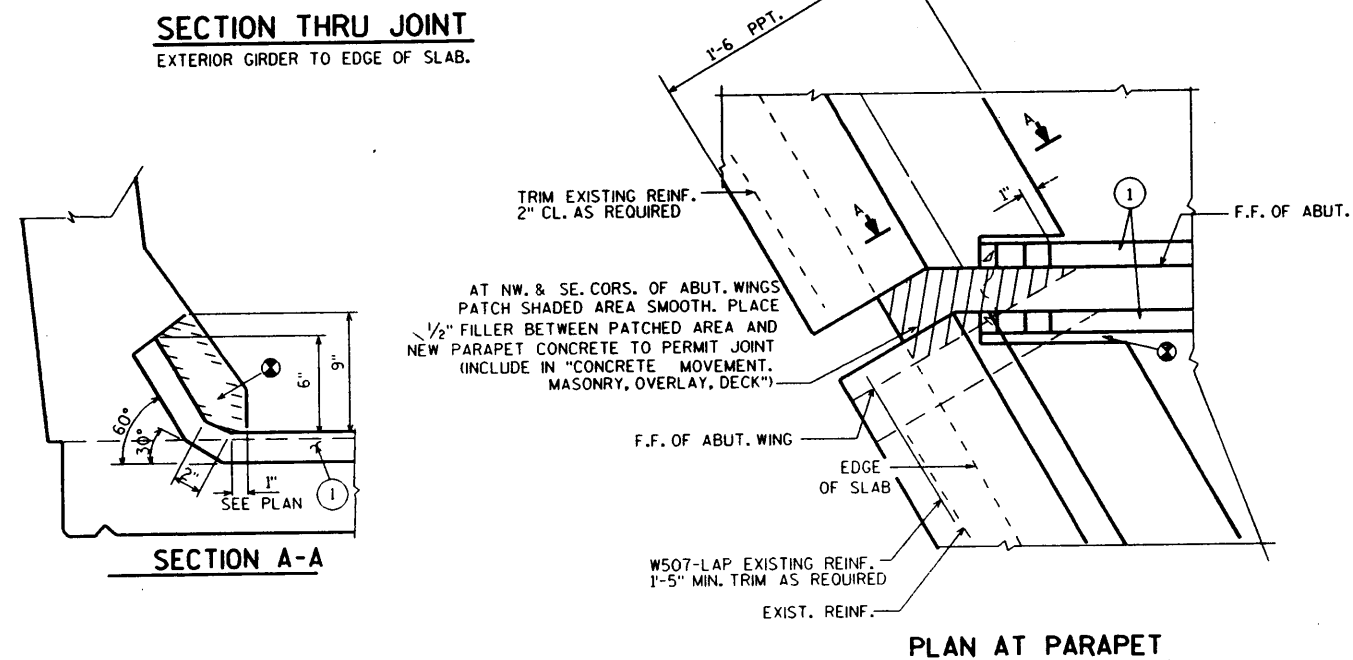
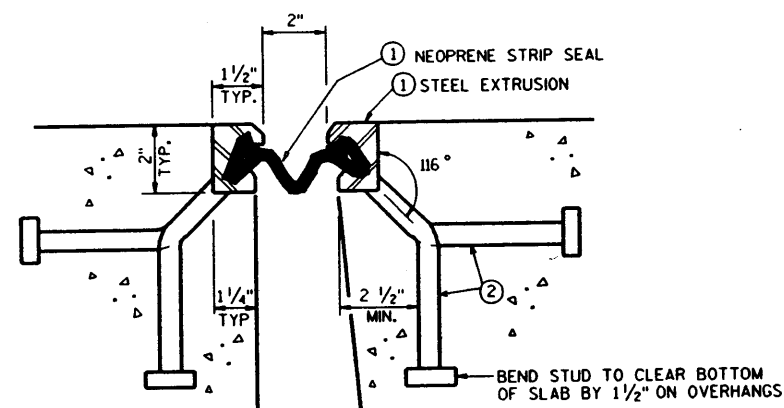
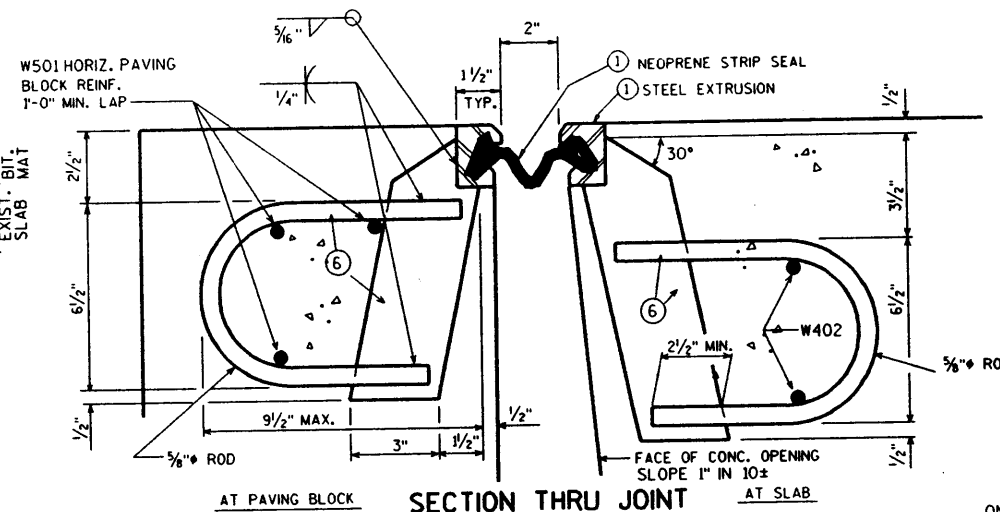
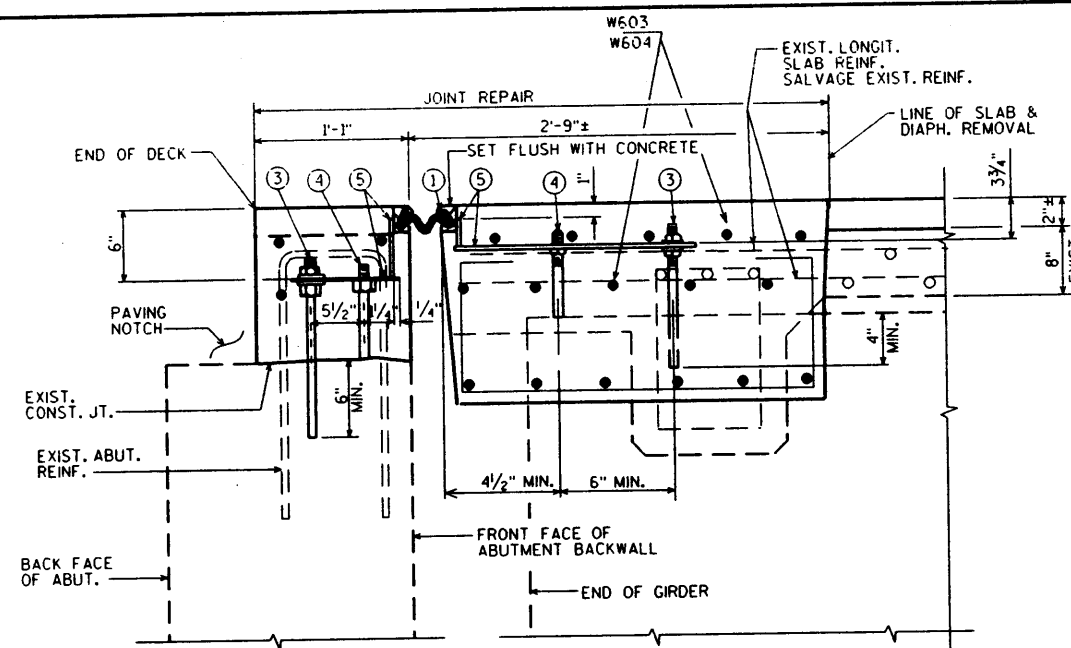
AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST & SWEEP.

AFTER FABRICATION, SAND BLAST CLEAN STEEL EXTRUSION
PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE
GLAND INSTALLATION.

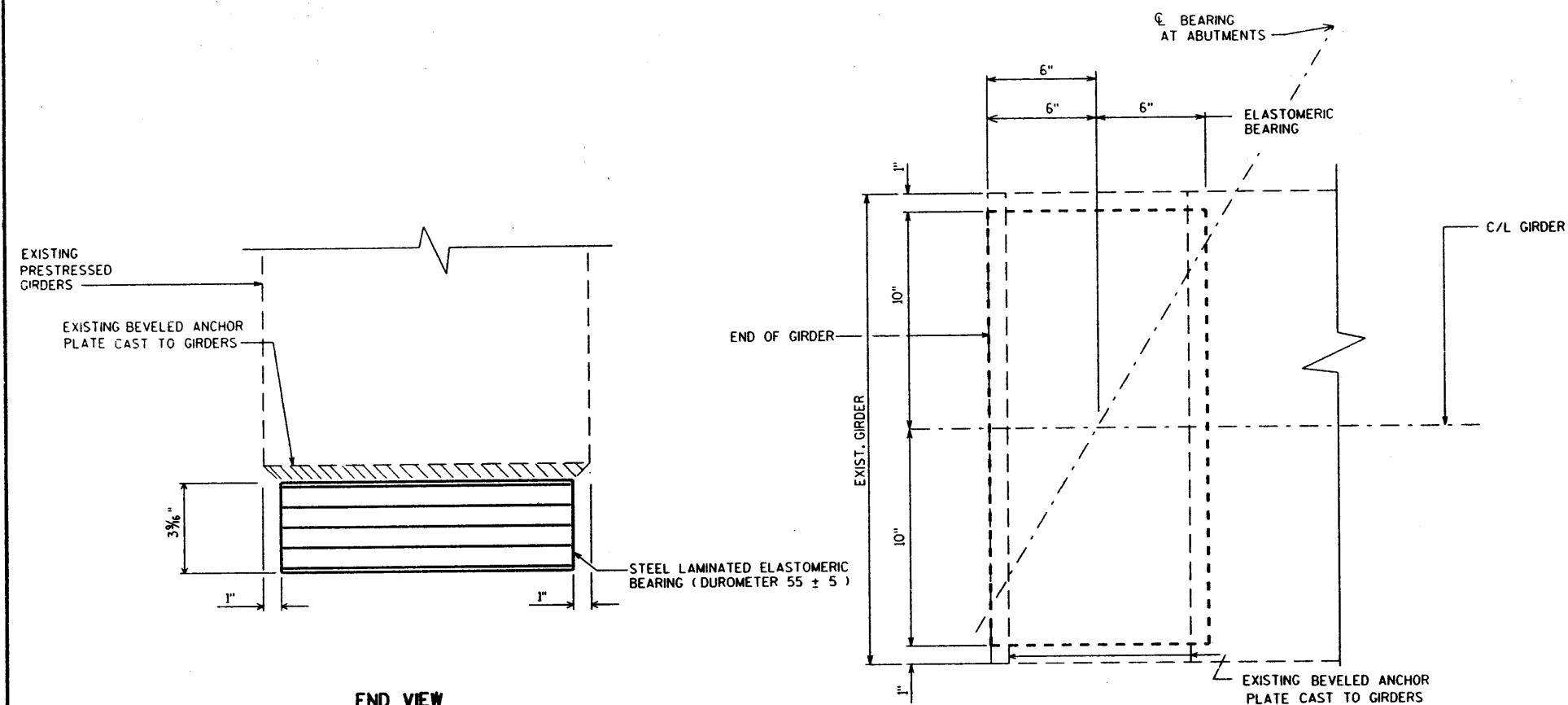
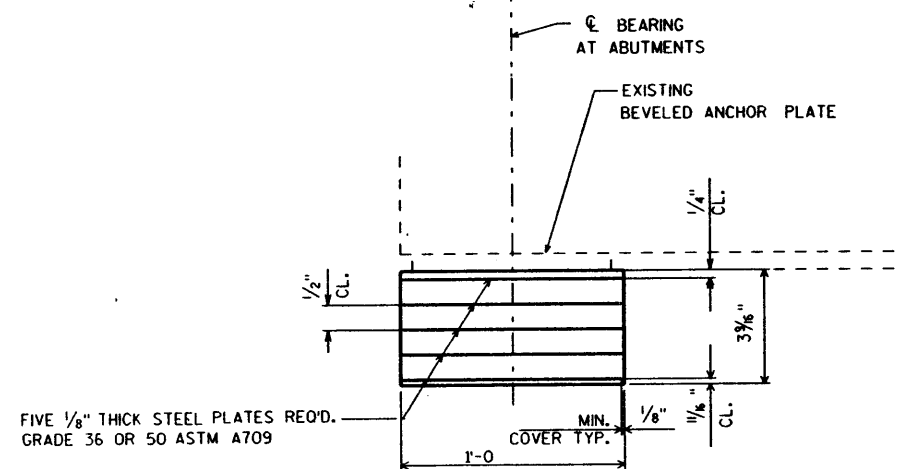
MATERIAL FOR *2A SHALL CONFORM TO A709 GRADE 36 STEEL.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS & HARDWARE
WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE"

⊗ BLOCK OUT CONCRETE 2" EACH SIDE
FOR JOINT OPENING



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
CONST. SPEC.	1989	DRAWN BY	ZIRK PLANS C'D.
EXPANSION DEVICE			SHEET 2

END VIEWPLAN VIEWSECTION THRU ELASTOMERIC BEARINGGENERAL NOTESBEARING NOTES

BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 70° F.

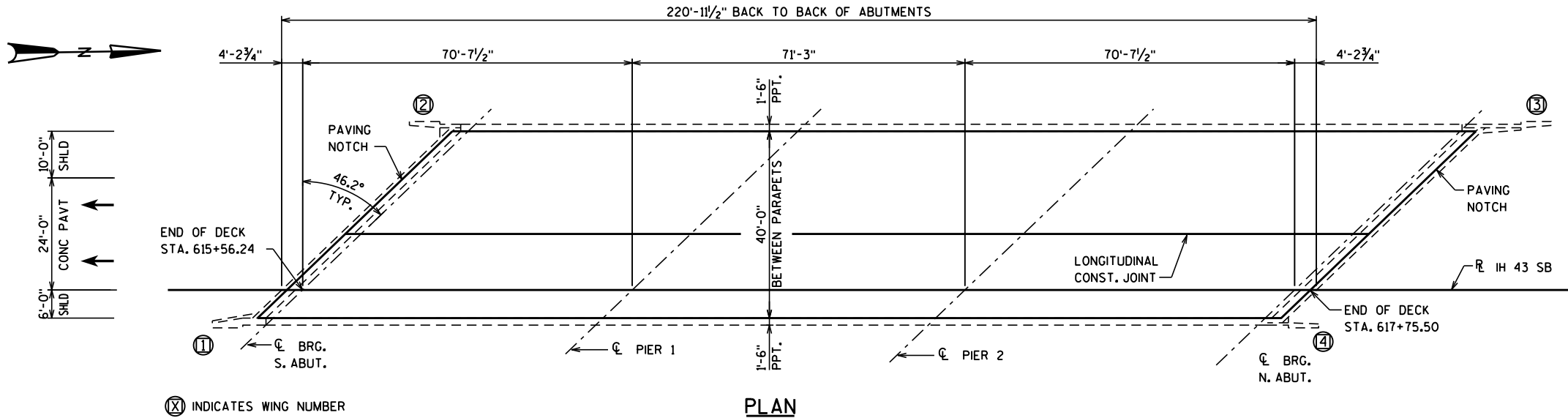
ALL MATERIAL USED FOR BEARINGS SHALL BE PAID AT THE UNIT PRICE BID FOR "LAMINATED ELASTOMERIC BEARING PADS."

CLEAN EXISTING BEVELED ANCHOR PLATE.

ATTACH LAMINATED ELASTOMERIC BEARINGS TO EXISTING BEVELED ANCHOR PLATE WITH AN APPROVED EPOXY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
STRUCTURE B-36-91			
CONST. SPEC.	1989	DRAWN BY ZIRK	PLANS CRD.
BEARING REPLACEMENT			SHEET 3

FILE SCALE =



DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HS-20
INVENTORY RATING: HS-xx
OPERATING RATING: HS-xx
WISCONSIN STANDARD PERMIT
VEHICLE (WIS-SPV): 250 KIPS

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
DIMENSIONS ARE BASED ON EXISTING STRUCTURE PLANS.
DECK SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

TOTAL ESTIMATED QUANTITIES

509.5100.S POLYMER OVERLAY — 974.5 SY

TRAFFIC DATA

ADT = 11,800 (2036)
RDS = 70 M.P.H.

LIST OF DRAWINGS

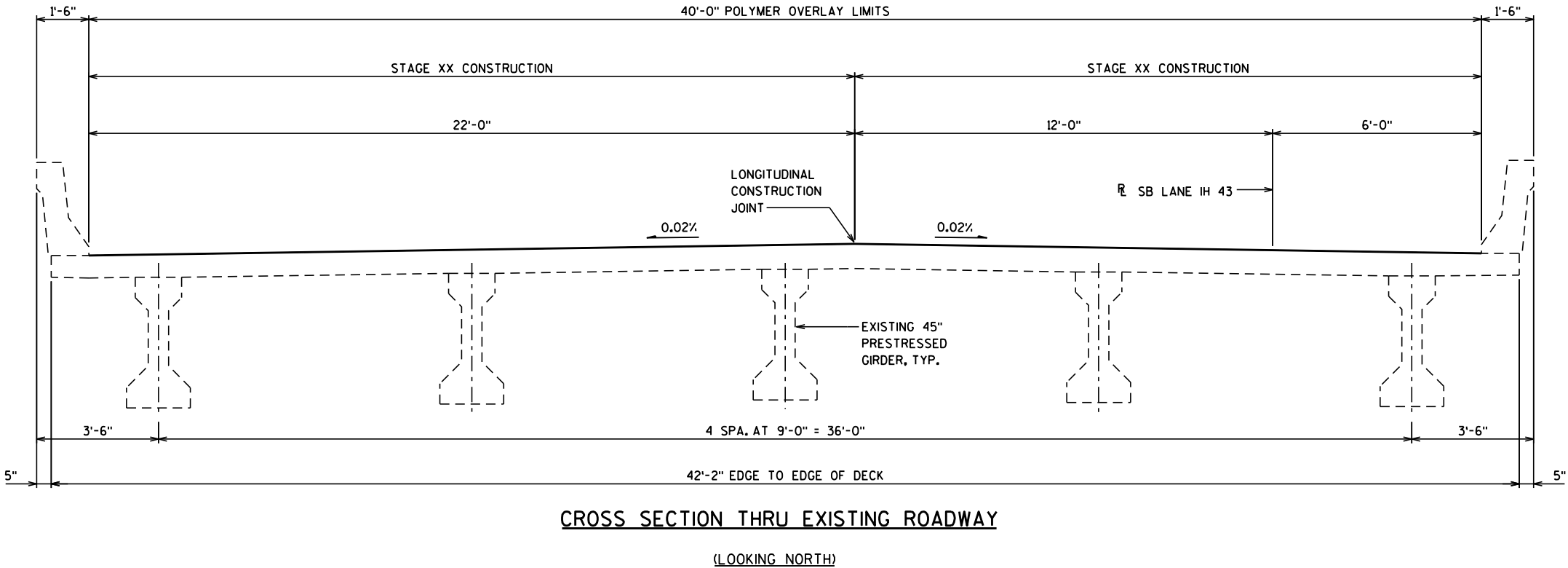
1. GENERAL PLAN

BRIDGE OFFICE CONTACT

WILLIAM DREHER
(608) 266-8489

CONSULTANT CONTACT

KRISTOFER OLSON
OMNI ASSOCIATES
(920) 735-6900



NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
Omni ASSOCIATES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED		CHIEF STRUCTURES DESIGN ENGINEER	DATE
STRUCTURE B-36-91			
IH 43 SB OVER CNW RAILROAD			
COUNTY	MANITOWOC	TOWN	COOPERSTOWN
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	BRE	DESIGN CK'D.	KRO
DRAWN BY	NRT	PLANS CK'D.	KRO
GENERAL PLAN			SHEET 1 OF 1

***** CONTINUOUS PRESTRESSED CONCRETE GIRDER DESIGN, ANALYSIS, AND RATING *****

WISCONSIN DEPT. OF TRANSPORTATION
BRIDGE RESEARCH AND DEVELOPMENT SECTION
DESIGN AUTOMATION UNIT
P.O. BOX 7916
MADISON, WI. 53707

PROGRAM KWIKSPAN VERSION 99-08 NT
18-Jun-01 10:04:28

FOR ASSISTANCE CONTACT: LEE SCHUCHARDT AT (608) 266-8494 OR DAVE NELSON AT (608) 264-9420

INPUT DATA

0301 B-36-91 Travis McDaniel
70.630 71.250 70.630 .000 .000 .000
.000 .000 .000 .000 45.000 4.000 4800.000 1.000
Interior Girder 1. 60000. 0. .5
9.000 1.636 1.889 933.400 363.000 .000 6000.000 .000
7.500 97.000 1.500 .000 1.000 2.000 1.286

INTERIOR GIRDER SPACING = 9.000 FT.

SLAB THICKNESS = 8.0 INCHES

SLAB WIDTH FOR COMPOSITE ACTION = 97.00 INCHES

HAUNCH HEIGHT USED TO COMPUTE COMPOSITE SECTION PROPERTIES = -1.50 INCHES

DISTRIBUTION FACTOR = 1.636

DISTRIBUTION FACTOR FOR END REACTIONS = 1.889

NON-COMPOSITE DEAD LOAD = 933. LBS./FT.

COMPOSITE DEAD LOAD = 363. LBS./FT.

CONCRETE DIAPHRAGMS

LIVE LOAD = HS20

MAXIMUM MOMENTS AT X/10 PTS.-IN FT. KIPS

	X	COMPOSITE DL MOMENTS	+SDK.LL	-SDK.LL	+TRUCK	-TRUCK	+LANE GIRDER	-LANE SLAB+DIA	NON-COMPOSITE DL
SPAN 1									
1.0	63.3	.0	.0	372.5	-38.7	245.4	-27.3	131.0	220.3
2.0	108.5	.0	.0	620.9	-77.3	425.5	-54.5	232.8	394.0
3.0	135.5	.0	.0	754.0	-116.0	541.4	-81.8	305.6	521.1
4.0	144.5	.0	.0	811.1	-154.6	595.3	-109.1	349.2	601.7
5.0	135.3	.0	.0	790.6	-193.3	590.1	-136.3	363.8	635.7
6.0	108.1	.0	.0	707.1	-232.0	529.5	-163.6	349.2	601.7
7.0	62.7	.0	.0	544.1	-270.6	418.0	-190.9	305.6	521.1
8.0	-8	.0	.0	324.7	-309.3	261.8	-220.2	232.8	394.0
9.0	-82.4	.0	.0	59.2	-348.0	131.6	-365.0	131.0	220.3
10.0	-182.1	.0	.0	122.8	-494.2	88.0	-623.2	.0	.0
SPAN 2									
1.0	-99.1	.0	.0	101.3	-432.4	120.5	-381.0	133.3	224.1
2.0	-34.7	.0	.0	349.4	-370.5	234.6	-262.8	236.9	400.7
3.0	11.4	.0	.0	530.9	-308.7	369.1	-262.5	310.9	530.0
4.0	39.1	.0	.0	641.9	-246.9	452.1	-262.5	355.4	611.9
5.0	48.3	.0	.0	667.0	-185.1	480.1	-262.5	370.2	646.4
6.0	39.1	.0	.0	641.9	-246.9	452.1	-262.5	355.4	611.9
7.0	11.4	.0	.0	530.9	-308.7	369.1	-262.5	310.9	530.0
8.0	-34.7	.0	.0	349.4	-370.5	234.6	-262.8	236.9	400.7
9.0	-99.1	.0	.0	101.3	-432.4	120.5	-381.0	133.3	224.1
10.0	-182.1	.0	.0	122.8	-494.2	88.0	-623.2	.0	.0
SPAN 3									
1.0	-82.4	.0	.0	59.2	-348.0	131.6	-365.0	131.0	220.3
2.0	-8	.0	.0	324.7	-309.3	261.8	-220.2	232.8	394.0
3.0	62.7	.0	.0	544.1	-270.6	418.0	-190.9	305.6	521.1
4.0	108.1	.0	.0	707.1	-232.0	529.5	-163.6	349.2	601.7
5.0	135.3	.0	.0	790.6	-193.3	590.1	-136.3	363.8	635.7
6.0	144.5	.0	.0	811.1	-154.6	595.3	-109.1	349.2	601.7
7.0	135.5	.0	.0	754.0	-116.0	541.4	-81.8	305.6	521.1

8.0	108.5	.0	.0	620.9	-77.3	425.5	-54.5	232.8	394.0
9.0	63.3	.0	.0	372.5	-38.7	245.4	-27.3	131.0	220.3
10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

LIVE LOAD SHEARS AND REACTIONS(KIPS)

LEFT SUPPORT REACTIONS

PIER-LANE BRG-LANE PIER-TRUCK BRG-TRUCK

SPAN 1

46.4	51.7	60.2	66.9
------	------	------	------

SHEARS AT X/10TH POINTS

X	COMPOSITE DEAD LOAD	+SDK.LL	-SDK.LL	+TRUCK	-TRUCK	+LANE DEAD LOAD	-LANE	NON-COMPOSITE
---	------------------------	---------	---------	--------	--------	--------------------	-------	---------------

.0	10.2	.0	.0	61.8	.0	47.6	-2.4	55.1
1.0	7.7	.0	.0	52.7	-4.2	39.9	-6.0	44.4
2.0	5.1	.0	.0	44.0	-8.3	32.8	-10.2	33.7
3.0	2.5	.0	.0	35.6	-16.5	26.4	-14.9	22.9
4.0	.0	.0	.0	27.7	-24.4	20.6	-20.1	12.2
5.0	-2.6	.0	.0	20.4	-33.1	15.5	-25.5	1.5
6.0	-5.1	.0	.0	13.9	-41.3	11.2	-31.3	12.2
7.0	-7.7	.0	.0	8.3	-49.0	7.5	-37.3	22.9
8.0	-10.3	.0	.0	3.6	-56.0	4.6	-43.3	33.7
9.0	-12.8	.0	.0	-.1	-62.2	2.4	-49.4	44.4
10.0	-15.4	.0	.0	-2.8	-67.5	.8	-55.4	55.1

SPAN 2

80.4	86.7	70.3	77.3
------	------	------	------

.0	12.9	.0	.0	65.4	4.1	53.9	-3.8	55.6
1.0	10.3	.0	.0	58.6	.3	47.4	-6.0	44.7
2.0	7.8	.0	.0	50.9	-4.8	40.8	-9.0	33.9
3.0	5.2	.0	.0	42.8	-11.1	34.4	-12.8	23.1
4.0	2.6	.0	.0	34.4	-18.3	28.2	-17.4	12.3
5.0	.0	.0	.0	26.2	-26.2	22.5	-22.5	1.5
6.0	-2.6	.0	.0	18.3	-34.4	17.4	-28.2	12.3
7.0	-5.2	.0	.0	11.1	-42.8	12.8	-34.4	23.1
8.0	-7.8	.0	.0	4.8	-50.9	9.0	-40.8	33.9
9.0	-10.3	.0	.0	-.3	-58.6	6.0	-47.4	44.7
10.0	-12.9	.0	.0	-4.1	-65.4	3.8	-53.9	55.6

SPAN 3

80.4	86.7	70.3	77.3
------	------	------	------

.0	15.4	.0	.0	67.5	2.8	55.4	-.8	55.1
1.0	12.8	.0	.0	62.2	.1	49.4	-2.4	44.4
2.0	10.3	.0	.0	56.0	-3.6	43.3	-4.6	33.7
3.0	7.7	.0	.0	49.0	-8.3	37.3	-7.5	22.9
4.0	5.1	.0	.0	41.3	-13.9	31.3	-11.2	12.2
5.0	2.6	.0	.0	33.1	-20.4	25.5	-15.5	1.5
6.0	.0	.0	.0	24.4	-27.7	20.1	-20.6	12.2
7.0	-2.5	.0	.0	16.5	-35.6	14.9	-26.4	22.9
8.0	-5.1	.0	.0	8.3	-44.0	10.2	-32.8	33.7
9.0	-7.7	.0	.0	4.2	-52.7	6.0	-39.9	44.4
46.4	51.7	60.2	66.9					

10.0	-10.2	.0	.0	28.9	-61.8	2.4	-47.6	55.1
------	-------	----	----	------	-------	-----	-------	------

***** 45 INCH PRESTRESSED GIRDER *****

COMPOSITE SECTION MODULI - INCHES CUBED

FACTOR USED TO DETERMINE EQUIVALENT AREA OF SLAB = .7500

BOTTOM OF GIRDER= 9785.

TOP OF GIRDER= 28006.

COMPOSITE MOMENT OF INERTIA

I= 326323.

MOMENT OF AREA OF SLAB ABOUT COMPOSITE CENTROID

Q= 7324.

NON COMPOSITE SECTION PROPERTIES

A=560.
I= 125390.
YB=20.27
YT=24.73
SB= 6186.
ST= 5070.

TOP FLANGE WIDTH= 16.

WEB THICKNESS= 7.00

INPUT DATA

1.000 26.000 752.000 37.000 13.750
4.130 4.130 4.130 4.130 4.130 4.130
4.130 4.130 9.130 9.130 9.130

***** SPAN 1 ANALYSIS *****

DRAPED STRAND DESIGN

NUMBER OF STRANDS = 26. STRESS-RELIEVED STRAND
NUMBER OF DRAPED STRANDS = 6.
ECCENTRICITY OF STRANDS = 16.58
DIAMETER OF STRANDS = .5 INCHES
AREA OF STRAND = .1531 SQ. INCHES
GIRDER CONCRETE STRENGTH = 6000. PSI.
SLAB CONCRETE STRENGTH = 4000. PSI.

PRESTRESS LOSSES IN PSI BASED ON AASHTO 1989 AASHTO SPECIFICATIONS

SH = 6000.
ES = 14806.
CRC=17288.
CRS= 9420.

FORCE IN STRANDS WHEN CONCRETE TAKES ITS INITIAL SET SHALL BE 752. KIPS

MAXIMUM ALLOWABLE TEMPORARY FORCE = 820. KIPS

LOCATION OF DRAPED STRANDS

DIMENSION A = 37.
DIMENSION B = 13.75
DIMENSION C = 4.00

MAX. SLOPE OF STRANDS = 10.97 %

GIRDER CAMBER = 1.43 INCHES

SLAB+DIAPHRAGM DEFLECTION = -.81 INCHES

INITIAL GIRD. STRESSES IN FOLLOWING TABLE ARE BASED ON A PRESTRESS FORCE OF 693. KIPS.

FINAL GIRD. STRESSES ARE BASED ON FORCE OF 563. KIPS AND POSITIVE MOMENTS ONLY.

MIN. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF INITIAL PRESTRESS = 4800. PSI

COMPRESSION STRESSES HAVE NEGATIVE SIGNS, TENSION STRESSES ARE POSITIVE. INITIAL GIRDER STRESSES AT

POINT 0 ARE COMPUTED THREE FEET FROM END FOR DESIGN RUNS.

NOTE: NON-PRESTRESSED GIRDER STEEL IS GRADE 60

TENTH INITIAL GIRD.STRESSES NON-PRE FINAL GIRD.STRESSES STRENGTH FACTORED FACTORED MOM. FATIGUE

POINT TOP BOTTOM GIRD.STEEL TOP BOTTOM SLAB.STEEL NEG.MOM. TOP GIRD.STRESS SLAB STEEL

0	-.007	-2.243	.000	-.006	-1.822	.000	.0	-.006	.000
1	-.026	-2.228	.000	-.787	-.800	.091	22.1	-.548	.458
2	.025	-2.269	.000	-1.328	-.099	.254	61.8	-.869	.924
3	.144	-2.367	.000	-1.633	.291	.490	119.2	-.970	1.396
4	.202	-2.418	.000	-1.824	.503	.800	194.2	-.955	1.873

5	.168	-2.390	.000	-1.927	.561	1.185	286.9	-.851	2.353
6	.202	-2.418	.000	-1.764	.331	1.645	397.3	-.475	2.837
7	.144	-2.367	.000	-1.512	-.056	2.181	525.3	-.009	3.324
8	.025	-2.269	.000	-1.155	-.597	2.796	671.2	.573	3.814
9	-.026	-2.228	.000	-.621	-1.274	3.761	897.9	1.525	4.524
10	-.007	-2.243	.000	-.006	-1.822	6.761	1586.9	3.750	7.879

MAXIMUM FINAL GIRDER STRESS AT TOP WITH NO LIVE LOAD = -1.588 KSI
 MAXIMUM ALLOWABLE PER AASHTO = $0.40f_c$ = -2.400 KSI

CHECK FINAL BOTTOM OF GIRDER STRESSES!!!!

SHEAR DESIGN (AASHTO 9.20)

POINT	D	VU	MCR	MMAX	VI	VCI	NO.4 STIR.SPAC.(IN)				VS	GR 60	GR 40
							FPC	VP	VCW	VS			
0	37.80	209.0	1864.3	1.0	107.7	****	.476	14.2	123.7	122.2	7.42	4.95	
1	38.12	181.9	1467.1	889.4	105.2	230.3	.790	14.2	149.8	64.3	14.23	9.49	
2	40.25	145.6	1189.5	1486.4	101.9	128.3	1.010	14.2	175.9	43.1	21.00	14.96	
3	42.39	110.2	1031.6	1809.9	80.4	82.5	1.135	14.2	195.6	47.1	21.00	14.40	
4	43.56	75.9	924.7	1945.2	60.0	54.9	1.222	.0	194.4	34.3	21.00	20.00	
5	43.56	77.0	847.8	1888.9	75.1	49.4	1.283	.0	200.0	41.3	21.00	16.89	
6	43.56	112.1	924.7	1672.6	96.2	79.6	1.222	.0	194.4	52.3	19.98	13.32	
7	42.39	146.0	1031.6	1260.3	116.2	131.8	1.135	14.2	195.6	39.9	21.00	16.98	
8	40.25	178.4	1189.5	703.8	134.7	274.4	1.010	14.2	175.9	34.0	21.00	18.95	
9	48.75	209.2	515.9	897.9	123.7	131.3	.989	14.2	208.0	114.8	10.19	6.80	
10	48.75	230.3	251.3	1586.9	135.7	89.6	.942	14.2	203.1	181.4	6.45	4.30	

POSITIVE MOMENT DESIGN FLEXURAL STRENGTH = 3781. FT-KIPS

RATIO OF PRESTRESSING STEEL (A_s/bd) (96 AASHTO 9.17.2) = .00086741
 MAXIMUM ALLOWABLE A_s/bd (96 AASHTO 9.18.1) = .00466178

1.2*CRACKING MOMENT (89 AASHTO 9.18.2.1) = 2332. FT-KIPS

MAXIMUM POSITIVE DESIGN MOMENT (FACTORED) $1.3(D+5/3(L+I))$ = 3188. FT-KIPS

POSITIVE OPERATING MOMENT CAPACITY BASED ON 90 PERCENT OF YIELD STRESS = 2647. FT-KIPS

POSITIVE OPERATING MOMENT CAPACITY (BASED ON 75 OR 90 PERCENT CRITERIA) = 2647. FT-KIPS

POSITIVE LIVE LOAD OPERATING MOMENT CAPACITY = 1513. FT-KIPS

NOTE: ALL RATINGS ARE BASED ON THE INPUT WHEEL DISTRIBUTION FACTOR FOR MOMENT.

OPERATING RATING BASED ON POSITIVE MOMENT (LF OR WS)
 HS-RATING= 37.3

OPERATING RATING BASED ON NEGATIVE MOMENT - GRADE 60 STEEL (LF OR WS)
 HS-RATING= 43.8

INVENTORY RATING BASED ON POSITIVE MOMENT (WS)
 HS-RATING= 17.6

INVENTORY RATING BASED ON FATIGUE (WS)
 HS-RATING= 23.0

INVENTORY RATING BASED ON NEGATIVE MOMENT (LF)
 HS-RATING= 27.8

DATA FOR STANDARD WISCONSIN PERMIT VEHICLE WITH GVW OF 250,000 POUNDS

WHEEL LOADS AND SPACINGS

12.500	17.500	17.500	17.500	15.000	15.000	15.000	15.000	.000	.000
13.000	4.000	4.000	30.000	4.000	4.000	4.000	.000	.000	

MAX. LIVE LOAD MOMENTS AT X/10 PTS. IN FT. KIPS PER WHEEL LINE WITH IMPACT

SPAN 1

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	63.3	63.3	476.5	-51.2
2.0	108.5	108.5	791.0	-102.3
3.0	135.5	135.5	949.6	-153.5
4.0	144.5	144.5	991.4	-204.7
5.0	135.3	135.3	941.8	-255.8
6.0	108.1	108.1	865.4	-307.0
7.0	62.7	62.7	698.0	-358.2
8.0	-.8	-.8	396.1	-409.3
9.0	-82.4	-82.4	156.9	-476.1
10.0	-182.1	-182.1	173.5	-923.2

SPAN 2

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	-99.1	-99.1	90.9	-584.9
2.0	-34.7	-34.7	423.7	-501.2
3.0	11.4	11.4	664.9	-417.6
4.0	39.1	39.1	781.8	-334.0
5.0	48.3	48.3	761.2	-250.3
6.0	39.1	39.1	781.8	-334.0
7.0	11.4	11.4	664.9	-417.6
8.0	-34.7	-34.7	423.7	-501.2
9.0	-99.1	-99.1	84.2	-584.9
10.0	-182.1	-182.1	167.9	-923.2

SPAN 3

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	-82.4	-82.4	151.1	-476.1
2.0	-.8	-.8	396.1	-409.3
3.0	62.7	62.7	698.0	-358.2
4.0	108.1	108.1	874.9	-307.0
5.0	135.3	135.3	945.9	-255.8
6.0	144.5	144.5	991.4	-204.7
7.0	135.5	135.5	949.6	-153.5
8.0	108.5	108.5	791.0	-102.3
9.0	63.3	63.3	476.5	-51.2
10.0	.0	.0	.0	.0

THE FOLLOWING RATINGS ARE BASED ON A DISTRIBUTION FACTOR OF 1.286

***** RATINGS BASED ON NEGATIVE MOMENT *****

TENTH POINT	SLAB STEEL	LL CAPACITIES		RATINGS	
		WS	LF	WS	LF
0	.000	.0	.0	.0	.0
1	.000	.0	.0	.0	.0
2	.000	.0	.0	.0	.0
3	.000	.0	.0	.0	.0
4	.000	.0	.0	.0	.0
5	.000	.0	.0	.0	.0
6	.000	.0	.0	.0	.0
7	.000	.0	.0	.0	.0
8	.000	.0	.0	.0	.0
9	9.130	1757.3	2006.9	717.7	630.5
10	9.130	1657.6	1771.6	349.1	287.0

***** RATING BASED ON POSITIVE MOMENT *****

CAUTION: POSITIVE MOMENT RATING WAS CALCULATED AT MIDDLE OF SPAN ONLY. OTHER LOCATIONS MAY CONTROL

POS/NEG MAXIMUM TOTAL VEHICLE LOAD = 287.0 KIPS, POS MAX. TOTAL VEHICLE LOAD = 312.3 KIPS

INPUT DATA

2.000	26.000	752.000	37.000	13.750
9.130	9.130	9.130	4.130	4.130
4.130	4.130	9.130	9.130	9.130

***** SPAN 2 ANALYSIS *****

DRAPED STRAND DESIGN

NUMBER OF STRANDS = 26. STRESS-RELIEVED STRAND
 NUMBER OF DRAPED STRANDS = 6.
 ECCENTRICITY OF STRANDS = 16.58
 DIAMETER OF STRANDS = .5 INCHES
 AREA OF STRAND = .1531 SQ. INCHES
 GIRDER CONCRETE STRENGTH = 6000. PSI.
 SLAB CONCRETE STRENGTH = 4000. PSI.

PRESTRESS LOSSES IN PSI BASED ON AASHTO 1989 AASHTO SPECIFICATIONS

SH = 6000.
 ES = 14735.
 CRC = 17712.
 CRS = 9364.

FORCE IN STRANDS WHEN CONCRETE TAKES ITS INITIAL SET SHALL BE 752. KIPS

MAXIMUM ALLOWABLE TEMPORARY FORCE = 820. KIPS

LOCATION OF DRAPED STRANDS

DIMENSION A = 37.
 DIMENSION B = 13.75
 DIMENSION C = 4.00

MAX. SLOPE OF STRANDS = 10.88 %

GIRDER CAMBER = 1.44 INCHES
 SLAB+DIAPHRAGM DEFLECTION = -.84 INCHES

INITIAL GIRD. STRESSES IN FOLLOWING TABLE ARE BASED ON A PRESTRESS FORCE OF 693. KIPS.
 FINAL GIRD. STRESSES ARE BASED ON FORCE OF 562. KIPS AND POSITIVE MOMENTS ONLY.
 MIN. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF INITIAL PRESTRESS = 4800. PSI
 COMPRESSION STRESSES HAVE NEGATIVE SIGNS, TENSION STRESSES ARE POSITIVE. INITIAL GIRDER STRESSES
 AT
 POINT 0 ARE COMPUTED THREE FEET FROM END FOR DESIGN RUNS.

NOTE: NON-PRESTRESSED GIRDER STEEL IS GRADE 60

TENTH INITIAL GIRD.STRESSES NON-PRE FINAL GIRD.STRESSES STRENGTH FACTORED FACTORED MOM.
 FATIGUE
 POINT TOP BOTTOM GIRD.STEEL TOP BOTTOM SLAB.STEEL NEG.MOM. TOP GIRD.STRESS SLAB
 STEEL

0	-.007	-2.244	.000	-.006	-1.818	6.761	1586.9	3.750	7.879
1	-.031	-2.224	.000	-.624	-1.292	4.482	1065.7	1.907	5.391
2	.015	-2.262	.000	-1.177	-.582	3.548	847.9	.964	4.596
3	.132	-2.358	.000	-1.520	-.103	2.740	657.7	.270	3.807
4	.188	-2.407	.000	-1.747	.203	2.204	530.7	-.200	3.222
5	.153	-2.378	.000	-1.879	.341	2.166	521.7	-.338	3.222
6	.188	-2.407	.000	-1.747	.203	2.204	530.7	-.200	3.222
7	.132	-2.358	.000	-1.520	-.103	2.740	657.7	.270	3.807
8	.015	-2.262	.000	-1.177	-.582	3.548	847.9	.964	4.596
9	-.031	-2.224	.000	-.624	-1.292	4.482	1065.7	1.907	5.391
10	-.007	-2.244	.000	-.006	-1.818	6.761	1586.9	3.750	7.879

MAXIMUM FINAL GIRDER STRESS AT TOP WITH NO LIVE LOAD = -1.593 KSI

MAXIMUM ALLOWABLE PER AASHTO = $0.40f_c$ = -2.400 KSI

SHEAR DESIGN (AASHTO 9.20)

POINT	D	VU	MCR	MMAX	VI	VCI	NO.4 STIR.SPAC.(IN)				GR 60	GR 40
							FPC	VP	VCW	VS		
0	48.75	222.3	251.3	1586.9	129.0	89.0	.940	14.0	202.7	172.5	6.78	4.52
1	48.75	198.5	536.0	1065.7	123.8	122.9	.985	14.0	207.4	110.7	10.57	7.05
2	48.75	164.6	724.7	847.9	120.4	152.7	1.003	14.0	209.2	40.9	21.00	19.09
3	42.39	129.5	1004.9	1165.0	99.4	122.7	1.153	14.0	197.1	29.7	21.00	20.00
4	43.56	94.0	894.4	1441.5	77.9	74.9	1.242	.0	196.3	35.7	21.00	19.53
5	43.56	58.7	816.4	1507.9	56.7	46.4	1.304	.0	202.0	22.6	21.00	20.00
6	43.56	94.0	894.4	1441.5	77.9	74.9	1.242	.0	196.3	35.7	21.00	19.53
7	42.39	129.5	1004.9	1165.0	99.4	122.7	1.153	14.0	197.1	29.7	21.00	20.00

8	48.75	164.6	724.7	847.9	120.4	152.7	1.003	14.0	209.2	40.9	21.00	19.09
9	48.75	198.5	536.0	1065.7	123.8	122.9	.985	14.0	207.4	110.7	10.57	7.05
10	48.75	222.3	251.3	1586.9	129.0	89.0	.940	14.0	202.7	172.5	6.78	4.52

POSITIVE MOMENT DESIGN FLEXURAL STRENGTH = 3781. FT-KIPS

RATIO OF PRESTRESSING STEEL (As/bd) (96 AASHTO 9.17.2) = .00086741
 MAXIMUM ALLOWABLE As/bd (96 AASHTO 9.18.1) = .00466178

1.2*CRACKING MOMENT (89 AASHTO 9.18.2.1) = 2315. FT-KIPS

MAXIMUM POSITIVE DESIGN MOMENT (FACTORED) $1.3(D+5/3(L+I))$ = 2829. FT-KIPS

POSITIVE OPERATING MOMENT CAPACITY BASED ON 90 PERCENT OF YIELD STRESS = 2645. FT-KIPS

POSITIVE OPERATING MOMENT CAPACITY (BASED ON 75 OR 90 PERCENT CRITERIA) = 2645. FT-KIPS

POSITIVE LIVE LOAD OPERATING MOMENT CAPACITY = 1580. FT-KIPS

NOTE: ALL RATINGS ARE BASED ON THE INPUT WHEEL DISTRIBUTION FACTOR FOR MOMENT.

OPERATING RATING BASED ON POSITIVE MOMENT (LF OR WS)
 HS-RATING= 47.4

OPERATING RATING BASED ON NEGATIVE MOMENT - GRADE 60 STEEL (LF OR WS)
 HS-RATING= 43.8

INVENTORY RATING BASED ON POSITIVE MOMENT (WS)
 HS-RATING= 23.0

INVENTORY RATING BASED ON FATIGUE (WS)
 HS-RATING= 23.0

INVENTORY RATING BASED ON NEGATIVE MOMENT (LF)
 HS-RATING= 27.8

DATA FOR STANDARD WISCONSIN PERMIT VEHICLE WITH GVW OF 250,000 POUNDS

WHEEL LOADS AND SPACINGS

12.500	17.500	17.500	17.500	15.000	15.000	15.000	15.000	.000	.000
13.000	4.000	4.000	30.000	4.000	4.000	4.000	.000	.000	

MAX. LIVE LOAD MOMENTS AT X/10 PTS. IN FT. KIPS PER WHEEL LINE WITH IMPACT

SPAN 1

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	63.3	63.3	476.5	-51.2
2.0	108.5	108.5	791.0	-102.3
3.0	135.5	135.5	949.6	-153.5
4.0	144.5	144.5	991.4	-204.7
5.0	135.3	135.3	941.8	-255.8
6.0	108.1	108.1	865.4	-307.0
7.0	62.7	62.7	698.0	-358.2
8.0	-.8	-.8	396.1	-409.3
9.0	-82.4	-82.4	156.9	-476.1
10.0	-182.1	-182.1	173.5	-923.2

SPAN 2

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	-99.1	-99.1	90.9	-584.9
2.0	-34.7	-34.7	423.7	-501.2
3.0	11.4	11.4	664.9	-417.6
4.0	39.1	39.1	781.8	-334.0
5.0	48.3	48.3	761.2	-250.3
6.0	39.1	39.1	781.8	-334.0
7.0	11.4	11.4	664.9	-417.6
8.0	-34.7	-34.7	423.7	-501.2
9.0	-99.1	-99.1	84.2	-584.9

10.0 -182.1 -182.1 167.9 -923.2

SPAN 3

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	-82.4	-82.4	151.1	-476.1
2.0	-.8	-.8	396.1	-409.3
3.0	62.7	62.7	698.0	-358.2
4.0	108.1	108.1	874.9	-307.0
5.0	135.3	135.3	945.9	-255.8
6.0	144.5	144.5	991.4	-204.7
7.0	135.5	135.5	949.6	-153.5
8.0	108.5	108.5	791.0	-102.3
9.0	63.3	63.3	476.5	-51.2
10.0	.0	.0	.0	.0

THE FOLLOWING RATINGS ARE BASED ON A DISTRIBUTION FACTOR OF 1.286

***** RATINGS BASED ON NEGATIVE MOMENT *****

TENTH POINT	SLAB STEEL	LL CAPACITIES		RATINGS	
		WS	LF	WS	LF
0	9.130	1657.6	1771.6	349.1	287.0
1	9.130	1740.5	1985.1	578.6	507.7
2	9.130	1805.0	2069.0	700.2	617.4
3	.000	.0	.0	.0	.0
4	.000	.0	.0	.0	.0
5	.000	.0	.0	.0	.0
6	.000	.0	.0	.0	.0
7	.000	.0	.0	.0	.0
8	9.130	1805.0	2069.0	700.2	617.4
9	9.130	1740.5	1985.1	578.6	507.7
10	9.130	1657.6	1771.6	349.1	287.0

***** RATING BASED ON POSITIVE MOMENT *****

CAUTION: POSITIVE MOMENT RATING WAS CALCULATED AT MIDDLE OF SPAN ONLY. OTHER LOCATIONS MAY CONTROL

POS/NEG MAXIMUM TOTAL VEHICLE LOAD = 287.0 KIPS, POS MAX. TOTAL VEHICLE LOAD = 403.6 KIPS

INPUT DATA

3.000	26.000	752.000	37.000	13.750
9.130	9.130	9.130	4.130	4.130
4.130	4.130	4.130	4.130	4.130

***** SPAN 3 ANALYSIS *****

DRAPED STRAND DESIGN

NUMBER OF STRANDS = 26. STRESS-RELIEVED STRAND
NUMBER OF DRAPED STRANDS = 6.
ECCENTRICITY OF STRANDS = 16.58
DIAMETER OF STRANDS = .5 INCHES
AREA OF STRAND = .1531 SQ. INCHES
GIRDER CONCRETE STRENGTH = 6000. PSI.
SLAB CONCRETE STRENGTH = 4000. PSI.

PRESTRESS LOSSES IN PSI BASED ON AASHTO 1989 AASHTO SPECIFICATIONS

SH = 6000.
ES = 14806.
CRC = 17288.
CRS = 9420.

FORCE IN STRANDS WHEN CONCRETE TAKES ITS INITIAL SET SHALL BE 752. KIPS
MAXIMUM ALLOWABLE TEMPORARY FORCE = 820. KIPS

LOCATION OF DRAPED STRANDS

DIMENSION A = 37.
 DIMENSION B = 13.75
 DIMENSION C = 4.00

MAX. SLOPE OF STRANDS = 10.97 %

GIRDER CAMBER = 1.43 INCHES
 SLAB+DIAPHRAGM DEFLECTION = -.81 INCHES

INITIAL GIRD. STRESSES IN FOLLOWING TABLE ARE BASED ON A PRESTRESS FORCE OF 693. KIPS.
 FINAL GIRD. STRESSES ARE BASED ON FORCE OF 563. KIPS AND POSITIVE MOMENTS ONLY.
 MIN. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF INITIAL PRESTRESS = 4800. PSI
 COMPRESSION STRESSES HAVE NEGATIVE SIGNS, TENSION STRESSES ARE POSITIVE. INITIAL GIRDER STRESSES AT
 POINT 0 ARE COMPUTED THREE FEET FROM END FOR DESIGN RUNS.

NOTE: NON-PRESTRESSED GIRDER STEEL IS GRADE 60

TENTH INITIAL GIRD.STRESSES NON-PRE FINAL GIRD.STRESSES STRENGTH FACTORED FACTORED MOM.
 FATIGUE
 POINT TOP BOTTOM GIRD.STEEL TOP BOTTOM SLAB.STEEL NEG.MOM. TOP GIRD.STRESS SLAB
 STEEL

0	-.007	-2.243	.000	-.006	-1.822	6.761	1586.9	3.750	7.879
1	-.026	-2.228	.000	-.621	-1.274	3.761	897.9	1.525	4.524
2	.025	-2.269	.000	-1.155	-.597	2.796	671.2	.573	3.814
3	.144	-2.367	.000	-1.512	-.056	2.181	525.3	-.009	3.324
4	.202	-2.418	.000	-1.764	.331	1.645	397.3	-.475	2.837
5	.168	-2.390	.000	-1.927	.561	1.185	286.9	-.851	2.353
6	.202	-2.418	.000	-1.824	.503	.800	194.2	-.955	1.873
7	.144	-2.367	.000	-1.633	.291	.490	119.2	-.970	1.396
8	.025	-2.269	.000	-1.328	-.099	.254	61.8	-.869	.924
9	-.026	-2.228	.000	-.787	-.800	.091	22.1	-.548	.458
10	-.007	-2.243	.000	-.006	-1.822	.000	.0	-.006	.000

MAXIMUM FINAL GIRDER STRESS AT TOP WITH NO LIVE LOAD = -1.588 KSI

MAXIMUM ALLOWABLE PER AASHTO = $0.40f_c$ = -2.400 KSI

CHECK FINAL BOTTOM OF GIRDER STRESSES!!!!

SHEAR DESIGN (AASHTO 9.20)

POINT	D	VU	MCR	MMAX	VI	VCI	NO.4 STIR.SPAC.(IN)				VS	GR 60	GR 40
							FPC	VP	VCW				
0	48.75	230.3	251.3	1586.9	135.7	89.6	.942	14.2	203.1	181.4	6.45	4.30	
1	48.75	209.2	515.9	897.9	123.7	131.3	.989	14.2	208.0	114.8	10.19	6.80	
2	40.25	178.4	1189.5	703.8	134.7	274.4	1.010	14.2	175.9	34.0	21.00	18.95	
3	42.39	146.0	1031.6	1260.3	116.2	131.8	1.135	14.2	195.6	39.9	21.00	16.98	
4	43.56	112.1	924.7	1672.6	96.2	79.6	1.222	.0	194.4	52.3	19.98	13.32	
5	43.56	77.0	847.8	1888.9	75.1	49.4	1.283	.0	200.0	41.3	21.00	16.89	
6	43.56	75.9	924.7	1945.2	60.0	54.9	1.222	.0	194.4	34.3	21.00	20.00	
7	42.39	110.2	1031.6	1809.9	80.4	82.5	1.135	14.2	195.6	47.1	21.00	14.40	
8	40.25	145.6	1189.5	1486.4	101.9	128.3	1.010	14.2	175.9	43.1	21.00	14.96	
9	38.12	181.9	1467.1	889.4	105.2	230.3	.790	14.2	149.8	64.3	14.23	9.49	
10	48.75	209.0	198.9	1.0	107.7	*****	1.004	14.2	209.4	36.5	21.00	20.00	

POSITIVE MOMENT DESIGN FLEXURAL STRENGTH = 3781. FT-KIPS

RATIO OF PRESTRESSING STEEL (A_s/bd) (96 AASHTO 9.17.2) = .00086741

MAXIMUM ALLOWABLE A_s/bd (96 AASHTO 9.18.1) = .00466178

1.2*CRACKING MOMENT (89 AASHTO 9.18.2.1) = 2332. FT-KIPS

MAXIMUM POSITIVE DESIGN MOMENT (FACTORED) $1.3(D+5/3(L+I))$ = 3188. FT-KIPS

POSITIVE OPERATING MOMENT CAPACITY BASED ON 90 PERCENT OF YIELD STRESS = 2647. FT-KIPS

POSITIVE OPERATING MOMENT CAPACITY (BASED ON 75 OR 90 PERCENT CRITERIA) = 2647. FT-KIPS

POSITIVE LIVE LOAD OPERATING MOMENT CAPACITY = 1513. FT-KIPS

NOTE: ALL RATINGS ARE BASED ON THE INPUT WHEEL DISTRIBUTION FACTOR FOR MOMENT.

OPERATING RATING BASED ON POSITIVE MOMENT (LF OR WS)
HS-RATING= 37.3

OPERATING RATING BASED ON NEGATIVE MOMENT - GRADE 60 STEEL (LF OR WS)
HS-RATING= 43.8

INVENTORY RATING BASED ON POSITIVE MOMENT (WS)
HS-RATING= 17.6

INVENTORY RATING BASED ON FATIGUE (WS)
HS-RATING= 23.0

INVENTORY RATING BASED ON NEGATIVE MOMENT (LF)
HS-RATING= 27.8

DATA FOR STANDARD WISCONSIN PERMIT VEHICLE WITH GVW OF 250,000 POUNDS

WHEEL LOADS AND SPACINGS

12.500	17.500	17.500	17.500	15.000	15.000	15.000	15.000	.000	.000
13.000	4.000	4.000	30.000	4.000	4.000	4.000	.000	.000	

MAX. LIVE LOAD MOMENTS AT X/10 PTS. IN FT. KIPS PER WHEEL LINE WITH IMPACT

SPAN 1

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	63.3	63.3	476.5	-51.2
2.0	108.5	108.5	791.0	-102.3
3.0	135.5	135.5	949.6	-153.5
4.0	144.5	144.5	991.4	-204.7
5.0	135.3	135.3	941.8	-255.8
6.0	108.1	108.1	865.4	-307.0
7.0	62.7	62.7	698.0	-358.2
8.0	-.8	-.8	396.1	-409.3
9.0	-82.4	-82.4	151.1	-476.1
10.0	-182.1	-182.1	173.5	-923.2

SPAN 2

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	-99.1	-99.1	90.9	-584.9
2.0	-34.7	-34.7	423.7	-501.2
3.0	11.4	11.4	664.9	-417.6
4.0	39.1	39.1	781.8	-334.0
5.0	48.3	48.3	761.2	-250.3
6.0	39.1	39.1	781.8	-334.0
7.0	11.4	11.4	664.9	-417.6
8.0	-34.7	-34.7	423.7	-501.2
9.0	-99.1	-99.1	84.2	-584.9
10.0	-182.1	-182.1	167.9	-923.2

SPAN 3

X CURB & +LL CURB & -LL +TRUCK -TRUCK

1.0	-82.4	-82.4	151.1	-476.1
2.0	-.8	-.8	396.1	-409.3
3.0	62.7	62.7	698.0	-358.2
4.0	108.1	108.1	874.9	-307.0
5.0	135.3	135.3	945.9	-255.8
6.0	144.5	144.5	991.4	-204.7
7.0	135.5	135.5	949.6	-153.5
8.0	108.5	108.5	791.0	-102.3
9.0	63.3	63.3	476.5	-51.2
10.0	.0	.0	.0	.0

THE FOLLOWING RATINGS ARE BASED ON A DISTRIBUTION FACTOR OF 1.286

***** RATINGS BASED ON NEGATIVE MOMENT *****

TENTH POINT	SLAB STEEL	LL CAPACITIES WS	LF	RATINGS WS	LF
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0	9.130	1657.6	1771.6	349.1	287.0
1	9.130	1757.3	2006.9	717.7	630.5
2	.000	.0	.0	.0	.0
3	.000	.0	.0	.0	.0
4	.000	.0	.0	.0	.0
5	.000	.0	.0	.0	.0
6	.000	.0	.0	.0	.0
7	.000	.0	.0	.0	.0
8	.000	.0	.0	.0	.0
9	.000	.0	.0	.0	.0
10	.000	.0	.0	.0	.0

***** RATING BASED ON POSITIVE MOMENT *****

CAUTION: POSITIVE MOMENT RATING WAS CALCULATED AT MIDDLE OF SPAN ONLY. OTHER LOCATIONS MAY CONTROL

POS/NEG MAXIMUM TOTAL VEHICLE LOAD = 287.0 KIPS, POS MAX. TOTAL VEHICLE LOAD = 311.0 KIPS