STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Inspection Report for B-36-071

IH 43 NB over USH 10 EB-STH 42 SB

Jun 28,2017

Type	Prior	Frequency (mos)	Performed
Routine	09-09-15	24	X
Deck Evaluation	06-16-16	0	
SIA Review	09-09-15	48	

Latitude	44°06'33.41"N	Owner	STATE HIGHWAY DEPT
Longitude	87°43'50.10"W	Maintainer	STATE HIGHWAY DEPT

Time Log

Hours	Minutes
0	30

Team members

Dale Weber

	Name	Number	Signature	Date
Inspector	Rades, Brady	3015	Brady Rades E-signed by Brady Rades(dotbpr)	06-28-17

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

Identification & Location

Feature On: IH 43 NB	Section Town Range: S15 T19N R23E	Structure Number: **B-36-071**
Feature Under: USH 10 EB-STH 42 SB	County: MANITOWOC	
Location: 2.8M N JCT USH 151	Municipality: MANITOWOC RAPIDS	Structure Name:

Geometry

measurements in feet, except where noted

Approach Roadway Width: 40	Bridge Roadway Width: 40.0	Total Length: 157.8
Approach Pavement Width: 24	Deck Width: 43.0	Deck Area (sq ft): 6785

Traffic

	Lanes	ADT	ADT year	Traffic Pattern
On	2	10100	2017	ONE WAY TRAFFIC
Under	5	5000	2017	TWO WAY TRAFFIC

Capacity

Load Rating

Inventory rating: HS14	Overburden depth (in): 2.0	Last rating date: 07-22-15	Controlling: INTERIOR DECK GIRDER Positive Moment
Operating rating: HS21	Deck surface material: CONCRETE	Re-rate for capacity (Y/N):	Control location: SPAN 1
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 #:

Span(s)

Span #	Material	Configuration	Depth (in)	Length (ft)	Main
1	CONT PREST CONC	DECK GIRDER	45	76.0	
2	CONT PREST CONC	DECK GIRDER	45	80.0	Y

Expansion joint(s)

Temperature:

File:	New:

Clearance

Item	File Measurement (ft)	File Date	New Measurement (ft)
Highway Min Vertical Under Cardinal	17.39		
Highway Min Vertical Under Non-Cardinal	17.06		
Horizontal Under Cardinal	34.0		
Horizontal Under Non-Cardinal	46.0		
Highway Min Vertical On Cardinal			
Horizontal On Cardinal			

Construction History

Year	Work Performed	FOS id
2016	OVERLAY - CONCRETE	1224-21-71
9999	NOT BUILT	1224-71-21
2001	OVERLAY - BITUMINOUS	1224-07-71
1992	REPAIR DECK	
1979	NEW STRUCTURE	1225-01-87

Maintenance Items

Item	Priority	Recommended by	Status	Status change
Approach - Seal Approach to Paving Block	MEDIUM	Rades, Brady (3015)	IDENTIFIED	06/28/17
hot rubber				
Deck - Seal Surface Cracks	MEDIUM	Rades, Brady (3015)	IDENTIFIED	06/28/17
MMA				
Expansion Joints - Seal	MEDIUM	McDowell, Jim W (3008)	DEFERRED	04/07/16
With hot rubber				

Elements

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	**12**		**Reinforced Concrete Deck**	SF	6,785	6,713	72	0	0
		1080	Delamination - Spall - Patched Area	SF		0	4	0	0
			CS-2: Full depth patch area in Span 1 (4sf)						
		1130	Cracking (RC)	SF		0	68	0	0
			CS-2: Diagonal cracking at all abutment corners (68sf)						
	8514		Concrete Overlay	SF	6,785	0	6,785	0	0
			Concrete overlay placed in 2016						
		3220	Crack (Wearing Surface)	SF		0	6,785	0	0
			CS-2: Map cracking throughout entire deck. Some cracks sealed with TK-9030						
X	**109**		**Prestressed Concrete Open Girder**	LF	770	770	0	0	0
		1080	Delamination - Spall - Patched Area	LF		0	0	0	0
X	**205**		**Reinforced Concrete Column**	EA	3	3	0	0	0
		1080	Delamination - Spall - Patched Area	EA		0	0	0	0
		1130	Cracking (RC)	EA		0	0	0	0
X	**215**		**Reinforced Concrete Abutment**	LF	84	68	16	0	0
			CS-2 (S Abut 8" & N Abut 8")						
		1080	Delamination - Spall - Patched Area	LF		0	0	0	0
		1130	Cracking (RC)	LF		0	16	0	0
			Under girders						
X	**234**		**Reinforced Concrete Cap**	LF	39	36	3	0	0
		1130	Cracking (RC)	LF		0	3	0	0
			CS-2: Vertical hairline cracks						

X	**331**		**Reinforced Concrete Bridge Rail**	LF	364	339	25	0	0
			Rail patched and protective coating applied 2016.						
		1080	Delamination - Spall - Patched Area	LF		0	0	0	0
		1130	Cracking (RC)	LF		0	25	0	0
			CS-2: Horizontal cracking along top inside corner throughout (15' East, 10' West)						
X	**8400**		**Integral Wingwall**	EA	4	0	4	0	0
		8902	Wall Movement	EA		0	4	0	0
			NE Wing tipped 3/4" **SE Wing Tipped 3/4"** **NW Wing Tipped 1/2"** **SW Wing Tipped 1/2"**						
		8903	Wall Deterioration	EA		0	1	0	0

Assessments

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	**9001**		**Drainage - Approach**	EA	4	4	0	0	0
			Inlets at NE and NW wing						
X	**9045**		**Slope Protection- Riprap**	EA	2	0	2	0	0
			Settled at both abutments						
X	**9168**		**Concrete Diaphragm**	EA	12	10	2	0	0
			Spalls over pier **at outside diaphragms**						
X	**9322**		**Approach Roadway - Concrete (non-structural)**	EA	1	1	0	0	0
			North Approach						
X	**9323**		**Approach Roadway - Asphalt**	EA	1	1	0	0	0
			South Approach						

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

Inspector Site-Specific Safety Considerations

Structure Inspection Procedures

Special Requirements

Chk	Hours	Cost	Comments

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Wisconsin Dept. of Transportation
Structure Inventory Data

Bridge B360071

Structure No.:	Municipality:	Section:	Town:	Range:	Maintenance Agency:	Owner:
B360071	MANITOWOC RAPIDS				STATE HIGHWAY DEPT	STATE HIGHWAY DEPT
Replaced Structure No.:	**Historical Sig.:** 5	**Latitude:** 440633.41	**Longitude:** 874350.1		**County:** MANITOWOC(36)	**District:** 3

ABUTMENT DATA (CARDINAL)

1. Abutment Type: SILL FLEXIBLE
2. Pile Type: PILING - CAST IN PLACE (CIP)
3. Pile Size: 254 OR 273 MM (10 OR 10-3/4")
4. Slope Protection Type: HEAVY RIPRAP
5. Rdwy. Width: 40.0 **ft**
6. Deck Width: 43.0 **ft**
7. Wing Type:

ABUTMENT DATA (NON-CARDINAL)

1. Abutment Type: SILL FLEXIBLE
2. Pile Type: PILING - CAST IN PLACE (CIP)
3. Pile Size: 254 OR 273 MM (10 OR 10-3/4")
4. Slope Protection Type: SOLID CONC
5. Rdwy. Width: 40.0 **ft**
6. Deck Width: 43.0 **ft**
7. Wing Type:

GEOMETRIC DATA

1. Structure Length: 157.8 **ft (Back to Back Abuts. Along Rrdwy. 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: 4 **Deg.**
8. Direction Skew Angle: LEFT
9. Horizontal Curve: 0.0 **Radius, ft**
10. Dir.-Hor. Curve:
11. Girder Spacing: 8.7 **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:

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

CAPACITY DATA

1. Design MS: HS20M
2. Inventory MS: HS14
3. Operating MS: HS21
4. Max. Veh. Wt.: 250 **kips**
5. Load Rating Basis.: LFR
6. Load Governing Member: INTERIOR DECK GIRDER
7. Deck Composition: NONE
8a. Deck Membrane: OTHER
8b. Deck Surface: CONCRETE

STRUCTURE SERVICE DATA

1. Hwy. On Detour Length: 0 **ft**
2. Type Service On: HIGHWAY
3. Type Service Under: HIGHWAY

APPRAISAL UPDATE

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

PLANNING DATA

1. Functional Classification: INTERSTATE-RURAL(01)
2. ADT: 10100
3. ADT-Year: 2017
4. Truck ADT %: 22
5. Future ADT: 21650
6. Future ADT-Year: 2016

CONDITION DATA

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

Bridge B360071

CONSTRUCTION DATE

Project ID	Construction Contractor	Construction Designer	Construction Year	Plans Reel Number	Letting Date	Survey Received	Work Performed
1224-21-71	NORTHEAST ASPHALT, INC.	OMNNI	2016		12-Jan-2016		OVERLAY - CONCRETE
1224-71-21		OMNNI	9999			01-Apr-2014	NOT BUILT
1224-07-71	NORTHEAST ASPHALT, INC.	BRIDGE SECTION DESIGN UNIT 1	2001		12-Oct-2000	22-Sep-1998	OVERLAY - BITUMINOUS
	UNKNOWN	UNKNOWN	1992				REPAIR DECK
1225-01-87	LUNDA CONST	BRIDGE SECTION	1979	C221		01-Aug-1975	NEW STRUCTURE

CLEARANCE DATA

Clearance Lane Number	Minimum Vertical	Minimum Vertical Date	Minumum Horizontal Distance	Right Minimum Lateral
1	17.19	12-Jun-2018	34.0	3.0
1	16.82	12-Jun-2018	46.0	3.0

Left Minimum Lateral	Railroad Right Minimum Lateral	Railroad Left Minimum Lateral	Railroad Vertical Distance	Railroad Horizontal Distance
7.0				
7.0				

ROUTE DATA

Number	Direction	Type	Structure Route On / Under	Structure Route Cardinal / NonCardinal
043	N		O	C
010	E		U	C
042	S		U	N

Number	Structure Route Location	Highway Feature Name	Structure Route Local System	Highway Feature Designation
043	2.8M N JCT USH 151	IH 43 NB	IH	MAINLINE
010	0.2M E JCT STH 42 TO S	USH 10 EB-STH 42 SB	USH	MAINLINE
042	0.9M S JCT USH 10 TO W	USH 10 EB-STH 42 SB	STH	MAINLINE

Number	Structure Route Primary Flag	Designed National Network Flag	Structure Defense Highway Designation	Highway On Inventory Route
043	Y	Y	1	NHI
010	Y	Y	0	NHS
042	N	Y	0	NON

PIER DATA

Number	Pier Type	Piling Type	Piling Size	Pier Skew Angle	Direction of Skew
1	ROUND COL BENT	PILING - CAST IN PLACE (CIP)	254 OR 273 MM (10 OR 10-3/4")		

SPAN DATA

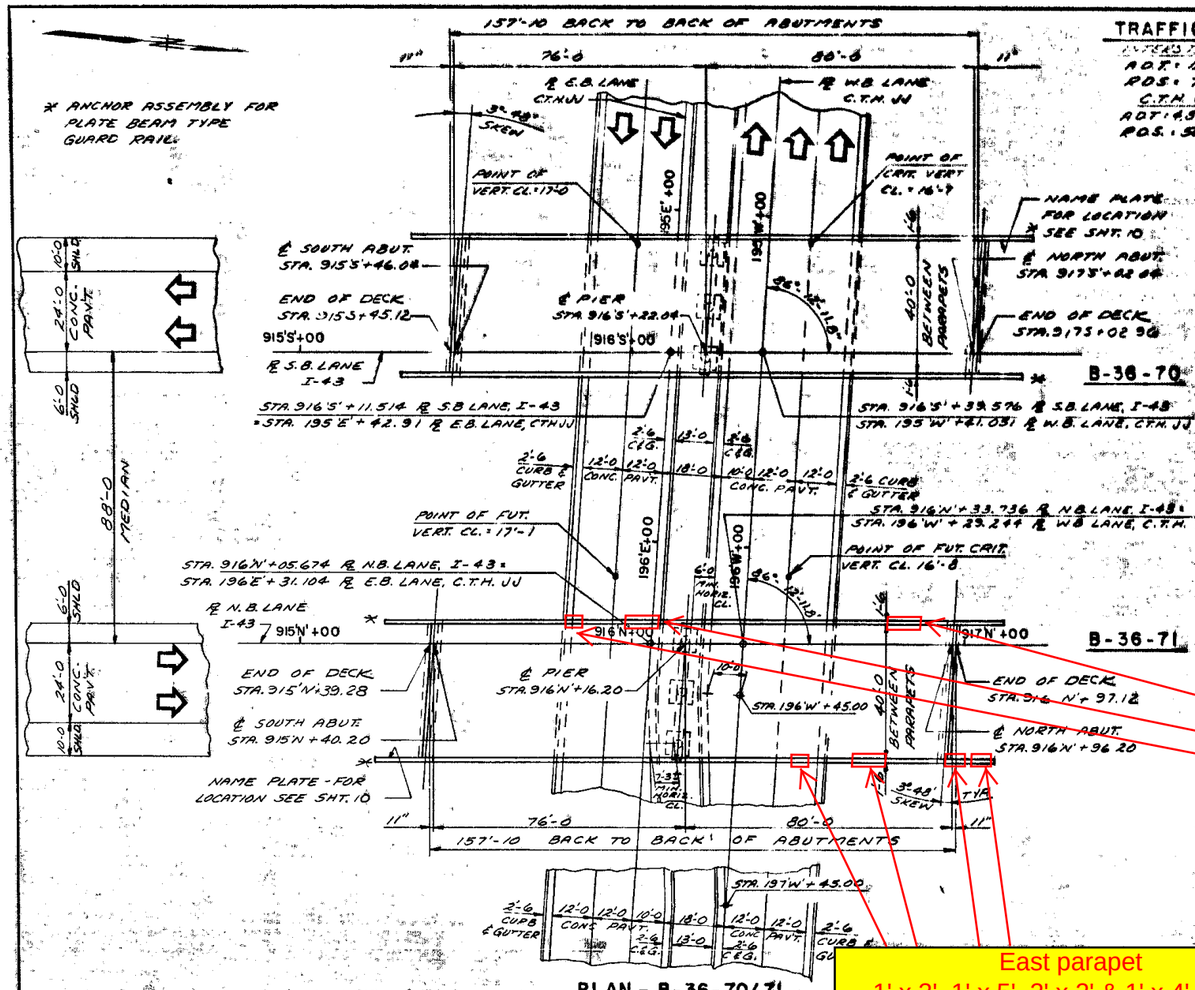
Number	Type	Length	Configuration	Material	Girder or Truss Height	Girder or Truss Spacing
1		76.0	DECK GIRDER	CONT PREST CONC	45.0	8.7
2		80.0	DECK GIRDER	CONT PREST CONC	45.0	8.7

EXPANSIONJOINT DATA

Number	Location	Type	Inactive Date

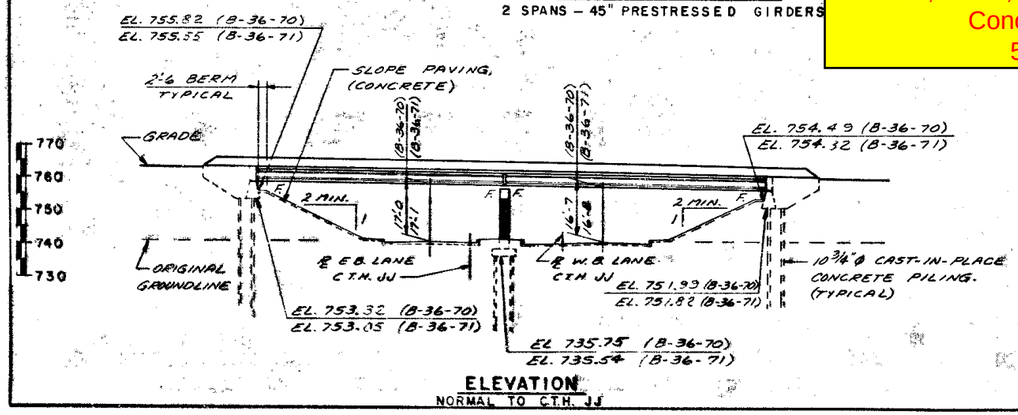
Form E-8-11 66

PROJECT I.D.	SHEET NUMBER	TOTAL SHEETS
1225-1-87	7.10	
FEDERAL PROJECT DESIGNATION		



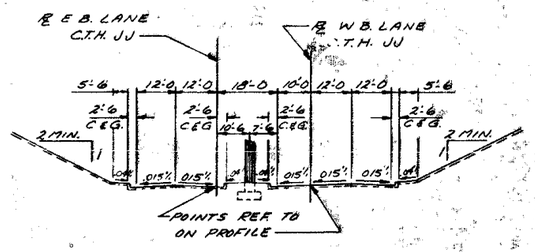
PLAN – B-36-70/71

2 SPANS – 45" PRESTRESSED GIRDERS

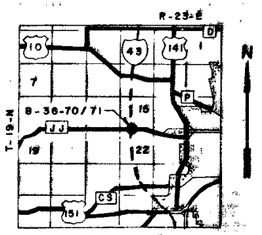


ELEVATION

NORMAL TO C.T.H. JJ



TYPICAL SECTION THRU C.T.H. JJ



LAYOUT

TRAFFIC VOLUME

INTERSTATE # 43

A.D.T. = 12,200 (1994)

D.D.S. = 70 M.P.H.

C.T.H. JJ

A.D.T. = 4,300 (1994)

D.D.S. = 50 M.P.H.

DESIGN DATA

LIVE LOAD:

DESIGN RATING: HS20-MOD

INVENTORY RATING: HS25

OPERATIONAL RATING: HS35

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

ALLOWABLE DESIGN STRESSES:

CONCRETE MASONRY SLAB — f'_c = 4,000 P.S.I.

ALL OTHER — f'_c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 — f_y = 60,000 P.S.I.

45" PRESTRESSED GIRDERS, CONCRETE MASONRY — f'_c = 6000 P.S.I.

STRANDS: ½"ø WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

SUBSTRUCTURE UNITS TO BE SUPPORTED ON 10 ¾"ø CAST-IN-PLACE CONCRETE PILING DRIVEN TO A MIN. BRG. VALUE OF 50 TONS/PILE AND EST. 45'-0 LG. @ S. ABUT., 55'-0 LG @ N. ABUT. & 35'-0 LG @ PIER WITH A MIN. BRG. VALUE OF 55 TONS/PILE AT PIER.

LIST OF DRAWINGS

West parapet
2' x 2', 1' x 4' & 1' x 4' = 12 SF
Concrete Repair
509.1500

East parapet
1' x 3', 1' x 5', 2' x 2' & 1' x 4' = 16 SF
Concrete Repair
509.1500

AS BUILT PLAN
DATE 11-01 BY W.J.K.

No	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

INTERSTATE 43 OVER C.T.H. JJ

County MANITOWOC — T.N. MANITOWOC RAPIDS

Design Spec AASHTO 1973 — Load HS20 MOD. — Const Spec 1978

Designed By WJK — Design Checked WV — Drawn By JHG — Plans Checked FWG

Approved W.A. Klinke, Chief Bridge Engineer — 10-21-77 Date

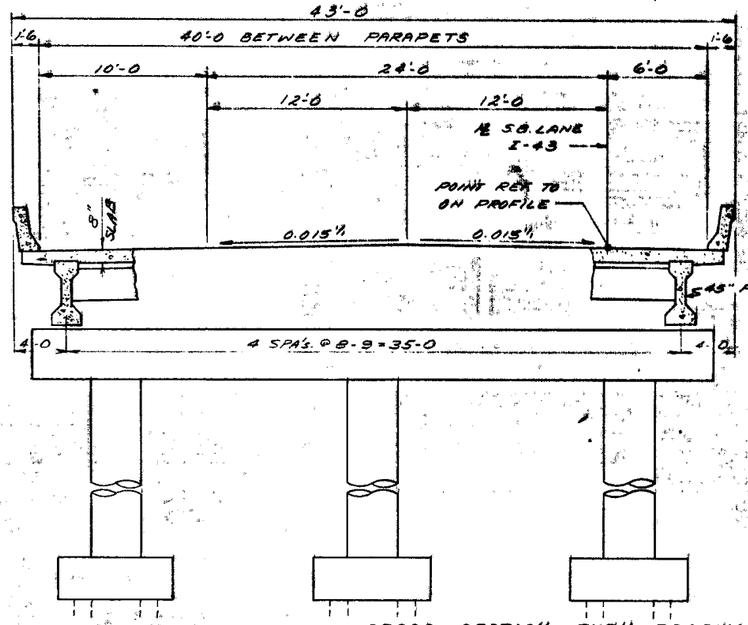
GENERAL PLAN

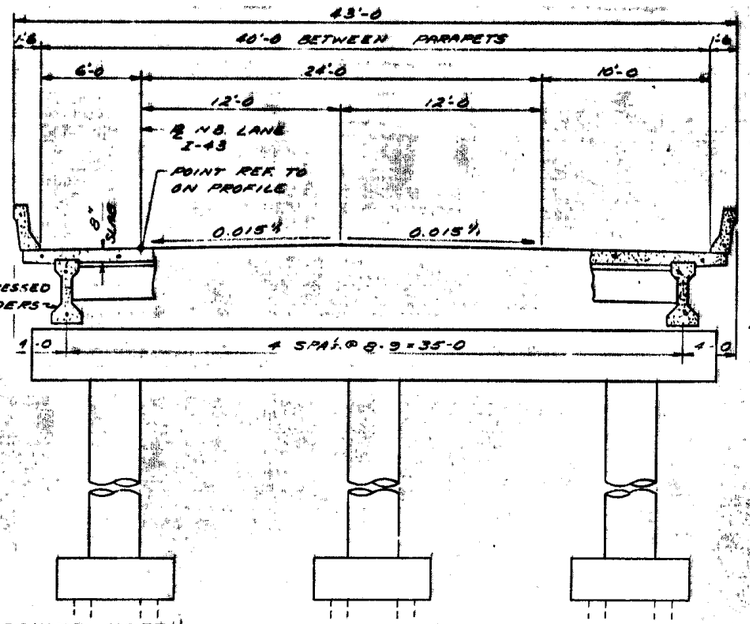
SHEET 1 OF 10

X58023

I.D. 1225-01-00M

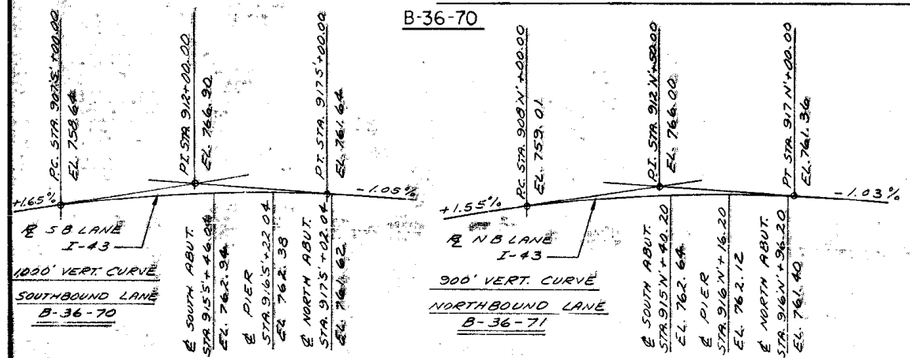
STATE PROJECT NUMBER	SHEET NO
1225-1-87	7.11





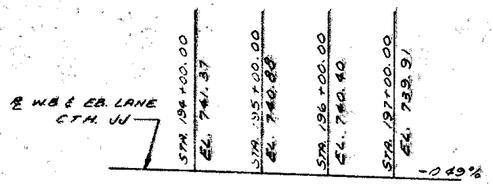
CROSS SECTION THRU ROADWAY LOOKING NORTH

B-36-70



B-36-71

PROFILE GRADE LINES INTERSTATE 43



PROFILE GRADE LINE C.T.H. JJ

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINF. SHALL BE IMBEDDED 2" CL. UNLESS SHOWN OR NOTED OTHERWISE.

THE 1ST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTS. SHALL BE COVERED WITH SLOPE PAVING, CONCRETE TO THE EXTENT SHOWN ON SHEET 1.

THE FINISHED GRADED SECTION WAS USED AS THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES FOR THE PIER.

ELASTOMERIC BRG. PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH & TRUE.

SEE SHT. 5 FOR LIMITS OF GRANULAR BACKFILL.

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	S.ABUT.	PIER	N.ABUT.	SUPER.	TOTAL
EXCAVATION FOR STRUCTURES	L.S.	—	—	—	/	/
CONCRETE MASONRY	C.Y.	33	40	33	228	334
HIGH STRENGTH BAR STEEL REINF.	LBS	1990	4610	1990	50,580	59,170
PRESTRESSED GIRDER, I TYPE, 45 INCH	L.F.	—	—	—	784	784
STRUCTURAL CARBON STEEL	LBS	—	—	—	430	430
BEARING PADS, ELASTOMERIC	S.F.	—	—	—	30	30
SLOPE PAVING, CONCRETE	S.Y.	195	—	180	—	375
PREBORING CAST-IN-PLACE CONCRETE PILING	L.F.	108	—	171	—	279
CAST-IN-PLACE CONCRETE PILING DELIVERED & DRIVEN 10¾ INCH	L.F.	405	455	495	—	1355
PILE REDRIVING	EACH	1	1	1	—	3
NON-BID ITEMS						
⅜" ALUMINUM OR ZINC PLATE	S.F.	—	—	—	31	31
POLYVINYL CHLORIDE WATERSTOP	L.F.	49	—	49	—	98
FILLER	SIZE	—	—	—	½" x 3¾"	½" x 3¾"

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

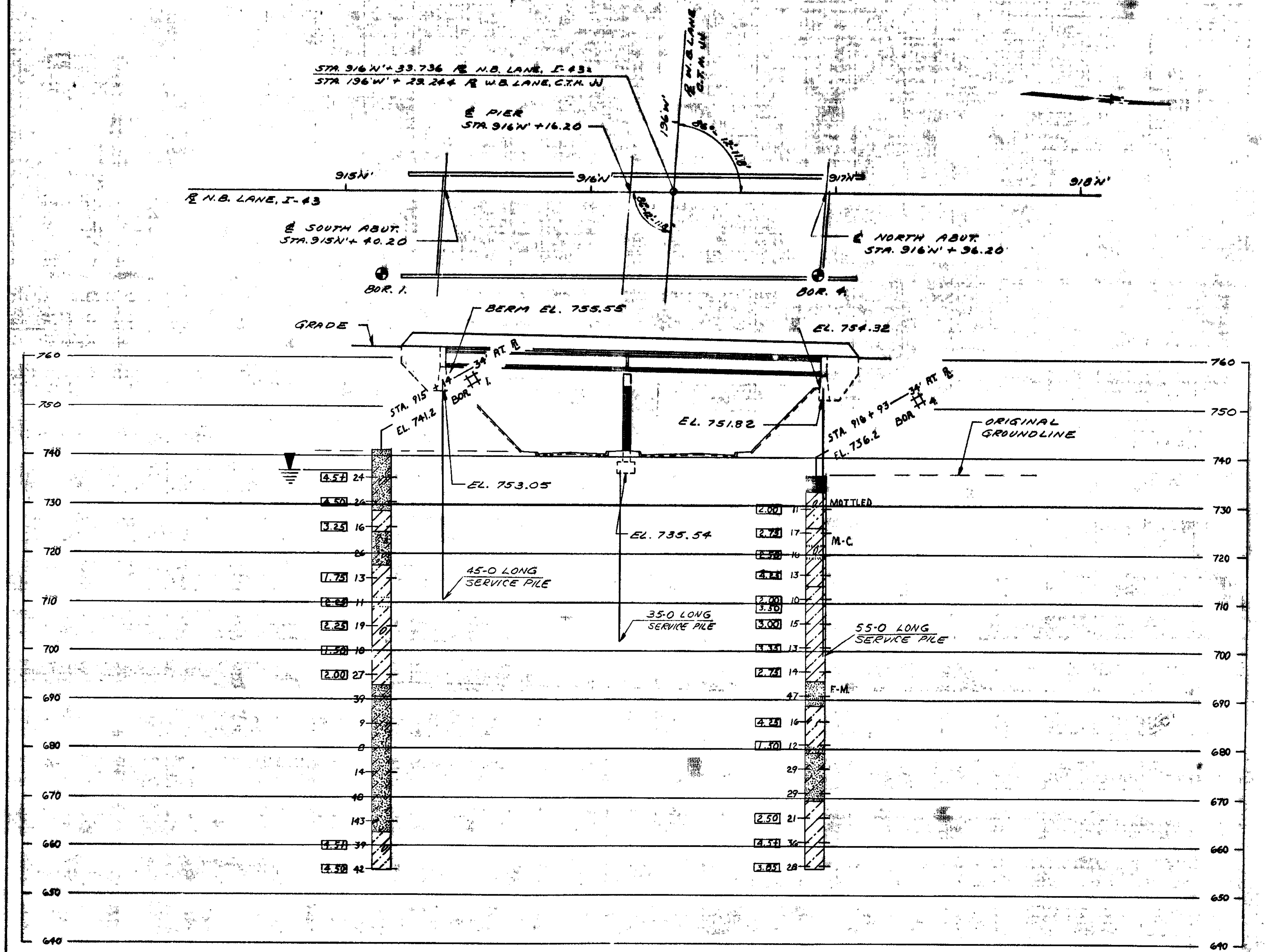
Const Spec 1978	Drawn By JHG	Plans Checked FWG

TOTAL ESTIMATED QUANTITIES

SHEET 2 OF 10

X 58024

Form S-B-12-69



STATE PROJECT NUMBER	SHEET NO.
1225-1-87	7.12

ABBREVIATIONS

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

MATERIAL SYMBOLS

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

LEGEND OF PROBING

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

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

LEGEND OF BORING

Boring No.
Sta.
Elev.
Unconfined Strength — 7.7
Blows Per Ft. Using 140# Wt. Falling 30"
Wash Sample
Shelby Tube — S. T.
Ground Water Elevation
No Ground Water Observed Above This Elevation
Sandy Gravel
Boulders or Cobbles
Sand
Silty Clay
So Limestone

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

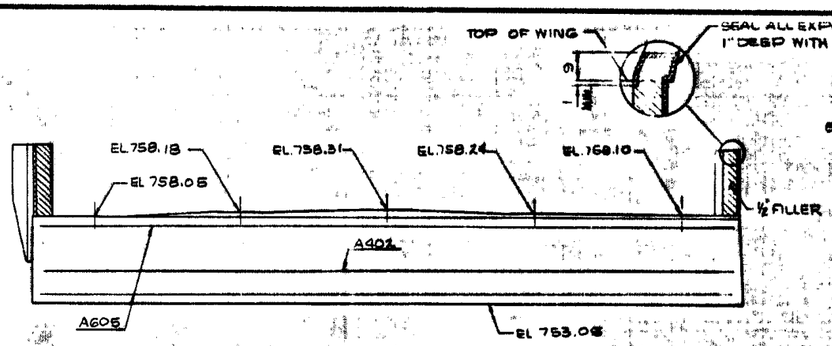
Const Spec. 1975 | Drawn By D.C.N. | Plans Checked FWG

SUBSURFACE EXPLORATION

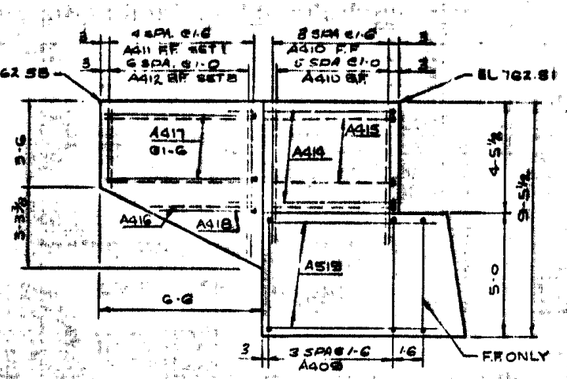
SHEET 3 OF 10

X 58025

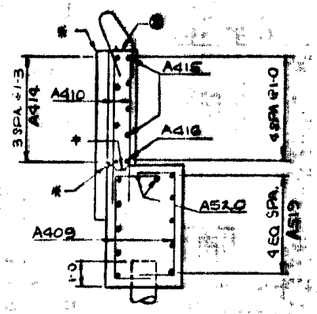
STATE PROJECT NUMBER	SHEET NO.
1225-1-87	7.13



ELEVATION



ELEVATION WING 2



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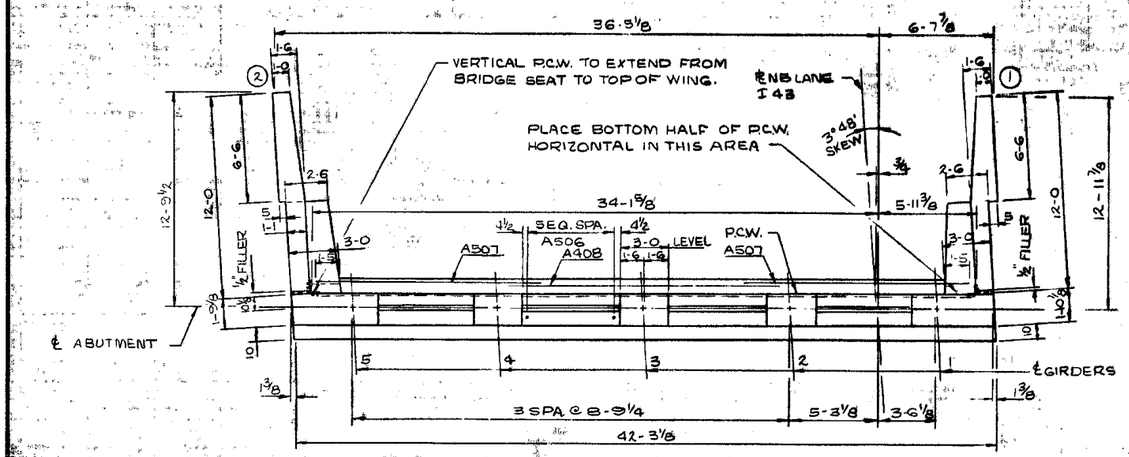
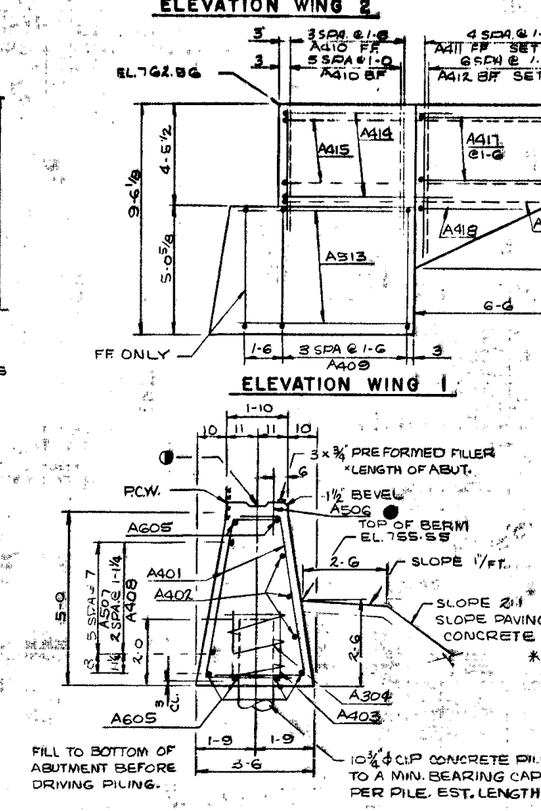
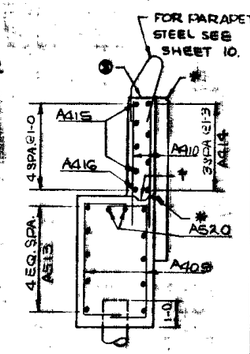


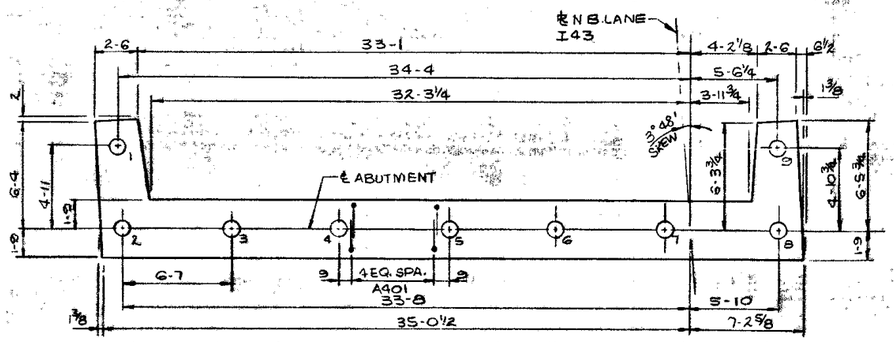
PLAN



ELEVATION WING 1



SECTION WING 1



PILE PLAN

SECTION THRU ABUTMENT

* ⅜" 'V' GROOVE ON FRONT FACE OF WINGWALL.

OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A SURFACED, BEVELED 2 x 6.

◐ CONSTRUCTION JOINT- STRIKE OFF AS SHOWN ON SHEET 10. POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE CONCRETE IS IN PLACE.

● A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE, IMBED 1-0.

◑ CONSTRUCTION JOINT- KEYWAY FORMED BY A SURFACED BEVELED 2 x 6.

** PREBORE ABUTMENT PILES TO ORIGINAL GROUND

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

Const. Spec. 1975	Drawn By DEO	Plans Checked

SOUTH ABUTMENT

SHEET 4 OF 10

X58026

Form S-B-12-69

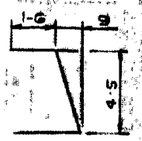
R-24-704

STATE PROJECT NUMBER	SHEET NO.
1225-1-87	7.14

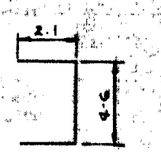
BILL OF BARS

1730 #/ABUT.

BAR MARK	NO. REQ'D S.ABUT.	NO. REQ'D N.ABUT.	LENGTH	BENT	CUT	LOCATION
A401	64	64	8-1	X		BODY - STIRRUPS
A402	3	3	41-11			" - HORIZONTAL
A403	14	14	2-3			" - PILES 2/PILE
A304	7	7	28-0	X		" - "
A605	6	6	41-11			" - HORIZONTAL
A506	24	24	2-0			" - DOWELS
A507	12	12	13-5			" - BACKFACE @ WINGS
A408	3	3	16-1			" - "
A409	18	18	8-6	X		WINGS - STIRRUPS
A410	20	20	5-6			" - VERTICAL E.F. & B.F.
A411	5	5	9-0		X	" - " - SET 1 & 2
A412	7	7	9-0		X	" - " - " 3 & 4
A513	10	10	7-0			1 & 4 - HORIZONTAL - BOTH FACES
A414	8	8	7-7	X		" - " E.F.
A415	8	8	12-4	X		" - " B.F.
A416	2	2	10-0	X		" - " B.F.
A417	6	6	7-3	X		" - " E.F.
A418	2	2	5-0	X		" - " E.F.
A519	10	10	6-11			" - "
A520	4	4	6-11			" 2 & 3 - " - BOTH FACES

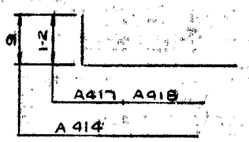


A401



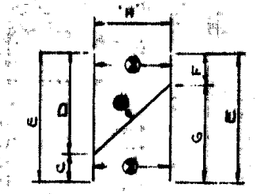
A409

A415 A416



5 WRAP SPIRAL

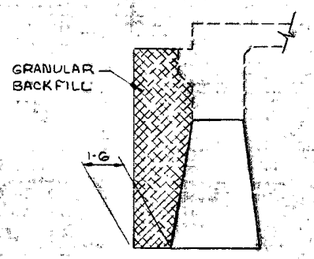
A304



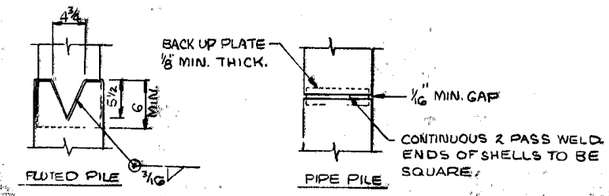
'H' IS NUMBER OF BARS BEFORE CUTTING.
⊗ BUNDLE AND MARK CUT BARS WITH BAR AND SET NUMBERS.
● MARK AND CUT ALL BARS ALONG THIS LINE. MAKE ALL CUTS NORMAL TO BAR AXIS.

CUTTING DIAGRAM

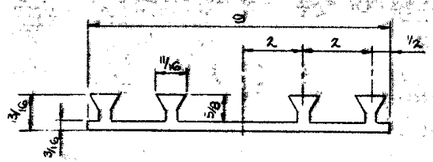
MARK		C	D	E	F	G	H	SETS REQ'D
A411	SET 1	3-2		9-0		5-10	5	2
	SET 2		5-10		3-2			2
A412	SET 3	3-2		9-0		5-10	7	2
	SET 4		5-10		3-2			2



LIMITS OF GRANULAR BACKFILL AT ABUTMENTS



PILE SPLICE DETAIL



POLYVINYL CHLORIDE WATERSTOP

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

Const. Spec. 1975	Drawn By DEO	Plans Checked FWG

ABUTMENT DETAILS

SHEET 8 OF 10

X58027

Form S-8-12-69

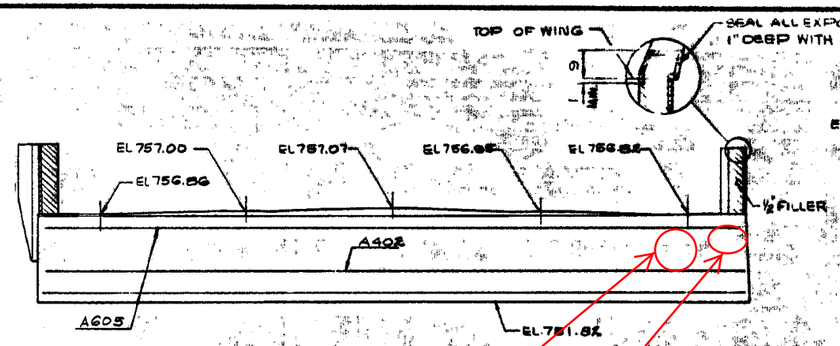
B-36-71

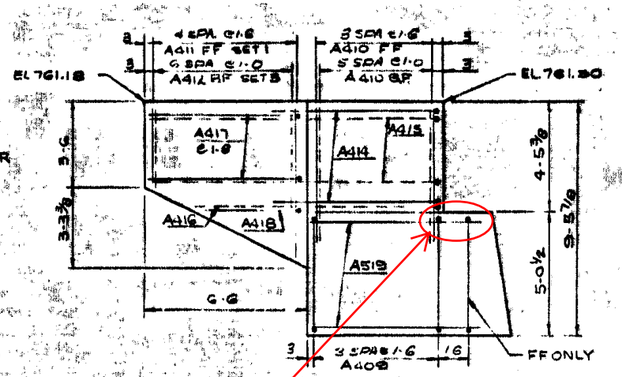
STATE PROJECT NUMBER	SHEET NO
1225-1-87	7.15

North abutment near NE corner
4' x 3' & 2' x 3' = 18 SF Concrete Repair
509.1500

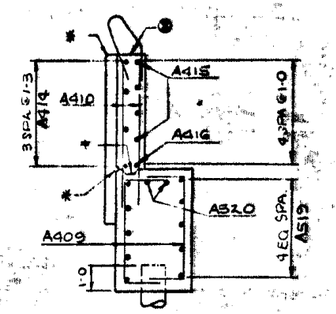
NW abutment/superstructure
3' x 4' = 12 SF Concrete Repair
509.1500

NE abutment below wingwall/superstructure corner
3' x 3' = 9 SF Concrete Repair
509.1500

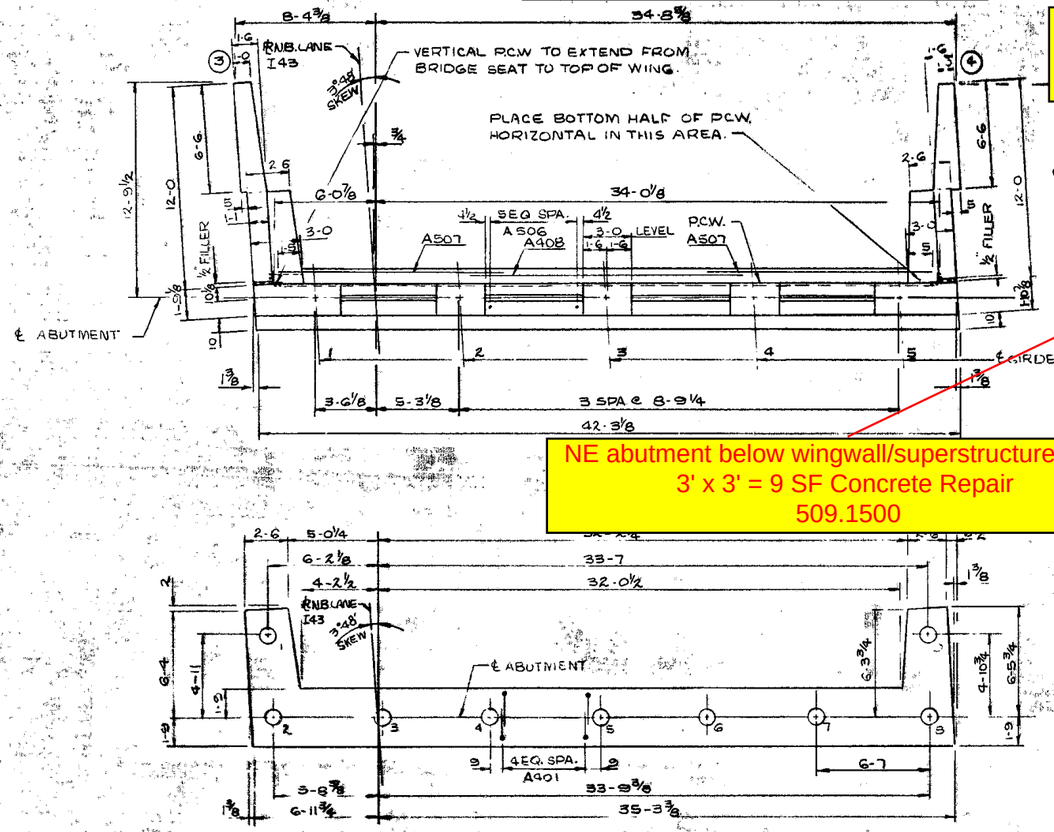




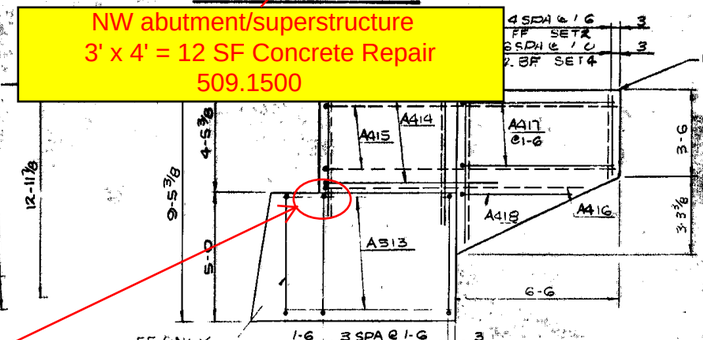
ELEVATION WING 3



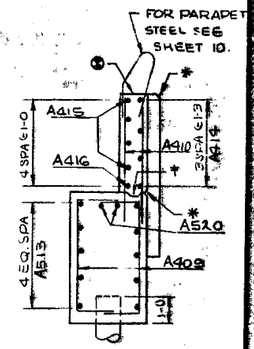
SECTION WING 3



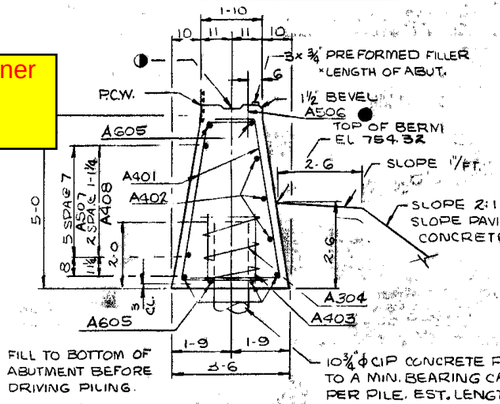
PILE PLAN



ELEVATION WING 4



SECTION WING 4



SECTION THRU ABUTMENT

* ⅜ V GROOVE ON FRONT FACE OF WINGWALL.

‡ OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A SURFACED, BEVELED 2×6.

⊠ CONSTRUCTION JOINT- STRIKE OFF AS SHOWN ON SHEET 10. POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE CONCRETE IS IN PLACE.

● A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. IMBED 1-0.

◑ CONSTRUCTION JOINT- KEYWAY FORMED BY A SURFACED BEVELED 2×6.

** PREBORE ABUTMENT PILES TO ORIGINAL GROUND

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

Const. Spec. 1975	Drawn By DEO	Plans Checked FWG

NORTH ABUTMENT

SHEET 6 OF 10

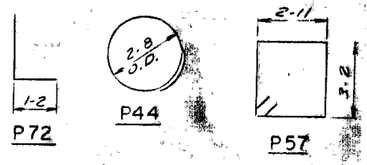
X58028

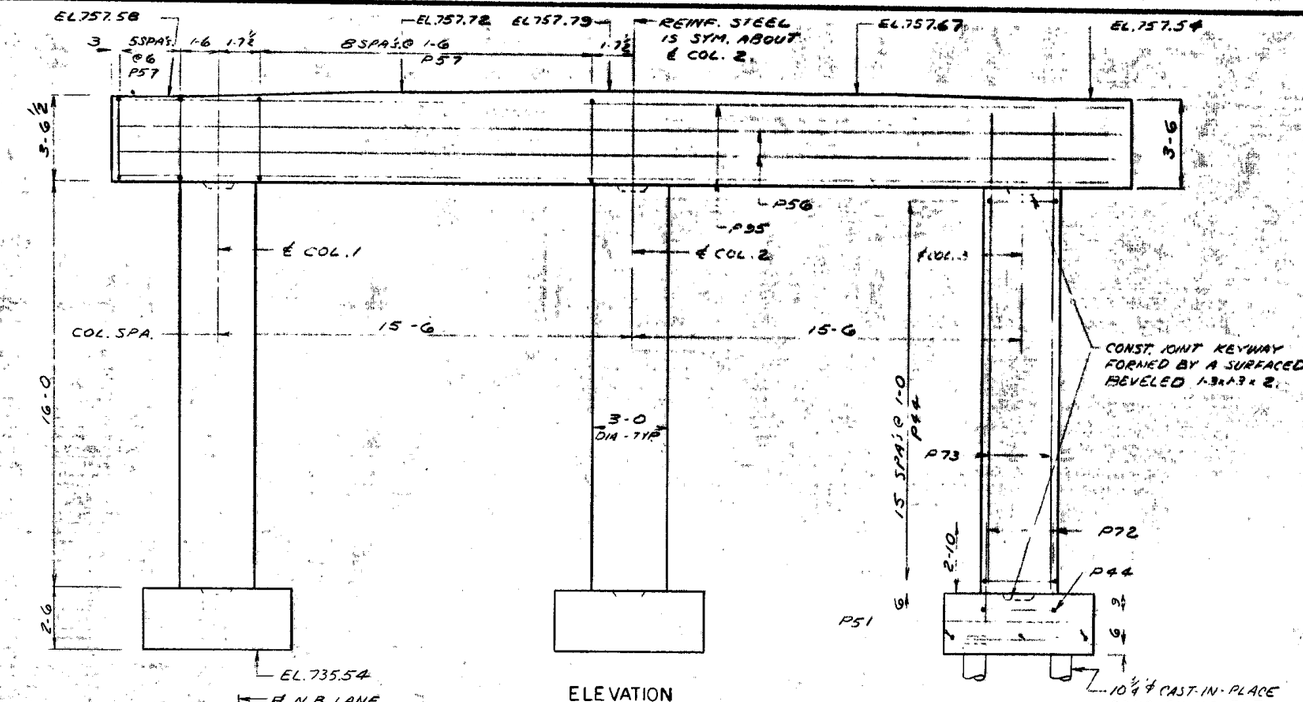
Form E-B-12-69

STATE PROJECT NUMBER	SHEET NO
1225-1-87	7.16

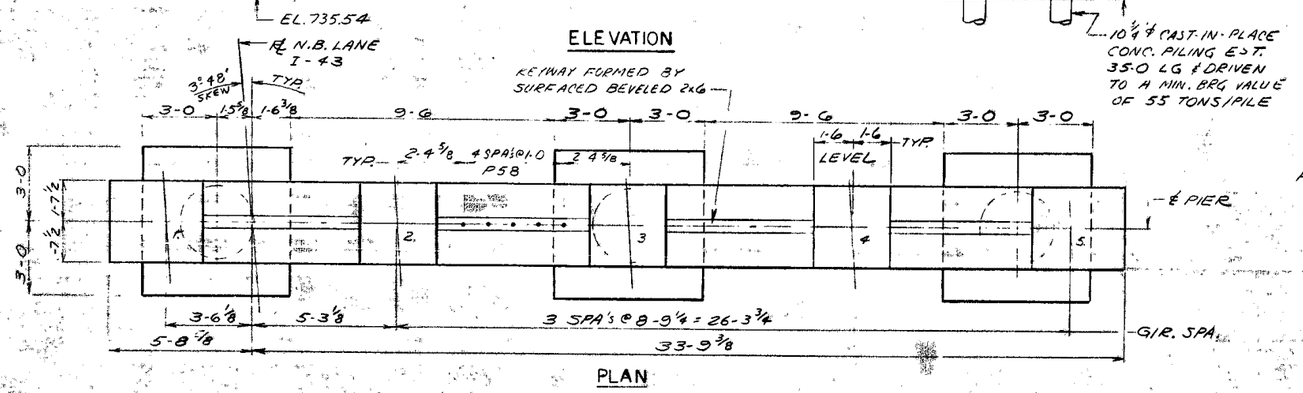
BILL OF BARS · 4610#

BAR MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
P51	42	5-8		FOOTINGS
P72	30	5-9	X	" & COL'S.
P73	36	19-0		COLUMNS
P44	51	9-11	X	" HOOPS
P95	12	33-2		CAP TOP & BOTT.
P56	4	33-2		" SIDES
P57	30	12-11	X	" STIRRUPS
P58	20	2-0		" DOWELS

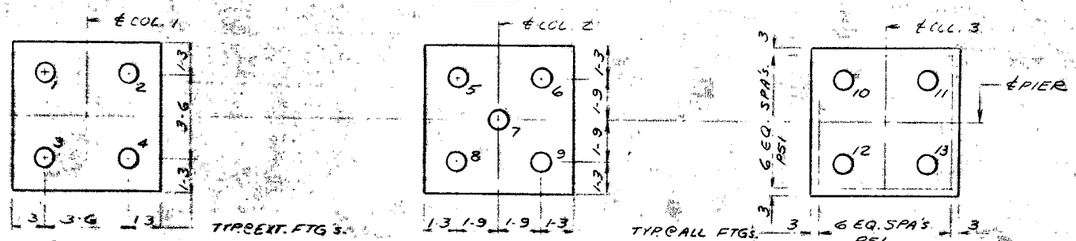




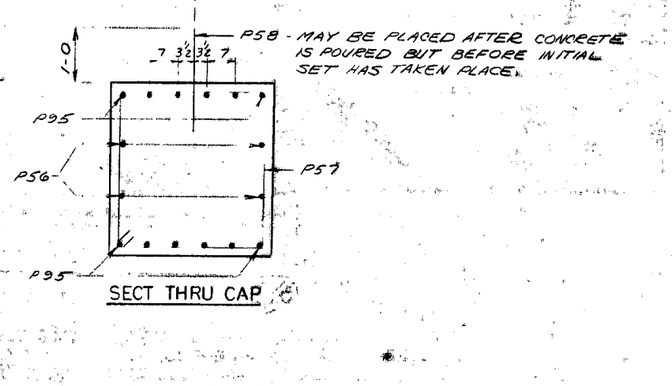
ELEVATION



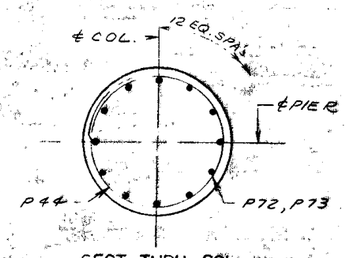
PLAN



FOOTING PLAN



SECT THRU CAP



SECT THRU COL.

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

Const. Spec.	Drawn By	Plans Checked
1975	JHG	FWG

PIER

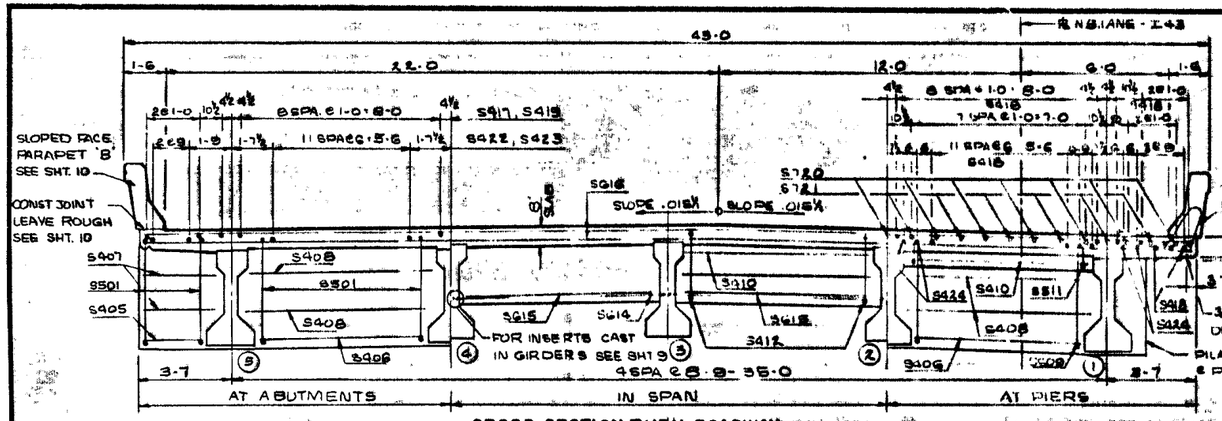
SHEET 7 OF 10

X 58029

Form E-B-12-69

B-36-71

STATE PROJECT NUMBER	SHEET NO.
1225-1-87	7.17



CROSS SECTION THRU ROADWAY
LOOKING DOWN STATION

BOTTOM TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS ON OR ADJACENT TO EACH GIRDER & BY INDIVIDUAL BAR CHAIRS AT 3'-0 CENTERS, APPROX. AT THE 1/3 PTS. BETWEEN GIRDERS.

TOP LONGITUDINAL BAR STEEL SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROX. 4'-0 CENTERS.

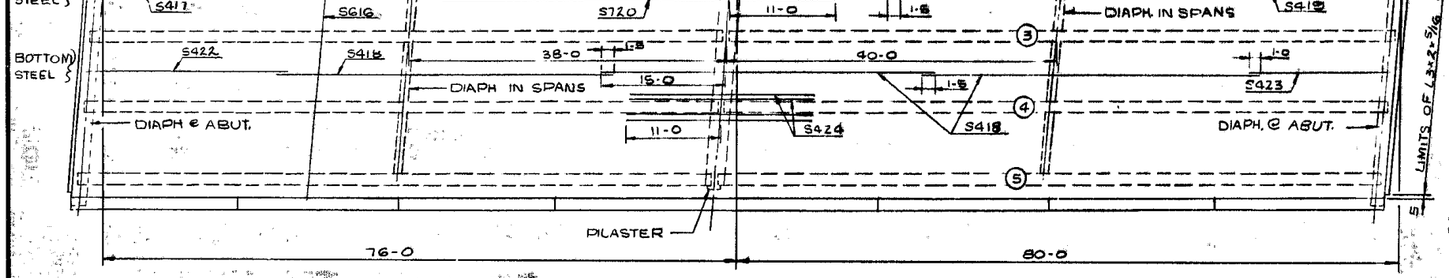
"#" CONSTANT DIMENSION TO PROVIDE 2" MIN. IMBEDMENT.

CONCRETE IN ANY SPAN SHALL BE PLACED WITHIN FOUR HOURS OF THE TIME THAT CONCRETE IS PLACED OVER THE ADJACENT PIER.

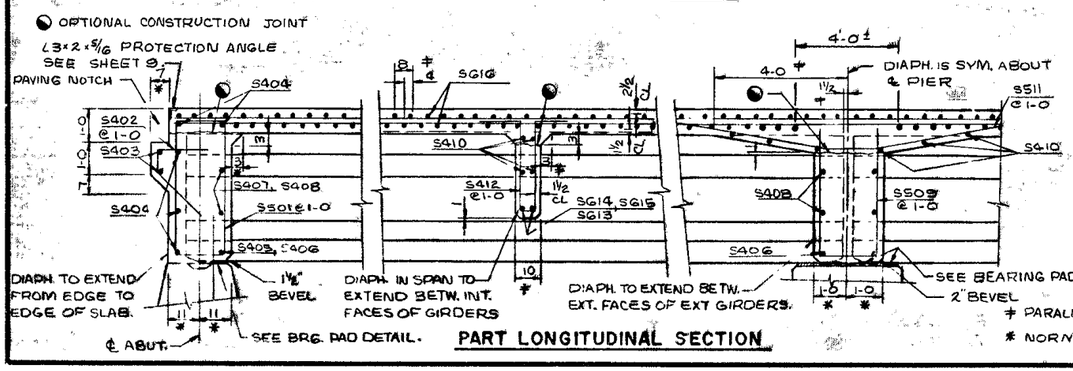
BILL OF BARS

BAR MARK	NO. REQ'D	LENGTH		LOCATION 50,580**
S401	68	11-2	r	DIAPHRAGM AT ABUTMENT
S402	72	4-2	X	" " "
S403	8	20-5		" " "
S404	20	21-11		" " "
S405	4	2-4		" " "
S406	16	6-7		" " " & PIER
S407	8	2-11		" " "
S408	52	7-8		" " " & PIER
S409	28	9-2	X	" " PIER
S410	56	7-1		" " " @ IN SPANS
S511	32	10-10	X	" " " "
S412	64	7-1	X	" IN SPAN
S413	8	3-0	#	" " @ EXT. GIRDERS
S414	12	6-0		" " @ INT. GIRDERS
S415	16	7-0		" " BETW GIRDER
S416	464	41-11		SLAB TRANSVERSE - TOP & BOTTOM
S417	44	19-2		" LONGITUDINAL - TOP
S418	294	40-0		" " " & BOTTOM
S419	44	23-2		" " - TOP
S720	22	45-6		" " - OVER PIER
S721	21	41-6		" " " "
S422	54	24-2		" " - BOTTOM
S423	54	18-2		" " "
S424	20	22-0		SLAB-LONG. BOTTOM SYM. ABOUT & PIER
S425	422	4-3	X	SLAB & RAIL PARAPET
S426	422	5-0	X	RAIL PARAPET
S427	32	18-9		" "
S428	32	19-8		" "
S329	6	3-4	X	PILASTER AT PIER
S430	4	4-3	X	" " "
S431	4	3-4	X	" " "

* PLAIN BAR THREAD ONE END 3"

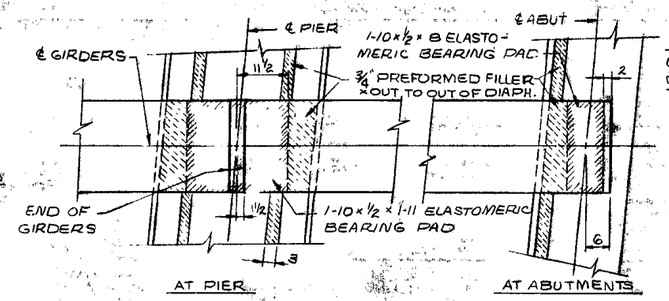


PLAN

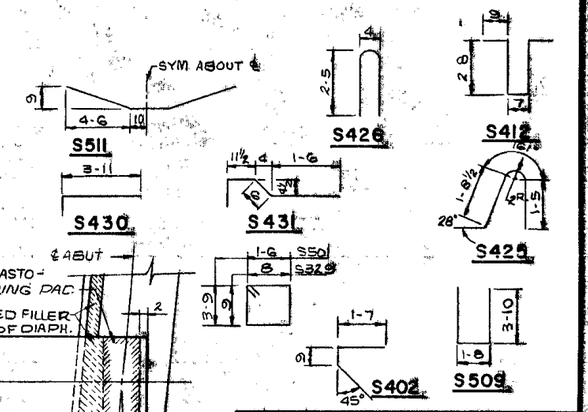


PART LONGITUDINAL SECTION

\# PARALLEL TO ℄ GIRDER
* NORMAL TO ℄ SUBSTRUCTURE UNIT



BEARING PAD DETAIL



No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

Const. Spec.	Drawn By	Plans Checked
1975	DEO	FWB

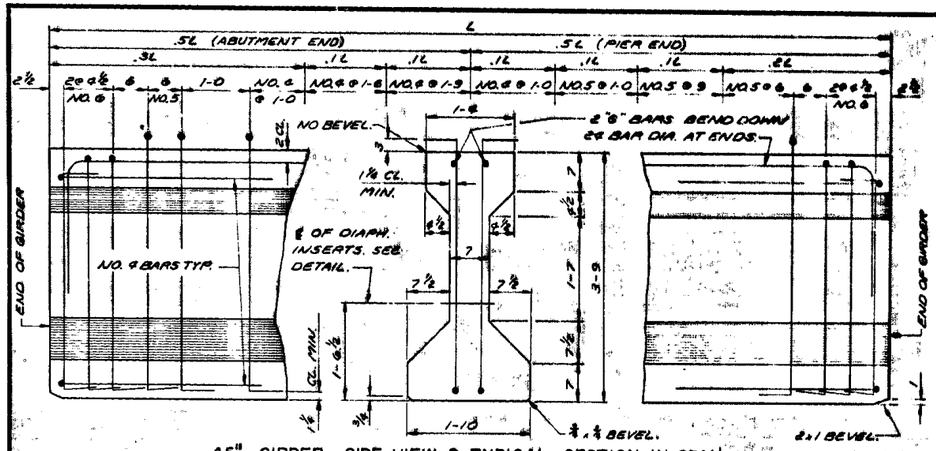
SUPERSTRUCTURE

SHEET 8 OF 10

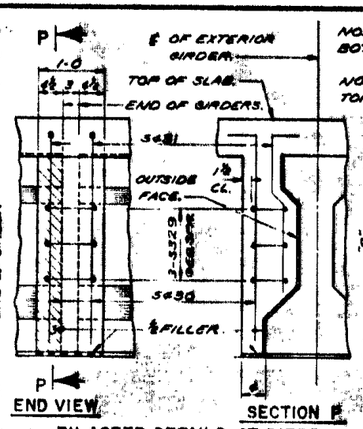
X58030

Form E-B-12-69

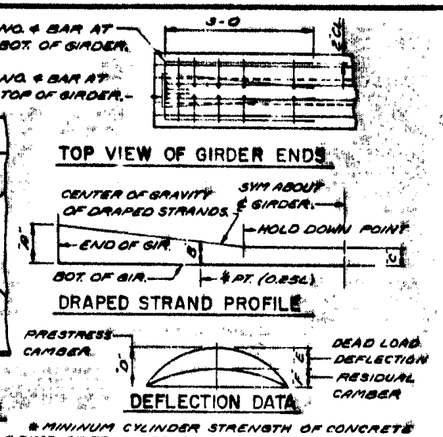
STATE PROJECT NUMBER	SHEET NO.
1225-1-87	7.18



45" GIRDER – SIDE VIEW & TYPICAL SECTION IN SPAN



PILASTER DETAILS AT PIERS



* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.
** TOTAL INITIAL PRESTRESS FORCE IN KIPS.

GIRDER DATA	USE DIAPH INSERT DETAIL TYPE "A"				USE NO. 4 "G" BARS WITH A 1'-0 LG LAP											
		DEFLECTION DATA (IN.)					DRAPED STRANDS						UNDRAPED STRANDS		
SPAN	GIRDER LENGTH "L"	"D"	"E"	"H"	TYPE OF STRANDS	NO. OF STRANDS	f'ci * (psi.)	** "P"	(INCHES) "A"	"B" MIN	"B" MAX.	"C"	NO. OF STRANDS	f'ci * (psi.)	** "P"
1	76-4½	1¾	1	⅝	STRESS RELIEVED	38	4,800	868	32	11¾	14¾	6			
					LOW RELAXATION	28	4,800	810	38	12½	15½	4			
2	80-4½	2⅜	1¼	1⅛	STRESS RELIEVED	36	5,260	1042	34	12¼	15¼	6			
					LOW RELAXATION	34	4,960	984	34	12¼	15¼	6			

NOTES

TOP OF GIRDERS TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BONDING TO THE SLAB.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

PRESTRESSING STRANDS SHALL BE ½" Ø 7-WIRE STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi AND SHALL BE FLUSH WITH THE ENDS OF THE GIRDER.

INSERTS SHALL BE PLACED ON 6" CTRS. SYMMETRICALLY ABOUT THE ℄ OF DIAPHRAGMS IN SPANS.

ALL STIRRUPS SHALL BE IN PAIRS AND THE SPACING SHOWN IN "SIDE VIEW" IS MAXIMUM. THE LOCATION SHALL BE SHOWN IN THE SHOP DRAWINGS.

BEND EACH END OF NO. 4 AND NO. 3 STIRRUPS @" AND NO. 6 STIRRUPS @½".

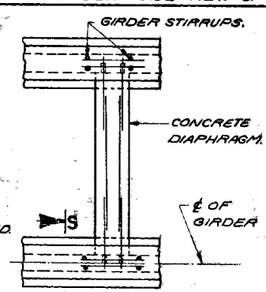
ENDS OF STRANDS SHALL BE PAINTED WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (THIS APPLIES ONLY TO THOSE ENDS OF GIRDERS THAT ARE FINALLY EXPOSED.)

BARS "G" MAY BE SPLICED AT THE ⅓ POINTS OF GIRDER. USE LAP LENGTH SHOWN.

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

INTERIOR GIRDER

EXTERIOR GIRDER TYPE "A"



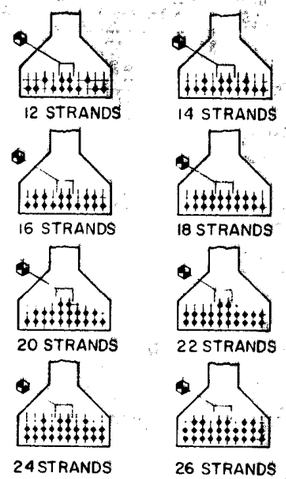
NOTE: SECTION "S" IS IDENTICAL TO "EXTERIOR GIRDER" DETAIL TYPE "A".

PLAN

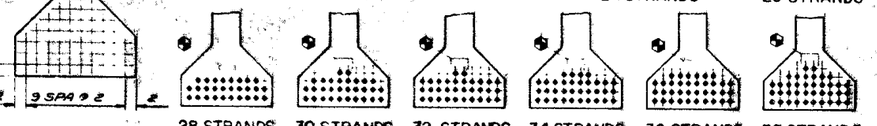
TYPE "B"

DIAPHRAGM INSERT DETAILS

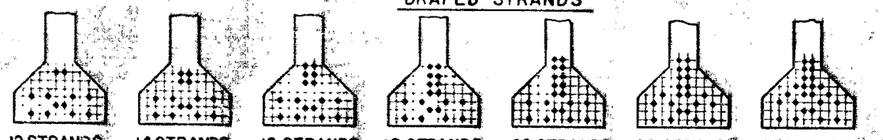
TYP. STRAND GRID



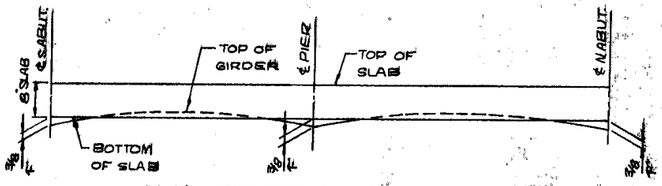
DRAPED STRANDS



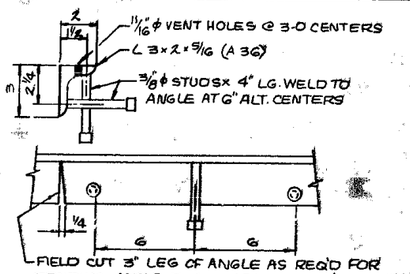
DRAPED STRANDS



UNDRAPED STRANDS



SLAB FORMING DIAGRAM



PROTECTION ANGLE DETAIL

STRUCTURAL CARBON STEEL ANGLES SHALL NOT BE PAINTED

TO COMPENSATE FOR VARIATIONS IN PRESTRESS CAMBER AND OTHER MINOR CONSTRUCTION DISCREPANCIES THE IMBEDMENT OF THE GIRDER INTO THE SLAB MAY BE VARIED WITH A MAXIMUM OF 1½" ALLOWABLE IMBEDMENT AND THE SLAB HELD TO PLAN THICKNESS.

* IF VARIATIONS IN PRESTRESS CAMBER AND OTHER CONSTRUCTION DISCREPANCIES ARE OF SUCH A MAGNITUDE THAT THE MAXIMUM ALLOWABLE IMBEDMENT AS NOTED ABOVE WILL BE EXCEEDED, THESE DIMENSIONS SHALL BE REVISED. THE 1½" IMBEDMENT AND THE PLAN SLAB THICKNESS SHALL BE HELD WHILE THE GRADE LINE WILL BE REVISED.

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

Const. Spec.	Drawn By	Plans Checked
1975	DEO	FWG

45" PRESTRESSED GIRDER DETAILS

SHEET 9 OF 10

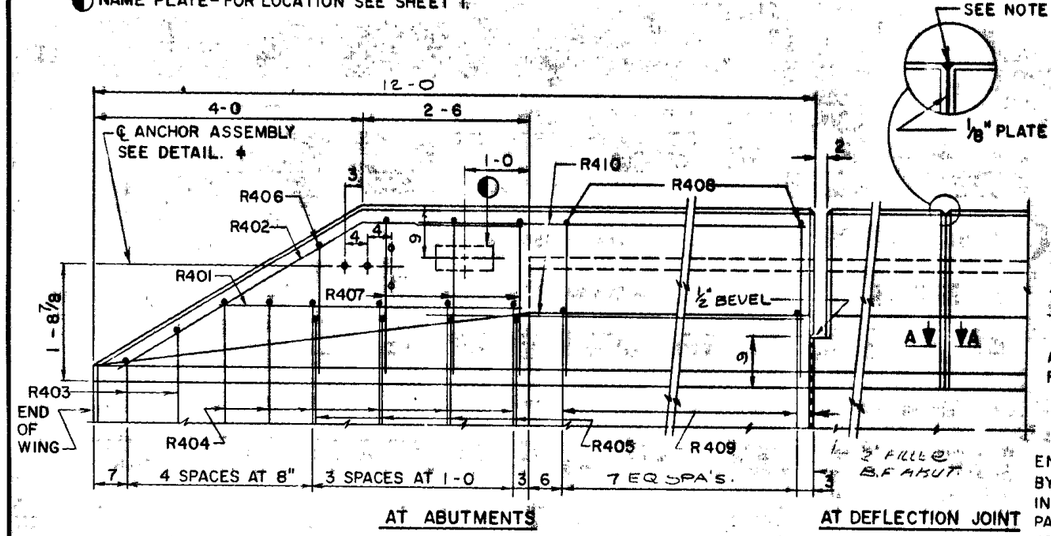
X58031

Form S-B-12-68

ORIGINAL

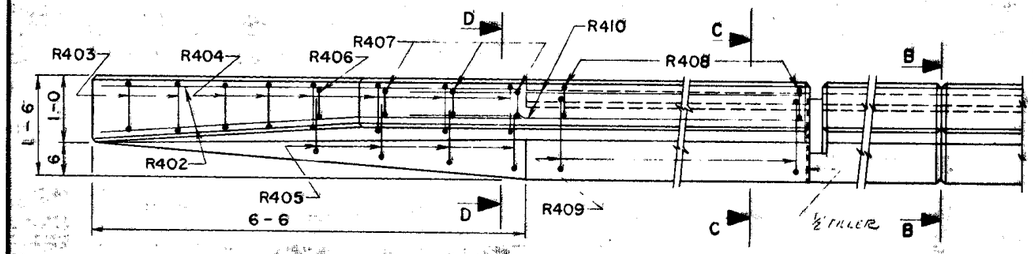
STATE PROJECT NUMBER	SHEET NO.
1225-1-87	7.19

◐ NAME PLATE - FOR LOCATION SEE SHEET 1.



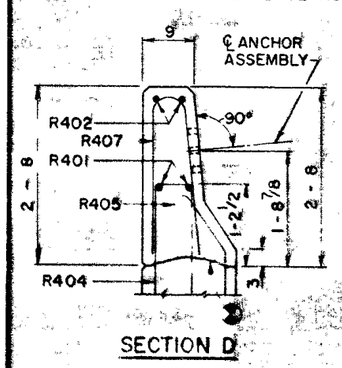
AT ABUTMENTS — AT DEFLECTION JOINT

ELEVATION OF PARAPET

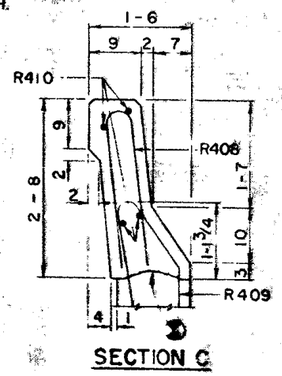


PLAN OF PARAPET

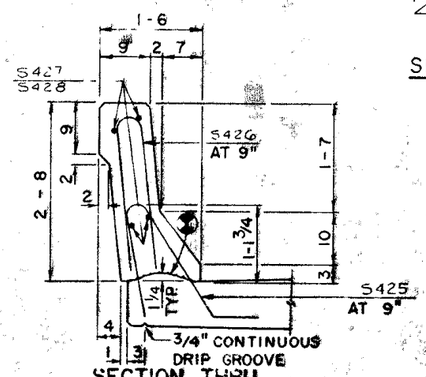
◐ CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.



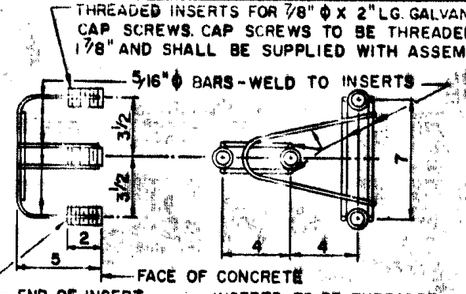
SECTION D



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 OMMITED.

NOTE 'A' - FILL WITH NON-STAINING, GRAY, NON-BITUMINOUS JOINT SEALER.

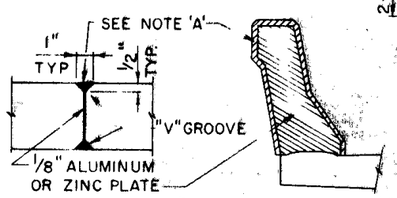
✱ PLACE ANCHOR ASSEMBLY AT ALL ABUTMENT WINGS WHERE ATTACHMENT FOR BEAM GUARD RAIL IS NEEDED. SEE SHEET 1.

PARAPET BILL OF BARS AT ABUTMENTS

260 # S. ABUT. *
260 # N. ABUT. *

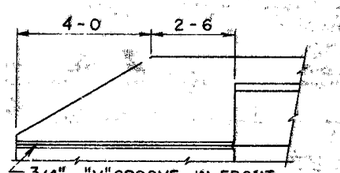
MARK	NO. REQ'D. S. ABUT	NO. REQ'D. N. ABUT	LENGTH	BENT	LOCATION
R401	4	4	4-6		WINGS
R402	4	4	6-8	X	"
R403	4	4	4-1	X	"
R404	12	12	4-11	X	"
R405	8	8	3-1	X	"
R406	2	2	4-0	X	"
R407	6	6	5-0	X	"
R408	16	16	5-0	X	"
R409	16	16	4-7	X	"
R410	8	8	7-6		"

✱ ABUTMENT TOTAL ESTIMATED QUANTITIES INCLUDE THIS WEIGHT.



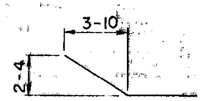
SECTION A

SECTION B

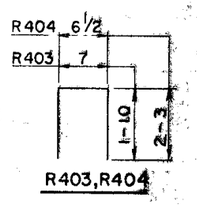


3/4" "V" GROOVE IN FRONT FACE OF WINGWALL ONLY.

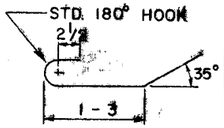
VIEW SHOWING FRONT FACE OF PARAPET



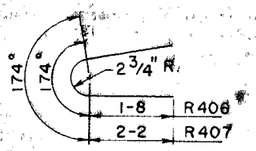
R402



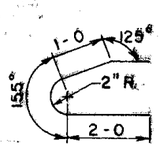
R403, R404



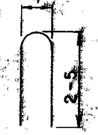
R405



R406, R407



R409



R408

No.	Date	Revision	By

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

STRUCTURE B-36-71

Const. Spec. 1975	Drawn By JHG	Plans Checked FJG

SLOPED FACE PARAPET "B"

SHEET 10 OF 10

X58032

Form E-8-12-69

PROJECT ID: 1224-07-71
WITH: N/A

(DESIGN ID: 1224-07-00)

COUNTY: MANITOWOC

INDEX OF SHEETS

TOTAL SHEETS = 80

24

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

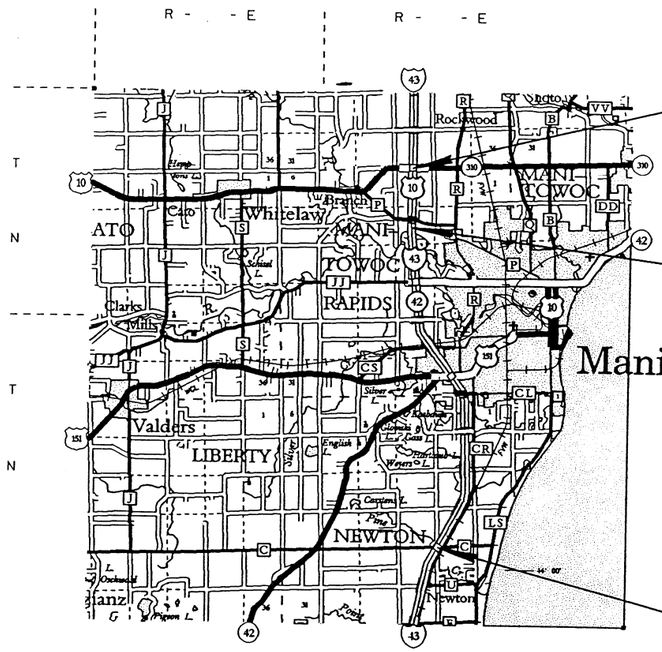
PLAN OF PROPOSED IMPROVEMENT

CTH C - USH 10

IH 43
MANITOWOC COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1224-07-71	IM 2001 (023)	1

STATE PROJECT NUMBER
1224-07-71



END PROJECT
STA 170+00 NB ℄
(END CONSTRUCTION STA 170+00 SB ℄)

EQUATION
90+00 NB ℄ AH=
990+00 NB ℄ BK

BEGIN PROJECT
STA 521+50 NB ℄
(BEGIN CONSTRUCTION STA 521+50 SB ℄)
X = 2,599,550 (±200')
Y = 739,450 (±200')

COORDINATES ARE SCALED FROM USGS TOPOGRAPHIC MAP MANITOWOC, WISCONSIN QUADRANGLE. FOR IDENTIFICATION ONLY.

LAYOUT
SCALE 0 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 10.38 MI.

DESIGN DESIGNATION

A.D.T.	2001	= 11,120 NB	11,640 SB
A.D.T.	2021	= 17,080 NB	17,890 SB
D.H.V.		= 2,289 NB	2,397 SB
D.		= 50/50	
T.		= 11.7%	
DESIGN SPEED		= 65 MPH	
ESALS		= 8,402,300	

CONVENTIONAL SYMBOLS

COUNTY LINE
CORPORATE LIMITS
PROPERTY LINE (P.L. + 58.1)
LOT LINE
LIMITED EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE
SURVEY LINE
SLOPE INTERCEPT
ORIGINAL GROUND
MARSH OR ROCK PROFILE (To be notes as such) (ROCK)
MARSH AREA
WOODED OR SHRUB AREA

COMBUSTIBLE FLUIDS
UNDERGROUND UTILITIES
GAS — G
ELECTRIC — E
TELEPHONE OR TELEGRAPH — T
COMMUNICATIONS LINE — C
SERVICE PEDESTAL
POWER POLE
TELEPHONE POLE
RAILROAD
SANITARY SEWER — SAN
STORM SEWER — SS
WATER — W
EXISTING CULVERT
PROPOSED CULVERT (Box or Pipe)
CULVERT (Profile View)

THIS PLAN IS SUBJECT TO FEDERAL OVERSIGHT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor
Designer J. J. GRAINGER, F. N. HEINTZ
District Examiner
District Supervisor S. C. NOEL
Proj. Dev. Engineer
C.O. Examiner N.R. AFFELDT

APPROVED FOR DISTRICT OFFICE
DATE: 6/29/00 (Signature)

AUTHORIZED FOR BUREAU OF HIGHWAY DEVELOPMENT
DATE: 7/27/00 (Signature)

E

FILE NAME : d3_122407i01.dgn
PLOT DATE: 5-15-2000
ORG DATE : 5-15-2000
PLOT NAME : 101d
Originator : Dist 3
PLOT SCALE :

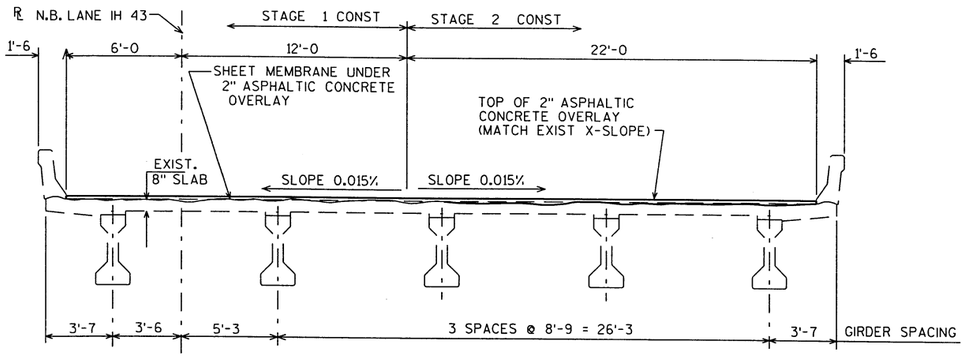
WISDOT/CADDS SHEET 10

4/15-D

DISTRICT CONTACT: ROOYAKKERS/KROOK

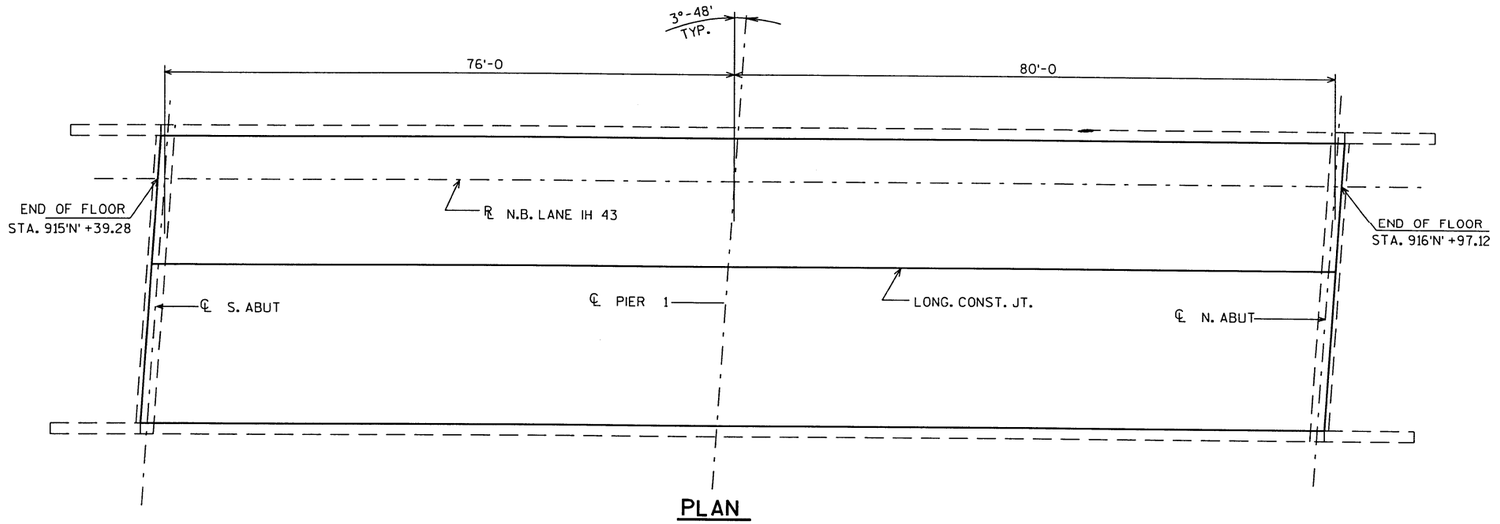
TYPE CODE = X

STATE PROJECT NUMBER	SHEET NO.
1224-07-71	8.14

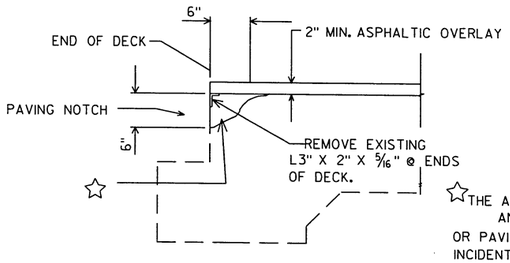


CROSS SECTION THRU ROADWAY

(LOOKING NORTH)



PLAN



☆ THE ANGLE REMOVAL AND ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR PAVING BLOCK AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTIAL TO THE BID ITEM 'CONCRETE MASONRY, DECK PATCHING.'

DETAIL AT S. END OF DECK

DESIGN DATA

LIVE LOAD :

INVENTORY RATING : HS20

OPERATIONAL RATING : HS39

MAX. STANDARD PERMIT VEHICLE LOAD = 250 KIPS

ULTIMATE DESIGN STRESSES :

CONCRETE MASONRY, SLAB _____ f'c = 4,000 p.s.i.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS ARE BASED ON THE EXISTING ORIGINAL PLANS.

TOTAL ESTIMATED QUANTITIES

SHEET MEMBRANE WATERPROOFING	702 S.Y.
ASPHALTIC CONCRETE PAVEMENT, SUPERPAVE	76 TON
ASPHALTIC MATERIAL FOR PLANT MIXES	4.6 TON
CONCRETE MASONRY, DECK PATCHING	4 C.Y.
CURB RESURFACING	314 L.F.
PREPARATION, DECKS, TYPE 1	38 S.Y.
PREPARATION, DECKS, TYPE 2	8 S.Y.
GROUTING BRIDGE DECK	1 L.S.
SAWING PAVEMENT, DECK PREPARATION AREAS	209 L.F.

LIST OF DRAWINGS

1. ASPHALTIC OVERLAY

BRIDGE OFFICE CONTACTS :

FINN HUBBARD (608) 266-8489

DAVE KIEKBUSCH (608) 266-5084

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-36-71

IH 43 N.B. OVER C.T.H. JJ

COUNTY: MANITOWOC		TOWN/~~CITY/VILLAGE~~: MANITOWOC RAPIDS	
DESIGN SPEC.: AASHTO 1998		LOAD: ———	CONST. SPEC.: 1996
DESIGNED BY: DJK	DESIGN CK'D.: ———	DRAWN BY: RJG	PLANS CK'D.: DJK

APPROVED: KHAnderson 08-07-00
CHIEF STRUCTURAL DESIGN ENGINEER — DATE

ASPHALTIC OVERLAY

SHEET 1 OF 1

DATE: APR '99

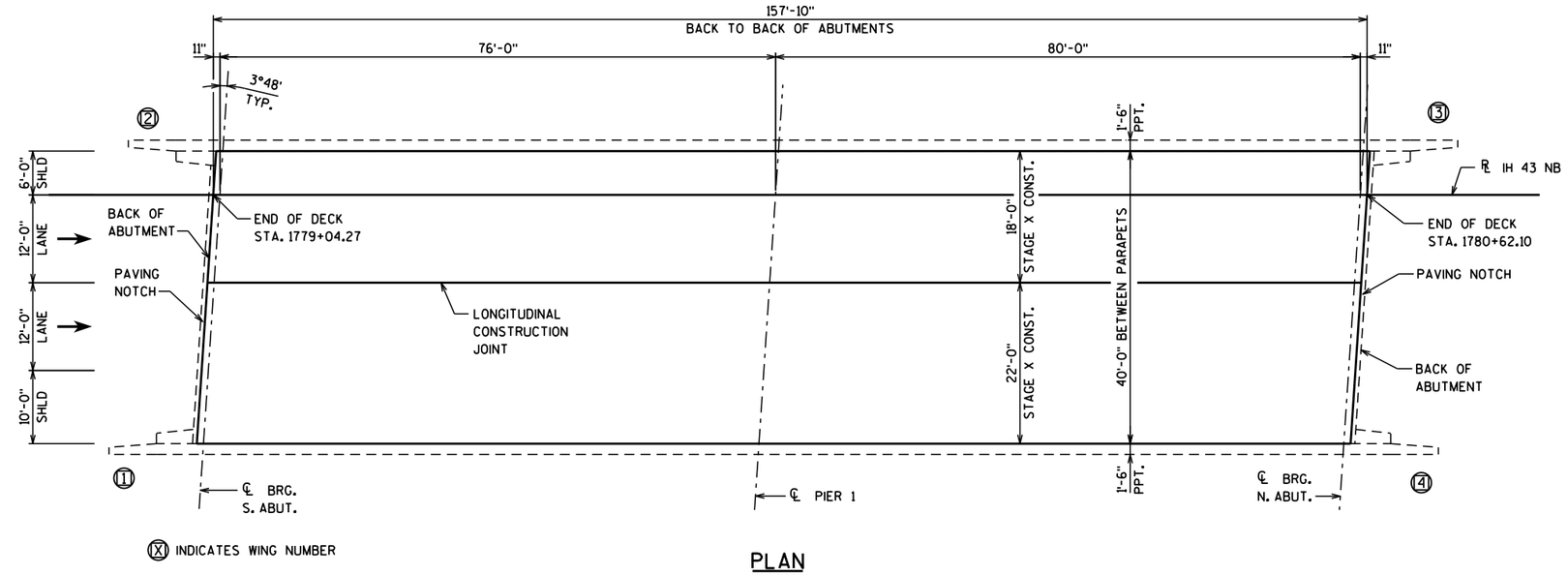
I.D. 1224-07-00E

DISTRICT CONTACT

SCALE = 10

FILE= 710VLAY.DGN

STATE PROJECT NUMBER
1225-10-71



(X) INDICATES WING NUMBER

PLAN

DESIGN DATA

LIVE LOAD:

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

MATERIAL PROPERTIES:

CONCRETE MASONRY OVERLAY
DECKS & PARAPETS: ——— f'c = 4,000 p.s.i.
BAR STEEL REINFORCEMENT
GRADE 60: ——— fy = 60,000 p.s.i.

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 ——— 702 SY

TRAFFIC DATA

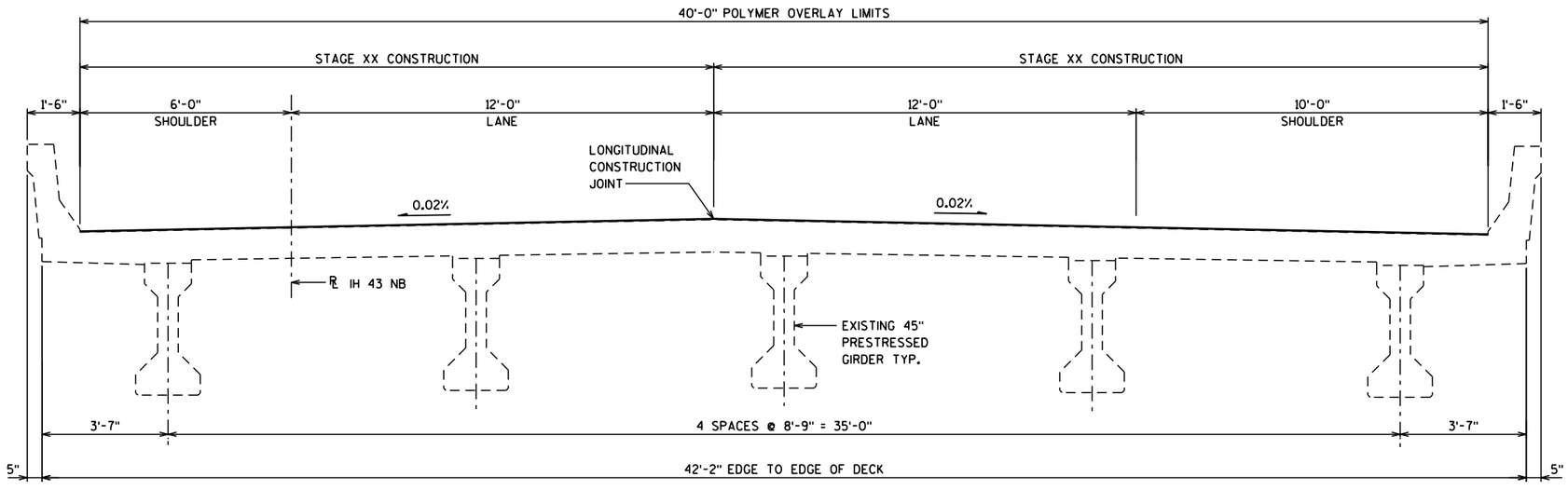
ADT = 11,800 (2036)
RDS = 70 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN

BRIDGE OFFICE CONTACT
WILLIAM DREHER
(608) 266-8489

CONSULTANT CONTACT
KRISTOFER OLSON
OMNNI ASSOCIATES
(920) 735-6900



CROSS SECTION THRU EXISTING ROADWAY

(LOOKING NORTH)

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
OMNNI ASSOCIATES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-36-71

IH 43 NB OVER USH 10/STH 42/CTH JJ

COUNTY	TOWN
MANITOWOC	MANITOWOC RAPIDS

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
BRE	KRO	BRE	KRO

GENERAL PLAN

SHEET 1 OF 1

8

8

WISCONSIN DEPARTMENT OF TRANSPORTATION
BRIDGE LOAD RATING SUMMARY

Bridge Data (used in this rating)

Bridge Number: B36-071	**Section Loss(%):** *
Feature Carried: IH 43 NB	**SL Description:** *
Rating Date: 24-May-2013	**Overburden Depth(in):** 2.0
Span Type: DECK GIRDER	**Overburden Type:** BITUMINOUS
Span Material: CONT PREST CONC	**Last Inspection Date:** 14-Sep-2011*

* Inspection data reflects last inspection prior to rating. Latest inspection is on09-Sep-2013

Bridge Load Rating Summary

Rating Method: LFR	**Rating Vehicle:** HS20			
	Rating	**Controlling Element**	**Controlling Location (ft)**	**Live Load Distribution Factor**
Inventory:	HS19.6	DECK GIRDER Positive Moment	SPAN 1	1.59
Operating:	HS39.9	DECK GIRDER Positive Moment	SPAN 1	1.59

Wisconsin Standard Permit Vehicle (Wis-SPV)

	MVW (kips)	**Controlling Element**	**Controlling Location (ft)**	**Live Load Distribution Factor**
:				
:				

Posting Vehicle Type*	**Vehicle GVW (kips)**	**Operating Rating (kips)**	**Controlling Element/Controlling Check**	**Controlling Location (ft)**	**Live Load Distribution Factor**
WISSPV 250	0.0	258	DECK GIRDER Positive Moment	SPAN 1	1.59
WISSPV 250	0.0	328	DECK GIRDER Positive Moment	SPAN 1	1.25

* Posting Vehicle Analysis (Run only when HL-93 Operating RF <1.0 or when HS20 Operating RF <1.0

Remarks/Recommendations:	**Load Rating Engineer**
	Name: Dietsche, Joshua **Date:** 24-May-2013 PE Stamp Here

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