From:	Parve, Lance - DOT
To:	Mohammed H. Zagloul, S.E., P.E.
Subject:	FW: For your Review and Comments from Consultant - 1090-05-02/72 and 1090-35-00/70 I-43 Rock Freeway Bridges: Rehab Items - feel free to further comment
Date:	Monday, March 25, 2019 9:38:02 AM

Julie's comments in blue…

Lance,

See my comments below in blue.

Julie Brooks, PE

1090-05-02/72 Rehab items (Consultant – Black) and (DOT-your comments-Red)- While reviewing the inspection reports for the subject bridges, in addition to polymer overlay, we notice that there are some maintenance recommendations that needs to be taken care off for 124Th street bridge. These are :

1. Remove loose concrete from bottom flanges of prestressed concrete girders. Fill existing cracks & spalled areas (some areas have exposed rebar and/or strands). Loose concrete around spalls should be removed and spalls patched using Concrete Surface Repair item. Don't include shallow spalls in webs since the patching material would probably just fall off. Cracks in the girders should be filled using the Epoxy Crack Injection item. (This crack filling would only be used on the girders – not abutments or other reinforced concrete elements such as parapets.)
2. Repair failed patch at the pier (column 3) This would be done under the Concrete Surface Repair item.
3. Place AC curb at SW wing tip Could be done with milling and overlaying the approaches.
4. Repair approaches from settlement and drainage issues Since the approaches are settling, they should be milled and overlaid.
5. Seal approaches at paving blocks Could be included with milling and overlaying approach.
6. Patch and seal abutment cracks. Water seeping through north abutment between girders 1 & 2 at the diaphragm If the joint between the approach and the deck is properly sealed, water most likely would stop seeping through below. We usually don't bother with Epoxy Crack Filling of cracks in the abutments.
7. Patch and seal pier cap spalls and cracks Concrete Surface Repair item should be used for patching spalls and delams. Cracks typically aren't addressed in pier caps unless extremely wide.
8. Seal vertical cracks on concrete parapet at both inside and outside faces This is not needed, only use Concrete Surface Repair item for patching spalls and delams.
9. Patch spalled areas at wingwalls Use Concrete Surface Repair item for patching the spall.
10. Slope paving pulling away from abutments by 2-3". Top panels at SW corner of slope paving appear to be settling. Fix cracking at slope paving. Cracked panels could be replaced. The separation at the top could be filled with an epoxy filler.

We are wondering if Maintenance like to take care of these items as well. Yes
We also, noticed a sudden drop in Inventory and Operating ratings from to 2014 inspection report (INV R=HS 24, OP R=HS 48) to 2016 inspection report (INV R= HS 19, OP R= HS 32). We looked at the DOT HSI system and we could not find any supporting calculations / documents or a reason(s) of why this drop. Will you please obtain any documentation from BOS that has these information. This information would be available from the BOS rating unit (Josh Dietsche's unit).

We find no other items in 116th St. Bridge that require immediate attention other than scoped. The approach sidewalks could be adjusted/replaced. They are settled at all 4 corners and this is a high pedestrian traffic area because of a school nearby. This work would be shown in roadway plans – not the structure plans.

From: Brooks, Julie - DOT
Sent: Friday, March 22, 2019 10:00 AM
To: Parve, Lance - DOT <Lance.Parve@dot.wi.gov>
Subject: RE: For your Review and Comments from Consultant - 1090-05-02/72 and 1090-35-00/70 I-43 Rock Freeway Bridges: Rehab Items - feel free to further comment

Lance,

See my comments below in blue.

Julie Brooks, PE

From: Parve, Lance - DOT
Sent: Wednesday, March 13, 2019 4:26 PM
To: Brooks, Julie - DOT <julie.brooks@dot.wi.gov>
Subject: For your Review and Comments from Consultant - 1090-05-02/72 and 1090-35-00/70 I-43 Rock Freeway Bridges: Rehab Items - feel free to further comment

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<< File: B-40-0376_qty - Prelim.pdf >> << File: B-40-0377_qty - Prelim.pdf >>

1090-35-00/70 Rehab items (attached spreadsheet)

<< File: 10903570- IH43-RehabItems.xlsx >>

(Still Awaiting Info on 4 HNTB Bridges – B-40-111, B-40-112, B-40-296, and B-40-297)

Realize that B-40-293, B-40-294, B-40-295, B-40-296, and B-40-297 are past effective TPO 10=yr

dates for rehab
even though BOS is forwarding TPOs for these bridges. All these bridges were built in 2007 and 2008. They are past the 10-year limit for placing TPO's. I highly recommend removing them from the project. If they stay in the project, maybe the treatment could change to a methacrylate sealer instead to seal any cracks. This would be better than a TPO which has a higher probability of failing.

708 Heartland Trail, Suite 3000
Madison, WI 53717

608.826.3600 PHONE
608.826.3941 FAX

www.TRCsolutions.com

Bridge Asbestos Inspection Report

WisDOT Project ID: 1090-05-02
Structure Number: B-40-0377
Structure Name: 116th Street over IH 43
City/County: City of Greenfield, Milwaukee County
Lat/Long Coordinates: 425726.4/ 880328.09
TRC Project Number: 258938.0000.0000
Date Inspected: June 21, 2016
Inspected By/License Number: John Roelke, AII-119523

Findings:

The inspection to identify and collect samples of potential asbestos-containing material (ACM) was completed following WisDOT standard sampling procedure for bridge inspections found in FDM 21-35-45.

None of the materials that were identified as potentially ACM and sampled tested positive for asbestos. The overlay on the bridge can proceed as planned. Standard Special Provision (STSP) 107-125 should be included in the specifications.

Sample Number	Sample Description	Sample Location	Analytical Results and Method	Friable/ Non-friable or No ACM	Quantity of ACM Material
1	Caulk	Abutment joint	PLM, non-detect	No ACM	0
2	Caulk	Abutment joint	PLM, non-detect	No ACM	
3	Caulk	Abutment joint	PLM, non-detect	No ACM	
4	Caulk	Parapet joint	PLM, non-detect	No ACM	0
5	Caulk	Parapet joint	PLM, non-detect	No ACM	
6	Caulk	Parapet joint	PLM, non-detect	No ACM	
7	Black paint	Pedestrian fence	PLM, non-detect	No ACM	0
8	Black paint	Pedestrian fence	PLM, non-detect	No ACM	
9	Black paint	Pedestrian fence	PLM, non-detect	No ACM	

Sample Number	Sample Description	Sample Location	Analytical Results and Method	Friable/ Non-friable or No ACM	Quantity of ACM Material
10	Caulk	Around pedestrian fence attachment plate	PLM, non-detect	No ACM	0
11	Caulk	Around pedestrian fence attachment plate	PLM, non-detect	No ACM	
12	Caulk	Around pedestrian fence attachment plate	PLM, non-detect	No ACM	
13	Caulk	Around bolts in fence attachment plate	PLM, non-detect	No ACM	0
14	Caulk	Around bolts in fence attachment plate	PLM, non-detect	No ACM	
15	Caulk	Around bolts in fence attachment plate	PLM, non-detect	No ACM	
16	Paint	Girder	PLM, non-detect	No ACM	0
17	Paint	Girder	PLM, non-detect	No ACM	
18	Paint	Girder	PLM, non-detect	No ACM	

If you have any questions, please contact me, at (608) 826-3628.

TRC Environmental Corporation

Daniel Haak
Project Manager

John Roelke
Asbestos Inspector

Attachments: Location Map, Photos, and Laboratory Report

Report Distribution:

Recipient	Electronic (PDF) Copy	Paper Copy
BTS-ESS sharlene.tebeest@dot.wi.gov	X (via email)	X
REC andrew.malsom@dot.wi.gov	X (via email)	
Project Manager ashley.kiepczynski@dot.wi.gov	X (via email)	
Other steven.ring@dot.wi.gov	X (via email)	

ID 1090-05-02/72

IH 43 Bridge Rehab

MILWAUKEE 40-SE

OZAUKEE CO.

WAUKESHA CO.

RACINE CO.

Brown Deer

River Hills

Bayside

Fox Point

Glendale

Whitefish Bay

Shorewood

Wauwatosa

Milwaukee

Lake Michigan

W. Milwaukee

W. Allis

St. Francis

Cudahy

Hales Cors.

Greendale

Greenfield

South Milwaukee

Franklin

Oak Creek

Town of Raymond

Town of Caledonia

T-8-N

T-7-N

T-6-N

T-5-N

R-21-E

R-22-E

2,510,000' E

2,550,000'

2,590,000' E

450,000' N

400,000'

350,000'

310,000' N

88° 00'

43° 00'

LEGEND

- Freeway
- Multilane Divided
- U.S. or State Hwy
- County Trunk Hwy
- Town Road
- Firelane
- Railroad
- State Trail
- Interchange
- Highway Separation
- Interstate Highway No. (94)
- U.S. Highway No. (18)
- State Highway No. (59)
- County Highway Letter (T)
- State Boundary
- County Boundary
- Civil Town Boundary
- Section Line
- Dam
- Hospital
- Airport
- County Seat
- Unincorporated Village
- Fish Hatchery
- Game Farm
- Public Hunt. or Fish. Grds.
- Public Camp & Picnic Grds.
- Ranger Station
- State Park
- County Park ..... With Facilities
- Without Facilities
- Rest Area ..... Modern Facilities
- Wayside ..... Rustic Facilities

Milwaukee Co. House of Correction [1]
University of Wisconsin – Milwaukee [2]
State Fair Park [3]
Wood Veterans Hospital [4]
Miller Park [5]
Milwaukee Co. Zoo [6]
Marquette University [7]
Schlitz Audubon Nature Center [8]
BMO Harris Bradley Center [9]
Port of Milwaukee [10]
Milwaukee Secure Detention Facility [11]
Marshall Sherrer Correctional Center [12]
Milwaukee Women's Correctional Ctr. [13]
Felmers O. Chaney Correctional Center [14]

Grid based on the state plane coordinate system south zone and the NAD 27

For boundaries of public hunting and fishing grounds please contact the Department of Natural Resources

REGIONS

NW NE NC SW SE

MILES OF HIGHWAY
as of Dec. 31, 2013

STATE	254
COUNTY	145
LOCAL ROADS	2619
OTHER ROADS	0
TOTAL FOR COUNTY	3018
Land Area (2010 Census)	241 sq mi
Population (2010 Census)	947735
County Seat	Milwaukee

MILWAUKEE CO.

DEPARTMENT OF TRANSPORTATION
STATE OFFICE BUILDING
Madison, Wisconsin

SCALE 0 1 2 MILES

Corrected for
JAN. 2016

Base compiled from U.S.G.S. Quadrangles
1:100,000 Series

MILWAUKEE 40-SE

B-40-0377

Caulk in abutment joint

Caulk in parapet joint

Black paint on pedestrian fence

Caulk around pedestrian fence attachment plate and around bolts in plate (did not observe any gaskets under plate)

Paint on girder

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

TRC
Results you can rely on

BULK ASBESTOS ANALYSIS REPORT

CLIENT: Wisconsin Department of Transportation

Lab Log #: 0048472
Project #: 258938.0000.0000
Date Received: 06/28/2016
Date Analyzed: 06/29/2016

Site: DOT Bridge Inspection, B-40-377

POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials	Asbestos %	Asbestos Type
B-40-377 (1)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (2)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (3)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (4)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (5)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (6)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (7)	Black	Yes	No	- -	- - -	ND	None
B-40-377 (8)	Black	Yes	No	- -	- - -	ND	None
B-40-377 (9)	Black	Yes	No	- -	- - -	ND	None
B-40-377 (10)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (11)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (12)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (13)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (14)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (15)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (16)	Grey	Yes	No	- -	- - -	ND	None
B-40-377 (17)	Grey	Yes	No	- -	- - -	ND	None

Industrial Hygiene Laboratory
21 Griffin Road North
Windsor, CT 06095
(860) 298-6308

TRC
Results you can rely on

POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials	Asbestos %	Asbestos Type
B-40-377 (18)	Grey	Yes	No	- -	- - -	ND	None

Reporting limit- asbestos present at 1%
ND - asbestos was not detected
Trace - asbestos was observed at level of less than 1%
NA/PS - Not Analyzed / Positive Stop
SNA- Sample Not Analyzed- See Chain of Custody for details

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, EPA recommends, and certain states (e.g. NY) require, that negative results be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation 1982 (EPA 600/M4-82-020) Bulk Analysis Code 18/A01 and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials July 1993, R.L. Perkins and B.W. Harvey, (EPA/600/R-93/116) Bulk Analysis Code 18/A03, which utilize polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2016. TRC is accredited by the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC in the Industrial Hygiene Program (IHLAP) for PLM effective through October 1, 2016. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and QC data related to the samples is available upon written request from client.

Analyzed by: K. Williamson — Kathleen Williamson, Laboratory Manager

Reviewed by: Margaret Flanagan — Margaret Flanagan, Approved Signatory

Date Issued
06/29/2016

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Inspection Report for B-40-377

S 116TH ST over IH 43

Apr 17,2018

Type	Prior	Frequency (mos)	Performed
Routine	09-27-16	24	X
Damage	08-10-05		
Interim	09-18-07	0	
SIA Review	09-27-16	48	
Vertical Clearance Measured	09-27-16	0	

Start Coordinates		End Coordinates (optional)	
Latitude	42°57'26.40"N	Latitude	
Longitude	88°03'28.09"W	Longitude	

Owner		Maintainer	
	STATE HIGHWAY DEPT		STATE HIGHWAY DEPT

Time Log

Hours	Minutes
1	30

Team members

	Name	Number	Signature	Date
Inspector	Reay, Scott	2023	Scott Reay E-signed by Scott Reay(swreay)	06-21-18

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

Identification & Location

Feature On:	Section Town Range:	Structure Number:
S 116TH ST	S30 T06N R21E	B-40-377
Feature Under:	County:	
IH 43	MILWAUKEE	
Location	Municipality:	Structure Name:
1.3M N JCT STH 24	GREENFIELD	

Geometry

measurements in feet, except where noted

Approach Roadway Width:	Bridge Roadway Width:	Total Length:
36	36.0	165.0
Approach Pavement Width:	Deck Width:	Deck Area (sq ft):
36	50.0	8250

Traffic

	Lanes	ADT	ADT year	Traffic Pattern
On	2	1800	2011	TWO WAY TRAFFIC
Under	4	59400	2015	TWO WAY TRAFFIC

Capacity

Load Rating

Inventory rating:	Overburden depth (in):	Last rating date:	Controlling:
HS24	0.0	08-21-13	INTERIOR DECK GIRDER Moment
Operating rating:	Deck surface material:	Re-rate for capacity (Y/N):	Control location:
HS40	CONCRETE		4.0 SPAN 1, 33.2
Posting:	Re-rate notes:		

Hydraulic

Classification

Scour Critical Code(113):	Q100 (ft3/sec):	
(N) NO WATERWAY	0	
High water elevation (ft):	Velocity (ft/sec):	Sufficiency #:
0.0	0.0	98.9

Span(s)

Span #	Material	Configuration	Depth (in)	Length (ft)	Main
1	CONT STEEL	DECK GIRDER	36	82.5	Y
2	CONT STEEL	DECK GIRDER	36	82.5	

Expansion joint(s)

Temperature:

File:	New:

Clearance

Item	File Measurement (ft)	File Date	New Measurement (ft)
Highway Min Vertical Under Cardinal	16.03	27-Sep-2016	
Highway Min Vertical Under Non-Cardinal	16.12	27-Sep-2016	
Horizontal Under Cardinal	54.7		
Horizontal Under Non-Cardinal	54.5		
Highway Min Vertical On Cardinal			
Horizontal On Cardinal			

Special Components

Component	Year	Work Performed	Note
DECK - IOWA MIX	1992	OVERLAY - CONCRETE	

Construction History

Year	Work Performed	FOS id
2010	NEW SUPERSTRUCTURE	1090-18-70
2005	REPAIR/REPLACE WINGS	2070-05-70
2002	REPAIR SUPERSTRUCTURE	0077-02-34
2000	REPAIR SUPERSTRUCTURE	0077-02-17
1992	OVERLAY - CONCRETE	1090-04-73
1980	ADD PED FENCING	1090-02-70
1967	NEW STRUCTURE	

Maintenance Items History

Item	Recommended by	Status	Status change	Year completed
Approach - Mud Jacking	Maxwell, Steve (2022)	REJECTED	05/02/18	
Sidewalk approaches should be restored to flush to prevent trips, slips and falls especially close to busy school zone. Mudjack or wedging could be likely alternatives for repair.				

Maintenance Items

Item	Priority	Recommended by	Status	Status change
Approach - Mud Jacking	MEDIUM	Reay, Scott (2023)	IDENTIFIED	05/02/18
Repair settled sidewalk approaches - near school, high pedestrian traffic.				

Elements

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	**12**		**Reinforced Concrete Deck-Coated Reinforcing**	SF	8,275	7,541	734	0	0
		1130	Cracking (RC)	SF		532	734	0	0
			Diagonal, HL to narrow cracks w/effl. at all 4 corners**, trans hl-narrow crack with efflorescence span 1 Hl map crk s1 g2-3**						
	8000		Wearing Surface (Bare)	SF	5,940	5,420	520	0	0
		3220	Crack (Wearing Surface)	SF		0	520	0	0
			hl-narrow transverse **and longitudinal** cracks**, more at ends and near center pier.**						
X	**107**		**Steel Open Girder**	LF	994	794	200	0	0
			Spans 1 and 2 numbered from south to north. Girders 1 through 6 numbered from west to east.						
		1000	Corrosion	LF		0	200	0	0
			Spot rust areas on bottom flanges **and at shipping/containment attachment points**						
	8516		Painted Steel	SF	9,877	9,577	200	0	100
		3440	Effectiveness (Steel Protective Coatings)	SF		9,567	200	0	100
			Some areas of rust on bottom flanges and at shipping/containment attachment points.						
X	**205**		**Reinforced Concrete Column**	EA	3	2	0	1	0
		1080	Delamination - Spall - Patched Area	EA		2	0	1	0
			Small delamination w/exp rebar - W. Column near Btm						
X	**215**		**Reinforced Concrete Abutment**	LF	97	75	22	0	0
			Abutment ends **were lengthene**d **with 2010 superstructure** construction.						
		1130	Cracking (RC)	LF		0	22	0	0
			HL-nrw vertical cracks w/ efflorescence.						
X	**234**		**Reinforced Concrete Cap**	LF	42	30	6	6	0
		1080	Delamination - Spall - Patched Area	LF		30	6	6	0
			Top corners of cap spalled due to reconstruction removals.						

X	**331**		**Reinforced Concrete Bridge Rail**	LF	491	413	78	0	0
			Scattered pop outs, especially at reveal edges.						
		1130	Cracking (RC)	LF		413	78	0	0
			HL - narrow vertical cracks w/effl.						
X	**8400**		**Integral Wingwall**	EA	4	1	3	0	0
		8902	Wall Movement	EA		0	3	0	0
			SW tipped 1", caulk broken. NW tipped 1/2", caulk broken. NE caulk broken, 1/4" tip. SE minimal movement, caulk missing.						
		8903	Wall Deterioration	EA		1	0	0	0
			HL vert. cracks						

Assessments

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State 1	2	3	4
X	**9001**		**Drainage - Ends of Structure**	EA	4	4	0	0	0
			Curb & gutter all 4 corners, no inlets Both underdrain pipe discharges lack rodent screens on north approach.						
X	**9009**		**Sidewalk**	EA	2	2	0	0	0
			Few transverse cracks. Settlement between sidewalk approaches and bridges at all four corners. **NW 1 1/8", SW 1 5/8", SE 1 3/8", NE 1"**						
X	**9042**		**Slope Protection- Concrete**	EA	2	0	2	0	0
			S. Slope: Wide horizontal crack with hole at bottom and pothole at DOT fiber crossing SW top corner; N. Slope: **Several medium diagonal/** transverse cracks.						
X	**9167**		**Steel Diaphragm**	EA	45	45	0	0	0
			Areas of spot rust generally confined to top and bottom of diaphragms.						
X	**9322**		**Approach Roadway - Concrete (non-structural)**	EA	2	1	1	0	0
			Longitudinal and transverse **joint**s sealed, tar pulling away from deck, north and south approaches. **Gutter cracked and settled, patched with ac sw corner. Plow abrasion Sb lanes south approach. Settlement between sidewalk approaches and bridges at all four corners.**						
X	**9337**		**Protective Screening**	EA	2	2	0	0	0
			Black vinyl coated 1" mesh beginning to fade and chalk. Posts and rails have duplex coating system.						

NBI Ratings

	File	New
Deck	7	7
Superstructure	8	8
Substructure	8	8
Culvert	N	N
Channel	N	N
Waterway	N	N

Structure Specific Notes

Inspection Specific Notes

Inspector Site-Specific Safety Considerations

Structure Inspection Procedures

Outside and inside shoulder wide enough to park in both NB and SB directions, barrier walls between shoulders and slopes. Parking lane on 116th and sidewalks for access to top.

Special Requirements

	Chk	Hours	Cost	Comments

Routine

Document Comment/Description

Roadway

Routine

Document Comment/Description

SW Wing

Routine

Document Comment/Description

Typical Underside

Routine

Document Comment/Description

C1

Routine

Document Comment/Description

North Approach

Routine

Document Comment/Description

SW Approach

Routine

Document Comment/Description

North side of pier spalls

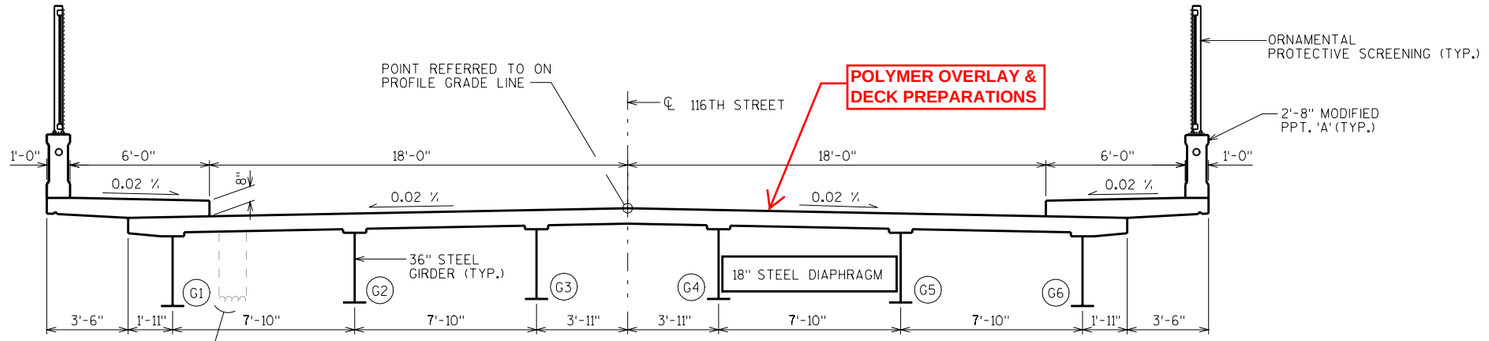
Routine

Document Comment/Description

South side of pier spalls

STATE PROJECT NUMBER

1090-18-70



SUPERSTRUCTURE CROSS SECTION

LOOKING NORTH

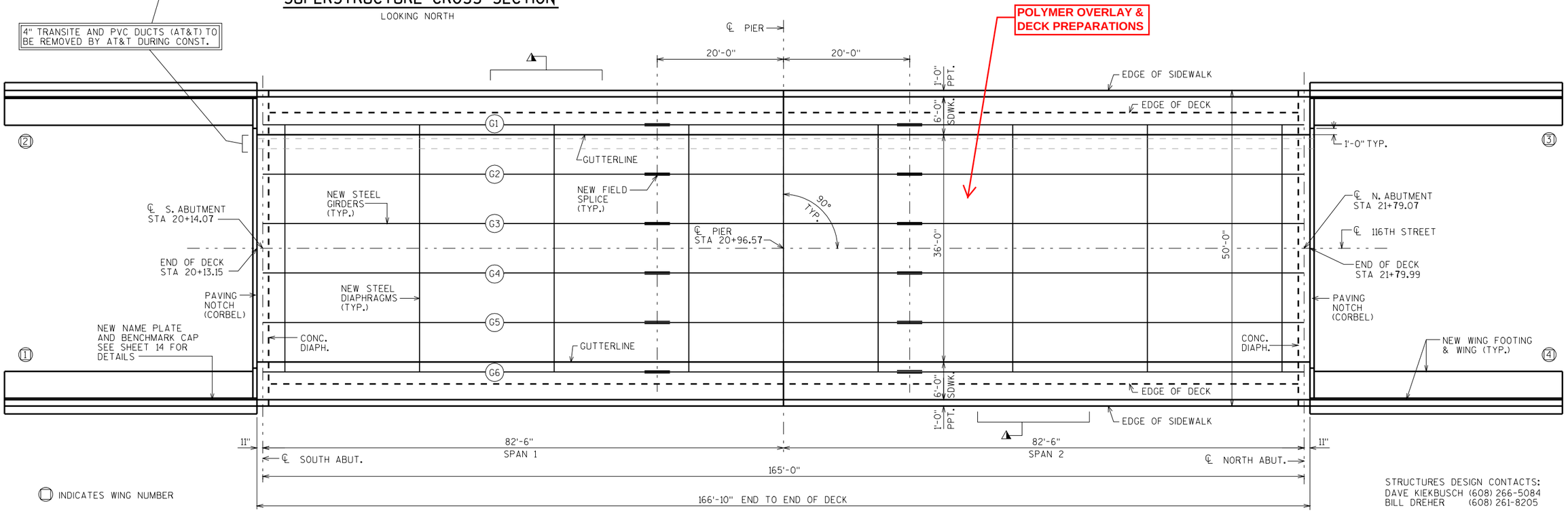
DESIGN DATA

LIVE LOAD:

INVENTORY RATING: HS-28
OPERATIONAL RATING: HS-47
MAXIMUM STANDARD PERMIT VEHICLE LOAD = 250 KIPS.
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

ULTIMATE 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 — fy = 60,000 P.S.I.
HIGH STRENGTH STRUCTURAL STEEL (A.S.T.M. A709 GRADE 50) — Fy = 50,000 P.S.I.
STRUCTURAL CARBON STEEL (A.S.T.M. A709 GRADE 36) — Fy = 36,000 P.S.I.



PLAN

INDICATES WING NUMBER

⚠ APPROX. LOCATIONS OF RECESSED LETTERING IN PARAPETS. SEE SHEETS 11 & 14 FOR DETAILS.

LIST OF DRAWINGS

STRUCTURES DESIGN CONTACTS:
DAVE KIEKBUSCH (608) 266-5084
BILL DREHER (608) 261-8205

NO.	DATE	REVISION	BY

Plans Prepared By **WISDOT**
BUREAU OF STRUCTURES

APPROVED William C. Dreher SDR — CHIEF STRUCTURAL DESIGN ENGINEER — 11-23-07 DATE

STRUCTURE B-40-377

116TH STREET OVER I-43

COUNTY: MILWAUKEE		~~TOWN~~/CITY/~~VILLAGE~~: GREENFIELD	
DESIGN SPEC.: AASHTO STD. SPEC. 2003		LOAD: ——	CONST. SPEC.: 2003
DESIGNED BY: DJK	DESIGN CK'D.: WCD	DRAWN BY: WWR	PLANS CK'D.: JHG

SUPERSTRUCTURE REPLACEMENT

SHEET 1 OF 15

376

I.D. 1090-18-00

DATE: 09/22/2006

SCALE = 8.0

8

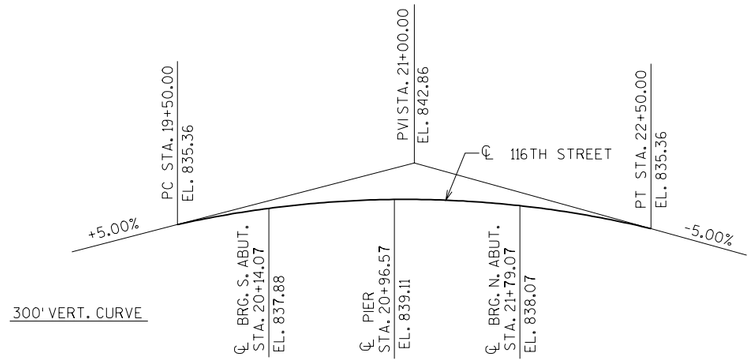
8

STATE PROJECT NUMBER

1090-18-70

TOTAL ESTIMATED QUANTITIES

BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	PIER	TOTALS
REMOVING OLD STRUCTURE STA. 20+96.57	LS	———	———	———	———	1
EXCAVATION FOR STRUCTURES BRIDGES B-40-377	LS	———	———	———	———	1
BACKFILL STRUCTURE	CY	———	300	300	———	600
CONCRETE MASONRY BRIDGES	CY	306	82	82	3	473
MASONRY ANCHORS TYPE L NO. 5 BARS	EACH	———	102	102	42	246
PROTECTIVE SURFACE TREATMENT	SY	760	———	———	———	760
BAR STEEL REINFORCEMENT HS BRIDGES	LB	———	4310	4310	———	8620
BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	56,500	1745	1725	240	60,210
STRUCTURAL STEEL CARBON	LB	16,340	———	———	———	16,340
STRUCTURAL STEEL HS	LB	202,430	———	———	———	202,430
BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	———	6	6	———	12
WELDED STUD SHEAR CONNECTORS 7/8X5-INCH	EACH	3420	———	———	———	3420
BEARING ASSEMBLIES FIXED B-40-377	EACH	———	———	———	6	6
CONCRETE SURFACE REPAIR	SF	———	30	20	5	55
RUBBERIZED MEMBRANE WATERPROOFING	SY	———	20	20	———	40
PIPE UNDERDRAIN 6-INCH	LF	———	90	90	———	180
PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	———	40	40	———	80
GEOTEXTILE FABRIC TYPE DF SCHEDULE A	SY	———	75	75	———	150
CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	510	———	———	———	510
JUNCTION BOXES 18X6X6-INCH	EACH	2	———	———	———	2
RAILING TUBULAR SCREENING B-40-377	LS	———	———	———	———	1
CONCRETE STAINING B-40-377	SF	3216	———	———	———	3216
PAINTING EPOXY SYSTEM B-40-377	LS	———	———	———	———	1
ROADWAY NAME PANEL STRUCTURE B-40-377	LS	———	———	———	———	1
NON-BID ITEMS						
PLASTIC OR ZINC PLATE	SF	14	———	———	———	14
FILLER	SIZE	———	———	———	———	½" & ¾"



PROFILE GRADELINE

BENCH MARK

NO.	DESCRIPTION	ELEV.
244A	ALUM. CAP IN S.E. W.W. B-40-377	837.05

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

AT THE BACKFACE OF ABUTMENT AND NEW WINGS, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.

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

APPLY WHITE STAIN (FEDERAL COLOR NO. 27925) TO ALL FACES OF PARAPET, EXCEPT THE RECESSED STREET NAME LETTERING IN THE PARAPET WHICH SHALL BE STAINED BLACK (FEDERAL COLOR NO. 27038).

APPLY PROTECTIVE SURFACE TREATMENT TO TOP OF DECK, AND TO TOP & CURB FACE OF SIDEWALK. (DO NOT APPLY TO ANY SURFACE OF THE PARAPET)

DIMENSIONS ARE BASED ON THE EXISTING ORIGINAL PLANS.
THE CONTRACTOR SHALL SUPPLY NEW NAME PLATE IN ACCORDANCE WITH SEC 502.3.11 OF THE STD. SPECS. CONTRACTOR TO GET INFORMATION FROM THE EXISTING NAME PLATE.

UTILITY HANGER INSERT INSTALLATION SHALL BE INCLUDED IN THE BID ITEM CONCRETE MASONRY BRIDGES. INSERTS SHALL BE SUPPLIED BY THE UTILITY COMPANY.

THE COLOR OF THE FINISH EPOXY TOP COAT FOR THE GIRDERS AND CONNECTING STRUCTURAL STEEL SHALL BE DARK GRAY (FEDERAL COLOR NO. 26132).

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-377

DRAWN BY WWR | PLANS CK'D. JHG

QUANTITIES

SHEET 2

377

SCALE = 1.0

(A05) CONSTRUCTION JOINT-FORMED BY BEVELED 2 x 6 BETWEEN BEAM SEATS.

(A22) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A26) A515 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

BILL OF BARS

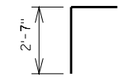
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
◐ A501	X	102	3-9	X		BODY-TOP-VERT. ANCHOR
A402	X	4	26-0			BODY-TOP-HORIZ.
A515	X	33	2-0			DOWELS

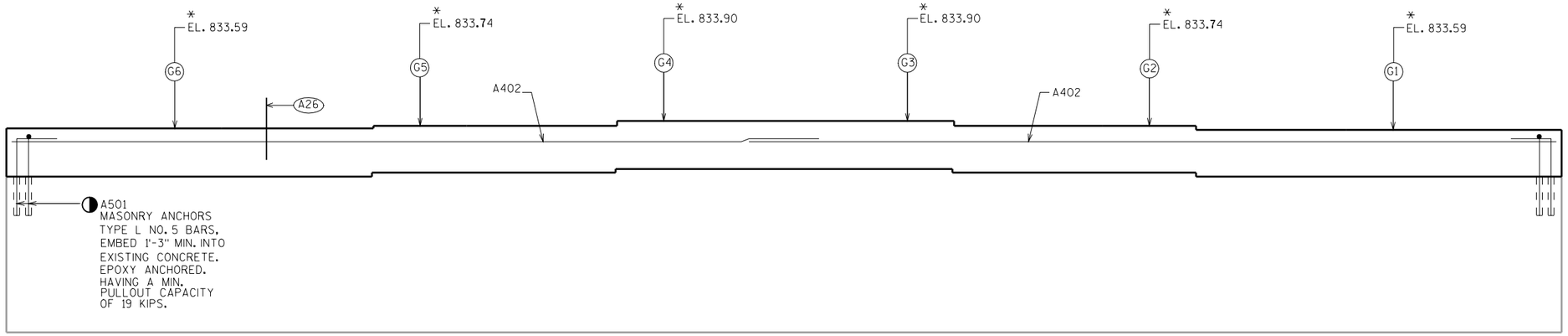
◐ MASONRY ANCHORS

STATE PROJECT NUMBER

1090-18-70

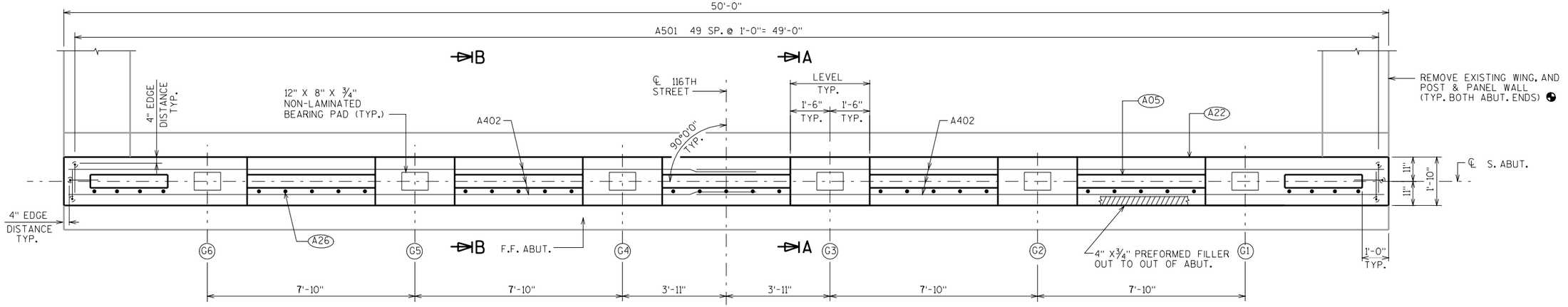


A501

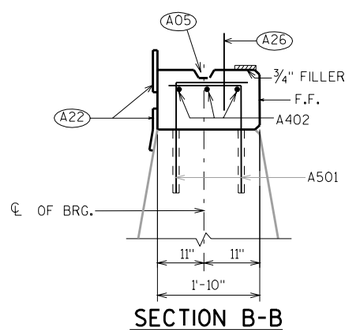


ELEVATION

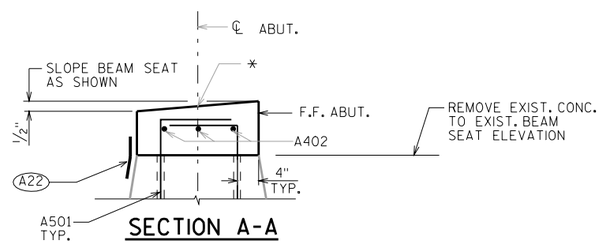
(LOOKING SOUTH)



PLAN



SECTION B-B



SECTION A-A

◔ REMOVE PANELS FROM POST & PANEL WALL. CUT OFF PILES 6" BELOW BOTTOM OF WALL ELEVATION (DO NOT PULL OUT).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-377

DRAWN BY: WWR | PLANS CK'D.: JHG

SO. ABUTMENT BEAM SEATS

SHEET 3

378

SCALE = 2.0

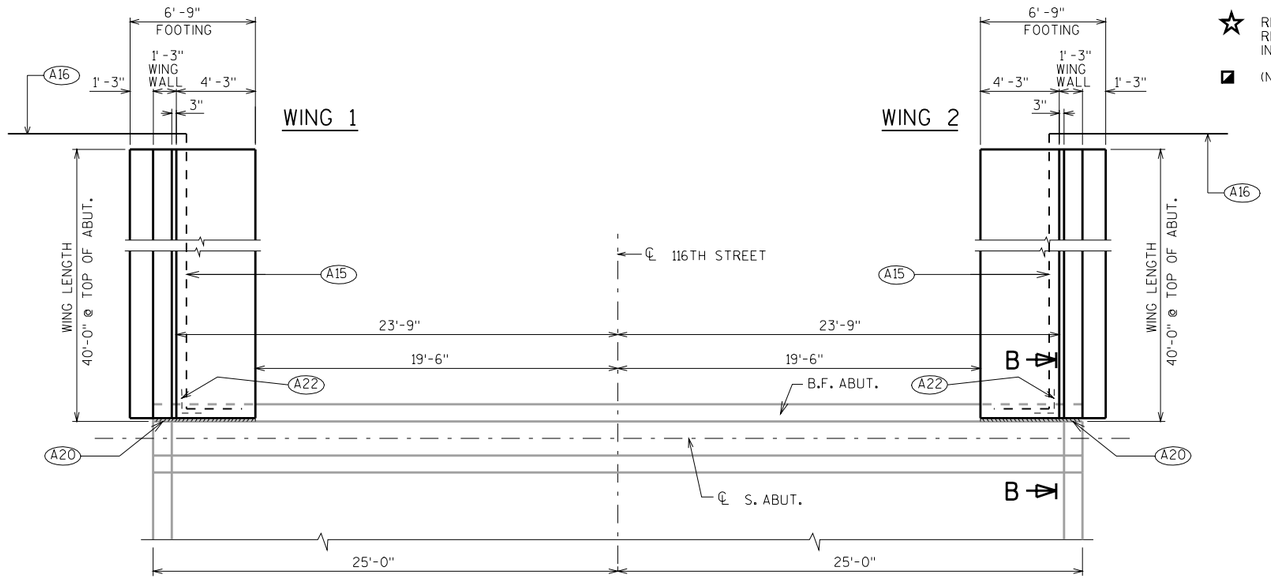
8

8

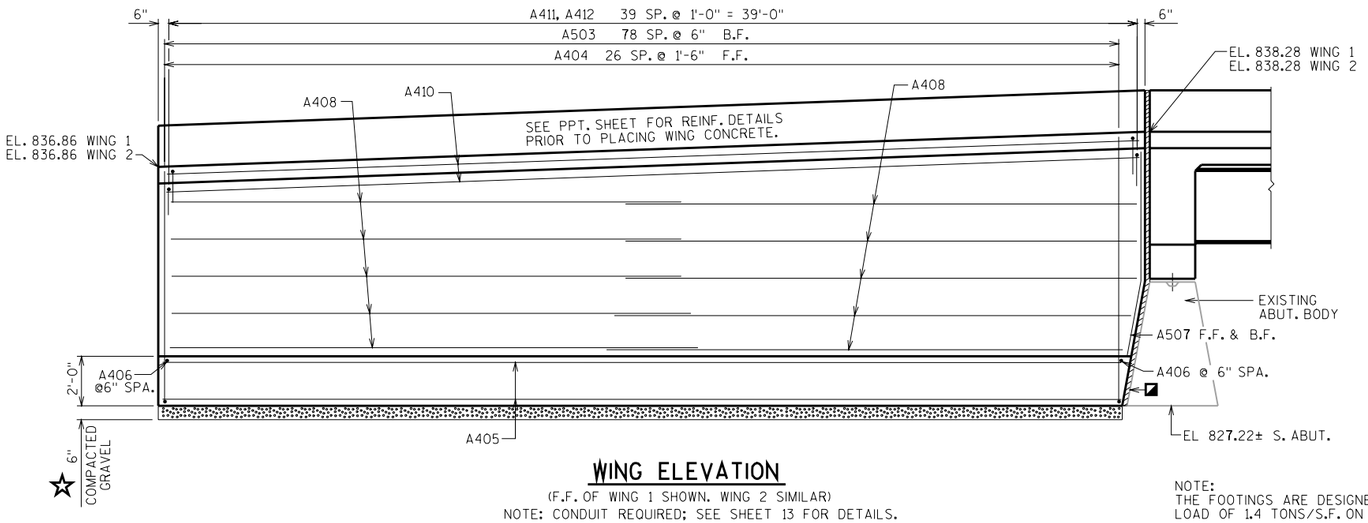
STATE PROJECT NUMBER

1090-18-70

ELEVATION
(LOOKING SOUTH)



PLAN



WING ELEVATION
(F.F. OF WING 1 SHOWN. WING 2 SIMILAR)
NOTE: CONDUIT REQUIRED; SEE SHEET 13 FOR DETAILS.

A02 OPTIONAL CONSTRUCTION JOINT: STRIKE OFF AND LEAVE ROUGH. (18" R.M.W. @ B.F. & ¾" 'V' GROOVE @ F.F. IF JOINT IS USED).

A05 CONSTRUCTION JOINT-FORMED BY BEVELED 2 x 6.

A15 PIPE UNDERDRAINS, 6 INCH. SLOPE 0.5% MIN. TO DRAIN. ENCLOSED IN 1'-6" X 1'-6" AREA OF SIZE 1 COARSE AGGREGATE (INCLUDED IN UNDERDRAIN BID ITEM) WRAPPED IN GEOTEXTILE FABRIC, TYPE DF (SCHEDULE A), WITH 1'-6" OVERLAP.

A16 PIPE UNDERDRAIN, 6 INCH, UNPERFORATED. TO SUITABLE DRAINAGE.

A20 ¾" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP OF SIDEWALK AT INSIDE FACE.

A22 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL VERT. JOINT AT BACKFACE.

☆ REMOVE EXIST. SOIL 6" MIN. BELOW WINGS AND REPLACE WITH COMPACTED GRAVEL. TO BE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES".

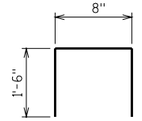
◪ (NEW WING IS FREE-STANDING)

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	BAR SERIES	LOCATION
A503		158	11-4	X	▲	WINGS 1 & 2- FOOTING/WALL-B.F.-VERT.
A404		54	15-1	X	▲	WINGS 1 & 2- FOOTING/WALL-F.F.-VERT.
A405		12	38-8			WINGS 1 & 2- FOOTING-HORIZ.
A406		158	6-5			WINGS 1 & 2- FOOTING-TOP-HORIZ.
A507		4	8-3	X		WINGS 1 & 2- WALL-F.F. & B.F.-VERT
A408		20	21-0			WINGS 1 & 2-WALL-HORIZ.
A410		8	39-6			WINGS 1 & 2-TOP HORIZ.
A411		80	3-9	X		WINGS 1 & 2-TOP VERT.
A412		80	3-6	X		WINGS 1 & 2-TOP VERT.
A513	X	88	9-8	X		WINGS 1 & 2-PARAPET VERT.
A414	X	12	39-7			WINGS 1 & 2-PARAPET HORIZ.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



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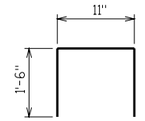

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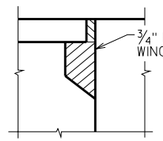
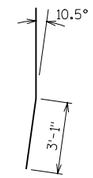


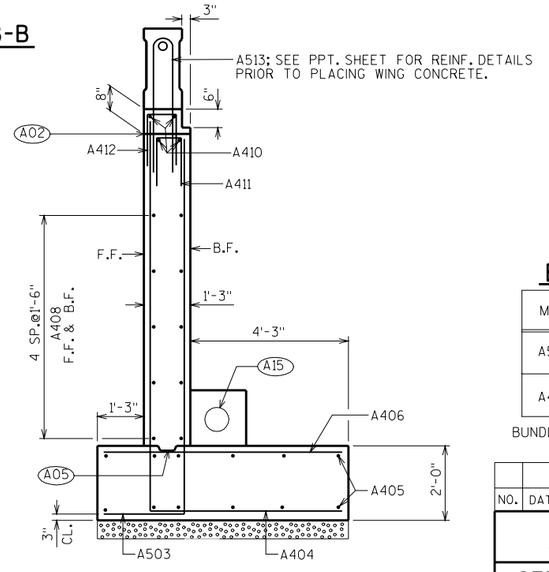
SECTION B-B

A503

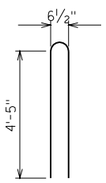


A507

A404



SECTION THRU WING



A513

BAR SERIES TABLE

MARK	NO. REQD.	LENGTH
A503	2 SERIES OF 79	10'-7" TO 12'-0"
A404	2 SERIES OF 27	14'-4" TO 15'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.

NOTE:
THE FOOTINGS ARE DESIGNED TO PLACE A MAXIMUM LOAD OF 1.4 TONS/S.F. ON THE UNDERLYING SOIL.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-377

DRAWN BY WWR | PLANS CK'D. JHG

SO. ABUTMENT WING DETAILS

SHEET 4

379

SCALE = 3.0

8

8

STATE PROJECT NUMBER

1090-18-70

(A05) CONSTRUCTION JOINT-FORMED BY BEVELED 2 x 6 BETWEEN BEAM SEATS.

(A22) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

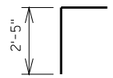
(A26) B515 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

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	BAR SERIES	LOCATION
◐ B501	X	102	3-7	X		BODY-TOP-VERT. ANCHOR
B402	X	4	26-0			BODY-TOP-HORIZ.
B515	X	33	2-0			DOWELS

◐ MASONRY ANCHORS



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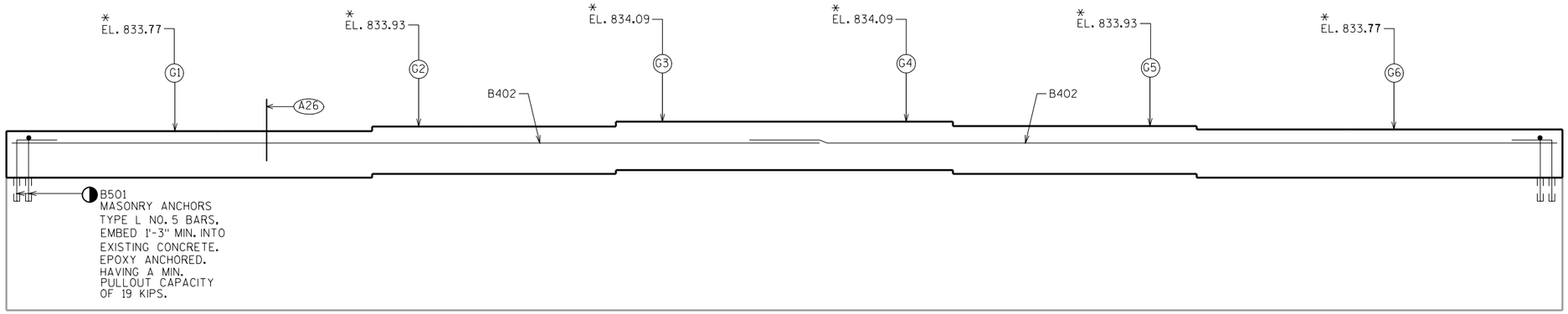
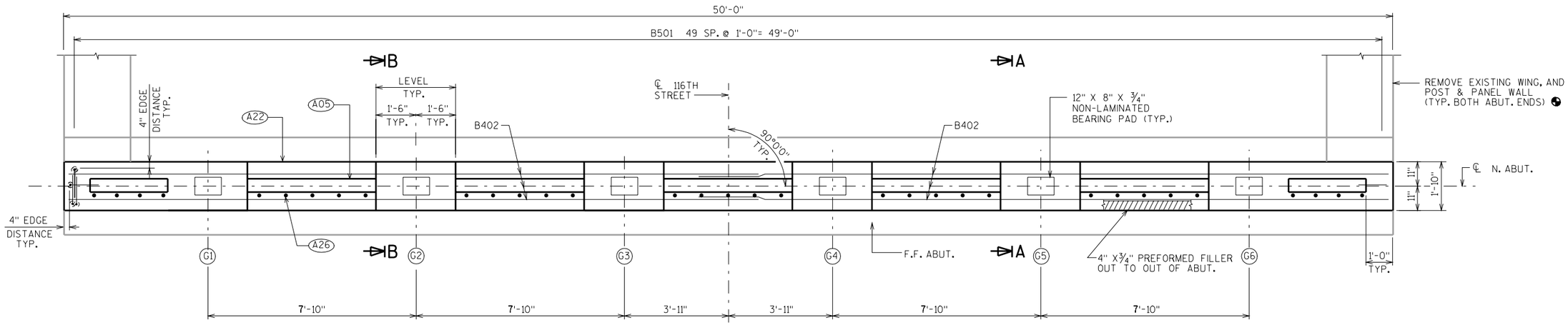
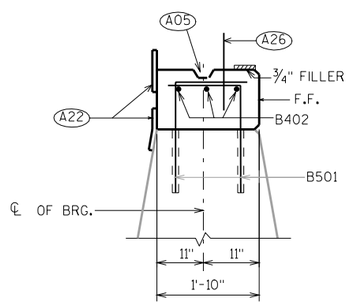


ELEVATION

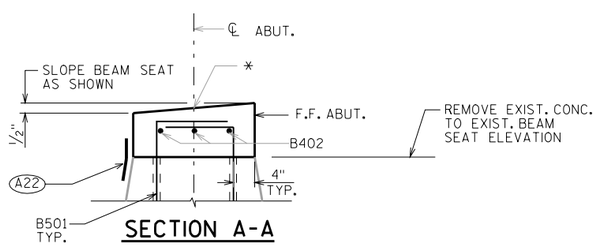
(LOOKING NORTH)



PLAN



SECTION B-B



SECTION A-A

◔ REMOVE PANELS FROM POST & PANEL WALL. CUT OFF PILES 6" BELOW BOTTOM OF WALL ELEVATION (DO NOT PULL OUT).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-377

DRAWN BY WWR | PLANS CK'D. JHG

NO. ABUTMENT BEAM SEATS

SHEET 5

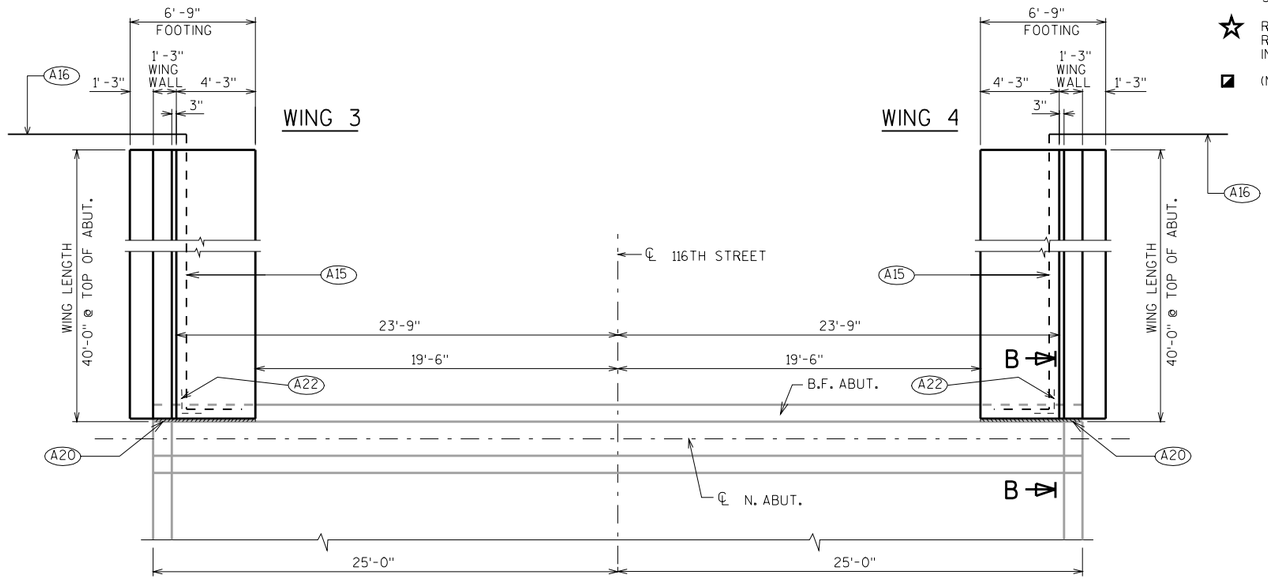
380

SCALE = 2.0

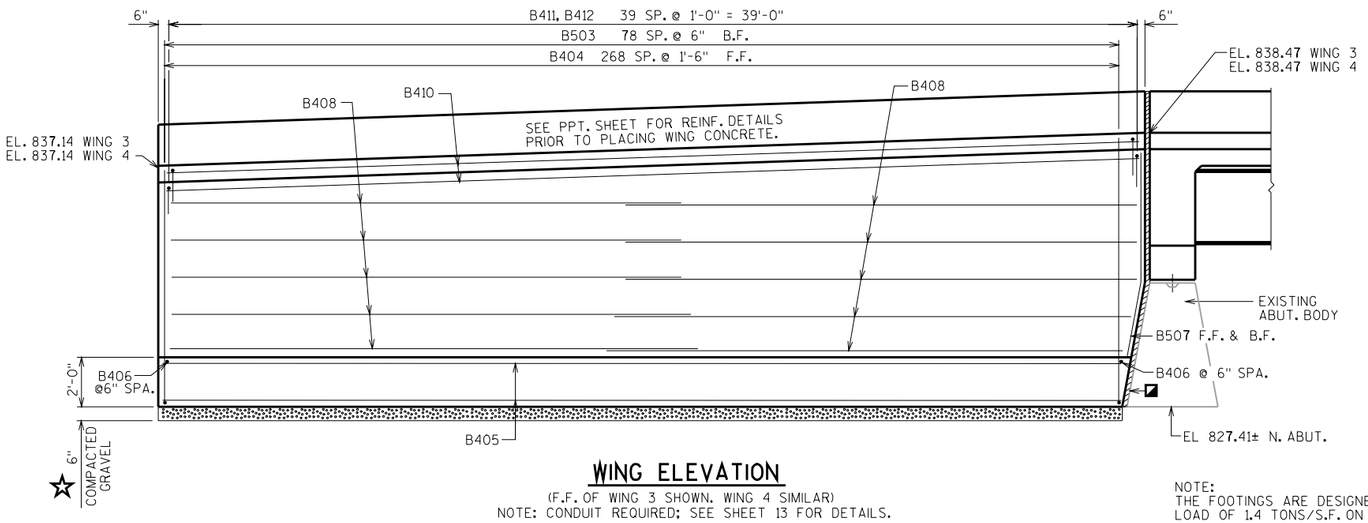
8

8

ELEVATION
(LOOKING NORTH)



PLAN



WING ELEVATION
(F.F. OF WING 3 SHOWN. WING 4 SIMILAR)
NOTE: CONDUIT REQUIRED; SEE SHEET 13 FOR DETAILS.

(A02) OPTIONAL CONSTRUCTION JOINT: STRIKE OFF AND LEAVE ROUGH. (18" R.M.W. @ B.F. & ¾" 'V' GROOVE @ F.F. IF JOINT IS USED).

(A05) CONSTRUCTION JOINT-FORMED BY BEVELED 2 x 6.

(A15) PIPE UNDERDRAINS, 6 INCH. SLOPE 0.5% MIN. TO DRAIN. ENCLOSED IN 1'-6" X 1'-6" AREA OF SIZE 1 COARSE AGGREGATE (INCLUDED IN UNDERDRAIN BID ITEM) WRAPPED IN GEOTEXTILE FABRIC, TYPE DF (SCHEDULE A), WITH 1'-6" OVERLAP.

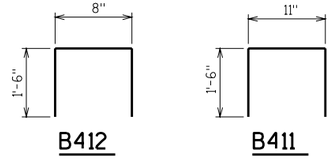
(A16) PIPE UNDERDRAIN, 6 INCH, UNPERFORATED. TO SUITABLE DRAINAGE.

(A20) ¾" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW TOP OF SIDEWALK AT INSIDE FACE.

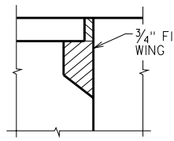
(A22) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL VERT. JOINT AT BACKFACE.

☆ REMOVE EXIST. SOIL 6" MIN. BELOW WINGS AND REPLACE WITH COMPACTED GRAVEL. TO BE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES".

◪ (NEW WING IS FREE-STANDING)

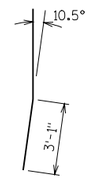


B412 B411



SECTION B-B

B503



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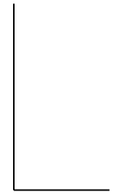
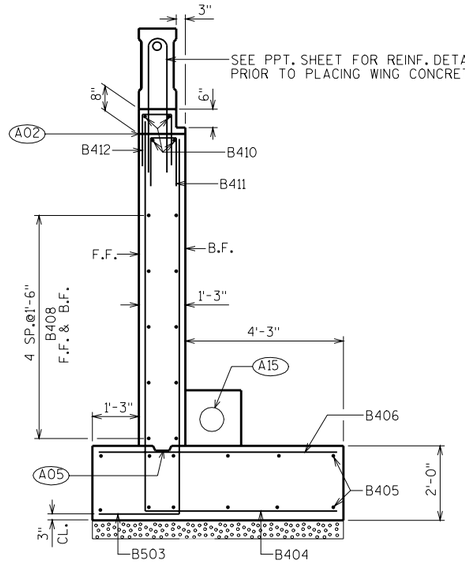
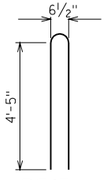


B404



SECTION THRU WING



B513

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	BAR SERIES	LOCATION
B503		158	11-4	X	▲	WINGS 3 & 4- FOOTING/WALL-B.F.-VERT.
B404		54	15-1	X	▲	WINGS 3 & 4- FOOTING/WALL-F.F.-VERT.
B405		12	38-8			WINGS 3 & 4- FOOTING-HORIZ.
B406		158	6-5			WINGS 3 & 4- FOOTING-TOP-HORIZ.
B507		4	8-3	X		WINGS 3 & 4- WALL-F.F. & B.F.-VERT
B408		20	21-0			WINGS 3 & 4-WALL-HORIZ.
B410		8	39-6			WINGS 3 & 4-TOP HORIZ.
B411		80	3-9	X		WINGS 3 & 4-TOP VERT.
B412		80	3-6	X		WINGS 3 & 4-TOP VERT.
B513	X	88	9-8	X		WINGS 3 & 4-PARAPET VERT.
B414	X	12	39-7			WINGS 3 & 4-PARAPET HORIZ.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

MARK	NO. REQD.	LENGTH
B503	2 SERIES OF 79	10'-8" TO 12'-0"
B404	2 SERIES OF 27	14'-5" TO 15'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.

NOTE:
THE FOOTINGS ARE DESIGNED TO PLACE A MAXIMUM LOAD OF 1.4 TONS/S.F. ON THE UNDERLYING SOIL.

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STRUCTURE B-40-377

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NO. ABUTMENT WING DETAILS

SHEET 6
381

STATE PROJECT NUMBER
1090-18-70

8

8

SCALE = 3.0

STATE PROJECT NUMBER

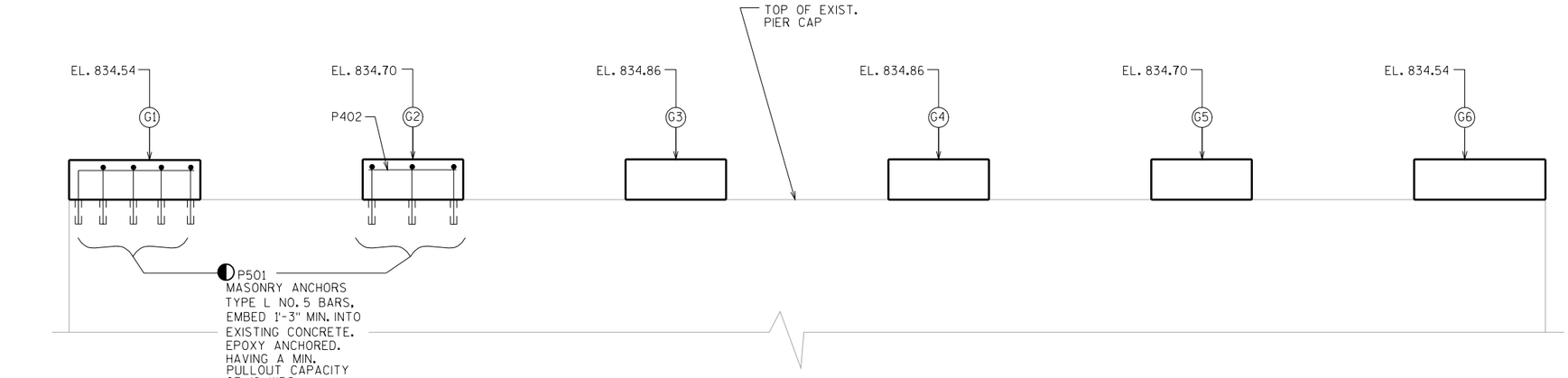
1090-18-70

BILL OF BARS

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

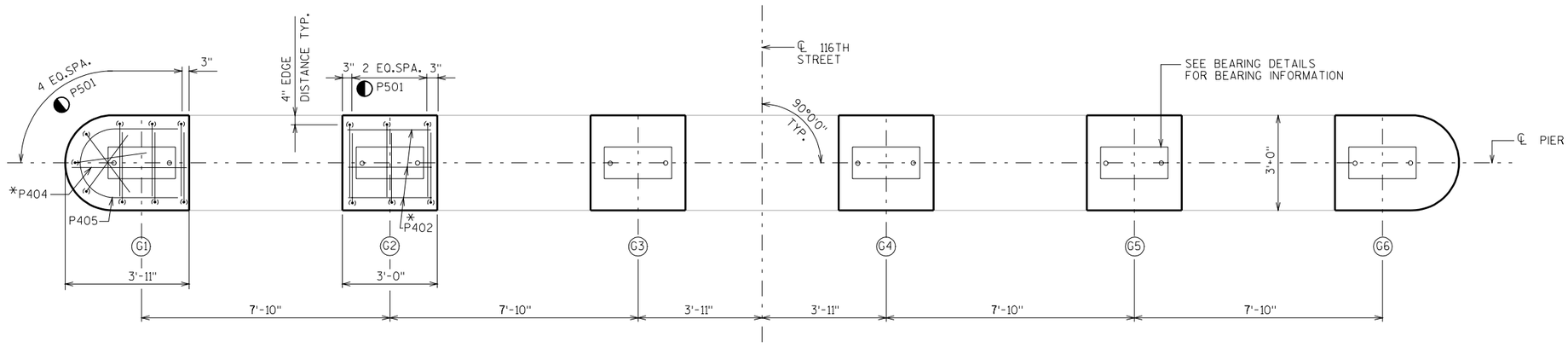
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
◐ P501	X	42	4-9	X		PEDESTAL ANCHOR VERT.
P402	X	12	2-8			PEDESTAL HORIZ. G2 THRU G5
P404	X	2	3-6			PEDESTAL HORIZ. G1 AND G6
P405	X	2	7-3	X		PEDESTAL HORIZ. G1 AND G6

◐ MASONRY ANCHORS



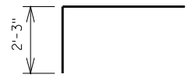
ELEVATION

(LOOKING NORTH)

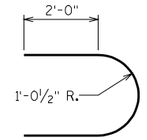


PLAN

* PLACE TO MISS ANCHOR BOLTS.



P501



P405

NO.	DATE	REVISION	BY

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STRUCTURE B-40-377

DRAWN BY WWR | PLANS CK'D. JHG

PIER DETAILS

SHEET 7

382

SCALE = 2.0

8

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STATE PROJECT NUMBER

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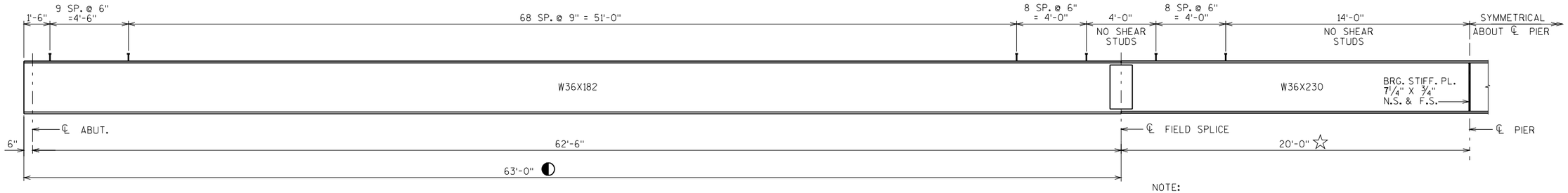


NEW GIRDER ELEVATION

NOTE:

◐ NO FIELD WELDING TO BOTTOM FLANGE PERMITTED IN THIS AREA.

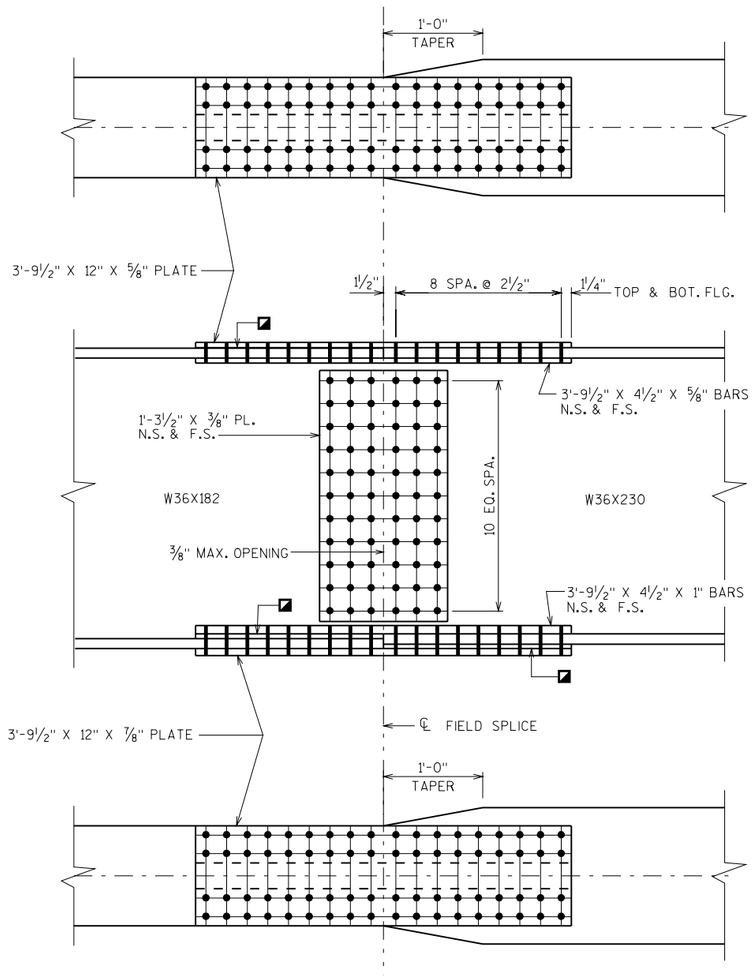
☆ NO FIELD WELDING TO TOP FLANGE PERMITTED IN THIS AREA.

ALL GIRDER, BEARING STIFFENER, FIELD SPLICE STEEL SHALL BE "STRUCTURAL STEEL HS" A709 GR 50.

ALL DIAPHRAGM STEEL SHALL BE "STRUCTURAL STEEL CARBON" A709 GR 36.

ALL BOLTED CONNECTIONS AT DIAPHRAGMS SHALL BE MADE WITH ¾" DIA. HIGH STRENGTH BOLTS (ASTM A325) WITH DOUBLE WASHERS.

THE COLOR OF THE FINISH EPOXY TOP COAT SHALL BE DARK GRAY FEDERAL COLOR NO. 26132.



FIELD SPLICE

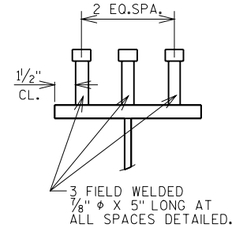
◪ FILL PLATE AS NECESSARY

* TABLE OF FILLET WELD SIZES

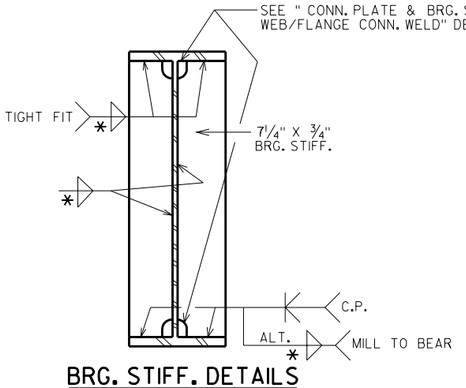
MATERIAL THICKNESS OF THICKER PART JOINED.	ǂ MIN. SIZE OF FILLET WELD
TO ½" INCLUSIVE	3/16"
OVER ½" TO ¾"	¼"
OVER ¾" TO 1½"	△ 5/16"
OVER 1½" TO 2¼"	△ ⅜"
OVER 2¼" TO 6"	△ ½"

ǂ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

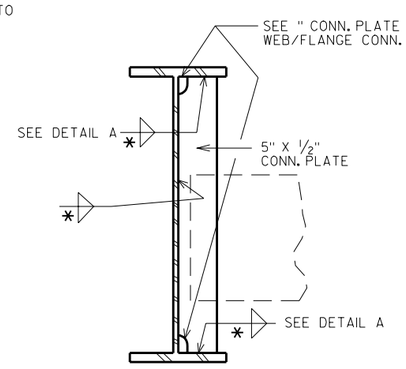
△ MIN. PASS SIZE IS 5/16"



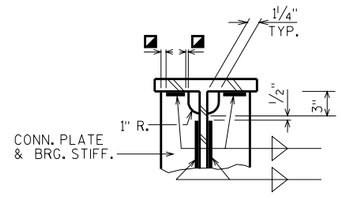
SHEAR CONN. DETAIL



BRG. STIFF. DETAILS

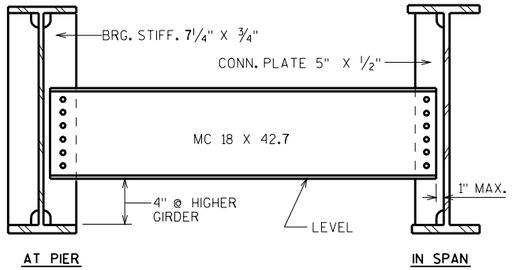


CONNECTION PLATE DETAILS

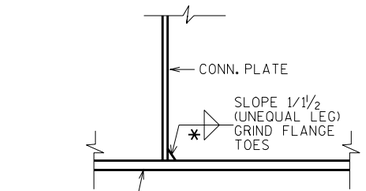


CONN. PLATE & BRG. STIFF. TO WEB/FLANGE CONN. WELDS

◪ ¼" MIN., ½" MAX.



NEW DIAPHRAGM



DETAIL A

CONNECTION PLATE DETAIL @ TENSION FLANGE

NO.	DATE	REVISION	BY

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STRUCTURE B-40-377

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GIRDER DETAILS

SHEET 8

383

SCALE = 3.0

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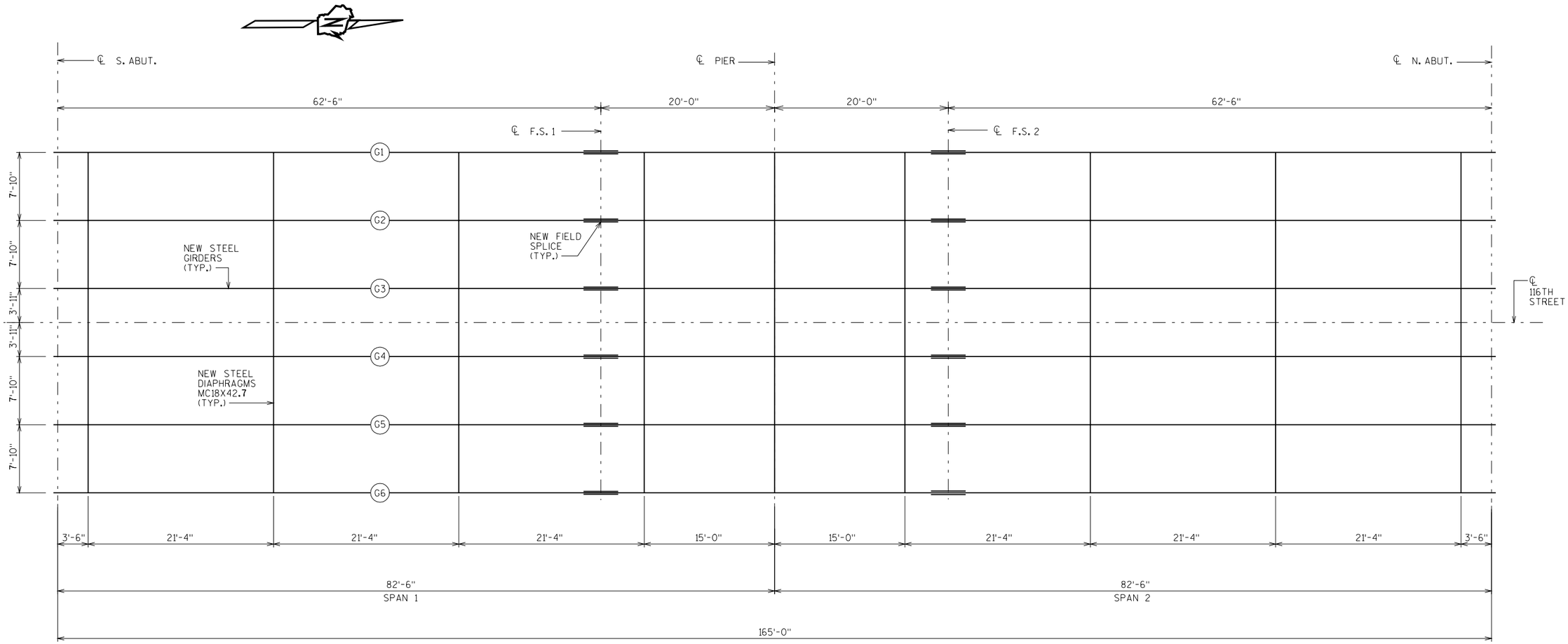

PLAN

8

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STRUCTURE B-40-377

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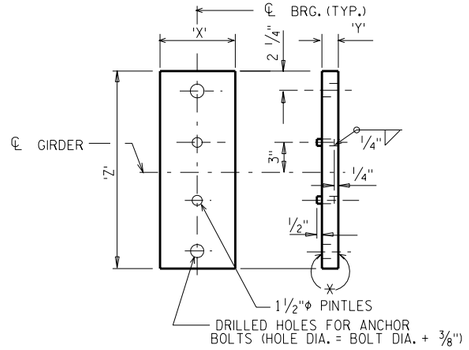
FRAMING PLAN

SHEET 9

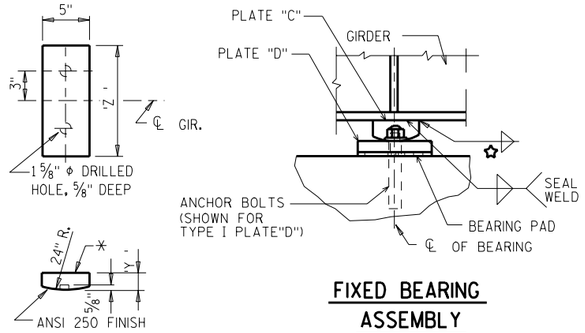
384

SCALE = 6.0



TYPE I

PLATE "D"



FIXED BEARING ASSEMBLY

PLATE "C"

FIXED BEARING

✩TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	+ MIN. SIZE OF FILLET WELD
TO 1/2" INCLUSIVE	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4" TO 1 1/2"	△ 5/16"
OVER 1 1/2" TO 2 1/4"	△ 3/8"
OVER 2 1/4" TO 6"	△ 1/2"

+ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"

	PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION
	'X'	'Y'	'Z'	'X'	'Y'	'Z'				
FIXED BEARING	5"	1 15/16"	1'-4 1/2"	1'-0"	2"	2'-1 1/2"	I	1 1/4" ϕ	6	PIER - GIR. 1 THRU 6

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT ℄ OF GIRDER AND ℄ OF BEARING.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING. ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 1'-5 FOR 1 1/4" ϕ AND 1'-10 FOR 1 1/2" ϕ BOLTS. PROJECT ANCHOR BOLTS "D"PLATE THICKNESS +2 1/4" ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES 1/8". DRILL HOLES FOR PINTLES IN ALL "D" PLATES FOR DRIVING FIT.

ALL MATERIAL INCLUDING SHIMS BUT EXCLUDING ANCHOR BOLTS, STAINLESS STEEL, TEFLON SURFACE , PINTLES, NUTS AND WASHERS SHALL BE MADE OF ASTM A709 GRADE 50W. STEEL PINTLES SHALL BE MADE OF ASTM A449 STEEL OR MATERIAL OF EQUAL YIELD STRENGTH & ELONGATION.

ANCHOR BOLTS, NUTS & WASHERS SHALL CONFORM TO ASTM A709 GRADE 36 OR MATERIAL OF EQUIV. STRENGTH & ELONGATION.

PROVIDE 1/8" THICK BEARING PAD SAME SIZE AS PLATE "D" FOR EACH BEARING.

ALL MATERIAL IN BEARINGS, INCLUDING BEARING PADS & SHIM PLATES SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES FIXED B-40-377".

ANCHOR BOLTS, NUTS & WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

FIXED BEARINGS:
PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.
PLATE "D" SHALL BE GALVANIZED.

✳ FINISH THESE SURFACES ANSI 250 FINISH IF 'Y' DIM. IS GREATER THAN 2".

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BEARING DETAILS

SHEET 10

385

SCALE = .0834

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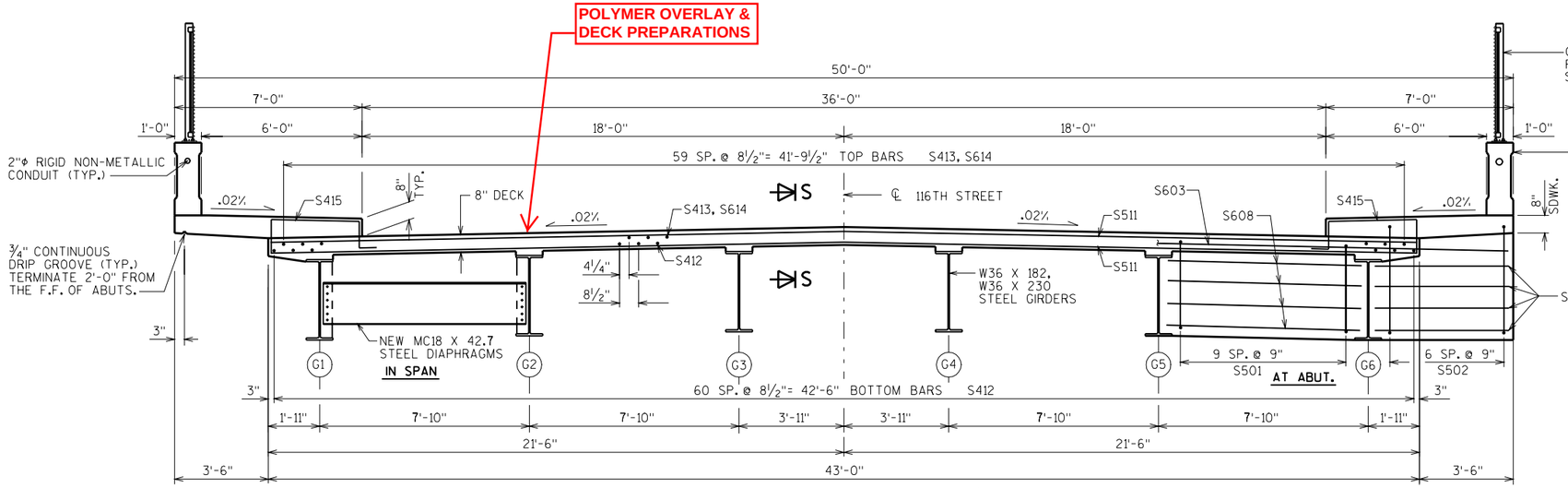
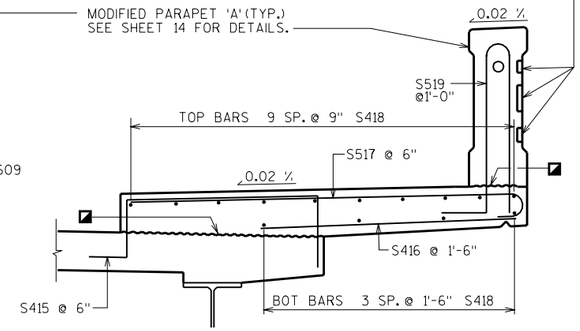
POLYMER OVERLAY & DECK PREPARATIONS



ORNAMENTAL PROTECTIVE SCREENING (TYP.) SEE SHEET 15 FOR DETAILS.

MODIFIED PARAPET 'A' (TYP.) SEE SHEET 14 FOR DETAILS.

ADDITIONAL ¾" RECESSED LETTERING AT MID-SPANS, AS DIRECTED BY ENGINEER. SEE SHEET 1 & 14 FOR APPROX. LOCATIONS. (TYP. AT BOTH PARAPETS)

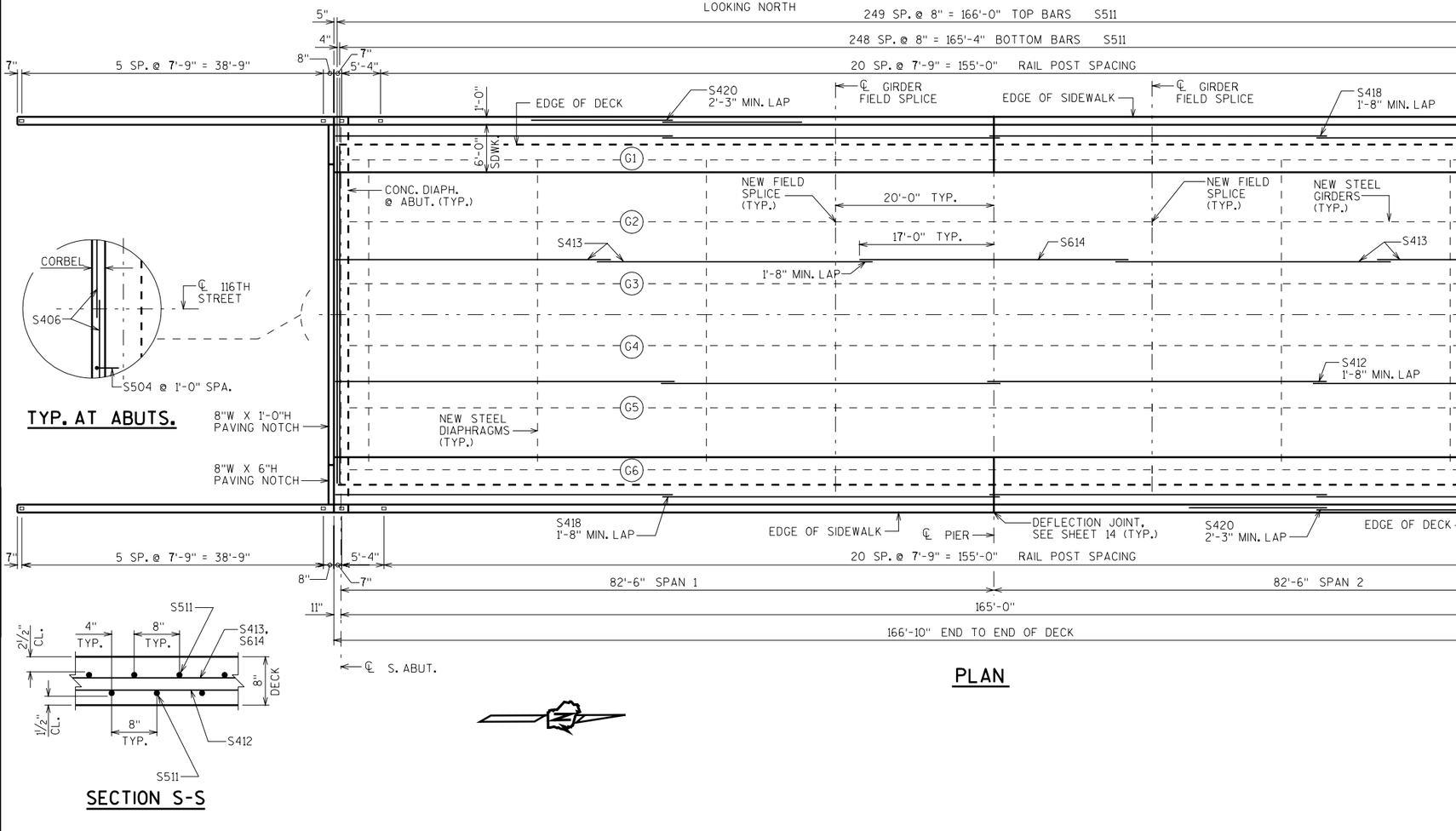


SIDEWALK BAR DETAILS

◪ HORIZ. CONST. JOINT - SEE SHEET 14 FOR DETAILS

SUPERSTRUCTURE CROSS SECTION

LOOKING NORTH



TYP. AT ABUTS.

PLAN

SECTION S-S

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-377

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SUPERSTRUCTURE

SHEET 11

386

SCALE = 8.0

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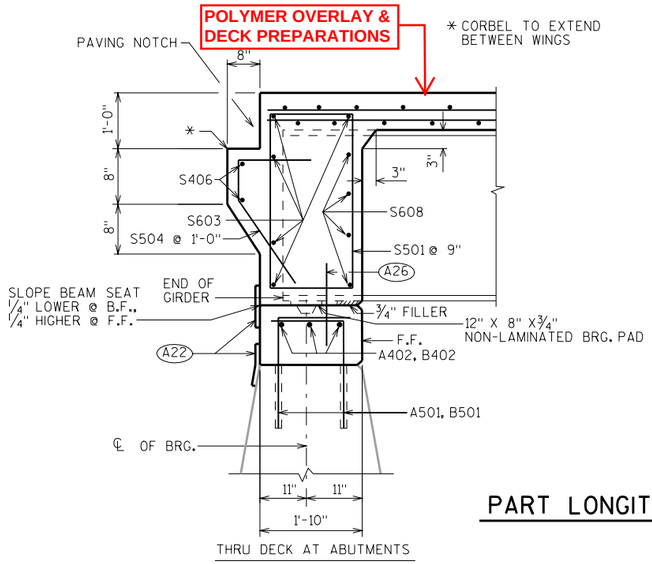
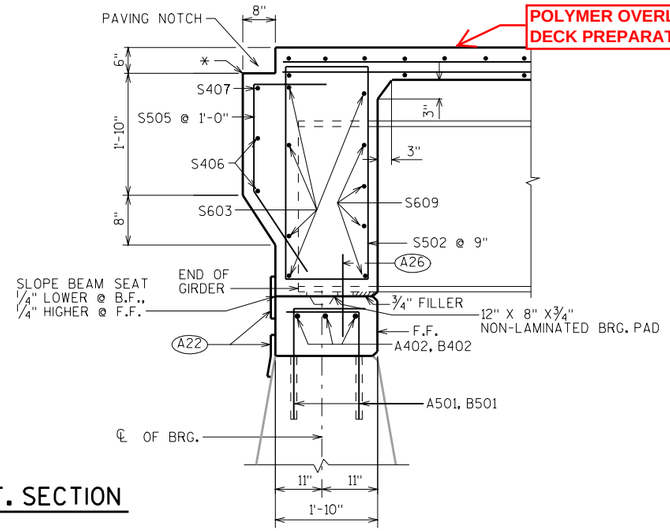


THRU DECK AT ABUTMENTS



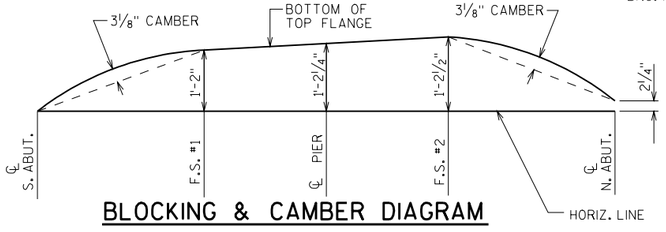
THRU SIDEWALK AT ABUTMENTS

PART LONGIT. SECTION

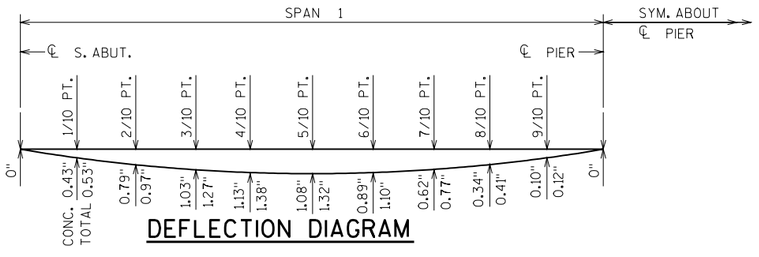
BILL OF BARS

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

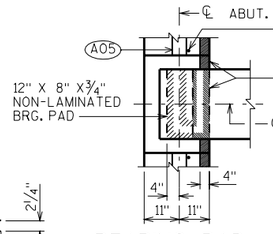
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	100	10-6	X		ABUTMENT DIAPHRAGMS @ DECK- STIRRUP - VERT. - BETWEEN GIRDERS
S502	X	28	11-8	X		ABUTMENT DIAPHRAGMS @ SDWK.- STIRRUP - VERT. - ENDS
S603	X	10	49-6			ABUTMENT DIAPHRAGMS - HORIZ.
S504	X	74	3-8	X		CORBEL @ DECK - ABUTMENT DIAPHRAGMS - VERT.
S505	X	24	4-10	X		CORBEL @ SDWK. - ABUTMENT DIAPHRAGMS - VERT.
S406	X	8	24-10			CORBEL - ABUTMENT DIAPHRAGMS - HORIZ.
S407	X	4	4-5			CORBEL - ABUTMENT DIAPHRAGMS - HORIZ.
S608	X	40	7-4			ABUTMENT DIAPHRAGMS - HORIZ. - BETWEEN GIRDERS
S609	X	16	5-0			ABUTMENT DIAPHRAGMS - HORIZ. - UNDER SDWK.
S511	X	499	42-8			DECK - TOP & BOT. - TRANS.
S412	X	244	42-11			DECK - BOT. - LONGIT.
S413	X	240	34-10			DECK - TOP - LONGIT. - SPANS 1 & 2
S614	X	60	34-0			DECK - TOP - LONGIT. - ABOVE PIER
S415	X	670	5-8	X		DECK & SIDEWALK - TRANS. - VERT.
S416	X	224	4-8			SIDEWALK - BOT. - TRANS. - HORIZ.
S517	X	670	7-3	X		SIDEWALK - TOP - TRANS. - VERT.
S418	X	112	42-10			SIDEWALK - LONGIT. - HORIZ.
S519	X	336	6-11	X		PPT. A & SIDEWALK - TRANS. - VERT.
S420	X	48	43-3			PPT. A - LONGIT. - HORIZ.
S521	X	6	4-4	X		PPT. A - JUNCTION BOX - VERT.
S522	X	6	2-4			PPT. A - JUNCTION BOX - VERT.



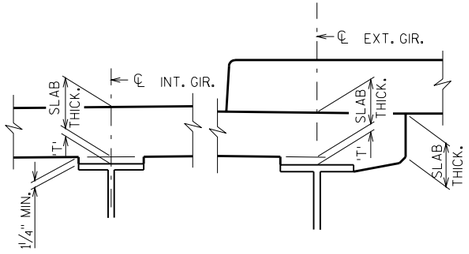
BLOCKING & CAMBER DIAGRAM



DEFLECTION DIAGRAM



BEARING PAD DETAIL



CONCRETE HAUNCH DETAILS

TO DETERMINE 'T': AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED. ELEVATIONS OF THE TOP FLANGES, TOP OF SPLICE PLATES, OR TOP OF COVER PLATES, WHICHEVER APPLIES, SHALL BE TAKEN AT CENTERLINE OF BEARINGS AND AT TENTH POINTS.

TOP OF DECK ELEV. AT FINAL GRADE.
- TOP OF GIRDER ELEV. AFTER PLACEMENT.
+ DEFLECTION (CONCRETE ONLY)
- SLAB THICKNESS (8")

= CONCRETE HAUNCH THICKNESS 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

TOP OF DECK ELEVATIONS

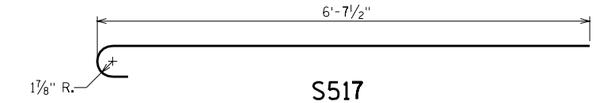
	S. ABUT	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	PIER
G1	837.49	837.71	837.91	838.09	838.25	838.39	838.50	838.59	838.65	838.70	838.72
G2	837.64	837.87	838.07	838.25	838.41	838.54	838.65	838.74	838.81	838.85	838.87
G3	837.80	838.03	838.23	838.41	838.56	838.70	838.81	838.90	838.97	839.01	839.03
G4	837.80	838.03	838.23	838.41	838.56	838.70	838.81	838.90	838.97	839.01	839.03
G5	837.64	837.87	838.07	838.25	838.41	838.54	838.65	838.74	838.81	838.85	838.87
G6	837.49	837.71	837.91	838.09	838.25	838.39	838.50	838.59	838.65	838.70	838.72

	PIER	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	N. ABUT
G1	838.72	838.71	838.69	838.64	838.57	838.48	838.36	838.23	838.07	837.88	837.68
G2	838.87	838.87	838.85	838.80	838.73	838.64	838.52	838.38	838.22	838.04	837.83
G3	839.03	839.03	839.00	838.96	838.89	838.79	838.68	838.54	838.38	838.20	837.99
G4	839.03	839.03	839.00	838.96	838.89	838.79	838.68	838.54	838.38	838.20	837.99
G5	838.87	838.87	838.85	838.80	838.73	838.64	838.52	838.38	838.22	838.04	837.83
G6	838.72	838.71	838.69	838.64	838.57	838.48	838.36	838.23	838.07	837.88	837.68

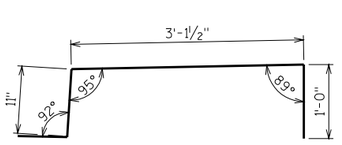
TOP OF STEEL ELEVATIONS

	S. ABUT	F.S. #1	℄ PIER	F.S. #2	N. ABUT
G1	836.68	837.89	837.87	837.94	836.86
G2	836.83	838.05	838.03	838.10	837.02
G3	836.99	838.21	838.19	838.25	837.18
G4	836.99	838.21	838.19	838.25	837.18
G5	836.83	838.05	838.03	838.10	837.02
G6	836.68	837.89	837.87	837.94	836.86

THESE ELEVATIONS ARE TO TOP OF STEEL (SPLICE PLATE THICKNESS, IF APPLICABLE, IS ACCOUNTED FOR) AND THEY ARE FOR THE MATERIAL AS ERECTED. THE ELEVATION OF THE TOP STEEL AT THE FIELD SPLICE POINTS SHALL BE CHECKED, AND CORRECTED, IF POSSIBLE, AFTER ERECTION AND BEFORE PERMANENTLY BOLTING THE DIAPHRAGMS IN PLACE.



S517



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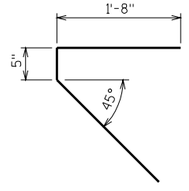

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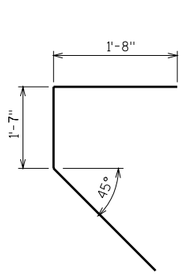

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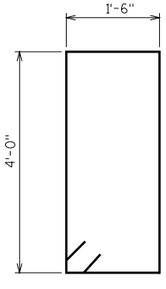

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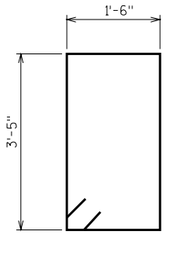

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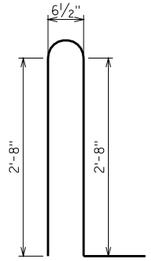

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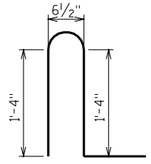

S521

(A05) CONSTRUCTION JOINT-FORMED BY BEVELED 2 x 6 BETWEEN BEAM SEATS.

(A22) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

(A26) A515, B515 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

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SUPERSTRUCTURE DETAILS

SHEET 12

387

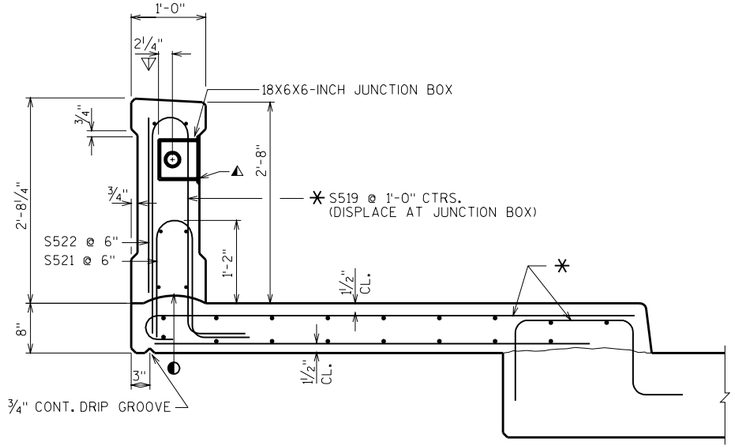
8

8

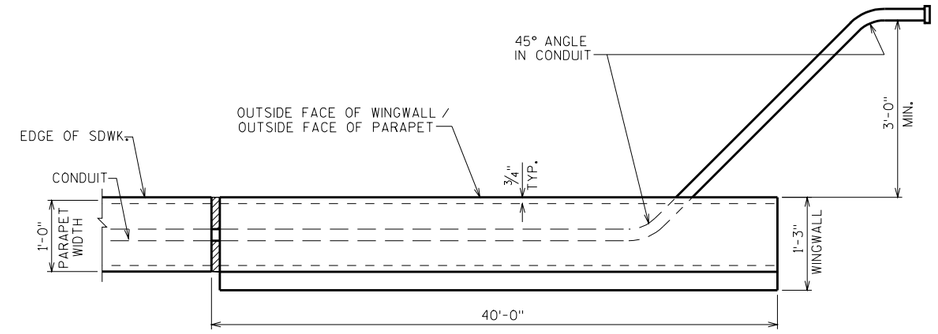
SCALE = 1.0

STATE PROJECT NUMBER

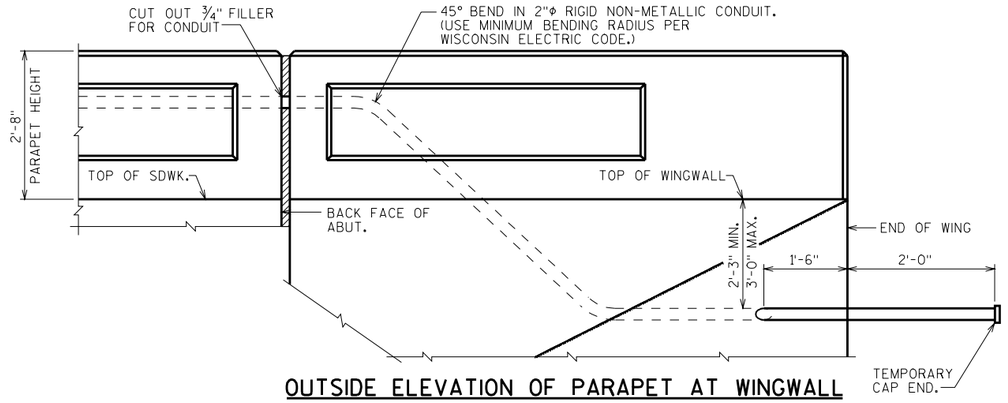
1090-18-70



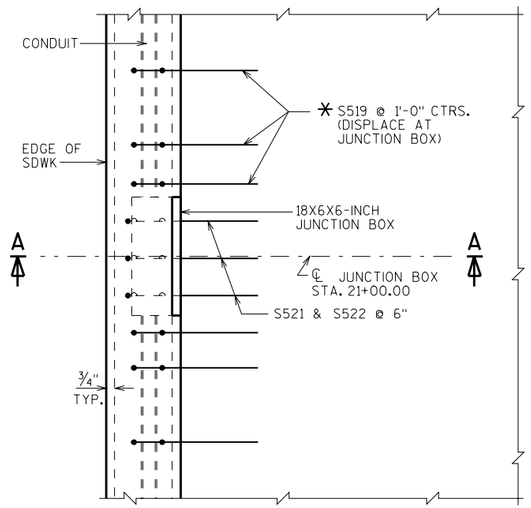
SECTION A-A



PLAN OF PARAPET AT WINGWALL



OUTSIDE ELEVATION OF PARAPET AT WINGWALL



PLAN AT JUNCTION BOX

NOTES

◐ CONSTR. JT. STRIKE OFF AS SHOWN

◭ CUT OUT ± 1" OF GASKET AT BOTTOM OF JUNCTION BOX COVER TO ALLOW FOR DRAINAGE.

▽ LOCATION OF CONDUIT IS MEASURED FROM OUTSIDE EDGE OF JUNCTION BOX.

✳ SEE VERTICAL FACE PARAPET "A", SHT. FOR ADDITIONAL BAR STEEL DETAILS.

BID ITEMS SHALL BE:

"JUNCTION BOXES 18X6X6-INCH", EACH.
"CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH"

APPROVED MANUFACTURERS - JUNCTION BOXES:
SEE APPROVED MATERIAL LIST.

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DRAWN BY WWR | PLANS CK'D. JHG

PARAPET "A" ELECTRICAL WORK

SHEET 13

388

8

8

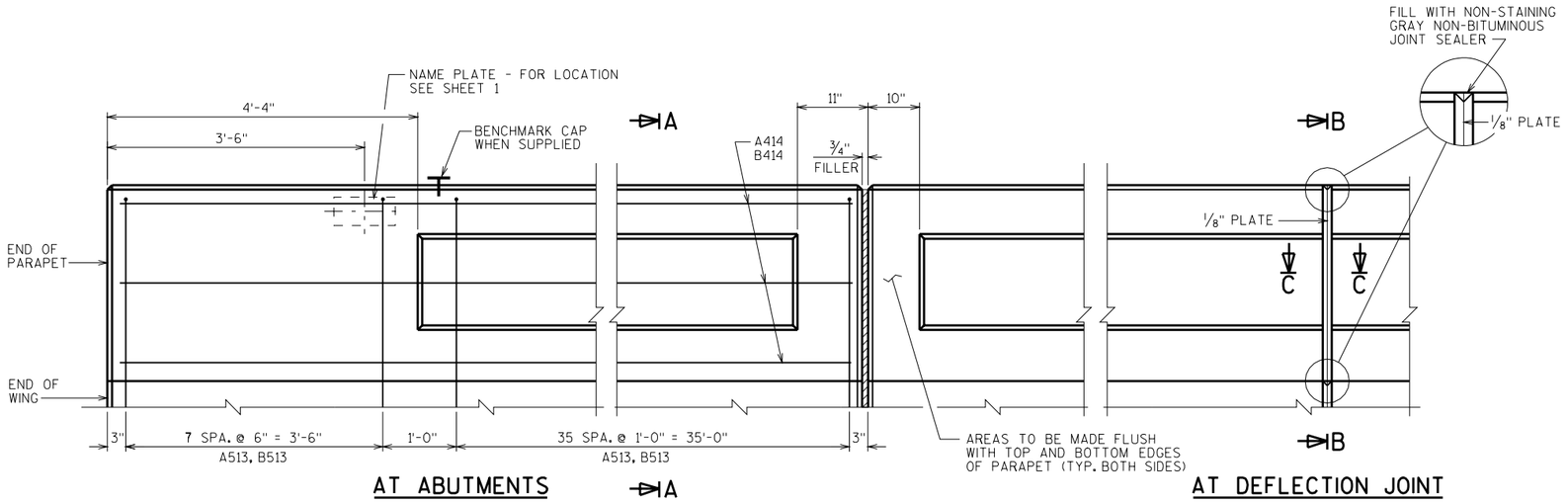
12 6 3

SCALE = 1.0

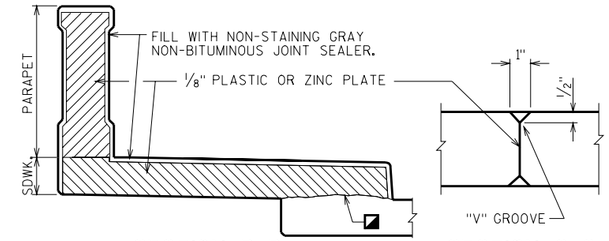
PPTAELEC
8-04

STATE PROJECT NUMBER

1090-18-70



ELEVATION OF PARAPET

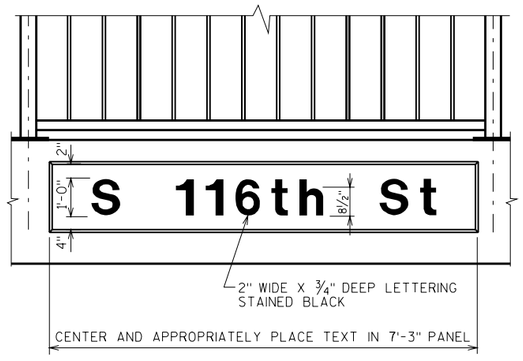


SECTION B-B

(SHOWING DEFLECTION JOINT IN PARAPET AND SIDEWALK.)

SECTION C-C

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

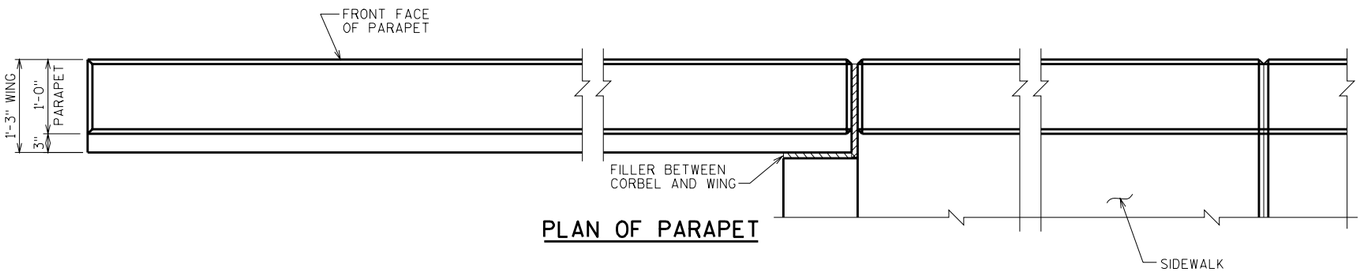


STREET NAME INSET DETAIL

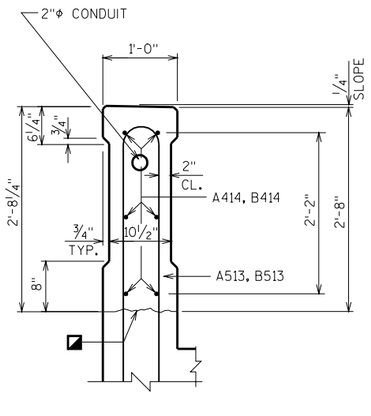
THE STREET NAME SHALL BE CENTERED OVER THE EASTBOUND LANES ON THE WEST SIDE OF BRIDGE AND CENTERED OVER THE WESTBOUND LANES ON THE EAST SIDE OF BRIDGE, AS DIRECTED BY ENGINEER.

FORMED LETTERING TO BE PAID FOR UNDER THE BID ITEM "ROADWAY NAME PANEL STRUCTURE B-40-377".

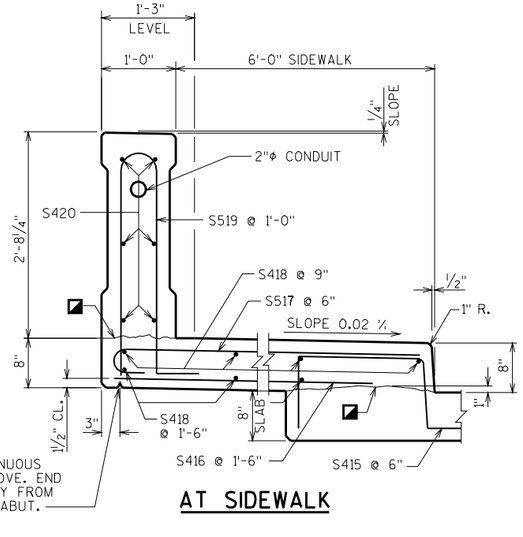
STAINED LETTERING TO BE PAID FOR UNDER THE BID ITEM "CONCRETE STAINING B-40-377".



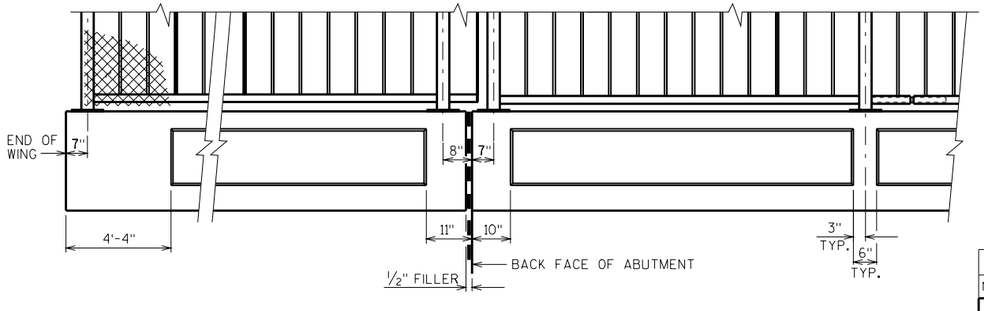
PLAN OF PARAPET



SECTION A-A



AT SIDEWALK



PARAPET & RAIL ELEVATION

(SHOWING RECESSED PANEL AREAS OF PARAPETS)

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
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VERTICAL FACE PARAPET "A"

SHEET 14

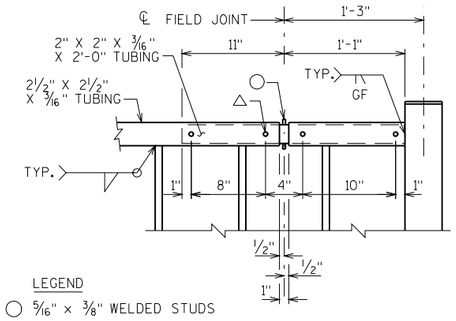
389

8

1 2 3 5 7 9

SCALE = 1.0

PPTA 2-05

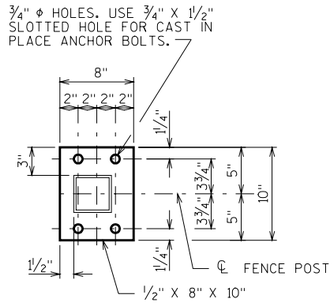


LEGEND

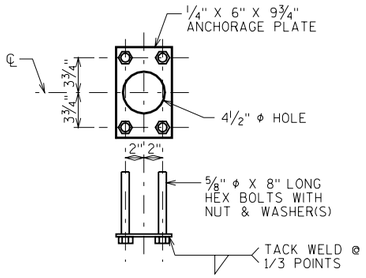
○ 5/16" × 3/8" WELDED STUDS

△ WELD BEAD ON EACH SIDE OF TUBE. GRIND BEADS SO THAT SLEEVE FITS FREELY IN THE I.D. OF 2 1/2" ϕ TUBE.

RAILING EXPANSION JOINT DETAIL

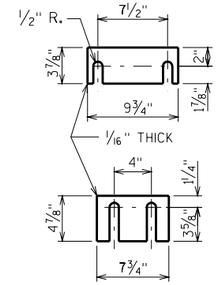


BASE PLATE



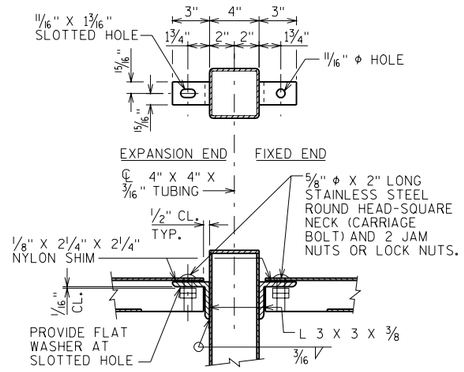
ANCHORAGE DETAIL

5/8" ϕ CONCRETE MASONRY ANCHOR, TYPE S EPOXY, 7" MINIMUM EMBEDMENT WITH A MINIMUM PULLOUT OF 20 KIPS MAY BE SUBSTITUTED FOR 5/8" CAST IN PLACE ANCHOR BOLTS. ANCHORAGE PLATE NOT REQUIRED WHEN TYPE S ANCHORS ARE USED.



SHIM PLATE DETAILS

TWO SHIMS OF EACH SIZE REQUIRED PER POST



TOP RAIL CONNECTION FOR ALTERNATE DETAIL

NOTES

BID ITEM SHALL BE "RAILING TUBULAR SCREENING B-40-377" WHICH SHALL INCLUDE ALL ITEMS SHOWN.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.

RAILS AND POSTS TO BE A.S.T.M. A500, GRADE B. BASE PLATES AND SHIMS TO BE A.S.T.M. A709, GRADE 36. ALL GALVANIZED AFTER FABRICATION.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET POSTS NORMAL TO GRADE.

ALL POST SPA. ARE TAKEN HORIZ. ALONG CENTER LINE OF RAILING AT BASE OF POST.

SHIMS SHALL BE USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT.

CAULK AROUND PERIMETER OF BASE PLATES AND FILL PORTION OF SLOTTED HOLES AROUND ANCHOR BOLTS WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

CUT BOTTOM OF POST TO MAKE VERTICAL IN TRANSVERSE DIRECTION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE EITHER STAINLESS STEEL OR A.S.T.M. 307. IF 307 IS USED, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED.

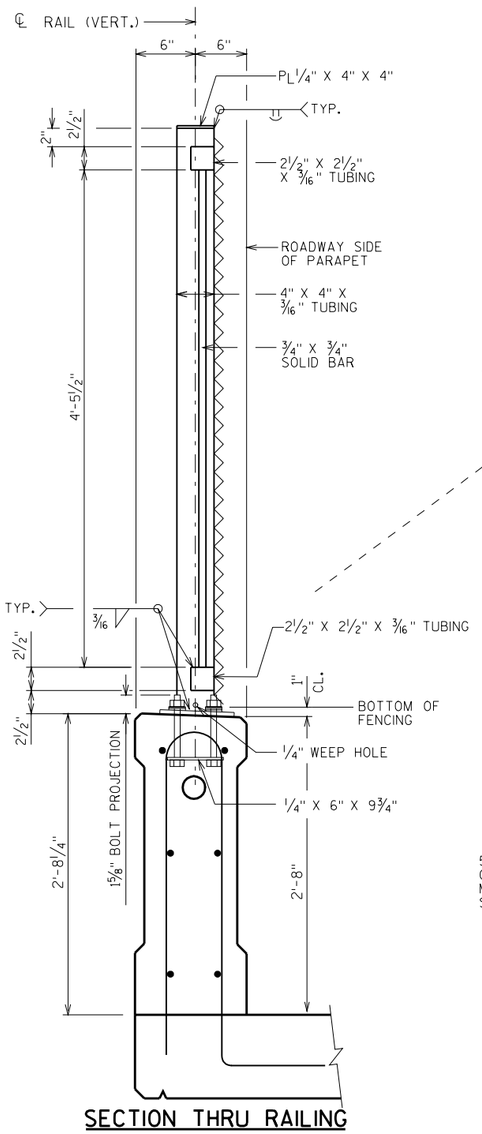
RAILING TO BE PAINTED AND FENCE FABRIC AND TIES TO BE VINYL COATED. FEDERAL COLOR NO. 27038 (BLACK).

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE NOT MORE THAN 3 POSTS.

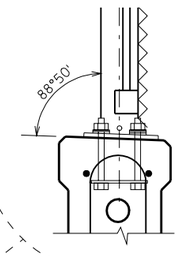
THE END OF THE FABRIC SHALL BE ATTACHED TO THE POST BY MEANS OF A TENSION BAR THREADED THROUGH THE END LOOPS OF THE FABRIC AND SECURED TO THE POST WITH CLAMPS & BOLT. THE FABRIC SHALL BE STRETCHED TO REMOVE ALL SLACK.

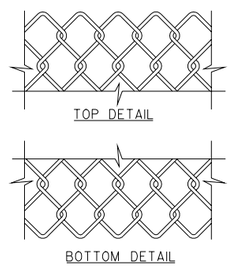
VENT HOLES SHALL BE DRILLED IN MEMBERS AS REQUIRED TO FACILITATE GALVANIZING.

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING ALL STEEL RAILING POSTS AND STEEL TUBING SHALL BE GIVEN A #6 BLAST CLEANING BY SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH APPROVED TIE COAT AND TOPCOAT.



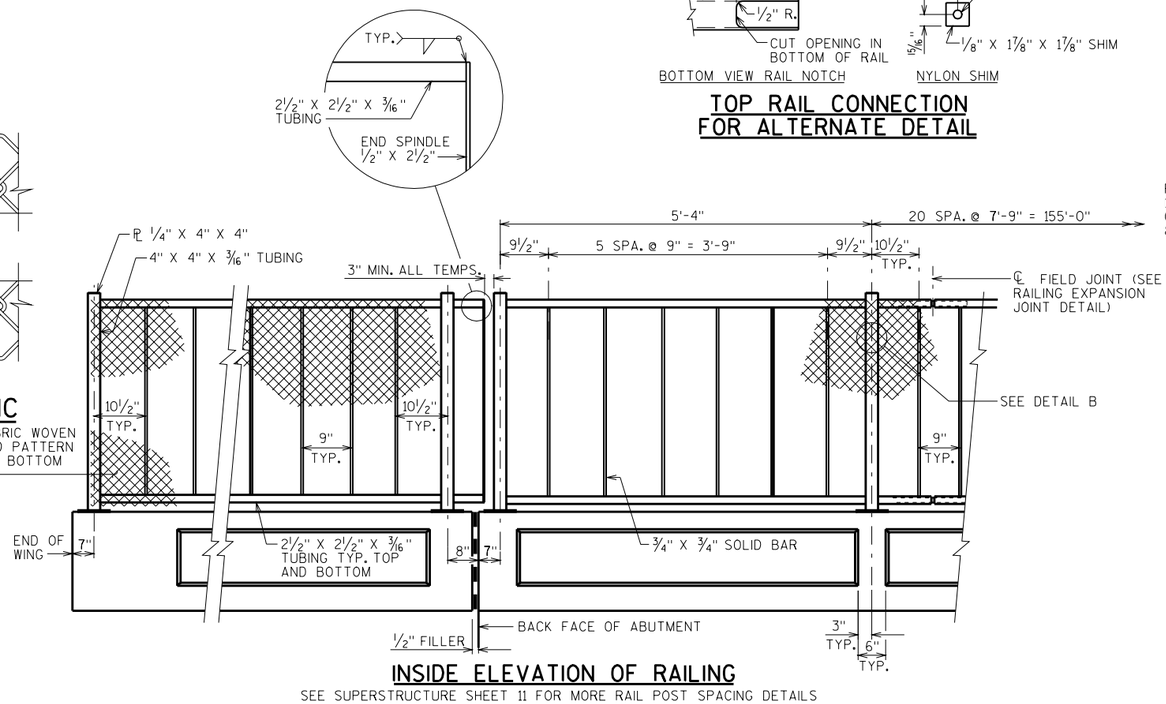
SECTION THRU RAILING





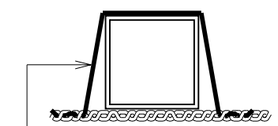
FENCE FABRIC

5'-0" VINYL COATED FENCE FABRIC WOVEN OF 9-GAUGE WIRE IN 1" DIAMOND PATTERN MESH WITH BOTH THE TOP AND BOTTOM SELVAGES KNUCKLED.

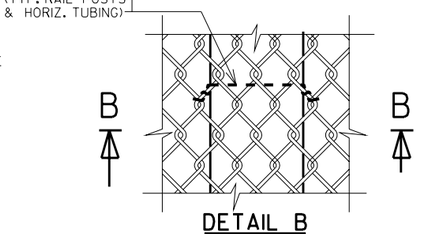


INSIDE ELEVATION OF RAILING

SEE SUPERSTRUCTURE SHEET 11 FOR MORE RAIL POST SPACING DETAILS



SECTION B-B



DETAIL B

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-40-377

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ORNAMENTAL PROTECTIVE SCREENING

SHEET 15

390

STATE PROJECT NUMBER

1090-18-70

8

8

SCALE = 1.0

SCREENING
5-05