

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

PROJECT IM 0295(38)125
INTERSTATE 29
BROOKINGS & DEUEL
COUNTIES

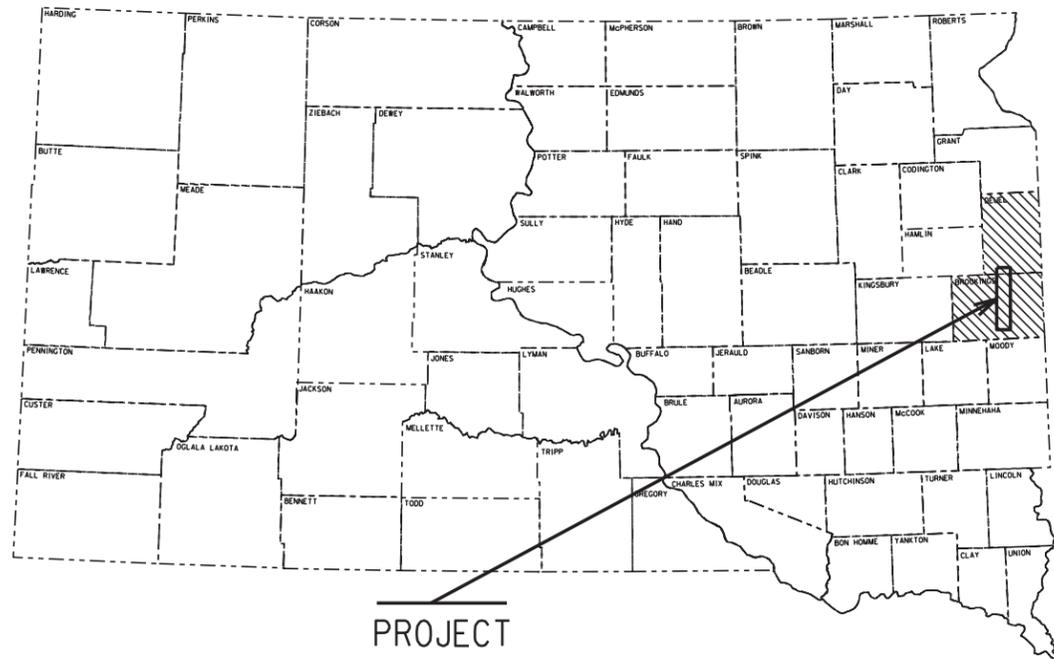
BRIDGE PAINTING
 PCN 035C

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0295(38)125	1	125
Plotting Date: 11/09/2015			

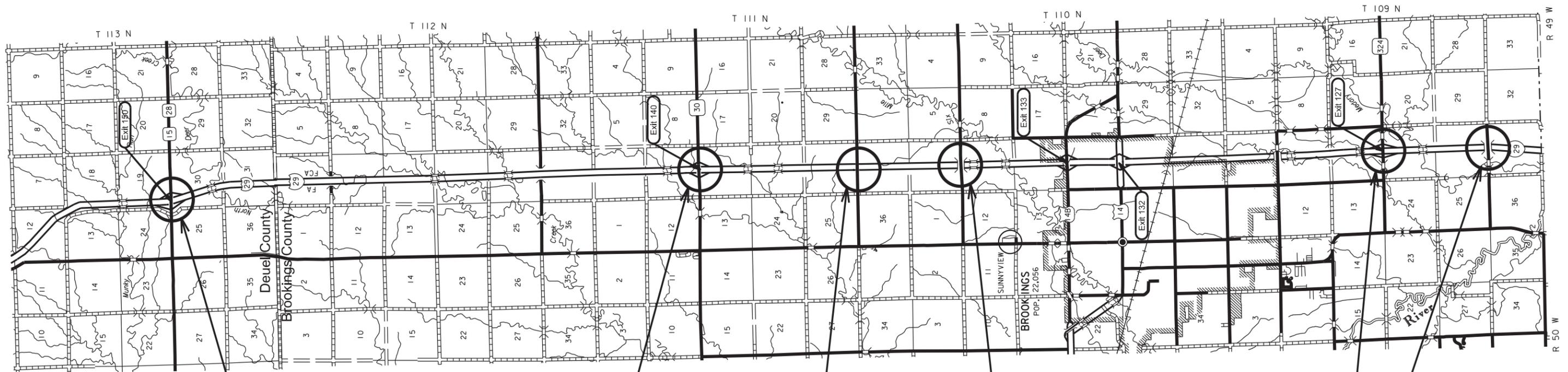
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PLOT SCALE - 1" = 10000'



PROJECT



DESIGN DESIGNATION

ADT (2014)	9436
ADT (2034)	11416
DHV	1392
D	51%
T DHV	9.5%
T ADT	20.9%
V	80 MPH

Str. No. 20-061-280
 I-29 MRM 150.88
 (SD 28 MRM 361.61)

Str. No. 06-185-080
 I-29 MRM 140.78
 (SD 30 @ MRM 358.53)

Str. No. 06-185-110
 I-29 MRM 137.79

Str. No. 06-185-130
 I-29 MRM 135.81

Str. No. 06-185-210
 I-29 MRM 127.81
 (SD 324 MRM 357.54)

Str. No. 06-185-230
 I-29 MRM 125.80

STORM WATER PERMIT
 NONE REQUIRED

4

PLOTTED FROM - TRAB17882

FILE - ... \BROK035C\035C-TITLE SHEET.DGN

PLOT NAME - 1

ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT IM 0295(38)125	SHEET 2	TOTAL SHEETS 125
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GENERAL QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
634E0010	Flagging	120.0	Hour
634E0110	Traffic Control Signs	1,144	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0280	Type 3 Barricade, 8' Single Sided	10	Each
634E0330	Temporary Raised Pavement Markers	23,040	Ft
634E0420	Type C Advance Warning Arrow Board	4	Each

Str. No. 06-185-230

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

Str. No. 06-185-110

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

Str. No. 06-185-210

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

Str. No. 06-185-080

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

Str. No. 06-185-130

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

Str. No. 20-061-280

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
410E0508	Field Weld	118	In
410E0512	Grind Weld	151	In
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0295(38)125	3	125

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

TABLE OF TRAFFIC CONTROL RELATED ITEMS AND PAINTING

ROUTE	MRM	STR. NO.	Site Situation	TYPE C ADVANCE WARNING ARROW BOARD (EACH)	FLAGGING (HOUR)	TEMPORARY RAISED PAVEMENT MARKERS (Yellow) (FT)	TEMPORARY RAISED PAVEMENT MARKERS (White) (FT)	TEMPORARY PAVEMENT MARKING COMMENTS	FIELD WELD (In)	GRIND WELD (In)	BRIDGE REPAINTING, CLASS II (LS)	RUST PENETRATING SEALER (LS)	PAINT RESIDUE CONTAINMENT (LS)	FOR INFORMATION ONLY		
														Approximate area requiring rust penetrating sealer (Square Feet)	Approximate area requiring paint (Square Feet)	Approximate length requiring polyurethane sealant (Feet)
29	125.80	06-185-230	Single bridge for county road traffic over I-29	4	20	1920	1920	Markings for lane closures on I-29	-	-	LUMP SUM	LUMP SUM	LUMP SUM	116	5,985	160
29	127.81	06-185-210	Single bridge for SD324 traffic over I-29		20	1920	1920	Markings for lane closures on I-29	-	-	LUMP SUM	LUMP SUM	LUMP SUM	116	5,985	160
29	135.81	06-185-130	Single bridge for county road traffic over I-29		20	1920	1920	Markings for lane closures on I-29	-	-	LUMP SUM	LUMP SUM	LUMP SUM	150	5,780	406
29	137.79	06-185-110	Single bridge for county road traffic over I-29		20	1920	1920	Markings for lane closures on I-29	-	-	LUMP SUM	LUMP SUM	LUMP SUM	203	6,340	504
29	140.78	06-185-080	Single bridge for SD30 traffic over I-29		20	1920	1920	Markings for lane closures on I-29	-	-	LUMP SUM	LUMP SUM	LUMP SUM	535	7,170	605
29	150.88	20-061-280	Single bridge for SD15/SD28 traffic over I-29		20	1920	1920	Markings for lane closures on I-29	118	151	LUMP SUM	LUMP SUM	LUMP SUM	170	20,750	748
TOTAL				4	120	11520	11520		118	151	LUMP SUM	LUMP SUM	LUMP SUM	1290	52,010	2583

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0295(38)125	5	125

SEQUENCE OF OPERATIONS & TRAFFIC CONTROL

The following sequence of operations will be followed unless an alternate sequence is submitted in writing to the Area Engineer and approved, prior to the preconstruction meeting.

Work on multiple structures may be completed concurrently. Once the bridge painting work commences the work shall progress continuously until complete.

1. Install traffic control devices to close one lane at each structure of Interstate 29. One northbound and one southbound lane may be closed simultaneously.
2. Complete bridge repainting work within the limits of the closed lanes.
3. Switch traffic control and close the other lane of traffic to allow completion of work.
4. Complete clean up and remove traffic control devices to open the roadway to traffic.

GENERAL MAINTENANCE OF TRAFFIC

Removing, relocating, covering, salvaging and resetting of permanent traffic control devices, including delineation, shall be the responsibility of the Contractor. Cost for this work shall be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.

Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage to the vegetation, surfacing, embankment, delineators and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.

Work activities shall not be conducted simultaneously on the median and outside shoulders of the same directional set of lanes.

The use of interstate maintenance crossovers will not be permitted.

Work activities during non-daylight hours are subject to prior approval.

A 16' lane of travel in each direction must be maintained on I-29 at all times.

Sufficient traffic control devices have been included in these plans to provide four lane closure workspaces per standard plate 634.63. A maximum of 4 divided highway lane closures will be measured and paid for. Additional lane closure costs shall be borne by the Contractor.

All closures that are not being used shall be removed. If lane a closure is not needed when workers are not present it shall be removed.

Flagger(s) will be required where work activity and/or equipment may encroach into a lane open to traffic.

Temporary Raised Pavement Markers shall be clean at all times.

Temporary Raised Pavement Markers shall be paid for once in each lane at each bridge site. Should the Contractor elect to close a lane, remove the lane closure and then reclose the lane at a later time, the cost of the Temporary Raised Pavement Markers shall be at the Contractor's expense.

Two Type 3 Barricades have been included in the Estimate of Quantities for each lane closure.

Traffic control drums or 42" cones shall be placed on the roadway shoulders to discourage traffic from driving on the shoulders. Placement and spacing of these devices shall be as directed by the Engineer.

Standard Plate 634.61 has been included in the plans and 2 sets of shoulder closure signs have been included in the Itemized List for Traffic Control. The layout depicted on this plate may be used, with the approval of the Engineer, to complete work outside of the paved shoulder on the end spans of the bridge. The use of the Moveable Concrete Barriers, as depicted on the plate, will not be required on this project.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

REMOVE PAVEMENT MARKING

Pavement marking which conflicts with the temporary traffic control or temporary pavement markings shall be removed by a means that is nondestructive to the surfacing. Payment for this work shall be incidental to the contract lump sum price for TRAFFIC CONTROL MISCELLANEOUS.

COORDINATION OF WORK

Project IM 0295(43)141, PCN 035B, Bridge Deck Polymer Chip Seal shall require coordination of work between Contractors, specifically lane closures. Due to the close proximity of work sites, it will not be an option to have lane closures in opposite lanes of travel in the same direction within 1 mile either direction of Exit 140. Contractors shall work together to coordinate lane closures on I-29.

The above project is scheduled to let to contract for the 2016 construction season.

Projects P-PH 0014(177)421 PCN 546N and IM 0295(40)132, PCN 04TW, reconstruction of the US14 and I-29 Exit 132 Interchange shall require coordination of work between Contractors, specifically lane closures. Contractors shall work together to coordinate lane closures on I-29.

The above project is scheduled to let to contract during the 2016 construction season.

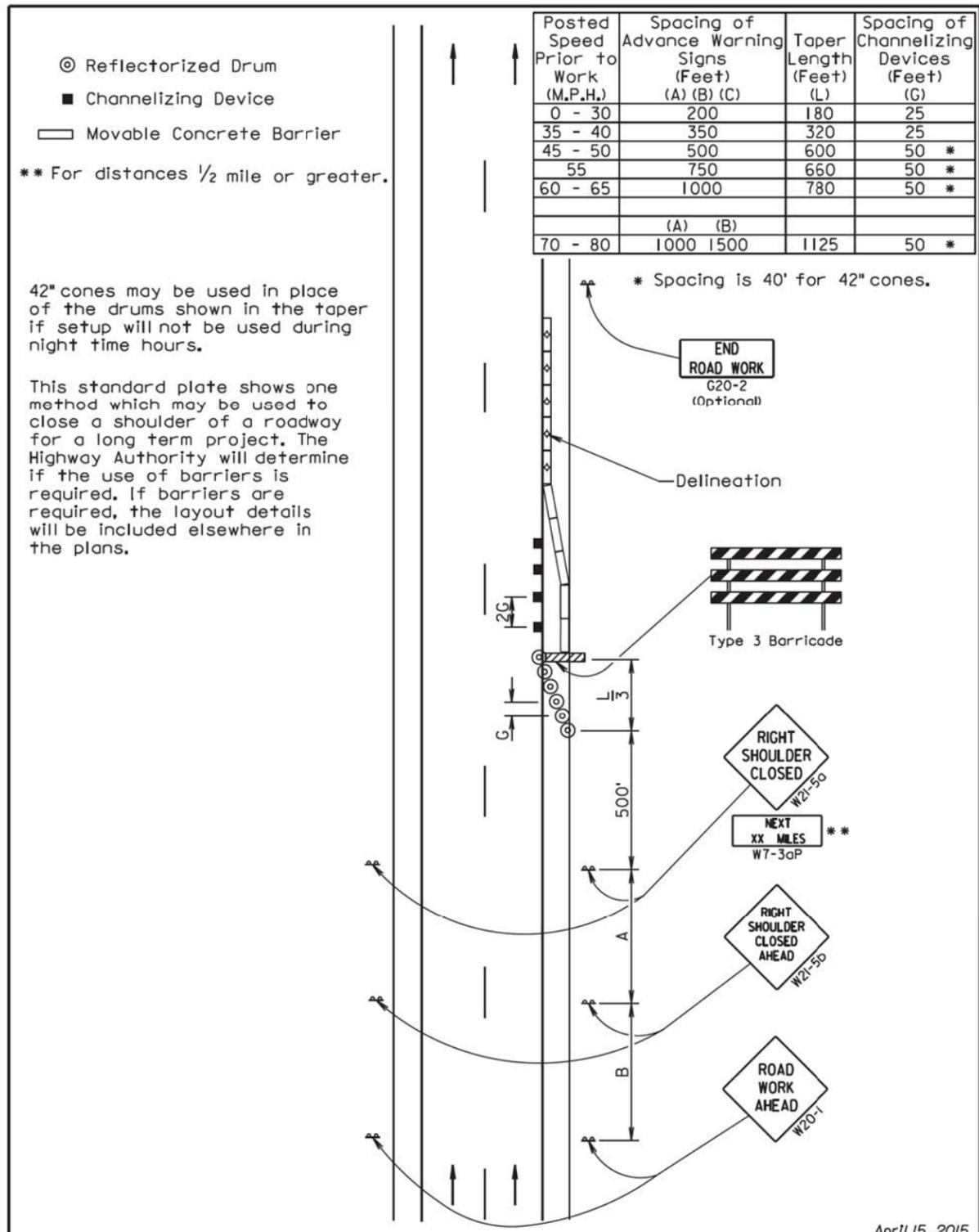
Project IM 0295(35)127, PCN 022C, Scour Protection, shall require coordination of work between Contractors, specifically coordination of lane closures on I-29. Due to the close proximity of work sites, it will not be an option to have lane closures in opposite lanes of travel in the same direction within 1 mile either direction. The Contractor for this project is K & L Construction Inc., PO Box 1040, Sergeant Bluff, IA 51054-1040. Phone 712-943-2939.

Plotting Date: 11/09/2015

PLOT SCALE - 1:200

PLOT NAME - 2

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April 15, 2015

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES SHOULDER CLOSED	PLATE NUMBER 634.61
	Published Date: 4th Qtr. 2015	Sheet 1 of 1

-PLOTTED FROM - TRAB17882

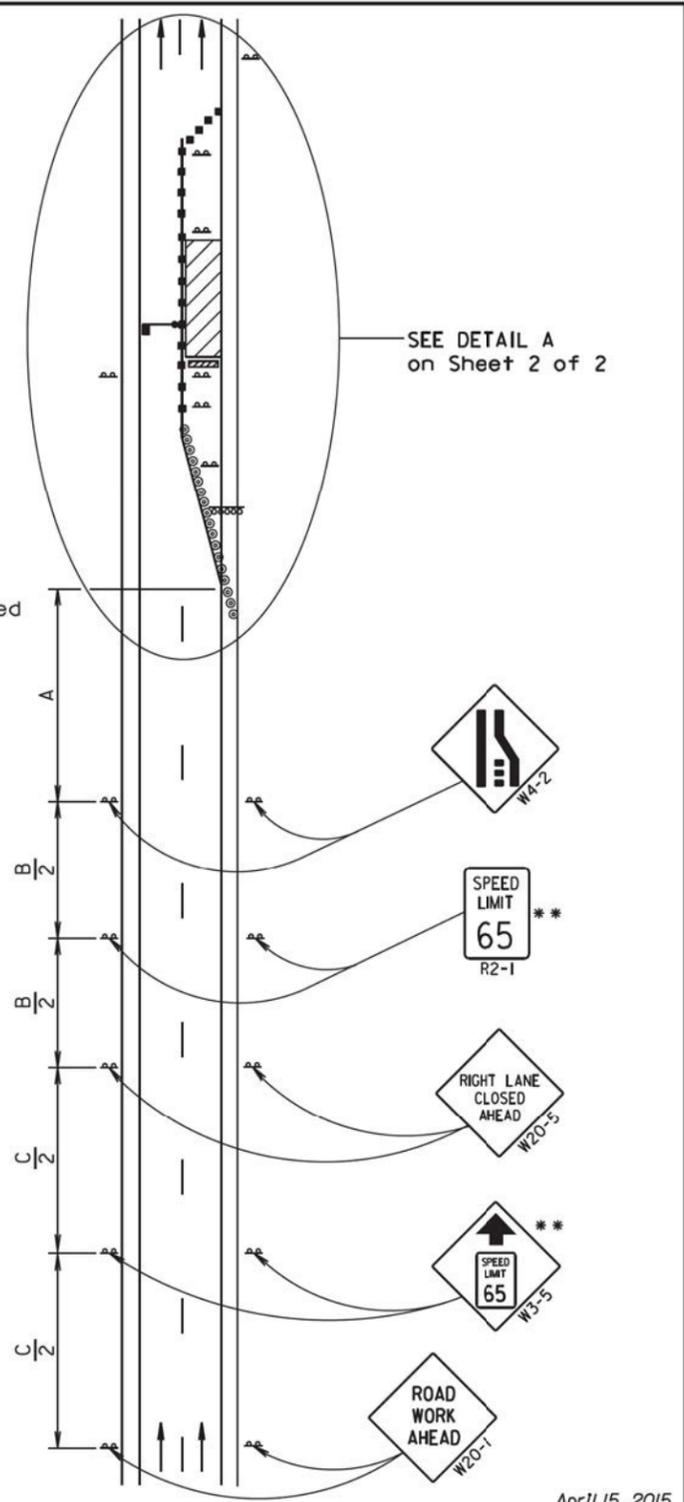
PLOT SCALE - 1:200

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)		
	(A)	(B)	(C)
0 - 30	200		
35 - 40	350		
45 - 50	500		
55	750		
60 - 65	1000		
	(A)	(B)	(C)
70 - 80	1000	1500	2640

- ** Speed appropriate for location.
- Reflectorized Drum
- Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



April 15, 2015

S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 4th Qtr. 2015	Sheet 1 of 2

-PLOTTED FROM - TRAB17882

PLOT NAME - 3

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Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45 - 50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

- * Spacing is 40' for 42" cones.
- ** Speed appropriate for location.
- *** Use speed limit designated for the condition when workers are present in the work space. Signs shall be covered or removed when workers are not present.

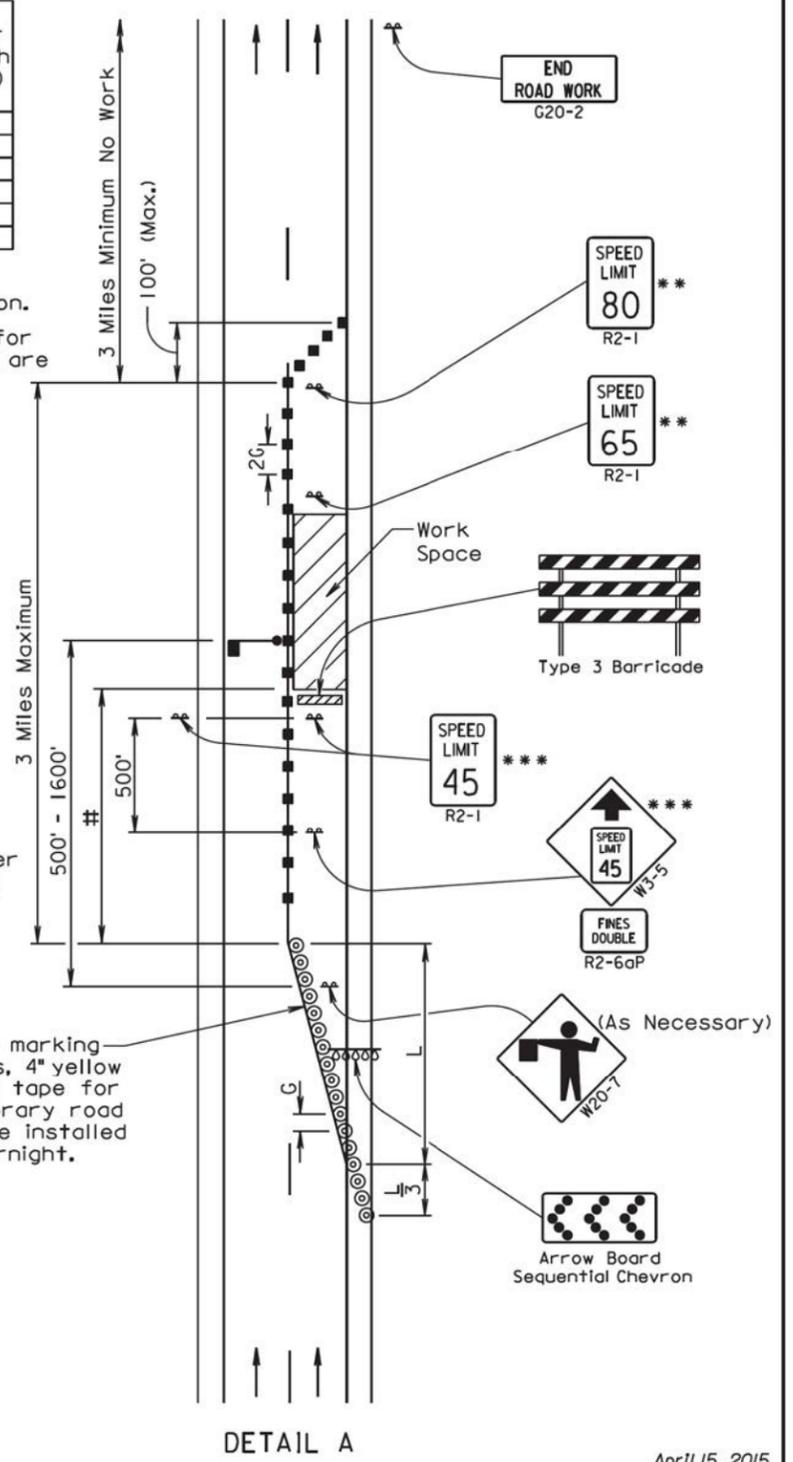
- Flagger (As Necessary)
- Reflectorized Drum
- Channelizing Device
- # The Work Space shall be a minimum of 500' from the end of the taper.

The FLAGGER sign shall be used whenever there is a Flagger present.

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary road markers at 5' spacing shall be installed when the lane is closed overnight.



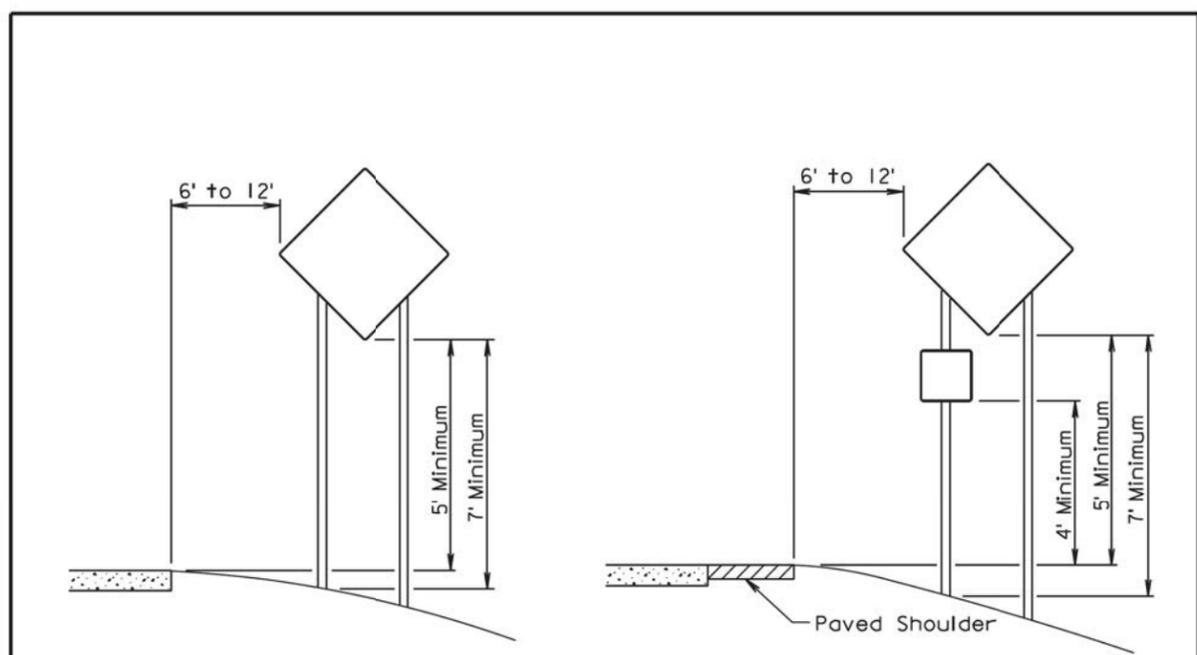
April 15, 2015

S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 4th Qtr. 2015	Sheet 2 of 2

PLOT SCALE - 1:200

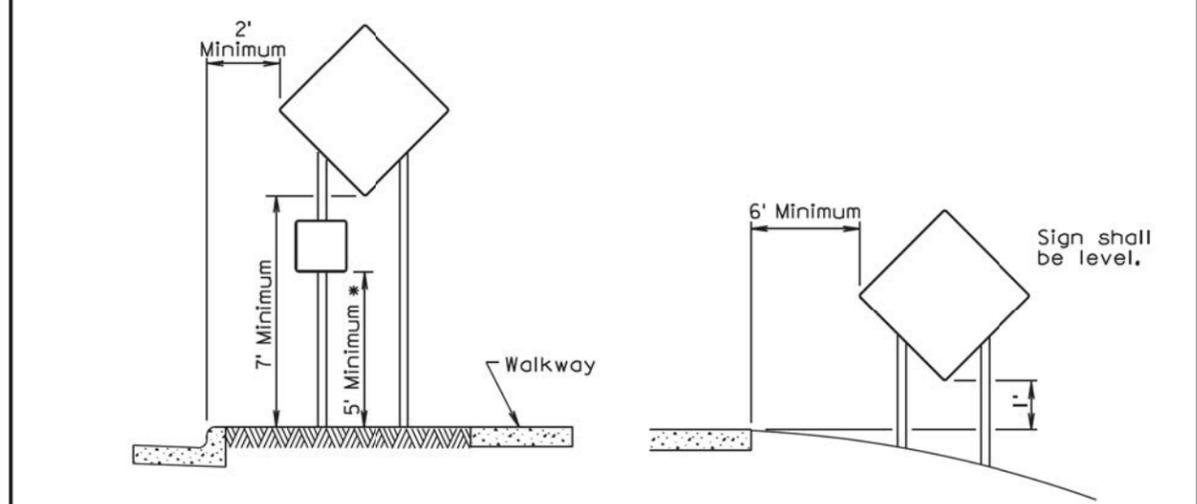
PLOT NAME - 4

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RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

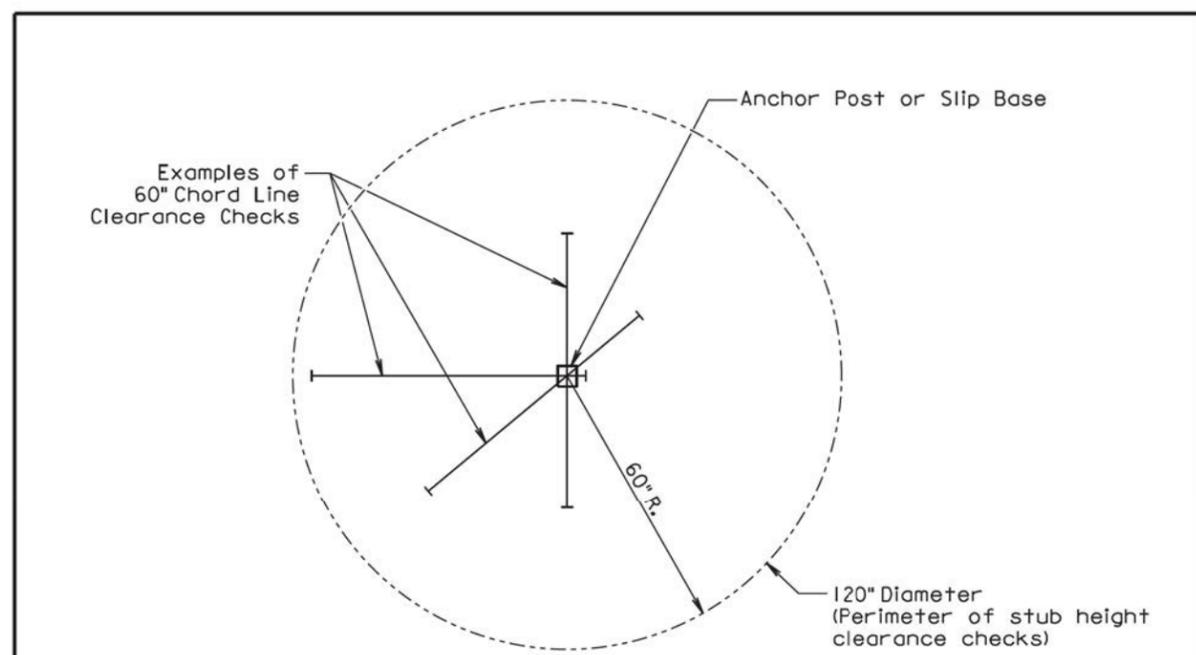
RURAL DISTRICT 3 DAY MAXIMUM

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

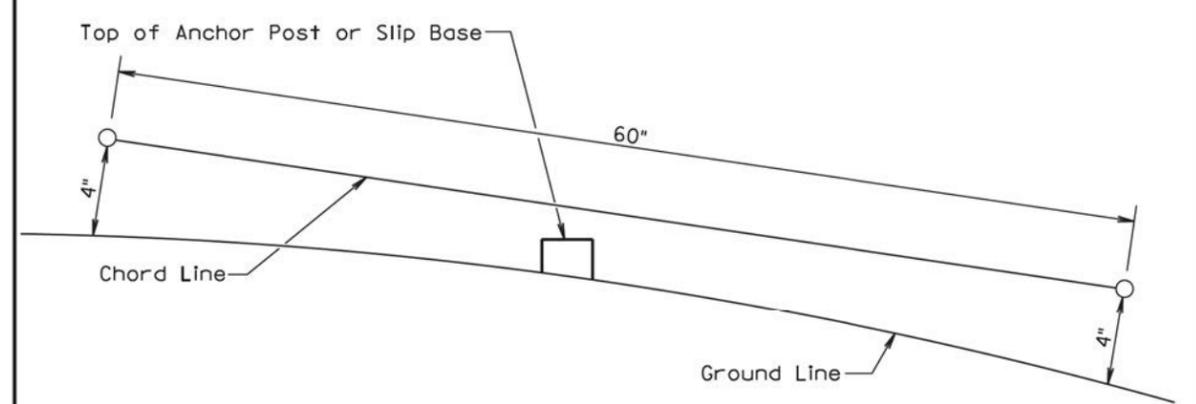
(Not applicable to regulatory signs)

September 22, 2014

Published Date: 4th Qtr. 2015	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

Published Date: 4th Qtr. 2015	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

-PLOTTED FROM - TRAB17882

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 80	4	36" x 48"	12	48
R2-1	SPEED LIMIT 65	8	36" x 48"	12	96
R2-1	SPEED LIMIT 45	8	36" x 48"	12	96
R2-6aP	FINES DOUBLE (plaque)	4	36" x 24"	6	24
W3-5	SPEED REDUCTION AHEAD (___ MPH)	12	48" x 48"	16	192
W4-2	LEFT or RIGHT LANE ENDS (symbol)	8	48" x 48"	16	128
W20-1	ROAD WORK AHEAD	12	48" x 48"	16	192
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	8	48" x 48"	16	128
W20-7	FLAGGER (symbol)	4	48" x 48"	16	64
W21-5a	LEFT or RIGHT SHOULDER CLOSED	4	48" x 48"	16	64
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD	4	48" x 48"	16	64
G20-2	END ROAD WORK	6	48" x 24"	8	48
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			1144

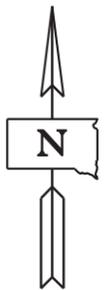
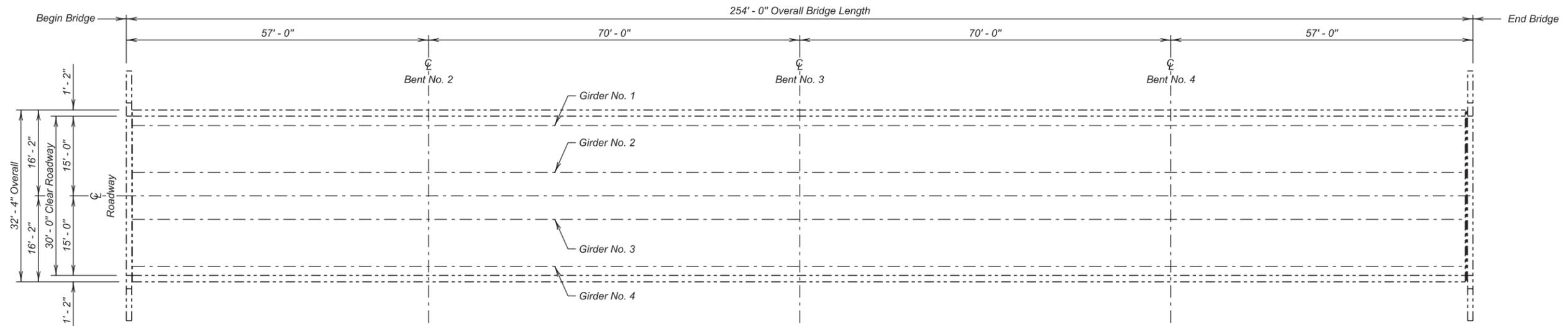
TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Single Sided	10 Each

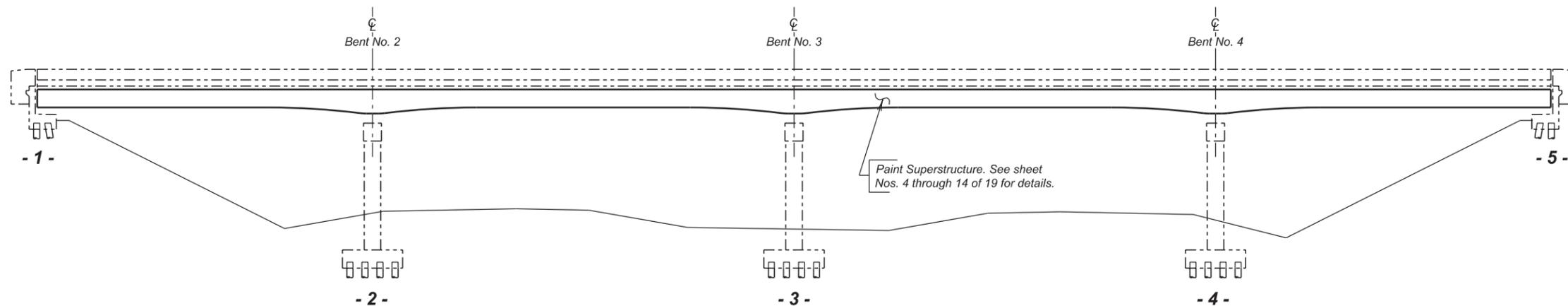
ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Arrow Board	4 Each

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	10	125



PLAN



ELEVATION

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- Sheet No. 5 - Girder No. 1 Paint Details (Continued)
- Sheet No. 6 - Girder No. 2 Paint Details
- Sheet No. 7 - Girder No. 2 Paint Details (Continued)
- Sheet No. 8 - Girder No. 3 Paint Details
- Sheet No. 9 - Girder No. 3 Paint Details (Continued)
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- Sheet No. 12 - Girder Paint Details At Bolted Splices
- Sheet No. 13 - Girder Paint Details
- Sheet No. 14 - Girder Paint Details (Continued)
- Sheet No. 15 thru 19 - Original Construction Plans

LAYOUT FOR UPGRADING
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30-T109N-R49W
STR. NO. 06-185-230 IM 0295(38)125
PCN 035C

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA01	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	11	125

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

NOTICE – LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans.

Clean and paint portions of the existing girders and all of the bearings as shown be these plans.

PAINT RESIDUE REMOVAL AND CONTAINMENT

- Paint Residue Removal and Containment shall be performed in accordance with Section 412 of the Construction Specifications, Bridge Repainting Class II except as modified by these notes.
- The Contractor shall plan his operations to prevent releases of lead containing material and other particulate matter into the surrounding air, water, and onto the ground, soil, slope protection, and pavement. The Contractor shall be responsible for any corrective actions should a spill occur.

3. Collect all visible paint particles and blasting residue containing paint at the end of each workday from the work area. Inspect outside the containment and collect any paint particles or blasting residue that escaped the work area. Collect waste material by manual means, vacuum, or another method approved by the Engineer. Do not use air pressure or streaming water to assist in the waste collection process that could disperse the waste material.

4. In the event of a spill or inadvertent release, the Contractor shall immediately stop work, notify the Engineer, and report the release to the South Dakota Department of Environmental and Natural Resources (DENR). The Contractor shall be responsible for completing a spill reporting form and for all costs associated with appropriate corrective actions.

To report a release or spill, call DENR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at (605) 773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the Contractor must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

5. The Contractor shall haul and unload the 55 gallon containment drums with paint residue, blasting media, etc. to the SDDOT Maintenance Yard located in Brookings for temporary storage. The Brookings Maintenance Yard is located at 2131 34th Avenue. Contact person for the Brookings Yard is John Rittershaus at (605) 688-5001 or Matt Brey at (605) 882-5166. All costs associated with this work shall be included in the contract lump sum price for "Paint Residue Containment".

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS

1. Pack rust areas within the areas defined for painting in the Bridge Repainting Class II notes shall be treated with a rust penetrating sealer. The rust penetrating sealer shall be applied after the area has been cleaned and prepared for painting as specified in the Bridge Repainting, Class II notes but prior to the application of the final paint system. Pack rust areas are those defined as joints in connecting plates and/or crevice areas (locations noted as apply rust inhibitor on the plan sheets).

2. The rust penetrating sealer shall be supplied as one of the following:

2.1 Pre-Prime 167
Penetrating Sealer
International
South Dakota Area Manager: Kevin Perego
Telephone: 636-207-8897
Cell: 314-540-8925
Website: www.international-pc.com

2.2 Wasser MC-PrepBond 2.8
Wasser Corporation
4118 B Place NW Suite B
Auburn, WA 98001
Telephone: 800-627-2968
Website: www.wassercoatings.com

2.3 Time-Lock MoPoxY PRE-PREP
Rust Penetrating Sealer 41-AF-2
BLP Mobile Paints
P.O. Box 717
Theodore, Alabama 36590-0717
Telephone: 251-443-6110
Website: www.blpmobilepaint.com

2.4 Rust Bullet Standard Formula
Rust Bullet, LLC
300 Brinkby Avenue, Suite 200
Reno, NV 89509
Telephone: 800-245-1600
Website: www.rustbullet.com

The rust penetrating sealer shall be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

- Remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed.
- Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the paint system specified in Section 412 of the Construction specifications until the area has cured for the amount of time specified by the manufacturer of the rust penetrating sealer.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 254' - 0" CONT. COMP. GIRDER BRIDGE

STR. NO. 06-185-230

JANUARY 2015

2 OF 19

DESIGNED BY NP	CK. DES. BY EA	DRAFTED BY EA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
DUELO3EC	035CRA02		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	12	125

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS (CONTINUED)

- For informational purposes, 116 square feet of structural steel will require rust penetrating sealer.
- The cost of furnishing and applying the rust penetrating sealer and all other items incidental to the application of this sealer shall be included in the contract lump sum price for "Rust Penetrating Sealer".

BRIDGE REPAINTING, CLASS II

- Portions of the existing girders, diaphragms, bolted splices and bearings shall be painted as shown by these plans and in accordance with the requirements for Bridge Repainting, Class II in Section 412 of the Construction Specifications except as modified by these notes.
- After blast cleaning the surfaces to be painted, remove any trace of blast products, dust or dirt from all surfaces including pockets and corners as approved by the Engineer.
- The color of the top coat shall be an approved green (Federal Standard 595B Color 24108). The prime coat and the top coat shall sharply contrast.
- For informational purposes, 5,985 square feet of structural steel will require painting. For a breakdown of the paint required for all of the portions of the bridge, see sheet nos. 4 through 14 of 19 of the plans.

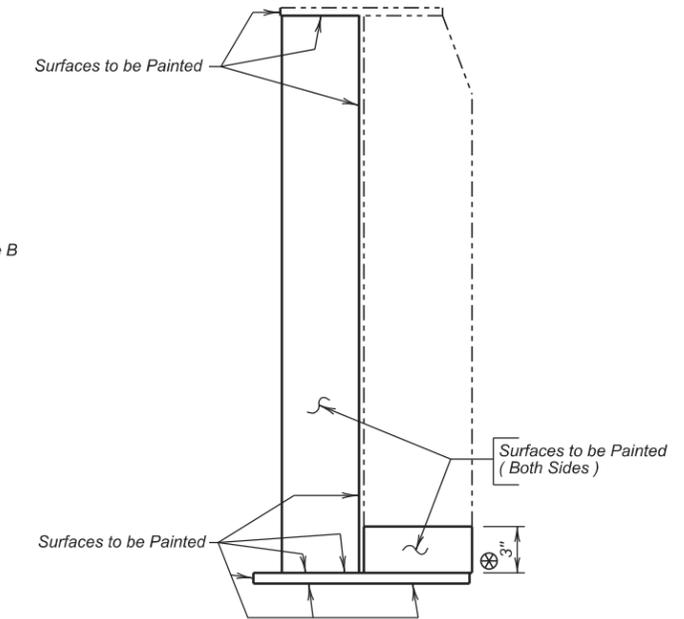
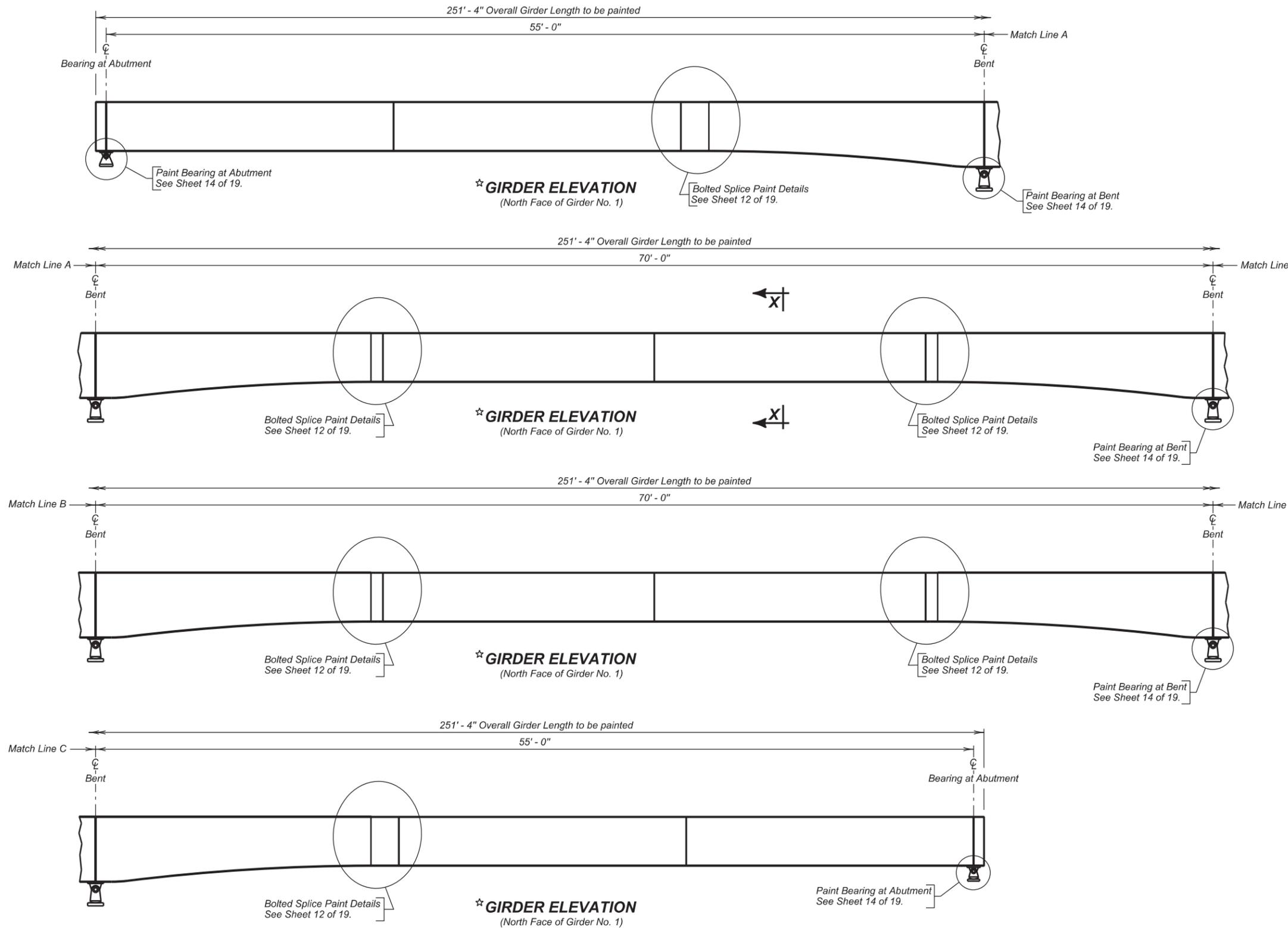
BOLTED SPLICE PLATE SEALANT

- The edges of all bolted splice plates shall be sealed using a Polyurethane Sealant.
- The Polyurethane Sealant shall meet the following requirements. The sealant shall be a single component, moisture cure, non-sag, smooth formulation, gun-grade elastomeric sealant. The sealant shall meet the requirements for ASTM C-920, Type S, Grade NS, Class 25, Use-A.
- Contact surfaces shall be cleaned in accordance with the manufacturer's recommendations. The Contractor shall supply the Engineer with written instructions regarding the manufacturer's recommended surface treatment for the in-place surface condition at least 48 hours before application for review and acceptance.
- The Polyurethane Sealant shall be applied and tooled as recommended by the manufacturer. Product data sheets and Material safety data sheets shall be supplied to the Engineer at least one week prior to installation. In no case shall the thickness of the material be less than 1/4". Feathering of the joint material shall not be allowed. Adjacent surfaces shall be masked to avoid application of the material outside the limits of the final seal. Application surfaces shall be clean and free of material contaminants. Application shall not be allowed on a wet or damp surface.
- Polyurethane Sealant shall be installed and allowed to cure prior to the application of any field applied paint.
- For informational purposes only the sealant will be applied on 160 linear feet.
- Polyurethane Sealant for Structure shall be included in the lump sum price for "Bridge Repainting, Class II." Payment will be full compensation for labor, equipment, materials and incidentals for furnishing, preparing surfaces for application and installing the Polyurethane Sealant.

NOTES (CONTINUED)
FOR
254' - 0" CONT. COMP. GIRDER BRIDGE
STR. NO. 06-185-230
JANUARY 2015

DESIGNED BY NP DUEL035C	CK. DES. BY EA 035CRA03	DRAFTED BY EA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	13	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

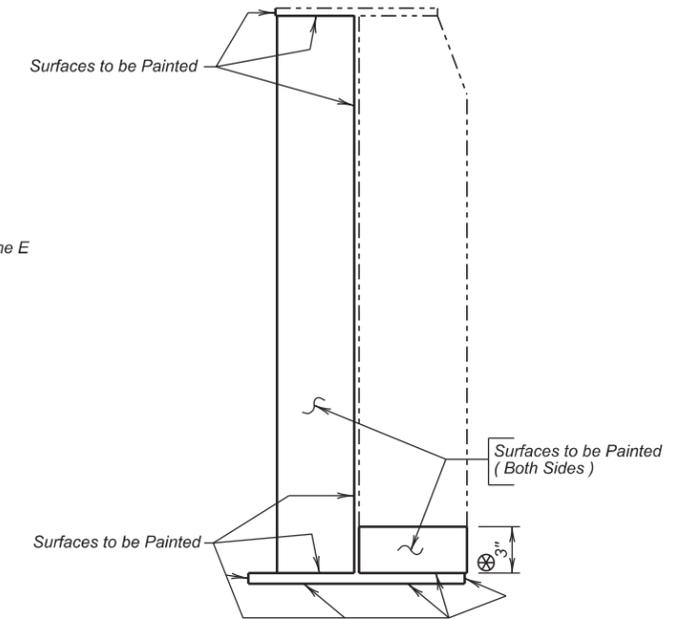
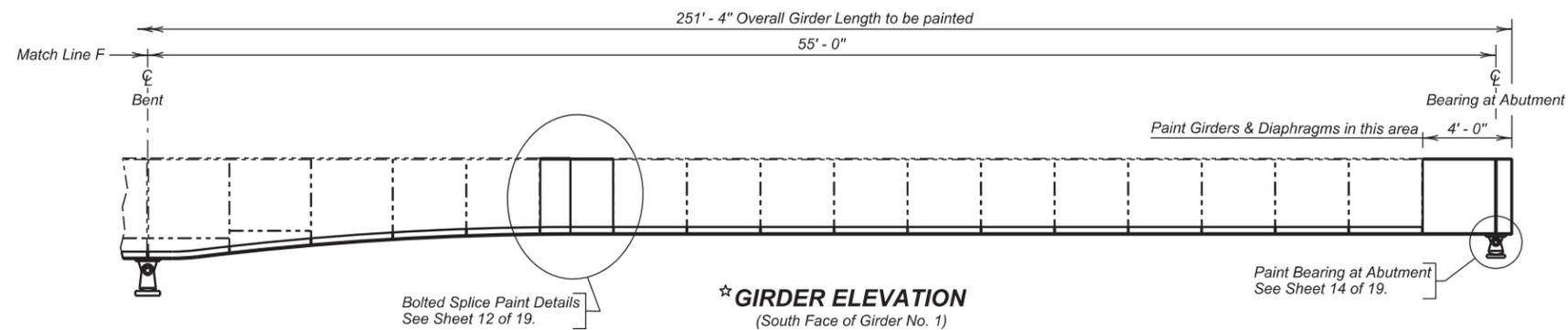
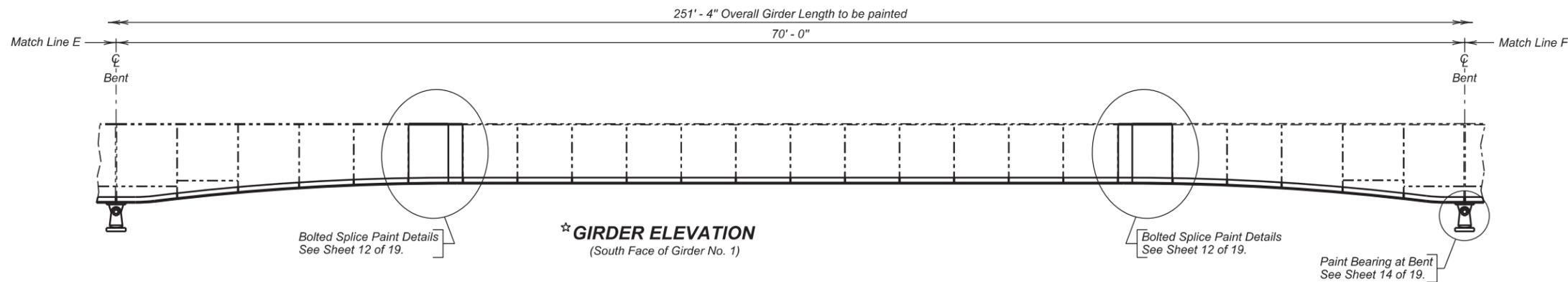
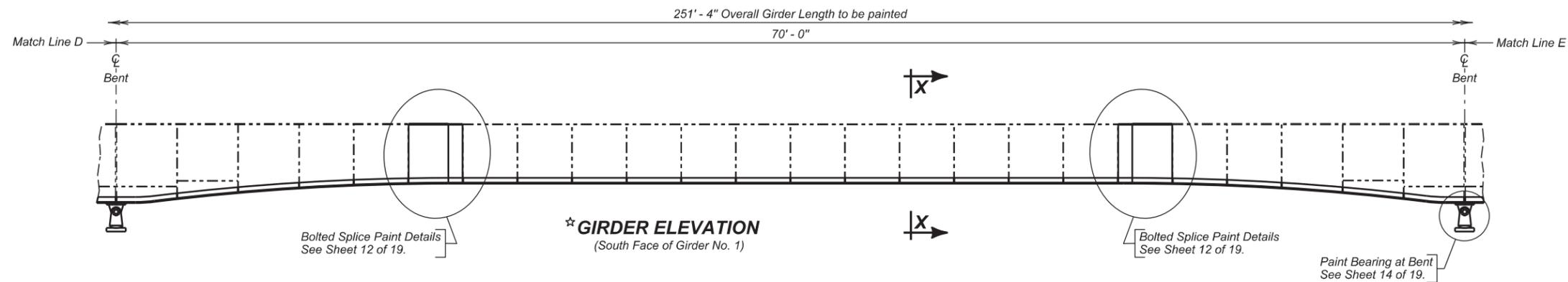
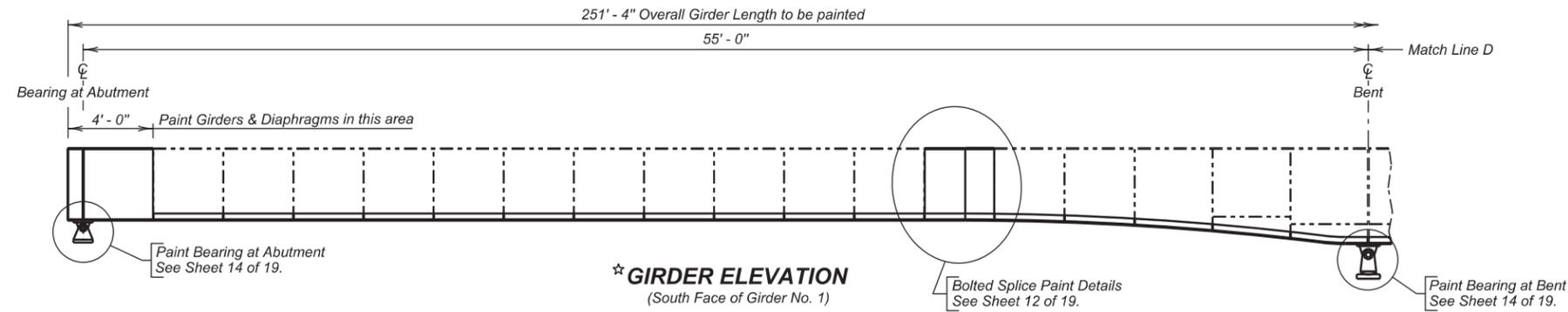
☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 1 PAINT DETAILS
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30-T109N-R49W
STR. NO. 06-185-230 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA04	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	14	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 1 PAINT DETAILS (CONTINUED)

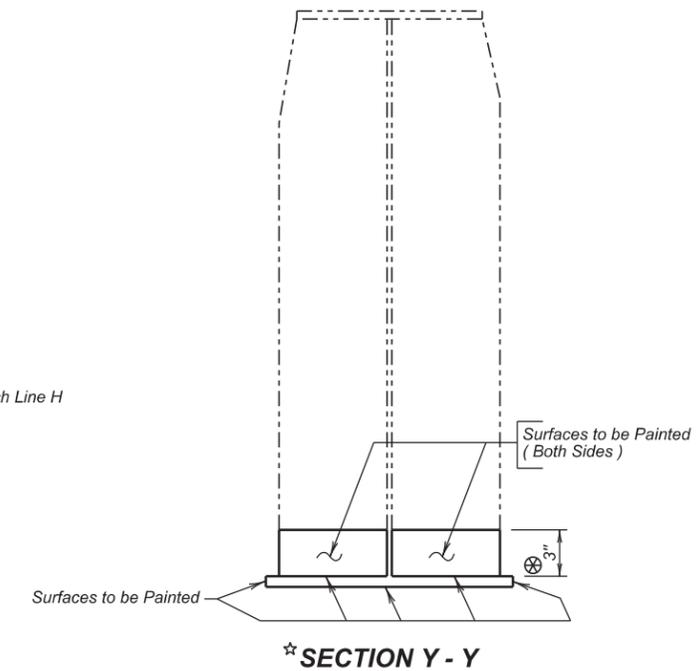
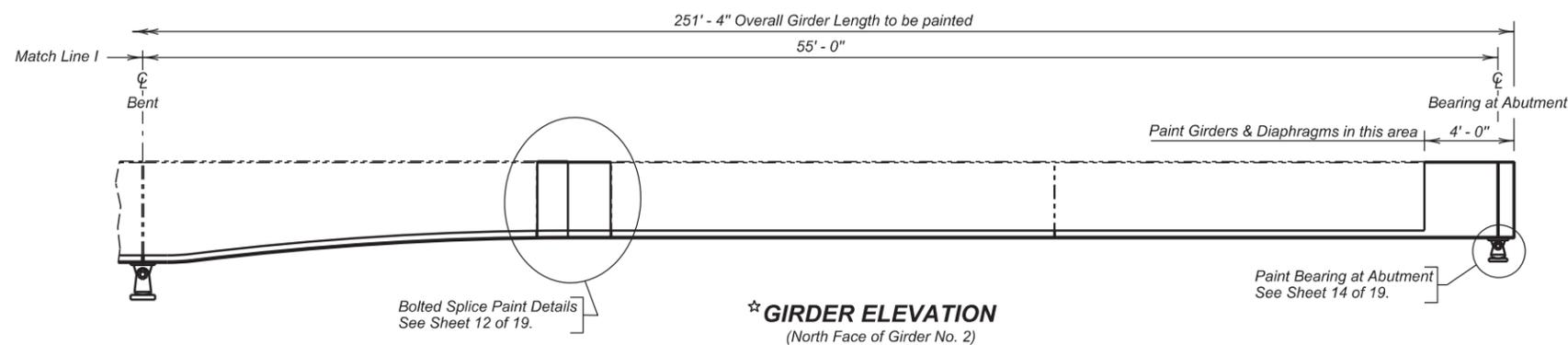
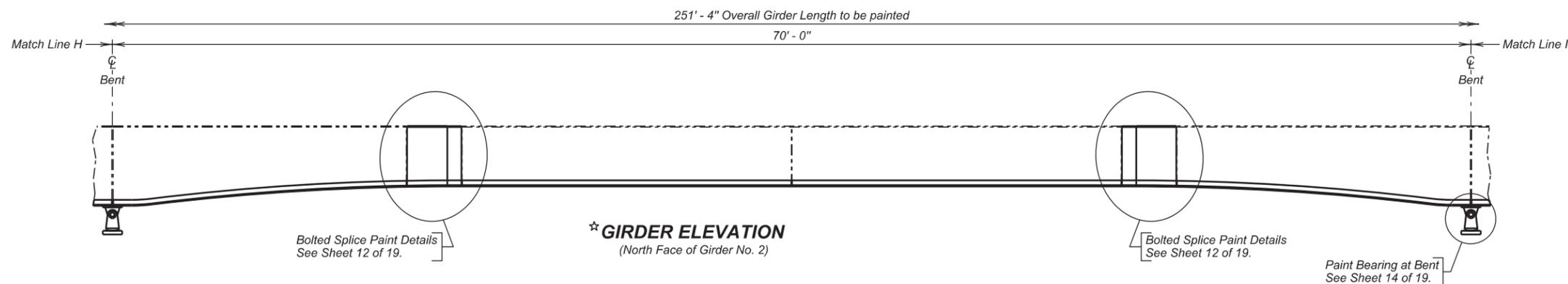
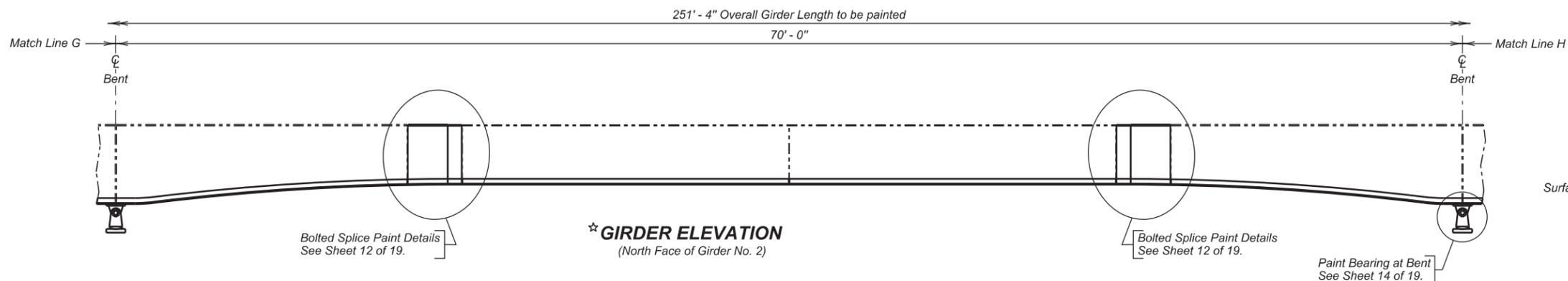
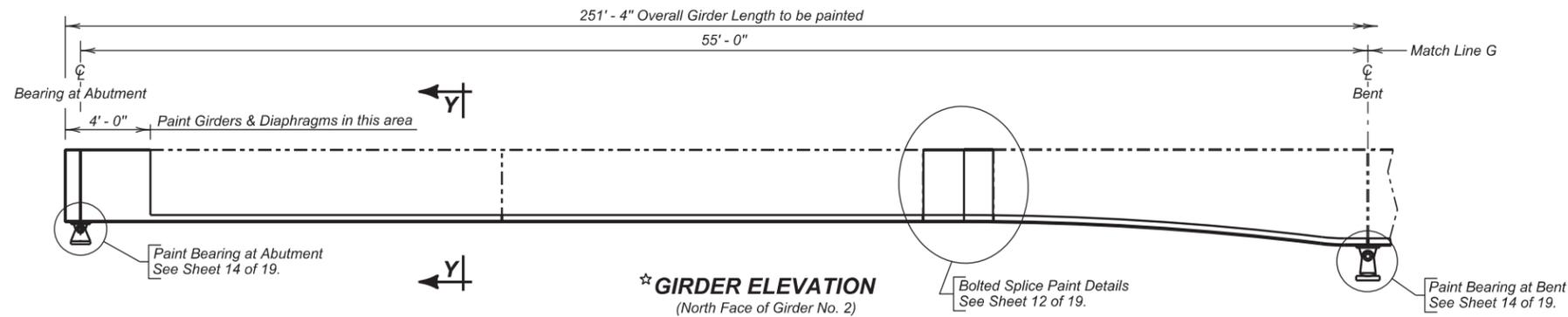
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-230

0° SKEW
SEC. 30-T109N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA05	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	15	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

★ Note: New paint areas are shown bounded by solid object lines.

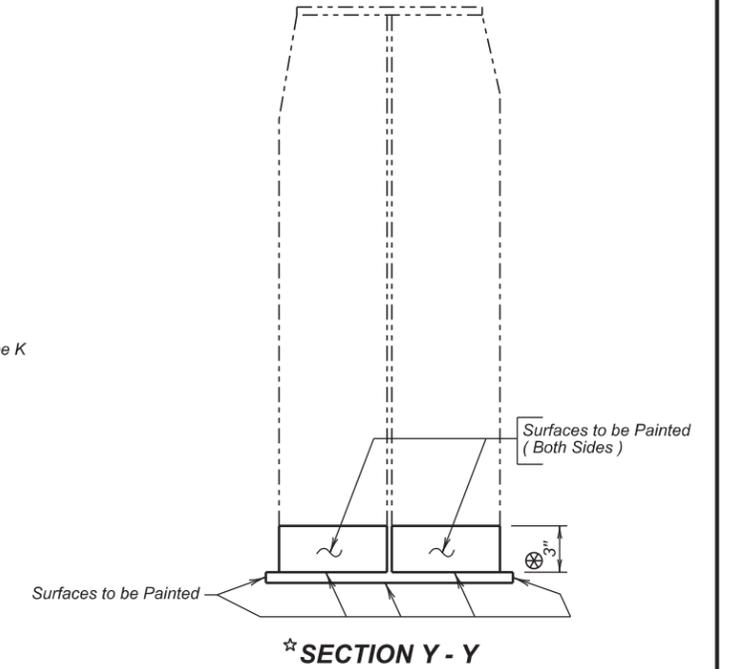
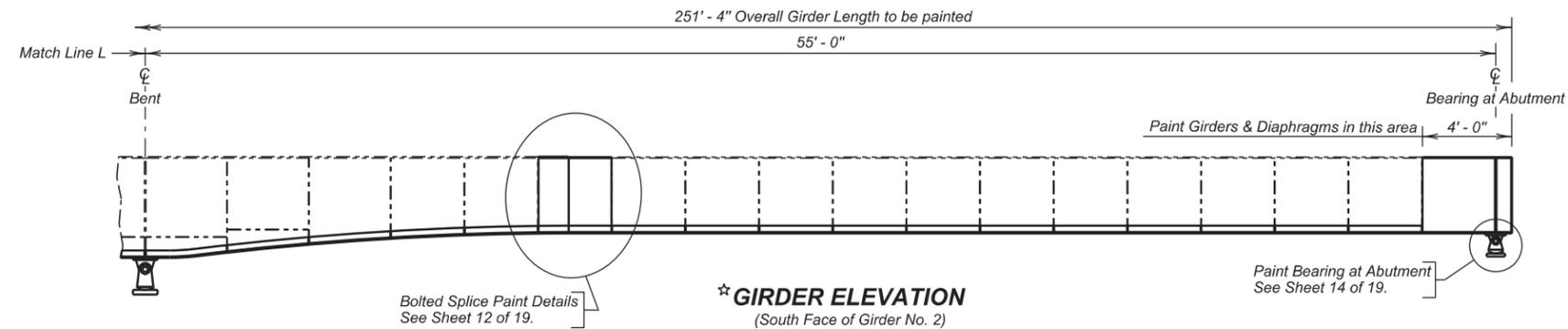
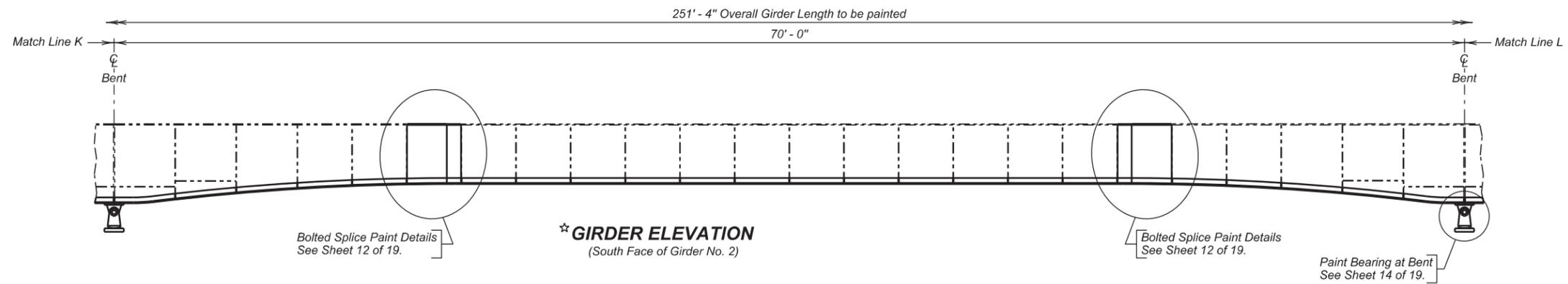
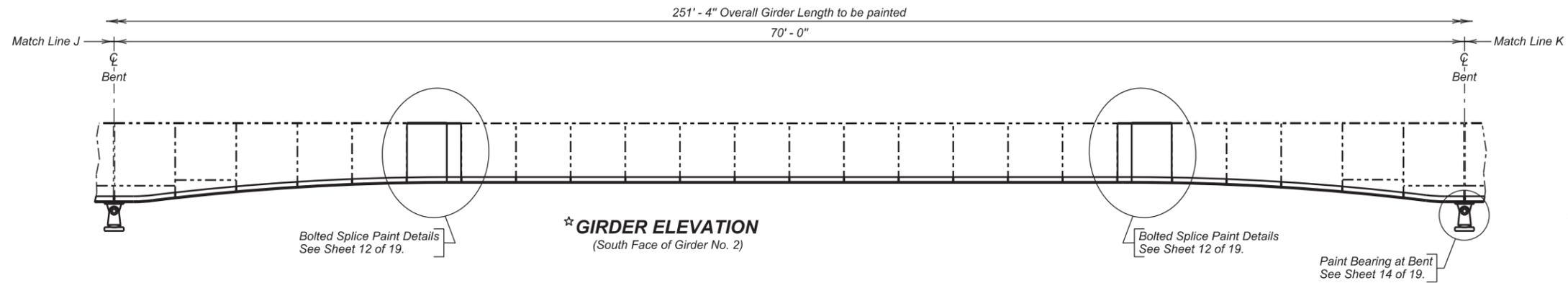
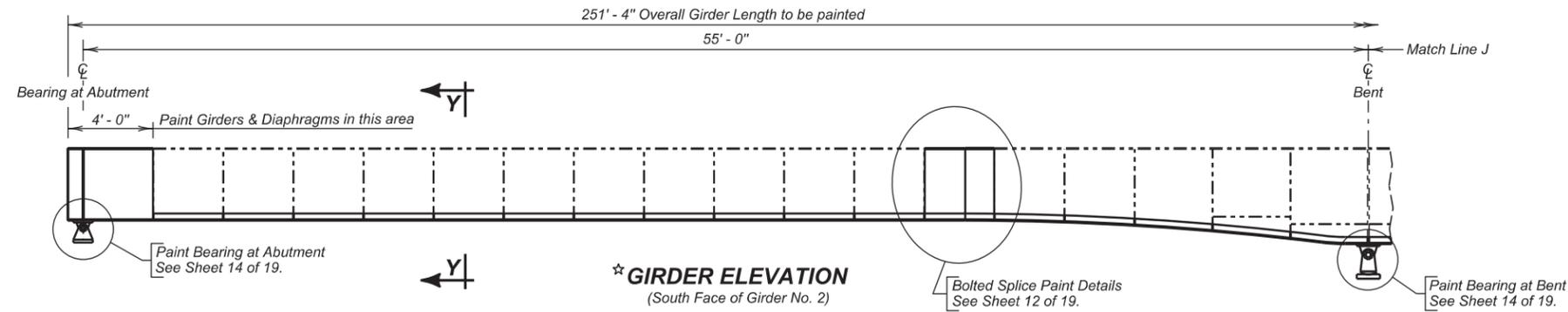
GIRDER NO. 2 PAINT DETAILS

FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 30' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 30-T109N-R49W
 STR. NO. 06-185-230 IM 0295(38)125

BROOKINGS COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA06	DRAFTED BY KR	Kevin N. Coeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	16	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

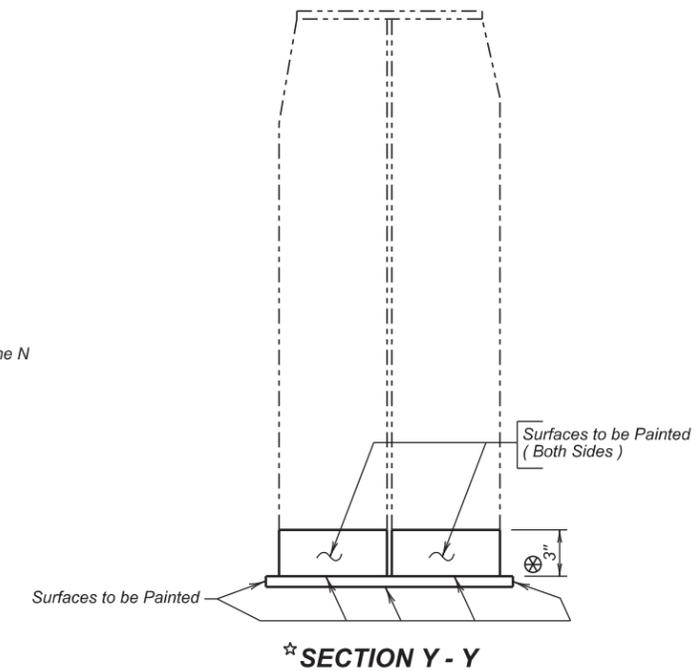
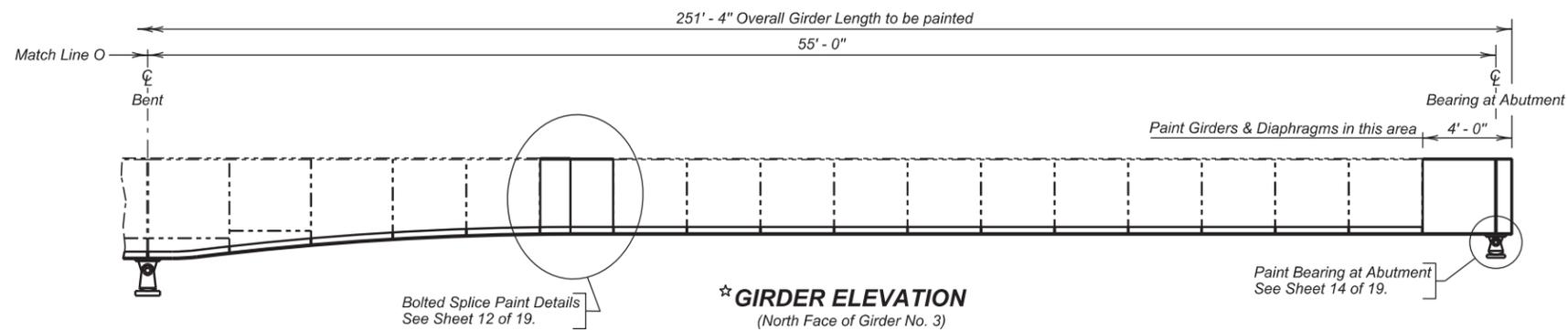
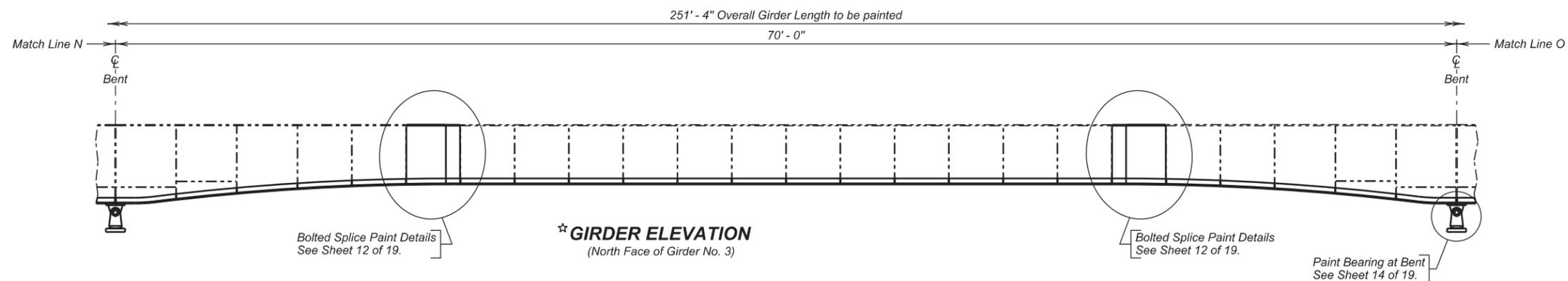
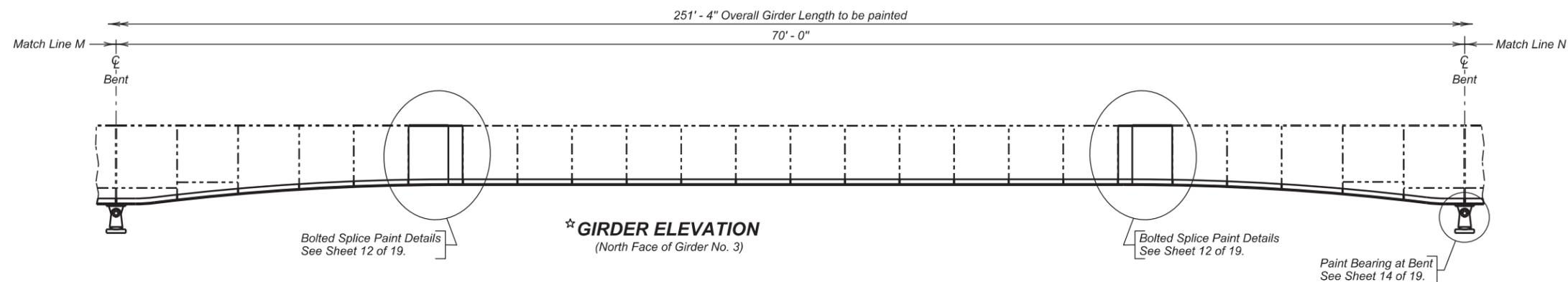
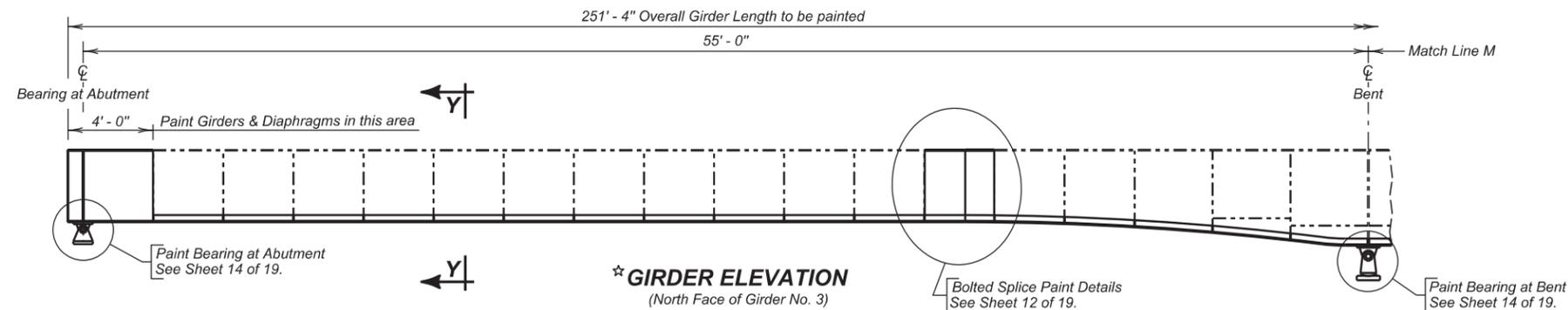
GIRDER NO. 2 PAINT DETAILS CONTINUED

FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30-T109N-R49W
STR. NO. 06-185-230 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA07	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	17	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

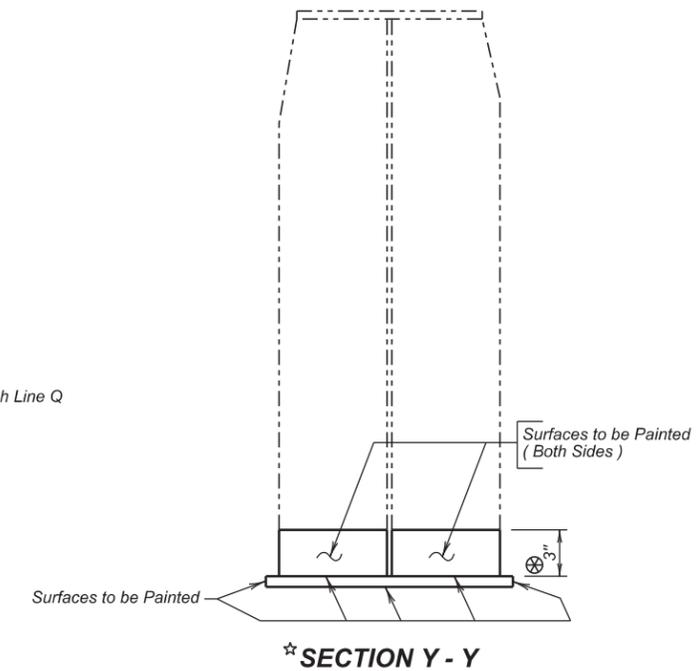
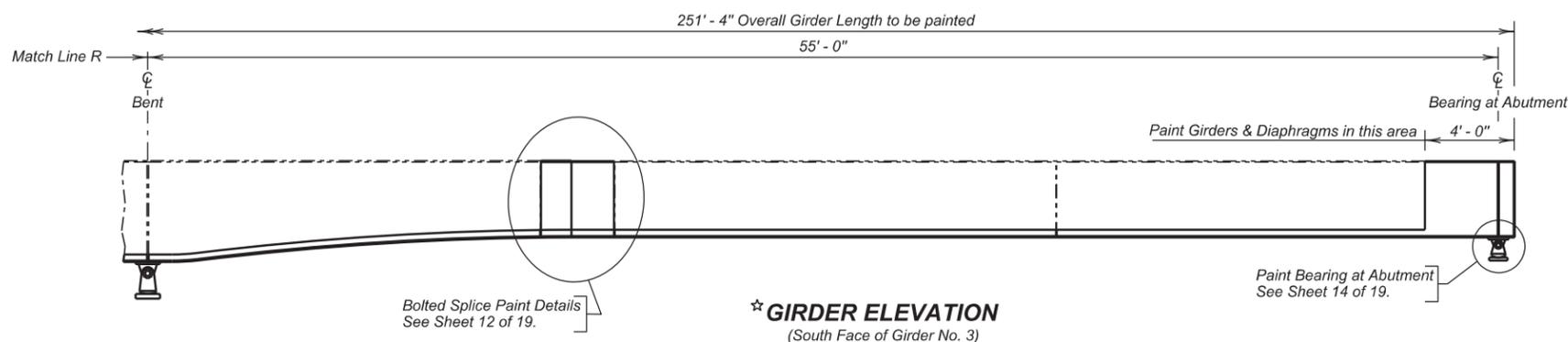
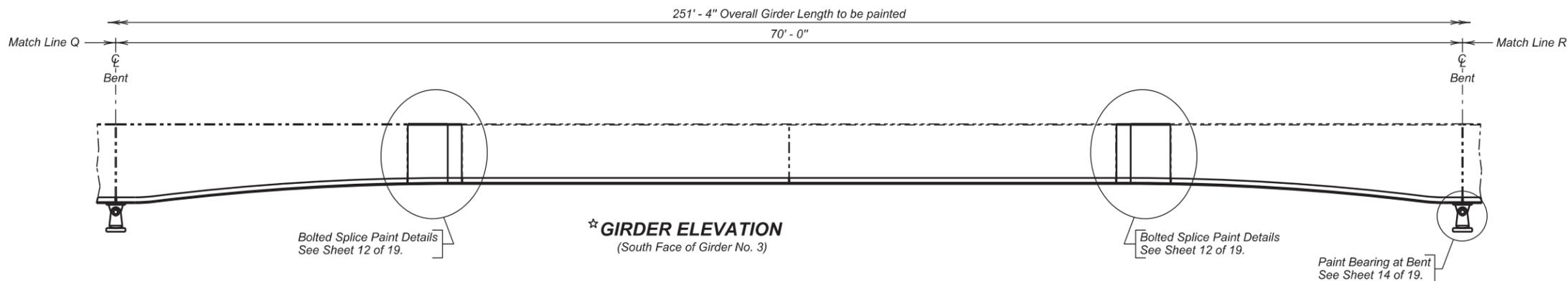
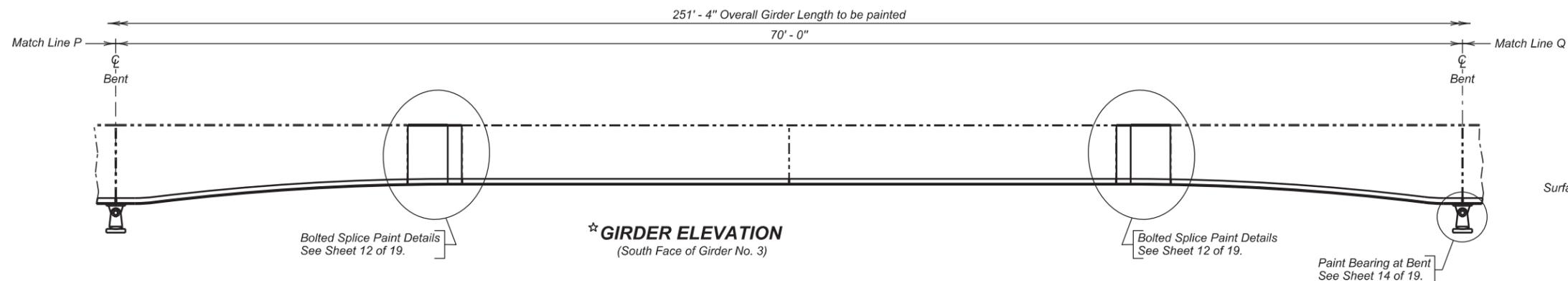
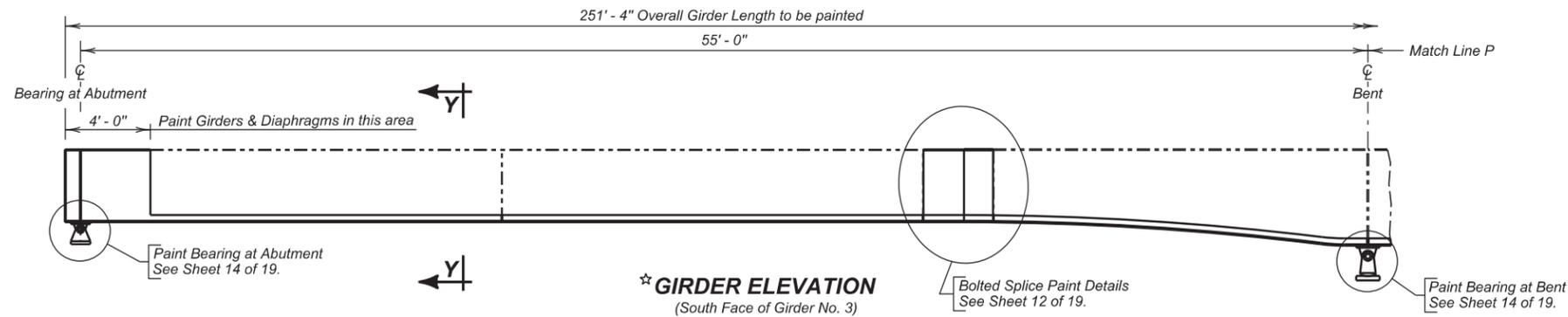
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FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30-T109N-R49W
STR. NO. 06-185-230 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA08	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	18	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

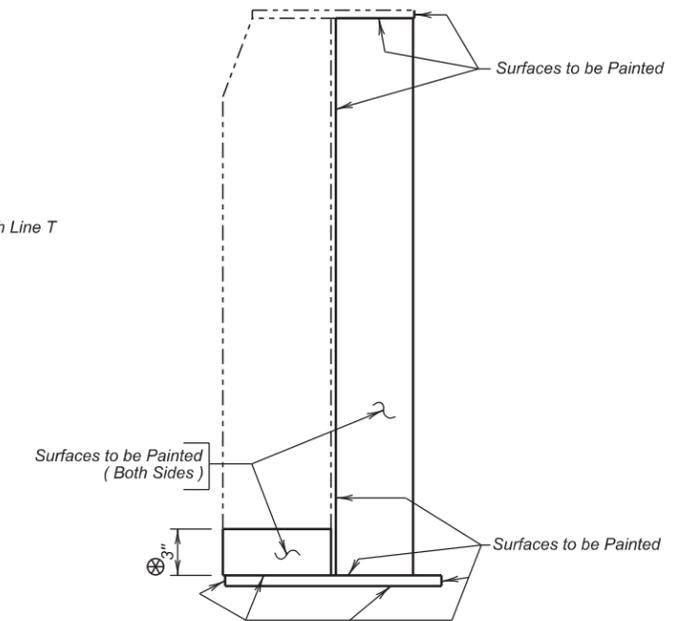
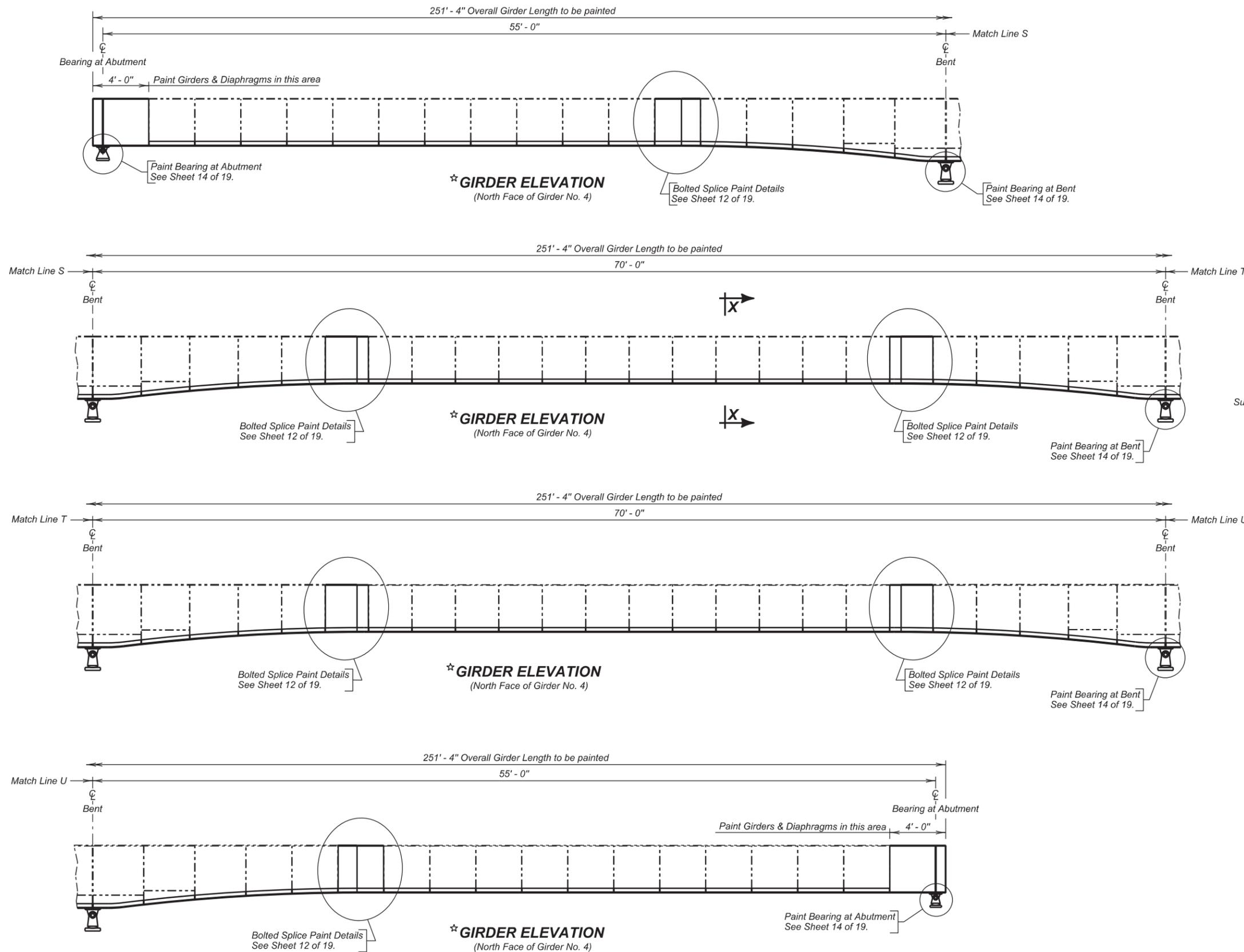
GIRDER NO. 3 PAINT DETAILS (CONTINUED)

FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 30' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 30-T109N-R49W
 STR. NO. 06-185-230 IM 0295(38)125

BROOKINGS COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA09	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	19	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

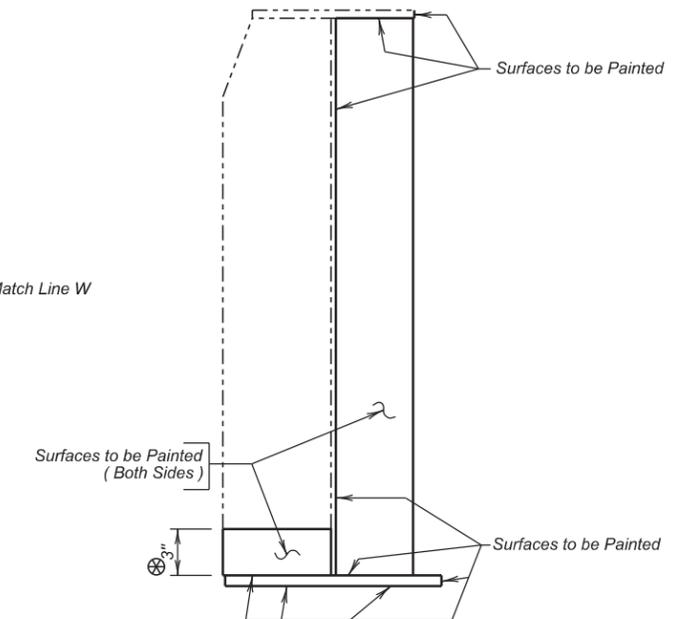
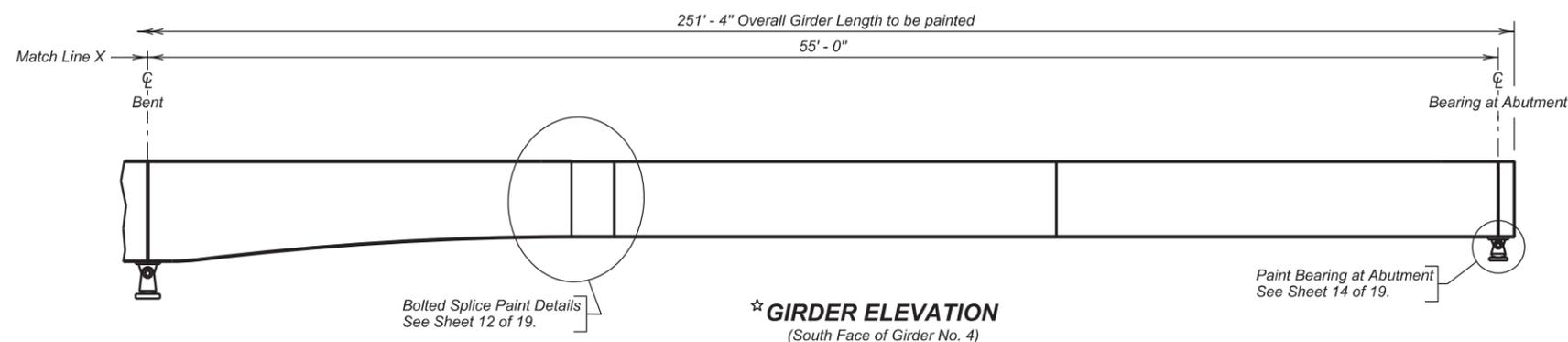
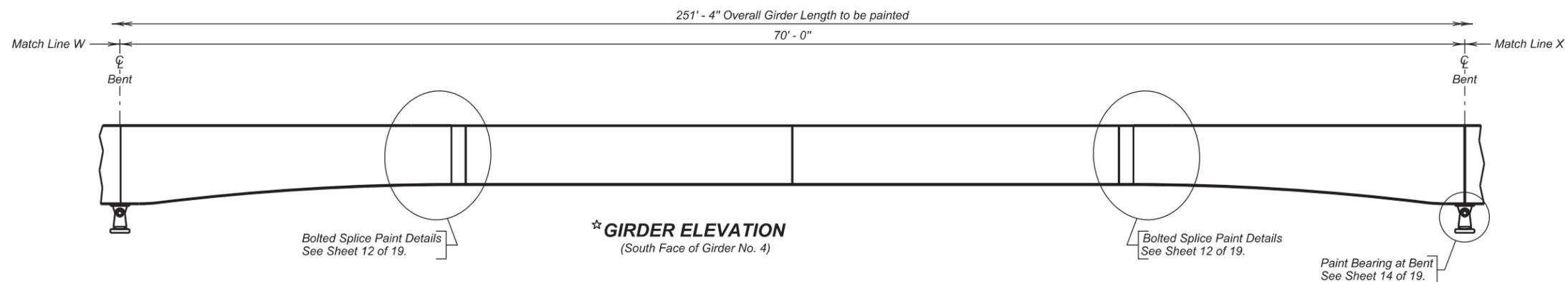
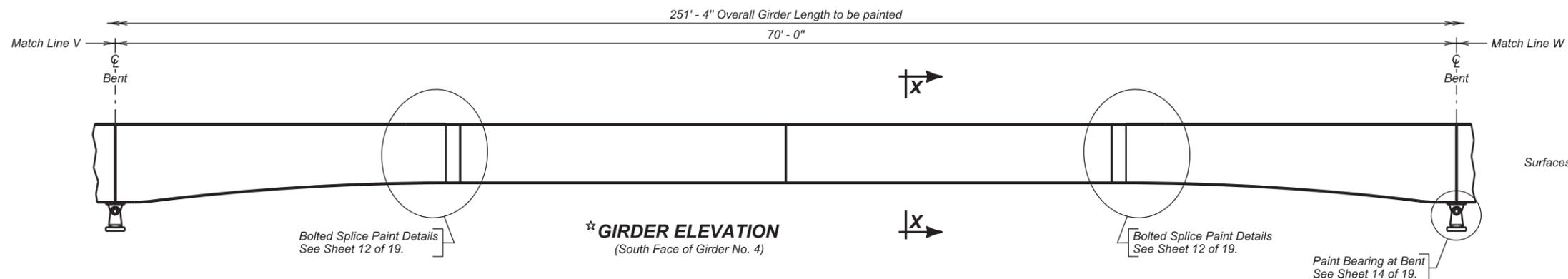
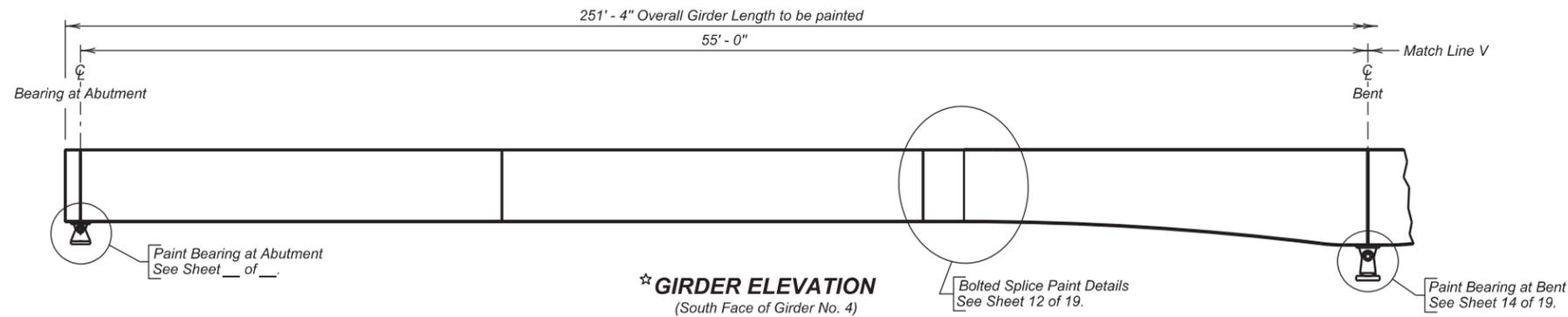
☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 4 PAINT DETAILS
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30-T109N-R49W
STR. NO. 06-185-230 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA10	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	20	125



☆ **SECTION X - X**

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 4 PAINT DETAILS (CONTINUED)

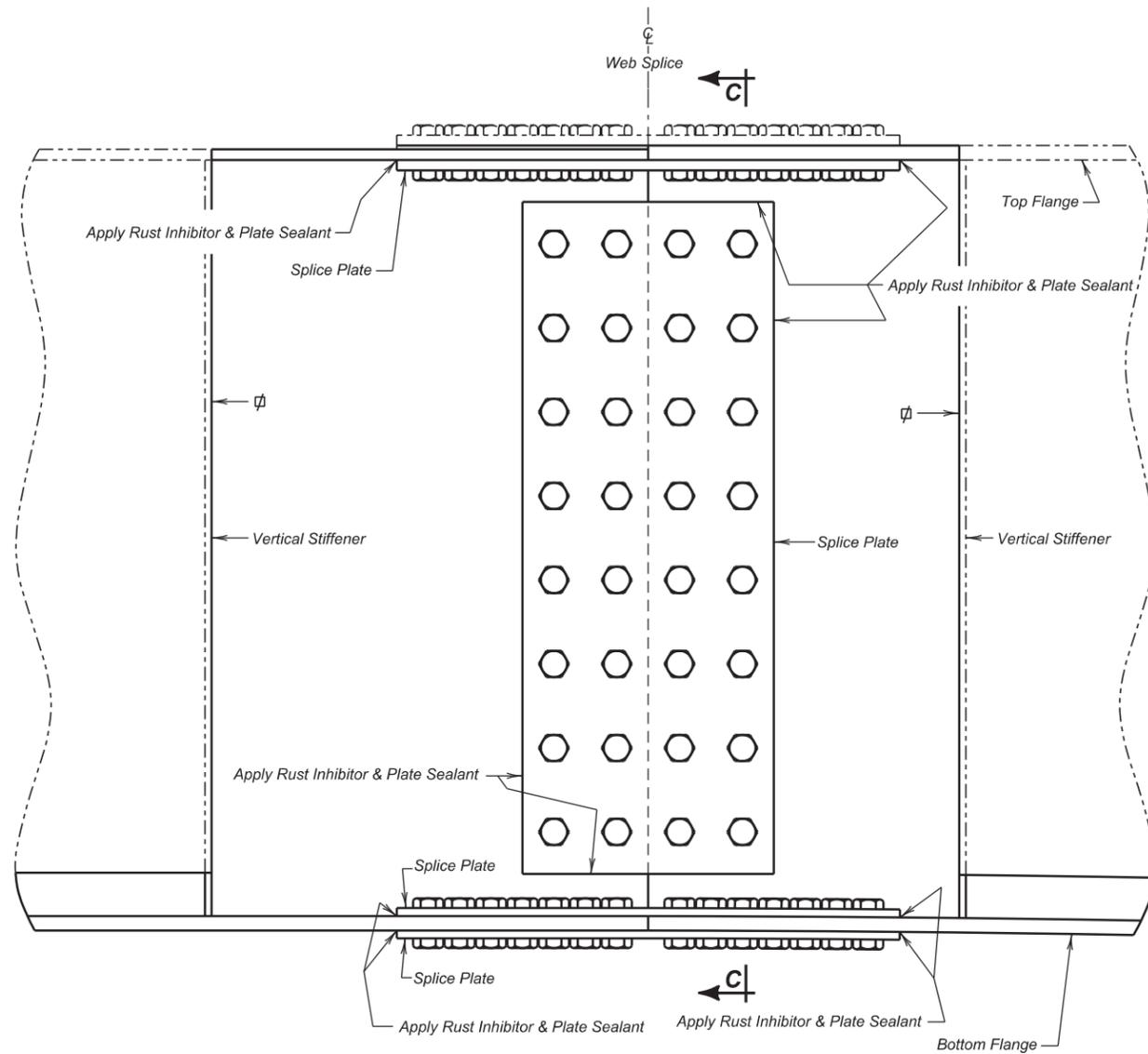
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-230

0° SKEW
SEC. 30-T109N-R49W
IM 0295(38)125

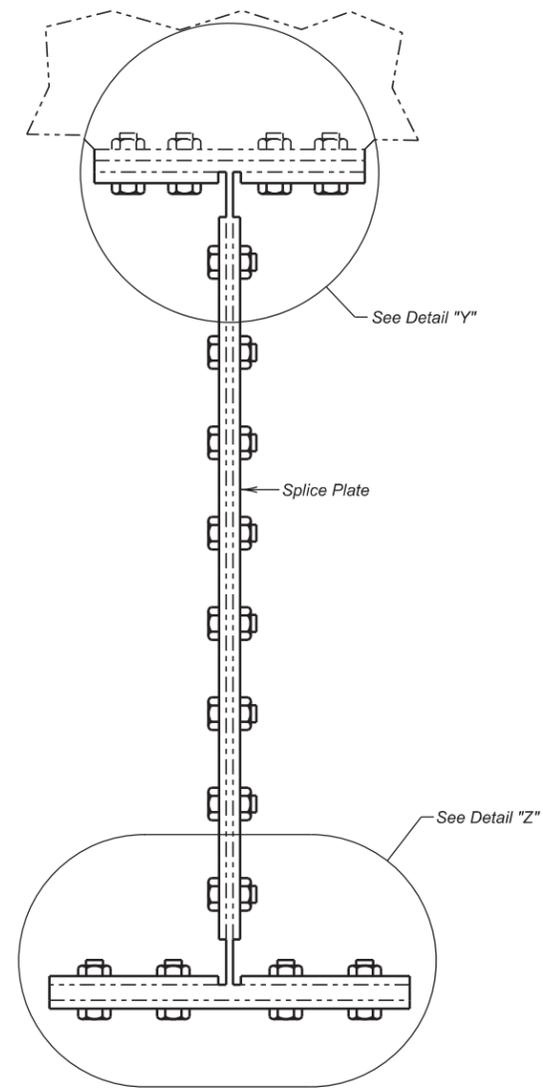
BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA11	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	21	125

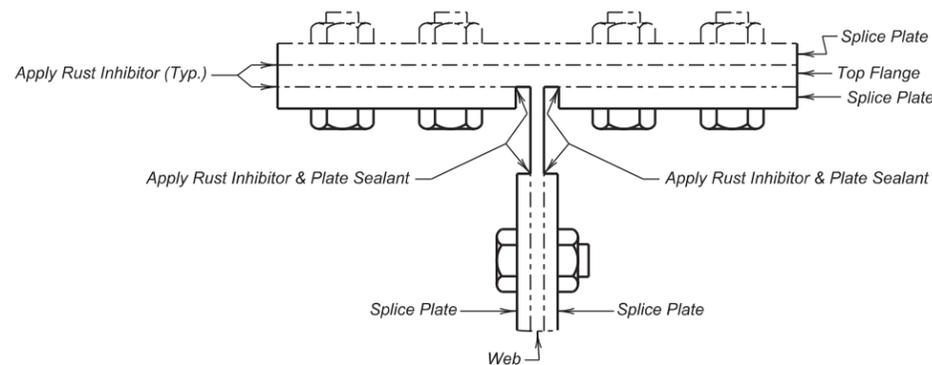


ELEVATION OF BOLTED SPLICE

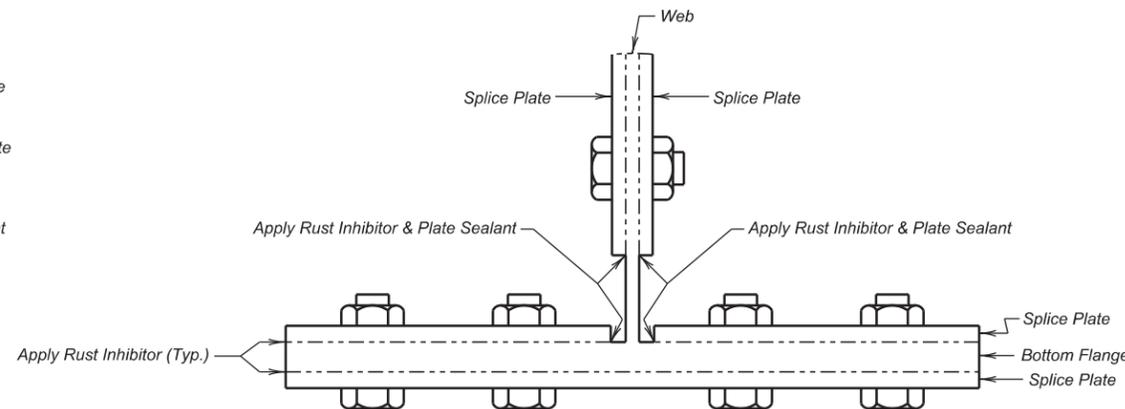


SECTION C - C

∅ For inside face of the exterior girder and both faces of the interior girders the limit for painting shall be to the nearest vertical stiffener from centerline of splice or a maximum of two feet from the centerline of girder splice.



DETAIL "Y"



DETAIL "Z"

GIRDER PAINT DETAILS AT BOLTED SPLICES

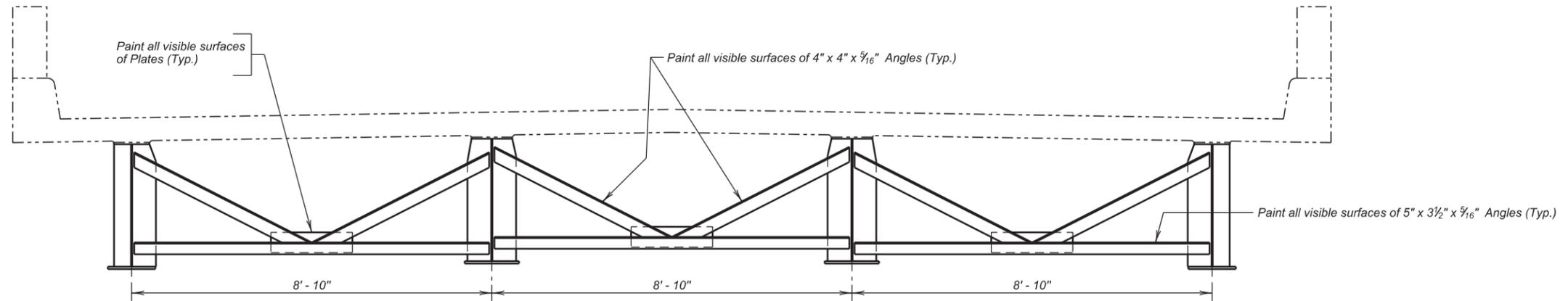
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 30' - 0" ROADWAY
 OVER INTERSTATE 29
 STR. NO. 06-185-230

0° SKEW
 SEC. 30-T109N-R49W
 IM 0295(38)125

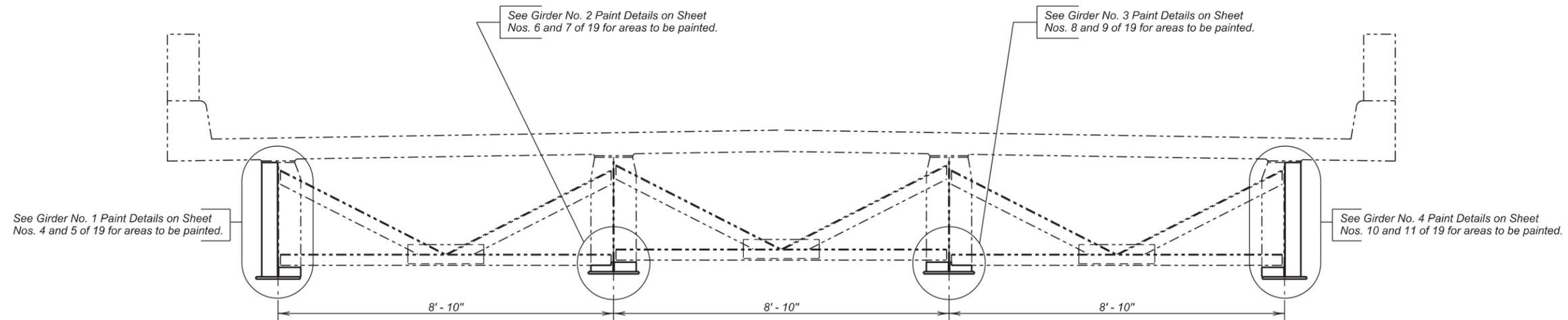
BROOKINGS COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRA12	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	22	125



TYPICAL GIRDER SECTION AT ABUTMENT



TYPICAL GIRDER SECTION

GIRDER PAINT DETAILS

FOR

254' - 0" CONTINUOUS COMP. GIRDER BRIDGE

30' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 30-T109N-R49W

STR. NO. 06-185-230

IM 0295(38)125

BROOKINGS COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

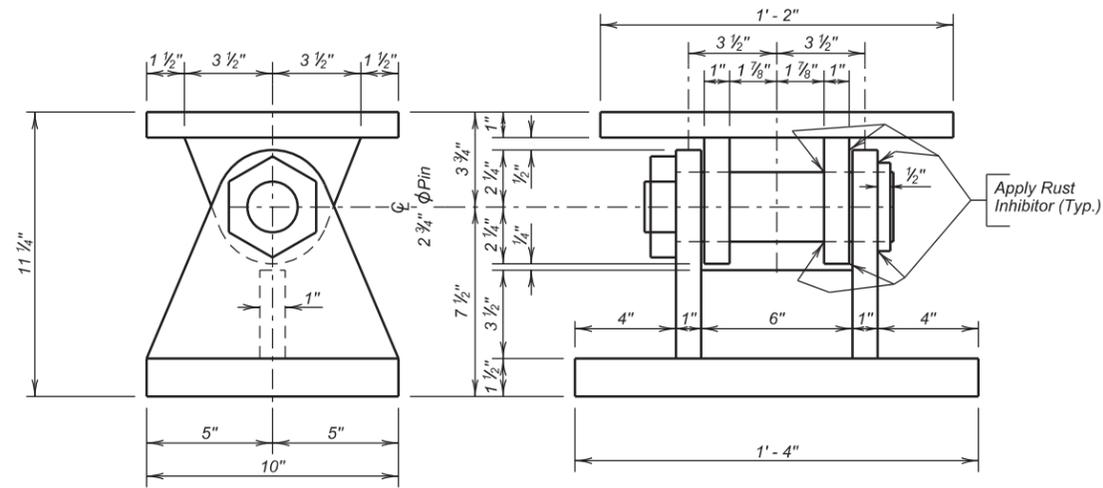
13 OF 19

DESIGNED BY
NP
DUEL035C

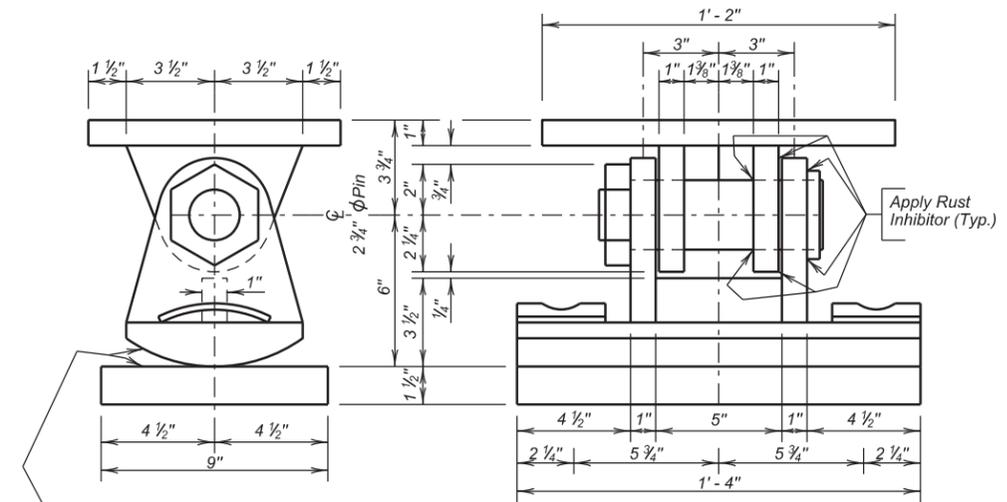
CK. DES. BY
EJA
035CRA13

DRAFTED BY
KR

Kevin N. Goeden
BRIDGE ENGINEER

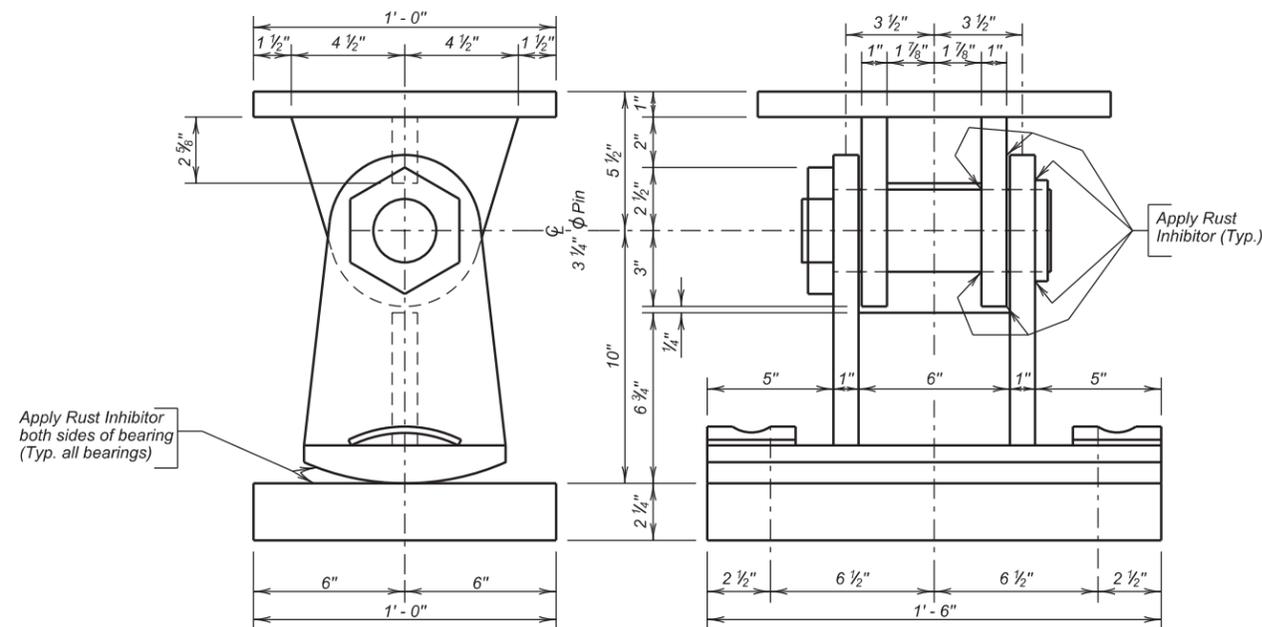


END FIXED SHOE
(Paint all visible surfaces of each bearing)



END EXPANSION SHOE
(Paint all visible surfaces of each bearing)

Note: Apply rust penetrating sealer to pack rust areas of all bearings.



INTERIOR EXPANSION SHOE
(Paint all visible surfaces of each bearing)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
△ Bridge Repainting, Class II	LS	Lump Sum
* Rust Penetrating Sealer	LS	Lump Sum
Paint Residue Containment	LS	Lump Sum

△ For informational purposes, the area of structural steel to be painted is 5,985 square feet.
* For informational purposes, the area of structural steel to be coated with with Rust Penetrating Sealer is 116 square feet.

GIRDER PAINT DETAILS (CONTINUED)
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-230

0° SKEW
SEC. 30-T109N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

STATE OF S.D.	PROJECT IM 0295(38)25	SHEET NO. 24	TOTAL SHEETS 125
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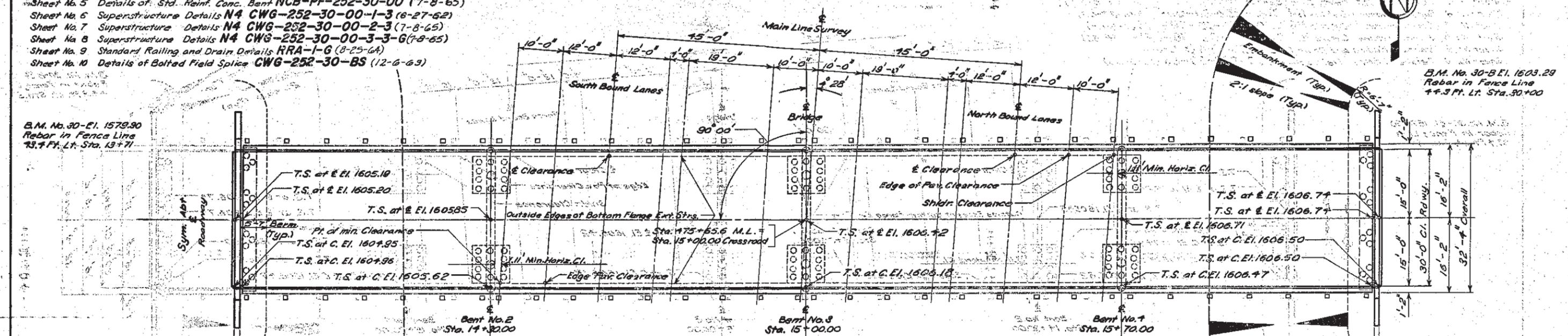
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INDEX OF BRIDGE SHEETS-

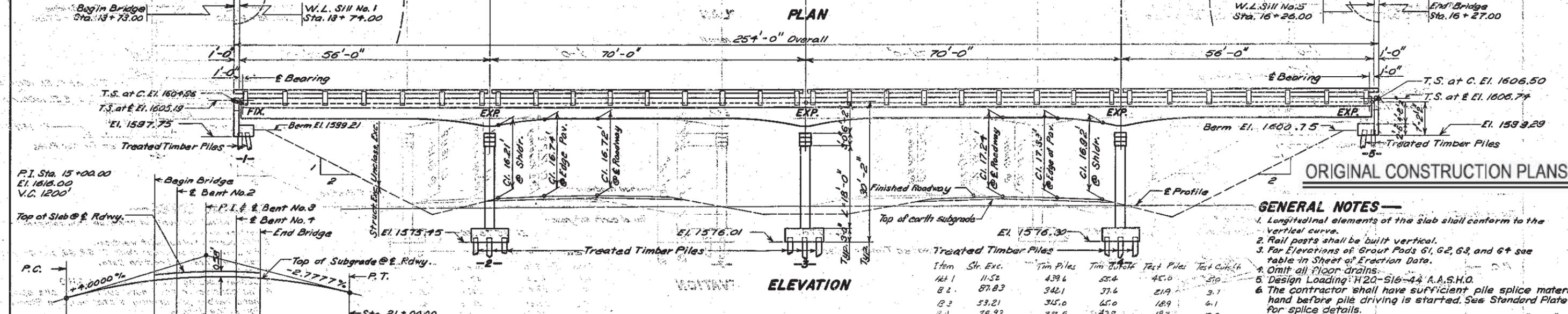
- Sheet No. 1 General Drawing and Quantities
- Sheet No. 2 Subsurface Investigations
- Sheet No. 3 Erection Data
- Sheet No. 4 Details of Std. Reinf. Conc. Sills N4-WP-252-30 (7-8-65)
- Sheet No. 5 Details of Std. Reinf. Conc. Bent NCB-PF-252-30-00 (7-8-65)
- Sheet No. 6 Superstructure Details N4 CWG-252-30-00-1-3 (6-27-62)
- Sheet No. 7 Superstructure Details N4 CWG-252-30-00-2-3 (7-8-65)
- Sheet No. 8 Superstructure Details N4 CWG-252-30-00-3-3-G (7-8-65)
- Sheet No. 9 Standard Railing and Drain Details RRA-1-G (8-25-64)
- Sheet No. 10 Details of Bolted Field Splice CWG-252-30-BS (12-6-63)

B.M. No. 30-EI. 1579.90
Rebar in Fence Line
43.7 Ft. Lt. Sta. 13+71

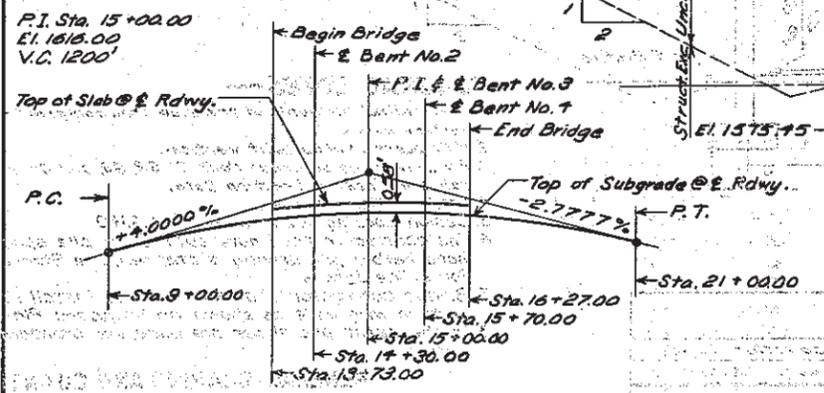
B.M. No. 30-B EI. 1603.29
Rebar in Fence Line
44.3 Ft. Lt. Sta. 30+00



PLAN



ELEVATION



SUBGRADE CURVE DATA

NOTE-
T.S. at & El. = Top of Slab at Centerline Roadway Elevation
T.S. at C. El. = Top of Slab at Curb Elevation

SPECIFICATION NOTE-
Use South Dakota Standard Specifications for Roads and Bridges 1963 Edition, approved as Standard September 21, 1964, and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

ITEM	CL. Concrete Cu. Yds.	Steel - Lbs. Reinf. Struct.	Type A-Steel Railing-Lin. Ft.	Timber Piles - Lin. Ft. Treated Timber	Excavation - Cu. Yds. Struct. & Unclass.
Superstr. 252'-0" Cont. Unit	191.8	50,830	132,730	510.3	
Sill No. 1	23.2	2,205	530	11 @ 45' = 495'	17
Bent No. 2	35.0	7,815		19 @ 20' = 380'	91
Bent No. 3	35.0	7,815		19 @ 20' = 380'	60
Bent No. 4	35.0	7,815		19 @ 20' = 380'	85
Sill No. 5	23.2	2,205	845	11 @ 45' = 495'	17
Totals	343.2	86,685	134,105	2130	270

One Treated Timber Test Pile shall be driven at Sills No. 1 & No. 5 and at Bents No. 2, No. 3 & No. 4 before remaining Piles are ordered.
See Grading Plans for Unclassified Excavation.
PILE NOTE: Prebored holes for piles at sills shall be back-filled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for the piles.
Approximate natural ground Elev. at Sill No. 1 is 1582.4' and at Sill No. 5 is 1583.4'

GENERAL NOTES-

- Longitudinal elements of the Slab shall conform to the vertical curve.
- Rail posts shall be built vertical.
- For Elevations of Grout Pads G1, G2, G3, and G4 see table in Sheet of Erection Data.
- Omit all floor drains.
- Design Loading: H20-S16-44 A.A.S.H.O.
- The contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No. 303 for splice details.
- Bridge contractor shall furnish and install 1" x 7/2" sleeve nut units in wing walls as shown on Standard Plate No. 304.
- In the event pile shoes are used, see Standard Plate No. 301 for details.

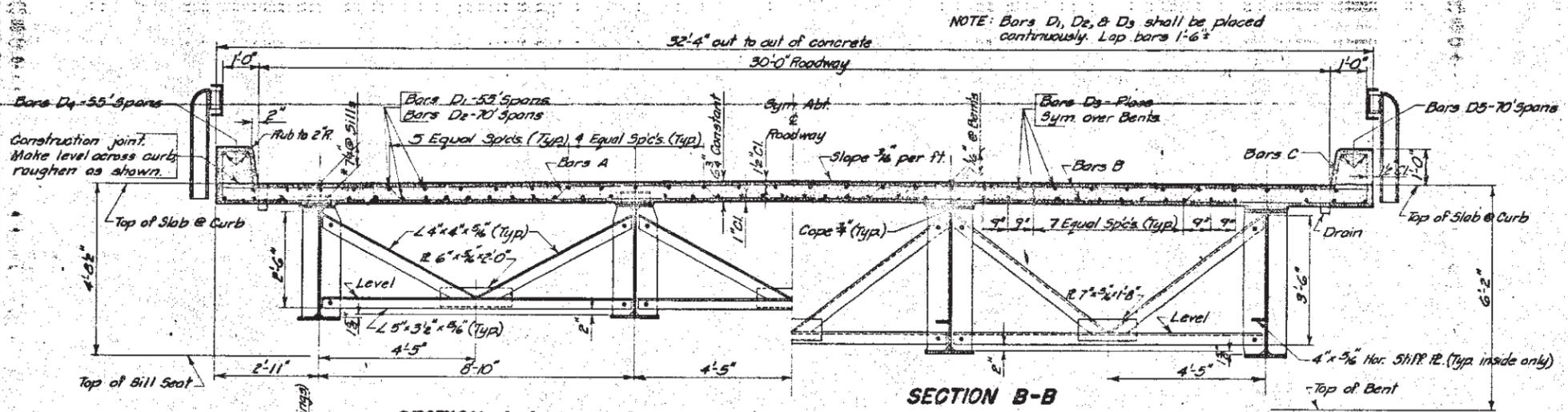
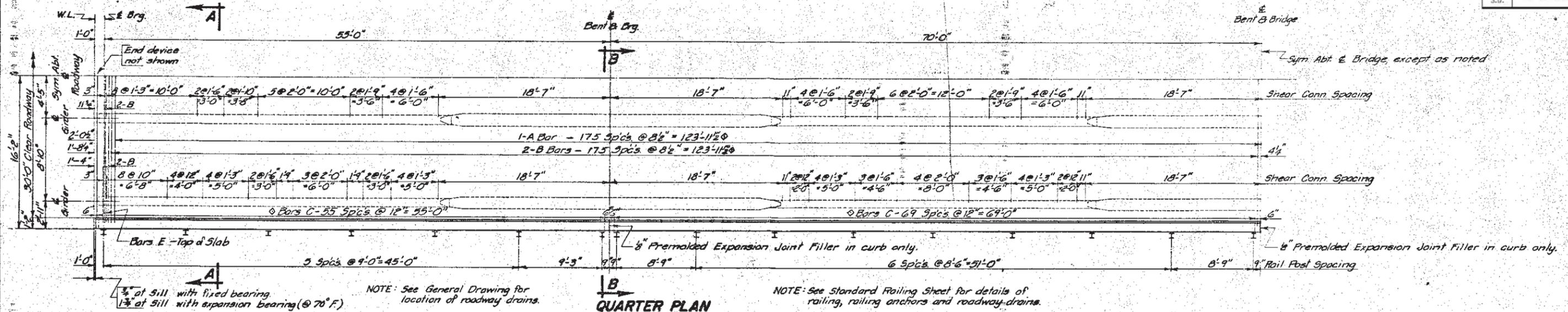
GENERAL DRAWING AND QUANTITIES FOR

254'-0" CONT. COMP. GIRDER VIADUCT
30'-0" ROADWAY
OVER I.S. NO. 29 STA. 475+65.60 SEC. 30-T109N-R49W
STA. 13+73.00 TO 16+27.00 I 29-5(6)124

BROOKINGS COUNTY
SOUTH DAKOTA H20-S16-44
DEPARTMENT OF HIGHWAYS

STR. NO. 06-185-230

DESIGNED BY	DRAWN BY A.E.O.	CHECKED BY A.K.	APPROVED
			<i>R.H. Cheas</i> BRIDGE ENGINEER

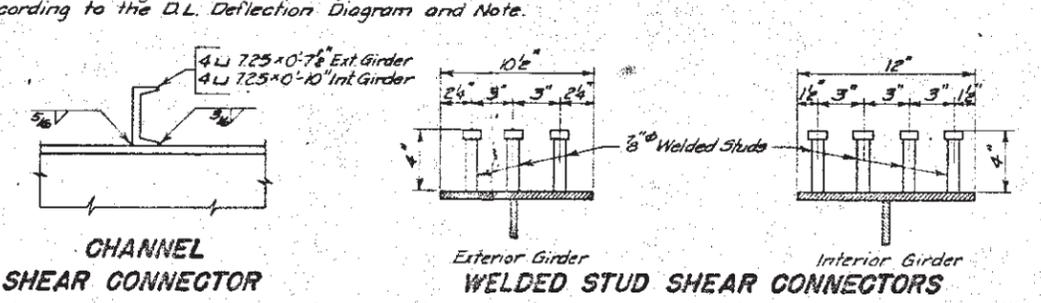
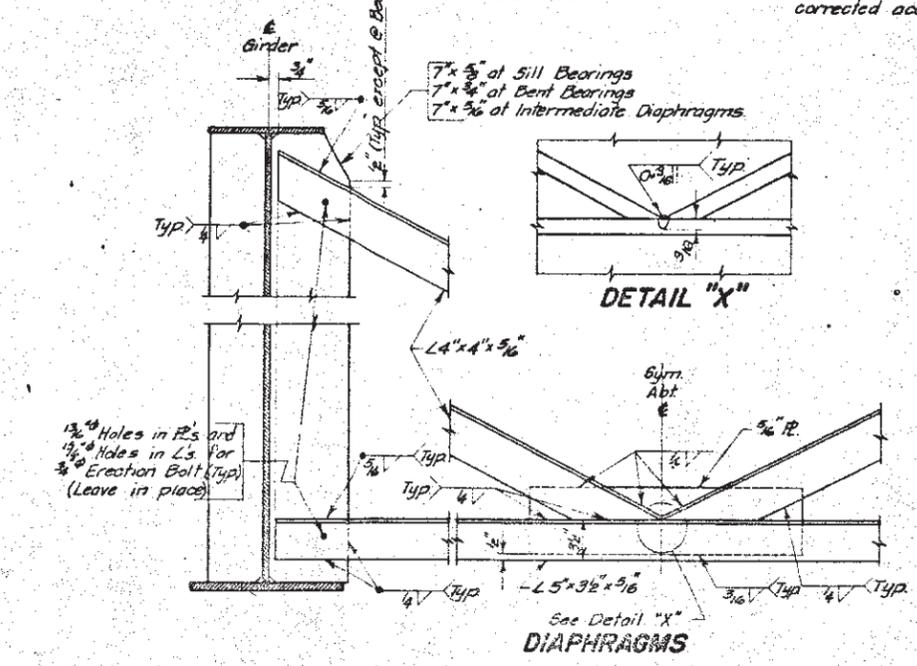


REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
A	5	33'-0"	15	
B	5	32'-0"	5	Str
C	4	5'-3"	7	TI
D ₁	5	37'-0"	5	Str
D ₂	5	33'-0"	5	Str
D ₃	5	40'-0"	5	Str
D ₄	5	28'-9"	5	Str
D ₅	5	35'-9"	5	Str
E	6	6'-0"	5	Str

NOTE: All dimensions are out to out of bars.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class A Concrete	Cu. Yds.	191.8
Reinforcing Steel	Lbs.	58,830
Structural Steel	Lbs.	132,730
Type B Steel Railing	Lin. Ft.	610.3

* Applies only if fixed bearings are at Sill #1 or Sill #5. If fixed bearings are located on any of the bents, deduct 16.5 lbs. from this quantity. See General Drawing for location of fixed bearings.



DETAILS FOR SHEAR CONNECTORS

Channel or welded stud shear connectors are spaced as shown above in Quarter Plan.

The Contractor may substitute a row of 3/8" welded studs for each channel shear connector as shown.

Shear connectors will be paid for as structural steel based on the weight of anchors, regardless of type of connector used.

Channels shall be placed on the girders facing in the direction as shown on girder layout.

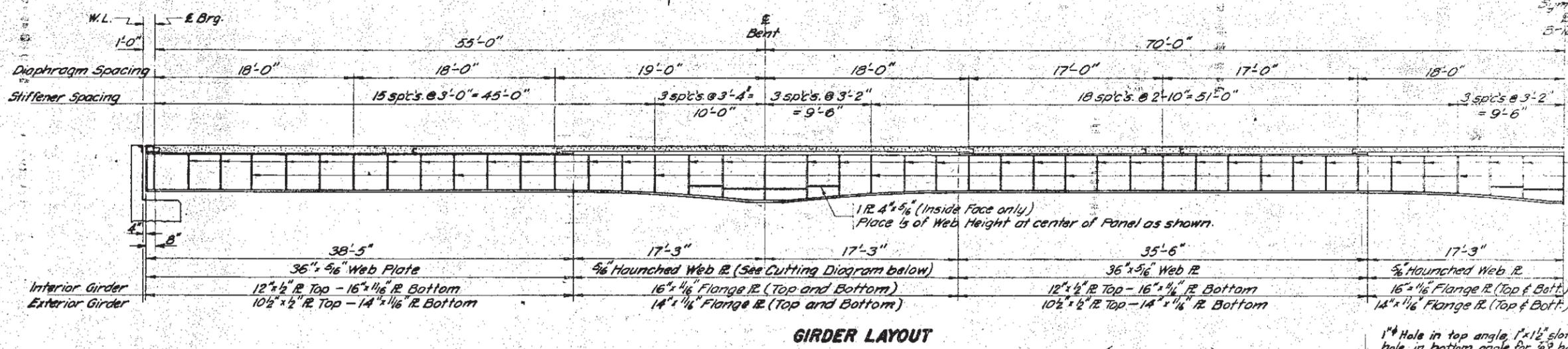
CONCRETE PLACING NOTES—

The concrete slab may be placed in one continuous pour. However, if the Contractor deems it advisable to use construction joints, a plan showing type of joint and pouring procedure, shall be submitted to the BRIDGE DIVISION for approval.

The curb shall be poured after all of the slab has been poured.

ORIGINAL CONSTRUCTION PLANS

SUPERSTRUCTURE DETAILS FOR
STANDARD 252'-0" CONTINUOUS WELDED PLATE GIRDER UNIT
 COMPOSITE SECTION
 30'-0" ROADWAY 4-SPAN UNIT
 SOUTH DAKOTA
 DEPARTMENT OF HIGHWAYS

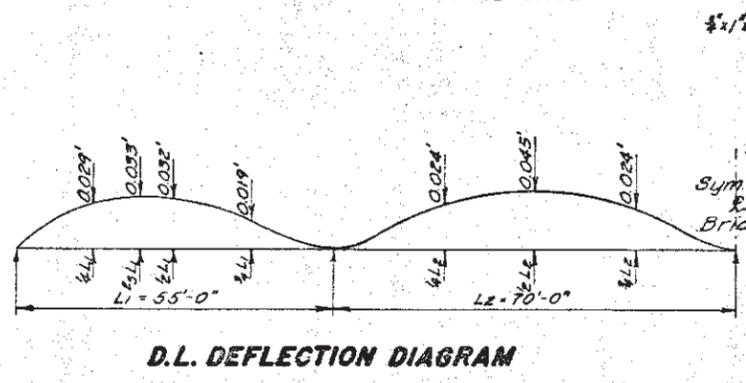
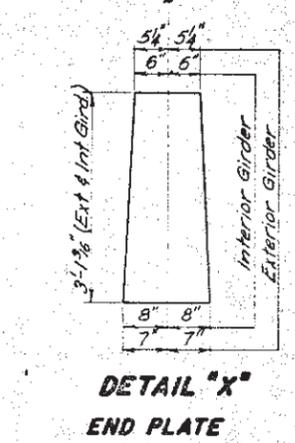
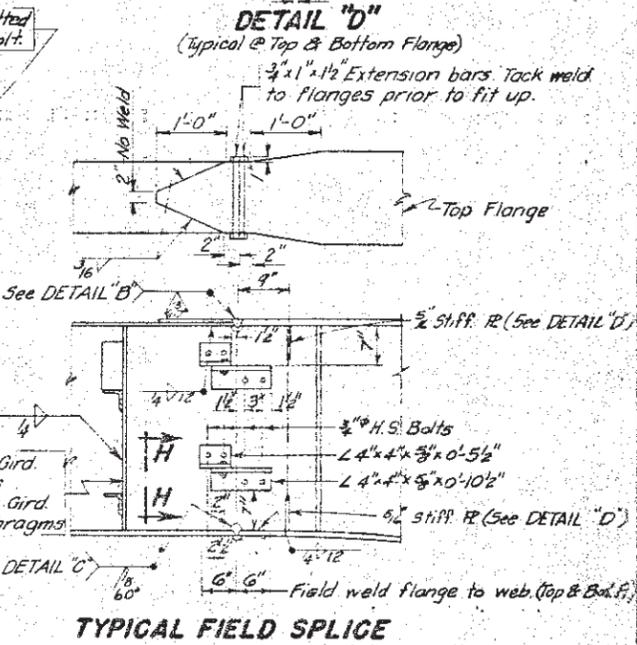
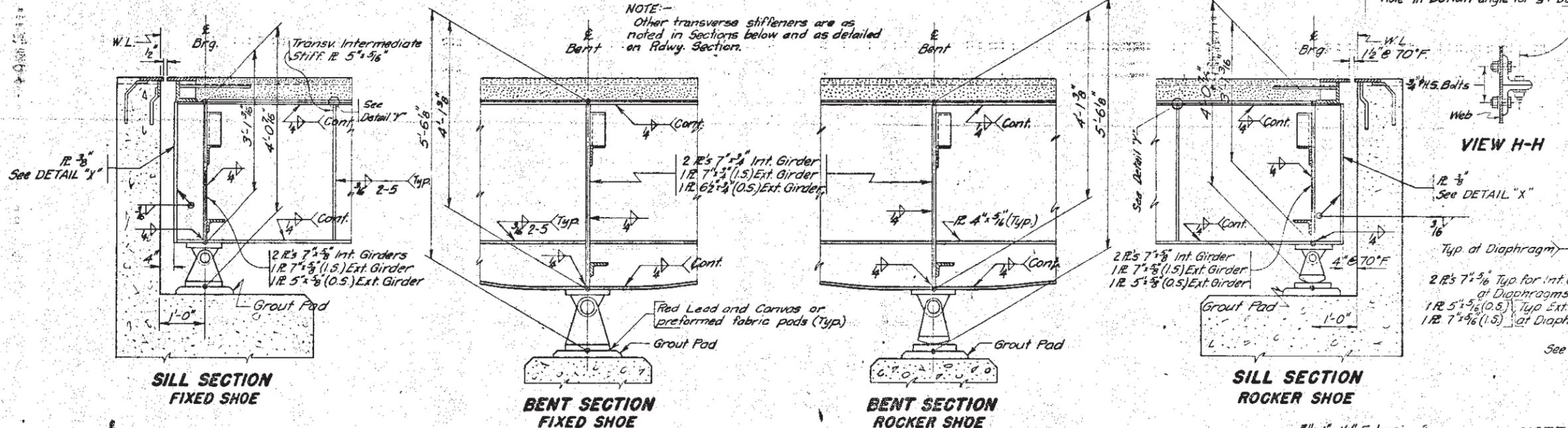


NOTE: When stiffener plates are used on one side only they shall be attached to the outstanding leg of the compression flange as shown in Detail "Y"

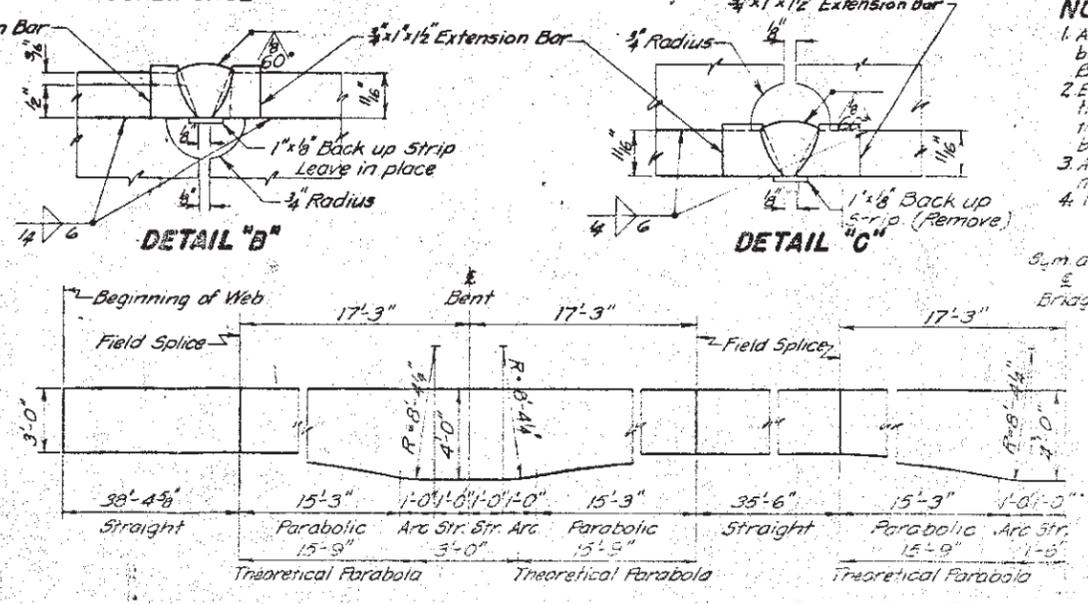
Transv. Interm. Stiff. R 5'-3/8" Place on inside face only

Transv. Interm. Stiff. 2-R 5'-3/8"

Bottom Flange shall be considered compression flange at haunched section between field splices. Top flange shall be considered compression flange in all other sections.



NOTE—
The D.L. Deflection Diagram shown shall be used to determine the depth of haunch required at interior Points. Elevations at top of Girders shall be established after the Girders, with diaphragms, have been erected and welded, but prior to pouring of Slab. Girders shall not be supported by construction shoring while elevations are established. The depth of haunch required at any interior point equals (+) the proposed top of slab minus (-) the elevation of top of Girder, minus (-) slab thickness (6 1/2") plus (+) Dead Load Deflection.



NOTES—

- All welds on flange shall start and stop on Extension Bars. The bars shall be of mild steel. After weld is completed, Extension Bars shall be burned off flush.
- Erection angles or plates shown are designed to carry only the shear due to dead load of girders. Erection procedures that will produce moments at the splice points should not be permitted.
- Angles or plates and bolts are for erection only, and will not be measured for payment.
- Fill holes in exposed faces of beams with round head bolts.

ORIGINAL CONSTRUCTION PLANS

SUPERSTRUCTURE DETAILS

FOR

STANDARD 252'-0" CONTINUOUS WELDED PLATE GIRDER UNIT

COMPOSITE SECTION

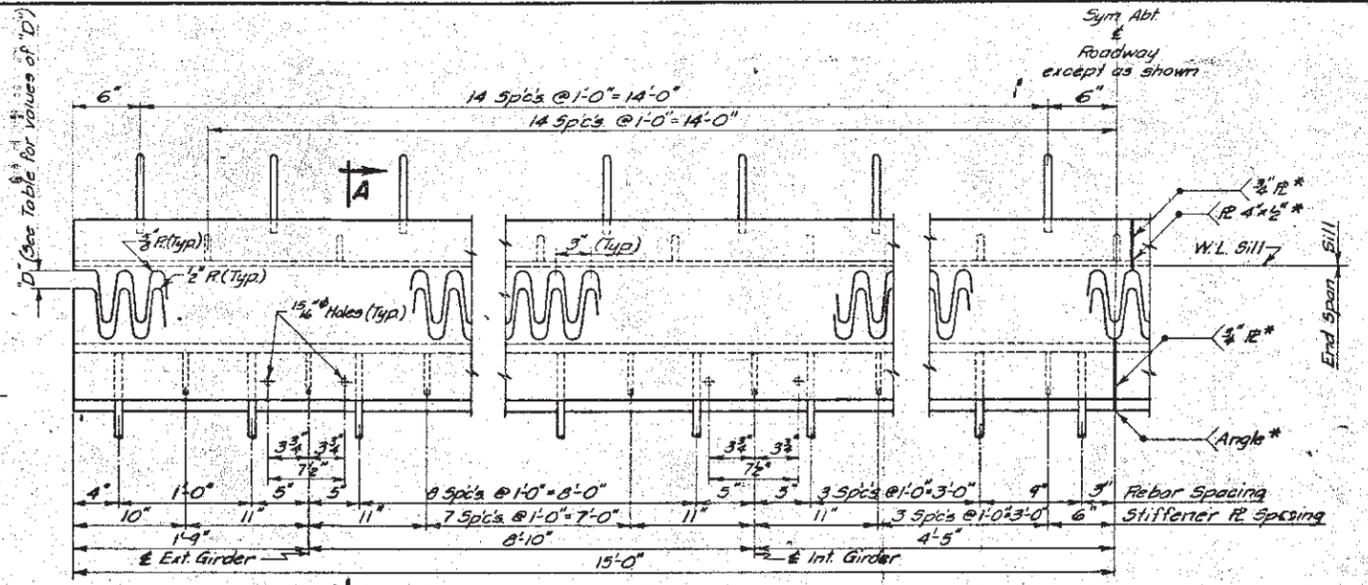
30'-0" ROADWAY

4 SPAN UNIT

SOUTH DAKOTA

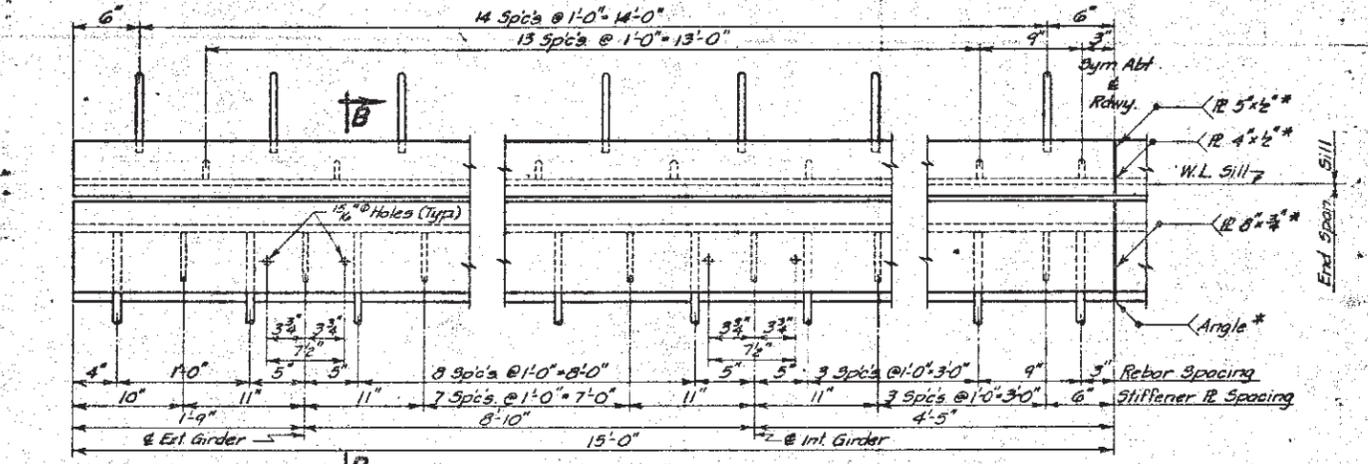
DEPARTMENT OF HIGHWAYS

AUG. 1951 H20-816-44



HALF PLAN OF EXPANSION DEVICE AT SILL (At Sill with expansion shoes)

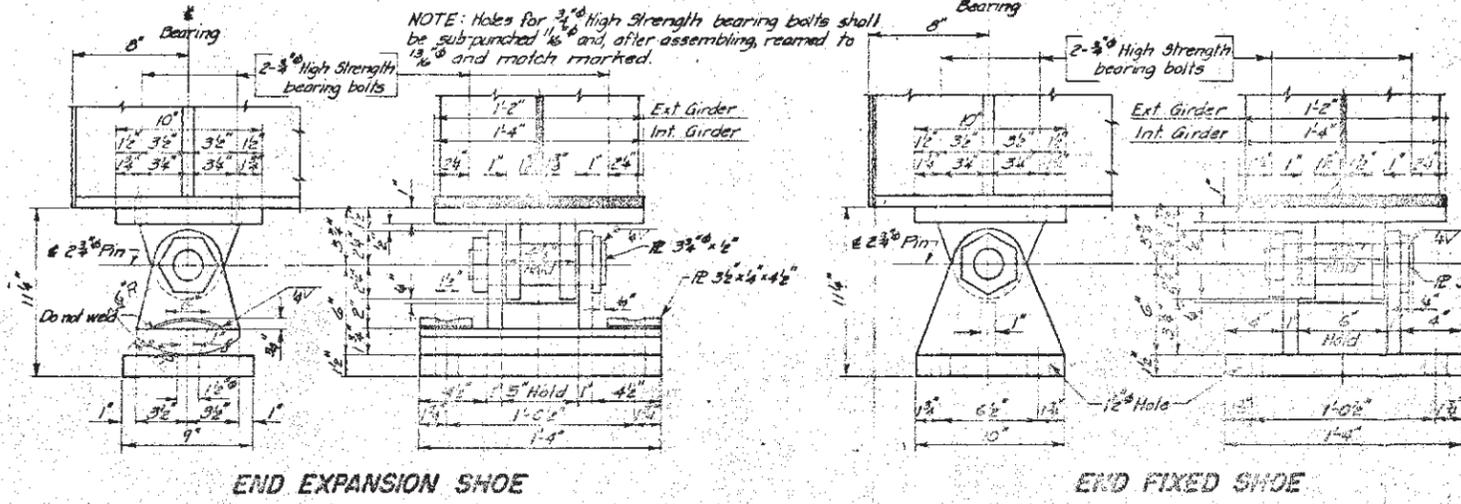
*WELDING NOTE: The two shop fabricated pieces of an expansion or armored joint shall be joined in the field by butt welds in accordance with the latest Specifications of the American Welding Society. Type of welds shall be shown on shop plans for the Bridge Department's approval.



HALF PLAN OF ARMORED DEVICE AT SILL (At Sill with fixed shoes)

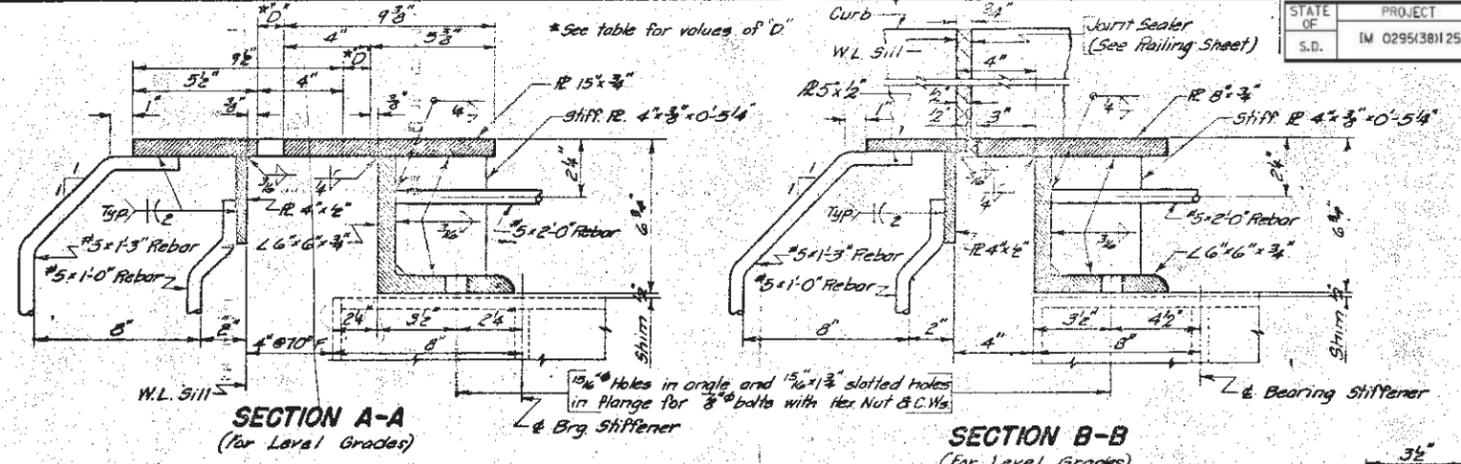
NOTE: The Expansion Device shall be completely shop assembled, adjusted to the position it will take in the structure, and the pieces marked for field erection. The top surface of the expansion device shall conform to the roadway crown.

NOTE: Holes for 3/4" High Strength bearing bolts shall be sub-punched 1/8" and, after assembling, reamed to 13/16" and match marked.



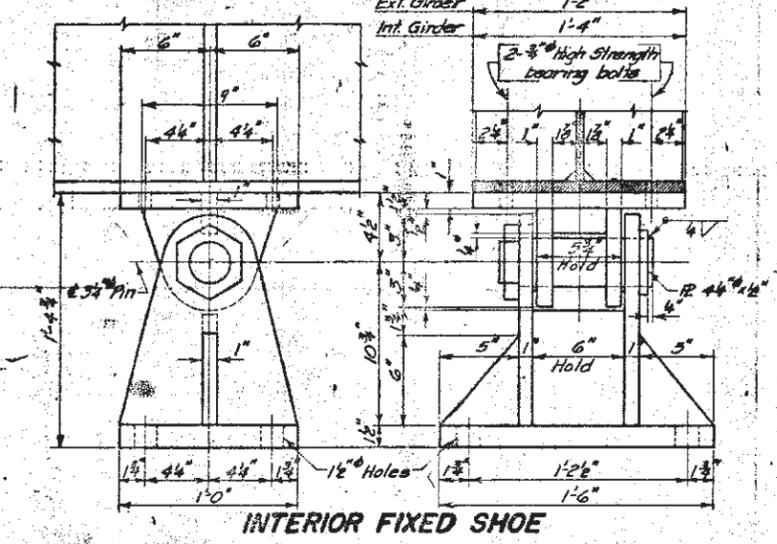
END EXPANSION SHOE

END FIXED SHOE



SECTION A-A (for Level Grades)

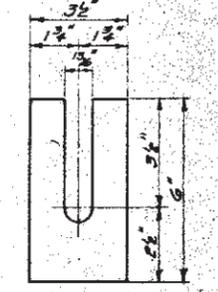
SECTION B-B (for Level Grades)



INTERIOR FIXED SHOE

3/4" high strength bearing (interference-body) bolts shall be tightened to a minimum tension of 28,400 pounds, or by 'turn of the nut' method as provided in section 410.3B.16 of South Dakota Standard Specifications for Roads and Bridges.

Position of Fixed Shoes	For Exp Device @ Sill #1	Temp	For Exp Device @ Sill #5
@ Sill #1	Armored Joint	-30° F +70° F +120° F	"D" = 3 1/2" = 1 1/2" = 2"
@ Bent #2	"D" = 2" = 1 1/2" = 1 1/4"	-30° F +70° F +120° F	"D" = 2 3/4" = 1 1/2" = 3/8"
@ Bent #3	"D" = 2 3/8" = 1 1/2" = 1 1/8"	-30° F +70° F +120° F	"D" = 2 3/8" = 1 1/2" = 1 1/8"
@ Bent #4	"D" = 2 3/4" = 1 1/2" = 3/8"	-30° F +70° F +120° F	"D" = 2" = 1 1/2" = 1 1/4"
@ Sill #5	"D" = 3 1/2" = 1 1/2" = 1/2"	-30° F +70° F +120° F	Armored Joint



SHIM NOTE: Provide 24-1/2" thick

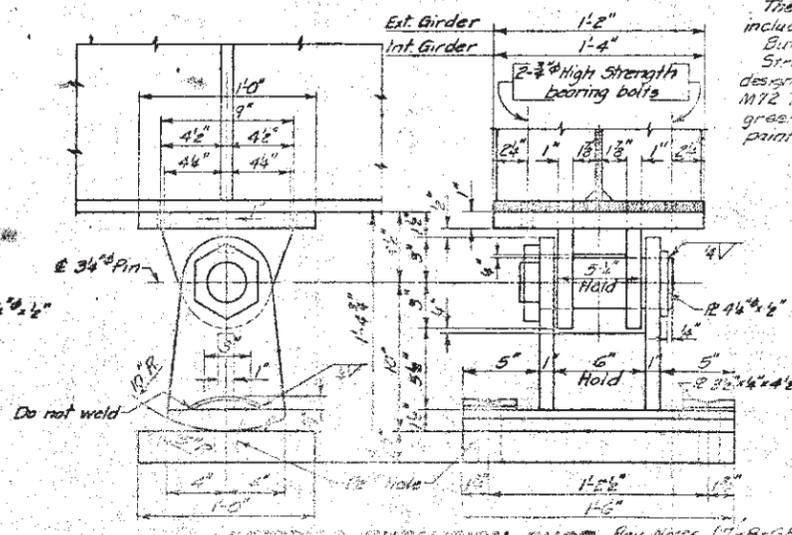
See General Drawing for Position of Fixed Shoes

SUPERSTRUCTURE NOTES-

Design Specifications A.A.S.H.O. Specifications for Highway Bridges, 1961, with Interim Specifications for 1961 and 1962.
 Structural Steel shall conform to A.S.T.M.-A36 Steel. Steel produced under other specifications but shown to possess the chemical and physical properties of A36 Steel will be accepted for use where the latter is specified.
 Steel for pins shall conform to Structural Steel A.S.T.M.-A235 or equivalent, as specified in the A.A.S.H.O. Standard Specifications for Highway Bridges under Article 1.4.2.
 All exposed concrete edges shall be chamfered 1" unless otherwise noted.
 Cost of Canvas and Red Lead or Preformed fabric Pads shall be included in the unit price bid for Structural Steel.
 All expansion rockers shall be positioned to set vertical at 70° F.
 Design Loading: H20-516-44 A.A.S.H.O.
 Unit Stresses: Re-Steel $f_s = 20,000$ p.s.i. (Int. Grade); Conc. $f_c = 1600$ p.s.i.
 All reinforcing steel bars shall conform to A.S.T.M. Specifications A305 and A15 Intermediate Grade.
 The weight of erection bolts left in place at diaphragms shall be included in the structural steel quantity for payment.
 Bolt welded girder splices, shop or field, shall be radiographically inspected.
 Struct. Steel shall be painted with one shop coat of Red Lead Paint (A.A.S.H.O. designation M72 Type I) or Red Lead Iron Oxide Paint (A.A.S.H.O. designation M72 Type II) and with a coat of gray paint followed by a coat of green paint in accordance with the Special Provisions. Cost of painting shall be included in the unit price bid for Struct. Steel.

STR. NO. 06-185-230

ORIGINAL CONSTRUCTION PLANS



INTERIOR EXPANSION SHOE

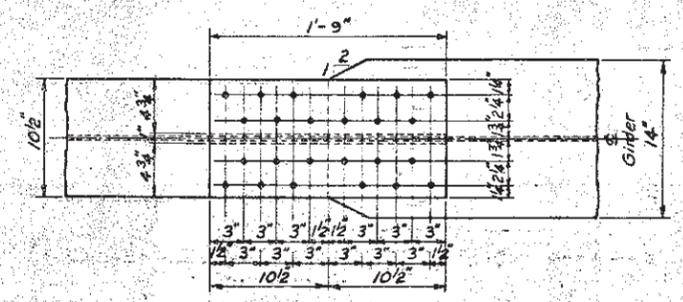
SUPERSTRUCTURE DETAILS FOR STANDARD 252'-0" CONTINUOUS WELDED PLATE GIRDER UNIT COMPOSITE SECTION 30'-0" ROADWAY 4-SPAN UNIT SOUTH DAKOTA DEPARTMENT OF HIGHWAYS

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED

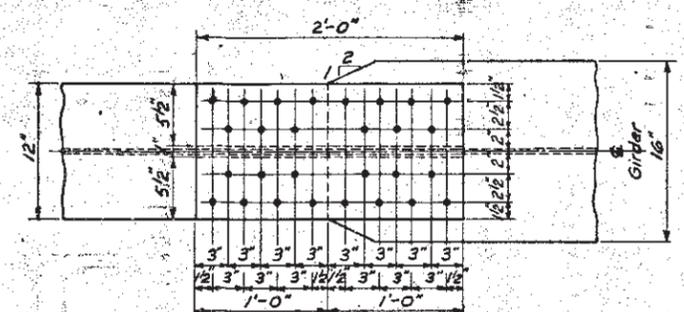
Rev. Notes (7-8-65)
 Rev. Number Stamp (7-6-65)
 Rev. Point Note (7-6-65)
 Rev. Unit Stamp (7-6-65)

GENERAL NOTES—

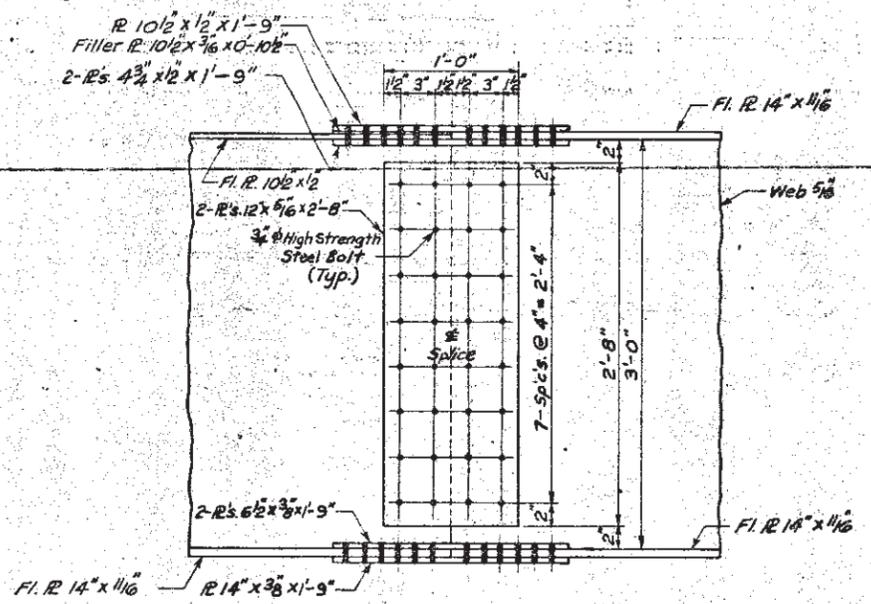
1. Use $\frac{3}{4}$ " High Strength heavyhead bolts (A.S.T.M. A325) with one hardened washer. Hardened washer to be assembled under the turned element.
2. Holes for $\frac{3}{4}$ " high-strength bolts shall be subpunched and reamed, or drilled and splice plates match marked after assembling as provided in Section 410.3 of South Dakota Standard Specifications for Roads and Bridges.
3. Steel for splice plates and fill plates shall conform to A.S.T.M. A7 structural carbon steel, or A.S.T.M. A373 steel for welding.
4. $\frac{3}{4}$ " high-strength bolts shall be tightened to a minimum tension of 28,400 lbs. Tightening shall be done with properly calibrated wrenches or by the "turn-of-nut" method as provided in Section 410.3 B.16 of South Dakota Standard Specifications for Roads and Bridges.
5. All bolts in flange splices shall be placed with head down.
6. Bolts in web splices of exterior girders shall be placed with heads on exterior face of girders.
7. Triangular plates shown welded to flange and web near girder ends at welded splices shall be omitted when bolted splices are used.
8. Clip ends of intermediate stiffeners, if necessary, to clear flange splice plates.
9. If an intermediate stiffener is located in area of web splice plate, the intermediate stiffener may be shifted to clear.
10. If shear connectors are located in area of flange splice plates, shear connectors may be shifted and re-spaced to clear.
11. Any re-spacing or shifting of intermediate stiffeners and/or shear connectors shall be noted on the shop plans for approval by the ENGINEER.
12. When the Contractor elects to use the alternate bolted splice, the weight of necessary bolts and plates will not be measured for payment.



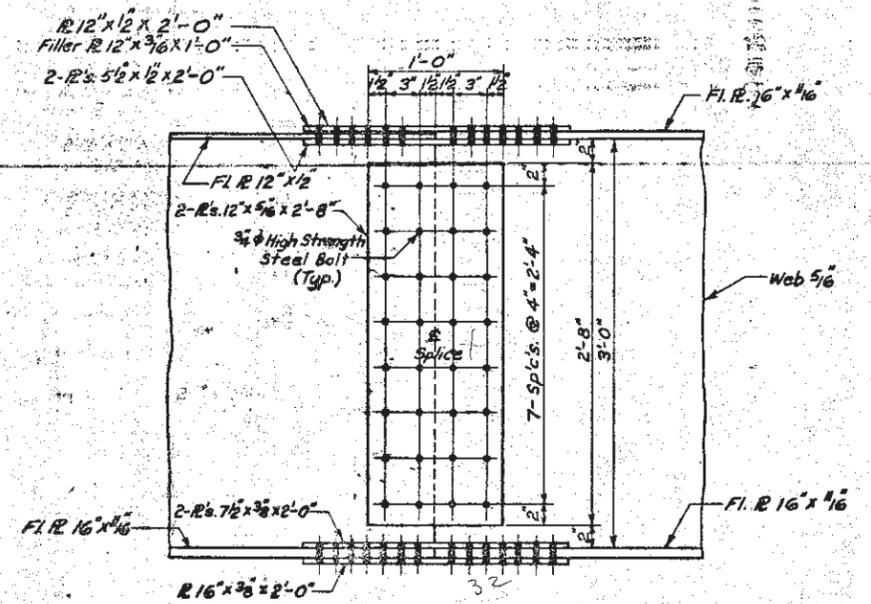
TOP VIEW



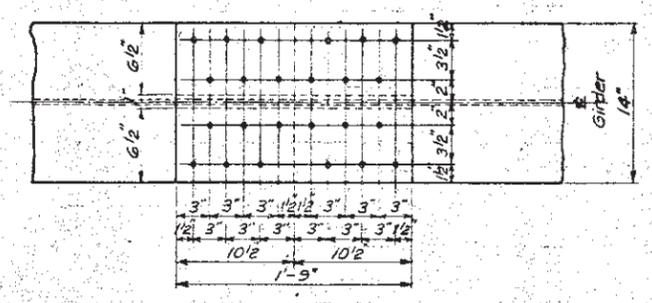
TOP VIEW



ELEVATION OF SPLICE

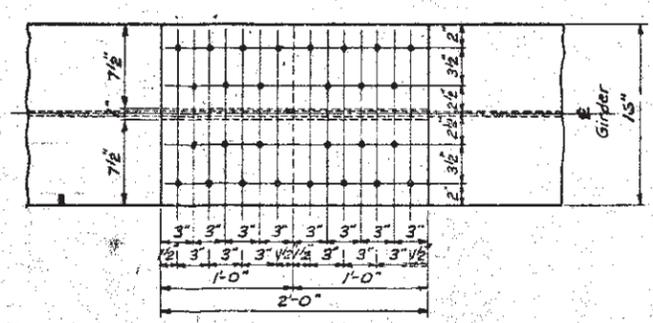


ELEVATION OF SPLICE



BOTTOM VIEW

TYPICAL BOLTED SPLICE
EXTERIOR GIRDER



BOTTOM VIEW

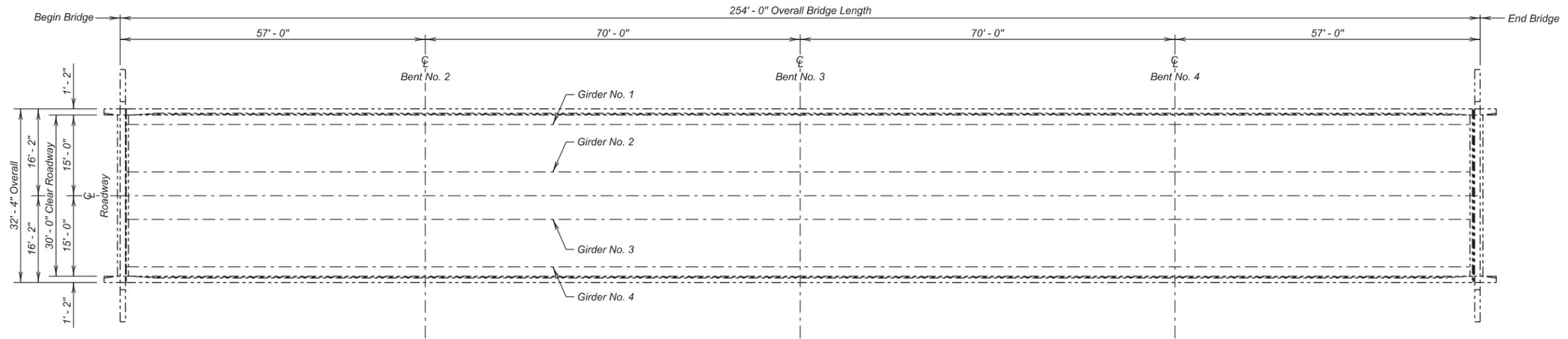
TYPICAL BOLTED SPLICE
INTERIOR GIRDER

STR. NO. 06-185-230
 ORIGINAL CONSTRUCTION PLANS
 DETAILS OF BOLTED FIELD SPLICE
 FOR
 STANDARD 252'-0" CONTINUOUS
 WELDED PLATE GIRDER UNIT
 COMPOSITE SECTION
 30'-0" ROADWAY 4-SPAN UNIT
 SOUTH DAKOTA H20-916-44
 DEPARTMENT OF HIGHWAYS
 SEPTEMBER 1962

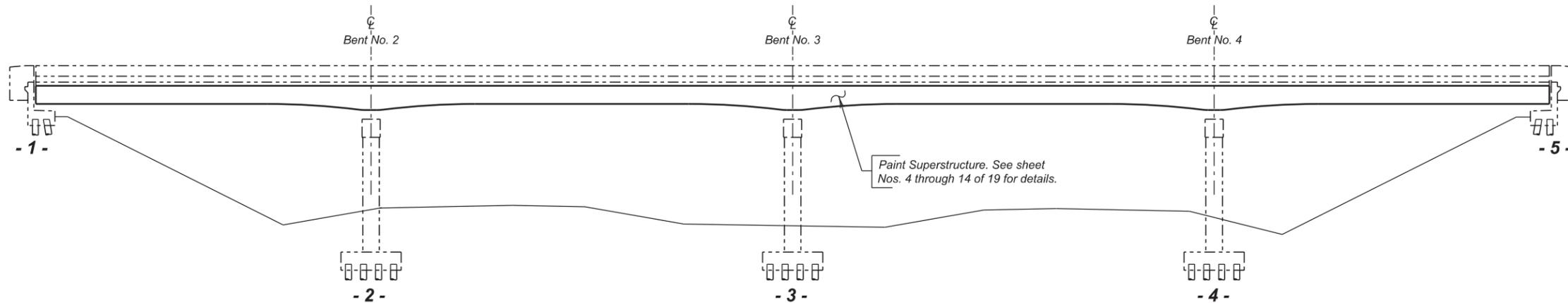
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	KMM	ASF	

Rev. (12-6-63)

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	29	125



PLAN



ELEVATION

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Girder No. 1 Paint Details
- Sheet No. 5 - Girder No. 1 Paint Details (Continued)
- Sheet No. 6 - Girder No. 2 Paint Details
- Sheet No. 7 - Girder No. 2 Paint Details (Continued)
- Sheet No. 8 - Girder No. 3 Paint Details
- Sheet No. 9 - Girder No. 3 Paint Details (Continued)
- Sheet No. 10 - Girder No. 4 Paint Details
- Sheet No. 11 - Girder No. 4 Paint Details (Continued)
- Sheet No. 12 - Girder Paint Details At Bolted Splices
- Sheet No. 13 - Girder Paint Details
- Sheet No. 14 - Girder Paint Details (Continued)
- Sheet No. 15 thru 19 - Original Construction Plans

LAYOUT FOR UPGRADING

FOR

254' - 0" CONTINUOUS COMP. GIRDER BRIDGE

30' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 18-T109N-R49W
 STR. NO. 06-185-210 IM 0295(38)125
 PCN 035C

BROOKINGS COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

1 OF 19

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB01	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

NOTICE – LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans.

Clean and paint portions of the existing girders and all of the bearings as shown be these plans.

PAINT RESIDUE REMOVAL AND CONTAINMENT

- Paint Residue Removal and Containment shall be performed in accordance with Section 412 of the Construction Specifications, Bridge Repainting Class II except as modified by these notes.
- The Contractor shall plan his operations to prevent releases of lead containing material and other particulate matter into the surrounding air, water, and onto the ground, soil, slope protection, and pavement. The Contractor shall be responsible for any corrective actions should a spill occur.

- Collect all visible paint particles and blasting residue containing paint at the end of each workday from the work area. Inspect outside the containment and collect any paint particles or blasting residue that escaped the work area. Collect waste material by manual means, vacuum, or another method approved by the Engineer. Do not use air pressure or streaming water to assist in the waste collection process that could disperse the waste material.

- In the event of a spill or inadvertent release, the Contractor shall immediately stop work, notify the Engineer, and report the release to the South Dakota Department of Environmental and Natural Resources (DENR). The Contractor shall be responsible for completing a spill reporting form and for all costs associated with appropriate corrective actions.

To report a release or spill, call DENR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at (605) 773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the Contractor must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

- The Contractor shall haul and unload the 55 gallon containment drums with paint residue, blasting media, etc. to the SDDOT Maintenance Yard located in Brookings for temporary storage. The Brookings Maintenance Yard is located at 2131 34th Avenue. Contact person for the Brookings Yard is John Rittershaus at (605) 688-5001 or Matt Brey at (605) 882-5166. All costs associated with this work shall be included in the contract lump sum price for "Paint Residue Containment".

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS

- Pack rust areas within the areas defined for painting in the Bridge Repainting Class II notes shall be treated with a rust penetrating sealer. The rust penetrating sealer shall be applied after the area has been cleaned and prepared for painting as specified in the Bridge Repainting, Class II notes but prior to the application of the final paint system. Pack rust areas are those defined as joints in connecting plates and/or crevice areas (locations noted as apply rust inhibitor on the plan sheets).

- The rust penetrating sealer shall be supplied as one of the following:

2.1 Pre-Prime 167
Penetrating Sealer
International
South Dakota Area Manager: Kevin Perego
Telephone: 636-207-8897
Cell: 314-540-8925
Website: www.international-pc.com

2.2 Wasser MC-PrepBond 2.8
Wasser Corporation
4118 B Place NW Suite B
Auburn, WA 98001
Telephone: 800-627-2968
Website: www.wassercoatings.com

2.3 Time-Lock MoPoxY PRE-PREP
Rust Penetrating Sealer 41-AF-2
BLP Mobile Paints
P.O. Box 717
Theodore, Alabama 36590-0717
Telephone: 251-443-6110
Website: www.blpmobilepaint.com

2.4 Rust Bullet Standard Formula
Rust Bullet, LLC
300 Brinkby Avenue, Suite 200
Reno, NV 89509
Telephone: 800-245-1600
Website: www.rustbullet.com

The rust penetrating sealer shall be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

- Remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed.
- Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the paint system specified in Section 412 of the Construction specifications until the area has cured for the amount of time specified by the manufacturer of the rust penetrating sealer.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 254' - 0' CONT. COMP. GIRDER BRIDGE

STR. NO. 06-185-210

JANUARY 2015

2 OF 19

DESIGNED BY NP	CK. DES. BY EJA	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
DUEL03EC	03ECR002		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	31	125

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS (CONTINUED)

- For informational purposes, 116 square feet of structural steel will require rust penetrating sealer.
- The cost of furnishing and applying the rust penetrating sealer and all other items incidental to the application of this sealer shall be included in the contract lump sum price for "Rust Penetrating Sealer".

BRIDGE REPAINTING, CLASS II

- Portions of the existing girders, diaphragms, bolted splices and bearings shall be painted as shown by these plans and in accordance with the requirements for Bridge Repainting, Class II in Section 412 of the Construction Specifications except as modified by these notes.
- After blast cleaning the surfaces to be painted, remove any trace of blast products, dust or dirt from all surfaces including pockets and corners as approved by the Engineer.
- The color of the top coat shall be an approved green (Federal Standard 595B Color 24108). The prime coat and the top coat shall sharply contrast.
- For informational purposes, 5,985 square feet of structural steel will require painting. For a breakdown of the paint required for all of the portions of the bridge, see sheet nos. 4 through 14 of 19 of the plans.

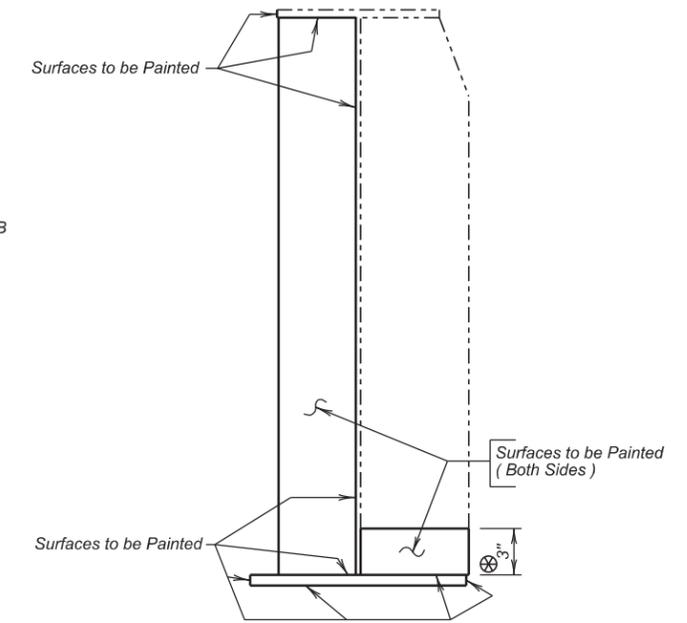
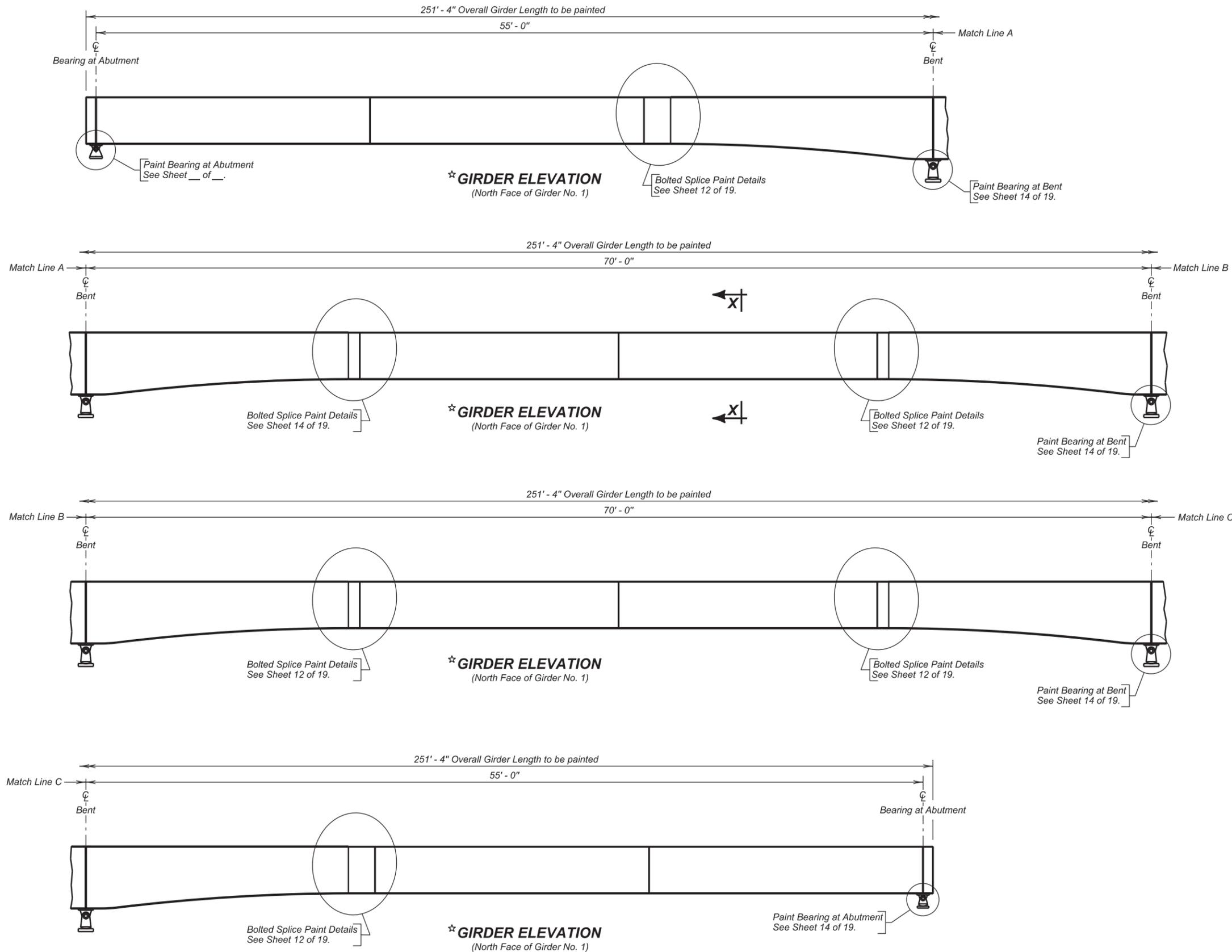
BOLTED SPLICE PLATE SEALANT

- The edges of all bolted splice plates shall be sealed using a Polyurethane Sealant.
- The Polyurethane Sealant shall meet the following requirements. The sealant shall be a single component, moisture cure, non-sag, smooth formulation, gun-grade elastomeric sealant. The sealant shall meet the requirements for ASTM C-920, Type S, Grade NS, Class 25, Use-A.
- Contact surfaces shall be cleaned in accordance with the manufacturer's recommendations. The Contractor shall supply the Engineer with written instructions regarding the manufacturer's recommended surface treatment for the in-place surface condition at least 48 hours before application for review and acceptance.
- The Polyurethane Sealant shall be applied and tooled as recommended by the manufacturer. Product data sheets and Material safety data sheets shall be supplied to the Engineer at least one week prior to installation. In no case shall the thickness of the material be less than 1/4". Feathering of the joint material shall not be allowed. Adjacent surfaces shall be masked to avoid application of the material outside the limits of the final seal. Application surfaces shall be clean and free of material contaminants. Application shall not be allowed on a wet or damp surface.
- Polyurethane Sealant shall be installed and allowed to cure prior to the application of any field applied paint.
- For informational purposes only the sealant will be applied on 160 linear feet.
- Polyurethane Sealant for Structure shall be included in the lump sum price for "Bridge Repainting, Class II." Payment will be full compensation for labor, equipment, materials and incidentals for furnishing, preparing surfaces for application and installing the Polyurethane Sealant.

NOTES (CONTINUED)
FOR
254' - 0" CONT. COMP. GIRDER BRIDGE
STR. NO. 06-185-210
JANUARY 2015

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB03	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	32	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

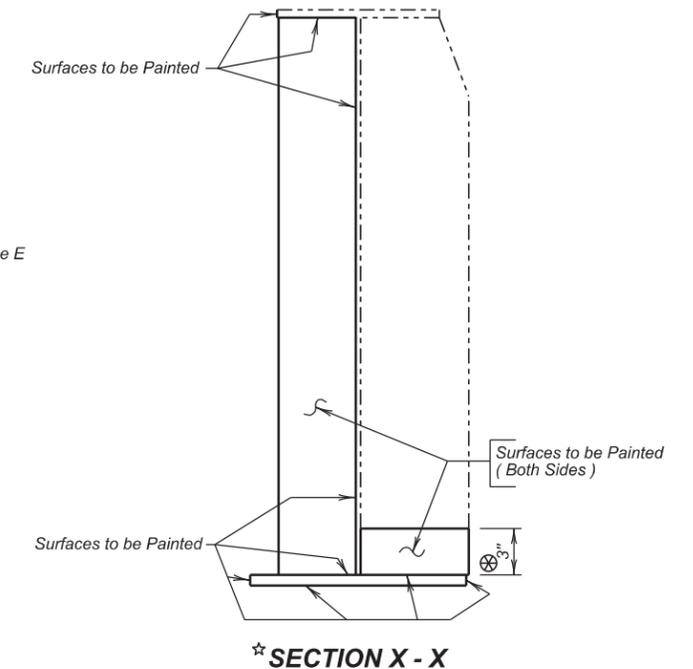
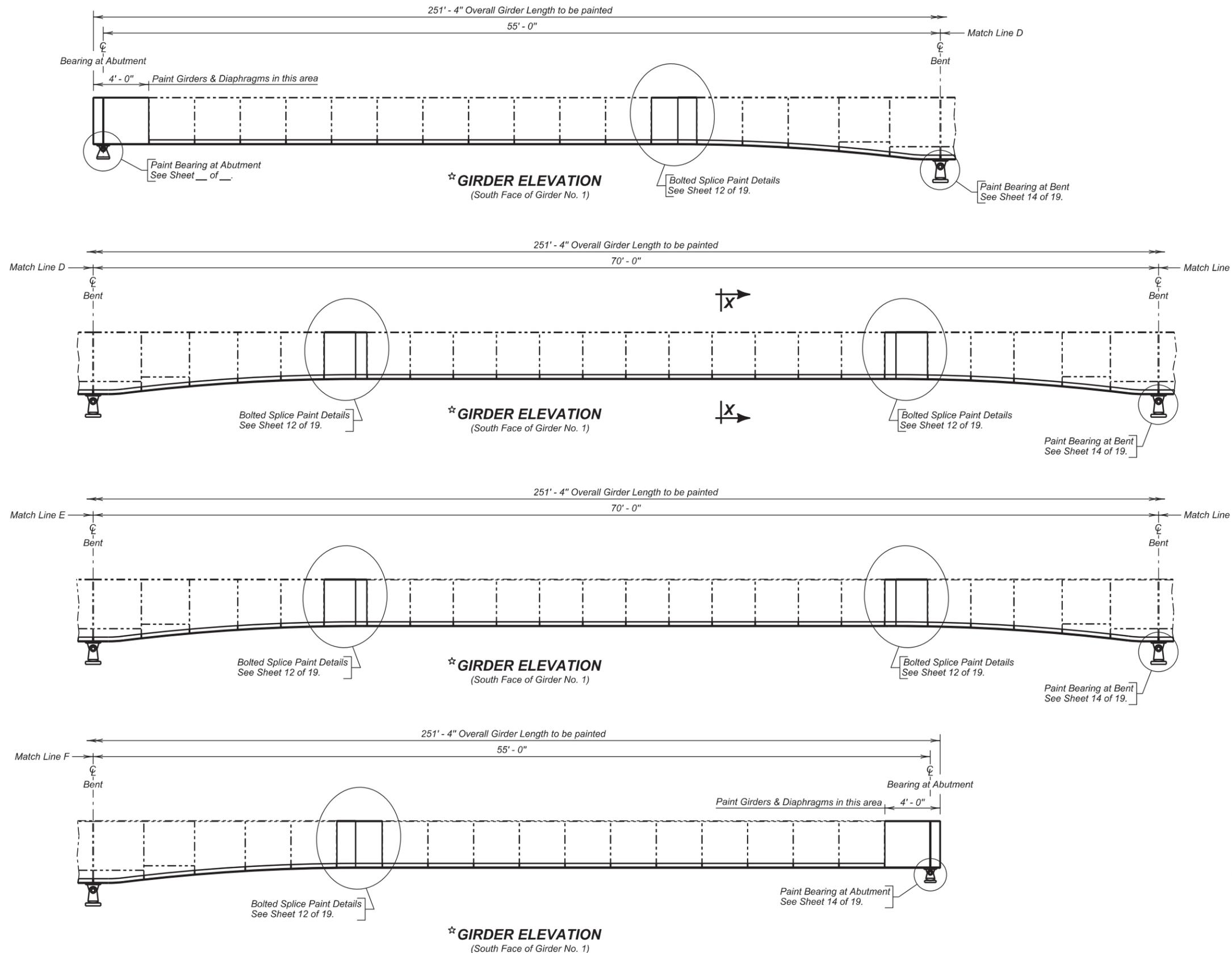
GIRDER NO. 1 PAINT DETAILS
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-210

0° SKEW
SEC. 18-T109N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB04	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	33	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

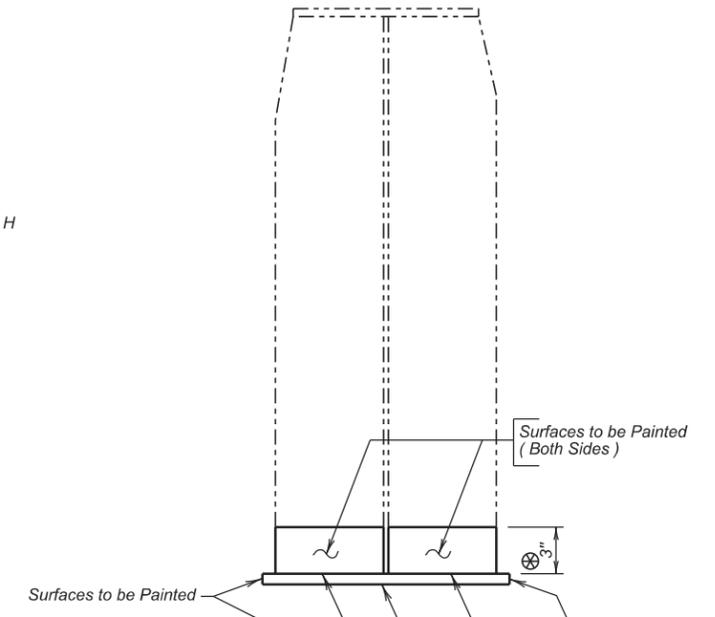
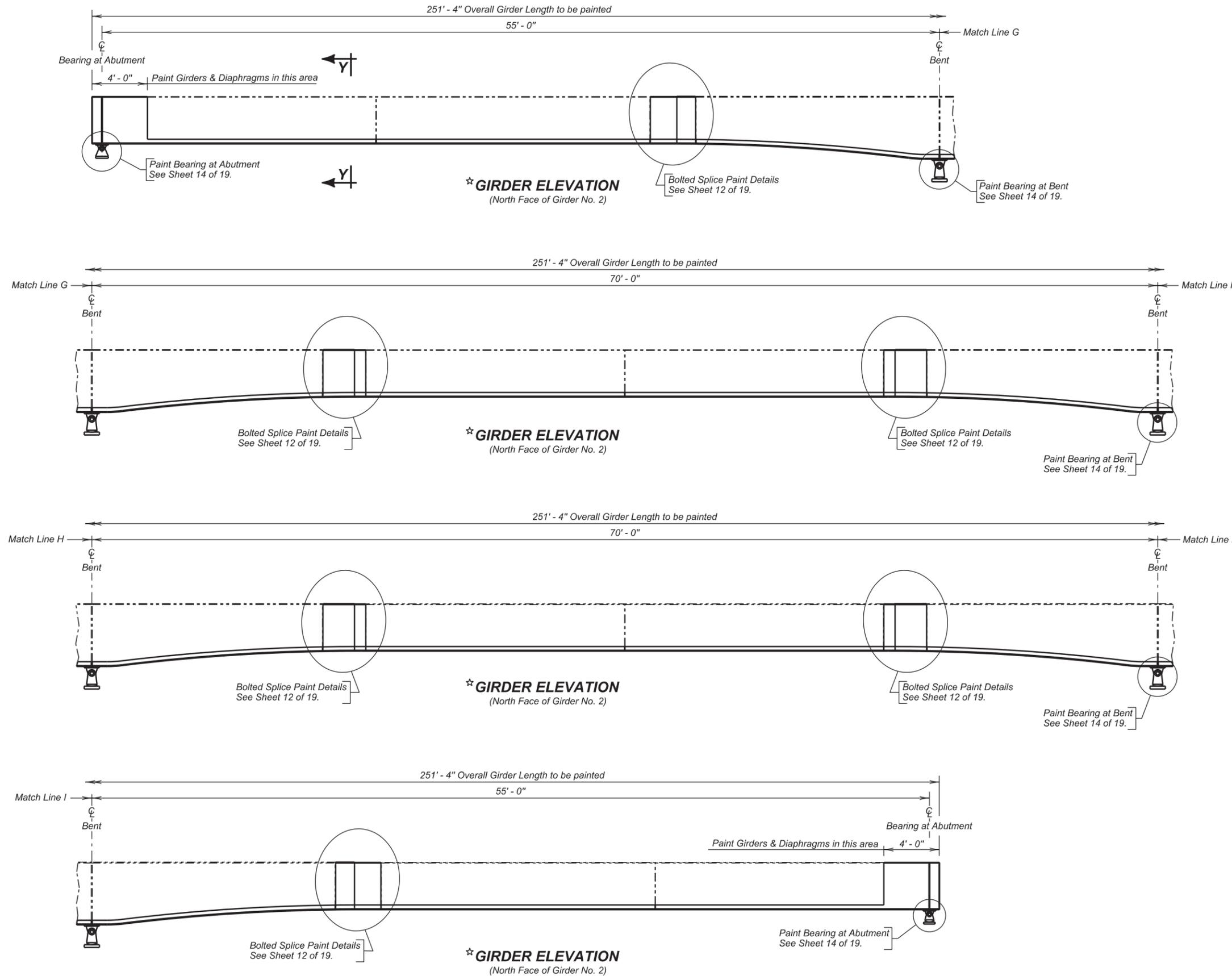
GIRDER NO. 1 PAINT DETAILS (CONTINUED)
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-210

0° SKEW
SEC. 18-T109N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB05	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	34	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 2 PAINT DETAILS

FOR

254' - 0" CONTINUOUS COMP. GIRDER BRIDGE

30' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 18-T109N-R49W

STR. NO. 06-185-210

IM 0295(38)125

BROOKINGS COUNTY

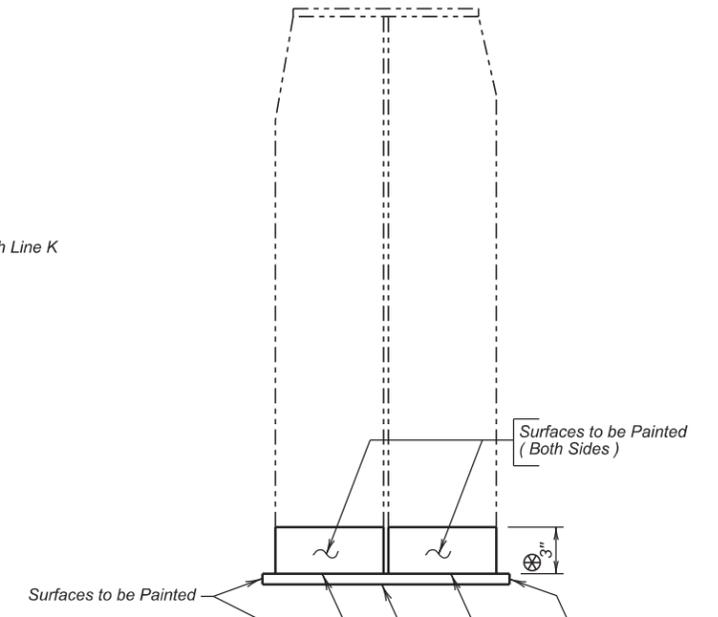
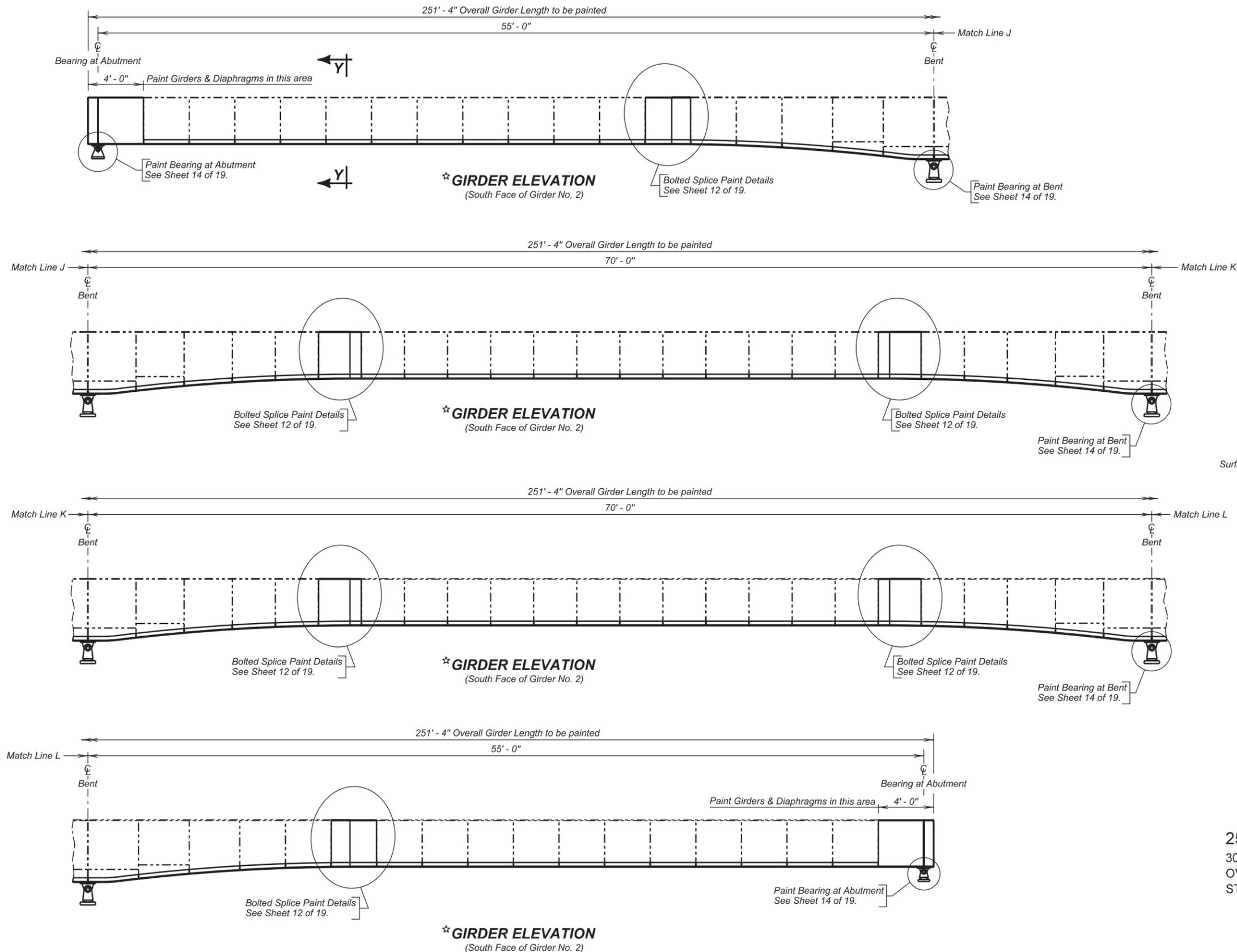
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

6 OF 19

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB06	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	35	125



☆ SECTION Y - Y

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

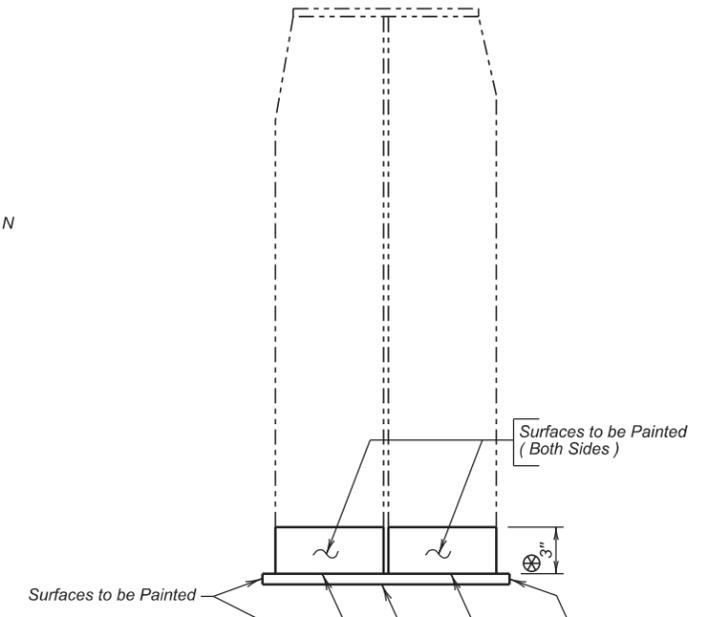
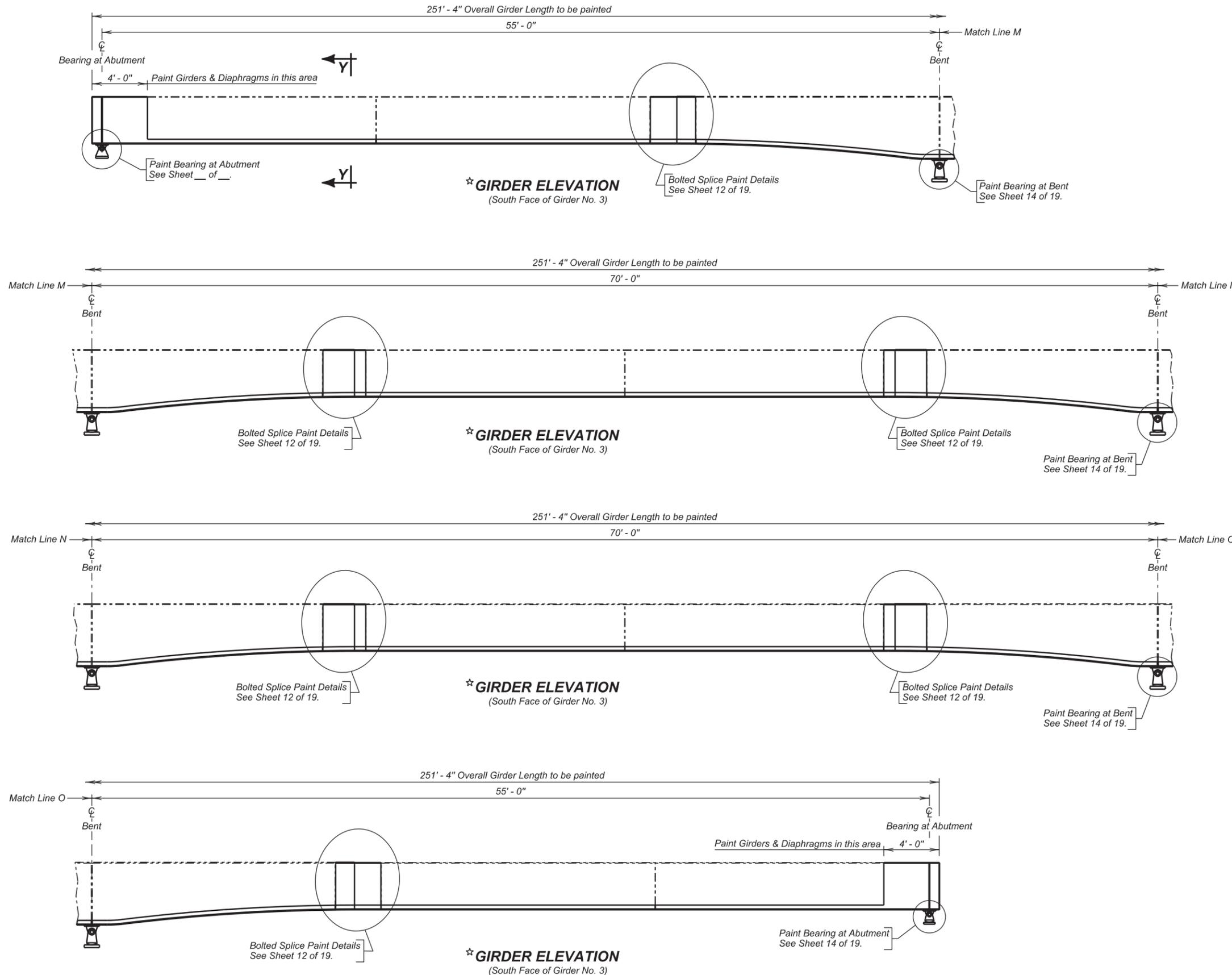
GIRDER NO. 2 PAINT DETAILS (CONTINUED)

FOR
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 30' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 18-T109N-R49W
 STR. NO. 06-185-210 IM 0295(38)125

BROOKINGS COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB07	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	36	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 3 PAINT DETAILS

FOR

254' - 0" CONTINUOUS COMP. GIRDER BRIDGE

30' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 18-T109N-R49W

STR. NO. 06-185-210

IM 0295(38)125

BROOKINGS COUNTY

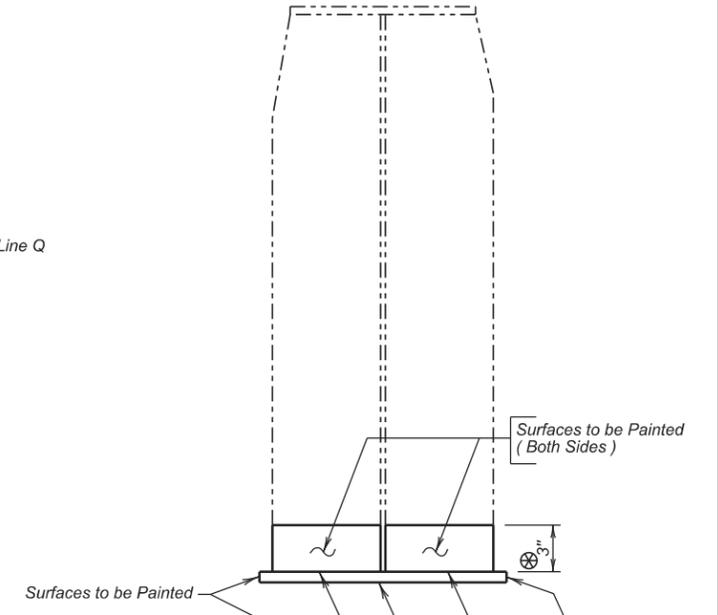
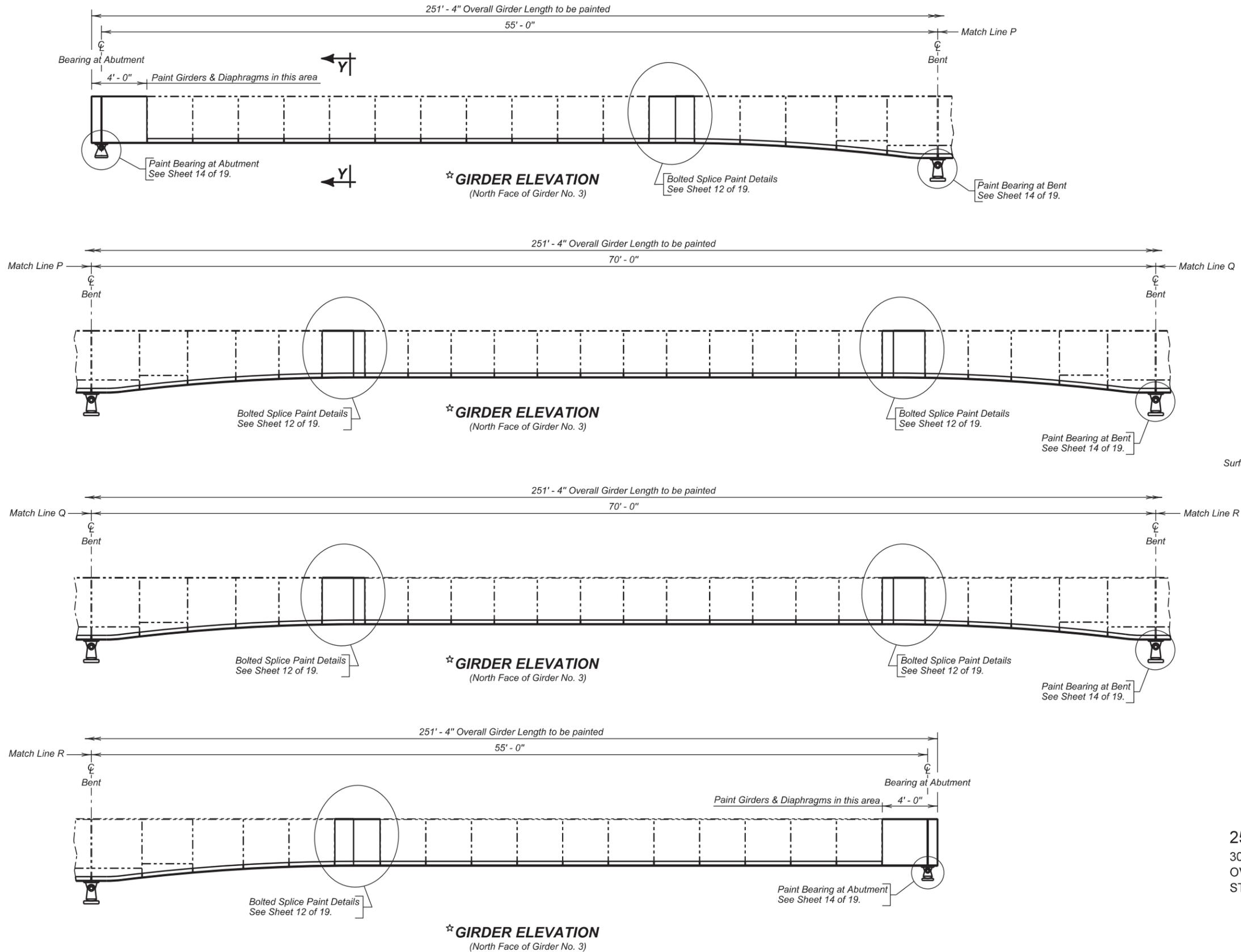
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

8 OF 19

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB08	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	37	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 3 PAINT DETAILS (CONTINUED)

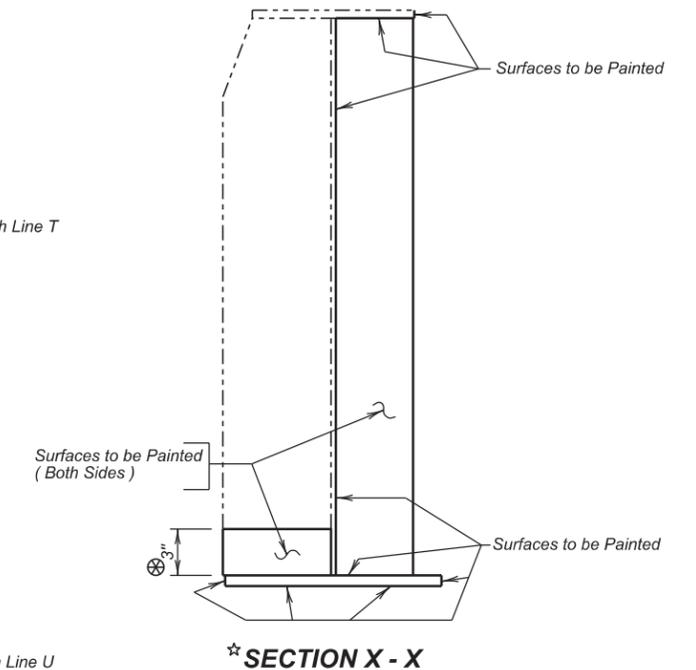
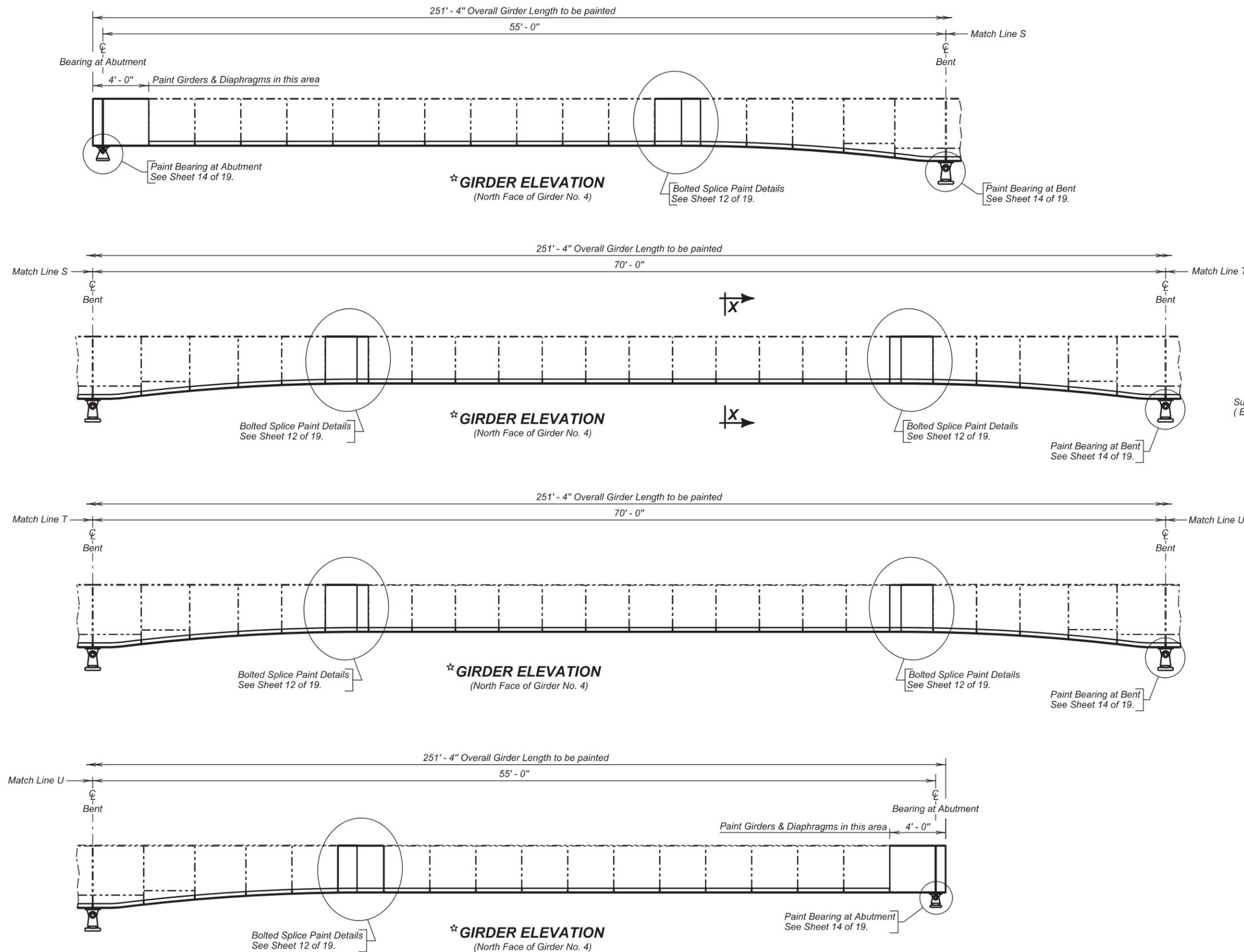
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 30' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 18-T109N-R49W
 STR. NO. 06-185-210 IM 0295(38)125

BROOKINGS COUNTY
 S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB09	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	38	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

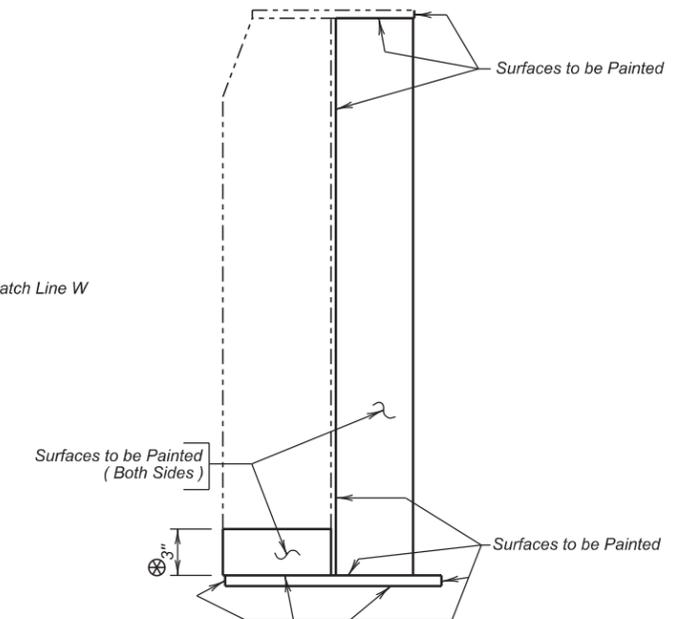
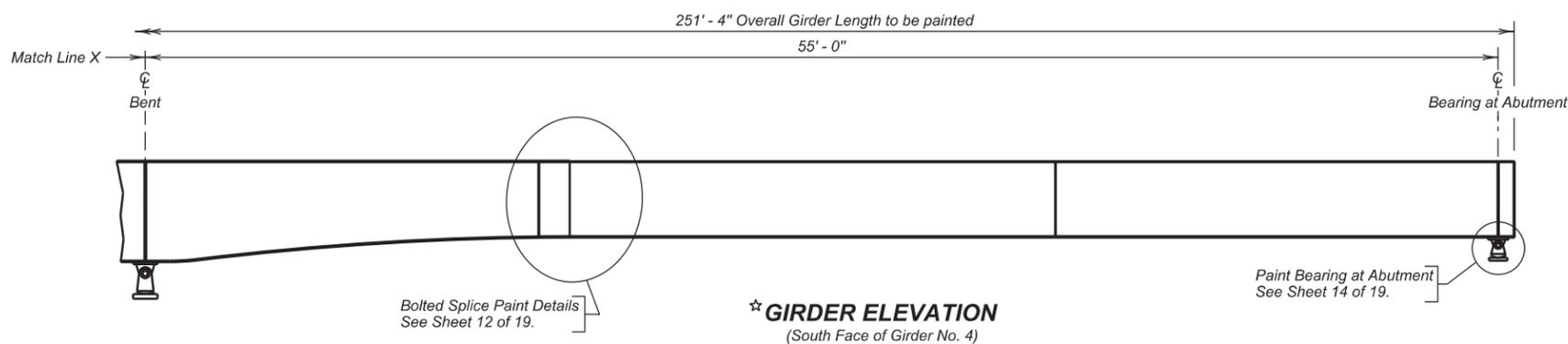
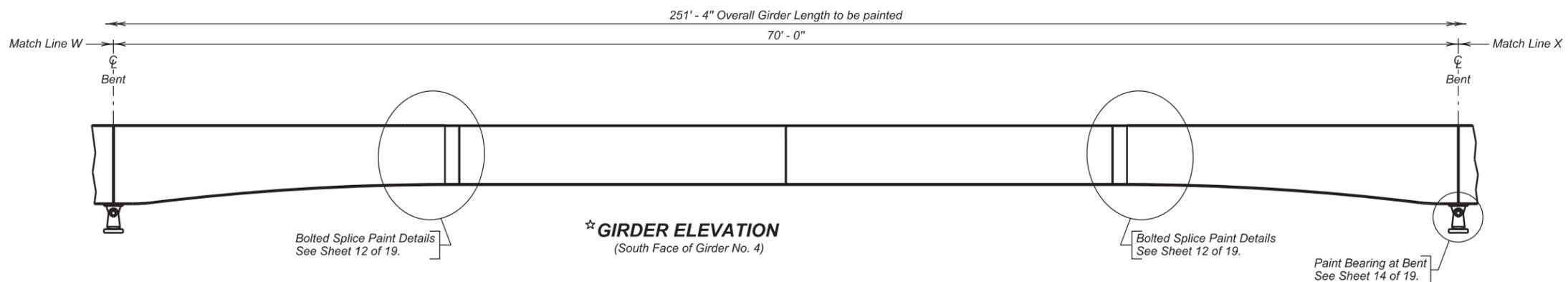
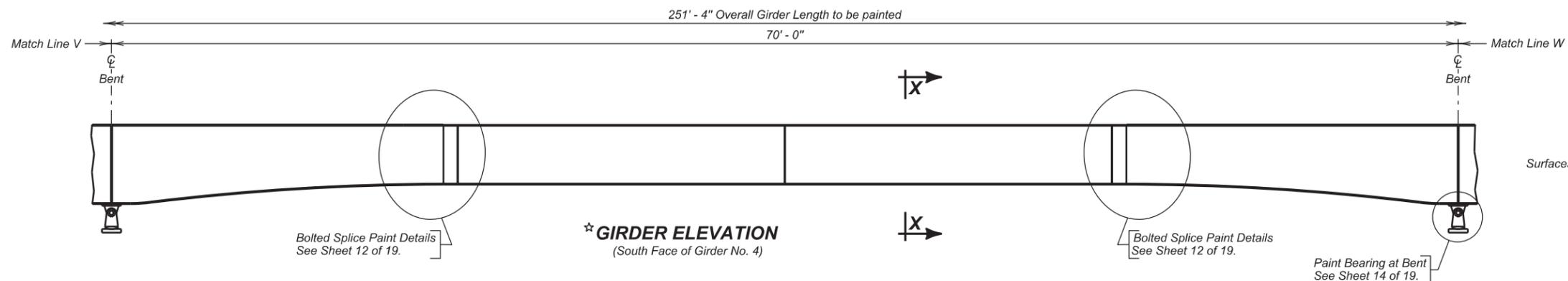
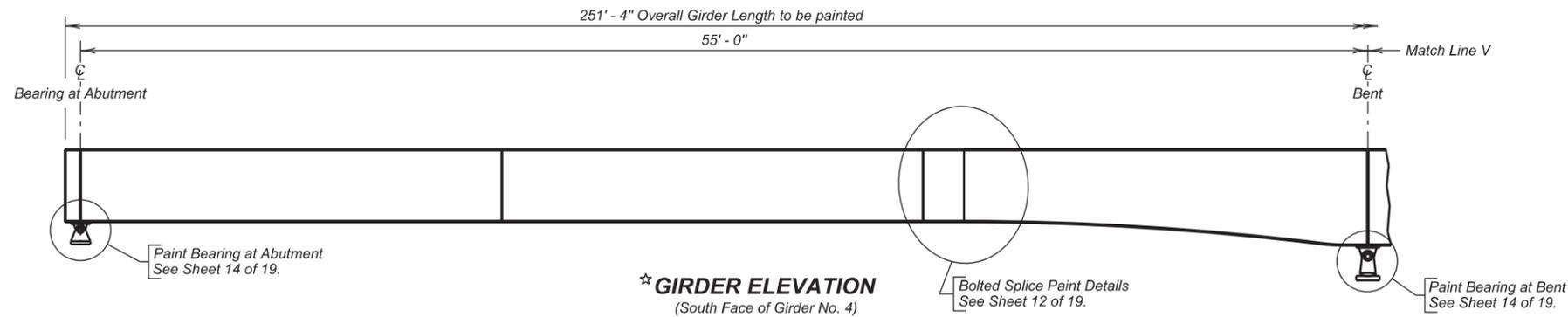
GIRDER NO. 4 PAINT DETAILS
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-210

0° SKEW
SEC. 18-T109N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB10	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	39	125



☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 4 PAINT DETAILS (CONTINUED)

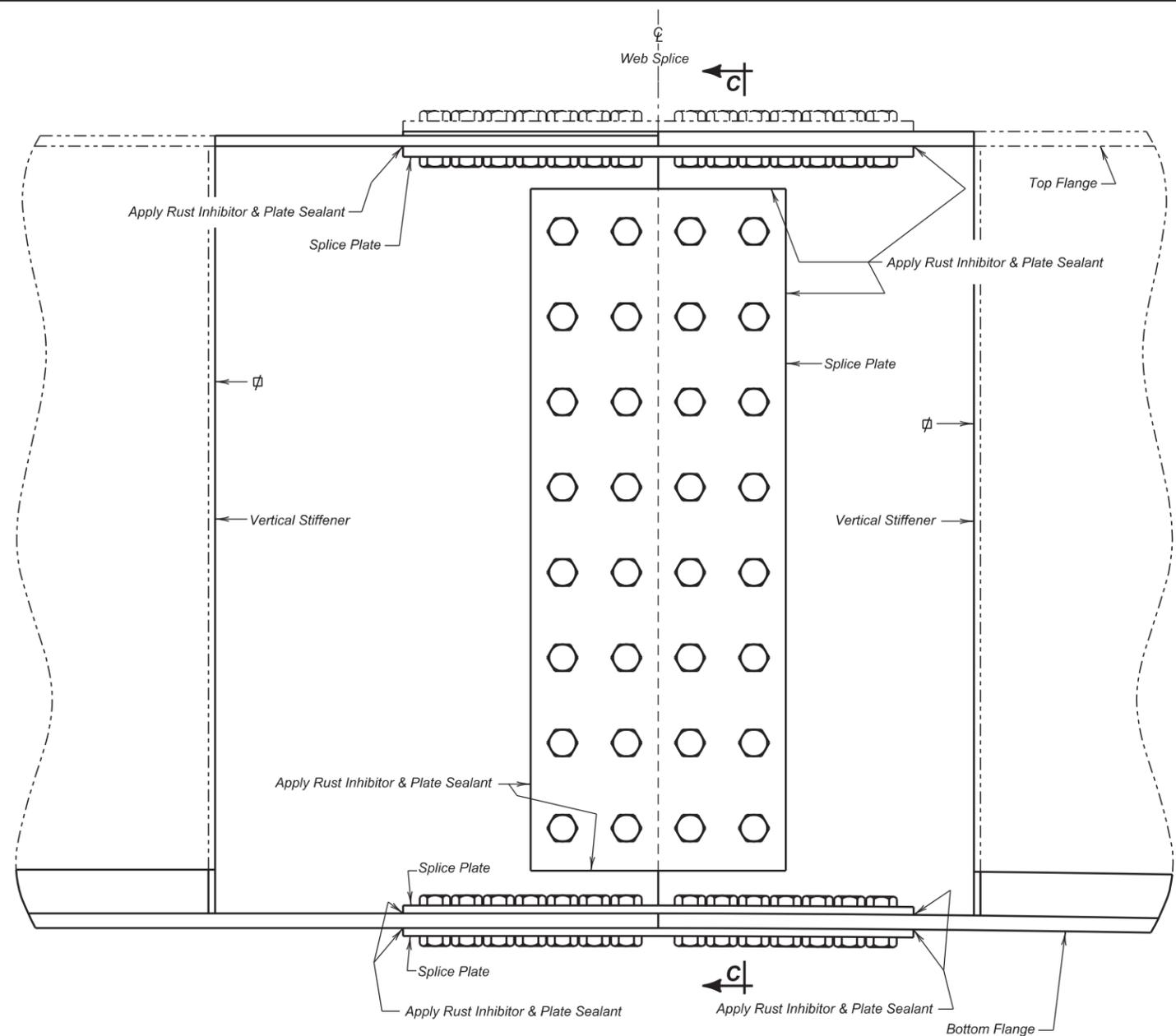
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-210

0° SKEW
SEC. 18-T109N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

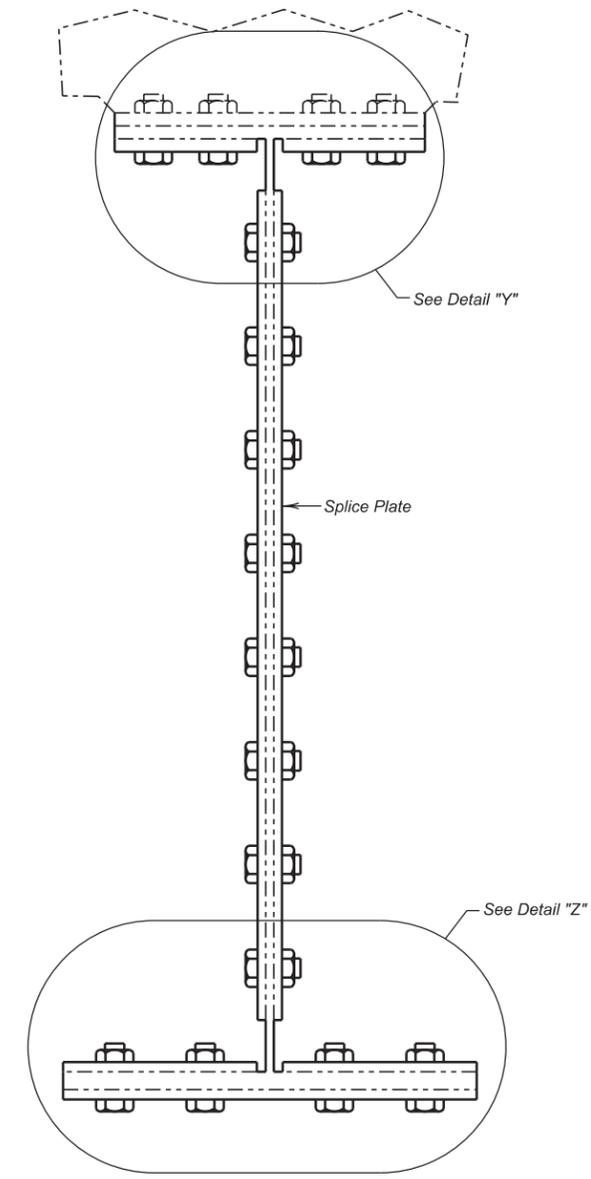
DESIGNED BY NP DUJEL035C	CK. DES. BY EJA 035CRB11	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	40	125

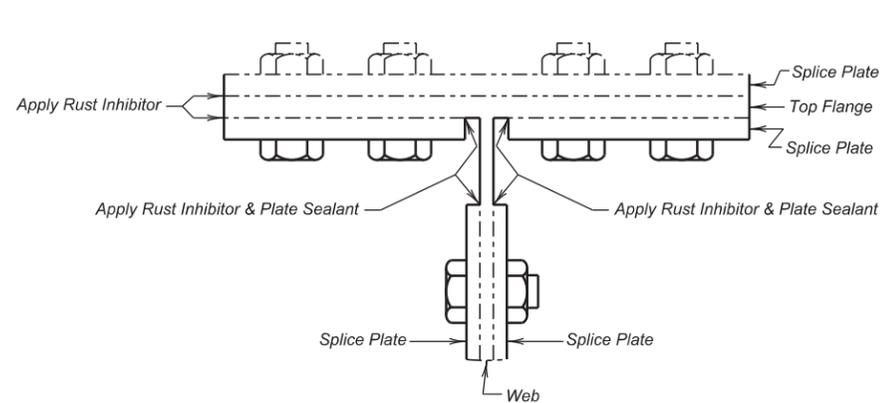


ELEVATION OF BOLTED SPLICE

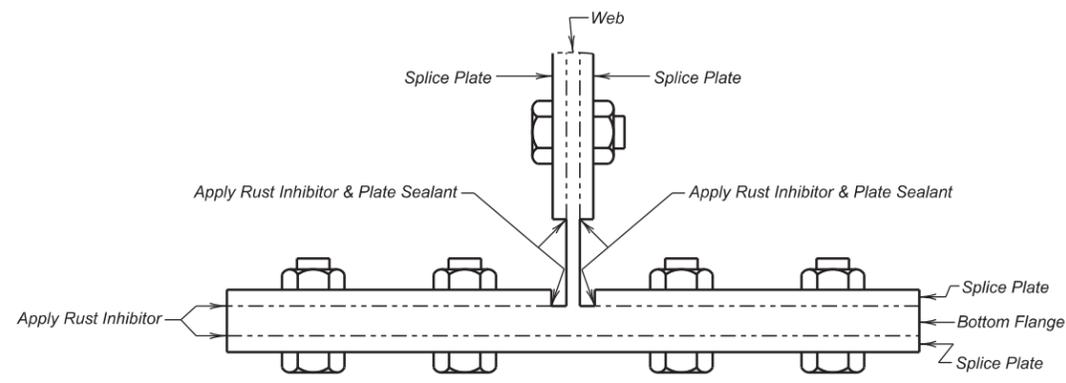
∅ For inside face of the exterior girder and both faces of the interior girders the limit for painting shall be to the nearest vertical stiffener from centerline of splice or a maximum of 2' - 3" from the centerline of girder splice.



SECTION C - C



DETAIL "Y"



DETAIL "Z"

GIRDER PAINT DETAILS AT BOLTED SPLICES

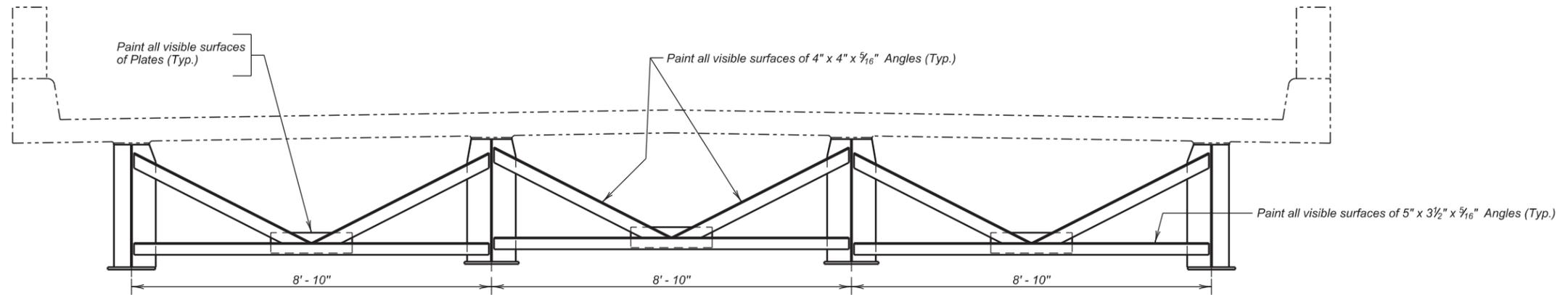
FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 30' - 0" ROADWAY
 OVER INTERSTATE 29
 STR. NO. 06-185-210

0° SKEW
 SEC. 18-T109N-R49W
 IM 0295(38)125

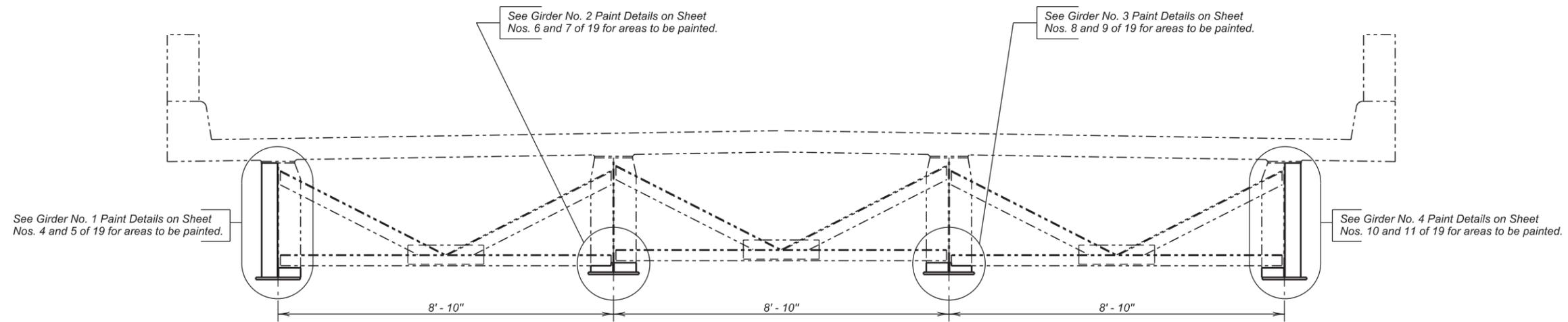
BROOKINGS COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB10	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	41	125



TYPICAL GIRDER SECTION AT ABUTMENT



TYPICAL GIRDER SECTION

GIRDER PAINT DETAILS

FOR

254' - 0" CONTINUOUS COMP. GIRDER BRIDGE

30' - 0" ROADWAY
 OVER INTERSTATE 29
 STR. NO. 06-185-210

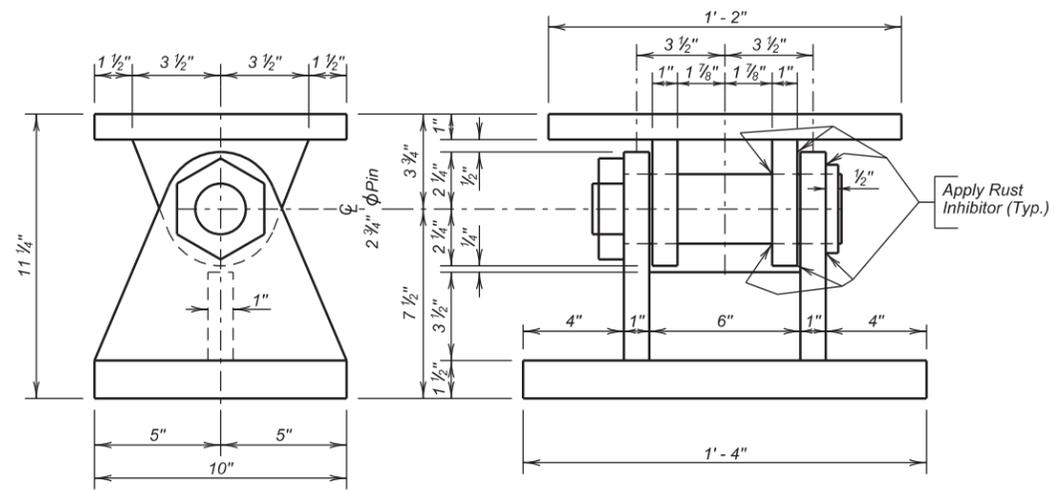
0° SKEW
 SEC. 18-T109N-R49W
 IM 0295(38)125

BROOKINGS COUNTY

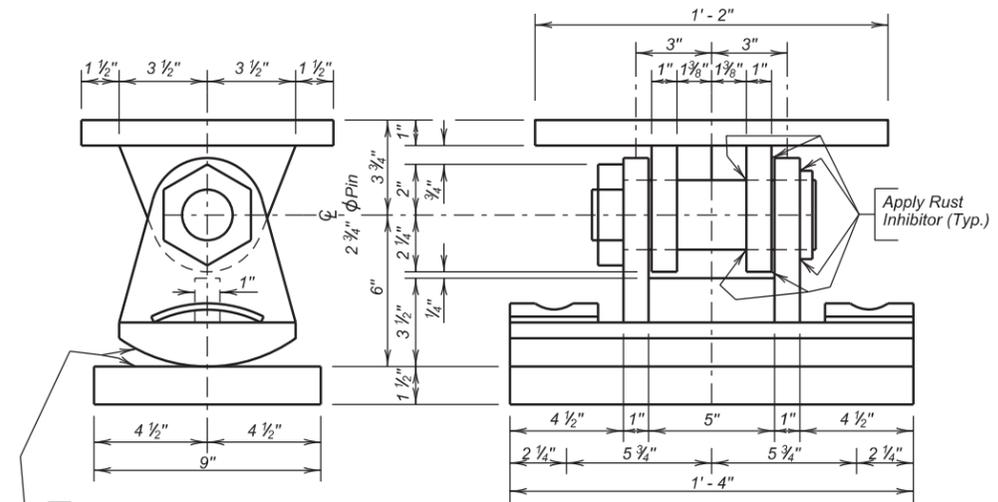
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRB11	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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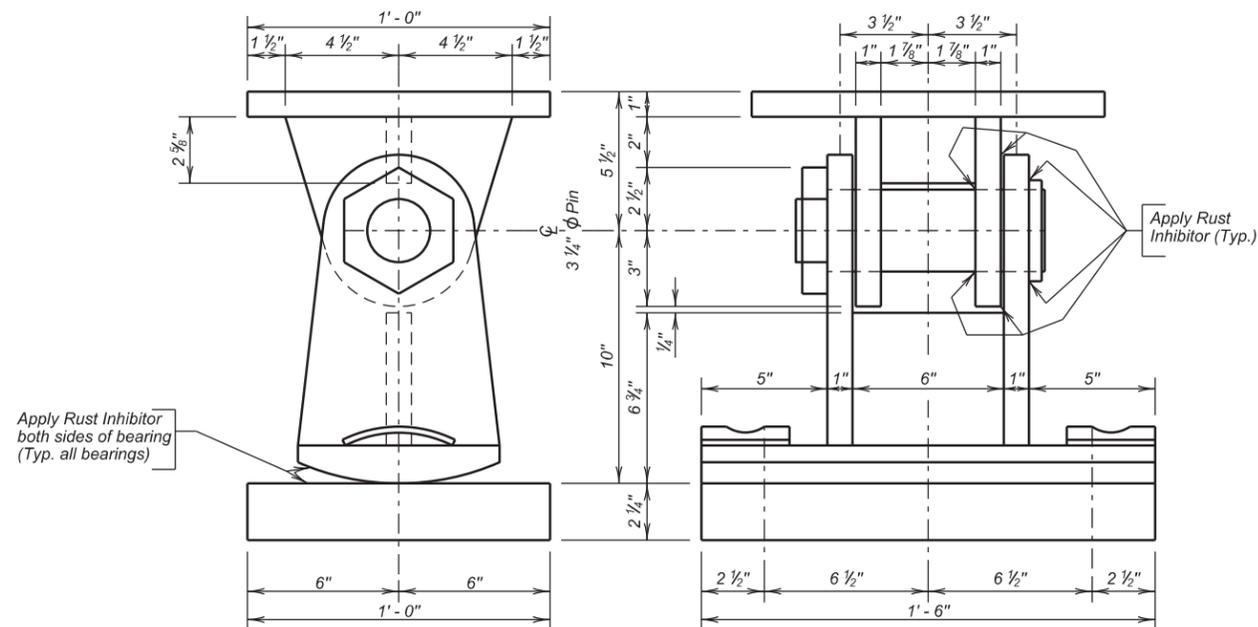


END FIXED SHOE
(Paint all visible surfaces of each bearing)



END EXPANSION SHOE
(Paint all visible surfaces of each bearing)

Note: Apply rust penetrating sealer to pack rust areas of all bearings.



INTERIOR EXPANSION SHOE
(Paint all visible surfaces of each bearing)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
△ Bridge Repainting, Class II	LS	Lump Sum
* Rust Penetrating Sealer	LS	Lump Sum
Paint Residue Containment	LS	Lump Sum

△ For informational purposes, the area of structural steel to be painted is 5,985 square feet.

* For informational purposes, the area of structural steel to be coated with Rust Penetrating Sealer is 116 square feet.

GIRDER PAINT DETAILS (CONTINUED)

FOR
254' - 0" CONTINUOUS COMP. GIRDER BRIDGE
30' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-210

0° SKEW
SEC. 18-T109N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

INDEX OF BRIDGE SHEETS-

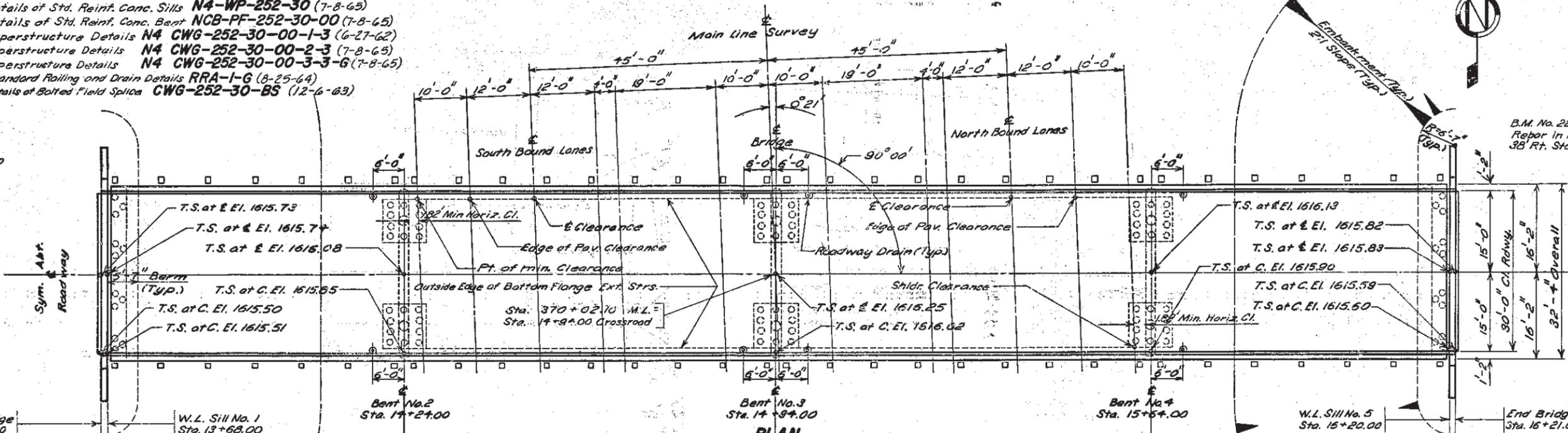
- Sheet No. 1 General Drawing and Quantities
Sheet No. 2 Subsurface Investigations
Sheet No. 3 Erection Data
Sheet No. 4 Details of Std. Reinf. Conc. Sills N4-WP-252-30 (7-8-65)
Sheet No. 5 Details of Std. Reinf. Conc. Bent NCB-PF-252-30-00 (7-8-65)
Sheet No. 6 Superstructure Details N4 CWG-252-30-00-1-3 (6-27-62)
Sheet No. 7 Superstructure Details N4 CWG-252-30-00-2-3 (7-8-65)
Sheet No. 8 Superstructure Details N4 CWG-252-30-00-3-3-G (7-8-65)
Sheet No. 9 Standard Railing and Drain Details RRA-1-G (8-25-64)
Sheet No. 10 Details of Bolted Field Splice CWG-252-30-B5 (12-6-63)

Table with columns: STATE OF S.D., PROJECT IM 0295(38)125, SHEET NO. 43, TOTAL SHEETS 125

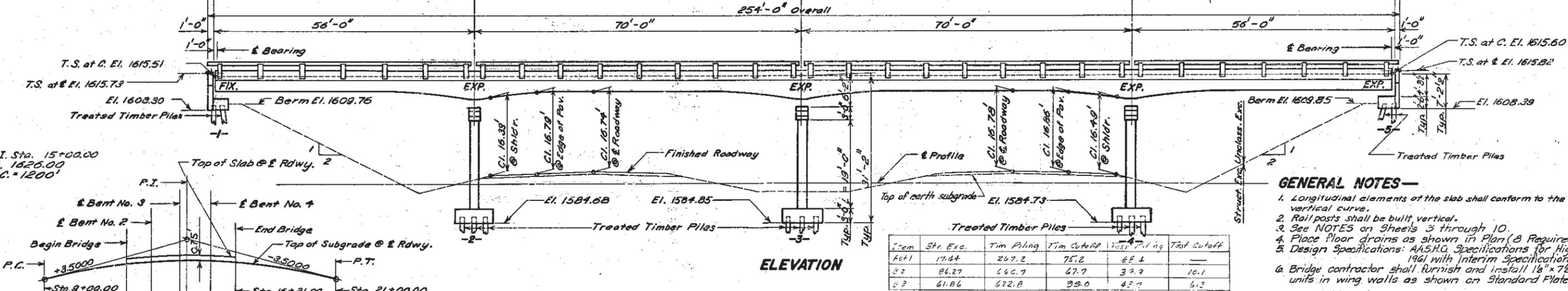
06010

B.M. No. 22 El. 1589.50
Rebar in Fence Line
19' 11" Sta. 12+23

B.M. No. 22B El. 1591.61
Rebar in Fence Line
38' Sta. 30.00

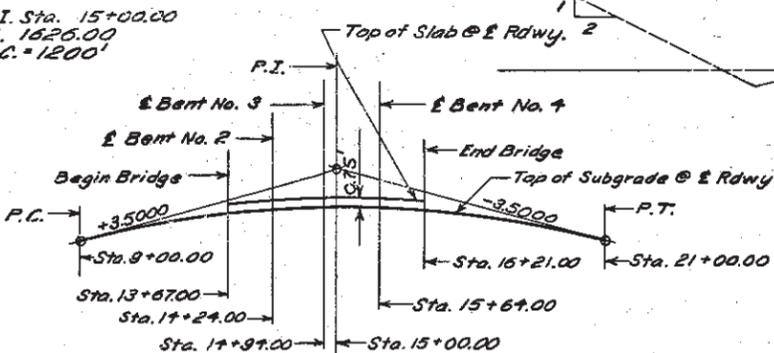


PLAN



ELEVATION

- GENERAL NOTES-
1. Longitudinal elements of the slab shall conform to the vertical curve.
2. Rail posts shall be built vertical.
3. See NOTES on Sheets 3 through 10.
4. Place floor drains as shown in Plan (8 Required)
5. Design Specifications: AASHTO Specifications for Highway Bridges 1961 with Interim Specifications for 1961, 1962
6. Bridge contractor shall furnish and install 1/2" x 7/8" sleeve nut units in wing walls as shown on Standard Plate No. 304.



SUBGRADE CURVE DATA

NOTE-
T.S. at & El. = Top of Slab at Centerline Roadway
T.S. at C. El. = Top of Slab at Curb Elevation

SPECIFICATION NOTE-
Use South Dakota Standard Specifications for Roads and Bridges 1963 Edition, approved as Std. Sept. 21, 1964, and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal.

ESTIMATED QUANTITIES table with columns: ITEM, Concrete Cu. Yds., Steel Reinf. Lbs., Type A-Steel Rolling-Lin. Ft., Timber Piles Lin. Ft., Excavation-Cu. Yds., Pile Shoes # No.

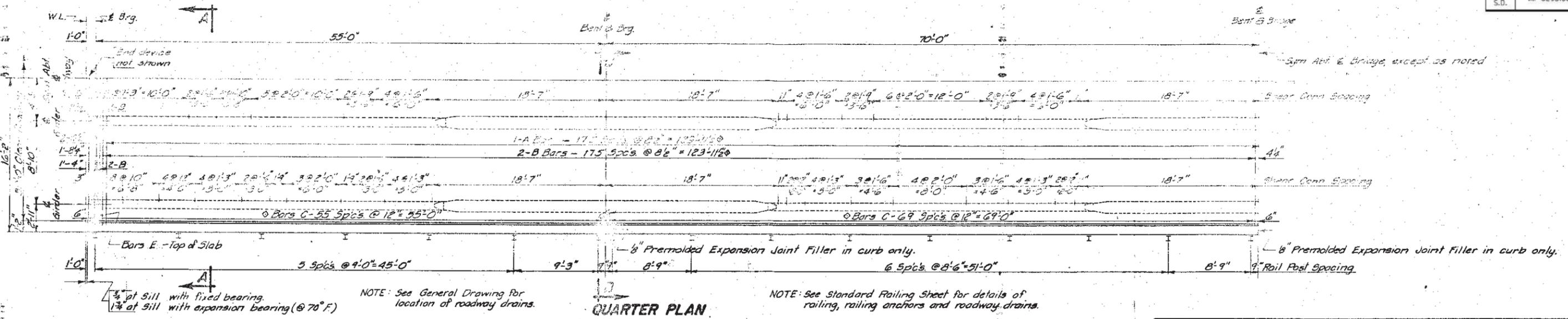
one Treated Timber Test Pile shall be driven at Sills No. 1 & No. 5 and at Bents No. 2, No. 3 & No. 4 before remaining Pile are ordered.
*All-Steel Pile Shoes as approved by the ENGINEER shall be used.
See Grading Plans for Unclassified Excavation.
PILE NOTE: Prebored holes for piles at Sills shall be backfilled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for the piles.
The contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No. 303 for splice details.
In the event pile shoes are used, see Standard Plate No. 301 for details.
Approximate natural ground Elev. at Sill No. 1 is 1693.2' and at Sill No. 5 is 1692.8'.

ORIGINAL CONSTRUCTION PLANS
GENERAL DRAWING AND QUANTITIES
FOR
254'-0" CONT. COMP. GIRDER VIADUCT
30'-0" ROADWAY
OVER I.S. NO. 29 STA. 370+02.10 SEC. 18-T109N-R49W
STA. 13+67.00 TO 16+21.00 1 29-5(6)124
BROOKINGS COUNTY
SOUTH DAKOTA H20-S16-44
DEPARTMENT OF HIGHWAYS
JULY 1963

STR. NO. 06-185-210

Table with columns: DESIGNED BY A.E.O., DRAWN BY A.K., CHECKED BY A.K., APPROVED [Signature]

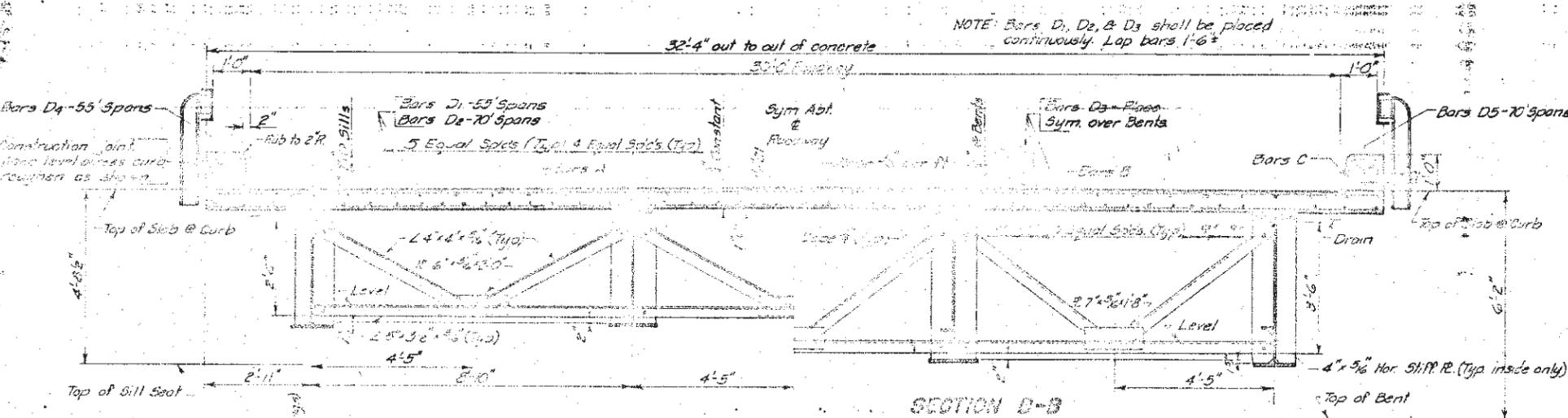
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	44	125



REINFORCING SCHEDULE

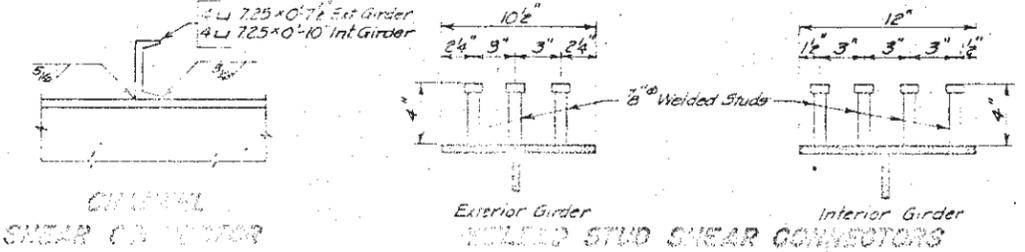
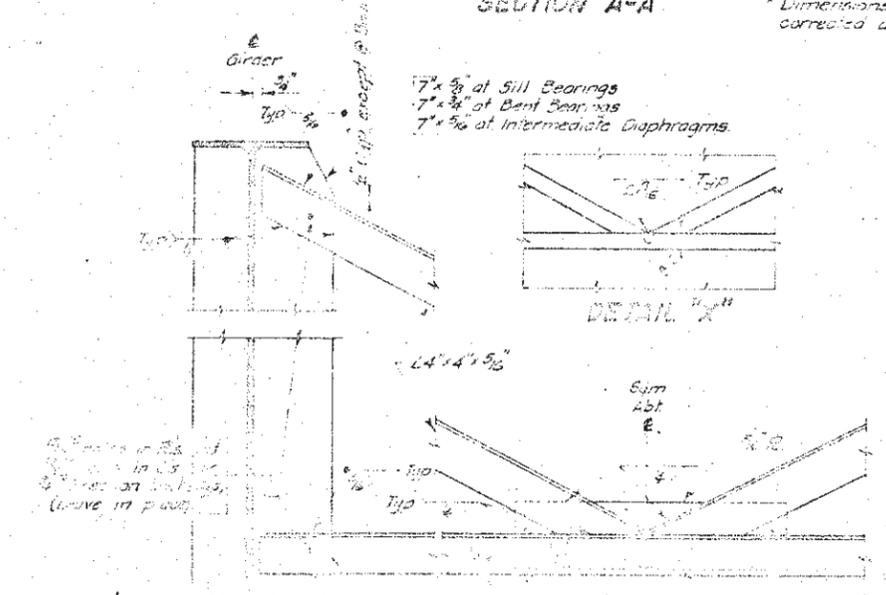
Mk. No.	Size	Length	Qty	Splicing Details
A	#301	5	5	
B	#712	5	5	Str
C	#301	4	5	TI
D1	#148	5	37	Str
D2	#222	5	37	Str
D3	#16	5	37	Str
D4	#16	5	37	Str
D5	#16	5	37	Str
E	#8	5	37	Str

NOTE: All dimensions are out to out of curb.



~~RELATED QUANTITIES~~

2" x 4" Girders	11.2
2" x 6" Girders	11.2
2" x 8" Girders	11.2
Type 15 Steel Railing	610.3



DETAILS FOR SHEAR CONNECTORS

Channel and welded shear connectors are spaced as shown and must be installed as follows:

1. The channel must substitute a row of 8" welded studs for each channel shear connector as shown.
2. The channel must be installed as structural steel based on the weight of and the position of type of connector used.
3. The studs to be placed on the girders' soles in the direction as shown on girder layout.

ORIGINAL CONSTRUCTION PLANS

STR. NO. 06-185-210

SUPERSTRUCTURE DETAILS

FOR

STANDARD 20'-0" ROADWAY BRIDGE

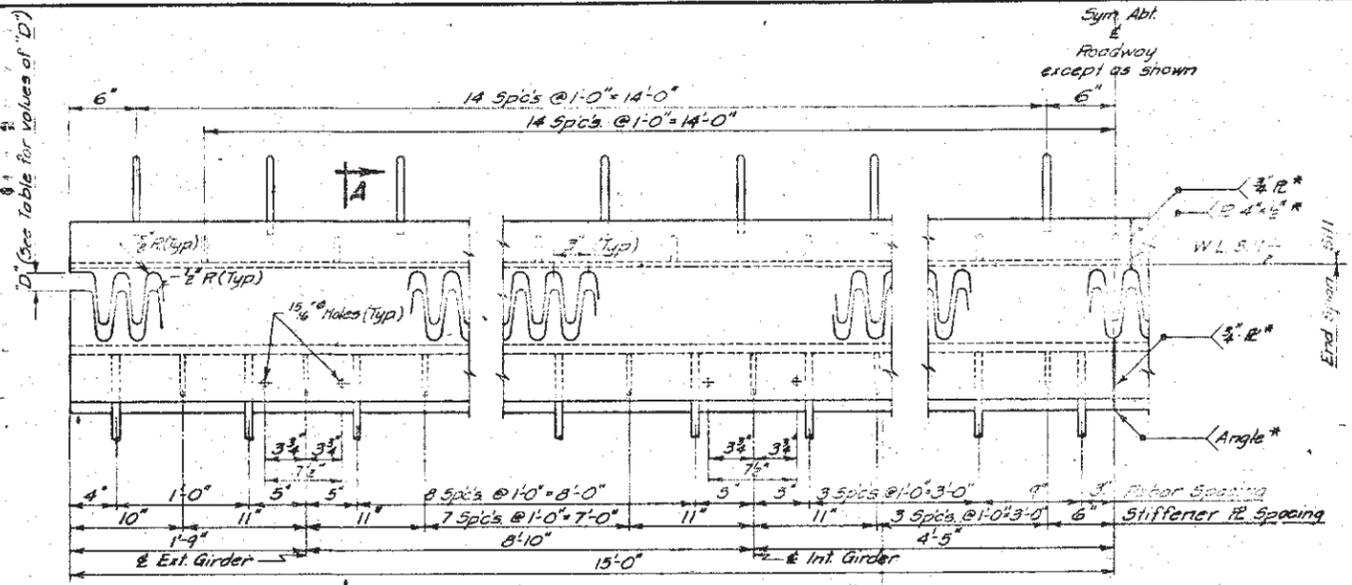
WELDED FLANGE GIRDER WITH

COMPOSITE SECTION

30'-0" ROADWAY

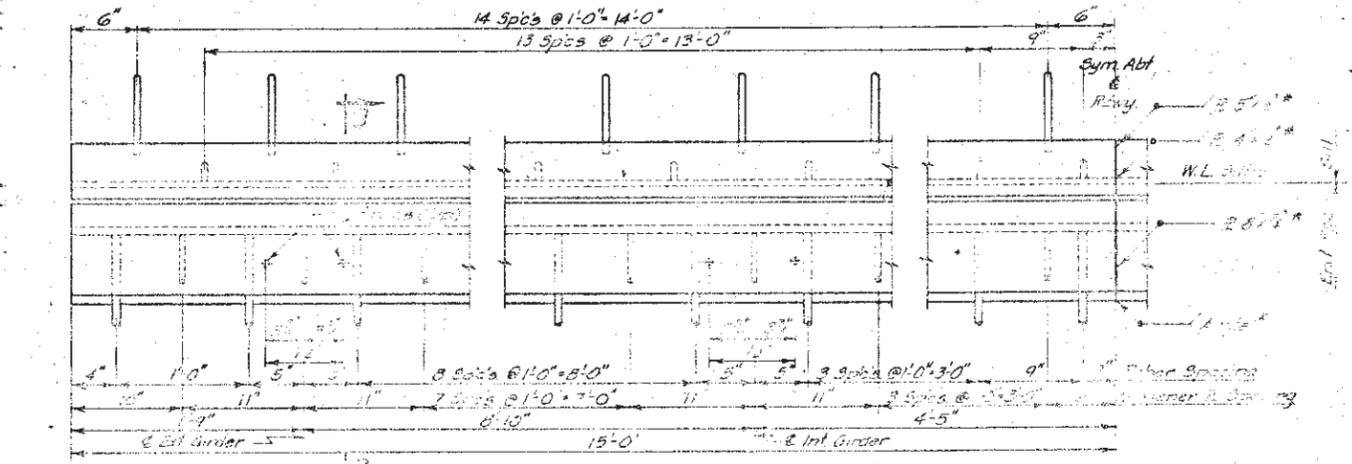
SOUTH DAKOTA

DEPARTMENT OF HIGHWAYS



HALF PLAN OF EXPANSION DEVICE AT SILL
(At Sill with expansion shoes)

***WELDING NOTE:** The two shop fabricated pieces of an expansion or armored joint shall be joined in the field by butt welds in accordance with the latest Specifications of the American Welding Society. Size of welds shall be shown on shop plans for the District Department's approval.

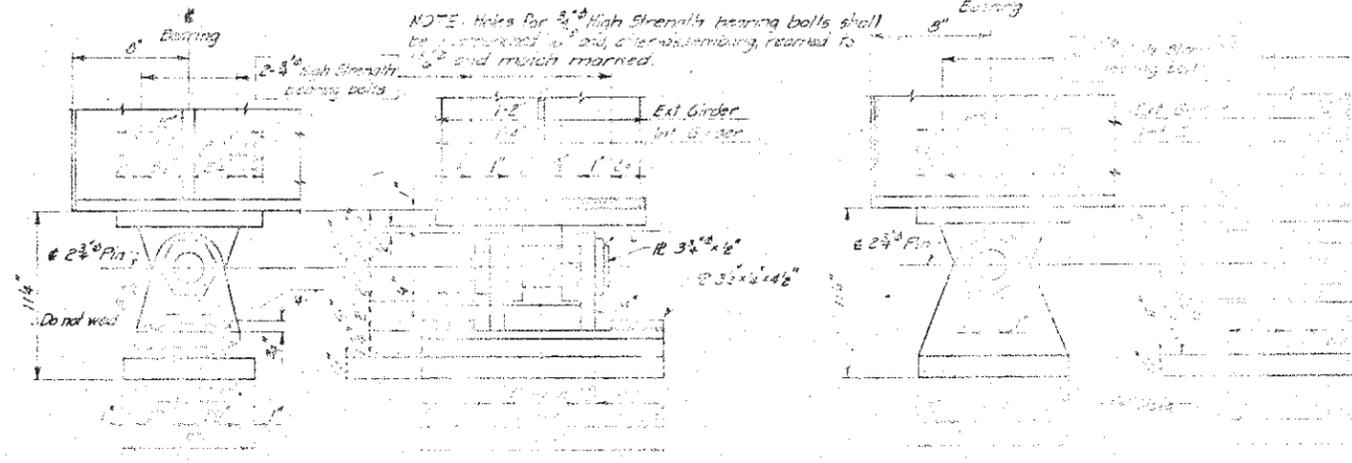


HALF PLAN OF ARMORED DEVICE AT SILL
(At Sill with fixed shoes)

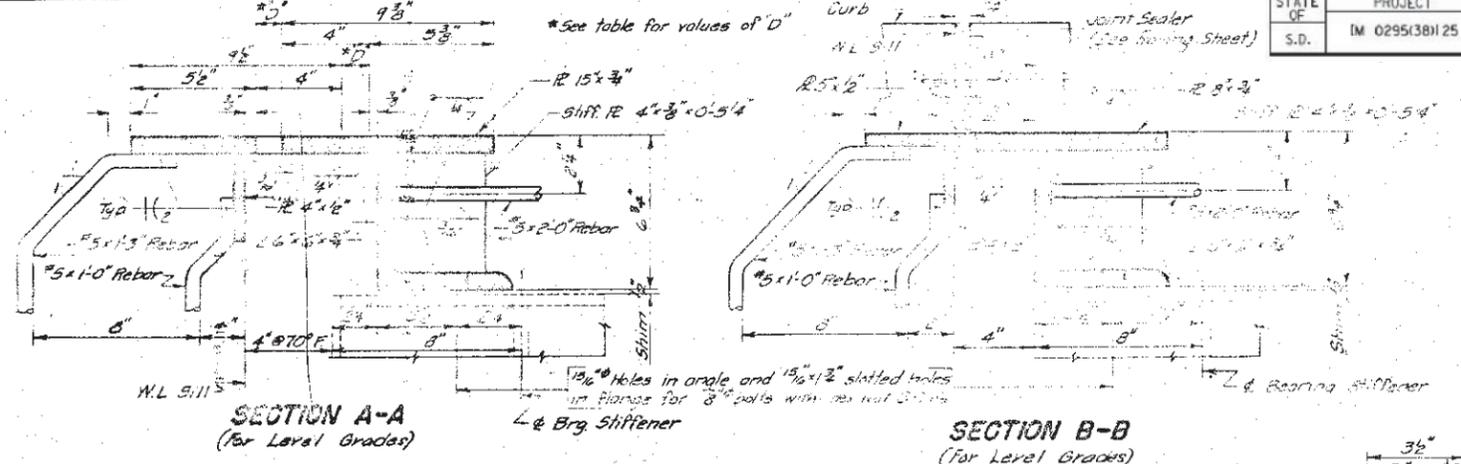
NOTE: The Expansion Device shall be completely shop assembled, adjusted to the position it will take in the structure, and the pieces match marked for field erection. The top surface of the expansion device shall conform to the roadway crown.

NOTE: Holes for 2-1/2" High Strength bearing bolts shall be punched to 1/8" and after assembling, returned to 1/8" and match marked.

NOTE: Except as shown use full fillet welds in fabrication of shoes and Rebar. Surfaces in contact shall be milled to bear true welding.



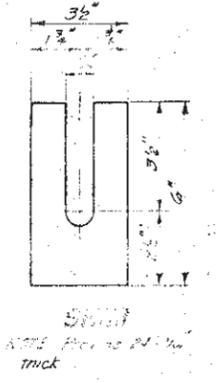
2-1/2" high strength bearing (interference-body) bolts shall be furnished to a minimum tensile of 22,000 psi. A 1/4" turn of torque method as shown in Section 405.16 of Standard Specifications for Highways and Bridges.



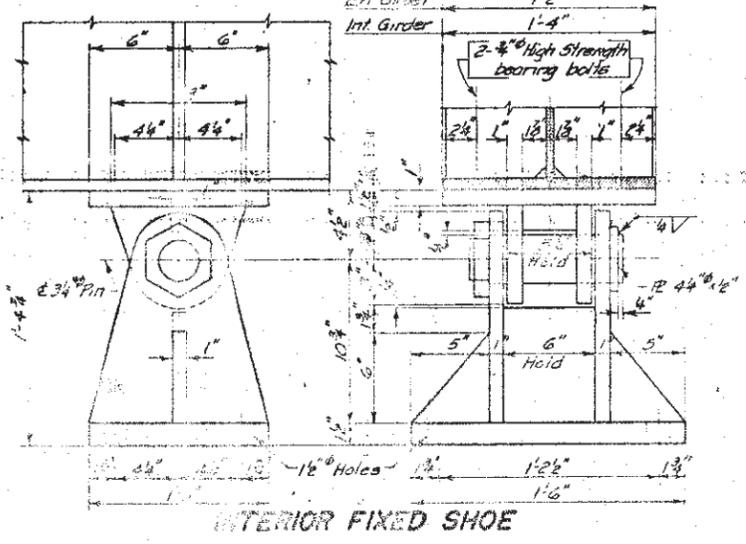
SECTION A-A
(For Level Grades)

SECTION B-B
(For Level Grades)

TABLE FOR VALUES OF "D"			
Position of Fixed Shoes	For Exp. Device @ Sill #1	Temp	For Exp. Device @ Sill #5
@ Sill #1	Armored Joint	-30° F	D = 3/2"
		+70° F	D = 1 1/2"
		+120° F	D = 1 1/2"
@ Bent #2	D = 2"	-30° F	D = 2 1/2"
@ Bent #3	D = 2 1/2"	-30° F	D = 3"
		+70° F	D = 2 1/2"
		+120° F	D = 2 1/2"
@ Bent #4	D = 2 1/2"	-30° F	D = 2"
		+70° F	D = 1 1/2"
		+120° F	D = 1 1/2"
@ Sill #5	D = 1 1/2"	-30° F	D = 1 1/2"
		+70° F	D = 1 1/2"
		+120° F	D = 1 1/2"



Shoe
NOTE: Refer to 0610



INTERIOR FIXED SHOE

GENERAL NOTES:

1. Expansion devices shall be furnished for Highway Bridges, with 1/8" fillet welds in fabrication of shoes and Rebar.

2. Steel shall be furnished to a minimum tensile of 22,000 psi. A 1/4" turn of torque method as shown in Section 405.16 of Standard Specifications for Highways and Bridges.

3. Steel for pins shall conform to a minimum tensile of 22,000 psi. A 1/4" turn of torque method as shown in Section 405.16 of Standard Specifications for Highways and Bridges.

4. All expansion devices shall be furnished with a minimum of 1/8" fillet welds in fabrication of shoes and Rebar. Surfaces in contact shall be milled to bear true welding.

5. The weight of expansion bolts, with or without nuts, shall be included in the expansion device weight.

6. All expansion bolts shall be furnished with a minimum of 1/8" fillet welds in fabrication of shoes and Rebar. Surfaces in contact shall be milled to bear true welding.

7. All reinforcing steel bars shall conform to A.S.T.M. Specifications A308 and A313.

8. The weight of expansion bolts, with or without nuts, shall be included in the expansion device weight.

9. All expansion bolts shall be furnished with a minimum of 1/8" fillet welds in fabrication of shoes and Rebar. Surfaces in contact shall be milled to bear true welding.

10. All reinforcing steel bars shall conform to A.S.T.M. Specifications A308 and A313.

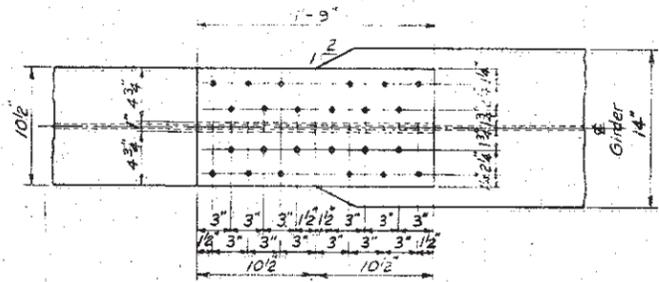
ORIGINAL CONSTRUCTION PLANS

STR. NO. 06-185-210

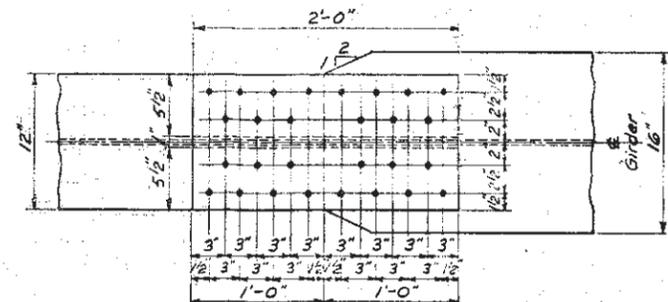
STATE OF S.D.	PROJECT IM 0295(38)125	SHEET NO. 47	TOTAL SHEETS 125
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GENERAL NOTES—

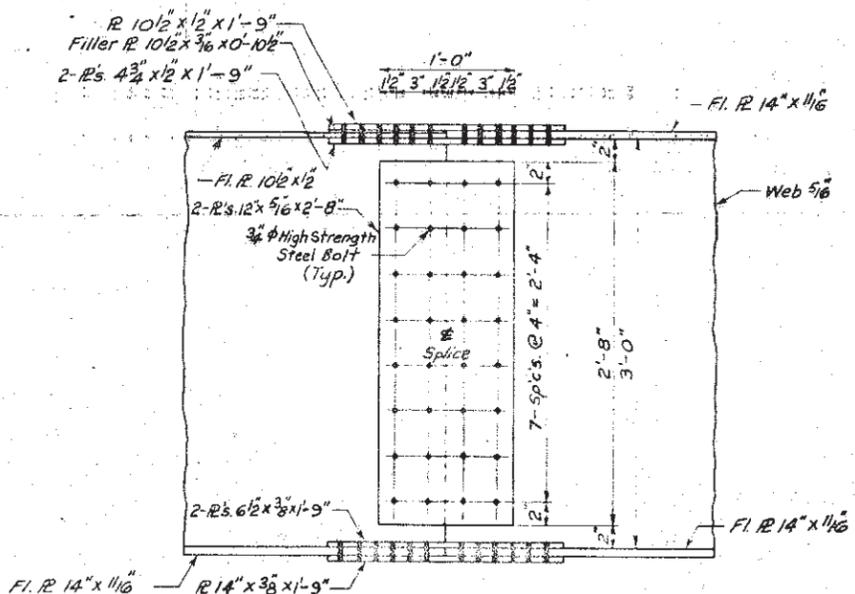
1. Use $\frac{3}{4}$ " high strength nearyhead bolts (A.S.T.M. A325) with one hardened washer. Hardened washer to be assembled under the turned element.
2. Holes for $\frac{3}{4}$ " high strength bolts shall be subpunched and reamed, or drilled and splice plates match-marked after assembling as provided in Section 410.3 of South Dakota Standard Specifications for Roads and Bridges.
3. Steel for splice plates and fill plates shall conform to A.S.T.M. A7 structural carbon steel, or A.S.T.M. A373 steel for welding.
4. $\frac{3}{4}$ " high strength bolts shall be tightened to a minimum tension of 28,400 lbs. Tightening shall be done with properly calibrated wrenches or by the turn-of-nut method as provided in Section 410.3 B 16 of South Dakota Standard Specifications for Roads and Bridges.
5. All bolts in flange splices shall be placed with head down.
6. Bolts in web splices of exterior girders shall be placed with heads on exterior face of girders.
7. Triangular plates shown welded to flange and web near girder ends at welded splices shall be omitted when bolted splices are used.
8. Clip ends of intermediate stiffeners, if necessary, to clear flange splice plates.
9. If an intermediate stiffener is located in area of web splice plate, the intermediate stiffener may be shifted to clear.
10. If shear connectors are located in area of flange splice plates, shear connectors may be shifted and re-spaced to clear.
11. Any re-spacing or shifting of intermediate stiffeners and/or shear connectors shall be noted on the shop plans for approval by the Engineer.
12. When the Contractor elects to use the alternate bolted splice, the number of necessary bolts and plates will not be measured for payment.



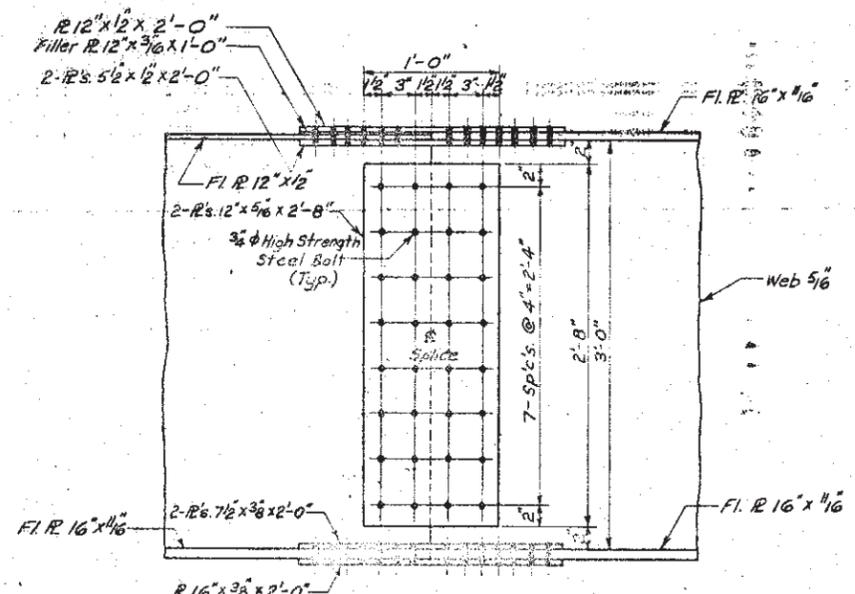
TOP VIEW



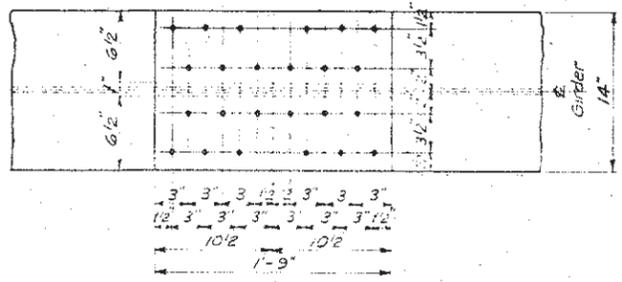
TOP VIEW



ELEVATION OF SPLICE

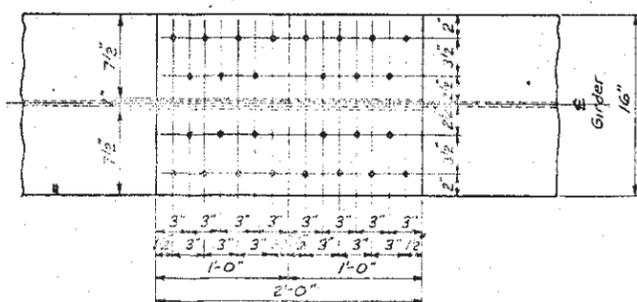


ELEVATION OF SPLICE



BOTTOM VIEW

TYPICAL BOLTED SPLICE
EXTERIOR GIRDER



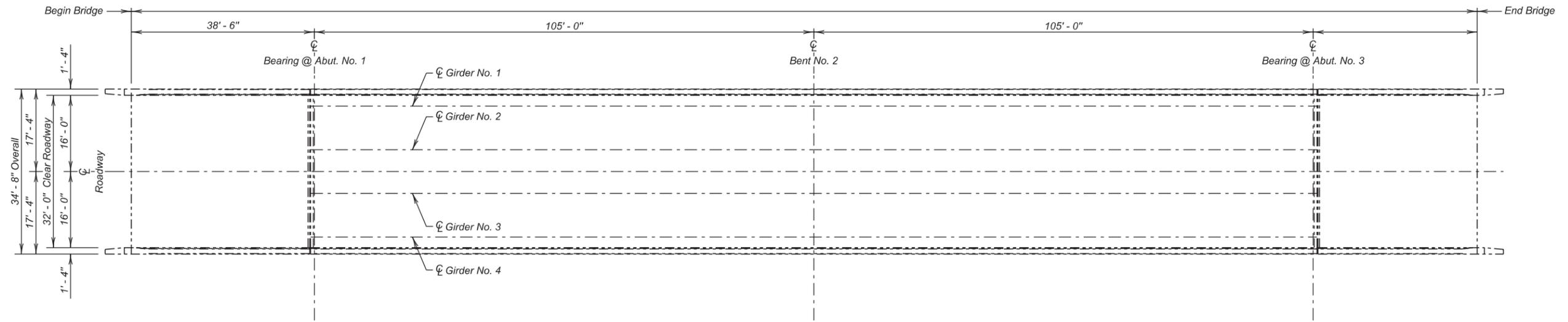
BOTTOM VIEW

TYPICAL BOLTED SPLICE
INTERIOR GIRDER

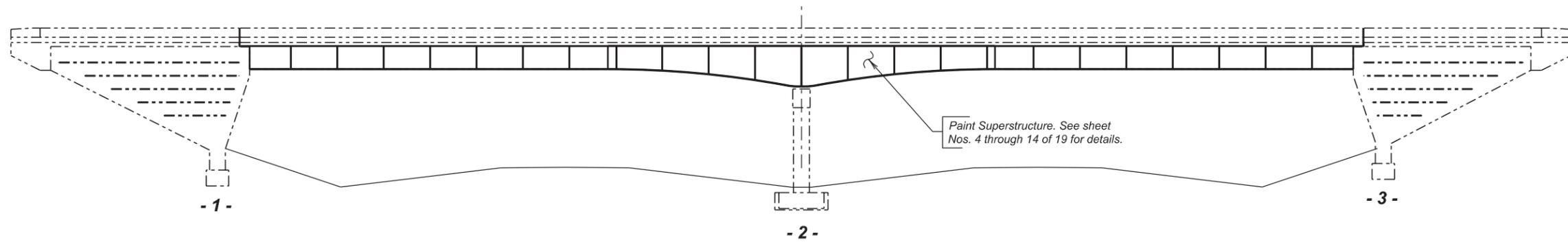
ORIGINAL CONSTRUCTION PLANS

STR. NO. 06-185-210
 DETAILS OF BOLTED FIELD SPLICE
 FOR
**STANDARD 282'-0" CONTINUOUS
 WELDED PLATE GIRDER UNIT**
 COMPOSITE SECTION
 30'-0" ROADWAY
 SOUTH DAKOTA
 DEPARTMENT OF HIGHWAYS

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	48	125



PLAN



ELEVATION

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Girder No. 1 Paint Details
- Sheet No. 5 - Girder No. 1 Paint Details (Continued)
- Sheet No. 6 - Girder No. 2 Paint Details
- Sheet No. 7 - Girder No. 2 Paint Details (Continued)
- Sheet No. 8 - Girder No. 3 Paint Details
- Sheet No. 9 - Girder No. 3 Paint Details (Continued)
- Sheet No. 10 - Girder No. 4 Paint Details
- Sheet No. 11 - Girder No. 4 Paint Details (Continued)
- Sheet No. 12 - Girder Paint Details At Bolted Splices
- Sheet No. 13 - Girder Paint Details
- Sheet No. 14 - Girder Paint Details (Continued)
- Sheet No. 15 thru 19 - Original Construction Plans

LAYOUT FOR UPGRADING
FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
STR. NO. 06-185-130 IM 0295(38)125
PCN 035C

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC01	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	49	125

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

NOTICE – LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans.

Clean and paint portions of the existing girders and all of the bearings as shown be these plans.

PAINT RESIDUE REMOVAL AND CONTAINMENT

- Paint Residue Removal and Containment shall be performed in accordance with Section 412 of the Construction Specifications, Bridge Repainting Class II except as modified by these notes.
- The Contractor shall plan his operations to prevent releases of lead containing material and other particulate matter into the surrounding air, water, and onto the ground, soil, slope protection, and pavement. The Contractor shall be responsible for any corrective actions should a spill occur.

- Collect all visible paint particles and blasting residue containing paint at the end of each workday from the work area. Inspect outside the containment and collect any paint particles or blasting residue that escaped the work area. Collect waste material by manual means, vacuum, or another method approved by the Engineer. Do not use air pressure or streaming water to assist in the waste collection process that could disperse the waste material.

- In the event of a spill or inadvertent release, the Contractor shall immediately stop work, notify the Engineer, and report the release to the South Dakota Department of Environmental and Natural Resources (DENR). The Contractor shall be responsible for completing a spill reporting form and for all costs associated with appropriate corrective actions.

To report a release or spill, call DENR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at (605) 773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the Contractor must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

- The Contractor shall haul and unload the 55 gallon containment drums with paint residue, blasting media, etc. to the SDDOT Maintenance Yard located in Brookings for temporary storage. The Brookings Maintenance Yard is located at 2131 34th Avenue. Contact person for the Brookings Yard is John Rittershaus at (605) 688-5001 or Matt Brey at (605) 882-5166. All costs associated with this work shall be included in the contract lump sum price for "Paint Residue Containment".

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS

- Pack rust areas within the areas defined for painting in the Bridge Repainting Class II notes shall be treated with a rust penetrating sealer. The rust penetrating sealer shall be applied after the area has been cleaned and prepared for painting as specified in the Bridge Repainting, Class II notes but prior to the application of the final paint system. Pack rust areas are those defined as joints in connecting plates and/or crevice areas (locations noted as apply rust inhibitor on the plan sheets).

- The rust penetrating sealer shall be supplied as one of the following:

2.1 Pre-Prime 167
Penetrating Sealer
International
South Dakota Area Manager: Kevin Perego
Telephone: 636-207-8897
Cell: 314-540-8925
Website: www.international-pc.com

2.2 Wasser MC-PrepBond 2.8
Wasser Corporation
4118 B Place NW Suite B
Auburn, WA 98001
Telephone: 800-627-2968
Website: www.wassercoatings.com

2.3 Time-Lock MoPoxY PRE-PREP
Rust Penetrating Sealer 41-AF-2
BLP Mobile Paints
P.O. Box 717
Theodore, Alabama 36590-0717
Telephone: 251-443-6110
Website: www.blpmobilepaint.com

2.4 Rust Bullet Standard Formula
Rust Bullet, LLC
300 Brinkby Avenue, Suite 200
Reno, NV 89509
Telephone: 800-245-1600
Website: www.rustbullet.com

The rust penetrating sealer shall be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

- Remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed.
- Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the paint system specified in Section 412 of the Construction specifications until the area has cured for the amount of time specified by the manufacturer of the rust penetrating sealer.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 283' - 0" CONT. COMP. GIRDER BRIDGE

STR. NO. 06-185-130

JANUARY 2015

2 OF 19

DESIGNED BY NP DUELO3EC	CK. DES. BY EJA 035CRC02	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	50	125

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS (CONTINUED)

- For informational purposes, 150 square feet of structural steel will require rust penetrating sealer.
- The cost of furnishing and applying the rust penetrating sealer and all other items incidental to the application of this sealer shall be included in the contract lump sum price for "Rust Penetrating Sealer".

BRIDGE REPAINTING, CLASS II

- Portions of the existing girders, diaphragms, bolted splices and bearings shall be painted as shown by these plans and in accordance with the requirements for Bridge Repainting, Class II in Section 412 of the Construction Specifications except as modified by these notes.
- After blast cleaning the surfaces to be painted, remove any trace of blast products, dust or dirt from all surfaces including pockets and corners as approved by the Engineer.
- The color of the top coat shall be an approved green (Federal Standard 595B Color 24108). The prime coat and the top coat shall sharply contrast.
- For informational purposes, 5,780 square feet of structural steel will require painting. For a breakdown of the paint required for all of the portions of the bridge, see sheet nos. 4 through 14 of 19 of the plans.

BOLTED SPLICE PLATE SEALANT

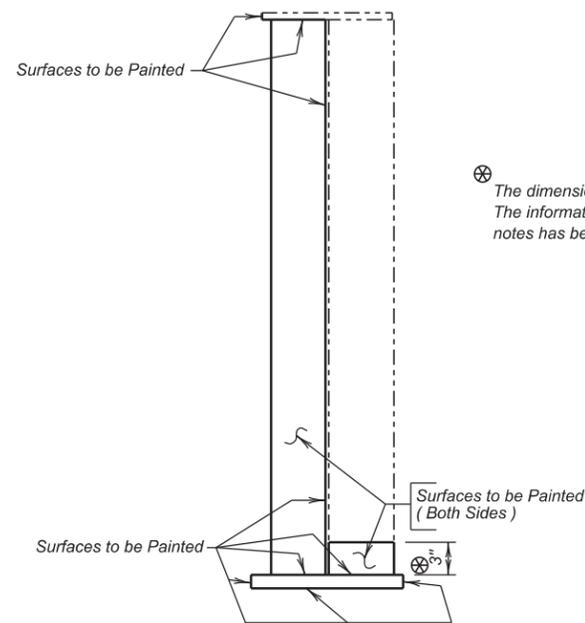
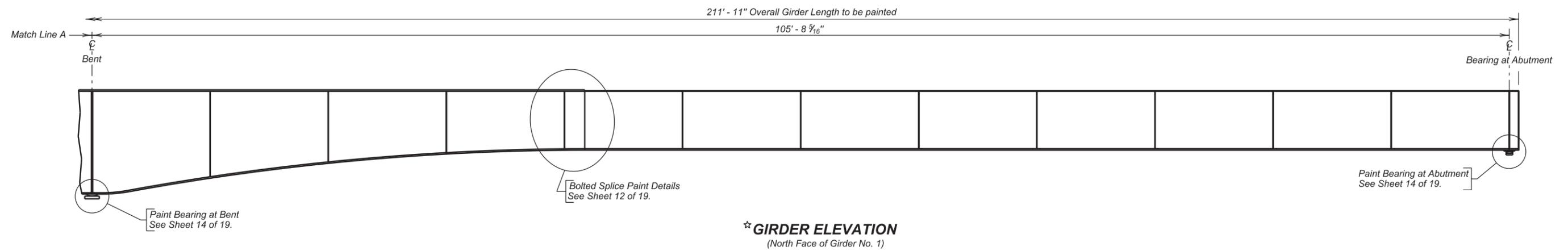
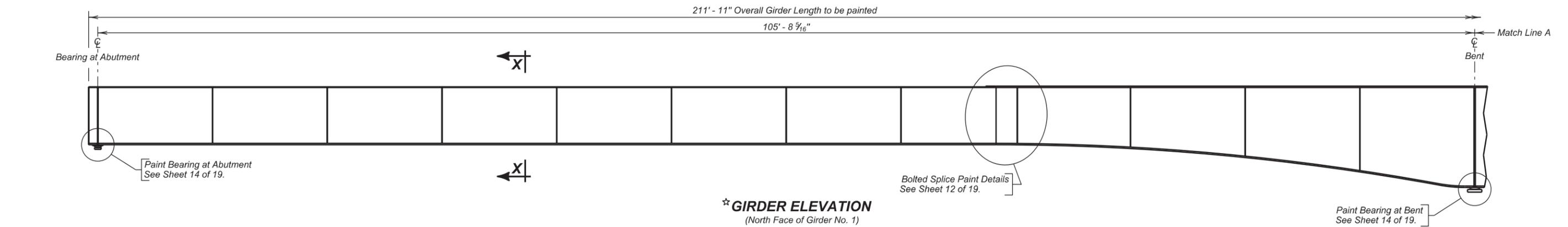
- The edges of all bolted splice plates shall be sealed using a Polyurethane Sealant.
- The Polyurethane Sealant shall meet the following requirements. The sealant shall be a single component, moisture cure, non-sag, smooth formulation, gun-grade elastomeric sealant. The sealant shall meet the requirements for ASTM C-920, Type S, Grade NS, Class 25, Use-A.
- Contact surfaces shall be cleaned in accordance with the manufacturer's recommendations. The Contractor shall supply the Engineer with written instructions regarding the manufacturer's recommended surface treatment for the in-place surface condition at least 48 hours before application for review and acceptance.
- The Polyurethane Sealant shall be applied and tooled as recommended by the manufacturer. Product data sheets and Material safety data sheets shall be supplied to the Engineer at least one week prior to installation. In no case shall the thickness of the material be less than 1/4". Feathering of the joint material shall not be allowed. Adjacent surfaces shall be masked to avoid application of the material outside the limits of the final seal. Application surfaces shall be clean and free of material contaminants. Application shall not be allowed on a wet or damp surface.
- Polyurethane Sealant shall be installed and allowed to cure prior to the application of any field applied paint.
- For informational purposes only the sealant will be applied on 406 linear feet.
- Polyurethane Sealant for Structure shall be included in the lump sum price for "Bridge Repainting, Class II." Payment will be full compensation for labor, equipment, materials and incidentals for furnishing, preparing surfaces for application and installing the Polyurethane Sealant.

NOTES (CONTINUED)
FOR
283' - 0" CONT. COMP GIRDER BRIDGE
STR. NO. 06-185-130
JANUARY 2015

(3) OF (19)

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC03	DRAFTED BY EJA <i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	51	125



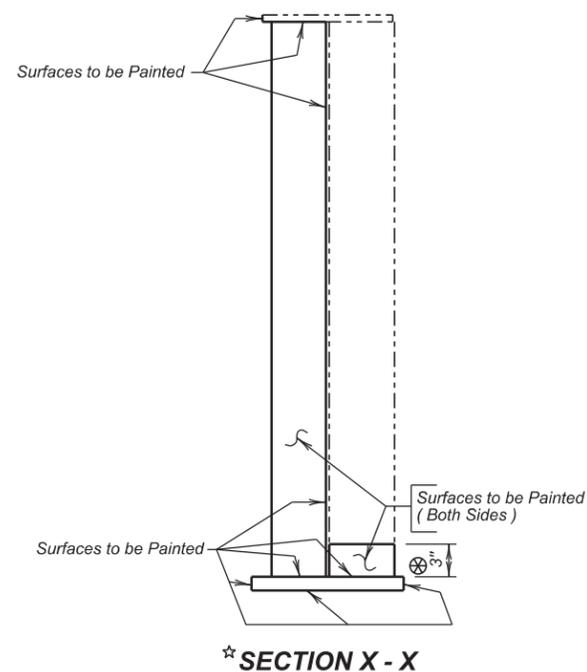
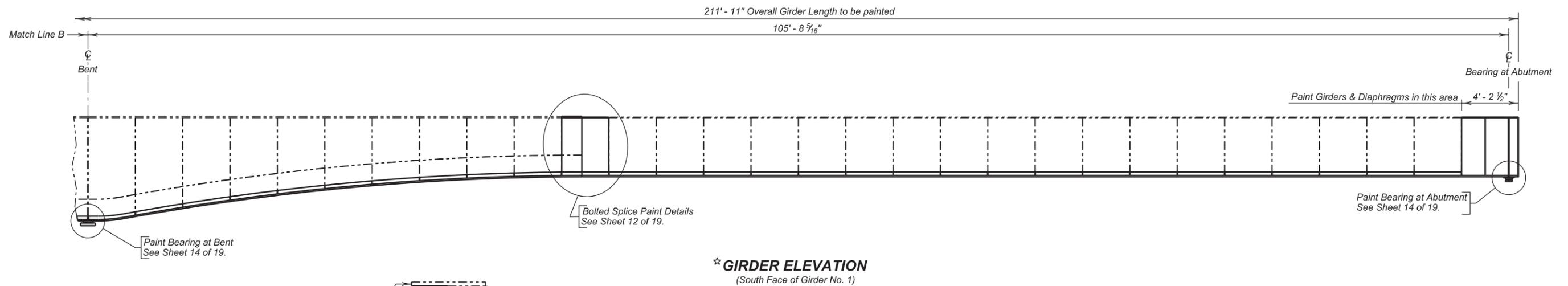
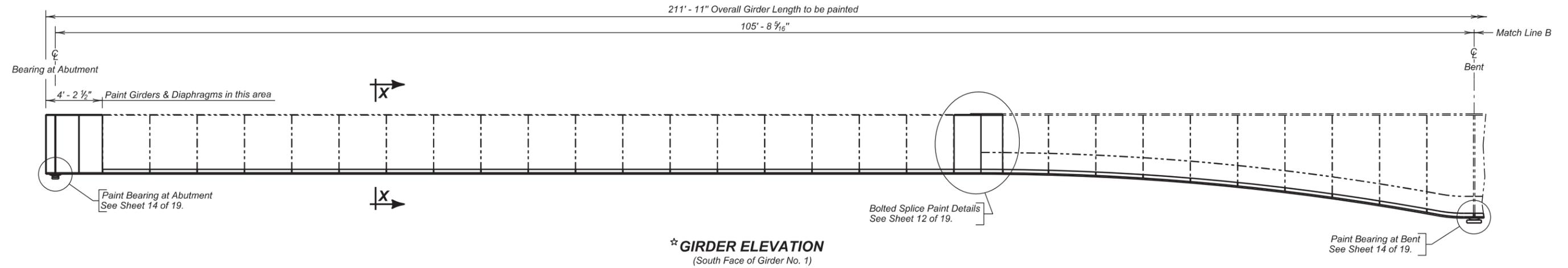
★ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 1 PAINT DETAILS
FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
STR. NO. 06-185-130 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUJEL035C	CK. DES. BY EJA 035CRC04	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	52	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

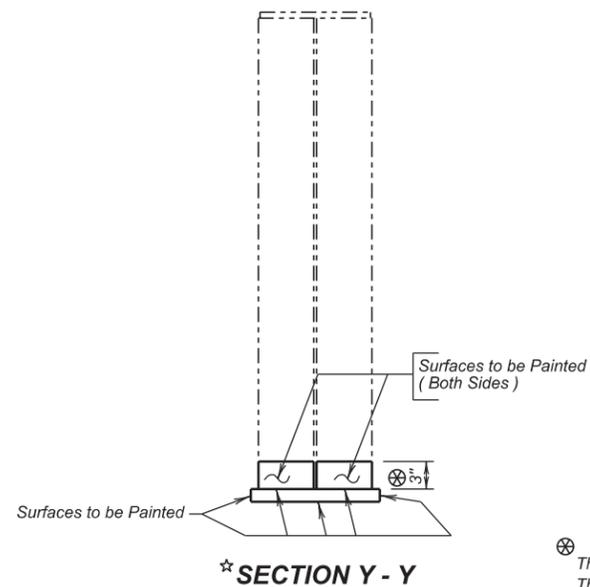
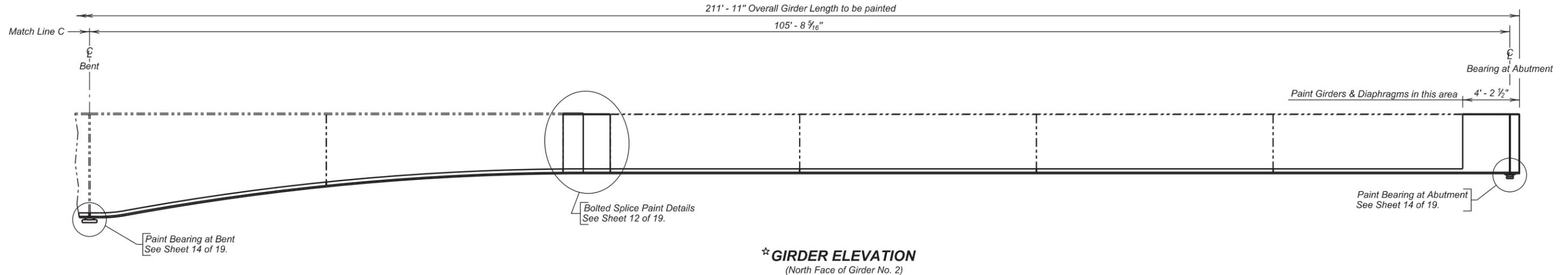
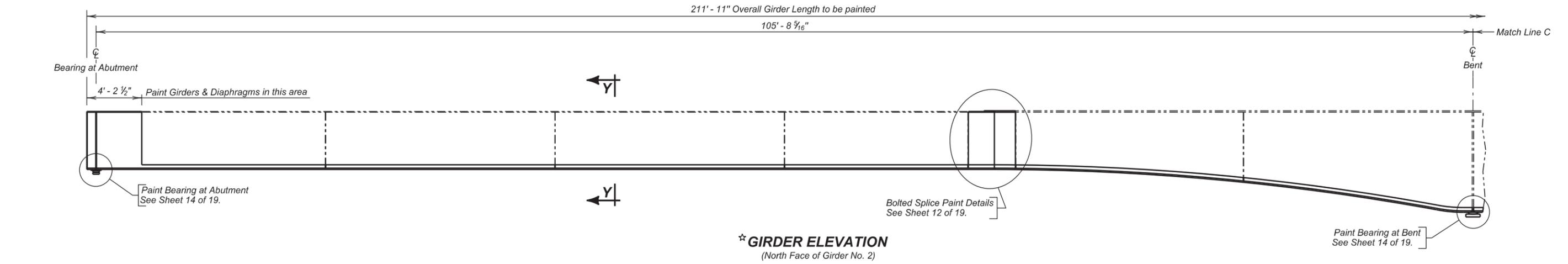
GIRDER NO. 1 PAINT DETAILS (CONTINUED)

FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
STR. NO. 06-185-130 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC05	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	53	125



☆ Note: New paint areas are shown bounded by solid object lines.

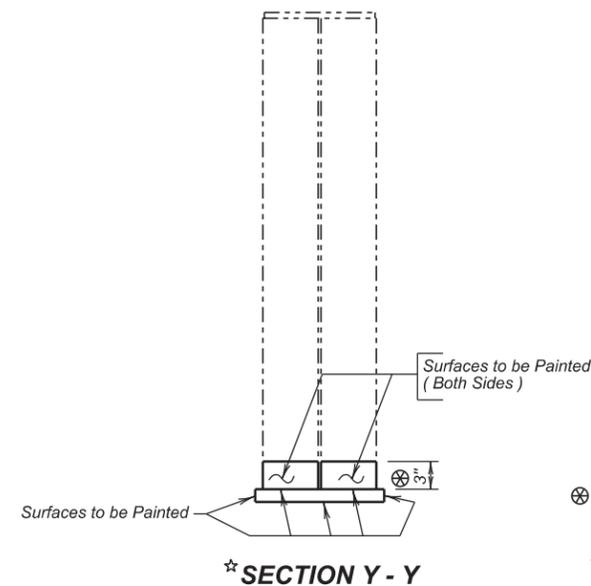
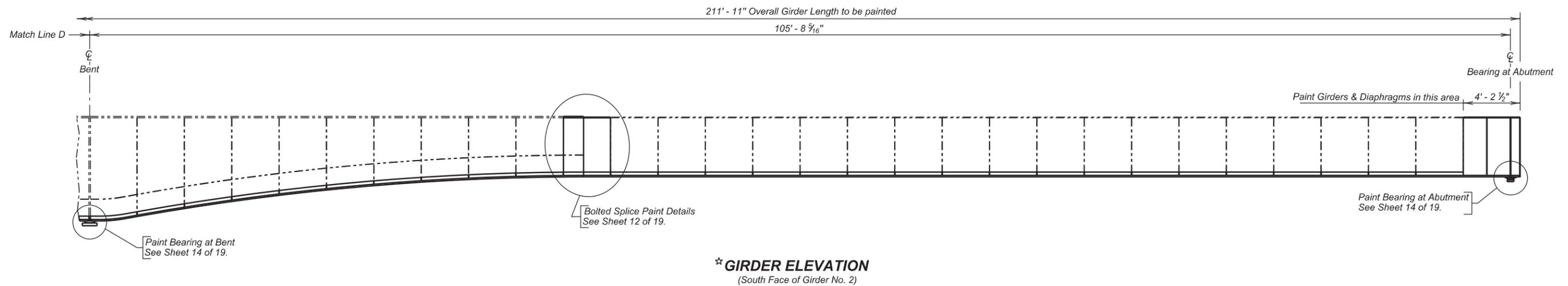
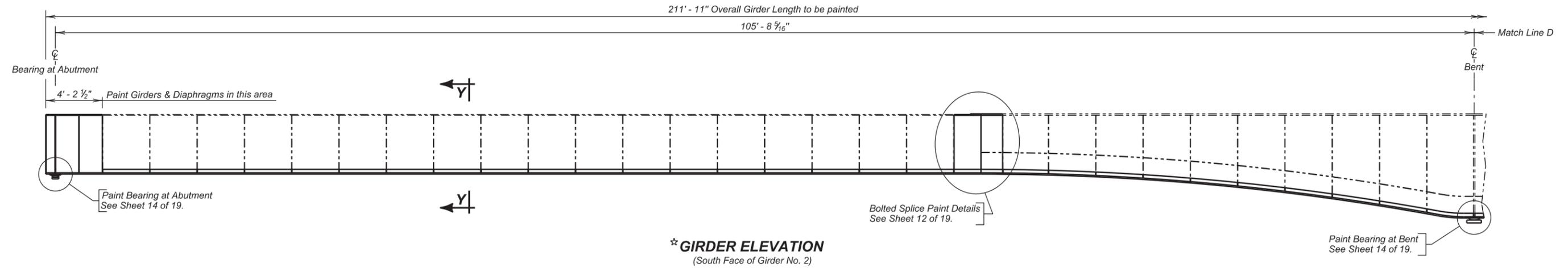
⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

GIRDER NO. 2 PAINT DETAILS
FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
STR. NO. 06-185-130 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC06	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	54	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

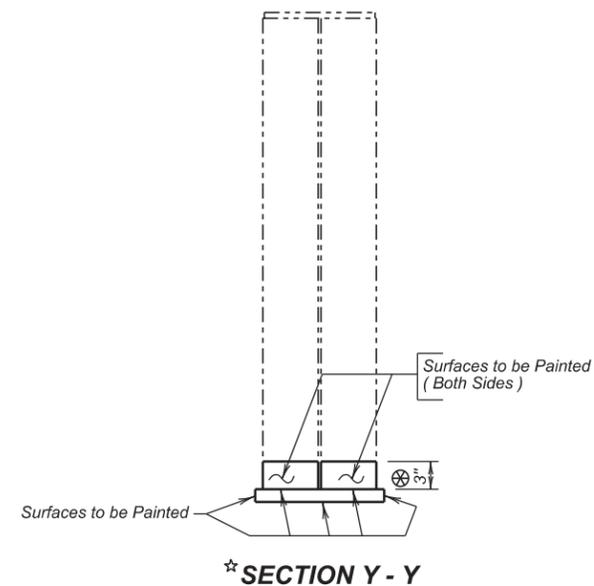
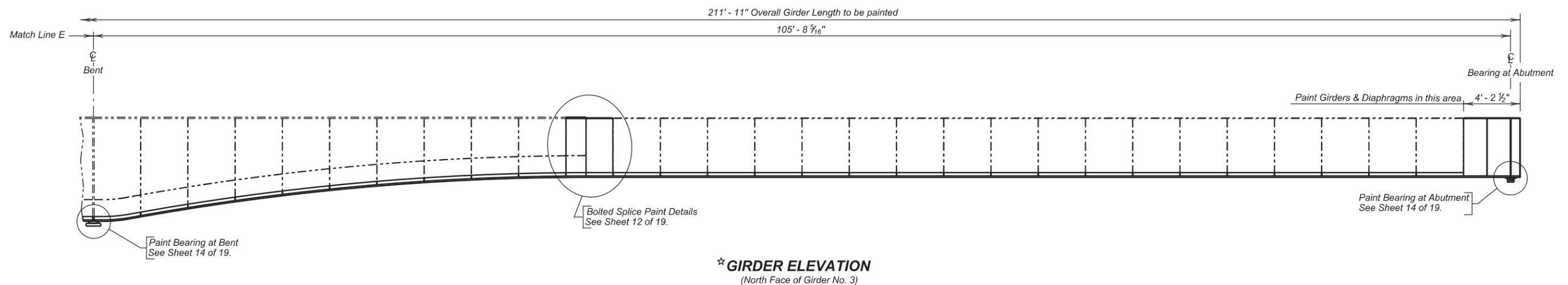
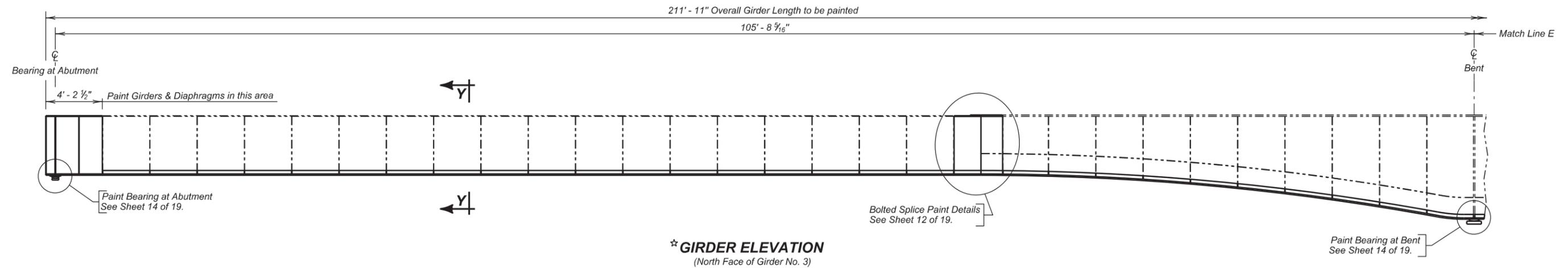
GIRDER NO. 2 PAINT DETAILS (CONTINUED)

FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
STR. NO. 06-185-130 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC07	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	------------------------------------

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	55	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

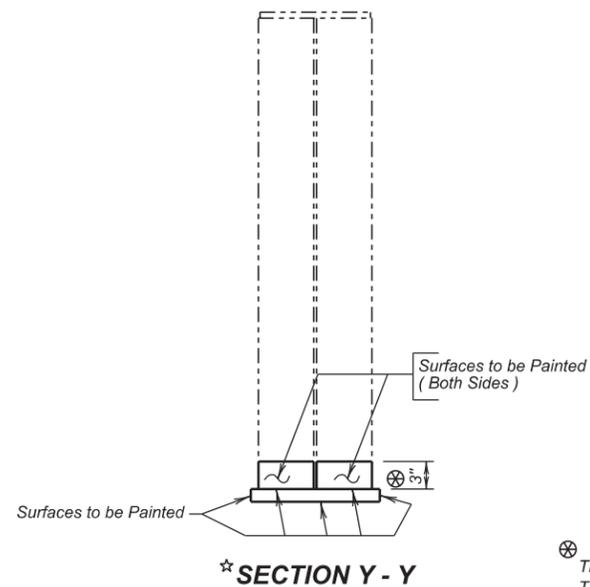
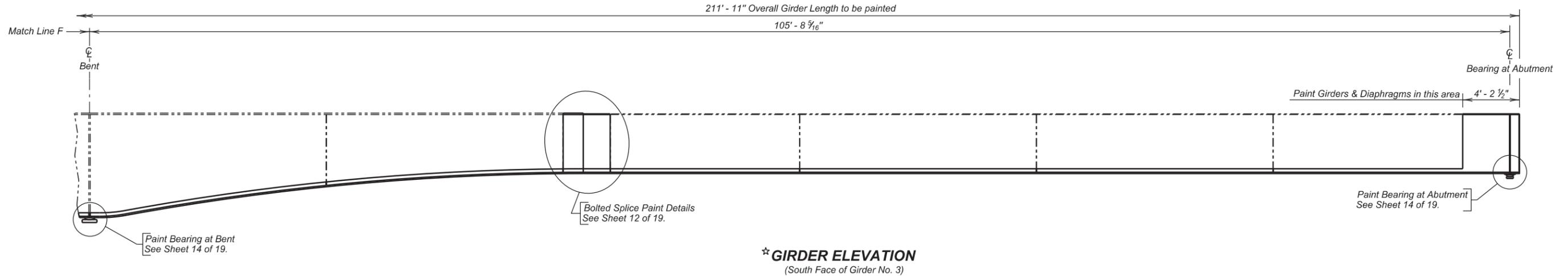
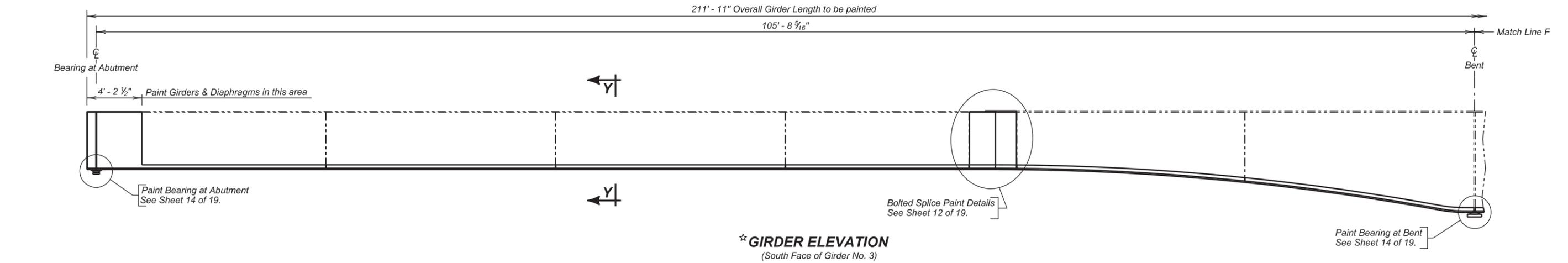
GIRDER NO. 3 PAINT DETAILS

FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
STR. NO. 06-185-130 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC08	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	------------------------------------

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	56	125



★ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

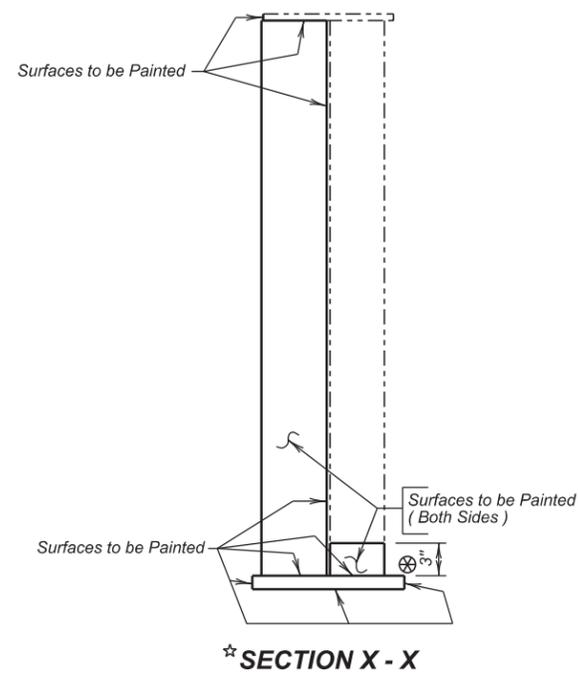
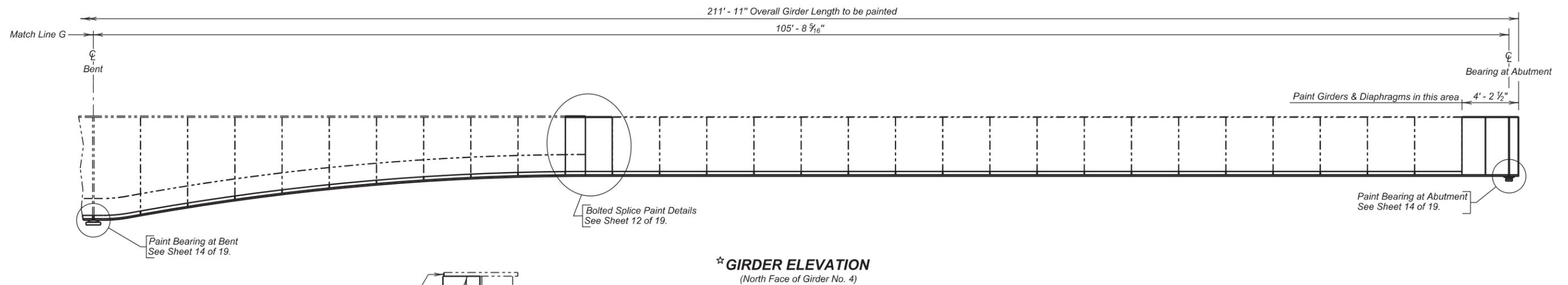
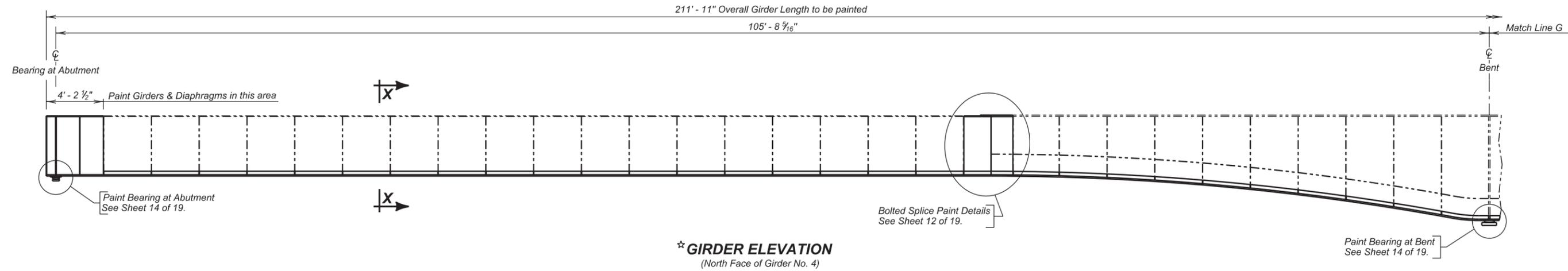
GIRDER NO. 3 PAINT DETAILS (CONTINUED)

FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
STR. NO. 06-185-130 IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC09	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	------------------------------------

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	57	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

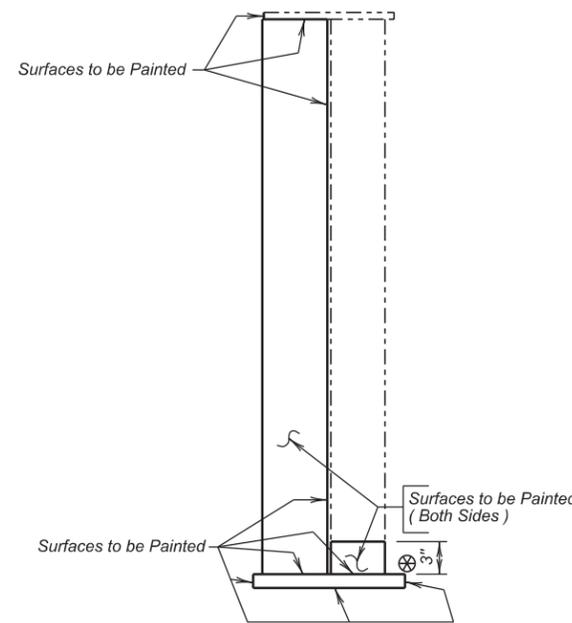
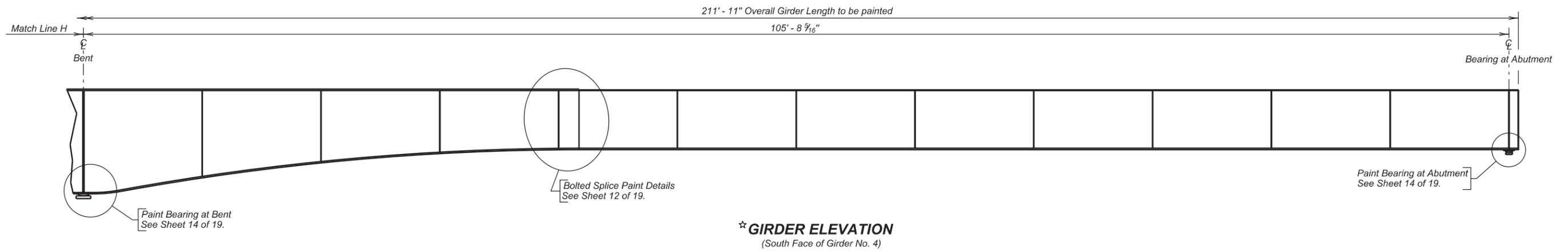
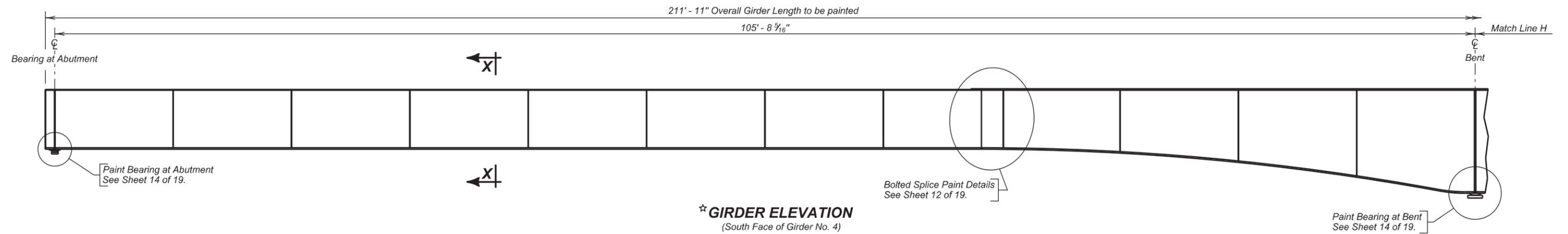
GIRDER NO. 4 PAINT DETAILS
FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-130

0° SKEW
SEC. 6/7-T110N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC10	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	------------------------------------

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	58	125



★ **SECTION X - X**

★ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

GIRDER NO. 4 PAINT DETAILS (CONTINUED)

FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
32' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-130

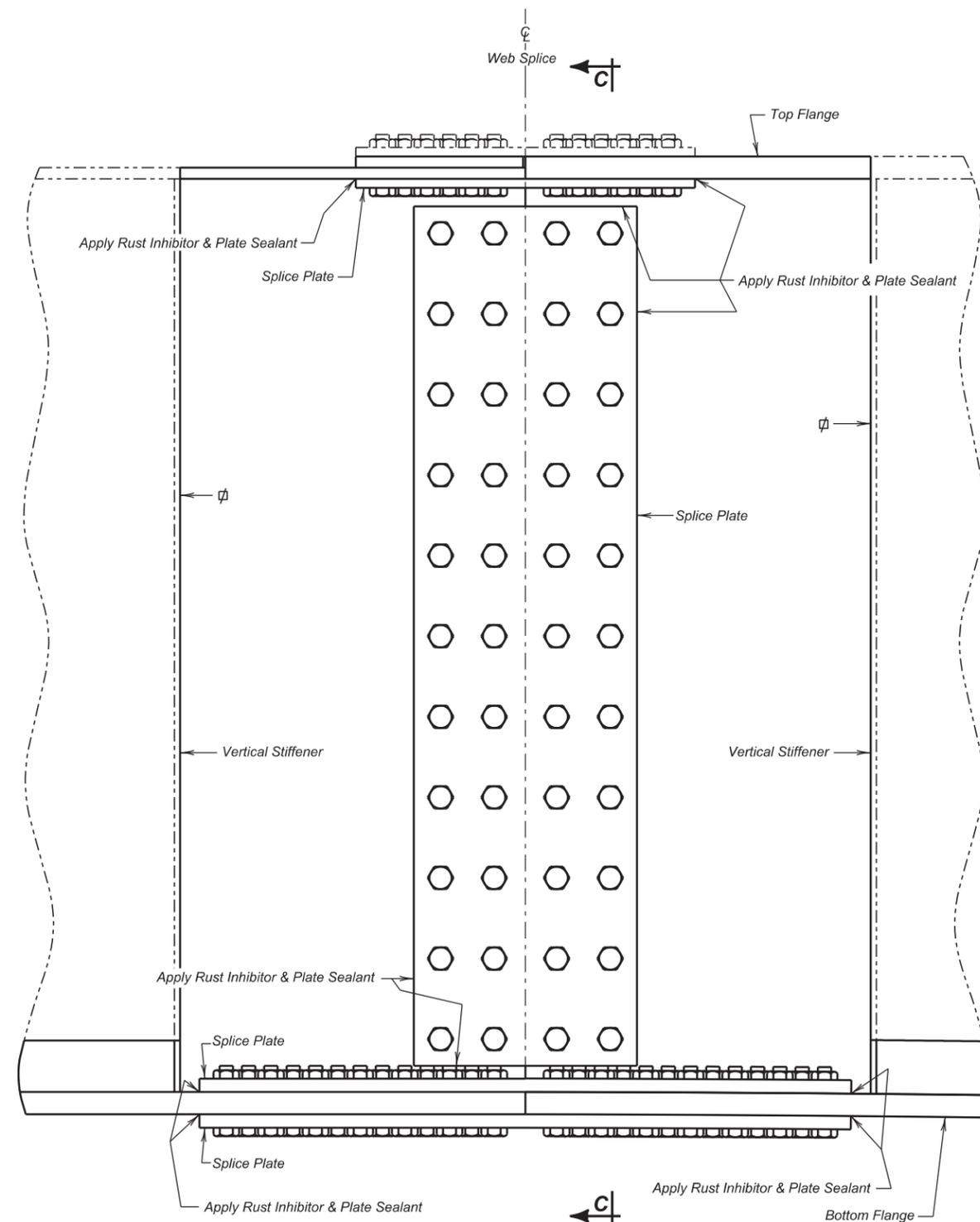
0° SKEW
SEC. 6/7-T110N-R49W
IM 0295(38)125

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION

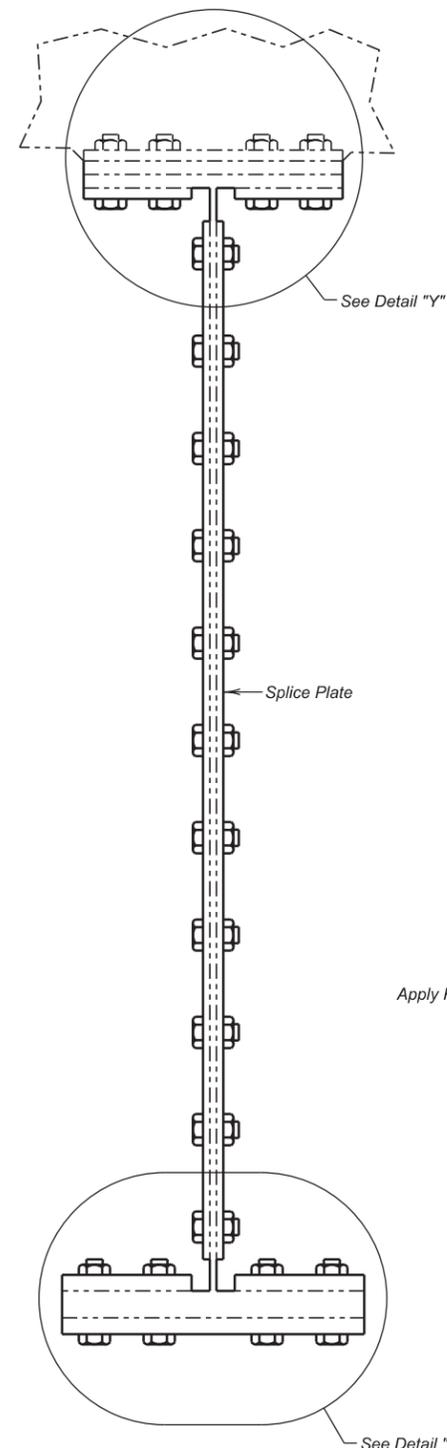
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC11	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	---

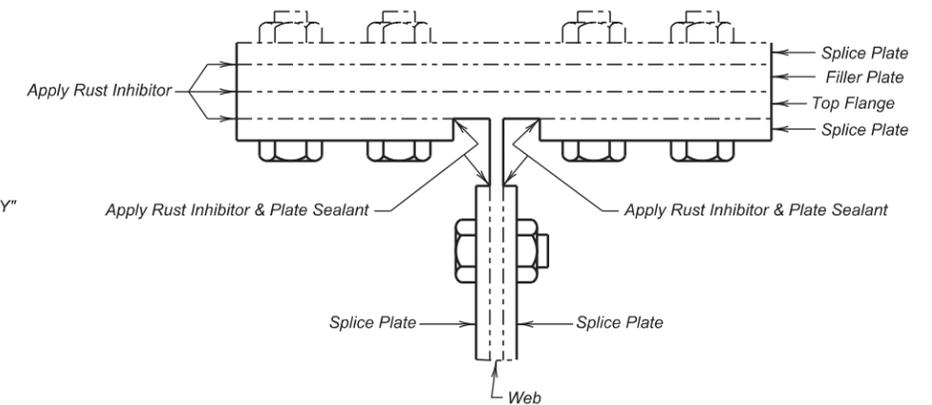
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	59	125



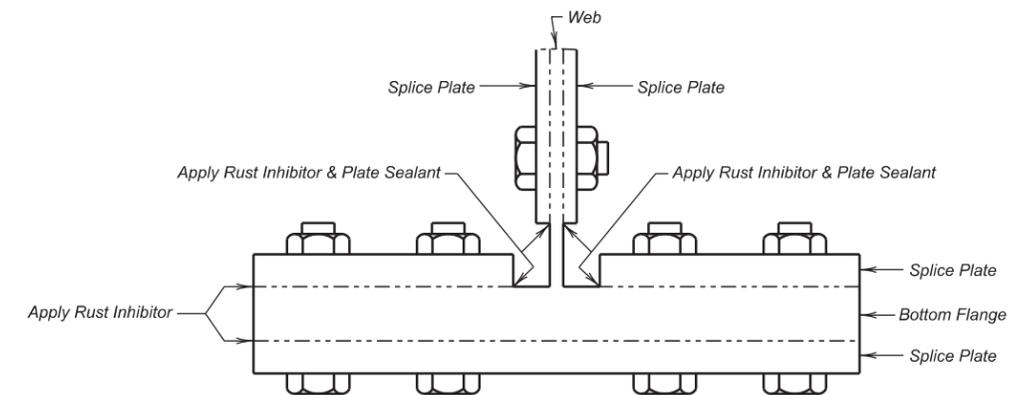
ELEVATION OF BOLTED SPLICE



SECTION C - C



DETAIL "Y"



DETAIL "Z"

GIRDER PAINT DETAILS AT BOLTED SPLICES

FOR

283' - 0" CONTINUOUS COMP. GIRDER BRIDGE

32' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 6/7-T110N-R49W

STR. NO. 06-185-130

IM 0295(38)125

BROOKINGS COUNTY

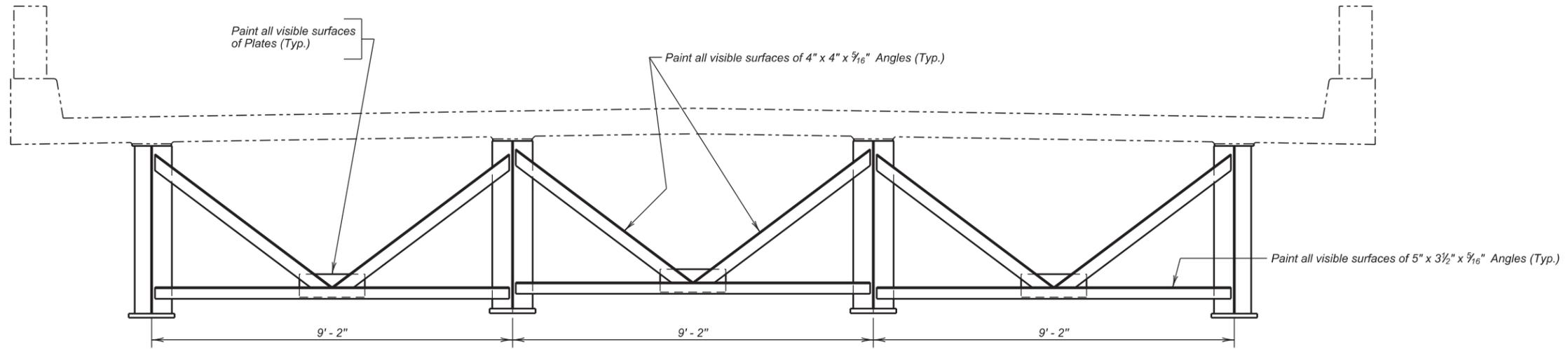
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

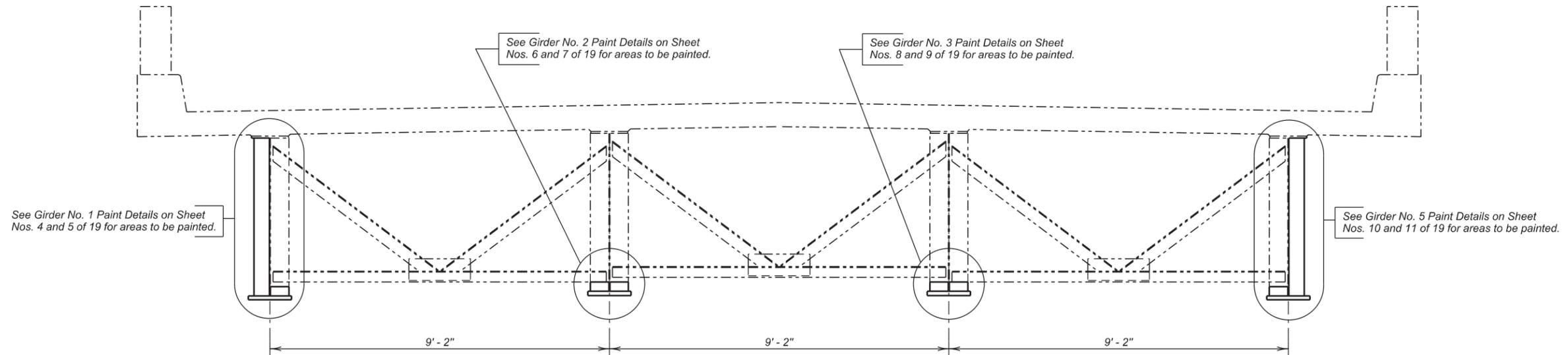
∅ For inside face of the exterior girder and both faces of the interior girders the limit for painting shall be to the nearest vertical stiffener from centerline of splice or a maximum of two feet from the centerline of girder splice.

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC12	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	60	125



TYPICAL GIRDER SECTION AT ABUTMENT

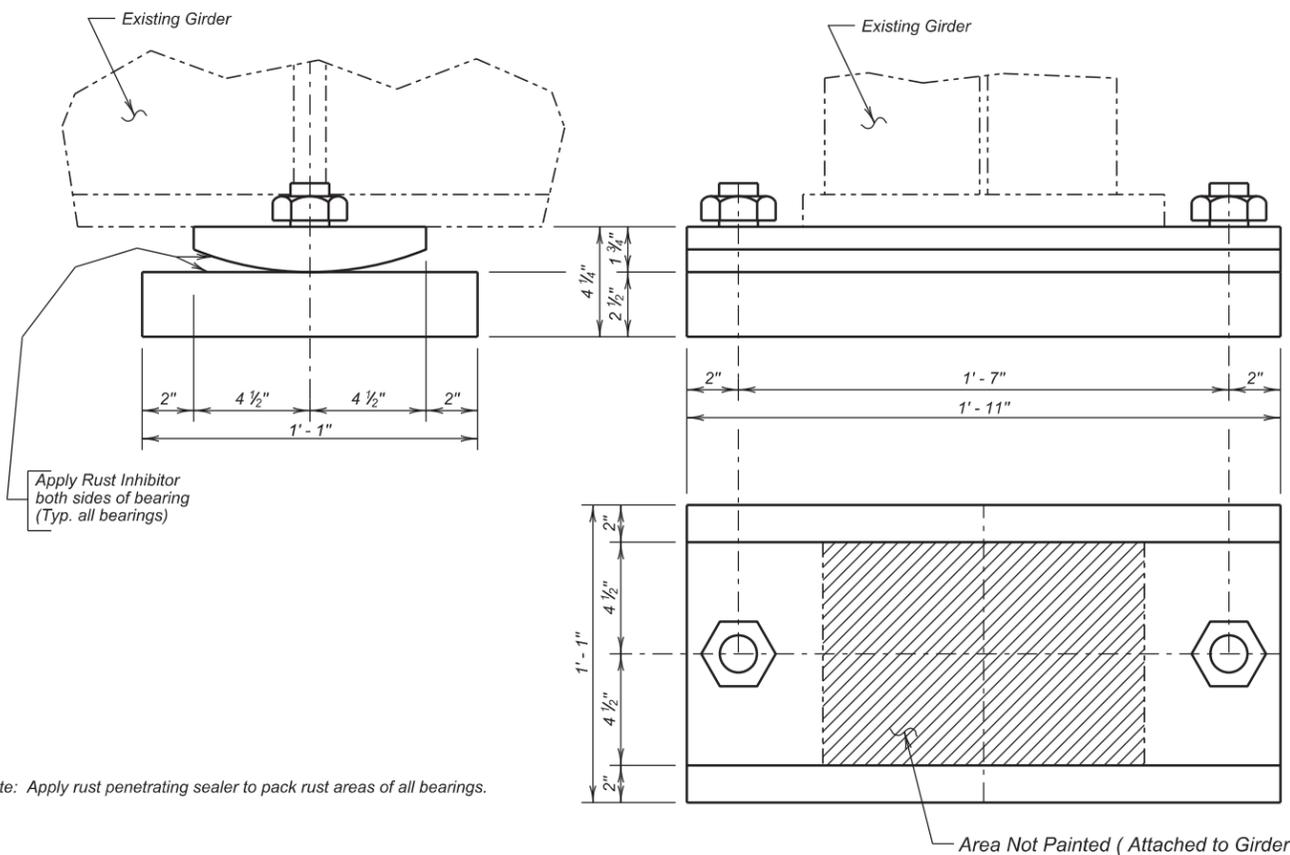


TYPICAL GIRDER SECTION

GIRDER PAINT DETAILS
 FOR
283' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 32' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 6/7-T110N-R49W
 STR. NO. 06-185-130 IM 0295(38)125

BROOKINGS COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

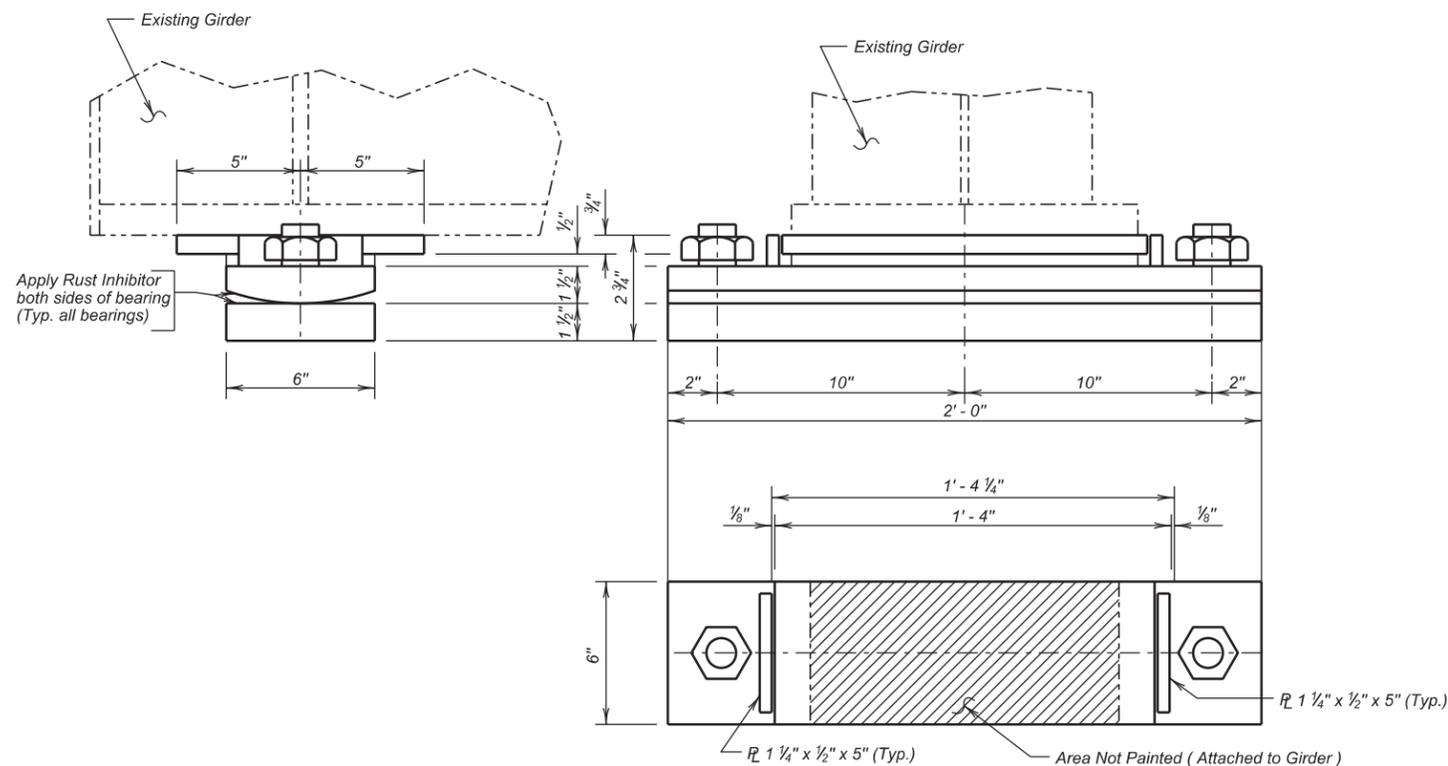
DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRC13	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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Note: Apply rust penetrating sealer to pack rust areas of all bearings.

BEARINGS AT BENT

(Paint all visible surfaces of each bearing)



BEARINGS AT ABUTMENTS

(Paint all visible surfaces of each bearing)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
△ Bridge Repainting, Class II	LS	Lump Sum
* Rust Penetrating Sealer	LS	Lump Sum
Paint Residue Containment	LS	Lump Sum

△ For informational purposes, the area of structural steel to be painted is 5,780 square feet.

* For informational purposes, the area of structural steel to be coated with Rust Penetrating Sealer is 150 square feet.

GIRDER PAINT DETAILS (CONTINUED)

FOR

283' - 0" CONTINUOUS COMP. GIRDER BRIDGE

32' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 6/7-T110N-R49W

STR. NO. 06-185-130

IM 0295(38)125

BROOKINGS COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

**-X771-
INDEX OF BRIDGE SHEETS-**

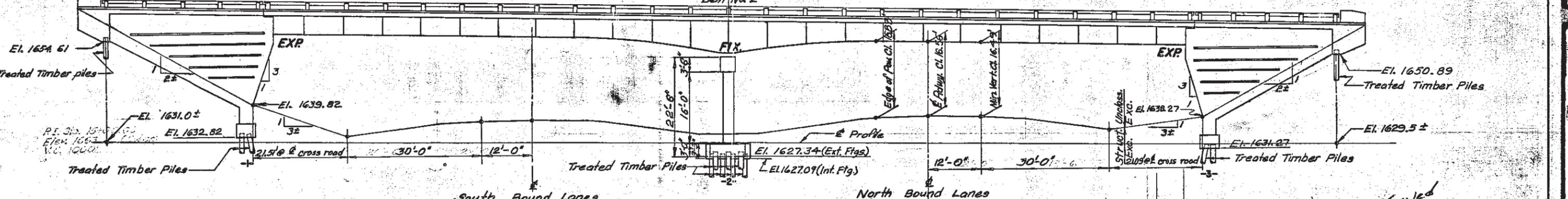
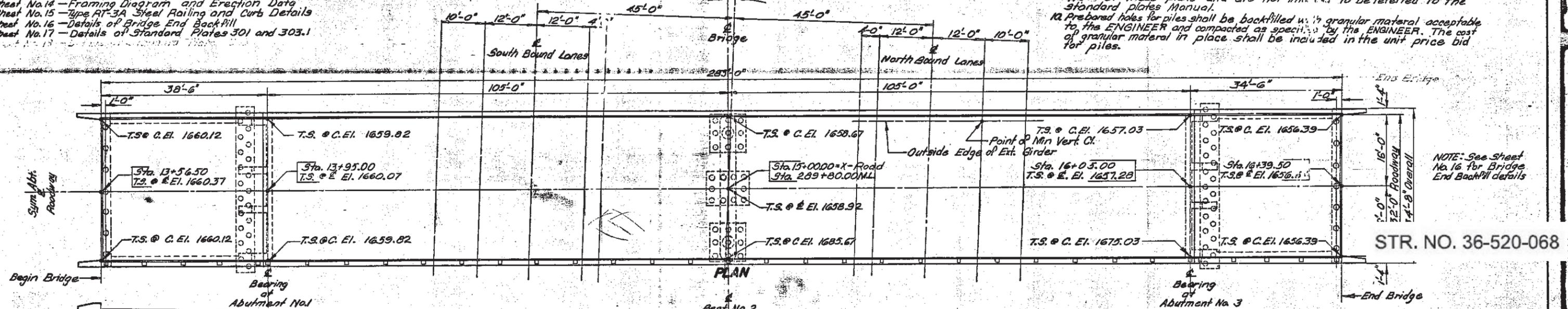
- Sheet No. 1 - General Drawing and Quantities
- Sheet No. 2 - Subsurface Investigations
- Sheet No. 3 - Details of Abutment No. 1
- Sheet No. 4 - Details of Abutment No. 1
- Sheet No. 5 - Details of Abutment No. 3
- Sheet No. 6 - Details of Abutment No. 3
- Sheet No. 7 - Abutment Details
- Sheet No. 8 - Abutment Details
- Sheet No. 9 - Bent Details
- Sheet No. 10 - Slab and Diaphragm Details
- Sheet No. 11 - Girder Layout and Details
- Sheet No. 12 - Details of Expansion Device
- Sheet No. 13 - Details of Field Splice and Bearing
- Sheet No. 14 - Framing Diagram and Erection Data
- Sheet No. 15 - Type RT-3A Steel Railing and Curb Details
- Sheet No. 16 - Details of Bridge End Backfill
- Sheet No. 17 - Details of Standard Plates 301 and 303.1

SPECIFICATION NOTE-
Use South Dakota Standard Specifications for road and bridges, 1969 Edition, and Required Provisions, Supplemental Specifications and/or Special provisions as included in the Proposal. All concrete shall be Class 'A' Type II Cement. Contractor may use Type I cement instead of type II provided it is done at no additional cost to the State.

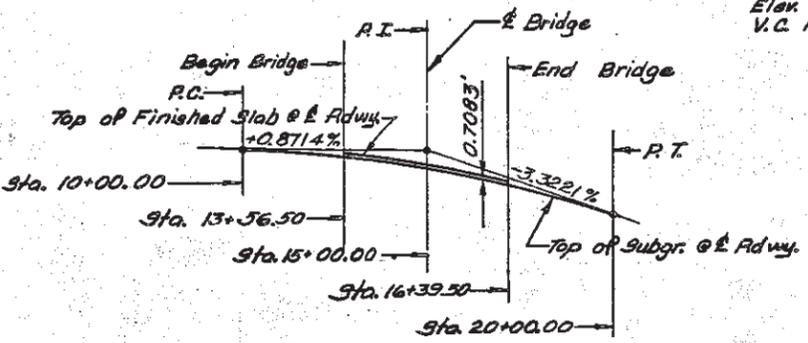
- GENERAL NOTES-**
1. Design Specifications: A.A.S.H.O. Specifications for Highway Bridges 1965, with Interim Specifications for 1966 and 1967.
 2. See NOTES on Sheets 1 through 17.
 3. Longitudinal elements of the slab shall conform to the vertical curve.
 4. Rail posts and end blocks shall be built normal to grade.
 5. All Reinforcing Steel shall conform to A.S.T.M. Specifications A 305 and A15, Intermediate grade.
 6. Design Loading: HS 20-44 A.A.S.H.O.
 7. The contractor shall have sufficient pile driving material on hand before pile driving is started. See standard Plate No. 303.1 for splice details.
 8. In the event pile shoes are used see Std. plate No. 301 for details.
 9. Std. plates referred to in these plans are the plates printed on sheets No. 17 of these plans and are not intended to be referred to the Standard plates Manual.
 10. Prepared holes for piles shall be backfilled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for piles.

B.M. No. 2 El. 1687.82
3/4 Rebar in fence line
22.5' Lt. Sta. 20+28

B.M. No. 3 El. 1692.11
3/4 Rebar in fence line
25.42 Lt. Sta. 27+72



NOTE-
T.S. @ C. El. = Top of Slab at Curb Elevation
T.S. @ E. El. = Top of Slab at Centerline Roadway Elevation.



P.I. Sta. 15+00.00
Elev. 1663.70 (Subgr.)
V.C. 1000'

ESTIMATED QUANTITIES

BID ITEM NO.	40005	40505	40535	40705	40710	10410	10405	10721
ITEM	Cl. 'A' Conc. Cu. Yds.	Steel - Lbs.	Type RT-3A Railing	Timber Piles - Lin. Ft.	Excavation - Cu. Yds.	Struct.	Unless	Bridge End Backfill & Pump Sum
Superstructure	198.1	50,400	169,475	75'	6 @ 60' = 360'	10 @ 65' = 650'	110	
Abutment No. 1	166.1	39,425	350	75'	20 @ 40' = 800'	10 @ 45' = 450'		
Bent No. 2	51.6	7,890			27 @ 35' = 945'	10 @ 40' = 400'	90	
Abutment No. 3	149.0	36,610	350	67'	6 @ 55' = 330'	10 @ 60' = 600'	110	
Totals	565.1	134,925	170,175	566'	3,135'	2,500'	310	Flump Sum

One Treated Timber Test Pile shall be driven at Abutments No. 1 and No. 3 and at bent No. 2 before the remaining piles are ordered.
For information only, the approximate volume of granular Backfill will be 70 Cu. Yds. in place and the length of 6" Perforated Metal pipe will be 80 feet.
Unclassified Excavation to be done by Grading Contractor.

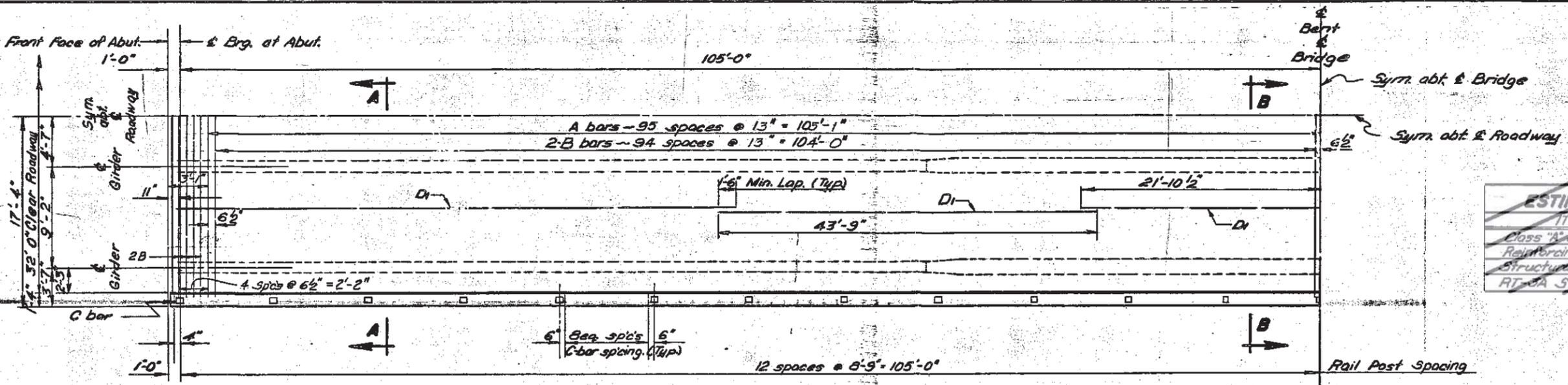
10/11/61	165.0	39,425	184	391	20.9
8/2/62	165.4	260.7	71.9	23.2	11.7
10/13/68	168.5	438.2	34.3	22.6	12.8
TOTAL	274.5	236.2	349.4	167.7	46.4

Filed
7-8-72
STR. NO. 06-185-130
ORIGINAL CONSTRUCTION PLANS

**GENERAL DRAWING AND QUANTITIES
FOR
283'-0" CONT. COMP GIRDER VIADUCT
32'-0" ROADWAY
OVER I.S. NO. 23 STA. 289+80.00 M.L. SEC. 6/7-T110N-R49W
STA. 13+56.50 TO 16+39.50 I 29-5(10)134
BROOKINGS COUNTY
Str. No. 06-185-130 SOUTH DAKOTA HS20-44
DEPARTMENT OF HIGHWAYS
MAR. 1969 (15) OF 19**

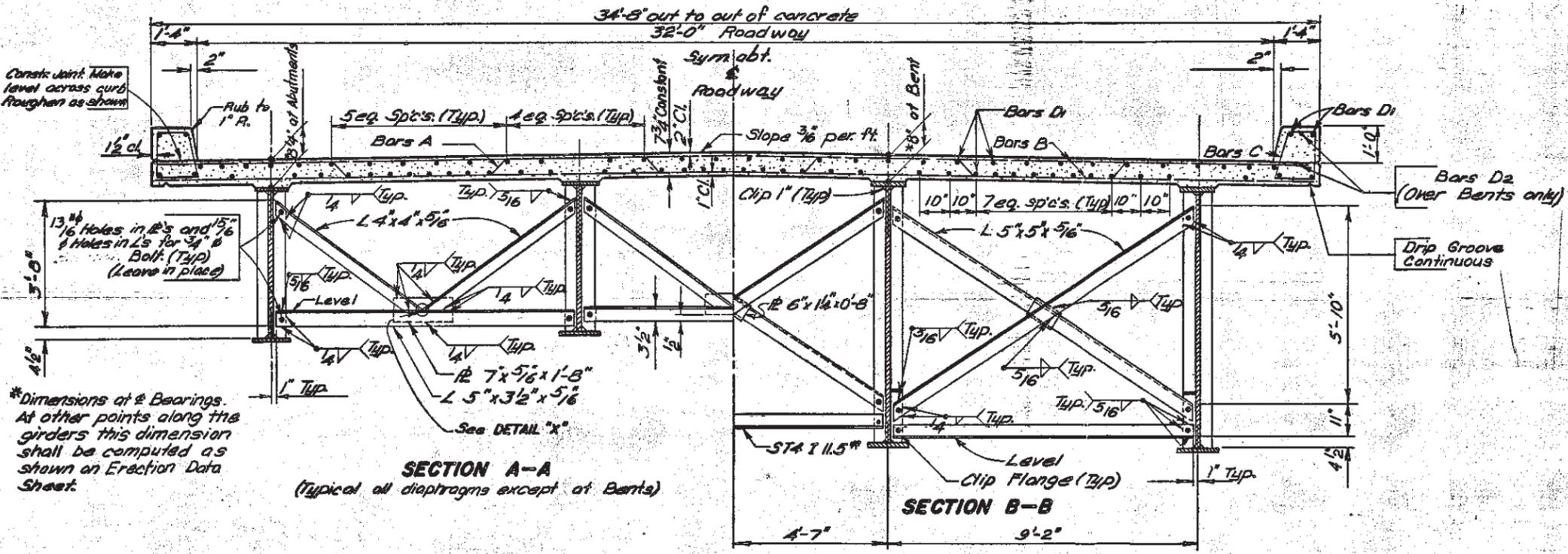
PLANS BY
BRIDGE SEC. S.DAK. DEPT. HWYS.

DESIGNED BY
DRAWN BY
CHECKED BY
APPROVED



QUARTER PLAN

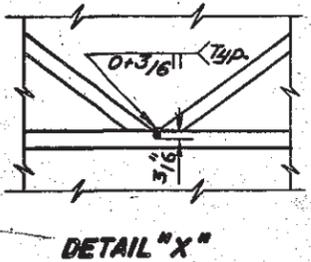
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class 'A' Concrete	Cu. Yds.	193.1
Reinforcing Steel	Lbs.	50,460
Structural Steel	Lbs.	169,475
RT-11A Steel Railings	Lin. Ft.	424



SECTION A-A
(Typical all diaphragms except at Bents)

SECTION B-B

*Dimensions at & Bearings. At other points along the girders this dimension shall be computed as shown on Erection Data Sheet.



DETAIL "X"

CONCRETE POURING NOTES-
 Concrete Slab may be poured continuously provided approved concrete retarders are used and the contractor has demonstrated capacity for such continuous operations.
 Transverse Construction joints are permitted in the slab and shall be positioned near the girder field splices or at approximately the 3 points from & of Bent.
 If transverse Construction joints are used the contractor shall Submit to the Bridge Section for approval, plans and details of construction joints used, as well as sequence of pouring.
 Curbs shall be poured after all the slab has been poured.

REINFORCING SCHEDULE					
BAR	No.	Size	Length	Type	Bending Details
A	191	6	35'-3"	15	
B	396	6	34'-3"	3fr.	
C	436	4	5'-9"	7I	
D1	400	5	43'-9"	3tr.	
D2	4	5	12'-0"	3tr.	

NOTE All Dimensions are out to out of bars.

ORIGINAL CONSTRUCTION PLANS
 SLAB AND DIAPHRAGM DETAILS
 FOR

283'-0" CONT. COMP. GIRDER VIADUCT

32'-0" ROADWAY
 OVER I.S. NO. 29 STA. 289+80.00 M.L. SEC. 6/7-T110N-R49W
 STA. 13+56.50 TO 16+39.50 I 29-500 134

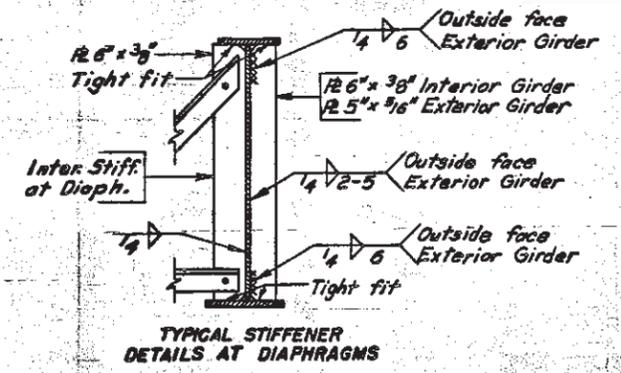
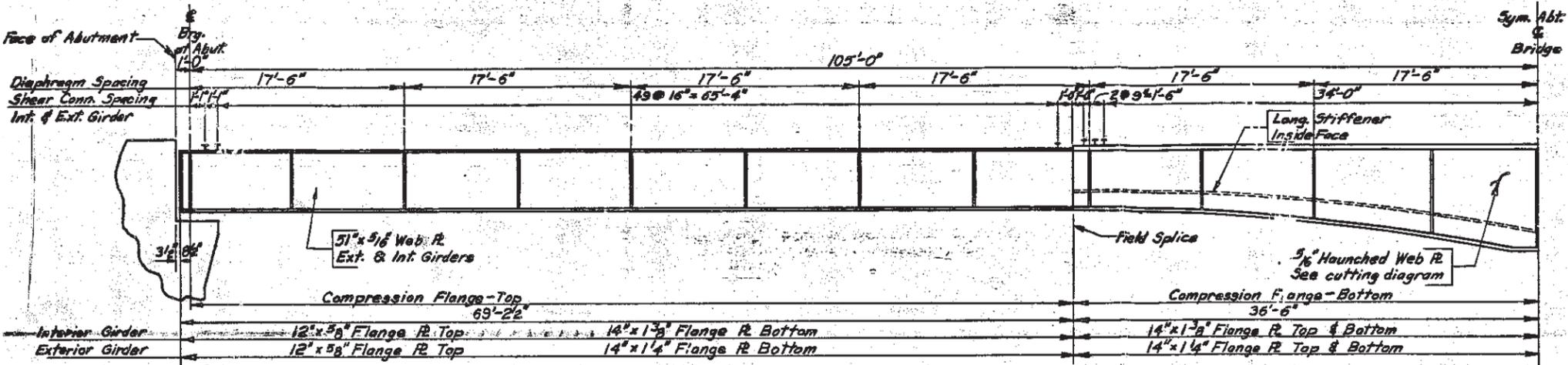
STR. NO. 06-185-130

BROOKINGS COUNTY
 SOUTH DAKOTA HS20-44

DEPARTMENT OF HIGHWAYS
 SEPT. 1968 (16) OF (19)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	L.P.T.	N.C.P.	

06020

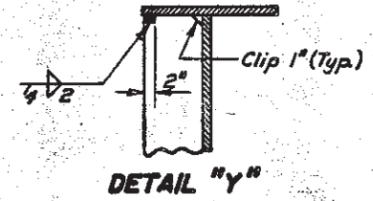


SUPERSTRUCTURE NOTES—

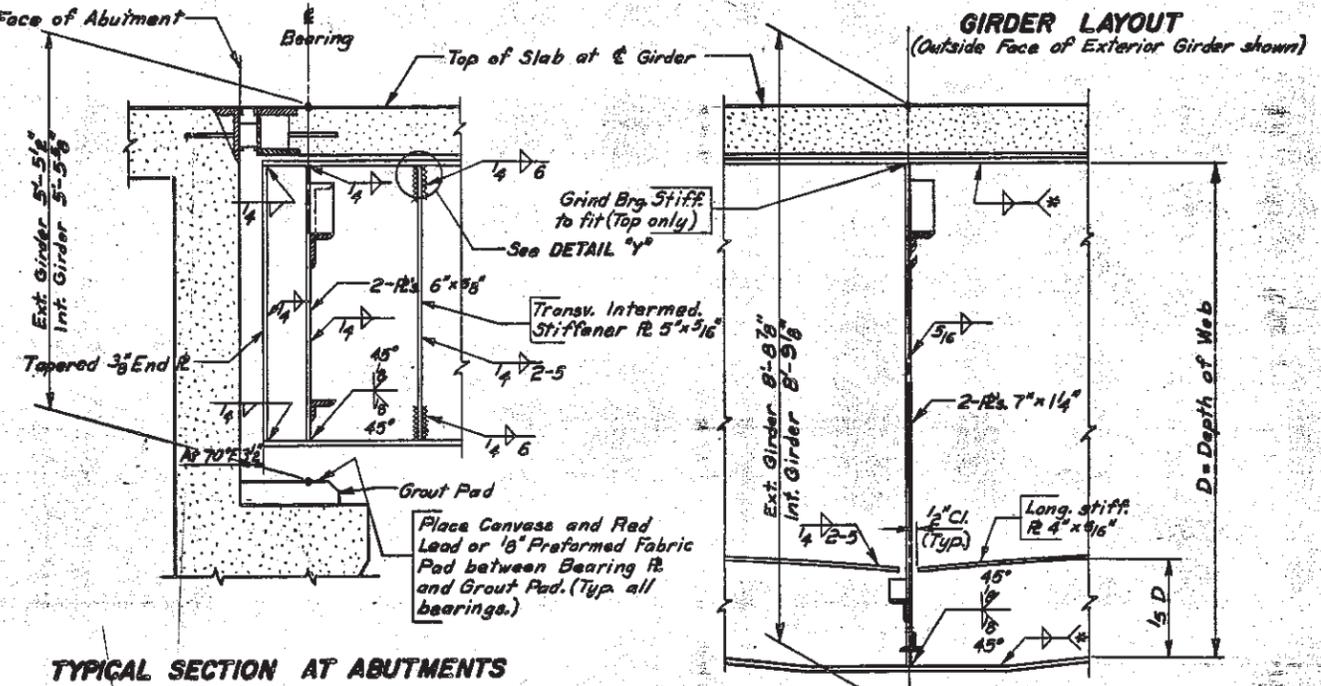
1. Design Specifications: AASHTO Specs. for Highway Bridges, 1965 with Item-Specs. for 1966 and 1967.
2. Design Loading: HS20-44 A.A.S.H.O.
3. Structural Steel members shall conform to ASTM-A36 Steel. Steel produced under other Specifications, but shown to possess the chemical and physical properties of A36 steel will be accepted for use where the latter is specified.
4. Structural Steel for bearings shall conform to ASTM-A36, except as shown.
5. Cost of welding shall be included in the unit price bid for Structural Steel.
6. Cost of canvas and red lead or preformed fabric pads under bearing plates shall be included in the unit price bid for Structural Steel.
7. Copper alloy bearing plates shall be as specified on bearing sheet. The weight of these plates shall be computed as structural steel and included in that bid item.
8. Butt welded girder splices, shop or field, shall be radiographically inspected.
9. All reinforcing steel bars shall conform to ASTM Specifications A305 and A15 Intermediate Grade.
10. All exposed concrete edges shall be chamfered 1" unless otherwise noted.
11. See Railing Sheet for details of handrail and curb.
12. Bolts left in place at diaphragms shall be included in the Structural Steel quantity for payment.
13. The cost of painting shall be included in the unit price bid for Structural Steel.
14. Fillet welds shall be subjected to magnetic particle inspection.
15. Structural Steel shall be painted with one shop coat of Red Lead Paint (AASHTO designation M72 Type I) or Red Lead Iron Oxide Paint (A.A.S.H.O. designation M72 Type III) and shall be field painted with one coat of gray paint followed by a coat of green paint.
16. Cost of Neoprene seals shall be included in the unit price bid for Structural Steel.
17. Unit Stresses: Reinforcing Steel, $f_s = 20,000$ p.s.i.
Slab Conc., $f_c' = 4000$ p.s.i., $n = 8$, $f_c = 1,350$ p.s.i.

NOTES—

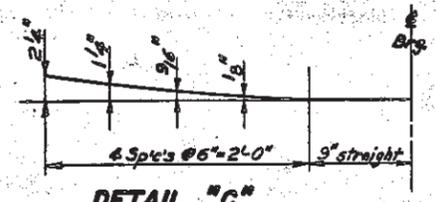
1. See sheet No. 1 for details of field splice.
2. See sheet No. 10 for diaphragm details.
3. All dimensions shown are horizontal or vertical.
4. All stiffeners shall be made normal to flanges.
5. Girder ends shall be made vertical.



When stiffener plates are used on one side only, they shall be attached to the outstanding leg of the compression flange as shown. See Girder Layout for location of compression flange.

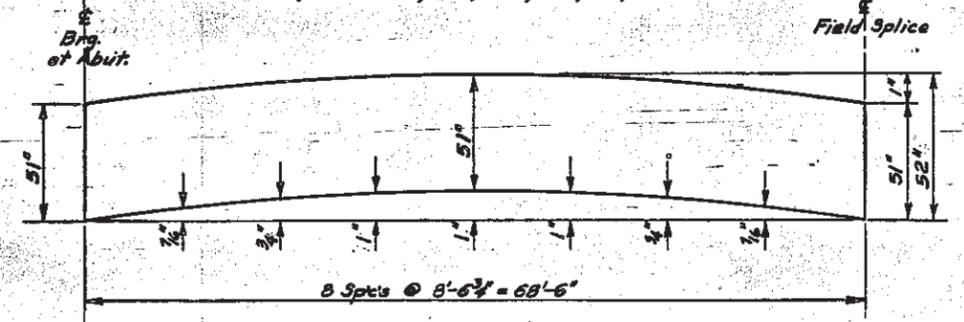


TYPICAL SECTION AT ABUTMENTS



TYPICAL SECTION AT BENT

*Note: Use 5/16" Cont. Fillet Weld-Web to 1 1/4" and 1 3/8" Fig. R's. Use 1/4" Cont. Fillet Weld-Web to 5/8" Fig. R.

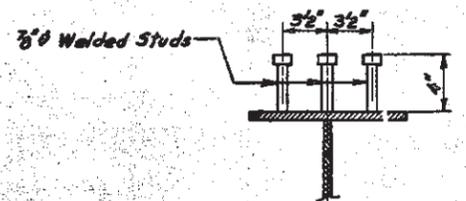


CAMBER DIAGRAM

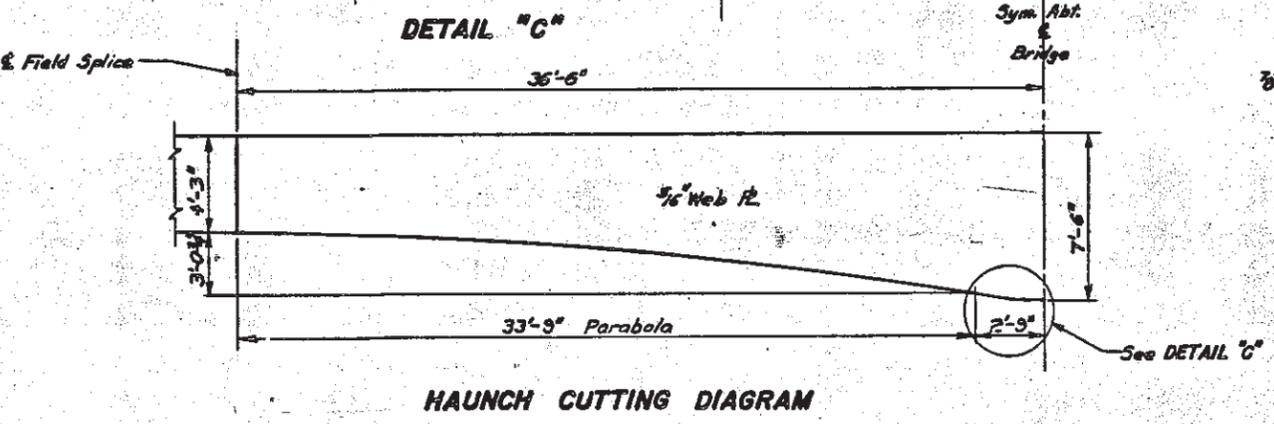
Cut Camber into webs of all girders as shown.

ORIGINAL CONSTRUCTION PLANS GIRDER LAYOUT AND DETAILS FOR

STR. NO. 06-185-130 **283'-0" CONT. COMP. GIRDER VIADUCT**
 32'-0" ROADWAY
 OVER I.S. NO. 29 STA. 289+80.00 M. SEC. 6/7-TION-R49W
 STA. 13+56.50 TO 16+39.50 I 29-5(10)134
 BROOKINGS COUNTY
 SOUTH DAKOTA HS20-44
 DEPARTMENT OF HIGHWAYS
 OCT. 1968 (17) OF (19)

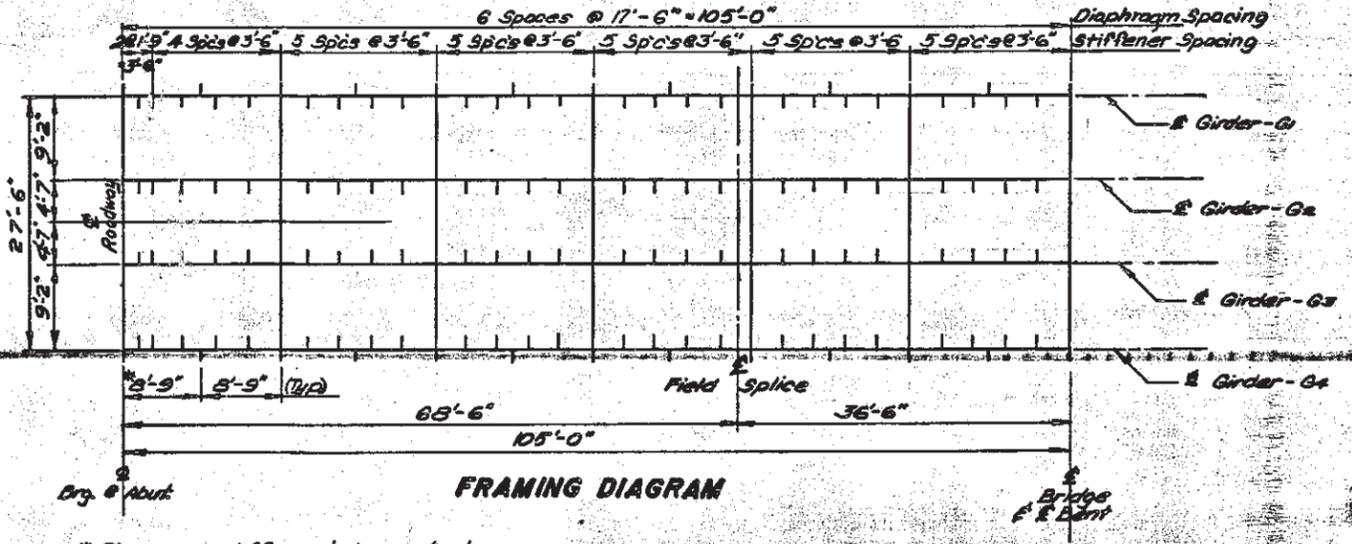


Exterior & Interior Girder
DETAILS FOR SHEAR CONNECTORS
 Shear connectors are spaced as shown on Girder Layout.



HAUNCH CUTTING DIAGRAM

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	C.D.	W.C.P.	<i>[Signature]</i>



Place one stiffener between diaphragm on outside face of Exterior Girders as shown.

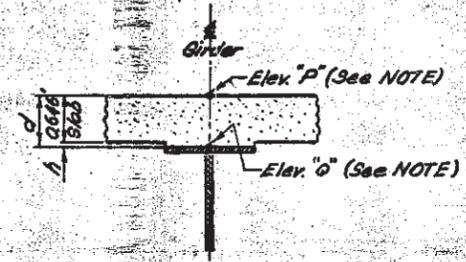
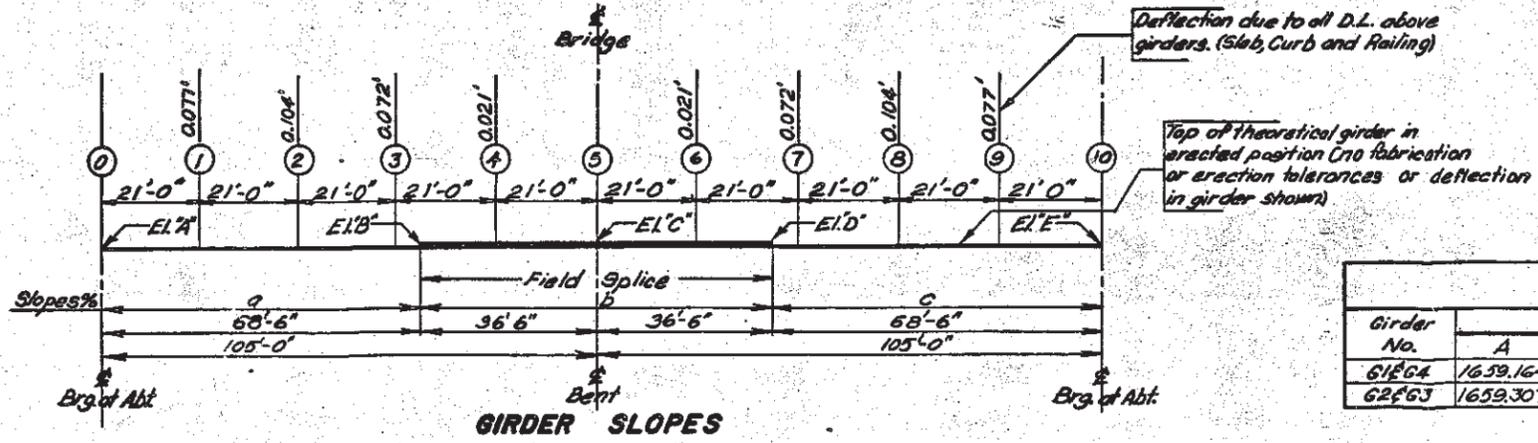


TABLE OF SLAB FORM ELEVATIONS AND COMPUTATIONS

	0	1	2	3	4	5	6	7	8	9	10
Girder-G1	Elev. P 1659.851	1659.737	1659.554	1659.292	1658.992	1658.702	1658.435	1658.179	1657.884	1657.511	1657.068
	(-)Elev. Q										
	(-)d										
	(-)0.646										
	(-)h										
Girder-G2	Elev. P 1659.994	1659.880	1659.697	1659.435	1659.135	1658.845	1658.578	1658.322	1658.027	1657.654	1657.211
	(-)Elev. Q										
	(-)d										
	(-)0.646										
	(-)h										
Girder-G3	Elev. P 1659.994	1659.880	1659.697	1659.435	1659.135	1658.845	1658.578	1658.322	1658.027	1657.654	1657.211
	(-)Elev. Q										
	(-)d										
	(-)0.646										
	(-)h										
Girder-G4	Elev. P 1659.851	1659.737	1659.554	1659.292	1658.992	1658.702	1658.435	1658.179	1657.884	1657.511	1657.068
	(-)Elev. Q										
	(-)d										
	(-)0.646										
	(-)h										

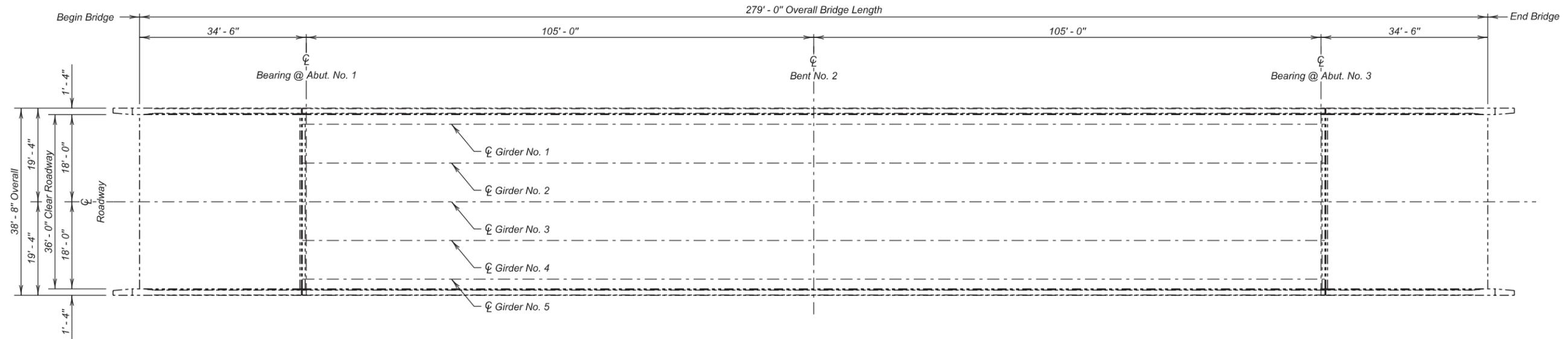
NOTE-
 This table contains the necessary information to determine the depth of concrete, in feet, over the girders at the points shown. All calculations can be carried in the spaces provided. Elevation "P" is the elevation of the top of slab form before any concrete has been poured. This elevation includes correction for vertical curve and deflection due to all D.L. above girders. Elevation "Q" is a field measured elevation taken on top of girders at the points shown. This elevation must be taken after girder erection is completed but prior to placing any of the concrete. Girders shall not be supported by construction shoring while elevations are taken.



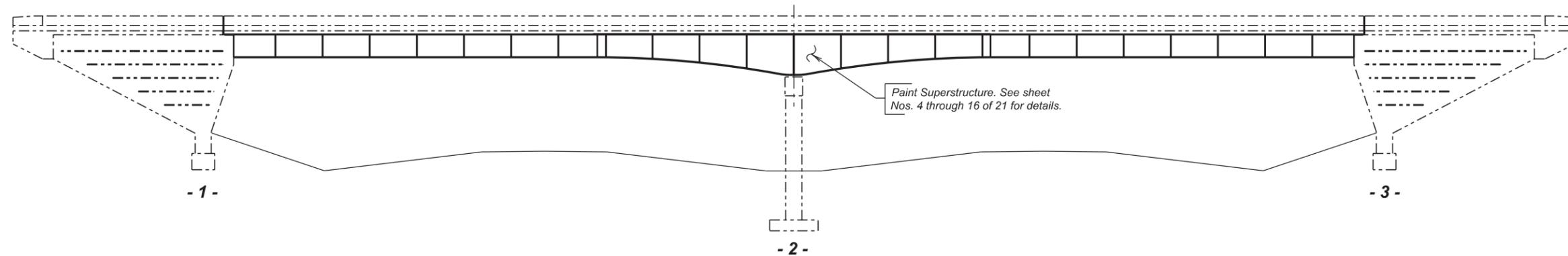
Girder No.	Elevation (Top of Girder)					Girder Slopes %		
	A	B	C	D	E	a	b	c
61E64	1659.164	1658.519	1658.035	1657.552	1656.381	-1.01752	-1.32534	-1.63328
62E63	1659.307	1658.662	1658.178	1657.695	1656.524	-1.03270	-1.32534	-1.61810

STR. NO. 06-185-130
 ORIGINAL CONSTRUCTION PLANS
 FRAMING DIAGRAM AND ERECTION DATA
 FOR
283'-0" CONT. COMP GIRDER VIADUCT
 32'-0" ROADWAY
 OVER I.S. NO. 29 STA. 289+80.00 M.L. SEC. 6/7-T110N-R49W
 STA. 13+56.50 TO 16+39.50 129-5(10)134
 BROOKINGS COUNTY
 SOUTH DAKOTA HS20-44
 DEPARTMENT OF HIGHWAYS
 OCT 1968 (19) OF (19)
 DESIGNED BY _____ DRAWN BY L.P.I. CHECKED BY C.D. APPROVED [Signature] BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	67	125



PLAN



ELEVATION

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Girder No. 1 Paint Details
- Sheet No. 5 - Girder No. 1 Paint Details (Continued)
- Sheet No. 6 - Girder No. 2 Paint Details
- Sheet No. 7 - Girder No. 2 Paint Details (Continued)
- Sheet No. 8 - Girder No. 3 Paint Details
- Sheet No. 9 - Girder No. 3 Paint Details (Continued)
- Sheet No. 10 - Girder No. 4 Paint Details
- Sheet No. 11 - Girder No. 4 Paint Details (Continued)
- Sheet No. 12 - Girder No. 5 Paint Details
- Sheet No. 13 - Girder No. 5 Paint Details (Continued)
- Sheet No. 14 - Girder Paint Details At Bolted Splices
- Sheet No. 15 - Girder Paint Details
- Sheet No. 16 - Girder Paint Details (Continued)
- Sheet No. 17 thru 21 - Original Construction Plans

LAYOUT FOR UPGRADING
FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125
PCN 035C

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	68	125

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

NOTICE – LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans.

Clean and paint portions of the existing girders and all of the bearings as shown be these plans.

PAINT RESIDUE REMOVAL AND CONTAINMENT

- Paint Residue Removal and Containment shall be performed in accordance with Section 412 of the Construction Specifications, Bridge Repainting Class II except as modified by these notes.
- The Contractor shall plan his operations to prevent releases of lead containing material and other particulate matter into the surrounding air, water, and onto the ground, soil, slope protection, and pavement. The Contractor shall be responsible for any corrective actions should a spill occur.

3. Collect all visible paint particles and blasting residue containing paint at the end of each workday from the work area. Inspect outside the containment and collect any paint particles or blasting residue that escaped the work area. Collect waste material by manual means, vacuum, or another method approved by the Engineer. Do not use air pressure or streaming water to assist in the waste collection process that could disperse the waste material.

4. In the event of a spill or inadvertent release, the Contractor shall immediately stop work, notify the Engineer, and report the release to the South Dakota Department of Environmental and Natural Resources (DENR). The Contractor shall be responsible for completing a spill reporting form and for all costs associated with appropriate corrective actions.

To report a release or spill, call DENR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at (605) 773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the Contractor must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

5. The Contractor shall haul and unload the 55 gallon containment drums with paint residue, blasting media, etc. to the SDDOT Maintenance Yard located in Brookings for temporary storage. The Brookings Maintenance Yard is located at 2131 34th Avenue. Contact person for the Brookings Yard is John Rittershaus at (605) 688-5001 or Matt Brey at (605) 882-5166. All costs associated with this work shall be included in the contract lump sum price for "Paint Residue Containment".

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS

1. Pack rust areas within the areas defined for painting in the Bridge Repainting Class II notes shall be treated with a rust penetrating sealer. The rust penetrating sealer shall be applied after the area has been cleaned and prepared for painting as specified in the Bridge Repainting, Class II notes but prior to the application of the final paint system. Pack rust areas are those defined as joints in connecting plates and/or crevice areas (locations noted as apply rust inhibitor on the plan sheets).

2. The rust penetrating sealer shall be supplied as one of the following:

2.1 Pre-Prime 167
Penetrating Sealer
International
South Dakota Area Manager: Kevin Perego
Telephone: 636-207-8897
Cell: 314-540-8925
Website: www.international-pc.com

2.2 Wasser MC-PrepBond 2.8
Wasser Corporation
4118 B Place NW Suite B
Auburn, WA 98001
Telephone: 800-627-2968
Website: www.wassercoatings.com

2.3 Time-Lock MoPoxY PRE-PREP
Rust Penetrating Sealer 41-AF-2
BLP Mobile Paints
P.O. Box 717
Theodore, Alabama 36590-0717
Telephone: 251-443-6110
Website: www.blpmobilepaint.com

2.4 Rust Bullet Standard Formula
Rust Bullet, LLC
300 Brinkby Avenue, Suite 200
Reno, NV 89509
Telephone: 800-245-1600
Website: www.rustbullet.com

The rust penetrating sealer shall be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

- Remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed.
- Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the paint system specified in Section 412 of the Construction specifications until the area has cured for the amount of time specified by the manufacturer of the rust penetrating sealer.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 279' - 0" CONT. COMP. GIRDER BRIDGE

STR. NO. 06-185-110
JANUARY 2015

2 OF 21

DESIGNED BY NP DUELO3EC	CK. DES. BY EJA 035CRD02	DRAFTED BY EJA <i>Kevin N. Goeden</i>	BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	69	125

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS (CONTINUED)

- For informational purposes, 203 square feet of structural steel will require rust penetrating sealer.
- The cost of furnishing and applying the rust penetrating sealer and all other items incidental to the application of this sealer shall be included in the contract lump sum price for "Rust Penetrating Sealer".

BRIDGE REPAINTING, CLASS II

- Portions of the existing girders, diaphragms, bolted splices and bearings shall be painted as shown by these plans and in accordance with the requirements for Bridge Repainting, Class II in Section 412 of the Construction Specifications except as modified by these notes.
- After blast cleaning the surfaces to be painted, remove any trace of blast products, dust or dirt from all surfaces including pockets and corners as approved by the Engineer.
- The color of the top coat shall be an approved green (Federal Standard 595B Color 24108). The prime coat and the top coat shall sharply contrast.
- For informational purposes, 6,340 square feet of structural steel will require painting. For a breakdown of the paint required for all of the portions of the bridge, see sheet nos. 4 through 16 of 21 of the plans.

BOLTED SPLICE PLATE SEALANT

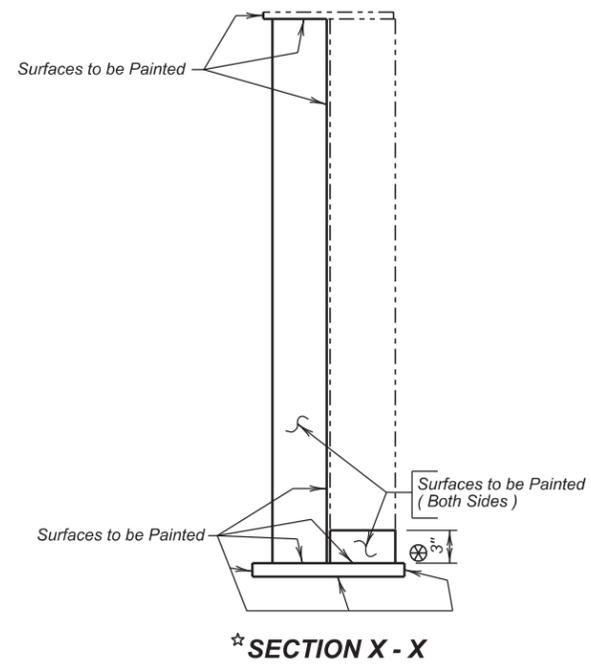
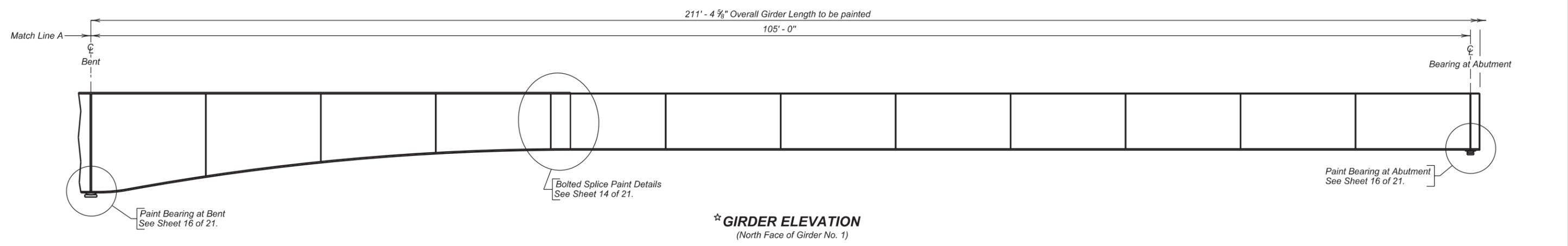
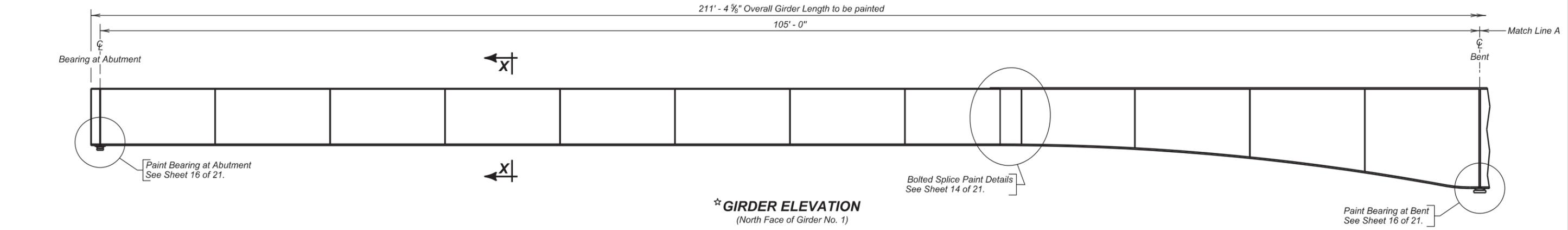
- The edges of all bolted splice plates shall be sealed using a Polyurethane Sealant.
- The Polyurethane Sealant shall meet the following requirements. The sealant shall be a single component, moisture cure, non-sag, smooth formulation, gun-grade elastomeric sealant. The sealant shall meet the requirements for ASTM C-920, Type S, Grade NS, Class 25, Use-A.
- Contact surfaces shall be cleaned in accordance with the manufacturer's recommendations. The Contractor shall supply the Engineer with written instructions regarding the manufacturer's recommended surface treatment for the in-place surface condition at least 48 hours before application for review and acceptance.
- The Polyurethane Sealant shall be applied and tooled as recommended by the manufacturer. Product data sheets and Material safety data sheets shall be supplied to the Engineer at least one week prior to installation. In no case shall the thickness of the material be less than 1/4". Feathering of the joint material shall not be allowed. Adjacent surfaces shall be masked to avoid application of the material outside the limits of the final seal. Application surfaces shall be clean and free of material contaminants. Application shall not be allowed on a wet or damp surface.
- Polyurethane Sealant shall be installed and allowed to cure prior to the application of any field applied paint.
- For informational purposes only the sealant will be applied on 504 linear feet.
- Polyurethane Sealant for Structure shall be included in the lump sum price for "Bridge Repainting, Class II." Payment will be full compensation for labor, equipment, materials and incidentals for furnishing, preparing surfaces for application and installing the Polyurethane Sealant.

NOTES (CONTINUED)
FOR
279' - 0" CONT. COMP. GIRDER BRIDGE
STR. NO. 06-185-110
JANUARY 2015

(3) OF (21)

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD03	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	70	125



★ Note: New paint areas are shown bounded by solid object lines.

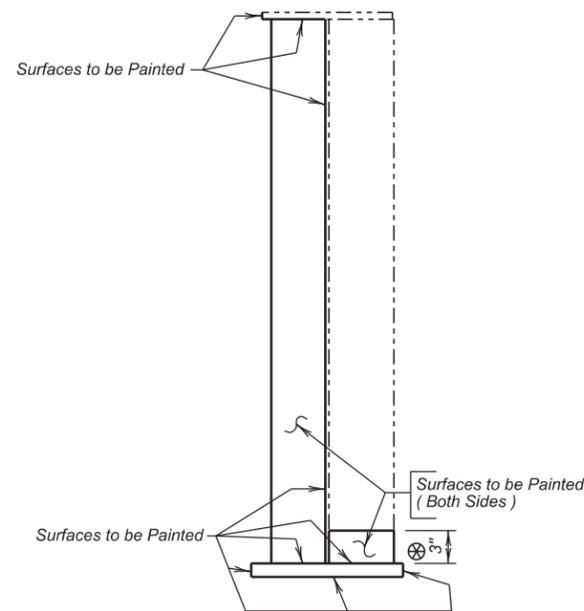
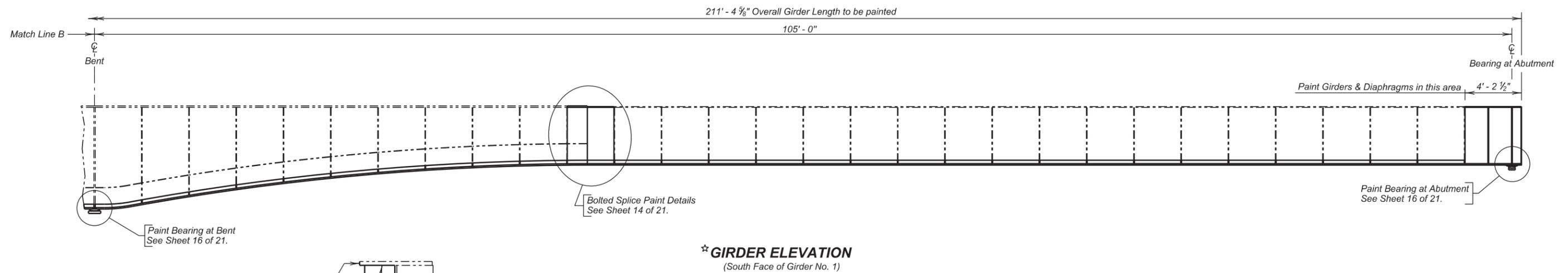
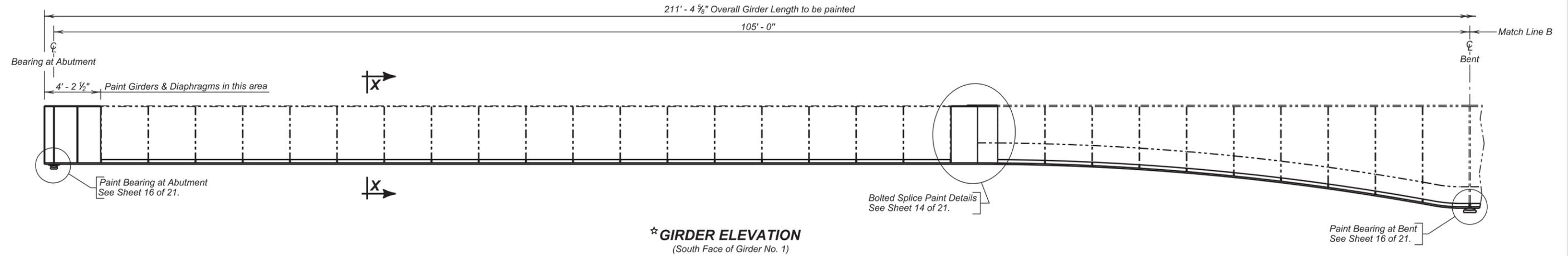
⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

GIRDER NO. 1 PAINT DETAILS
FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD04	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	71	125



☆ **SECTION X - X**

☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

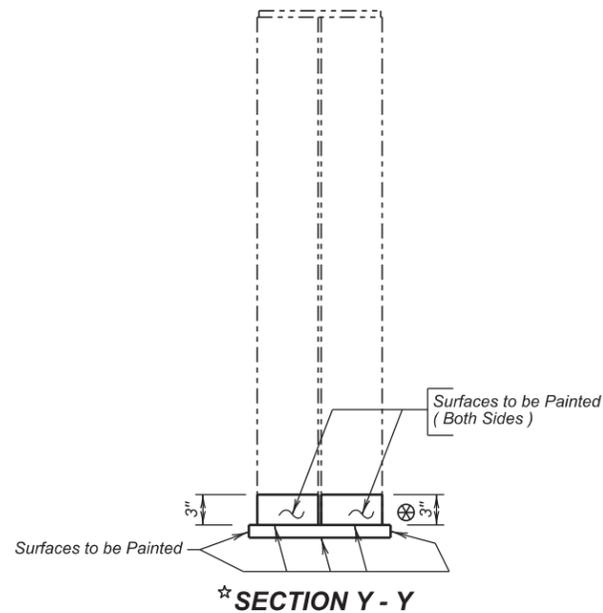
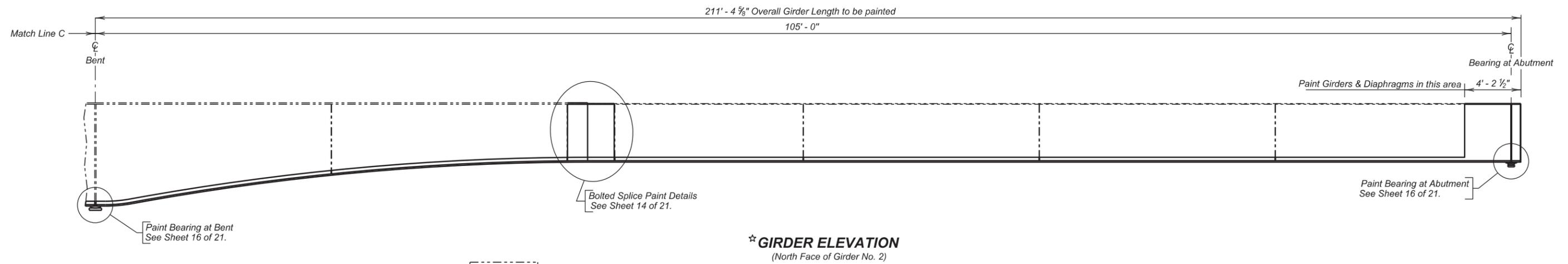
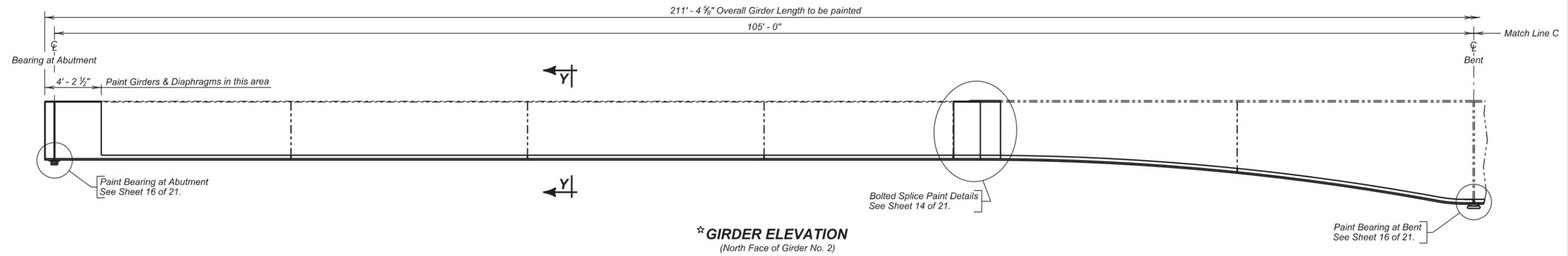
GIRDER NO. 1 PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD05	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	72	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

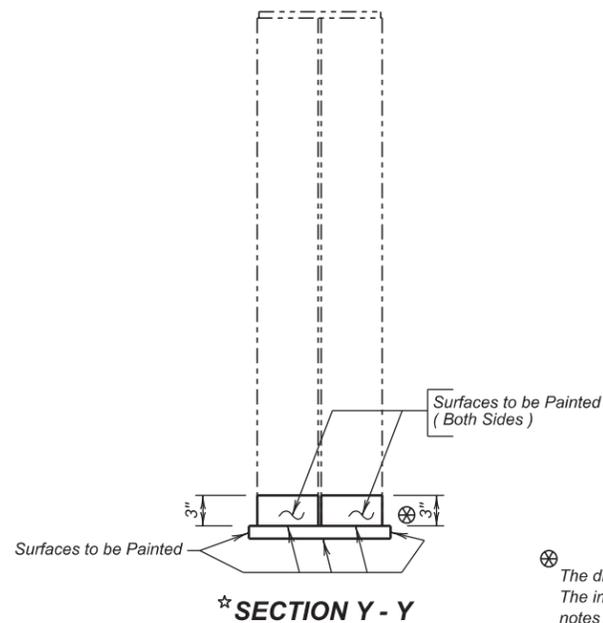
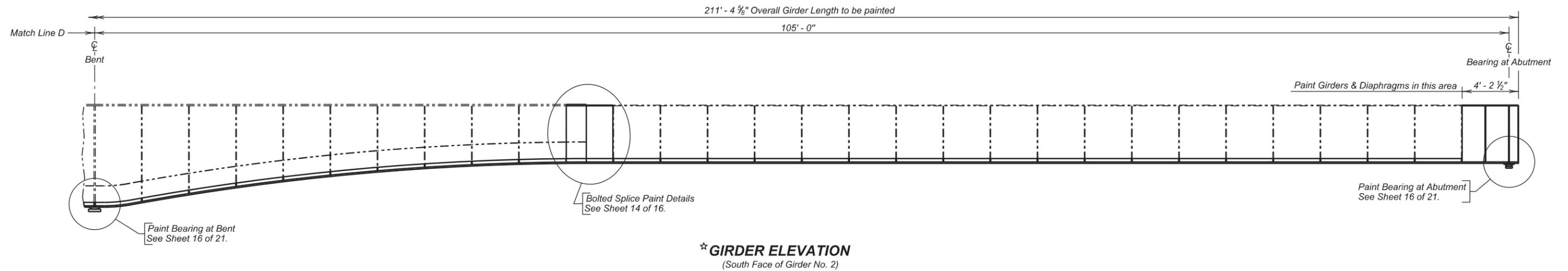
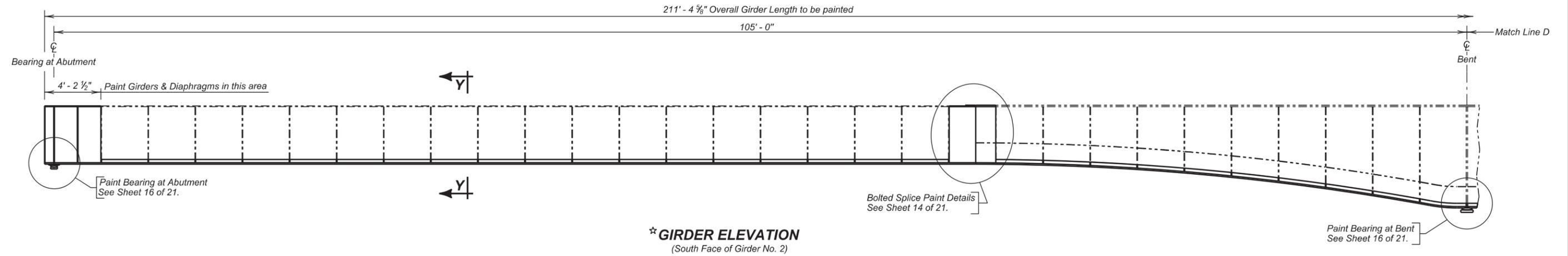
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FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD06	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	73	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

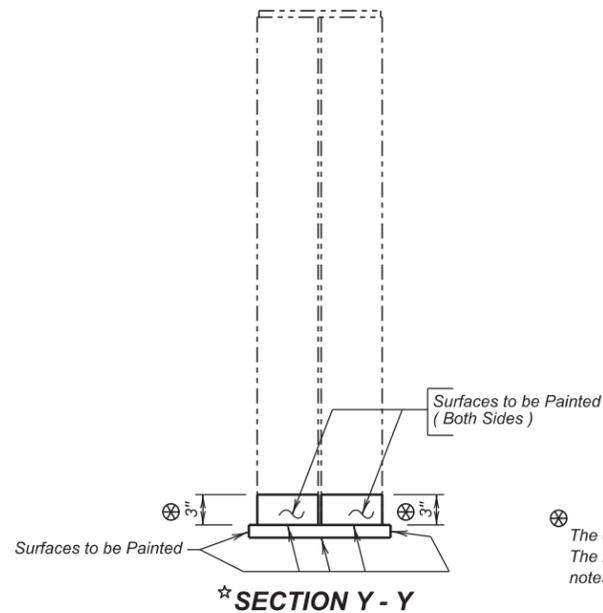
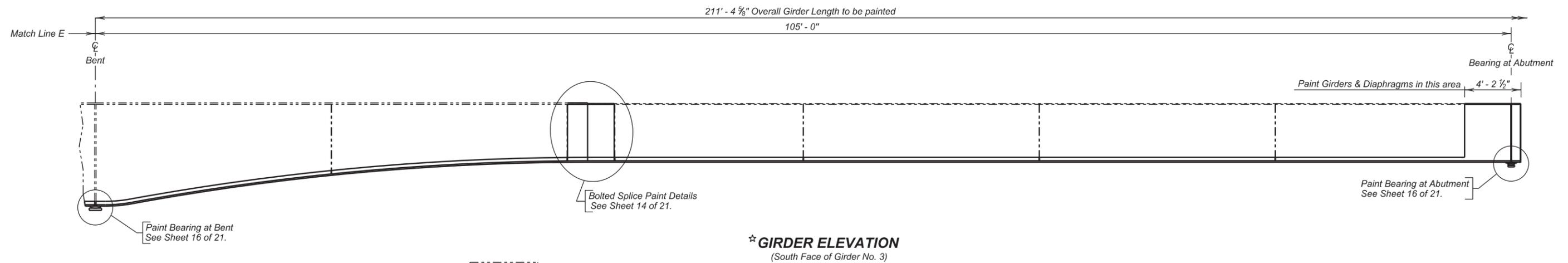
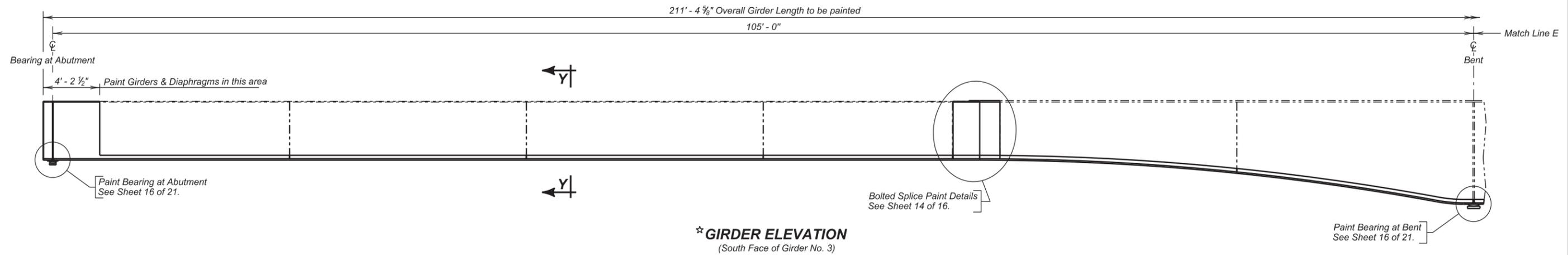
GIRDER NO. 2 PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD07	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	74	125



☆ Note: New paint areas are shown bounded by solid object lines.

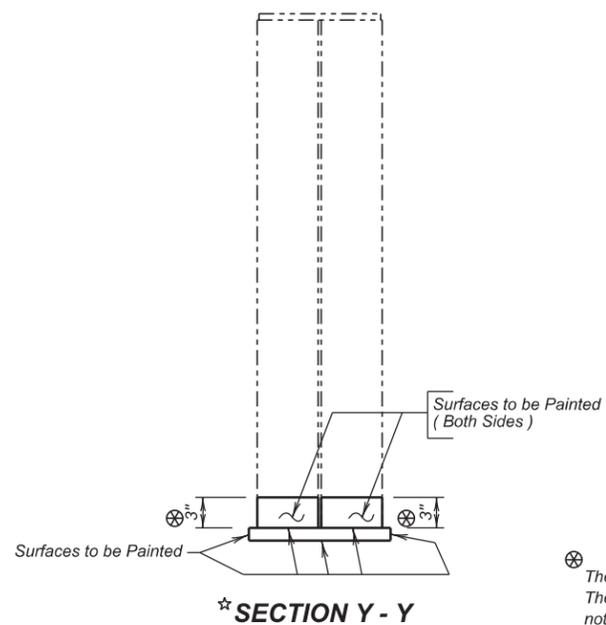
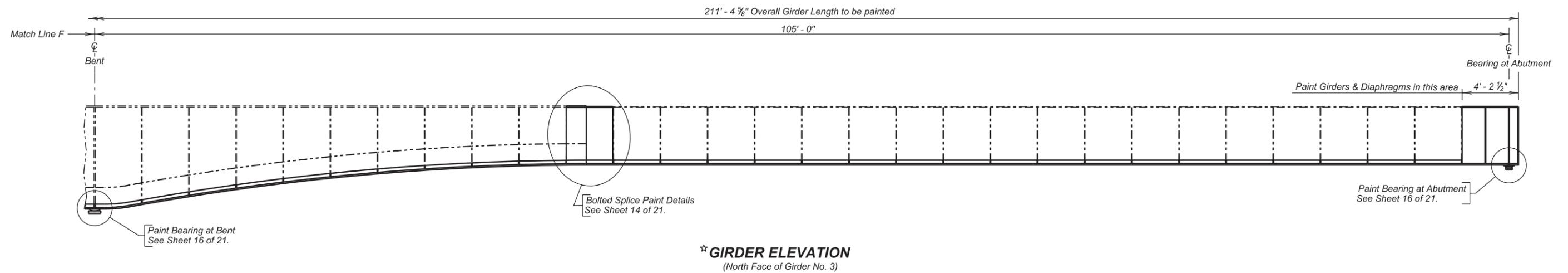
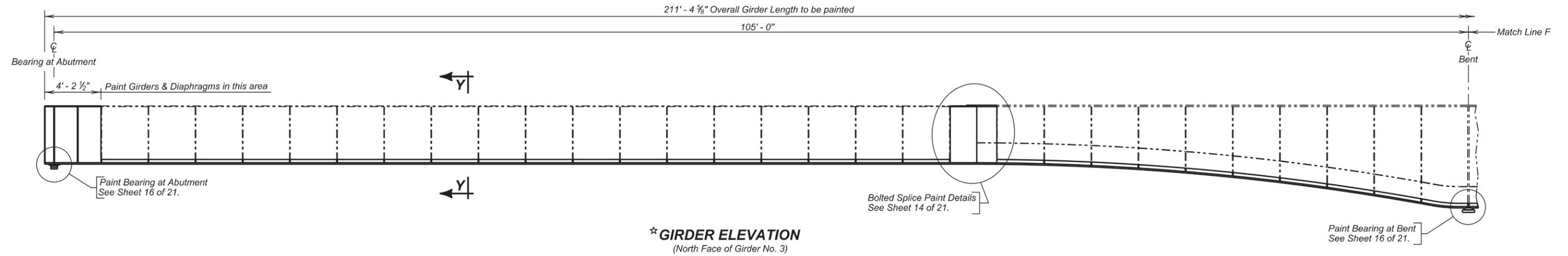
⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

GIRDER NO. 3 PAINT DETAILS
FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD08	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	75	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

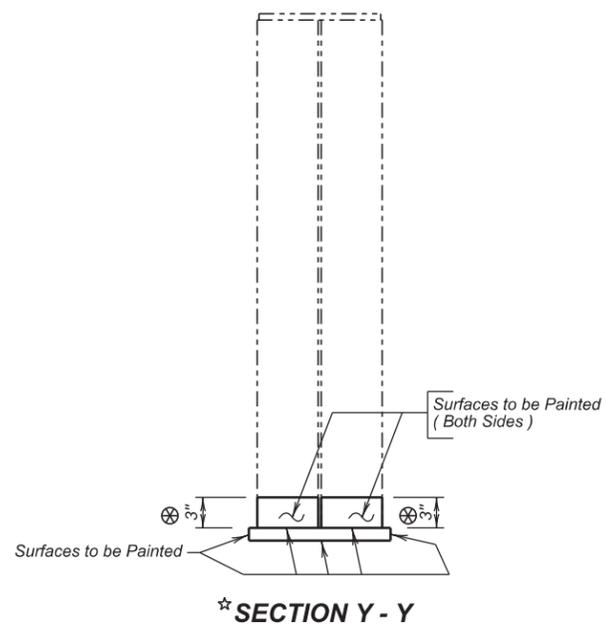
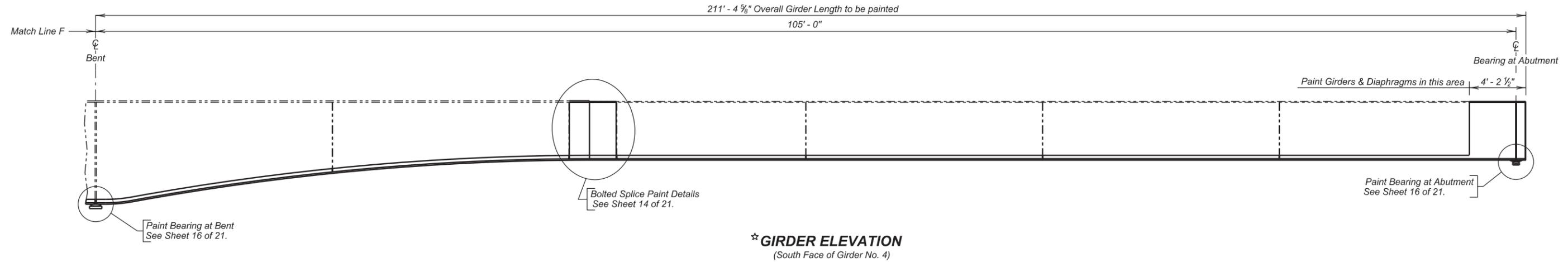
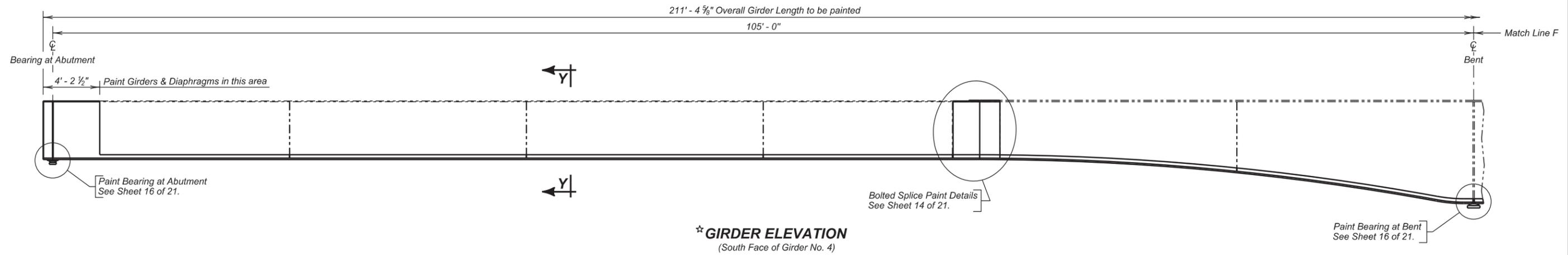
GIRDER NO. 3 PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD09	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	76	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

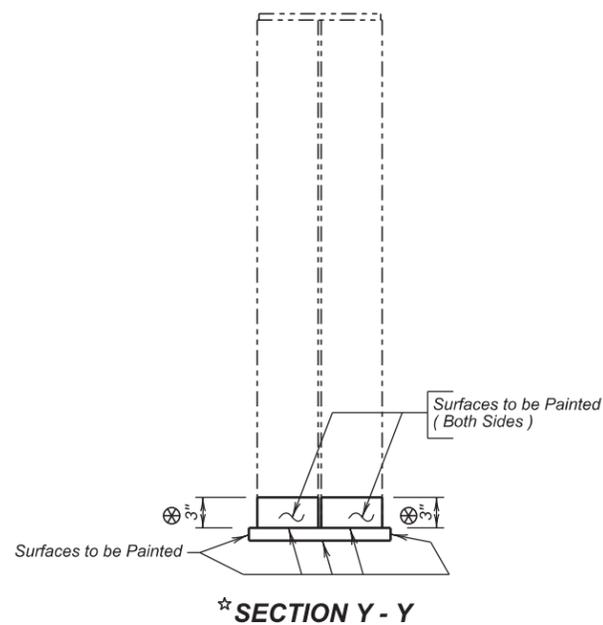
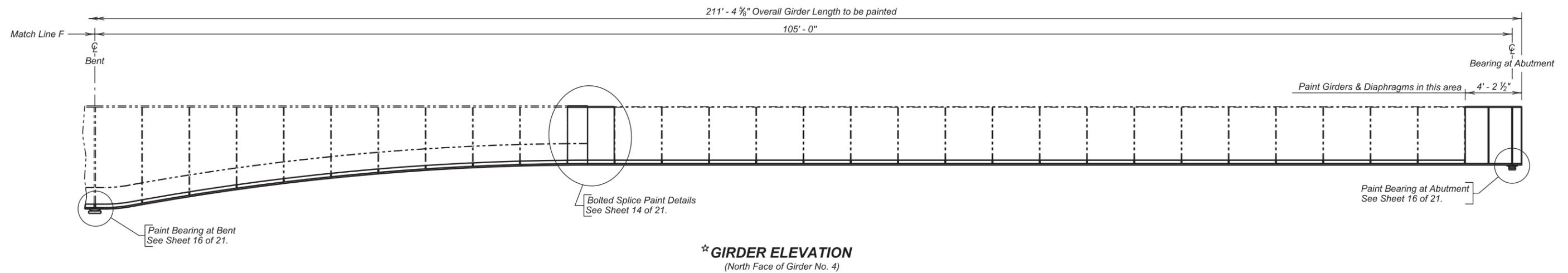
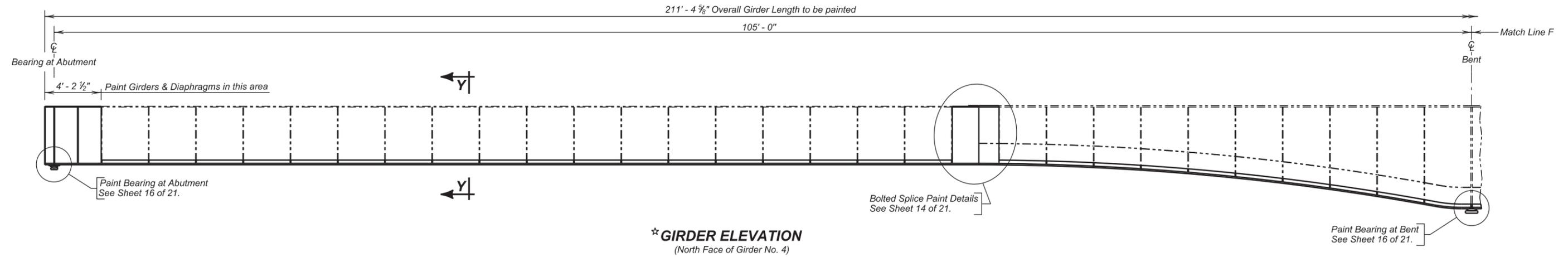
GIRDER NO. 4 PAINT DETAILS

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 36' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
 STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD10	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	77	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

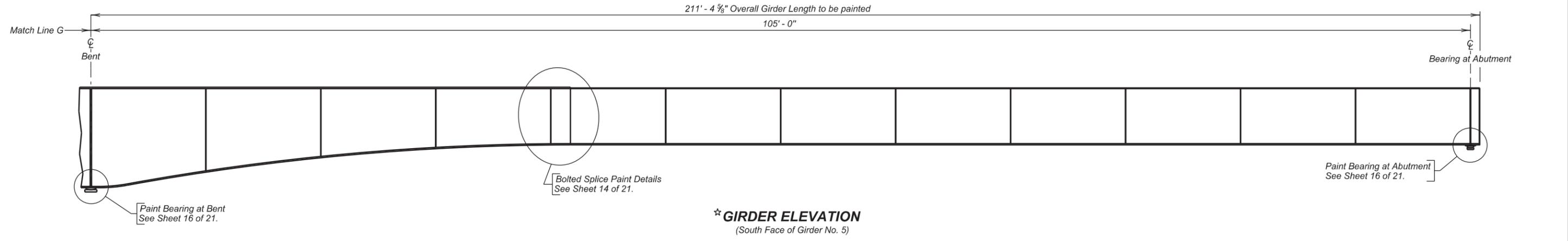
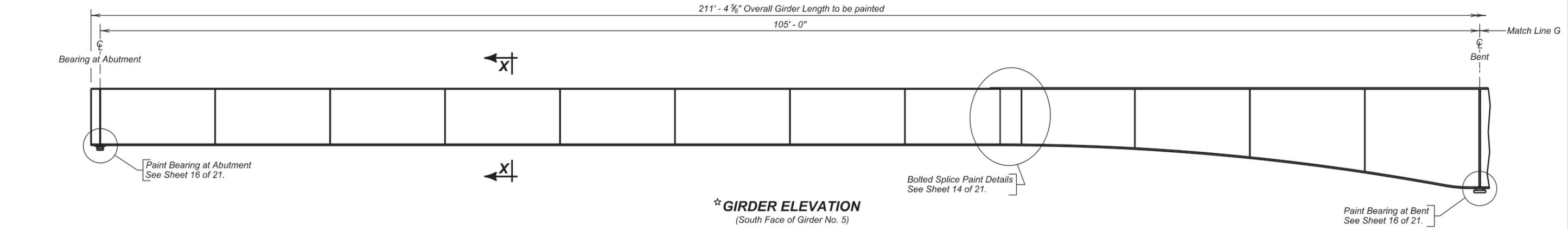
GIRDER NO. 4 PAINT DETAILS (CONTINUED)

FOR
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36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

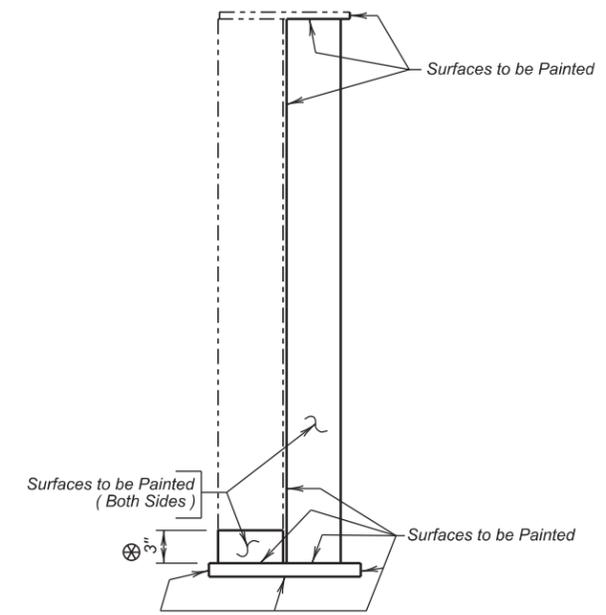
DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD11	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	78	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

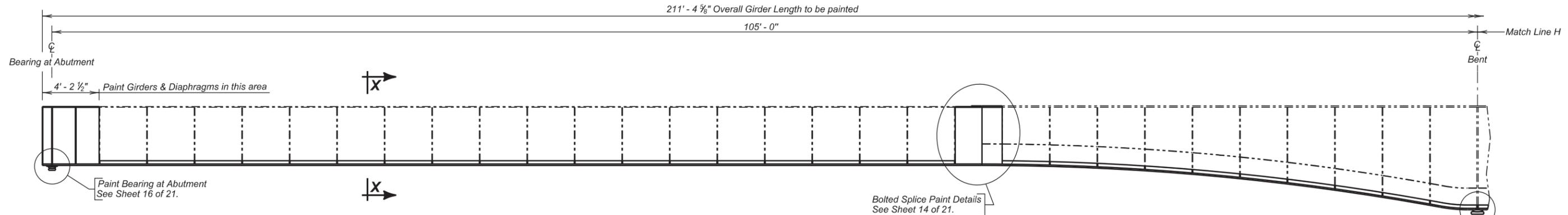


GIRDER NO. 5 PAINT DETAILS
FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

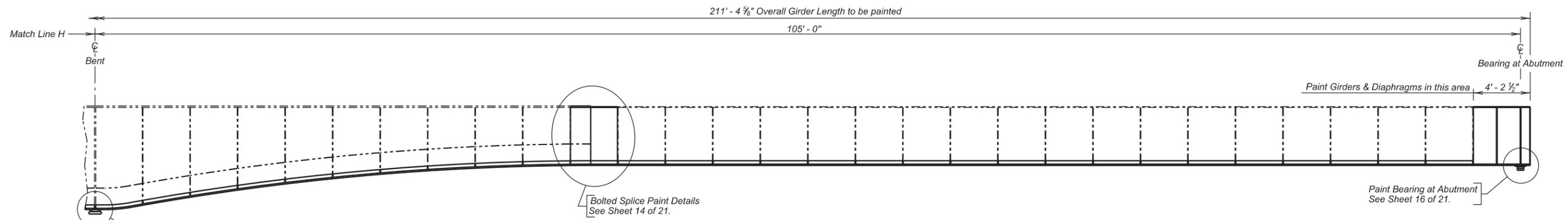
DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD12	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	79	125



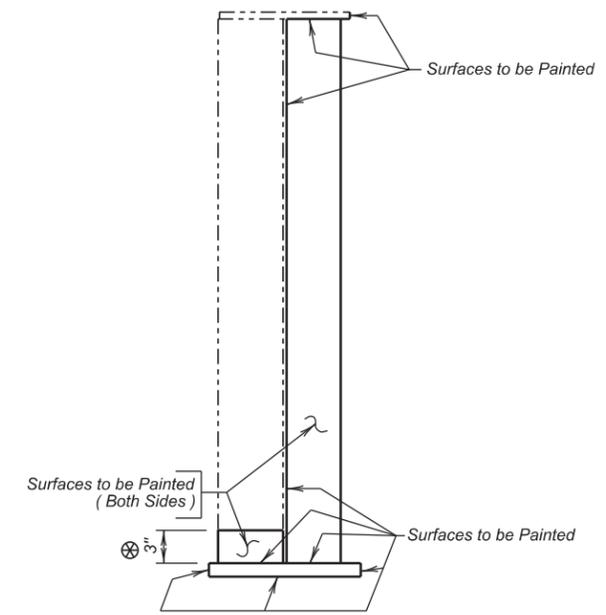
★ **GIRDER ELEVATION**
(North Face of Girder No. 5)



★ **GIRDER ELEVATION**
(North Face of Girder No. 5)

★ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.



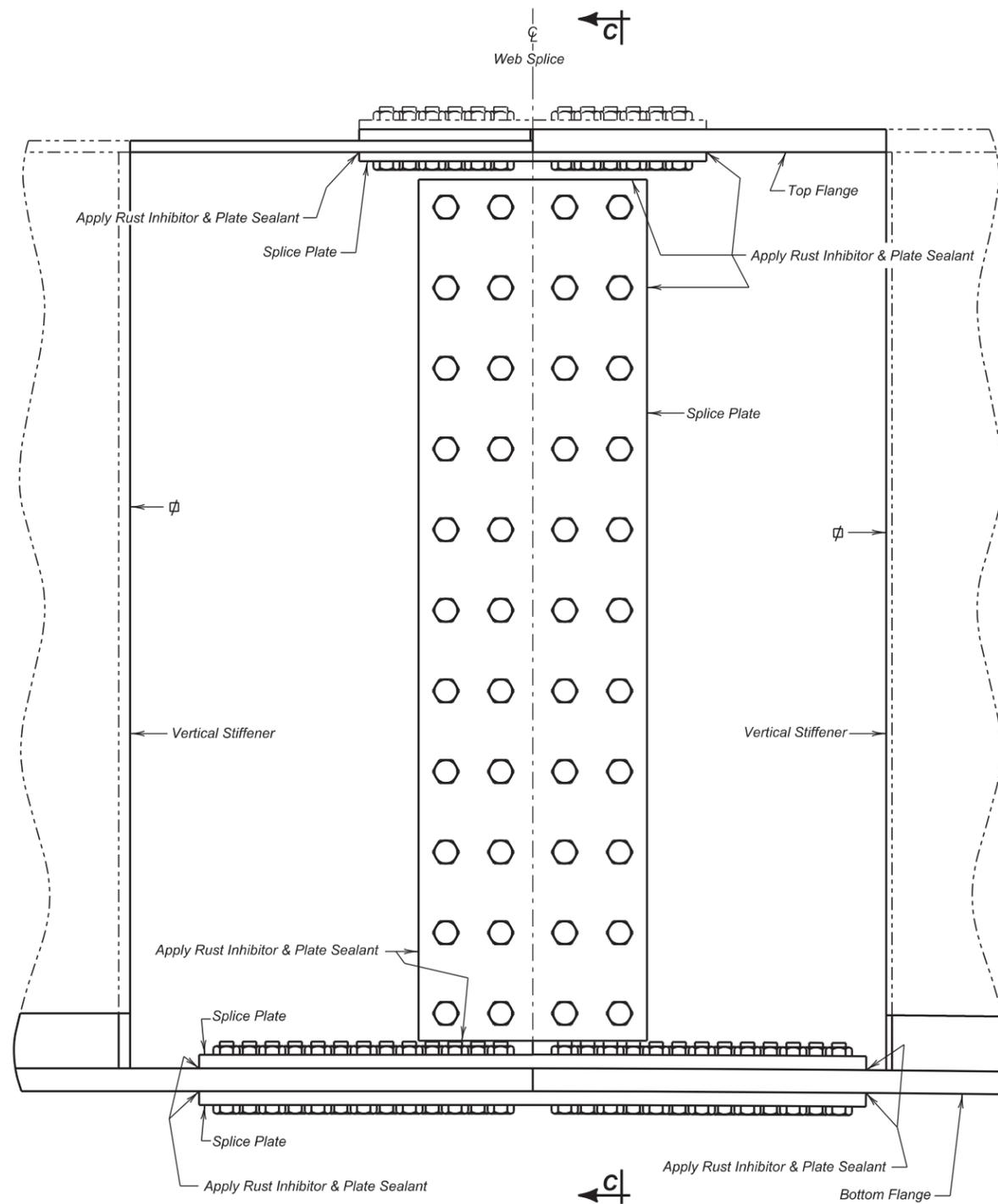
★ **SECTION X - X**

GIRDER NO. 5 PAINT DETAILS (CONTINUED)
FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
36' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

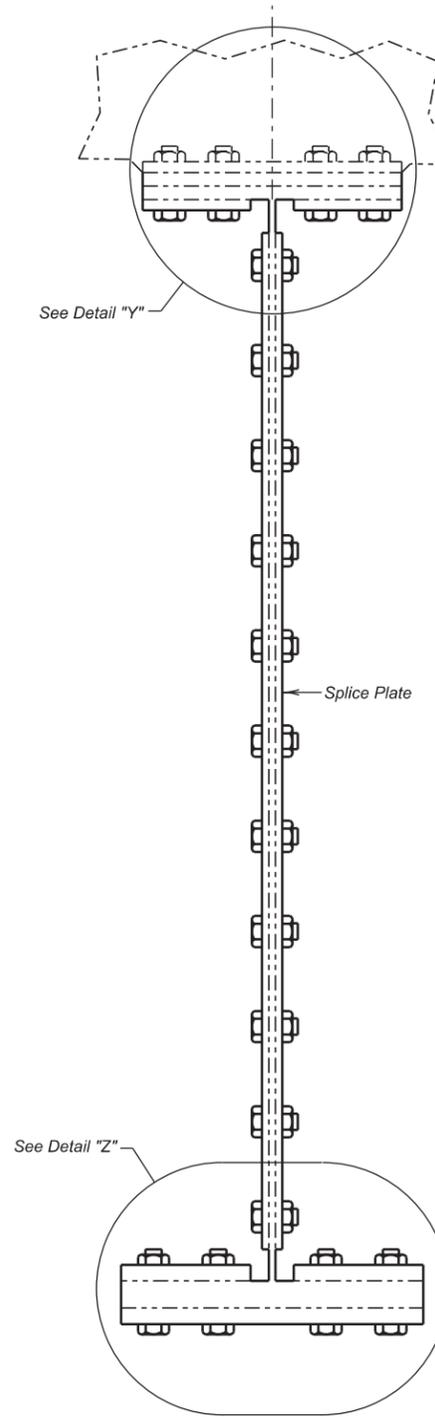
DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD13	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	80	125

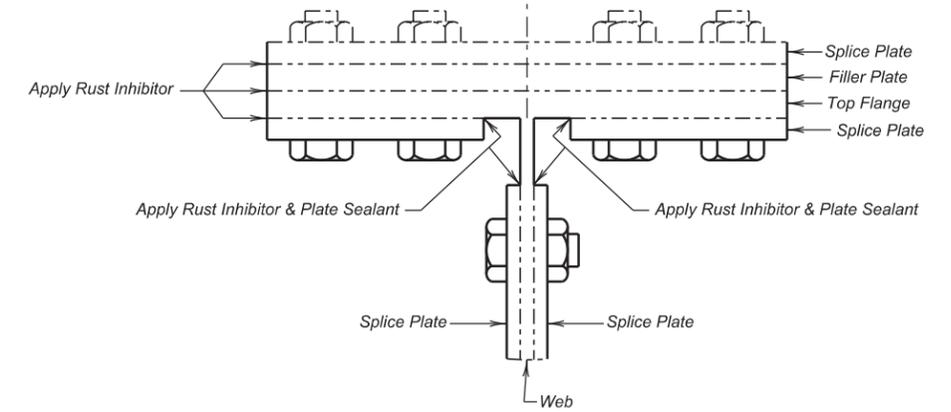


ELEVATION OF BOLTED SPLICE

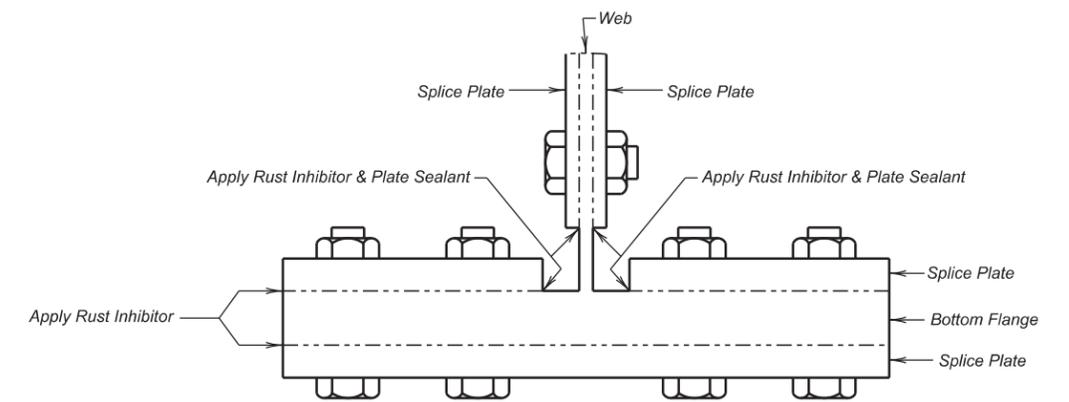
∅ For inside face of the exterior girder and both faces of the interior girders the limit for painting shall be to the nearest vertical stiffener from centerline of splice or a maximum of two feet from the centerline of girder splice.



SECTION C - C



DETAIL "Y"



DETAIL "Z"

GIRDER PAINT DETAILS AT BOLTED SPLICES

FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE

36' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 30/31-T111N-R49W

STR. NO. 06-185-110

IM 0295(38)125

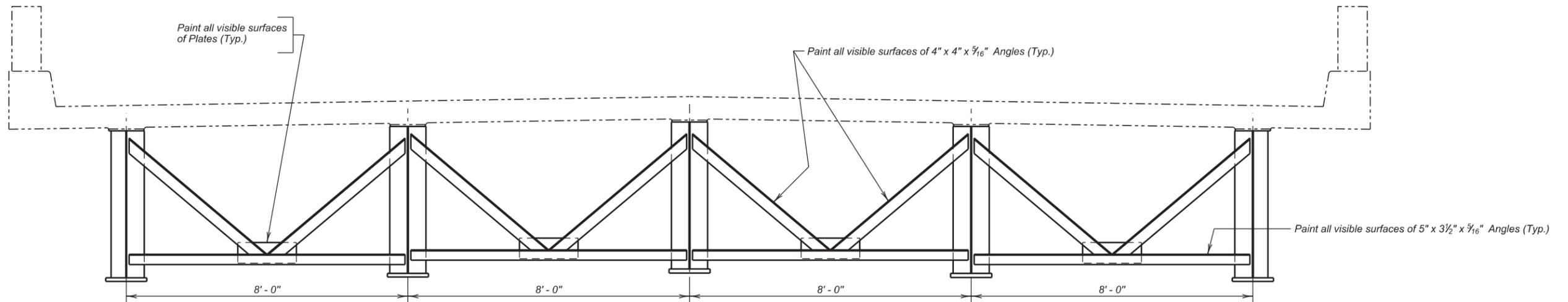
DEUEL COUNTY

S. D. DEPT. OF TRANSPORTATION

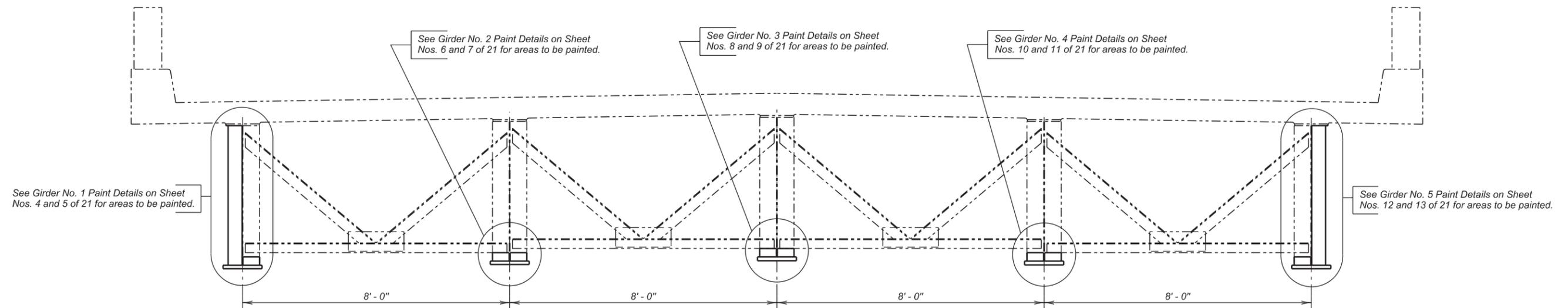
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD14	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	81	125



TYPICAL GIRDER SECTION AT ABUTMENT



TYPICAL GIRDER SECTION

GIRDER PAINT DETAILS

FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE

36' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 30/31-T111N-R49W

STR. NO. 06-185-110

IM 0295(38)125

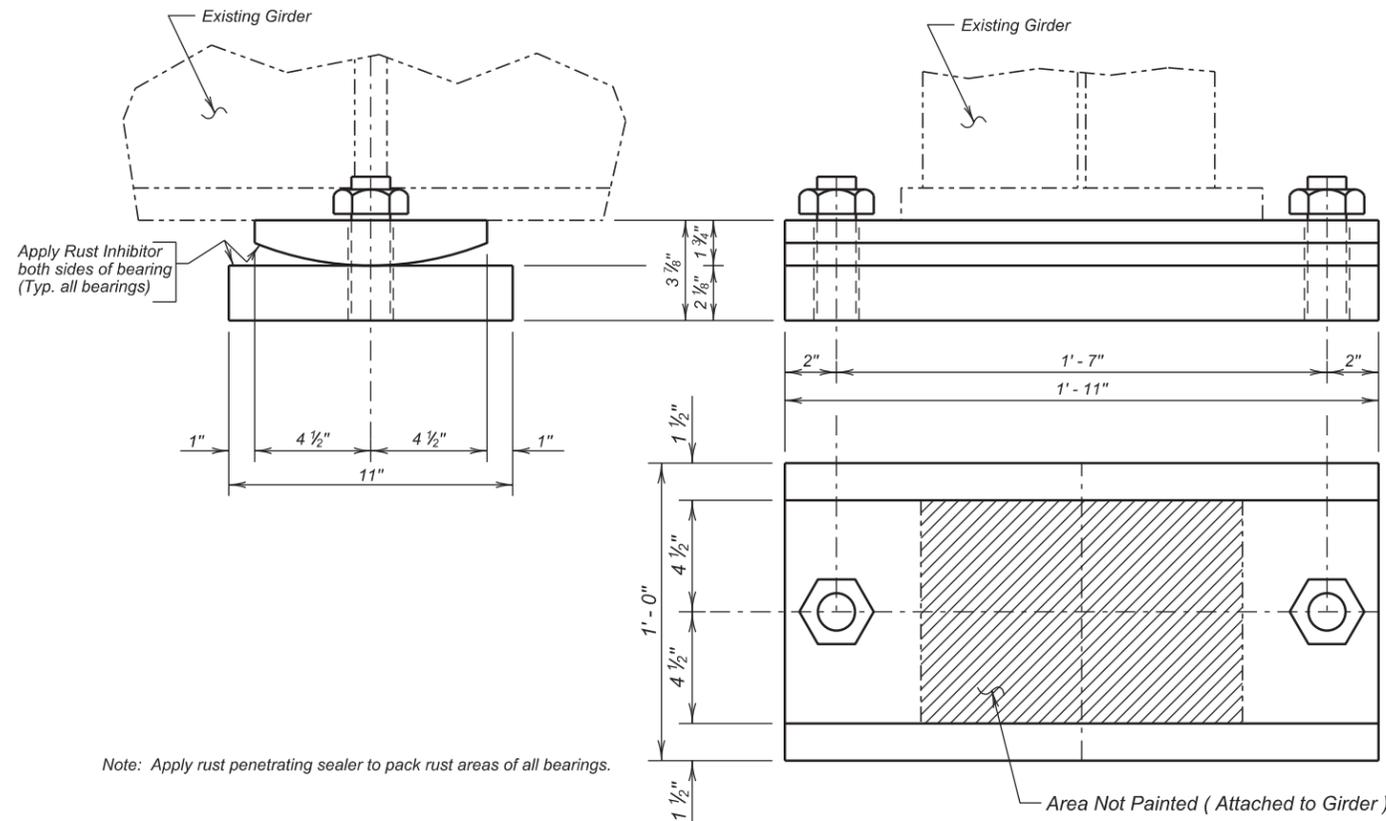
DEUEL COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

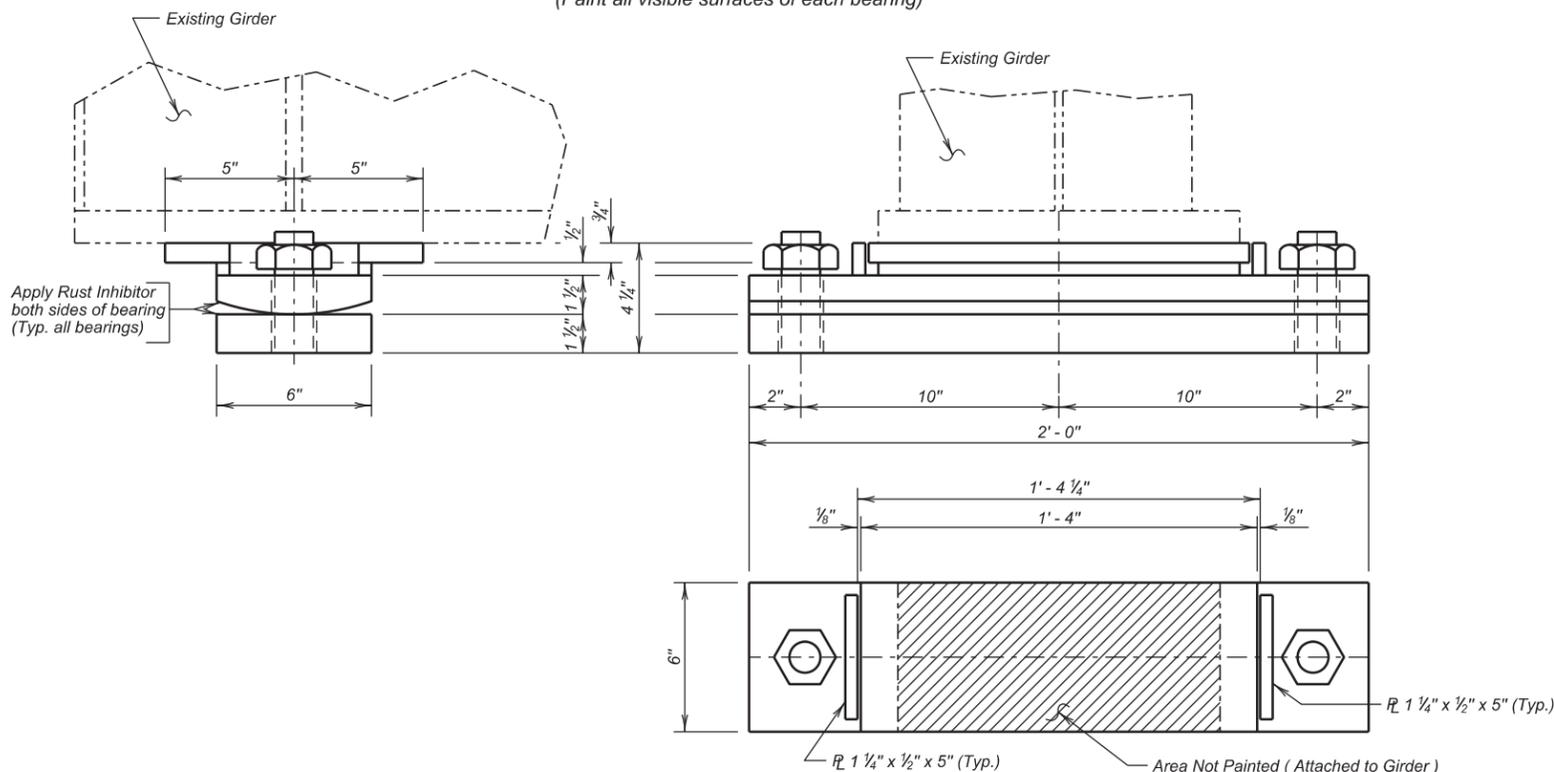
15 OF 21

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRD15	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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Note: Apply rust penetrating sealer to pack rust areas of all bearings.

BEARINGS AT BENT
(Paint all visible surfaces of each bearing)



BEARINGS AT ABUTMENTS
(Paint all visible surfaces of each bearing)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
△ Bridge Repainting, Class II	LS	Lump Sum
* Rust Penetrating Sealer	LS	Lump Sum
Paint Residue Containment	LS	Lump Sum

△ For informational purposes, the area of structural steel to be painted is 6,340 square feet.

* For informational purposes, the area of structural steel to be coated with Rust Penetrating Sealer is 203 square feet.

GIRDER PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 36' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 30/31-T111N-R49W
 STR. NO. 06-185-110 IM 0295(38)125

DEUEL COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

INDEX OF BRIDGE SHEETS—

- Sheet No. 1—General Drawing and Quantities
- Sheet No. 2—Subsurface Investigations
- Sheet No. 3—Abutment Details
- Sheet No. 4—Abutment Details
- Sheet No. 5—Abutment Details
- Sheet No. 6—Abutment Details
- Sheet No. 7—Bent Details
- Sheet No. 8—Slab and Diaphragm Details
- Sheet No. 9—Girder Layout and Details
- Sheet No. 10—Details of Expansion Device
- Sheet No. 11—Details of Field Splice and Bearings
- Sheet No. 12—Framing Diagram and Erection Data
- Sheet No. 13—Type RT-3A Steel Rail and Curb Details
- Sheet No. 14—Details of Bridge End Backfill
- Sheet No. 15—Details of Standard Plates 301 and 303.1

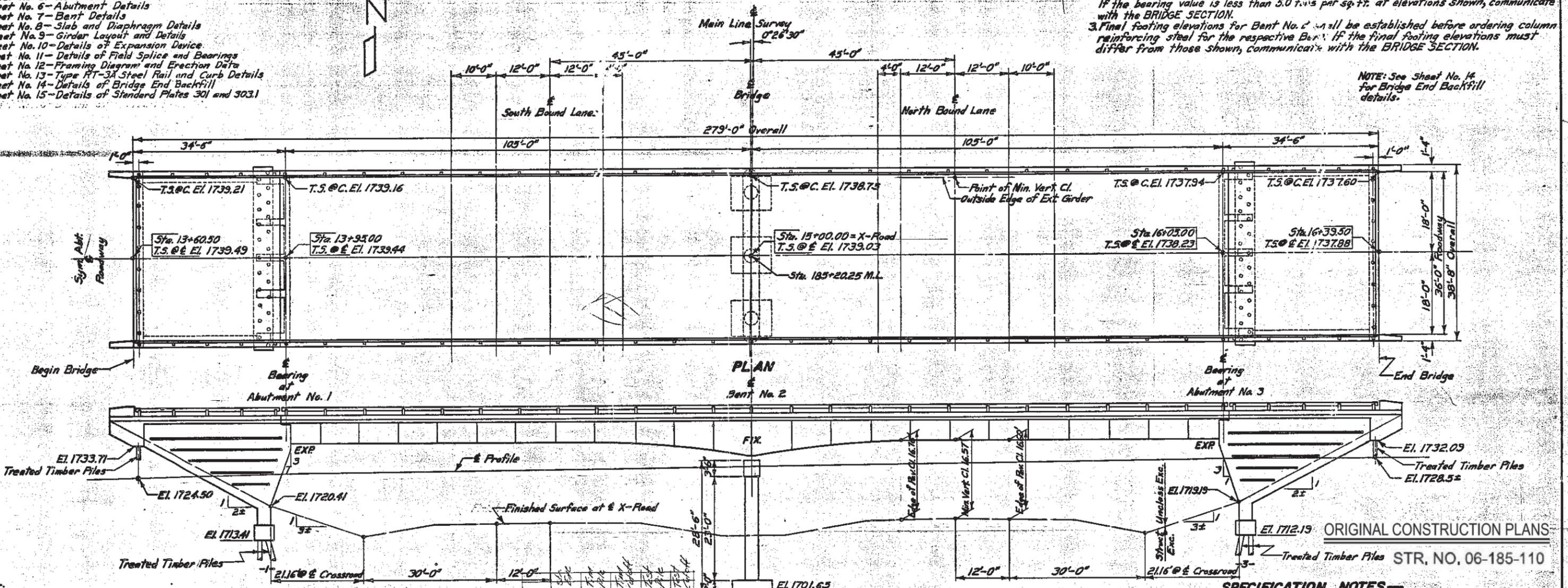
B.M. #13 Elev. 1722.06
3/4" Rebar in Fence Line
332.5' Rt. Sta. 185+53

B.M. #14 Elev. 1719.19
3/4" Rebar in Fence Line
313' Lt. Sta. 193+21

EXCAVATION NOTES—

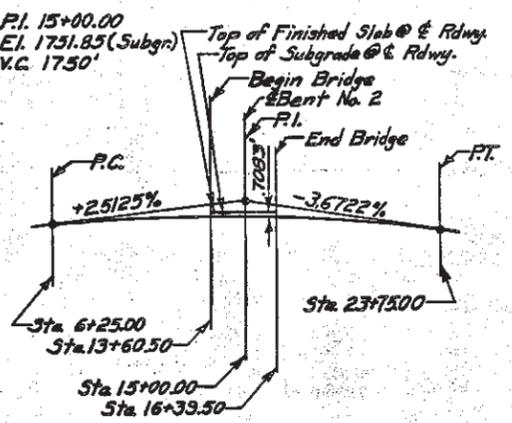
1. Footings for Bent No. 2 shall be cast upon solid undisturbed clay and carried into same to the elevations shown. Limits of clay excavation, below top of footings, shall be bound as nearly as practicable by the neat lines as shown in details of footings for Bent No. 2.
2. Clay shall develop a minimum bearing value 5.0 tons per sq. ft. at Bent No. 2. If the bearing value is less than 5.0 tons per sq. ft. at elevations shown, communicate with the BRIDGE SECTION.
3. Final footing elevations for Bent No. 2 shall be established before ordering column reinforcing steel for the respective Bent. If the final footing elevations must differ from those shown, communicate with the BRIDGE SECTION.

NOTE: See Sheet No. 14 for Bridge End Backfill details.



ESTIMATED QUANTITIES							
BID ITEM NO.	40005	40505	40555	40166	40705	10410	10405
ITEM	Cl. & Conc. Cu. Yds	Steel Rein. Lbs.	Type RT-3A Steel Piling—Lin. Ft.	Timber Piling—Lin. Ft.	Excavation—Cu. Yds.	Struct. Uncl. Yds.	Bridge End Backfill Lump Sum
Superstructure	212.6	53,130	201,510	427.6	22 @ 35' = 770	1 @ 40' = 40	
Abutment No. 1	164.7	41,345	395	67.0	22 @ 18' = 396	1 @ 25' = 25	125
Bent No. 2	50.0	9,870					165
Abutment No. 3	164.7	41,345	395	67.0	7 @ 35' = 245	1 @ 40' = 40	120
Totals	592.0	145,690	202,300	558.0	1236	4	7 Lump Sum

NOTE: T.S. @ C. El. = Top of Slab at Curb Elevation
T.S. @ E. El. = Top of Slab at Centerline Roadway Elevation



CROSS-ROAD VERTICAL CURVE DATA

* One Treated Timber Test Pile shall be driven at Abutments No. 1 and No. 3 before the remaining piles are ordered.
* Unclassified Excavation to be done by Grading Contractor.
* For information only, the approximate volume of Granular Backfill will be 75 Cu. Yds. in place and the length of 6" Perforated and nonperforated Metal Pipe will be 88 feet.

GENERAL NOTES—

1. Design Specification: A.A.S.H.O. Specification for Highway Bridges 1963, with Interim Specifications for 1966 and 1967.
2. See NOTES on Sheets No. 1 through No. 15.
3. Longitudinal elements of the slab shall conform to the vertical curve.
4. Rail posts and End Blocks shall be built normal to grade.
5. All Reinforcing Steel shall conform to A.S.T.M. Specifications A305 and A15, Intermediate Grade.
6. Design Loading: HS20-44 A.A.S.H.O.
7. The contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No. 303.1 for splice details.
8. Prebored holes for piles shall be backfilled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of granular material in place shall be included in the unit price bid for piles.
9. Standard plates referred to in these plans are the plates printed on Sheet No. 15 of these plans and are not intended to be referred to the Standard Plates Manual.
10. In the event piles shoes are used, see Standard Plate No. 301 for details.

SPECIFICATION NOTES—

Use South Dakota Standard Specifications for Road and Bridges, 1963 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions as included in the Proposal. All concrete shall be Class "A" Type II Cement. Contractor may use Type I cement instead of Type II provided it is done at no additional cost to the State.

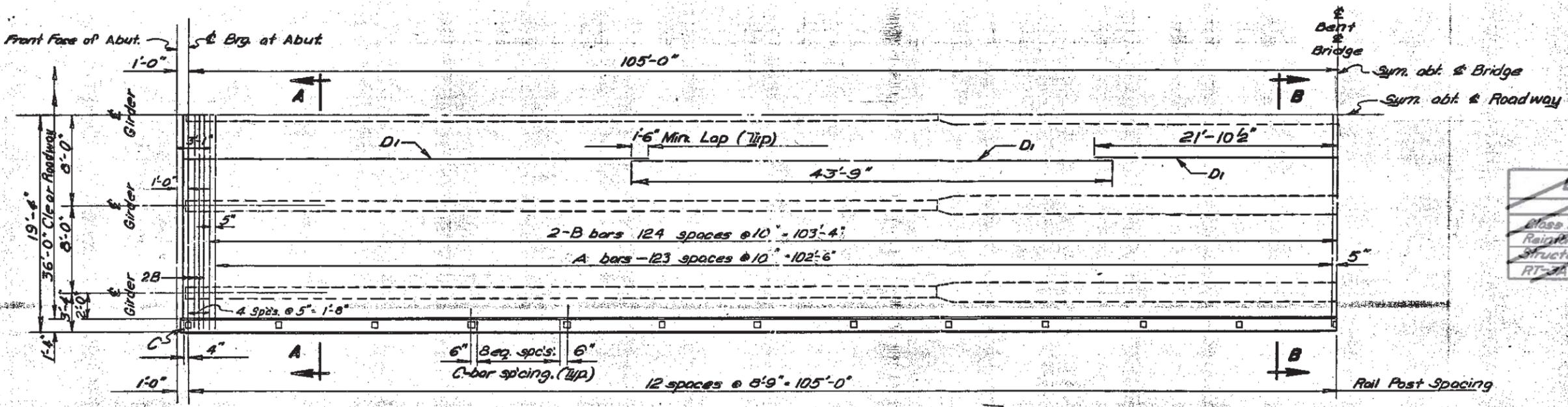
GENERAL DRAWING AND QUANTITIES

FOR
279'-0" CONT. COMP. GIRDER VIADUCT
36'-0" ROADWAY
OVER I.S. NO. 29 STA. 185+20.25 M.L. SEC. 30/31-T111N-R49W
STA. 13+60.50 TO 16+39.50 129-5(10)134
BROOKINGS COUNTY SOUTH DAKOTA HS20-44
Str. No. 06-185-110

PLANS BY:
BRIDGE SEC., S. DAK. DEPT. HWYS.

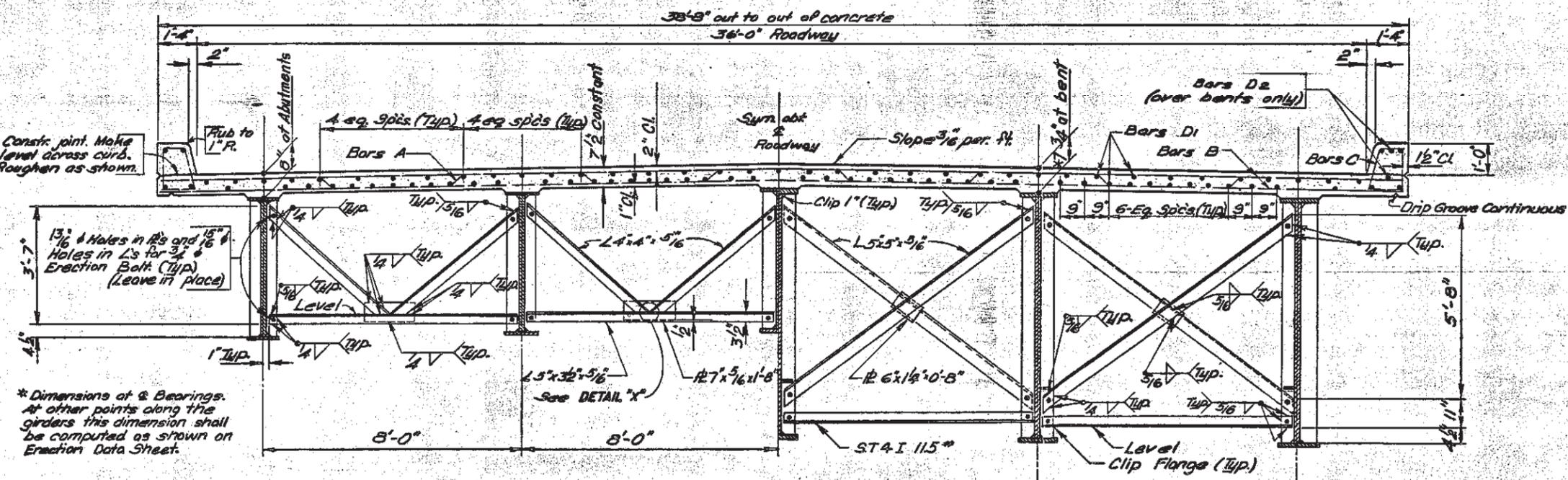
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	C.D.	W.C.P.	<i>[Signature]</i> BRIDGE ENGINEER

STATE OF S.D.	PROJECT W 0295(38)125	SHEET NO. 84	TOTAL SHEETS 125
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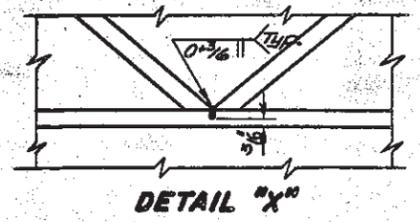
QUARTER PLAN

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class A Concrete	Cu Yds.	212.6
Reinforcing Steel	Lbs.	53,130
Structural Steel	Lbs.	201,510
RT-11 Steel Paving	Lin. Ft.	424



SECTION A-A
(Typical all diaphragms except at bents)

SECTION B-B



DETAIL "X"

CONCRETE POURING NOTES

Concrete slab may be poured continuously provided approved concrete retarders are used and the contractor has demonstrated capacity for such continuous operations.
 Transverse construction joints are permitted in the slab and shall be positioned near the girder field splices or at approximately the 1/3 points from E of Bent.
 If transverse construction joints are used the contractor shall submit to the Bridge Section for approval, plans and details of construction joints used, as well as sequence of pouring.
 Curbs shall be poured after all the slab has been poured.

REINFORCING SCHEDULE				
BAR	No.	Size	Length	Type
A	248	5	39'-6"	15
B	512	5	38'-3"	Str.
C	436	4	5'-9"	T1
D1	455	5	43'-9"	Str.
D2	4	5	12'-0"	Str.

Banding Details

NOTE: - All dimensions are out to out of bars.

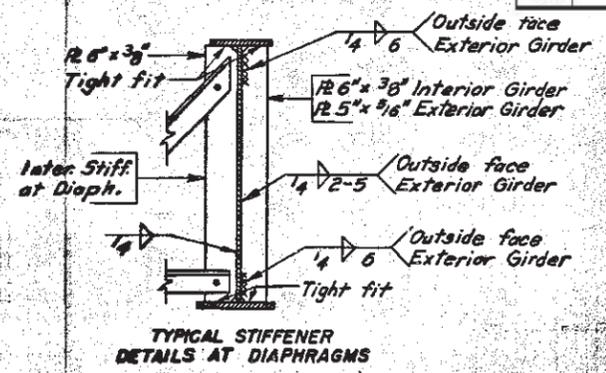
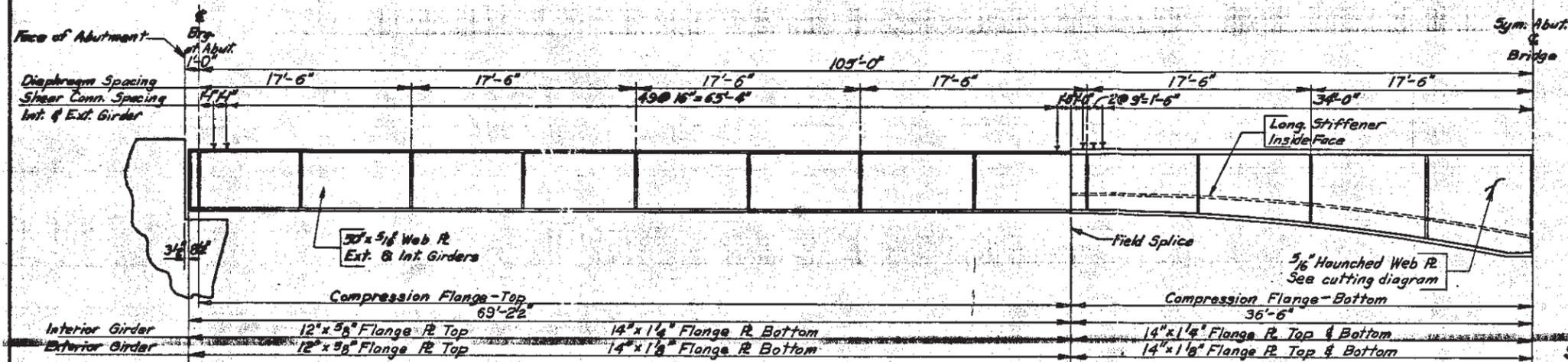
STR. NO. 06-185-110
 ORIGINAL CONSTRUCTION PLANS

SLAB AND DIAPHRAGM DETAILS
 FOR

279'-0" CONT. COMP. GIRDER VIADUCT
 36'-0" ROADWAY
 OVER I.S. NO. 29 STA. 185+20.25 M.L. SEC. 30/31-T111N-R49W
 STA. 13+60.50 TO 16+39.50 I 29-5(10) 134
 BROOKINGS COUNTY

SOUTH DAKOTA HS20-44
 DEPARTMENT OF HIGHWAYS
 OCT. 1968 (18) OF (21)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	L.P.J.	H.C.P.	<i>P.H. Schmitt</i> BRIDGE ENGINEER

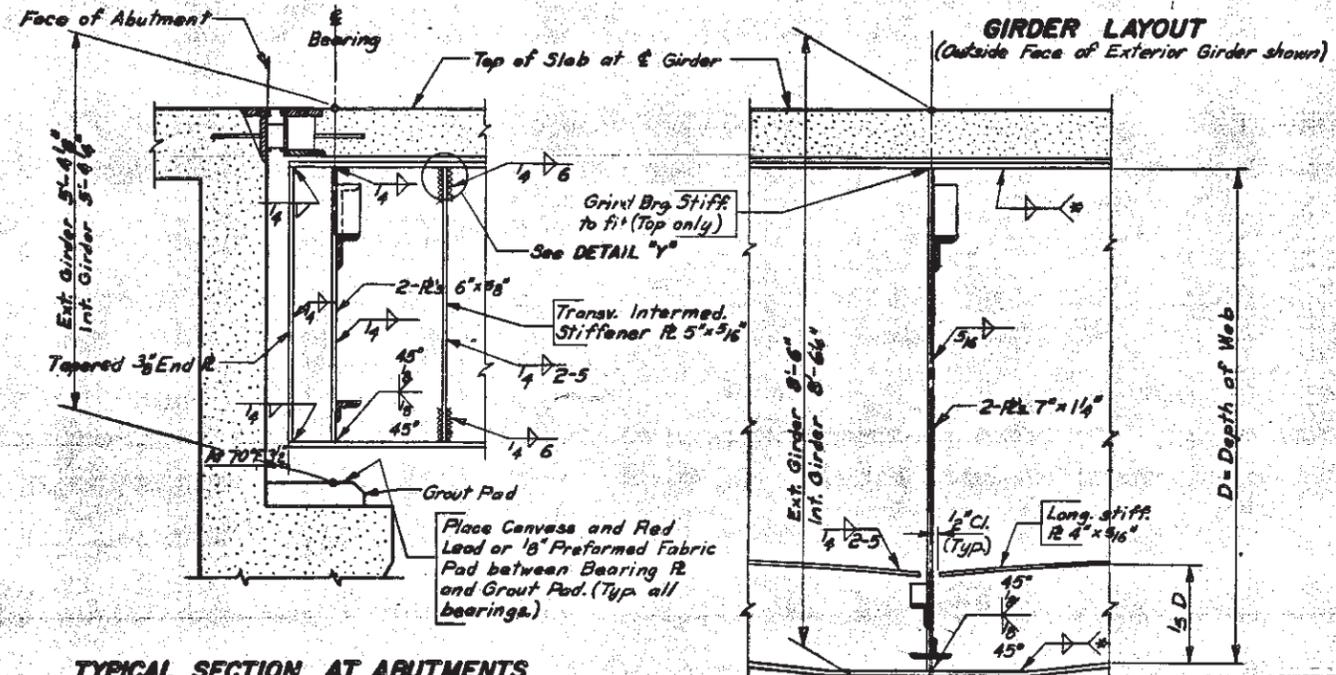
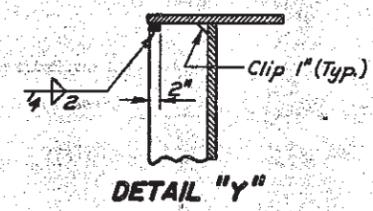


SUPERSTRUCTURE NOTES—

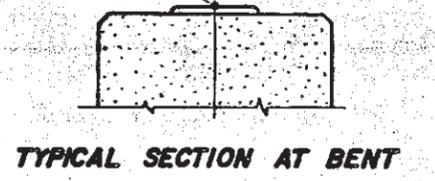
1. Design Specifications: AASHTO Specs. for Highway Bridges, 1965 with Item Specs. for 1966 and 1967.
2. Design Loading: HS20-44 A.A.5.H.O.
3. Structural Steel members shall conform to ASTM-A36 Steel. Steel produced under other Specifications, but shown to possess the chemical and physical properties of A36 steel will be accepted for use where the latter is specified.
4. Structural Steel for bearings shall conform to ASTM-A36, except as shown.
5. Cost of welding shall be included in the unit price bid for Structural Steel.
6. Cost of canvas and red lead or preformed fabric pads under bearing plates shall be included in the unit price bid for Structural Steel.
7. Copper alloy bearing plates shall be as specified on bearing sheet. The weight of these plates shall be computed as structural steel and included in that bid item.
8. Butt welded girder splices, shop or field, shall be radiographically inspected.
9. All reinforcing steel bars shall conform to ASTM Specifications A305 and A15 Intermediate Grade.
10. All exposed concrete edges shall be chamfered 1" unless otherwise noted.
11. See Railing Sheet for details of handrail and curb.
12. Bolts left in place at diaphragms shall be included in the Structural Steel quantity for payment.
13. The cost of painting shall be included in the unit price bid for Structural Steel.
14. Fillet welds shall be subjected to magnetic particle inspection.
15. Structural Steel shall be painted with one shop coat of Red Lead Paint (AASHTO designation M72 Type I) or Red Lead Iron Oxide Paint (A.A.S.H.O. designation M72 Type III) and shall be field painted with one coat of gray paint followed by a coat of green paint.
16. Cost of Neoprene seals shall be included in the unit price bid for Structural Steel.
17. Unit Stresses: Reinforcing Steel, $f_s = 20,000$ p.s.i., Slab Conc., $f_c' = 4000$ p.s.i., $n = 8$, $f_c = 1350$ p.s.i.

NOTES—

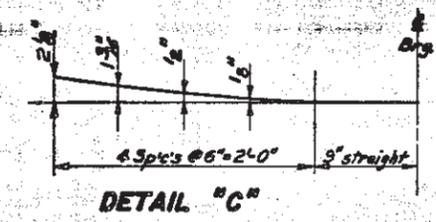
1. See sheet No. 11 for details of field splice.
2. See sheet No. 8 for diaphragm details.
3. All dimensions shown are horizontal or vertical.
4. All stiffeners shall be made normal to flanges.
5. Girder ends shall be made vertical.



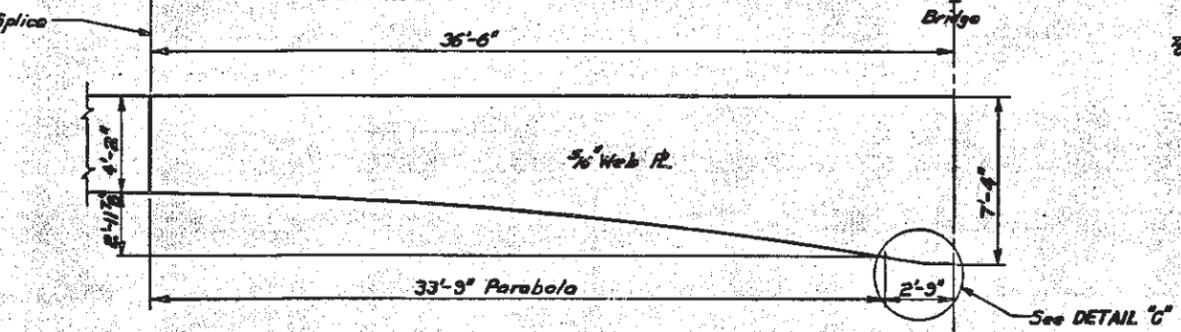
TYPICAL SECTION AT ABUTMENTS



TYPICAL SECTION AT BENT

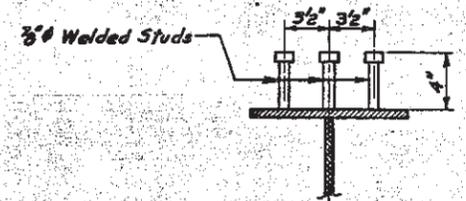


DETAIL "C"

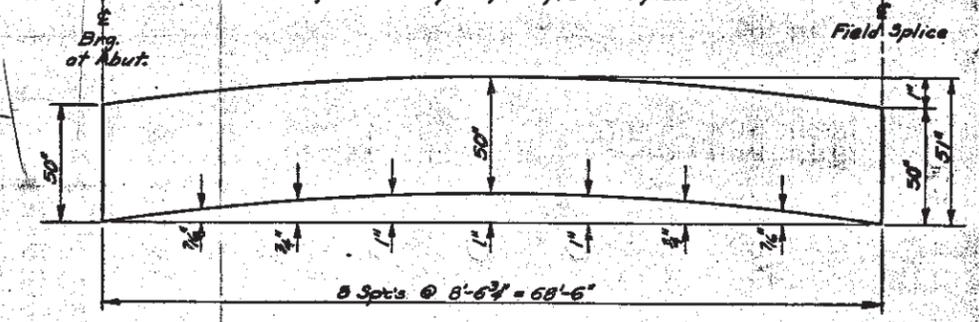


HAUNCH CUTTING DIAGRAM

*Note:
Use 5/16" Cont. Fillet Weld-Web to 1 1/2" and 1 1/4" Flg. R's.
Use 1/4" Cont. Fillet Weld-Web to 5/8" Flg. R.



Exterior & Interior Girder
DETAILS FOR SHEAR CONNECTORS
Shear connectors are spaced as shown on Girder Layout.



CAMBER DIAGRAM

Cut Camber into webs of all girders as shown.

ORIGINAL CONSTRUCTION PLANS GIRDER LAYOUT AND DETAILS FOR

STR. NO. 06-185-110 279'-0" CONT. COMP. GIRDER VIADUCT

36'-0" ROADWAY

OVER I.S. NO. 29 STA. 165+20.25 M.L. SEC. 30/31-TIIN-R49W

STA. 13+60.50 TO 16+39.50 1 29-5(0) 134

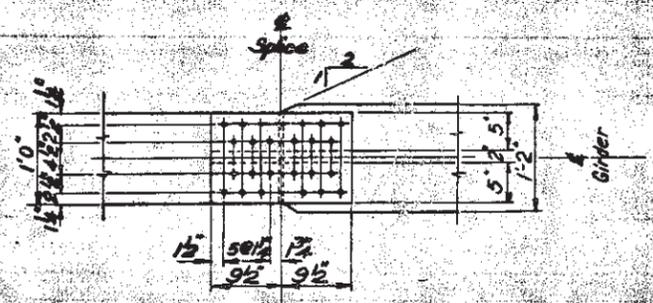
BROOKINGS COUNTY

SOUTH DAKOTA HS20-44

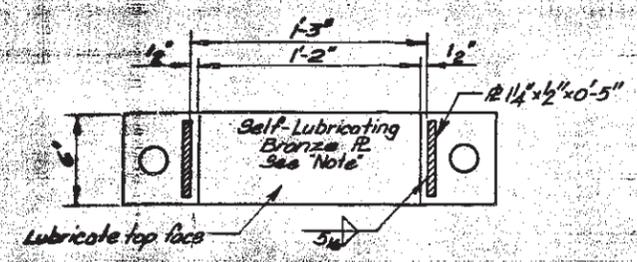
DEPARTMENT OF HIGHWAYS

OCT. 1968 19 OF 21

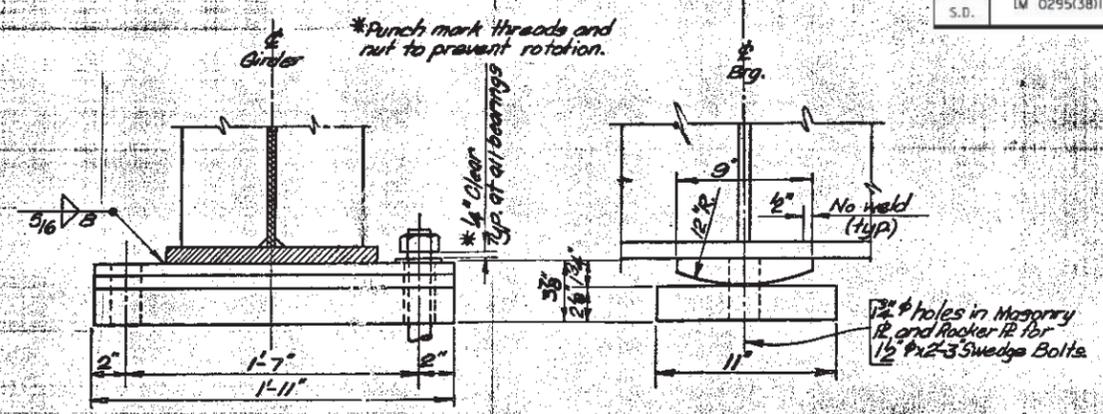
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	C.D.	H.C.P.	<i>[Signature]</i> BRIDGE ENGINEER



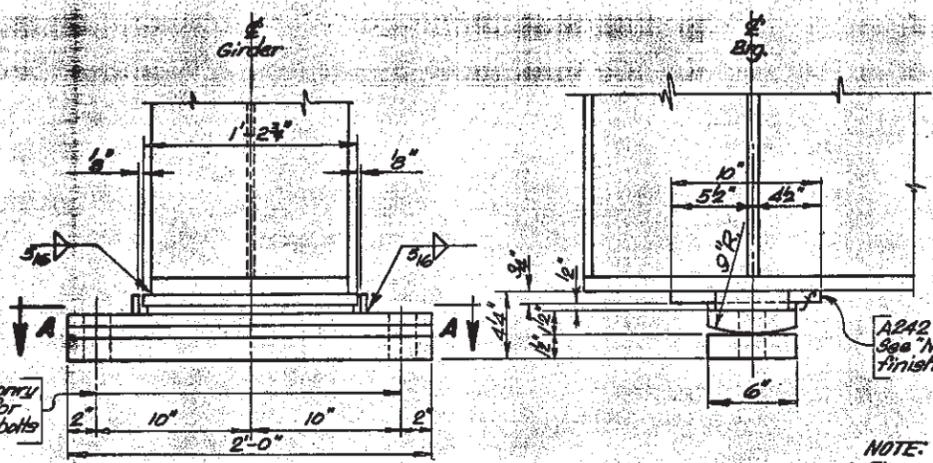
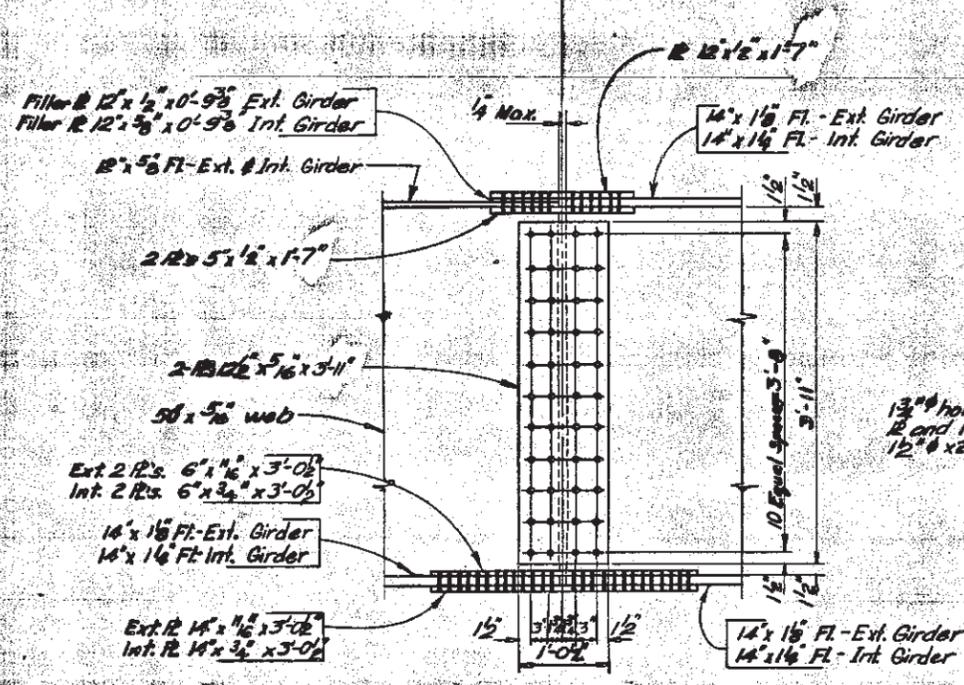
STRAIGHT SECTION HAUNCH SECTION



SECTION A-A



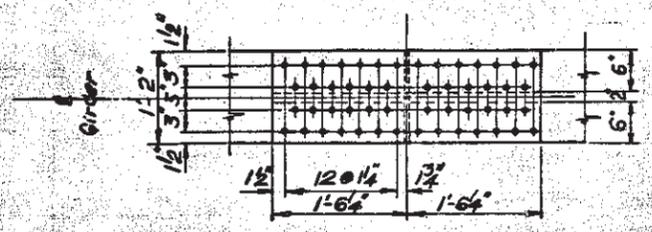
FIXED BEARING AT BENT



EXP. BEARING AT ABUTMENTS

NOTE:

1. The cast Bronze bearing plates shall conform to A.S.T.M. B22, Class E. Contact surfaces, both Bronze and Steel, shall be finished in the direction of motion to A.S.A. B46.1 No. 125. The lubricated surface shall be bored in a geometric pattern of recesses to receive a lubricating material suitable for long-life service of the bearing face. The lubricated area shall comprise approximately 25 percent of the bearing face to provide a coefficient of friction not to exceed 10 percent for loads of 1000 to 1500 p.s.i.
2. Chamfer edges of Bronze Plate's.
3. Fasten Bronze Plate to rocker plate with six flat head counter-sunk bronze screws.
4. The weight of Bronze bearing plates shall be computed on the basis of having a unit weight the same as structural steel and included in that bid item.
5. Type of steel for the sliding bearing plates shown shall conform to A.S.T.M. A242 with resistance to corrosion of 4 to 6 times that of carbon steel.



FIELD SPLICE

GENERAL NOTES FOR FIELD SPLICE-

1. All bolts shall be 3/4" #
2. Bolts, nuts and washers shall conform to requirements of A.S.T.M. Specification A325. Bolts shall have heavy head and one hardened washer to be assembled under the turned element.
3. Holes for 3/4" high strength bolts shall be subpunched and reamed or drilled and splice plates match-marked after assembling as provided in Section 410.3 of South Dakota Standard Specifications for Roads and Bridges.
4. Contact surfaces of splices shall be free of all oil or paint.
5. Steel for splice and filler plates shall conform to A.S.T.M. A36 Steel.
6. 3/4" High Strength Bolts shall be tightened to a minimum tension of 28,400 Lbs. Tightening shall be done with properly calibrated wrench or by the "turn of the nut" method as provided in Section 2.10.20 of the A.A.S.H.O. Specifications.
7. Bolts in flange splices shall be placed with heads down.
8. Bolts in web splices of exterior girders shall be placed with heads on exterior face of girders.
9. High strength bolts, nuts and washers shall be stored in such a manner that they will be kept free from any rust or foreign material will cause erratic torque wrench readings when checked with a bolt tension calibrator.

STR. NO. 06-185-110
ORIGINAL CONSTRUCTION PLANS

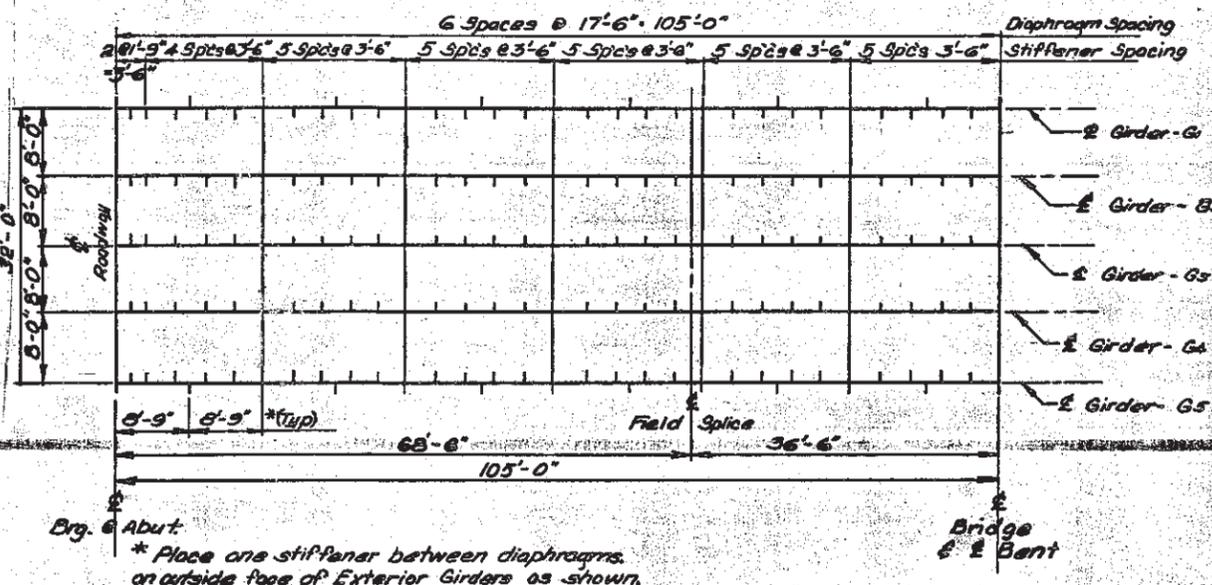
DETAILS OF FIELD SPLICE AND BEARINGS
FOR
279'-0" CONT. COMP. GIRDER VIADUCT
36'-0" ROADWAY

OVER I.S. NO. 29 STA. 185+20.25 M.L. SEC. 30/31-TIIN-R49W
STA. 15+60.50 TO 16+39.50 129-5(10)34

BROOKINGS COUNTY
SOUTH DAKOTA HS20-44

DEPARTMENT OF HIGHWAYS
NOV. 1968 20 OF 21

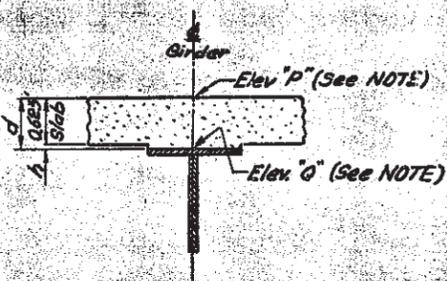
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	L.P.L.	W.C.P.	<i>[Signature]</i> BRIDGE ENGINEER



FRAMING DIAGRAM

TABLE OF SLAB FORM ELEVATIONS AND COMPUTATIONS

	0	1	2	3	4	5	6	7	8	9	10
Girder-01											
Elev. P	1739.194	1739.214	1739.172	1739.060	1738.914	1738.780	1738.670	1738.573	1738.441	1738.240	1737.976
(-) Elev. Q											
(a) d											
(-) 0.625											
(a) h											
Girder-02											
Elev. P	1739.319	1739.339	1739.297	1739.185	1739.038	1738.905	1738.795	1738.698	1738.566	1738.365	1738.101
(-) Elev. Q											
(a) d											
(-) 0.625											
(a) h											
Girder-03											
Elev. P	1739.443	1739.464	1739.421	1739.310	1739.163	1739.029	1738.920	1738.823	1738.691	1738.490	1738.226
(-) Elev. Q											
(a) d											
(-) 0.625											
(a) h											
Girder-04											
Elev. P	1739.319	1739.339	1739.297	1739.185	1739.038	1738.905	1738.795	1738.698	1738.566	1738.365	1738.101
(-) Elev. Q											
(a) d											
(-) 0.625											
(a) h											
Girder-05											
Elev. P	1739.194	1739.214	1739.172	1739.060	1738.914	1738.780	1738.670	1738.573	1738.441	1738.240	1737.976
(-) Elev. Q											
(a) d											
(-) 0.625											
(a) h											



NOTE-

This table contains the necessary information to determine the depth of concrete, in feet, over the girders at the points shown. All calculations can be carried in the spaces provided. Elevation "P" is the elevation of the top of slab form before any concrete has been poured. This elevation includes correction for vertical curve and deflection due to all D.L. above girders. Elevation "Q" is a field measured elevation taken on top of girders at the points shown. This elevation must be taken after girder erection is completed, but prior to placing any of the concrete. Girders shall not be supported by construction shoring while elevations are taken.

STR. NO. 06-185-110
ORIGINAL CONSTRUCTION PLANS

FRAMING DIAGRAM AND ERECTION DATA
FOR

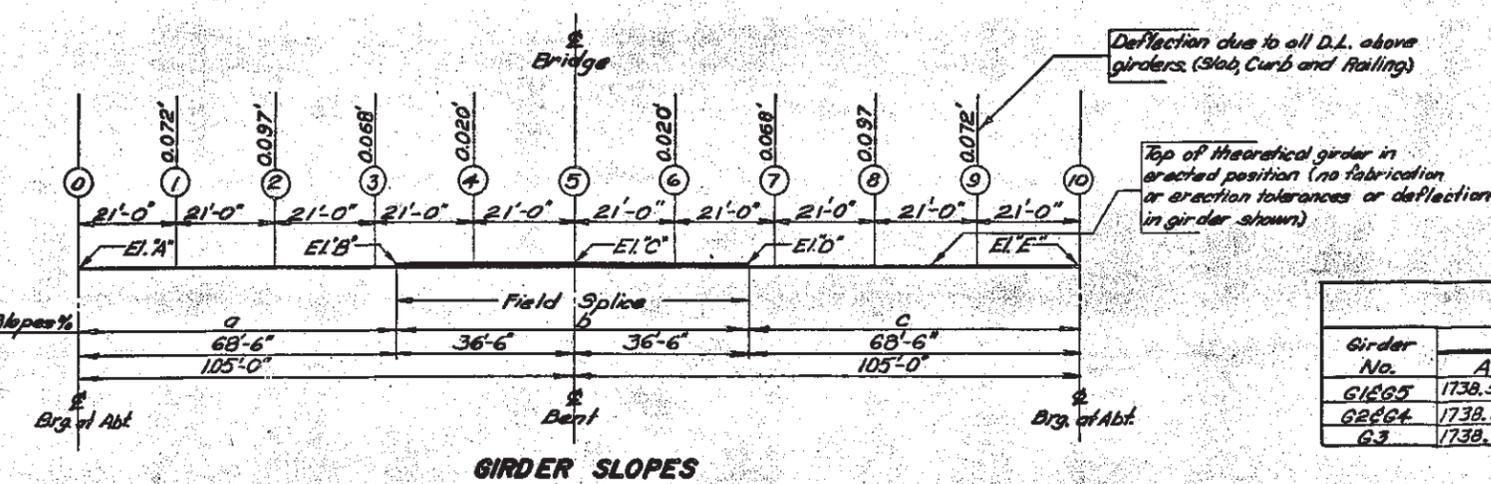
279'-0" CONT. COMP. GIRDER VIADUCT
36'-0" ROADWAY

OVER I.S. NO. 29 STA. 185+20.25 M.L. SEC. 30/31-T111N-R49W
STA. 13+60.50 TO 16+39.50 129-5(10) 134

BROOKINGS COUNTY
SOUTH DAKOTA HS20-44
DEPARTMENT OF HIGHWAYS

OCT. 1968 (21) OF (21)

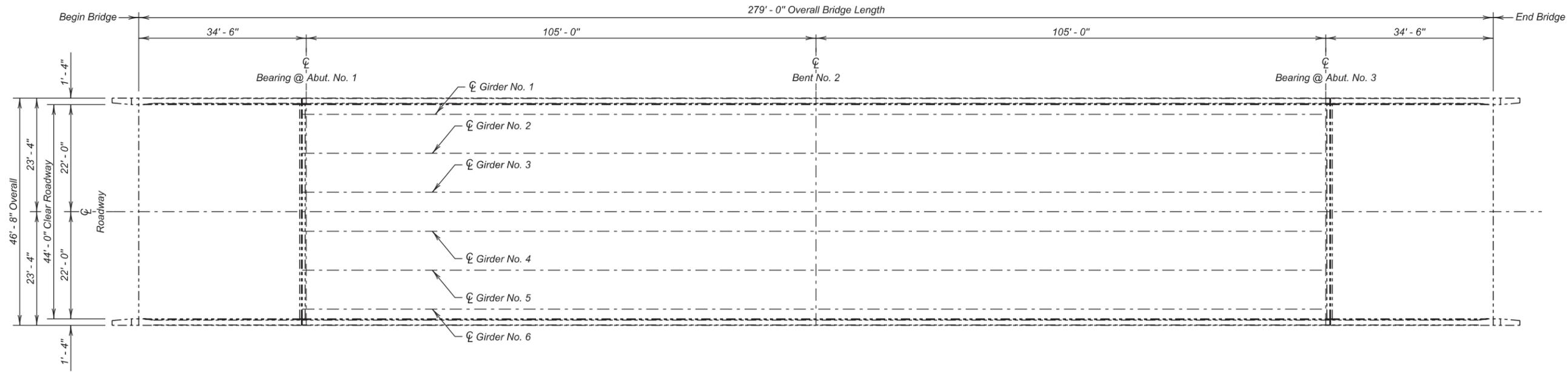
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	L.P.J.	C.B.	<i>[Signature]</i> BRIDGE ENGINEER



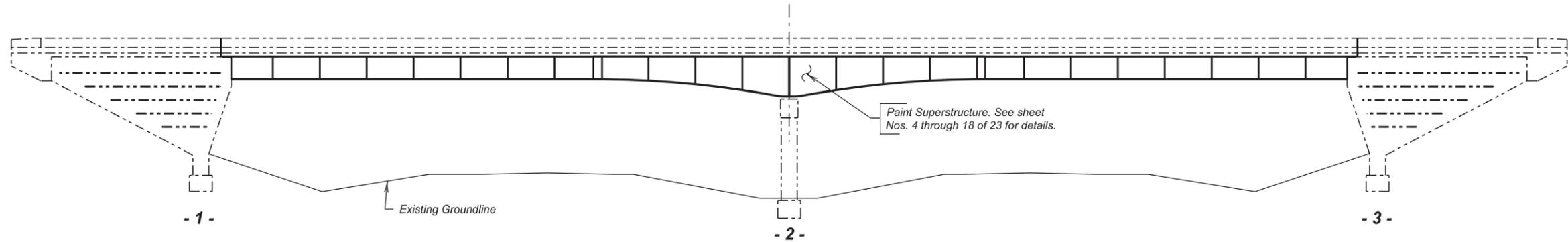
GIRDER ERECTION ELEVATIONS

Girder No.	Elevation (Top of Girder)					Girder Slopes %		
	A	B	C	D	E	a	b	c
G265	1738.527	1738.346	1738.134	1737.922	1737.309	-0.32584	-0.57986	-0.83387
G264	1738.652	1738.470	1738.259	1738.047	1737.434	-0.34102	-0.57986	-0.81869
G3	1738.777	1738.595	1738.384	1738.172	1737.559	-0.34102	-0.57986	-0.81869

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	88	125



PLAN



ELEVATION

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Girder No. 1 Paint Details
- Sheet No. 5 - Girder No. 1 Paint Details (Continued)
- Sheet No. 6 - Girder No. 2 Paint Details
- Sheet No. 7 - Girder No. 2 Paint Details (Continued)
- Sheet No. 8 - Girder No. 3 Paint Details
- Sheet No. 9 - Girder No. 3 Paint Details (Continued)
- Sheet No. 10 - Girder No. 4 Paint Details
- Sheet No. 11 - Girder No. 4 Paint Details (Continued)
- Sheet No. 12 - Girder No. 5 Paint Details
- Sheet No. 13 - Girder No. 5 Paint Details (Continued)
- Sheet No. 14 - Girder No. 6 Paint Details
- Sheet No. 15 - Girder No. 6 Paint Details (Continued)
- Sheet No. 16 - Girder Paint Details At Bolted Splices
- Sheet No. 17 - Girder Paint Details
- Sheet No. 18 - Girder Paint Details (Continued)
- Sheet No. 19 thru 23 - Original Construction Plans

LAYOUT FOR UPGRADING

FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE

44' - 0" ROADWAY 0° SKEW
 OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
 STR. NO. 06-185-080 IM 0295(38)125
 PCN 035C

DEUEL COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

1 OF 23

PLANS BY:
 OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY NP DUJEL035C	CK. DES. BY EJA 035CRE01	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

NOTICE – LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans.

Clean and paint portions of the existing girders and all of the bearings as shown be these plans.

PAINT RESIDUE REMOVAL AND CONTAINMENT

- Paint Residue Removal and Containment shall be performed in accordance with Section 412 of the Construction Specifications, Bridge Repainting Class II except as modified by these notes.
- The Contractor shall plan his operations to prevent releases of lead containing material and other particulate matter into the surrounding air, water, and onto the ground, soil, slope protection, and pavement. The Contractor shall be responsible for any corrective actions should a spill occur.

- Collect all visible paint particles and blasting residue containing paint at the end of each workday from the work area. Inspect outside the containment and collect any paint particles or blasting residue that escaped the work area. Collect waste material by manual means, vacuum, or another method approved by the Engineer. Do not use air pressure or streaming water to assist in the waste collection process that could disperse the waste material.

- In the event of a spill or inadvertent release, the Contractor shall immediately stop work, notify the Engineer, and report the release to the South Dakota Department of Environmental and Natural Resources (DENR). The Contractor shall be responsible for completing a spill reporting form and for all costs associated with appropriate corrective actions.

To report a release or spill, call DENR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at (605) 773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the Contractor must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

- The Contractor shall haul and unload the 55 gallon containment drums with paint residue, blasting media, etc. to the SDDOT Maintenance Yard located in Brookings for temporary storage. The Brookings Maintenance Yard is located at 2131 34th Avenue. Contact person for the Brookings Yard is John Rittershaus at (605) 688-5001 or Matt Brey at (605) 882-5166. All costs associated with this work shall be included in the contract lump sum price for "Paint Residue Containment".

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS

- Pack rust areas within the areas defined for painting in the Bridge Repainting Class II notes shall be treated with a rust penetrating sealer. The rust penetrating sealer shall be applied after the area has been cleaned and prepared for painting as specified in the Bridge Repainting, Class II notes but prior to the application of the final paint system. Pack rust areas are those defined as joints in connecting plates and/or crevice areas (locations noted as apply rust inhibitor on the plan sheets).

- The rust penetrating sealer shall be supplied as one of the following:

2.1 Pre-Prime 167
Penetrating Sealer
International
South Dakota Area Manager: Kevin Perego
Telephone: 636-207-8897
Cell: 314-540-8925
Website: www.international-pc.com

2.2 Wasser MC-PrepBond 2.8
Wasser Corporation
4118 B Place NW Suite B
Auburn, WA 98001
Telephone: 800-627-2968
Website: www.wassercoatings.com

2.3 Time-Lock MoPoxY PRE-PREP
Rust Penetrating Sealer 41-AF-2
BLP Mobile Paints
P.O. Box 717
Theodore, Alabama 36590-0717
Telephone: 251-443-6110
Website: www.blpmobilepaint.com

2.4 Rust Bullet Standard Formula
Rust Bullet, LLC
300 Brinkby Avenue, Suite 200
Reno, NV 89509
Telephone: 800-245-1600
Website: www.rustbullet.com

The rust penetrating sealer shall be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

- Remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed.
- Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the paint system specified in Section 412 of the Construction specifications until the area has cured for the amount of time specified by the manufacturer of the rust penetrating sealer.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 279' - 0" CONT. COMP. GIRDER BRIDGE

STR. NO. 06-185-080

JANUARY 2016

2 OF 23

DESIGNED BY NP	CK. DES. BY EJA	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
DUELO3EC	035CRE02		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	90	125

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS (CONTINUED)

- For informational purposes, 535 square feet of structural steel will require rust penetrating sealer.
- The cost of furnishing and applying the rust penetrating sealer and all other items incidental to the application of this sealer shall be included in the contract lump sum price for "Rust Penetrating Sealer".

BRIDGE REPAINTING, CLASS II

- Portions of the existing girders, diaphragms, bolted splices and bearings shall be painted as shown by these plans and in accordance with the requirements for Bridge Repainting, Class II in Section 412 of the Construction Specifications except as modified by these notes.
- After blast cleaning the surfaces to be painted, remove any trace of blast products, dust or dirt from all surfaces including pockets and corners as approved by the Engineer.
- The color of the top coat shall be an approved green (Federal Standard 595B Color 24108). The prime coat and the top coat shall sharply contrast.
- For informational purposes, 7,170 square feet of structural steel will require painting. For a breakdown of the paint required for all of the portions of the bridge, see sheet nos. 4 through 18 of 23 of the plans.

BOLTED SPLICE PLATE SEALANT

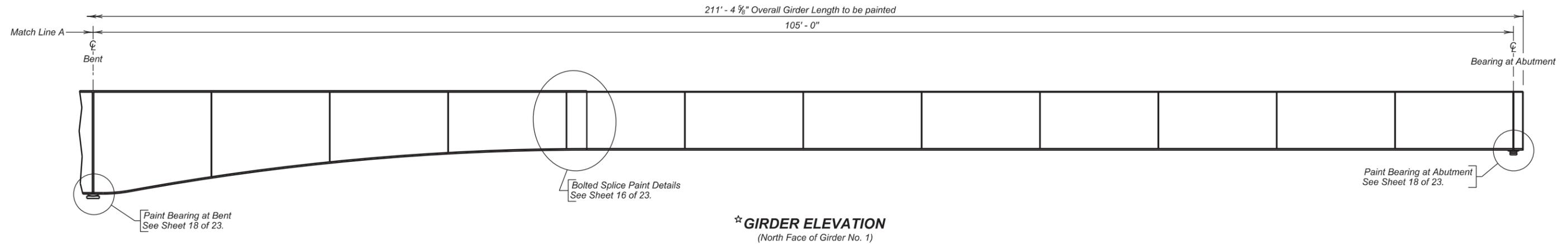
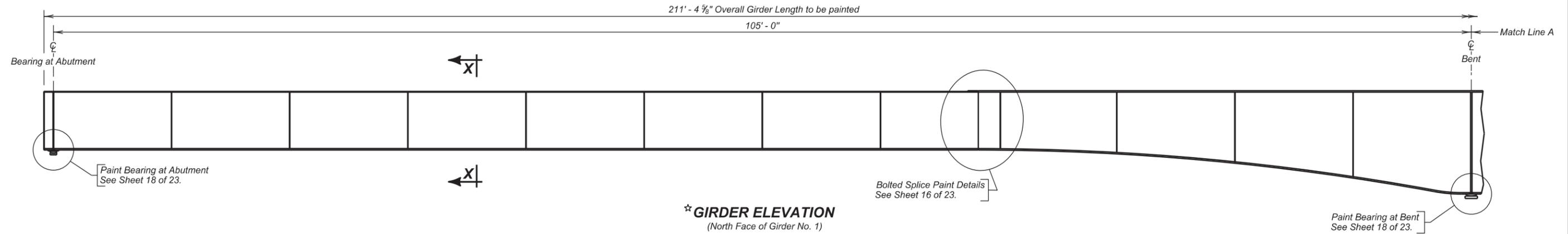
- The edges of all bolted splice plates shall be sealed using a Polyurethane Sealant.
- The Polyurethane Sealant shall meet the following requirements. The sealant shall be a single component, moisture cure, non-sag, smooth formulation, gun-grade elastomeric sealant. The sealant shall meet the requirements for ASTM C-920, Type S, Grade NS, Class 25, Use-A.
- Contact surfaces shall be cleaned in accordance with the manufacturer's recommendations. The Contractor shall supply the Engineer with written instructions regarding the manufacturer's recommended surface treatment for the in-place surface condition at least 48 hours before application for review and acceptance.
- The Polyurethane Sealant shall be applied and tooled as recommended by the manufacturer. Product data sheets and Material safety data sheets shall be supplied to the Engineer at least one week prior to installation. In no case shall the thickness of the material be less than 1/4". Feathering of the joint material shall not be allowed. Adjacent surfaces shall be masked to avoid application of the material outside the limits of the final seal. Application surfaces shall be clean and free of material contaminants. Application shall not be allowed on a wet or damp surface.
- Polyurethane Sealant shall be installed and allowed to cure prior to the application of any field applied paint.
- For informational purposes only the sealant will be applied on 605 linear feet.
- Polyurethane Sealant for Structure shall be included in the lump sum price for "Bridge Repainting, Class II." Payment will be full compensation for labor, equipment, materials and incidentals for furnishing, preparing surfaces for application and installing the Polyurethane Sealant.

NOTES (CONTINUED)
FOR
279' - 0" CONT. COMP. GIRDER BRIDGE
STR. NO. 06-185-080
JANUARY 2016

(3) OF (23)

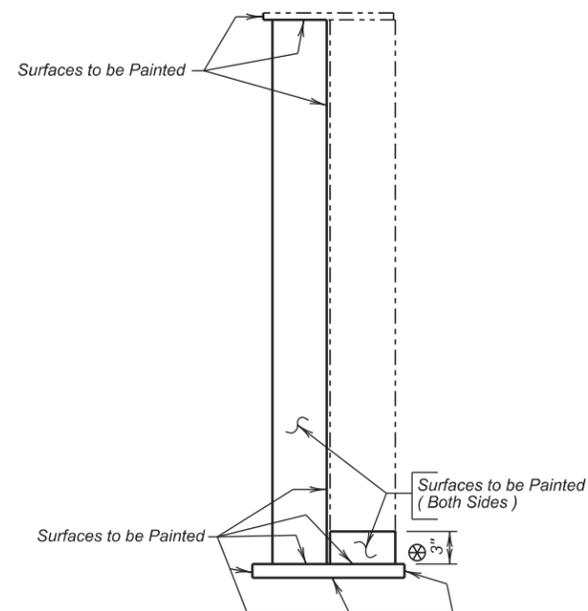
DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE03	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	91	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.



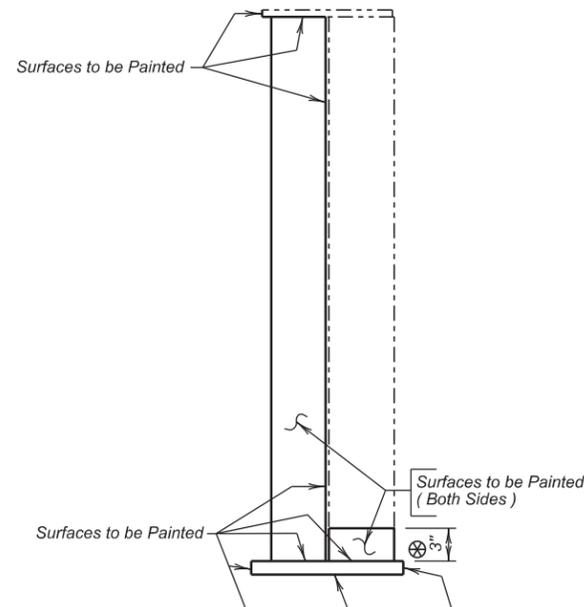
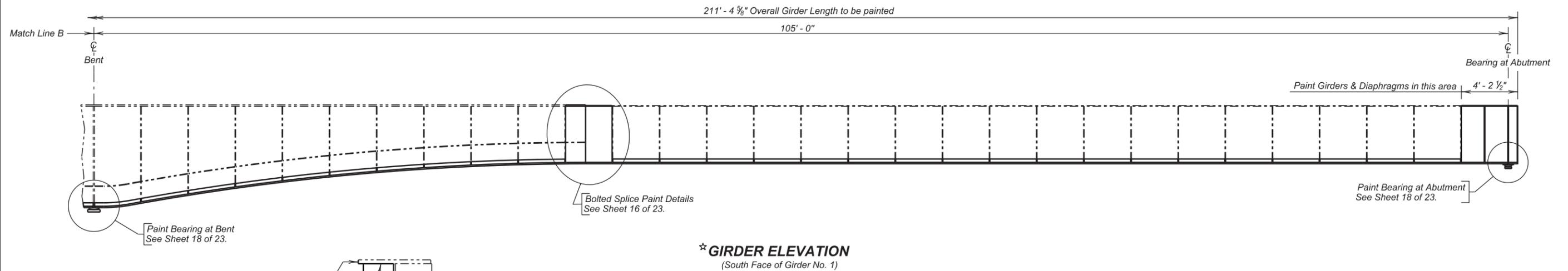
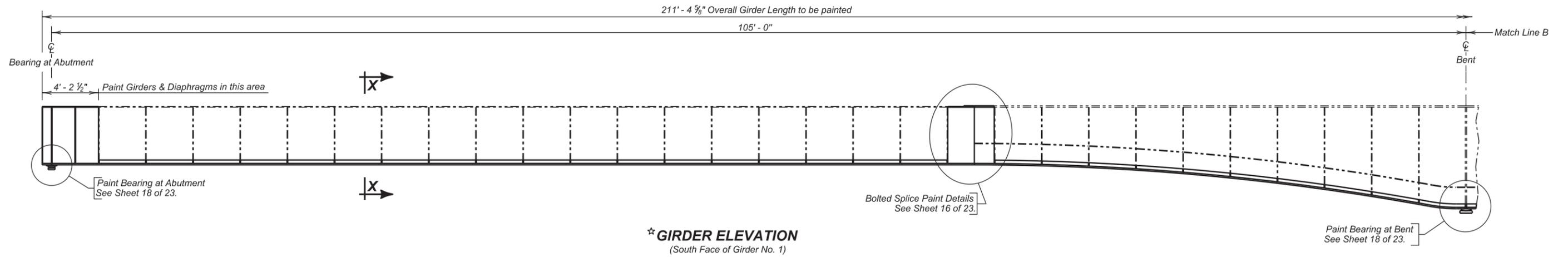
☆ SECTION X - X

GIRDER NO. 1 PAINT DETAILS
FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE04	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	92	125



★ **SECTION X - X**

★ Note: New paint areas are shown bounded by solid object lines.

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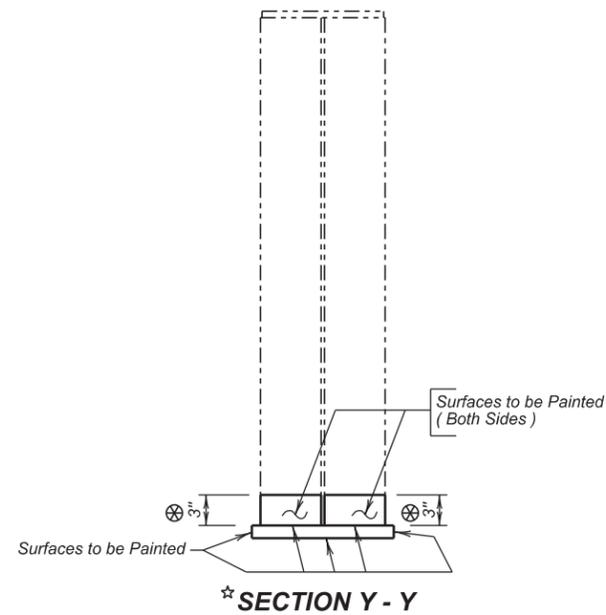
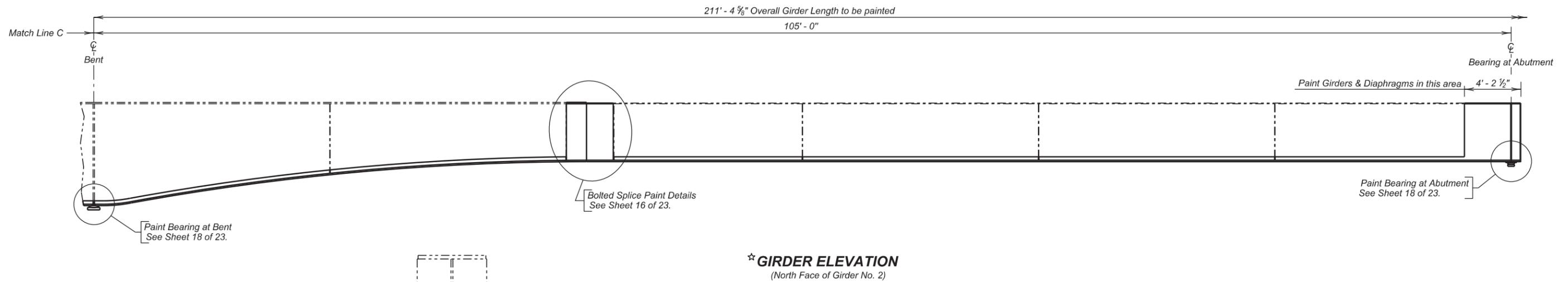
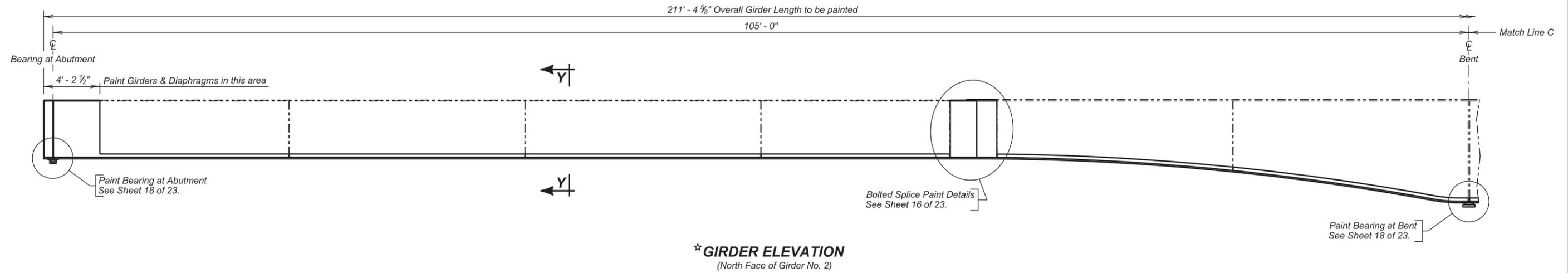
GIRDER NO. 1 PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE05	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	93	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

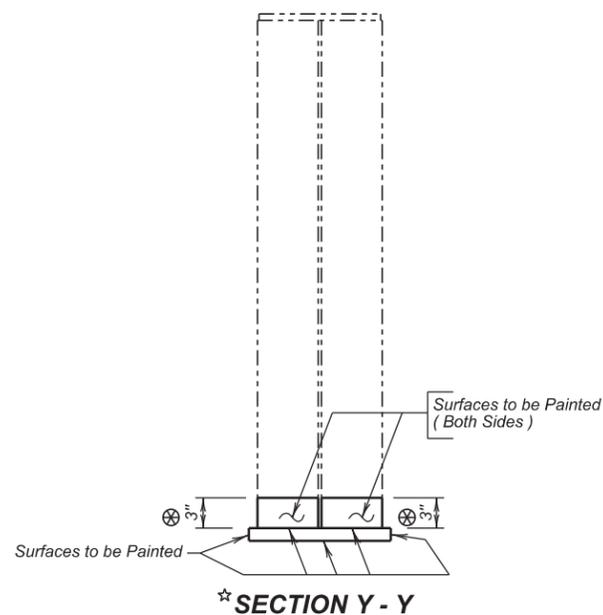
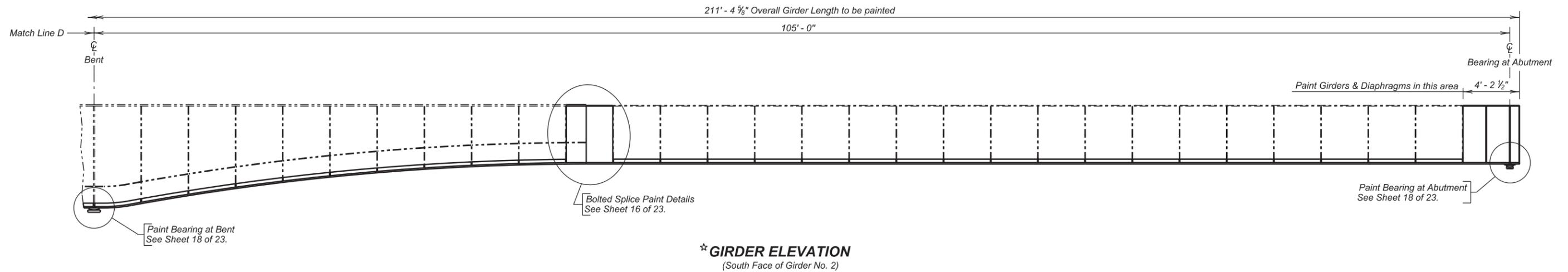
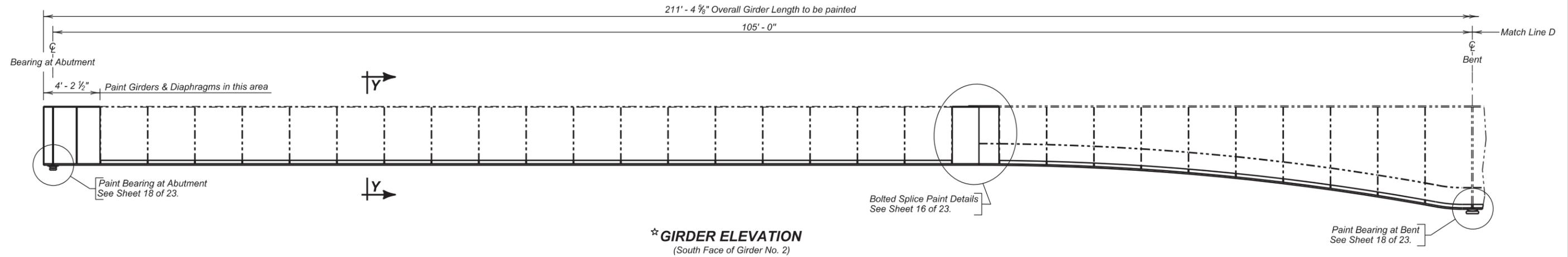
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FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-080

0° SKEW
SEC. 7/18 - T111N - R49W
IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE06	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	94	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

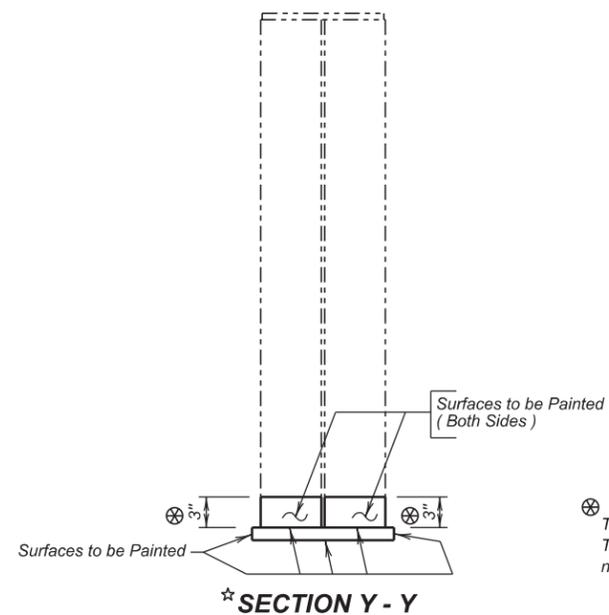
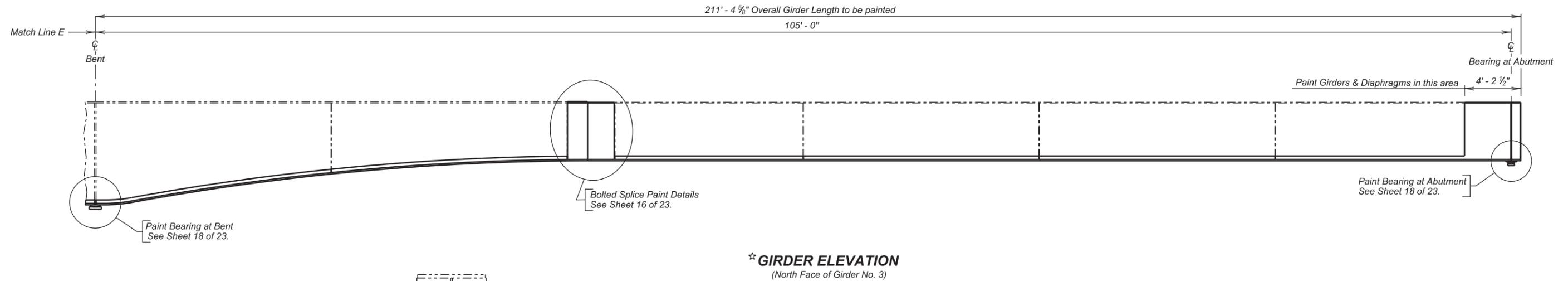
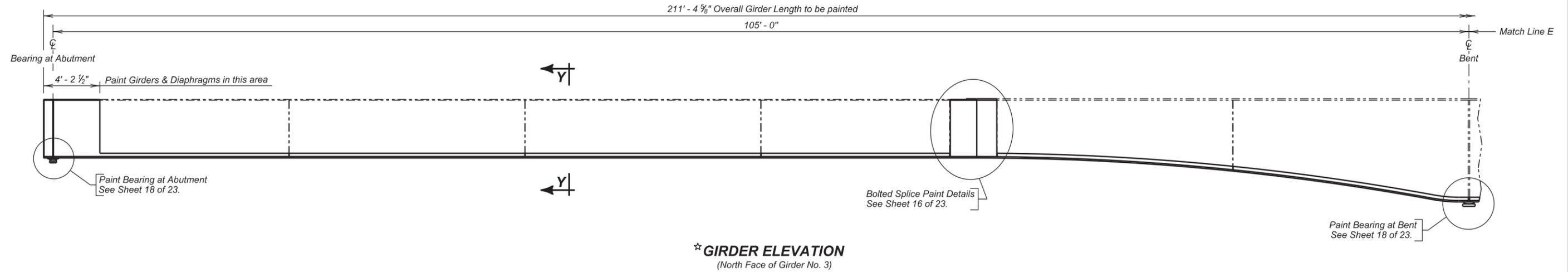
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FOR
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44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE07	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	95	125



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

☆ Note: New paint areas are shown bounded by solid object lines.

GIRDER NO. 3 PAINT DETAILS

FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE

44' - 0" ROADWAY 0° SKEW

OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W

STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY

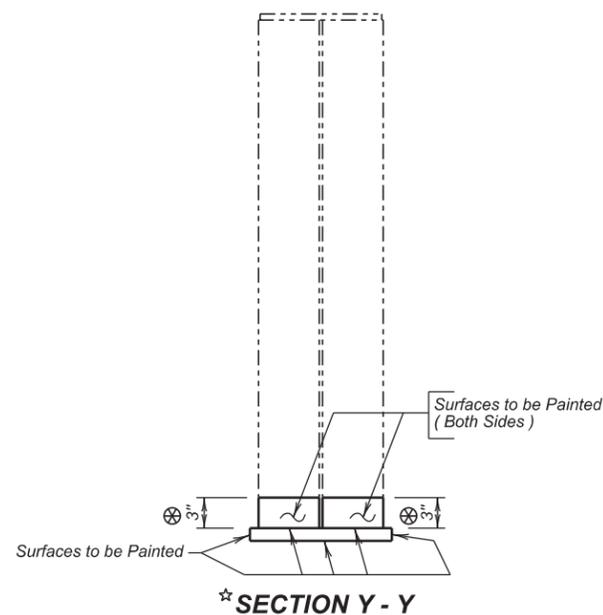
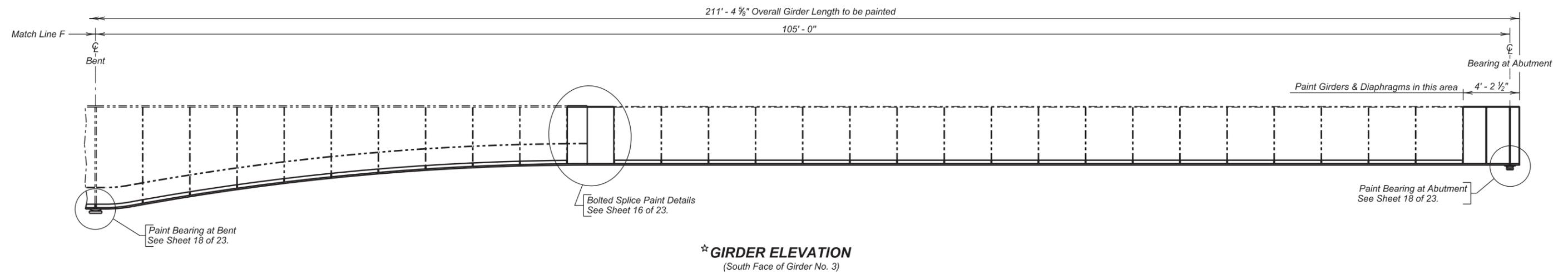
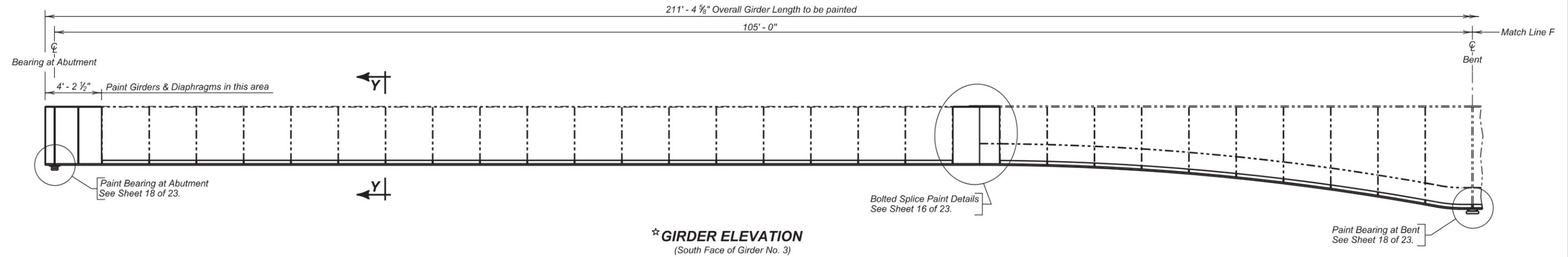
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

8 OF 23

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE08	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	96	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

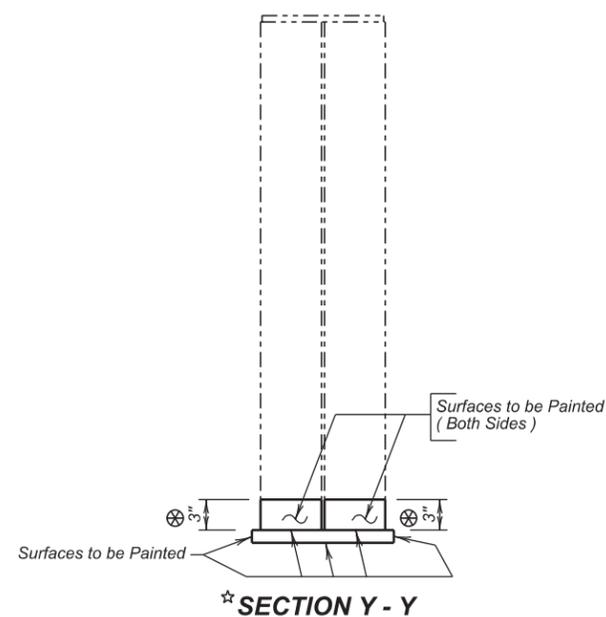
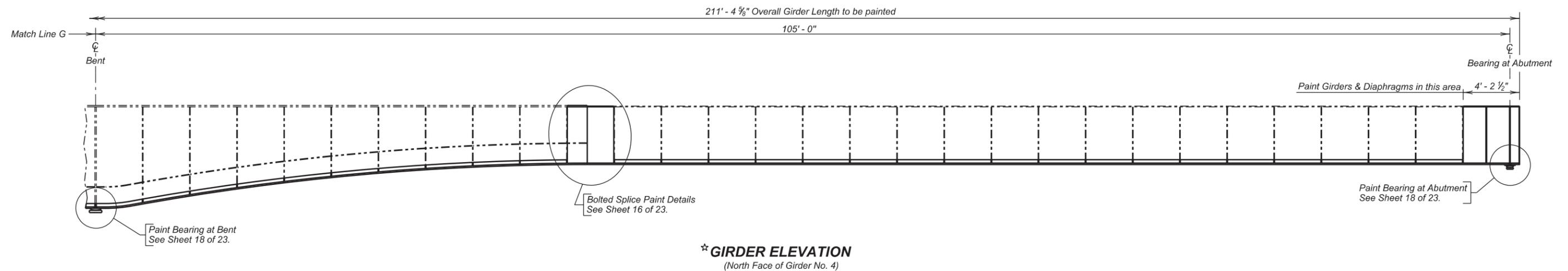
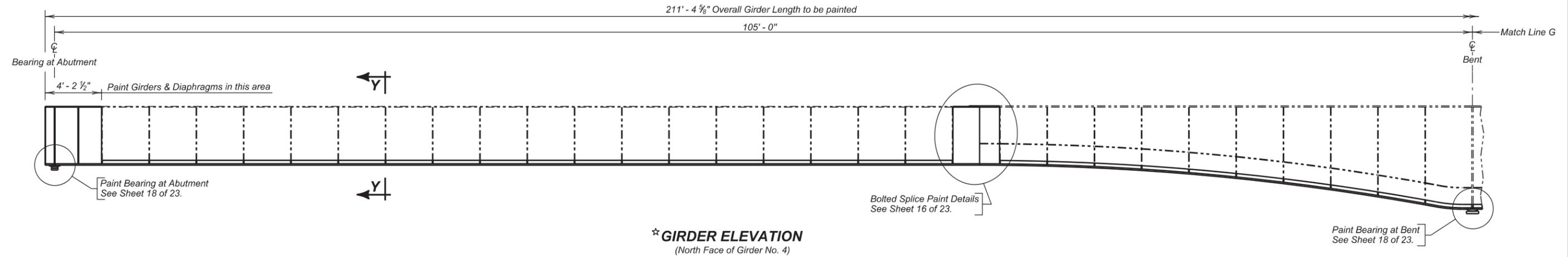
GIRDER NO. 3 PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE09	DRAFTED BY KR	Kevin N. Goeden BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	97	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

GIRDER NO. 4 PAINT DETAILS

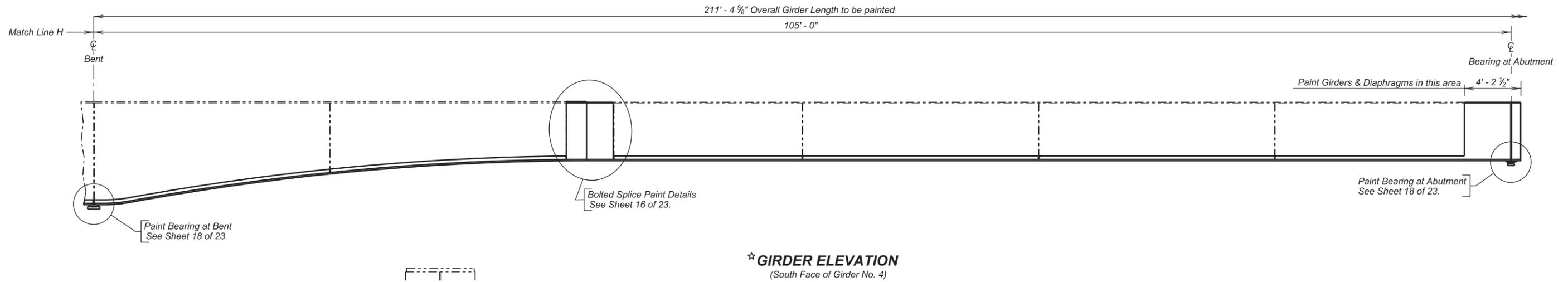
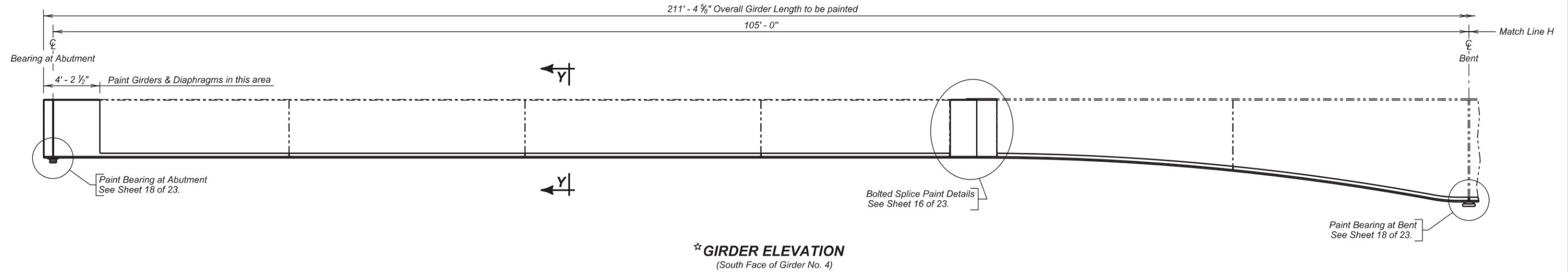
FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

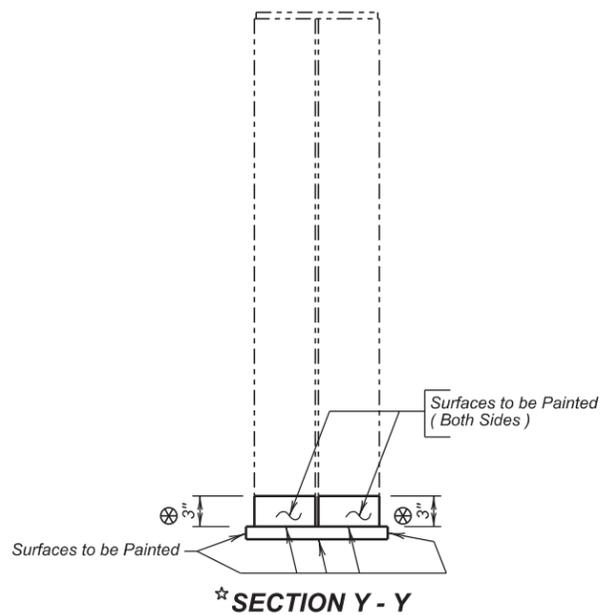
DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE10	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	98	125



☆ Note: New paint areas are shown bounded by solid object lines.



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

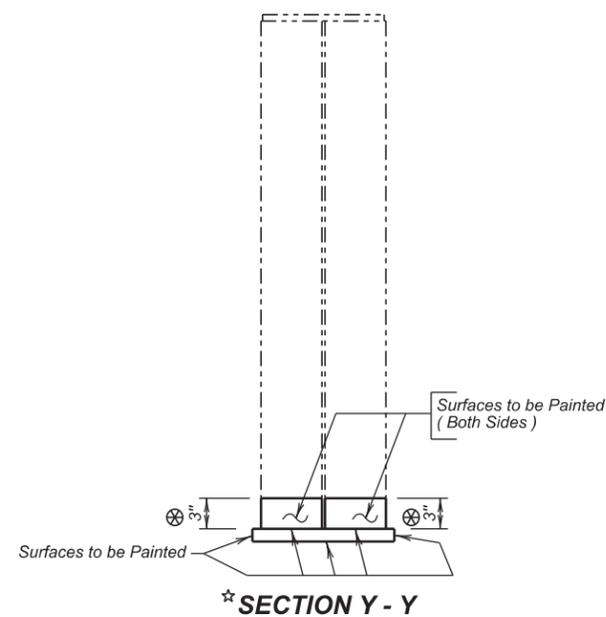
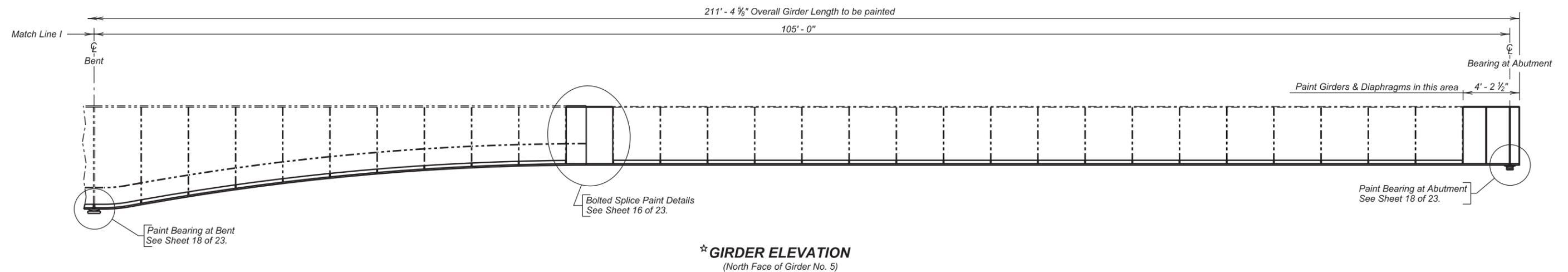
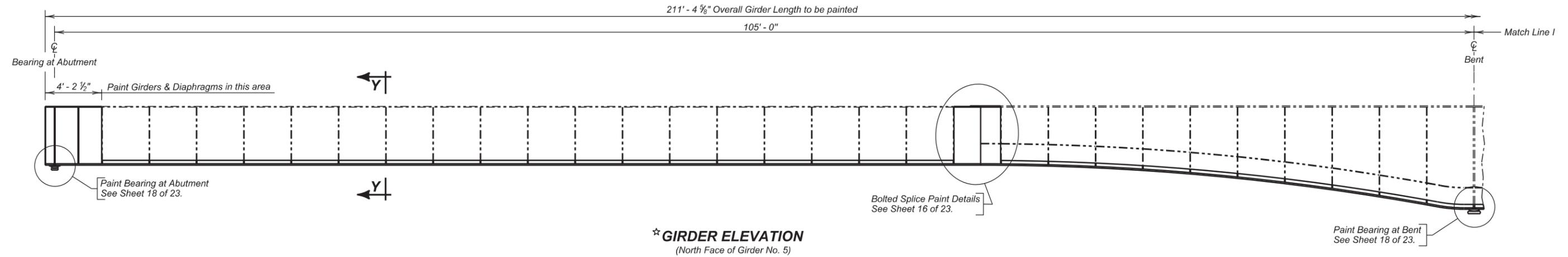
GIRDER NO. 4 PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE11	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	---

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	99	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

GIRDER NO. 5 PAINT DETAILS

FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE

44' - 0" ROADWAY 0° SKEW

OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W

STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY

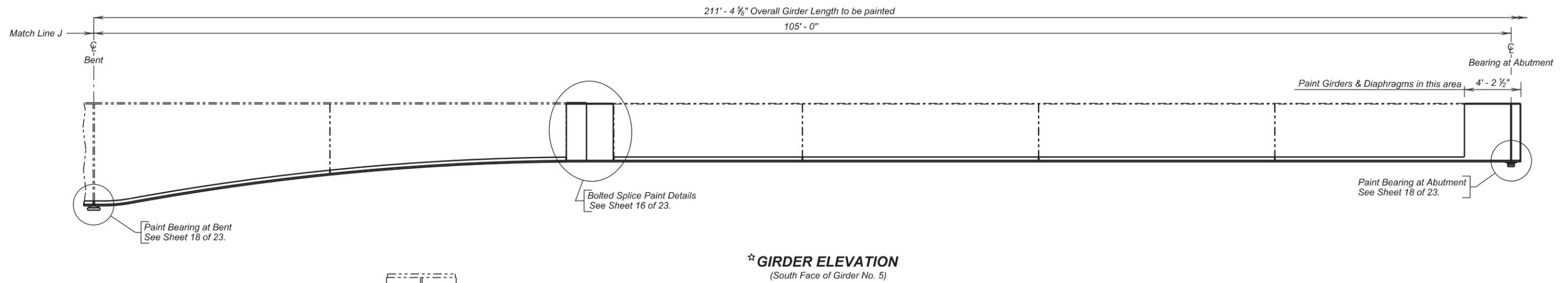
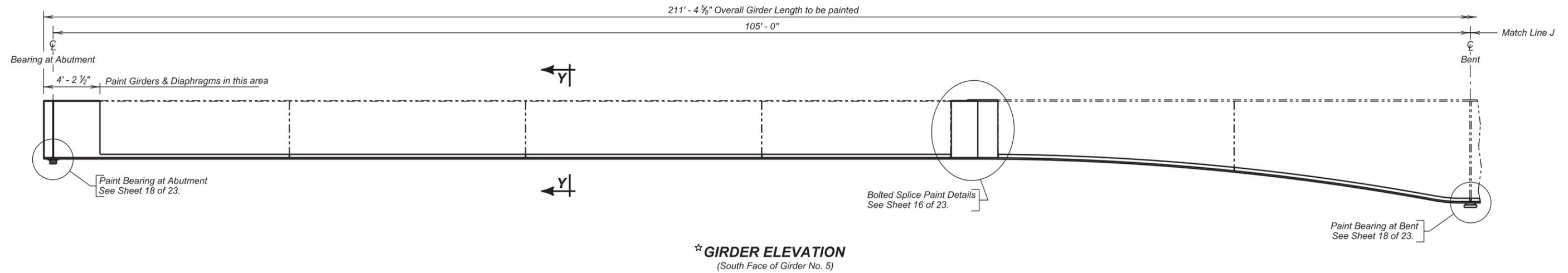
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

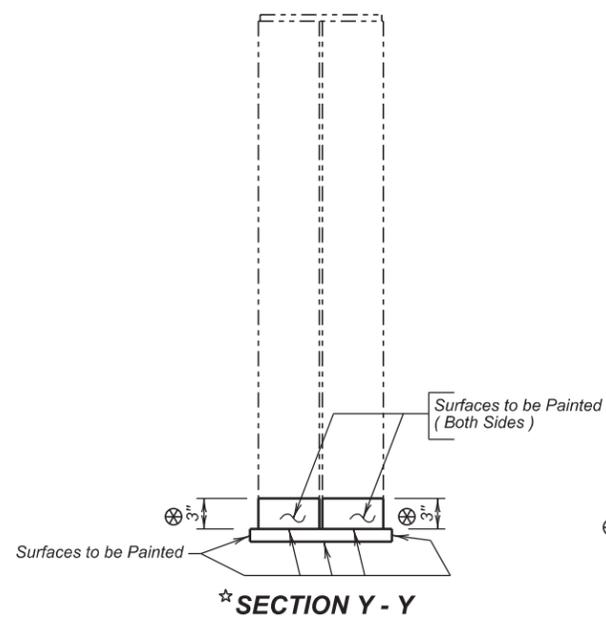
12 OF 23

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE12	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	100	125



☆ Note: New paint areas are shown bounded by solid object lines.



⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

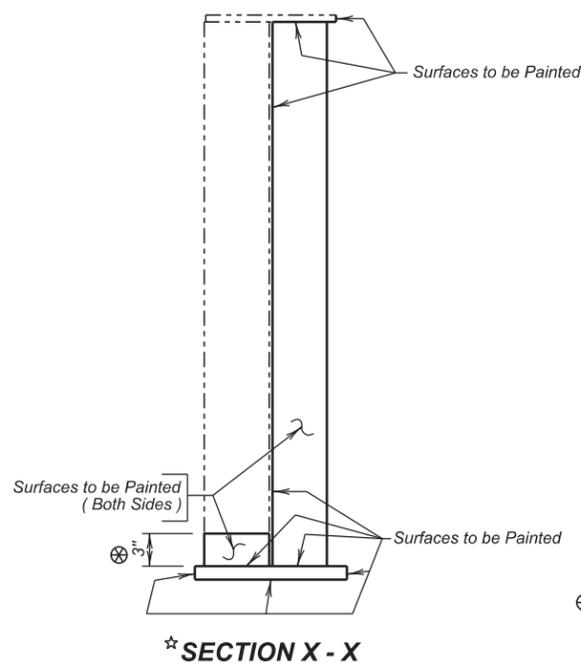
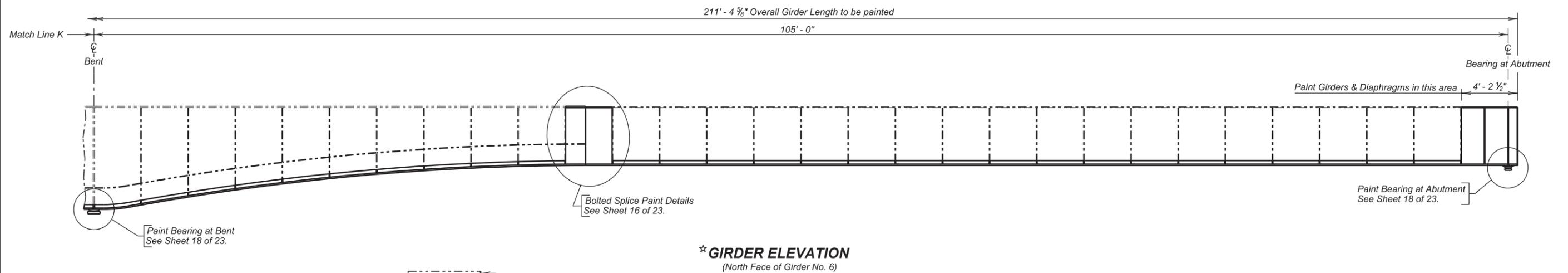
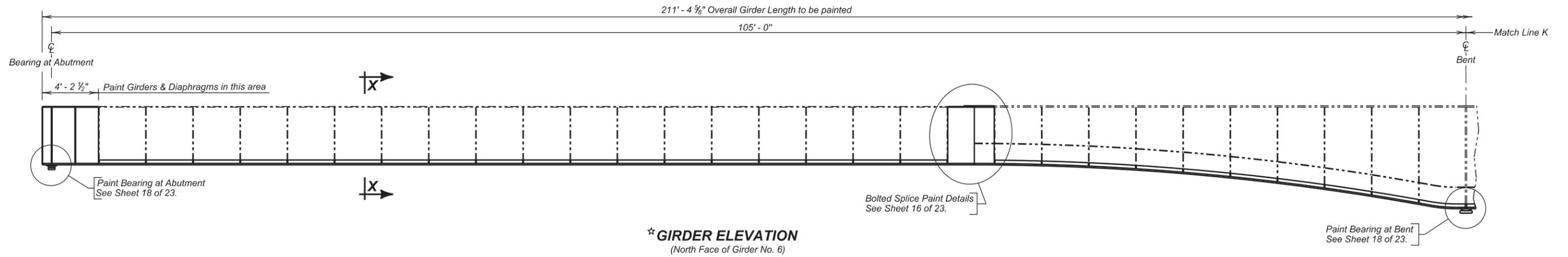
GIRDER NO. 5 PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE13	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	101	125



☆ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

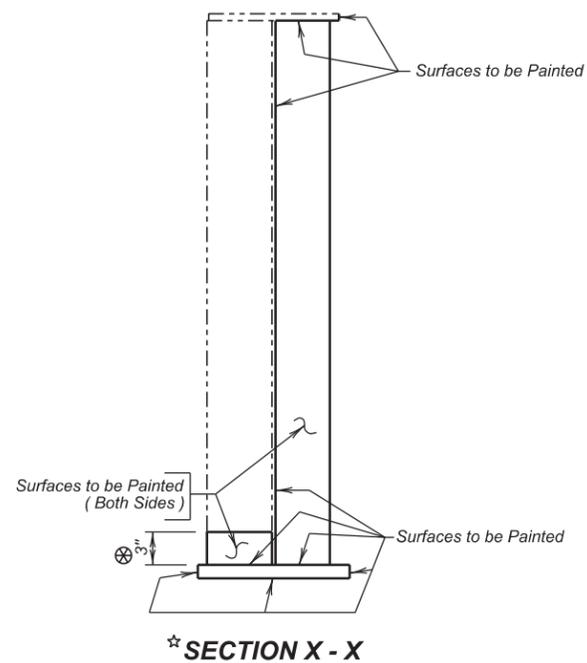
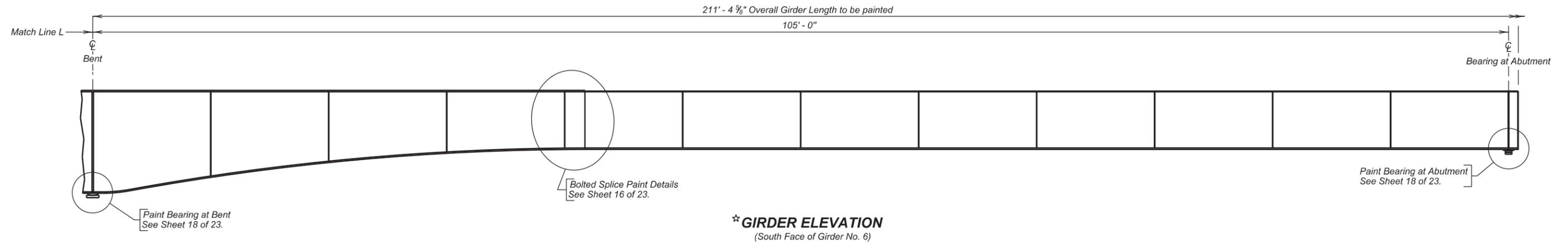
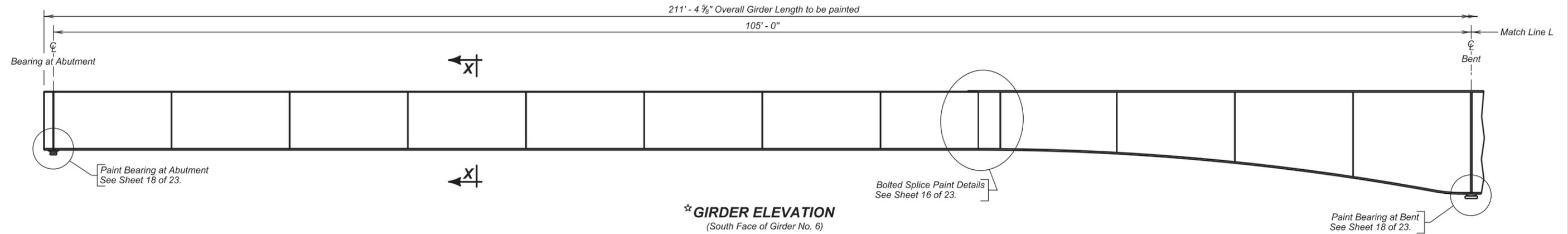
GIRDER NO. 6 PAINT DETAILS
FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

14 OF 23

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE14	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	---

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	102	125



★ Note: New paint areas are shown bounded by solid object lines.

⊗ The dimension shown is the minimum distance requiring paint. The informational square foot area to be painted shown in the notes has been calculated using this dimension.

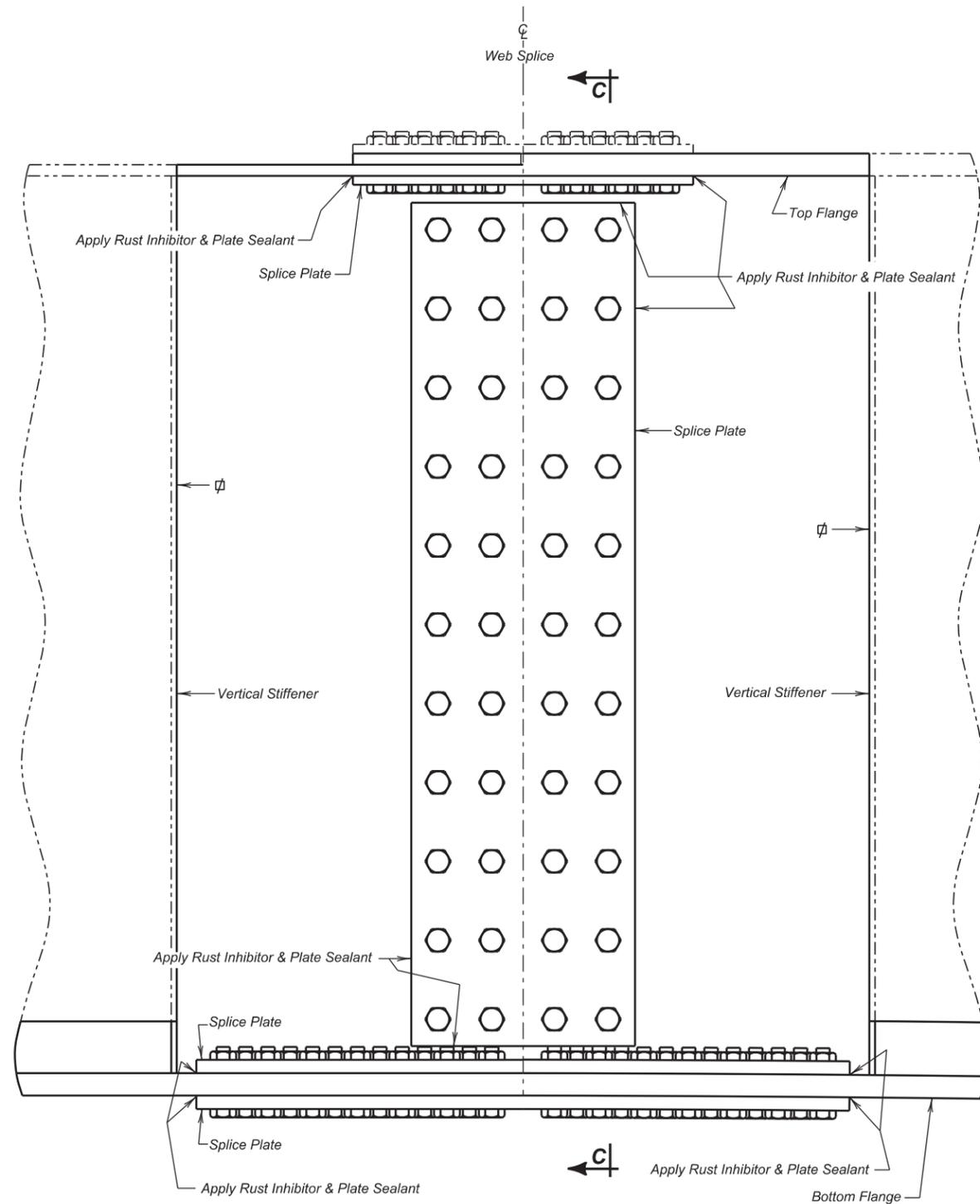
GIRDER NO. 6 PAINT DETAILS (CONTINUED)

FOR
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44' - 0" ROADWAY
OVER INTERSTATE 29
STR. NO. 06-185-080

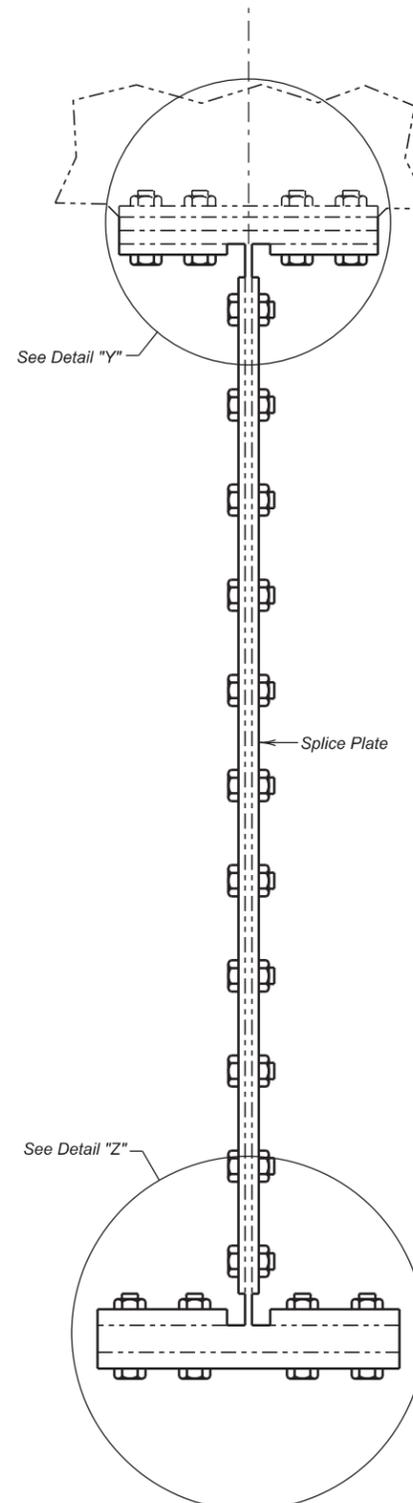
0° SKEW
SEC. 7/18 - T111N - R49W
IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

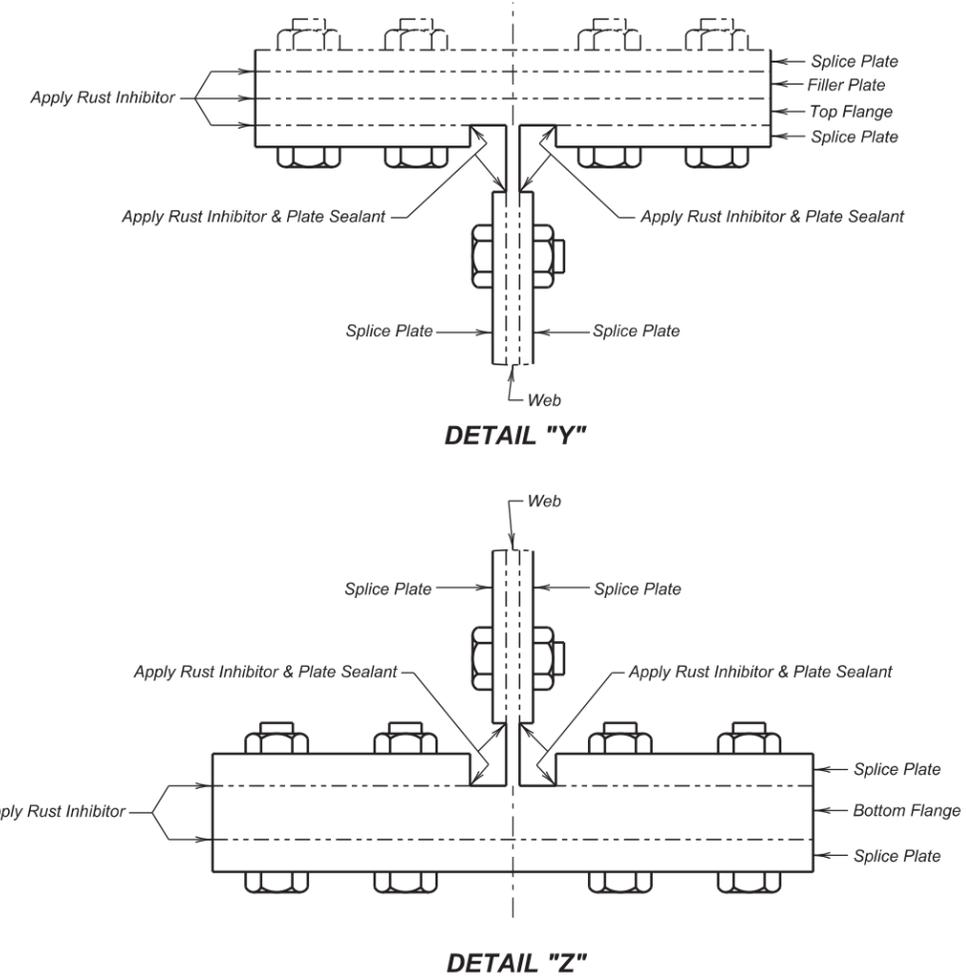
DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE15	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	---



ELEVATION OF BOLTED SPLICE



SECTION C - C



DETAIL "Y"

DETAIL "Z"

GIRDER PAINT DETAILS AT BOLTED SPLICES

FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE

44' - 0" ROADWAY

0° SKEW

OVER INTERSTATE 29

SEC. 7/18 - T111N - R49W

STR. NO. 06-185-080

IM 0295(38)125

DEUEL COUNTY

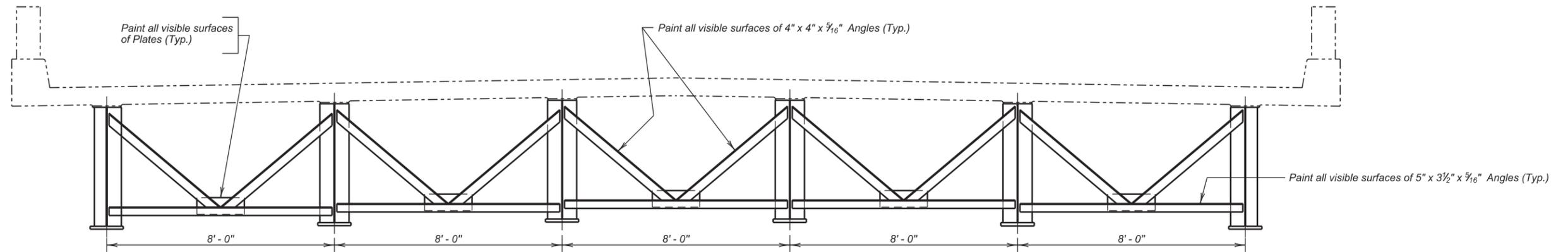
S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

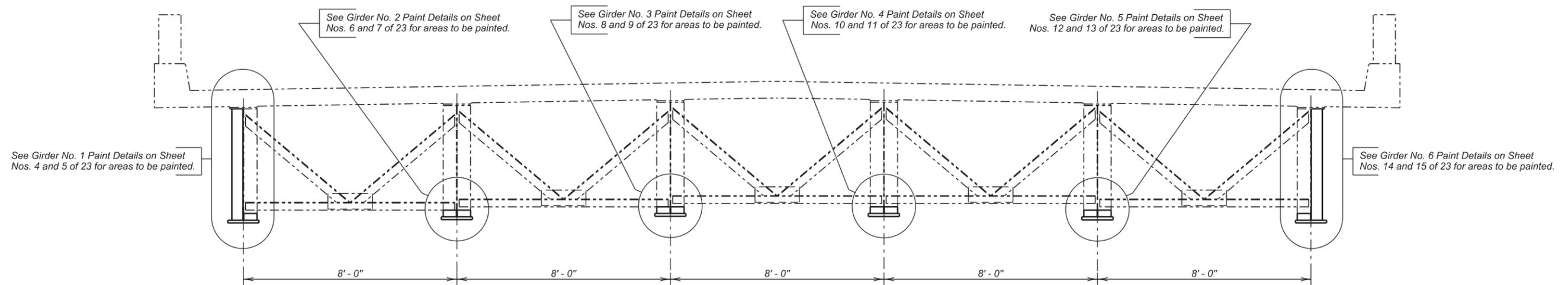
16 OF 23

∅ For inside face of the exterior girder and both faces of the interior girders the limit for painting shall be to the nearest vertical stiffener from centerline of splice or a maximum of two feet from the centerline of girder splice.

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	104	125



TYPICAL GIRDER SECTION AT ABUTMENT



TYPICAL GIRDER SECTION

GIRDER PAINT DETAILS

FOR

279' - 0" CONTINUOUS COMP. GIRDER BRIDGE

44' - 0" ROADWAY 0° SKEW

OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W

STR. NO. 06-185-080 IM 0295(38)125

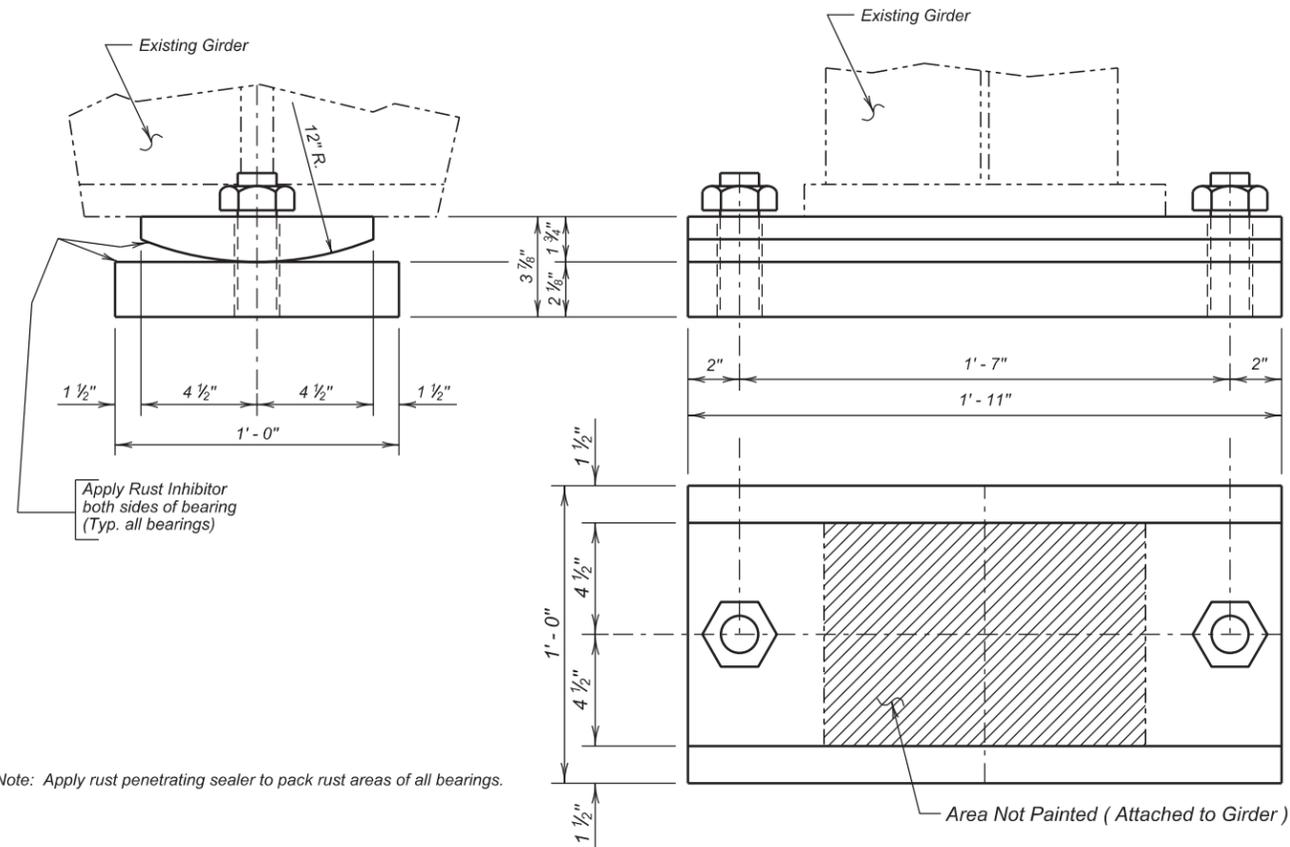
DEUEL COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

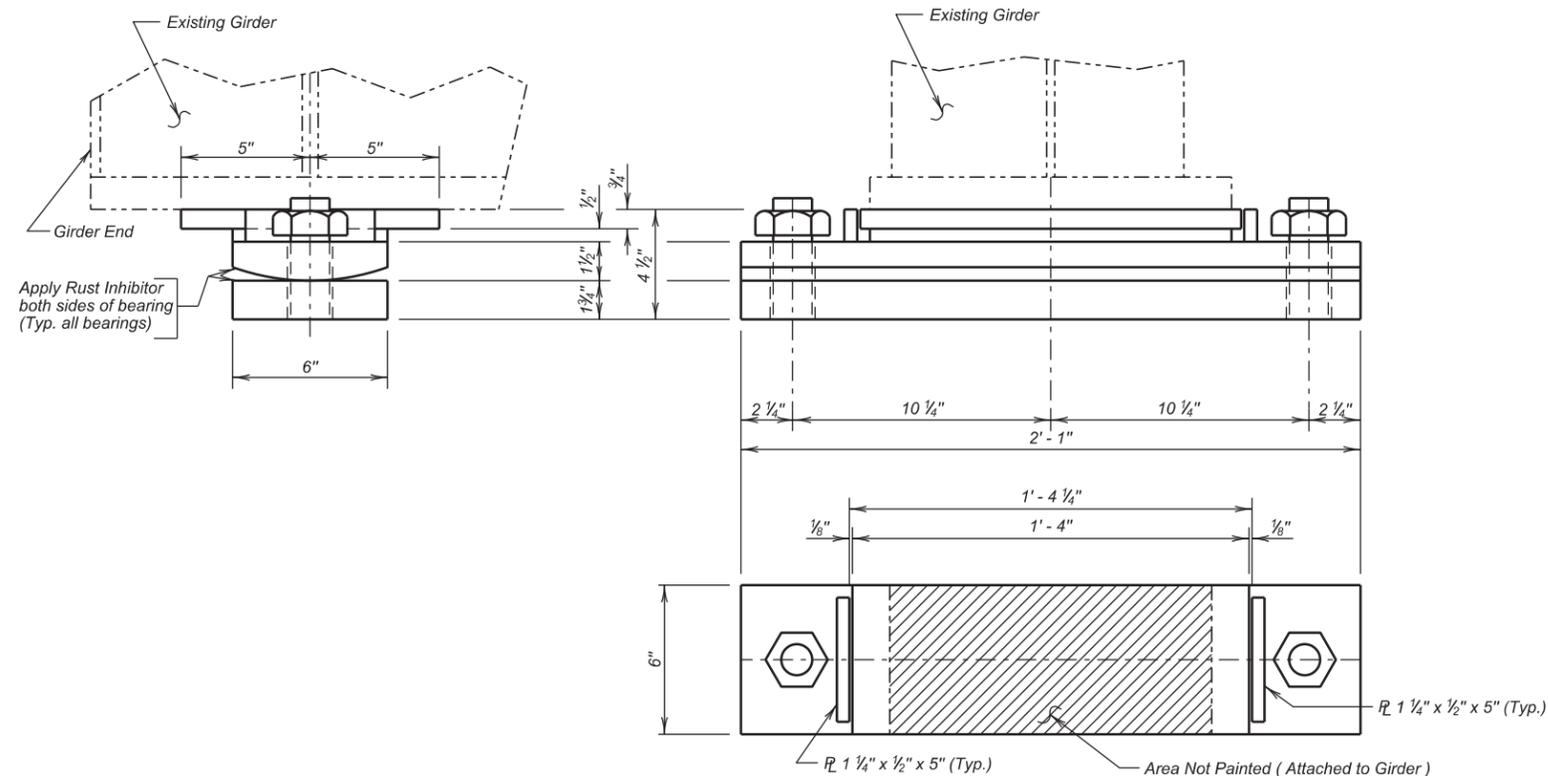
17 OF 23

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE17	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
-------------------------------	--------------------------------	------------------	---



Note: Apply rust penetrating sealer to pack rust areas of all bearings.

BEARINGS AT BENT
(Paint all visible surfaces of each bearing)



BEARINGS AT ABUTMENTS
(Paint all visible surfaces of each bearing)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
△ Bridge Repainting, Class II	LS	Lump Sum
* Rust Penetrating Sealer	LS	Lump Sum
Paint Residue Containment	LS	Lump Sum

△ For informational purposes, the area of structural steel to be painted is 7,170 square feet.

* For informational purposes, the area of structural steel to be coated with Rust Penetrating Sealer is 535 square feet.

GIRDER PAINT DETAILS (CONTINUED)

FOR
279' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 0° SKEW
OVER INTERSTATE 29 SEC. 7/18 - T111N - R49W
STR. NO. 06-185-080 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

**-X771-
INDEX OF BRIDGE SHEETS**

- Sheet No. 1 - General Drawing and Quantities.
- Sheet No. 2 - Subgrade Investigations.
- Sheet No. 3 - Abutment Details.
- Sheet No. 4 - Abutment Details.
- Sheet No. 5 - Abutment Details.
- Sheet No. 6 - Abutment Details.
- Sheet No. 7 - Bent Details.
- Sheet No. 8 - Slab and Diaphragm Details.
- Sheet No. 9 - Girder Layout and Details.
- Sheet No. 10 - Details of Expansion Device.
- Sheet No. 11 - Details of Field Splice and Bearings.
- Sheet No. 12 - Framing Diagram and Erection Data.
- Sheet No. 13 - Type RT-3A Steel Railing and Curb Details.
- Sheet No. 14 - Details of Bridge End Back-Fill.
- Sheet No. 15 - Details of Standard Plate 301 and 303.1

B.M. #2 Elev. 1687.82
3/4" Rebar in Fence Line
22.5' Lt. Sta. 20+28

NOTE:
T.S. @ C. El. = Top of Slab at Curb Elevation
T.S. @ Q. El. = Top of Slab at Centerline Roadway Elevation.

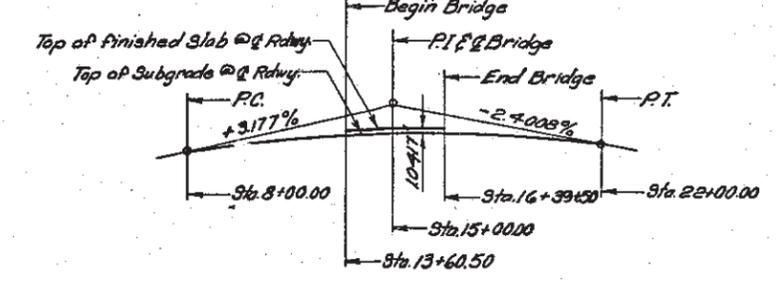
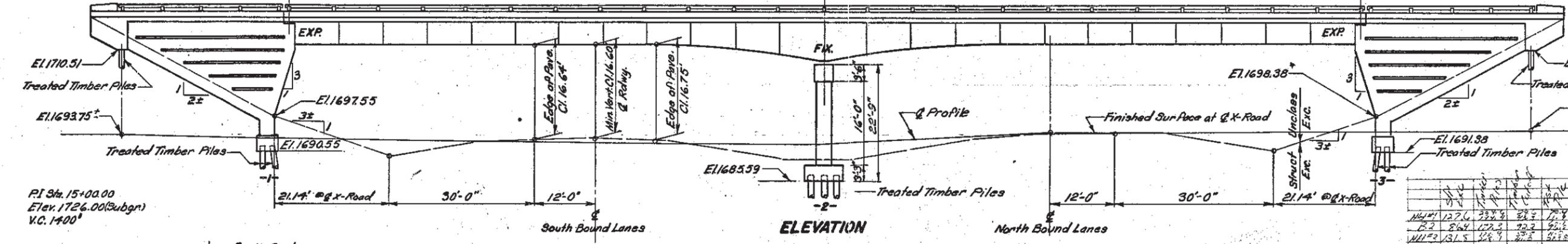
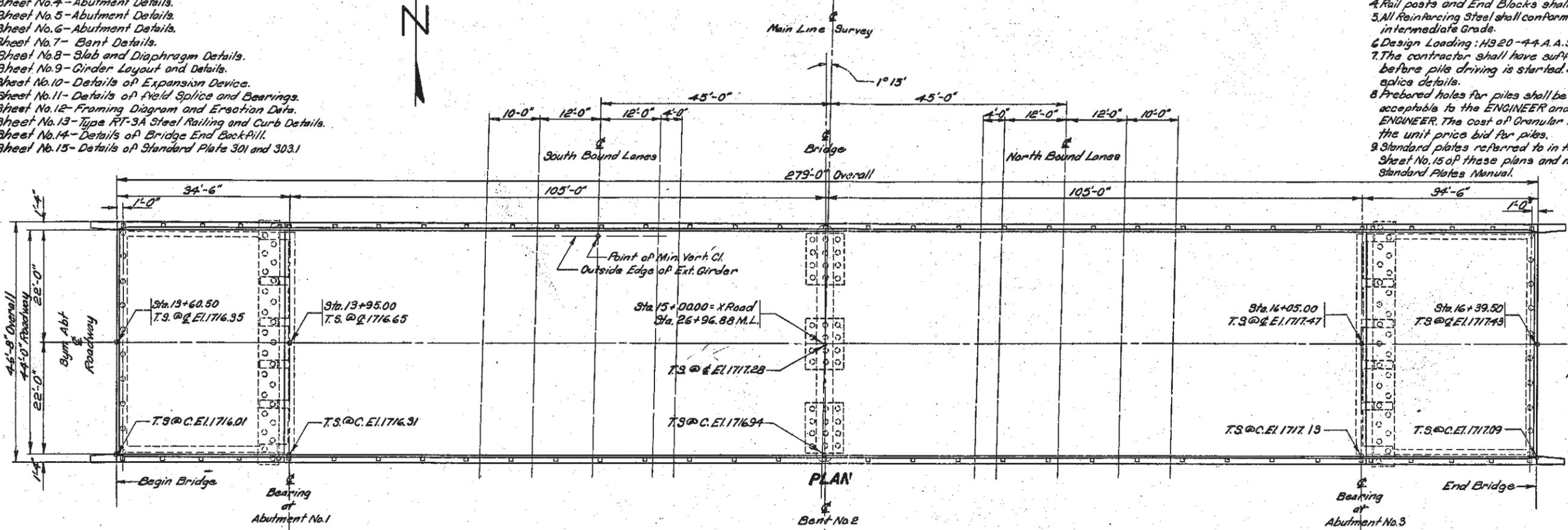
B.M. #3 Elev. 1692.11
3/4" Rebar in Fence Line
25.2' Lt. Sta. 27+72

- GENERAL NOTES**
1. Design Specifications: A.A.S.H.O. Specifications for Highway Bridges 1965 with Interim Specifications for 1966 and 1967.
 2. See NOTE 3 on Sheets No. 1 through 15.
 3. Longitudinal elements of the slab conform to the vertical curve.
 4. Rail posts and End Blocks shall be built normal to grade.
 5. All Reinforcing Steel shall conform to A.S.T.M. Specifications A305 and A15 intermediate Grade.
 6. Design Loading: HS20-44 A.A.S.H.O.
 7. The contractor shall have sufficient pile apices material on hand before pile driving is started. See Standard Plate No. 303.1 for apices details.
 8. Prebored holes for piles shall be back-filled with granular material acceptable to the ENGINEER and compacted as specified by the ENGINEER. The cost of Granular material in place shall be included in the unit price bid for piles.
 9. Standard plates referred to in these plans are the plates printed on Sheet No. 15 of these plans and not intended to be referred to the Standard Plates Manual.

SPECIFICATION NOTE

Use South Dakota Standard Specifications for Roads and Bridges, 1969 Edition and Required Provisions, Supplemental Specifications and/or Special Provisions, as included in the Proposal. All concrete shall be Class "A" Type II Cement. Contractor may use Type I cement instead of Type II provided it is done at no additional cost to the State.

NOTE: See Sheet No. 14 for Bridge End Back-Fill Details.



CROSS-ROAD VERTICAL CURVE DATA

Bid Item No.	ESTIMATED QUANTITIES									
	4005	40505	40555	40166	40705	40710	10410	10405	40905	10721
ITEM	Cl. "A" Conc.	Steel-Lbs.	Type RT-3A Steel	Excavation Cu. Yds.	Timber Piling - Lin Ft.	Excavation Cu. Yds.	Pile Shoes	Bridge End Back Fill - Lump Sum		
Superstructure	252.4	63,035	243,170	424.0						
Abutment No. 1	193.5	49,215	496	670	9 @ 45'-00"	1 @ 50'-00"	135	10		
Bent No. 2	59.0	9,475			35 @ 20'-70"	1 @ 25'-25"	85	36		
Abutment No. 3	193.5	49,215	496	670	9 @ 45'-00"	1 @ 50'-00"	135	10		
Totals	698.4	176,940	244,160	558.0	2,770	1 @ 185'	355	*106	# Lump Sum	

* One Treated Timber Test Pile shall be driven at Abutments No. 1, No. 3 and Bent No. 2 before the remaining piles are ordered.
 * Unclassified Excavation to be by Grading Contractor.
 * For information only, the approximate volume of Back-Fill will be 90 Cu. Yds. in place and the length of 6" Perforated and non-perforated Metal Pipe will be 104'.
 * All-Steel pile shoes shall be as shown on Standard Plate No. 301.

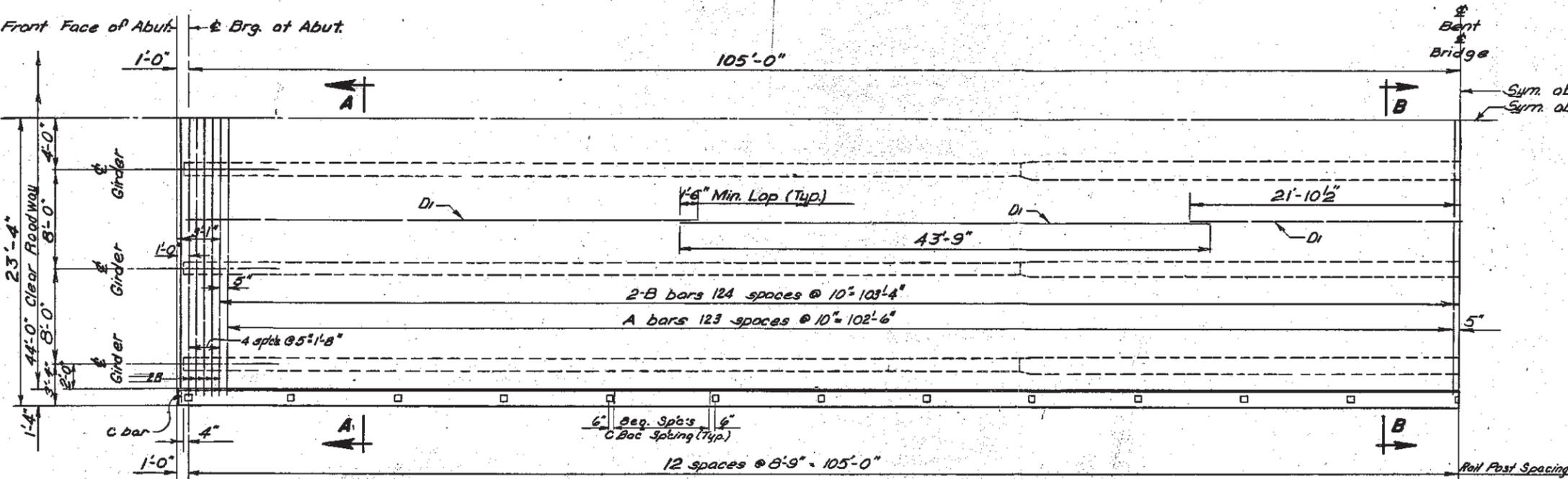
12.76	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49	22.49
2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
111.2	131.5	131.5	131.5	131.5	131.5	131.5	131.5	131.5	131.5	131.5
Total	1,345.9	903.3	2,117	263.7	400.3	400.3	400.3	400.3	400.3	400.3

Finished
Feb-28-72
E.T.

GENERAL DRAWING AND QUANTITIES
 FOR
279'-0" CONT. COMP. GIRDER VIADUCT
 44'-0" ROADWAY
 OVER I.S. NO. 29 STA. 26+96.88M.L. SEC. 7/18-T11IN R49W
 STA. 13+60.50 TO 16+39.50 I 29-5(10)134
 BROOKINGS COUNTY
 Str. No. 06-185-080 SOUTH DAKOTA HS20-44
 DEPARTMENT OF HIGHWAYS
 MAR. 1969 19 OF 23

STR. NO. 06-185-080 PLANS BY BRIDGE SEC. S. DAK. DEPT. HWYS.

DESIGNED BY: [Signature] DRAWN BY: [Signature] CHECKED BY: [Signature] APPROVED: [Signature] BRIDGE ENGINEER



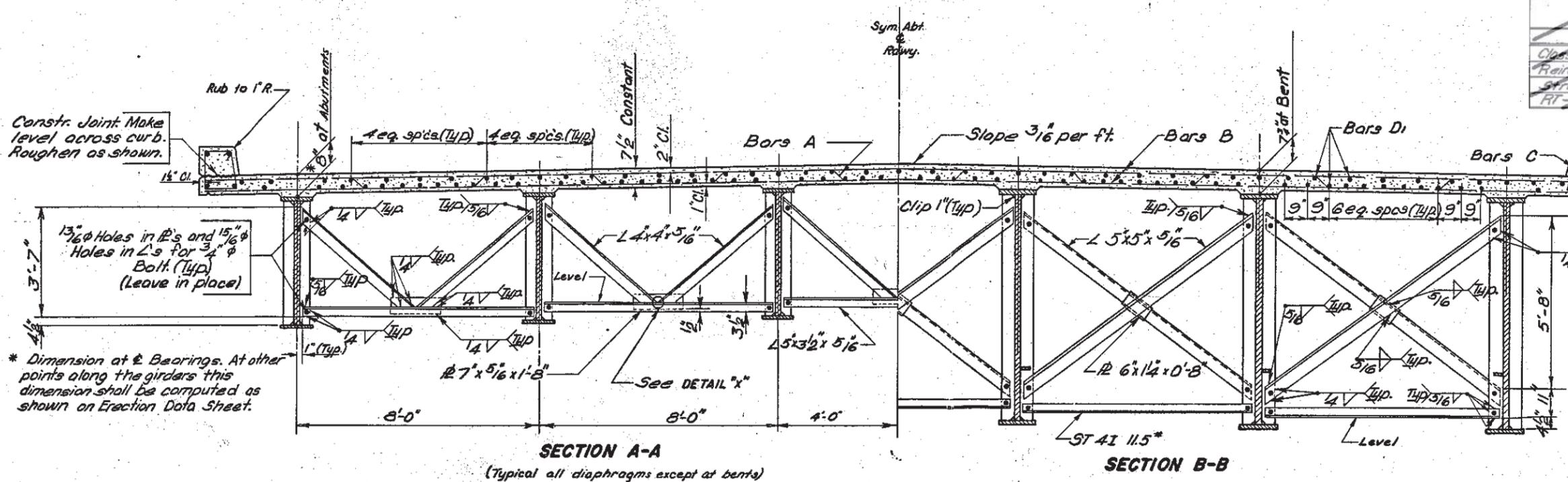
QUARTER PLAN

REINFORCING SCHEDULE

NO.	SIZE	LENGTH	TYPE
A	248	5	48'-0" 15
B	512	5	46'-3" Str.
C	436	4	5'-9" T1
D1	550	5	43'-9" Str.
D2	4	5	12'-0" Str.

Bending Details

NOTE: - All dimensions are out to out of bars.



SECTION A-A
(Typical all diaphragms except at bents)

SECTION B-B

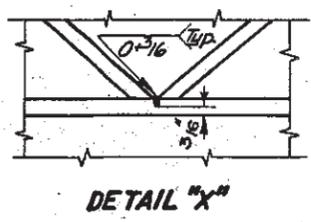
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITIES
Class A Concrete	Cu. Yds.	252.4
Reinforcing Steel	Lbs.	68,935
Structural Steel	Lbs.	243,170
RT-3A Steel Rolling	Lin. Ft.	424

Constr. Joint: Make level across curb. Roughen as shown.

13/16" Holes in I's and 15/16" Holes in L's for 3/4" Bolt (Typ) (Leave in place)

* Dimension at & Bearings. At other points along the girders this dimension shall be computed as shown on Erection Data Sheet.

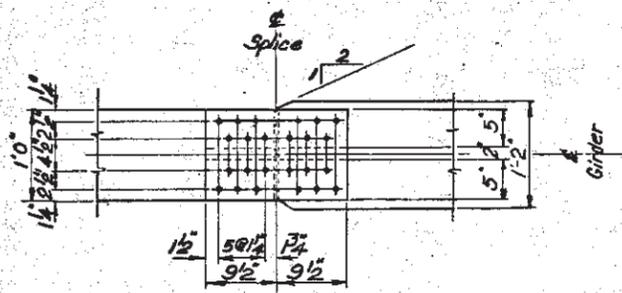


DETAIL "X"

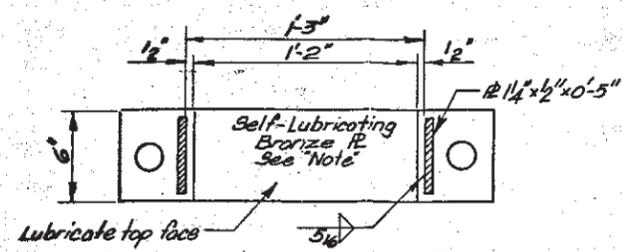
CONCRETE POURING NOTES-
 Concrete slab may be poured continuously provided approved concrete retarders are used and the contractor has demonstrated capacity for such continuous operations.
 Transverse Construction Joints are permitted in the slab and shall be positioned near the girder field splices or at approximately the 1/3 points from & of bent.
 If transverse Construction Joints are used the contractor shall submit to the Bridge Section for approval, plans and details of construction joints used, as well as sequence of pouring.
 Curbs shall be poured after all the slab has been poured.

STR. NO. 06-185-080
 ORIGINAL CONSTRUCTION PLANS
 SLAB AND DIAPHRAGM DETAILS
 FOR
279'-0" CONT. COMP GIRDER VIADUCT
 44'-0" ROADWAY
 OVER I.S. NO. 29 STA. 26+96.88 M.L. SEC. 7/18-TIIN-R 49W
 STA. 13+60.50 TO 16.39.50 I 29-5(10) 134
 BROOKINGS COUNTY
 SOUTH DAKOTA HS20-44
 DEPARTMENT OF HIGHWAYS
 OCT. 1968 (20) OF (23)

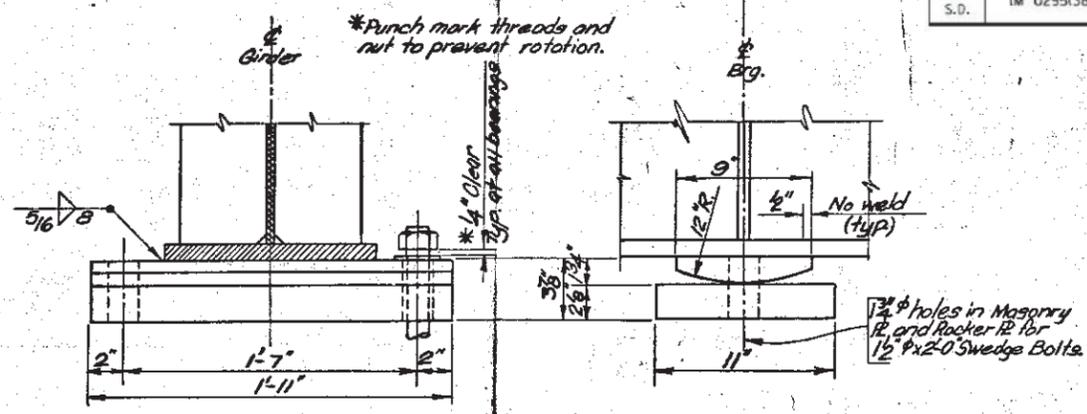
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	L.P.T.	W.C.P.	<i>[Signature]</i> BRIDGE ENGINEER



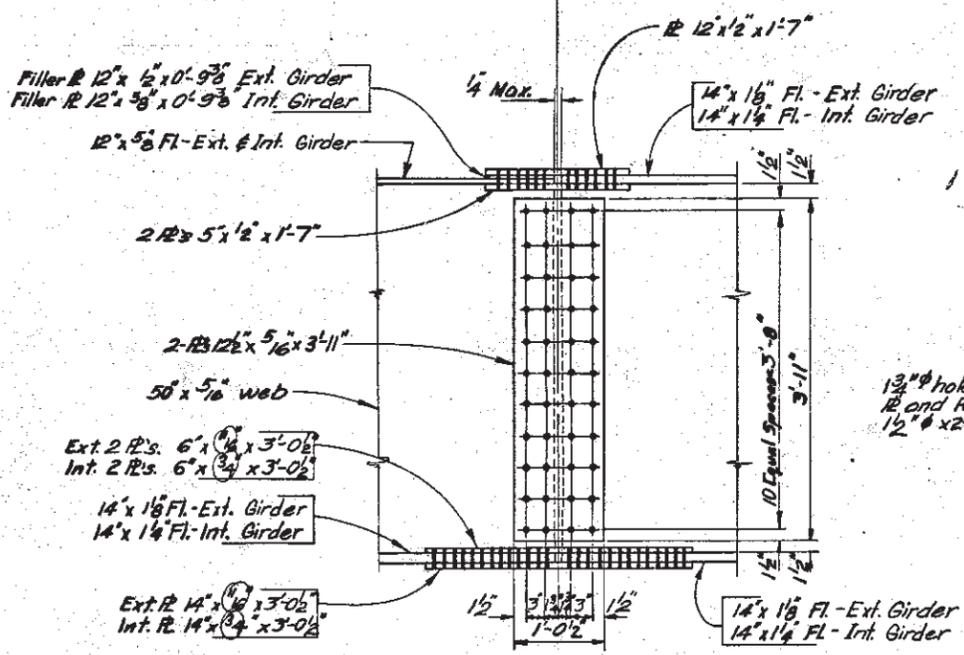
STRAIGHT SECTION



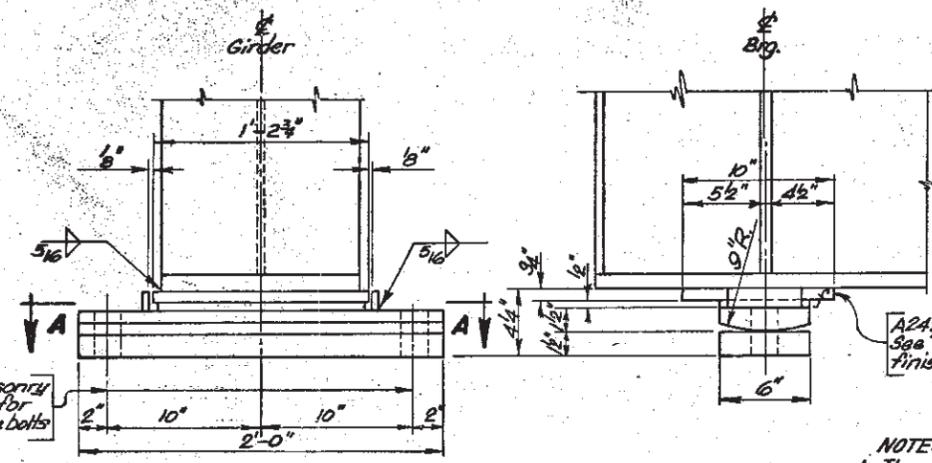
SECTION A-A



FIXED BEARING AT BENT



FIELD SPLICE



EXP. BEARING AT ABUTMENTS

- NOTE:**
- The cast Bronze bearing plates shall conform to A.S.T.M. B22, Class E. Contact surfaces, both Bronze and Steel, shall be finished in the direction of motion to A.S.A. B46.1 No. 125. The lubricated surface shall be bored in a geometric pattern of recesses to receive a lubricating material suitable for long-life service of the bearing face. The lubricated area shall comprise approximately 25 percent of the bearing face to provide a coefficient of friction not to exceed 10 percent for loads of 1000 to 1500 p.s.i.
 - Chamfer edges of Bronze Plate 1/8".
 - Fasten Bronze Plate to rocker plate with six flat head counter sunk bronze screws.
 - The weight of Bronze bearing plates shall be computed on the basis of having a unit weight the same as structural steel and included in that bid item.
 - Type of steel for the sliding bearing plates shown shall conform to A.S.T.M. A242 with resistance to corrosion of 4 to 6 times that of carbon steel.

GENERAL NOTES FOR FIELD SPLICE--

- All bolts shall be 3/4" ϕ .
- Bolts, nuts and washers shall conform to requirements of A.S.T.M. Specification A325. Bolts shall have heavy head and one hardened washer to be assembled under the turned element.
- Holes for 3/4" ϕ high strength bolts shall be subpunched and reamed or drilled and splice plates match-marked after assembling as provided in Section 410.3 of South Dakota Standard Specifications for Roads and Bridges.
- Contact surfaces of splices shall be free of all oil or paint.
- Steel for splice and filler plates shall conform to A.S.T.M. A36 Steel.
- 3/4" ϕ High Strength Bolts shall be tightened to a minimum tension of 28,400 Lbs. Tightening shall be done with properly calibrated wrench or by the "turn of the nut" method as provided in Section 2-10.20 of the A.A.S.H.O. Specifications.
- Bolts in flange splices shall be placed with heads down.
- Bolts in web splices of exterior girders shall be placed with heads on exterior face of girders.
- High strength bolts, nuts and washers shall be stored in such a manner that they will be kept free from any rust or foreign material will cause erratic torque wrench readings when checked with a bolt tension calibrator.

STR. NO. 06-185-080

ORIGINAL CONSTRUCTION PLANS

DETAILS OF FIELD SPLICE AND BEARINGS FOR

279'-0" CONT. COMP. GIRDER VIADUCT
44'-0" ROADWAY

OVER I.S. NO. 29 STA. 26+96.88 ML. SEC. 7/18-TIHN-R49W
STA. 13+60.50 TO 16+39.50 I29-5(10)134

BROOKINGS COUNTY

SOUTH DAKOTA HS20-44

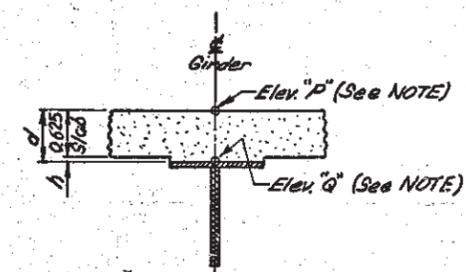
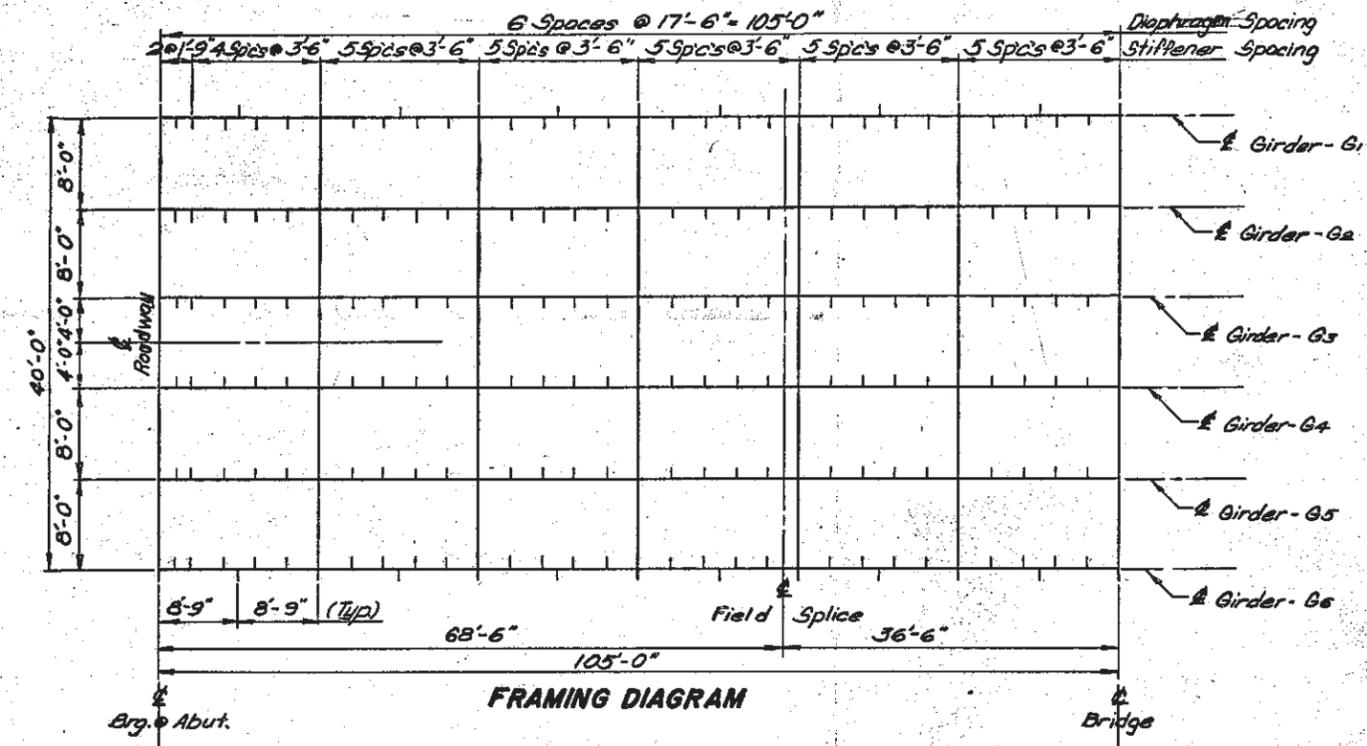
DEPARTMENT OF HIGHWAYS

NOV. 1968 (22) OF (23)

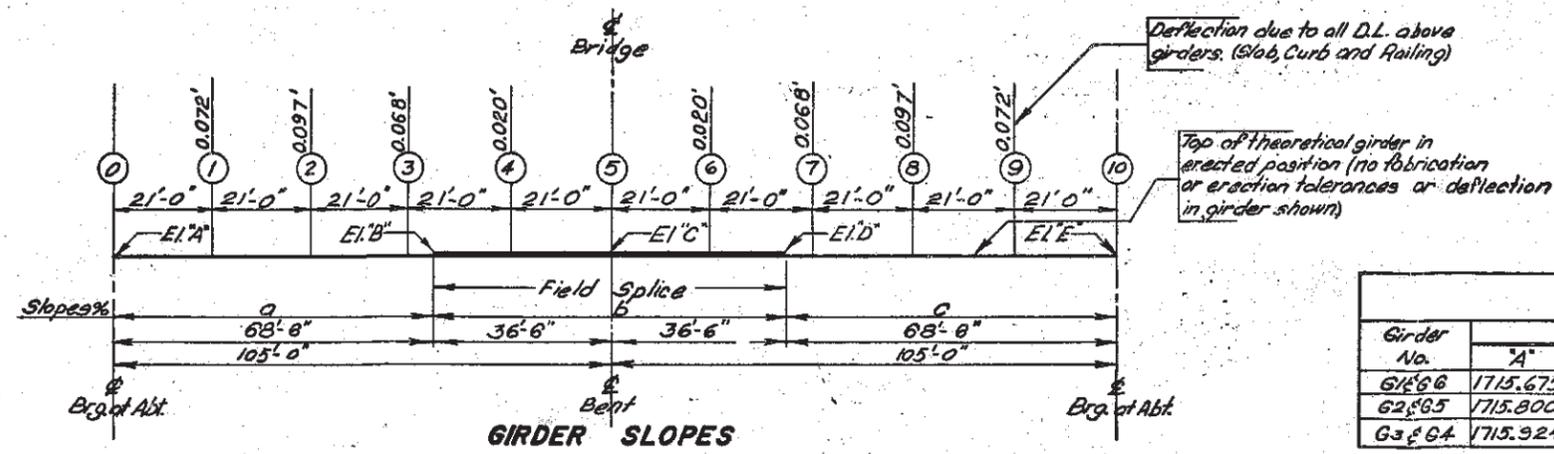
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	L.P.D.	N.C.P.	<i>[Signature]</i> BRIDGE ENGINEER

TABLE OF SLAB FORM ELEVATIONS AND COMPUTATIONS

	0	1	2	3	4	5	6	7	8	9	10
Girder-01											
Elev. P	1716.341	1716.574	1716.742	1716.838	1716.898	1716.969	1717.091	1717.164	1717.231	1717.226	1717.156
(-) Elev. Q											
(-) d											
(-) 0.625											
(-) h											
Girder-02											
Elev. P	1716.466	1716.699	1716.867	1716.963	1717.023	1717.093	1717.186	1717.289	1717.356	1717.351	1717.281
(-) Elev. Q											
(-) d											
(-) 0.625											
(-) h											
Girder-03											
Elev. P	1716.591	1716.824	1716.992	1717.088	1717.148	1717.218	1717.311	1717.414	1717.481	1717.476	1717.406
(-) Elev. Q											
(-) d											
(-) 0.625											
(-) h											
Girder-04											
Elev. P	1716.591	1716.824	1716.992	1717.088	1717.148	1717.218	1717.311	1717.414	1717.481	1717.476	1717.406
(-) Elev. Q											
(-) d											
(-) 0.625											
(-) h											
Girder-05											
Elev. P	1716.466	1716.699	1716.867	1716.963	1717.023	1717.093	1717.186	1717.289	1717.356	1717.351	1717.281
(-) Elev. Q											
(-) d											
(-) 0.625											
(-) h											
Girder-06											
Elev. P	1716.341	1716.574	1716.742	1716.838	1716.898	1716.969	1717.091	1717.164	1717.231	1717.226	1717.156
(-) Elev. Q											
(-) d											
(-) 0.625											
(-) h											



NOTE-
 This table contains the necessary information to determine the depth of concrete, in feet, over the girders at the points shown. All calculations can be carried in the spaces provided. Elevation "P" is the elevation of the top of slab form before any concrete has been poured. This elevation includes correction for vertical curve and deflection due to all D.L. above girders. Elevation "Q" is a field measured elevation taken on top of girders at the points shown.
 This elevation must be taken after girder erection is completed, but prior to placing any of the concrete.
 Girders shall not be supported by construction shoring while elevations are taken.



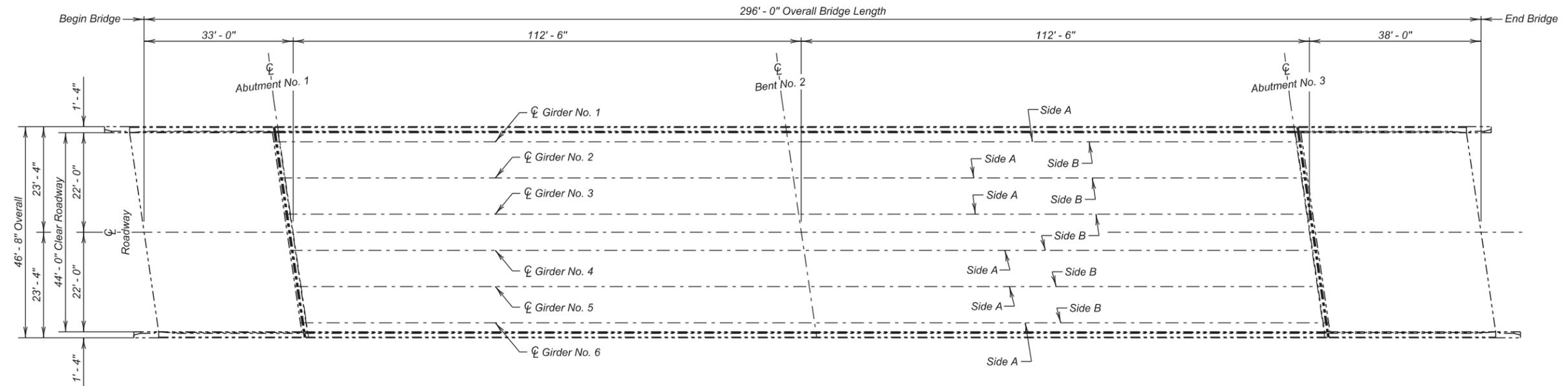
GIRDER ERECTION ELEVATIONS

Girder No.	Elevation (Top of Girder)					Girder Slopes %		
	"A"	"B"	"C"	"D"	"E"	a	b	c
G1 & G6	1715.675	1716.181	1716.323	1716.464	1716.490	+0.67839	+0.38808	+0.09781
G2 & G5	1715.800	1716.306	1716.448	1716.589	1716.615	+0.66321	+0.38808	+0.11299
G3 & G4	1715.924	1716.431	1716.572	1716.714	1716.739	+0.66321	+0.38808	+0.11299

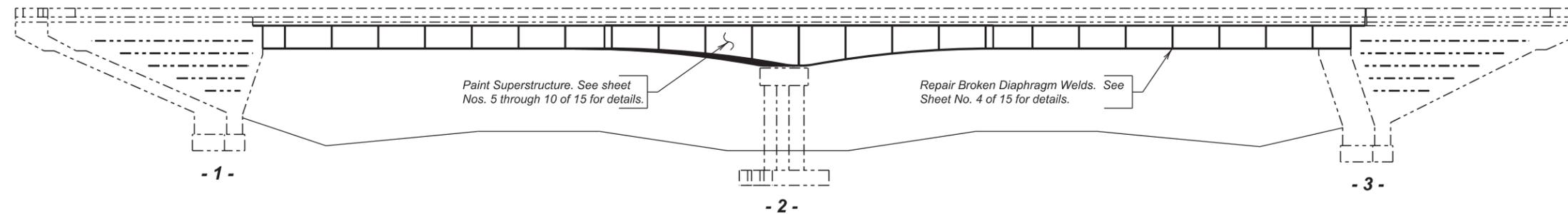
STR. NO. 06-185-080
 ORIGINAL CONSTRUCTION PLANS
 FRAMING DIAGRAM AND ERECTION DATA
 FOR
279'-0" CONT. COMP GIRDER VIADUCT
 44'-0" ROADWAY
 OVER I.S. NO. 29 STA. 26+96.88 M.L. SEC. 7/18-T111N-R49W
 STA. 13+60.50 TO 16+39.50 129-5(10) 134
 BROOKINGS COUNTY
 SOUTH DAKOTA HS20-44
 DEPARTMENT OF HIGHWAYS
 OCT. 1968 23 OF 23

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	L.P.J.	D.P. & W.C.P.	<i>D.H. Schultz</i> BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	111	125



PLAN



ELEVATION

INDEX OF BRIDGE SHEETS -

- Sheet No. 1 - Layout for Upgrading
- Sheet No. 2 - Estimate of Structure Quantities and Notes
- Sheet No. 3 - Notes (Continued)
- Sheet No. 4 - Diaphragm Weld Repair Details
- Sheet No. 5 - Girder No. 1 & 6 Side A Paint Details
- Sheet No. 6 - Girder Nos. 2 through 5 Side A Paint Details
- Sheet No. 7 - All Girders Side B Paint Details
- Sheet No. 8 - Girder Paint Details at Bolted Splices
- Sheet No. 9 - Diaphragm Paint Details
- Sheet No. 10 - Bearing Paint Details
- Sheet No. 11 thru 15 - Original Construction Plans

LAYOUT FOR UPGRADING

FOR

296' - 0" CONTINUOUS COMP. GIRDER BRIDGE

44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.

OVER INTERSTATE 29 SEC. 19 & 30-T113N-R49W

STR. NO. 20-061-280 IM 0295(38)125

PCN 035C

DEUEL COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2016

1 OF 15

PLANS BY:
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY
NP	EJA	KR
DUEL035C	035CRF01	

Kevin N. Goeden
BRIDGE ENGINEER

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
410E0508	Field Weld	118	In
410E512	Grind Weld	151	In
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS

SPECIFICATIONS

- Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.
- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans and are provided as information only. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

NOTICE – LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure shall be accomplished with the traffic control shown in the plans.

Clean and paint portions of the existing girders and all of the bearings as shown be these plans.

PAINT RESIDUE REMOVAL AND CONTAINMENT

- Paint Residue Removal and Containment shall be performed in accordance with Section 412 of the Construction Specifications, Bridge Repainting Class II except as modified by these notes.
- The Contractor shall plan his operations to prevent releases of lead containing material and other particulate matter into the surrounding air, water, and onto the ground, soil, slope protection, and pavement. The Contractor shall be responsible for any corrective actions should a spill occur.

3. Collect all visible paint particles and blasting residue containing paint at the end of each workday from the work area. Inspect outside the containment and collect any paint particles or blasting residue that escaped the work area. Collect waste material by manual means, vacuum, or another method approved by the Engineer. Do not use air pressure or streaming water to assist in the waste collection process that could disperse the waste material.

4. In the event of a spill or inadvertent release, the Contractor shall immediately stop work, notify the Engineer, and report the release to the South Dakota Department of Environmental and Natural Resources (DENR). The Contractor shall be responsible for completing a spill reporting form and for all costs associated with appropriate corrective actions.

To report a release or spill, call DENR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at (605) 773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the Contractor must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

5. The Contractor shall haul and unload the 55 gallon containment drums with paint residue, blasting media, etc. to the SDDOT Maintenance Yard located in Brookings for temporary storage. The Brookings Maintenance Yard is located at 2131 34th Avenue. Contact person for the Brookings Yard is John Rittershaus at (605) 688-5001 or Matt Brey at (605) 882-5166. All costs associated with this work shall be included in the contract lump sum price for "Paint Residue Containment".

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS

1. Pack rust areas within the areas defined for painting in the Bridge Repainting Class II notes shall be treated with a rust penetrating sealer. The rust penetrating sealer shall be applied after the area has been cleaned and prepared for painting as specified in the Bridge Repainting, Class II notes but prior to the application of the final paint system. Pack rust areas are those defined as joints in connecting plates and/or crevice areas (locations noted as apply rust inhibitor on the plan sheets).

2. The rust penetrating sealer shall be supplied as one of the following:

2.1 Pre-Prime 167
Penetrating Sealer
International
South Dakota Area Manager: Kevin Perego
Telephone: 636-207-8897
Cell: 314-540-8925
Website: www.international-pc.com

2.2 Wasser MC-PrepBond 2.8
Wasser Corporation
4118 B Place NW Suite B
Auburn, WA 98001
Telephone: 800-627-2968
Website: www.wassercoatings.com

2.3 Time-Lock MoPoxY PRE-PREP
Rust Penetrating Sealer 41-AF-2
BLP Mobile Paints
P.O. Box 717
Theodore, Alabama 36590-0717
Telephone: 251-443-6110
Website: www.blpmobilepaint.com

2.4 Rust Bullet Standard Formula
Rust Bullet, LLC
300 Brinkby Avenue, Suite 200
Reno, NV 89509
Telephone: 800-245-1600
Website: www.rustbullet.com

The rust penetrating sealer shall be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

- Remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed.
- Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the paint system specified in Section 412 of the Construction specifications until the area has cured for the amount of time specified by the manufacturer of the rust penetrating sealer.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 296' - 0" CONT. COMP. GIRDER BRIDGE

STR. NO. 20-061-280

JANUARY 2016

2 OF 15

DESIGNED BY NP DUELO3EC	CK. DES. BY EJA 035CRF02	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	113	125

APPLICATION OF RUST PENETRATING SEALER TO PACK RUST AREAS (CONTINUED)

- For informational purposes, 170 square feet of structural steel will require rust penetrating sealer.
- The cost of furnishing and applying the rust penetrating sealer and all other items incidental to the application of this sealer shall be included in the contract lump sum price for "Rust Penetrating Sealer".

BRIDGE REPAINTING, CLASS II

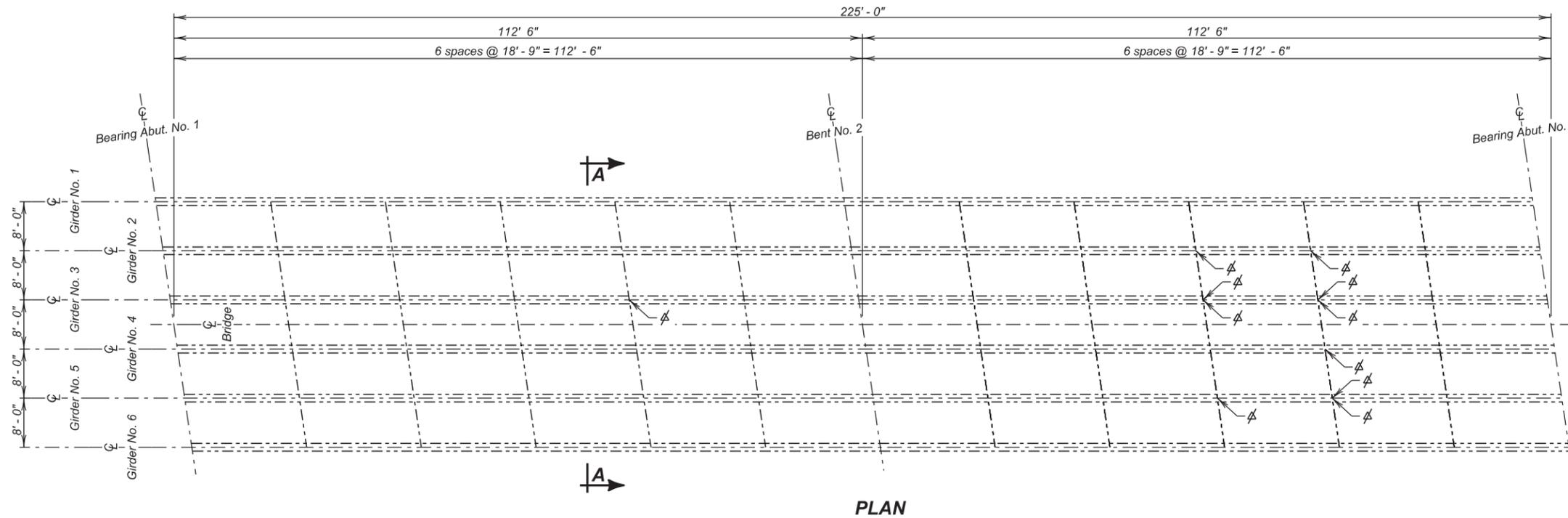
- Portions of the existing girders, diaphragms, bolted splices and bearings shall be painted as shown by these plans and in accordance with the requirements for Bridge Repainting, Class II in Section 412 of the Construction Specifications except as modified by these notes.
- After blast cleaning the surfaces to be painted, remove any trace of blast products, dust or dirt from all surfaces including pockets and corners as approved by the Engineer.
- The color of the top coat shall be an approved green (Federal Standard 595B Color 24108). The prime coat and the top coat shall sharply contrast.
- For informational purposes, 20,750 square feet of structural steel will require painting. For a breakdown of the paint required for all of the portions of the bridge, see sheet nos. 5 through 10 of 15 of the plans.

BOLTED SPLICE PLATE SEALANT

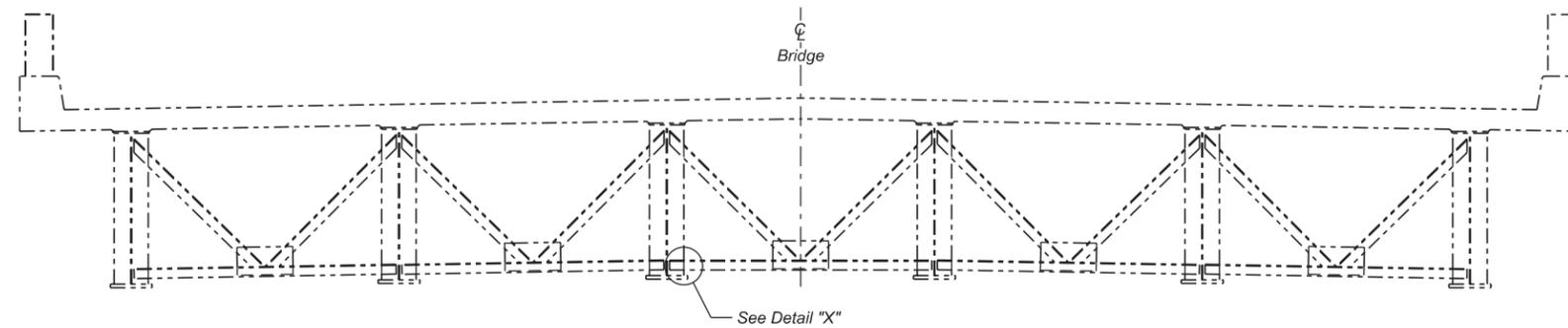
- The edges of all bolted splice plates shall be sealed using a Polyurethane Sealant.
- The Polyurethane Sealant shall meet the following requirements. The sealant shall be a single component, moisture cure, non-sag, smooth formulation, gun-grade elastomeric sealant. The sealant shall meet the requirements for ASTM C-920, Type S, Grade NS, Class 25, Use-A.
- Contact surfaces shall be cleaned in accordance with the manufacturer's recommendations. The Contractor shall supply the Engineer with written instructions regarding the manufacturer's recommended surface treatment for the in-place surface condition at least 48 hours before application for review and acceptance.
- The Polyurethane Sealant shall be applied and tooled as recommended by the manufacturer. Product data sheets and Material safety data sheets shall be supplied to the Engineer at least one week prior to installation. In no case shall the thickness of the material be less than 1/4". Feathering of the joint material shall not be allowed. Adjacent surfaces shall be masked to avoid application of the material outside the limits of the final seal. Application surfaces shall be clean and free of material contaminants. Application shall not be allowed on a wet or damp surface.
- Polyurethane Sealant shall be installed and allowed to cure prior to the application of any field applied paint.
- For informational purposes only the sealant will be applied on 748 linear feet.
- Polyurethane Sealant for Structure shall be included in the lump sum price for "Bridge Repainting, Class II." Payment will be full compensation for labor, equipment, materials and incidentals for furnishing, preparing surfaces for application and installing the Polyurethane Sealant.

NOTES (CONTINUED)
FOR
296' - 0" CONT. COMP GIRDER BRIDGE
STR. NO. 20-061-280
JANUARY 2016

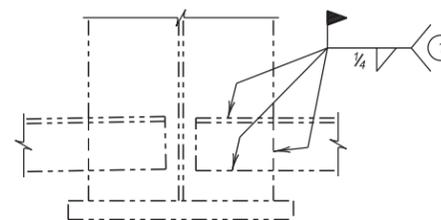
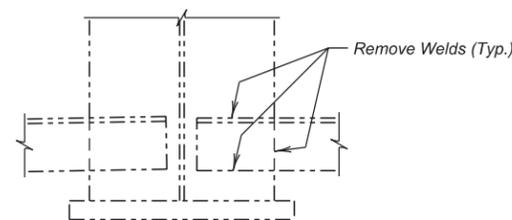
DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRF03	DRAFTED BY EJA	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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NOTES:
 ✂ Remove and replace broken weld on bottom diaphragm leg to stiffener connection.



ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Remove Weld	ln	151
Field Weld	ln	118

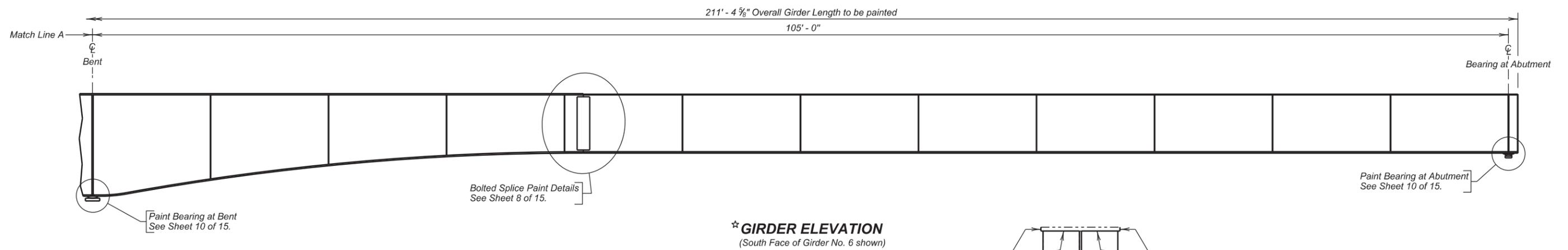
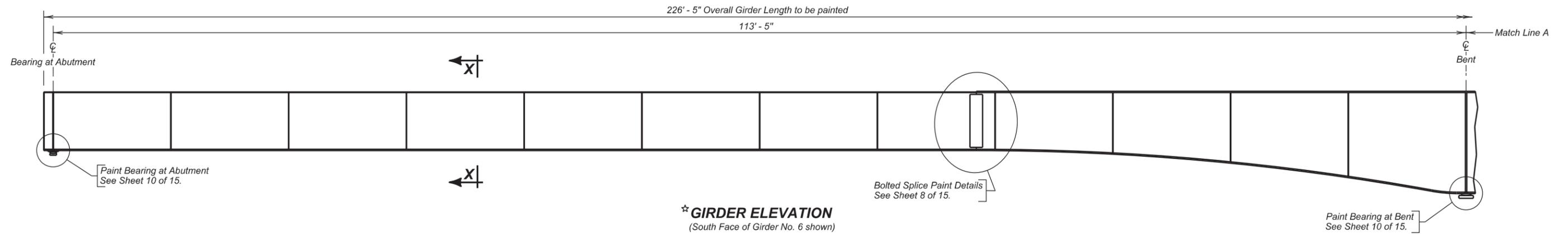


① All fillet welds attaching the diaphragms to the stiffeners shall terminate 1/2" from the edge of both the diaphragm and the stiffener, which ever is applicable

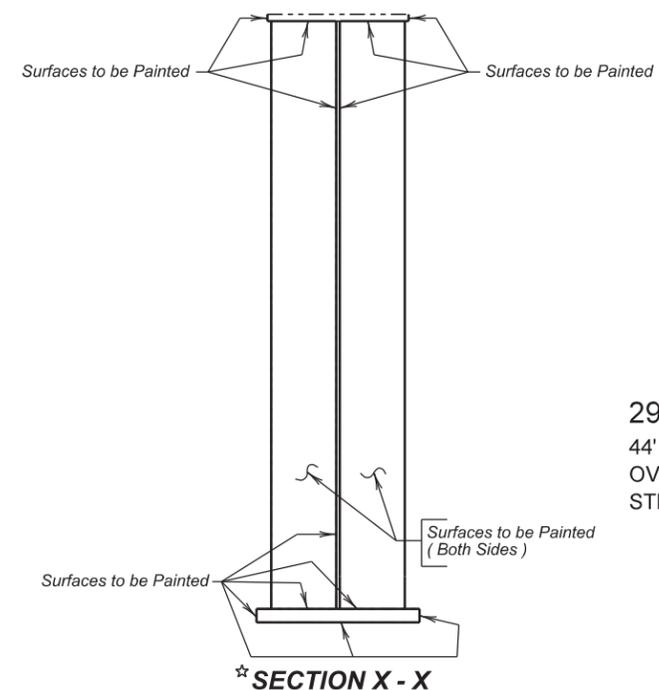
DIAPHRAGM WELD REPAIR DETAILS
 FOR
296' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.
 OVER INTERSTATE 29 SEC. 19 & 30 - T113N - R49W
 STR. NO. 20-061-280 IM 0295(38)125

DEUEL COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	115	125



☆ Note: Paint all visible surfaces of the girder and stiffeners.

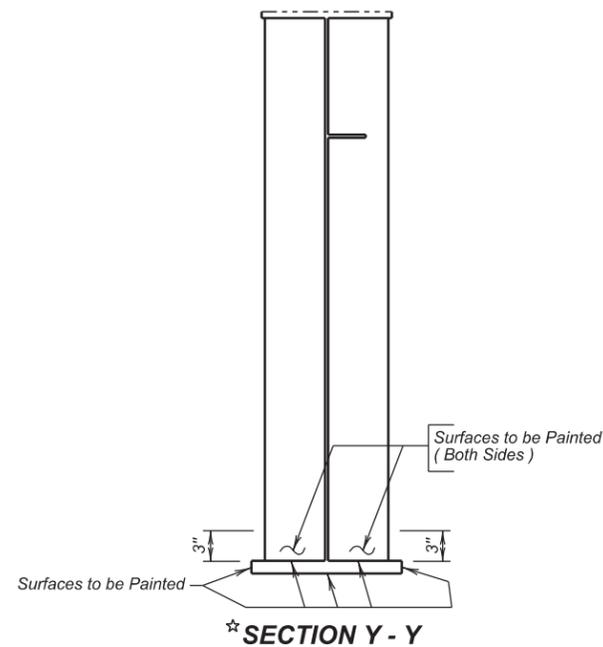
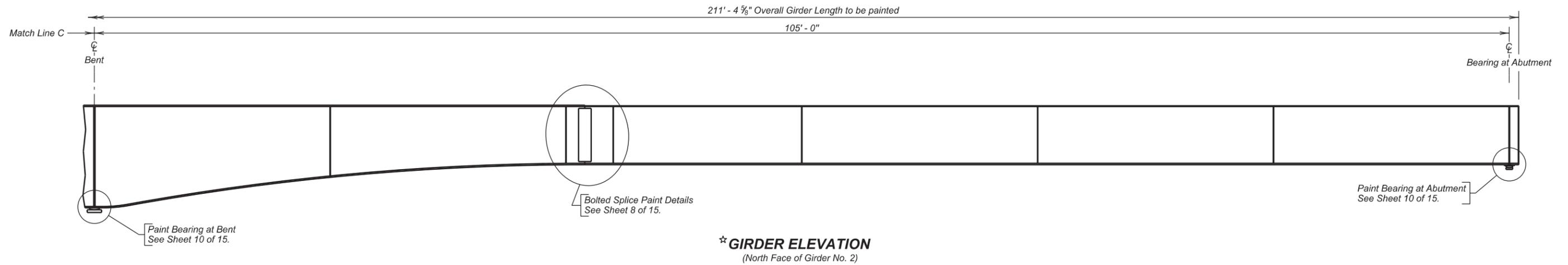
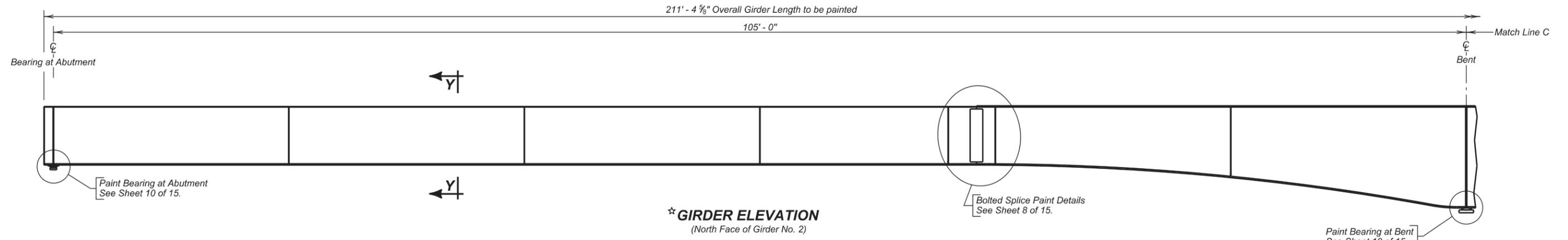


GIRDER NOS. 1 AND 6 SIDE A PAINT DETAILS
FOR
296' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.
OVER INTERSTATE 29 SEC. 19 & 30-T113N-R49W
STR. NO. 20-061-280 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRF05	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	116	125



☆ Note: Paint all visible surfaces of the girder and stiffeners.

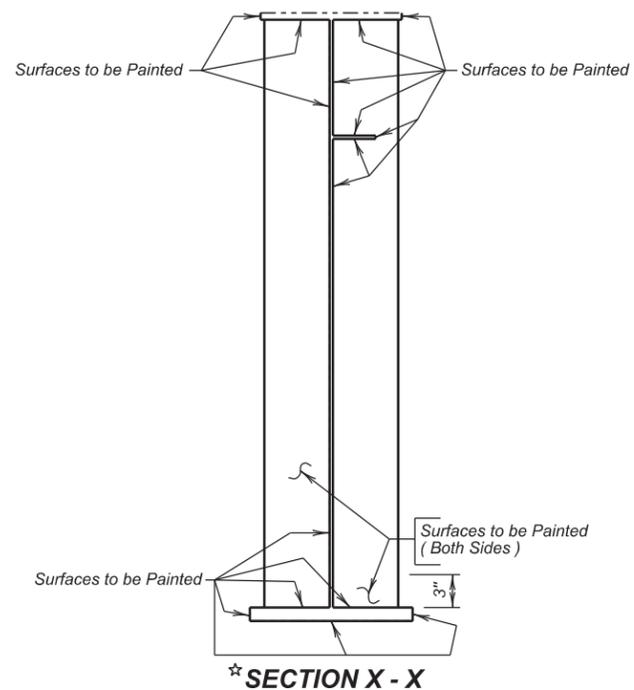
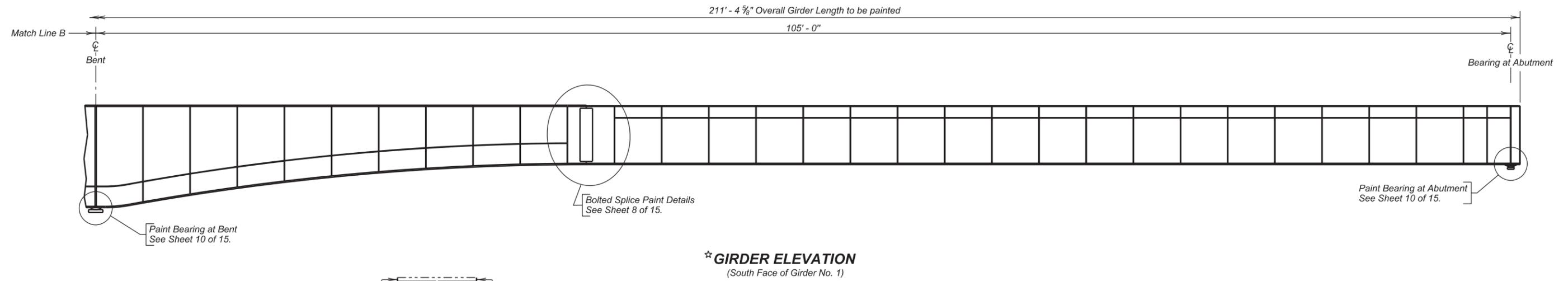
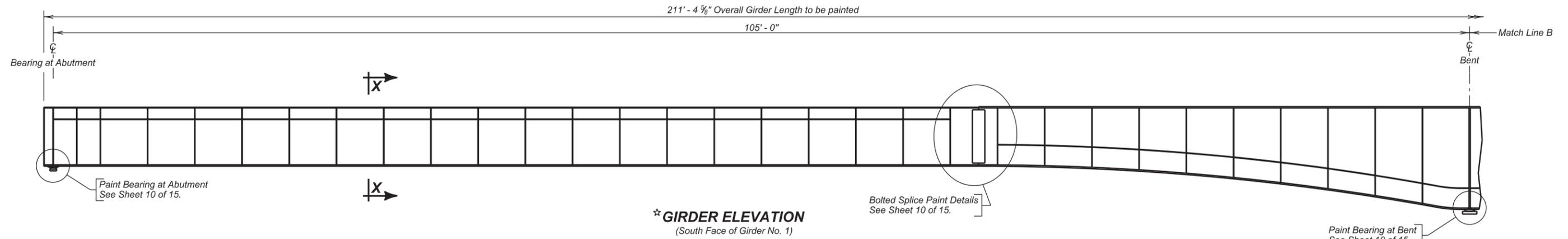
GIRDER NOS. 2 THROUGH 5 SIDE A PAINT DETAILS

FOR
296' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.
OVER INTERSTATE 29 SEC. 19 & 30-T113N-R49W
STR. NO. 20-061-280 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRF06	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	117	125



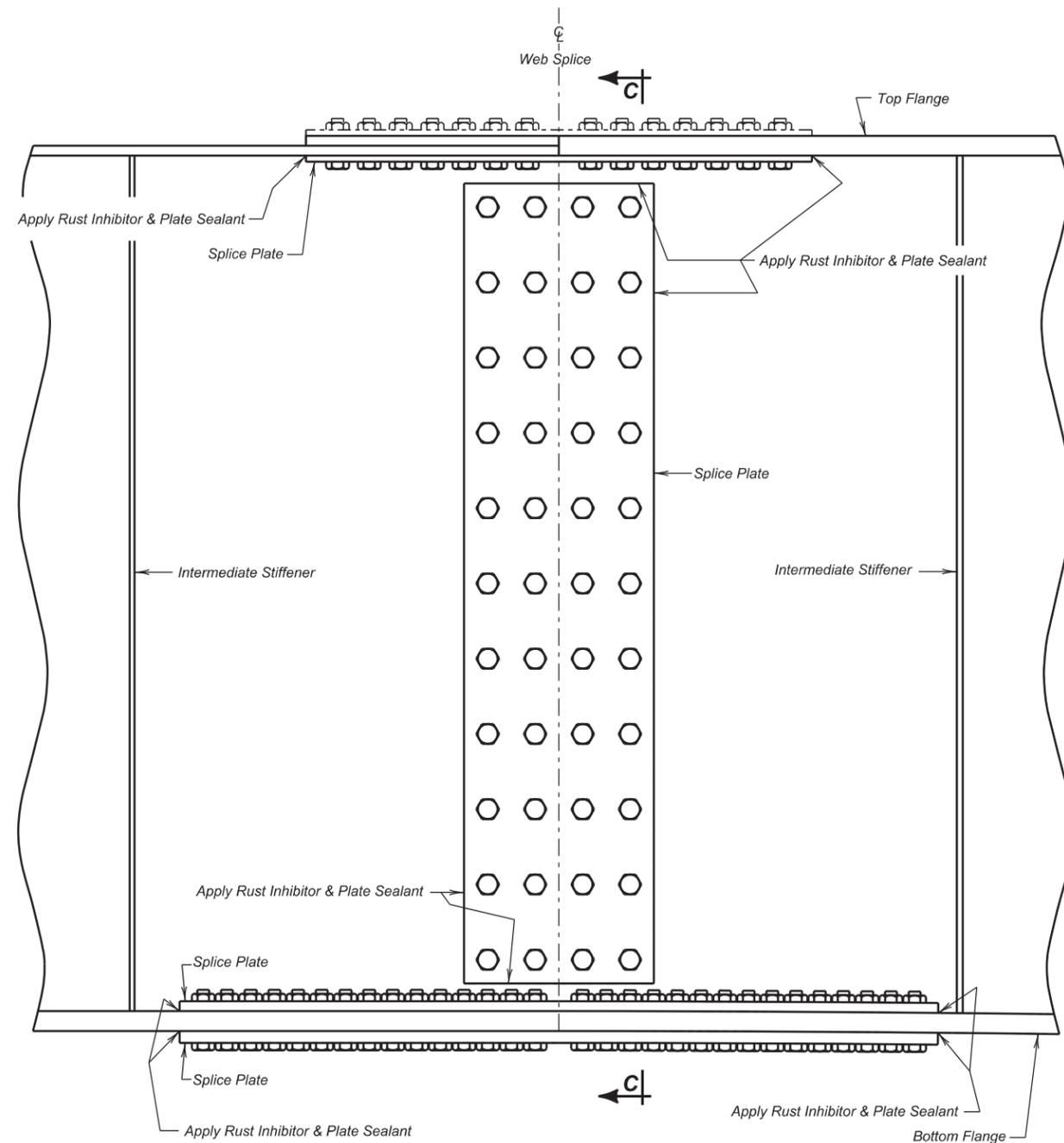
★ Note: Paint all visible surfaces of the girder and stiffeners.

ALL GIRDERS SIDE B
FOR
296' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.
OVER INTERSTATE 29 SEC. 19 & 30-T113N-R49W
STR. NO. 20-061-280 IM 0295(38)125

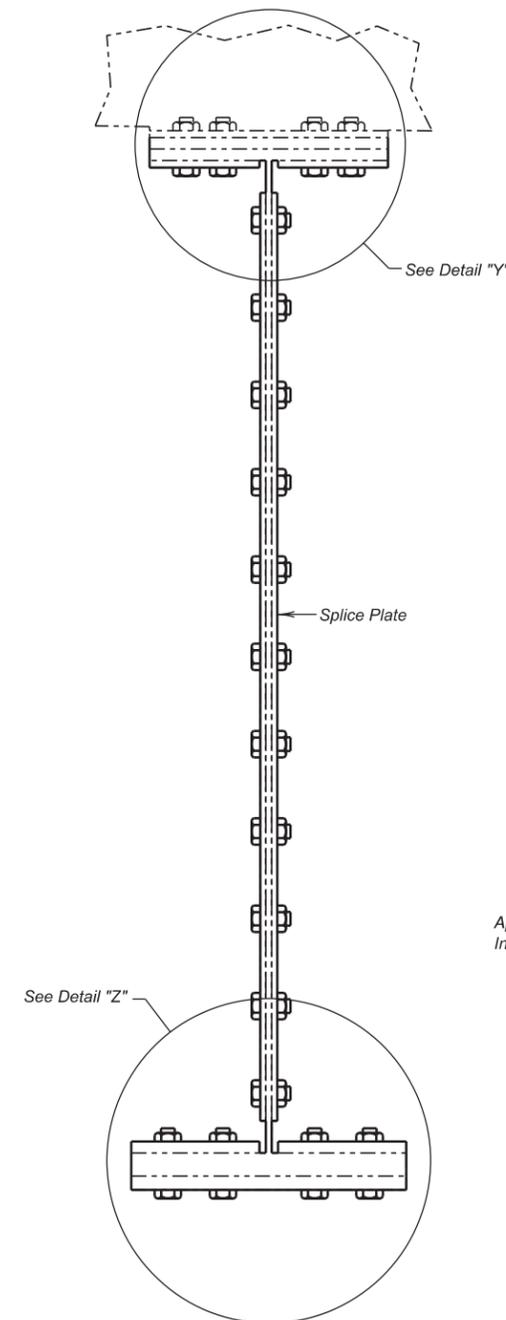
DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRF07	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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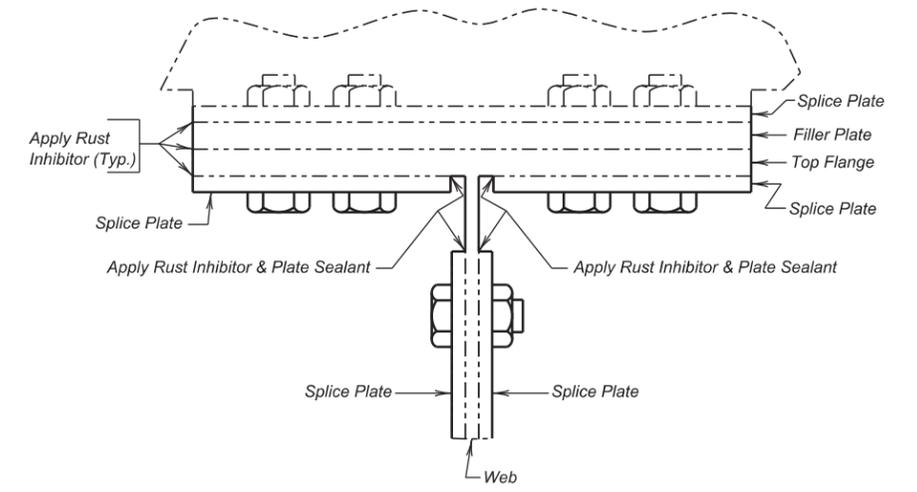
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	118	125



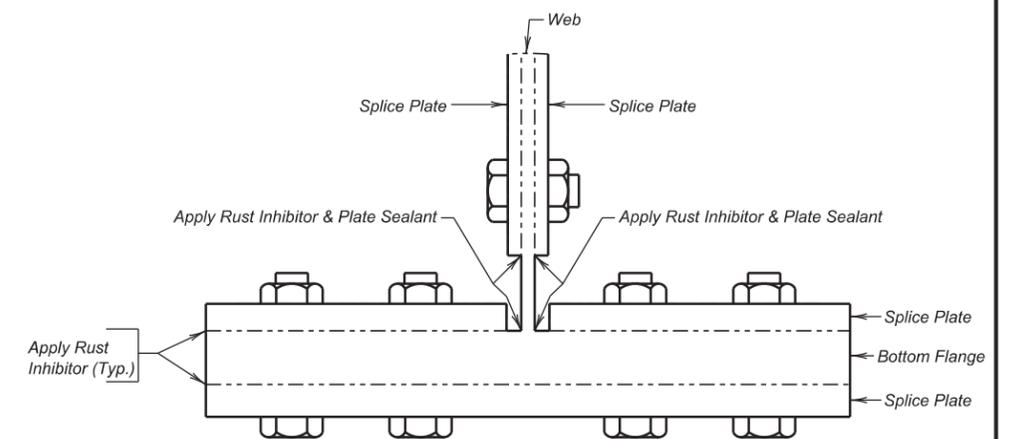
ELEVATION OF BOLTED SPLICE
(Paint all visible surfaces of the bolted splice)



SECTION C - C



DETAIL "Y"



DETAIL "Z"

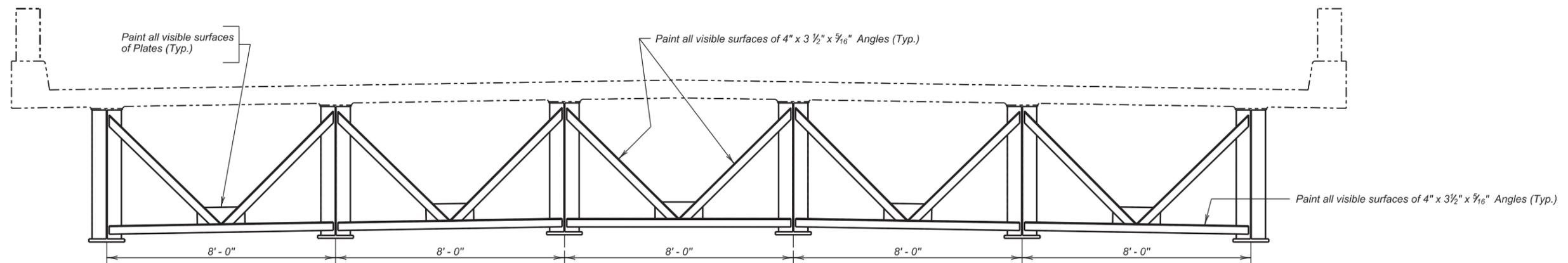
GIRDER PAINT DETAILS AT BOLTED SPLICES

FOR
296' - 0" CONTINUOUS COMP. GIRDER BRIDGE
 44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.
 OVER INTERSTATE 29 SEC. 19 & 30-T113N-R49W
 STR. NO. 20-061-280 IM 0295(38)125

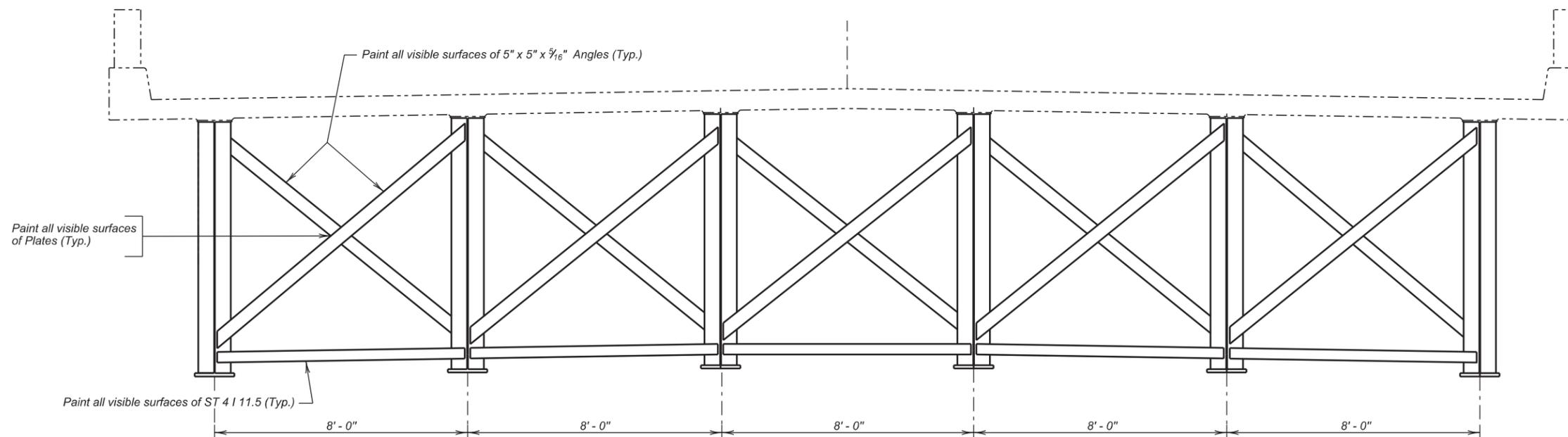
DEUEL COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JANUARY 2016

DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE16	DRAFTED BY KR	<i>Kevin N. Coeden</i> BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	119	125



TYPICAL GIRDER SECTION AT DIAPHRAGM
(Paint all visible surfaces of the diaphragm)



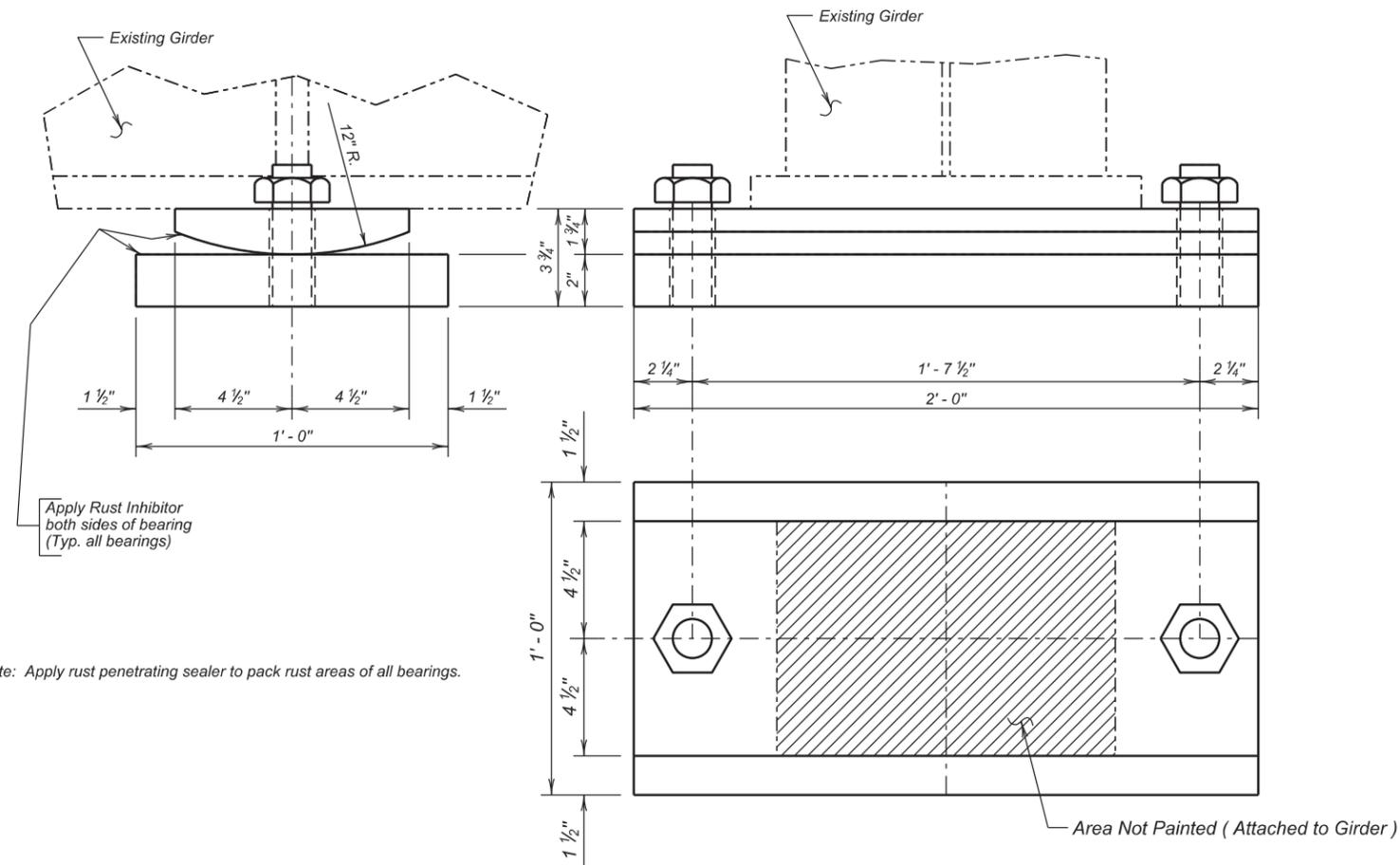
TYPICAL GIRDER SECTION AT BENT
(Paint all visible surfaces of the diaphragm)

DIAPHRAGM PAINT DETAILS
FOR

296' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.
OVER INTERSTATE 29 SEC. 19 & 30-T113N-R49W
STR. NO. 20-061-280 IM 0295(38)125

DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

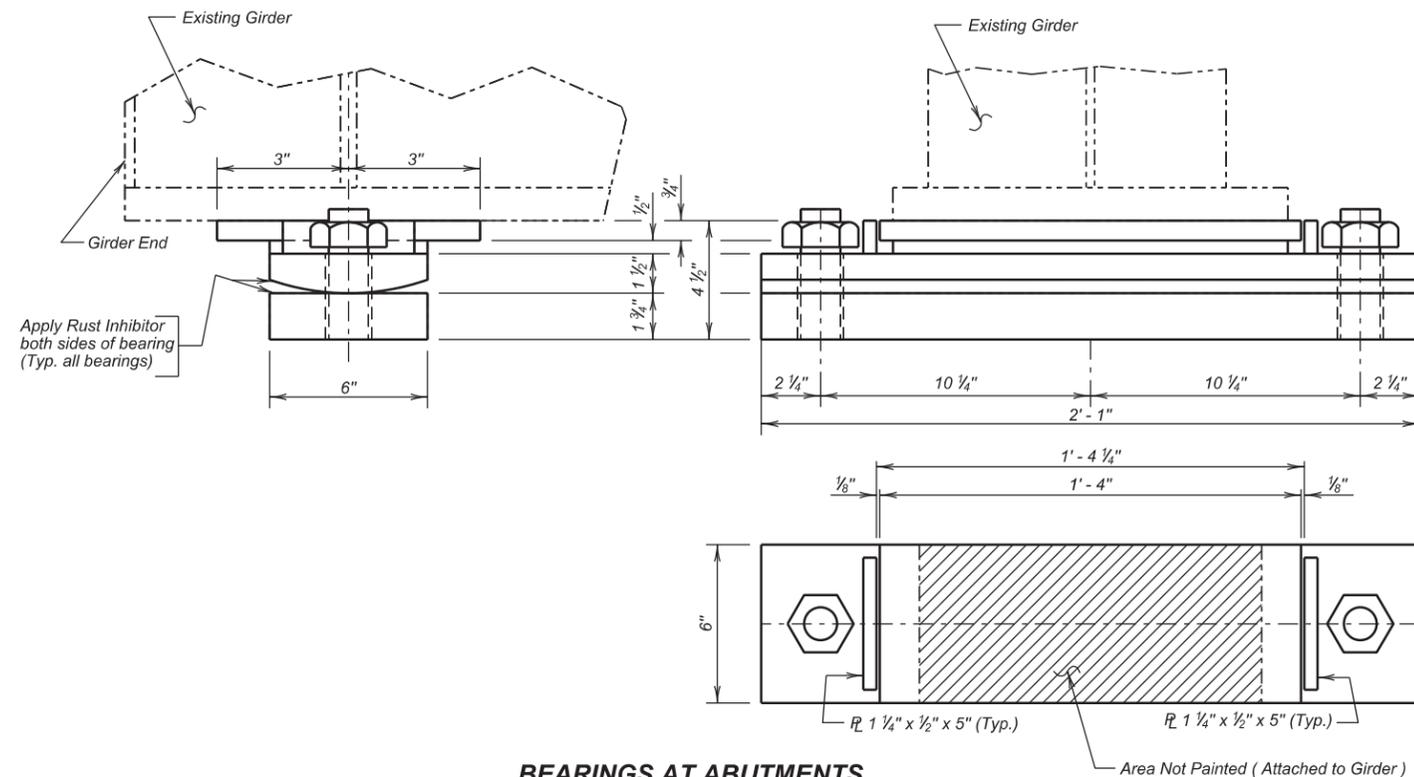
DESIGNED BY NP DUEL035C	CK. DES. BY EJA 035CRE17	DRAFTED BY KR	<i>Kevin N. Goeden</i> BRIDGE ENGINEER
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Apply Rust Inhibitor both sides of bearing (Typ. all bearings)

Note: Apply rust penetrating sealer to pack rust areas of all bearings.

BEARINGS AT BENT
(Paint all visible surfaces of bearings)



Apply Rust Inhibitor both sides of bearing (Typ. all bearings)

BEARINGS AT ABUTMENTS
(Paint all visible surfaces of bearings)

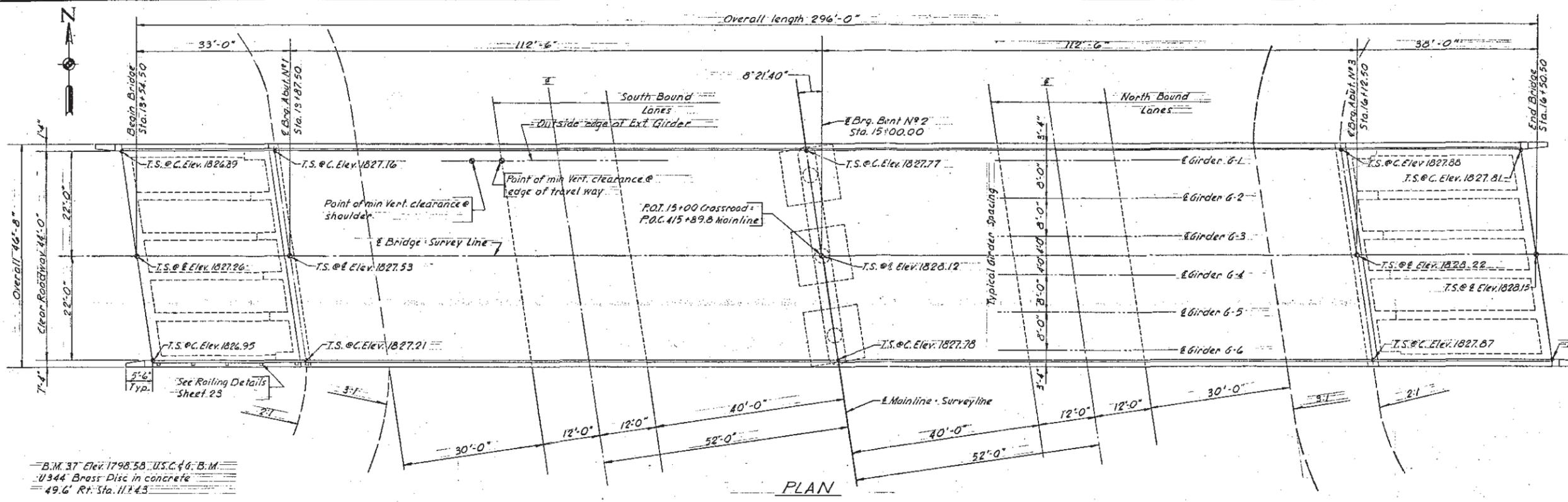
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
△ Bridge Repainting, Class II	LS	Lump Sum
* Rust Penetrating Sealer	LS	Lump Sum
Paint Residue Containment	LS	Lump Sum

△ For informational purposes, the area of structural steel to be painted is 22,070 square feet.
* For informational purposes, the area of structural steel to be coated with with Rust Penetrating Sealer is 170 square feet.

BEARING PAINT DETAILS
FOR
296' - 0" CONTINUOUS COMP. GIRDER BRIDGE
44' - 0" ROADWAY 8° 21' 40" SKEW R.H.F.
OVER INTERSTATE 29 SEC. 19 & 30-T113N-R49W
STR. NO. 20-061-280 IM 0295(38)125

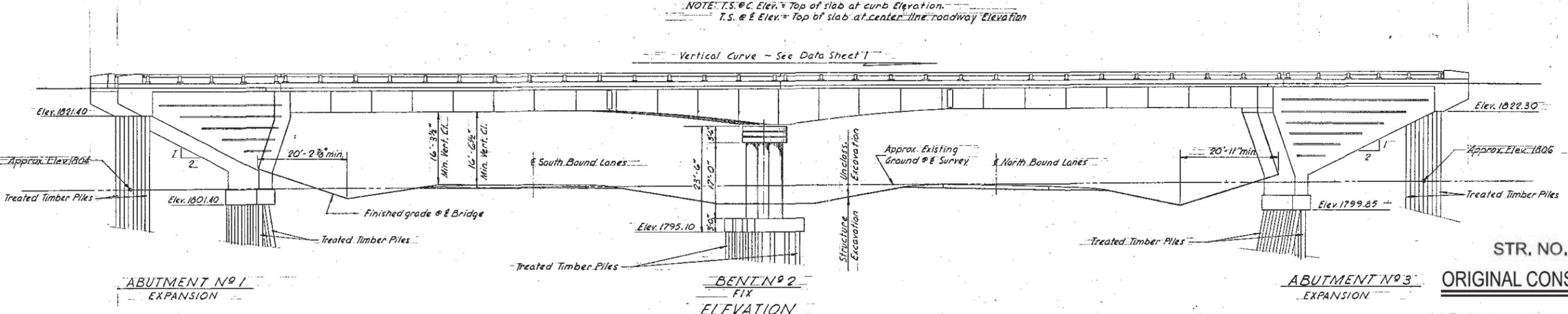
DEUEL COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2016

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38) 25	121	125



- PILE NOTES**
1. Prebore piling through the fill embankment to natural ground line.
 2. Piling shall develop a minimum bearing value of 24 tons per timber pile.
 3. The Contractor shall have sufficient pile splice material on hand before pile driving is started. See Standard Plate No 303.
 4. Prebored holes for piles shall be backfilled with granular material acceptable to the Engineer and compacted as specified by the Engineer. The cost of granular material in place shall be included in the unit price bid for piles.
 5. In the event pile shoes are used, see Standard Plate 301 for details.
 6. Anticipated pile tip Elevation 1774.0

NOTE: T.S. @ C. Elev. = Top of slab at curb Elevation.
T.S. @ E. Elev. = Top of slab at center line roadway Elevation



STR. NO. 20-061-280
ORIGINAL CONSTRUCTION PLANS

INTERCHANGE AT M.L. STA. 415+89.8
U.S. 77 & S.D. 28 OVER I-29
GENERAL DRAWINGS & QUANTITIES

FOR
296'-0" CONT. COMP. GIRDER VIADUCT
44'-0" ROADWAY 8° 21' 40" SKEW R.H.F.
M.L. STA. 415+89.8 SEC. 19 & 30-T113N-R49W
CROSSROAD STA. 15+00 I-29-6(4)148
STA. 13+54.50 TO STA. 16+50.50

DEUEL COUNTY
SOUTH DAKOTA

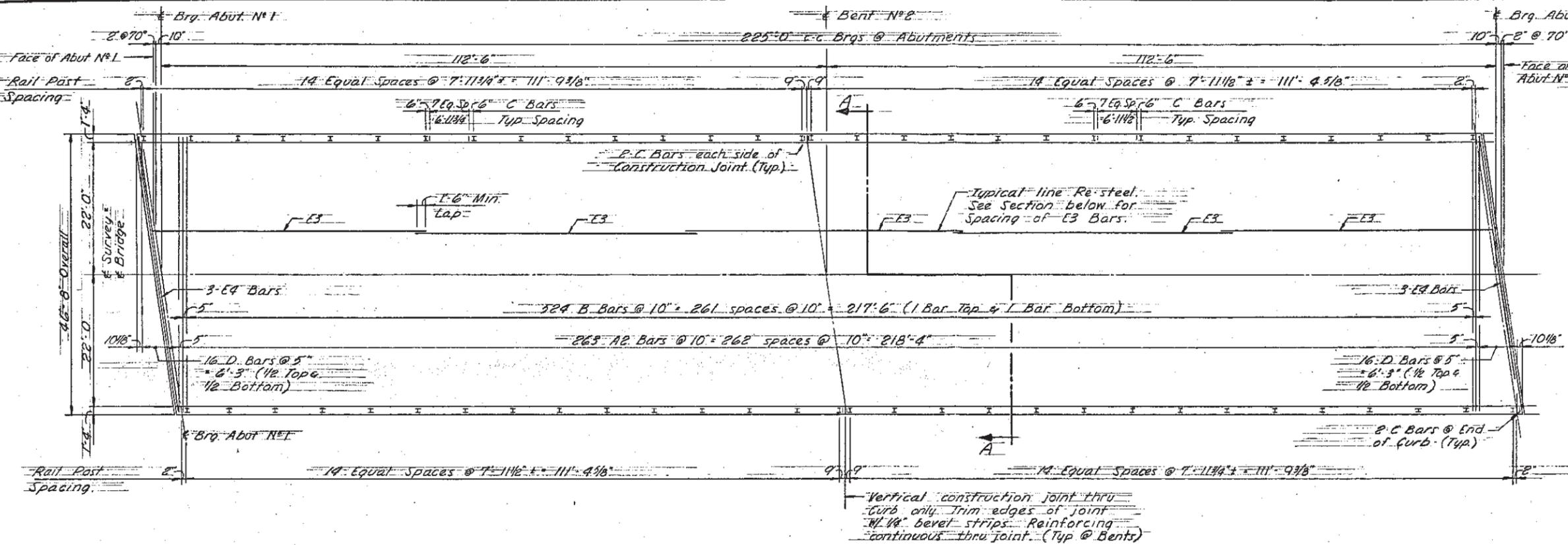
PREPARED BY:
J.T. BANNER & ASSOC., INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA

HS 20-44
NOVEMBER, 1968
(11) OF (15)

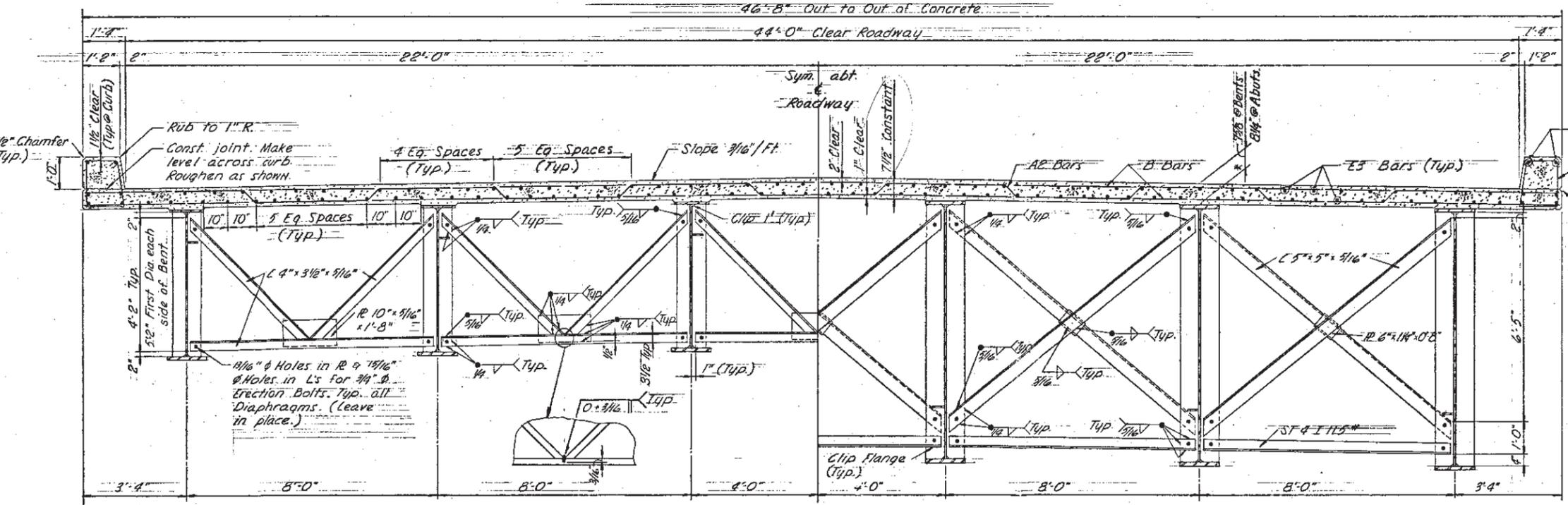
TOTAL ESTIMATED QUANTITIES*											
Bid. Item No.	40005	40505	40555	40166	40205	40710	10410	10400	10701		
Item	Concrete Class 'A'	Reinf. Cu. Yds.	Struct. Lbs.	Type RT-9A St. Railing Lin. Ft.	Treated Timber Piles Lin. Ft.	Treated Timber Test Piles	Structure Excavation (Bridge) Cu. Yds.	Unclass. Excavation Cu. Yds.	Bridge End Backfill	Lump Sum	
Superstructure 225'-0" Cont. Unit	261.4	70215	282440	454							
Abutment No. 1	172.4	36725	460	64	11850	24030	1070	1035	142		
Bent No. 2	78.2	16870			41825	1025	1030	30	52		
Abutment No. 3	207.9	40860	460	74	11850	24030	1070	1035	147		
Total	730.9	160670	283360	592	174525	48290	2170	2100	341		

* One Treated Timber Test Pile shall be driven at Abutments No. 1 & No. 3 and Bent No. 2 before the remaining piles are ordered.
* To be done by others.
* For information only, the approximate volume Granular Backfill will be 100 Cu. Yds. in place & the length of the 6" perforated metal pipe will be 726 Lin. Ft., complete for two Abutments.
* See footnotes to Estimated Quantities, sheets 4, 9, 16 & 17 for breakdowns of included items.

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PLAN



TYPICAL ALL DIAPHRAGMS EXCEPT AT BENT

DIAPHRAGM AT BENT

TYPICAL RADIAL SECTION SECTION A-A

STR. NO. 20-061-280

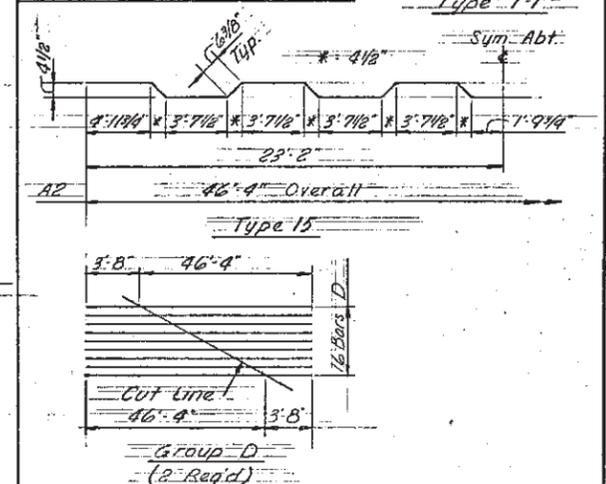
CONCRETE POURING NOTES

Concrete slab may be poured continuously, provided approved concrete retarding agents are used and the contractor has demonstrated capacity for such continuous operations. Transverse construction joints are permitted in the slab and shall be positioned near the girder field splices or at approximately the 1/3 points from ϵ of Bent. If transverse construction joints are used, the contractor shall submit to the Bridge Section for approval, plans and details of proposed sequence of pouring. Curbs shall be poured after all of the slab has been poured.

* Dimensions @ ϵ Bearings. At other points along the girders this dimension shall be computed as shown on Erection Data sheet.

SLAB REINFORCING SCHEDULE

MARK	SIZE	NO.	LENGTH	TYPE	BENDING DETAILS
A2	5	263	47'-11"	15	
B	5	524	46'-4"	Str.	
C	4	464	6'-0"	T-1	
D	5	32	50'-0"	Group D	
E3	5	570	46'-9"	Str.	
E4	6	6	47'-0"	Str.	



NOTE: All dimensions are out to out of bars.
NOTE: Bars A1, E1, & E2 are located on the Abuts.

SUPERSTRUCTURE ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class "A" Concrete	Co. Yds	261.4
Reinforcing Steel	Lbs	7025
Structural Steel	Lbs	28240
Type RT-3A Steel Rolling	Lnft	454

Quantities include all materials above groud pads on Abutments & Bent and between Expansion Devices (Including Swedge Bolts & Expansion Devices)

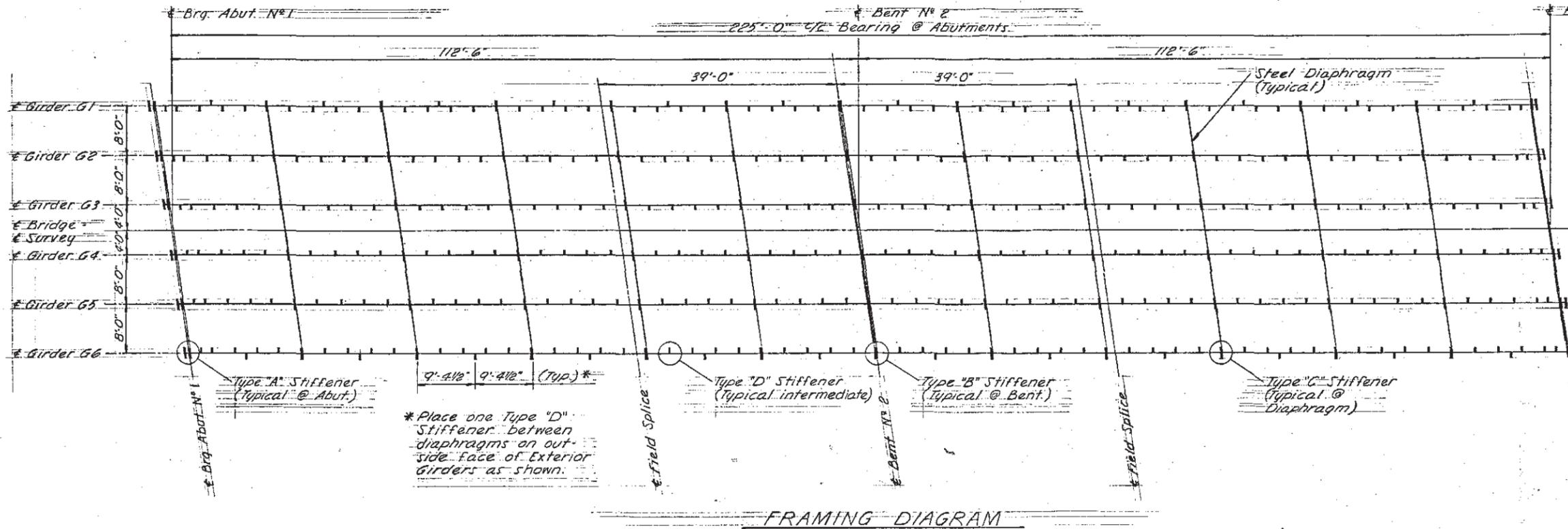
INTERCHANGE AT M.L. STA. 415+89.8
U.S. 77 & S.D. 28 OVER I-29
SLAB & DIAPHRAGM DETAILS
FOR
296'-0" CONT. COMP. GIRDER VIADUCT
44'-0" ROADWAY 8°21'40" SKEW R.H.F.
M.L. STA. 415+89.8= SEC. 19 & 30 - T113N - R49W
CROSSROAD STA. 15.30 1-29-6(4)148
STA. 13+54.50 TO STA. 16+50.50

DEUEL COUNTY SOUTH DAKOTA
PREPARED BY: J.T. BANNER & ASSOC., INC. CONSULTING ENGINEERS BROOKINGS, SOUTH DAKOTA
HS 20-44 NOVEMBER, 1968
12 OF 15

ORIGINAL CONSTRUCTION PLANS

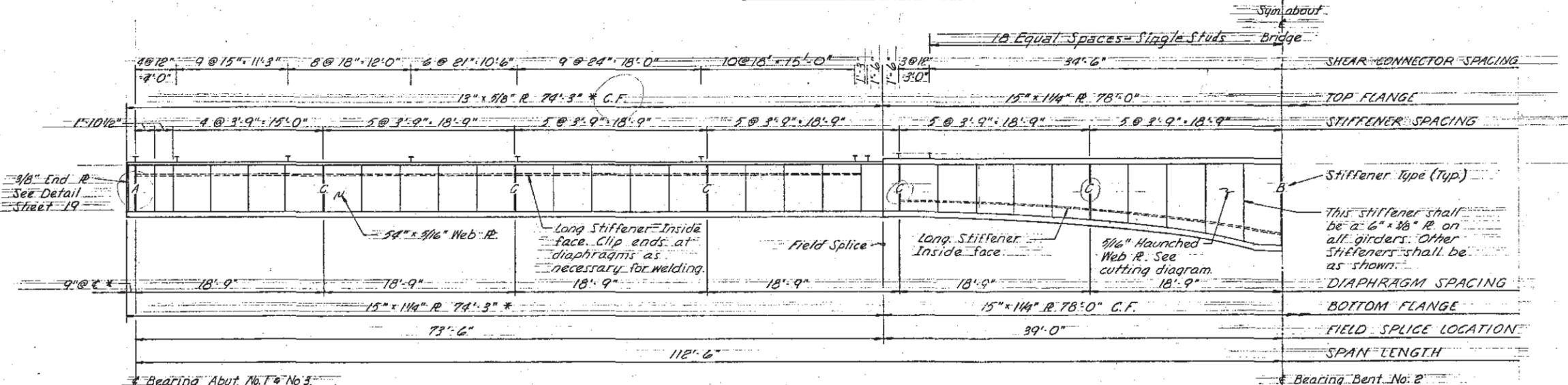
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED, BRIDGE ENGINEER
K.G.M.	D.R.H.	K.G.M.	

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38) 25	123	125



SUPERSTRUCTURE NOTES

- Design Specifications: AASHTO Specifications for Highway Bridges, 1965, with Int. Specs. 1966-1967.
- Design Loading: HS 20-44 A.A.S.H.O.
- Unit Stresses: Reinf. Steel $f_s = 20,000$ p.s.i., Concrete (Slab) $f_c = 4,000$ p.s.i., $f_c = 1350$ p.s.i.
- Structural Steel members shall conform to A.S.T.M. A-36 steel produced under other specifications, but shown to possess the chemical and physical properties of A-36 steel will be accepted for use where the latter is specified.
- Structural Steel for bearings shall conform to A.S.T.M. A-36 steel, except as shown.
- Cost of welding shall be included in the unit price bid for structural steel.
- Cost of canvas and red lead or preformed fabric pads under bearing plates shall be included in the unit price bid for structural steel.
- Copper alloy bearing plates shall be as specified on bearing sheet. The weight of these plates shall be computed as structural steel and included in that bid item.
- All butt welded girder splices shall be radiographically inspected.
- All reinforcing steel bars shall conform to ASTM Specifications A305 and A15 Intermediate Grade.
- All exposed concrete edges shall be chamfered 1" unless otherwise noted.
- See Railing Sheet for details of railing & curb.
- Erection bolts left in place at diaphragms shall be included in the structural steel quantity for payment.
- The cost of painting shall be included in the unit price bid for structural steel.
- Fillet welds shall be subjected to magnetic particle inspection as specified in the standard specifications.
- Structural steel shall be painted with one shop coat of Red Lead Paint (AASHTO designation M 72 Type I) or Red Lead Iron Oxide Paint (AASHTO designation M 72 Type III) and shall be field painted with one coat of gray paint followed by a coat of green paint.
- Cost of Neoprene seals shall be included in the unit price bid for structural steel. This shall include the adhesive.



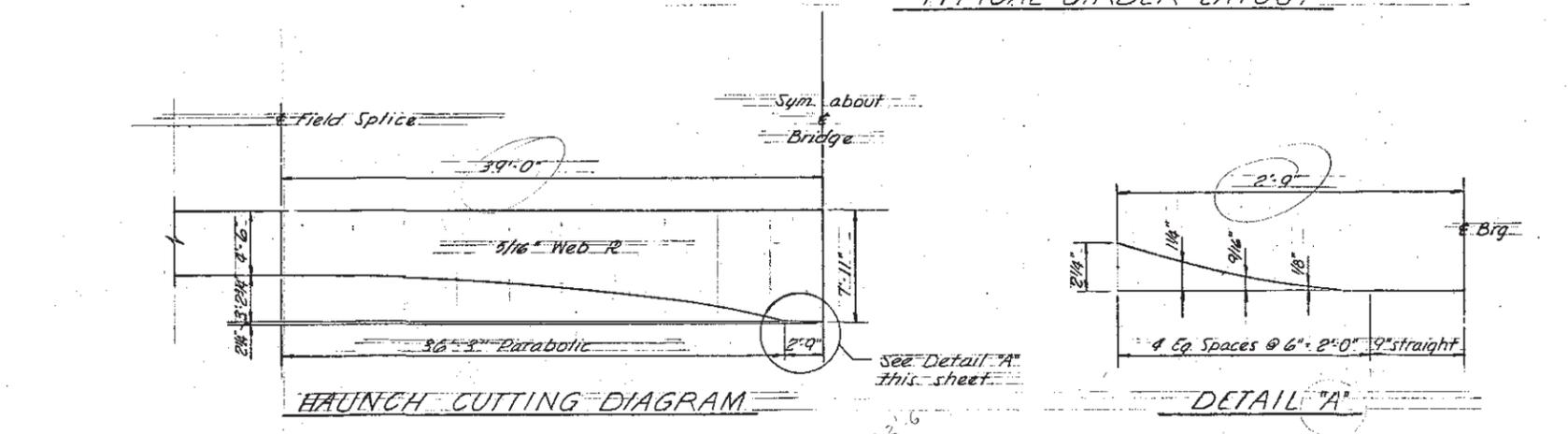
**STR. NO. 20-061-280
ORIGINAL CONSTRUCTION PLANS**

INTERCHANGE AT M.L. STA. 415+89.8
U.S. 77 & S.D. 28 OVER I-29
GIRDER DETAILS
FOR
296'-0" CONT. COMP. GIRDER VIADUCT
44'-0" ROADWAY 8°21'40" SKEW R.H.F.
M.L. STA. 415+89.8 SEC. 19 & 30 - T113N - R49W
CROSSROAD STA. 15+00 1-29-6(4)148
STA. 13+54.50 TO STA. 16+50.50

DEUEL COUNTY
SOUTH DAKOTA

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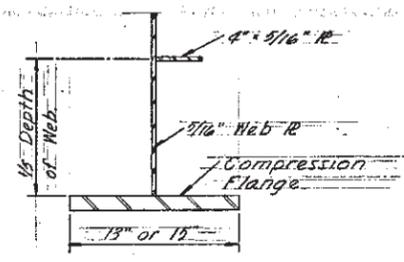
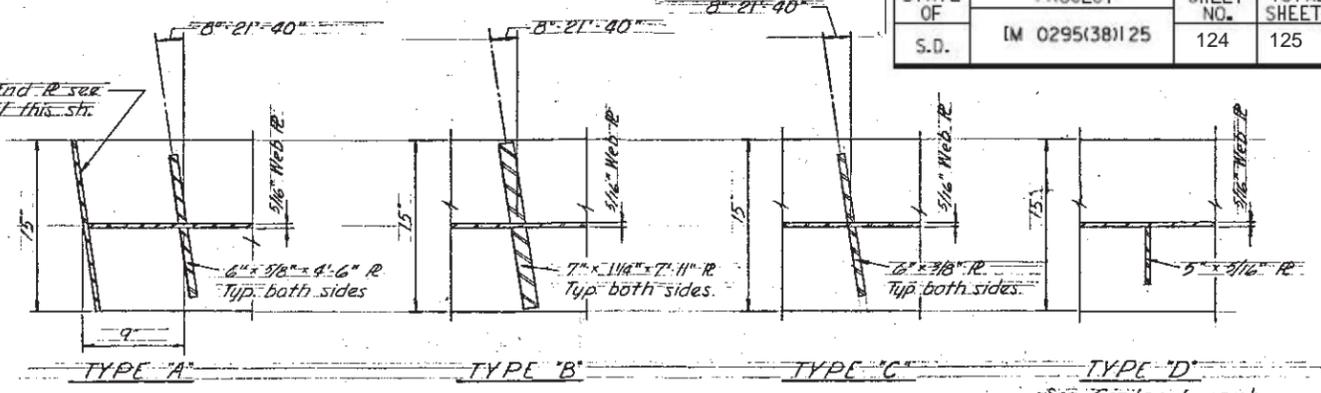
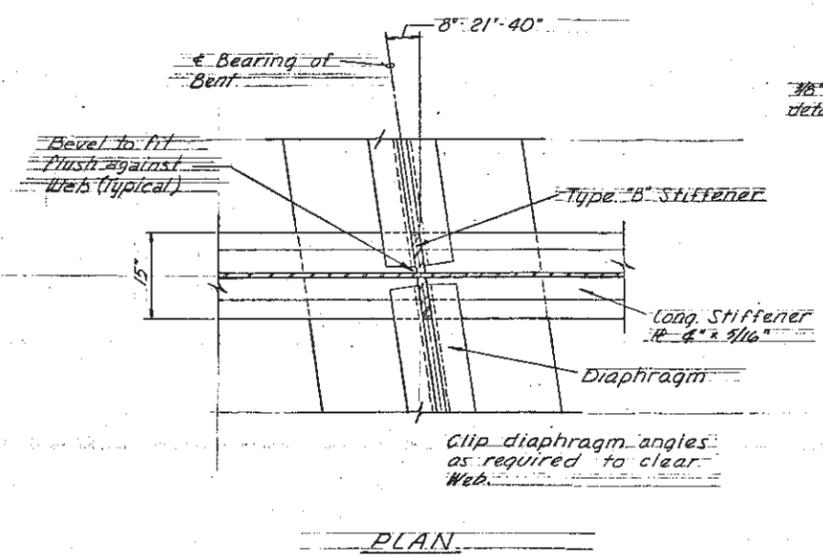
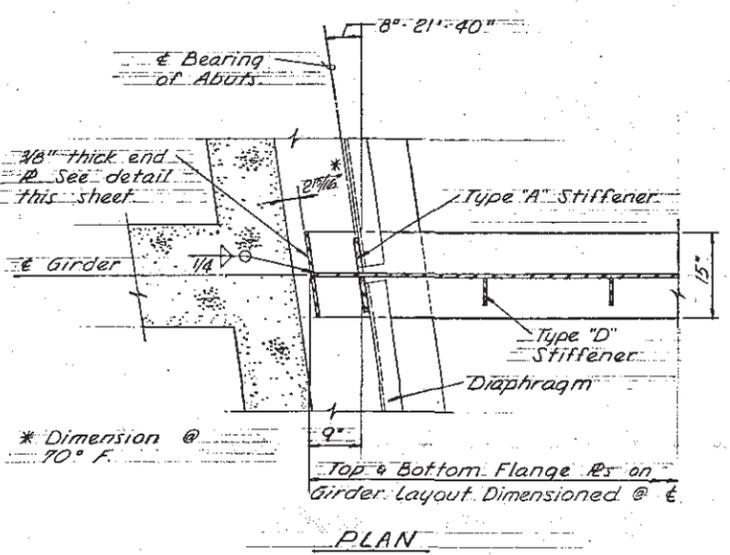
HS 20-44
NOVEMBER, 1968
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- NOTES**
- Stiffeners are Type "D" unless noted. (Typ)
 - For dimensions marked with * see Girder Details at Abutments, Sheet 19
 - See Stiffener Details, Sheet 19
 - C.F. abbreviates "Compression Flange"
 - See Framing Diagram this sheet for location of Type "D" Stiffeners on the exterior face of the exterior girders.
 - Camber to be cut into Webs as shown in CAMBER DIAGRAM, Sheet 22 of 25.

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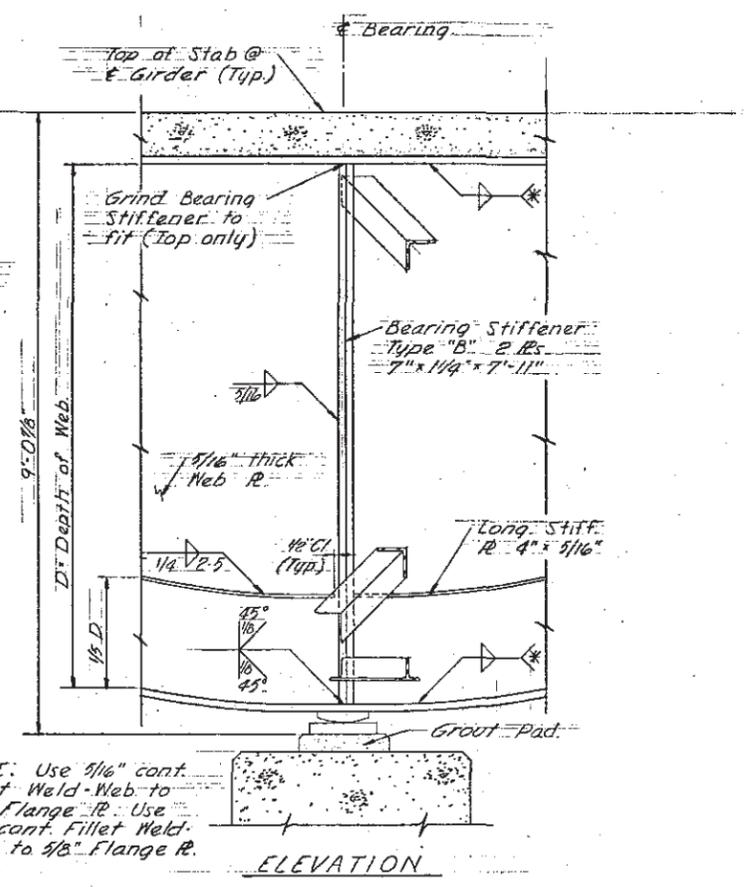
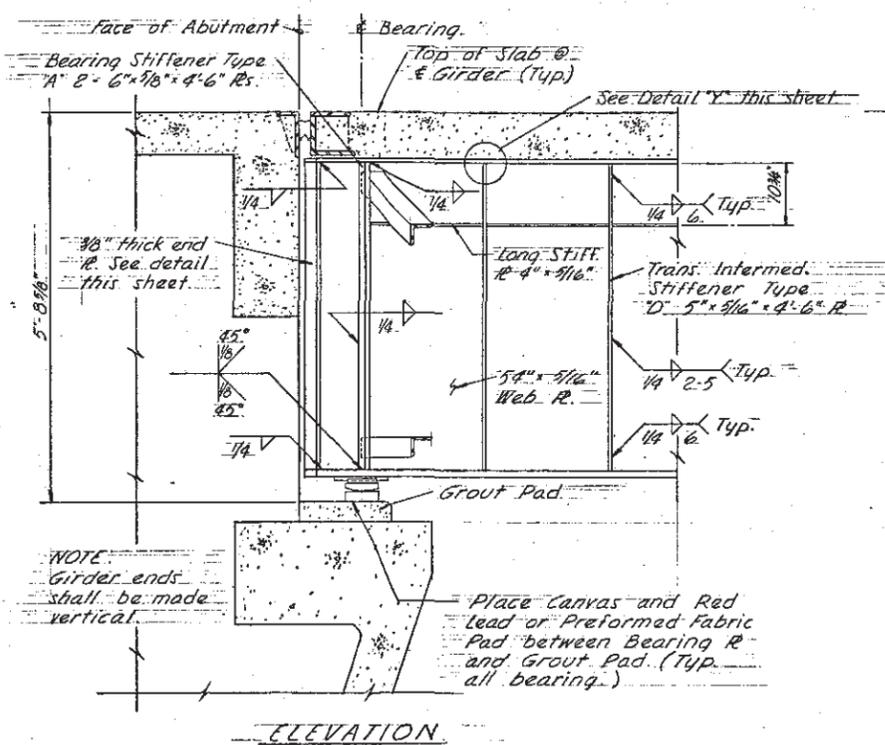
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	124	125



STIFFENER DETAILS

See Girder layout for location of Stiffeners

NOTE:
 1. Stiffener plates for Types A, B, & C on the exterior face of the exterior girder shall be built normal to the web.
 2. Skewed stiffener plates for Type A, B & C shall be beveled to have full contact with web & welded with fillet welds as shown, each side stiffener.

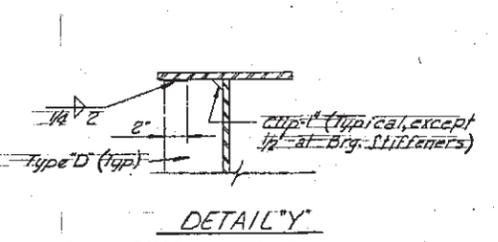


LONGITUDINAL
 Detail similar when top flange is in compression.

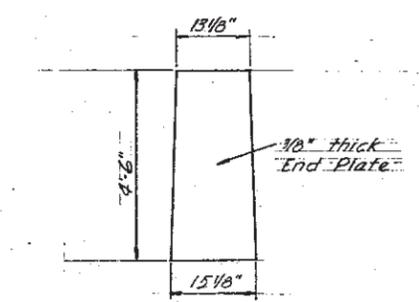
TYPICAL GIRDER DETAILS @ ABUTS.

*NOTE: Use 5/16" cont. Fillet Weld-Web to 1/4" Flange R. Use 1/4" cont. Fillet Weld-Web to 5/8" Flange R.

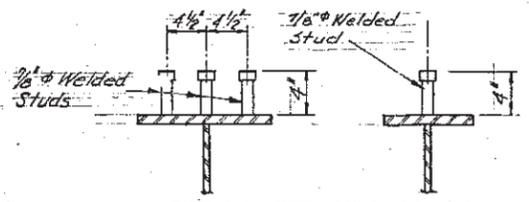
TYPICAL GIRDER DETAILS @ BENT



DETAIL Y
 When Stiffener Plates are used on one side only, they shall be attached to the outstanding leg of the compression flange as shown. See Girder Detail Sheet for compression flange.

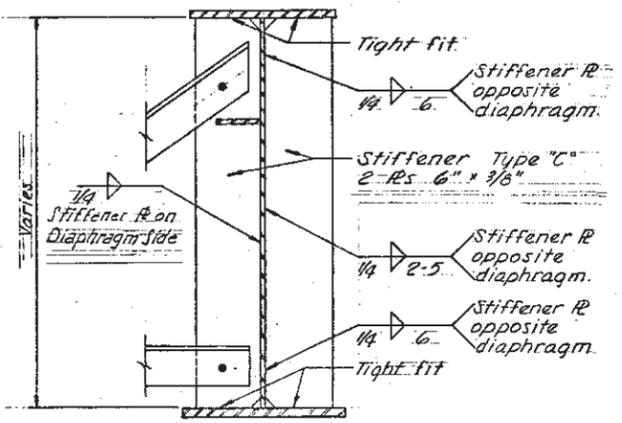


END PLATE DETAIL



TYPICAL AT BENTS SHEAR CONNECTOR DETAILS

1. Welded stud connectors are spaced as shown on Girder layout.
 2. Shear connectors will be paid for as structural steel, based on the weight of studs.
 3. All shear connectors will be Triple Studs except over bents. See sheet 18.



TYPICAL STIFFENER DETAILS AT DIAPHRAGM

STR. NO. 20-061-280 ORIGINAL CONSTRUCTION PLANS

INTERCHANGE AT M.L. STA. 415+89.8
 U.S. 77 & S.D. 28 OVER I-29

GIRDER DETAILS FOR

296'-0" CONT. COMP. GIRDER VIADUCT

44'-0" ROADWAY 8° 21' 40" SKEW R.H.F.
 M.L. STA. 415+89.8- SEC. 19 & 30 - T113N-R49W
 CROSSROAD STA. 15+00 I-29-6(4)148
 STA. 13+54.50 TO STA. 16+50.50

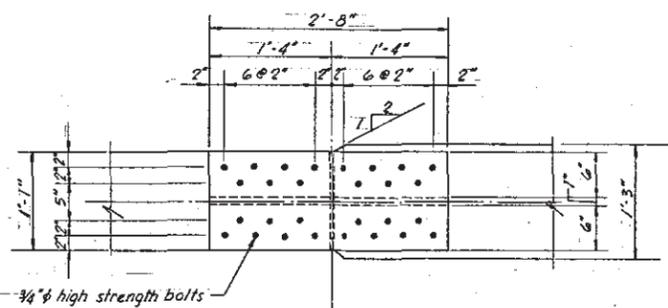
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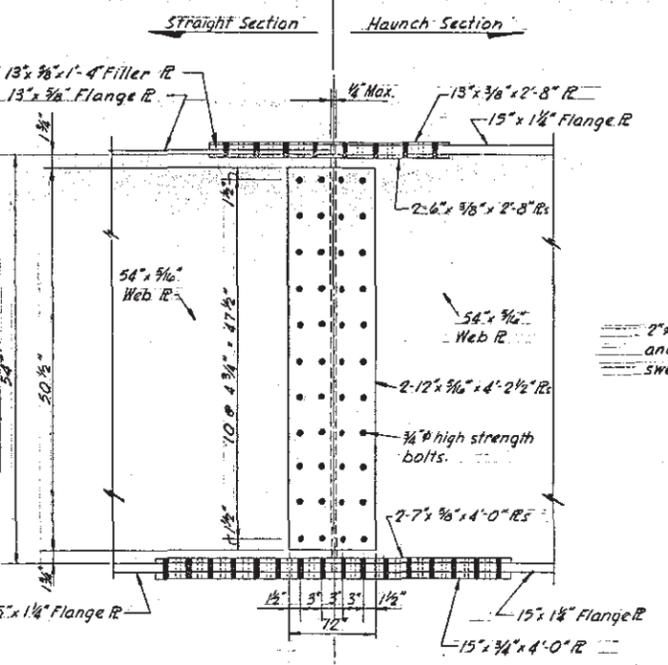
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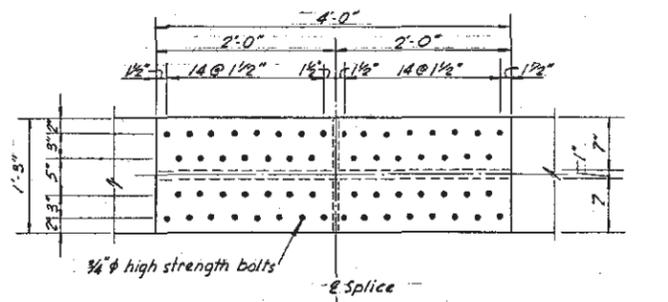
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0295(38)125	125	125



PLAN OF TOP FLANGE SPLICE

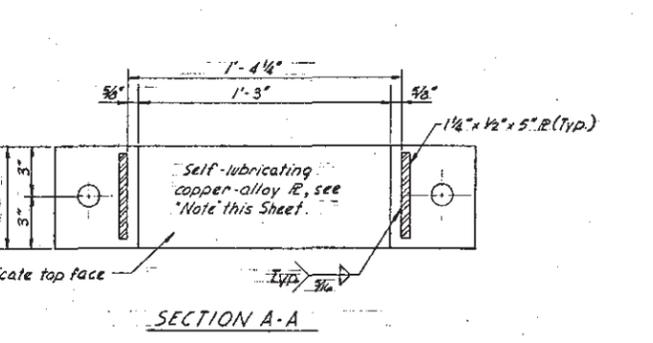
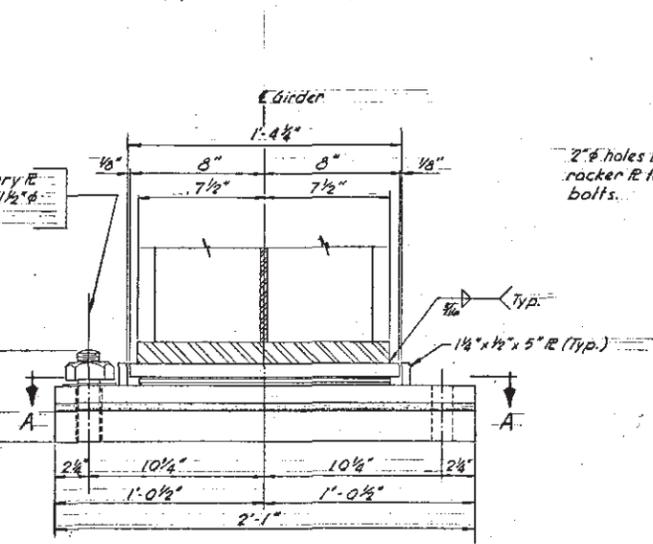
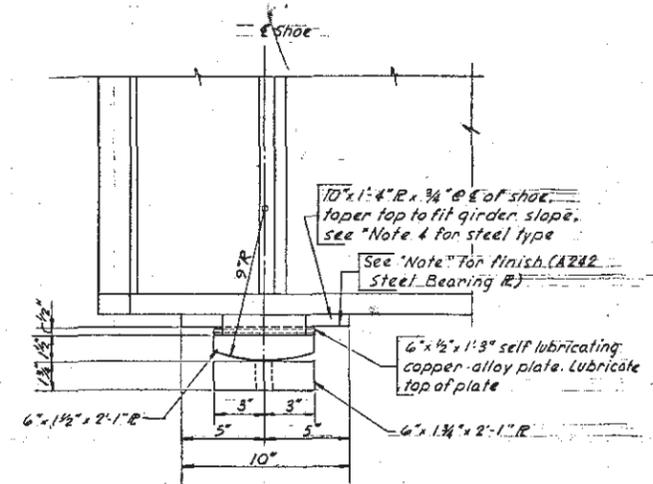


ELEVATION OF WEB SPLICE

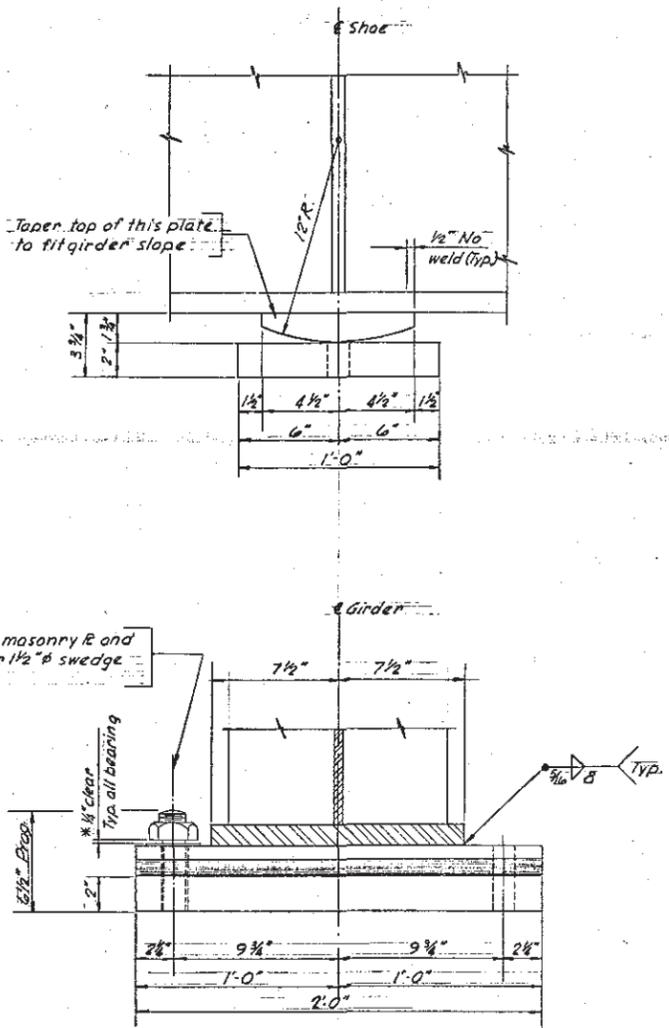


PLAN OF BOTTOM FLANGE SPLICE

FIELD SPLICE



EXPANSION BEARING AT ABUTMENTS



FIXED BEARING AT BENT

- NOTE:**
- The copper alloy bearing plates shall conform to A.S.T.M. B100, alloy N^o 1. Contact surfaces, both copper and steel, shall be finished in the direction of motion to A.S.A. B46.1 N^o 125. The lubricated surface shall be bored in a geometric pattern of recesses to receive a lubricating material suitable for long-life service of the bearing face. The lubricated area shall comprise approximately 25% of the bearing face to provide a coefficient of friction not to exceed 70% for load of 600 to 1000 p.s.i. Bronze bearing plates conforming to A.S.T.M. Specifications B22, Class B, may be used in place of copper alloy bearing plates.
 - Chamfer edges of copper alloy plate 1/8".
 - Fasten copper alloy plate to rocker plate with six flat head counter-sunk bronze screws.
 - Type of steel for the sliding bearing plates shall conform to A.S.T.M. A242, with a resistance to corrosion of 4 to 6 times that of carbon steel. Minimum yield point shall be 46,000 p.s.i. All other steel for bearings shall be A36.
 - The weight of copper alloy bearing plates shall be computed on the basis of having a unit weight the same as structural steel, and be included in that bid item.

STR. NO. 20-061-280
ORIGINAL CONSTRUCTION PLANS

INTERCHANGE AT M.L. STA. 415+89.8
U.S. 77 & S.D. 28 OVER I-29
FIELD SPLICE & BEARING SHOES DETAILS
FOR
296'-0" CONT. COMP. GIRDER VIADUCT

44'-0" ROADWAY 8° 21' 40" SKEW R.H.F.
M.L. STA. 415+89.8= SEC. 19 & 30-T113N-R49W
CROSSROAD STA. 15+00 1-29-6(4)148
STA. 13+54.50 TO STA. 16+50.50

DEUEL COUNTY
SOUTH DAKOTA

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NOVEMBER, 1968

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- GENERAL NOTES FOR FIELD SPLICE**
- All bolts shall be 3/4" diameter.
 - Bolts, nuts and washers shall conform to requirements of A.S.T.M. Specifications A325. Bolts shall have heavy head and one hardened washer. Hardened washer to be assembled under the turned element.
 - Holes for 3/4" high strength bolts shall be sub-punched and reamed or drilled and splice plates match-marked after assembling as provided in Section 410.3 of South Dakota Standard Specifications for Roads and Bridges.
 - Contact surfaces of splices shall be free of all oil or paint.
 - Steel for splice and filler plates shall conform to A.S.T.M. A36 Steel.
 - 3/4" high strength bolts shall be tightened to a minimum tension of 28,400 lbs. Tightening shall be done with properly calibrated wrench or by the "turn of nut" method as provided in Section 2.10.20 of the A.A.S.H.O. Specifications.
 - Bolts in flange splices shall be placed with heads down.
 - Bolts in web splices of exterior girders shall be placed with heads on exterior face of girders.
 - High strength bolts, nuts, and washers shall be stored in such a manner that they will be kept free from any rust or foreign material which will cause erratic torque wrench readings when checked with a bolt tension calibrator.
 - Cut ends of intermediate stiffeners as necessary to clear flange splice plates.
 - All splice plates, filler plates, bolts, nuts and washers to be included in and paid for as "Structural Steel."