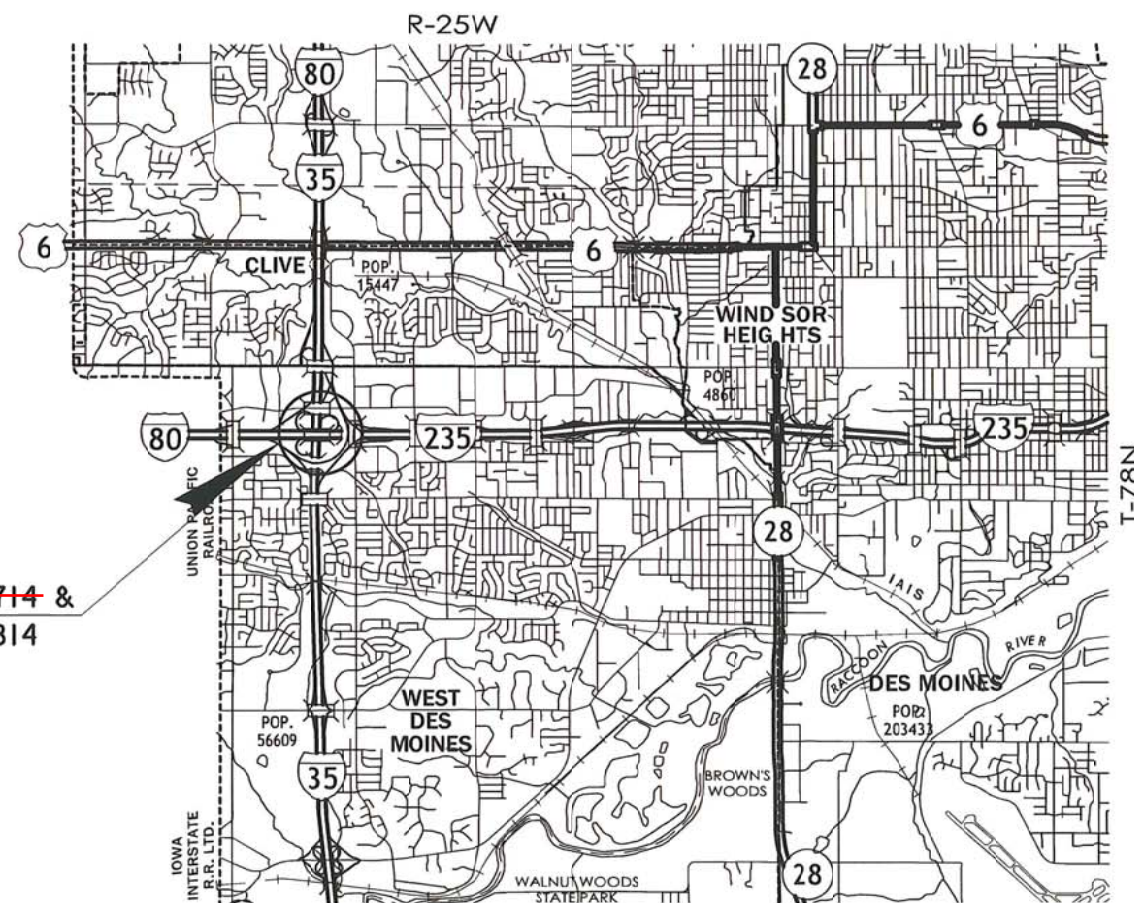


POLK COUNTY

4:10:58 PM



LOCATION MAP
PART OF CITY OF CLIVE

PROJECT DIRECTORY NAME: 7723501010

 **IOWA** 
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1-800-292-8989
www.iowaonecall.com


Know what's below.
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[illegible]

REVISIONS

STANDARD ROAD PLANS	
STANDARD ROAD PLANS ARE LISTED ON SHEET NUMBER <u>C.1</u>	
DESIGN DATA URBAN	
2010 AADT	<u>23,950</u> V.P.D.
TRUCKS	<u>4</u> %

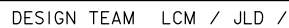
INDEX OF SEALS		
SHEET NO.	NAME	TYPE
I	MATT JOHNSON	STRUCTURAL DESIGN
B.I	JAMES WINGERT	ROADWAY DESIGN

STRUCTURAL DESIGN	
	I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa.
	 12/21/13
	Signature _____ Date _____
	Printed or Typed Name <u>Matthew J. Johnson</u>
My license renewal date is December 31, <u>2013</u>	
Pages or sheets covered by this seal: <u>SHEETS 1 THRU 23 OF 59</u>	

[illegible]

ESTIMATE REFERENCE INFORMATION	
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ITEM NO.	ITEM CODE	DESCRIPTION
1	2401-6750001	REMOVALS, AS PER PLAN INCLUDES REMOVAL OF CONCRETE END POSTS
2	2403-0100000	STRUCTURAL CONCRETE (MISC.) INCLUDES REMOVING AND DISPOSING CONCRETE, DRILLING HOLES FOR DOWEL BARS, PREFORMED JOINT FILLER, EXCAVATION, FURNISHING AND PLACING SUBDRAIN, AND GRANULAR BACKFILL.
3	2404-7775005	REINFORCING STEEL (EPOXY COATED) INCLUDES MECHANICAL SPLICE ASSEMBLIES.
4	2426-6772013	REPAIR BEAM ENDS
5	2533-4980005	MOBILIZATION
6	2599-9999010	TEMPORARY PRECAST APPROACH SLAB



XXXXXXXXXXSYSTIME XXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 256'-0" x VARIABLE WIDTH PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE LOCATED IN POLK COUNTY ON I-235 OVER I-35 AT WEST INTERCHANGE OF I-80/I-235. COPIES OF ORIGINAL AND RAIL RETROFIT PLANS WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS - HIGHWAY DIVISION - IOWA D.O.T. - AMES. SEE DESIGN SHEET 2 FOR LIST OF REPAIR ITEMS.

DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS (ORIGINAL DESIGN NO. 865), AND BRIDGE DECK OVERLAY MODIFICATION (DESIGN NO. 392).

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

CONSTRUCTION SHALL BE DONE IN STAGES ON WEEKENDS WITH AT LEAST ONE LANE OF TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN" NOTE. ALL LANES SHALL BE OPEN TO TRAFFIC FROM MONDAY 6:00 AM TO FRIDAY 8:00 PM.

TEMPORARY PRECAST APPROACH SLAB PANELS SHALL BE UTILIZED BETWEEN CONSTRUCTION STAGES TO ALLOW TRAFFIC ACCESS TO ALL LANES, SEE NOTES AND DETAILS FOR PANELS ON DESIGN SHEET 3.

FAINT LINES ON PLANS INDICATE EXISTING PORTIONS OF THE BRIDGE.

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE BARRIER ENDS. REMOVAL OF SCHEDULED ITEMS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

IT WILL BE NECESSARY TO SUPPORT THE EARTH AND/OR GRANULAR MATERIAL BEHIND THE ABUTMENT DURING RECONSTRUCTION OF THE ABUTMENT BACKWALLS BY SOME METHOD APPROVED BY THE ENGINEER. ALL COSTS FOR SUPPORTING THE EARTH AND/OR GRANULAR MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (MISC.)."

ALL COARSE AGGREGATE FOR STRUCTURAL CONCRETE SHALL BE CRUSHED LIMESTONE

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2002.

REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, $f'c=3,500$ PSI.

SPECIFICATIONS:

DESIGN: AASHTO SERIES 2002.

CONSTRUCTION: THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

TRAFFIC CONTROL PLAN

THE ROADWAY WILL BE OPEN TO THRU TRAFFIC.
SEE TRAFFIC CONTROL PLAN SHOWN
ELSEWHERE IN THESE PLANS.

DESIGN FOR REPAIRS TO A 2°18' & 5°09'44" SKEW

259'-0 x VARIABLE WIDTH
PRETEN. PREST. CONC. BM. BRIDGE

47'-3¹/₂ END SPANS 81'-3 & VARIABLE INTERIOR SPANS

ESTIMATED QUANTITIES AND NOTES

STA. 1329+51.00 (I-235)

SEPTEMBER, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

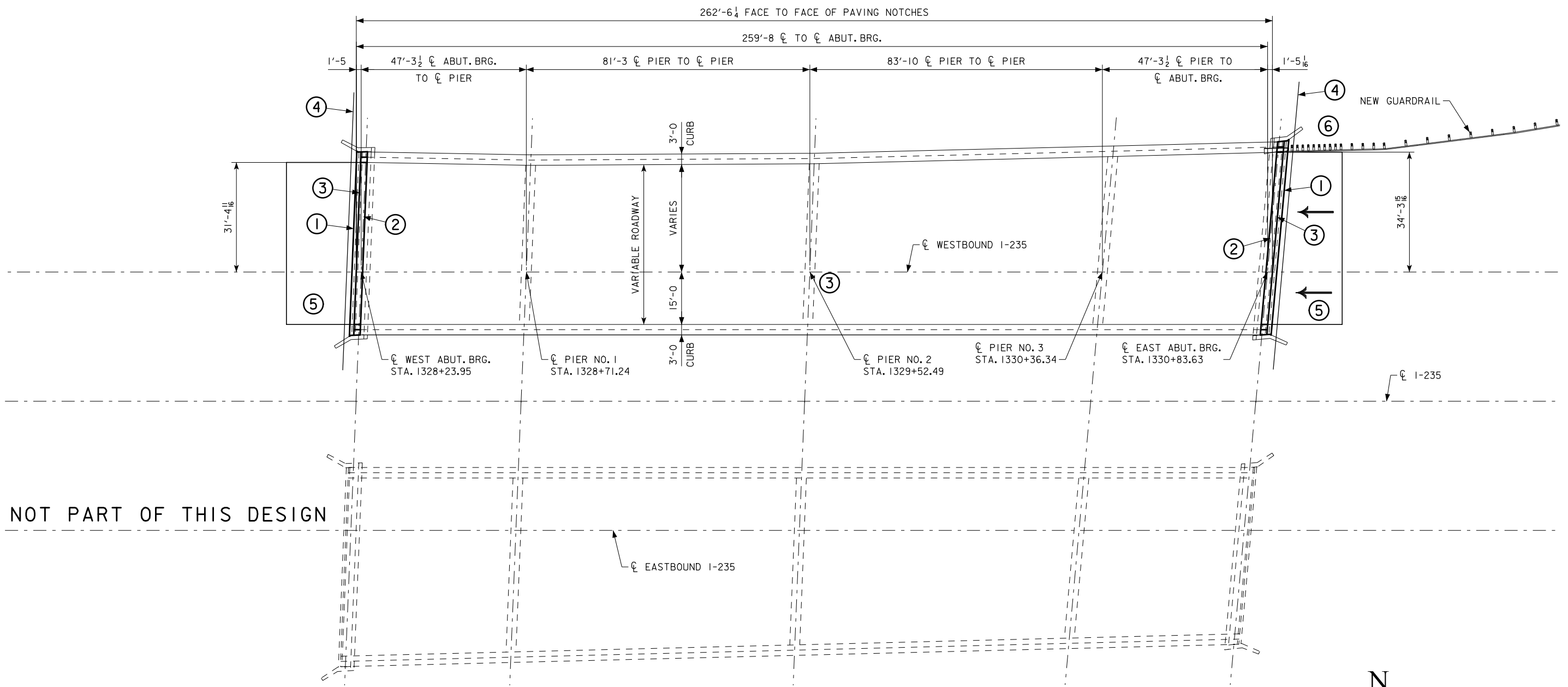
DESIGN SHEET NO. 1 OF 11 FILE NO. 30787 DESIGN NO. 814

POLK COUNTY

PROJECT NUMBER IMN-235-2(625)00--0E-77

SHEET NUMBER

3



SITUATION PLAN



REPAIRS SHALL CONSIST OF:

- ① CONSTRUCT SEMI-INTEGRAL DIAPHRAGMS WITH 15" PAVING NOTCH AT ABUTMENTS.
- ② CLEAN AND PATCH BEAM ENDS.
- ③ INSTALL NEW CF-I JOINT AS SHOWN IN THE ROADWAY SHEETS.
- ④ PLACE NEW SUBDRAIN AT ABUTMENTS.
- ⑤ REMOVE AND RECONSTRUCT 20' DOUBLE REINFORCED APPROACH PAVEMENT AS SHOWN IN THE ROADWAY SHEETS.
- ⑥ INSTALL NEW GUARDRAIL AS SHOWN IN THE ROADWAY SHEETS.

LOCATION:

I-235 OVER I-35 AT WEST
INTERCHANGING OF I-80/I-235
T-78N, R-25W
SECTION 6
WALNUT TOWNSHIP
POLK COUNTY
MAINT. NO. 7700.0L235
FHWA NO. 041920
LATITUDE: 41.592209
LONGITUDE: -93.777292

TRAFFIC ESTIMATE

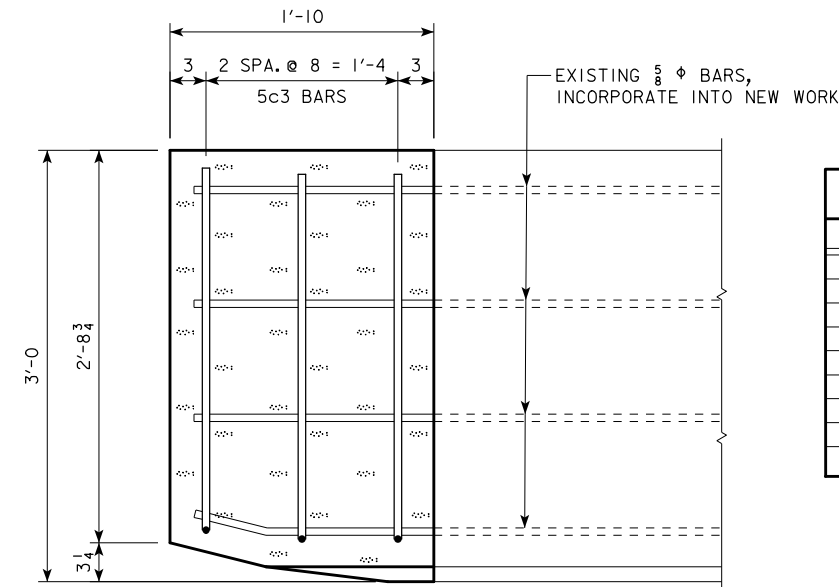
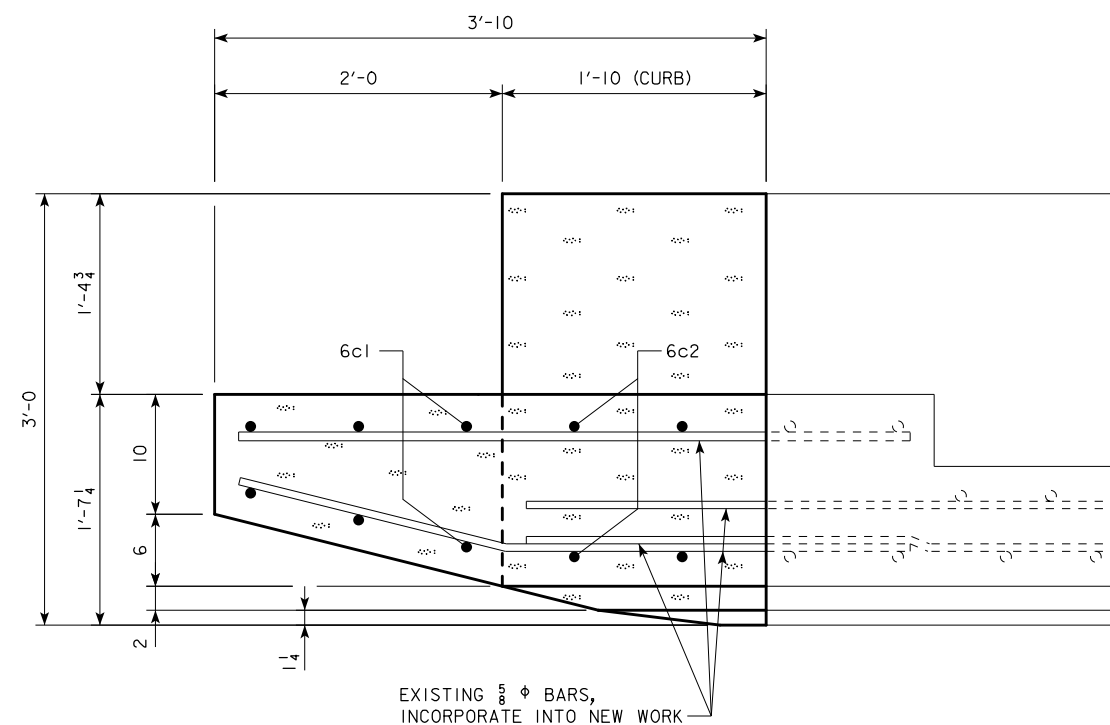
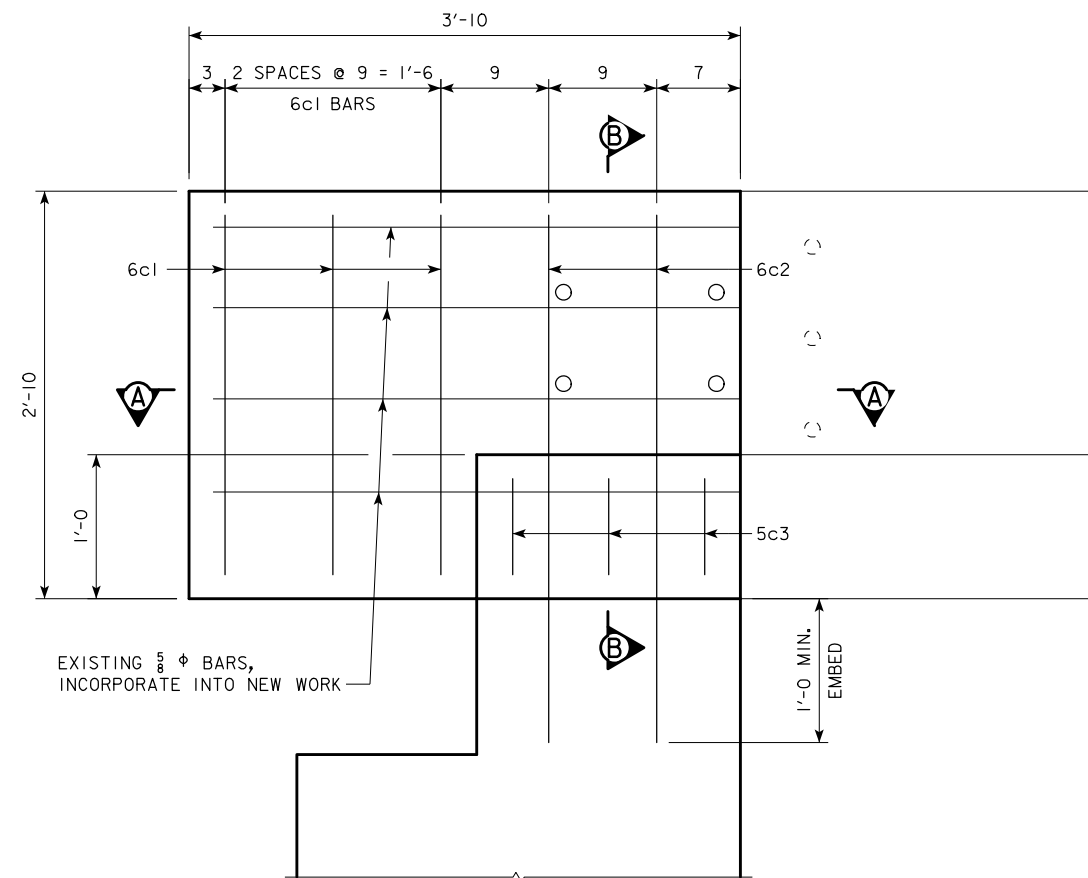
2010 AADT	23,950	V.P.D.
TRUCKS	4%	

DESIGN FOR REPAIRS TO A 2°18' & 5°09'44" SKEW
259'-0 x VARIABLE WIDTH
PRETEN. PREST. CONC. BM. BRIDGE
47'-3 1/2' END SPANS 81'-3 & VARIABLE INTERIOR SPANS
SITUATION PLAN
STA. 1329+51.00 (I-235) SEPTEMBER, 2013
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 2 OF 11 FILE NO. 30787 DESIGN NO. 814



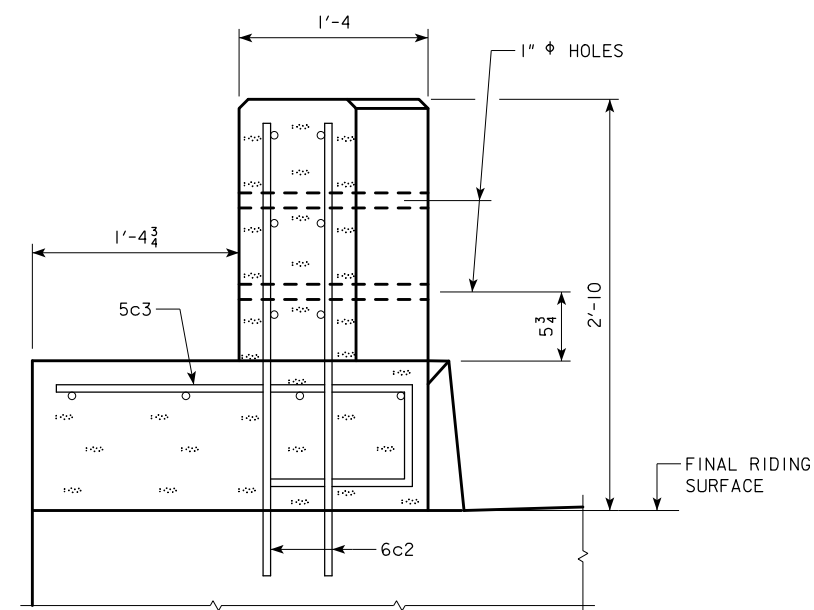
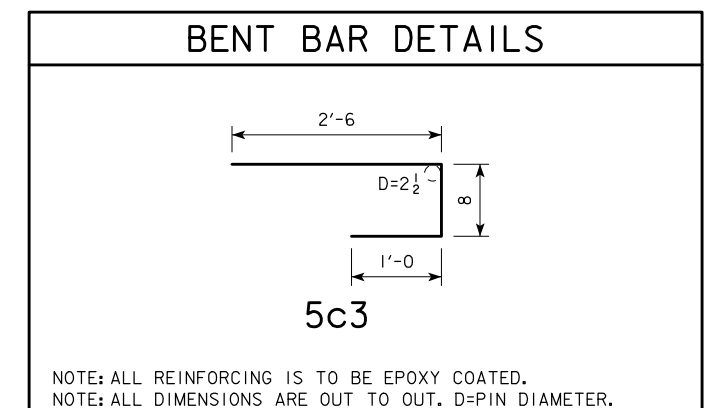


POLK COUNTY	PROJECT NUMBER IMN-235-2(625)00--0E-77	SHEET NUMBER 16
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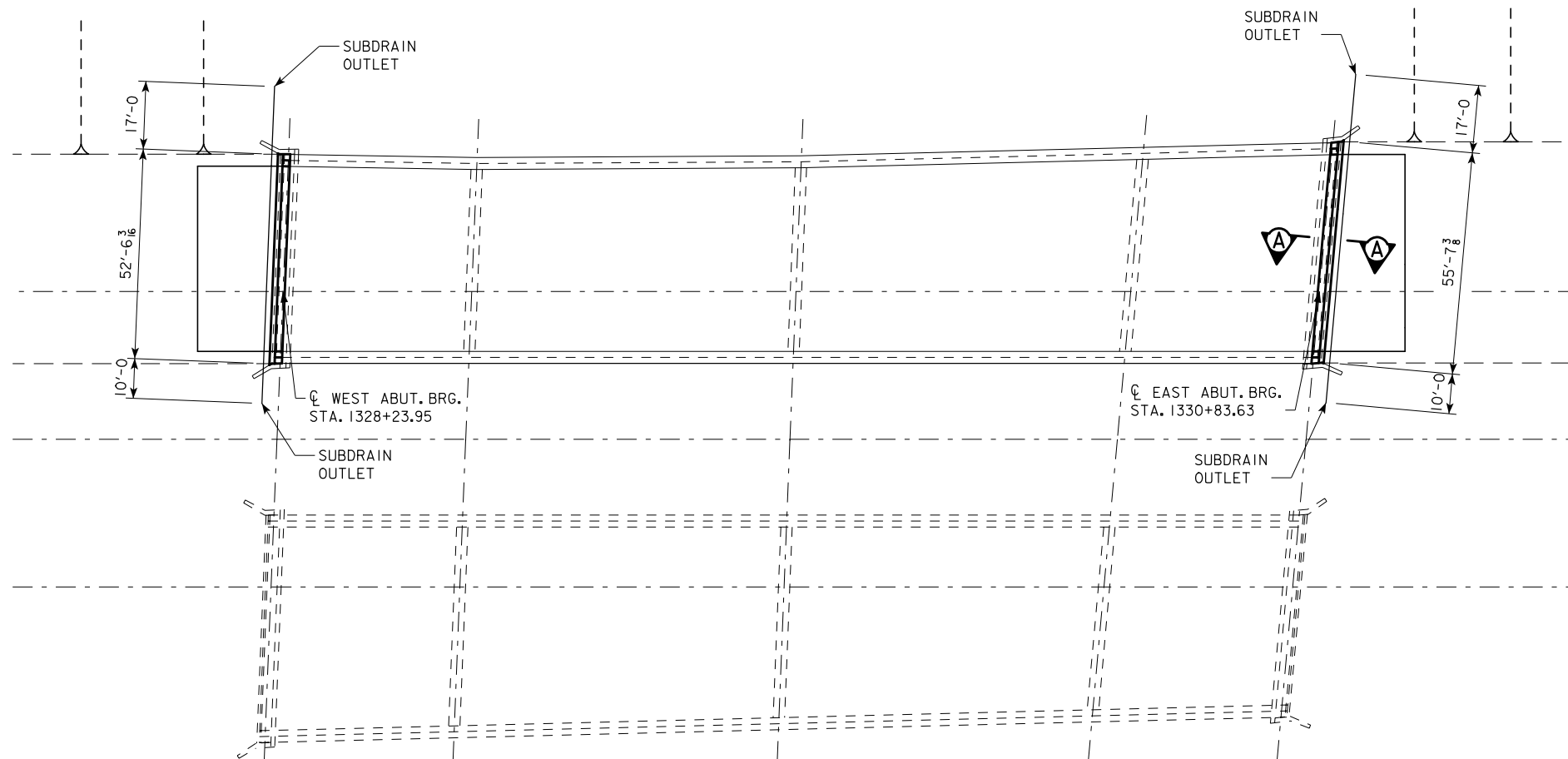
EPOXY REINFORCING STEEL- TWO RAILS					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	END SECTION, VERTICAL	—	24	2'-6	90
6c2	END SECTION, VERTICAL	—	16	3'-8	88
5c3	CURB SECTION, TRANSVERSE	⌋	12	4'-2	52
REINFORCING STEEL - EPOXY COATED - TOTAL (LBS.)					230

CONCRETE PLACEMENT SUMMARY		
SECTION		TOTAL
END SECTIONS	4 AT 0.31 CU. YDS. PER SECTION	1.24
CURB SECTIONS	4 AT 0.20 CY	0.80
TOTAL, TWO RAILS (CU. YDS.)		2.04

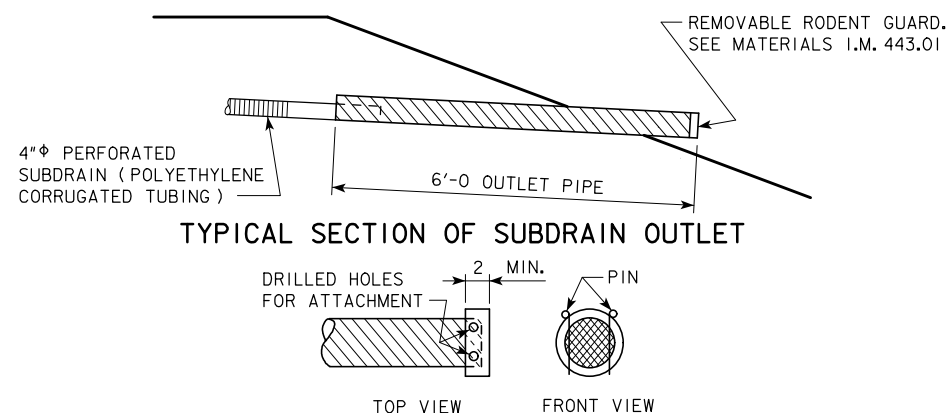


SECTION B-B

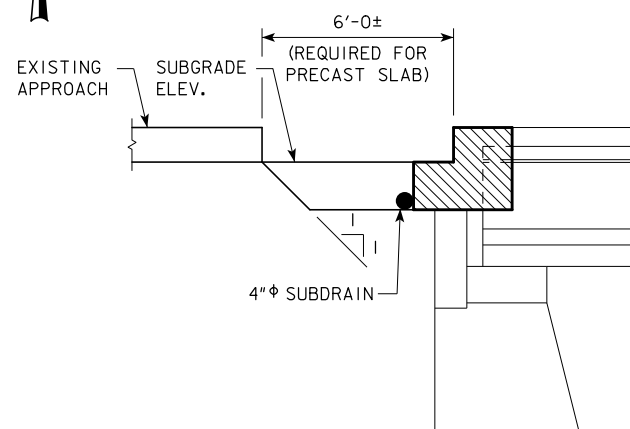




SITUATION PLAN
SHOWING SUBDRAIN LOCATION



REMOVABLE RODENT GUARD DETAILS



SECTION A-A
(SHOWN DURING STAGE I)

SUBDRAIN NOTES :

THIS PLAN SHEET SHOWS DETAILS FOR PLACING ALL SUBDRAINS AND SUBDRAIN OUTLETS REQUIRED FOR THIS STRUCTURE.

THE SUBDRAINS SHALL BE 4" IN DIAMETER AND SHALL BE IN ACCORDANCE WITH ARTICLE 4143.01, B, OF THE STANDARD SPECIFICATIONS.

THE SUBDRAIN OUTLET SHALL CONSIST OF A LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD AS DETAILED ON THIS SHEET. THE LENGTH OF THE OUTLET PIPE SHALL BE DETERMINED BY IT'S PLACEMENT LOCATION. IF A METAL OUTLET PIPE IS USED, IT SHALL BE 6 INCHES IN DIAMETER AND COUPLED TO THE 4 INCH DIAMETER SUBDRAIN IN ONE OF THE TWO FOLLOWING WAYS.

1. USE AN INSIDE FIT REDUCER COUPLER (COUPLER MUST BE INSERTED A MINIMUM OF 1'-0" INTO THE METAL OUTLET PIPE).
2. INSERT 1'-0" OF THE 4" SUBDRAIN INTO THE 6" METAL OUTLET PIPE, THEN FULLY SEAL THE ENTIRE OPENING WITH GROUT.

THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), SPECIAL BACKFILL, AND SUBDRAIN OUTLET IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (MISC.)." NO EXTRA PAYMENT WILL BE MADE.

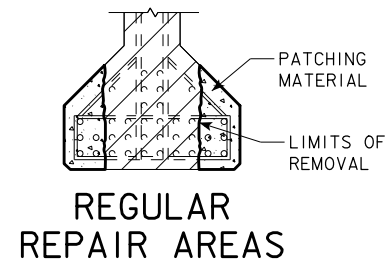
THE DIMENSIONS SHOWN ARE FOR ESTIMATING ONLY. REQUIRED LENGTHS AND GENERAL LOCATIONS OF SUBDRAINS ARE SUBJECT TO CHANGE DUE TO FIELD ADJUSTMENTS.

ABUTMENT BACKFILL PROCESS:

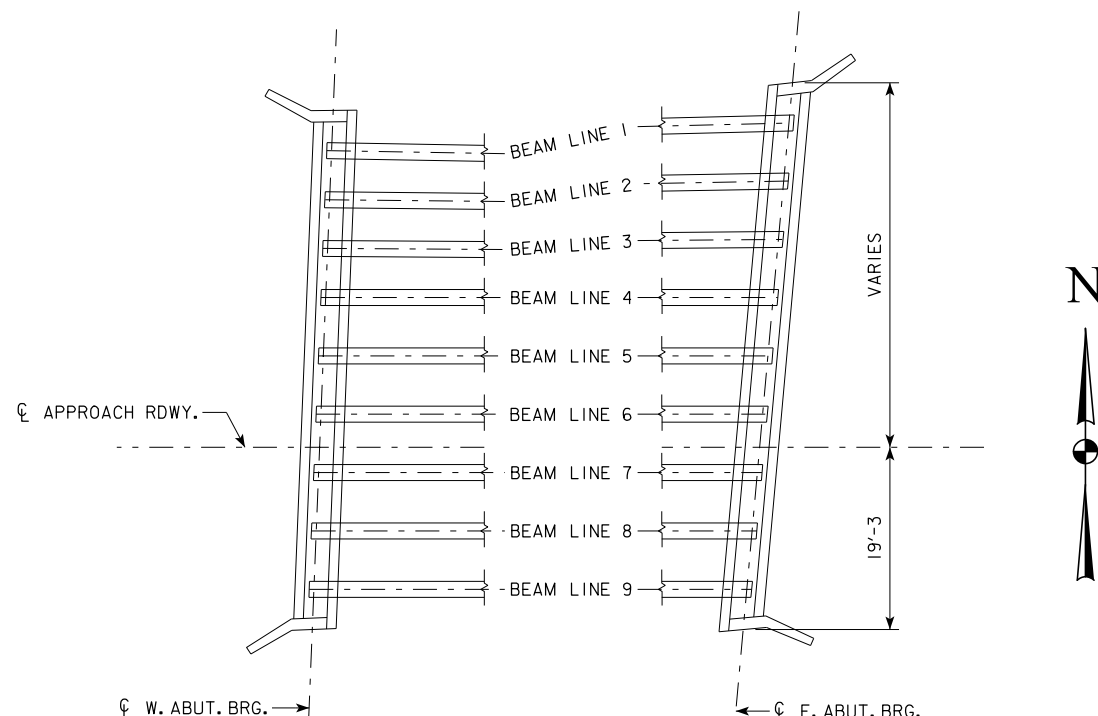
THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE APPROACH SLAB SUPPORT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE IN THE DIRECTION OF THE SUBDRAIN OUTLET. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE BACKFILL MATERIAL.

DESIGN FOR REPAIRS TO A 2°18' & 5°09'44" SKEW
259'-0" x VARIABLE WIDTH
PRETEN. PREST. CONC. BM. BRIDGE
 47'-3 1/2" END SPANS 81'-3" & VARIABLE INTERIOR SPANS
SUBDRAIN DETAILS
 STA. 1329+51.00 (I-235) SEPTEMBER, 2013
POLK COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 8 OF 11 FILE NO. 30787 DESIGN NO. 814





NOTE:
THE REPAIR AREAS SHOWN ARE SCHEMATIC ONLY. THE
ACTUAL REPAIR AREAS TO BE REPAIRED WILL BE DETERMINED
BY THE ENGINEER.



PART PLAN SHOWING
BEAM END REPAIR LOCATION

LOCATION OF BEAM END REPAIRS:

- W. ABUT., BEAM 2
- W. ABUT., BEAM 3
- W. ABUT., BEAM 6
- W. ABUT., BEAM 7
- W. ABUT., BEAM 8
- W. ABUT., BEAM 9
- PIER #2., BEAM 8
- E. ABUT., BEAM 1
- E. ABUT., BEAM 2
- E. ABUT., BEAM 3
- E. ABUT., BEAM 5
- E. ABUT., BEAM 6
- E. ABUT., BEAM 7
- E. ABUT., BEAM 8
- E. ABUT., BEAM 9



PRESTRESSED CONCRETE BEAM END REPAIR NOTES:

THE SPALLED AREAS AT THE END OF PRESTRESSED BEAMS AT THE ABUTMENTS OR PIERS SHALL BE REPAIRED AS FOLLOWS:

1. REMOVE SPALLED AND DETERIORATED CONCRETE. REMOVAL TOOLS SHALL BE LIMITED TO 15 LB. CHIPPING HAMMERS AND TO HAND TOOLS WITHOUT POWER. IF CONCRETE REMOVAL RESULTS IN MORE THAN HALF THE DIAMETER OF ANY REINFORCING BAR OR PRESTRESSING STRAND BEING EXPOSED THEN REMOVAL SHALL CONTINUE TO A MINIMUM OF $\frac{3}{4}$ " BEHIND THE BAR OR STRAND. IF REMOVAL EXTENDS DEEPER THAN $\frac{3}{4}$ " BEHIND THE FIRST INTERIOR STRAND CONTACT THE ENGINEER PRIOR TO REPAIR. EXTREME CARE SHALL BE EXERCISED DURING CONCRETE REMOVAL SO THAT EXPOSED STRANDS AND REINFORCING BARS ARE NOT DAMAGED. ANY DAMAGE DONE TO THE STRANDS OR BARS BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE. AREAS TO BE REPAIRED SHALL BE DETERMINED BY THE ENGINEER USING VISUAL AND AUDIBLE INSPECTION.
2. SAW CUT VERTICAL EDGES OF REMOVAL AREA $\frac{3}{4}$ " DEEP AND CHIP SQUARE. SANDBLAST OR HYDROBLAST CONCRETE SURFACES IN THE REPAIR AREA AND THE EXPOSED STEEL TO REMOVE ALL RUST. REMOVE ALL DUST AND DEBRIS RESULTING FROM CHIPPING AND BLASTING BY USING CLEAN COMPRESSED AIR.
3. APPLY TWO COATS OF PROTECTIVE COATING (SIKA ARMATEC 110 EPOCEM OR BASF EMACO P24) TO EXPOSED PRESTRESSING STRANDS AND REINFORCING BARS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
4. APPLY PATCHING MATERIAL. TYPE OF MATERIAL AND APPLICATION OF MATERIAL DEPENDS UPON THE EXTENT OF CONCRETE REMOVAL AND THE TWO TYPES OF REPAIR ARE TO BE AS FOLLOWS:

A. SHALLOW REPAIR:

SHALLOW REPAIR AREAS ARE THOSE WHERE CONCRETE REMOVAL DID NOT RESULT IN REINFORCING BARS OR PRESTRESSING STRANDS BEING EXPOSED FOR MORE THAN HALF THEIR DIAMETERS. PATCHING MATERIAL SHALL BE SIKA TOP 123 PLUS OR BASF EMACO R350 C1. PATCHING MATERIALS SHALL CONTAIN ONE OF THE FOLLOWING CORROSION INHIBITORS: RHEOCRETE 222 PLUS, DCI CALCIUM NITRITE, OR FERROGARD 901. APPLY PATCHING MATERIAL TO MATCH ORIGINAL BEAM SURFACE. PATCH NEED NOT BE FORMED. FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS REGARDING COMPATIBILITY OF PATCHING MATERIAL AND CORROSION INHIBITOR AS WELL AS FOR MIXING, PLACING, AND CURING.

B. REGULAR REPAIR:

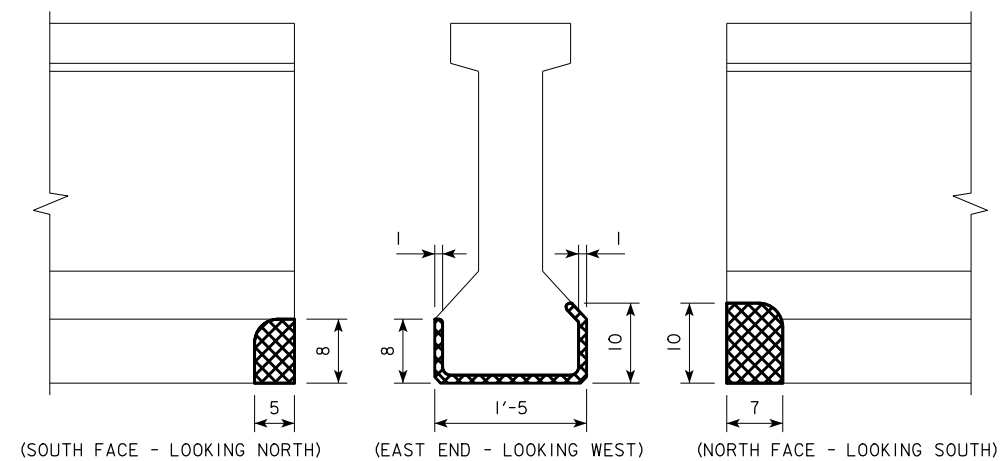
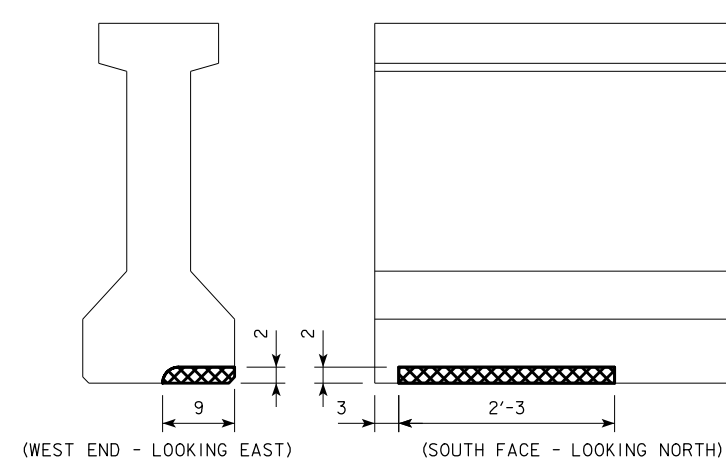
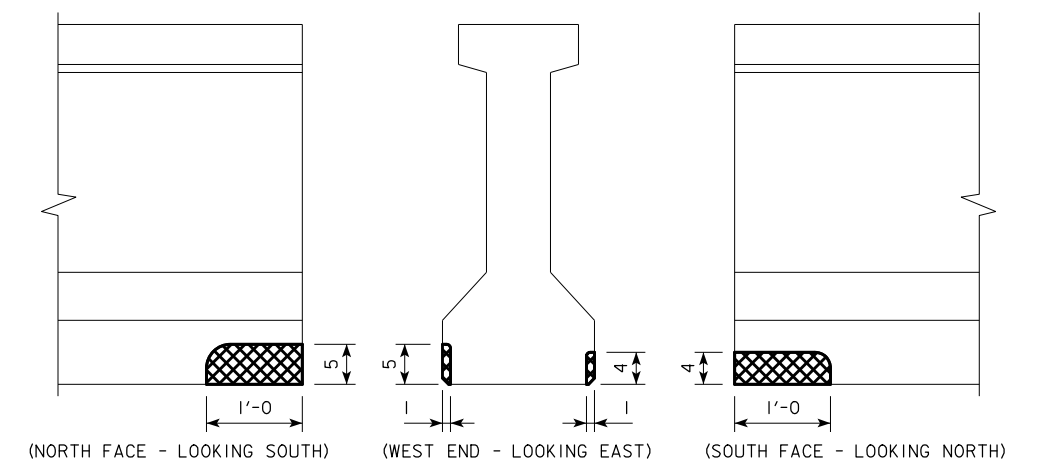
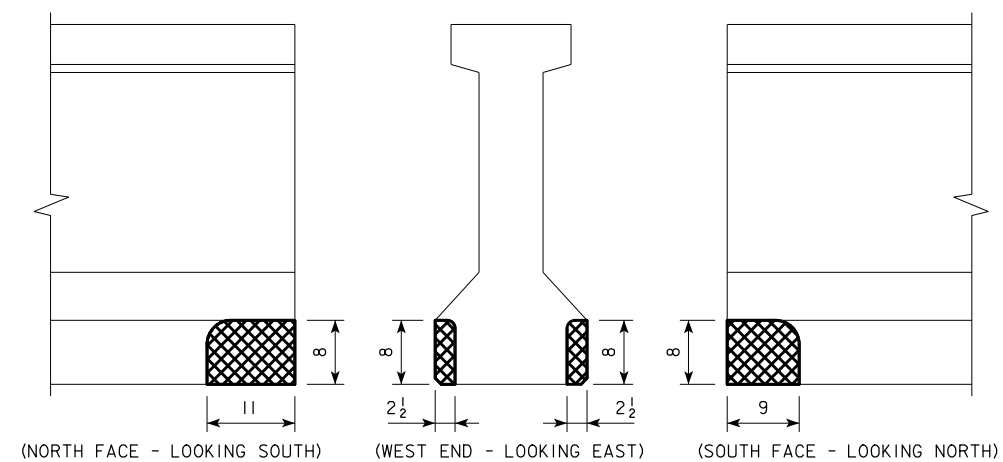
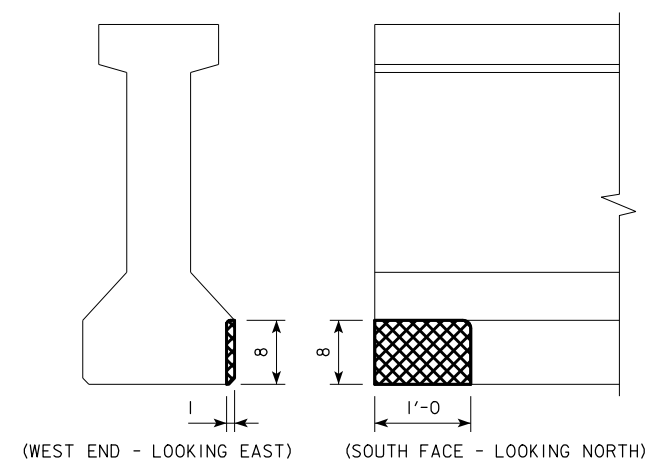
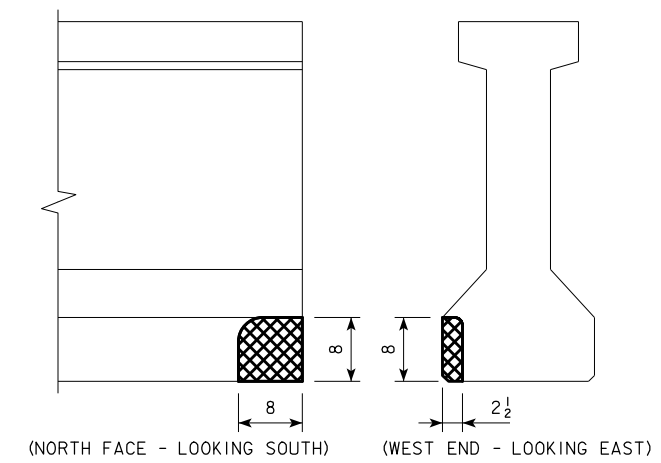
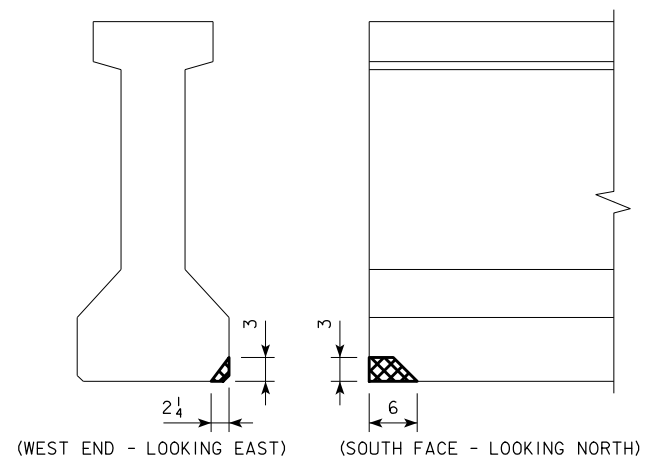
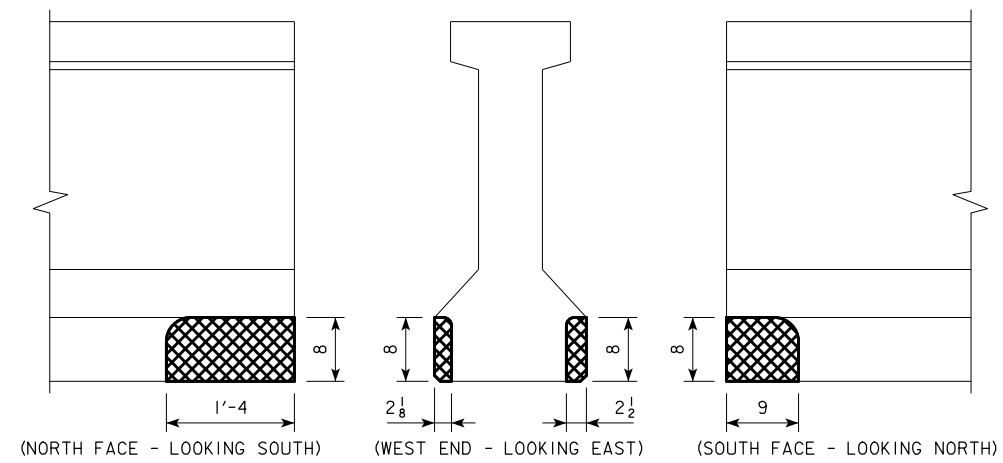
REGULAR REPAIR AREAS ARE THOSE WHERE CONCRETE REMOVAL EXTENDED BEHIND THE REINFORCING BARS AND/OR PRESTRESSING STRANDS. THESE AREAS ARE TO BE PLACED USING FORMS TO MATCH THE ORIGINAL BEAM SURFACE. PATCHING MATERIAL SHALL BE ONE OF THE FOLLOWING GROUTS: BASF EMACO S77-Cl OR SIKATOP III PLUS. PATCHING MATERIAL SHALL CONTAIN ONE OF THE FOLLOWING CORROSION INHIBITORS: RHEOCRETE 222 PLUS, DCI CALCIUM NITRITE, OR FERROGARD 901. FOLLOW MANUFACTURER'S RECOMMENDATIONS REGARDING COMPATIBILITY OF PATCHING MATERIAL AND CORROSION INHIBITOR AS WELL AS FOR MIXING, PLACING, AND CURING. FORMS ARE TO REMAIN IN PLACE FOR SEVEN DAYS.

TEMPORARY BLOCKING SUPPORTS UNDER THE CONCRETE DIAPHRAGMS WILL BE REQUIRED WHENEVER REMOVAL FOR CONCRETE REPAIR RESULTS IN BEARING LOSS OVER THE BEARING PLATES.

THE ENGINEER WILL COUNT EACH END OF EACH BEAM PROPERLY REPAIRED, AND THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE. ALL COSTS ASSOCIATED WITH REPAIRING THE ENDS OF PRESTRESSED CONCRETE BEAMS AS NOTED AND SHOWN SHALL BE INCLUDED IN THE PRICE BID FOR "REPAIR BEAM ENDS".

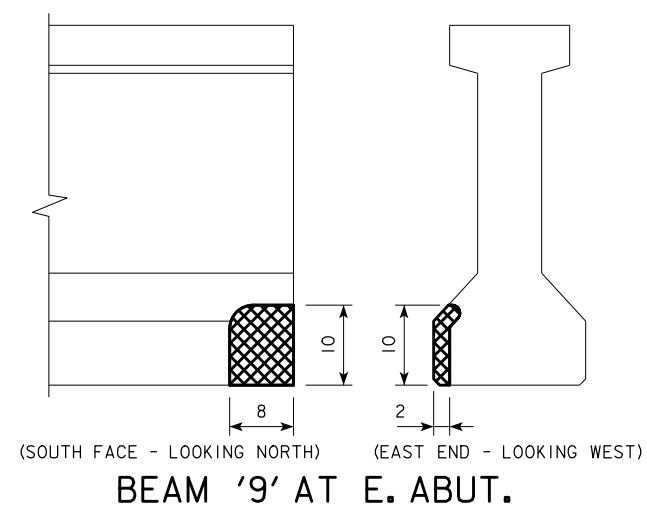
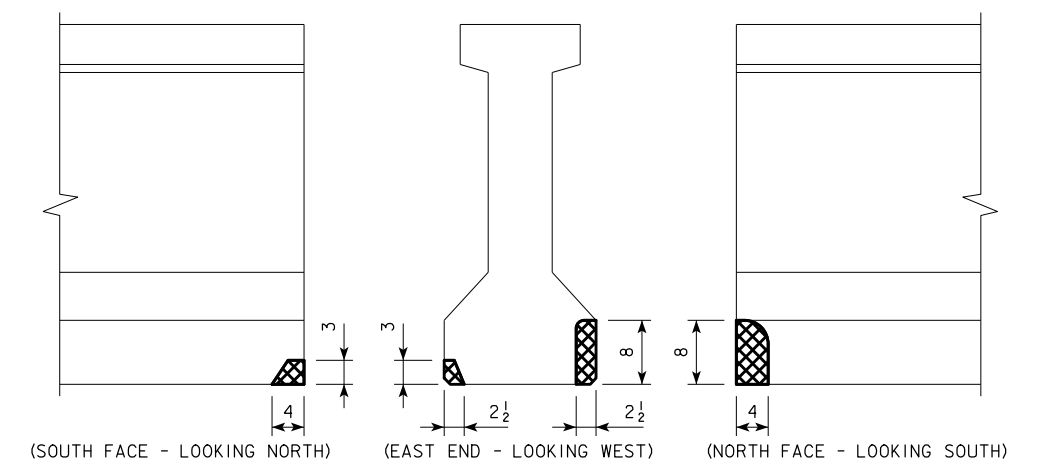
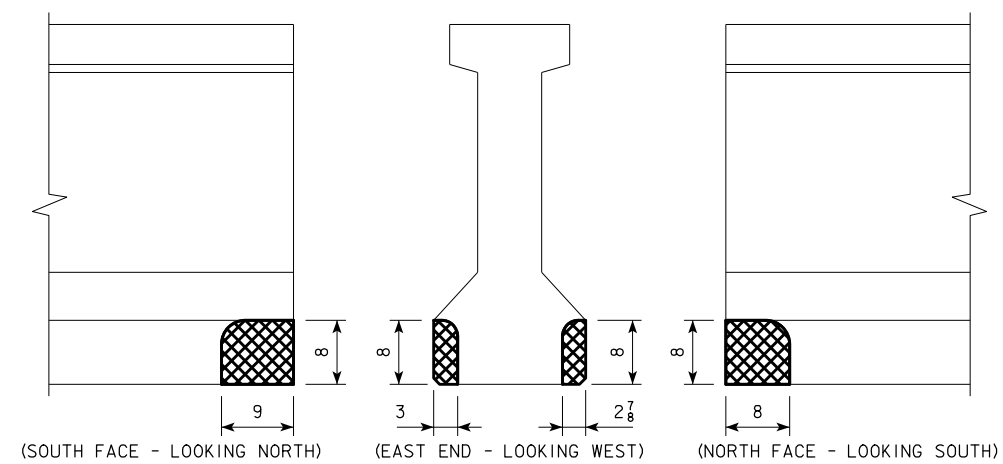
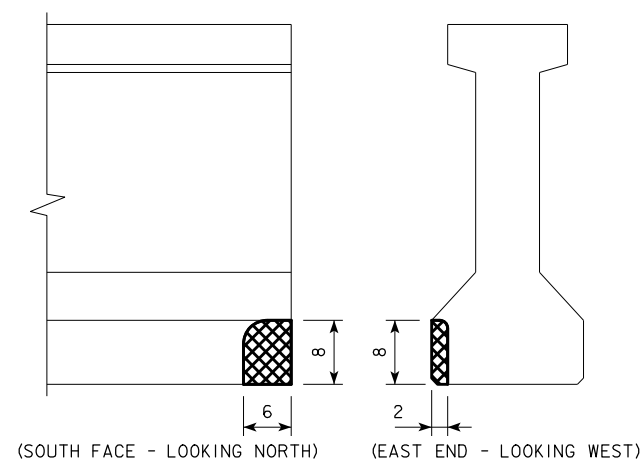
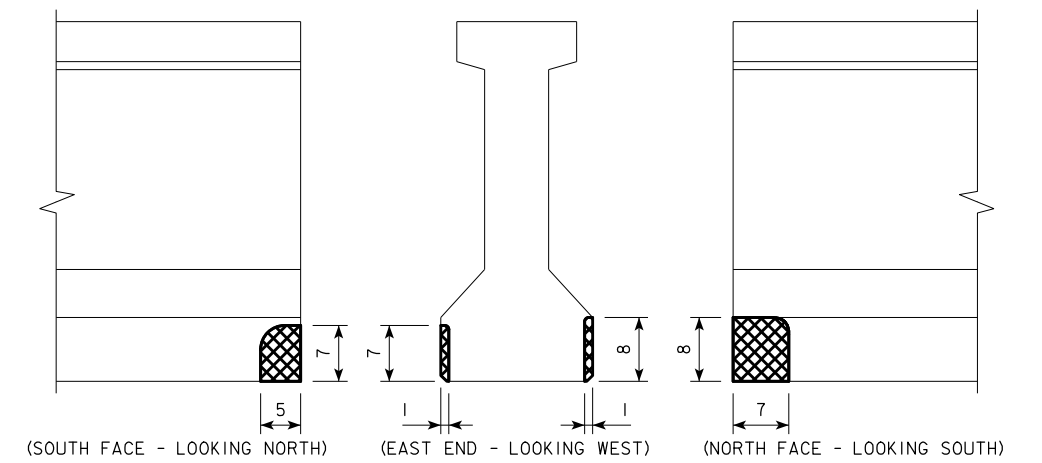
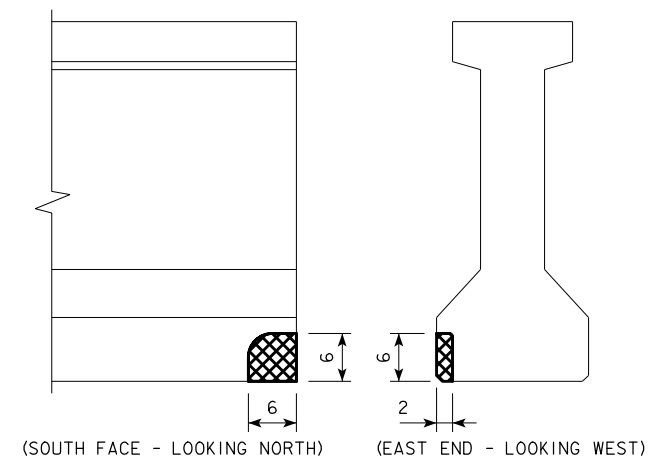
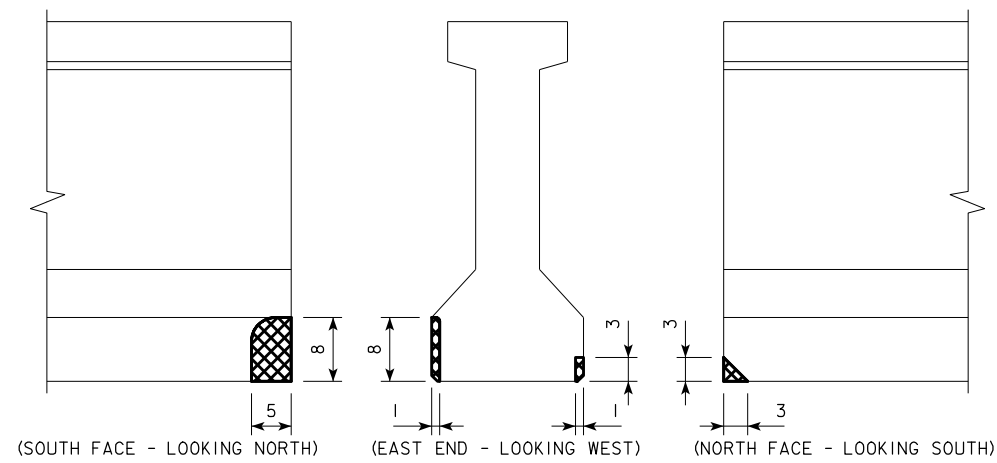
OTHER BEAM END AREAS AT THE ABUTMENTS AND PIERS ARE TO BE REPAIRED IF DIRECTED BY THE ENGINEER AND WILL BE PAID FOR AS EXTRA WORK.

DESIGN FOR REPAIRS TO A 2°18' & 5°09'44" SKEW
259'-0" x VARIABLE WIDTH
PRETEN. PREST. CONC. BM. BRIDGE
47'-3½" END SPANS 81'-3" & VARIABLE INTERIOR SPANS
BEAM END REPAIR DETAILS
STA. 1329+51.00 (I-235) SEPTEMBER, 2013
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 9 OF 11 FILE NO. 30787 DESIGN NO. 814



TranSystems

DESIGN FOR REPAIRS TO A 2°18' & 5°09'44" SKEW
259'-0 x VARIABLE WIDTH
PRETEN. PREST. CONC. BM. BRIDGE
47'-3½ END SPANS 81'-3 & VARIABLE INTERIOR SPANS
BEAM END REPAIR DETAILS
STA. 1329+51.00 (1-235) SEPTEMBER, 2013
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 10 OF 11 FILE NO. 30787 DESIGN NO. 814



DESIGN FOR REPAIRS TO A 2°18' & 5°09'44" SKEW
259'-0 x VARIABLE WIDTH
PRETEN. PREST. CONC. BM. BRIDGE
47'-3½ END SPANS 81'-3 & VARIABLE INTERIOR SPANS
BEAM END REPAIR DETAILS
STA. 1329+51.00 (1-235) SEPTEMBER, 2013
POLK COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 11 OF 11 FILE NO. 30787 DESIGN NO. 814

PROJECT DESCRIPTION		100-1D 10-18-05
This project is for the overlay of bridge approach pavement and construction of guardrails for a bridge joint replacement and repair project over I-35/80 in Polk County.		

ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)						100-0A 10-28-97
Item No.	Item Code	Item	Unit	Total	As Built Qty.	
1	2102-0425070	SPECIAL BACKFILL	TON	27.34		
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	400		
3	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8IN.	SY	78.4		
4	2213-2713300	EXCAVATION, CLASS 13, FOR WIDENING	CY	32.4		
5	2301-0690200	BRIDGE APPROACH, RK-20	SY	448.1		
6	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE	SY	3195.2		
7	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	114		
8	2505-4008300	STEEL BEAM GUARDRAIL	LF	75		
9	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	EACH	2		
10	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	2		
11	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH	2		
12	2510-6745850	REMOVAL OF PAVEMENT	SY	448.1		
13	2518-6910000	SAFETY CLOSURE	EACH	10		
14	2524-9325001	TYPE A SIGNS, SHEET ALUMINUM	SF	985		
15	2526-8285000	CONSTRUCTION SURVEY	LS	1		
16	2527-9263109	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	4.57		
17	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS	STA	377.64		
18	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	16		
19	2527-9263190	SYMBOLS AND LEGENDS REMOVED	EACH	16		
20	2527-9263600	REMOVABLE, NONREFLECTIVE, PREFORMED TAPE	STA	93.06		
21	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	3400		
22	2528-8445110	TRAFFIC CONTROL	LS	1		
23	2528-9290004	CHANGEABLE MESSAGE SIGNS, PORTABLE	CDAY	See Proposal		
24	2551-0000110	TEMPORARY CRASH CUSHION	EACH	8		
25	2601-2634100	MULCH	ACRE	0.1		
26	2601-2636044	SEED AND FERTILIZER (URBAN)	ACRE	0.1		
27	2602-0000020	SILT FENCE	LF	270		

STANDARD ROAD PLANS			105-4 10-18-11
The following Standard Road Plans apply to construction work on this project.			
BA-200	10-18-11	Steel Beam Guardrail Components	
BA-201	10-19-10	Steel Beam Guardrail Barrier Transition Section	
BA-202	10-18-11	Steel Beam Guardrail Bolted End Anchor	
BA-205	10-18-11	Steel Beam Guardrail End Terminal	
BA-250	10-18-11	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post	
BA-401	04-16-13	Temporary Barrier Rail (Precast Concrete)	
BA-500	04-20-10	Temporary Crash Cushions Sand Barrel	
EC-201	04-20-10	Silt Fence	
EW-301	04-19-11	Guardrail Grading	
PM-110	04-16-13	Line Types	
PM-111	10-16-12	Symbols and Legends	
PM-310	04-16-13	Entrance and Exit Ramps	
PV-101	10-15-13	Joints	
PV-102	04-16-13	PCC Curb Details	
RK-19A	04-16-13	Bridge Approach Section (General Details)	
RK-20	04-16-13	Double Reinforced 12" Approach	
SI-121	04-20-10	Fabrication – Sign Legend Components	
SI-172	10-18-11	Delineators	
SI-173	04-20-10	Object Markers	
SI-211	10-19-10	Object Marker and Delineator Placement with Guardrail	
SI-881	10-15-13	Special Signs for Workzones	
SI-882	04-20-10	Special Signs for Restricted Width Traffic Control Zones	
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)	
TC-81	04-20-10	Restricted Width Signing (Less Than 14.5 Feet)	
TC-402	10-15-13	Shoulder Closure (Multi-lane)	
TC-417	04-16-13	Ramp Closure	
TC-421	04-16-13	Lane Closure With TBR	
TC-433	04-16-13	Pavement Marking Operations	

ESTIMATE REFERENCE INFORMATION			100-4A 10-29-02
Item No.	Item Code	Description	
1	2102-0425070	SPECIAL BACKFILL Refer to Tab. 112-9 On Sheet C.3	
2	2102-2625000	EMBANKMENT-IN-PLACE Refer to Tab. 107-23 on Sheet C.2 for details. Contractor to furnish borrow.	
3	2122-5500080	PAVED SHOULDER, HOT MIX ASPHALT MIXTURE, 8IN. Use PG 64-22 asphalt binder at 6% or PG 58-28 asphalt binder at 6%. Refer to Typical 7156 on Sheet B.1 and Tab. 112-9 on Sheet C.3 for details.	
4	2213-2713300	EXCAVATION, CLASS 13, FOR WIDENING Quantity is based on HMA option. If PCC is used, on-site grading adjustment may be required. Refer to Tab. 112-9 on Sheet C.3.	
5	2301-0690200	BRIDGE APPROACH, RK-20 Use Class M Concrete Use mechanical splices in all transverse reinforcing steel. Refer to Tab. 112-6 on Sheet C.3 for details.	
6	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE Refer to Tab. 100-28 on Sheet C.2 for details.	
7	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL Refer to Tab. 110-7A on Sheet C.6 for details.	
8	2505-4008300	STEEL BEAM GUARDRAIL	
9	2505-4008400	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION	
10	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	
11	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL Refer to Tab. 108-8A on Sheet C.2 for details.	
12	2510-6745850	REMOVAL OF PAVEMENT Refer to Tab. 110-1 on Sheet C.2 for details.	
13	2518-6910000	SAFETY CLOSURE Refer to Tab. 108-13A on Sheet C.6 for details.	
14	2524-9325001	TYPE A SIGNS, SHEET ALUMINUM Refer to N-sheets for fabrication details and placement locations.	
15	2526-8285000	CONSTRUCTION SURVEY	
16	2527-9263109	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	
17	2527-9263131	WET RETROREFLECTIVE REMOVABLE TAPE MARKINGS Refer to Tab. 108-22 on Sheets C.4 and C.5 for details.	
18	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	
19	2527-9263190	SYMBOLS AND LEGENDS REMOVED Refer to Tab. 108-29 on Sheet C.5 for details.	
20	2527-9263600	REMOVABLE, NONREFLECTIVE, PREFORMED TAPE Refer to Tab. 108-22 on Sheet C.4 for details.	
21	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE Refer to Tab. 108-33 on Sheet C.6 for details.	
22	2528-8445110	TRAFFIC CONTROL Refer to Tab. 108-23A and Tab. 108-26A on Sheet J.1.	
23	2528-9290004	CHANGEABLE MESSAGE SIGNS, PORTABLE Four changeable message signs will be required for redirecting traffic onto the proposed detour route.	
24	2551-0000110	TEMPORARY CRASH CUSHION Refer to Tab. 108-30 on Sheet C.3 for details.	
25	2601-2634100	MULCH	
26	2601-2636044	SEED AND FERTILIZER (URBAN) Refer to Note 232-3B on Sheet C.6 for details.	
27	2602-0000020	SILT FENCE SILT FENCE shall be used for sediment control from runoff from disturbed areas do to construction activities. Refer to Tab. 100-17 on Sheet C.6 for details.	

112-6
04-16-13

BRIDGE APPROACH SECTION

Refer to the RK-Series.

* Not a bid item

Location				Approach Pavement					Fixed or Movable Abutment	Subdrain				Modified Subbase	Polymer Grid	Remarks	
Bridge Station	End	Skew Ahead		<div>T</div> Thickness	Pay Length	Non-Reinf. Pavement Area	Single-Reinf. Pavement Area	Double-Reinf. Pavement Area		* <div>Perforated Subdrain 4"</div>	*Subdrain Outlet		* <div>Porous Backfill</div>				* <div>Class 'A'</div>
		Degrees									CY	CY					
		LEFT	RIGHT														
1329+51.00	SW	2.3	0	12.0	20.0			117.7	M					114.300	120.8		
1329+51.00	SE	5.3	0	12.0	20.0			107.1	M					104.800	110.8		
1329+51.00	NW	2.3	0	12.0	20.0			112.1	M					109.400	115.6		
1329+51.00	NE	5.3	0	12.0	20.0			111.2	M					108.000	114.1		

112-9
04-17-12

SHOULDERS

① Lane(s) to which the shoulder is adjacent.

② Bid Item

③ Applies only for Paved Shoulders constructed on project with existing granular shoulders.

④ Does not include shrink.

Calculations assume a HMA unit weight (lbs/cf) of 0, a Special Backfill unit weight (lbs/cf) of 140, and a Granular Shoulder unit weight (lbs/cf) of 140.

Location				Side	<div>P</div> Width	<div>G</div> Width	<div>L</div> Length	Quantities														Remarks
Road Identification	① Direction Of Traffic	Station to Station						Class 13 ③ Excavation Widening	③ HMA Base Widening		Hot Mix Asphalt		Paved Shoulder	Reinforced Paved Shoulder	Special Backfill		Modified Subbase	Granular Shoulder		Earth Shoulder Construction		
									FT	FT	FT	CY ②	TON ②	TON/STA	TON	TON/STA	SY ②	SY ②	TON ②	TON/STA	CY ②	
I 235	EB	1326+82.52	1327+00.31	RT	Var.		17.8	3.9						9.9		3.100						
I 235	EB	1327+00.31	1327+02.32	RT	Var.		2.0	0.5						1.2		0.380						
I 235	EB	1327+02.32	1327+51.96	RT	Var.		49.6	6.8						17.1		5.380						
I 235	EB	1327+51.96	1327+77.88	RT	Var.		25.9	0.6						1.5		0.490						
I 235	WB	1331+05.13	1331+17.23	LT	Var.		12.1	0.2						0.5		0.160						
I 235	WB	1331+17.23	1331+54.51	LT	Var.		37.3	2.4						3.3		1.750						
I 235	WB	1331+54.51	1332+04.08	LT	Var.		49.6	11.2						28.0		10.720						
I 235	WB	1332+04.08	1332+24.11	LT	7.6		20.0	6.8						16.9		5.360						

108-30
04-16-13

CRASH CUSHIONS

* Bid Item

① Lane(s) to which the installation is adjacent.

② Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500

No.	① Direction of Traffic	Location Station	Side	Obstacle Width	Crash Cushion (Select One)*					Sand Barrel Details ②					Earthwork*		Spare Parts Kit (Select One)*		Obstacle Description	Remarks					
					Temporary	Temporary Redirective	Temporary Severe Use	Permanent	Permanent Severe Use	<div>V</div>	<div>W</div>	<div>X</div>	<div>Y</div>	<div>Z</div>	Excavation Class 10	Embankment in Place	Permanent	Permanent Severe Use							
																					Length	Length	Length	Length	Length
																					FT	FT	FT	FT	FT
1	EB	1326+93.54	LT	2.00	X													TBR	Stage 1						
2	WB	1332+09.23	RT	2.00	X													TBR	Stage 1						
3	EB	1326+93.54	RT	2.00	X													TBR	Stage 2						
4	WB	1332+09.23	LT	2.00	X													TBR	Stage 2						
5	EB	1326+93.54	RT	2.00	X													TBR	Stage 3						
6	WB	1332+09.23	LT	2.00	X													TBR	Stage 3						
7	EB	1326+93.54	RT	2.00	X													TBR	Stage 4						
8	WB	1332+09.23	LT	2.00	X													TBR	Stage 4						

ENGLISH

IOWA DOT

DESIGN TEAM

TRANSYSTEMS

POLK COUNTY

PROJECT NUMBER

IMN-235-2(625)00--OE-77

SHEET NUMBER

C.3

12/2/2013

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