BRIDGE REPLACEMENT - PPCB

LETTING DATE: DECEMBER 15, 2026

PROJECT NO. BROS-C091(144)--8J-91

WARREN COUNTY

TOTAL SHEETS
27

STANDARD ROAD PLANS
STANDARD ROAD PLANS ARE LISTED ON SHEET 23.

SECTION 404 PERMIT AND CONDITIONS	281-1 9-28-22
CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT 14, PERMIT NO. CEMVR-RD-2026-0488. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE (http://www.envpermits.iowadot.gov/). THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.	

IOWA | DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

SECONDARY ROAD SYSTEM

WARREN COUNTY

PROJECT NO. BROS-C091(144)--8J-91

BRIDGE REPLACEMENT - PPCB

ON 20TH AVE, OVER PAINTER CREEK, S20 T75 R25

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS.

THIS PROJECT IS COVERED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 2 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS A PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2602 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

MILEAGE SUMMARY

STA. 15+20.00 TO STA. 20+00.00 = 480.00 LIN. FT. = 0.0909 MILES

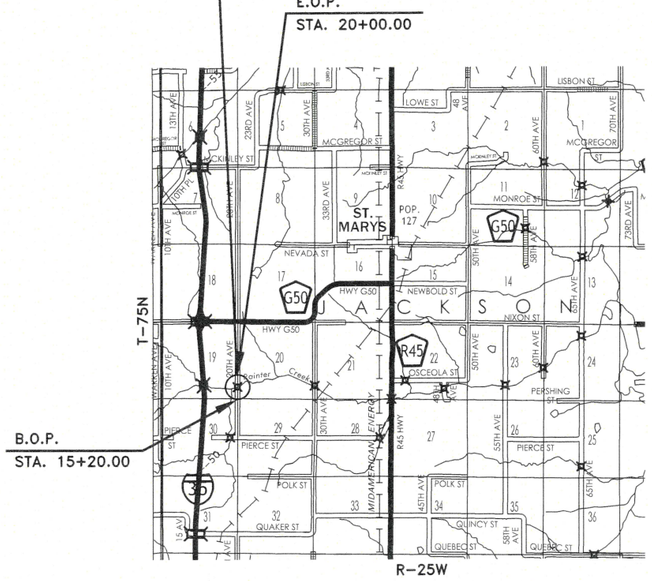
2022, TRAFFIC COUNT = 35 V.P.D.

PROJECT NO. BROS-C091(144)--8J-91
FHWA NO. 333970
COUNTY BR. NO. M-2009

INDEX OF SHEETS

1.	TITLE SHEET
2.-3.	QUANTITY SUMMARY
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6.	POLLUTION PREVENTION PLAN
7.	SOUNDING DATA
8.-9.	SOUTH ABUTMENT DETAILS
10.-11.	NORTH ABUTMENT DETAILS
12.	ABUTMENT DETAILS
13.-15.	SUPERSTRUCTURE DETAILS
16.-18.	BEAM DETAILS
19.-20.	OPEN RAIL DETAILS (TL-4)
21.	STEEL DIAPHRAGM DETAILS
22.	WING ARMORING DETAILS
23.	TYPICAL SECTION & TABULATIONS
24.	TABULATIONS
25.-27.	CROSS SECTIONS

B.O.P. STA. 15+20.00
E.O.P. STA. 20+00.00
FHWA NO. 333970
STATION 17+90.00
PROPOSED 145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
15° SKEW, RT. AHEAD



PROJECT LOCATION

1 MI. 0 1 MI. 2 MI.

N

UTILITY CONTACTS				
COMPANY	UTILITY	CONTACT	PHONE #	EMAIL
OMNITEL COMMUNICATIONS	COMMUNICATIONS	DAN CHILDERS	641-765-4201	OSEVERNOTE@OMNITEL.COM
MIDAMERICAN ENERGY	ELECTRIC	JAIME NEER	515-252-6972	MECDSMDESIGNLOCATES@MIDAMERICAN.COM
MEDIACOM	COMMUNICATIONS	DAVE MEYERS	515-991-7388	DMEYERS2@MEDIACOMCC.COM

DRAWING APPROVAL

ALL SHOP DRAWINGS AND FALSEWORK DRAWINGS THAT REQUIRE APPROVAL SHALL BE SUBMITTED TO AND APPROVED BY THE CONTRACTOR, WHO SHALL STAMP, CERTIFY OR PROVIDE OTHER SUCH EVIDENCE ON THE DRAWINGS THAT THEY HAVE RECEIVED CONTRACTOR APPROVAL. THE APPROVED DRAWINGS SHALL THEN BE SUBMITTED TO CALHOUN-BURNS AND ASSOCIATES, FOR REVIEW AND APPROVAL.

ADDRESS : 6775 VISTA DRIVE
WEST DES MOINES, IOWA 50266
TELEPHONE : (515) 224-4344
FAX : (515) 224-1385

SHOP DRAWINGS SHALL BE INDEPENDENT DRAWINGS WITH ADEQUATE DIMENSIONING FOR FABRICATION OF INDIVIDUAL PIECES OF EACH COMPONENT. PHOTOCOPIES OF PLAN DRAWINGS AND NON-CONTRACTOR APPROVED PLANS WILL BE REJECTED.

THESE DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. BRIDGES AND STRUCTURES BUREAU.

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811
Know what's below. Call before you dig.

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
7	DAVID LOGEMANN	SOILS
-	-	-

LICENSED PROFESSIONAL ENGINEER
JULI A. REDMOND
17384
IOWA

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.

Juli Redmond DATE: 8/3/26
JULI A. REDMOND, P.E.
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2026.
PAGES OR SHEETS COVERED BY THIS SEAL:
1-6 AND 8-27 OF 27

APPROVED
J. Hall 8/10/26
WARREN COUNTY ENGINEER DATE

8/11/26
8/11/26
8/11/26
Stephanie Erickson
8/11/2026
BOARD OF SUPERVISORS DATE

TOTAL ESTIMATED QUANTITIES:
145'–0 x 24'–0 P.P.C.B. BRIDGE

REF. NO.	CODE NO.	ITEM	UNIT	2 ABUTS	SUPER	TOTAL
1	2101–0850001	CLEARING AND GRUBBING	ACRE	–	–	0.9
2	2102–2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	–	–	1,220
3	2102–2710090	EXCAVATION, CLASS 10, WASTE	CY	–	–	2,140
4	2104–2710020	EXCAVATION, CLASS 10, CHANNEL	CY	–	–	4,500
5	2105–8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	–	–	1,100
6	2312–8260081	GRANULAR SURFACING ON ROAD, CLASS D CRUSHED STONE	TON	–	–	135
7	2401–6745625	REMOVAL OF EXISTING BRIDGE	LS	–	–	1
8	2402–2720000	EXCAVATION, CLASS 20	CY	218	–	218
9	2403–0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	44.4	167.6	212.0
10	2404–7775000	REINFORCING STEEL	LB	8,624	44,264	52,888
11	2407–0564345	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTE145	EACH	–	4	4
12	2408–7800000	STRUCTURAL STEEL	LB	–	2,728	2,728
13	2414–6424124	CONCRETE OPEN RAILING, TL–4	LF	–	352.2	352.2
14	2417–1040024	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.	LF	–	80	80
15	2501–0201274	PILES, STEEL, HP 12 X 74 ; 20 @ 40'	LF	800	–	800
16	2501–6335010	PREBORED HOLES ; 20 @ 10'	LF	200	–	200
17	2505–4008300	STEEL BEAM GUARDRAIL	LF	–	–	50
18	2505–4008420	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA–221	EACH	–	–	4
19	2505–4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	–	–	4
20	2505–4021722	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA–225	EACH	–	–	4
21	2507–2638650	BRIDGE WING ARMORING – EROSION STONE	SY	–	–	50
22	2507–6800061	REVETMENT, CLASS E	TON	–	–	1,775

REF. NO. ESTIMATE REFERENCE INFORMATION

1. SEE SITUATION PLAN, SHEET 4, FOR LIMITS.
SELECTIVE CLEARING WILL BE REQUIRED ON THIS PROJECT. ALL DESIRABLE TREES OUTSIDE THE CONSTRUCTION AREA WILL BE SAVED. TREES AND SHRUBS WITHIN THE CONSTRUCTION LIMITS THAT DO NOT HINDER CONSTRUCTION SHALL BE SAVED UNLESS DIRECTED BY THE ENGINEER TO BE REMOVED.

2. SEE TABULATION CBA-101 ON SHEET 23 FOR BREAKDOWN OF EXCAVATION QUANTITIES.
TYPE "A" COMPACTION WILL BE REQUIRED.
BID ITEM TO BE PAID PER PLAN QUANTITY.

3. SEE TABULATION CBA-101 ON SHEET 23 FOR BREAKDOWN OF EXCAVATION QUANTITIES.
INCLUDES ALL COST TO REMOVE UNSUITABLE OR EXCESS MATERIAL FROM SITE. THE UNSUITABLE OR EXCESS MATERIAL SHALL BE WASTED AT A LOCATION PROVIDED BY THE CONTRACTOR AND NOTED TO THE ENGINEER.
BID ITEM TO BE PAID PER PLAN QUANTITY.

4. SEE TABULATION CBA-101 ON SHEET 23 FOR BREAKDOWN OF EXCAVATION QUANTITIES.
INCLUDES COSTS TO CLEAR THE CHANNEL TO THE SHAPE, DEPTH, AND EXTENT SHOWN IN THE "LONGITUDINAL SECTION ALONG CENTERLINE OF ROADWAY" AND THE LIMITS SHOWN ON THE SITUATION PLAN, SHEET 4.
INCLUDES COST OF USING SUITABLE MATERIAL FOR CONSTRUCTION ELSEWHERE ON THIS PROJECT. SUITABLE SOILS SHALL BE AS DEFINED BY ARTICLE 2102.02, D, 2 OF THE STANDARD SPECIFICATIONS.
BID ITEM TO BE PAID PER PLAN QUANTITY.

5. IN ORDER TO MEET NPDES PERMIT REQUIREMENTS TOPSOIL STRIP, SALVAGE AND SPREAD SHALL BE REQUIRED ON THIS PROJECT. QUANTITY PERTAINS TO WORK WITHIN THE PROJECT LIMITS. SIX INCHES OF TOPSOIL SHALL BE STRIPPED FROM WITHIN THE PROJECT LIMITS AND SPREAD UNIFORMLY (6" TARGET WITH 4" MIN. DEPTH) OVER ALL AREAS THAT ARE NOT COVERED BY PAVEMENT OR GRANULAR MATERIAL. AREAS SHALL BE UNDERCUT PRIOR TO PLACING TOPSOIL. CROSS-SECTIONS SHOW FINISHED GRADELINE.

6. SURFACING TO BE FURNISHED AND PLACED BY THE CONTRACTOR IN TWO PASSES (1400 AND 600 TONS /MILE).
SURFACING SHALL MEET GRADATION AND MATERIAL REQUIREMENTS FOR MODIFIED SUBBASE PER SECTION 4123 OF THE STANDARD SPECIFICATIONS.
SEE TYPICAL SECTION CBA-500 ON SHEET 23.

7. THE EXISTING BRIDGE AT STATION 18+33 IS A 79' x 20' STEEL I-BEAM BRIDGE WITH TWO TIMBER STRINGER APPROACHES, HIGH TIMBER ABUTMENTS, TIMBER PILE PIERS, A TIMBER DECK, AND STEEL PILE/SHEET PILE SW WING REPAIR, BUILT IN 1958.
AN INSPECTION FOR THE PRESENCE OF ASBESTOS CONTAINING MATERIALS WAS COMPLETED AND NO SUSPECT MATERIALS WERE FOUND. IF ADDITIONAL MATERIALS SUSPECTED OF CONTAINING ASBESTOS ARE DISCOVERED DURING DEMOLITION OF THE BRIDGE, WORK SHALL BE STOPPED IMMEDIATELY AND THE ENGINEER NOTIFIED.
THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL AND DISPOSAL OF THE EXISTING STRUCTURE, INCLUDING DEADMEN AND OTHER SUBSURFACE MATERIAL. ALL SALVAGEABLE MATERIAL AND UNSALVAGEABLE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR. THE EXISTING STRUCTURE SHALL BE REMOVED TO AN ELEVATION AT LEAST 1 FOOT BELOW FINISHED GROUNDLINE AND TO THE EXTENT THAT IT WILL NOT INTERFERE WITH THE NEW CONSTRUCTION.
SEE HAZARDOUS MATERIALS NOTES ON SHEET 5 FOR PAINT SCRAPE SAMPLE RESULTS.

8. QUANTITY IS BASED ON THE ASSUMPTION THAT CHANNEL EXCAVATION AND NECESSARY BERM CONSTRUCTION HAVE BEEN COMPLETED.
INCLUDES COST OF USING SUITABLE MATERIAL FOR CONSTRUCTION ELSEWHERE ON THIS PROJECT. SUITABLE SOILS SHALL BE AS DEFINED BY ARTICLE 2102.02, D, 2 OF THE STANDARD SPECIFICATIONS.

9. INCLUDES COST OF TAR PAPER.
NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR HEATING AND PROTECTION OF CONCRETE, IF NECESSARY.
CERTIFIED PLANT INSPECTION IS REQUIRED.
ARTICLE 2428 REGARDING BRIDGE DECK SMOOTHNESS DOES NOT APPLY TO THIS PROJECT.
PAPER TICKETS MEETING THE REQUIREMENTS OF MATERIALS I.M. 527 SHALL BE REQUIRED FOR STRUCTURAL CONCRETE.

10. ALL REINFORCING SHALL BE GRADE 60.

11. INCLUDES COST OF BEARING MATERIAL, COIL TIES AND COIL RODS.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING STABILITY OF PRESTRESSED CONCRETE BEAMS DURING ERECTION AND CONSTRUCTION UP THROUGH THE CONCRETE BRIDGE DECK REACHING ITS FULL 28-DAY STRENGTH. THE CONTRACTOR SHALL PROVIDE SUFFICIENT TEMPORARY ANCHOR BRACING AT BEAM ENDS AND TEMPORARY INTERMEDIATE BRACING AS NEEDED TO ENSURE PRESTRESSED BEAM STABILITY. PARTIALLY OR FULLY INSTALLED PERMANENT BRACING AS SHOWN IN THESE DESIGN PLANS SHALL NOT BE ASSUMED SUFFICIENT TO BRACE PRESTRESSED BEAMS DURING ERECTION AND CONSTRUCTION. TEMPORARY BRACING SHALL NOT BE WELDED TO PRESTRESSED BEAM STIRRUPS.
ABUTMENT BEARINGS SHALL BE THE 3"X3" BARS AS DETAILED. ALTERNATE DETAILS SHOWN IN MATERIALS IM 570 APPENDIX I WILL NOT BE ALLOWED. CONTRACTOR MAY SUBMIT ALTERNATE DETAILS SUCH AS STACKED ¾"X3" OR 1"X3" STEEL PLATES TO CREATE AN EQUIVALENT 3"X3" BAR. PLATES SHALL BE ADEQUATELY WELDED TOGETHER TO PREVENT MOVEMENT DURING TRANSPORT AND INSTALLATION. ALTERNATE BEARING DETAILS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

12. INCLUDES WEIGHT OF STEEL DIAPHRAGMS, SEE SHEET 21.

13. CERTIFIED PLANT INSPECTION IS REQUIRED.
ALL STRUCTURAL CONCRETE FOR THE RAIL IS TO BE CLASS C; SUBSTITUTION OF CLASS D CONCRETE IS NOT ALLOWED.
NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR HEATING AND PROTECTION OF CONCRETE, IF NECESSARY.
PAPER TICKETS MEETING THE REQUIREMENTS OF MATERIALS I.M. 527 SHALL BE REQUIRED FOR STRUCTURAL CONCRETE.

14. SEE TABULATION CBA-903 ON SHEET 24 AND STANDARD ROAD PLANS DR-101, DR-104, DR-501, AND DR-632.
ALL PIPE SHALL BE STANDARD CORRUGATIONS, NO HELICALLY CORRUGATED PIPE WILL BE ALLOWED. ALL CONNECTING BANDS SHALL BE 24" WIDE.

15. SEE PILE NOTES ON SHEET 5. THE PILE DRIVING DATA SHEET FOR COMPLETION OF THE WAVE EQUATION IS TO BE PROVIDED TO THE ENGINEER AT LEAST 20 CALENDAR DAYS PRIOR TO DRIVING PILES. THE HAMMER FOR PILES SHALL MEET REQUIREMENTS OF TABLE 2501.03,A,10.

16. THE BRIDGE CONTRACTOR SHALL PREBORE HOLES FOR ABUTMENT PILES. HOLES SHALL BE BORED TO THE ELEVATIONS SHOWN ON THE "LONGITUDINAL SECTION ALONG CENTERLINE ROADWAY" ON THE SITUATION PLAN. PILES SHALL BE DRIVEN THROUGH THE HOLES TO AT LEAST THE SPECIFIED DESIGN BEARING.

17. - 20. SEE TABULATIONS 108-8A AND 107-23 ON SHEET 24.

21. SEE SHEET 22 FOR DETAILS. QUANTITY INCLUDES EROSION STONE ON THE BERMS.

22. REVETMENT IS TO BE PLACED AT A THICKNESS OF 1'-6. SEE SITUATION PLAN, SHEET 4, FOR LIMITS.
INCLUDES 300 TONS FOR SW DITCH AND 225 TONS FOR SE DITCH. SEE SITUATION PLAN, SHEET 4.

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **145'–0 SINGLE SPAN**

QUANTITY SUMMARY

STATION 17+90.00 **15° SKEW, RT. AHEAD**

WARREN COUNTY, **IOWA**

TOTAL ESTIMATED QUANTITIES:
145'–0 x 24'–0 P.P.C.B. BRIDGE

REF. NO.	CODE NO.	ITEM	UNIT	2 ABUTS	SUPER	TOTAL
23	2507–6875002	REVETMENT, REMOVE AND REPLACE	CY	–	–	200
24	2526–8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY	LS	–	–	1
25	2526–8285030	CONSTRUCTION SURVEY, RIGHT OF WAY	LS	–	–	1
26	2526–8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	–	–	1
27	2528–2518000	SAFETY CLOSURE	EACH	–	–	2
28	2528–8445110	TRAFFIC CONTROL	LS	–	–	1
29	2533–4980005	MOBILIZATION	LS	–	–	1
30	2601–2634100	MULCHING	ACRE	–	–	2.6
31	2601–2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	–	–	1.3
32	2601–2642100	STABILIZING CROP – SEEDING AND FERTILIZING	ACRE	–	–	1.3
33	2602–0000020	SILT FENCE	LF	–	–	280
34	2602–0000030	SILT FENCE FOR DITCH CHECKS	LF	–	–	43
35	2602–0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	–	–	323
36	2602–0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	–	–	390
37	2602–0010010	MOBILIZATIONS, EROSION CONTROL	EACH	–	–	1
38	2602–0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	–	–	1

REF. NO. ESTIMATE REFERENCE INFORMATION

23. THE UNIT PRICE BID FOR "REVETMENT, REMOVE AND REPLACE" SHALL INCLUDE THE COST OF LABOR, EQUIPMENT AND MATERIALS REQUIRED TO REMOVE REVETMENT FROM THE EXISTING BANKS, STOCKPILE IF NECESSARY, AND PLACE THE REVETMENT ON THE BANKS OUTSIDE THE LIMITS SHOWN FOR CLASS E REVETMENT. ANY PIECE GREATER THAN 3 FEET IN ANY DIRECTION SHALL BE BROKEN UP SUCH THAT ITS SIZE IS REDUCED TO LESS THAN 3 FEET IN ANY DIRECTION. HMA MATERIAL SHALL NOT BE PLACED WITHIN THE FLOODPLAIN. ANY REINFORCING SHALL BE CUT OFF FLUSH OR REMOVED. MATERIAL IS TO BE PLACED AT A THICKNESS OF 1'-6. SEE SITUATION PLAN, SHEET 4, FOR LIMITS.

THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE BY CUBIC YARD. PLAN QUANTITY WILL BE PAY QUANTITY.

24. - 26. THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING AN INDEPENDENT CHECK OF ALL CONSTRUCTION STAKES PLACED FOR THE PROJECT. THIS INDEPENDENT CHECK SHALL BE SUFFICIENT TO UNDERSTAND THE PLACEMENT AND INTENT OF THE STAKES.

SEE TABULATION CBA-300 ON SHEET 24, FOR FIELD TIES TO THE SITE SURVEY.

THE BID PRICE FOR CONSTRUCTION SURVEY SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, DATA PREPARATION, COORDINATION, AND OTHER INCIDENTAL WORK NECESSARY TO PERFORM THE REQUIRED CONSTRUCTION SURVEY. ANY DIGITAL TERRAIN MODELING, SURFACE PREPARATION, OR OTHER MODELING NEEDED BY THE CONTRACTOR FOR MACHINE CONTROL GRADING SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION SURVEY BID ITEM AND SHALL BE INCLUDED IN THE BID PRICE. NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR SUCH MODELING. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.

27. SEE TABULATION 108-13A ON SHEET 23.

28. SEE TRAFFIC CONTROL PLAN ON SHEET 23.

30. – 32. THE CONTRACTOR IS TO RESHAPE, FERTILIZE, SEED AND MULCH ANY AREAS DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION. THIS SHALL BE INCLUDED IN THE PRICES BID FOR "MULCHING" AND "SEEDING AND FERTILIZING (RURAL)". SEE POLLUTION PREVENTION PLAN, SHEET 6 FOR STABILIZING CROP REQUIREMENT.

33. – 38. SEE POLLUTION PREVENTION PLAN, SHEET 6, AND TABULATIONS 100-17, 100-18 AND 100-19 ON SHEET 23.

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

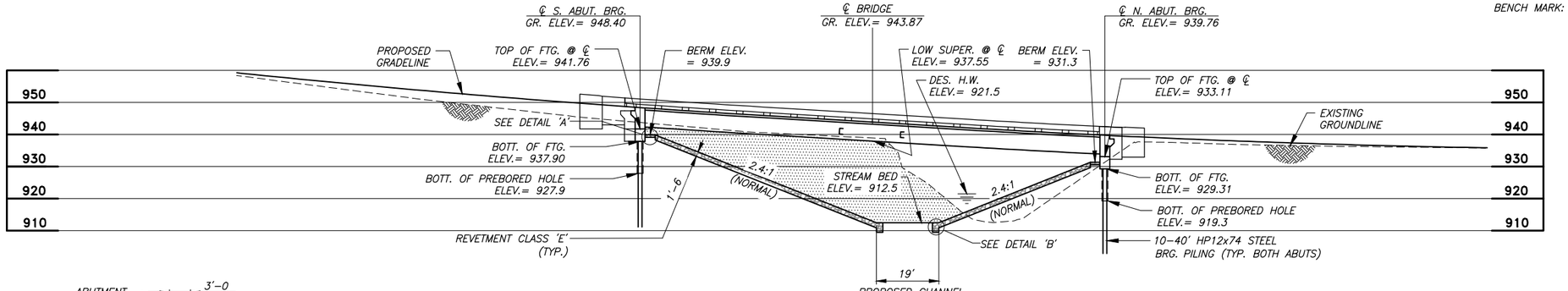
INTEGRAL ABUTMENTS **145'–0 SINGLE SPAN**

QUANTITY SUMMARY

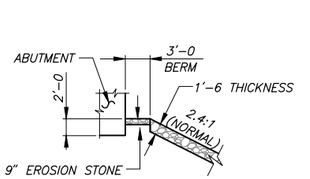
STATION 17+90.00 **15° SKEW, RT. AHEAD**

WARREN COUNTY, IOWA

BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32

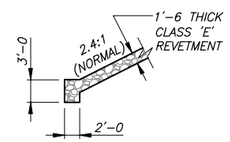


LONGITUDINAL SECTION ALONG ℄ ROADWAY

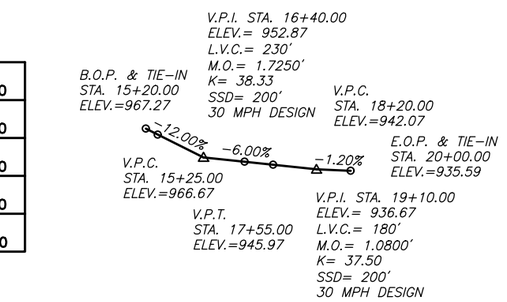


DETAIL 'A'

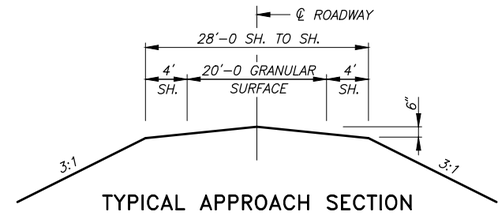
REVETMENT IN DITCHES TO BE 1'-6 THICK.



DETAIL 'B'



PROPOSED GRADE



TYPICAL APPROACH SECTION

SITUATION PLAN

20 0 20 40

* DENOTES LIMITS OF CLASS 10 (CHANNEL) EXCAVATION.
** DENOTES LIMITS OF CLASS 'E' REVETMENT.

WETLANDS LEGEND

EMERGENT WETLANDS

PERMANENTLY IMPACTED WETLANDS (0.01 ACRES TOTAL)

LOCATION

WARREN COUNTY
T-75N, R-25W
SECTION 20
JACKSON TOWNSHIP
OVER PAINTER CREEK

HYDRAULIC DATA

DRAINAGE AREA = 6.0 SQ. MI.
DESIGN DISCHARGE = 2,170 C.F.S.
DESIGN HIGH WATER ELEV. = 921.5
MANNING SLOPE = 0.00550 FT./FT.
BRIDGE WATERWAY AREA = 367 SQ. FT.
DESIGN VELOCITY = 5.9 F.P.S.
Q25 = 2,170 C.F.S. STAGE ELEV. = 921.5 (DESIGN)
Q50 = 2,650 C.F.S. STAGE ELEV. = 922.3
Q100 = 3,200 C.F.S. STAGE ELEV. = 923.1
Q200 = 3,470 C.F.S. STAGE ELEV. = 923.4
Q500 = 4,290 C.F.S. STAGE ELEV. = 924.4
EXT. H.W. ELEV. = UNKNOWN
ANTICIPATED Q50 SCOUR ELEV. = 912.5
ANTICIPATED Q100 SCOUR ELEV. = 912.5

145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **145'-0 SINGLE SPAN**

SITUATION PLAN

STATION 17+90.00 **15° SKEW, RT. AHEAD**

WARREN COUNTY, **IOWA**

SPECIFICATIONS

DESIGN: AASHTO LRFD 8TH EDITION, SERIES OF 2017, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL. SEE SHEET 16 FOR PRESTRESSED BEAMS.

CONSTRUCTION: THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2023, PLUS GENERAL SUPPLEMENTAL SPECIFICATIONS; AND APPLICABLE SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS, SHALL APPLY TO THE CONSTRUCTION ON THIS PROJECT.

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION, SERIES 2017, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

REINFORCING STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 5, GRADE 60.

STRUCTURAL STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 6. ASTM A709 GRADE 36 (AASHTO M270 GRADE 36).

CONCRETE IN ACCORDANCE WITH LRFD AASHTO SECTION 5, F'C=4,000 PSI EXCEPT PRESTRESSED BEAM CONCRETE AS NOTED.

PRESTRESSING STEEL SEE SHEET 16
PRESTRESSED CONCRETE SEE SHEET 16

GENERAL NOTES

THIS DESIGN IS FOR A 145' x 24' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON 20TH AVENUE OVER PAINTER CREEK IN WARREN COUNTY, IOWA.

THIS BRIDGE IS DESIGNED FOR HL-93 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE.

ACCESS SHALL BE MAINTAINED TO INDIVIDUAL PROPERTIES DURING CONSTRUCTION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

THE PRIME CONTRACTOR SHALL EMPLOY CONTROLS TO REDUCE THE EROSIVENESS OF LAND ADJACENT TO SURFACE WATERS AND WETLANDS, INCLUDING ESTABLISHMENT AND MAINTENANCE OF EROSION CONTROL DURING AND AFTER CONSTRUCTION AND REVEGETATION OF ALL DISTURBED AREAS UPON PROJECT COMPLETION. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF ALL EROSION CONTROL MEASURES.

STANDARD ROAD PLAN EW-401 IS LISTED IN TABULATION 105-4; HOWEVER, IT IS INCLUDED FOR INFORMATION PURPOSES ONLY SINCE IT IS AN OPTION. NO QUANTITIES ASSOCIATED WITH CONSTRUCTING EW-401 ARE INCLUDED IN ANY BID ITEMS.

STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION WEBSITE: http://erl.iowadot.gov.

UTILITY NOTES

SEE SECTION 1107.15 OF THE STANDARD SPECIFICATION REGARDING UTILITY COORDINATION.

WASTE AND DISPOSAL NOTES

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT AREAS (INCLUDING HAUL ROADS) SELECTED FOR WASTE OR DISPOSAL NOT IMPACT 1) CULTURALLY SENSITIVE SITES OR GRAVES OR 2) WETLANDS OR "WATERS OF THE U.S.", INCLUDING STREAMS OR STREAM BANKS BELOW THE "ORDINARY HIGH WATER MARK", WITHOUT AN APPROVED U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT-OF-WAY, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE ENGINEER.

HAZARDOUS MATERIALS NOTES

AN INSPECTION FOR THE PRESENCE OF ASBESTOS CONTAINING MATERIALS WAS COMPLETED BY:

SCOTT BROWN OF IOWA ENVIRONMENTAL SERVICES
IA LICENSE NUMBER: 25-13255I
DATE INSPECTED: 08/07/2025
PHONE: 515-279-8042

A SCRAPE SAMPLE OF THE EXISTING PAINT WAS TAKEN FROM A STEEL I-BEAM AND THE RAILING OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE AND OF THE LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THE I-BEAM WAS 3,090 PART PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 20,500 PPM. ANALYSIS OF TOTAL LEAD ON THE RAILING WAS 166 PPM AND ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS <26.6 PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE COUNTY'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER THAT ANY PAINT REMOVED DURING REMOVAL IS CONTAINED, COLLECTED, AND DISPOSED OF IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS.

BEFORE DELIVERY OF ANY SCRAP STEEL THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE RECEIVING FACILITY. THIS NOTICE SHALL AT A MINIMUM INCLUDE:

1. A NOTICE THAT THE SCRAP STEEL IS COATED WITH PAINT THAT HAS REGULATED MATERIALS AT LEVELS THAT COULD BE HAZARDOUS TO EMPLOYEES OR THE ENVIRONMENT.
2. A COPY OF THE SCRAPE SAMPLE PROVIDED IN THE CONTRACT DOCUMENTS.
3. A SIGNATURE BLOCK FOR THE RECEIVING FACILITY TO CONFIRM THEIR RECEIPT OF THIS INFORMATION.

A COPY OF THIS NOTICE, SIGNED BY THE RECEIVING FACILITY, SHALL BE RETURNED TO THE ENGINEER BEFORE ANY SCRAP STEEL IS REMOVED FROM THE PROJECT.

ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THE ABOVE REMOVAL AND DISPOSAL REQUIREMENTS WILL BE INCIDENTAL TO "REMOVAL OF EXISTING BRIDGE."

PILE NOTES

SOUNDING AND TEST BORING DATA SHOWN ON PLANS WERE ACCUMULATED FOR DESIGNING AND ESTIMATING PURPOSES. THEIR APPEARANCE ON THE PLAN DOES NOT CONSTITUTE A GUARANTEE THAT CONDITIONS OTHER THAN THOSE INDICATED WILL NOT BE ENCOUNTERED.

THIS PROJECT USES THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHODOLOGY FOR DETERMINING PILE CONTRACT LENGTH AND NOMINAL AXIAL BEARING RESISTANCE. A WEAP ANALYSIS AND BEARING GRAPH WILL BE PROVIDED BY THE ENGINEER THAT GIVES THE RELATIONSHIP BETWEEN REQUIRED NOMINAL AXIAL BEARING RESISTANCE AND BLOW COUNT.

ABUTMENT PILE

THE CONTRACT LENGTH OF 40 FEET FOR THE ABUTMENT PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 171 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65 FOR SOIL AND 0.70 FOR ROCK END BEARING.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65 FOR SOIL AND 0.70 FOR ROCK END BEARING. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF PREBORE.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR THE ABUTMENT PILES IS 124 TONS AT END OF DRIVE (EOD) OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

CONCRETE AND REINFORCING STEEL NOTES

ALL REINFORCING STEEL SHALL BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED. BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS IN EITHER DIRECTION SHALL BE USED TO SUPPORT ALL REINFORCING IN ACCORDANCE WITH THE SECTION 2404 OF THE STANDARD SPECIFICATIONS.

CONCRETE PAVING BLOCKS ARE REQUIRED AND ARE TO REMAIN IN PLACE AFTER CONSTRUCTION.

CONTRACTOR'S WORK AREA

THE CONTRACTOR'S WORK AND MATERIAL STORAGE AREA SHALL BE DEFINED BY THE CONTRACTOR AND NOTED TO THE ENGINEER. THE CONTRACTOR SHALL SHAPE, FERTILIZE, AND SEED THIS CONTRACTOR'S AREA IN ORDER TO RETURN IT TO ITS ORIGINAL CONDITION. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR "SEEDING AND FERTILIZING (RURAL)" AND "MULCHING" BID ITEMS. AREAS OUTSIDE THE CONTRACTOR'S AREA DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED TO THEIR ORIGINAL CONDITION, AS DETERMINED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE AUTHORIZED FOR THIS WORK.

ELECTRONIC FILES

ELECTRONIC CAD FILE (CIVIL 3D OR LAND XML) WILL NOT BE PROVIDED TO ASSIST IN GRADING DURING CONSTRUCTION. E-FILE WILL NOT BE PROVIDED. CONTRACTOR TO PROVIDE ENGINEER WITH TOP OF BEAM SHOTS, AS ERECTED, PER SPECIFICATION 2526.03.E.3.h. THE ENGINEER SHALL CALCULATE HAUNCH THICKNESSES AND DETERMINE IF ADJUSTMENTS ARE NECESSARY.

145'-0 x 24'-0 PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — 145'-0 SINGLE SPAN

GENERAL NOTES

STATION 17+90.00 — 15° SKEW, RT. AHEAD
WARREN COUNTY, — IOWA

POLLUTION PREVENTION PLAN

THIS PROJECT IS REGULATED BY THE REQUIREMENTS OF THE IOWA DEPARTMENT OF NATURAL RESOURCES (DNR) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT NO. 2 OR AN IOWA DEPARTMENT OF NATURAL RESOURCES (DNR) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) INDIVIDUAL STORM WATER PERMIT. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF THIS PERMIT AND THE POLLUTION PREVENTION PLAN (PPP).

THIS BASE PPP INCLUDES INFORMATION ON ROLES AND RESPONSIBILITIES, PROJECT SITE DESCRIPTION, CONTROLS, MAINTENANCE PROCEDURES, INSPECTION REQUIREMENTS, NON-STORM WATER CONTROLS, POTENTIAL SOURCES OF OFF RIGHT-OF-WAY POLLUTION, AND DEFINITIONS. THIS PLAN REFERENCES OTHER DOCUMENTS RATHER THAN REPEATING THE INFORMATION CONTAINED IN THE DOCUMENTS. A COPY OF THIS BASE POLLUTION PREVENTION PLAN, AMENDED AS NEEDED DURING CONSTRUCTION, WILL BE READILY AVAILABLE FOR REVIEW.

ALL CONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT CONTROLS POLLUTANTS, MINIMIZES EROSION, AND PREVENTS SEDIMENTS FROM ENTERING WATERS OF THE STATE AND LEAVING THE HIGHWAY RIGHT-OF-WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE PPP FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THIS PPP.

I. ROLES AND RESPONSIBILITIES
- A. DESIGNER:
  1. PREPARES BASE PPP INCLUDED IN THE PROJECT PLAN.
- B. OWNER
  1. PREPARES NOTICE OF INTENT (NOI) SUBMITTED TO IOWA DNR.
  2. IS SIGNATURE AUTHORITY ON THE BASE PPP.
- C. CONTRACTOR:
  1. SIGNS A CO-PERMITTEE CERTIFICATION STATEMENT ADHERING TO THE REQUIREMENTS OF THE NPDES PERMIT AND THIS PPP. ALL CO-PERMITTEES ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE IOWA ADMINISTRATIVE CODE TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS PPP.
  2. DESIGNATES A WATER POLLUTION CONTROL MANAGER (WPCM), WHO HAS THE DUTIES AND RESPONSIBILITIES AS DEFINED IN SPECIFICATIONS SECTION 2602 OF THE STANDARD SPECIFICATIONS.
  3. SUBMITS AN EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND ECIP UPDATES ACCORDING TO SPECIFICATIONS SECTION 2602 OF THE STANDARD SPECIFICATIONS.
  4. INSTALLS AND MAINTAINS APPROPRIATE CONTROLS. THIS WORK MAY BE SUBCONTRACTED AS DOCUMENTED THROUGH SUBCONTRACTOR REQUEST FORMS (FORM 830231).
  5. SUPERVISES AND IMPLEMENTS GOOD HOUSEKEEPING PRACTICES ACCORDING TO PARAGRAPH III, C, 2.
  6. CONDUCTS JOINT REQUIRED INSPECTIONS OF THE SITE WITH INSPECTION STAFF. WHEN CONTRACTOR IS NOT MOBILIZED ON SITE, CONTRACTOR MAY DELEGATE THIS RESPONSIBILITY TO A TRAINED OR CERTIFIED SUBCONTRACTOR. CONTRACTING AUTHORITY ALSO MAY WAIVE JOINT INSPECTION REQUIREMENT DURING WINTER SHUTDOWN. IN BOTH CIRCUMSTANCES, WPCM (OR TRAINED OR CERTIFIED DELEGATE FROM THE CONTRACTOR) IS STILL RESPONSIBLE TO REVIEW AND SIGN INSPECTION REPORTS.
  7. COMPLIES WITH TRAINING AND CERTIFICATION REQUIREMENTS OF SECTION 2602 OF THE STANDARD SPECIFICATIONS.
  8. SUBMITS AMENDED PPP SITE MAP ACCORDING TO SECTION 2602 OF THE STANDARD SPECIFICATIONS.
- D. SUBCONTRACTORS:
  1. SIGN A CO-PERMITTEE CERTIFICATION STATEMENT ADHERING TO THE REQUIREMENTS OF THE NPDES PERMIT AND THIS PPP IF RESPONSIBLE FOR SEDIMENT OR EROSION CONTROLS; INVOLVED IN LAND DISTURBING ACTIVITIES; OR PERFORMING WORK THAT IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THIS PPP. SUBCONTRACTED WORK ITEMS ARE IDENTIFIED IN SUBCONTRACTOR REQUEST FORMS (FORM 830231). ALL CO-PERMITTEES ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE IOWA ADMINISTRATIVE CODE TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS PPP.
  2. IMPLEMENT GOOD HOUSEKEEPING PRACTICES ACCORDING TO PARAGRAPH III, C, 2.
- E. RCE/PROJECT ENGINEER:
  1. IS PROJECT STORM WATER MANAGER.
  2. TAKES ACTIONS NECESSARY TO ENSURE COMPLIANCE WITH STORM WATER REQUIREMENTS INCLUDING, WHERE APPROPRIATE, ISSUING STOP WORK ORDERS, AND DIRECTING ADDITIONAL INSPECTIONS AT CONSTRUCTION PROJECT SITES THAT ARE EXPERIENCING PROBLEMS WITH ACHIEVING PERMIT COMPLIANCE.
  3. ORDERS THE TAKING OF MEASURES TO CEASE, CORRECT, PREVENT, OR MINIMIZE THE CONSEQUENCES OF NON-COMPLIANCE WITH THE STORM WATER REQUIREMENTS OF THE APPLICABLE PERMIT.
  4. SUPERVISES ALL WORK NECESSARY TO MEET STORM WATER REQUIREMENTS AT THE PROJECT, INCLUDING WORK PERFORMED BY CONTRACTORS AND SUBCONTRACTORS.
  5. REQUIRES EMPLOYEES, CONTRACTORS, AND SUBCONTRACTORS TO TAKE APPROPRIATE RESPONSIVE ACTION TO COMPLY WITH STORM WATER REQUIREMENTS, INCLUDING REQUIRING ANY SUCH PERSON TO CEASE OR CORRECT A VIOLATION OF STORM WATER REQUIREMENTS, AND TO ORDER OR RECOMMEND SUCH OTHER ACTIONS AS NECESSARY TO MEET STORM WATER REQUIREMENTS.
  6. IS FAMILIAR WITH THE PROJECT PPP AND STORM WATER SITE MAP.
  7. IS THE POINT OF CONTACT FOR THE PROJECT FOR REGULATORY OFFICIALS, INSPECTOR, CONTRACTORS, AND SUBCONTRACTORS REGARDING STORM WATER REQUIREMENTS.
  8. IS SIGNATURE AUTHORITY ON NOTICE OF DISCONTINUATION.
  9. MAINTAINS AN UP-TO-DATE RECORD OF CONTRACTORS, SUBCONTRACTORS, AND SUBCONTRACTED WORK ITEMS THROUGH SUBCONTRACTOR REQUEST FORMS (FORM 830231).
  10. MAKES INFORMATION TO DETERMINE PERMIT COMPLIANCE AVAILABLE TO THE DNR UPON THEIR REQUEST.
- F. INSPECTOR:
  1. UPDATES PPP THROUGH FIELDBOOK ENTRIES AND STORM WATER SITE INSPECTION REPORTS IF THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE WHICH HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS FROM THE PROJECT.
  2. MAKES INFORMATION TO DETERMINE PERMIT COMPLIANCE AVAILABLE TO THE DNR UPON THEIR REQUEST.
  3. CONDUCTS JOINT REQUIRED INSPECTIONS OF THE SITE WITH THE CONTRACTOR/SUBCONTRACTOR.
  4. COMPLETES AN INSPECTION REPORT AFTER EACH INSPECTION.
  5. IS SIGNATURE AUTHORITY ON STORM WATER INSPECTION REPORTS.

II. PROJECT SITE DESCRIPTION
- A. THIS POLLUTION PREVENTION PLAN (PPP) IS FOR THE CONSTRUCTION OF A 145'-0 X 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON 20TH AVE OVER PAINTER CREEK IN WARREN COUNTY, IOWA.
- B. THIS PPP COVERS APPROXIMATELY 1.9 ACRES WITH AN ESTIMATED 1.9 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 1.9 ACRES DISTURBED.
- C. THE PPP IS LOCATED IN AN AREA OF ONE SOIL ASSOCIATION (SHARPSBURG-SHELBY-ADAIR) THE ESTIMATED WEIGHTED AVERAGE RUNOFF COEFFICIENT NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 0.25.
- D. STORM WATER SITE MAP - MULTIPLE SOURCES OF INFORMATION COMPRISE THE BASE STORM WATER SITE MAP INCLUDING:
  1. DRAINAGE PATTERNS – SITUATION PLAN.
  2. PROPOSED SLOPES – CROSS SECTIONS.
  3. AREAS OF SOIL DISTURBANCE – CONSTRUCTION LIMITS SHOWN ON SITUATION PLAN.
  4. LOCATION OF STRUCTURAL CONTROLS – TABULATIONS.
  5. LOCATIONS OF NON-STRUCTURAL CONTROLS – TABULATIONS.
  6. LOCATIONS OF STABILIZATION PRACTICES – GENERALLY WITHIN CONSTRUCTION LIMITS SHOWN ON SITUATION PLAN.
  7. SURFACE WATERS (INCLUDING WETLANDS) – PROJECT LOCATION MAP AND SITUATION PLAN.
  8. LOCATIONS WHERE STORM WATER IS DISCHARGED – SITUATION PLAN.
- E. THE BASE STORM WATER SITE MAP IS AMENDED BY CONTRACT MODIFICATIONS AND PROGRESS PAYMENTS (FIELDBOOK ENTRIES) OF COMPLETED EROSION CONTROL WORK. ALSO, DUE TO PROJECT PHASING, EROSION AND SEDIMENT CONTROLS SHOWN ON PROJECT PLANS MAY NOT BE INSTALLED UNTIL NEEDED, BASED ON SITE CONDITIONS. FOR EXAMPLE, SILT FENCE DITCH CHECKS WILL TYPICALLY NOT BE INSTALLED UNTIL THE DITCH HAS BEEN INSTALLED. INSTALLED LOCATIONS WILL BE DOCUMENTED BY FIELDBOOK ENTRIES AND AMENDED PPP SITE MAP.
- F. RUNOFF FROM THIS WORK WILL FLOW INTO PAINTER CREEK.

III. CONTROLS
- A. THE CONTRACTOR'S ECIP SPECIFIED IN ARTICLE 2602.03 OF THE STANDARD SPECIFICATIONS FOR ACCOMPLISHMENT OF STORM WATER CONTROLS SHOULD CLEARLY DESCRIBE THE INTENDED SEQUENCE OF MAJOR ACTIVITIES AND FOR EACH ACTIVITY DEFINE THE CONTROL MEASURE AND THE TIMING DURING THE CONSTRUCTION PROCESS THAT THE MEASURE WILL BE IMPLEMENTED.
- B. PRESERVE VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION.
- C. SECTIONS 2601 AND 2602 OF THE STANDARD SPECIFICATIONS DEFINE REQUIREMENTS TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES. ACTUAL QUANTITIES USED AND INSTALLED LOCATIONS MAY VARY FROM THE BASE PPP AND AMENDMENT OF THE PLAN WILL BE DOCUMENTED VIA FIELDBOOK ENTRIES, AMENDED PPP SITE MAP, OR BY CONTRACT MODIFICATION. ADDITIONAL EROSION AND SEDIMENT CONTROL ITEMS MAY BE REQUIRED AS DETERMINED BY THE INSPECTOR AND/OR CONTRACTOR DURING STORM WATER SITE INSPECTIONS. IF THE WORK INVOLVED IS NOT APPLICABLE TO ANY CONTRACT ITEMS, THE WORK WILL BE PAID FOR ACCORDING TO ARTICLE 1109.03 PARAGRAPH B OF THE STANDARD SPECIFICATIONS.
  1. EROSION AND SEDIMENT CONTROLS
     - a. STABILIZATION PRACTICES
       1) SITE PLANS WILL ENSURE THAT EXISTING VEGETATION OR NATURAL BUFFERS ARE PRESERVED WHERE ATTAINABLE AND DISTURBED PORTIONS OF THE SITE WILL BE STABILIZED.
       2) INITIALIZE STABILIZATION OF DISTURBED AREAS IMMEDIATELY AFTER CLEARING, GRADING, EXCAVATING, OR OTHER EARTH DISTURBING ACTIVITIES HAVE:
          a) PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR
          b) TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS.
       3) STAGED PERMANENT AND/OR TEMPORARY STABILIZING SEEDING AND MULCHING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE COMPLETED. INCOMPLETE AREAS SHALL BE STABILIZED ACCORDING TO PARAGRAPH III, C, 1, a, 2, b ABOVE.
       4) PERMANENT AND TEMPORARY STABILIZATION PRACTICES TO BE USED FOR THIS PROJECT ARE LOCATED IN THE ESTIMATED PROJECT QUANTITIES AND ESTIMATE REFERENCE INFORMATION LOCATED IN THE PLANS. TYPICAL DRAWINGS DETAILING CONSTRUCTION OF THE PRACTICES TO BE USED ON THIS PROJECT ARE REFERENCED IN THE STANDARD ROAD PLANS TABULATION.
       5) PRESERVATION OF EXISTING VEGETATION WITHIN RIGHT-OF-WAY OR EASEMENTS WILL ACT AS VEGETATIVE BUFFER STRIPS.
       6) PRESERVATION OF TOPSOIL: BID ITEMS TO BE USED FOR THIS PROJECT ARE LOCATED IN THE ESTIMATED PROJECT QUANTITIES AND ESTIMATE REFERENCE INFORMATION LOCATED IN THE PLANS. ADDITIONAL INFORMATION MAY BE FOUND IN TABULATIONS OF THE PLANS OR IS REFERENCED IN STANDARD SECTION 2105 OF THE STANDARD SPECIFICATIONS.
     - b. STRUCTURAL PRACTICES
       1) STRUCTURAL PRACTICES WILL BE IMPLEMENTED TO DIVERT FLOWS FROM EXPOSED SOILS AND DETAIN OR OTHERWISE LIMIT RUNOFF AND THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE. ADDITIONALLY, STRUCTURAL PRACTICES MAY INCLUDE: SILT BASINS THAT PROVIDE 3600 CUBIC FEET OF STORAGE PER ACRE DRAINED OR EQUIVALENT SEDIMENT CONTROLS, OUTLET STRUCTURES THAT WITHDRAW WATER FROM SURFACE WHEN DISCHARGING BASINS, AND CONTROLS TO DIRECT STORM WATER TO VEGETATED AREAS.
       2) STRUCTURAL PRACTICES TO BE USED FOR THIS PROJECT ARE LOCATED IN THE ESTIMATED PROJECT QUANTITIES AND ESTIMATE REFERENCE INFORMATION, AS WELL AS ALL OTHER ITEM SPECIFIC TABULATIONS. TYPICAL DRAWINGS DETAILING CONSTRUCTION OF THE DEVICES TO BE USED ON THIS PROJECT CAN BE FOUND IN THE PLANS OR ARE REFERENCED IN THE STANDARD ROAD PLANS TABULATION.
     - c. STORM WATER MANAGEMENT
       1) MEASURES SHALL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER DISCHARGES THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED. THIS MAY INCLUDE VELOCITY DISSIPATION DEVICES AT DISCHARGE LOCATIONS AND ALONG LENGTH OF OUTFALL CHANNEL AS NECESSARY TO PROVIDE A NON-EROSION VELOCITY FLOW FROM STRUCTURE TO WATER COURSE. IF INCLUDED WITH THIS PROJECT, THESE ITEMS ARE LOCATED IN THE ESTIMATED PROJECT QUANTITIES AND ESTIMATE REFERENCE INFORMATION, AS WELL AS ALL OTHER ITEM SPECIFIC TABULATIONS. TYPICAL DRAWINGS DETAILING CONSTRUCTION OF THE PRACTICES TO BE USED ON THIS PROJECT ARE REFERENCED IN THE STANDARD ROAD PLANS TABULATION. THE INSTALLATION OF THESE DEVICES MAY BE SUBJECT TO SECTION 404 OF THE CLEAN WATER ACT.
  2. OTHER CONTROLS
     - a. CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTES SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENTAL LAWS, RULES AND REGULATIONS, THE MORE RESTRICTIVE APPLICABLE LAWS, RULES OR REGULATIONS SHALL APPLY.
       1) VEHICLE ENTRANCES AND EXITS - CONSTRUCT AND MAINTAIN ENTRANCES AND EXITS TO PREVENT TRACKING OF SEDIMENTS ONTO ROADWAYS.
       2) MATERIAL DELIVERY, STORAGE AND USE - IMPLEMENT PRACTICES TO PREVENT DISCHARGE OF CONSTRUCTION MATERIALS DURING DELIVERY, STORAGE, AND USE.
       3) STOCKPILE MANAGEMENT - INSTALL CONTROLS TO REDUCE OR ELIMINATE POLLUTION OF STORM WATER FROM STOCKPILES OF SOIL AND PAVING.
       4) WASTE DISPOSAL - DO NOT DISCHARGE ANY MATERIALS, INCLUDING BUILDING MATERIALS, INTO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
       5) SPILL PREVENTION AND CONTROL - IMPLEMENT CHEMICAL SPILL AND LEAK PREVENTION AND RESPONSE PROCEDURES TO CONTAIN AND CLEAN-UP SPILLS AND PREVENT MATERIAL DISCHARGES TO THE STORM DRAIN SYSTEM AND WATERS OF THE STATE.
       6) CONCRETE RESIDUALS AND WASHOUT WASTES - WASTE SHALL NOT BE DISCHARGED TO A SURFACE WATER AND IS NOT ALLOWED TO ADVERSELY AFFECT A WATER OF THE STATE. DESIGNATE TEMPORARY CONCRETE WASHOUT FACILITIES FOR RINSING OUT CONCRETE TRUCKS. PROVIDE DIRECTIONS TO TRUCK DRIVERS WHERE DESIGNATED WASHOUT FACILITIES ARE LOCATED. DESIGNATED WASHOUT AREAS SHOULD BE LOCATED AT LEAST 50 FEET AWAY FROM STORM DRAINS, STREAMS OR OTHER WATER BODIES. CARE SHOULD BE TAKEN TO ENSURE THESE FACILITIES DO NOT OVERFLOW DURING STORM EVENTS.
       7) CONCRETE GROOVING/GRINDING SLURRY – DO NOT DISCHARGE SLURRY TO A WATERBODY OR STORM DRAIN. SLURRY MAY BE APPLIED ON FORESLOPES OR REMOVED FROM THE PROJECT.
       8) VEHICLE AND EQUIPMENT STORAGE AND MAINTENANCE AREAS - PERFORM ON SITE FUELING AND MAINTENANCE IN ACCORDANCE WITH ALL ENVIRONMENT LAWS SUCH AS PROPER STORAGE OF ONSITE FUELS AND PROPER DISPOSAL OF USED ENGINE OIL OR OTHER FLUIDS ON SITE. EMPLOY WASHING PRACTICES THAT PREVENT CONTAMINATION OF SURFACE AND GROUND WATER FROM WASH WATER. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.
       9) LITTER MANAGEMENT - ENSURE EMPLOYEES PROPERLY DISPOSE OF LITTER. MINIMIZE EXPOSURE OF TRASH IF EXPOSURE TO PRECIPITATION OR STORM WATER WOULD RESULT IN A DISCHARGE OF POLLUTANTS.
       10) DEWATERING – PROPERLY TREAT WATER TO REMOVE SUSPENDED SEDIMENT BEFORE IT RE-ENTERS A WATERBODY OR DISCHARGES OFF-SITE. MEASURES ARE ALSO TO BE TAKEN TO PREVENT SCOUR EROSION AT DEWATERING DISCHARGE POINT.
  3. APPROVED STATE OR LOCAL PLANS
     DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

IV. MAINTENANCE PROCEDURES
THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. THIS SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.

V. INSPECTION REQUIREMENTS
- A. INSPECTIONS SHALL BE MADE JOINTLY BY THE CONTRACTOR AND THE CONTRACTING AUTHORITY AT LEAST ONCE EVERY SEVEN CALENDAR DAYS. STORM WATER SITE INSPECTIONS WILL INCLUDE:
  1. DATE OF THE INSPECTION.
  2. SUMMARY OF THE SCOPE OF THE INSPECTION.
  3. NAME AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION.
  4. REVIEW OF EROSION AND SEDIMENT CONTROL MEASURES WITHIN DISTURBED AREAS FOR THE EFFECTIVENESS IN PREVENTING IMPACTS TO RECEIVING WATERS.
  5. MAJOR OBSERVATIONS RELATED TO THE IMPLEMENTATION OF THE PPP.
  6. IDENTIFICATION OF CORRECTIVE ACTIONS REQUIRED TO MAINTAIN OR MODIFY EROSION AND SEDIMENT CONTROL MEASURES.
- B. INCLUDE STORM WATER SITE INSPECTION REPORTS IN THE AMENDED PPP. INCORPORATE ANY ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES DETERMINED AS A RESULT OF THE INSPECTION. IMMEDIATELY BEGIN CORRECTIVE ACTIONS ON ALL DEFICIENCIES FOUND WITHIN 3 CALENDAR DAYS OF THE INSPECTION AND COMPLETE WITHIN 7 CALENDAR DAYS FOLLOWING THE INSPECTION. IF IT IS DETERMINED THAT MAKING THE CORRECTIONS LESS THAN 72 HOURS AFTER THE INSPECTION IS IMPRACTICABLE, IT SHOULD BE DOCUMENTED WHY IT IS IMPRACTICABLE AND INDICATE AN ESTIMATED DATE BY WHICH THE CORRECTIONS WILL BE MADE.

VI. NON-STORM WATER DISCHARGES
THIS INCLUDES SUBSURFACE DRAINS (I.E. LONGITUDINAL AND STANDARD SUBDRAINS) AND SLOPE DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF HEADWALLS OR BLOCKS, CLASS A STONE, EROSION STONE OR OTHER APPROPRIATE MATERIALS. THIS ALSO INCLUDES UNCONTAMINATED GROUNDWATER FROM DEWATERING OPERATIONS, WHICH WILL BE CONTROLLED AS DISCUSSED IN SECTION III OF THE PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION
SILTS, SEDIMENT, AND OTHER FORMS OF POLLUTION MAY BE TRANSPORTED ONTO HIGHWAY RIGHT-OF-WAY (ROW) AS A RESULT OF A STORM EVENT. POTENTIAL SOURCES OF POLLUTION LOCATED OUTSIDE HIGHWAY ROW ARE BEYOND THE CONTROL OF THIS PPP. POLLUTION WITHIN HIGHWAY ROW WILL BE CONVEYED AND CONTROLLED PER THIS PPP.

VIII. DEFINITIONS
- A. BASE PPP - INITIAL POLLUTION PREVENTION PLAN.
- B. AMENDED PPP – BASE PPP AMENDED DURING CONSTRUCTION. MAY INCLUDE PLAN REVISIONS OR CONTRACT MODIFICATIONS FOR NEW ITEMS, STORM WATER SITE INSPECTION REPORTS, FIELDBOOK ENTRIES MADE BY THE INSPECTOR, AMENDED PPP SITE MAP BY THE CONTRACTOR, ECIP, NOI, CO-PERMITTEE CERTIFICATIONS, AND SUBCONTRACTOR REQUEST FORMS. ITEMS AMENDING THE PPP ARE STORED ELECTRONICALLY AND ARE READILY AVAILABLE UPON REQUEST.
- C. FIELDBOOK ENTRIES – THIS CONTAINS THE INSPECTOR'S DAILY DIARY AND BID ITEM POSTINGS.
- D. CONTROLS - METHODS, PRACTICES, OR MEASURES TO MINIMIZE OR PREVENT EROSION, CONTROL SEDIMENTATION, CONTROL STORM WATER, OR MINIMIZE CONTAMINANTS FROM OTHER TYPES OF WASTE OR MATERIALS. ALSO CALLED BEST MANAGEMENT PRACTICES (BMPS).
- E. SIGNATURE AUTHORITY - REPRESENTATIVE AUTHORIZED TO SIGN VARIOUS STORM WATER DOCUMENTS.

CERTIFICATION STATEMENT

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

J. Hill
SIGNATURE

Tim Hill
PRINTED OR TYPED NAME

POLLUTION PREVENTION PLAN

WARREN COUNTY, IOWA

BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32

BORING LOG NO. 1 STATION 17+16, 6'LT | CBA Job No.: 991-003 | Project No.: 261282

Project: 20th Ave Bridge over Painter Creek
Section 20, Jackson Township
Warren County, Iowa

Client: Calhoun-Burns & Associates
6775 Vista Drive
West Des Moines, IA 50266

Surface Elevation: 943.3'
Datum: CL of Exist S Abut Elev. = 938.72'

Date Drilled: 6/22/2026
Drilling Depth, ft.: 51

Drilling Method: HSA
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level Depth	Elevation ft.
	0							Crushed Rock (12"±)				1
940		1	ST		17.6	106	4000**	Brown and brown-gray sandy lean clay, trace gravel, moist FILL		CL		942.3
	10	2	ST		15.5	112	4970					
930		3	ST		17.5	114	5830					18
	20	4	ST		21.1	111	4810	Dark gray sandy lean clay, trace gravel, moist GLACIAL TILL (Very Firm Sandy Glacial Clay)		CL		925.3
920		5	ST		15.6	116	4940					
	30	6	ST		15.1	117	5970					32
910		7	SSA	200	11.3			Light gray limestone, damp Gray shale, moist after 33.8' BEDROCK				911.3
	40	8	SSA	120	14.3							
900		9	SSA	200	11.9							
		10	SSA	50/2"	8.2							
	50	11	SSA	135	9.3							51
890								End of Boring **Estimated using calibrated hand penetrometer				892.3
	60											
880												

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation
Time: at completion ____ hrs. ____ days
Depth to water: ____ ft. ____ ft. ____ ft.

ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical - Environmental - Construction Q.C.

BORING LOG NO. 2 STATION 18+78, 5.5'RT | CBA Job No.: 991-003 | Project No.: 261282

Project: 20th Ave Bridge over Painter Creek
Section 20, Jackson Township
Warren County, Iowa

Client: Calhoun-Burns & Associates
6775 Vista Drive
West Des Moines, IA 50266

Surface Elevation: 937.7'
Datum: CL of Exist S Abut Elev. = 938.72'

Date Drilled: 6/22/2026
Drilling Depth, ft.: 54.9

Drilling Method: HSA
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level Depth	Elevation ft.
	0							Crushed Rock (12"±)				1
930		1	ST		11.9	-	4000**	Brown and brown-gray sandy lean clay, trace gravel, moist Mixed with dark brown after 8' FILL		CL		936.7
	10	2	ST		16.2	-	4000**					
		3	ST		25.1	91	1910					19.5
920	20	4	ST		19.5	98	2180	Moisture seepage near 19.5' Very dark gray lean clay, moist to very moist COHESIVE ALLUVIUM (Stiff Silty Clay)		CL		918.2
		5	ST		24.8	92	4000**					27.5
910	30	6	SSA	12	14.7			Dark gray sandy lean clay, trace gravel, moist GLACIAL TILL (Firm - Very Firm Glacial Clay)		CL		910.2
		7	SSA	11	16.2							38
900	40	8	SSA	135	9.6			Gray shale, moist BEDROCK Maroon after 48'				899.7
		9	SSA	170	16.1							
890	50	10	SSA	110	13.4							
		11	SSA	150	16.8			Gray sandstone after 53.5'				54.9
880	60							End of Boring **Estimated using calibrated hand penetrometer				882.8
870												

*The stratification lines represent the approximate boundary lines between material types: in-situ, the transition may be gradual.

Water Level Observation
Time: at completion ____ hrs. ____ days
Depth to water: 19.5 ft. ____ ft. ____ ft.

ALLENDER BUTZKE ENGINEERS, INC.
Geotechnical - Environmental - Construction Q.C.

SOUNDING DATA

(SEE "SITUATION PLAN", SHEET 4, FOR BORING LOCATIONS)

LICENSED PROFESSIONAL ENGINEER
DAVID LOGEMANN
12394
IOWA

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.

DATE: 8/7/26

DAVID LOGEMANN, P.E.

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2027.

PAGES OR SHEETS COVERED BY THIS SEAL:
7 OF 27

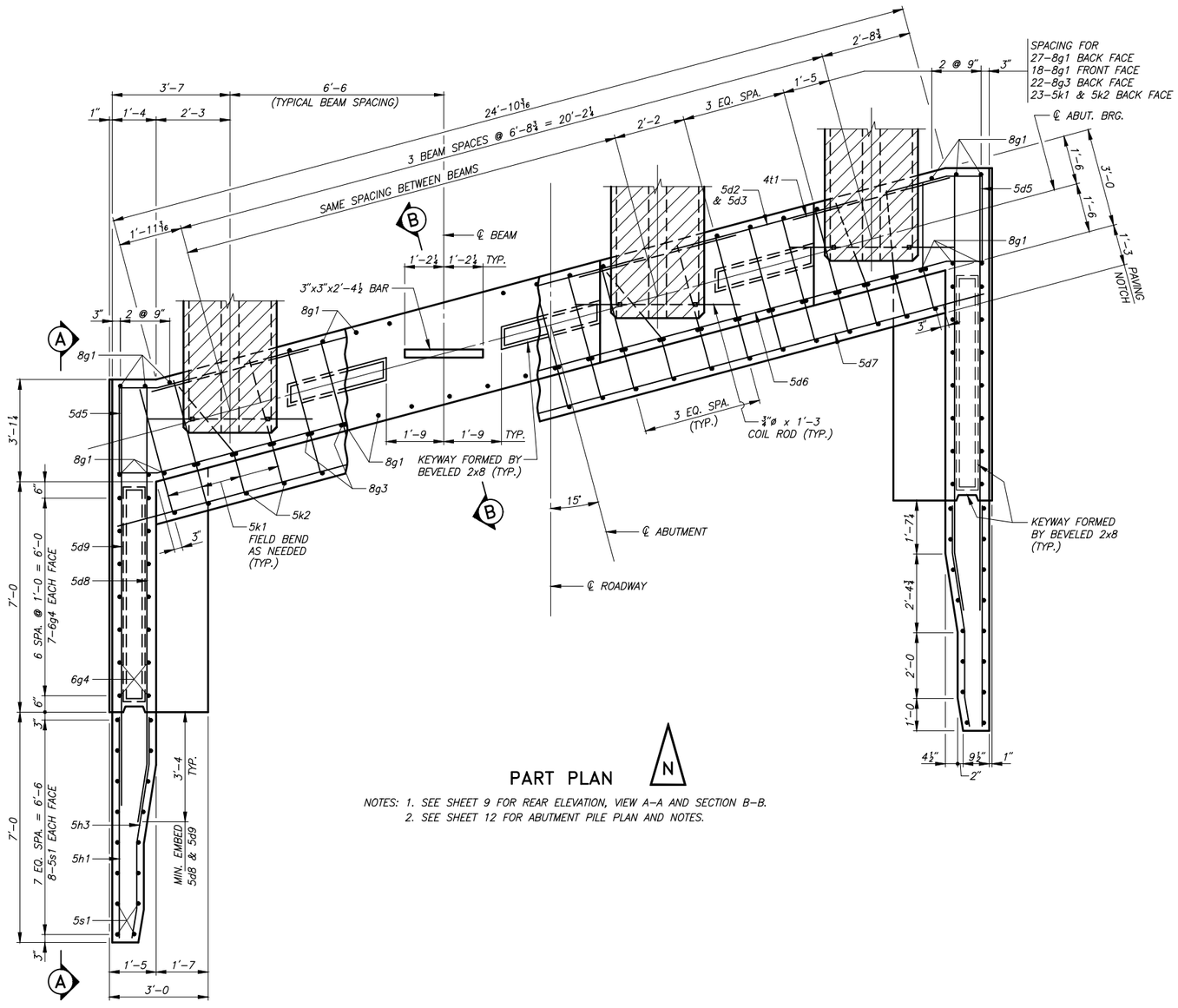
145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — 145'–0 SINGLE SPAN

SOUNDING DATA

STATION 17+90.00 — 15° SKEW, RT. AHEAD

WARREN COUNTY, — IOWA



PART PLAN

NOTES: 1. SEE SHEET 9 FOR REAR ELEVATION, VIEW A–A AND SECTION B–B.
2. SEE SHEET 12 FOR ABUTMENT PILE PLAN AND NOTES.

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

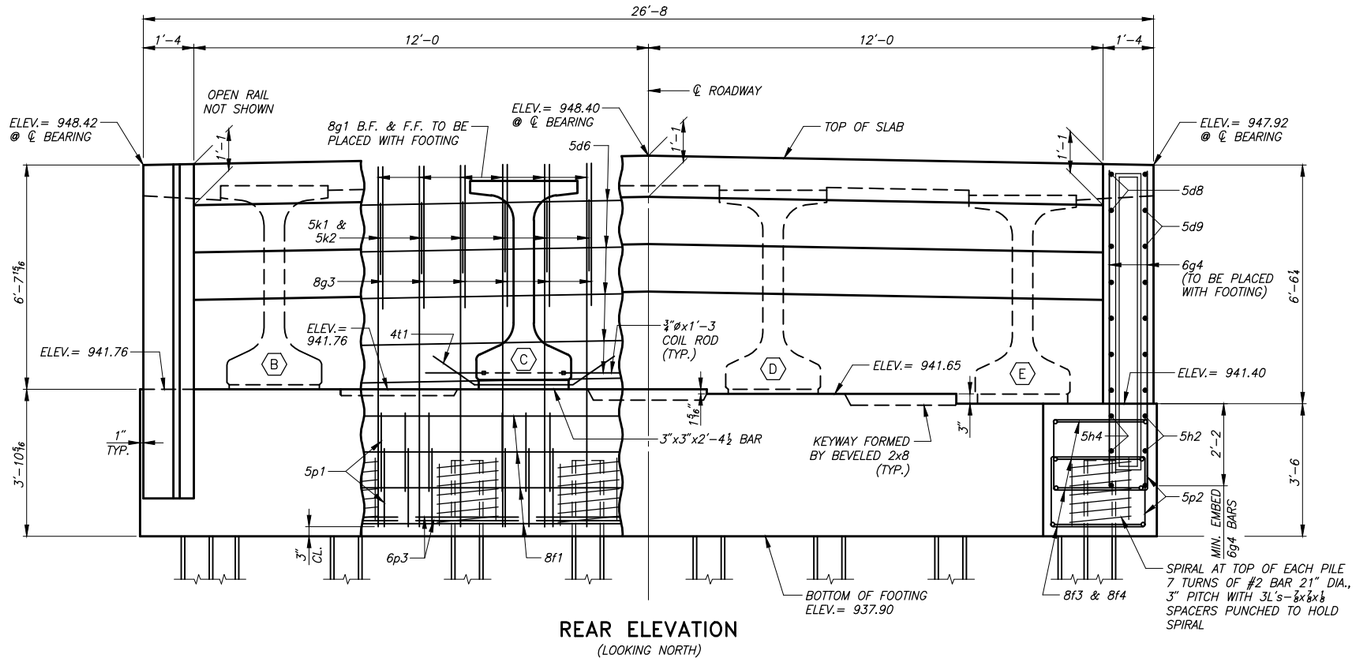
INTEGRAL ABUTMENTS — 145'–0 SINGLE SPAN

SOUTH ABUTMENT DETAILS

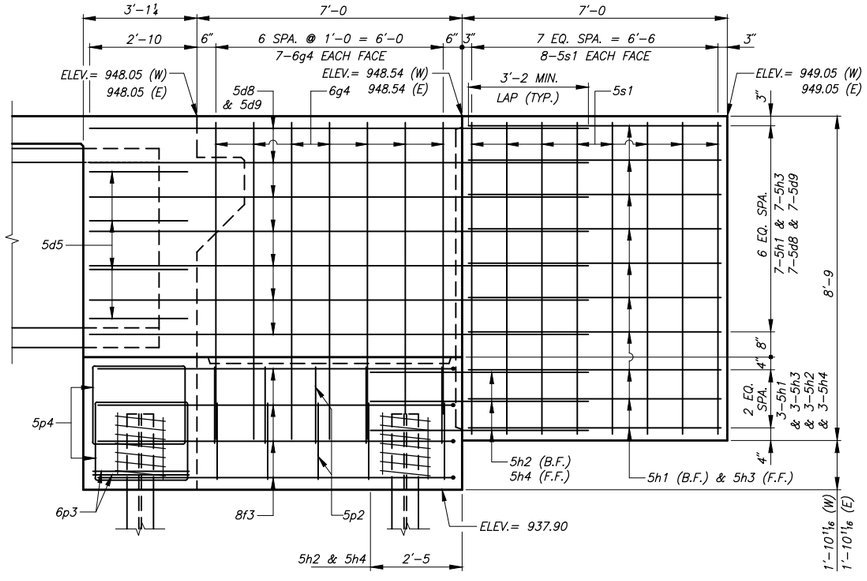
STATION 17+90.00 — 15° SKEW, RT. AHEAD

WARREN COUNTY, IOWA

BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32

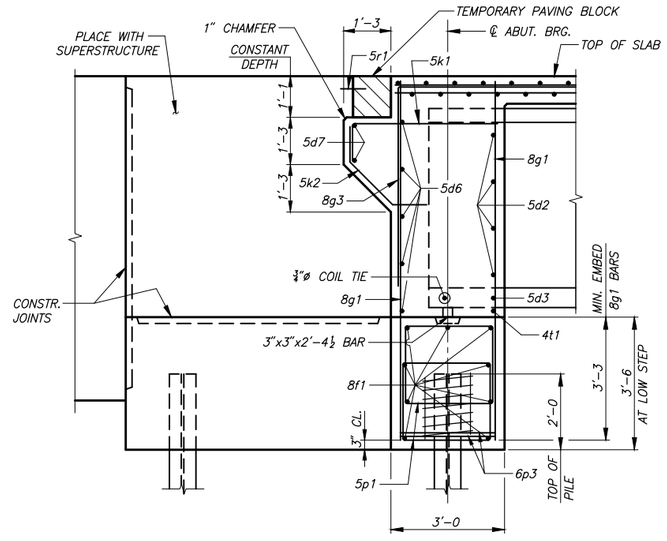


REAR ELEVATION
(LOOKING NORTH)



VIEW A-A

NOTES: 1. ELEVATIONS AND VERTICAL DIMENSIONS SHOWN ARE AT OUTSIDE FACE.
2. SEE OPEN RAIL DETAILS FOR ADDITIONAL WING AND WING EXTENSION REINFORCING.



SECTION B-B

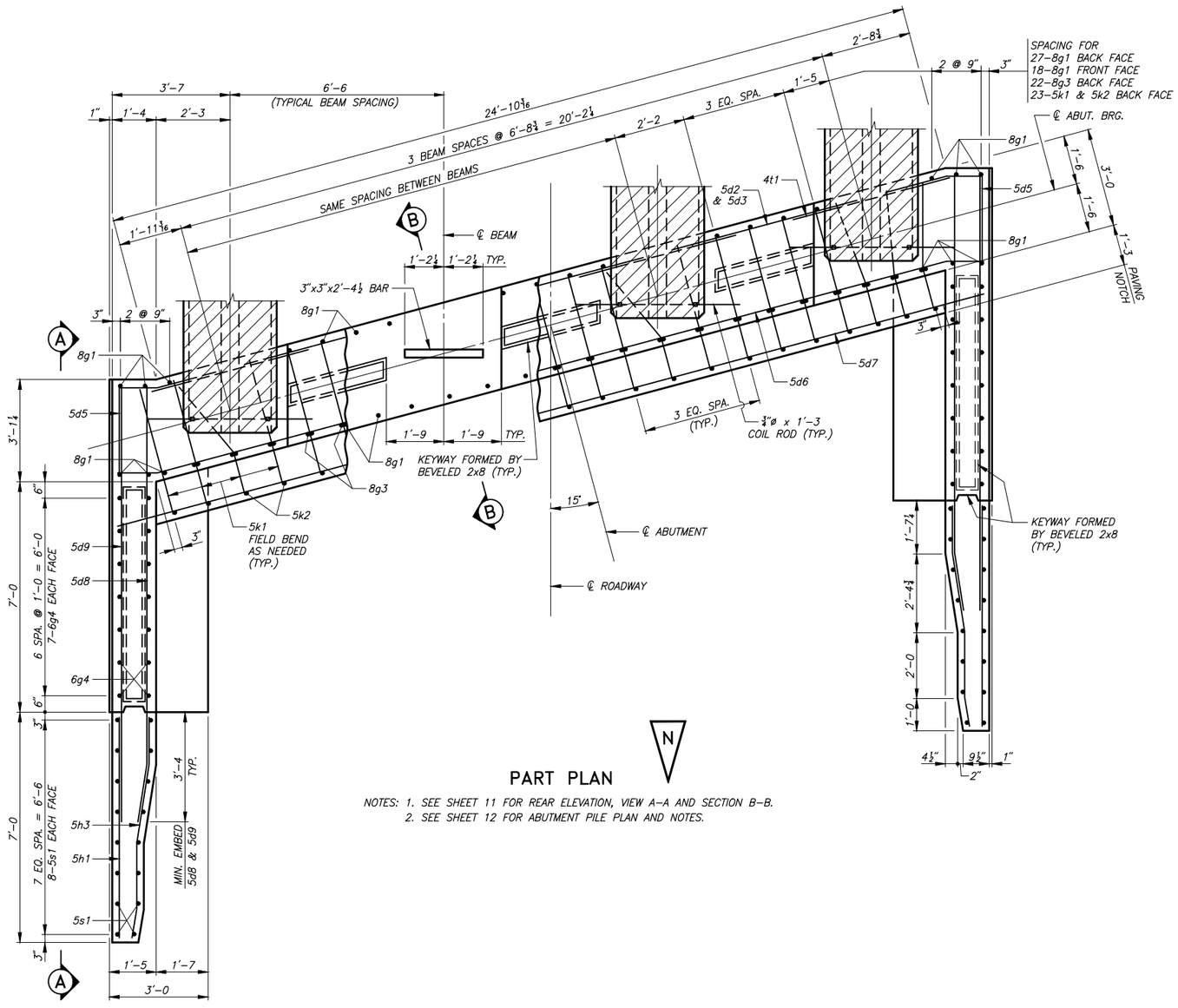
145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **145'-0 SINGLE SPAN**

SOUTH ABUTMENT DETAILS

STATION 17+90.00 **15° SKEW, RT. AHEAD**

WARREN COUNTY, **IOWA**



PART PLAN

NOTES: 1. SEE SHEET 11 FOR REAR ELEVATION, VIEW A–A AND SECTION B–B.
2. SEE SHEET 12 FOR ABUTMENT PILE PLAN AND NOTES.

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

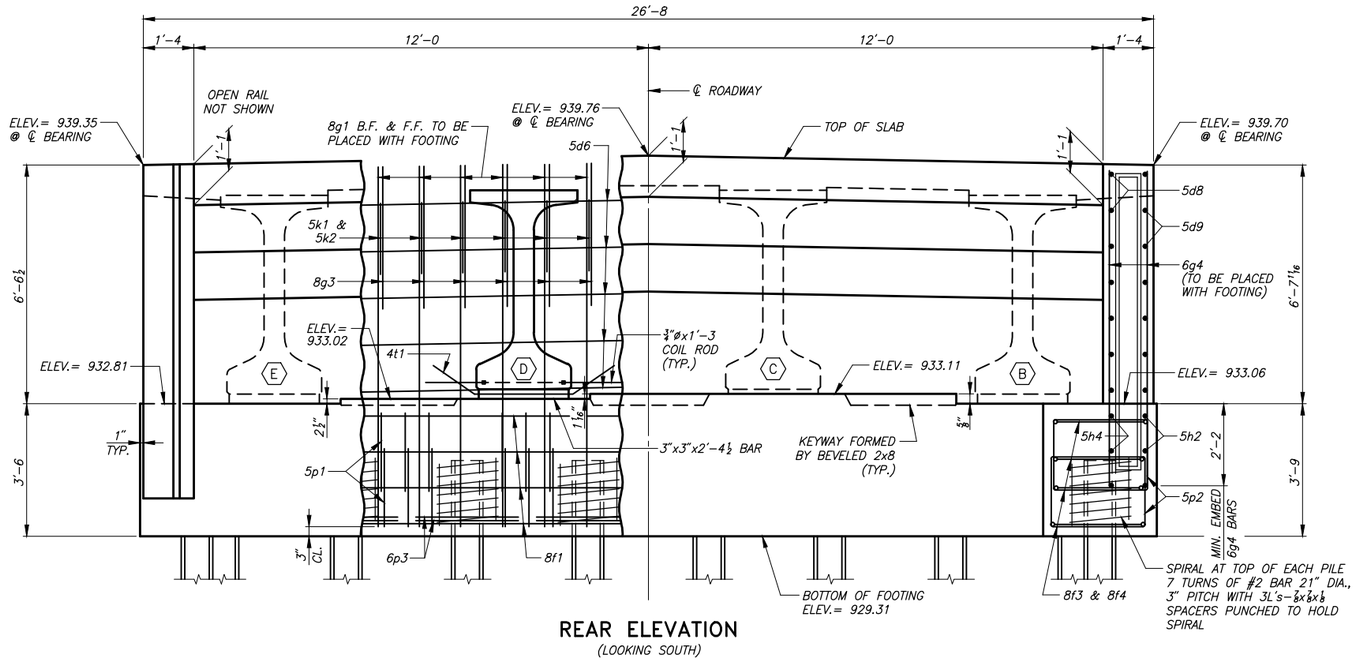
INTEGRAL ABUTMENTS — 145'–0 SINGLE SPAN

NORTH ABUTMENT DETAILS

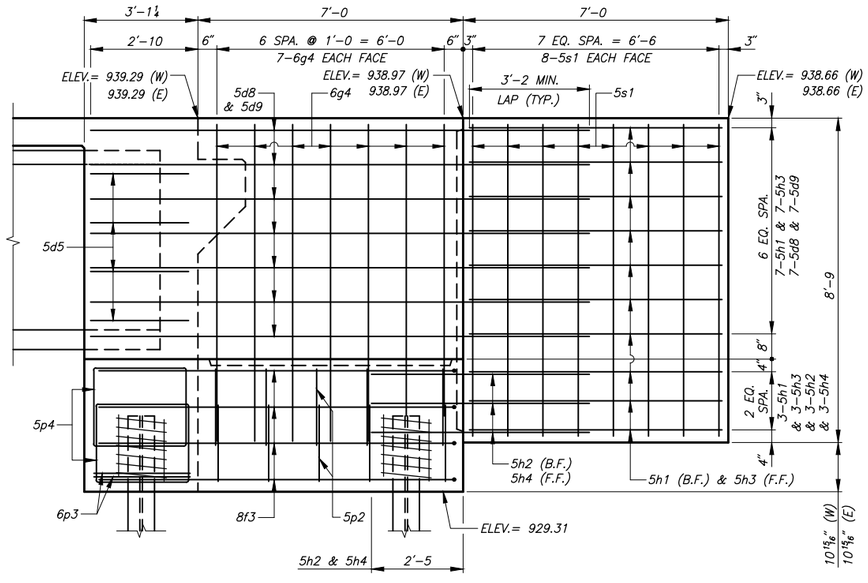
STATION 17+90.00 — 15° SKEW, RT. AHEAD

WARREN COUNTY, IOWA

BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32

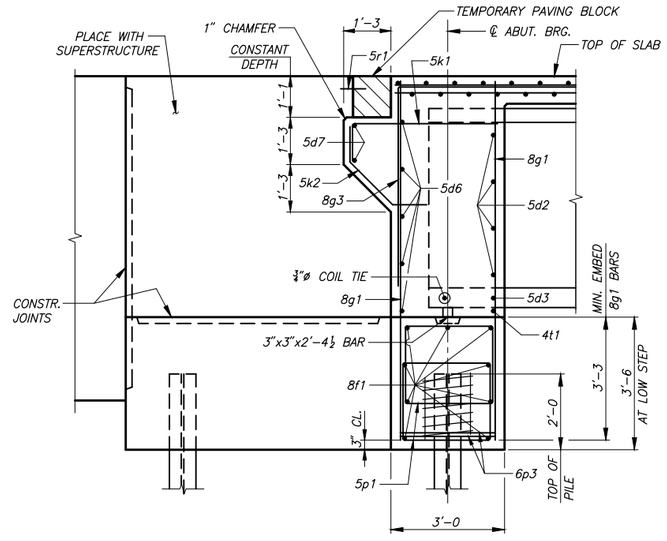


REAR ELEVATION
(LOOKING SOUTH)



VIEW A-A

NOTES: 1. ELEVATIONS AND VERTICAL DIMENSIONS SHOWN ARE AT OUTSIDE FACE.
2. SEE OPEN RAIL DETAILS FOR ADDITIONAL WING AND WING EXTENSION REINFORCING.



SECTION B-B

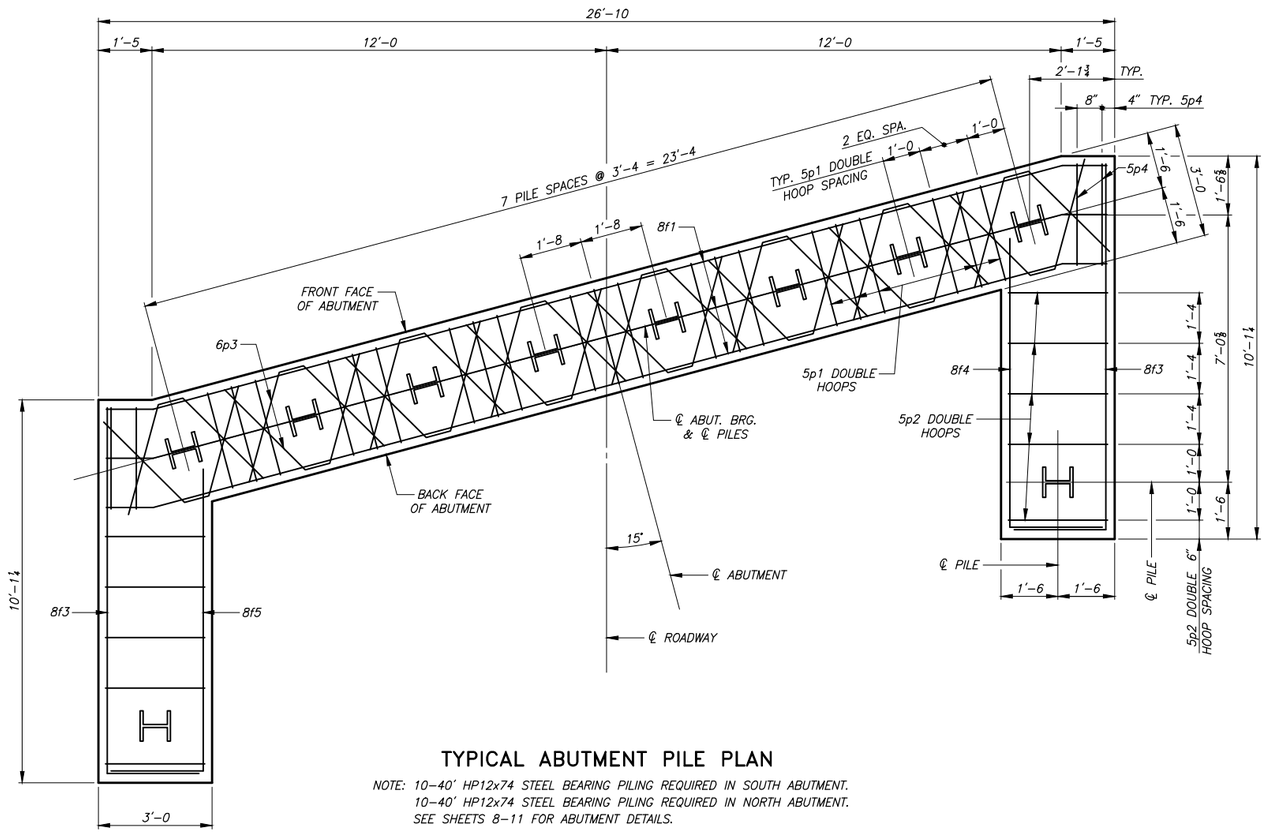
145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **145'-0 SINGLE SPAN**

NORTH ABUTMENT DETAILS

STATION 17+90.00 **15° SKEW, RT. AHEAD**

WARREN COUNTY, **IOWA**



TYPICAL ABUTMENT PILE PLAN

NOTE: 10–40' HP12x74 STEEL BEARING PILING REQUIRED IN SOUTH ABUTMENT.
10–40' HP12x74 STEEL BEARING PILING REQUIRED IN NORTH ABUTMENT.
SEE SHEETS 8–11 FOR ABUTMENT DETAILS.

ABUTMENT NOTES

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

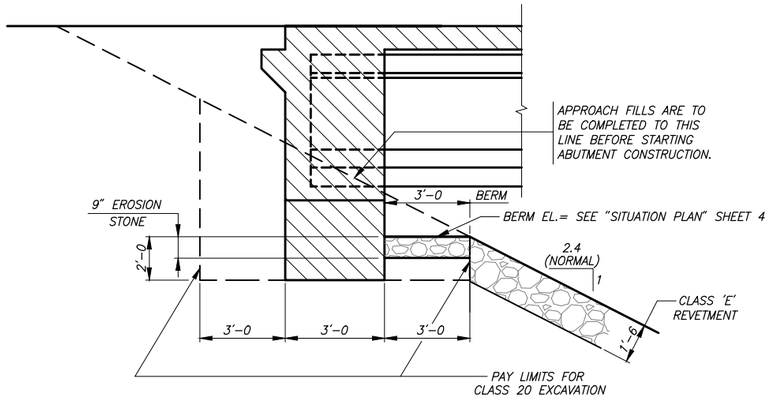
ALL REINFORCING STEEL TO BE SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS POURED.

ALL REINFORCING STEEL IS TO BE GRADE 60.

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2 x 8'S.

SEE PILE NOTES ON SHEET 5 FOR ADDITIONAL INFORMATION.

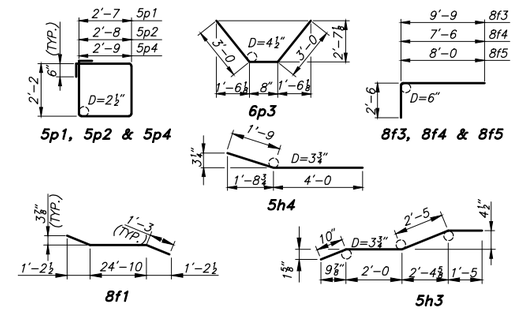


ABUTMENT EXCAVATION DETAIL

REINFORCING BAR LIST – ONE ABUTMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8f1	ABUT. FOOTING, LONGITUDINAL		9	27'–4	657
8f3	ABUT. EXTENSION, LONGITUDINAL		8	12'–3	262
8f4	ABUT. EXTENSION, LONGITUDINAL		4	10'–0	107
8f5	ABUT. EXTENSION, LONGITUDINAL		4	10'–6	112
8g1	ABUT. VERTICAL, B.F. & F.F.		45	9'–7	1,151
6g4	ABUT. DIAPHRAGM, WING EXT., VERT.		28	8'–6	357
5h1	ABUT. WING, HORIZONTAL, B.F.		20	6'–8	139
5h2	ABUT. TO WING, ANCHOR, B.F.		6	5'–9	36
5h3	ABUT. WING, HORIZONTAL, F.F.		20	6'–8	139
5h4	ABUT. TO WING, ANCHOR, F.F.		6	5'–9	36
5p1	ABUT. HOOPS		42	10'–6	460
5p2	ABUT. EXTENSION, HOOPS		20	10'–8	223
6p3	ABUT. BOTTOM, AT PILES		16	6'–8	160
5p4	ABUT. HOOPS, ENDS		8	10'–10	90
5s1	WING, VERTICAL		32	8'–5	281
	PILE SPIRAL – #2 BAR		10	38'–6	64
	SPIRAL SPACERS – L⅜x⅜x⅛ x 0.70		30	1'–10	38
				TOTAL (LBS.)	4,312

BENT BAR DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

CONCRETE PLACEMENT QUANT.– TWO ABUTS.

LOCATION	UNIT	QUANTITY
FOOTING AND STEPS (17.3 @ S., 17.1 @ N.)	CU.YDS.	34.4
WINGS (4 @ 2.49 C.Y.)	CU.YDS.	10.0
TOTAL	CU.YDS.	44.4

ESTIMATED QUANTITIES – TWO ABUTMENTS

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU.YDS.	44.4
REINFORCING STEEL	LBS.	8,624
PILES, STEEL, HP 12x74; 20 @ 40'	L.F.	800
PREBORED HOLES (20 @ 10')	L.F.	200
EXCAVATION, CLASS 20 (2 @ 109 C.Y.)	CU.YDS.	218

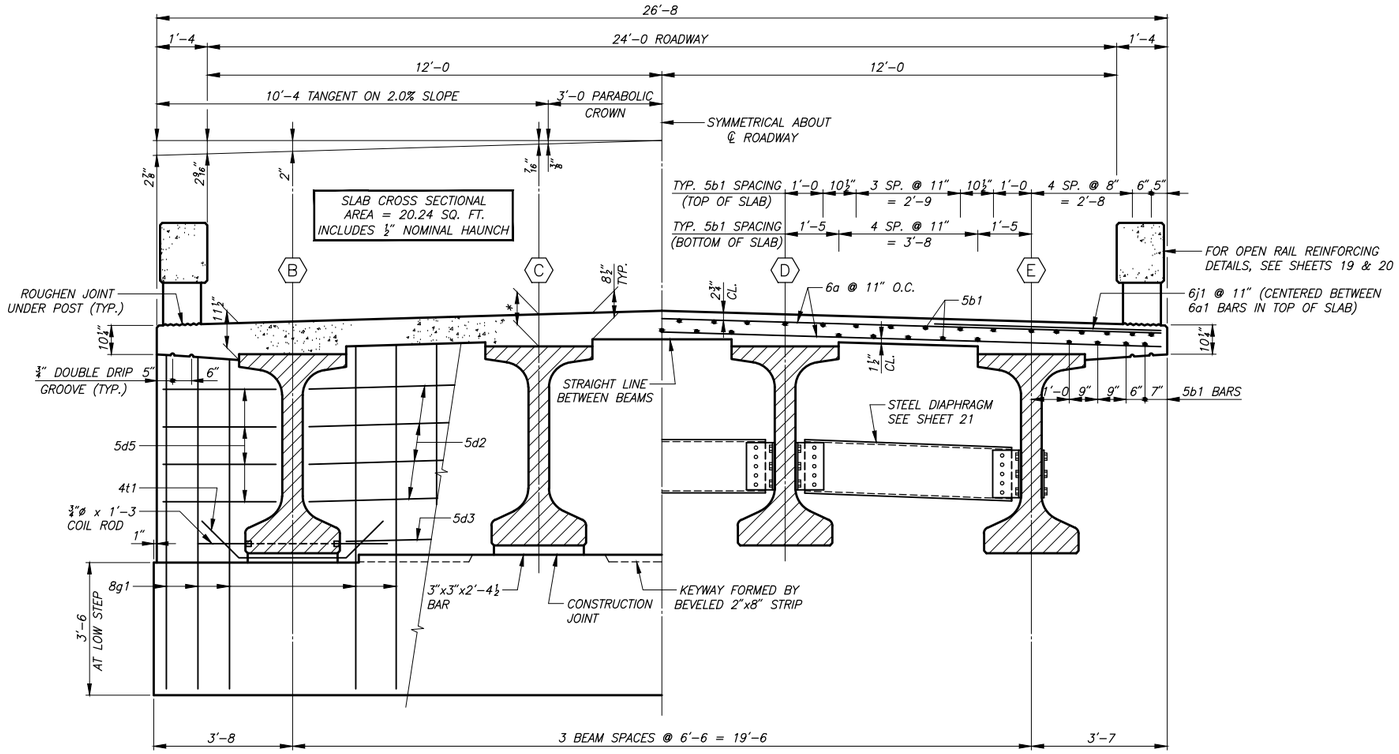
145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — 145'–0 SINGLE SPAN

ABUTMENT DETAILS

STATION 17+90.00 — 15° SKEW, RT. AHEAD

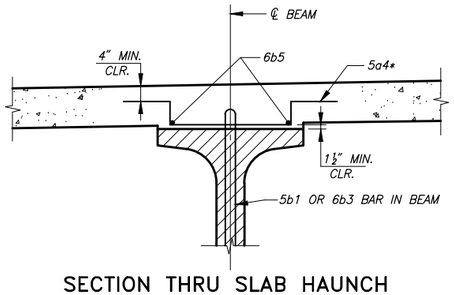
WARREN COUNTY, — IOWA



HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR MID SPAN

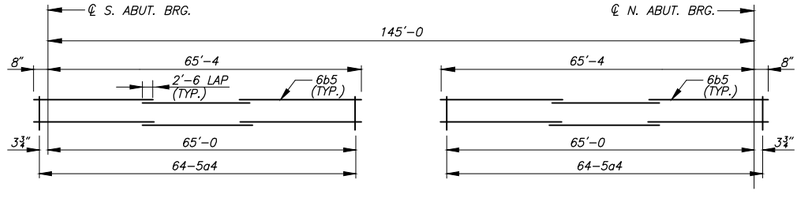
* FOR SLAB THICKNESS OVER BEAMS SEE SHEET 15



SECTION THRU SLAB HAUNCH

NOTE: TYPICAL EACH BEAM LINE WHERE HAUNCH EXCEEDS 2½". SEE "HAUNCH REINFORCING LAYOUT" FOR PLACEMENT LOCATIONS.

* STIRRUPS MAY BE TILTED AS NEEDED TO PROVIDE NECESSARY CLEARANCES.



HAUNCH REINFORCING LAYOUT

(TYPICAL EACH BEAM)

NOTE: 1-5a4 BAR IS TO BE PLACED ADJACENT TO 5b1 OR 6b3 BEAM TIE BARS THAT EXTEND FROM THE BEAMS INTO SLAB IN THE AREA SHOWN.

SUPERSTRUCTURE NOTES

THIS BRIDGE SUPERSTRUCTURE IS DESIGNED FOR HL93 LOADING PLUS AN ALLOWANCE OF 20 POUNDS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

THE SLAB AS SHOWN INCLUDES A ¾" INTEGRAL WEARING SURFACE.

COST OF TAR PAPER MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)."

ALL EXPOSED CORNERS OF 90 DEGREES OR SHARPER ARE TO BE FORMED WITH A ¾" DRESSED AND BEVELED STRIP.

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 SECURELY WIRED IN PLACE AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS POURED.

THE TOP MAT OF REINFORCING STEEL IS TO BE PARALLEL TO AND 2 ¾" CLEAR BELOW TOP OF SLAB. THE BOTTOM MAT OF REINFORCING STEEL IS TO BE PARALLEL TO AND 1 ½" CLEAR ABOVE BOTTOM OF SLAB. TOP AND BOTTOM REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0 APART. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS, BAR HIGH CHAIRS, AND SLAB BOLSTERS.

ALL REINFORCING STEEL IS TO BE GRADE 60, EXCEPT FOR PRESTRESSED BEAMS.

THE ABUTMENT DIAPHRAGMS ARE TO BE PLACED MONOLITHICALLY WITH THE BRIDGE SLAB.

ALL BEAMS ARE TO BE SET VERTICAL.

FORMS FOR THE SLAB AND RAIL ARE TO BE SUPPORTED BY THE PRESTRESSED CONCRETE BEAMS.

ABUTMENT BEARING BARS, COIL TIES AND COIL RODS ARE INCLUDED IN THE PRICE BID FOR "PRETENSIONED PRESTRESSED CONCRETE BEAMS"

SEE SHEET 15 FOR HAUNCH DIAGRAM.

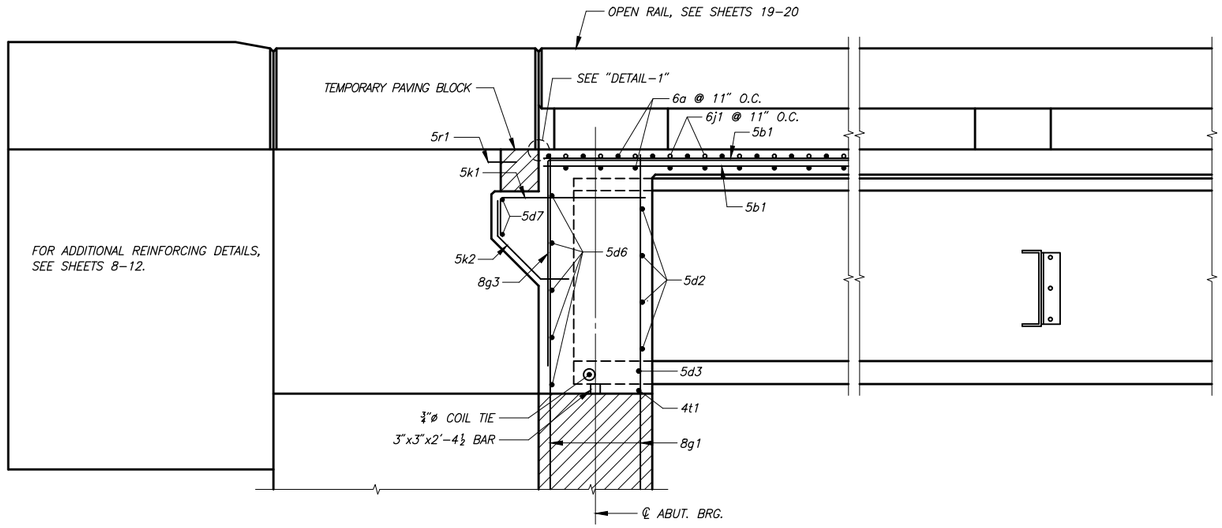
145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **145'-0 SINGLE SPAN**

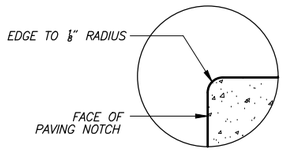
SUPERSTRUCTURE DETAILS

STATION 17+90.00 **15° SKEW, RT. AHEAD**

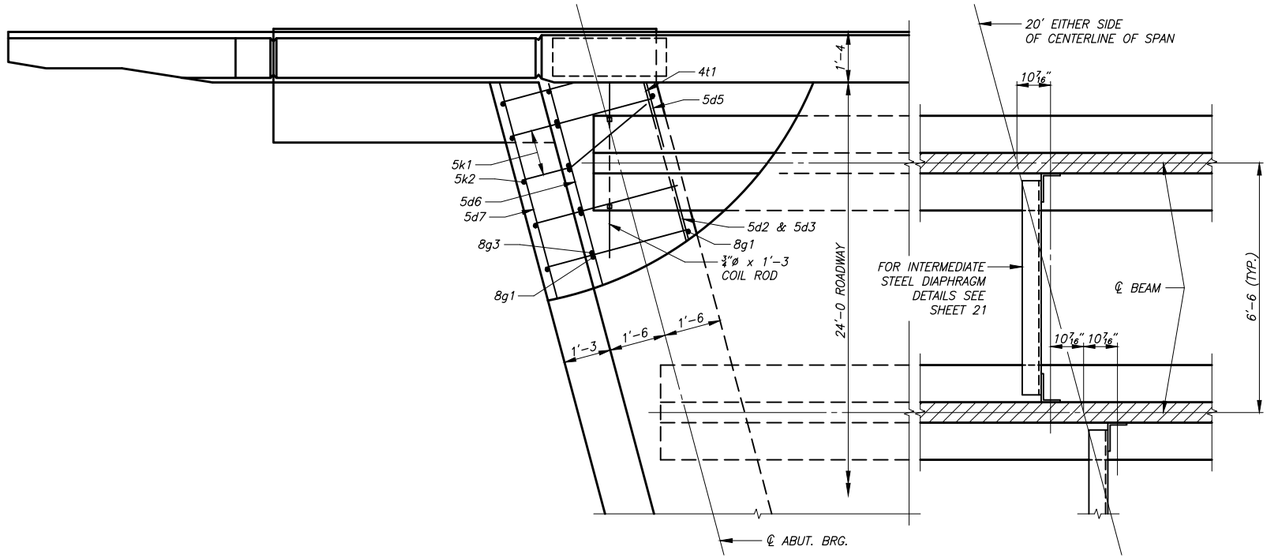
WARREN COUNTY, **IOWA**



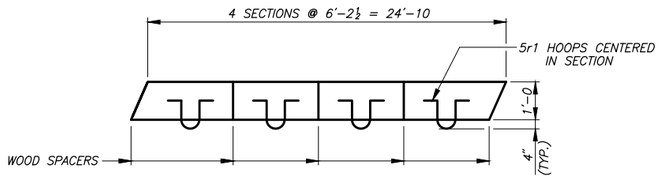
LONGITUDINAL SECTION NEAR RAIL



DETAIL–1



PART PLAN



PLAN OF TEMPORARY PAVING BLOCK

NOTE: LINE PAVING NOTCH WITH TAR PAPER BEFORE PLACING TEMPORARY PAVING BLOCK.

REINFORCING BAR LIST – SUPERSTRUCTURE

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANSVERSE, TOP & BOTTOM	——	309	26'–4	12,222
6a2	SLAB, TRANSVERSE, TOP ENDS	——	12	VARIES	243
6a3	SLAB, TRANSVERSE, BOTTOM ENDS	——	14	VARIES	283
5a4	SLAB, HAUNCH, TRANSVERSE	⌐¬	512	6'–10	3,649
5b1	SLAB, LONGITUDINAL, TOP & BOTTOM	——	220	38'–6	8,834
6b5	SLAB, LONGITUDINAL, HAUNCH	——	48	23'–8	1,707
5d2	ABUT. DIAPHRAGMS, LONGIT.	——	24	5'–9	144
5d3	ABUT. DIAPHRAGMS, LONGIT.	——	6	3'–9	23
5d5	ABUTMENT DIAPHRAGM, ENDS	⌐	16	5'–8	95
5d6	ABUT. DIAPH., LONGIT., B.F.	⌐	10	27'–2	283
5d7	PAVING NOTCH, LONGIT.	——	4	27'–3	114
5d8	ABUT. DIAPH. WING EXT., LONGIT. F.F.	——	28	13'–3	387
5d9	ABUT. DIAPH. WING EXT., LONGIT. B.F.	——	28	13'–3	387
8g3	ABUTMENT, VERTICAL, BACK FACE	⌐	44	15'–9	1,850
6j1	TOP OF SLAB, TRANSV. AT RAIL	——	320	6'–3	3,004
5k1	PAVING, NOTCH TRANSVERSE	⌐	46	4'–9	228
5k2	PAVING, NOTCH TRANSVERSE	⌐	46	3'–5	164
5r1	PAVING BLOCK LIFTING HOOP	⌐¬	8	2'–10	24
4t1	ABUT. DIAPH., HORIZ., FRONT FACE	⌐	8	5'–8	30
	OPEN RAIL, SEE SHEET 20				10,593
				TOTAL (LBS.)	44,264

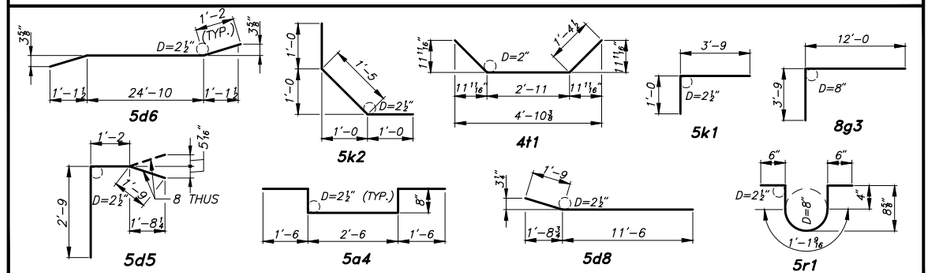
CONCRETE PLACEMENT QUANT. – SUPERSTR.

LOCATION	UNIT	QUANTITY
SLAB & ABUTMENT DIAPHRAGMS	CU.YDS.	156.5
WING EXTENSIONS (4 @ 2.28)	CU.YDS.	9.1
PAVING BLOCKS (2 @ 1.00)	CU.YDS.	2.0
TOTAL	CU.YDS.	167.6

ESTIMATED QUANTITIES – SUPERSTRUCTURE

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU.YDS.	167.6
REINFORCING STEEL	LBS.	44,264
BEAMS, PRETENSIONED PRESTRESSED CONC., BTE145	EACH	4
STRUCTURAL STEEL, SEE SHEET 21	LBS.	2,728

BENT BAR DETAILS



ALL DIMENSIONS ARE OUT TO OUT. D = DIAMETER OF PIN

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

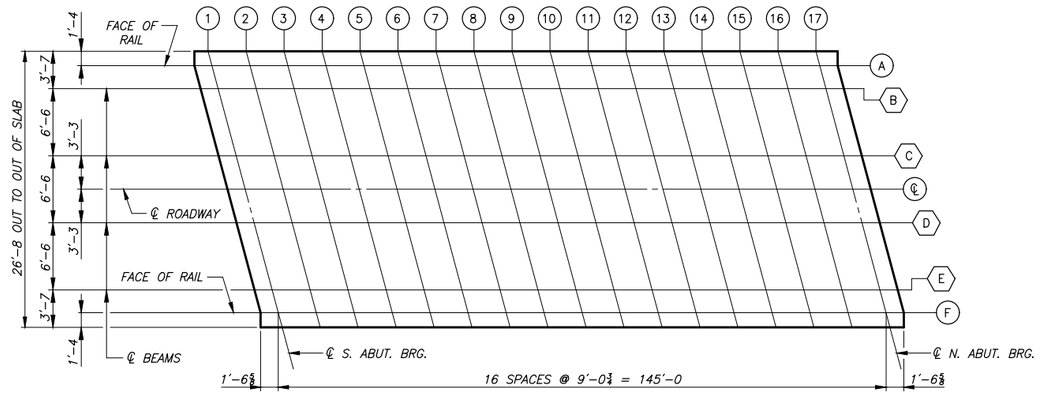
INTEGRAL ABUTMENTS — **145'–0 SINGLE SPAN**

SUPERSTRUCTURE DETAILS

STATION 17+90.00 — **15° SKEW, RT. AHEAD**

WARREN COUNTY, — **IOWA**

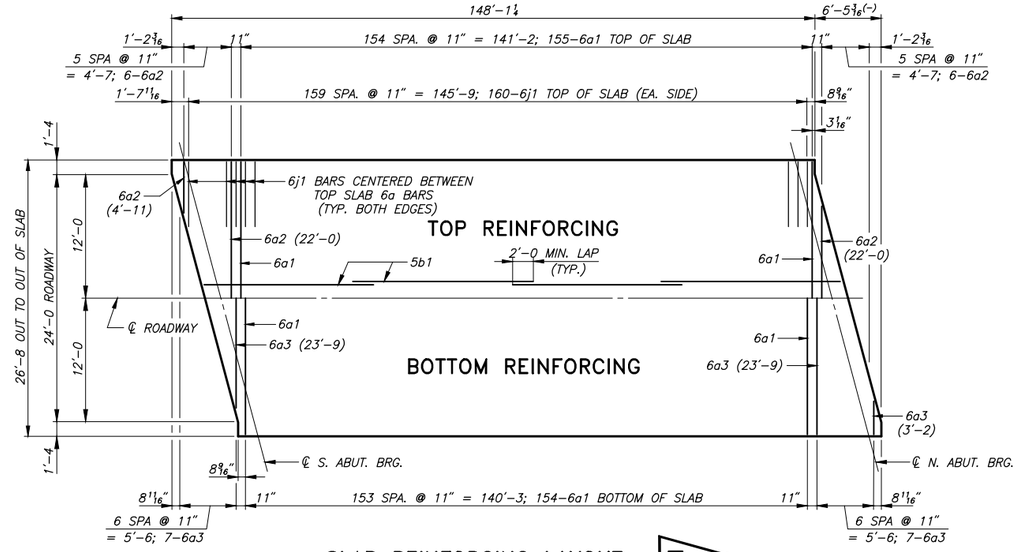
BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32



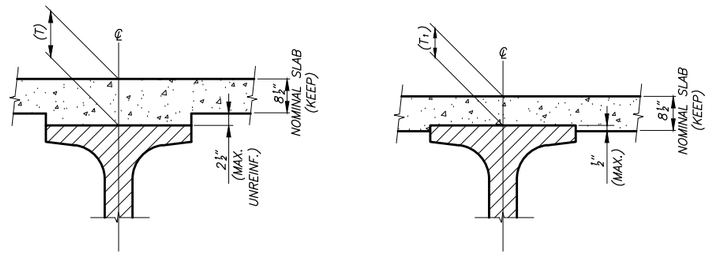
TOP OF SLAB ELEVATIONS

INDICATES BEAM LINES

LOCATION	℄ S. ABUT. BRG. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	℄ N. ABUT. BRG. 17	LOCATION
A	948.42	947.79	947.18	946.59	946.03	945.48	944.94	944.39	943.85	943.31	942.76	942.22	941.68	941.15	940.65	940.16	939.70	A
B	948.42	947.79	947.19	946.60	946.04	945.49	944.95	944.40	943.86	943.32	942.77	942.23	941.69	941.16	940.66	940.18	939.72	B
C	948.43	947.80	947.20	946.62	946.06	945.52	944.97	944.43	943.89	943.34	942.80	942.25	941.71	941.20	940.70	940.22	939.77	C
℄	948.40	947.78	947.18	946.60	946.05	945.50	944.96	944.41	943.87	943.33	942.78	942.24	941.70	941.18	940.69	940.21	939.76	℄
D	948.31	947.69	947.09	946.51	945.96	945.41	944.87	944.33	943.78	943.24	942.69	942.15	941.61	941.10	940.60	940.13	939.68	D
E	948.06	947.44	946.85	946.27	945.72	945.18	944.63	944.09	943.55	943.00	942.46	941.92	941.38	940.87	940.38	939.91	939.47	E
F	947.97	947.35	946.76	946.19	945.64	945.09	944.55	944.01	943.46	942.92	942.38	941.83	941.30	940.79	940.30	939.84	939.39	F



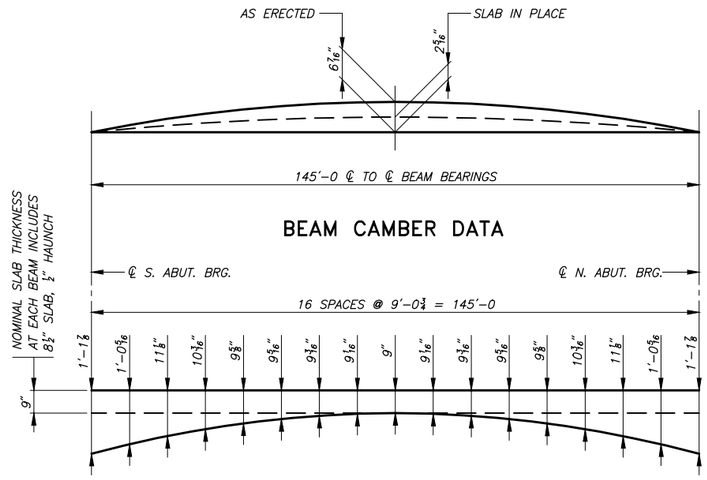
SLAB REINFORCING LAYOUT



SLAB THICKNESS DETAILS

NOTE: THE SLAB THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER REMAINING AFTER PLACING THE SLAB, BUT IS NOT GUARANTEED FOR CONSTRUCTION. IF BEAM IS UNDER CAMBERED, INCREASE SLAB THICKNESS (T) AT BEAMS TO COMPENSATE. IF BEAM IS OVER CAMBERED, THE SLAB THICKNESS (T) MAY BE DECREASED A MAXIMUM OF 1/2" EMBEDMENT AT THE BEAM (T1). IF MORE THAN 1/2" EMBEDMENT IS REQUIRED, OR IF THE HAUNCH EXCEEDS 2½" AND IS NOT REINFORCED, THE GRADE LINE IS TO BE REVISED. THE ABOVE DIAGRAMS DO NOT APPLY TO THE CANTILEVERED SLAB SIDE OF THE EXTERIOR BEAM.

SEE SHEET 13 FOR HAUNCH REINFORCEMENT DETAILS.



HAUNCH DIAGRAM AND SLAB THICKNESS AT BEAM (T)

NOTE: HAUNCH THICKNESS ARE SHOWN FOR ESTIMATING ONLY AND ARE NOT GUARANTEED FOR CONSTRUCTION.

BRIDGE COORDINATES			
LOCATION	WEST EDGE OF DECK	C.L. APPROACH ROADWAY	EAST EDGE OF DECK
SOUTH ABUTMENT	N = 466734.60 E = 1566111.30	N = 466738.13 E = 1566124.64	N = 466741.66 E = 1566137.99
NORTH ABUTMENT	N = 466879.60 E = 1566111.78	N = 466883.13 E = 1566125.12	N = 466886.66 E = 1566138.47

145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — 145'-0 SINGLE SPAN

SUPERSTRUCTURE DETAILS

STATION 17+90.00 — 15° SKEW, RT. AHEAD

WARREN COUNTY, IOWA

Beam Notes:

These beams are designed for AASHTO live loads as indicated in above table with an allowance of 20 lbs. per square foot of roadway for future wearing surface.

All PPC beams shall use high performance concrete ('HPC') in accordance with the Standard Specifications.

Hold down points for deflected strands may be moved toward ends of beam a distance of 0.05 L maximum at producer's option.

All prestressing strands except lifting loop strands shall be 0.60 in. nominal diameter (nominal steel area = 0.217 $in.^2$) and conform to ASTM A416 Grade 270 Low Relaxation Strands. Minimum strand breaking strength shall be 58.6 kips.

Tops of beams are to be struck off level and finished as per Materials I.M.570.

Bearings shall be as detailed on other design sheets.

Beams to be used in bridges made continuous by the poured in place deck, are to be at least 28 days old before the deck is placed unless a shorter curing time is approved by the bridge engineer.

The portions of the prestressed beams that are to be embedded in the abutment and pier diaphragms shall be roughened for a distance of 10" from the beam end by sandblasting or other approved methods to provide suitable bond between the beam and the diaphragm in accordance with Article 2403.03, I, of the Standard Specifications.

All beams are to be increased in length to compensate for elastic shortening, creep and shrinkage.

For transporting, the allowable overhang is shown in the Lifting Loop and Overhang Table.

The Contractor shall assure the lateral stability of the beam during handling, transporting and erection by providing temporary bracing as needed.

Holes must be cast in the web to accommodate the steel diaphragm attachments as detailed on the Steel Diaphragm Detail Sheet.

If sole plate is required for bearing, sole plate is to be set in forms when beam is cast and formed out below to exclude concrete as detailed on the Bearing Sheet.

If stub abutments are used, all strands at the ends of beams at stub abutments shall be cut off reasonably flush with the concrete.

When expansion joints are used, concrete sealer shall be applied to the prestressed beam end sections. The sealing shall be in accordance with Materials I.M.570 (Fabricator Application) and I.M.491.12 (Contractor Application).

Minimum concrete f'c (at 28 days) and minimum f'ci at release are located in the BTE Beam Data Table above.

Four 0.60 in. diameter strands stressed to not more than 5000 lbs. each may be used in lieu of bars 5a1 and 5a2 in the top flange.

Design Stresses:

Design stresses for the following materials are to be in accordance with AASHTO LRFD Bridge Design Specifications, Series of 2017.
Reinforcing steel in accordance with Section 5, Grade 60.
Concrete in accordance with Section 5.
Prestressing steel in accordance with Section 5, Grade 270.

Specifications:

Construction: Standard Specifications of the Iowa Department of Transportation, current series, with current applicable special provisions and supplemental specifications.
Design: AASHTO LRFD, Series of 2017 with minor modifications.

BTE Beam Data

BTE Beam	Span Length ℄–℄ Bearing	Overall Beam Length (L)	Concrete Strength f'ci (ksi.)	Concrete Strength f'c (ksi.)	Strand Size Dia (in.)	Number of Strands: Straight	Number of Strands: Deflected	Total Initial Prestress ③ (kips)	Hold Down Force (kips)	Camber (in.) ⑥: At Release	Camber (in.) ⑥: After Losses	Deflection (in.) Δ_D: Immediate ① (elastic) Δ_I: Steel Diaphragm	Deflection (in.) Δ_D: Time ② (plastic) Δ_T: Steel Diaphragm	Permissible Maximum Spacing, HL-93 Loading: Steel Diaphragm	Weight (tons)	Concrete (cu. yd.)	Reinforcing Steel (weight lb.)
BTE60	60'-0"	61'-4"	4.50	5.00	0.60"	14	—	596	—	0.33"	0.61"	0.17"	0.04"	9'-3"	25.8	12.8	2003
BTE65	65'-0"	66'-4"	4.50	5.00	0.60"	14	—	596	—	0.36"	0.67"	0.23"	0.06"	9'-3"	27.9	13.8	2112
BTE70	70'-0"	71'-4"	4.50	5.00	0.60"	16	—	681	—	0.46"	0.85"	0.32"	0.08"	9'-3"	30.0	14.8	2218
BTE75	75'-0"	76'-4"	4.50	5.00	0.60"	16	—	681	—	0.49"	0.91"	0.40"	0.10"	9'-3"	32.1	15.9	2324
BTE80	80'-0"	81'-4"	5.00	6.00	0.60"	18	—	766	—	0.61"	1.12"	0.49"	0.12"	9'-3"	34.2	16.9	2456
BTE85	85'-0"	86'-4"	5.00	6.00	0.60"	18	2	851	11.8	0.71"	1.31"	0.65"	0.16"	9'-3"	36.3	18.0	2566
BTE90	90'-0"	91'-4"	5.00	6.00	0.60"	18	2	851	11.2	0.73"	1.36"	0.81"	0.20"	9'-3"	38.4	19.0	2672
BTE95	95'-0"	96'-4"	5.00	6.00	0.60"	20	4	1021	20.4	0.96"	1.77"	1.06"	0.27"	9'-3"	40.5	20.0	2782
BTE100	100'-0"	101'-4"	5.00	6.00	0.60"	22	4	1106	19.5	1.11"	2.06"	1.23"	0.31"	9'-3"	42.6	21.1	2891
BTE105	105'-0"	106'-4"	5.00	6.00	0.60"	24	4	1191	18.6	1.31"	2.42"	1.48"	0.37"	9'-3"	44.7	22.1	3035
BTE110	110'-0"	111'-4"	5.00	6.00	0.60"	26	6	1361	25.6	1.61"	2.58"	1.78"	0.45"	9'-3"	46.8	23.1	3192
BTE115	115'-0"	116'-4"	5.50	6.00	0.60"	28	6	1446	24.6	1.78"	2.85"	2.12"	0.53"	9'-3"	48.9	24.2	3409
BTE120	120'-0"	121'-4"	5.50	6.00	0.60"	30	8	1617	30.0	2.07"	3.31"	2.50"	0.63"	9'-3"	51.0	25.2	3451
BTE125	125'-0"	126'-4"	6.50	7.50	0.60"	32	8	1702	29.0	2.48"	3.97"	2.75"	0.69"	9'-3"	53.1	26.2	3561
BTE130	130'-0"	131'-4"	6.50	7.50	0.60"	36	8	1872	28.0	2.95"	4.72"	3.21"	0.80"	9'-3"	55.2	27.3	3670
BTE135	135'-0"	136'-4"	7.00	8.00	0.60"	40	8	2042	27.0	3.34"	5.35"	3.65"	0.91"	9'-3"	57.3	28.3	3776
BTE140	140'-0"	141'-4"	7.50	8.50	0.60"	42	10	2213	31.2	3.65"	5.84"	4.14"	1.03"	9'-3"	59.4	29.3	3920
BTE145	145'-0"	146'-4"	7.50	9.00	0.60"	44	12	2383	34.7	4.02"	6.43"	4.66"	1.17"	9'-3"	61.5	30.4	4107
④ ⑤ BTE150	150'-0"	151'-4"	7.50	9.50	0.60"	48	12	2553	33.7	4.48"	7.17"	5.17"	1.29"	9'-0½"	63.6	31.4	4239

① Deflections at mid-span due to weight of deck and diaphragm. The deflections shown are for a deck (8.5") and haunch (1.5") weight of:
1.04 kips/ft. for 9'-3" beam spacing
1.01 kips/ft. for 9'-0½" beam spacing
And one steel diaphragm (0.500 kips) at ℄ of span for BTE60 to BTE120, and two steel diaphragms (0.500 kips) placed 20'-0", on either side of the beam ℄ for BTE125 to BTE150. For different deck and diapragm weights, deflections will be directly proportional.

② Deflections due to the combined effect of creep due to weight of deck and shrinkage of deck.
Total beam deflections at ℄ of span, Δ_D , due to weight of deck and diaphragms for detailing purpose:
(A) $\Delta_D=\Delta_I+\Delta_T$ for simple span.
(B) $\Delta_D=\Delta_I+\frac{3}{4}\Delta_T$ for end spans of continuous bridge.
(C) $\Delta_D=\Delta_I+\frac{1}{2}\Delta_T$ for interior spans of continuous bridge.

③ Total initial prestress is based on 72.6% f's, f's= 270 ksi. and As= 0.217 $in.^2$.

④ Requires a 4500 psi., 28 day compressive strength for cast-in-place slab concrete.

⑤ Includes partial length debonded strands, see individual Beam Sheet for locations and details.

⑥ Calculated design cambers are based on multipliers developed from research in Iowa.

IDOT STANDARD SHEET 4770S1

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — 145'–0 SINGLE SPAN

BEAM DETAILS

STATION 17+90.00 — 15° SKEW, RT. AHEAD

WARREN COUNTY, — IOWA

Reinforcing Bar List

	Beam		BTE60		BTE65		BTE70		BTE75		BTE80		BTE85		BTE90		BTE95		BTE100		BTE105		BTE110		BTE115		BTE120		BTE125		BTE130		BTE135		BTE140		BTE145		BTE150		Beam
	Bar	Shape	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Length	No.	Bar
	5a1		12	32'-3"	12	34'-9"	12	37'-3"	12	39'-9"	12	24'-0"	12	26'-6"	12	29'-0"	12	31'-6"	12	34'-0"	12	36'-6"	12	39'-0"	12	23'-2"	12	25'-8"	12	28'-2"	12	30'-8"	12	33'-2"	12	35'-8"	12	38'-2"	12	22'-5"	5a1
	5a2		—	—	—	—	—	—	—	—	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	12	40'-0"	12	40'-0"	12	40'-0"	12	40'-0"	12	40'-0"	12	40'-0"	18	40'-0"	5a2
ΔΔ	5b1		37	12'-2"	41	12'-2"	45	12'-2"	49	12'-2"	53	12'-2"	57	12'-2"	61	12'-2"	65	12'-2"	69	12'-2"	75	12'-2"	79	12'-2"	87	12'-2"	87	12'-2"	91	12'-2"	95	12'-2"	99	12'-2"	105	12'-2"	111	12'-2"	115	12'-2"	5b1	ΔΔ
ΔΔ✱	6b3		52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	52	6'-6"	56	6'-6"	56	6'-6"	56	6'-6"	56	6'-6"	56	6'-6"	56	6'-6"	52	6'-6"	52	6'-6"	6b3	ΔΔ✱
✱	6b4		8	5'-10"	8	5'-10"	8	5'-10"	8	5'-10"	8	5'-10"	8	5'-10"	8	5'-10"	8	5'-10"	8	5'-10"	8	5'-10"	12	5'-10"	12	5'-10"	12	5'-10"	12	5'-10"	12	5'-10"	12	5'-10"	12	5'-10"	20	5'-10"	20	5'-10"	6b4	✱
	4c1		87	2'-7"	93	2'-7"	97	2'-7"	101	2'-7"	107	2'-7"	113	2'-7"	117	2'-7"	123	2'-7"	129	2'-7"	135	2'-7"	141	2'-7"	143	2'-7"	149	2'-7"	155	2'-7"	161	2'-7"	165	2'-7"	171	2'-7"	177	2'-7"	183	2'-7"	4c1	
	4d1		67	6'-5"	71	6'-5"	75	6'-5"	79	6'-5"	83	6'-5"	87	6'-5"	91	6'-5"	95	6'-5"	99	6'-5"	105	6'-5"	111	6'-5"	117	6'-5"	117	6'-5"	121	6'-5"	125	6'-5"	129	6'-5"	135	6'-5"	143	6'-5"	147	6'-5"	4d1	
	4e1		34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	34	3'-2"	36	3'-2"	36	3'-2"	4e1	
	4h1		8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	8	8'-0"	4h1	

ΔΔ 5b1 and 6b3 bars to be epoxy coated
✱ 6b3 and 6b4 bars to be used in pairs

Note: All mild reinforcing steel can be epoxy coated at Contractor's option without modification to bar length or details at no additional cost to the State.

Lifting Loop and Overhang Table

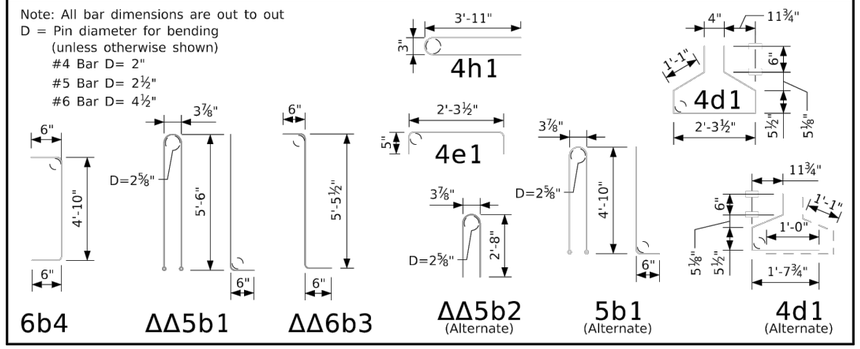
Beams	Lifting Loops Each End	# of Strands Per Loop	D	Beam Overhang (ft.)
BTE60-BTE75	1	4	2'-0"	**
BTE80-BTE90	2	4	2'-0"	**
BTE95	2	4	2'-0"	10
BTE100	2	4	3'-9"	10
BTE105	2	4	6'-3"	10
BTE110-BTE120	2	4	8'-3"	10
BTE125-BTE135	2	4	9'-3"	14
BTE140	2	4	9'-3"	16
BTE145	2	4	10'-0"	16
BTE150	2	4	12'-3"	16

** In accordance with Article 2407.03, K of the Standard Specifications.

Lifting loops shall carry loads equally.

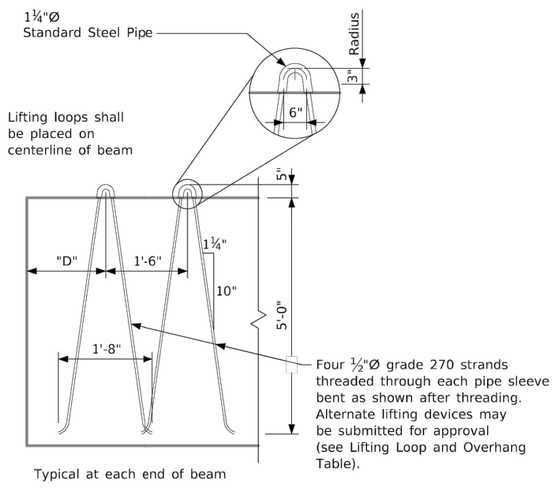
Bent Bar Details

Note: All bar dimensions are out to out
D = Pin diameter for bending
(unless otherwise shown)
#4 Bar D= 2"
#5 Bar D= 2½"
#6 Bar D= 4½"

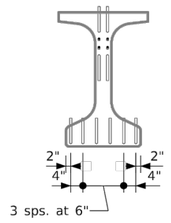


Alternate Bar Notes:

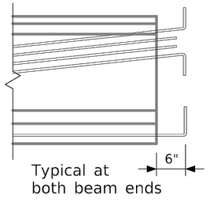
Alternate bars shown in Bent Bar Details may be used in lieu of reinforcing bars shown in bar list. No additional payment shall be made for use of alternate bars.



Lifting Loop Detail

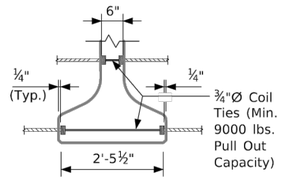


The top and bottom rows of the deflected strands are to be cut with 1'-2" projections which are to be shop bent as shown. The remaining top deflected strands are to be cut with 5" projections. Six bottom strands are to be cut with 1'-6" projections which are to be shop bent as shown. The remaining bottom strands are to be cut off reasonably flush with the concrete.



Strand Projection At Beam Ends When Embedded In Concrete End Diaphragms

Number and exact location of coil ties to be as detailed on specific bridge design.



Coil Tie Detail

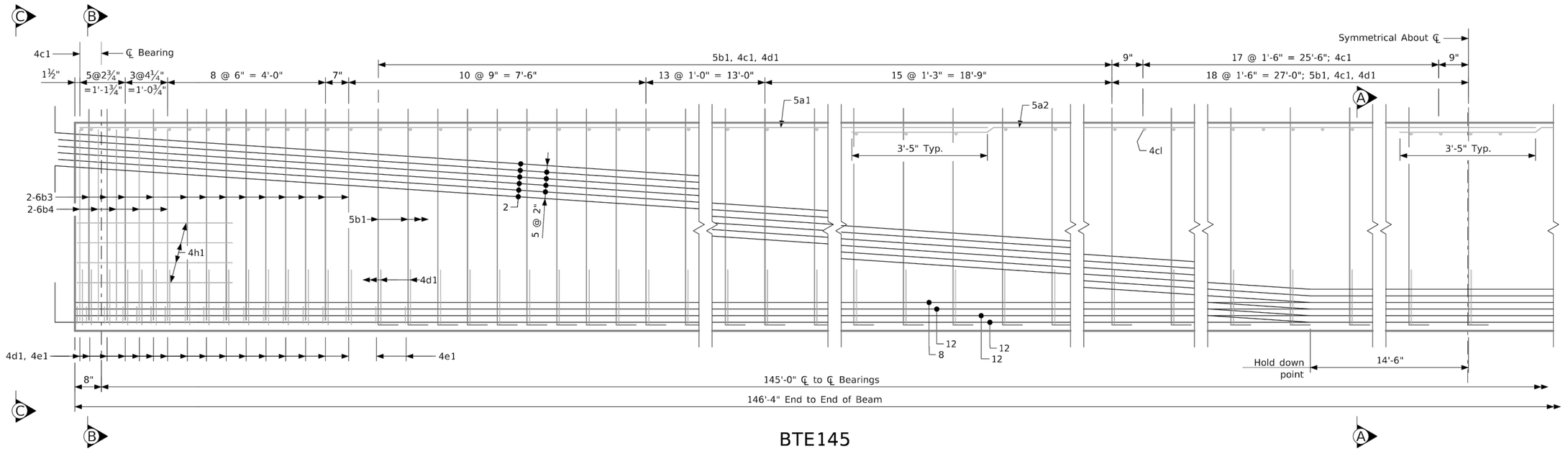
IDOT STANDARD SHEET 4770S2

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

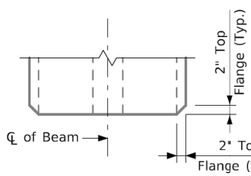
INTEGRAL ABUTMENTS — 145'–0 SINGLE SPAN

BEAM DETAILS

STATION 17+90.00 — 15° SKEW, RT. AHEAD
WARREN COUNTY, — IOWA

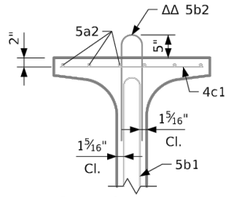


BTE145



Top View

The top flange beam corners are to be chamfered 2" as shown at both ends of the beam.

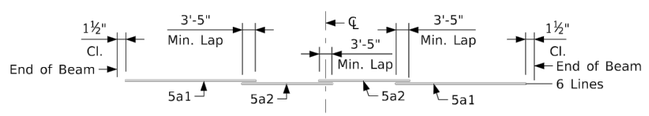


Section A-A (Alternate)

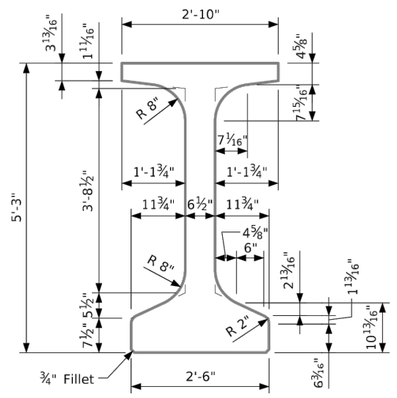
See Alternate Bar Note on Design Sheet No. 4770s2.

Area = 807.4 in.^{2}
$\bar{y}_b$ = 28.75 in.
I = 422.790 in.^{4}

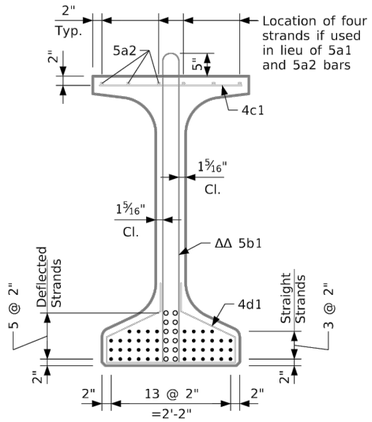
Beam Section Properties



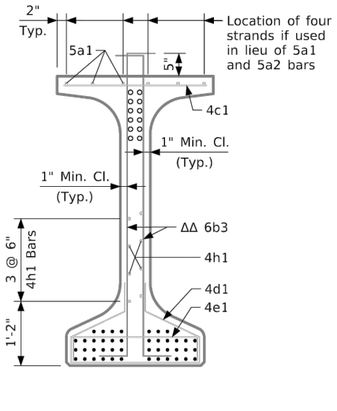
Top Flange Longitudinal Bar Layout



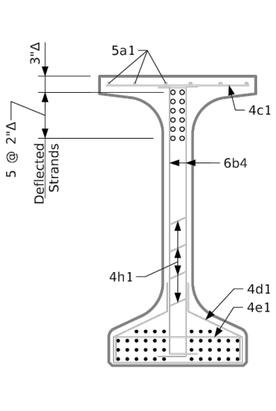
BTE Beam Cross Section



Section A-A



Section B-B



View C-C

- o Deflected Strands
- Δ Dimensions at End of Beam
- ΔΔ Epoxy Coated Bars

IDOT STANDARD SHEET 4788

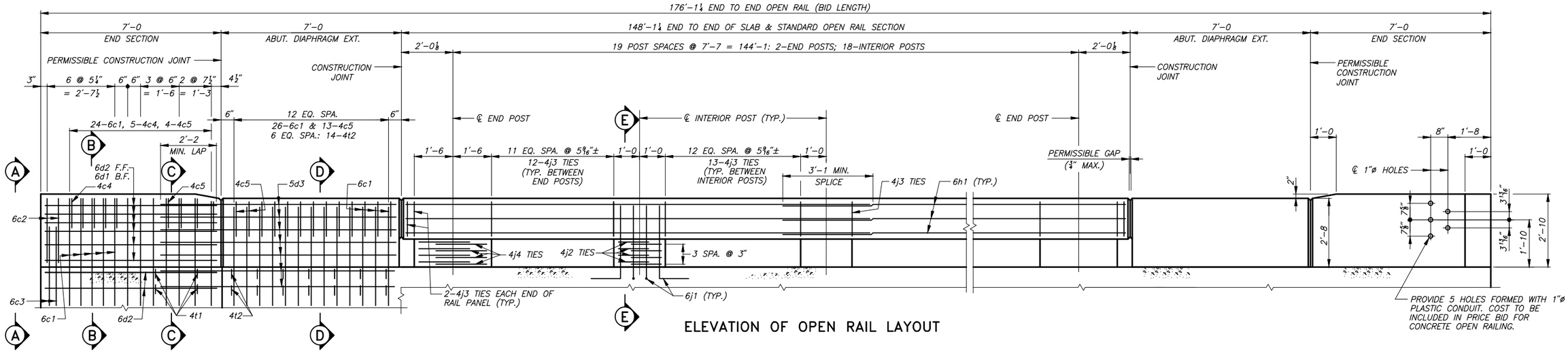
145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **145'–0 SINGLE SPAN**

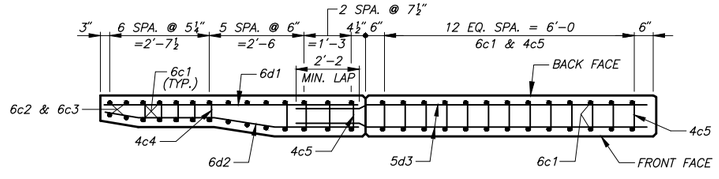
BEAM DETAILS

STATION 17+90.00 — **15° SKEW, RT. AHEAD**

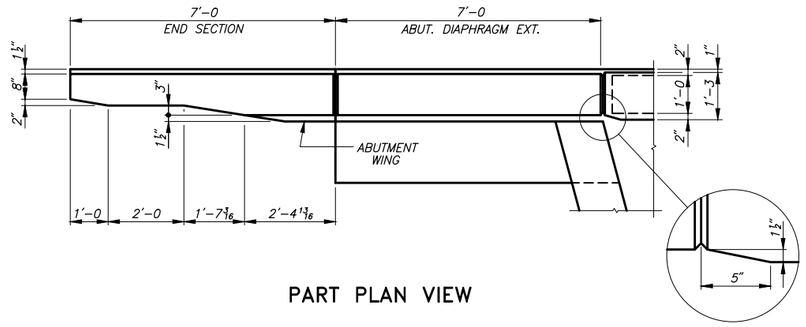
WARREN COUNTY, — **IOWA**



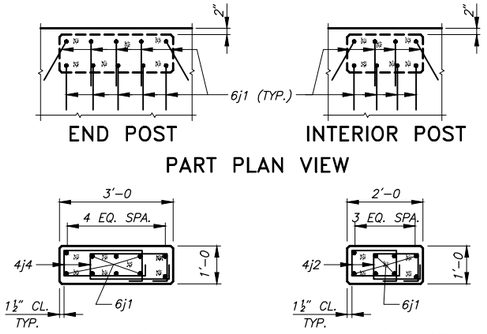
ELEVATION OF OPEN RAIL LAYOUT



PART PLAN SECTION

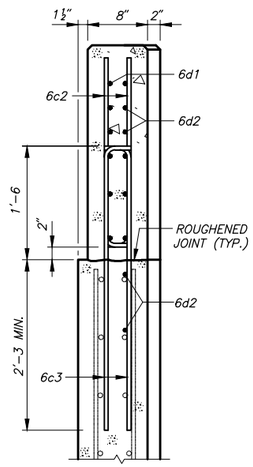


PART PLAN VIEW

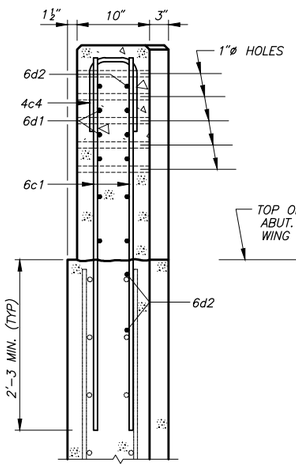


PART PLAN VIEW

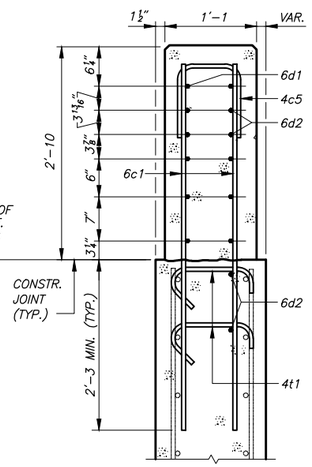
PART PLAN SECTION



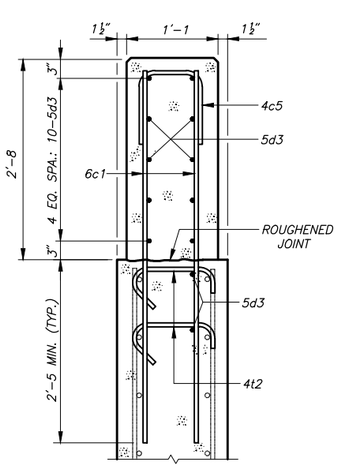
VIEW A-A



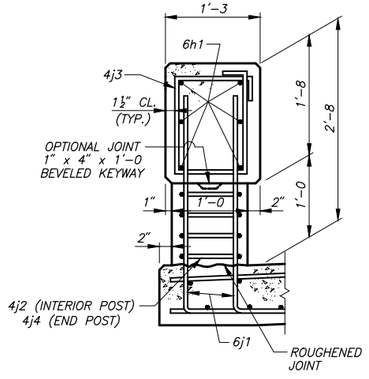
SECTION B-B



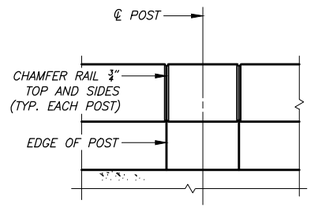
SECTION C-C



SECTION D-D



PART SECTION E-E



RAIL CHAMFER DETAIL

NOTE: SEE ABUTMENT DETAILS FOR ADDITIONAL WING REINFORCING.

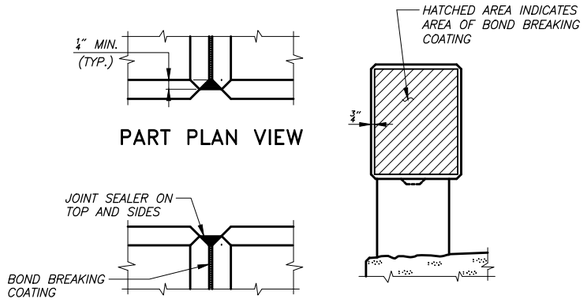
145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **145'-0 SINGLE SPAN**

OPEN RAIL DETAILS (TL-4)

STATION 17+90.00 — **15° SKEW, RT. AHEAD**

WARREN COUNTY, — **IOWA**



OPEN RAIL JOINT DETAILS

NOTE: OMIT THIS DETAIL IF PERMISSIBLE GAP IS UTILIZED BETWEEN THE END SECTION AND STANDARD SECTION.

CONCRETE PLACEMENT SUMMARY (TWO RAILS)	
SECTION	TOTAL
STANDARD SECTIONS (2 @ 11.43 C.Y.)	22.9
INTERIOR POSTS (36 @ 0.074 C.Y.)	2.7
END POSTS (4 @ 0.111 C.Y.)	0.4
END SECTIONS (4 @ 0.687 C.Y.)	2.7
ABUT. DIAPH. EXT. (4 @ 0.749 C.Y.)	3.0
TOTAL (C.Y.)	31.7

CONCRETE OPEN RAIL QUANTITIES (TWO RAILS)		
ITEM	UNIT	QUANTITY
CONCRETE OPEN RAILING, TL-4 (2 @ 176.1 L.F.)	L.F.	352.2

OPEN RAIL NOTES

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

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

CONSTRUCTION JOINT BETWEEN THE WING AND RAIL IS TO BE ROUGHENED CONCRETE.

THE CONCRETE OPEN RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF OPEN RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT. PRICE BID FOR "CONCRETE OPEN RAILING, TL-4" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO CONSTRUCT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL OPEN RAIL REINFORCING STEEL IS TO BE GRADE 60 AND IS INCLUDED IN THE SUPERSTRUCTURE REINFORCING STEEL.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

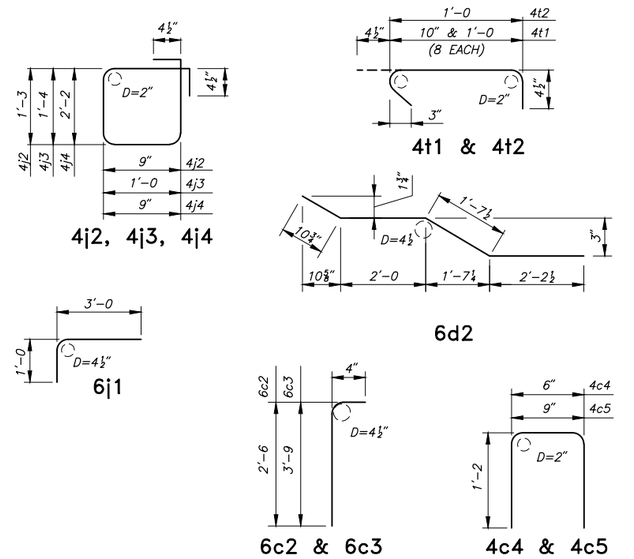
TOP OF OPEN RAIL IS TO BE PARALLEL TO THE THEORETICAL CENTERLINE GRADE.

THE CAST-IN-PLACE OPEN RAILS SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED.

COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

REINFORCING BAR LIST (TWO OPEN RAILS)						
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
4 END SECTIONS & ABUT. DIAPHRAGM EXT.	6c1	VERTICAL, END SECTION & ABUT. DIAPH. EXT.		200	4'-11	1,478
	6c2	VERTICAL, END SECTION		16	2'-10	68
	6c3	VERTICAL, END SECTION		16	4'-1	98
	4c4	VERTICAL HOOPS, END SECTION		20	2'-10	38
	4c5	VERT. HOOPS, END SECT. & ABUT. DIAPH. EXT.		68	3'-1	140
	6d1	HORIZONTAL, END SECTION B.F.		24	6'-8	240
	6d2	HORIZONTAL, END SECTION F.F.		32	6'-9	324
	5d3	HORIZONTAL, ABUT. DIAPH. EXT., BOTH FACES		48	9'-2	459
	4t1	WING FOOTING TIE BARS		16	SHOWN	18
	4t2	WING FOOTING TIE BARS		56	1'-9	65
STANDARD SECTION						
	6h1	LONGITUDINAL OPEN RAIL		48	39'-4	2,836
	6j1	VERTICAL DOWELS OPEN RAIL		328	4'-0	1,971
	4j2	HOOPS INTERIOR POSTS		288	4'-9	914
	4j3	HOOPS OPEN RAIL		498	5'-5	1,803
	4j4	HOOPS END POSTS		32	6'-7	141
INCLUDE WITH SUPERSTRUCTURE REINFORCING				TOTAL (LBS.)		10,593

BENT BAR DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT. "D" = PIN DIAMETER

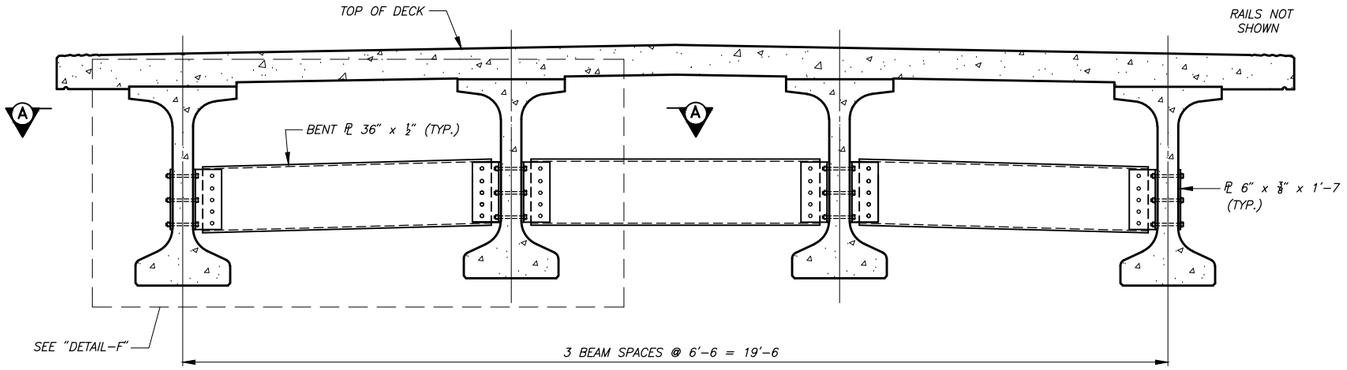
145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **145'-0 SINGLE SPAN**

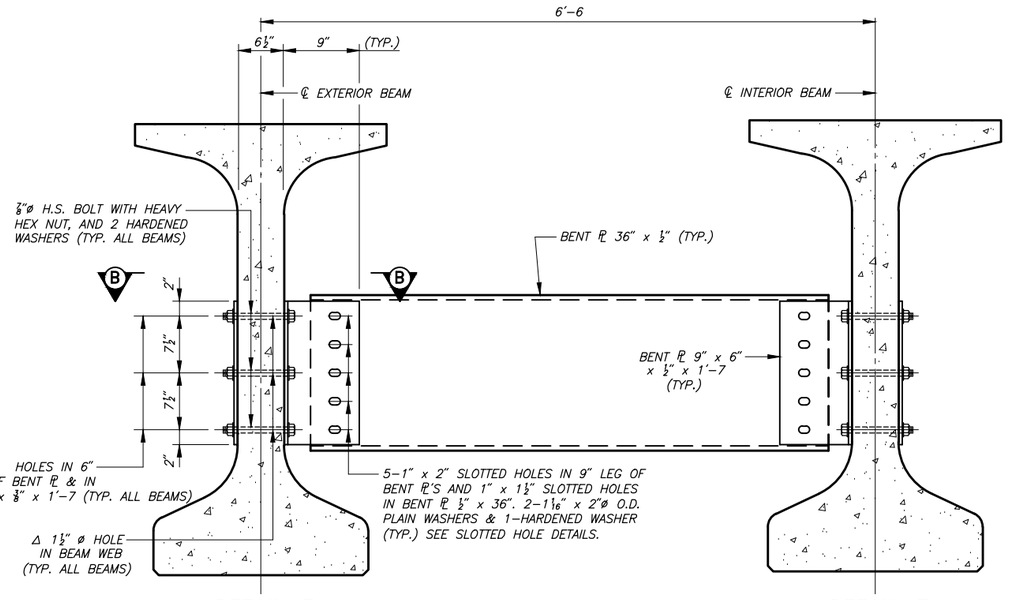
OPEN RAIL DETAILS (TL-4)

STATION 17+90.00 **15° SKEW, RT. AHEAD**

WARREN COUNTY, IOWA



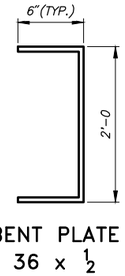
SECTION SHOWING INTERMEDIATE DIAPHRAGMS



DETAIL-F

DETAIL-F

Δ BOLT HOLES SHALL BE SPACED SO AS TO MISS PRESTRESSED STRANDS IN CONCRETE BEAMS.



BENT PLATE
36 x ½

BULB TEE "E" BEAM INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL			
ONE BEAM CONNECTION (DETAIL 'F')			WEIGHT (LBS.)
		NO. OF BEAM CONNECTIONS	
3 - ⅞"Φ x 9¼" H.S. BOLTS WITH NUTS & WASHERS = 7.2 LBS.		12	86
ONE DETAIL 'F'	1 - BACKING PL 6" x ⅜" x 1'-7 = 12.1 LBS.	12	145
	1 - BENT PL 9" x 6" x ½" x 1'-7 = 40.4 LBS.	12	485
ONE DIAPHRAGM			
		NUMBER OF DIAPHRAGMS	
10 - ⅞"Φ x 2¼" H.S. BOLTS WITH NUTS & WASHERS = 9.7 LBS.		6	58
	LENGTH OF MEMBER		
1-BENT PL ½" x 36" = 61.3 LBS/FT.	5'-3¾"	6	1,954
INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL - TOTAL (LBS.)			2,728

DIAPHRAGM NOTES

ALL DIAPHRAGM MATERIALS, INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

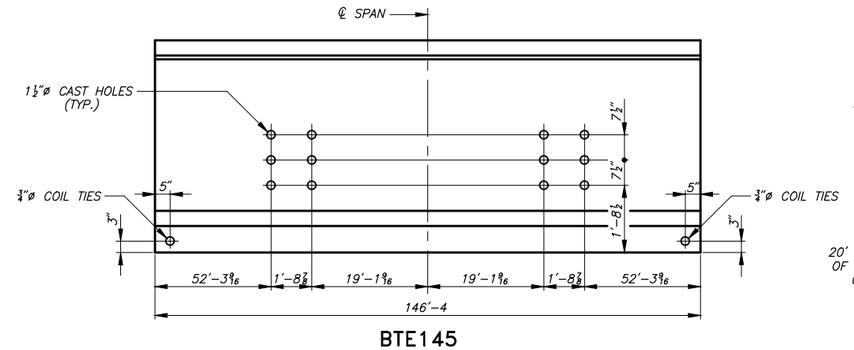
SHOP DRAWINGS OF THE STEEL DIAPHRAGMS SHOWING LAYOUT AND DETAILS OF THE DIAPHRAGMS SHALL BE SUBMITTED FOR APPROVAL.

ALL COSTS FOR FURNISHING AND INSTALLING STEEL INTERMEDIATE DIAPHRAGMS SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL STEEL."

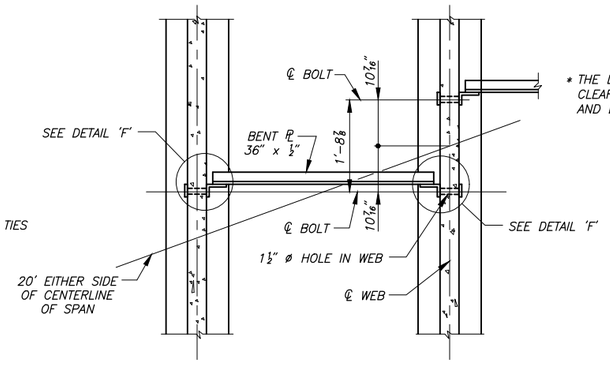
THE 1½" DIAMETER HOLES FOR THE 7/8" DIAMETER H.S. BOLTS SHALL BE CAST INTO THE WEB. DRILLING IS NOT ALLOWED.

THE 7/8" DIAMETER H.S. BOLTS THROUGH THE WEB SHALL HAVE A THREAD LENGTH OF 3" MIN. AND 4" MAX. AND SHALL MEET THE REQUIREMENTS OF ASTM A449.

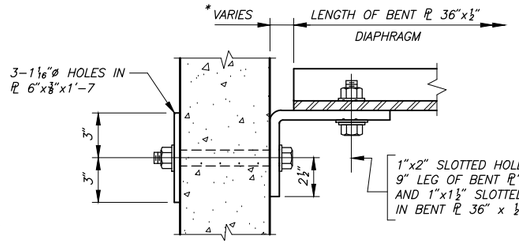
ALL BOLTS ARE TO BE TIGHTENED PRIOR TO PLACING BRIDGE FLOOR CONCRETE.



BTE145
BEAM COIL TIE AND BOLT HOLE LOCATIONS

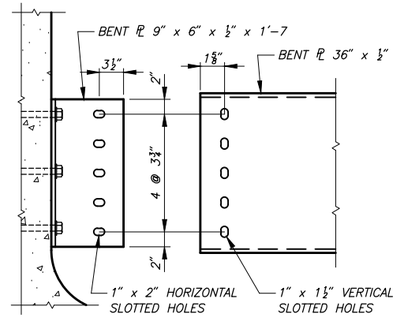


SECTION A-A



SECTION B-B

* THE LENGTH OF THE BENT PL 36"x½" IS BASED ON CLEARANCE OF 3⅜" BETWEEN FACE OF BEAM WEB AND END OF BENT PL 36"x½".



SLOTTED HOLE DETAILS

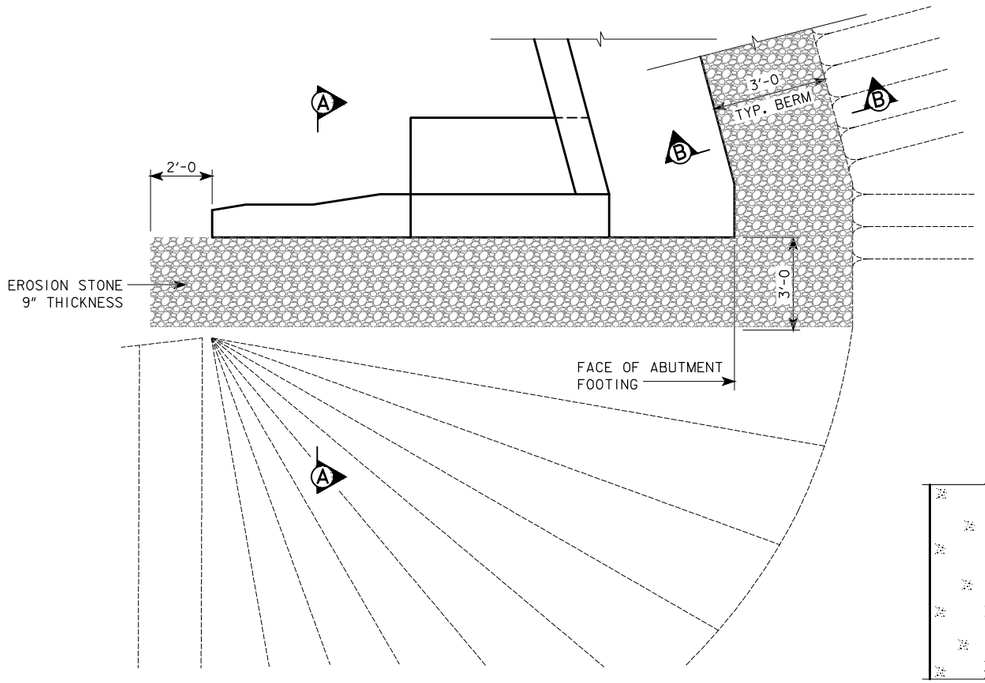
145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **145'-0 SINGLE SPAN**

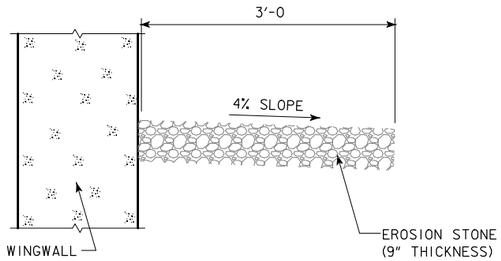
STEEL DIAPHRAGM DETAILS

STATION 17+90.00 **15° SKEW, RT. AHEAD**

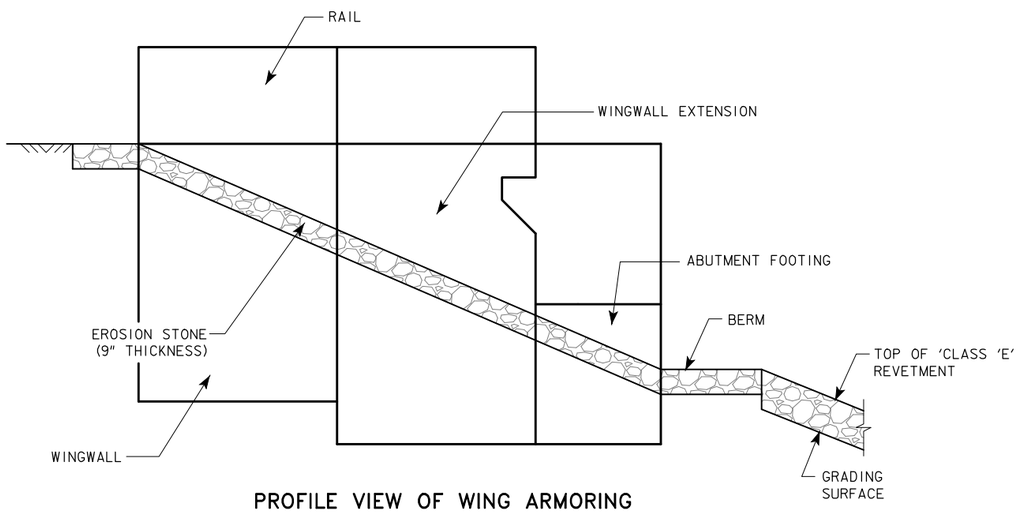
WARREN COUNTY, **IOWA**



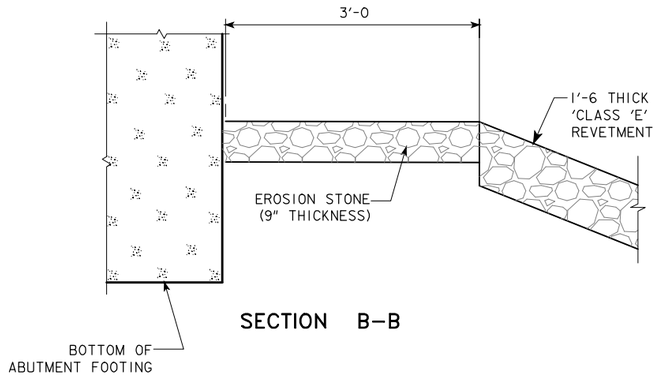
TOP VIEW OF WING ARMORING



SECTION A–A



PROFILE VIEW OF WING ARMORING
WITH WING EXTENSION



SECTION B–B

WING ARMORING NOTES

EROSION STONE SHALL BE PLACED ALONG THE SIDE OF THE WINGS AND ABUTMENT FOOTINGS AS SHOWN IN SECTION A-A AND SECTION B-B. THIS IS TYPICAL AT EACH CORNER OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS.

THE EROSION STONE SHALL BE IN ACCORDANCE WITH SECTION 4130, OF THE STANDARD SPECIFICATIONS. MATERIAL PASSING THE 3 INCH SCREEN BUT 100% RETAINED ON A 1 INCH SCREEN MAY BE USED AS CHOKE STONE.

THE EROSION STONE SHALL BE DEPOSITED, SPREAD, CONSOLIDATED AND SHAPED BY MECHANICAL OR HAND METHODS THAT WILL PROVIDE UNIFORM 9" DEPTH AND DENSITY AND PROVIDE UNIFORM SURFACE APPEARANCE.

PAYMENT FOR THE BRIDGE WING ARMORING WILL BE BID PER SQUARE YARD. COST WILL INCLUDE EROSION STONE, EXCAVATION, SHAPING AND COMPACTION TO DIMENSIONS SHOWN IN THESE PLANS. BID ITEM SHALL BE "BRIDGE WING ARMORING - EROSION STONE".

MODIFIED STANDARD SHEETS 1005A

145'–0 x 24'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — 145'–0 SINGLE SPAN

WING ARMORING DETAILS

STATION 17+90.00 — 15° SKEW, RT. AHEAD

WARREN COUNTY, IOWA

105_04
10/20/26

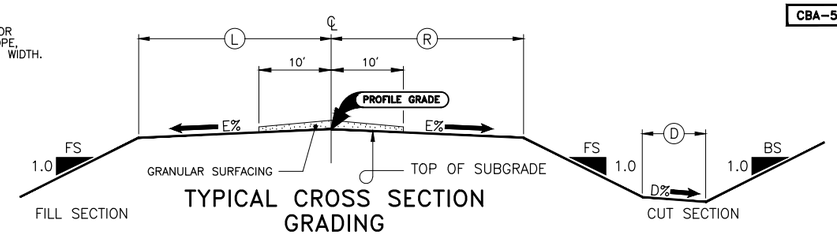
STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
BA-200	10-20-26	Steel Beam Guardrail Components
BA-202	10-20-26	Steel Beam Guardrail Bolted End Anchor
BA-221	10-18-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-2)
BA-225	10-17-23	Steel Beam Guardrail Tangent End Terminal (MASH TL-2)
DR-101	04-18-17	Pipe Culvert (Bedding and Backfill)
DR-104	04-19-16	Depth of Cover Tables for Concrete and Corrugated Pipe
DR-501	04-17-18	Corrugated Metal Type 'A' Diaphragm
DR-632	04-18-17	Corrugated Pipe Culvert Letdown Structure with Double Elbow
EC-201	04-20-21	Silt Fence
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EW-301	10-20-26	Guardrail Grading
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad
LS-635	10-18-22	Steel Beam Guardrail Installation At Concrete Barrier Or Bridge Rail End Section (MASH TL-2)
SI-173	04-19-16	Object Markers
SI-211	10-18-22	Object Marker and Delineator Placement with Guardrail
TC-252	10-20-26	Routes Closed to Traffic

CBA-500

NOTE:
SEE CROSS SECTION FOR VARIATIONS IN FORESLOPE, BACKSLOPE, AND DITCH WIDTH.



TYPICAL CROSS SECTION GRADING

NOTE:
NORMAL SECTIONS SHOWN MAY BE MODIFIED APPROPRIATELY IN AREAS OF SUPERELEVATION CURVES OR OTHER LOCATIONS SPECIFICALLY DESIGNATED BY THE ENGINEER. SEE CROSS SECTIONS AND STANDARD ROAD PLAN EW-301 FOR MODIFICATION AND/OR ADDITIONAL INFORMATION.

LOCATION			L	R	E%	FS	D%	BS	D_L	D_R
ROAD IDENT.	STATION TO STATION		Feet	Feet					Feet	Feet
20TH AVE.	15+20	16+15	TRANSITION FROM EXISTING							
20TH AVE.	16+15	BRIDGE	14	14	3.57	VAR.	2	VAR.	5	5
20TH AVE.	BRIDGE	19+60	14	14	3.57	VAR.	2	VAR.	5	5
20TH AVE.	19+60	20+00	TRANSITION TO EXISTING							

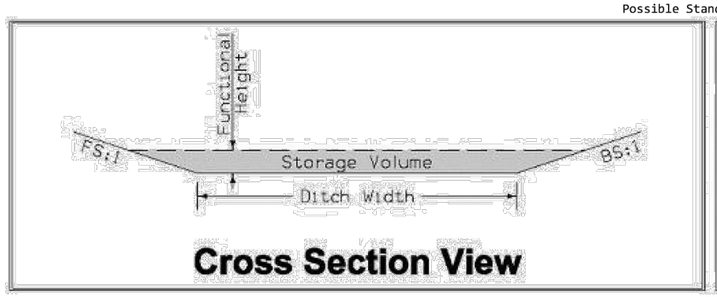
TRAFFIC CONTROL PLAN

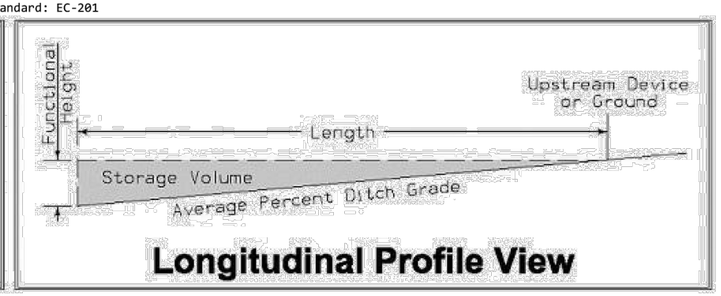
1. ROUTE WILL BE CLOSED TO VEHICULAR AND PEDESTRIAN TRAFFIC DURING CONSTRUCTION.
2. TRAFFIC CONTROL ON THE PROJECT SHALL BE IN ACCORDANCE WITH STANDARD ROAD PLAN TC-252.
3. A DETOUR ROUTE WILL NOT BE ESTABLISHED FOR THIS PROJECT.
4. WARREN COUNTY MAINTENANCE SHALL SALVAGE EXISTING ROAD MARKERS AFTER THE ROAD IS CLOSED.

100_18
8/15/22

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201





* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Line No.	Basin No.	Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS:1)	Backslope (BS:1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
1.0	1	Type 3	18+45.00	Left	14.0	14.0		2.0	2.4	5.0	2.5	320.40	NW DITCH
2.0	1	Type 3	19+05.00	Left	14.0	14.0		2.0	2.4	5.0	2.5	320.40	NW DITCH
3.0	1	Type 3	19+65.00	Left	15.0	15.0		3.0	2.0	5.0	2.5	336.60	NW DITCH
Total					43	43							

100_19
10/15/24

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Line No.	Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
1.0	17+70.00	18+35.00		Perimeter and Slope	12 inch	230.00	TOE S BANK
2.0	17+85.00	18+30.00		Perimeter and Slope	12 inch	160.00	TOE N BANK
Total						390	

CBA-101

SUMMARY OF EARTHWORK QUANTITIES

EXCAVATION TYPE	RAW CUT CY	RAW FILL CY	WASTE ** CY	USABLE CUT CY	SHRINKAGE FACTOR	FILL +35% SHRINKAGE CY	PAYMENT QUANTITY CY
CLASS 10, ROADWAY AND BORROW	1,220	1,550	0	1,220	35%	2,095	1,220
CLASS 10, CHANNEL	4,500	1,100	2,140	2,360	35%	1,485	4,500
TOTALS			2,140	3,580		3,580	

*** ASSUMES SOME MATERIAL WILL BE UNSUITABLE AND\OR EXCESS AND WILL NEED TO BE WASTED OFF SITE.*

108_13A
3/27/25

SAFETY CLOSURES

Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
14+20.00	1		SOUTH END OF PROJECT
21+00.00	1		NORTH END OF PROJECT
Total	2		

100_17
8/15/22

TABULATION OF SILT FENCES

Refer to EC-201

Line No.	Station From	Station To	Side	Length (FT)	Remarks
1.0	16+95.00	17+10.00	Left	60.00	SW TOP OF CHANNEL BANK
2.0	18+25.00	18+35.00	Left	50.00	NW TOP OF CHANNEL BANK
3.0	18+95.00	20+00.00	Right	125.00	NE TOE OF SLOPE
4.0	18+95.00	19+00.00	Right	45.00	NE TOP OF CHANNEL BANK
Total	280				

145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — 145'-0 SINGLE SPAN

TYPICAL SECTION & TABULATIONS

STATION 17+90.00 — 15° SKEW, RT. AHEAD

WARREN COUNTY, IOWA

BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32

107_23
8/15/22

GRADING FOR GUARDRAIL INSTALLATIONS

Refer to EW-301.

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

Line No.	Direction of Traffic (1)	Station	Side	Foreslope at Guardrail	X1 (FT)	Y1 (FT)	X2 (FT)	Y2 (FT)	X3 (FT)	Y3 (FT)	X4 (FT)	Y4 (FT)	Z (FT)	Excavation Class 10 (CY)	Embankment-in-Place (CY)	Remarks
1.0	SB	16+98.73	Left	VAR.	36.9	3.1					72.0	4.1	35.2	40.0		SOUTH END, LT.
2.0	NB	17+05.16	Right	3:1	36.9	3.1					72.0	4.1	35.2	65.0		SOUTH END, RT.
3.0	SB	18+74.84	Left	VAR.	36.9	3.1					72.0	4.1	35.2	60.0		NORTH END, LT.
4.0	NB	18+81.27	Right	VAR.	36.9	3.1					72.0	4.1	35.2	90.0		NORTH END, RT.

*VOLUMES DO NOT INCLUDE 33% SHRINK.

108_08A
4/25/25

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Line No.	Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type) (2)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
1.0	SB	Left	16+98.73	12.5	BA-221	1	BA-225	1	37.500			35.17			1		2	1		A	1		12.5	SW CORNER, LS-635
2.0	NB	Right	17+05.16	12.5	BA-221	1	BA-225	1	37.500			35.17			1		2		1	A	1		12.5	SE CORNER, LS-635
3.0	SB	Left	18+74.84	12.5	BA-221	1	BA-225	1	37.500			35.17			1		2		1	A	1		12.5	NW CORNER, LS-635
4.0	NB	Right	18+81.27	12.5	BA-221	1	BA-225	1	37.500			35.17			1		2	1		A	1		12.5	NE CORNER, LS-635
Total						4		4													4		50.0	

1. See DR-632

C.M.P. LETDOWN STRUCTURE DATA

CBA-903

Inlet Location	Outlet Location	Skew	Size	Design Cover	Section Lengths (A)	(B)	(C)	Total	Flow Line Elevations Outlet	At Outlet Elbow	Inlet	At Inlet Elbow	Dike Elev.	No. of Aprons	No. of Diaphs.	No. of Elbows	Fill Req'd Per Dike
STA. 16+95, RT.	STA. 17+62, RT.	11°	24"	1'-6	9'	42'	29'	80'	918.7	918.8	936.9	933.9	942.0	–	1	2	*

NOTE: CLASS 'C' BEDDING SHALL BE USED.

* INCLUDED IN CLASS 10, ROADWAY AND BORROW. 100% OF FILL ARE ANTICIPATED TO BE PLACED IN THE EXISTING DITCH TO SERVE AS BEDDING FOR THE PROPOSED PIPE FROM APPROXIMATELY 25' TO 48' FROM THE PIPE INLET. AN ADDITIONAL 210 C.Y. OF FILL ARE ANTICIPATED TO CONSTRUCT DIKE, PLACE MINIMUM 1.5' FILL OVER THE PIPE PER DR-632, AND TO FILL EXISTING DITCH UP TO TRIBUTARY. FILL VOLUMES DO NOT INCLUDE SHRINK. 50 C.Y. OF CUT ARE ANTICIPATED FOR LETDOWN STRUCTURE.

SURVEY CONTROL POINTS

CBA-300

Description	Northing	Easting	Approx. Station	Approx. Offset	Elevation
CP 110 SET ⅝" IR , 5' EAST OF EDGE OF ROAD	466709.89	1566147.40	16+89	23' RT.	945.02
CP 109 FND "P-K" NAIL IN CENTER OF BR. DECK	466852.96	1566127.97	18+32	3' RT.	938.09
CP 108 SET ⅝" IR ON EAST EDGE OF FIBER OPTIC SIGN	467088.64	1566143.13	20+68	17' RT.	934.22
CP 104 SEC COR FND ½" IR 9" DEEP, N. OF BR.	467360.76	1566129.59	23+40	3' RT.	934.86
Coordinate System				Vertical Datum	
(NSRS 2011) IOWA STATE PLANE, SOUTH ZONE (1402), US FOOT				NAVD88 (GEOID 2018)	

145'-0 x 24'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

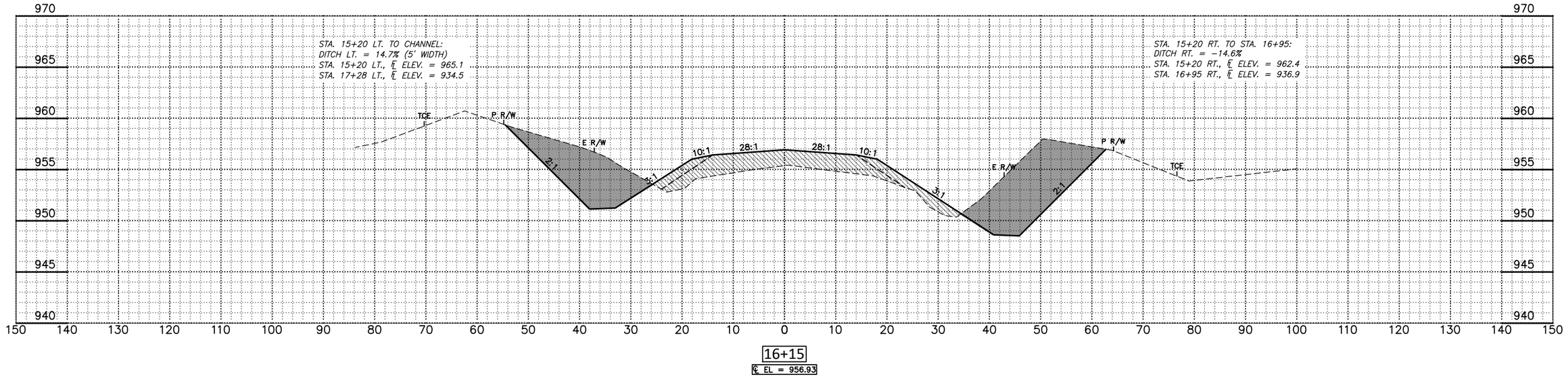
INTEGRAL ABUTMENTS — 145'-0 SINGLE SPAN

TABULATIONS

STATION 17+90.00 — 15° SKEW, RT. AHEAD

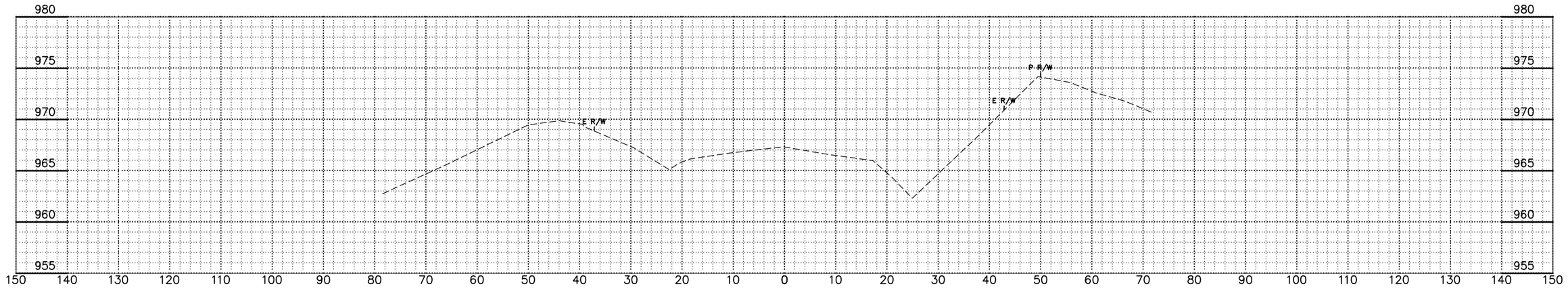
WARREN COUNTY, IOWA

BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32



16+15

℄ EL = 956.93

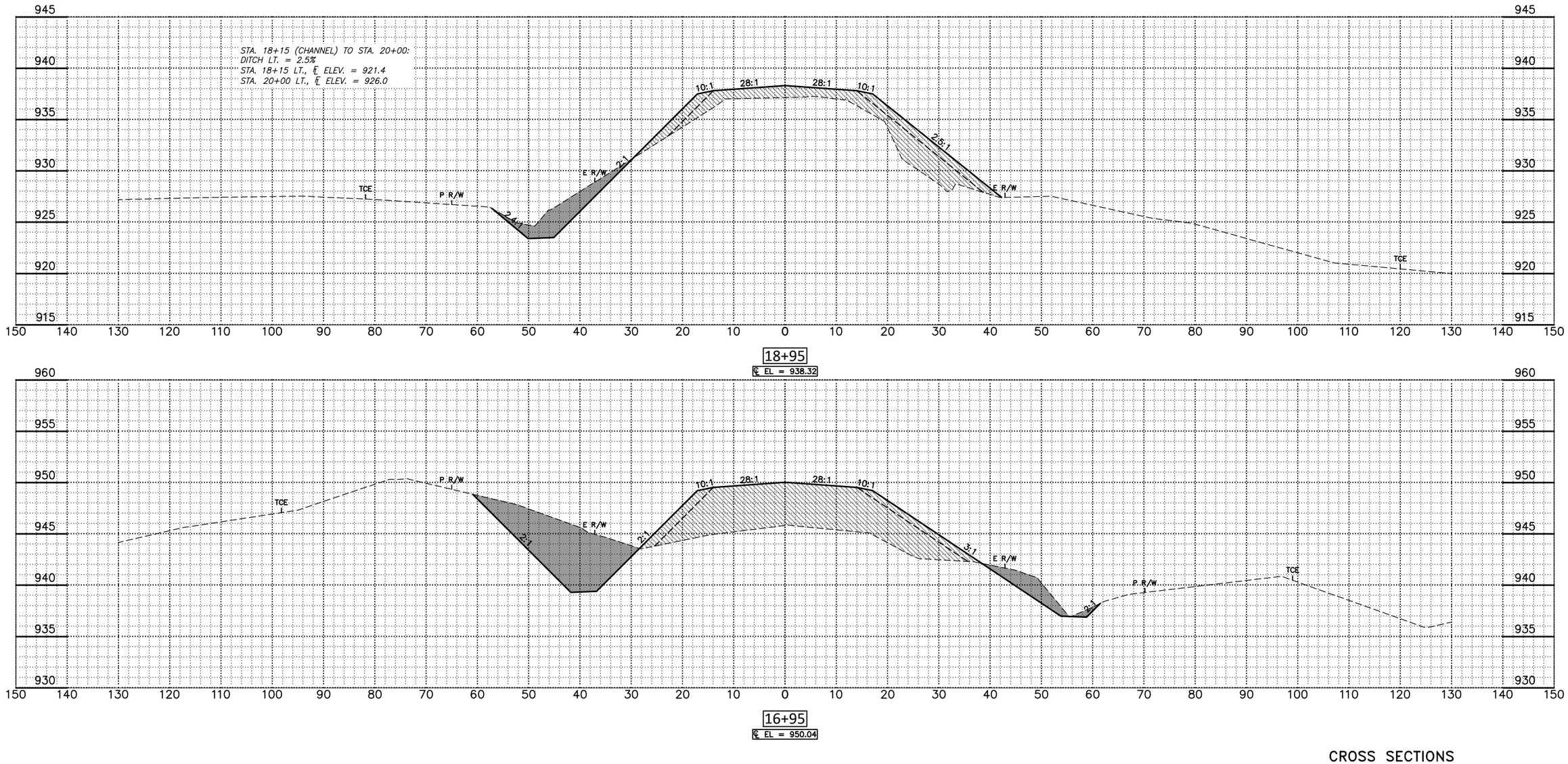


15+20

CROSS SECTIONS

WARREN COUNTY, IOWA

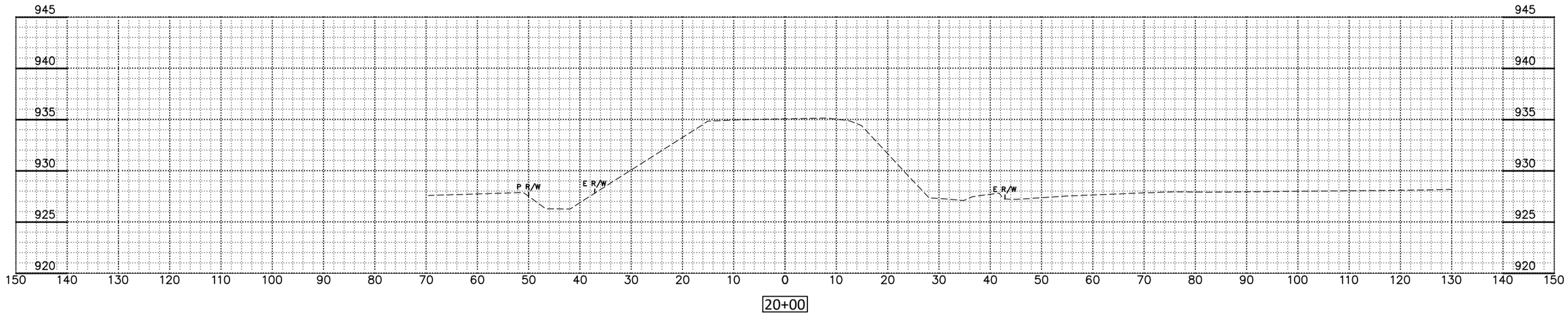
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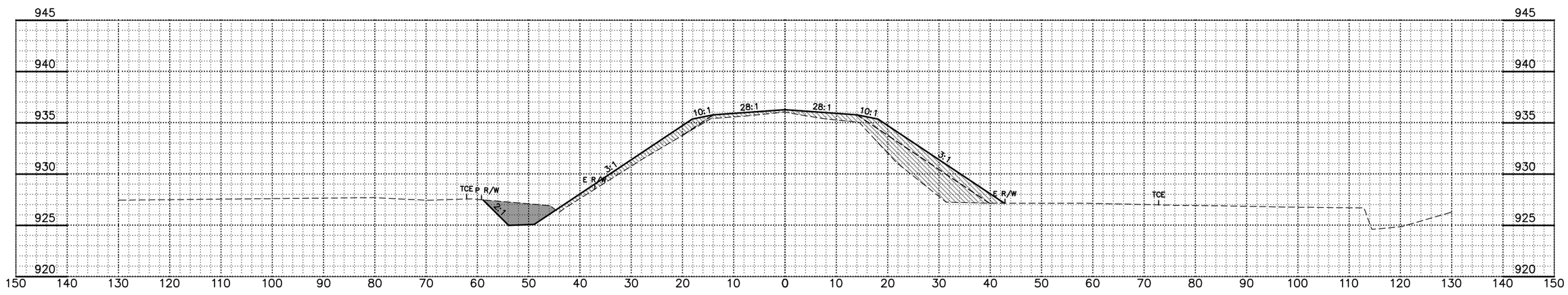
CROSS SECTIONS

WARREN COUNTY, IOWA

BENCH MARK: ½" x 4' IR W\ BLUE V & K CAP, STA. 15+43, 36' LT. ELEV.= 967.32



20+00



19+60

℄ EL = 936.28

CROSS SECTIONS

WARREN COUNTY, IOWA