BRIDGE REPLACEMENT - PPCB
LETTING DATE: DECEMBER 15, 2026

PROJECT NO. HDP-C034(114)--6B-34
FLOYD COUNTY

TOTAL SHEETS
42

STANDARD ROAD PLANS
STANDARD ROAD PLANS ARE LISTED ON SHEET 33.

SECTION 404 PERMIT AND CONDITIONS	281-1 MODIFIED
CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT 14. NATIONWIDE PERMIT 14 CONDITIONS CAN BE FOUND AT http://www.mvr.usace.army.mil/Missions/Regulatory/Permits/. THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.	

THIS PROJECT IS COVERED BY IOWA DNR FLOODPLAIN CONSTRUCTION PERMIT NO. 2026-0181FP-01, DATED: 03-03-2026

IOWA | DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

FARM TO MARKET SYSTEM

FLOYD COUNTY

PROJECT NO. HDP-C034(114)--6B-34

BRIDGE REPLACEMENT - PPCB

ON T 64, OVER LITTLE CEDAR RIVER, S17 T96N R15W

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS.

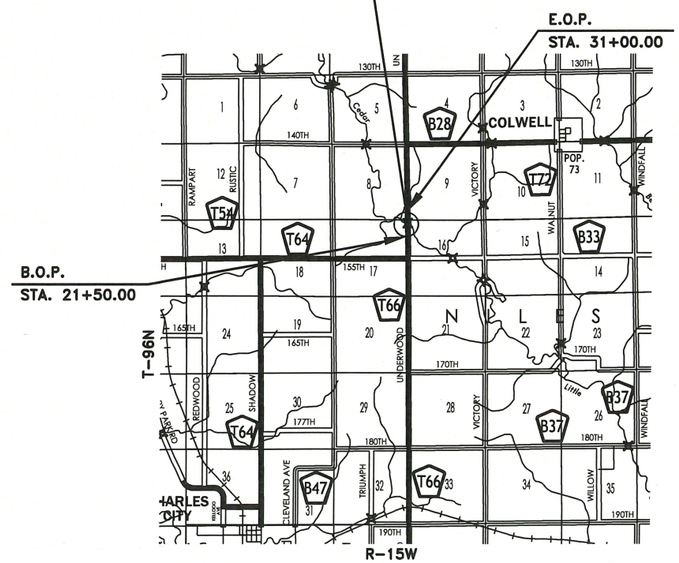
THIS PROJECT IS COVERED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 2 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS A PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2602 OF THE STANDARD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

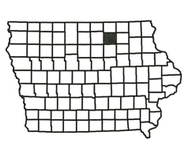
PROJECT NO. HDP-C034(114)--6B-34
FHWA NO. 155151
COUNTY BR. NO. 155151

INDEX OF SHEETS

1.	TITLE SHEET
2.-3.	QUANTITY SUMMARY
4.	SITUATION PLAN
5.	GENERAL NOTES
6.	POLLUTION PREVENTION PLAN
7.-8.	SOUNDING DATA
9.-11.	SOUTH ABUTMENT DETAILS
12.-14.	NORTH ABUTMENT DETAILS
15.	ABUTMENT BACKFILL DETAILS
16.	SUBDRAIN & WING ARMORING DETAILS
17.	SOUTH PIER DETAILS
18.	NORTH PIER DETIALS
19.	PIER DETAILS
20.-24.	SUPERSTRUCTURE DETAILS
25.-27.	BEAM DETAILS
28.	STEEL DIAPHRAGM DETAILS
29.-30.	OPEN RAIL DETAILS (TL-4)
31.	TYPICAL SECTIONS
32.-33.	TYPICAL SECTIONS & TABULATIONS
34.-36.	TABULATIONS
37.	PLAN & PROFILE
38.-42.	CROSS SECTIONS

B.O.P. STA. 21+50.00
E.O.P. STA. 31+00.00
FHWA NO. 155151
STATION 24+45.50
PROPOSED 299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
15° SKEW, LT. AHEAD





PROJECT LOCATION

1 MI. 0 1 MI. 2 MI.

N

MILEAGE SUMMARY

STA. 21+50.00 TO STA. 31+00.00 = 950.00 L.F. = 0.1799 MILES

2022, TRAFFIC COUNT = 1414 V.P.D.

UTILITY CONTACTS

COMPANY	UTILITY	CONTACT	PHONE #	EMAIL
CENTURYLINK	COMMUNICATIONS	SADIE HULL	918-547-0147	sadie.hull@lumen.com
OMNITEL	COMMUNICATIONS	RYAN FLUGGE	641-749-2531	rflugge@omnitel.biz
-	-	-	-	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
7	DAVID LOGEMANN	SOILS

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.

KYLE A. BOSLEY 26411 LICENSED PROFESSIONAL ENGINEER 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.

Kyle Bosley DATE: 8-04-2026
KYLE A. BOSLEY, P.E.

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2027 .

PAGES OR SHEETS COVERED BY THIS SEAL:
1-6 AND 9-42 OF 42

APPROVED
Adam S. Miller 8/13/26
FLOYD COUNTY ENGINEER DATE

George Greer 8/18/26
Boyd Campbell 8/18/26
[illegible] 8/18/26
BOARD OF SUPERVISORS DATE

TOTAL ESTIMATED QUANTITIES:
299'–0 x 40'–0 P.P.C.B. BRIDGE

REF. NO.	CODE NO.	ITEM	UNIT	2 ABUTS	PIERS	SUPER	TOTAL
1	2101–0850001	CLEARING AND GRUBBING	ACRE	–	–	–	1.3
2	2102–2625000	EMBANKMENT–IN–PLACE	CY	–	–	–	3,324
3	2102–2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	–	–	–	2,626
4	2104–2710020	EXCAVATION, CLASS 10, CHANNEL	CY	–	–	–	2,685
5	2105–8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	–	–	–	3,100
6	2115–0100000	MODIFIED SUBBASE	CY	–	–	–	320
7	2121–7425020	GRANULAR SHOULDERS, TYPE B	TON	–	–	–	300
8	2123–7450000	SHOULDER CONSTRUCTION, EARTH	STA	–	–	–	9.0
9	2213–2713300	EXCAVATION, CLASS 13, FOR WIDENING	CY	–	–	–	54
10	2213–8200000	BASE WIDENING, HOT MIX ASPHALT MIXTURE	TON	–	–	–	106
11	2301–0690210	BRIDGE APPROACH, TWO LANE	SY	–	–	–	497.8
12	2303–1041750	HOT MIX ASPHALT HIGH TRAFFIC, BASE COURSE, 3/4 IN. MIX	TON	–	–	–	526
13	2303–1042500	HOT MIX ASPHALT HIGH TRAFFIC, INTERMEDIATE COURSE, 1/2 IN. MIX	TON	–	–	–	191
14	2303–1043750	HOT MIX ASPHALT HIGH TRAFFIC, SURFACE COURSE, 3/4 IN. MIX, NO SPECIAL FRICTION REQUIREMENT	TON	–	–	–	217
15	2303–1258284	ASPHALT BINDER, PG 58–28H, HIGH TRAFFIC	TON	–	–	–	62.5
16	2315–8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	–	–	–	25
17	2401–6745625	REMOVAL OF EXISTING BRIDGE	LS	–	–	–	1
18	2402–2720000	EXCAVATION, CLASS 20	CY	240	123	–	363
19	2402–2721000	EXCAVATION, CLASS 21	CY	–	342	–	342
20	2403–0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	–	261.9	–	261.9
21	2403–0100030	STRUCTURAL CONCRETE 4500 PSI OR GREATER, AS SPECIFIED	CY	52.8	–	434.6	487.4
22	2403–1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	CY	52.8	–	434.6	487.4
23	2403–1000010	TRIAL BATCH AND TEST PLACEMENT(FIBER REINFORCED CONCRETE)	LS	–	–	–	1
24	2404–7775000	REINFORCING STEEL	LB	–	28,764	–	28,764
25	2404–7775005	REINFORCING STEEL, EPOXY COATED	LB	9,915	14,990	125,141	150,046
26	2407–0563065	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTC65	EACH	–	–	5	5
27	2407–0563115	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTC115	EACH	–	–	10	10
28	2408–7800000	STRUCTURAL STEEL	LB	–	–	4,254	4,254
29	2412–0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK AND/OR APPROACHES	SY	–	–	1,237.7	1,237.7

REF. NO. ESTIMATE REFERENCE INFORMATION

1. SEE PLAN AND PROFILE, SHEET 37, 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 TABULATIONS CBA-100 AND CBA-101 ON SHEET 32 FOR BREAKDOWN OF EXCAVATION QUANTITIES.
TYPE "A" COMPACTION WILL BE REQUIRED. QUANTITY DOES NOT COMPENSATE FOR SHRINKAGE.
AFTER ALL AVAILABLE ON SITE MATERIAL HAS BEEN DEPLETED; THE CONTRACTOR SHALL FURNISH ALL REMAINING MATERIAL REQUIRED. MATERIAL SHALL BE OBTAINED AT THE BORROW SITE, SEE SHEET 36. COORDINATION SHALL BE THROUGH THE COUNTY ENGINEER AT PHONE NUMBER 641-257-6151.
THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH PROVISIONS OF IOWA LAW AS IT APPLIES TO REMOVAL AND REPLACEMENT OF TOPSOIL ON BORROW AREAS.

3. SEE TABULATIONS CBA-100 AND CBA-101 ON SHEET 32 FOR BREAKDOWN OF EXCAVATION QUANTITIES.
TYPE "A" COMPACTION WILL BE REQUIRED.
EXCEPT WHERE NOTED OTHERWISE ON THE PLANS, ALL ENTRANCE AND ROADWAY CULVERTS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AS PART OF "EXCAVATION, CLASS 10, ROADWAY AND BORROW".

4. SEE TABULATIONS CBA-100 AND CBA-101 ON SHEET 32 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 REMOVING AND REPLACING FILL AS NEEDED FOR NORTH TOE CONSTRUCTION. INCLUDES COST TO CUT EXISTING BANK DOWN AT NORTHWEST BETWEEN WING DIKE AND RIVER. INCLUDES COST TO FILL EXISTING DITCH AT NORTHWEST BETWEEN DIKE AND RIVER.
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.

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. SEE TYPICAL SECTION CBA-500 ON SHEET 32.

7. SEE TYPICAL SECTION CBA-643 ON SHEET 31.
INCLUDES 60 TONS TO SUPPLEMENT EXISTING SHOULDER AS NEEDED FROM 29+54 TO E.O.P.

8. INCLUDES ALL WORK AND FILL MATERIAL NECESSARY TO CONSTRUCT AND SHAPE SHOULDER AREAS. SEE TYPICAL SECTION CBA-643 ON SHEET 31.

9. SEE TABULATION 106-5 ON SHEET 36.
INCLUDES COST OF USING SUITABLE MATERIAL FOR CONSTRUCTION ELSEWHERE ON THIS PROJECT.

10. SEE TABULATION 106-5 ON SHEET 36.

11. SEE TABULATION 112-6 ON SHEET 34.
INCLUDES COST OF PV-3 ON NON-REINFORCED APPROACH SECTIONS.
COARSE AGGREGATE DURABILITY SHALL BE CLASS 3 OR BETTER.
NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR HEATING AND PROTECTION OF CONCRETE, IF NECESSARY.
CERTIFIED PLANT INSPECTION IS REQUIRED.
REINFORCING STEEL SHALL BE EPOXY COATED.

12.-14. SEE TABULATIONS CBA-620, CBA-621, CBA-622 AND HMA PAVING NOTES ON SHEET 31.
NO RECLAIMED ASPHALT PAVEMENT (RAP) WILL BE ALLOWED. MIXTURE SHALL CONTAIN A MINIMUM OF 65% CRUSHED MATERIAL AND TYPE A AGGREGATES PER STANDARD SPECIFICATIONS.
INCLUDES TACK COAT TO BE SPREAD AT A RATE OF 0.05 GAL/SY BETWEEN ALL HMA LIFTS.

15. ASPHALT BINDER TO BE 6.0% OF MIX QUANTITY FOR ESTIMATING PURPOSES ONLY.

16. SEE TABULATION 102-3 ON SHEET 36. GRANULAR MATERIAL TO BE PLACED AT 3 INCH THICKNESS.

17. THE EXISTING BRIDGE AT STATION 24+61 IS A 278' x 30' STEEL I-BEAM BRIDGE WITH CONCRETE STUB ABUTMENTS, CONCRETE TEE PIERS AND A CONCRETE DECK BUILT IN 1974.
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. THE BRIDGE RAIL, POSTS AND GUARDRAIL SHALL REMAIN THE PROPERTY OF THE COUNTY AND THE CONTRACTOR SHALL CAREFULLY REMOVE AND NEATLY STACK THESE ITEMS WITHIN THE RIGHT-OF–WAY, SEE TABULATION 110-13 ON SHEET 33. ALL REMAINING 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.
BROKEN CONCRETE FROM THE EXISTING BRIDGE WITH SIMILAR GRADATION TO CLASS 'E' REVETMENT MAY BE PLACED ON THE BANKS WITHIN THE LIMITS SHOWN FOR CLASS 'E' REVETMENT, AS DIRECTED BY THE ENGINEER. THIS EXCLUDES AREAS UNDER THE PROPOSED BRIDGE. ALL REINFORCING SHALL BE CUT OFF FLUSH WITH THE CONCRETE. H.M.A. MATERIAL IS SPECIFICALLY EXCLUDED. ALTERNATELY, THE CONTRACTOR MAY DISPOSE OF THE BROKEN CONCRETE OFF SITE AT A LOCATION PROVIDED BY THE CONTRACTOR AND NOTED TO THE ENGINEER.
SEE HAZARDOUS MATERIALS NOTES ON SHEET 5 FOR PAINT SCRAPE SAMPLE RESULTS.

18. 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.

19. QUANTITY IS BASED ON THE ASSUMPTION THAT CHANNEL EXCAVATION AND NECESSARY BERM CONSTRUCTION HAVE BEEN COMPLETED.

20. INCLUDES CONCRETE FOR THE PIERS.
NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR HEATING AND PROTECTION OF CONCRETE, IF NECESSARY.
CERTIFIED PLANT INSPECTION IS REQUIRED.

21. INCLUDES CONCRETE FOR THE ABUTMENTS, DIAPHRAGMS AND DECK.
INCLUDES COST OF PREFORMED JOINT MATERIAL, PVC PIPE IN WINGS AND CONCRETE SEALER ALONG EDGES OF SLAB.
INCLUDES COST OF FURNISHING AND PLACING SUBDRAINS (INCLUDING EXCAVATION), FLOODABLE BACKFILL, POROUS BACKFILL AND GEOTEXTILE FABRIC AT ABUTMENTS.
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.

22.-23. SEE 'SPECIFICIATONS' ON SHEET 5 FOR ADDITIONAL INFORMATION.

24.-25. ALL REINFORCING SHALL BE GRADE 60.

26.-27. 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.

28. INCLUDES WEIGHT OF STEEL DIAPHRAGMS, SEE SHEET 28.

29. SURFACE FINISHING AND CURING OF THE BRIDGE DECK SHALL BE PER INTERSTATE AND PRIMARY PROJECTS REQUIREMENT IN STANDARD SPECIFICATION 2412.03, D, 4, a AND 2412.03, E, 1, a.
LONGITUDINAL GROOVING IS FOR BRIDGE DECK ONLY AND DOES NOT APPLY TO THE APPROACHES.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **66'–0 & 116'–0 END SPANS**

TEE PIERS — **117'–0 INTERIOR SPAN**

QUANTITY SUMMARY

STATION 24+45.50 — **15° SKEW, LT. AHEAD**

FLOYD COUNTY, — **IOWA**

TOTAL ESTIMATED QUANTITIES:
299'–0 x 40'–0 P.P.C.B. BRIDGE

REF. NO.	CODE NO.	ITEM	UNIT	2 ABUTS	PIERS	SUPER	TOTAL
30	2414–6424124	CONCRETE OPEN RAILING, TL–4	LF	–	–	652.2	652.2
31	2417–1040024	CULVERT, CORRUGATED METAL ENTRANCE PIPE, 24 IN. DIA.	LF	–	–	–	46
32	2501–0201057	PILES, STEEL, HP 10 X 57 ; 44 @ 25' ; 17 @ 50'	LF	850	1,100	–	1,950
33	2501–6335010	PREBORED HOLES ; 17 @ 10'	LF	170	–	–	170
34	2505–4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	–	–	–	240
35	2505–4008410	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA–201	EACH	–	–	–	4
36	2505–4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	–	–	–	4
37	2505–4021710	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, LS–625	EACH	–	–	–	4
38	2507–2638650	BRIDGE WING ARMORING – EROSION STONE	SY	–	–	–	60
39	2507–3250005	ENGINEERING FABRIC	SY	–	–	–	2,000
40	2507–6800061	REVETMENT, CLASS E	TON	–	–	–	900
41	2507–6875002	REVETMENT, REMOVE AND REPLACE	CY	–	–	–	410
42	2510–6745850	REMOVAL OF PAVEMENT	SY	–	–	–	1,398.2
43	2526–8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY	LS	–	–	–	1
44	2526–8285030	CONSTRUCTION SURVEY, RIGHT OF WAY	LS	–	–	–	1
45	2526–8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	–	–	–	1
46	2527–9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT–BASED	STA	–	–	–	14.35
47	2528–2518000	SAFETY CLOSURE	EACH	–	–	–	2
48	2528–8445110	TRAFFIC CONTROL	LS	–	–	–	1
49	2533–4980005	MOBILIZATION	LS	–	–	–	1
50	2599–9999018	MILLING FOR ASPHALT WEDGE	SY	–	–	–	50
51	2601–2634100	MULCHING	ACRE	–	–	–	7.6
52	2601–2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	–	–	–	3.8
53	2601–2642100	STABILIZING CROP – SEEDING AND FERTILIZING	ACRE	–	–	–	3.8
54	2602–0000020	SILT FENCE	LF	–	–	–	1,980
55	2602–0000030	SILT FENCE FOR DITCH CHECKS	LF	–	–	–	416
56	2602–0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	–	–	–	2,396
57	2602–0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	–	–	–	235
58	2602–0010010	MOBILIZATIONS, EROSION CONTROL	EACH	–	–	–	1
59	2602–0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	–	–	–	1

REF. NO. ESTIMATE REFERENCE INFORMATION

30. CERTIFIED PLANT INSPECTION IS REQUIRED.
INCLUDES COST OF CONCRETE SEALER.
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.

31. SEE TABULATION 102-3 ON SHEET 36, TYPICAL SECTION CBA-700 ON SHEET 33 AND STANDARD ROAD PLANS DR-101 AND DR-104.
ALL PIPE SHALL BE STANDARD CORRUGATIONS, NO HELICALLY CORRUGATED PIPE WILL BE ALLOWED. ALL CONNECTING BANDS SHALL BE 24" WIDE.

32. SEE PILE NOTES ON SHEET 5.
PILE POINTS SHALL NOT BE USED FOR THIS PROJECT.

33. 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.

34. SEE TABULATION 110-7A ON SHEET 35.
THE GUARDRAIL SHALL REMAIN THE PROPERTY OF THE COUNTY AND THE CONTRACTOR SHALL CAREFULLY REMOVE AND NEATLY STACK THESE ITEMS WITHIN THE RIGHT-OF-WAY. ALL REMAINING SALVAGEABLE MATERIAL AND UNSALVAGEABLE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

35.-37. SEE TABULATIONS 108-8A AND 107-23 ON SHEET 35.
SUBSTITUTION OF THE LS-625 END TERMINAL WITH THE BA-205 END TERMINAL WILL NOT BE ALLOWED.

38. SEE SHEET 16 FOR DETAILS. QUANTITY INCLUDES EROSION STONE ON THE BERMS.

39. SEE SITUATION PLAN, SHEET 4, AND PLAN AND PROFILE, SHEET 37, FOR LIMITS.
ENGINEERING FABRIC SHALL BE LAPPED FOR FIELD SPLICING, THE LAPS SHALL BE A MINIMUM OF TWO FEET IN LENGTH, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP. THE CONTRACTOR SHALL PROVIDE A MEANS TO SECURE THE LAP DURING THE PLACEMENT OF THE REVETMENT.

40. REVETMENT IS TO BE PLACED AT A THICKNESS OF 1'-6. SEE SITUATION PLAN, SHEET 4, AND PLAN AND PROFILE, SHEET 37, FOR LIMITS.

41. 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 WITHIN THE LIMITS SHOWN FOR CLASS E REVETMENT. THIS EXCLUDES AREAS UNDER THE PROPOSED BRIDGE. 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, AND PLAN AND PROFILE, SHEET 37, FOR LIMITS.
THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE BY CUBIC YARD. PLAN QUANTITY WILL BE PAY QUANTITY.

42. SEE TABULATION 110-1 ON SHEET 35.
EXISTING PAVEMENT CONSISTS OF 6 INCHES OF PCC OR AN UNKNOWN THICKNESS OF HMA.
IN ORDER TO AVOID ANY UNNECESSARY SURFACE BREAKS OR PREMATURE SPALLING, THE CONTRACTOR IS CAUTIONED TO EXERCISE EXTREME CARE WHEN PERFORMING ANY OF THE NECESSARY SAW CUTTING OPERATIONS FOR THE PROPOSED PAVEMENT REMOVAL. SAW CUTS ARE TO BE MADE AT THE STATION INDICATED OR AT THE NEAREST TRANSVERSE PAVEMENT JOINT, AS DIRECTED BY THE ENGINEER.
THE PCC PORTION OF THE REMOVED PAVEMENT MAY BE PLACED WITHIN REVETMENT LIMITS EXCLUDING AREAS UNDER THE BRIDGE. REINFORCEMENT SHALL BE CUT FLUSH WITH THE FLAT SURFACE OF THE CONCRETE. THE GREATEST DIMENSION OF THE BROKEN CONCRETE SHALL NOT EXCEED THREE FEET AND SHALL NOT BE MORE THAN TWO TIMES THE SMALLEST DIMENSION. BROKEN CONCRETE SHALL BE RELATIVELY CLEAN WITH LOW PERCENTAGE OF FINES. ENGINEER SHALL VISUALLY REVIEW AND APPROVE MATERIAL PRIOR TO PLACEMENT. H.M.A. MATERIAL IS SPECIFICALLY EXCLUDED FROM PLACEMENT IN THE REVETMENT TRENCH.

43.-45. 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 32, FOR FIELD TIES TO THE SITE SURVEY.

46. SEE TABULATIONS 108-22 ON SHEET 35.
ON ALL NEW OR RECONSTRUCTED PAVEMENTS, THE LOCATION OF "NO PASSING" ZONE LINES SHALL BE LOCATED IN THE FIELD.

47. SEE TABULATION 108-13A ON SHEET 33.

48. SEE TRAFFIC CONTROL PLAN ON SHEET 32.
INCLUDES COST FOR NAVIGABLE WATER SIGNAGE. SEE SHEET 32 FOR DETAILS.

50. SEE TYPICAL SECTION CBA-900 ON SHEET 33.
MEASUREMENT IS PER SQUARE YARD OF MILLING NEEDED TO COMPLETE THE HMA WEDGE AS SHOWN. PAYMENT IS PRICE BID FOR ALL LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO COMPLETE THE MILLING AT THE WEDGE AS SHOWN. PLAN QUANTITY WILL BE PAY QUANTITY.

51.-53. 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.

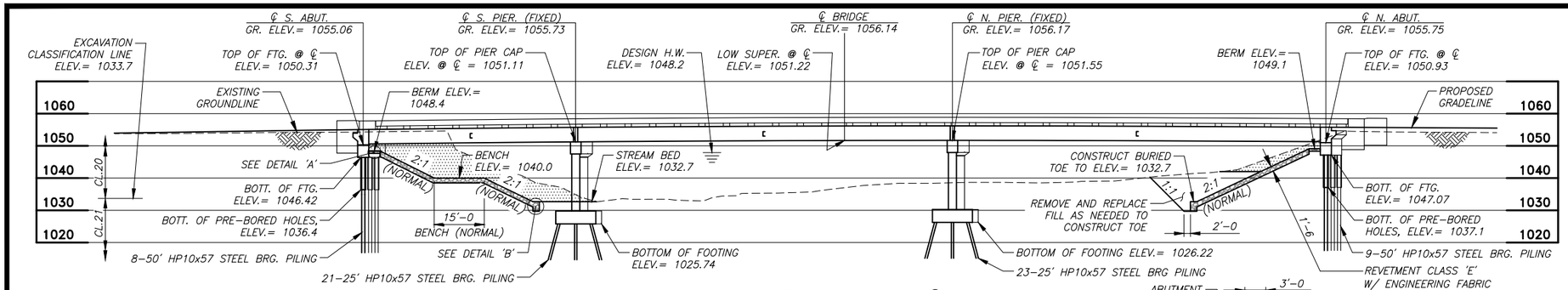
54.-59. SEE POLLUTION PREVENTION PLAN, SHEET 6, AND TABULATIONS 100-17, 100-18 AND 100-19 ON SHEET 34.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

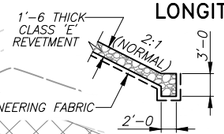
INTEGRAL ABUTMENTS **TEE PIERS**
66'–0 & 116'–0 END SPANS **117'–0 INTERIOR SPAN**

QUANTITY SUMMARY

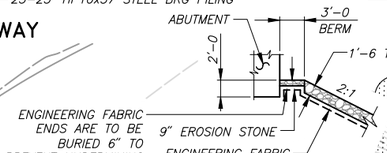
STATION 24+45.50 **15° SKEW, LT. AHEAD**
FLOYD COUNTY, IOWA



LONGITUDINAL SECTION ALONG ℄ ROADWAY



DETAIL 'B'



DETAIL 'A'

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68

V.P.I. STA. 22+00.00
ELEV.= 1053.64
L.V.C.= 100'
M.O.= 0.0800'
K= 156.25
SSD= 495'
55 MPH DESIGN

V.P.I. STA. 30+00.00
ELEV.= 1053.64
L.V.C.= 200'
M.O.= 0.3000'
K= 166.67
SSD= 495'
55 MPH DESIGN

B.O.P., TIE-IN & V.P.C.
STA. 21+50.00
ELEV.= 1053.18

V.P.T.
STA. 25+50.00
ELEV.= 1055.98

+0.92% +1.56% −0.52% +0.68%

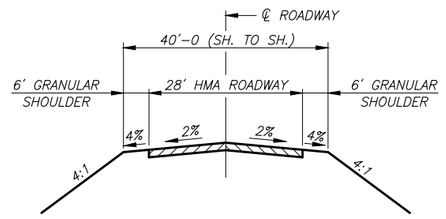
V.P.T. & V.P.C.
STA. 22+50.00
ELEV.= 1054.42

V.P.I. STA. 24+00.00
ELEV.= 1056.76
L.V.C.= 300'
M.O.= 0.7800'
K= 144.23
SSD= 495'
55 MPH DESIGN

V.P.C.
STA. 29+00.00
ELEV.= 1054.16

TIE-IN & V.P.T.
STA. 31+00.00
ELEV.= 1054.32

PROPOSED GRADE



TYPICAL APPROACH SECTION

SITUATION PLAN

20 0 20 40

SEE "PLAN & PROFILE" FOR ADDITIONAL INFORMATION.
** DENOTES LIMITS OF CLASS 10 (CHANNEL) EXCAVATION.*
*** DENOTES LIMITS OF CLASS 'E' REVETMENT AND ENGINEERING FABRIC.*

LOCATION

FLOYD COUNTY
T-96N, R-15W
SECTION 17
NILES TOWNSHIP
OVER LITTLE CEDAR RIVER

HYDRAULIC DATA

DRAINAGE AREA = 249 SQ. MI.
DESIGN DISCHARGE = 16,200 C.F.S.
DESIGN HIGH WATER ELEV. = 1048.2
MANNING SLOPE = 0.00104 FT./FT.
BRIDGE WATERWAY AREA = 2,746 SQ. FT.
DESIGN VELOCITY = 5.9 F.P.S.
Q25 = 13,800 C.F.S. STAGE ELEV. = 1047.7
Q50 = 16,200 C.F.S. STAGE ELEV. = 1048.2 (DESIGN)
Q100 = 18,600 C.F.S. STAGE ELEV. = 1048.6
Q200 = 23,500 C.F.S. STAGE ELEV. = 1049.5
Q500 = 24,800 C.F.S. STAGE ELEV. = 1049.7
EXT. H.W. ELEV. = UNKNOWN
ANTICIPATED Q100 SCOUR ELEV.= 1025.4
ANTICIPATED Q200 SCOUR ELEV.= 1023.3

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **TEE PIERS**
66'-0 & 116'-0 END SPANS — **117'-0 INTERIOR SPAN**

SITUATION PLAN

STATION 24+45.50 — **15° SKEW, LT. AHEAD**
FLOYD COUNTY, — **IOWA**

SPECIFICATIONS

DESIGN: AASHTO LRFD 8TH EDITION, SERIES OF 2017, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL. SEE SHEETS 25-27 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.

DEVELOPMENTAL SPECIFICATION "FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE" AND "STRUCTURAL CONCRETE (4500 PSI OR GREATER)" SHALL APPLY TO THE ABUTMENTS, DIAPHRAGMS AND DECK. FIBER REINFORCEMENT HAS BEEN INCLUDED FOR THE ABUTMENTS TO PROVIDE ADDITIONAL EXPERIENCE TO THE CONTRACTOR PRIOR TO MASS PRODUCTION FOR THE DECK PLACEMENT.

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 AS NOTED.

PRESTRESSING STEEL SEE SHEETS 25

PRESTRESSED CONCRETE SEE SHEETS 25

ABUTMENTS, DIAPHRAGMS AND DECK CONCRETE F'C=4,500 PSI

GENERAL NOTES

THIS DESIGN IS FOR A 299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON HIGHWAY T64 OVER THE LITTLE CEDAR RIVER IN FLOYD 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.

DURING CONSTRUCTION OF THIS PROJECT, THE CONTRACTOR WILL BE REQUIRED TO COORDINATE THEIR OPERATIONS WITH THOSE OF OTHER CONTRACTORS WORKING WITHIN THE SAME AREA. OTHER WORK IN PROGRESS DURING THE SAME PERIOD OF TIME WILL INCLUDE, BUT IS NOT LIMITED TO, CONSTRUCTION OF THE FOLLOWING PROJECTS:

HDP-C034(117)--6B-34

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: 23-11045I
DATE INSPECTED: 12/13/2024
PHONE: 515-279-8042

A SCRAPE SAMPLE OF THE EXISTING PAINT WAS TAKEN FROM AN I-BEAM TO GET AN INDICATION OF THE EXISTENCE AND OF THE LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 172,000 PART PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 2,440 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.

SOUTH ABUTMENT PILE

THE CONTRACT LENGTH OF 50 FEET FOR THE SOUTH ABUTMENT PILES IS BASED ON A NON-COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 188 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.70 FOR ROCK END BEARING.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A NON-COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 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 SOUTH ABUTMENT PILES IS 137 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.

NORTH ABUTMENT PILE

THE CONTRACT LENGTH OF 50 FEET FOR THE NORTH ABUTMENT PILES IS BASED ON A NON-COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 217 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.70 FOR ROCK END BEARING.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A NON-COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 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 NORTH ABUTMENT PILES IS 159 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.

SOUTH PIER PILE

THE CONTRACT LENGTH OF 25 FEET FOR THE SOUTH PIER PILES IS BASED ON A NON-COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 203 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.70 FOR ROCK END BEARING. PILES WERE ALSO DESIGNED FOR A FACTORED TENSION FORCE OF 12 KIPS.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A NON-COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.70 FOR ROCK END BEARING. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR THE SOUTH PIER PILES IS 148 TONS AT END OF DRIVE (EOD) OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. IN NO CASE SHALL A PILE BE EMBEDDED LESS THAN 1 FOOT INTO LIMESTONE. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

NORTH PIER PILE

THE CONTRACT LENGTH OF 25 FEET FOR THE NORTH PIER PILES IS BASED ON A NON-COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 214 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.70 FOR ROCK END BEARING.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A NON-COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.70 FOR ROCK END BEARING. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING. DESIGN SCOUR (100-YEAR) WAS ASSUMED TO AFFECT THE UPPER 1 FEET OF EMBEDDED PILE LENGTH AND CAUSE 1 KIPS OF DRIVING RESISTANCE.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR THE NORTH PIER PILES IS 156 TONS AT END OF DRIVE (EOD) OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. IN NO CASE SHALL A PILE BE EMBEDDED LESS THAN 1 FOOT INTO LIMESTONE. 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.

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

ALL EXPOSED CORNERS 90 DEGREES OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM THE VERTICAL.

CONCRETE PAVING BLOCKS ARE NOT REQUIRED, HOWEVER, IF IT BECOMES NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR. ANY DAMAGE TO THE DECK OR BACKWALL SHALL BE REPAIRED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE AUTHORIZED FOR THIS WORK.

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

AFTER AWARD OF THE CONTRACT, AN ELECTRONIC VERSION OF THE CIVIL 3D AND LAND XML FILES WILL BE AVAILABLE, UPON REQUEST, FOR THE SUCCESSFUL BIDDER'S USE DURING CONSTRUCTION. ANY ELECTRONIC VERSIONS PROVIDED ARE FOR INFORMATION ONLY. THE CERTIFIED PLAN SET SHALL GOVERN OVER ANY ELECTRONIC FILES PROVIDED.

THE ELECTRONIC FILE, IF REQUESTED, WILL BE PROVIDED IN THE 2026 VERSION OF CIVIL 3D. PRIOR TO RELEASE OF THE ELECTRONIC FILES, THE CONTRACTOR WILL BE REQUIRED TO SIGN AN ELECTRONIC MEDIA TRANSFER AGREEMENT AS PROVIDED BY CALHOUN-BURNS AND ASSOCIATES.

THE LIMITED MODELING WITHIN THE CIVIL 3D FILE HAS BEEN COMPLETED FOR THE PREPARATION OF THE PLAN SET. ADDITIONAL MANIPULATION BY THE CONTRACTOR MAY BE REQUIRED TO CREATE A MODEL ADEQUATE FOR CONSTRUCTION USE.

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.

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS **TEE PIERS**
66'-0 & 116'-0 END SPANS **117'-0 INTERIOR SPAN**

GENERAL NOTES

STATION 24+45.50 **15° SKEW, LT. AHEAD**
FLOYD 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 299'-0 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON HIGHWAY T64 OVER THE LITTLE CEDAR RIVER IN FLOYD COUNTY, IOWA.
- B. THIS PPP COVERS APPROXIMATELY 6.1 ACRES WITH AN ESTIMATED 4.7 ACRES BEING DISTURBED. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 4.7 ACRES DISTURBED.
- C. THE PPP IS LOCATED IN AN AREA OF ONE SOIL ASSOCIATION (KENYON-CLYDE-FLOYD). THE ESTIMATED WEIGHTED AVERAGE RUNOFF COEFFICIENT NUMBER FOR THIS PPP AFTER COMPLETION WILL BE 0.27.
- D. STORM WATER SITE MAP - MULTIPLE SOURCES OF INFORMATION COMPRISE THE BASE STORM WATER SITE MAP INCLUDING:
  1. DRAINAGE PATTERNS – SITUATION PLAN AND PLAN AND PROFILE.
  2. PROPOSED SLOPES – CROSS SECTIONS.
  3. AREAS OF SOIL DISTURBANCE – CONSTRUCTION LIMITS SHOWN ON SITUATION PLAN AND PLAN AND PROFILE.
  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 AND PLAN AND PROFILE.
  7. SURFACE WATERS (INCLUDING WETLANDS) – PROJECT LOCATION MAP AND SITUATION PLAN AND PLAN AND PROFILE.
  8. LOCATIONS WHERE STORM WATER IS DISCHARGED – SITUATION PLAN AND PLAN AND PROFILE.
- 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 THE LITTLE CEDAR RIVER.

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.

Adam S. Miller

SIGNATURE

Adam S. Miller

PRINTED OR TYPED NAME

POLLUTION PREVENTION PLAN

FLOYD COUNTY, IOWA

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT. ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT. ELEV.= 1046.68

BORING LOG NO. 4 STATION 22+96, 8'LT | CBA Job No.: 934-001 | Project No.: 261138

Project: Underwood Avenue Bridge (114) over Little Cedar River, Sec. 17, Niles Twp Floyd County, IA

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

Surface Elevation: 1054.1' Datum: Roadway Elev at CL of S Abut. = 1054.61'

Date Drilled: 3/13/2026 Drilling Depth, ft.: 56.5

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							Reinforced PCC (8"±)				0.7
1050		1	SSA	8	8.2			Dark brown sandy lean clay, trace gravel, moist		CL		1053.4
								FILL				5.5
	10	2	SSA	2	17.9			Dark brown very sandy lean clay, trace gravel, moist		CL		1048.6
1040		3	SSA	4	17.0			COHESIVE ALLUVIUM (Soft Silty Clay)				16
	20	4	SSA	10				Brown-gray silty fine sand, moist		SM	▽	1038.1
1030								Brown-gray silty fine to medium sand, saturated after 18'				
	30							GRANULAR ALLUVIUM (Silty Sand)				
1020												
	40											
1010												45
								Tan fractured limestone, damp				1009.1
	50							BEDROCK				
1000								Tan limestone after 53.5'				56.5
								End of Boring *Auger broke during limestone drilling **26' of auger left in bottom of hole				997.6
	60											
990												

*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: 18 ft. ____ ft. ____ ft.

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

BORING LOG NO. 1 STATION 23+61, 7'RT | CBA Job No.: 934-001 | Project No.: 261138

Project: Underwood Avenue Bridge (114) over Little Cedar River, Sec. 17, Niles Twp Floyd County, IA

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

Surface Elevation: 1054.7' Datum: Roadway Elev at CL of S Abut. = 1054.61'

Date Drilled: 3/12/2026 Drilling Depth, ft.: 57

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							Reinforced PCC (8"±)				0.7
1050												1054
	10							Air				
1040												19
	20	1	SSA	49				Rip Rap			▽	1035.7
												23
1030		2	SSA	5				Brown-gray silty fine to medium sand, trace gravel, saturated		SM		1031.7
	30	3	SSA	5				GRANULAR ALLUVIUM (Silty Sand)				
1020		4	SSA	12								
	40	5	SSA	9								
1010		6	SSA	23								
												49
	50	7	SSA	200	4.4			Tan fractured limestone, damp Limestone after 50.5' BEDROCK				1005.7
1000		8	SSA	50/0.5"	12.4							
		9	SSA	50/0"	13.6							57
	60							End of Boring				997.7
990												

*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: 20 ft. ____ ft. ____ ft.

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

SOUNDING DATA

(SEE "SITUATION PLAN", SHEET 4 AND "PLAN & PROFILE", SHEET 37, 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: 9/15/26

DAVID LOGEMANN, P.E.

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2027.

PAGES OR SHEETS COVERED BY THIS SEAL:
7 & 8 OF 42

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

SOUNDING DATA

STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA

BORING LOG NO. 3 STATION 24+80, 26'LT | CBA Job No.: 934-001 | Project No.: 261138

Project: Underwood Avenue Bridge (114) over Little Cedar River, Sec. 17, Niles Twp Floyd County, IA

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

Surface Elevation: 1038.5' | Date Drilled: 3/13/2026 | Drilling Method: HSA

Datum: Roadway Elev at CL of S Abut. = 1054.61' | Drilling Depth, ft.: 40 | 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.
1038.5	0							Brown-gray silty fine to medium sand, trace gravel, saturated		SM	▽	
1030	10							GRANULAR ALLUVIUM (Silty Sand)				
1020	20											
1010	30											31
								Tan fractured limestone, damp Limestone after 33.5' BEDROCK				1007.5
1000	40											40
								End of Boring				998.5
990	50											
980	60											

*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: 2 ft. ____ ft. ____ ft.

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

BORING LOG NO. 2 STATION 25+90, 27'RT | CBA Job No.: 934-001 | Project No.: 261138

Project: Underwood Avenue Bridge (114) over Little Cedar River, Sec. 17, Niles Twp Floyd County, IA

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

Surface Elevation: 1044.9' | Date Drilled: 3/12/2026 | Drilling Method: HSA

Datum: Roadway Elev at CL of S Abut. = 1054.61' | Drilling Depth, ft.: 47.5 | 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							Dark brown sandy lean clay, trace gravel, moist Mixed with dark brown after 1' FILL		CL		
1040		1	SSA	4	15.7			With rip rap near 6'				7.5
	10	2	SSA	6	10.0			Brown silty fine to coarse sand, trace gravel, moist Saturated after 9' GRANULAR ALLUVIM (Silty Sand)		SM	▽	1037.4
1030		3	SSA	4								
	20	4	SSA	8								23
1020		5	SSA	19				Brown-gray silty fine sand, saturated		SM		1021.9
	30	6	SSA	26				GRANULAR ALLUVIUM (Fine Sand)				
1010		7	SSA	13								39
	40	8	SSA	68				Tan fractured limestone, damp				1005.9
1000		9	SSA	50/0.5"				Limestone after 43' BEDROCK				47.5
		10	SSA	50/0.5"				End of Boring				997.4
	50											
990												
	60											
980												

*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: 9 ft. ____ ft. ____ ft.

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

SOUNDING DATA

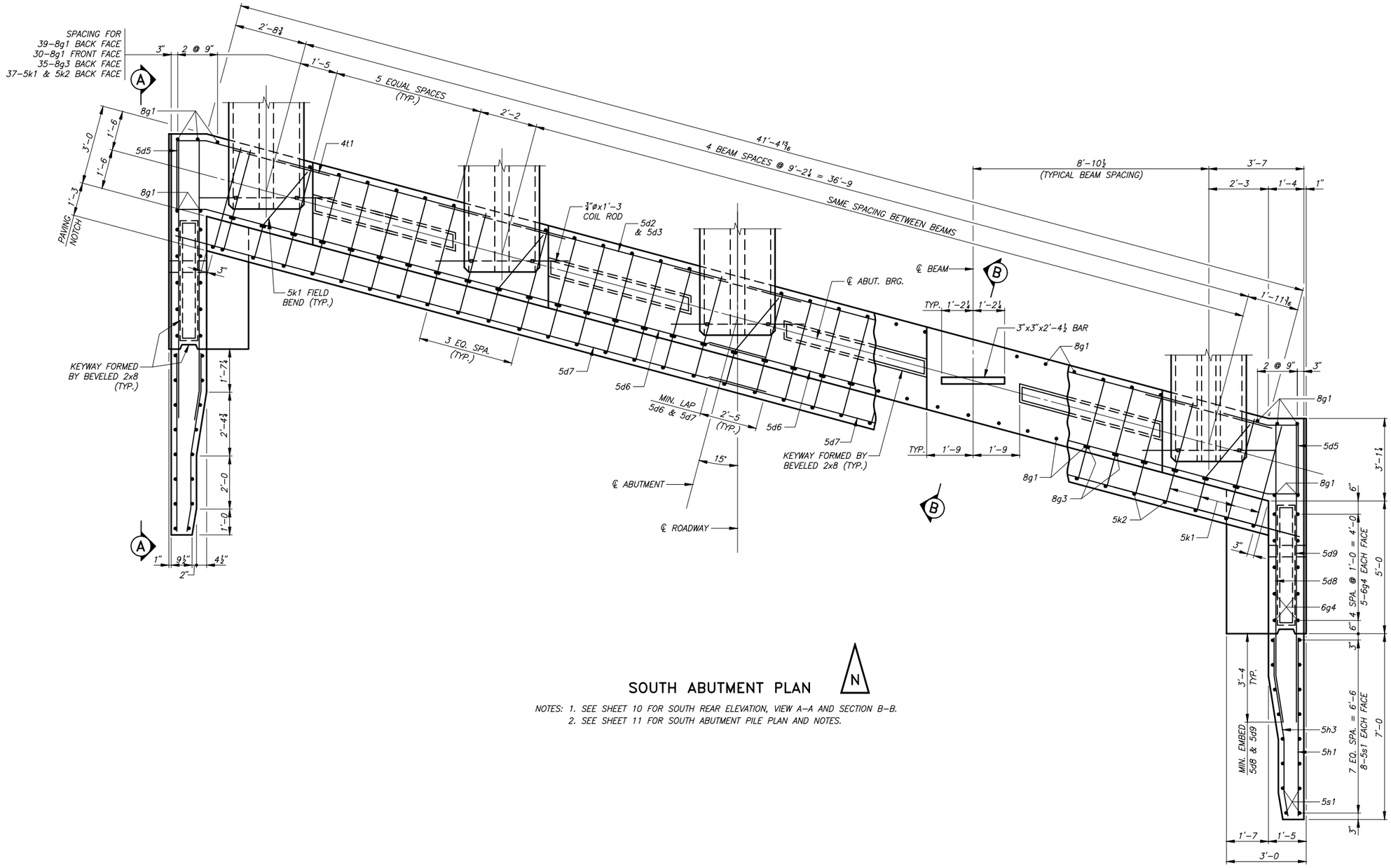
(SEE "SITUATION PLAN", SHEET 4 AND "PLAN & PROFILE", SHEET 37, FOR BORING LOCATIONS)

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — TEE PIERS
66'–0 & 116'–0 END SPANS — 117'–0 INTERIOR SPAN

SOUNDING DATA

STATION 24+45.50 — 15° SKEW, LT. AHEAD
FLOYD COUNTY, IOWA



SOUTH ABUTMENT PLAN

NOTES: 1. SEE SHEET 10 FOR SOUTH REAR ELEVATION, VIEW A–A AND SECTION B–B.
2. SEE SHEET 11 FOR SOUTH ABUTMENT PILE PLAN AND NOTES.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

SOUTH ABUTMENT DETAILS

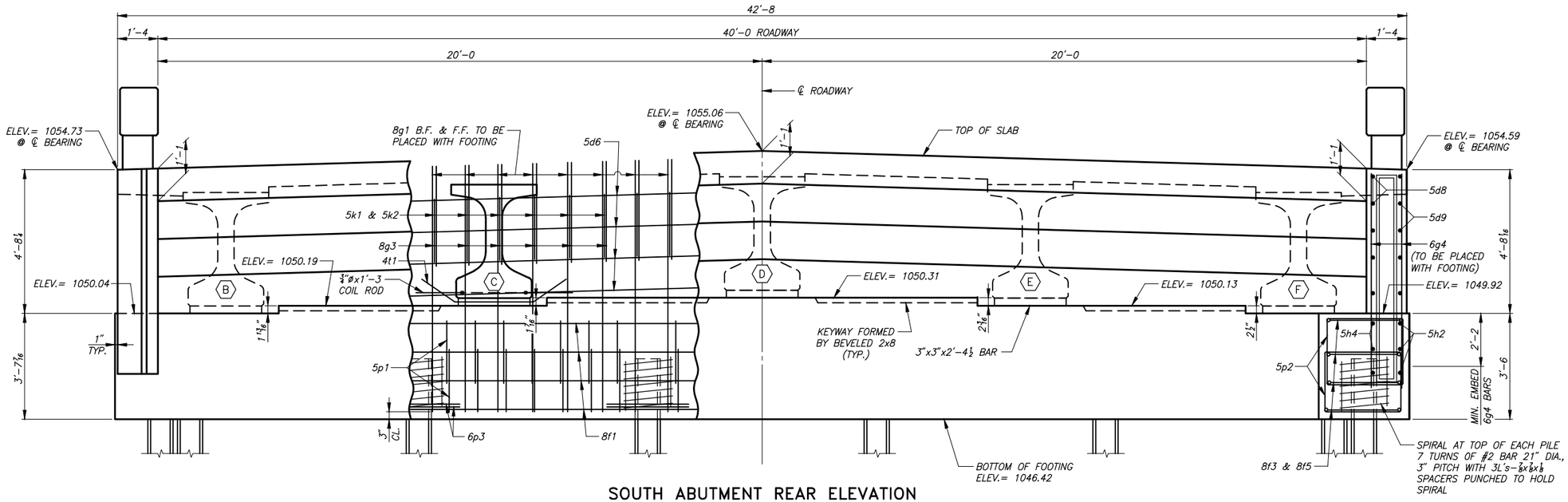
STATION 24+45.50

15° SKEW, LT. AHEAD

FLOYD COUNTY,

IOWA

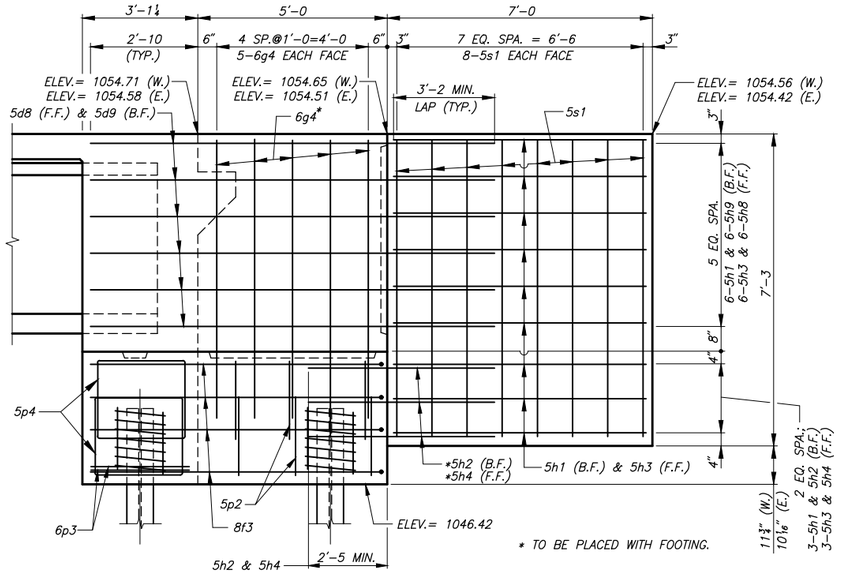
BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



SOUTH ABUTMENT REAR ELEVATION

(LOOKING NORTH)

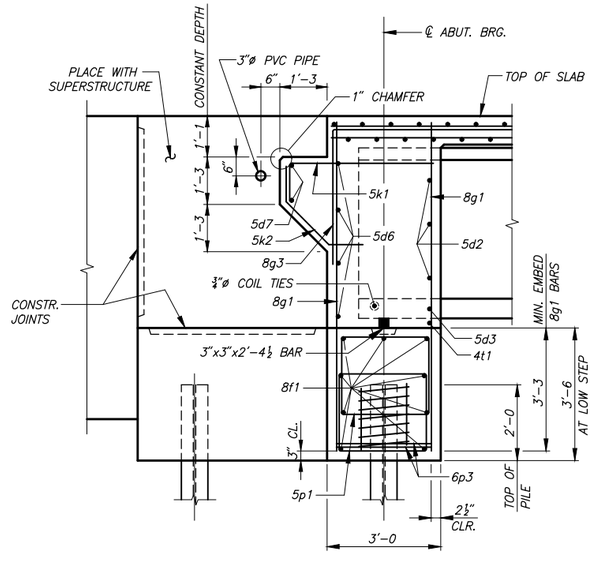
⬡ DENOTES BEAM LINE



* TO BE PLACED WITH FOOTING.

VIEW A–A

NOTES: 1. ELEVATIONS AND VERTICAL DIMENSIONS SHOWN ARE AT OUTSIDE FACE.
2. SEE OPEN RAIL DETAILS, SHEETS 29 & 30 FOR ADDITIONAL WING AND WING EXTENSION REINFORCING.



SECTION B–B

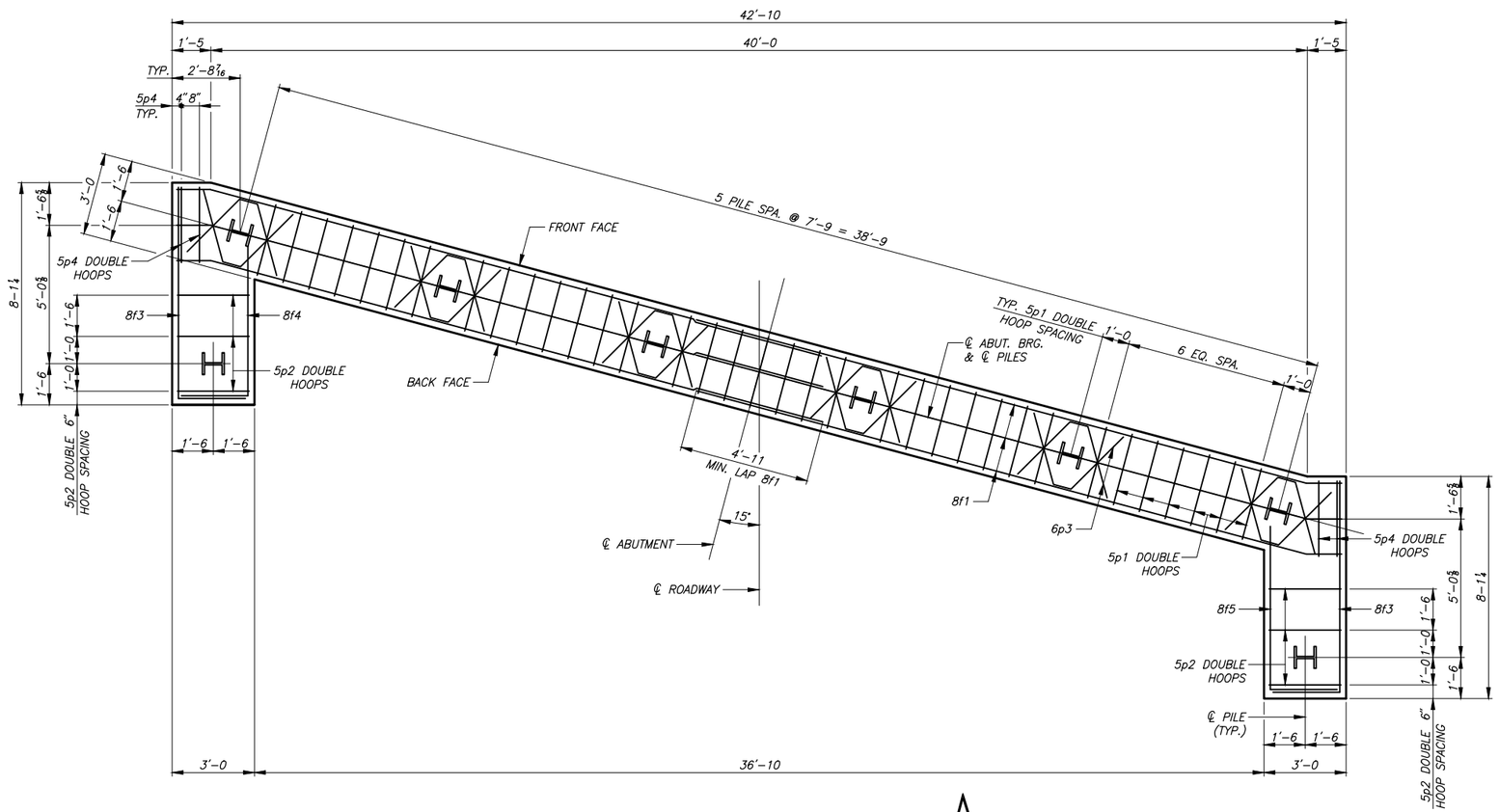
NOTE: PLUG 3"ø PVC PIPE WITH EXPANDING FOAM PRIOR TO BACKFILLING BEHIND ABUTMENTS.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **TEE PIERS**
66'–0 & 116'–0 END SPANS — **117'–0 INTERIOR SPAN**

SOUTH ABUTMENT DETAILS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**
FLOYD COUNTY, — **IOWA**



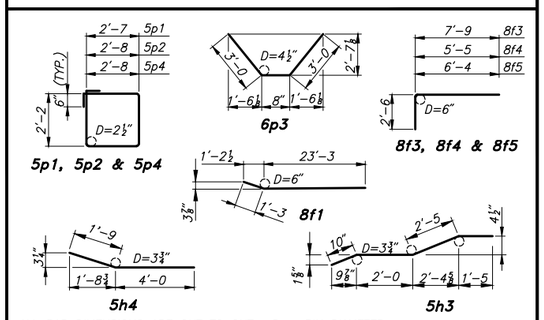
SOUTH ABUTMENT PILE PLAN

NOTES: 1. 8–50' HP10x57 STEEL BEARING PILING IN SOUTH ABUTMENT.
2. SEE SHEETS 9 & 10 FOR SOUTH ABUTMENT DETAILS.

REINFORCING BAR LIST – SOUTH ABUTMENT

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
Δ	8f1	ABUT. FOOTING, LONGITUDINAL		18	24'–6	1,177
Δ	8f3	ABUT. EXTENSION, LONGITUDINAL		8	10'–3	219
Δ	8f4	ABUT. EXTENSION, LONGITUDINAL		4	7'–11	85
Δ	8f5	ABUT. EXTENSION, LONGITUDINAL		4	8'–10	94
Δ	8g1	ABUT. VERTICAL, B.F. & F.F.		69	7'–8	1,413
Δ	6g4	ABUT. DIAPHRAGM, WING EXT., VERT.		20	6'–7	198
Δ	5h1	ABUT. WING, HORIZONTAL, B.F.		18	6'–8	125
Δ	5h2	ABUT. TO WING, ANCHOR, B.F.		6	5'–9	36
Δ	5h3	ABUT. WING, HORIZONTAL, F.F.		18	6'–8	125
Δ	5h4	ABUT. TO WING, ANCHOR, F.F.		6	5'–9	36
Δ	5p1	ABUT. HOOPS		70	10'–6	767
Δ	5p2	ABUT. EXTENSION, HOOPS		12	10'–8	134
Δ	6p3	ABUT. BOTTOM, AT PILES		12	6'–8	120
Δ	5p4	ABUT. HOOPS, END		8	10'–8	89
Δ	5s1	WING, VERTICAL		32	6'–11	231
Δ	*	PILE SPIRAL – #2 BAR		8	38'–6	51
Δ	*	SPIRAL SPACERS – L⅜x⅜x⅛ x 0.70		24	1'–10	31
	*	MAY BE UNCOATED @ CONTRACTOR'S OPTION				
Δ EPOXY COATED BARS			EPOXY COATED TOTAL (LBS.)			4,931

BENT BAR DETAILS



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

CONCRETE PLACEMENT QUANT.– SOUTH ABUT.

LOCATION	UNIT	QUANTITY
FOOTING AND STEPS	CU.YDS.	22.4
WINGS (2 @ 2.06 C.Y.)	CU.YDS.	4.1
TOTAL	CU.YDS.	26.5

ESTIMATED QUANTITIES – SOUTH ABUT.

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE, 4,500 PSI OR GREATER	CU.YDS.	26.5
REINFORCING STEEL, EPOXY COATED	LBS.	4,931
PILES, STEEL, HP 10x57; (8 @ 50')	L.F.	400
PREBORED HOLES (8 @ 10')	L.F.	80
EXCAVATION, CLASS 20	CU.YDS.	120

SOUTH 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 AND EPOXY COATED.

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.

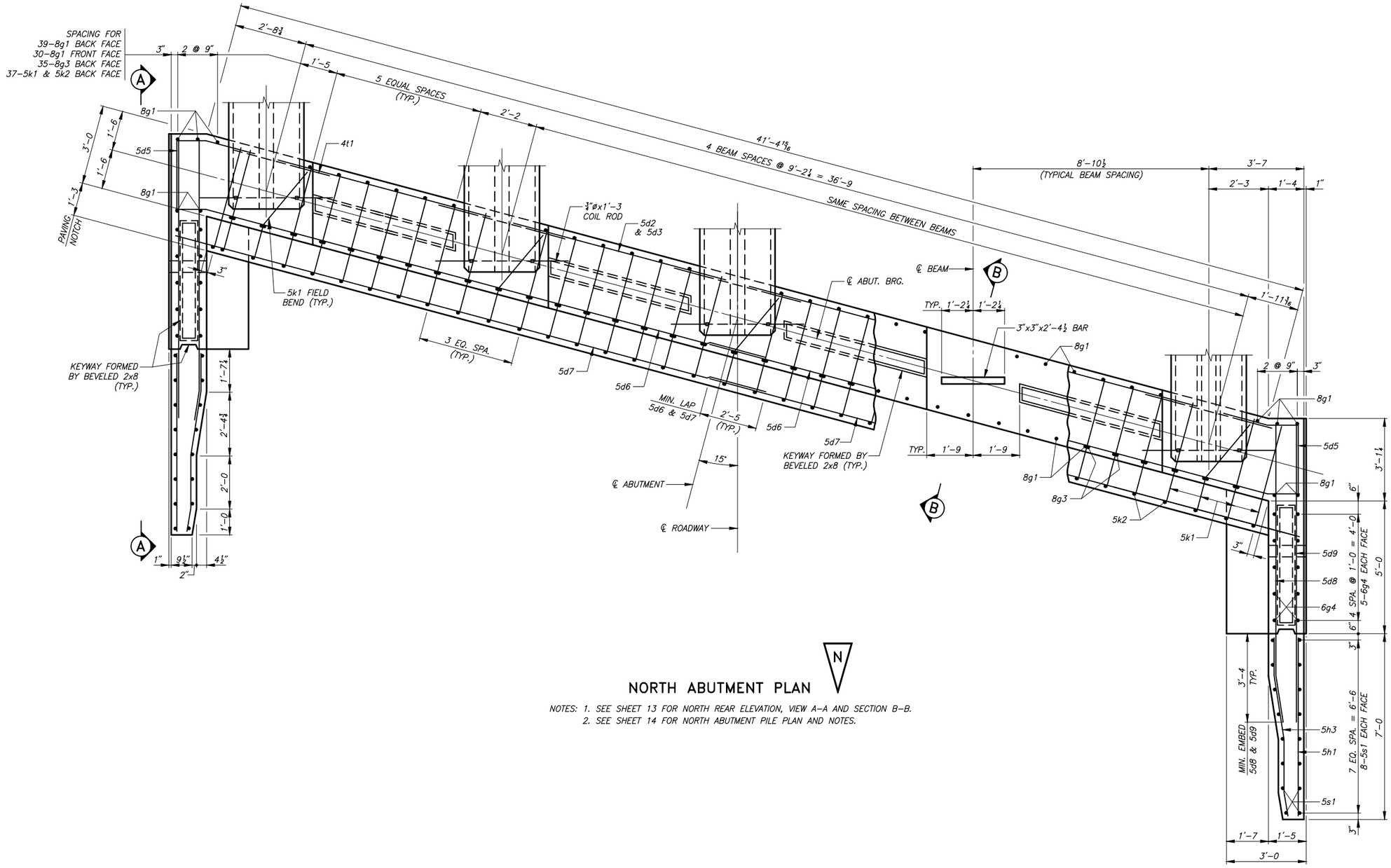
SEE PILE NOTES ON SHEET 5 FOR ADDITIONAL INFORMATION.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **TEE PIERS**
66'–0 & 116'–0 END SPANS — **117'–0 INTERIOR SPAN**

SOUTH ABUTMENT DETAILS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**
FLOYD COUNTY, IOWA



NORTH ABUTMENT PLAN

NOTES: 1. SEE SHEET 13 FOR NORTH REAR ELEVATION, VIEW A–A AND SECTION B–B.
2. SEE SHEET 14 FOR NORTH ABUTMENT PILE PLAN AND NOTES.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

NORTH ABUTMENT DETAILS

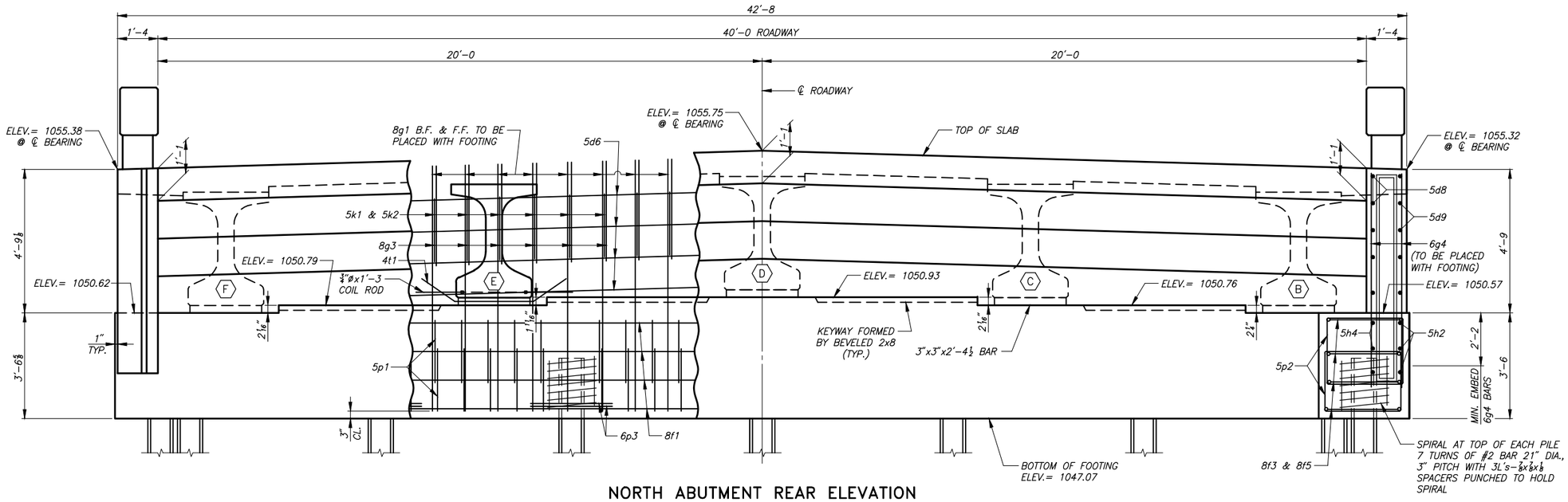
STATION 24+45.50

15° SKEW, LT. AHEAD

FLOYD COUNTY,

IOWA

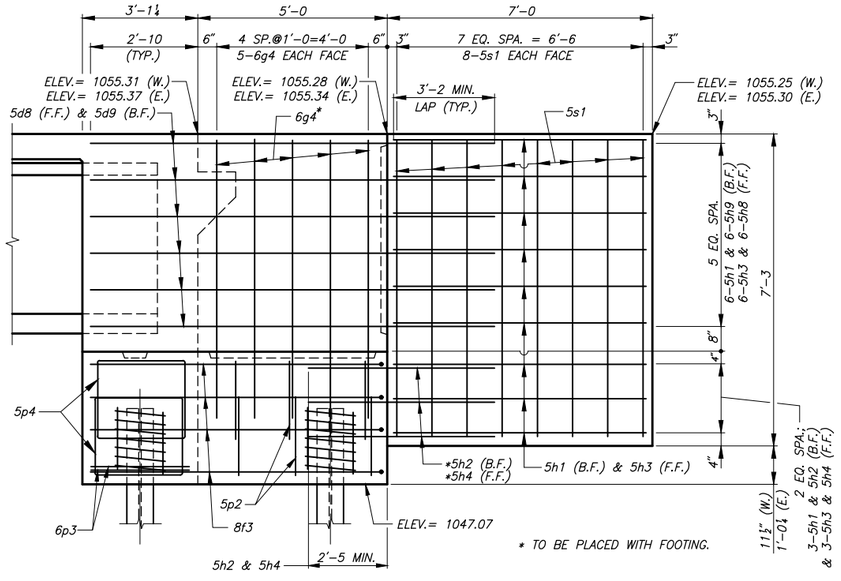
BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



NORTH ABUTMENT REAR ELEVATION

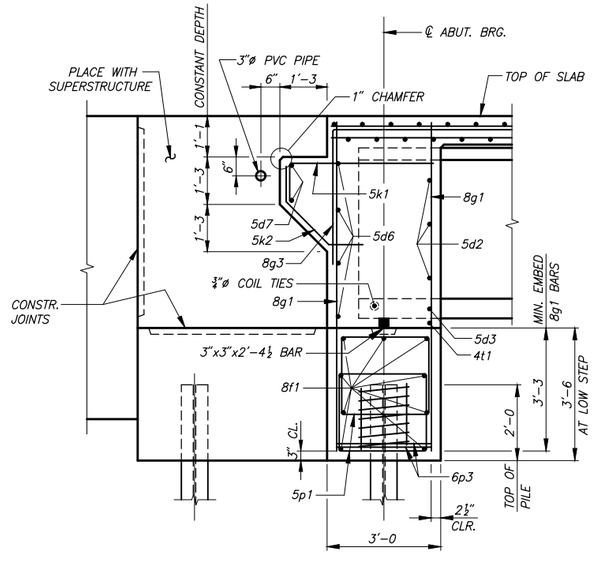
(LOOKING SOUTH)

⬡ DENOTES BEAM LINE



VIEW A-A

NOTES: 1. ELEVATIONS AND VERTICAL DIMENSIONS SHOWN ARE AT OUTSIDE FACE.
2. SEE OPEN RAIL DETAILS, SHEETS 29 & 30 FOR ADDITIONAL WING AND WING EXTENSION REINFORCING.



SECTION B-B

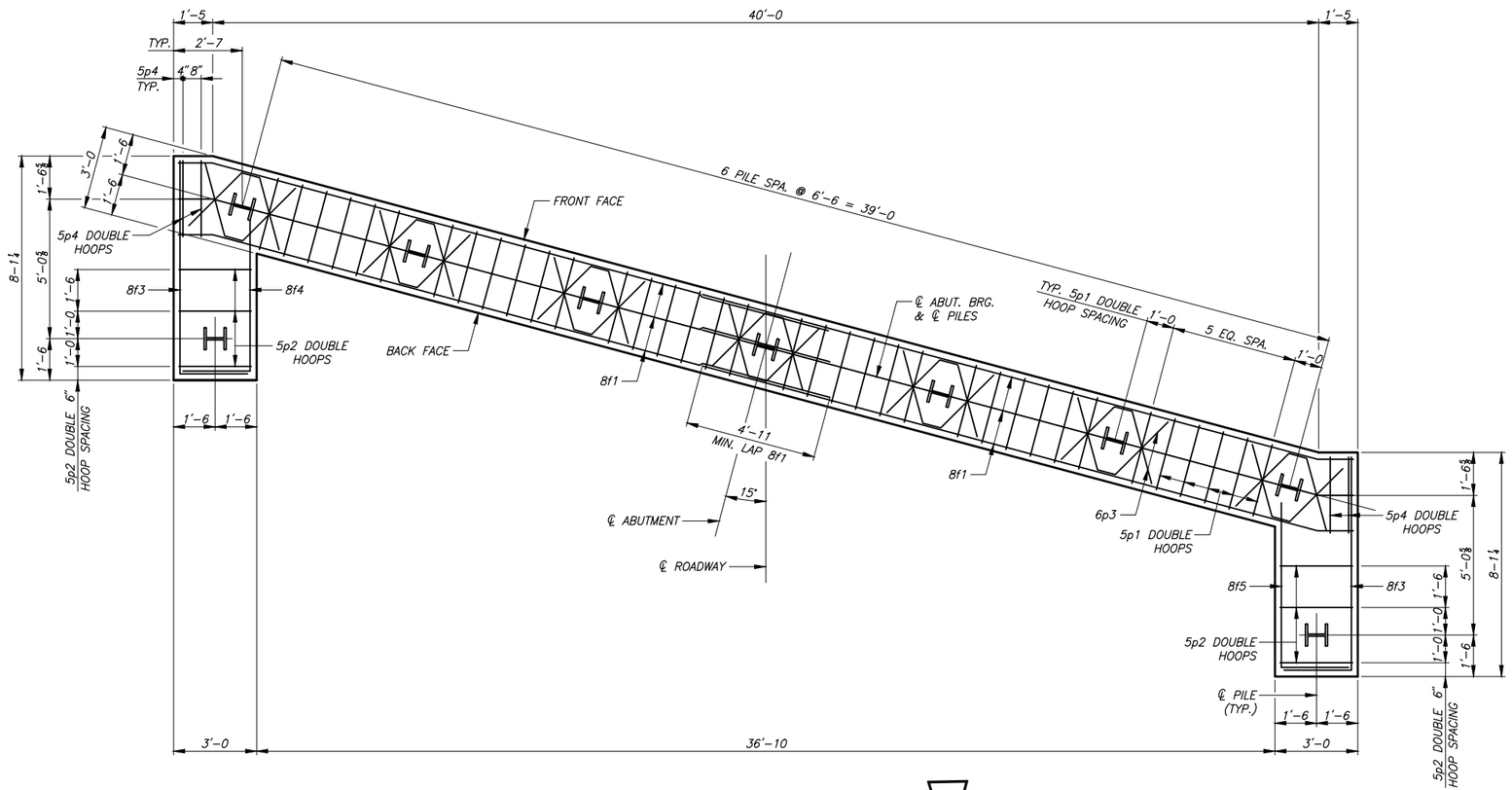
NOTE: PLUG 3"ø PVC PIPE WITH EXPANDING FOAM PRIOR TO BACKFILLING BEHIND ABUTMENTS.

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **TEE PIERS**
66'-0 & 116'-0 END SPANS — **117'-0 INTERIOR SPAN**

NORTH ABUTMENT DETAILS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**
FLOYD COUNTY, — **IOWA**



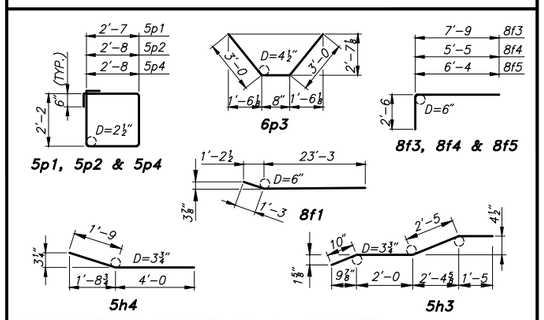
NORTH ABUTMENT PILE PLAN

NOTES: 1. 9–50' HP10x57 STEEL BEARING PILING IN NORTH ABUTMENT.
2. SEE SHEETS 12 & 13 FOR NORTH ABUTMENT DETAILS.

REINFORCING BAR LIST – NORTH ABUTMENT

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
Δ	8f1	ABUT. FOOTING, LONGITUDINAL		18	24'–6	1,177
Δ	8f3	ABUT. EXTENSION, LONGITUDINAL		8	10'–3	219
Δ	8f4	ABUT. EXTENSION, LONGITUDINAL		4	7'–11	85
Δ	8f5	ABUT. EXTENSION, LONGITUDINAL		4	8'–10	94
Δ	8g1	ABUT. VERTICAL, B.F. & F.F.		69	7'–8	1,413
Δ	6g4	ABUT. DIAPHRAGM, WING EXT., VERT.		20	6'–7	198
Δ	5h1	ABUT. WING, HORIZONTAL, B.F.		18	6'–8	125
Δ	5h2	ABUT. TO WING, ANCHOR, B.F.		6	5'–9	36
Δ	5h3	ABUT. WING, HORIZONTAL, F.F.		18	6'–8	125
Δ	5h4	ABUT. TO WING, ANCHOR, F.F.		6	5'–9	36
Δ	5p1	ABUT. HOOPS		72	10'–6	789
Δ	5p2	ABUT. EXTENSION, HOOPS		12	10'–8	134
Δ	6p3	ABUT. BOTTOM, AT PILES		14	6'–8	140
Δ	5p4	ABUT. HOOPS, END		8	10'–8	89
Δ	5s1	WING, VERTICAL		32	6'–11	231
Δ	*	PILE SPIRAL – #2 BAR		9	38'–6	58
Δ	*	SPIRAL SPACERS – L⅜"x⅜"x⅜" x 0.70		27	1'–10	35
	*	MAY BE UNCOATED @ CONTRACTOR'S OPTION				
Δ EPOXY COATED BARS			EPOXY COATED TOTAL (LBS.)			4,984

BENT BAR DETAILS



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

CONCRETE PLACEMENT QUANT.– NORTH ABUT.

LOCATION	UNIT	QUANTITY
FOOTING AND STEPS	CU.YDS.	22.2
WINGS (2 @ 2.06 C.Y.)	CU.YDS.	4.1
TOTAL	CU.YDS.	26.3

ESTIMATED QUANTITIES – NORTH ABUT.

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE, 4,500 PSI OR GREATER	CU.YDS.	26.3
REINFORCING STEEL, EPOXY COATED	LBS.	4,984
PILES, STEEL, HP 10x57; (9 @ 50')	L.F.	450
PREBORED HOLES (9 @ 10')	L.F.	90
EXCAVATION, CLASS 20	CU.YDS.	120

NORTH 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 AND EPOXY COATED.

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.

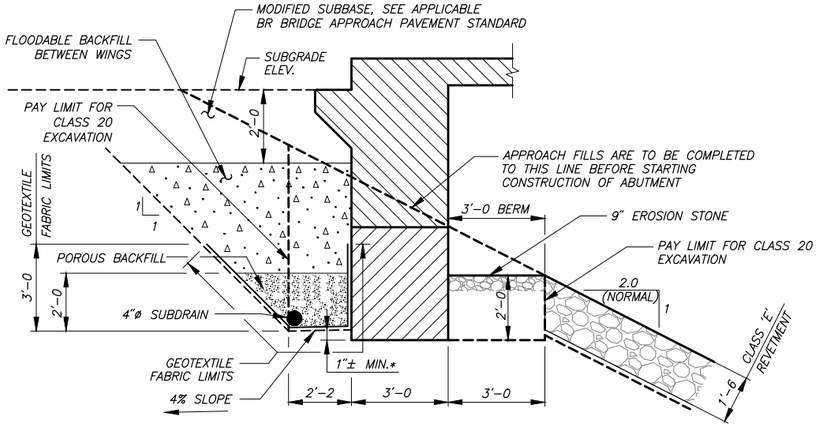
SEE PILE NOTES ON SHEET 5 FOR ADDITIONAL INFORMATION.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — TEE PIERS
66'–0 & 116'–0 END SPANS — 117'–0 INTERIOR SPAN

NORTH ABUTMENT DETAILS

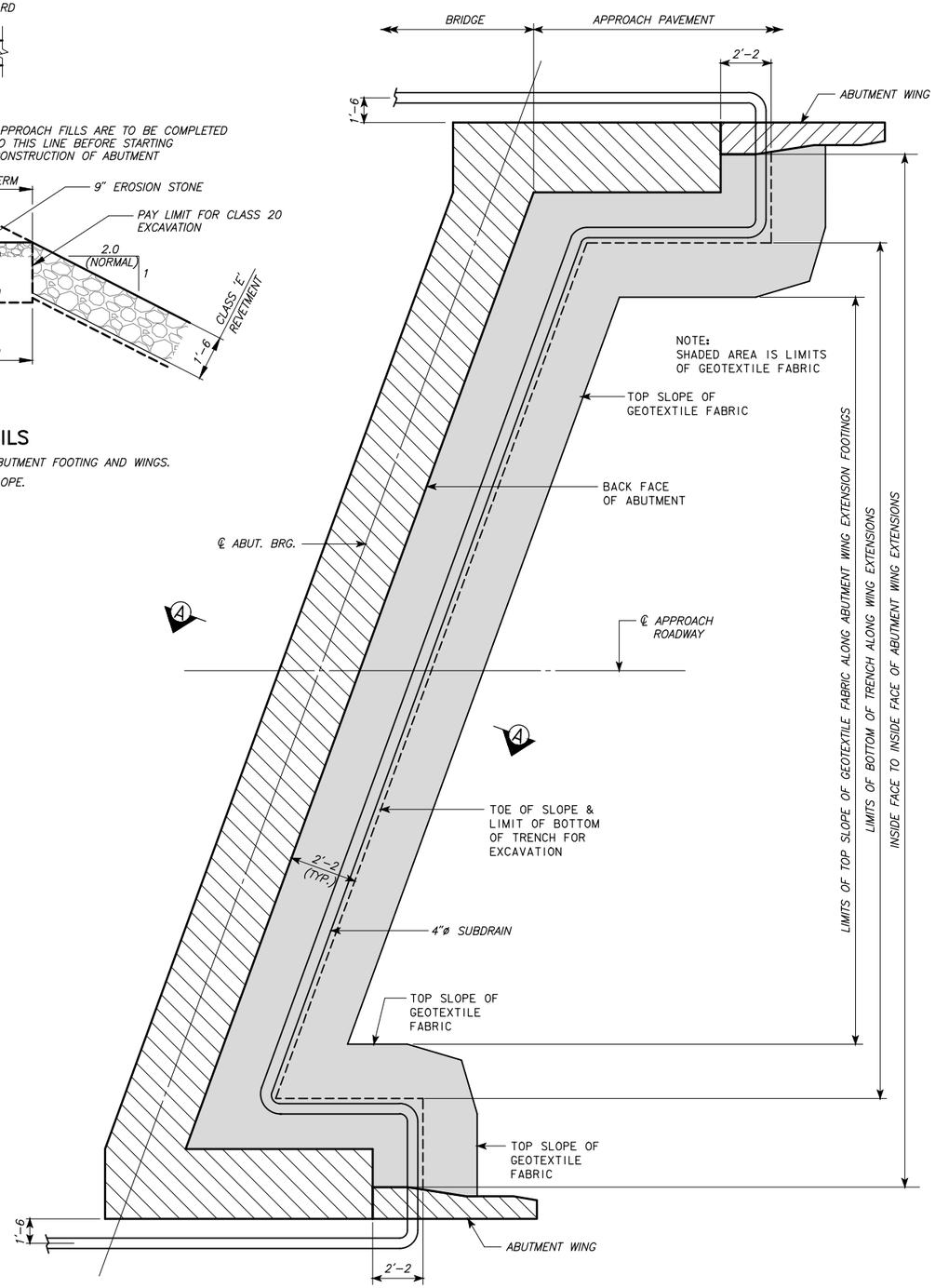
STATION 24+45.50 — 15° SKEW, LT. AHEAD
FLOYD COUNTY, — IOWA



SECTION A–A
GRANULAR BACKFILL DETAILS

NOTE: GEOTEXTILE FABRIC WILL BE ATTACHED TO FACE OF ABUTMENT FOOTING AND WINGS.

*DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.



ABUTMENT PLAN WITH WING EXTENSIONS

ABUTMENT BACKFILL PROCESS

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

AFTER THE SUBGRADE HAS BEEN SHAPED THE GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN. THE FABRIC IS INTENDED TO BE INSTALLED IN THE BASE OF THE EXCAVATION AND EXTENDED VERTICALLY UP THE ABUTMENT BACKWALL, ABUTMENT WING WALLS, AND EXCAVATION FACE TO A HEIGHT THAT WILL BE APPROXIMATELY I TO 2 FOOT HIGHER THAN THE HEIGHT OF THE POROUS BACKFILL PLACEMENT AS SHOWN IN THE "GRANULAR BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY I FOOT AND SHALL BE PINNED IN PLACE. THE FABRIC SHALL BE ATTACHED TO THE ABUTMENT BY USING LATH FOLDED IN THE FABRIC AND SECURED TO THE CONCRETE WITH SHALLOW CONCRETE NAILS. THE FABRIC PLACED AGAINST THE EXCAVATION FACE SHALL BE PINNED.

WHEN THE FABRIC IS IN PLACE, THE SUBDRAIN SHALL BE INSTALLED DIRECTLY ON THE FABRIC AT THE TOE OF THE REAR EXCAVATION SLOPE. A SLOT WILL NEED TO CUT IN THE FABRIC AT THE POINT WHERE THE SUBDRAIN EXITS THE FABRIC NEAR THE END OF THE ABUTMENT WING WALL.

POROUS BACKFILL IS THEN PLACED AND LEVELED, NO COMPACTION IS REQUIRED.

THE REMAINING WORK INVOLVES BACKFILLING WITH FLOODABLE BACKFILL, SURFACE FLOODING, AND VIBRATORY COMPACTION. THE FLOODABLE BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE FLOODABLE BACKFILL SHALL BE PLACED IN INDIVIDUAL LIFTS, SURFACE FLOODED, AND COMPACTED WITH VIBRATORY COMPACTION TO ENSURE FULL CONSOLIDATION. LIMIT THE LOOSE LIFTS TO NO MORE THAN 2 FEET OF THICKNESS.

START SURFACE FLOODING FOR EACH FLOODABLE BACKFILL LIFT AT THE HIGH POINT OF THE SUBDRAIN AND PROGRESS TO THE LOW POINT WHERE THE SUBDRAIN EXITS THE FABRIC. TO ENSURE UNIFORM SURFACE FLOODING, WATER RUNNING FULL IN A 2-INCH DIAMETER HOSE SHOULD BE SPRAYED IN SUCCESSIVE 6-FOOT TO 8-FOOT INCREMENTS FOR 5 MINUTES WITHIN EACH INCREMENT.

FLOODABLE BACKFILL LIFT PLACEMENT, FLOODING, AND COMPACTION SHALL PROGRESS UNTIL THE REQUIRED FULL THICKNESS OF THE ABUTMENT BACKFILL HAS BEEN COMPLETED.

WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS WILL NOT BE MEASURED SEPARATELY FOR PAYMENT.

THE COST OF WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

NOTES:

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM CENTERLINE APPROACH ROADWAY WHEN OUTLETTING BOTH SIDES OF THE ABUTMENT.

THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01,B,6 OF THE STANDARD SPECIFICATIONS. IF THE ENGINEERING FABRIC IS LAPPED, THE LAPS SHALL BE A MINIMUM OF ONE FOOT IN LENGTH, SINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.

SEE SITUATION PLAN, SHEET 4, FOR ADDITIONAL INFORMATION.

SEE SUBDRAIN AND WING ARMORING DETAILS, SHEET 16, FOR ADDITIONAL INFORMATION.

MODIFIED STANDARD SHEET I007E

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

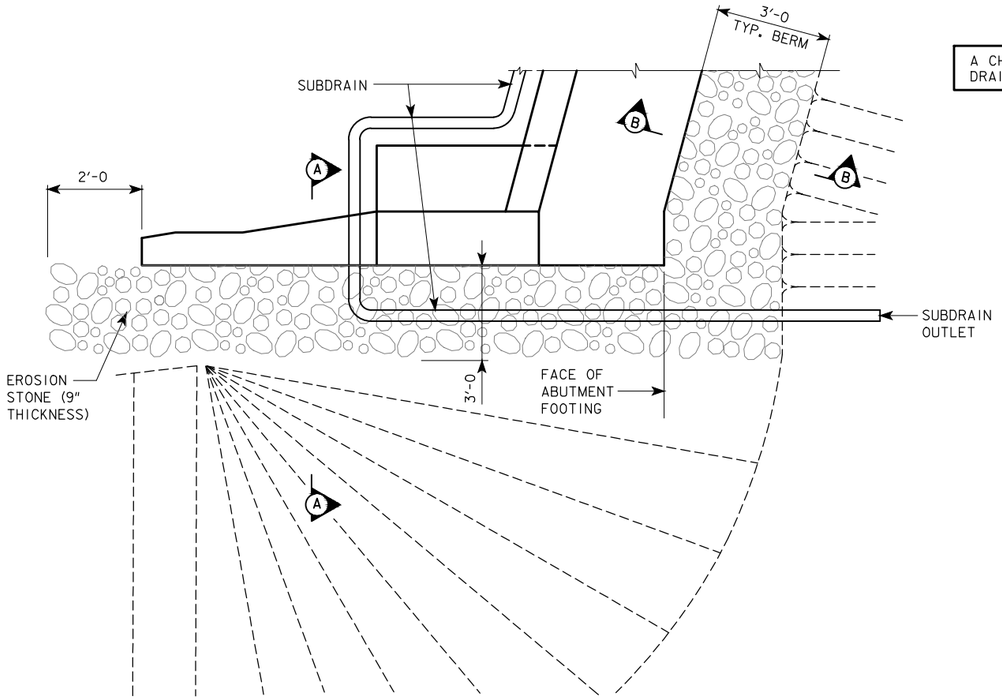
INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

ABUTMENT BACKFILL DETAILS

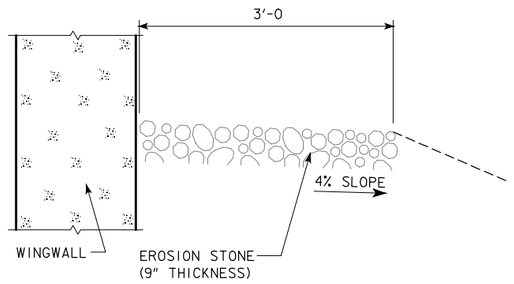
STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA

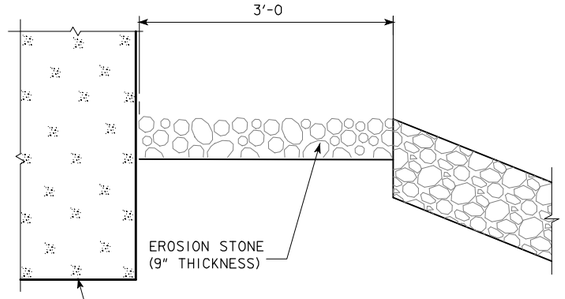


TOP VIEW OF WING ARMORING WITH WING EXTENSION

A CHECK SHALL BE MADE AT THE SUBDRAIN OUTLET TO INSURE THAT IT IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS.



SECTION A–A



SECTION B–B

SUBRDRAIN NOTES

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

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

THE SUBDRAIN OUTLET SHALL CONSIST OF A LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD AS DETAILED ON THIS SHEET. THE LENGTH OF THE OUTLET PIPE SHALL BE DETERMINED BY THE REVETMENT AND ITS PLACEMENT LOCATION. THE CONTRACTOR IS TO ENSURE THE OUTLET PIPE IS ADEQUATELY STRONG ENOUGH AND WILL NOT BE DAMAGED WHEN REVETMENT IS PLACED. A CHECK WILL BE MADE AT THE SUBDRAIN OUTLET TO ENSURE THAT THE SUBDRAIN IS NOT DAMAGED AND IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS. IF A METAL OUTLET IS USED, IT SHALL BE 6 INCHES IN DIAMETER AND COUPLED TO THE 4 INCH DIAMETER SUBDRAIN IN ONE OF THE TWO FOLLOWING WAYS.

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

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

SEE SITUATION PLAN, SHEET 4, FOR SUBDRAIN OUTLET ELEVATIONS.

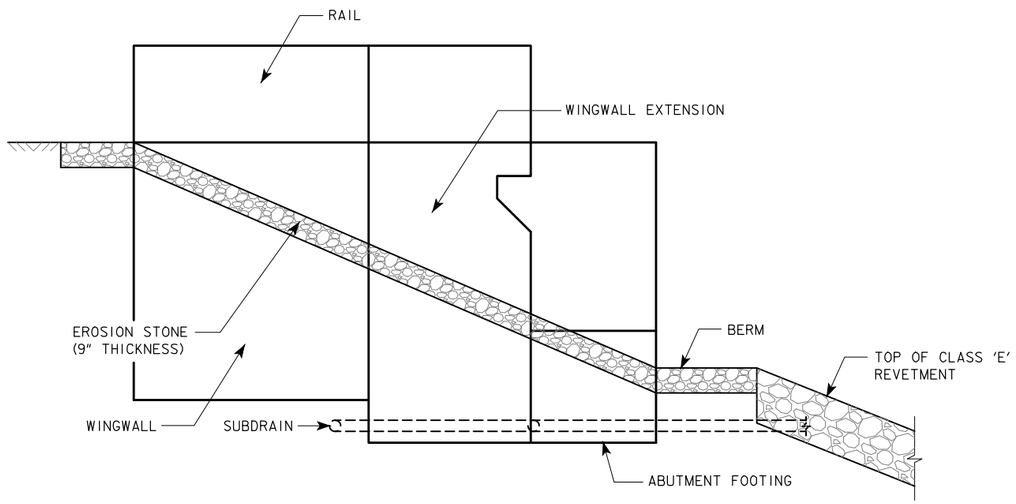
WING ARMORING NOTES

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.

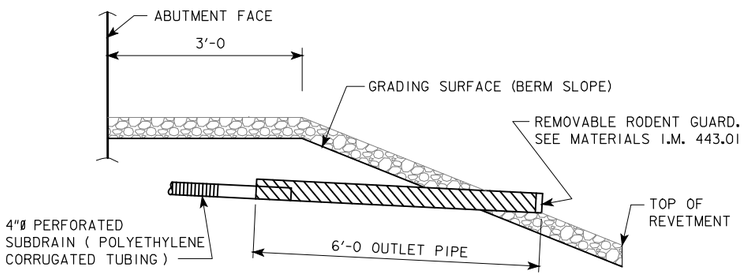
THE EROSION STONE SHALL BE IN ACCORDANCE WITH SECTION 4130, OF THE STANDARD SPECIFICATIONS. MATERIAL PASSING THE 3 INCH SCREEN BUT 100% RETAINED ON A 1 INCH SCREEN MAY BE USED AS CHOKE STONE.

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.

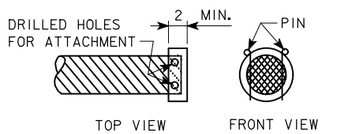
PAYMENT FOR THE BRIDGE WING ARMORING WILL BE BID PER SQUARE YARD. COST WILL INCLUDE EROSION STONE, EXCAVATION, SHAPING AND COMPACTION TO DIMENSIONS SHOWN IN THESE PLANS. BID ITEM SHALL BE "BRIDGE WING ARMORING - EROSION STONE".



PROFILE VIEW OF WING ARMORING WITH WING EXTENSION
(INTEGRAL ABUTMENT WITH WING EXTENSIONS)



TYPICAL SECTION OF SUBDRAIN OUTLET



REMOVABLE RODENT GUARD DETAILS

SUBDRAIN OUTLET DETAILS

MODIFIED STANDARD SHEETS I005A & I007C

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

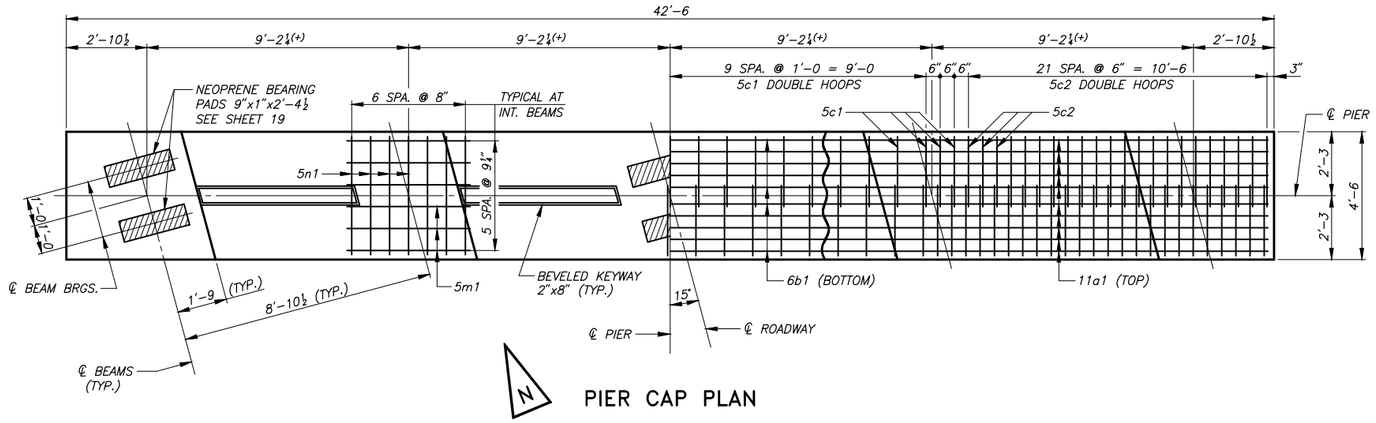
TEE PIERS
117'–0 INTERIOR SPAN

SUBDRAIN & WING ARMORING DETAILS

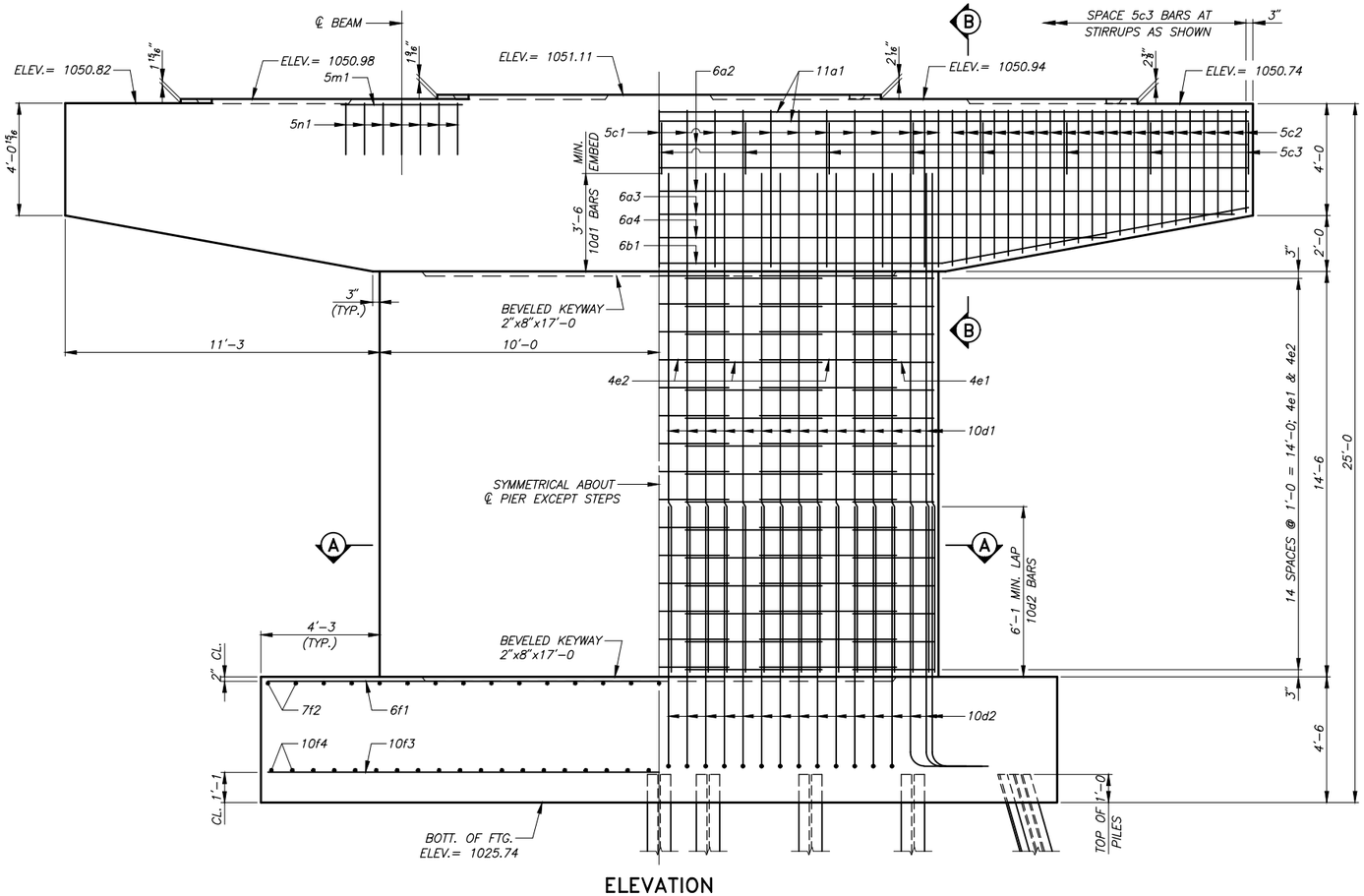
STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68

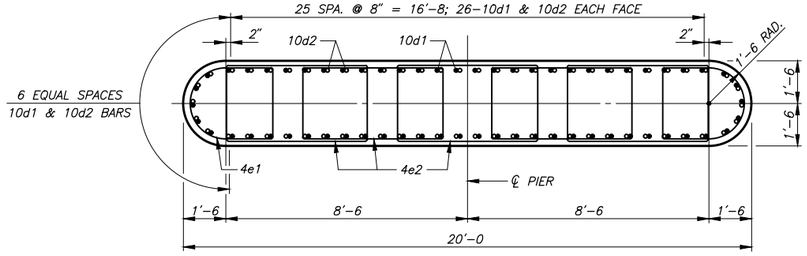


PIER CAP PLAN

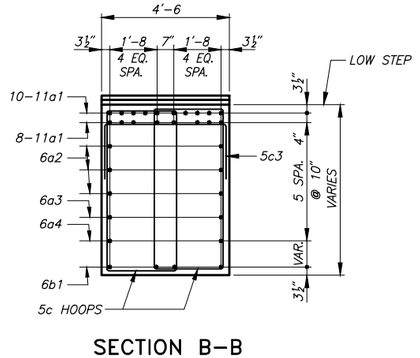


ELEVATION
(LOOKING NORTH)

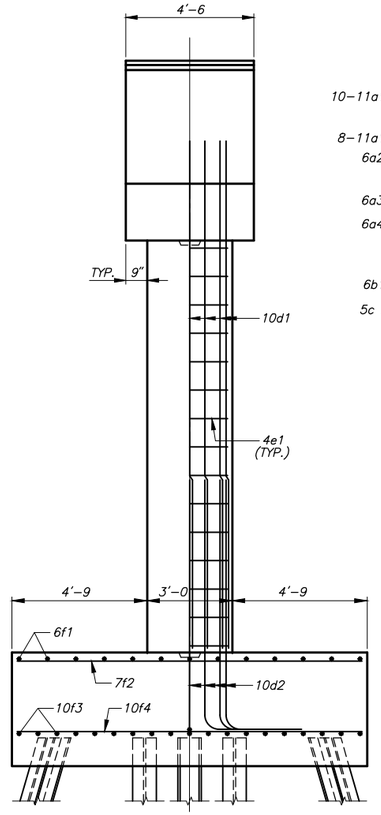
NOTE: SEE SHEET 19 FOR FOOTING PLAN.



SECTION A-A



SECTION B-B



END ELEVATION

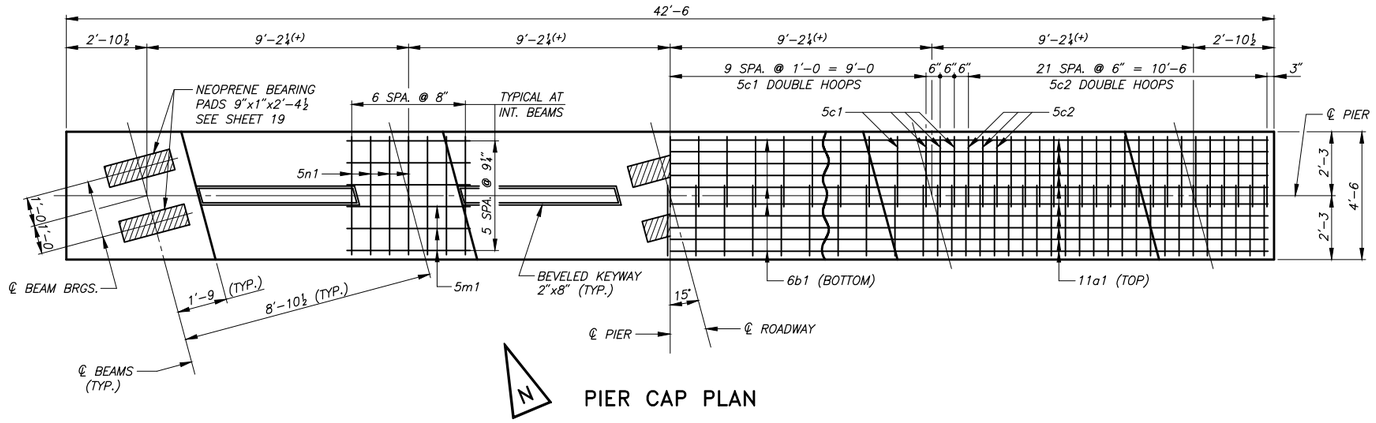
299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — TEE PIERS
66'-0 & 116'-0 END SPANS — 117'-0 INTERIOR SPAN

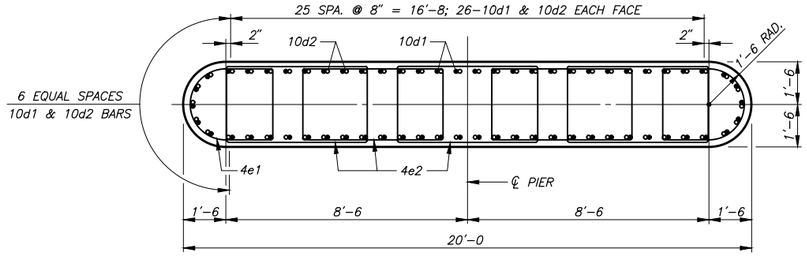
SOUTH PIER DETAILS

STATION 24+45.50 — 15° SKEW, LT. AHEAD
FLOYD COUNTY, IOWA

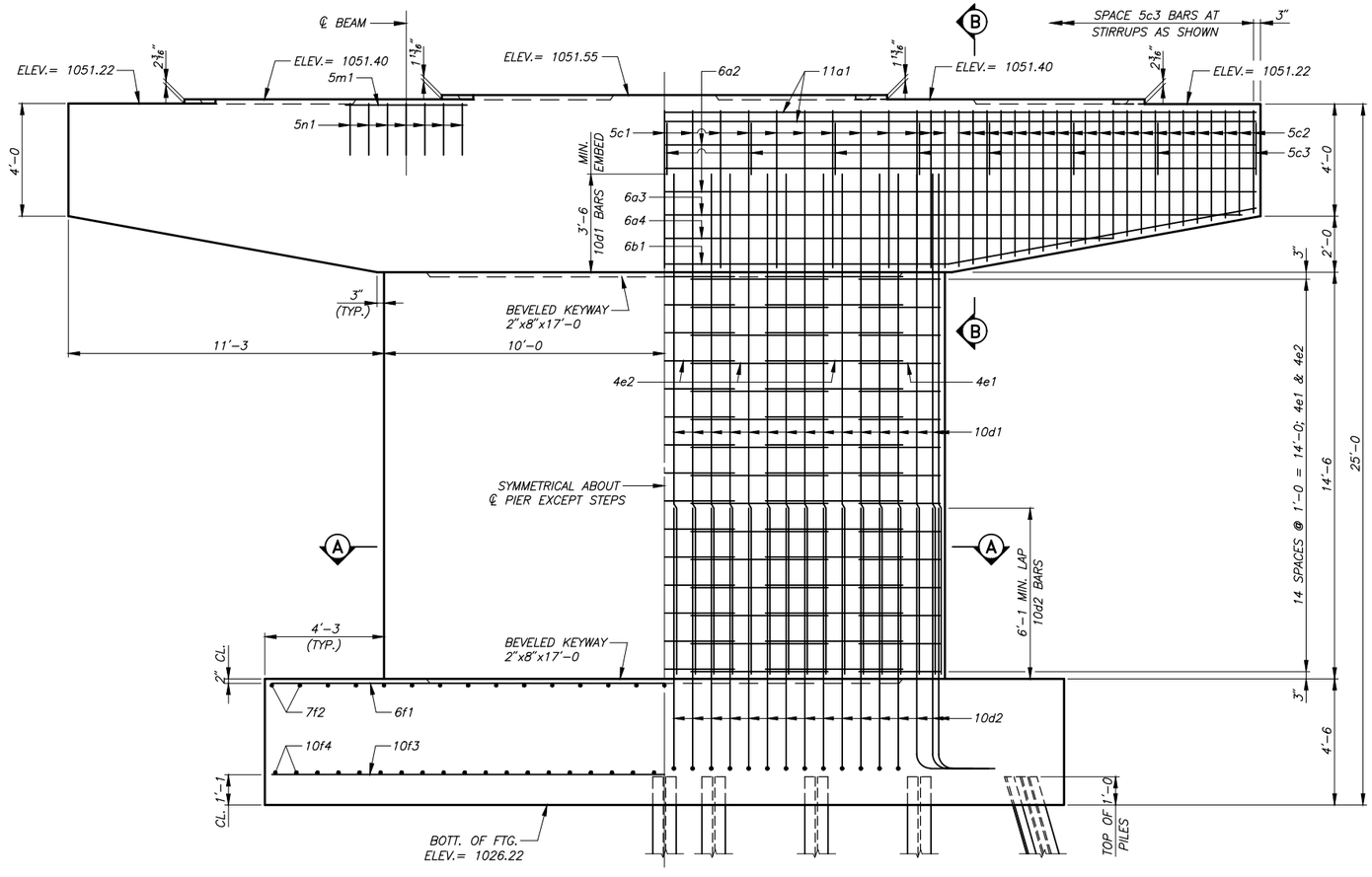
BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



PIER CAP PLAN

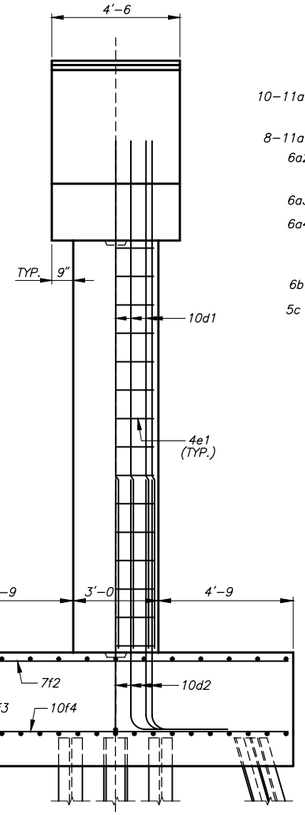


SECTION A-A

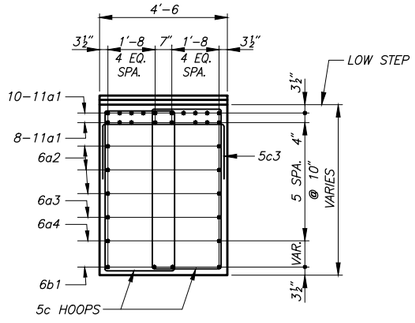


ELEVATION
(LOOKING NORTH)

NOTE: SEE SHEET 19 FOR FOOTING PLAN.



END ELEVATION



SECTION B-B

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — TEE PIERS
66'-0 & 116'-0 END SPANS — 117'-0 INTERIOR SPAN

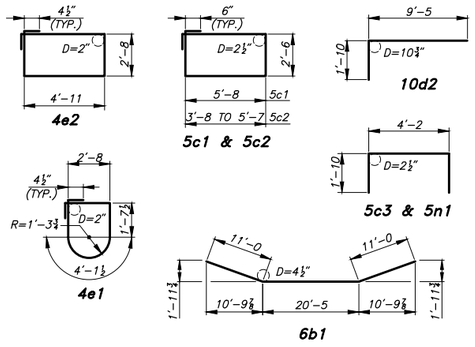
NORTH PIER DETAILS

STATION 24+45.50 — 15° SKEW, LT. AHEAD
FLOYD COUNTY, IOWA

REINFORCING BAR LIST – SOUTH PIER

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
Δ	11a1	CAP, LONGITUDINAL, TOP	——	18	42'–2	4,033
Δ	6a2	CAP, LONGITUDINAL, SIDES	——	6	42'–2	380
Δ	6a3	CAP, LONGITUDINAL, SIDES	——	2	41'–1	123
Δ	6a4	CAP, LONGITUDINAL, SIDES	——	2	31'–11	96
Δ	6b1	CAP, LONGITUDINAL, BOTTOM	⌣	4	42'–5	255
Δ	5c1	CAP, HOOPS	▭	46	17'–4	832
Δ	5c2	CAP, HOOPS, ENDS	▭	88	VARIES	1,400
Δ	5c3	CAP, TIES	⌐	15	7'–10	123
	10d1	COLUMN, VERTICAL	——	62	18'–0	4,802
	10d2	COLUMN, VERTICAL, DOWELS	⌐	62	11'–3	3,001
	4e1	COLUMN, HOOPS, ENDS	▭	30	10'–10	217
	4e2	COLUMN, HOOPS	▭	75	15'–11	798
	6f1	FOOTING, LONGITUDINAL, TOP	——	13	28'–2	550
	7f2	FOOTING, TRANSVERSE, TOP	——	29	12'–2	721
	10f3	FOOTING, LONGITUDINAL, BOTTOM	——	19	28'–2	2,303
	10f4	FOOTING, TRANSVERSE, BOTTOM	——	38	12'–2	1,990
Δ	5m1	PIER CAP STEP, LONGITUDINAL	——	18	4'–4	81
Δ	5n1	PIER CAP STEP, TRANSVERSE	⌐	21	7'–10	172
	Δ EPOXY COATED	EPOXY COATED TOTAL (LBS.)				7,495
		NON–COATED TOTAL (LBS.)				14,382

BENT BAR DETAILS



ALL DIMENSIONS ARE OUT TO OUT. D=DIAMETER OF PIN RADII ARE TO ℄ BAR.

CONC. PLACEMENT QUANT. – SOUTH PIER

LOCATION	QUANTITY
FOOTING	59.4
COLUMN	31.2
CAP	40.5
TOTAL (CU.YDS.)	131.1

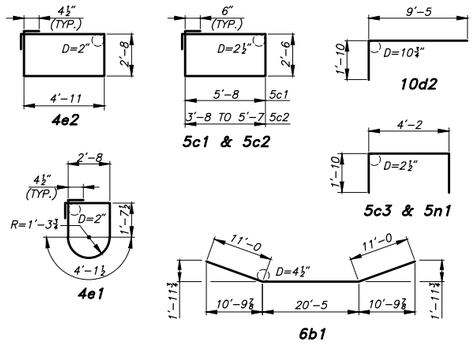
ESTIMATED QUANTITIES – SOUTH PIER

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU.YDS.	131.1
REINFORCING STEEL, EPOXY COATED	LBS.	7,495
REINFORCING STEEL	LBS.	14,382
PILE, STEEL, HP10x57 (21 @ 25')	LIN.FT.	525
EXCAVATION, CLASS 21	CU.YDS.	165

REINFORCING BAR LIST – NORTH PIER

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
Δ	11a1	CAP, LONGITUDINAL, TOP	——	18	42'–2	4,033
Δ	6a2	CAP, LONGITUDINAL, SIDES	——	6	42'–2	380
Δ	6a3	CAP, LONGITUDINAL, SIDES	——	2	41'–1	123
Δ	6a4	CAP, LONGITUDINAL, SIDES	——	2	31'–11	96
Δ	6b1	CAP, LONGITUDINAL, BOTTOM	⌣	4	42'–5	255
Δ	5c1	CAP, HOOPS	▭	46	17'–4	832
Δ	5c2	CAP, HOOPS, ENDS	▭	88	VARIES	1,400
Δ	5c3	CAP, TIES	⌐	15	7'–10	123
	10d1	COLUMN, VERTICAL	——	62	18'–0	4,802
	10d2	COLUMN, VERTICAL, DOWELS	⌐	62	11'–3	3,001
	4e1	COLUMN, HOOPS, ENDS	▭	30	10'–10	217
	4e2	COLUMN, HOOPS	▭	75	15'–11	798
	6f1	FOOTING, LONGITUDINAL, TOP	——	13	28'–2	550
	7f2	FOOTING, TRANSVERSE, TOP	——	29	12'–2	721
	10f3	FOOTING, LONGITUDINAL, BOTTOM	——	19	28'–2	2,303
	10f4	FOOTING, TRANSVERSE, BOTTOM	——	38	12'–2	1,990
Δ	5m1	PIER CAP STEP, LONGITUDINAL	——	18	4'–4	81
Δ	5n1	PIER CAP STEP, TRANSVERSE	⌐	21	7'–10	172
	Δ EPOXY COATED	EPOXY COATED TOTAL (LBS.)				7,495
		NON–COATED TOTAL (LBS.)				14,382

BENT BAR DETAILS



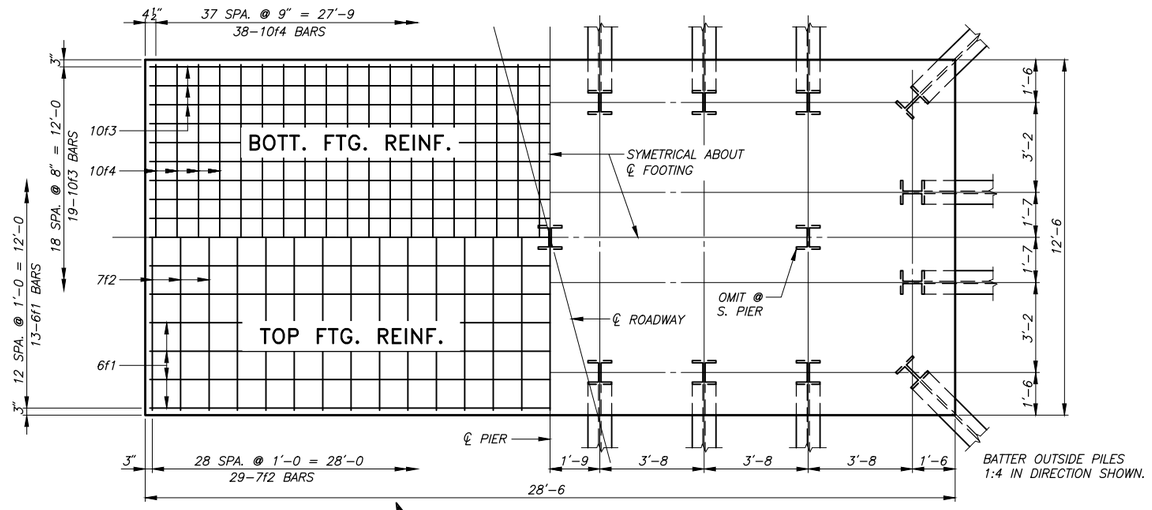
ALL DIMENSIONS ARE OUT TO OUT. D=DIAMETER OF PIN RADII ARE TO ℄ BAR.

CONC. PLACEMENT QUANT. – NORTH PIER

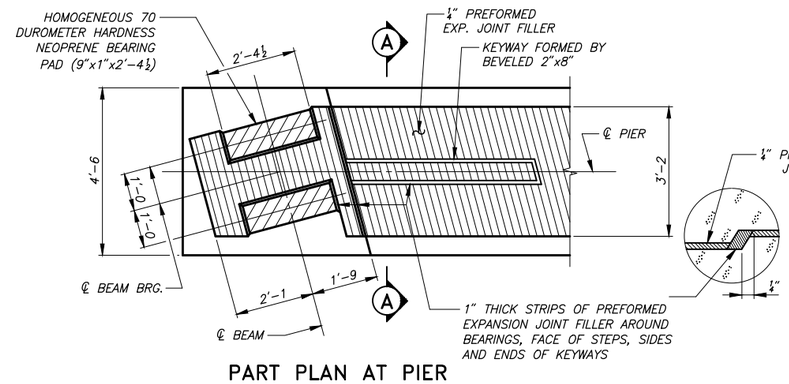
LOCATION	QUANTITY
FOOTING	59.4
COLUMN	31.2
CAP	40.2
TOTAL (CU.YDS.)	130.8

ESTIMATED QUANTITIES – NORTH PIER

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU.YDS.	130.8
REINFORCING STEEL, EPOXY COATED	LBS.	7,495
REINFORCING STEEL	LBS.	14,382
PILE, STEEL, HP10x57 (23 @ 25')	LIN.FT.	575
EXCAVATION, CLASS 20	CU.YDS.	123
EXCAVATION, CLASS 21	CU.YDS.	177

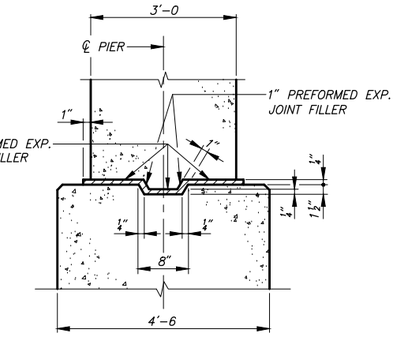


FOOTING PLAN

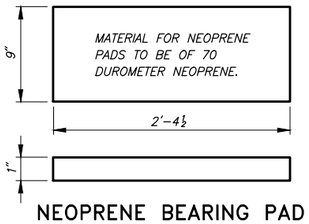


PART PLAN AT PIER

PIER BEARING DETAILS



SECTION A–A
(KEYED NOTCH DETAIL)



NEOPRENE BEARING PAD
(10 REQUIRED PER FIXED PIER) (20 TOTAL)

NOTE: COST OF NEOPRENE PADS SHALL BE INCLUDED IN THE PRICE BID FOR "PRETENSENSIONED PRESTRESSED CONCRETE BEAMS".

PIER 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.

FORMS FOR PIER CAPS ON THE PIERS MAY BE REMOVED WITH THE APPROVAL OF THE ENGINEER WHEN THE FOLLOWING TWO CONDITIONS HAVE BEEN MET:

- PIER CAP CONCRETE HAS BEEN IN PLACE FOR A MINIMUM OF 2 CALENDAR DAYS EXCLUDING DAYS THAT THE CONCRETE SURFACE IS SUBJECTED TO TEMPERATURES AT OR BELOW 40° F AND
- THE PIER CAP CONCRETE COMPRESSIVE STRENGTH IS AT LEAST 2500 PSI.

MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 2500 PSI SHALL BE VERIFIED BY FLEXURAL STRENGTH ACCORDING TO MATERIALS I.M. 316 WITH A MINIMUM FLEXURAL STRENGTH OF 450 PSI OR BY THE MATURITY METHOD ACCORDING TO MATERIALS I.M. 383. CURING OF PIER CAP CONCRETE SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. PIER CAP CONCRETE SHALL BE SUBJECTED TO EXTERIOR LOADS IN ACCORDANCE WITH ARTICLE 2403.03, N, 2 OF THE STANDARD SPECIFICATIONS.

BATTER PILES IN EXTERIOR ROWS 1:4 IN DIRECTION SHOWN. ALL BATTERED PILE SHALL BE TRIMMED TO A HORIZONTAL LINE TO AID IN THE PLACEMENT OF REINFORCING.

DIMENSIONS SHOWN ON FOOTING PLAN ARE AT BOTTOM OF FOOTING.

SEE PILE NOTES ON SHEET 5 FOR ADDITIONAL INFORMATION.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

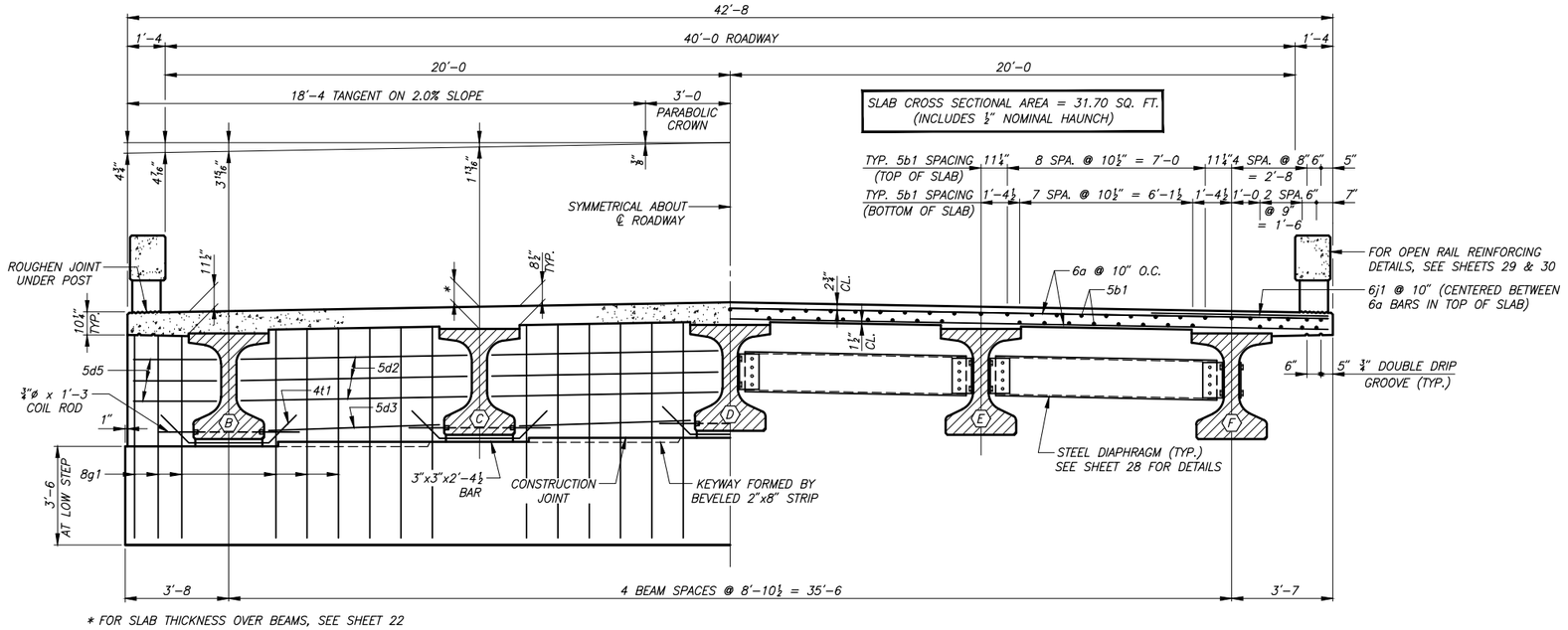
INTEGRAL ABUTMENTS — **66'–0 & 116'–0 END SPANS**

TEE PIERS — **117'–0 INTERIOR SPAN**

PIER DETAILS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**

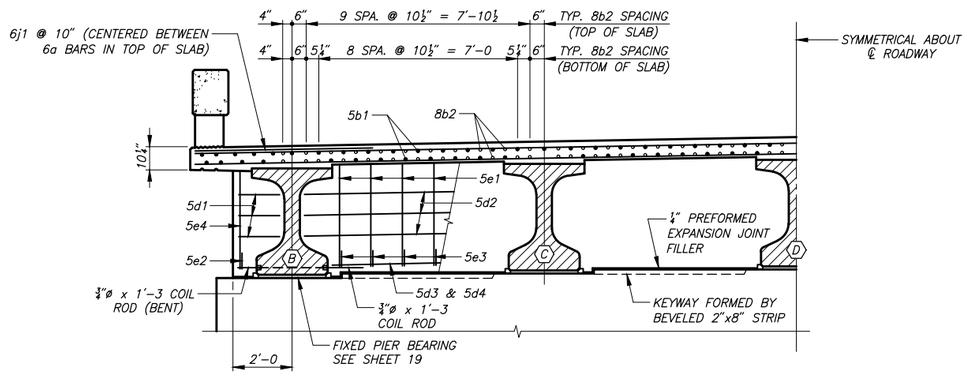
FLOYD COUNTY, — **IOWA**



* FOR SLAB THICKNESS OVER BEAMS, SEE SHEET 22

HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR MID SPAN



HALF SECTION NEAR PIER

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 ALL PREFORMED EXPANSION JOINT FILLER AND 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 AND 2 ¾" CLEAR BELOW TOP OF SLAB. THE BOTTOM MAT OF REINFORCING STEEL IS TO BE PARALLEL 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 AND EPOXY COATED, EXCEPT FOR PRESTRESSED BEAMS.

THE PIER AND 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.

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

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

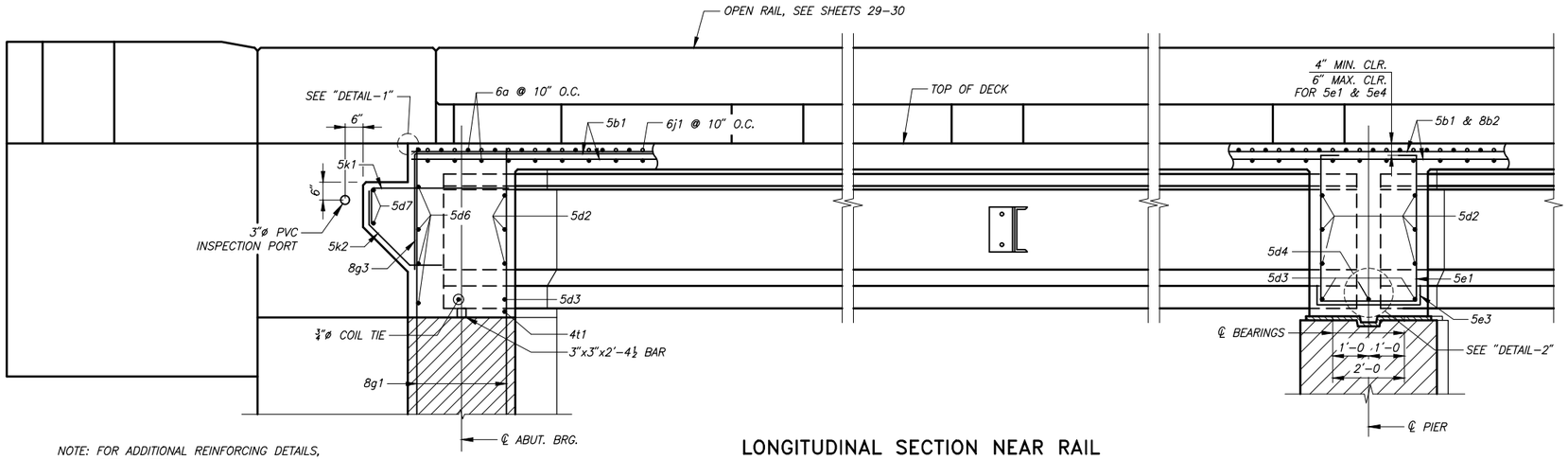
SUPERSTRUCTURE DETAILS

STATION 24+45.50

15° SKEW, LT. AHEAD

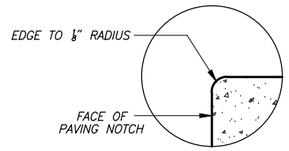
FLOYD COUNTY,

IOWA

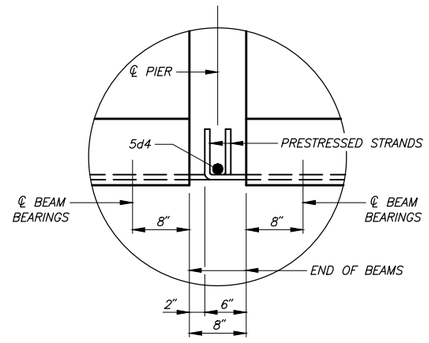


NOTE: FOR ADDITIONAL REINFORCING DETAILS, SEE SHEETS 9–14

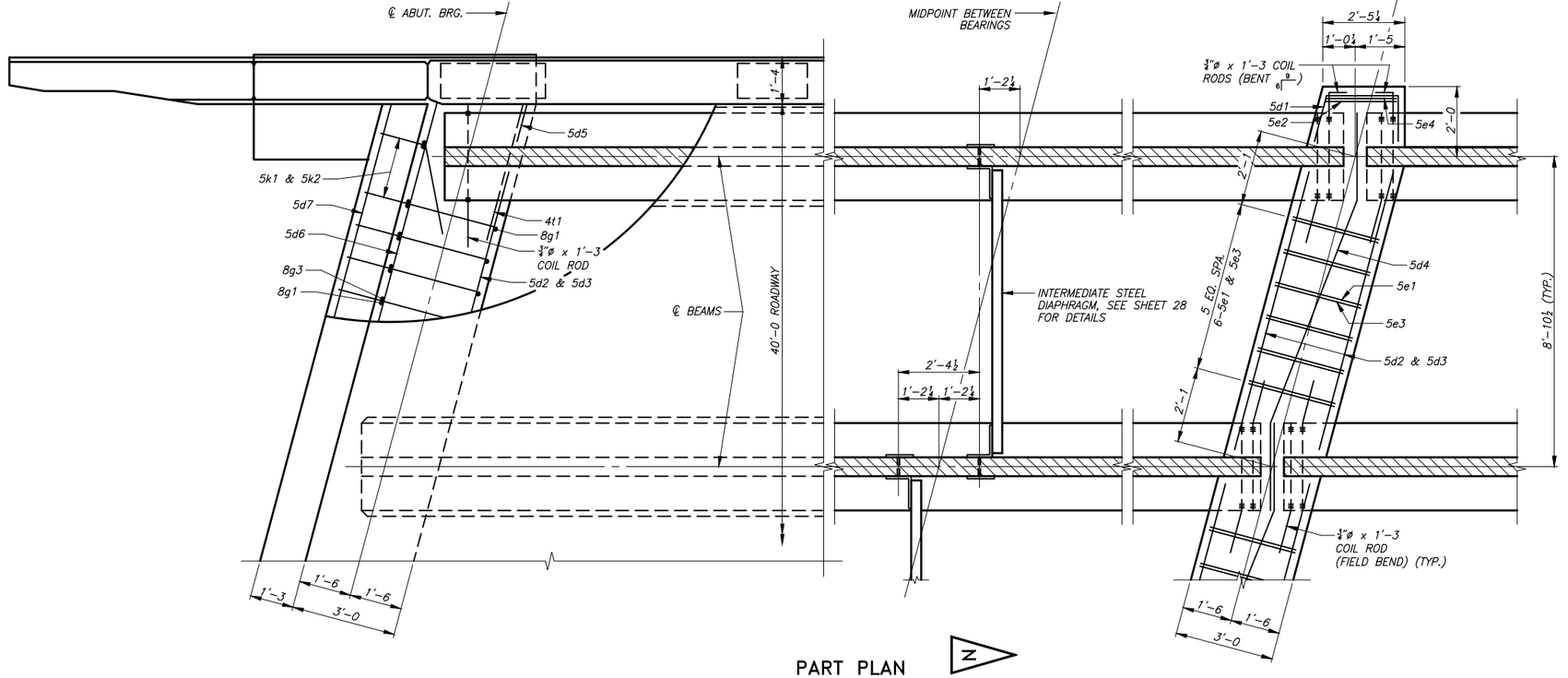
LONGITUDINAL SECTION NEAR RAIL



DETAIL–1



DETAIL–2



PART PLAN

N

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

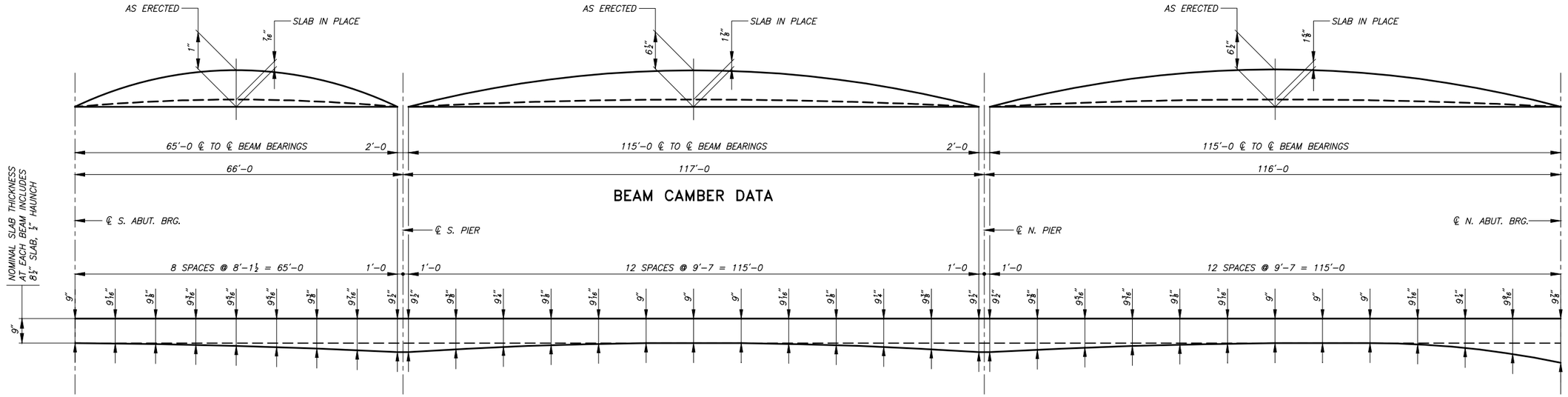
INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

SUPERSTRUCTURE DETAILS

STATION 24+45.50
FLOYD COUNTY,

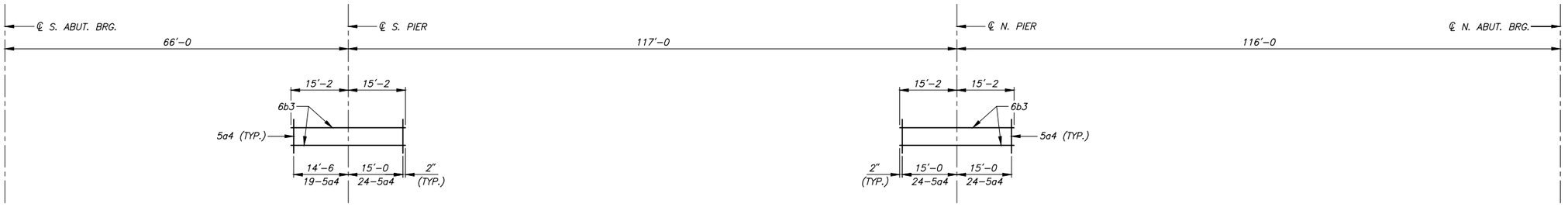
15° SKEW, LT. AHEAD
IOWA



BEAM CAMBER DATA

HAUNCH DIAGRAM AND SLAB THICKNESS AT BEAM (T)

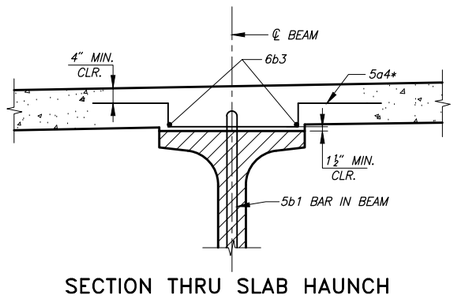
NOTE: HAUNCH THICKNESSES ARE SHOWN FOR ESTIMATING ONLY AND ARE NOT GUARANTEED FOR CONSTRUCTION.



HAUNCH REINFORCING LAYOUT

(TYPICAL EACH BEAM)

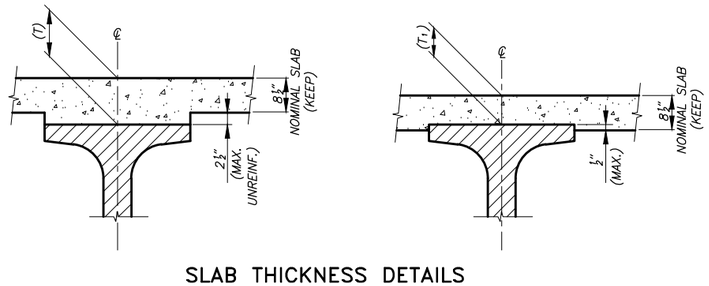
NOTE: 1-5a4 BAR IS TO BE PLACED ADJACENT TO 5b1 BEAM TIE BARS THAT EXTEND FROM THE BEAMS INTO SLAB IN THE AREA SHOWN.



SECTION THRU SLAB HAUNCH

NOTE: TYPICAL EACH BEAM LINE WHERE HAUNCH EXCEEDS 2 1/2". SEE "HAUNCH REINFORCING LAYOUT" FOR PLACEMENT LOCATIONS.

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



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 2 1/2" 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.

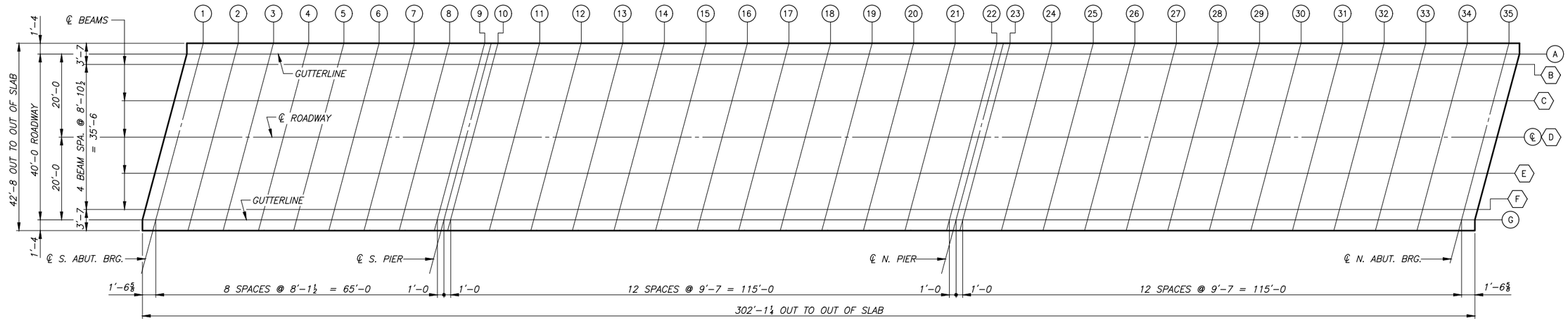
299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **TEE PIERS**
66'-0 & 116'-0 END SPANS — **117'-0 INTERIOR SPAN**

SUPERSTRUCTURE DETAILS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**
FLOYD COUNTY, — **IOWA**

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



TOP OF SLAB ELEVATIONS

⬡ INDICATES BEAM LINES

	℄ S. ABUT. BRG.								℄ S. BRG. S. PIER	℄ N. BRG. S. PIER												℄ S. BRG. N. PIER	℄ N. BRG. N. PIER											℄ N. ABUT. BRG.	
LOC.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	LOC.
Ⓐ	1054.76	1054.86	1054.95	1055.03	1055.11	1055.19	1055.26	1055.33	1055.40	1055.41	1055.48	1055.54	1055.59	1055.64	1055.69	1055.72	1055.75	1055.77	1055.79	1055.80	1055.80	1055.80	1055.80	1055.79	1055.77	1055.75	1055.72	1055.69	1055.65	1055.60	1055.55	1055.50	1055.45	1055.40	1055.35	Ⓐ
Ⓑ	1054.79	1054.89	1054.98	1055.07	1055.15	1055.23	1055.30	1055.37	1055.43	1055.45	1055.51	1055.58	1055.63	1055.68	1055.72	1055.76	1055.79	1055.81	1055.83	1055.84	1055.84	1055.84	1055.84	1055.83	1055.82	1055.79	1055.76	1055.73	1055.69	1055.64	1055.59	1055.54	1055.49	1055.44	1055.39	Ⓑ
Ⓒ	1054.94	1055.04	1055.13	1055.22	1055.30	1055.38	1055.46	1055.53	1055.59	1055.61	1055.68	1055.74	1055.80	1055.85	1055.89	1055.93	1055.96	1055.99	1056.01	1056.02	1056.02	1056.02	1056.02	1056.02	1056.00	1055.98	1055.95	1055.92	1055.88	1055.83	1055.78	1055.73	1055.68	1055.63	1055.58	Ⓒ
℄ Ⓓ	1055.06	1055.16	1055.26	1055.35	1055.43	1055.51	1055.59	1055.66	1055.72	1055.74	1055.81	1055.88	1055.93	1055.99	1056.03	1056.07	1056.11	1056.13	1056.15	1056.17	1056.17	1056.17	1056.17	1056.17	1056.15	1056.14	1056.11	1056.08	1056.04	1055.99	1055.95	1055.90	1055.85	1055.80	1055.75	℄ Ⓓ
Ⓔ	1054.88	1054.98	1055.08	1055.17	1055.26	1055.34	1055.42	1055.49	1055.56	1055.57	1055.64	1055.71	1055.77	1055.82	1055.87	1055.91	1055.95	1055.98	1056.00	1056.01	1056.02	1056.02	1056.02	1056.02	1056.01	1055.99	1055.97	1055.94	1055.90	1055.86	1055.81	1055.76	1055.71	1055.66	1055.61	Ⓔ
Ⓕ	1054.67	1054.78	1054.87	1054.96	1055.05	1055.13	1055.21	1055.29	1055.36	1055.37	1055.45	1055.51	1055.58	1055.63	1055.68	1055.72	1055.76	1055.79	1055.81	1055.83	1055.84	1055.84	1055.84	1055.84	1055.83	1055.82	1055.79	1055.76	1055.73	1055.69	1055.64	1055.59	1055.54	1055.49	1055.44	Ⓕ
Ⓖ	1054.63	1054.73	1054.83	1054.92	1055.01	1055.09	1055.17	1055.24	1055.31	1055.33	1055.40	1055.47	1055.53	1055.59	1055.64	1055.68	1055.72	1055.75	1055.77	1055.79	1055.80	1055.80	1055.80	1055.80	1055.79	1055.78	1055.76	1055.73	1055.69	1055.65	1055.60	1055.55	1055.50	1055.45	1055.40	Ⓖ

BRIDGE COORDINATES

LOCATION	WEST EDGE OF DECK	C.L. APPROACH ROADWAY	EAST EDGE OF DECK
SOUTH ABUTMENT	N = 3879762.04 E = 5152438.19	N = 3879756.84 E = 5152459.65	N = 3879751.64 E = 5152481.12
SOUTH PIER	N = 3879828.02 E = 5152436.59	N = 3879822.82 E = 5152458.05	N = 3879817.62 E = 5152479.52
NORTH PIER	N = 3879944.99 E = 5152433.76	N = 3879939.79 E = 5152455.22	N = 3879934.59 E = 5152476.69
NORTH ABUTMENT	N = 3880060.95 E = 5152430.96	N = 3880055.75 E = 5152452.42	N = 3880050.55 E = 5152473.89

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

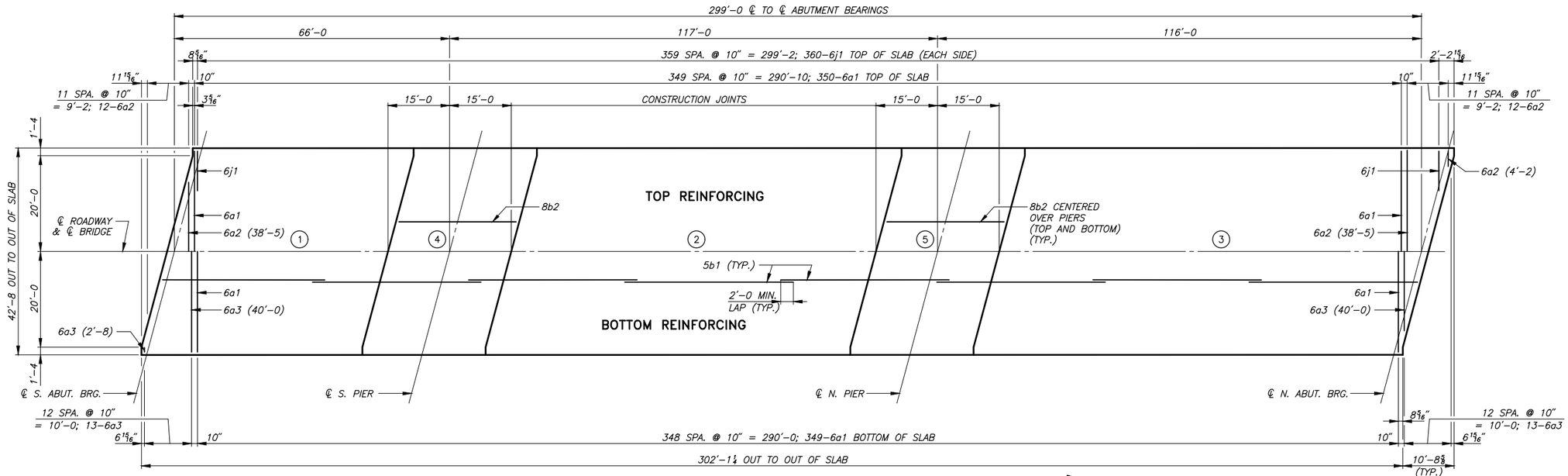
INTEGRAL ABUTMENTS
66'-0 & 116'-0 END SPANS

TEE PIERS
117'-0 INTERIOR SPAN

SUPERSTRUCTURE DETAILS

STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA



CONCRETE PLACEMENT DIAGRAM AND SLAB REINFORCING LAYOUT

CONCRETE DECK SLAB SHALL BE PLACED IN SECTIONS AND IN SEQUENCES INDICATED. AN APPROVED ALTERNATE PROCEDURE IS TO PLACE THE CONCRETE DECK IN ONE CONTINUOUS POUR BEGINNING AT ONE END OF THE BRIDGE. ALTERNATE PROCEDURES FOR PLACING DECK CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULT. THE BRIDGE ENGINEER SHALL REVIEW ANY ALTERNATE PROCEDURES. THE COST OF ANY ADDITIONAL ANALYSIS AND PLAN MODIFICATIONS SHALL BE PAID FOR BY THE CONTRACTOR. THE ENGINEER SHALL DETERMINE IF A RETARDING ADMIXTURE IS REQUIRED TO MAINTAIN PLASTICITY OF THE CONCRETE DECK DURING PLACEMENT.

DECK CONCRETE SECTIONS SHALL CURE FOR A MINIMUM OF 48 HOURS AND SHALL ACHIEVE A MINIMUM STRENGTH OF 75% OF THE 28 DAY DECK CONCRETE STRENGTH PRIOR TO REMOVING DECK HEADERS AND BEGINNING AN ADJACENT POUR.

REINFORCING BAR LIST – SUPERSTRUCTURE

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
Δ	6a1	SLAB, TRANSVERSE, TOP & BOTT.	——	699	42'-4	44,445
Δ	6a2	SLAB, TRANSVERSE, TOP, ENDS	——	24	VARIES	768
Δ	6a3	SLAB, TRANSVERSE, BOTTOM, ENDS	——	26	VARIES	833
Δ	5a4	SLAB, HAUNCH, TRANSVERSE	⌐¬	455	6'-4	3,005
Δ	5b1	SLAB, LONGIT., TOP & BOTTOM	——	728	39'-6	29,993
Δ	8b2	SLAB, LONGIT., OVER PIERS	——	176	29'-8	13,943
Δ	6b3	SLAB, HAUNCH, LONGITUDINAL	——	20	30'-4	911
Δ	5d1	PIER DIAPHRAGM, ENDS	⌐¬	12	4'-10	60
Δ	5d2	PIER & ABUT. DIAPHRAGMS, LONGIT.	——	72	8'-3	620
Δ	5d3	PIER & ABUT. DIAPHRAGMS, LONGIT.	——	24	6'-3	156
Δ	5d4	PIER DIAPHRAGM, LONGITUDINAL	⌐¬	8	11'-9	98
Δ	5d5	ABUTMENT DIAPHRAGM, ENDS	⌐¬	12	5'-9	72
Δ	5d6	ABUT. DIAPH., LONGIT., B.F.	——	16	23'-1	385
Δ	5d7	PAVING NOTCH, LONGIT.	——	8	23'-1	193
Δ	5d8	ABUT. DIAPH. WING EXT., LONGIT. F.F.	——	24	11'-2	280
Δ	5d9	ABUT. DIAPH. WING EXT., LONGIT. B.F.	——	24	11'-2	280
Δ	5e1	PIER DIAPHRAGM, HOOPS	⌐¬	48	11'-8	584
Δ	5e2	PIER DIAPHRAGM, TIES, ENDS	⌐¬	4	3'-2	13
Δ	5e3	PIER DIAPHRAGM, TIES	⌐¬	48	3'-9	188
Δ	5e4	PIER DIAPHRAGM, HOOPS, ENDS	⌐¬	4	11'-1	46
Δ	8g3	ABUTMENT, VERTICAL, BACK FACE	⌐	70	15'-9	2,944
Δ	6j1	SLAB, TRANSVERSE, TOP, UNDER RAIL	——	720	6'-3	6,759
Δ	5k1	PAVING NOTCH, TRANSVERSE	⌐	74	4'-9	367
Δ	5k2	PAVING NOTCH, TRANSVERSE	⌐	74	3'-5	264
Δ	4t1	UNDER BEAMS AT ABUTMENTS	⌐¬	10	5'-9	38
Δ		OPEN RAIL, SEE SHEET 30				17,896
	Δ EPOXY COATED BARS	EPOXY COATED TOTAL (LBS.)				125,141

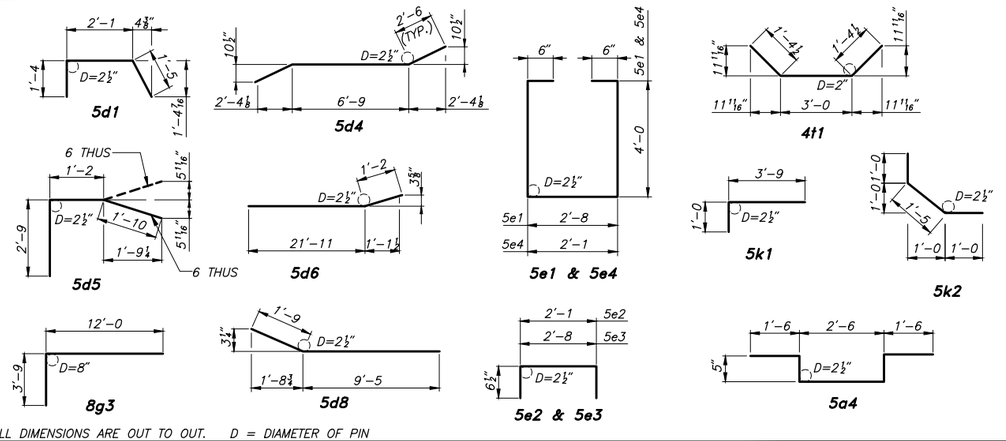
CONCRETE PLACEMENT QUANT.–SUPERSTR.

LOCATION	QUANTITY
SLAB AND DIAPHRAGM, SECTION ①	85.4
SLAB, SECTION ②	102.5
SLAB AND DIAPHRAGM, SECTION ③	144.9
SLAB AND DIAPHRAGM, SECTION ④ & ⑤; 2 @ 50.9	101.8
TOTAL (CU.YDS.)	434.6

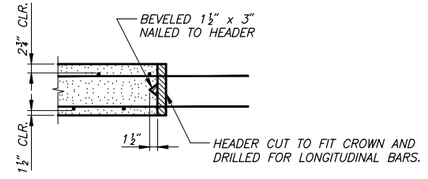
ESTIMATED QUANTITIES – SUPERSTRUCTURE

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE 4,500 PSI OR GREATER	CU.YDS.	434.6
REINFORCING STEEL – EPOXY COATED	LBS.	125,141
STRUCTURAL STEEL	LBS.	4,254
BEAMS, PRET. PREST. CONC., BTC65	EACH	5
BEAMS, PRET. PREST. CONC., BTC115	EACH	10

BENT BAR DETAILS



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



SLAB CONSTRUCTION JOINT DETAIL

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

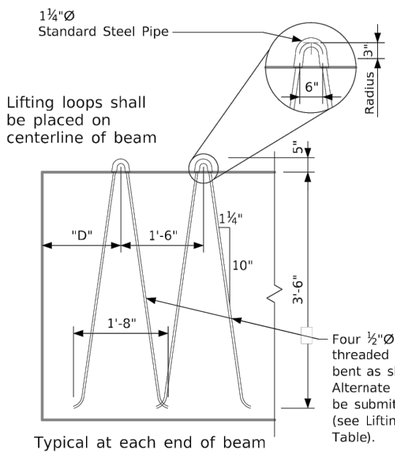
SUPERSTRUCTURE DETAILS

STATION 24+45.50

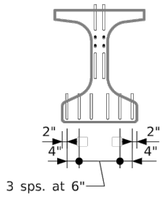
15° SKEW, LT. AHEAD

FLOYD COUNTY,

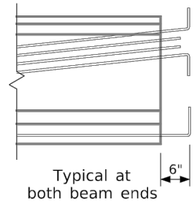
IOWA



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

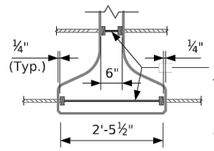
Lifting Loop And Overhang Table

Beams	Lifting Loops Each End	# of Strands Per Loop	D	Beam Overhang (ft.)
BTC30-BTC45	1	4	2'-0"	**
BTC50-BTC75	1	4	2'-0"	**
BTC80-BTC95	2	4	1'-3"	11
BTC100	2	4	3'-9"	12
BTC105	2	4	6'-3"	12
BTC110	2	4	8'-2"	12
BTC115	2	4	8'-3"	14

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

Lifting loops shall carry loads equally.

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



Coil Tie Detail

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

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 supple-mental specifications.
Design: AASHTO LRFD, Series of 2017 with minor modifications.

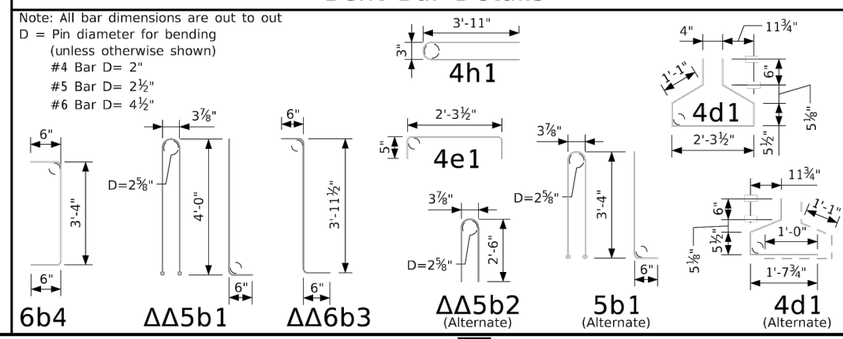
Alternate Bar Notes:

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.

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.

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"



BTC Beam Data

BTC 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.)
BTC30	30'-0"	31'-4"	4.50	5.00	0.60"	8	—	340	—	0.09"	0.16"	0.02"	—	9'-3"	11.3	5.6	1031
BTC35	35'-0"	36'-4"	4.50	5.00	0.60"	8	—	340	—	0.11"	0.20"	0.05"	—	9'-3"	13.1	6.5	1129
BTC40	40'-0"	41'-4"	4.50	5.00	0.60"	10	—	425	—	0.18"	0.34"	0.08"	0.02"	9'-3"	14.9	7.4	1223
BTC45	45'-0"	46'-4"	4.50	5.00	0.60"	10	—	425	—	0.21"	0.40"	0.13"	0.03"	9'-3"	16.7	8.2	1341
BTC50	50'-0"	51'-4"	4.50	5.00	0.60"	12	—	510	—	0.31"	0.58"	0.19"	0.05"	9'-3"	18.5	9.1	1441
BTC55	55'-0"	56'-4"	4.50	5.00	0.60"	14	—	596	—	0.42"	0.77"	0.28"	0.07"	9'-3"	20.3	10.0	1535
BTC60	60'-0"	61'-4"	4.50	5.00	0.60"	14	—	596	—	0.46"	0.85"	0.40"	0.10"	9'-3"	22.1	10.9	1656
BTC65	65'-0"	66'-4"	5.00	6.00	0.60"	14	2	681	11.5	0.54"	1.00"	0.52"	0.13"	9'-3"	23.9	11.8	1753
BTC70	70'-0"	71'-4"	5.00	6.00	0.60"	16	2	766	10.7	0.67"	1.24"	0.69"	0.17"	9'-3"	25.7	12.7	1943
BTC75	75'-0"	76'-4"	5.00	6.00	0.60"	16	4	851	20.0	0.83"	1.53"	0.91"	0.23"	9'-3"	27.5	13.6	2057
BTC80	80'-0"	81'-4"	6.00	7.00	0.60"	20	4	1021	18.8	1.11"	2.04"	1.11"	0.28"	9'-3"	29.3	14.5	2114
BTC85	85'-0"	86'-4"	6.00	7.00	0.60"	22	4	1106	17.7	1.31"	2.43"	1.41"	0.35"	9'-3"	31.1	15.4	2232
BTC90	90'-0"	91'-4"	6.00	7.00	0.60"	24	6	1276	23.8	1.65"	2.64"	1.77"	0.44"	9'-3"	32.9	16.2	2347
BTC95	95'-0"	96'-4"	6.50	7.50	0.60"	28	6	1446	22.6	2.29"	3.66"	2.13"	0.53"	9'-3"	34.7	17.1	2497
BTC100	100'-0"	101'-4"	7.00	8.00	0.60"	30	6	1531	21.5	2.56"	4.09"	2.56"	0.64"	9'-3"	36.5	18.0	2668
BTC105	105'-0"	106'-4"	7.50	8.50	0.60"	34	8	1786	25.8	3.10"	4.96"	3.04"	0.76"	9'-3"	38.3	18.9	2762
BTC110	110'-0"	111'-4"	7.50	9.00	0.60"	38	8	1957	24.6	3.62"	5.78"	3.59"	0.90"	9'-3"	40.1	19.8	2828
④⑤ BTC115	115'-0"	116'-4"	7.50	9.50	0.60"	40	10	2127	27.7	4.04"	6.47"	4.16"	1.04"	9'-0½"	41.9	20.7	2977

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 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'si= 270 ksi. and As= 0.217 in.².

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

Beam Notes: (continued)

If stub abutments are used, all strands at the ends of beams at stub abutments shall be cut off reasonably flush with the concrete.
Minimum concrete f'c (at 28 days) and minimum f'ci at release are located in the BTC 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.

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 BTC100 to BTC115 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.
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).

Reinforcing Bar List

	Beam Bar	Shape	BTC30 No.	BTC30 Length	BTC35 No.	BTC35 Length	BTC40 No.	BTC40 Length	BTC45 No.	BTC45 Length	BTC50 No.	BTC50 Length	BTC55 No.	BTC55 Length	BTC60 No.	BTC60 Length	BTC65 No.	BTC65 Length	BTC70 No.	BTC70 Length	BTC75 No.	BTC75 Length	BTC80 No.	BTC80 Length	BTC85 No.	BTC85 Length	BTC90 No.	BTC90 Length	BTC95 No.	BTC95 Length	BTC100 No.	BTC100 Length	BTC105 No.	BTC105 Length	BTC110 No.	BTC110 Length	BTC115 No.	BTC115 Length	Beam Bar
	5a1		6	31'-1"	6	36'-1"	6	41'-1"	12	24'-9"	12	27'-3"	12	29'-9"	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"	5a1
	5a2		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	6	40'-0"	12	40'-0"	5a2
ΔΔ	5b1		19	9'-2"	23	9'-2"	27	9'-2"	31	9'-2"	35	9'-2"	39	9'-2"	45	9'-2"	49	9'-2"	57	9'-2"	63	9'-2"	61	9'-2"	67	9'-2"	69	9'-2"	71	9'-2"	81	9'-2"	85	9'-2"	89	9'-2"	93	9'-2"	5b1
ΔΔ✱	6b3		32	5'-0"	32	5'-0"	32	5'-0"	32	5'-0"	32	5'-0"	32	5'-0"	32	5'-0"	32	5'-0"	36	5'-0"	36	5'-0"	36	5'-0"	36	5'-0"	40	5'-0"	40	5'-0"	40	5'-0"	40	5'-0"	40	5'-0"	40	5'-0"	6b3
✱	6b4		12	4'-4"	12	4'-4"	12	4'-4"	12	4'-4"	12	4'-4"	12	4'-4"	12	4'-4"	12	4'-4"	16	4'-4"	16	4'-4"	16	4'-4"	16	4'-4"	16	4'-4"	20	4'-4"	24	4'-4"	24	4'-4"	24	4'-4"	24	4'-4"	6b4
	4c1		43	2'-7"	49	2'-7"	53	2'-7"	59	2'-7"	67	2'-7"	71	2'-7"	75	2'-7"	81	2'-7"	85	2'-7"	85	2'-7"	103	2'-7"	105	2'-7"	113	2'-7"	127	2'-7"	133	2'-7"	139	2'-7"	145	2'-7"	151	2'-7"	4c1
	4d1		41	6'-5"	45	6'-5"	49	6'-5"	53	6'-5"	57	6'-5"	61	6'-5"	67	6'-5"	71	6'-5"	79	6'-5"	85	6'-5"	83	6'-5"	89	6'-5"	93	6'-5"	95	6'-5"	103	6'-5"	107	6'-5"	111	6'-5"	115	6'-5"	4d1
	4e1		26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	28	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	26	3'-2"	4e1
	4h1		6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	6	8'-0"	4h1

IDOT STANDARD SHEET 4700 DATE: 04–2026

ΔΔ 299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

ΔΔ✱ ✱

INTEGRAL ABUTMENTS 66'–0 & 116'–0 END SPANS

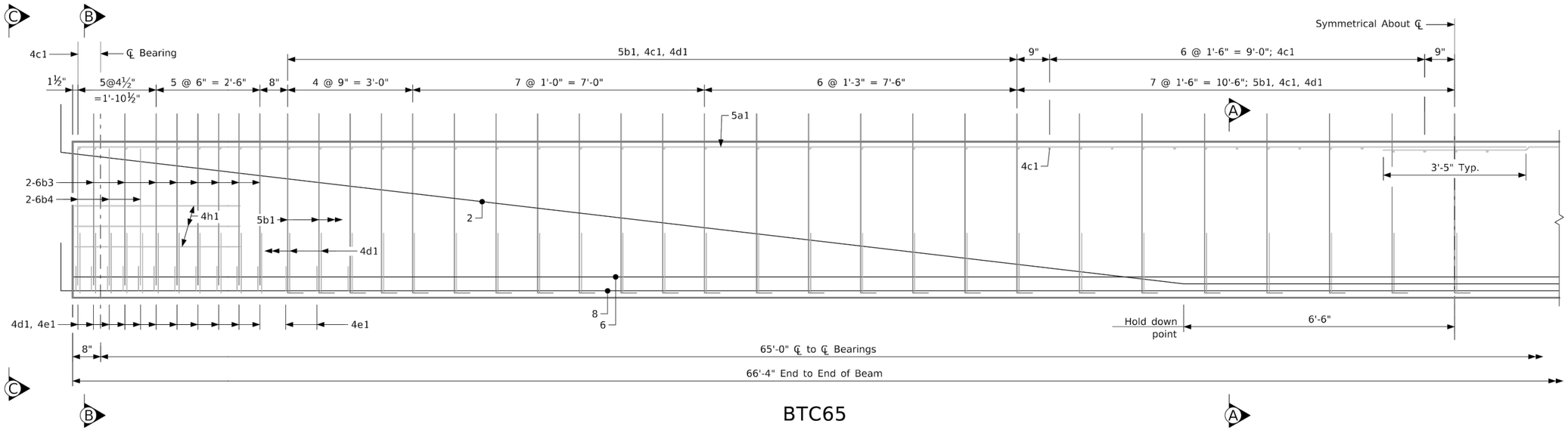
TEE PIERS 117'–0 INTERIOR SPAN

BEAM DETAILS

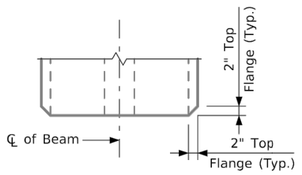
STATION 24+45.50

15° SKEW, LT. AHEAD

FLOYD COUNTY, IOWA

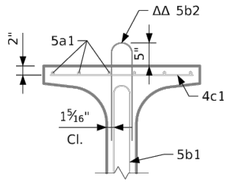


BTC65



Top View

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

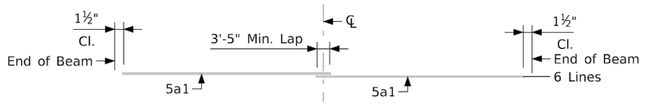


Section A-A (Alternate)

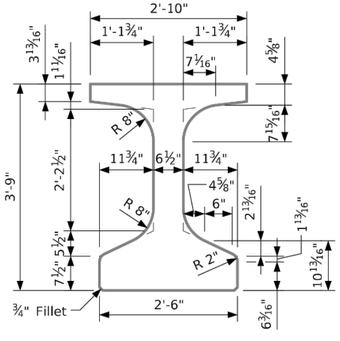
See Alternate Bar Note on Standard Sheet 4700.

Area = 691.8 in.^{2}
$\bar{y}_b$ = 20.74 in.
I = 178,971 in.^{4}

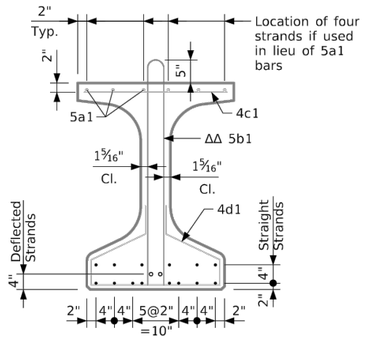
Beam Section Properties



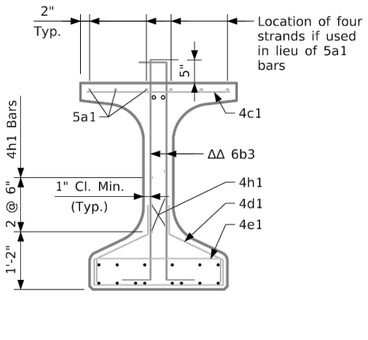
Top Flange Longitudinal Bar Layout



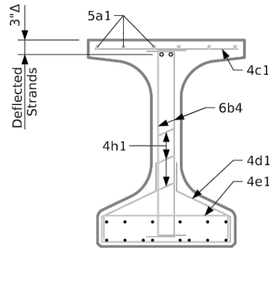
BTC Beam Cross Section



Section A-A



Section B-B



View C-C

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

IDOT STANDARD SHEET 4708 DATE: 04-2024

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

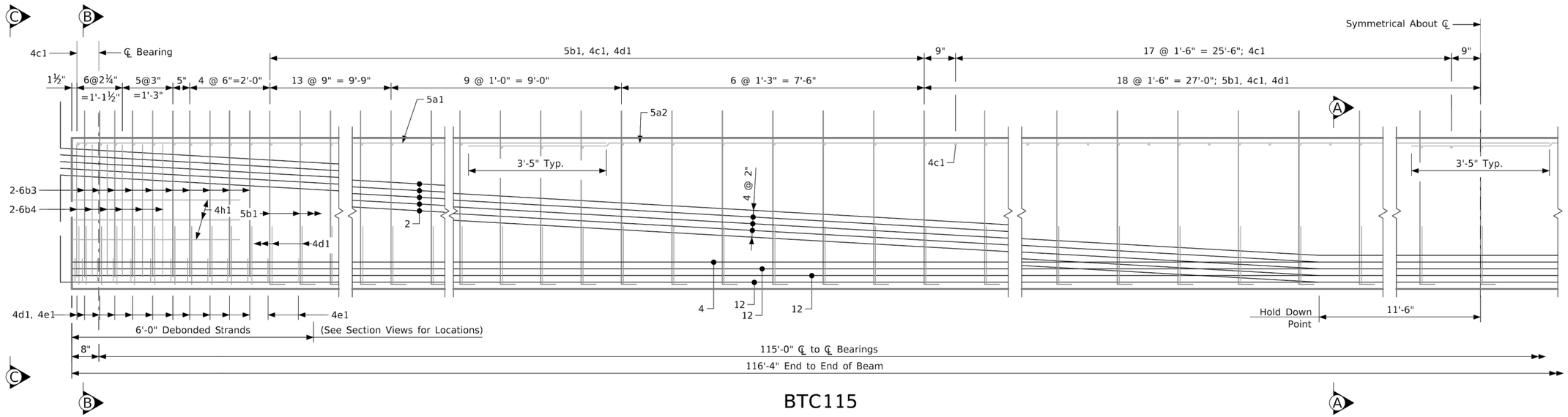
INTEGRAL ABUTMENTS
66'-0 & 116'-0 END SPANS

TEE PIERS
117'-0 INTERIOR SPAN

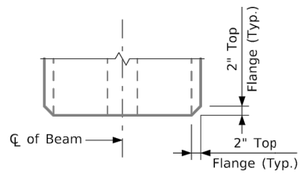
BEAM DETAILS

STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA

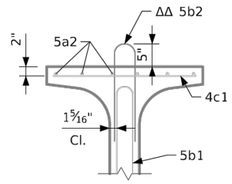


BTC115



Top View

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

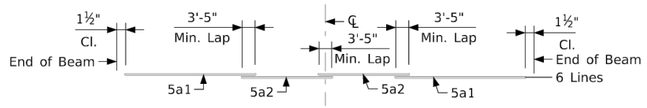


Section A-A
(Alternate)

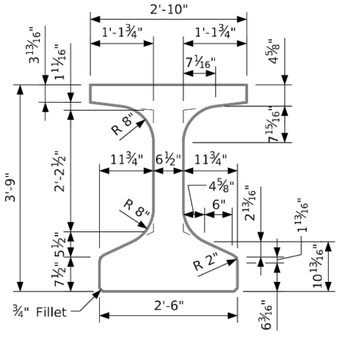
See Alternate Bar Note on Standard Sheet 4700.

Area = 691.8 in.^{2}
$\bar{y}_b$ = 20.74 in.
I = 178,971 in.^{4}

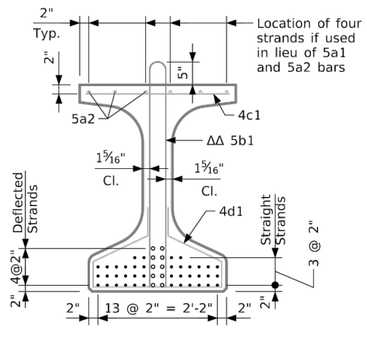
Beam Section Properties



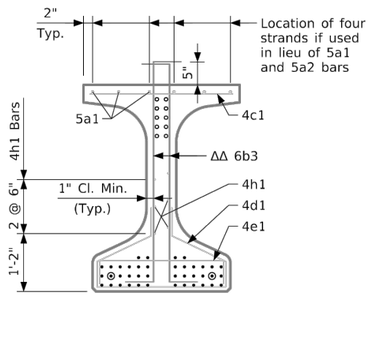
Top Flange Longitudinal Bar Layout



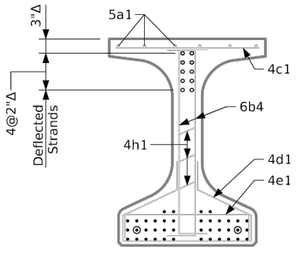
BTC Beam Cross Section



Section A-A



Section B-B



View C-C

- ○ Deflected Strands
- Δ Dimensions at End of Beam
- ΔΔ Epoxy Coated Bars
- ⊗ Strands Debonded 6'-0" from Beam Ends

IDOT STANDARD SHEET 4718 DATE: 04–2024

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

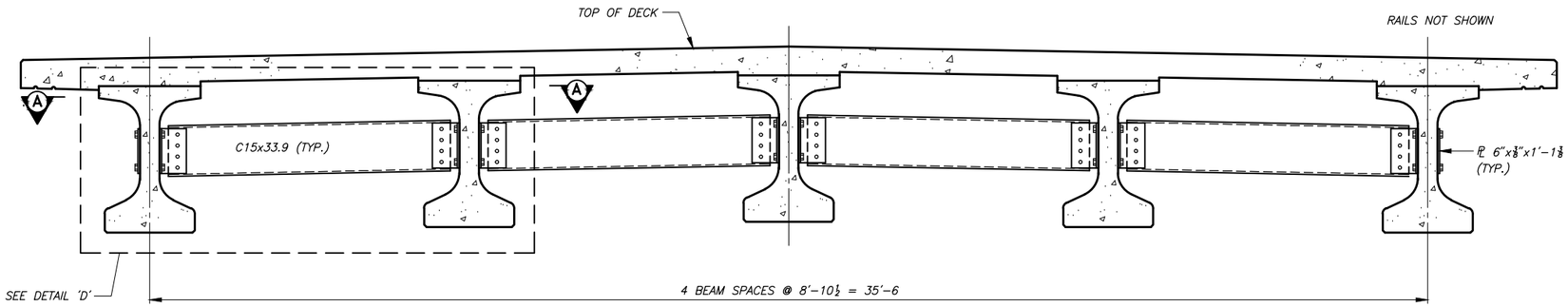
INTEGRAL ABUTMENTS
66'–0 & 116'–0 END SPANS

TEE PIERS
117'–0 INTERIOR SPAN

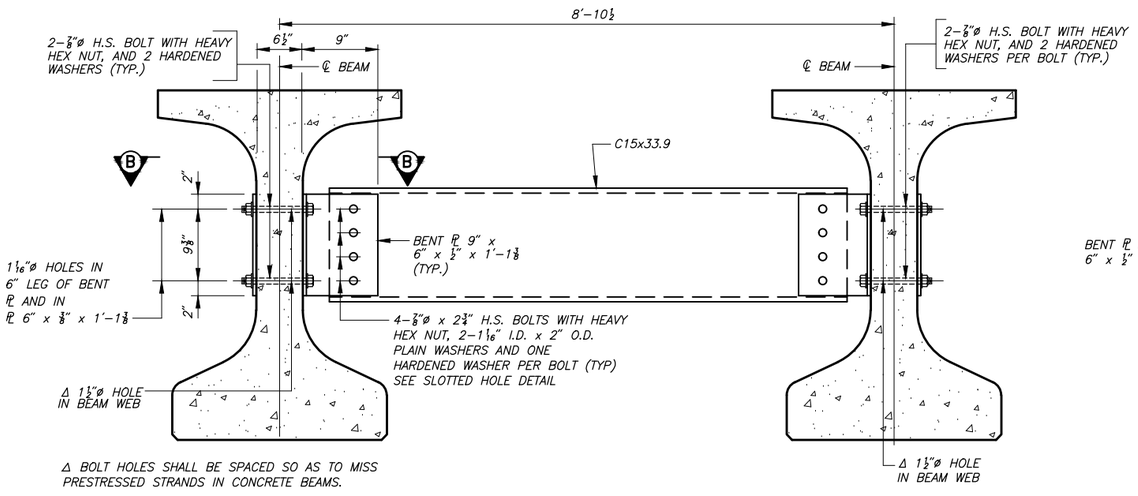
BEAM DETAILS

STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA



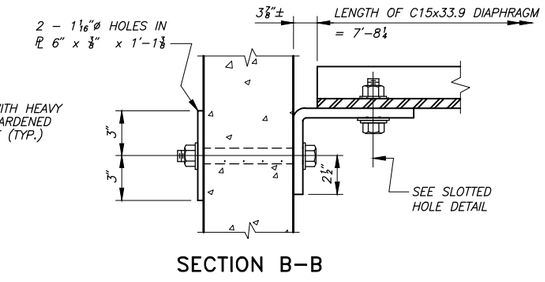
SECTION SHOWING INTERMEDIATE DIAPHRAGMS



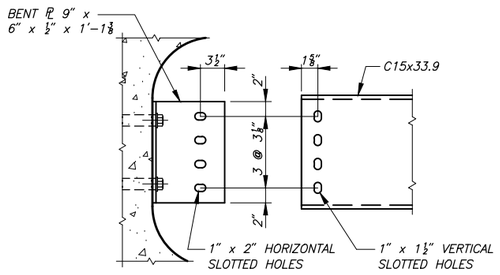
Δ BOLT HOLES SHALL BE SPACED SO AS TO MISS PRESTRESSED STRANDS IN CONCRETE BEAMS.

DETAIL 'D'

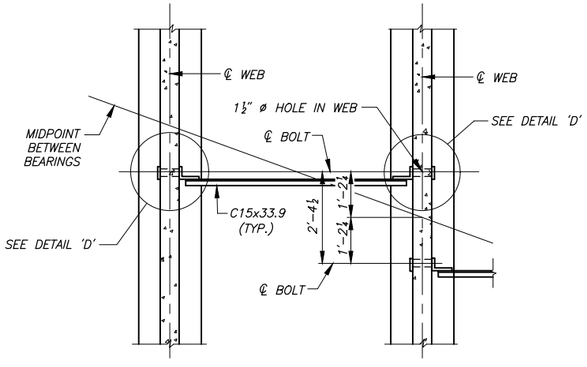
DETAIL 'D'



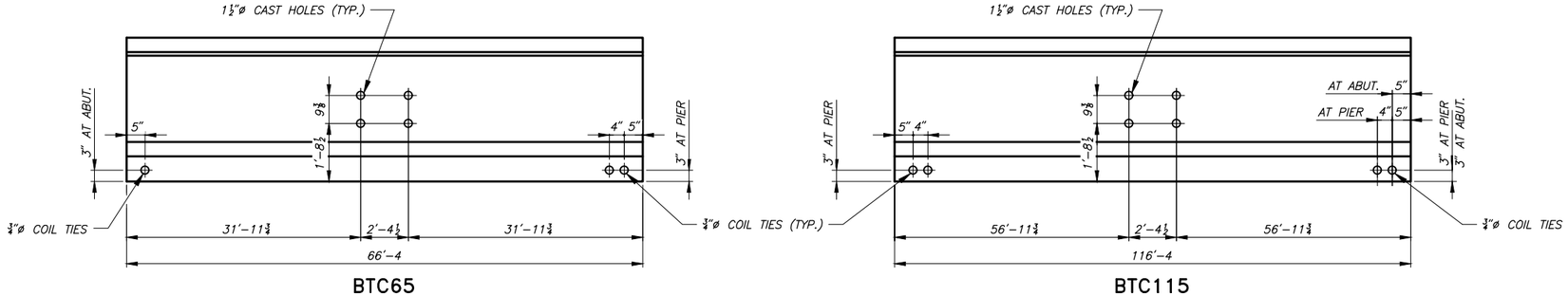
SECTION B-B



SLOTTED HOLE DETAIL



PART SECTION A-A



BTC65

BTC115

BEAM COIL TIE AND BOLT HOLE LOCATIONS

BULB TEE "C" BEAM INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL

ONE BEAM CONNECTION (DETAIL "D")			WEIGHT
		NO. OF BEAM CONNECTIONS	
2 - ⅞"Φ x 9¼" H.S. BOLTS WITH NUTS & WASHERS = 4.8 LBS.		24	115
ONE DETAIL "D"	1 - BACKING PL 6 x ⅜ x 1'-1⅜ = 8.5 LBS.	24	204
	1 - BENT PL 9 x 6 x ½ x 1'-1⅜ = 28.5 LBS.	24	684
ONE DIAPHRAGM			
		NUMBER OF DIAPHRAGMS	
8 - ⅞"Φ x 2¾" H.S. BOLTS WITH NUTS & WASHERS = 10.3 LBS.		12	124
	LENGTH OF MEMBER		
1 - C15 x 33.9 = 33.9 LBS/FT.	7'-8¼	12	3,127
INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL - TOTAL (LBS.)			4,254

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.

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS 66'-0 & 116'-0 END SPANS

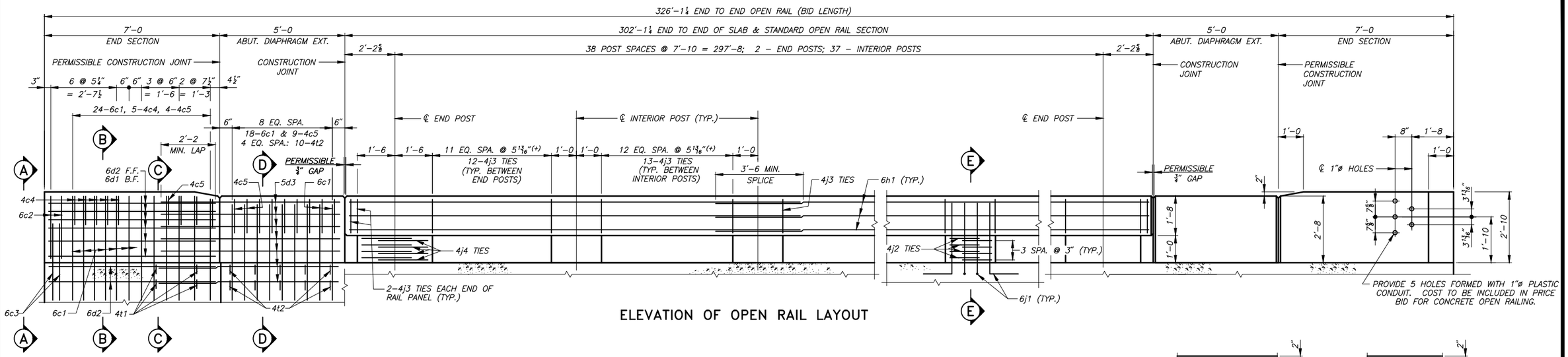
TEE PIERS 117'-0 INTERIOR SPAN

STEEL DIAPHRAGM DETAILS

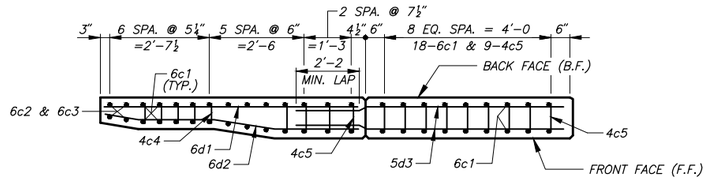
STATION 24+45.50

15° SKEW, LT. AHEAD

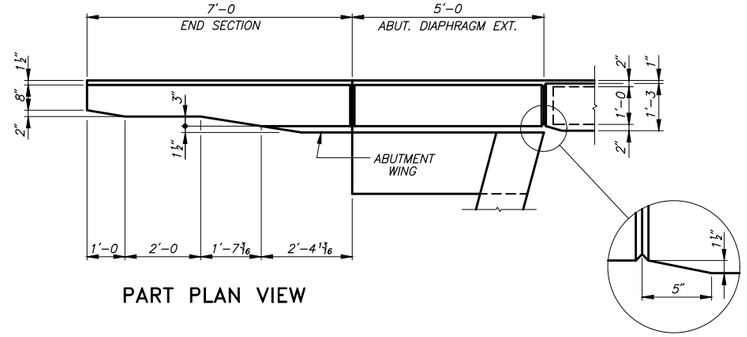
FLOYD COUNTY, IOWA



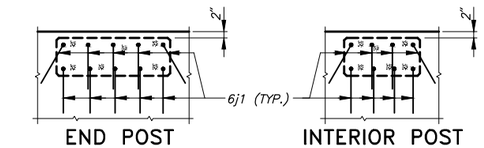
ELEVATION OF OPEN RAIL LAYOUT



PART PLAN SECTION

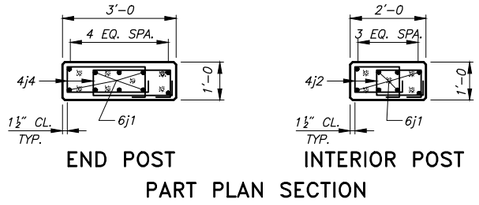


PART PLAN VIEW



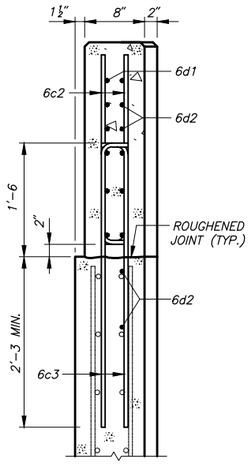
END POST INTERIOR POST

PART PLAN VIEW

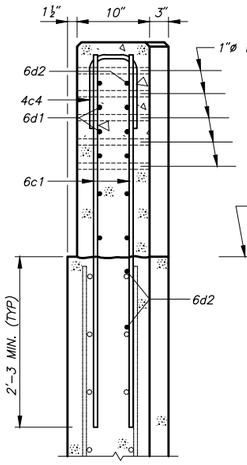


END POST INTERIOR POST

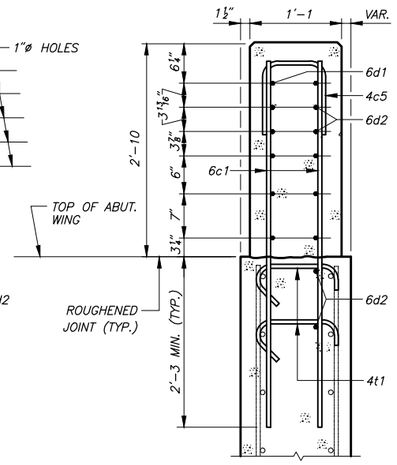
PART PLAN SECTION



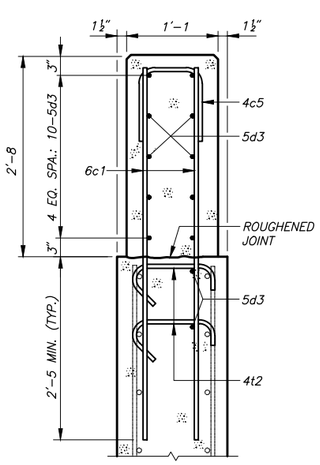
VIEW A-A



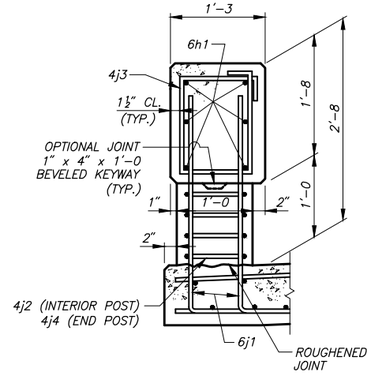
SECTION B-B



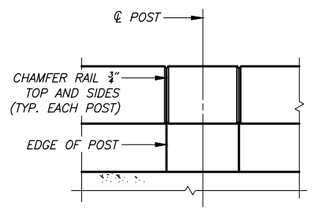
SECTION C-C



SECTION D-D



PART SECTION E-E



RAIL CHAMFER DETAIL

NOTE: SEE ABUTMENT DETAILS FOR ADDITIONAL WING REINFORCING.

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

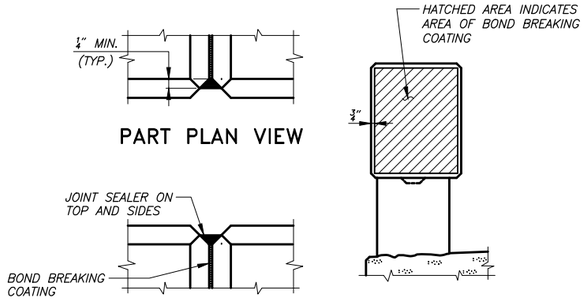
INTEGRAL ABUTMENTS — **66'-0 & 116'-0 END SPANS**

TEE PIERS — **117'-0 INTERIOR SPAN**

OPEN RAIL DETAILS (TL-4)

STATION 24+45.50 — **15° SKEW, LT. AHEAD**

FLOYD COUNTY, — **IOWA**



PART PLAN VIEW

PART ELEVATION VIEW

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 @ 23.3 C.Y.)	46.6
INTERIOR POSTS (74 @ 0.074 C.Y.)	5.5
END POSTS (4 @ 0.111 C.Y.)	0.4
ABUT. DIAPH. EXT. (4 @ 0.535 C.Y.)	2.1
END SECTIONS (4 @ 0.687 C.Y.)	2.7
TOTAL (C.Y.)	57.3

CONCRETE OPEN RAIL QUANTITIES (TWO RAILS)

ITEM	UNIT	QUANTITY
CONCRETE OPEN RAILING, TL-4 (2 @ 326.1)	L.F.	652.2

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 EPOXY COATED 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.

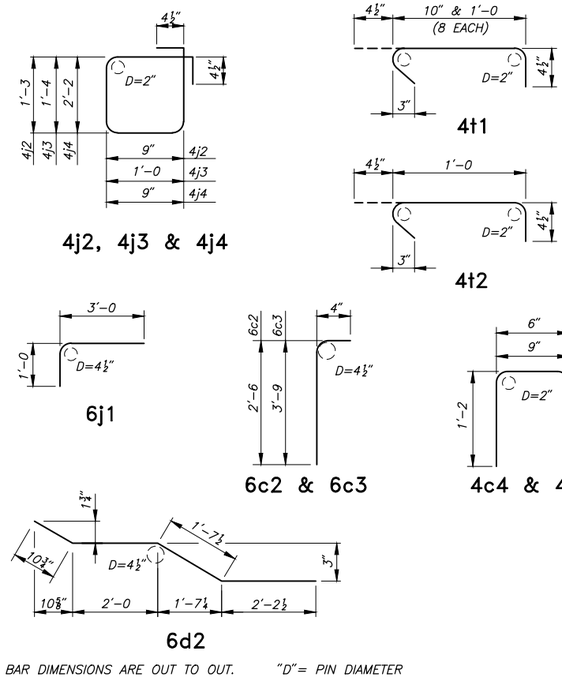
THE CAST-IN-PLACE OPEN RAILS SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED.

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

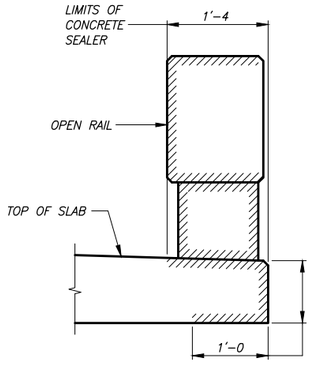
REINFORCING BAR LIST (TWO OPEN RAILS)

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
4 END SECTIONS & ABUT. DIAPH. SECTIONS	6c1	VERTICAL, END SECTION & ABUT. DIAPHRAGM EXT.	—	168	4'-11	1,241
	6c2	VERTICAL, END SECTION	U	16	2'-10	68
	6c3	VERTICAL, END SECTION	U	16	4'-1	98
	4c4	VERTICAL HOOPS, END SECTION	U	20	2'-10	38
	4c5	VERT. HOOPS, END SECT. & ABUT. DIAPH., EXT.	U	52	3'-1	107
	6d1	HORIZONTAL, END SECTION B.F.	—	24	6'-8	240
	6d2	HORIZONTAL, END SECTION F.F.	⌐¬	32	6'-9	324
	5d3	HORIZONTAL, ABUT. DIAPHRAGM EXT.	—	48	7'-2	359
	4t1	WING FOOTING TIE BARS	⌐	16	SHOWN	18
	4t2	WING FOOTING TIE BARS	⌐	40	1'-9	47
STANDARD SECTION	6h1	LONGITUDINAL OPEN RAIL	—	108	36'-8	5,948
	6j1	VERTICAL DOWELS OPEN RAIL	⌐	632	4'-0	3,797
	4j2	HOOPS INTERIOR POSTS	□	592	4'-9	1,878
	4j3	HOOPS OPEN RAIL	□	992	5'-5	3,592
	4j4	HOOPS END POSTS	□	32	6'-7	141
INCLUDE WITH SUPERSTRUCTURE REINFORCING			EPOXY COATED TOTAL (LBS.)			17,896

BENT BAR DETAILS



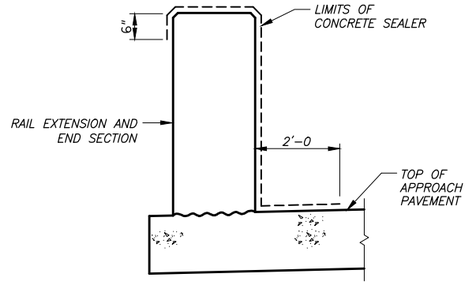
ALL BAR DIMENSIONS ARE OUT TO OUT. "D"= PIN DIAMETER



CONCRETE SEALER LIMITS FOR OPEN RAILS

CONCRETE SEALER SHALL BE APPLIED TO BOTH SIDES OF BRIDGE SLAB ON THE TOP, EDGE OF SLAB AND UNDER SLAB. THE CONCRETE SEALER SHALL ALSO BE APPLIED TO THE OPEN RAIL ON THE TOP, TRAFFIC FACE SIDE, BOTTOM OF RAIL, AND ON ALL SIDES OF THE OPEN RAIL POSTS.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF BRIDGE. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3, OF THE STANDARD SPECIFICATIONS.



CONCRETE SEALER LIMITS FOR RAIL EXTENSIONS AND END SECTIONS

THE CONCRETE SEALER SHALL BE APPLIED TO THE RAIL EXTENSIONS AND END SECTIONS ON THE TOP, TRAFFIC FACE SIDE, 6 INCHES ONTO THE BACK FACE OF RAIL, AND 2 FT. OF THE APPROACH GUTTERLINE.

THE CONCRETE SEALER LIMITS ARE SHOWN IN THE DETAIL AND SHALL APPLY TO THE FULL LENGTH OF RAIL EXTENSIONS AND END SECTIONS. CONCRETE SEALER SHALL BE APPLIED IN ACCORDANCE WITH ARTICLE 2403.03, P, 3, OF THE STANDARD SPECIFICATIONS.

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **66'-0 & 116'-0 END SPANS**

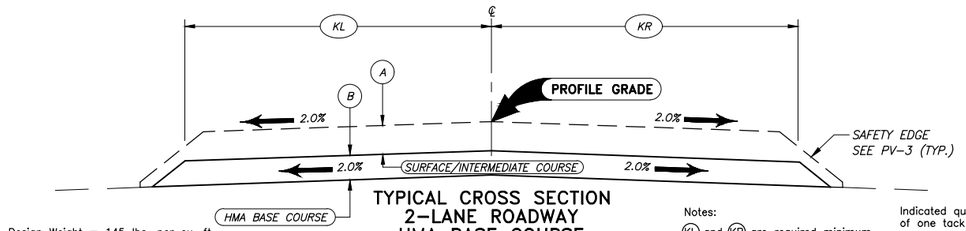
TEE PIERS — **117'-0 INTERIOR SPAN**

OPEN RAIL DETAILS (TL-4)

STATION 24+45.50 — **15° SKEW, LT. AHEAD**

FLOYD COUNTY, — **IOWA**

CBA–620



Design Weight = 145 lbs. per cu. ft.

TYPICAL CROSS SECTION
2–LANE ROADWAY
HMA BASE COURSE

Notes:

(KL) and (KR) are required minimum dimensions upon completion of construction operations and are . used for determining quantities

A tack coat of 0.05 gallons per sq. yd. preceding each lift of hot mix asphalt (HMA) is required.

Base course tapers from 6" to 0" from approx. sta. 29+54 to 30+00.

Indicated quantity is estimated on the basis of one tack coat preceding each lift.

Quantities indicated hereon are for design purposes. Variation from the normal section will be allowed only when so specified by the Engineer.

Quantities have been increased by 20%.

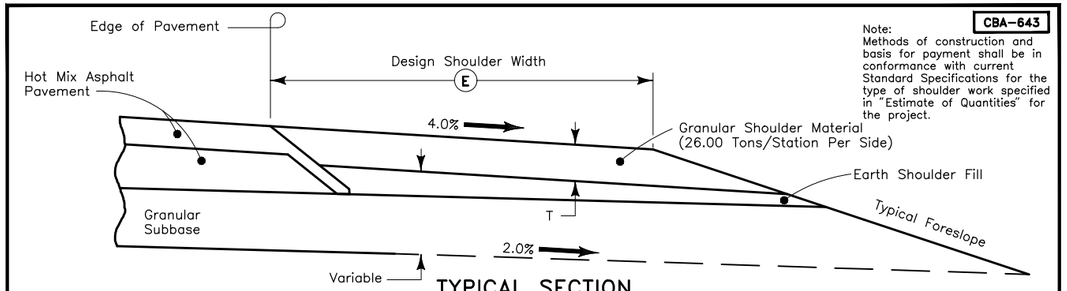
① Estimated to be 6% of mix quantity.

② Tack coat estimated for 2 applications.

TABLE OF DESIGN QUANTITIES

LOCATION			DIMENSIONS				TACK ② COAT	ASPHALT ① BINDER	HMA BASE
ROAD IDENTIFICATION	STATION TO STATION		(A)	(B)	(KL)	(KR)			
			Inches	Inches	Feet	Feet	Gallons	Tons	Tons
T64	21+50.00	22+29.45	4	6	14.3	14.3	31	6.3	105
T64	26+61.55	29+54.00	4	6	14.3	14.3	115	23.4	390
T64	29+54.00	30+00.00	4	VARIES	14.3	14.3	18	1.9	31

CBA–643



Note:
Methods of construction and basis for payment shall be in conformance with current Standard Specifications for the type of shoulder work specified in "Estimate of Quantities" for the project.

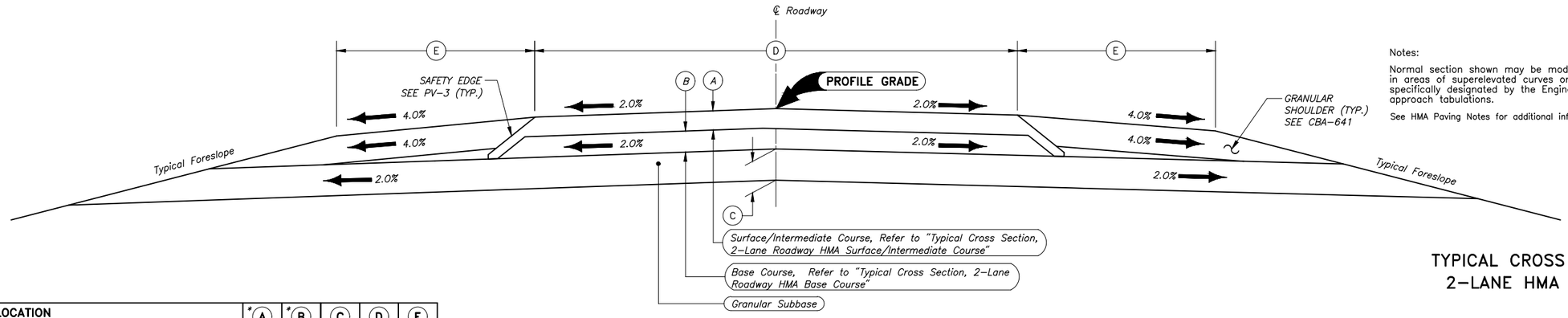
TYPICAL SECTION
TYPE 'B' GRANULAR SHOULDER
Adjacent to HMA Pavement

LOCATION			(E)	(T)	SIDE
ROAD IDENT.	STATION TO STATION		Feet	Inches	
T64	21+50.00	22+69.45	6	6	BOTH
T64	26+21.55	29+54.00	6	6	BOTH

① Includes 50% for Shrinkage

DESIGN QUANTITY RATE Earth Shoulder Material per Shoulder Per Station	
(E)	CU. YDS. ①
6	11.8 (RT.)
6	11.8 (LT.)

CBA–622



Notes:

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer. See bridge approach tabulations.

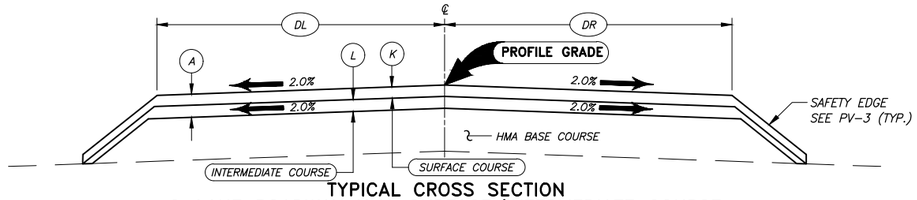
See HMA Paving Notes for additional information.

TYPICAL CROSS SECTION
2–LANE HMA PAVING

LOCATION			*(A)	*(B)	(C)	(D)	(E)
ROAD IDENTIFICATION	STATION TO STATION		Inches	Inches	Inches	Feet	Feet
T64	21+50.00	22+29.45	4	6	6	28	6
T64	26+61.55	29+54.00	4	6	6	28	6
T64	29+54.00	30+00.00	4	VARIES	–	28	6
T64	30+00.00	31+00.00	VARIES	–	–	28	6

* SEE CBA–620 & CBA–621 FOR APPROX. VARIED DEPTHS

CBA–621



Design Weight = 145 lbs. per cu. ft.

TYPICAL CROSS SECTION
2–LANE ROADWAY HMA SURFACE/INTERMEDIATE COURSE

TABLE OF DESIGN QUANTITIES

LOCATION			DIMENSIONS					TACK ② COAT	ASPHALT ① BINDER	HMA Tons	
ROAD IDENTIFICATION	STATION TO STATION		(A)	(K)	(L)	(DL)	(DR)				
			Inches	Inches	Inches	Feet	Feet	Gallons	Tons	SURFACE	INTERMEDIATE
T64	21+50.00	22+29.45	4	2	2	14	14	30	4	33	33
T64	26+61.55	29+54.00	4	2	2	14	14	111	14.6	122	122
T64	29+54.00	30+00.00	4	2	2	14	14	18	2.4	20	20
T64	30+00.00	30+75.00	VARIES	2	VARIES	14	14	29	2.9	32	16
T64	30+75.00	31+00.00	VARIES	VARIES	–	14	14	10	0.6	10	–

Notes:

(DL) and (DR) are required minimum dimensions upon completion of construction operations and are used for determining quantities.

A tack coat of 0.05 gallons per sq. yd. preceding each lift of hot mix asphalt (HMA) is required.

Intermediate course tapers from 2" to 0" from approx. sta. 30+00 to 30+75.

Indicated quantity is estimated on the basis of one tack coat preceding each lift.

Quantities indicated hereon are for design purposes. Variation from the normal section will be allowed only when so specified by the Engineer.

Quantities have been increased by 20%.

① Estimated to be 6% of mix quantity.

② Tack coat estimated for 2 applications.

HMA PAVING NOTES

FULL DEPTH PAVEMENT REPLACEMENT SHALL BE FROM STATION 21+50.00 TO 22+29.45.00 AND 26+61.55 TO 29+54.00.

FROM STATION 29+54.00 TO 31+00.00 PROPOSED HMA PAVEMENT SHALL BE PLACED ON TOP OF EXISTING PAVEMENT AND HMA BASE WIDENING. PROPOSED HMA PAVEMENT SHALL TAPER IN DEPTH AS NEEDED AS SHOWN ON THE TYPICAL SECTIONS.

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **66'–0 & 116'–0 END SPANS**

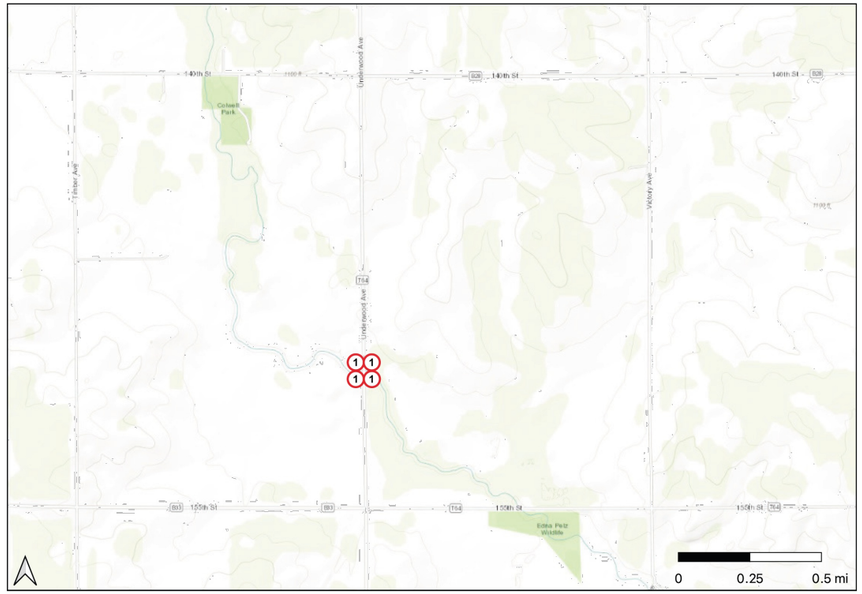
TEE PIERS — **117'–0 INTERIOR SPAN**

TYPICAL SECTIONS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**

FLOYD COUNTY, — **IOWA**

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



Sign # on Map	Quantity	Style	Minimum Letter Height	Language	Location Orientation
(1)	4	Red/Danger	4"	No Thru Traffic	At bridge site, opposite sides of the river, 1 pair facing upstream, 1 pair facing downstream; OR, 2 signs placed near center of channel 12 feet above regular water level, one facing upstream, one facing downstream.

NAVIGABLE WATER CONDITIONS

THE IOWA DNR HAS BEEN NOTIFIED THAT PADDLING ACCESS ON THE LITTLE CEDAR RIVER WILL BE INTERRUPTED DURING A PORTION OF THE CONSTRUCTION FOR THIS PROJECT. THE CONTRACTOR SHALL MEET THE FOLLOWING REQUIREMENTS:

1. INSTALL THE SIGNAGE SYSTEM AS DETAILED ON THIS SHEET. SIGNS SHOULD BE PLACED PRIOR TO OBSTRUCTING THE RIVER AND BE REMOVED AFTER THE OBSTRUCTION IS COMPLETE.
2. CONTRACTOR TO NOTIFY JOHN WENCK AT JOHN.WENCK@DNR.IOWA.GOV NO LESS THAN ONE WEEK PRIOR TO PLACING AND REMOVING CHANNEL OBSTRUCTION.
3. NOTIFY AND COORDINATE WITH CONSERVATION OFFICER JACOB FULK AT JACOB.FULK@DNR.IOWA.GOV FOR ADVICE ON PLACEMENTS AS CREWS INSTALL SIGNS.
4. CONTRACTOR TO REMOVE ALL CONSTRUCTION DEBRIS FROM RIVER CHANNEL.
5. CONTRACTOR SHALL MINIMIZE TIME THE RIVER IS OBSTRUCTED.

ALL SIGNS SHALL USE COLOR CODING STYLE ACCORDING TO THE DEVELOPING WATER TRAILS IN IOWA MANUAL (HTTPS://WWW.IOWADNR.GOV/THINGS-TO-DO/CANOEING-KAYAKING/WATER-TRAIL-DEVELOPMENT) SIGNS SHALL BE INSTALLED ACCORDING TO TABLE ON THIS SHEET.

MAINTENANCE OF PADDLE ROUTE SIGNAGE SHALL MEET THE SAME REQUIREMENTS AS ROADWAY TRAFFIC CONTROL PER STANDARD SPECIFICATIONS ARTICLES 2528.01C, 2528.02 AND 2528.03. SIGNS SHALL BE MAINTAINED BY CONTRACTOR SO AS TO BE VISIBLE THROUGHOUT THE PERIOD THE CHANNEL IS OBSTRUCTED. WHEN OBSTRUCTIONS TO THE CHANNEL ARE NOT NEEDED FOR A PERIOD OF 30 DAYS OR GREATER, SIGNAGE SHOULD BE TEMPORARILY REMOVED.

CONTRACTOR SHALL PROVIDE MEANS TO DISPLAY THE SIGNS. LABOR, MATERIAL AND EQUIPMENT REQUIRED TO PLACE AND MAINTAIN SIGNAGE SHALL BE INCIDENTAL TO THE "TRAFFIC CONTROL" BID ITEM.

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 BE ESTABLISHED FOR THIS PROJECT. FLOYD COUNTY WILL PROVIDE, MAINTAIN AND REMOVE THE DETOUR ROUTE.
4. FLOYD COUNTY MAINTENANCE SHALL SALVAGE EXISTING ROAD MARKERS.

SURVEY CONTROL POINTS

CBA-300

Description	Northing	Easting	Approx. Station	Approx. Offset	Elevation
CP #206 CP-N5RB-PPC	3879315.08	5152446.77	18+55	24' LT.	1049.80
CP #207 CP-N5RB-PPC	3879317.75	5152495.11	18+56	25' RT.	1049.65
CP #201 CP-N5RB-PPC	3880790.60	5152464.65	33+30	28' RT.	1057.10
CP #202 CP-N5RB-PPC	3880790.34	5152412.46	33+30	25' LT.	1055.88
Coordinate System				Vertical Datum	
(NAD83) IOWA STATE PLANES, NORTH ZONE, US FOOT				NAVD88	

CBA-101

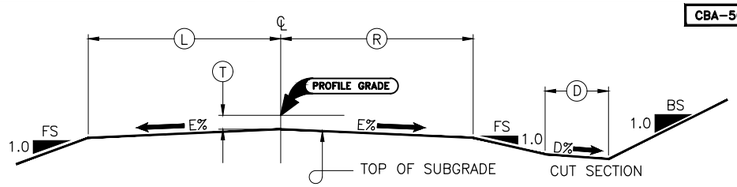
SUMMARY OF EARTHWORK QUANTITIES

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	2,626	6,206	0	2,626	35%	8,378	2,626
CLASS 10, CHANNEL	2,685	700	475	2,210	35%	945	2,685
TOTALS			475	4,836		9,323	
EMBANKMENT IN PLACE (EIP)	EIP = (9323 - 4836) / 1.35 SHRINK =						3,324

** ASSUMES SOME MATERIAL WILL BE UNSUITABLE AND WILL NEED TO BE WASTED ON SITE.

CBA-500

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



FILL SECTION

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)	(T)					(D_L)	(D_R)
ROAD IDENT.	STATION TO STATION		Feet	Feet	Inches	E%	FS	D%	BS	Feet	Feet
T64	21+50.00	BRIDGE	25.3	25.3	16	2	4	2	3	–	10
T64	BRIDGE	29+54.00	25.3	25.3	16	2	4	–	–	–	–
T64	29+54.00	31+00.00	–	–	–	2	4	2	3	10	10

CBA-100

SUMMARY OF ROADWAY EXCAVATION

STATION	AREAS CUT SF	AREAS FILL SF	RAW VOLUMES CUT CY	RAW VOLUMES ADD'L CUT CY	RAW VOLUMES FILL CY	RAW VOLUMES ADD'L FILL CY
21+50	0	37				
22+05	17	189	17		230	10
22+65	32	50	54		266	
BRIDGE	-	-	-	15	-	805
26+30	97	10	-	905	-	945
27+05	30	181	176		265	
27+40	110	246	91		277	1,685
28+00	108	233	242		532	
29+00	162	160	500		728	
30+00	88	45	463		380	
31+00	0	0	163		83	
SUBTOTALS			1,706	920	2,761	3,445
TOTALS			2,626		6,206	

SEE CROSS SECTIONS FOR ADDITIONAL INFORMATION.

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'-0 & 116'-0 END SPANS

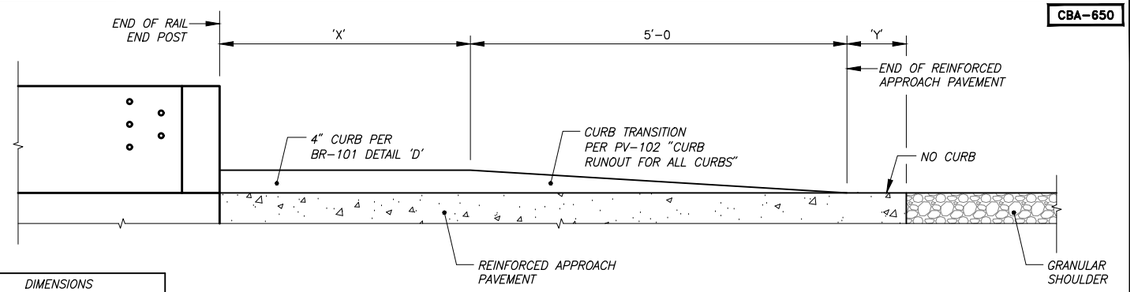
TEE PIERS
117'-0 INTERIOR SPAN

TYPICAL SECTIONS & TABULATIONS

STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA

CBA–650

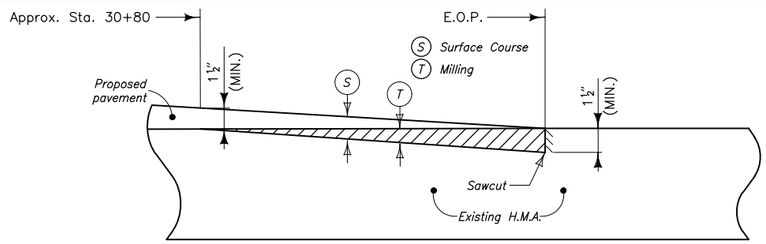


DIMENSIONS			
NO.	LOCATION	X (ft)	Y (ft)
1	SW	11.00	2.36
2	SE	2.64	0.00
3	NW	2.64	0.00
4	NE	11.00	2.36

REINFORCED BRIDGE APPROACH CURB LAYOUT

SEE TABULATION 112–6 AND BR. ROAD STANDARDS FOR ADDITIONAL INFORMATION.

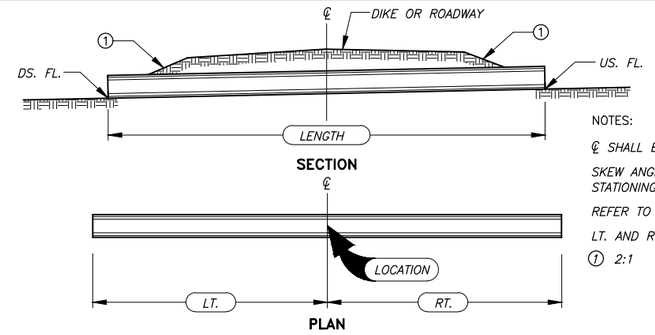
CBA–900



NOTES: 1) SEE TYPICAL SECTIONS ON SHEET 31 FOR H.M.A. SURFACE COURSE QUANTITIES.
2) 22' PAVEMENT WIDTH FOR MILLING.
3) SURFACE SHALL BE THOROUGHLY CLEANED PRIOR TO THE PLACEMENT OF THE SURFACE COURSE MATERIAL.

SURFACE NOTCH FOR SINGLE COURSE RESURFACING

CBA–700



NOTES:

℄ SHALL BE ℄ OF ROADWAY, DIKE, SURVEY, OR OTHER; AS DETAILED ON PLANS.

SKEW ANGLE IS THE ANGLE WHICH ONE END OF THE PIPE IS AHEAD (BY STATIONING) OF LINE PERPENDICULAR TO THE ℄ (EXAMPLE SKEW RT. AHEAD 30°).

REFER TO TABULAR LISTING AND OTHER PLANS FOR ADDITIONAL INFORMATION.

LT. AND RT. ARE LOOKING TOWARD MAINLINE ON EW–501.

(1) 2:1

ENTRANCE PIPE CULVERT

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-201	10-18-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-26	Steel Beam Guardrail Bolted End Anchor
BR-101	10-20-26	Bridge Approach Section (General Details)
BR-105	10-20-26	Bridge Approach Section (Two-Lane, HMA Pavement)
DR-101	04-18-17	Pipe Culvert (Bedding and Backfill)
DR-104	04-19-16	Depth of Cover Tables for Concrete and Corrugated Pipe
EC-201	04-20-21	Silt Fence
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EW-210	10-20-15	Standard Wing Dikes
EW-301	10-20-26	Guardrail Grading
EW-401	10-20-15	Temporary Stream Crossing, Causeway, or Equipment Pad
EW-501	10-17-23	Rural Entrance
LS-625	10-19-21	Steel Beam Guardrail Tangent End Terminal (NCHRP 350 TL-3)
LS-630	10-19-21	Steel Beam Guardrail Installation At Concrete Barrier Or Bridge Rail End Section (NCHRP 350 TL-3)
PM-110	10-15-24	Line Types
PV-3	10-15-24	Safety Edge
PV-101	10-20-26	Joints
PV-102	10-21-25	PCC Curb Details
PV-203	04-21-20	HMA Base Widening
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

107_22
8/15/22

WING DIKES

Refer to Standard Road Plan EW-210.

Line No.	Station	Top Elevation	Length (FT)	Bridge Skew	Earthwork (CY)
1.0	22+90.31	1048.40	60.0	15.0	750.0
2.0	26+11.00	1049.10	105.0	15.0	920.0

DOES NOT INCLUDE SHRINK FACTOR. INCLUDED IN CLASS 10 ROADWAY & BORROW.

108_13A
3/27/25

SAFETY CLOSURES

Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
20+00.00	1		SOUTH END
32+00.00	1		NORTH END

110_13
8/15/22

DELIVERY AND STOCKPILING

Line No.	Item Description	Quantity	Quantity Units	Delivery Location	Contact Name	Contact Number	Remarks
1.0	BRIDGE RAIL, POSTS AND GUARDRAIL	812	LF	ON-SITE	COUNTY ENGINEER	641-257-6151	CONTRACTOR TO STACK NEATLY WITHIN RIGHT-OF-WAY

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **66'–0 & 116'–0 END SPANS**

TEE PIERS — **117'–0 INTERIOR SPAN**

TYPICAL SECTIONS & TABULATIONS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**

FLOYD COUNTY, — **IOWA**

112_06
10/20/26

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item
** Verify layout of bridge approach does not conflict with guardrail posts.

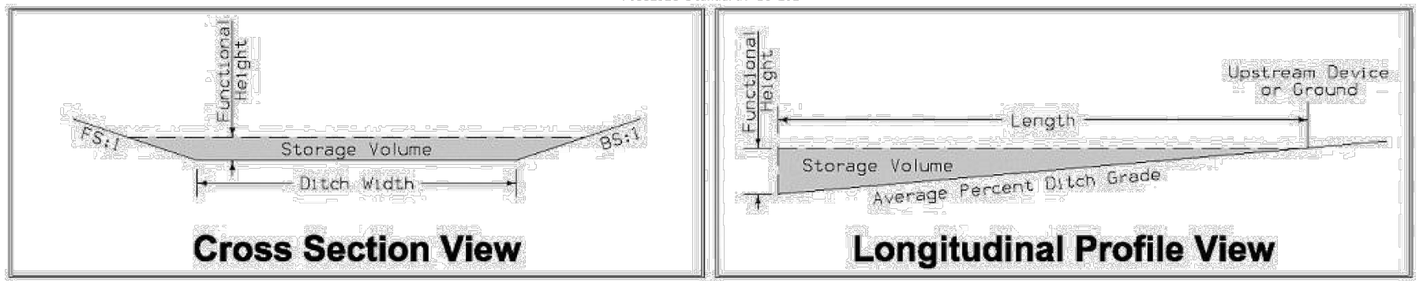
Line No.	Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Right Edge Offset (FT) **	Left Edge Offset (FT) **	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
1.0	24+45.50	S	15.0		10.0	65.0	21.3	21.3	133.3	115.6			Movable						300.000	280.0		BR-105, ABUTTING HMA PAVEMENT
2.0	24+45.50	N	15.0		10.0	65.0	21.3	21.3	133.3	115.6			Movable						300.000	280.0		BR-105, ABUTTING HMA PAVEMENT
Total									266.6	231.2												

BACK TO BACK OF CURB OF REINFORCED APPROACH SECTION = 42'-7

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 1	21+50.00	Right	20.0	20.0		3.0	3.0	8.0	1.8	605.63	SE DITCH
2.0	1	Type 1	22+10.00	Right	24.0	24.0		4.0	3.0	10.0	1.8	740.25	SE DITCH
3.0	2	Type 1	23+20.00	Left	15.0	15.0		2.5	2.5	5.0	0.5	1767.15	SW DITCH
4.0	3	Type 1	24+40.00	Right	18.0	18.0		2.0	2.0	10.0	1.6	639.00	NE DITCH
5.0	3	Type 1	25+05.00	Right	18.0	18.0		2.0	2.0	10.0	1.6	639.00	NE DITCH
6.0	3	Type 1	25+75.00	Right	18.0	18.0		2.0	2.0	10.0	1.6	639.00	NE DITCH
7.0	4	Type 1	25+85.00	Right	24.0	24.0		4.0	3.0	10.0	0.5	3109.05	NE DITCH BETWEEN ROAD AND FIELD ENT.
8.0	3	Type 3	26+60.00	Right	22.0	22.0		3.0	3.0	10.0	1.6	706.50	NE DITCH
9.0	5	Type 1	26+70.00	Left	21.0	21.0		2.5	3.0	10.0	1.4	919.50	NW DITCH
10.0	3	Type 1	27+30.00	Right	22.0	22.0		3.0	3.0	10.0	1.6	706.50	NE DITCH
11.0	5	Type 1	27+40.00	Left	22.0	22.0		3.0	3.0	10.0	1.4	942.00	NW DITCH
12.0	3	Type 1	27+90.00	Right	24.0	24.0		4.0	3.0	10.0	1.6	740.25	NE DITCH
13.0	5	Type 1	28+40.00	Left	24.0	24.0		4.0	3.0	10.0	1.4	987.00	NW DITCH
14.0	3	Type 1	28+65.00	Right	24.0	24.0		4.0	3.0	10.0	1.6	740.25	NE DITCH
15.0	3	Type 1	29+35.00	Right	24.0	24.0		4.0	3.0	10.0	1.6	740.25	NE DITCH
16.0	5	Type 1	29+40.00	Left	24.0	24.0		4.0	3.0	10.0	1.4	987.00	NW DITCH
17.0	3	Type 1	30+10.00	Right	24.0	24.0		4.0	3.0	10.0	1.6	740.25	NE DITCH
18.0	5	Type 1	30+40.00	Left	24.0	24.0		4.0	3.0	10.0	1.4	987.00	NW DITCH
19.0	3	Type 1	30+80.00	Right	24.0	24.0		4.0	3.0	10.0	1.6	740.25	NE DITCH
Total					416	416							

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	21+50.00	22+60.00	Left	175.00	TOE OF SW FORESLOPE
2.0	22+75.00	23+25.00	Right	160.00	TOE OF SE FORESLOPE / TOP OF SE BANK
3.0	23+10.00	23+15.00		330.00	BOTH SIDES, TOE OF BERM / TOE OF DIKE
4.0	23+45.00	23+60.00	Left	80.00	TOP OF SW BANK
5.0	25+80.00	26+80.00		320.00	BOTH SIDES, TOE OF BERM / TOE OF DIKE
6.0	26+00.00	26+40.00	Right	50.00	AT FIELD ENTRANCE
7.0	27+00.00	31+00.00	Left	480.00	MID-HEIGHT OF NW. FORESLOPE
8.0	27+75.00	31+00.00	Right	385.00	MID-HEIGHT OF NE. FORESLOPE
Total				1980	

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	23+45.00	23+75.00		Perimeter and Slope	12 inch	235.00	S. BANK TOE
Total						235	

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'-0 & 116'-0 END SPANS

TEE PIERS
117'-0 INTERIOR SPAN

TABULATIONS

STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA

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	NB	Right	22+77.09	20.5	BA-201	1	LS-625	1	40.625			50.00			3				1	A	1			SOUTH END, RT., LS-630
2.0	SB	Left	22+87.81	20.5	BA-201	1	LS-625	1	40.625			50.00			3			1		A	1			SOUTH END, LT., LS-630
3.0	NB	Right	26+03.19	20.5	BA-201	1	LS-625	1	40.625			50.00			3				1	A	1			NORTH END, RT., LS-630
4.0	SB	Left	26+13.91	20.5	BA-201	1	LS-625	1	40.625			50.00			3			1		A	1			NORTH END, LT., LS-630

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	NB	22+77.09	Right	4:1	40.0	5.1					90.0	7.1	46.4	314.0		SOUTH END, RT.
2.0	SB	22+87.81	Left	4:1	40.0	5.1					90.0	7.1	46.4	331.0		SOUTH END, LT.
3.0	NB	26+03.19	Right	4:1	40.0	5.1					90.0	7.1	46.4	15.0		NORTH END, RT.
4.0	SB	26+13.91	Left	4:1	40.0	5.1					90.0	7.1	46.4	157.0		NORTH END, LT.

** DOES NOT INCLUDE SHRINK FACTOR. INCLUDED IN CLASS 10 ROADWAY & BORROW*

110_07A
8/15/22

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

Line No.	No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
1.0	1	NB	22+55.00	23+15.00	Right	60.0
2.0	2	SB	22+62.00	23+22.00	Left	60.0
3.0	3	NB	26+00.00	26+60.00	Right	60.0
4.0	4	SB	26+08.00	26+68.00	Left	60.0
Total						240

108_22
11/25/25

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17 — BCY6: Broken Centerline (Yellow) @ 0.25 — BLC6: Broken Line Contrast (White/Black) @ 0.50 — BLW4: Broken Lane Line (White) @ 0.17 — BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00 — CHW8: Channelizing Line (White) @ 1.33 — CHW10: Channelizing Line (White) @ 1.67 — CHY8: Channelizing Line (Yellow) @ 1.33 — CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00 — DCY4: Double Centerline (Yellow) @ 1.34 — DCY6: Double Centerline (Yellow) @ 2.00 — DDY4: Double Dotted Line (Yellow) @ 0.44 — DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22 — DLW6: Dotted Line (White) @ 0.33 — DLY4: Dotted Line (Yellow) @ 0.22 — DLY6: Dotted Line (Yellow) @ 0.33 — ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00 — ELY4: Edge Line Left (Yellow) @ 0.67 — ELY6: Edge Line Left (Yellow) @ 1.00 — LDW8: Lane Drop (White) @ 0.33 — LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00 — NPY4: No Passing Zone Line (Yellow) @ 0.84 — NPY6: No Passing Zone Line (Yellow) @ 1.25 — RLW4: Ramp Edge Line Right (White) @ 0.67 — RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67 — RLY6: Ramp Edge Line Left (Yellow) @ 1.00 — SLW2: Stop Line (White) @ 4.00 — SLW4: Solid Lane Line (White) @ 0.67 — SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16 — SPW6: Sloped Curb 6" (White) @ 2.28 — SPY4: Sloped Curb 4" (Yellow) @ 2.16 — SPY6: Sloped Curb 6" (Yellow) @ 2.28 — STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03 — YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BCY4* (STA)	BCY4* Factored (STA)	BLW4 Factored (STA)	DCY4 Factored (STA)	ELW4 (STA)	ELW4 Factored (STA)	ELY4 Factored (STA)	Remarks
1.0	T64	21+50.00	31+00.00	Both	Waterborne/Solvent Paint			X	No						19.00	12.73		
2.0	T64	21+50.00	31+00.00	Both	Waterborne/Solvent Paint		X		No		9.50	1.62						
3.0																		TOTAL = 14.35 STA.

110_01
4/5/24

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Line No.	Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
1.0	21+50.00	23+22.10	Both	PCC	458.8	24.0	SOUTH END
2.0	26+00.90	29+44.00	Both	PCC	915.0	-	NORTH END UP TO EXISTING HMA
3.0	29+44.00	29+54.00	Both	HMA	24.4	22.0	NORTH END HMA
Total					1398.2		

299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS — **TEE PIERS**
66'–0 & 116'–0 END SPANS — **117'–0 INTERIOR SPAN**

TABULATIONS

STATION 24+45.50 — **15° SKEW, LT. AHEAD**
FLOYD COUNTY, — **IOWA**

102_03
10/15/24

ACCESS POINTS AND SAFETY RAMPS

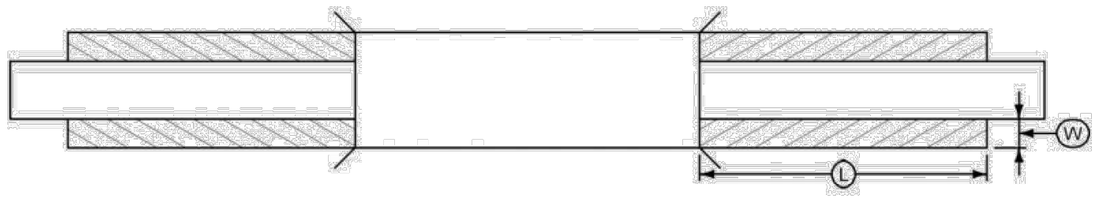
Refer to Cross-Sections

Length of Unclassified Pipe calculated is based on using Corrugated Metal Pipe.
(1) Refer to MI-210.
(2) Refer to EW-501.
(3) Refer to EW-501 or EW-502.
*Predetermined for access point not constructed with this project.

Line No.	Station	Side	Access Type	Descriptor	Case	Curb Type	Curb Length (1) (LF)	Width (FT)	PR (1) (2) (FT)	SR (2) (FT)	Pipe Culvert (H) (3) (FT)	Pipe Culvert Size (3) (IN)	Pipe Culvert Length (3) (LF)	Pipe Culvert Lt. (3) (LF)	Pipe Culvert Rt. (3) (LF)	Pipe Culvert Aprons (3) (No.)	Driveway Surface Type	Driveway Surface Area (SY)	Driveway Surfacing Material (TON)	Remarks
1.0	27+40.00	Right	C					30.0		30.0		24.0	46.0	24.00	22.00				25.000	8:1 FORESLOPES NEAR ROAD

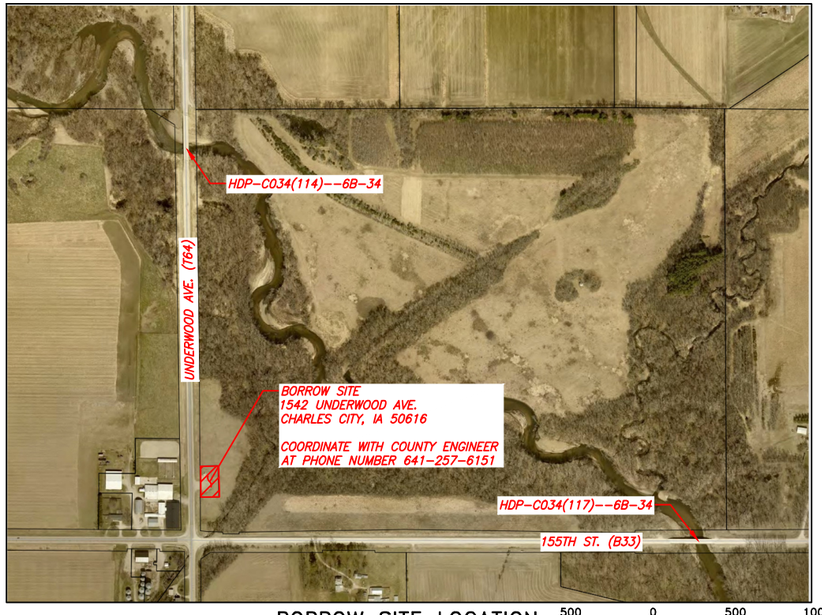
106_05
7/30/24

AREAS FOR PAVEMENT OR BASE WIDENING



(1) Bid Item
(2) Estimated for two applications to achieve lifts and one application of 0.10 Gal/SY adjacent to existing pavement. Priming of subgrade or finished base is not required.

Line No.	Station From	Station To	Side	Pavement Type	Length (LF)	Width (LF)	Thickness (IN)	HMA Unit Wt. (lbs/cf)	HMA Base Widening (1) (TONS)	HMA Base Widening (1) (SY)	PCC Base Widening (1) (SY)	PCC Pavement Widening (1) (SY)	Tack Coat Unit Wt. (gal/sy)	Tack Coat Lifts (GAL)	Tack Coat Vertical Edge (GAL)	Tack Coat (2) (GAL)	Asphalt Binder (1) (TON)	Class 13 Excavation Widening (1) (CY)	Special Backfill Unit Weight (lbs-cf)	Special Backfill (1) (TONS)	Remarks
1.0	29+54.00	31+00.00	Left	HMA	146.00	6.0	10.0	145	52.925						1.35	1.35	3.175	27.0			
2.0	29+54.00	31+00.00	Right	HMA	146.00	6.0	10.0	145	52.925						1.35	1.35	3.175	27.0			
Total									105.850								6.350	54.0			



BORROW SITE LOCATION 500 0 500 1000

BORROW SITE NOTES

THE BORROW SITE LOCATION IS OWNED BY FLOYD COUNTY. FILL MATERIAL TO BE USED ON THIS PROJECT SHALL BE OBTAINED AT THIS SITE AT NO COST TO THE CONTRACTOR.

THE BORROW SITE IS THE STOCKPILE OF EARTH WASTE MATERIAL FROM BRIDGE REPLACEMENT PROJECT DOWNSTREAM ON 155TH ST (HDP-C034(117)--6B-34). THE BORROW SITE IS ALREADY DISTURBED AND TOPSOIL STRIP, SALVAGE AND SPREAD WILL NOT BE REQUIRED. SEDIMENT CONTROL IS ALREADY ESTABLISHED IN THE AREA AND NO ADDITIONAL CONTROLS WILL BE REQUIRED BY THE CONTRACTOR. SEEDING OF THIS SITE WILL NOT BE REQUIRED.

THE CONTRACTOR WILL BE REQUIRED TO COORDINATE THEIR OPERATIONS WITH THE CONTRACTOR CONSTRUCTING PROJECT HDP-C034(117)--6B-34.

299'-0 x 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

INTEGRAL ABUTMENTS
66'-0 & 116'-0 END SPANS

TEE PIERS
117'-0 INTERIOR SPAN

TABULATIONS

STATION 24+45.50
FLOYD COUNTY,

15° SKEW, LT. AHEAD
IOWA

B.O.P. & TIE–IN STA. 21+50.00
N: 3879610.88
S: 5152463.18

E.O.P. & TIE–IN STA. 31+00.00
N: 3880560.64
S: 5152441.82

STA. 24+45.50 ℄ PROPOSED
299'–0 x 40'–0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE, 15° SKEW, LT. AHEAD

STA. 24+61, ℄ EXISTING 278'x30' STEEL I–BEAM BRIDGE WITH CONCRETE STUB ABUTMENTS, CONCRETE TEE PIERS AND A CONCRETE DECK (REMOVE)

P.I. STA. 26+43.61
N: = 3880104.35
E: = 5152451.24
NO CURVE
Δ 0° 12' 10", RT.

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68

WETLANDS LEGEND

EMERGENT WETLANDS (DO NOT DISTURB)

FORESTED WETLANDS (DO NOT DISTURB)

DUANE C. JAEGER, TRISTEE OF THE DUANE C. JAEGER GRANTOR TRUST

DUANE C. JAEGER, TRUSTEE OF THE DUANE C. JAEGER GRANTOR TRUST

EXISTING RIGHT–OF–WAY (TYP.)

CLEARING & GRUBBING (0.07 ACRES)

EXISTING REVETMENT (REMOVE & REPLACE)

CLEARING & GRUBBING (0.30 ACRES)

CLEARING & GRUBBING (0.20 ACRES)

CLEARING & GRUBBING (0.72 ACRES)

*150' LT.

*170' LT.

*75' LT.
**75' LT.

**40' LT.

*50' RT.
**40' RT.

**95' RT.

*150' RT. (TYP.)

R10'

20' (TYP.)

5'

60'–0

38'–0

45°

105'–0

40'–0

R=30'

R=50'

R=60'

0.5%

RIVER

LITTLE CEDAR

BENCHMARK

CONTROL POINT

BORING #1

BORING #2

BORING #3

BORING #4

STA. 21+50 @ EXISTING

STA. 21+50 @ 85' RT.

STA. 22+75 @ 85' RT.

STA. 22+75 @ 155' RT.

STA. 22+90.31

STA. 26+11.00

STA. 26+00 @ 155' RT.

STA. 27+04 @ 180' LT. @EXISTING

STA. 28+00 @ 105' LT.

STA. 28+00 @ 105' RT.

STA. 28+00 @ 155' RT.

STA. 30+00 @ 105' LT.

STA. 31+00 @ EXISTING

STA. 30+50 @ EXISTING

SAWCUT

UNDERWOOD AVE.

T64

SH. TO SH.

PROPOSED RIGHT–OF–WAY (TYP.)

EXISTING ENTRANCE @ STA. 26+70 RT.
RELOCATE TO STA. 27+40 RT.
REMOVE EXISTING 24"ø x 30' C.M.P.

FURNISH & INSTALL NEW 24"ø x 46' C.M.P. AT STA. 26+25
24' LT., 22' RT.
INLET ℄ ELEV.= 1039.7
OUTLET ℄ ELEV.= 1039.0

TEMPORARY CONSTRUCTION EASEMENT

NILEWOOD PARTNERSHIP, LLLP

ADMORE ACRES, LLC

PLAN & PROFILE

50 0 50 100

TIE–IN & VPC STA.= 21+50.00
ELEV.= 1053.18

VPT & VPC STA.= 22+50.00
ELEV.= 1054.42

VPT STA.= 25+50.00
ELEV.= 1055.98

VPC STA.= 29+00.00
ELEV.= 1054.16

TIE–IN & VPT STA.= 31+00.00
ELEV.= 1054.32

VPI STA. = 22+00.00
ELEV. = 1053.64
L.V.C. = 100.00'
M.O. = 0.0800'
K = 156.25
S.S.D. = 495'
55 MPH DESIGN

VPI STA. = 24+00.00
ELEV. = 1056.76
L.V.C. = 300.00'
M.O. = 0.7800'
K = 144.23
S.S.D. = 495'
55 MPH DESIGN

VPI STA. = 30+00.00
ELEV. = 1053.64
L.V.C. = 200.00'
M.O. = 0.3000'
K = 166.67
S.S.D. = 495'
55 MPH DESIGN

0.92%
1.56%
–0.52%
0.68%

PROPOSED GRADELINE

EXISTING GROUNDLINE

STA. 21+50 ELEV.= 1041.3
+1.8% DITCH RT.
STA. 22+70 ELEV.= 1043.5
STA. 22+55 ELEV.= 1037.6
–0.5% DITCH LT.
STA. 23+20 ELEV.= 1037.3
STA. 24+40 ELEV.= 1035.7
STA. 26+75 ELEV.= 1038.0
–1.6% DITCH RT.
–1.4% DITCH LT.
STA. 31+00 ELEV.= 1047.0
STA. 31+00 ELEV.= 1044.0

1060 1055 1050 1045 1040 1035 1030 1025

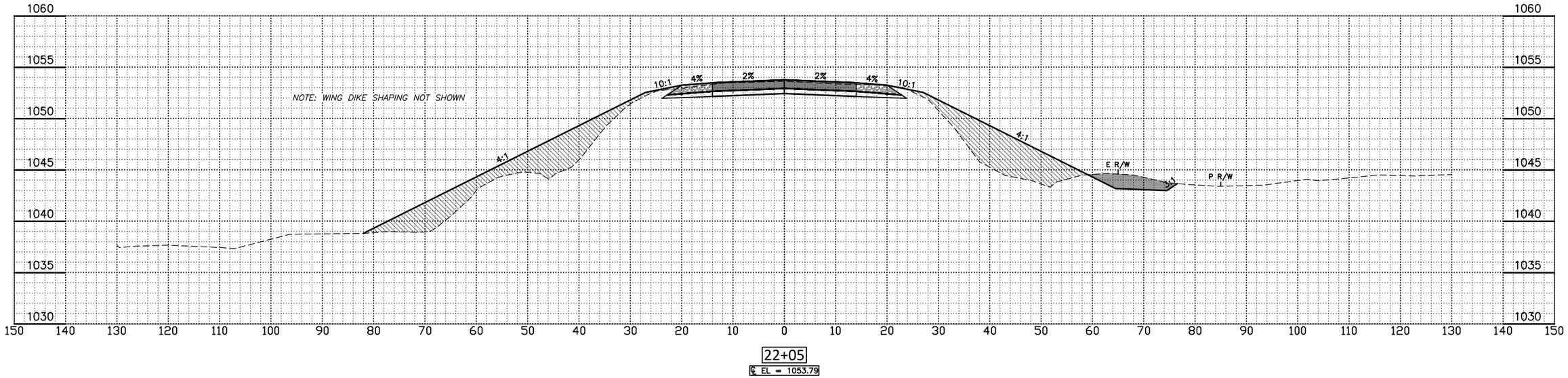
1053.21 1053.61 1053.96 1054.36 1038.46 1032.93 1037.55 1038.60 1041.13 1054.23 1054.08 1053.66 1053.40 1053.19 1052.96 1053.09 1053.18 1053.63 1053.94 1054.31

20+50 21+00 21+50 22+00 22+50 23+00 23+50 24+00 24+50 25+00 25+50 26+00 26+50 27+00 27+50 28+00 28+50 29+00 29+50 30+00 30+50 31+00 31+50 32+00

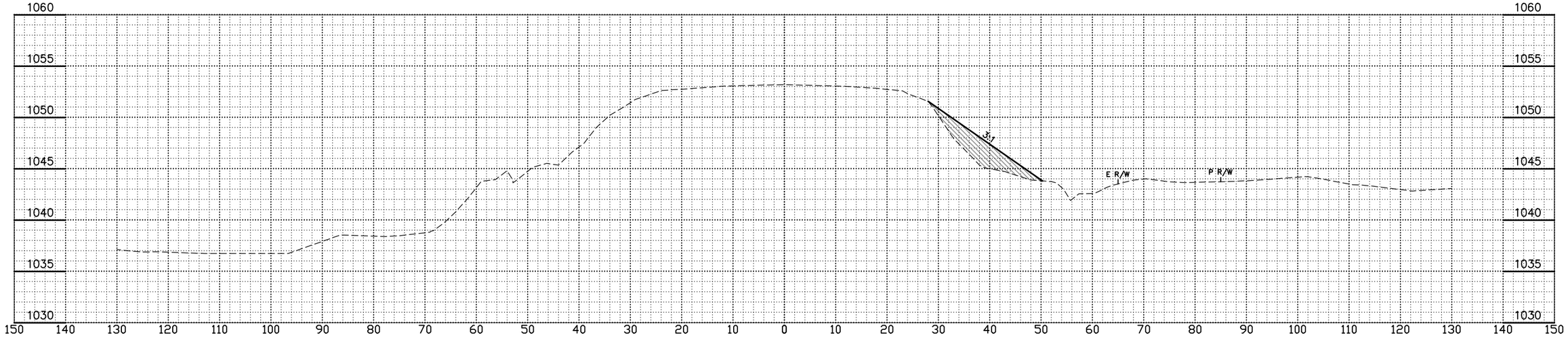
PLAN & PROFILE

FLOYD COUNTY, IOWA

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



22+05
℄ EL = 1053.79

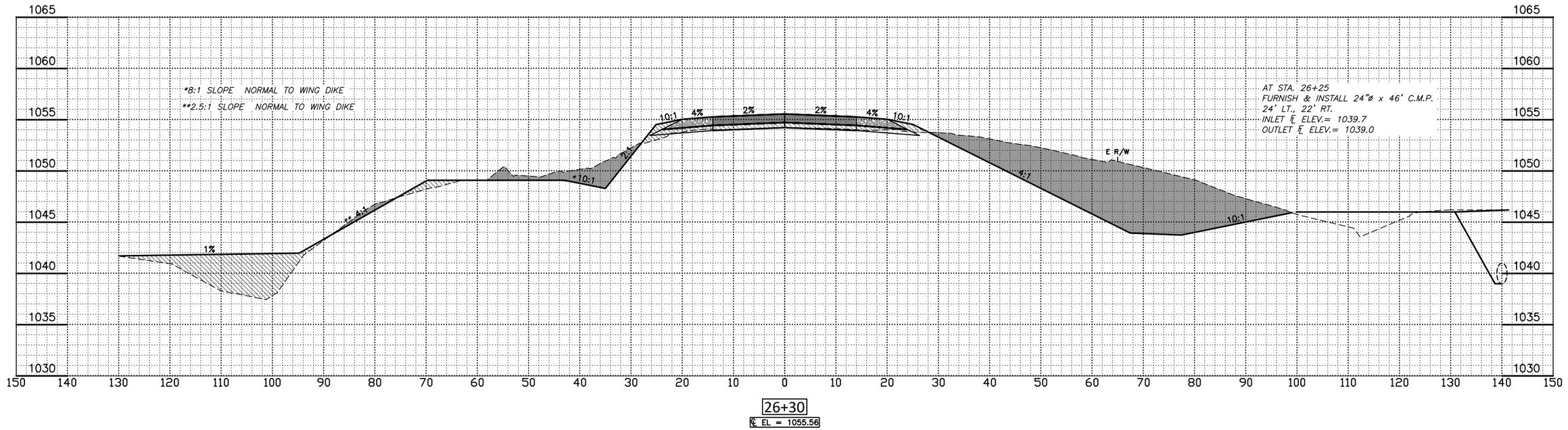


21+50

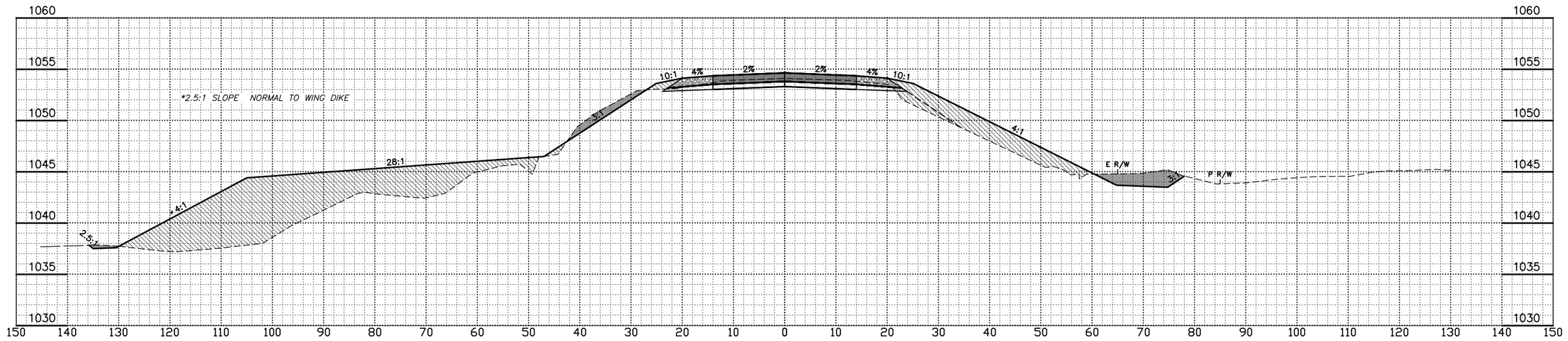
CROSS SECTIONS

FLOYD COUNTY, IOWA

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



26+30
℄ EL = 1055.56

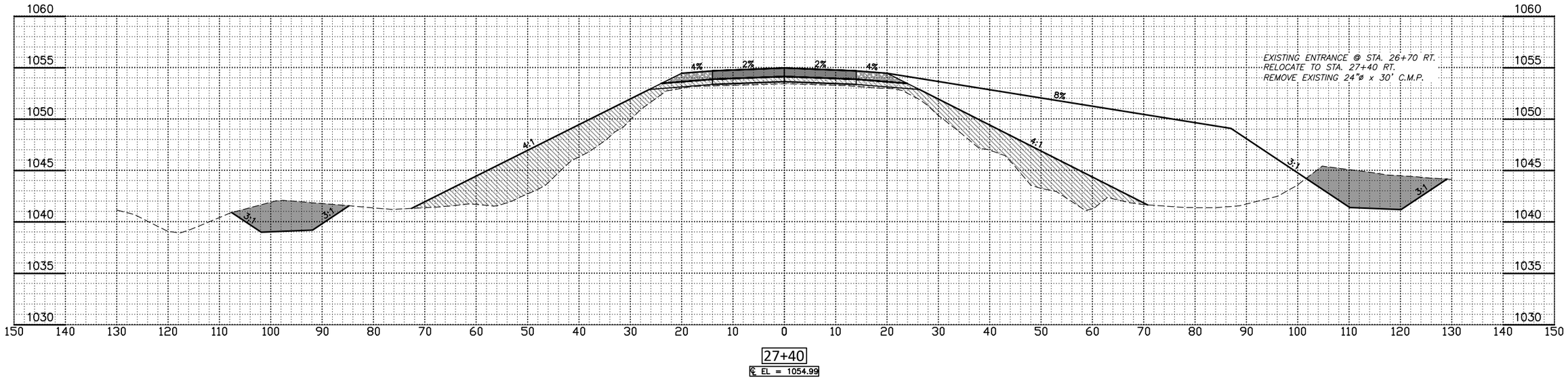


22+65
℄ EL = 1054.64

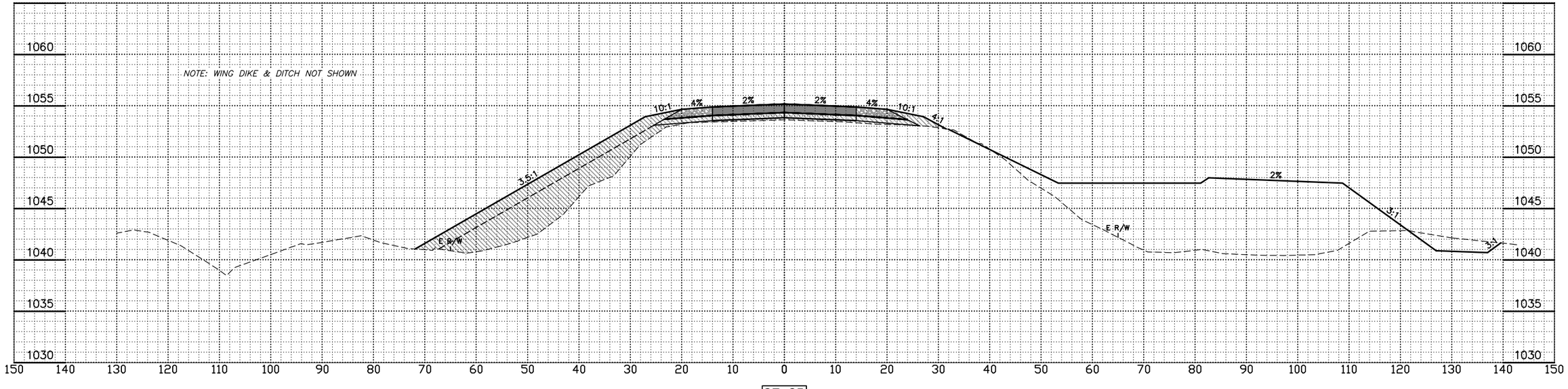
CROSS SECTIONS

FLOYD COUNTY, IOWA

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



27+40
℄ EL = 1054.99

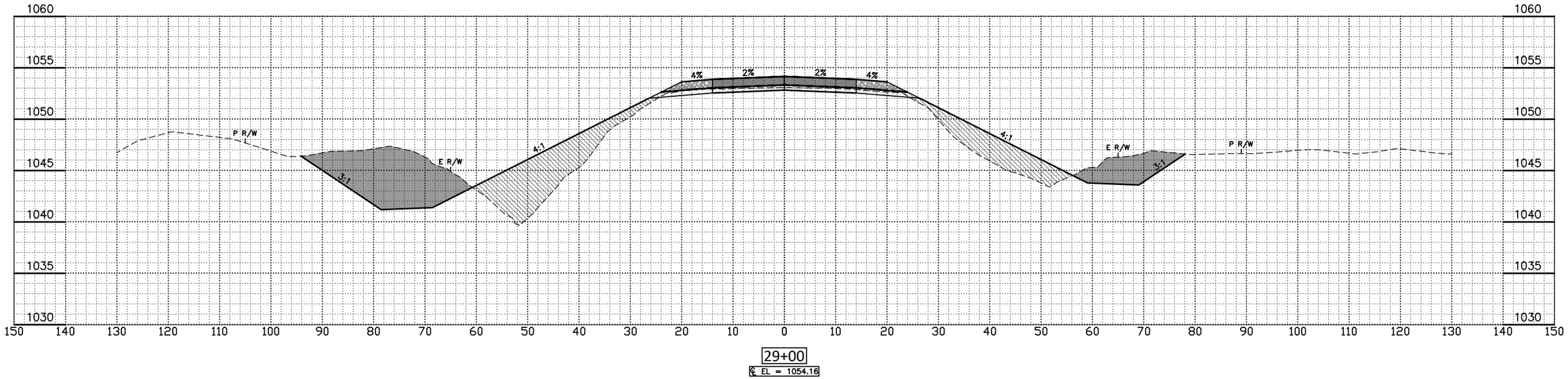


27+05
℄ EL = 1055.17

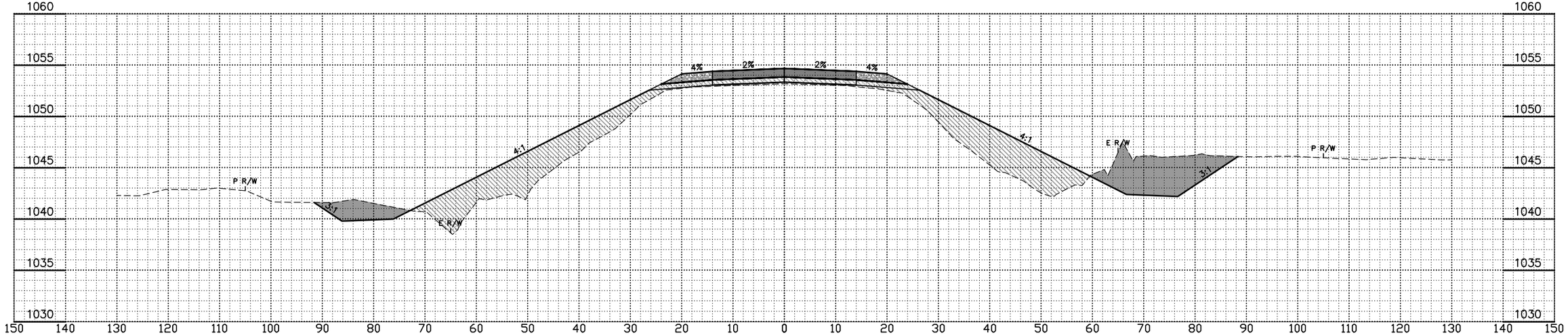
CROSS SECTIONS

FLOYD COUNTY, IOWA

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



29+00
℄ EL = 1054.16

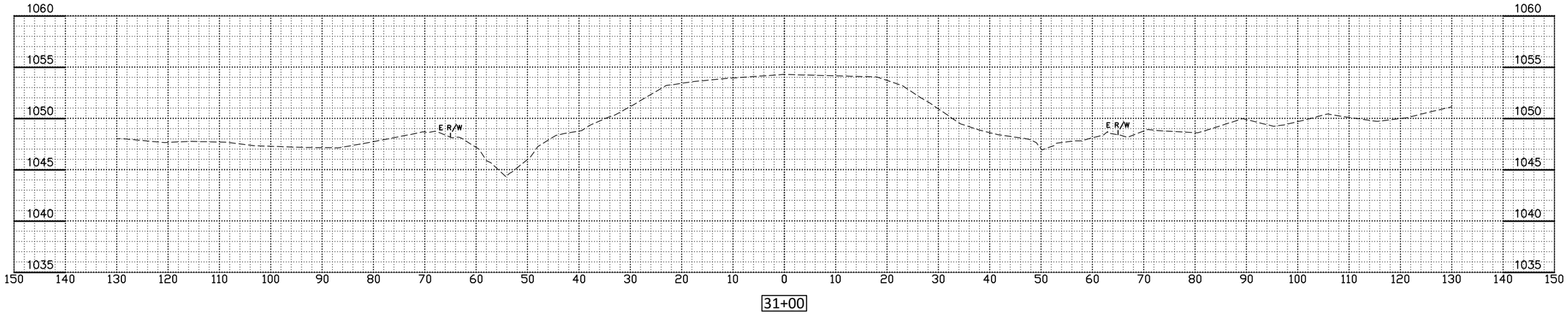


28+00
℄ EL = 1054.68

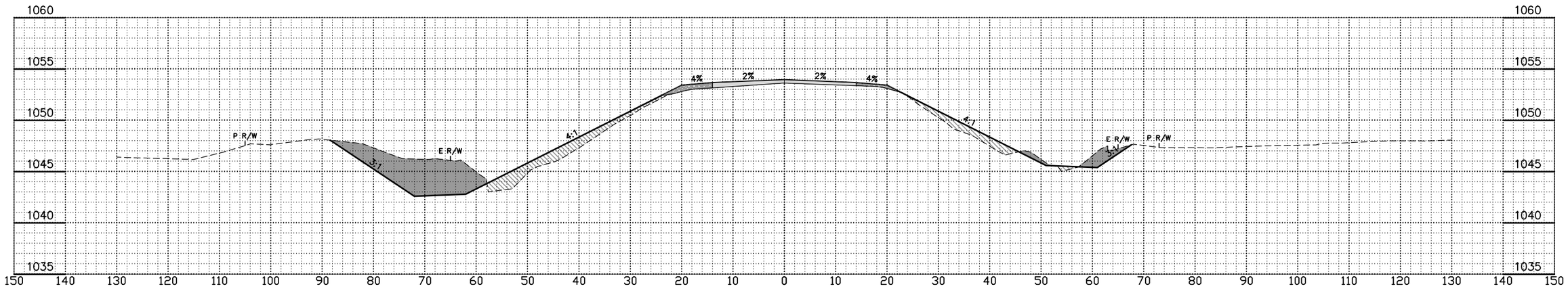
CROSS SECTIONS

FLOYD COUNTY, IOWA

BENCH MARK: BENCH TIE WBP, STA. 14+85, 74' LT., ELEV.= 1043.46
BENCH TIE WCP, STA 28+95, 70' LT., ELEV.= 1046.68



31+00



30+00
℄ EL = 1053.96

CROSS SECTIONS

FLOYD COUNTY, IOWA