12d

BRIDGE AND APPROACHES - PPCB
PROJ NO. BROS-SWAP-C097(148)--FE-97
WOODBURY COUNTY
LETTING DATE MAY 17, 2022

PLANS OF PROPOSED IMPROVEMENTS ON THE

FARM TO MARKET SYSTEM

WOODBURY COUNTY

PROJECT NO. BROS-SWAP-C097(148)--FE-97

BRIDGE AND APPROACHES - PPCB

ON CORRECTIONVILLE RD., OVER WHISKEY CREEK, FROM CHARLES AVE. E 0.1 MILES IN SECTION 35 T89N R46W

REFER TO THE PROPOSAL FOR LIST OF APPLICABLE SPECIFICATIONS.

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NO. 14. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT OFFICE OF CONTRACTS UPON REQUEST. THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

LEGEND

- INTERSTATE HIGHWAY
- PRIMARY HIGHWAY-DIVIDED
- PRIMARY HIGHWAY
- PORTLAND CEMENT CONCRETE ROAD
- ASPHALT ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTHEN ROAD
- INTERSTATE HIGHWAY (80)
- UNITED STATES HIGHWAY (65)
- STATE HIGHWAY (175)
- COUNTY HIGHWAY (527)
- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES (ABBOT ROAD)
- UNINCORPORATED PLACE (ELWOOD)

APPROVAL

MARK NAHRA, P.E. (WOODBURY COUNTY ENGINEER) DATE 2/7/2022

ROCKY L. DEWITT

KEITH W. RADIG

JEREMY J. TAYLOR

MATTHEW A. UNG

JUSTIN WRIGHT

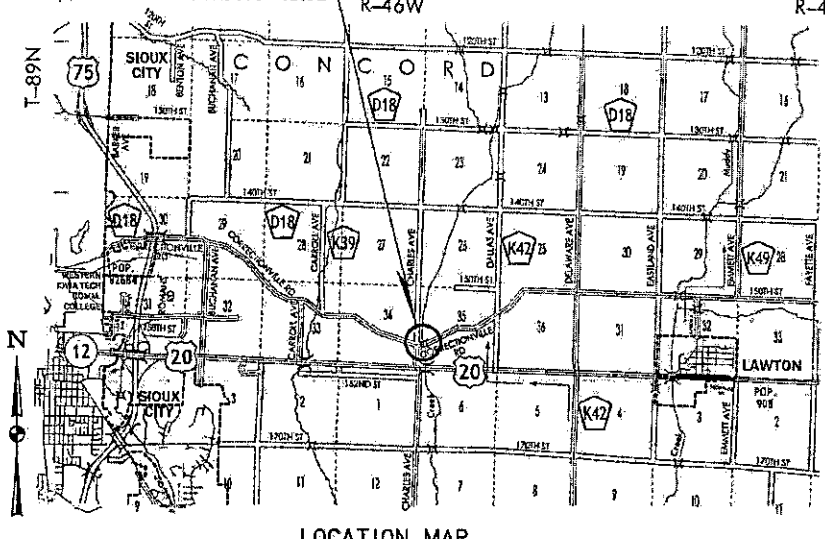
BOARD OF SUPERVISORS

REVISIONS

TOTAL SHEETS
36
PROJECT NUMBER
BROS-SWAP-C097(148)--FE-97
FHWA STRUCTURE NUMBER
355450

INDEX OF SHEETS

PROJECT LOCATION
FHWA NO. 355450
STA. 106+52.31 TO STA. 110+45.92



LOCATION MAP
(NOT TO SCALE)

IOWA ONE CALL
1-800-292-8989 811
www.iowaonecall.com

ALL WORKING DRAWINGS THAT REQUIRE REVIEW BY THE CONTRACTING AUTHORITY SHALL BE SUBMITTED THROUGH THE PRIME CONTRACTOR AND SHALL BE REVIEWED BY HGM ASSOCIATES, INC.

THE PRIME CONTRACTOR SHALL CONTACT THE INDIVIDUAL LISTED BELOW TO OBTAIN THE WORKING DRAWING SUBMITTAL PROCEDURE:

ADDRESS: JONATHAN E. PETERSON
HGM ASSOCIATES INC.
402-346-7559
5022 SOUTH 114TH ST., SUITE 200
OMAHA, NEBRASKA 68137-2330
email: jpeterson@hgmonline.com

DESIGN DATA RURAL

2019 AADT	210	V.P.D.
2049 AADT	510	V.P.D.
20 DHV		V.P.H.
TRUCKS		%
Total Design ESALs	-	

STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON SHEET 30

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	JONATHAN E. PETERSON	HYDRAULIC DESIGN
1	JONATHAN E. PETERSON	STRUCTURAL DESIGN
1	JONATHAN E. PETERSON	CIVIL DESIGN

CIVIL, STRUCTURAL AND HYDRAULIC DESIGN

Licensed Professional Engineer Jonathan E. Peterson 19318 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.

Signature: Jon Peterson Date: 2-7-2022

Printed or Typed Name: Jonathan E. Peterson

My license renewal date is December 31, 2022

Pages or sheets covered by this seal: SHEETS 1 THRU 36

DESIGN TEAM hgm	ENGLISH	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 1

2/7/2022 jjk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

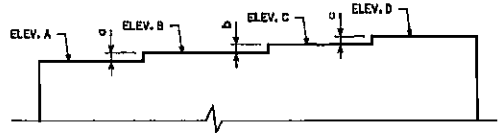
WOODBURY COUNTY - FHWA STRUCTURE NO. 355450

ESTIMATED QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.13	
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	225	
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	81	
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	1564	
5	2301-0690201	BRIDGE APPROACH, BR-201	SY	400	
6	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1	
7	2402-2720000	EXCAVATION, CLASS 20	CY	317.2	
8	2402-2721000	EXCAVATION, CLASS 21	CY	166	
9	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	390.7	
10	2404-7775000	REINFORCING STEEL	LB	11410	
11	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	63461	
12	2407-0562660	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB60	EACH	8	
13	2407-0562870	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB70	EACH	4	
14	2408-7800000	STRUCTURAL STEEL	LB	4417	
15	2414-6424124	CONCRETE OPEN RAILING, TL-4	LF	422	
16	2501-0201057	PILES, STEEL, HP10x57	LF	980	
17	2501-0201473	PILES, STEEL, HP14x73	LF	1760	
18	2501-6335010	PREBORED HOLES	LF	140	
19	2505-4008410	STEEL BEAM GUARDRAIL TRANSITION SECTION, BA-201	EACH	4	
20	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4	
21	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205	EACH	4	
22	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	13	
23	2507-3250005	ENGINEERING FABRIC	SY	1608	
24	2507-6800061	REVETMENT, CLASS E	TON	1952	
25	2510-6745850	REMOVAL OF PAVEMENT	SY	375	
26	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT BASED	STA	13.48	
27	2528-2518000	SAFETY CLOSURE	EACH	2	
28	2528-8445110	TRAFFIC CONTROL	LS	1	
29	2533-4980005	MOBILIZATION	LS	1	
30	2601-2634100	MULCHING	ACRE	0.13	
31	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.13	
32	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING	ACRE	0.13	
33	2602-0000020	SILT FENCE	LF	538	

SUMMARY OF BRIDGE QUANTITIES

ITEM	UNITS	SUPERSTRUCTURE	S. ABUT. FOOTING	PIER NO. 1	PIER NO. 2	N. ABUT. FOOTING	TOTALS
EXCAVATION, CLASS 20	CY		97.4	61.2	61.2	97.4	317.2
EXCAVATION, CLASS 21	CY			83.0	83.0		166
STRUCTURAL CONCRETE (BRIDGE)	CY	202.5	18.5	75.6	75.6	18.5	390.7
REINFORCING STEEL	LBS	144		5633	5633		11410
REINFORCING STEEL, EPOXY COATED	LBS	53461					53461
PILES, STEEL, HP 10 X 57	LF		490			490	980
PILES, STEEL, HP 14 X 73	LF			880	880		1,760
PREBORED HOLES	LF		TO			TO	140



ABUTMENT / PIER STEP DIAGRAM

TABLE OF ABUTMENT/PIER ELEVATIONS

POINT	WEST ABUTMENT	PIER NO. 1	PIER NO. 2	EAST ABUTMENT
ELEV. A	1142.17	1142.69	1142.68	1142.16
ELEV. B	1142.45	1142.97	1142.96	1142.44
ELEV. C	1142.73	1143.25	1143.24	1142.72
ELEV. D	1143.01	1143.53	1143.52	1142.99
BOTT. FTG./CAP ELEV.	1138.67	1139.19	1139.18	1138.66

TABLE OF ABUTMENT/PIER STEPS

STEP	WEST ABUTMENT	PIER NO. 1	PIER NO. 2	EAST ABUTMENT
a	3'	3'	3'	3'
b	3'	3'	3'	3'
c	3'	3'	3'	3'

BRIDGE DECK DIMENSIONS TABLE

NO.	ITEM	UNIT	QUANTITY
1	DECK LENGTH	L.F.	194.02
2	MINIMUM DECK WIDTH	L.F.	33.17
3	MAXIMUM DECK WIDTH	L.F.	33.17
4	DECK AREA	S.F.	6,435.64

1. DECK LENGTH IS MEASURED FROM FACE-TO-FACE OF PAVING NOTCHES ALONG THE CENTERLINE OF THE ROADWAY.
2, 3. DECK WIDTHS ARE MEASURED FROM OUT-TO-OUT OF DECK PERPENDICULAR TO THE CENTERLINE OF ROADWAY.
4. DECK AREA IS TO BE BASED ON THE FACE-TO-FACE PAVING NOTCH DISTANCE AND OUT-TO-OUT DECK DIMENSIONS.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

QUANTITIES

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2101-0650001	CLEARING AND GRUBBING SEE SHEETS 6 THROUGH 7 FOR LIMITS
2	2102-2625000	EMBANKMENT-IN-PLACE MATERIAL TO BE CONTRACTOR FURNISHED.
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW TYPE 'A' COMPACTION IS REQUIRED. ITEM INCLUDES 306 CY OF CUT FOR PROPOSED BRIDGE. UNUSED MATERIAL SHALL BE DISPOSED OF OFF THE PROJECT SITE ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL INCLUDES COSTS TO CLEAR THE CHANNEL TO THE SHAPE, DEPTH AND EXTENT SHOWN IN THE PLANS. QUANTITY OF EXCAVATION IS 1564 CU. YDS. (CUT). EXCESS MATERIAL MAY BE USED AS ROADWAY BORROW IF DEEMED SUITABLE BY THE ENGINEER. UNUSED MATERIAL SHALL BE DISPOSED OF OFF THE PROJECT SITE ACCORDING TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS. FILL MATERIAL AND ALL LABOR ASSOCIATED WITH PLACEMENT SHALL BE CONSIDERED INCIDENTAL TO THIS BID ITEM.
5	2301-0690201	BRIDGE APPROACH, BR-201 REFER TO STANDARD ROAD PLAN BR-201 AND TAB 112-6 ON SHEET 29 FOR DETAILS. CERTIFIED PLANT INSPECTION IS REQUIRED. ALL REINFORCING STEEL IN THE APPROACH MUST BE EPOXY COATED.
6	2401-6745625	REMOVAL OF EXISTING BRIDGE THIS ITEM IS FOR THE REMOVAL AND DISPOSAL OF THE EXISTING BRIDGE (NO. 355450). THE BRIDGE AT STA 108+49, 180' LONG AND 28' WIDE AND CONSISTS OF 3 SPANS. THE SUPERSTRUCTURE CONSISTS OF A CONCRETE DECK SUPPORTED ON STEEL I-BEAMS. ALL SUBSTRUCTURE UNITS INCLUDING CONCRETE ABUTMENTS AND CONCRETE PIERS SHALL BE REMOVED TO A MINIMUM 1'-0 BELOW FINISHED GRADE. ANY PIER FOOTING MATERIAL IMPACTING THE CONSTRUCTION OF THE PROPOSED PIER WALLS SHALL BE COMPLETELY REMOVED. ALL REMAINING BRIDGE ITEMS INCLUDING CONCRETE RAILINGS AND JOINT MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF THE PROJECT SITE ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
7	2402-2720000	EXCAVATION, CLASS 20 THIS ITEM INCLUDES EXCAVATION REQUIRED FOR CONSTRUCTION OF THE ABUTMENT FOOTINGS AND PIER WALLS. SEE "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 2 FOR EXCAVATION QUANTITY.
8	2402-2721000	EXCAVATION, CLASS 21 THIS ITEM INCLUDES EXCAVATION REQUIRED FOR CONSTRUCTION OF PIER WALLS. SEE "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 2 FOR EXCAVATION QUANTITY.
9	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) INCLUDES ALL RESILIENT JOINT FILLER REQUIRED. INCLUDES FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), FLOODABLE BACKFILL, POROUS BACKFILL, GEOTEXTILE FABRIC, WATER FLOODING, AND SUBDRAIN OUTLET AT ABUTMENTS AND TOE OF BERM. INCLUDES COST OF FURNISHING AND PLACING CONCRETE SEALER AND ALL PREFORMED EXPANSION JOINT. INCLUDES FURNISHING AND PLACING 3 INCH DIAMETER PVC PLASTIC PIPE AND EXPANDING FOAM IN THE ABUTMENT WINGS. THE CONTRACTOR SHALL PROVIDE CERTIFIED PLANT INSPECTION FOR THE CONCRETE USED IN THE BRIDGE CONSTRUCTION.
10	2404-7715000	REINFORCING STEEL SEE "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 2.
11	2404-7715005	REINFORCING STEEL, EPOXY COATED SEE "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 2.
12	2407-0562860	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB60 INCLUDES ABUTMENT BEARING MATERIAL.
13	2407-0562870	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB70 INCLUDES PIER BEARING MATERIAL.
14	2408-7800000	STRUCTURAL STEEL INCLUDES INTERMEDIATE STEEL DIAPHRAGMS AND PIER NOSE ARMOR ANGLES.
15	2414-6424124	CONCRETE OPEN RAILING, TL-4 FOR CAST-IN-PLACE, USE CLASS C CONCRETE COMPLYING WITH MATERIAL I.M. 529. SUBSTITUTION OF CLASS D MIX IS NOT ALLOWED. BID PRICE SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS. CERTIFIED PLANT INSPECTION IS REQUIRED.
16	2501-0201057	PILES, STEEL, HP10x57 SEE ABUTMENT DETAILS ON SHEET 11 AND "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 2.
17	2501-0201473	PILES, STEEL, HP14x73 SEE PIER DETAILS ON SHEET 9 AND 10 "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 2.
18	2501-6335010	PREBORED HOLES SEE "SUMMARY OF BRIDGE QUANTITIES" TABLE ON SHEET 2.
19	2505-4006410	STEEL BEAM GUARDRAIL TRANSITION SECTION, BA-201 SEE TAB 108-8A ON SHEET 29, AND STANDARD ROAD PLANS.
20	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED SEE TAB 108-8A ON SHEET 29, AND STANDARD ROAD PLANS.
21	2505-4021720	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-205 SEE TAB 108-8A ON SHEET 29, AND STANDARD ROAD PLANS.
22	2507-2638550	BRIDGE WING ARMORING - EROSION STONE SEE SHEET 26 FOR DETAILS.
23	2507-3250005	ENGINEERING FABRIC ENGINEERING FABRIC SHALL BE MATERIAL AS SPECIFIED FOR EMBANKMENT EROSION CONTROL IN ACCORDANCE WITH ARTICLE 4196.01,B,3 OF THE STANDARD SPECIFICATIONS. SEE SHEETS 5, 6 AND 7 FOR PLACEMENT DETAILS AND LIMITS.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
24	2507-6800061	REVETMENT, CLASS E REFER TO SHEETS 5 AND 6 FOR REVETMENT DETAIL AND LIMITS OF REVETMENT.
25	2510-6745850	REMOVAL OF PAVEMENT REFER TO TAB 110-1 ON SHEET 30 AND SHEET 6 FOR LOCATIONS. INCLUDES FULL-DEPTH SAWCUT. MATERIAL SHALL BE DISPOSED OF OFF THE PROJECT SITE ACCORDING TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
26	2527-9263109	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT BASED - -
27	2528-2518000	SAFETY CLOSURE SEE TAB 108-13A ON SHEET 30 FOR LOCATIONS.
28	2528-8445110	TRAFFIC CONTROL THIS ITEM SHALL INCLUDE FURNISHING, INSTALLING, MAINTAINING, AND REMOVING SIGNING AS PER THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER TSI OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130 AND STANDARD ROAD PLAN TC-252.
29	2533-4980005	MOBILIZATION - -
30	2601-2634100	MULCHING - -
31	2601-2636045	SEEDING AND FERTILIZING (RURAL) THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER ALL AREAS TO BE SEEDED PRIOR TO COMMENCING ANY WORK ON THIS ITEM.
32	2601-2642100	STABILIZING CROP - SEEDING AND FERTILIZING - -
33	2602-0000020	SILT FENCE REFER TO TAB 100-17 ON SHEET 30. THE TABULATION ESTIMATED LOCATIONS FOR PLACEMENT OF "SILT FENCE" TO ADDRESS EROSION TO BE ENCOUNTERED DURING CONSTRUCTION. VERIFY THE SPECIFIC LOCATION WITH THE ENGINEER PRIOR TO BEGINNING PLACEMENT.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

EST. REFERENCE INFORMATION

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

GENERAL NOTES:

THIS DESIGN IS FOR THE CONSTRUCTION OF A 194'-0 X 30'-6 PPCB BRIDGE AT STATION 108+49.79 ON CORRECTIONVILLE ROAD OVER WHISKEY CREEK IN WOODBURY COUNTY.

THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 160'-0 X 24'-0 BRIDGE (SEE ERI ITEM NO. 5 ON SHEET 3).

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

THIS BRIDGE IS DESIGNED FOR HL-93 LOADING, PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

IT SHALL BE THE BRIDGE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SITES FOR EXCESS EXCAVATED MATERIAL. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

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 SHEET 5. PILES SHALL BE DRIVEN THROUGH THE HOLES TO AT LEAST THE SPECIFIED DESIGN BEARING.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (Sai IS # INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

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

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

CONSTRUCTION JOINT KEYWAYS ARE TO BE FORMED WITH BEVELED 2 x 8's, EXCEPT AS NOTED.

A SCRAPE SAMPLE WAS TAKEN FROM AN AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL LEAD AND TOTAL CHROMIUM. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 150,000 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 200 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 DEPARTMENT'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 DEMOLITION IS CONTAINED, COLLECTED, AND DISPOSED OF IN ACCORDANCE WITH SECTION 2508 OF THE STANDARD SPECIFICATIONS. COST OF THIS WORK SHALL BE INCIDENTAL TO THE BID ITEM "REMOVAL OF EXISTING BRIDGE". 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 WHICH 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 REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

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

EXPOSED CORNERS OF 90 DEGREES OR SHARPER SHALL BE FILLETED WITH A # INCH DRESSED AND BEVELED STRIP.

CONTRACTOR SHALL PROVIDE THE COUNTY AND 911 OPERATOR WITH THE NAME AND PHONE NUMBER OF THEIR REPRESENTATIVE TO BE CONTACTED DURING WORKING AND NON-WORKING HOURS AS NECESSARY

PILE NOTES:

WEST ABUTMENT

THE CONTRACT LENGTH OF 70 FEET FOR THE WEST ABUTMENT PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 99 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

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

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR WEST ABUTMENT PILES IS 75 TONS AT END OF DRIVE 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.

PIER NO. 1

THE CONTRACT LENGTH OF 80 FEET FOR THE WEST PIER PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 109 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

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

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR WEST PIER PILES IS 84 TONS AT END OF DRIVE OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVE AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

PIER NO. 2

THE CONTRACT LENGTH OF 80 FEET FOR THE EAST PIER PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 109 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

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

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR EAST PIER PILES IS 84 TONS AT END OF DRIVE 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.

EAST ABUTMENT

THE CONTRACT LENGTH OF 70 FEET FOR THE EAST ABUTMENT PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 98 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.

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

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR EAST ABUTMENT PILES IS 75 TONS AT END OF DRIVE 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.

SCHEDULE OF OPERATIONS:

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO THE PRECONSTRUCTIONS CONFERENCE, A WRITTEN SCHEDULE FOR PERFORMANCE OF THE WORK ITEM. THE SCHEDULE SHALL BE IN THE FORM OF A BAR GRAPH OR CHART SHOWING STARTING AND COMPLETION DATES FOR THE ITEMS. THE CONTRACTOR SHALL THEN MAKE EVERY EFFORT TO CONFORM TO THE ACCEPTED SCHEDULE.

SPECIFICATIONS:

DESIGN:
AASHTO LRFD 5th Ed, SERIES OF 2010, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5th ED., SERIES OF 2010, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.
REINFORCING STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 5, GRADE 60 FOR EPOXY COATED AND NON-COATED, AND GRADE 60 OR 70 FOR STAINLESS.
CONCRETE IN ACCORDANCE WITH AASHTO LRFD SECTION 5, f'c = 4.0 KSI, EXCEPT PRESTRESSED BEAM CONCRETE AS NOTED.
PRESTRESSED CONCRETE BEAMS, SEE SHEET 20.
STRUCTURAL STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 6. ASTM A709 GRADE 35, GRADE 50 AND GRADE 50W (AASHTO M270 GRADE 36, GRADE 50 AND GRADE 50W).

UTILITY CONTACTS:

(MDGG) MIDAMER-GAS
Contact Name : KATHLEEN MILLER
Contact Phone: 712.233.4866
Contact Email: kgmiller@midamerican.com

(MDGE) MIDAMER-ELEC
Contact Name : CODY PARMETER
Contact Phone: 712.233.4821
Contact Email: cody.parmeter@midamerican.com

(WCR) WOODBURY COUNTY RURAL ELECTRIC
Contact Name : NATE BAUER
Contact Phone: 712.873.3125
Contact Email: nbauer@woodburyrec.com

(WIT) WESTERN IOWA TELEPHONE COMPANY
Contact Name : ERIN NELSON
Contact Phone: 712.944.5711
Contact Email: enelson@wiatel.com

DESIGN FOR 0° SKEW

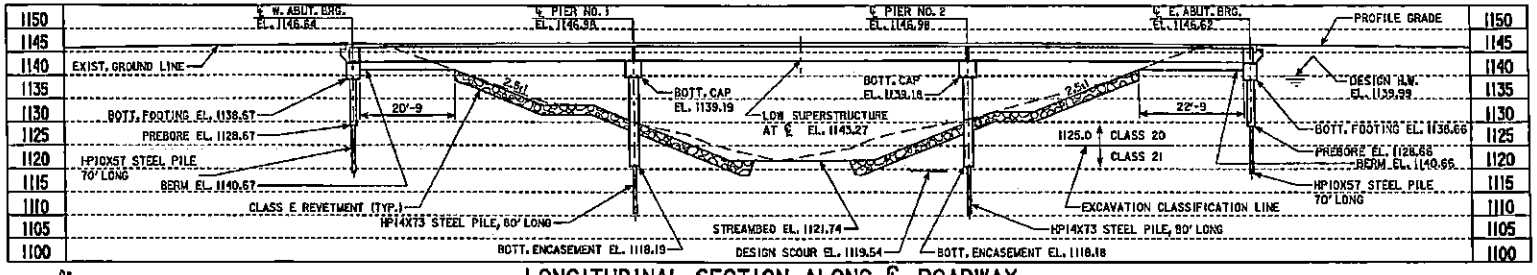
194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

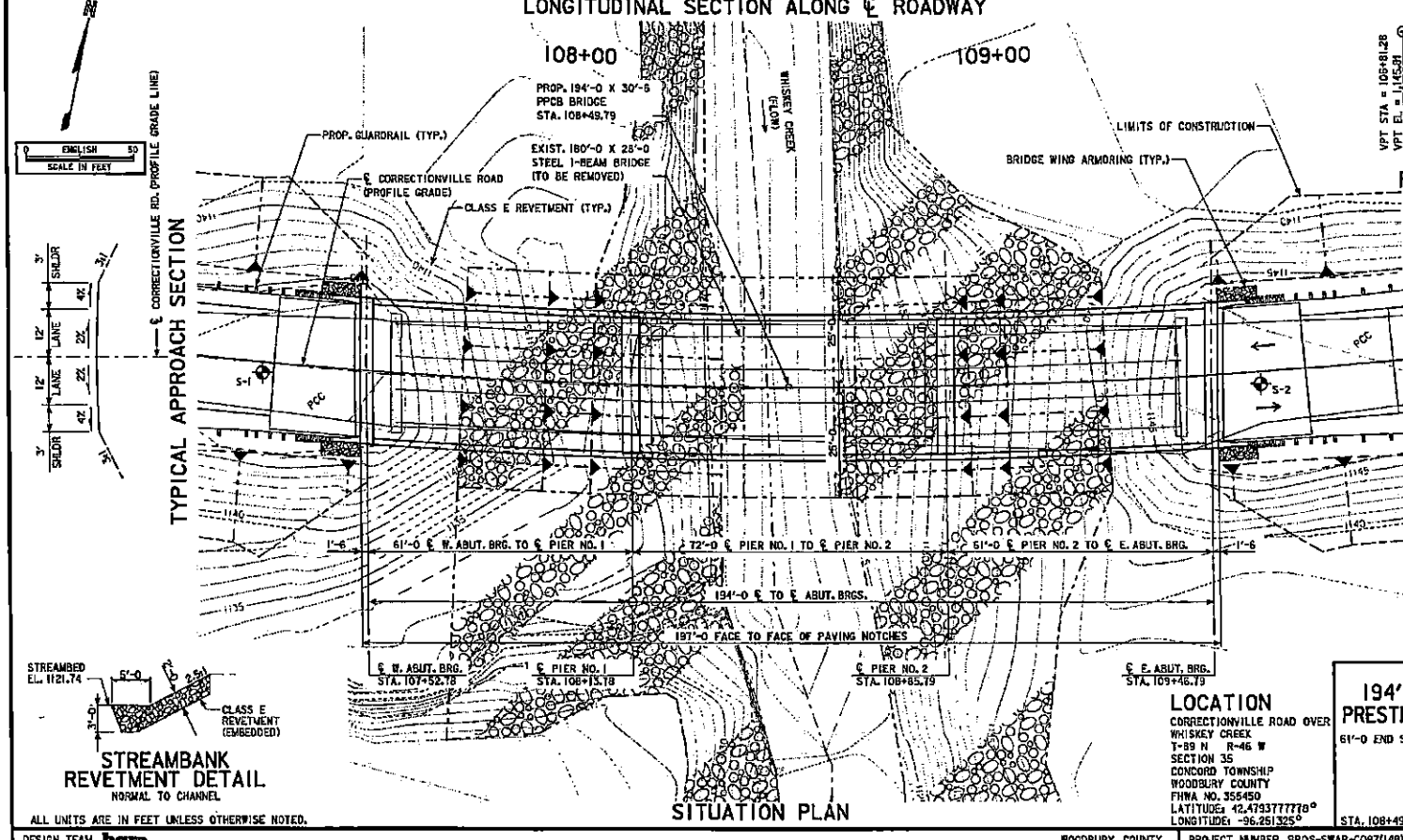
GENERAL NOTES

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CAD\dgn\Final\760221.dgn



LONGITUDINAL SECTION ALONG ℄ ROADWAY



SCALE IN FEET

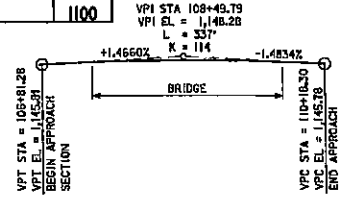
TYPICAL APPROACH SECTION

STREAMBANK REVETMENT DETAIL

NORMAL TO CHANNEL

ALL UNITS ARE IN FEET UNLESS OTHERWISE NOTED.

SITUATION PLAN



PROPOSED PROFILE GRADE CORRECTIONVILLE ROAD

HYDRAULIC DATA

DRAINAGE AREA = 48.7 SQ. MI.
STREAM SLOPE = 25.3 FT./MI.

Q_2 = 1,740 CFS
STAGE = 1,131.36
CHANNEL VELOCITY = 3.2 FPS

Q_{50} = 7,980 CFS
STAGE = 1,139.99
BACKWATER = 0.19 FT.
AVG. BRIDGE VELOCITY = 5.1 FPS
FREEBOARD = 3.30 FT.

Q_{100} = 9,440 CFS
STAGE = 1,140.50
BACKWATER = 0.36 FT.
AVG. BRIDGE VELOCITY = 5.8 FPS
CALCULATED DESIGN SCOUR = 2.2 FT.

⊕ - BORING LOCATION

LOCATION

CORRECTIONVILLE ROAD OVER WHISKEY CREEK
T-89 N R-46 W
SECTION 35
CONCORD TOWNSHIP
WOODBURY COUNTY
FHWA NO. 355450
LATITUDE: 42.479377778°
LONGITUDE: -96.261325°

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

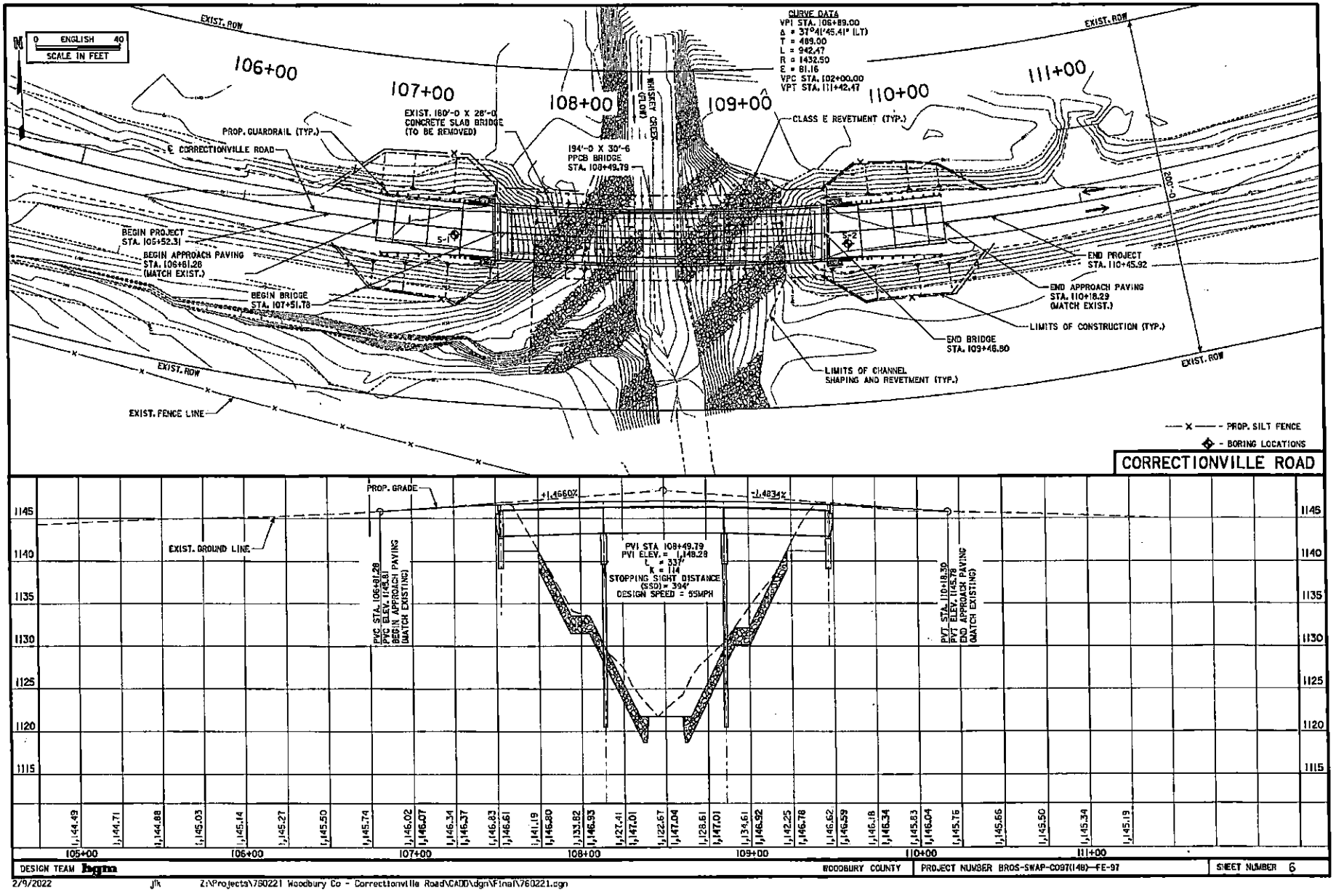
61'-0 END SPANS — 72'-0 INTERIOR SPAN

SITUATION PLAN

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

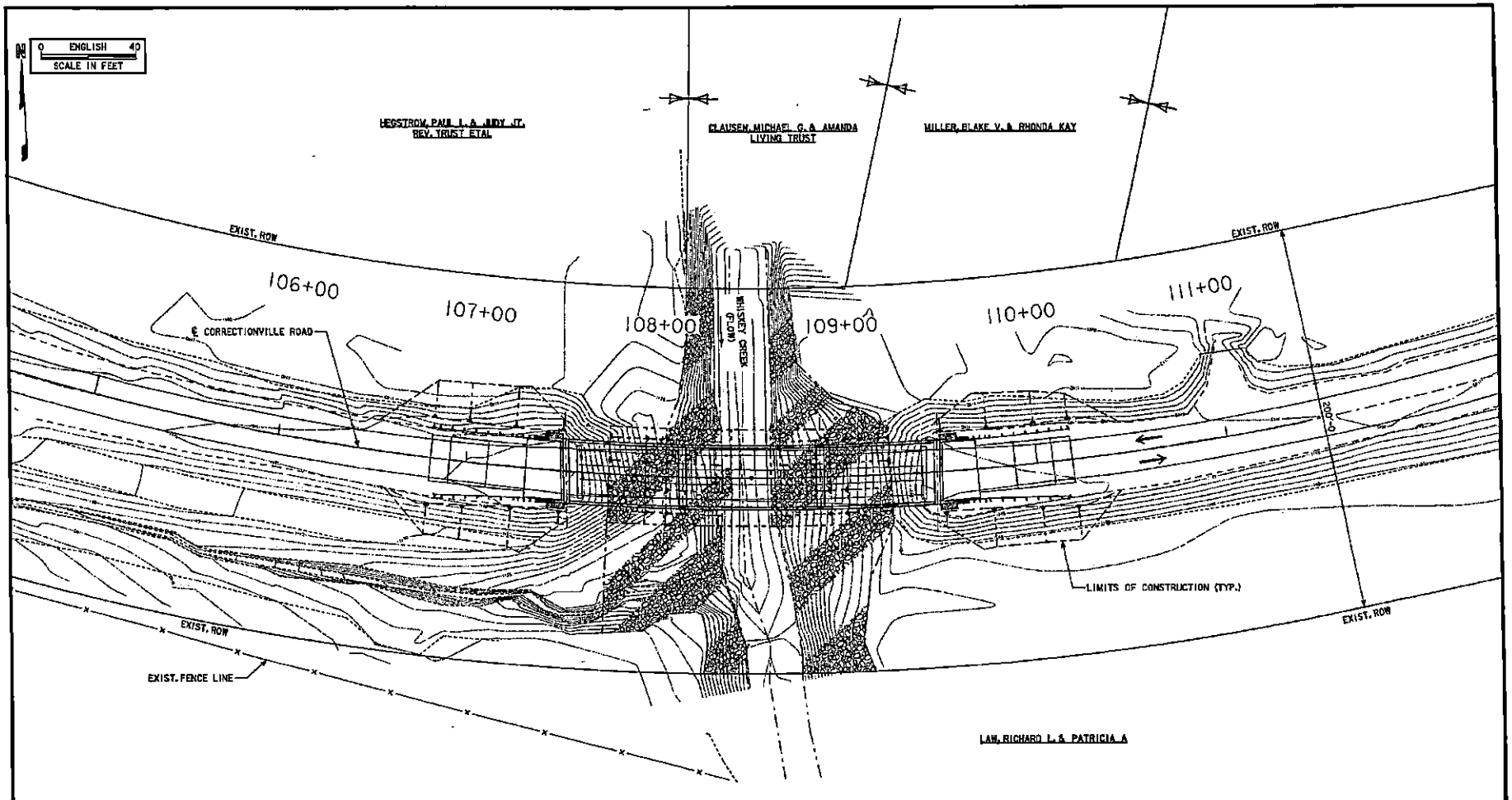
DESIGN TEAM bgm	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)—FE-97	SHEET NUMBER 5

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



DESIGN TEAM bgm | WOODBURY COUNTY | PROJECT NUMBER BROS-SWAP-C097(148)—FE-97 | SHEET NUMBER 6

2/9/2022 JK Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

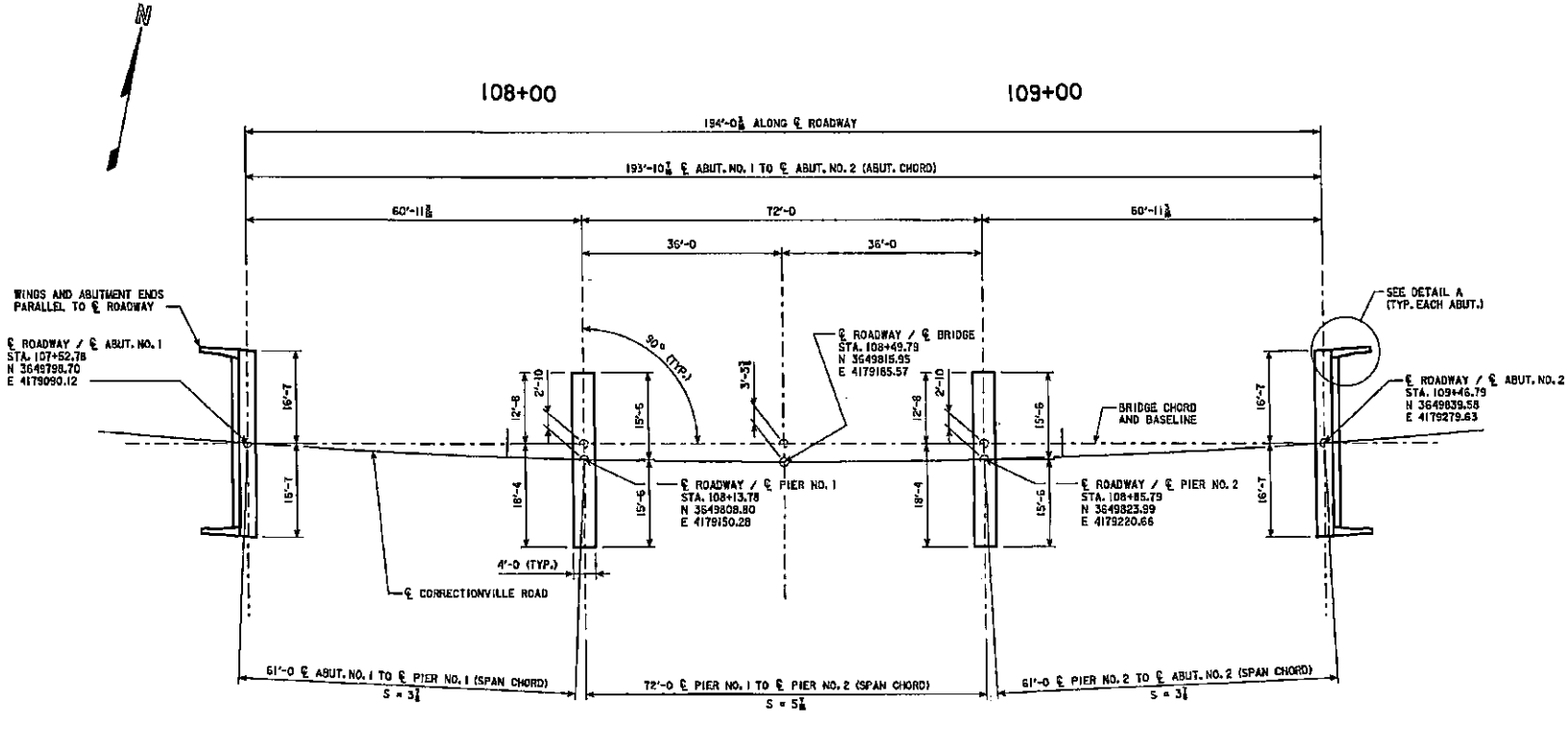
61'-0 END SPANS 72'-0 INTERIOR SPAN

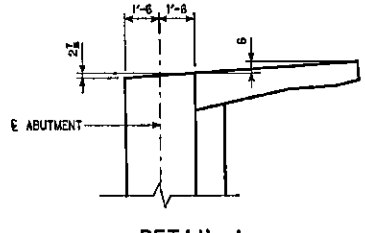
RIGHT OF WAY LAYOUT

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

DESIGN TEAM Bolton	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C007((140)--FE-97	SHEET NUMBER 7

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn





DETAIL A

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

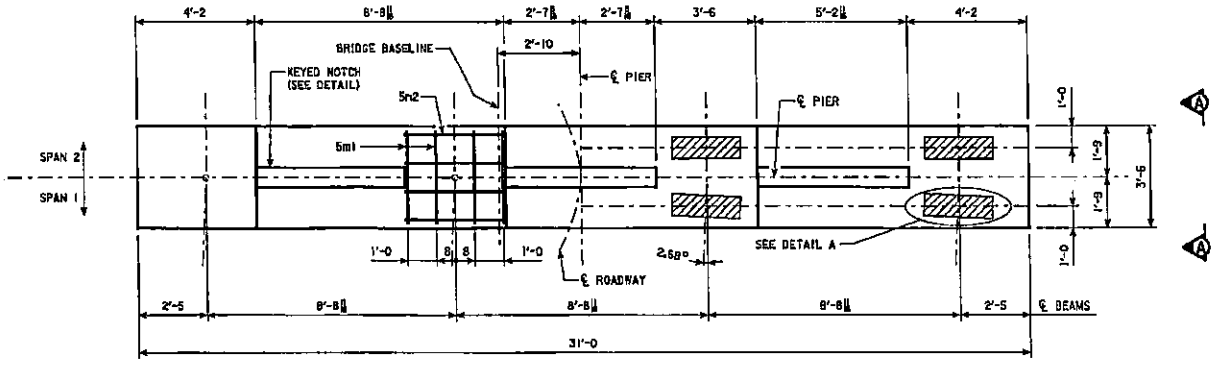
61'-0 END SPANS — 72'-0 INTERIOR SPAN

STAKING DIAGRAM

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

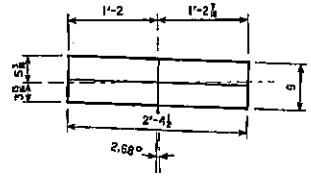
DESIGN TEAM bgm | WOODBURY COUNTY | PROJECT NUMBER BROS-SWAP-C097(148)--FE-97 | SHEET NUMBER 8

2/9/2022 JK Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

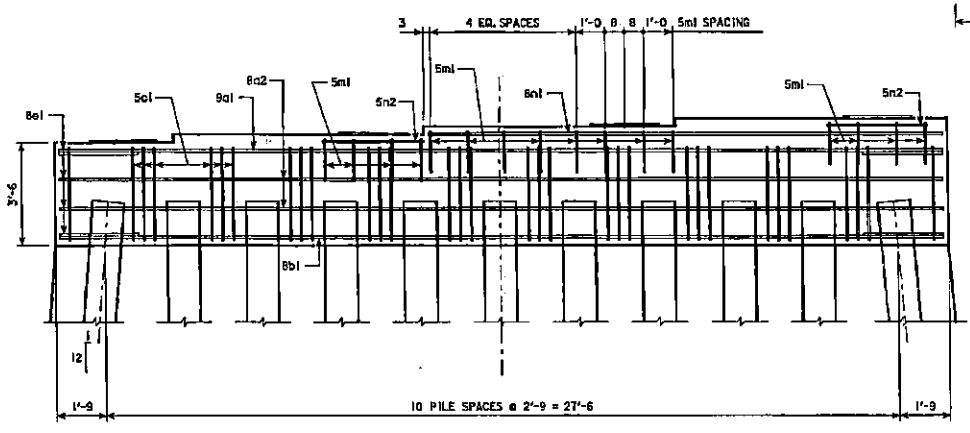


TYPICAL PLAN

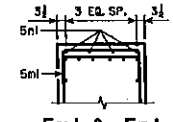
PIER NO. 1 SHOWN
PIER NO. 2 SIMILAR



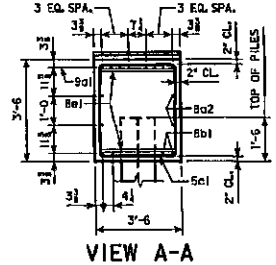
DETAIL A



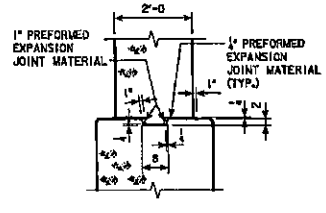
PIER CAP ELEVATION



5ml & 5n1 BAR LAYOUT



VIEW A-A

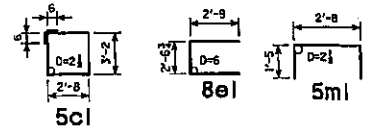


KEYED NOTCH DETAIL

REINFORCING BAR LIST - ONE CAP

REINFORCING STEEL	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	9a1	CAP, TOP, LONGITUDINAL		8	30'-8	834
	8a2	CAP, LONGITUDINAL		4	30'-8	328
	8b1	CAP, BOTTOM, LONGITUDINAL		4	30'-8	328
	5c1	HOOPS		26	13'-8	371
	8e1	CAP, ENDS		4	8'-7	92
	5ml	STEP REINFORCING		15	6'-0	100
	8n1	STEP REINFORCING		4	17'-9	190
	5n2	STEP REINFORCING		8	3'-6	29
					REINFORCING STEEL (LB.)	2272

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER.

	PIER 1	PIER 2	TOTAL
REINFORCING STEEL (LBS)	2272	2272	4544
STRUCTURAL CONCRETE (CY)	14.3	14.3	25.6
HP 14X73 STEEL PILE (LF)	880	880	1760

PILE BENT NOTES:

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

PIER PILES SHALL BE DRIVEN TO VALUES SHOWN IN DESIGN PLANS.

NOTE:
PLACE MAT OF 5ml & 4n2 BARS UNDER BEAM LINES B & D.
PLACE STEP REINFORCING 8n1 & 5ml AS SHOWN.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

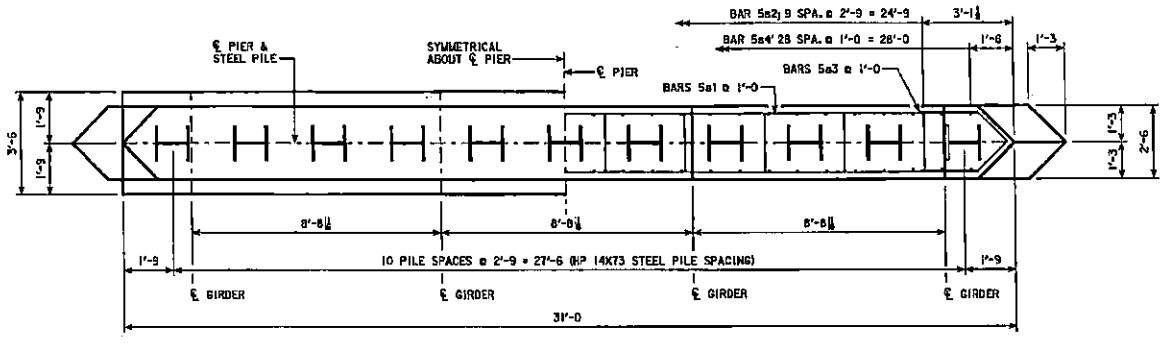
61'-0 END SPANS — 72'-0 INTERIOR SPAN

PIER DETAILS

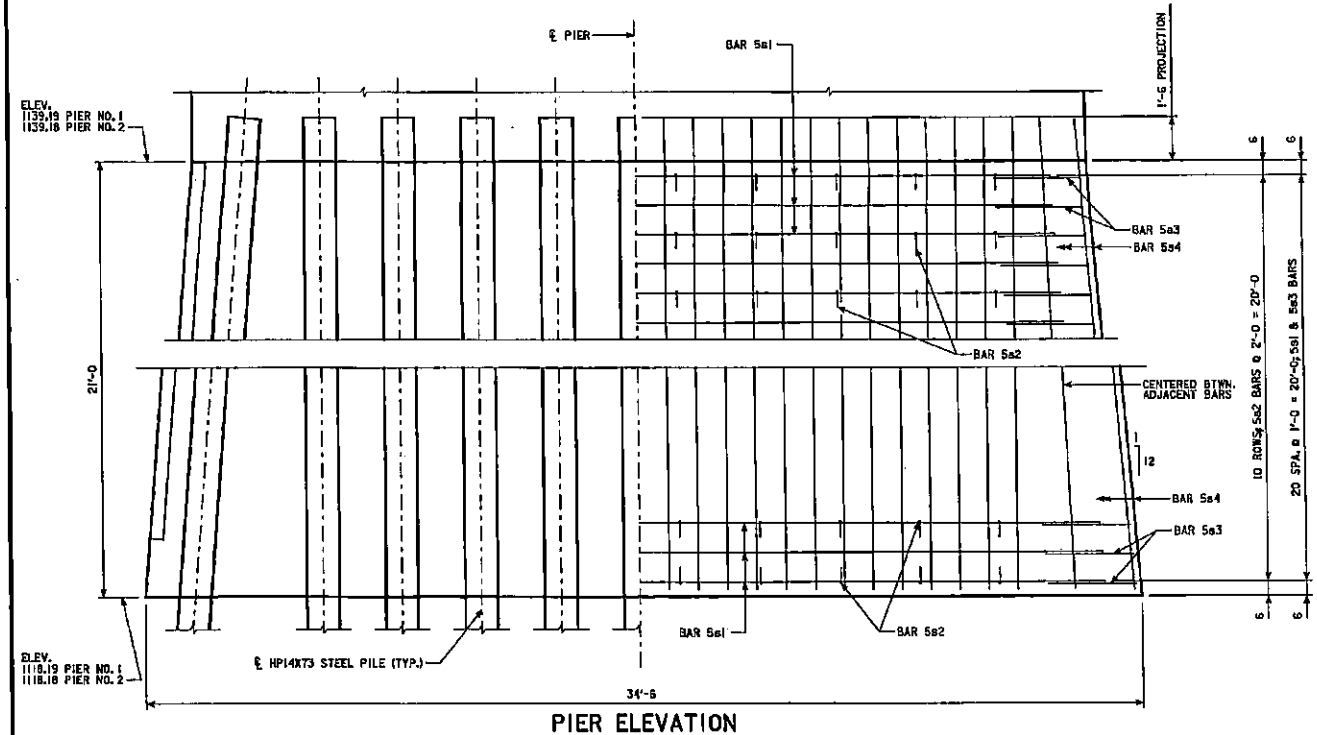
STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM bgm	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 9

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



SECTION THRU PIER

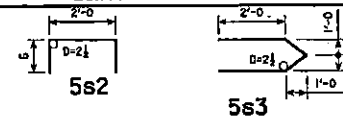


PIER ELEVATION

REINFORCING BAR LIST - 2 PIER WALLS

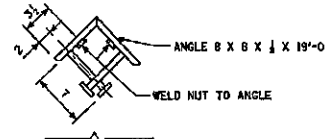
REINFORCING STEEL	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	5a1	WALL, HORIZONTAL		84	VARIES 4 SETS OF 21 28'-6 TO 32'-0	2650
	5a2	WALL, TIES		220	3'-0	688
	5a3	WALL, ENDS		84	6'-10	599
	5a4	WALL, VERTICAL		120	22'-3	2785
					REINFORCING STEEL (LBS.)	6722

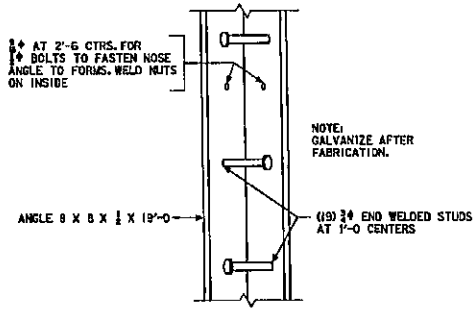
BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER.

PIER WALL CONCRETE - PIER NO. 1		61.3
PIER WALL CONCRETE - PIER NO. 2		61.3
TOTAL CONCRETE (C.Y.)		122.6
CLASS 20 EXCAVATION	2 @ 61.2	122.4
CLASS 21 EXCAVATION	2 @ 83.0	166.0
HP 14 X 73 STEEL PILE	11 @ 80'	880
	11 @ 80'	880
	TOTAL (L.F.)	1760
STRUCTURAL STEEL - PIER NO. 1		524
STRUCTURAL STEEL - PIER NO. 2		524
TOTAL STRUCTURAL STEEL (LBS.)		1048





NOSE ARMOR ANGLE DETAILS

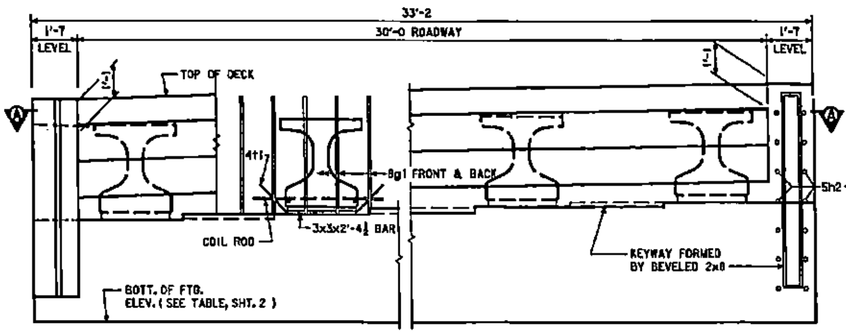
DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

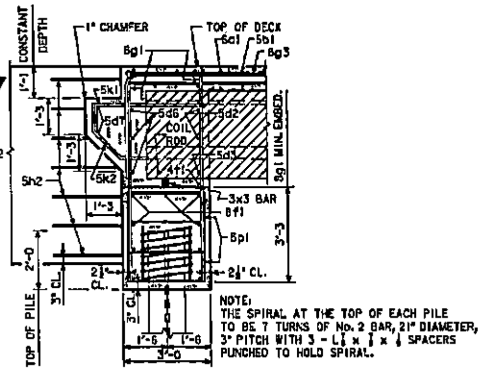
61'-0 END SPANS 72'-0 INTERIOR SPAN

PIER DETAILS

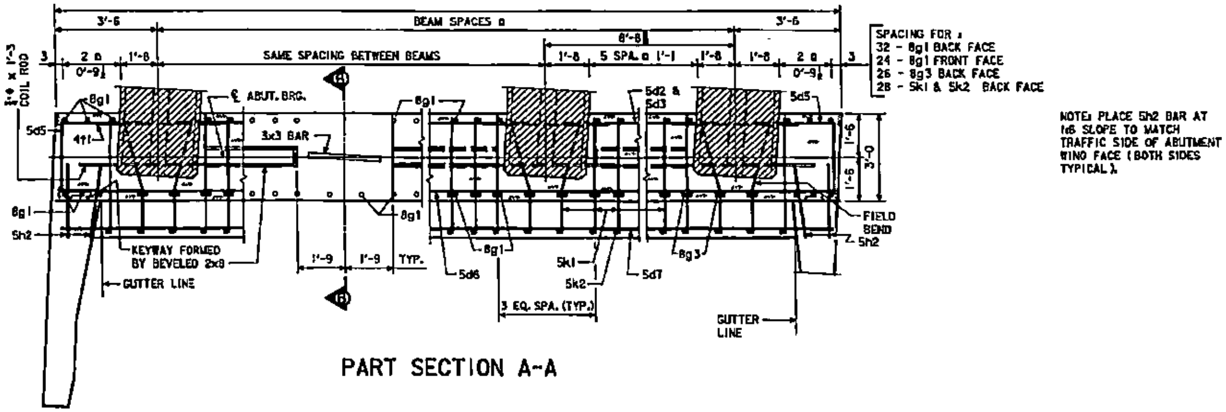
STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022



PART REAR ELEVATION AT ABUTMENT



PART SECTION B-B



PART SECTION A-A

LOCATION	QUANTITY
WEST ABUTMENT FOOTING	14.7
EAST ABUTMENT FOOTING	14.7
TOTAL (CU. YDS.)	29.4

ABUTMENT CONCRETE QUANTITY

NOTE: CONCRETE QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

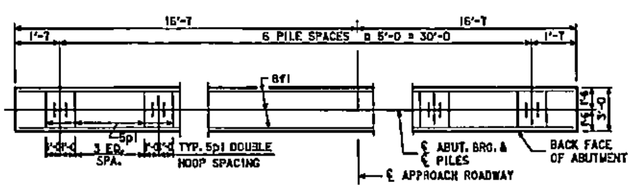
NOTE:
7 - HP 10 x 57 STEEL BEARING PILING REQUIRED AT EACH ABUTMENT.

NOTE: BARRIER RAIL NOT SHOWN IN DETAILS.

ABUTMENT NOTES:

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

IF 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 AT NO EXTRA COST TO THE OWNER.



ABUTMENT PILE PLAN

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

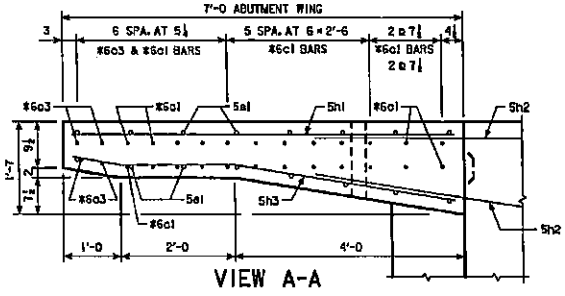
ABUTMENT DETAILS

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

CORRECTION 04-14 - ADDED CONCRETE QUANTITY TABLE & REFERRAL NOTE TO SUMMARY QUANTITY SHEET. REMOVED DESIGN BEARING NOTE FOR ABUT. PILING FROM ABUTMENT NOTES.
ENGLISH\BTINTEGRALBRIDGES.dgn - 2078-BTB - THIS SHEET ISSUED 02-08.

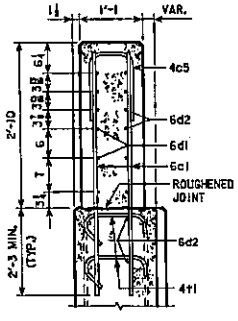
DESIGN TEAM bgm	"BTB" BEAMS - INTEGRAL ABUT. DETAILS - 0° SKEW	MODIFIED SHEET 2078-BTB	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 11

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



VIEW A-A

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



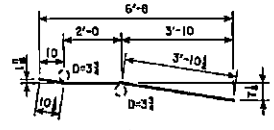
SECTION B-B

K BARRIER RAIL END SECTION BARS TO BE PLACED WITH ABUTMENT WING.

SEE BARRIER RAIL END SECTION SHEET IN THESE PLANS FOR DETAILS OF REINFORCING BARS 6c1, 6c3, 6d2 & 4f1.

REINFORCING BAR LIST - ONE ABUT. WING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5h1	HORIZONTAL BACK FACE	——	7	6'-8	49
5h3	HORIZONTAL TRAFFIC FACE	——	7	6'-9	49
5s1	VERTICAL BOTH FACES	——	16	6'-0	100
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				198



5h3

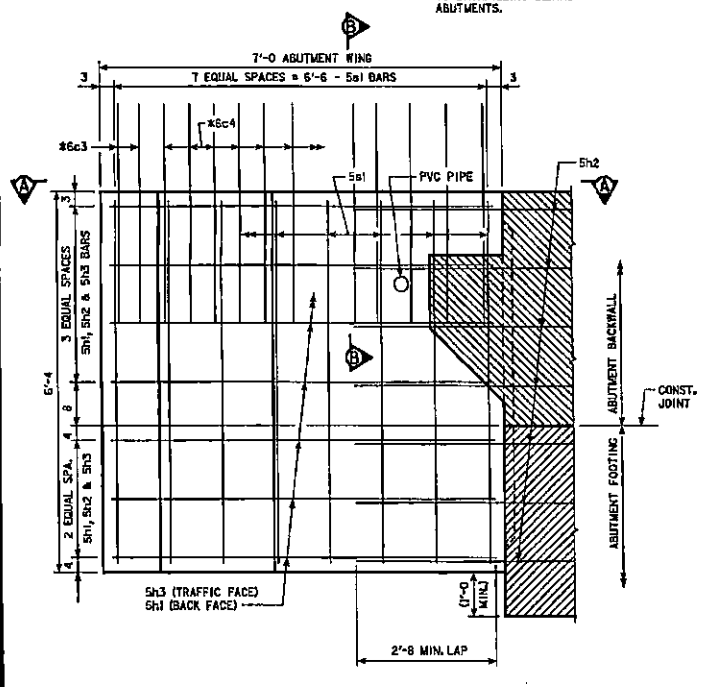
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

BENT BAR DETAILS

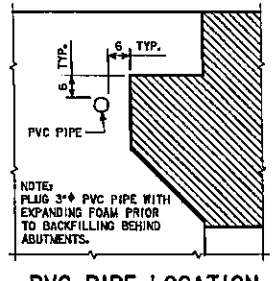
CONCRETE PLACEMENT SUMMARY

CONCRETE	TOTAL
ONE ABUTMENT WING	1.9
TOTAL (CU. YDS.)	1.9

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.



ABUTMENT WING - ELEVATION VIEW



PVC PIPE LOCATION

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

ABUTMENT WING DETAILS

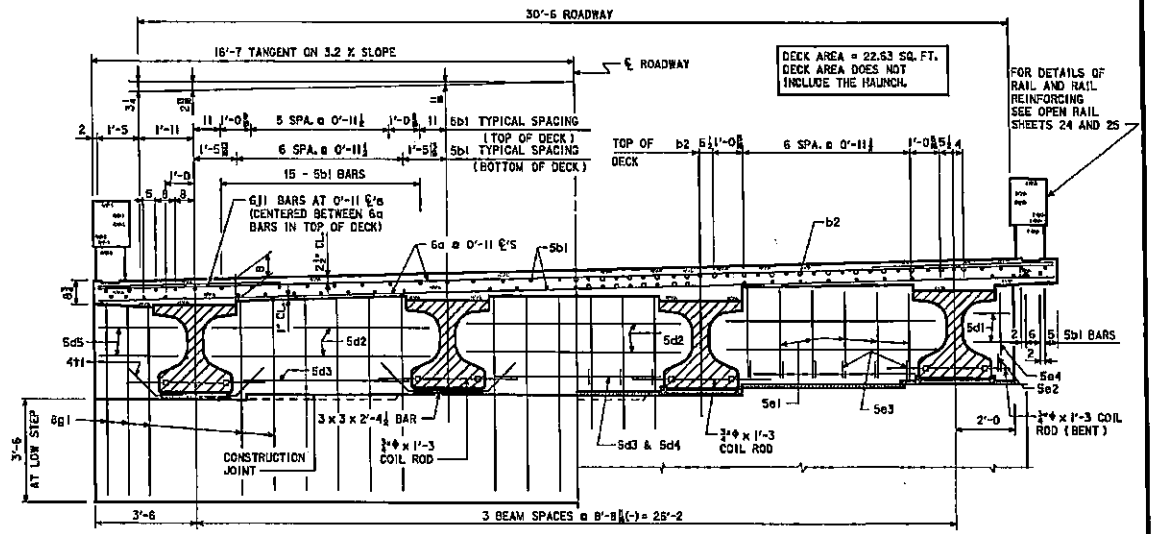
STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

CORRECTION 04-14 - ADDED REFERRAL NOTE TO SUMMARY QUANTITIES SHEET.
ENGLISH\SCELLANEOUS\BRIDGES.DGN - 2111 - THIS SHEET ISSUED 02-06.

DESIGN TEAM bgm	'BTB' OR 'B' BEAM INTEGRAL ABUTMENT WING DETAILS	MOD STANDARD SHEET 2111	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C09T(148)—FE-97	SHEET NUMBER 12

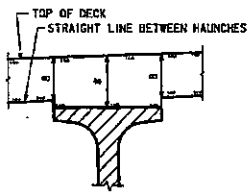
2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

CORRECTION 04-14 - ADDED REFERRAL NOTE TO SUMMARY QUANTITIES SHEET FOR THE DRAIN WEIGHT. NOTE ABOUT CHOICE OF EPOXY OR STAINLESS STEEL DECK TO BARRIER RAIL BARS.
ENGLISH\STANDARD\INTEGRALBRIDGES.DGN - 4380-9TB-4 - THIS SHEET ISSUED 02-08.

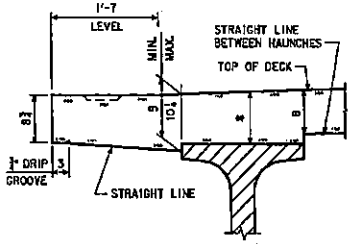


HALF SECTION NEAR ABUTMENT

HALF SECTION NEAR PIER
(FIXED PIER SHOWN)



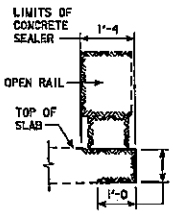
INTERIOR BEAMS



EXTERIOR BEAMS

TYPICAL DECK AND HAUNCH DETAIL

* FOR DECK THICKNESS OVER BEAMS SEE HAUNCH AND CAMBER DETAILS ON SHEET 18.



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 THE 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.

NOTE: FOR DETAILS OF INTERMEDIATE DIAPHRAGMS SEE SHEET 23.

SUPERSTRUCTURE NOTES:

THE BRIDGE DECK AS SHOWN INCLUDES ½" INTEGRAL WEARING SURFACE.

THE PIER AND ABUTMENT DIAPHRAGM CONCRETE IS TO BE PLACED MONOLITHICALLY WITH THE BRIDGE DECK.

COST OF ALL PREFORMED EXPANSION JOINT FILLER MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

ALL BEAMS ARE TO BE SET VERTICAL.

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

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

ALL DECK AND DIAPHRAGM REINFORCING IS TO BE WIRED IN PLACE AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS PLACED.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW TOP OF DECK. BOTTOM TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 1" CLEAR ABOVE BOTTOM OF DECK. 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 BAR HIGH CHAIRS OR DECK BOLSTERS SPACED 4'-0 APART. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS, BAR HIGH CHAIRS, AND DECK BOLSTERS.

COST OF BEARING MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "PRETENSIONED PRESTRESSED CONCRETE BEAMS".

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

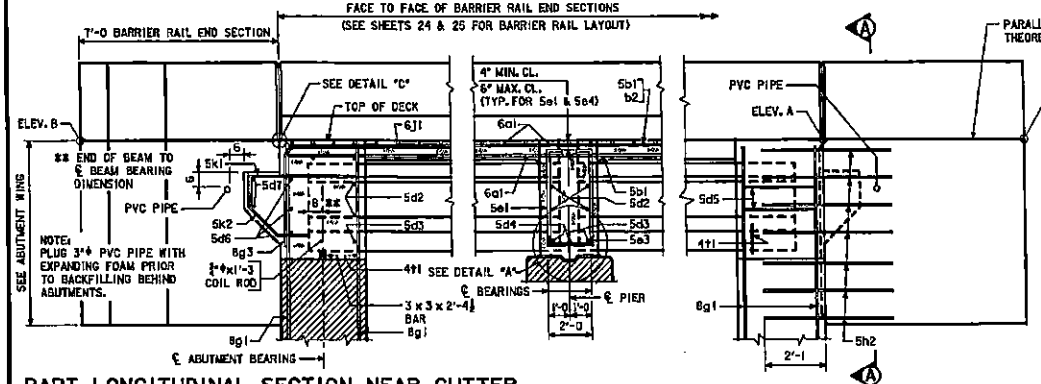
61'-0 END SPANS — 72'-0 INTERIOR SPAN

BRIDGE DECK CROSS SECTIONS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM bgm	30' RDWY. PPCB (6TB BEAMS - INTEGRAL ABUT.) CROSS SECTION (SPANS 30' - 95')	MDD STANDARD SHEET 4380-8T8-4	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 13

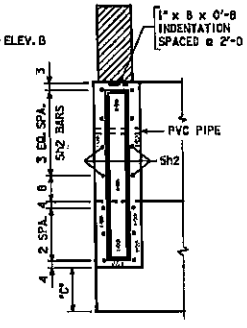
2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



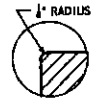
PART LONGITUDINAL SECTION NEAR GUTTER

(FOR DETAILS OF INTERMEDIATE DIAPHRAGM SEE SHEET 23)

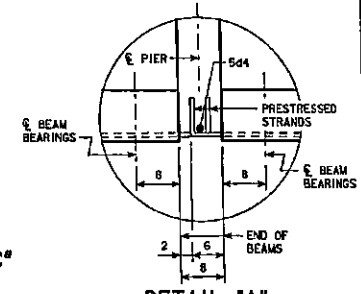
PART END VIEW AT ABUTMENT



SECTION A-A

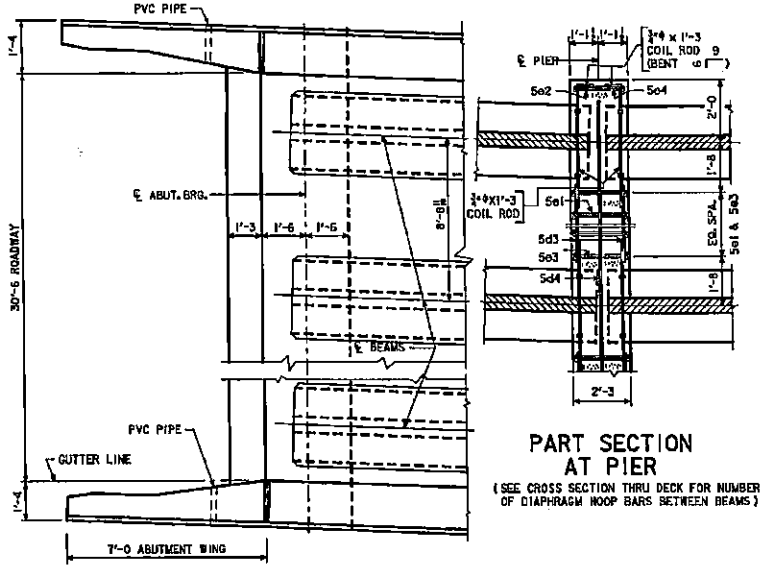


DETAIL "C"



DETAIL "A"

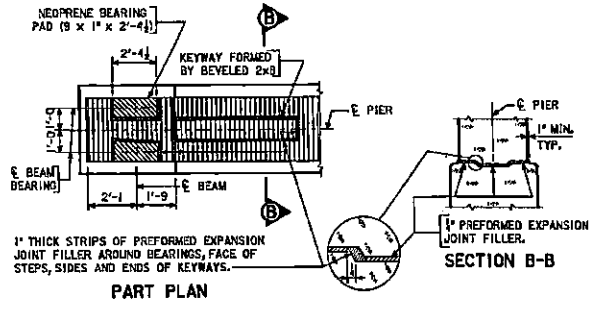
TABLE OF WING ELEVATIONS			
LOCATION	DIM "C"	ELEV. A	ELEV. B
S.W. CORNER	2.11	1147.11	1147.05
N.W. CORNER	1.13	1146.13	1146.07
S.E. CORNER	2.11	1147.10	1147.03
N.E. CORNER	1.13	1146.12	1146.05



PART PLAN

PART SECTION AT PIER

(SEE CROSS SECTION THRU DECK FOR NUMBER OF DIAPHRAGM HOOP BARS BETWEEN BEAMS)



PART PLAN

SECTION B-B

TOP OF PIER DETAILS

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

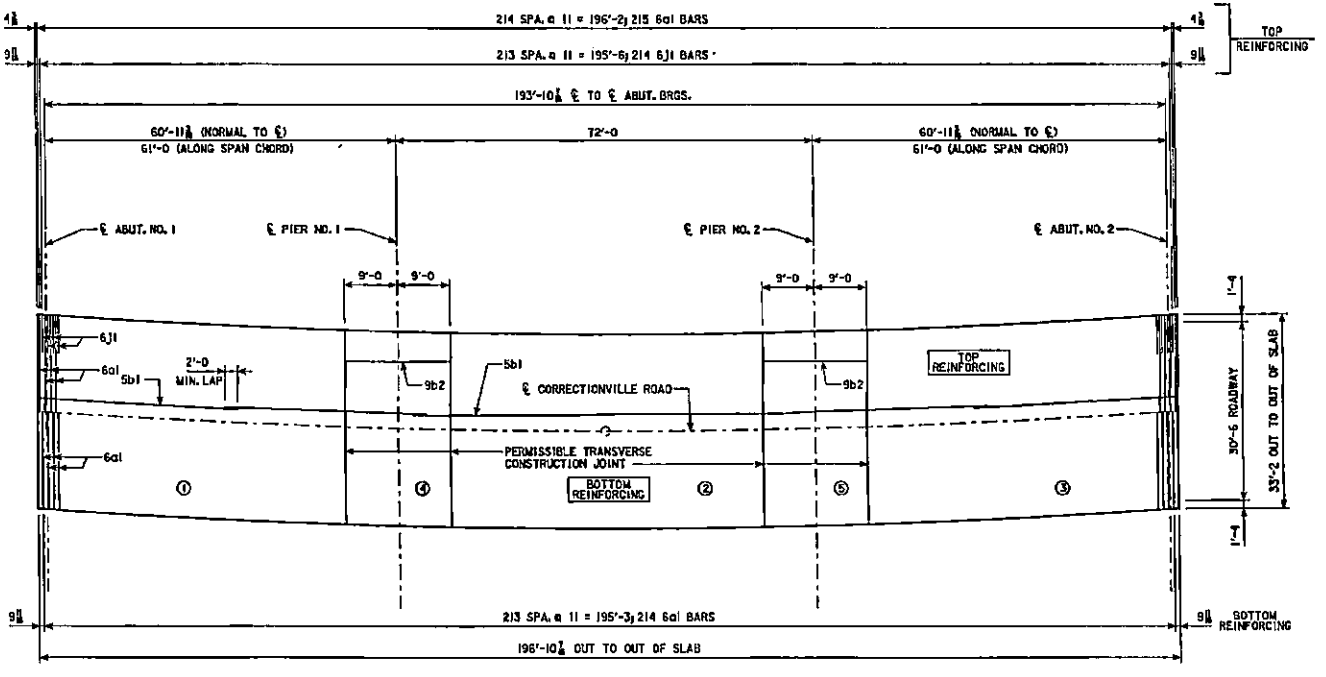
LONGITUDINAL SECTION

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

ENGLISH/BT/INTEGRALBRIDGES.DGN - 4500-BTB - THIS SHEET ISSUED 02-08.

DESIGN TEAM bgm	"BTB" BEAMS - PART PLAN & LONGIT. SECTION - 0° SKEW	MODIFIED SHEET 4500-BTB	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 14

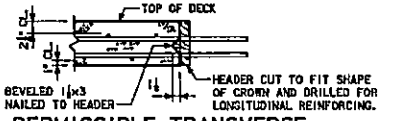
2/9/2022 JK Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



SLAB LAYOUT

CONCRETE PLACEMENT DIAGRAM

NOTE:
CONCRETE DECK SHALL BE PLACED IN SECTIONS AND SEQUENCES INDICATED. ALTERNATE PROCEDURES FOR PLACING DECK CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULTS. FOR APPROVED ALTERNATE PROCEDURES THE ENGINEER SHALL DETERMINE IF A RETARDING ADMIXTURE IS REQUIRED TO MAINTAIN PLASTICITY OF THE CONCRETE DECK DURING PLACEMENT.



PERMISSIBLE TRANSVERSE DECK CONSTRUCTION JOINT

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

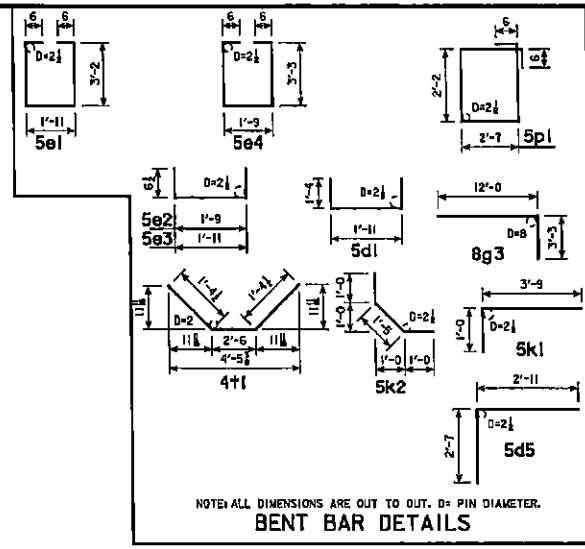
CONC. & STEEL REINF. LAYOUT

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM bgm	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 15

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

REVISED 07-2015 - CHANGED CONCRETE PLACEMENT NOTE TO ACCOUNT FOR THE POSSIBLE ADDITION OF A RETARDING ADMIXTURE TO THE CONCRETE.
ENGLISHBTINTEGRALBRIDGES.DGN - 4514-BTB - THIS SHEET ISSUED 02-06.



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D= PIN DIAMETER.

BENT BAR DETAILS

REINFORCING BAR LIST

	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
EPOXY COATED REINFORCING	6a1	DECK TRANSV. TOP & BOTT.	—	429	32'-10	21156
	6b1	DECK LONGIT. TOP & BOTT.	—	390	34'-8	14101
	6b2	DECK LONGIT. TOP AT PIERS	—	58	17'-8	2736
	6d1	PIER DIAPH. ENDS		8	4'-7	38
	5d2	PIER & ABUT. DIAPH. LONGIT.	—	48	7'-8	384
	5d3	PIER & ABUT. DIAPH. LONGIT.	—	24	5'-10	146
	5d4	PIER DIAPH. LONGIT.	—	2	29'-10	62
	5d5	ABUT. DIAPH. ENDS		8	5'-6	46
	5d6	ABUT. DIAPH. LONGIT. B.F.	—	6	32'-10	205
	5d7	PAVING NOTCH LONGIT.	—	4	32'-10	137
	5e1	PIER DIAPH. HOOPS		36	9'-3	347
	5e2	PIER DIAPH. TIES ENDS		4	2'-10	12
	5e3	PIER DIAPH. TIES		36	3'-0	113
	5e4	PIER DIAPH. HOOPS ENDS		4	9'-3	39
	6f1	ABUT. FOOTING LONGIT. BOTH F.	—	18	32'-10	1578
	8g1	ABUT. VERT. BOTH F.	—	112	7'-1	2118
	8g3	ABUT DIAPH. VERT. B.F.		52	15'-3	2117
	5h2	ABUT. TO WING ANCHOR	—	56	4'-11	287
	6j1	TOP OF DECK TRANSV. (AT RAIL)	—	428	6'-3	4018
	5k1	PAVING NOTCH		56	4'-9	277
	5k2	PAVING NOTCH		56	3'-5	200
	5p1	ABUT. HOOPS		104	10'-6	1139
	4f1	UNDER BEAMS AT ABUTMENTS		8	5'-3	28
		CONCRETE OPEN RAIL - SEE SHEETS 24 AND 25				11385
		ABUTMENT WING - SEE SHEET 12 4 @ 198				792
		REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				63461
NON-COATED	#2	PILE SPIRAL	GRADE	14	38'-6	90
		SPIRAL SPACERS, L 1/4 x 1 x 1/4 x 0.70	—	42	1'-10	54
		REINFORCING STEEL - TOTAL (LBS.)				144

CONCRETE PLACEMENT QUANTITIES

LOCATION	QUANTITY
SECTION 1, DECK & ABUT. DIAPH.	55.5
SECTION 2, DECK	45.5
SECTION 3, DECK & ABUT. DIAPH.	55.5
SECTION 4, DECK & PIER DIAPH.	23.1
SECTION 5, DECK & PIER DIAPH.	23.1
TOTAL (CU. YDS.)	202.5

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

DECK, ABUT. & DIAPH. QUANTITIES

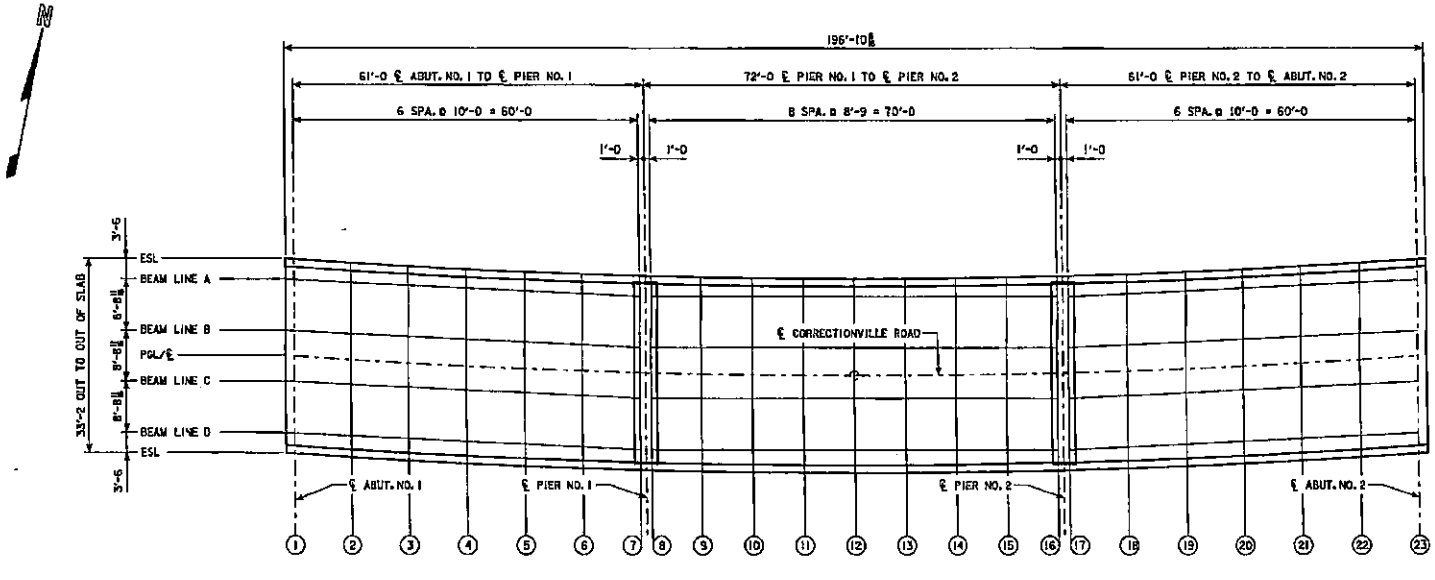
STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

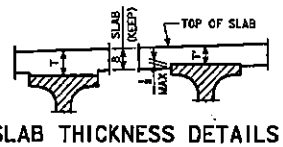
DESIGN TEAM hgm	INTERGAL ABUT. "BTB" BEAMS - BAR LIST & SUPER. DETAILS - 0° SKEW	STANDARD SHEET 4514-BTB	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 16

2/9/2022 jk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

TOP OF SLAB ELEVATIONS

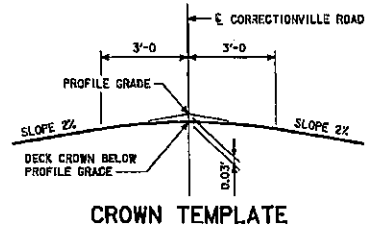
	℄ WEST ABUT. BRG.						℄ PIER NO. 1									℄ PIER NO. 2							℄ EAST ABUT. BRG.
LOCATION	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23
EDGE OF SLAB LEFT (ESL)	1146.10	1146.18	1146.25	1146.32	1146.37	1146.41	1146.45	1146.46	1146.48	1146.50	1146.50	1146.51	1146.50	1146.49	1146.47	1146.45	1146.44	1146.41	1146.36	1146.30	1146.24	1146.17	1146.09
BEAM LINE A	1146.22	1146.30	1146.37	1146.43	1146.48	1146.53	1146.56	1146.57	1146.59	1146.61	1146.62	1146.62	1146.61	1146.60	1146.59	1146.56	1146.56	1146.52	1146.47	1146.42	1146.35	1146.28	1146.20
BEAM LINE B	1146.49	1146.57	1146.65	1146.71	1146.76	1146.81	1146.84	1146.85	1146.87	1146.89	1146.90	1146.90	1146.89	1146.88	1146.87	1146.84	1146.83	1146.80	1146.75	1146.70	1146.63	1146.56	1146.48
PGL/℄	1146.63	1146.71	1146.78	1146.85	1146.90	1146.94	1146.98	1146.99	1147.01	1147.03	1147.03	1147.04	1147.03	1147.02	1147.01	1146.98	1146.97	1146.94	1146.89	1146.84	1146.77	1146.70	1146.62
BEAM LINE C	1146.77	1146.85	1146.92	1146.99	1147.04	1147.08	1147.12	1147.13	1147.15	1147.17	1147.17	1147.18	1147.17	1147.16	1147.14	1147.12	1147.11	1147.08	1147.03	1146.97	1146.91	1146.84	1146.76
BEAM LINE D	1147.05	1147.13	1147.20	1147.27	1147.32	1147.36	1147.40	1147.41	1147.43	1147.44	1147.45	1147.46	1147.45	1147.44	1147.42	1147.40	1147.38	1147.36	1147.31	1147.25	1147.19	1147.12	1147.04
EDGE OF SLAB RIGHT (ESR)	1147.16	1147.24	1147.32	1147.38	1147.43	1147.48	1147.51	1147.52	1147.54	1147.56	1147.57	1147.57	1147.56	1147.55	1147.54	1147.51	1147.51	1147.47	1147.42	1147.37	1147.30	1147.23	1147.15





SLAB THICKNESS DETAILS

NOTE: THE SLAB THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER AND DEFLECTIONS. THESE VALUES ARE USED BY THE DESIGNER TO SET BEAM ELEVATIONS AND ESTIMATE CONCRETE QUANTITIES. REFER TO THE HAUNCH DATA DETAILS SHEET FOR ADDITIONAL INFORMATION TO AID THE CONTRACTOR IN SETTING THE FIELD HAUNCHES REQUIRED FOR CONSTRUCTION.



CROWN TEMPLATE

NO SCALE

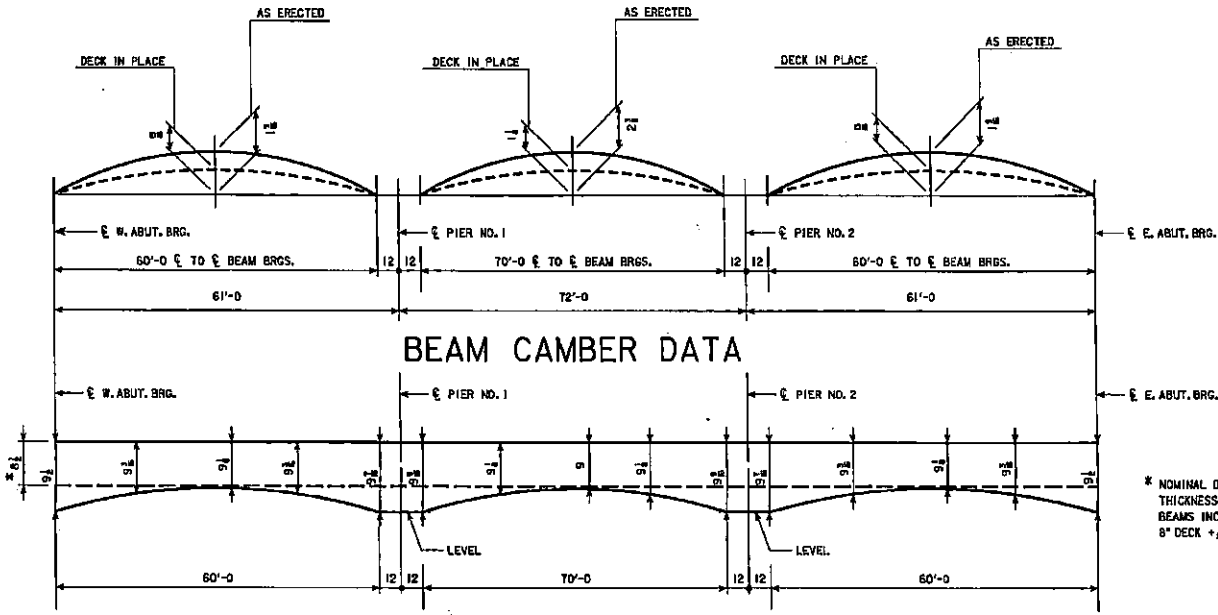
DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

TOP OF SLAB ELEVATIONS

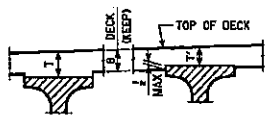
STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022



BEAM CAMBER DATA

* NOMINAL DECK THICKNESS AT BEAMS INCLUDES 8" DECK + ½" HAUNCH

DECK THICKNESS AT BEAMS (T)



DECK THICKNESS DETAILS

NOTE: THE DECK THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER AND DEFLECTIONS. THESE VALUES ARE USED BY THE DESIGNER TO SET BEAM ELEVATIONS AND ESTIMATE CONCRETE QUANTITIES. REFER TO THE HAUNCH DATA DETAILS SHEET FOR ADDITIONAL INFORMATION TO AID THE CONTRACTOR IN SETTING THE FIELD HAUNCHES REQUIRED FOR CONSTRUCTION.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

DECK THICKNESS DETAILS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM bgm	BEAM CAMBER AND DECK THICKNESS DETAILS	STANDARD SHEET 1065	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 18

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

REVISED 05-2017 - REMOVED CENTER 6b BAR FROM UNDER "M" BAR IN BEAM IN "SECTION THRU SLAB HAUNCH" DETAIL. (WAS THREE 6b BARS NOW TWO).
REVISED 05-2019 CHANGED ALL REFERENCES OF "SLAB" TO "DECK".
ENG:\SHM\SCELLANEOUS\BRIDGES.DGN - 1065 - THIS SHEET ISSUED 02-08.

REVISED 05-12 - THE ALLOWABLE FIELD HAUNCH MAX.& MIN. WAS CHANGED TO INCHES & DECIMALS OF FEET, NOTE & NOTE 1 WERE CHANGED. THE SLAB HAUNCH LOCATIONS EXAMPLE WAS REPLACED WITH A NOTE.
REVISED 07-2019 CHANGED ALL REFERENCES OF "SLAB" TO "DECK".
ENGLISH\MISCELLANEOUS\BRIDGES.DGN - 1056 - THIS SHEET ISSUED 02-08.

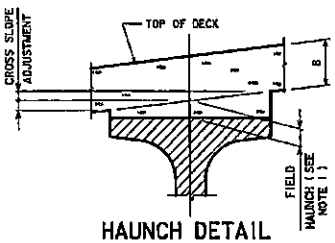
TOP OF SLAB ELEVATIONS

LOCATION	℄ WEST ABUT. BRG.						℄ PIER NO. 1									℄ PIER NO. 2							℄ EAST ABUT. BRG.
	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23
BEAM LINE A	1145.55	1145.66	1145.75	1145.82	1145.87	1145.89	1145.90	1145.90	1145.96	1146.01	1146.04	1146.05	1146.04	1146.01	1145.95	1145.90	1145.89	1145.88	1145.86	1145.81	1145.74	1145.64	1145.53
BEAM LINE B	1145.93	1145.94	1146.03	1146.10	1146.15	1146.17	1146.17	1146.18	1146.24	1146.29	1146.32	1146.33	1146.32	1146.29	1146.24	1146.17	1146.17	1146.16	1146.14	1146.09	1146.02	1145.92	1145.81
BEAM LINE C	1146.11	1146.22	1146.31	1146.38	1146.43	1146.45	1146.45	1146.45	1146.52	1146.57	1146.60	1146.61	1146.60	1146.57	1146.52	1146.45	1146.45	1146.44	1146.42	1146.37	1146.30	1146.20	1146.09
BEAM LINE D	1146.39	1146.50	1146.59	1146.66	1146.70	1146.73	1146.73	1146.74	1146.80	1146.85	1146.88	1146.89	1146.88	1146.85	1146.80	1146.73	1146.73	1146.72	1146.70	1146.65	1146.58	1146.48	1146.37

MISCELLANEOUS DATA TABLE

	BEAM LINE	℄ WEST ABUT. BRG.						℄ PIER NO. 1									℄ PIER NO. 2							℄ EAST ABUT. BRG.
		LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23
ANTICIPATED DEFLECTION DUE TO DECK (IN.)	ALL	0	3/8	3/8	3/8	3/8	3/8	0	0	1/4	3/8	1/2	1/2	1/2	3/8	1/4	0	0	3/8	3/8	3/8	3/8	3/8	0
CROSS SLOPE ADJUSTMENTS (IN.)	ALL	1/2																						
ALLOWABLE FIELD HAUNCH (IN. & FT.)	MAX.	ALL	2½ (0.208)																					
	MIN.	ALL	0 (0.0)																					

NOTE:
HAUNCH LOCATIONS ARE AT THE SAME LOCATION AS THE ENCIRCLED LETTERS AND NUMBERS SHOWN ON DECK ELEVATIONS SHEET.



HAUNCH DETAIL

NOTE:
BRIDGE SEAT ELEVATIONS ARE SET BASED ON THEORETICAL CAMBER AND BEAM DEFLECTIONS. THESE BRIDGE SEATS WILL PROVIDE A THEORETICAL BEAM HAUNCH WITHIN DESIGN PARAMETERS. FIELD HAUNCHES ARE DETERMINED USING SURVEYED TOP OF BEAM ELEVATIONS AND "BEAM LINE HAUNCH ELEVATION" DATA. ALLOWABLE MAXIMUM AND MINIMUM "FIELD HAUNCH" VALUES ARE GIVEN IN INCHES AND DECIMALS OF FEET IN THE "MISCELLANEOUS DATA" TABLE. "CROSS SLOPE ADJUSTMENT" VALUES WILL AID THE CONTRACTOR IN DETERMINING ACTUAL FORMED HAUNCH DIMENSIONS AT THE EDGES OF THE TOP FLANGE.

NOTE 1:
TO CALCULATE FIELD HAUNCH REQUIRED AT EACH LOCATION, SURVEY THE BEAM TOPS CONSISTENT WITH THE SPACINGS SHOWN ON THE "TOP OF DECK ELEVATIONS LAYOUT". SUBTRACT THE SURVEYED BEAM SHOT FROM THE "BEAM LINE HAUNCH ELEVATION". THIS VALUE WILL BE THE HAUNCH NEEDED (SEE "FIELD HAUNCH" IN HAUNCH DETAIL). THE "BEAM LINE HAUNCH ELEVATION" INCLUDES ADJUSTMENTS FOR DECK THICKNESSES AND ANTICIPATED DEFLECTIONS. NO ADDITIONAL CALCULATIONS ARE REQUIRED. IF THE FIELD HAUNCH EXCEEDS THE MAXIMUMS AND MINIMUMS SHOWN IN INCHES AND DECIMALS OF FEET IN THE MISCELLANEOUS DATA TABLE, ADJUSTMENTS TO THE GRADE OR ADDITIONAL HAUNCH REINFORCEMENT WILL BE REQUIRED.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

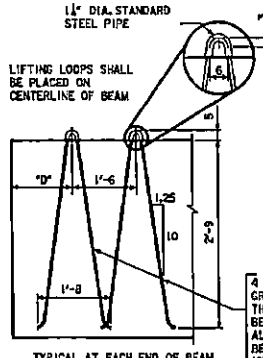
61'-0 END SPANS — 72'-0 INTERIOR SPAN

DECK HAUNCH DATA DETAILS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM bgm	DECK HAUNCH DATA DETAILS	STANDARD SHEET 1056	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 19

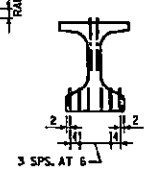
2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



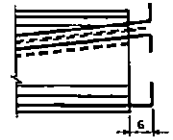
TYPICAL AT EACH END OF BEAM

LIFTING LOOP DETAIL

4 - 1" NOMINAL DIA. GRADE 270 STRANDS THREADED THROUGH EACH PIPE SLEEVE BENT AS SHOWN AFTER THREADING. ALTERNATE LIFTING DEVICES MAY BE SUBMITTED FOR APPROVAL (SEE LIFTING LOOP TABLE).



THE TOP AND BOTTOM FOR 2 ROWS OR THE TOP AND 3rd ROWS OF DEFLECTED STRANDS ARE TO BE CUT WITH 1'-6 PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN. THE SECOND ROW IS TO BE CUT WITH A 6" PROJECTION AND THE REMAINING TOP DEFLECTED STRANDS IN ROWS 4 AND BELOW ARE TO BE CUT FLUSH WITH BEAM FACE. 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.



TYPICAL AT BOTH BEAM ENDS

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)
BTB50-BTB70	1	4	2'-0	**

** IN ACCORDANCE WITH ARTICLE 2407.03, K OF THE STANDARD SPECIFICATIONS.

LIFTING LOOPS SHALL CARRY LOADS EQUALLY.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2007.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 5.
PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 270.

SPECIFICATIONS:

CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH CURRENT APPLICABLE SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.
DESIGN: A.A.S.H.T.O. LRFD, SERIES OF 2007, 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.

BTB BEAM DATA

BTB BEAM	SPAN LENGTH c-c BEARING	OVERALL BEAM LENGTH (L)	CONCRETE STRENGTH f'ci (ksi)	CONCRETE STRENGTH f'c (ksi)	STRAND SIZE DIA. (in)	NO. OF STRAND STRAIGHT	NO. OF STRAND DEFLECTED	TOTAL INITIAL PRESTRESS Kips ①	HOLD DOWN FORCE-Kips	CAMBER (in) AT RELEASE	CAMBER (in) AFTER LOSSES	DEFLECTION (in) Δ_D IMMEDIATE (ELASTIC) Δ_E ① STEEL DIAPHRAGM	DEFLECTION (in) Δ_D TIME (PLASTIC) Δ_S ② STEEL DIAPHRAGM	PERMISSIBLE MAXIMUM SPACING HL-93 LOADING STEEL DIAPHRAGM	WEIGHT (TONS)	CONCRETE (CU YD.)	REINFORCING STEEL (WEIGHT-LBS)
BTB50	60'-0"	61'-4"	4.5	5.0	0.60	16	2	785	8.6	0.88	1.56	0.65	0.16	9'-3	20.2	10.0	1467
BTB70	70'-0"	71'-4"	5.0	5.5	0.60	20	2	936	7.4	1.32	2.35	1.13	0.26	9'-3	23.5	11.6	1669

① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM. THE DEFLECTIONS SHOWN ARE FOR A SLAB (8 in) AND HAUNCH (1.5 in) WEIGHT OF:
0.98 kips/ft FOR 9'-3 BEAM SPACING
AND ONE STEEL DIAPHRAGM (0.500 kips) AT ℄ OF SPAN.
FOR DIFFERENT SLAB AND DIAPHRAGM WEIGHTS, DEFLECTIONS WILL BE DIRECTLY PROPORTIONAL.

② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.
TOTAL BEAM DEFLECTIONS AT ℄ OF SPAN, Δ_S, DUE TO WEIGHT OF SLAB AND DIAPHRAGMS FOR DETAILING PURPOSES:
(A) $\Delta_S = \Delta_1 + \frac{1}{2}\Delta_T$ FOR SIMPLE SPAN.
(B) $\Delta_S = \Delta_1 + \frac{1}{2}\Delta_T$ FOR END SPANS OF CONTINUOUS BRIDGE.
(C) $\Delta_S = \Delta_1 + \frac{1}{2}\Delta_T$ FOR INTERIOR SPANS OF CONTINUOUS BRIDGE.

③ TOTAL INITIAL PRESTRESS IS BASED ON 72.6% f'$_s$, f'$_s$ = 270 ksi, AND A_s = 0.217 in^2.

CALCULATED DESIGN CAMBERS HAVE BEEN REDUCED FROM THEIR THEORETICAL VALUES BY 15% TO AID CONSTRUCTABILITY.

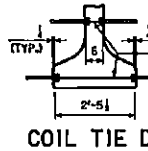
BEAM NOTES: (CONTINUED)

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 BTB 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.
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).

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 FLOOR, ARE TO BE AT LEAST 28 DAYS OLD BEFORE THE FLOOR 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.
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.

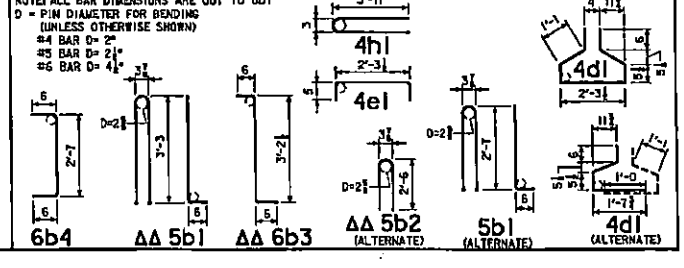
NUMBER AND EXACT LOCATION OF COIL TIES TO BE AS DETAILED ON SPECIFIC BRIDGE DESIGN.



COIL TIE DETAIL

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"



ΔΔ 5b1 AND 6b3 BARS TO BE EPOXY COATED
* 6b3 AND 6b4 BARS TO BE USED IN PAIRS

REINFORCING BAR LIST

	BEAM		BTB50		BTB70		
	BAR	SHAPE	NO.	LENGTH	NO.	LENGTH	
	5a1		12	31'-0	12	36'-6	
	5a2		—	—	—	—	
ΔΔ	5b1		43	7'-8	53	7'-8	ΔΔ
ΔΔ *	6b3		36	4'-3	32	4'-3	ΔΔ *
*	6b4		4	3'-7	8	3'-7	*
	4a1		72	2'-7	88	2'-7	
	4d1		63	6'-5	73	6'-5	
	4e1		24	3'-2	24	3'-2	
	4h1		4	3'-0	4	8'-0	

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

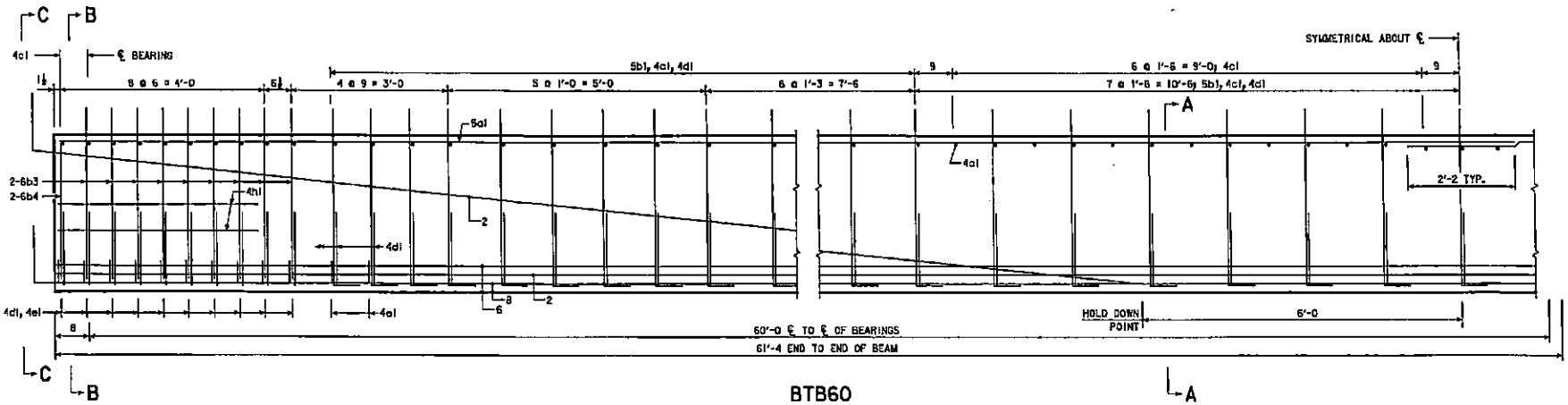
BTB BEAM DETAILS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

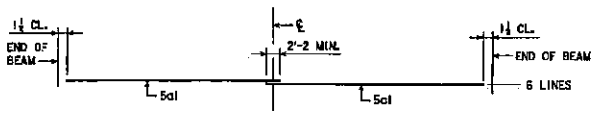
CORRECTION 12-13 - COIL TIE DETAIL WAS CHANGED TO REFLECT THE DISTANCE BETWEEN COIL TIE ANCHORS EMBEDDED 1 INCH. THIS SHEET ISSUED 02-08.

DESIGN TEAM Bgm	BULB TEE "B" BEAMS	MOD STANDARD SHEET 4750	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(48)--FE-97	SHEET NUMBER 20

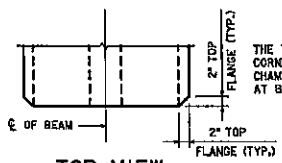
2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



BTB60

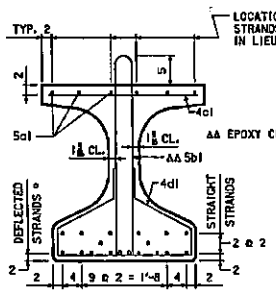


TOP FLANGE LONGITUDINAL BAR LAYOUT

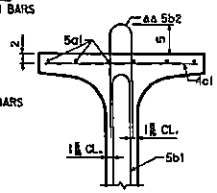


TOP VIEW

THE TOP FLANGE BEAM CORNERS ARE TO BE CHAMFERED 2" AS SHOWN AT BOTH ENDS OF THE BEAM.

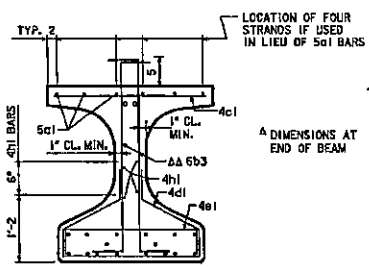


SECTION A-A

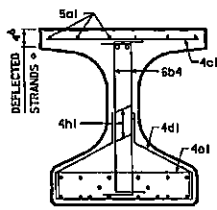


SECTION A-A (ALTERNATE)

SEE ALTERNATE BAR NOTE ON STANDARD SHEET 4T50.



SECTION B-B

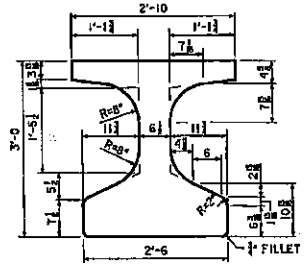


SECTION C-C

Δ DIMENSIONS AT END OF BEAM

AREA = 631.7 in²
ȳb = 17.14 in.
I = 99,980 in⁴

BEAM SECTION PROPERTIES



BTB BEAM CROSS SECTION

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

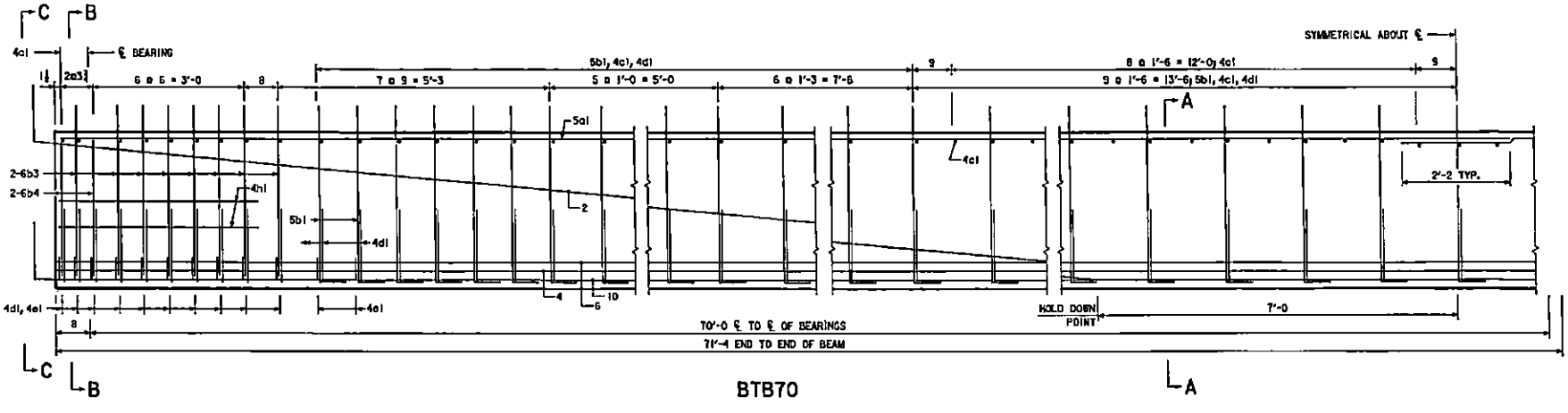
BTB60 BEAM DETAILS

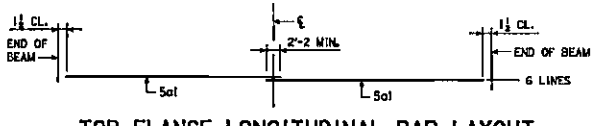
STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM Bridges	BULB TEE "B" BEAM - 60'-0 SPAN	STANDARD SHEET 4T57	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 21

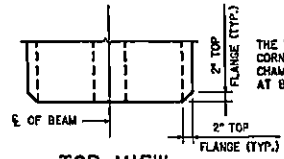
2/9/2022 jjk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

ENGLISHBEAMS.DGN - 4T57 - THIS SHEET ISSUED 02-08.



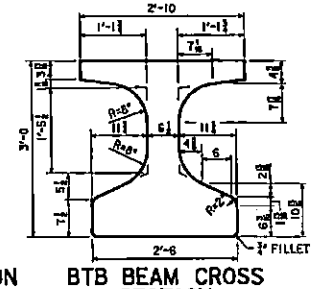


TOP FLANGE LONGITUDINAL BAR LAYOUT

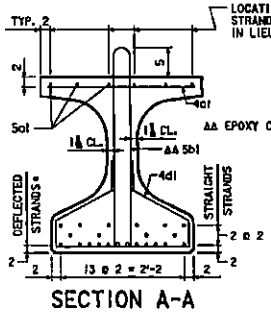


TOP VIEW

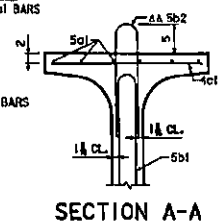
THE TOP FLANGE BEAM CORNERS ARE TO BE CHAMFERED 2" AS SHOWN AT BOTH ENDS OF THE BEAM.



BTB BEAM CROSS SECTION

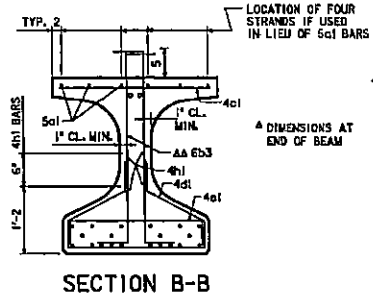


SECTION A-A

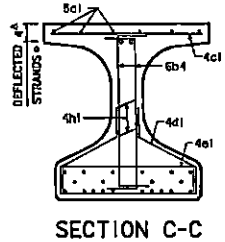


SECTION A-A (ALTERNATE)

SEE ALTERNATE BAR NOTE ON STANDARD SHEET 4760.



SECTION B-B



SECTION C-C

AREA = 631.7 in²
$\bar{y}_b$ = 17.14 in.
I = 99,980 in⁴

BEAM SECTION PROPERTIES

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

BTB70 BEAM DETAILS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM bgm	BULB TEE "B" BEAM - 70'-0 SPAN	STANDARD SHEET 4759	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)—FE-97	SHEET NUMBER 22

ENGLISHBEAMS.DGN - 4759 - THIS SHEET ISSUED 02-08.

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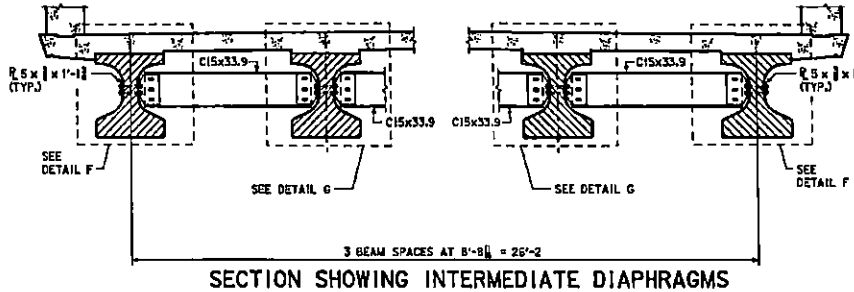
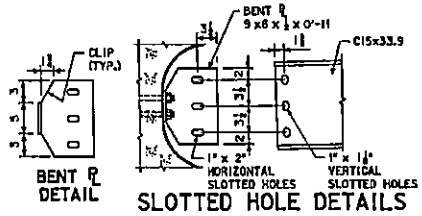
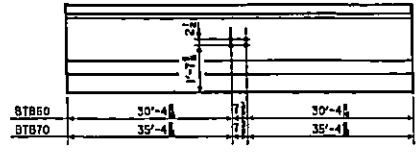


SECTION SHOWING INTERMEDIATE DIAPHRAGMS

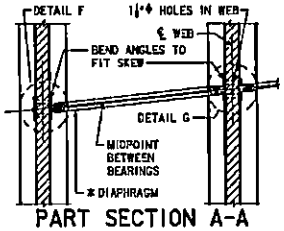


BENT PL DETAIL

SLOTTED HOLE DETAILS



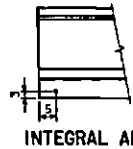
INTERMEDIATE DIAPHRAGM BOLT HOLE LOCATIONS



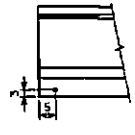
PART SECTION A-A

FOR BRIDGES SKEWED LESS THAN OR EQUAL TO 1°30'

* NOTE: THE W 14 x 38 WILL REQUIRE BEVELED ENDS TO MATCH THE SKEW.

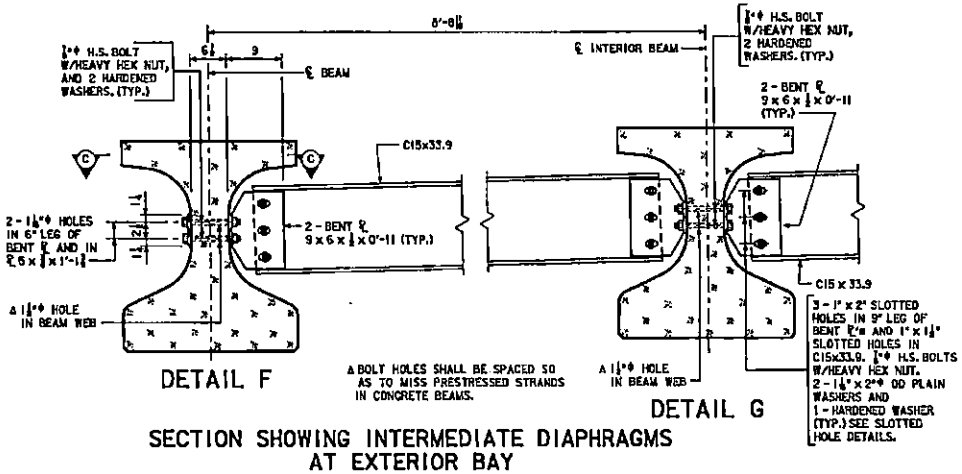


INTEGRAL ABUT.



FIXED PIER

BEAM COIL TIE LOCATIONS



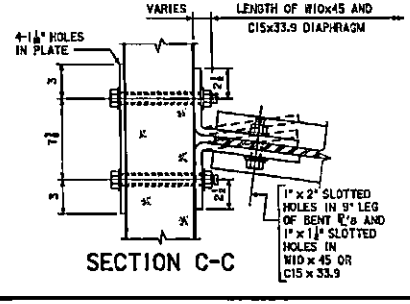
DETAIL F

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

DETAIL G

SECTION SHOWING INTERMEDIATE DIAPHRAGMS AT EXTERIOR BAY

BULB TEE "B" BEAM INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL			
ONE BEAM CONNECTION (DETAIL "F" AND/OR DETAIL "G")			WEIGHT
		NO. OF BEAM CONNECTIONS	
4 - ¾"ø x 9 H.S. BOLTS WITH NUTS & WASHERS = 9.6 LBS.		12	115
ONE DETAIL "G"	4 - BENT PL 9 x 6 x ½ x 0'-11 = 93.6 LBS.	6	562
ONE DETAIL "F"	1 - BACKING PL 5 x ½ x 1'-1½ = 7.1 LBS.	6	43
	2 - BENT PL 9 x 6 x ½ x 0'-11 = 46.8 LBS.	6	281
ONE DIAPHRAGM			
		NUMBER OF DIAPHRAGMS	
6 - ¾"ø x 3" H.S.BOLTS WITH NUTS & WASHERS = 7.8 LBS.		9	70
	LENGTH OF MEMBER		
1 - C15 x 33.9 = 33.9 LBS./FT.	7'-6½	9	2,288
INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL - TOTAL (LBS.)			3,369



SECTION C-C

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 1¼"ø HOLES FOR THE ¾"ø H.S. BOLTS SHALL BE CAST INTO THE WEB. DRILLING IS NOT ALLOWED.

THE ¾"ø 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.

STRUCTURAL STEEL	
WEIGHT	3,369 LBS.

NOTE: STRUCTURAL STEEL WEIGHT IS INCLUDED ON THE SUMMARY QUANTITIES SHEET.

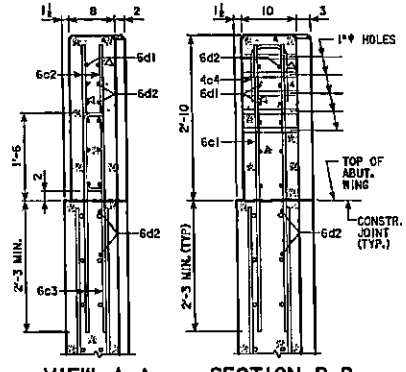
DESIGN FOR 0° SKEW

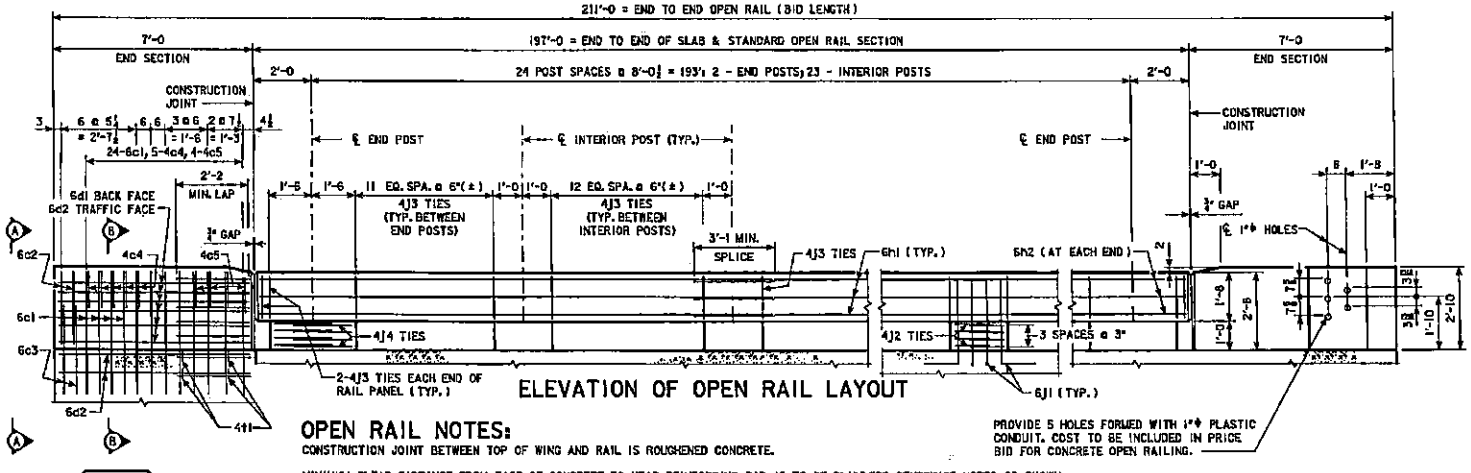
194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

INTERMEDIATE DIAPHRAGM DETAILS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022





ELEVATION OF OPEN RAIL LAYOUT

OPEN RAIL NOTES:

CONSTRUCTION JOINT BETWEEN TOP OF WING AND RAIL IS ROUGHENED CONCRETE.

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

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

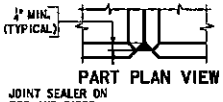
THE CONCRETE OPEN RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF OPEN RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT. PRICE BID FOR "CONCRETE OPEN RAILING, TL-4" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING 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 INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL.

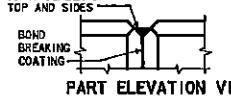
THE CAST-IN-PLACE OPEN RAIL SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED.

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

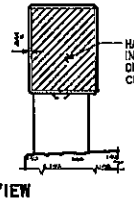
IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.



PART PLAN VIEW



PART ELEVATION VIEW



OPEN RAIL JOINT DETAILS

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

OPEN RAIL, TL-4 DETAILS

STA. 106+49.79 — WOODBURY COUNTY — JANUARY, 2022

REVISED 07-10 - END SECTIONS WERE CHANGED, VIEW A-A & SECTION B-B WERE ADDED.

DESIGN TEAM bgm — WOODBURY COUNTY — PROJECT NUMBER BROS-SWAP-C097(140)—FE-97 — SHEET NUMBER 24

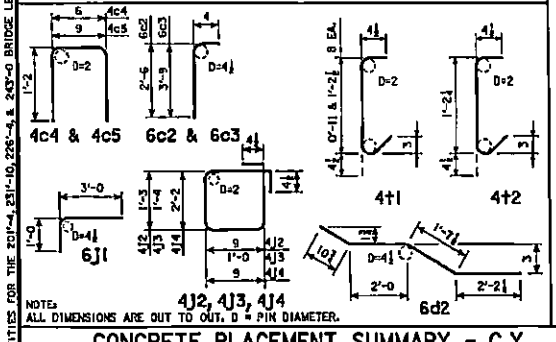
2/9/2022 JJK Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

EPOXY COATED REINFORCING STEEL-TWO OPEN RAILS

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	BRIDGE LENGTH				
6c1	VERTICAL, END SECTION & ABUT. DIAPH. EXT.		96	4'-11	709
6c2	VERTICAL, END SECTION		16	2'-10	68
6c3	VERTICAL, END SECTION		16	4'-1	98
4c4	VERTICAL HOOPS, END SECTION		20	2'-10	38
4c5	VERT. HOOPS, END SEC. & ABUT. DIAPH. EXT.		16	3'-1	33
6d1	HORIZONTAL, END SECTION-BACK FACE		24	6'-8	240
6d2	HORIZONTAL, END SECTION-TRAFFIC FACE		32	6'-9	324
6h1	LONGITUDINAL, OPEN RAIL		48	40'-0	2,884
6h2	LONGITUDINAL, OPEN RAIL, ENDS		24	26'-1	940
6j1	VERTICAL DOWELS, OPEN RAIL		408	4'-0	2,451
4j2	HOOP, INTERIOR POST		368	4'-9	1,168
4j3	HOOP, OPEN RAIL		628	5'-5	2,272
4j4	HOOP, END POST		32	6'-7	141
4t1	WING FOOTING TIE BARS		16	VARIES	19
	TOTAL LBS. (INCLUDE WITH SUPERSTRUCTURE REINFORCING)				11,385

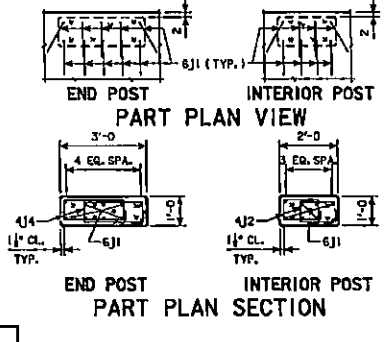
NOTE: ALL BARRIER RAIL REINFORCEMENT TO BE EPOXY COATED IF EPOXY COATING OPTION IS USED. SEE SHEET H30-01-06.

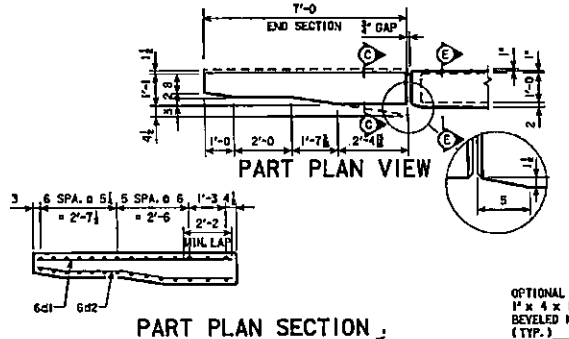
BENT BAR DETAILS

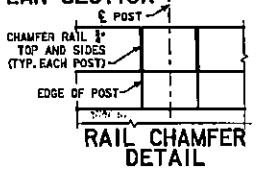


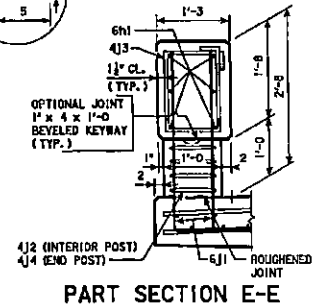
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

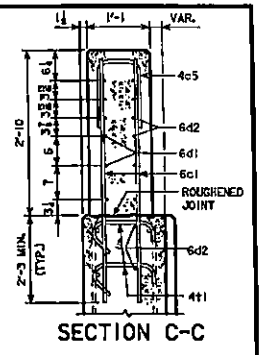
* TRAFFIC FACE 5d3 BARS MAY REQUIRE FIELD CUTTING OR BENDING FOR HIGHER SKEW BRIDGES.











CONCRETE PLACEMENT SUMMARY - C.Y.

BRIDGE LENGTH		
OPEN RAIL SECTION	2 @ 0.077 CU. YDS. PER FT.	30.3
OPEN RAIL-END SECTION	4 @ 0.687 CU. YDS.	2.7
OPEN RAIL-END POSTS	4 @ 0.11 CU. YDS.	0.4
OPEN RAIL-INTERIOR POSTS	2 x 23 @ 0.07 CU. YDS.	3.2
TOTAL (C.Y.)		36.6

OPEN CONCRETE RAIL, TL-4 QUANTITIES - L.F.

BRIDGE LENGTH	
OPEN CONCRETE RAILING, TL-4	422.0

REVISED 05-11 - CORRECTED THE OPEN RAIL REBAR QUANTITIES FOR THE 201'-4, 231'-10, 226'-4, & 243'-0 BRIDGE LENGTHS.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

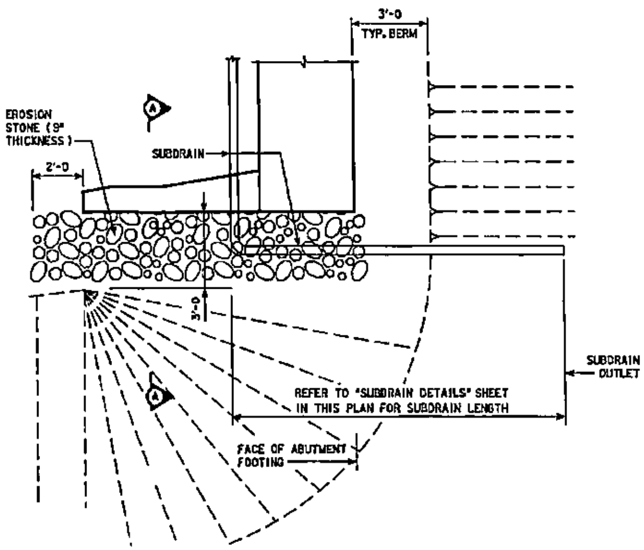
61'-0 END SPANS — 72'-0 INTERIOR SPAN

OPEN RAIL, TL-4 DETAILS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

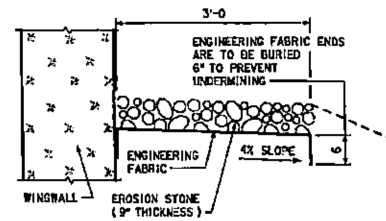
DESIGN TEAM bgm — WOODBURY COUNTY — PROJECT NUMBER BROS-SWAP-C097(148)--FE-97 — SHEET NUMBER 25

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn



TOP VIEW OF WING ARMORING

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



SECTION A-A

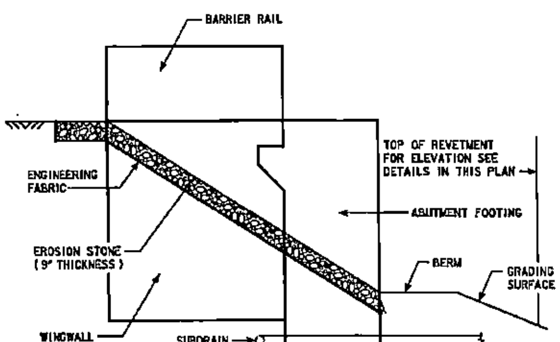
GENERAL NOTES:

EROSION STONE SHALL BE PLACED ALONG THE SIDES OF THE WINGS AND ABUTMENT FOOTING AS SHOWN IN SECTION A-A. THIS IS TYPICAL AT EACH CORNER OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS. THE EROSION STONE AT THESE LOCATIONS SHALL BE UNDERLAYED WITH ENGINEERING FABRIC IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

THE EROSION STONE SHALL BE IN ACCORDANCE WITH SECTION 4130, OF THE STANDARD SPECIFICATIONS. MATERIAL PASSING THE 3 INCH SCREEEN 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 ENGINEERING FABRIC, 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
(SHOWN FOR INTEGRAL ABUTMENT)

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS · 72'-0 INTERIOR SPAN

BRIDGE WING ARMORING

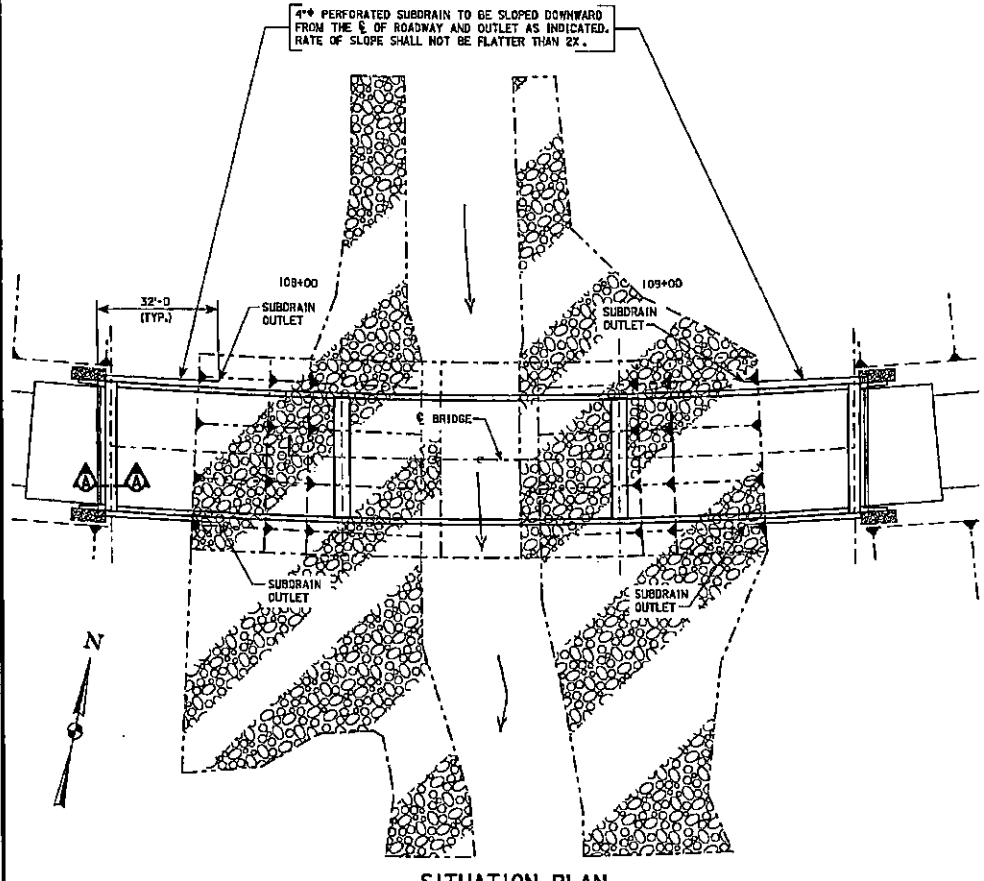
STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

REVISED 06-14 - ADDED 2 FEET OF LENGTH OF EROSION STONE IN FRONT OF THE BRIDGE WING.
ENGLISH\FORESLOPEPROTECTION\BRIDGES.DGN 1005A - THIS SHEET ISSUED 06-02.

DESIGN TEAM hgm	BRIDGE WING ARMORING - WATER CROSSING	STANDARD SHEET 1005A		WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 26

2/9/2022 jk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

REVISED 10-14 - TWO ADDITIONAL FORESLOPE PROTECTION DETAILS WERE ADDED OUTSIDE OF THE BORDER TO SHOW REVETMENT UP TO BACK OF ABUTMENT FOOTING.
ENGLISH\FORESLOPEPROTECTIONSBRIDGES.DGN 1007C - THIS SHEET ISSUED 06-02 FOR WATER CROSSINGS.



SITUATION PLAN
SHOWING SUBDRAIN LOCATIONS

SUBDRAIN NOTES :

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

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

THE SUBDRAIN OUTLET SHALL CONSIST OF A LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD AS DETAILED ON THIS SHEET. THE LENGTH OF THE OUTLET PIPE SHALL BE DETERMINED BY THE REVETMENT AND IT'S PLACEMENT LOCATION. THE CONTRACTOR IS TO INSURE 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 INSURE THAT THE SUBDRAIN IS NOT DAMAGED AND IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS. IF A METAL OUTLET PIPE IS USED, IT SHALL BE 6 INCHES IN DIAMETER AND COUPLED TO THE 4 INCH DIAMETER SUBDRAIN IN ONE OF THE TWO FOLLOWING WAYS.

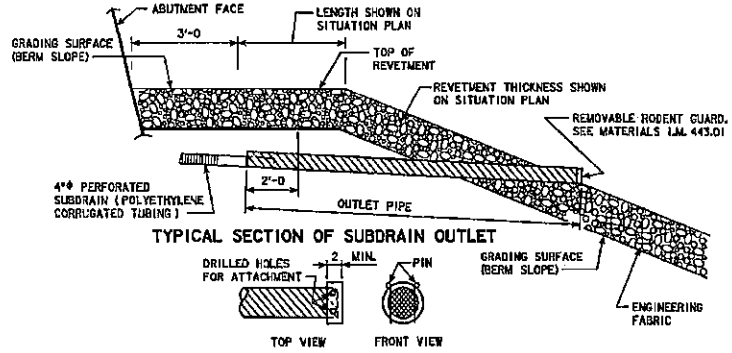
1. USE AN INSIDE FIT REDUCER COUPLER (COUPLER MUST BE INSERTED A MINIMUM OF 1'-0 INTO THE METAL OUTLET PIPE).
2. INSERT 1'-0 OF THE 4"Φ SUBDRAIN INTO THE 6"Φ METAL OUTLET PIPE, THEN FULLY SEAL THE ENTIRE OPENING WITH GROUT.

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.

THE DIMENSIONS SHOWN FOR THE PROPOSED SUBDRAINS ARE BASED ON THE PROPOSED GRADING LAYOUT OF BRIDGE BERMS. THE DIMENSIONS SHOWN ARE FOR ESTIMATING ONLY. REQUIRED LENGTHS AND GENERAL LOCATIONS OF SUBDRAINS ARE SUBJECT TO CHANGE DUE TO FIELD ADJUSTMENTS OF THE GRADING LAYOUT.

SUBDRAIN OUTLET ELEVATIONS

LOCATION	ELEVATION
WEST ABUTMENT	1138.40
EAST ABUTMENT	1138.40



TYPICAL SECTION OF SUBDRAIN OUTLET

REMOVABLE RODENT GUARD DETAILS

REVETMENT STONE (NON-EMBEDDED) OUTLET DETAILS

NOTE:
SECTION A-A IS SHOWN ON ABUTMENT BACKFILL DETAILS SHEET.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS — 72'-0 INTERIOR SPAN

SUBBDAIN DETAILS

STA. 108+49.79 — WOODBURY COUNTY — JANUARY, 2022

DESIGN TEAM hgm	SUBDRAIN DETAILS (WATER CROSSING)	STANDARD SHEET 1007C	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 27

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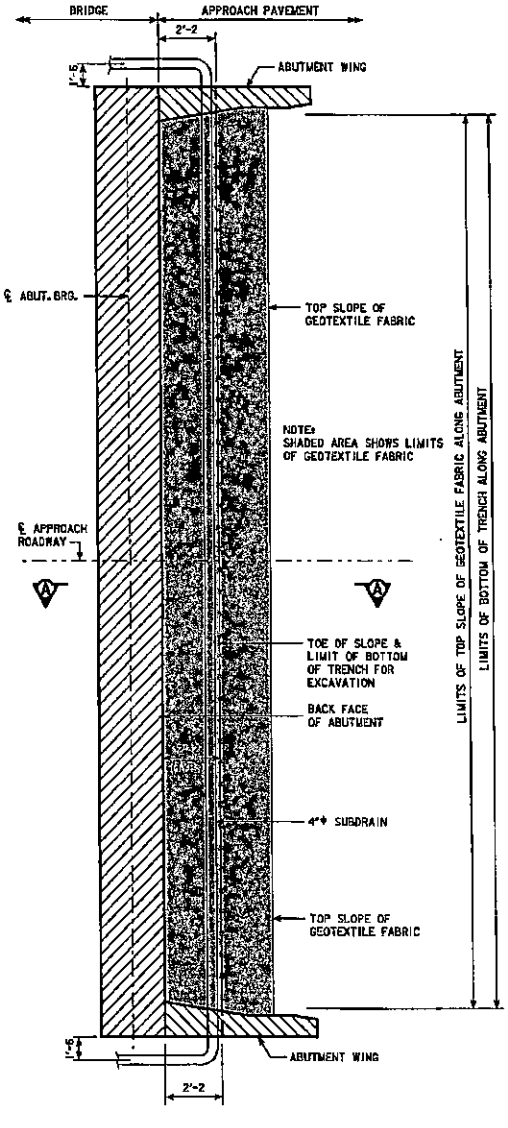


ABUTMENT PLAN WITHOUT WING EXTENSIONS

ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE 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 1 TO 2 FOOT HIGHER THAN THE HEIGHT OF THE POROUS BACKFILL PLACEMENT AS SHOWN IN THE "BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY 1 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 BE 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.

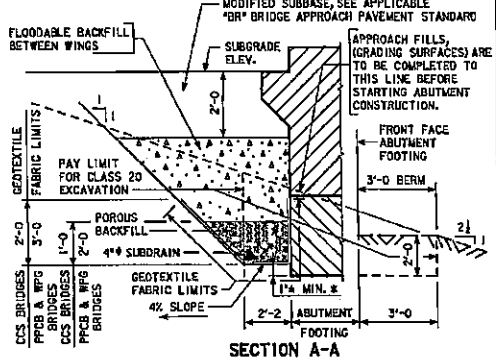
THE COST OF WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR STRUCTURAL CONCRETE.

NOTE:

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

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM HIGH END WHEN OUTLETTING AT ONE END 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, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.



SECTION A-A

BACKFILL DETAILS

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

* DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.

NOTE:
SEE SUBDRAIN DETAILS SHEET FOR DETAILS NOT SHOWN ON THIS SHEET WHICH ARE PERTINENT TO THIS STRUCTURE.

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

ABUTMENT BACKFILL DETAILS

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

REVISED 09-14 - THE TECHNICAL DATA INFORMATION TABLE WAS REMOVED AND IS LOCATED IN THE STANDARD SPECIFICATIONS. CHANGED SURFACE FLOODING TIME TO 5 MINUTE INCREMENTS.
REVISED 09-2016 - CHANGED THE BRIDGE APPROACH PAVEMENT STANDARD TO "BR" (WAS "RK").
ENGLISHFORESLOPEPROTECTIONERRIDGES.DGN - 10070 - THIS SHEET ISSUED 06-07.

DESIGN TEAM Bergan	ABUTMENT BACKFILL DETAILS (NON WING EXTENSION ABUTMENTS)	STANDARD SHEET 10070	WOODBURY COUNTY	PROJECT NUMBER BROS-SWAP-C097(148)--FE-97	SHEET NUMBER 28

2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\760221.dgn

ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent Station	Point on Tangent Coordinates Y (Northing)	Point on Tangent Coordinates X (Easting)	Begin Spiral Station	Begin Spiral Coordinates Y (Northing)	Begin Spiral Coordinates X (Easting)	Begin Curve Station	Begin Curve Coordinates Y (Northing)	Begin Curve Coordinates X (Easting)	Simple Curve PI or Master PI of SCS Station	Simple Curve PI or Master PI of SCS Coordinates Y (Northing)	Simple Curve PI or Master PI of SCS Coordinates X (Easting)	End Curve Station	End Curve Coordinates Y (Northing)	End Curve Coordinates X (Easting)	End Spiral Station	End Spiral Coordinates Y (Northing)	End Spiral Coordinates X (Easting)
	CORRECTIONVILLE RD.							102+00.00	3649825.13	4178541.40									
	CORRECTIONVILLE RD.										106+89.00	3649108.40	4179016.27						
	CORRECTIONVILLE RD.													111+42.47	3649908.39	4179463.39			

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

108-8A
10-16-18

(1) Lane(s) to which the obstacle is adjacent. Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-635, SI-173 and SI-211.
(2) Not a bid item, incidental to guardrail installation.

No.	Location (1) Direction of Traffic	Location Side 0 = Outside M = Median	Location Station	Location Offset	Layout Lengths BA-250, BA-260, LS-630 or LS-635 VT1	VF	VT2	ET	Long-Span System BA-211 Station	Long-Span System BA-211 Type	Delineators and Object Markers (2) SI-211	Delineator SI-172 Type 1 White	Object Marker SI-173 Type 2 OM2-2	Object Marker SI-173 Type 3 OM-3L	Object Marker SI-173 Type 3 OM-3R	Bid Items (1) Bolted End Anchor BA-202 Type	Bolted End Anchor BA-202 EA	Post Adapter BA-210 EA	Steel Beam Guardrail BA-200 LF	BA-250 or LS-630 Barrier Transition Section BA-201 EA	BA-250 or LS-630 End Terminal Tangent BA-205 EA	BA-250 or LS-630 End Terminal Flared BA-206 EA	BA-250 or LS-630 End Terminal Tangent LS-625 EA	BA-250 or LS-630 End Terminal Flared LS-626 EA	BA-250 or LS-635 Barrier Transition Section BA-221 EA	BA-250 or LS-635 End Terminal Tangent BA-225 EA	Remarks
				FT	LF	LF	LF	LF	Station	Type	Type	EA	EA	EA	EA	Type	EA	EA	LF	EA	EA	EA	EA	EA	EA	EA	
1	EB	0	107+45.07	15.58	21.875						2				1	A	1									1	
2	EB	0	109+54.50	15.58	21.875						2		1	1		A	1									1	
3	WB	0	107+47.46	15.58	21.875						2		1	1		A	1									1	
4	WB	0	109+52.11	15.58	21.875						2		1		1	A	1									1	

GRADING FOR GUARDRAIL INSTALLATIONS

107-23
10-18-11

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

No.	Location (1) Direction of Traffic	Location Station	Location Side	Foreslope at Guardrail	Dimensions (Feet) X1	Y1	X2	Y2	X3	Y3	X4	Y4	Z	Earthwork Excavation Class 10 CY	Earthwork Embankment In Place CY	Remarks
1	EB	107+52.30	RT	3:1	21.9	5.0	62.5									
2	EB	109+47.27	RT	3:1	21.9	5.0	62.5									
3	WB	107+50.24	LT	3:1	21.9	5.0	62.5									
4	WB	109+49.34	LT	3:1	21.9	5.0	62.5									

BRIDGE APPROACH SECTION

112-6
04-18-17

* Not a bid item
Refer to the BR-Series Standard Road Plans.

Bridge Station	Location End	Skew Ahead Degrees LEFT	Skew Ahead Degrees RIGHT	Approach Pavement (1) Thickness IN	Pay Length FT	Non-Reinf. Pavement Area SY	Single-Reinf. Pavement Area SY	Double-Reinf. Pavement Area SY	Standard Road Plans BR Series Approach	Fixed or Movable Abutment	Abutting Pavement	Subdrain *Perforated Subdrain 4" LF	Subdrain *Subdrain Outlet STA	Subdrain *Subdrain Outlet Side	Subdrain *Porous Backfill CY	Subdrain *Class "A" Crushed Stone Backfill CY	*Modified Subbase TON	*Polymer Grid SY	*Special Backfill TON	Remarks
107+51.78	W	0	0	14	70	80	53	67	BR-201	M	BR-212									
109+46.80	E	0	0	14	70	80	53	67	BR-201	M	BR-212									

DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

TABULATIONS

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022

PAVEMENT MARKING LINE TYPES

108-22
04-16-13

*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**XPY4 - For estimating purposes only. No Passing Zone lines will be located in the field.

See PM 110

***SMY4: Factor of 1.00 as value includes number of 4-inch passes to cover median nose area.

BCY4: Broken Center Line (Yellow)= 0.25 ELW4: Edge Line Right (White)= 1.00 DCY4: Double Center (Yellow)= 2.00

Location					Side			Length by Line Type (Unfactored)												Remarks
Road Identification	Station to Station		Length (STA)	Dir. of Travel	Marking Type	L	C	R	DCY4 STA	ELW4 STA	STA	STA	STA	STA	STA	STA	STA	STA	STA	
CORRECTIONVILLE RD.	106+81.28	110+18.29	3.37	BOTH			X		3.37											
CORRECTIONVILLE RD.	106+81.28	110+18.29	3.37	BOTH				X		6.74										
			FACTORED TOTALS: WATERBORNE / SOLVENT PAINT						6.74	6.74										
			BID QUANTITY: PAINTED PAVEMENT MARKINGS, WATERBOURNE SOLVENT PAINT								13.48									

REMOVAL OF PAVEMENT

110-1
04-16-13

* Not a Bid Item

Refer to Tabulation 102-5

Begin Station	End Station	Side	Pavement Type	Area SY	Saw Cut* LF	Remarks
106+81.28	107+51.78	LT./RT.	PCC	182.4	20	4" ASPHALT, 10" CONCRETE PAVEMENT
109+45.80	110+18.29	LT./RT.	PCC	193.3	20	4" ASPHALT, 10" CONCRETE PAVEMENT

TABULATION OF SAFETY CLOSURES

108-13A
08-01-08

Refer to Section 2518 of the Standard Specifications

Station	Closure Type: Road Quantity	Closure Type: Hazard Quantity	Remarks
106+52.31	1		
110+45.92	1		

STANDARD ROAD PLANS

105-4
10-18-11

The following Standard Road Plans shall be considered applicable to construction work on this project.

Number	Date	Title
BA-200	04-20-21	STEEL BEAM GUARDRAIL COMPONENTS
BA-202	10-20-15	STEEL BEAM GUARDRAIL BOLTED END ANCHOR
BA-221	04-19-22	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION (MASH TL-2)
BA-225	10-19-21	STEEL BEAM GUARDRAIL TANGENT END TERMINAL (MASH TL-2)
BA-260	04-20-21	STEEL BEAM GUARDRAIL INSTALLATION AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION (MASH TL-2)
BR-101	04-21-15	BRIDGE APPROACH SECTION (GENERAL DETAILS)
BR-201	10-19-21	DOUBLE REINFORCED 10" APPROACH
BR-212	10-19-21	SINGLE APPROACH (ABUTTING HMA PAVEMENT)
EC-201	04-20-21	SILT FENCE
EW-301	04-20-21	GUARDRAIL GRADING
PM-110	04-21-20	LINE TYPES
PV-101	04-15-22	JOINTS
SI-172	04-19-16	DELINEATORS
SI-173	04-19-16	OBJECT MARKERS
SI-211	10-18-16	OBJECT MARKER AND DELINEATOR PLACEMENT WITH GUARDRAIL
TC-252	04-21-20	ROUTES CLOSED TO TRAFFIC

TABULATION OF SILT FENCES

109-17
04-20-10

Refer to EC-201

Location: Station to Station		Side	Length LF	Remarks
106+52	108+00	LT	148	
106+52	107+75	RT	123	
109+00	110+46	LT	146	
109+25	110+46	RT	121	
	TOTAL		538	

TRAFFIC CONTROL PLAN

108-23A
08-01-08

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THE THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.

A DETOUR ROUTE WILL BE MARKED AND MAINTAINED BY WOODBURY COUNTY. ALL SAFETY CLOSURES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR. MAINTENANCE OF SIGNS, BARRICADES AND SAFETY CLOSURES AS STATED IN ARTICLE 1107.09 SHALL APPLY ON THIS PROJECT. ROAD CLOSURES ON THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH ROAD STANDARD TC-252. GUARDRAIL INSTALLATION MUST BE COMPLETE BEFORE THE ROAD IS OPENED TO TRAFFIC.

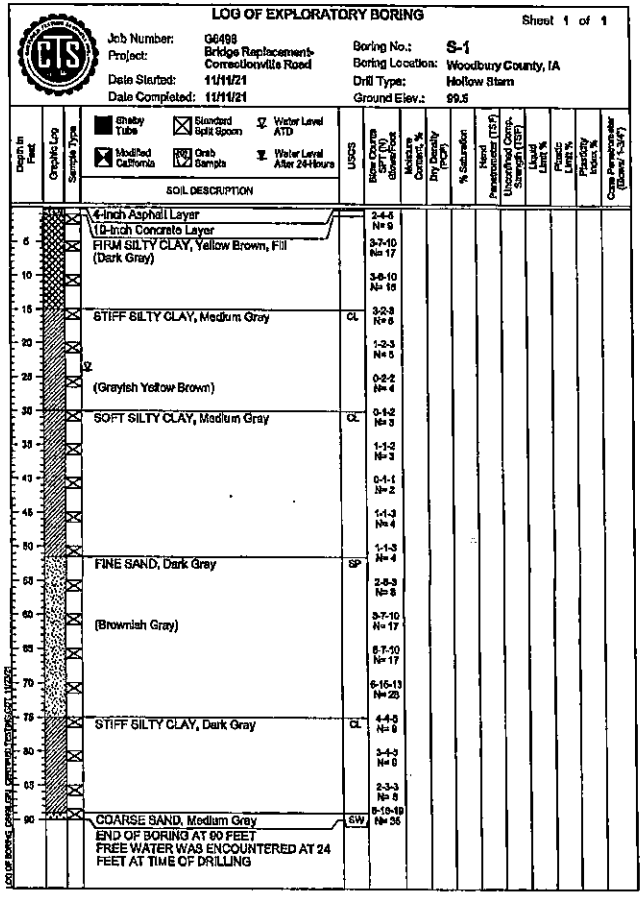
DESIGN FOR 0° SKEW

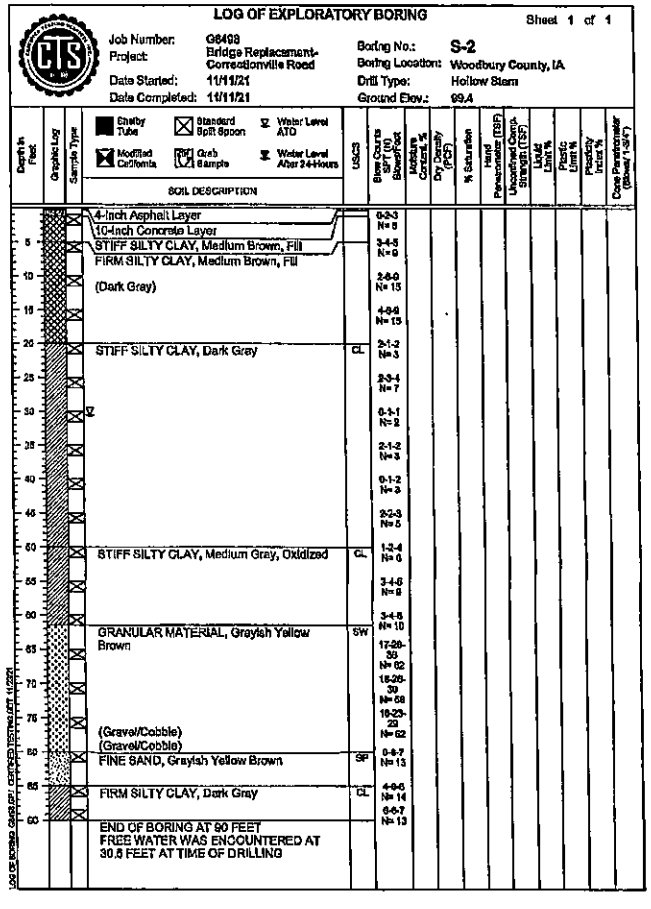
194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

TABULATIONS

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022





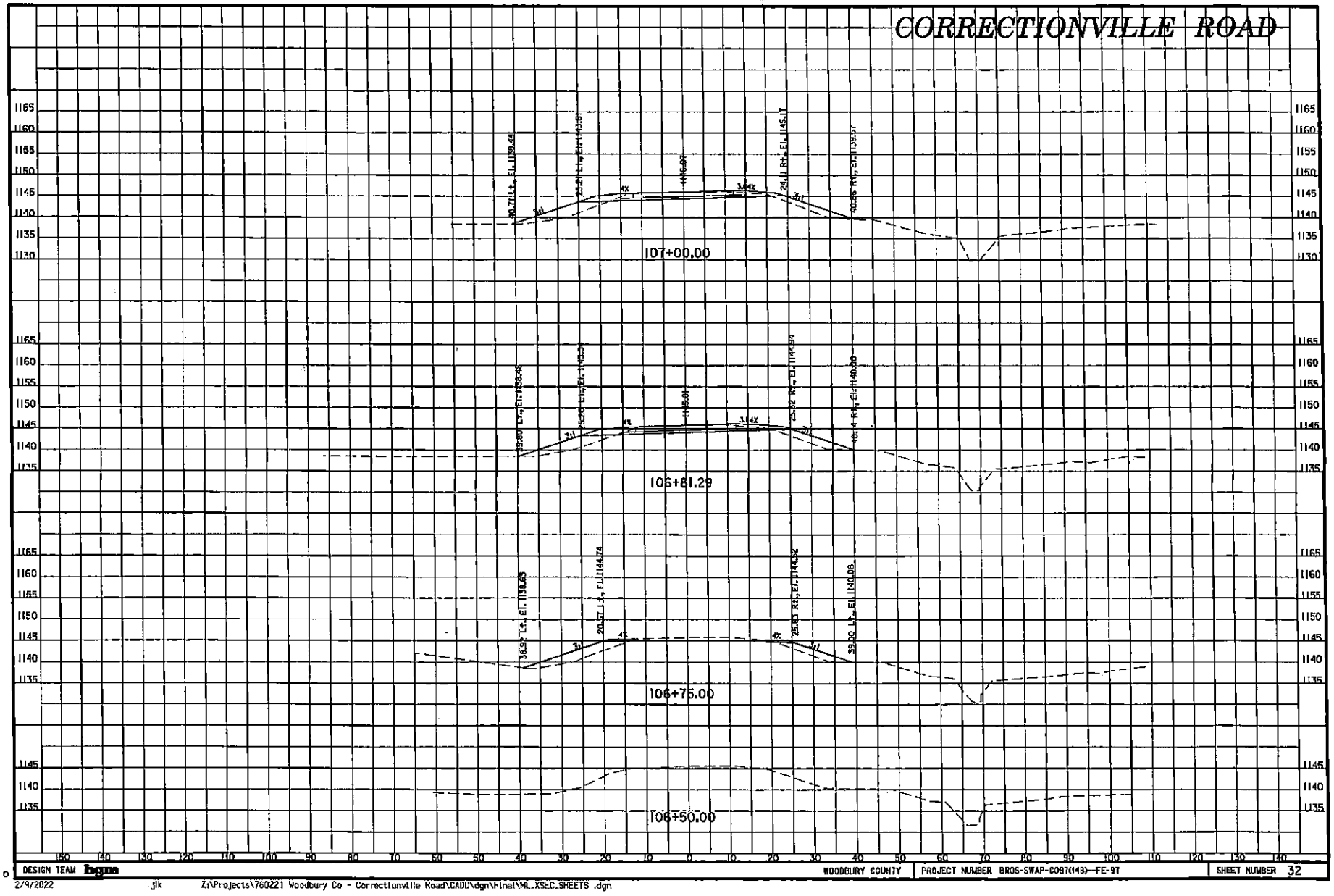
DESIGN FOR 0° SKEW

194'-0 X 30'-6 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

61'-0 END SPANS 72'-0 INTERIOR SPAN

BORING LOGS

STA. 108+49.79 WOODBURY COUNTY JANUARY, 2022



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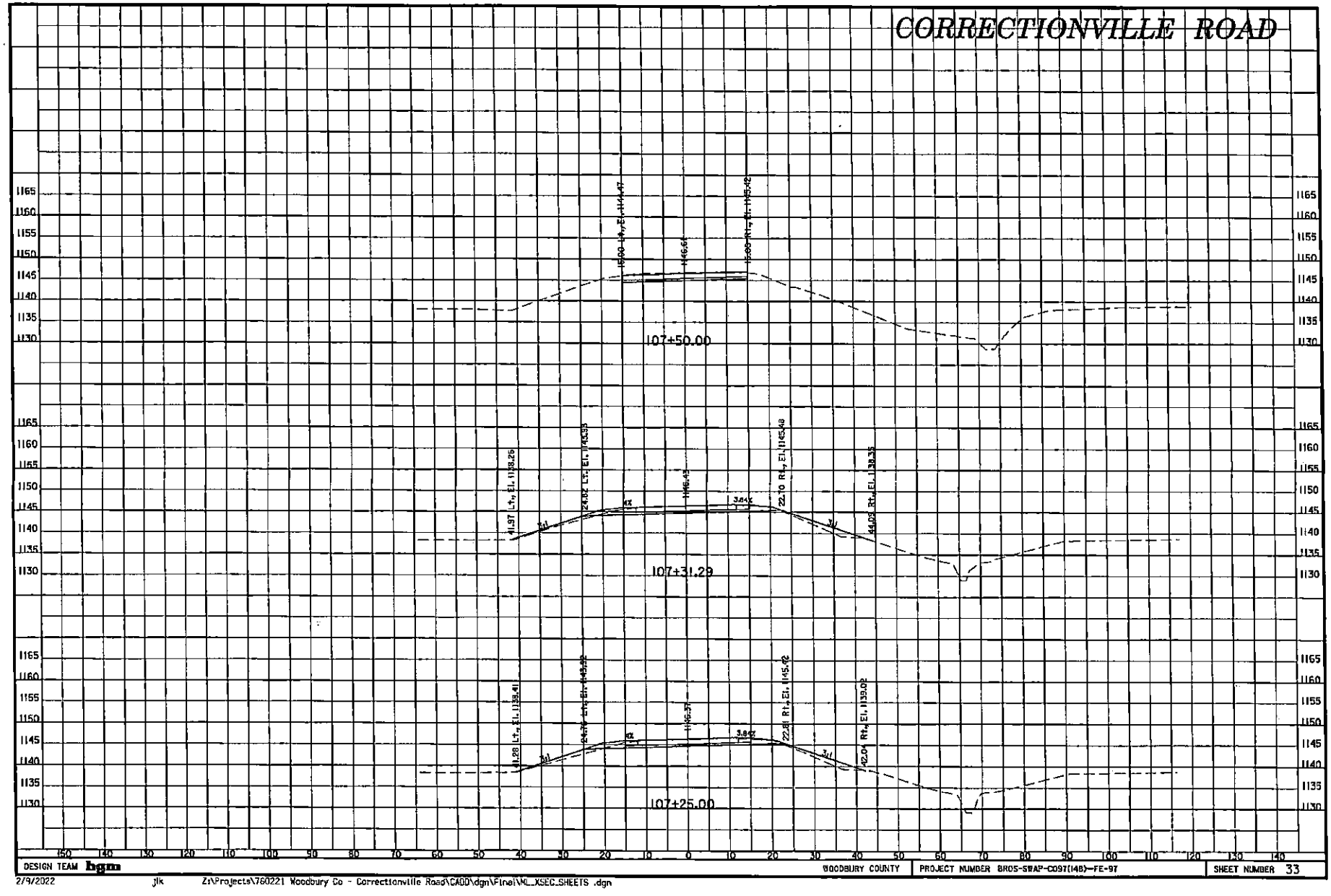
2/9/2022 jlk Z:\Projects\760221 Woodbury Co - Correctionville Road\CADD\dgn\Final\ML_XSEC_SHEETS .dgn



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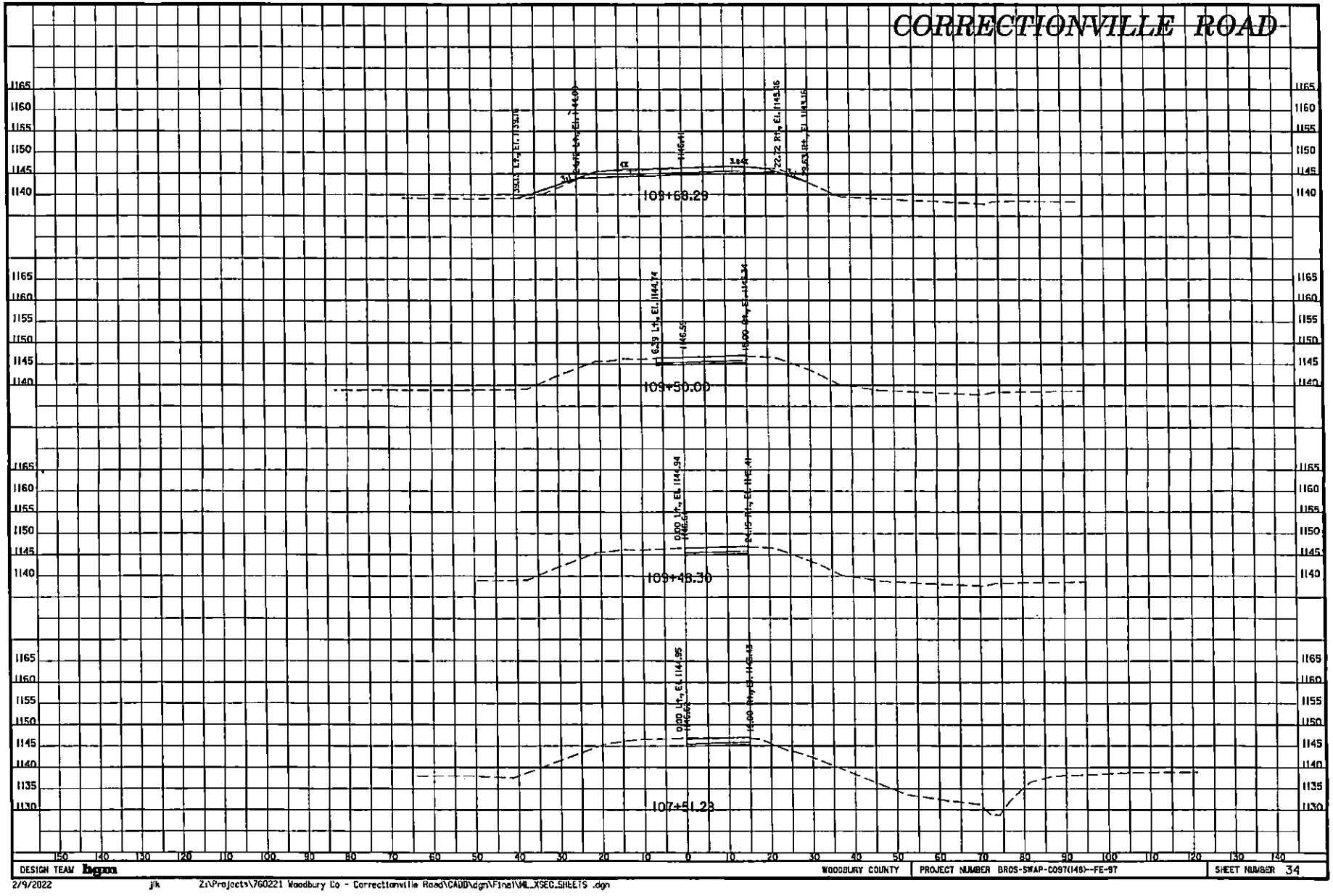

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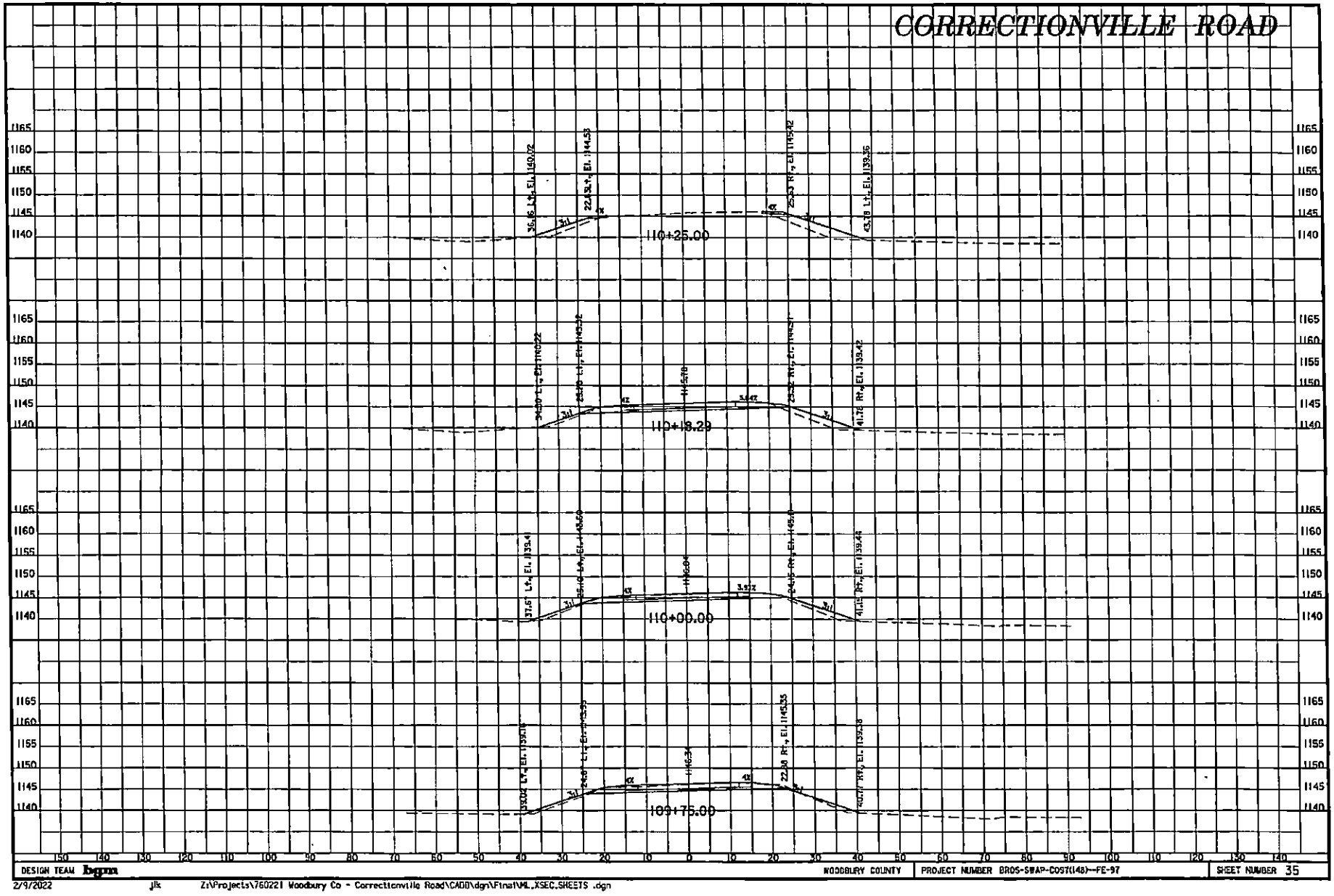

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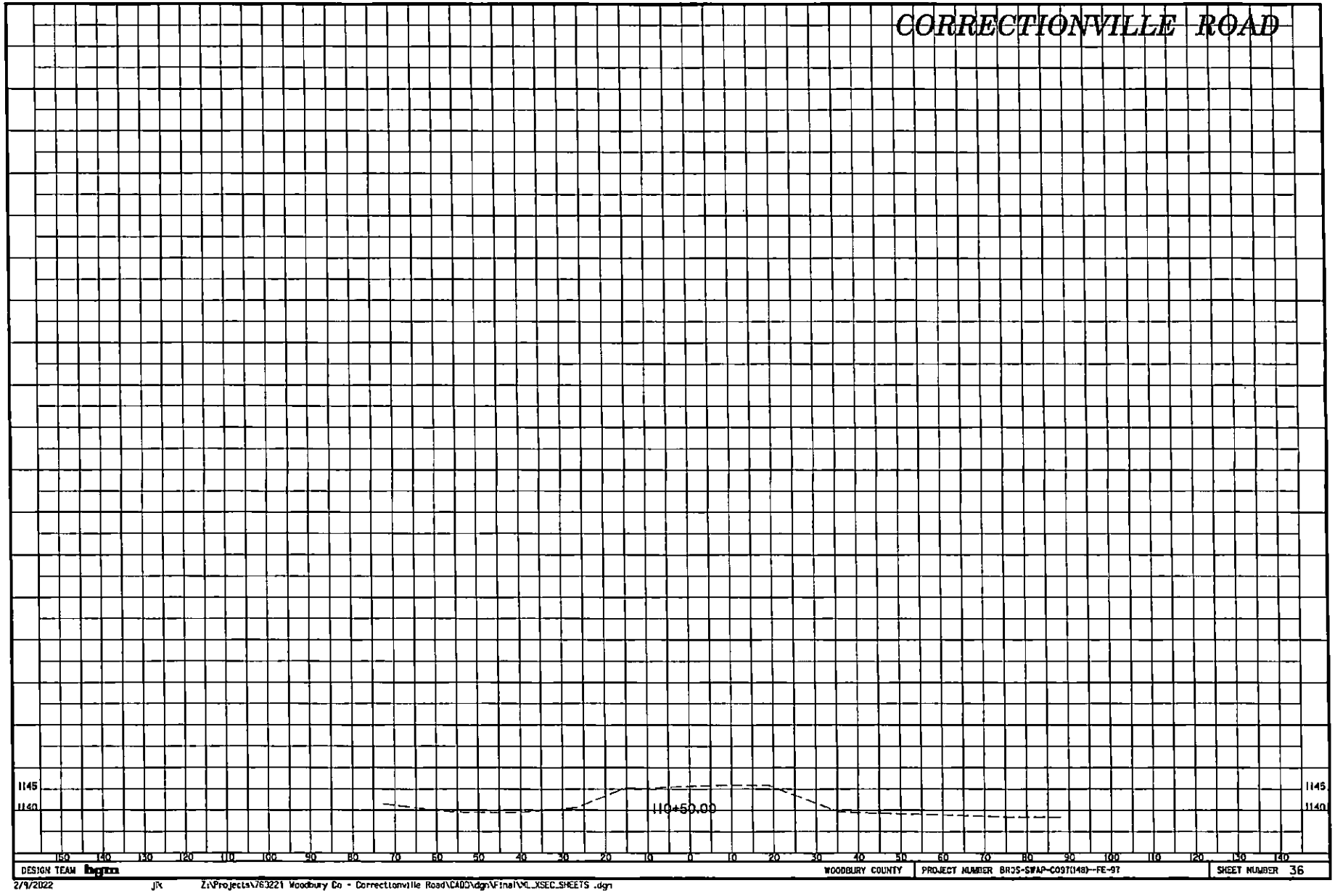
CORRECTIONVILLE ROAD
1145
1140
110+50.00
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
DESIGN TEAM bgm
WOODBURY COUNTY
PROJECT NUMBER BRDS-SWAP-C097(148)--FE-97
SHEET NUMBER 36
2/9/2022
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