

SECTION 404 PERMIT AND CONDITIONS

CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT 14. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE (HTTP://WWW.ENVPERMITS.IOWA.GOV/) THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE.

FOR LIST OF UTILITY CONTACTS,
REFER TO SHEET A.2.

FOR LIST OF APPLICABLE
STANDARD ROAD PLANS,
REFER TO SHEET C.3.

FOR LIST OF APPLICABLE LRFD
STANDARD BRIDGE PLANS, REFER
TO SHEET V.1.

INDEX OF SHEETS

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A Sheets	Title Sheets
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A.2	Legend
A.3	Existing Conditions
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
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RC Sheets	Erosion Control Tabulations
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RR Sheets	Erosion Control Plan Sheets
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V.4	Top of Deck Elevations
W Sheets	Mainline Cross Sections
W.1 - 7	Cross Sections - 140th Ave.

MILEAGE SUMMARY

DIV.	LOCATION	LIN. FT.	MILES
1	CR S23 STA. 102+65.00 TO STA. 107+00.00 DEDUCT BRIDGE @ STA. 104+64.54	435 100	0.08 0.02
TOTAL LENGTH OF ROADWAY		335	0.06
TOTAL LENGTH OF BRIDGE		100	0.02
TOTAL:		435	0.08



DESIGN DATA RURAL

2012	AADT	280	V.P.D.
20	-- AADT	--	V.P.D.
20	-- DHV	--	V.P.H.
TRUCKS		8 %	
Total			
Design ESALs		--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	ALEX SCHLADER, P.E.	PRIMARY SIGNATURE BLOCK
A.1	JONAH HEER, P.E.	STRUCTURAL SIGNATURE BLOCK
Q.1	DAVID LOGEMANN, P.E.	GEOTECHNICAL SIGNATURE BLOCK
V.2	MEGAN LEHMAN, P.E.	HYDRAULIC SIGNATURE BLOCK



HIGHWAY DIVISION

PLANS OF PROPOSED IMPROVEMENT ON THE

FARM-TO-MARKET SYSTEM
WARREN COUNTY

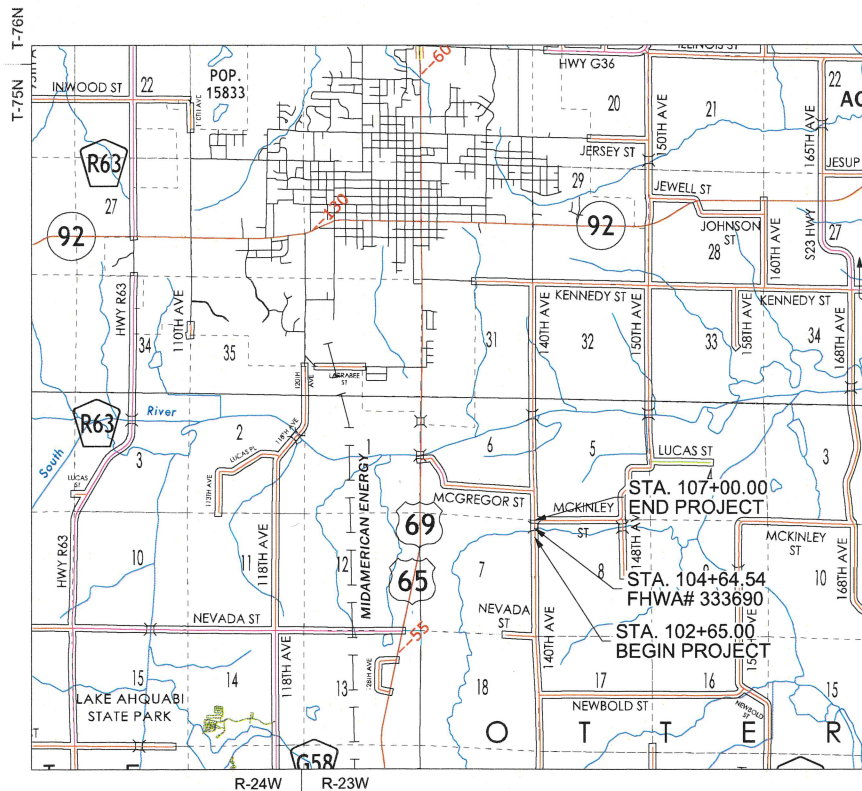
BRIDGE REPLACEMENT - CCS

ON 140TH AVE, OVER BRANCH OTTER CREEK, S8 T75 R23

SCALES: As Noted

REFER TO THE PROPOSAL FORM FOR LIST OF APPLICABLE SPECIFICATIONS

VALUE ENGINEERING SAVES. REFER TO ARTICLE 1105.13 OF THE SPECIFICATIONS.



LOCATION MAP
NOT TO SCALE

TOTAL	26
PROJECT IDENTIFICATION NUMBER	
IOWA DOT PROJECT NUMBER	
BROS-CHBP-C091(147)--NC-91	



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PROJECT NUMBER
2025000413

REVISIONS

PROJECT INFO
2025000413

ENGINEER DRAWN BY CHECKED BY
ATS JCH ATS

BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

TITLE SHEET

DRAWING NO.

A.1

BRIAN ARNOLD, CHAIR DISTRICT 1	8/11/26	DATE
AARON DEKOCK DISTRICT 2	8/11/26	DATE
TRAVIS DEWITT, VICE CHAIR DISTRICT 3	8/11/26	DATE
STEPHANIE ERICKSON DISTRICT 4	8/11/26	DATE
CRYSTAL MCINTYRE DISTRICT 5	8/11/26	DATE

WARREN COUNTY

REVIEWED:

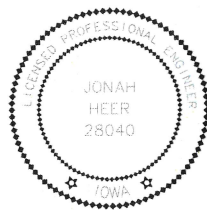
T. Hill
TIM HILL, P.E., COUNTY ENGINEER

8/10/26
DATE

STRUCTURAL DESIGN

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: Jonah Heer, P.E.
Printed or Typed Name: Jonah Heer, P.E.
My license renewal date is December 31, 2026

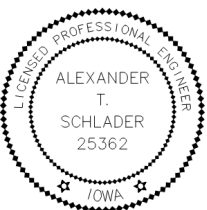


Pages or sheets covered by this seal: V-SHEETS

ROADWAY DESIGN

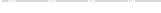
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: Alexander T. Schlader, P.E.
Printed or Typed Name: Alexander T. Schlader, P.E.
My license renewal date is December 31, 2026



Pages or sheets covered by this seal: A-SHEETS, B-SHEETS, C-SHEETS, D-SHEETS, F-SHEETS, G-SHEETS, J-SHEETS, RC-SHEETS, RR-SHEETS, W-SHEETS

GENERAL LEGEND

EXISTING	PROPOSED	
		SANITARY SEWER MAIN
		SANITARY SEWER SERVICE
		SANITARY SEWER FORCE MAIN
		STORM SEWER MAIN OR CULVERT
		SECONDARY STORM SEWER SERVICE
		SUBDRAIN/TILE
		WATER MAIN
		WATER SERVICE
		UNDERGROUND ELECTRIC
		OVERHEAD ELECTRIC
		UNDERGROUND TELEPHONE
		UNDERGROUND FIBER OPTIC
		UNDERGROUND CABLE TV
		GAS MAIN OR SERVICE
		CONTOUR LINES INTERMEDIATE
		CONTOUR LINES INDEX
		PROPERTY LINE / LOT LINE
		RIGHT OF WAY LINE
		SECTION LINE
		TEMPORARY EASEMENT
		PERMANENT EASEMENT
		GUARD RAIL
		FIELD FENCE
		ROAD CENTERLINE
		CONSTRUCTION LIMITS
		AG LINE
		WATERWAY FLOWLINE

UTILITY QUALITY SERVICE LEVELS:

UTILITY QUALITY LEVELS ARE BASED ON THE CI/ASCE 38-02 STANDARD.

UTILITY QUALITY LEVEL A:
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES.

UTILITY QUALITY LEVEL B:
INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.

UTILITY QUALITY LEVEL C:
INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

UTILITY QUALITY LEVEL D:
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

8"SS(A)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL A
8"SS(B)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL B
8"SS(C)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL C
8"SS(D)	SANITARY SEWER MAIN - QUALITY SERVICE LEVEL D

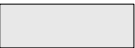
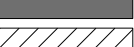
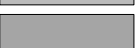
EXISTING UTILITIES NOTE:

THESE EXISTING UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGING THEM. NO CLAIMS WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OF DELAY CAUSED BY SUCH WORK. PAYMENT WILL BE ALLOWED FOR UNCHARTED UTILITIES PER THE SPECIFICATIONS.

EXISTING	PROPOSED	
		SANITARY SEWER MANHOLE
		SANITARY SEWER CLEANOUT
		AIR RELEASE MANHOLE/DRAIN MANHOLE
		STORM SEWER MANHOLE
		STORM SEWER CLEANOUT
		STORM SEWER INTAKE
		STORM SEWER BEEHIVE INTAKE
		FLARED END SECTION
		FIRE HYDRANT
		WATER VALVE
		WATER VALVE MANHOLE
		CURB STOP
		WATER METER MANHOLE
		YARD HYDRANT
		ELECTRIC MANHOLE / VAULT
		ELECTRIC PEDESTAL / TRANSFORMER
		OUTDOOR ELECTRIC POWER OUTLET
		POWER POLE
		POWER POLE w/ STREET LIGHT
		STREET LIGHT POLE
		GUY WIRE
		FLOODLIGHT
		FIBER OPTIC MARKER
		TRAFFIC SIGNAL
		TRAFFIC SIGNAL BOX
		TRAFFIC SIGNAL MANHOLE / VAULT
		RAILROAD CROSSING SIGNAL
		TELEPHONE MANHOLE / VAULT
		TELEPHONE PEDESTAL
		CABLE TV MANHOLE / VAULT
		CABLE TV PEDESTAL
		GAS VALVE
		IRRIGATION HANDHOLE
		BOLLARD (BUMPER POST)
		ROADWAY SIGN
		MAILBOX
		WELL
		DECIDUOUS TREE
		EVERGREEN TREE
		SHRUB OR BUSH
		TREE OR SHRUB LINE
		STUMP
		MONITORING WELL
		SOIL BORINGS
		FLAG POLE
		SATELLITE DISH
		SLOPE INDICATORS
		CONTROL POINT
		BENCH MARK
		SECTION CORNER
		IRON PIN SET
		IRON PIN FOUND

ABBREVIATIONS			
T/S	TOP OF SLAB	TOP	TOP OF SLOPE
BC	BACK OF CURB	BOT	BOTTOM OF SLOPE
TC	TOP OF CURB	EP	EDGE OF PAVING
FG	FORM GRADE	BOP	BEGINNING OF PROJECT
FL	FLOWLINE	EOP	END OF PROJECT
CL	CENTERLINE	UAC	USE AS CONSTRUCTED
C	CUT		
F	FILL		

SHADING/HATCHING

	PROPOSED ADA SIDEWALK		PROPOSED NON-ADA SIDEWALK
	PROPOSED SIDEWALK RAMP		HMA PAVEMENT
	PROPOSED SIDEWALK TURNING SPACE		PCC CURB AND GUTTER
	PROPOSED HMA DRIVEWAY		DELINEATES RESTRICTED AREAS
	PROPOSED GRANULAR SHOULDER		PROPOSED PAVEMENT PATCH SHADING

UTILITY LEGEND

	Warren Water District Matt Van Wyk 515-962-1200 Mvanwyk@warrenwaterdistrict.com
	MidAmerican Energy Kennedy Dunn
	Lumen Sadie Hull sadie.hull@lumen.com
	Mediacom Rusty Beaty 641-204-9558 rbeaty@mediacomcc.com



McCLURETM
1535 SW MARKET ST SUITE 200
ANKENY, IA 50023
MAIN 515.512-1361

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Cedar Rapids, IA | Coralville, IA
Fort Dodge, IA | Sioux City, IA
Macon, MO | Columbia, MO
North Kansas City, MO
Lenexa, KS
Boston, MA | Portsmouth, NH

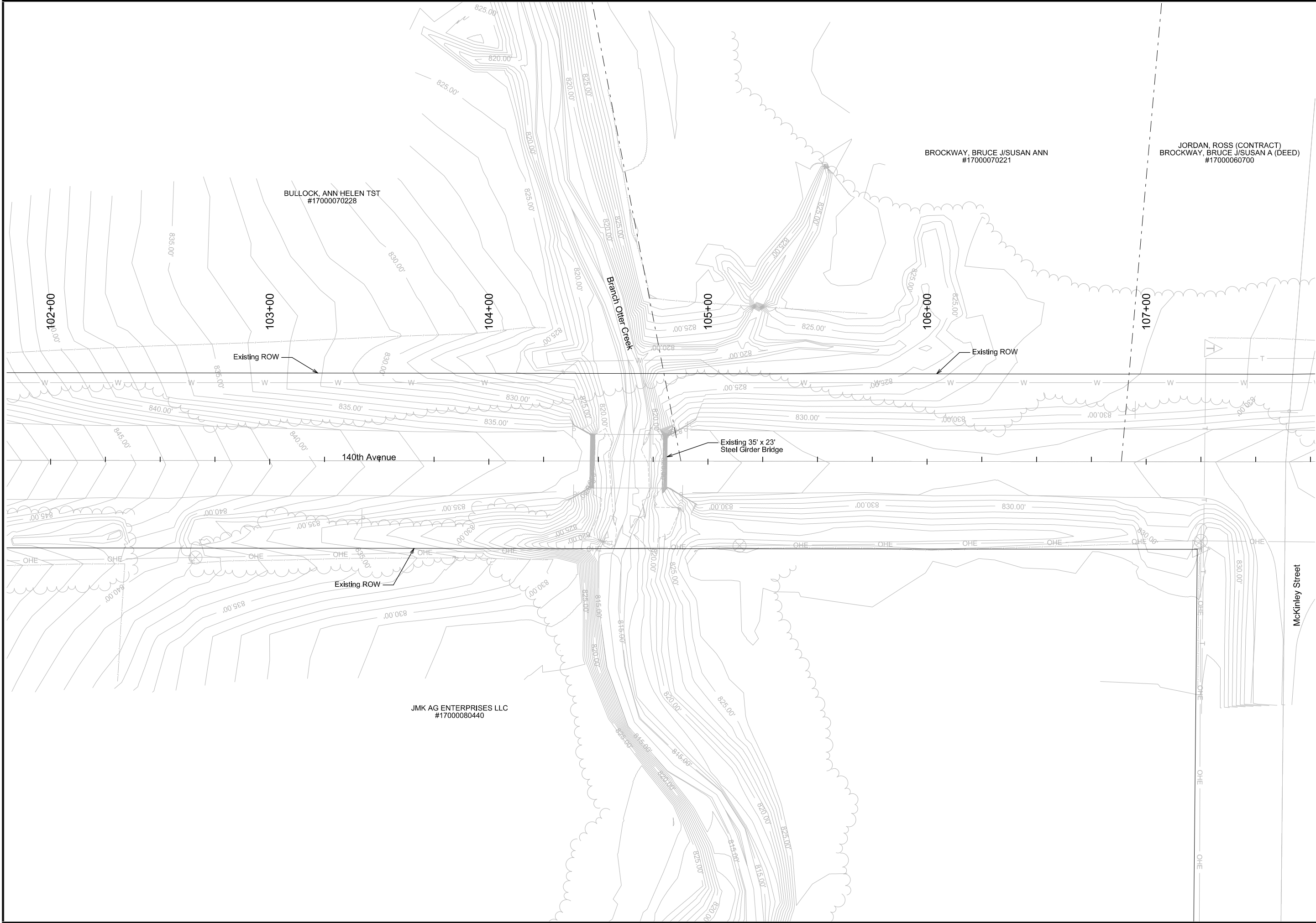
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REVISIONS	

PROJECT INFO 2025000413		
ENGINEER ATS	DRAWN BY JCH	CHECKED BY ATS

BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

LEGEND





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20 10 0 20
REVISIONS

PROJECT INFO
2025000413

ENGINEER	DRAWN BY	CHECKED BY
ATS	JCH	ATS

**BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA**

EXISTING CONDITIONS



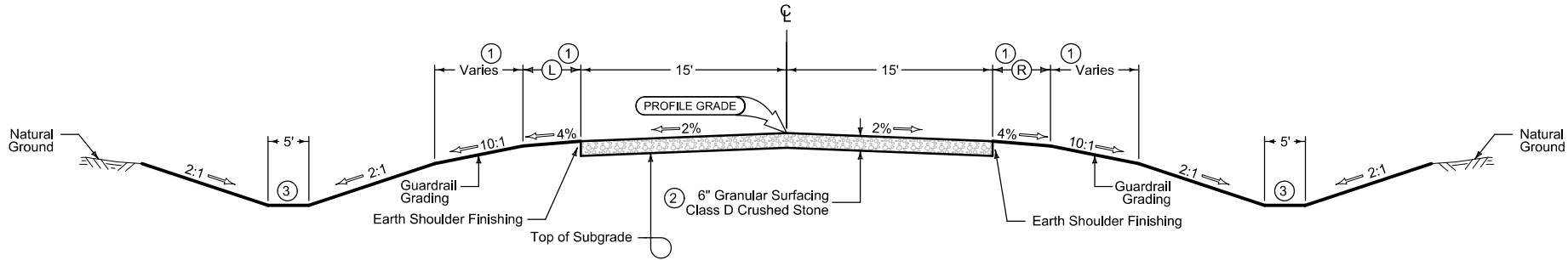
DRAWING NO.
A.3

LOCATION			DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION		(L)	(R)
			Feet	Feet
140th Avenue	102+65.00	103+17.01	0	0
140th Avenue	103+17.01	104+14.54	Varies	Varies
140th Avenue	105+14.54	106+12.07	Varies	Varies
140th Avenue	106+12.07	107+00.00	0	0

Normal section shown may be modified appropriately in locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.

- ① Refer to Iowa DOT Standard Road Plan EW-301 and Tabulation 107-23 for guardrail grading widths and limits.
- ② Refer to Estimate Reference Information for gradation information.
- ③ Refer to special ditch profiles detailed on the D-Sheets.



GRADING AND GRANULAR RESURFACING
AT BRIDGE APPROACH

140TH AVENUE
TYPICAL SECTIONS



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REVISIONS		
PROJECT INFO		
2025000413		
ENGINEER	DRAWN BY	CHECKED BY
ATS	JCH	ATS

BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

TYPICAL CROSS SECTIONS AND DETAILS

GENERAL NOTES

CONTRACTOR SHALL CONFINE WORK TO THE CONSTRUCTION LIMITS SHOWN ON SHEET H.1 UNLESS PERMISSION FROM RESPECTIVE LANDOWNERS IS PROVIDED TO WARREN COUNTY IN WRITING.

ALL HOLES RESULTING FROM OPERATIONS OF THE CONTRACTOR, INCLUDING REMOVAL OF GUARDRAIL POSTS, FENCE POSTS, UTILITY POLES, OR FOUNDATION STUDIES, SHALL BE FILLED AND CONSOLIDATED TO FINISHED GRADE AS DIRECTED BY THE COUNTY TO PREVENT FUTURE SETTLEMENT. THE VOIDS SHALL BE FILLED AS SOON AS PRACTICAL - PREFERABLY THE DAY CREATED AND NOT LATER THAN THE FOLLOWING DAY. ANY PORTION OF THE RIGHT-OF-WAY OR PROJECT LIMITS (INCLUDING BORROW AREAS AND OPERATION SITES) DISTURBED BY ANY SUCH OPERATION SHALL BE RESTORED TO AN ACCEPTABLE CONDITION. THIS OPERATION SHALL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS ON THE PROJECT.

ALL RUBBLE AND DEBRIS FROM THE REMOVAL OF EXISTING STRUCTURES SHALL BE DISPOSED OF BY THE CONTRACTOR IN COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT-OF-WAY, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY WARREN COUNTY.

THE TOP SIX (6) INCHES OF THE DISTURBED AREAS SHALL BE FREE OF ROCK AND DEBRIS AND SHALL BE SUITABLE FOR THE ESTABLISHMENT OF VEGETATION, SUBJECT TO THE APPROVAL OF WARREN COUNTY.

THE CONTRACTOR IS EXPECTED TO HAVE MATERIALS, EQUIPMENT, AND LABOR AVAILABLE ON A DAILY BASIS TO INSTALL AND MAINTAIN EROSION CONTROL FEATURES OF THE PROJECT. THIS MAY INVOLVE SEEDING, SILT FENCE, ROCK DITCH CHECKS, SILT BASINS, OR SILT DIKES.

REMOVAL OF ANY EXISTING TRAFFIC MARKERS, WARNING DEVICES OR GUARDRAIL BARRIERS SHALL BE SCHEDULED SUBJECT TO THE APPROVAL OF WARREN COUNTY. THE CONTRACTOR MAY BE REQUIRED TO PLACE TEMPORARY WARNING DEVICES AT CERTAIN LOCATIONS WHERE REPLACEMENT FEATURES ARE NOT INSTALLED THE SAME DAY DURING WHICH ANY SUCH REMOVALS TAKE PLACE.

DEWATERING SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION, AND ALL COST THEREOF SHALL BE INCLUDED IN VARIOUS UNIT CONTRACT PRICES IN THE PROPOSAL, UNLESS OTHERWISE PROVIDED FOR IN THE SPECIAL PROVISIONS.

CONTRACTOR SHALL PROVIDE WARREN COUNTY AND 911 OPERATOR WITH THE NAME AND PHONE NUMBERS OF THE REPRESENTATIVE TO BE CONTACTED DURING WORK AND NON-WORKING HOURS AS NECESSARY.

CONTRACTOR SHALL COORDINATE WITH WARREN COUNTY BEFORE CLOSURE OF 140TH AVENUE.

ELECTRONIC FILES WILL NOT BE MADE AVAILABLE TO THE CONTRACTOR. ALL WORK SHALL BE COMPLETED BY FOLLOWING THE INFORMATION IN THE PLANS.

SCHEDULE OF OPERATION

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

DRAWING APPROVAL

ALL WORKING DRAWINGS WHICH REQUIRE REVIEW BY THE CONTRACTING
AUTHORITY SHALL BE REVIEWED BY WARREN COUNTY.

WARREN COUNTY:
WARREN COUNTY ENGINEER OFFICE
TIM HILL, PE
301 NORTH BUXTON, SUITE 211
INDIANOLA, IOWA 50125
PHONE: (515) 690-9290
FAX: (515) 690-9299

PROJECT ENGINEER:
MCCLURE ENGINEERING
ALEX SCHLADER, PE
1535 SW MARKET ST SUITE 200
ANKENY, IOWA 50023
PHONE: (515) 512-1361

TRAFFIC CONTROL:

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 THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", CURRENT EDITION, AS ADMINISTRATIVE CODE (IAC) CHAPTER 130. ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR.



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REVISIONS

PROJECT INFO
2025000413

ENGINEER DRAWN BY CHECKED BY
ATS JCH ATS

**BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA**

GENERAL NOTES

13:2025000413\04Drawings\DrawPlans\2025000413_k801_SHT_C01.dgn



ESTIMATED PROJECT QUANTITIES				
ITEM NO.	ITEM CODE	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.3
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	810
3	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	595
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	710
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	700
6	2312-8260081	GRANULAR SURFACING ON ROAD, CLASS D CRUSHED STONE	TON	414
7	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1
8	2402-2720000	EXCAVATION, CLASS 20	CY	82
9	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	227.6
10	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	59,275
11	2414-6424124	CONCRETE OPEN RAILING, TL-4	LF	222
12	2501-0201042	PILES, STEEL, HP 10 X 42	LF	500
13	2501-0201473	PILES, STEEL, HP 14 X 73	LF	945
14	2501-5478073	CONCRETE ENCASEMENT OF STEEL H PILES, HP 14 X 73 (P10L TYPE 3)	LF	360
15	2505-4008420	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-221	EACH	4
16	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4
17	2505-4021722	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-225	EACH	4
18	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	12
19	2507-6800061	REVTMENT, CLASS E	TON	1,030
20	2507-6875002	REVTMENT, REMOVE AND REPLACE	CY	70
21	2507-8029000	EROSION STONE	TON	12
22	2519-4200140	REMOVAL OF FENCE, FIELD	LF	240
23	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	1
24	2524-6765210	REMOVAL OF TYPE A SIGN ASSEMBLY	EACH	4
25	2526-8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY	LS	1
26	2526-8285030	CONSTRUCTION SURVEY, RIGHT OF WAY	LS	1
27	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1
28	2528-2518000	SAFETY CLOSURE	EACH	2
29	2528-8445110	TRAFFIC CONTROL	LS	1
30	2533-4980005	MOBILIZATION	LS	1
31	2601-2634100	MULCHING	ACRE	0.5
32	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.5
33	2602-0000020	SILT FENCE	LF	774
34	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	60
35	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	417
36	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	77
37	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	420
38	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	420

ESTIMATE REFERENCE INFORMATION		
ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	2101-0850001	CLEARING AND GRUBBING Refer to the F-Sheets for details and locations.
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW The total quantity included in this bid item is 810 cubic yards of fill. This bid item will be paid based on plan quantity.
3	2102-2710090	EXCAVATION, CLASS 10, WASTE Total quantity included in this bid item is for 595 CY of waste. This bid item will be paid based on plan quantity.
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL Estimated excavation quantity assumes bridge berm and roadway grading have been completed. This bid item will be paid based on plan quantity. This item consists of the excavation required to embed the revetment (Class E rip rap). Refer to Sheet V.3 for quantity itemization and limits of excavation.
5	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD Quantity based on depth of 12-in of stripped topsoil and 8-in of topsoil spread. This bid item will be paid based on plan quantity.
6	2312-8260081	GRANULAR SURFACING ON ROAD, CLASS D CRUSHED STONE Refer to the typical section on the B and D-Sheets for details and locations. Modified Subbase Material shall meet the requirements of Section 4123 of the Iowa DOT Standard Specifications. Quantity is based on a uniform depth of 6 inches and a unit weight of 140 lb/cu ft. This item includes an additional 50 tons of Modified Subbase to be used as backfill at the proposed abutments.
7	2401-6745625	REMOVAL OF EXISTING BRIDGE Refer to Tabulation 110-2 the C-Sheets for details and locations. Remove substructures to a depth of 2 feet below the stream bed. An inspection for the presence of asbestos-containing materials was performed on the existing bridge and no asbestos-containing materials were identified. Removal of miscellaneous fill and debris behind the existing bridge abutment and removal of the existing deadman anchor system, if present, shall be incidental to this item. The existing structure and its components shall become the property of the Contractor.
8	2402-2720000	EXCAVATION, CLASS 20 Work under this item assumes bridge berm and roadway grading have been completed. Refer to Bridge Standard J30-47-06 for limits of Class 20 Excavation.
9	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) All concrete shall be Class "C". Includes all required preformed joint filler. Certified plant inspection for the concrete is required and shall be included in the cost of this item. Paper tickets meeting the requirements of Materials I.M. 527 shall be provided for structural concrete. No additional payment will be allowed for heating and protection of concrete, if necessary. This item includes furnishing and placing subdrain (including required excavation), floodable backfill, porous backfill, geotextile fabric, water flooding, and subdrain outlets at the abutments and toe of berm. The cost of excavating and backfilling the outlet trench shall be included in this work. Quantities are based on Iowa DOT Standard Sheets.
10	2404-7775005	REINFORCING STEEL, EPOXY COATED Quantities are based on Iowa DOT Standard Sheets. The minimum clear distance from the face of concrete to the nearest reinforcing bar shall be 2 inches, unless otherwise noted or shown.

11	2414-6424124	CONCRETE OPEN RAILING, TL-4 All concrete shall be Class "C". Certified plant inspection for the concrete is required and shall be included in the cost of this item. Paper tickets meeting the requirements of Materials I.M. 527 shall be provided for open railing concrete. No additional payment will be allowed for heating and protection of concrete, if necessary.
12	2501-0201042	PILES, STEEL, HP 10 X 42 Quantity itemization: 5-HP 10X42 at 55 feet south abutment, 5-HP 10X42 at 45 feet north abutment.
13	2501-0201473	PILES, STEEL, HP 14 X 73 Quantity itemization: 9-HP 14X73 at 55 feet Pier 1, 9-HP 14X73 at 50 feet Pier 2.
14	2501-5478073	CONCRETE ENCASEMENT OF STEEL H PILES, HP 14 X 73 (P10L TYPE 3) Quantity itemization: 9 encasements at 20'-6" for Pier 1 and 9 encasements at 19'-6" for Pier 2. Certified plant inspection is required and is included in the cost of this item. Paper tickets meeting the requirements of Materials I.M. 527 shall be required for structural concrete. No additional payment will be allowed for heating and protection of concrete, if necessary.
15	2505-4008420	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-221 Refer to tabulation 108-8A on the C-Sheets for details and locations.
16	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED Refer to tabulation 108-8A on the C-Sheets for details and locations.
17	2505-4021722	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-225 Refer to tabulation 108-8A on the C-Sheets for details and locations.
18	2507-2638650	BRIDGE WING ARMORING - EROSION STONE Refer to sheet V.3 for details and locations. Standard Bridge Plan J30-46-06 applies, except that bridge wing armoring material shall be Erosion Stone, in lieu of Macadam Stone shown in Standard.
19	2507-6800061	REVTMENT, CLASS E Refer to sheet V.3 for details and quantity itemization. Estimated at 1.6 TON/CY. Bid quantity accounts for deduction of estimated quantity of existing revetment to be salvaged and re-used.
20	2507-6875002	REVTMENT, REMOVE AND REPLACE Refer to the F-Sheets for locations of revetment to be removed. Quantity shall be plan quantity. Material of revetment expected to be large chunks of concrete and grout. Contractor to reuse broken up concrete as proposed rip rap as long as nominal diameter is less than 3-feet and the concrete is free of protruding rebar. Revetment to be reused shall be stockpiled on site at an approved stockpile location. Revetment that cannot be reused is to become property of the contractor and to be removed and responsibly disposed of off site. Bid item includes all materials, labor, and equipment needed to remove revetment. Thickness of existing revetment assumed to be 2 feet. Measurement and payment is per cubic yard of revetment to be removed and re-used. Existing revetment estimated at 1.6 TON/CY for deduction from proposed revetment quantity. Refer to sheet V.3 for itemized revetment quantity estimates.
21	2507-8029000	EROSION STONE Refer to sheet V.3 for details and quantity itemization.
22	2519-4200140	REMOVAL OF FENCE, FIELD Refer to the F-Sheets for locations and details. Contractor to coordinate with the property owner for time of removal to ensure that fence is not responsible for containing livestock.
23	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN Refer to the F-Sheets for locations. Sign to be installed in the same location once grading operations are completed. Contractor to reuse sign, post, and mounting hardware any damage made to items during removal shall be replaced by the Contractor at no expense to the Owner. Bid item includes reinstalling sign base if there is one present. Bid item includes all labor, materials, and equipment needed to remove and reinstall sign. Measurement and payment is per sign removed and reinstalled.
24	2524-6765210	REMOVAL OF TYPE A SIGN ASSEMBLY Refer to the F-Sheets for locations. Sign, mounting hardware, and post shall become property of the contractor. Bid item includes all equipment, materials, and labor needed to remove sign assembly. Measurement and payment is for each sign assembly removed.
25	2526-8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY --
26	2526-8285030	CONSTRUCTION SURVEY, RIGHT OF WAY --
27	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY --
28	2528-2518000	SAFETY CLOSURE Safety closure to be set at boundary of project along 140th Ave, not to impeede upon McKinley Street.
29	2528-8445110	TRAFFIC CONTROL Refer to traffic control notes on sheet C.1.
30	2533-4980005	MOBILIZATION Includes all costs associated with mobilization for the entire project, including all bridge and roadway work.
31	2601-2634100	MULCHING Refer to the RR-Sheets for details and locations. Quantity is doubled to account for any needed areas of re-seed.
32	2601-2636043	SEEDING AND FERTILIZING (RURAL) Refer to the RR-Sheets for details and locations. Quantity is doubled to account for any needed areas of re-seed.
33	2602-0000020	SILT FENCE Refer to tabulation 100-17 on the RC-Sheets, which includes estimated locations for placement of silt fence to address possible erosion during construction. Verify the specific locations with the Engineer prior to beginning placement. This bid item includes 25% additional quantity to allow for field adjustments and replacements.
34	2602-0000030	SILT FENCE FOR DITCH CHECKS Refer to Tabulation 100-18 on the RC-Sheets for locations and details. Verify specific locations with the Engineer prior to placement.
35	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS This item includes removal of silt fence and silt fence for ditch checks required for staging purposes, for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth. Removal is quantified as 50% of total bid quantity for Silt Fence and Silt Fence for Ditch Checks.
36	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK This item includes the clean-out and repair of silt fence and silt fence for ditch checks throughout the duration of the project. This quantity is 10% of the bid quantity for Silt Fence and Silt Fence for Ditch Checks.
37	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA. Refer to tabulation 100-19 on the RC-Sheets for details and locations.
38	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE --



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REVISIONS

PROJECT INFO
2025000413

ENGINEER
ATS

DRAWN BY
JCH

CHECKED BY
ATS

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140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

ESTIMATES QUANTITIES & REFERENCE NOTES

DRAWING NO.
C.2

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108_08A

10 / 15 / 24

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

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-630, LS-635, SI-172, SI-173 and SI-211.

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

(2) Not a bid item. Incidental to guardrail installation.

Line No.	Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA) (2)	Object Marker Type 3 Rt (EA) (2)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
	WB	LT	103+86.40	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2	1		A		12.5	
	WB	LT	105+36.66	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2		1	A		12.5	
	EB	RT	103+69.08	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2		1	A		12.5	
	EB	RT	105+19.34	15.4	BA-221	1	BA-225	1	34.4			38.3			3	2	1		A		12.5	
TOTAL:						4		4							12	8	2	2	4		50	

GRADING FOR GUARDRAIL INSTALLATIONS																107_23
Refer to EW-301.																8 / 15 / 22
(1) Lane(s) to which the installation is adjacent.																
Line No.	Direction of Traffic (1)	Station	Side	Foreslope at Guardrail	X1 (FT)	Y1 (FT)	X2 (FT)	Y2 (FT)	X3 (FT)	Y3 (FT)	X4 (FT)	Y4 (FT)	Z (FT)	Excavation Class 10 (CY)	Embankment-in-Place (CY)	Remarks
	EB	104+09.04	RT	3:1	33.8	5					72.0	5	38.3			Earthwork quantity included in project totals.
	WB	104+09.04	LT	3:1	33.8	5					72.0	5	38.3			Earthwork quantity included in project totals.
	EB	105+20.04	RT	2:1	33.8	5					72.0	5	38.3			Earthwork quantity included in project totals.
	WB	105+20.04	LT	2:1	33.8	5					72.0	5	38.3			Earthwork quantity included in project totals.

STANDARDS			105_04
The following Standards apply to construction work on this project.			4 / 16 / 24
Number	Date	Title	
BA-200	10/20/2026	STEEL BEAM GUARDRAIL COMPONENTS	
BA-202	10/20/2026	STEEL BEAM GUARDRAIL BOLTED END ANCHOR	
BA-221	10/18/2022	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION (MASH TL-2)	
BA-225	10/17/2023	STEEL BEAM GUARDRAIL TANGENT END TERMINAL (MASH TL-2)	
EC-201	4/20/2021	SILT FENCE	
EC-204	10/19/2021	PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES	
EW-202	4/19/2016	BRIDGE BERM GRADING WITHOUT RECOVERABLE SLOPE (NON-BARNROOF SECTION)	
EW-301	10/20/2026	GUARDRAIL GRADING	
EW-401	10/20/2015	TEMPORARY STREAM CROSSING, CAUSEWAY, OR EQUIPMENT PAD	
LS-635	10/18/2022	STEEL BEAM GUARDRAIL INSTALLATION AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION (MASH TL-2)	
SI-173	4/19/2016	OBJECT MARKERS	
SI-211	10/18/2022	OBJECT MARKER AND DELINEATOR PLACEMENT WITH GUARDRAIL	
TC-1	10/15/2019	WORK NOT AFFECTING TRAFFIC (TWO-LANE OR MULTI-LANE)	
TC-252	10/20/2026	ROUTES CLOSED TO TRAFFIC	



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REVISIONS

PROJECT INFO

2025000413

ENGINEER

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JCH

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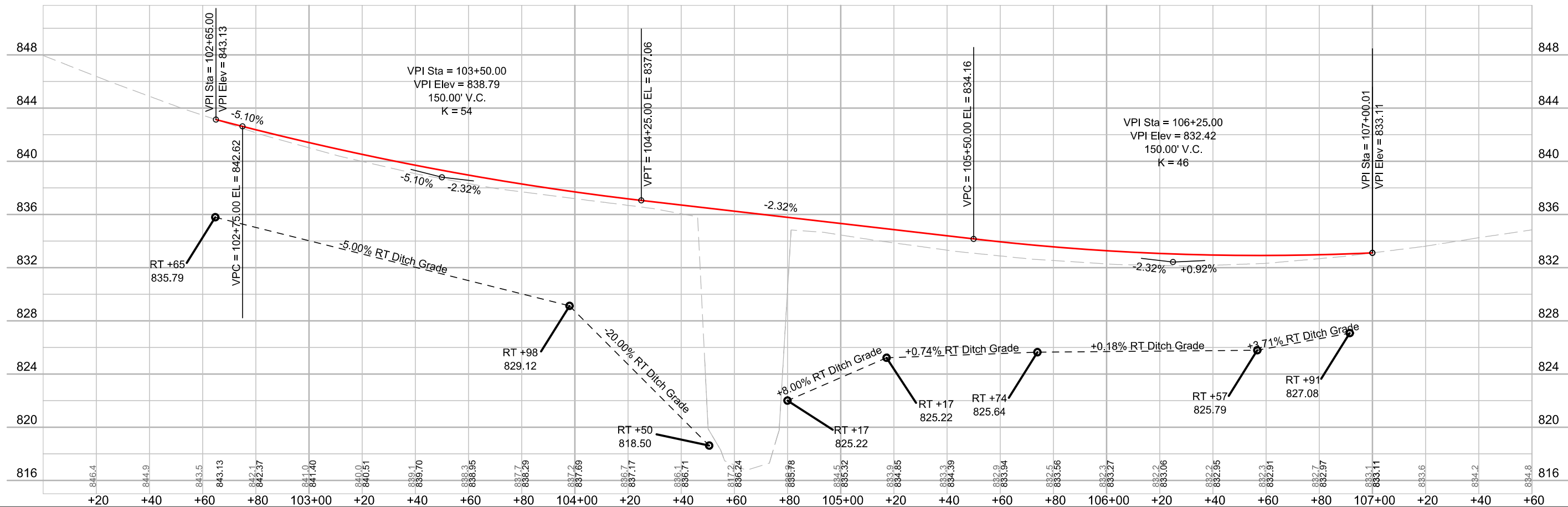
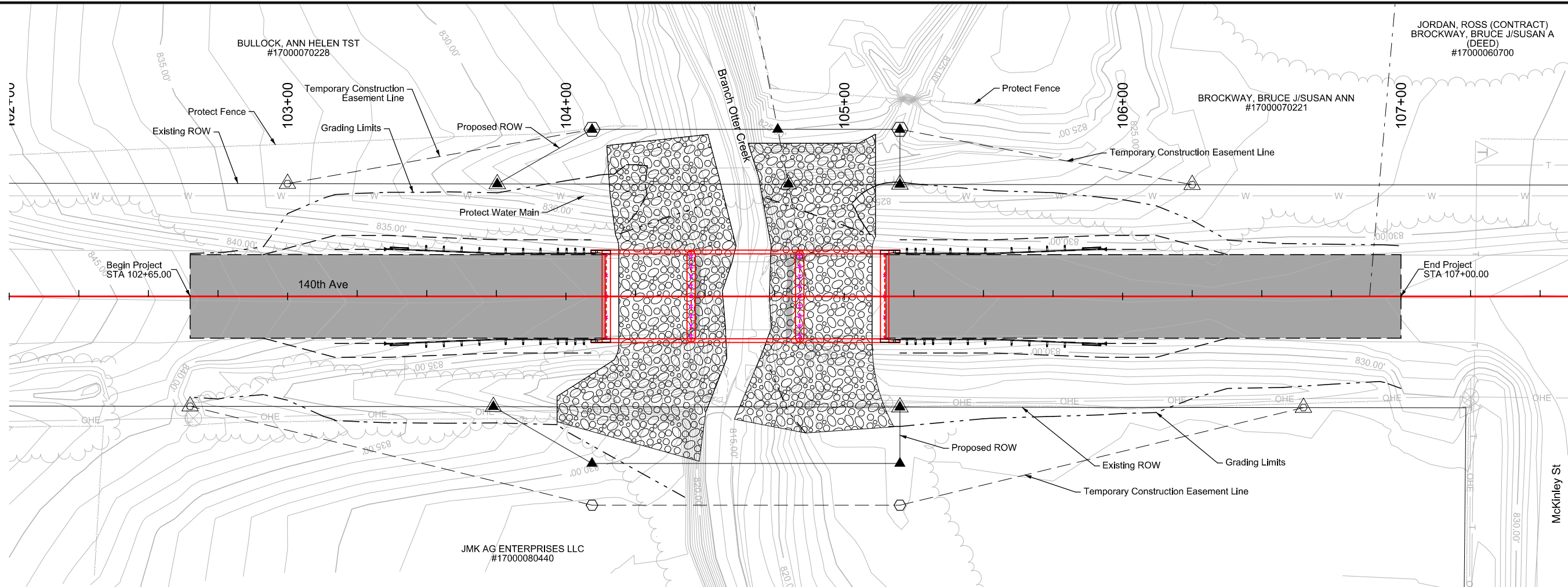
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TABULATIONS



DRAWING NO.
C.3



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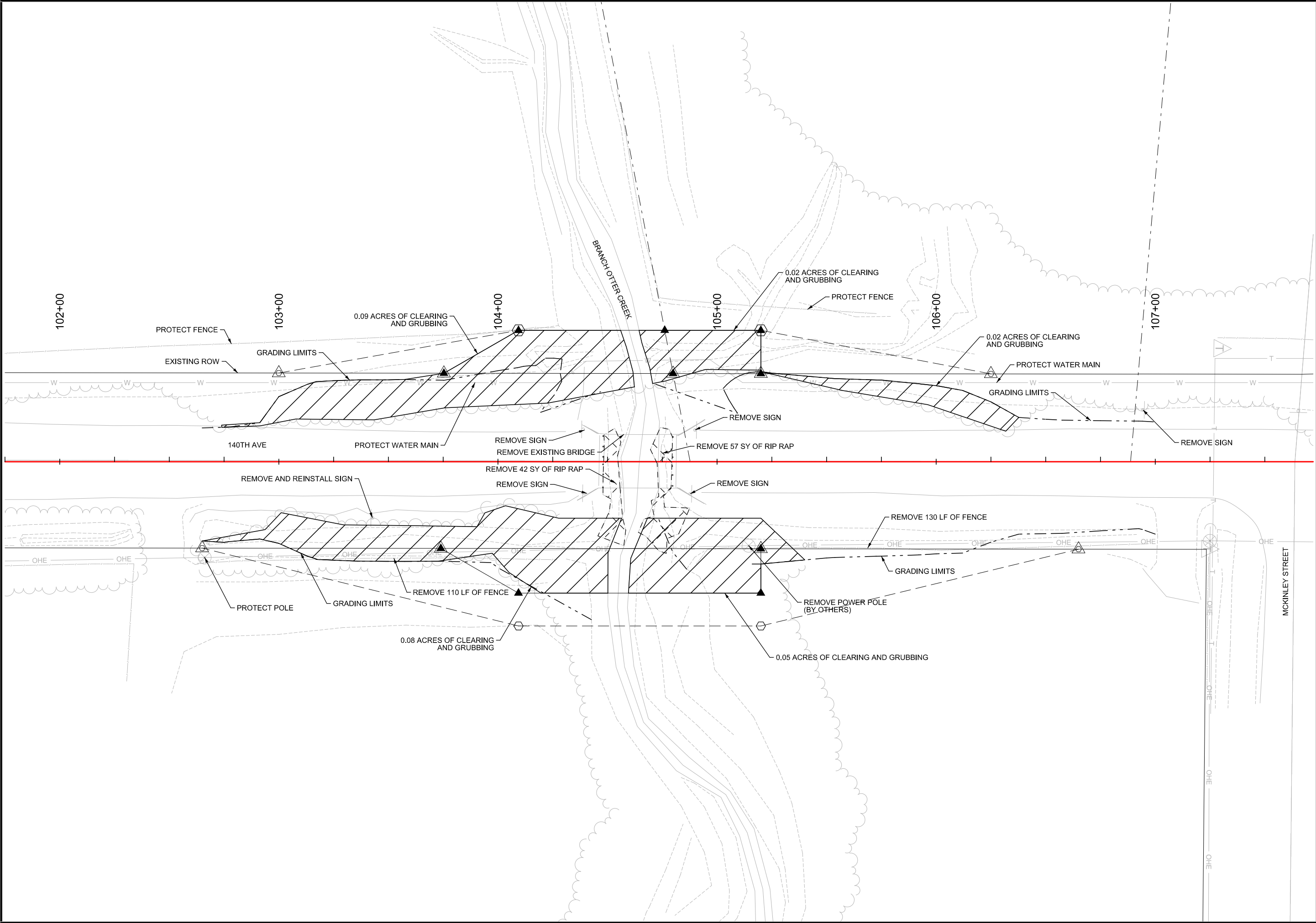
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140TH AVENUE PLAN & PROFILE

DRAWING NO. **D.1**

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WARREN COUNTY, IOWA**

REMOVALS

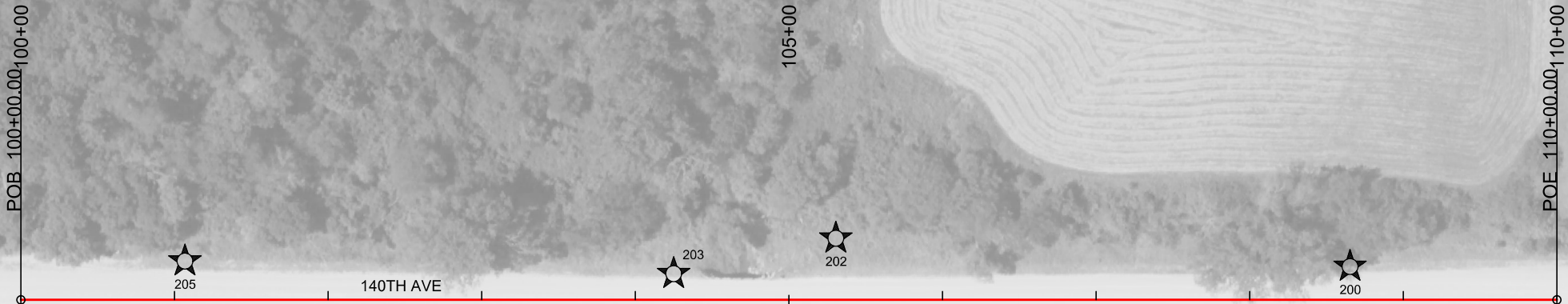


DRAWING NO.
F.1

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☆ ⊗ CP# BM# HORIZONTAL AND VERTICAL CONTROL				
POINT NAME	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	7390331.94	18548682.80	836.897	CP / 1/2IN RBR BLUE CAP
201	7390165.58	18548729.42	832.026	CP / 1/2IN RBR BLUE CAP
202	7389996.93	18548670.00	823.893	CP / 1/2IN RBR BLUE MEC CAP
203	7389891.73	18548694.82	835.034	CP / 1/2IN RBR BLUE MEC CAP
204	7389724.16	18548737.00	843.090	CP / 1/2IN RBR BLUE MEC CAP
205	7389573.45	18548691.99	854.987	CP / 1/2IN RBR BLUE MEC CAP
BM1	7390192.65	18548742.81	829.405	BM / RAILROAD SPIKE IN POWER POLE
HORIZONTAL DATUM: Iowa Regional Coordinate System Zone 8 (Ames-Des Moines)				
VERTICAL DATUM: North American Vertical Datum of 1988 (NAVD 88) - Geoid 18				

CONTROL LINE DATA - CR S23									
ALIGNMENT NAME: ML_140TH									
DESCRIPTION: 140TH AVE									
ELEMENT	POINT TYPE	POINT NUMBER	STATION	NORTHING	EASTING	RADIUS	LENGTH	DELTA	DIRECTION
TANGENT	POB		100+00.00	7389467.12	18548719.03				
TANGENT	POE		110+00.00	7390466.98	18548702.29				



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ATS	JCH	ATS

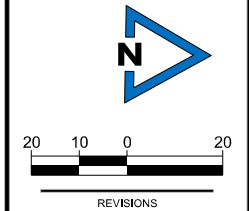
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REFERENCE TIES AND BENCH MARKS

DRAWING NO.
G.1

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DRAWN BY: JCH
CHECKED BY: JCH

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WARREN COUNTY, IOWA**

RIGHT-OF-WAY INFORMATION

①
BULLOCK, ANN HELEN TST
#17000070228

③
BROCKWAY, BRUCE J/SUSAN ANN
#17000070221

④
JORDAN, ROSS (CONTRACT)
BROCKWAY, BRUCE J/SUSAN A (DEED)
#17000060700

②
JMK AG ENTERPRISES LLC
#17000080440

RIGHT-OF-WAY LEGEND

▲

PROPOSED ROW

△

EXISTING ROW

▲△

EXISTING AND PROPOSED ROW

▲△

EASEMENT AND EXISTING ROW

●

PERMANENT EASEMENT

○

TEMPORARY EASEMENT

PROPERTY LINE

■

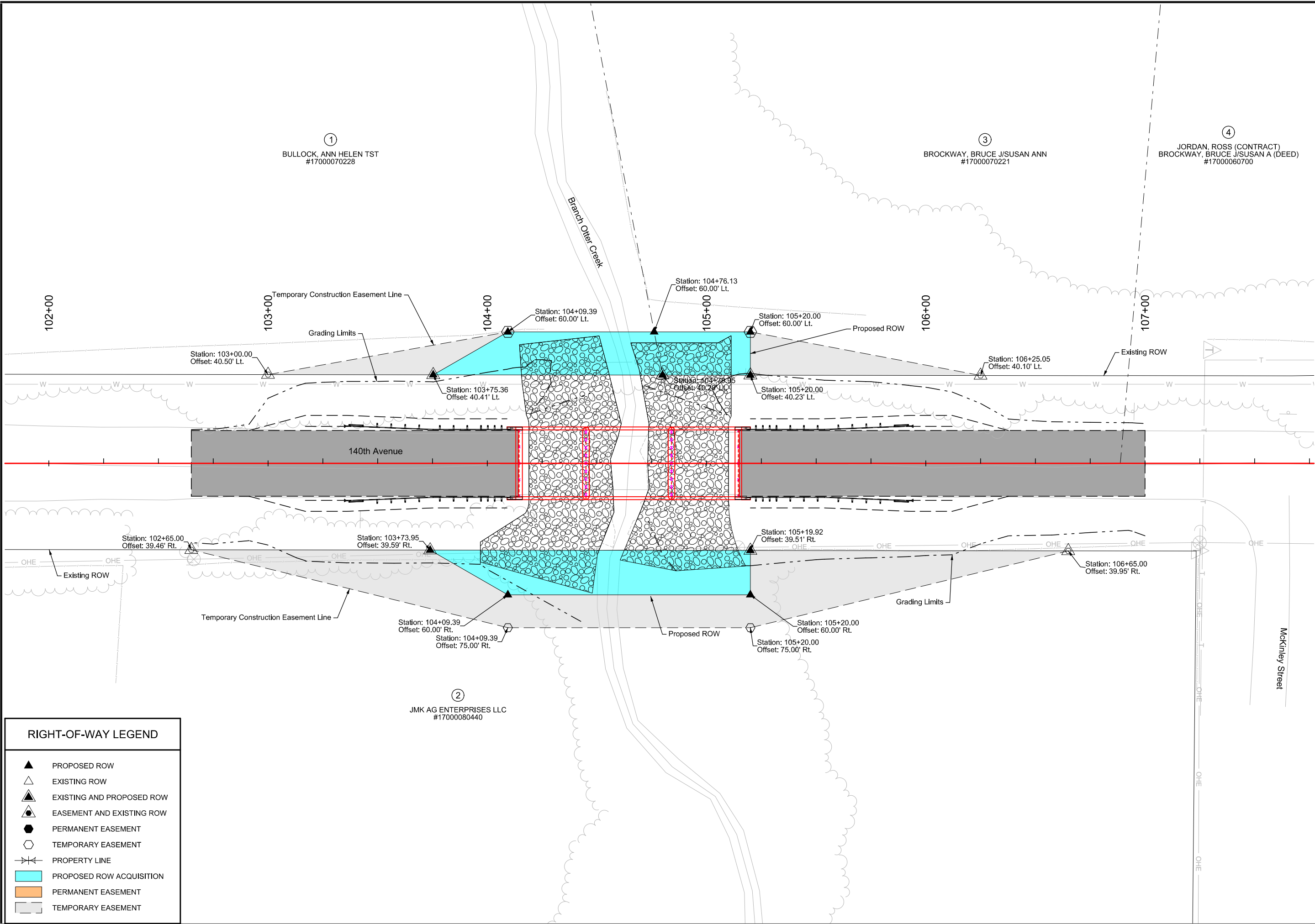
PROPOSED ROW ACQUISITION

■

PERMANENT EASEMENT

■

TEMPORARY EASEMENT



BORING LOG NO.1STATION104+29.7, 8.3'LTProject No.: 251151

Project: 140th Ave Bridge K-0801
Section 8, Otter Township
Warren County, Iowa

Client: McClure Engineering
335 SE Oralabor Road
Ankeny, IA 50021



Surface Elevation: 836.1'
Datum: Road Elev. at Exst S Abut on CL = 835.83'

Date Drilled: 10/16/2025
Drilling Depth, ft.: 64.8

Drilling Method: 4" CFA
Page: 1 of 1

Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth ft.	Elevation ft.
	0							Crushed Rock (9"±)				0.8	
								Dark brown and brown sandy lean clay, trace gravel, moist		CL			835.3
								FILL					
								With organics after 8.5'					
	10	2	SSA	5	21.6								
								Very dark gray fat clay with sand, moist		CH		13	
													823.1
	20	4	SSA	7	28.8			Moisture seepage near 22' Dark gray sandy lean clay with interbedded sand seams after 22'		CL			
								COHESIVE ALLUVIUM (Stiff Silty Clay)					
	30	6	SSA	7	39.9								
								Dark gray clayey sand, trace shale after 36.5'		SC			
	40	8	SSA	7	13.7							41.5	
								Very dark gray clay shale, moist					794.6
								WEATHERED BEDROCK (Cohesive Material)					
	50	10	SSA	68	17.8							51	
								Dark gray shale, moist					785.1
								BEDROCK					
								Sandstone stringers from 59' to 62'					
								Maroon after 62'					64.8
	70	13	SSA	50/3"	12.2			End of Boring					771.3

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

Water Level Observation
Time: at completion hrs. days
Depth to water: 22 ft. ft. ft.

ALLENDER BUTZKE ENGINEERS INC.
Geotechnical | Environmental | Construction Q.C.

BORING LOG NO.2STATION104+99.4, 7.8'LTProject No.: 251151

Project: 140th Ave Bridge K-0801
Section 8, Otter Township
Warren County, Iowa

Client: McClure Engineering
335 SE Oralabor Road
Ankeny, IA 50021



Surface Elevation: 834.3'
Datum: Road Elev. at Exst S Abut on CL = 835.83'

Date Drilled: 10/16/2025
Drilling Depth, ft.: 59.8

Drilling Method: 4" CFA
Page: 1 of 1

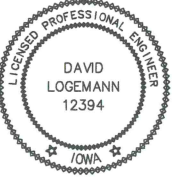
Elevation ft.	Depth ft.	Sample No.	Type	SPT bpf	Moisture Content, %	Dry Density pcf	Unconfined Compressive Strength psf	Material Description*	Graphic Log	USCS	Water Level	Depth ft.	Elevation ft.
	0							Crushed Rock (6"±)				0.5	
								Brown and brown-gray sandy lean to fat clay, trace gravel, moist		CL-CH			833.8
								FILL					
	10	2	SSA	4	20.6								
								Very dark gray lean to fat clay with sand, moist		CL-CH		15	
								Moisture seepage near 21' Dark gray lean clay with interbedded sand seams after 21'		CL			819.3
								COHESIVE ALLUVIUM (Soft Silty Clay)					
								Dark gray clayey sand after 28'		SC			
	30	6	SSA	1	25.3							34	
								Tan and gray clay shale, moist					800.3
								WEATHERED BEDROCK (Cohesive Material)					
	40	8	SSA	62	12.7							42.5	
								Dark gray shale, moist Sandstone stringers from 42.5' to 45'					791.8
								BEDROCK					
								Gray after 53'					
	60	12	SSA	50/3"	14.1			End of Boring					59.8
													774.5

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

Water Level Observation
Time: at completion hrs. days
Depth to water: 21 ft. ft. ft.

ALLENDER BUTZKE ENGINEERS INC.
Geotechnical | Environmental | Construction Q.C.

GEOTECHNICAL DESIGN



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: David Logemann, P.E.
Printed or Typed Name
My license renewal date is December 31, 2027

8/7/26
Date

Pages or sheets covered by this seal: Q.1 - Q.2

**McCLURE**TM
1535 SW MARKET ST SUITE 200
ANKENY, IOWA
MAIN 515.512-1361
Ankeny, IA | Carroll, IA | Clive, IA
Cedar Rapids, IA | Coralville, IA
Fort Dodge, IA | Sioux City, IA
Macon, MO | Columbia, MO
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REVISIONS

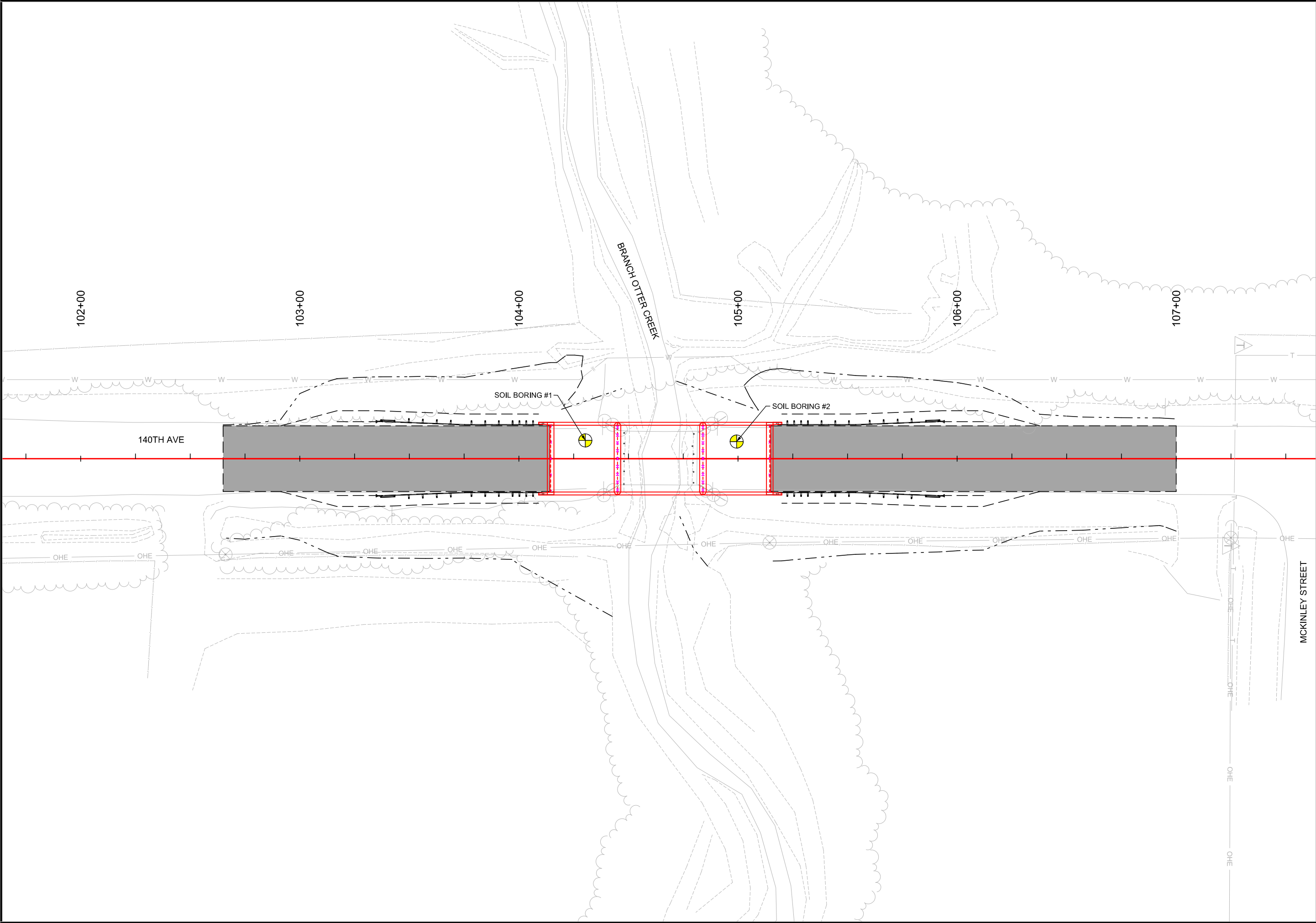
PROJECT INFO
2025000413
ENGINEER: JCH
DRAWN BY: JCH
CHECKED BY: JCH

BROS-CHP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

SOIL BORINGS

Q.1

1





McCLURETM
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20 10 0 20
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PROJECT INFO
2025000413

ENGINEER	DRAWN BY	CHECKED BY
ATS	JCH	ATS

MCKINLEY STREET

**BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA**

SOIL BORINGS

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DRAWING NO.
Q.2

SILT FENCES FOR DITCH CHECKS

Possible Standard : EC-201

Functional Height

Storage Volume

Ditch Width

FS:1

BS:1

Cross Section View

Functional Height

Length

Upstream Device or Ground

Storage Volume

Average Percent Ditch Grade

Longitudinal Profile View

* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

* Volume equation: $[0.5 \times \text{Spacing} \times (0.5 \times H^2 \times FS + DW \times H + 0.5 \times H^2 \times BS)]$

Line No.	Basin No.	Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS : 1)	Backslope (BS : 1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
			103+23.38	LT	15	1.5	7.5	2	2	4	5.0%		
			103+58.63	LT	15	1.5	7.5	2	2	4	5.0%		
			103+93.71	LT	15	1.5	7.5	2	2	4	5.0%		
			105+23.25	RT	15	1.5	7.5	2	2	4	0.2%		
TOTAL:					60	6	30						

100_18

8 / 15 / 22

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE							100_19
Possible Standards: EC-204							10 / 15 / 24
Line No.	Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
	103+97.27	104+56.27	Both	Perimeter	20"	210	
	104+73.19	105+09.72	Both	Perimeter	20"	210	
TOTAL:						420	

TABULATION OF SILT FENCES						100_17
Refer to EC-201						8 / 15 / 22
Line No.	Station From	Station To	Side	Length (FT)	Remarks	
	102+65.00	103+97.00	RT	135.0		
	102+65.00	104+15.00	LT	158.0		
	105+02.00	106+38.00	LT	140.0		
	105+16.00	107+00.00	RT	186.0		
TOTAL:				619		

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REVISIONS

PROJECT INFO

2025000413

ENGINEER

ATs

DRAWN BY

JCH

CHECKED BY

ATs

BROS-CHBP-C091(147)--NC-91

140TH AVENUE BRIDGE REPLACEMENT - CCS

WARREN COUNTY, IOWA

EROSION CONTROL TABULATIONS

DRAWING NO.

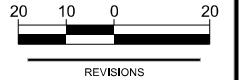
RC.1

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Boston, MA | Portsmouth, NH

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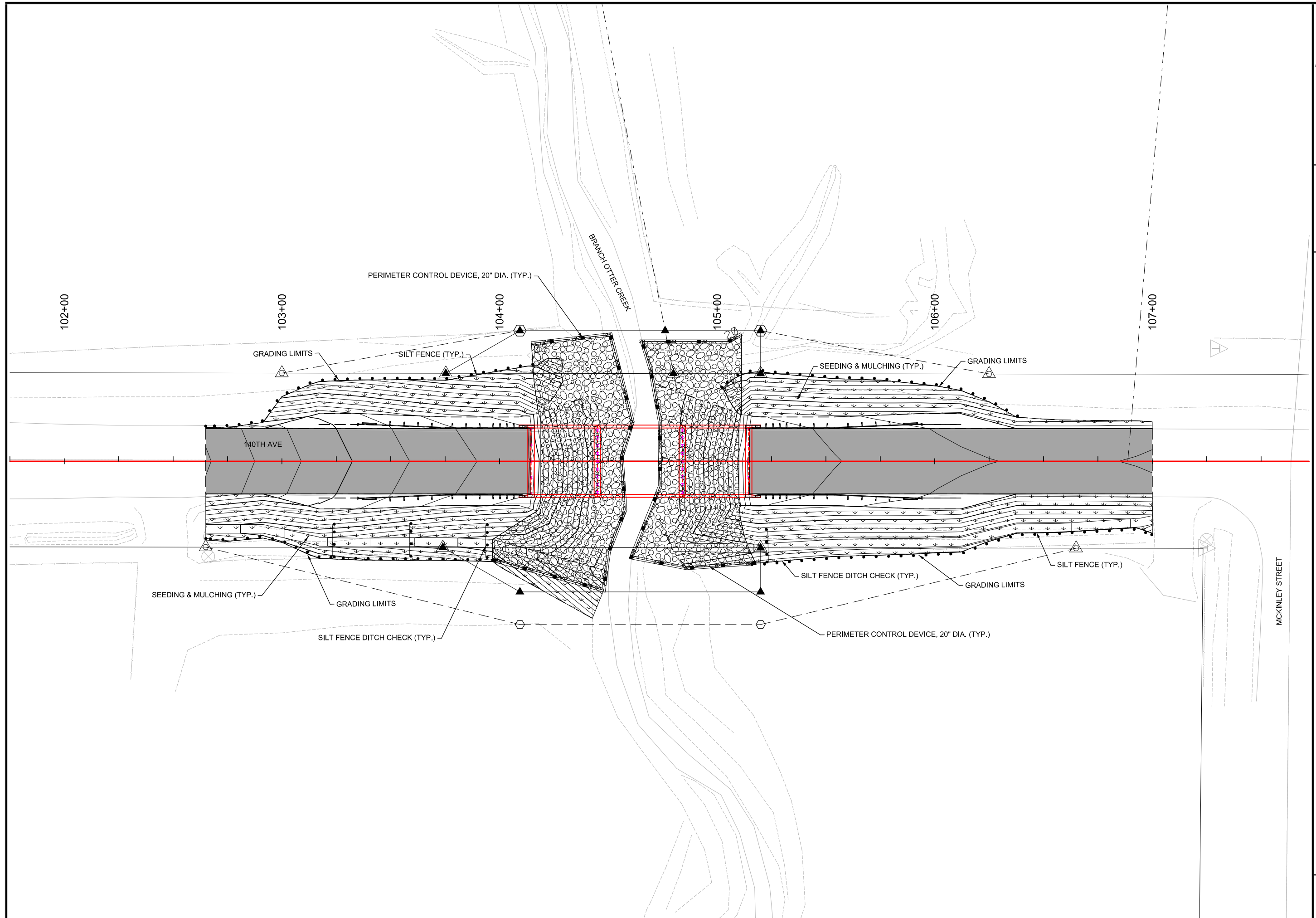


ENGINEER DRAWN BY CHECKED BY
ATS JCH ATS

BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

EROSION CONTROL SHEETS

DRAWING NO.
RR.1



Specifications:

Design:
AASHTO LRFD, Series of 2004 with Interim 2005.

Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, current revision, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions shall apply to construction work on this project.

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 3rd Ed., Series of 2004.
Reinforcing steel in accordance with LRFD AASHTO Section 5, Grade 60.
Concrete in accordance with LRFD AASHTO Section 5, f'c = 3,500 psi,
Structural steel in accordance with LRFD AASHTO Section 6. ASTM A709 Grade 36 or Grade 50 (AASHTO M270 Grade 36 or Grade 50).
n = 9 for tension steel
2n = 18 for compression steel
HL-93 live load plus 20 lbs. per sq. ft. for future wearing surface.
End span length is used to calculate equivalent width in live load distribution.
Six foot of approach slab dead & live load included in abutment loads. Control of cracking by distribution of reinforcement for slab design based on pre-2005 LRFD Interims.

General Notes:

It is the intent of this design to construct a new 100'-0" x 30'-6" continuous concrete slab bridge on 140th Ave. over Branch Otter Creek.

This design is for the replacement of the existing 35' x 23' steel I-beam bridge, FHWA No. 333690.

The lump sum bid item "Removal of Existing Bridge" shall include removal of the existing 35' x 23' steel I-beam bridge, including removal of the existing substructures to 2'-0 below finished grade. Removal of miscellaneous fill and debris behind the existing abutments and removal of the existing deadman anchor systems, if present, are incidental to "Removal of Existing Bridge". The Contractor will be responsible for removal and disposal offsite.

Removals shall be in accordance with Section 2401, of the Standard Specifications.

The county and utility companies whose facilities are shown on the plans or known to be within the construction limits shall be notified by the Bridge Contractor of the construction starting date.

This bridge is designed for HL-93 loading, plus 20 lbs. per square foot of roadway for future wearing surface.

Excavation quantities for the abutments are based on the assumption that abutment slopes/fills are in place.

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.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

These bridge plans label all reinforcing steel with english notation (5a1 is 5⁄8 inch diameter bar). English reinforcing steel received in the field may display the following "Bar Designation". The "Bar Designation" is the stamped impression on the reinforcing bars, and is equivalent to the bar diameter in millimeters.

English Size	3	4	5	6	7	8	9	10	11
Bar Designation	10	13	16	19	22	25	29	32	36

Faint lines on plans indicate the existing structure.

Keyway dimensions shown on the plans are based on nominal dimensions unless stated otherwise. In addition, the bevel used on the keyway shall be limited to a maximum of 10 degrees from vertical.

The floor slab as shown includes 1⁄2" integral wearing surface.

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 38,000 parts per million (ppm). Analysis of total chromium on this sample was 13 ppm. These analyses show the existence of these two toxic constituents. Levels indicated by these tests could create conditions above regulatory limits for health and safety requirements. No other constituents were analyzed. The Bidder should not rely on the County's testing and analysis for any purpose other than as an indication of the existence of these two toxic constituents.

South Abutment Pile Driving Notes:

The contract length of 55 feet for the south abutment piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 91 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing.

The required nominal axial bearing resistance for south abutment piles is 68 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 1 Pile Driving Notes:

The contract length of 55 feet for the Pier 1 piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 96 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of encasement. Design scour (200-year) was assumed to affect the upper 8 feet of embedded pile length and cause 9 kips of driving resistance.

The required nominal axial bearing resistance for Pier 1 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 2 Pile Driving Notes:

The contract length of 50 feet for the Pier 2 piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 96 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of encasement. Design scour (200-year) was assumed to affect the upper 8 feet of embedded pile length and cause 6 kips of driving resistance.

The required nominal axial bearing resistance for Pier 2 piles is 73 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.

North Abutment Pile Driving Notes:

The contract length of 45 feet for the north abutment piles is based on a cohesive soil classification, a total factored axial load per pile (Pu) of 91 kips, and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing.

The nominal axial bearing resistance for construction control was determined from a cohesive soil classification and a geotechnical resistance factor (phi) of 0.65 for soil and 0.7 for rock end bearing. Piles are assumed to be driven from a start elevation at the bottom of footing.

The required nominal axial bearing resistance for north abutment piles is 67 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.

Traffic Control Plan
The roadway will be closed to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Working Drawing and Calculation Submittals			
Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)			
Submittal requirements for working drawings and calculations shall be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation. The absence of a certification requirement for a submittal does not relieve the Contractor of the responsibility to attain certification.			
Calculation submittals in this table which are associated with working drawing submittals shall be submitted on the same day. Review time for calculation submittals shall be of the same duration as and run concurrently with review time for associated working drawings. The calculation submittals listed in the table are not meant to be an exhaustive list and do not relieve the Contractor from providing additional calculation submittals if requested by the Engineer.			
No.	Working Drawing Description	Working Drawing File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Falsework	(147)_Warren_Falsework.pdf	Yes
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Falsework Calculations	(147)_Warren_FalseworkCalculations.pdf	Yes

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. 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.

The cost of handling and disposal of any painted steel or removed paint is incidental to the removal bid item.

Bridge Deck Dimension Table			
No.	Item	Unit	Quantity
1	Deck Length	L.F.	100.83
2	Minimum Deck Width	L.F.	33.17
3	Maximum Deck Width	L.F.	33.17
4	Deck Area	S.F.	3,344.31

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.

English Standard Bridge Plans		
Standard	Issued	Revised
J30-01-06	11-06	09-20
J30-08E-06	11-06	09-20
J30-09E-06	11-06	09-20
J30-20-06	11-06	09-20
J30-21-06	11-06	09-20
J30-23-06	11-06	09-20
J30-24-06	11-06	09-20
J30-34-06	11-06	09-20
J30-39-06	11-06	09-20
J30-43-06	11-06	09-20
J30-44-06	11-06	09-20
J30-45-06	11-06	09-20
J30-46-06*	11-06	09-20
J30-47-06	11-06	09-20
P10L	11-23	06-25

* Bridge wing armoring material shall be Erosion Stone, in lieu of Macadam Stone shown in Standard J30-46-06.

Design For 0 Degree Skew

100'-0" x 30'-6" Continuous Concrete Slab Bridge

30'-6" End Spans39'-0" Interior Span

General Notes

STA. 104+64.54 (140th Ave.)Turn-in Date: Sept. 2026

Warren County



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PROJECT NUMBER
BROS-CHBP-C091(147)--XT-91

REVISIONS

PROJECT INFO
2025000413

ENGINEER
JCH

DRAWN BY
JCH

CHECKED BY
CWM

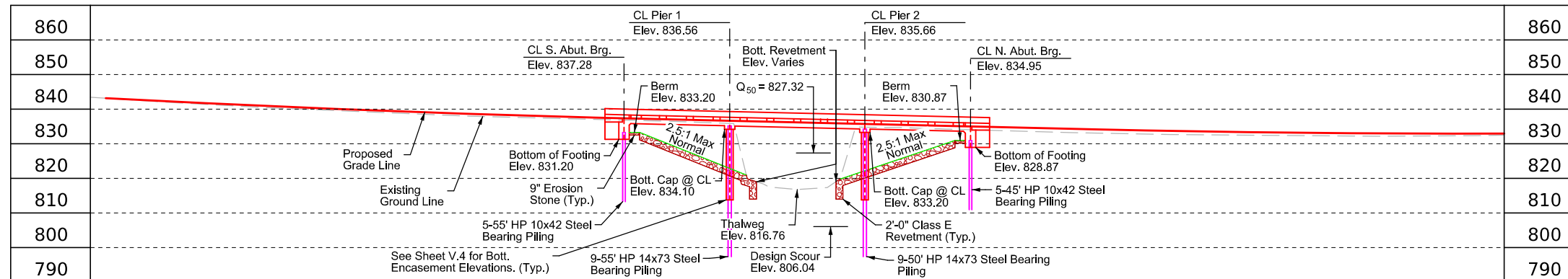
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140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

GENERAL NOTES

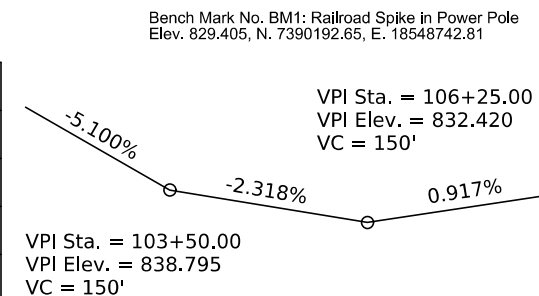
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DRAWING NO.
V.1

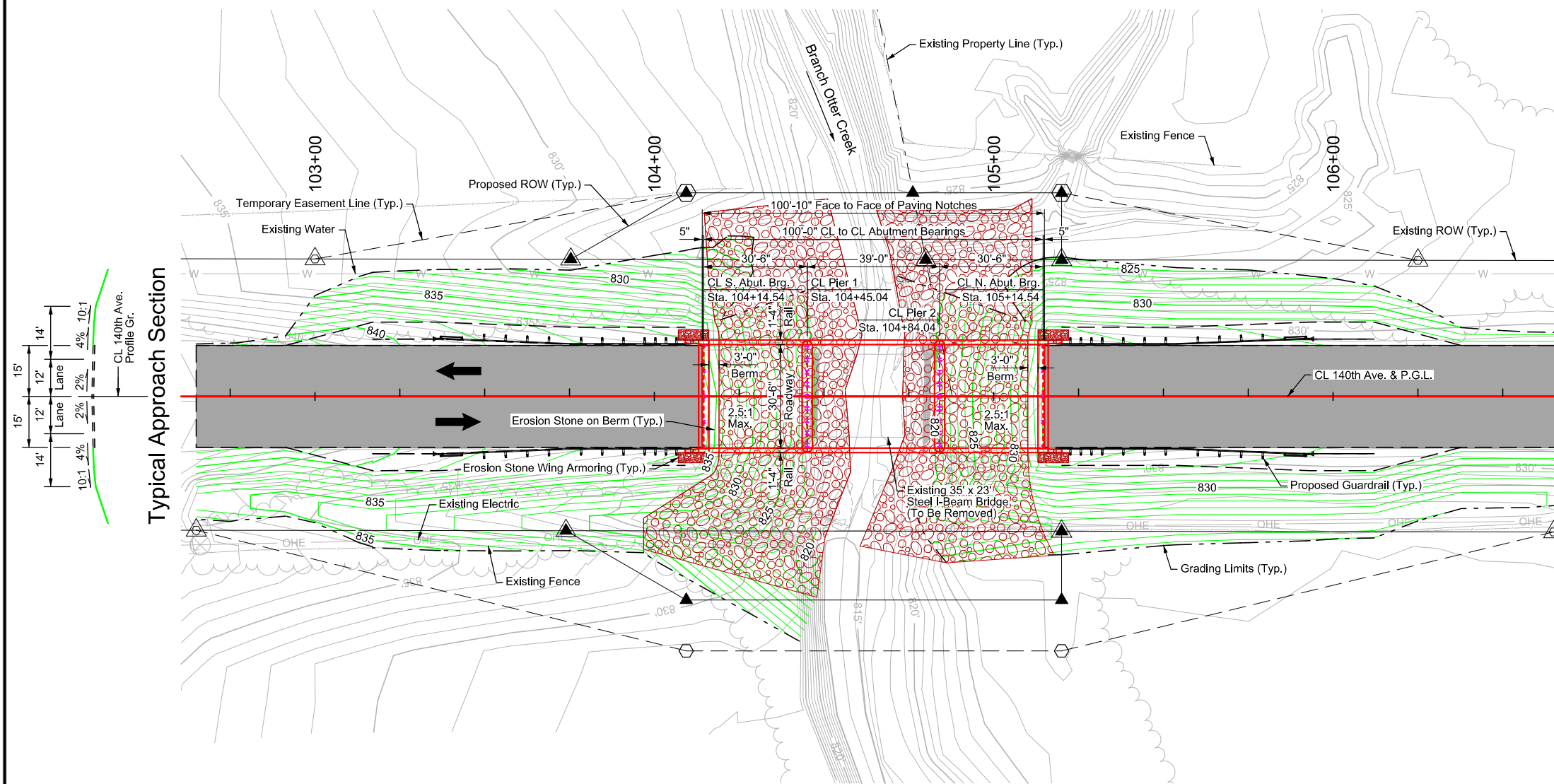




Longitudinal Section Along C Approach Roadway



Note:
Top of bridge deck at centerline roadway
is 0.03' below the profile grade to account
for deck cross slope and parabolic crown.



Situation Plan

Hydraulic Design

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

of the State of Iowa.  8-18-26
Signature _____ Date _____
Printed or Typed Name Megan Elizabeth Lehman
My license renewal date is December 31, 2027

Pages or sheets covered by this seal: Sheet V.1 Hydraulic Data

Traffic Estimate

2012 AADT	280 V.P.D.
20-- AADT	-- V.P.D.
20-- DHV	-- V.P.H.
TRUCKS	8 %
Total	
Design ESALs	--

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
T - Telephone Line
W - Water Line
FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
⊗ - Power Poles

Hydraulic Data

RIDB: Not Applicable
Drainage Area = 3.74 Sq. Mi.
Stream Slope (HGL) = 29.29 ft./Mi.
Avg. Low Water Stage = 821.13

Operational Low Beam = 833.93
Channel Low Beam = 834.45

Q₅₀ = 2,950 cfs
Stage = 827.32
Operational Freeboard = 6.61 ft.
Avg. Bridge Velocity = 9.65 fps

$Q_{100} = 3,610$ cfs
 Stage = 828.19
 Operational Freeboard = 5.74 ft.
 Backwater = 0.95 ft.
 Avg. Bridge Velocity = 10.50 fps

Q₂₀₀ = 4,320 cfs
Stage = 828.90
Calculated Design Scour = 806.04

$Q_{500} = 5,170$ cfs
 Stage = 829.69
 Channel Freeboard = 4.76 ft.
 Avg. Bridge Velocity = 12.73 fps
 Calculated Check Scour = 802.31

Location

140th Ave Over Branch Otter Creek
T-75N R-23W
Section 8
Otter Township
Warren County
FHWA No. 333690
Latitude 41.320083°
Longitude -93.539333°

Design For 0 Degree Skew

100'-0" x 30'-6" Continuous Concrete
Slab Bridge

30'-6" End Spans 39'-0" Interior Span

Situation Plan

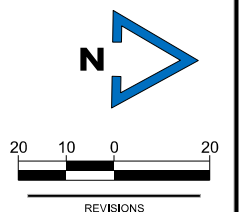
STA. 104+64.54 (140th Ave.) Turn-in Date: July 2025

Warren County



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PROJECT NUMBER
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PROJECT INFO
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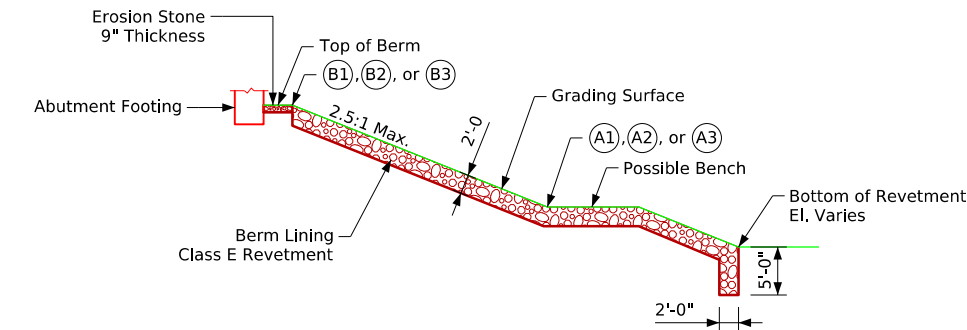
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BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

SITUATION PLAN

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DRAWING NO.
V.2

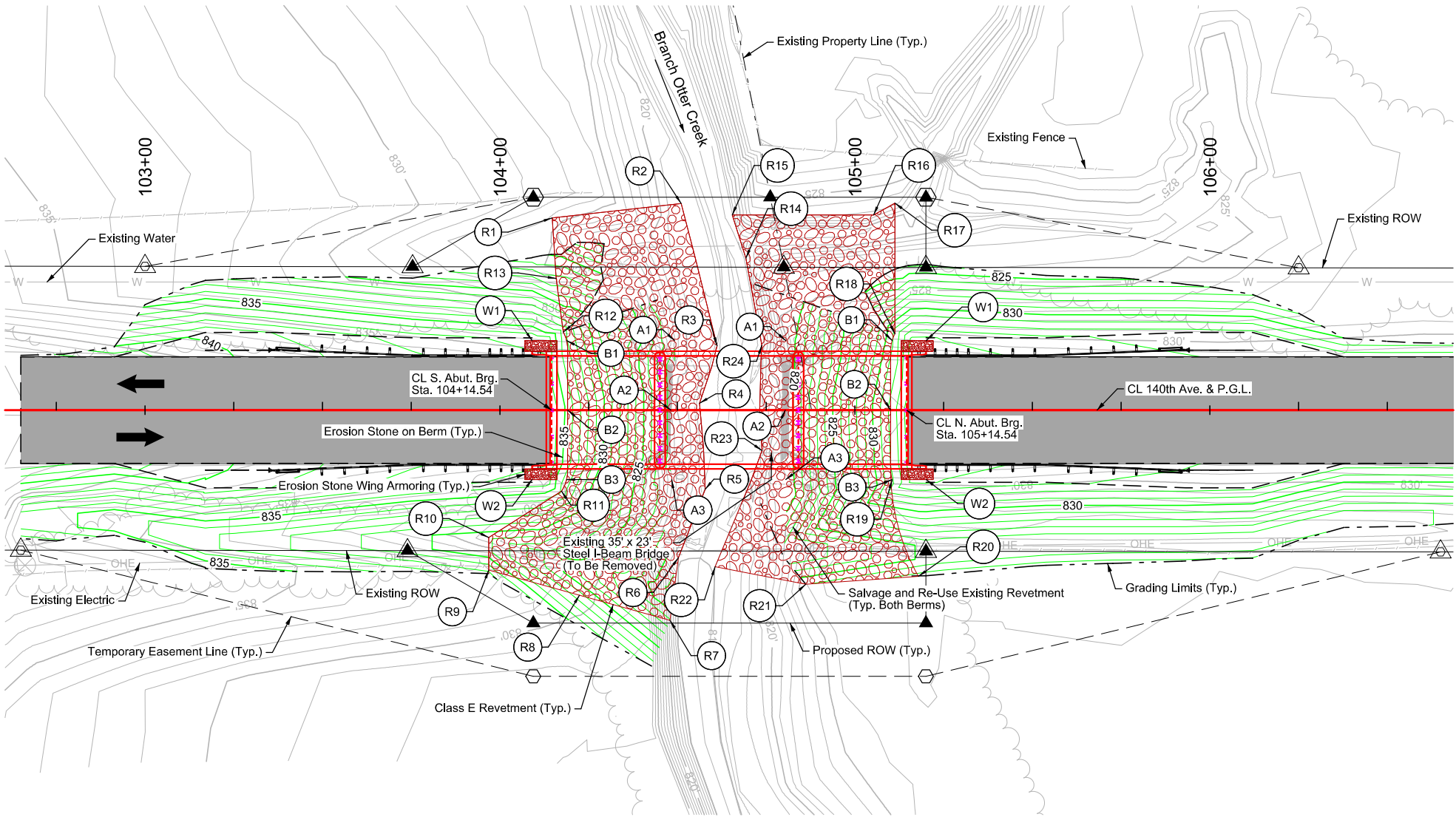


Section Thru Embedded Revetment Berm

Estimated Berm Armoring Quantities				
Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Existing Available - South	-45	--	--	--
Existing Available - North	-60	--	--	--
Berm Lining - South	595	6	--	370
Berm Lining - North	540	6	--	340
Totals	1,030	12	--	710

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is included in the Road Plans.

Remove and re-use existing revetment. Quantity of existing revetment is accounted for in totals. Existing revetment assumes a 2 foot depth. Existing and proposed revetment estimated at 1.6 Ton/CY.



Site Plan

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

- E - Electric Line
- G - Gas Line
- SAN. - Sanitary Sewer
- T - Telephone Line
- W - Water Line
- FO - Fiber Optic Line
- GHP - Gas High Pressure
- ST S - Storm Sewer
- TV - TV
- ⊗ - Power Poles

Notes:
All units are in feet unless noted otherwise.
See sheet V.2 for detailed plan of 140th Ave. over Branch Otter Creek.
Class E revetment stone is embedded.

End of Bridge Wing Table						
Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
W1	104+09.04	19.58' Lt.	837.00	105+20.04	19.58' Lt.	834.40
W2	104+09.04	19.58' Rt.	837.00	105+20.04	19.58' Rt.	834.40

Berm Slope Location Table						
Points	South Abutment			North Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	104+49.14	19.58' Lt.	822.00	104+80.48	19.58' Lt.	819.00
A2	104+48.18	0.00'	821.55	104+80.37	0.00'	819.00
A3	104+48.36	19.58' Rt.	822.00	104+80.50	19.58' Rt.	819.00
B1	104+18.76	19.58' Lt.	833.20	105+10.47	19.58' Lt.	830.87
B2	104+19.04	0.00'	833.20	105+10.04	0.00'	830.87
B3	104+18.76	19.58' Rt.	833.20	105+10.47	19.58' Rt.	830.87

Berm slope elevations reflect the grading surface.

Revetment Layout:

South Berm:

- R1 104+14.68, 54.14' LT R6 104+50.24, 41.58' RT R11 104+17.33, 22.84' RT
- R2 104+51.02, 58.19' LT R7 104+47.90, 59.23' RT R12 104+17.84, 21.98' LT
- R3 104+61.15, 18.13' LT R8 104+22.37, 52.15' RT R13 104+15.84, 37.08' LT
- R4 104+56.20, 1.95' LT R9 103+96.84, 45.08' RT
- R5 104+57.81, 22.31' RT R10 103+96.84, 35.89' RT

North Berm:

- R14 104+69.29, 42.83' LT R18 105+11.25, 21.46' LT R22 104+60.61, 44.11' RT
- R15 104+65.46, 55.00' LT R19 105+10.49, 19.65' RT R23 104+73.81, 11.39' RT
- R16 105+05.28, 55.00' LT R20 105+17.85, 46.85' RT R24 104+73.77, 18.24' LT
- R17 105+11.25, 58.30' LT R21 104+86.13, 49.05' RT

Design For 0 Degree Skew
100'-0" x 30'-6" Continuous Concrete Slab Bridge
30'-6" End Spans 39'-0" Interior Span
Site Plan
STA. 104+64.54 (140th Ave.) Turn-in Date: Sept. 2026
Warren County

1535 SW MARKET ST SUITE 200
ANKENY, IA 50023
MAIN 515.512-1361

Ankeny, IA | Carroll, IA | Clive, IA
Cedar Rapids, IA | Coralville, IA
Fort Dodge, IA | Sioux City, IA
Macon, MO | Columbia, MO
North Kansas City, MO
Lenexa, KS
Boston, MA | Portsmouth, NH

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PROJECT NUMBER
BROS-CHBP-C091(147)--XT-91

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PROJECT INFO
2025000413

ENGINEER JCH DRAWN BY JCH CHECKED BY CVM

BROS-CHBP-C091(147)--XT-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

SITE PLAN

DRAWING NO.
V.3

Bench Mark No. BM1: Railroad Spike in Power Pole
Elev. 829.405, N. 7390192.65, E. 18548742.81



McCLURETM

1535 SW MARKET ST SUITE 200
ANKENY, IA 50023
MAIN 515.512-1361

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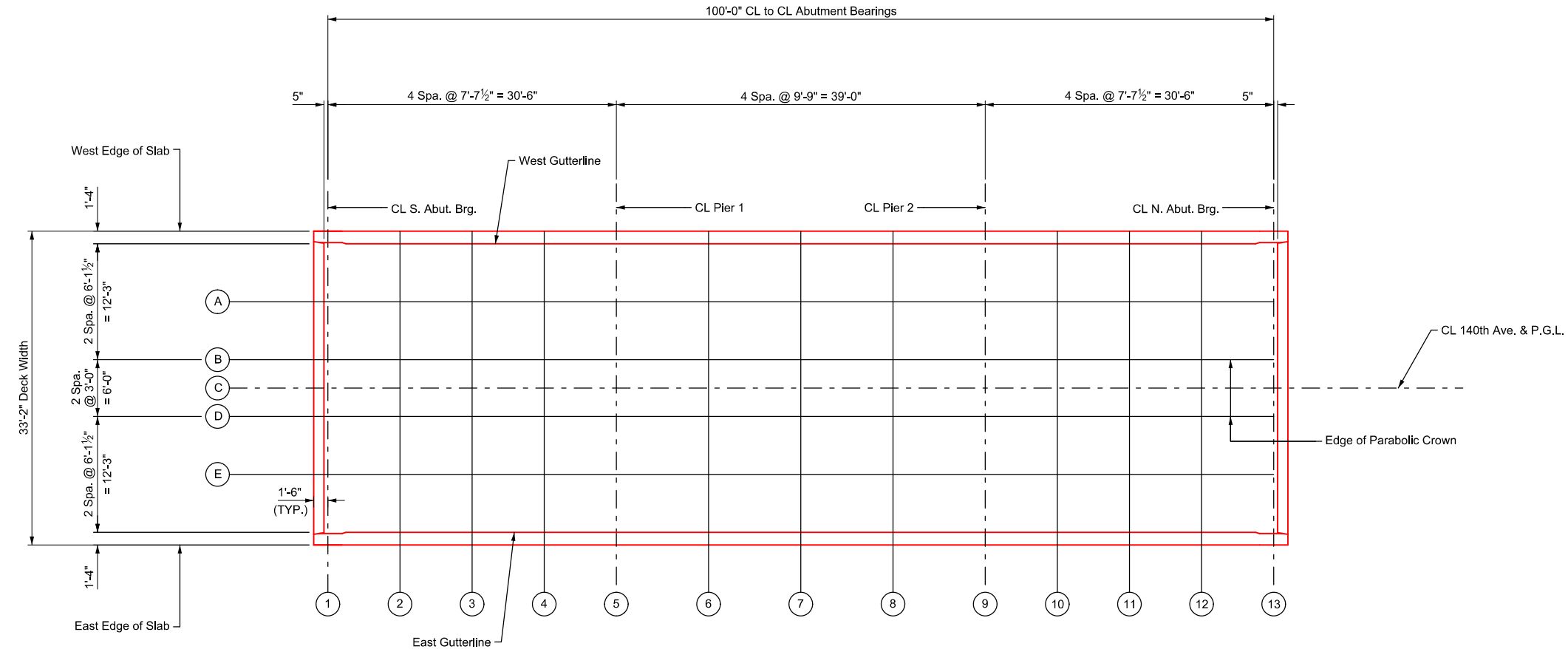
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BROS-CHBP-C091(147)--XT-91



REVISIONS

PROJECT INFO
2025000413
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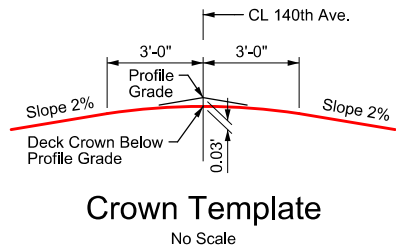


Location of Top of Deck Elevations

Top of Deck Elevations													
	CL S. Abut. Brg.				CL Pier 1				CL Pier 2				CL N. Abut. Brg.
Line Number	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
West Edge of Deck	836.98	836.79	836.61	836.44	836.26	836.03	835.81	835.58	835.36	835.18	835.00	834.83	834.65
West Gutterline	837.00	836.82	836.64	836.46	836.29	836.06	835.83	835.61	835.38	835.20	835.03	834.85	834.67
Line A	837.13	836.94	836.76	836.58	836.41	836.18	835.96	835.73	835.50	835.33	835.15	834.97	834.80
Line B	837.25	837.06	836.88	836.71	836.53	836.30	836.08	835.85	835.63	835.45	835.27	835.10	834.92
CL 140th Ave. / Line C	837.28	837.09	836.92	836.74	836.56	836.34	836.11	835.88	835.66	835.48	835.30	835.13	834.95
Line D	837.25	837.06	836.88	836.71	836.53	836.30	836.08	835.85	835.63	835.45	835.27	835.10	834.92
Line E	837.13	836.94	836.76	836.58	836.41	836.18	835.96	835.73	835.50	835.33	835.15	834.97	834.80
East Gutterline	837.00	836.82	836.64	836.46	836.29	836.06	835.83	835.61	835.38	835.20	835.03	834.85	834.67
East Edge of Deck	836.98	836.79	836.61	836.44	836.26	836.03	835.81	835.58	835.36	835.18	835.00	834.83	834.65

Table of Bottom of Encasement Elevations		
Pile Number	Pier 1	Pier 2
Pile 1 (West Exterior)	813.35	813.44
Pile 2	813.42	813.51
Pile 3	813.49	813.59
Pile 4	813.56	813.66
Pile 5 (Center)	813.60	813.70
Pile 6	813.56	813.66
Pile 7	813.49	813.59
Pile 8	813.42	813.51
Pile 9 (East Exterior)	813.35	813.44

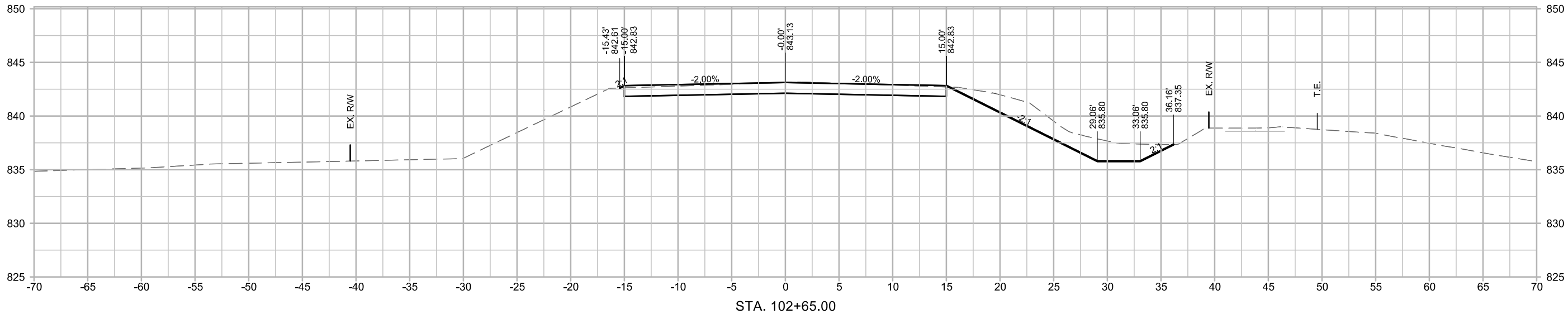
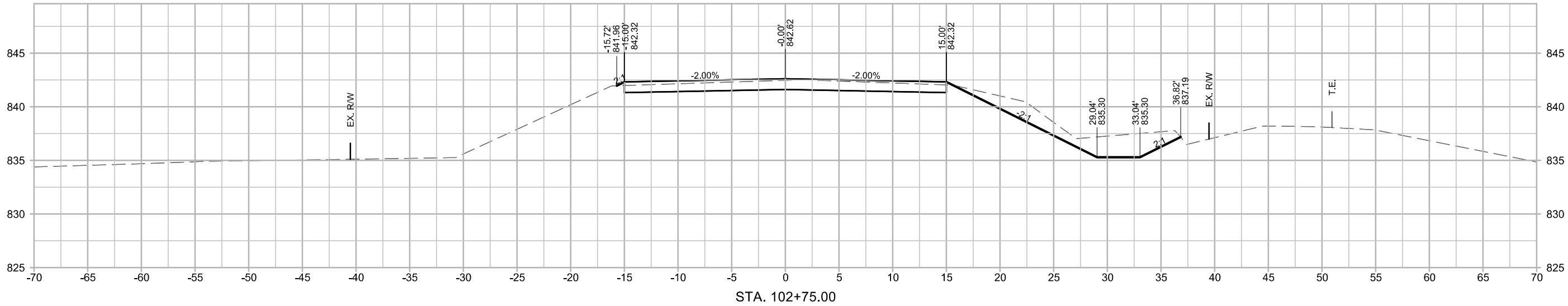
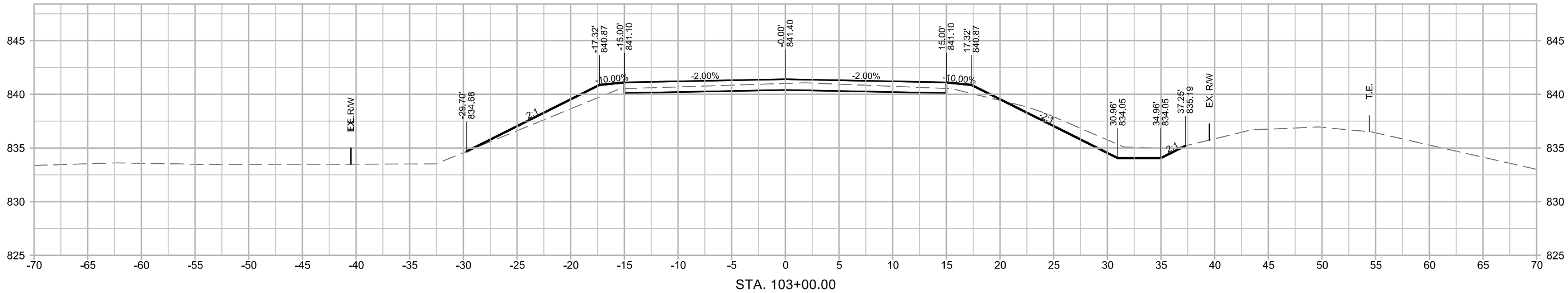
Elevations assume a uniform 20'-6" encasement length Pier 1 and a uniform 19'-6" encasement length at Pier 2. Encasement lengths are considered to begin from the bottom of the monolithic pier cap.



Note:
The top of slab elevations for the high point on the bridge slab are 0.03 feet below the high point on the approach roadway to account for the rounding of the slab with a parabolic template at the cross slope intersection.

Design For 0 Degree Skew
100'-0" x 30'-6" Continuous Concrete Slab Bridge
30'-6" End Spans 39'-0" Interior Span
Top of Deck Elevations
STA. 104+64.54 (140th Ave.) Turn-in Date: Sept. 2026
Warren County

BROS-CHBP-C091(147)--XT-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA
TOP OF DECK ELEVATIONS



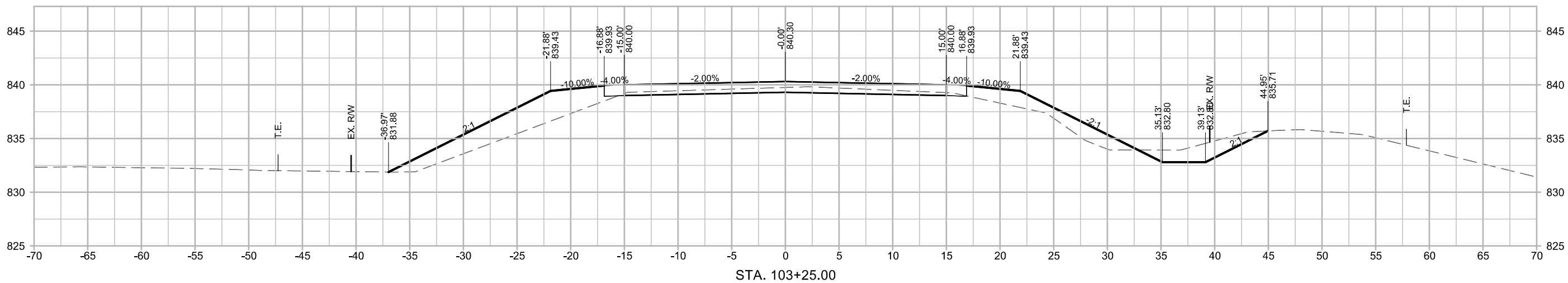
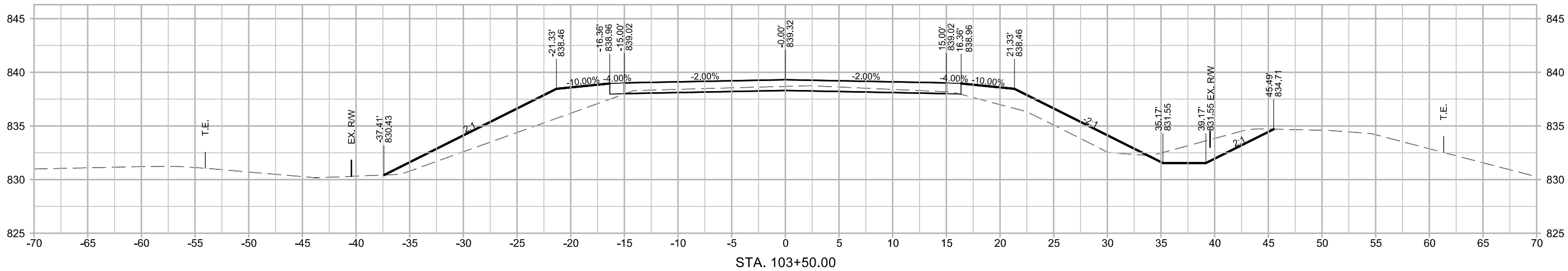
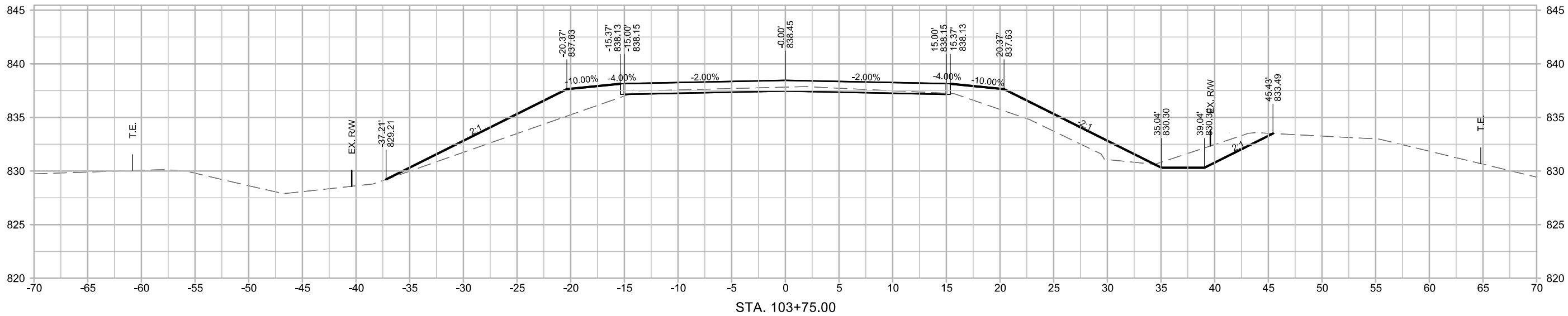
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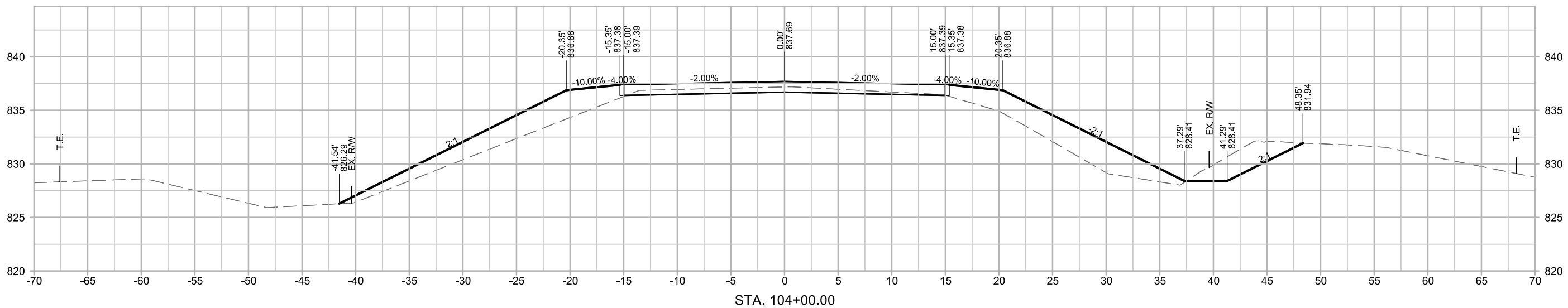
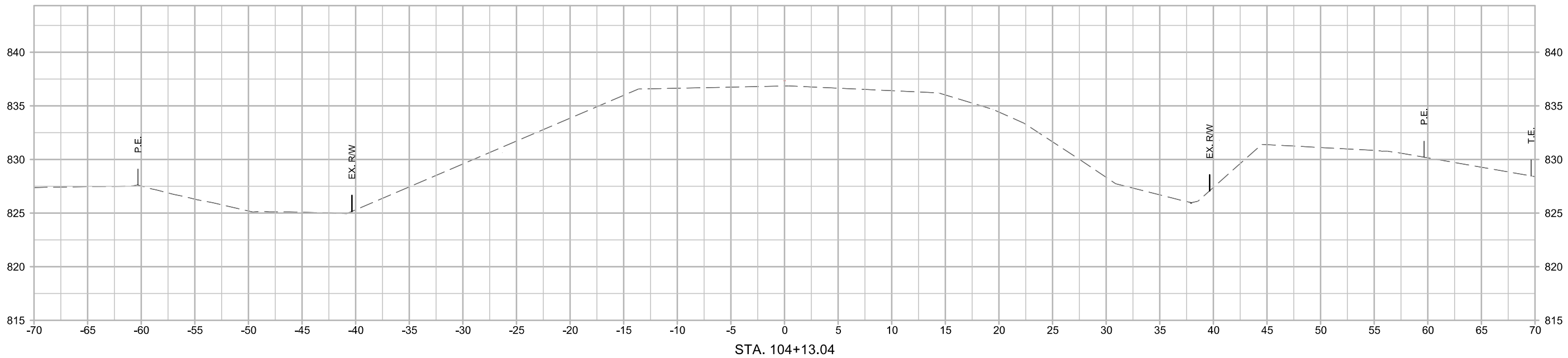
PROJECT INFO
2025000413
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BROS-CHBP-C091(147)--NC-91
140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

140TH AVENUE CROSS SECTIONS



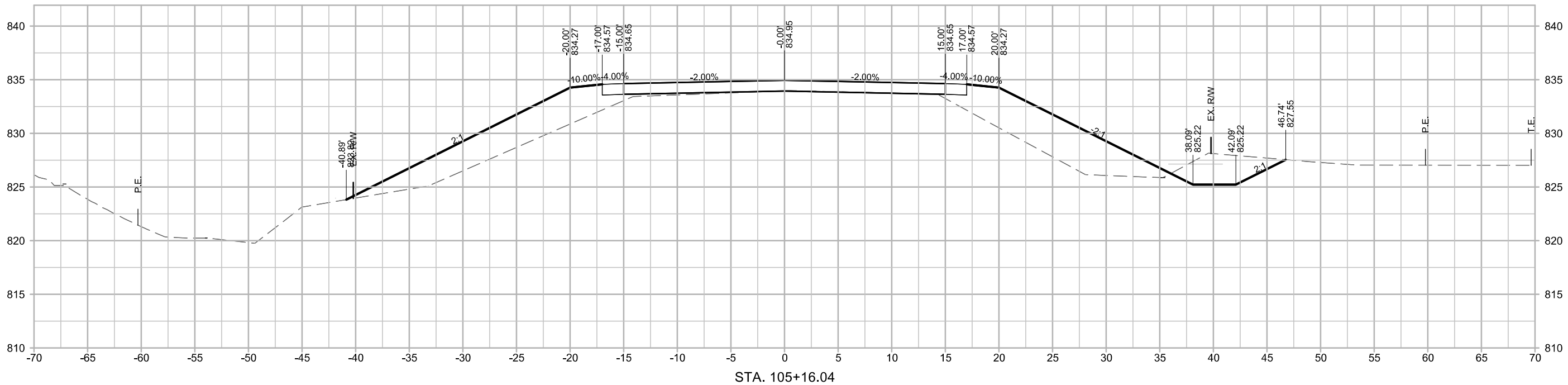
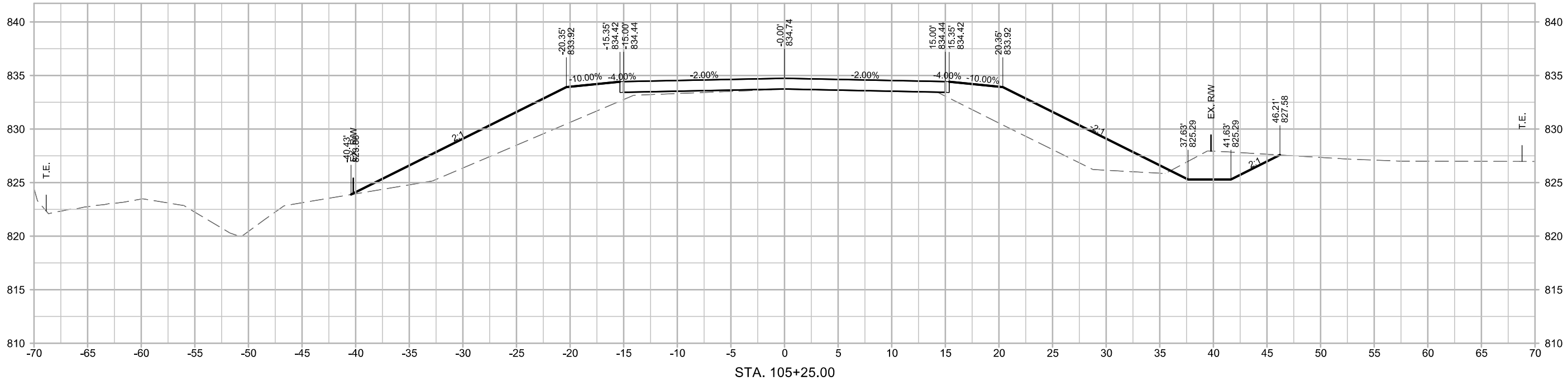
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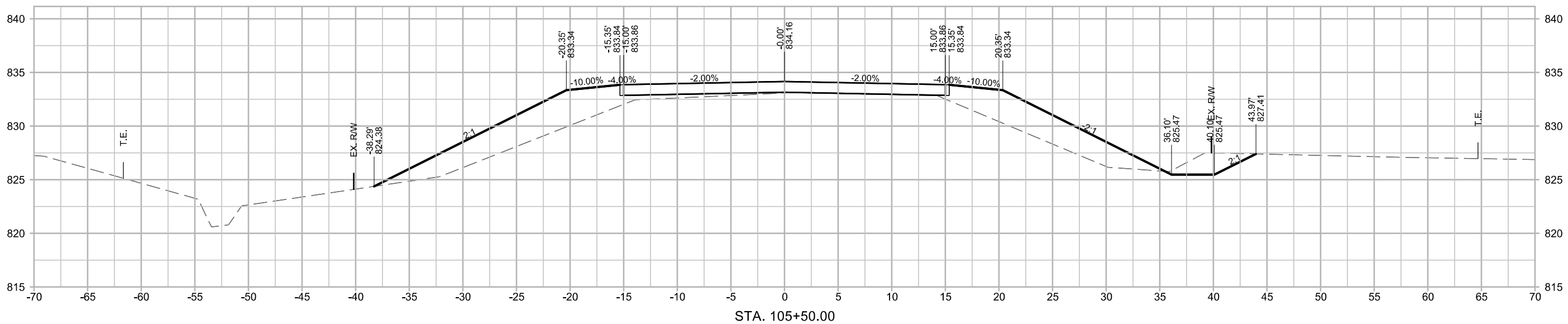
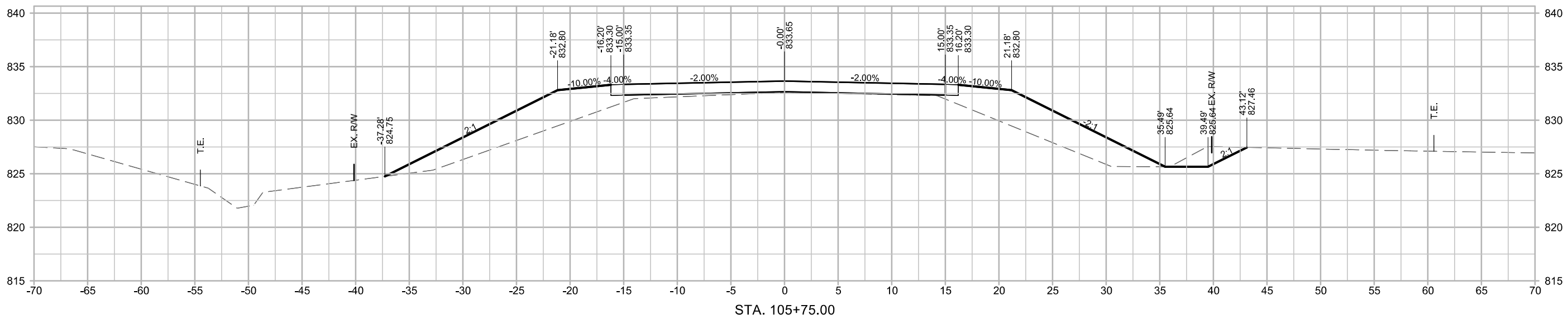
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140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA
140TH AVENUE CROSS SECTIONS

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140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA
140TH AVENUE CROSS SECTIONS

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140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

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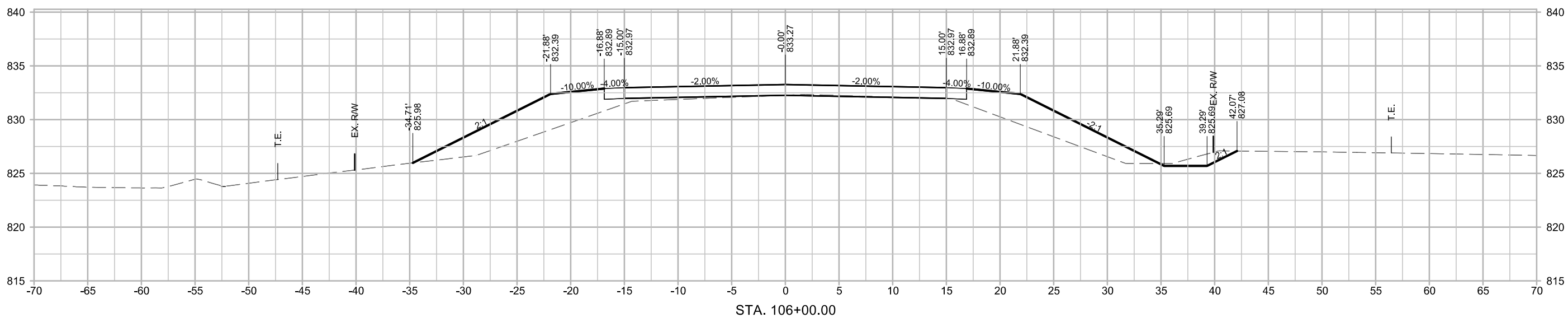
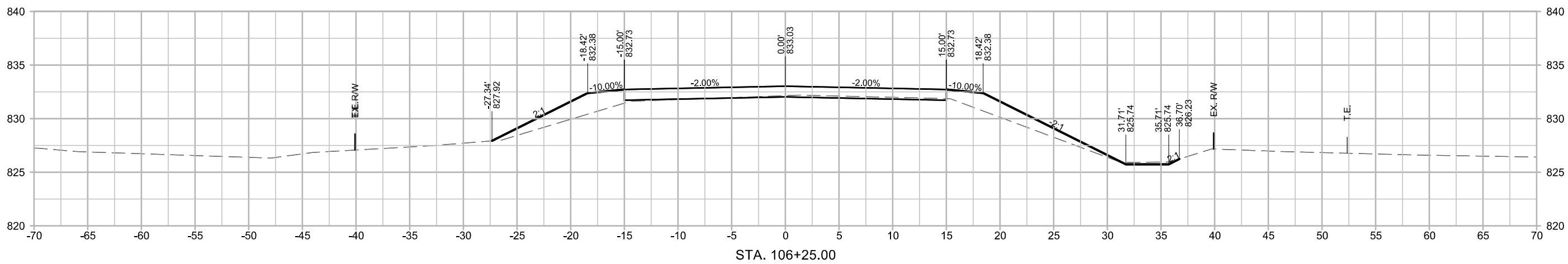
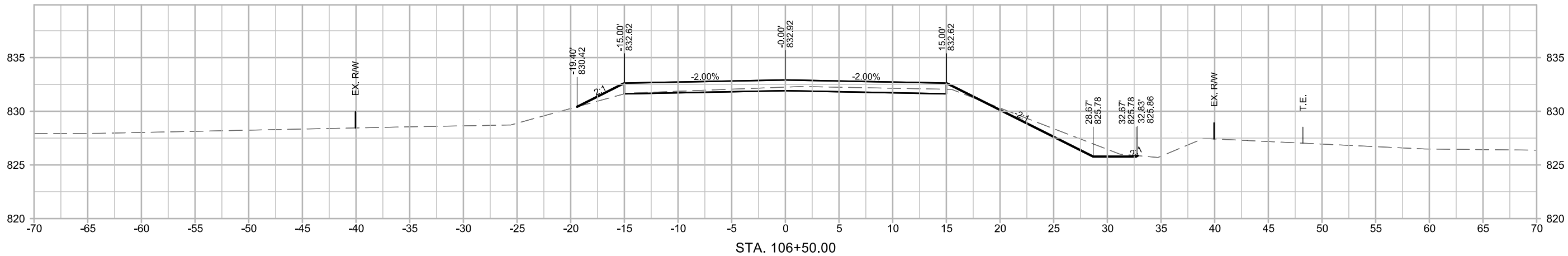
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PROJECT INFO
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ATS	JCH	ATS

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140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

140TH AVENUE CROSS SECTIONS



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140TH AVENUE BRIDGE REPLACEMENT - CCS
WARREN COUNTY, IOWA

140TH AVENUE CROSS SECTIONS

