BRIDGE REPLACEMENT
BRFN-149-1(72)--39-90
WAPELLO COUNTY

LETTING DATE
11-19-2019

REVISIONS

TOTAL
PROJECT IDENTIFICATION NUMBER
15-90-149-010
PROJECT NUMBER
BRFN-149-1(72)--39-90
R.O.W. PROJECT NUMBER

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

WAPELLO COUNTY

BRIDGE REPLACEMENT - PPCB

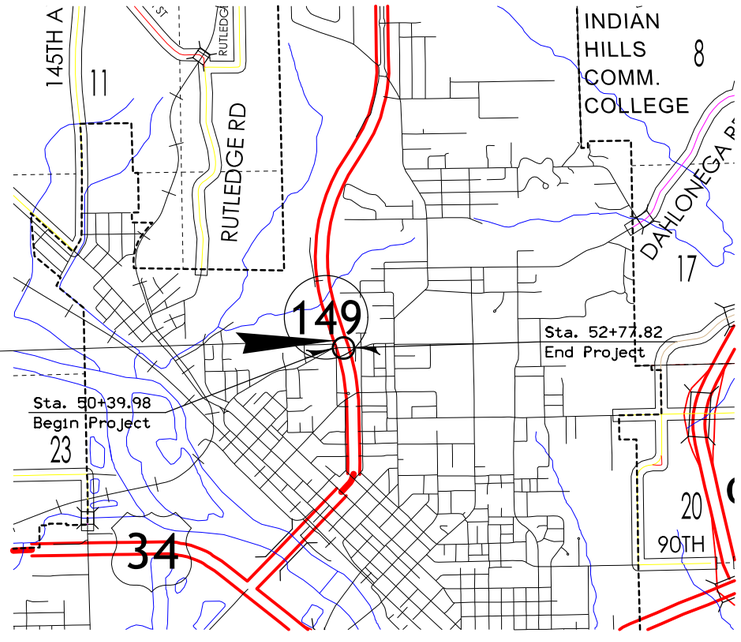
WEST PARK BOULEVARD BRIDGE OVER IA 149, 1.4 MILES N. OF U.S. 34

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Field Exam Questions
A.3 - 7	Concept Report
D Sheets	**Mainline Plan and Profile Sheets**
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	West Park Boulevard
G Sheets	**Survey Sheets**
G.1	Reference Ties and Bench Marks
G.2 - 3	Horizontal Control Tab. & Super for all Alignments
V Sheets	**Bridge and Culvert Situation Plans**
V.1	Bridge Situation Plan
W Sheets	**Mainline Cross Sections**
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 6	Mainline Cross Sections
	* Color Plan Sheets



N

Design Speed = 30 mph
Clear Zone – 10'
D3 PLAN – Date: 8/12/2017
D5 PLAN – Date: 10/02/2017
D4 PLAN – Date: 6/28/2019

MILEAGE SUMMARY			105-1 09-27-94
Div.	Location	Lin. Ft.	Miles
1	Urban Sta. 50+39.98 to 52+77.82	238	.05

DESIGN DATA URBAN		
2017 AADT	590	V.P.D.
20-- AADT	--	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	--	%
Total Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN – Date: 7/26/2017

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER A.1

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FIELD EXAM QUESTIONS

Is guardrail at West Park Ave. to be removed?

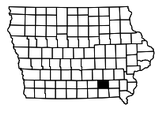
Is there a power pole on the SW side of the bridge?

Does IA 149 Alignment need to be included in the Survey Information?

Is field office bid item needed?

Are there traffic estimates for West Park Blvd?

Should we include a 20 foot transition from curb to the 32" TxDOT T411 Barrier on each end?



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER A.2	

IOWA DEPARTMENT OF TRANSPORTATION

TO OFFICE: District 5 **DATE:** July 7, 2016

ATTENTION: James V. Armstrong **PROJECT:** Wapello County
BRFN-149-1(72)--39-90
PIN: 15-90-149-010

FROM: Kevin K. Patel

OFFICE: Design

SUBJECT: Project Concept Statement; (Final Approval, D0)

This project involves the replacement of the West Park Boulevard Bridge over IA 149 (Maint. No. 9001.O149), 1.4 miles north of U.S. 34 in Ottumwa.

A concept review was held on June 9, 2016. Those present included Jim Armstrong, Mark Van Dyke, Jared Klein and Jim Webb from the District 5 Office; Dave Mulholland from the Office of Bridges and Structures; Tami Quam from the Office of Location and Environment; and Kevin Patel, Shaung Li, Jonah Heer and Amy Schleier from the Office of Design.

The recommended alternative is to replace the existing 164 ft. x 32 ft. concrete girder bridge with a 184 ft. x 32 ft. pretensioned, prestressed beam bridge. The existing two 4 ft. sidewalks will be replaced by one 8 ft. sidewalk on the north side of the new bridge. The project cost is estimated at $1,290,300.

Traffic on IA 149 will be detoured during the bridge removal only. Short term 20 minute closures will be required for placement of the new bridge beams. West Park Boulevard will be closed to traffic and detoured on to City Streets during construction.

Temporary right of way will be required for this project.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Wednesday, July 6, 2016. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2020. The Office of Bridges and Structures will coordinate plan preparation with assistance from the Office of Design.

KKP: als
Attach.
cc:

J. R. Selmer
K. D. Nicholson
M. D. Masteller
N. M. Miller
G. A. Novey
A. Abu-Hawash
M. J. Sankey
D. R. Tebben
D. L. Newell
S. J. Gent
W.A. Sorenson
M. Van Dyke
J. D. Owen
J. R. Phillips
FHWA

C. Purcell
D. L. Maifield
B. R. Smith
C. C. Poole
D. R. Claman
M. A. Swenson
R. A. Younie
B. D. Hofer
B. E. Azeltine
T. D. Crouch
D. E. Sprengeler
J. R. Webb
C. E. Belgarde
B. M. Clancy
M. E. Ross

M. J. Kennerly
S. J. Megivern
A. A. Welch
N. L. McDonald
P. Lu
P. C. Keen
S. P. Anderson
K. Brink
M. E. Khoda
J.W. Laaser-Webb
E. C. Wright
J. Huddle
A.J. Klein
T. Quam

FINAL PROJECT CONCEPT STATEMENT

West Park Boulevard Bridge over IA 149, 1.4 miles north of U.S. 34 in Ottumwa

Wapello County
BRFN-149-1(72)--39-90
PIN: 15-90-149-010
Maint. No. 9001.4O149
FHWA No. 50660

Highway Division
Office of Design

Kevin K. Patel, P.E.
515-239-1540

July 7, 2016

I. STUDY AREA

A. Project Description

This project involves the replacement of the West Park Boulevard Bridge over IA 149 (Maint. No 9001.4O149), 1.4 miles north of U.S. 34 in Ottumwa.

The recommended alternative is to replace the existing 164 ft. x 32 ft. concrete girder bridge with a 184 ft. x 32 ft. pretensioned, prestressed beam bridge. The existing two 4 ft. sidewalks will be replaced by one 8 ft. wide sidewalk on the north side of the new bridge.

Traffic on IA 149 will be detoured during the bridge removal only. Short term 20 minute closures will be required for placement of the new bridge beams. West Park Boulevard will be closed to traffic and detoured on to City Streets during construction.

Temporary right of way will be required for this project.

B. Need for Project

The existing structure is a 164 ft. x 32 ft. concrete beam bridge which was built in 1956 and overlaid in 1983. The sidewalk curbs are deteriorating fast and becoming a maintenance/safety concern for IA 149 traffic below. Sudden pop-outs developing without warning at continuous tee-beams were reported by the District. Hollow and spalled areas with exposed steel are found at the deck and superstructure. Moderate to severe deteriorations are found at substructure. In addition, the structure was designed for H20 load and needs to be strengthened to HS20. The bridge repair in conjunction

with bridge strengthening would not be cost effective; therefore it is recommended that the bridge be replaced.


Bridge as seen from W. Park Blvd.


Bridge as seen from IA 149

C. Present Facility

The existing structure is a 164 ft. x 32 ft. concrete girder bridge constructed in 1956.

IA 149 in the project area is a 4 lane divided roadway constructed in 1957. There are two 24 ft. 6 in. PCC lanes separated by a 4 ft. raised median, and curb and gutter units. The shoulders behind the curbs are 0.5 % for 6 ft., then project up with a 2.5/1 backslope. HMA resurfacing was accomplished in 2004. West Park Boulevard in the project area is 33 ft. wide (back to back) pavement with two 4 ft. sidewalks.

D. Traffic Estimates

The 2019 and 2039 average daily traffic estimates on IA 149 are 11,400 ADT with 5% trucks and 11,900 ADT with 5% trucks, respectively. Traffic on West Park Boulevard is estimated at 590 vehicles per day.

E. Sufficiency Ratings

IA 149 is classified as an access route and is a maintenance service level “C” road. The federal bridge sufficiency rating is 71. West Park Boulevard is a city street.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

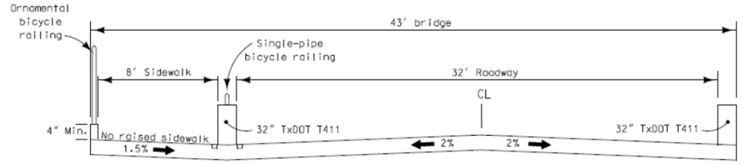
During the five-year study period from January 1, 2010 through December 31, 2014, there was 1 crash which caused personal property damage only.

II. PROJECT CONCEPT

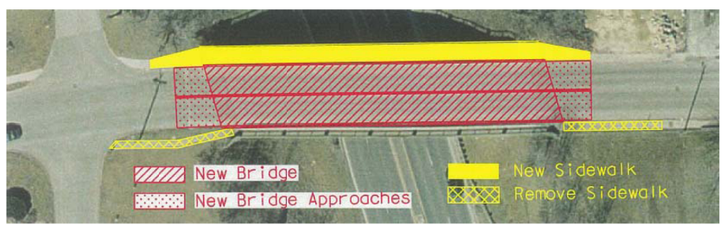
A. Proposed Alternative

Replace with a bridge detouring traffic.

The existing 164 ft. x 32 ft. concrete girder bridge will be replaced with a 3 span, 184 ft. x 32 ft. pretensioned, prestressed concrete beam bridge. The bridge will be built with a skew of 16 degrees, 23 minutes right ahead. The two existing 4 ft. sidewalks will be replaced with one 8 ft. sidewalk on the north side of the bridge.



The typical cross section of West Park Boulevard adjacent to the bridge will consist of a 33 ft. wide roadway with an 8 ft. sidewalk on the north side of the street. The City of Ottumwa requested bridge rail type TxDOT T411 (32 in. tall) on either side of the traffic lanes. This type of bridge rail is acceptable as long as the sidewalk is not raised; thus restricting a 4" sphere to be passed 4" from the bottom of the rail. A single –pipe bicycle railing attachment will be placed on the barrier that separates the sidewalk from the driving lane. An ornamental welded picket type bicycle railing should be considered for the railing at the outside of the sidewalk. The 8 ft. wide sidewalk on the bridge will transition to the existing sidewalk. The sidewalk on the southwest corner of the bridge will be removed. The sidewalk on the southeast corner of the bridge will be removed to the existing storm sewer intake.



As requested by the District, 20 ft. long bridge approach sections will be constructed on either side of the bridge. The existing grade will need to be raised a minimum of 0.2 ft. which can be accomplished within the reconstructed bridge approach sections. The 25 mph posted speed limit on West Park Boulevard will allow turned down bridge end sections to be used on the new bridge.

The IA 149 typical section will remain the same; however, the existing guardrail under the bridge will be removed and the bridge berms will be flattened. No new guardrail or concrete barrier rail will be required as the new bridge piers are located beyond the 20 ft. clearzone. The berm slopes will be paved.

As there are nearby homes, it is recommended that vibration monitoring be used to ensure that during the bridge removal and construction that these homes are not adversely affected. Drilled shafts should be considered during foundation design for the proposed bridge.

There are overhead utility lines on the south side of the roadway that appear will conflict with the construction of the new bridge and therefore will need to be relocated temporarily and then later replaced. There is also a utility pole in the northwest quadrant that anchors a guide wire that should be removed.

The existing metal bridge railing should be checked for lead based paint.

No bridge end drains will be constructed.

IA 149 will be closed to traffic during the removal of the existing bridge which is estimated at 5 working days. During bridge removal/construction, West Park Boulevard will be closed and traffic will be detoured. Staged bridge removal/ construction was discussed; however, due to the monolithic design of the deck and superstructure, maintaining existing traffic could be problematic. Removing the existing bridge all at once while traffic is detoured is best from a structural standpoint and will most likely result in reduced construction cost compared to a staging method. Both detours are detailed in section "B" and show on the map at the end of this concept.

Apply erosion control and urban seeding and fertilizing to all disturbed areas.

Temporary right of way will be required for this project.

Bridge Items	Estimated Costs
New bridge	$ 844,300
Bridge aesthetic details	40,000
Ornamental bicycle railing (outside edge)	31,000
Paved Slope Protection	10,000
Bridge Removal	75,500
Mobilization - 10%	100,100
M & C - 15%	165,100
Bridge Costs	**$ 1,266,000**

Roadway Items	
Bridge Approaches	$ 28,000
Removal of Pavement	1,400
Vibration Monitoring	26,000
Excavation Class 13 Waste	1,900
Guardrail Removal	1,300
Clearing and Grubbing	900
Seeding and Fertilizing	400
Erosion Control	20,000
Traffic Control - 5%	4,000
Mobilization - 5%	4,000
M & C - 30%	26,400
Roadway costs	**$ 114,300**
Project Total	**$ 1,380,300**

B. Detour Analysis

IA 149 will be closed during removal of the existing bridge. It is anticipated the detour will be in place for approximately 5 working days. The proposed detour route follows U.S. 63 at the interchange with IA 149 north of Ottumwa. It continues south on the U.S. 63 by-pass then west on U.S. 34 to rejoin IA 149. Out of distance travel is approximately 8.9 miles. The total distance user cost is anticipated to be $5,100, however, since the detour is completely on state routes, there will be no county road maintenance costs. Detour signing costs will be $10,000.

West Park Boulevard will be closed during construction of the new bridge and an offsite detour will be utilized. It is anticipated the detour will be in place for approximately 150 days. On the east side of the bridge, the detour would follow North Wapello Street south to West Woodland Avenue. The detour would continue west on West Woodland Avenue until the junction with East Division Street. At this junction, the detour would turn north to return to West Park Boulevard. Out of distance travel is approximately 0.5 miles. The total distance user cost is anticipated to be $11,000. Detour signing costs will be $10,000.

C. Recommendations

It is recommended that the present structure be replaced, as described in this concept.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Office of Bridges and Structures will coordinate the plan preparation with assistance from the Office of Design.

E. ADA Accommodations

There are sidewalks adjacent to West Park Boulevard in all four quadrants of the existing bridge. Rather than constructing 4 ft. sidewalks on both sides, an 8 ft. wide sidewalk on the north side is proposed. The sidewalk on the south side of the existing bridge does not connect to a thru sidewalk and will be removed.

The City's preferred bridge barrier (type TxDOT T411) between vehicular traffic and the sidewalk is ADA compliant and meets the requirements for a 30 mph design speed on a non-NHS route.

F. Special Considerations

The ABC Rating Score of 21 is less than the first stage filter threshold of 50; therefore an accelerated bridge design was dismissed.

The Office of Location and Environment has reviewed this project and no special concerns were noted.

Temporary right of way will be required for this project.

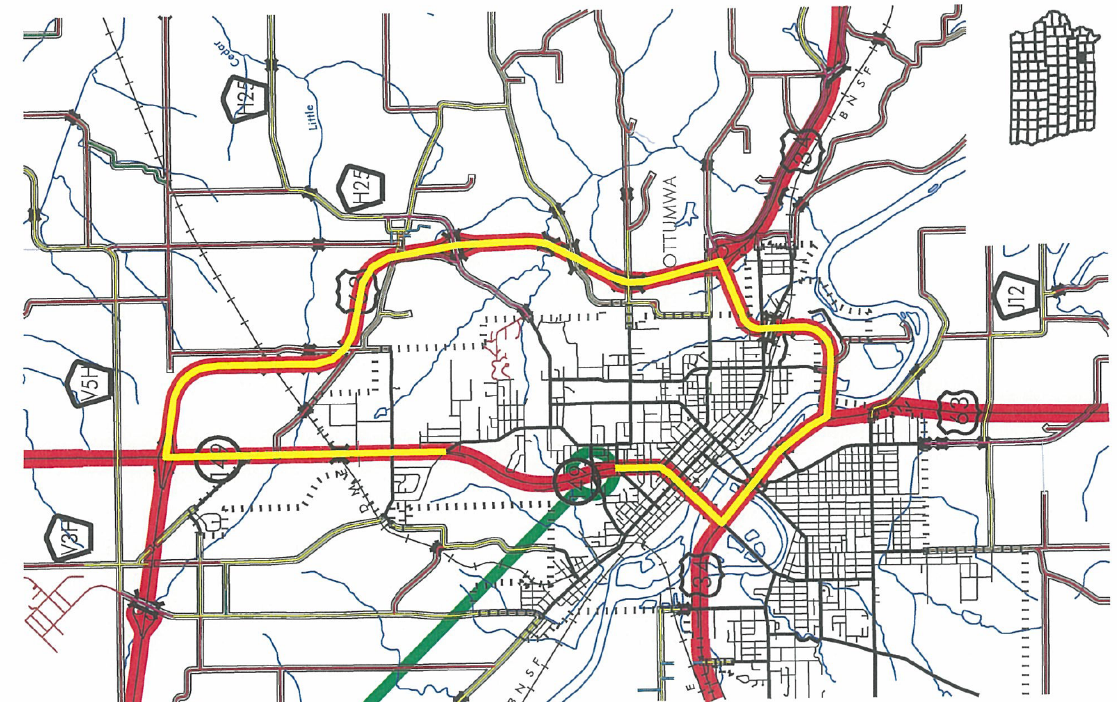
F. Program Status

Site data has been developed by the Office of Design. This project is listed in the 2017-2021 Iowa Transportation Improvement Program, with $3,300,000 programed for replacement in FY 2020. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

KKP: als

WAPELLO CO. IA 149

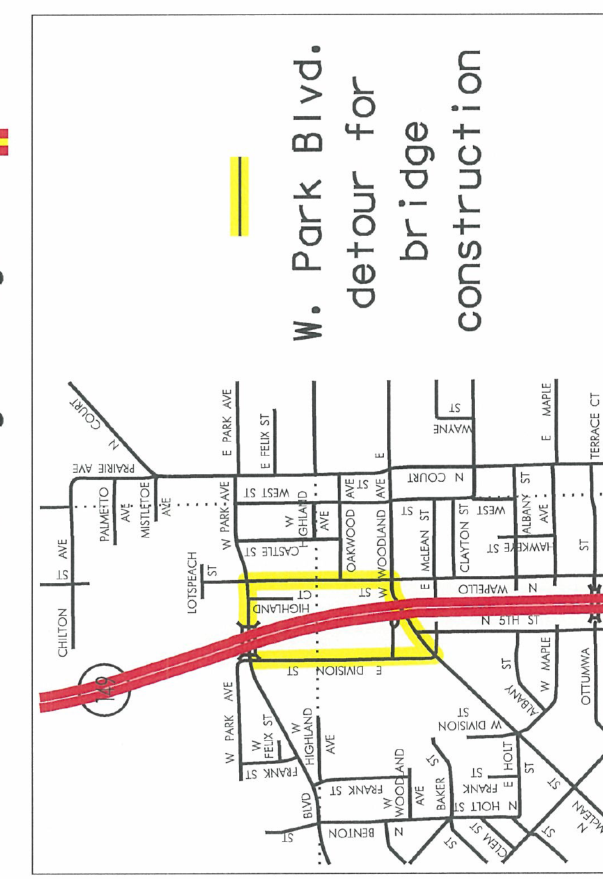
Bridge over W. Park Blvd.
1.4 mi. North of US 34 in Ottumwa
BRFN-149-1(72)--39-90
Maint. 9001.40149 FHWA 50660



WAPELLO CO.
IA 149

Bridge over W. Park Blvd.
1.4 mi. North of
US 34 in Ottumwa

IA 149 detour
during removal of
existing bridge



FILE NO.	ENGLISH	DESIGN TEAM		COUNTY	PROJECT NUMBER	SHEET NUMBER A.7	

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SURVEY SYMBOLS

- CP Control Point
- LC Lot Corner
- GR Ground Shot
- SWK Sidewalk
- CU Back of Curb
- GU Gutter In Front of Curb
- C Centerline BL of Road (ML or SR)
- EP Edge of Paved Roads (ML or SR)
- BL Topo Breakline
- GDL Guard Rail Steel
- PPA Power Pole Co. 1
- SI SIGN Sl Sign
- SL SIGN SL Speed Limit Sign
- TEV Evergeen Tree
- TLNR Tree Line Right
- WV WV Water Valve
- FHD Fire Hydrants
- BM Bench Mark
- SHR Shrub
- G – GL1D Gas Line Co. 1 - Quality D
- San. – SA1D Sanitary Sewer Co. 1- Quality D
- TA TA Tower Anchor
- CON Concrete or A/C Slab
- RET Retaining Walls
- BRG Bridge
- BD Bridge Deck
- BCL Bridge Centerline
- MH Utility Access (Manhole)
- ENP Edge Paved Entrance & Park Lot
- ENU Edge Unpaved Entrance & Parking
- TLNL Tree Line Left
- T1 – TL1D Telephone Line Co. 1 - Quality D
- PPB Power Pole Co. 2
- GV GV Gas Valve
- DU Centerline Draw or Stream (Up)
- BLS Bridge Low Steel
- WC Wild Card (Misc. Field Shot)
- IN Storm Sewer Intake

UTILITY LEGEND

- G – GL1D Gas Line -Midaiver Gas - Quality D
- San. – SA1D Sanitary Sewer - City of Ottuma - Quality D
- T1 – TL1D Telephone Line - Iowa Communications NETWO - Quality D
- PPB Power Pole Alliant Energy

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	**Design Color No.**	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- Reference Point — Survey Line
- Station — Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER D.1

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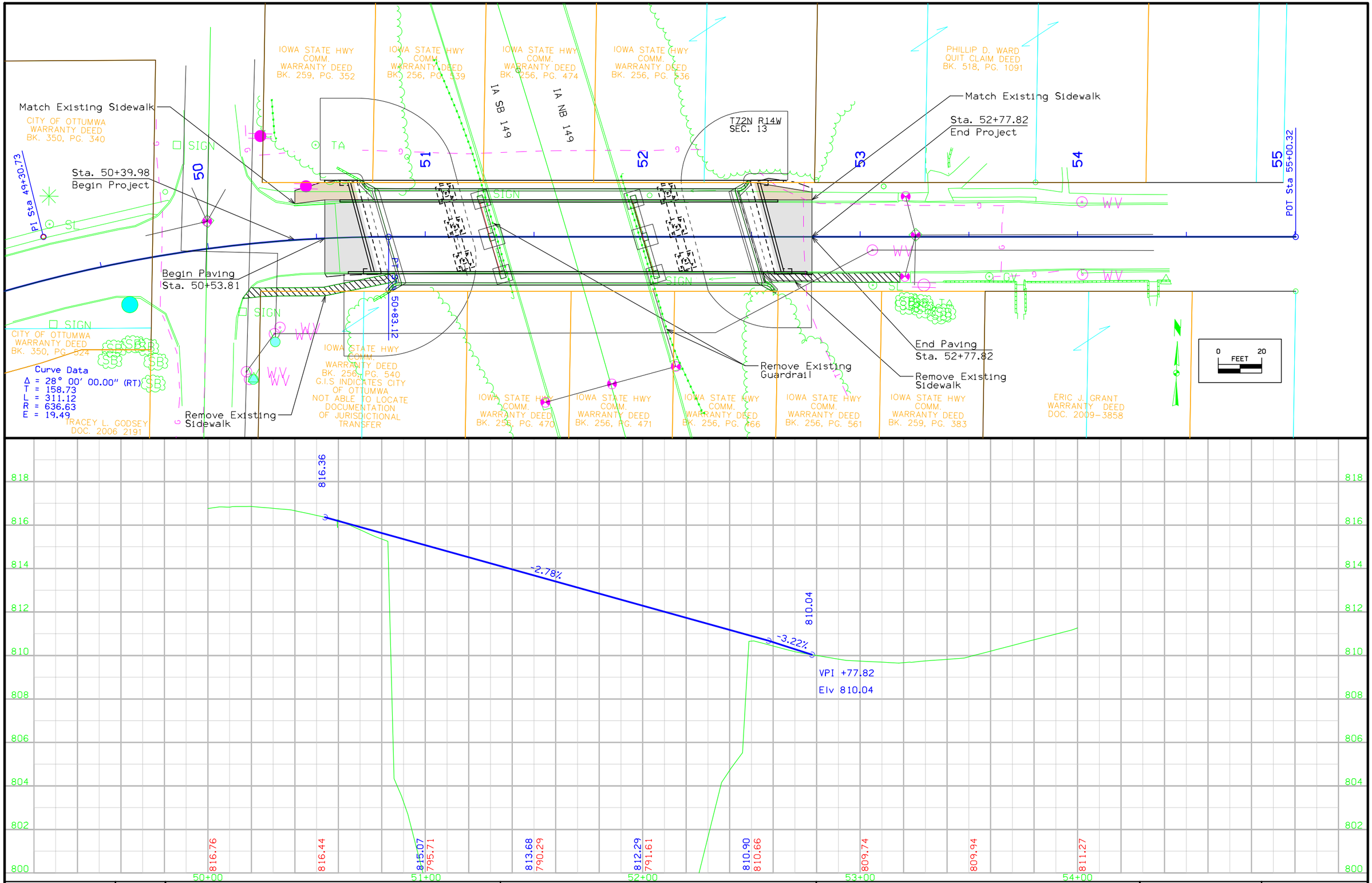

FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER D.2

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Survey Information

Wapello County
BRFN-149-1(72)39-90
West Park Boulevard Bridge over IA 149
SAP 0890

General Information

Measurement units for this survey are in US survey feet. The datum for the project is in the Iowa Regional Coordinate System (IaRCS) Zone 12. PSBA utilized control provided by IADOT from a static survey for Horizontal Control and Vertical Control.

Vertical Control

Vertical datum for this survey is relative to NAVD88 (GEOID12A). The vertical for this project was established by Static observations provided by IADOT. Verified vertical with the Iowa Regional Coordinate System (IaRCS) Zone 12. Held the Elevation at IADOT CP-9001 (817.778) Ran a level Circuit through remaining project control.

Horizontal Control

Project datum and control established using the Iowa Regional Coordinate System (IaRCS) Zone 12).

Control Points

Point Name	Northing	Easting	Elevation	Feature Definition
2	6245094.14	22868748.78	809.25	CP-2 SET 5/8”Rebar
90001	6245082.98	22868418.55	817.78	CP-9001 State Supplied

Alignment Information

The horizontal alignment for this survey is a retracement of Plans Project Number U-159(4). Survey Stationing was equated to Plan PT Station 99+21.64 and Station 108+38.74 Measured (108+40.50 Record) and ran back without equations to PC Station 81+82.88 Measured (81+79.90 Record)

Survey Stationing relates to as built Plan Stationing as follows:

PC Station 81+79.90 Plans Project Number U-159(4). Survey PC Station 81+82.88 Found Mag Nail

PT Station 99+21.64 Plans Project Number U-159(4). Survey PT Station 99+21.64 Found Mag Nail

PC Station 108+40.50 Plans Project Number U-159(4). Survey PC Station 108+38.74 Found Mag Nail

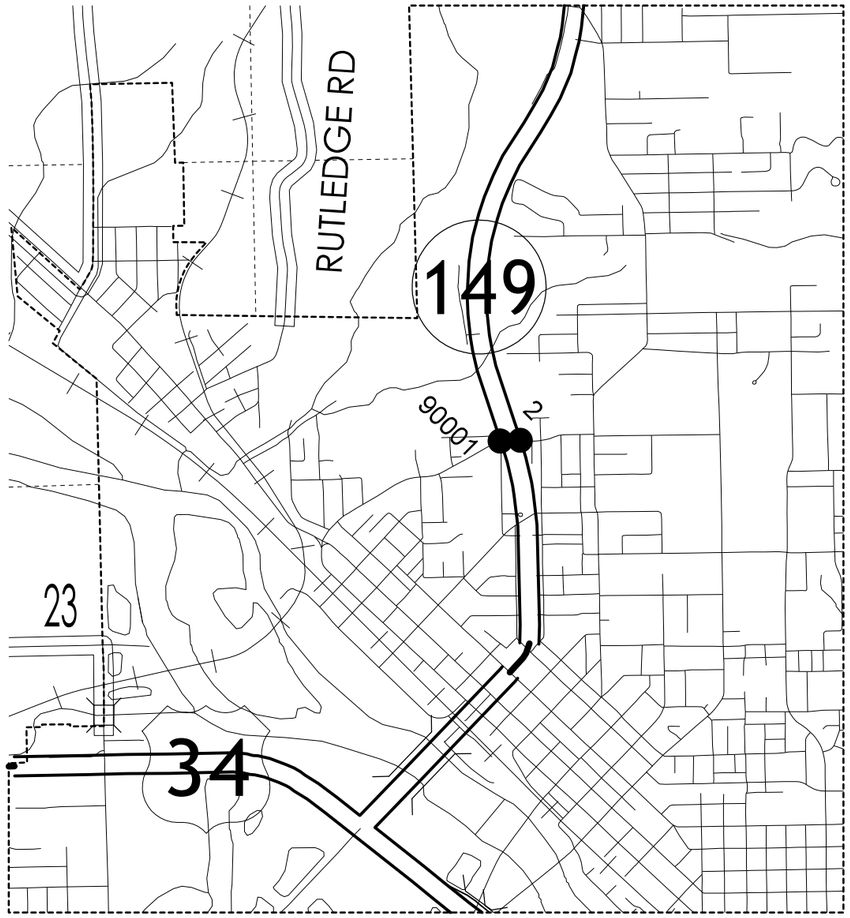
The horizontal alignment for the Park Avenue extension was re-established from plans obtained from the City of Ottumwa. The retracement of the Plans begins at Station 0+00 at the West end of the existing bridge and increase in stationing to the west. The alignment was re-established and existing City Right of Way was determined. The situation plan for the existing bridge Project Number U-159(4) has the PI station for the alignments as station 98+41.12 Main line = 1+65.84 Park Street. The measured main line station is 98+41.62. The PI stationing on Park Avenue was changed to 51+65.84 to eliminate having negative Stationing and ran from West to East.

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points

Primary control is for use with RTK base stations and for RTN validation.

Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 12

Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

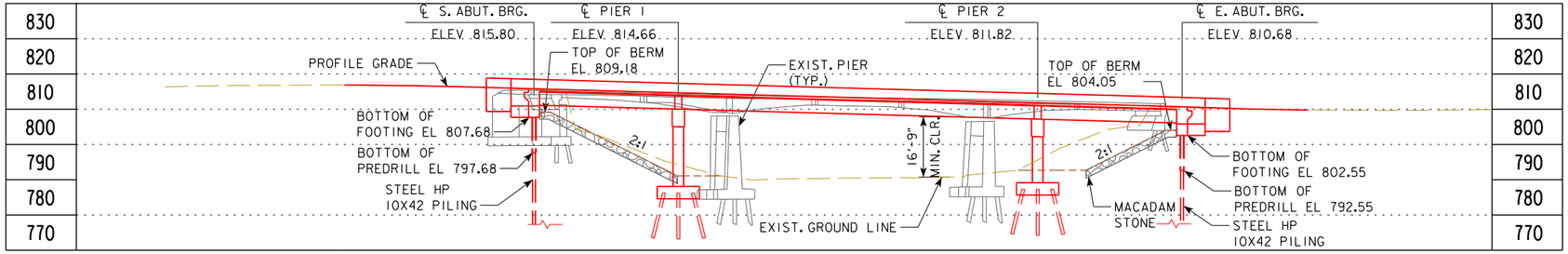
HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 12

Point Name	Northing	Easting	Elevation	Feature Definition
2	6245094.14	22868748.78	809.25	CP-2 SET 5/8”Rebar
90001	6245082.98	22868418.55	817.78	CP-9001 State Supplied

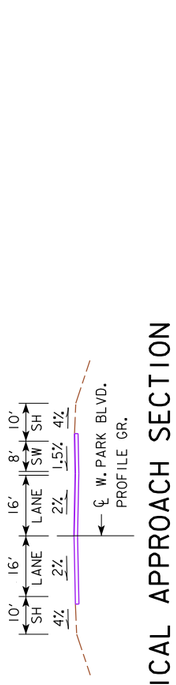
BENCH MARK NO. 1: 6245094.14N, 22868748.78E
CP-2 SET 5/8" REBAR ELEV 809.25
BENCH MARK NO. 2: 6245082.98N, 22868418.55E
CP-9001 STATE SUPPLIED ELEV 817.78



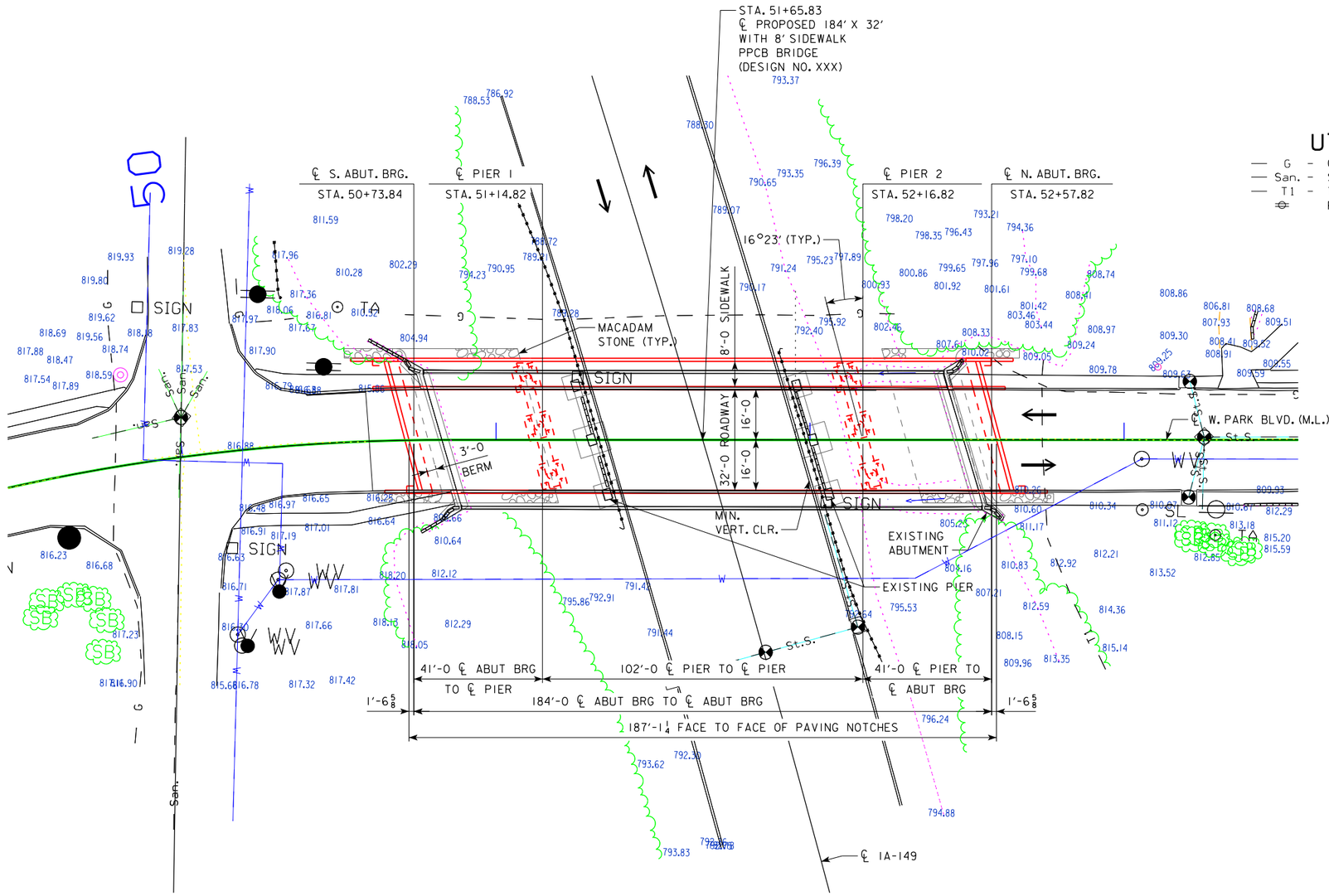
LONGITUDINAL SECTION ALONG ℄ US 59 PROFILE GRADE

-2.78%

PROPOSED PROFILE GRADE



TYPICAL APPROACH SECTION



SITUATION PLAN

UTILITIES LEGEND:

- G - GLID GAS LINE -MIDAIVER GAS - QUALITY D
- San. - SAID SANITARY SEWER - CITY OF OTTUMA - QUALITY D
- T1 - TLID TELEPHONE LINE - IOWA COMMUNICATIONS NETWO - QUALITY D
- PPB POWER POLE ALLIANT ENERGY

N

0 ENGLISH 40
SCALE IN FEET

WEST PARK BLVD TRAFFIC ESTIMATE

2019 AADT	590	V.P.D.
TRUCKS	5	%
TOTAL DESIGN ESALs	-	

IOWA 149 TRAFFIC ESTIMATE

2019 AADT	11,400	V.P.D.
2039 AADT	11,900	V.P.D.
TRUCKS	5	%
TOTAL DESIGN ESALs	-	

LOCATION

W. PARK BLVD
OVER IA-149
T-72N R-14W
SECTION 13
CENTER TOWNSHIP
WAPELLO COUNTY
FHWA NO. 50660
BRIDGE MAINT. NO. 9001.40149
LATITUDE ??.123456°
LONGITUDE -??.123456°

PRELIMINARY

DESIGN FOR 16°23' SKEW R.A.

184'-0 X 32'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE W/ 8' MULTI USE SIDEWALK

41-0 END SPANS (BTC BEAM TYPE) 102'-0 INTERIOR SPAN

SITUATION PLAN

STA. 51+65.82 JULY, 2017

WAPELLO COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. ? DESIGN NO. ?

DESIGN TEAM TRANSYSTEMS | WAPELLO COUNTY | PROJECT NUMBER BRFN-149-1(72)--39-90 | SHEET NUMBER V.1

7/11/2017 4:32:07 PM ajdinkel pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\9014901015\BRPrelim\TranSystems\90149072.str TSL_90_0072-01 printer.pltcfg

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subrade Treatment
- Granular Shoulder
- Pavement
- Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing ROW — Existing Right-of-Way Limit

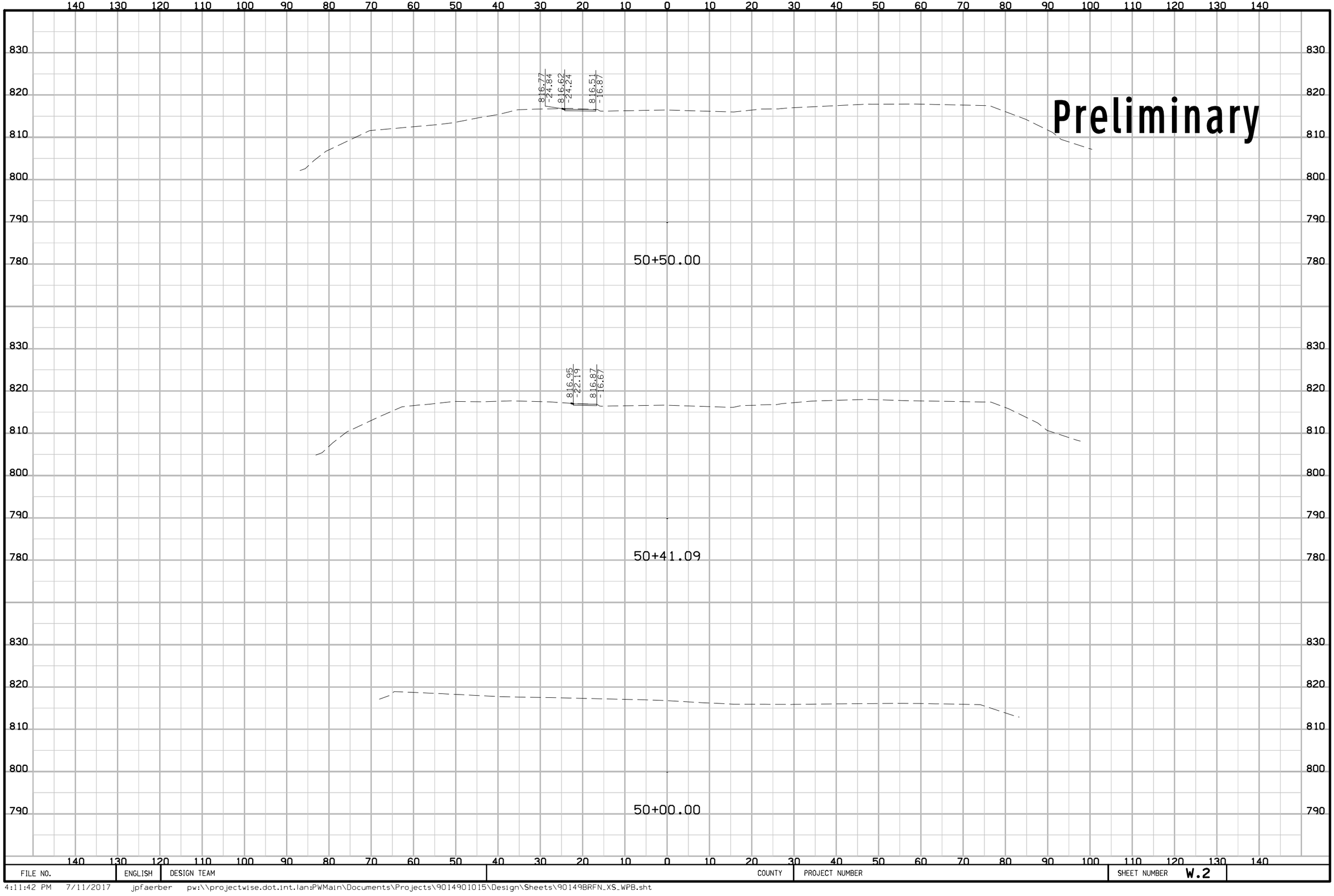
Proposed ROW — Proposed Right-of-Way Limit

Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

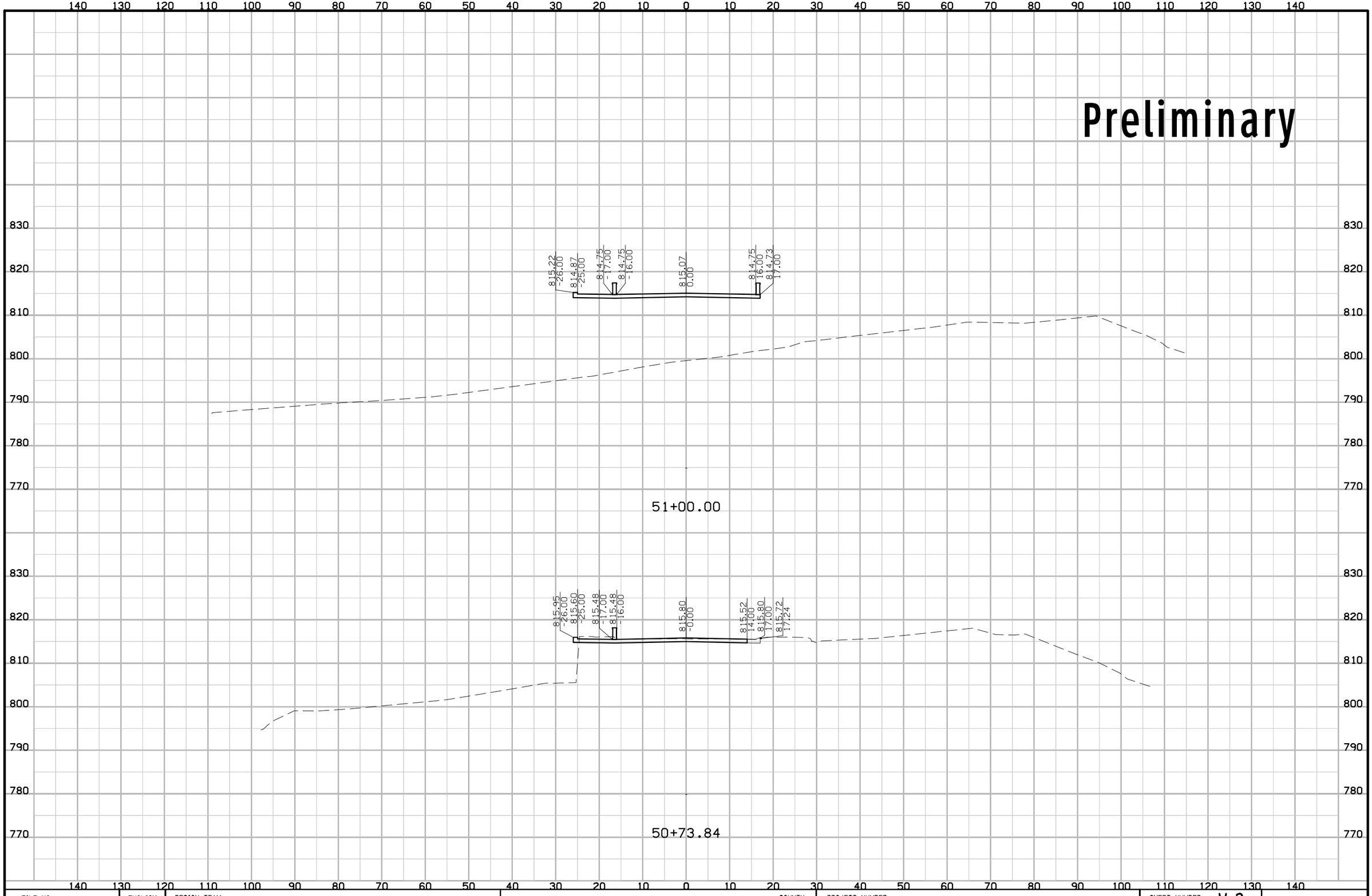
(COVERS SHEET SERIES W, X, Y, & Z)

FILE NO.	ENGLISH	DESIGN TEAM		COUNTY	PROJECT NUMBER	SHEET NUMBER W.1	



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER W.2

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER W.3

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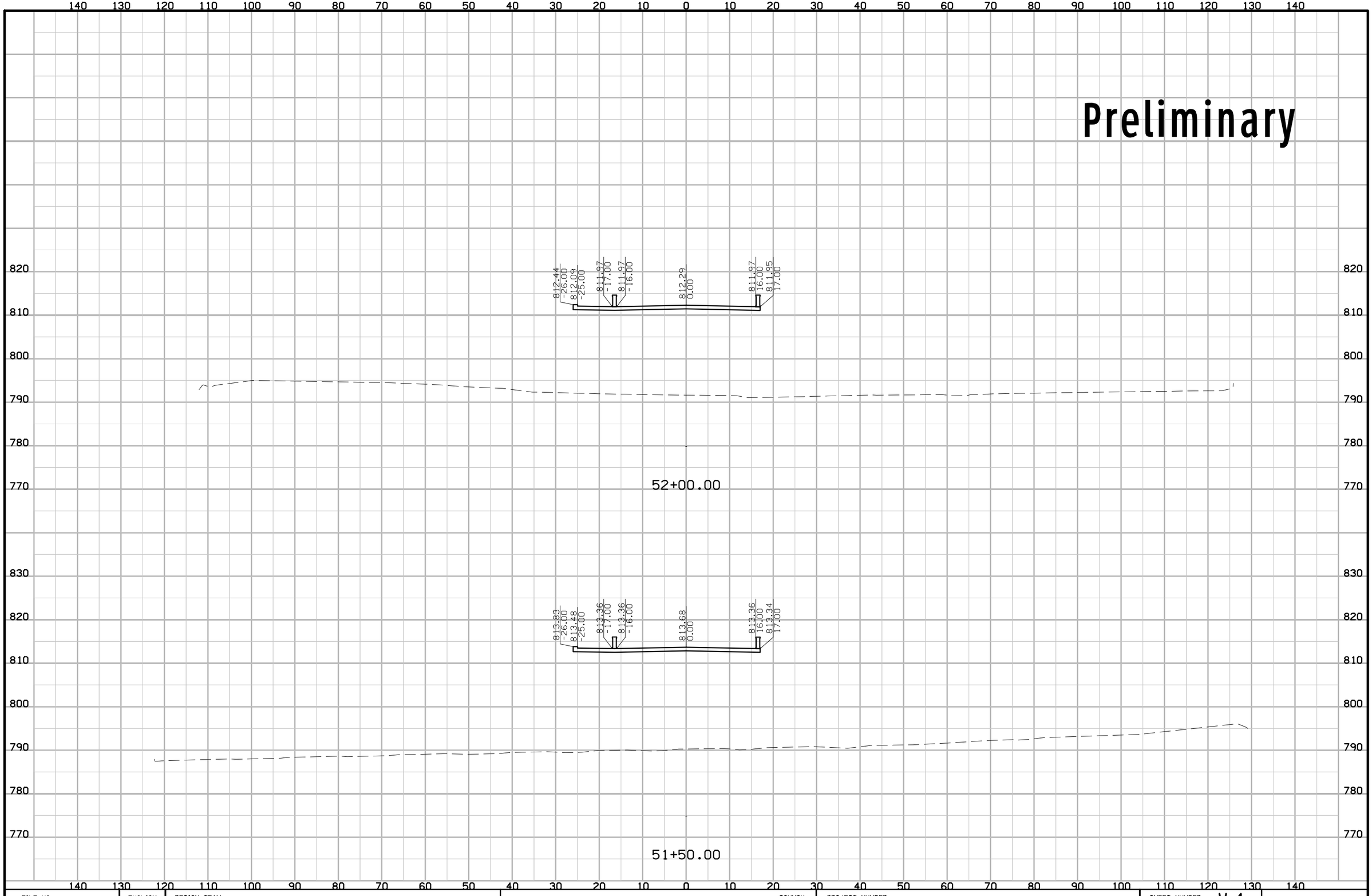
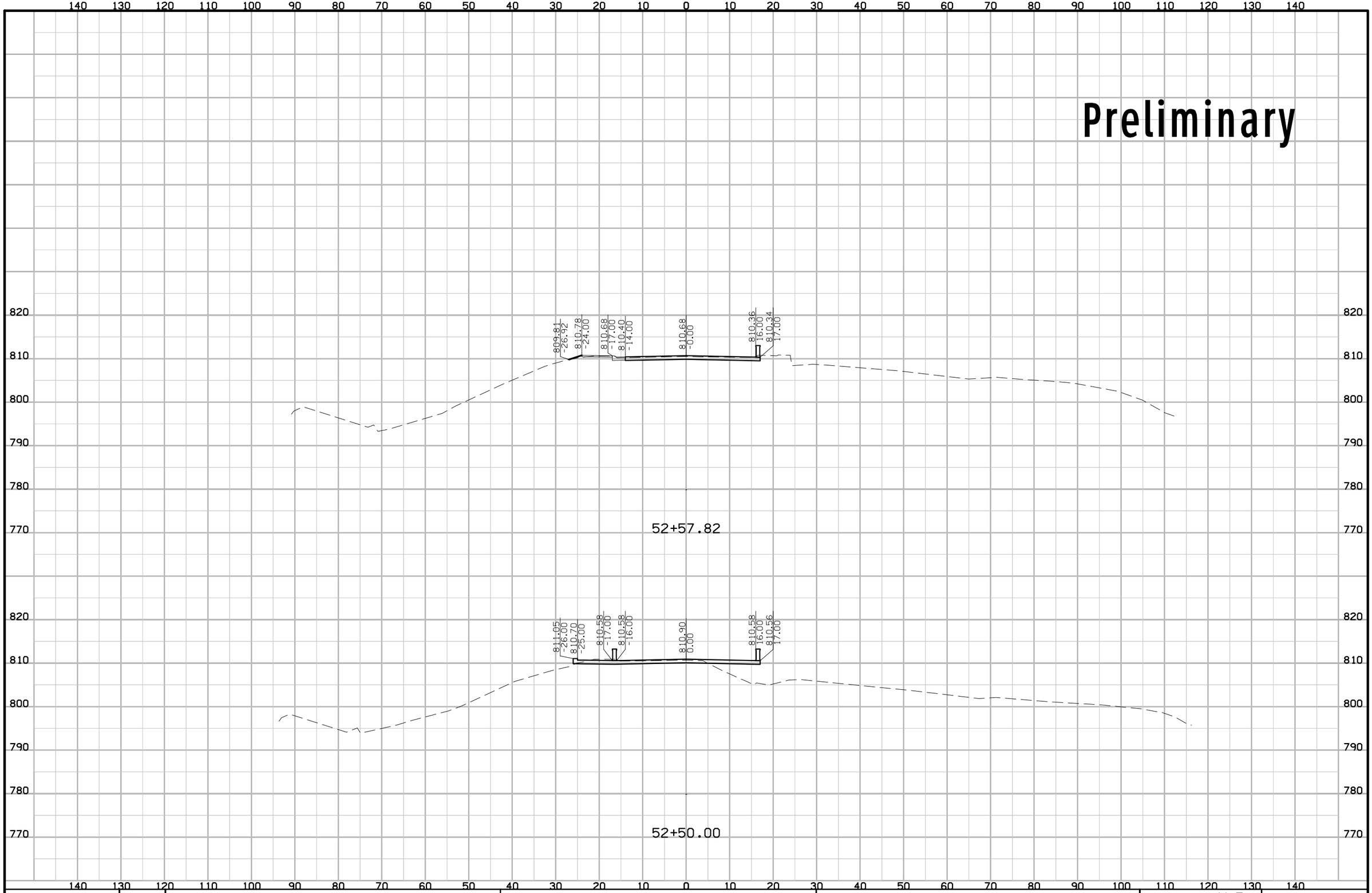
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER W.4

Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER W.5

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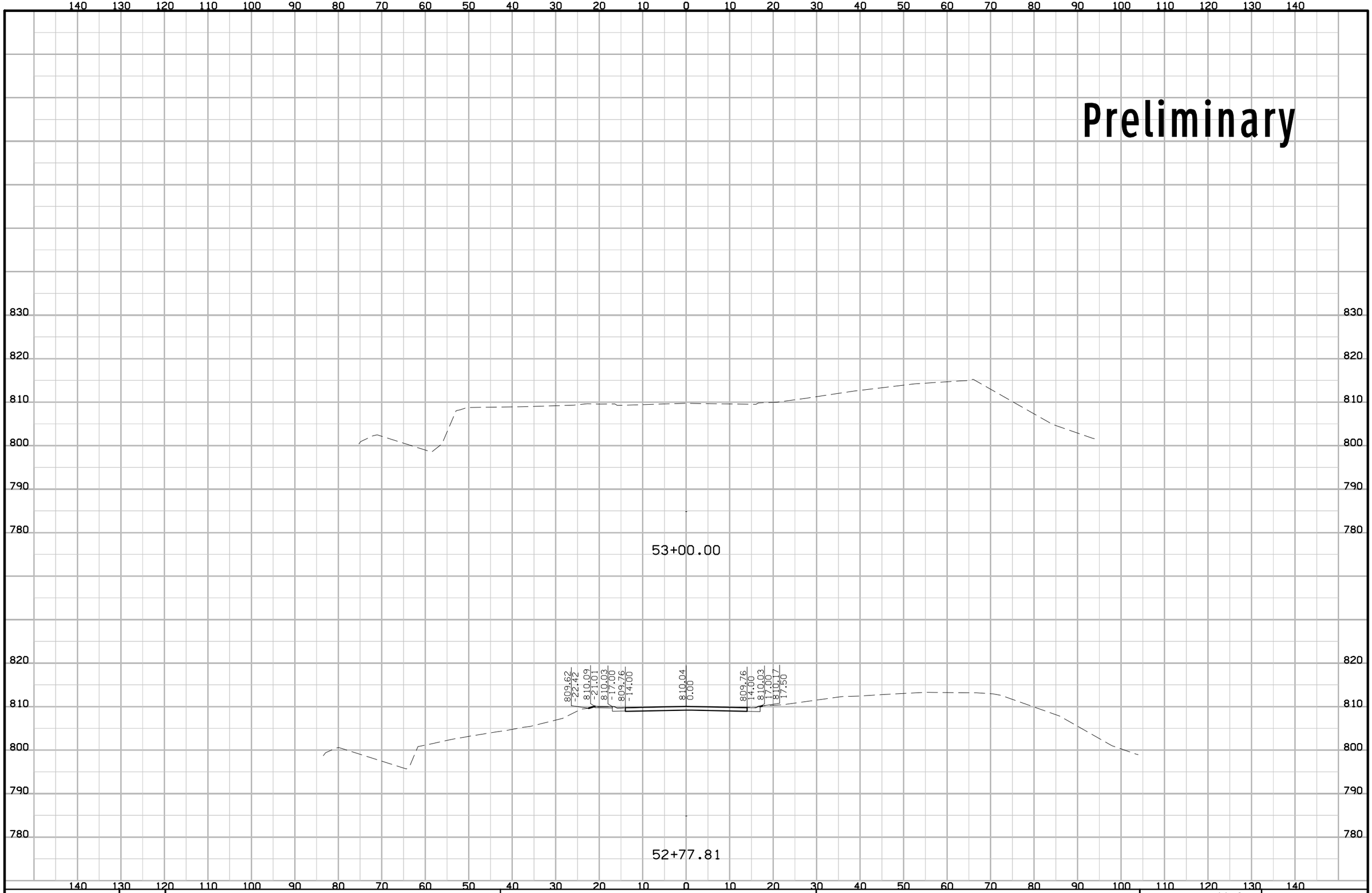
Preliminary



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER W.6

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