

**WRIGHT CO.**  
**PCC PAVEMENT - REPLACE**  
**BRFN-017-4(40)--39-99**

LETTING DATE  
 1-19-2022



**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM  
**WRIGHT COUNTY**  
 BRIDGE REPLACEMENT-PPCB

Prairie Creek 0.9 mi N of Co Rd C26

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL  
15

PROJECT IDENTIFICATION NUMBER

15-99-017-010

PROJECT NUMBER

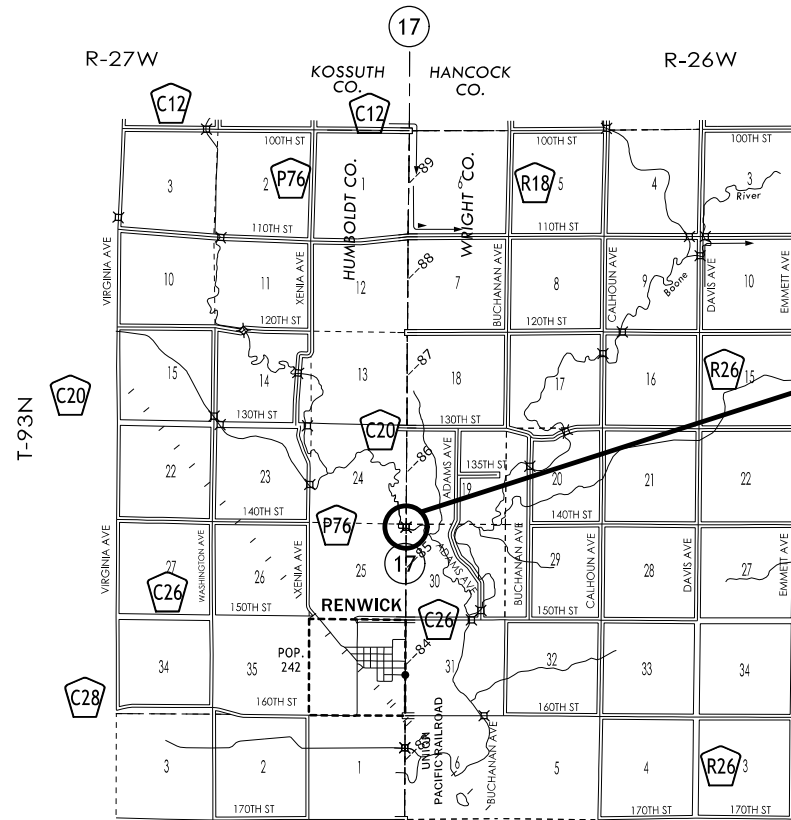
BRFN-017-4(40)--39-99

R.O.W. PROJECT NUMBER

STPN-017-4(41)--2J-99

**INDEX OF SHEETS**

| No.             | DESCRIPTION  |
|-----------------|--|
| <b>A Sheets</b> | <b>Title Sheets</b>                                |
| A.1             | Title Sheet  |
| <b>B Sheets</b> | <b>Typical Cross Sections and Details</b>          |
| B.1             | Typical Cross Sections and Details                 |
| <b>D Sheets</b> | <b>Mainline Plan and Profile Sheets</b>            |
| * D.1           | Plan & Profile Legend & Symbol Information Sheet   |
| * D.2           | Iowa 17  |
| <b>G Sheets</b> | <b>Survey Sheets</b>                               |
| G.1             | Reference Ties and Bench Marks                     |
| G.2 - 3         | Horizontal Control Tab. & Super for all Alignments |
| <b>J Sheets</b> | <b>Traffic Control and Staging Sheets</b>          |
| J.1             | Traffic Control Plan & Staging Notes               |
| * J.2           | Detour Map   |
| <b>V Sheets</b> | <b>Bridge and Culvert Situation Plans</b>          |
| V.1             | Bridge and Culvert Situation Plan                  |
| <b>W Sheets</b> | <b>Mainline Cross Sections</b>                     |
| W.1 - 5         | IA 17 Cross Sections                               |
|                 | * Color Plan Sheets                                |

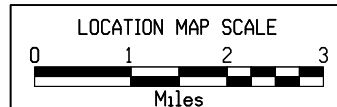
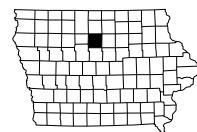
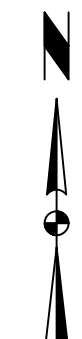


**PROJECT LOCATION**

Ref. Loc. - 85.4

Maint. No. - 9985.4S017

FHWA No. - 54470



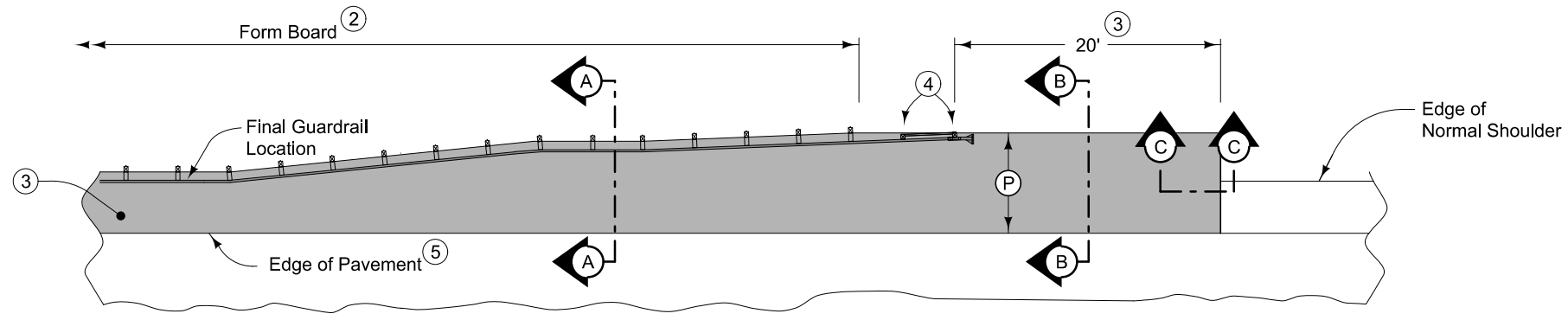
| DESIGN DATA RURAL |              |      |        |
|-------------------|--------------|------|--------|
| 2020              | AADT         | 850  | V.P.D. |
| 2040              | AADT         | 1200 | V.P.D. |
| 20--              | DHV          | --   | V.P.H. |
|                   | TRUCKS       | 37   | %      |
|                   | Total        |      |        |
|                   | Design ESALs | --   |        |

| INDEX OF SEALS |               |                         |
|----------------|---------------|-------------------------|
| SHEET NO.      | NAME          | TYPE                    |
| A.1            | Paul Flattery | Primary Signature Block |
|                |               |                         |
|                |               |                         |
|                |               |                         |
|                |               |                         |

**PRELIMINARY PLANS**

Subject to change by final design.

**D5 PLAN - Date: 01/30/20**



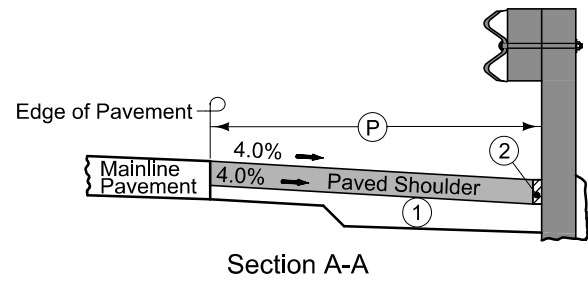
PLAN VIEW

9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

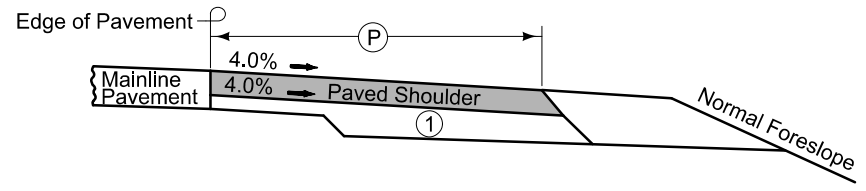
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.



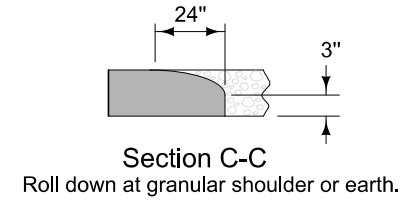
Section A-A



Section B-B

NEW CONSTRUCTION

- ① For subgrade treatment, refer to other details in the plan.
- ② PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder.  
'B' joint for HMA shoulder.

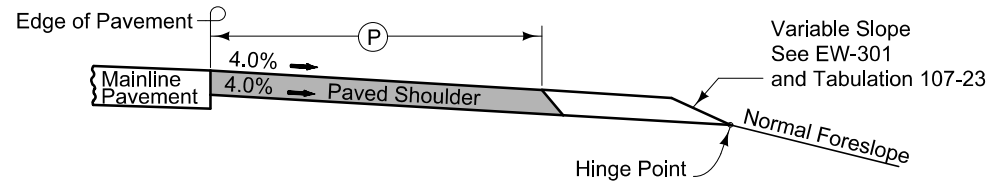


Section C-C  
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL



Section A-A



Section B-B

EXISTING SHOULDER

### SURVEY SYMBOLS

- FENO FENO Monument
- HT Electrical Highline Tower
- POT Tangent Point
- PPE Power Pole Co. 5
- TPD Telephone Pedestal
- BL Topo Breakline
- BNK Stream Bank
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- ENT Centerline BL of Entrance
- EW Edge of Water
- FW Wire Fence
- GDL Guard Rail Steel
- SNP Unpaved Shoulder
- TL1D Telephone Line Co. 1 - Quality D

### UTILITY LEGEND

- Centurylink Telephone Pedestal
- Centurylink - Quality D
- Boone Valley Electric Coop Power Pole
- Corn Belt Power Coop HT Electrical Highline Tower

### 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    |

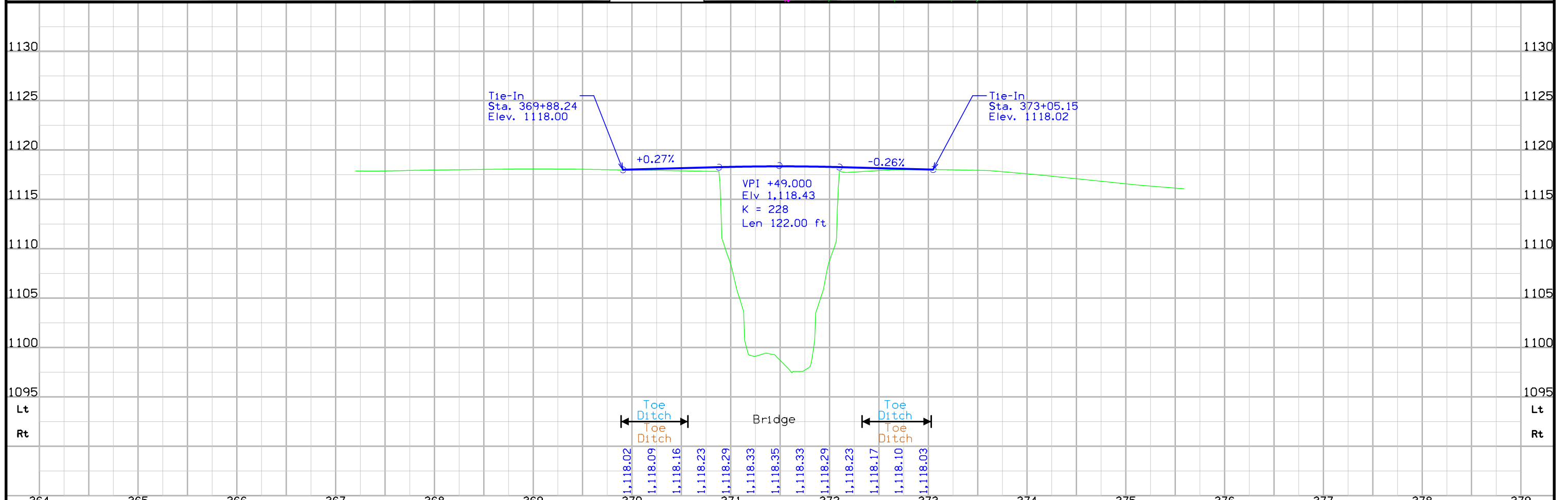
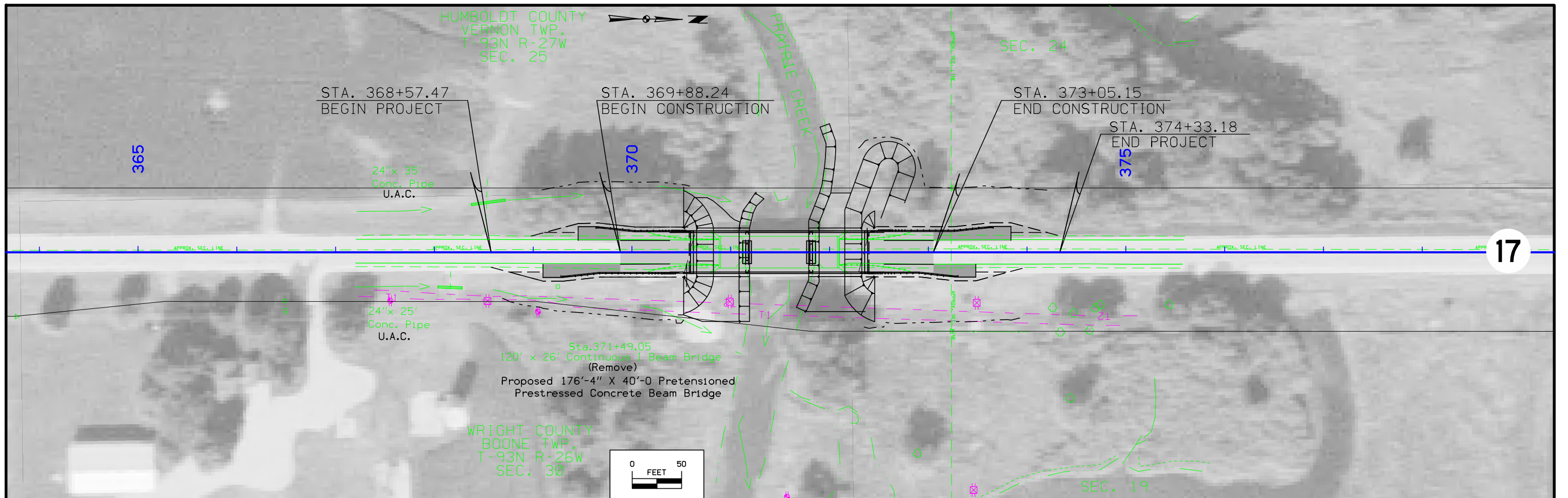
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

### 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
- Access Control
- Property Line

## PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



|          |         |             |                    |     |     |               |     |     |                |                       |     |     |              |     |     |
|----------|---------|-------------|--------------------|-----|-----|---------------|-----|-----|----------------|-----------------------|-----|-----|--------------|-----|-----|
| 364      | 365     | 366         | 367                | 368 | 369 | 370           | 371 | 372 | 373            | 374                   | 375 | 376 | 377          | 378 | 379 |
| FILE NO. | ENGLISH | DESIGN TEAM | Flattery \ Carlson |     |     | WRIGHT COUNTY |     |     | PROJECT NUMBER | BRFN-017-4(40)--39-99 |     |     | SHEET NUMBER | D.2 |     |

# Survey Information

Wright/Humboldt County  
BRFN-017-4(40)--39-99  
Prairie Creek 0.9 Miles N of Co. Rd C26  
Bridge Replacement  
PIN 15-99-017-010  
Sap-0887

## Party Personnel

Jason Page- Party Chief

## Date(s) of Survey

Begin Date 04/03/2017  
End Date 07/12/2017

## General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction. Project datum and control information is provided by Design Survey Office. This project is a Partial DTM with Photo control.

## Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12B). GRS80 Ellipsoidal Height was computed at project Pts. 300, 301, 1005, & 1014 by doing concurrent 6-hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

This survey observed 2 local area county Control Monuments with published NAVD88 heights to compare to local ground control:

Humboldt County Control mark 1005 has a published Elev. of 1116.21(Geoid03)  
Survey Elev. = 1116.459(Geoid12b)

Humboldt County Control mark 1014 has a published Elev. of 1128.27(Geoid03)  
Survey Elev. = 1128.570(Geoid12b)

This survey observed 1 As-Built plan bench mark to compare to local ground control:

BM 1038B (BM 502) Plan Elev. = 552.00 Project F 351(4)  
BM 502 Survey Elev. = 1120.058

## Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 4 (U.S. Survey Feet). This survey control is relative to IaRTN reference stations. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2013.00. Coordinates were determined by conducting a 6-hour static observation. Additional control points were placed throughout the project using a GNSS Base-Rover setup relative to point 300.

## Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. F 351 (4). Survey stationing was equated to the plan POT at STA 346+96.4 and run ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

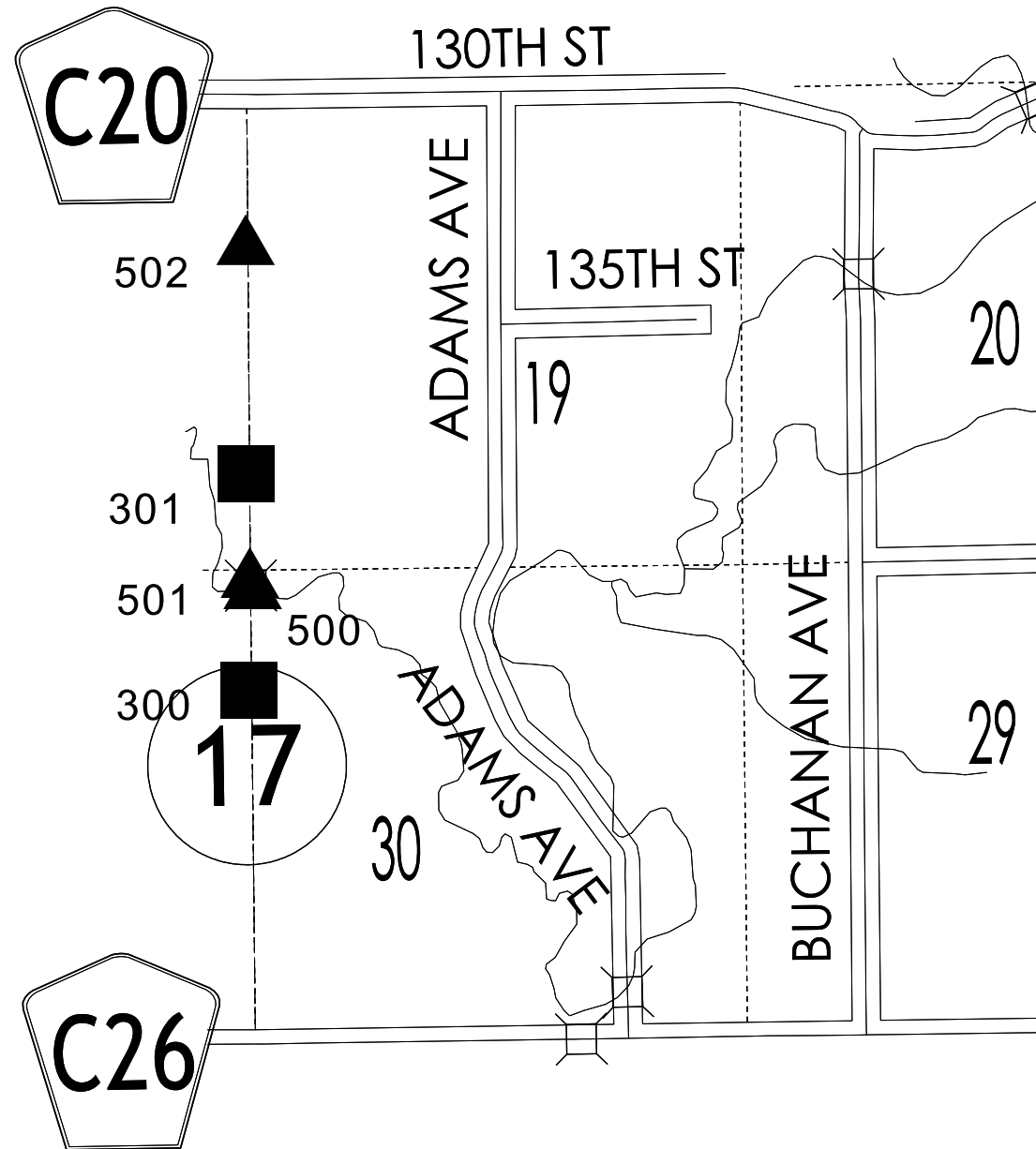
POT Sta. 346+96.4 As-built Plans Project No. F 351 (4)  
Survey POT Sta. 346+96.40

POT Sta. 399+60.8 As-built Plans Project No. F 351 (4)  
Survey POT Sta. 399+61.08

### 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.

T-93N



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 4

Coordinate listing from next sheet will be used with 1aRTN 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

1a. Regional Coordinate System Zone 4

| Point Name | Northing    | Easting      | Elevation | Feature Definition |
|------------|-------------|--------------|-----------|--------------------|
| 300        | 8714728.742 | 14731119.511 | 1116.57   | FENO               |
| 301        | 8717131.151 | 14731096.241 | 1111.02   | FENO               |
| 500        | 8715816.401 | 14731164.881 | 1120.39   | BM                 |
| 501        | 8715940.947 | 14731134.084 | 1118.32   | BM                 |
| 502        | 8719629.848 | 14731086.288 | 1120.07   | BM                 |

|            |  |      |         |      |        |                   |      |        |      |           |      |        |            |       |       |             |          |            |  |
|------------|--|------|---------|------|--------|-------------------|------|--------|------|-----------|------|--------|------------|-------|-------|-------------|----------|------------|--|
| Humboldt   | ROW: STPN-017-4(48)--2J-46             |      |         |      |        | PIN 15-99-017-010 |      |        |      |           |      |        |            |       |       |             |          |            |  |
|            | Prairie Creek 0.9 mi N of Co Rd C26    |      |         |      |        |                   |      |        |      |           |      |        |            |       |       |             |          |            |  |
|            |  |      |         |      |        |                   |      |        |      |           |      |        |            |       |       |             |          |            |  |
|            |  |      | STATE   |      | COUNTY |                   | CITY |        |      | TEMP EASE |      | BORROW |            |       |       |             |          |            |  |
| PARCEL NO. | OWNER NAME                             | FEE  | EASE    | FEE  | EASE   | FEE               | EASE | EXCESS |      |           | FEE  | T.E.   | MITIGATION | OTHER | HOUSE | BUILDING(S) | A/C ONLY | TOTAL ACQ. |  |
| 1          | Kent Kiburz - Fee                      |      | 0.43 AC |      |        |                   |      |        |      |           |      |        |            |       |       |             |          |            |  |
| 3          | Iowa Natural Heritage Foundation - Fee |      |         |      |        |                   |      |        |      | 0.04 AC   |      |        |            |       |       |             |          |            |  |
|            |  |      |         |      |        |                   |      |        |      |           |      |        |            |       |       |             |          |            |  |
| 2 Parcels  | "TOTALS                                | 0 AC | 0.43 AC | 0 AC | 0 AC   | 0 AC              | 0 AC | 0 AC   | 0 AC | 0.04 AC   | 0 AC | 0 AC   | 0 AC       |       |       |             |          |            |  |
|            |  | 0 SF |         | 0 SF | 0 SF   |                   | 0 SF | 0 SF   |      | 0 SF      | 0 SF |        | 0 SF       |       |       |             |          |            |  |





NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

HUMBOLDT COUNTY  
VERNON TWP.  
T-93N R-27W  
SEC. 25

①

KENT KIBURZ &  
MELISSA M. KIBURZ

③

IOWA NATURAL HERITAGE  
FOUNDATION

NE 1/4 NE 1/4  
SEC 25

SE 1/4 SE 1/4  
SEC 24

STA. 368+57.47  
BEGIN PROJECT

STA. 374+33.18  
END PROJECT

365

17

24" x 35'  
Conc. Pipe  
U.A.C.

368+76  
±65'±EX.R/W

372+00  
±136'

372+83  
±128'

TEMPORARY EASEMENT  
TO SHAPE

373+24±P  
±85'

374+84  
±65'±EX.R/W

24" x 25'  
Conc. Pipe  
U.A.C.

368+36  
±50'±EX.R/W

369+67  
±81'

372+41  
±87'

373+23.86  
80'±EX.R/W COR.

NW 1/4 NW 1/4  
SEC 30

SW 1/4 SW 1/4  
SEC 19

Sta. 371+49.05  
120' x 26' Continuous I Beam Bridge  
(Remove)  
Proposed 176'-4" X 40'-0" Prestressed  
Concrete Beam Bridge

②

JAY A. NELSON &  
KATHLEEN E. NELSON

WRIGHT COUNTY  
BOONE TWP.  
T-93N R-26W  
SEC. 30

**Right of Way Design Information  
THIS SHEET INCLUDED  
FOR INFORMATION ONLY**

ROW Team: Larson / Hughes  
ROW #: STPN-017-4(41)-2J-99 / STPN-07-4(48)-2J-46  
Plan Date: 2-18-2020

- Color Legend:**
- Property Lines
  - Temporary Easement
  - Permanent Acquisition



**108-23A**  
08-01-08

### TRAFFIC CONTROL PLAN

1) US 17 traffic shall be detoured offsite using the following routes: detour will follow County Road C26 west to the junction of County Road C26/County Road P66, then north on County Road P66 to the junction of County Road P66/County Road C20, then east to the junction of IA 17. Out of distance travel is 8 miles.

2) Contractor will furnish, install, maintain, and remove detour signs. These functions will be included in the Traffic Control Bid Items. See J sheets for detour location and signing layout.

**108-26A**  
08-01-08

### STAGING NOTES

Stage 1  
Sign detour layout.

Stage 2  
Construct proposed bridge and pavement.

Stage 3  
Open US 17 traffic to normal two way two lane operation.

**108-25**  
10-21-14

### 511 TRAVEL RESTRICTIONS

| Route | Direction | County | Location Description                         | Feature Crossed | Object Type | Maint. Bridge No., Structure ID, or FHWA No. | Type of Restriction | Existing Measurement | Construction Measurement | Construction Measurement as Signed | Projected As Built Measurement | Remarks |
|-------|-----------|--------|--|-----------------|-------------|--|---------------------|----------------------|--------------------------|------------------------------------|--------------------------------|---------|
|       |           |        | No travel restrictions expected at this time |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |
|       |           |        |  |                 |             |  |                     |                      |                          |                                    |                                |         |

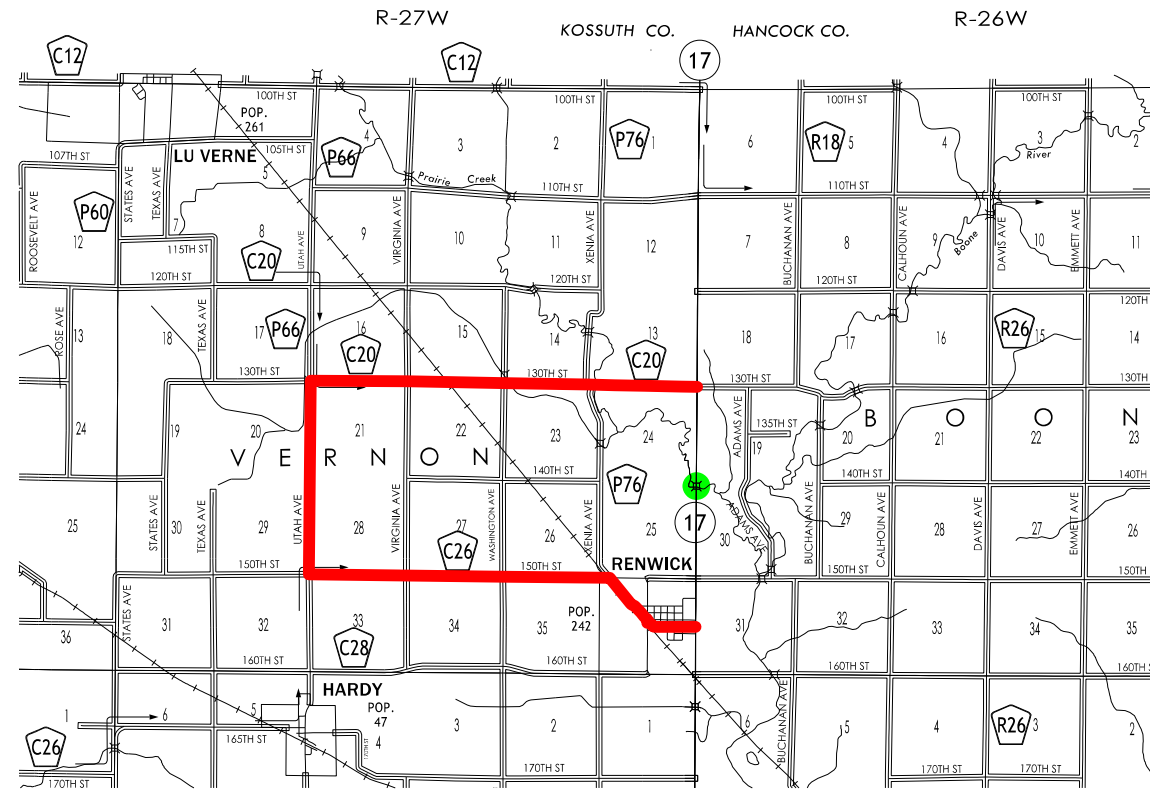
**111-01**  
04-17-12

### COORDINATED OPERATIONS

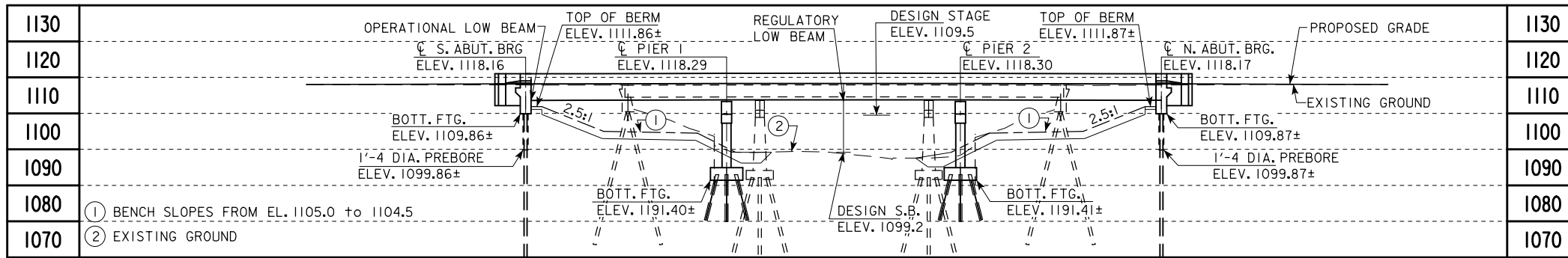
Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

| Project       | Type of Work |
|---------------|--------------|
| None Provided |              |
|               |              |
|               |              |
|               |              |
|               |              |
|               |              |
|               |              |
|               |              |
|               |              |
|               |              |

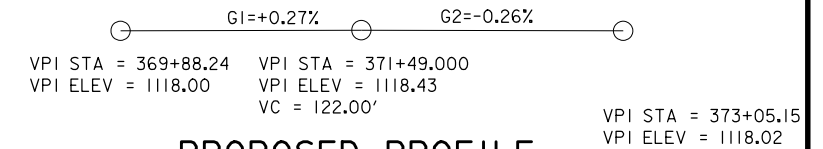
# DETOUR MAP



——— PROPOSED DETOUR  
● PROJECT LOCATION

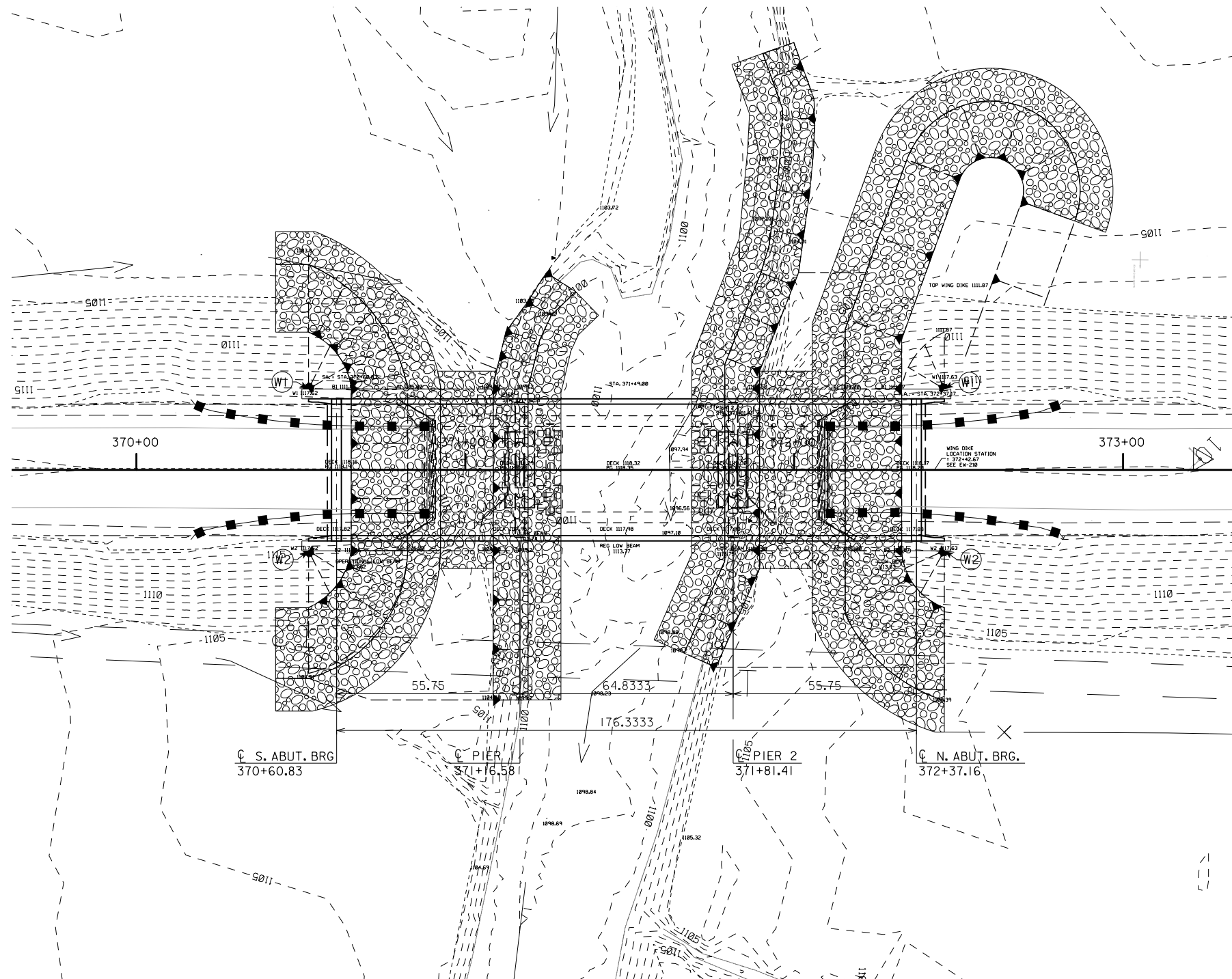


LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY

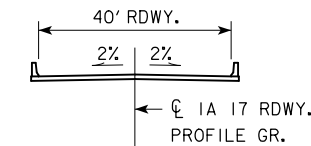


NOTES:

- TOP OF BRIDGE DECK CROWN 0.03 BELOW PROFILE GRADE.
- AN IOWA DNR FLOOD PLAIN CONSTRUCTION PERMIT IS REQUIRED.
- CLASS E REVETMENT STONE IS EMBEDDED.



TYPICAL BRIDGE SECTION



HYDRAULIC DATA

DRAINAGE AREA = 141 SQ. MI.  
 STREAM SLOPE = 1.0 FT./MI.  
 AVG. LOW WATER STAGE = 1100.7

Q<sub>25</sub> = 3520 CFS  
 STAGE = 1109.1

Q<sub>50</sub> = 4210 CFS  
 STAGE = 1109.5  
 REGULATORY LOW BEAM = 1113.77  
 BACKWATER = 0.8 FT.  
 AVG. BRIDGE VELOCITY = 4.1 FPS

Q<sub>100</sub> = 4960 CFS  
 STAGE = 1109.9  
 OPERATIONAL LOW BEAM = 1113.61  
 BACKWATER = 0.9 FT.

Q<sub>200</sub> = 5760 CFS  
 STAGE = 1110.3  
 CALCULATED DESIGN SCOUR = ????

Q<sub>500</sub> = 6640 CFS  
 STAGE = 1110.7  
 CALCULATED CHECK SCOUR = ????

ROADWAY OVERTOP ????  
 STA. ???+???

TRAFFIC ESTIMATE

|                    |      |        |
|--------------------|------|--------|
| 2020 AADT          | 850  | V.P.D. |
| 2040 AADT          | 1200 | V.P.D. |
| 202 DHV            |      | V.P.H. |
| TRUCKS             | 37   | %      |
| TOTAL DESIGN ESALS |      |        |

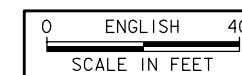
UTILITIES LEGEND:

T - TELEPHONE LINE  
 T2 - TELEPHONE LINE

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

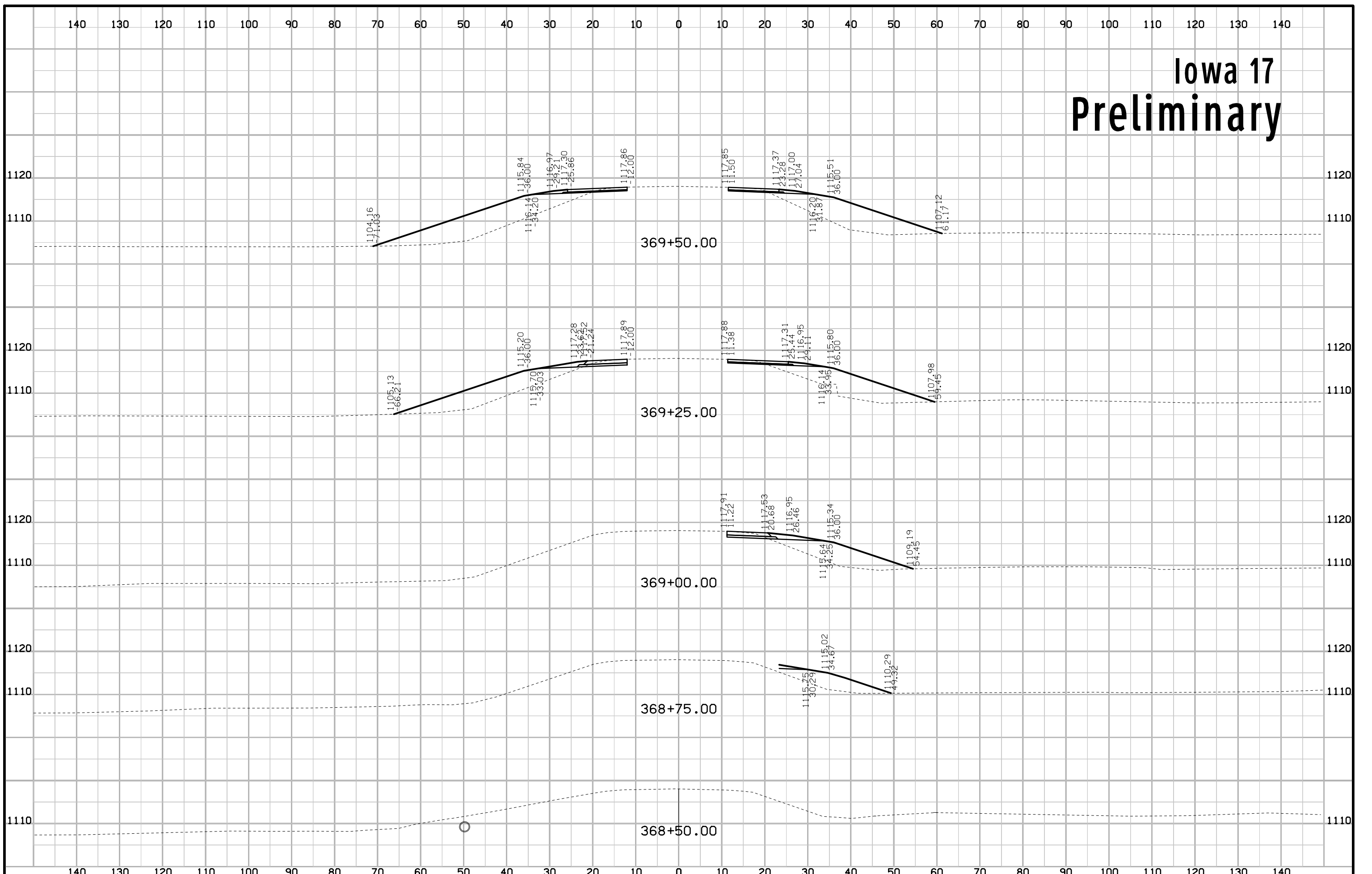
LOCATION

IA 17 OVER PRAIRIE CREEK  
 T-93N R-27W, SECTION 25  
 VERNON TOWNSHIP  
 HUMBOLDT COUNTY  
 T-93N R26W, SECTION 30  
 BOONE TOWNSHIP  
 WRIGHT COUNTY  
 FHWA NO. ?  
 BRIDGE MAINT. NO. 9985.4S017  
 LATITUDE 42.848042°  
 LONGITUDE -93.971450°

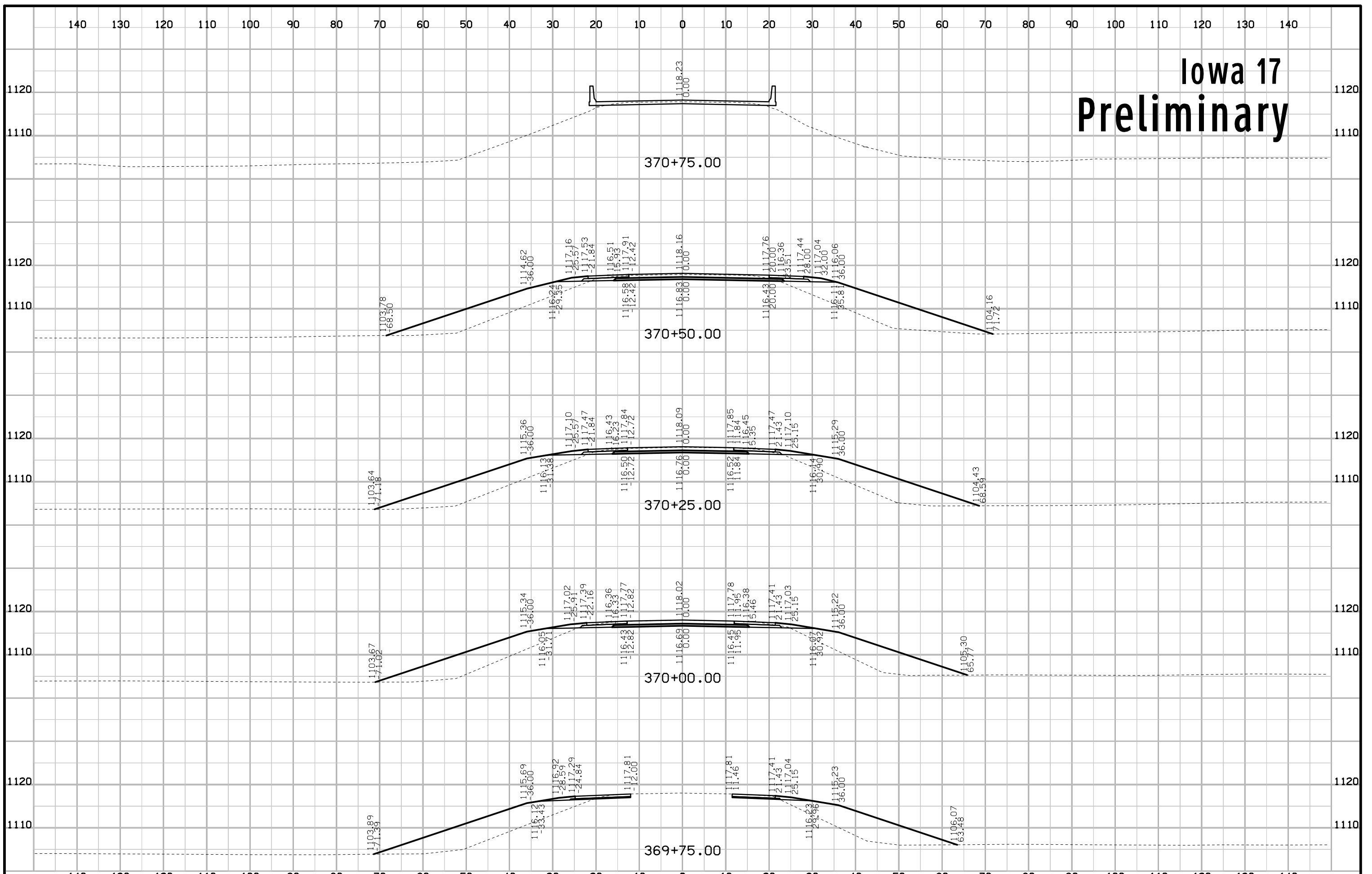


PRELIMINARY  
 DESIGN FOR 0° SKEW  
**176'-4 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE**  
 55'-9 END SPANS (B- BEAM) 64'-10 INTERIOR SPAN  
**SITUATION PLAN**  
 STATION 371+49.00 (IA 17) JANUARY 2020  
**WRIGHT COUNTY**

# Iowa 17 Preliminary

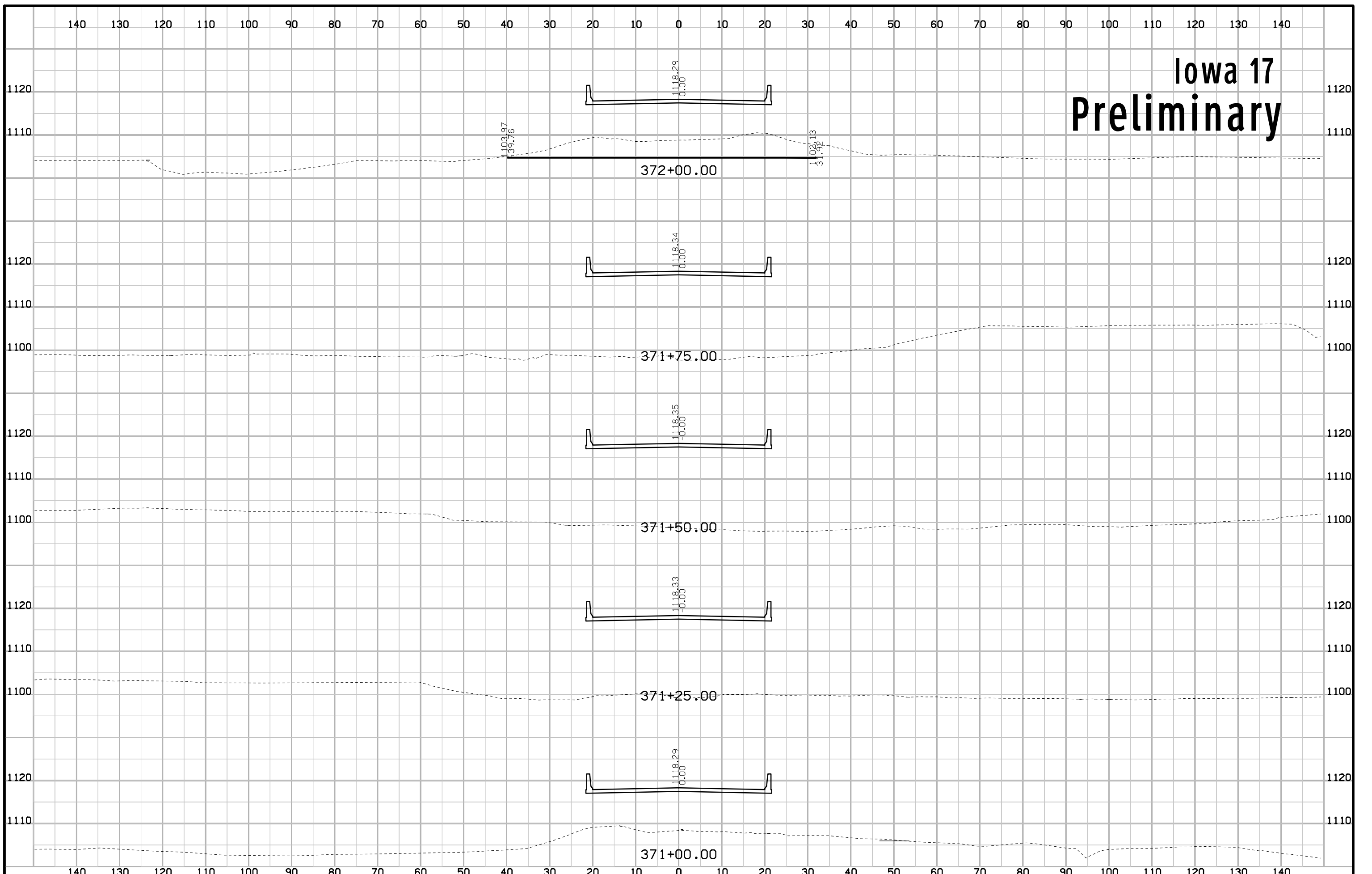


# Iowa 17 Preliminary

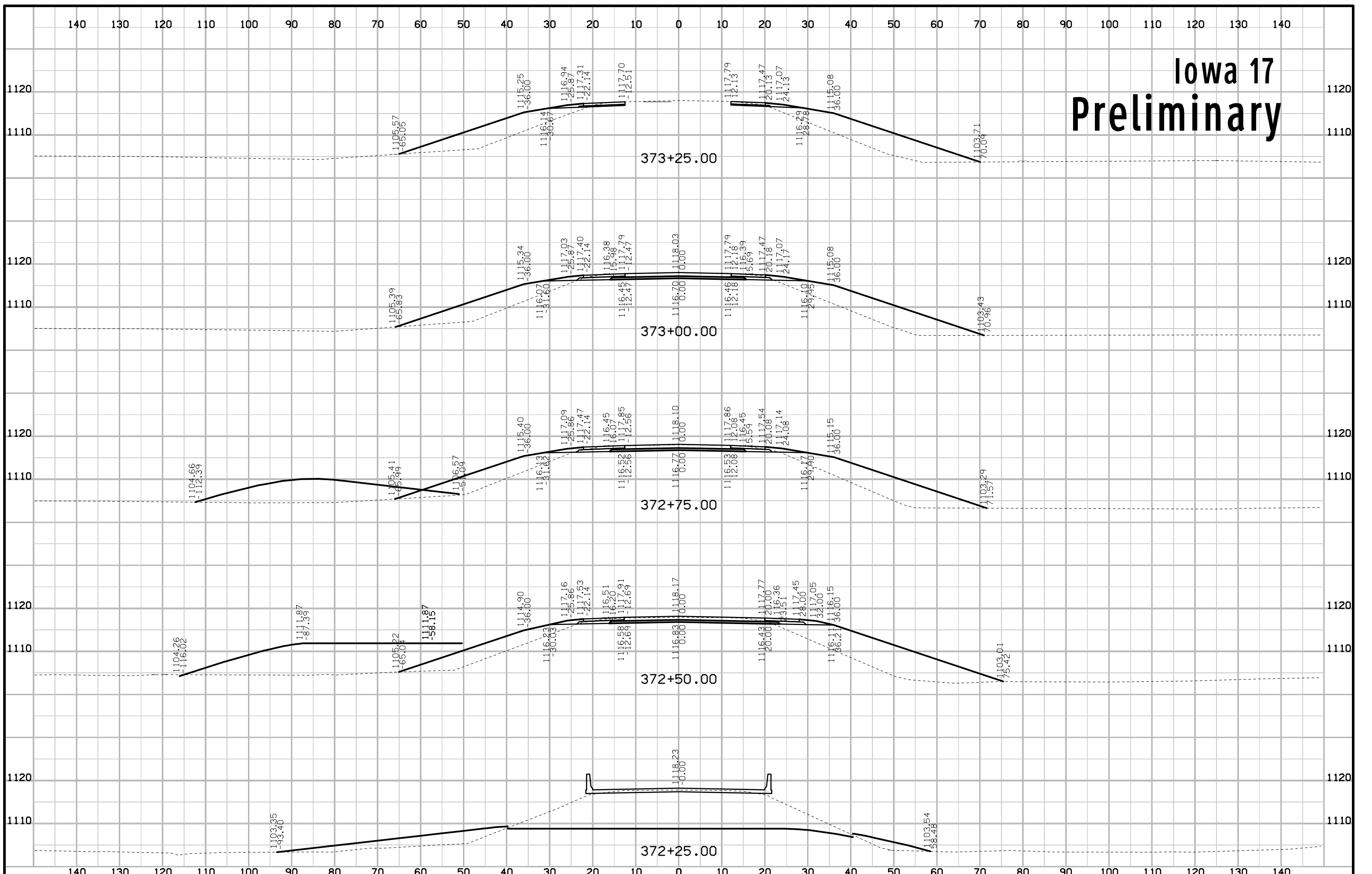




# Iowa 17 Preliminary



# Iowa 17 Preliminary



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