

LUCAS CO. RCB CULVERT REPLACEMENT - SINGLE BOX  
STPN-014-2(40)--2J-59

LETTING DATE  
1-20-2021



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

LUCAS COUNTY

RCB CULVERT REPLACEMENT - SINGLE BOX

1.2 mi N of N Jct Co Rd H50 (MP 14.6)

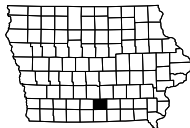
SCALES: As Noted

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                                      |
| <b>A Sheets</b> | <b>Title Sheets</b>                              |
| A.1             | Title Sheet                                      |
| A.2             | Location Map Sheet                               |
| <b>B Sheets</b> | <b>Typical Cross Sections and Details</b>        |
| B.1 - 3         | 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 - 3       | IA 14                                            |
| <b>J Sheets</b> | <b>Traffic Control and Staging Sheets</b>        |
| J.1             | Traffic Control Plan                             |
| * J.2           | Detour Map                                       |
| <b>V Sheets</b> | <b>Bridge and Culvert Situation Plans</b>        |
| * V.1           | Bridge and Culvert Situation Plans               |
| <b>W Sheets</b> | <b>Mainline Cross Sections</b>                   |
| W.1 - 4         | Mainline Cross Sections                          |
|                 | * Color Plan Sheets                              |



DESIGN DATA RURAL

|        |       |      |        |
|--------|-------|------|--------|
| 2014   | AADT  | 2450 | V.P.D. |
| 2021   | AADT  | --   | V.P.D. |
| 2021   | DHV   | --   | V.P.H. |
| TRUCKS |       | 6.1  | %      |
| Total  |       |      |        |
| Design | ESALs | --   |        |

REVISIONS

TOTAL

15

PROJECT IDENTIFICATION NUMBER

18-59-014-010

PROJECT NUMBER

STPN-014-2(40)--2J-59

R.O.W. PROJECT NUMBER

STPN-014-2(41)--2J-59

D4 PLAN - Date: 9-23-2020

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 2-13-2019

FILE NO. 31660

ENGLISH

DESIGN TEAM JIA \ DEWOLF \ WARHANK

LUCAS COUNTY

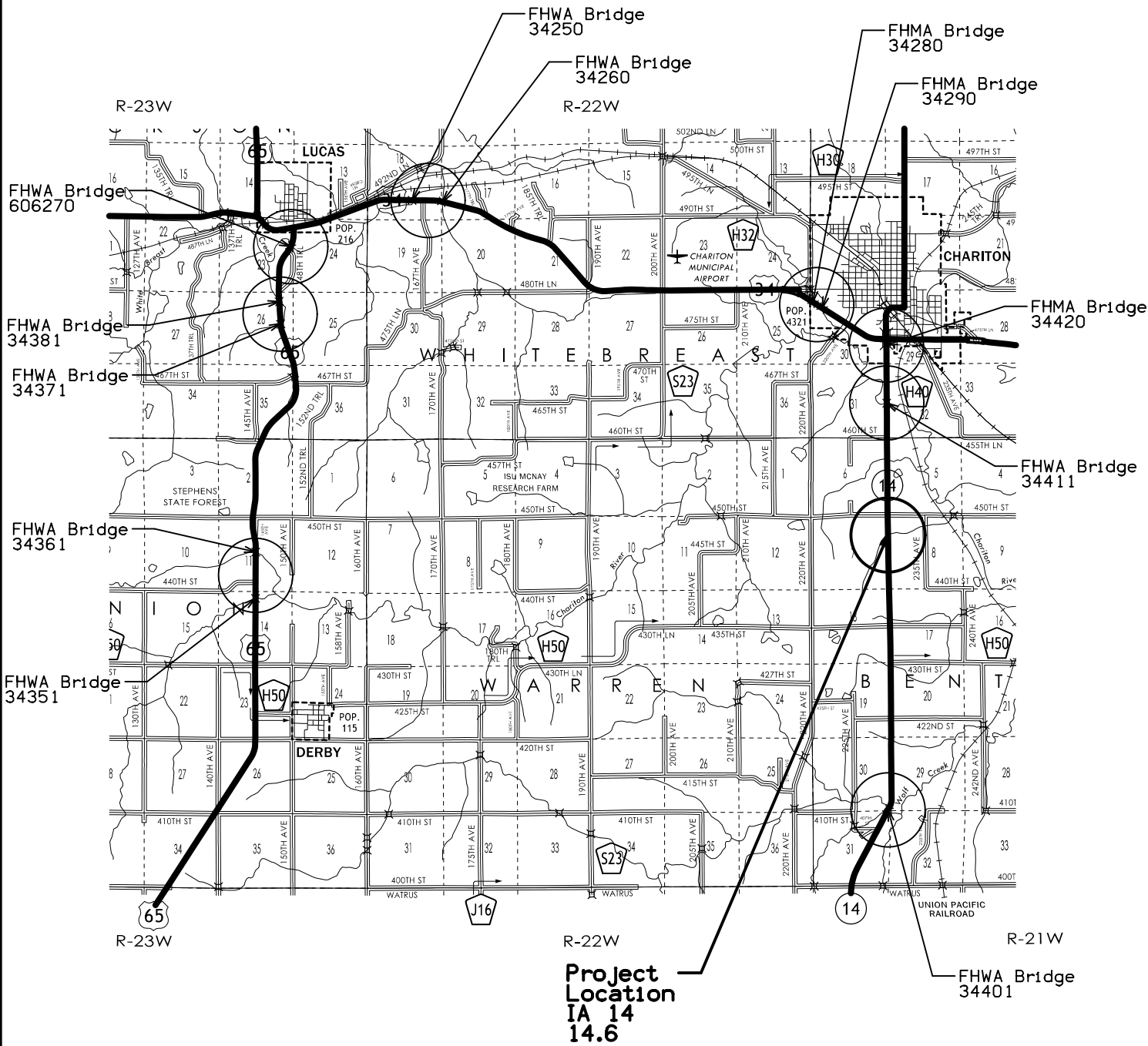
PROJECT NUMBER

STPN-014-2(40)--2J-59

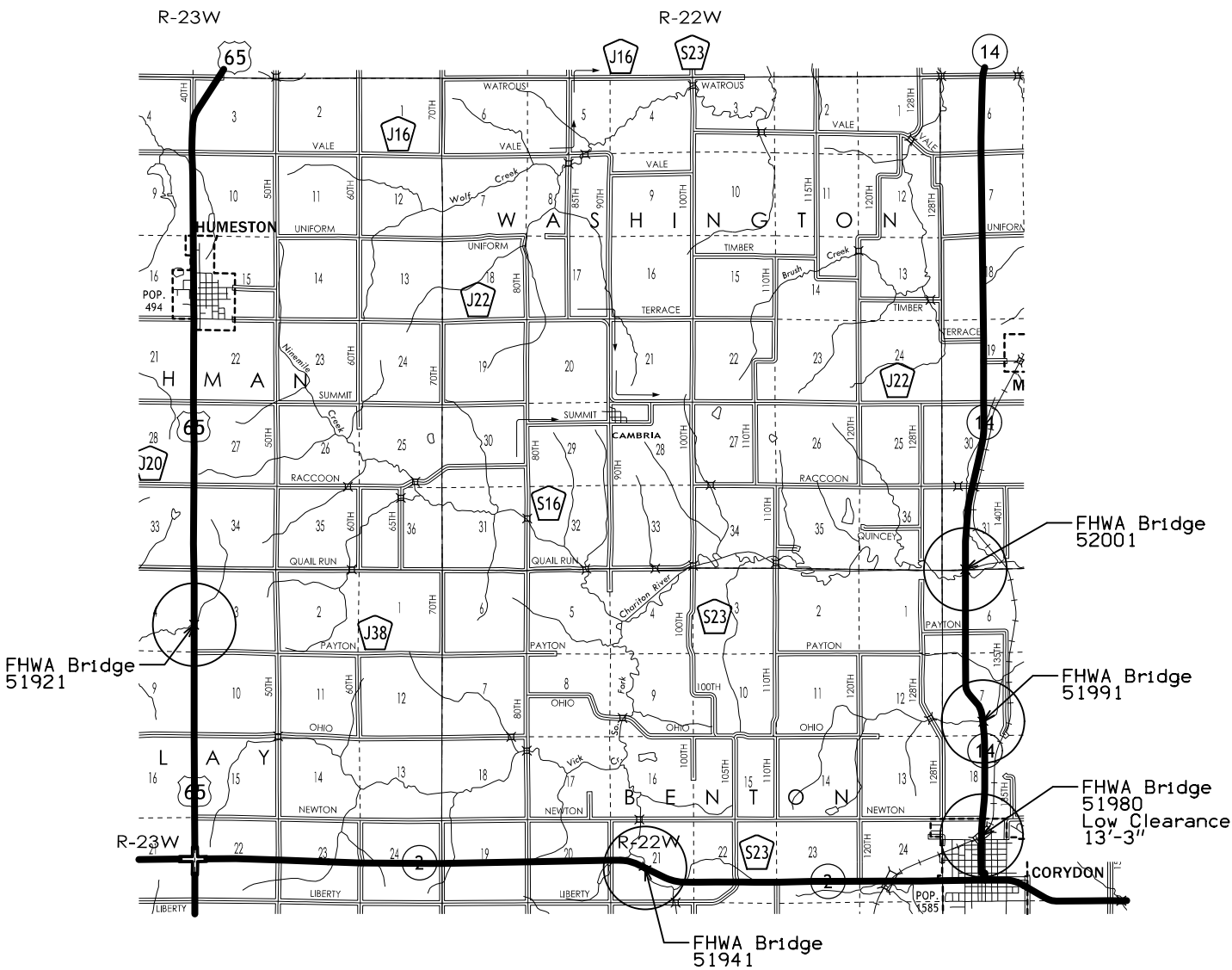
SHEET NUMBER

A.1

LUCAS COUNTY

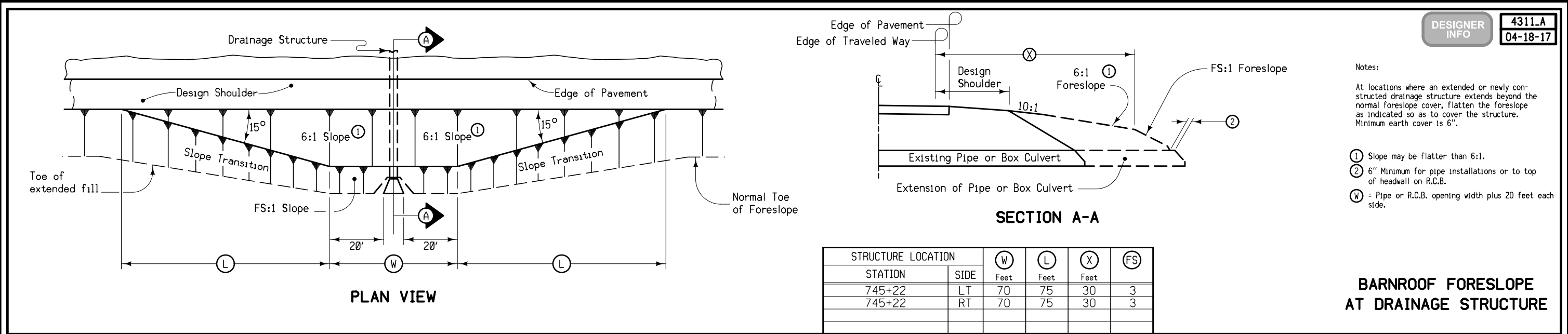


WAYNE COUNTY



Location Map







- Notes:
- ①

Finished slope shall match existing pavement except that the maximum allowable slope is 3.0 %, minimum allowable slope is 2.0 %. Section may be modified as directed by the engineer through areas of special shaping.
- ②

Shoulder material as specified elsewhere in these plans; refer to Typ 7135 Mod. for "Type 'B' Granular Surfaced Shoulders".
- ③

Quantity estimated for 2 courses plus vertical faces of paved shoulder units. (Not a bid item)
- ④

Provide a vertical edge. Incidental to Class 13 Excavation.
- ⑤

HMA Base is to be completed after Cold In-Place Recycling has been done. See Tab 108-26A 'Staging Notes' on sht J.1 for more information.
- ⑥

Edge of Traveled Way and white painted edge line to be located at 12 ft Rt and Lt of Centerline. See current Standard Specifications and Road Standards for placement of Shoulder Rumble strips for information. See Tab 112-10 for locations.
- ⑦

Class 13 Excavation Widening and HMA Base per station quantities are shown as totals for both sides.
- ⑧

Calculation for HMA Base includes 2' x 8" Base Widening Unit and 5' x 3" Paved Shoulders. Tonnage calculated for both sides.
- ⑨

PG 64-22 Asphalt Cement Binder.
- ⑩

See Note 2, Tab 112-9.

TYPICAL CROSS SECTION

HMA RESURFACING WITH

COLD IN-PLACE RECYCLING AND HMA BASE

Division 2 - Rural

- Notes:
- ①

Finished slope shall match existing pavement except that the maximum allowable slope is 3.0 %, minimum allowable slope is 2.0 %. Section may be modified as directed by the engineer through areas of special shaping.
- ②

Estimated for 2 applications. Not a Bid Item.
- ③

Scarification will be approximately a nominal 2" at centerline. The intent of the Scarification operation is to remove 2" of the existing 3" HMA pavement lifts while preserving the underlying 7.5" PCC pavement section.
- ④

Scarification will be approximately a nominal 3" along the gutter line. The intent of the 4' width Scarification operation is to remove the existing HMA and approximately 1" PCC gutter line pavement section. This operation shall create a vertical face adjacent to the curb along the gutterline for a HMA surface notch. Special shaping at intakes included.
- ⑤

PG 64-22 Asphalt Cement Binder.

TYPICAL CROSS SECTION

HMA RESURFACING WITH MILLING

Division 2 - Rural

- Notes:
- ①

Finished slope shall match existing pavement except that the maximum allowable slope is 3.0 %, minimum allowable slope is 2.0 %. Section may be modified as directed by the engineer through areas of special shaping.
- ②

Estimated for 2 applications. Not a Bid Item.
- ③

Scarification will be approximately a nominal 2" at centerline. The intent of the Scarification operation is to remove 2" of the existing 3" HMA pavement lifts while preserving the underlying 7.5" PCC pavement section.
- ④

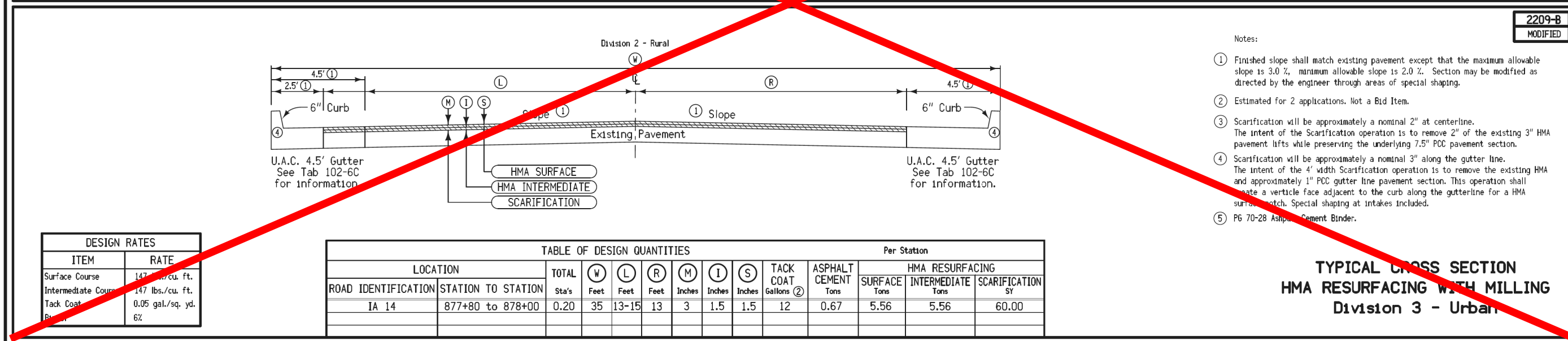
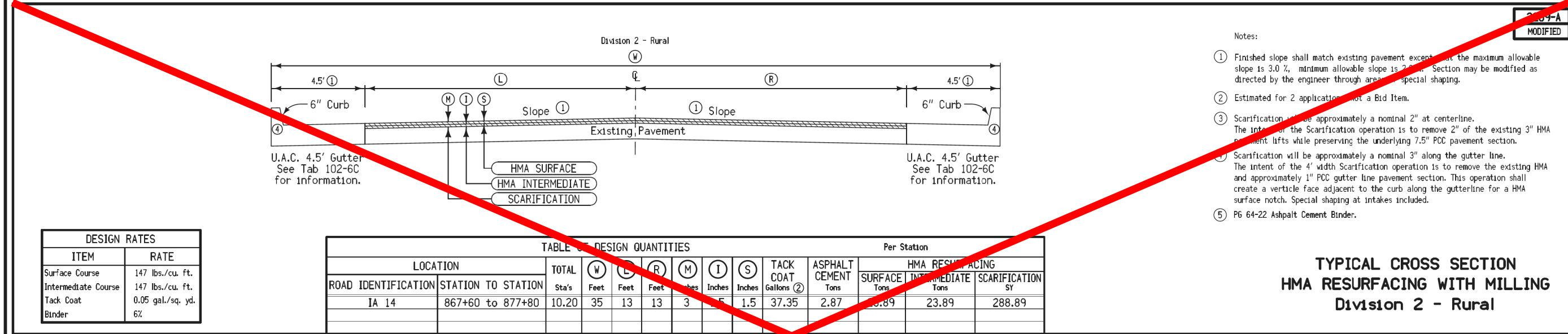
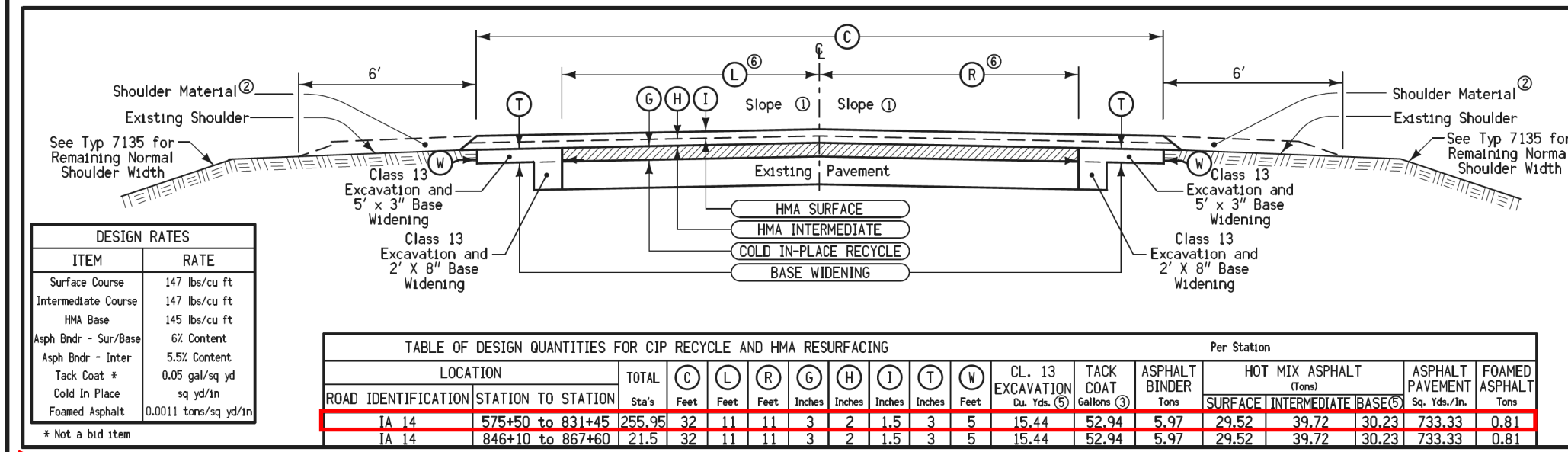
Scarification will be approximately a nominal 3" along the gutter line. The intent of the 4' width Scarification operation is to remove the existing HMA and approximately 1" PCC gutter line pavement section. This operation shall create a vertical face adjacent to the curb along the gutterline for a HMA surface notch. Special shaping at intakes included.
- ⑤

PG 70-28 Asphalt Cement Binder.

TYPICAL CROSS SECTION

HMA RESURFACING WITH MILLING

Division 3 - Urban



AS BUILT PLANS

SURVEY SYMBOLS

|  |                                     |
|--|-------------------------------------|
|  | BL Topo Breakline                   |
|  | BM Bench Mark                       |
|  | BNK Stream Bank                     |
|  | C Centerline BL of Road (ML or SR)  |
|  | CON Concrete or A/C Slab            |
|  | CP Control Point                    |
|  | D Centerline Draw or Stream (Down)  |
|  | DU Centerline Draw or Stream (Up)   |
|  | ENT Centerline BL of Entrance       |
|  | EP Edge of Paved Roads (ML or SR)   |
|  | FENO FENO Monument                  |
|  | FO1D Fiber Optic Co. 1 - Quality D  |
|  | FO2D Fiber Optic Co. 2 - Quality D  |
|  | FW Wire Fence                       |
|  | GR Ground Shot                      |
|  | OUT Tile Outlet                     |
|  | PIP Pipe Culvert                    |
|  | PLG Location of General Photo       |
|  | PPA Power Pole Co. 1                |
|  | PRO Profile Shot                    |
|  | REF Reference Tie Point             |
|  | RET Retaining Walls                 |
|  | RIP Rip-Rap                         |
|  | ROW Right of Way Mark               |
|  | SI Sign                             |
|  | SNP Unpaved Shoulder                |
|  | SOP Size of Pipe or Culvert         |
|  | TDC Tree Deciduous                  |
|  | TEV Evergreen Tree                  |
|  | TIL Tile Line                       |
|  | TLNL Tree Line Left                 |
|  | TPD Telephone Pedestal              |
|  | WC Wild Card (Misc. Field Shot)     |
|  | WEL Well                            |
|  | WL1D Water Line Co. 1 - Quality D   |
|  | CUL Culvert                         |
|  | ENU Edge Unpaved Entrance & Parking |

SURVEYED UTILITY OWNER SYMBOLS

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

|                      |                                                                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remark Abbreviations |                                                                                                                                                                                    |
| QLA                  | Quality Level A Highest guideline quality level                                                                                                                                    |
| QLD                  | Quality Level D Lowest guideline quality level                                                                                                                                     |
|                      | FO - Windstream - Quality D<br>Barbara Graves, Analyst II-Engineering<br>11101 Anderson Dr. Suite 100<br>Little Rock, AR 72212<br>(501) 748-4590<br>WCI.OSP.Permits@windstream.com |
|                      | F02 - ICN - Quality D<br>Mike Broderick, OSP Telecom Engineer Sr.<br>400 E 14th St<br>Des Moines, IA 50319<br>(515) 725-4610                                                       |
|                      | Clarke Electric Cooperative<br>Brad Wilson, Manager of Engineering<br>1103 N. Main<br>Osceola, IA 50213-0161<br>(641) 342-2173<br>bwilson@cecnet.net                               |
|                      | W - Rathbun Regional Water - Quality D<br>Mike Stevens, Construction Foreman<br>16166 Hwy J-29<br>Centerville, IA 52544<br>(641) 647-1084<br>Mstevens@rrwa.net                     |

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    |

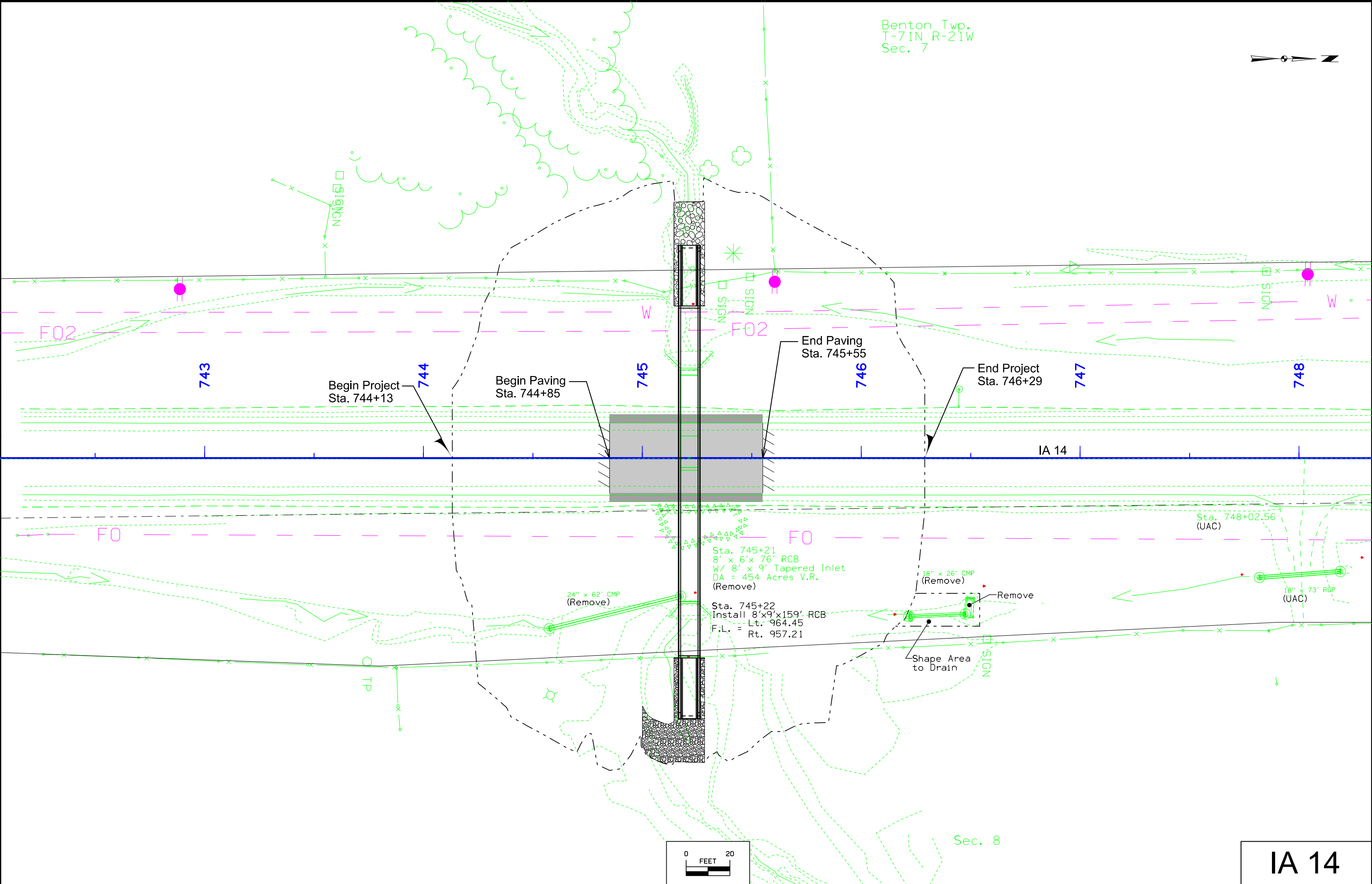
|  |                             |
|--|-----------------------------|
|  | Reference Point             |
|  | Station                     |
|  | Section Corner              |
|  | Ground Line Intercept       |
|  | Saw Cut                     |
|  | Guardrail                   |
|  | Trench Drain                |
|  | 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

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

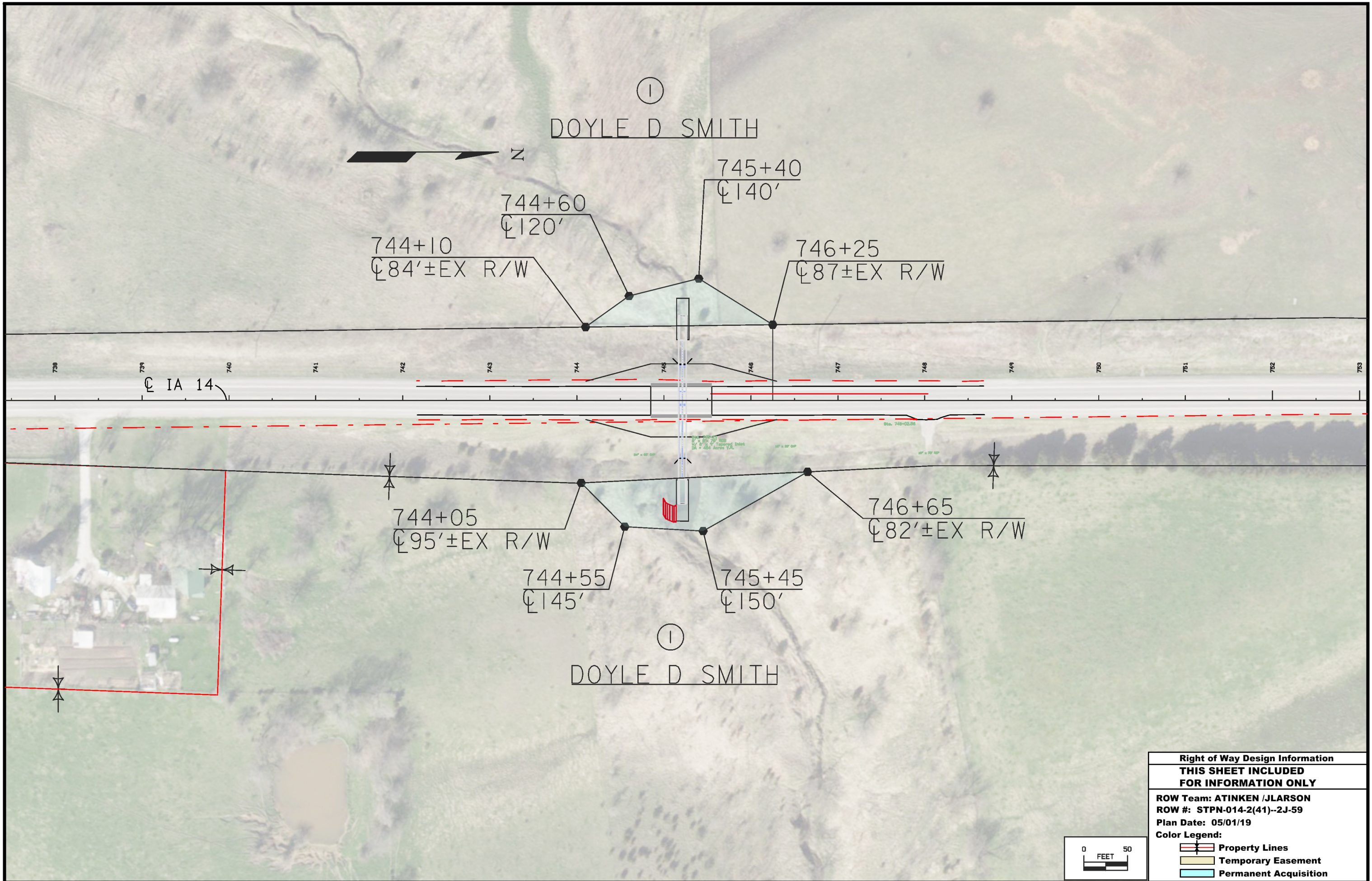




[illegible]

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.







108-23A  
08-01-08

TRAFFIC CONTROL PLAN

Ia. 14 will be closed to traffic during construction. Traffic will be detoured via Ia. 2, US 65 and US 34. Refer to other J sheets for details. Installation, maintence and removal of the detour signs are the responsibility of the Contractors.

111-01  
04-17-12

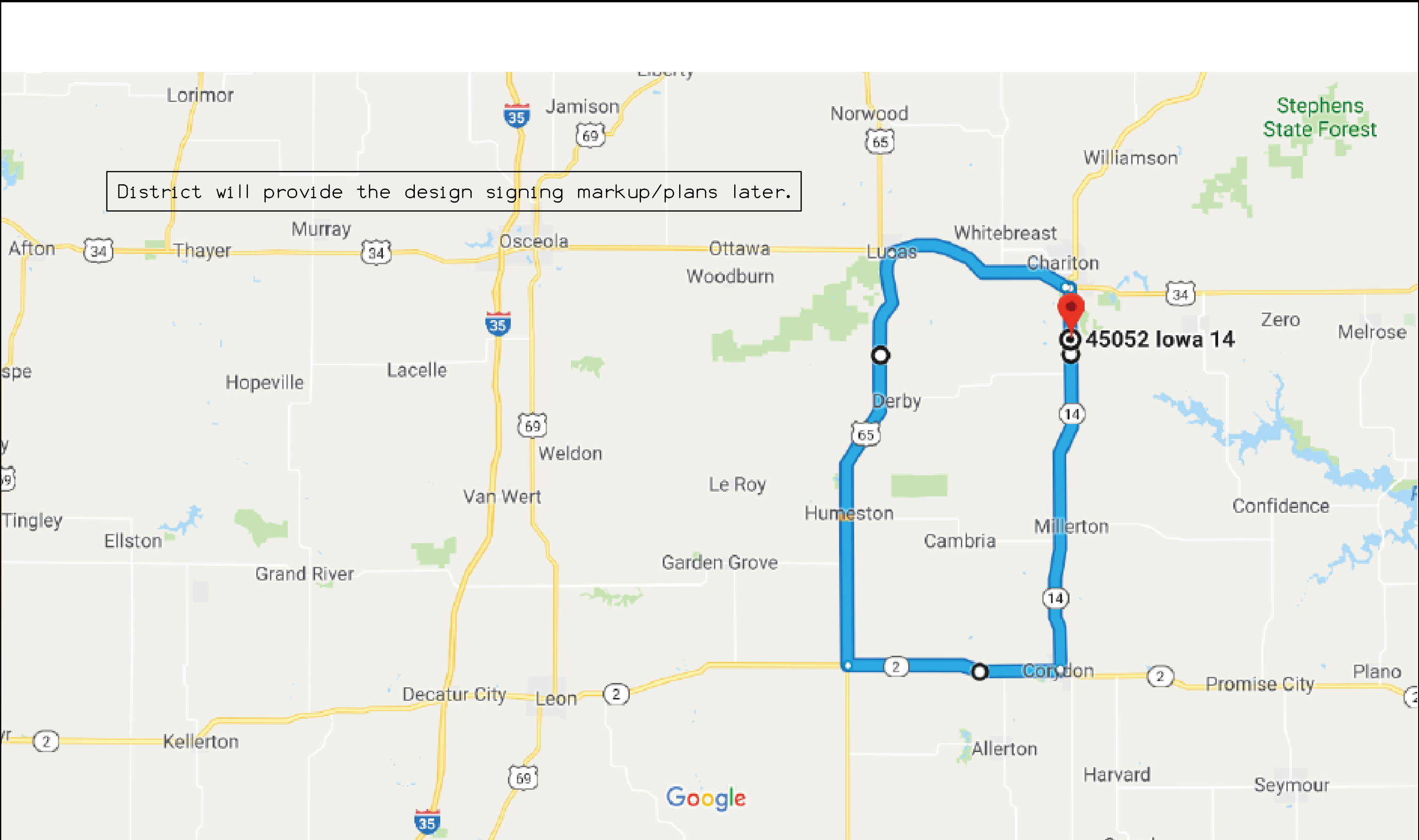
COORDINATED OPERATIONS

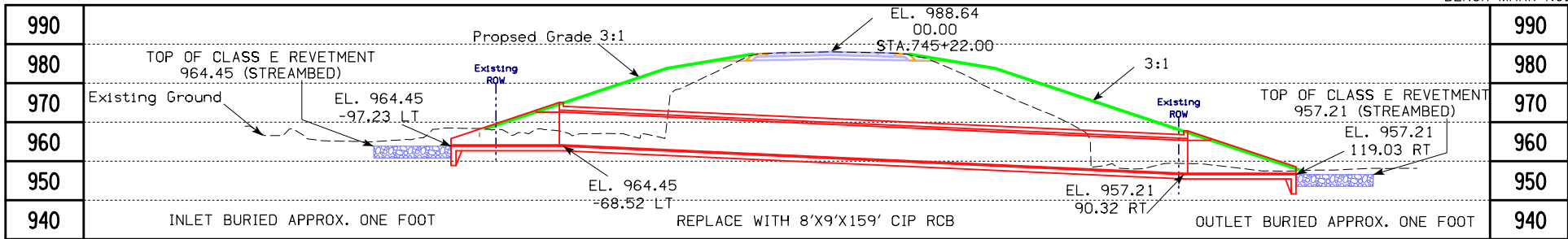
Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

| Project | Type of Work |
|---------|--------------|
|         |              |
|         |              |
|         |              |
|         |              |

| 511 TRAVEL RESTRICTIONS |           |        |                                       |                      |             |                                                    |                        |                         |                             |                                          |                                      | 108-25<br>10-21-14 |
|-------------------------|-----------|--------|---------------------------------------|----------------------|-------------|----------------------------------------------------|------------------------|-------------------------|-----------------------------|------------------------------------------|--------------------------------------|--------------------|
| Route                   | Direction | County | Location Description                  | Feature Crossed      | Object Type | Maint. Bridge No.,<br>Structure ID,<br>or FHWA No. | Type of<br>Restriction | Existing<br>Measurement | Construction<br>Measurement | Construction<br>Measurement<br>as Signed | Projected<br>As Built<br>Measurement | Remarks            |
| IA 14                   | Both      | Lucas  | 1.2 mi N of N Jct Co Rd H50 (MP 14.6) |                      |             |                                                    |                        | 75.2                    | 160                         |                                          |                                      |                    |
| IA 14                   | Both      | Wayne  | In Corydon 0.37 mi N of Jct IA 2      | Low Clearance Bridge | Bridge      | 51980                                              | Vertical               |                         |                             |                                          |                                      |                    |
| IA 14                   | Both      | Lucas  | In Chariton 0.31 mi N of Jct US 34    | Low Clearance Bridge | Bridge      | 34430                                              | Vertical               |                         |                             |                                          |                                      |                    |
|                         |           |        |                                       |                      |             |                                                    |                        |                         |                             |                                          |                                      |                    |
|                         |           |        |                                       |                      |             |                                                    |                        |                         |                             |                                          |                                      |                    |
|                         |           |        |                                       |                      |             |                                                    |                        |                         |                             |                                          |                                      |                    |







BENCH MARK NO. FEN01 6218113.218,22622161.307,997.836 Set Feno Monument 1780 S.  
of 450TH St. 300' N. of entrance @ 44604 IA Hwy 14  
136' NW of Station 70 Sign 27'E. of IA Hwy 14

LONGITUDINAL SECTION ALONG CULVERT

\*NOTE TO FINAL DESIGNER  
DIMENSIONS BELOW ARE PROVIDED FOR THE PREPARATION OF A  
SEPARATE PRECAST OPTION TSL IN BRIDGE FINAL DESIGN.  
-PRECAST DIMENSIONS WILL BE 170' FROM BACK TO BACK OF  
PARAPET (74' 0" LEFT AND 96' 0" RIGHT). THESE DIMENSIONS  
REPRESENT A 169' BARREL PLUS 0' 6" "G" DIMENSIONS ON EACH SIDE  
(REMOVE THESE DESIGNER NOTES FROM FINAL SITUATION PLAN.)

TYPICAL CHANNEL PROTECTION

ESTIMATED REVETMENT QUANTITIES  
INCLUDED WITH ROAD PLANS

| LOCATION         | REVETMENT<br>CL. "E" (TON) | ENGINEERING<br>FABRIC (SY) | EXCAVATION<br>(CY) |
|------------------|----------------------------|----------------------------|--------------------|
| INLET 745+22.00  | 69.93                      | 84.6                       | 43.2               |
| OUTLET 745+22.00 | 116.17                     | 122                        | 72                 |
| TOTALS           | 186.10                     | 206.6                      | 115.20             |

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.  
QUANTITIES SHOWN FOR INFORMATION ONLY. SEE ROAD SHEETS.

TWO 0° PARALLEL WING HDWL

NOTE:  
REMOVE EXISTING: 8'x6'x75.2' RCB  
REMOVE EXISTING: 24"x62' CMP DITCH TO OUTLET

HYDRAULIC DATA

DRAINAGE AREA = 454 ACRES VR  
Q<sub>50</sub> = 737 CFS (USGS SIR 2013-5086)

PRELIMINARY  
UTILITIES LEGEND:

— F0 — Windstream - Quality D  
— F02 — ICN - Quality D  
● Clarke Electric Cooperative  
— W — Rathbun Regional Water - Quality D

LOCATION

T-71N R-21W  
SECTION 7 & 8  
BENTON TOWNSHIP  
LUCAS COUNTY  
LATITUDE 40.9666074°  
LONGITUDE -093.3078162°

PRELIMINARY

DESIGN FOR 0° SKEW

8' X 9' X 159' REINFORCED  
CONCRETE BOX CULVERT

SITUATION PLAN

STATION 745+22.00

LUCAS

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
DESIGN SHEET NO. \_\_\_\_ OF \_\_\_\_ FILE NO. 31660 DESIGN NO. 0121

SITUATION PLAN

DESIGN TEAM JIA \ DEWOLF \ WARHANK

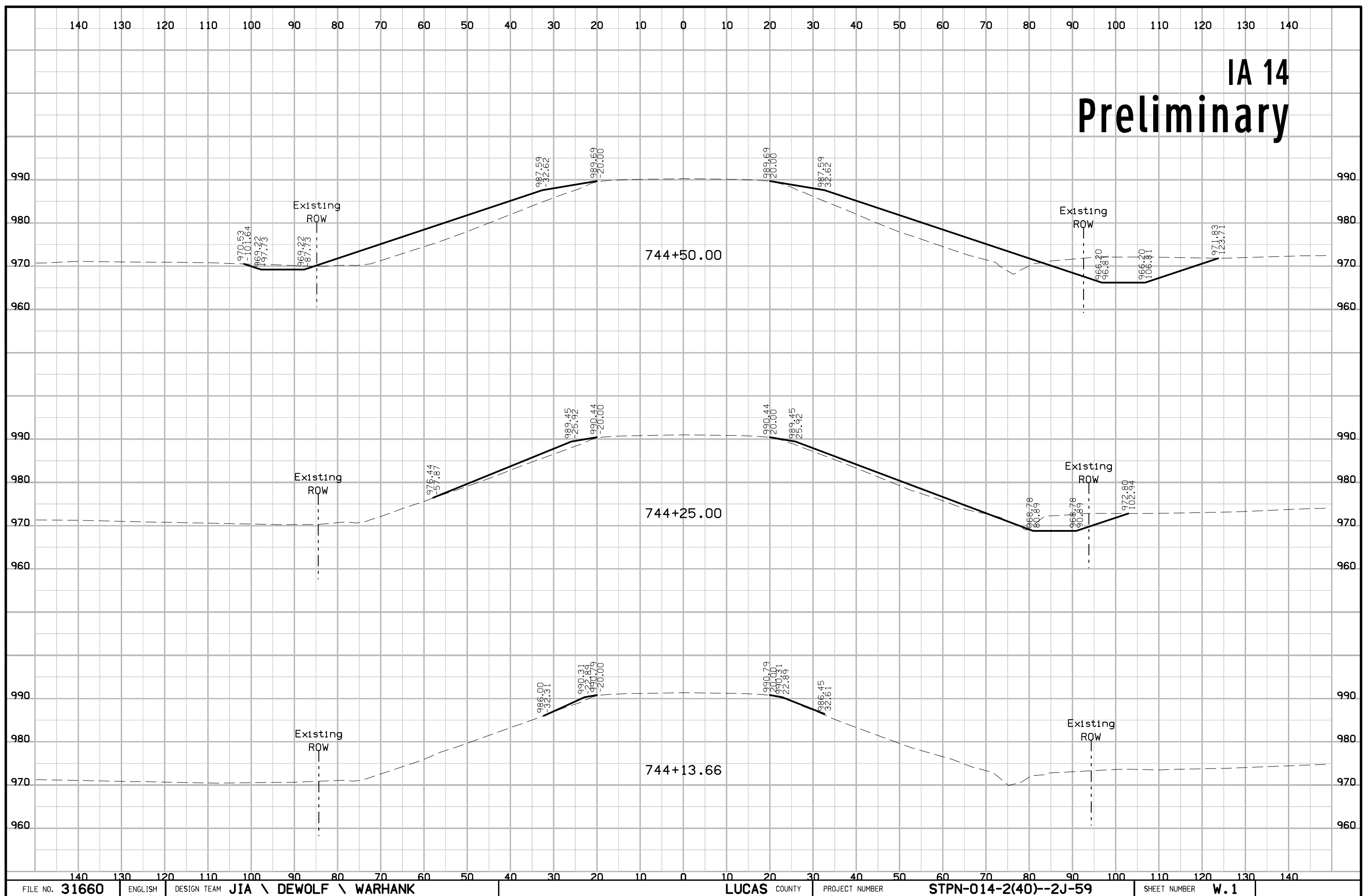
LUCAS COUNTY

PROJECT NUMBER STPN-014-2(40)--2J-59

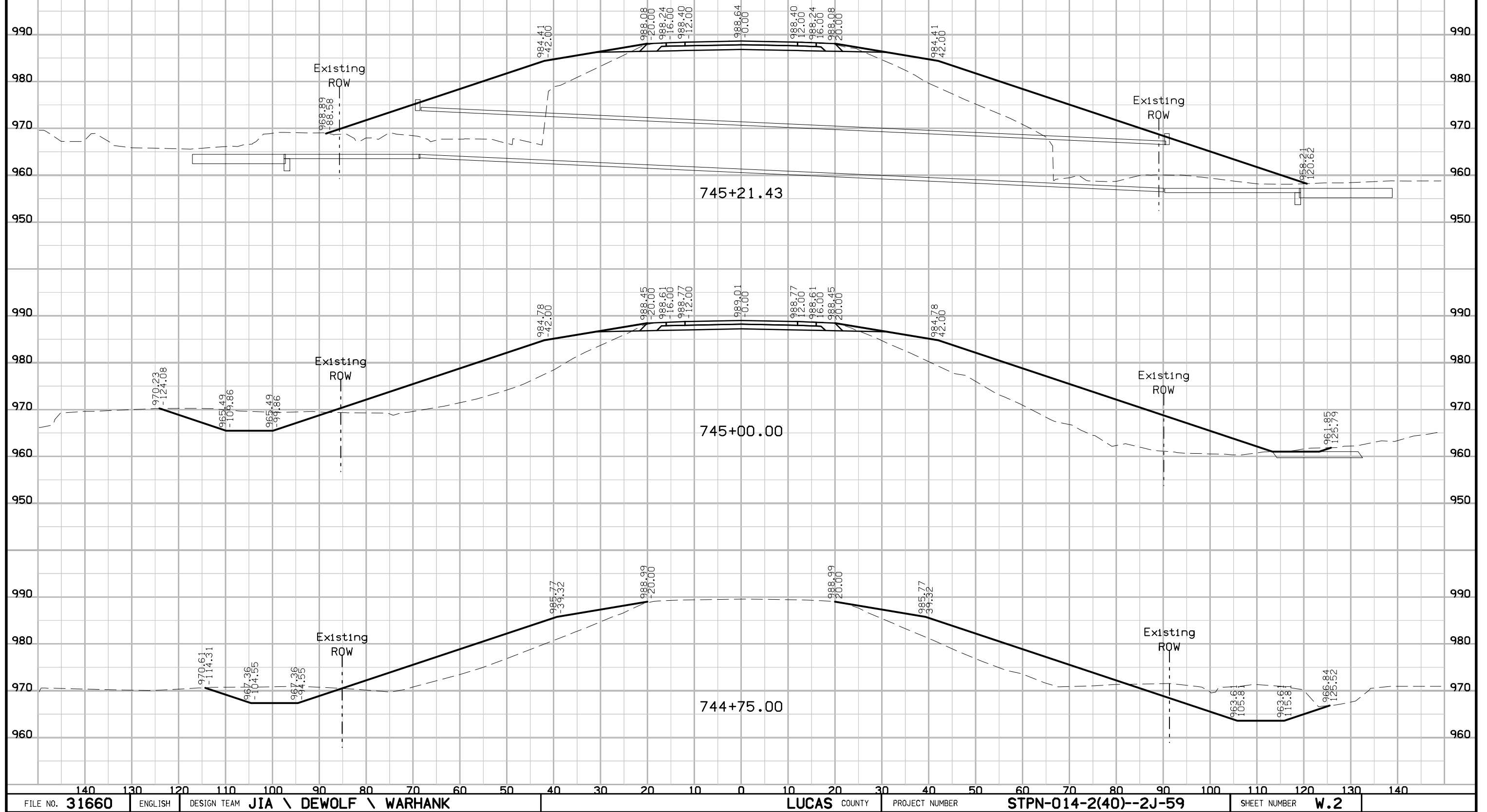
SHEET NUMBER V.1

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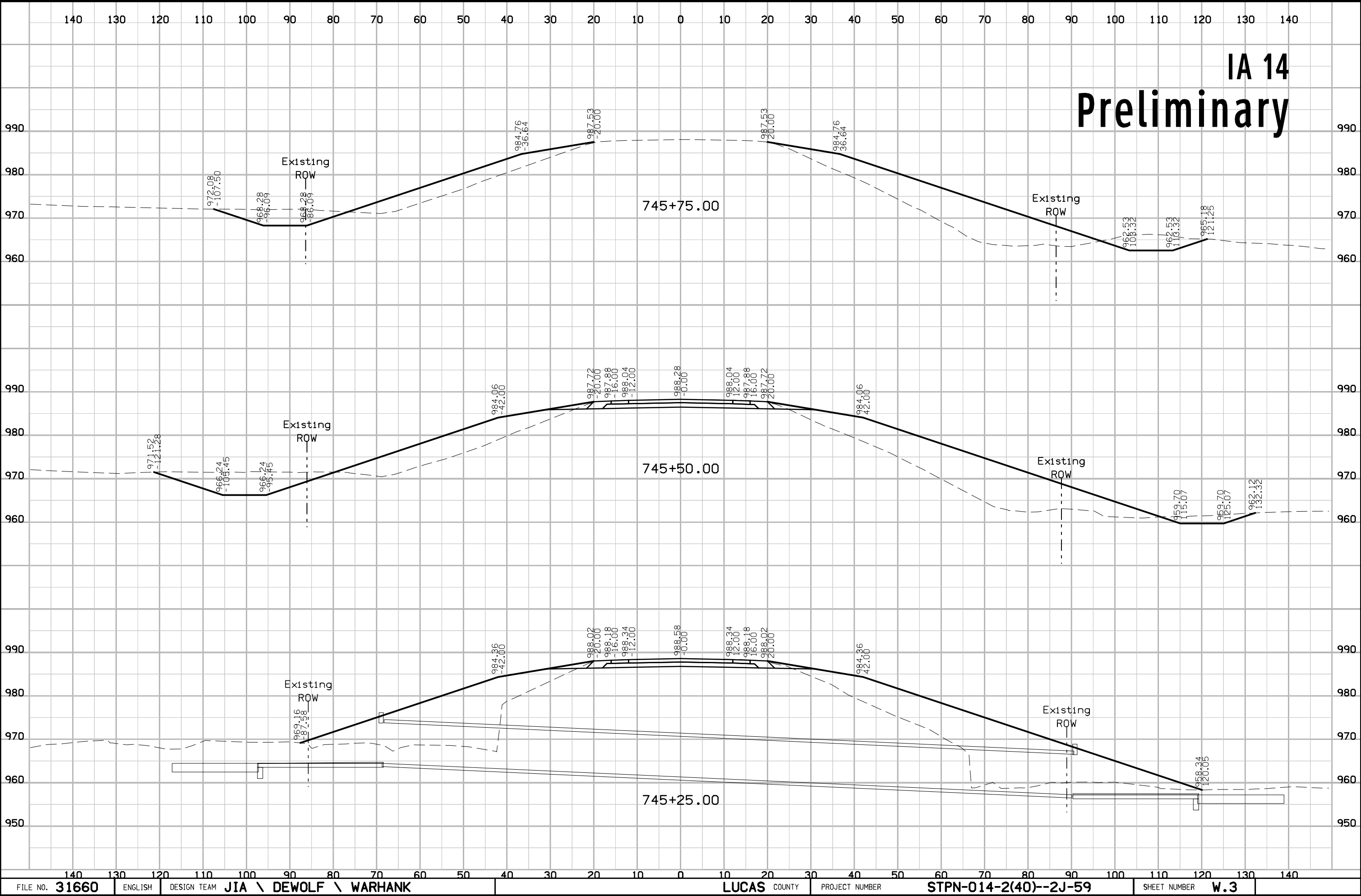
# IA 14 Preliminary



# IA 14 Preliminary



IA 14  
Preliminary





# IA 14 Preliminary

