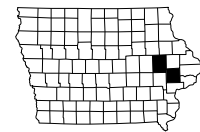
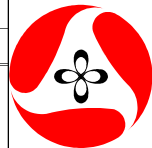


**LINN/CEDAR CO. PCC PAVEMENT - GRADE AND NEW**  
**NHS-030-7(76)--19-57**



| No.             | DESCRIPTION  |
|-----------------|--|
| <b>A Sheets</b> | <b>Title Sheets</b>                                |
| A.1             | Title Sheet  |
| A.2             | Location Map Sheet                                 |
| A.3 - 7         | Design Criteria                                    |
| <b>B Sheets</b> | <b>Typical Cross Sections and Details</b>          |
| B.1 - 11        | Typical Cross Sections and Details                 |
| <b>C Sheets</b> | <b>Quantities and General Information</b>          |
| C.1 - 3         | Tabulations  |
| <b>D Sheets</b> | <b>Mainline Plan and Profile Sheets</b>            |
| * D.1           | Plan & Profile Legend & Symbol Information Sheet   |
| * D.2 - 28      | U.S. Highway 30                                    |
| <b>E Sheets</b> | <b>Side Road Plan and Profile Sheets</b>           |
| * E.1 - 5       | Side Road Sheets                                   |
| * E.6 - 8       | Willow Creek Access Rd (Future Submittal)          |
| * E.9 - 26      | Side Road Sheets                                   |
| * E.27 - 30     | Kirkwood 2/Kirkwood 3 (Future Submittal)           |
| * E.31 - 37     | Side Road Sheets                                   |
| <b>G Sheets</b> | <b>Survey Sheets</b>                               |
| G.1             | Reference Ties and Bench Marks                     |
| G.2 - 10        | Horizontal Control Tab. & Super for all Alignments |
| <b>J Sheets</b> | <b>Traffic Control and Staging Sheets</b>          |
| * J.1           | Traffic Control Plan                               |
| <b>K Sheets</b> | <b>Interchange Sheets</b>                          |
| * K.1 - 2       | Interchange Layout Sheets - Iowa Highway 1         |
| * K.3 - 6       | Iowa Highway 1 - Plan and Profile Sheets           |
| * K.7 - 8       | Interchange Layout Sheets - Adams Avenue           |
| * K.9 - 12      | Adams Avenue - Plan and Profile Sheets             |
| <b>M Sheets</b> | <b>Storm Sewer Sheets</b>                          |
| M.1             | Storm Sewer Tabulations                            |
| <b>U Sheets</b> | <b>500 Series, Mod.Stds. and Detail Sheets</b>     |
| U.1 - 2         | 500 Series, Modified Standards and Detail Sheets   |
| <b>V Sheets</b> | <b>Bridge and Culvert Situation Plans</b>          |
| V.1 - 96        | Bridge and Culvert Situation Plans                 |
| <b>W Sheets</b> | <b>Mainline Cross Sections</b>                     |
| W.1             | Cross Sections Legend & Symbol Information Sheet   |
| W.2 - 218       | Mainline Cross Sections                            |
| <b>X Sheets</b> | <b>Side Road Cross Sections</b>                    |
| X.1 - 107       | Side Road Cross Sections                           |
| <b>Y Sheets</b> | <b>Ramp Cross Sections</b>                         |
| Y.1 - 26        | Ramp Cross Sections                                |
|                 | * Color Plan Sheets                                |



# Iowa Department of Transportation

## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM LINN/CEDAR COUNTY PCC PAVEMENT - GRADE AND NEW

**U.S. Highway 30 Bypass  
West of Mount Vernon to East of Lisbon**

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

**NO MILEAGE SUMMARY**



REVISIONS

| TOTAL                         |
|-------------------------------|
| 559                           |
| PROJECT IDENTIFICATION NUMBER |
| PROJECT NUMBER                |
| NHS-030-7(76)--19-57          |
| R.O.W. PROJECT NUMBER         |

Anticipated Project Development Schedule:

- D2 - Design Field Exam  
August 27, 2013
- D3 - Plans for Preliminary Bridges and Structures  
October 9, 2013
- B1 - Bridges and Structures Layout  
November 6, 2013
- D5 - Plans to Right of Way  
December 6, 2013

For Project Location Map  
Refer to Sheet A.2

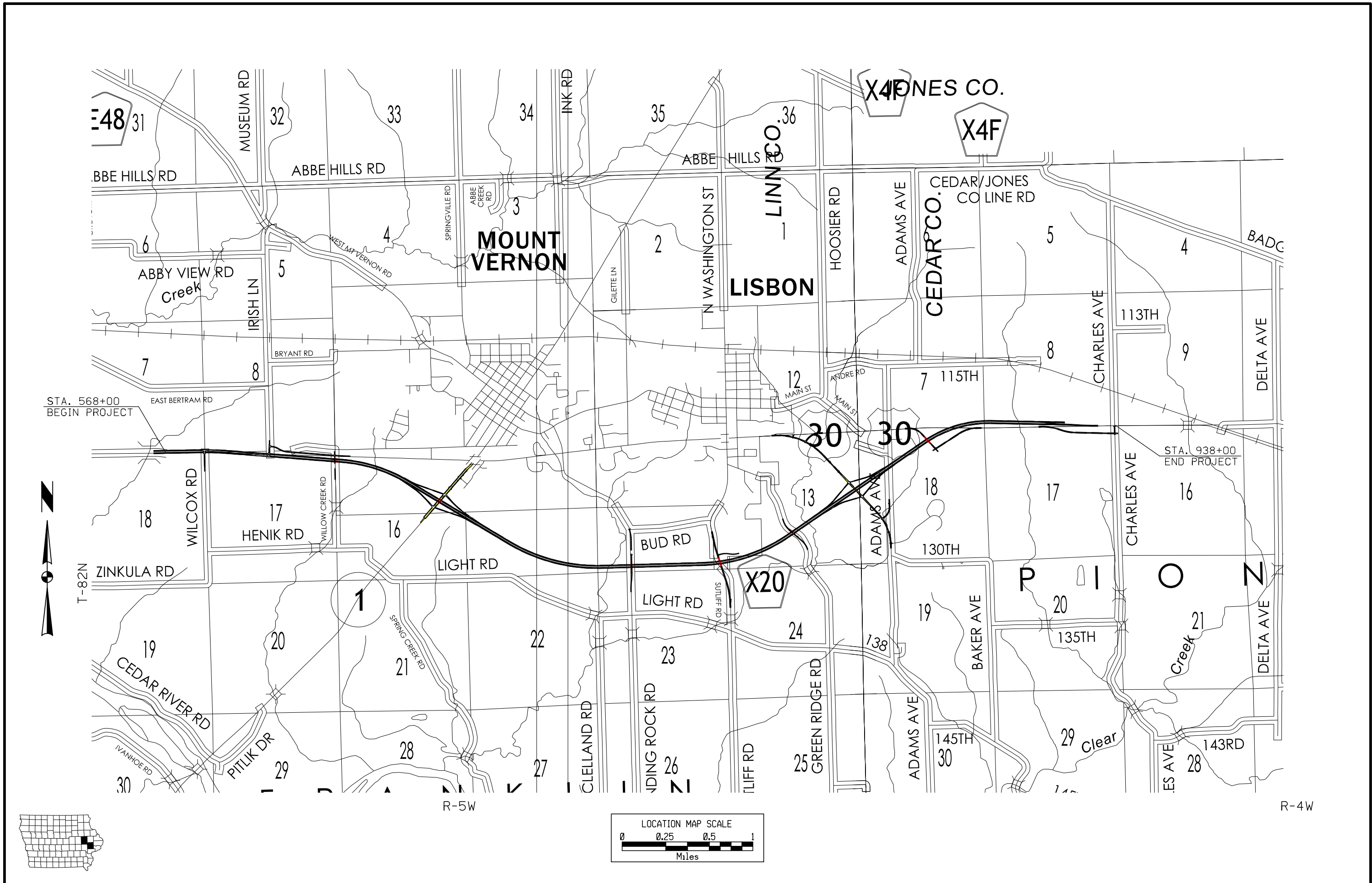
| DESIGN DATA URBAN |              |        |        |
|-------------------|--------------|--------|--------|
| 2009              | AADT         | 10,600 | V.P.D. |
| 2035              | AADT         | 16,700 | V.P.D. |
| 2035              | DHV          | 1,450  | V.P.H. |
|                   | TRUCKS       | 10     | %      |
|                   | Total        |        |        |
|                   | Design ESALs | --     |        |

| INDEX OF SEALS |                  |                         |
|----------------|------------------|-------------------------|
| SHEET NO.      | NAME             | TYPE                    |
| A.1            | Cindy A. Spencer | Primary Signature Block |
|                |                  |                         |
|                |                  |                         |
|                |                  |                         |

**PRELIMINARY PLANS**

Subject to change by final design.

**D2 PLAN - Date: 8-27-13**





| Project Number: NHS-030-7(76)--19-57<br>Route: U.S. 30<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |  |  |  | Project Number: NHS-030-7(76)--19-57<br>Route: U.S. 30<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |                             |  |  |
|---|--|--|--|---|-----------------------------|--|--|
| Last Updated 6/13/2012  |  | Acceptable Values  | Preferred Values   | Project Values  | Comments                    |  |  |
| Last Updated 6/13/2012  |  | Acceptable Design Criteria Based Upon Roadway Type (requires approval according to Section 1C-8) | Preferred Design Criteria Based Upon Roadway Type  | Project Values  | Comments                    |  |  |
| Design Element  |  | Roadway Type   | Roadway Type   | Mt. Vernon / Lison Bypass   |                             |  |  |
|   |  | Expressways/<br>Freeways   | Expressways/<br>Freeways   |   |                             |  |  |
| design speed (mph)  |  | Cannot be less than the posted speed limit   | 70   | 70  |                             |  |  |
| full depth paved width (ft)   |  | outside lane   | 12   | 14, 12' if using full depth paved shoulders   | 14                          |  |  |
|   |  | inside lane(s)   | 12   | 12  | 12                          |  |  |
| design lane width (ft)  |  | 12   | 12   | 12  |                             |  |  |
| auxiliary-lane width (ft) (includes turn lanes)   |  | 10   | 12   | 12  |                             |  |  |
| parking-lane width (ft)   |  |  |  | N/A   |                             |  |  |
| pavement cross-slope (%)  |  | 1.5% minimum, 3% maximum   | 2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3% | 2%  |                             |  |  |
| effective shoulder width and type (see Section 3C-4)  |  | See Shoulder Tables  | See Shoulder Tables  | 10 ft effective outside (4 ft paved, 4 ft granular); 6 ft inside (6 ft paved)   |                             |  |  |
| shoulder cross-slope (%)  |  | not less than the adjacent lane, 2 to 6% for paved, 4 to 6% for granular, 6 to 8% for earth      | 4% unless shoulders will be used for staging or potential future lanes.                                | 4%  |                             |  |  |
| foreslope (see Roadway Typical Cross Sections)  |  | adjacent to shoulder   | 3:1  | 10:1 for 4' then 6:1  | 10:1 for 4', then 6:1 to CZ |  |  |
|   |  | beyond standard ditch depth and design clearzone   | 3:1  | 3.5:1   | 3.5:1                       |  |  |
|   |  | Curbed roadways  | behind curbs, then not steeper than 4:1  | 4% toward roadway for 12', then not steeper than 4:1  | N/A                         |  |  |
| normal outside ditch (depth x width) (ft)   |  | --   | 5 x 10   | 5 x 10  |                             |  |  |
| normal median ditch depth (ft)  |  | 3' minimum   | 4  | 4   |                             |  |  |
| normal median width (ft) (if applicable)  |  | no barrier: 50<br>barrier: 10  | 64   | 64  |                             |  |  |
| Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)                       |  | 2.5:1  | 3:1  | 3:1   |                             |  |  |
| bridge width—new (ft)   |  | design lane widths + effective shoulder widths   | design lane widths + effective shoulder widths or curb to curb street width                            | 40 ft.  |                             |  |  |
| bridge width—for Use as Constructed bridges (ft)  |  | design lane widths + 2 ft offset each side   |  | N/A   |                             |  |  |
| transverse slopes   |  | w/ drainage structures   | 6:1  | 8:1   | 8:1                         |  |  |
|   |  | w/o drainage structures  | 6:1  | 10:1  | 10:1                        |  |  |
|   |  | at sideroads   | 6:1  | 6:1   | 6:1                         |  |  |
| Vertical clearance (ft) (above lanes & shoulders)(see Section 8A-2)   |  | Over primary   | 16   | 16.5  | 16.5                        |  |  |
|   |  | over non-primary   | 14   | 16.5 at interchange locations, 15 at all other locations  | 16.5                        |  |  |
|   |  | over railroad  | 23.3   | 23.3  | N/A                         |  |  |
|   |  | sign truss   | 17   | 17.5  | 17.5                        |  |  |
| Structural Capacity   |  | Contact Office of Bridges and Structures   | --   |   |                             |  |  |
| Level of Service  |  | B for Rural, C for Urban   | --   | B   |                             |  |  |

| Last Updated 6/13/2012                            |  | Acceptable Values   | Preferred Values  | Project Values            | Comments |  |
|---|--|---|---|---------------------------|----------|--|
| Last Updated 6/13/2012                            |  | Acceptable Design Criteria Based Upon Design Speed (requires approval according to Section 1C-8)                  | Preferred Design Criteria Based Upon Design Speed   | Project Values            | Comments |  |
| Design Element                                    |  | Design Speed, mph (Acceptable design speed is equal to posted speed limit and a minimum of 70mph for Interstates) | Design Speed, mph (Preferred design speed is 5mph over posted speed limit and a minimum of 70mph for Interstates) |                           |          |  |
|   |  | 70  | 70  | 70                        |          |  |
| Stopping sight distance (ft) (see Section 6D-1)   |  | 730   | 730   | 730                       |          |  |
| Minimum horizontal curve radius (ft)              |  | e <sub>max</sub> = 4%   | --  | --                        |          |  |
|   |  | e <sub>max</sub> = 6%   | 2040  | 2040                      | 2040     |  |
|   |  | e <sub>max</sub> = 8%   | 1810  |                           |          |  |
| Minimum vertical curve length (ft)                |  | 210   | 210   | 210                       |          |  |
| Minimum rate of vertical curvature (K)            |  | crest   | 247   | 401                       | 401      |  |
|   |  | sag   | 181   | 181                       | 181      |  |
| Minimum gradient (%)                              |  | 0.3% with a curb, 0.0% without a curb   | 0.5   | 0.5                       |          |  |
| Maximum gradient (%) on ramps                     |  | Upgrades  | --  | 4%                        | N/A      |  |
|   |  | Downgrades  | Equal to the maximum upgrade gradient.  |                           |          |  |
| Maximum gradient (%) on roadways other than ramps |  | 4   | 3   | 3%                        |          |  |
| Clearzone   |  | See "Acceptable Clear Zone" table in Section 8A-2   | See "Preferred Clear Zone" table in Section 8A-2  | 34 feet                   |          |  |
| Curb type   |  | 4" Sloped is maximum<br>6" Sloped for all other   | 4" Sloped is maximum height for interstate  | 4" sloped where necessary |          |  |

|   |  | Project Number: NHS-030-7(76)-19-57<br>Route: Iowa 1<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |  |   |   |  |   |
|---|--|---|--|---|---|--|---|
| Last Updated 6/13/2012  |  | Acceptable Values   |  | Preferred Values                                  |   | Project Values                                     | Comments  |
| Last Updated 6/13/2012  |  | Acceptable Design Criteria Based Upon Roadway Type (requires approval according to Section 1C-8)  |  | Preferred Design Criteria Based Upon Roadway Type |   |  |   |
| Design Element  |  | SUDAS Functional Class  |  | SUDAS Functional Class                            |   | Mt. Vernon / Lison Bypass - Iowa 1                 |   |
|   |  | Arterial  |  | Arterial  |   |  |   |
|   |  | Residential   | Commercial/Industrial                    | Residential                                       | Commercial/Industrial                     |  |   |
| design speed (mph)  |  | Cannot be less than the posted speed limit  |  | 5 miles above the posted speed limit              |   | 40   |   |
| full depth paved width (ft)   |  | outside lane  |  | 12  |   |  |   |
|   |  | inside lane(s)  |  | 12  |   |  |   |
| design lane width (ft)  |  | 11  |  | 12  |   | 12   |   |
| auxiliary-lane width (ft) (includes turn lanes)   |  | 11  |  | 12  |   | 16 (TWLTL)   |   |
| parking-lane width (ft)   |  | 10  |  | -   |   | N/A  |   |
| pavement cross-slope (%)  |  | 1.5% minimum  |  | 2% not to exceed 3%                               |   | 2.5%   |   |
| effective shoulder width and type (see Section 3C-4)  |  | 2' curb & gutter  | 8' for rural section or 2' curb & gutter | 3' curb & gutter                                  | 10' for rural section or 3' curb & gutter | 3 foot curb and gutter                             |   |
| shoulder cross-slope (%)  |  | 4   |  | 4   |   | N/A  |   |
| foreslope (see Roadway Typical Cross Sections)  |  | adjacent to shoulder  |  |   |   | N/A  | Urban section assumed   |
|   |  | beyond standard ditch depth and design clearzone  |  | 4:1   |   | 4% for 12' behind curbs, then not steeper than 6:1 |   |
|   |  | Curbed roadways   |  |   |   | 4% toward roadway in CZ, then 4:1                  | 1.5% slope on proposed sidewalk / trail. Sidewalk (E side, 5' wide) and trail (W side, 10' wide) to be located 6' behind BOC w/ 2' beyond to breakoverpoint |
| normal outside ditch (depth x width) (ft)   |  |   |  |   |   | N/A  |   |
| normal median ditch depth (ft)  |  | --  |  | --  |   | N/A  |   |
| normal median width (ft) (if applicable)  |  | 15  |  | 16  |   | N/A  |   |
| Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.) |  | 3:1   |  | 4:1   |   | 3:1  |   |
| bridge width—new (ft)   |  | lane width + 3 ft clearance each side   |  | lane width + 4 ft clearance each side             |   |  |   |
| bridge width—for Use as Constructed bridges (ft)  |  | 26  |  |   |   | N/A  |   |
| transverse slopes   |  | w/ drainage structures  |  |   |   | 8:1  |   |
|   |  | w/o drainage structures at sideroads  |  |   |   | 10:1<br>6:1  |   |
| Vertical clearance (ft) (above lanes & shoulders) (see Section 8A-2)  |  | Over primary  |  | 16.5  |   | 16.5   |   |
|   |  | over non-primary  |  | 16.5 at interchange locations, 15 at all          |   | 16.5   |   |
|   |  | over railroad   |  | 23.3  |   | 23.3   | N/A   |
|   |  | sign truss  |  | 17  |   | 17.5   | 17.5  |
| Structural Capacity   |  | Contact Office of Bridges and Structures  |  | --  |   |  |   |
| Level of Service  |  | D/E   |  | C/D   |   | C  |   |

|   |  | Project Number: NHS-030-7(76)-19-57<br>Route: Iowa 1<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |                       |   |                       |                |   |
|---|--|---|-----------------------|---|-----------------------|----------------|---|
| Last Updated 6/13/2012  |  | Acceptable Values   |                       | Preferred Values                                  |                       | Project Values | Comments  |
| Last Updated 6/13/2012  |  | Acceptable Design Criteria Based Upon Design Speed (requires approval according to Section 1C-8)  |                       | Preferred Design Criteria Based Upon Design Speed |                       |                |   |
| Design Element  |  | SUDAS Functional Class  |                       | SUDAS Functional Class                            |                       | 40             |   |
|   |  | Arterial  |                       | Arterial  |                       |                |   |
|   |  | Residential   | Commercial/Industrial | Residential                                       | Commercial/Industrial |                |   |
| Design Speed, mph (Acceptable design speed is equal to posted speed limit and a minimum of 70mph for Interstates) |  | Design Speed, mph (Preferred design speed is 5mph over posted speed limit and a minimum of 70mph for Interstates)                           |                       |   |                       |                |   |
| Stopping sight distance (ft) (see Section 6D-1)   |  | 305   |                       | 305   |                       | 305            |   |
| Minimum horizontal curve radius (ft)  |  | e <sub>max</sub> = 4%   |                       | 533   |                       | 533            | N/A   |
|   |  | e <sub>max</sub> = 6%   |                       | 485   |                       | 485            | N/A   |
|   |  | e <sub>max</sub> = 8%   |                       | 444   |                       | 444            | N/A   |
| Minimum vertical curve length (ft)  |  | 120   |                       | 120   |                       | 120            |   |
| Minimum rate of vertical curvature (K)  |  | crest   |                       | 44  |                       | 70             | 70  |
|   |  | sag   |                       | 64  |                       | 64             | 64  |
| Minimum gradient (%)  |  | 0.3% with a curb,   |                       | 0.5   |                       | 0.5%           |   |
| Maximum gradient (%) on ramps   |  | Upgrades  |                       | 4%  |                       | N/A            |   |
|   |  | Downgrades  |                       | Equal to the maximum upgrade                      |                       |                |   |
| Maximum gradient (%) on roadways other than ramps   |  | 6   |                       | 5   |                       | 5%             |   |
| Clearzone   |  | See "Acceptable Clear Zone" table in Section 8A-2   |                       | See "Preferred Clear Zone" table in Section 8A-2  |                       | 10'            | 6' between BOC and sidewalk/trail. Actual CZ will be larger than 10' due to pedestrian accommodations |
| Curb type   |  | 6" Standard   |                       | 6" Standard                                       |                       |                |   |

| Project Number: NHS-030-7(76)--19-57  |  |  |  | Project Number: NHS-030-7(76)--19-57              |   |  |  |
|---|--|--|--|---|---|--|--|
| Route: Sutliff  |  |  |  | Route: Sutliff                                    |   |  |  |
| Date of Information: 3/11/2013  |  |  |  | Date of Information: 3/11/2013                    |   |  |  |
| Date of Base Design Manual Information: 6/13/2012   |  |  |  | Date of Base Design Manual Information: 6/13/2012 |   |  |  |
| Last Updated 6/13/2012  |  |  |  | Last Updated 6/13/2012                            |   |  |  |
|   |  | Acceptable Values  | Preferred Values   | Project Values                                    | Comments  |  |  |
|   |  | Acceptable Design Criteria Based Upon Roadway Type (requires approval according to Section 1C-8) | Preferred Design Criteria Based Upon Roadway Type  |   |   |  |  |
| Design Element  |  | Roadway Type   | Roadway Type   |   |   |  |  |
|   |  | Rural Two-Lane Highways  | Rural Two-Lane Highways  |   |   |  |  |
| design speed (mph)  |  | Cannot be less than the posted speed limit   | 60   | 50  | Per I.M. 3.210  |  |  |
| full depth paved width (ft)   | outside lane                                     | 12   | 14   | 12  |   |  |  |
|   | inside lane(s)                                   |  |  |   |   |  |  |
| design lane width (ft)  |  | 11   | 12   | 12  |   |  |  |
| auxiliary-lane width (ft) (includes turn lanes)   |  | 10   | 12   | 12  |   |  |  |
| parking-lane width (ft)   |  |  |  | N/A   |   |  |  |
| pavement cross-slope (%)  |  | 1.5% minimum, 3% maximum   | 2%. However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3% | 2%  |   |  |  |
| effective shoulder width and type (see Section 3C-4)  |  | See Shoulder Tables  | See Shoulder Tables  | 6ft HMA   | Width per I.M. 3.210. Paving to provide bike lane per handoff meeting |  |  |
| shoulder cross-slope (%)  |  | not less than the adjacent lane, 2 to 6% for paved, 4 to 6% for granular, 6 to 8% for earth      | 4  | 4%  | Per I.M. 3.210  |  |  |
| foreslope (see Roadway Typical Cross Sections)  | adjacent to shoulder                             | 3:1  | 10:1 for 4' then 6:1   | 3:1   | Per I.M. 3.210  |  |  |
|   | beyond standard ditch depth and design clearzone | 3:1  | 3.5:1  | 3:1   |   |  |  |
|   | Curbed roadways                                  | 4% toward roadway for 12', then not steeper than 4:1   |  | N/A   |   |  |  |
| normal outside ditch (depth x width) (ft)   |  | --   | 5 x 10   | 5 x 10  |   |  |  |
| normal median ditch depth (ft)  |  | --   | --   | N/A   |   |  |  |
| normal median width (ft) (if applicable)  |  | --   | --   | N/A   |   |  |  |
| Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.) |  | 2.5:1  | 3:1  | 2.5:1   |   |  |  |
| bridge width—new (ft)   |  | design lane widths + effective shoulder widths   | design lane widths + effective shoulder widths or curb to curb street width                            | 36  |   |  |  |
| bridge width—for Use as Constructed bridges (ft)  |  | design lane widths + 2 ft offset each side   |  | N/A   |   |  |  |
| transverse slopes   | w/ drainage structures                           | 6:1  | 8:1  | 8:1   |   |  |  |
|   | w/o drainage structures                          | 6:1  | 10:1   | 10:1  |   |  |  |
|   | at sideroads                                     | 6:1  | 6:1  | 6:1   |   |  |  |
| Vertical clearance (ft) (above lanes & shoulders)(see Section 8A-2)   | Over primary                                     | 16   | 16.5   | 16.5  |   |  |  |
|   | over non-primary                                 | 14   | 16.5 at interchange  | 16.5  |   |  |  |
|   | over railroad                                    | 23.3   | 23.3   | N/A   |   |  |  |
|   | sign truss                                       | 17   | 17.5   | 17.5  |   |  |  |
| Structural Capacity   |  | Contact Office of Bridges and Structures   | --   |   |   |  |  |
| Level of Service  |  | B  | --   |   |   |  |  |

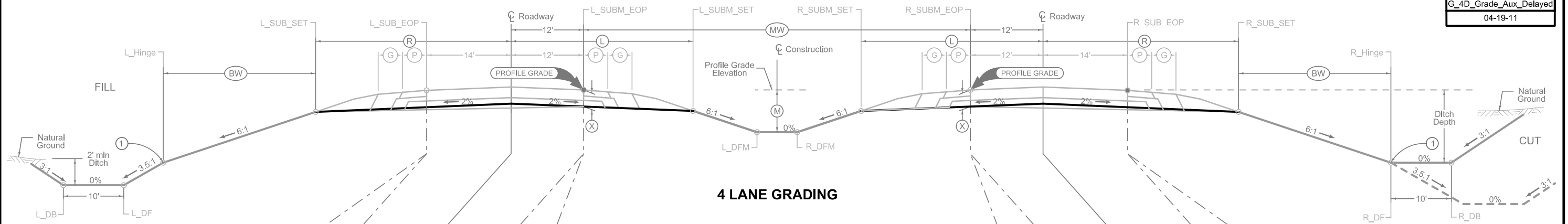
| Project Number: NHS-030-7(76)--19-57              |   |   |   | Project Number: NHS-030-7(76)--19-57              |          |  |  |
|---|---|---|---|---|----------|--|--|
| Route: Sutliff                                    |   |   |   | Route: Sutliff                                    |          |  |  |
| Date of Information: 3/11/2013                    |   |   |   | Date of Information: 3/11/2013                    |          |  |  |
| Date of Base Design Manual Information: 6/13/2012 |   |   |   | Date of Base Design Manual Information: 6/13/2012 |          |  |  |
| Last Updated 6/13/2012                            |   |   |   | Last Updated 6/13/2012                            |          |  |  |
|   |   | Acceptable Values   | Preferred Values  | Project Values                                    | Comments |  |  |
|   |   | Acceptable Design Criteria Based Upon Design Speed (requires approval according to Section 1C-8)                  | Preferred Design Criteria Based Upon Design Speed   |   |          |  |  |
| Design Element                                    |   | Design Speed, mph (Acceptable design speed is equal to posted speed limit and a minimum of 70mph for Interstates) | Design Speed, mph (Preferred design speed is 5mph over posted speed limit and a minimum of 70mph for Interstates) |   |          |  |  |
| Stopping sight distance (ft) (see Section 6D-1)   |   | 50  | 50  | 425   |          |  |  |
| Minimum horizontal curve radius (ft)              | e <sub>max</sub> = 4%                             | --  | --  | N/A   |          |  |  |
|   | e <sub>max</sub> = 6%                             | 833   | 833   | 833   |          |  |  |
|   | e <sub>max</sub> = 8%                             | 758   |   | N/A   |          |  |  |
| Minimum vertical curve length (ft)                | 150   | 150   | 150   |   |          |  |  |
| Minimum rate of vertical curvature (K)            | crest   | 84  | 136   | 136   |          |  |  |
|   | sag   | 96  | 96  | 96  |          |  |  |
| Minimum gradient (%)                              | 0.3% with a curb, 0.0%                            | 0.5   | 0.5%  |   |          |  |  |
| Maximum gradient (%) on ramps                     | Upgrades  | 5   |   |   |          |  |  |
|   | Downgrades  | Equal to the maximum upgrade gradient.  |   |   |          |  |  |
| Maximum gradient (%) on roadways other than ramps | 5   | 4   | 7%  | Per I.M. 3.210                                    |          |  |  |
| Clearzone   | See "Acceptable Clear Zone" table in Section 8A-2 | See "Preferred Clear Zone" table in Section 8A-2  | 16 ft   |   |          |  |  |
| Curb type   | 4" Sloped is maximum 6" Sloped for all other      | 4" Sloped is maximum height for interstate  |   |   |          |  |  |

| Project Number: NHS-030-7(76)-19-57<br>Route: Adams<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |  |  |  | Project Number: NHS-030-7(76)-19-57<br>Route: Adams<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |                           |   |  |   |   |                |  |
|--|--|--|--|--|---------------------------|---|--|---|---|----------------|--|
| Last Updated 6/13/2012   |  | Acceptable Values  | Preferred Values   | Project Values   | Comments                  | Last Updated 6/13/2012  |  | Acceptable Values   | Preferred Values                                  | Project Values | Comments                                 |
| Design Element   |  | Acceptable Design Criteria Based Upon Roadway Type (requires approval according to Section 1C-8) | Preferred Design Criteria Based Upon Roadway Type  |  |                           | Design Element  |  | Acceptable Design Criteria Based Upon Design Speed (requires approval according to Section 1C-                    | Preferred Design Criteria Based Upon Design Speed |                |  |
| Roadway Type   |  | Roadway Type   | Roadway Type   |  |                           | Design Speed, mph (Acceptable design speed is equal to posted speed limit and a minimum of 70mph for Interstates) |  | Design Speed, mph (Preferred design speed is 5mph over posted speed limit and a minimum of 70mph for Interstates) |   |                |  |
| design speed (mph)   |  | Cannot be less than the posted speed limit   | 5 miles above the posted speed limit   | 50   |                           | 50  |  | 50  |   |                |  |
| full depth paved width (ft)  |  | outside lane   | match rural  | 14   |                           | Stopping sight distance (ft) (see Section 6D-1)   |  | 425   | 425   | 425            |  |
|  |  | inside lane(s)   | match rural  |  |                           | Minimum horizontal curve radius (ft)  |  |   |   |                |  |
| design lane width (ft)   |  | 11   | 12   | 12   |                           | e <sub>max</sub> = 4%   |  | --  | --  | N/A            |  |
| auxiliary-lane width (ft) (includes turn lanes)  |  | 10   | 12   | 12   |                           | e <sub>max</sub> = 6%   |  | 833   | 833   | 833            |  |
| parking-lane width (ft)  |  |  |  | N/A  |                           | e <sub>max</sub> = 8%   |  | 758   |   | N/A            |  |
| pavement cross-slope (%)   |  | 1.5% minimum, 3% maximum   | 2%. However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3% | 2%   |                           | Minimum vertical curve length (ft)  |  | 150   | 150   | 150            |  |
| effective shoulder width and type (see Section 3C-4)   |  | See Shoulder Tables  | Discuss at PMT   | 10 ft shoulder / 2 ft on slab, 8 ft granular   |                           | Minimum rate of vertical curvature (K)  |  | crest   | 84  | 136            | 136                                      |
| shoulder cross-slope (%)   |  | not less than the adjacent lane, 2 to 6% for paved, 4 to 6% for granular, 6 to 8% for earth      | 4  | 4%   |                           | sag   |  | 96  | 96  | 96             |  |
| foreslope (see Roadway Typical Cross Sections)   |  | adjacent to shoulder   | 4% toward curb   | 2% toward curb   | 10:1 for 4 feet, then 6:1 | Minimum gradient (%)  |  | 0.3% with a curb, 0.0%  | 0.5   | 0.5            | 0.5%                                     |
|  |  | beyond standard ditch depth and design clearzone   | 3:1  | match urban  | 3.5:1                     | Maximum gradient (%) on ramps   |  |   |   |                |  |
|  |  | Curbed roadways  | shinid curbs, then not steeper than 4:1  | 4% toward roadway for 12', then not steeper than 4:1   | N/A                       | Upgrades  |  | 5   |   |                |  |
| normal outside ditch (depth x width) (ft)  |  | --   | --   | 5 x 10   |                           | Downgrades  |  | Equal to the maximum upgrade gradient.  |   |                |  |
| normal median ditch depth (ft)   |  | --   | --   | N/A  |                           | Maximum gradient (%) on roadways other than ramps   |  | 5   | 4   | 4%             |  |
| normal median width (ft) (if applicable)   |  | --   | --   | N/A  |                           | Clearzone   |  | See "Acceptable Clear Zone" table in Section 8A-2   | See "Preferred Clear Zone" table in Section 8A-2  | 18 ft.         | Review once traffic numbers are analyzed |
| Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)                    |  | 2.5:1  | 4:1  | 3:1  |                           | Curb type   |  | 4" Sloped is maximum 6" Sloped for all other  | 4" Sloped is maximum height for interstate        |                |  |
| bridge width—new (ft)  |  | design lane widths + effective shoulder widths   | design lane widths + effective shoulder widths or curb to curb street width                            |  |                           |   |  |   |   |                |  |
| bridge width—for Use as Constructed bridges (ft)   |  | design lane widths + 2 ft offset each side   |  | N/A  |                           |   |  |   |   |                |  |
| transverse slopes  |  | w/ drainage structures   | 6:1  | 8:1  | 8:1                       |   |  |   |   |                |  |
|  |  | w/o drainage structures  | 6:1  | 10:1   | 10:1                      |   |  |   |   |                |  |
|  |  | at sideroads   | 6:1  | 6:1  | 6:1                       |   |  |   |   |                |  |
| Vertical clearance (ft) (above lanes & shoulders)(see Section 8A-2)  |  | Over primary   | 16   | 16.5   | 16.5                      |   |  |   |   |                |  |
|  |  | over non-primary   | 14   | 16.5 at interchange  | 16.5                      |   |  |   |   |                |  |
|  |  | over railroad  | 23.3   | 23.3   | N/A                       |   |  |   |   |                |  |
|  |  | sign truss   | 17   | 17.5   | 17.5                      |   |  |   |   |                |  |
| Structural Capacity  |  | Contact Office of Bridges and Structures   | --   |  |                           |   |  |   |   |                |  |
| Level of Service   |  | B for design speeds of 55 or greater B, C for design speeds less than 55                         | --   |  |                           |   |  |   |   |                |  |



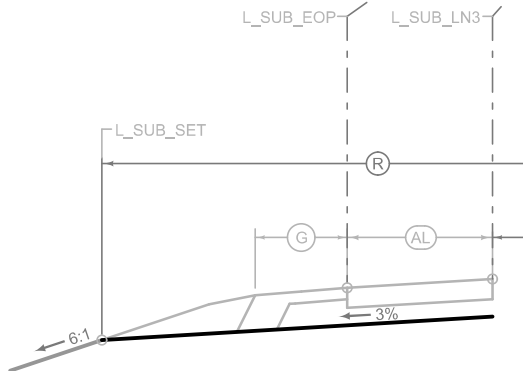
| Project Number: NHS-030-7(76)-19-57<br>Route: U.S. 30 Ramps<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |  |  |   | Project Number: NHS-030-7(76)-19-57<br>Route: U.S. 30 Ramps<br>Date of Information: 3/11/2013<br>Date of Base Design Manual Information: 6/13/2012 |  |  |  |
|--|--|--|---|--|--|--|--|
| Last Updated 6/13/2012   |  | Acceptable Values  | Preferred Values  | Project Values   | Comments                                 |  |  |
| Last Updated 6/13/2012   |  | Acceptable Design Criteria Based Upon Roadway Type (requires approval according to Section 1C-8) | Preferred Design Criteria Based Upon Roadway Type   |  |  |  |  |
| Design Element   |  | Roadway Type   | Roadway Type  |  |  |  |  |
|  |  | Ramps  | Ramps   |  |  |  |  |
|  |  | one lane   | one lane  |  |  |  |  |
| Design Element   |  |  |   | Mt. Vernon / Lison Bypass - Ramps  |  |  |  |
| design speed (mph)   |  |  |   | Varies   |  |  |  |
| full depth paved width (ft)  |  | outside lane   | See Ramp Tables   | See Ramp Tables  | 16                                       |  |  |
|  |  | inside lane(s)   |   |  |  |  |  |
| design lane width (ft)   |  |  |   |  | 16                                       |  |  |
| auxiliary-lane width (ft) (includes turn lanes)  |  |  | 10  | 12   | 12                                       |  |  |
| parking-lane width (ft)  |  |  |   |  | N/A                                      |  |  |
| pavement cross-slope (%)   |  |  | 1.5% minimum, 3% maximum  | 2%   | 2% typ                                   |  |  |
| effective shoulder width and type (see Section 3C-4)   |  |  | See Ramp Tables   | See Ramp Tables  | 4 ft inside, 6 ft outside (all granular) |  |  |
| shoulder cross-slope (%)   |  |  | not less than the adjacent lane, 2 to 6% for paved, 4 to 6% for granular, 6 to 8% for earth | 4  | 4%                                       |  |  |
| foreslope (see Roadway Typical Cross Sections)   |  | adjacent to shoulder   | 4:1 for interstates, 3:1 for others   | 10:1 for 4' then 6:1   | 10:1 for 4 ft, then 6:1 to CZ            |  |  |
|  |  | beyond standard ditch depth and design clearzone   | 3:1   | 3.5:1  | 3.5:1                                    |  |  |
|  |  | Curbed roadways  | not steeper than 3:1  | Curbed roadways are not preferred  | N/A                                      |  |  |
| normal outside ditch (depth x width) (ft)  |  |  | --  | 5 x 10   | 5 x 10                                   |  |  |
| normal median ditch depth (ft)   |  |  | --  | --   | N/A                                      |  |  |
| normal median width (ft) (if applicable)   |  |  | --  | --   | N/A                                      |  |  |
| Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)                            |  |  | 2.5:1   | 3:1  | 3:1                                      |  |  |
| bridge width—new (ft)  |  |  | design lane widths + effective shoulder widths  | design lane widths + effective shoulder widths   | 26                                       |  |  |
| bridge width—for Use as Constructed bridges (ft)   |  |  | design lane widths + 2 ft offset each side  |  | N/A                                      |  |  |
| transverse slopes  |  | w/ drainage structures   | 6:1   | 8:1  | N/A                                      |  |  |
|  |  | w/o drainage structures  | 6:1   | 10:1   | N/A                                      |  |  |
|  |  | at sideroads   | 6:1   | 6:1  | 6:1                                      |  |  |
| Vertical clearance (ft) (above lanes & shoulders)(see Section 8A-2)  |  | Over primary   | 16  | 16.5   | 16.5                                     |  |  |
|  |  | over non-primary   | 14  | 16.5 at interchange  | 16.5                                     |  |  |
|  |  | over railroad  | 23.3  | 23.3   | N/A                                      |  |  |
|  |  | sign truss   | 17  | 17.5   | 17.5                                     |  |  |
| Structural Capacity  |  |  | Contact Office of Bridges and Structures  | --   |  |  |  |
| Level of Service   |  |  | --  | --   |  |  |  |

| Last Updated 6/13/2012                            |  | Acceptable Values   | Preferred Values  | Project Values                                   | Comments             |                        |
|---|--|---|---|--|----------------------|------------------------|
| Last Updated 6/13/2012                            |  | Acceptable Design Criteria Based Upon Design Speed (requires approval according to Section 1C-8)                  | Preferred Design Criteria Based Upon Design Speed   |  |                      |                        |
| Design Element                                    |  | Design Speed, mph (Acceptable design speed is equal to posted speed limit and a minimum of 70mph for Interstates) | Design Speed, mph (Preferred design speed is 5mph over posted speed limit and a minimum of 70mph for Interstates) |  |                      |                        |
| Design Element                                    |  |   |   | 45 / 60 at gore                                  |                      |                        |
| Stopping sight distance (ft) (see Section 6D-1)   |  |   | 360   | 570  | 360                  | 570                    |
| Minimum horizontal curve radius (ft)              |  | e <sub>max</sub> = 4%   | 711   | --   | 711                  | --                     |
|   |  | e <sub>max</sub> = 6%   | 643   | 1330   | 643                  | 1330                   |
|   |  | e <sub>max</sub> = 8%   | 587   | 1200   |                      | N/A                    |
| Minimum vertical curve length (ft)                |  |   | 135   | 180  | 135                  | 180                    |
| Minimum rate of vertical curvature (K)            |  | crest   | 61  | 151  | 98                   | 245                    |
|   |  | sag   | 79  | 136  | 79                   | 136                    |
| Minimum gradient (%)                              |  |   | 0.3% with a curb, 0.0%  |  | 0.5                  | 0.5%                   |
| Maximum gradient (%) on ramps                     |  |   |   |  | 4%                   | 4%                     |
|   |  | Upgrades  | 5   | 5  |                      |                        |
|   |  | Downgrades  | Equal to the maximum upgrade gradient.  |  |                      |                        |
| Maximum gradient (%) on roadways other than ramps |  |   | 6   | 4  | 5                    | 3                      |
| Clearzone   |  |   | See "Acceptable Clear Zone" table in Section 8A-2   | See "Preferred Clear Zone" table in Section 8A-2 | 24 ft                |                        |
| Curb type   |  |   | 4" Sloped is maximum 6" Sloped for all other  | 6" Standard                                      | 4" Sloped is maximum | 4" sloped if necessary |



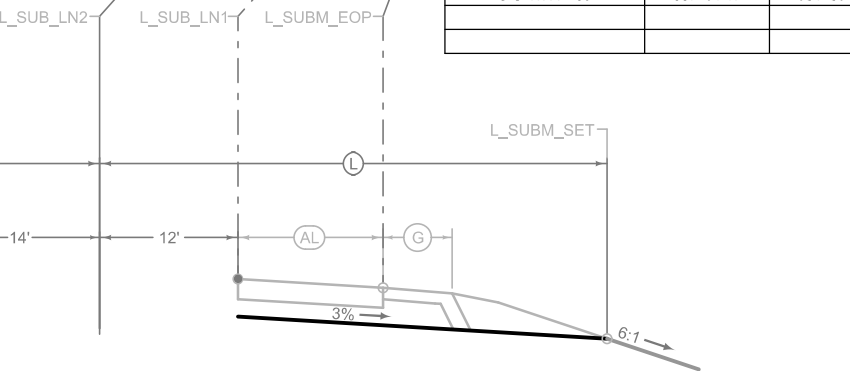
**4 LANE GRADING**

| LOCATION            |                       | DIMENSIONS  |             |               |              |              |             |
|---------------------|-----------------------|-------------|-------------|---------------|--------------|--------------|-------------|
| ROAD IDENTIFICATION | STATION TO STATION    | (L)<br>Feet | (R)<br>Feet | (X)<br>Inches | (BW)<br>Feet | (MW)<br>Feet | (M)<br>Feet |
| U.S. HWY. 30        | 567+91.17 - 961+69.98 | 28.1        | 31.8        | 16            | 14.2         | 64           | 4           |
|                     |                       |             |             |               |              |              |             |
|                     |                       |             |             |               |              |              |             |



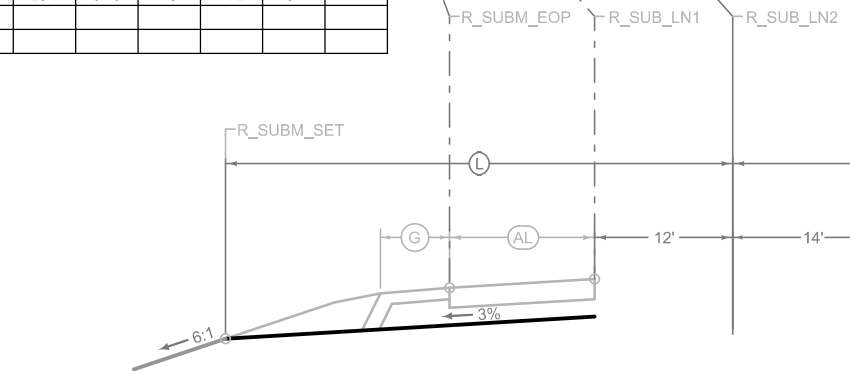
**Auxiliary Lane Grading**

| LOCATION            |                    | (R)<br>Feet |
|---------------------|--------------------|-------------|
| ROAD IDENTIFICATION | STATION TO STATION |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |



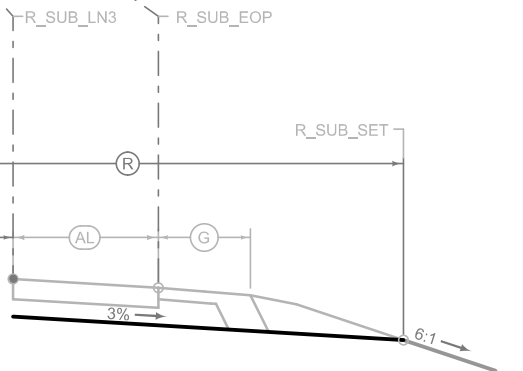
**Auxiliary Lane Grading**

| LOCATION            |                       | (L)<br>Feet |
|---------------------|-----------------------|-------------|
| ROAD IDENTIFICATION | STATION TO STATION    |             |
| U.S. HWY. 30        | 588+89.48 - 595+04.48 |             |
| U.S. HWY. 30        | 595+04.48 - 596+84.48 | VAR.        |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |



**Auxiliary Lane Grading**

| LOCATION            |                       | (L)<br>Feet |
|---------------------|-----------------------|-------------|
| ROAD IDENTIFICATION | STATION TO STATION    |             |
| U.S. HWY. 30        | 605+84.71 - 607+65.71 | VAR.        |
| U.S. HWY. 30        | 607+65.71 - 613+80.71 |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |
|                     |                       |             |



**Auxiliary Lane Grading**

| LOCATION            |                    | (R)<br>Feet |
|---------------------|--------------------|-------------|
| ROAD IDENTIFICATION | STATION TO STATION |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |
|                     |                    |             |

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.

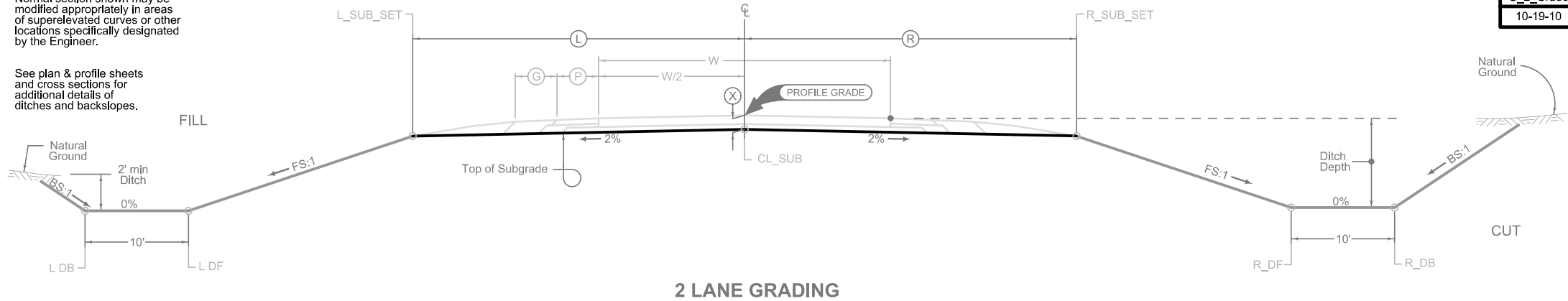
① Refer to project plan and cross sections for specific location of foreslope change.

**MAINLINE U.S. 30**

| LOCATION            |                           | DIMENSIONS |        |          |    |     |
|---------------------|---------------------------|------------|--------|----------|----|-----|
| ROAD IDENTIFICATION | STATION TO STATION        | L Feet     | R Feet | X Inches | FS | BS  |
| WILCOX              | 1584+26.89 - 1587+70.87   | 18.5       | 18.5   | 14       | 3  | 2.5 |
| IRISH               | 2614+98.71 - 2618+82.62   | 18.5       | 18.5   | 14       | 3  | 2.5 |
| SUTLIFF             | 8788+63.95 - 8819+78.00   | 21.3       | 21.3   | 14       | 3  | 2.5 |
| CHARLES             | 17977+91.00 - 17981+31.83 | 19.5       | 19.5   | 14       | 3  | 2.5 |
| KIRKWOOD 1          | 13896+77.50 - 13905+48.57 | 25.1       | 25.1   | 14       | 3  | 2.5 |
| KIRKWOOD 4          | 16951+42.71 - 16982+22.34 | 25.1       | 25.1   | 14       | 3  | 2.5 |
| ADAMS S. CONNECTOR  | 12853+89.00 - 12860+97.63 | 21.3       | 21.3   | 14       | 3  | 2.5 |

Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

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



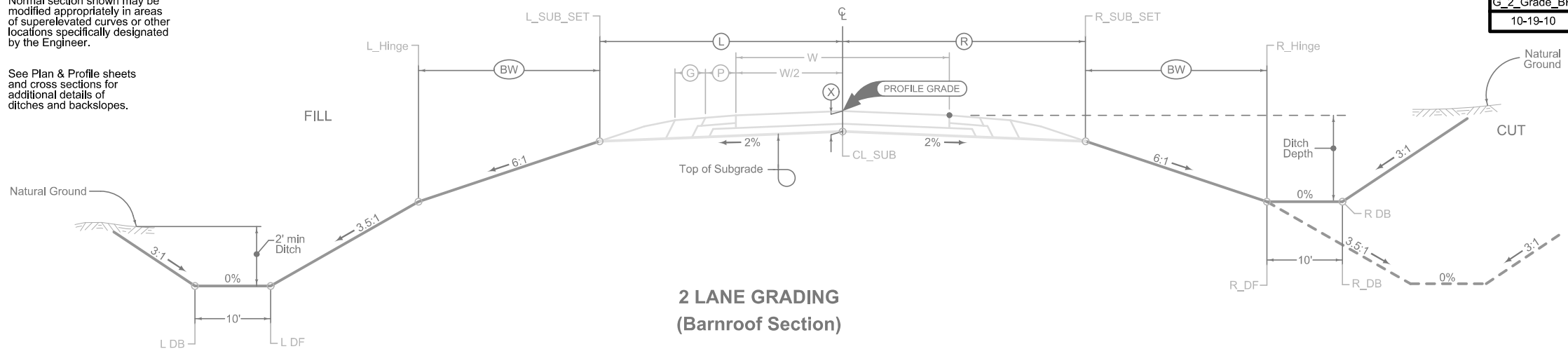
2 LANE GRADING

G\_2\_Grade  
10-19-10

| LOCATION            |                           | DIMENSIONS |        |          |         |  |
|---------------------|---------------------------|------------|--------|----------|---------|--|
| ROAD IDENTIFICATION | STATION TO STATION        | L Feet     | R Feet | X Inches | BW Feet |  |
| ADAMS               | 11841+13.41 - 11911+67.38 | 30.7       | 30.7   | 14       | 1.3     |  |
| EAST TRANS.         | 18961+69.98 - 18975+15.54 |            |        |          |         |  |

Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.



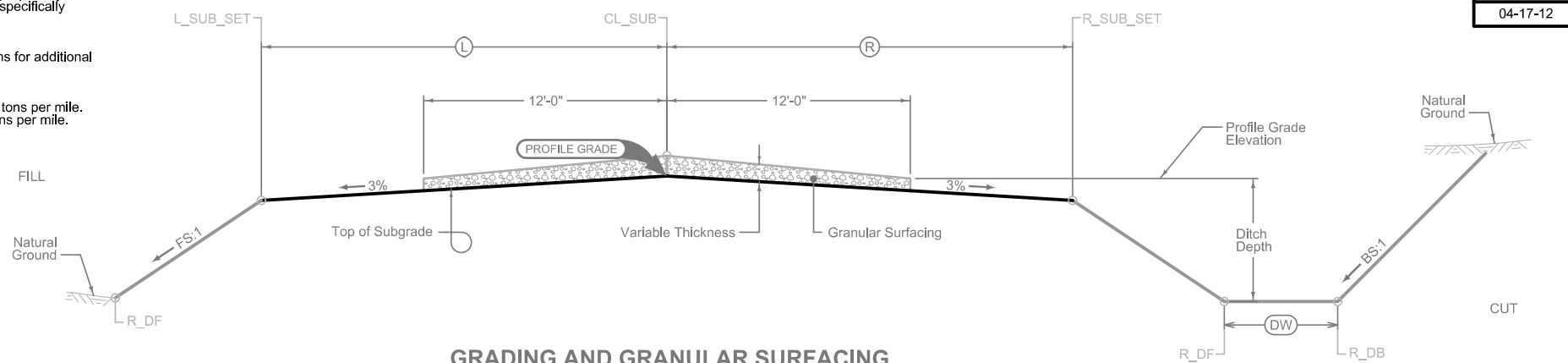
2 LANE GRADING  
(Barnroof Section)

G\_2\_Grade\_BR  
10-19-10

| LOCATION            |                           | DIMENSIONS |        |    |     |         |  |
|---------------------|---------------------------|------------|--------|----|-----|---------|--|
| ROAD IDENTIFICATION | STATION TO STATION        | L Feet     | R Feet | FS | BS  | DW Feet |  |
| WILCOX              | 1581+67.00 - 1584+26.89   | 15         | 15     | 3  | 2.5 | 10      |  |
| IRISH               | 2618+82.62 - 2620+34.28   | 15         | 15     | 3  | 2.5 | 10      |  |
| WILLOW CREEK        | 4633+50.00 - 4643+09.11   | 13         | 13     | 3  | 2.5 | 10      |  |
| STANDING ROCK       | 7760+77.25 - 7786+07.16   | 13         | 13     | 3  | 2.5 | 10      |  |
| GREEN RIDGE         | 10829+74.79 - 10846+11.03 | 13         | 13     | 3  | 2.5 | 10      |  |

Normal section shown may be modified appropriately in areas of super-elevated curves or other locations specifically designated by the Engineer.

See plan & profile sheets and cross sections for additional details of ditches and backslopes.  
Place Granular Surfacing as follows:  
Grading design application rate is 4435 tons per mile.  
Paving design application rate is \_\_\_ tons per mile.



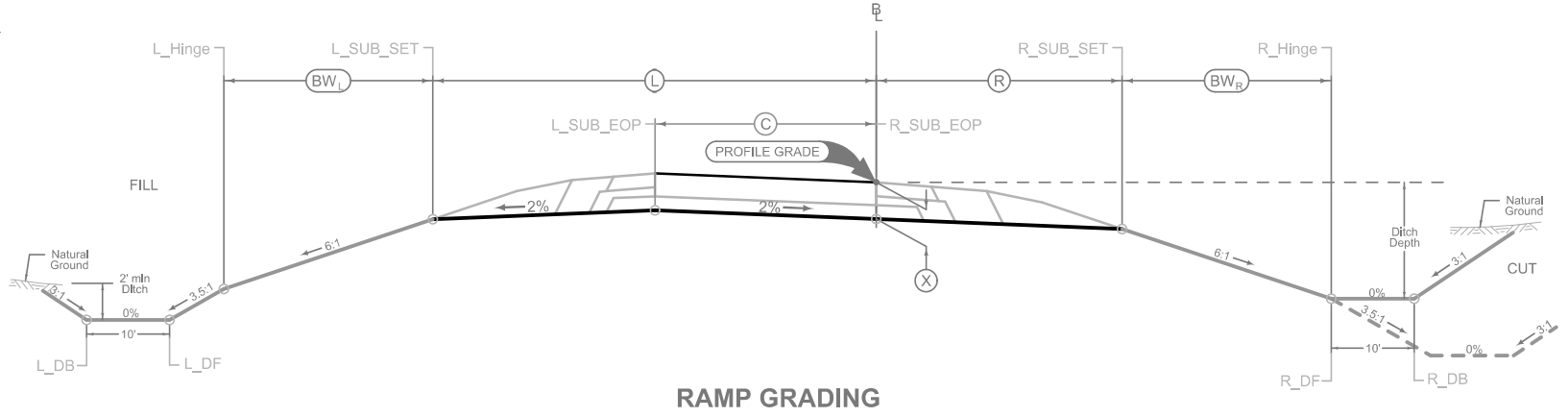
GRADING AND GRANULAR SURFACING

G\_2\_GradeGran  
04-17-12

MINOR ROADWAYS

| LOCATION    |      |                    |            | DIMENSIONS |           |           |             |                        |                        |
|-------------|------|--------------------|------------|------------|-----------|-----------|-------------|------------------------|------------------------|
| INTERCHANGE | RAMP | STATION TO STATION |            | Ⓓ<br>Feet  | Ⓡ<br>Feet | Ⓒ<br>Feet | Ⓧ<br>Inches | Ⓑ <sub>L</sub><br>Feet | Ⓑ <sub>R</sub><br>Feet |
| IA. HWY. 1  | A    | 1587+72.83         | 1600+43.85 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
|             | B    | 2574+60.63         | 2586+37.76 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
|             | C    | 3575+14.96         | 3587+52.48 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
|             | D    | 4486+55.36         | 4498+39.51 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
| ADAMS       | A    | 1568+86.78         | 1580+71.36 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
|             | B    | 2558+69.15         | 2570+53.74 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
|             | C    | 3557+58.43         | 3569+30.94 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
|             | D    | 4570+09.58         | 4581+82.08 | 30.4       | 16.1      | 16        | 16          | 9.6                    | 7.9                    |
|             |      |                    |            |            |           |           |             |                        |                        |
|             |      |                    |            |            |           |           |             |                        |                        |
|             |      |                    |            |            |           |           |             |                        |                        |
|             |      |                    |            |            |           |           |             |                        |                        |

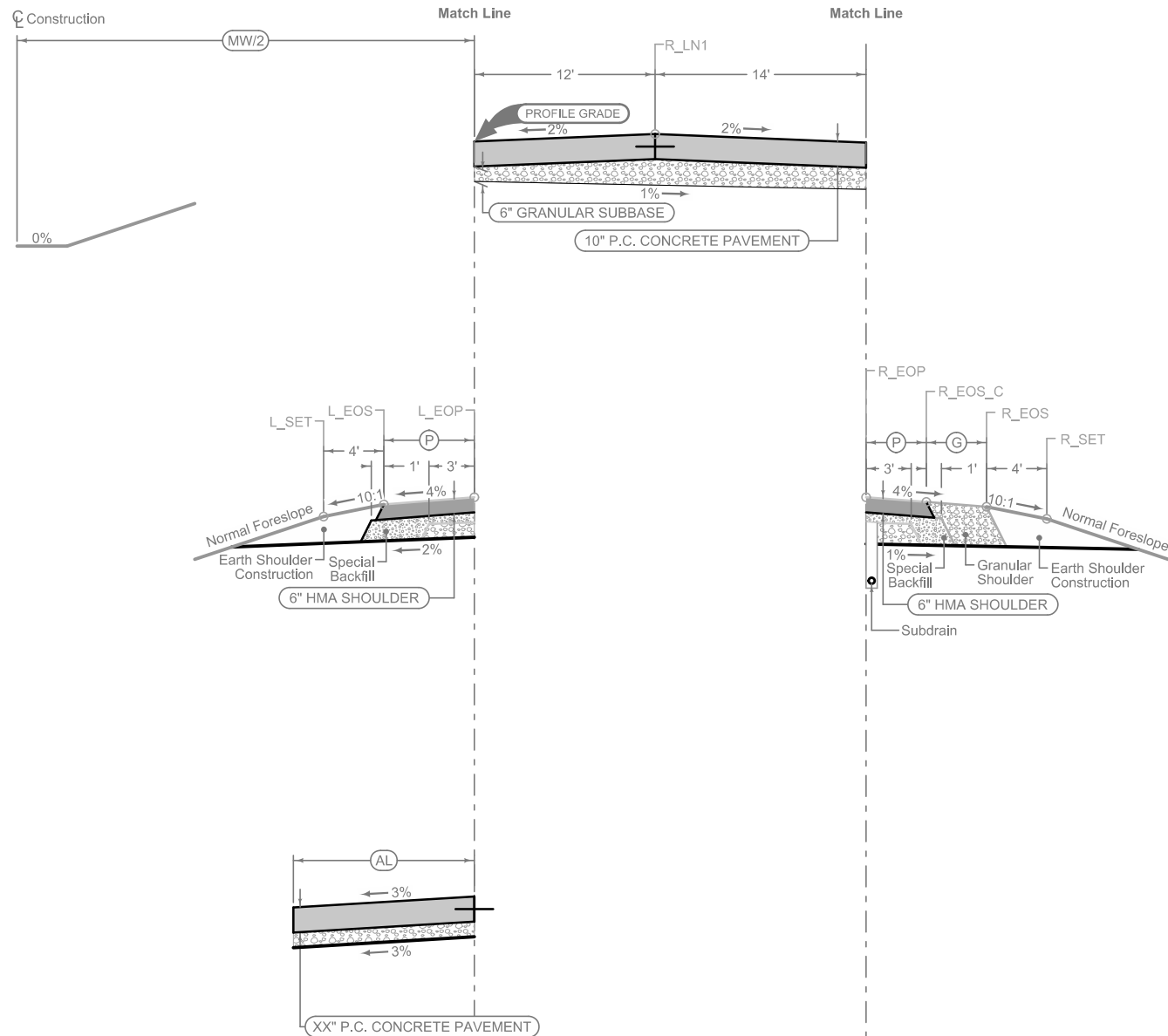
Section view is in direction of traffic.  
Normal sections shown may be appropriately modified for areas specifically designated by the Engineer such as intersections or superelevated curves.



RAMP GRADING

INTERCHANGE RAMPS





Section shown in the direction of traffic.  
 Mainline Jointing:  
 Transverse joints: CD at 20' spacing  
 Longitudinal joint: L-2

### HMA Shoulder

Shoulder Jointing:  
 Longitudinal joint: B

| 4_P_HMA_04-16-13    |               |             |          |
|---------------------|---------------|-------------|----------|
| Direction of Travel | BEGIN STATION | END STATION | (P) Feet |
| B                   | 567+91.17     | 961+69.98   | 6        |
|                     |               |             |          |
|                     |               |             |          |

### Auxiliary Lane

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

| 2_AuxLane_PCC_10-19-10 |           |           |  |
|------------------------|-----------|-----------|--|
| STATION TO STATION     |           | (AL) Feet |  |
| 588+89.48              | 595+04.48 | 12        |  |
| 595+04.48              | 596+84.48 | VAR.      |  |
| 605+85.71              | 607+65.71 | VAR.      |  |
| 607+65.71              | 613+80.71 | 12        |  |

### Combination Shoulder

Shoulder Jointing:  
 Longitudinal joint: B

| 4_C_10-19-10        |               |             |          |          |
|---------------------|---------------|-------------|----------|----------|
| Direction of Travel | BEGIN STATION | END STATION | (P) Feet | (G) Feet |
| B                   | 567+91.17     | 961+69.98   | 4        | 4        |
|                     |               |             |          |          |
|                     |               |             |          |          |

| 4DP_10-19-10 |               |             |           |
|--------------|---------------|-------------|-----------|
|              | BEGIN STATION | END STATION | (MW) Feet |
| U.S. 30      | 567+91.17     | 961+69.98   | 64        |
|              |               |             |           |
|              |               |             |           |

See Tab 100-24 for pavement quantities.  
 See Tab 112-9 for shoulder quantities.

## MAINLINE U.S. 30

**Granular Shoulder with Safety Edge**

|                    |             |          |
|--------------------|-------------|----------|
|                    |             | 2_G_     |
|                    |             | 04-16-13 |
| STATION TO STATION |             | (G)      |
|                    |             | Feet     |
| 11841+13.41        | 11912+47.97 | 8        |
| 18961+69.98        | 18975+15.54 | 8        |

**Modified Granular Shoulder**

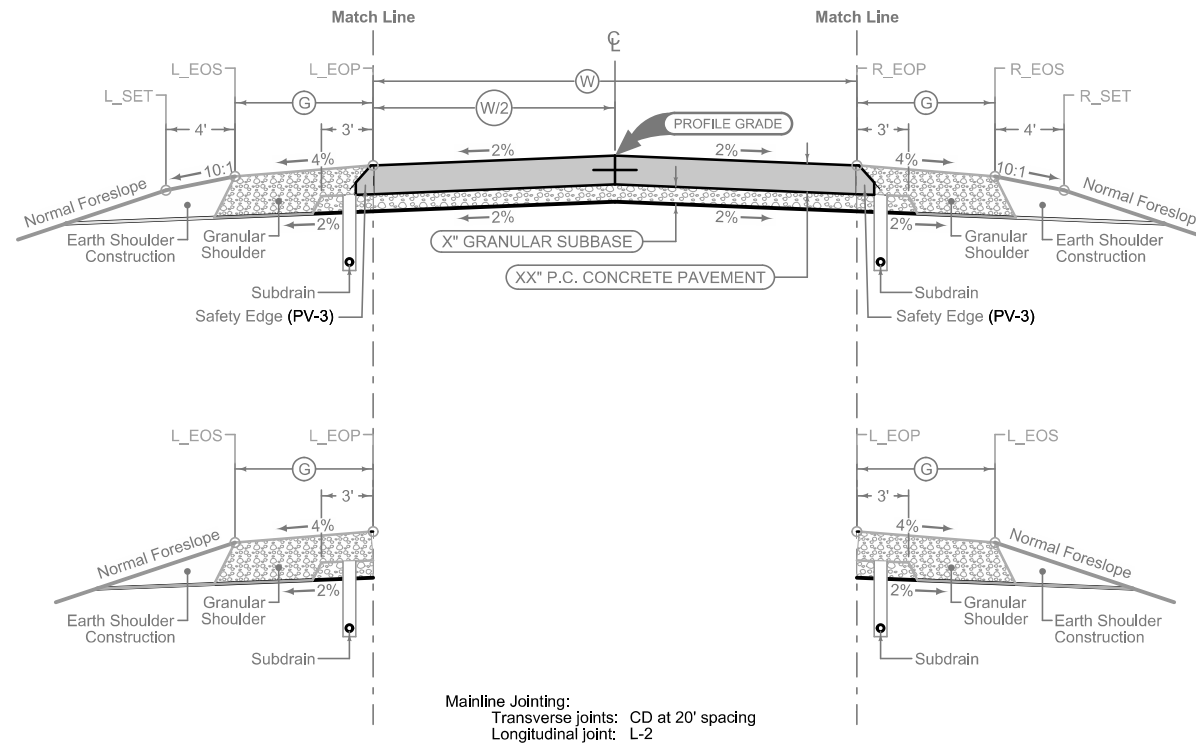
|                    |             |          |
|--------------------|-------------|----------|
|                    |             | 2_G_     |
|                    |             | 04-16-13 |
| STATION TO STATION |             | (G)      |
|                    |             | Feet     |
| 1584+26.89         | 1587+70.87  | 3        |
| 2614+98.71         | 2618+82.62  | 3        |
| 17977+91.00        | 17981+31.83 | 4        |
| 13896+77.50        | 13905+47.57 | 10       |
| 16951+42.71        | 16982+22.34 | 10       |
| 12853+89.00        | 12860+97.63 | 6        |

**Granular Shoulder with Safety Edge**

|                    |             |          |
|--------------------|-------------|----------|
|                    |             | 2_G_     |
|                    |             | 04-16-13 |
| STATION TO STATION |             | (G)      |
|                    |             | Feet     |
| 11841+13.41        | 11912+47.97 | 8        |
| 18961+69.98        | 18975+15.54 | 8        |

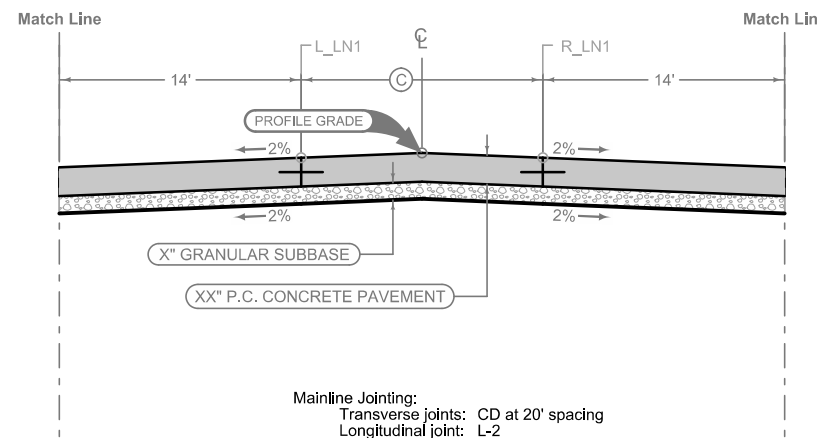
**Modified Granular Shoulder**

|                    |             |          |
|--------------------|-------------|----------|
|                    |             | 2_G_     |
|                    |             | 04-16-13 |
| STATION TO STATION |             | (G)      |
|                    |             | Feet     |
| 1584+26.89         | 1587+70.87  | 3        |
| 2614+98.71         | 2618+82.62  | 3        |
| 17977+91.00        | 17981+31.83 | 4        |
| 13896+77.50        | 13905+47.57 | 10       |
| 16951+42.71        | 16982+22.34 | 10       |
| 12853+89.00        | 12860+97.63 | 6        |



Mainline Jointing:  
 Transverse joints: CD at 20' spacing  
 Longitudinal joint: L-2

| LOCATION            |                         | (W)  |
|---------------------|-------------------------|------|
| ROAD IDENTIFICATION | STATION TO STATION      | Feet |
| WILCOX              | 1584+26.89 1587+70.87   | 24   |
| IRISH               | 2614+98.71 2618+82.62   | 24   |
| ADAMS               | 11841+13.41 11911+67.38 | 28   |
| ADAMS S. CONN.      | 12853+89.00 12860+97.63 | 24   |
| KIRKWOOD 1          | 13896+77.50 13905+47.57 | 24   |
| KIRKWOOD 4          | 16951+42.71 16982+22.34 | 24   |
| CHARLES             | 17977+91.00 17981+31.83 | 24   |
| EAST CONN.          | 18961+69.98 18975+15.54 | 28   |



Mainline Jointing:  
 Transverse joints: CD at 20' spacing  
 Longitudinal joint: L-2

| LOCATION            |                    | (C)  |
|---------------------|--------------------|------|
| ROAD IDENTIFICATION | STATION TO STATION | Feet |
| ADAMS               | - -                | VAR. |
| ADAMS               | - -                | 16   |
| ADAMS               | - -                | VAR. |

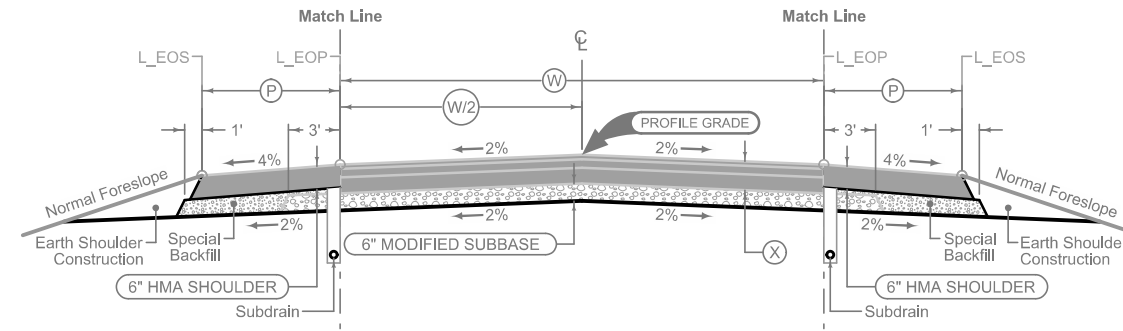
See Tab 100-24 for pavement quantities.  
 See Tab 112-9 for shoulder quantities.

**MINOR ROADWAYS**

**HMA Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

|                    |            |      |
|--------------------|------------|------|
| 2_P_HMA_10-19-10   |            |      |
| STATION TO STATION | (P)        | Feet |
| 8788+63.95         | 8819+78.00 | 6    |
|                    |            |      |
|                    |            |      |

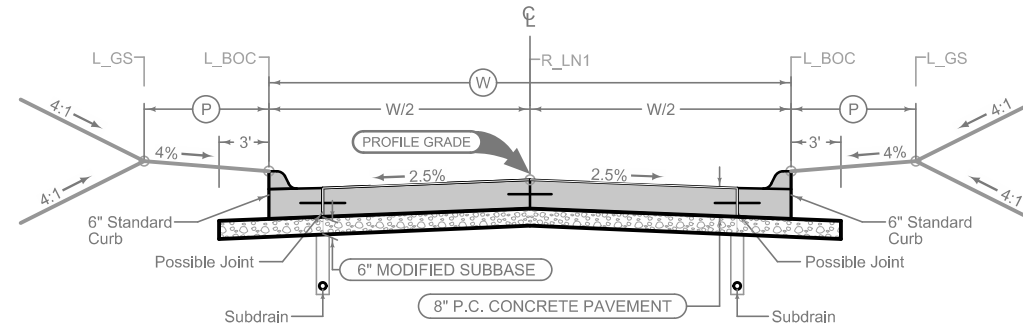


**HMA Shoulder**

Shoulder Jointing:  
Longitudinal joint: B

|                    |            |      |
|--------------------|------------|------|
| 2_P_HMA_10-19-10   |            |      |
| STATION TO STATION | (P)        | Feet |
| 8788+63.95         | 8819+78.00 | 6    |
|                    |            |      |
|                    |            |      |

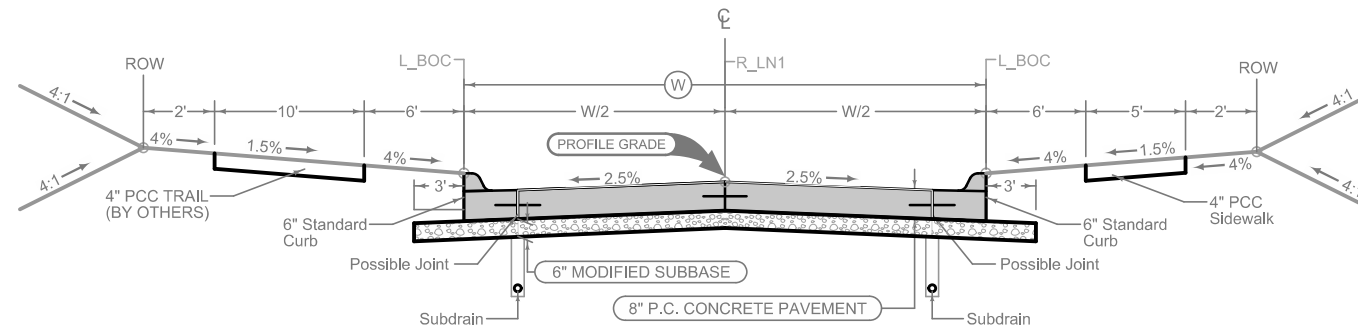
|                     |                       |      |        |
|---------------------|-----------------------|------|--------|
| LOCATION            |                       | (W)  | (X)    |
| ROAD IDENTIFICATION | STATION TO STATION    | Feet | Inches |
| SUTLIFF             | 8788+63.95 8819+78.00 | 24   | 8      |
|                     |                       |      |        |



Section shown in the direction of traffic.

Mainline Jointing:  
Transverse joints: CD at 20' spacing  
Longitudinal joint: L-2

|              |               |             |          |          |
|--------------|---------------|-------------|----------|----------|
| 4DP_10-19-10 |               |             |          |          |
|              | BEGIN STATION | END STATION | (W) Feet | (P) Feet |
| W. CONNECTOR | 3618+12.84    | 3647+88.73  | 31       | 8        |
| WILLOW CREEK | 4643+40.14    | 4644+66.39  | 31       | 8        |
|              |               |             |          |          |



Section shown in the direction of traffic.

Mainline Jointing:  
Transverse joints: CD at 20' spacing  
Longitudinal joint: L-2

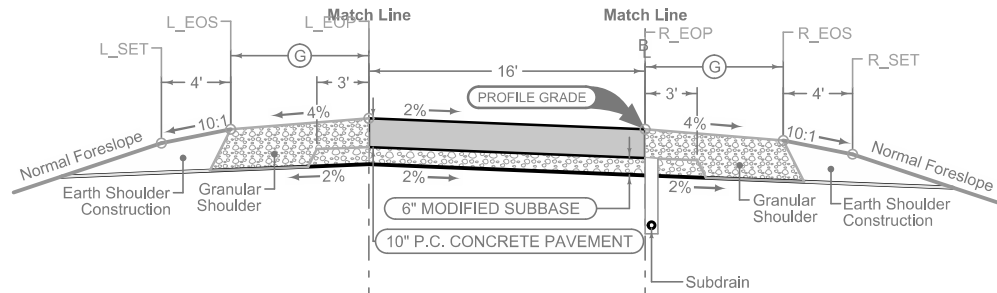
|              |               |             |          |
|--------------|---------------|-------------|----------|
| 4DP_10-19-10 |               |             |          |
|              | BEGIN STATION | END STATION | (W) Feet |
| IA. HWY. 1   | 6677+96.57    | 6704+25.02  | 70       |
|              |               |             |          |

See Tab 100-24 for pavement quantities.  
See Tab 112-9 for shoulder quantities.

**MINOR ROADWAYS**

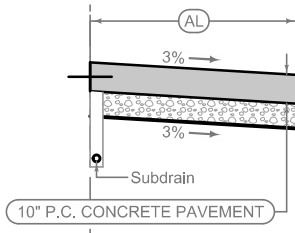
**Granular Shoulder**

| 1R_G_10-19-10 |             |      |
|---------------|-------------|------|
| BEGIN STATION | END STATION | Feet |
| 1587+72.83    | 1600+43.85  | 4    |
| 2574+60.63    | 2586+37.76  | 4    |
| 3575+14.96    | 3587+52.48  | 4    |
| 4486+55.36    | 4498+39.51  | 4    |
| 1568+86.78    | 1580+71.36  | 4    |
| 2558+69.15    | 2570+53.74  | 4    |
| 3557+58.43    | 3569+30.94  | 4    |
| 4570+09.58    | 4581+82.08  | 4    |



**Granular Shoulder**

| 1R_G_10-19-10 |             |      |
|---------------|-------------|------|
| BEGIN STATION | END STATION | Feet |
| 1587+72.83    | 1600+43.85  | 6    |
| 2574+60.63    | 2586+37.76  | 6    |
| 3575+14.96    | 3587+52.48  | 6    |
| 4486+55.36    | 4498+39.51  | 6    |
| 1568+86.78    | 1580+71.36  | 6    |
| 2558+69.15    | 2570+53.74  | 6    |
| 3557+58.43    | 3569+30.94  | 6    |
| 4570+09.58    | 4581+82.08  | 6    |



**Auxiliary Lane**

Longitudinal joint: L or KT  
Transverse joint: Match Mainline

| 4_AuxLane_PCC_10-19-10 |               |             |      |
|------------------------|---------------|-------------|------|
| Direction of Travel    | BEGIN STATION | END STATION | Feet |
| WB                     | 1591+42.80    | 1589+32.87  | VAR  |
| WB                     | 1589+32.87    | 1587+72.83  | 12   |
| EB                     | 2582+67.73    | 2584+77.72  | VAR  |
| EB                     | 2584+77.72    | 2586+37.76  | 12   |

| LOCATION            |                    |            |
|---------------------|--------------------|------------|
| ROAD IDENTIFICATION | STATION TO STATION |            |
| IA. HWY. 1 - RAMP A | 1587+72.83         | 1600+43.85 |
| RAMP B              | 2574+60.63         | 2586+37.76 |
| RAMP C              | 3575+14.96         | 3587+52.48 |
| RAMP D              | 4486+55.36         | 4498+39.51 |
| ADAMS - RAMP A      | 1568+86.78         | 1580+71.36 |
| RAMP B              | 2558+69.15         | 2570+53.74 |
| RAMP C              | 3557+58.43         | 3569+30.94 |
| RAMP D              | 4570+09.58         | 4581+82.08 |

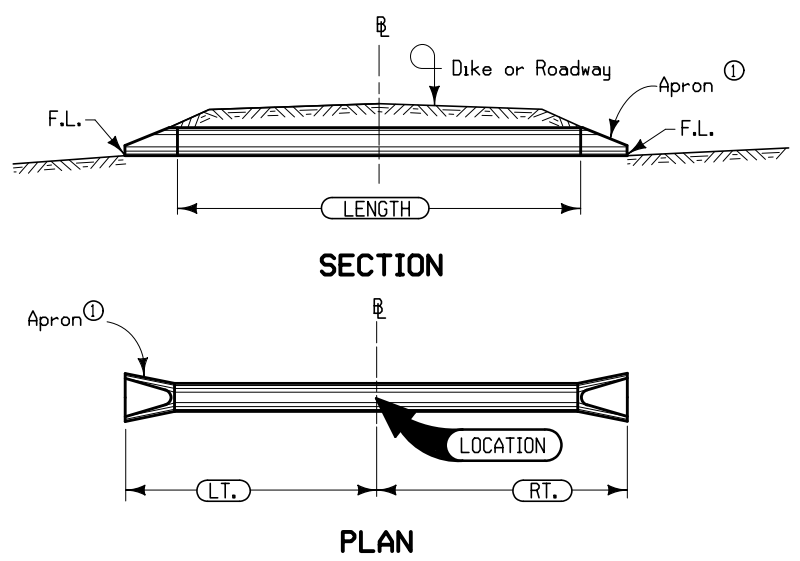
Section shown in the direction of traffic.  
Ramp Jointing:  
Transverse joints: CD at 20' spacing.

See Tab 100-24 for pavement quantities.  
See Tab 112-9 for shoulder quantities.

**INTERCHANGE RAMPS**



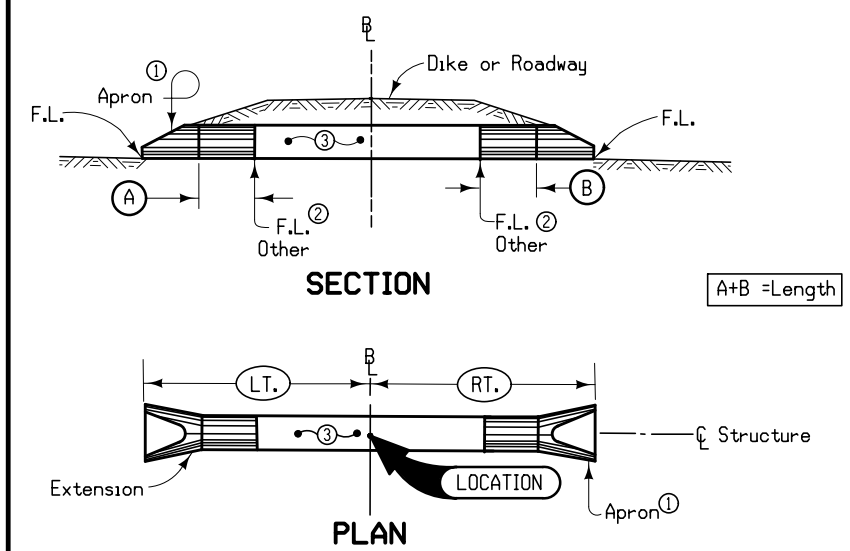
1101  
04-30-02



Notes:  
 CL shall be CL of roadway, dike, survey, or other; as detailed on plans.  
 Skew angle is the angle which one end of the pipe is ahead (by stationing) of line perpendicular to the CL (example skew Rt. ahead 30°).  
 Refer to tabular listing and other plans for additional information.  
 ① See Standard Road Plan RF-3 For Conc. or RF-5 for Metal.

PIPE CULVERT

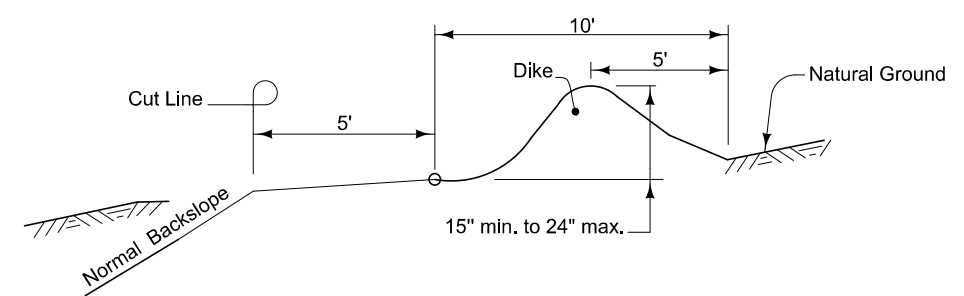
1301  
10-03-00



Notes:  
 CL shall be CL of roadway, dike, survey, or other; as detailed on plans.  
 Extension shall be on line of existing structure to Lt., Rt. or both as specified. Adaptors may be required, see Standard Road Plan RF-2.  
 Refer to tabular listing and other plans for additional information.  
 ① See Standard Road Plan RF-3 for concrete, RF-5 for metal.  
 ② Optional type "D" section only when specified in tabulation.  
 ③ Existing structure.

PIPE EXTENSION

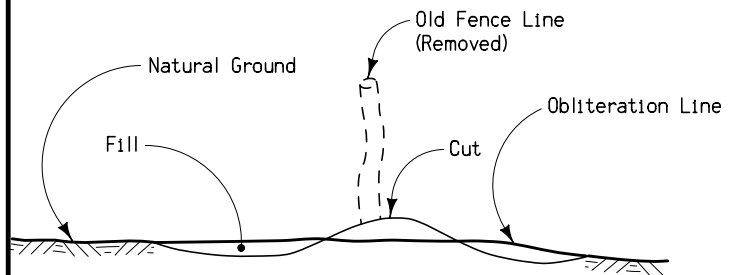
4101  
04-20-10



Refer to plans for locations of intercepting ditches. Dike for intercepting ditch shall be made by taking earth from roadway side. Do not excavate back of dike.

TYPICAL CROSS SECTION INTERCEPTING DITCH

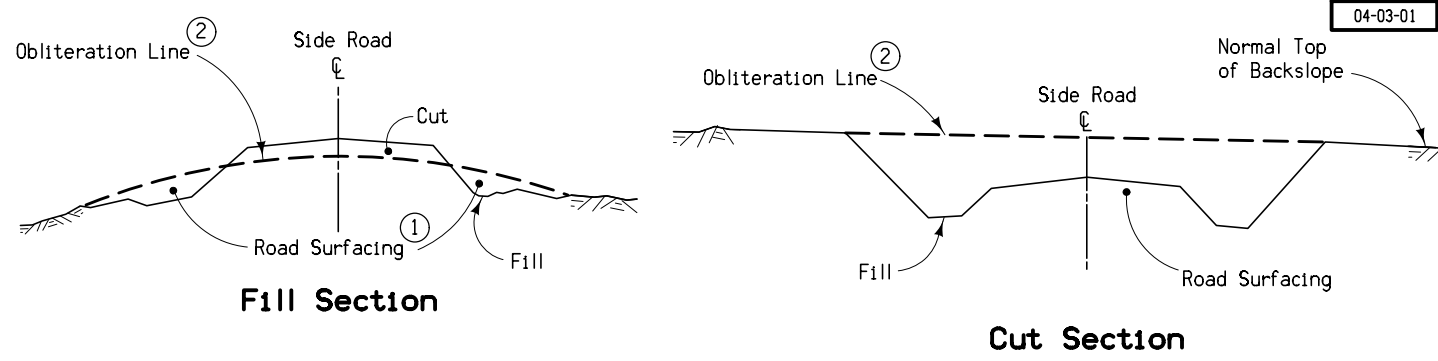
4301  
08-20-96



TYPICAL DETAILS FOR OBLITERATION OF OLD FENCE RIDGE

Notes:  
 The work of obliterating or reshaping old fence ridges shall be done at the direction of the Engineer.

4302  
04-03-01

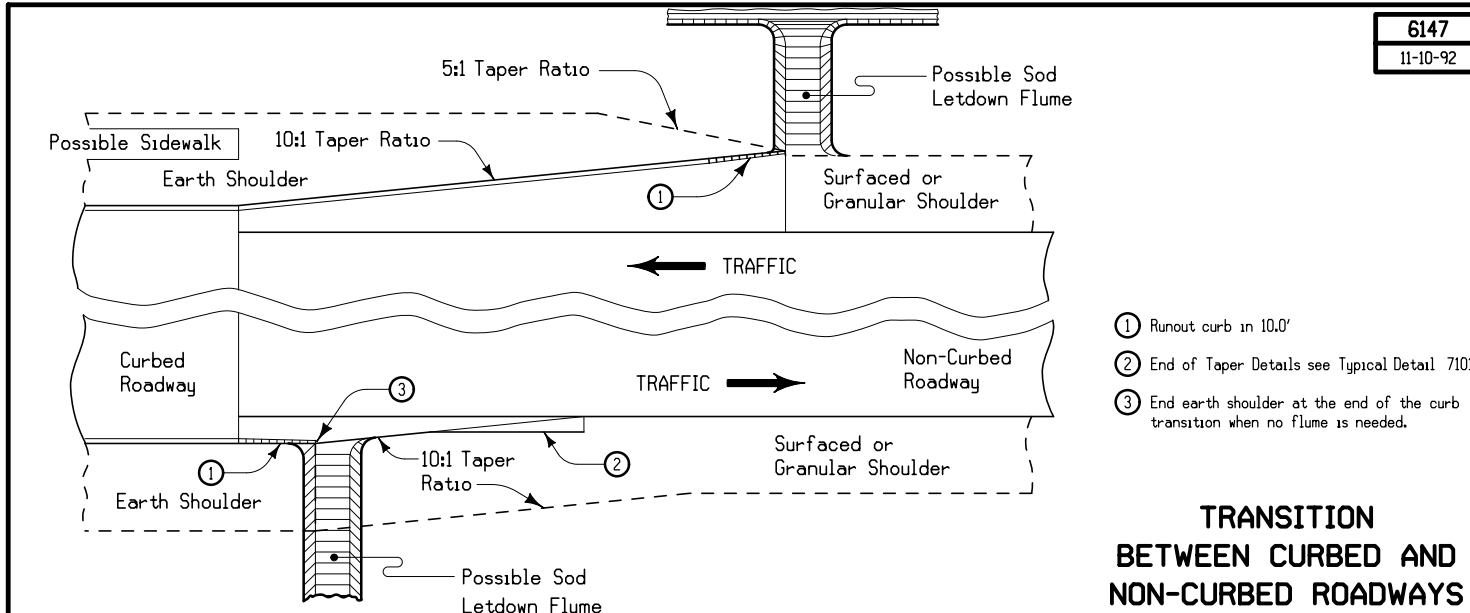
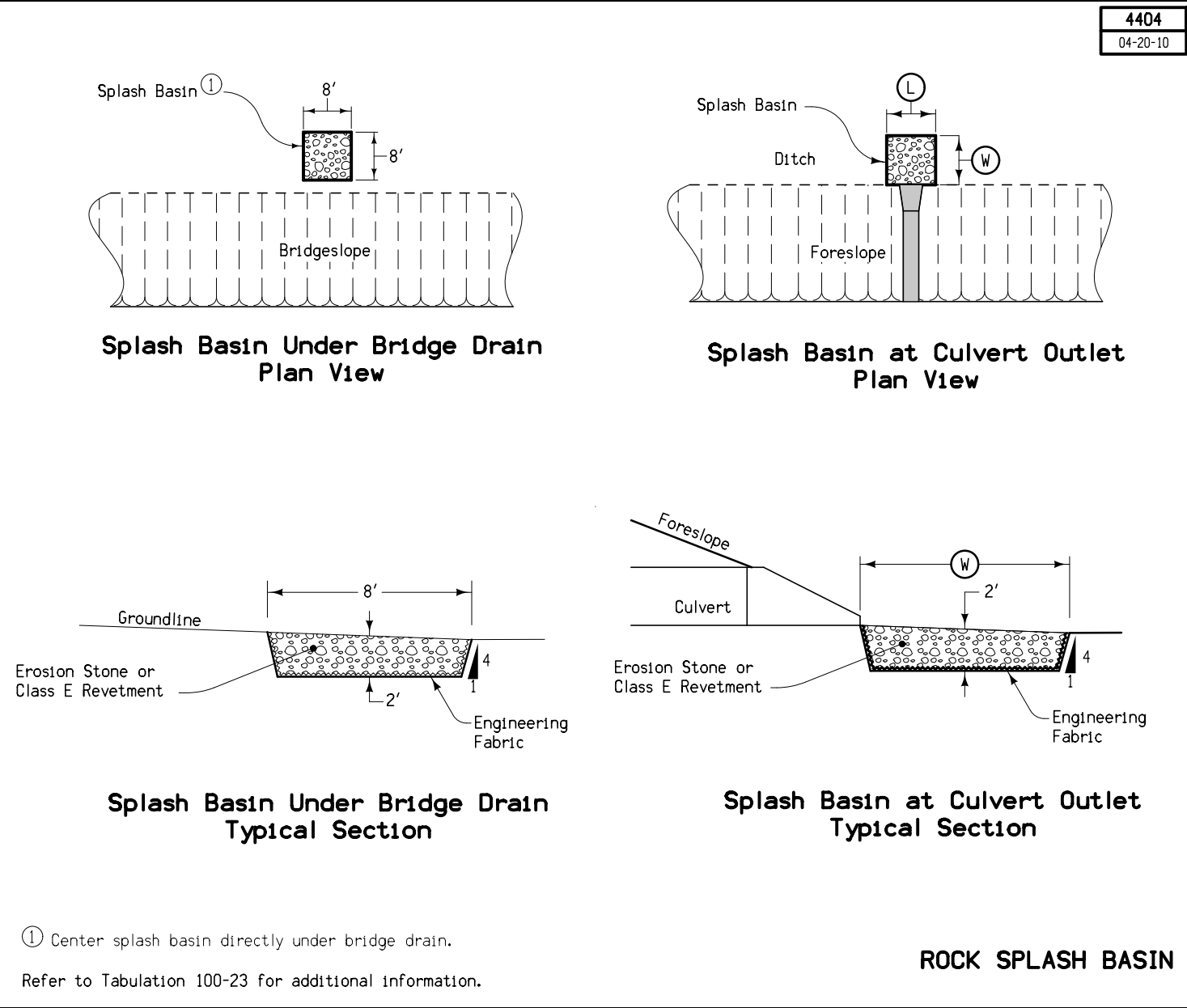
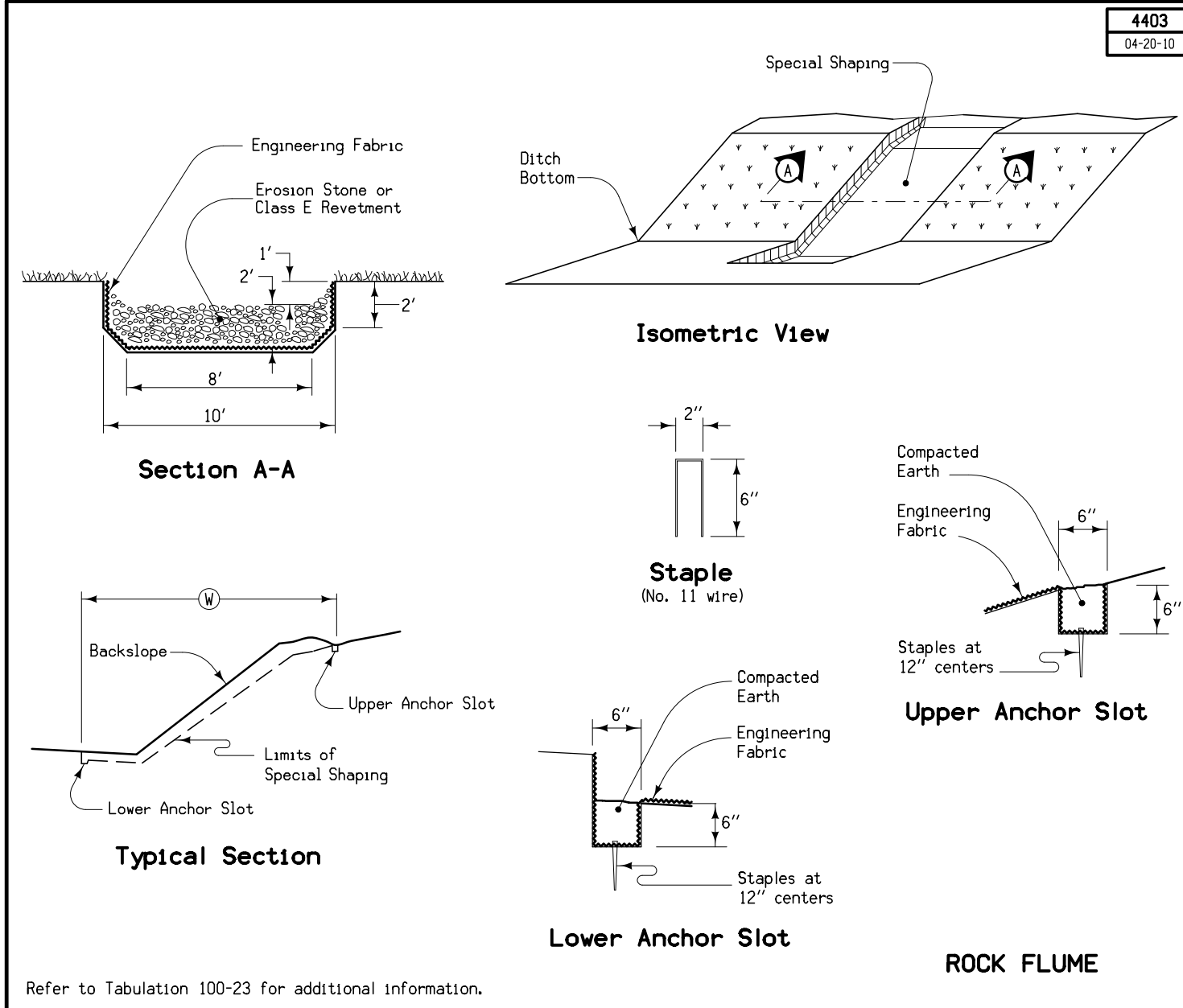
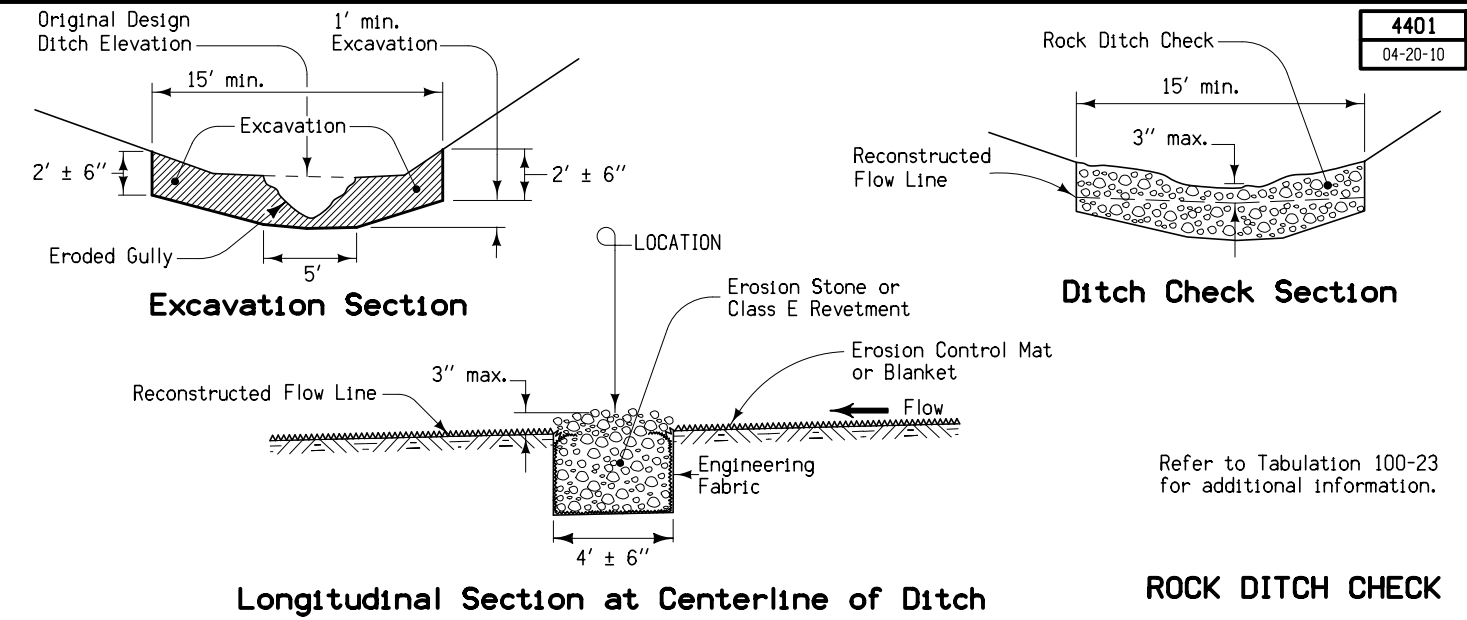


① Existing road surfacing (granular material) shall be placed as shown unless otherwise directed by the Engineer or provided for in the detail project plans.  
 ② When specified, the upper 1' to be suitable for vegetation (grass or crops).  
 Note:  
 The work of obliterating or reshaping old roadbeds shall be done at the direction of the Engineer.

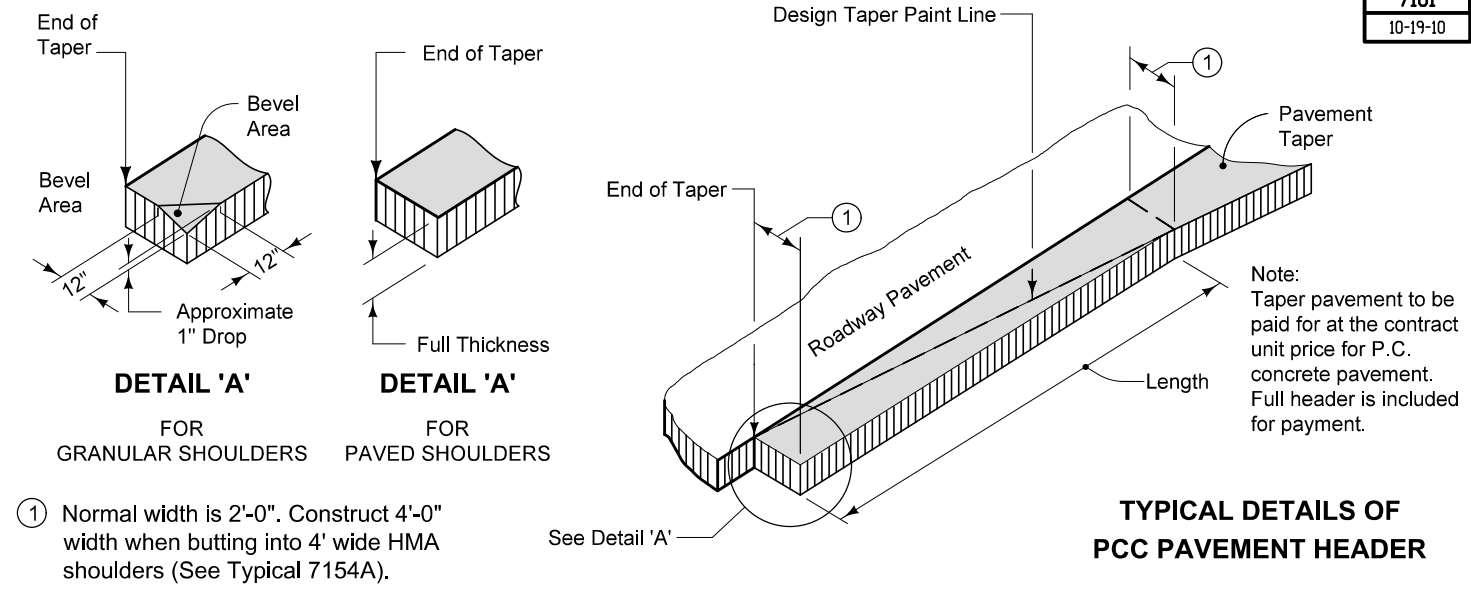
TYPICAL DETAILS FOR OBLITERATION EXISTING ROADBED

See Tab 100-24 for pavement quantities.  
 See Tab 112-9 for shoulder quantities.

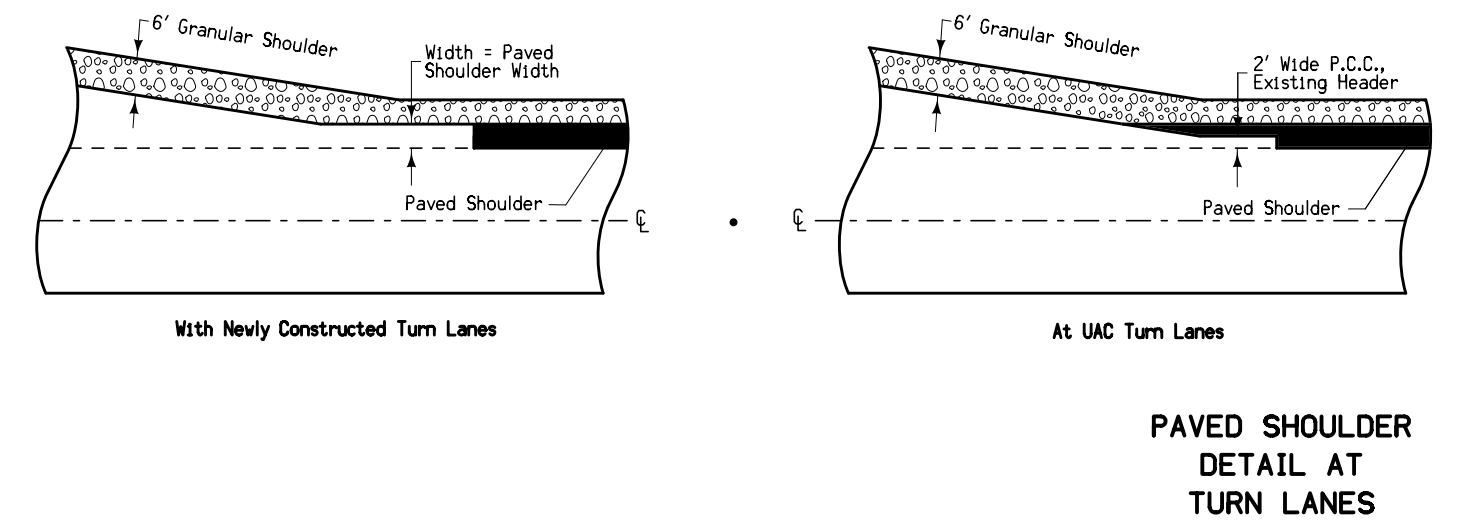
INTERCHANGE RAMPS



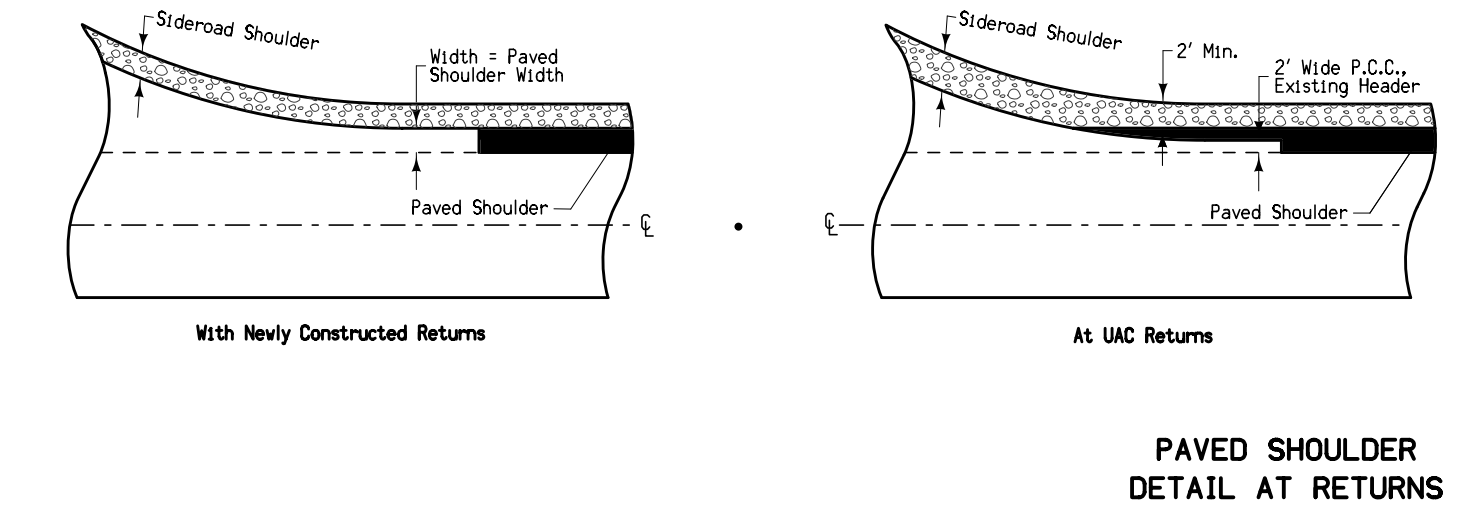
7101  
10-19-10



7154A  
10-20-09



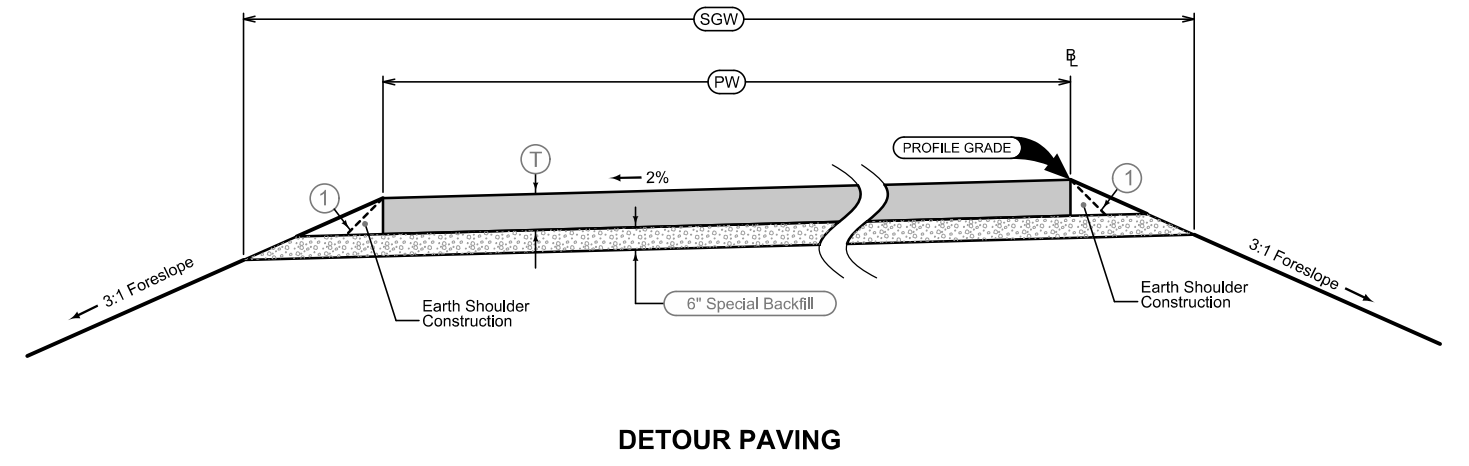
7154B  
10-20-09



D\_Detour  
10-15-13

| LOCATION            |                    | DIMENSIONS |          |          |         |          |          | 6" Special Backfill<br>Tons/Station | Earth Shoulder Construction<br>Station |
|---------------------|--------------------|------------|----------|----------|---------|----------|----------|-------------------------------------|--|
| ROAD IDENTIFICATION | STATION TO STATION | HMA        |          |          | PCC     |          |          |                                     |  |
|                     |                    | PW Feet    | T Inches | SGW Feet | PW Feet | T Inches | SGW Feet |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |
|                     |                    |            |          |          |         |          |          |                                     |  |

Quantity calculations based on vertical pavement edges.  
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.  
① Possible HMA 1:1 slope









**DRAINAGE STRUCTURE BY ROAD CONTRACTOR**

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

\* Not a bid item  
 ① UNCL = Unclassified Pipe    CMP = Corrugated Metal Pipe    RCP = Reinforced Concrete Pipe    LCP = Arch or Elliptical Low Clearance Pipe    SARC = Steel Arch Pipe

| Drainage Area | Location    | Type  | Size  | Kind Of Pipe | Length New Const. | Bedding Class | Design Cover (H) | Camber* (RF-30B) | Apron No. | Apron Guard* (RF-26) | Elbow* (RF-13) | Diaphragm* (RF-7) | Tee Section* (RF-21) | "D" Section* (RF-13) | Reducer* | Adaptors* (RF-2) | Connected Pipe Joint* (RF-14) | 4" Perforated Subdrain* | Flow Line Elevations |        |       |       | Dimensions Lin. Ft. |       |            |    | Skew Ahead Degrees |     | Dike |     |     |     | Class 20 | Flowable Mortar | Floodable* Backfill | Porous* Backfill | Flooded Backfill            | Remarks   |     |                  |               |      |    |    |    |    |    |
|---------------|-------------|-------|-------|--------------|-------------------|---------------|------------------|------------------|-----------|----------------------|----------------|-------------------|----------------------|----------------------|----------|------------------|-------------------------------|-------------------------|----------------------|--------|-------|-------|---------------------|-------|------------|----|--------------------|-----|------|-----|-----|-----|----------|-----------------|---------------------|------------------|-----------------------------|-----------|-----|------------------|---------------|------|----|----|----|----|----|
|               |             |       |       |              |                   |               |                  |                  |           |                      |                |                   |                      |                      |          |                  |                               |                         | Lt.                  | Rt.    | Other | Other | Total               |       | Extensions |    | Lt.                | Rt. | Lt.  | Rt. | Lt. | Rt. |          |                 |                     |                  |                             |           | Rt. | Location Station | Top Elevation | Type | CY | CY | CY | CY | CY |
|               |             |       |       |              |                   |               |                  |                  |           |                      |                |                   |                      |                      |          |                  |                               |                         |                      |        |       |       | FT                  | FT    | FT         | FT |                    |     |      |     |     |     |          |                 |                     |                  |                             |           |     |                  |               |      |    |    |    |    |    |
| 8.5           | 11852+39.29 | 2000D | 36    | RCP          | 106               | C             | 9.3              |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 850.30               | 852.30 |       |       | 62.0                | 60.0  |            |    | 20                 |     |      |     |     |     |          |                 |                     |                  | Adams - Rock flume @ outlet |           |     |                  |               |      |    |    |    |    |    |
| 59.5          | 11855+28.44 | 2000D | 60    | RCP          | 220               | C             | 31.5             |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 838.71               | 841.00 |       |       | 120.0               | 116.0 |            |    |                    |     |      |     |     |     |          |                 |                     |                  |                             | Adams Ave |     |                  |               |      |    |    |    |    |    |
| 4.0           | 11871+64.50 | 3750D | 24    | RCP          | 212               | C             | 22.7             |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 861.00               | 862.23 |       |       | 113.5               | 110.8 |            |    | 8                  |     |      |     |     |     |          |                 |                     |                  | Adams - 3-lane section      |           |     |                  |               |      |    |    |    |    |    |
| 10.2          | 11874+15.09 | 2000D | 36    | RCP          | 120               | C             | 15.4             |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 864.74               | 866.13 |       |       | 70.0                | 66.0  |            |    |                    |     |      |     |     |     |          |                 |                     |                  | Adams Ave                   |           |     |                  |               |      |    |    |    |    |    |
| 9.6           | 11881+72.19 | 2000D | 36    | RCP          | 100               | C             | 7.7              |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 858.50               | 859.00 |       |       | 60.0                | 56.0  |            |    | 46                 |     |      |     |     |     |          |                 |                     |                  | Adams Ave                   |           |     |                  |               |      |    |    |    |    |    |
| 10.3          | 11888+70.73 | 2000D | 36    | RCP          | 136               | C             | 15.1             |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 845.00               | 846.50 |       |       | 78.0                | 74.0  |            |    | 27                 |     |      |     |     |     |          |                 |                     | Adams Ave        |                             |           |     |                  |               |      |    |    |    |    |    |
| 3.2           | 2566+25.00  | 2000D | 24    | RCP          | 96                | C             | 8.5              |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 861.50               | 863.79 |       |       | 66.2                | 42.1  |            |    |                    |     |      |     |     |     |          |                 |                     |                  | Adams Ramp B                |           |     |                  |               |      |    |    |    |    |    |
| 19.5          | 3564+75.00  | 2000D | 36    | RCP          | 136               | B             | 14.1             |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 852.50               | 855.18 |       |       | 72.6                | 79.4  |            |    |                    |     |      |     |     |     |          |                 |                     |                  | Adams Ramp C                |           |     |                  |               |      |    |    |    |    |    |
| 4.9           | 4573+34.64  | 2000D | 24    | RCP          | 120               | C             | 11.6             |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 862.90               | 860.00 |       |       | 69.5                | 62.8  |            |    | 4                  |     |      |     |     |     |          |                 |                     |                  | Adams Ramp D                |           |     |                  |               |      |    |    |    |    |    |
| 406.6         | 13903+11.53 |       | 8x8   | RCB          |                   |               |                  |                  |           |                      |                |                   |                      |                      |          |                  |                               |                         |                      |        |       |       |                     |       |            |    |                    |     |      |     |     |     |          |                 |                     |                  |                             |           |     |                  |               |      |    |    |    |    |    |
| 1.2           | 16970+91.44 | 2000D | 18    | UNCL         | 94                | C             | 7.8              |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 883.50               | 883.92 |       |       | 54.7                | 51.5  |            |    | 30                 |     |      |     |     |     |          |                 |                     |                  | Kirkwood4                   |           |     |                  |               |      |    |    |    |    |    |
| 20.6          | 16981+95.20 | 2000D | 14x27 | RCAP         | 70                | C             | 3.1              |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 869.65               | 871.29 |       |       | 37.4                | 32.6  |            |    | 3                  |     |      |     |     |     |          |                 |                     |                  | Kirkwood4                   |           |     |                  |               |      |    |    |    |    |    |
| 27.8          | 17980+90.10 | 2000D | 52x32 | RCAP         | 42                | C             | 2.8              |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 867.52               | 867.00 |       |       | 28.2                | 29.8  |            |    | 3                  |     |      |     |     |     |          |                 |                     |                  | Charles                     |           |     |                  |               |      |    |    |    |    |    |
| 16.7          | 17982+97.50 | 2000D | 36    | RCP          | 34                | C             | 2.6              |                  | 1         | 1                    | 2              |                   |                      |                      |          |                  | 3                             |                         | 867.46               | 866.91 |       |       | 24.3                | 25.7  |            |    | 2                  |     |      |     |     |     |          |                 |                     |                  | Charles                     |           |     |                  |               |      |    |    |    |    |    |

**DRAINAGE STRUCTURES BY CULVERT CONTRACTOR**

\* Not a Bid Item

| Location    | Design Number | Size | Kind     | Lgth. New Const. | No. of Aprons | Flow Line Elevation |        |        |        | Dimensions - Lin. Ft. |       |            |       | Skew Ahead |       | By Road Contractor |                  |           |      | Floodable* Backfill | Porous* Backfill | Flooded Backfill | Remarks |                |          |     |     |       |  |  |  |  |  |  |  |  |  |
|-------------|---------------|------|----------|------------------|---------------|---------------------|--------|--------|--------|-----------------------|-------|------------|-------|------------|-------|--------------------|------------------|-----------|------|---------------------|------------------|------------------|---------|----------------|----------|-----|-----|-------|--|--|--|--|--|--|--|--|--|
|             |               |      |          |                  |               | Left                | Right  | Other  | Other  | Total                 |       | Extensions |       | Degrees    |       | Dike               |                  |           |      |                     |                  |                  |         | Comp. Backfill |          |     |     |       |  |  |  |  |  |  |  |  |  |
|             |               |      |          |                  |               |                     |        |        |        | Left                  | Right | Left       | Right | Left       | Right | Rt.                | Location Station | Top Elev. | Type |                     |                  |                  |         |                | Cu. Yds. | (A) | (B) | (A+B) |  |  |  |  |  |  |  |  |  |
| 631+24.73   |               | 4x5  | RCB      | 396              | 2             | 781.60              | 769.03 | 780.13 | 774.96 | 341                   | 230   | 66         | 330   | 42         |       |                    |                  |           |      |                     |                  |                  |         |                |          |     |     |       |  |  |  |  |  |  |  |  | Use 45° skew headwalls                         |
| 658+06.00   |               | 10x6 | TWIN RCB | 332              | 2             | 754.78              | 751.80 |        |        | 164                   | 168   |            |       | 2          |       |                    |                  |           |      |                     |                  |                  |         |                |          |     |     |       |  |  |  |  |  |  |  |  | Use 0° skew headwalls                          |
| 761+50.00   |               | 10x8 | TRI RCB  | 240              | 2             | 736.80              | 736.00 |        |        | 119                   | 121   |            |       | 19         |       |                    |                  |           |      |                     |                  |                  |         |                |          |     |     |       |  |  |  |  |  |  |  |  | Use 15° skew headwalls.                        |
| 779+96.00   |               | 6x8  | RCB      | 307              | 2             | 763.00              | 760.25 |        |        | 144                   | 164   |            |       |            |       |                    |                  |           |      |                     |                  |                  |         |                |          |     |     |       |  |  |  |  |  |  |  |  | Use 15° skew headwalls.                        |
| 822+90.30   |               | 6x6  | RCB      | 407              | 2             | 776.20              | 764.20 |        |        | 184                   | 223   |            |       | 16         |       |                    |                  |           |      |                     |                  |                  |         |                |          |     |     |       |  |  |  |  |  |  |  |  | Use 15° skew headwalls. CIP only. Bell joints. |
| 942+30.97   |               | 9x10 | TWIN RCB | 283              | 1             | 844.50              | 838.43 | 839.37 |        | 110                   |       | 110        | 173   |            |       |                    |                  |           |      |                     |                  |                  |         |                |          |     |     |       |  |  |  |  |  |  |  |  | Use 30° skew headwalls.                        |
| 13903+11.53 |               | 8x8  | RCB      | 19               | 1             | 820.57              | 817.72 |        |        | 78                    | 74    | 0          | 19    | 13         |       |                    |                  |           |      |                     |                  |                  |         |                |          |     |     |       |  |  |  |  |  |  |  |  | Remove ex. R headwall; use 15° skew headwall R |

### ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.

- ① Refer to MI-210
- ② Refer to RL-8.
- ③ Refer to RL-7 or RL-8.

\*Predetermined for access point not constructed with this project.

| Location    |      | Type                                    | Length of Opening ① |                  |                 | Pipe Culvert ③ |      |      | Aprons | Driveway Surface Area |      | Driveway Surfacing Material | Remarks |             |     |     |                              |     |
|-------------|------|---|---------------------|------------------|-----------------|----------------|------|------|--------|-----------------------|------|-----------------------------|---------|-------------|-----|-----|------------------------------|-----|
| Station     | Side | A, B, C, Safety Ramp, or Predetermined* | Case                | 1½" Dropped Curb | 3" Dropped Curb | W              | PR   | SR   |        | H                     | Size |                             |         | Pipe Length | Lt. | Rt. | HMA                          | PCC |
|             |      |   | 1 or 2              | LF               | LF              | FT             | FT   | FT   |        | FT                    | IN   |                             |         | LF          | LF  | LF  | No.                          | SY  |
| 576+02.00   | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     | Remove med x-over            |     |
| 588+29.00   | L    | Safety Ramp                             |                     |                  |                 | 36.0           | -    | -    |        |                       |      |                             |         |             |     |     | Make Joint entrance?         |     |
| 1585+08.65  | R    | B                                       |                     |                  |                 | 30.0           | 50.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 2618+00.00  | L    | Safety Ramp                             |                     |                  |                 | 36.0           | -    | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 3626+49.20  | L    | C                                       |                     |                  |                 | 20.0           | 10.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 3628+51.63  | L    | C                                       |                     |                  |                 | 20.0           | 10.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 3633+50.00  | L    | C                                       |                     |                  |                 | 35.0           | 10.0 | -    |        |                       |      |                             |         |             |     |     | Joint Entrance               |     |
| 4638+02.00  | R    | C                                       |                     |                  |                 | 24.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 4639+35.00  | L    | C                                       |                     |                  |                 | 22.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     | Access road to Wolrab        |     |
| 4643+69.00  | R    | C                                       |                     |                  |                 | 10.0           | 10.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 6693+80.00  | L    | C                                       |                     |                  |                 | 31.0           | 6.0  | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 6693+80.00  | R    | C                                       |                     |                  |                 | 20.0           | 6.0  | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 6699+57.00  | L    | B                                       |                     |                  |                 | 28.0           | 20.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 6701+22.00  | R    | B                                       |                     |                  |                 | 30.0           | 20.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 6703+33.00  | R    | B                                       |                     |                  |                 | 32.0           | 20.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 7775+77.00  | L    | C                                       |                     |                  |                 | 24.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 7775+77.00  | R    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 7786+07.00  | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 8790+46.00  | R    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 8791+23.00  | R    | B                                       |                     |                  |                 | 28.0           | 35.0 | -    |        |                       |      |                             |         |             |     |     | Quarry entrance?             |     |
| 8810+00.00  | R    | C                                       |                     |                  |                 | 22.0           | 20.0 | -    |        |                       |      |                             |         |             |     |     | Joint Entrance               |     |
| 8817+68.00  | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 10836+31.00 | R    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     | Sight distance issues? Check |     |
| 11843+15.00 | L    | C                                       |                     |                  |                 | 25.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     | Joint Entrance               |     |
| 11847+64.00 | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 11847+64.00 | R    | C                                       |                     |                  |                 | 20.0           | 20.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 11851+48.00 | R    | C                                       |                     |                  |                 | 20.0           | 20.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 11853+75.00 | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 11879+71.00 | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 11879+71.00 | R    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 11885+00.00 | R    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 11897+76.00 | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 11903+13.00 | L    | B                                       |                     |                  |                 | 25.0           | 30.0 | -    |        |                       |      |                             |         |             |     |     | Joint Entrance w/ Church     |     |
| 11903+13.00 | R    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     | Joint Entrance               |     |
| 11910+39.00 | R    | B                                       |                     |                  |                 | 26.0           | 25.0 | -    |        |                       |      |                             |         |             |     |     | Joint Entrance               |     |
| 12858+97.00 | R    | C                                       |                     |                  |                 | 20.0           | 20.0 | -    |        |                       |      |                             |         |             |     |     |                              |     |
| 12861+06.00 | L    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 16951+79.00 | R    | C                                       |                     |                  |                 | 20.0           | -    | 15.0 |        |                       |      |                             |         |             |     |     |                              |     |
| 17978+35.00 | R    | Safety Ramp                             |                     |                  |                 | 36.0           | -    | -    |        |                       |      |                             |         |             |     |     |                              |     |

### SURVEY SYMBOLS

- San. - SAA Sanitary Sewer Line Co. 1
- T1 - TLA Underground Telephone Line Co. 1
- E1 - ELA Underground Electric Line Co. 1
- T2 - TLB Underground Telephone Line Co. 2
- TV - TVA Underground TV Cable Co. 1
- G - GLA Underground Gas Line Co. 1
- F0 - FOA Underground Fiber Optic Co. 1
- T3 - TLC Underground Telephone Line Co. 3
- F02 - FOB Underground Fiber Optic Co. 2
- E2 - ELB Underground Electric Line Co. 2
- F03 - FOC Underground Fiber Optic Co. 3
- G2 - GLB Underground Gas Line Co. 2
- St.S. - STA Storm Sewer Line Co. 1
- F04 - FOD Underground Fiber Optic Co. 4
- G3 - GLC Underground Gas Line Co. 3
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- EP Edge of Paved Roads (ML or SR)
- SNP Unpaved Shoulder
- CU Back of Curb
- DIK Centerline of Dike or Dam
- RIP Rip-Rap
- GU Gutter In Front of Curb
- SWK Sidewalk
- CON Concrete or A/C Slab
- ENP Edge Paved Entrance & Park Lot
- ENT Centerline BL of Entrance
- ENU Edge Unpaved Entrance & Parking
- BNK Stream Bank
- EG Edge of Gravel Road
- EW Edge of Water
- SH Paved Shoulder
- SNK Sink Hole
- TPD Telephone Pedestal
- PPA Power Pole Co. 1
- SI Sign
- PIP Pipe Culvert
- FW Wire Fence
- PLG Location of General Photo
- TLNR Tree Line Right
- IN Storm Sewer Intake
- MIS Miscellaneous
- LUM Luminaire
- TDC Tree Deciduous
- BLD Building or Foundation
- PR Electric Riser Pole
- UB Utility Box
- SL Speed Limit Sign
- MH Utility Access (Manhole)
- FHD Fire Hydrants
- WV Water Valve
- RET Retaining Walls
- FCL Chain Link and Security Fence
- CUL Culvert
- EB Electrical Box
- SHR Shrub
- SEP Septic Tank
- TEV Evergreen Tree
- TLNL Tree Line Left
- BIN Grain Bin
- LP L.P. Tank
- FWD Wood Fence
- GV Gas Valve
- WEL Well
- GDL Guard Rail Steel
- FLG Flag Poles
- WH WHD Water Hydrant
- BB Billboard
- OUT Tile Outlet
- GP Guard Post (Less Than 4 Posts)
- TV Satellite TV Dish
- MM Mile Marker Post
- TVP TV Pedestal
- LC Lot Corner
- INB Storm Sewer Beehive Intake
- TFR Tree Fruit

### UTILITY LEGEND

- PPA Power Pole Co. 1
- E1 - Unlabeled Electric
- E2 - Alliant Energy
- F0 - Iowa Network Services
- F02 - CenturyLink
- F03 - Windstream
- F04 - Iowa Health Systems
- Petro - Magellan
- G2 - Buckeye Partners (12" Steel Petroleum, Gas and Diesel)
- G3 - Alliant Energy
- San. - Sanitary Sewer Line
- St.S. - Storm Sewer Line
- T1 - Windstream
- T2 - Iowa Department of Transportation
- T3 - CenturyLink
- TV - Mediacom
- Cipco - CIPCO Transmission Lines
- ITC - ITC Transmission Lines

### 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

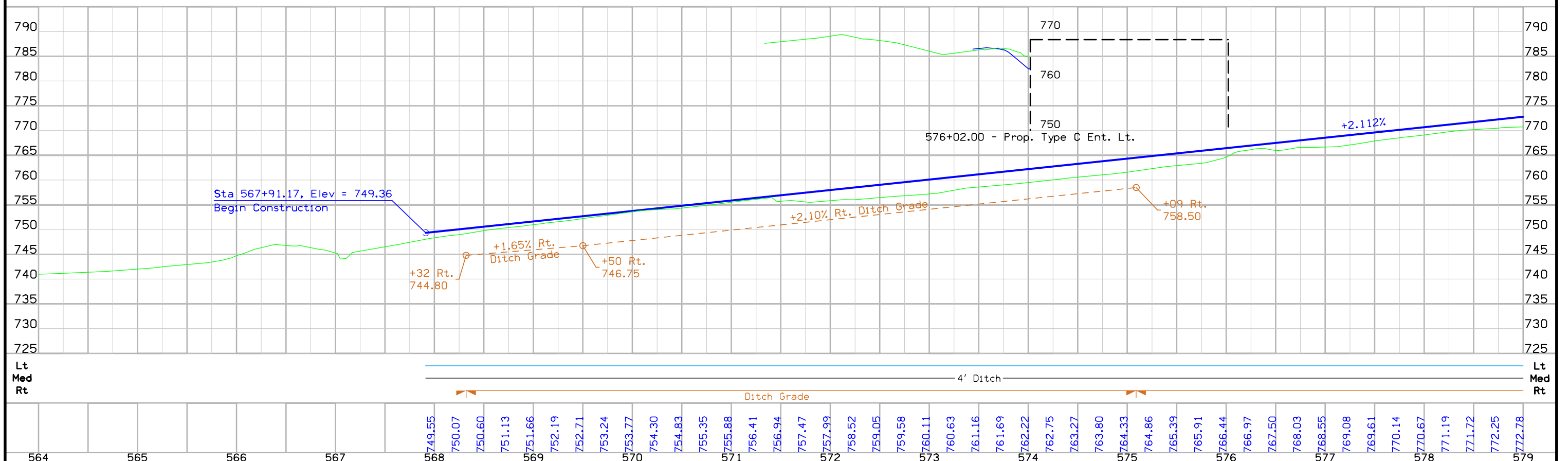
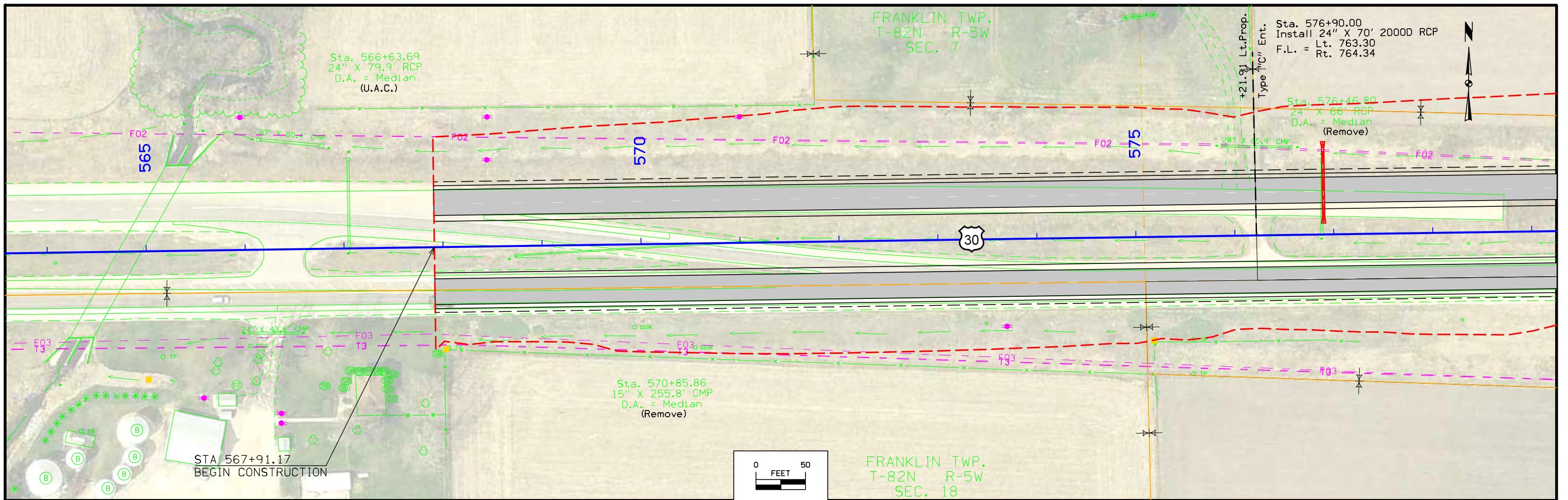
### RIGHT-OF-WAY LEGEND

- 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

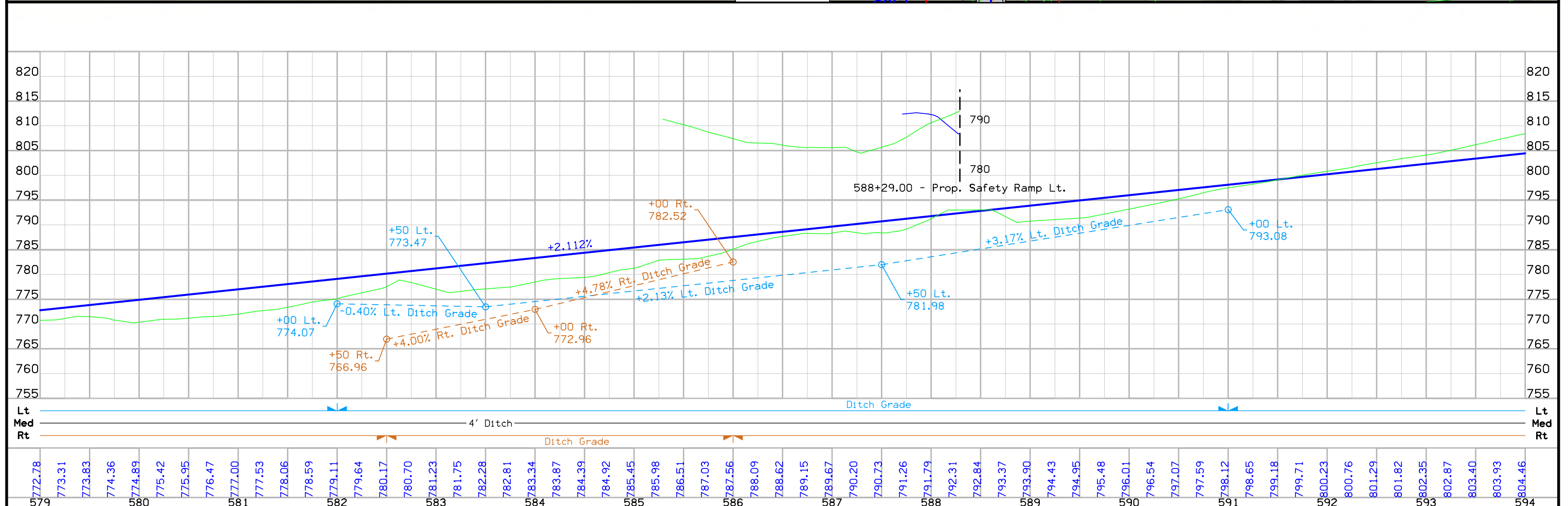
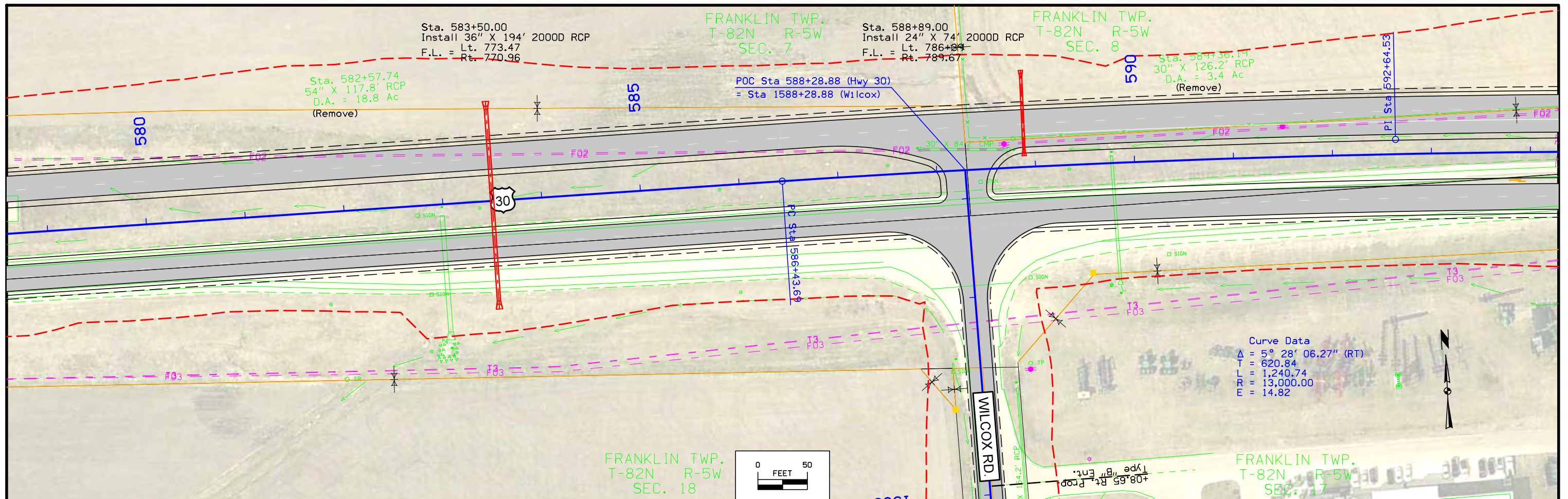
(COVERS SHEET SERIES D, E, F, & K)



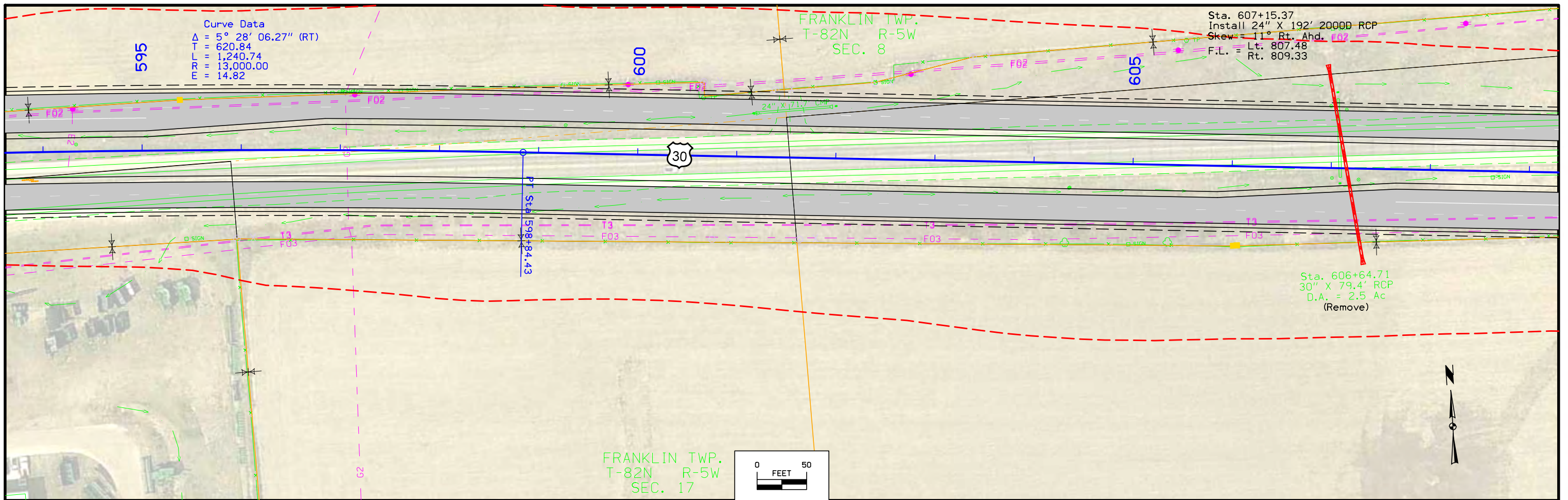


|   |         |          |             |                                      |                   |                |                             |              |            |
|---|---------|----------|-------------|--------------------------------------|-------------------|----------------|-----------------------------|--------------|------------|
| C | ENGLISH | IOWA DOT | DESIGN TEAM | <b>SNYDER &amp; ASSOCIATES, INC.</b> | LINN/CEDAR COUNTY | PROJECT NUMBER | <b>NHS-030-7(76)--19-57</b> | SHEET NUMBER | <b>D.2</b> |
|---|---------|----------|-------------|--------------------------------------|-------------------|----------------|-----------------------------|--------------|------------|









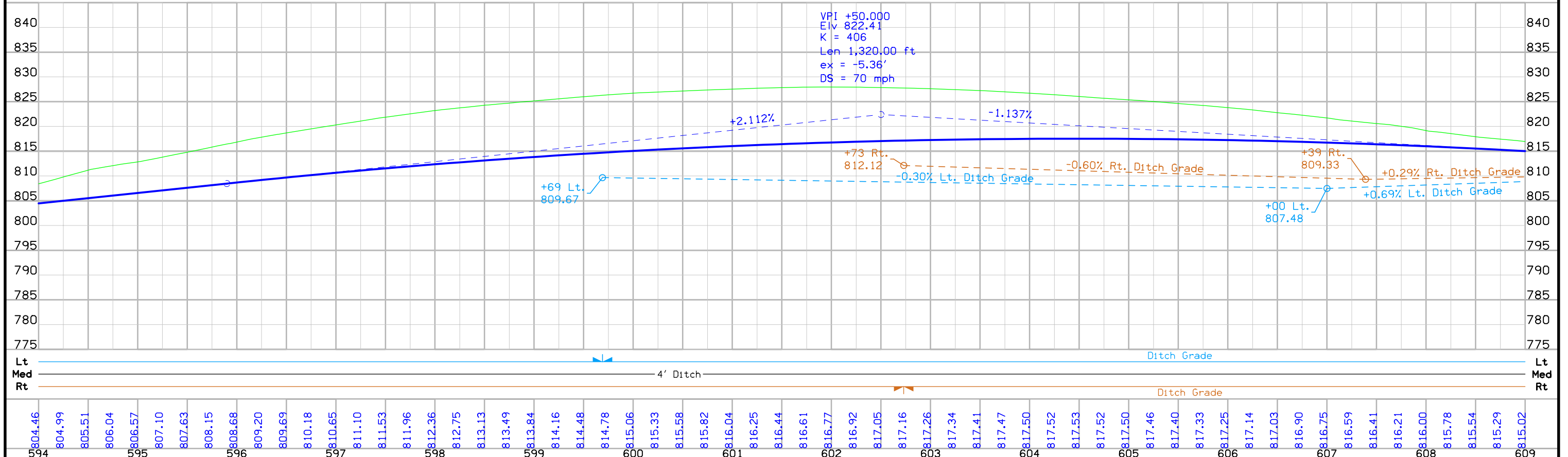
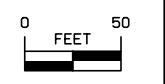
Curve Data  
 $\Delta = 5^\circ 28' 06.27''$  (RT)  
 T = 620.84  
 L = 1,240.74  
 E = 13,000.00  
 F = 14.82

FRANKLIN TWP.  
 T-82N R-5W  
 SEC. 8

Sta. 607+15.37  
 Install 24" X 192' 2000D RCP  
 Skew = 11° Rt. Ahd. F02  
 F.L. = Lt. 807.48  
 Rt. 809.33

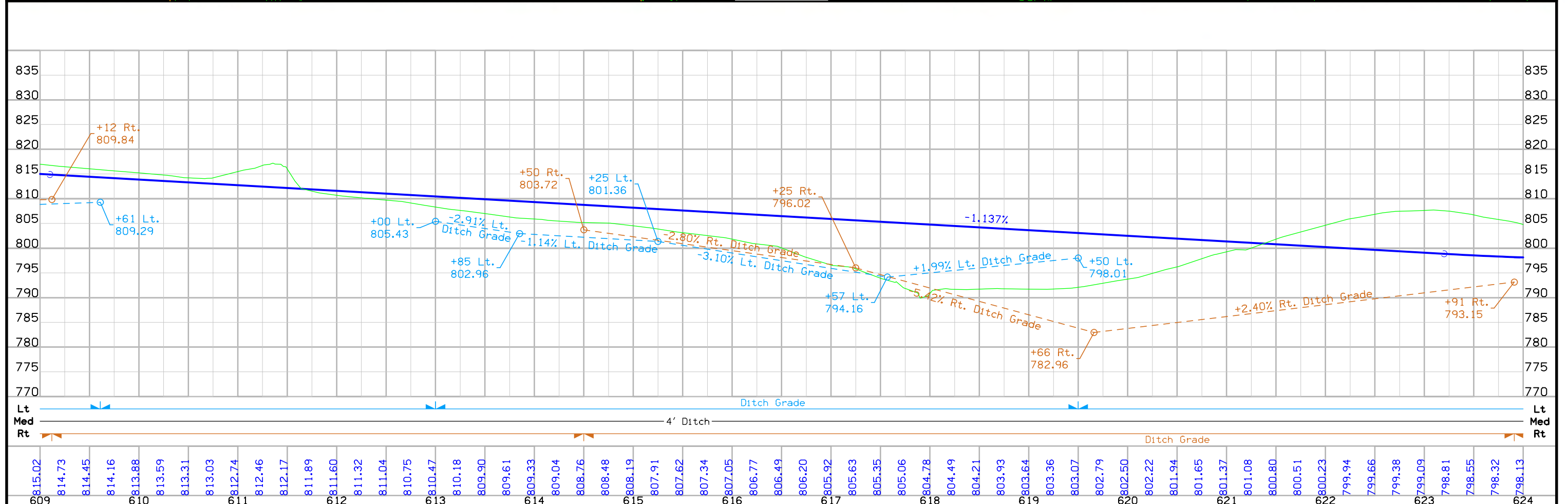
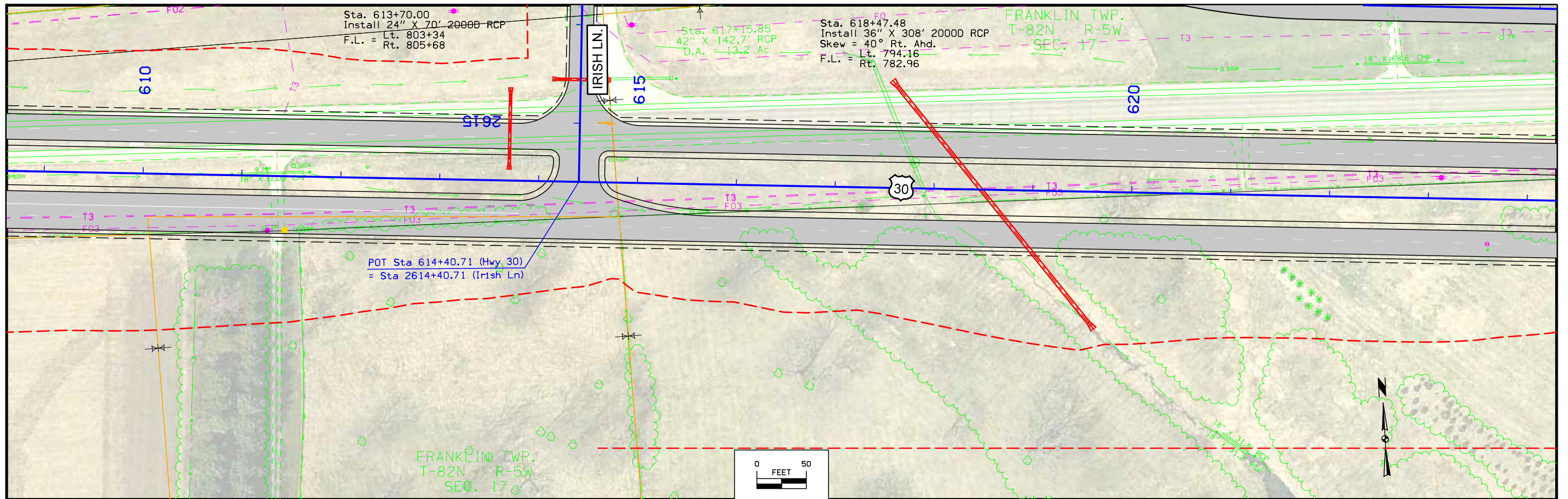
Sta. 606+64.71  
 30" X 79.4' RCP  
 D.A. = 2.5 Ac  
 (Remove)

FRANKLIN TWP.  
 T-82N R-5W  
 SEC. 17

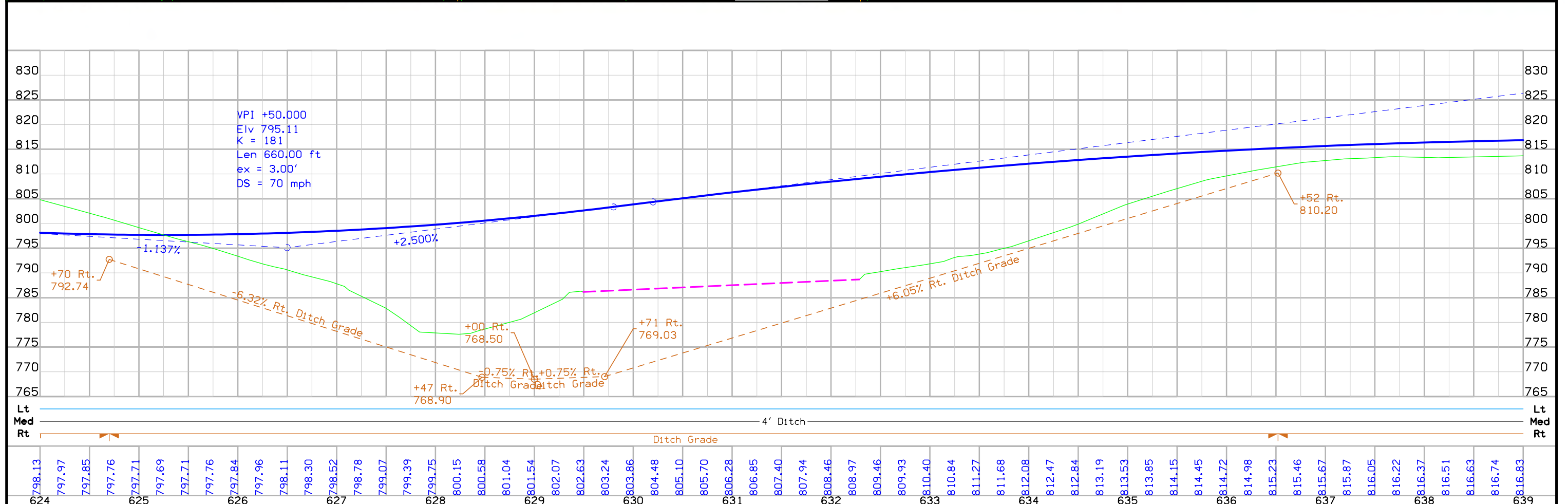
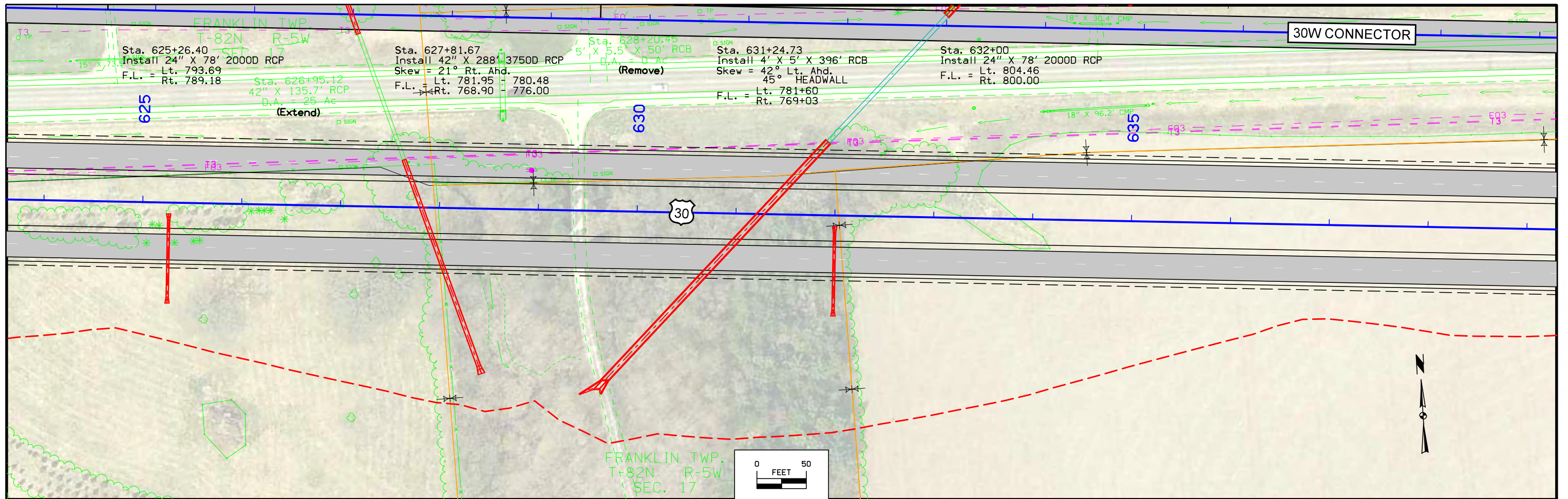


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|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 804.46 | 804.99 | 805.51 | 806.04 | 806.57 | 807.10 | 807.63 | 808.15 | 808.68 | 809.20 | 809.69 | 810.18 | 810.65 | 811.10 | 811.53 | 811.96 | 812.36 | 812.75 | 813.13 | 813.49 | 813.84 | 814.16 | 814.48 | 814.78 | 815.06 | 815.33 | 815.58 | 815.82 | 816.04 | 816.25 | 816.44 | 816.61 | 816.77 | 816.92 | 817.05 | 817.16 | 817.26 | 817.34 | 817.41 | 817.47 | 817.50 | 817.52 | 817.53 | 817.52 | 817.50 | 817.46 | 817.40 | 817.33 | 817.25 | 817.14 | 817.03 | 816.90 | 816.75 | 816.59 | 816.41 | 816.21 | 816.00 | 815.78 | 815.54 | 815.29 | 815.02 |
| 594    |        | 595    |        | 596    |        | 597    |        | 598    |        | 599    |        | 600    |        | 601    |        | 602    |        | 603    |        | 604    |        | 605    |        | 606    |        | 607    |        | 608    |        | 609    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |



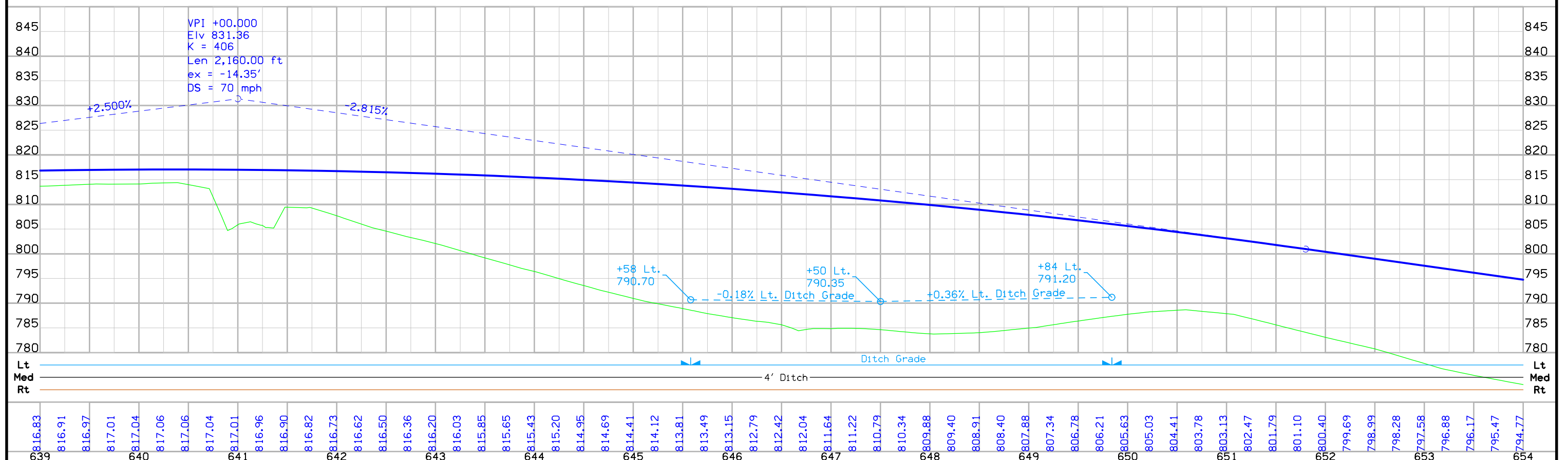
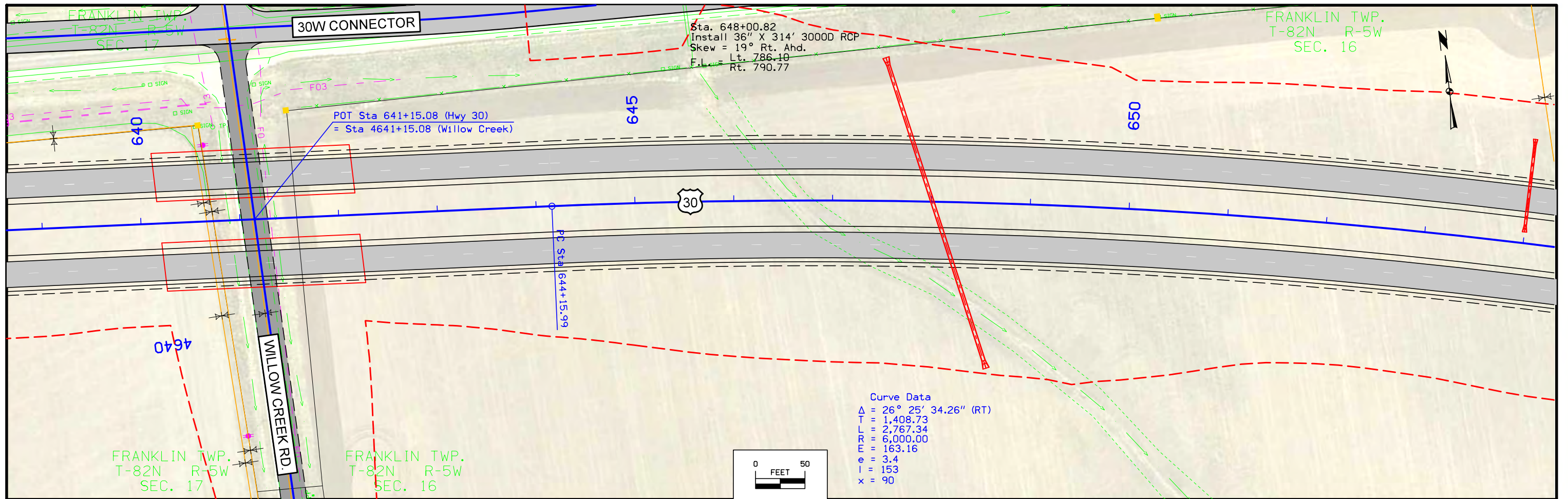




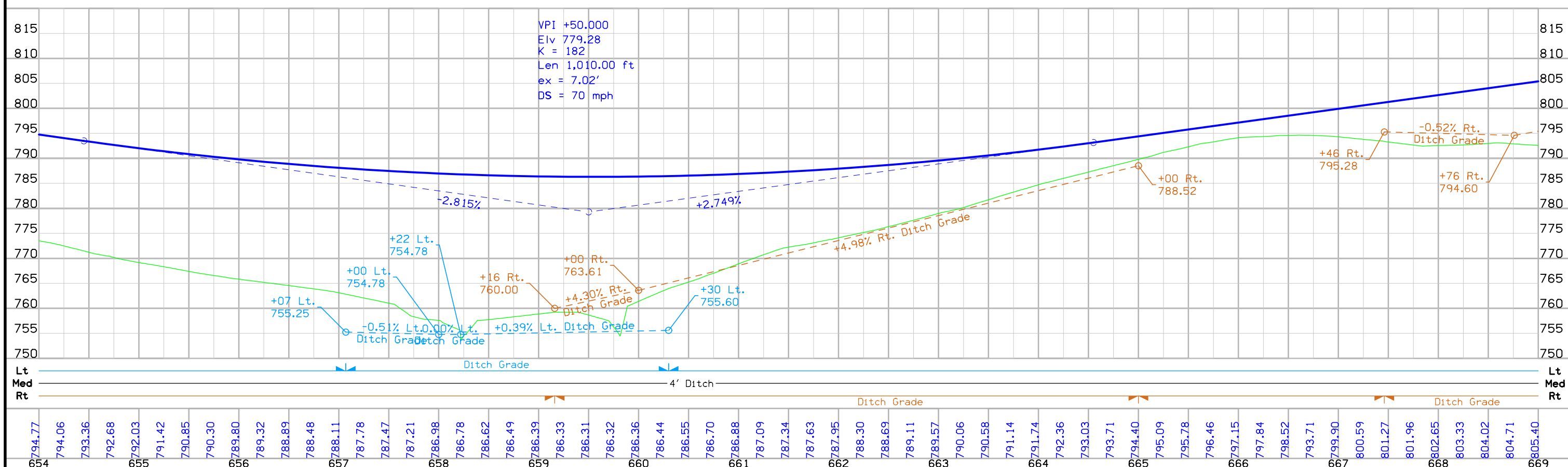
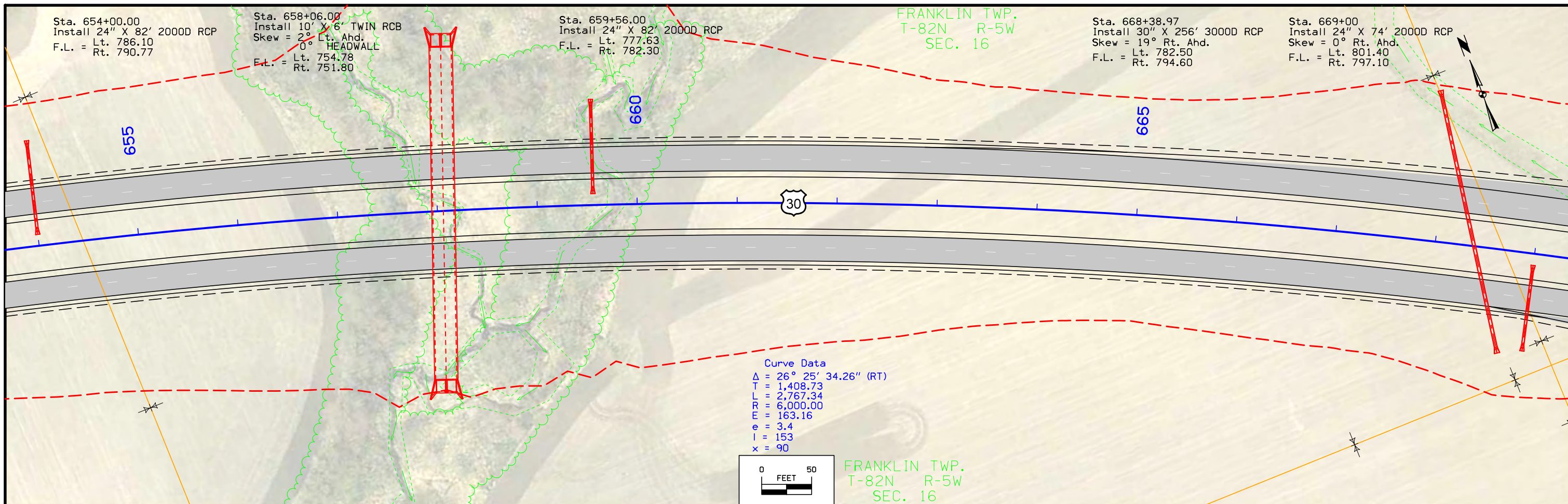


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|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 798.13 | 797.97 | 797.85 | 797.76 | 797.71 | 797.69 | 797.71 | 797.76 | 797.84 | 797.96 | 798.11 | 798.30 | 798.52 | 798.78 | 799.07 | 799.39 | 799.75 | 800.15 | 800.58 | 801.04 | 801.54 | 802.07 | 802.63 | 803.24 | 803.86 | 804.48 | 805.10 | 805.70 | 806.28 | 806.85 | 807.40 | 807.94 | 808.46 | 808.97 | 809.46 | 809.93 | 810.40 | 810.84 | 811.27 | 811.68 | 812.08 | 812.47 | 812.84 | 813.19 | 813.53 | 813.85 | 814.15 | 814.45 | 814.72 | 814.98 | 815.23 | 815.46 | 815.67 | 815.87 | 816.05 | 816.22 | 816.37 | 816.51 | 816.63 | 816.74 | 816.83 |
| 624    | 625    | 626    | 627    | 628    | 629    | 630    | 631    | 632    | 633    | 634    | 635    | 636    | 637    | 638    | 639    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |





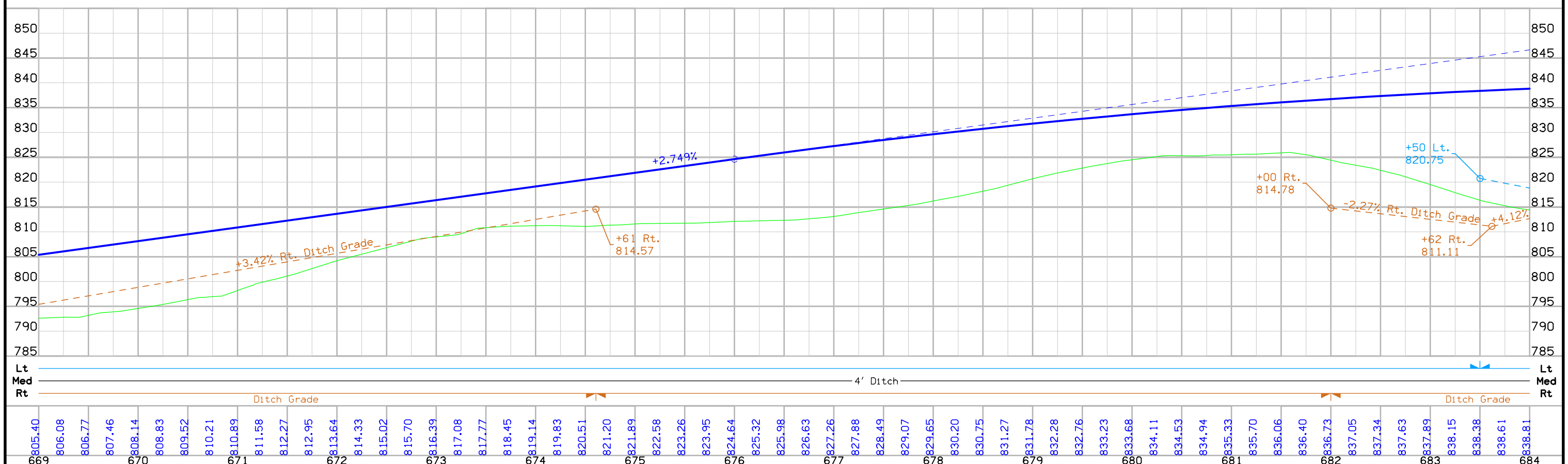
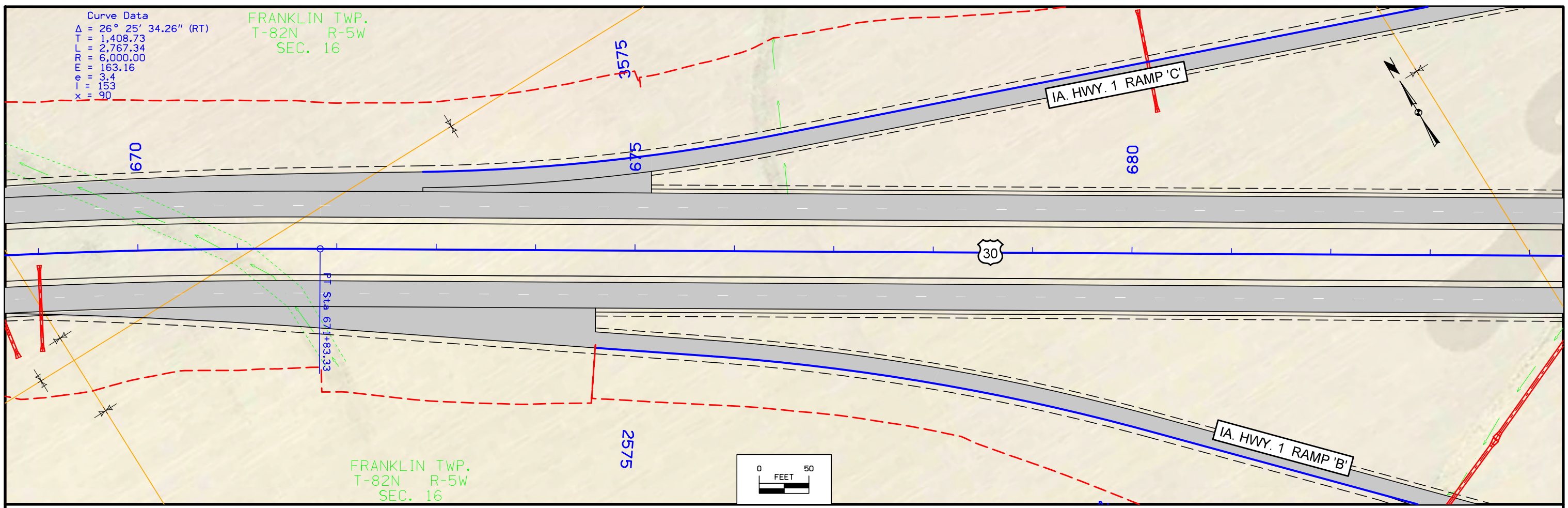




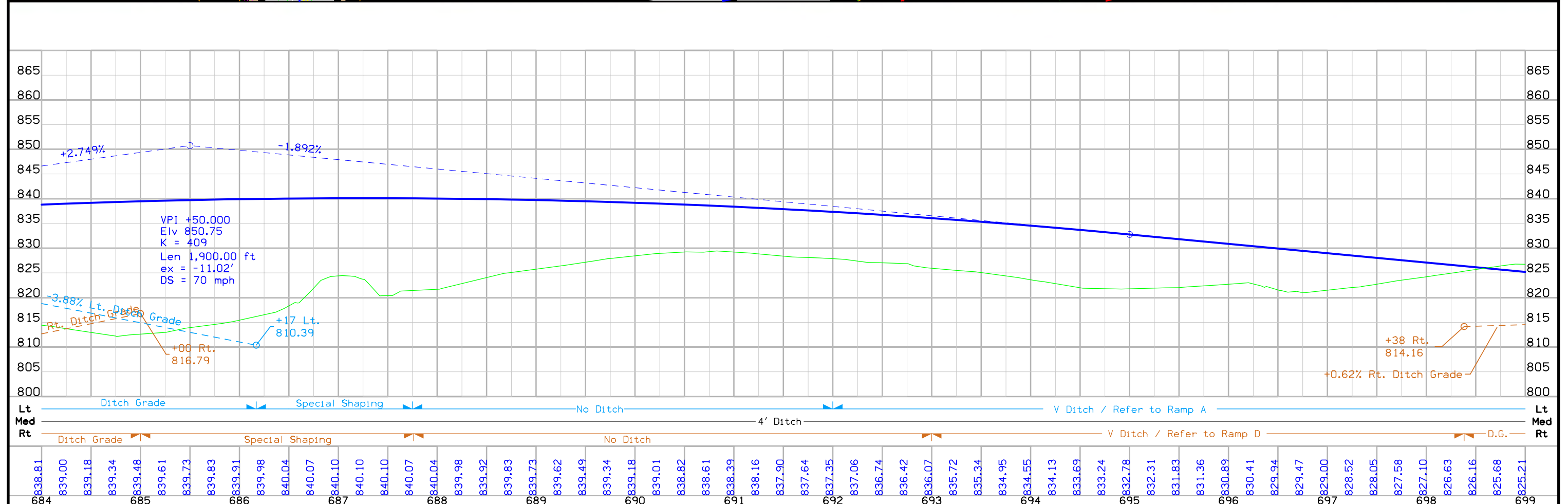
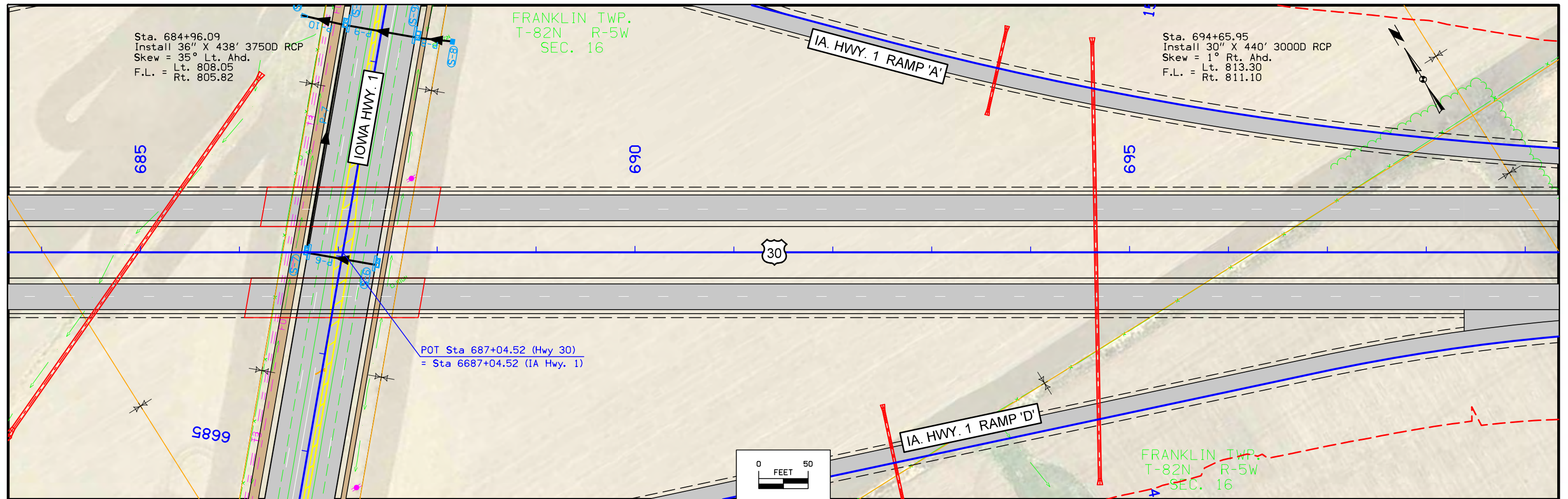
Curve Data  
 $\Delta = 26^\circ 25' 34.26''$  (RT)  
 TL = 1,408.73  
 LR = 2,767.34  
 RE = 6,000.00  
 E = 163.16  
 e = 3.4  
 I = 153  
 X = 90

FRANKLIN TWP.  
 T-82N R-5W  
 SEC. 16

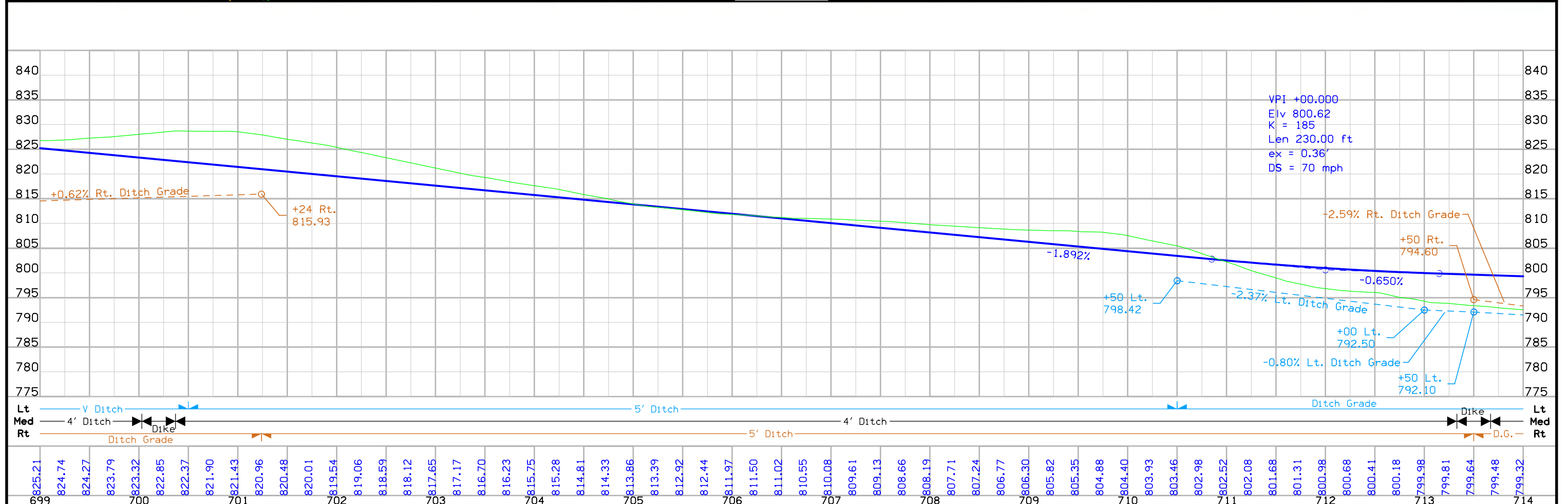
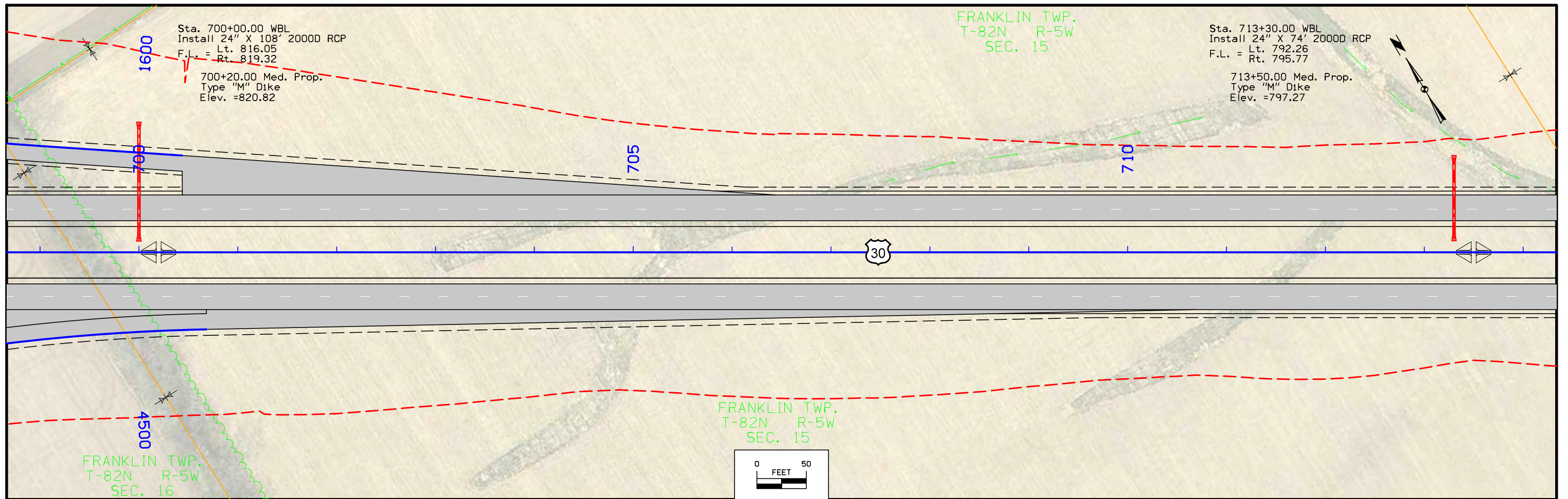
FRANKLIN TWP.  
 T-82N R-5W  
 SEC. 16



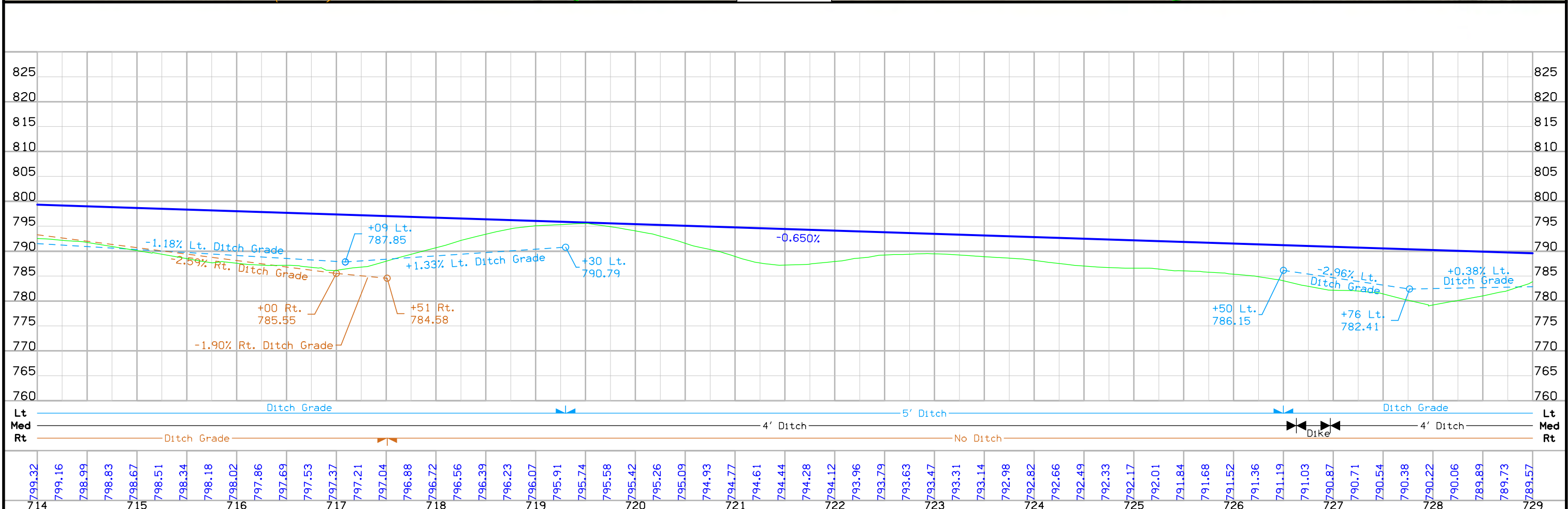
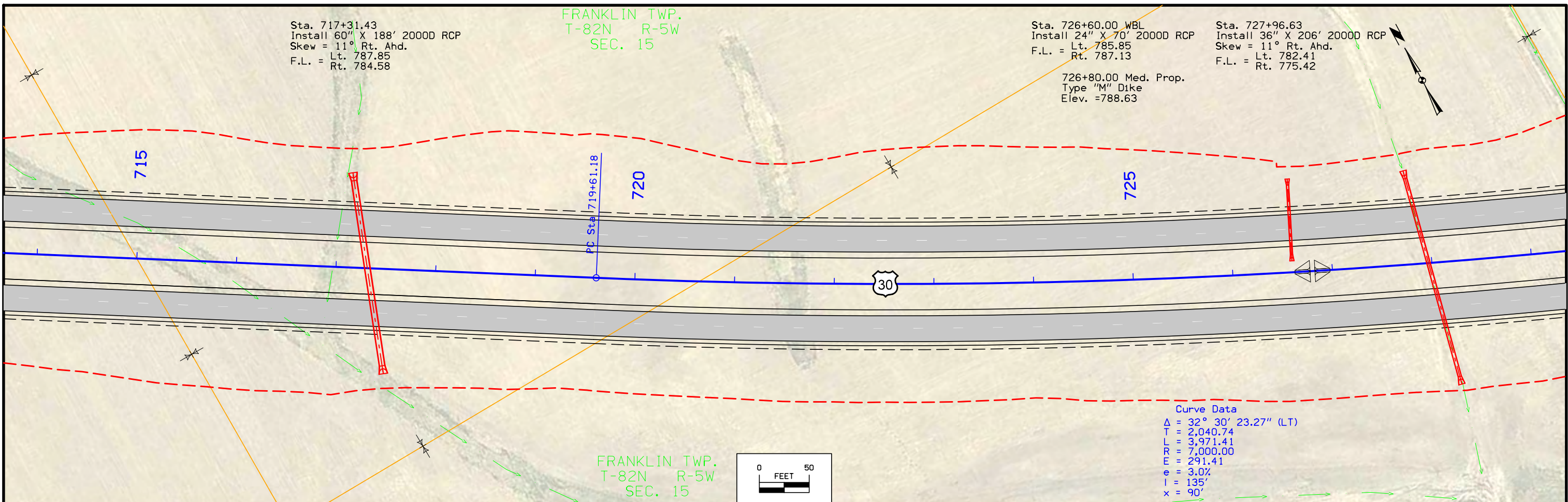












|     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 714 | 799.32 | 799.16 | 798.99 | 798.83 | 798.67 | 798.51 | 798.34 | 798.18 | 798.02 | 797.86 | 797.69 | 797.53 | 797.37 | 797.21 | 797.04 | 796.88 | 796.72 | 796.56 | 796.39 | 796.23 | 796.07 | 795.91 | 795.74 | 795.58 | 795.42 | 795.26 | 795.09 | 794.93 | 794.77 | 794.61 | 794.44 | 794.28 | 794.12 | 793.96 | 793.79 | 793.63 | 793.47 | 793.31 | 793.14 | 792.98 | 792.82 | 792.66 | 792.49 | 792.33 | 792.17 | 792.01 | 791.84 | 791.68 | 791.52 | 791.36 | 791.19 | 791.03 | 790.87 | 790.71 | 790.54 | 790.38 | 790.22 | 790.06 | 789.89 | 789.73 | 789.57 |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|



FRANKLIN TWP.  
T-82N R-5W  
SEC. 15

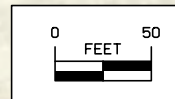
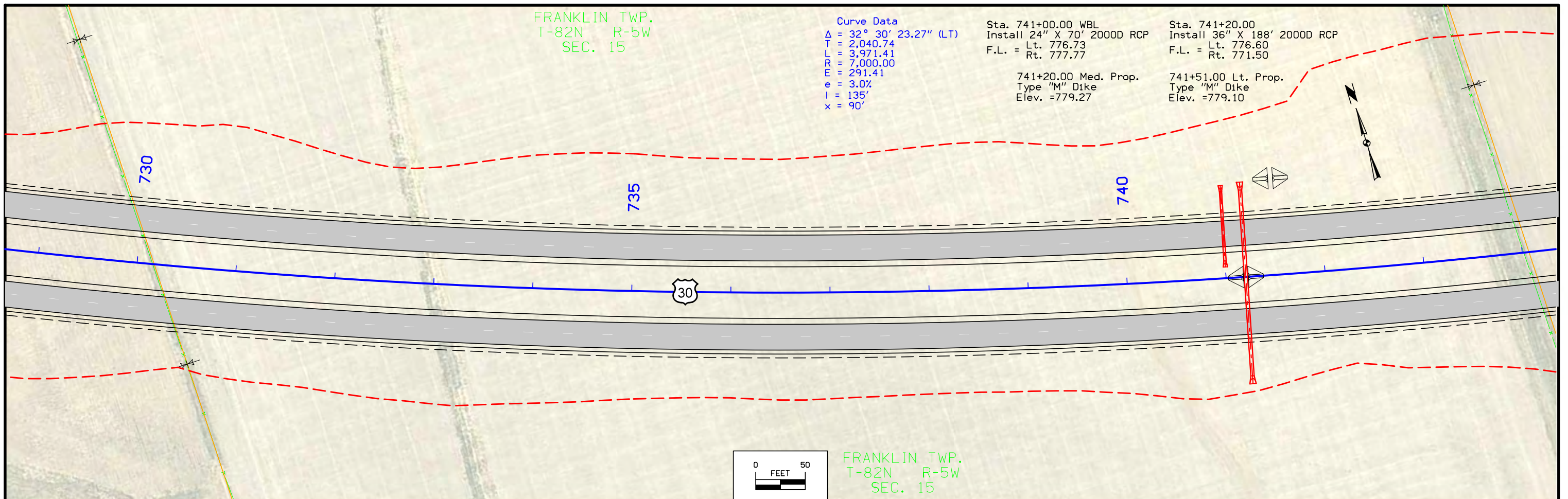
Curve Data  
 $\Delta = 32^\circ 30' 23.27''$  (LT)  
 $T = 2,040.74$   
 $L = 3,971.41$   
 $R = 7,000.00$   
 $E = 291.41$   
 $e = 3.0\%$   
 $I = 135'$   
 $x = 90'$

Sta. 741+00.00 WBL  
 Install 24" X 70' 2000D RCP  
 Lt. 776.73  
 Rt. 777.77

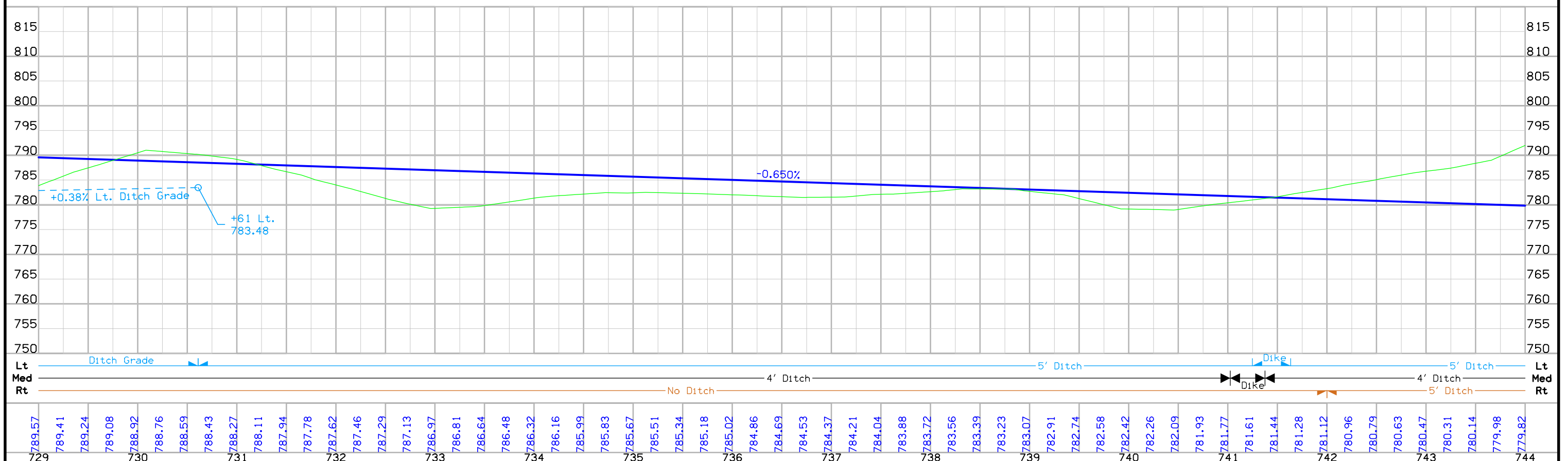
741+20.00 Med. Prop.  
 Type "M" Dike  
 Elev. = 779.27

Sta. 741+20.00  
 Install 36" X 188' 2000D RCP  
 Lt. 776.60  
 Rt. 771.50

741+51.00 Lt. Prop.  
 Type "M" Dike  
 Elev. = 779.10

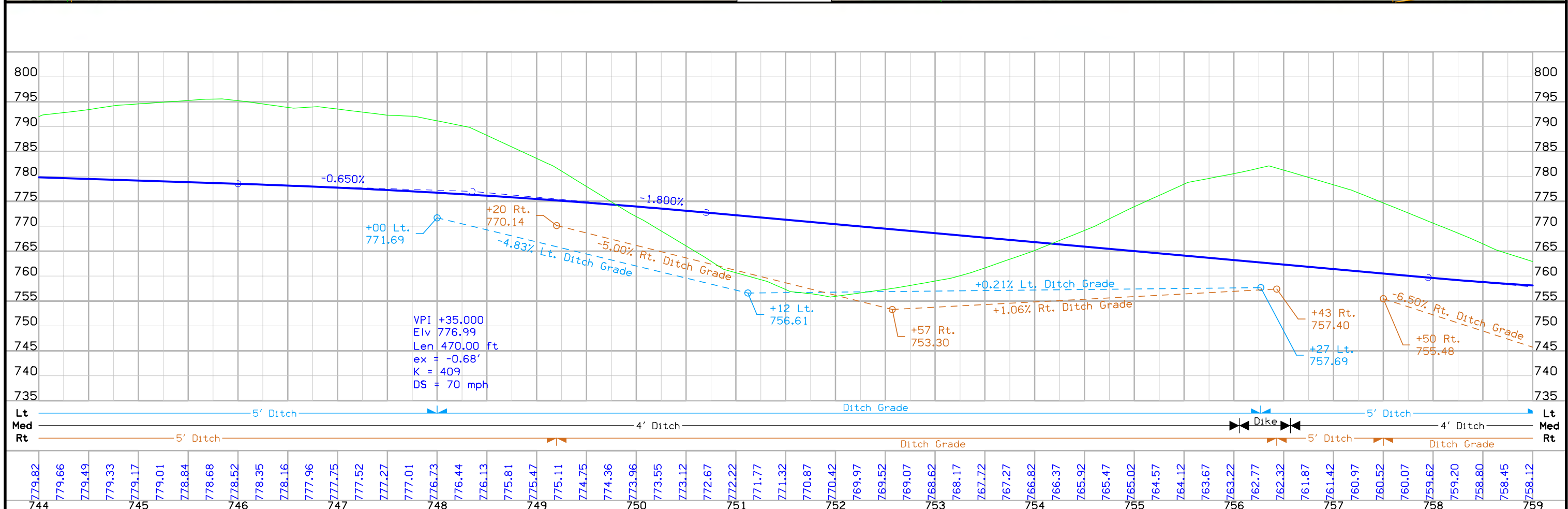
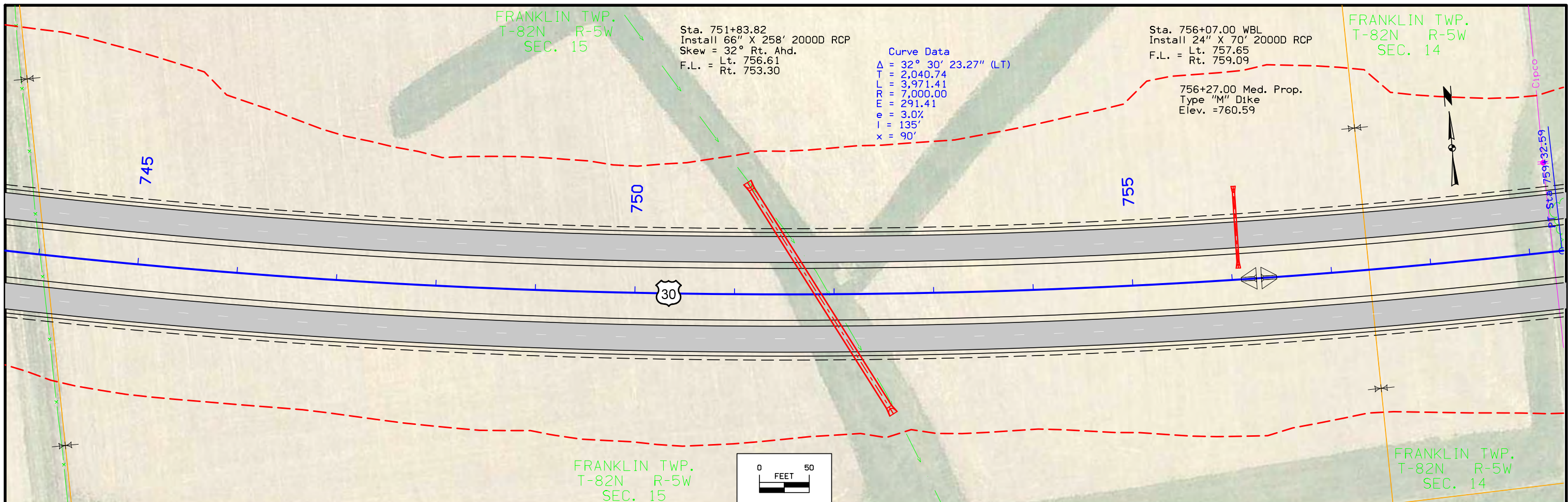


FRANKLIN TWP.  
T-82N R-5W  
SEC. 15

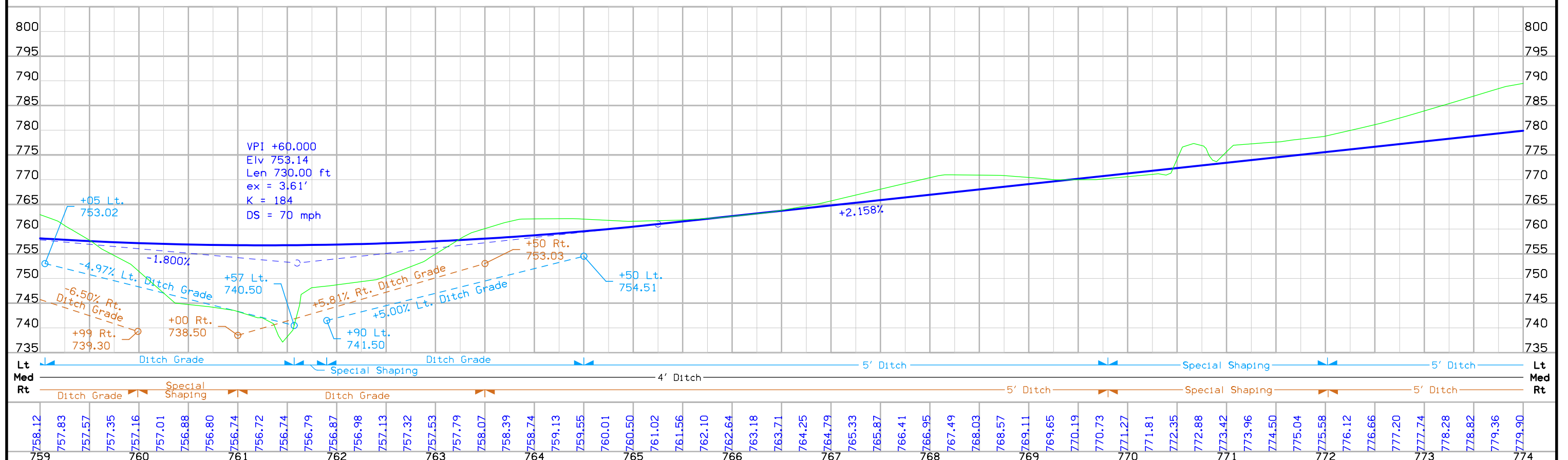
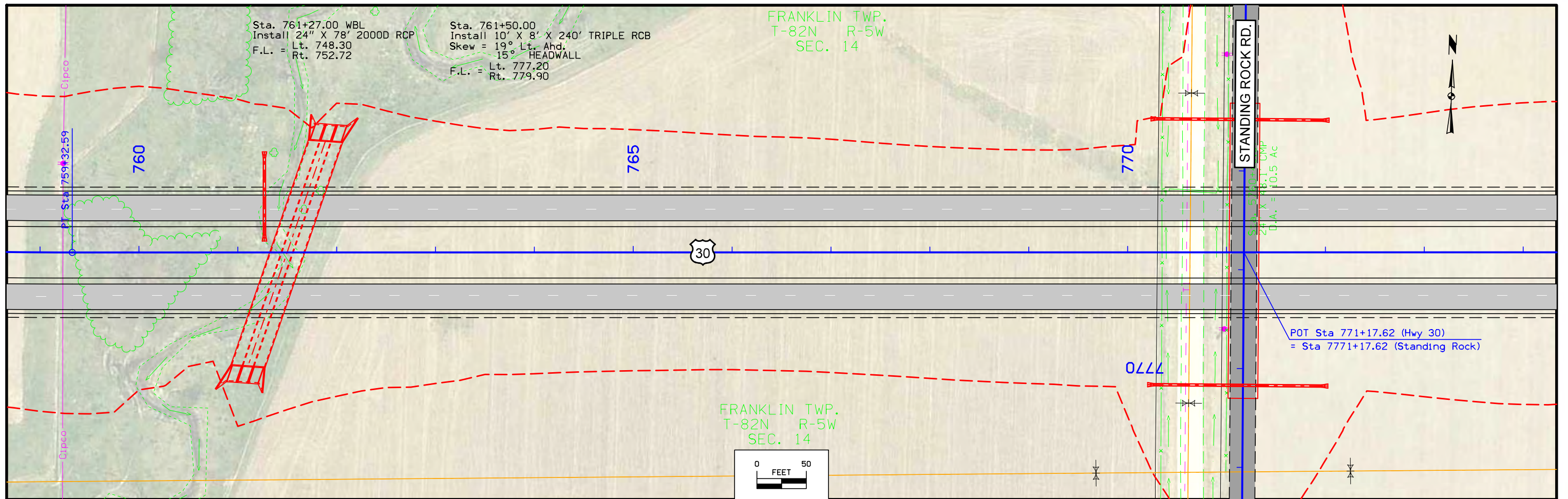


|     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |     |        |
|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| 729 | 789.57 | 730 | 789.41 | 731 | 789.24 | 732 | 789.08 | 733 | 788.92 | 734 | 788.76 | 735 | 788.59 | 736 | 788.43 | 737 | 788.27 | 738 | 788.11 | 739 | 787.94 | 740 | 787.78 | 741 | 787.62 | 742 | 787.46 | 743 | 787.29 | 744 | 787.13 |
|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|



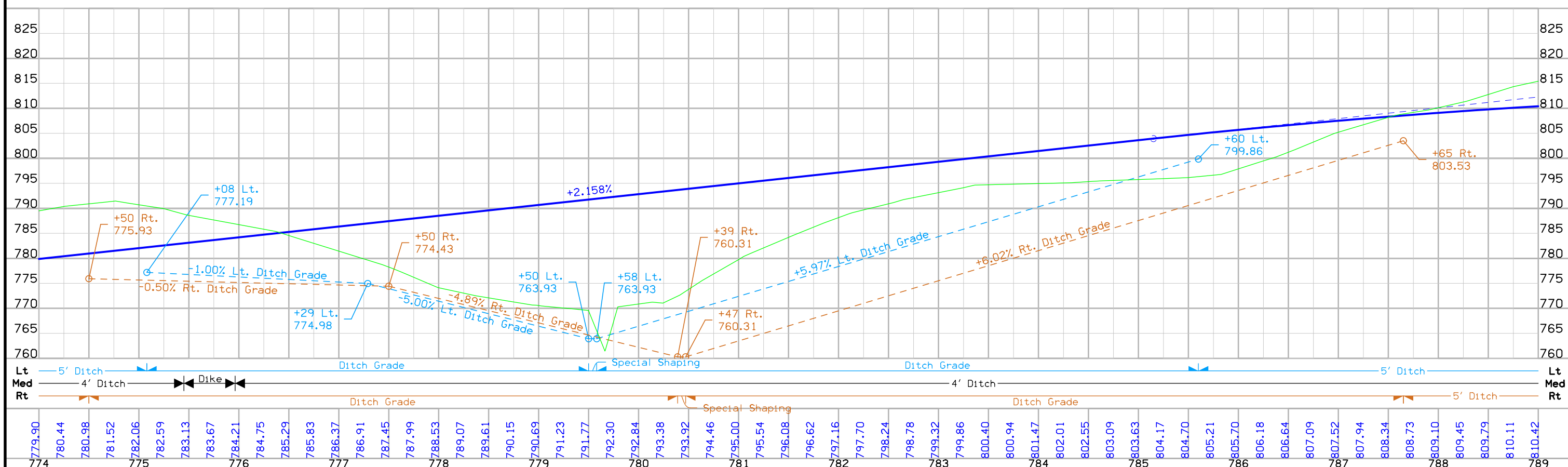
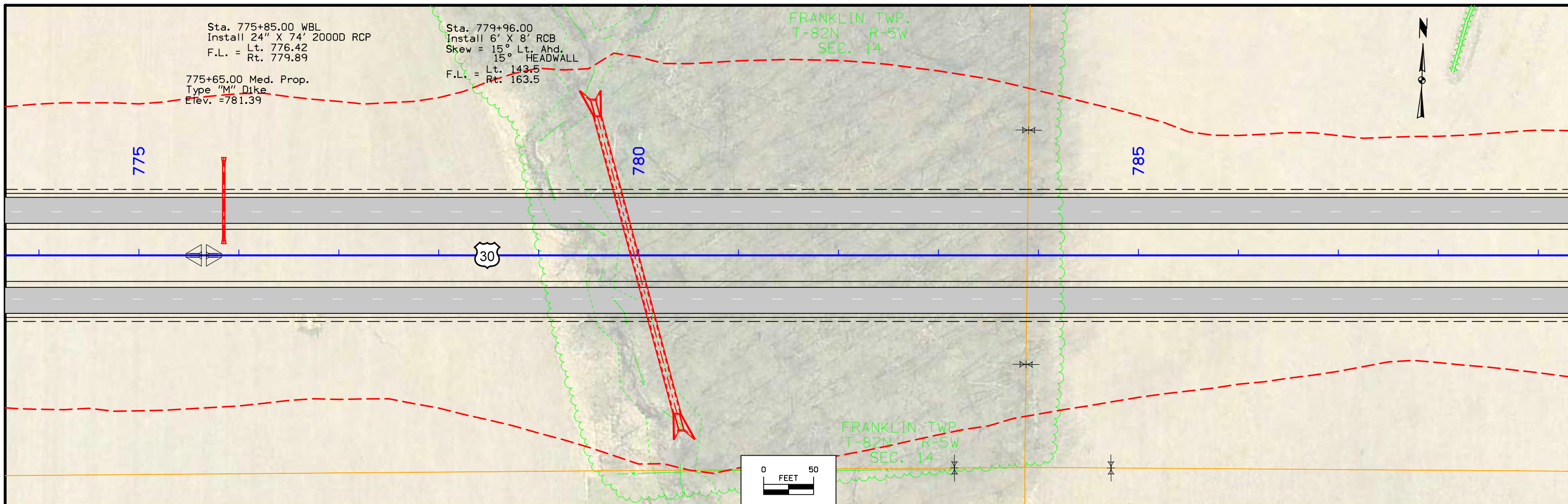




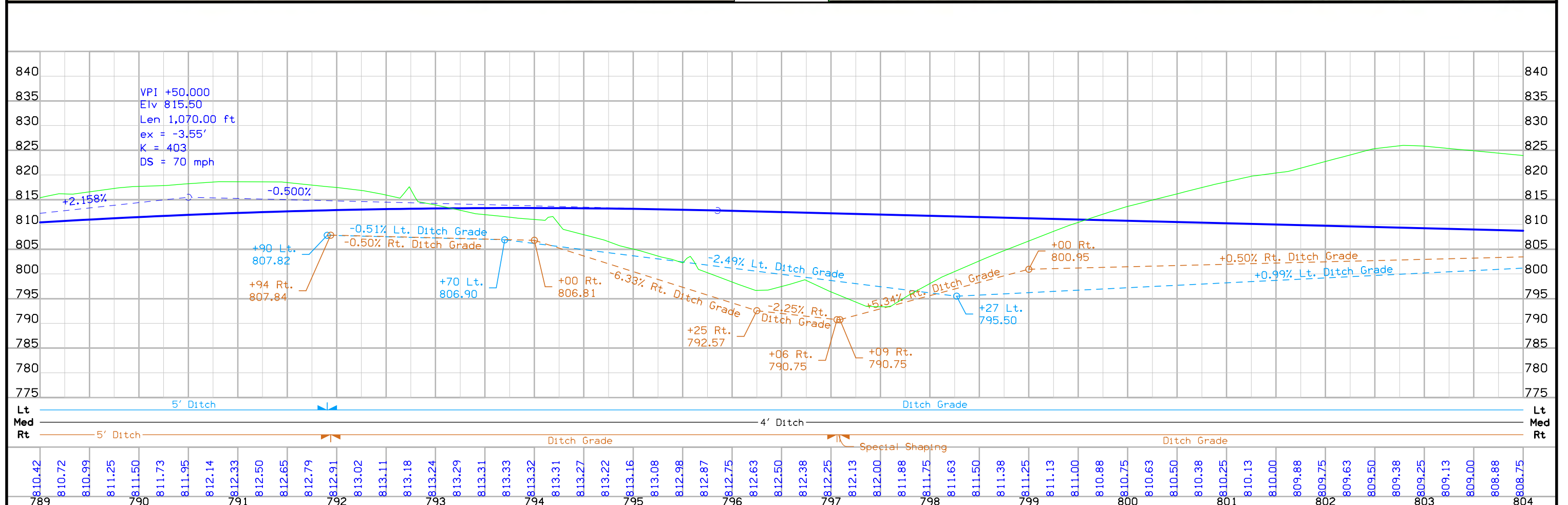
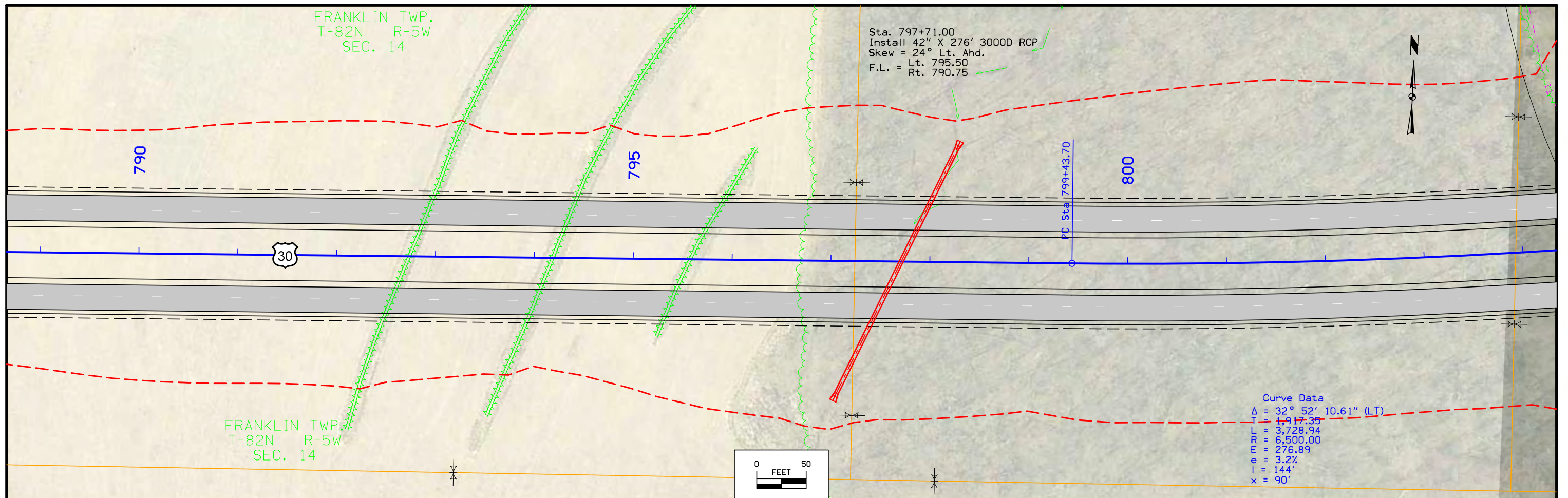


|     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 759 | 759.12 | 757.83 | 757.57 | 757.35 | 757.16 | 757.01 | 756.88 | 756.80 | 756.74 | 756.72 | 756.74 | 756.79 | 756.87 | 756.98 | 757.13 | 757.32 | 757.53 | 757.79 | 758.07 | 758.39 | 758.74 | 759.13 | 759.55 | 760.01 | 760.50 | 761.02 | 761.56 | 762.10 | 762.64 | 763.18 | 763.71 | 764.25 | 764.79 | 765.33 | 765.87 | 766.41 | 766.95 | 767.49 | 768.03 | 768.57 | 769.11 | 769.65 | 770.19 | 770.73 | 771.27 | 771.81 | 772.35 | 772.88 | 773.42 | 773.96 | 774.50 | 775.04 | 775.58 | 776.12 | 776.66 | 777.20 | 777.74 | 778.28 | 778.82 | 779.36 | 779.90 |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|

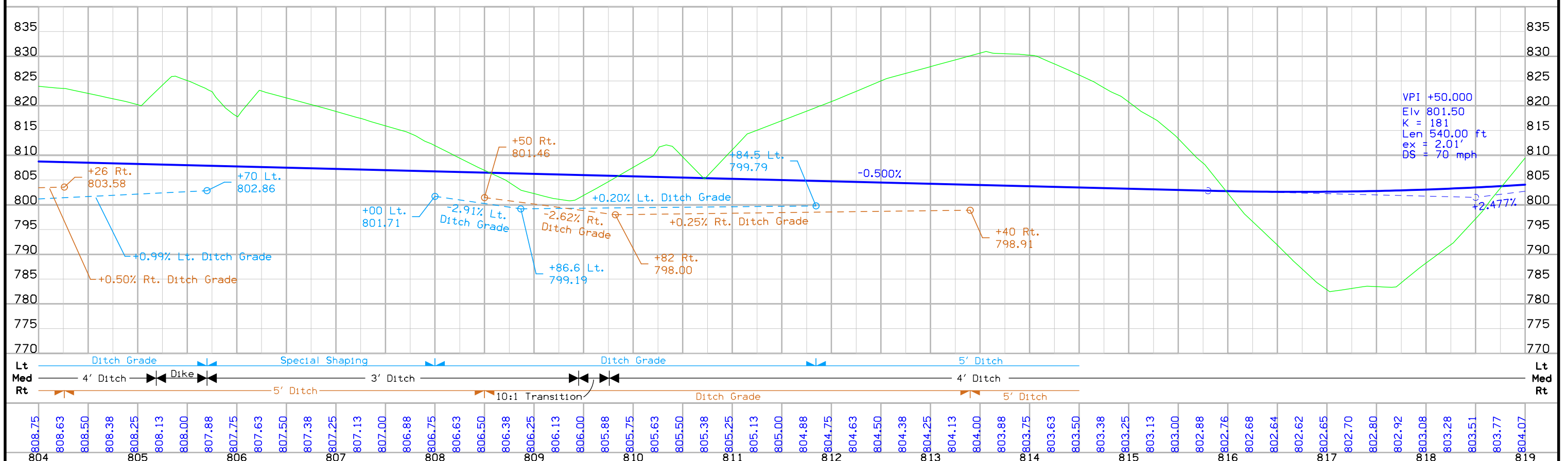
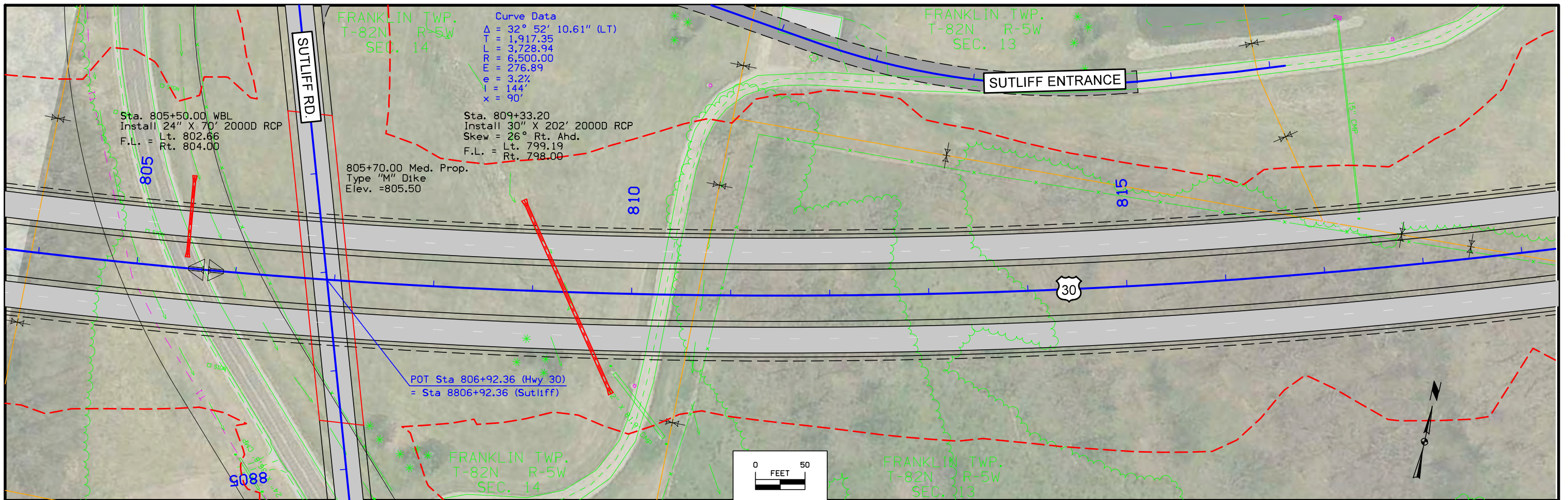




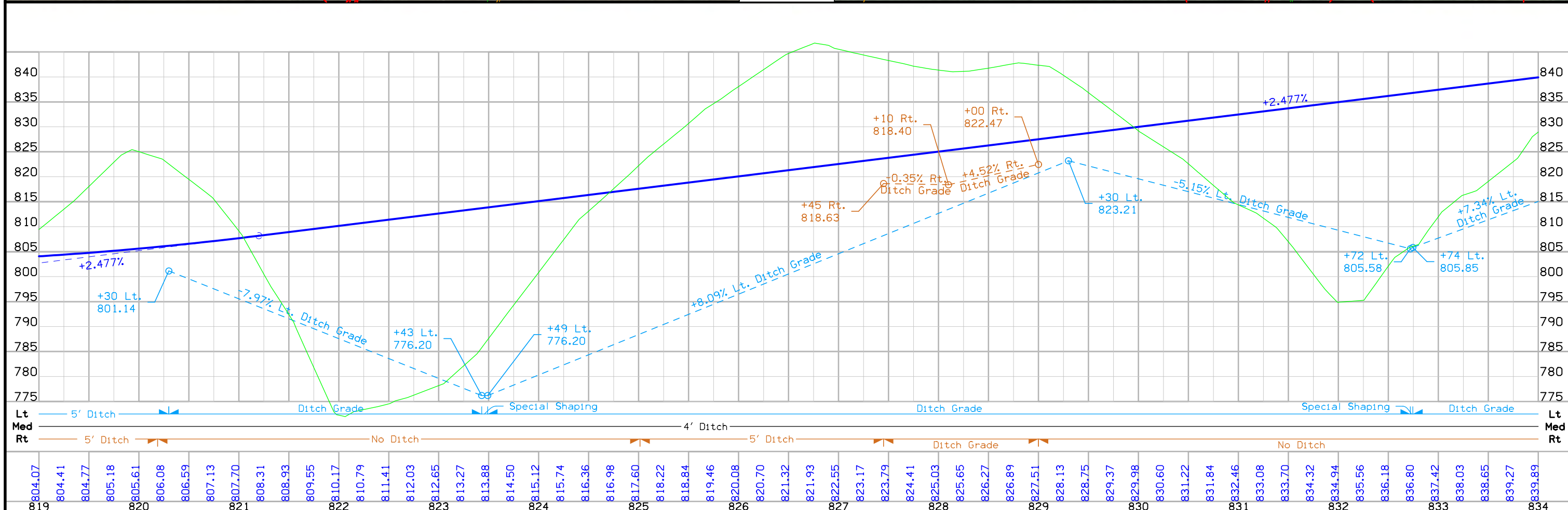
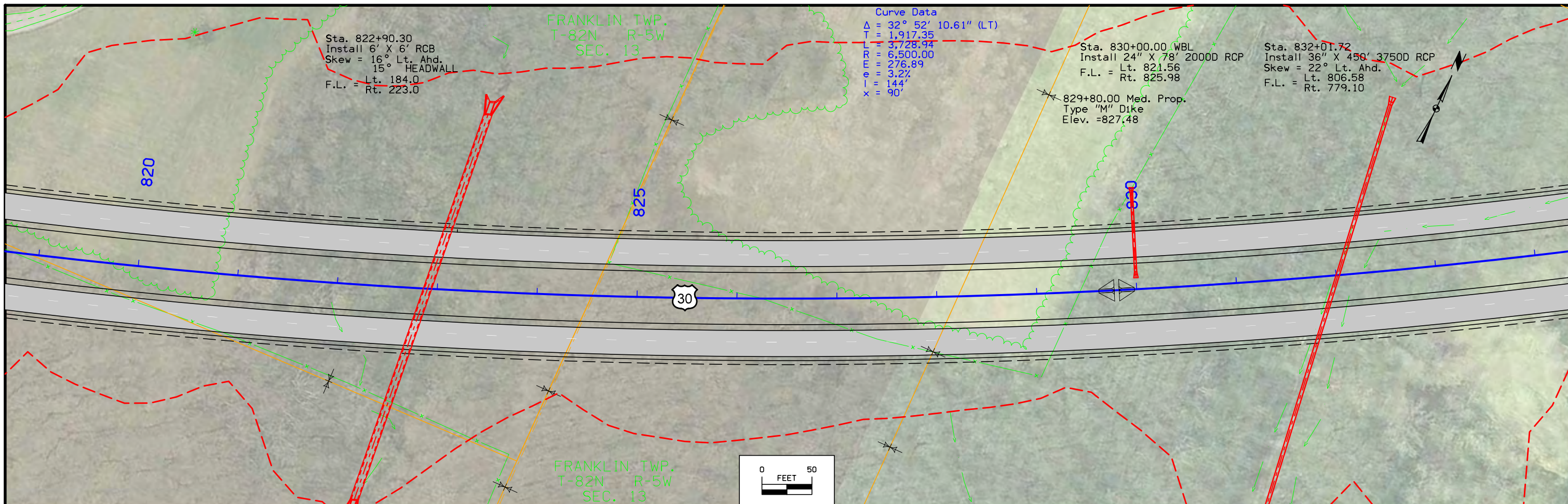




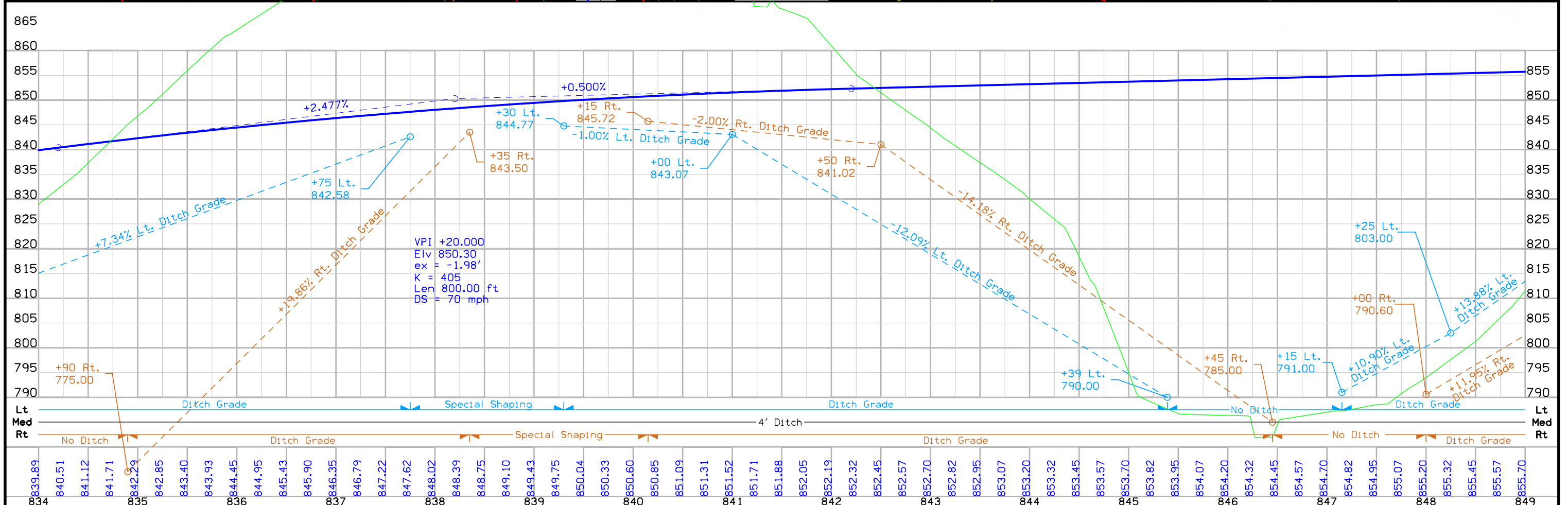
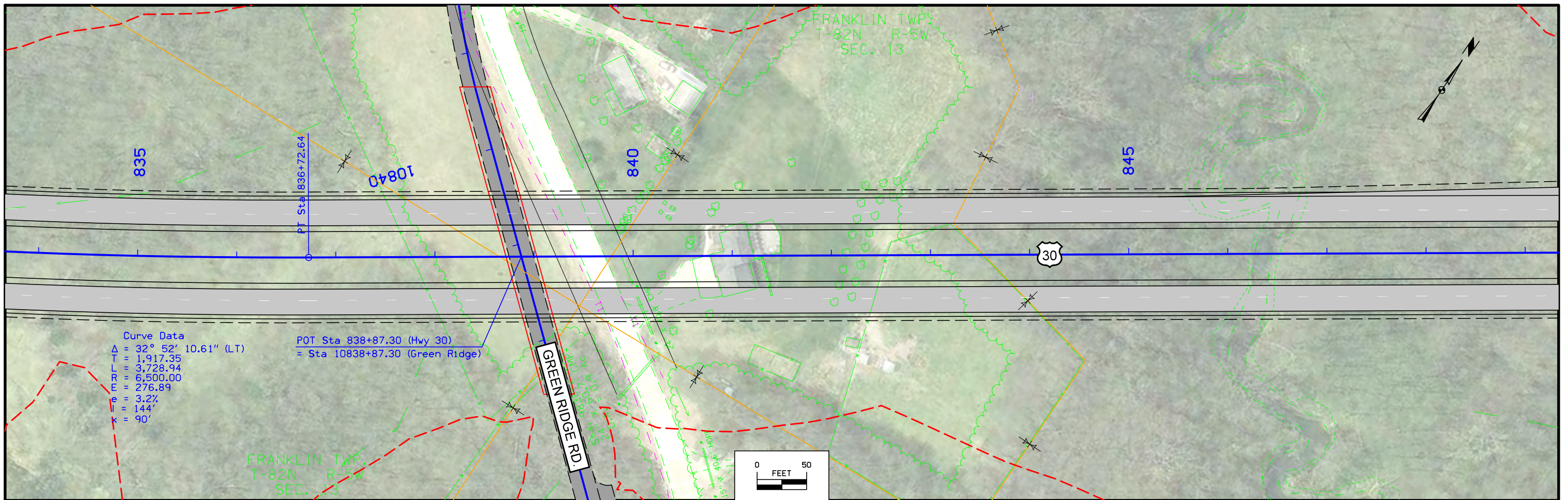




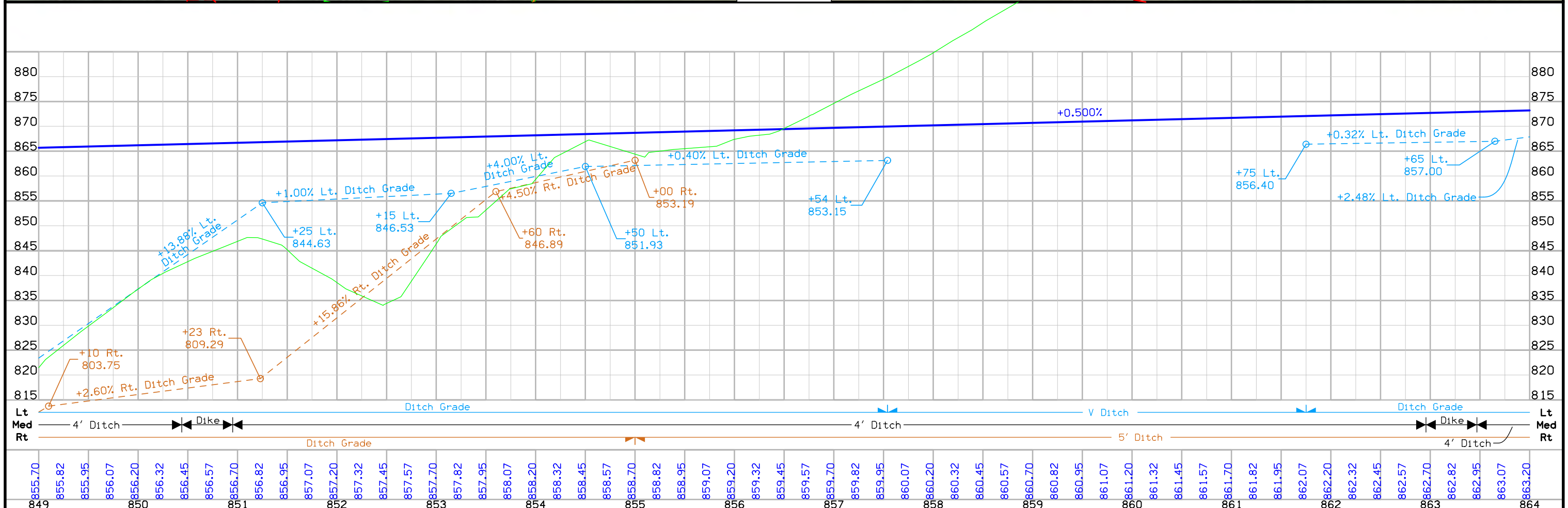
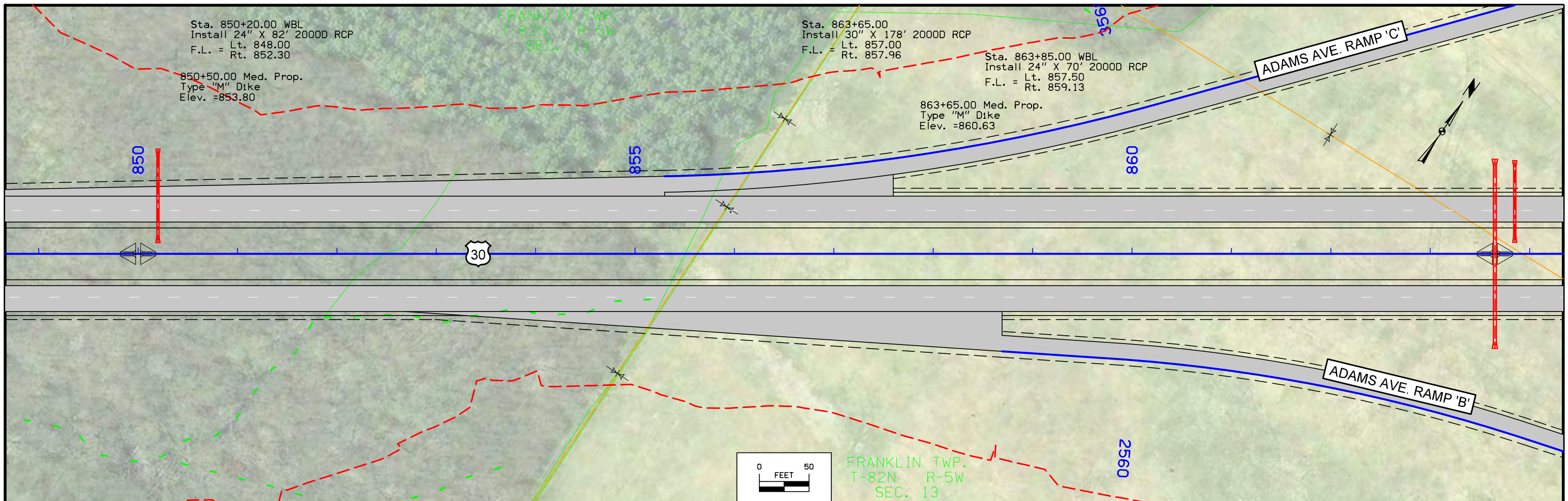




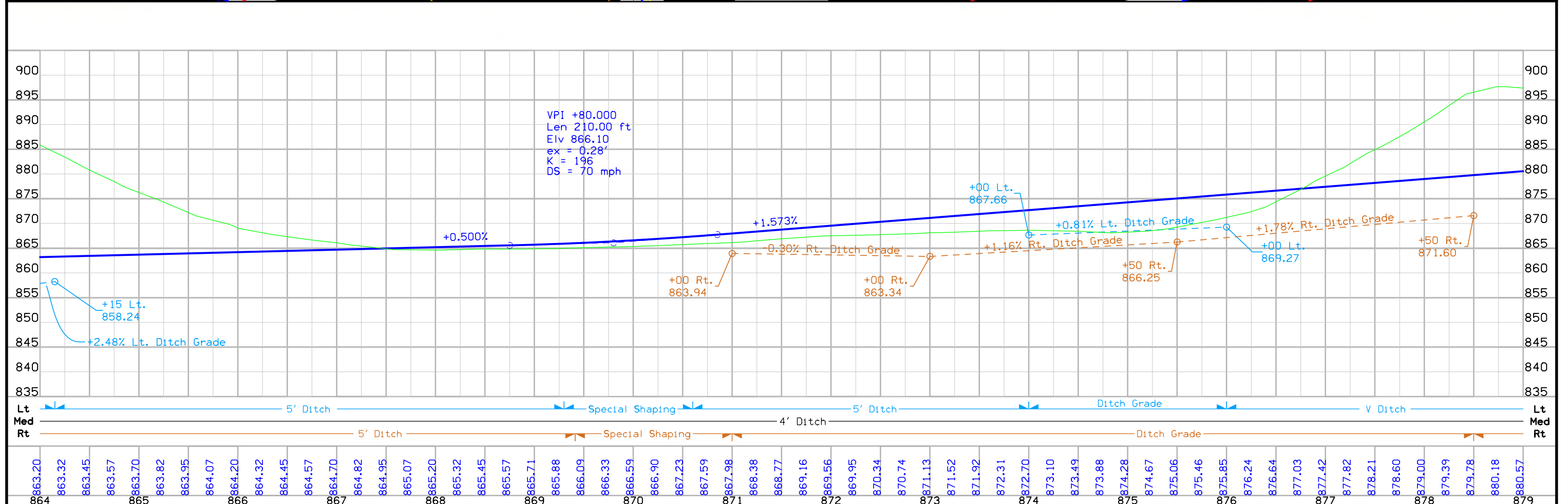
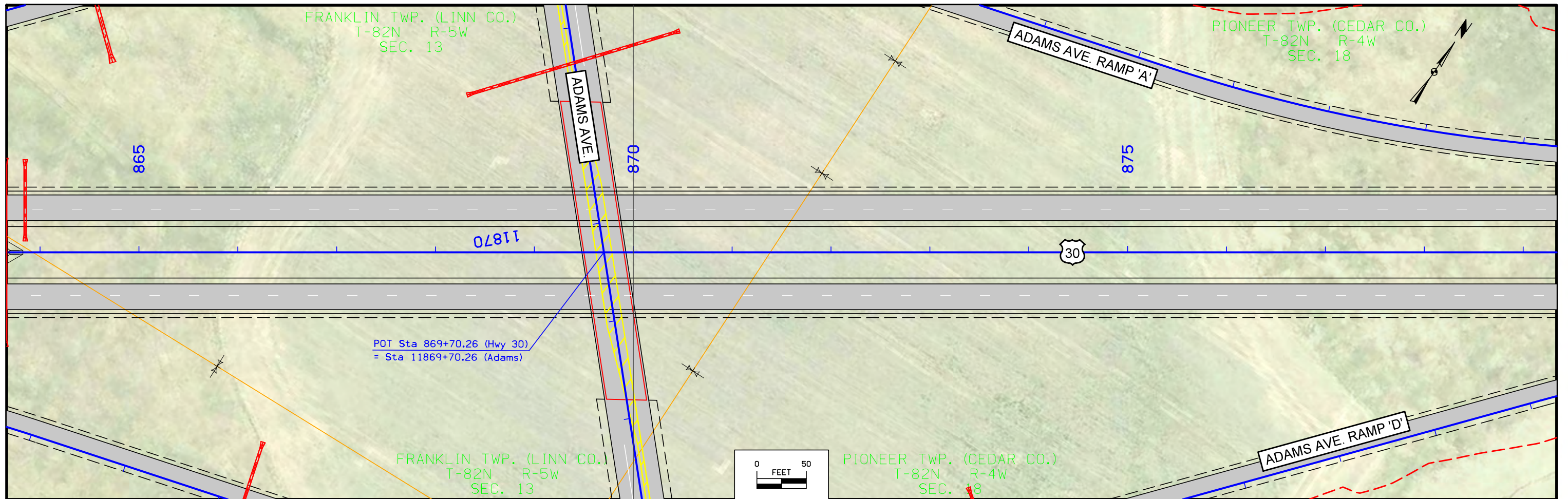








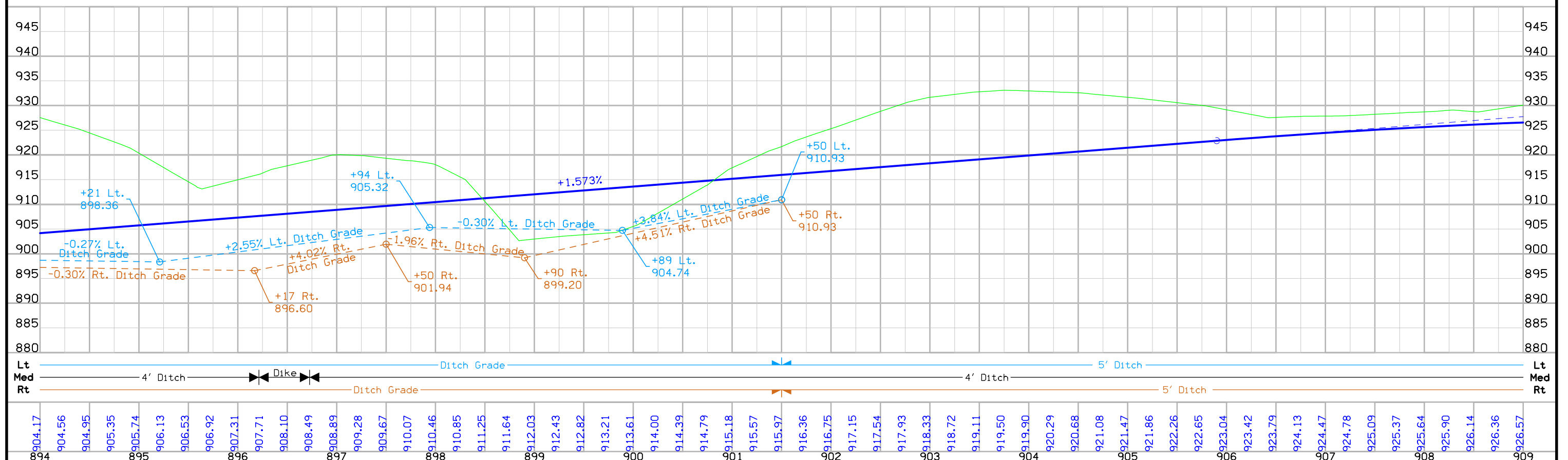
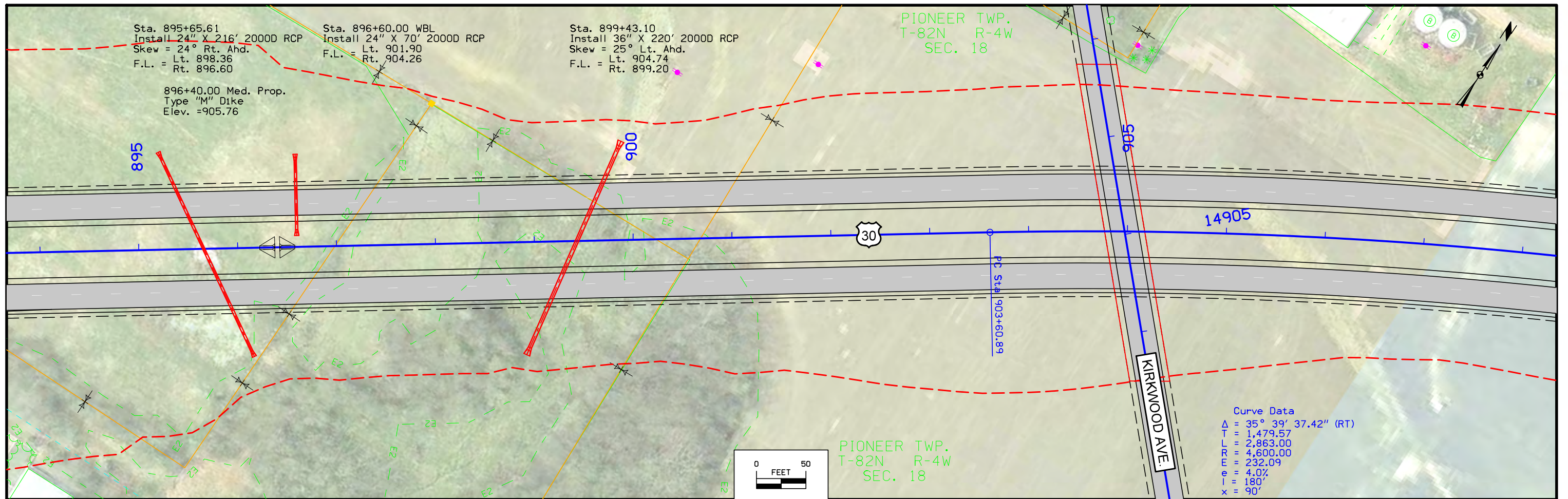




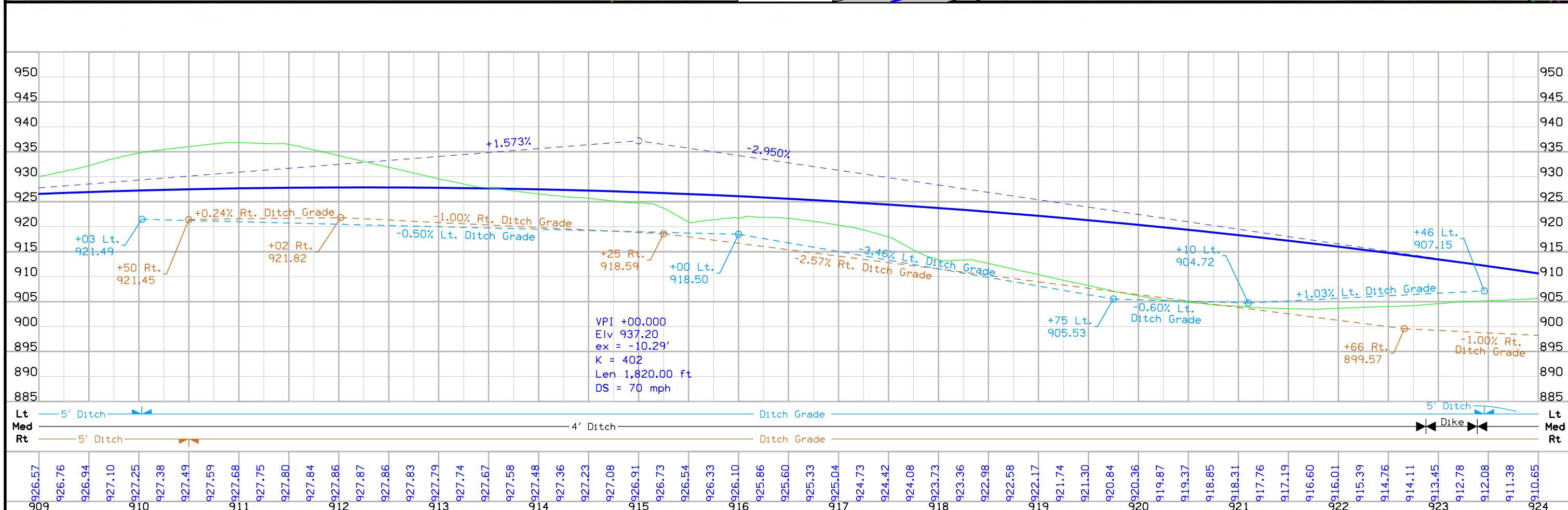
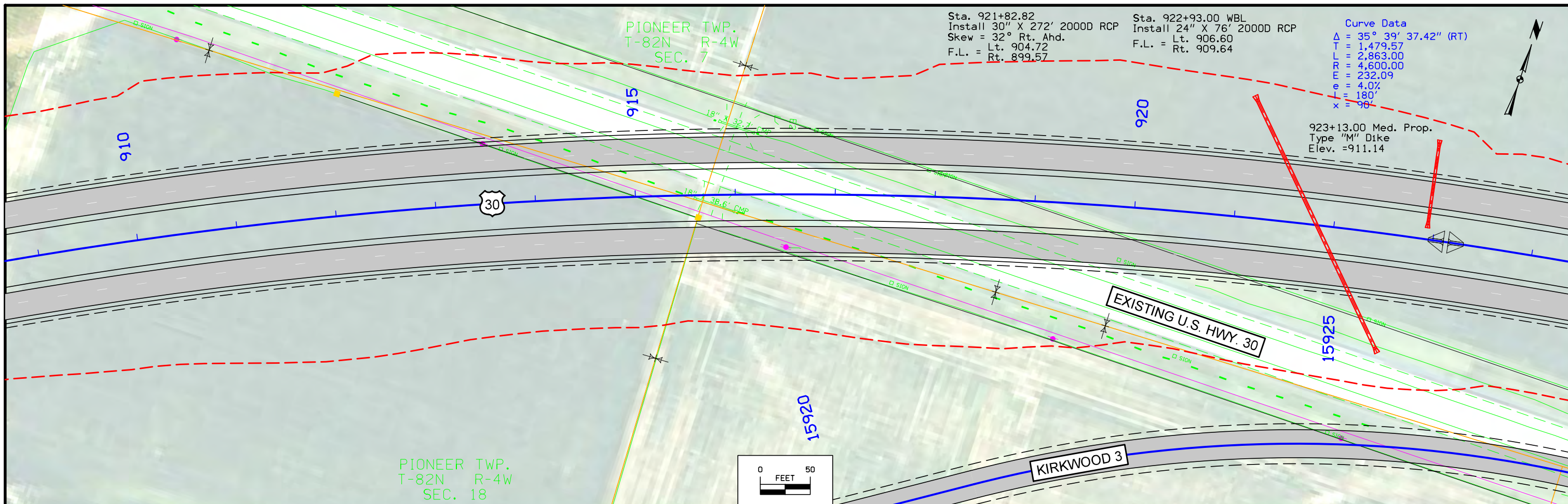










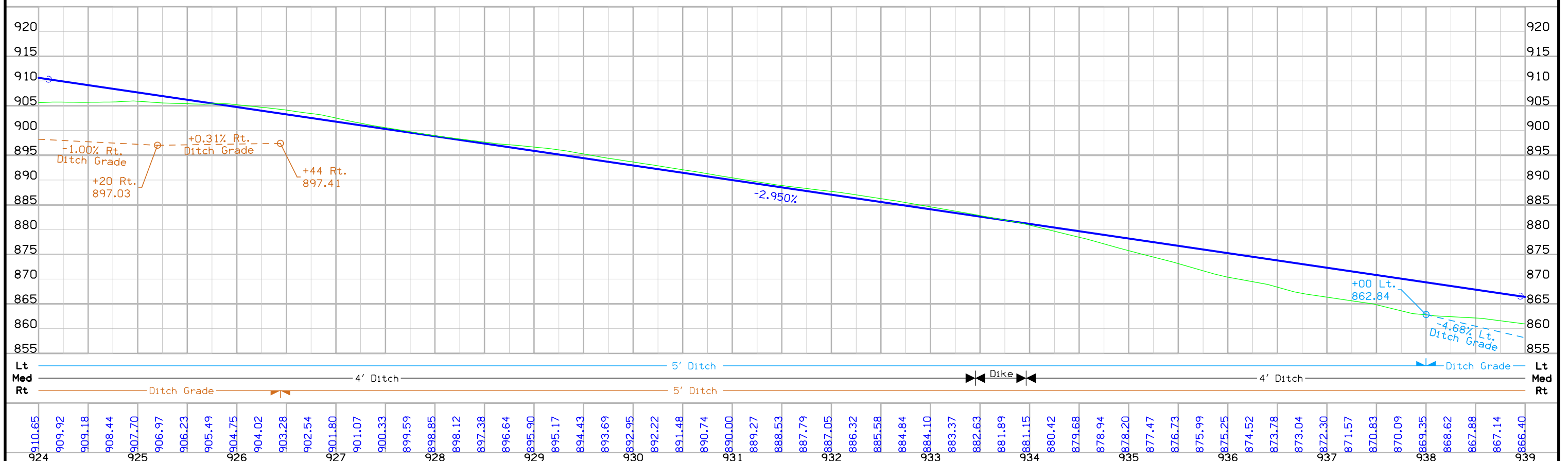
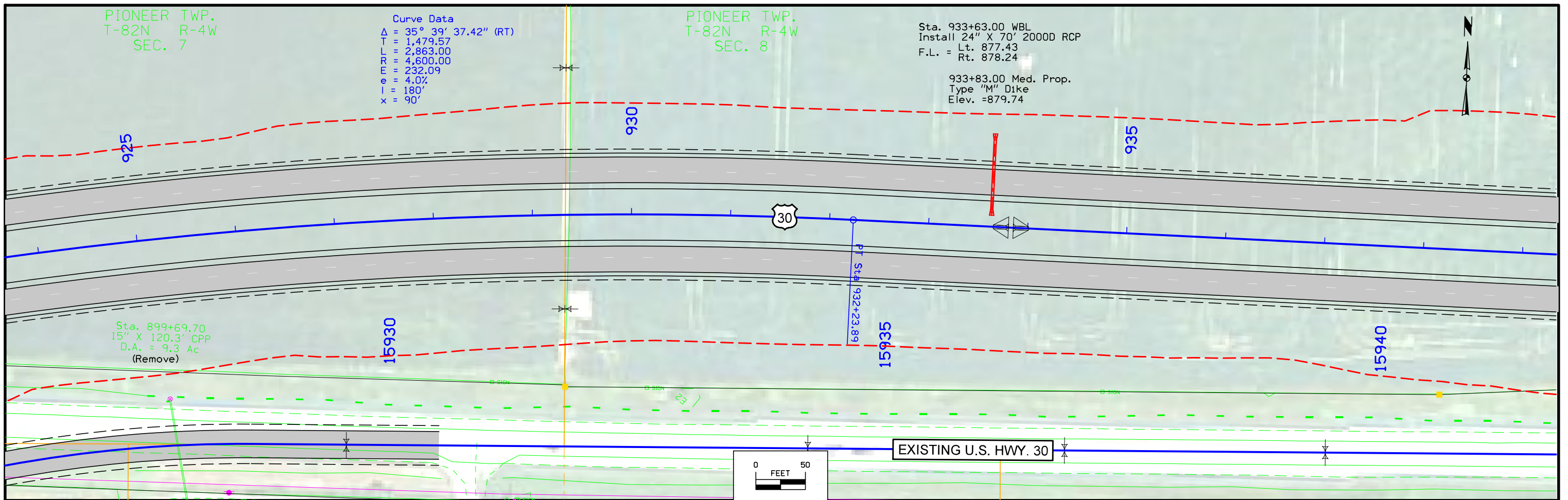


PIONEER TWP.  
T-82N R-4W  
SEC. 7

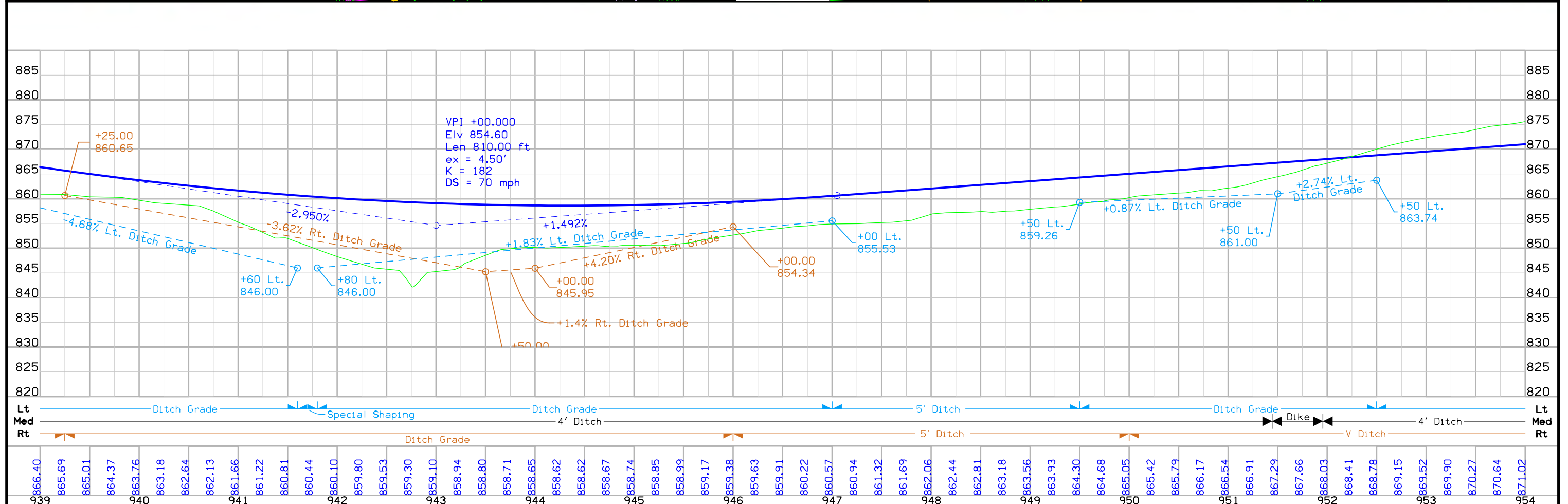
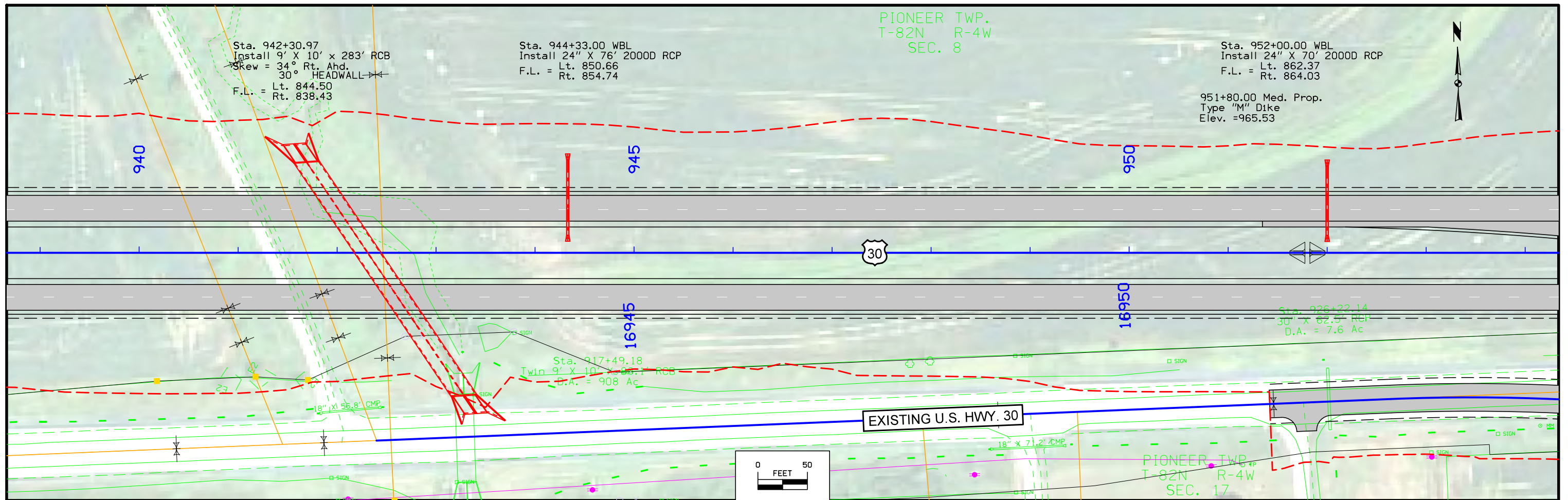
Curve Data  
 $\Delta = 35^\circ 39' 37.42''$  (RT)  
 $T = 1,479.57$   
 $L = 2,863.00$   
 $R = 4,600.00$   
 $E = 232.09$   
 $e = 4.0\%$   
 $I = 180'$   
 $x = 90'$

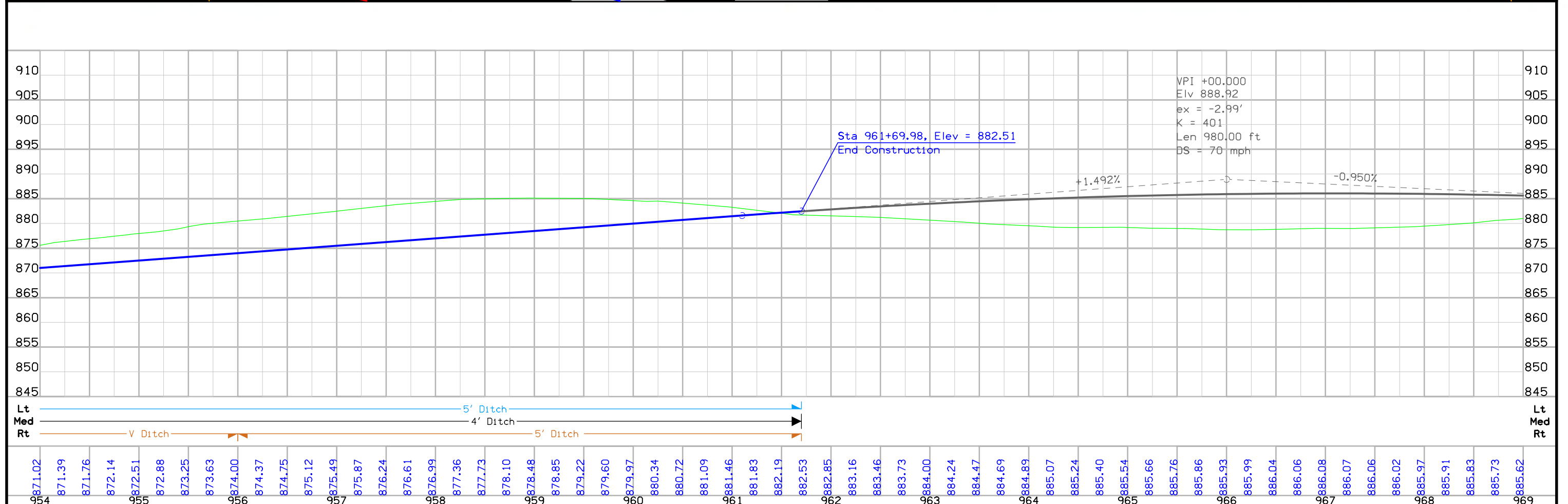
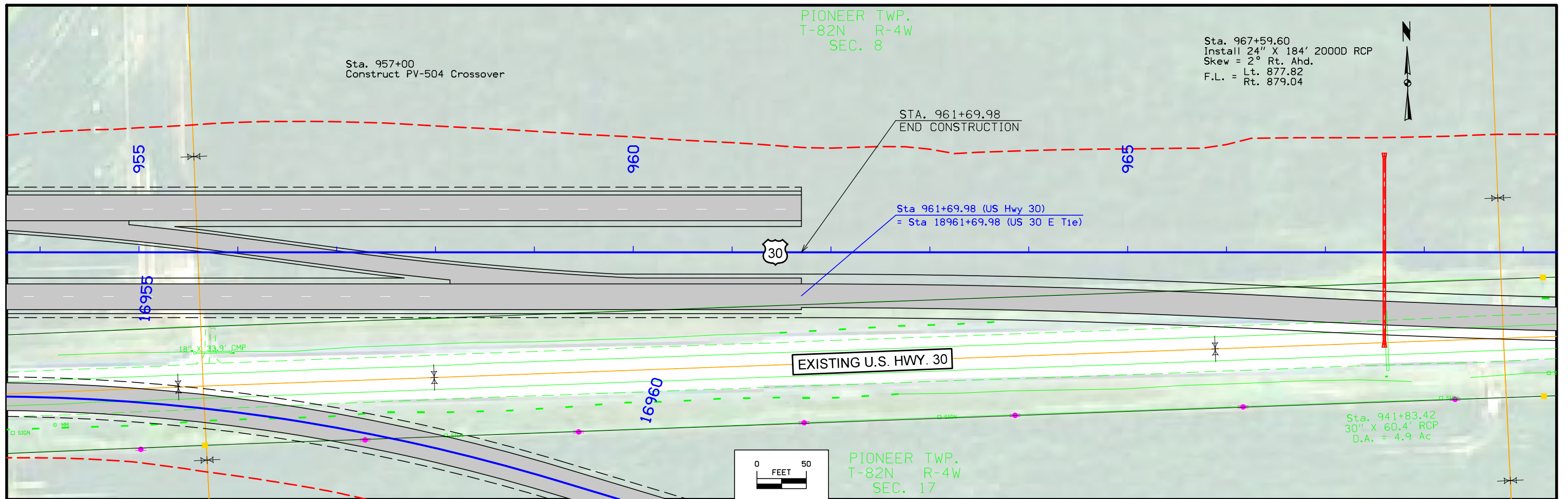
PIONEER TWP.  
T-82N R-4W  
SEC. 8

Sta. 933+63.00 WBL  
 Install 24" X 70' 2000D RCP  
 F.L. = Lt. 877.43  
 Rt. 878.24  
 933+83.00 Med. Prop.  
 Type "M" Dike  
 Elev. = 879.74







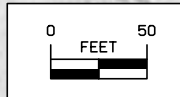
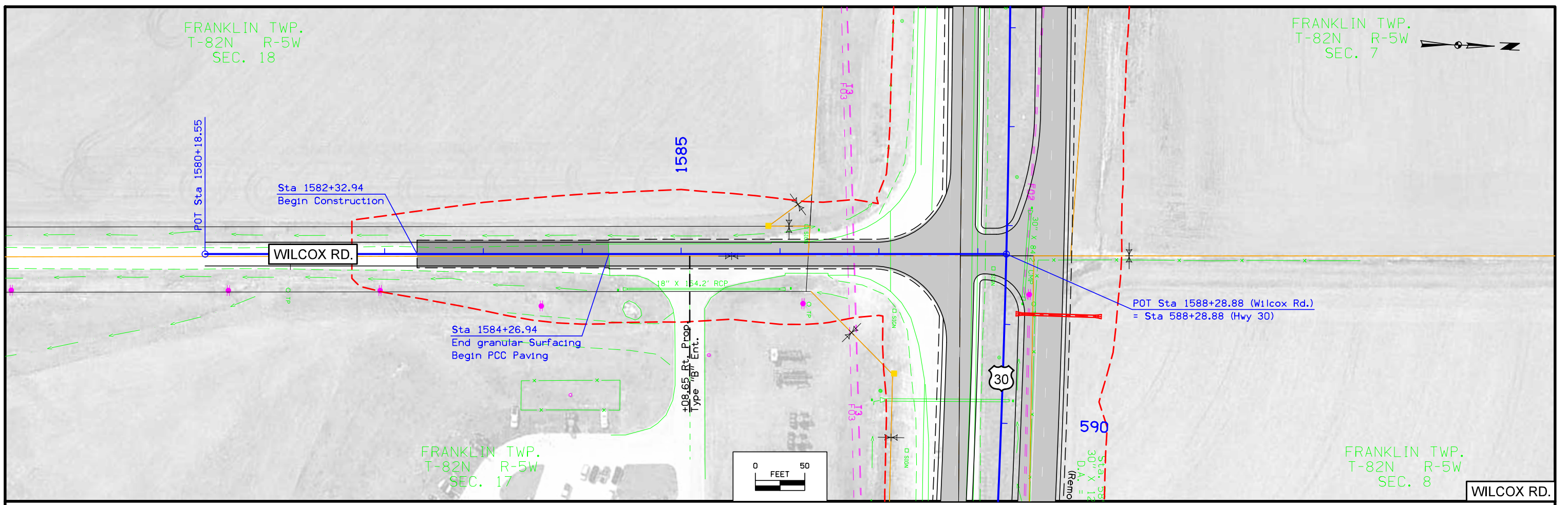


|        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 871.02 | 871.39 | 871.76 | 872.14 | 872.51 | 872.88 | 873.25 | 873.63 | 874.00 | 874.37 | 874.75 | 875.12 | 875.49 | 875.87 | 876.24 | 876.61 | 876.99 | 877.36 | 877.73 | 878.10 | 878.48 | 878.85 | 879.22 | 879.60 | 879.97 | 880.34 | 880.72 | 881.09 | 881.46 | 881.83 | 882.19 | 882.53 | 882.85 | 883.16 | 883.46 | 883.73 | 884.00 | 884.24 | 884.47 | 884.69 | 884.89 | 885.07 | 885.24 | 885.40 | 885.54 | 885.66 | 885.76 | 885.86 | 885.93 | 885.99 | 886.04 | 886.06 | 886.08 | 886.07 | 886.06 | 886.02 | 885.97 | 885.91 | 885.83 | 885.73 | 885.62 |
| 954    | 955    | 956    | 957    | 958    | 959    | 960    | 961    | 962    | 963    | 964    | 965    | 966    | 967    | 968    | 969    |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |



FRANKLIN TWP.  
T-82N R-5W  
SEC. 18

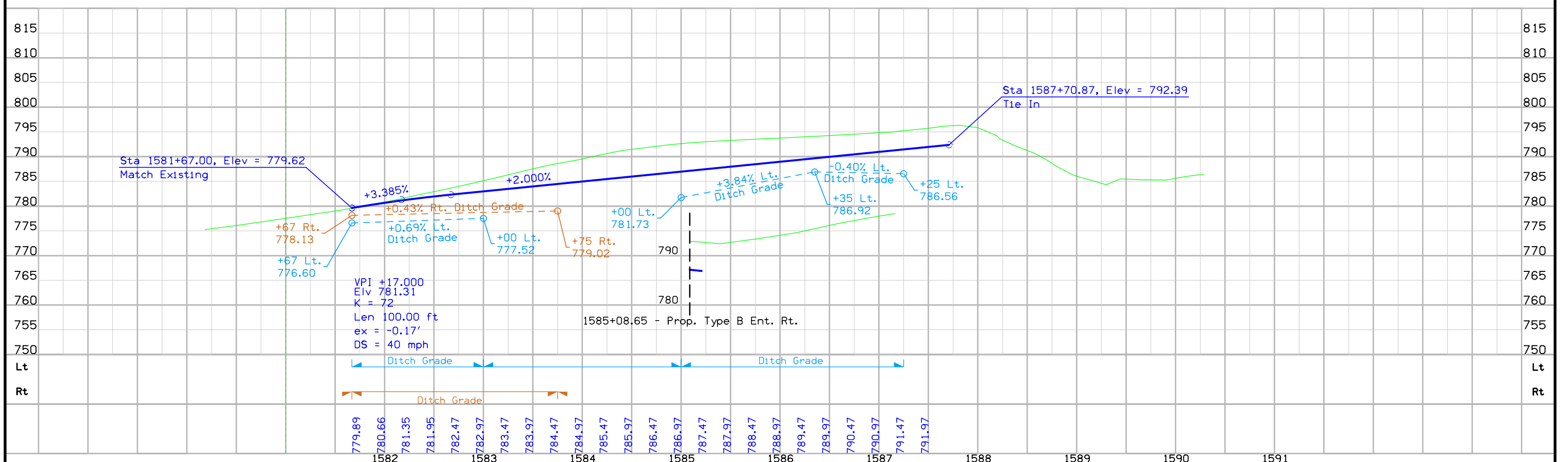
FRANKLIN TWP.  
T-82N R-5W  
SEC. 7



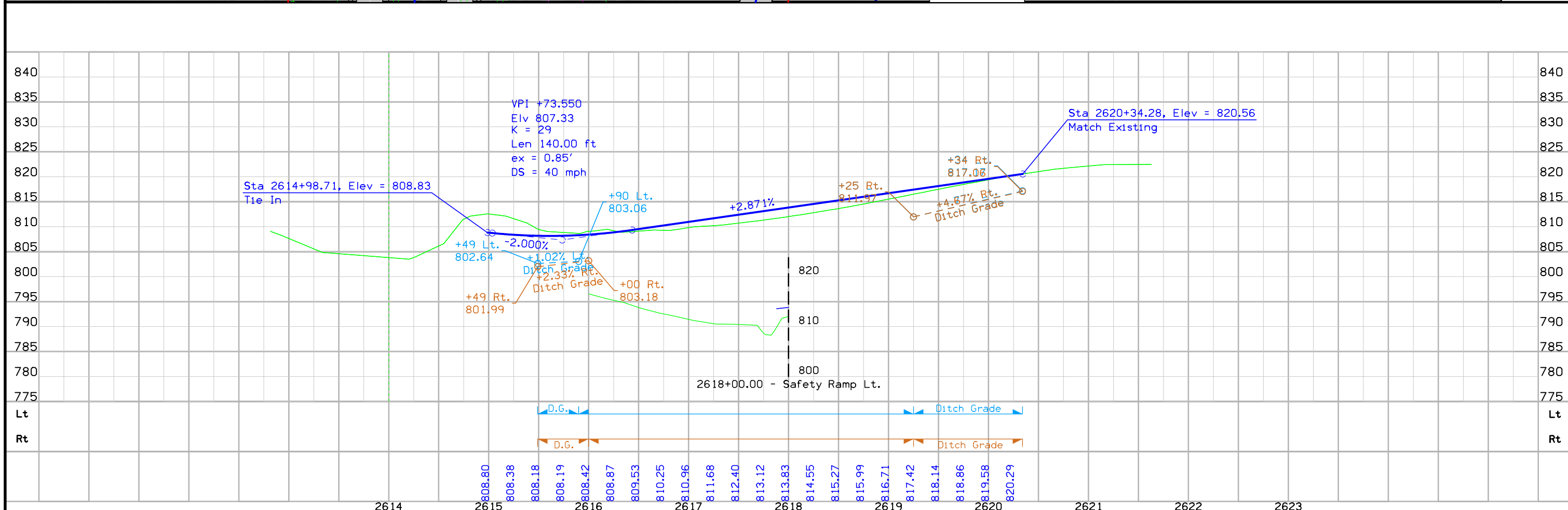
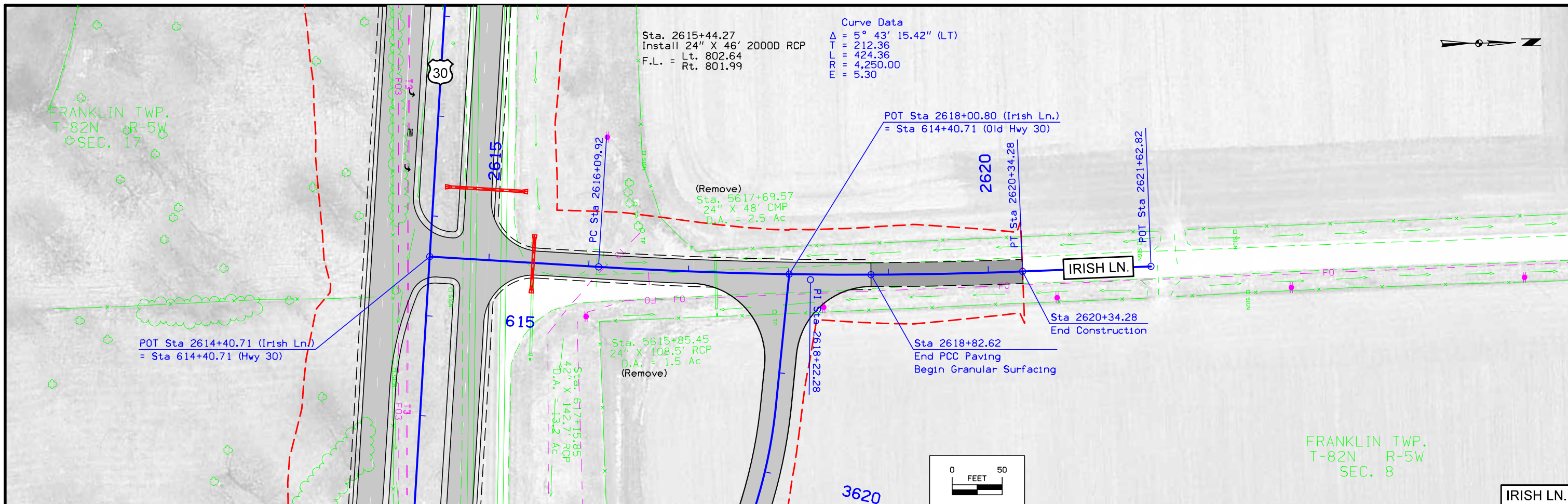
FRANKLIN TWP.  
T-82N R-5W  
SEC. 17

FRANKLIN TWP.  
T-82N R-5W  
SEC. 8

WILCOX RD.







FRANKLIN TWP.  
T-82N R-5W  
SEC. 8

0292

Curve Data  
 $\Delta = 21^\circ 40' 51.99''$  (RT)  
 $T = 97.66$   
 $R = 192.99$   
 $E = 510.00$   
 $M = 9.27$

Curve Data  
 $\Delta = 23^\circ 58' 07.78''$  (LT)  
 $T = 163.45$   
 $R = 322.12$   
 $E = 770.00$   
 $M = 17.16$

POT Sta 3618+00.80 (30W Connector)  
 = Sta 2618+00.80 (Irish Ln.)

PC Sta 3619+32.80

3620

PI Sta 3620+30.46

PT Sta 3621+25.79

PC Sta 3622+50.79

3625

PI Sta 3623+52.93

30W CONNECTOR

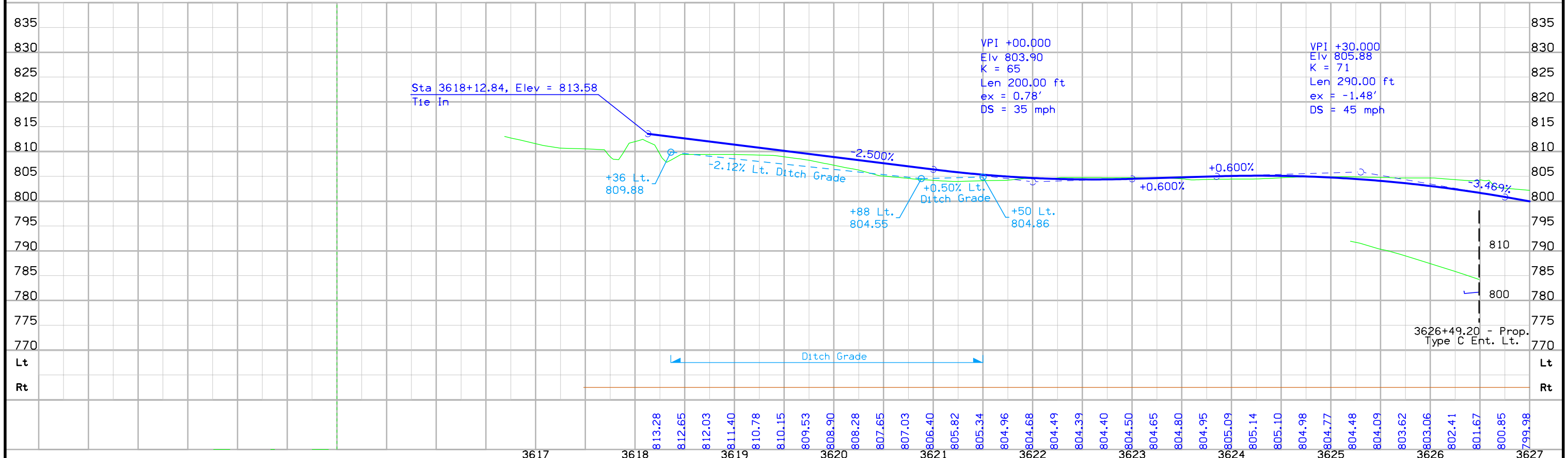
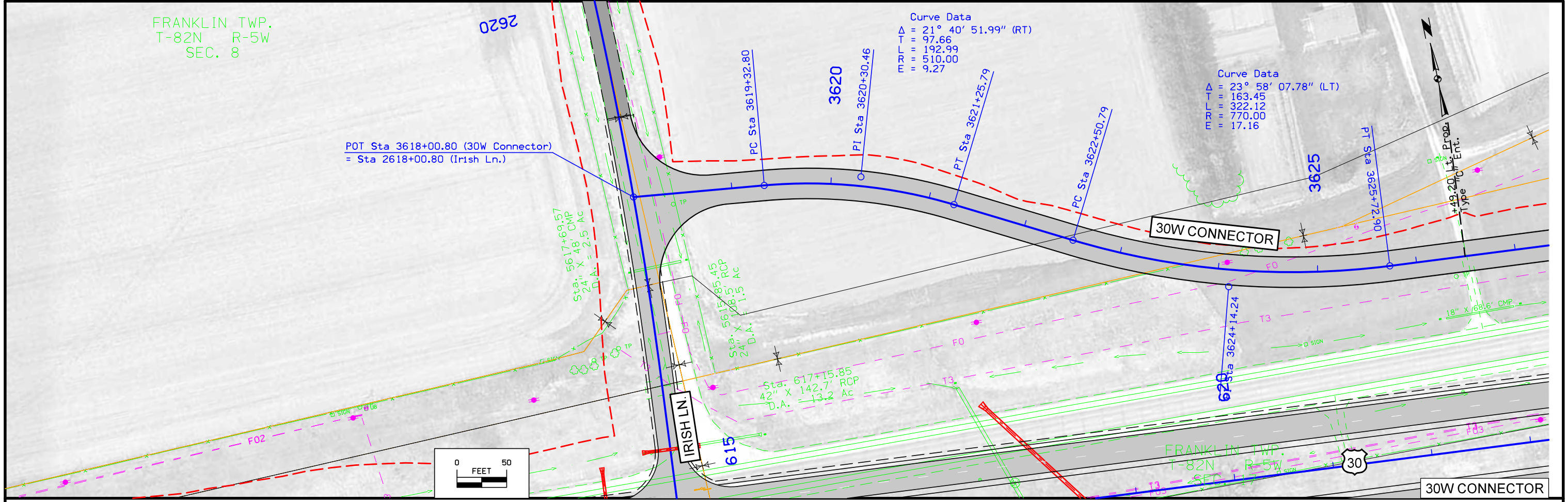
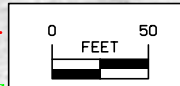
+49.20 Lt. Prop. Type C Ent.

Sta. 5617+69.57  
 24" X 48' CMP  
 D.A. = 2.5 Ac

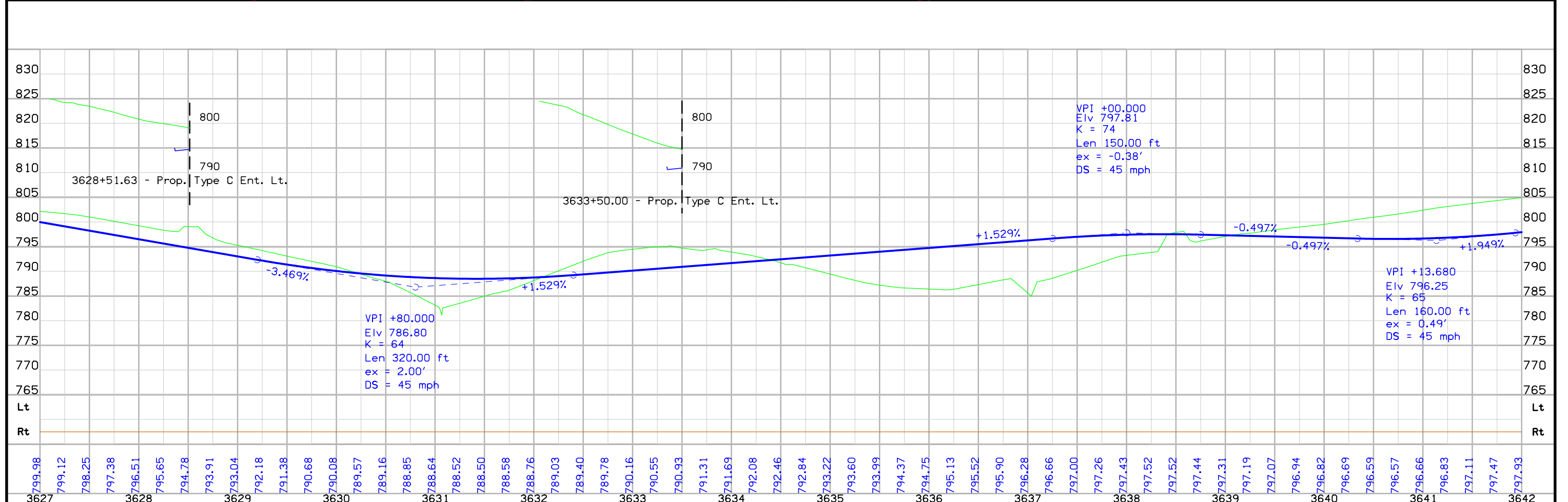
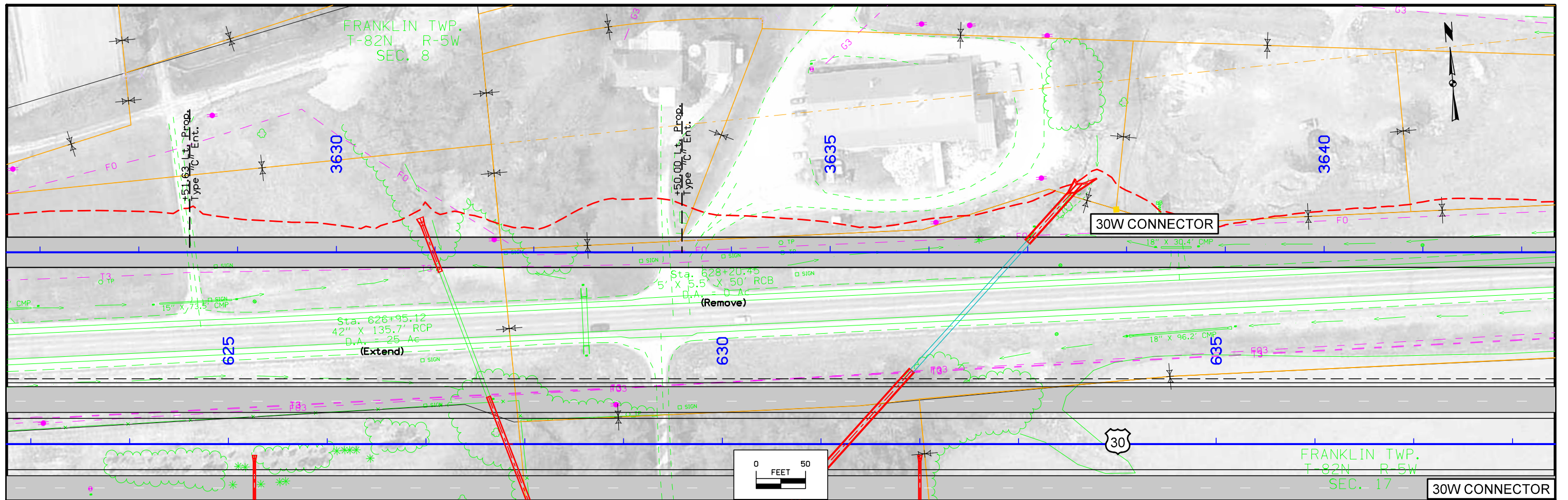
Sta. 5615+85.45  
 24" X 108.5' RCP  
 D.A. = 1.5 Ac

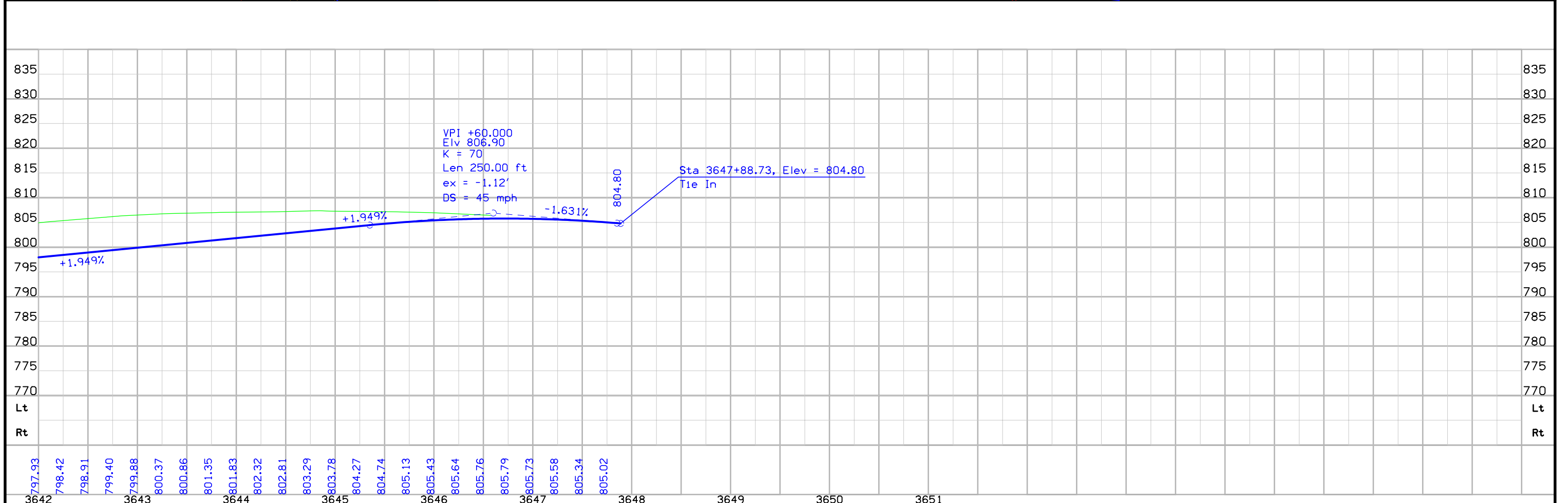
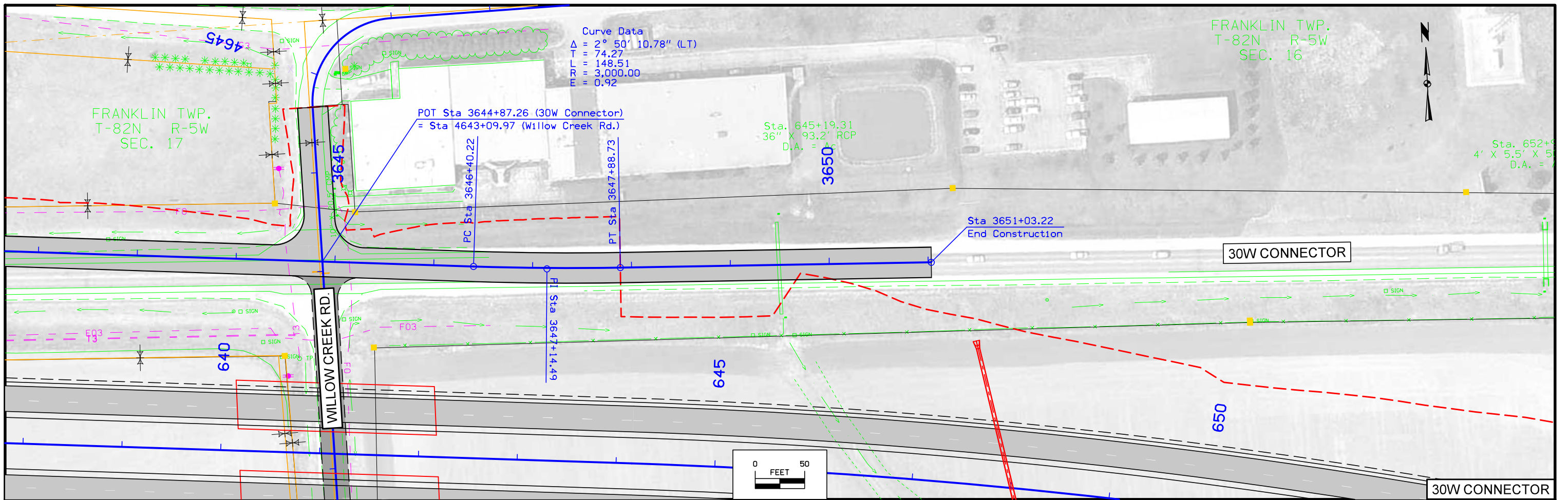
Sta. 617+15.85  
 42" X 142.7' RCP  
 D.A. = 13.2 Ac

30W CONNECTOR

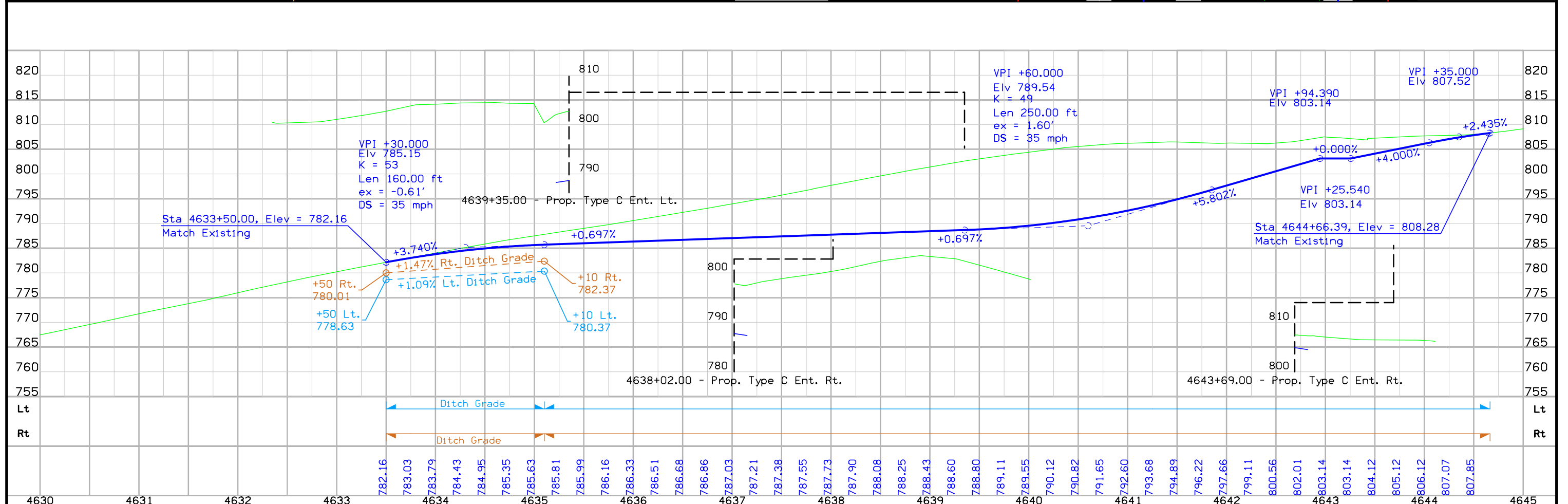
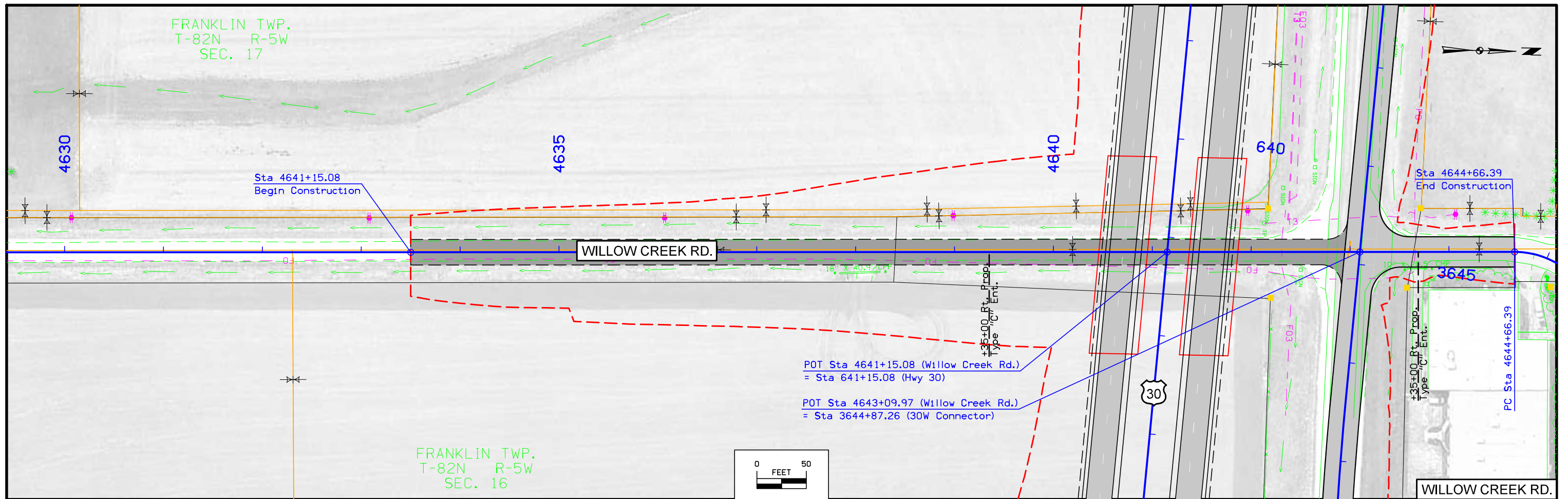


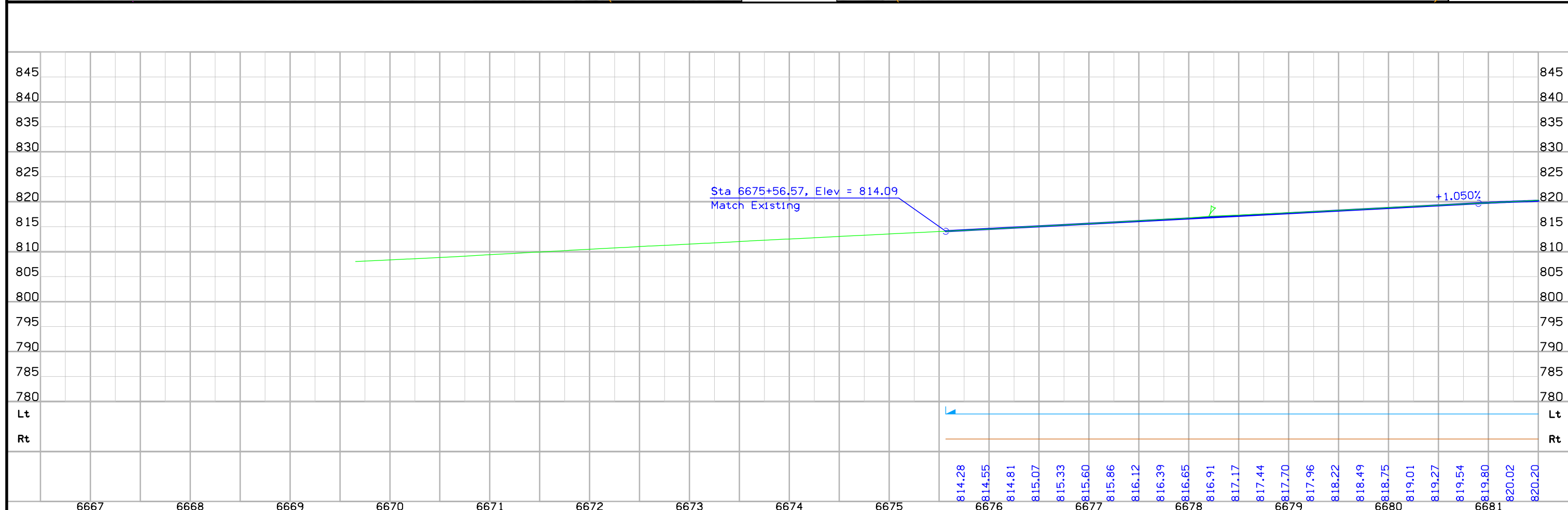
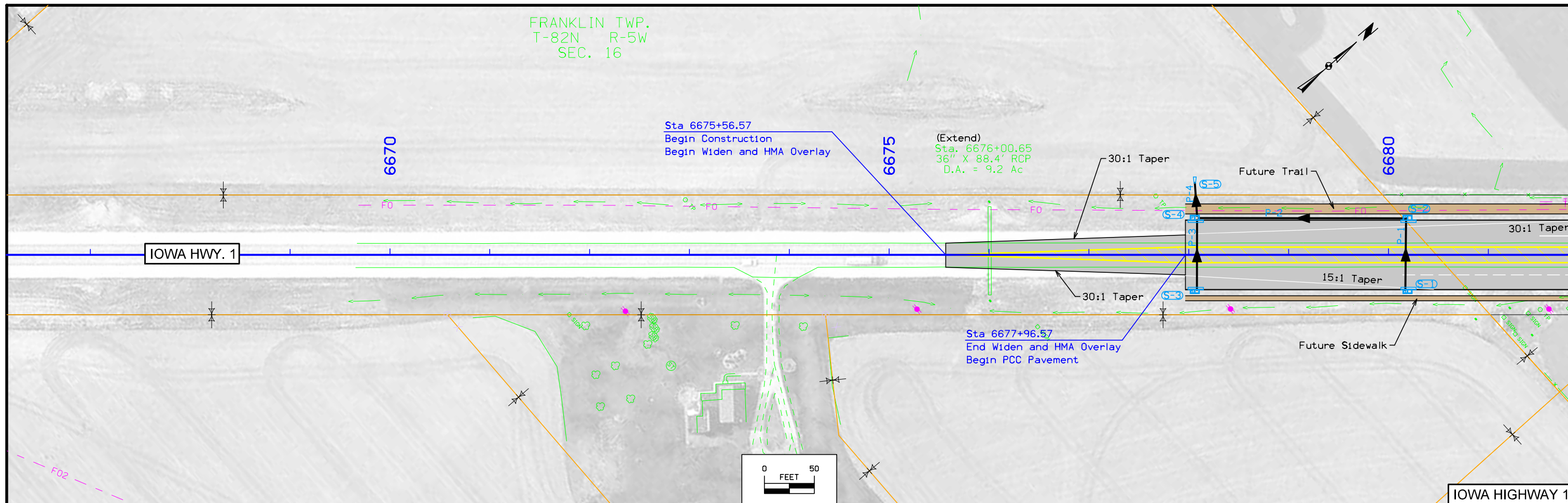




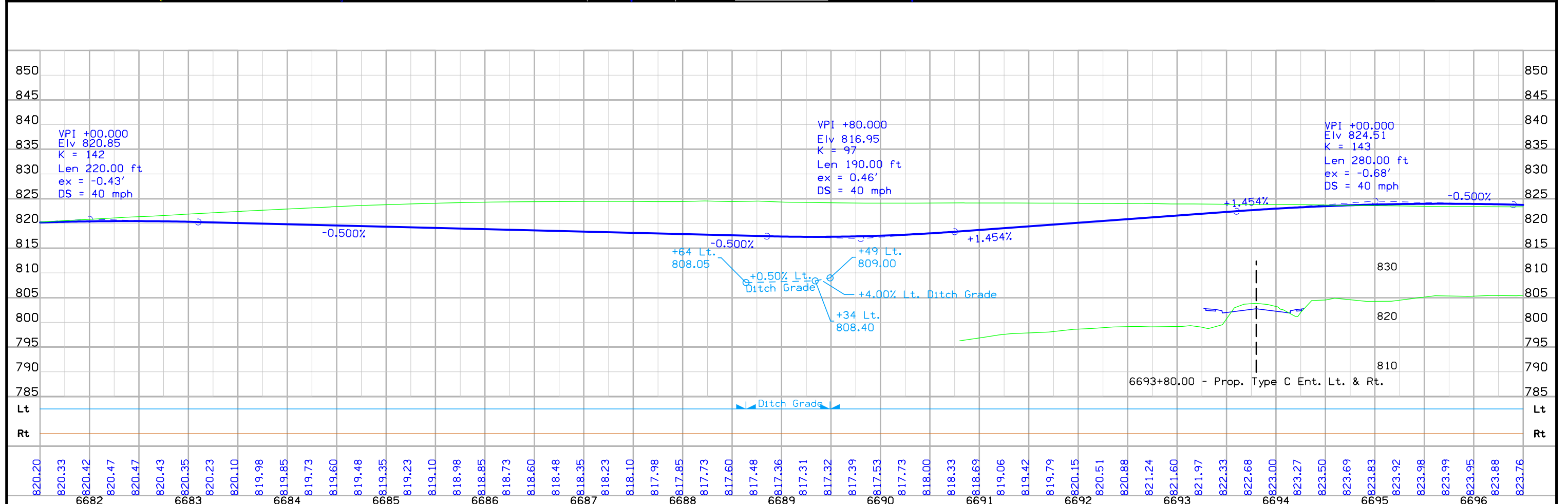
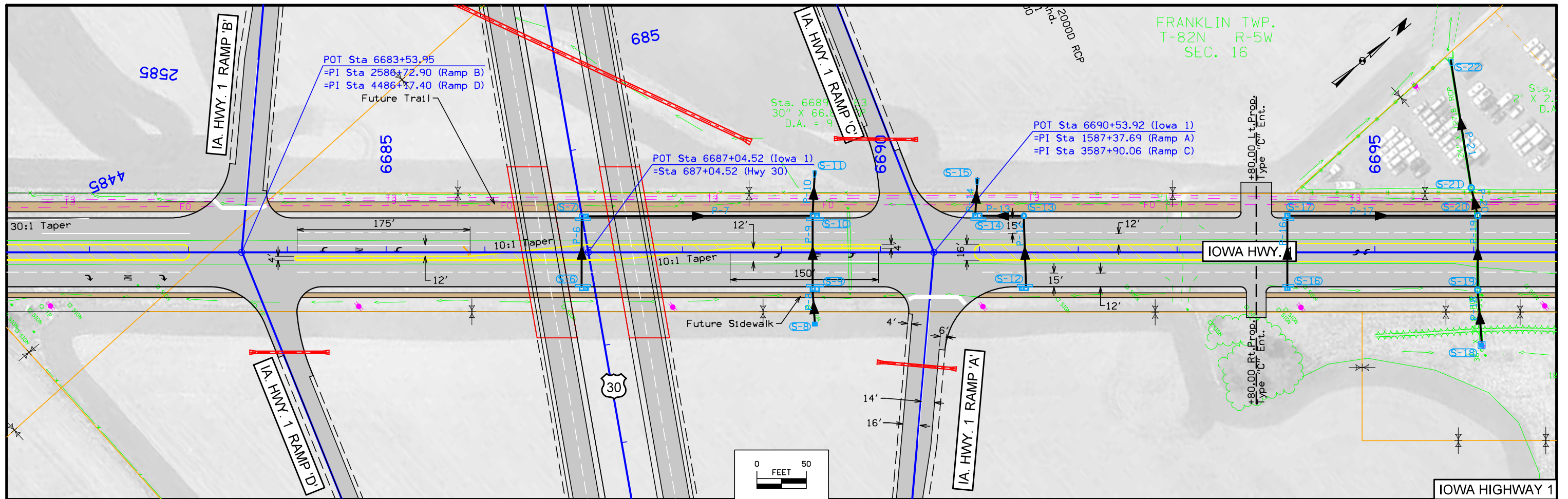


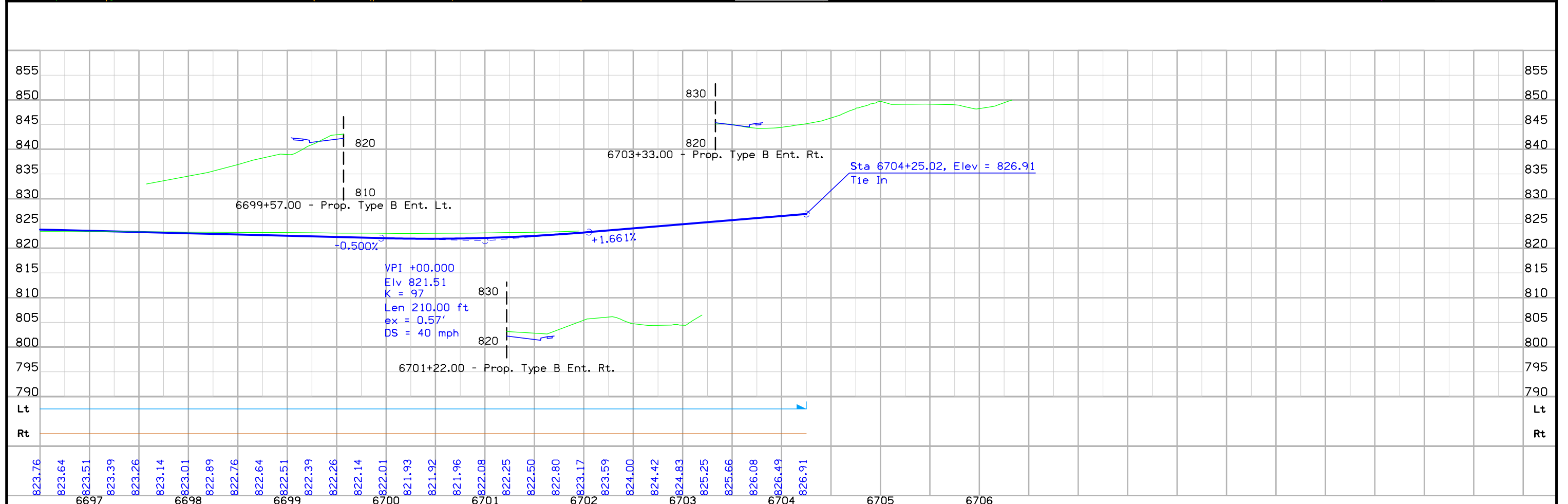
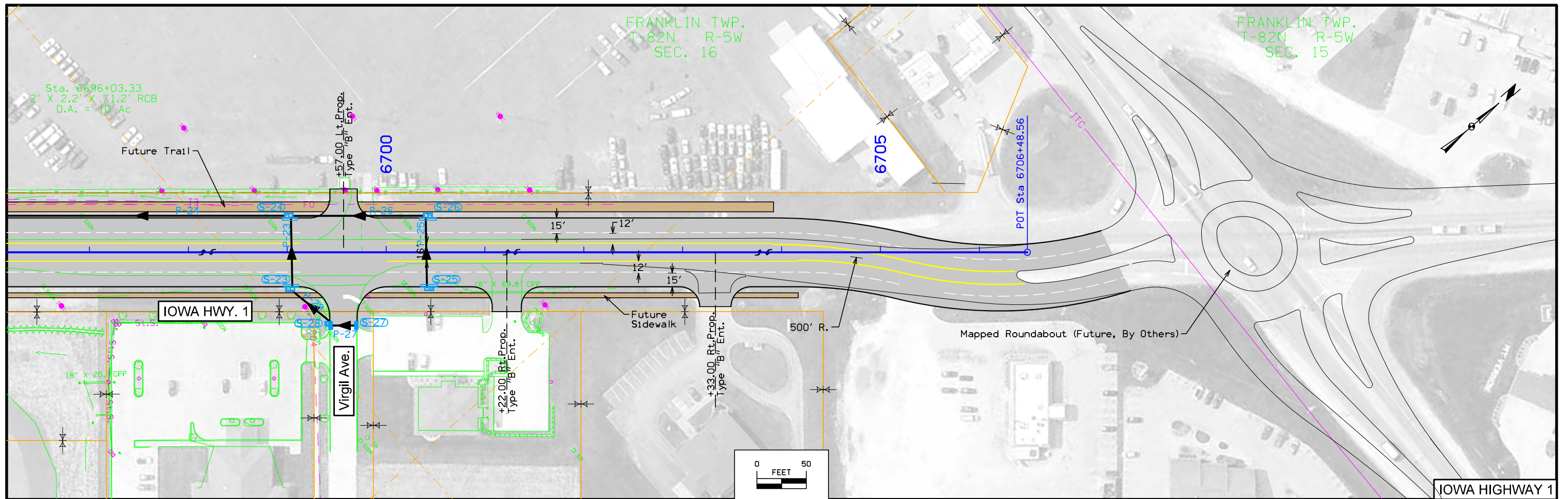














FRANKLIN TWP.  
T-82N R-5W  
SEC. 23

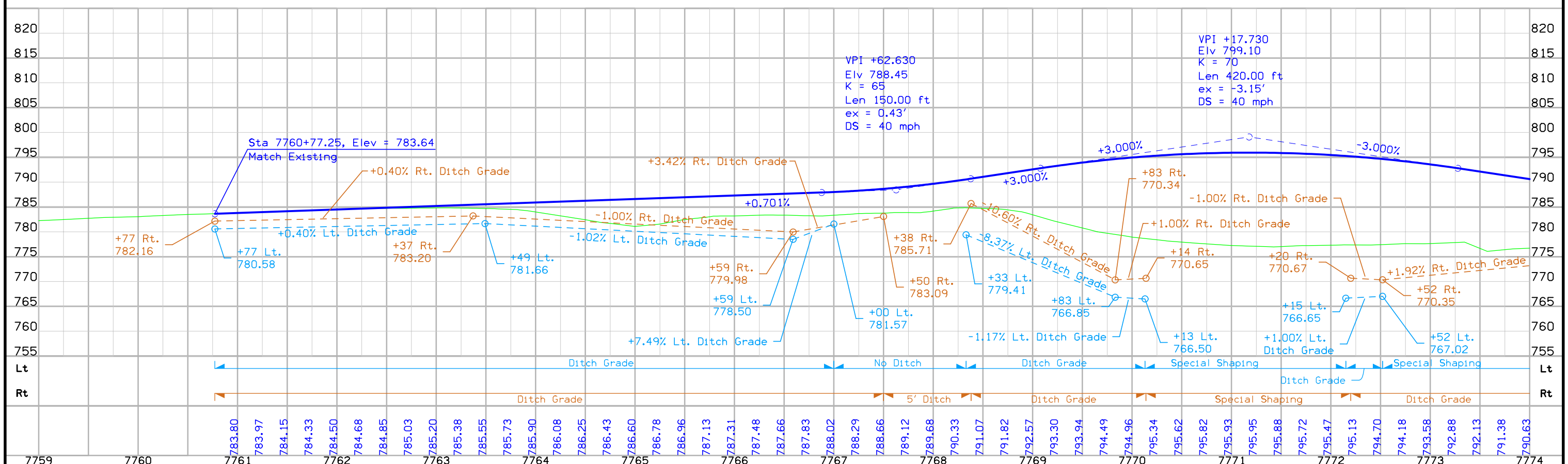
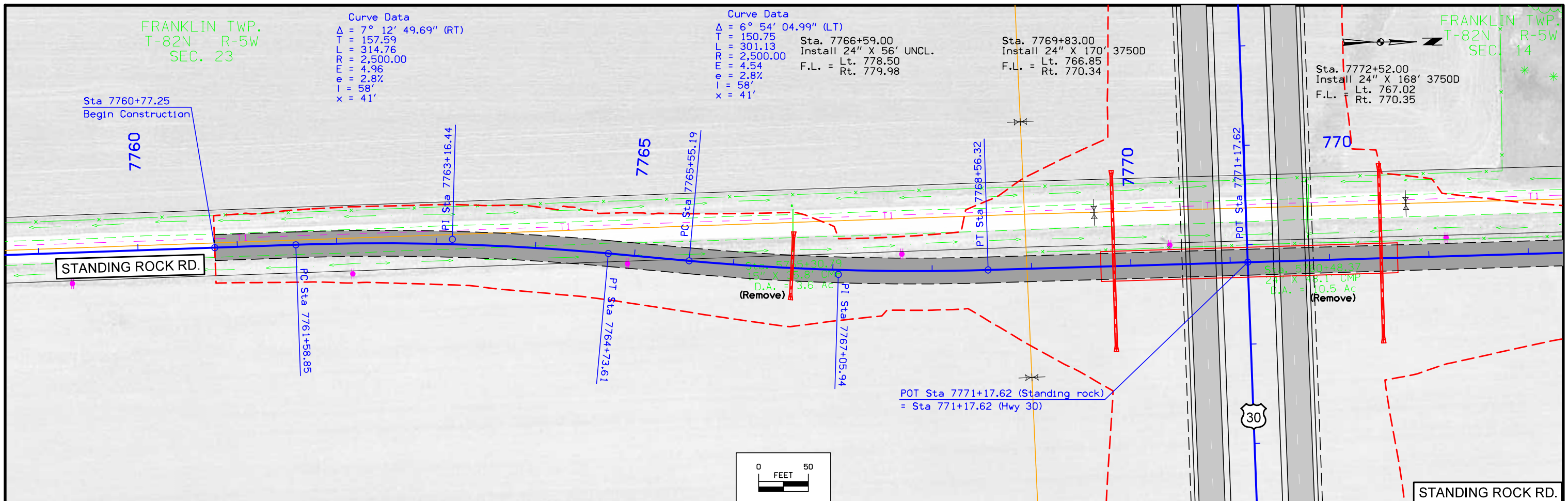
Curve Data  
 $\Delta = 7^\circ 12' 49.69''$  (RT)  
 $T = 157.59$   
 $L = 314.76$   
 $R = 2,500.00$   
 $E = 4.96$   
 $e = 2.8\%$   
 $I = 58'$   
 $x = 41'$

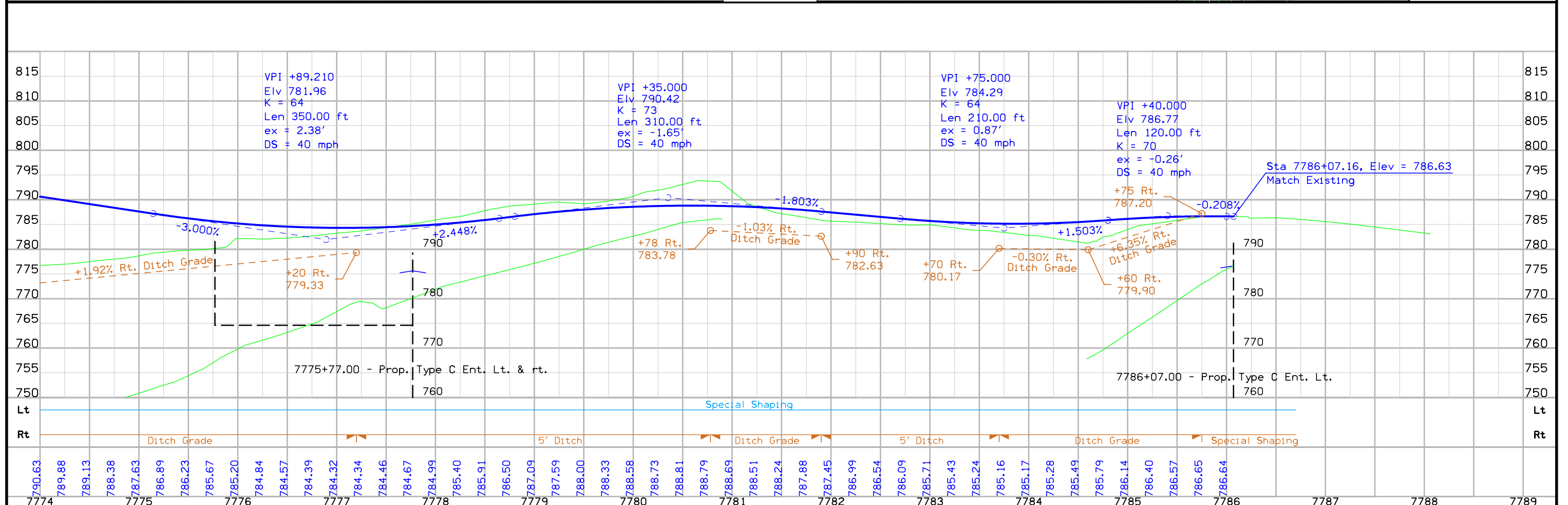
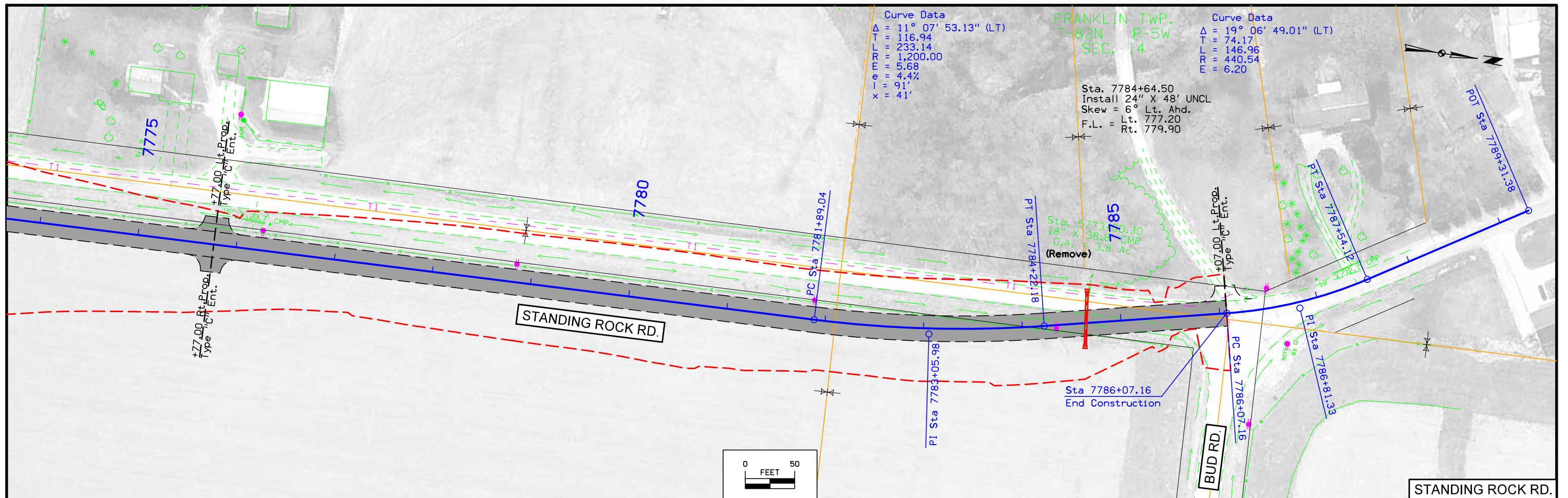
Curve Data  
 $\Delta = 6^\circ 54' 04.99''$  (LT)  
 $T = 150.75$   
 $L = 301.13$   
 $R = 2,500.00$   
 $E = 4.54$   
 $e = 2.8\%$   
 $I = 58'$   
 $x = 41'$

Sta. 7769+83.00  
 Install 24" X 170' 37500  
 F.L. = Lt. 766.85  
 Rt. 770.34

Sta. 7772+52.00  
 Install 24" X 168' 37500  
 F.L. = Lt. 767.02  
 Rt. 770.35

FRANKLIN TWP.  
T-82N R-5W  
SEC. 14

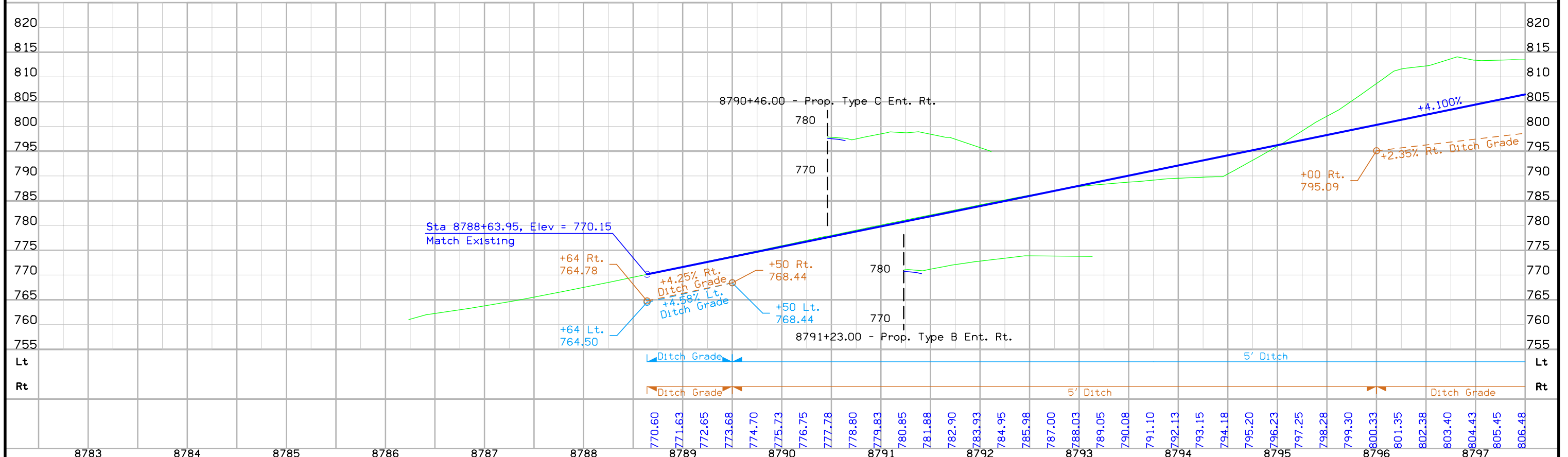
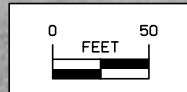
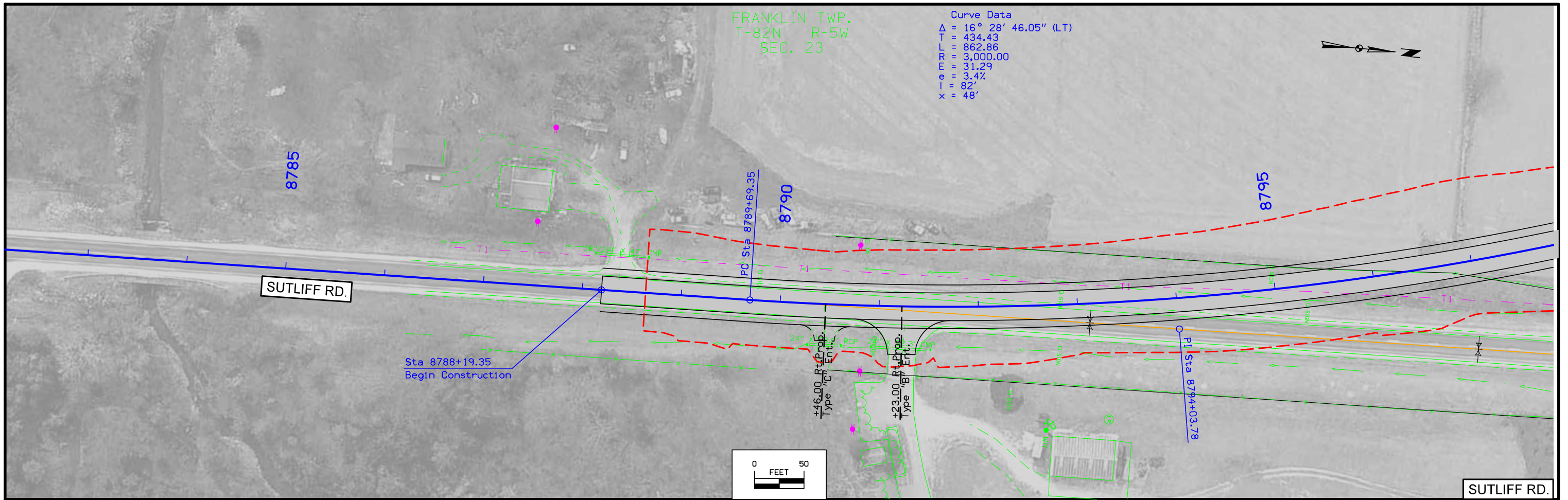
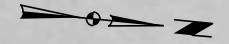


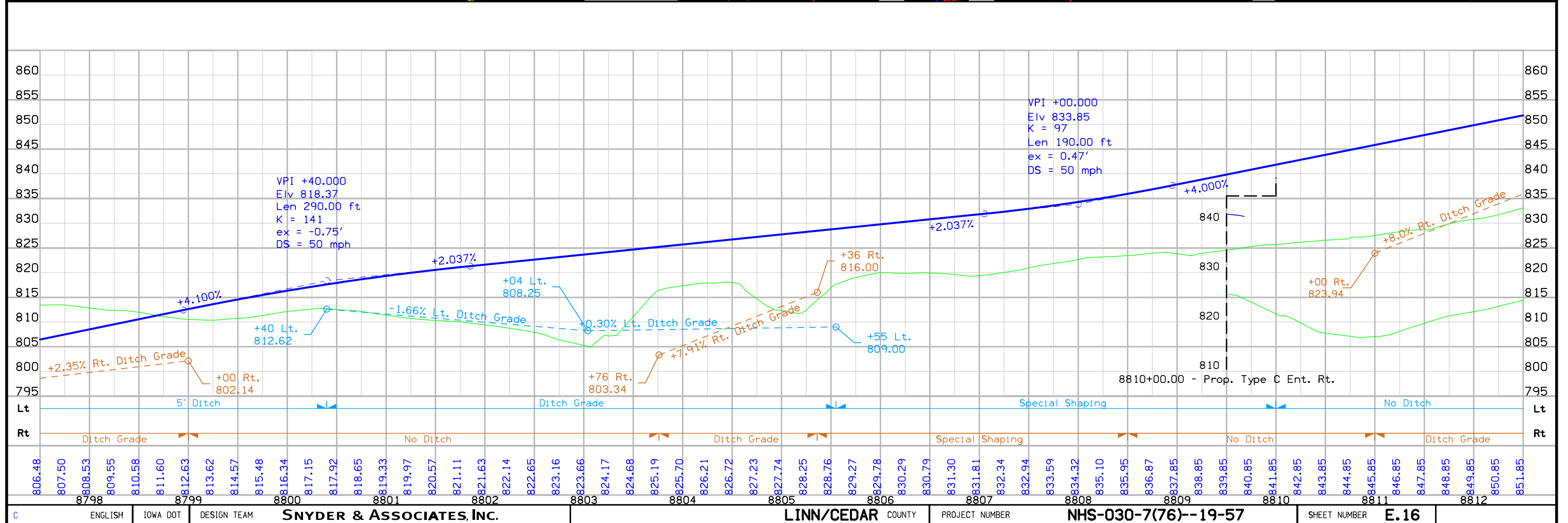
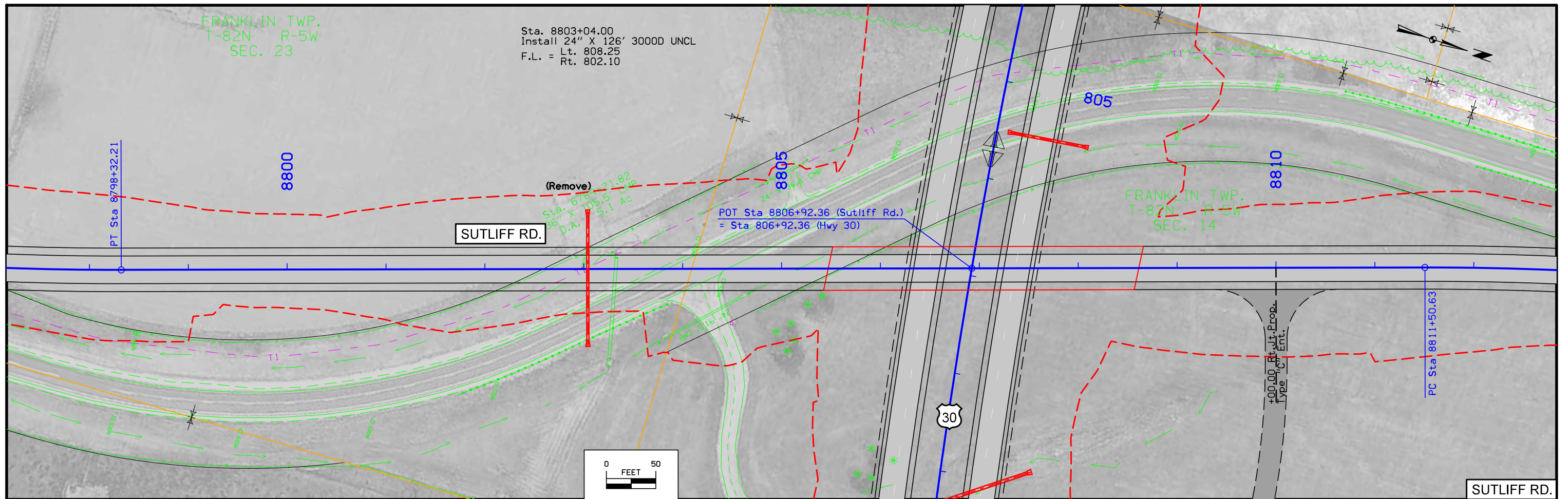




FRANKLIN TWP.  
T-82N R-5W  
SEC. 23

Curve Data  
 $\Delta = 16^\circ 28' 46.05''$  (LT)  
 $T = 434.43$   
 $L = 862.86$   
 $R = 3,000.00$   
 $E = 31.29$   
 $e = 3.4\%$   
 $I = 82'$   
 $x = 48'$

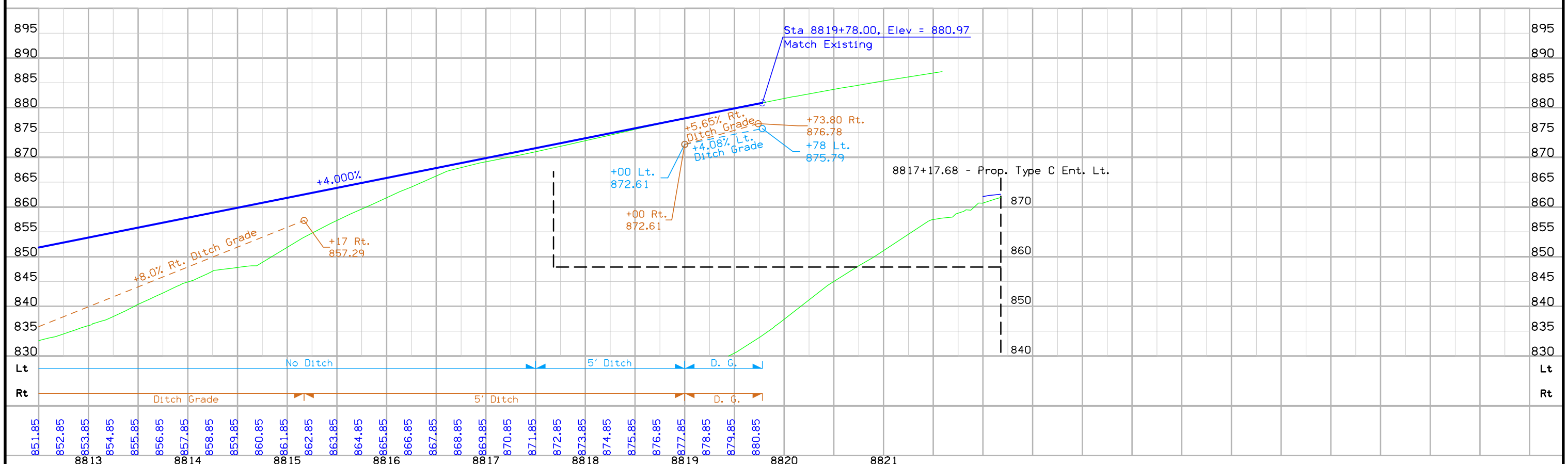
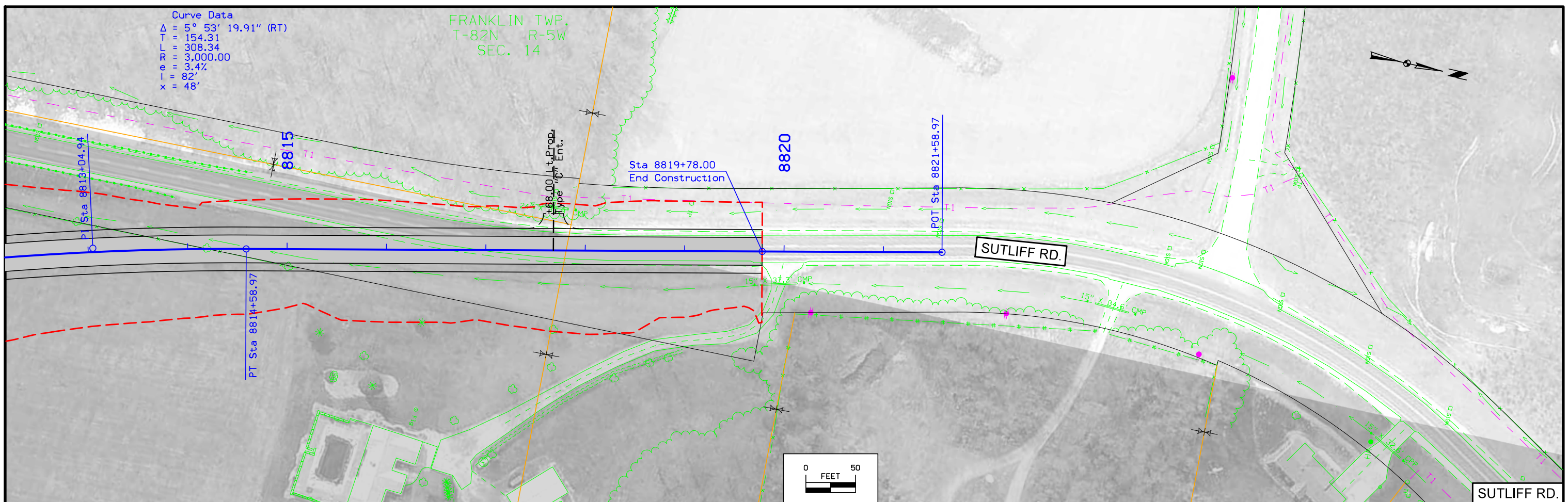




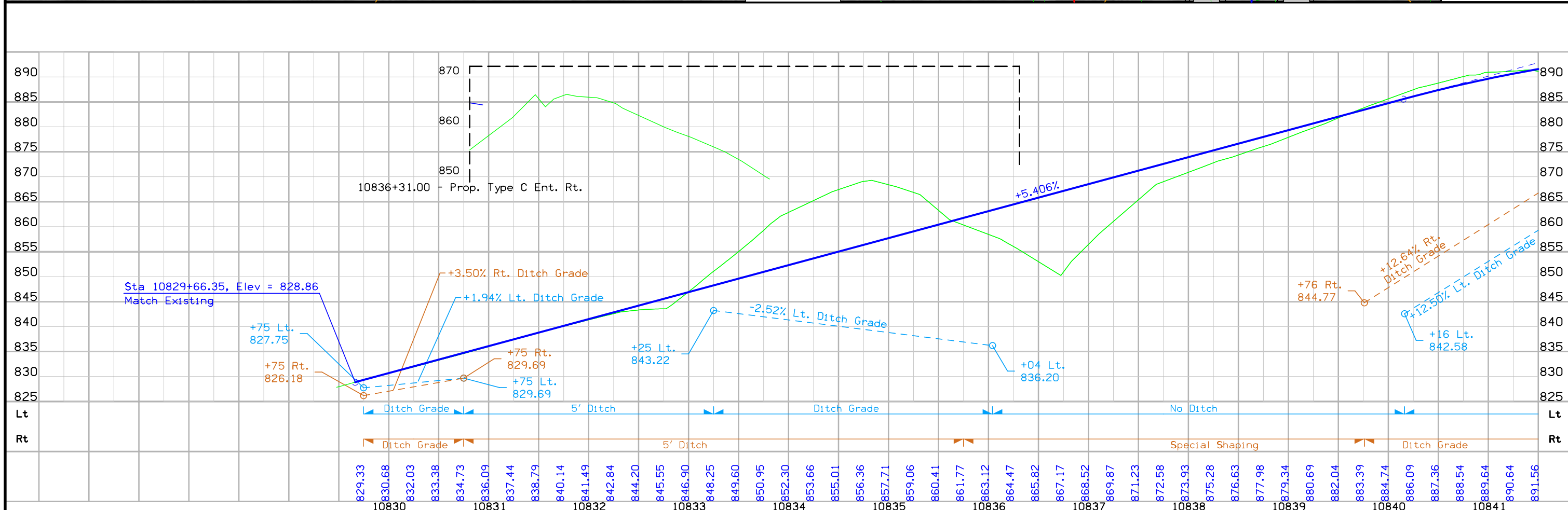
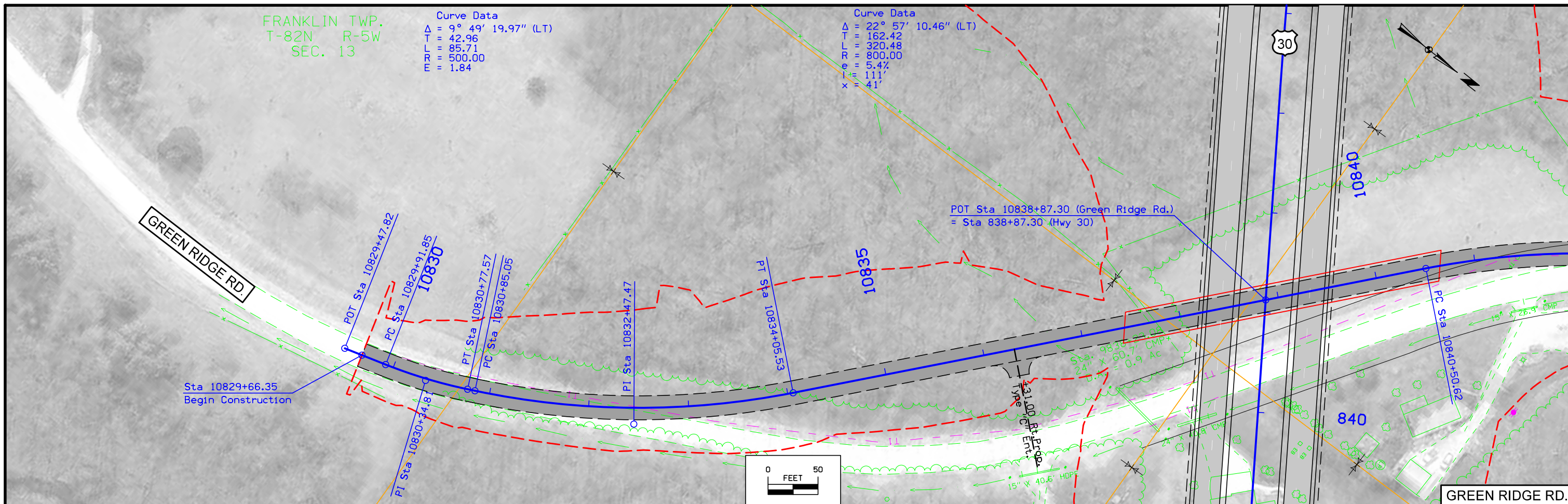


Curve Data  
 $\Delta = 5^\circ 53' 19.91''$  (RT)  
 $T = 154.31$   
 $L = 308.34$   
 $R = 3,000.00$   
 $e = 3.4\%$   
 $l = 82'$   
 $x = 48'$

FRANKLIN TWP.  
 T-82N R-5W  
 SEC. 14



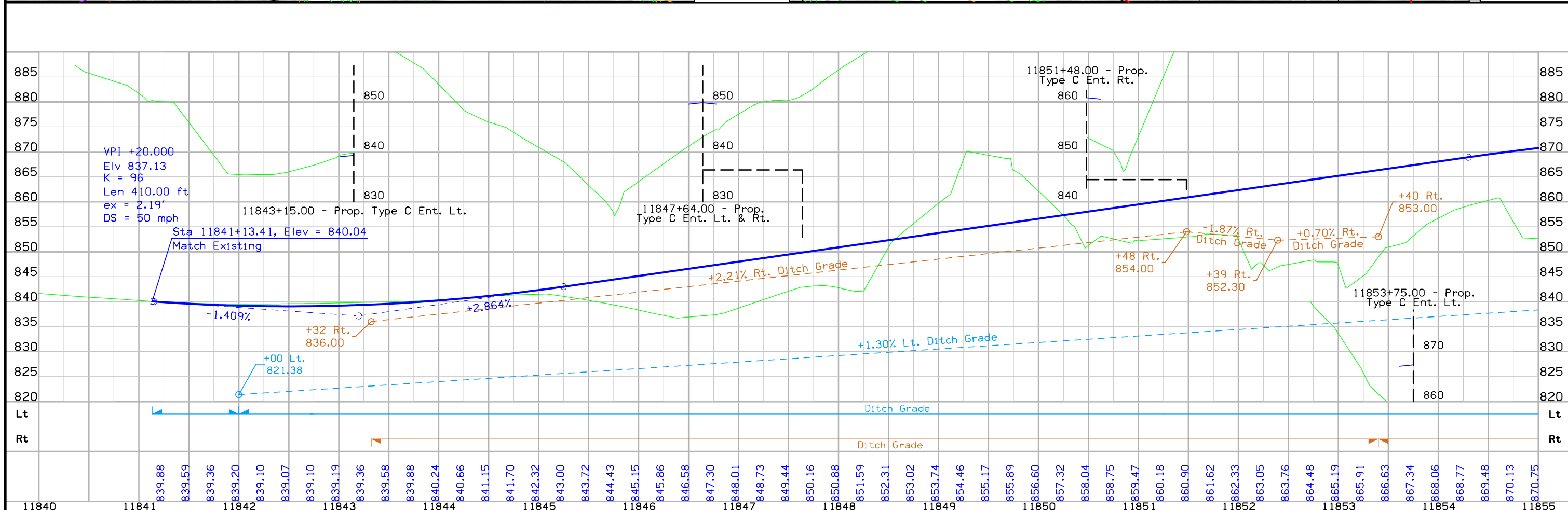
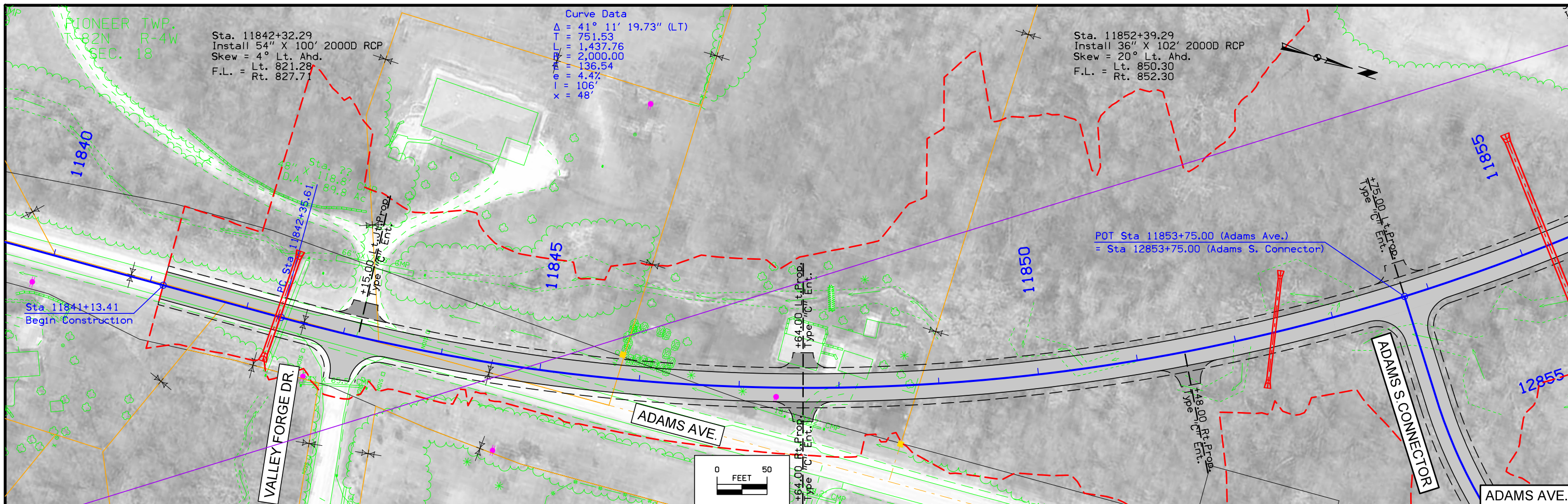




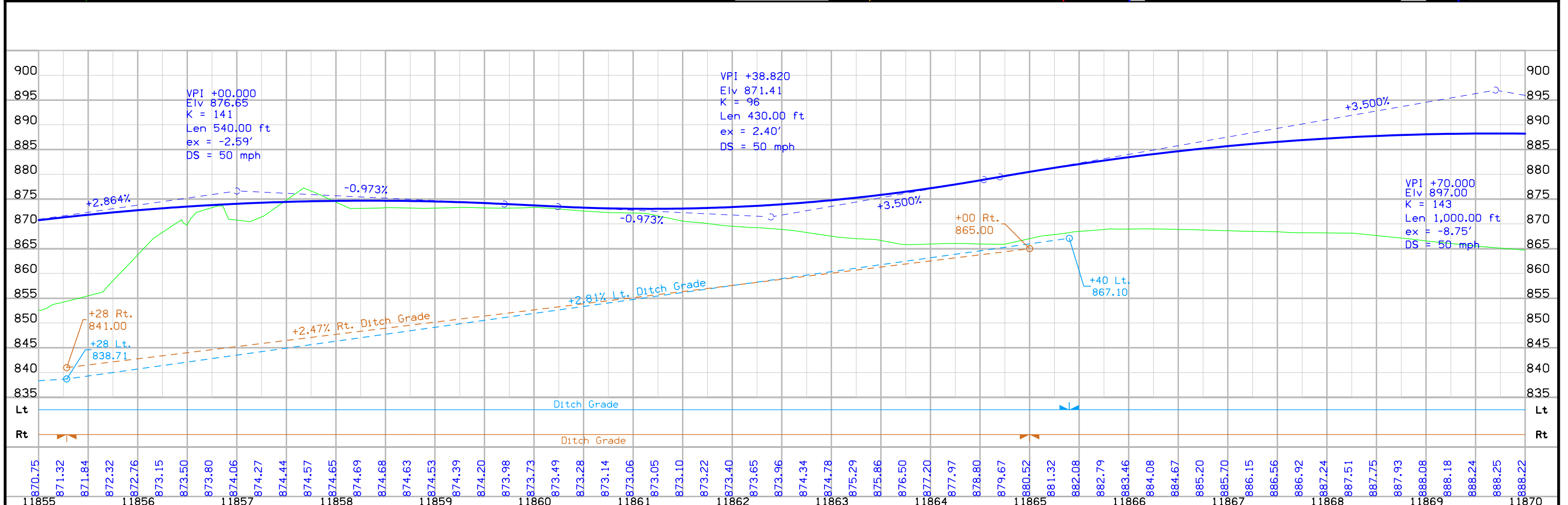
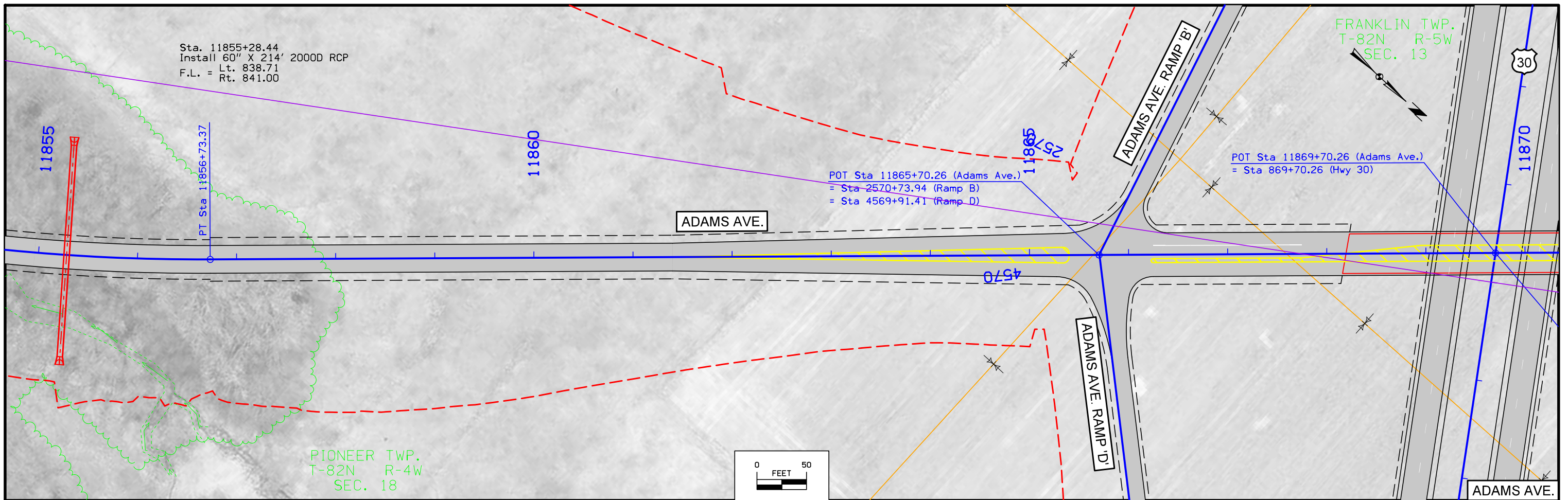


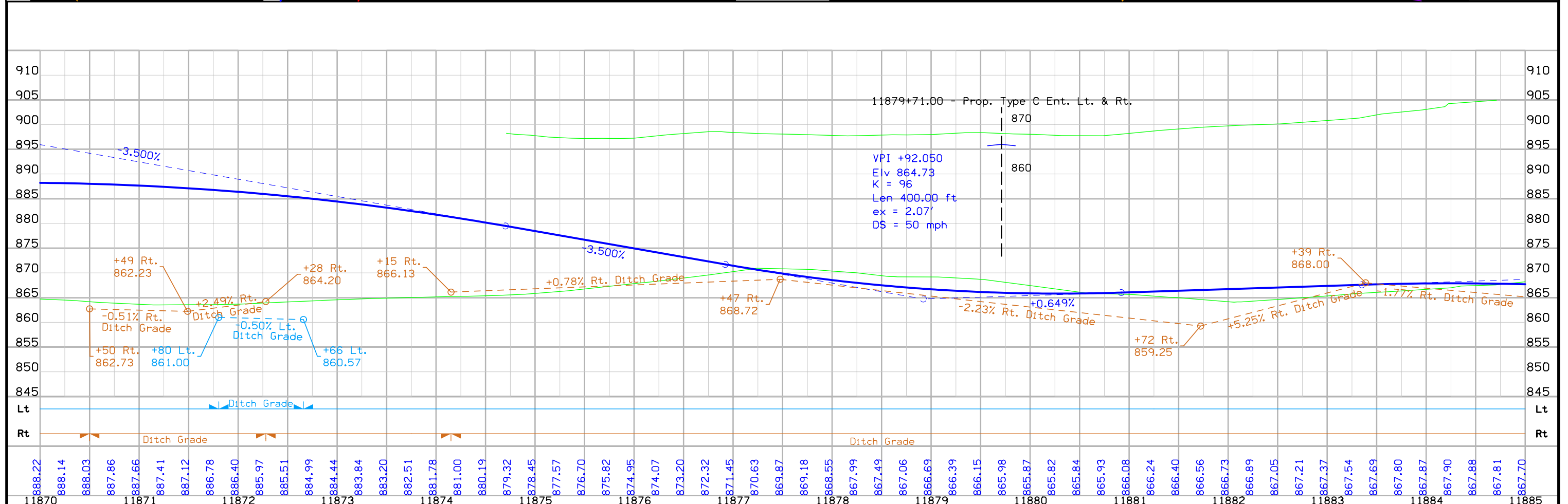
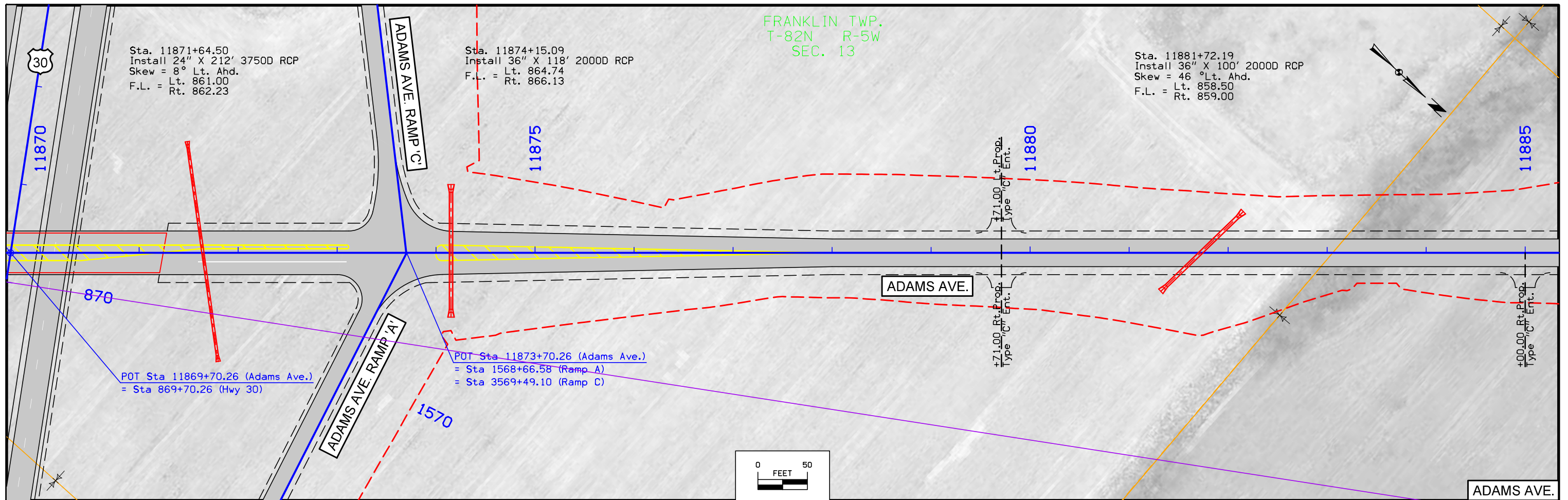












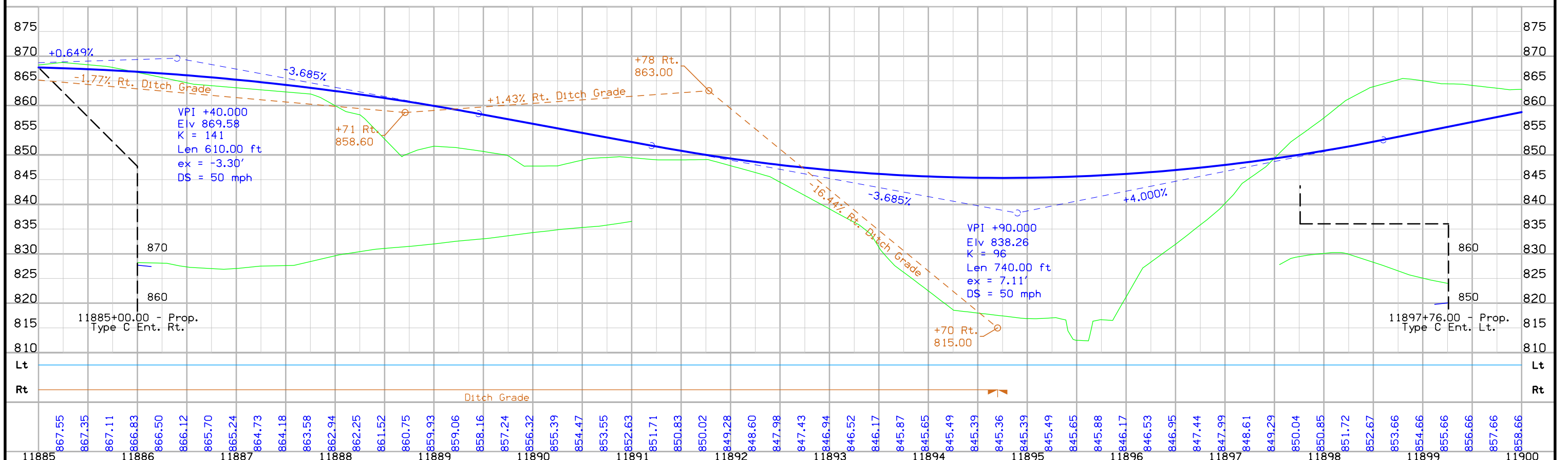
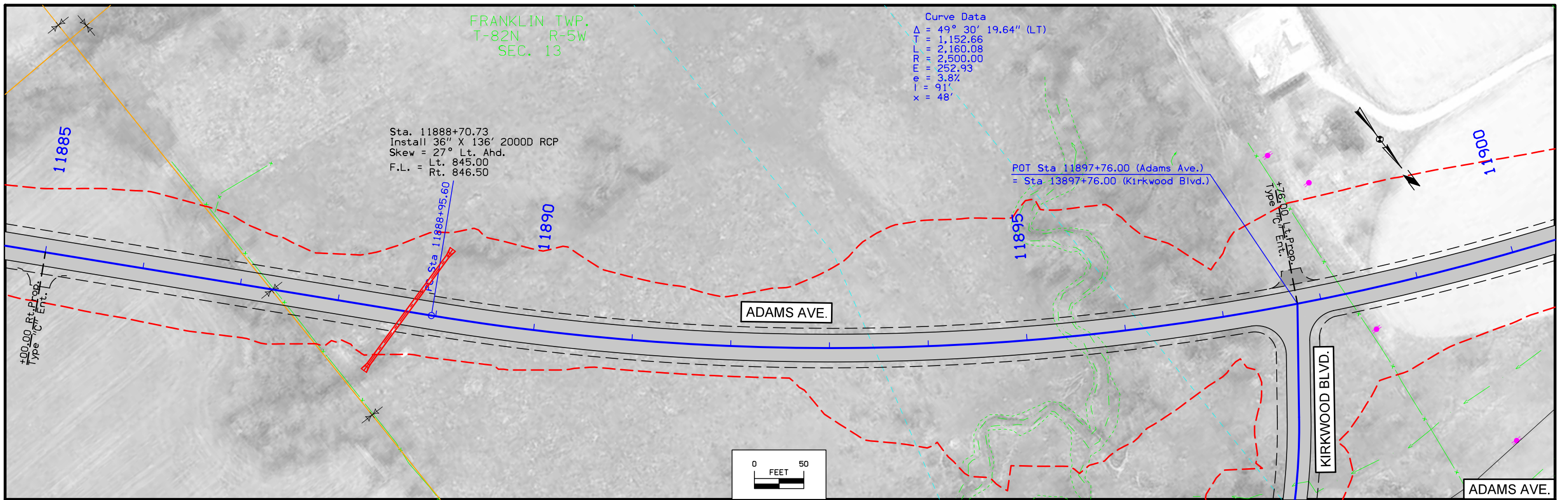


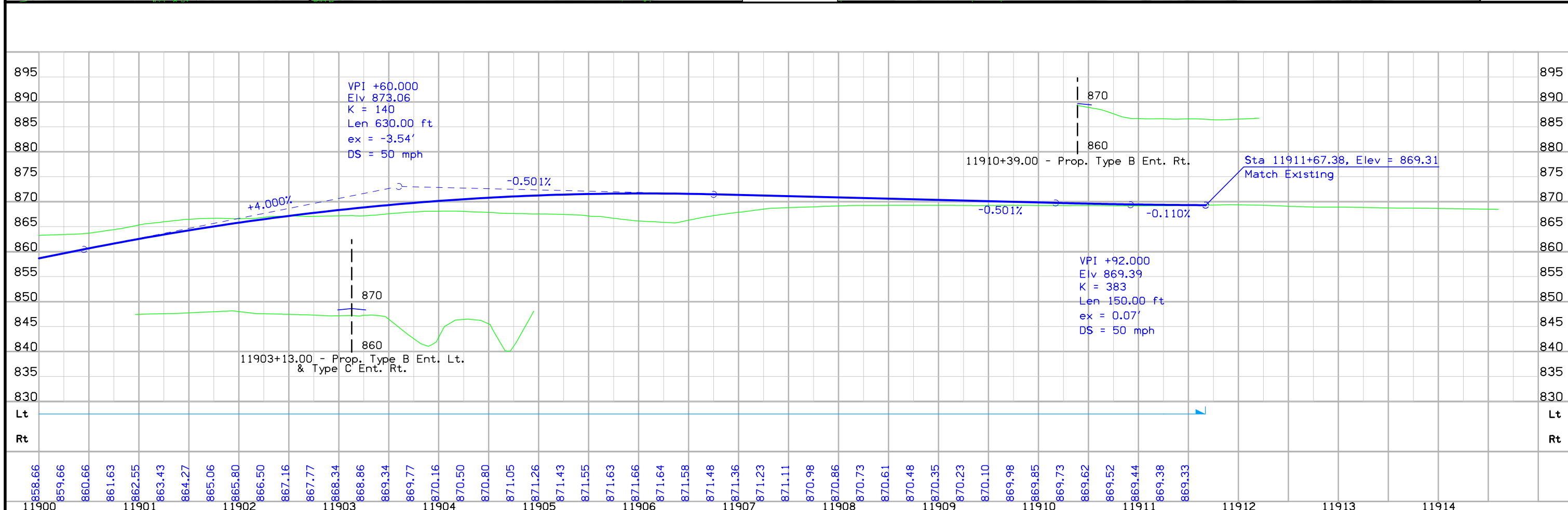
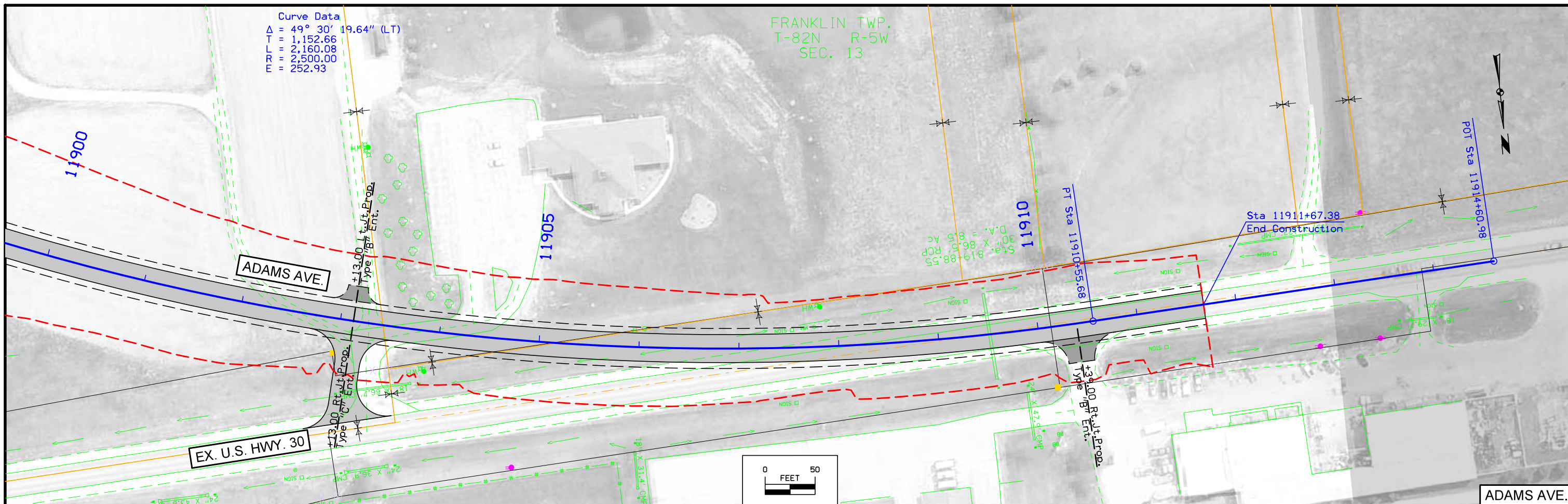
FRANKLIN TWP.  
T-82N R-5W  
SEC. 13

Curve Data  
 $\Delta = 49^\circ 30' 19.64"$  (LT)  
 $T = 1,152.66$   
 $L = 2,160.08$   
 $R = 2,500.00$   
 $E = 252.93$   
 $e = 3.8\%$   
 $I = 91'$   
 $x = 48'$

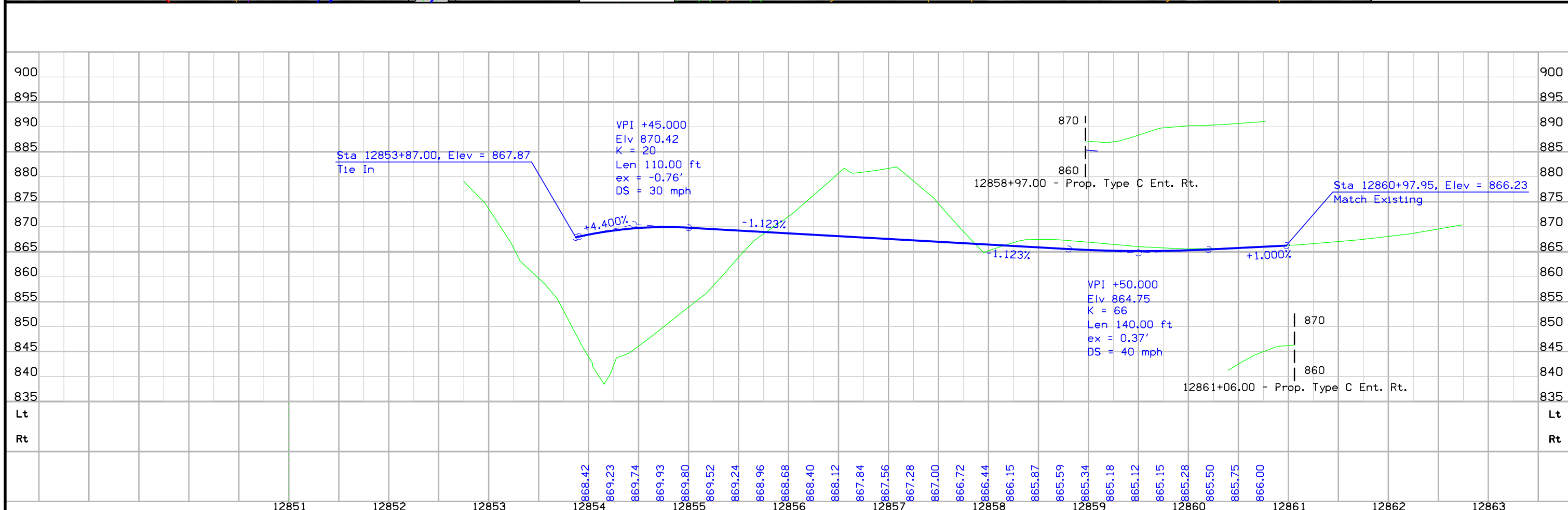
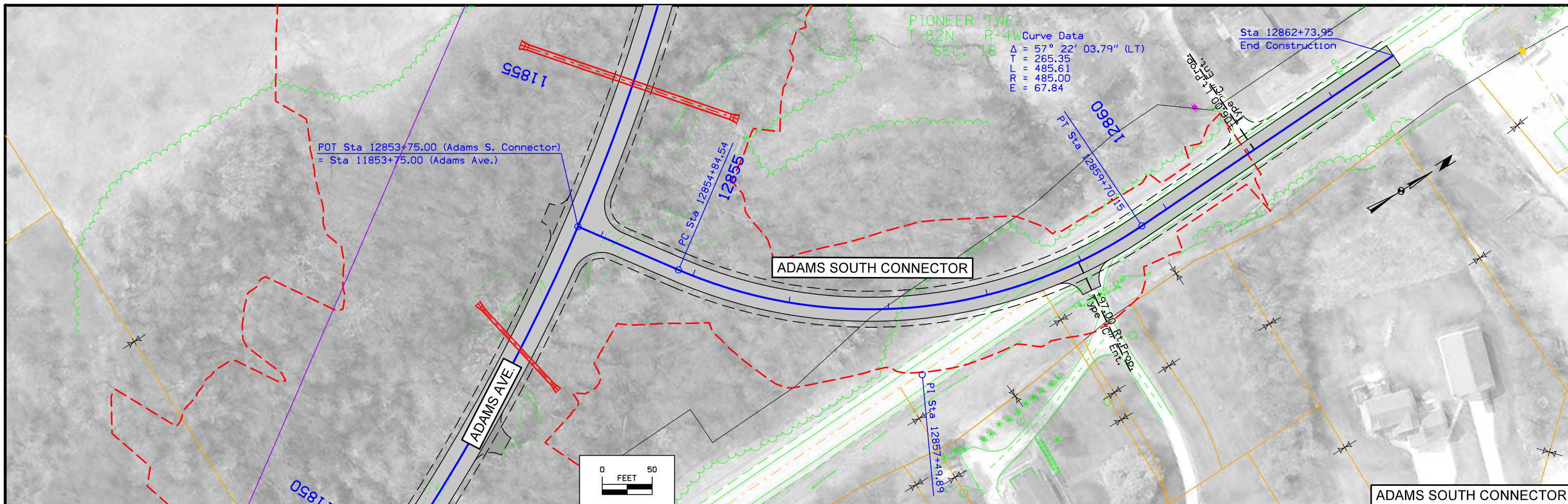
Sta. 11888+70.73  
 Install 36" X 136' 2000D RCP  
 Skew = 27° Lt. Ahd.  
 F.L. = Lt. 845.00  
       Rt. 846.50

POT Sta 11897+76.00 (Adams Ave.)  
 = Sta. 13897+76.00 (Kirkwood Blvd.)

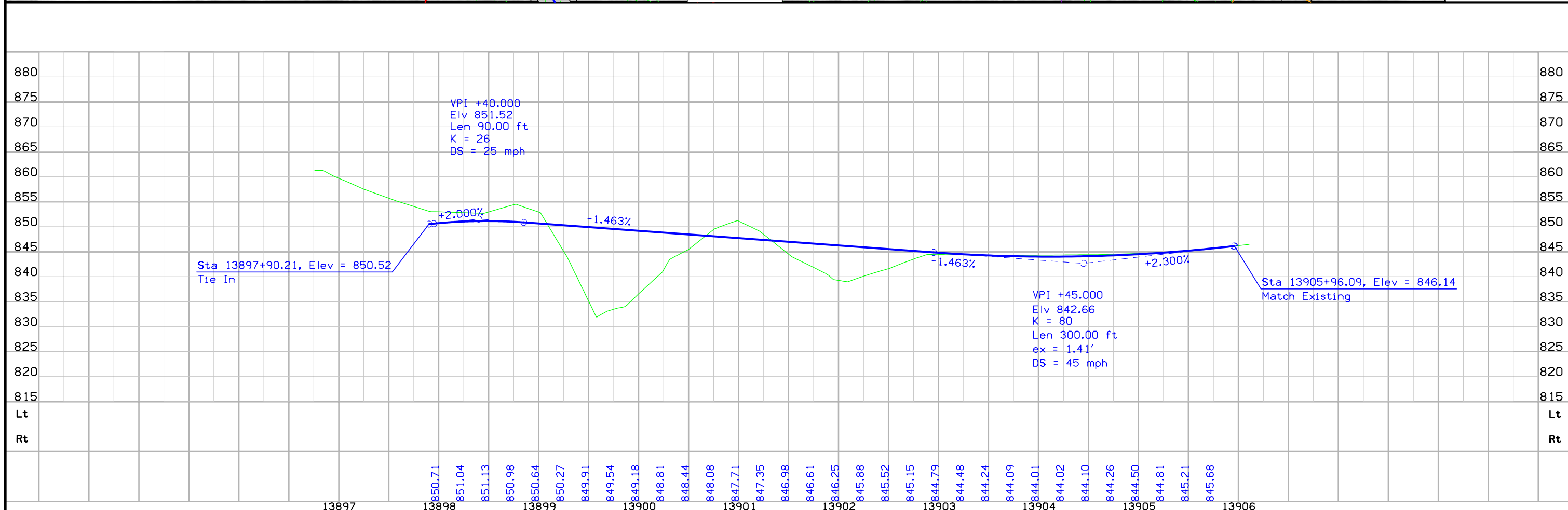
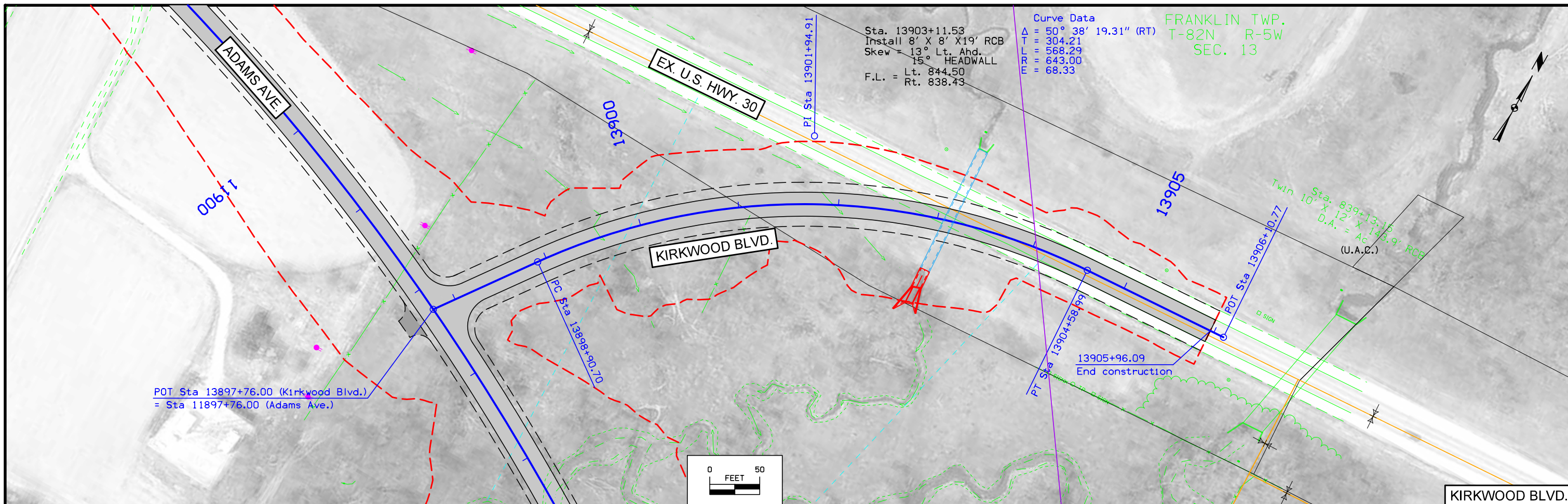




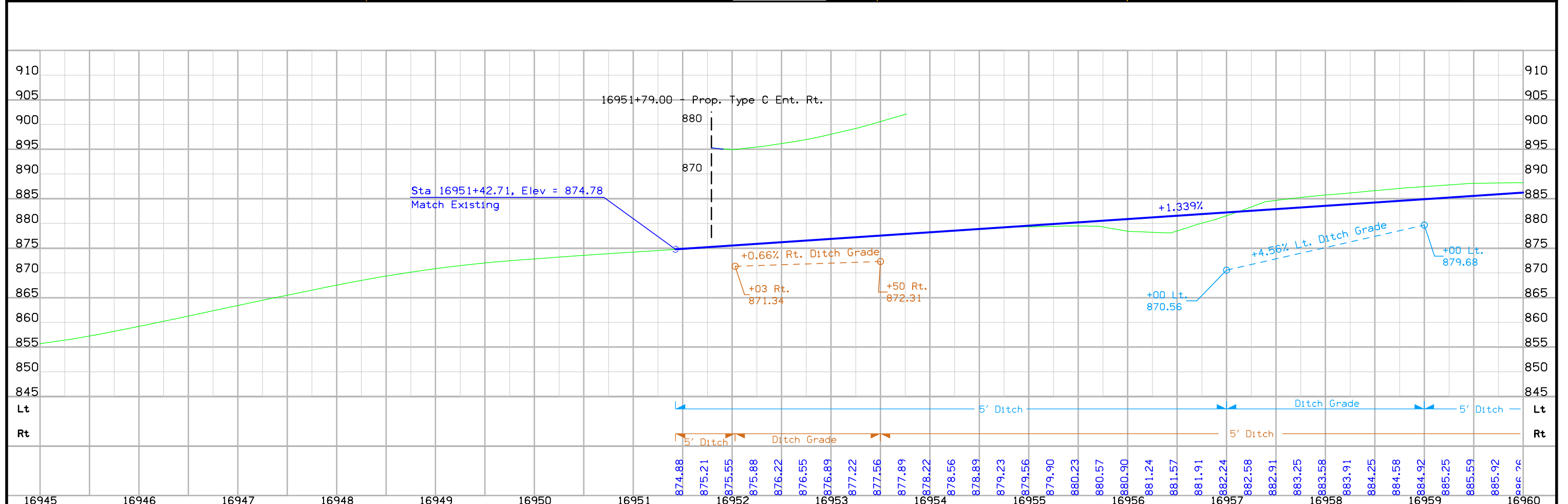
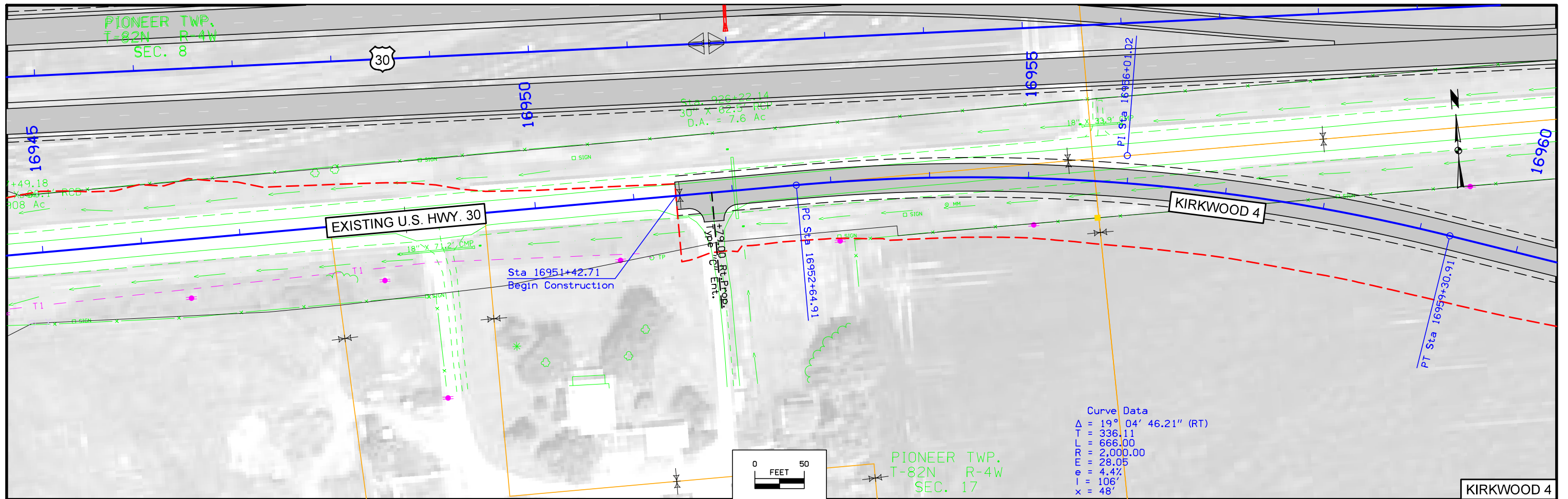


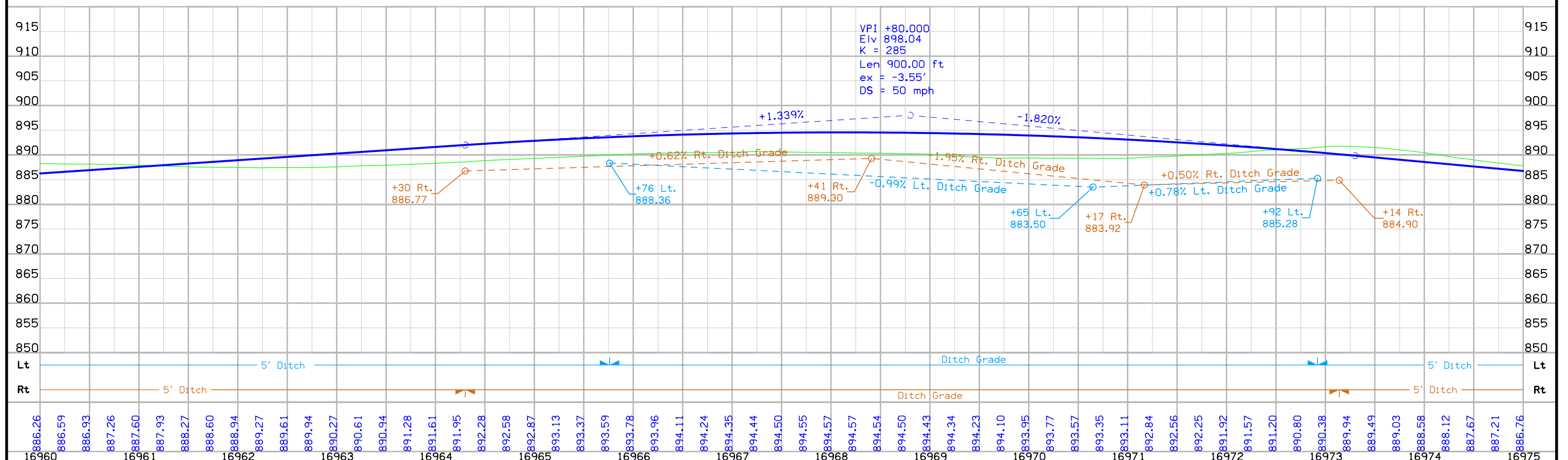
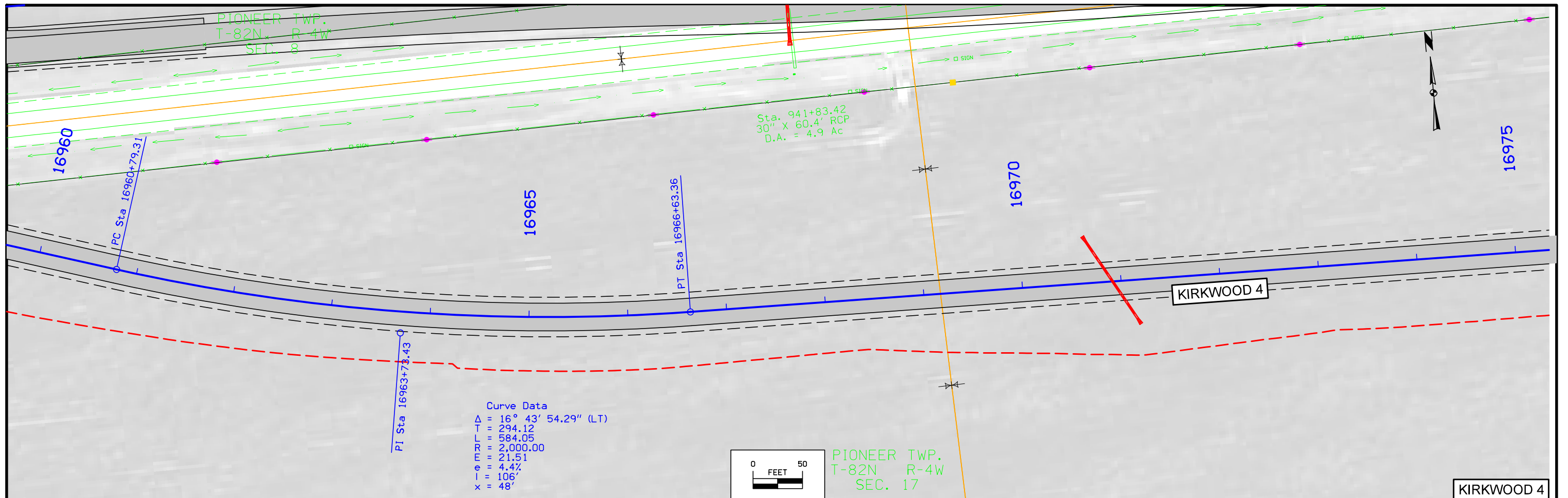




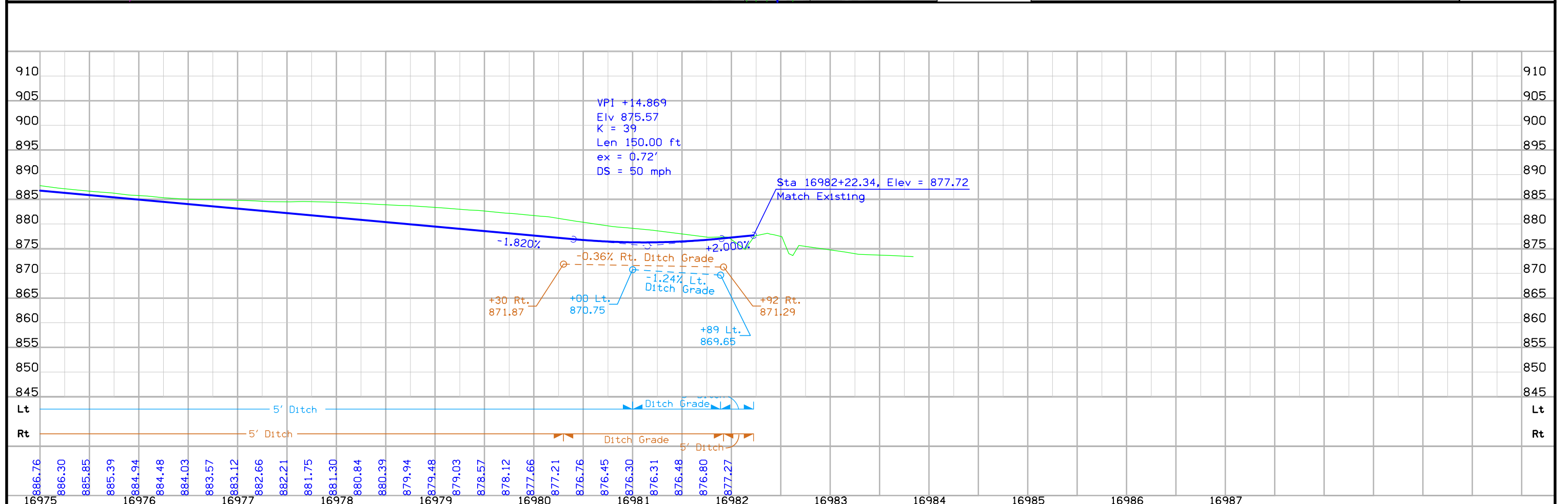
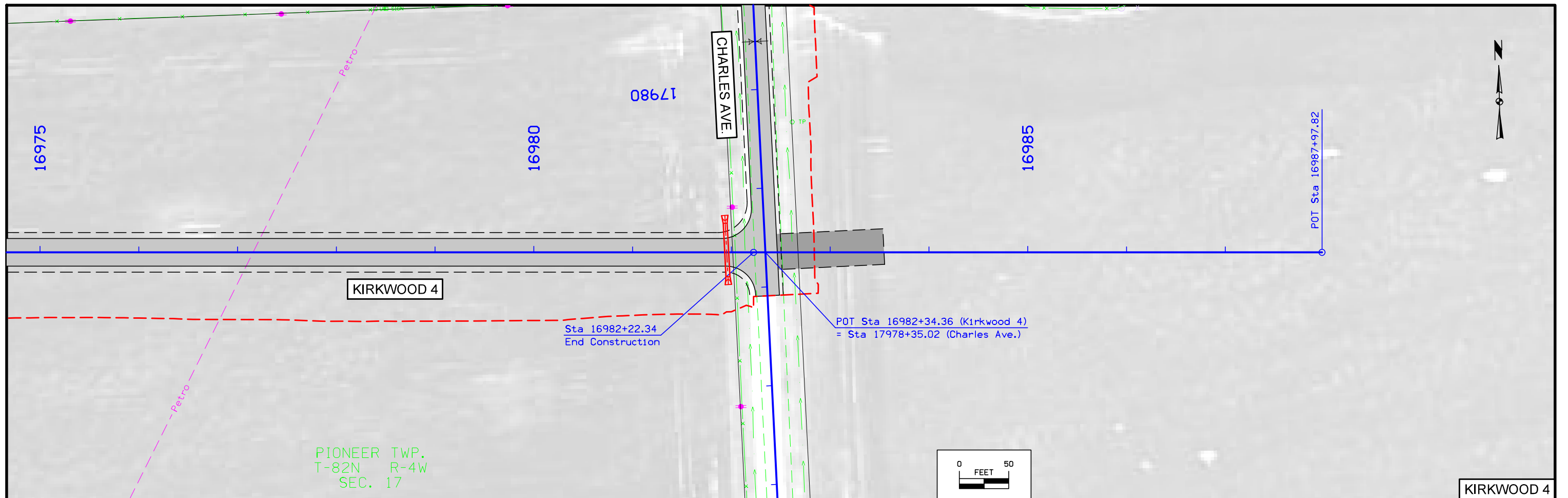






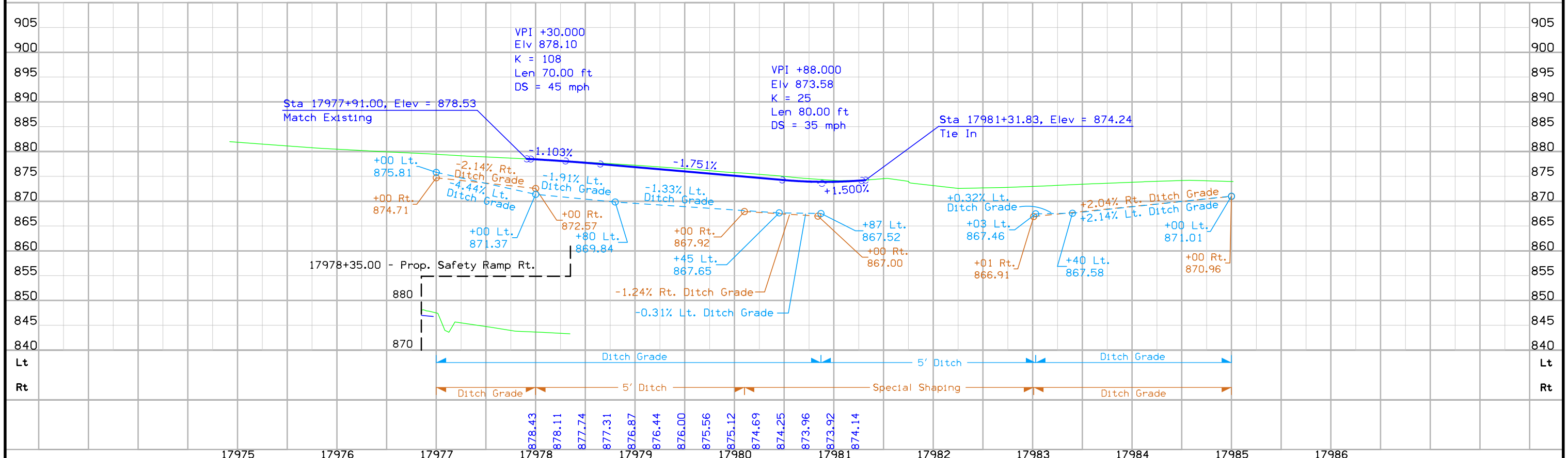
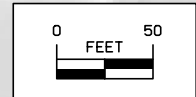
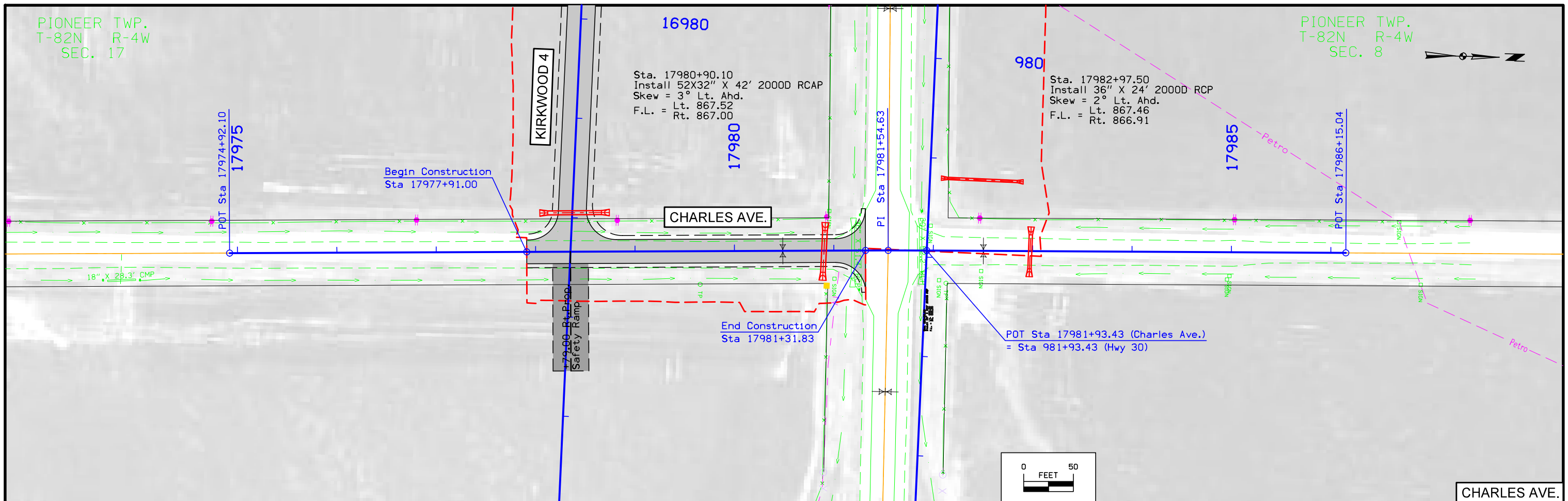




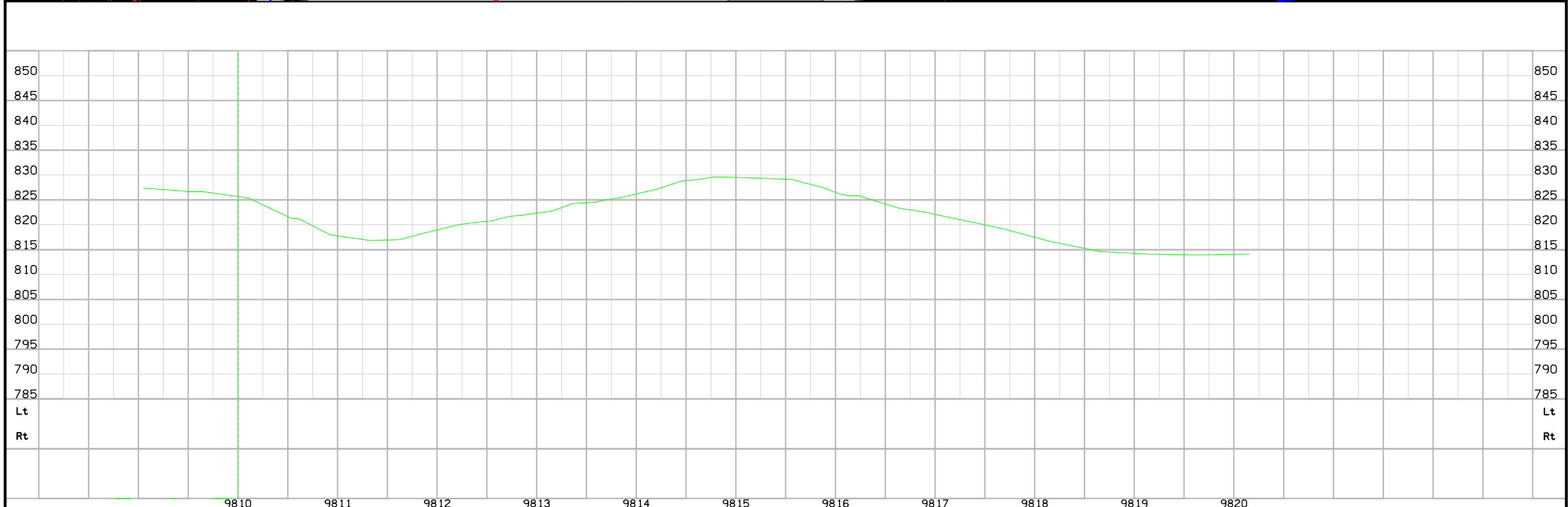
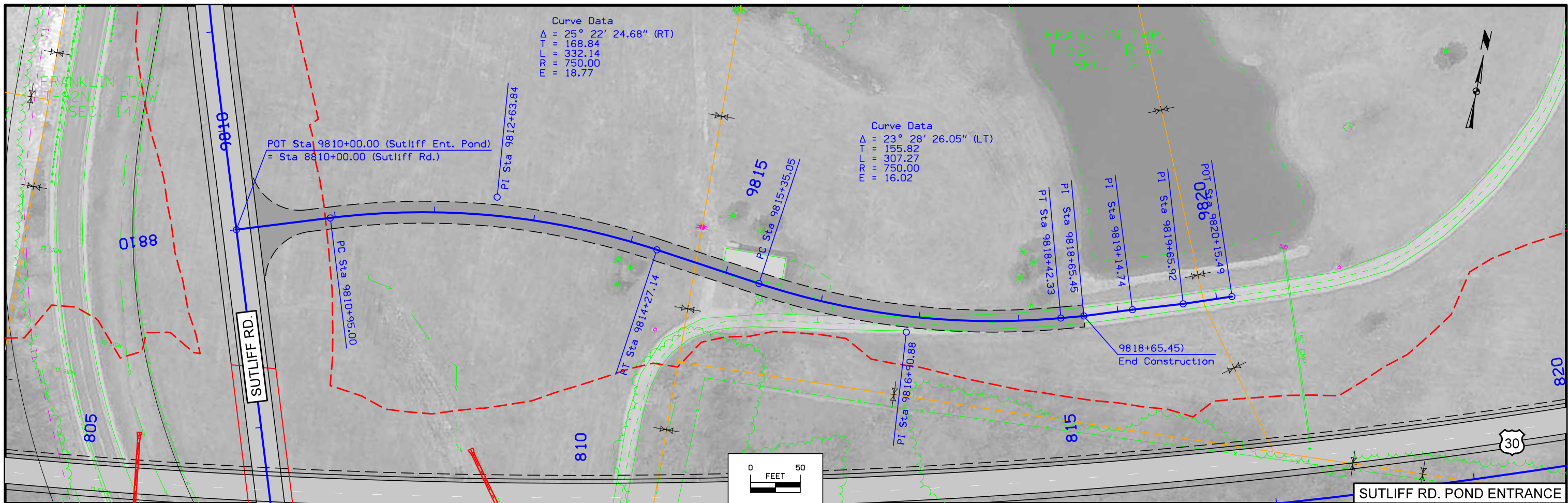


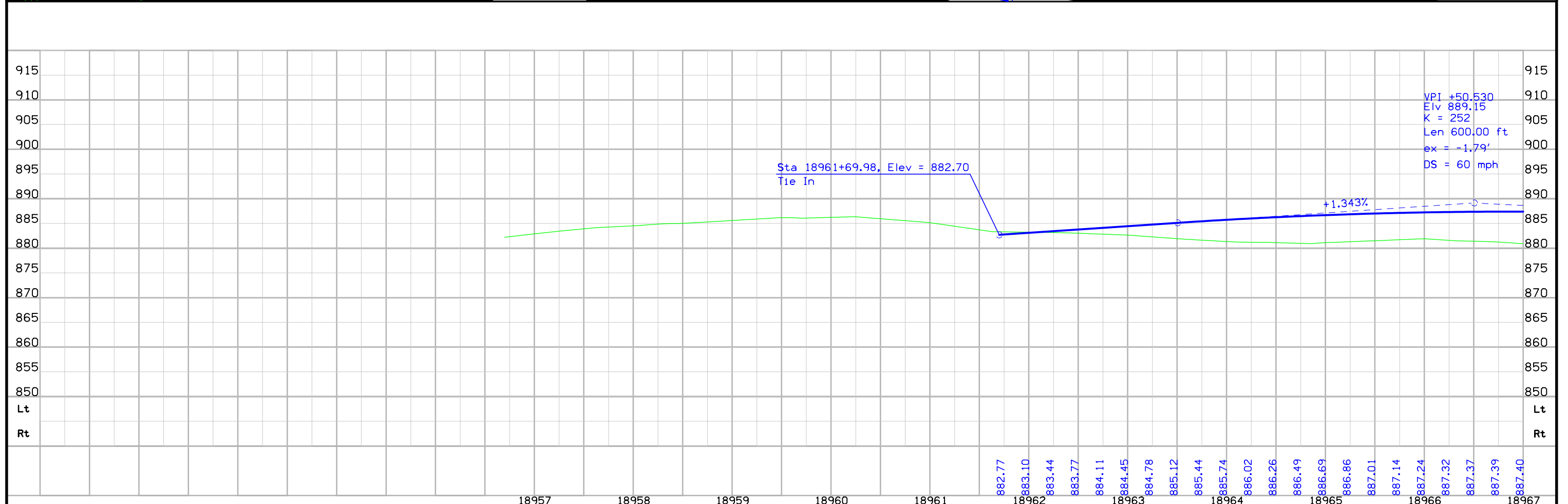
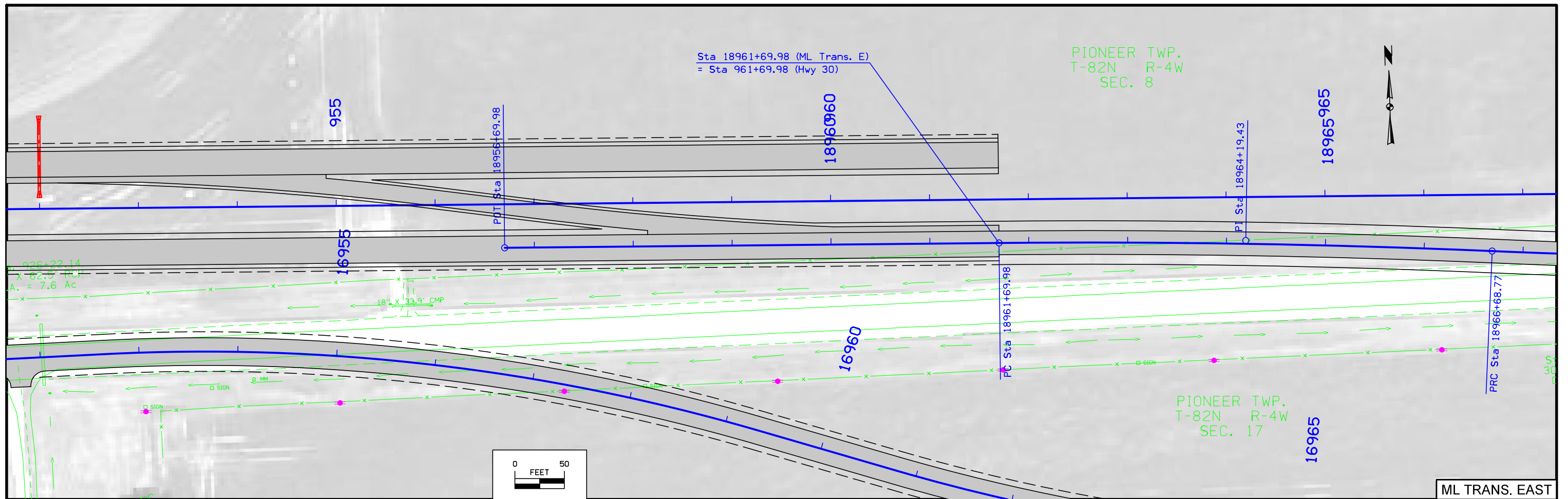
PIONEER TWP.  
T-82N R-4W  
SEC. 17

PIONEER TWP.  
T-82N R-4W  
SEC. 8









|       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 18957 | 18958 | 18959 | 18960 | 18961 | 18962  | 18963  | 18964  | 18965  | 18966  | 18967  |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|       |       |       |       |       | 882.77 | 883.10 | 883.44 | 883.77 | 884.11 | 884.45 | 884.78 | 885.12 | 885.44 | 885.74 | 886.02 | 886.26 | 886.49 | 886.69 | 886.86 | 887.01 | 887.14 | 887.24 | 887.32 | 887.37 | 887.39 | 887.40 |





## Survey Information

### General Information

Measurement units for this survey are US survey feet. This survey was performed for the design of the Mt. Vernon / Lisbon By-Pass project in Linn and Cedar County. Project horizontal and vertical datums were provided from the Design Survey Office based upon the 2001 Mt. Vernon/ Lisbon By-pass project. This survey is a Full Field Survey.

At the time of the survey, three alignments (A, E and F) for the new road were being considered. Survey was performed for all three alternate routes. Because of this, some of the stationing normally found in the sur file, pink sheets, etc. is incomplete and/or subject to change. It is expected that in December 2012 an alignment will be chosen and at that time, necessary station data will be updated accordingly.

### Vertical Control

Vertical datum for this survey is relative to NAVD88. Geoid 09. US Survey feet.

The survey control is relative to IaRTN reference stations. Multiple Iowa RTN observations were completed on CP315. After review of these observations, the shots were averaged to establish the site BM elevation. A level run was then completed through project control points and benchmarks. The error was allowable and the error was distributed proportionately among the project monuments.

Vertical equations are as follows:

#### Datum Benchmark

BM #1 this survey                      Elevation = 888.678 NAVD 88  
BM #25A Project #366(6)              Elevation = 888.18  
Found IHC plug on top of RCBC headwall.

#### Datum Benchmark

BM #2 this survey                      Elevation = 887.369 NAVD 88  
BM #24C Project #366(6)              Elevation = 885.24  
Found IHC plug on top of northwest barrier wall of bridge over the South Raccoon River.

### Horizontal Control

The project coordinate system used was the same as that used on preliminary survey project on the Mt. Vernon-Lisbon bypass and U. S. 30 in Cedar and Clinton Counties. The survey coordinate system for this project is Modified Iowa State Plane South Zone in U.S Survey Feet units. State plane coordinates were modified to remove grid to ground distortion by scaling about point G083 by a factor of 1.000020987. The coordinates of G083 are N=694668.52 E=2319361.99. The datum is NAD83(1996-HARN).

### Alignment Information

At the time of the survey, three alignments (A, E and F) for the new road were being considered. Survey was performed for all three alternate routes. Because of this, some of the alignments and stationing normally found in the sur file, pink sheets, etc. is incomplete and/or subject to change. It is expected that in December 2012 an alignment will be chosen and at that time, necessary station data will be updated accordingly.

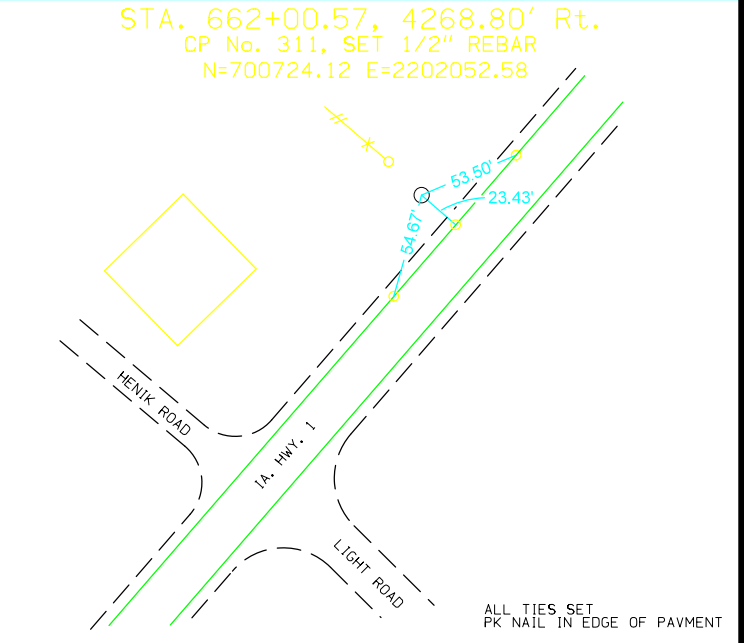
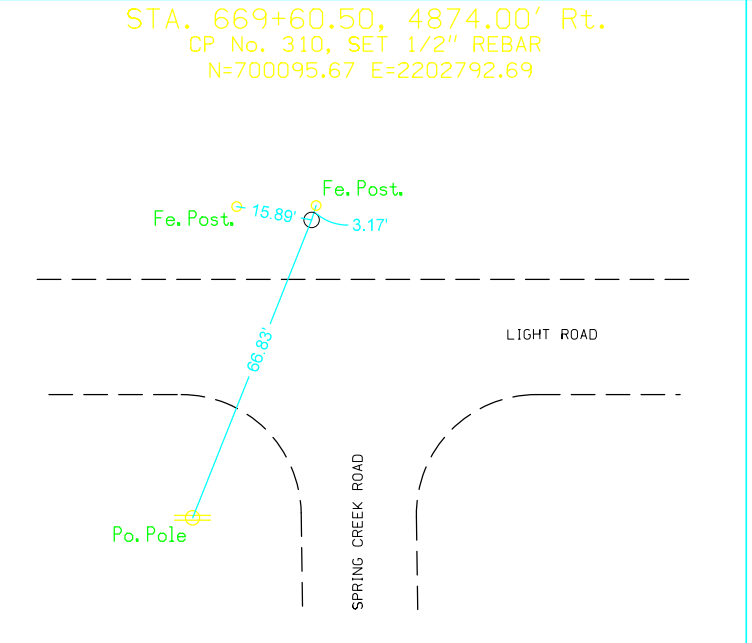
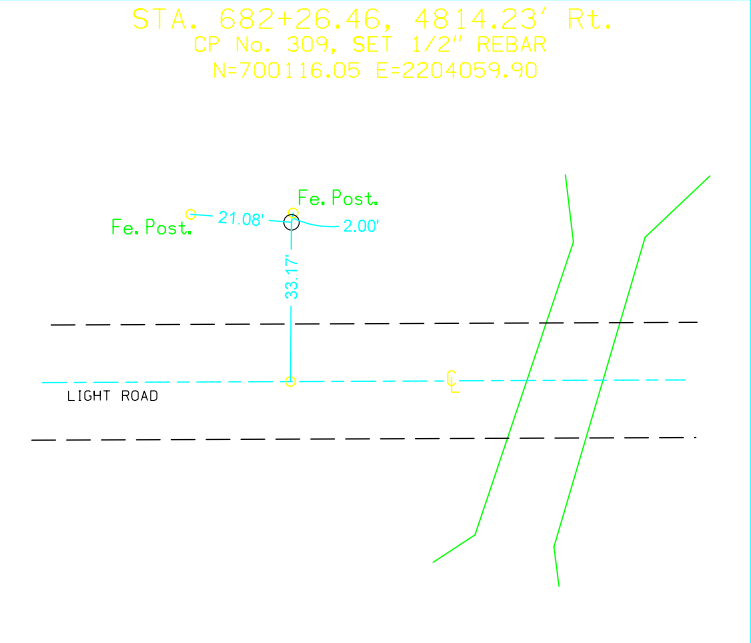
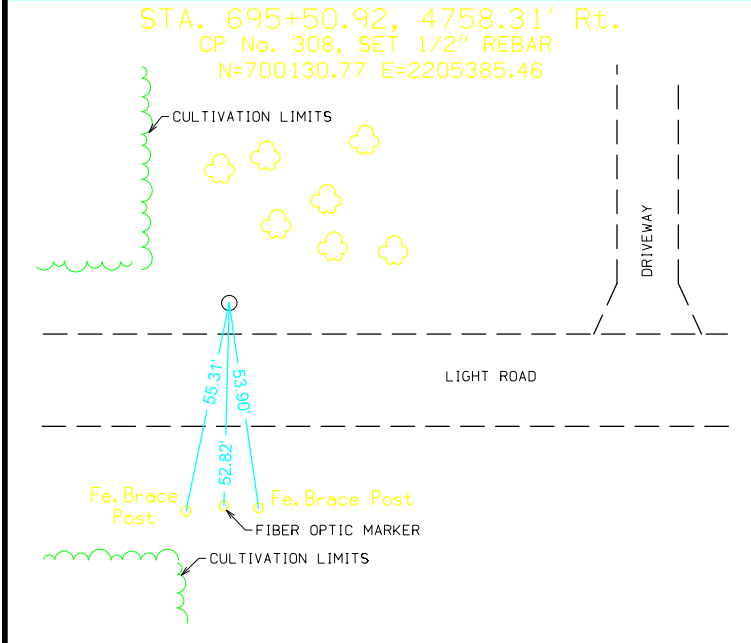
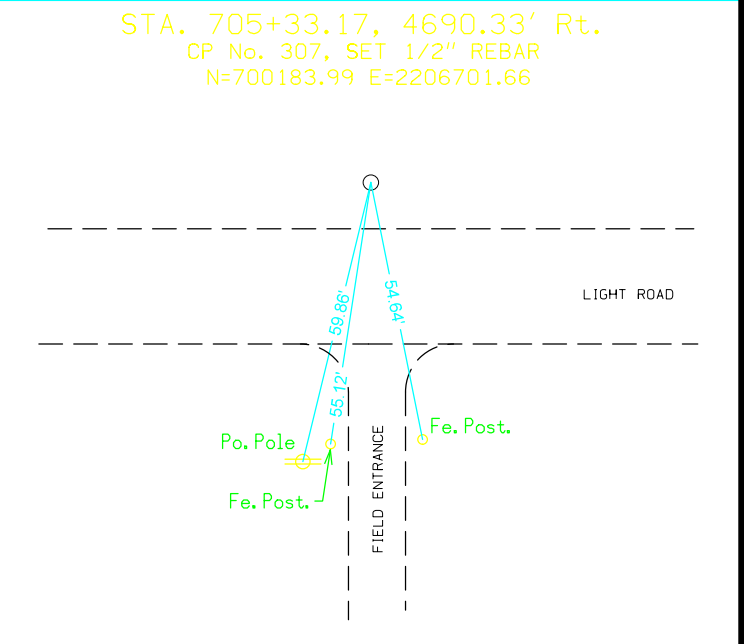
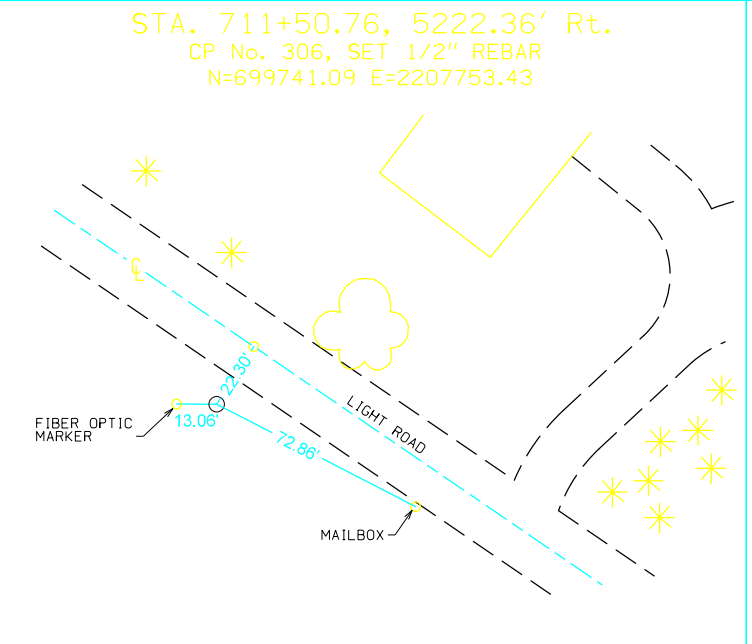
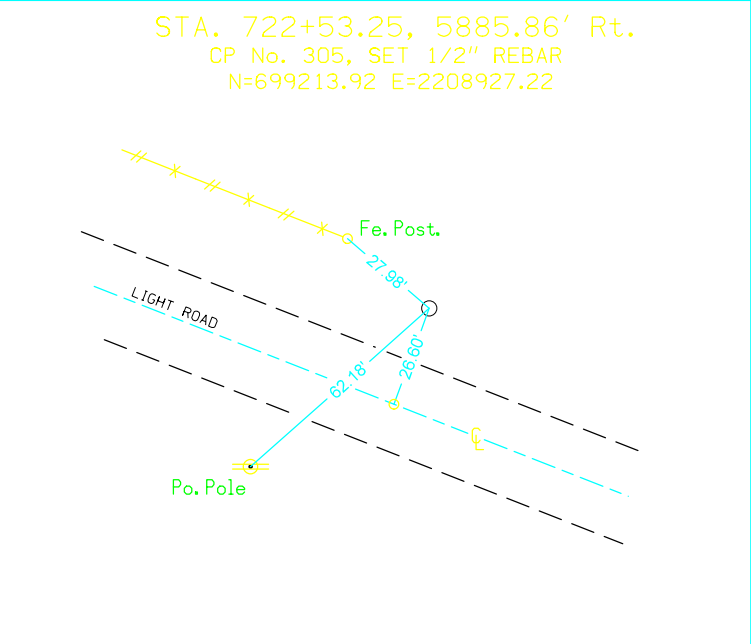
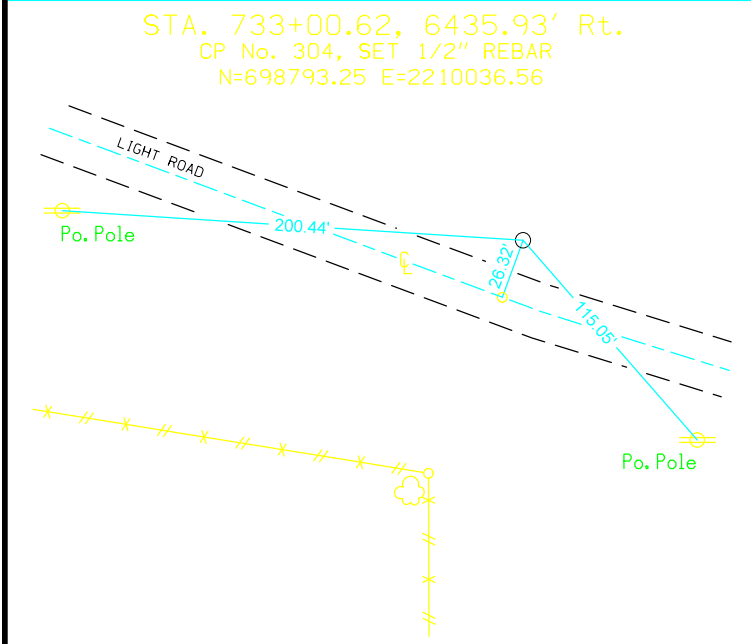
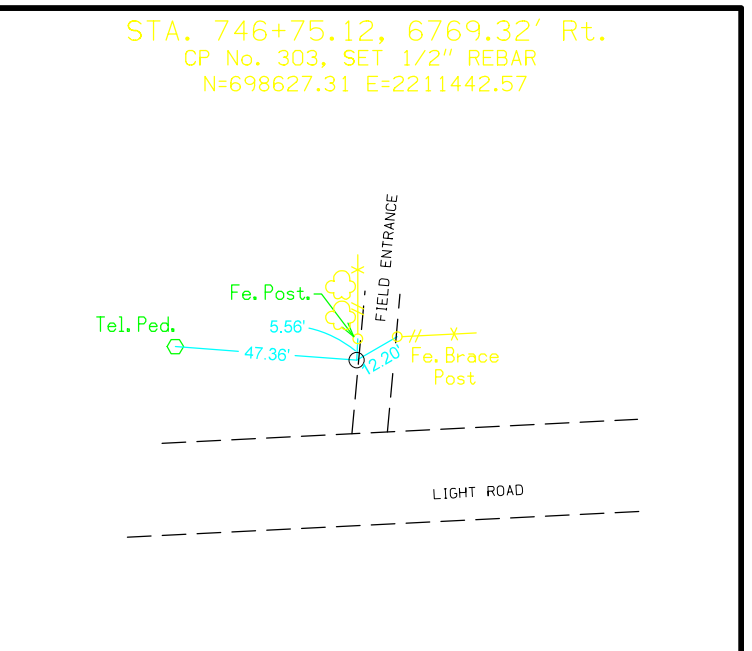
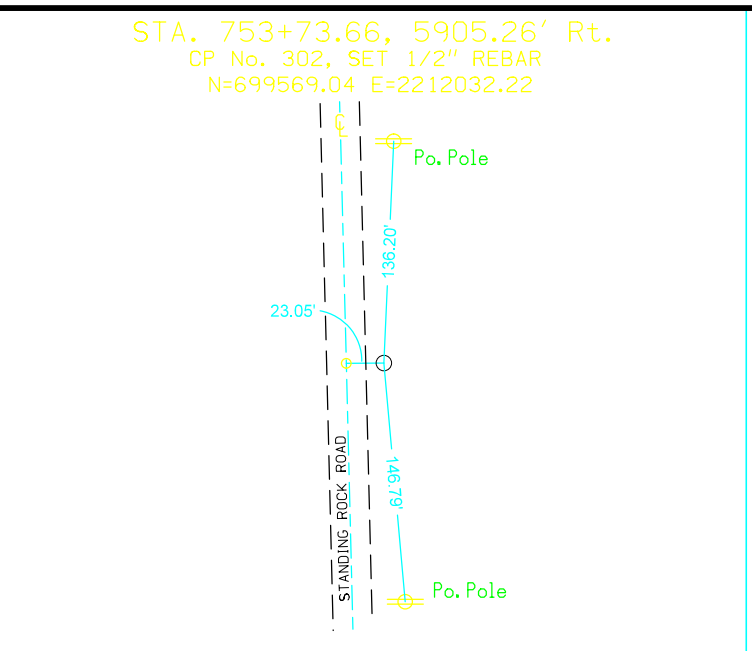
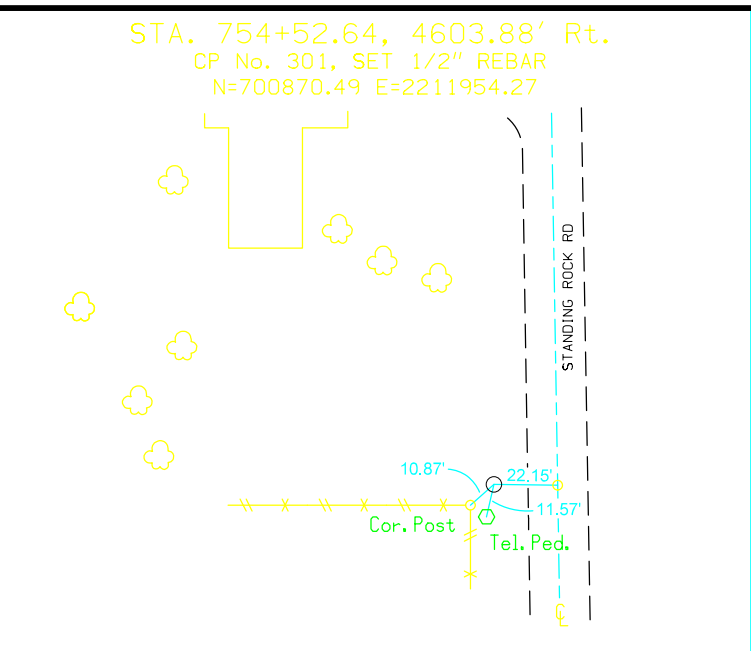
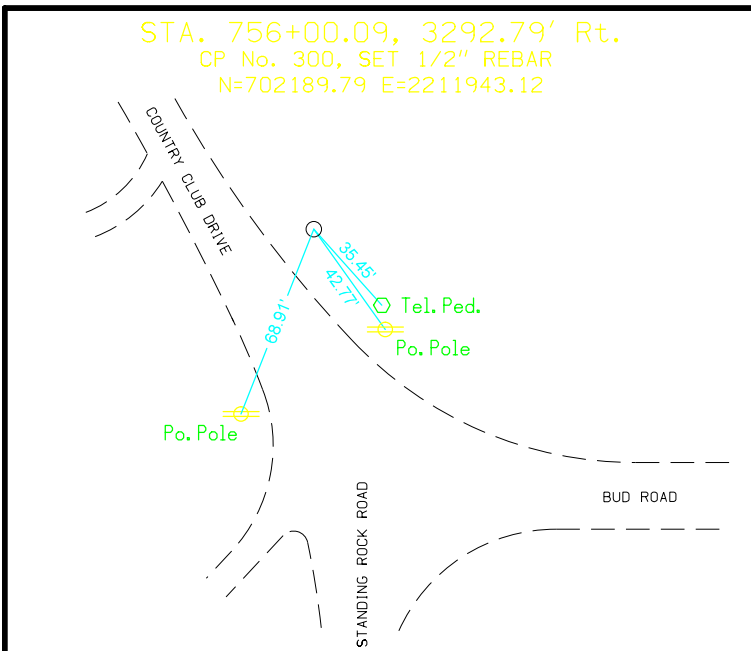




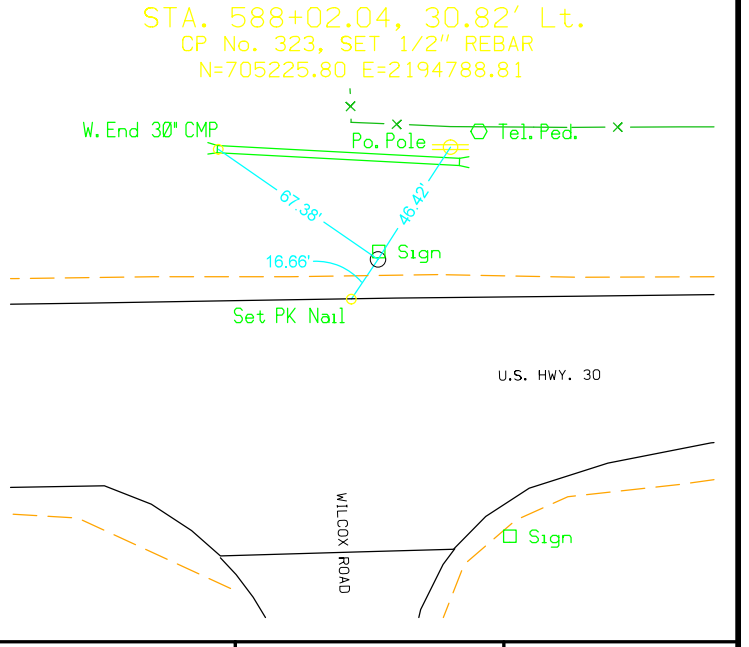
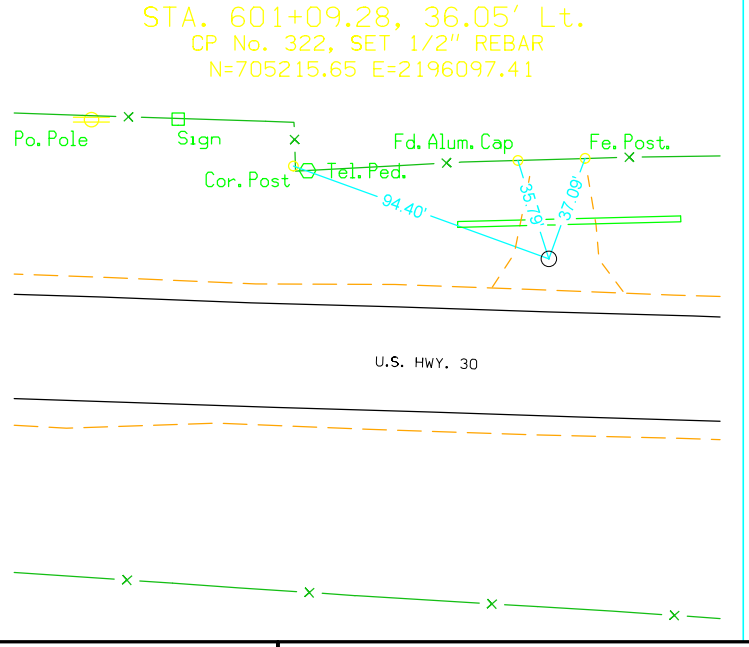
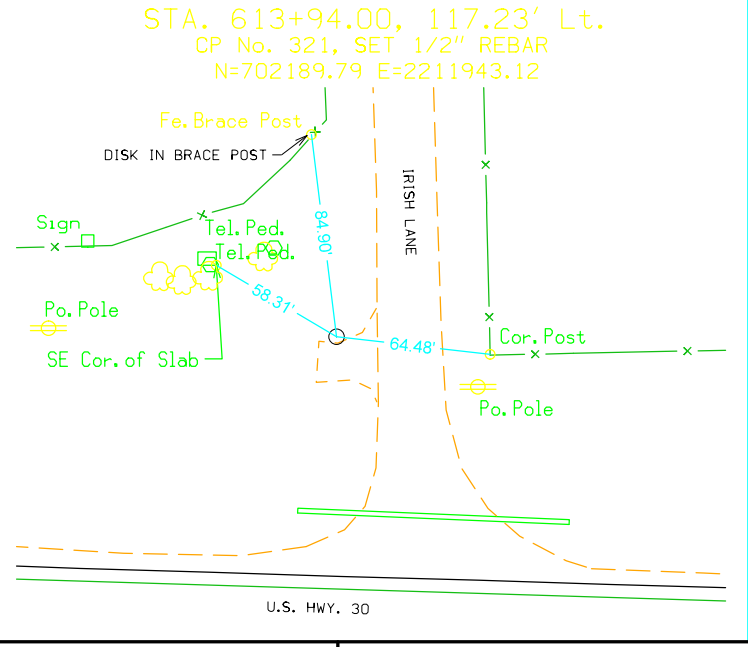
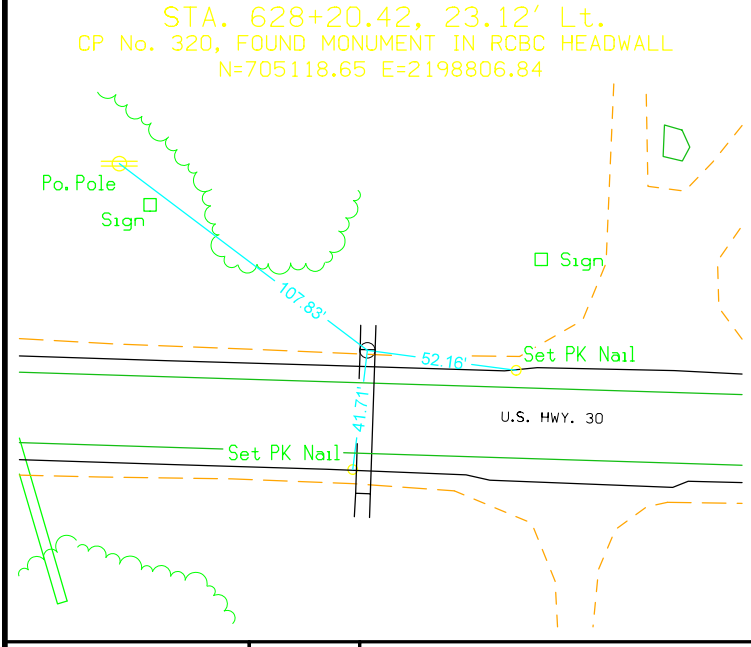
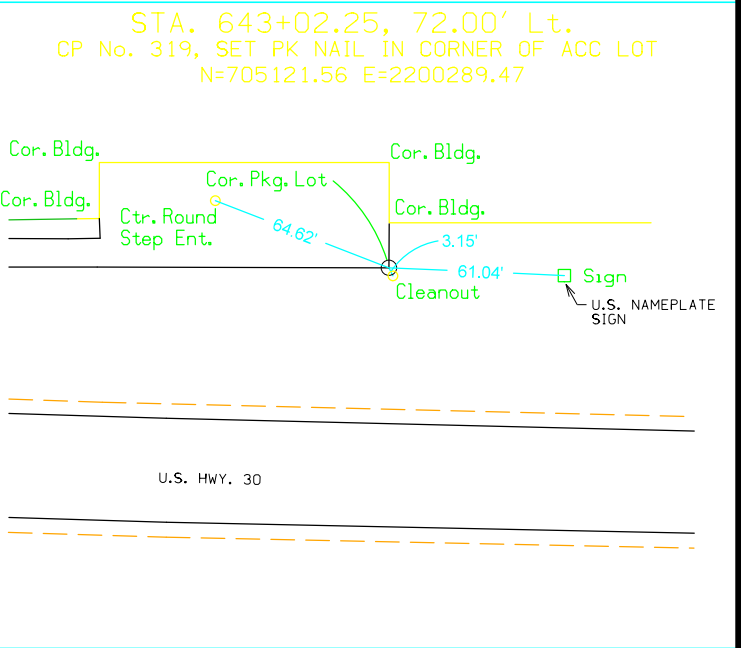
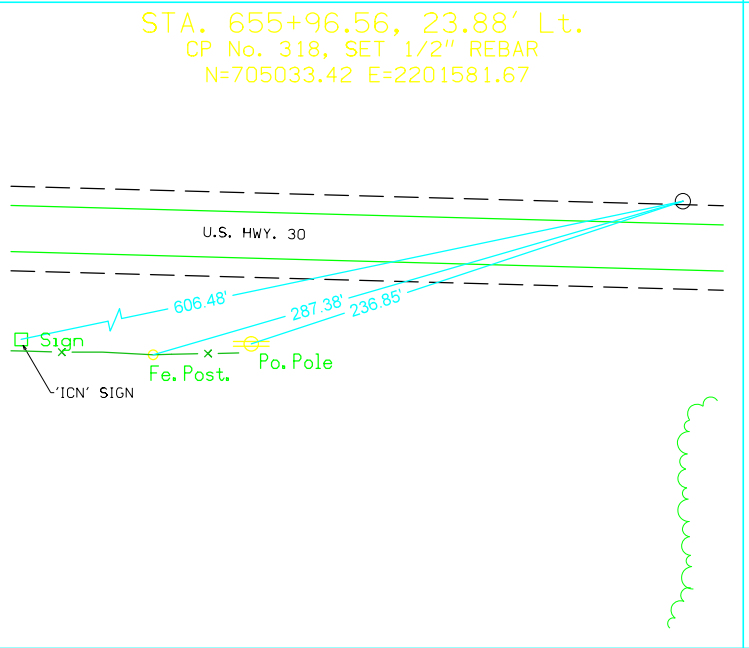
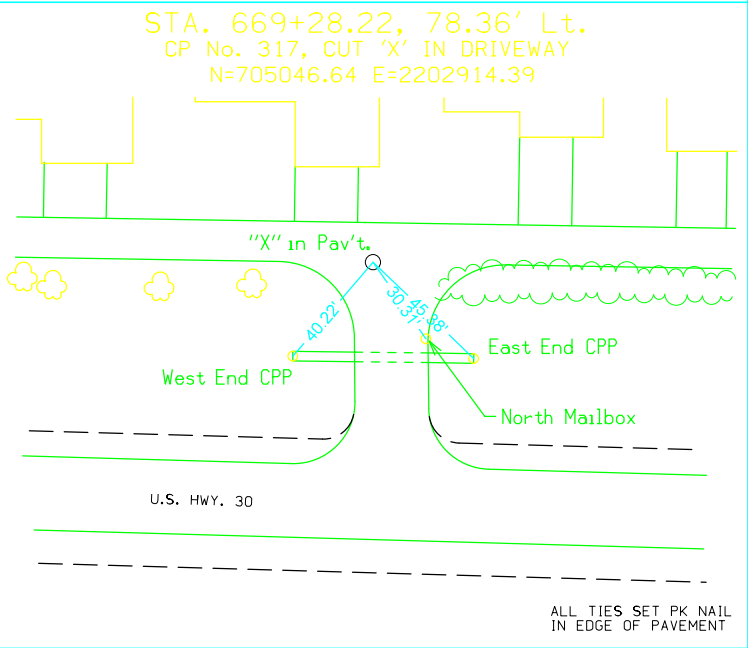
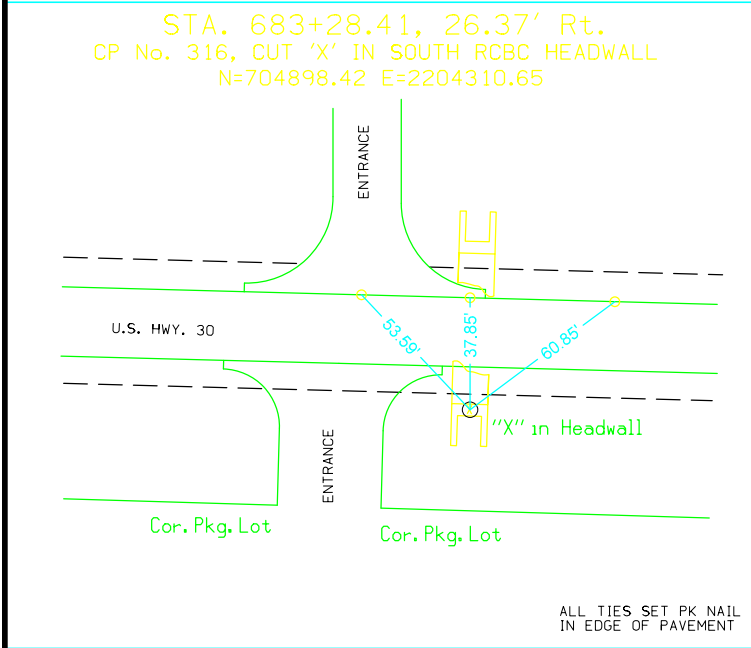
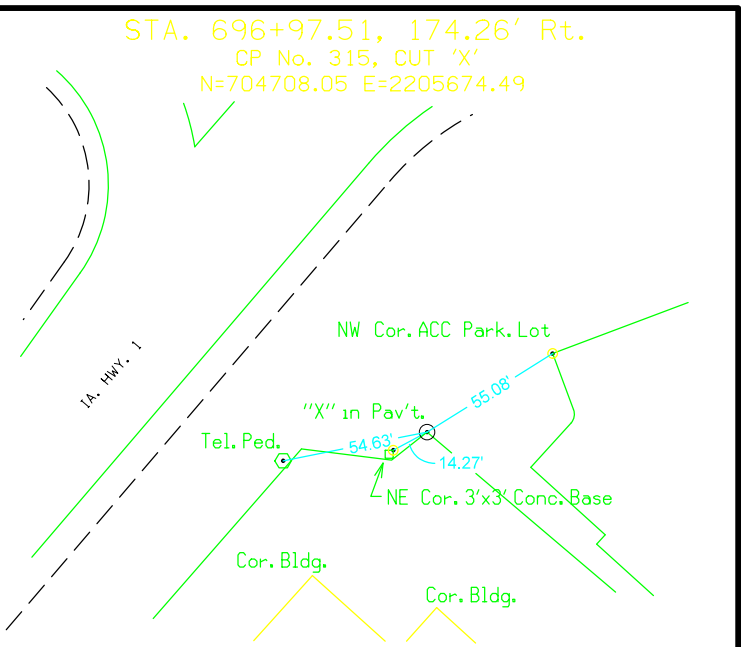
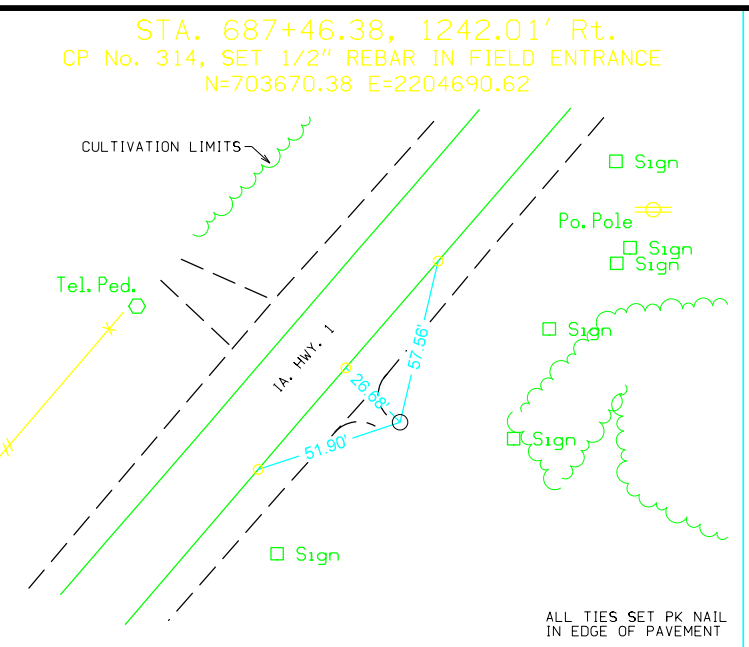
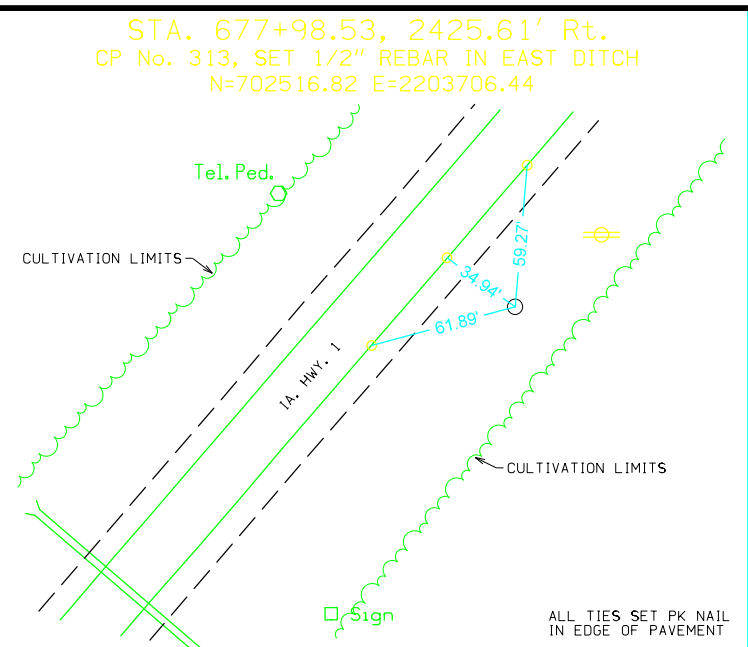
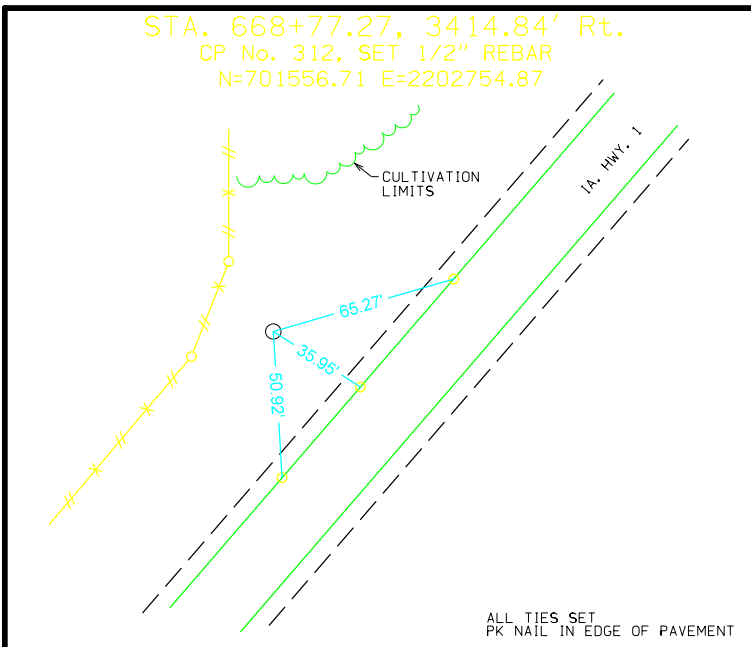
## VERTICAL CONTROL

| Point | North      | East        | Elevation | Station   | Offset   | Feature | Description  | Point | North      | East        | Elevation | Station   | Offset   | Feature | Description  |
|-------|------------|-------------|-----------|-----------|----------|---------|--|-------|------------|-------------|-----------|-----------|----------|---------|--|
| 511   | 704994.014 | 2203125.720 | 790.740   | 671+41.08 | -32.334  | BM      | CUT X IN RCP IN FRONT OF HOUSE 1201                                      | 719   | 705861.757 | 2218486.982 | 868.199   | 825+54.53 | 48.188   | BM      | ARROW ON HYDRANT NE CORNER CHURCH PROPERTY S SIDE HWY30                |
| 512   | 704958.729 | 2201357.080 | 784.880   | 653+74.38 | 57.729   | BM      | SPIKE IN POWER POLE SOUTH SIDE HWY30 LAST POWER POLE GOING WEST          | 720   | 706121.786 | 2220960.091 | 891.994   | 850+37.42 | -90.107  | BM      | RAILROAD RAIL(VERTICAL) 100FT WEST OF E MAIN ST & HWY 30 N SIDE        |
| 513   | 705161.943 | 2200003.552 | 809.020   | 640+15.21 | -103.506 | BM      | SPIKE IN POWER POLE NW QUAD WILLOW CR & HWY30                            | 721   | 706067.764 | 2222323.946 | 927.523   | 863+96.68 | 40.821   | BM      | CHISELED CROSS TOP CULVERT SW QUAD OF HWY30 & ADAMS AVE                |
| 514   | 703670.380 | 2204690.621 | 808.420   | 687+46.38 | 1242.010 | BM      | 1/2IN REBAR IN FIELD ENTRANCE  | 722   | 706099.862 | 2223101.874 | 933.921   | 871+75.17 | 53.377   | BM      | CHISELED CROSS NE CORNER OF CONC PAD FOR SOLAR PANEL                   |
| 515   | 705234.956 | 2197443.864 | 825.350   | 614+54.49 | -97.104  | BM      | SPIKE IN POWER POLE NE QUAD IRISH LN & HWY30                             | 723   | 706139.105 | 2224603.149 | 930.296   | 886+81.49 | 59.624   | BM      | REF PT 300FT EAST OF CP344 S SIDE HWY30                                |
| 516   | 705255.921 | 2196224.914 | 825.350   | 602+35.47 | -80.257  | BM      | SPIKE IN POWER POLE NORTH SIDE HWY30 TOP OF HILL AT JOG IN FENCE         | 724   | 706128.887 | 2225625.376 | 904.637   | 897+03.77 | 60.393   | BM      | SPIKE IN POLE NEAR CP345   |
| 517   | 705264.545 | 2194813.478 | 791.610   | 588+27.25 | -69.185  | BM      | SPIKE IN POWER POLE NORTH SIDE HWY30 AT WILCOX                           | 725   | 706132.867 | 2226752.297 | 891.190   | 908+29.03 | 59.908   | BM      | SPIKE IN POWER POLE FIRST POWER POLE WEST OF CP346                     |
| 518   | 705264.369 | 2190329.278 | 750.280   | 543+43.75 | -139.553 | BM      | CUT X NORTH END RCP NORTH DITCH AT CEDAR RIVER SIGN                      | 726   | 706177.017 | 2228907.444 | 882.584   | 929+84.63 | 59.916   | BM      | RAILROAD RAIL(VERTICAL) ROW MARKER POST 150FT EAST OF MILE POST 270    |
| 519   | 705288.657 | 2192477.674 | 743.370   | 564+92.13 | -129.140 | BM      | CUT X IN HEADWALL TWIN RCB NORTH DITCH                                   | 727   | 706228.161 | 2230104.937 | 882.837   | 941+83.05 | 28.092   | BM      | CHISELED CROSS ON FIRST 30IN RCP EAST OF CP348                         |
| 520   | 703893.060 | 2194790.446 | 763.310   | 587+83.21 | 1301.789 | BM      | CUT X IN RCP   | 728   | 706221.341 | 2232839.978 | 868.623   | 969+18.42 | 59.935   | BM      | RAILROAD RAIL(VERTICAL) ROW MARKER POST AT T IN FENCE 300FT W OF CP351 |
| 521   | 704064.509 | 2200026.728 | 780.680   | 640+72.34 | 992.682  | BM      | SPIKE IN POWER POLE 3RD NORTH FROM BRIDGE ON WILCOX CR                   | 729   | 705743.013 | 2222409.944 | 929.861   | 864+63.92 | 369.968  | BM      | CUT CROSS TOP INTAKE AT MEADOWVIEW & ADAMS N SIDE                      |
| 522   | 704834.782 | 2205255.718 | 828.780   | 692+75.00 | 60.602   | BM      | CUT X IN LIGHT POLE BASE NW COR BP STATION                               | 730   | 705199.113 | 2222354.532 | 929.389   | 863+77.42 | 909.797  | BM      | SPIKE IN POWER POLE NW QUAD ADAMS & 122ND ST                           |
| 523   | 704347.675 | 2205631.837 | 830.017   | 696+66.08 | 535.781  | BM      | ARROW ON HYDRANT IN FRONT OF SLEEP INN                                   | 731   | 703604.532 | 2222494.540 | 880.119   | 864+25.77 | 2509.782 | BM      | PK NAIL IN SOUTH BOUND LANE AT 230 ADAMS AVE                           |
| 524   | 703744.837 | 2204777.467 | 825.049   | 688+30.87 | 1164.889 | BM      | SPIKE IN POWER POLE 2ND POWER POLE SOUTH OF CLINIC                       | 732   | 701946.436 | 2222435.102 | 842.383   | 862+71.37 | 4161.743 | BM      | SPIKE IN POWER POLE 261 ADAMS AVE                                      |
| 525   | 702374.186 | 2203573.691 | 810.045   | 676+70.28 | 2572.301 | BM      | CUT X IN RCP 200FT SOUTH OF FARM ENTRANCE EAST SIDE                      | 733   | 701488.991 | 2222556.499 | 834.080   | 863+66.34 | 4625.395 | BM      | SPIKE IN POWER POLE SE QUAD VALLEY FORGE & ADAMS AVE                   |
| 526   | 701705.292 | 2202992.241 | 803.374   | 671+09.91 | 3258.948 | BM      | CUT X IN RCP 700FT SOUTH OF FARM ENTRANCE EAST SIDE                      | 734   | 701059.776 | 2222560.882 | 838.025   | 863+46.11 | 5054.156 | BM      | SPIKE IN POWER POLE NE QUAD VALLEY FORGE & 130TH ST                    |
| 527   | 700730.308 | 2202027.639 | 803.040   | 661+75.45 | 4263.378 | BM      | SPIKE IN POWER POLE 1ST POWER POLE NORTH OF LIGHT ON HWY1                | 735   | 699817.227 | 2222544.406 | 844.805   | 862+58.42 | 6293.716 | BM      | SPIKE IN POWER POLE SW QUAD EVERETT CT & ADAMS AVE                     |
| 528   | 700033.587 | 2202767.382 | 777.820   | 669+37.13 | 4936.836 | BM      | SPIKE IN POWER POLE COR SPRING CR & LIGHT                                | 736   | 698094.914 | 2222694.113 | 879.481   | 863+09.13 | 8021.779 | BM      | CUT CROSS IN 135TH ST NORTHSIDE 25FT FROM END OF CONCRETE              |
| 529   | 700117.649 | 2204060.010 | 764.690   | 682+26.52 | 4812.628 | BM      | SPIKE IN GATE POST NEXT TO CP309   | 737   | 697037.897 | 2222650.630 | 833.310   | 862+05.12 | 9074.564 | BM      | SPIKE IN POWER POLE AT ADAMS CT & ADAMS AVE                            |
| 530   | 700076.944 | 2205384.138 | 807.320   | 695+51.27 | 4812.148 | BM      | GIN SPIKE IN CP AT SEC COR SOUTH OF CP308                                | 738   | 696838.955 | 2222161.024 | 840.445   | 856+98.97 | 9244.876 | BM      | SPIKE IN POWER POLE AT 10 138TH STREET                                 |
| 531   | 700130.260 | 2206693.162 | 817.850   | 705+27.35 | 4743.682 | BM      | BENCHTITE IN GATE POST 6FT EAST OF POWER POLE                            | 739   | 697149.529 | 2221261.468 | 845.611   | 848+97.93 | 8886.126 | BM      | SPIKE IN POWER POLE 50FT WEST OF CP359 ON S SIDE ROAD                  |
| 532   | 699655.312 | 2207872.081 | 812.770   | 712+58.34 | 5321.690 | BM      | SPIKE IN POWER POLE 1ST EAST OF DRIVE AT 509 POWER POLE WITH TRANSFORMER | 740   | 697351.015 | 2220052.824 | 809.293   | 837+00.64 | 8625.543 | BM      | SPIKE IN POWER POLE NE QUAD GREEN RIDGE RD & LIGHT ROAD                |
| 533   | 699172.927 | 2208880.540 | 825.380   | 722+02.01 | 5920.985 | BM      | SPIKE IN POWER POLE SOUTH OF CP305 CREST OF HILL                         | 741   | 697375.254 | 2218560.733 | 810.432   | 822+11.53 | 8528.078 | BM      | SPIKE IN POWER POLE 75FT WEST OF CP361 ON N SIDE                       |
| 534   | 698706.660 | 2210112.513 | 756.610   | 733+65.64 | 6531.004 | BM      | SPIKE IN POWER POLE 3RD ON SOUTH SIDE WEST OF MCCLELLAND                 | 742   | 697461.021 | 2217271.746 | 805.920   | 809+28.31 | 8379.130 | BM      | SPIKE IN POWER POLE AT 150 LIGHT ROAD WEST SIDE OF DRIVE               |
| 535   | 698629.360 | 2210473.248 | 738.530   | 737+14.50 | 6651.013 | BM      | NAIL WITH WASHER IN SW CORNER BRIDGE                                     | 743   | 697916.404 | 2216179.604 | 765.824   | 798+53.72 | 7870.616 | BM      | SPIKE IN POWER POLE SE QUAD SUTLIFF RD & LIGHT RD                      |
| 536   | 698632.213 | 2211442.790 | 758.410   | 746+75.93 | 6764.482 | BM      | SPIKE IN GATE POST 5FT NORTH OF CP303                                    | 744   | 699202.523 | 2216079.415 | 782.454   | 798+17.80 | 6581.101 | BM      | SPIKE IN POWER POLE 50FT EAST OF CP364                                 |
| 537   | 699705.746 | 2212037.921 | 787.480   | 753+95.74 | 5770.232 | BM      | SPIKE IN POWER POLE 5TH POWER POLE NORTH OF LIGHT ON STANDING ROCK       | 745   | 700536.903 | 2215733.524 | 817.798   | 795+38.89 | 5231.131 | BM      | X ON LIGHT POLE BASE 597 SUTLIFF RD                                    |
| 538   | 702125.394 | 2211917.938 | 778.040   | 755+67.35 | 3353.697 | BM      | SPIKE IN POWER POLE EAST SIDE ROAD 1ST POWER POLE SOUTH OF 626 DRIVE     | 746   | 701400.439 | 2215339.455 | 853.655   | 791+88.38 | 4349.016 | BM      | SURVEY MARKER NAIL 2FT FROM EOP AT END OF NORTHBOUND GUARDRAIL         |
| 539   | 702125.570 | 2211917.810 | 786.360   | 755+67.25 | 3353.507 | BM      | SPIKE IN POWER POLE WEST SIDE ROAD AT INTAKE                             | 747   | 702244.236 | 2215281.710 | 886.570   | 791+72.79 | 3503.389 | BM      | SPIKE IN POWER POLE 200FT SOUTH OF BUD RD & SUTLIFF RD                 |
| 700   | 704830.812 | 2206375.936 | 831.859   | 703+93.23 | 35.952   | BM      | TOP CULVERT 200FT EAST OF CAR WASH S SIDE HWY30                          | 748   | 702344.228 | 2214510.452 | 876.427   | 784+07.48 | 3365.056 | BM      | SPIKE IN POWER POLE AT 257 BUD RD S SIDE                               |
| 701   | 704932.486 | 2207808.425 | 838.131   | 718+24.95 | 74.637   | BM      | ARROW ON HYDRANT EAST SIDE HWY30 & HILL VIEW DR                          | 749   | 702287.292 | 2213855.497 | 836.692   | 777+50.50 | 3389.257 | BM      | SPIKE IN POWER POLE 30FT WEST OF CP367 N SIDE                          |
| 702   | 705005.571 | 2208400.530 | 826.719   | 724+21.55 | 72.741   | BM      | SPIKE IN POWER POLE NEAR CP331   | 750   | 698723.077 | 2220028.248 | 843.702   | 837+43.45 | 7253.929 | BM      | SPIKE IN POWER POLE 1ST POLE SOUTH OF 533 GREENRIDGE RD DRIVEWAY       |
| 703   | 705090.902 | 2209028.005 | 796.530   | 730+54.72 | 62.908   | BM      | TOP CULVERT WEST SIDE OF COUNTRY CLUB DR                                 | 751   | 699478.071 | 2220032.164 | 852.122   | 837+84.43 | 6500.038 | BM      | SPIKE IN POWER POLE 555 GREENRIDGE RD                                  |
| 704   | 705196.278 | 2209854.359 | 828.282   | 738+87.71 | 57.271   | BM      | SPIKE IN POWER POLE 125FT EAST OF CP333                                  | 752   | 699962.208 | 2219647.946 | 821.602   | 834+24.45 | 5997.621 | BM      | SPIKE IN POWER POLE 100FT SE OF 577 GREENRIDGE RD DRIVE                |
| 705   | 705506.336 | 2212500.394 | 851.469   | 765+51.82 | 67.232   | BM      | ARROW ON HYDRANT EAST OF CP335   | 753   | 700660.066 | 2219096.602 | 786.992   | 829+08.03 | 5273.536 | BM      | SPIKE IN POWER POLE 200FT SE OF 606 GREENRIDGE RD DRIVE                |
| 706   | 705659.240 | 2213966.378 | 838.885   | 780+29.41 | 27.035   | BM      | TOP CULVERT EAST OF GRAVEL DRIVE NORTH SOUTH HOUSE #596                  | 754   | 701227.130 | 2219182.781 | 822.371   | 830+21.94 | 4711.387 | BM      | SPIKE IN 20IN WHITE PINE E SIDE 500FT NORTH OF 606 GREENRIDGE RD DRIVE |
| 707   | 705667.466 | 2214512.661 | 846.342   | 785+75.42 | 46.064   | BM      | ARROW ON HYDRANT WEST SIDE DRIVEWAY TO NOLZ CHIROPRACTIC                 | 755   | 701761.211 | 2218900.800 | 860.049   | 827+66.52 | 4164.106 | BM      | SPIKE IN 24IN OAK ON E SIDE NEXT TO CABLE BOX                          |
| 708   | 705803.483 | 2215009.528 | 861.286   | 790+78.46 | -65.003  | BM      | X BOLT ON HYDRANT IN FRONT OF LISBON SCHOOL NORTH SIDE HWY30             | 756   | 702251.034 | 2218285.112 | 893.972   | 821+75.63 | 3644.646 | BM      | SPIKE IN POWER POLE 125FT NORTH OF 657 GREENRIDGE RD DRIVE             |
| 709   | 705794.765 | 2215360.108 | 858.227   | 794+28.16 | -38.812  | BM      | CHISELED CROSS TOP CULVERT NORTH SIDE HWY30 EAST OF G R DR               | 757   | 702499.341 | 2218168.121 | 893.591   | 820+70.97 | 3390.894 | BM      | SPIKE IN POWER POLE 665 GREENRIDGE RD                                  |
| 710   | 705823.697 | 2215898.341 | 867.921   | 799+67.14 | -40.890  | BM      | X BOLT HYDRANT AT NE QUAD HWY30 & WASHINGTON                             | 758   | 703670.082 | 2217619.041 | 882.512   | 815+80.03 | 2194.607 | BM      | SPIKE IN POWER POLE W SIDE ROAD 200FT SOUTH OF 721 GREENRIDGE RD       |
| 711   | 705869.659 | 2216264.085 | 870.870   | 803+34.70 | -68.840  | BM      | X BOLT HYDRANT AT NW QUAD HWY30 & S JACKSON                              | 759   | 704238.827 | 2217253.406 | 869.062   | 812+42.76 | 1608.597 | BM      | SPIKE IN POWER POLE ACROSS FROM 203 CEMETARY RD                        |
| 712   | 705843.563 | 2216567.152 | 867.797   | 806+36.12 | -27.896  | BM      | CHISELED CROSS TOP INTAKE N SIDE HWY30 2ND INTAKE EAST OF S JACKSON      | 760   | 704431.584 | 2216620.953 | 870.358   | 806+20.53 | 1385.022 | BM      | ARROW ON HYDRANT AT REGAL RIDGE CT & CEMETARY                          |
| 713   | 705883.822 | 2216782.843 | 867.260   | 808+53.53 | -57.517  | BM      | X BOLT N SIDE HWY30 FIRST HYDRANT EAST OF S JACKSON                      | 761   | 704559.093 | 2216260.746 | 868.393   | 802+67.02 | 1239.981 | BM      | ARROW ON HYDRANT S JACKSON & CEMETARY RD                               |
| 714   | 705782.668 | 2216888.606 | 865.539   | 809+54.20 | 48.708   | BM      | FLANGE BOLT WITH FLAG ON HYDRANT NW CORNER DOLLAR GENERAL                | 762   | 704751.703 | 2215914.219 | 869.119   | 799+29.57 | 1030.587 | BM      | X BOLT ON HYDRANT S WASHINGTON & CEMETARY                              |
| 715   | 705912.310 | 2217307.237 | 866.592   | 813+78.69 | -60.225  | BM      | SPIKE IN POLE 300FT EAST OF DOLLAR GENERAL N SIDE HWY30                  | 763   | 703848.777 | 2215812.825 | 892.152   | 797+83.27 | 1927.333 | BM      | SPIKE IN POWER POLE W SIDE OF WASHINGTON RD ACROSS FROM #716           |
| 716   | 705813.545 | 2217687.733 | 863.358   | 817+53.87 | 57.102   | BM      | ARROW ON HYDRANT IN FRONT OF HOUSE#766 S SIDE HWY30                      | 764   | 703124.159 | 2215640.545 | 907.336   | 795+75.06 | 2642.457 | BM      | FLANGE BOLT WITH FLAG ON HYDRANT AT HILL RIDGE & S WASHINGTON          |
| 717   | 705841.567 | 2217921.457 | 864.401   | 819+88.69 | 40.589   | BM      | CHISELED CROSS TOP CULVERT S SIDE HWY30 NW CORNER CHURCH PROPERTY        | 765   | 702629.624 | 2215329.448 | 893.288   | 792+39.69 | 3120.861 | BM      | X BOLT ON HYDRANT AT 908 SUTLIFF RD                                    |
| 718   | 705838.228 | 2218086.173 | 867.013   | 821+53.05 | 52.010   | BM      | ARROW ON HYDRANT S SIDE HWY30 MIDDLE CHURCH PROPERTY                     |       |            |             |           |           |          |         |  |

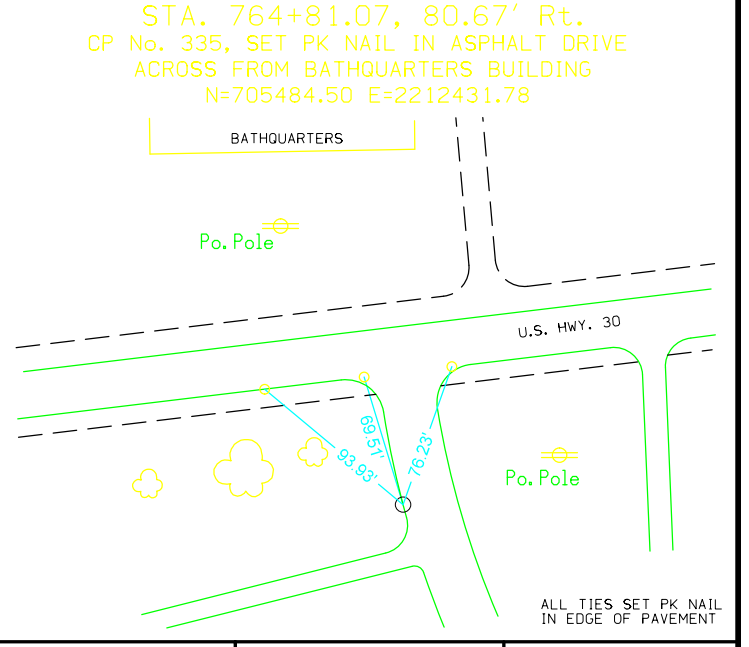
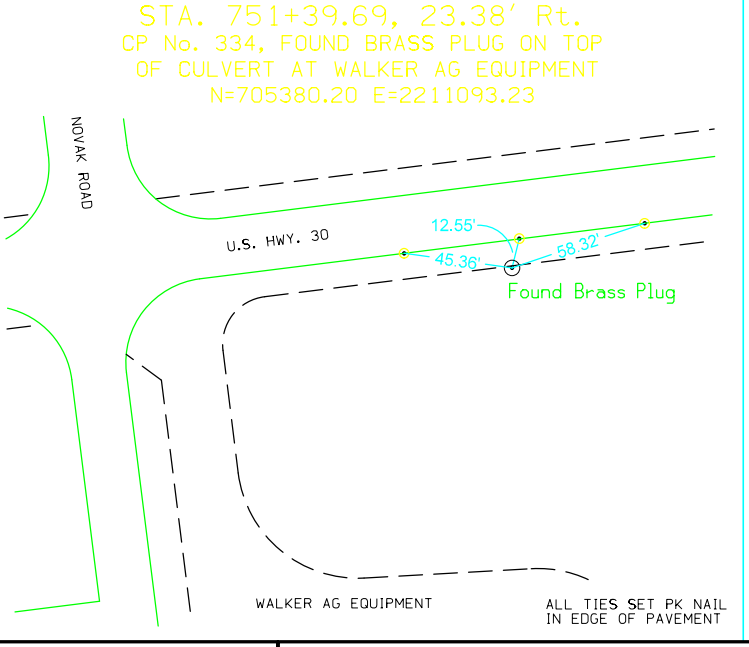
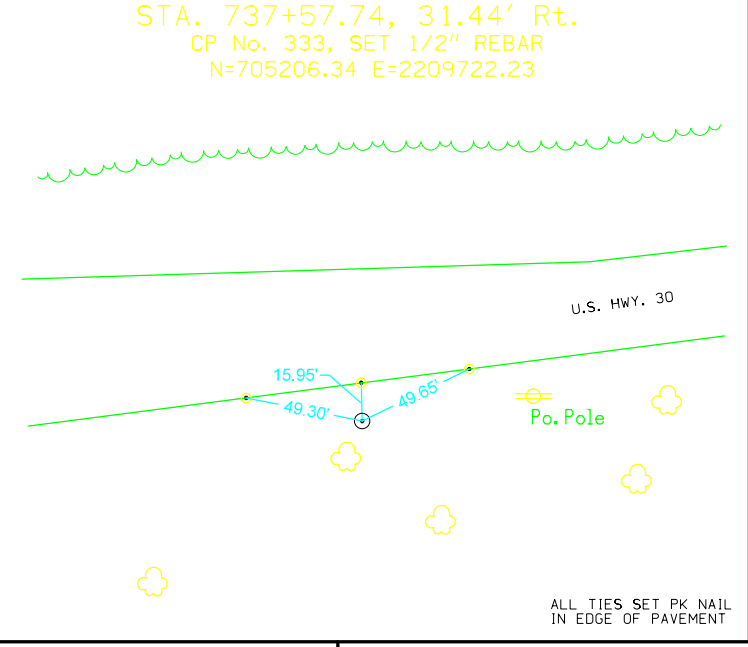
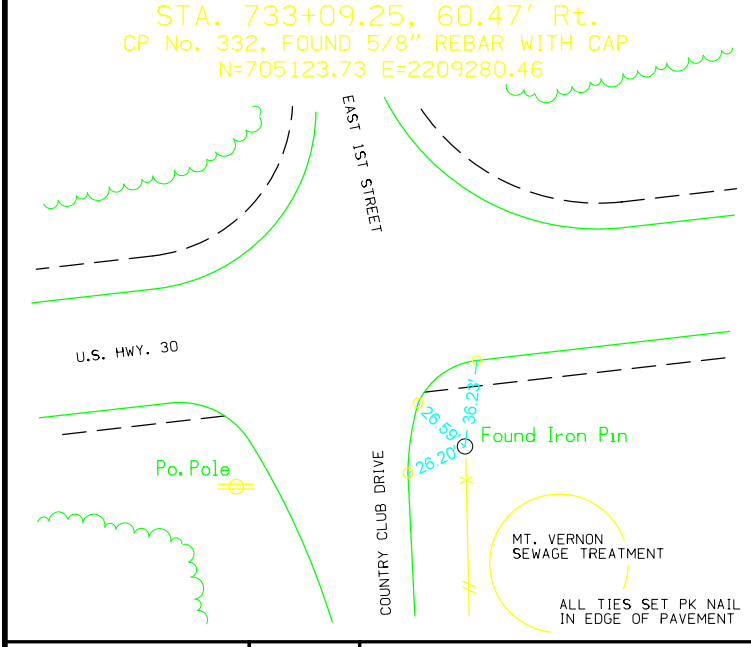
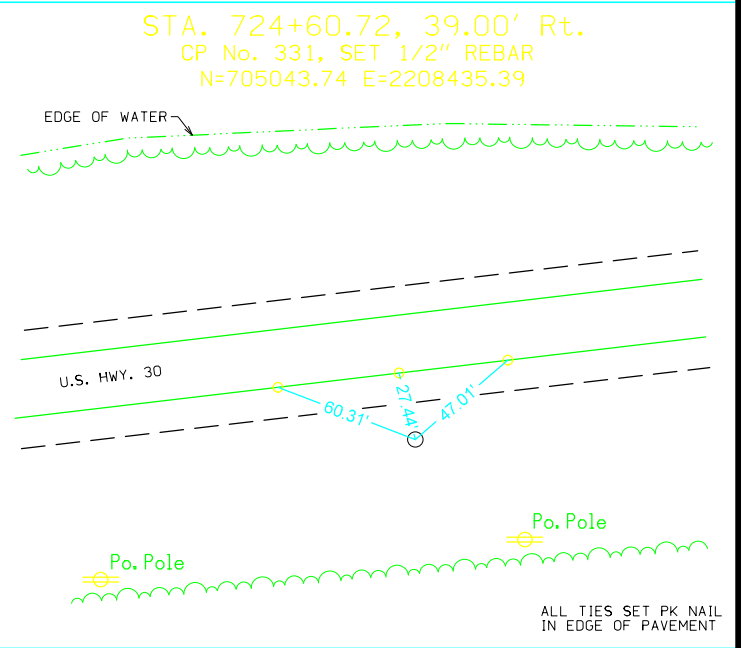
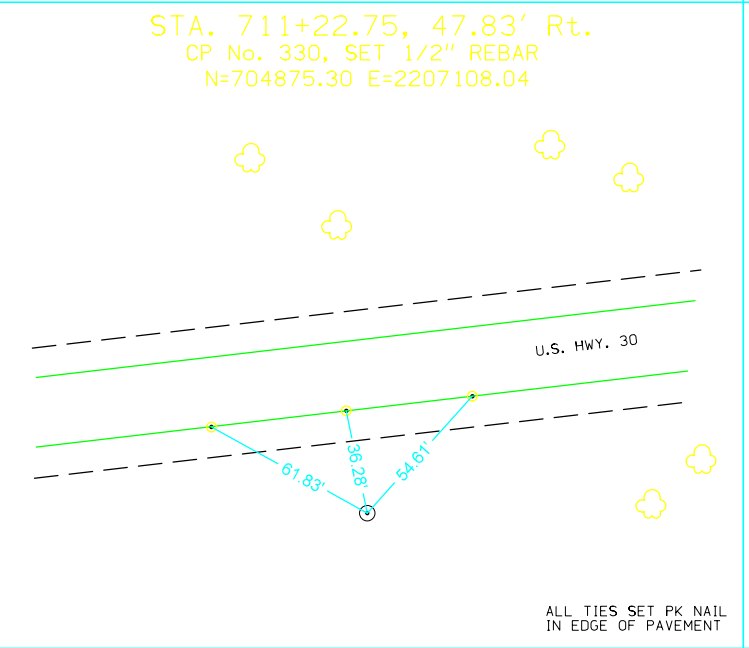
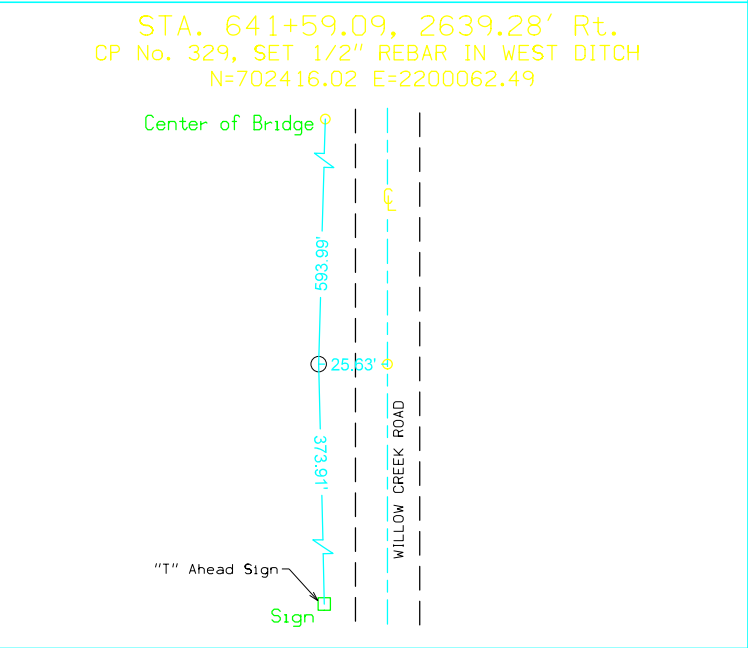
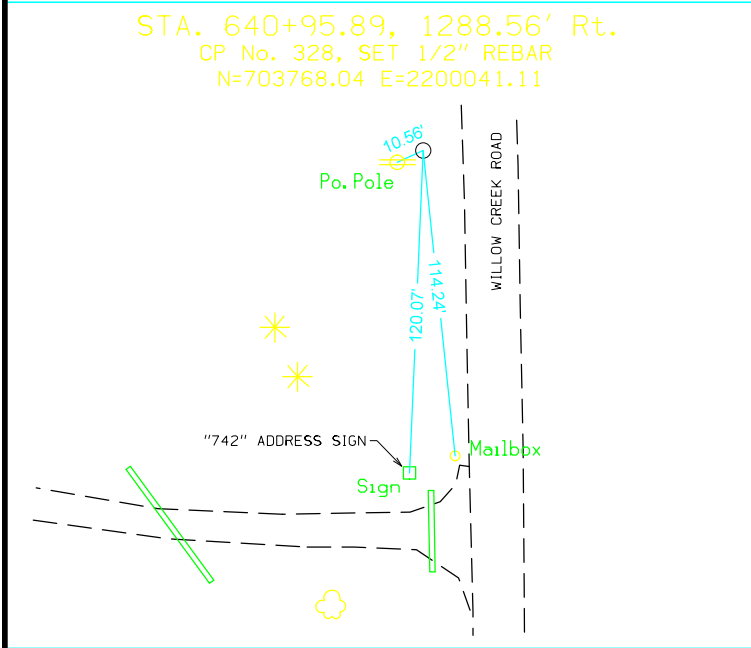
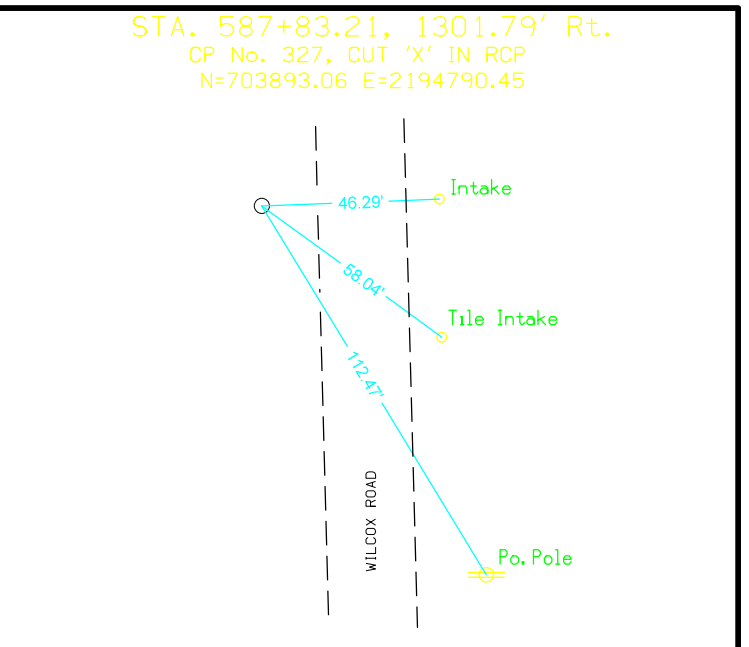
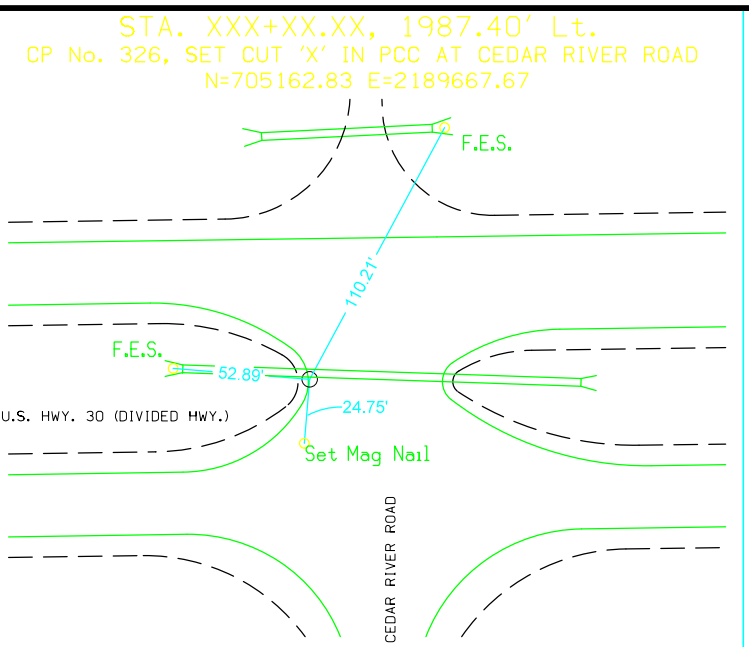
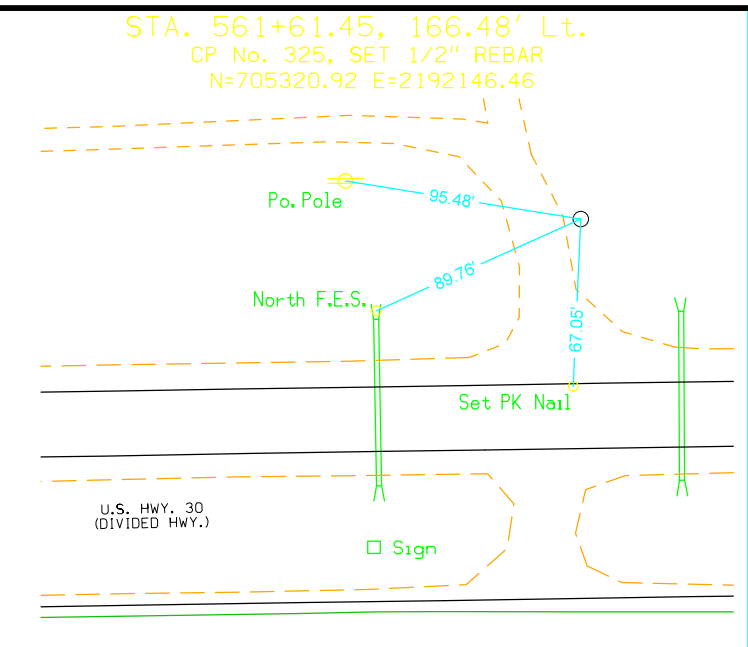
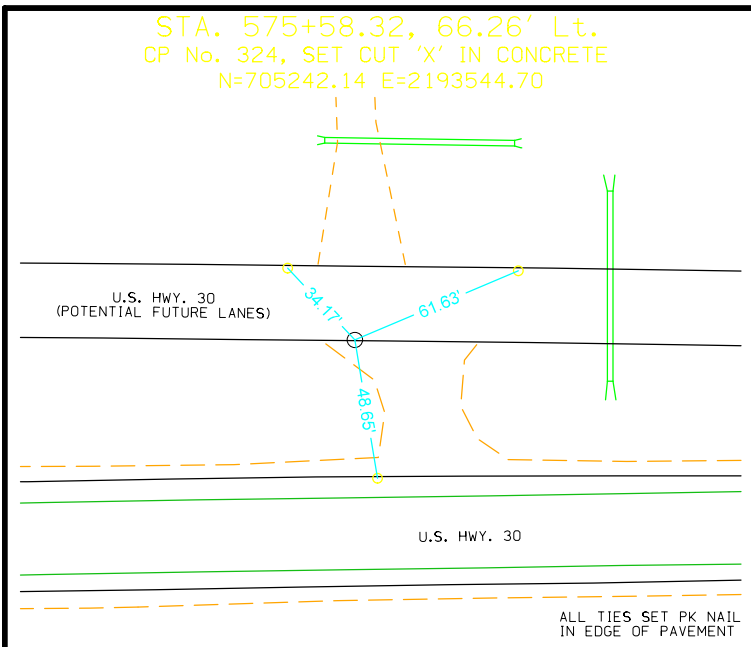


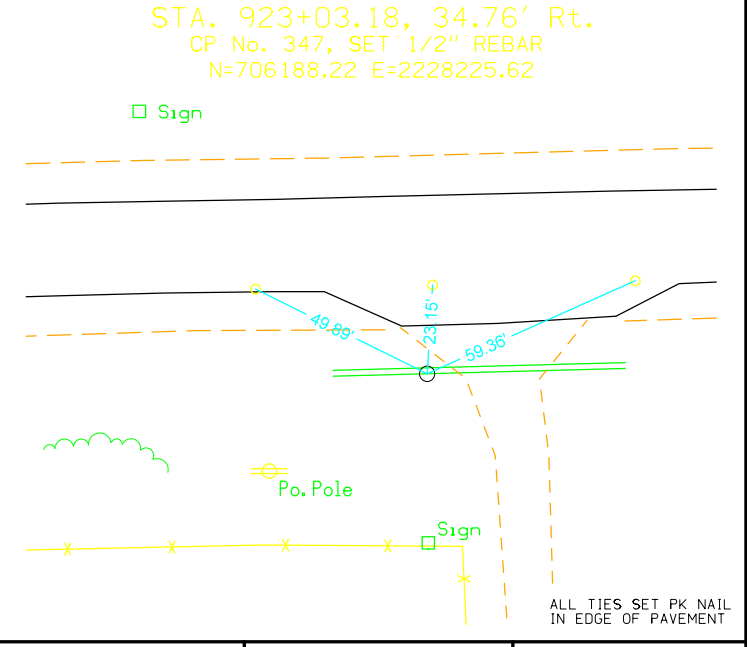
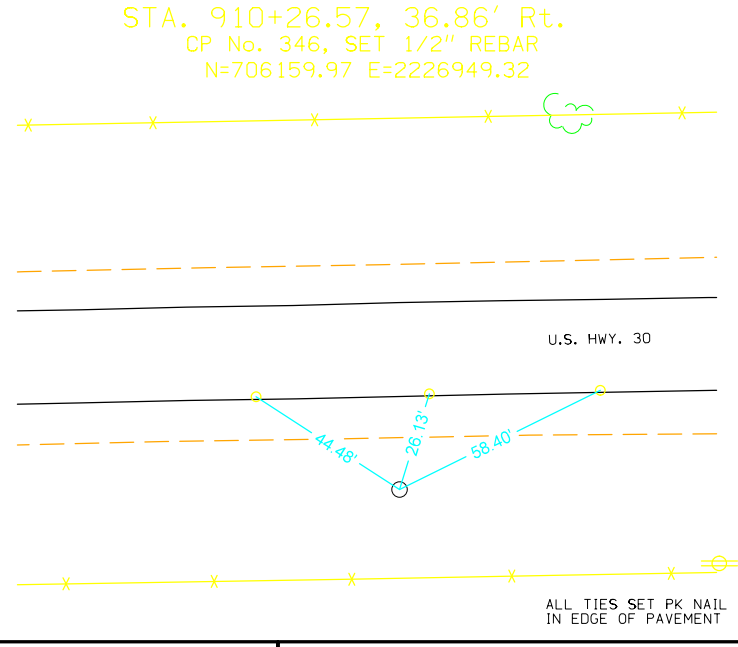
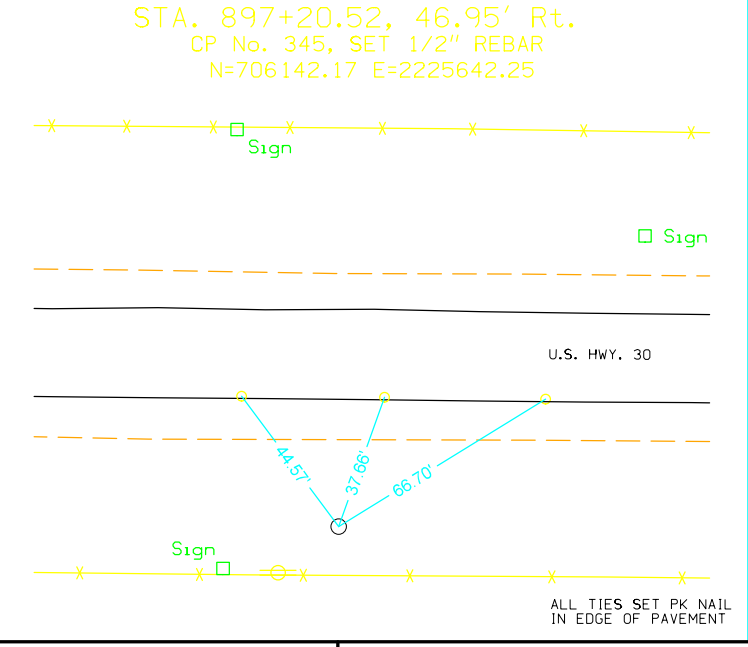
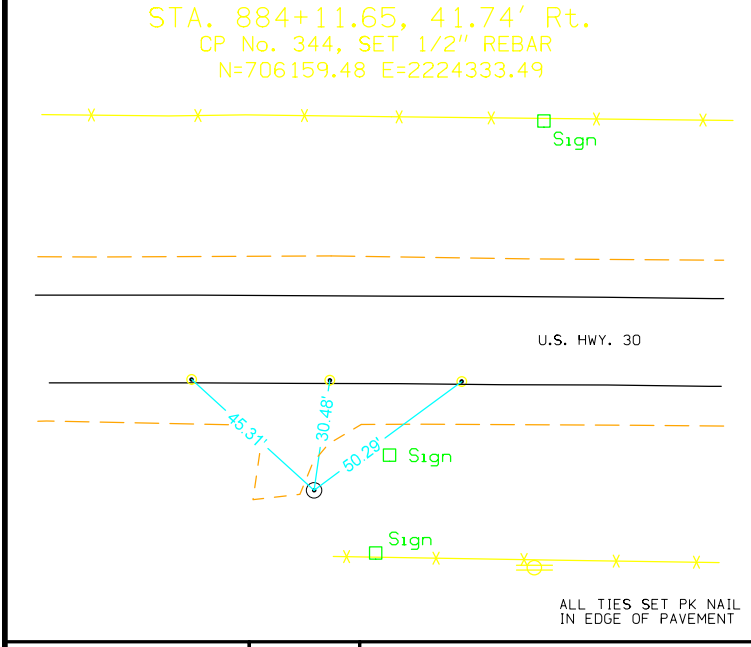
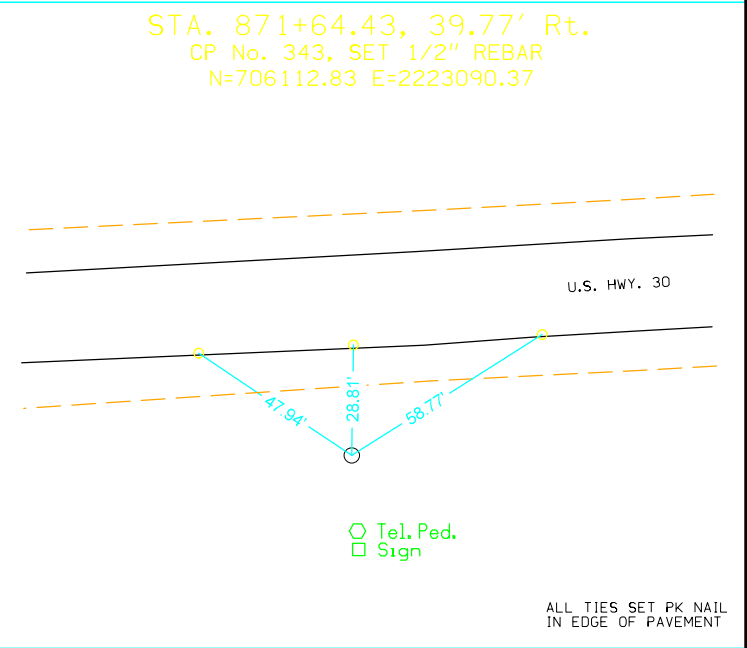
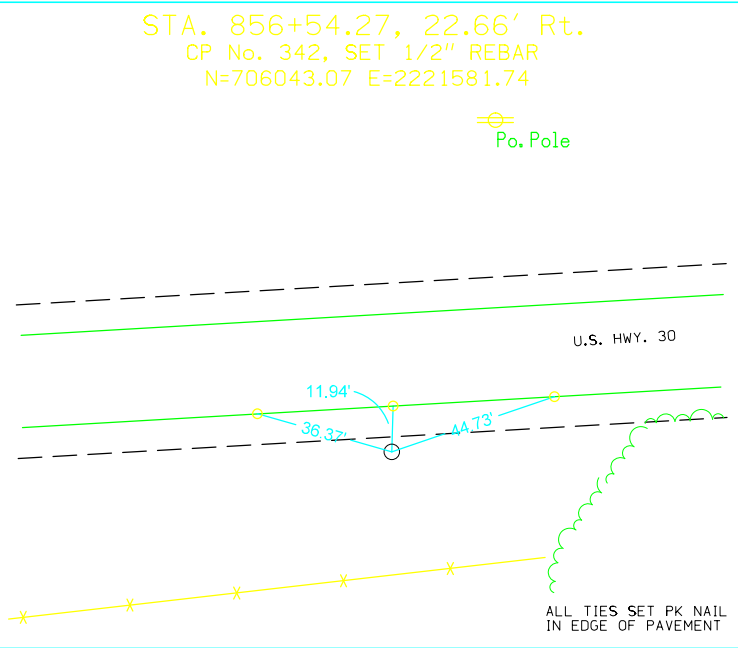
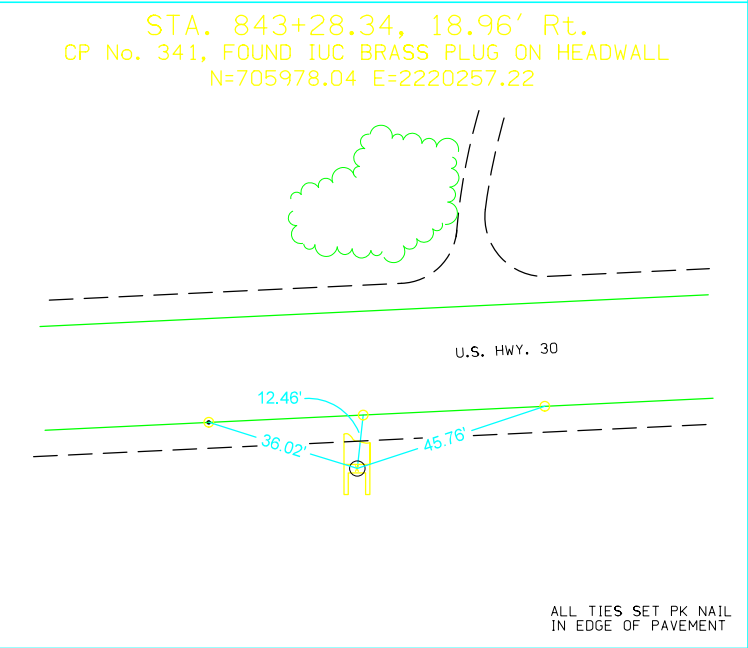
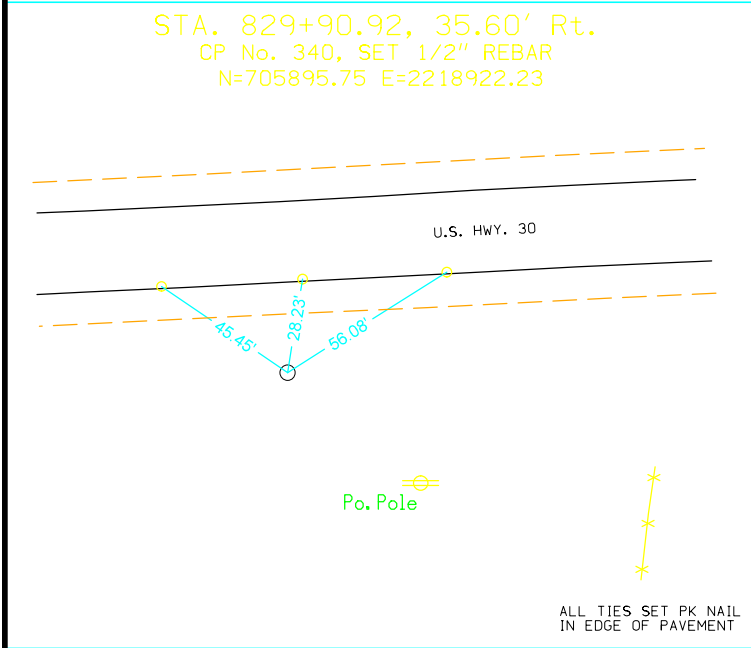
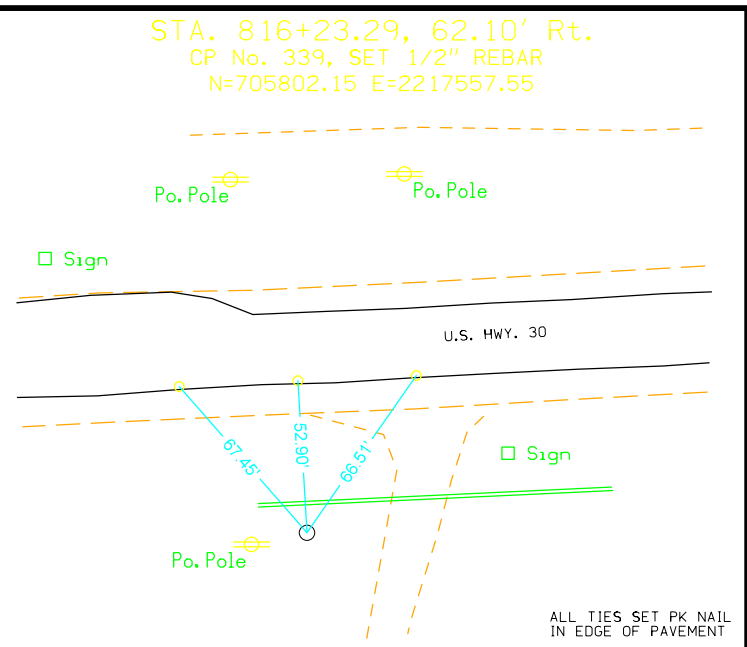
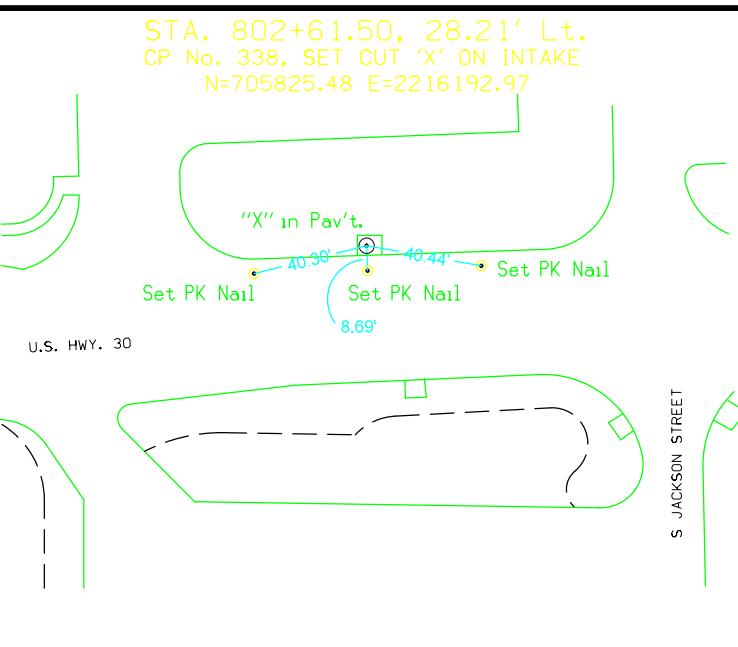
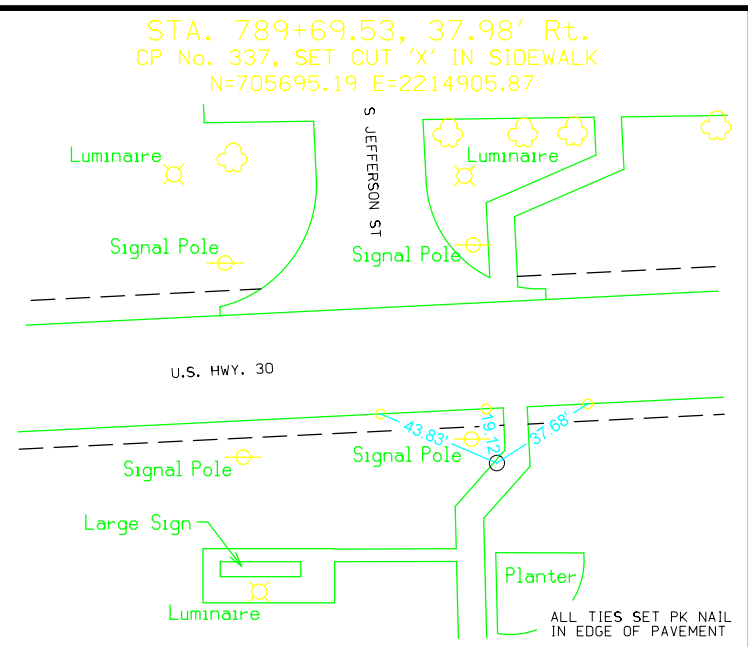
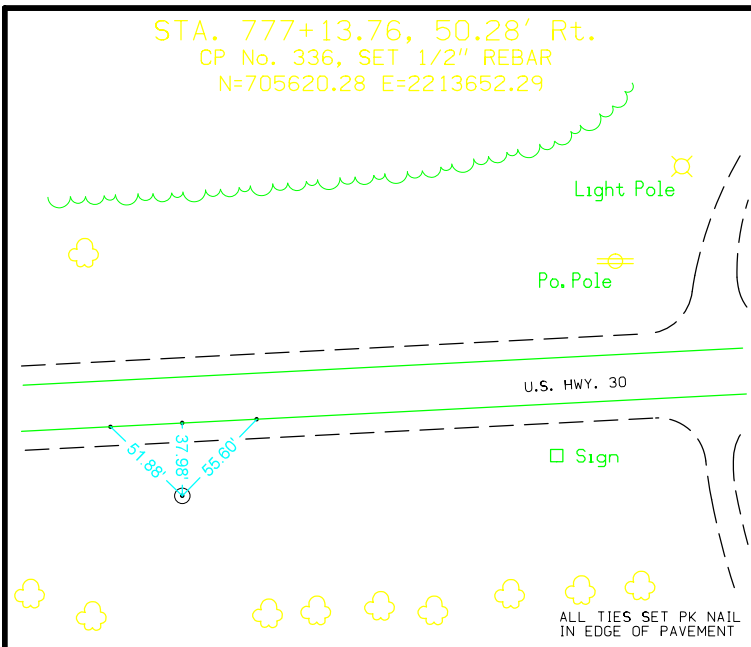


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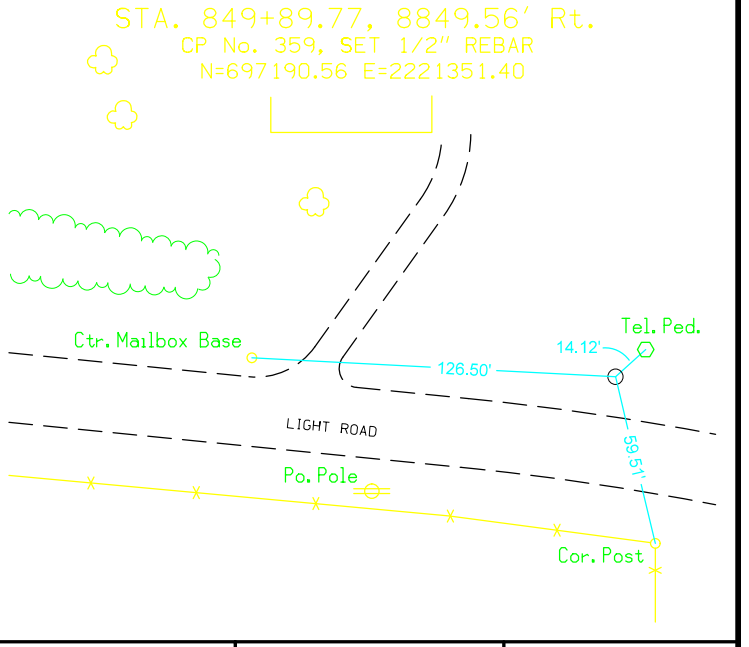
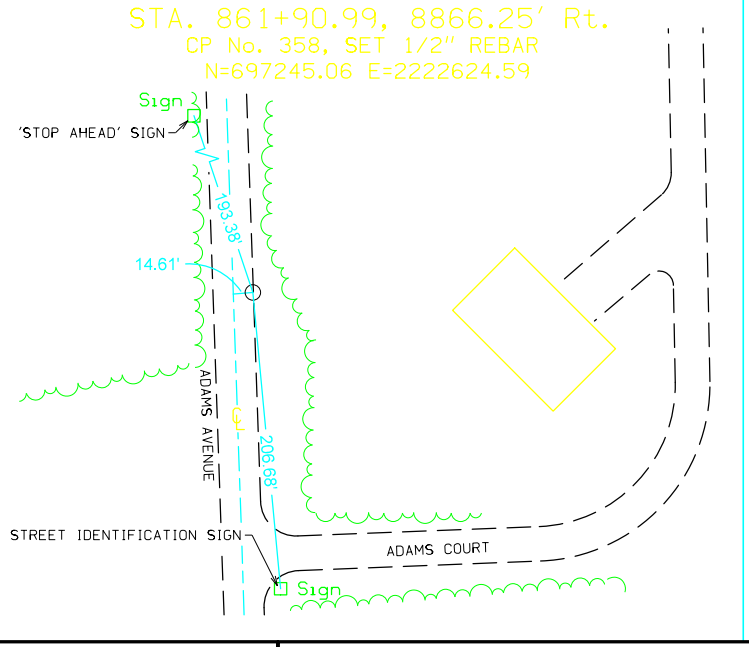
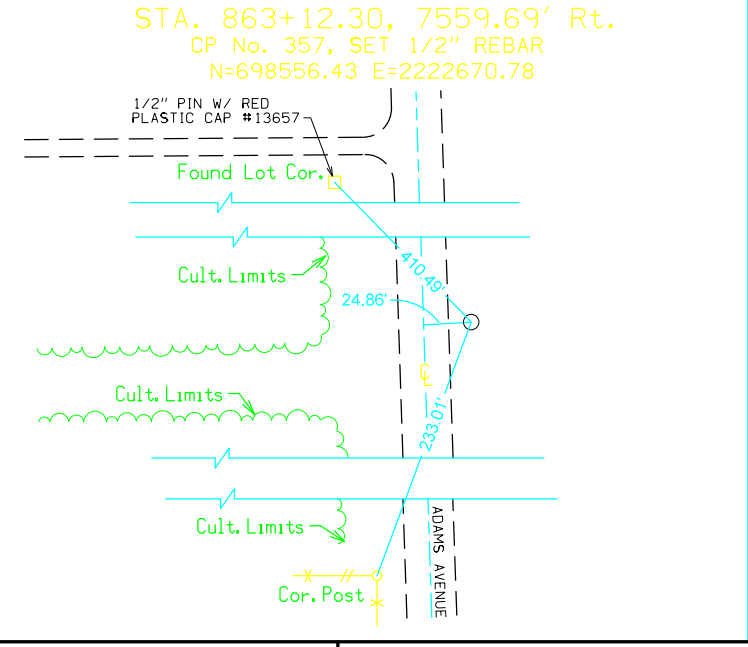
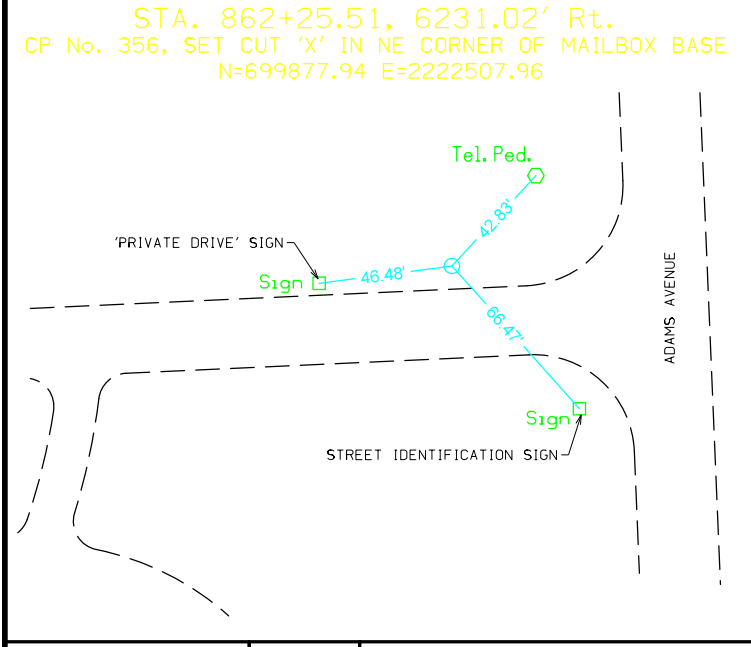
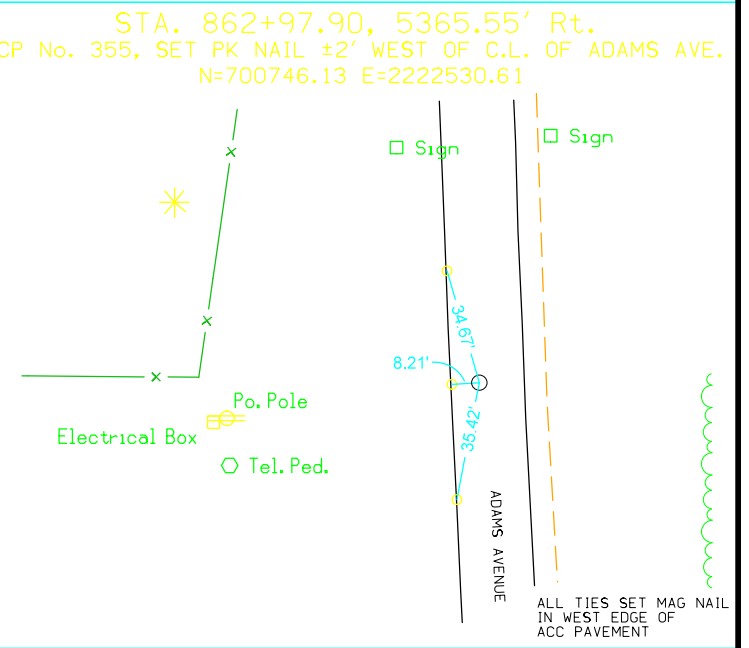
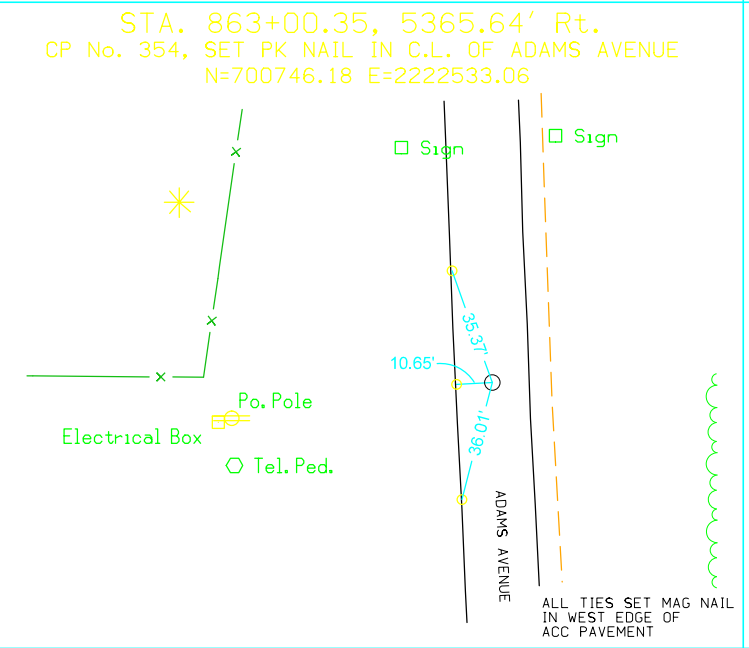
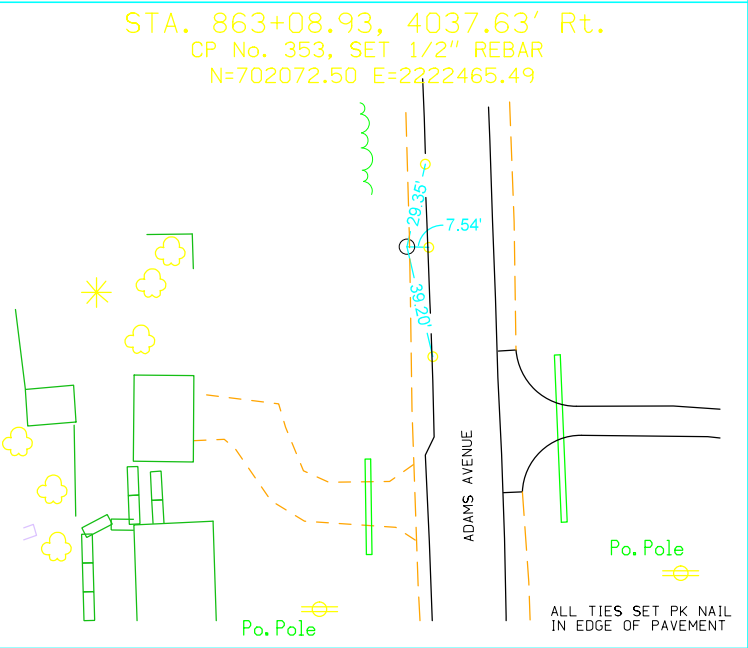
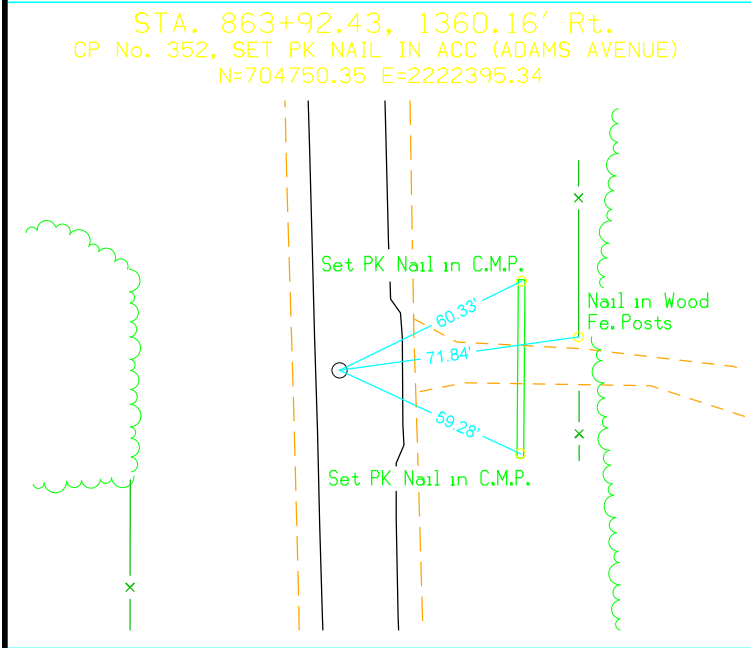
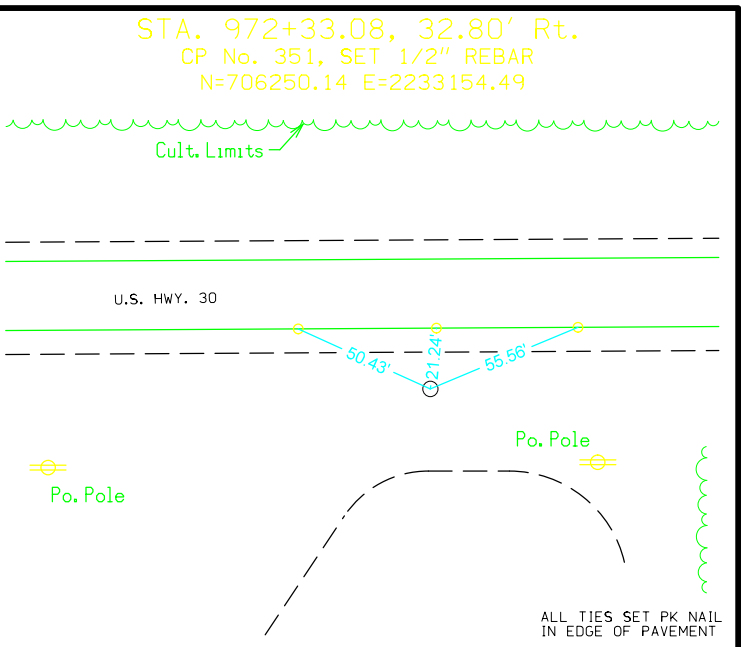
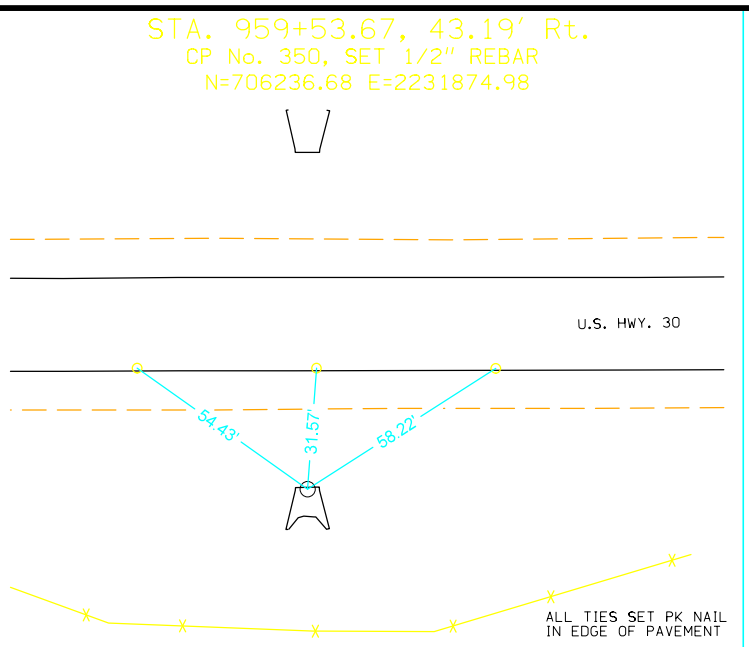
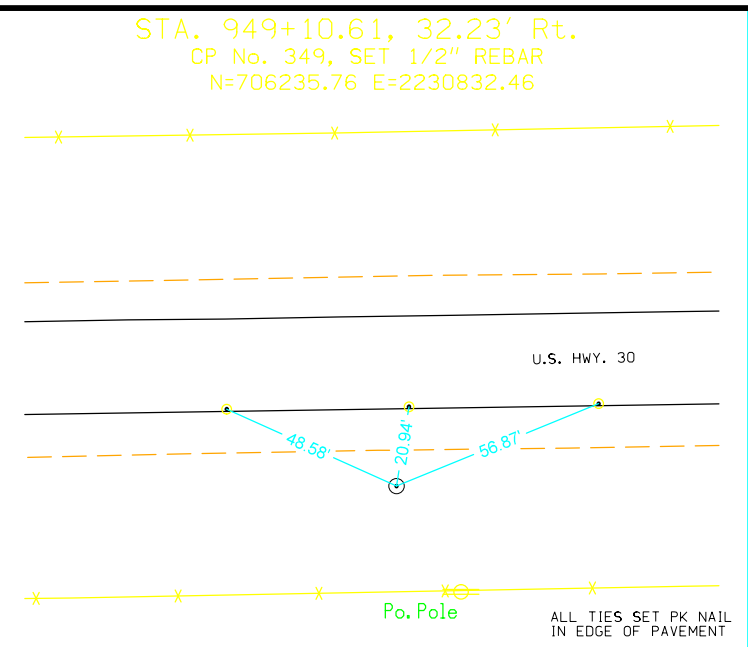
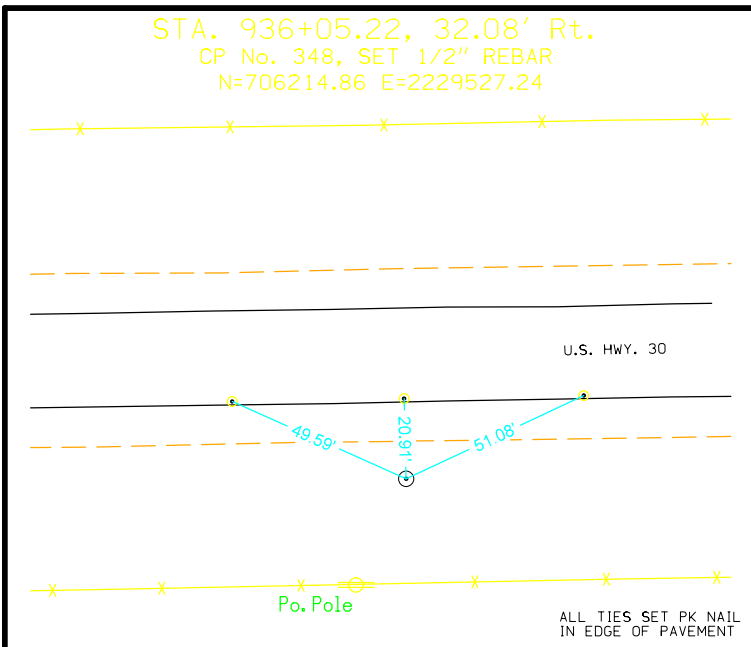


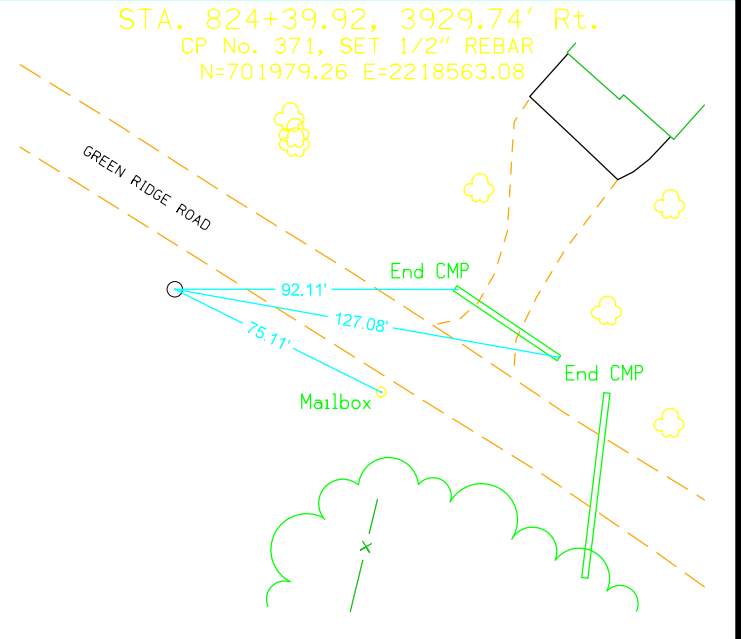
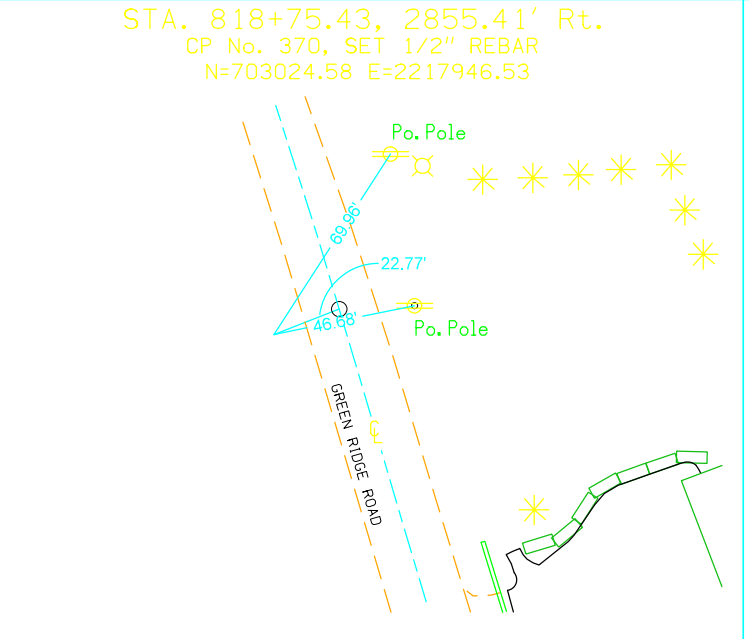
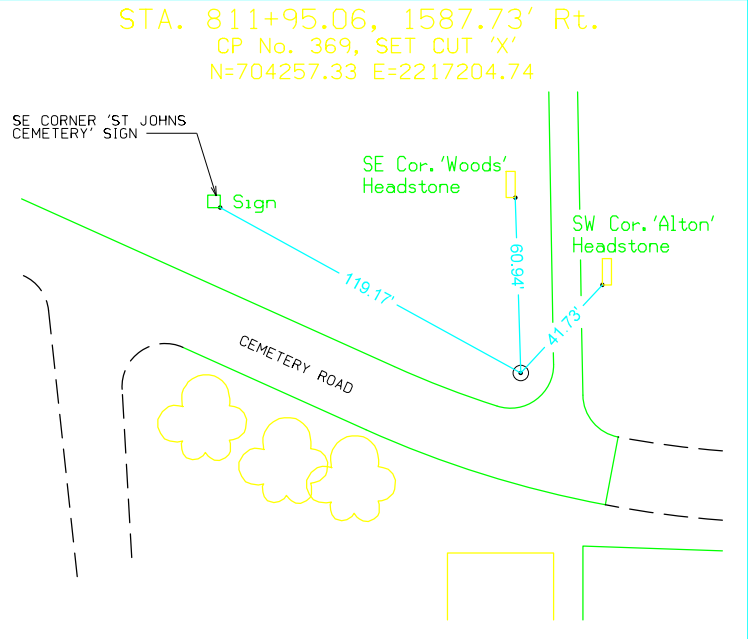
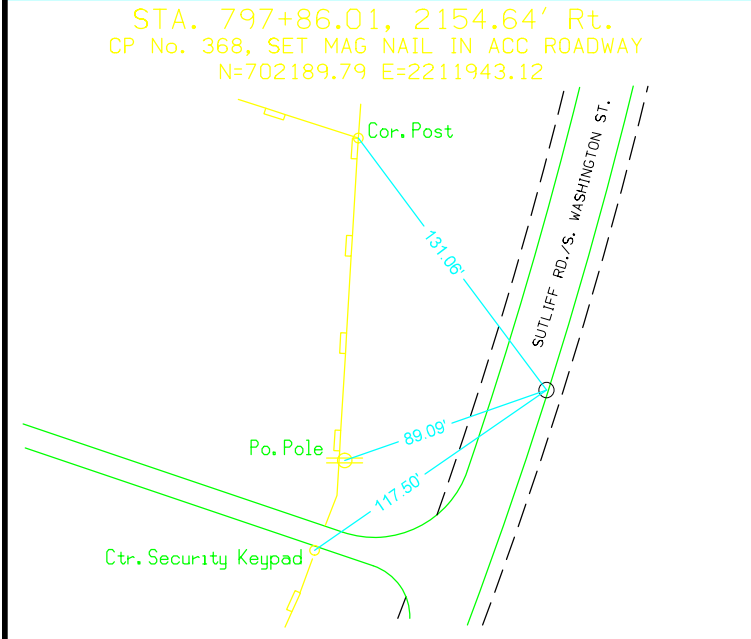
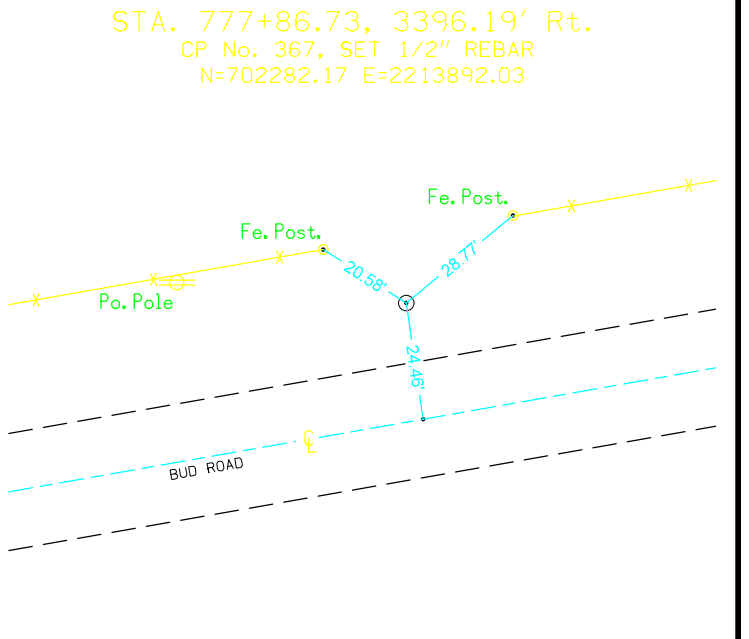
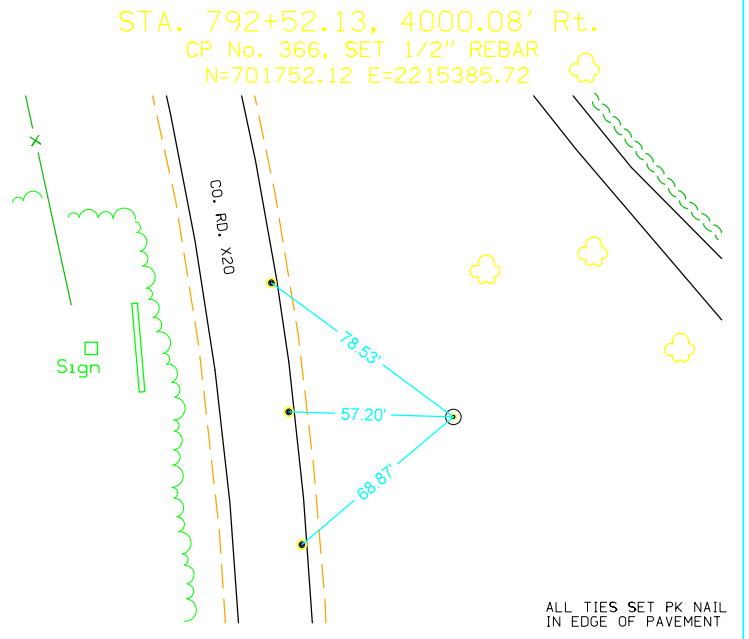
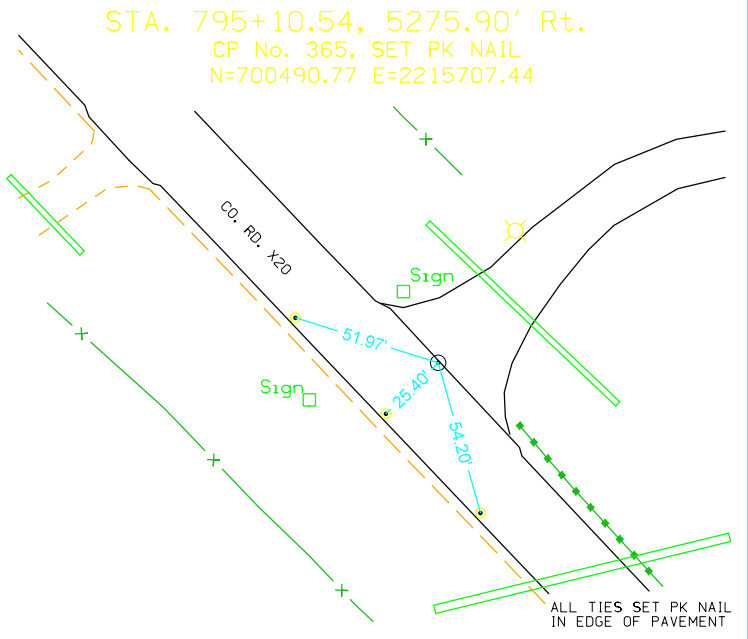
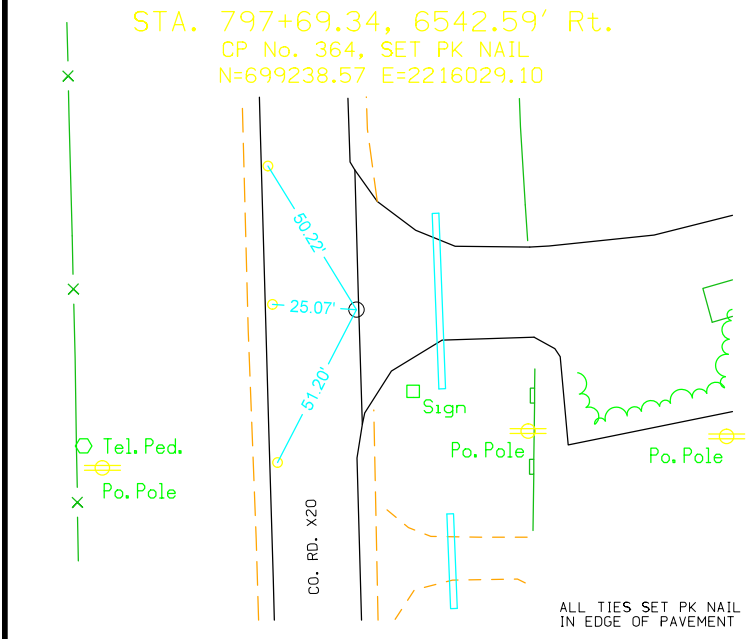
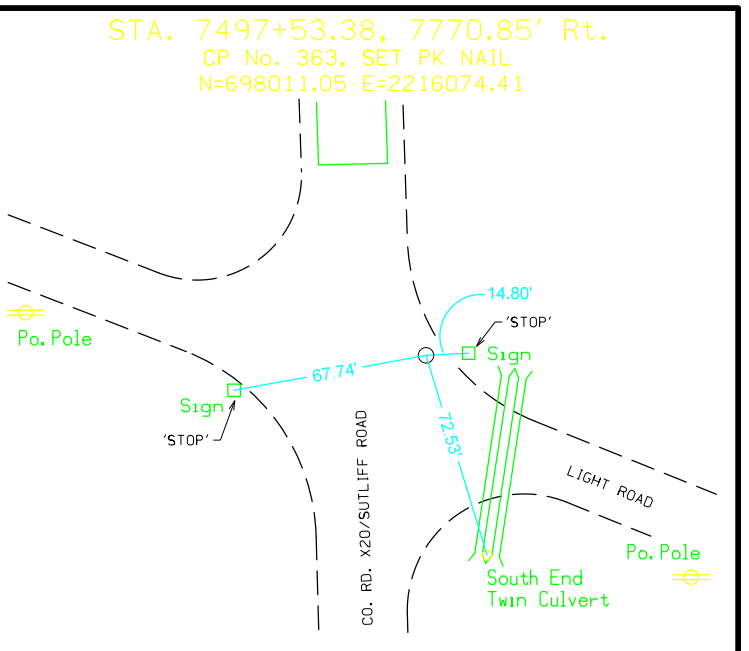
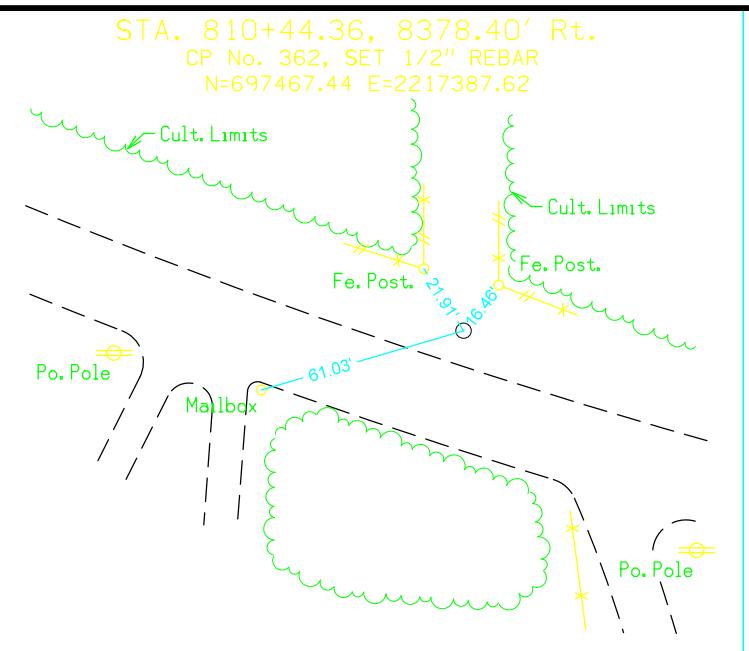
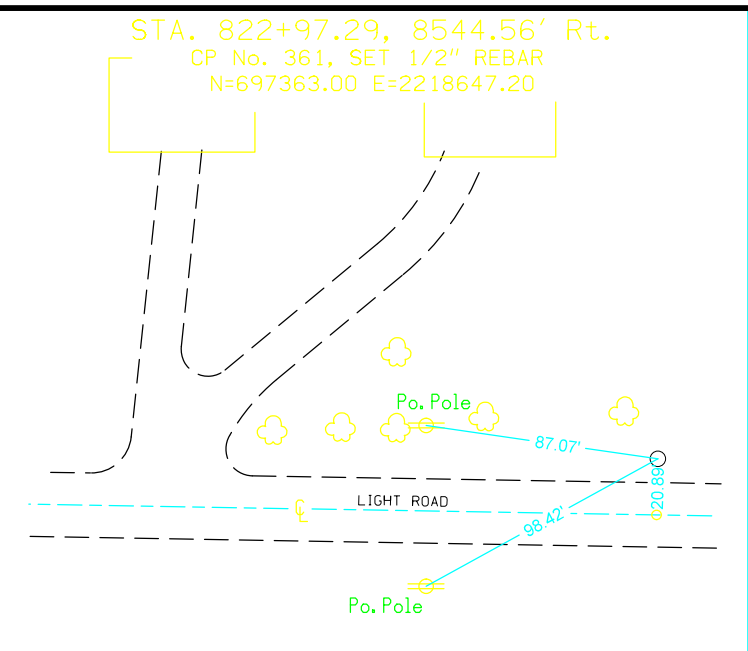
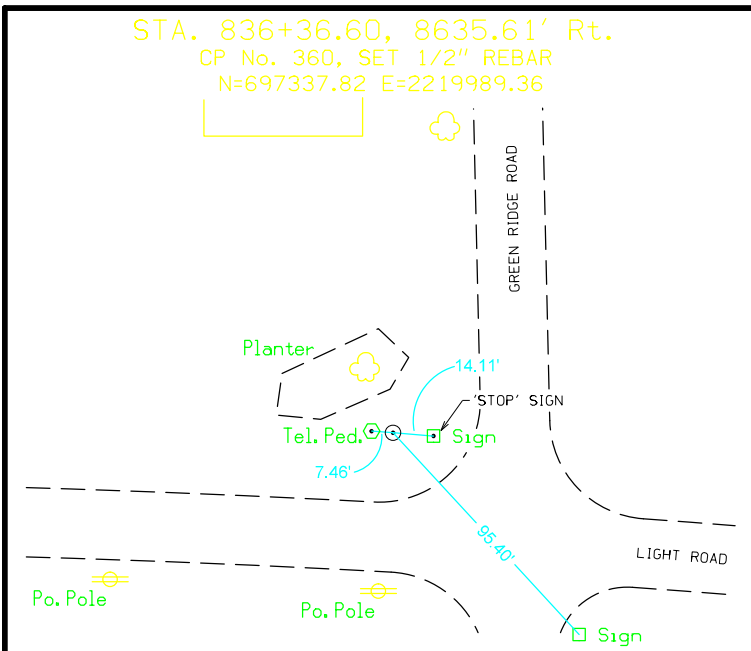






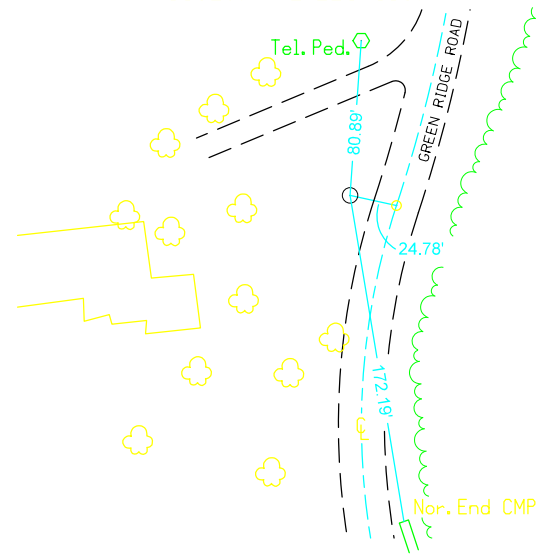




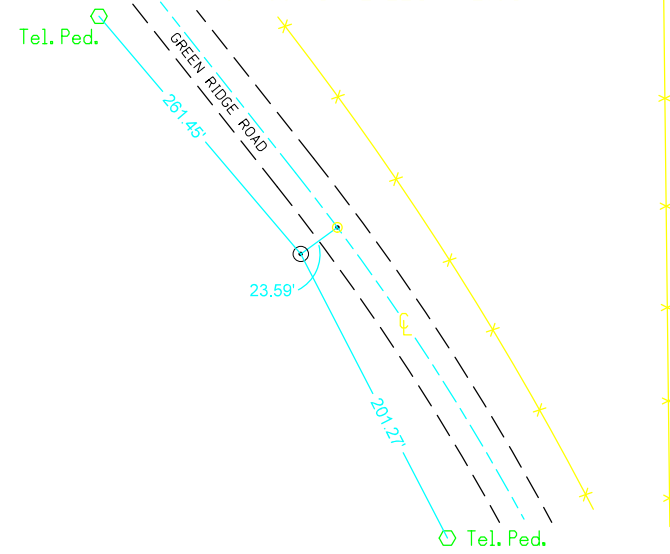




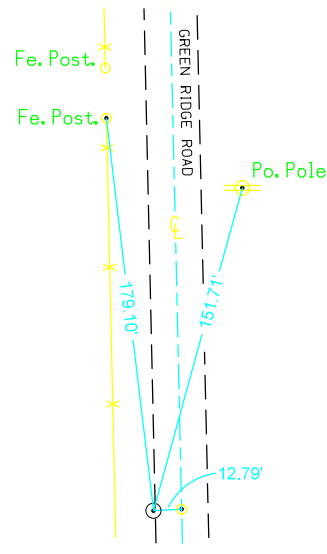
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 N=700825.74 E=2219108.44



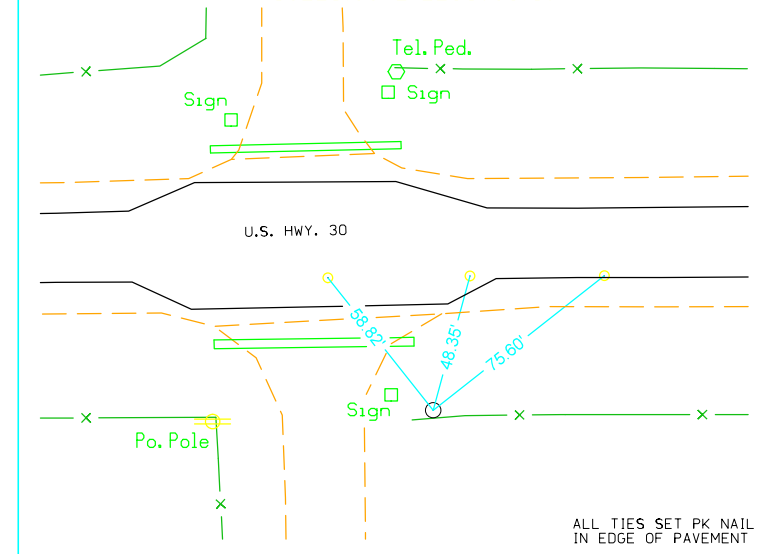
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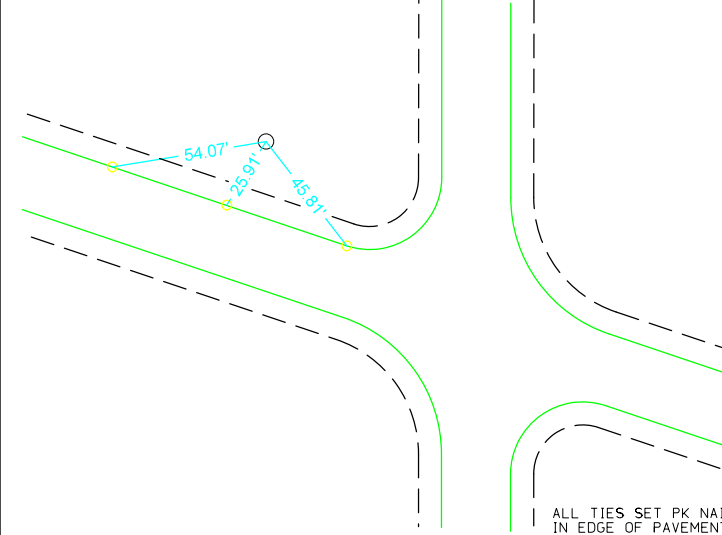
STA. 836+88.34, 7657.96' Rt.  
 CP No. 374, SET 1/2" REBAR  
 N=698316.83 E=2219993.04



STA. 956+61.82, 58.59' Rt.  
 CP No. G432, FOUND 5/8" REBAR WITH ALUMINUM DOT CAP  
 N=706220.86 E=2231583.15



STA. 1022+40.90, 36.19' Lt.  
 CP No. G434, FOUND 5/8" REBAR WITH ALUMINUM DOT CAP  
 N=705409.05 E=2238027.51



**STAGING NOTES**

**West End Staging, U.S. 30**

Stage 1: Maintain traffic on existing U.S. 30

- Construct EBLs from approx. Sta. 610+00 to Iowa 1.
- Construct WBL's from east of Willow Creek Road to Iowa 1.
- Construct Iowa 1 west ramps.
- Construct connection between existing U.S. 30 and EBL's.
- Construct 2-way crossover on bypass east of Willow Creek Road and prior to Iowa 1 interchange.

Stage 2: Transition traffic from existing U.S. 30 to the EBL's. Use crossover east of Willow Creek to transition to 4-lane. Traffic can exit bypass at Iowa 1 if construction is not complete east of that point.

- Construct WBL's from BOP to portion constructed with Stage 1.
- Construct Irish Lane and U.S. 30 west tie. Irish and existing U.S. 30 through construction area will be closed during this work.

Stage 3: U.S. 30 traffic utilizes WBL's. Use crossover east of Willow Creek to transition to 4-lane.

- Construct EBL's west of Sta. 610+00.
- Construct Wilcox Road. Wilcox will be closed during construction; a temporary entrance will be necessary for the implement dealer.

**East End Staging, U.S. 30**

Note: construction of work south of Sta. 910+00 can occur regardless of staged construction shown below.

Stage 1: Maintain traffic on existing U.S. 30

- Construct Kirkwood 4. Connect to U.S. 30 using single lane closures with flaggers, as necessary.
- Construct Charles Avenue south of U.S. 30. Charles Avenue will be closed during construction.
- Construct a connector between Kirkwood 4 and existing U.S. 30 east of Charles?

Stage 2: U.S. 30 traffic follows Charles Avenue (or connector east of Charles?) south to Kirkwood 4.

- Construct EBL, Sta. 926+44 - EOP
- Construct WBL, Sta. 923+00 - EOP. Only construct portion of culvert at Sta. 921+82.82.
- Construct crossover west of Charles Avenue
- Construct connection between EOP and existing U.S. 30. Use single lane closures with flaggers, as necessary.
- Construct connection between existing U.S. 30 and Sta. 923+00 WBL. Use single lane closure with flaggers as necessary.

Stage 3: U.S. 30 traffic follows portion of WBL constructed during Stage 2, and connections to existing U.S. 30.

- Construct remaining portions of EBL, including remainder of culvert at Sta. 921+82.82.
- Construct crossover on proposed bypass south of existing U.S. 30.

Stage 4: U.S. 30 traffic follows EBL. Traffic splits to 4-lanes south of existing U.S. 30 on crossover constructed with Stage 3.

- Construct gap in WBL from Sta. 910+00 to Sta. 923+00. Remove connection between existing U.S. 30 and WBL.

Stage 5: Bypass is completely open to traffic throughout

- Remove crossover south of existing U.S. 30.

**Adams Avenue Staging**

Stage 1: Adams traffic remains on existing Adams Avenue

- Construct relocated Adams Avenue, including bridge over bypass.
- Construct gravel on-site detours at north and south connections and at Kirkwood 1 and South Connector tie-ins. Utilize on-site detours during construction of connections. Recommend residents south of the construction area on Adams use alternative routes during this operation.

Stage 2: Adams traffic uses relocated Adams Avenue and connectors

- Construct U.S. 30 bypass through existing Adams Avenue.
- Construct turn-arounds at Adams dead ends.

**Green Ridge Road Staging**

Stage 1: Traffic maintained on existing Green Ridge Road

- Install sheet piling and/or construct on-site run-around to allow roadway to remain open during bridge construction.

Stage 2: Traffic maintained on on-site run-around and existing roadway as available.

- Construct Green Ridge bridge
- Construct realigned Green Ridge Road

Stage 3: Traffic uses relocated Green Ridge Road

- Construct bypass through existing Green Ridge Road

**Sutliff Road Staging**

Stage 1: Close existing Sutliff Road from Sta. 8805+00 to EOP. Access across dam still available from south of bypass

- Construct Sutliff bridge over bypass.
- Construct Sutliff road through closure area.
- Construct entrance road over dam.

Stage 2: Open relocated Sutliff Road north of Sta. 8809+00 for access across dam. Close Sutliff Road from Sta. 8792+00 - Sta. 8809+00.

- Construct bypass through former dam access road.
- Construct Sutliff Road south of Sta. 8809+00. South of Sta. 8792+00, construct pavement using single lane closures with stop sign to maintain quarry access.

**Iowa 1 Staging**

Stage 1: Maintain traffic on existing roadway

- Widen and pave to full-width (12') shoulder adjacent to southbound lane.

Stage 2: Shift traffic such that southbound traffic is on paved shoulder and northbound traffic is on southbound lane

- Construct proposed Iowa 1 northbound lanes and adjacent ramp terminals.

**STAGING NOTES**

Stage 3: Shift traffic to newly constructed northbound lanes

- Construct proposed Iowa 1 center turn lane, southbound lanes, and adjacent ramp terminals.

**TRAFFIC CONTROL PLAN**

1. Traffic will be maintained in U.S. 30 at all times.

2. Traffic on Iowa 1 will be maintained at all times. Short-term closures will be necessary for setting bridge beams.

3. Intermittent, short-term lane closures may be necessary on U.S. 30 and Iowa 1 to construct detour pavement, shoulder strengthening, or for other work; overnight lane closures will not be allowed.

4. Wilcox Road, Irish Lane, and Charles south of U.S. 30 will be closed during staged construction. Closures shall be limited to the time necessary to construct the roadway improvements and U.S. 30 improvements immediately adjacent to the roadways. These road shall be re-opened to traffic at the earliest time as practical.

5. Sutliff Road will be closed to traffic during construction, as noted in the staging notes. Access to local properties within the construction zone shall be maintained at all times. A detour route for through traffic will be established by the County.

6. Standing Rock Road will be closed to traffic throughout construction south of Sta. 7775+00.

7. Green Ridge Road will remain open to traffic throughout construction.

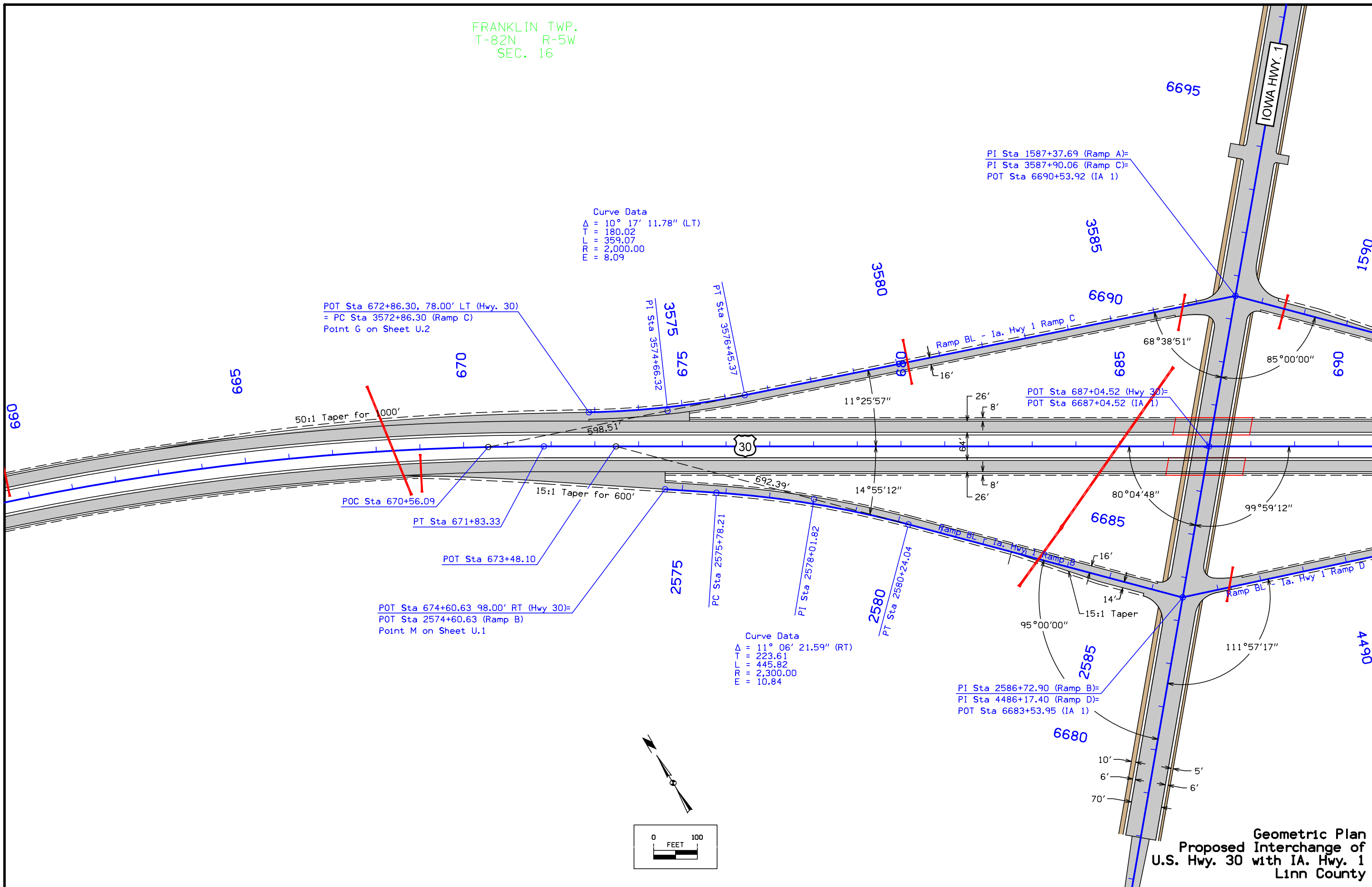
8. Adams Avenue will be open to local traffic throughout construction. Granular surfaced run-arounds will be necessary to maintain access to local properties during construction of tie-ins.

9. Traffic control will be per the TC series of Standard Road Plans as referenced elsewhere in this plan set.

10. Access to local properties will be maintained throughout construction.

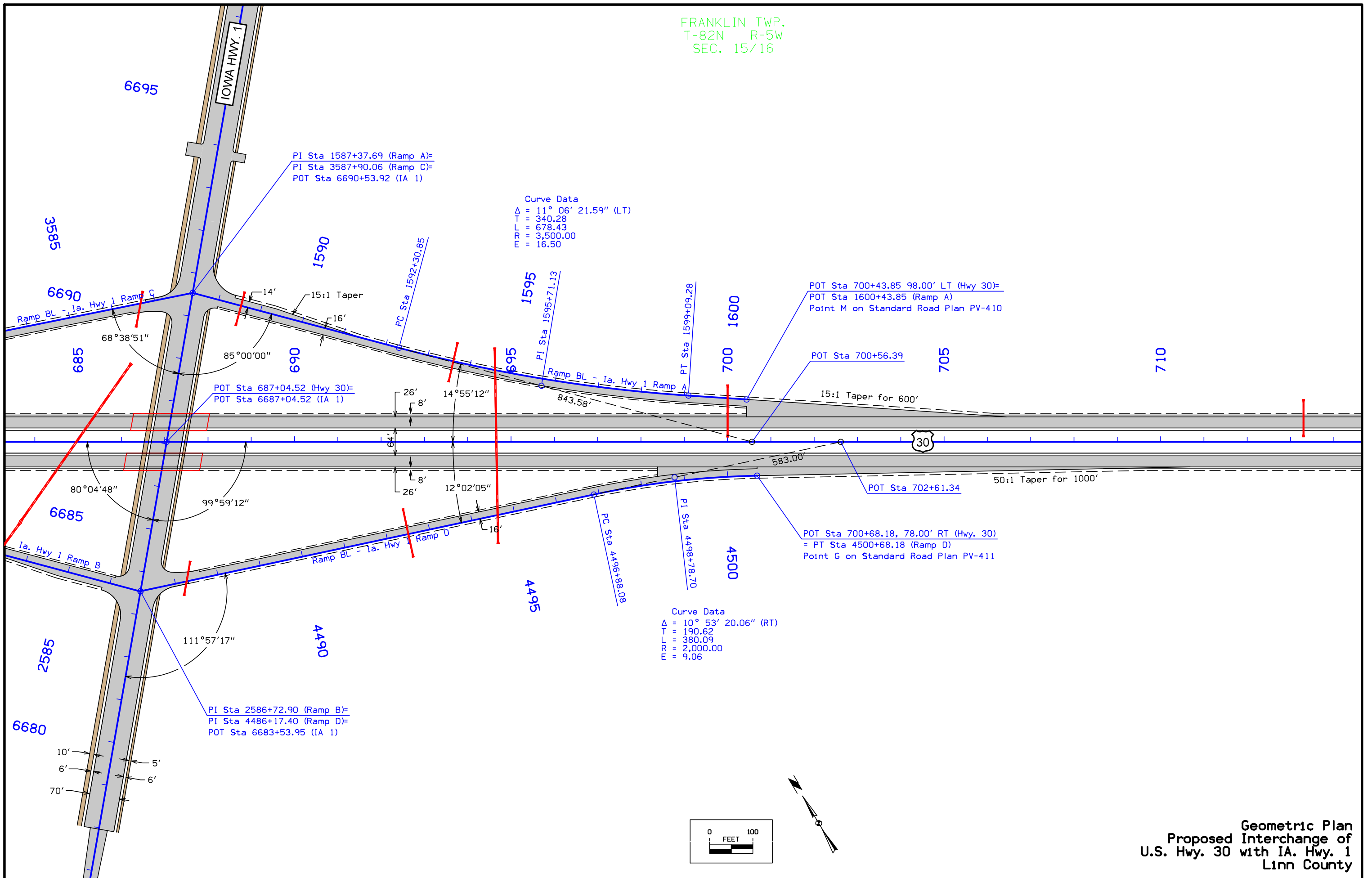


FRANKLIN TWP.  
T-82N R-5W  
SEC. 16



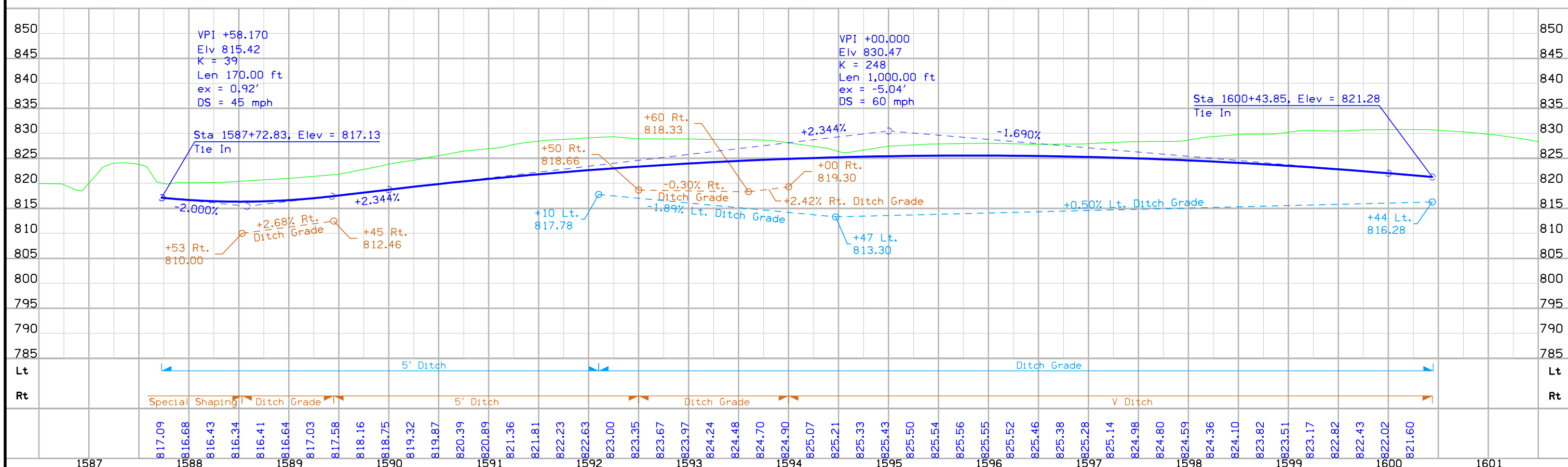
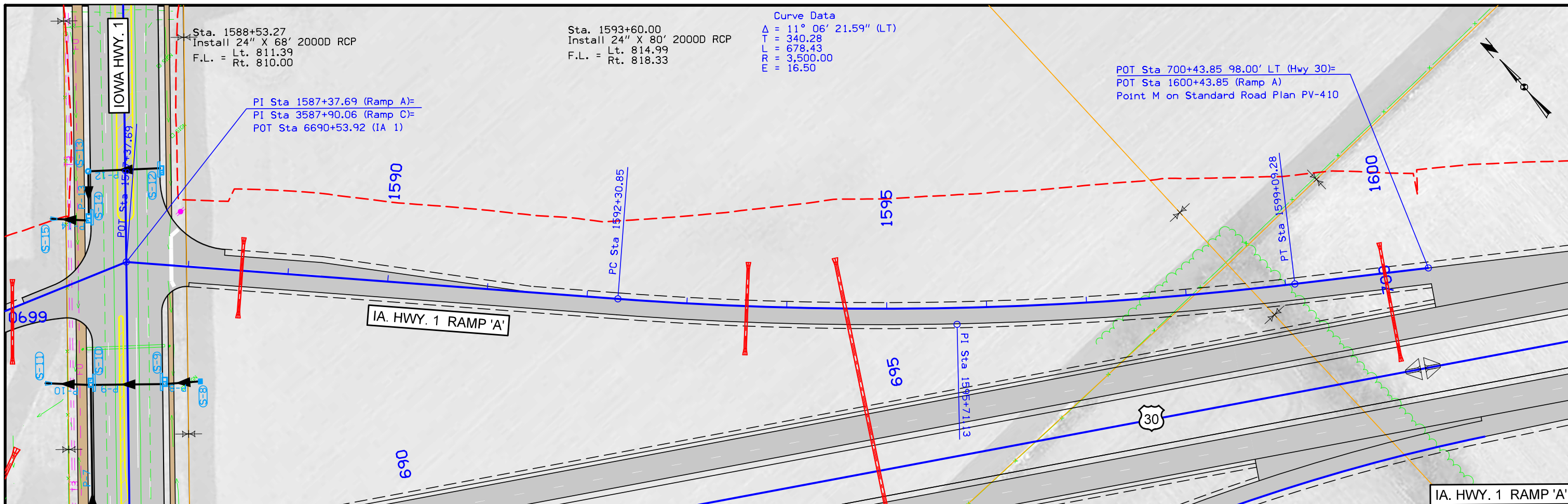
Geometric Plan  
Proposed Interchange of  
U.S. Hwy. 30 with IA. Hwy. 1  
Linn County

FRANKLIN TWP.  
T-82N R-5W  
SEC. 15/16

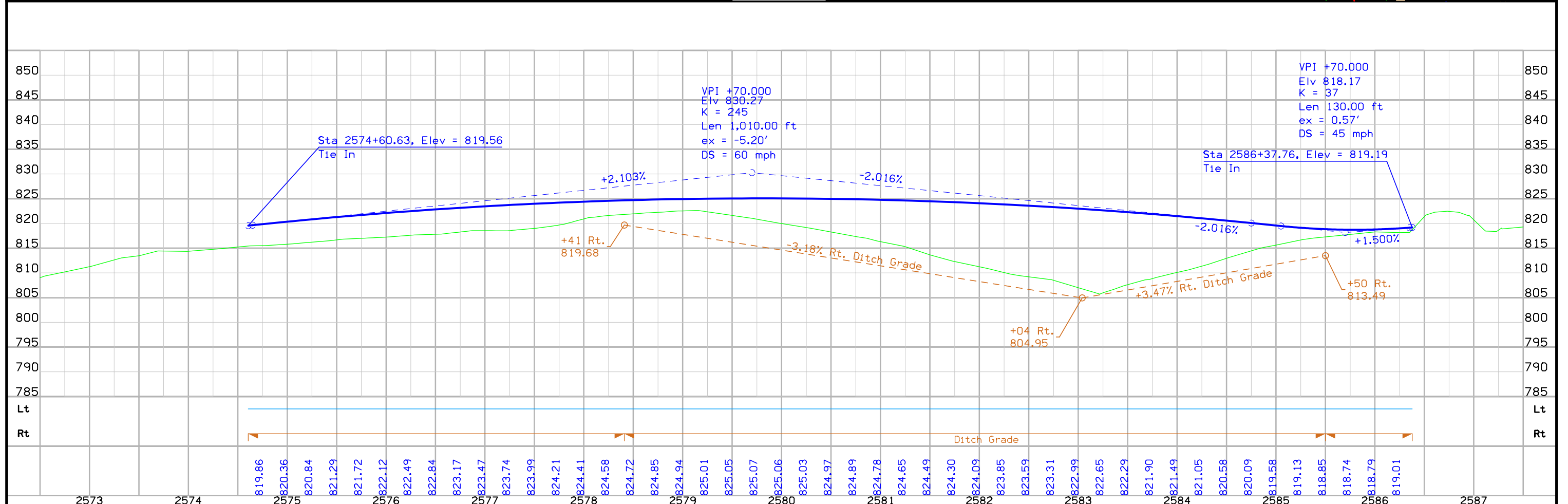
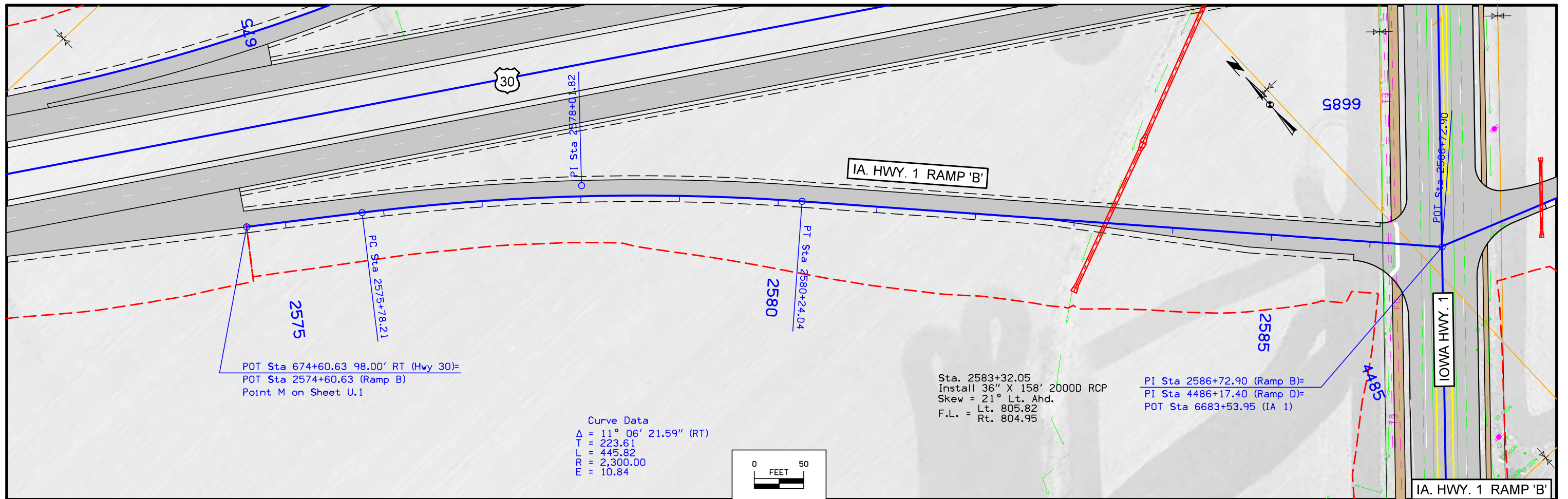


Geometric Plan  
Proposed Interchange of  
U.S. Hwy. 30 with IA. Hwy. 1  
Linn County

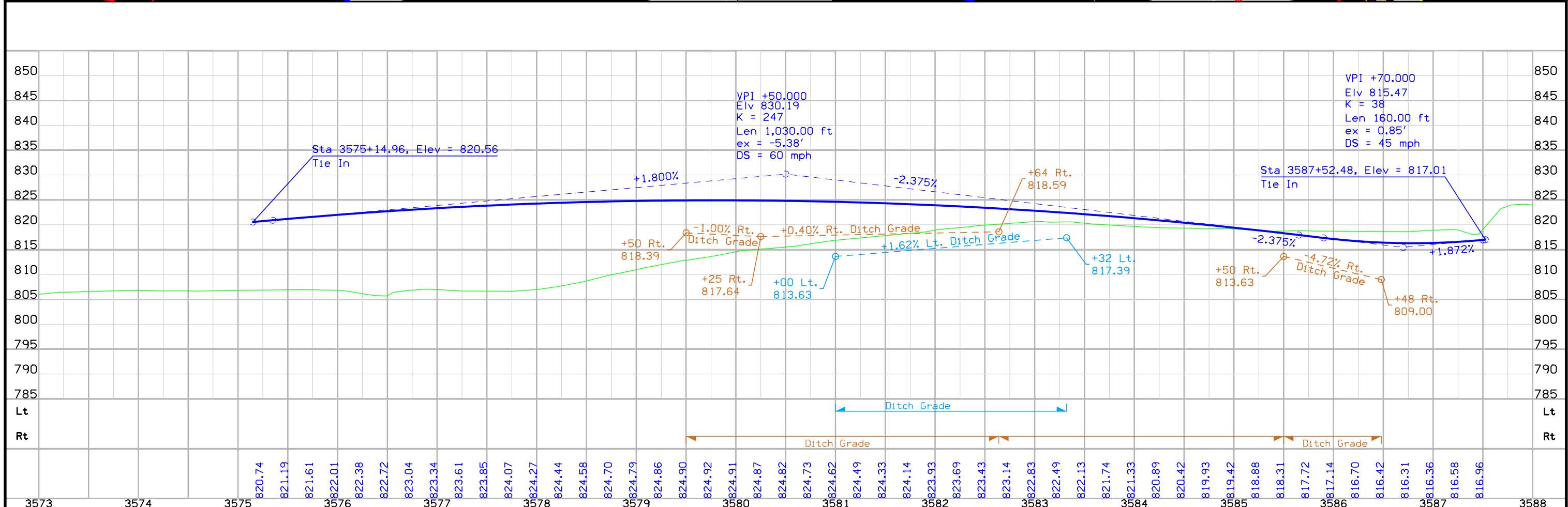
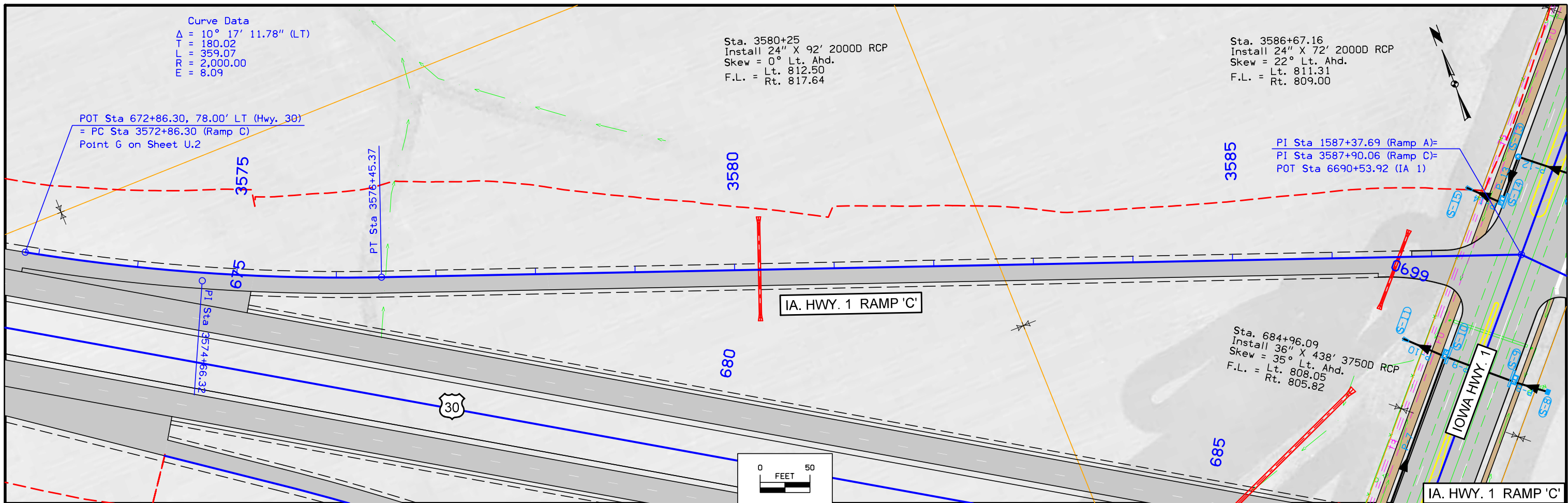


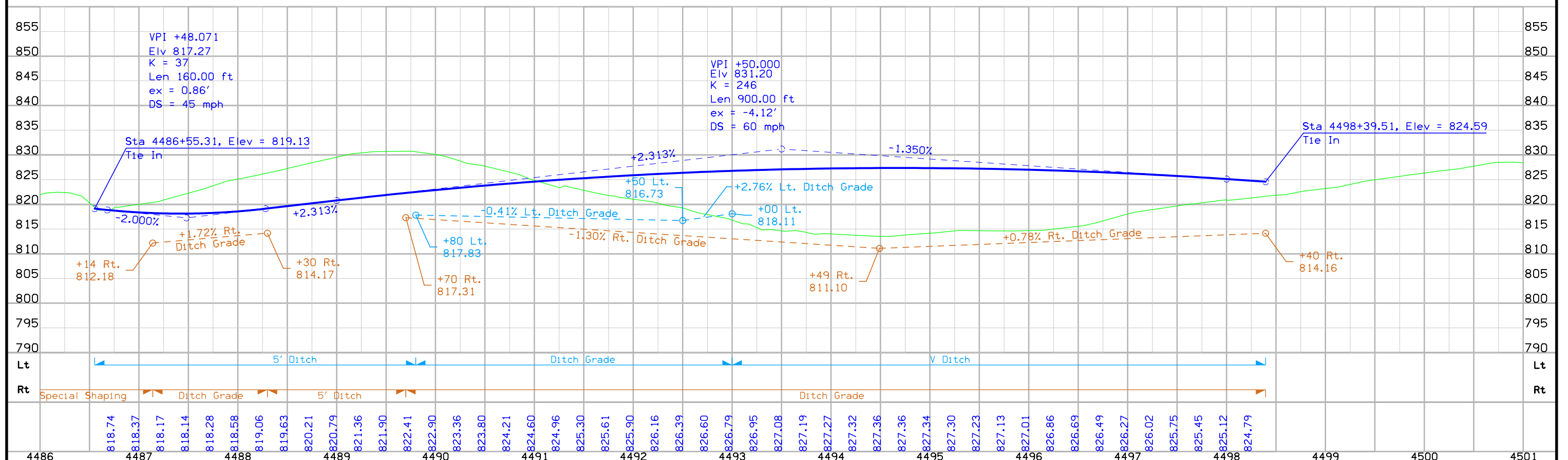
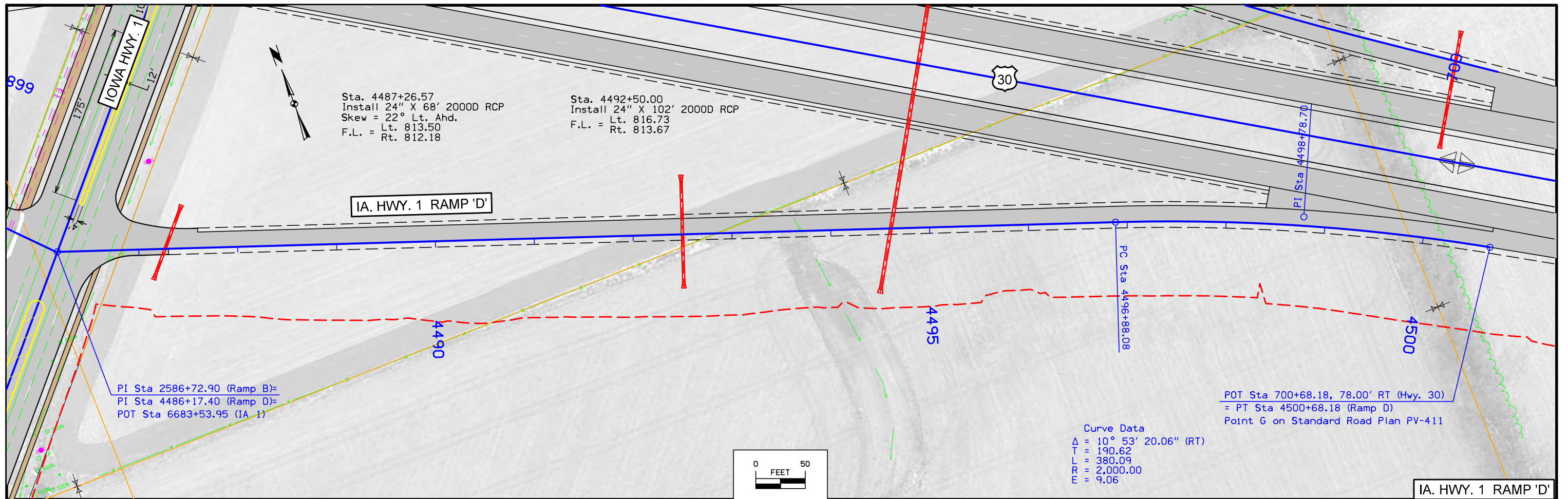


|        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1587   | 1588   | 1589   | 1590   | 1591   | 1592   | 1593   | 1594   | 1595   | 1596   | 1597   | 1598   | 1599   | 1600   | 1601   |
| 817.09 | 816.68 | 816.43 | 816.34 | 816.41 | 816.64 | 817.03 | 817.58 | 818.16 | 818.75 | 819.32 | 819.87 | 820.39 | 820.89 | 821.36 |
| 821.81 | 822.23 | 822.63 | 823.00 | 823.35 | 823.67 | 823.97 | 824.24 | 824.48 | 824.70 | 824.90 | 825.07 | 825.21 | 825.33 | 825.43 |
| 825.50 | 825.54 | 825.56 | 825.55 | 825.52 | 825.46 | 825.38 | 825.28 | 825.14 | 824.98 | 824.80 | 824.59 | 824.36 | 824.10 | 823.82 |
| 823.51 | 823.17 | 822.82 | 822.43 | 822.02 | 821.60 |        |        |        |        |        |        |        |        |        |











FRANKLIN TWP. (LINN CO.)  
T-82N R-5W  
SEC. 13

Curve Data  
 $\Delta = 14^\circ 18' 20.36''$  (LT)  
 $T = 250.99$   
 $L = 499.36$   
 $R = 2,000.00$   
 $E = 15.69$

POT Sta 855+29.77, 78.00' LT (Hwy. 30)  
 = PC Sta 3555+29.77 (Ramp C)  
 Point G on Standard Road Plan PV-411

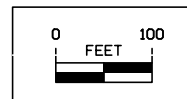
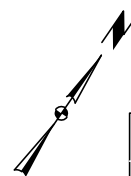
PI Sta 1568+66.58 (Ramp A)=  
 PI Sta 3569+49.10 (Ramp C)=  
 POT Sta 11873+70.26 (Adams)

POT Sta 870+31.27 (Hwy 30)=  
 POT Sta 11865+70.26 (Adams)

POT Sta 858+69.15, 98.00' RT (Hwy. 30)  
 = PC Sta 2558+69.15 (Ramp B)  
 Point M on Standard Road Plan PV-410

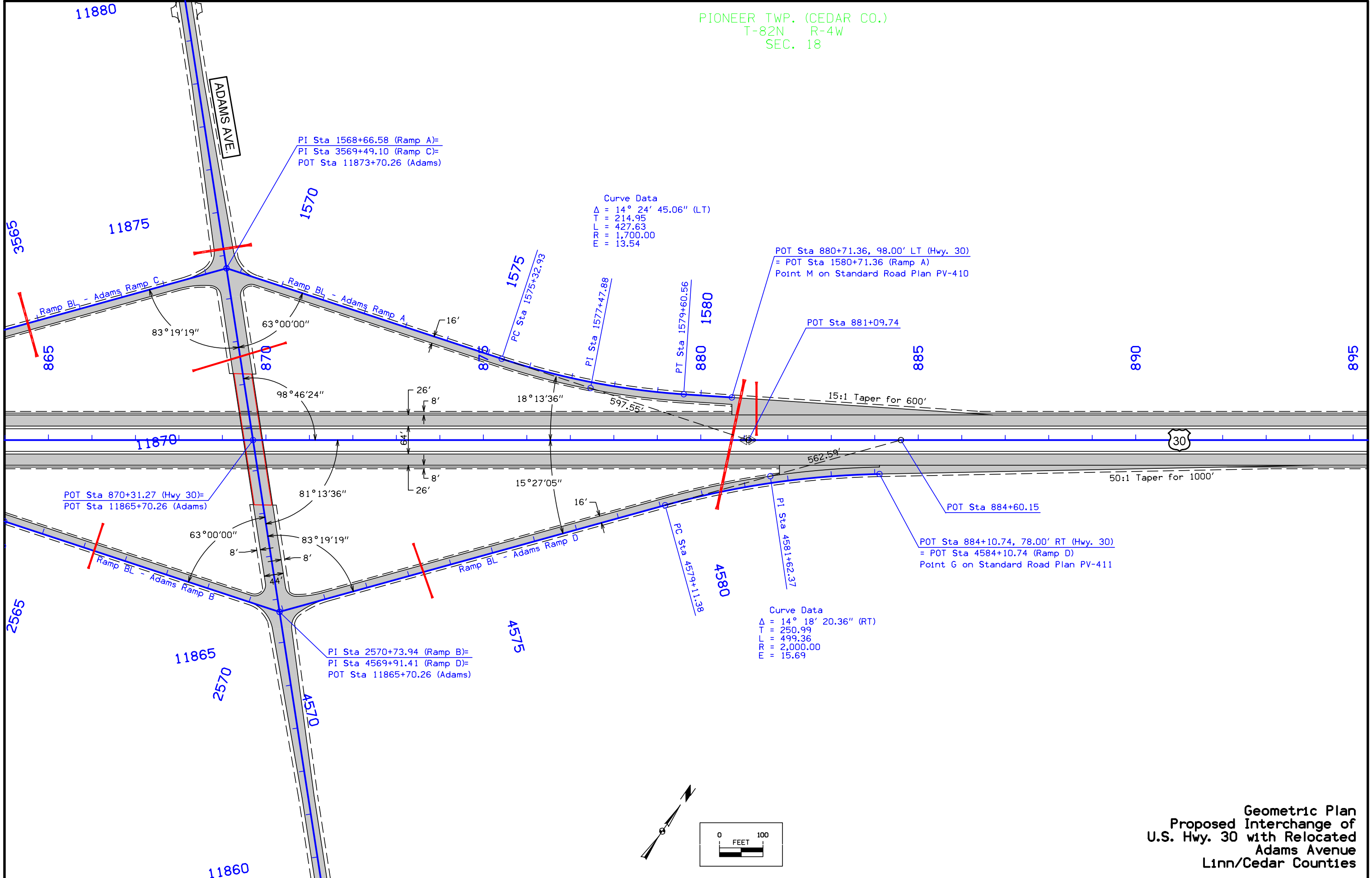
Curve Data  
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 $R = 1,700.00$   
 $E = 13.54$

PI Sta 2570+73.94 (Ramp B)=  
 PI Sta 4569+91.41 (Ramp D)=  
 POT Sta 11865+70.26 (Adams)



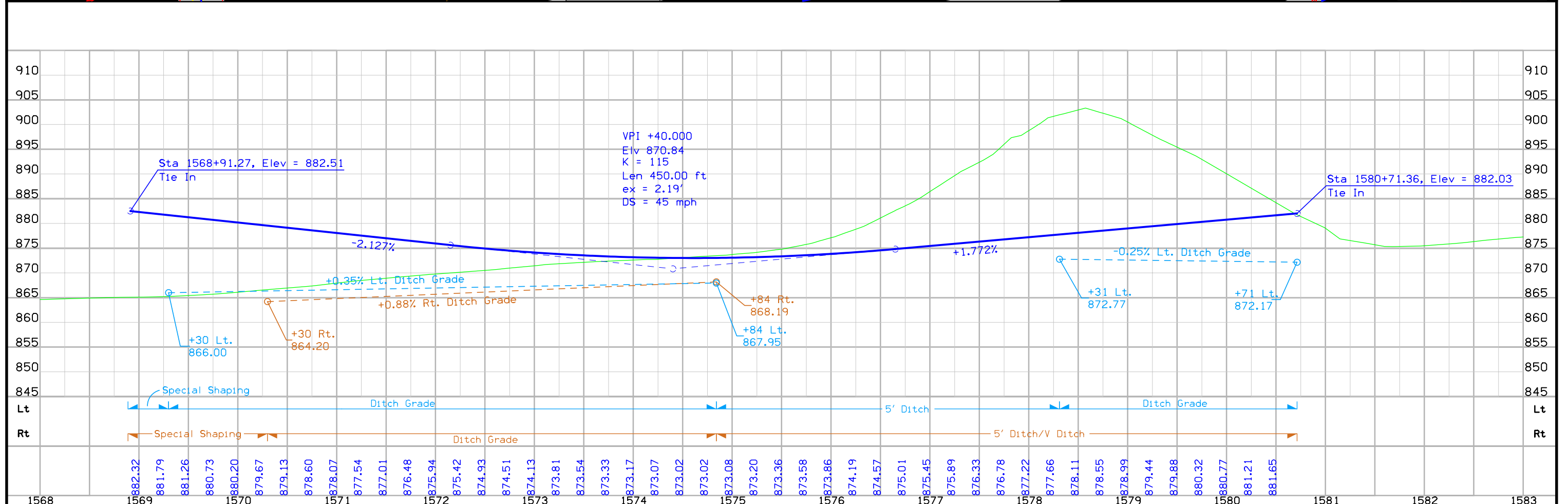
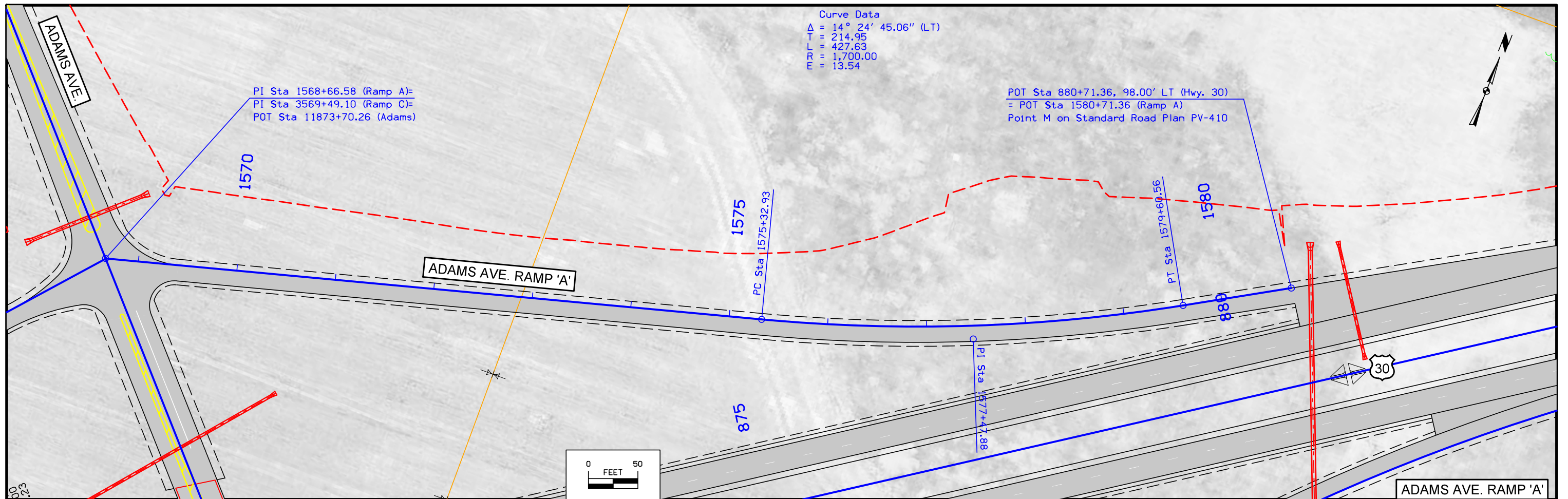
Geometric Plan  
 Proposed Interchange of  
 U.S. Hwy. 30 with Relocated  
 Adams Avenue  
 Linn/Cedar Counties

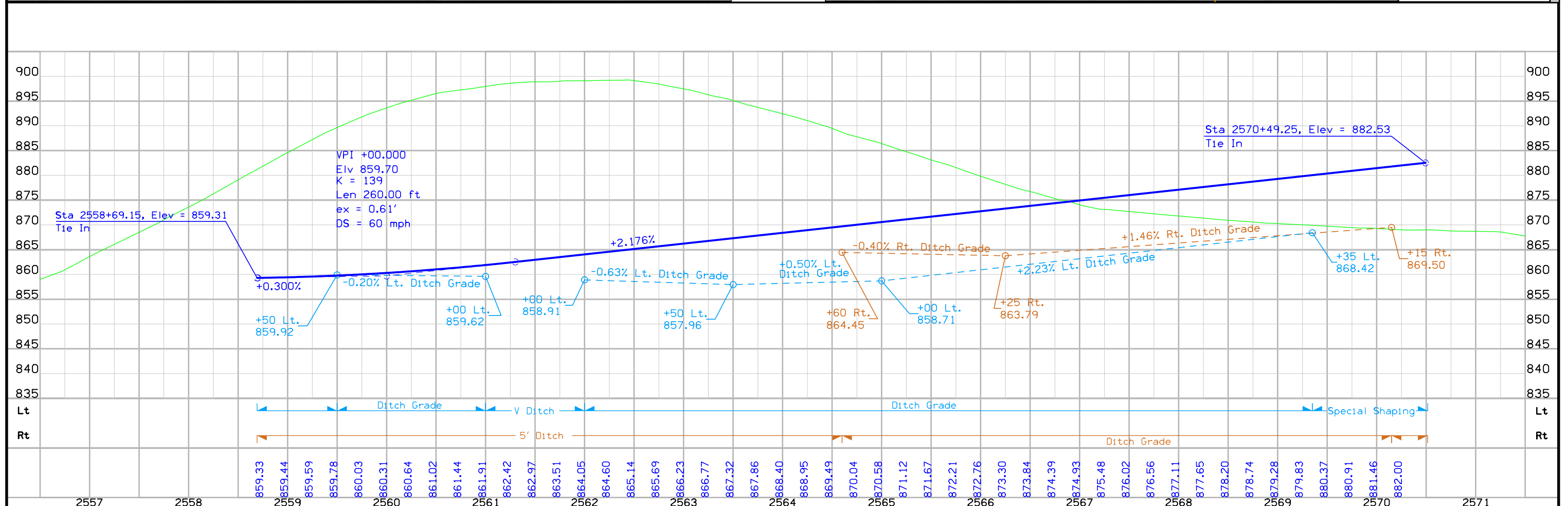
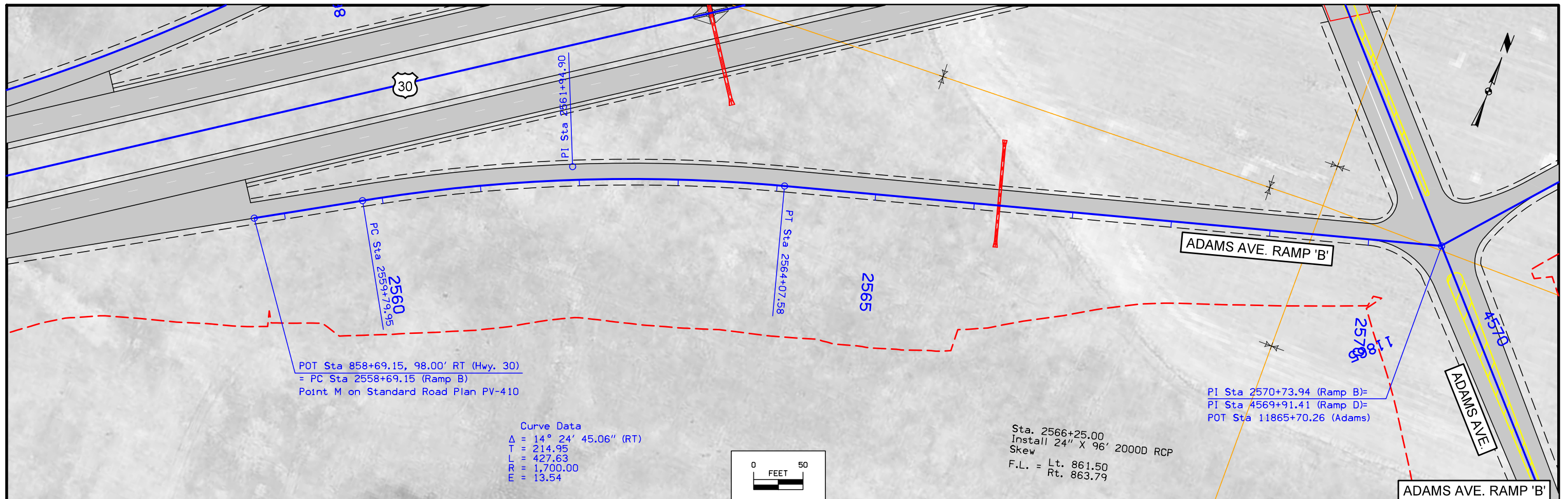
PIONEER TWP. (CEDAR CO.)  
 T-82N R-4W  
 SEC. 18



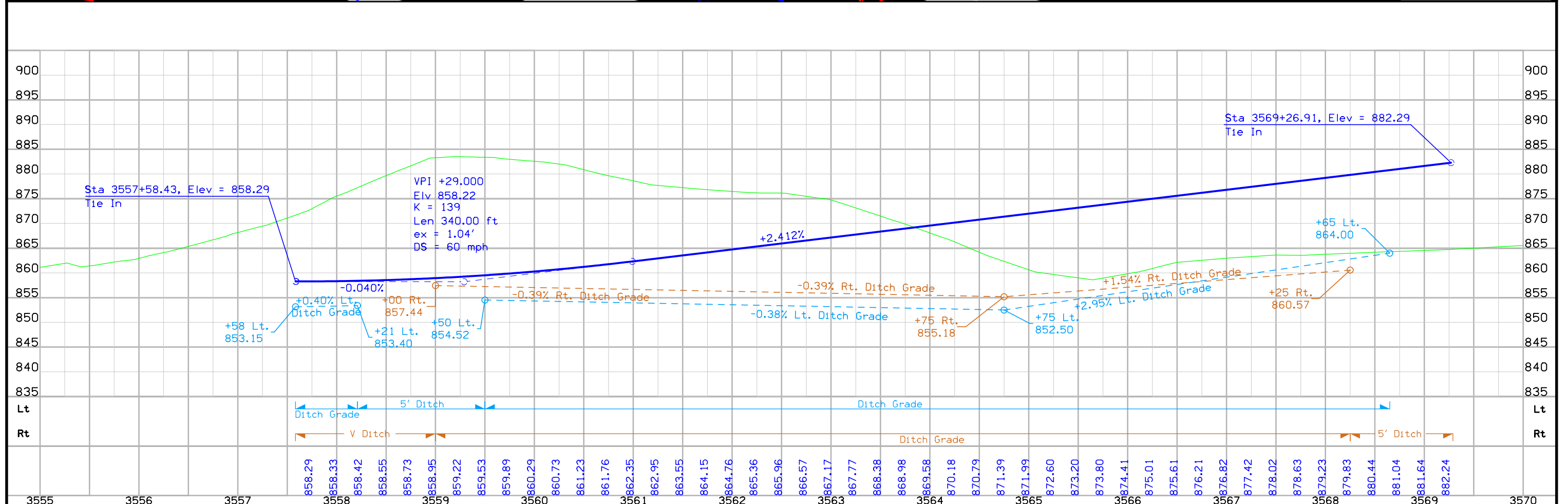
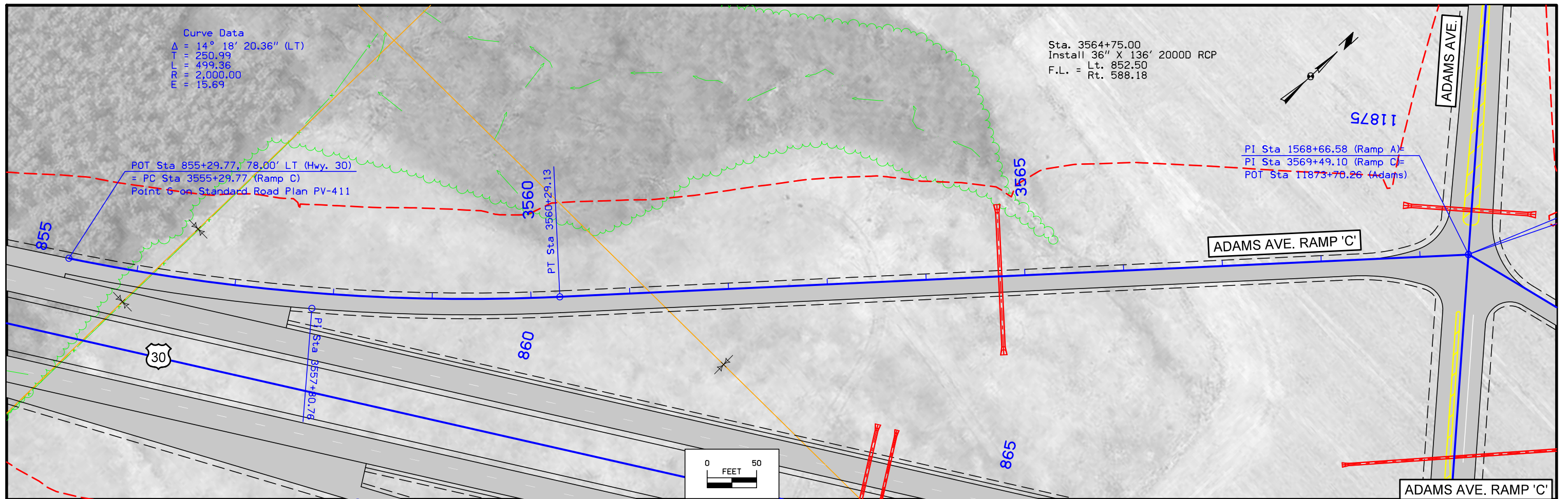
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 Adams Avenue  
 Linn/Cedar Counties



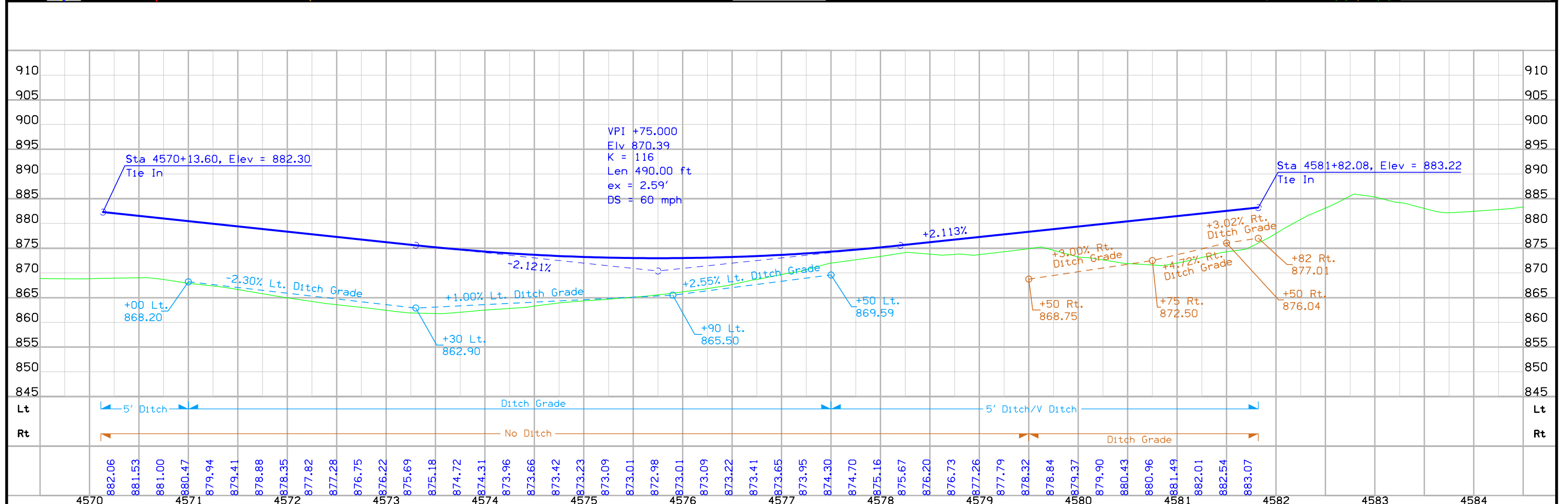
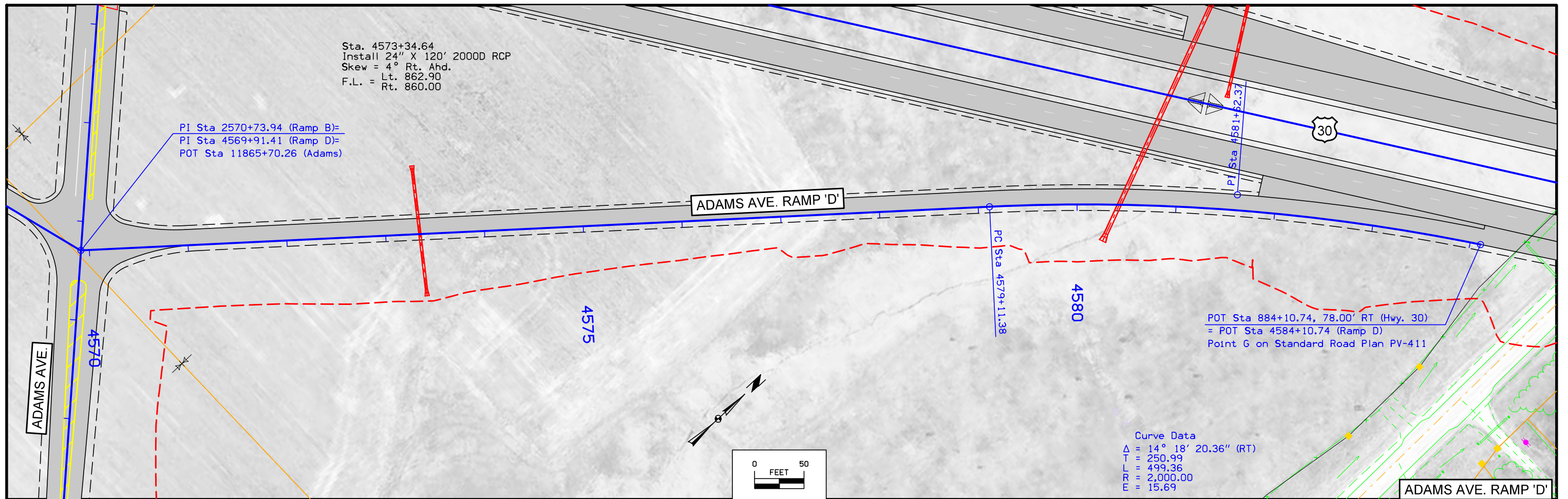












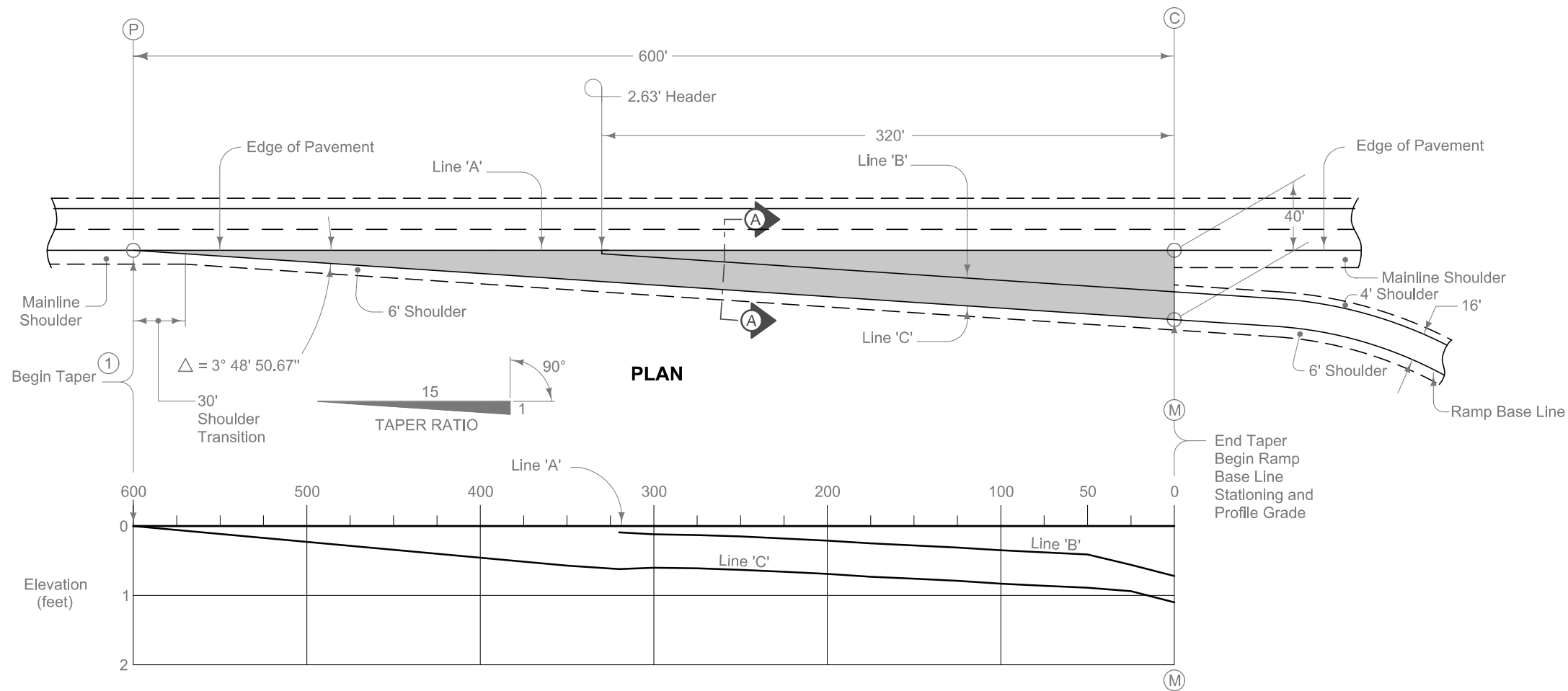


### STORM SEWER

\* Bid Item  
\*\* For SW-545

For bedding and backfill purposes under Primary roads, use material complying with Article 4120.04 (Class A Crushed Stone) of the Standard Specifications for all bedding and backfill. Place and compact the material according to Article 2435.03, A and Article 2552.03, E (Class I materials).

| INTAKES AND UTILITY ACCESSES |                             |                             |            |             |                    |                                    | PIPES       |                           |      |           |               |             |               |         |                 |                  |                 |                        |  |
|------------------------------|-----------------------------|-----------------------------|------------|-------------|--------------------|------------------------------------|-------------|---------------------------|------|-----------|---------------|-------------|---------------|---------|-----------------|------------------|-----------------|------------------------|--|
| No.                          | Location Station and Offset | *Type or Standard Road Plan | Form Grade | Bottom Well | Extension Length** | Notes                              | Line Number | Intake/Utility Access No. |      | Class 'D' | Pipe Diameter | Bid* Length | Design Length | Slope % | Flow Lines      |                  |                 | Pipe Profile Sheet No. | Notes                                    |
|                              |                             |                             | Elev.      | Elev.       | FT                 |                                    |             | From                      | To   |           |               |             |               |         | Inlet Elevation | Outlet Elevation | Other Elevation |                        |  |
|                              |                             |                             |            |             |                    |                                    |             | IN                        | FT   |           |               |             |               |         | FT              |                  |                 |                        |  |
| S101                         | 700+00.00, 75.85' L         | SW-511                      | 821.9      | 817.56      |                    |                                    | 101A        | FES                       | S101 | 2000      | 24            | 58.32       | 58.32         | 2.72    | 819.32          | 817.56           |                 | V.                     | Length doesn't include FES               |
| S102                         | 943+50.00, 128.0' R         | SW-513                      | 845.25     | 840.18      |                    | FG = inlet elevation. Open 3 sides | 101B        | S101                      | FES  | 2000      | 24            | 49.68       | 49.68         | 2.72    | 817.56          | 816.05           |                 | V.                     | Length doesn't include FES               |
| S103                         | 683+66.48, 185.11' R        | MOD.SW-513                  | 811.11     | 805.32      |                    | Open 2 sides. EXCEEDS MAX DEPTH    | 102         | S102                      | RCB  | 2000      | 36            | 18          | 18            | 0.8     | 840.92          | 840.78           |                 |                        |  |
| S104                         | 674+70.00, 72.5' R          | SW-511                      | 819.9      | 815.4       |                    |                                    | 103A        | FES                       | S103 | 3750      | 36            | 438         | 446           | 0.5     | 808.05          | 805.82           |                 |                        | See culvert tab                          |
| S105                         | 2574+68.5, 28.0' R          | FES                         |            | 814.72      |                    |                                    | 103B        | S103                      | FES  | 2000      | 36            | 158         | 166           | 0.52    | 805.82          | 804.95           |                 |                        | See culvert tab                          |
| S1                           | 6680+19.00, 35.0' R         | SW-509                      | 818.09     |             |                    |                                    | 104         | S104                      | S105 | 2000      | 15            | 48          | 54.08         | 2.14    | 815.9           | 814.74           |                 |                        |  |
| S2                           | 6680+19.00, 35.0' L         | SW-510                      | 818.09     |             |                    |                                    | 1           | S1                        | S2   | 2000      | 15            | 70          |               |         |                 |                  |                 |                        |  |
| S3                           | 6678+06.00, 35.0' R         | SW-509                      | 815.88     |             |                    |                                    | 2           | S2                        | S4   | 2000      | 15            | 213         |               |         |                 |                  |                 |                        |  |
| S4                           | 6678+06.00, 35.0' L         | SW-510                      | 815.88     |             |                    |                                    | 3           | S3                        | S4   | 2000      | 15            | 70          |               |         |                 |                  |                 |                        |  |
| S5                           | 6678+06.00, 72.0' L         | FES                         |            |             |                    |                                    | 4           | S4                        | S5   | 2000      | 18            | 31          | 37            |         |                 |                  |                 |                        |  |
| S6                           | 6687+00.00, 35.0' R         | SW-509                      | 817.48     |             |                    |                                    | 6           | S6                        | S7   | 2000      | 15            | 70          |               |         |                 |                  |                 |                        |  |
| S7                           | 6687+00.00, 35.0' L         | SW-510                      | 817.48     |             |                    |                                    | 7           | S7                        | S10  | 2000      | 15            | 234         |               |         |                 |                  |                 |                        |  |
| S8                           | 6689+33.62, 72.6' R         | FES                         |            |             |                    |                                    | 8           | S8                        | S9   | 2000      | 36            | 38          |               |         | 809.5           |                  |                 |                        |  |
| S9                           | 6689+33.62, 35.0' R         | SW-509                      | 816.43     |             |                    |                                    | 9           | S9                        | S10  | 2000      | 36            | 70          |               | 1       |                 |                  |                 |                        |  |
| S10                          | 6689+33.62, 35.0' L         | SW-510                      | 816.43     |             |                    |                                    | 10          | S10                       | S11  | 2000      | 36            | 46          |               |         |                 | 808.4            |                 |                        |  |
| S11                          | 6689+33.62, 82.3' L         | FES                         |            |             |                    |                                    | 12          | S12                       | S13  | 2000      | 15            | 70          |               |         |                 |                  |                 |                        |  |
| S12                          | 6691+45.00, 35.0' R         | SW-509                      | 818.47     |             |                    |                                    | 13          | S13                       | S14  | 2000      | 15            | 45          |               |         |                 |                  |                 |                        |  |
| S13                          | 6691+45.00, 37.0' L         | SW-401                      | 819.85     |             |                    | 48" DIA                            | 14          | S14                       | S15  | 2000      | 18            | 40          |               |         |                 | 812.5            |                 |                        |  |
| S14                          | 6690+98.00, 35.0' L         | SW-510                      | 817.79     |             |                    |                                    | 16          | S16                       | S17  | 2000      | 15            | 70          |               |         |                 |                  |                 |                        |  |
| S15                          | 6690+98.00, 75.0' L         | FES                         |            |             |                    |                                    | 17          | S17                       | S20  | 2000      | 15            | 190         |               |         |                 |                  |                 |                        |  |
| S16                          | 6694+11.50, 35.0' R         | SW-507                      | 822.25     |             |                    |                                    | 18          | S18                       | S19  | 2000      | 36            | 54          |               |         |                 |                  |                 |                        |  |
| S17                          | 6694+11.50, 35.0' L         | SW-508                      | 822.25     |             |                    |                                    | 19          | S19                       | S20  | 2000      | 36            | 70          |               |         |                 |                  |                 |                        |  |
| S18                          | 6696+07.95, 93.97' R        | SW-511                      | 818.5      |             |                    | UAC Existing                       | 20          | S20                       | S21  | 2000      | 36            | 24          |               |         |                 |                  |                 |                        |  |
| S19                          | 6696+04.00, 38.0' R         | SW-401                      | 823.57     |             |                    |                                    | 21          | S21                       | S22  | 2000      |               | 128         |               |         |                 |                  |                 |                        | Existing 24" pipe (need to check / calc) |
| S20                          | 6696+04.00, 37.0' L         | SW-401                      | 823.57     |             |                    |                                    | 23          | S23                       | S24  | 2000      | 18            | 70          |               |         |                 |                  |                 |                        |  |
| S21                          | 6695+97.50, 65.3' L         | SW-401                      |            |             |                    |                                    | 24          | S24                       | S20  | 2000      | 18            | 296         |               |         |                 |                  |                 |                        |  |
| S22                          | 6695+76.71, 194.9' L        | FES                         |            |             |                    | UAC Existing?                      | 25          | S25                       | S26  | 2000      | 18            | 70          |               |         |                 |                  |                 |                        |  |
| S23                          | 6699+03.00, 35.0' R         | SW-510                      | 821.62     |             |                    |                                    | 26          | S26                       | S24  | 2000      | 18            | 142         |               |         |                 |                  |                 |                        |  |
| S24                          | 6699+03.00, 35.0' L         | SW-510                      | 821.62     |             |                    |                                    | 27          | S27                       | S28  | 2000      | 15            | 28          |               |         |                 |                  |                 |                        |  |
| S25                          | 6700+43.59, 35.0' R         | SW-509                      | 821.04     |             |                    |                                    | 28          | S28                       | S23  | 2000      | 15            | 52          |               |         |                 |                  |                 |                        |  |
| S26                          | 6700+43.59, 35.0' L         | SW-510                      | 821.04     |             |                    |                                    |             |                           |      |           |               |             |               |         |                 |                  |                 |                        |  |
| S27                          | 6699+70.90, 74.1' R         | SW-505                      | 823.66     |             |                    |                                    |             |                           |      |           |               |             |               |         |                 |                  |                 |                        |  |
| S28                          | 6699+42.85, 74.1' R         | SW-506                      | 823.66     |             |                    |                                    |             |                           |      |           |               |             |               |         |                 |                  |                 |                        |  |



NOTE: The algebraic difference between profile grade for Ramp Base Line at (M) and relative profile grade of Mainline at (C) is 0.646%.

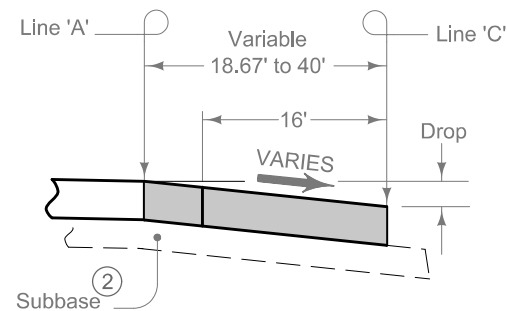
PROFILE

Construct ramp exit pavement the same thickness as mainline pavement.

Ramp exit pavement shown by shaded area is 1334 square yards.

For joint details, see PV-410 and PV-101.

- ① For header construction details at the beginning of taper, see Typical 7101 or Typical 7102.
- ② Construct subbase for ramp exit pavement the same thickness as mainline subbase.

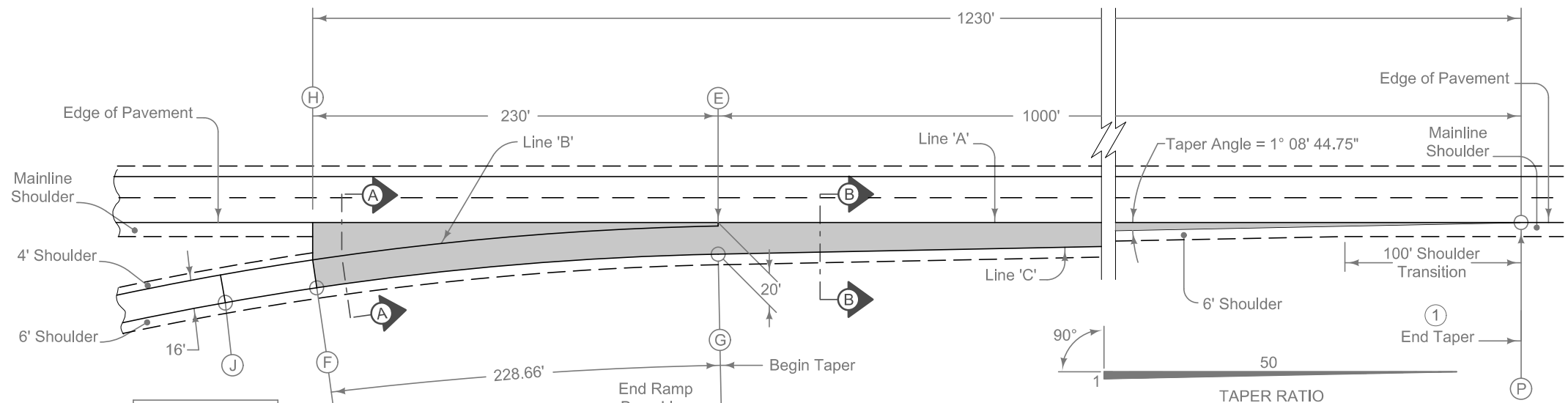


SECTION A-A

| TABLE OF OFFSETS AND DROPS FOR 16' RAMP TAPER |              |      |      |      |      |      |      |       |       |       |       |       |      |                           |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |  |  |  |  |  |  |
|---|--------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|------|---------------------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|--|--|--|--|--|--|--|
| Distance From Point (E) Along Line 'A' (Ft.)  |              | 600  | 575  | 550  | 525  | 500  | 475  | 450   | 425   | 400   | 375   | 350   | 320  | 300                       | 275  | 250  | 225  | 200  | 175   | 150   | 125   | 100   | 75    | 50    | 25    | 0     |       |  |  |  |  |  |  |  |  |
| From Line 'A' To Line 'B'                     | Offset (Ft.) |      |      |      |      |      |      |       |       |       |       |       |      | 2.67                      | 4.00 | 5.67 | 7.33 | 9.00 | 10.67 | 12.33 | 14.00 | 15.67 | 17.33 | 19.00 | 20.67 | 22.33 | 24.00 |  |  |  |  |  |  |  |  |
|   | Slope (%)    |      |      |      |      |      |      |       |       |       |       |       |      | 3.33                      | 2.88 | 2.33 | 2.00 | 2.00 | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  | 2.00  |  |  |  |  |  |  |  |  |
|   | Drop (Ft.)   |      |      |      |      |      |      |       |       |       |       |       |      | 0.09                      | 0.12 | 0.13 | 0.15 | 0.18 | 0.21  | 0.25  | 0.28  | 0.31  | 0.35  | 0.38  | 0.41  | 0.56  | 0.72  |  |  |  |  |  |  |  |  |
| From Line 'B' To Line 'C'                     | Offset (Ft.) |      |      |      |      |      |      |       |       |       |       |       |      | ← Constant 16.0' Offset → |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |  |  |  |  |  |  |
|   | Slope (%)    |      |      |      |      |      |      |       |       |       |       |       |      | 3.33                      | 3.00 | 3.00 | 3.00 | 3.00 | 3.00  | 3.00  | 3.00  | 3.00  | 3.00  | 3.00  | 3.00  | 3.00  | 3.00  |  |  |  |  |  |  |  |  |
|   | Drop (Ft.)   |      |      |      |      |      |      |       |       |       |       |       |      | 0.53                      | 0.48 | 0.48 | 0.48 | 0.48 | 0.48  | 0.48  | 0.48  | 0.48  | 0.48  | 0.48  | 0.48  | 0.48  | 0.48  |  |  |  |  |  |  |  |  |
| From Line 'A' To Line 'C'                     | Offset (Ft.) | 0.00 | 1.67 | 3.33 | 5.00 | 6.67 | 8.33 | 10.00 | 11.67 | 13.33 | 15.00 | 16.67 |      |                           |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |  |  |  |  |  |  |
|   | Slope (%)    | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40  | 3.40  | 3.40  | 3.40  | 3.40  |      |                           |      |      |      |      |       |       |       |       |       |       |       |       |       |  |  |  |  |  |  |  |  |
|   | Drop (Ft.)   | 0.00 | 0.06 | 0.11 | 0.17 | 0.23 | 0.28 | 0.34  | 0.40  | 0.45  | 0.51  | 0.57  | 0.62 | 0.60                      | 0.61 | 0.63 | 0.66 | 0.69 | 0.73  | 0.76  | 0.79  | 0.83  | 0.86  | 0.89  | 1.04  | 1.20  |       |  |  |  |  |  |  |  |  |

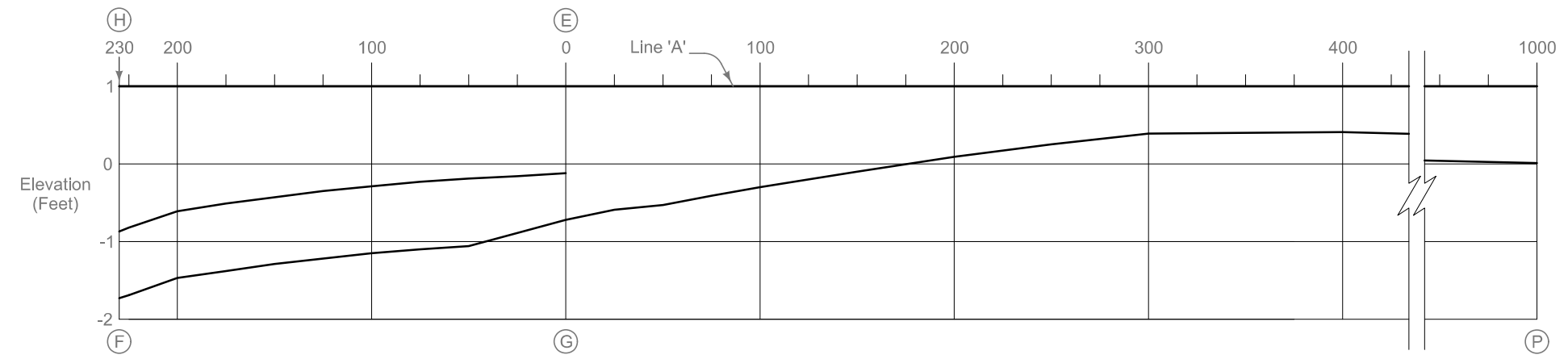
IOWA 1 RAMP B  
DECELERATION TAPER





Pt. 'J' to Pt. 'G'  
 $\Delta = 8^\circ 01' 17.07''$   
 $T = 140.23'$   
 $L = 280.00'$   
 $E = 4.91'$   
 $R = 2000.00'$

**PLAN**

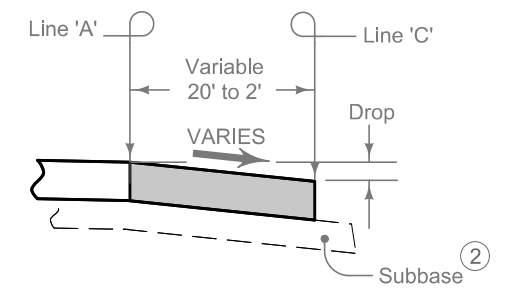


NOTE: The algebraic difference between profile grade for Ramp Base Line at (F) and relative profile grade of Mainline at (H) is 0.949%.

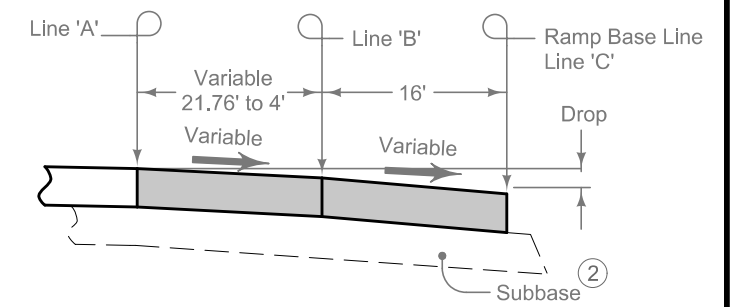
**PROFILE**

Construct ramp entrance pavement the same thickness as mainline pavement.  
 Ramp entrance pavement shown by shaded area is 1793 square yards.  
 For joint details, see PV-101

- ① For header construction details at the end of taper, see Typical 7101 or Typical 7102.
- ② Construct subbase for ramp entrance pavement the same thickness as mainline subbase.



**SECTION B-B**

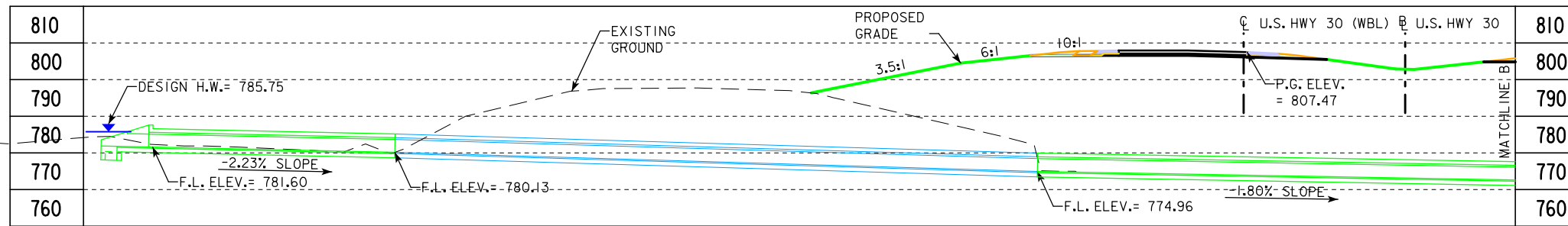


**SECTION A-A**

**TABLE OF OFFSETS AND DROPS FOR 16' RAMP TAPER**

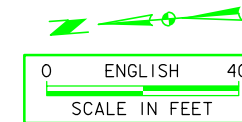
| Distance From Point (E) Along Line 'A' (Ft.) | 230          | 225                       | 200    | 175    | 150    | 125    | 100    | 75    | 50    | 25    | 0     | 25    | 50    | 75    | 100   | 125   | 150   | 200   | 250  | 300  | 400  | 500  | 600  | 700  | 800  | 900  | 1000 |      |
|--|--------------|---------------------------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| From Line 'A' To Line 'B'                    | Offset (Ft.) | 21.76                     | 21.10  | 17.95  | 15.11  | 12.59  | 10.38  | 8.48  | 6.90  | 5.62  | 4.66  | 4.0   |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |
|  | Slope (%)    | -4.00                     | -3.90  | -3.40  | -3.40  | -3.40  | -3.40  | -3.40 | -3.40 | -3.40 | -3.40 | -3.00 |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |
|  | Drop (Ft.)   | -0.87                     | -0.82  | -0.61  | -0.51  | -0.43  | -0.35  | -0.29 | -0.23 | -0.19 | -0.16 | -0.12 |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |
| From Line 'B' To Line 'C'                    | Offset (Ft.) | ← Constant 16.0' Offset → |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |
|  | Slope (%)    | -5.40                     | -5.40  | -5.40  | -5.40  | -5.40  | -5.40  | -5.40 | -5.40 | -5.40 | -4.58 | -3.78 |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |
|  | Drop (Ft.)   | -0.86                     | -0.86  | -0.86  | -0.86  | -0.86  | -0.86  | -0.86 | -0.86 | -0.86 | -0.73 | -0.60 |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |
| From Line 'A' To Line 'C'                    | Offset (Ft.) |                           |        |        |        |        |        |       |       |       |       | 19.5  | 19.0  | 18.5  | 18.0  | 17.5  | 17.0  | 16.0  | 15.0 | 14.0 | 12.0 | 10.0 | 8.0  | 6.0  | 4.0  | 2.0  | 0.0  |      |
|  | Slope (%)    |                           |        |        |        |        |        |       |       |       |       | -3.00 | -2.80 | -2.24 | -1.69 | -1.13 | -0.57 | 0.54  | 1.65 | 2.76 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 | 3.40 |      |
|  | Drop (Ft.)   | -1.73                     | -1.69  | -1.47  | -1.38  | -1.29  | -1.22  | -1.15 | -1.10 | -1.06 | -0.89 | -0.72 | -0.59 | -0.53 | -0.41 | -0.30 | -0.20 | -0.10 | 0.09 | 0.25 | 0.39 | 0.41 | 0.34 | 0.27 | 0.20 | 0.14 | 0.07 | 0.00 |
| Distance From Point (G) Along Line 'C' (Ft.) |              | 228.66                    | 223.66 | 198.66 | 173.70 | 148.77 | 123.87 | 99.00 | 74.15 | 49.31 | 24.49 | 0.00  |       |       |       |       |       |       |      |      |      |      |      |      |      |      |      |      |

**IOWA 1 RAMP C  
ACCELERATION TAPER**

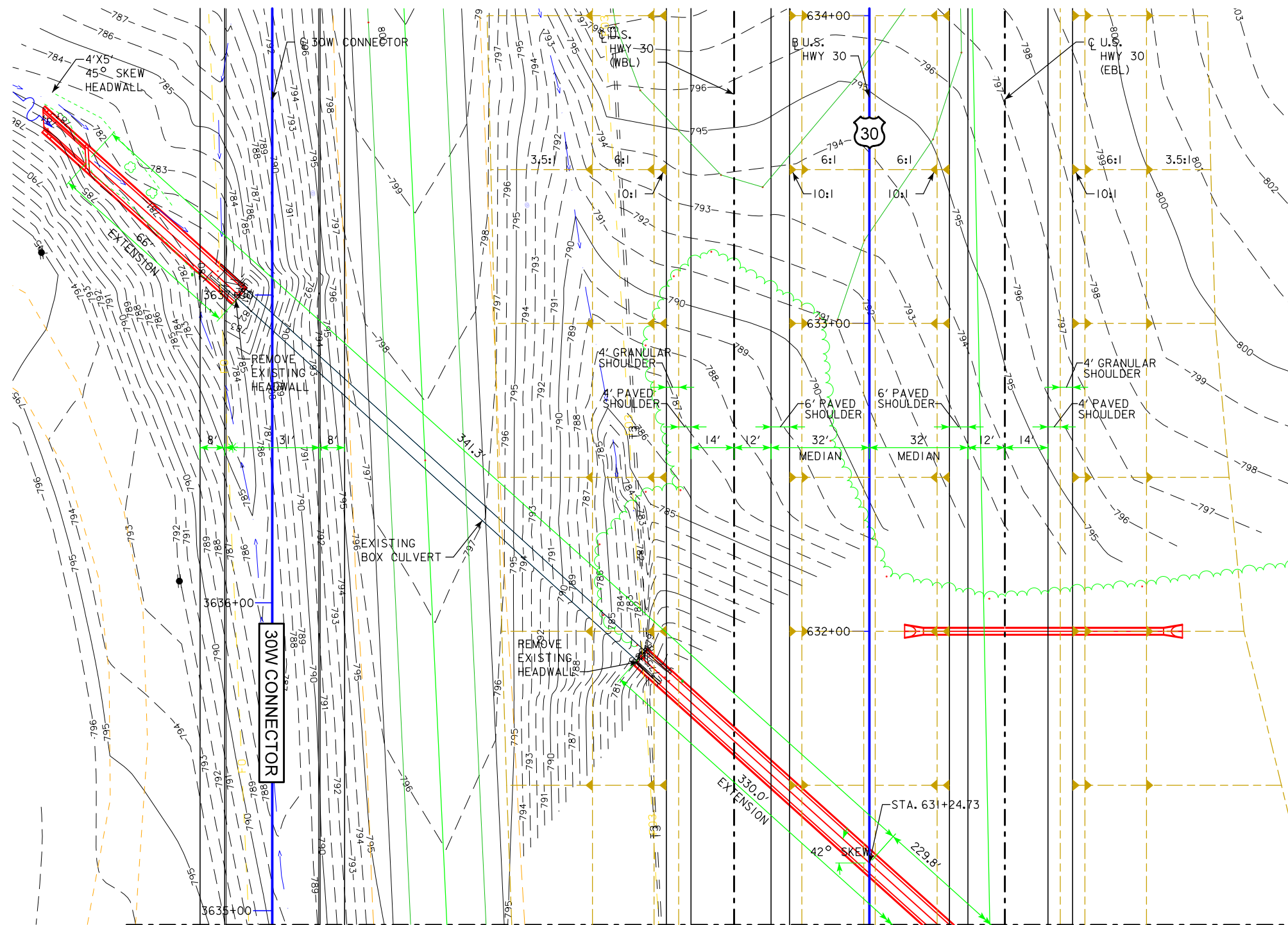


LONGITUDINAL SECTION ALONG  $\phi$  CULVERT

PROPOSED PROFILE GRADE



VPI STA. 641+00.00  
 Elev = 831.36  
 K = 406  
 Len = 2160 Ft



SITUATION PLAN

HYDRAULIC DATA

DRAINAGE AREA = 49.47 ACRES ROLLING  
 DESIGN DISCHARGE,  $Q_{50}$  = 84.72 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

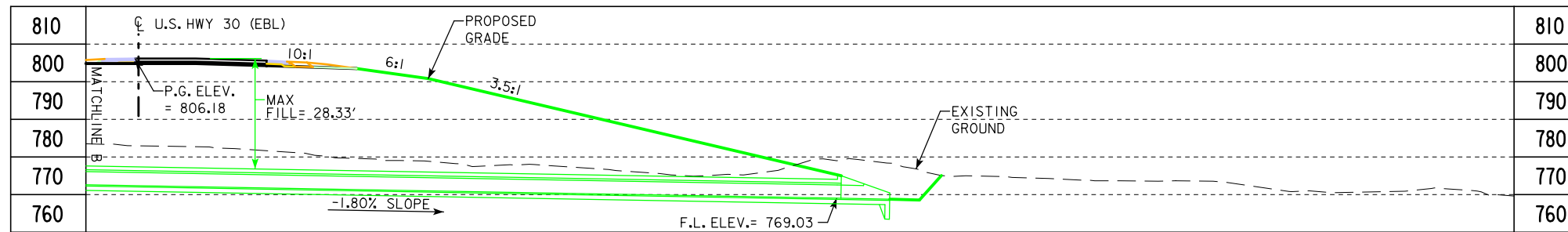
LOCATION

U.S. 30 OVER UNNAMED CREEK  
 T-82N R-5W  
 SECTION 17  
 FRANKLIN TOWNSHIP  
 LINN COUNTY

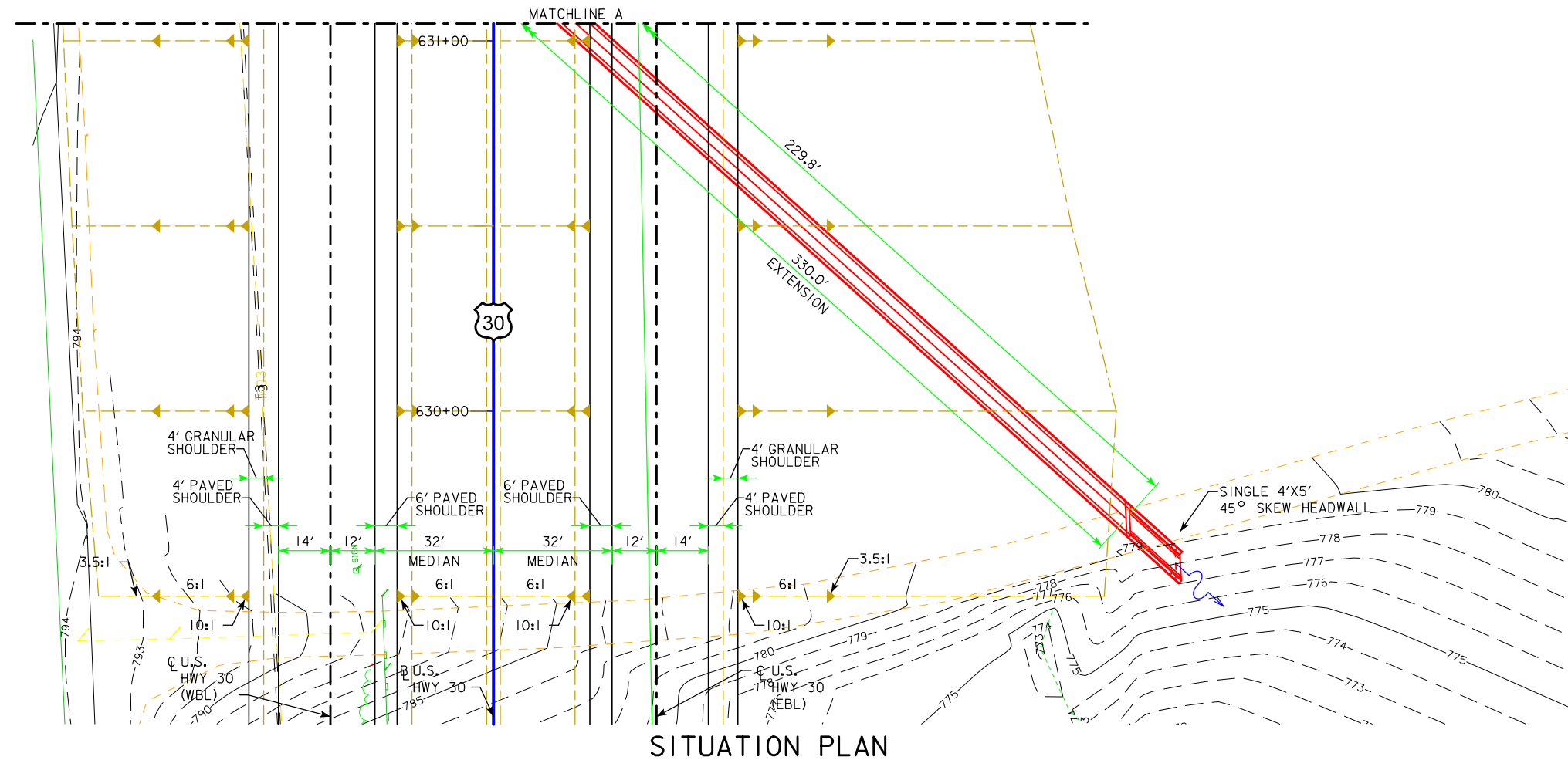
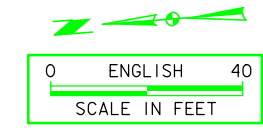
|  |   |  |
|--|---|--|
|  | I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. |  |
|  | Cindy A. Spencer, P.E.  | Date 9-13-13                                 |
|  | License Number 17561  | My License Renewal Date is December 31, 2014 |
|  | Pages or sheets covered by this seal:<br>V.9A - V.9B  |  |

DESIGN FOR 42° SKEW L.A.  
**4' X 5'**  
**REINFORCED CONCRETE BOX CULVERT EXTENSION**  
**SITUATION PLAN**  
 STA. 631+24.73  $\phi$  U.S. HWY. 30 SEPTEMBER 2013  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. \_\_\_\_\_ DESIGN NO. \_\_\_\_\_



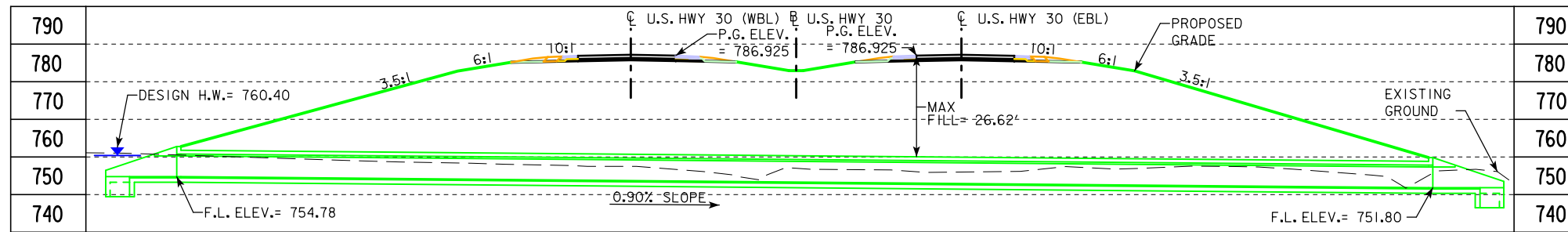


LONGITUDINAL SECTION ALONG  $\phi$  CULVERT



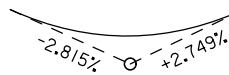
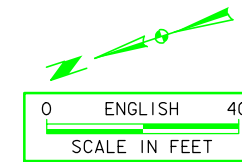
SITUATION PLAN

DESIGN FOR 42° SKEW L.A.  
**4' X 5' L.A**  
**REINFORCED CONCRETE BOX**  
**CULVERT EXTENSION**  
**SITUATION PLAN PLAN**  
 STA. 631+24.73  $\phi$  U.S. HWY. 30  
 LINN COUNTY  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_ OF \_\_\_ FILE NO. \_\_\_ DESIGN NO. \_\_\_

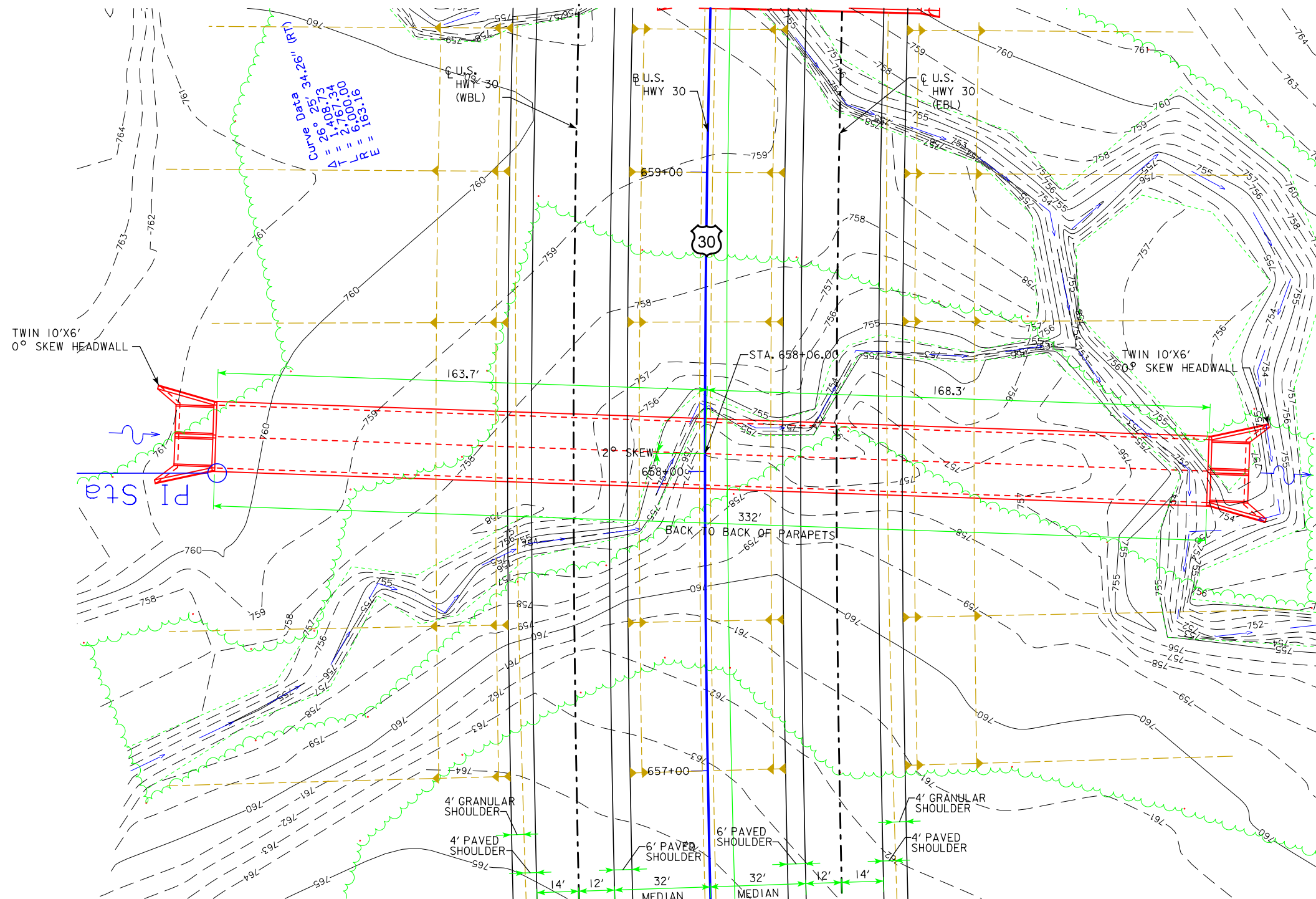


LONGITUDINAL SECTION ALONG  $\bar{C}$  CULVERT

PROPOSED PROFILE GRADE



VPI STA. 659+50.00  
 Elev = 779.28  
 K = 182  
 Len = 1,010 Ft



SITUATION PLAN

HYDRAULIC DATA

DRAINAGE AREA = 1.00 SQ. MILES ROLLING  
 DESIGN DISCHARGE,  $Q_{50}$  = 695.00 CFS  
 $Q_{100}$  = 851.00 CFS  
 $Q_{500}$  = 1,124 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

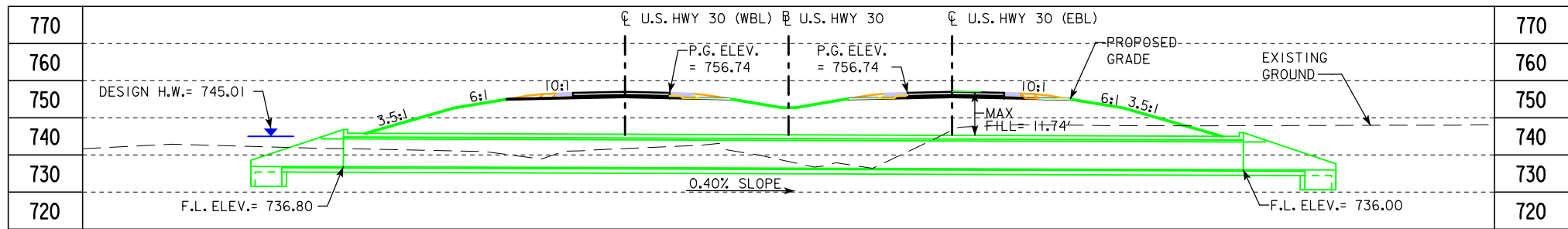
U.S. 30 OVER UNNAMED CREEK  
 T-82N R-5W  
 SECTION 16  
 FRANKLIN TOWNSHIP  
 LINN COUNTY

|  |   |
|--|---|
|  | 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. |
|  | 9-13-13<br>Date   |
|  | Cindy A. Spencer, P.E.  |
|  | License Number 17561<br>My License Renewal Date is December 31, 2014<br>Pages or sheets covered by this seal:<br>V.13   |

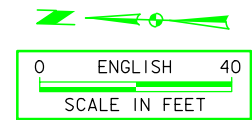
DESIGN FOR 2° SKEW L.A.  
**TWIN 10' X 6' X 332'**  
**REINFORCED CONCRETE BOX**

SITUATION PLAN  
 STA. 658+06.00  $\bar{C}$  U.S. HWY. 30 SEPTEMBER 2013  
 LINN COUNTY  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_ OF \_\_\_ FILE NO. \_\_\_ DESIGN NO. \_\_\_

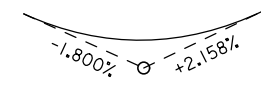




LONGITUDINAL SECTION ALONG  $\bar{C}$  CULVERT



PROPOSED PROFILE GRADE ON U.S 30



VPI 761+50.00  
 Elev = 753.14  
 L = 730 FT.  
 K = 184 FT.

HYDRAULIC DATA

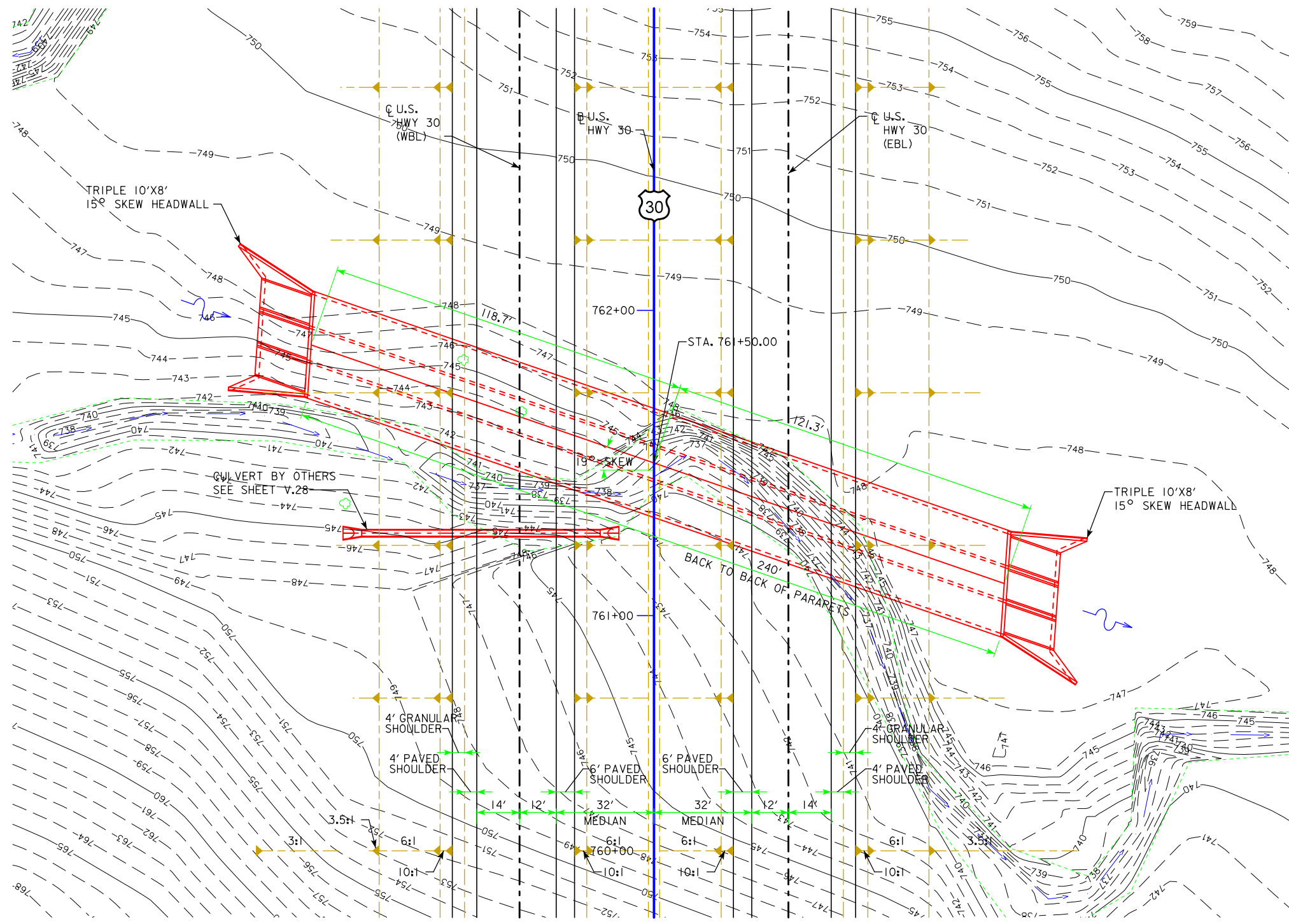
DRAINAGE AREA = 2.31 SQ. MILES  
 DESIGN DISCHARGE,  $Q_{50} = 1,092$  CFS  
 $Q_{100} = 1,326$  CFS  
 $Q_{500} = 1,751$  CFS  
 DESIGN HIGH WATER EL,  $Q_{50} = 745.01$

UTILITIES LEGEND:

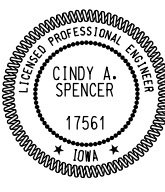
REFER TO SHEET D.1

LOCATION

U.S. 30 OVER UNNAMED STREAM  
 T-82N R-5W  
 SECTION 14  
 FRANKLIN TOWNSHIP  
 LINN COUNTY



SITUATION PLAN



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.

9-13-13  
Date

Cindy A. Spencer, P.E.  
 License Number 17561  
 My License Renewal Date is December 31, 2014

Pages or sheets covered by this seal:  
 V.29

PRELIMINARY

DESIGN FOR 19° SKEW L.A.

**TRIPLE 10' X 8' X 24'**

**REINFORCED CONCRETE BOX**

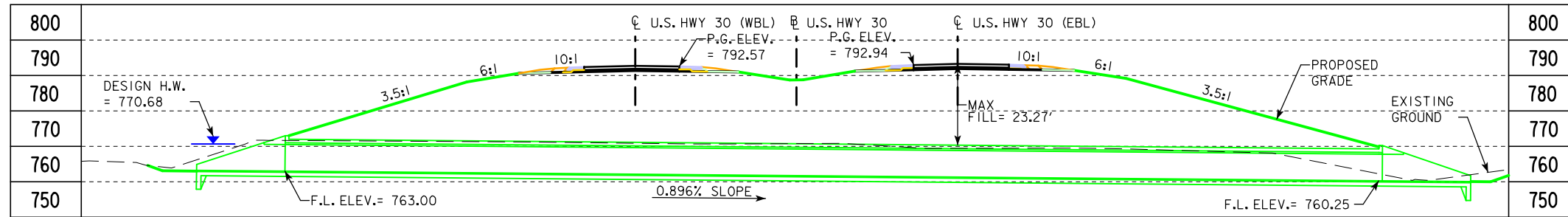
SITUATION PLAN

STA. 761+50.00  $\bar{C}$  U.S. HWY. 30 SEPTEMBER 2013

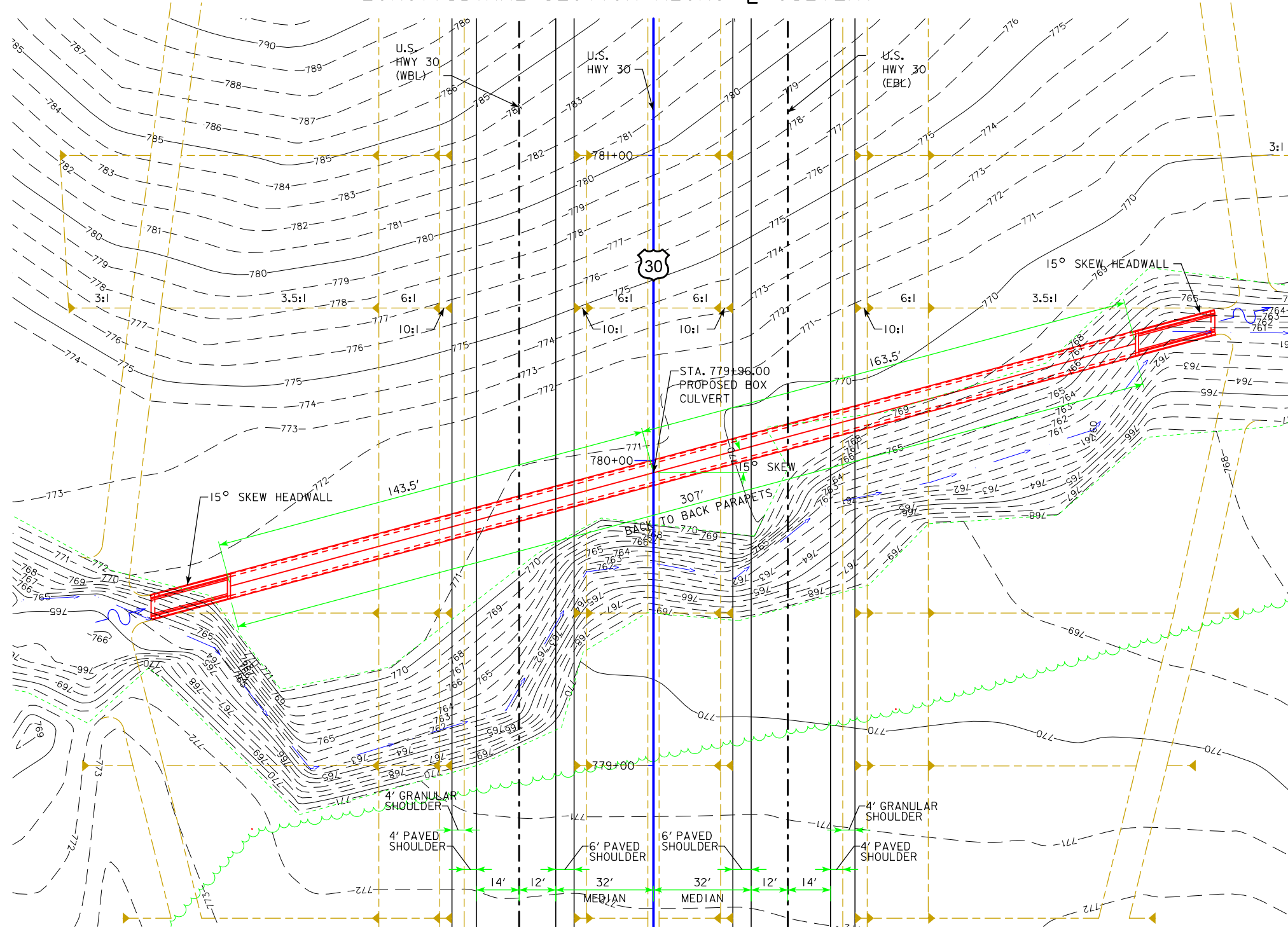
LINN COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

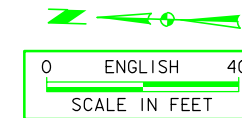
DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. \_\_\_\_\_ DESIGN NO. \_\_\_\_\_



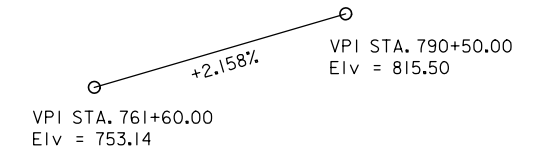
LONGITUDINAL SECTION ALONG  $\phi$  CULVERT



SITUATION PLAN



PROPOSED PROFILE GRADE



HYDRAULIC DATA

DRAINAGE AREA = 235.8 ACRES 1/2 ROLLING 1/2 HILLY  
 DESIGN DISCHARGE,  $Q_{50} = 323.84$  CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

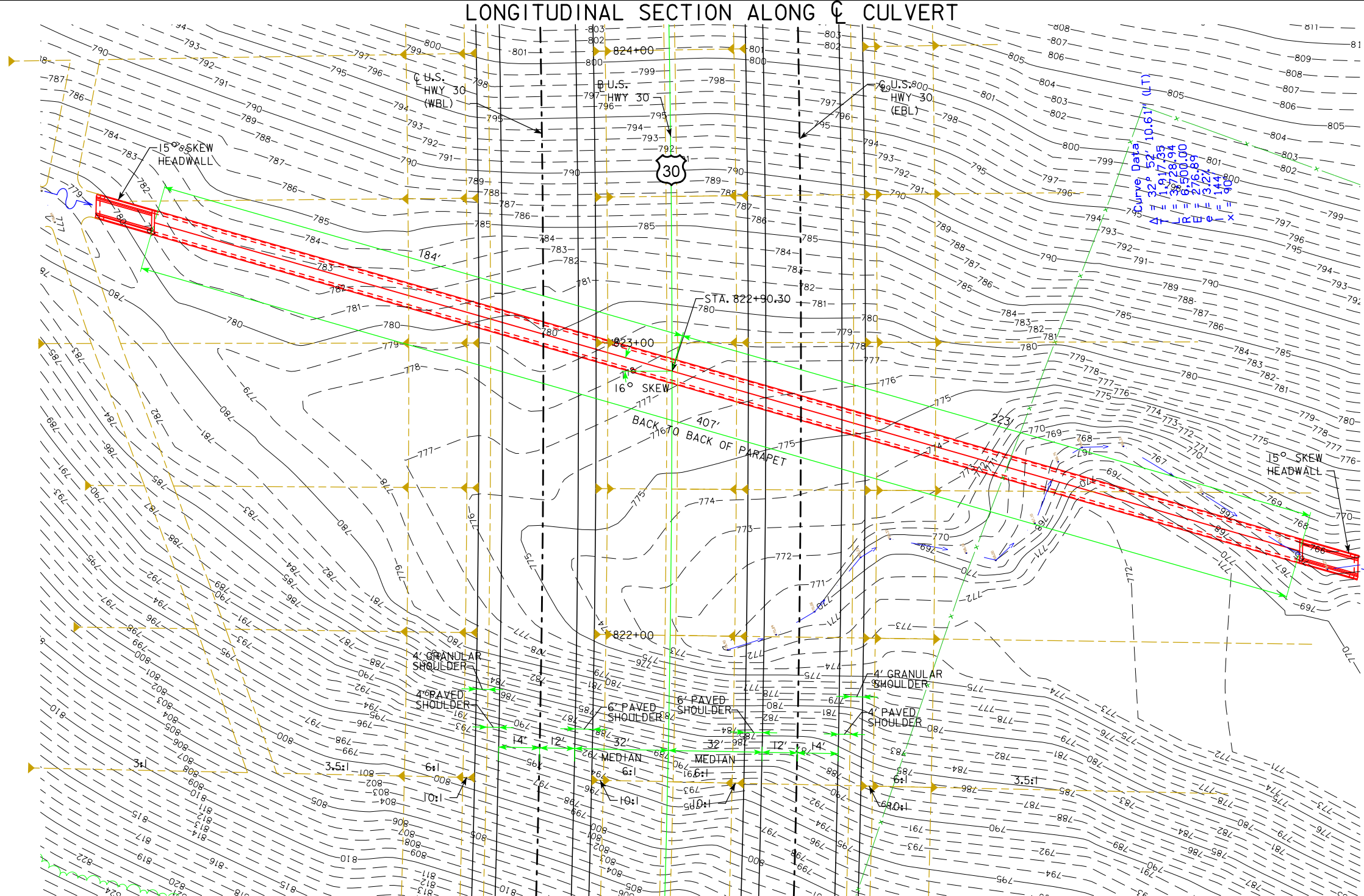
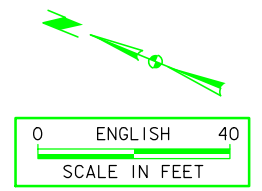
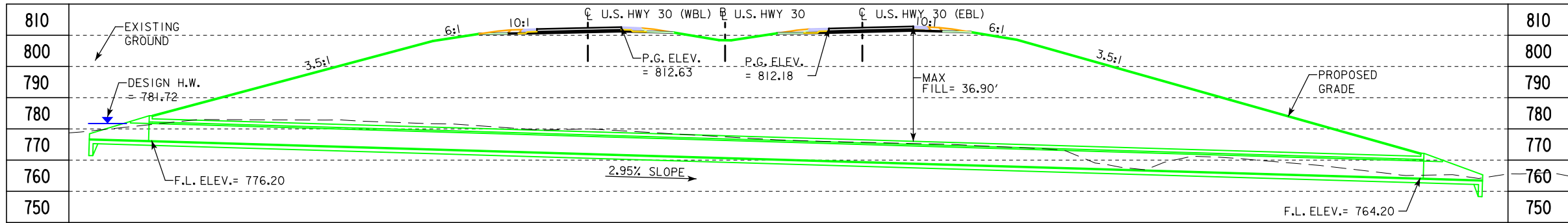
LOCATION

U.S. 30  
 T-82N R-5W  
 SECTION 14  
 FRANKLIN TOWNSHIP  
 LINN COUNTY

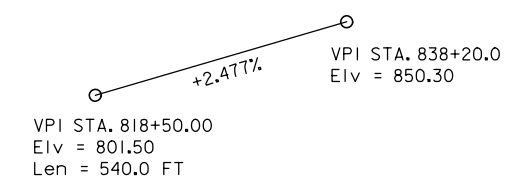
|  |   |         |
|--|---|---------|
|  | I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa. |         |
|  | Cindy A. Spencer, P.E.  | Date    |
|  | License Number 17561  | 9-13-13 |
|  | My License Renewal Date is December 31, 2014  |         |
|  | Pages or sheets covered by this seal:<br>V.31   |         |

DESIGN FOR 15° SKEW R.A.  
**6' X 8' X 307'**  
**REINFORCED CONCRETE**  
**BOX CULVERT**  
**SITUATION PLAN**  
 STA. 779+96.00  $\phi$  U.S. HWY. 30 SEPTEMBER 2013  
 LINN COUNTY  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. \_\_\_\_\_ DESIGN NO. \_\_\_\_\_





**PROPOSED PROFILE GRADE**



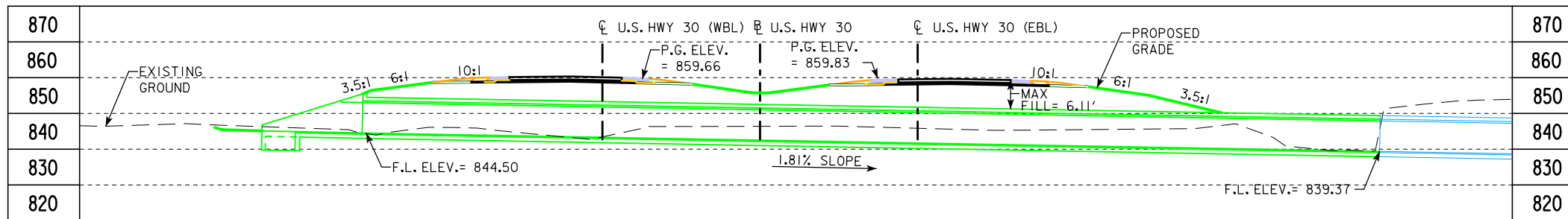
**HYDRAULIC DATA**  
 DRAINAGE AREA = 108.3 ACRES HILLY  
 DESIGN DISCHARGE,  $Q_{50}$  = 204.88 CFS

**UTILITIES LEGEND:**  
 REFER TO SHEET D.1

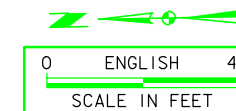
**LOCATION**  
 U.S. 30 OVER UNNAMED STREAM  
 T-82N R-5W  
 SECTION 13  
 FRANKLIN TOWNSHIP  
 LINN COUNTY

|  |   |
|--|---|
|  | 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. |
|  | 9-13-13<br>Date   |
|  | Cindy A. Spencer, P.E.<br>License Number 17561<br>My License Renewal Date is December 31, 2014  |
|  | Pages or sheets covered by this seal:<br>V.37   |

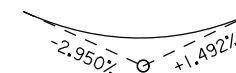
DESIGN FOR 15° SKEW L.A.  
**6' X 6' X 407'**  
**REINFORCED CONCRETE**  
**BOX CULVERT**  
**SITUATION PLAN**  
 STA. 822+90.30 @ U.S. HWY. 30 SEPTEMBER 2013  
**LINN COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. \_\_\_\_\_ DESIGN NO. \_\_\_\_\_



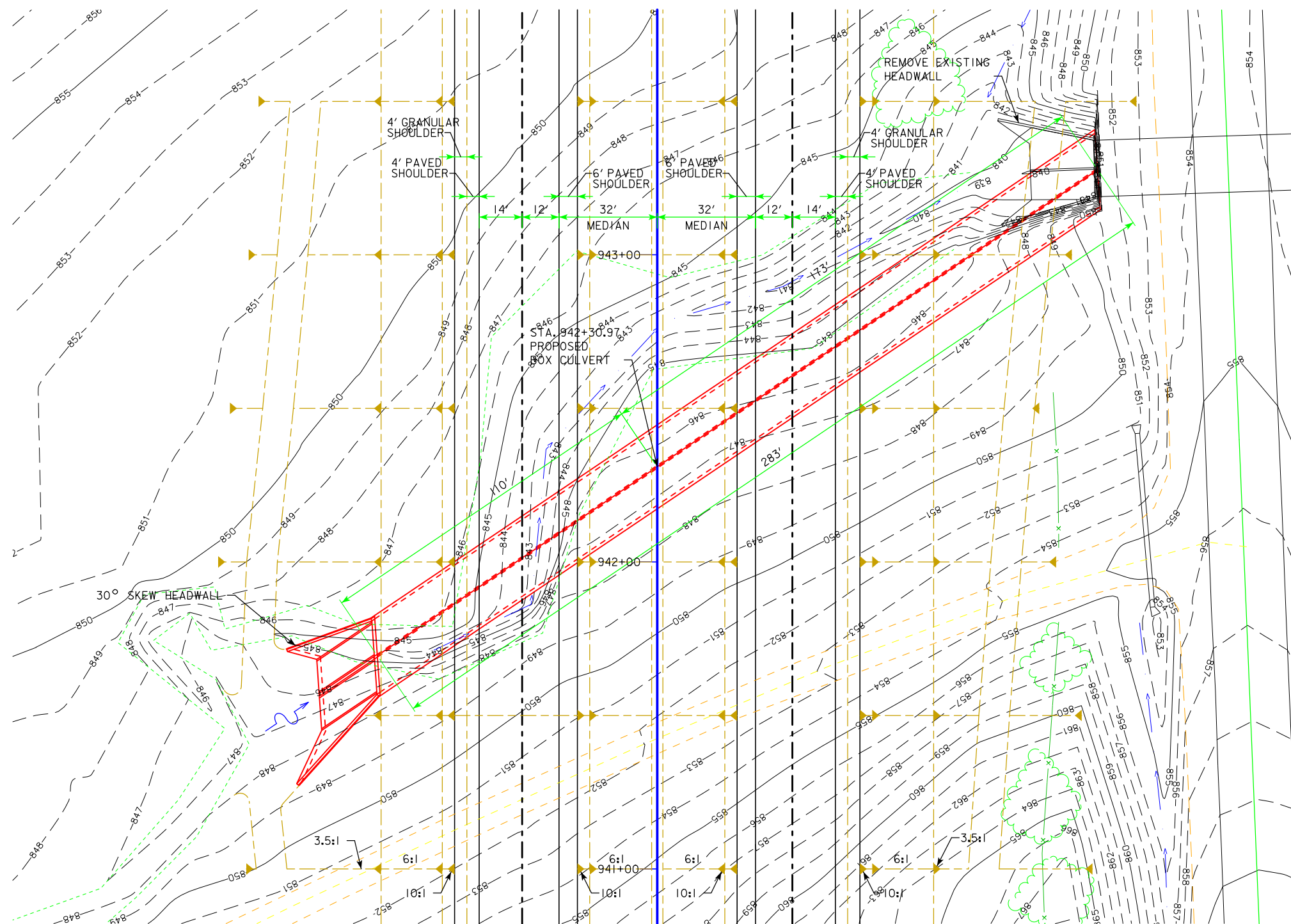
LONGITUDINAL SECTION ALONG  $\bar{C}$  CULVERT



PROPOSED PROFILE GRADE



VPI 943+00.00  
 Elv = 854.60  
 K = 182  
 Len = 810 Ft



SITUATION PLAN

HYDRAULIC DATA


DRAINAGE AREA = 1.42 SQ. MILES ROLLING  
 DESIGN DISCHARGE,  $Q_{60}$  = 840.00 CFS  
 $Q_{100}$  = 1,025 CFS  
 $Q_{500}$  = 1,151 CFS

UTILITIES LEGEND:

REFER TO SHEET D.1

LOCATION

U.S. 30  
 T-82N R-4W  
 SECTION 8/17  
 PIONEER TOWNSHIP  
 CEDAR COUNTY



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.

9-13-13  
 Date

Cindy A. Spencer, P.E.

License Number 17561

My License Renewal Date is December 31, 2014

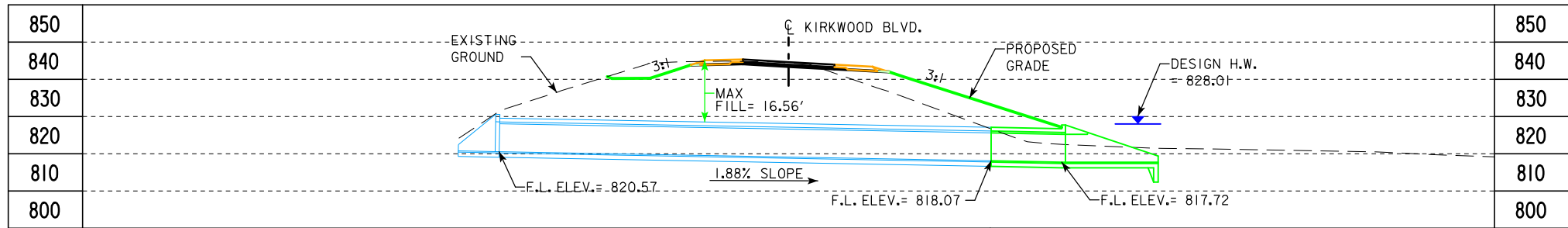
Pages or sheets covered by this seal:  
 V.51

DESIGN FOR 34° SKEW R.A.  
**TWIN 9' X 10' X 283'**  
**REINFORCED CONCRETE**  
**BOX CULVERT EXTENSION**  
**SITUATION PLAN**

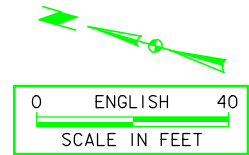
STA. 942+30.97  $\bar{C}$  U.S. HWY. 30 SEPTEMBER 2013

**CEDAR COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. \_\_\_\_\_ DESIGN NO. \_\_\_\_\_

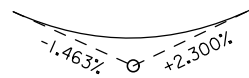




LONGITUDINAL SECTION ALONG  $\phi$  CULVERT



PROPOSED PROFILE GRADE



VPI 13904+45.00  
 Elev = 842+66  
 K = 80  
 Len = 300 Ft

HYDRAULIC DATA

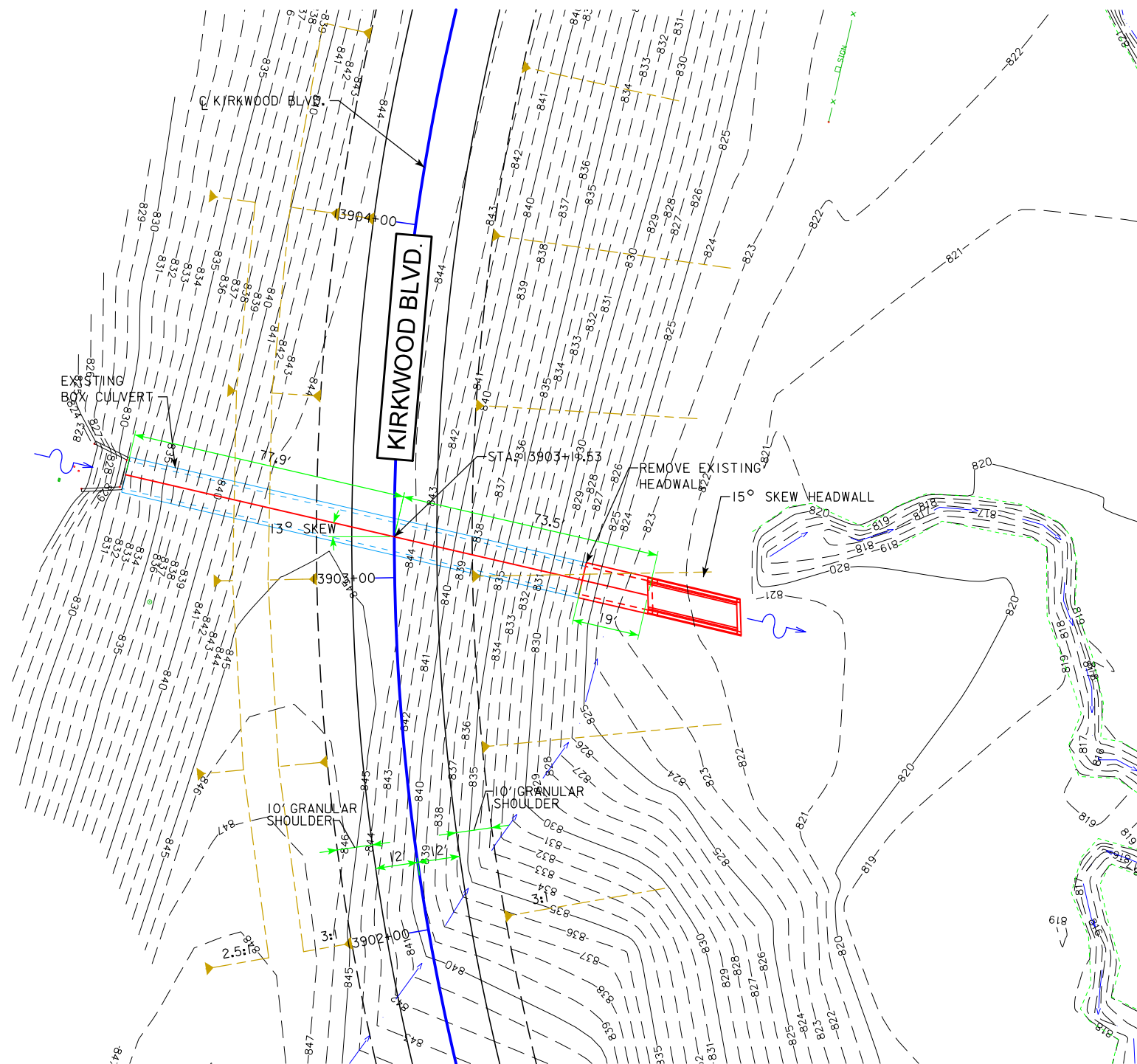
DRAINAGE AREA = 406.6 ACRES ROLLING  
 DESIGN DISCHARGE,  $Q_{50}$  = 420 CFS

UTILITIES LEGEND:


REFER TO SHEET D.1

LOCATION

U.S. 30  
 T-82N R-5W  
 SECTION 12  
 FRANKLIN TOWNSHIP  
 LINN COUNTY



SITUATION PLAN



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.

9-13-13  
Date

Cindy A. Spencer, P.E.

License Number 17561

My License Renewal Date is December 31, 2014

Pages or sheets covered by this seal:  
 V.82

DESIGN FOR 13° SKEW

**8' X 8'**

**REINFORCED CONCRETE**

**BOX CULVERT EXTENSION**

**SITUATION PLAN**

STA. 13903+11.53  $\phi$  U.S. HWY. 30      SEPTEMBER 2013

**LINN COUNTY**

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. \_\_\_\_\_ DESIGN NO. \_\_\_\_\_

**LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)**

- - - - - - Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- - - - - Additional Topsoil Removal
- Subgrade Treatment
- - - - - Granular Shoulder
- Pavement
- - - - - Existing Pipe\R/CB
- Proposed Pipe\R/CB
- Proposed Dike
- All Elements Associated with Proposed Entrances

**LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)**

- TS——— Topsoil (Class 10)
- TS A——— Topsoil (Type A Disposal)
- TS B——— Topsoil (Type B Disposal)
- TS C——— Topsoil (Type C Disposal)
- CL 10——— Class 10 Materials
- SEL LO——— Select Loams And Clay-Loams
- SEL SA——— Select Sand
- UNS A——— Unsuitable Type A Disposal
- UNS B——— Unsuitable Type B Disposal
- UNS C——— Unsuitable Type C Disposal
- SHALE——— Shale
- WASTE——— Waste
- B&W LS——— Broken and Weathered Rock
- ROCK——— Solid Rock
- BLDRS——— Boulders

Note: All layer lines and descriptions identify layers above the line.

Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

**SYMBOL LEGEND OF CROSS SECTION SHEETS**

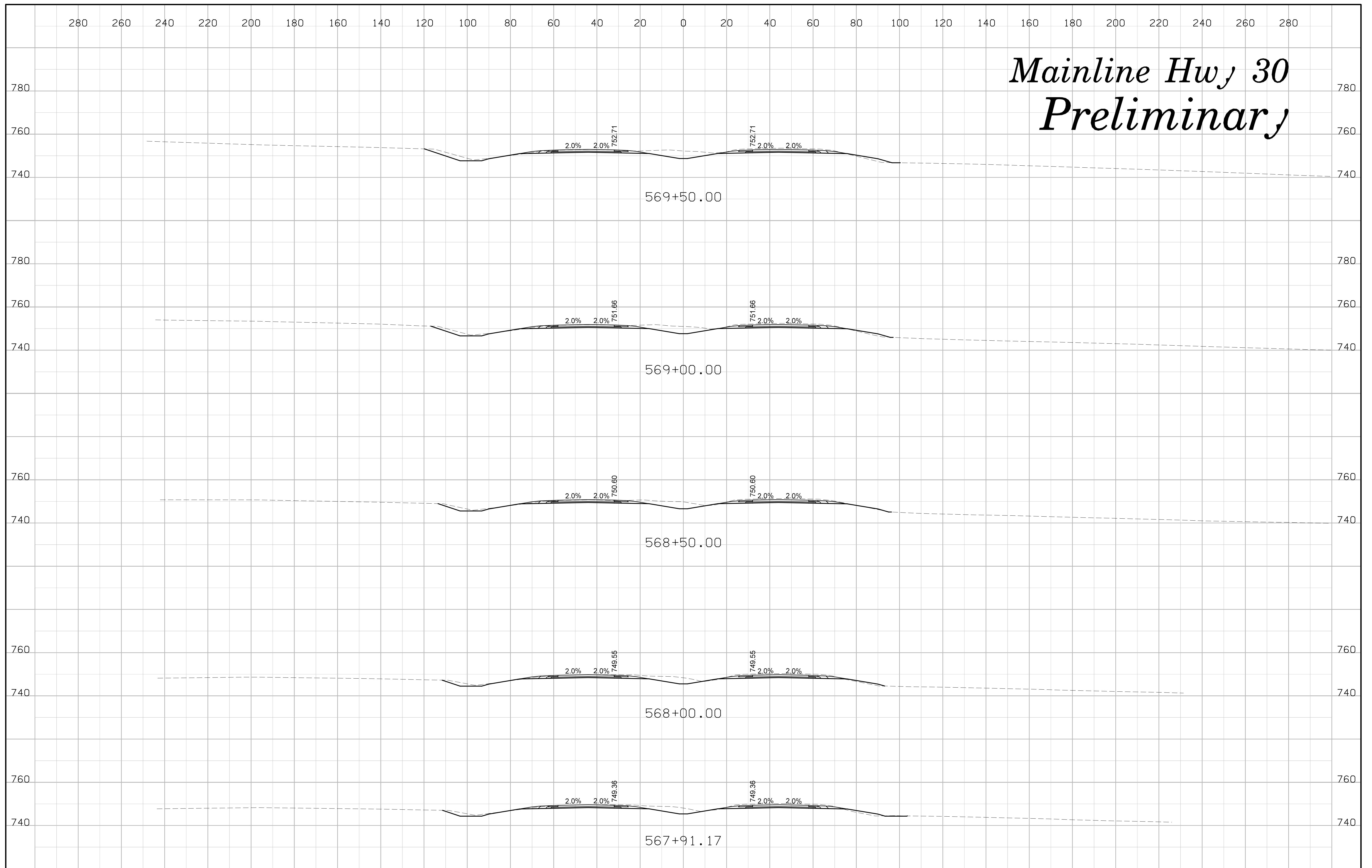
- Existing ROW  
|  
Existing Right-of-Way Limit
- Proposed ROW  
|  
Proposed Right-of-Way Limit
- Temporary ROW  
|  
Temporary Right-of-Way Limit

**CROSS SECTION  
LEGEND AND SYMBOL  
INFORMATION SHEET**

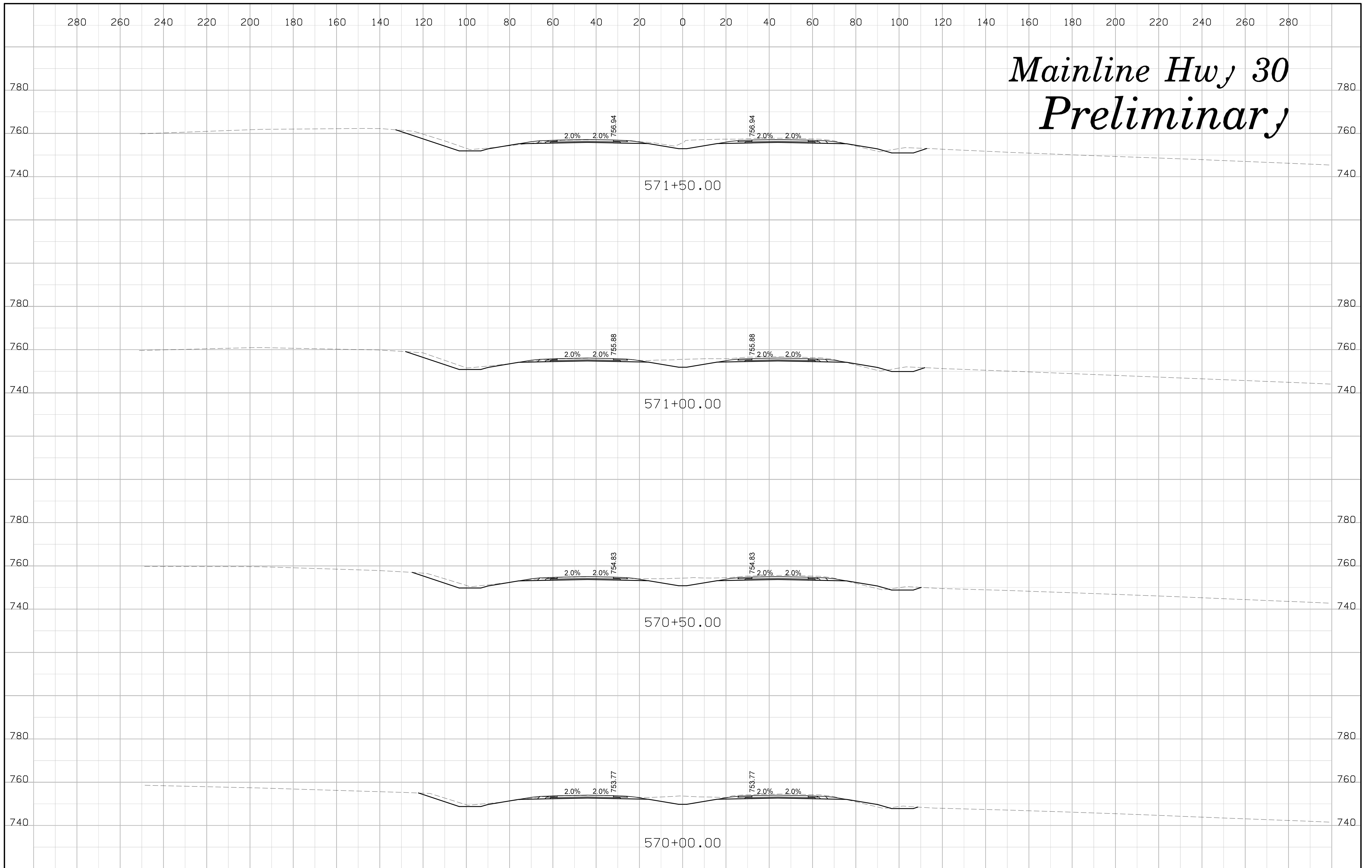
(COVERS SHEET SERIES W, X, Y, & Z)



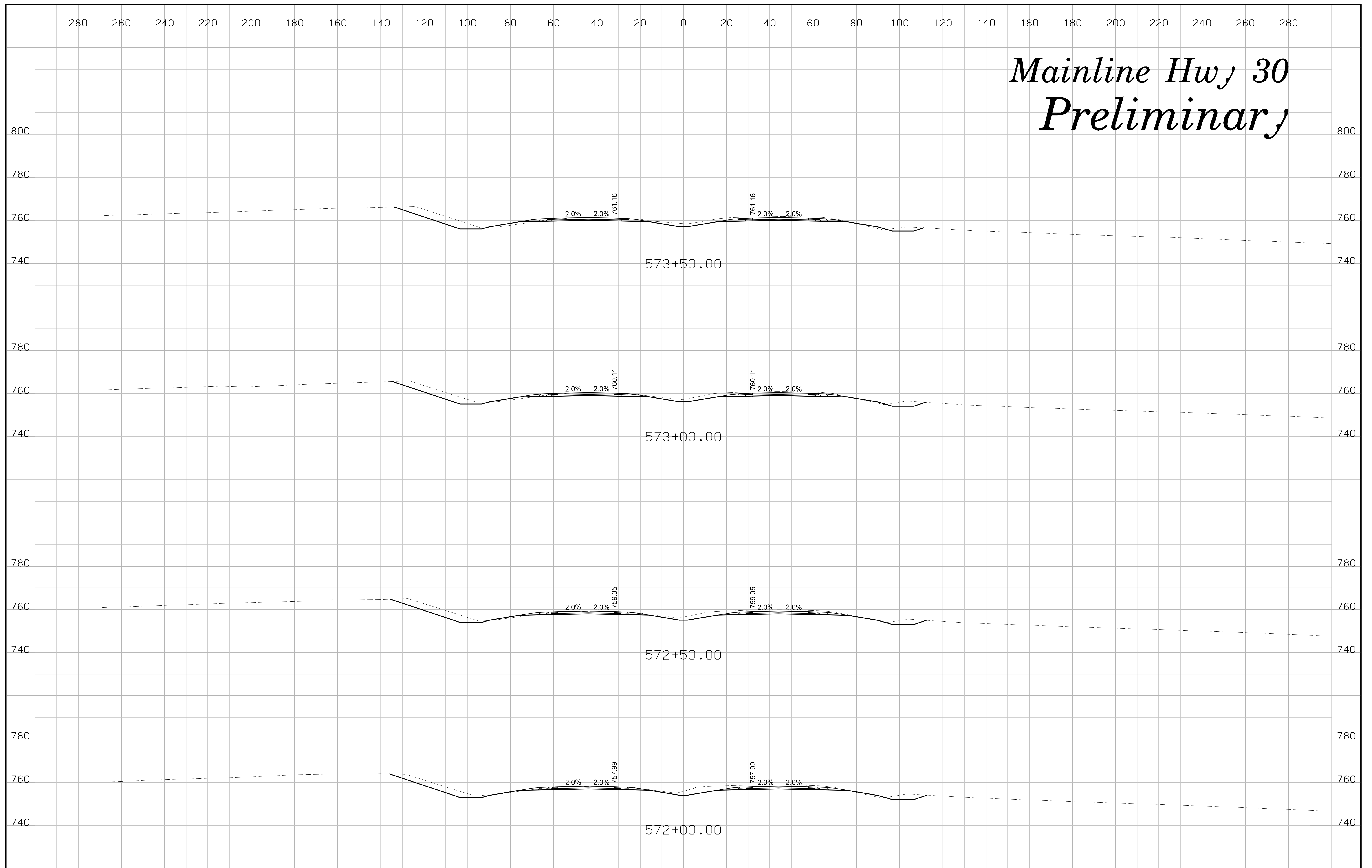
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

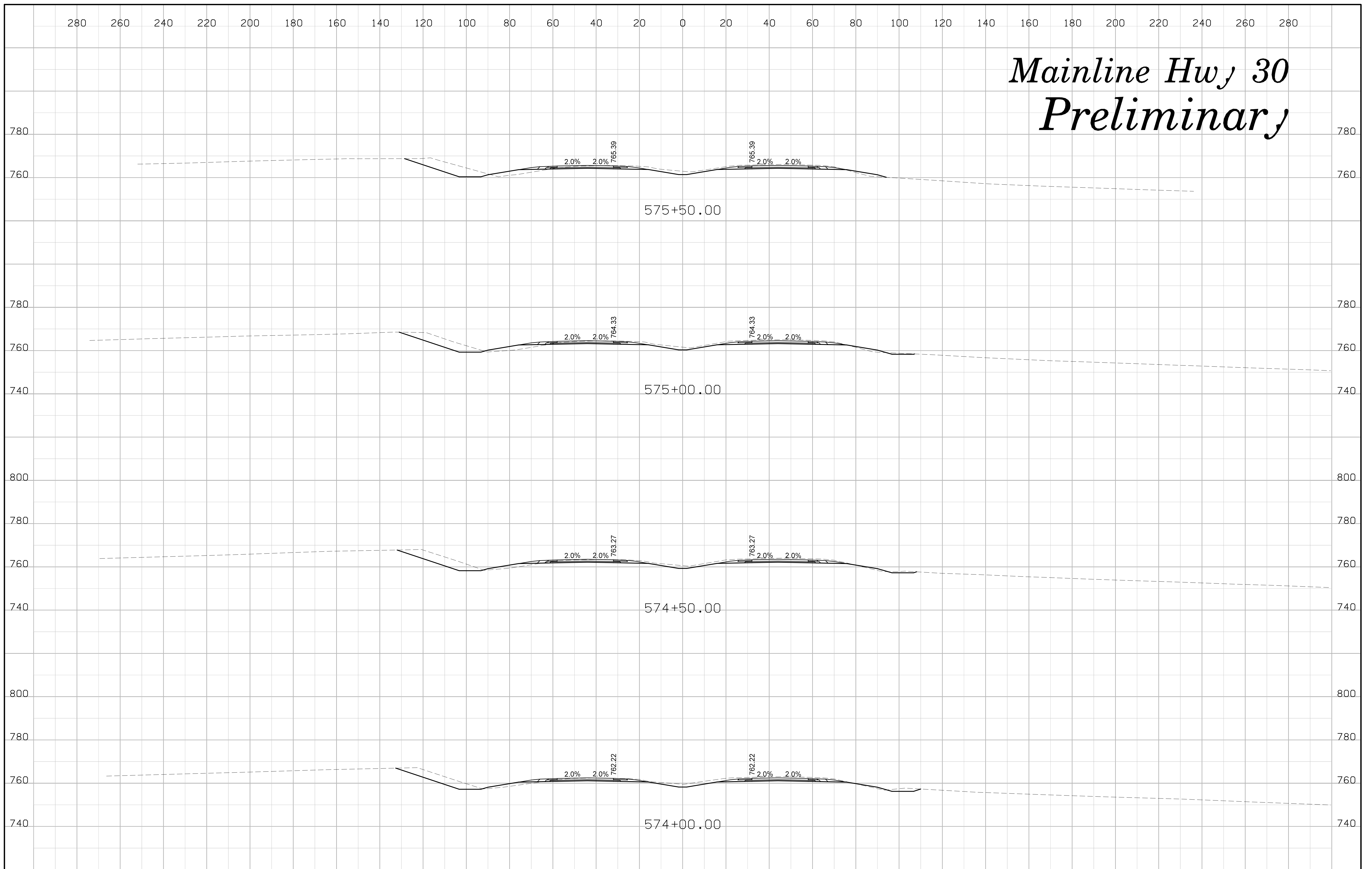


# Mainline Hwy 30 Preliminary

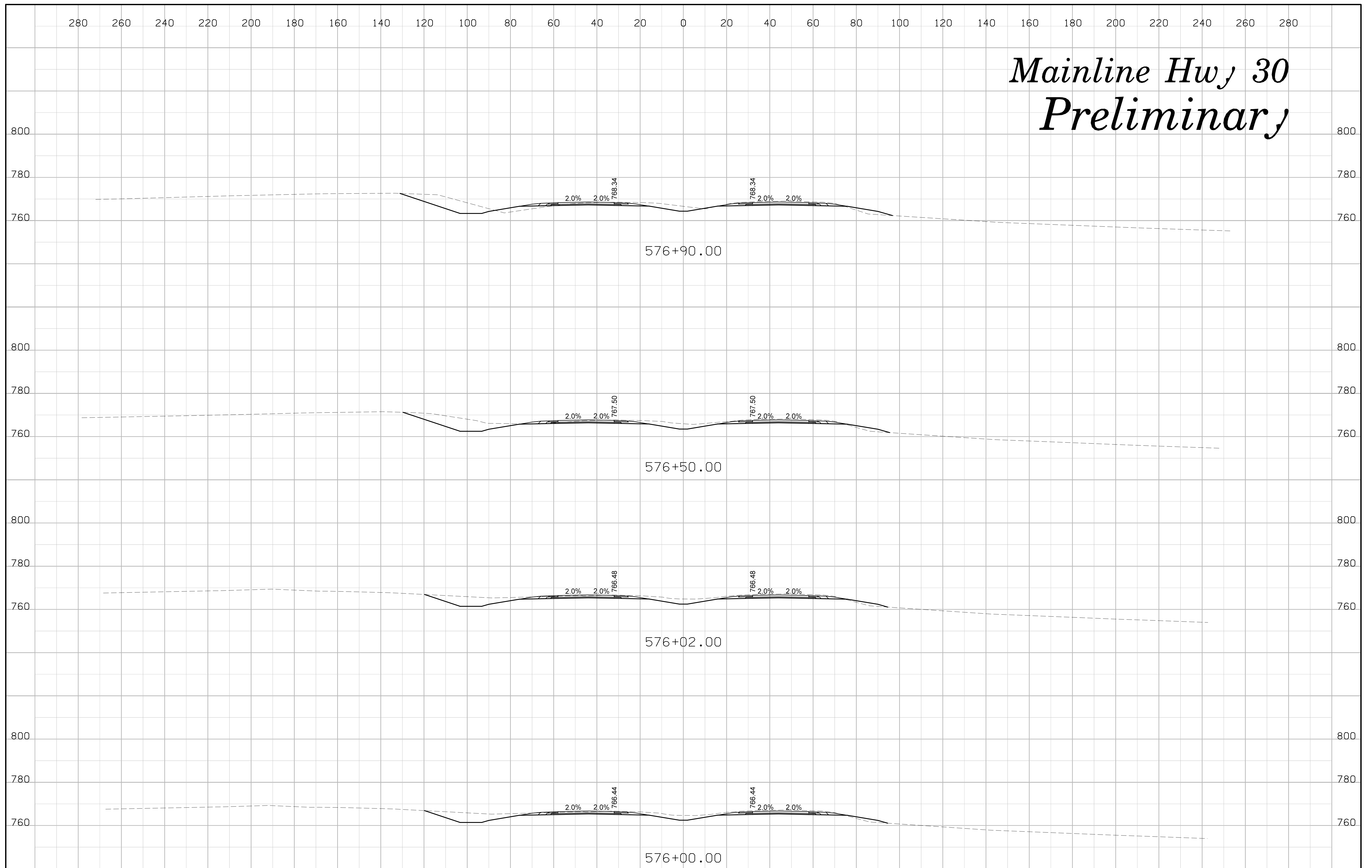




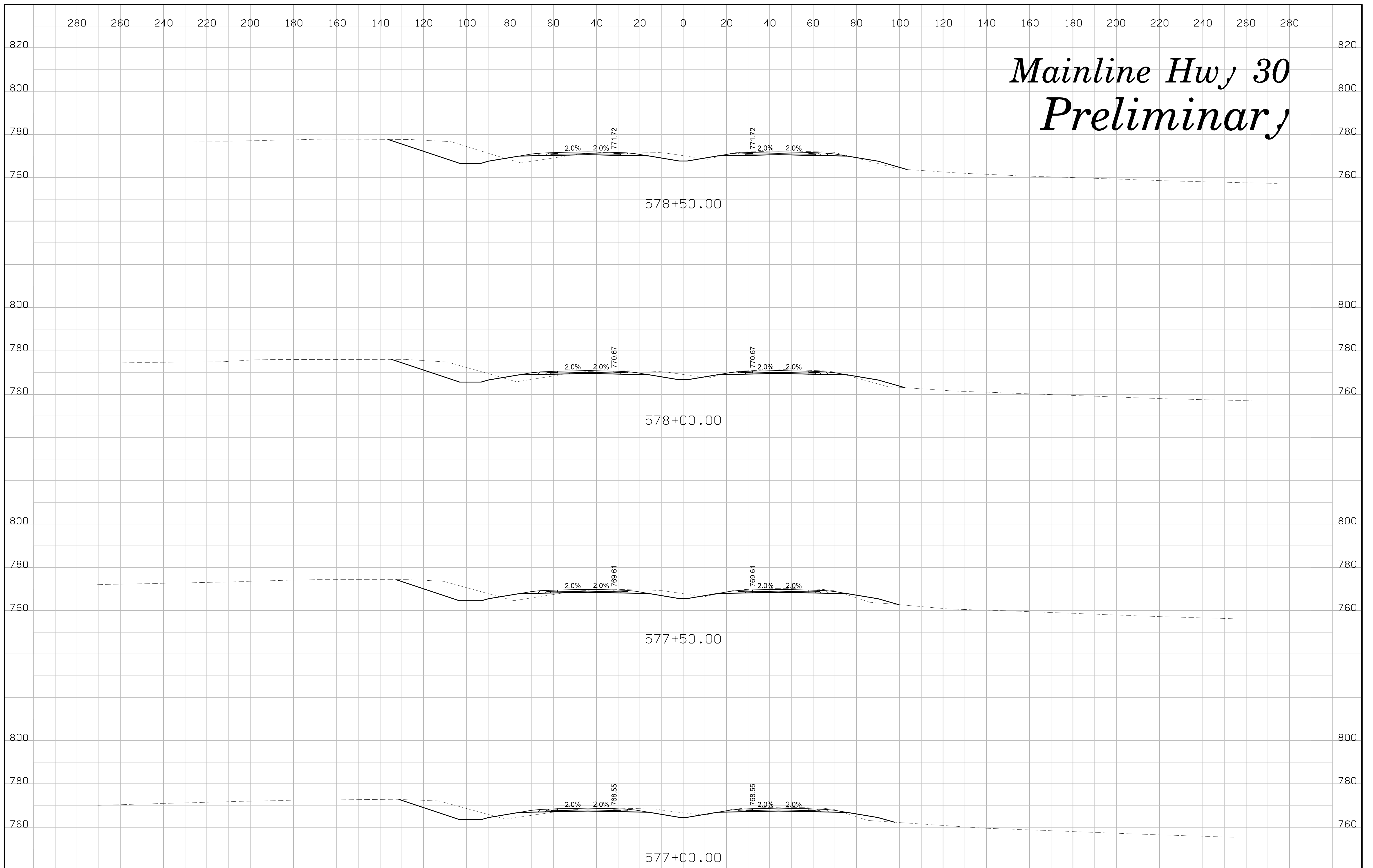
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

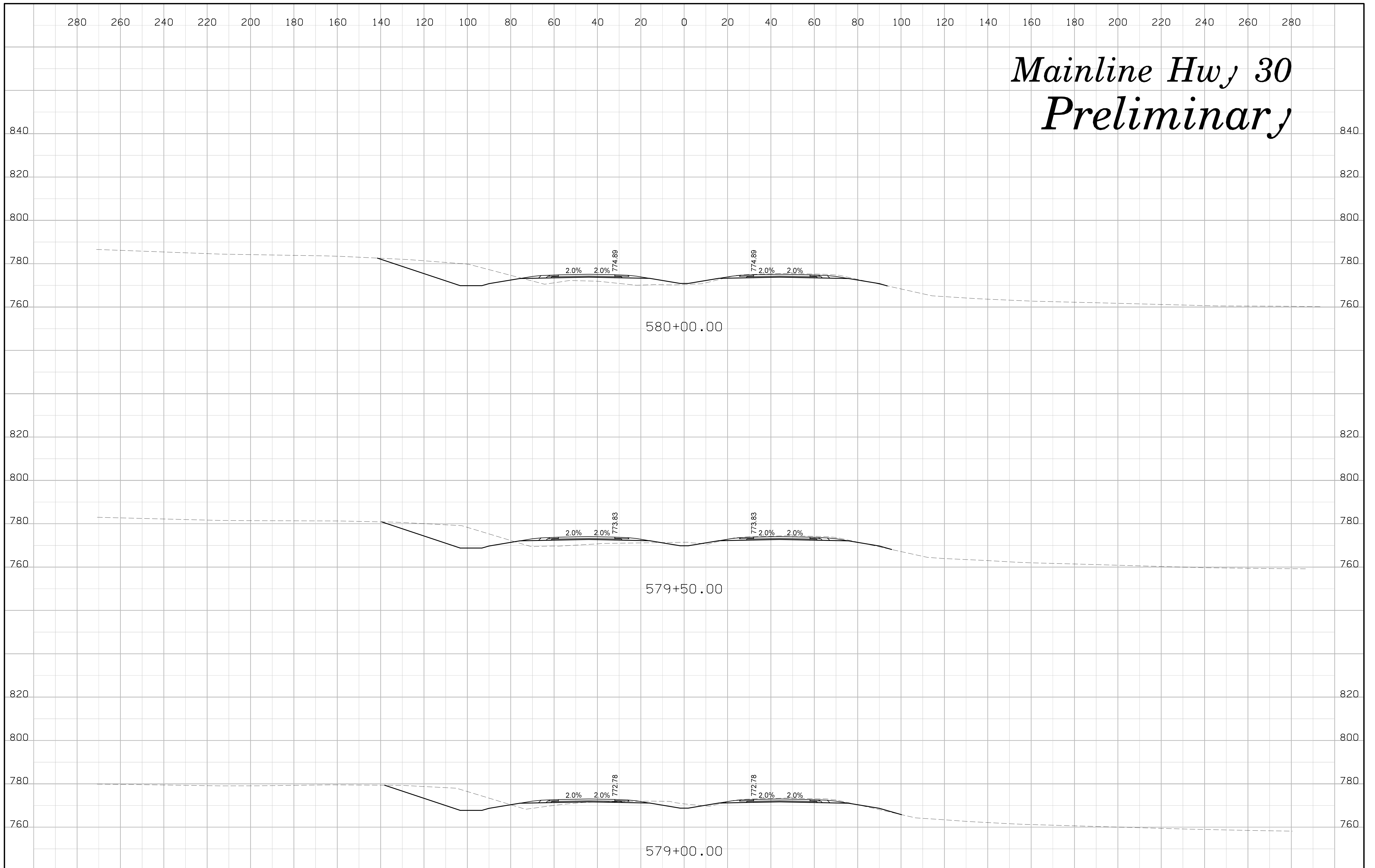


# Mainline Hwy 30 Preliminary

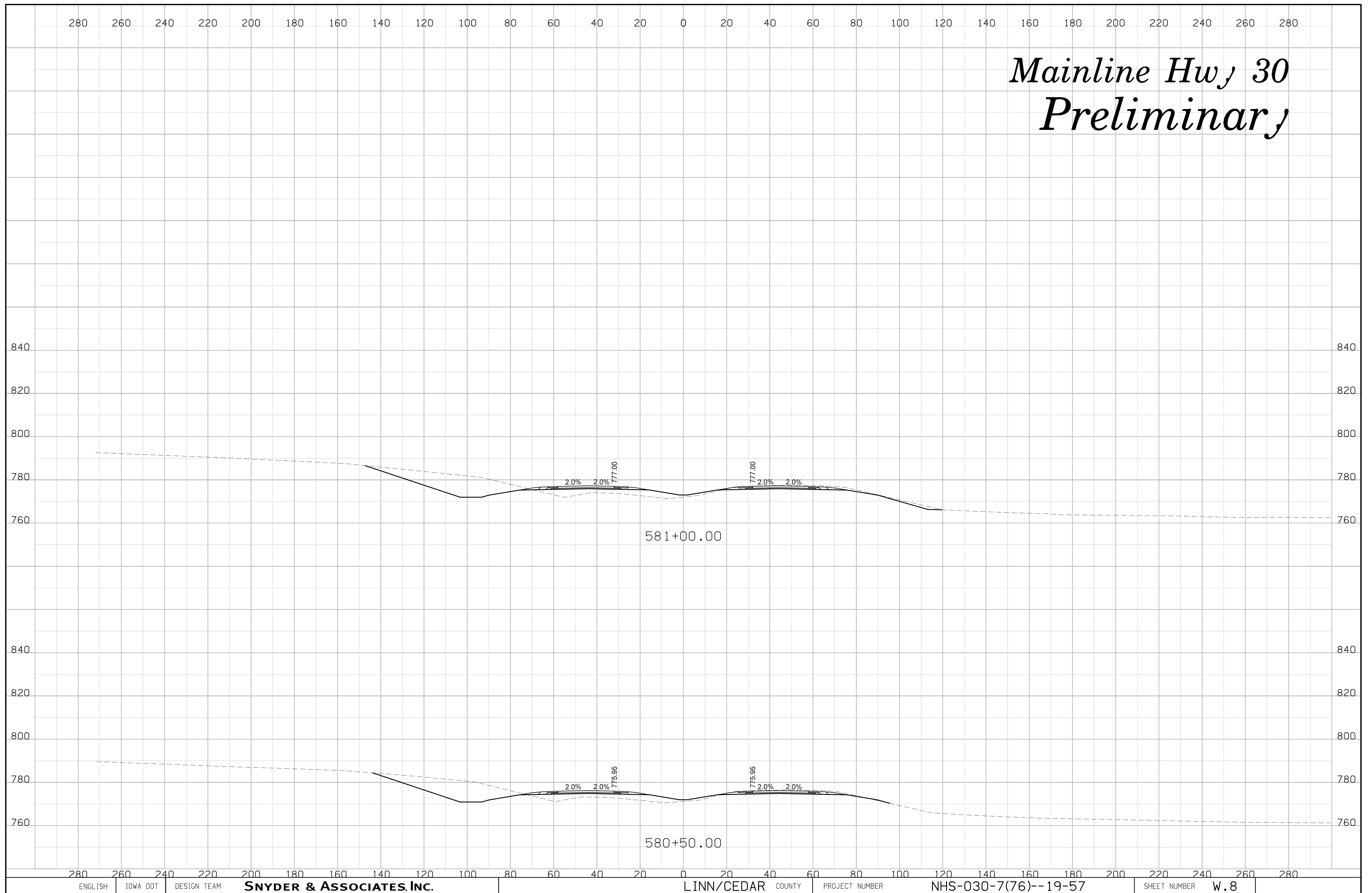




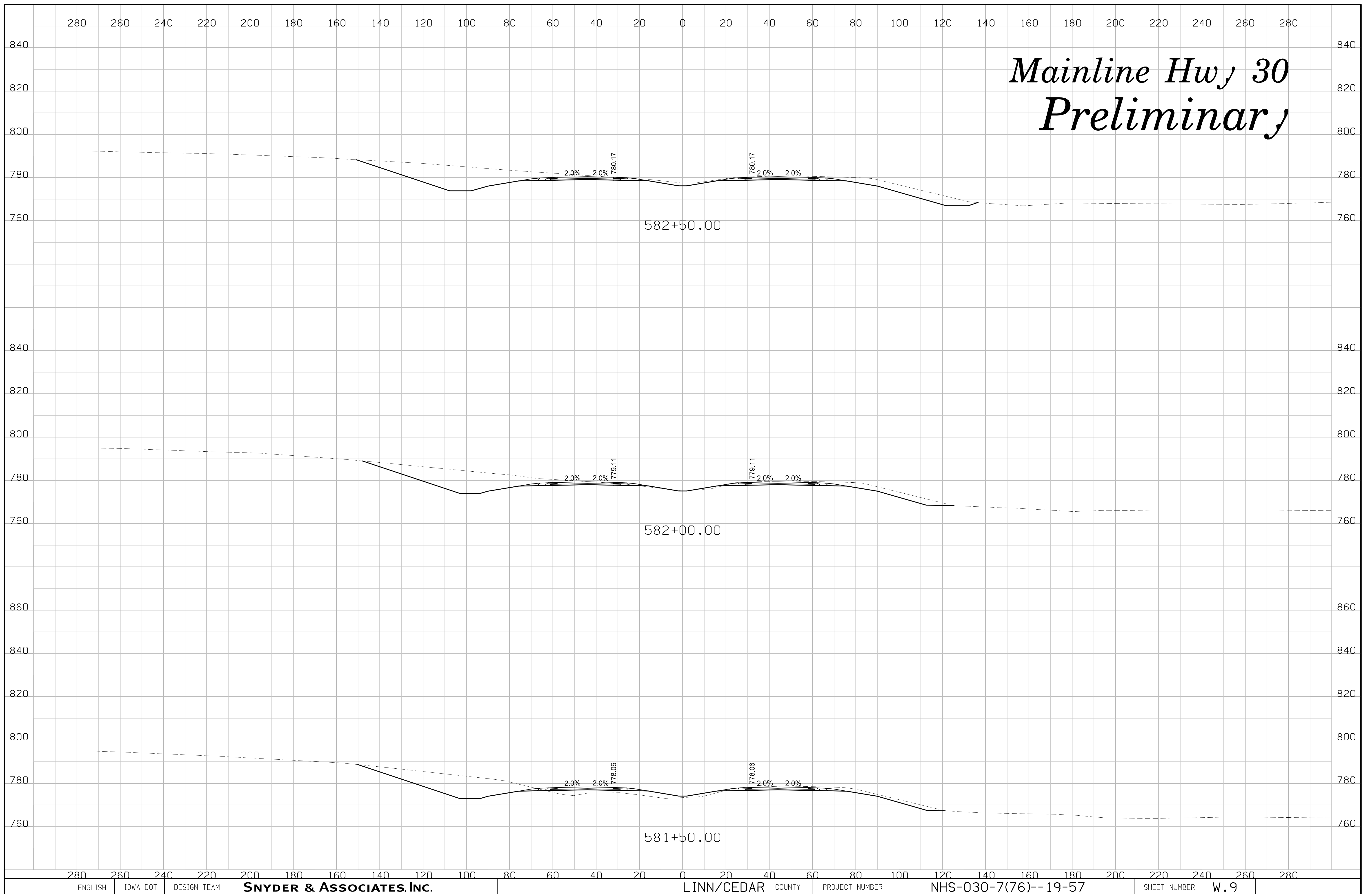
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

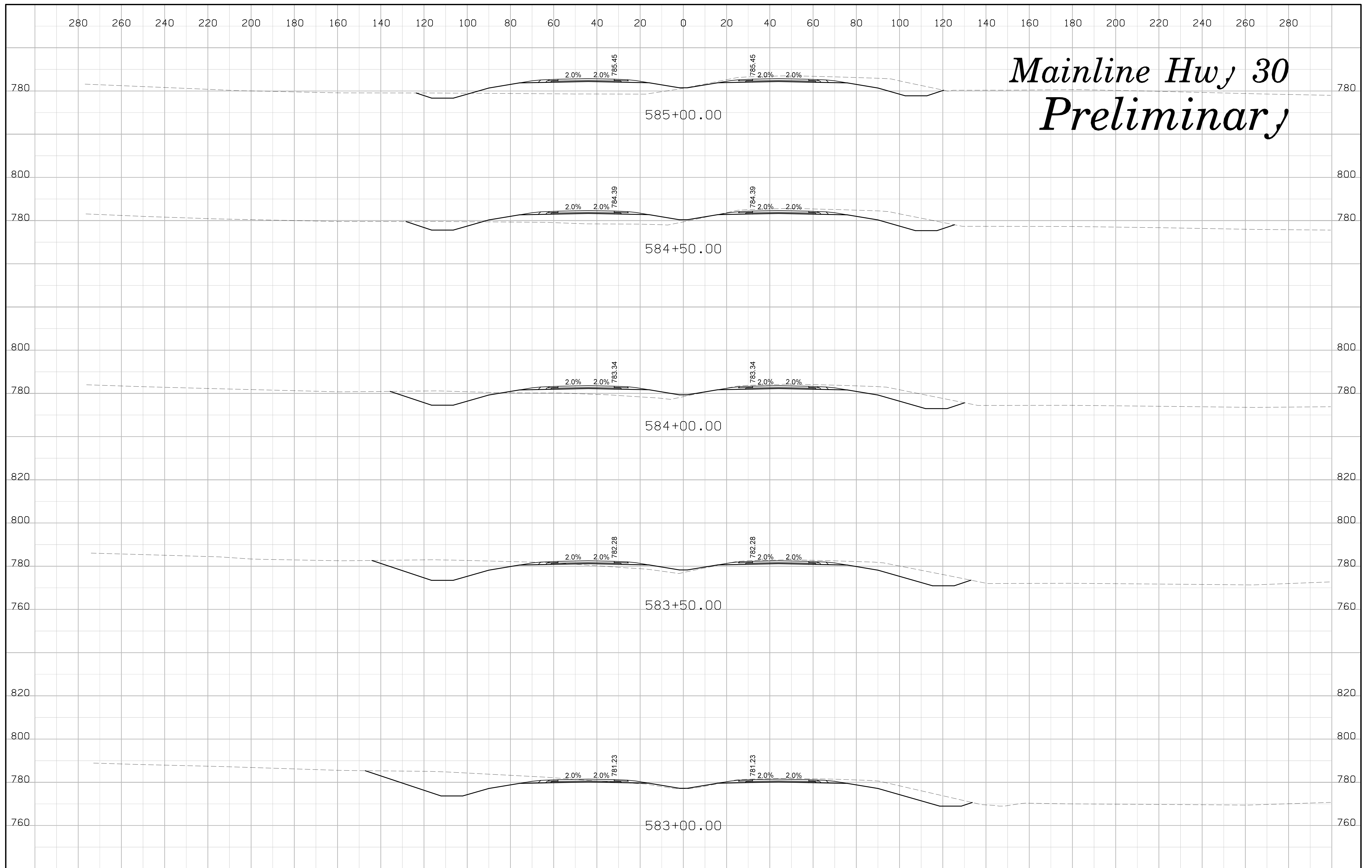


# Mainline Hwy 30 Preliminary

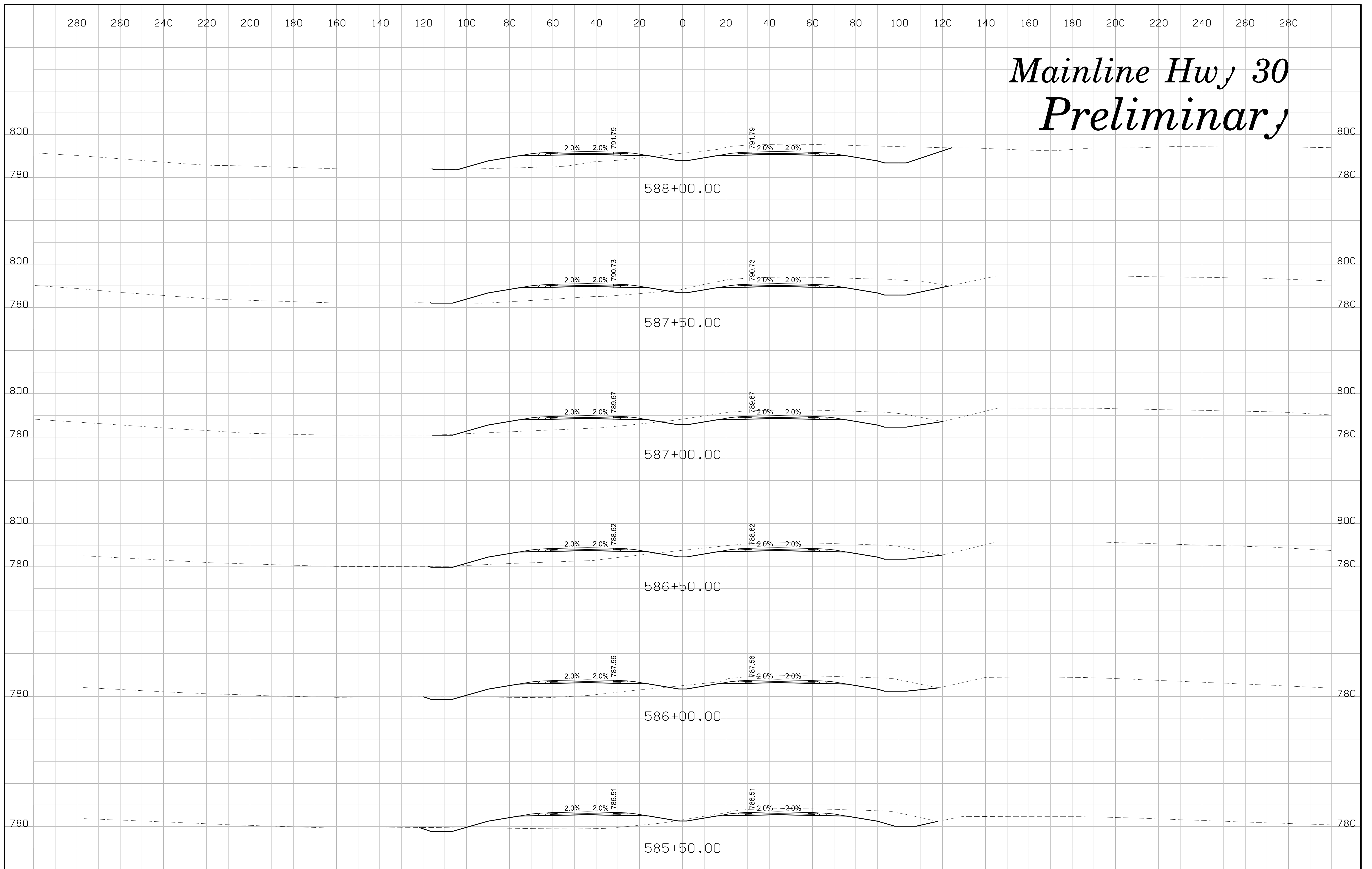




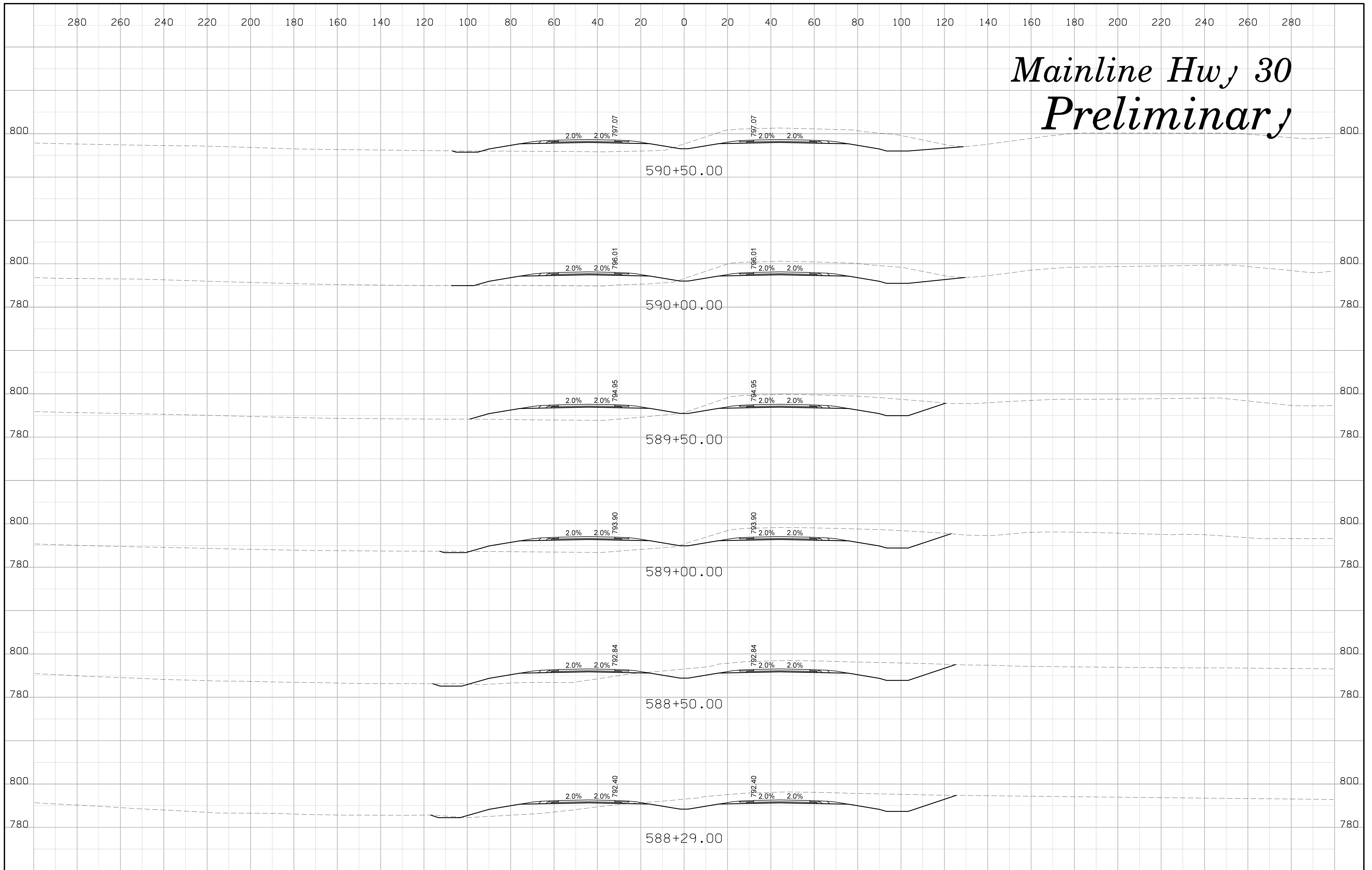
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

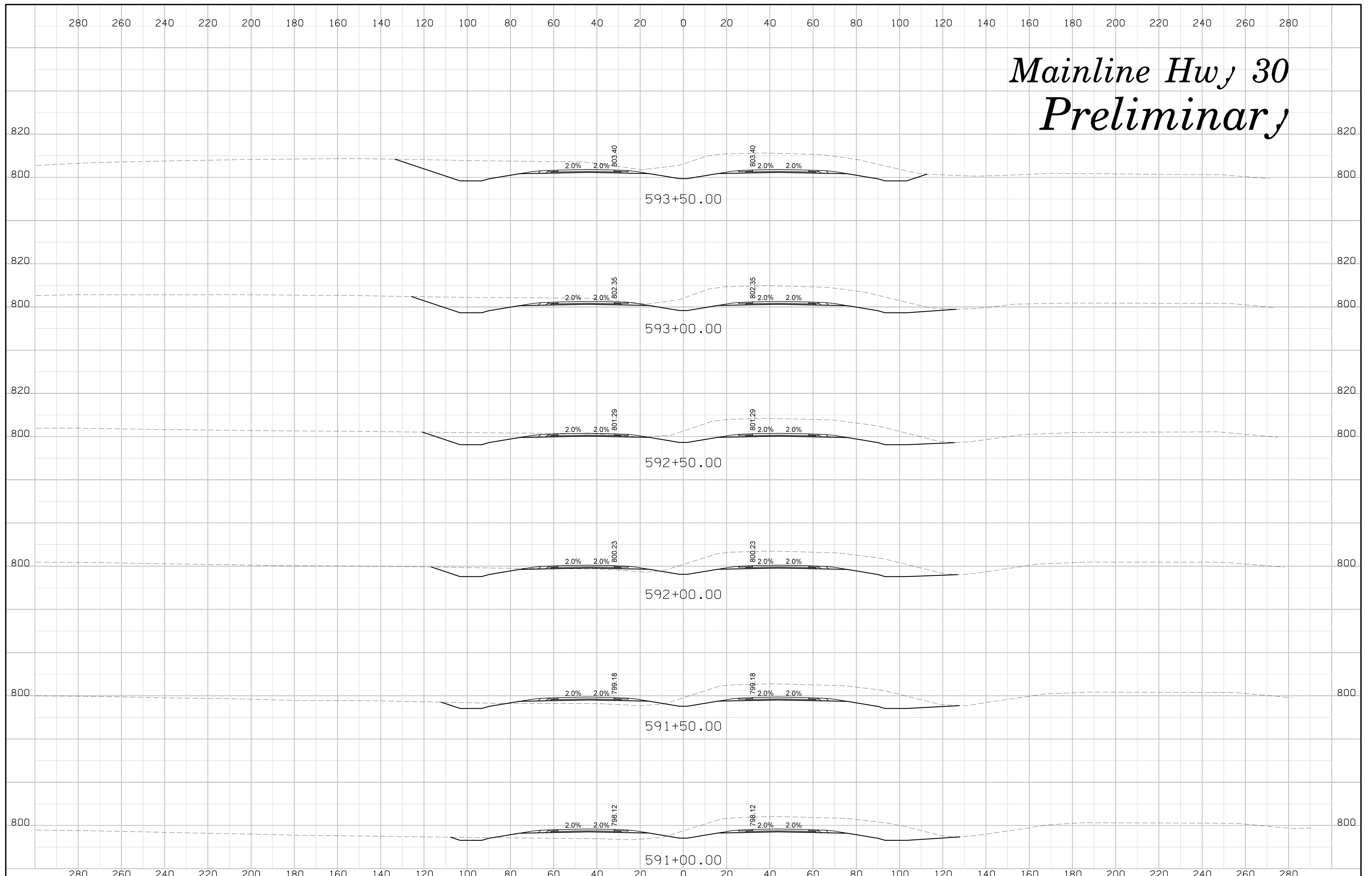


# Mainline Hwy 30 Preliminary

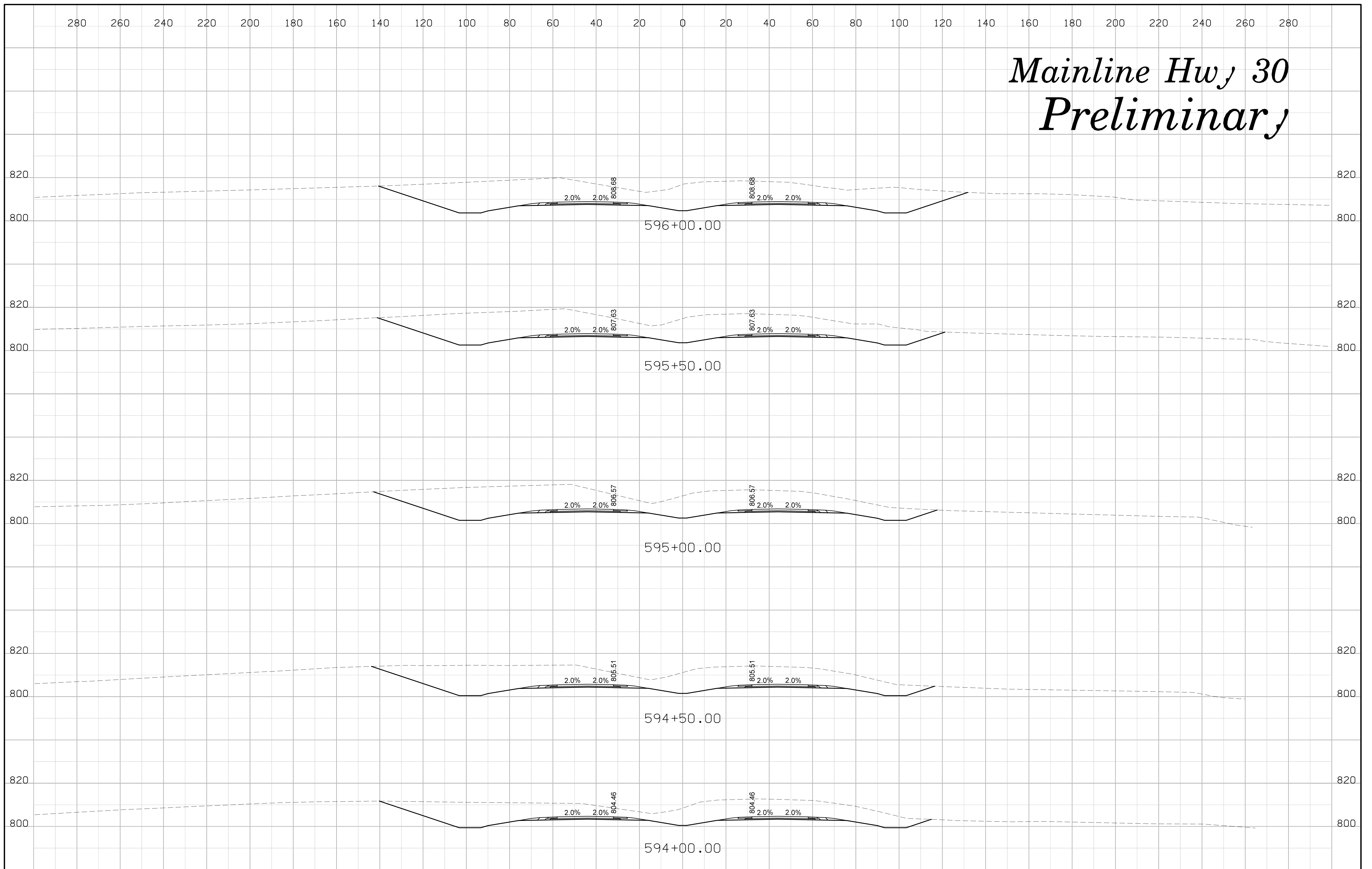




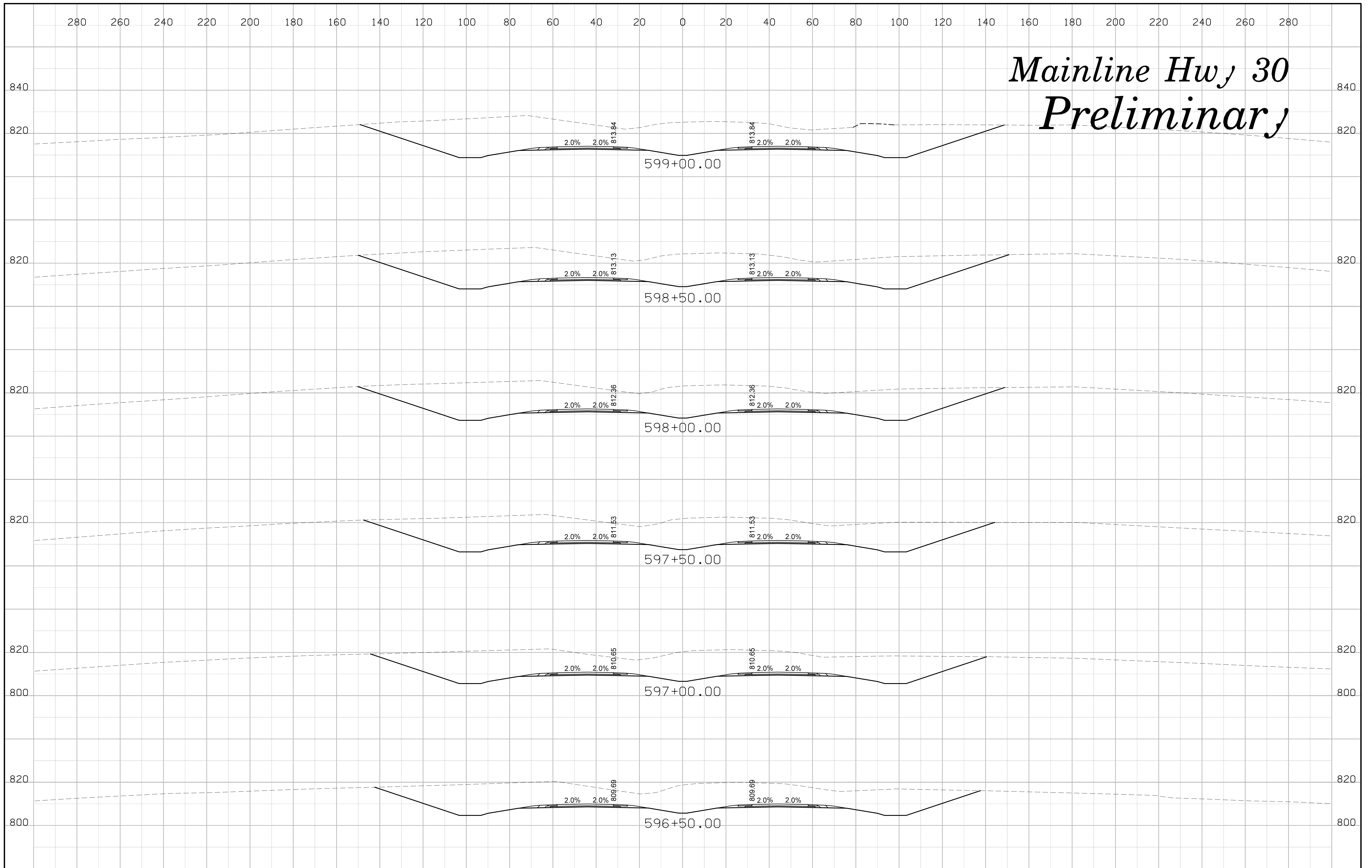
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

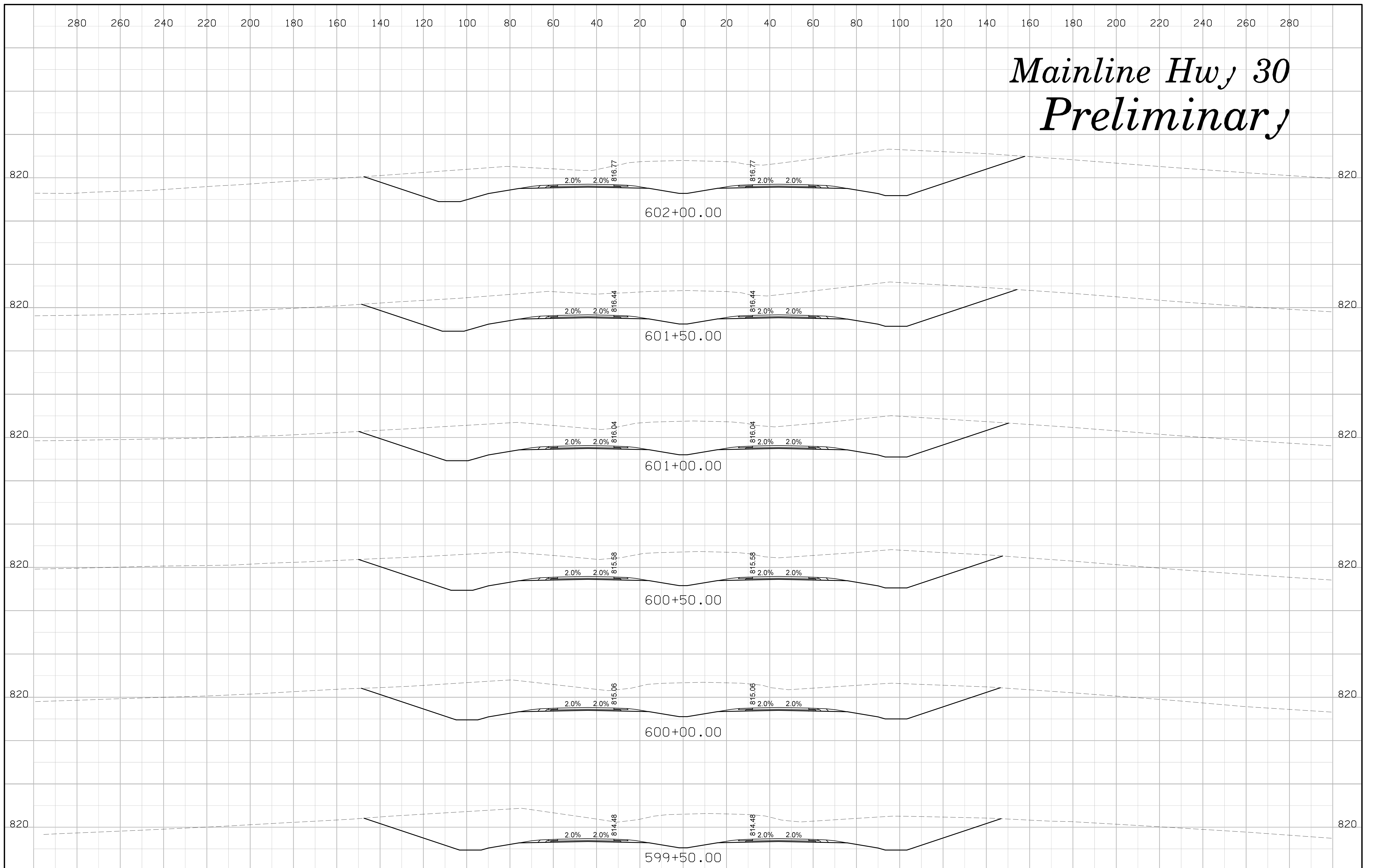


# Mainline Hwy 30 Preliminary

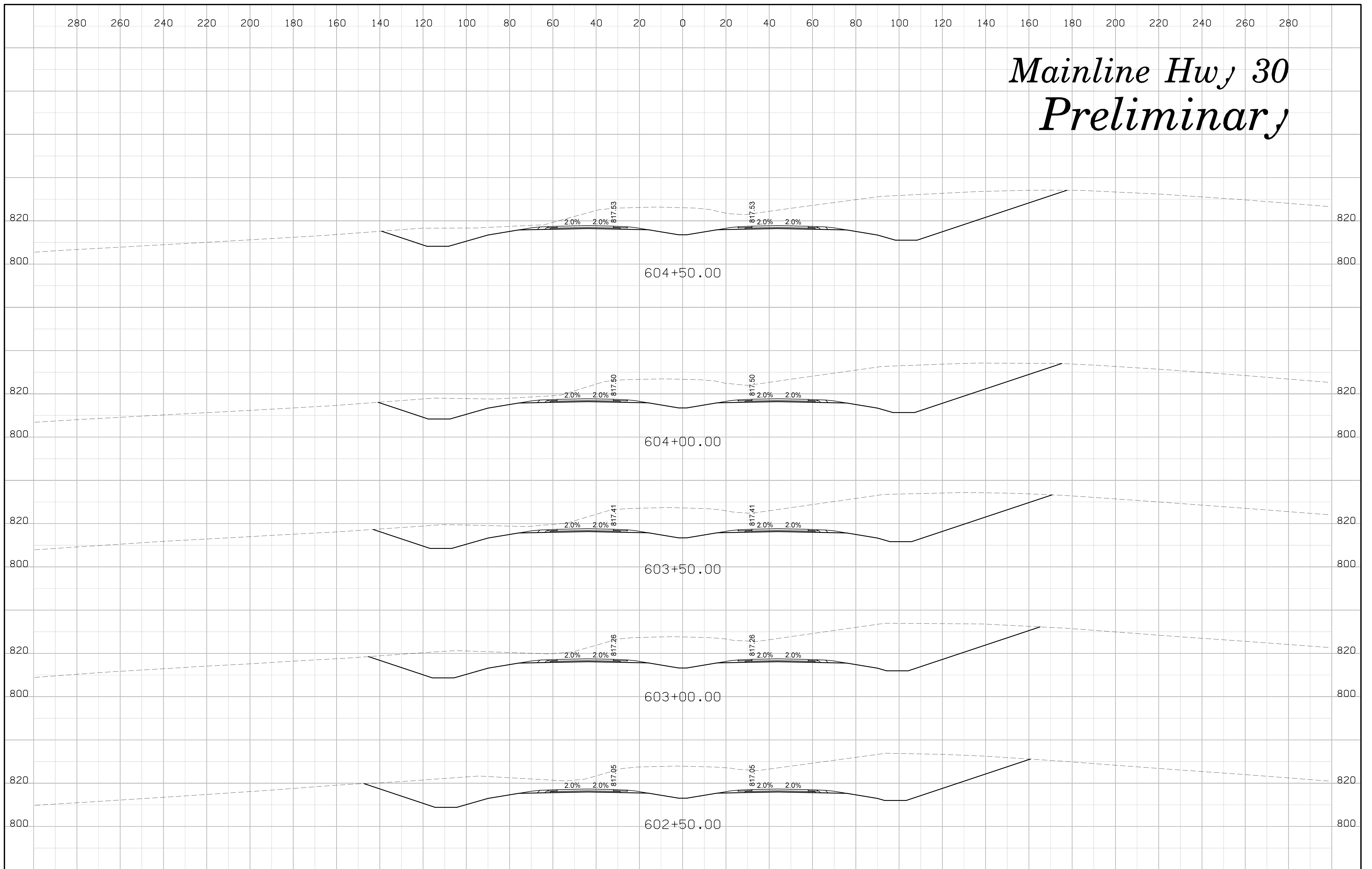


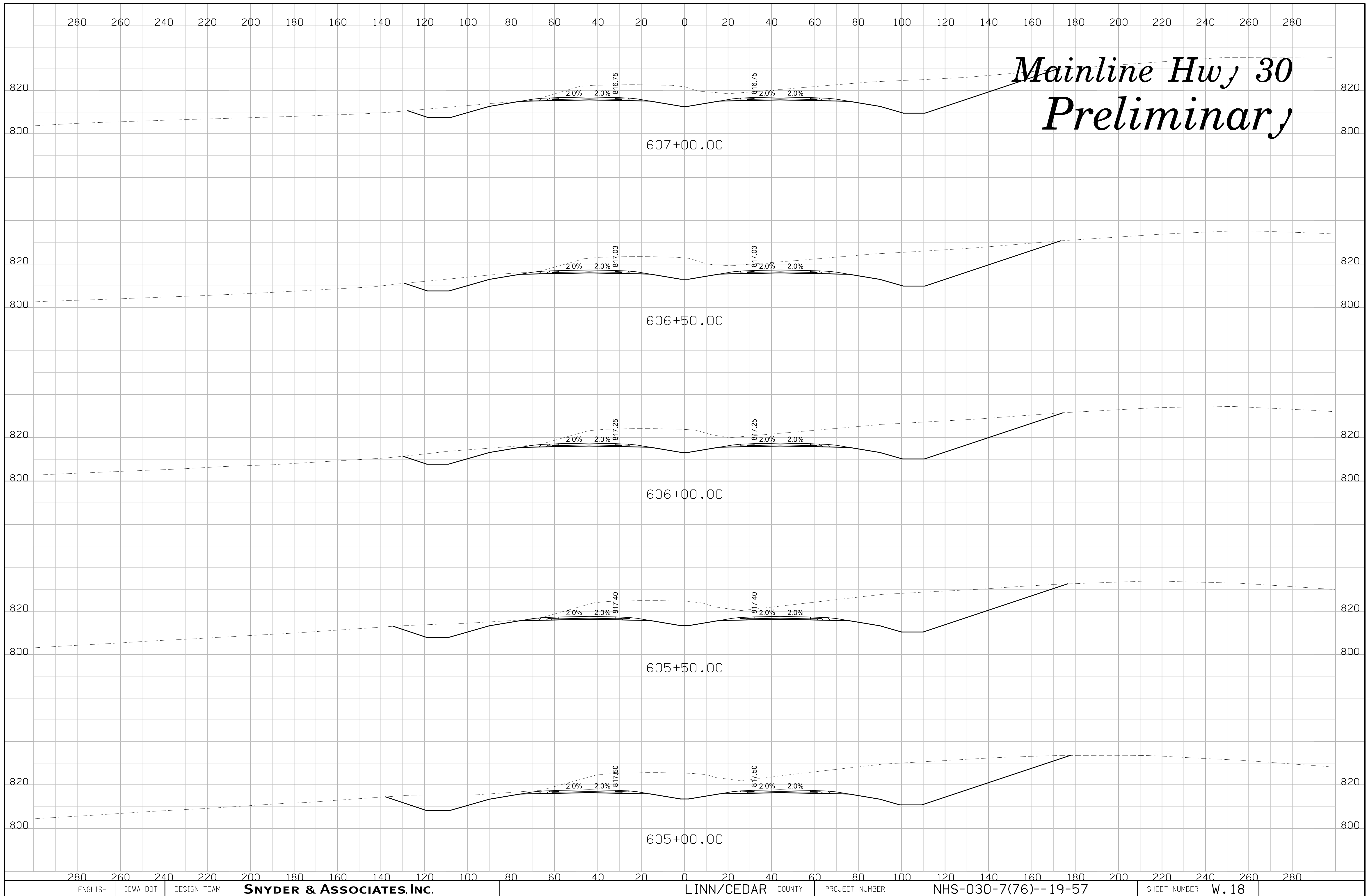


# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

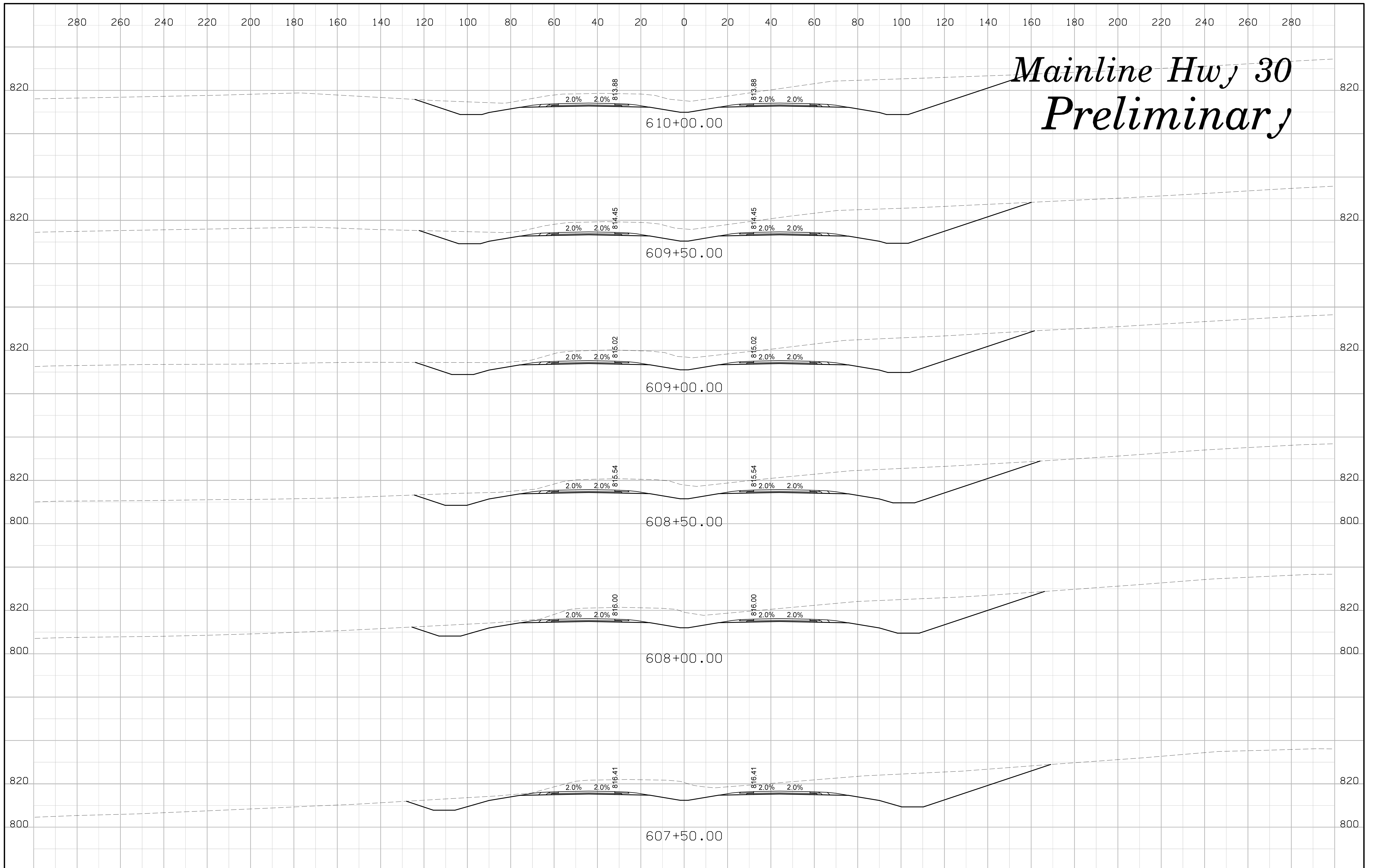




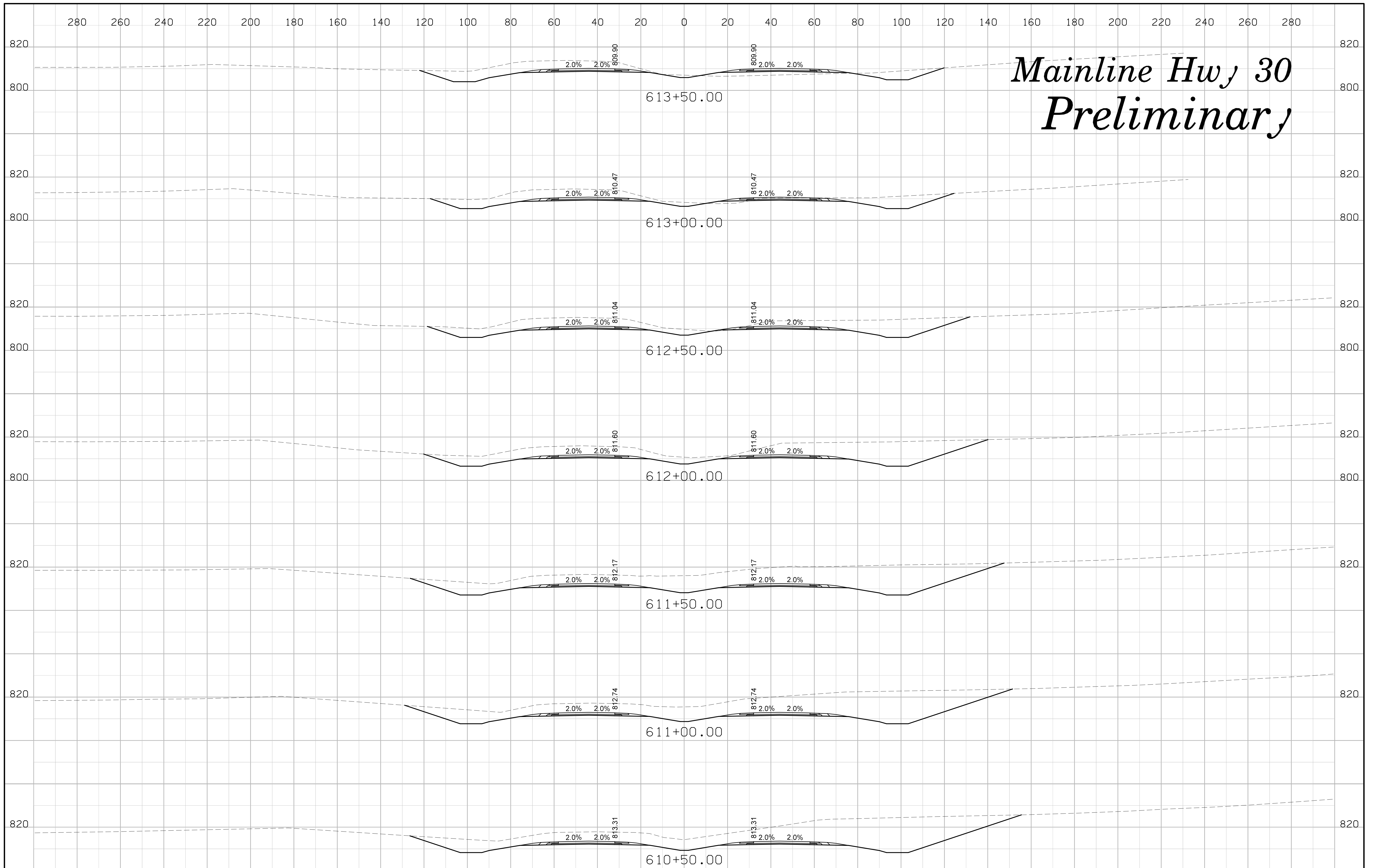
*Mainline Hwy 30  
Preliminary*



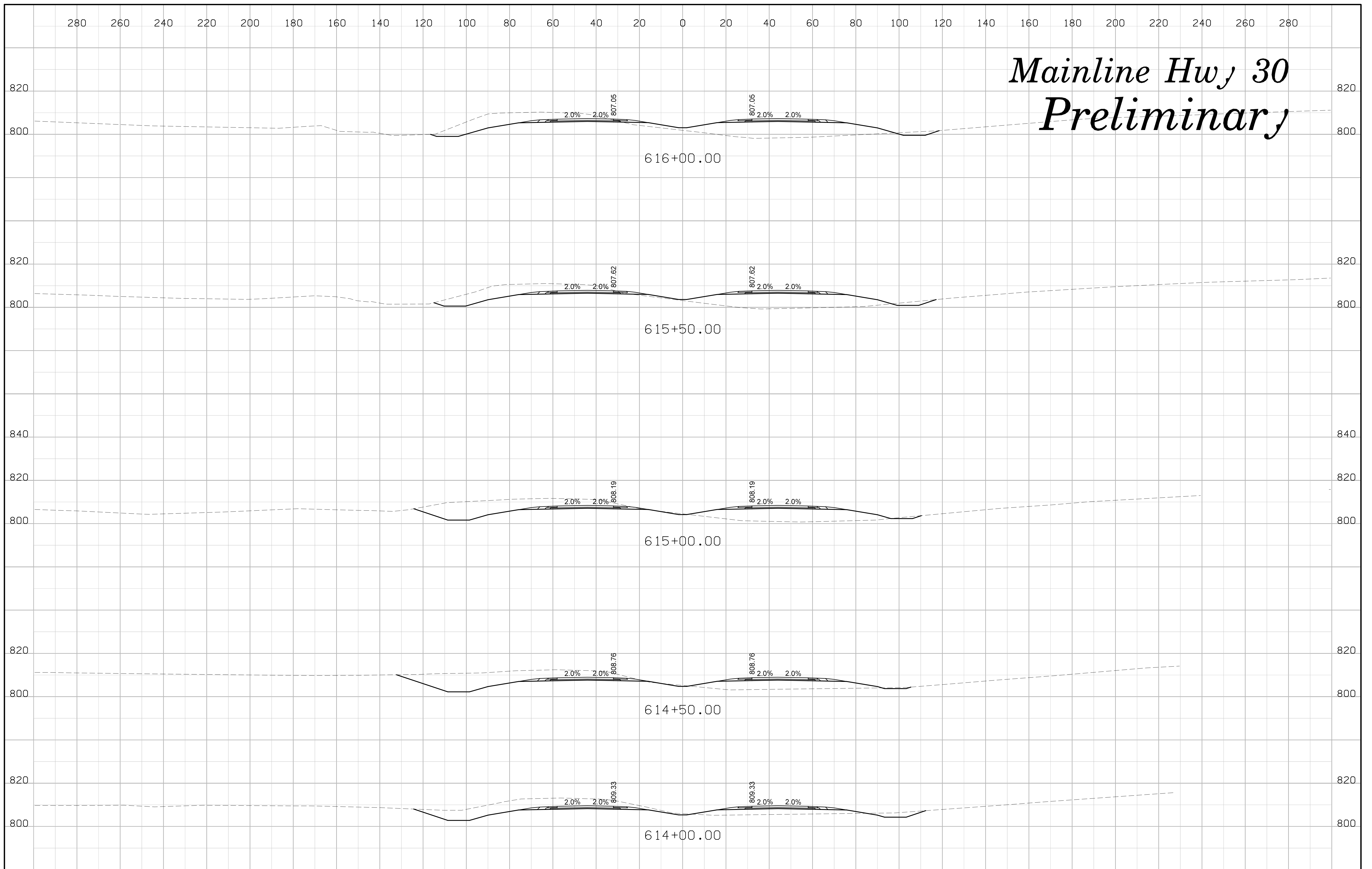
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

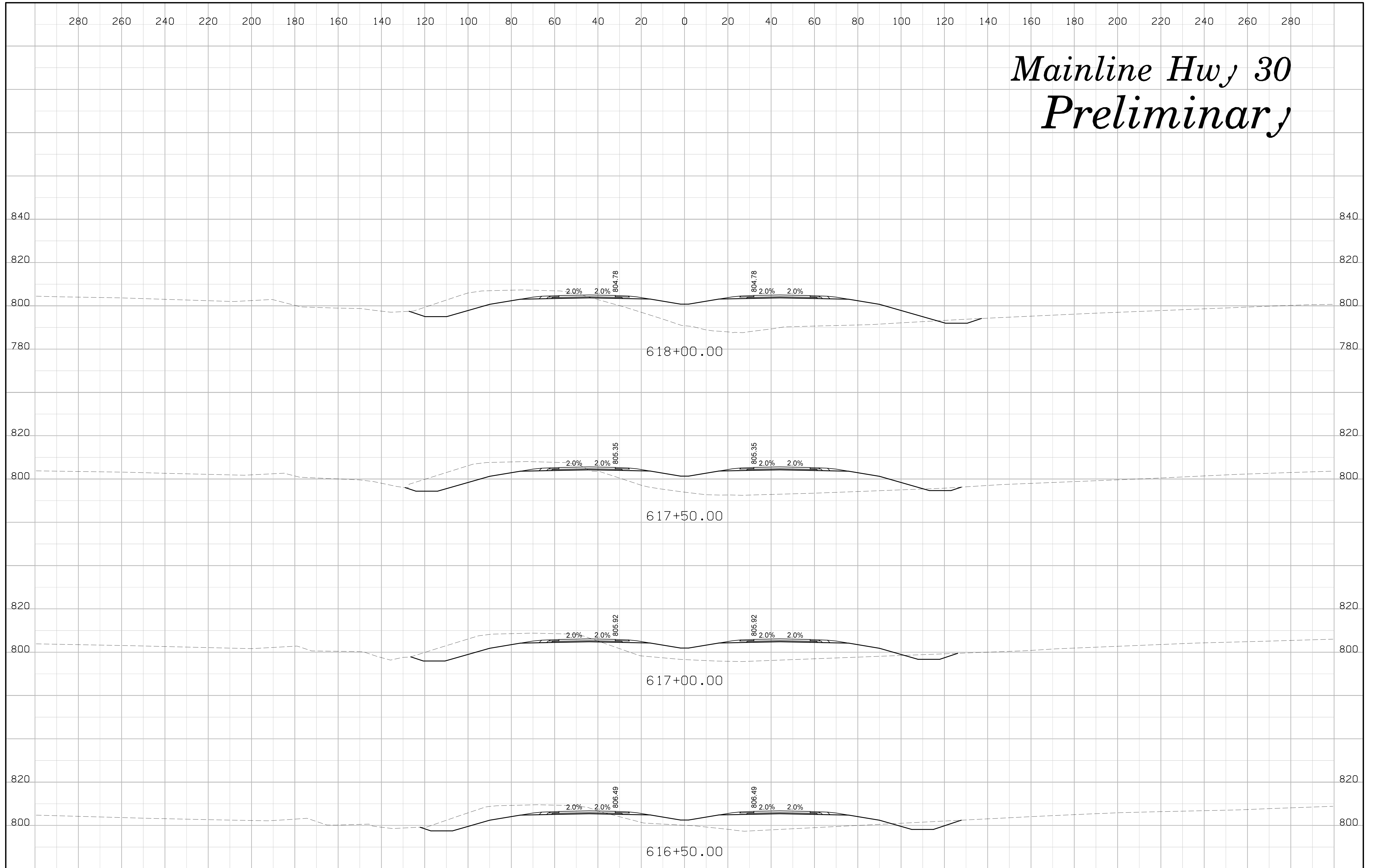


# Mainline Hwy 30 Preliminary

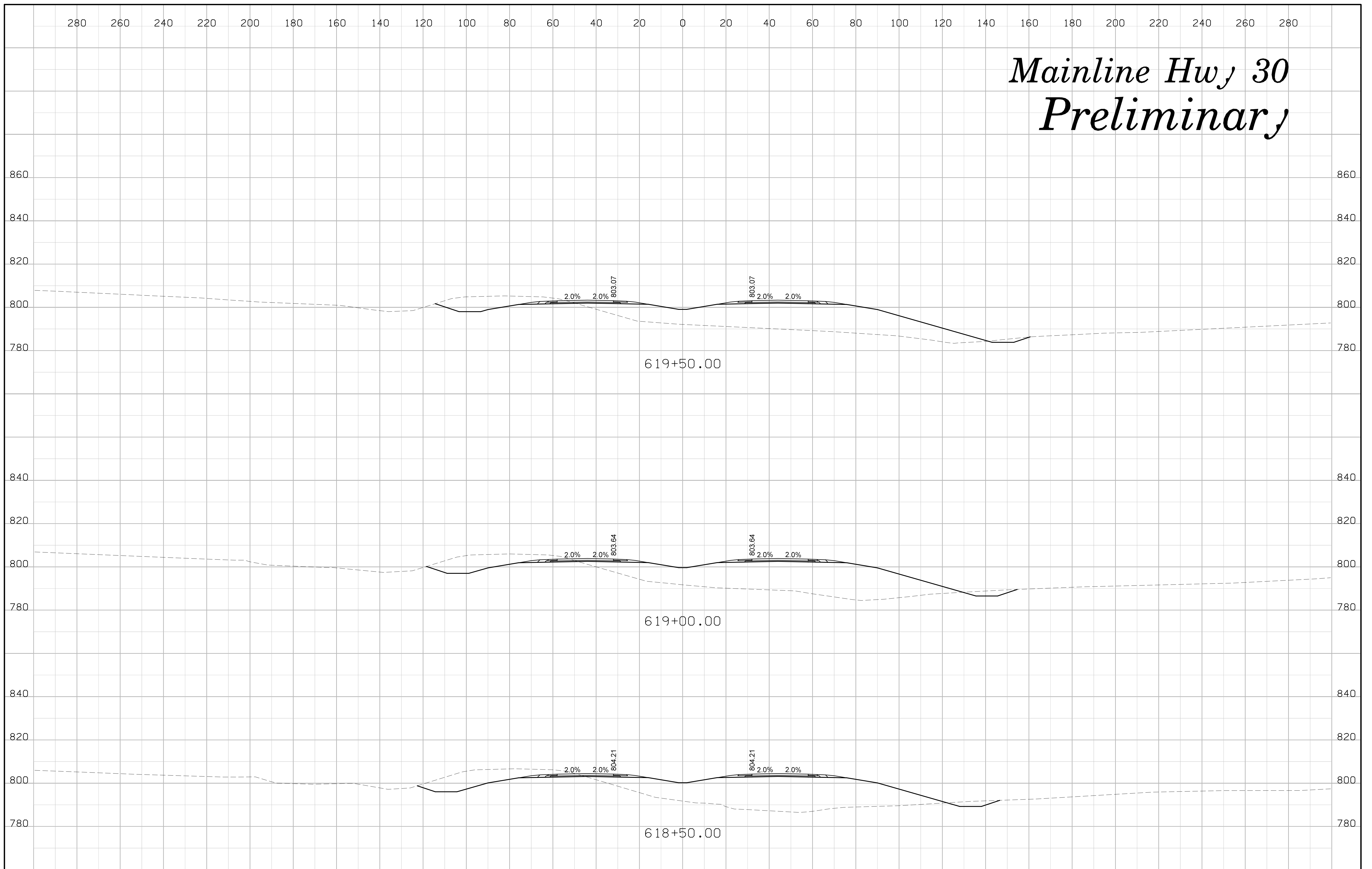




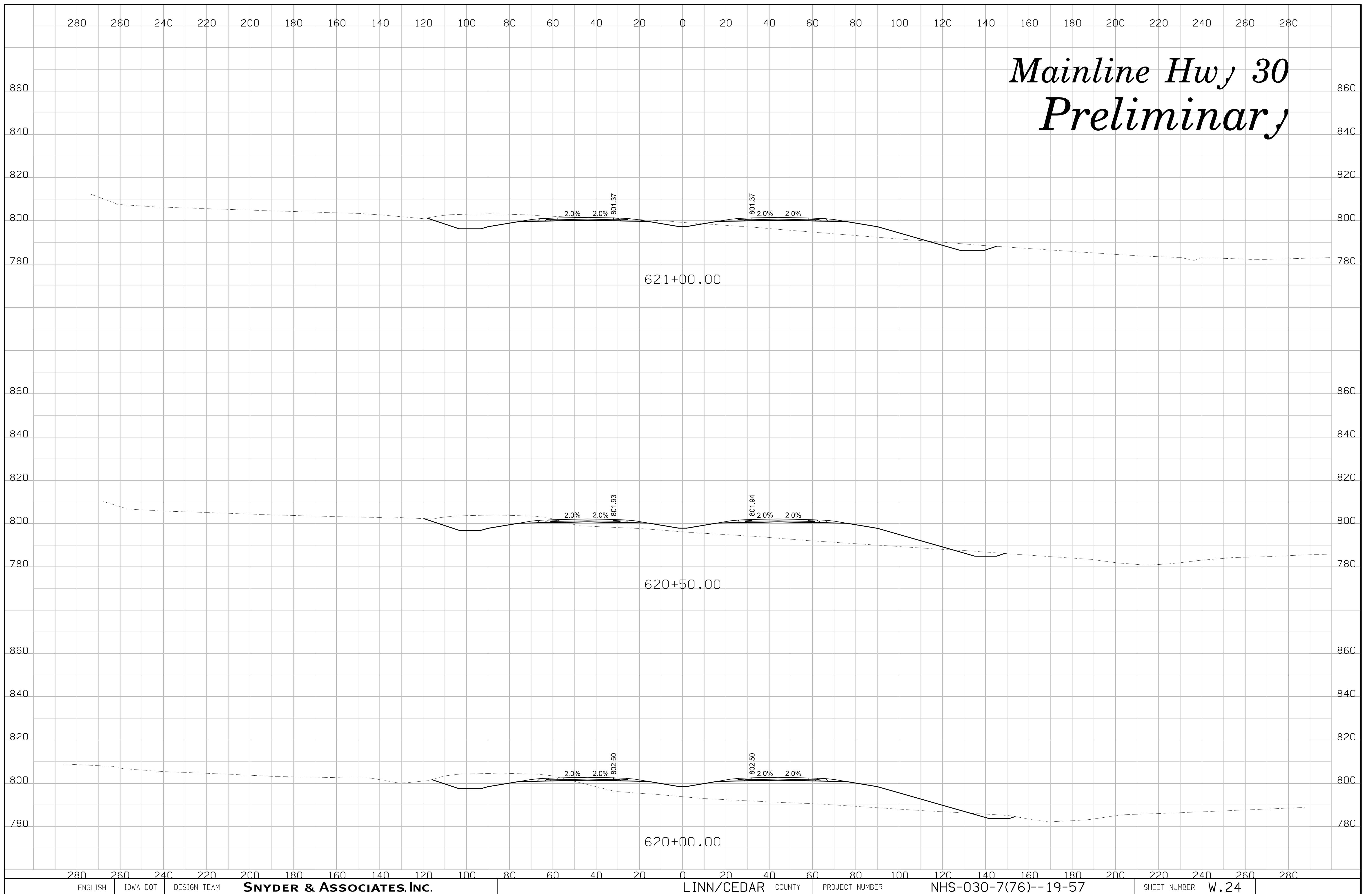
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

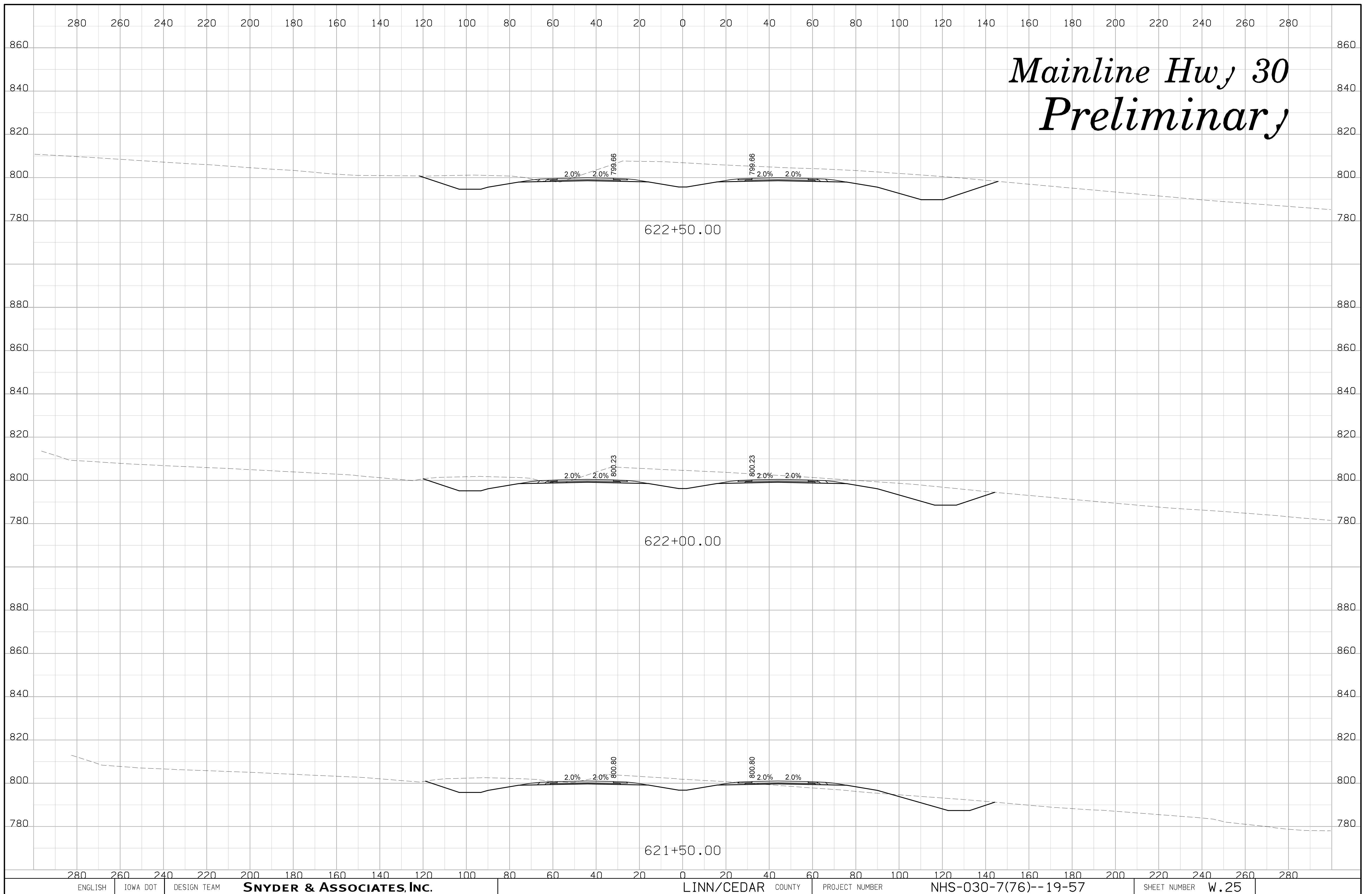


# Mainline Hwy 30 Preliminary

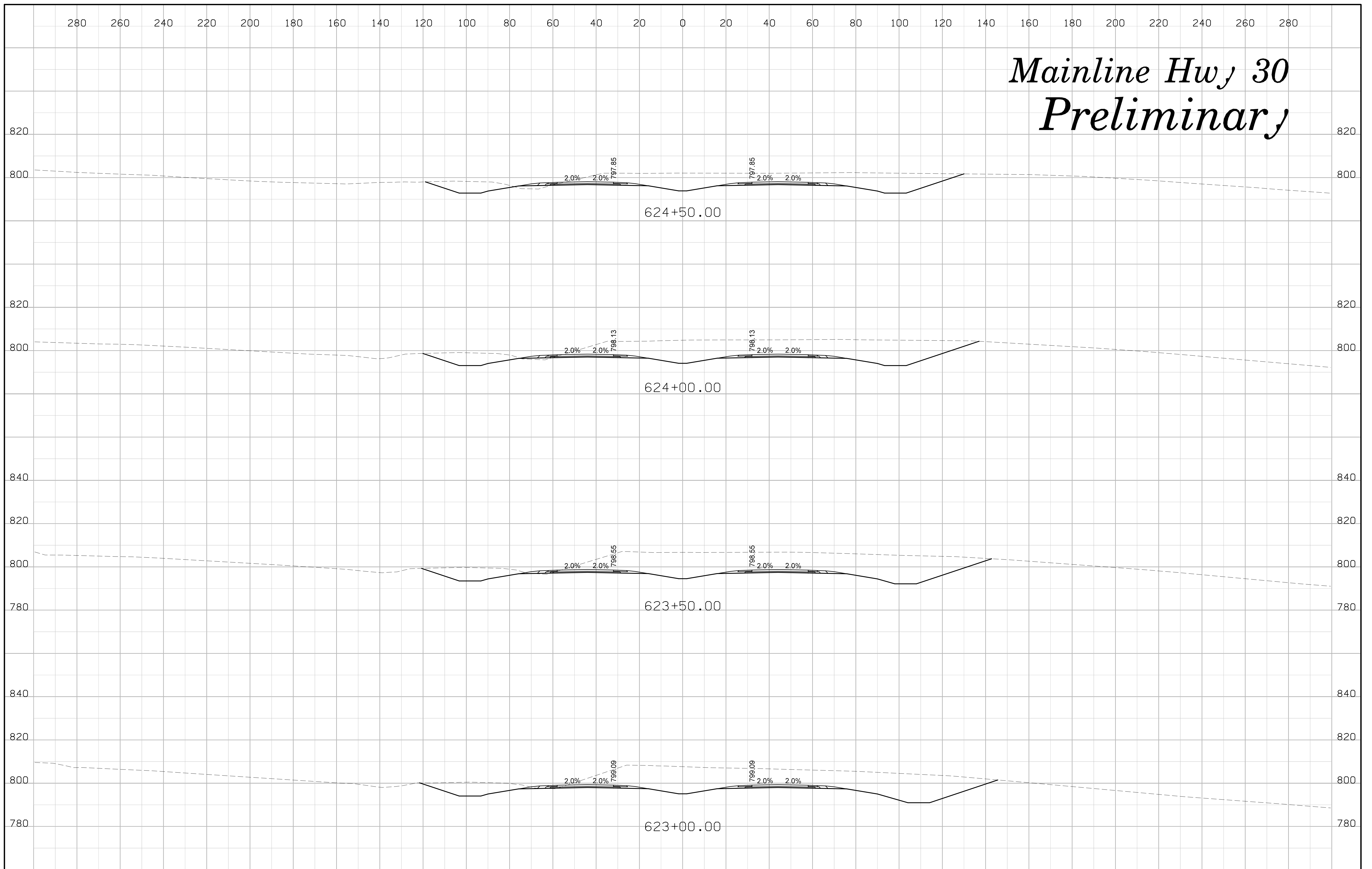




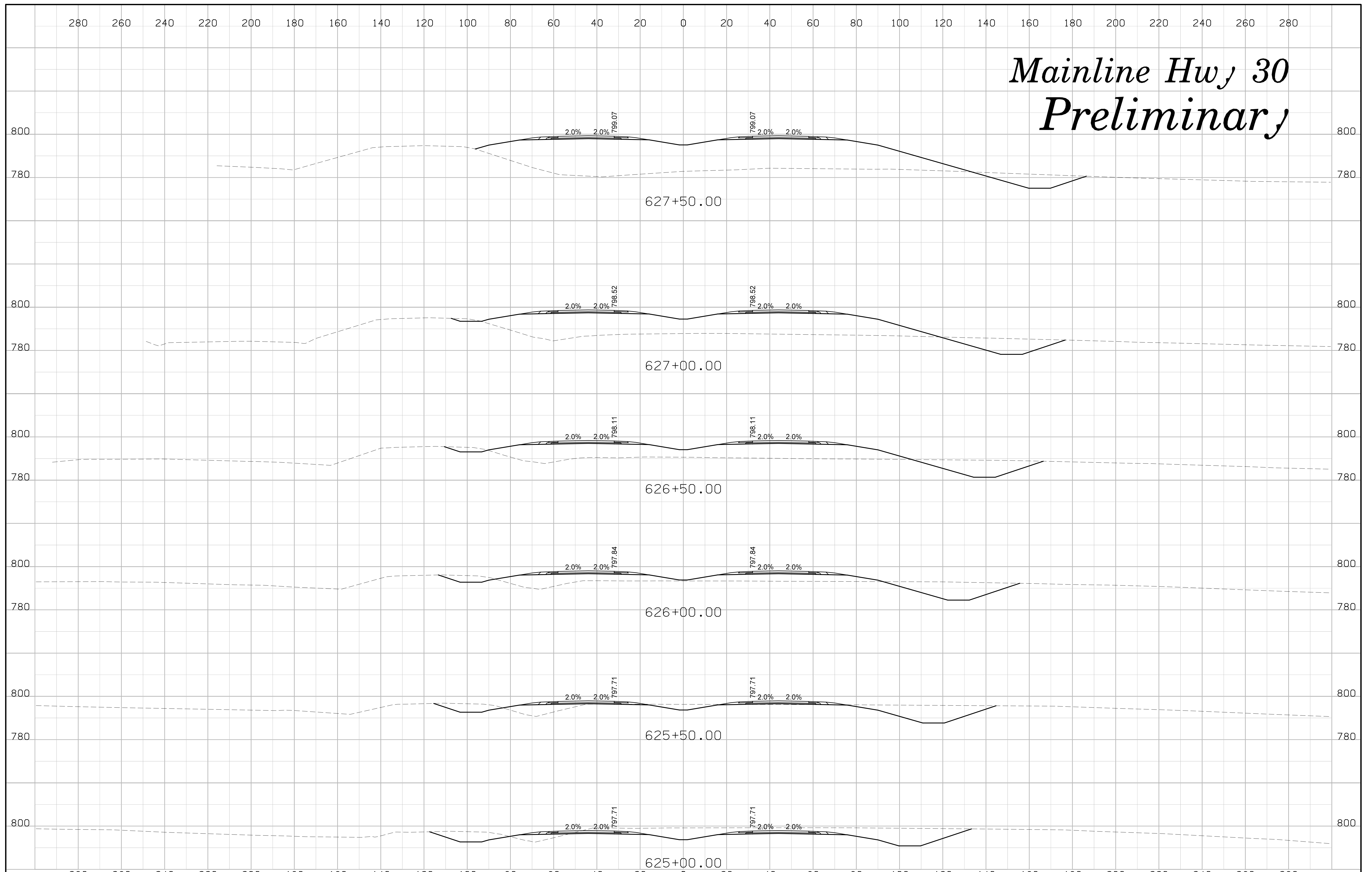
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

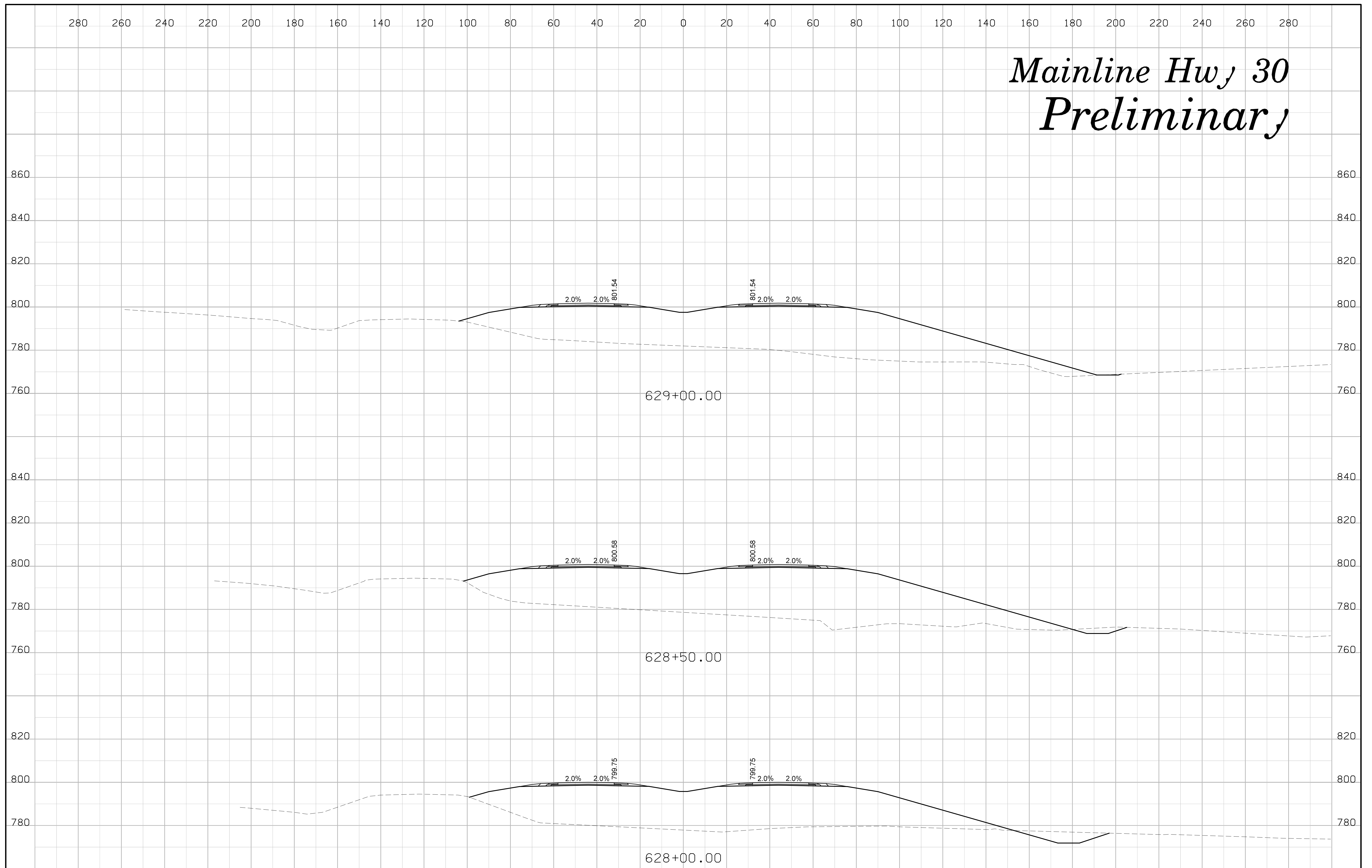


# Mainline Hwy 30 Preliminary

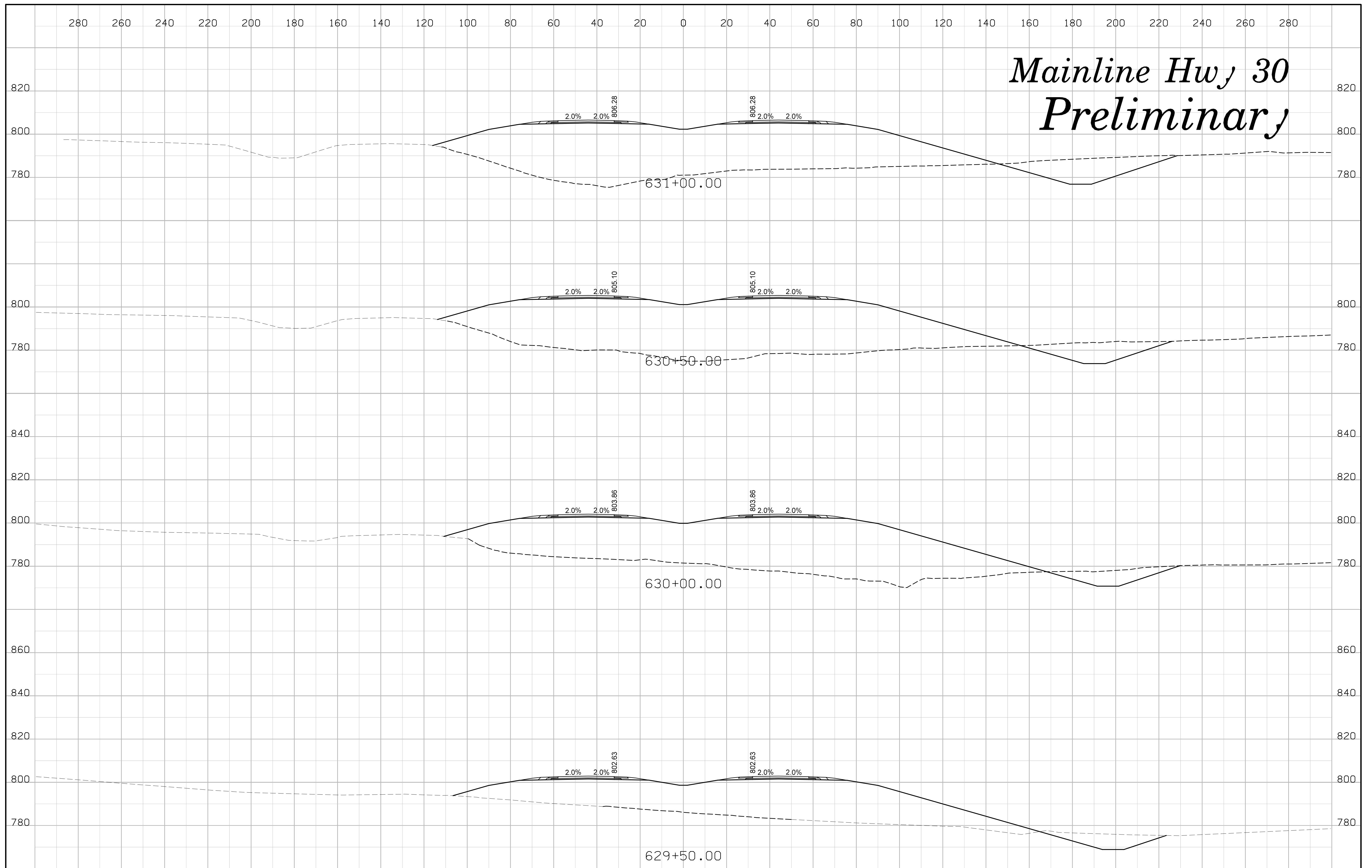




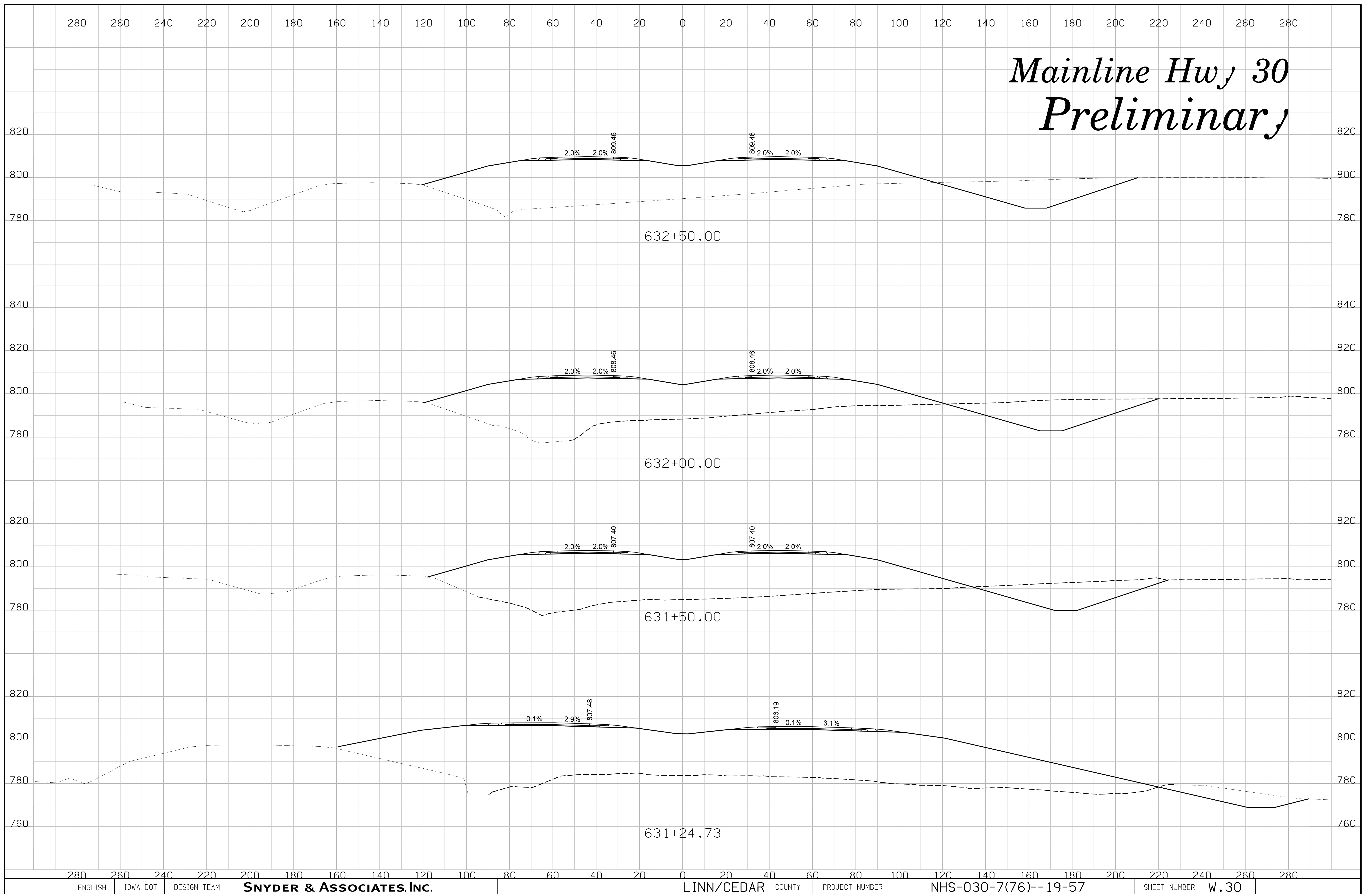
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

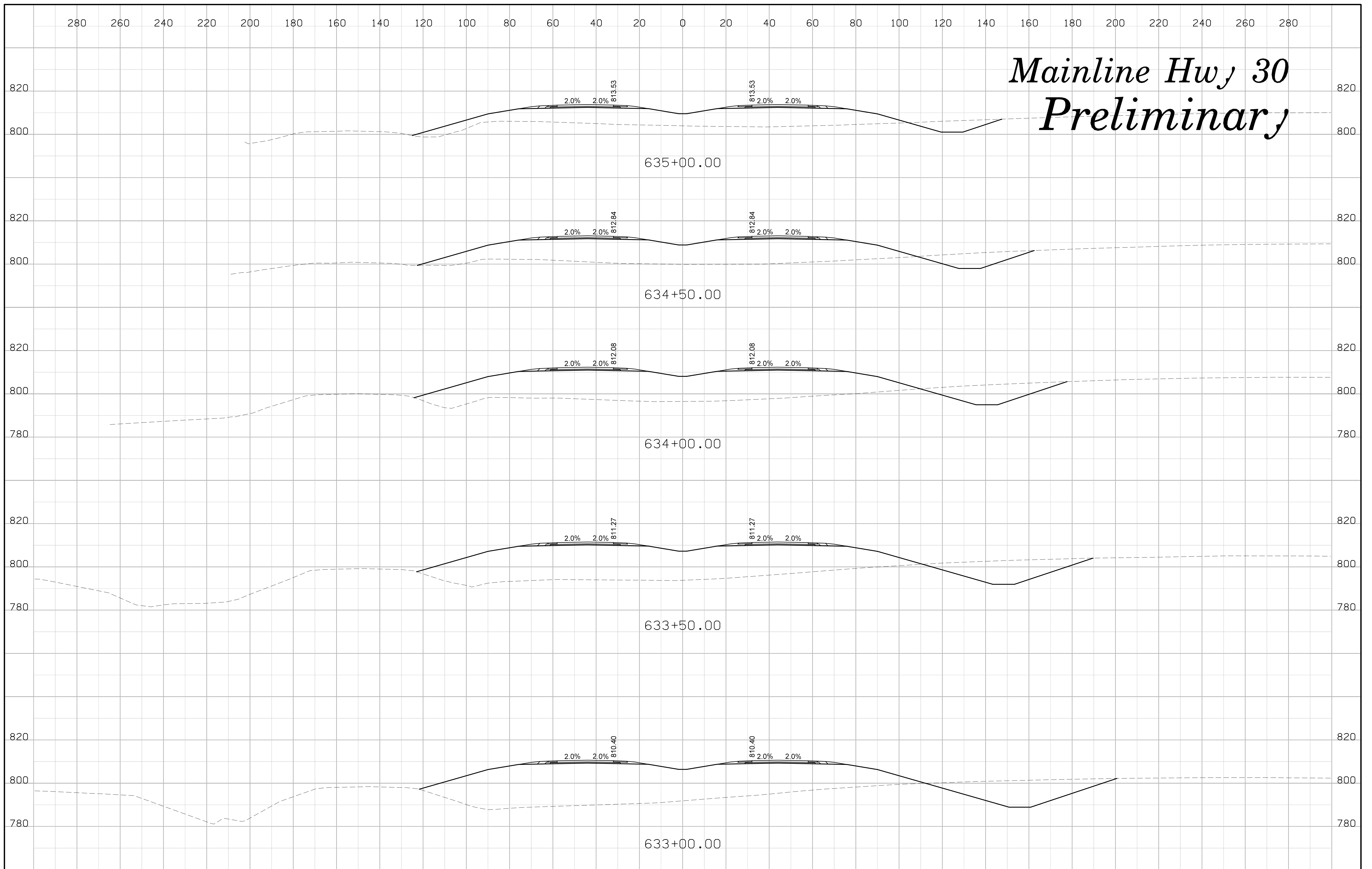


# Mainline Hwy 30 Preliminary

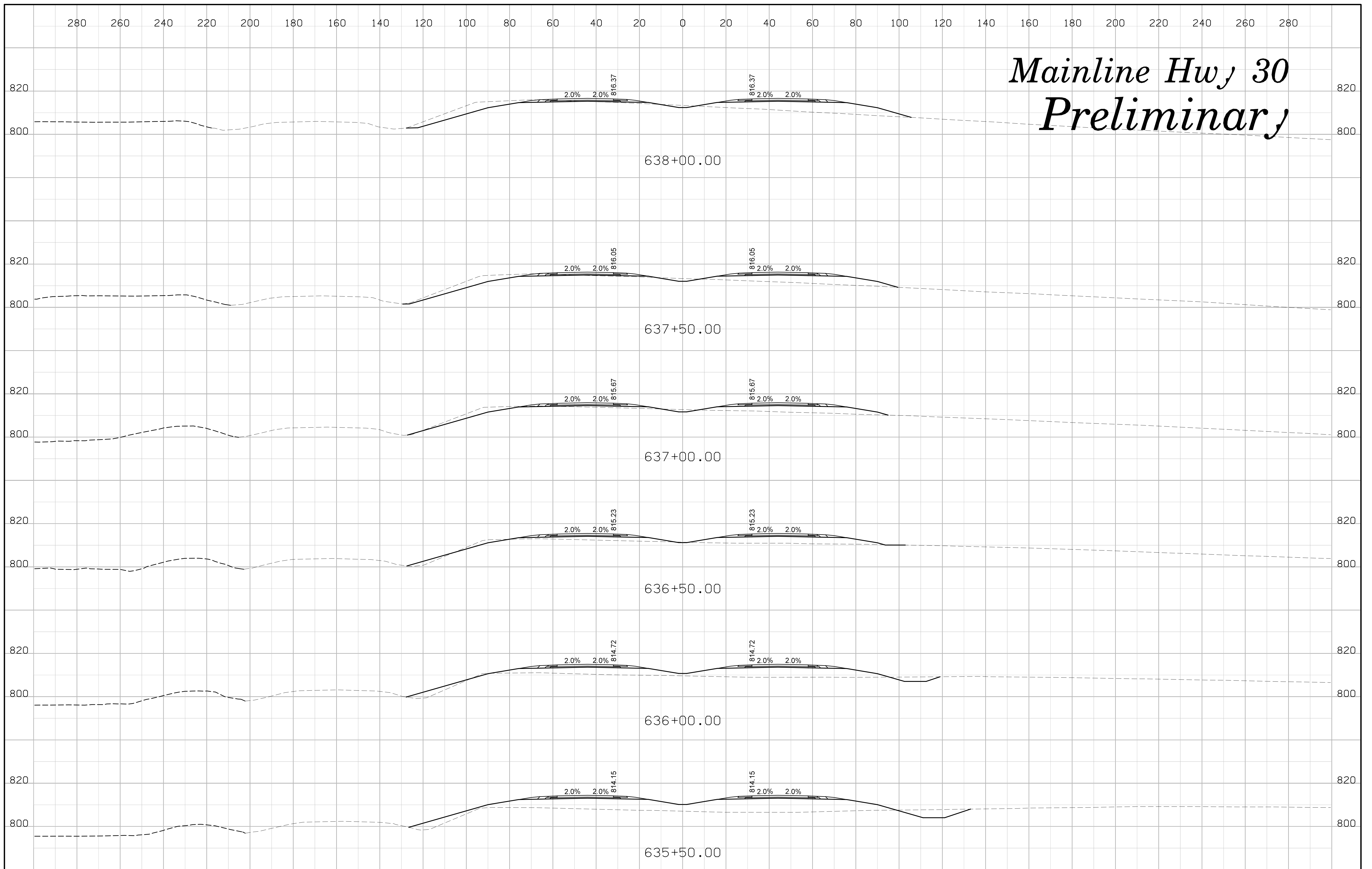




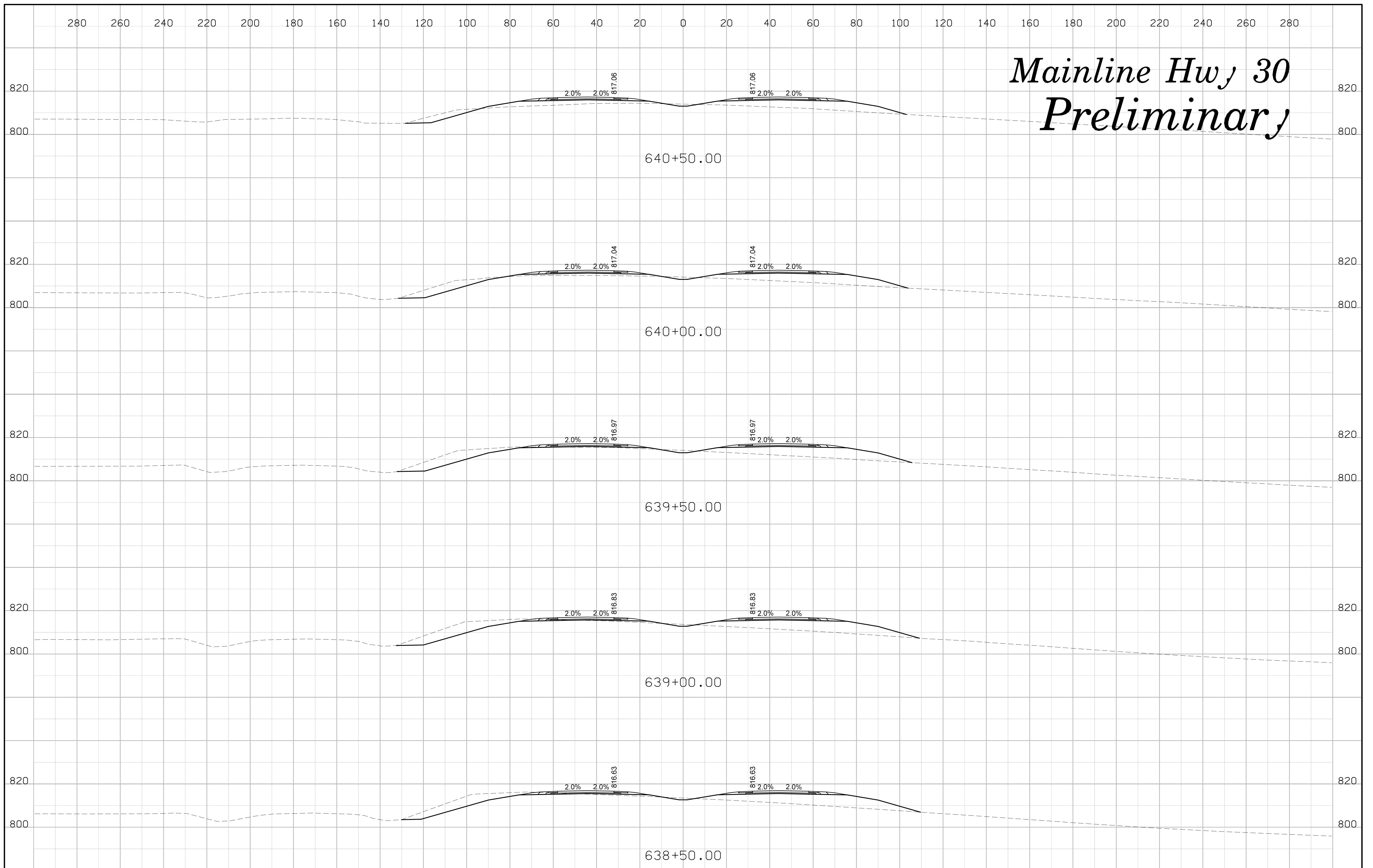
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

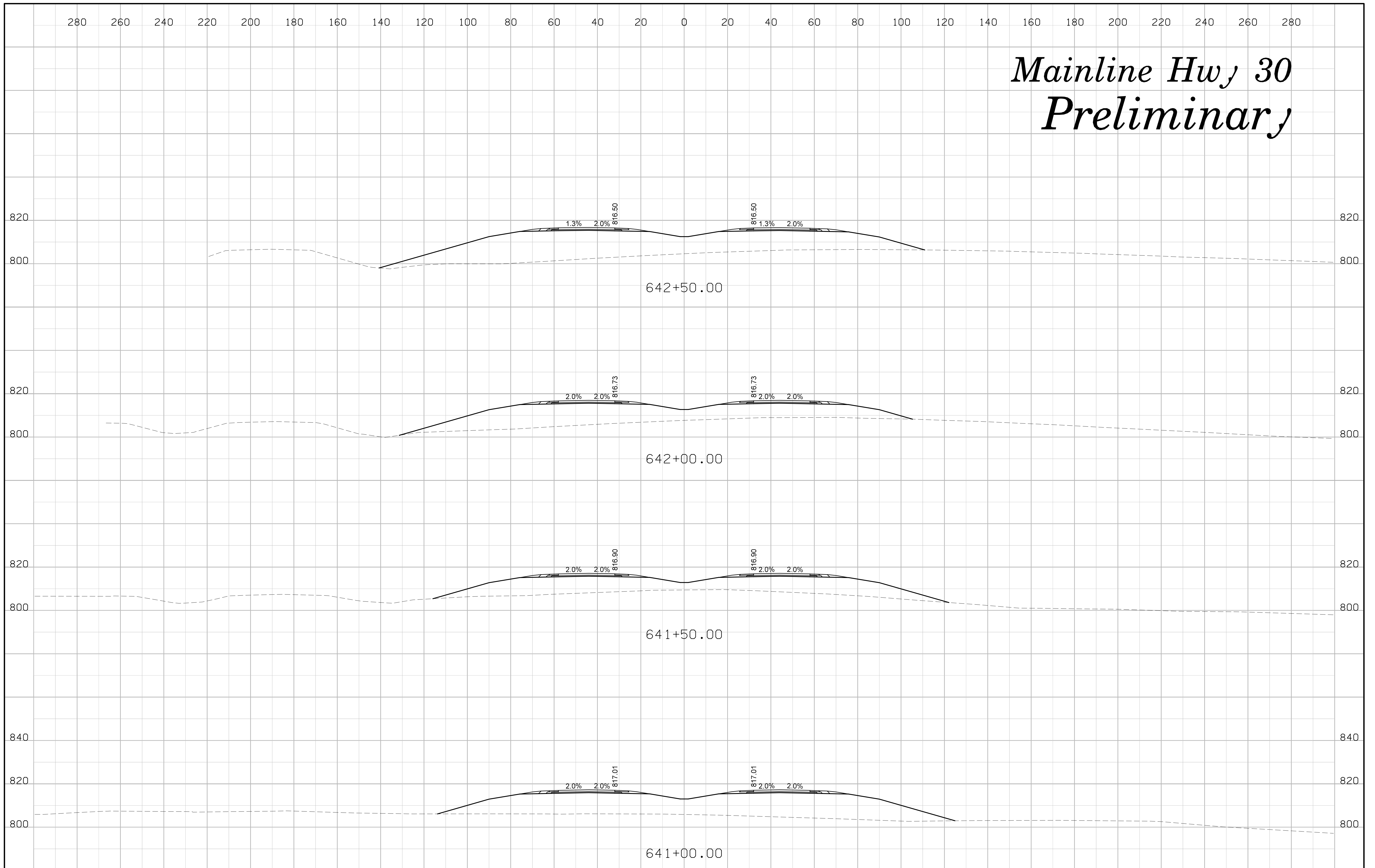


# Mainline Hwy 30 Preliminary

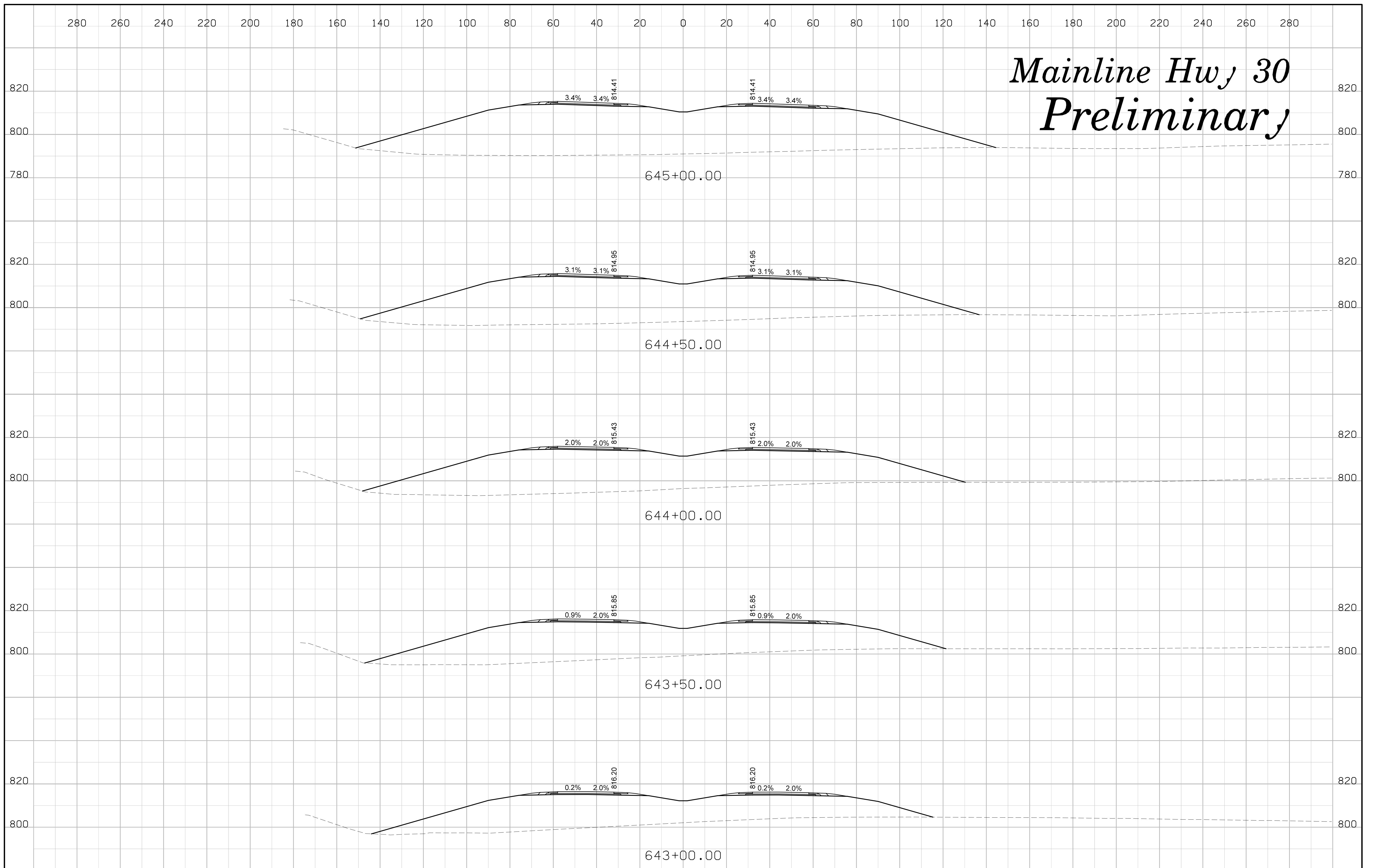




# Mainline Hwy 30 Preliminary



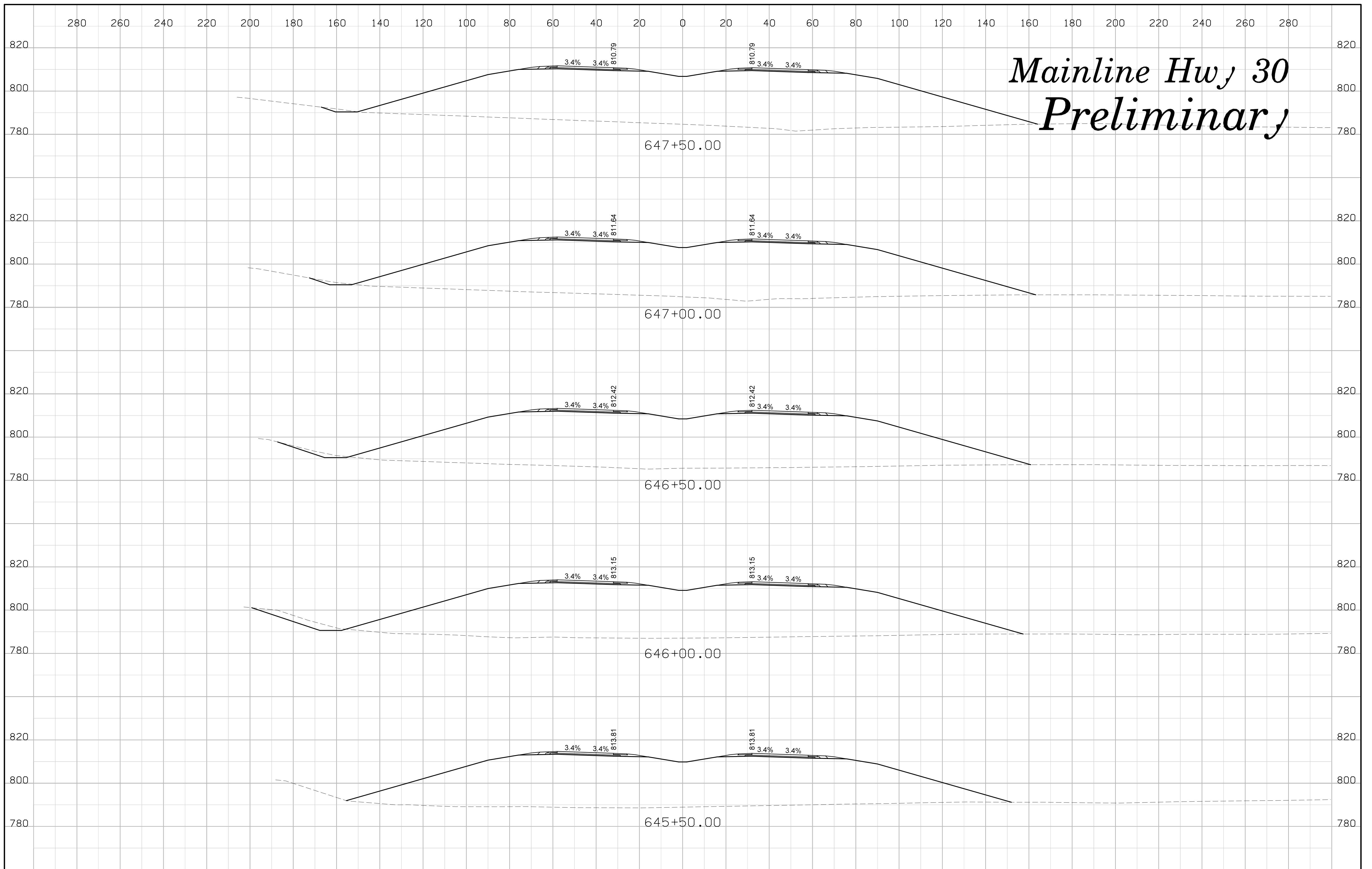
# Mainline Hwy 30 Preliminary



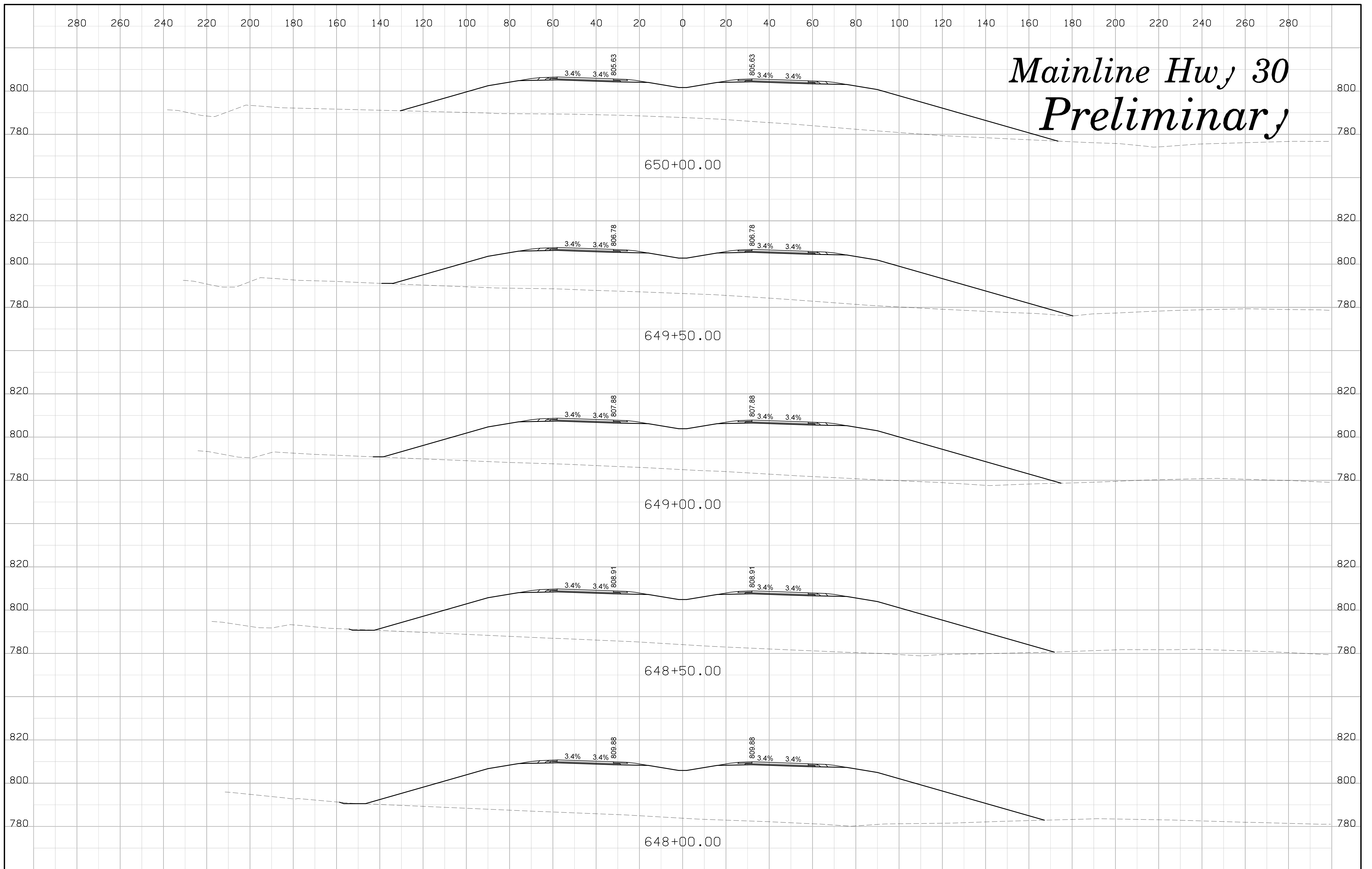




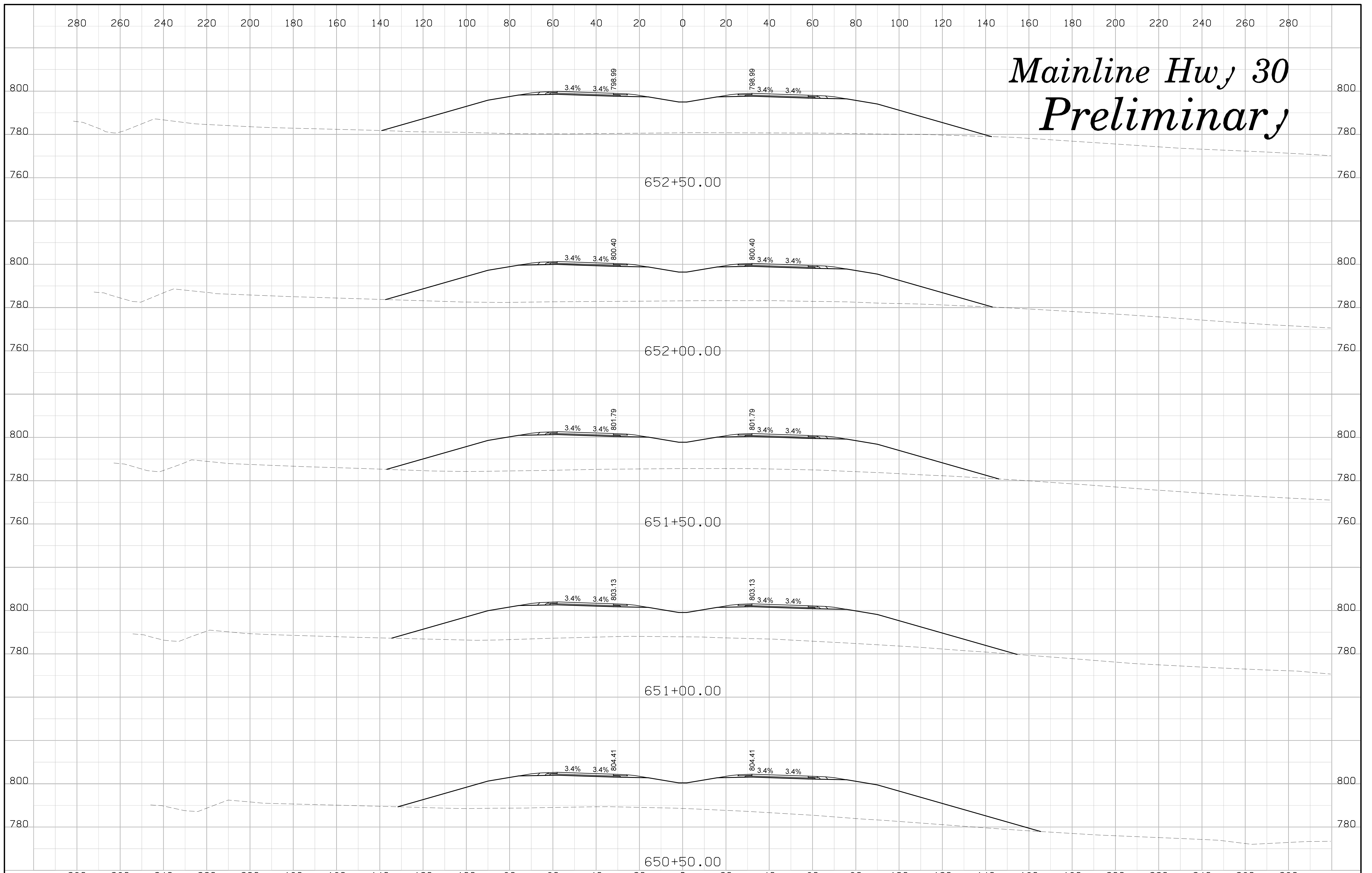
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

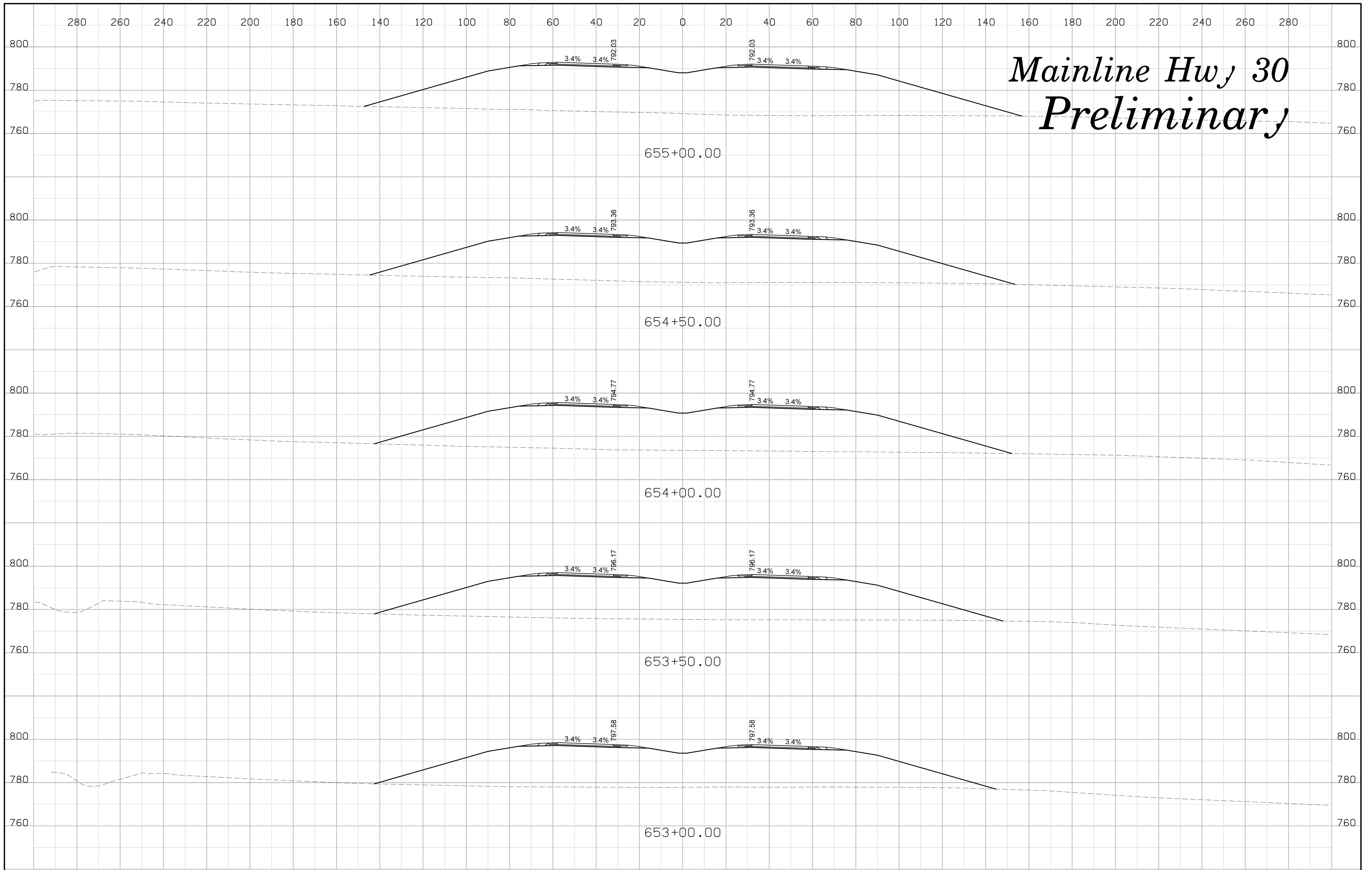


# Mainline Hwy 30 Preliminary

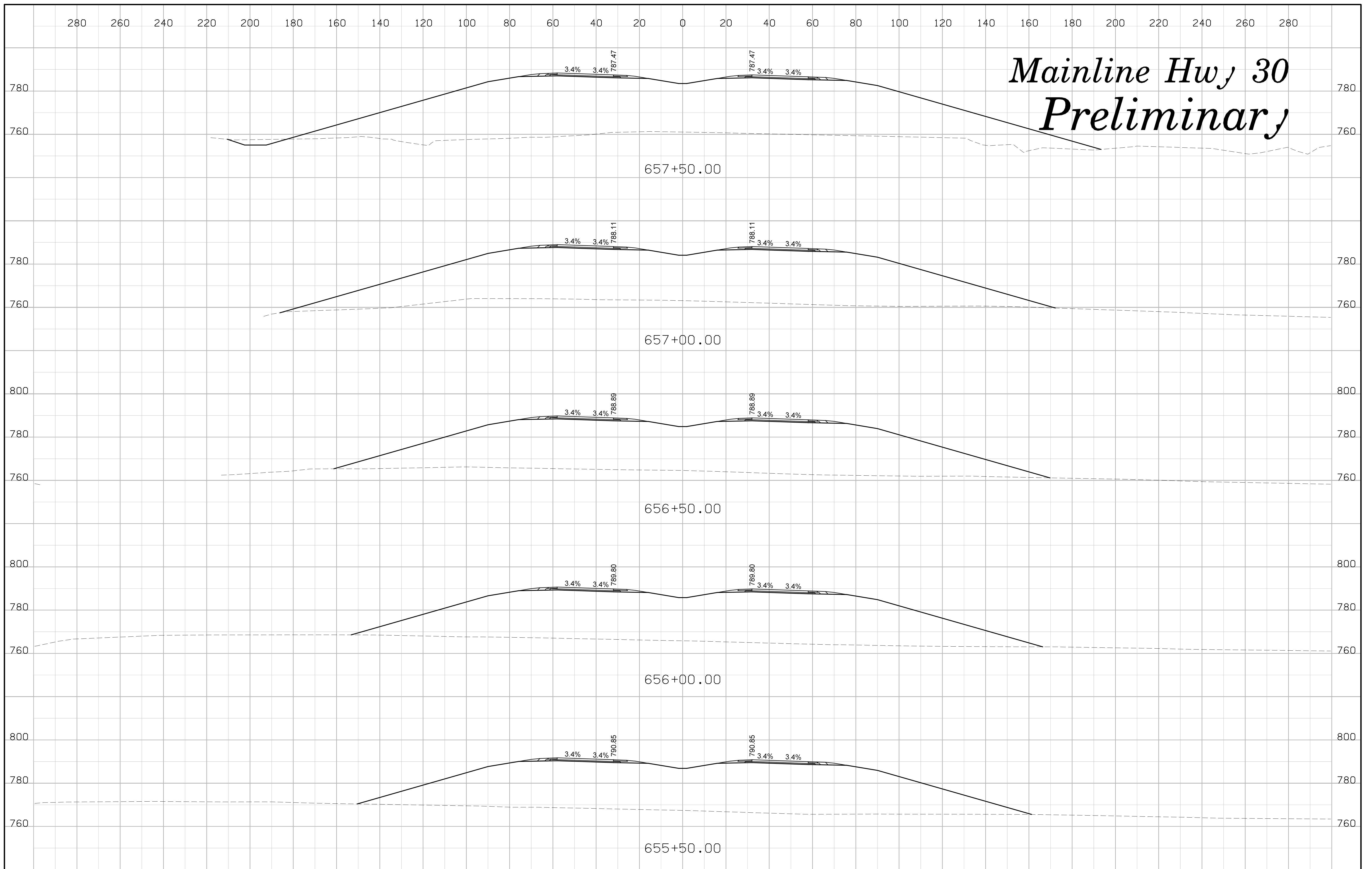




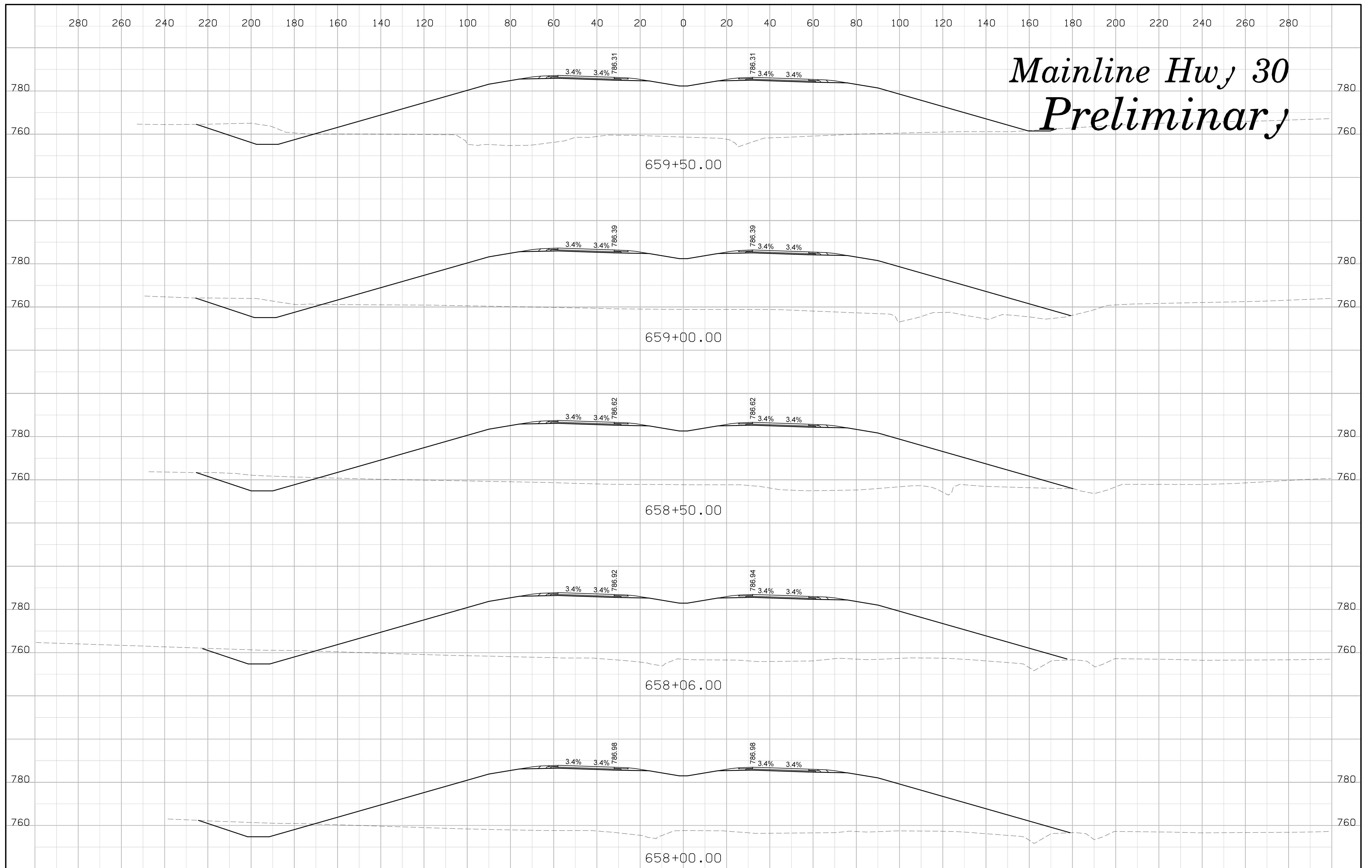
# Mainline Hwy 30 Preliminary



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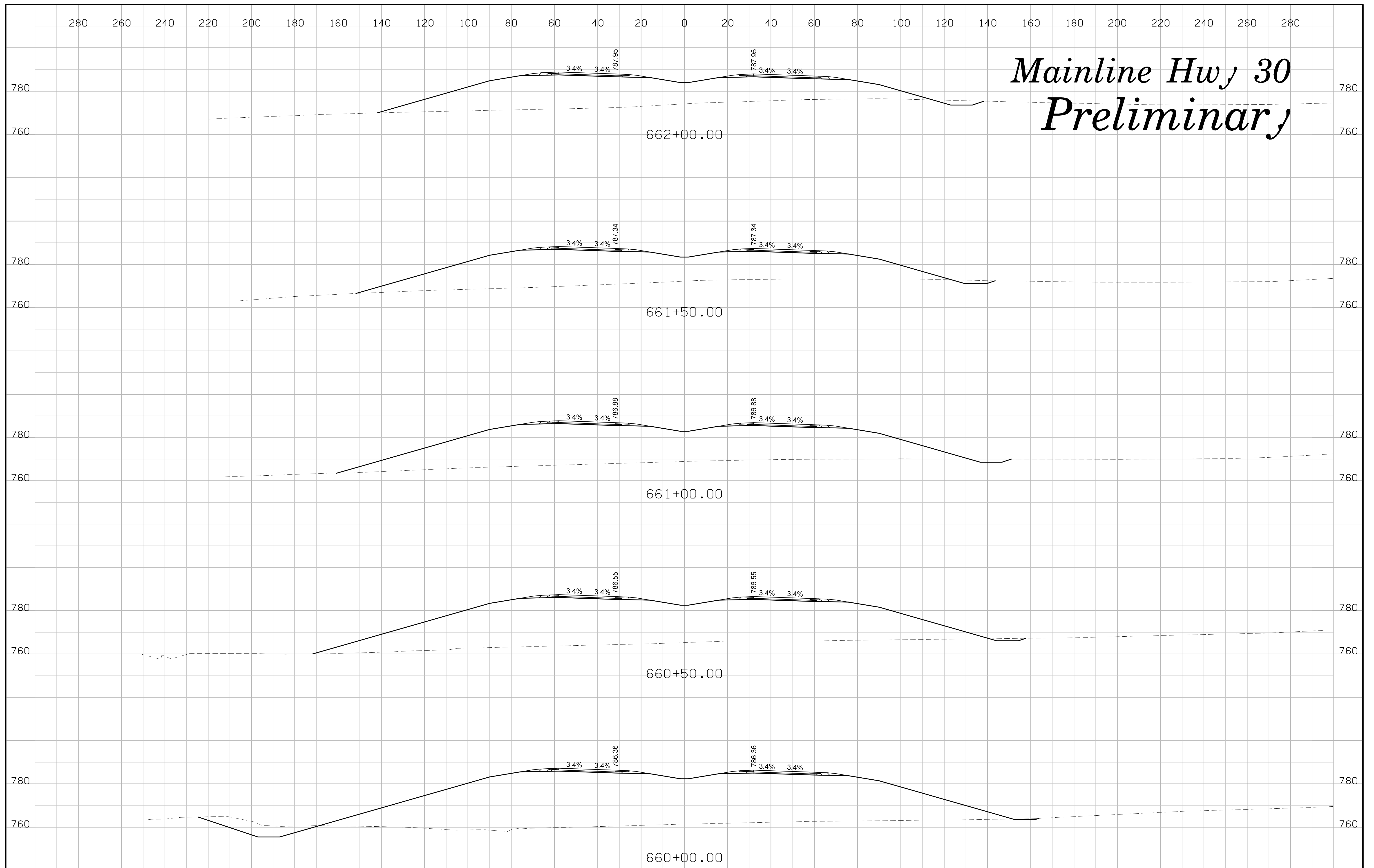


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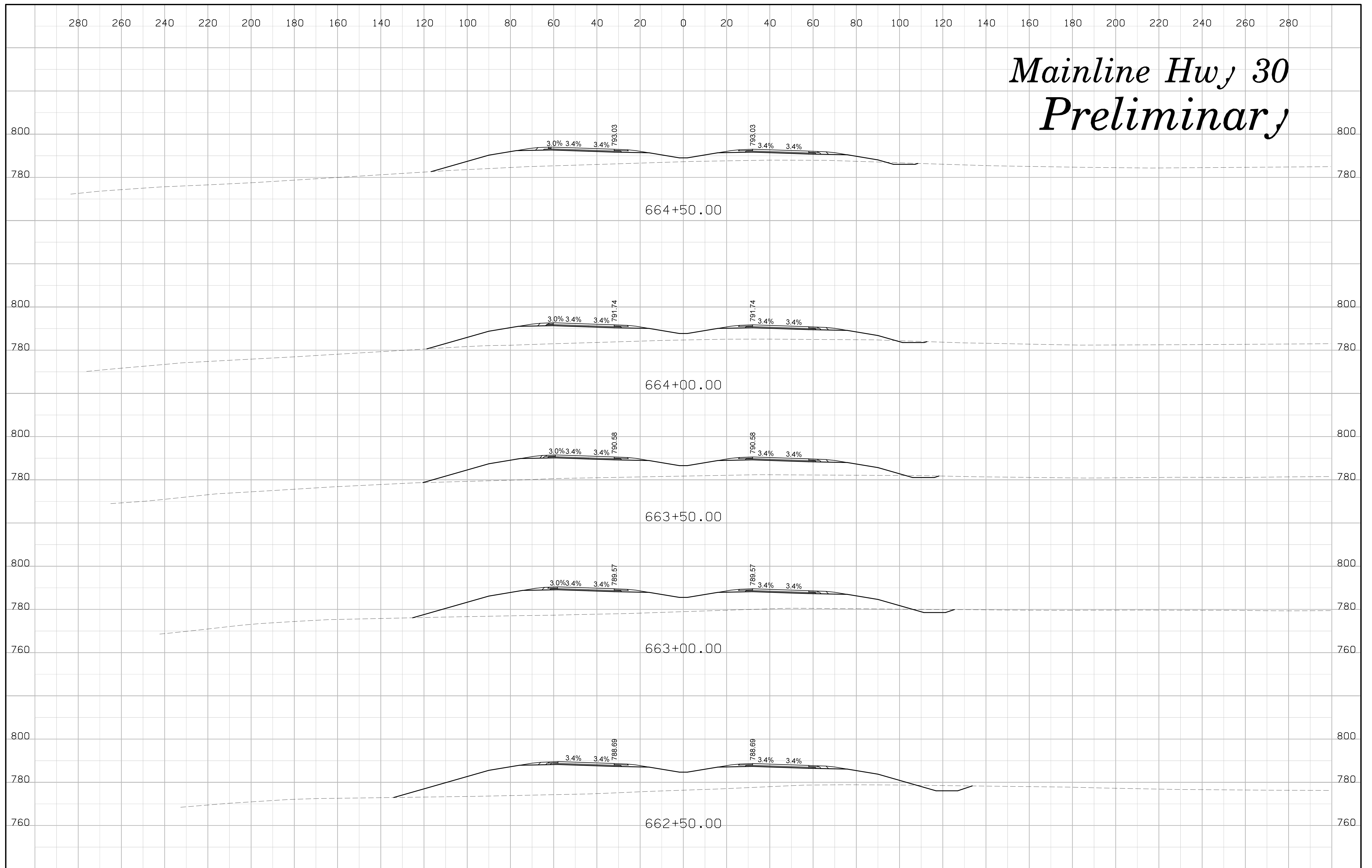




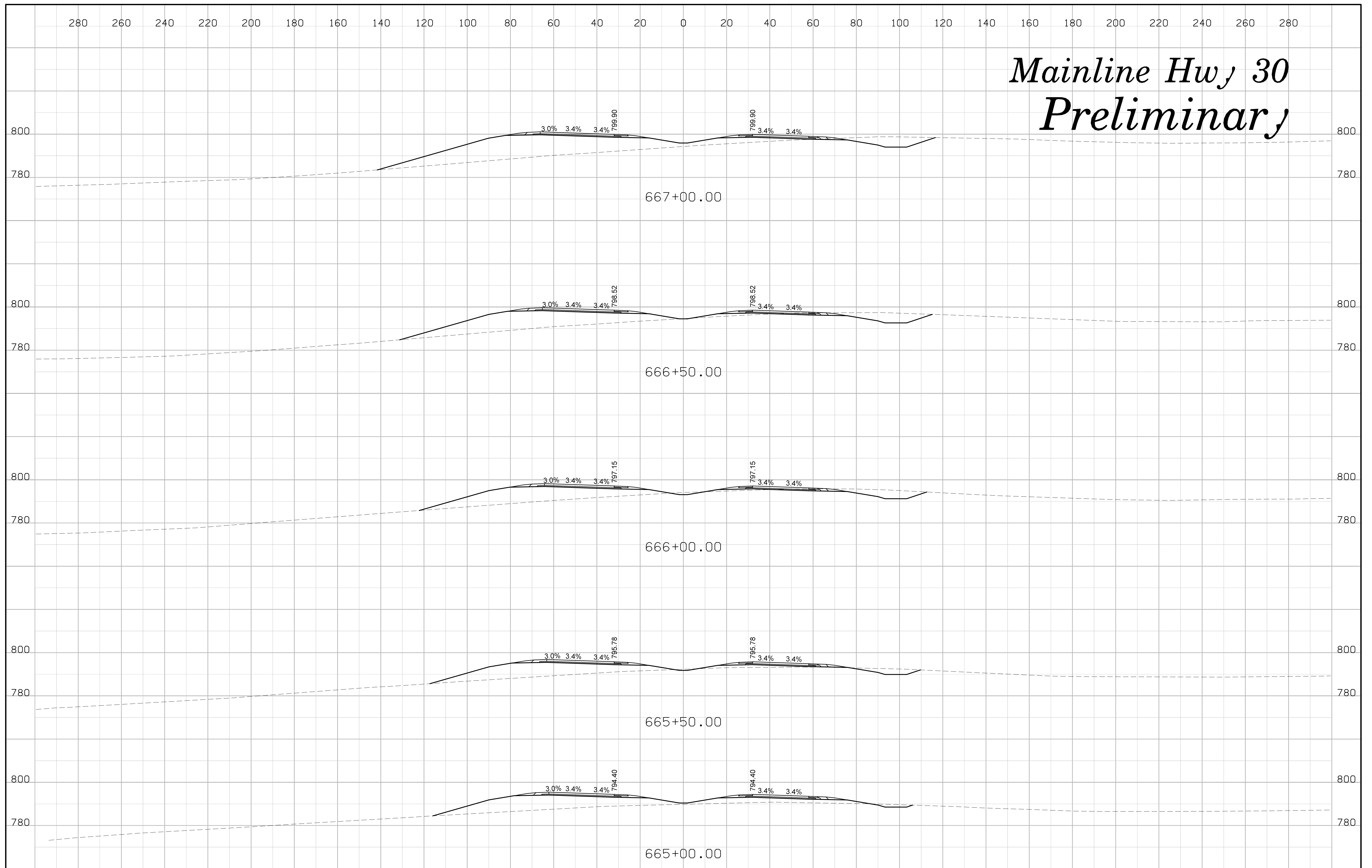
# Mainline Hwy 30 Preliminary



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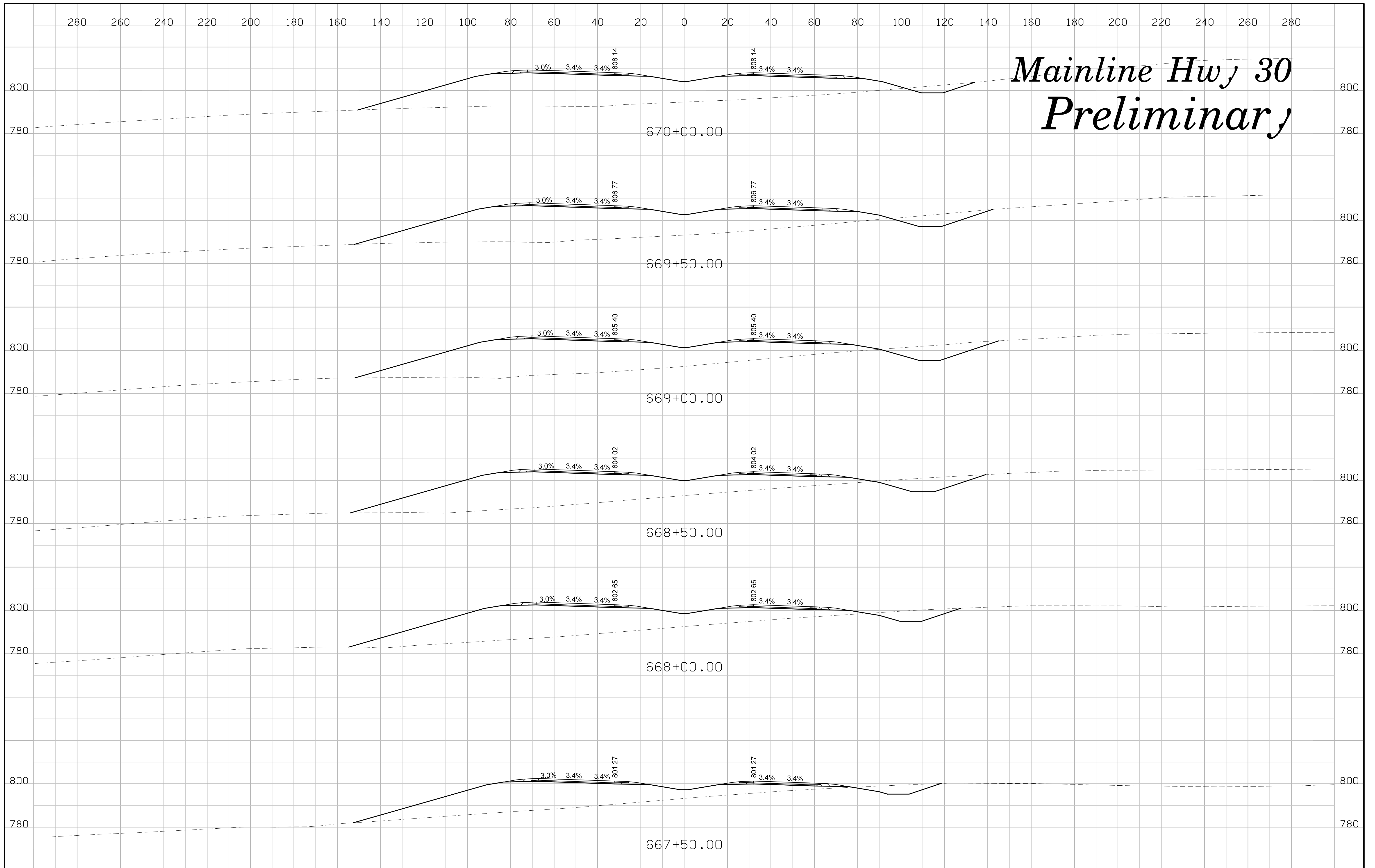


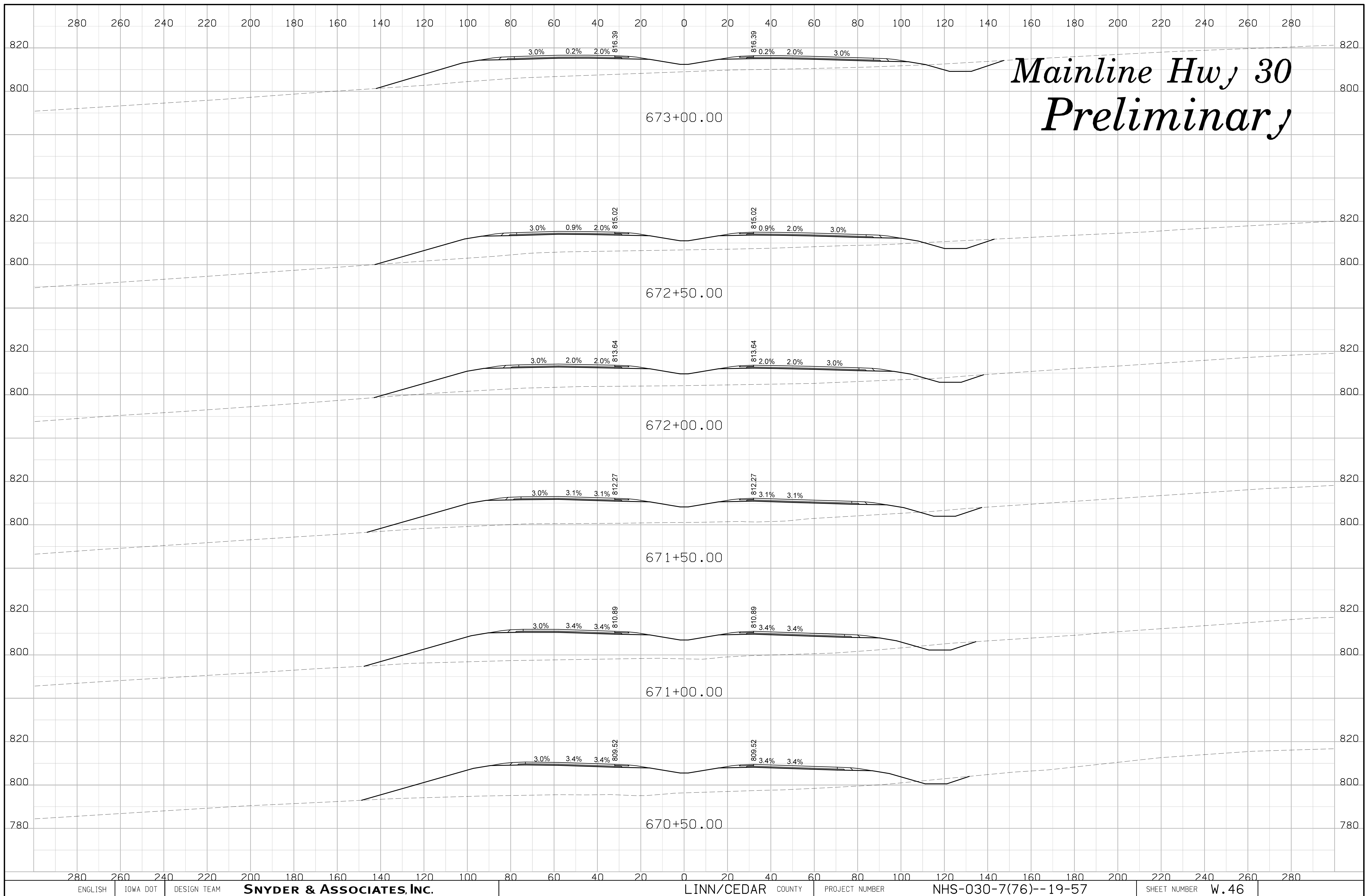
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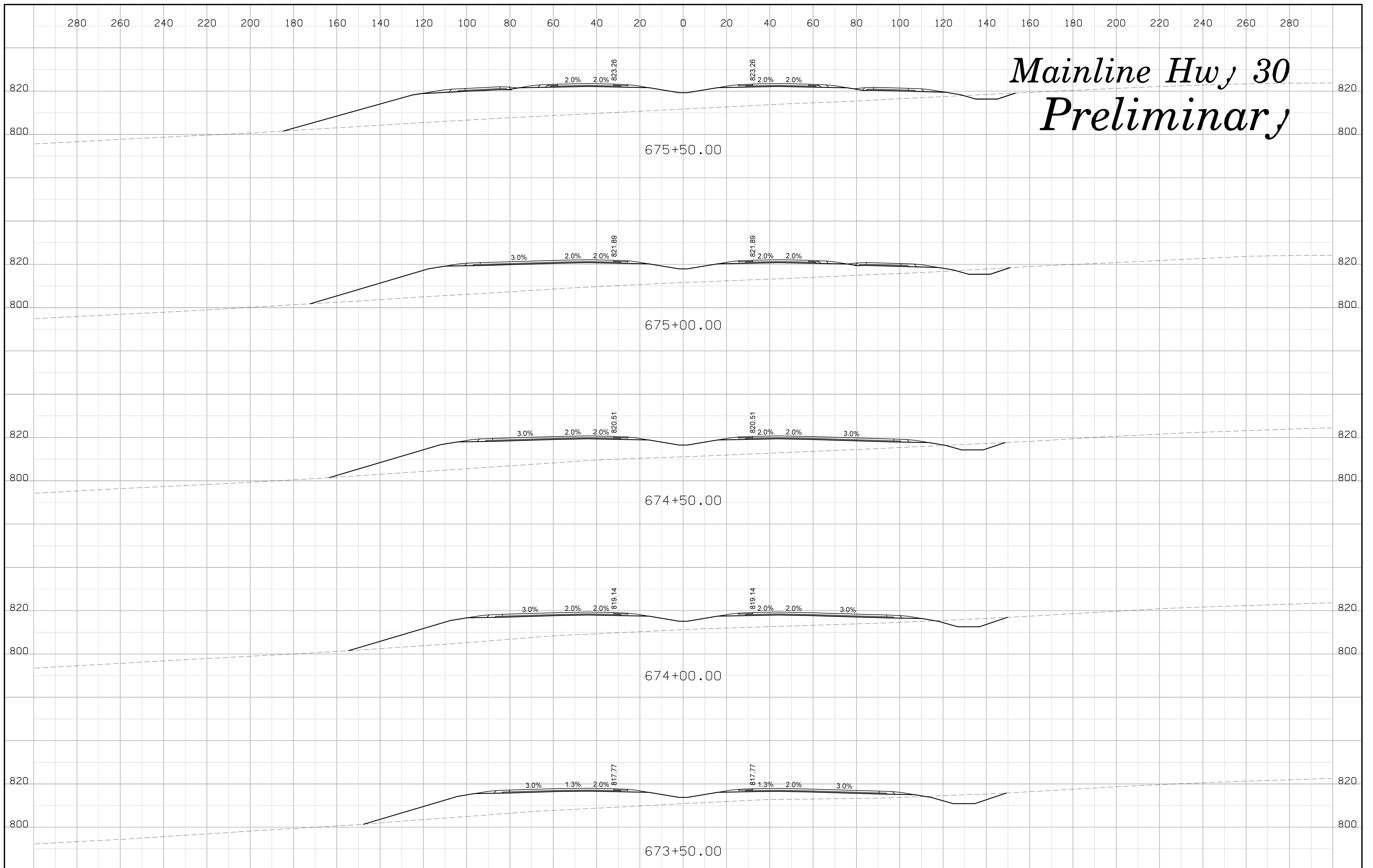


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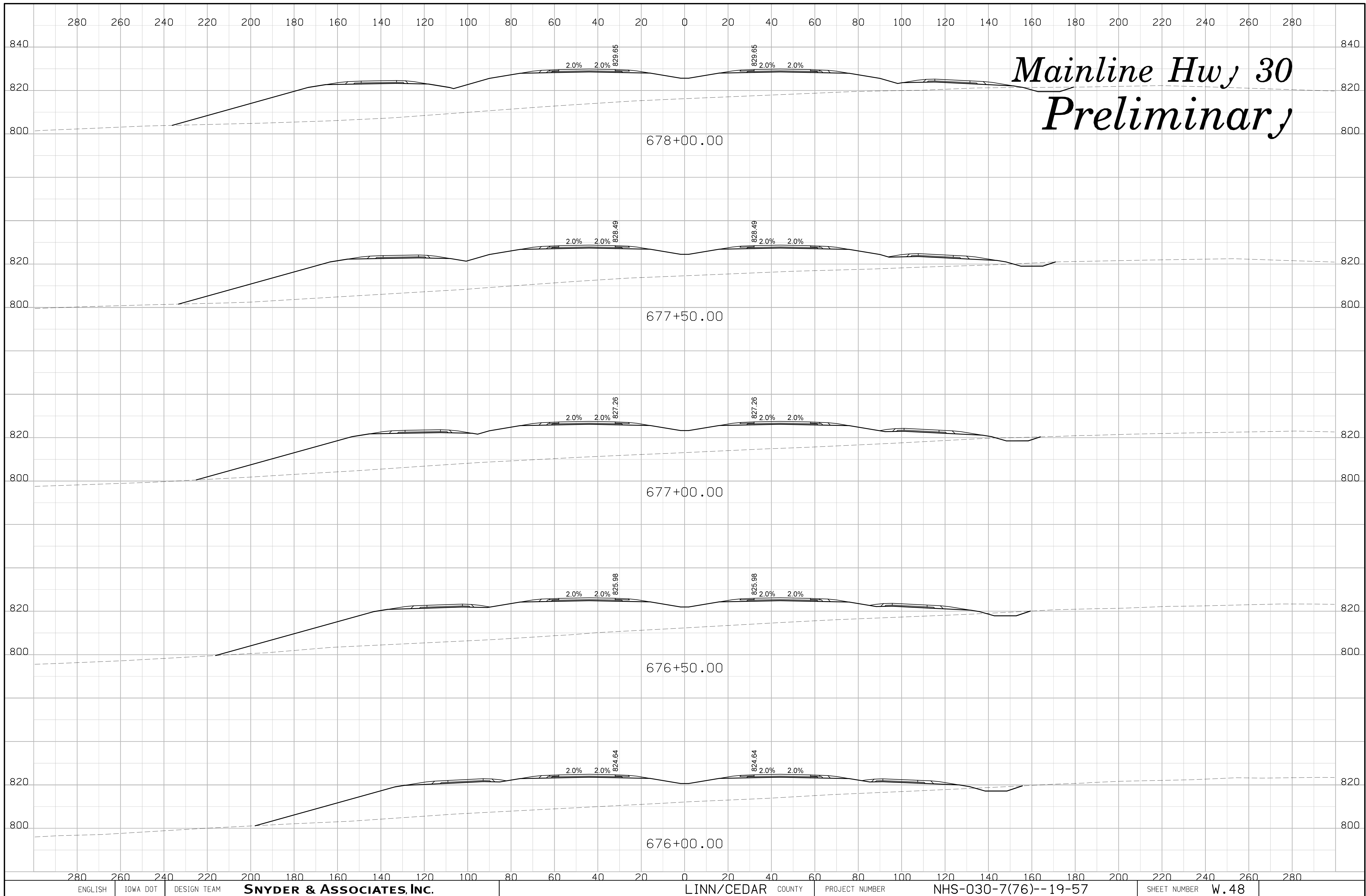


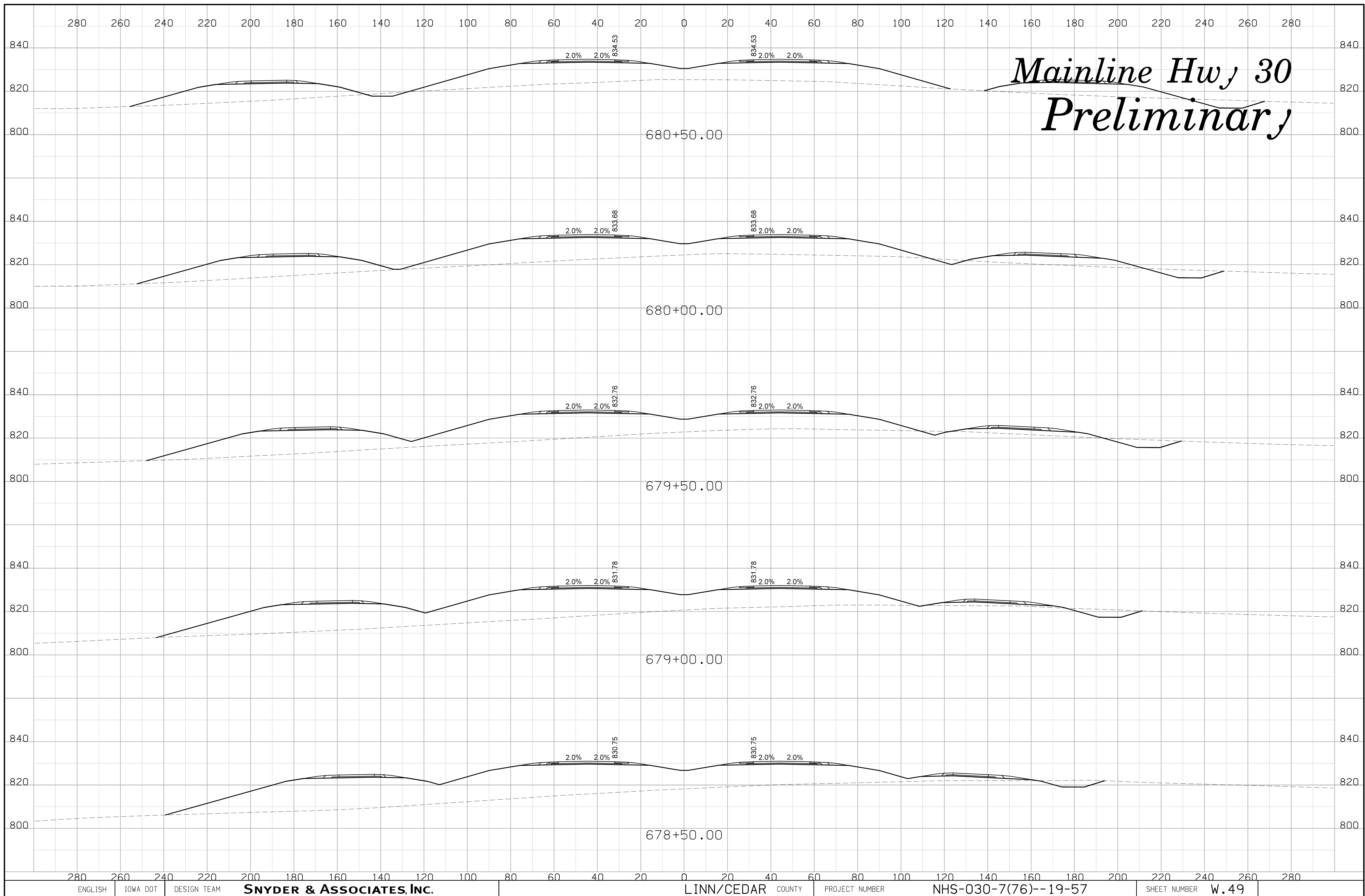


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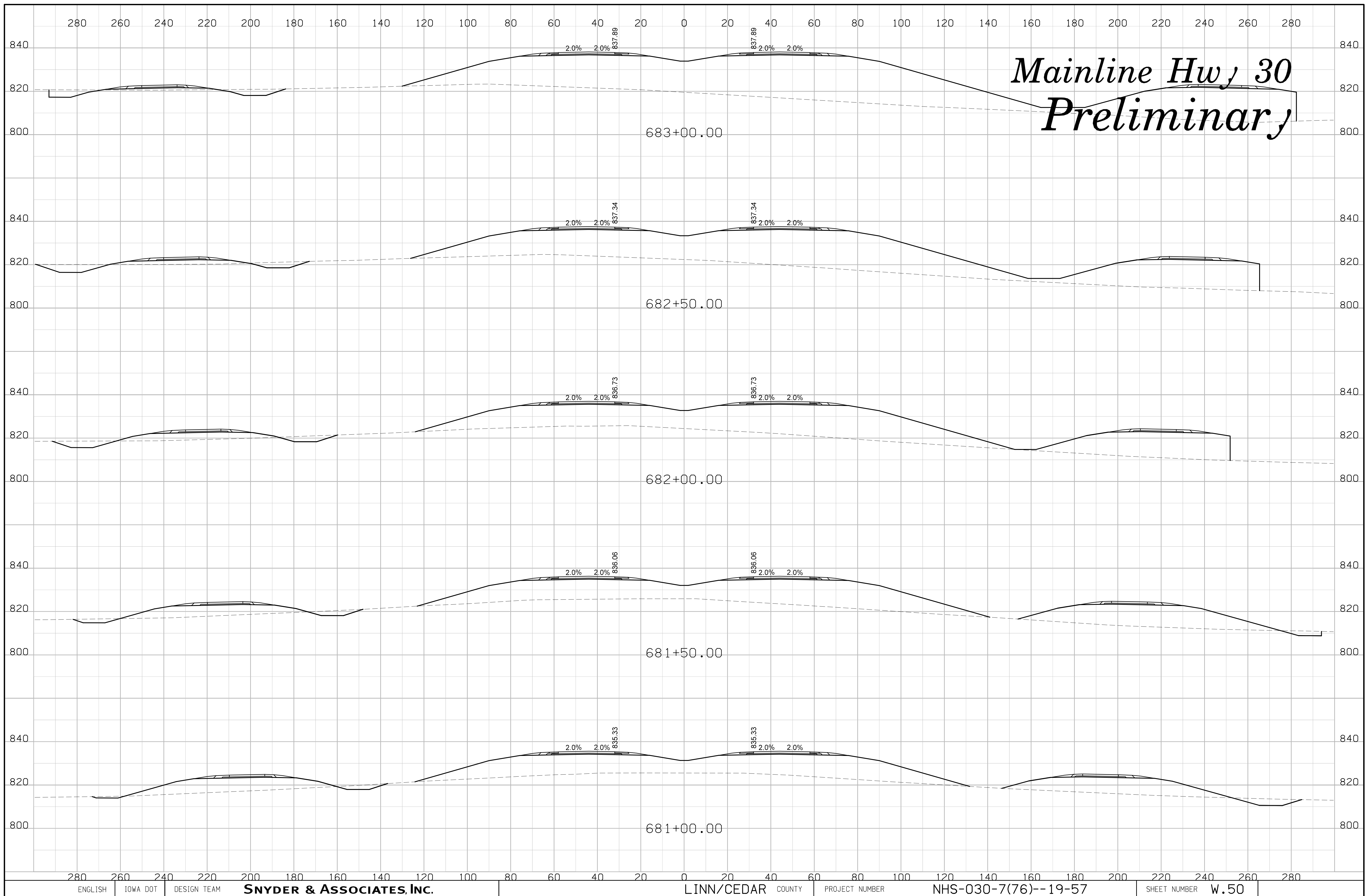






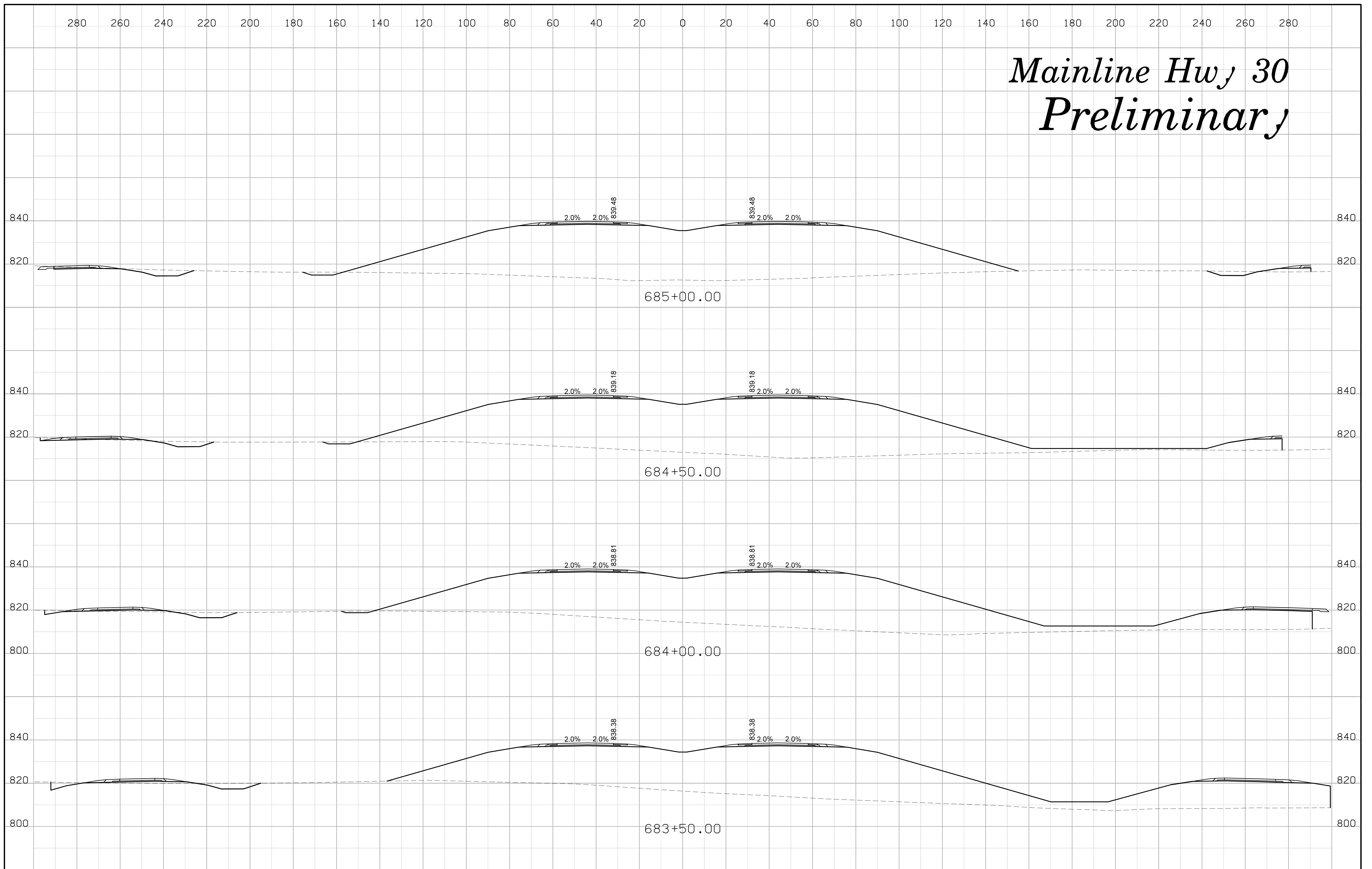


*Mainline Hwy 30  
Preliminary*

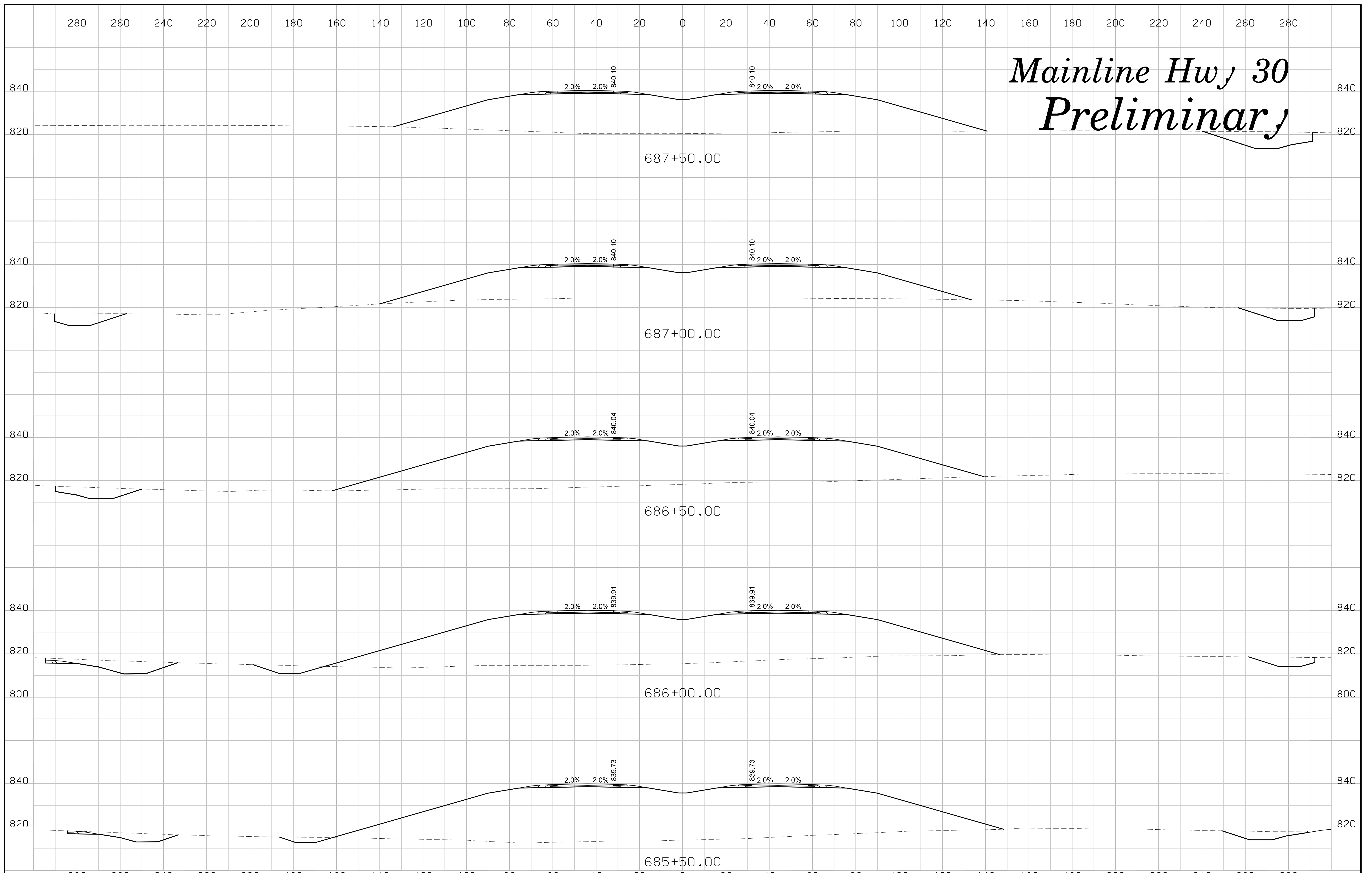




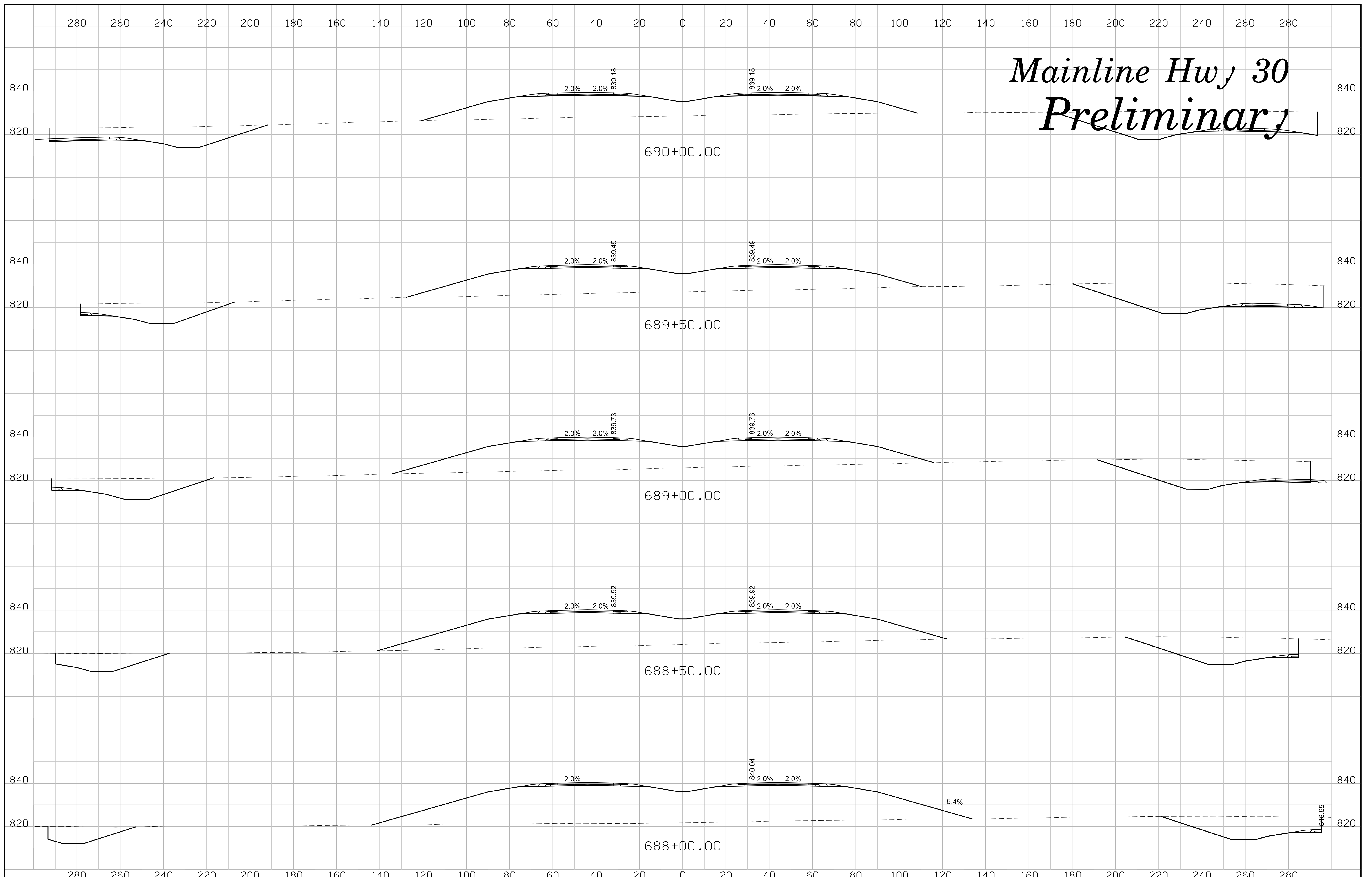
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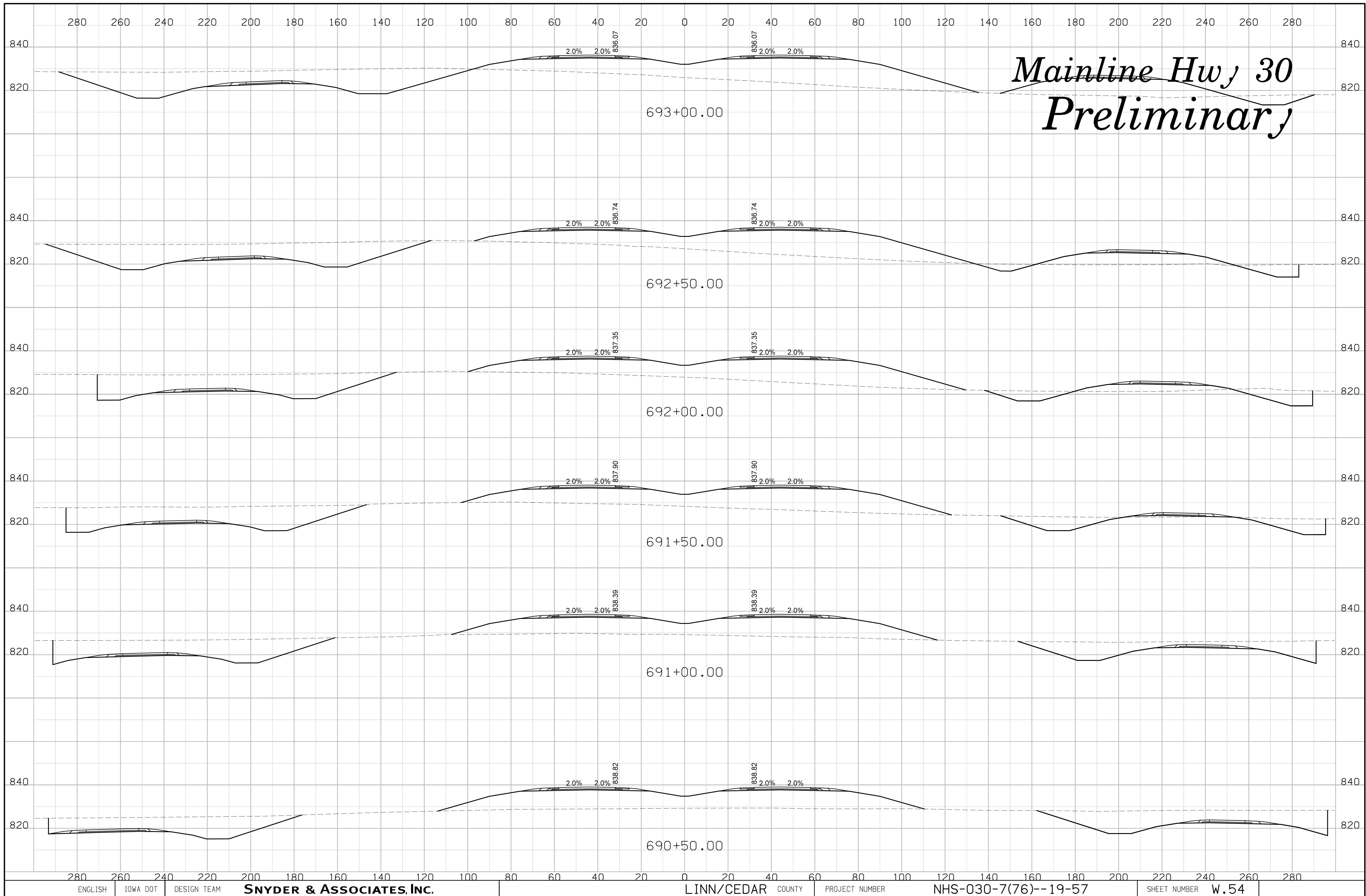
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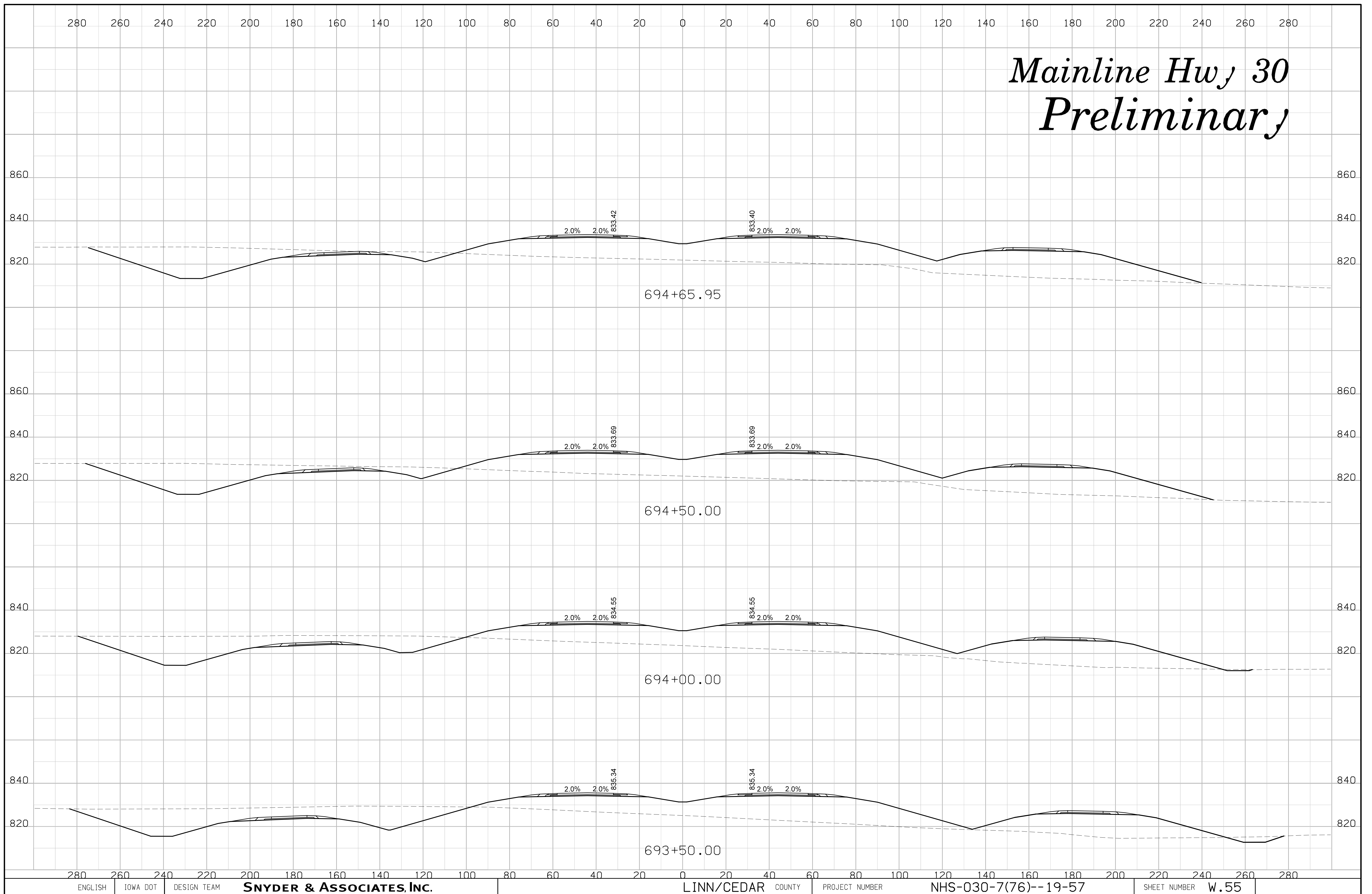
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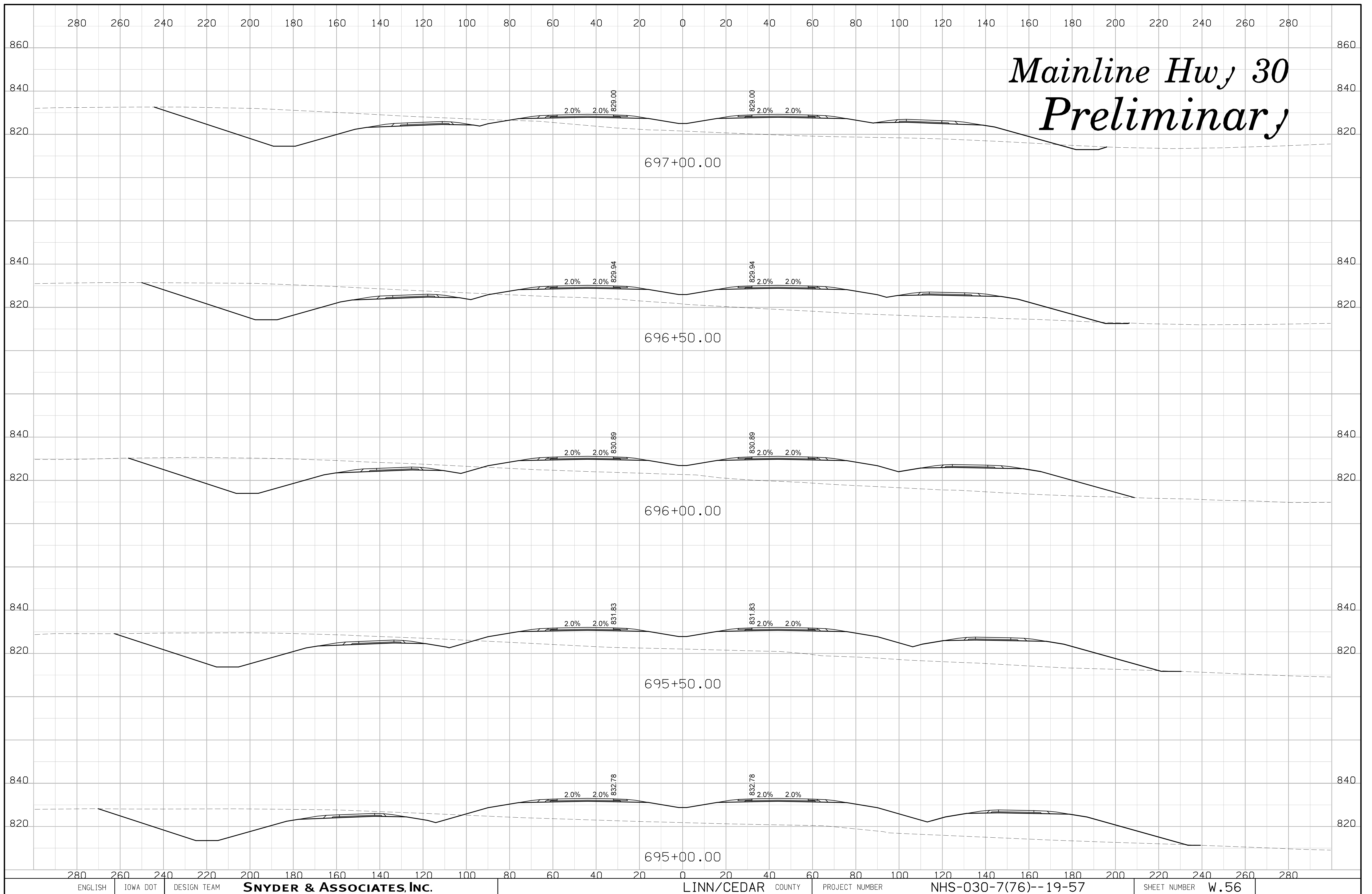




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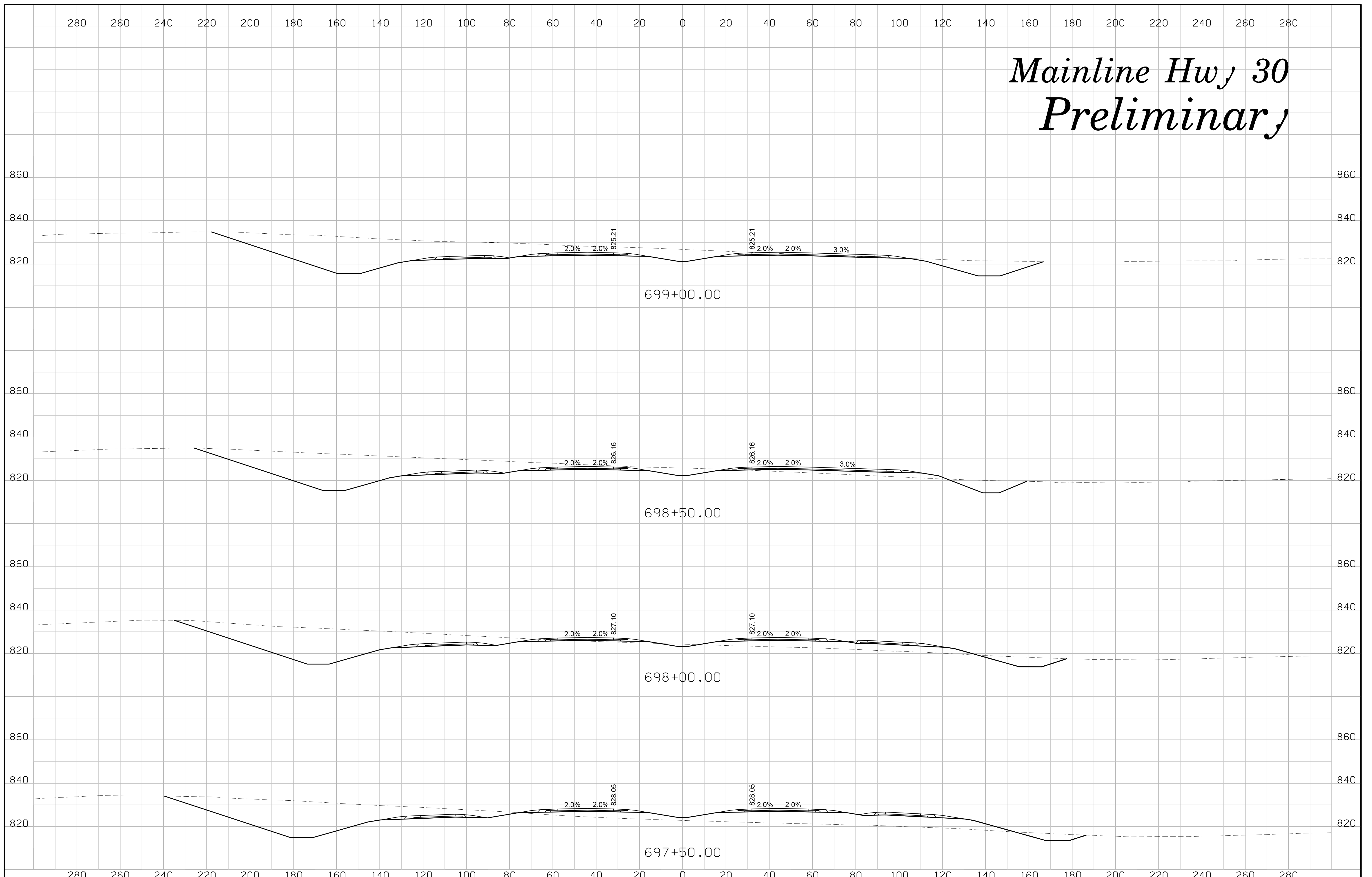


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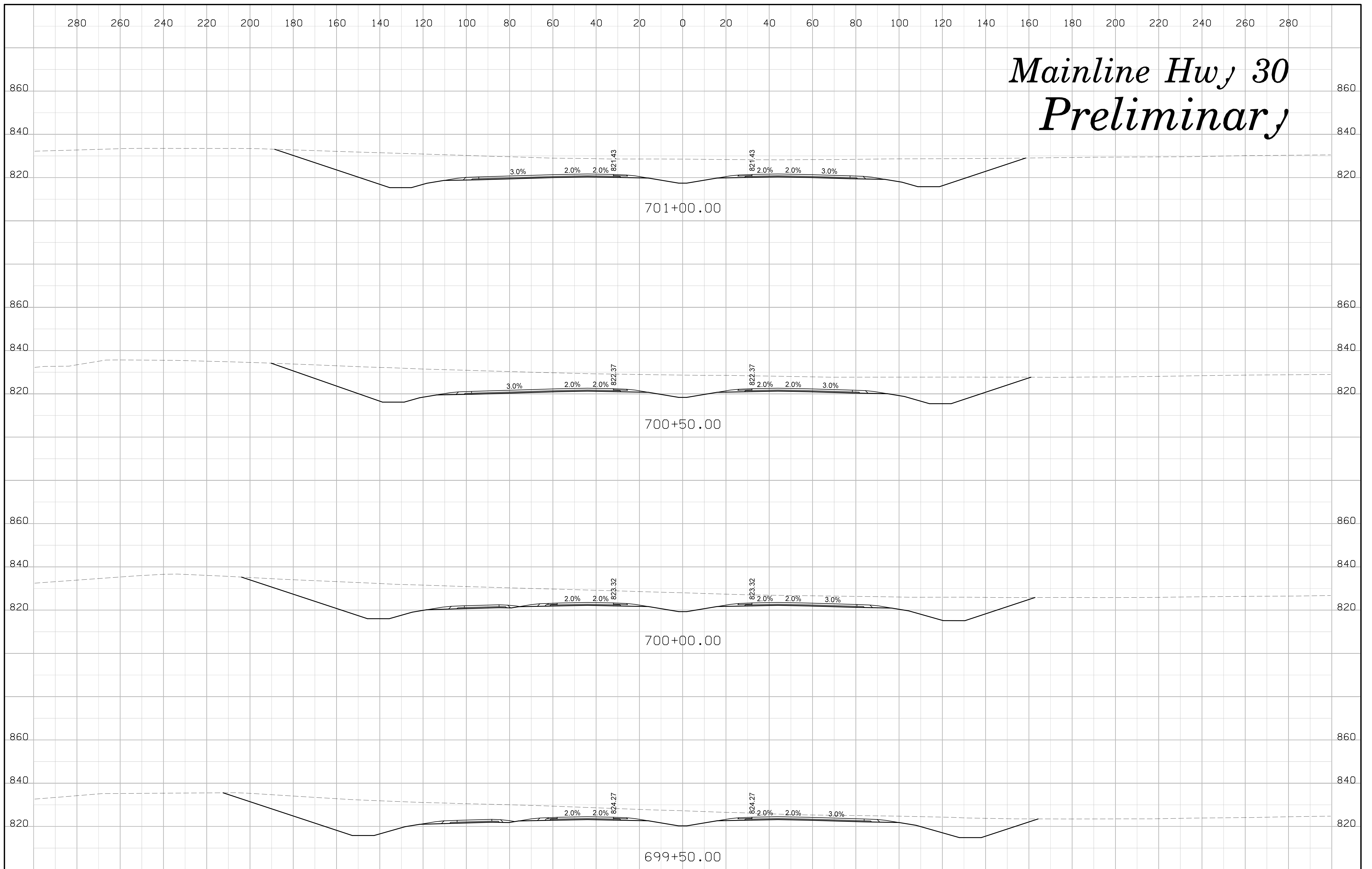




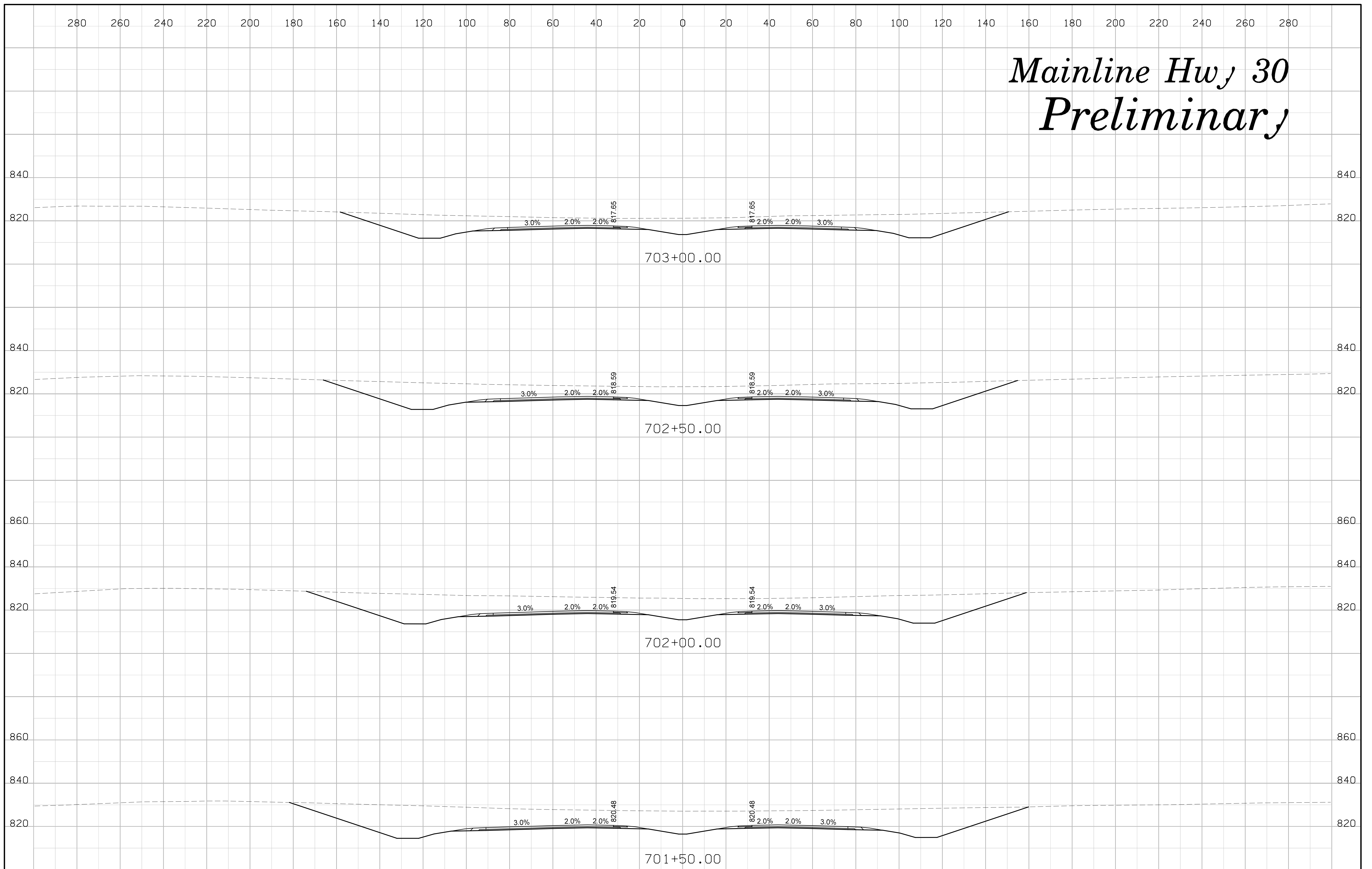
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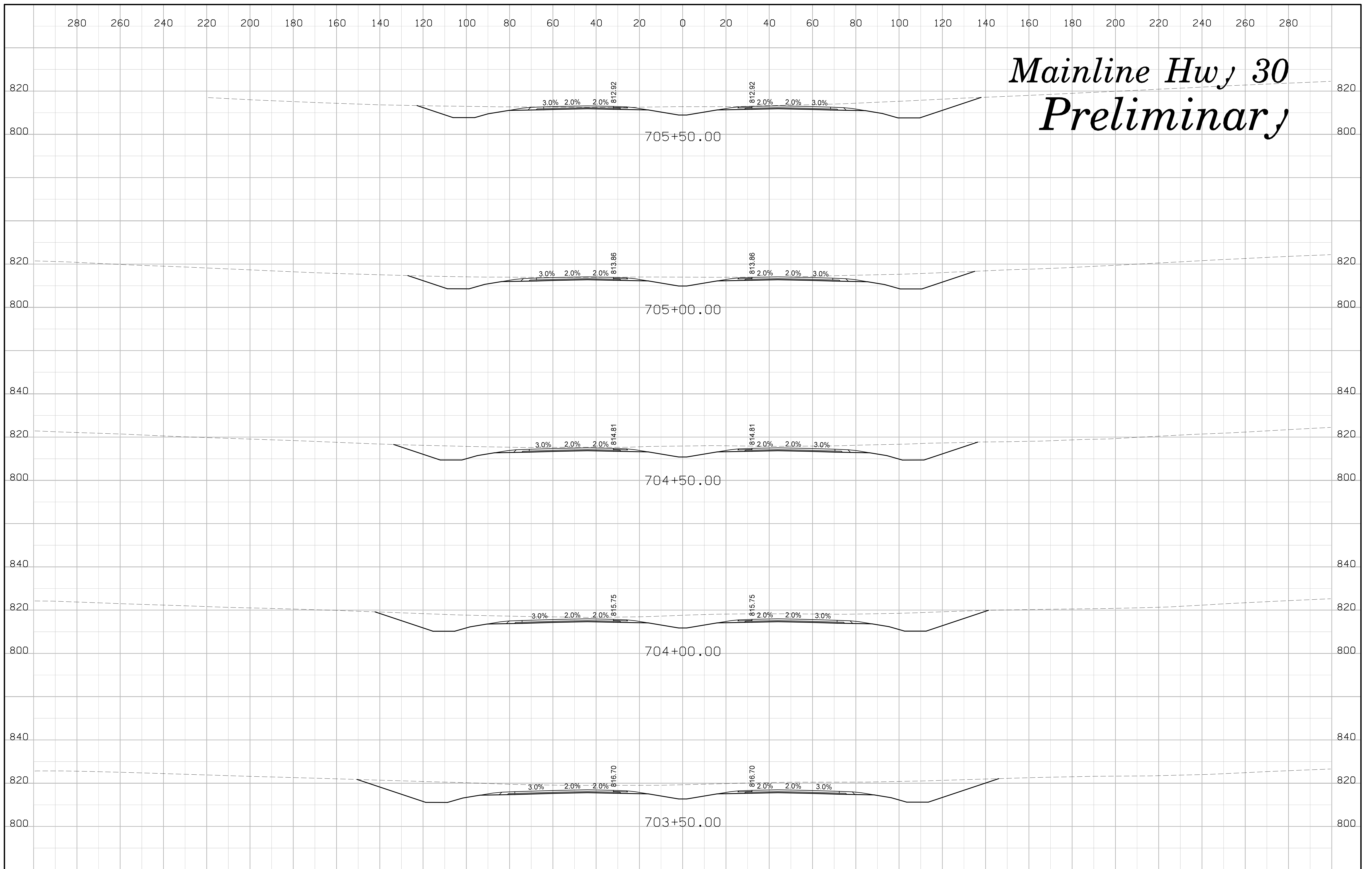
# Mainline Hwy 30 Preliminary



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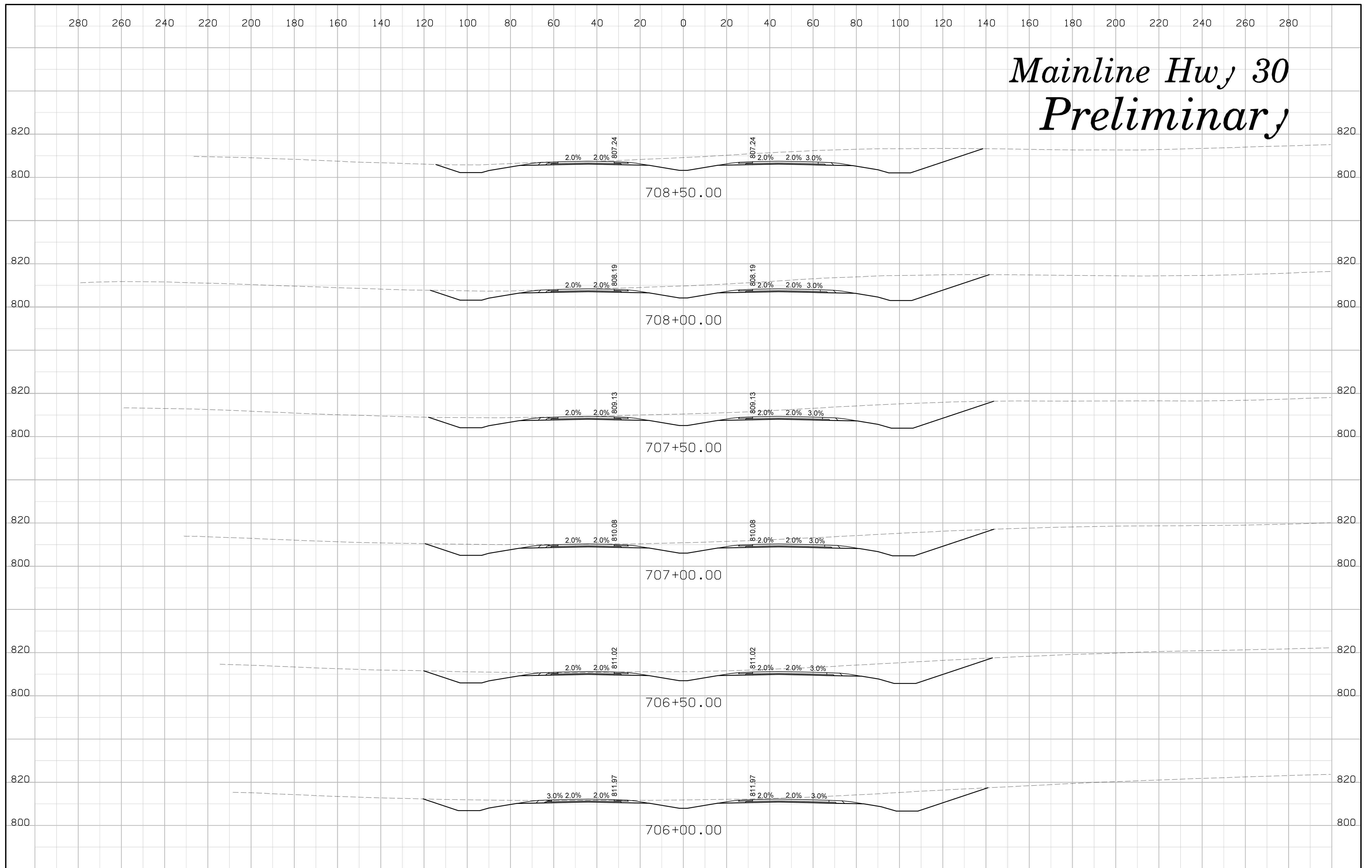


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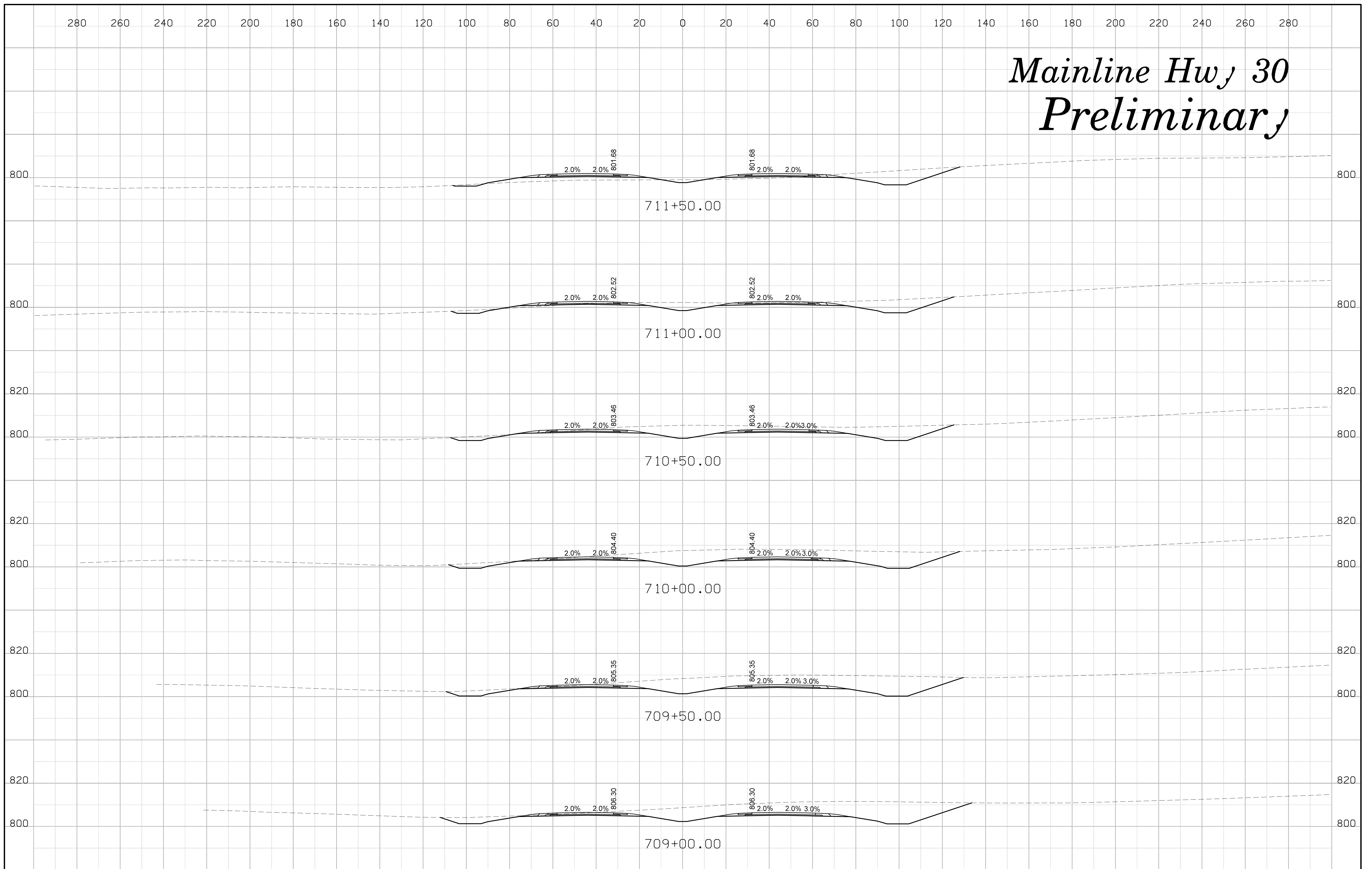




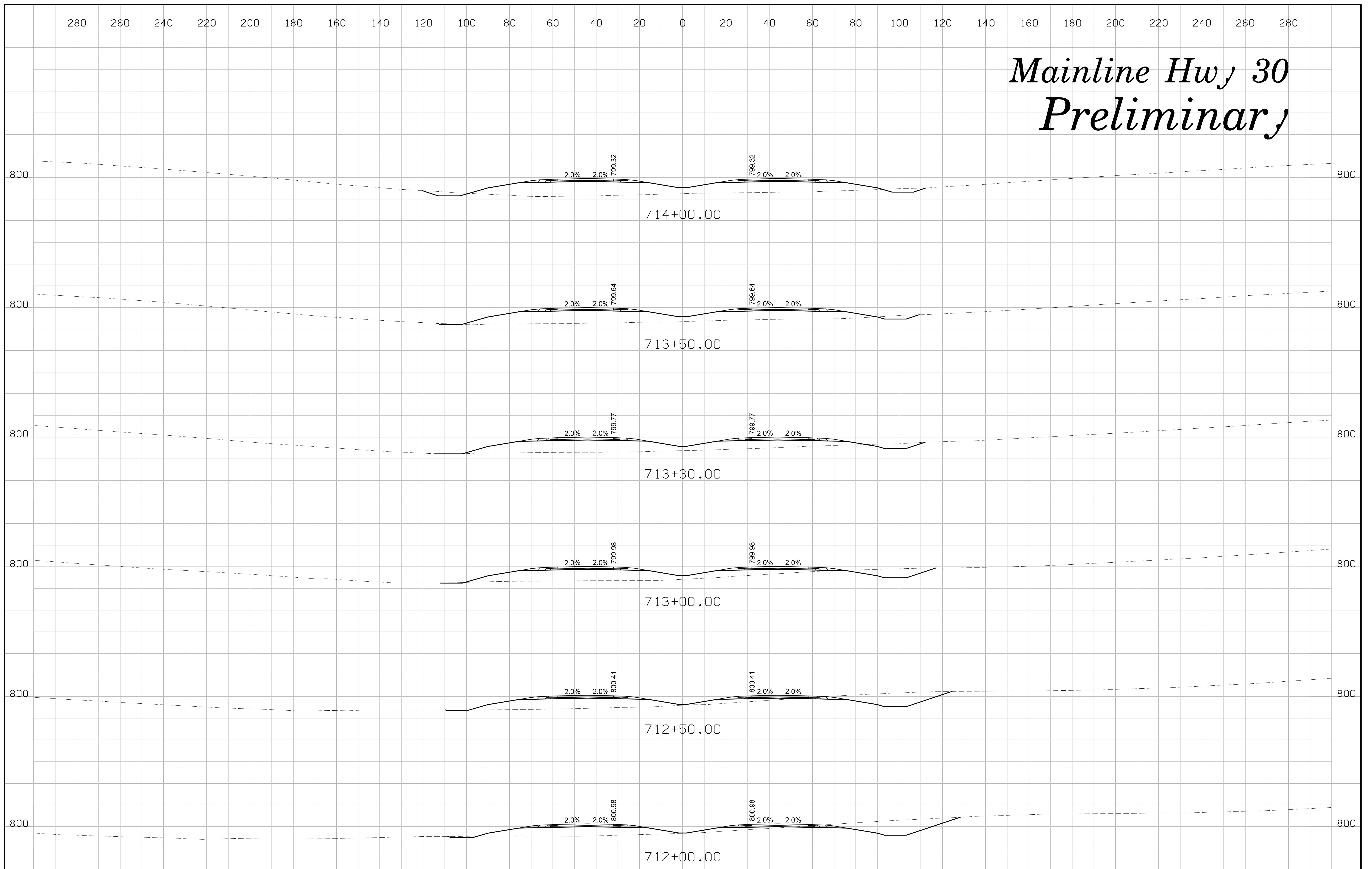
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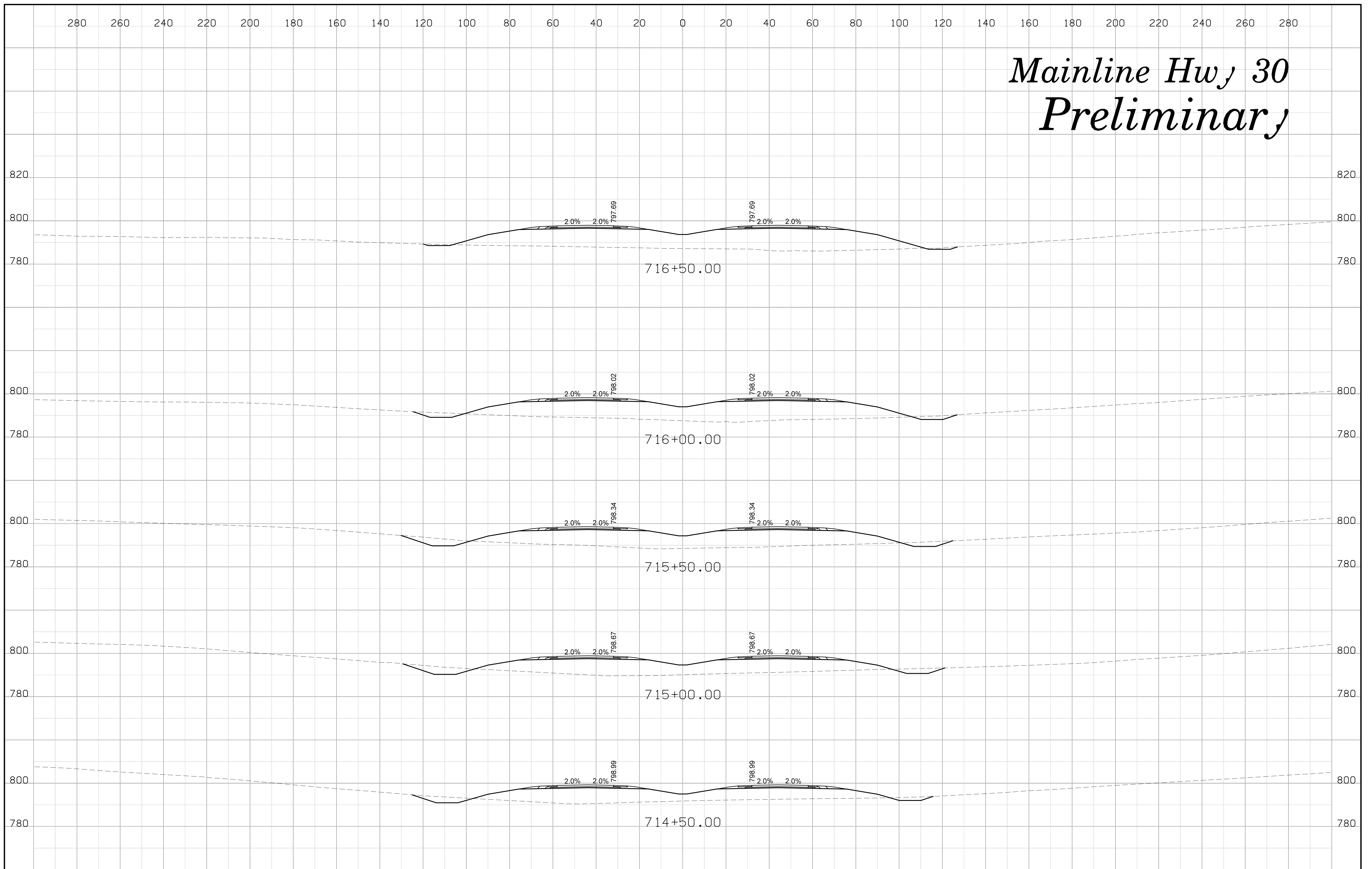
# Mainline Hwy 30 Preliminary



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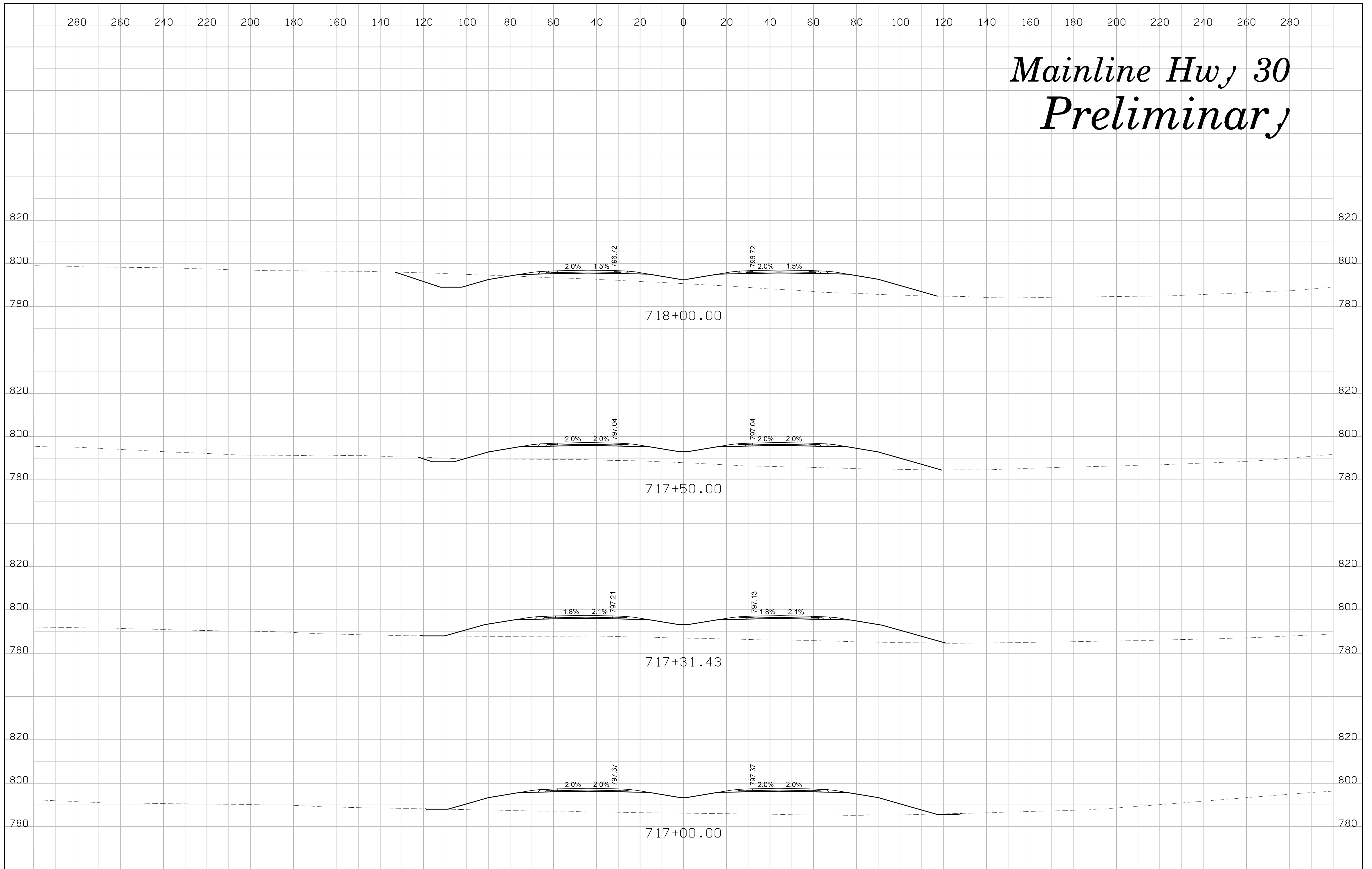


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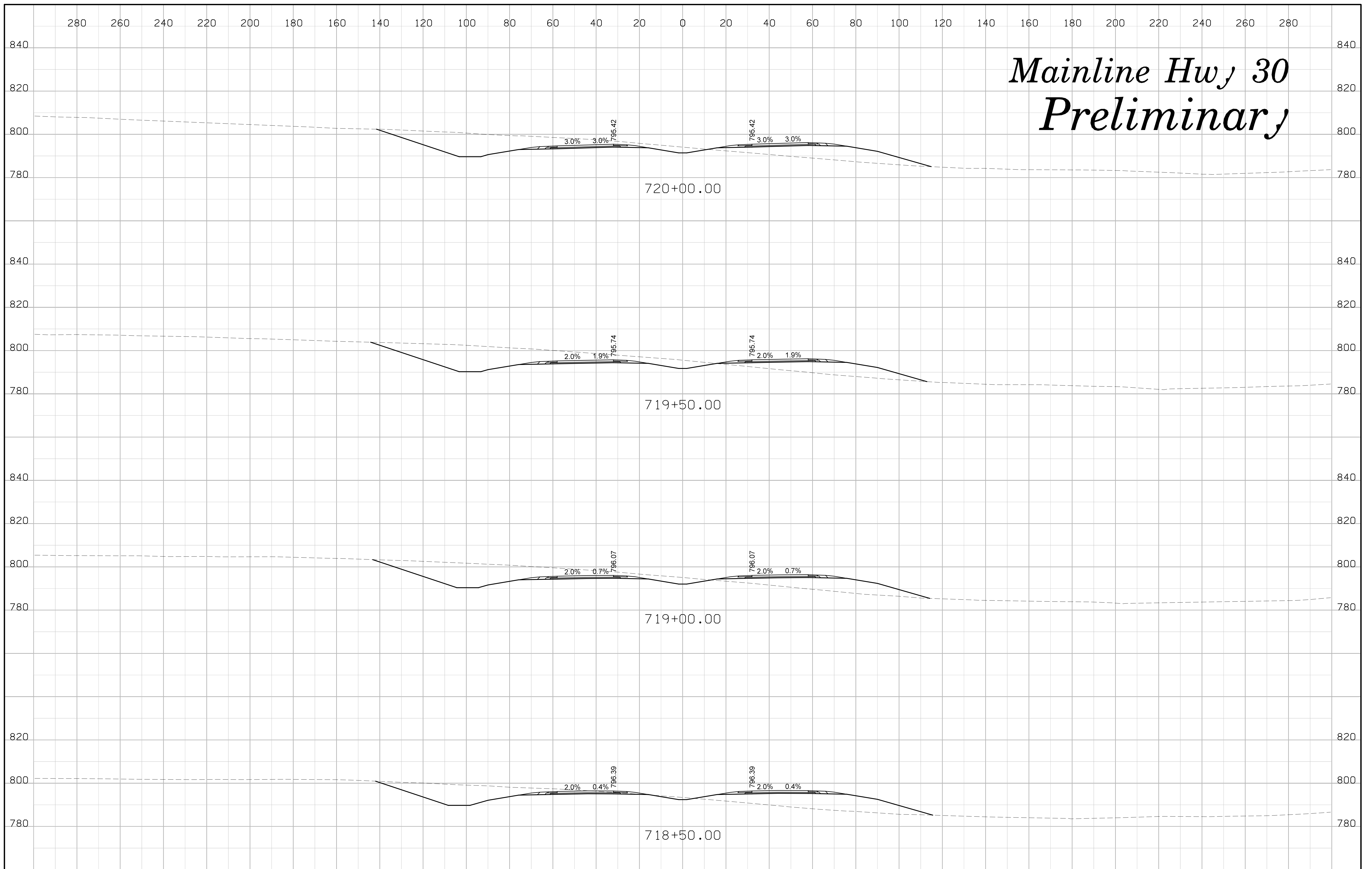




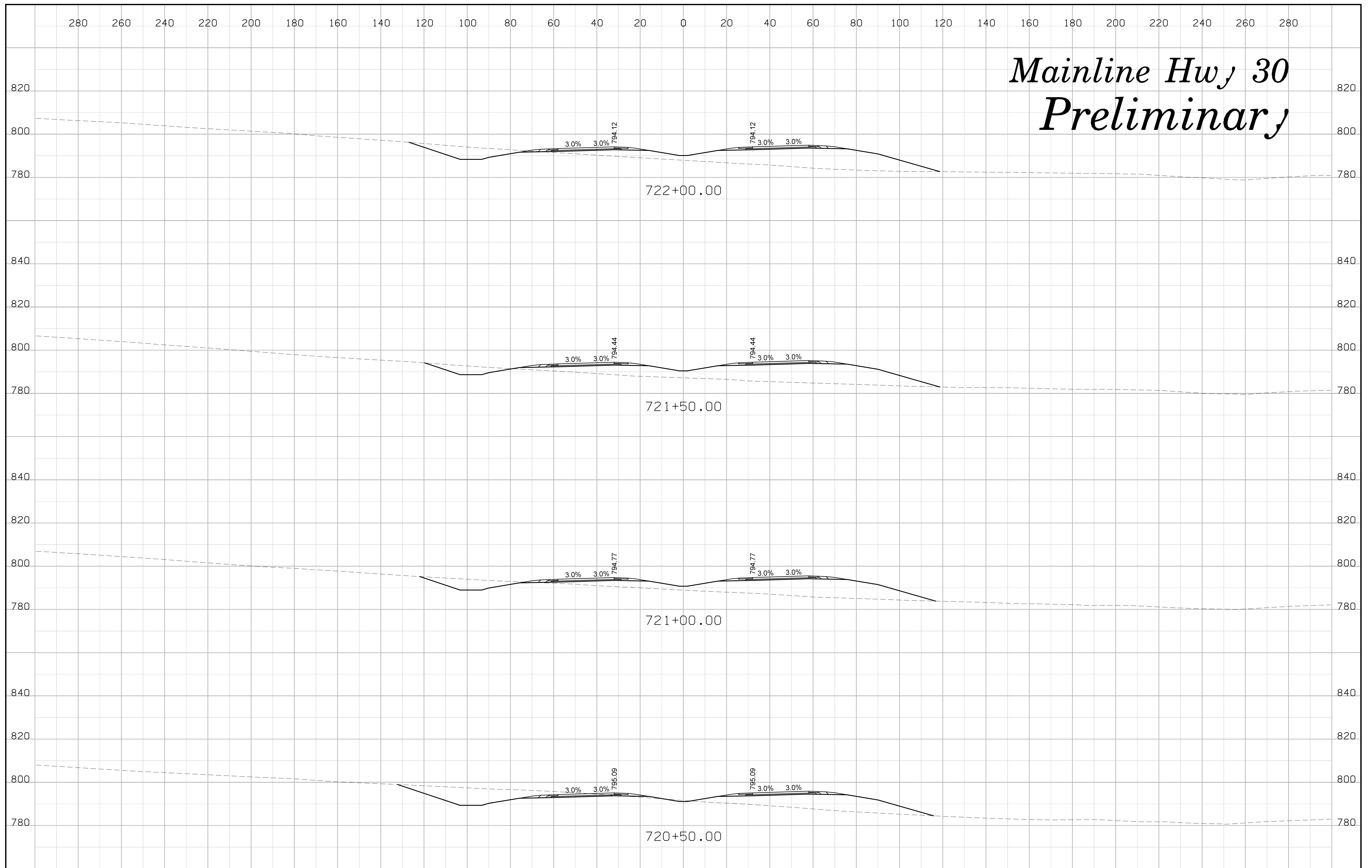
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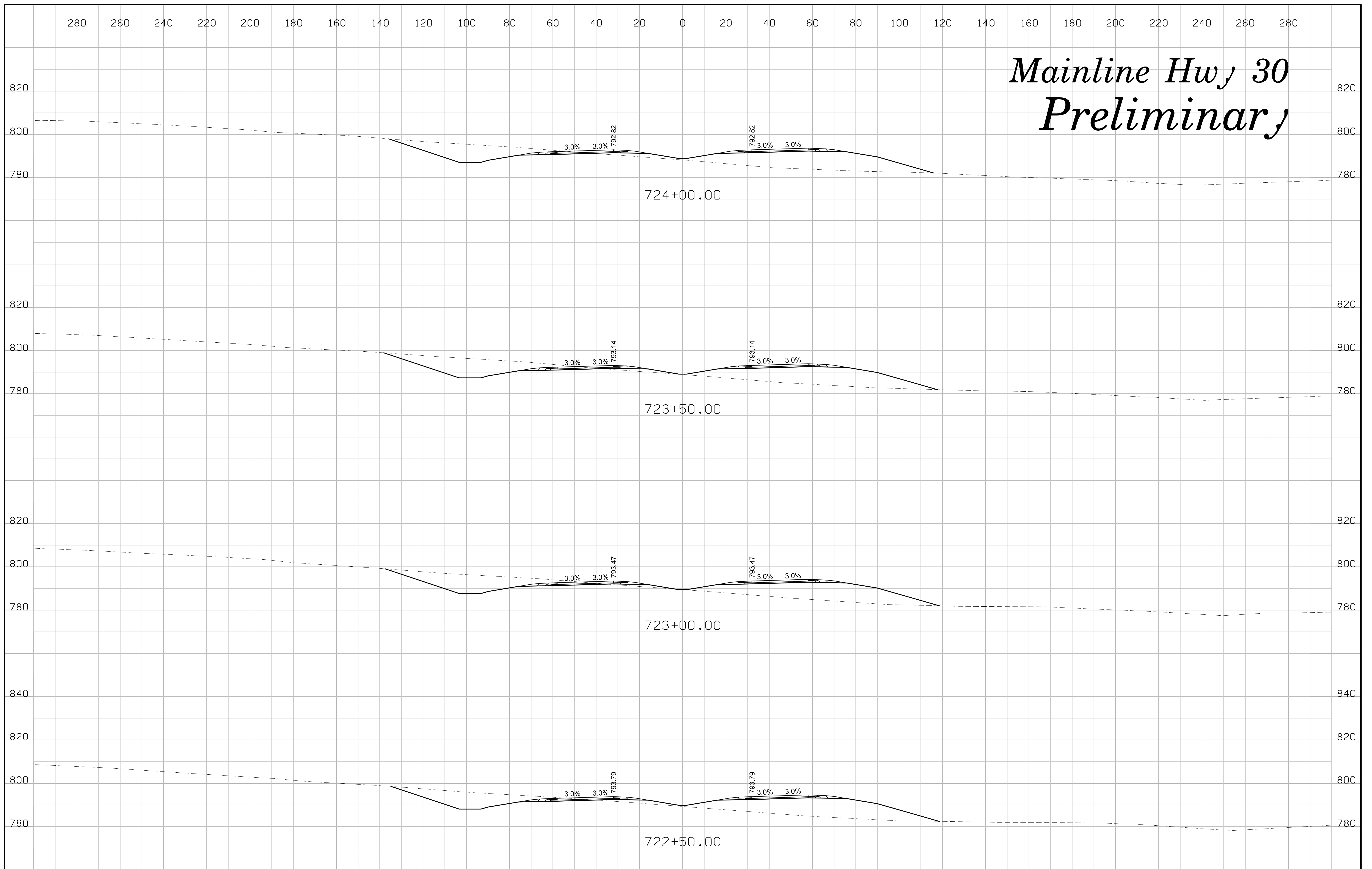
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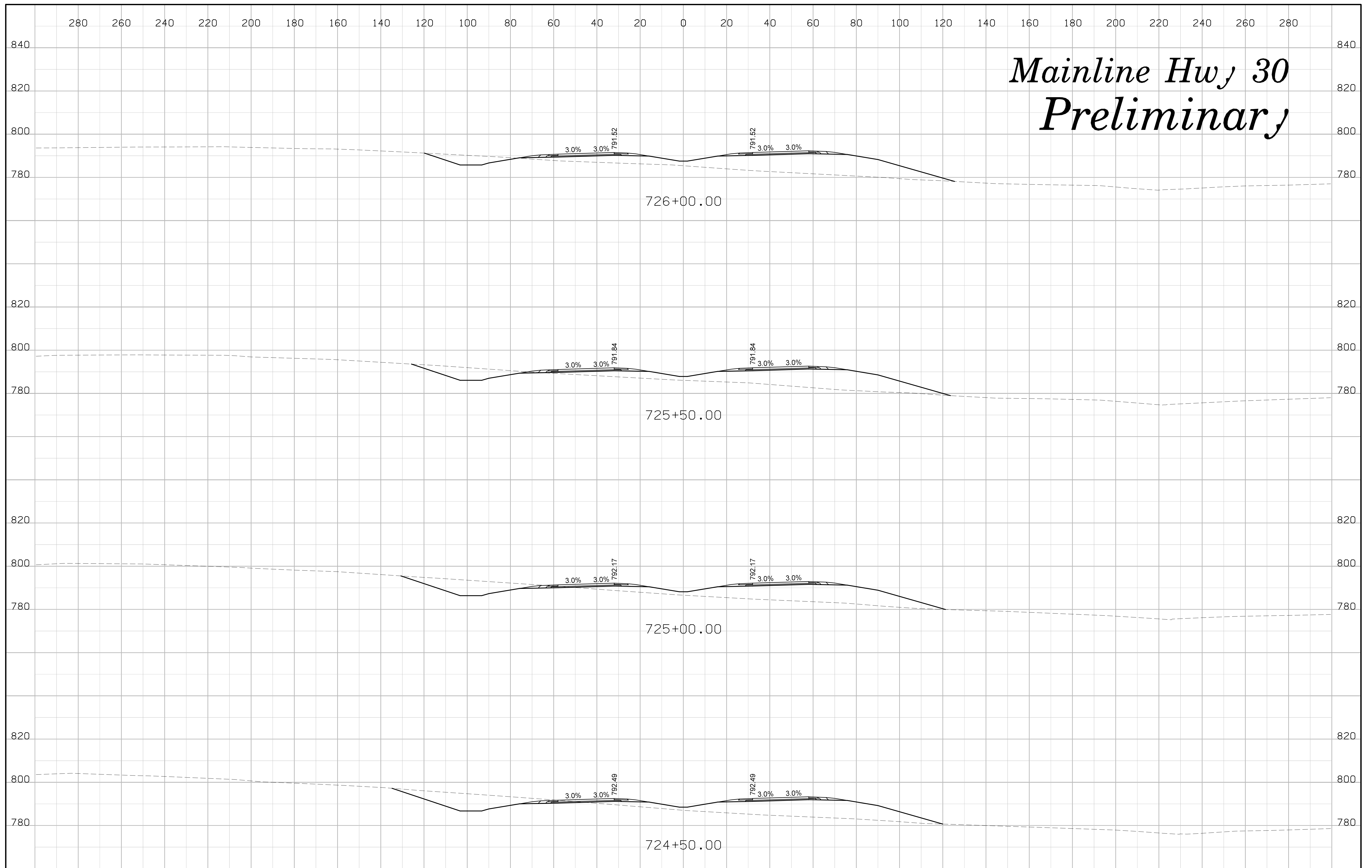


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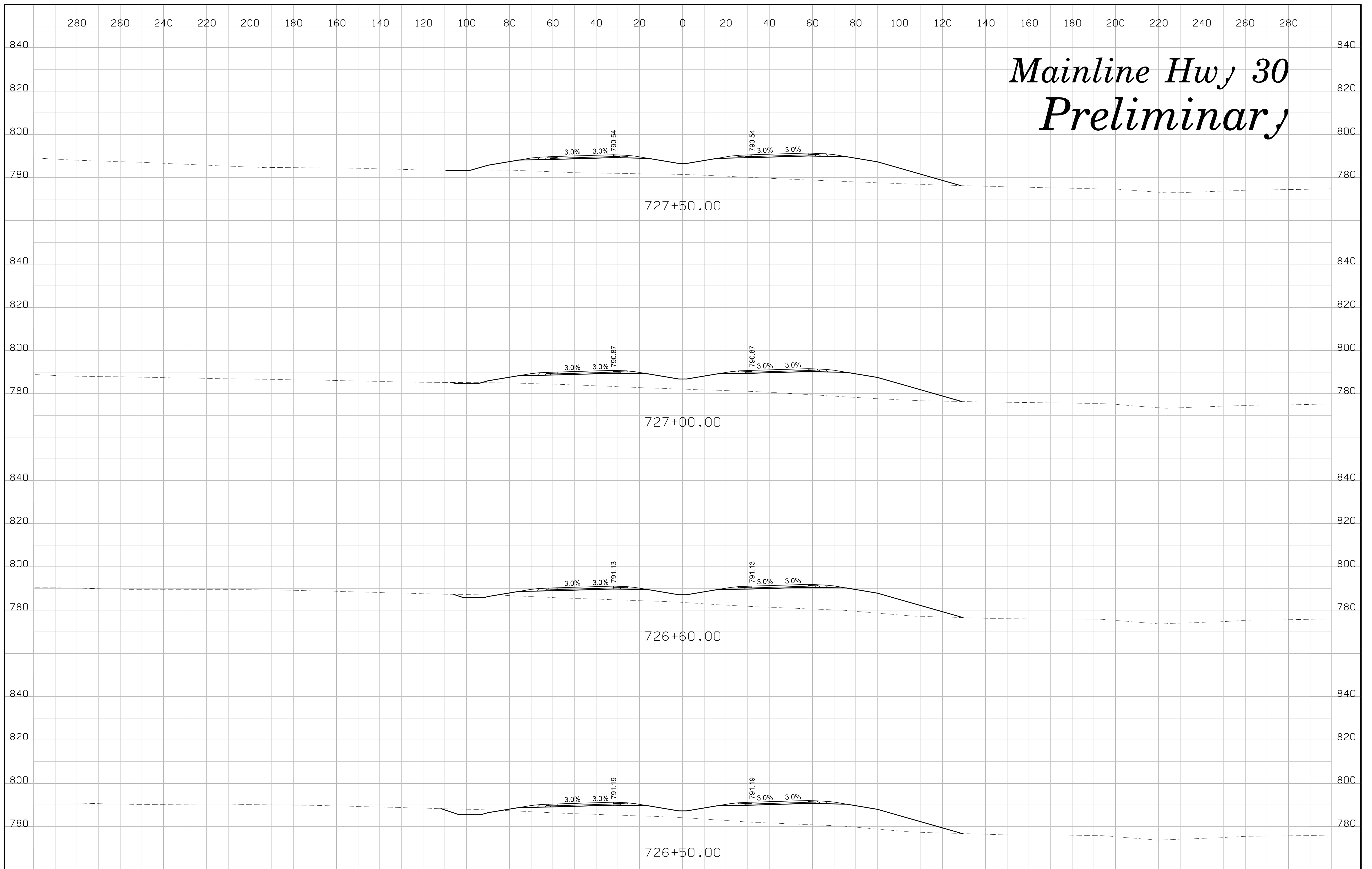




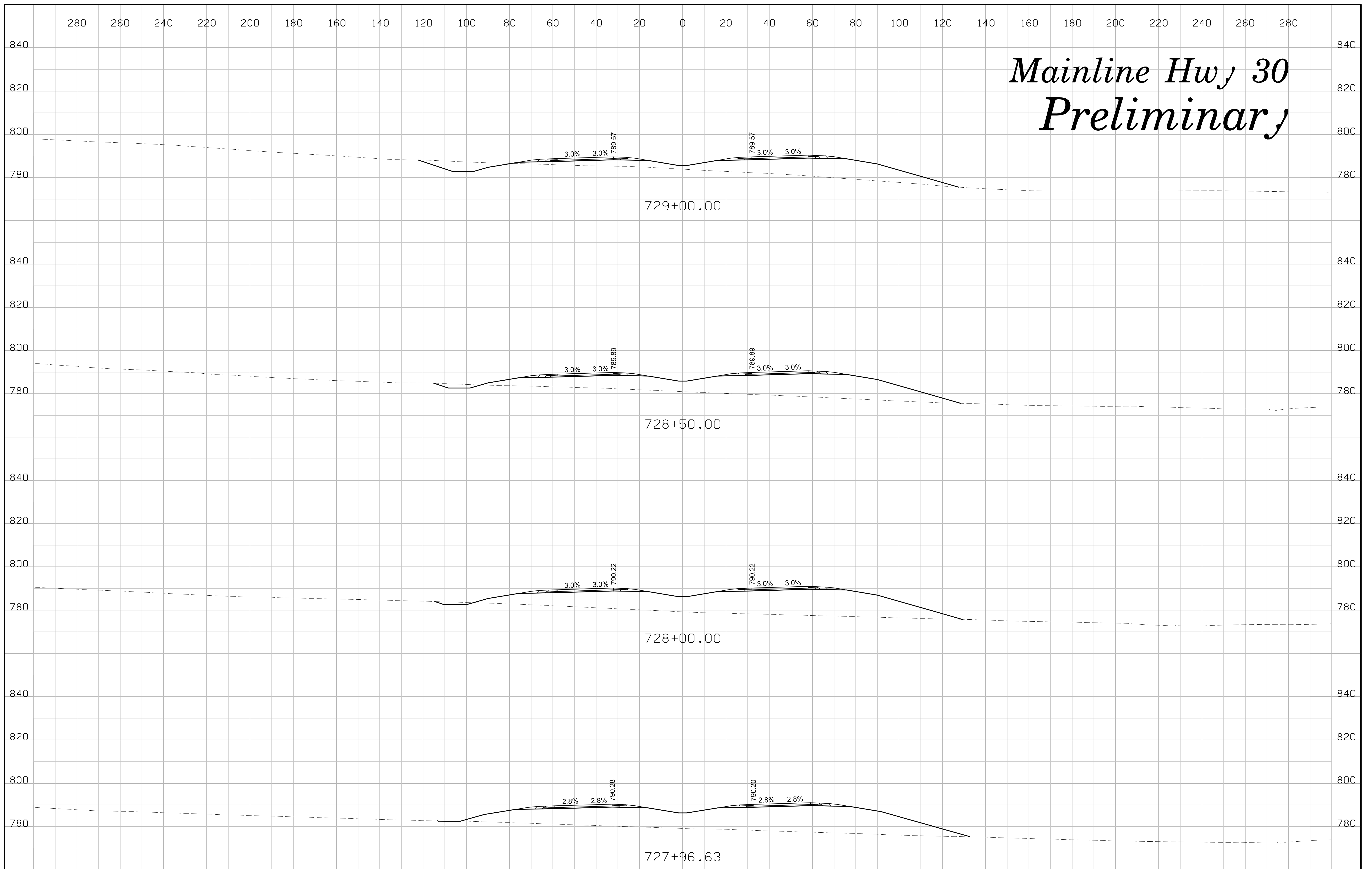
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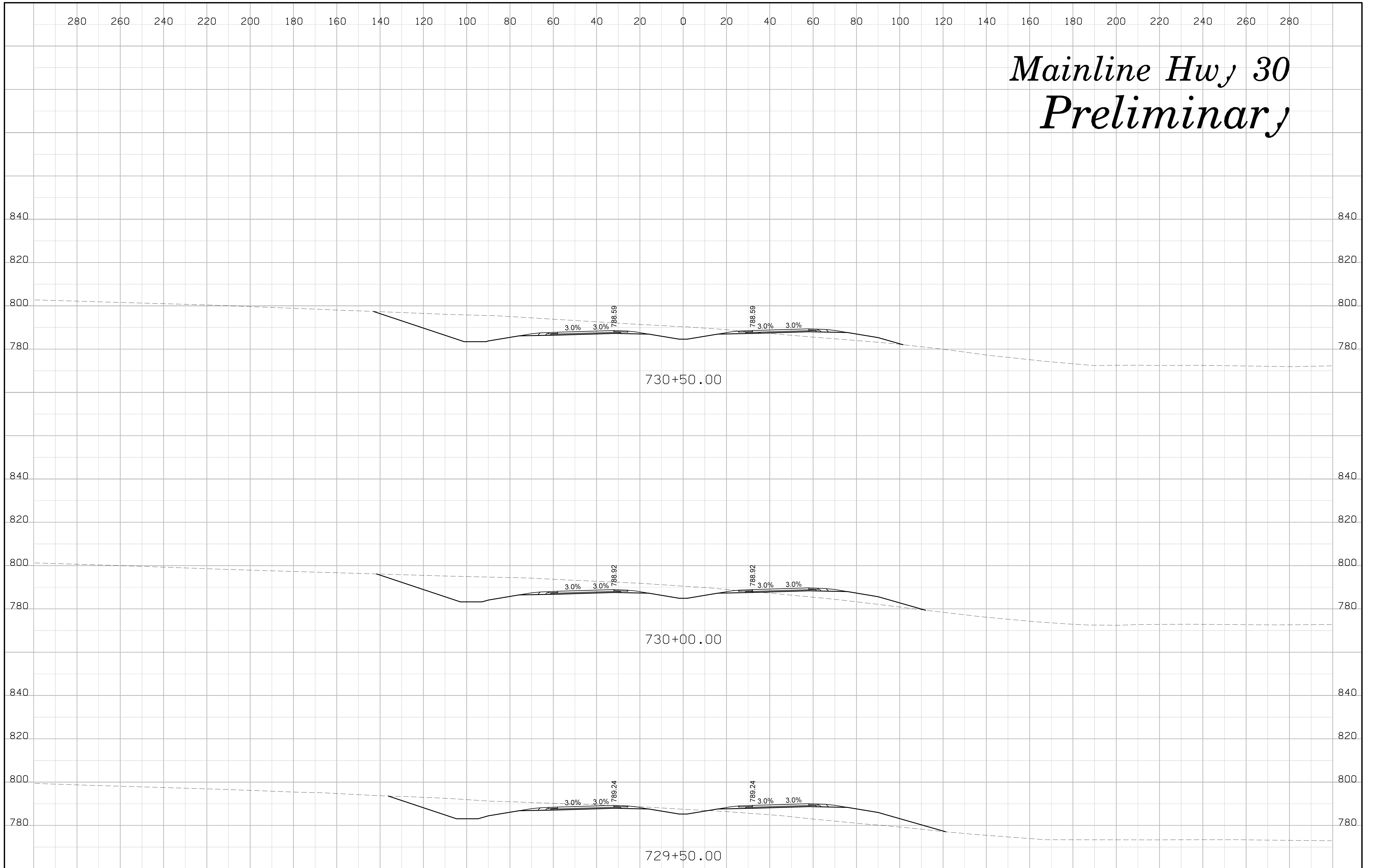
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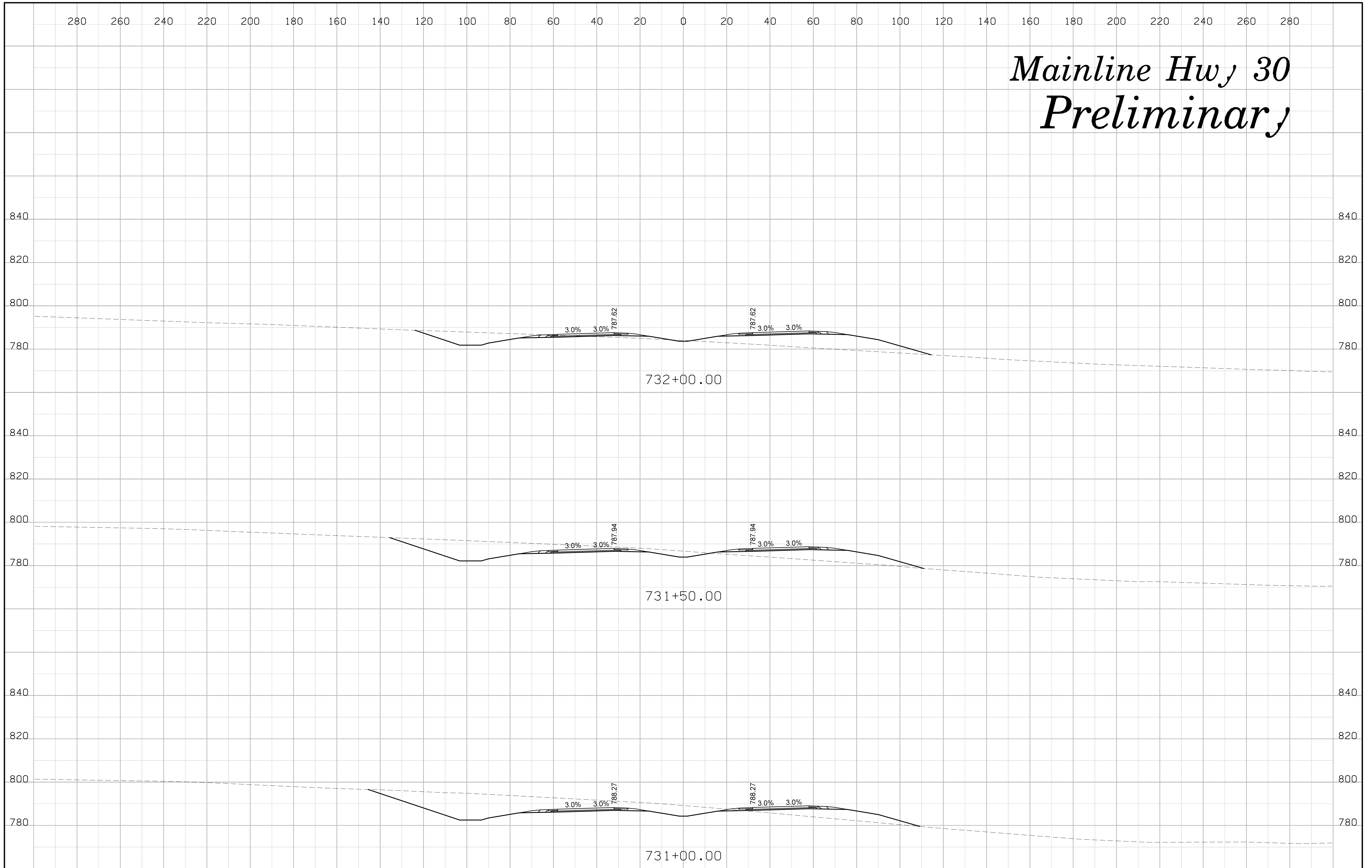


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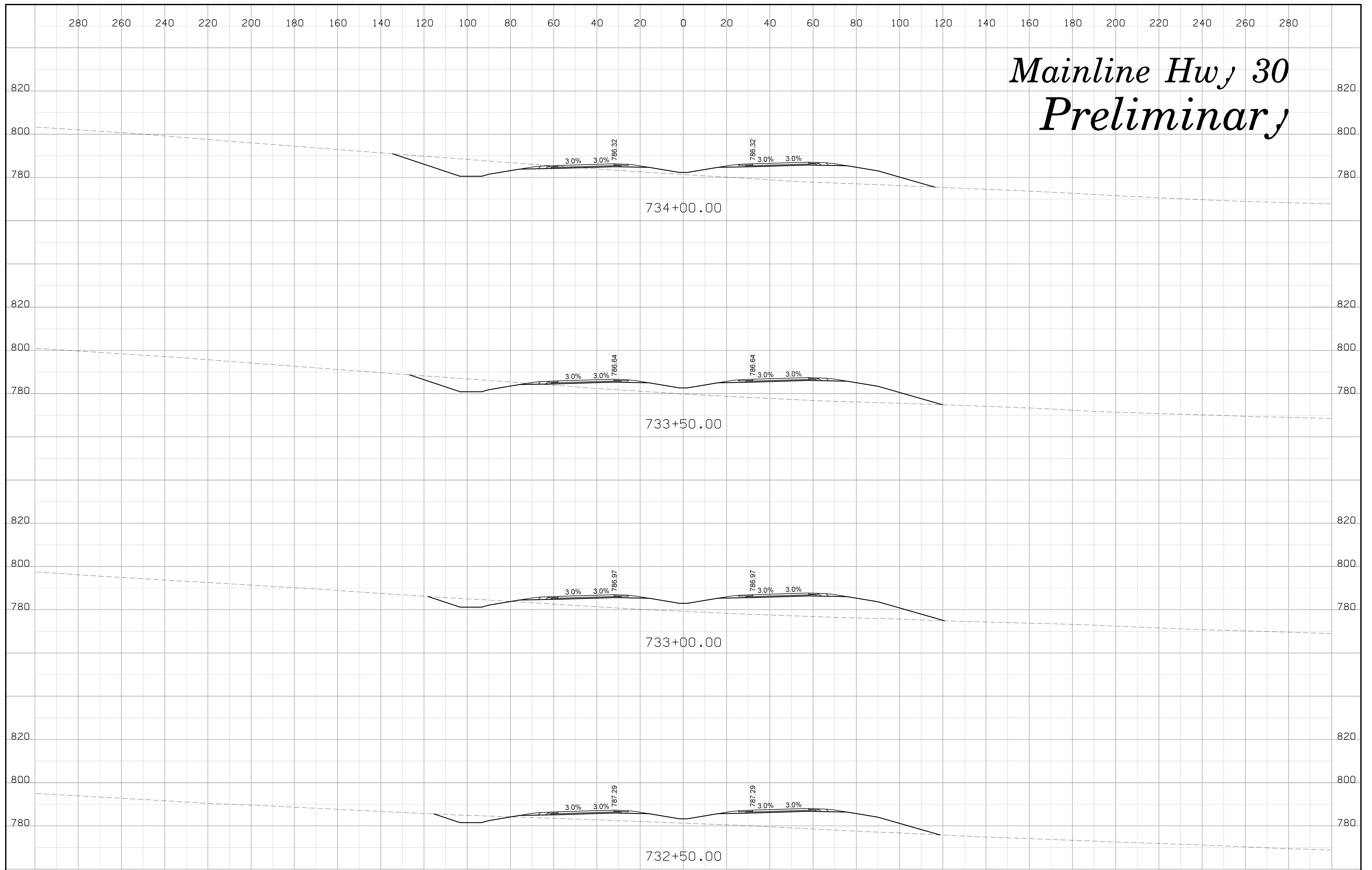




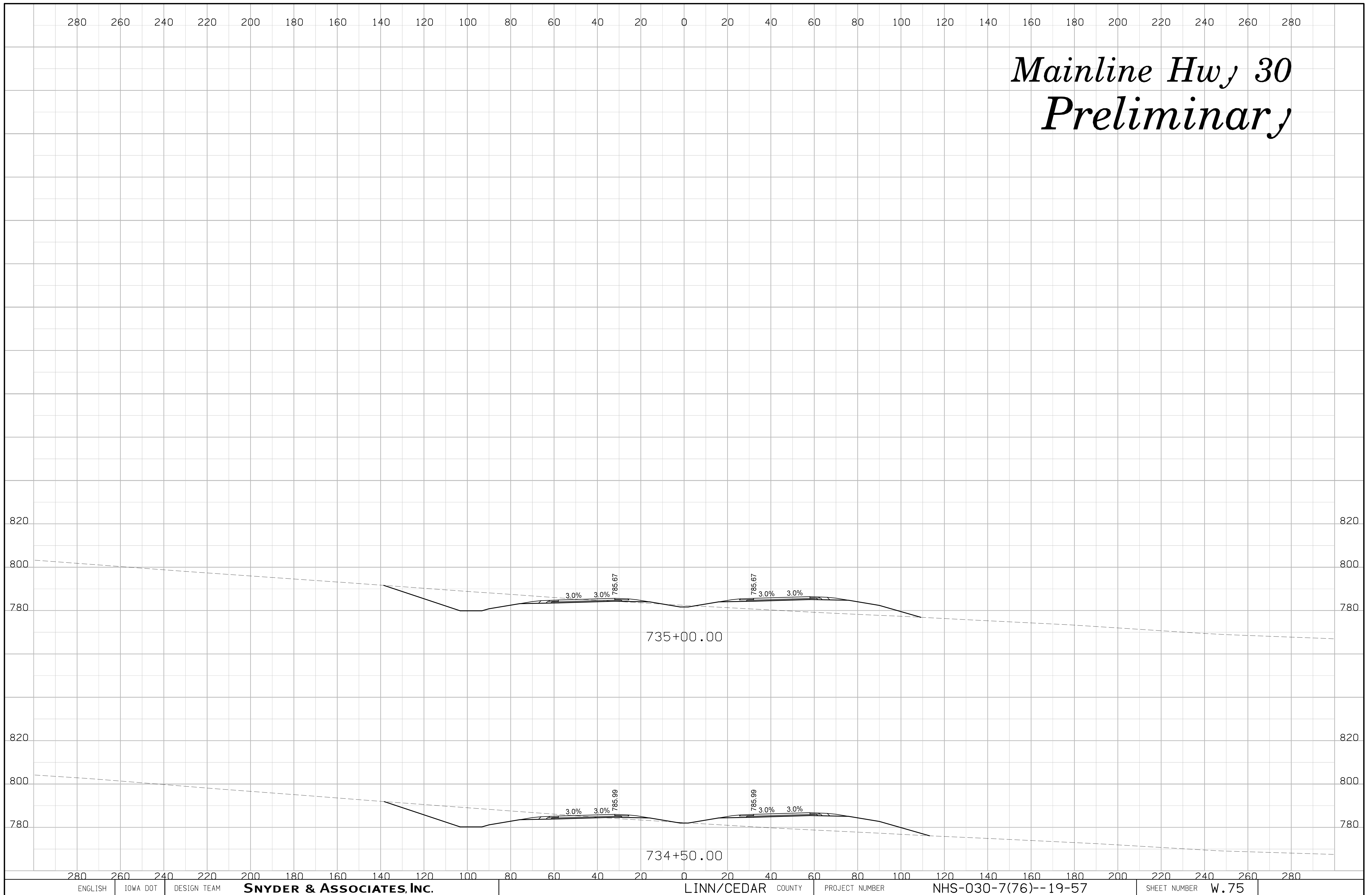
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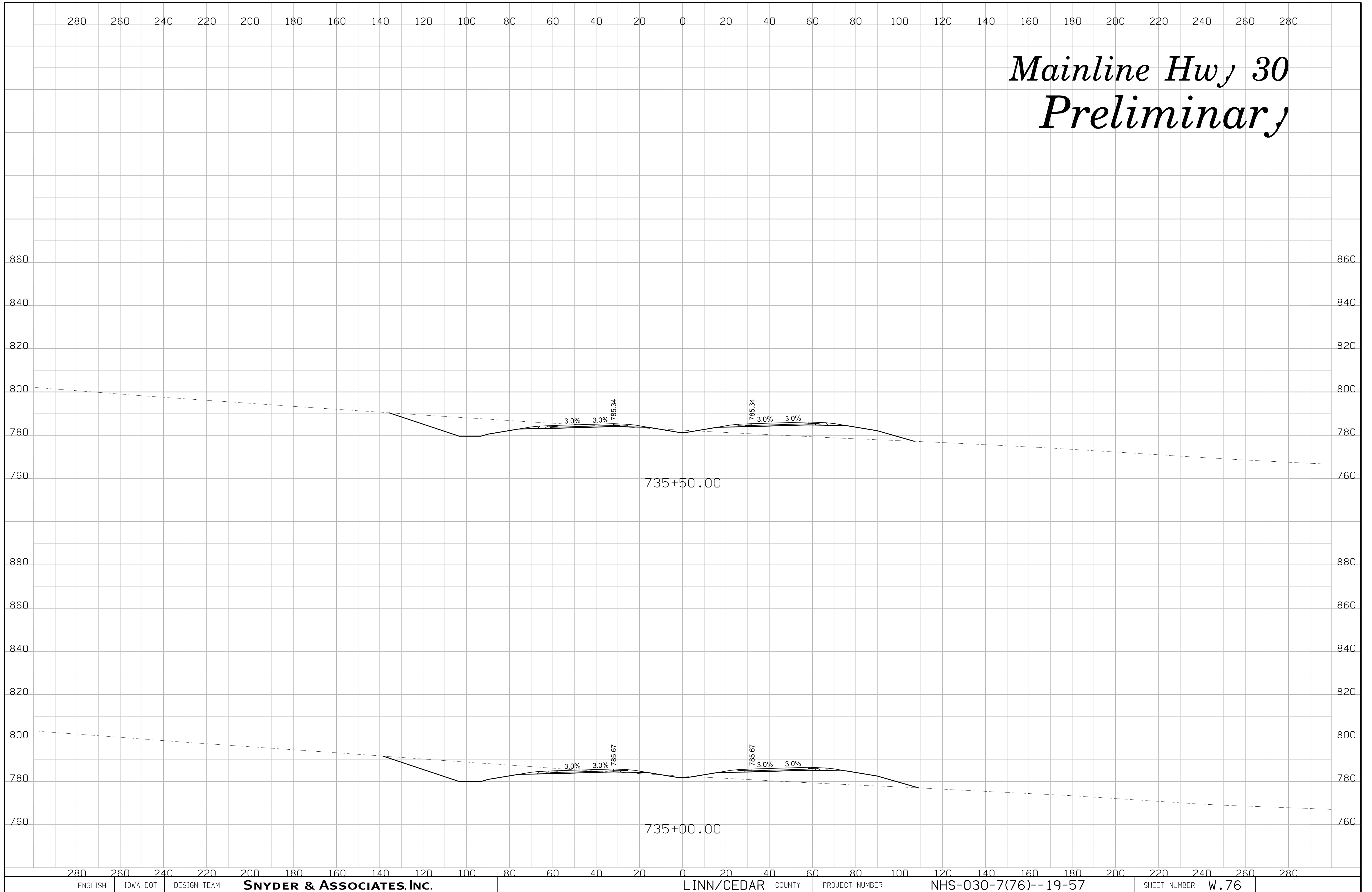
# Mainline Hwy 30 Preliminary



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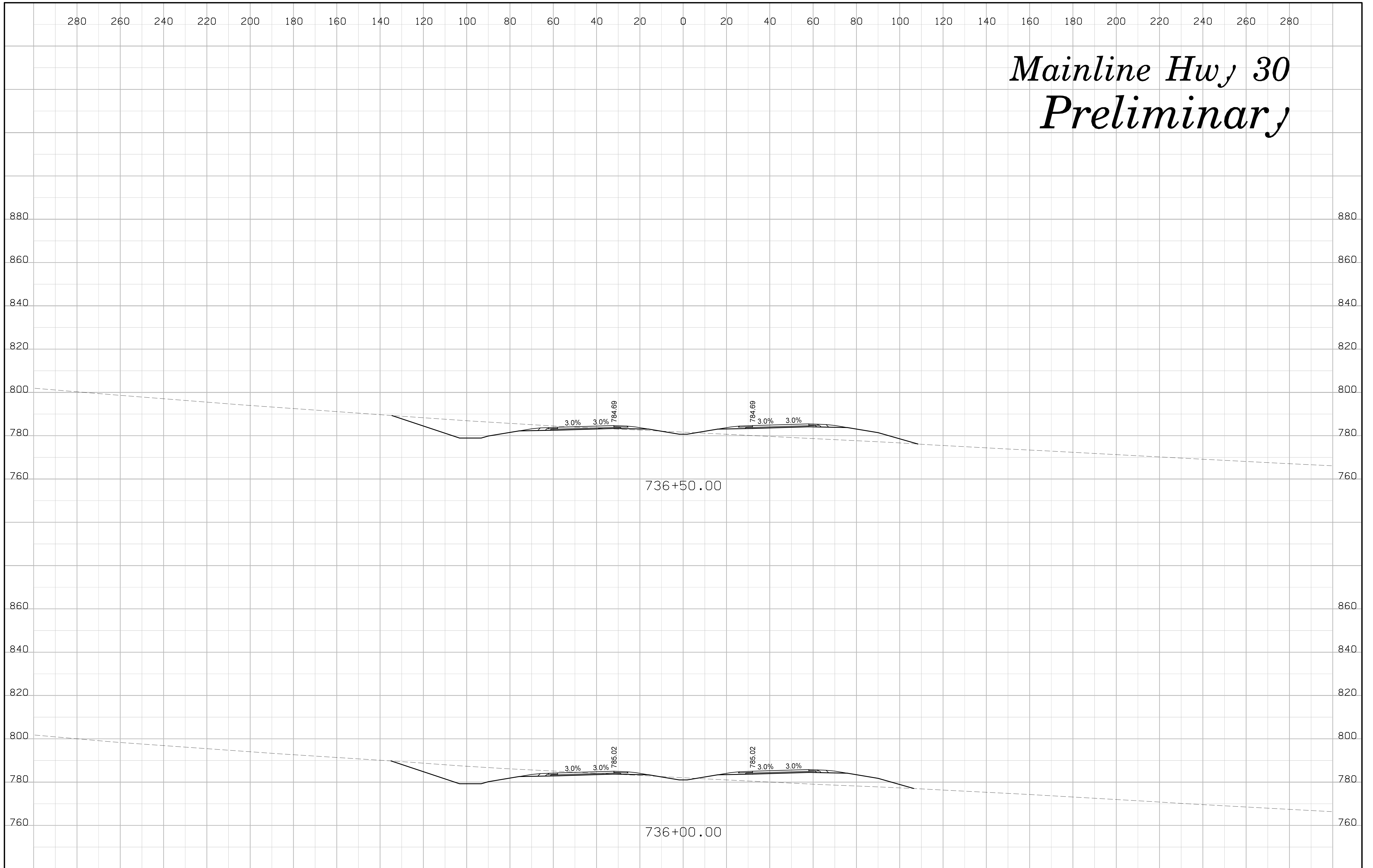


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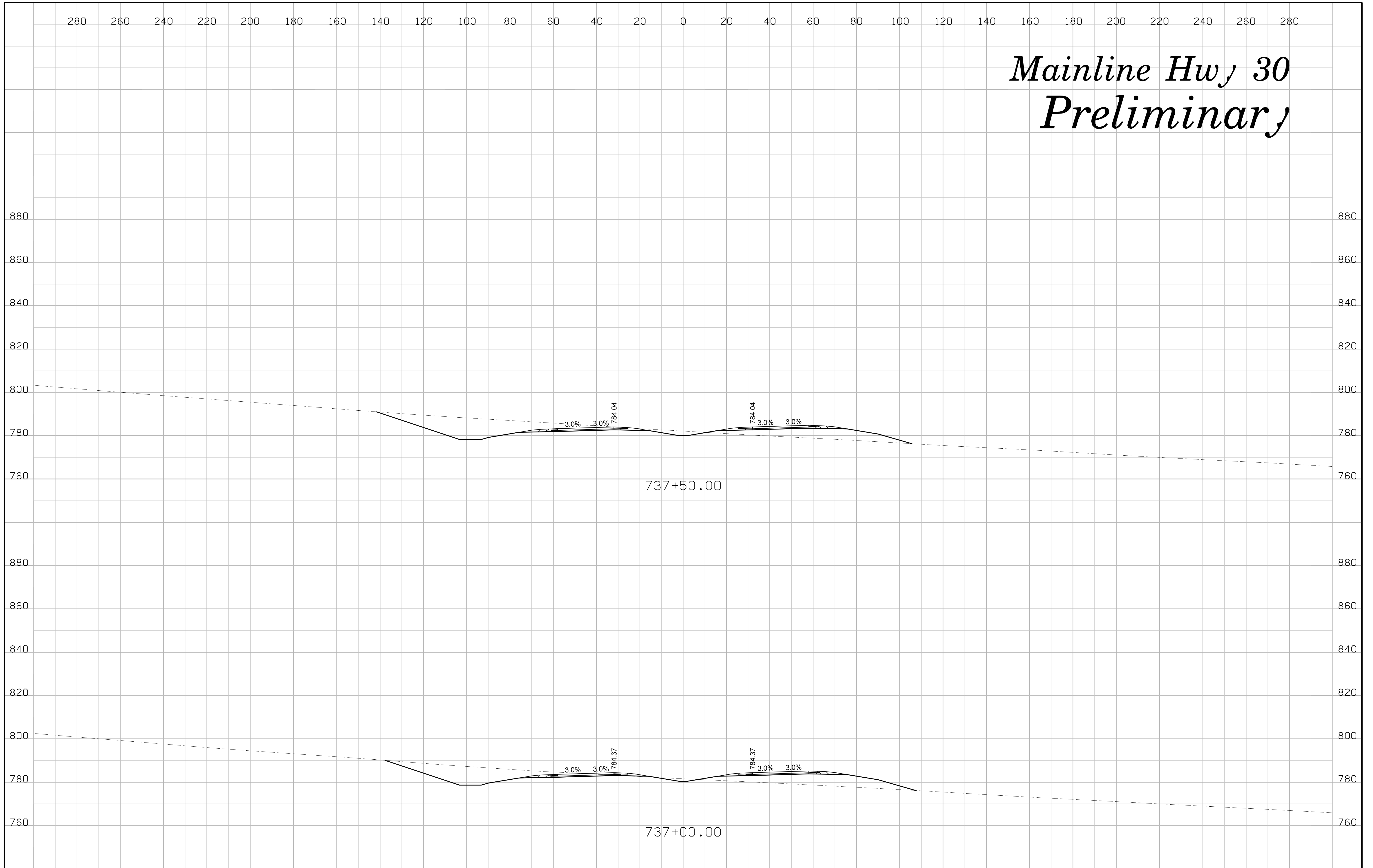




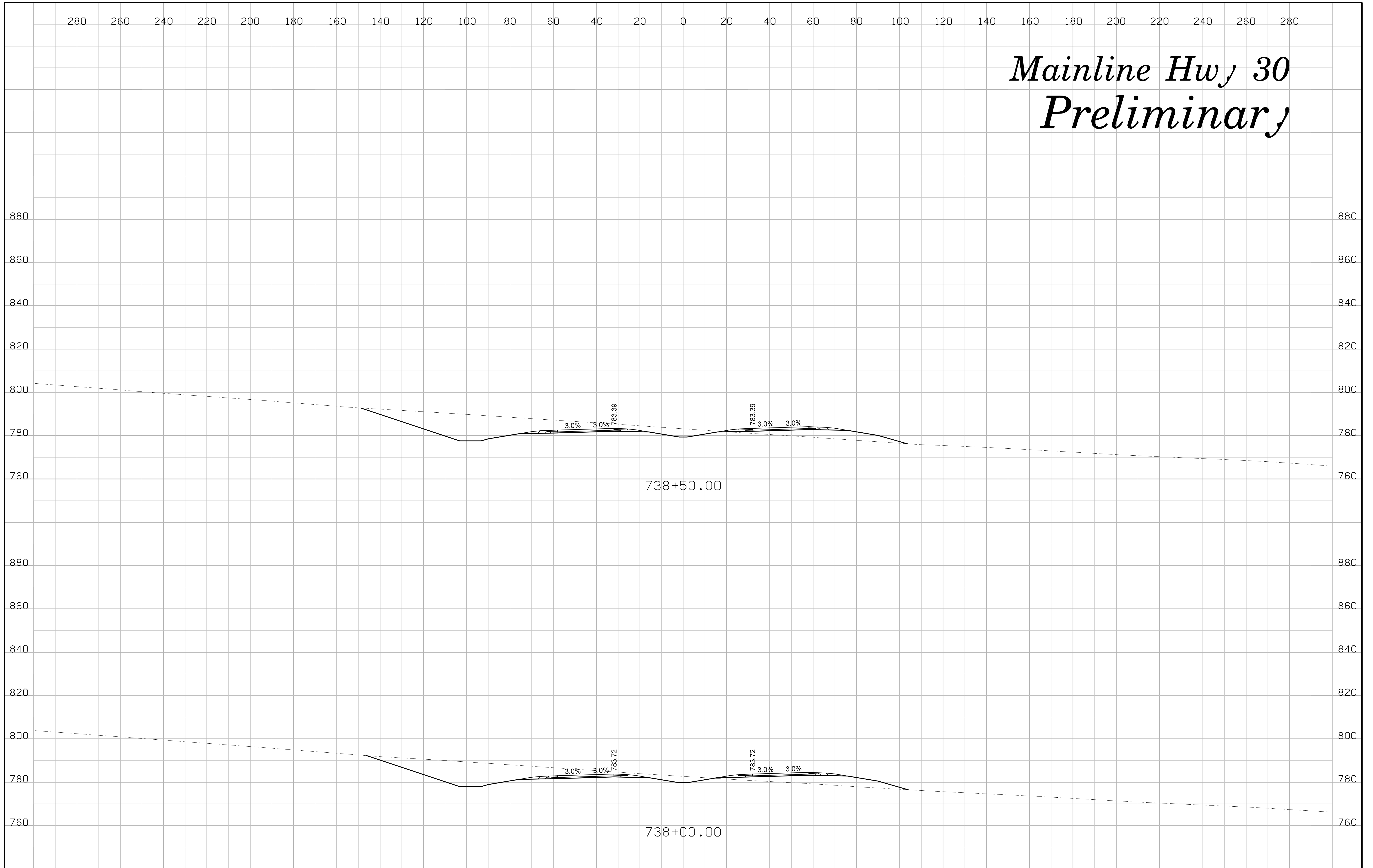
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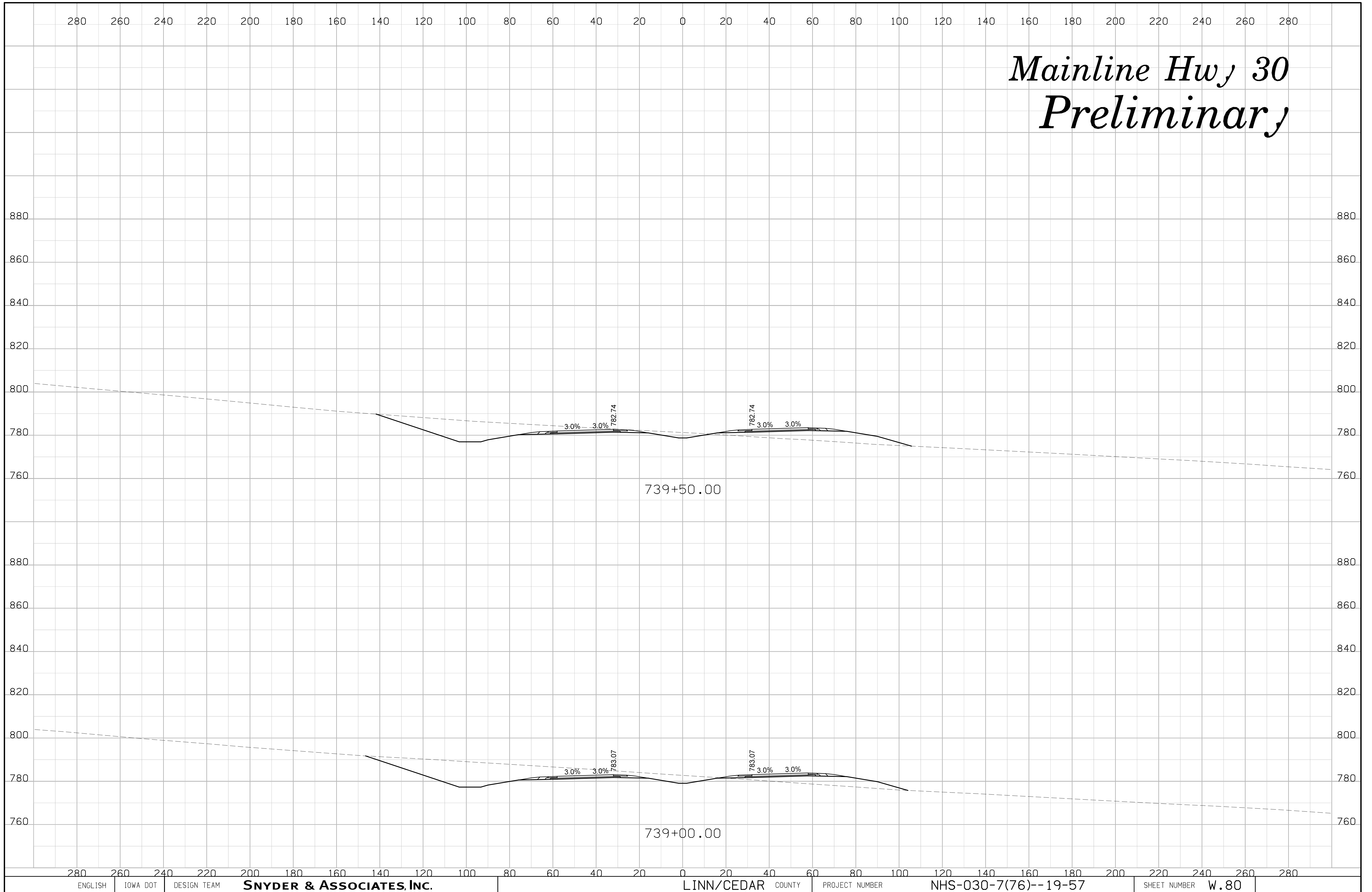
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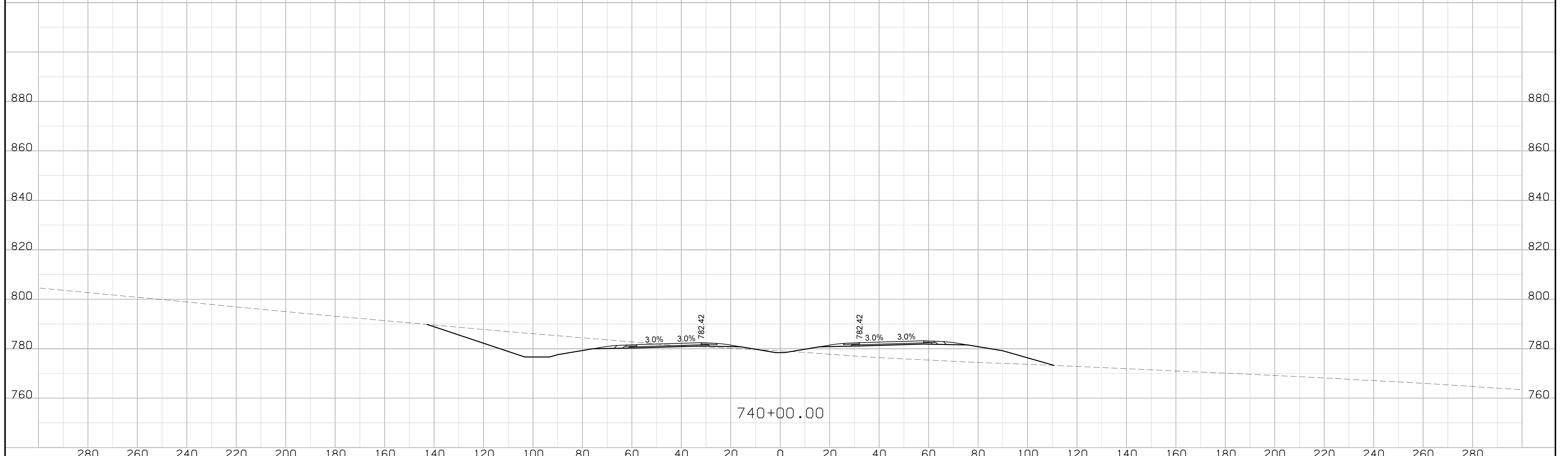
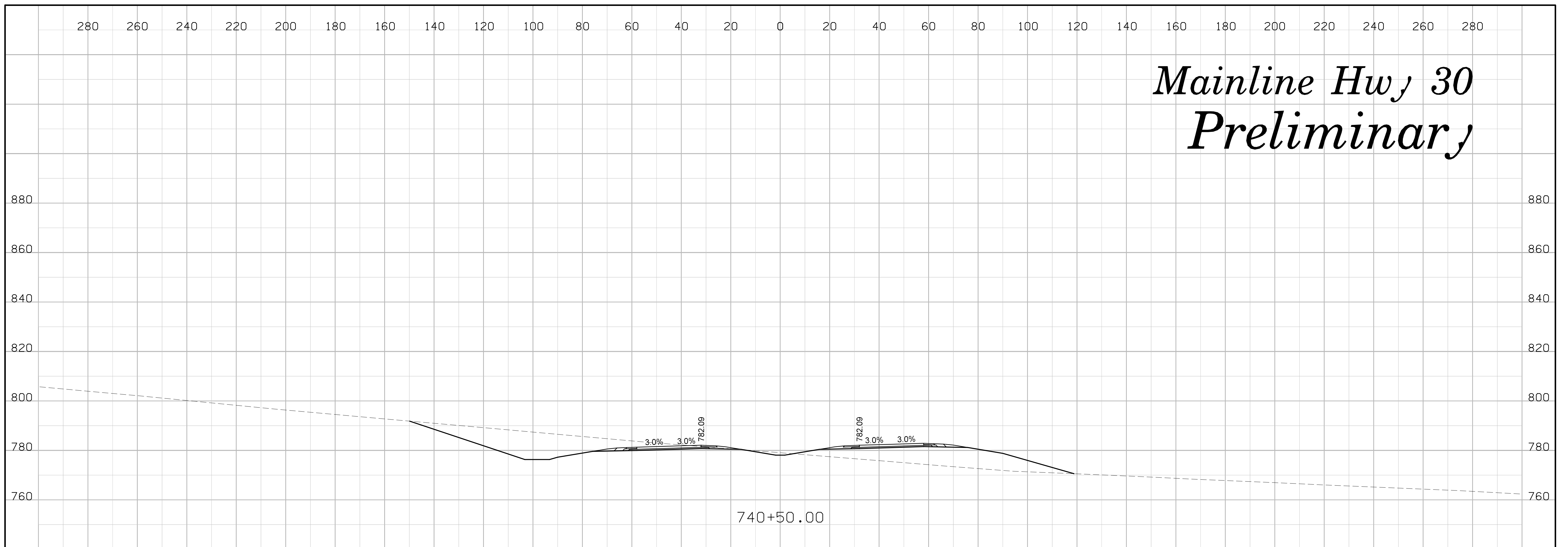


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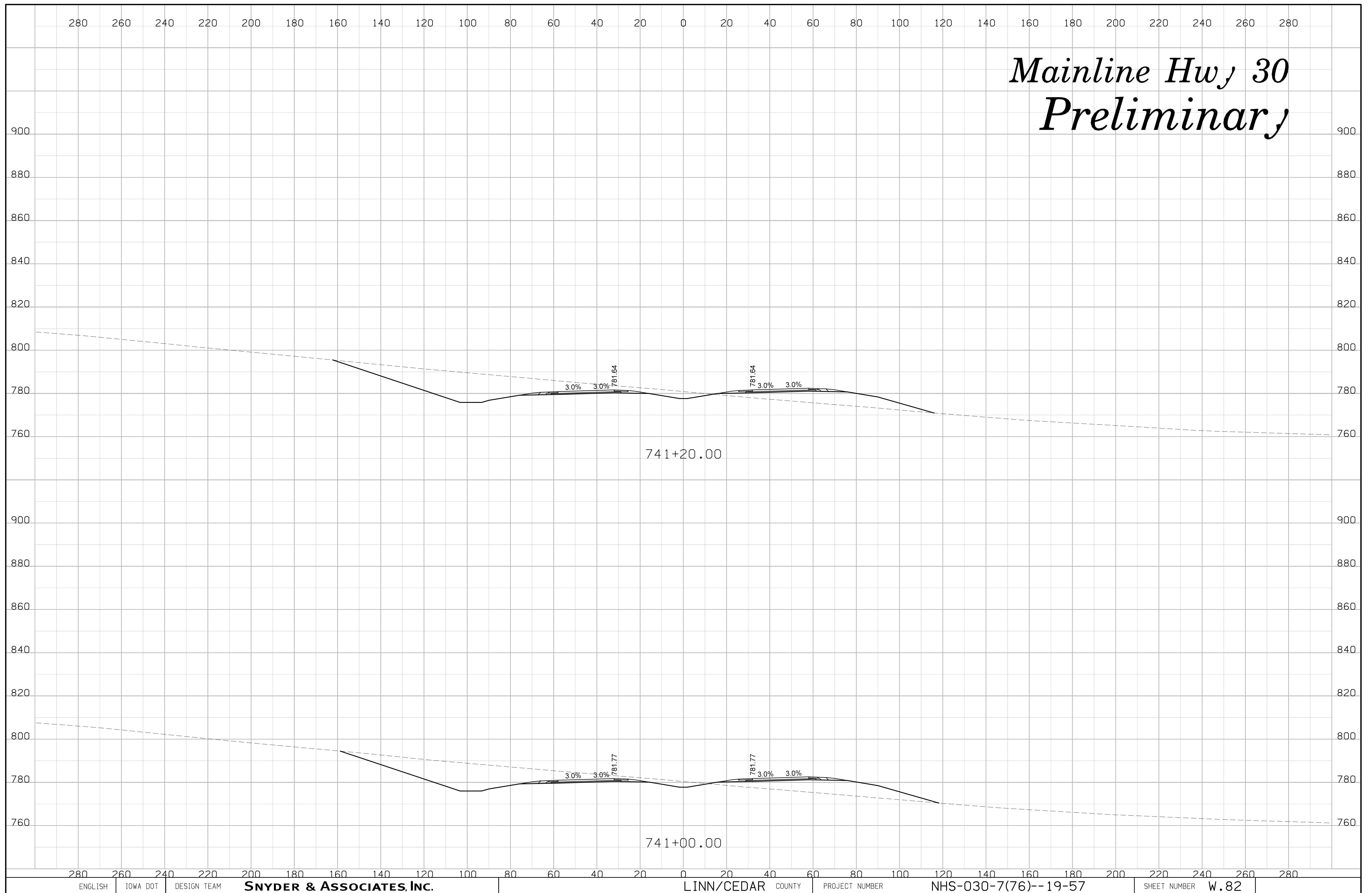




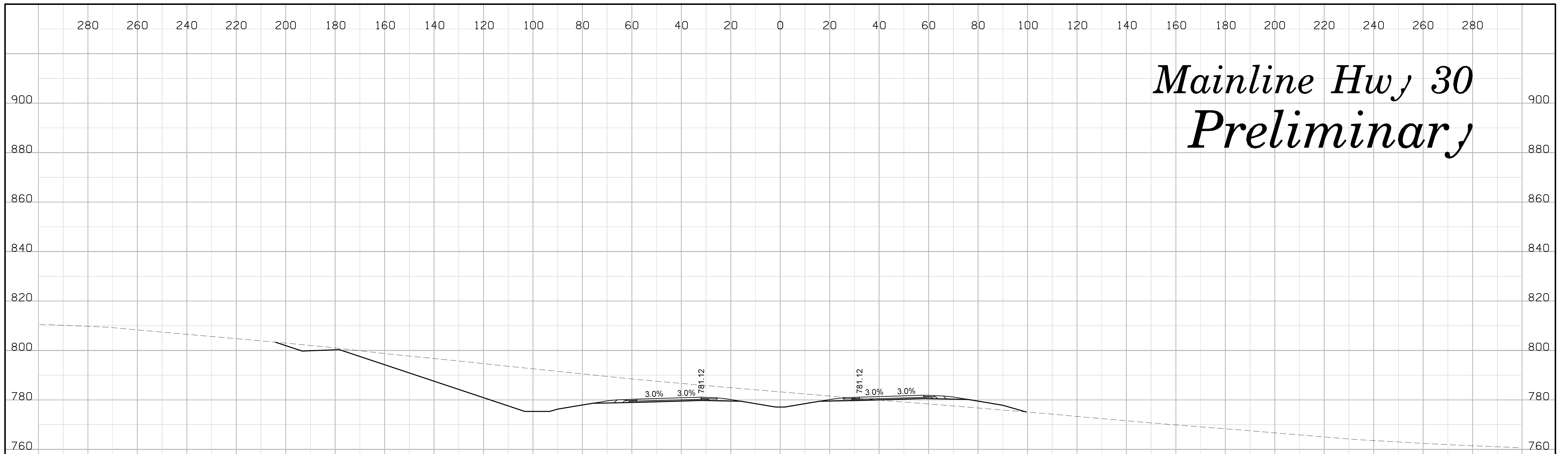
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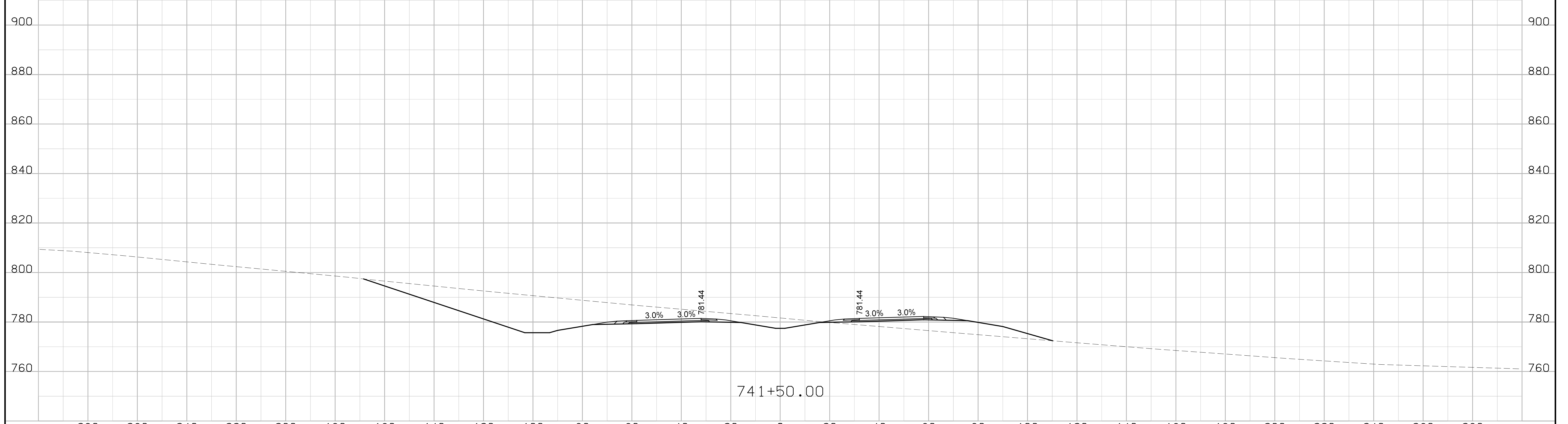
# Mainline Hwy 30 Preliminary



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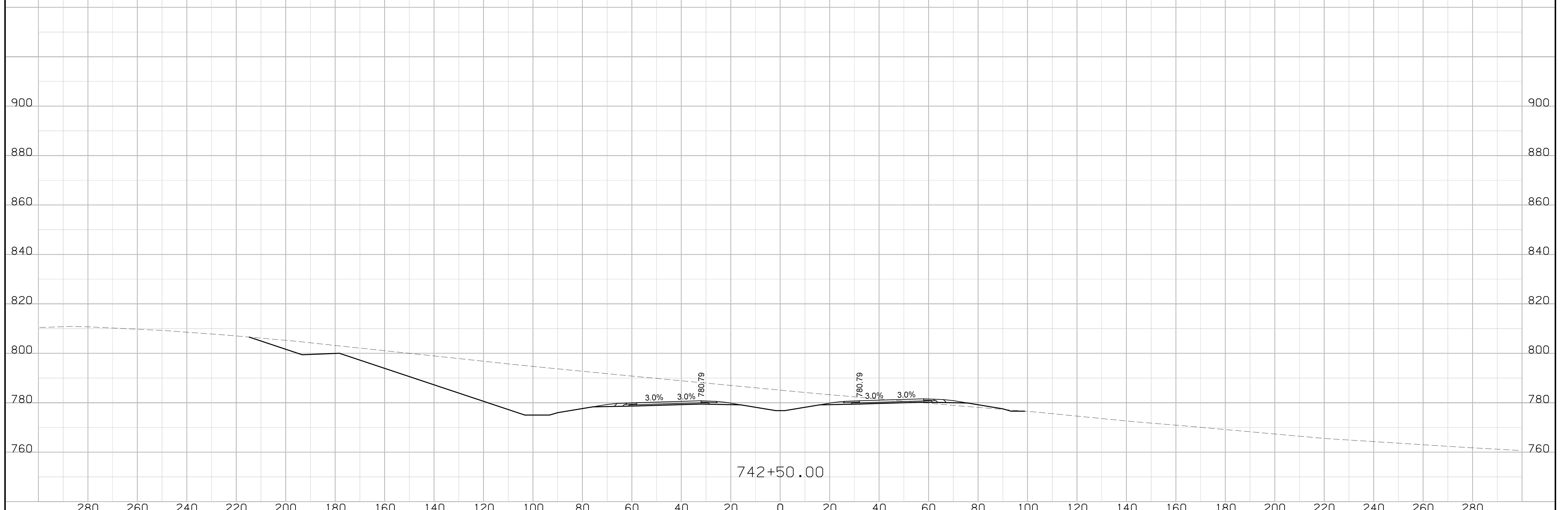
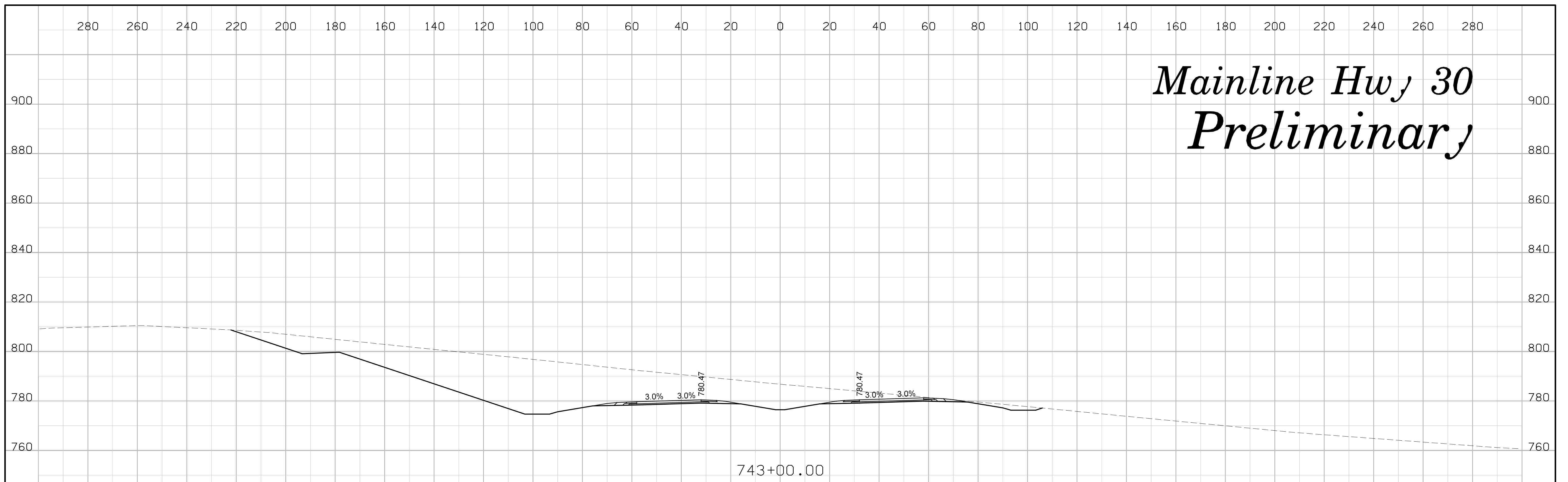


742+00.00



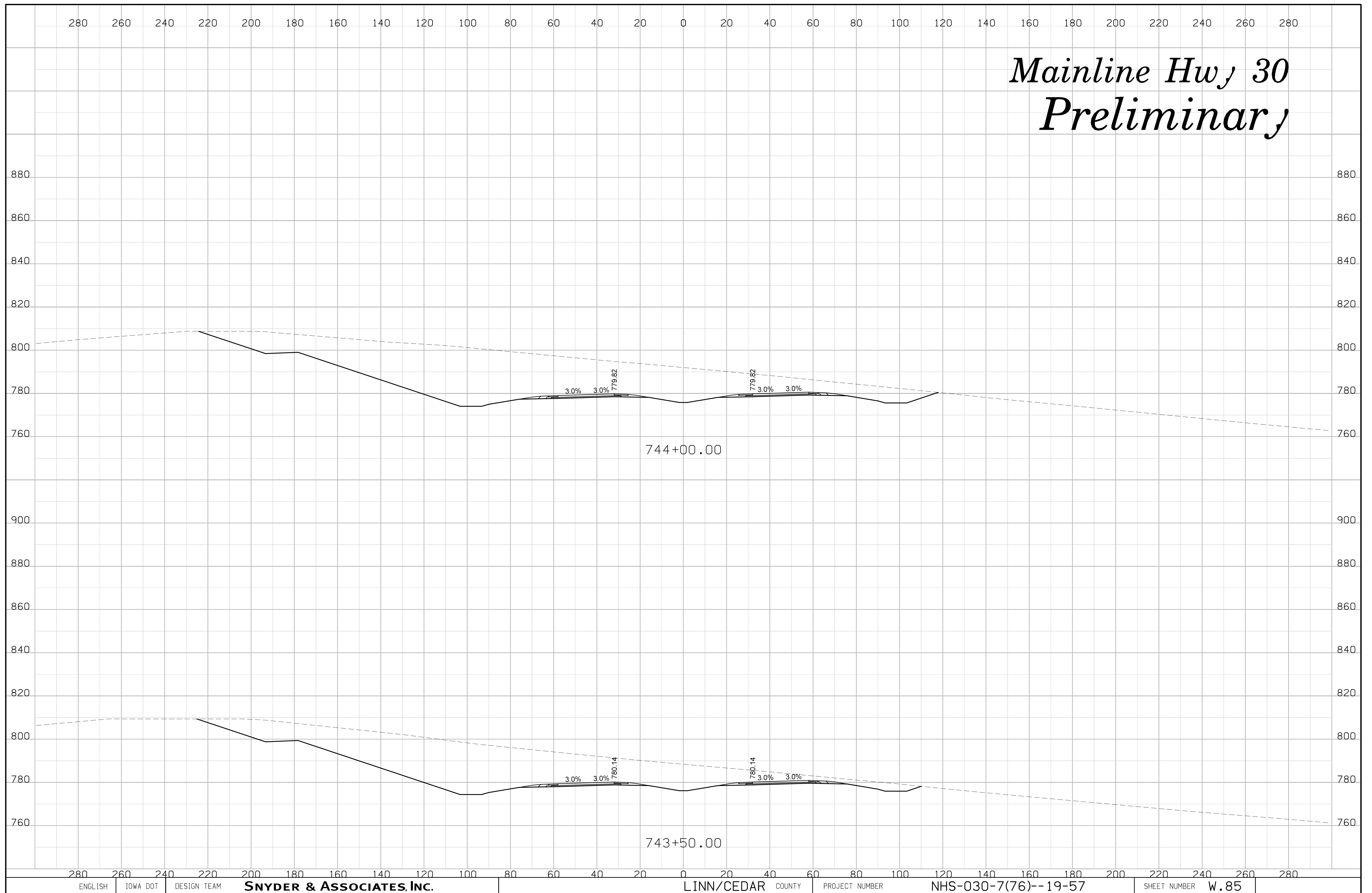
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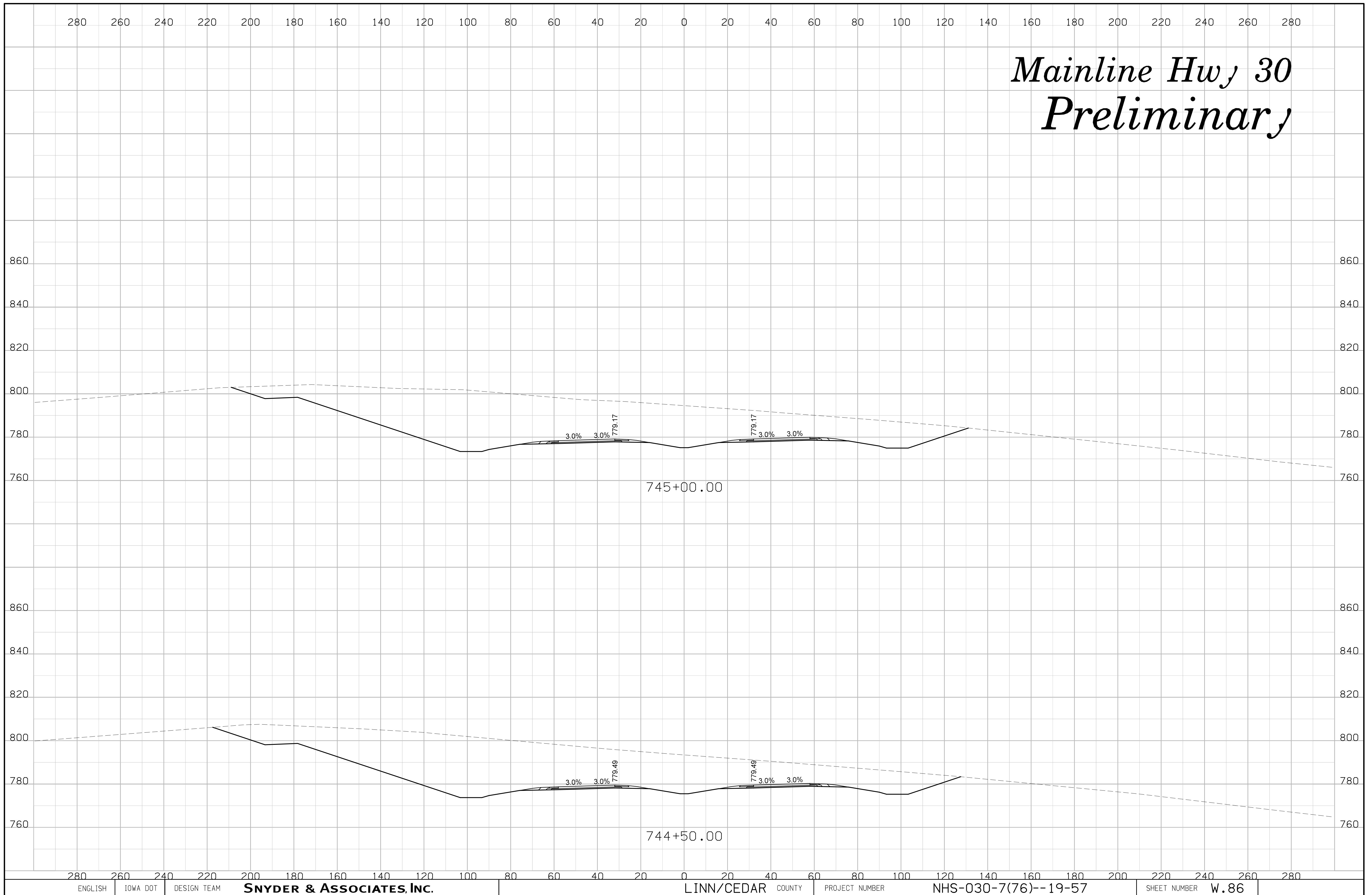




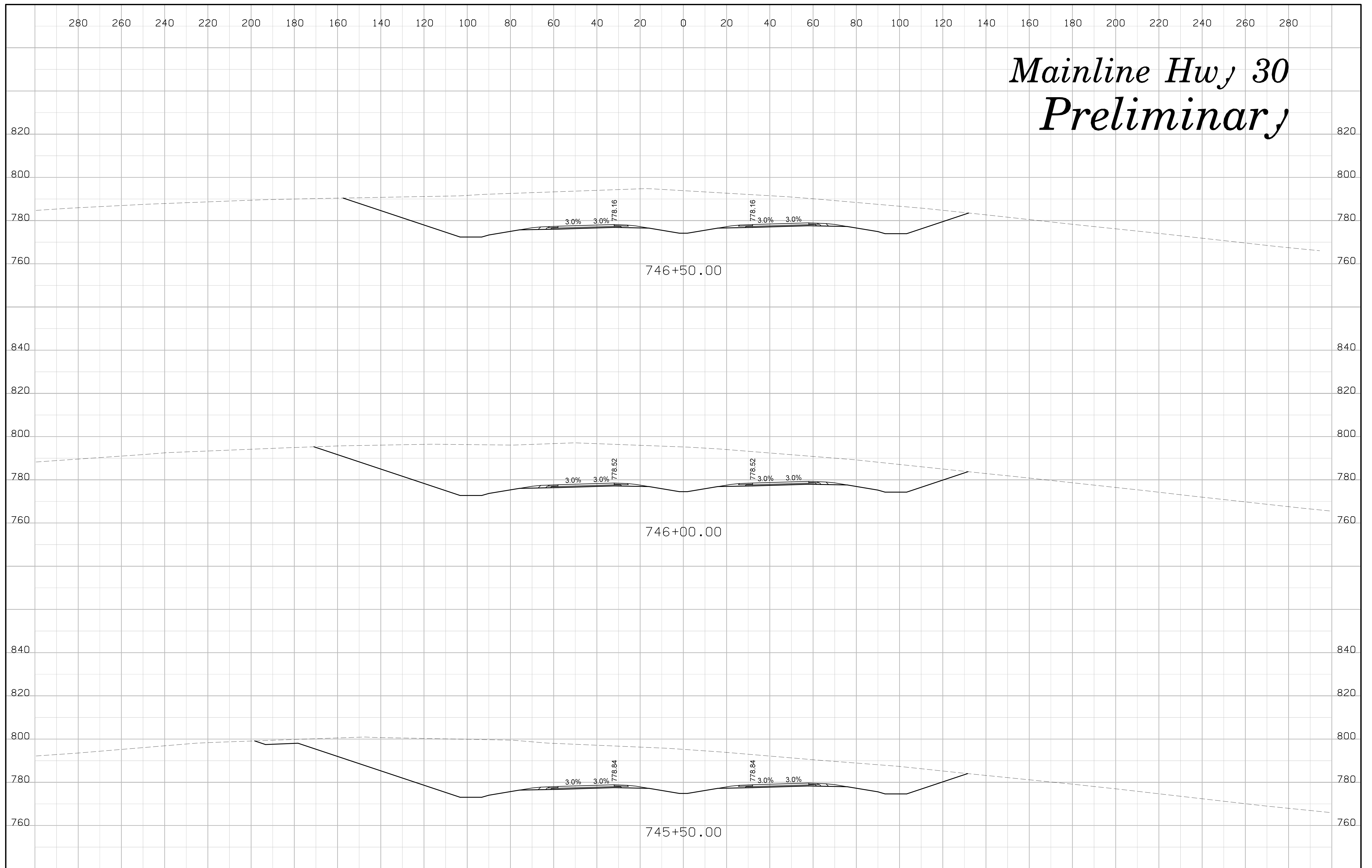
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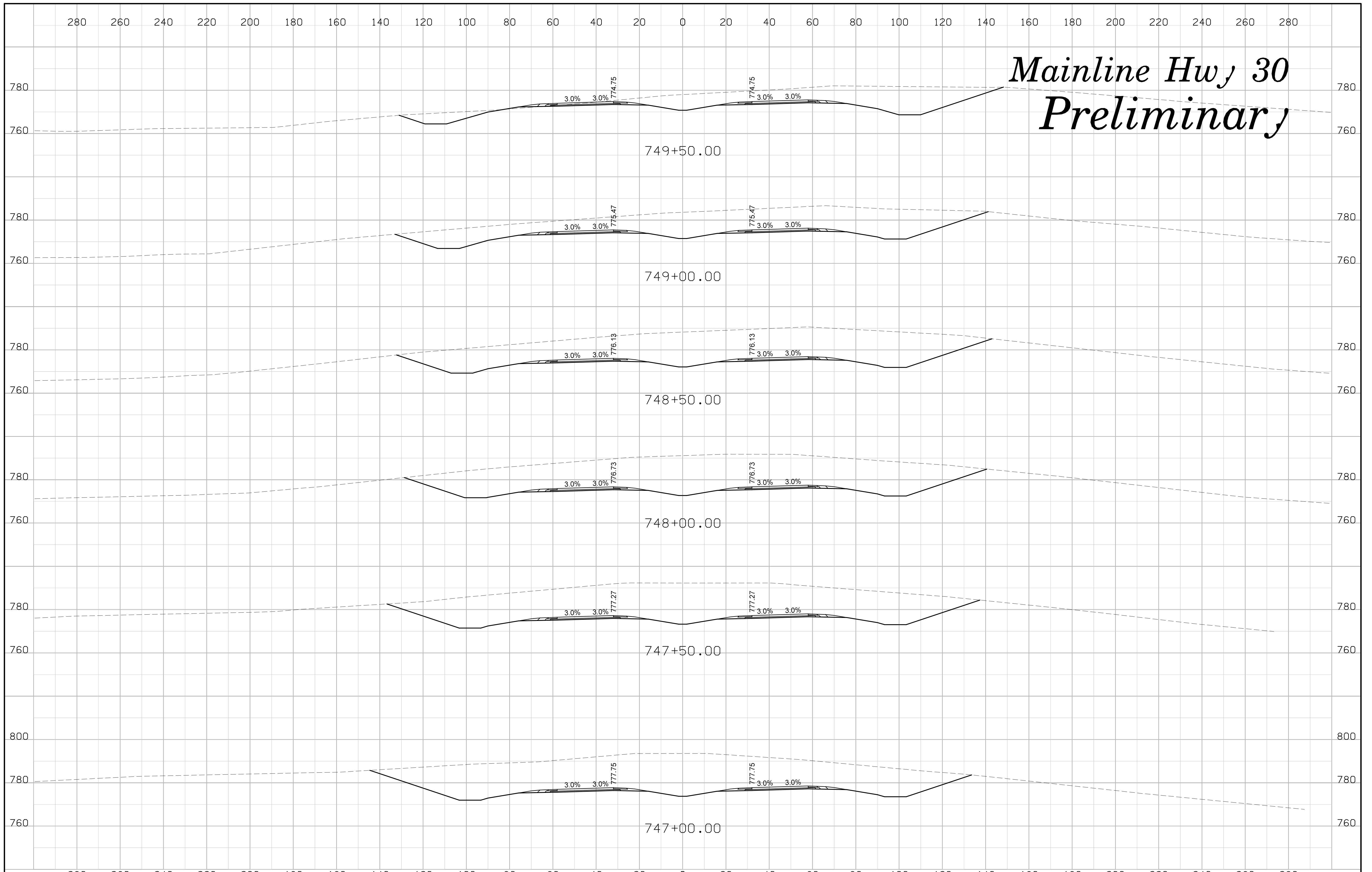
# Mainline Hwy 30 Preliminary



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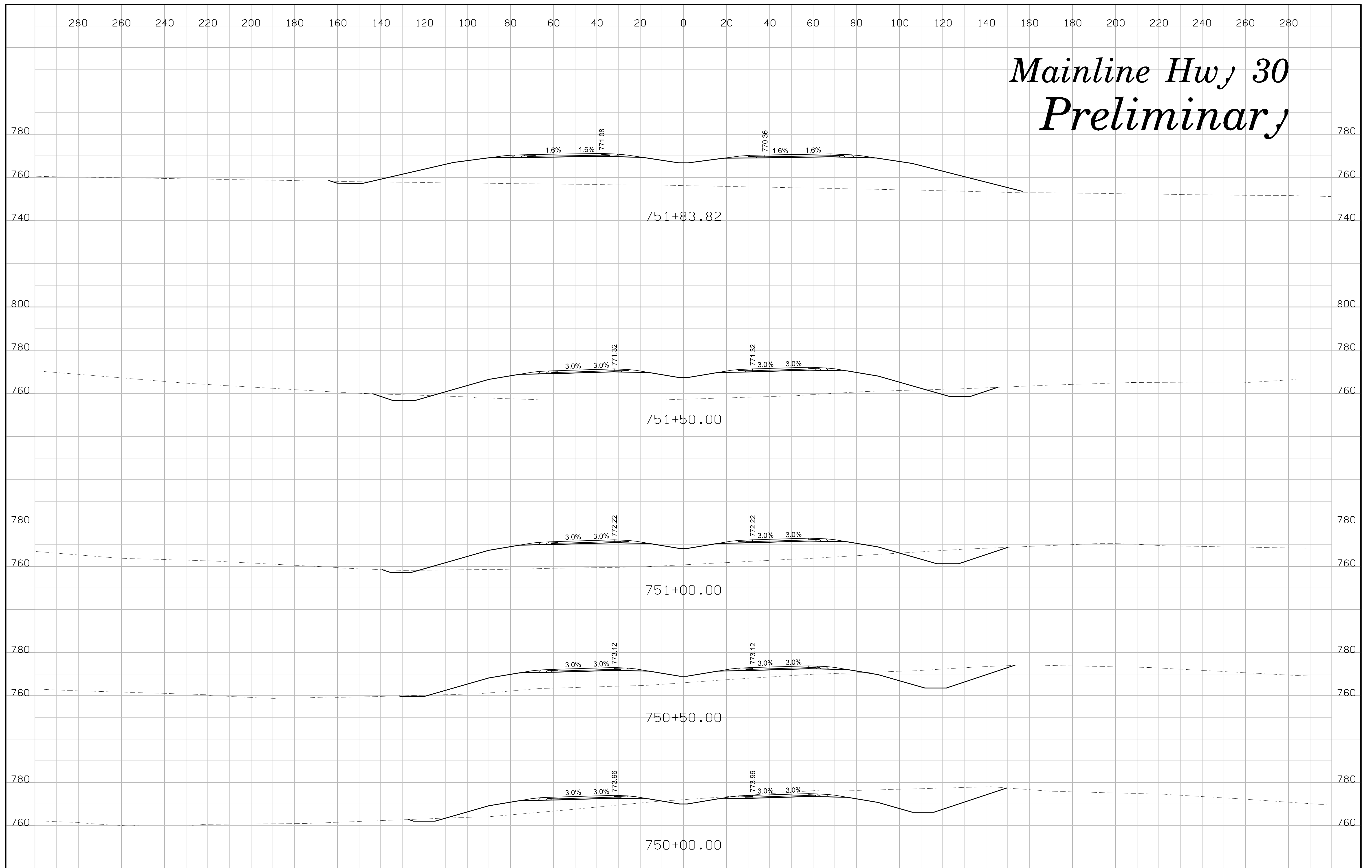


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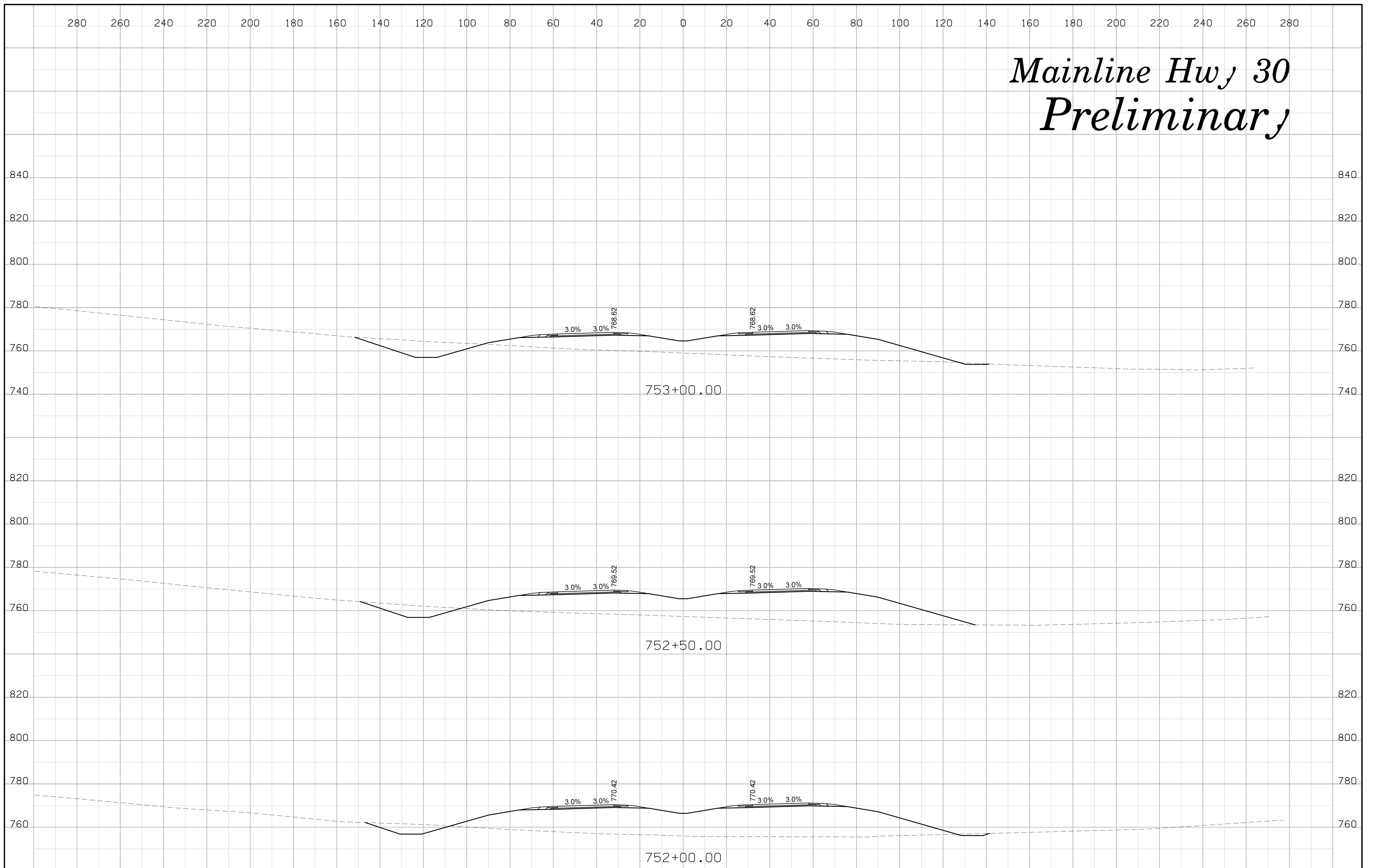




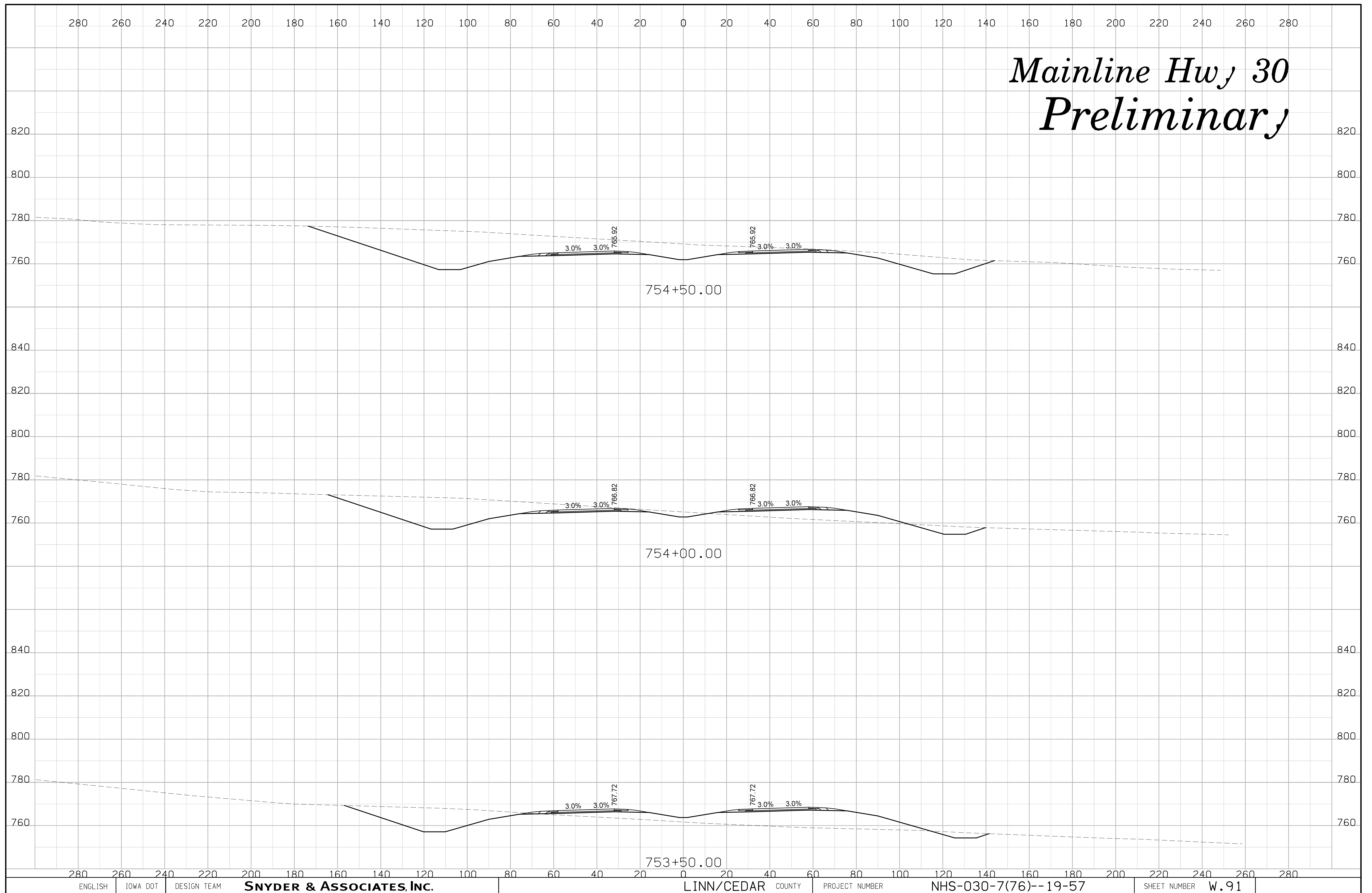
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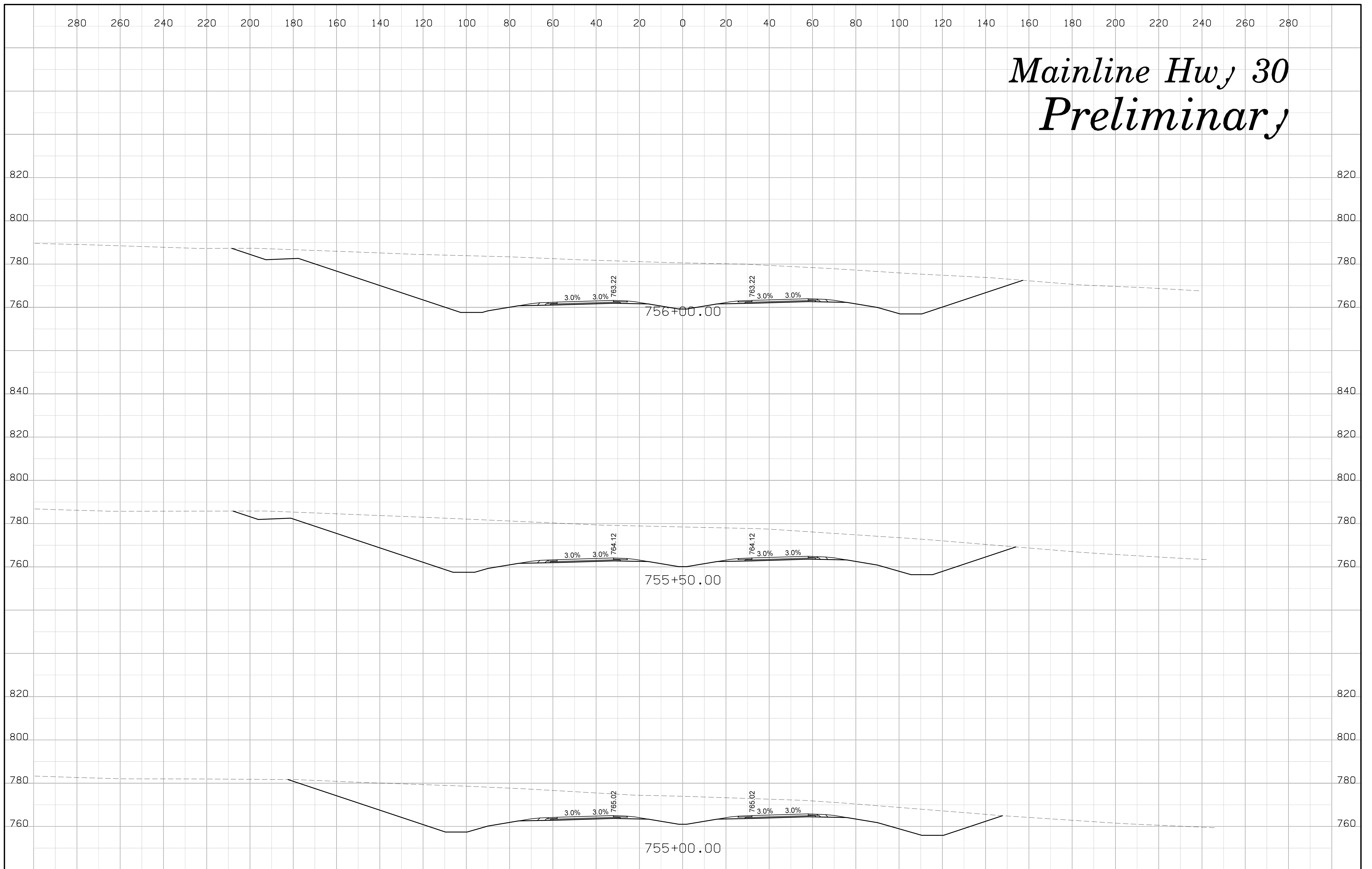
# Mainline Hwy 30 Preliminary



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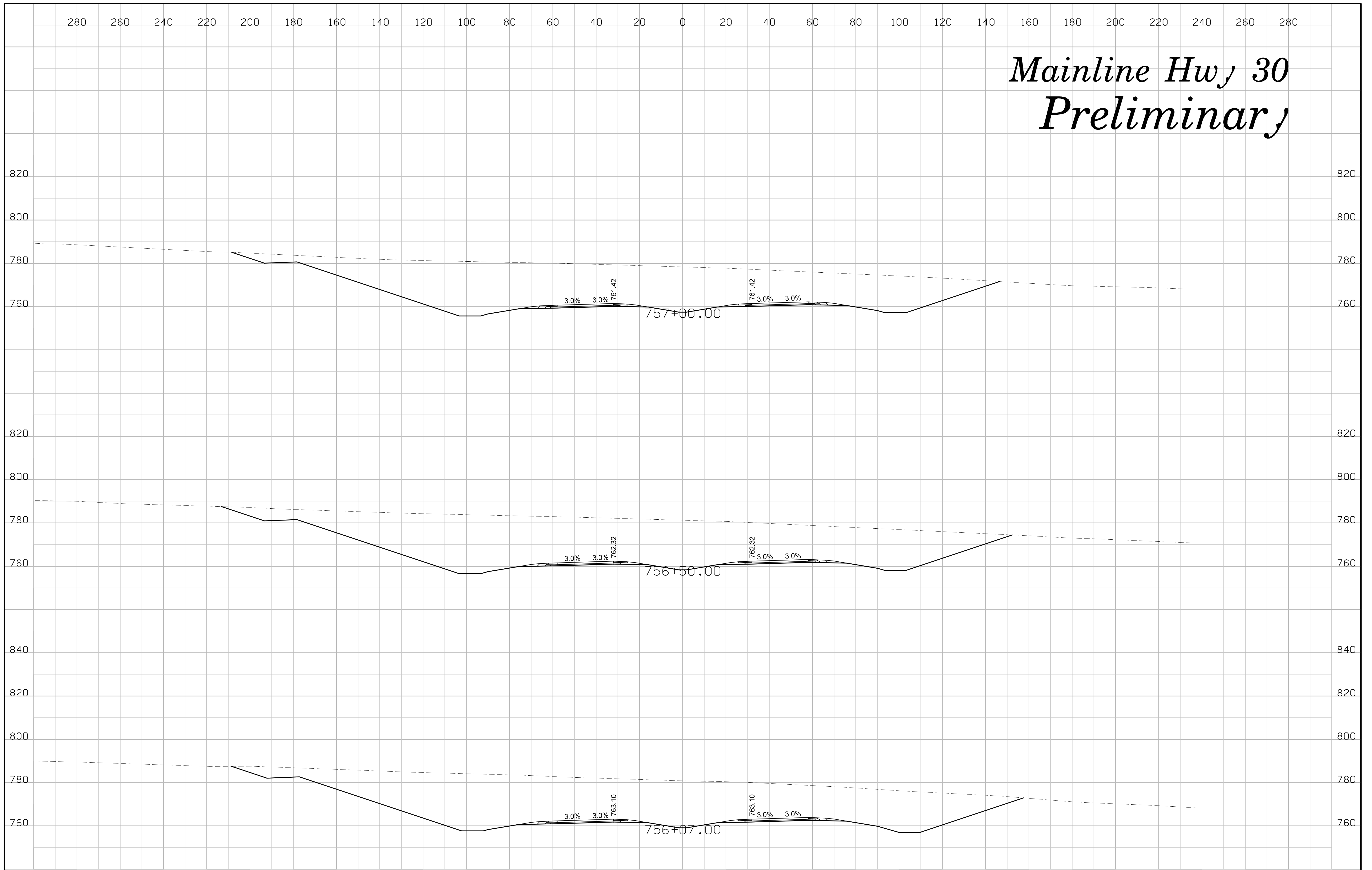


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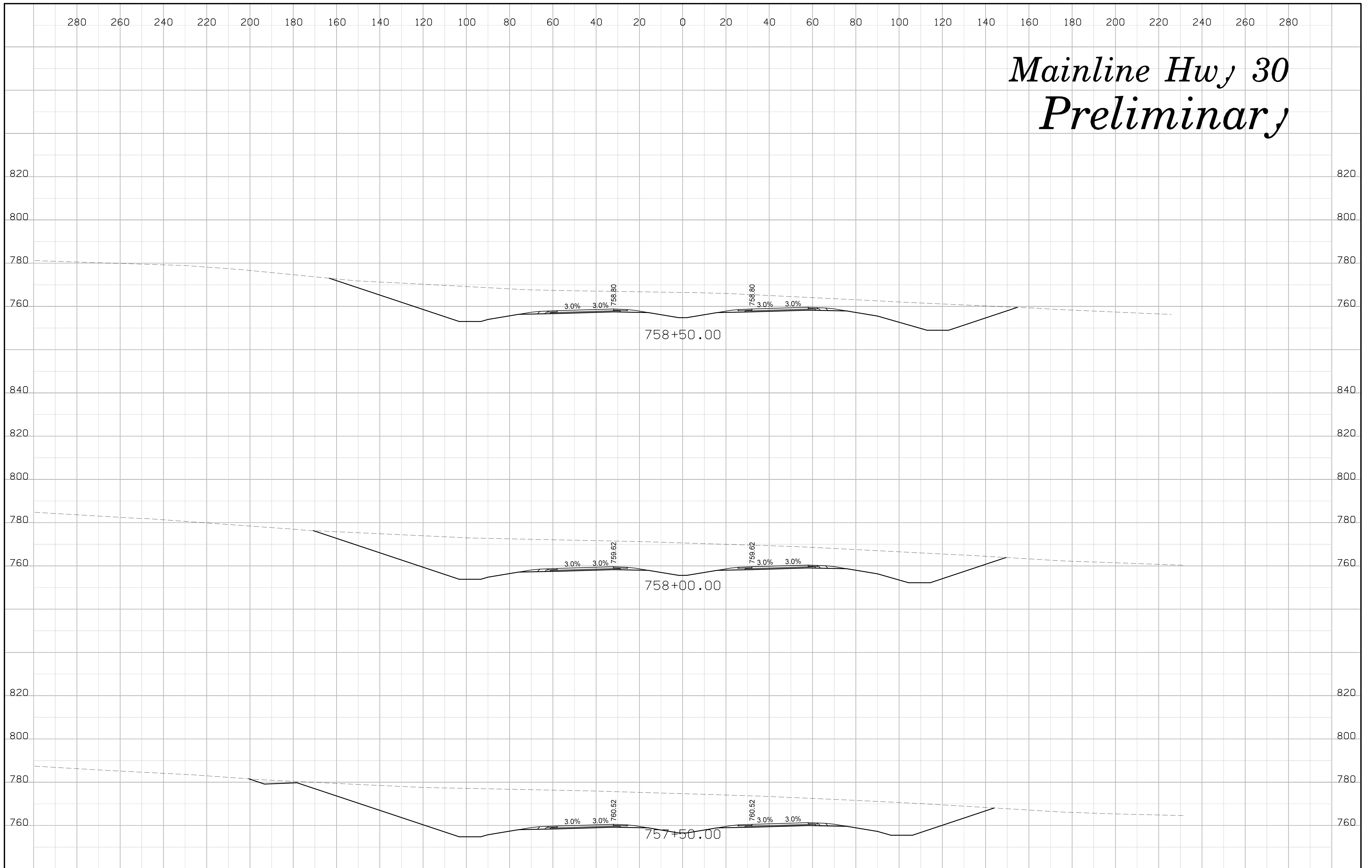




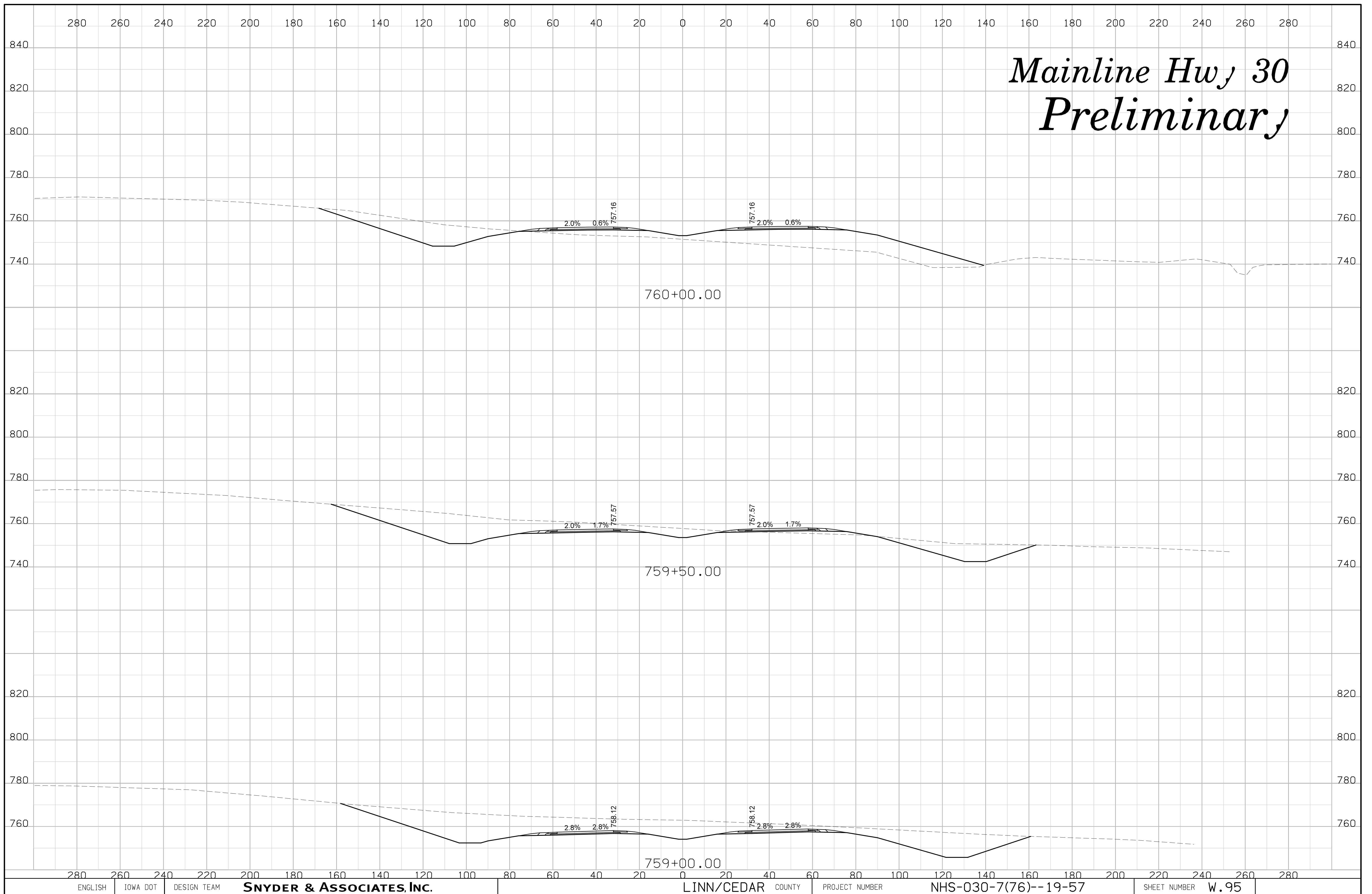
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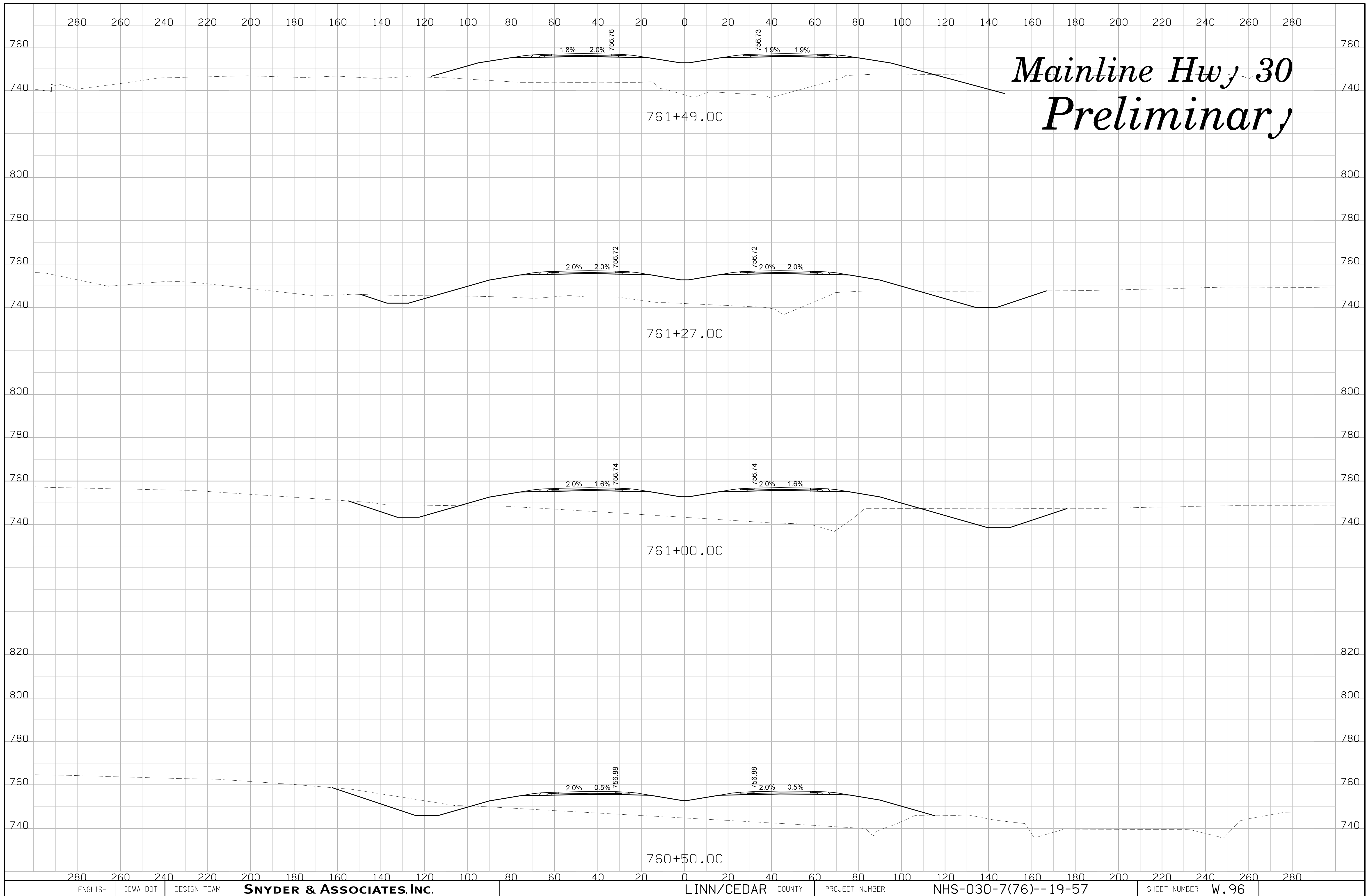


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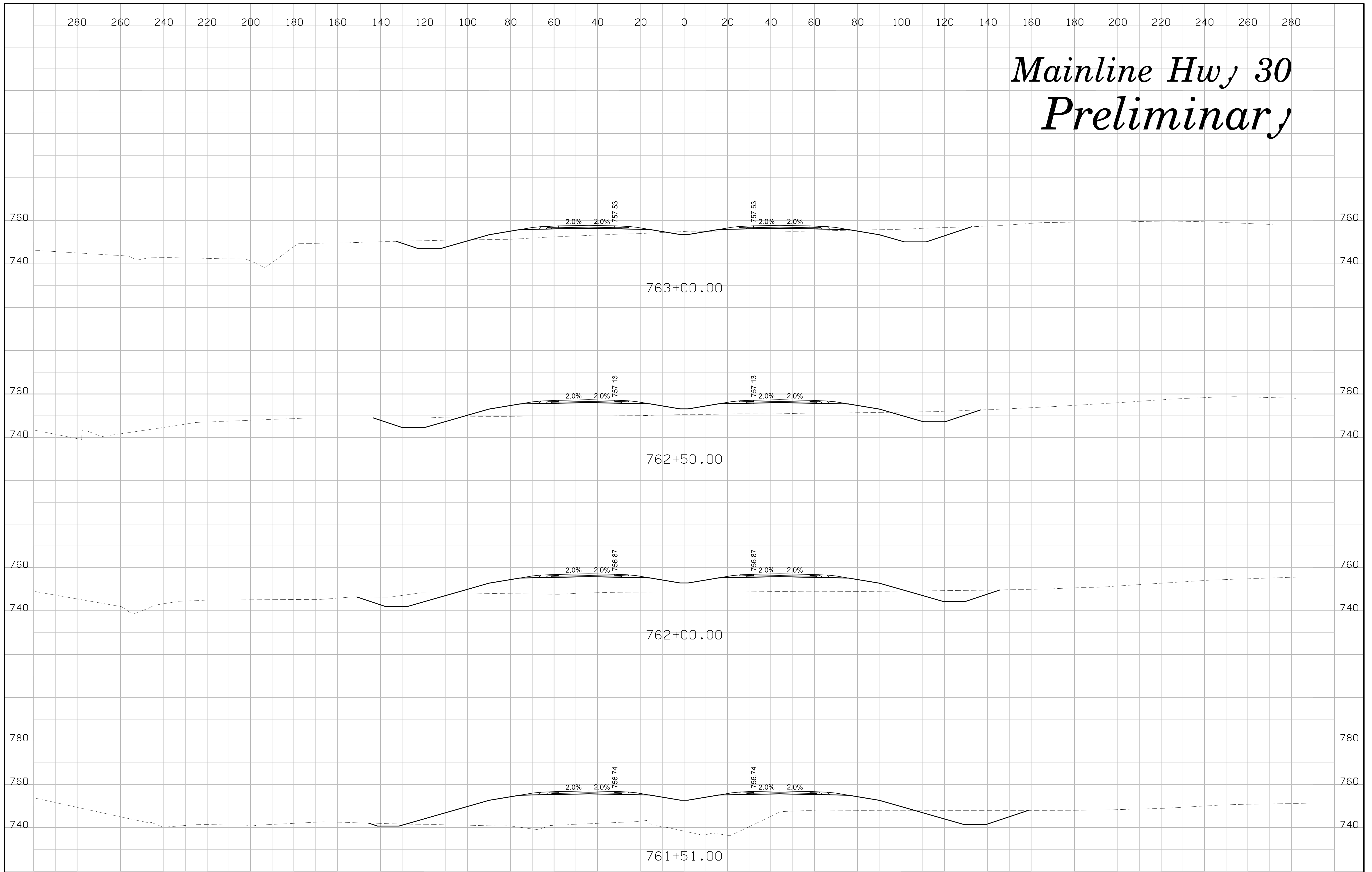
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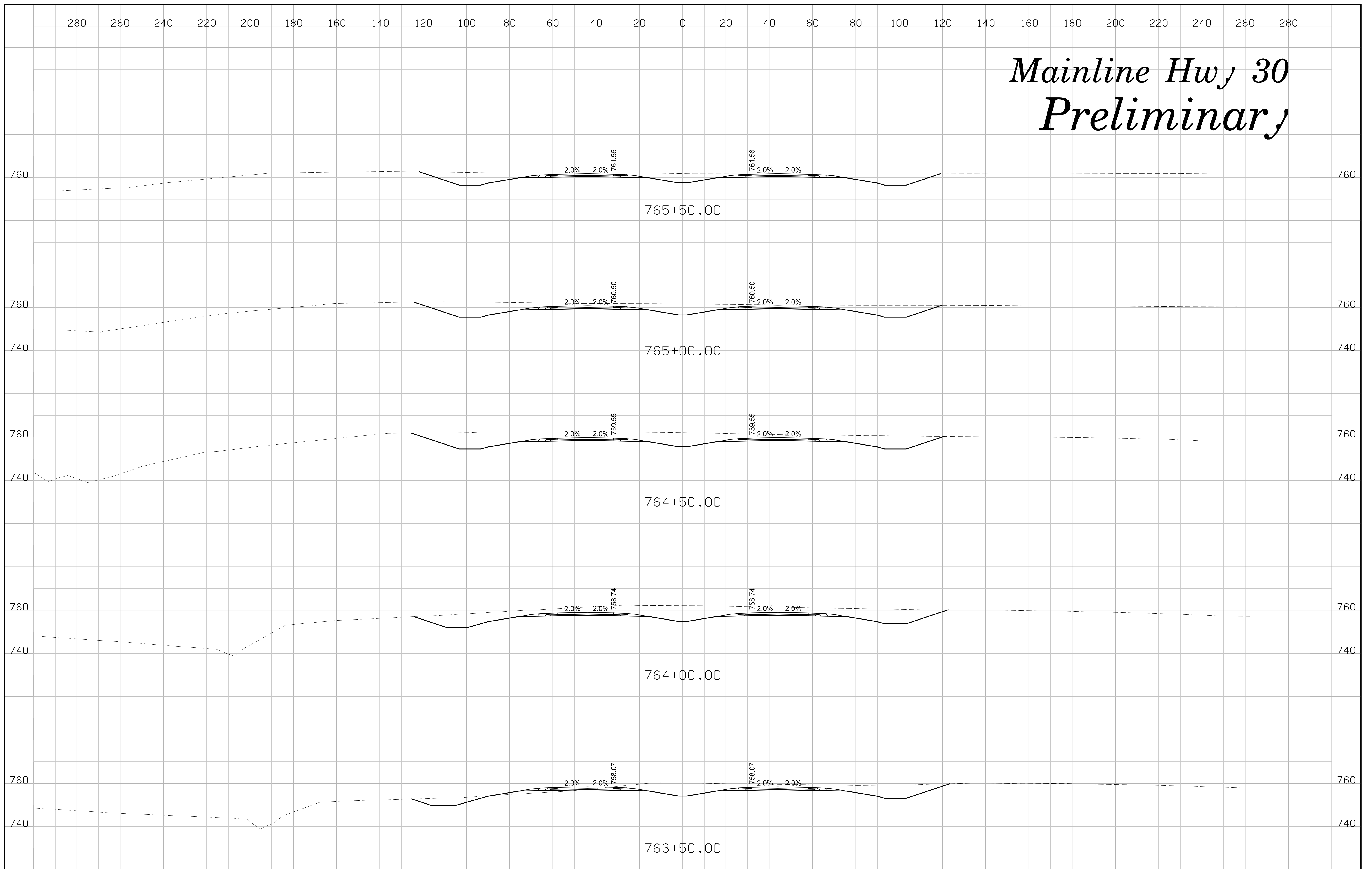




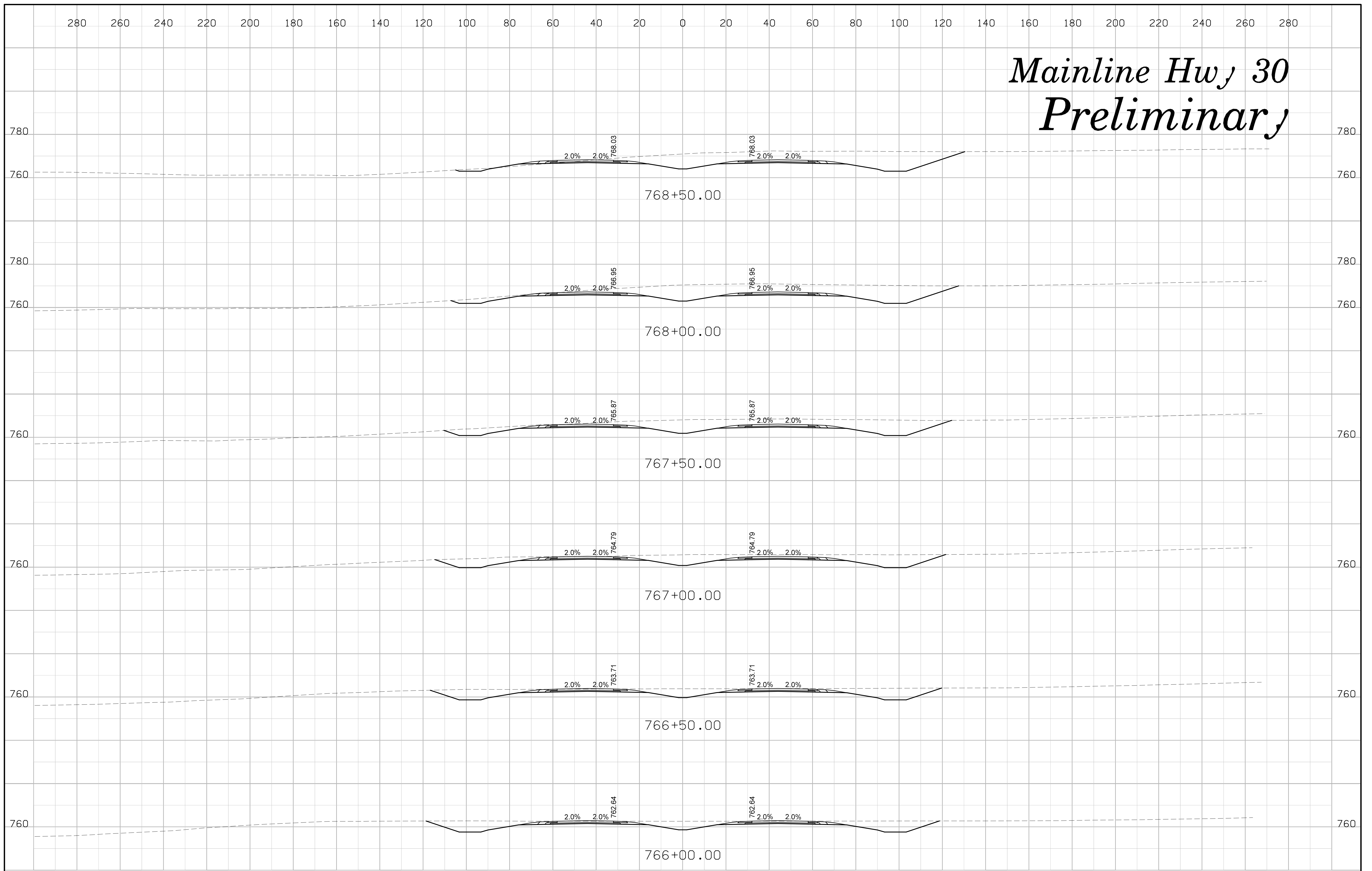
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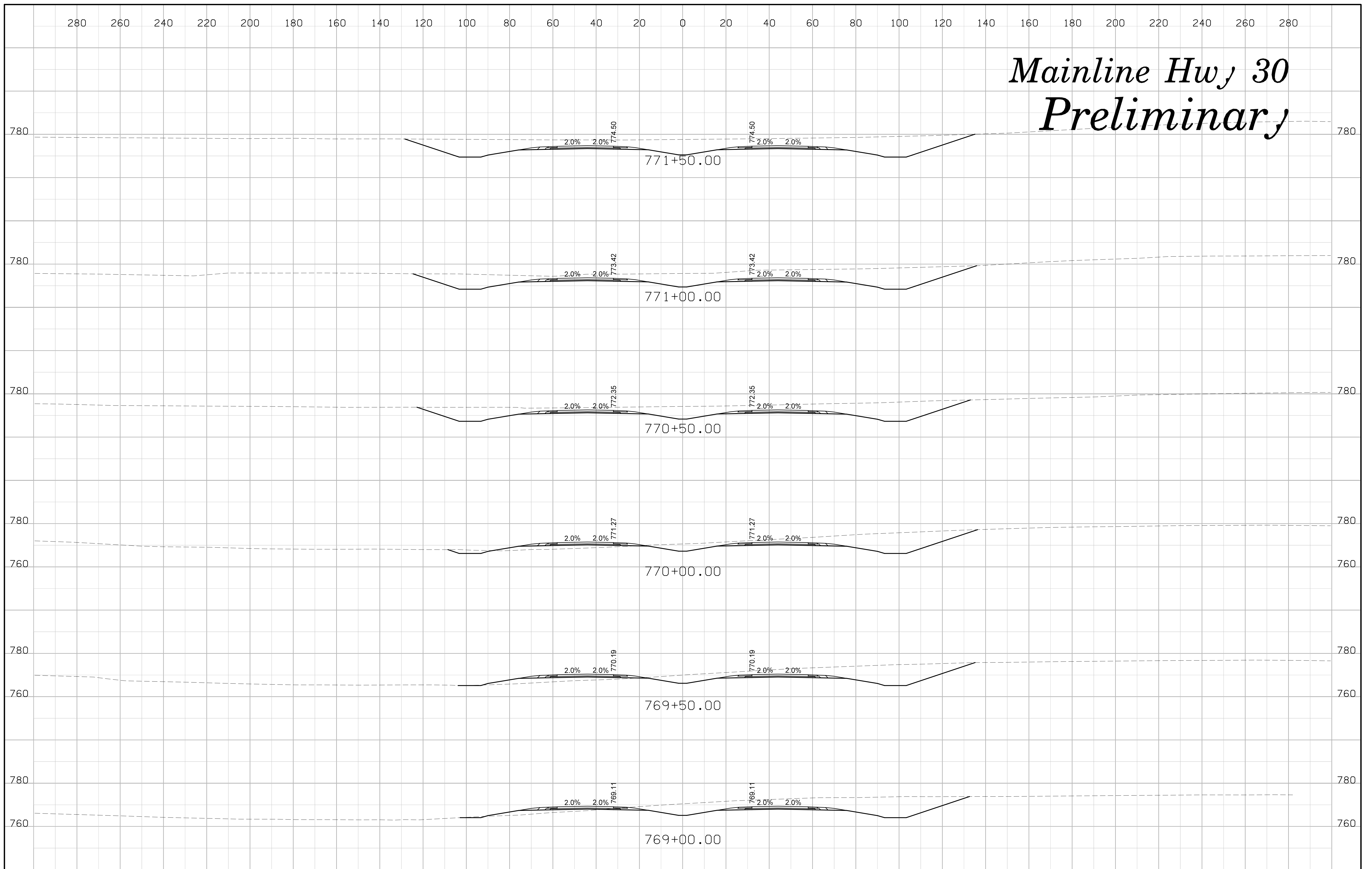
# Mainline Hwy 30 Preliminary



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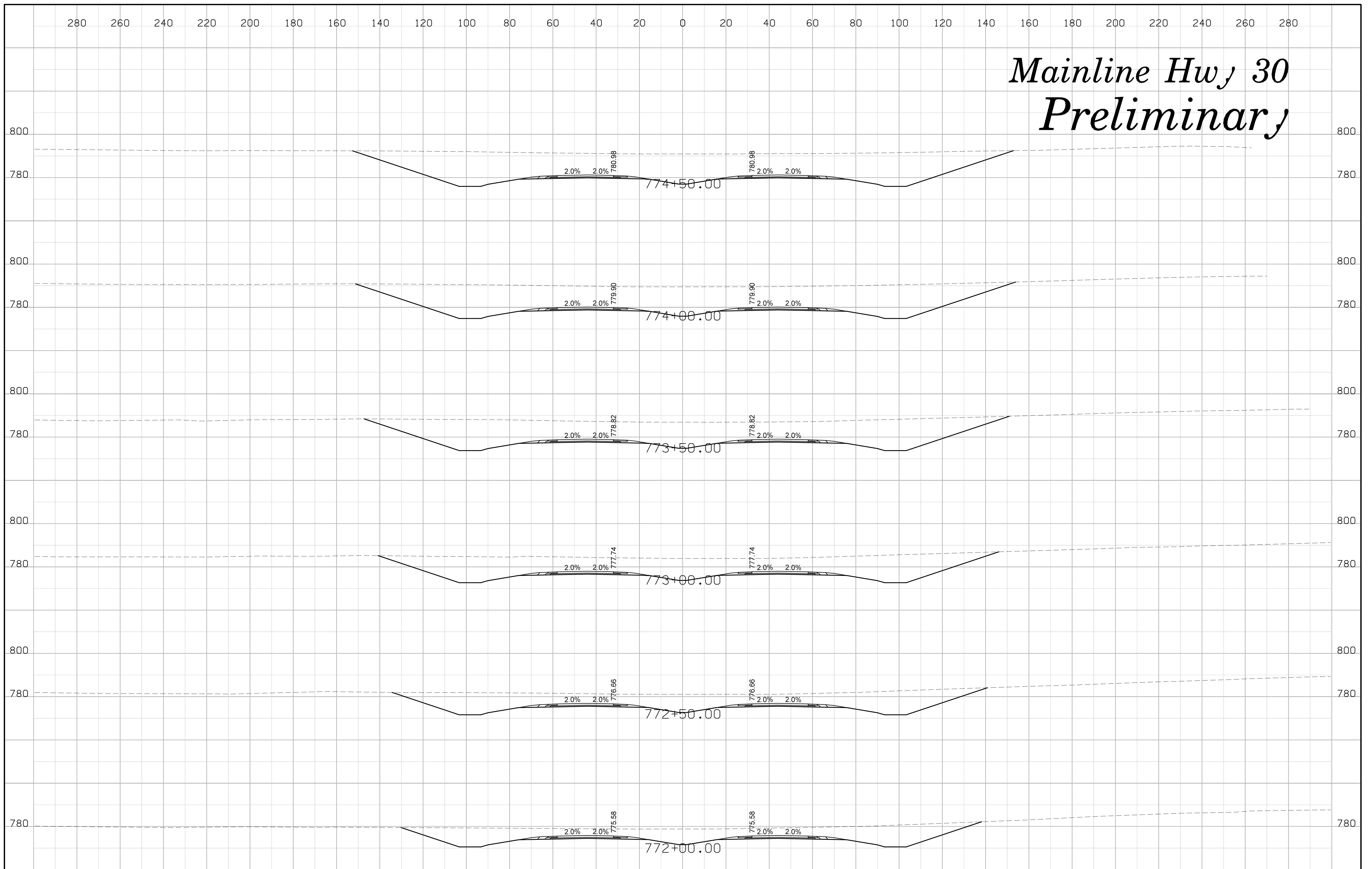


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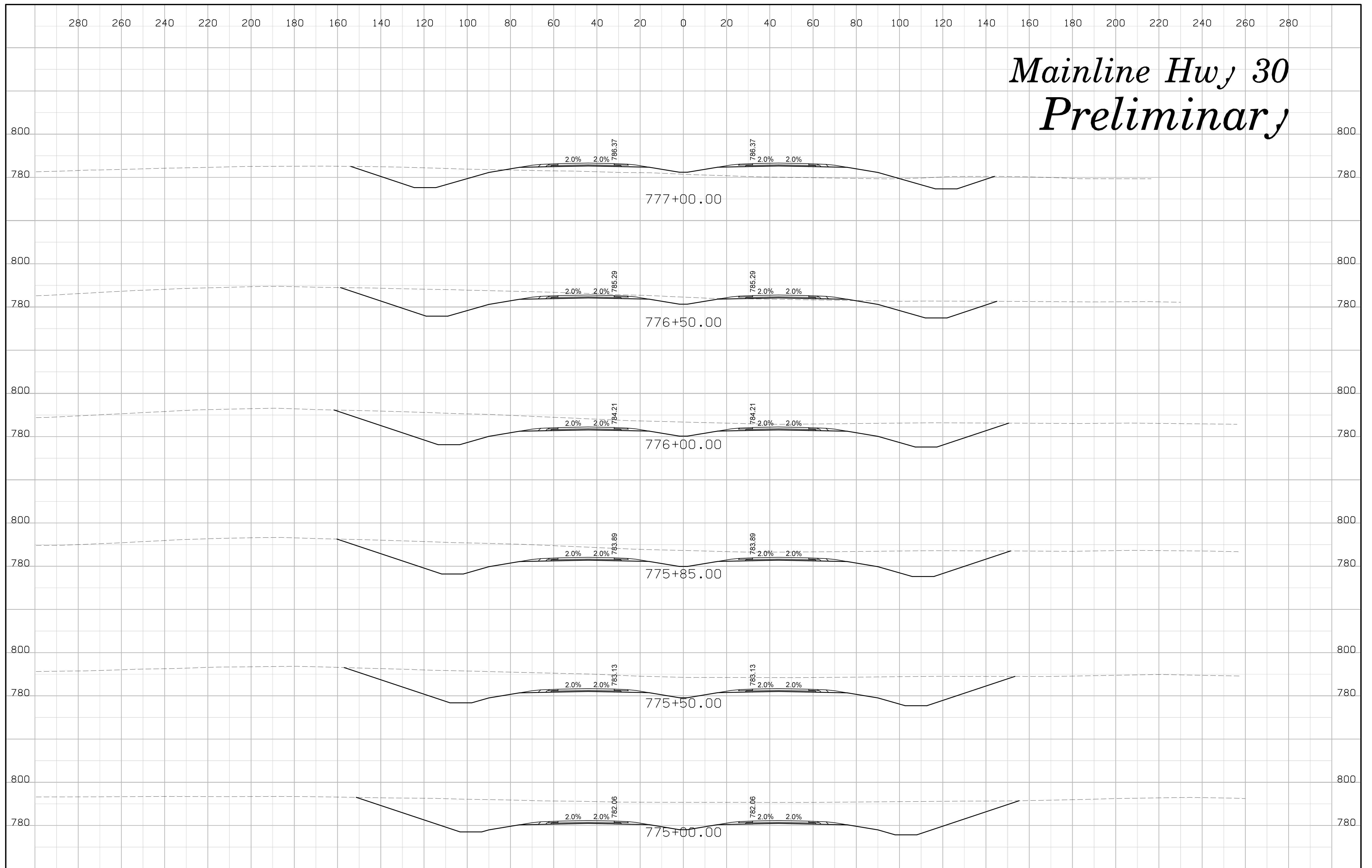




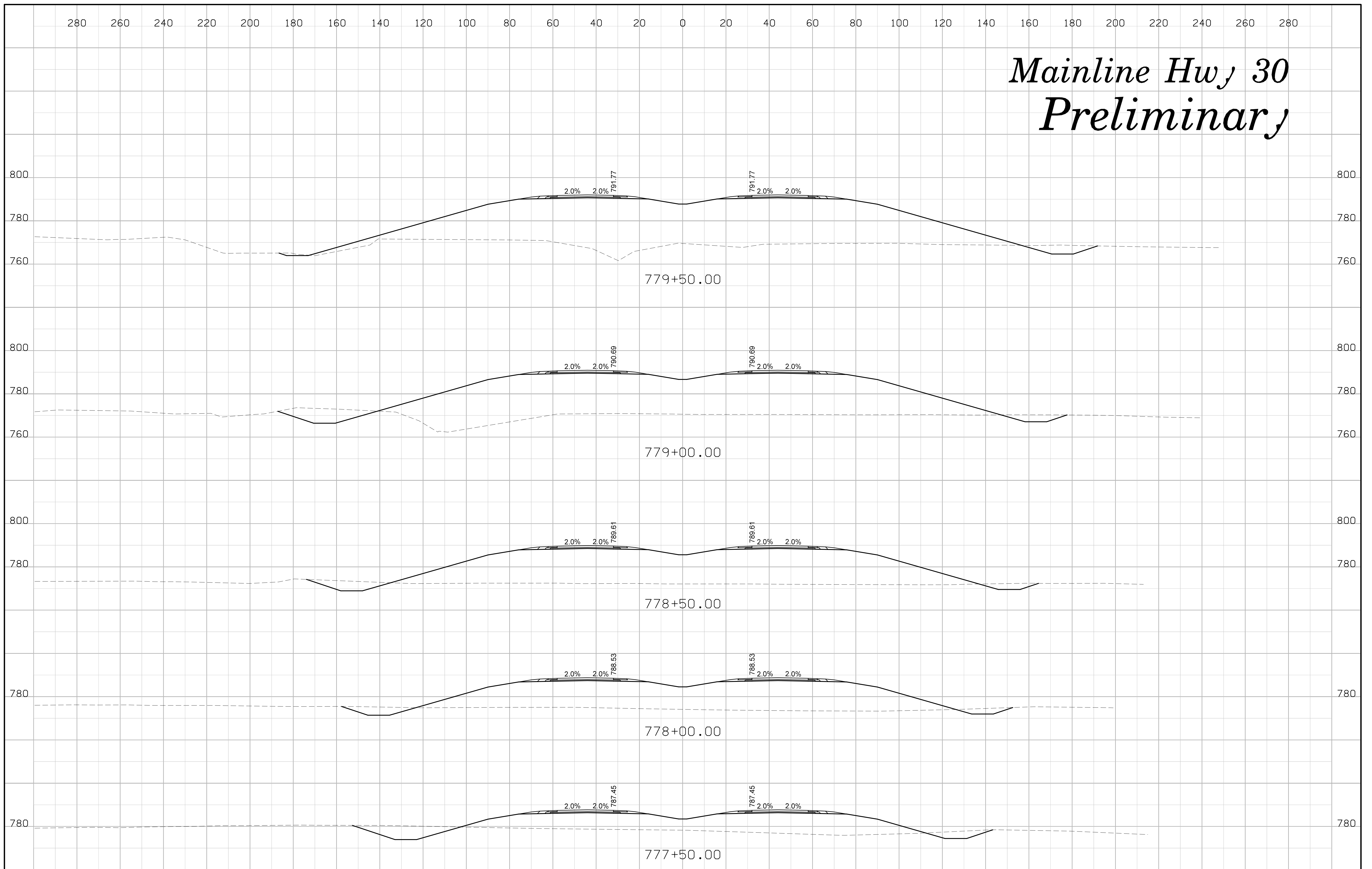
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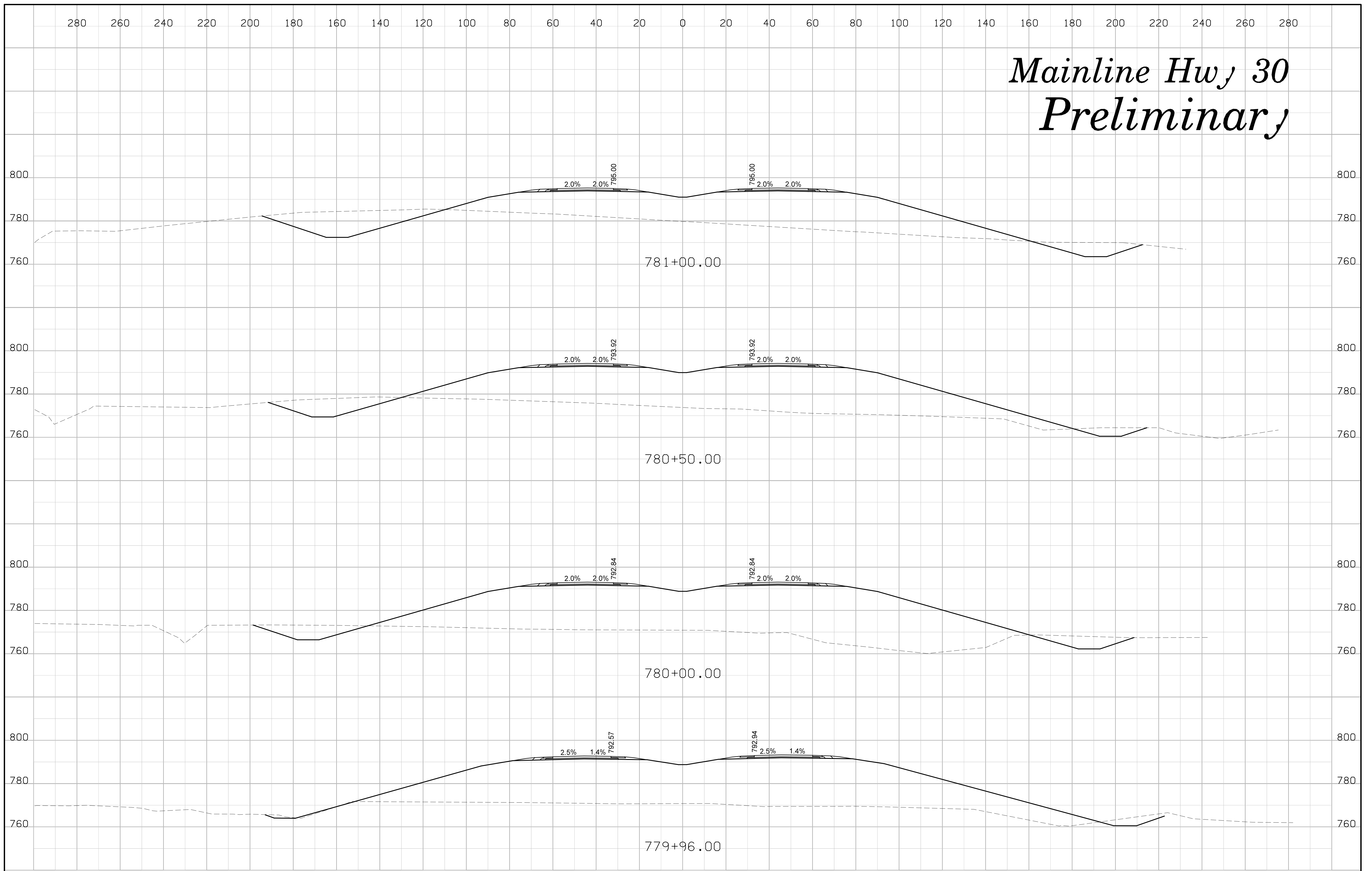
# Mainline Hwy 30 Preliminary



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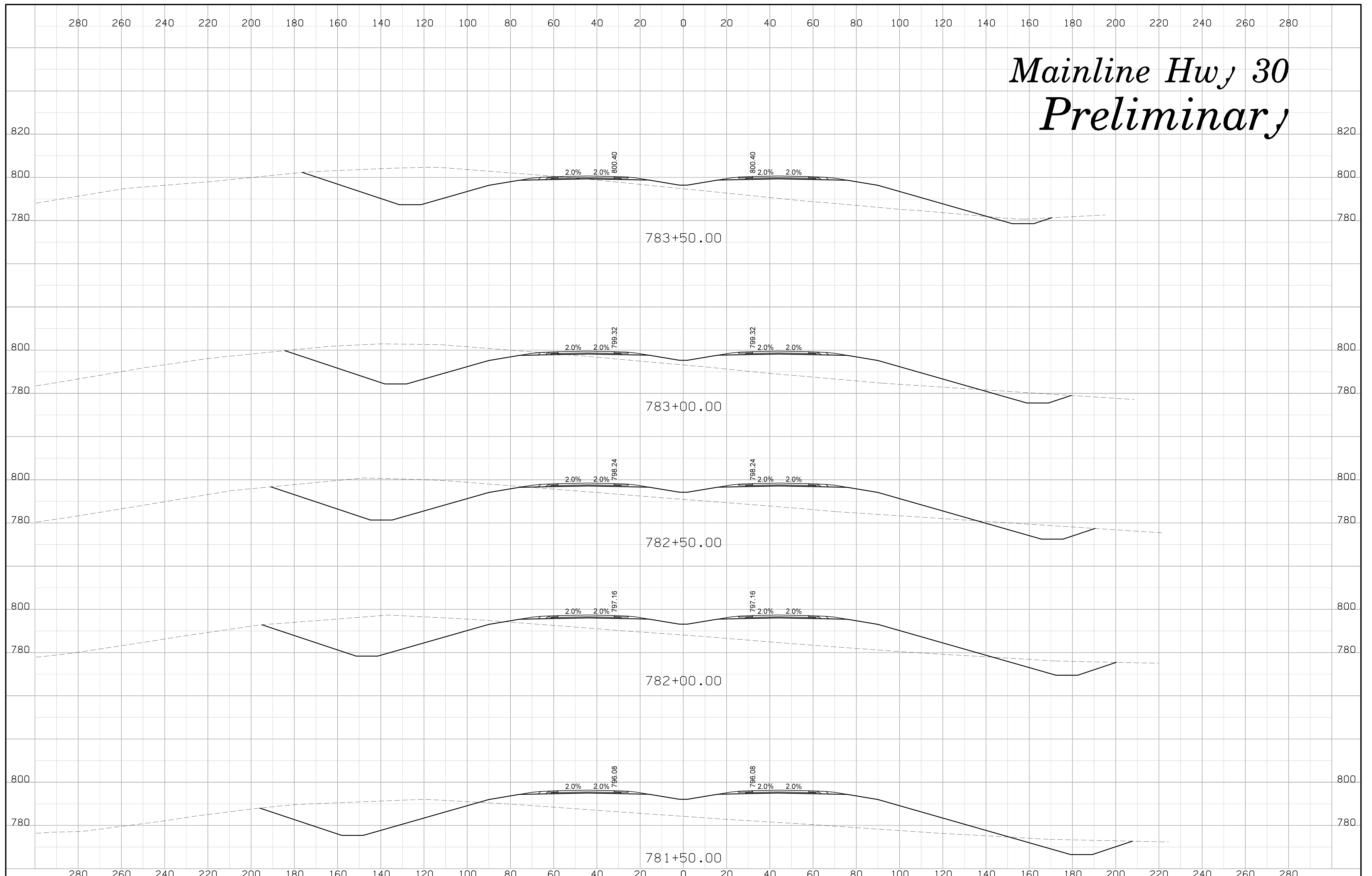


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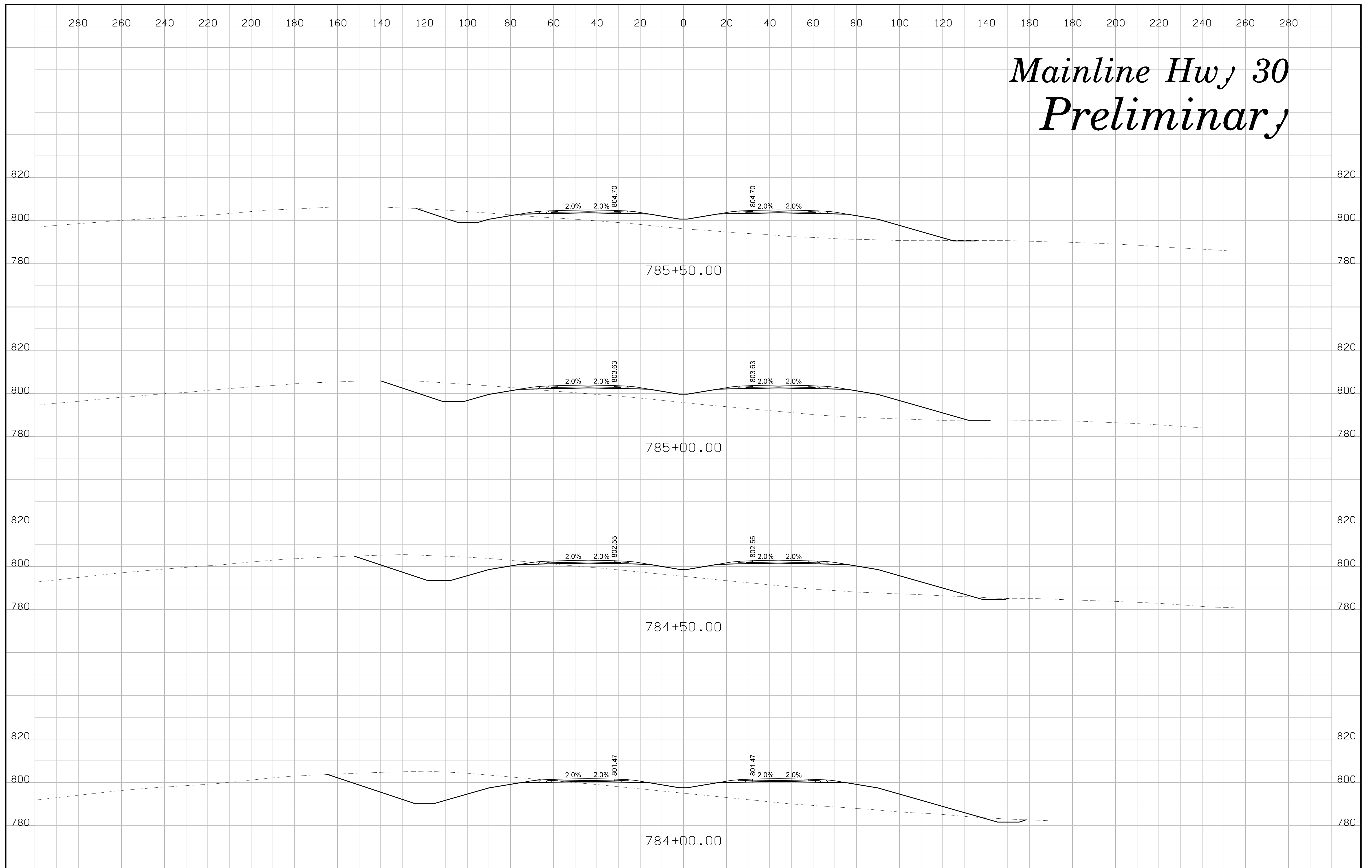




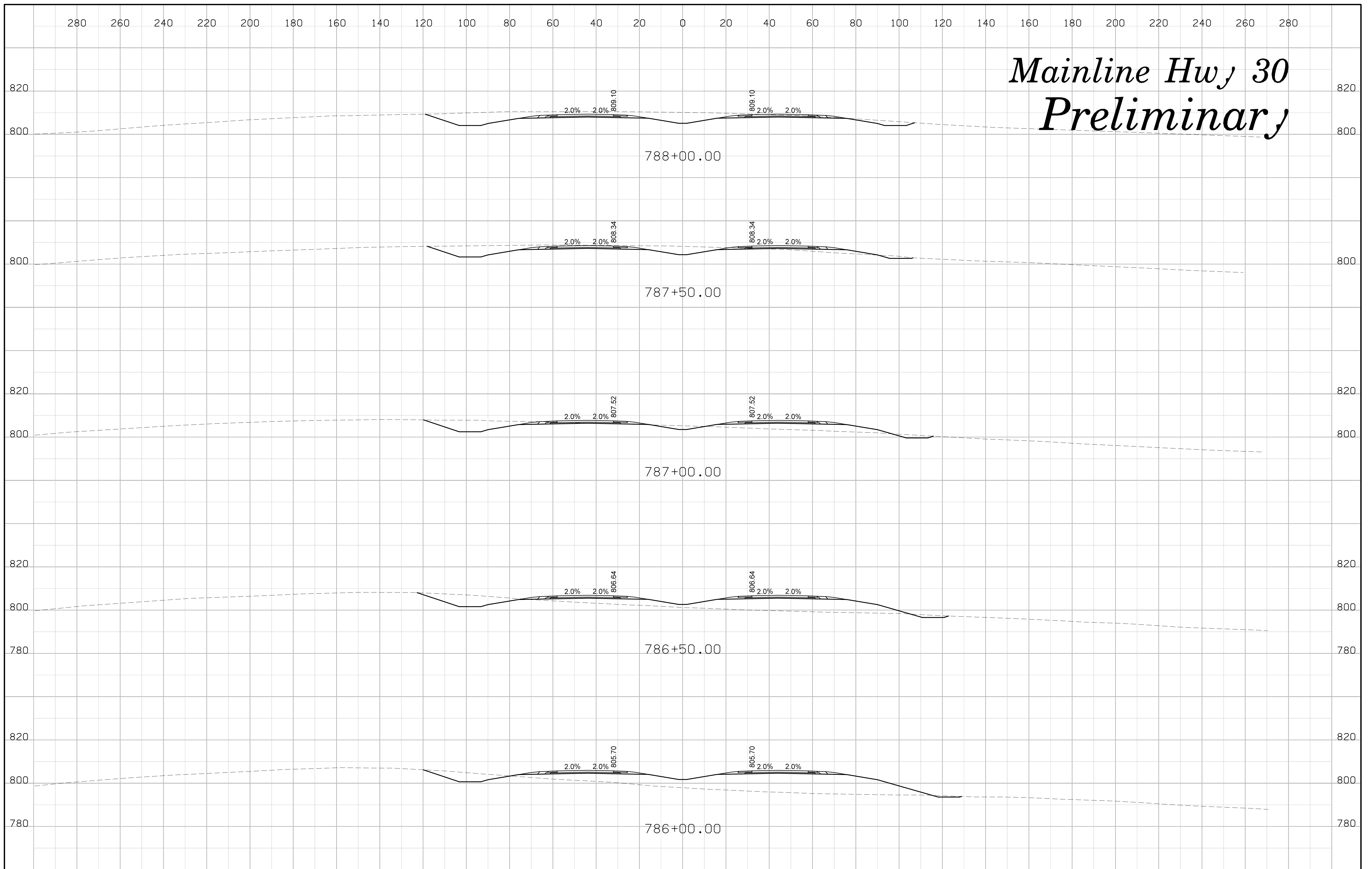
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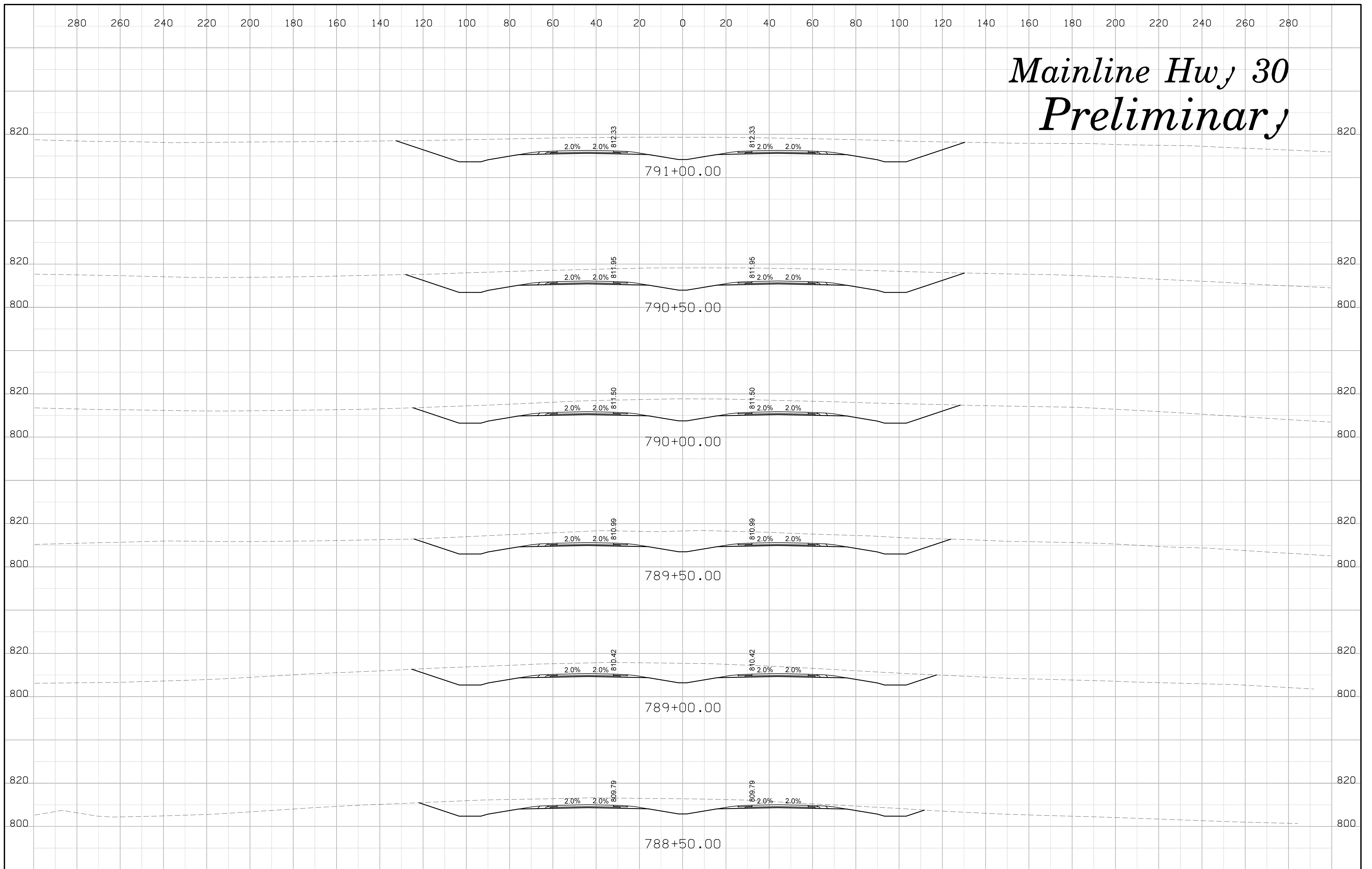
# Mainline Hwy 30 Preliminary



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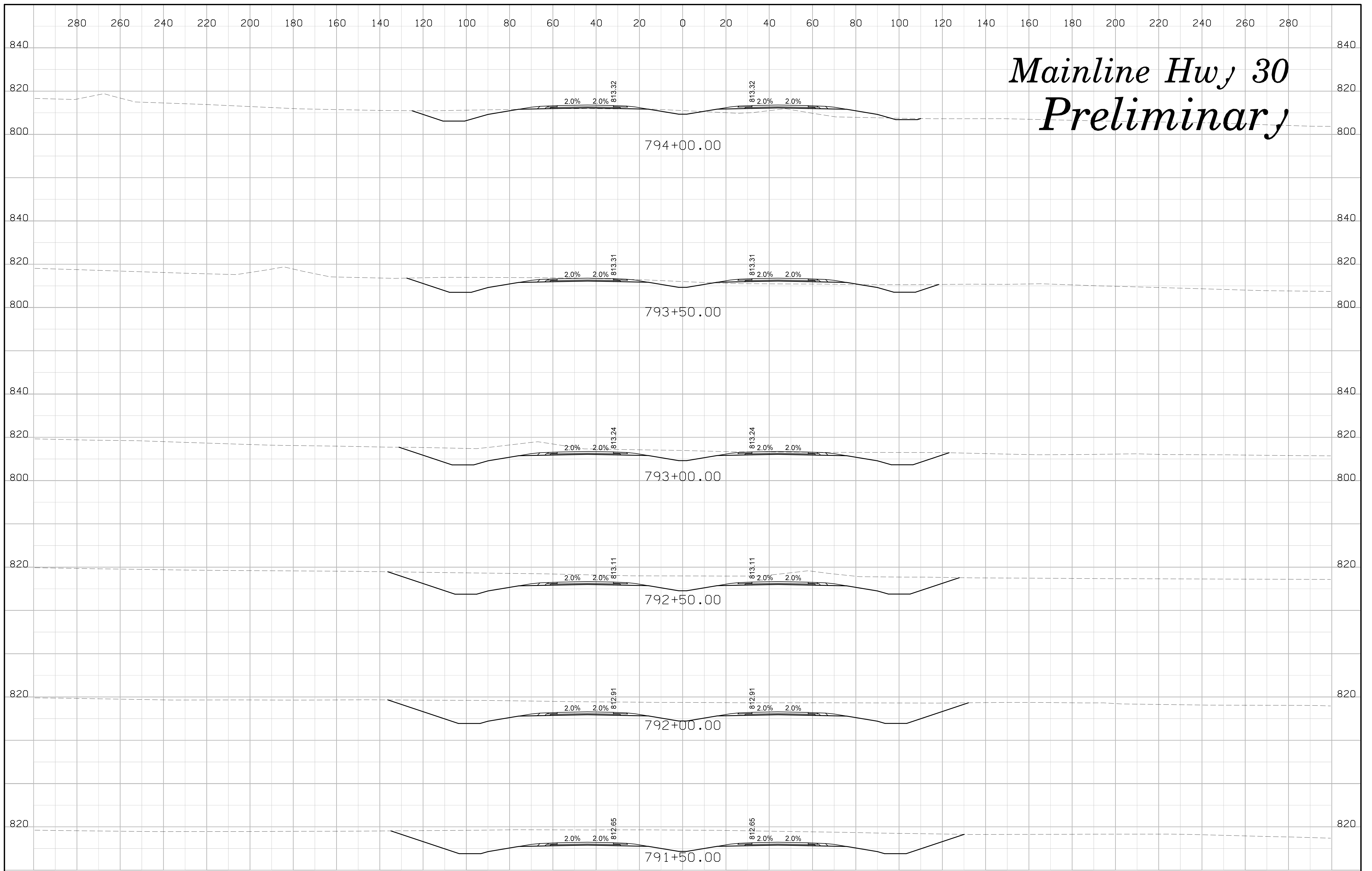


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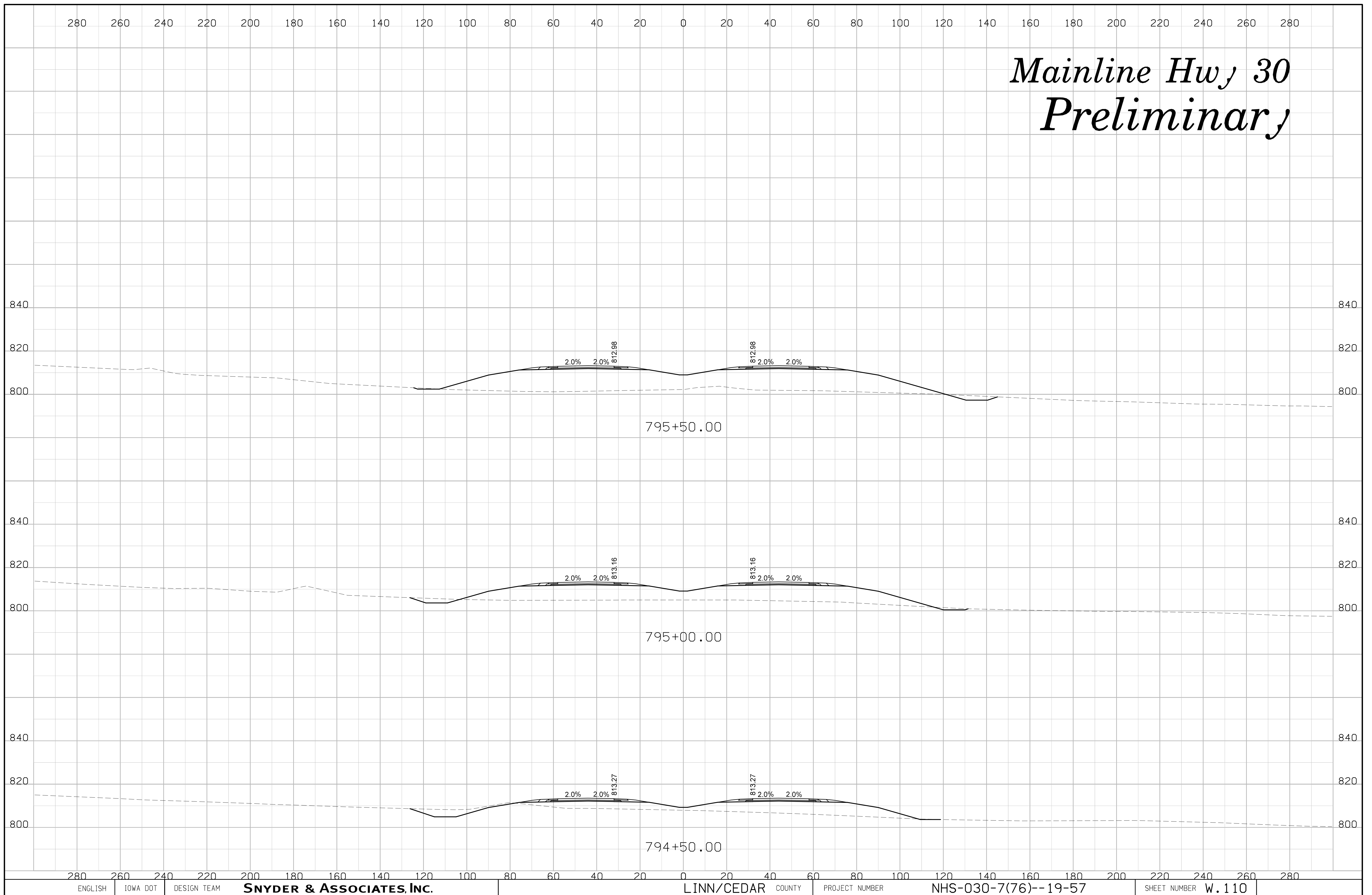




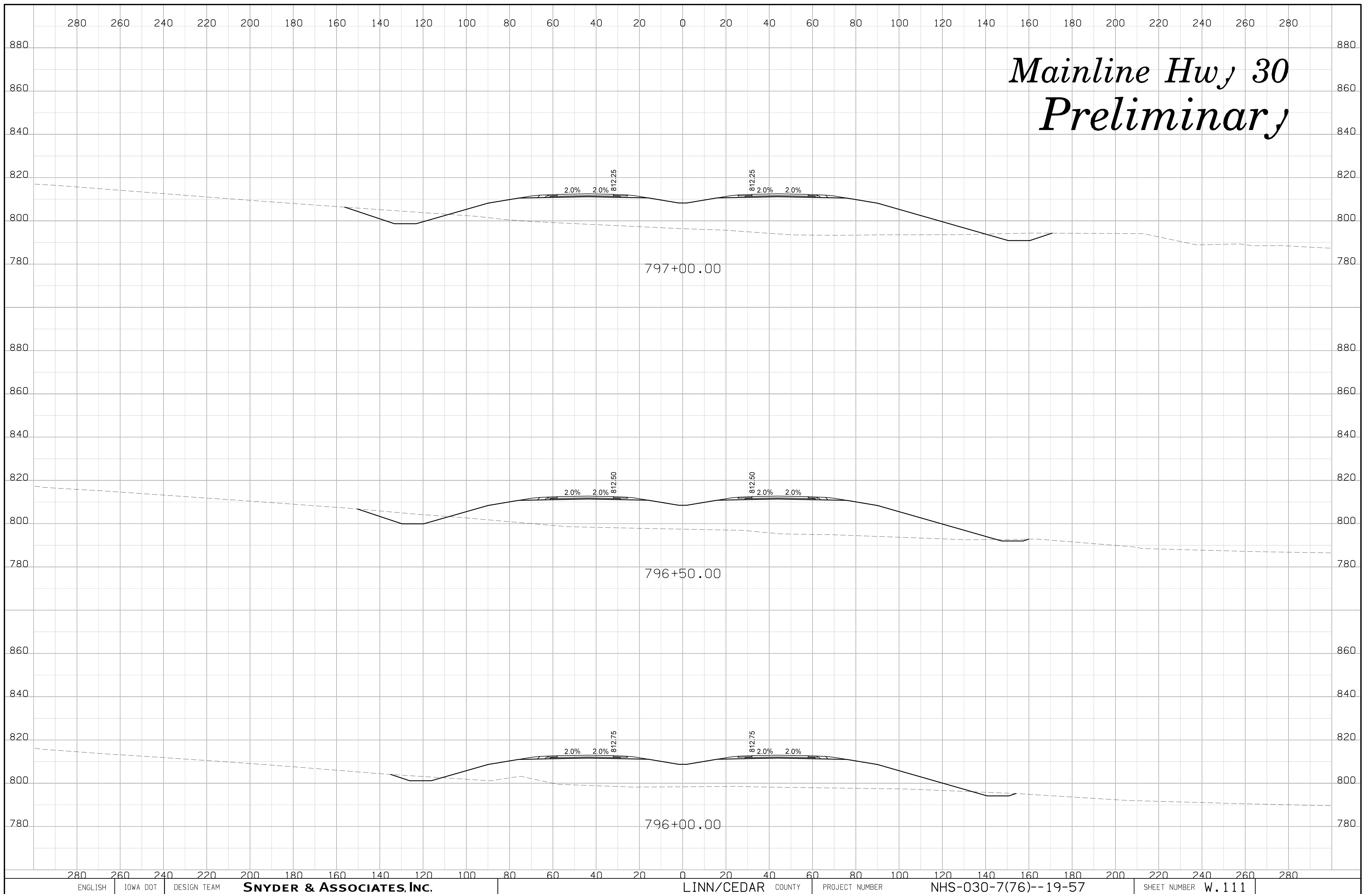
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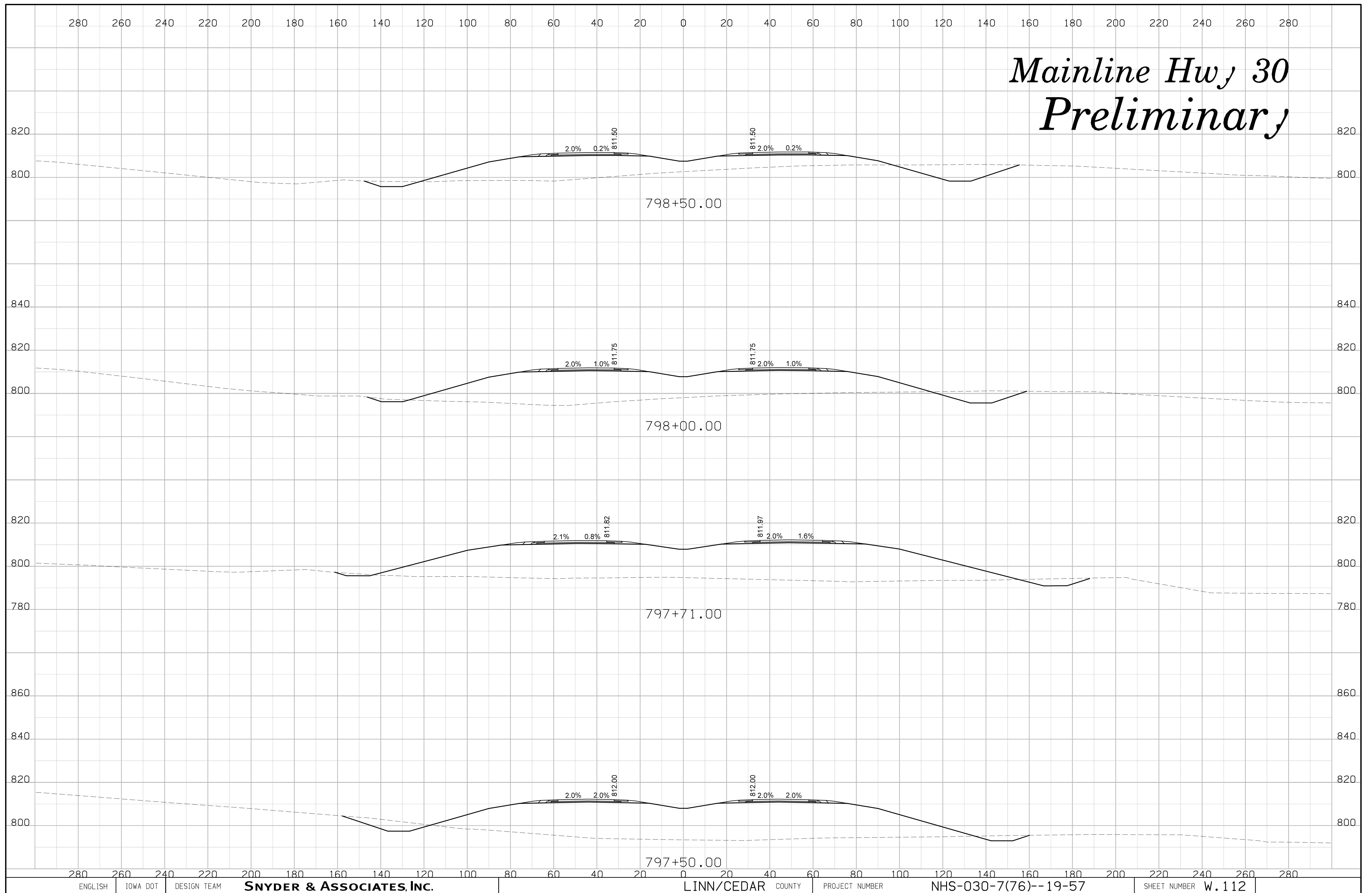
# Mainline Hwy 30 Preliminary



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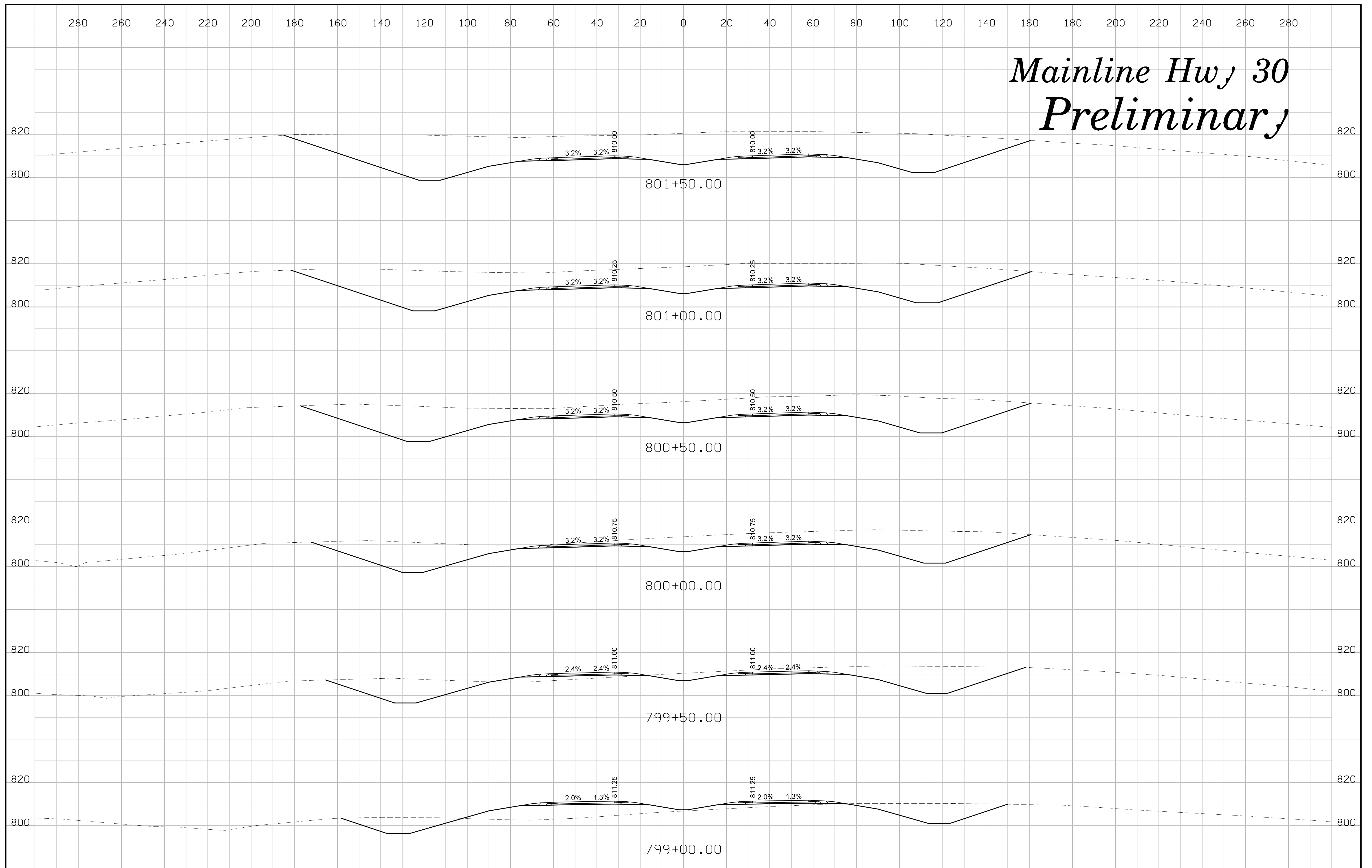


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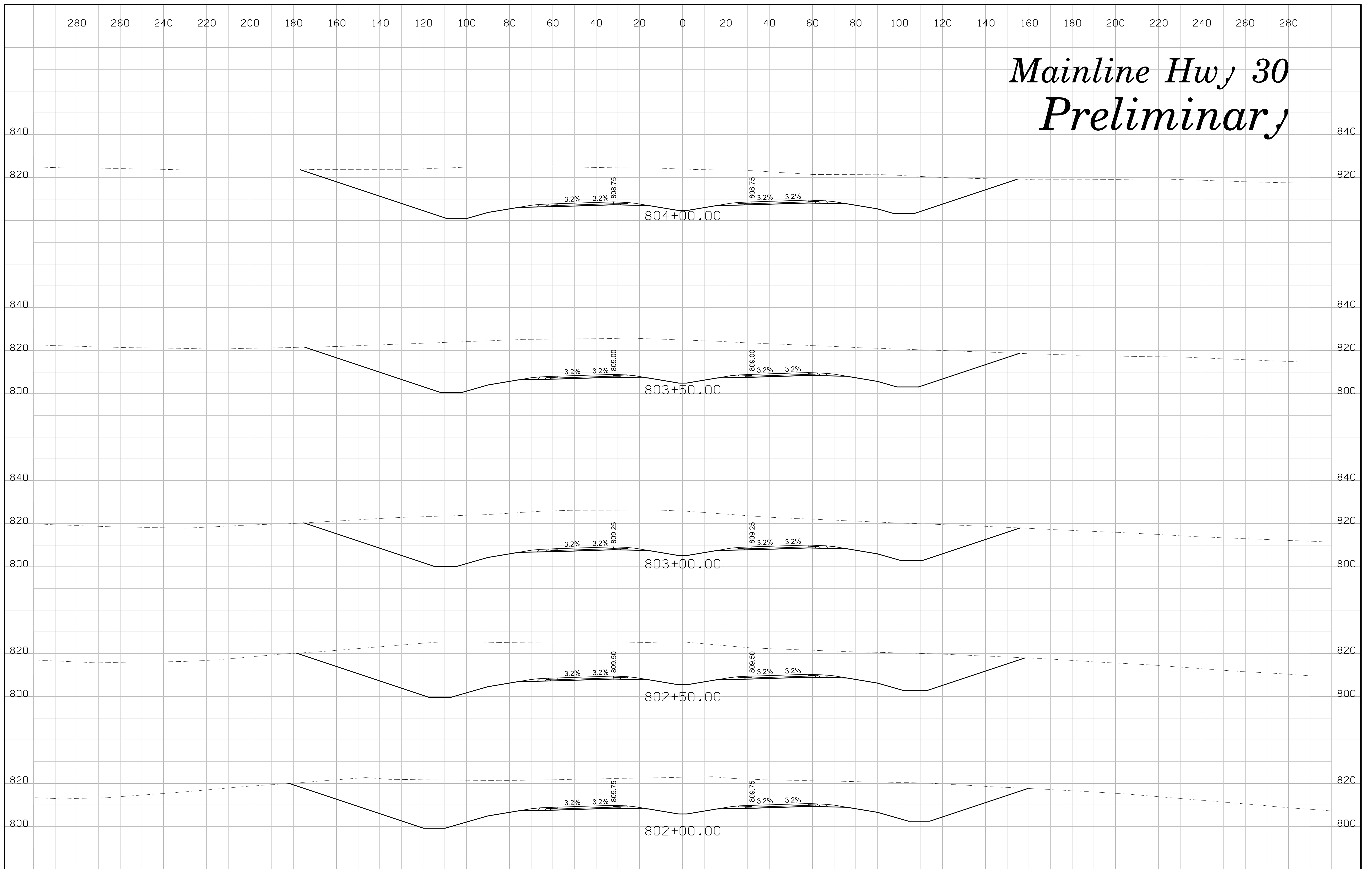




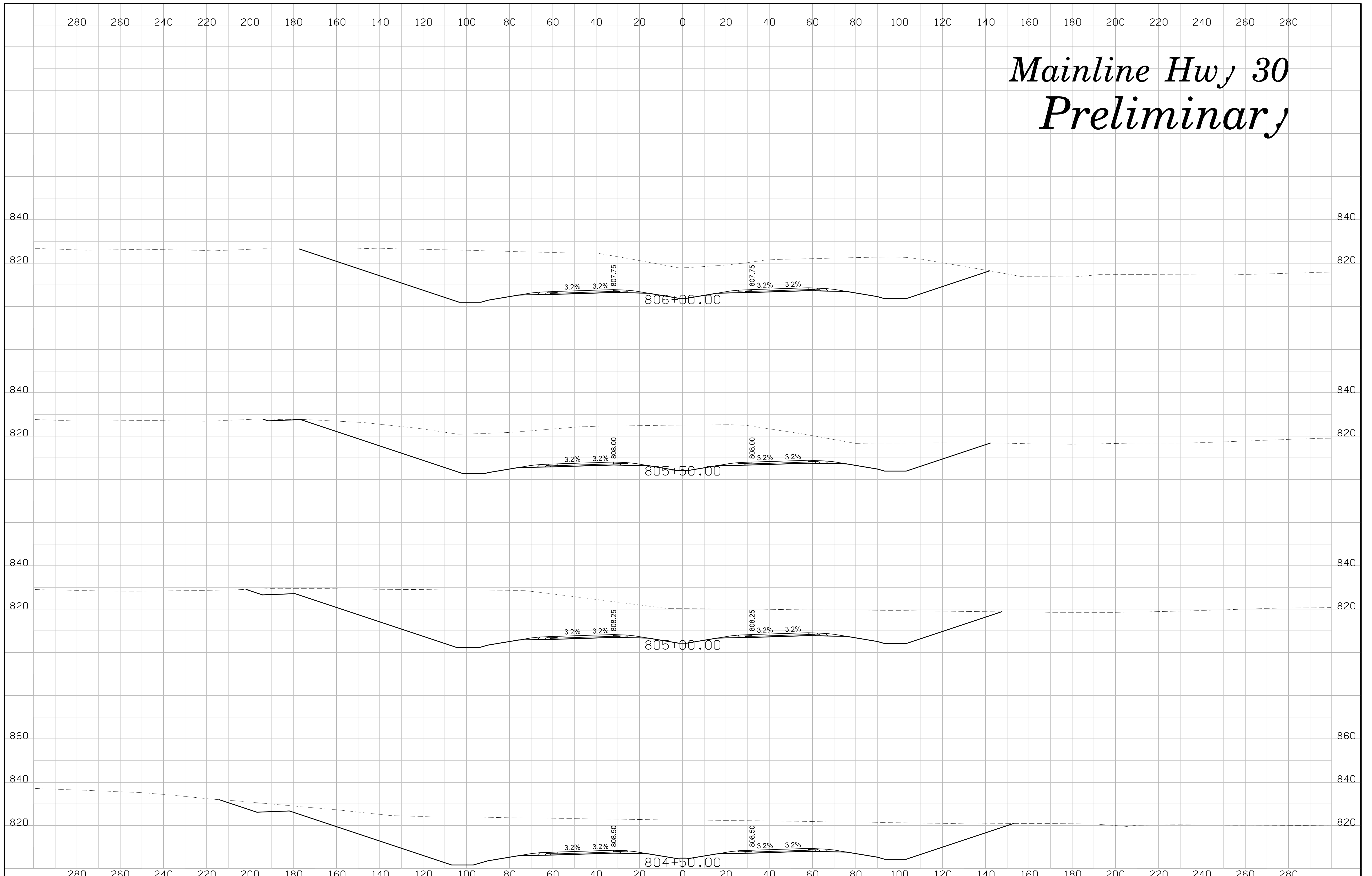
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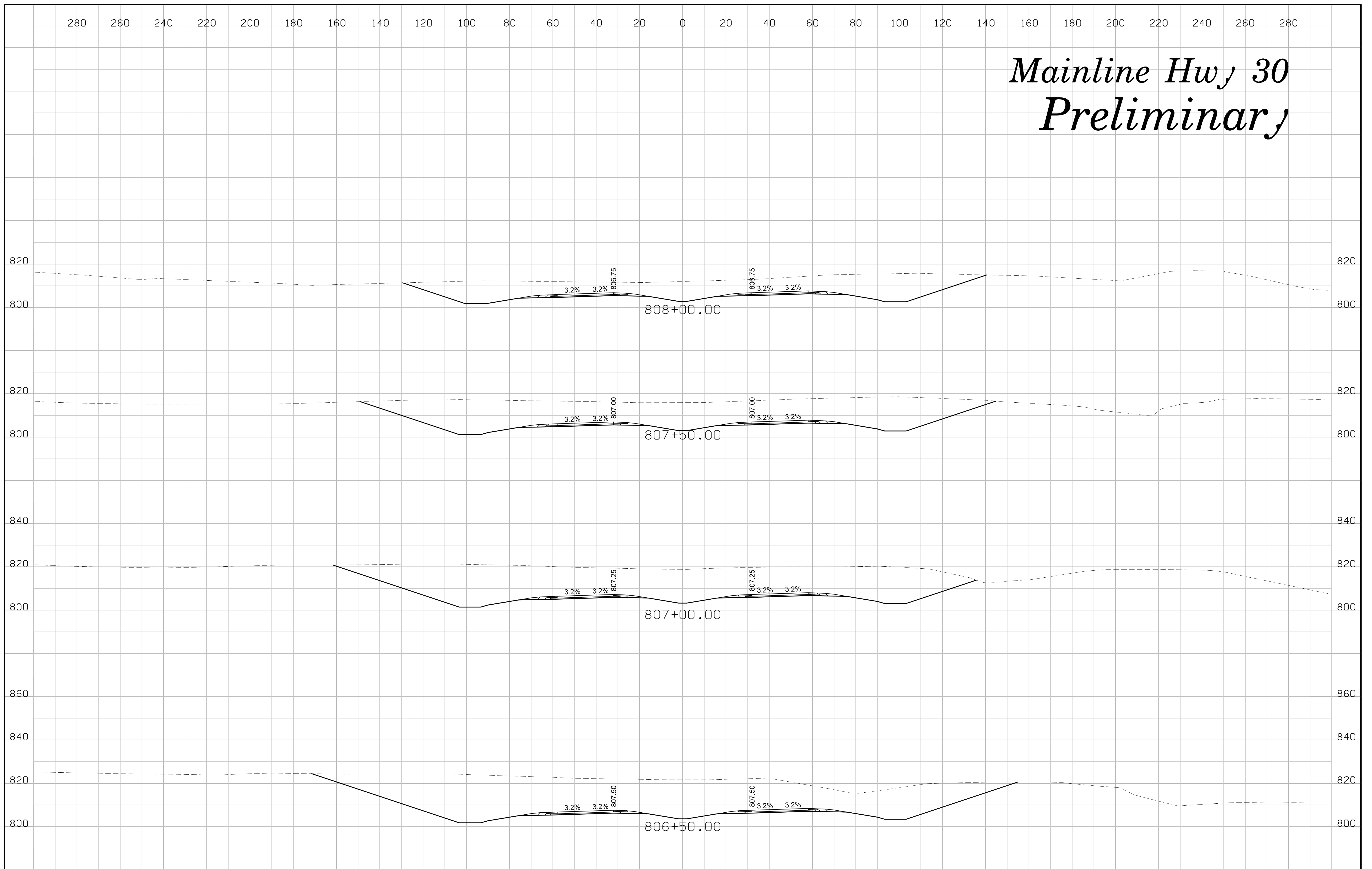
# Mainline Hwy 30 Preliminary



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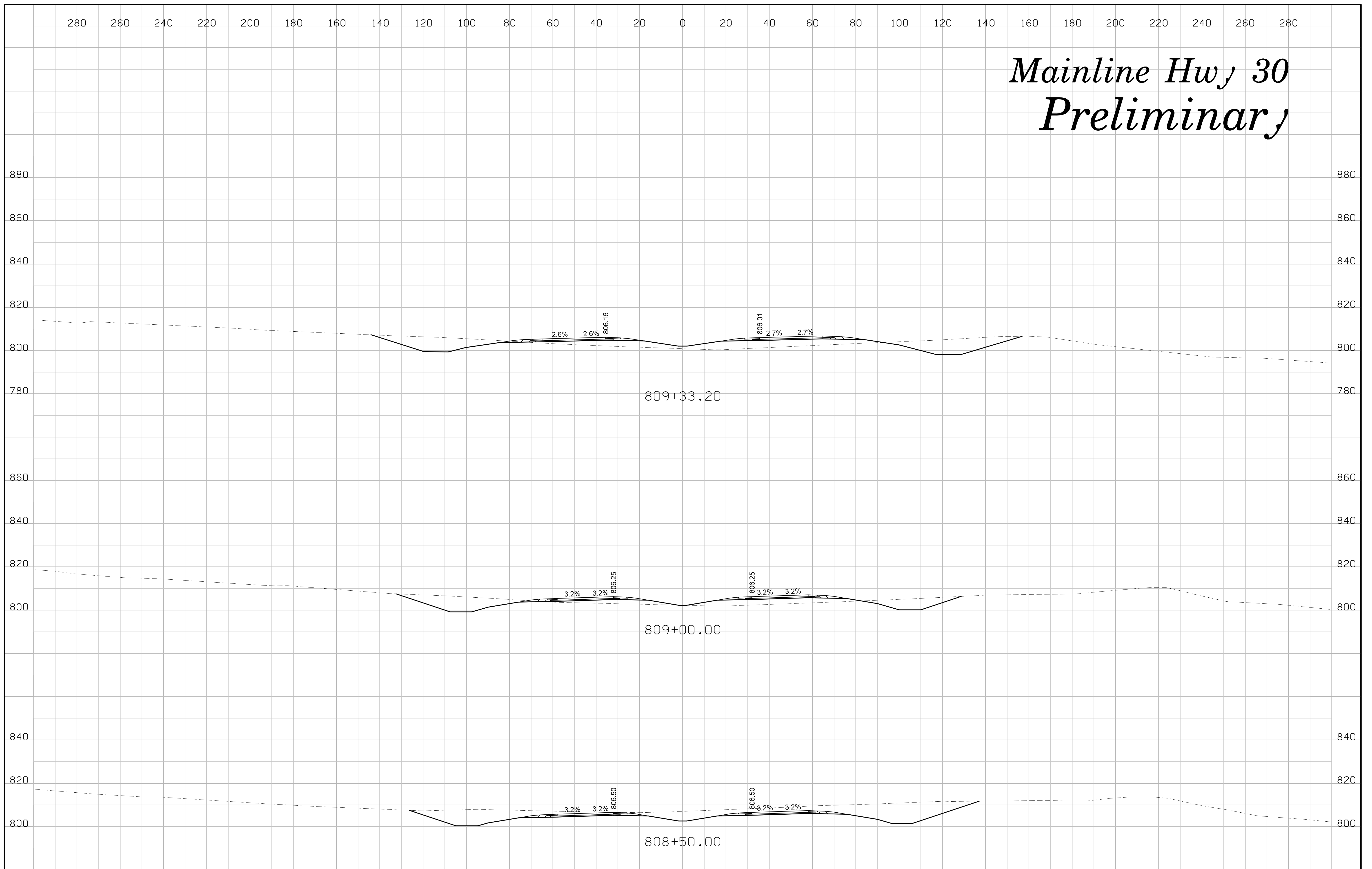


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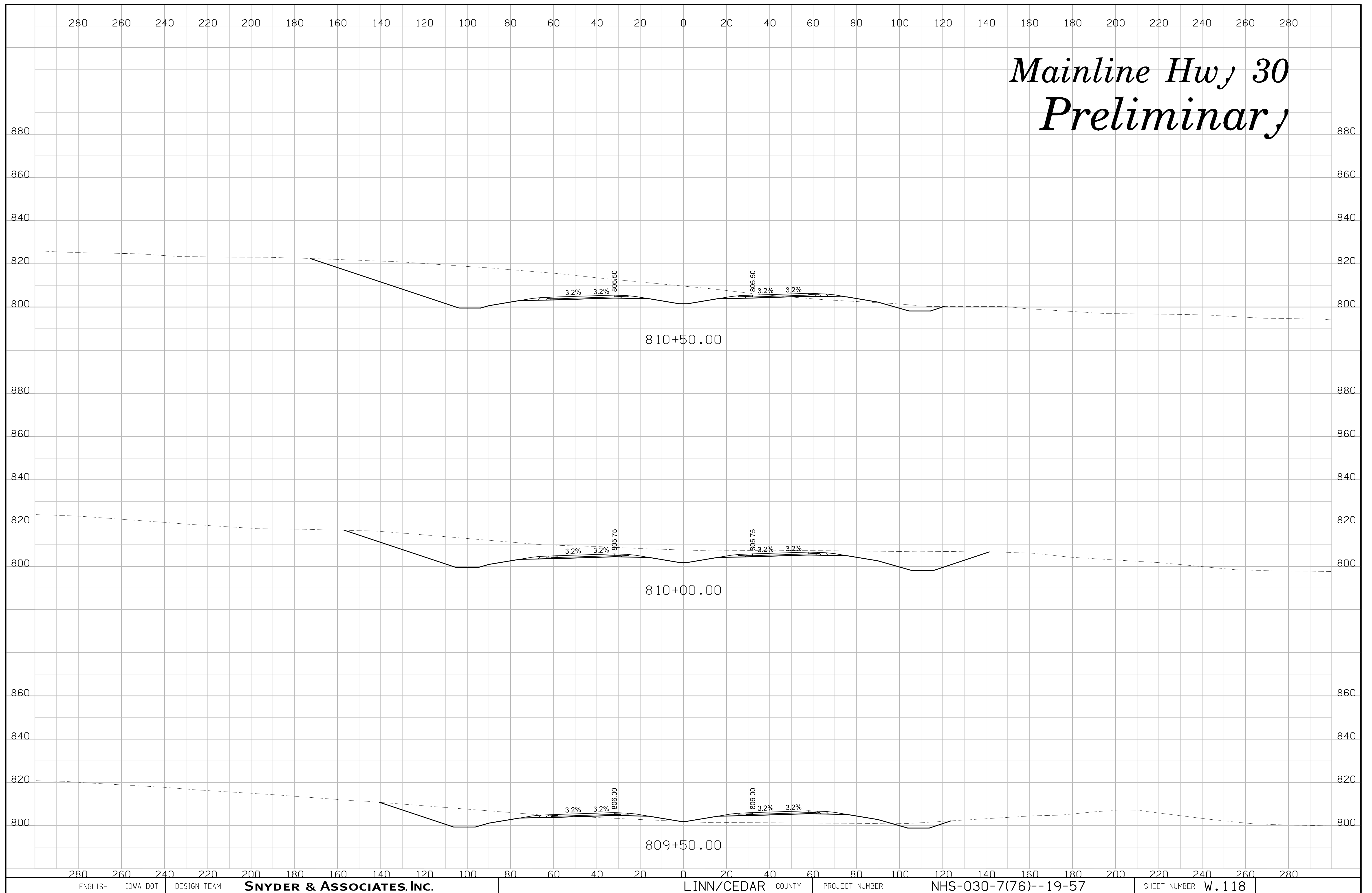




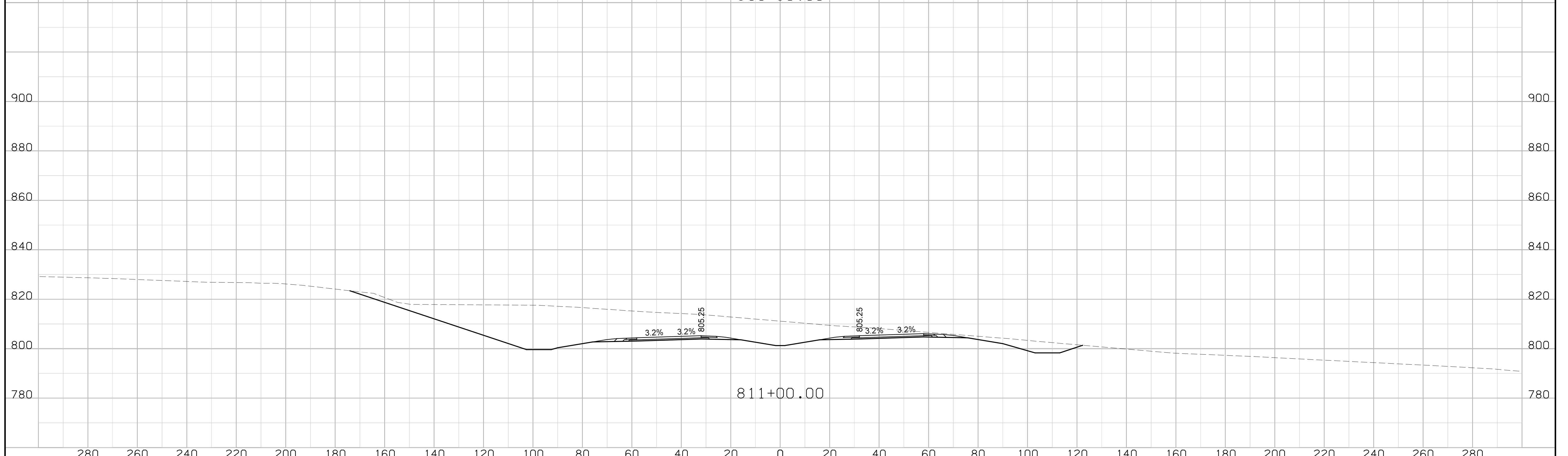
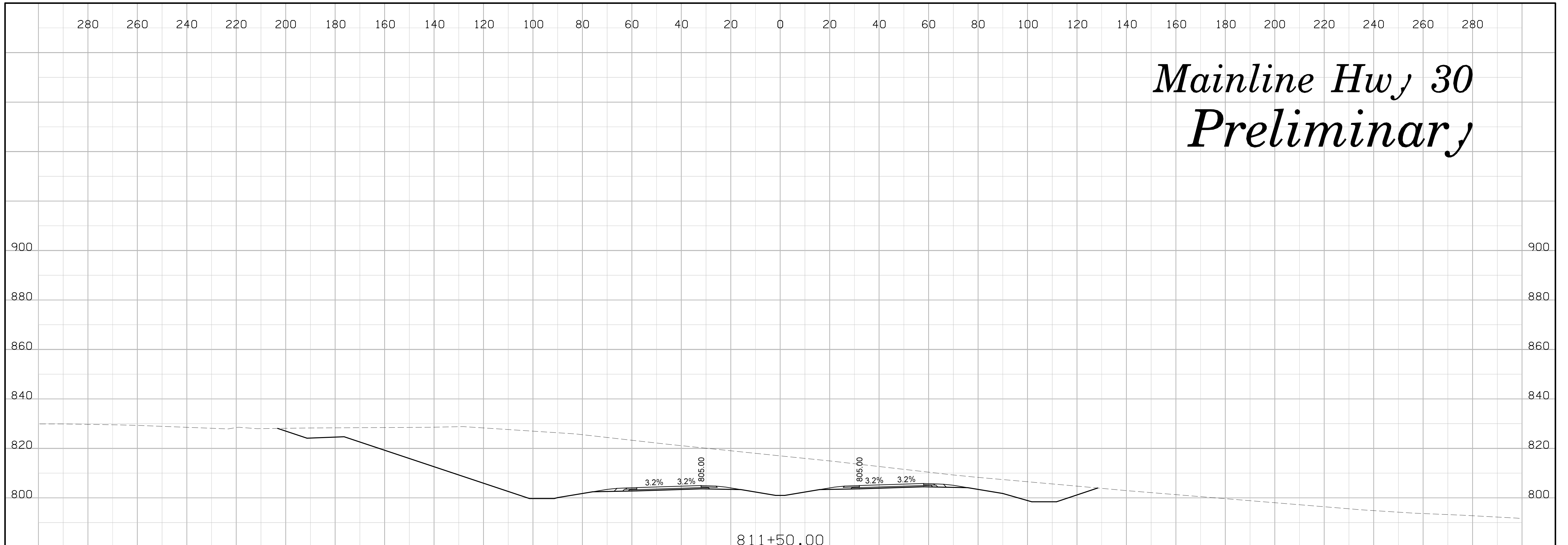
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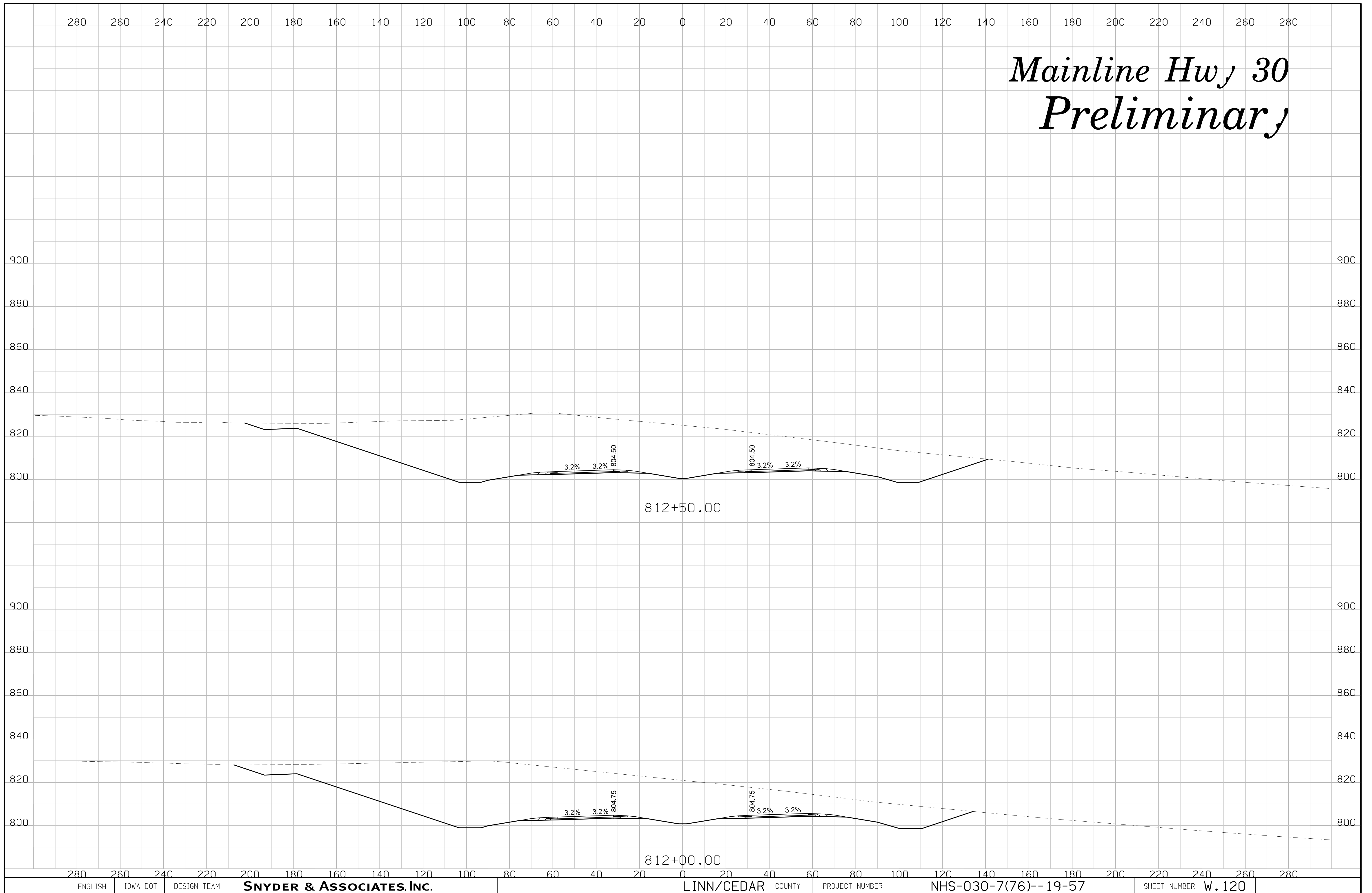
# Mainline Hwy 30 Preliminary



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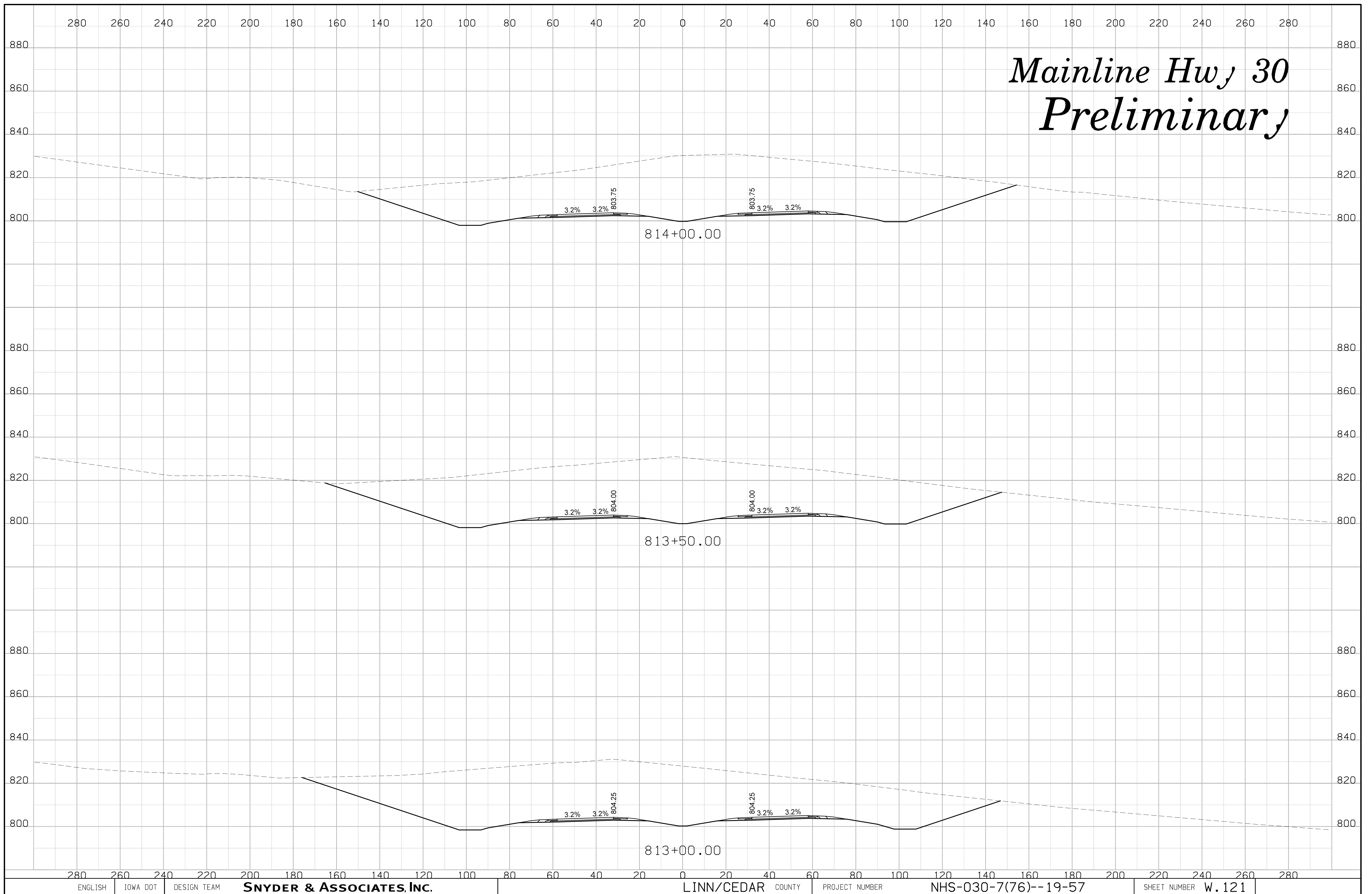


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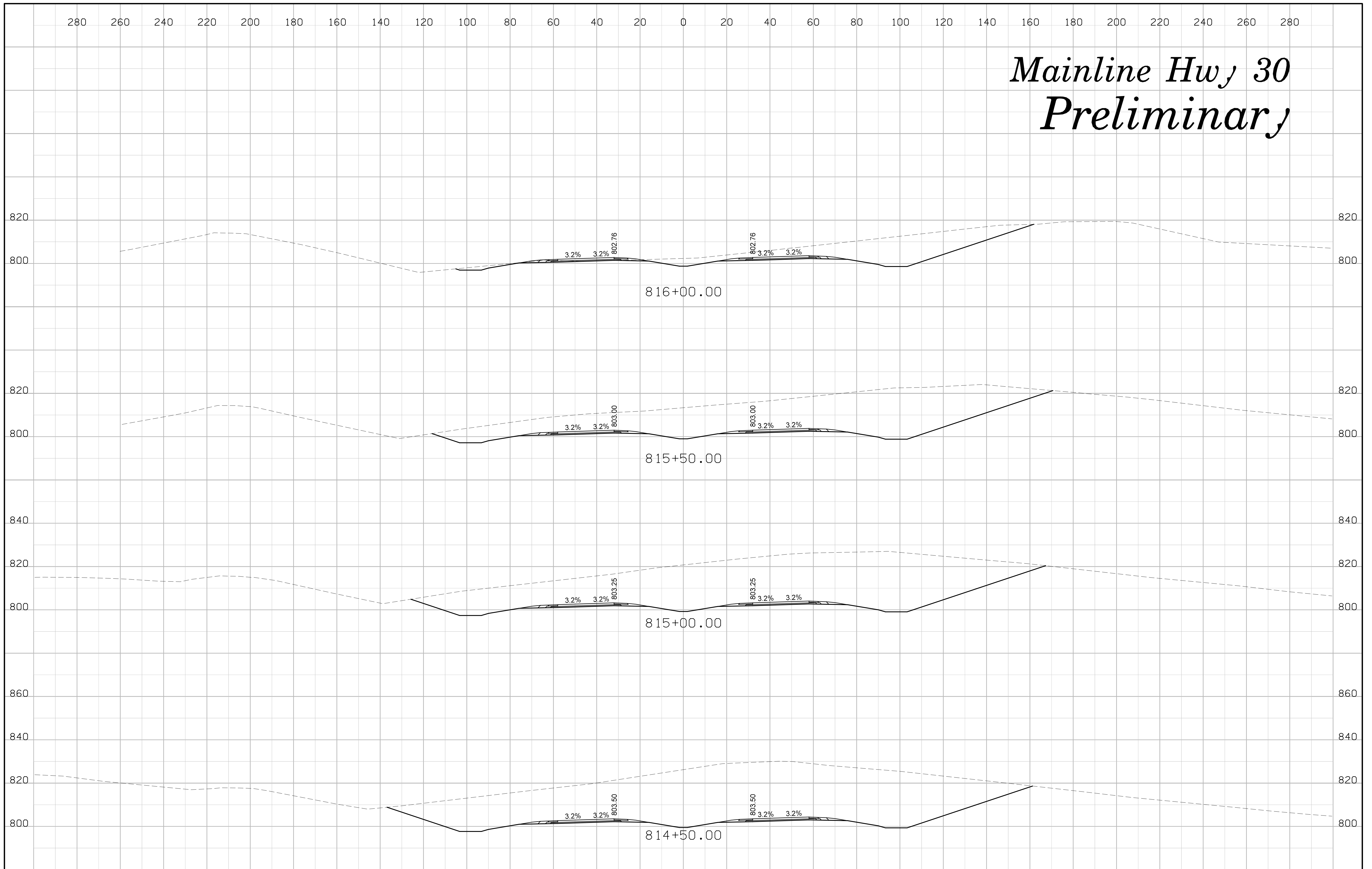




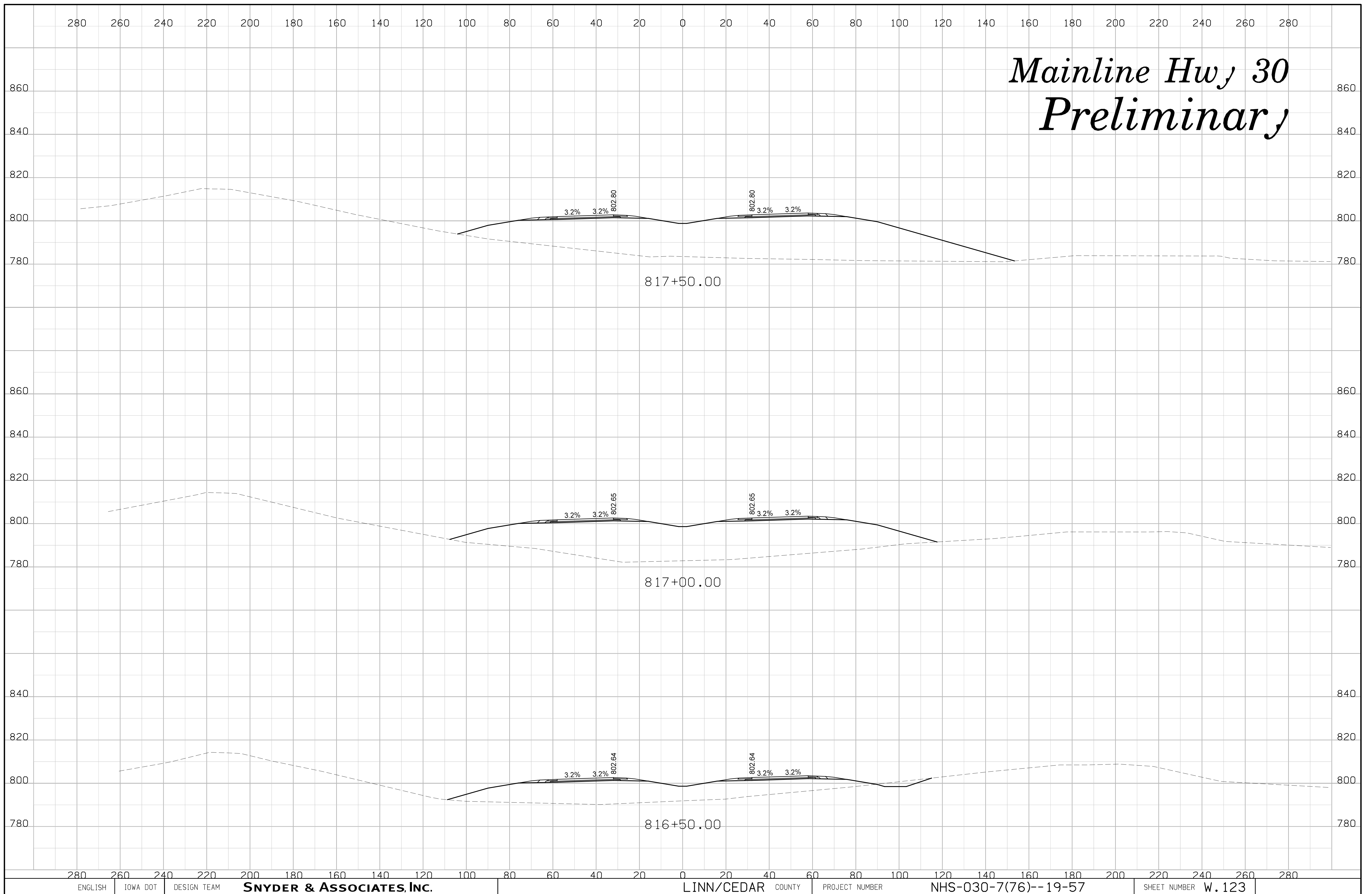
# Mainline Hwy 30 Preliminary



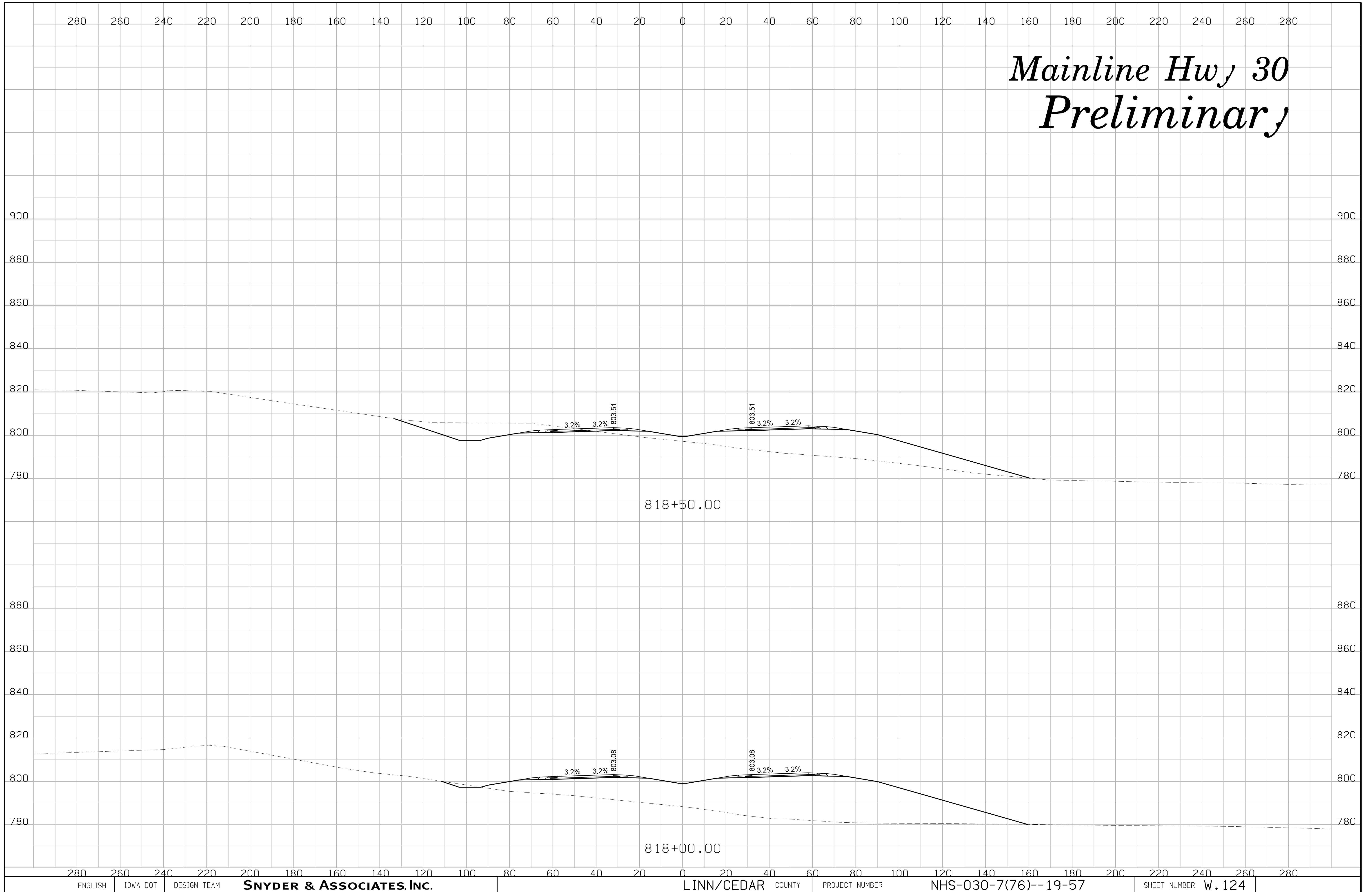
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

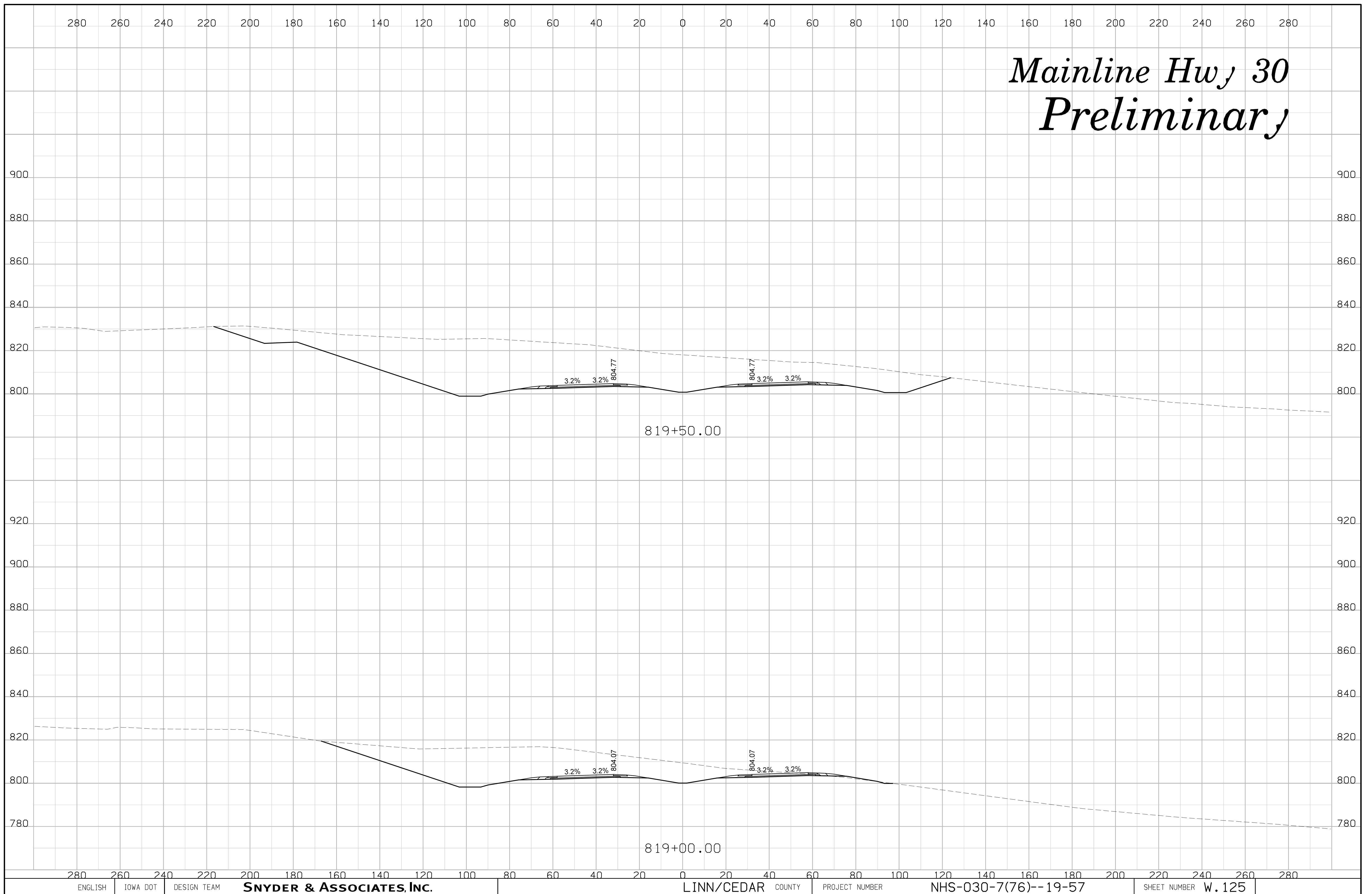


# Mainline Hwy 30 Preliminary

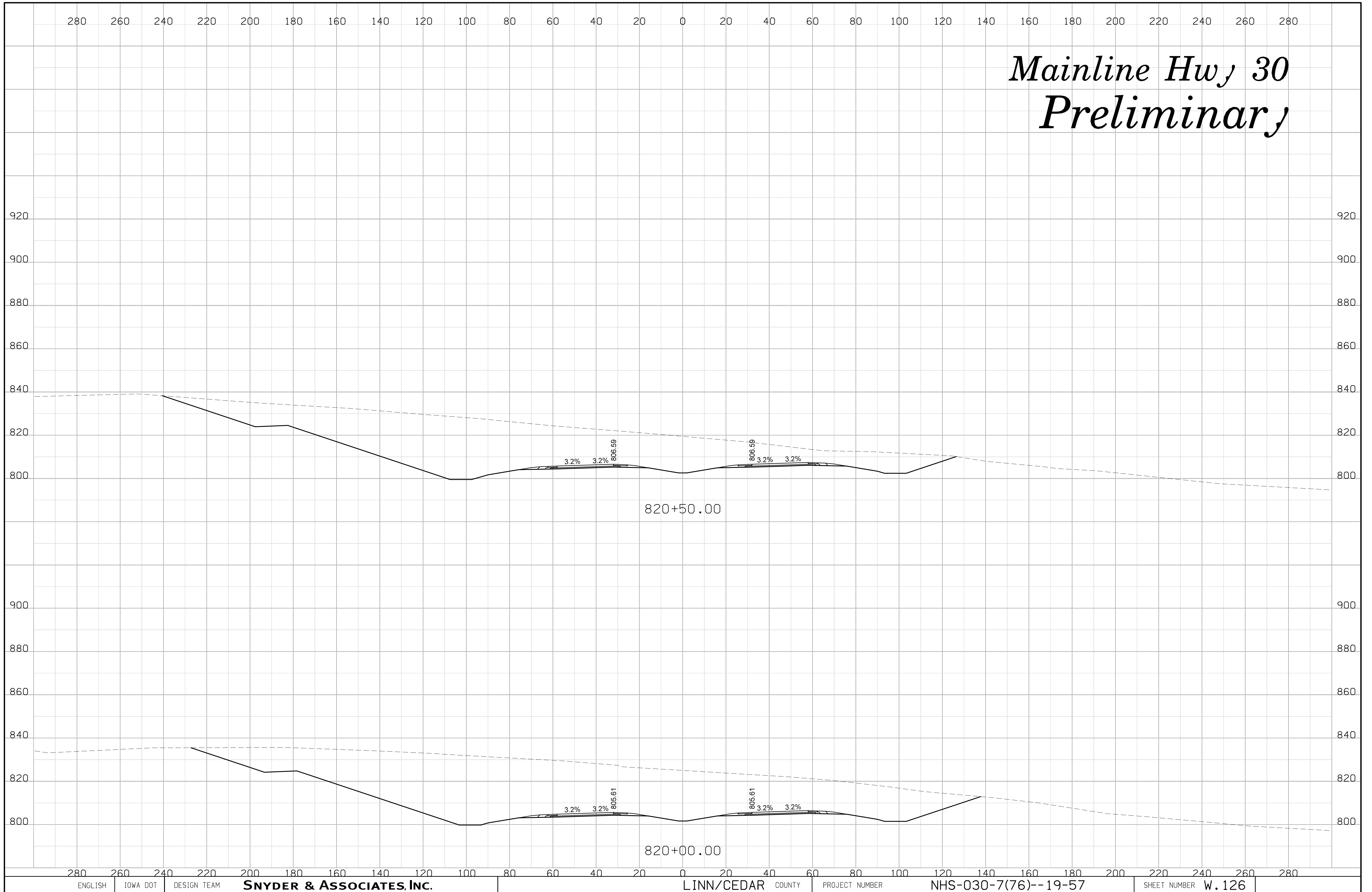




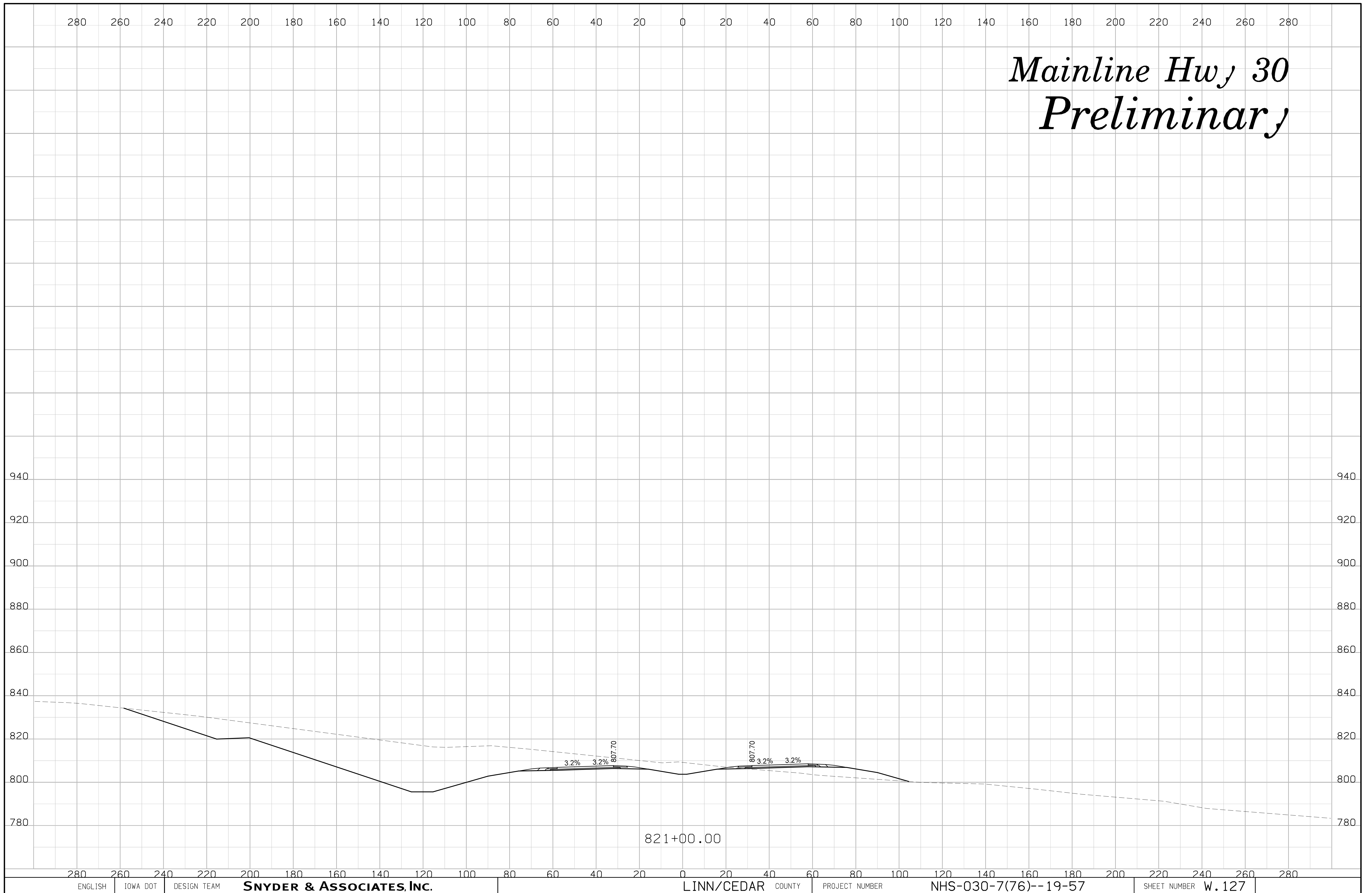
# Mainline Hwy 30 Preliminary



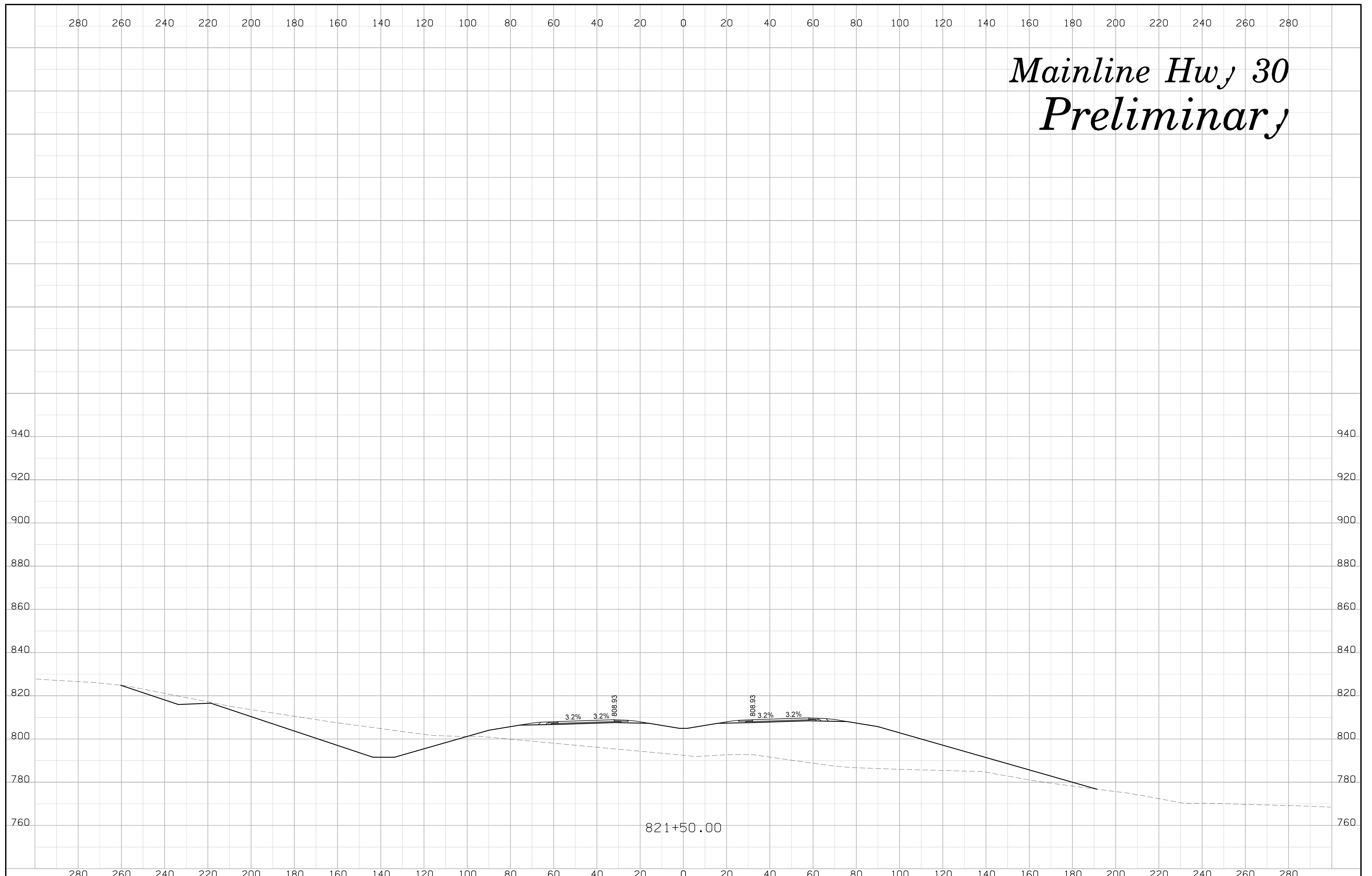
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary



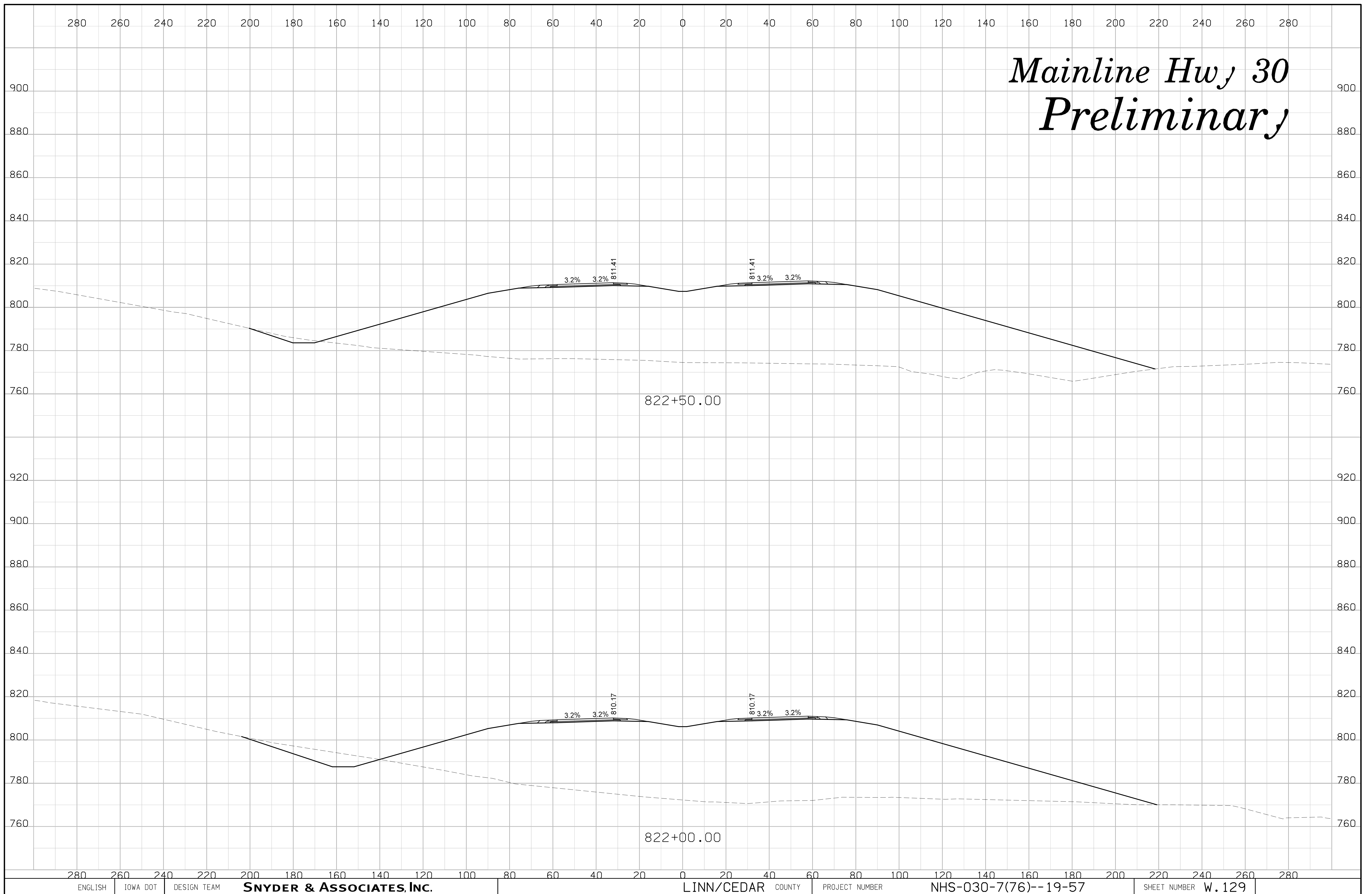
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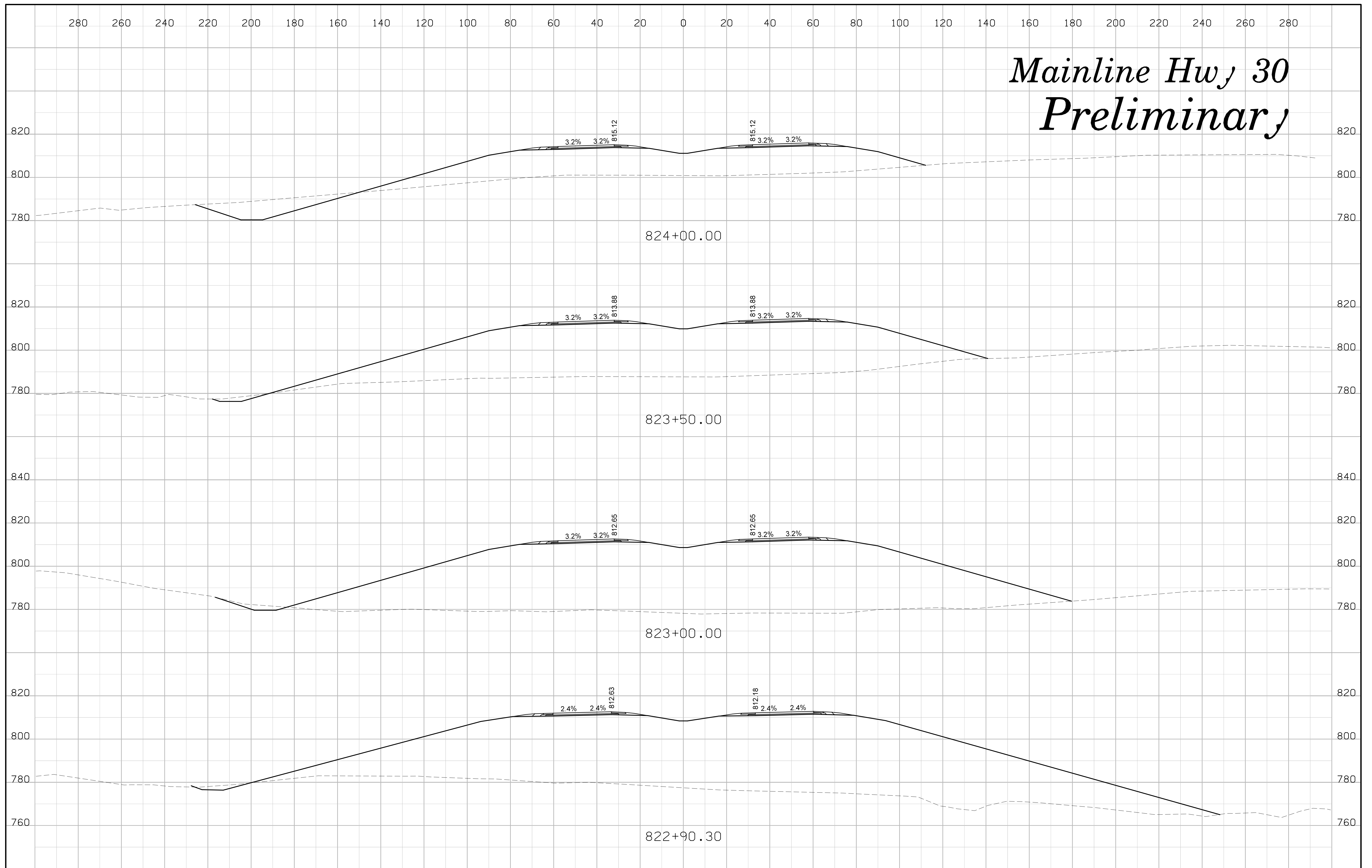
821+50.00



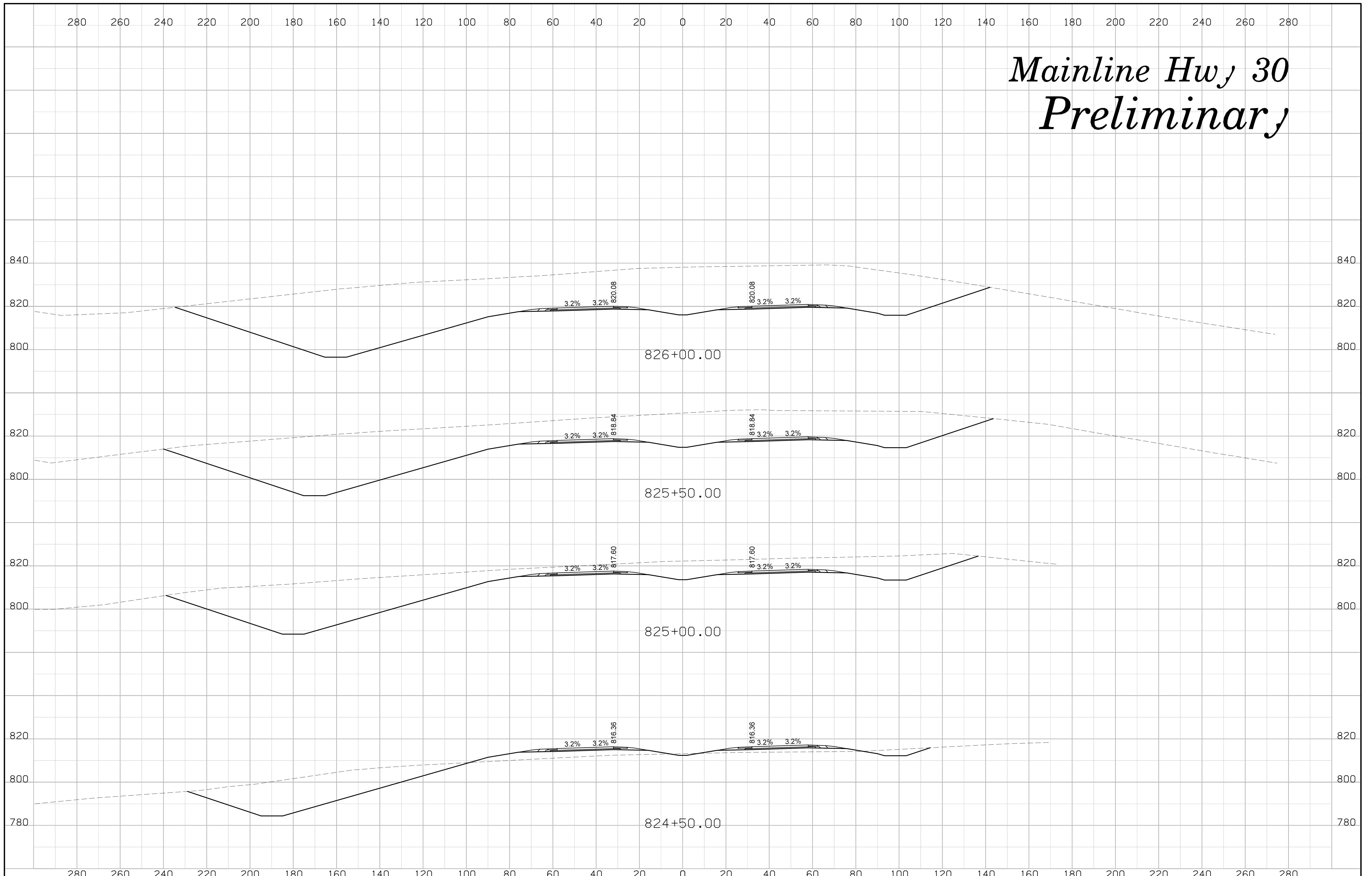
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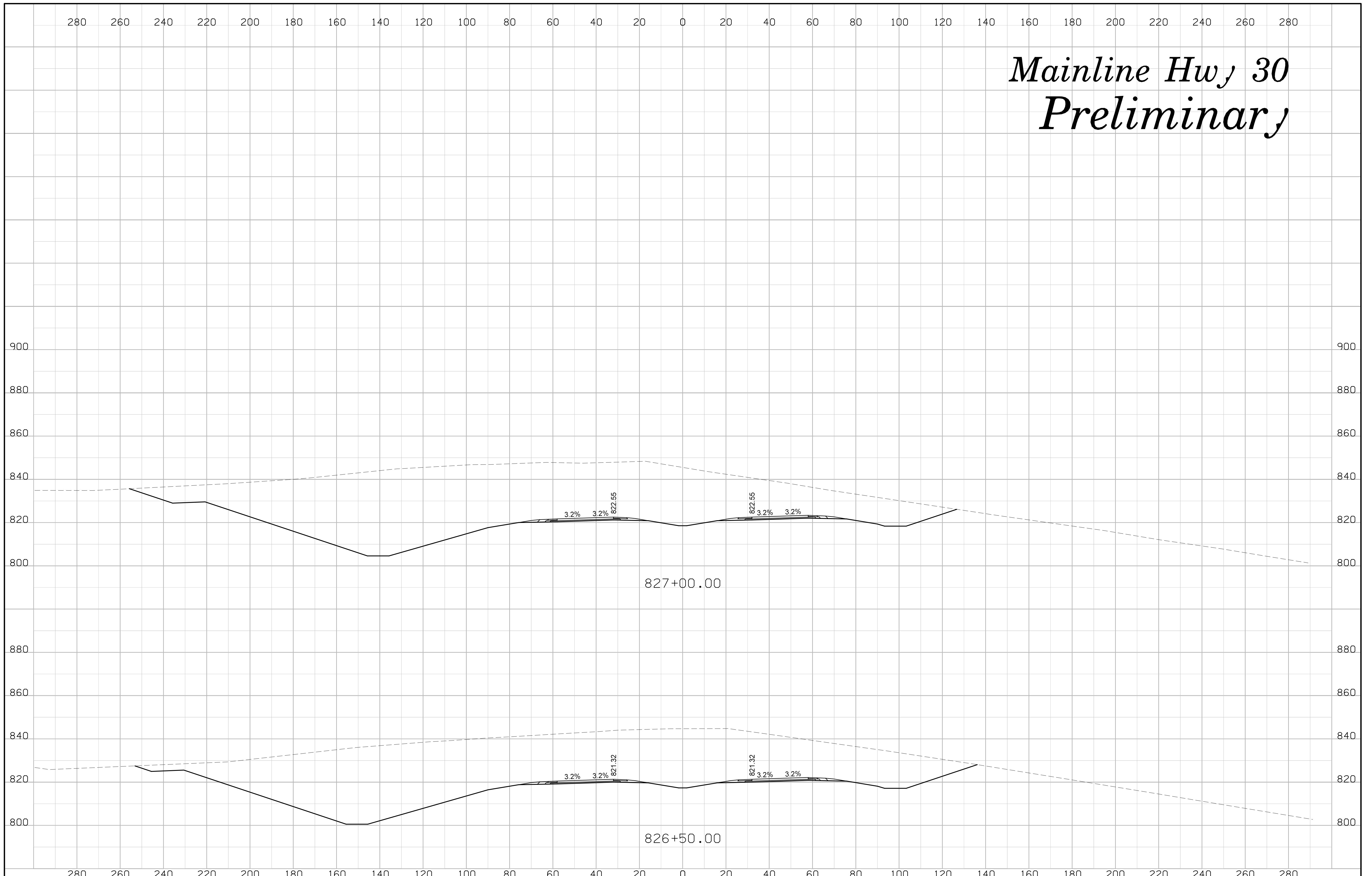
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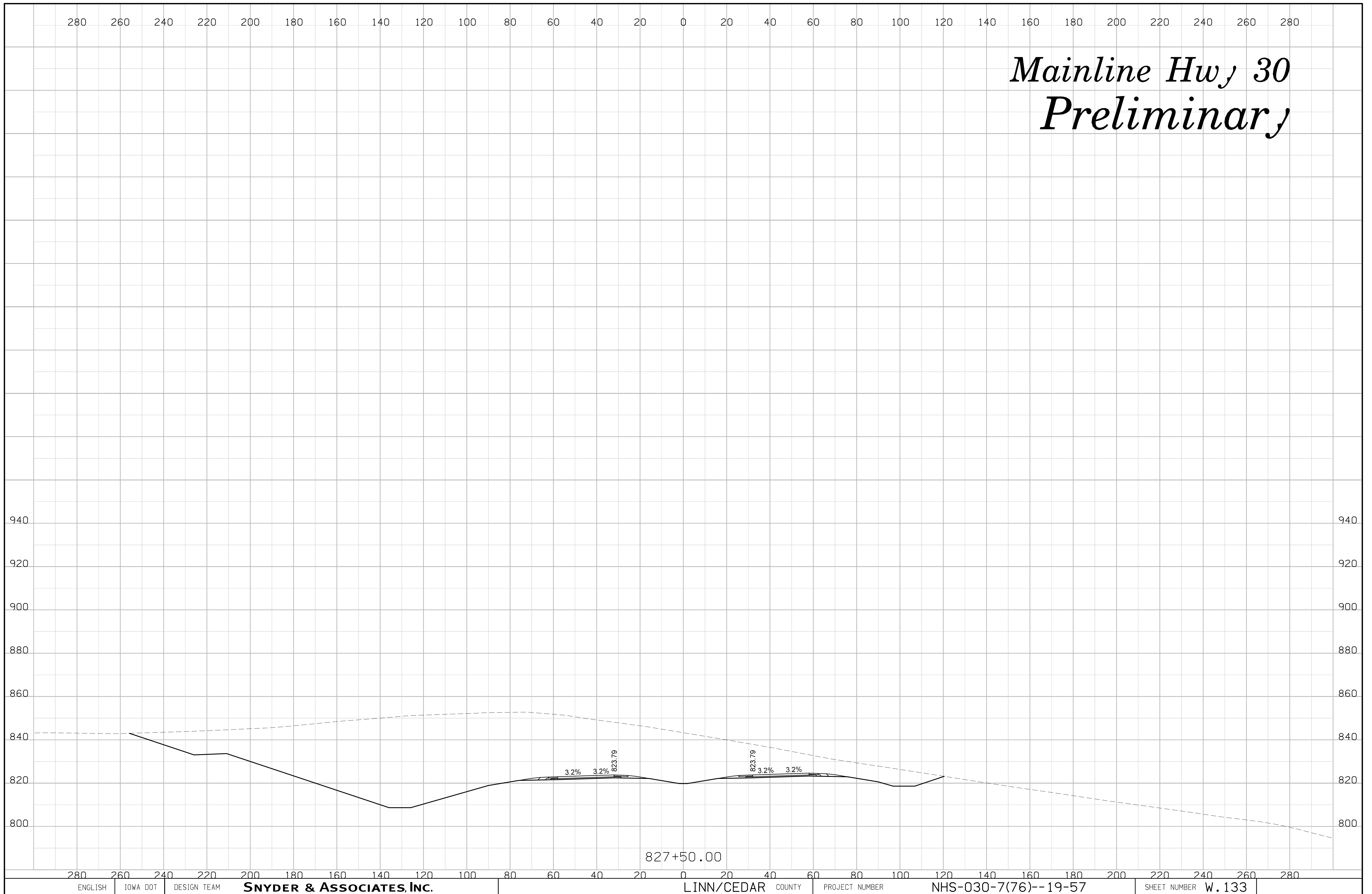
# Mainline Hwy 30 Preliminary



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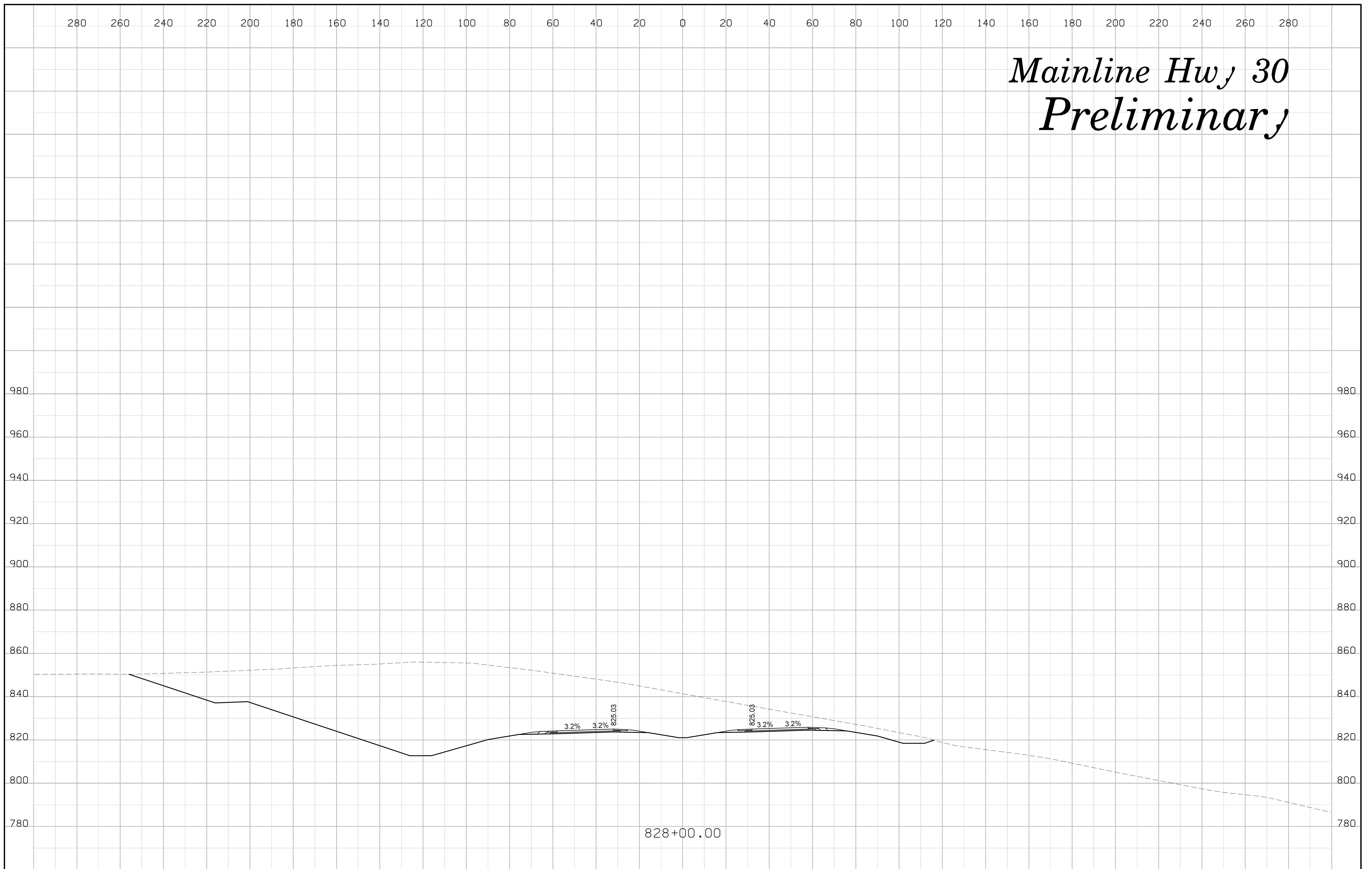


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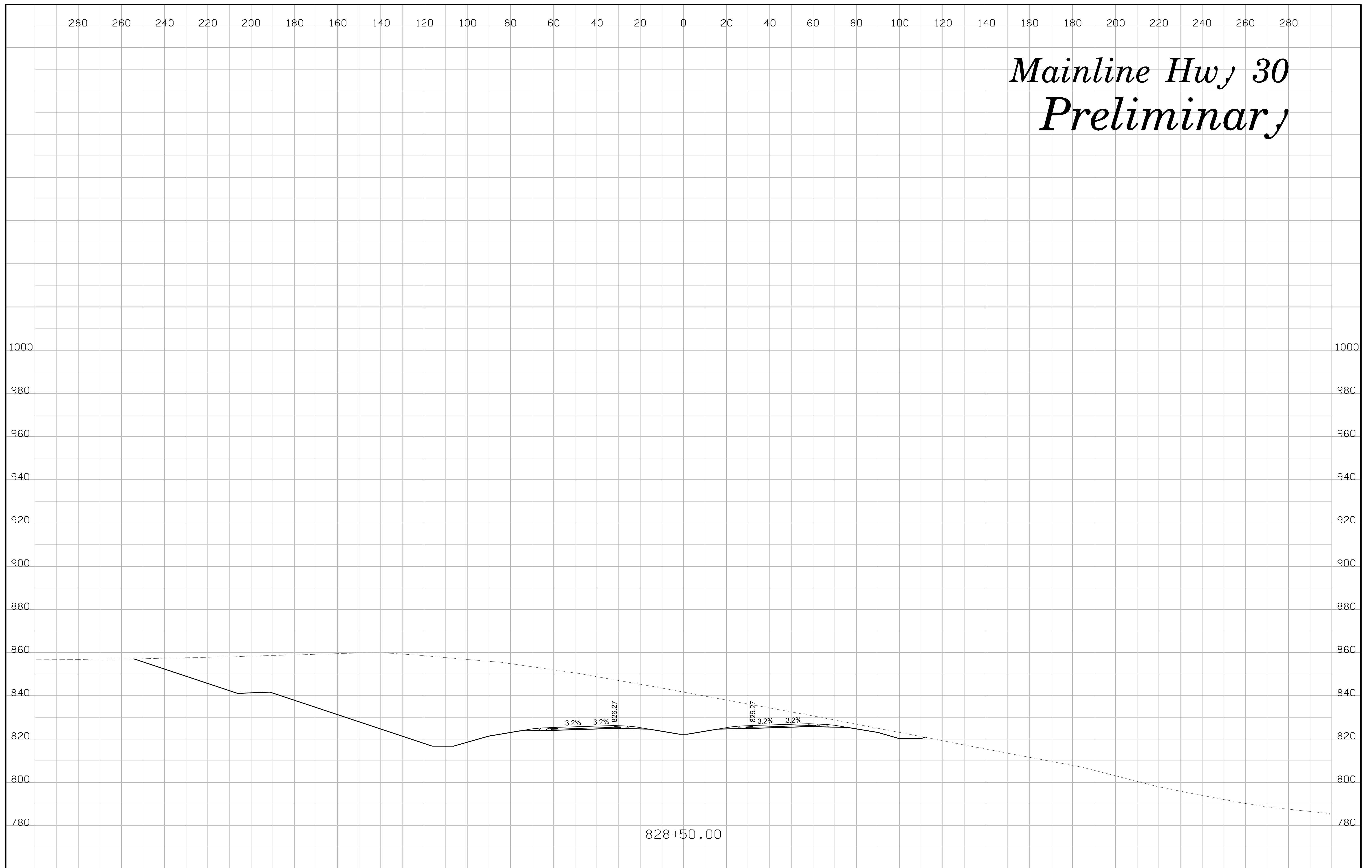




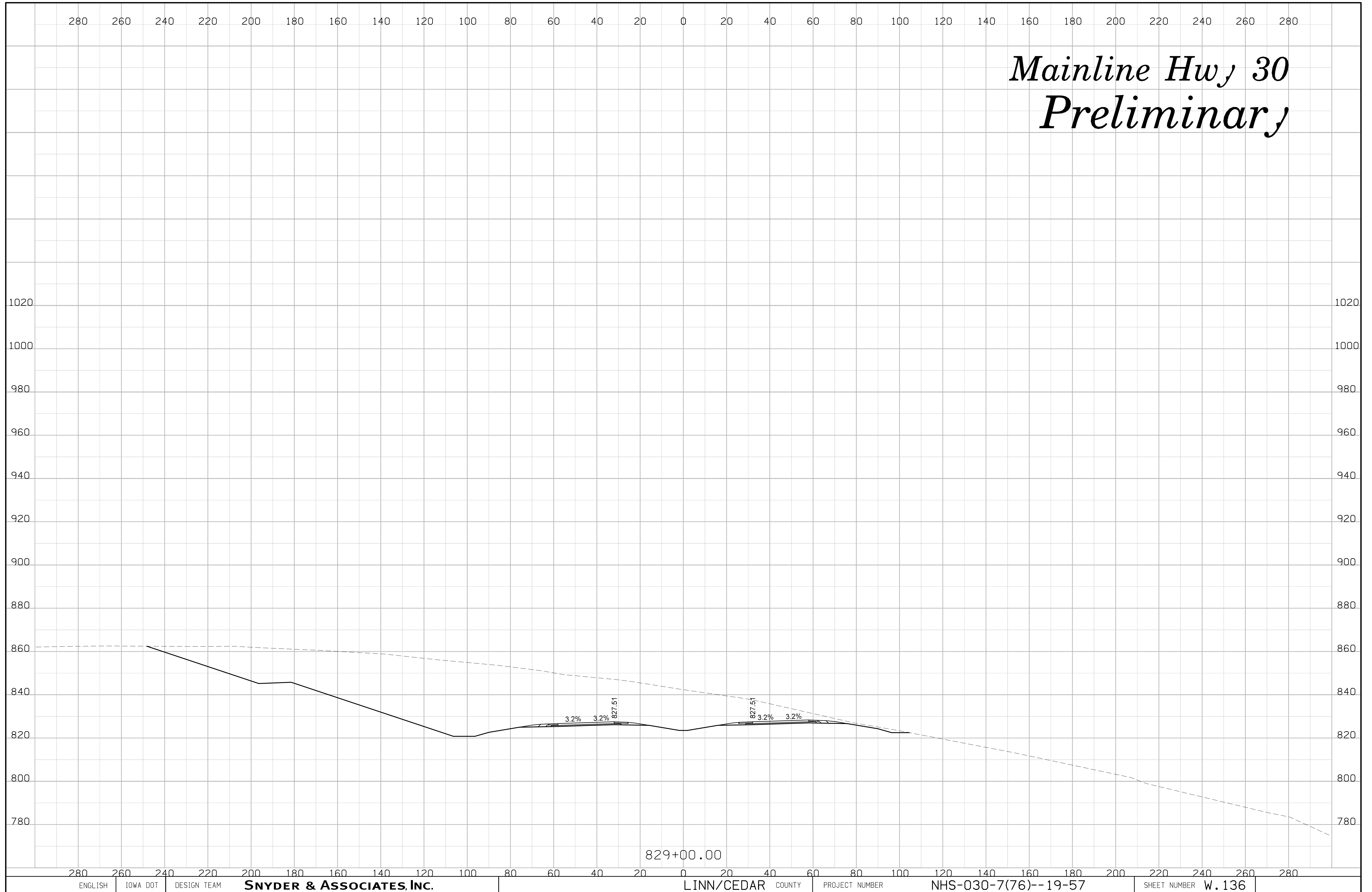
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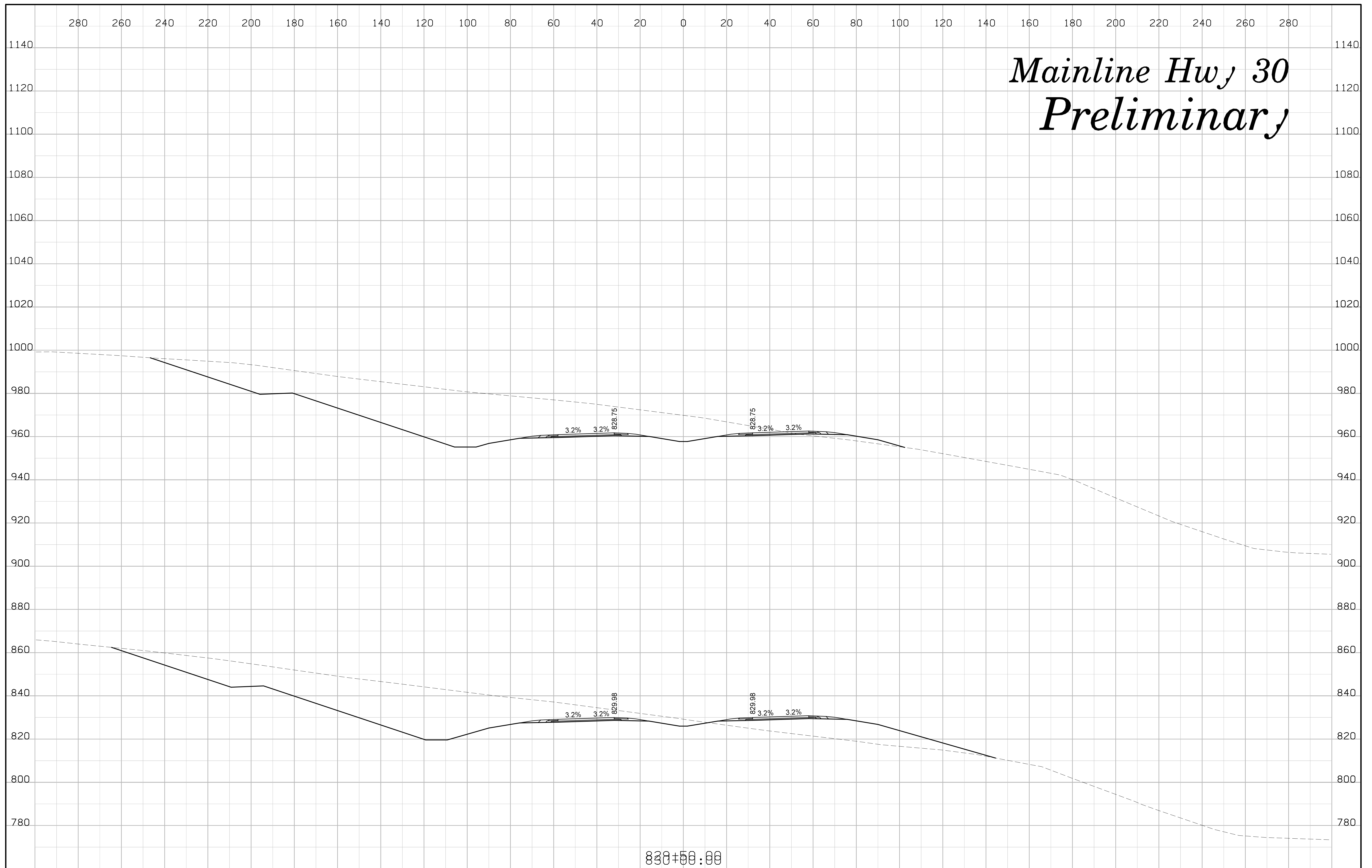
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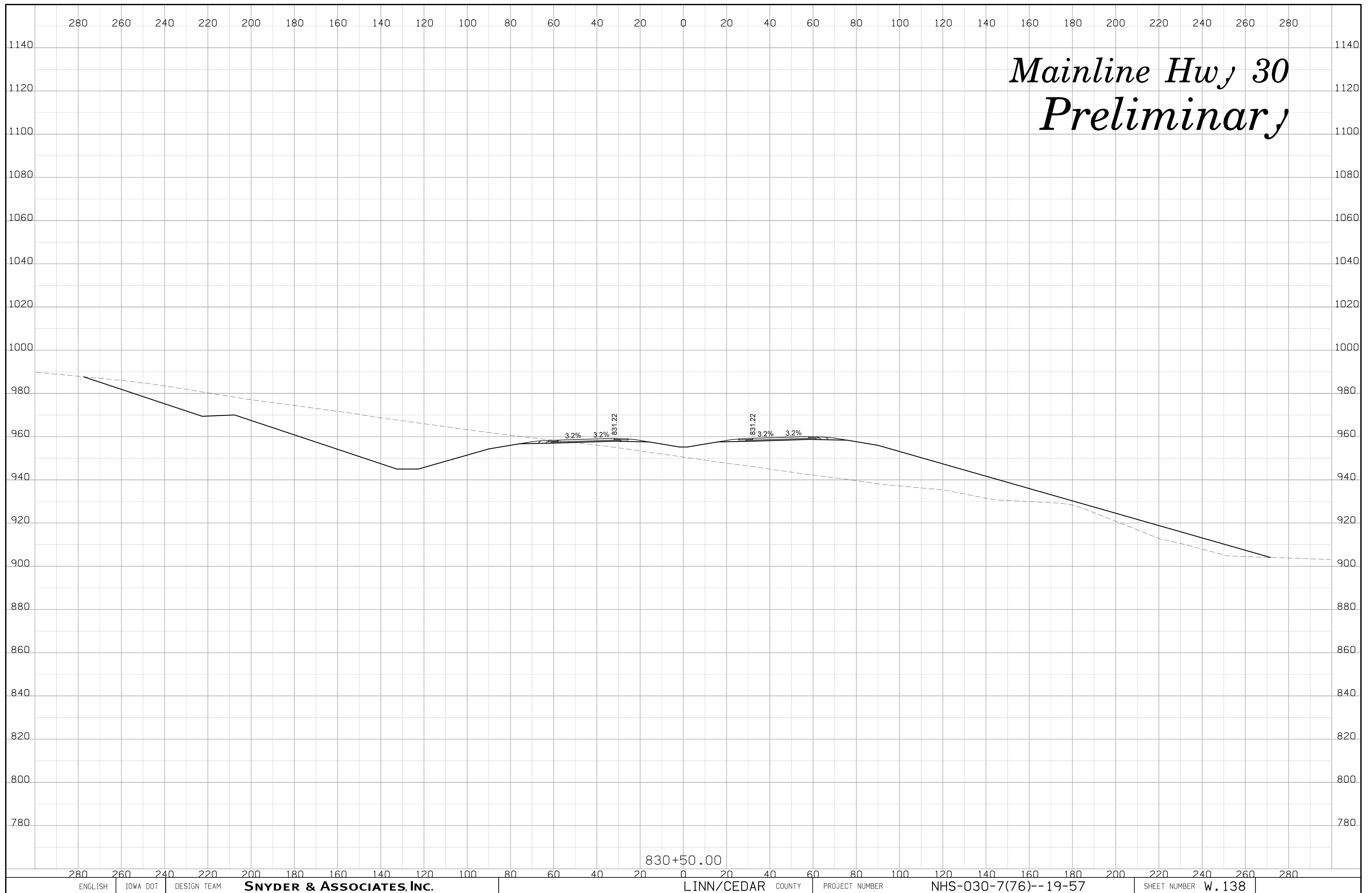
# Mainline Hwy 30 Preliminary



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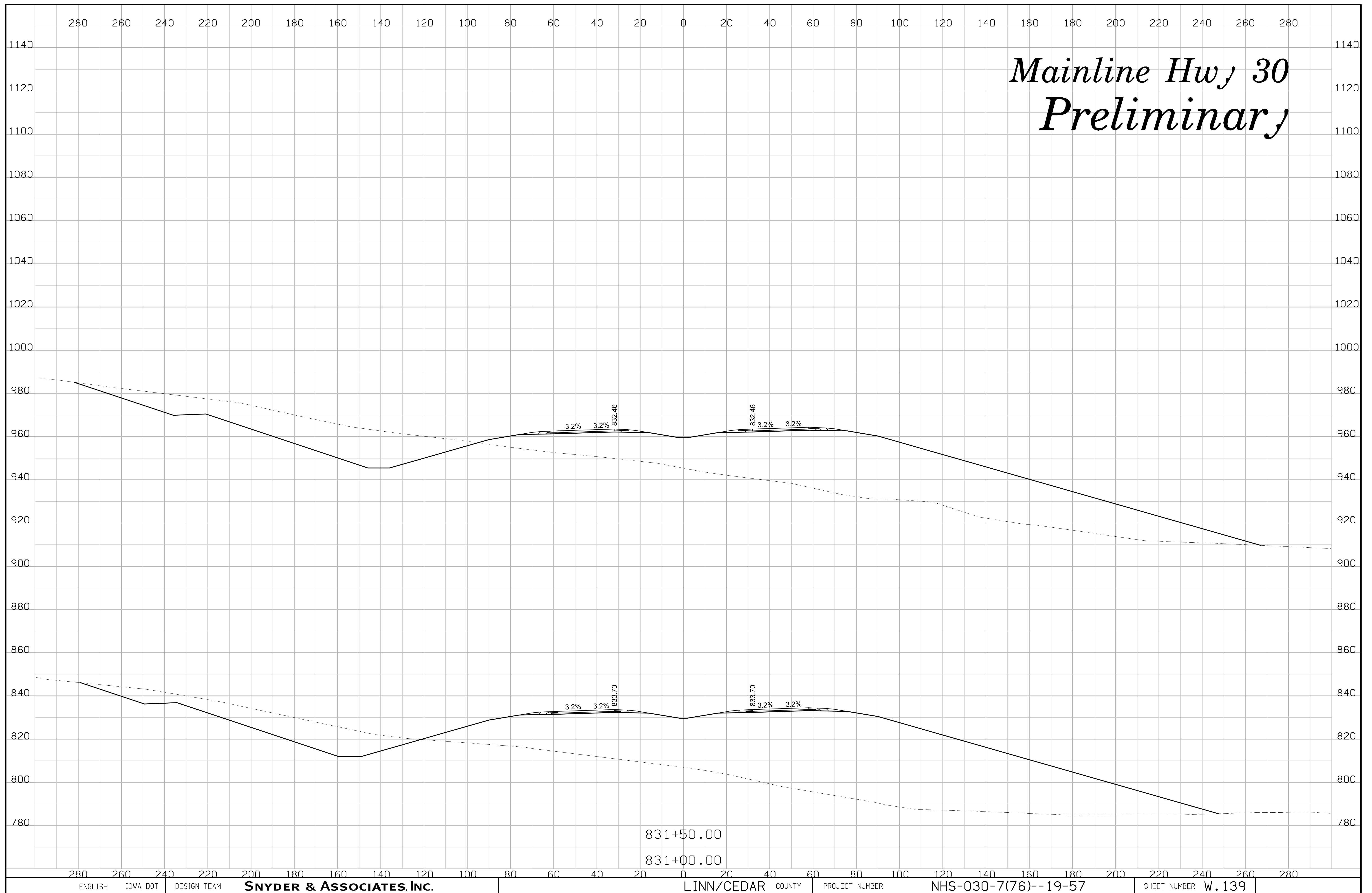


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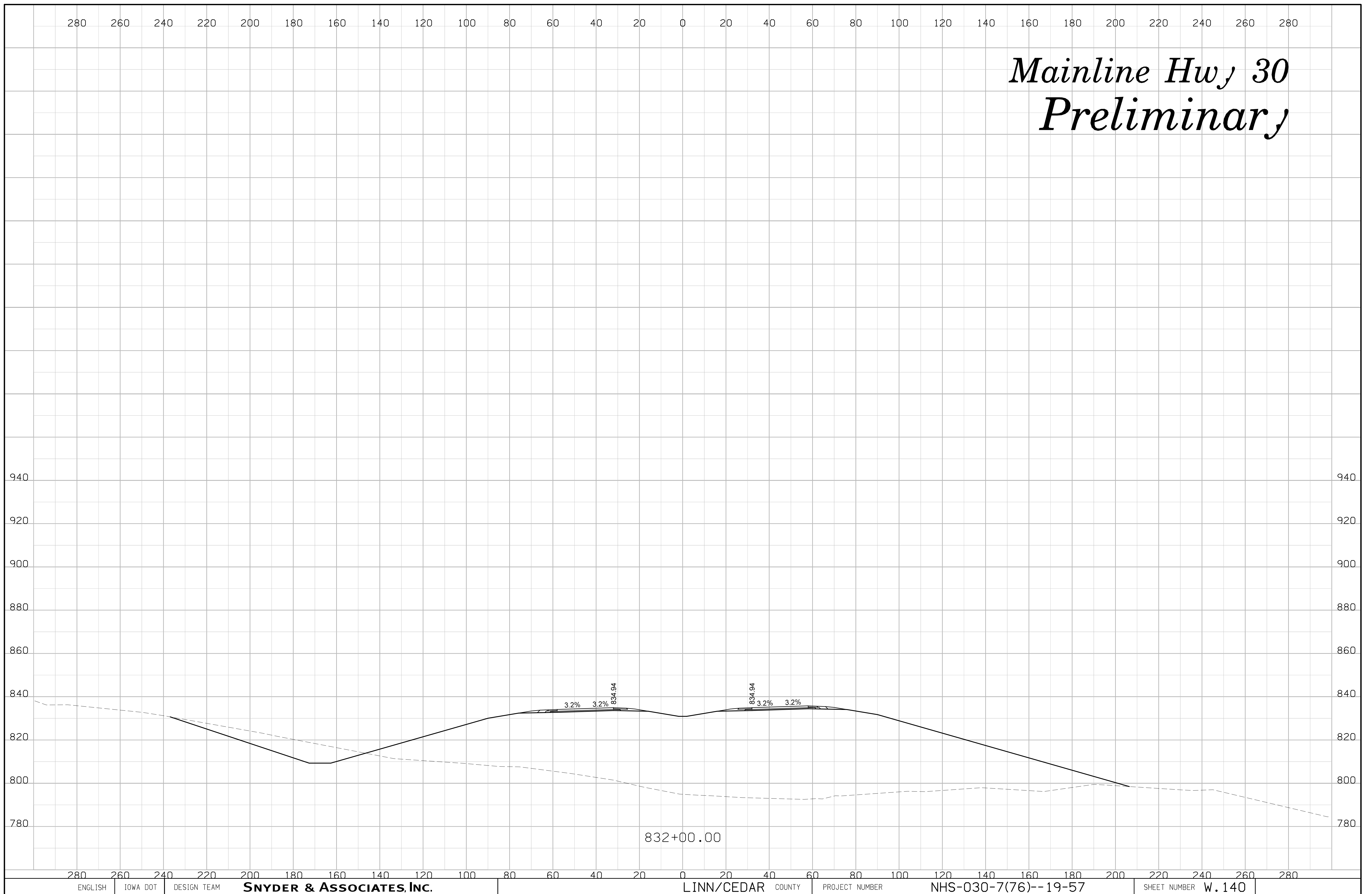




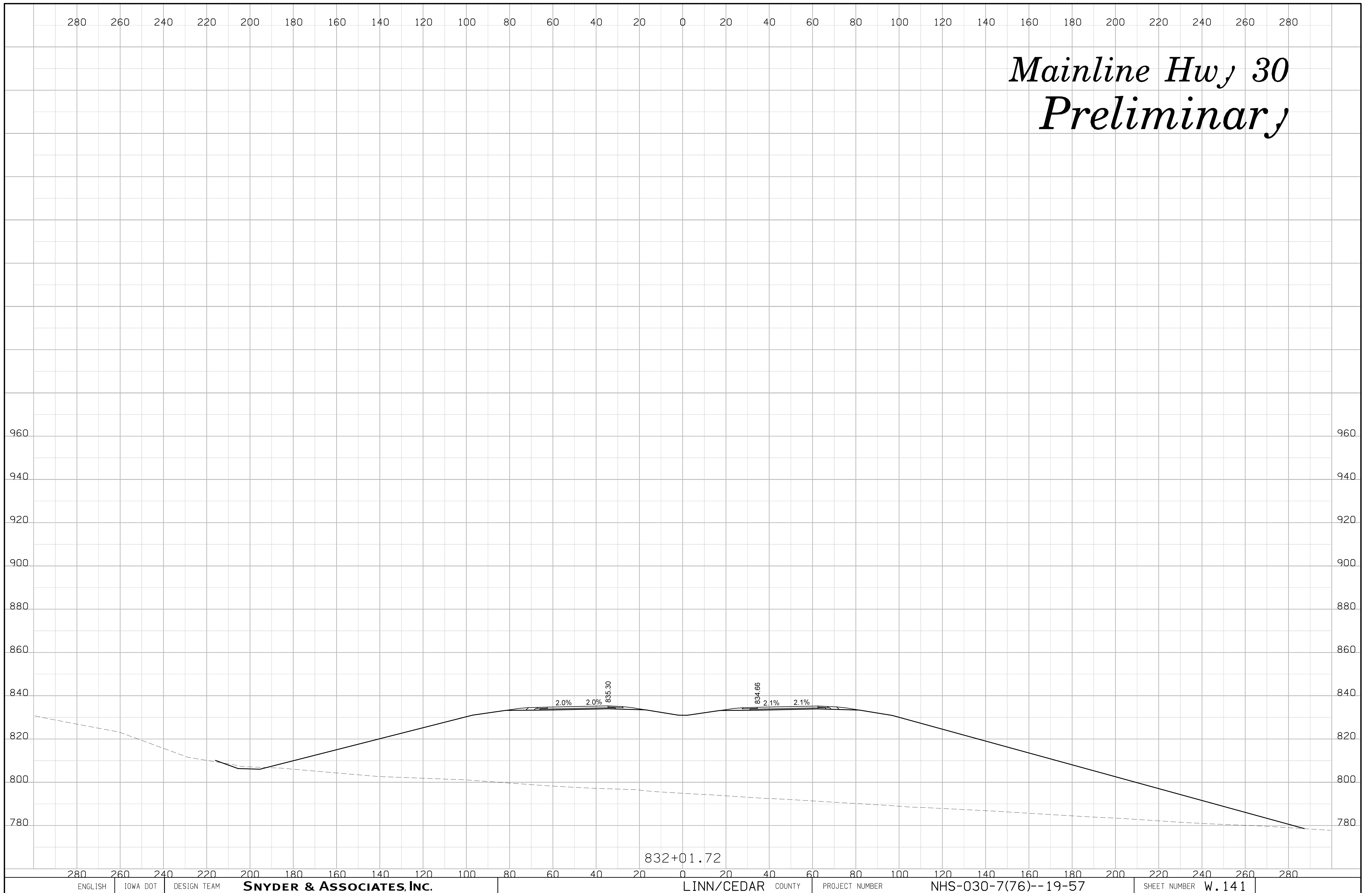
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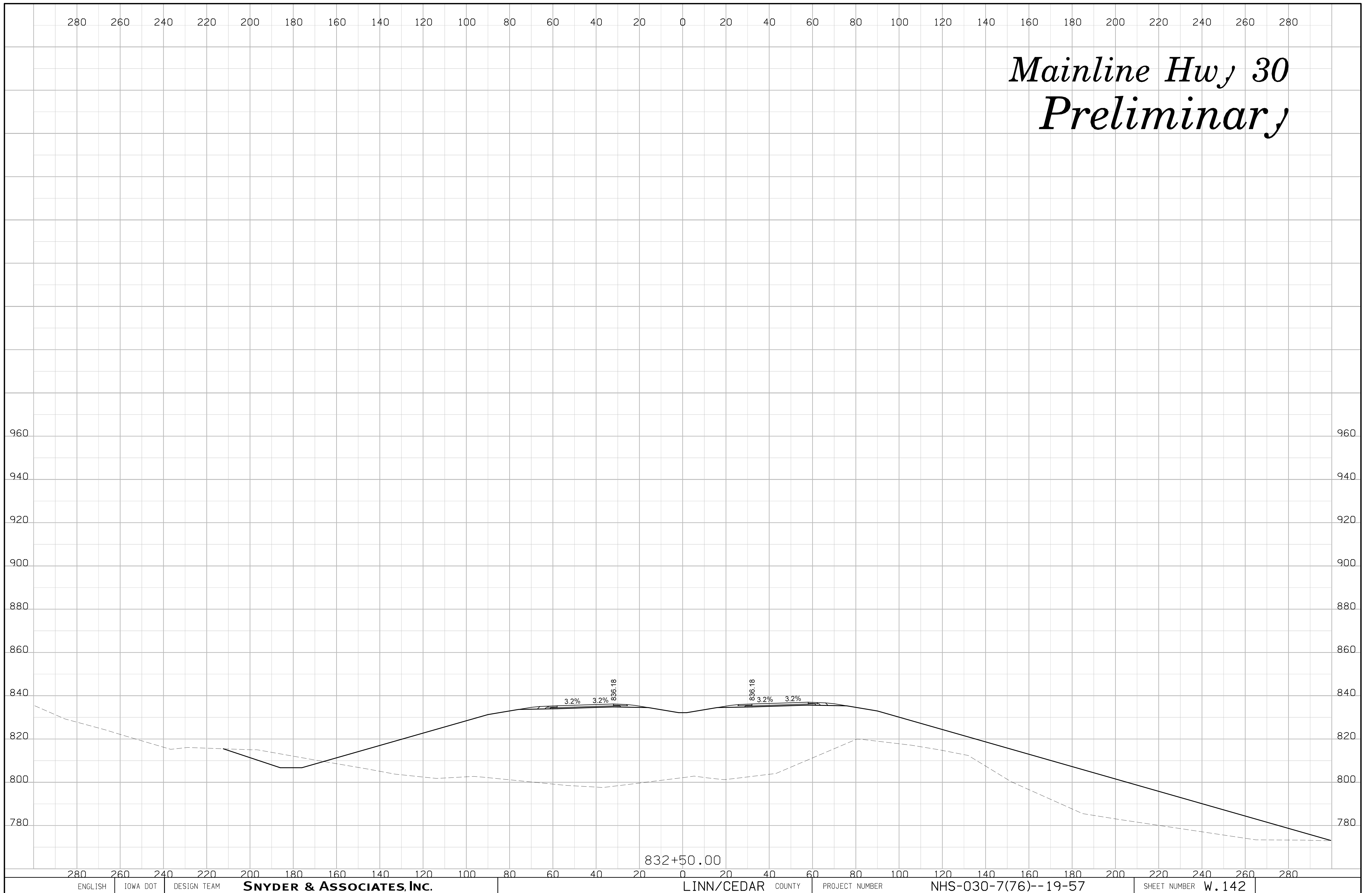
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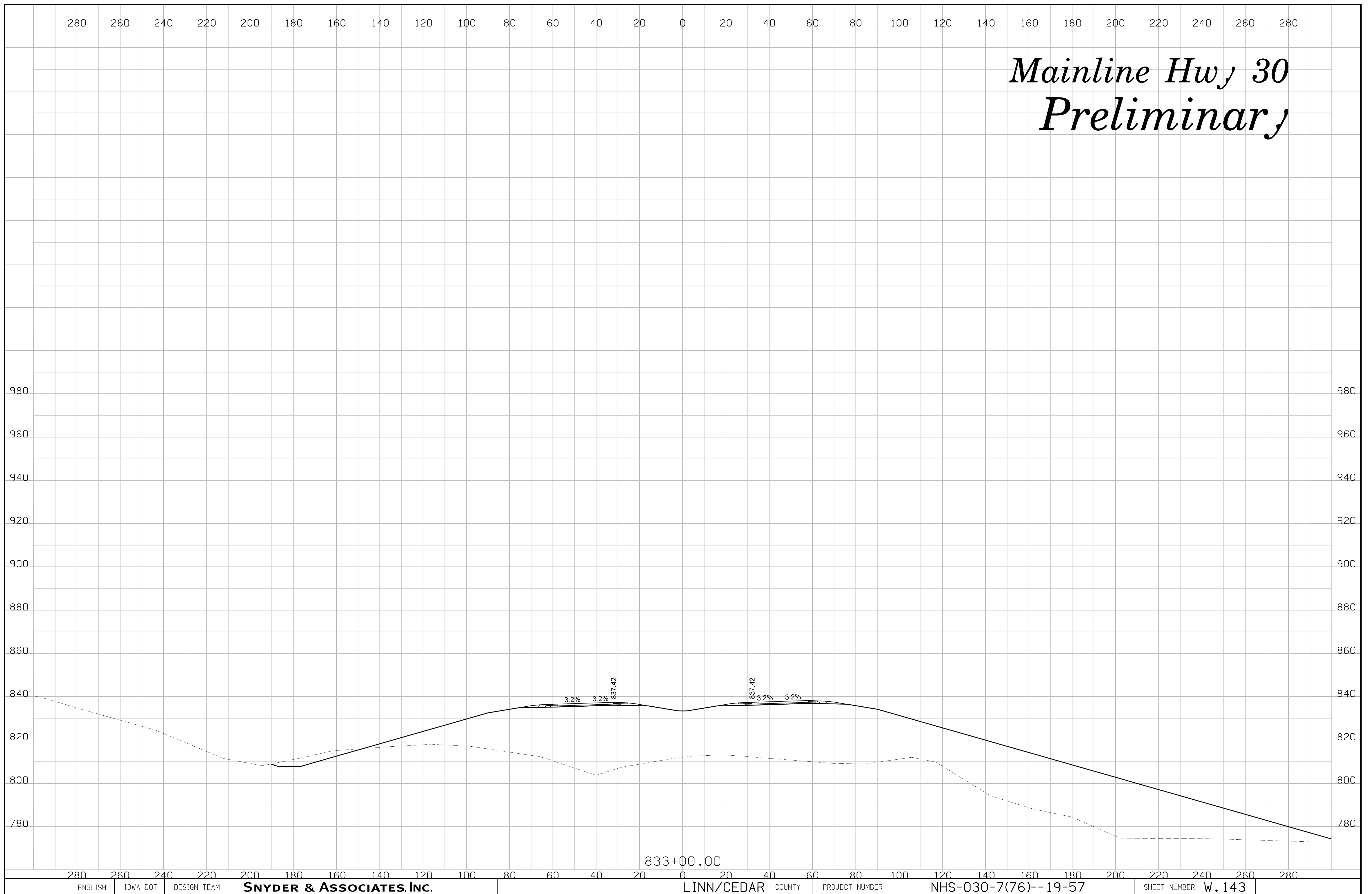
# Mainline Hwy 30 Preliminary



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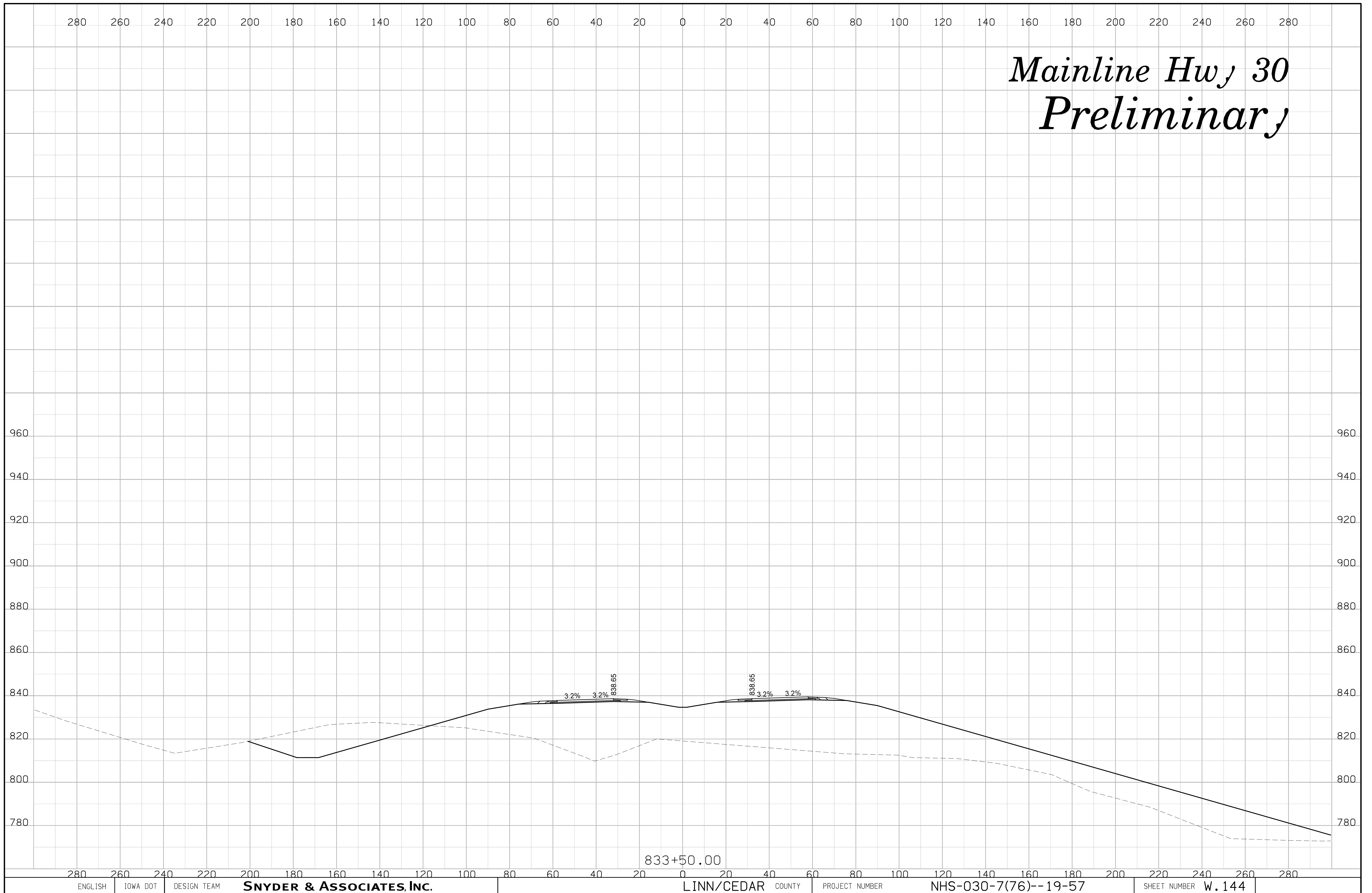


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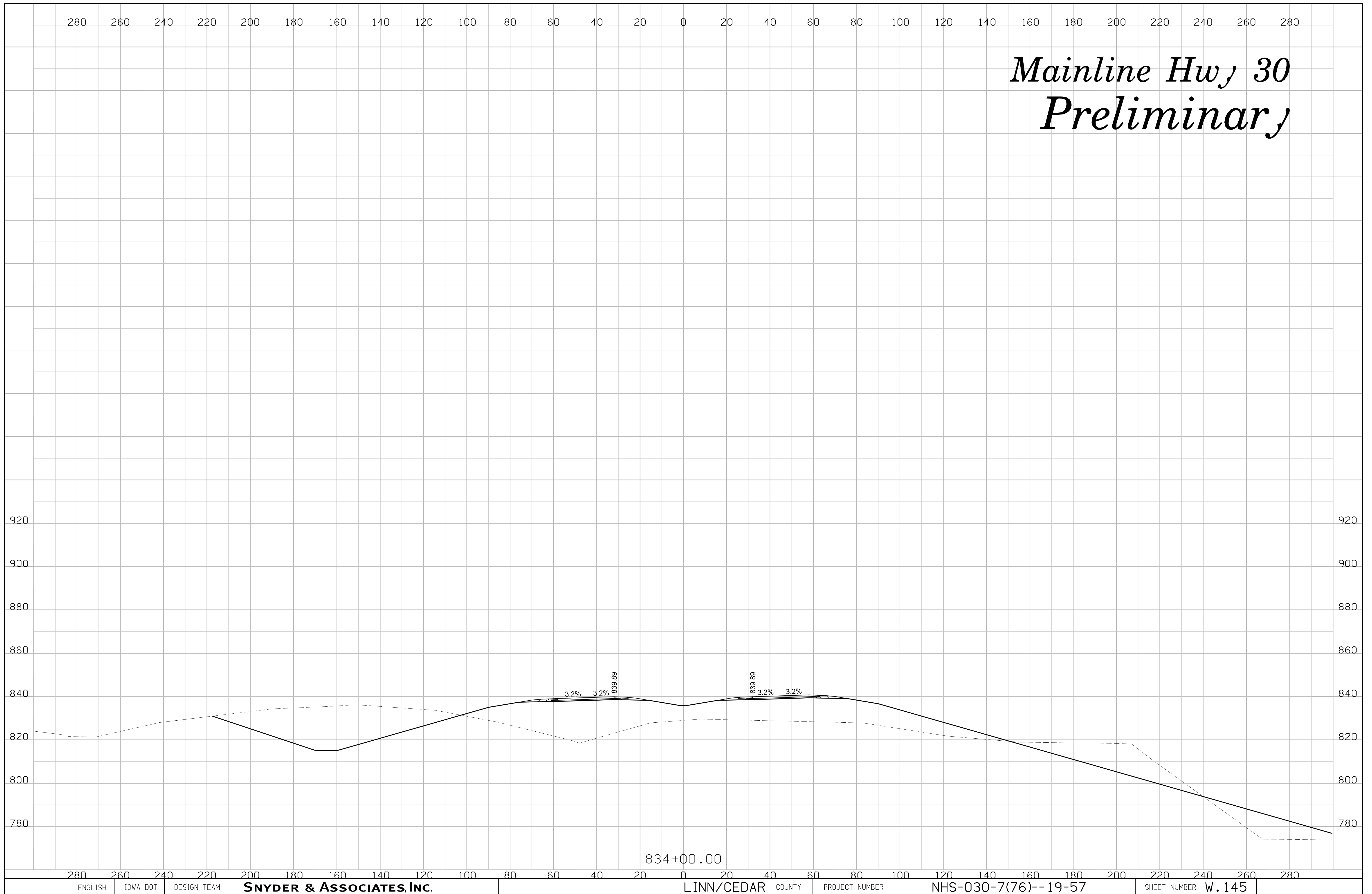




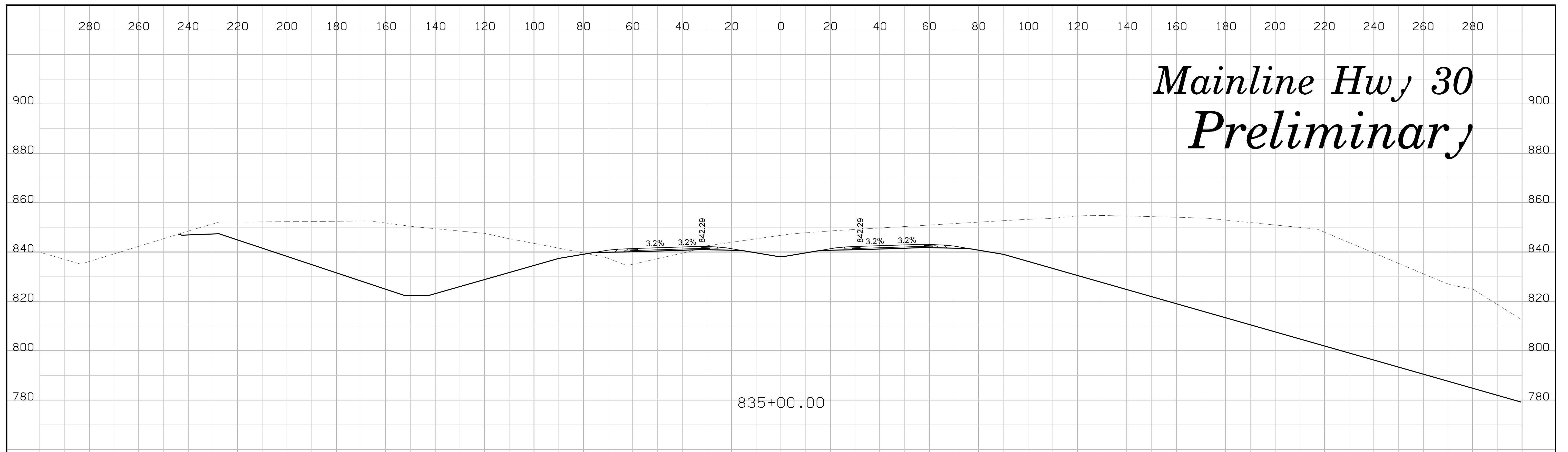
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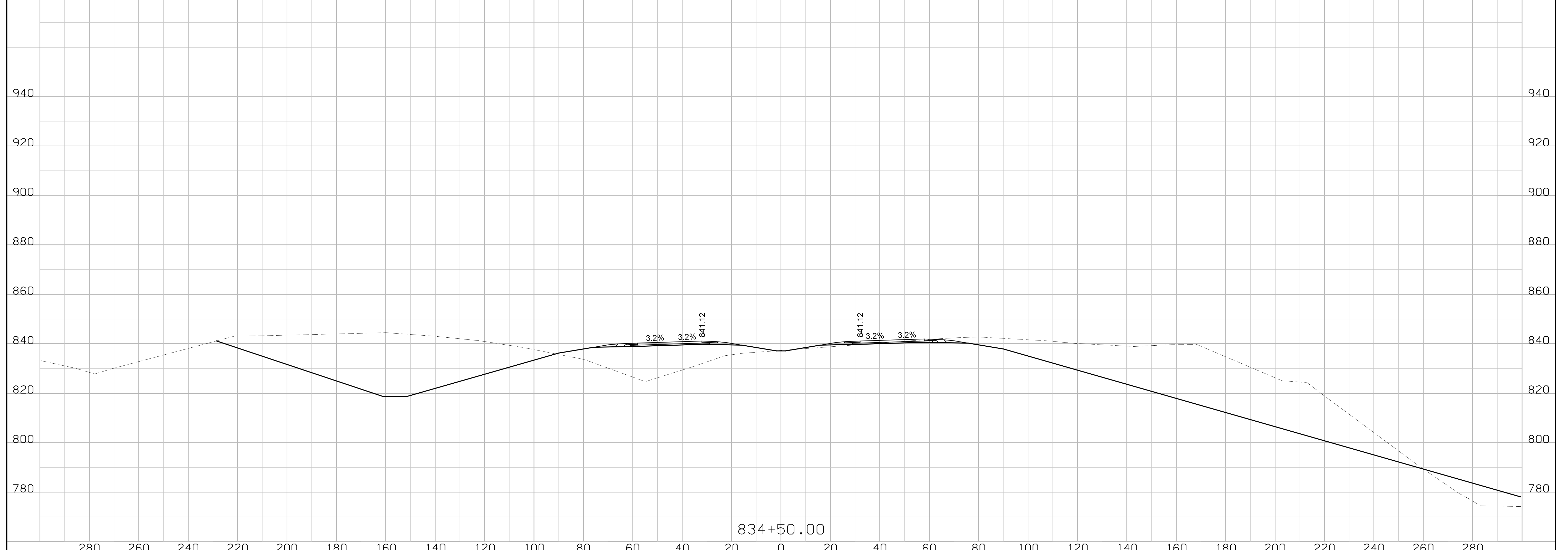
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

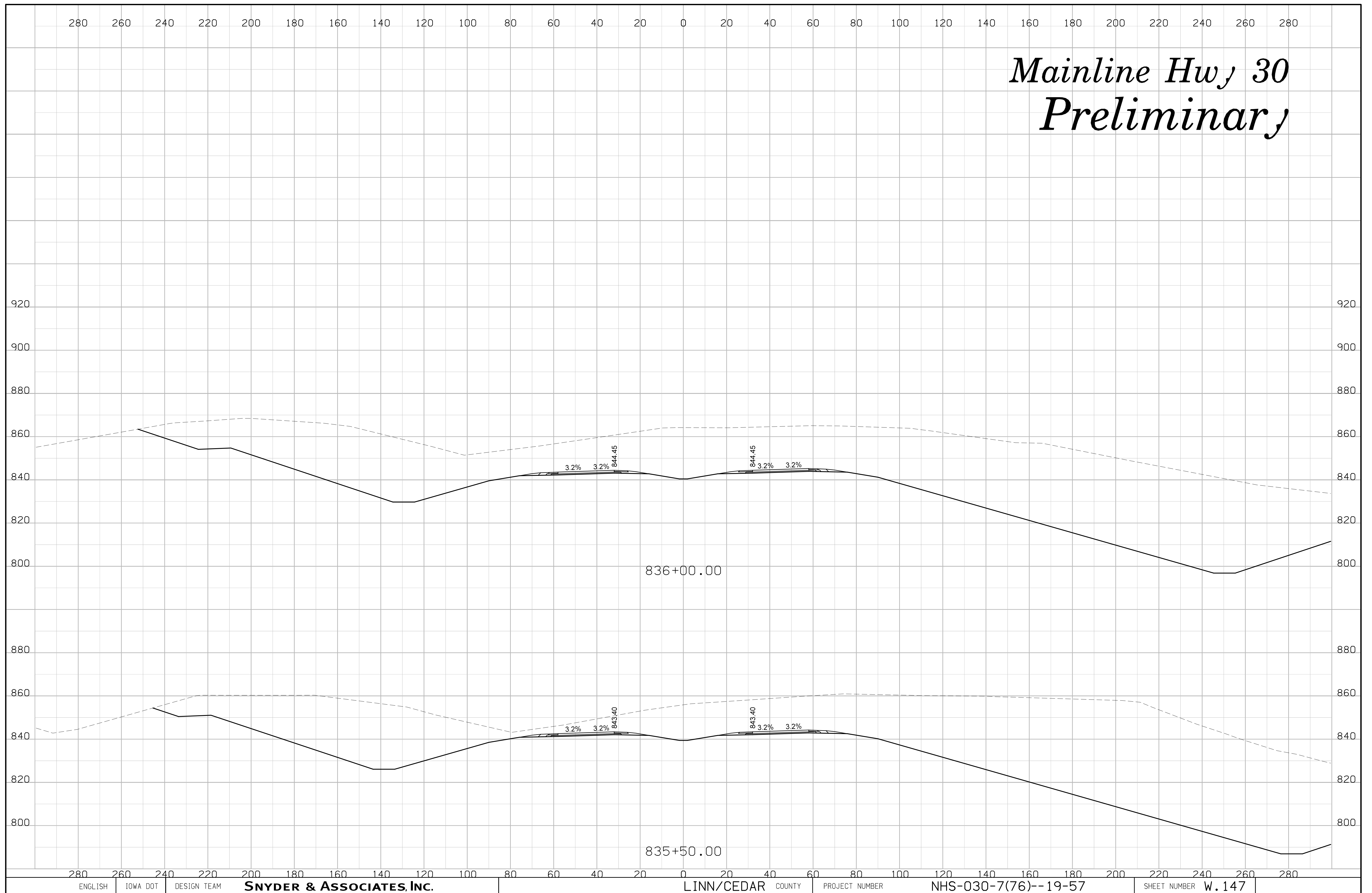


835+00.00

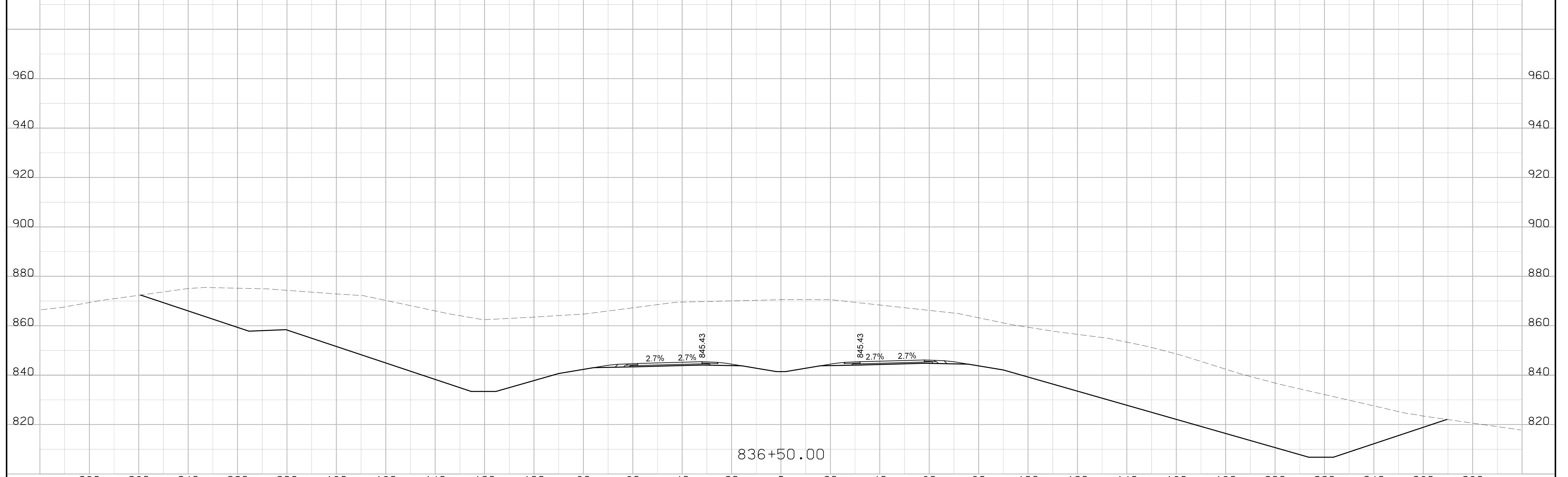
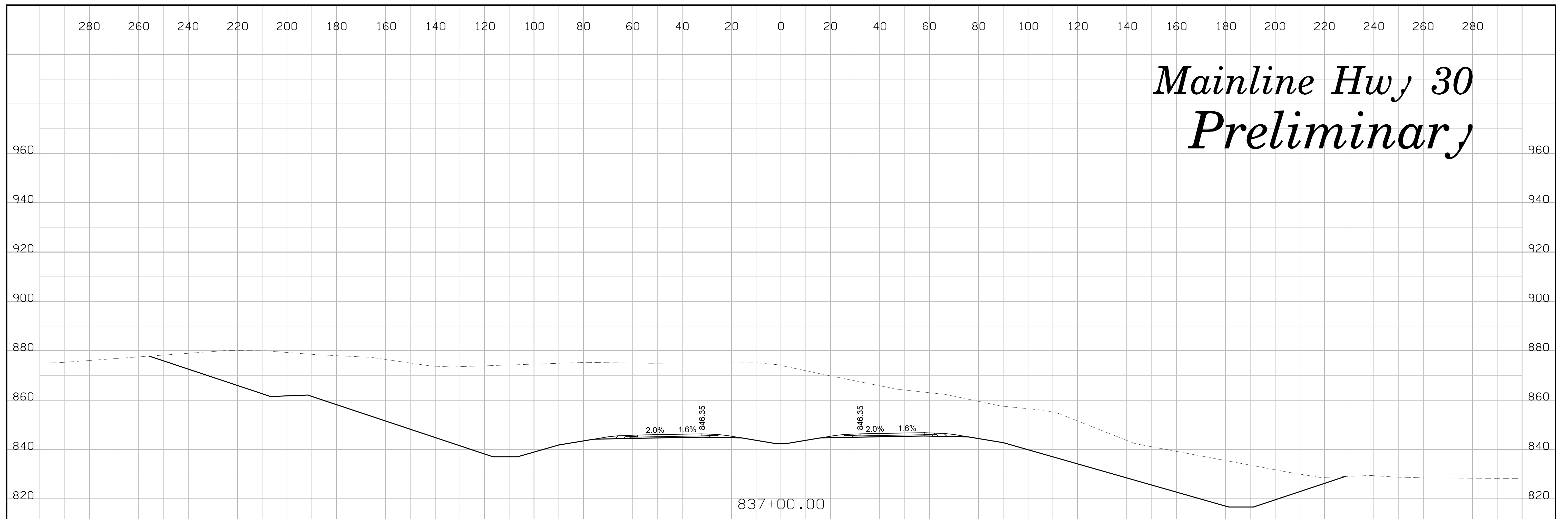


834+50.00

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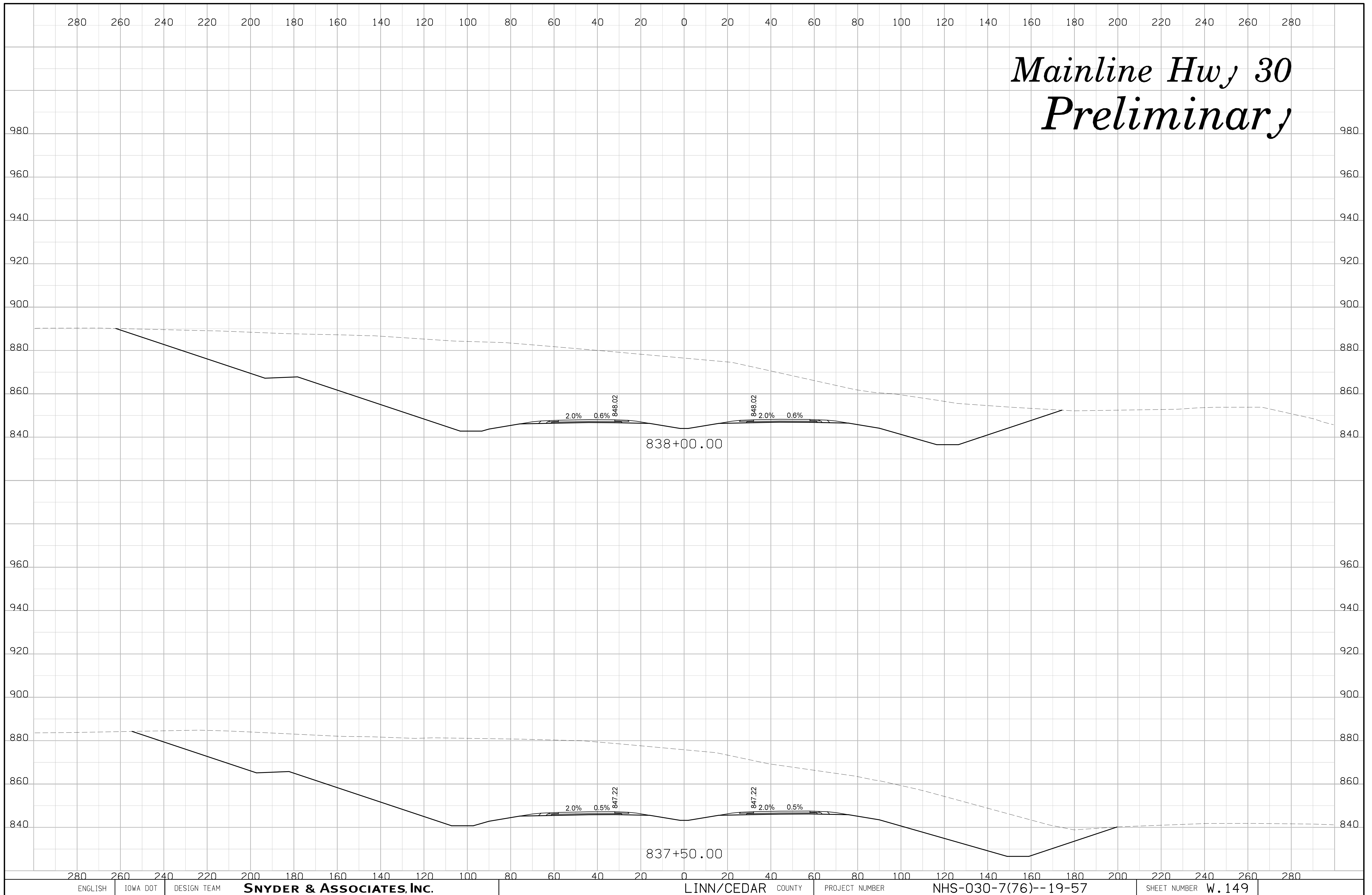


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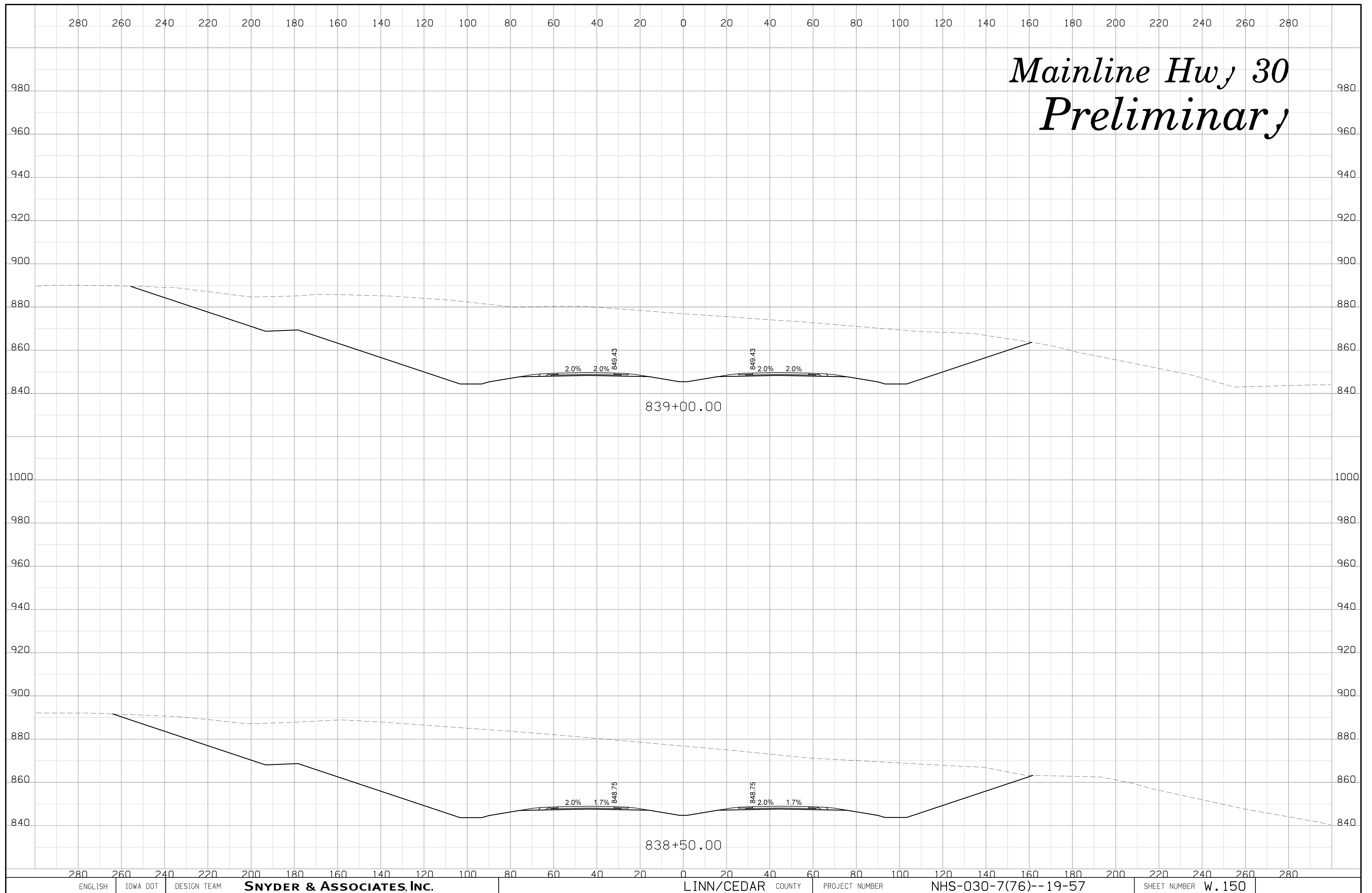




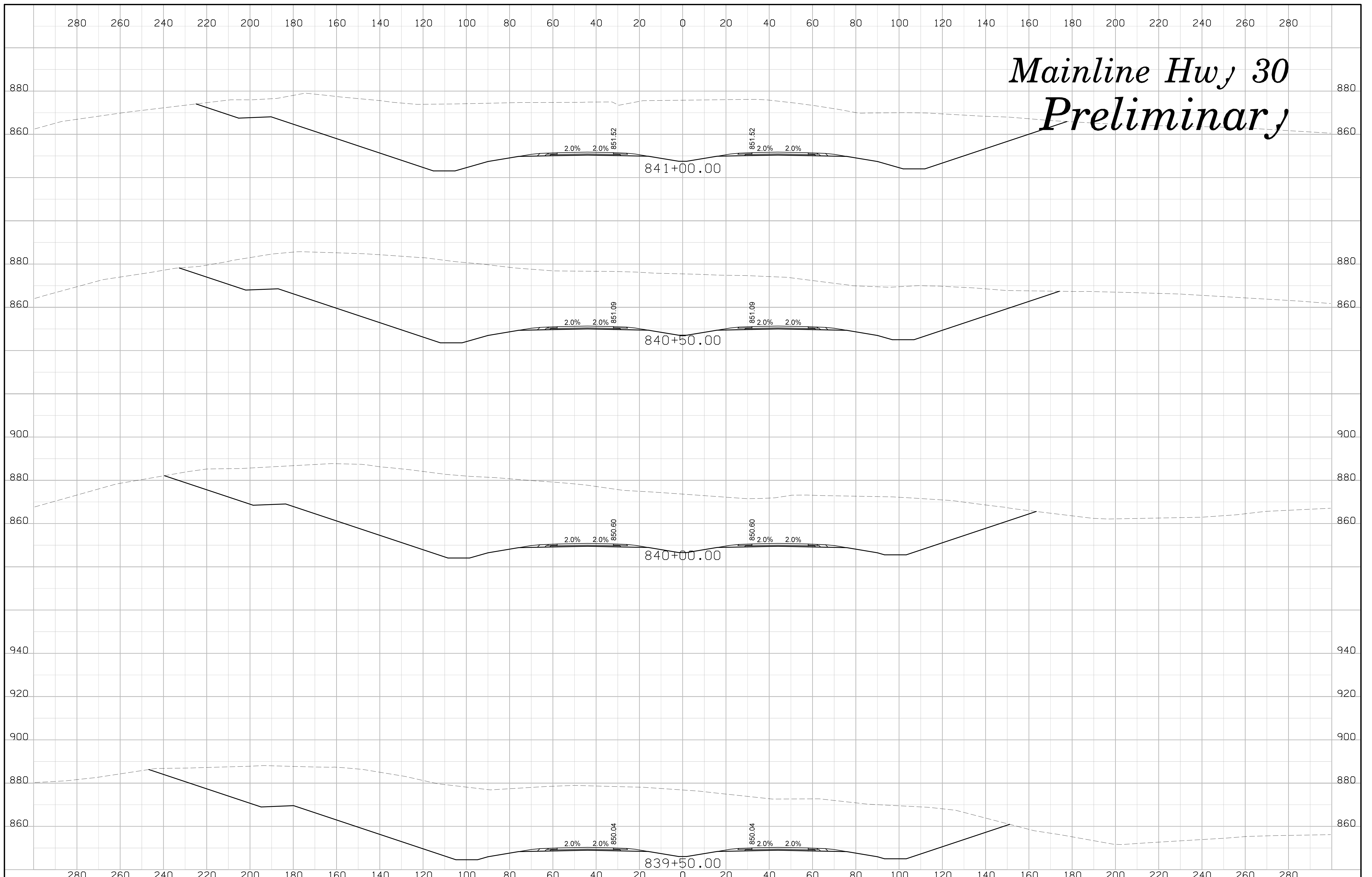
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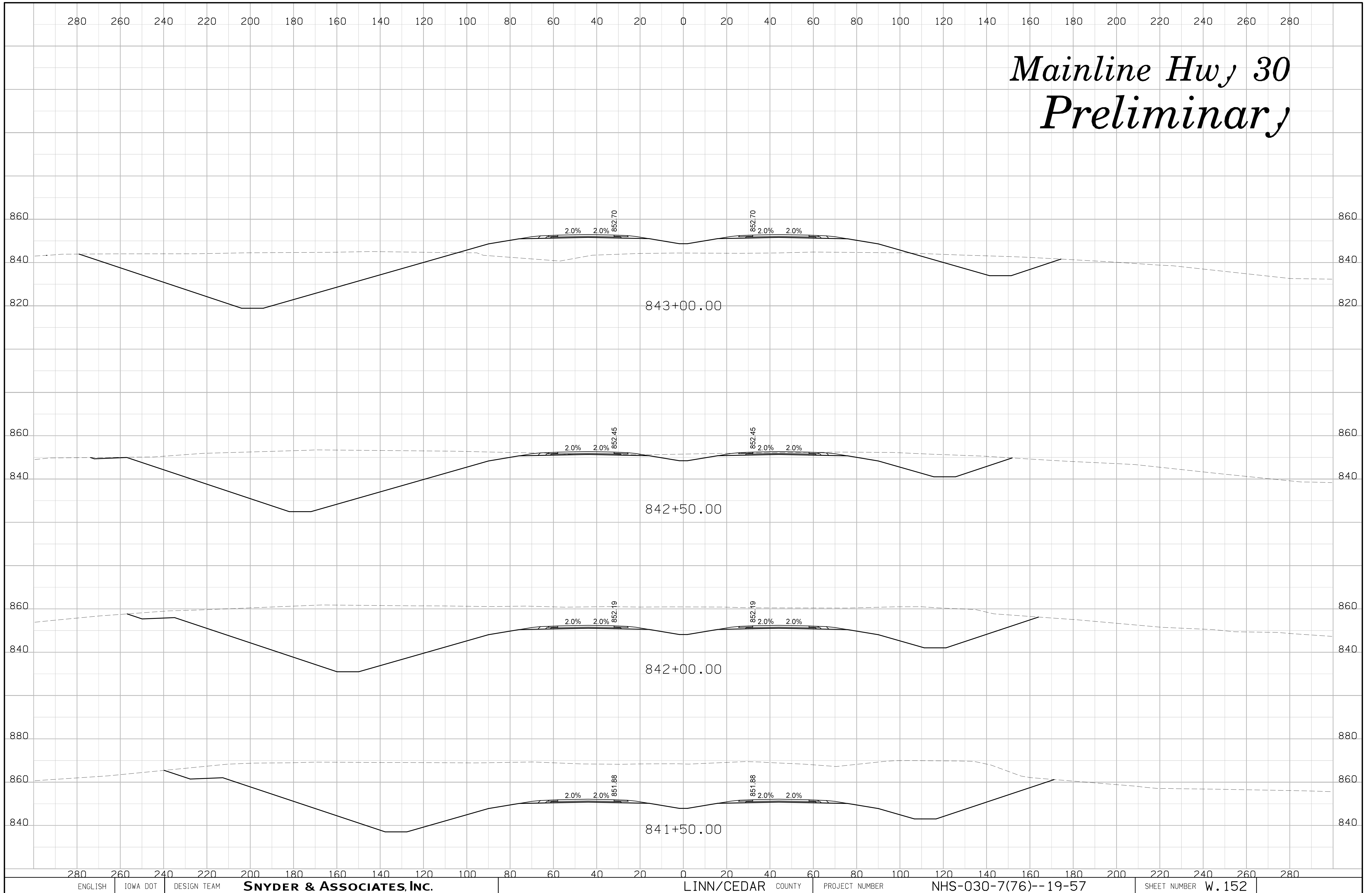
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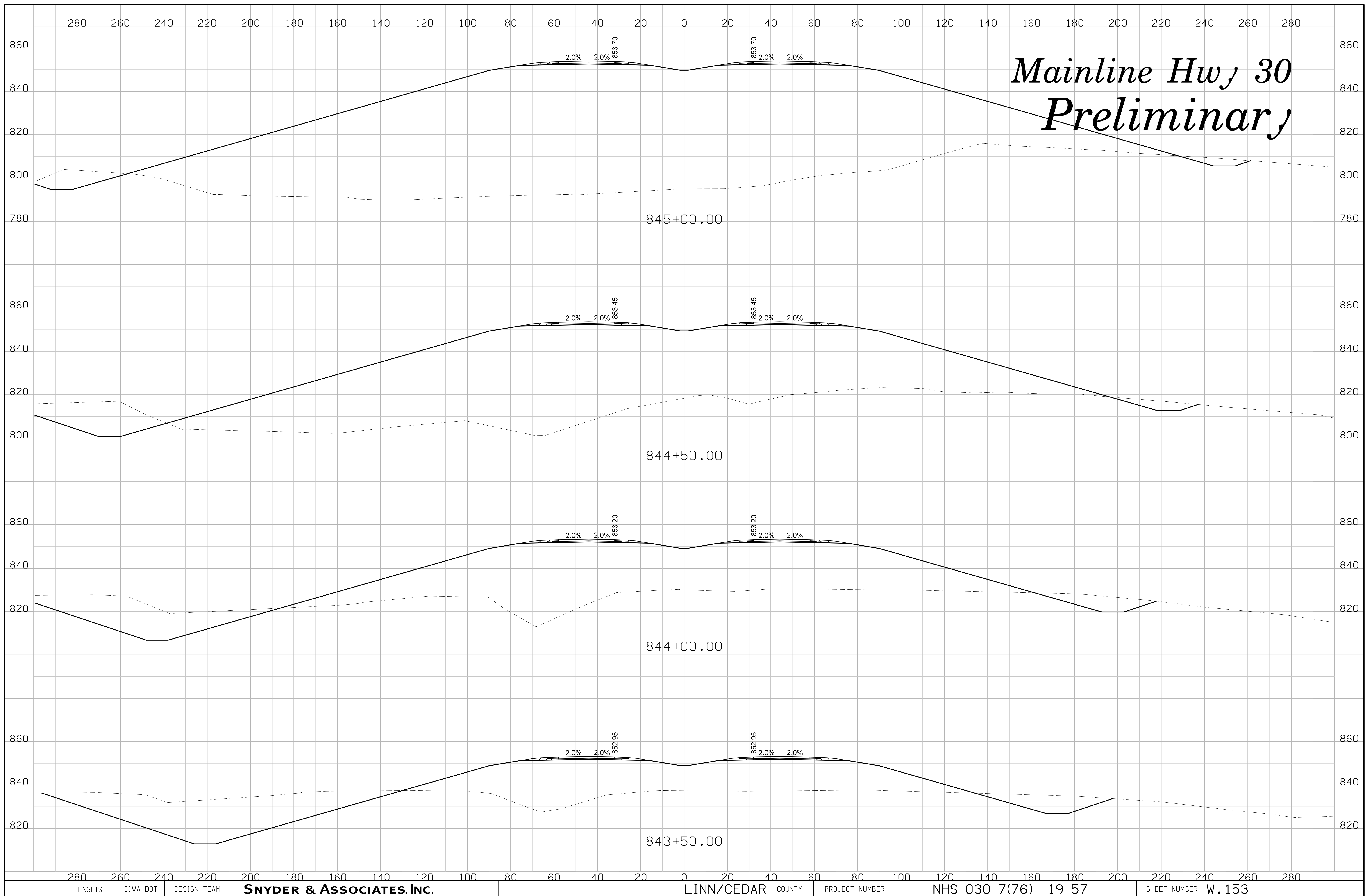


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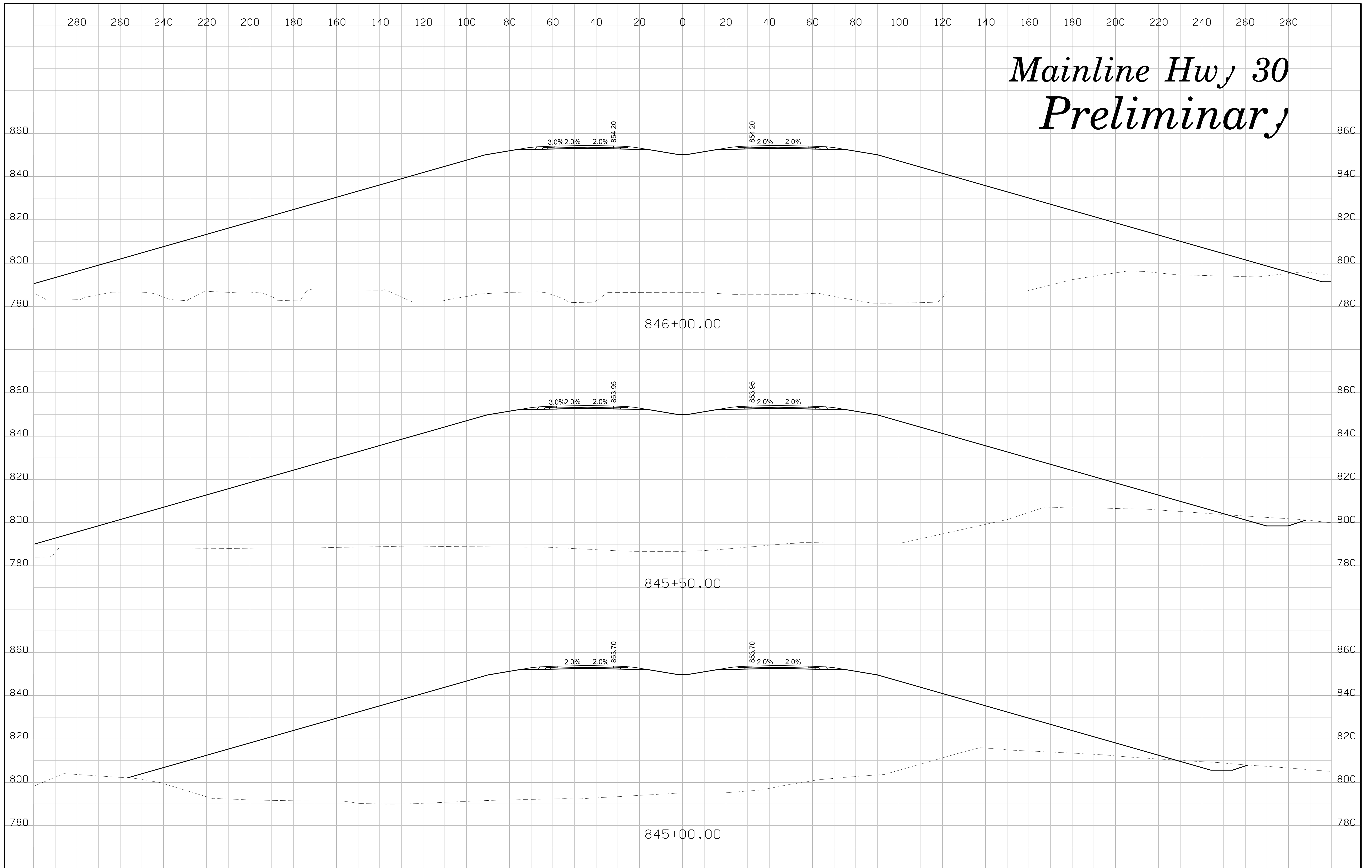
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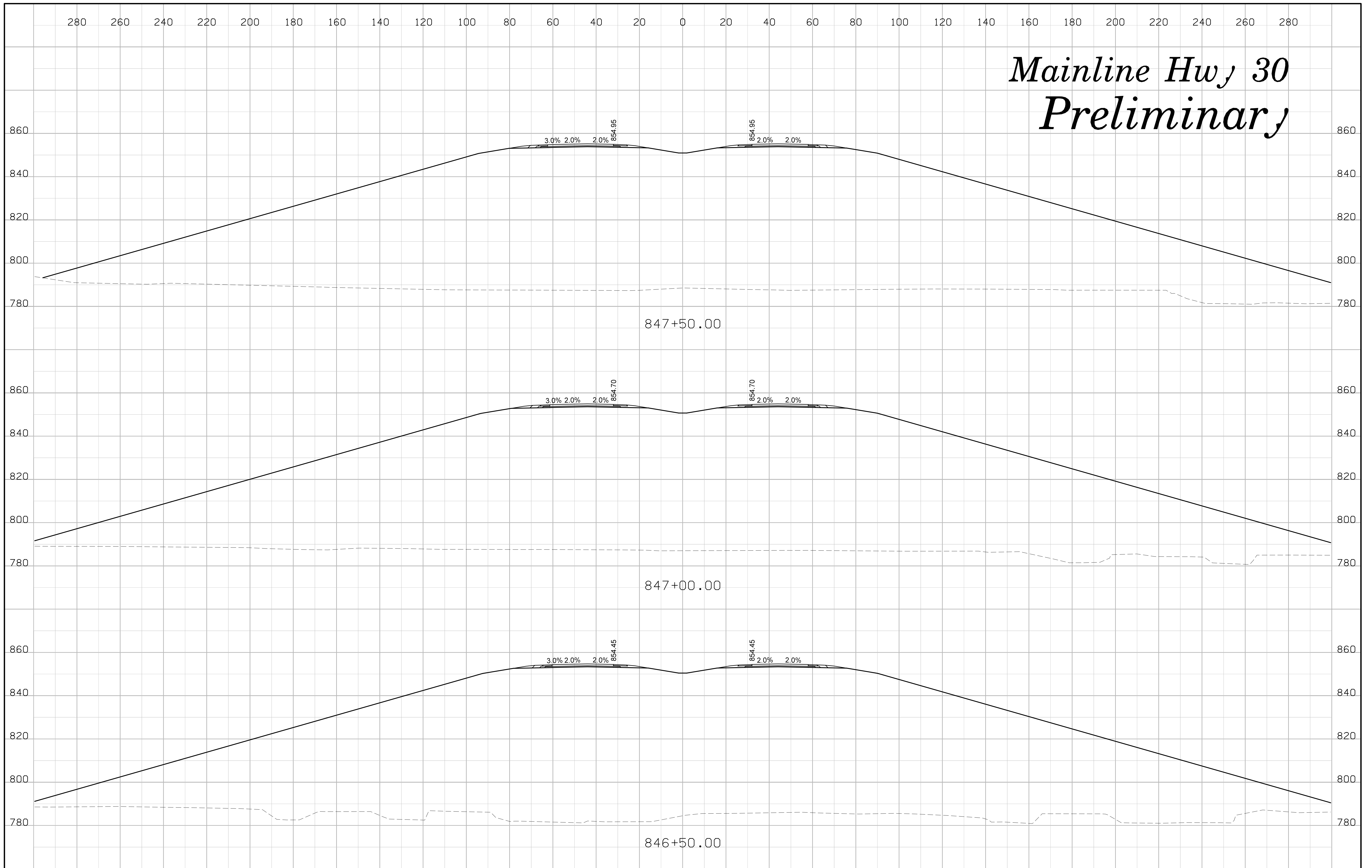




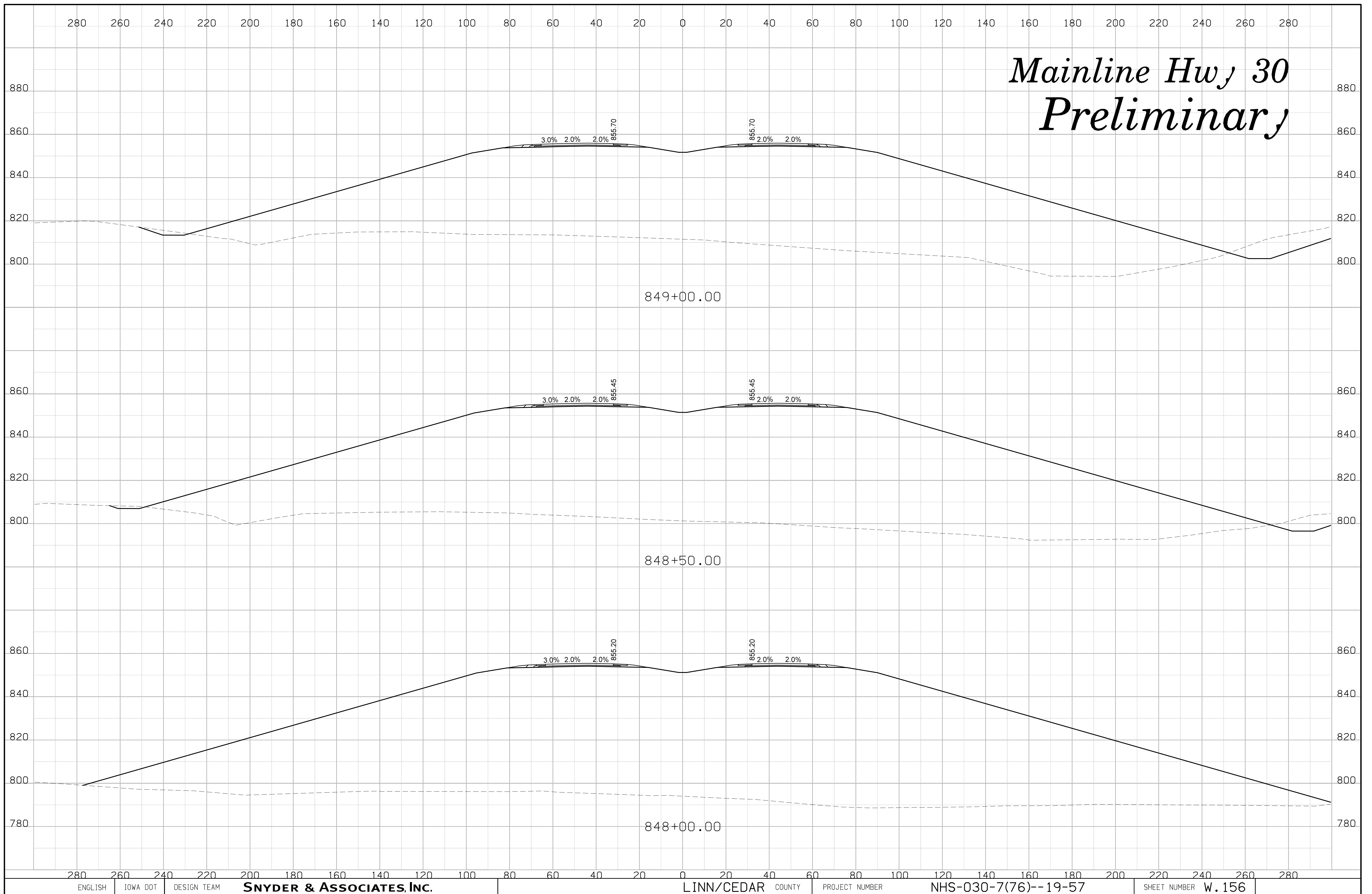
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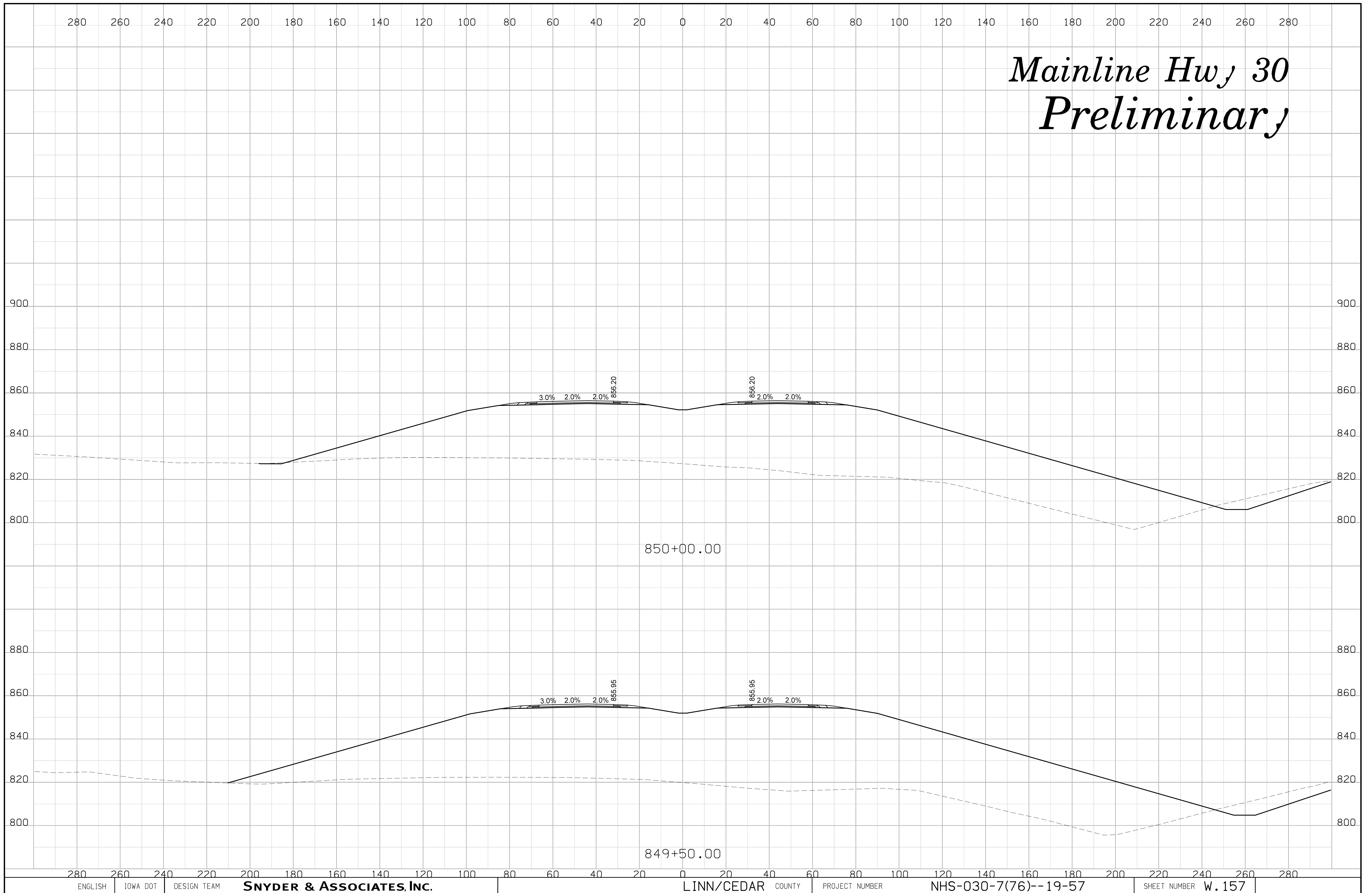
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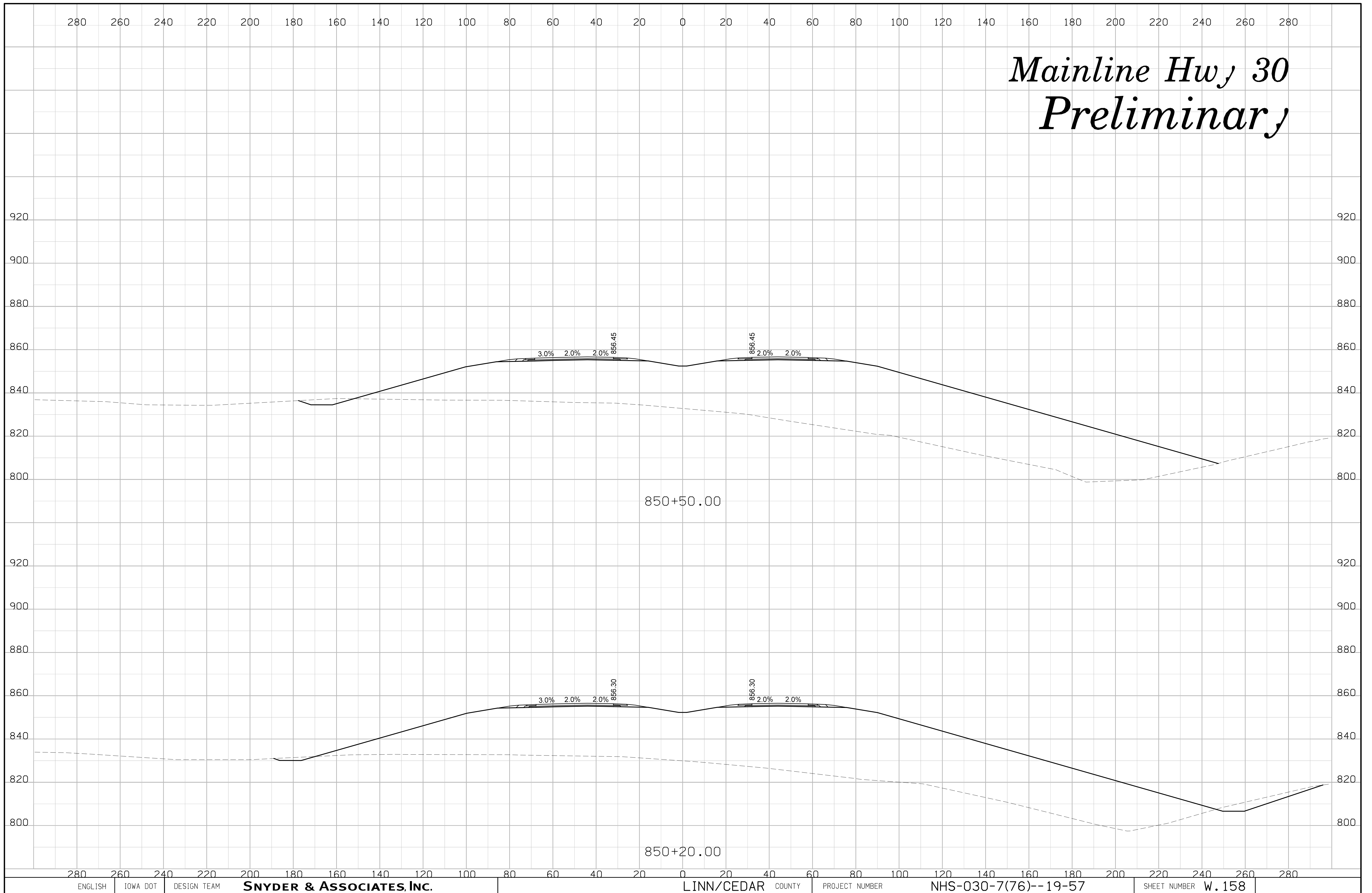
# Mainline Hwy 30 Preliminary



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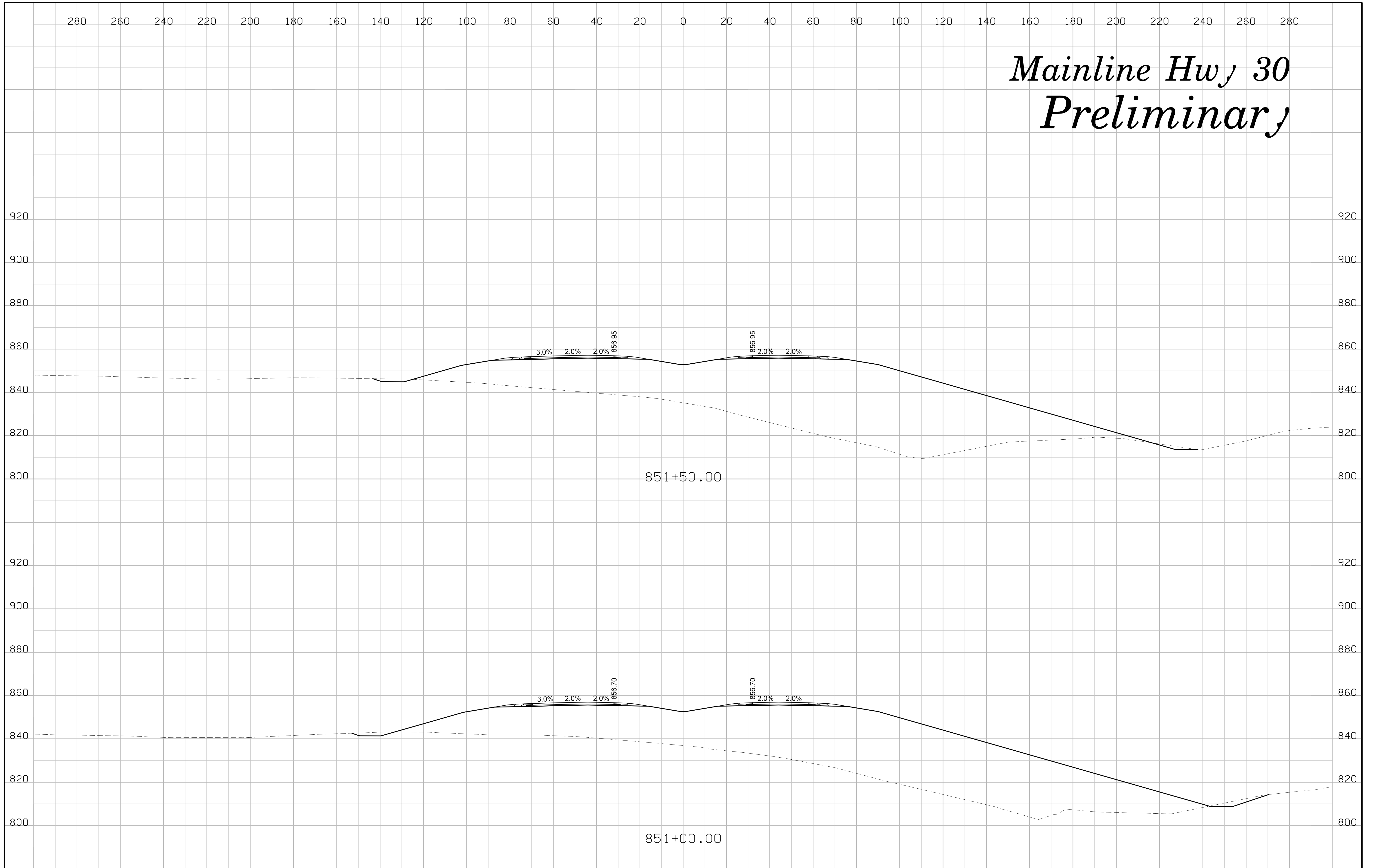


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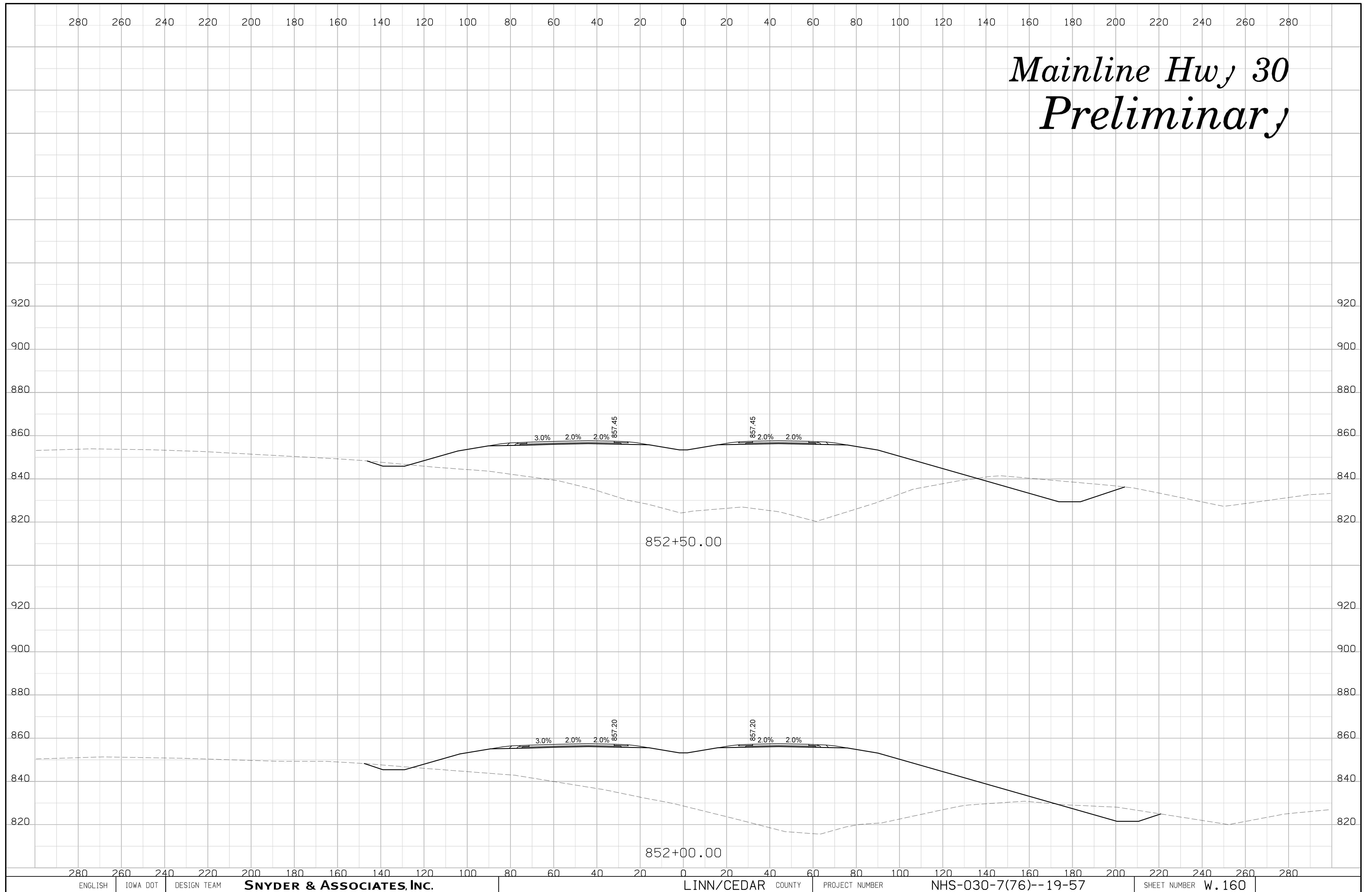




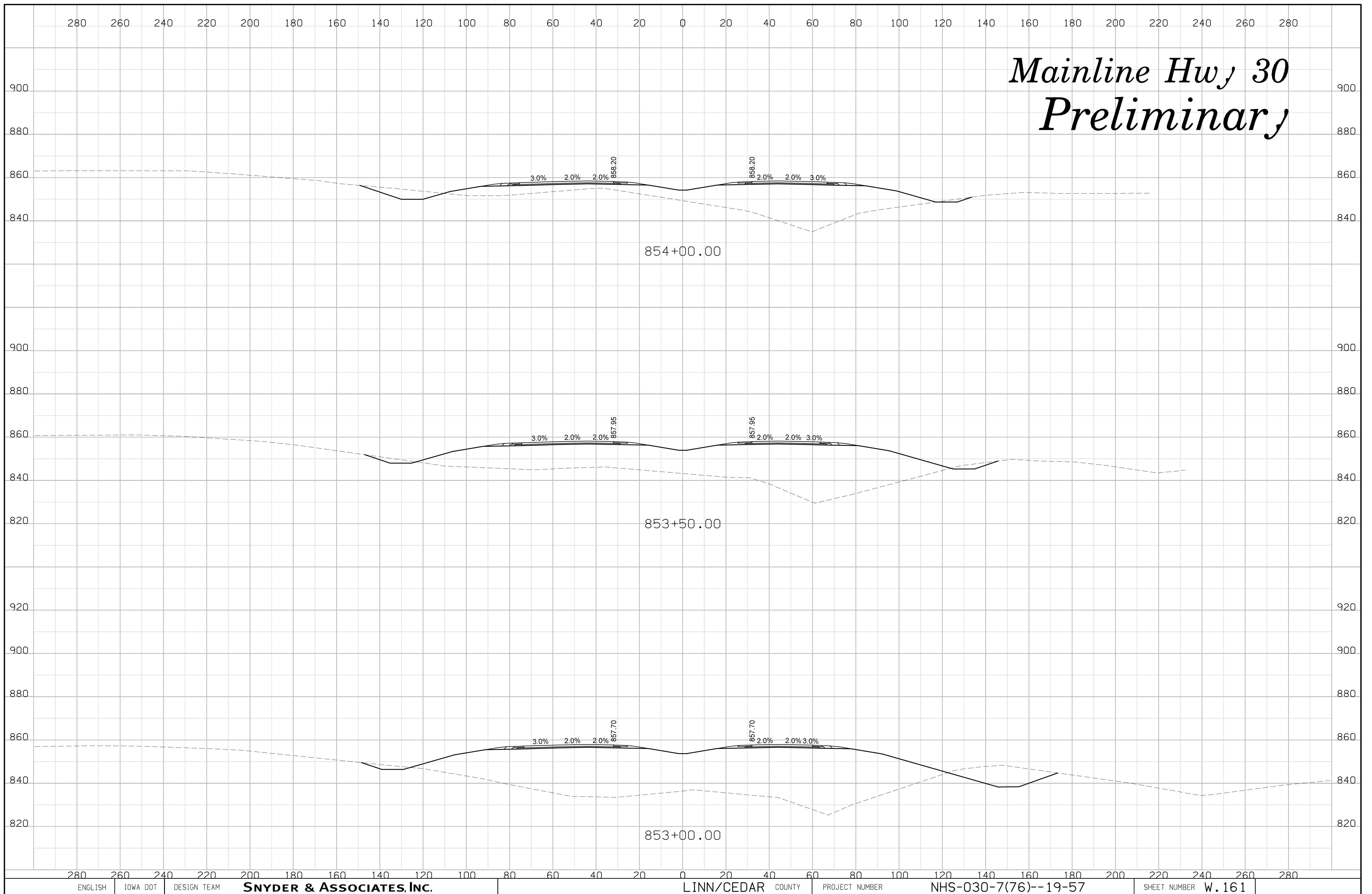
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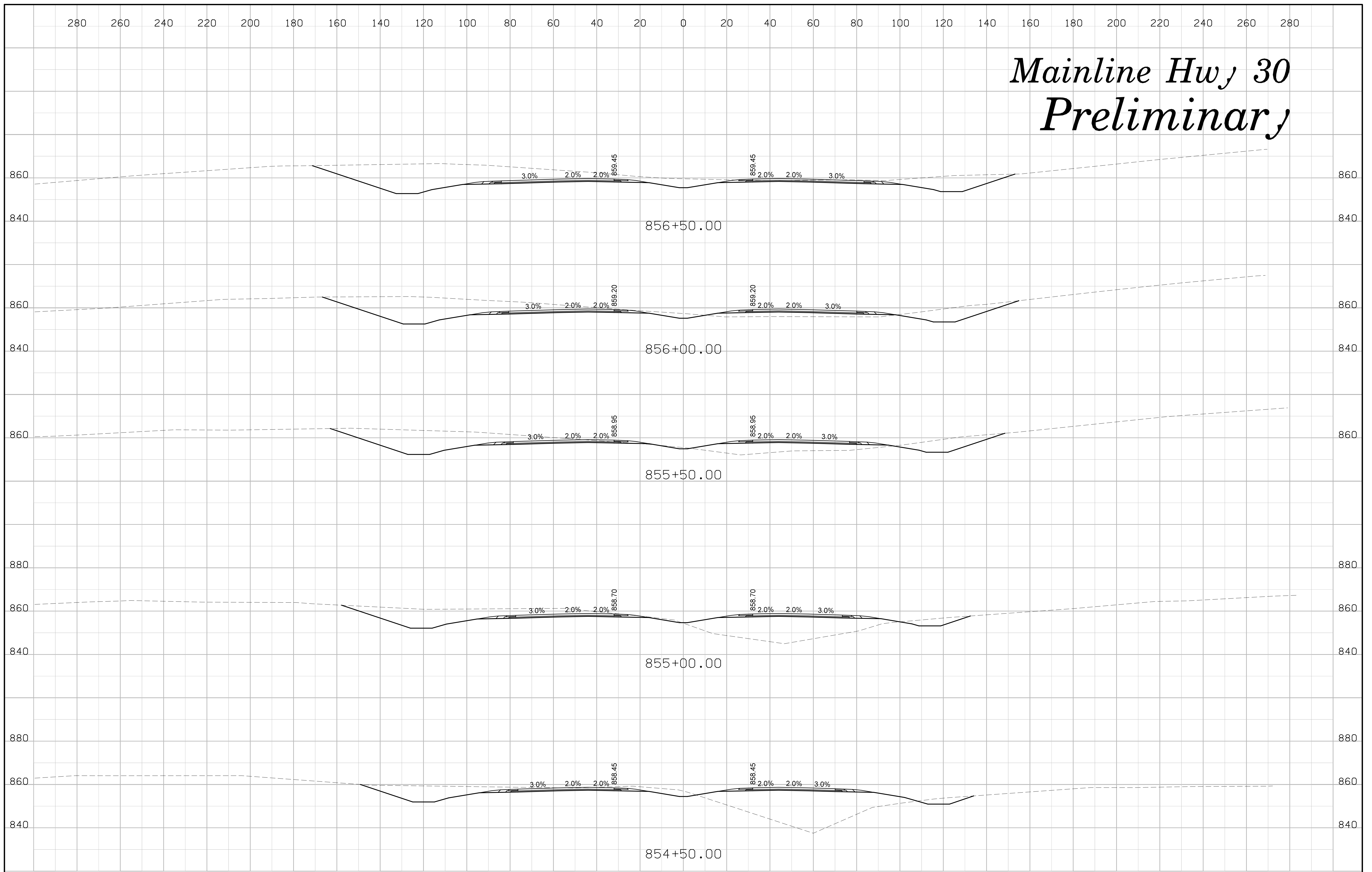
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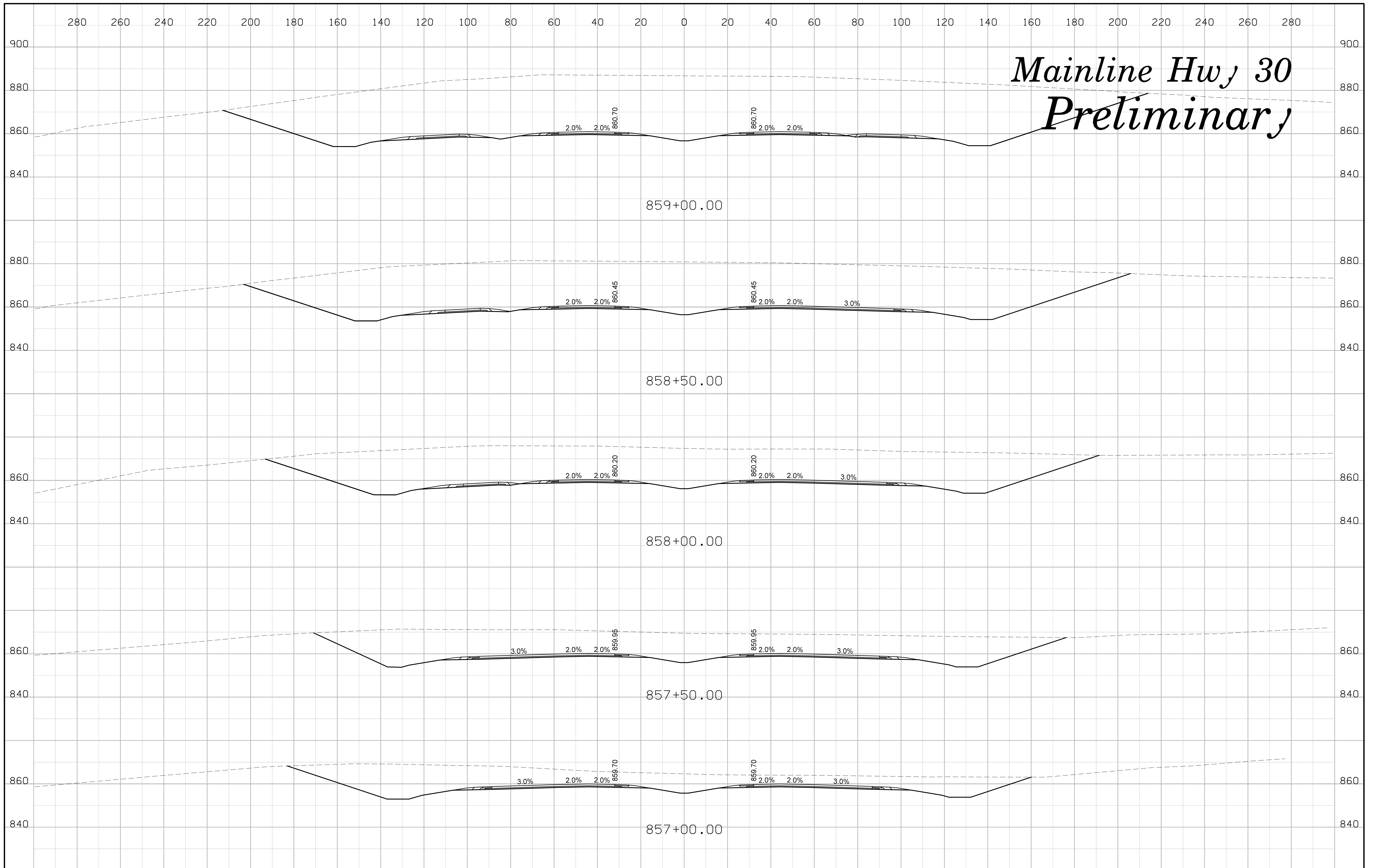
# Mainline Hwy 30 Preliminary



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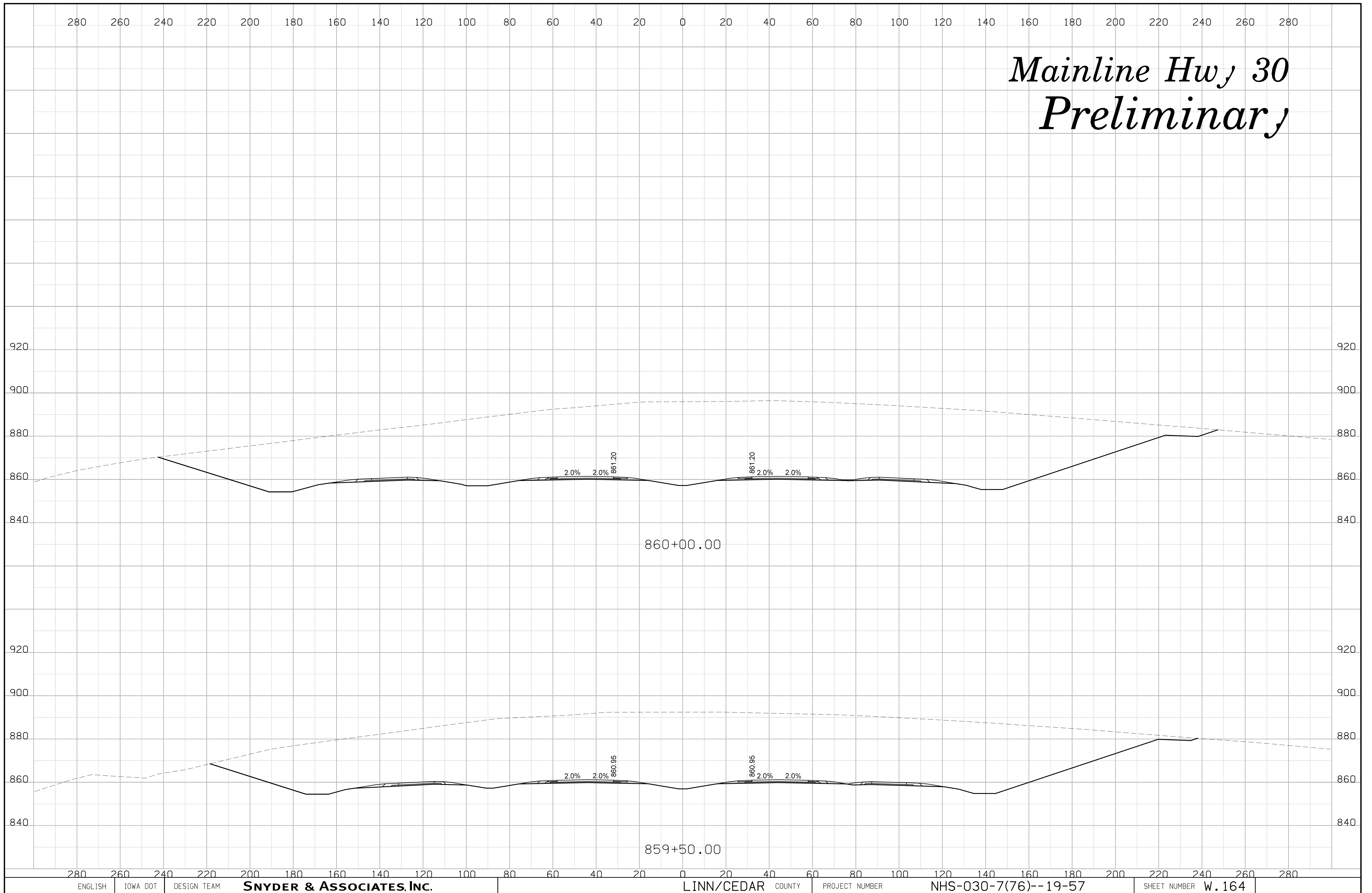


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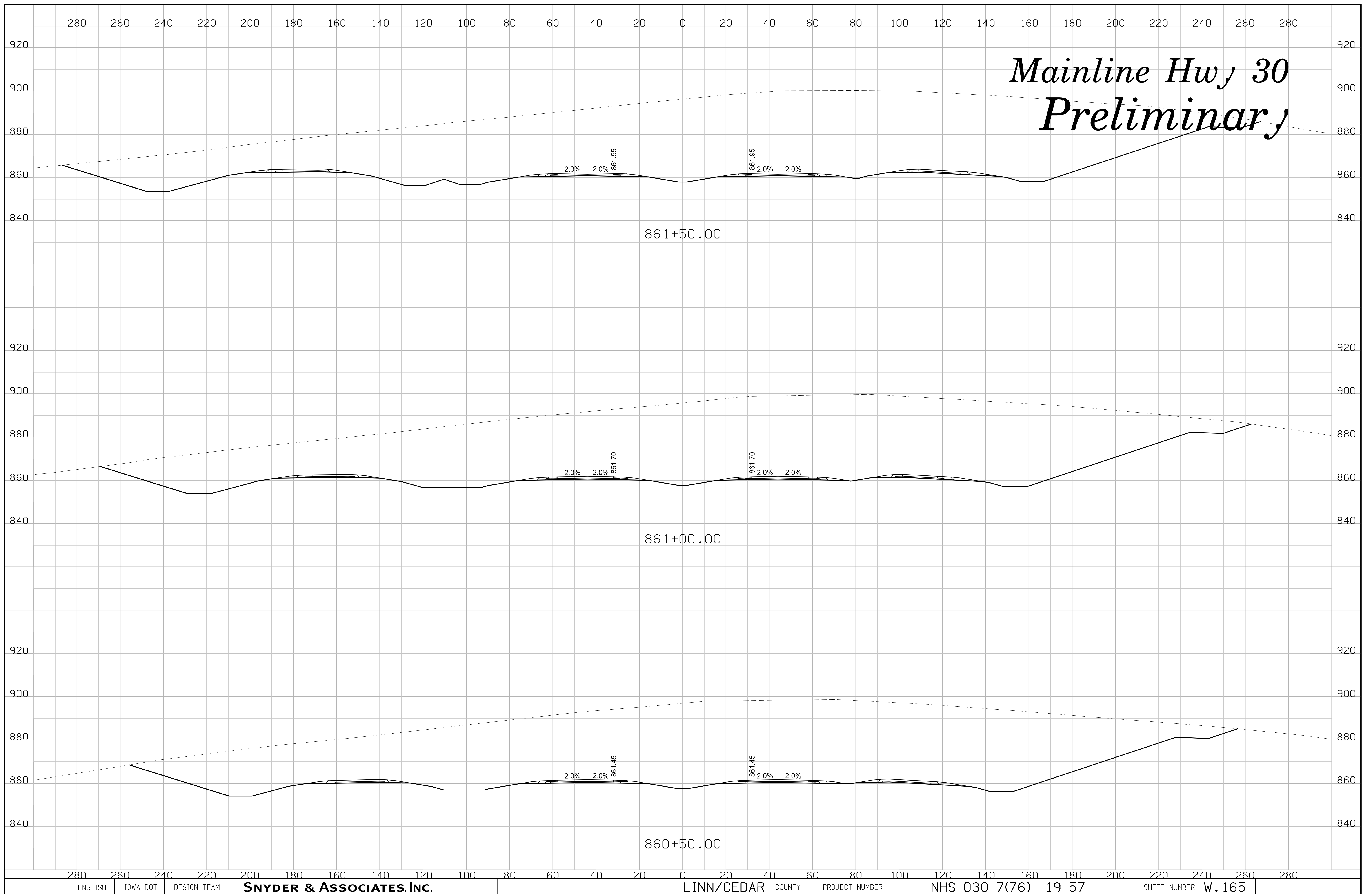




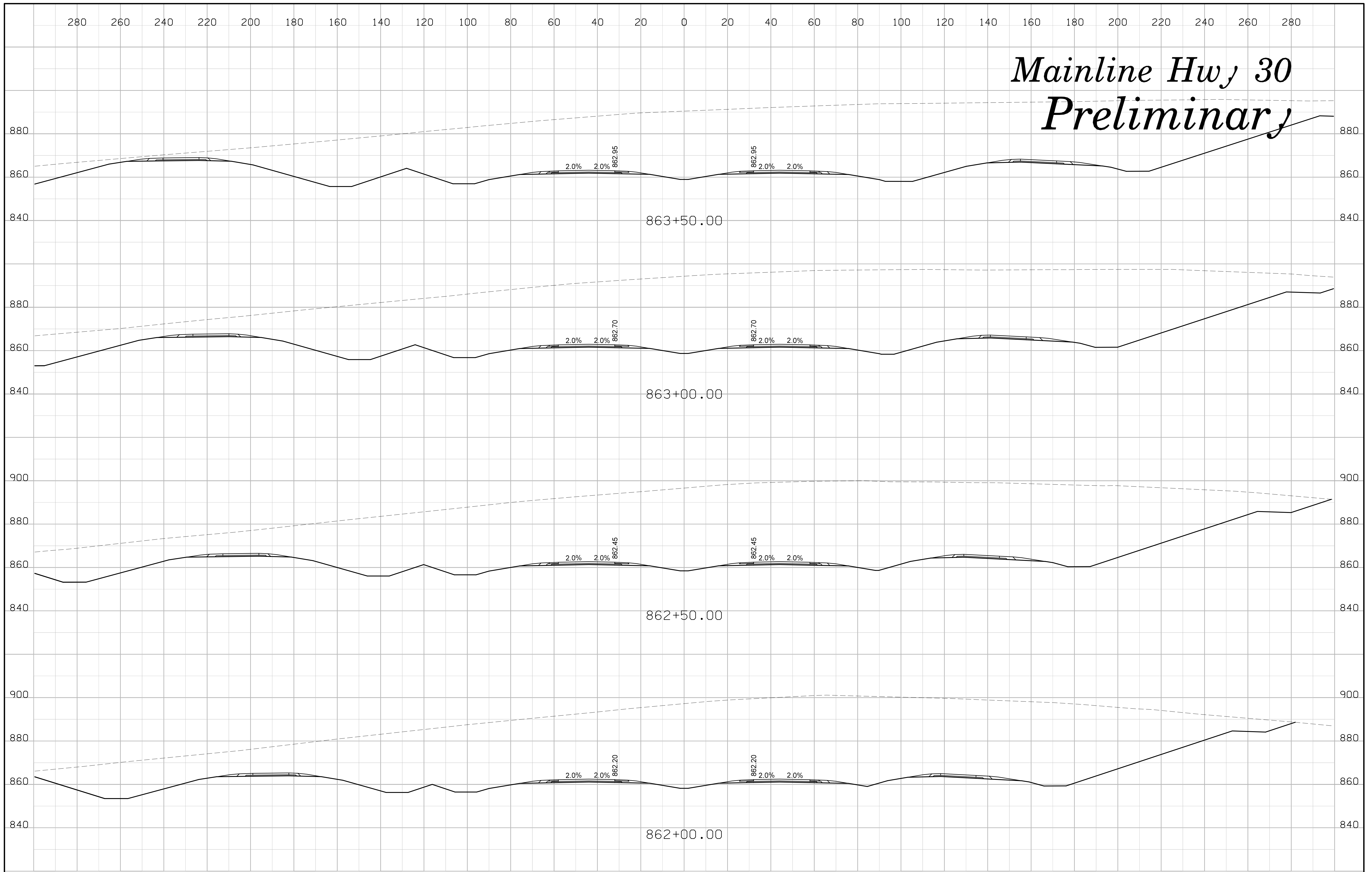
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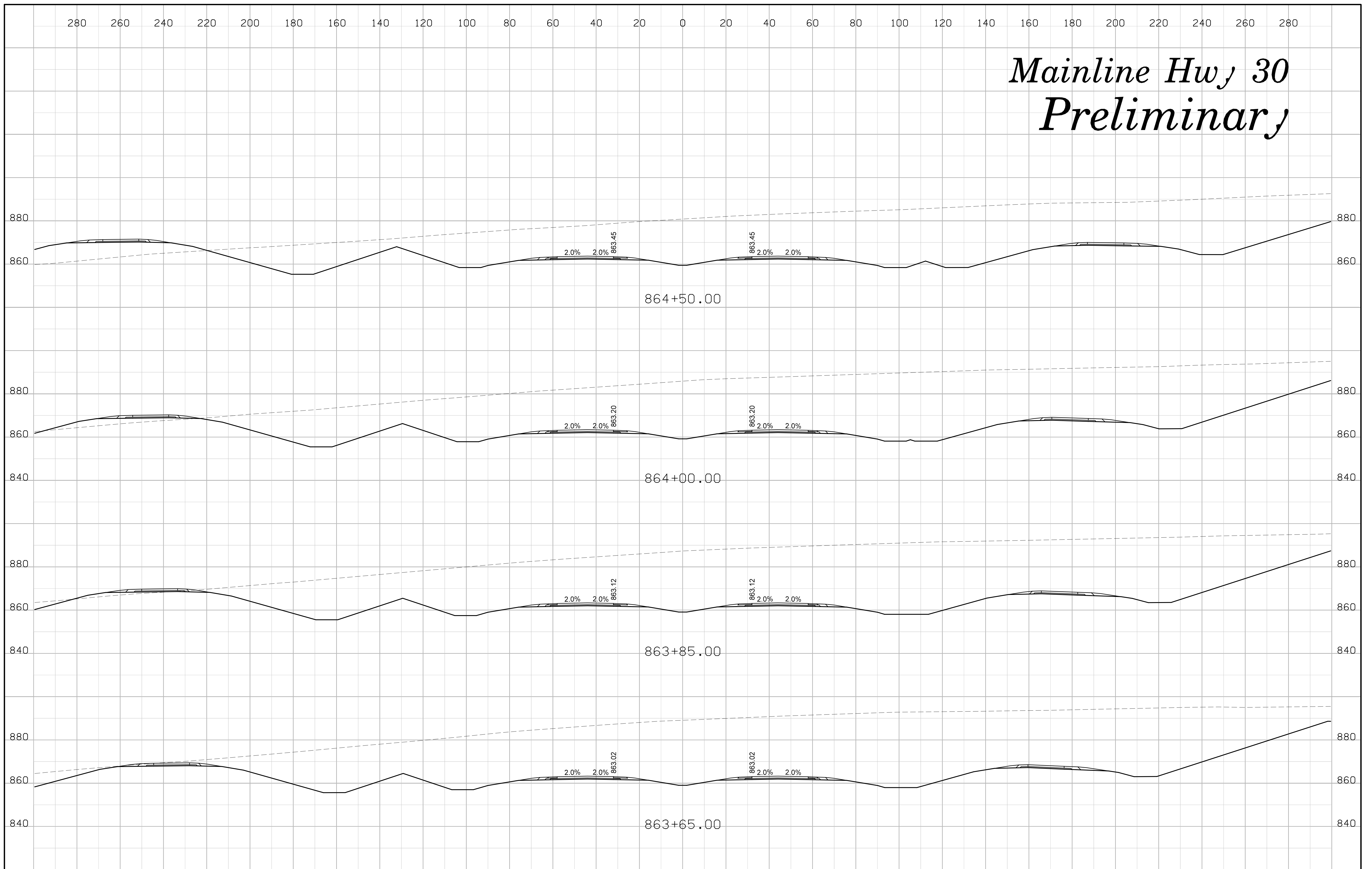
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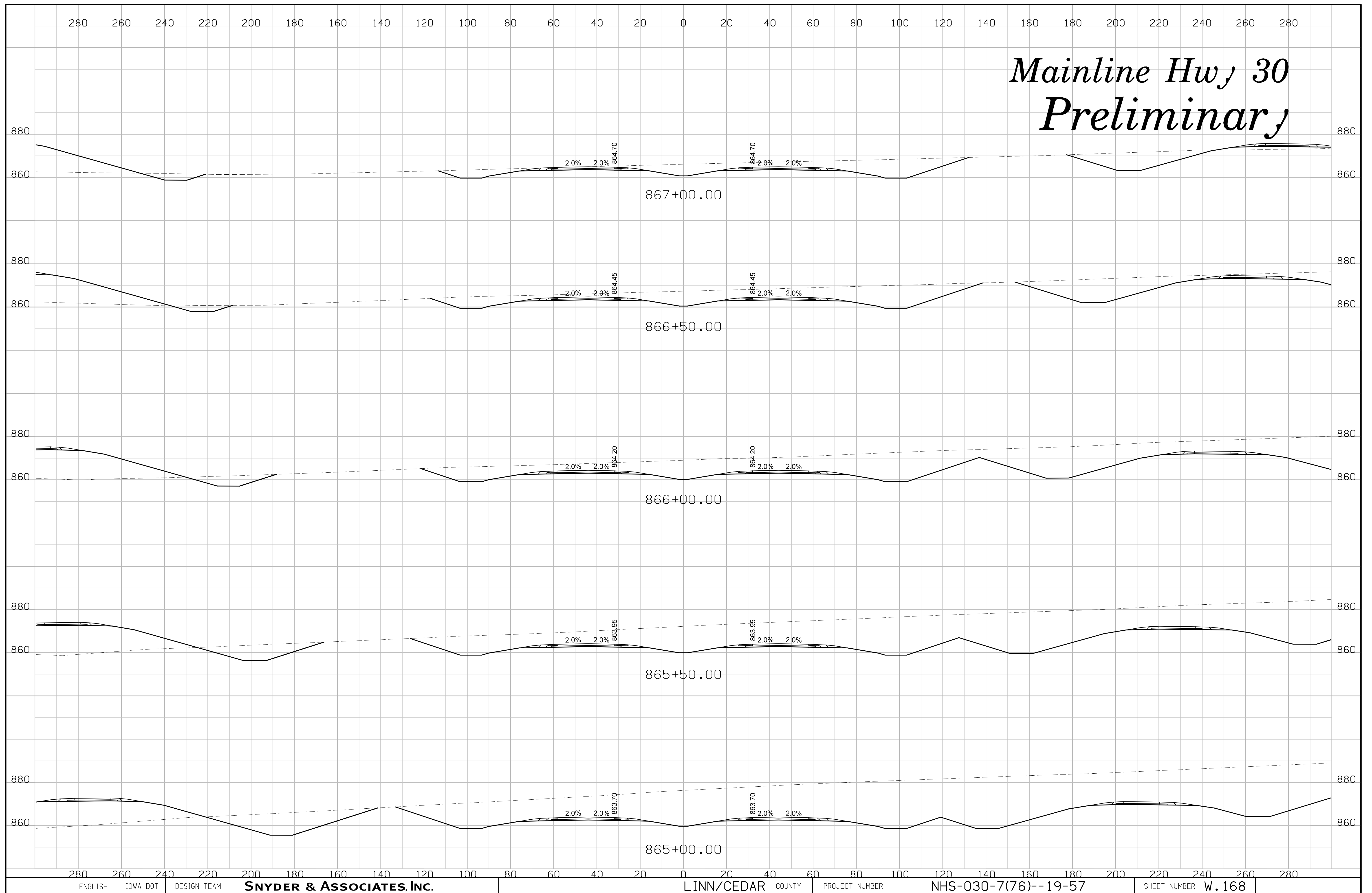
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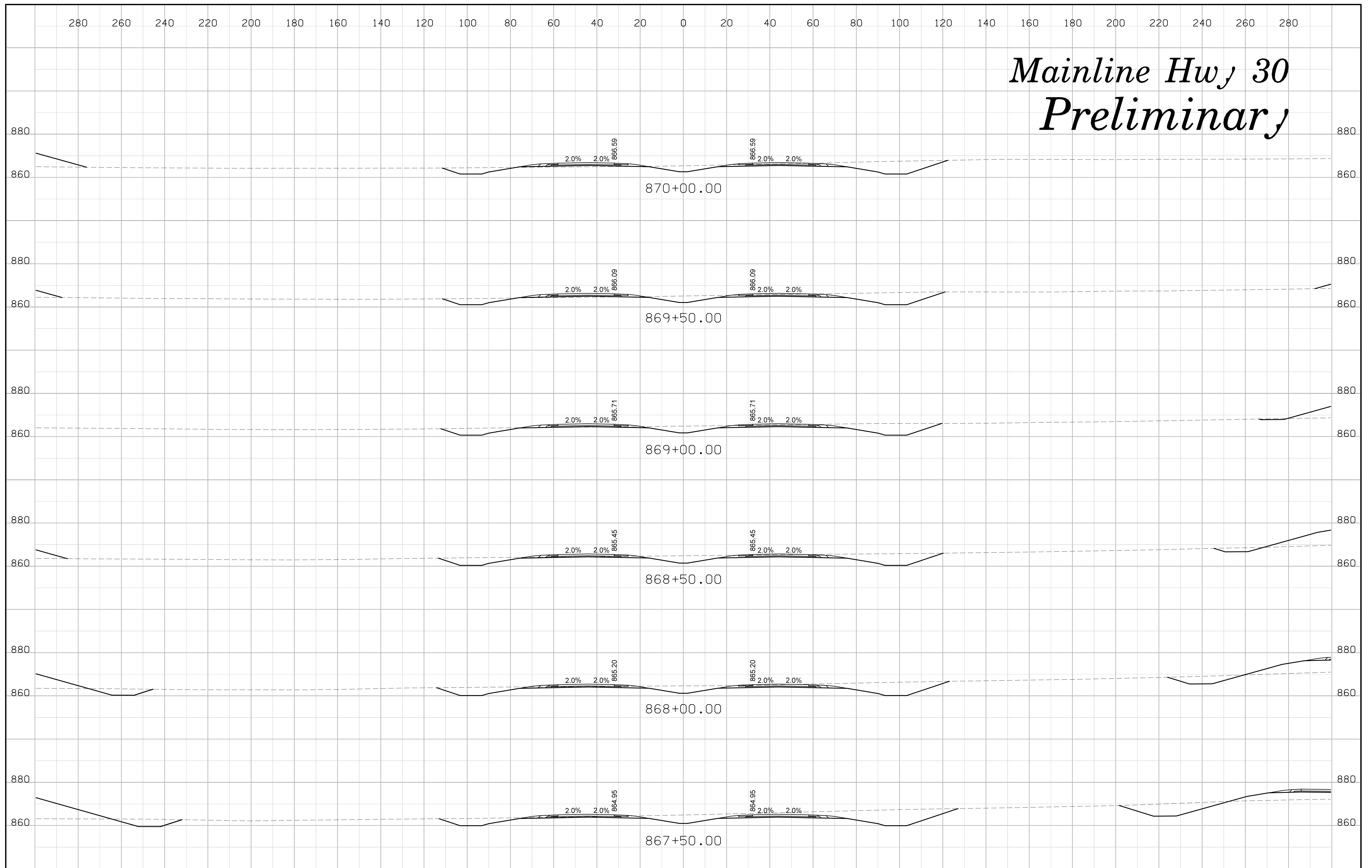


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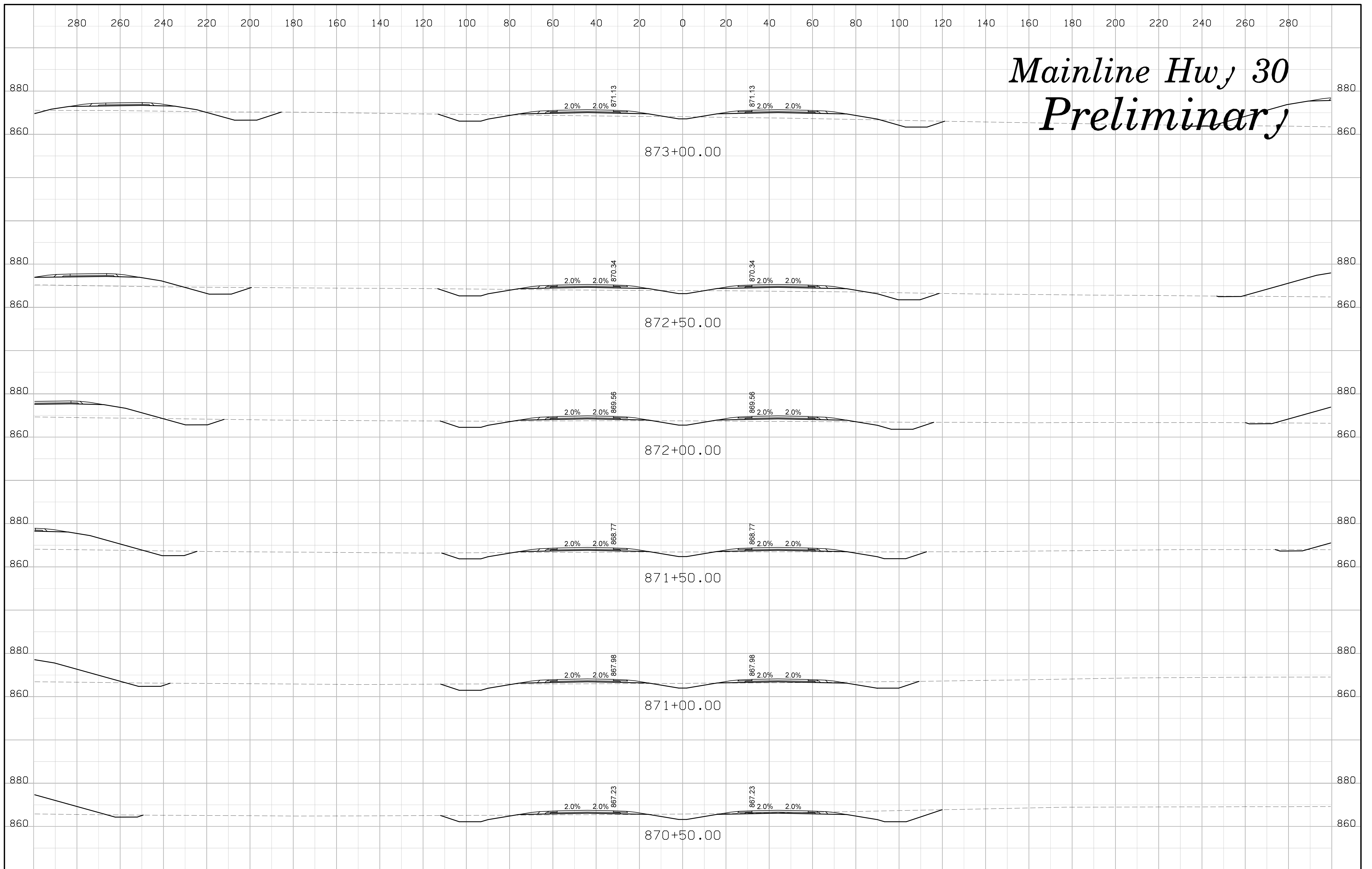




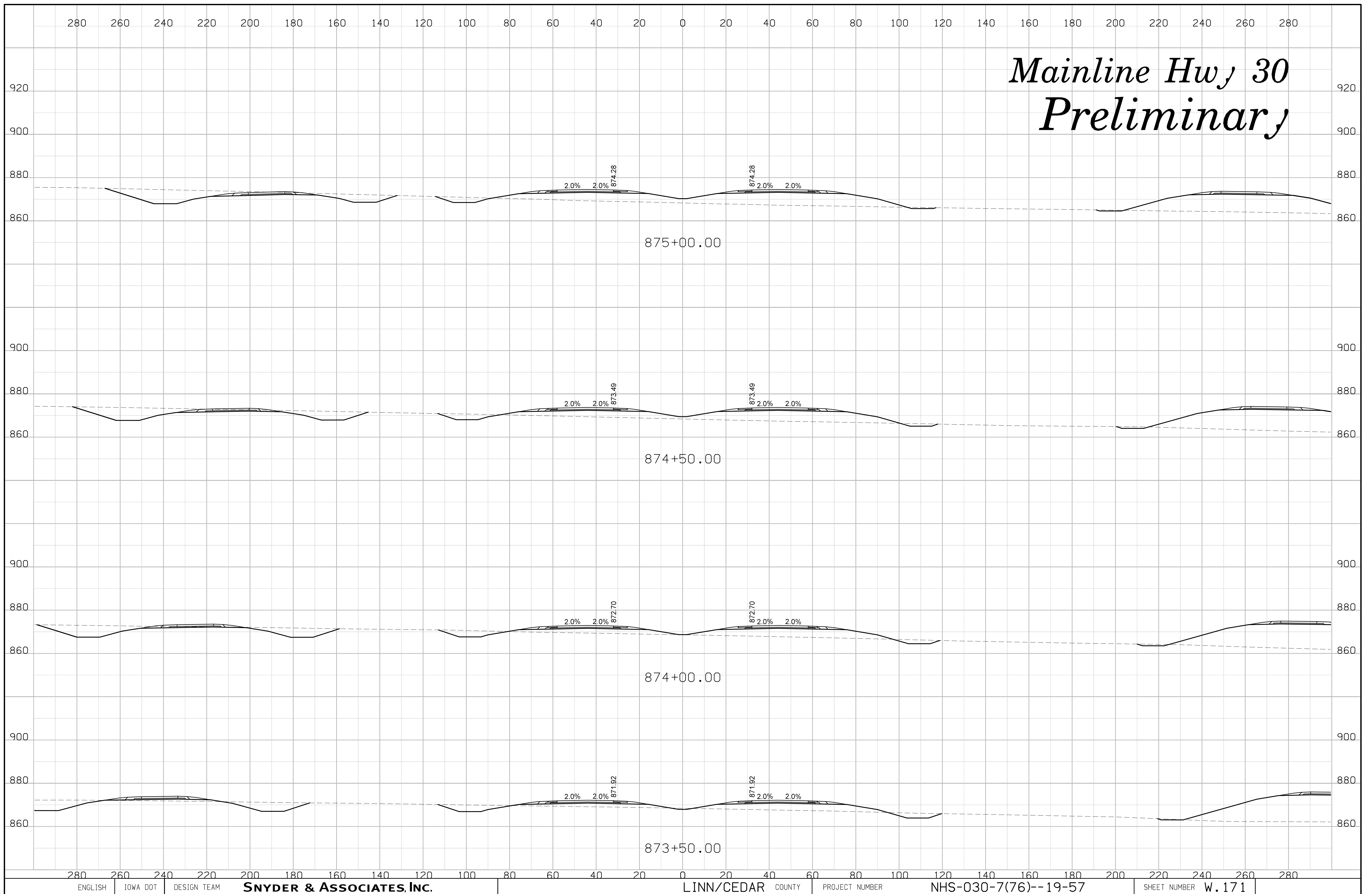
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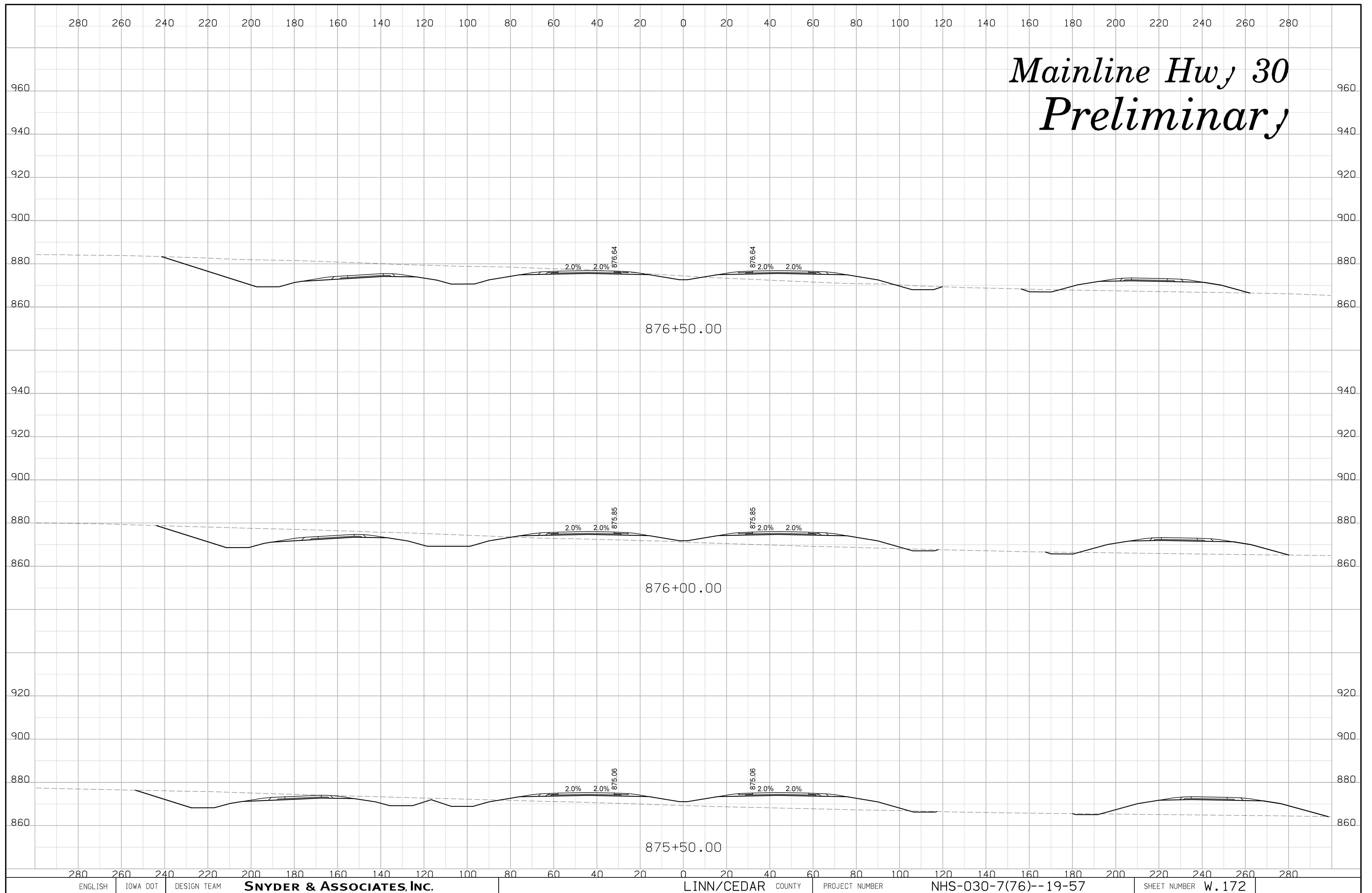
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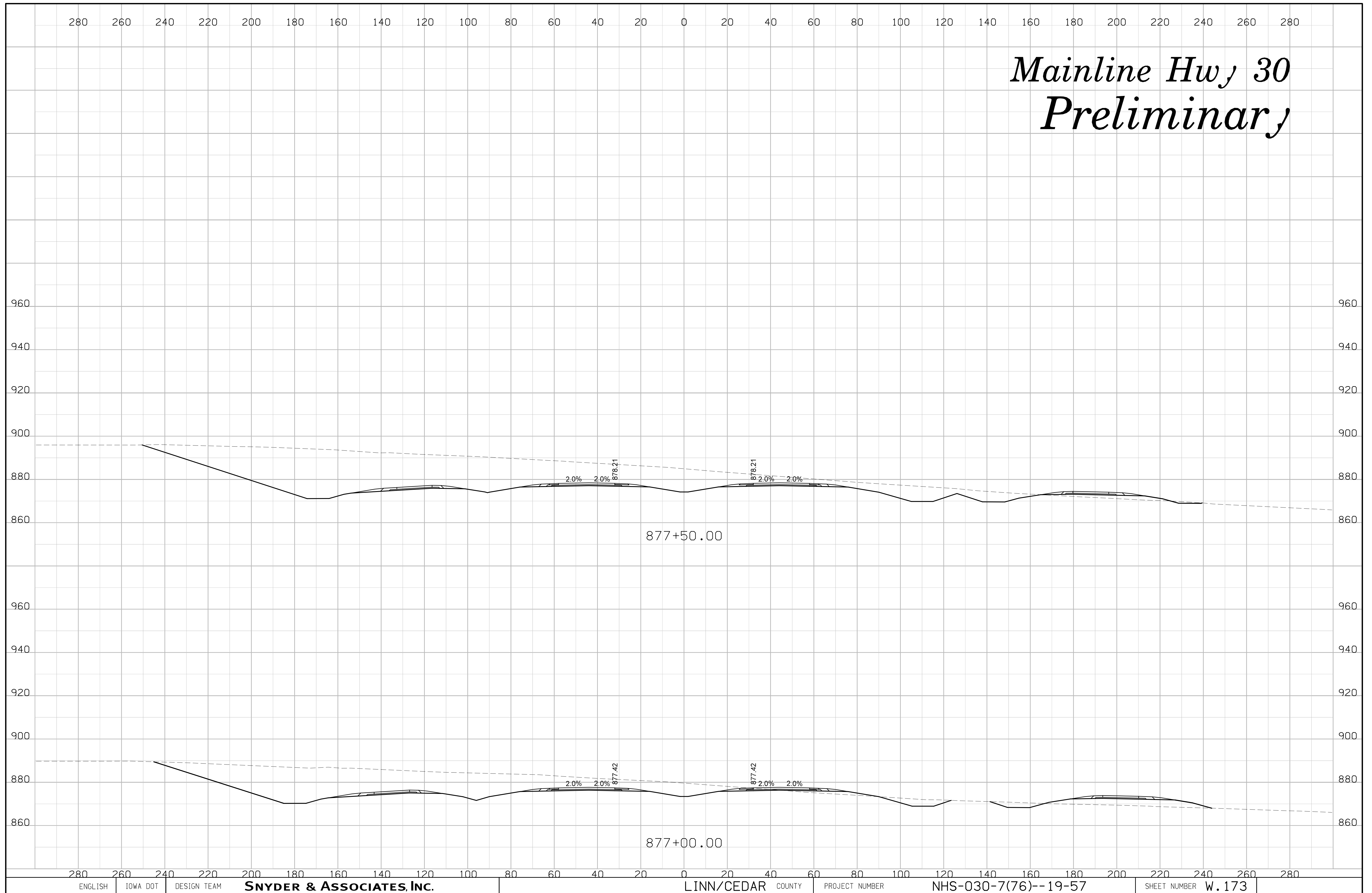
# Mainline Hwy 30 Preliminary



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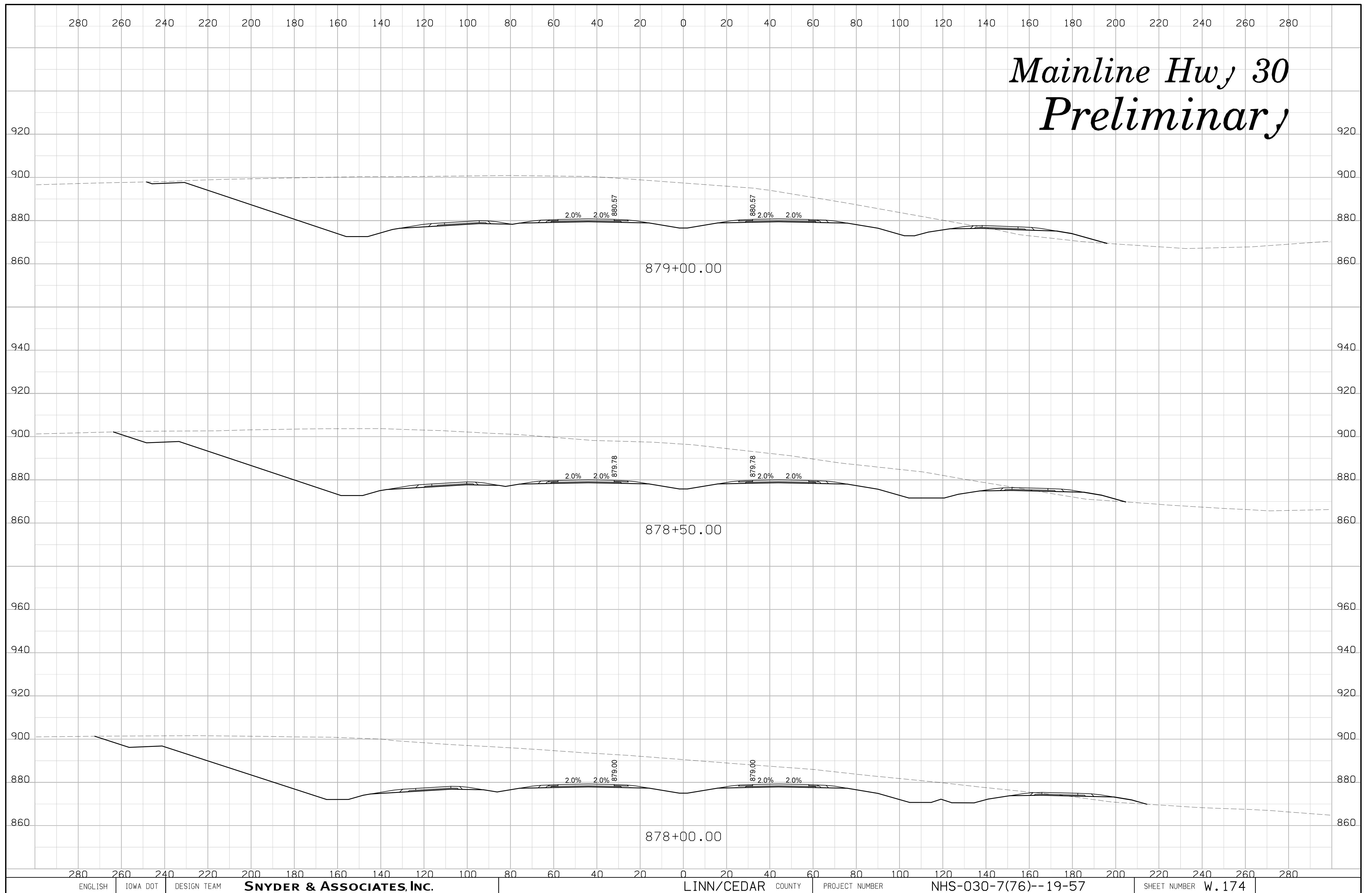


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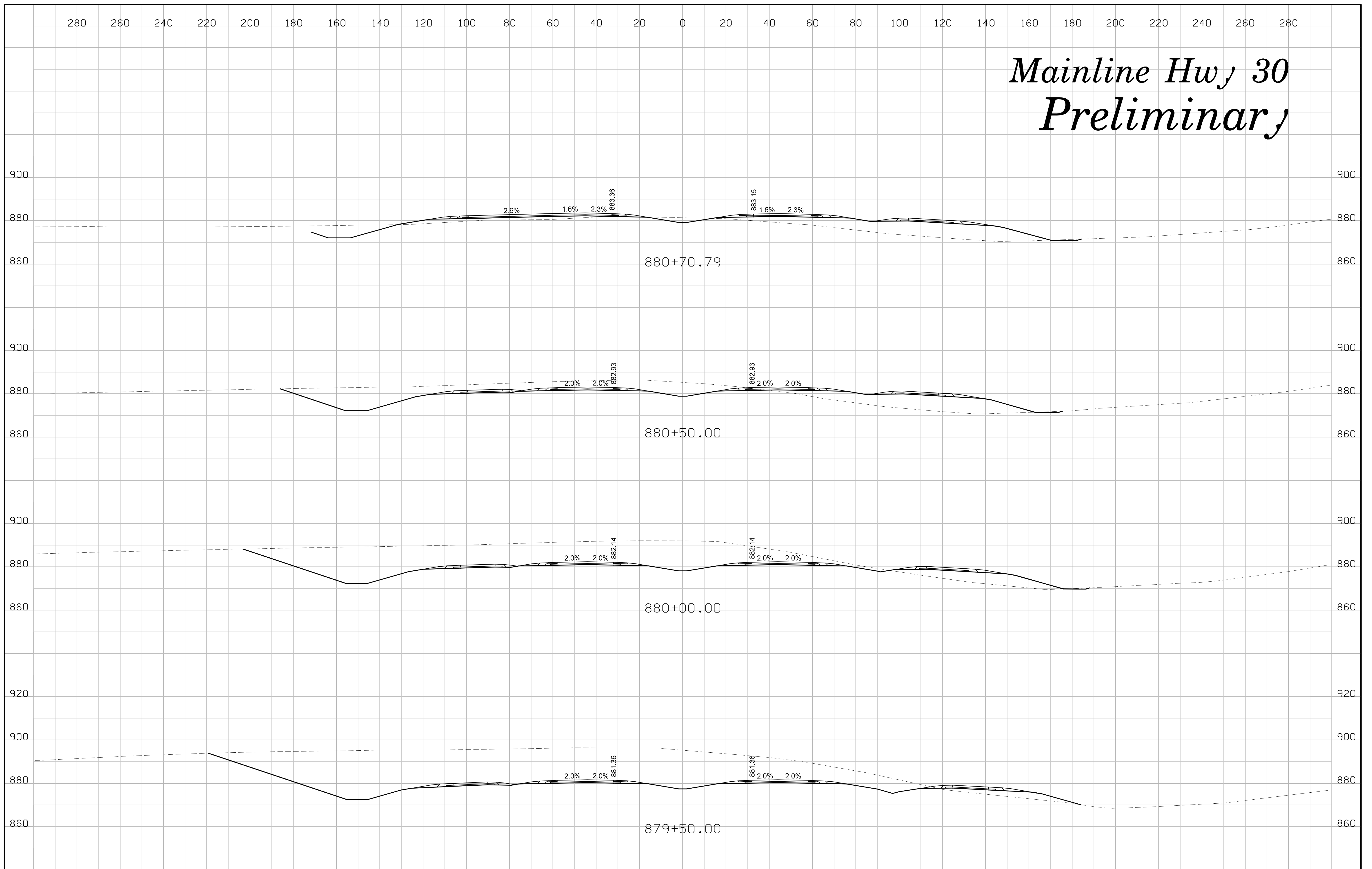




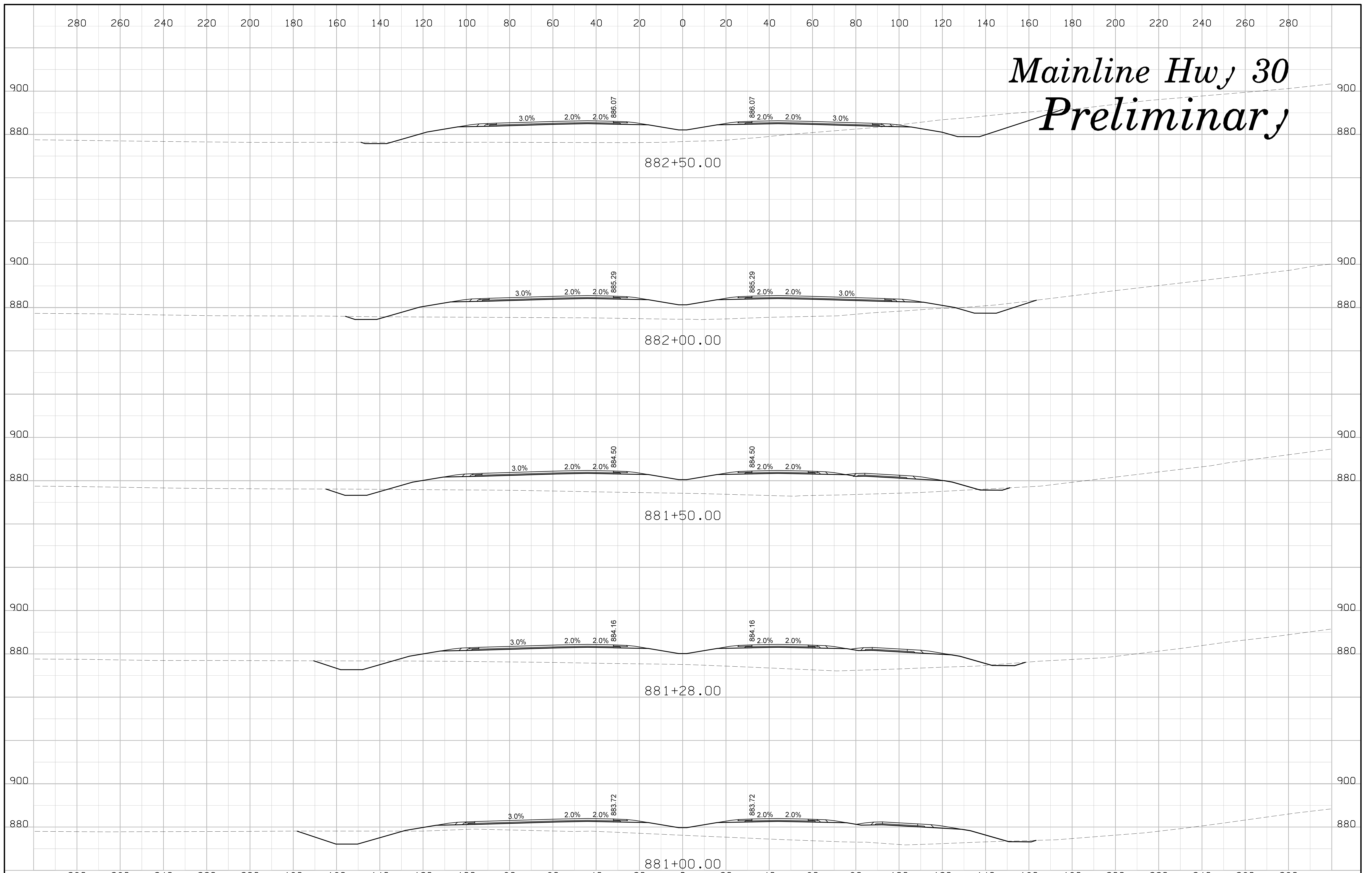
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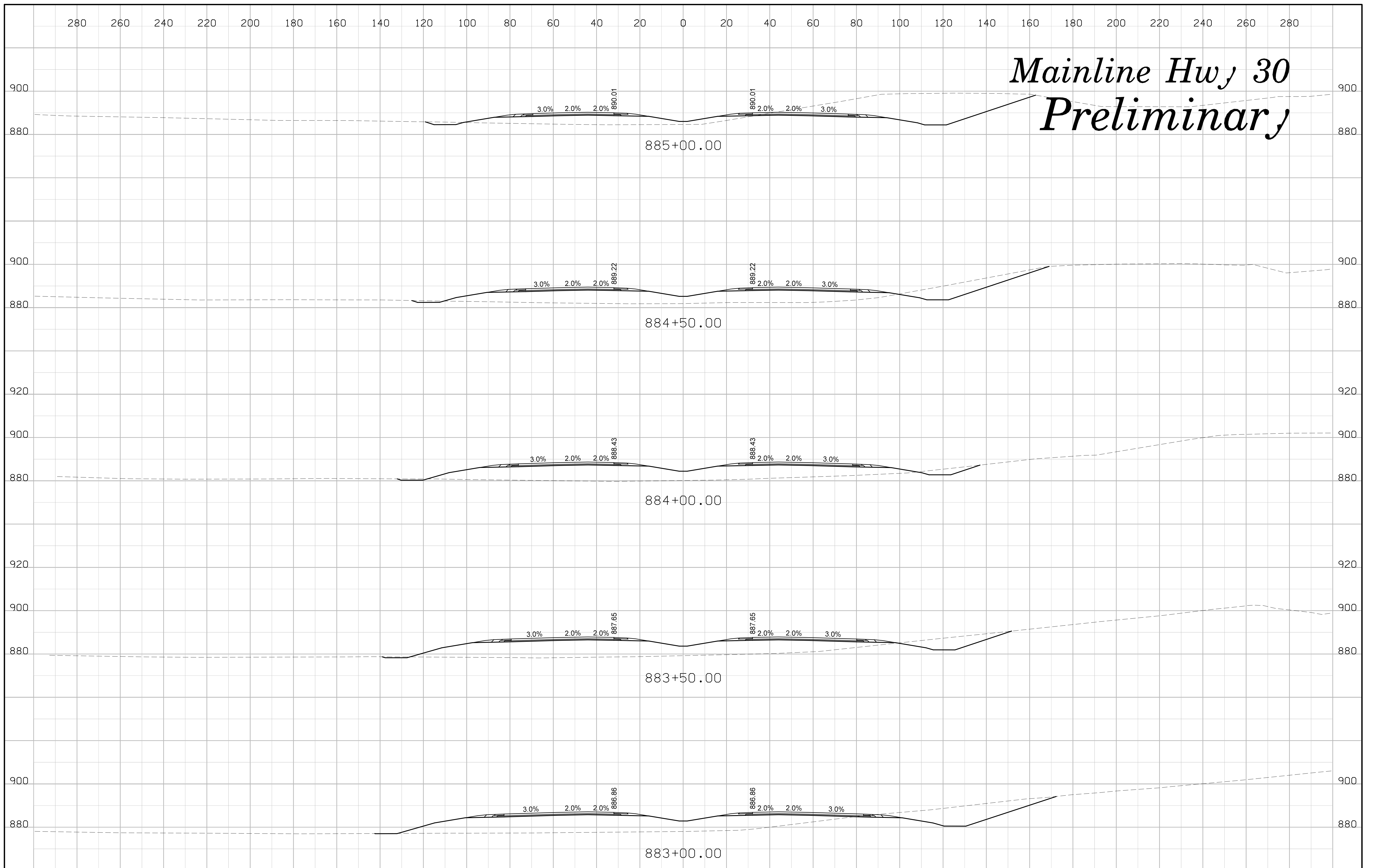
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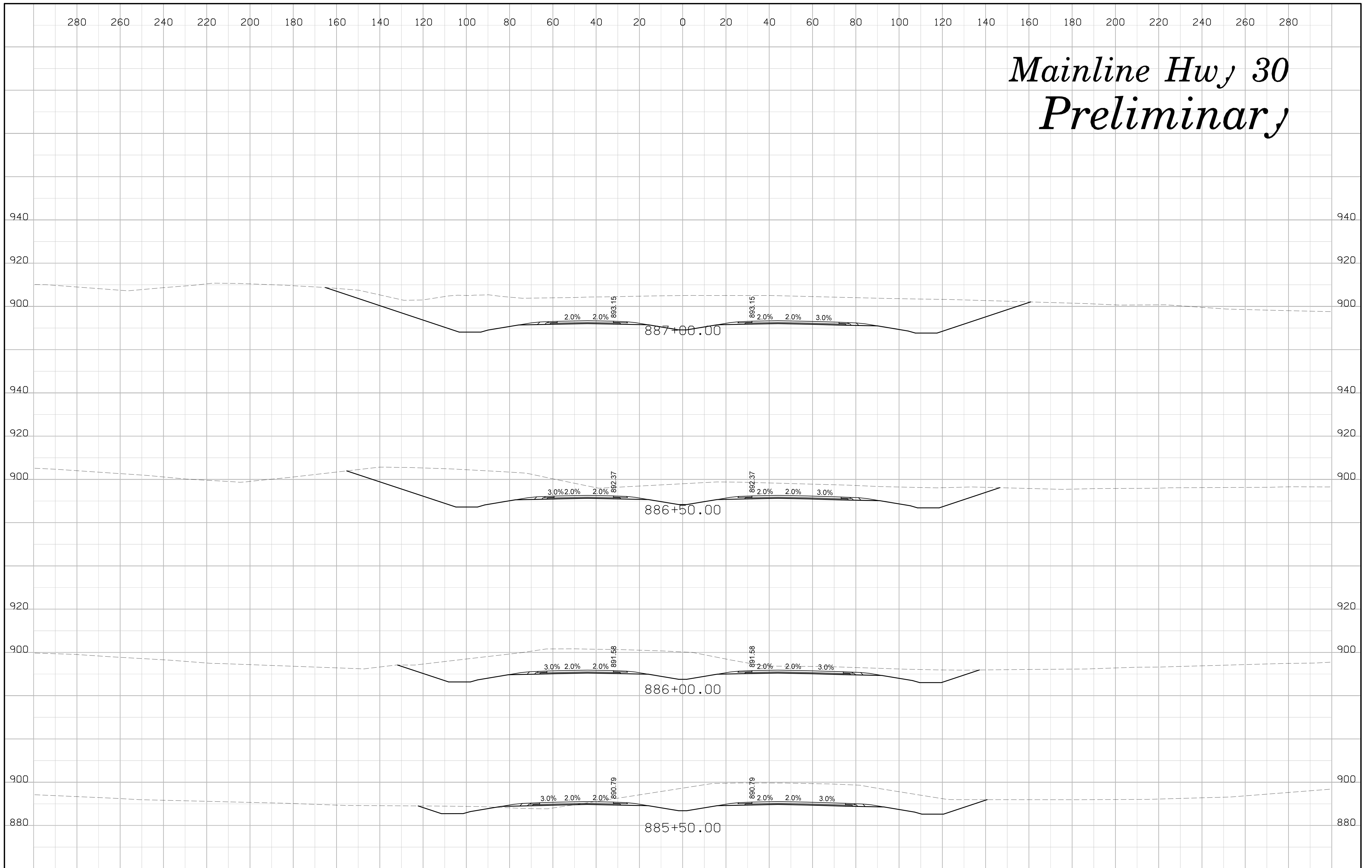
# Mainline Hwy 30 Preliminary



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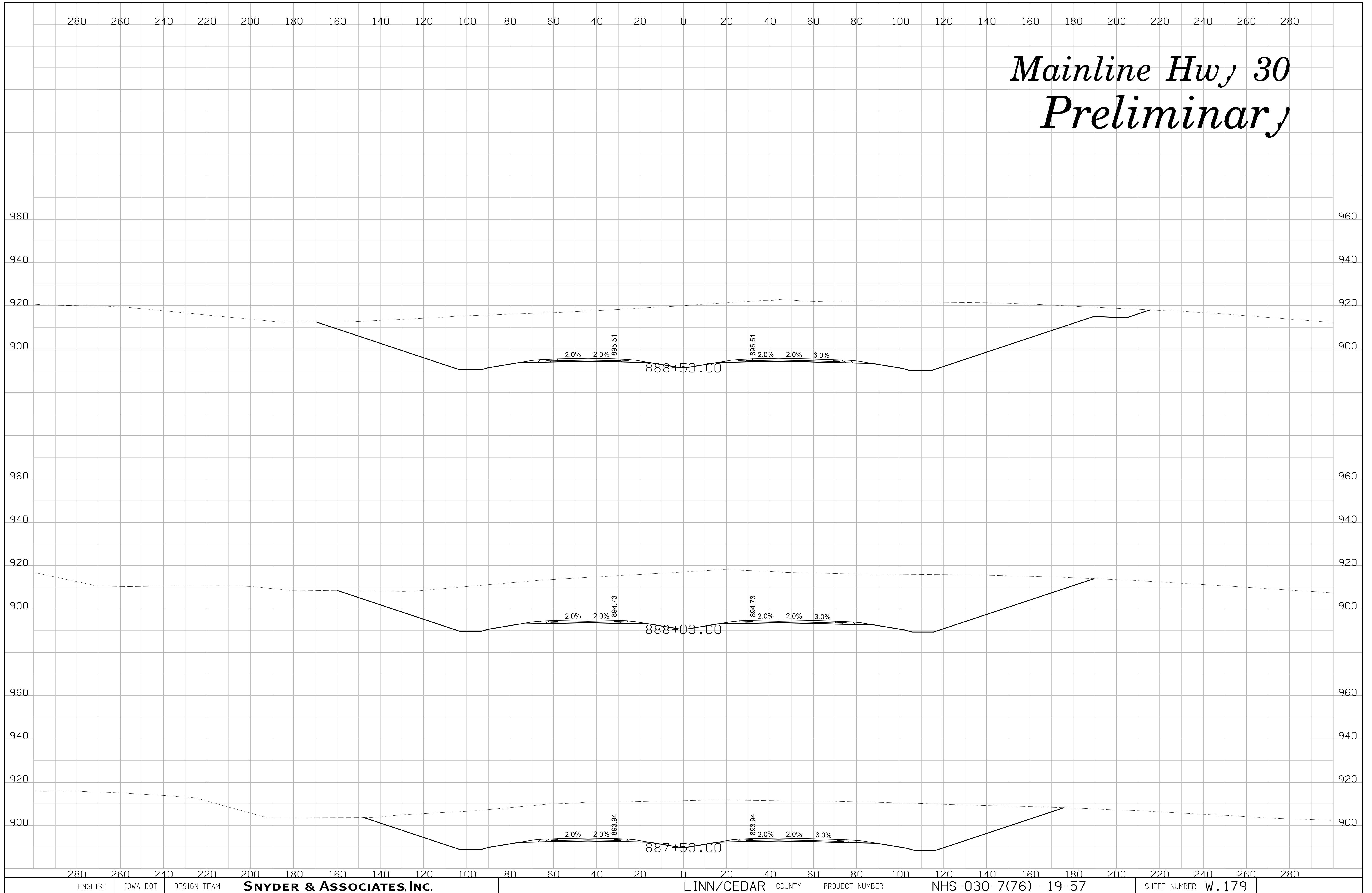


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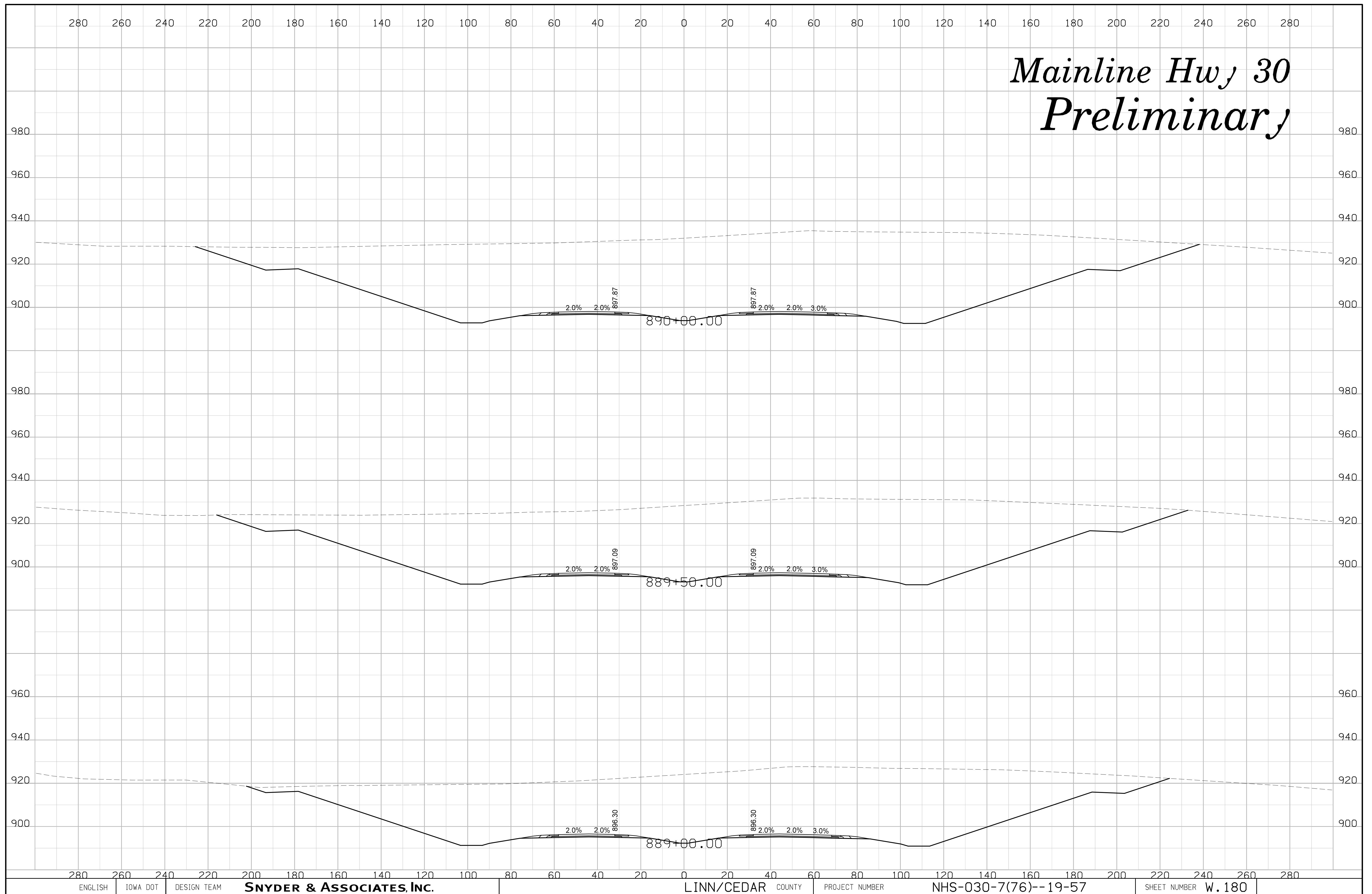




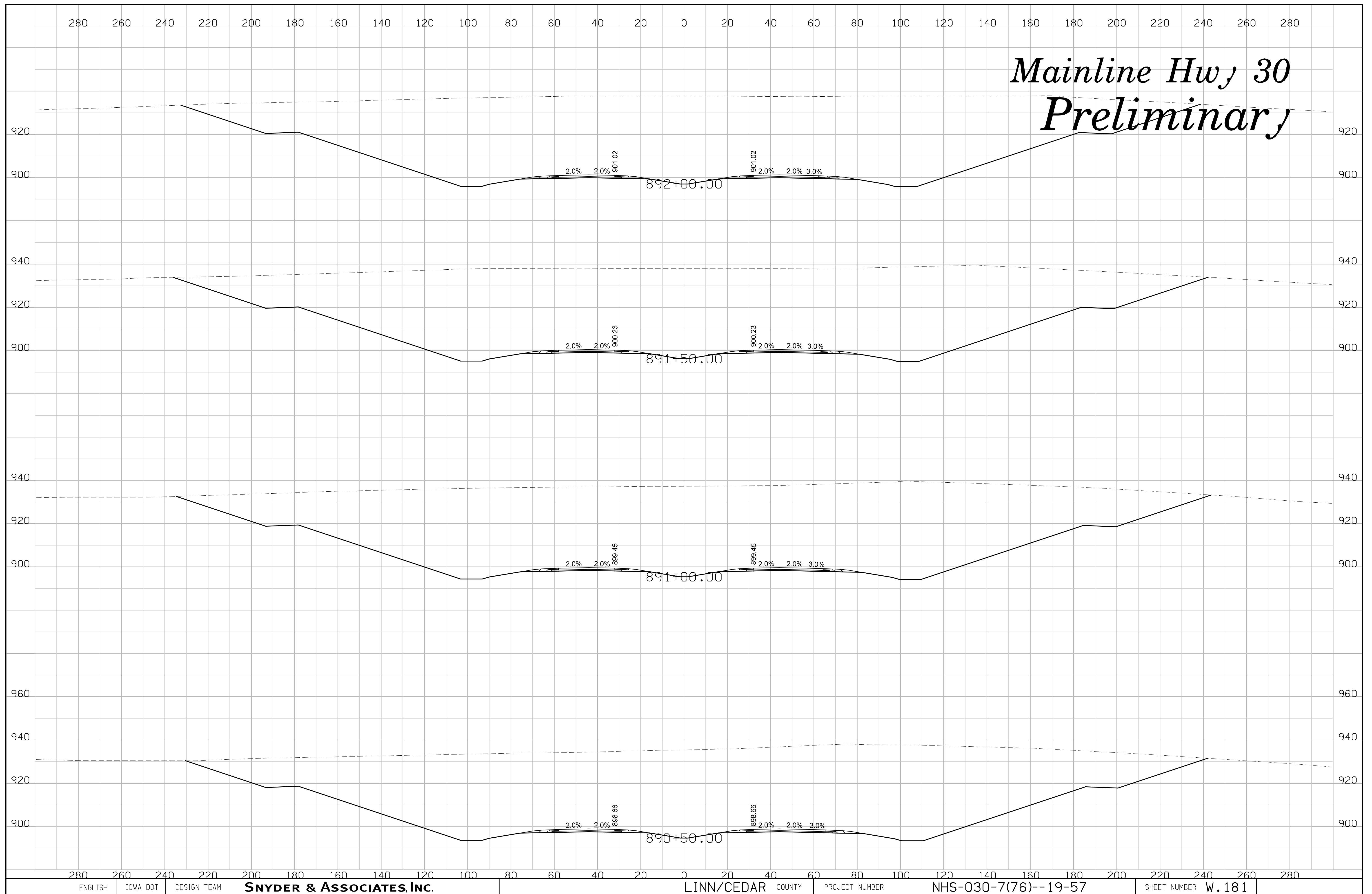
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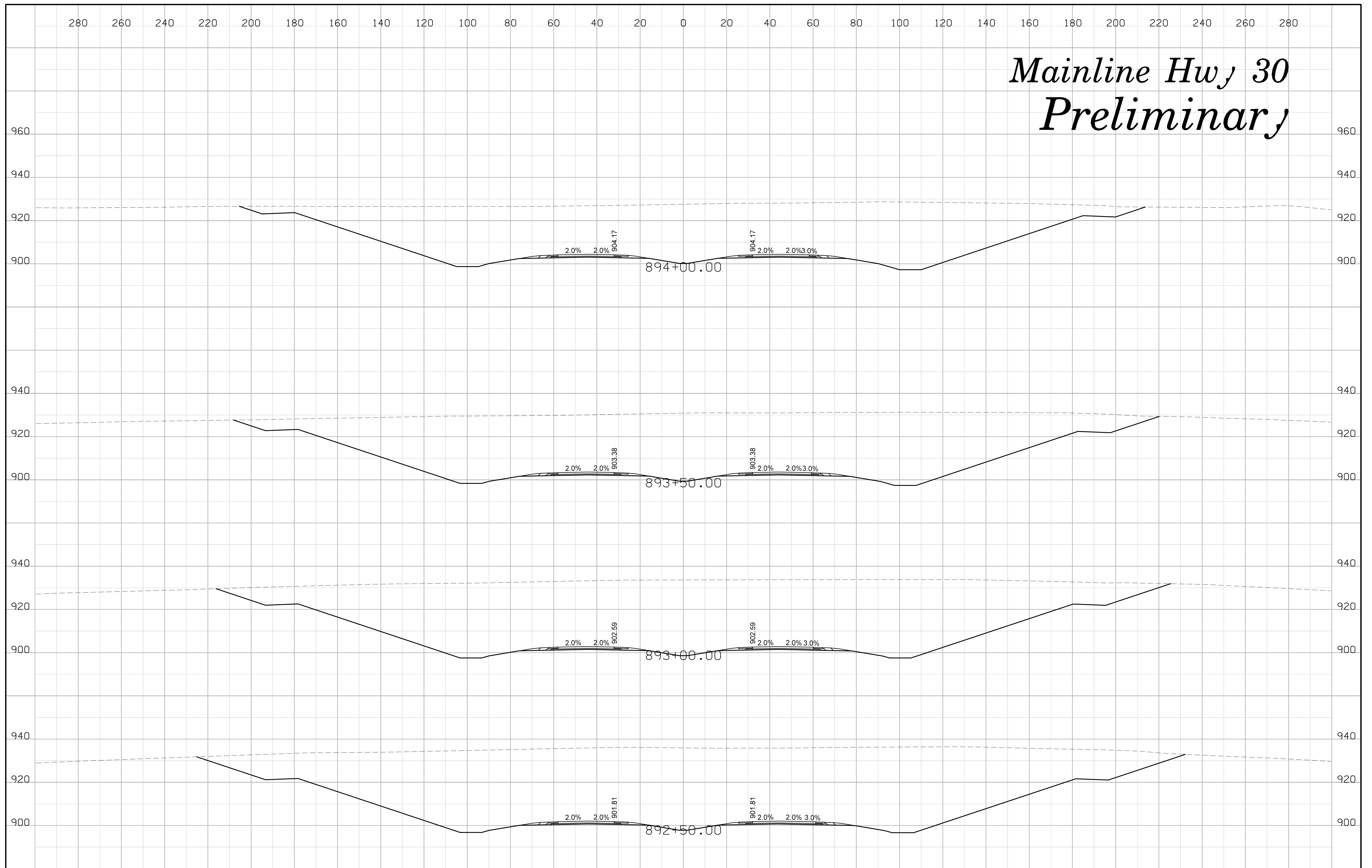
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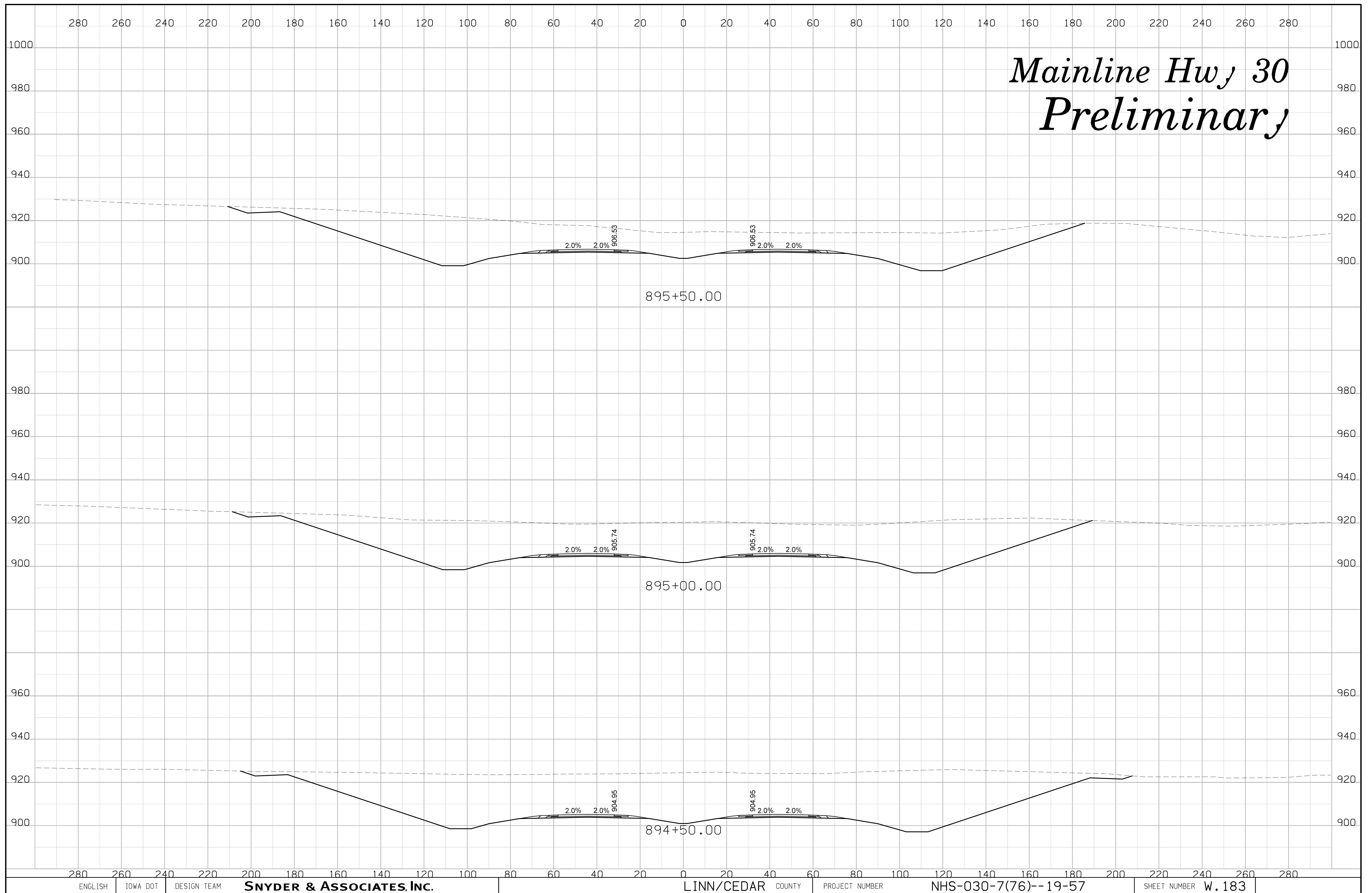
# Mainline Hwy 30 Preliminary



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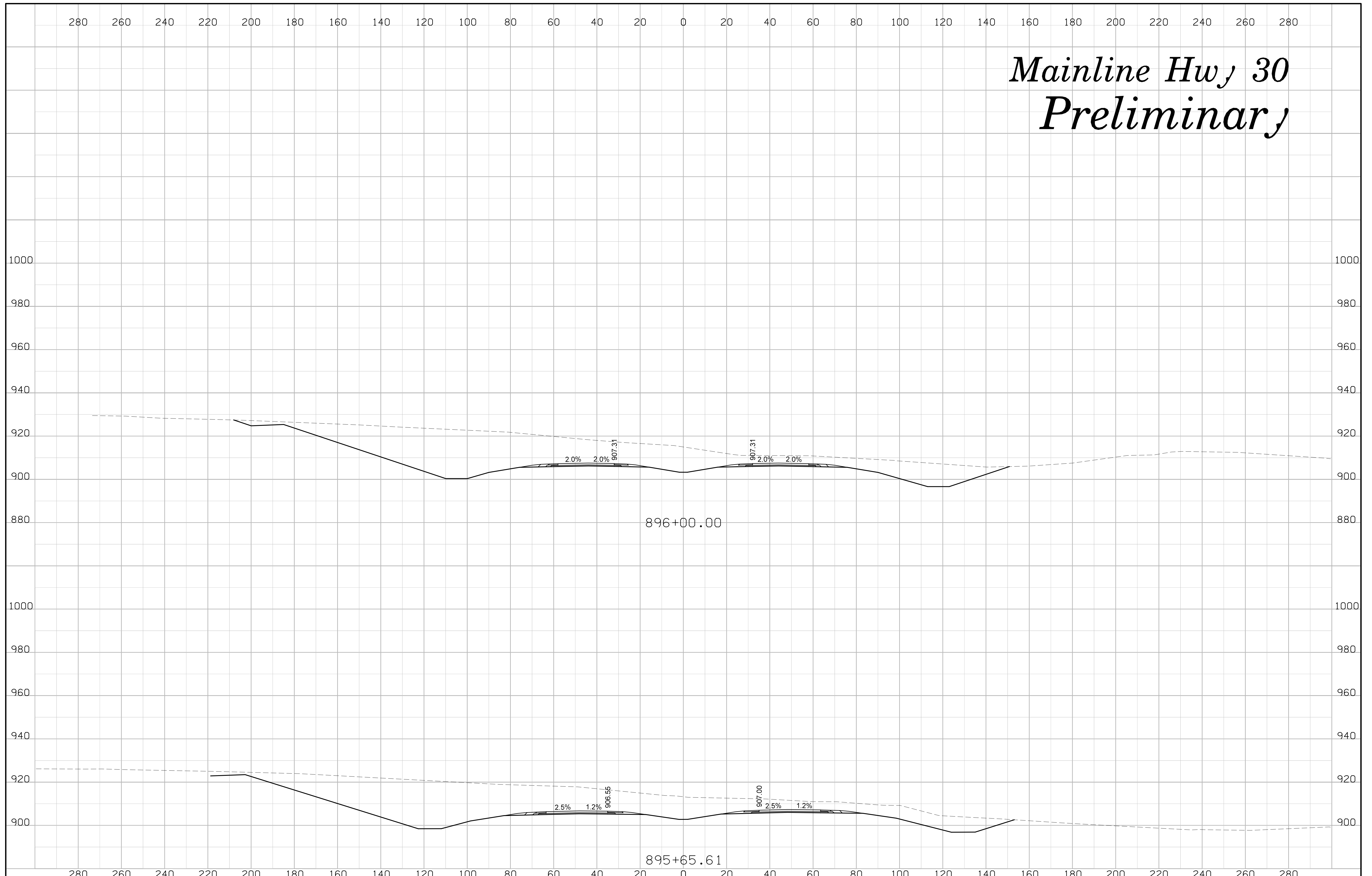


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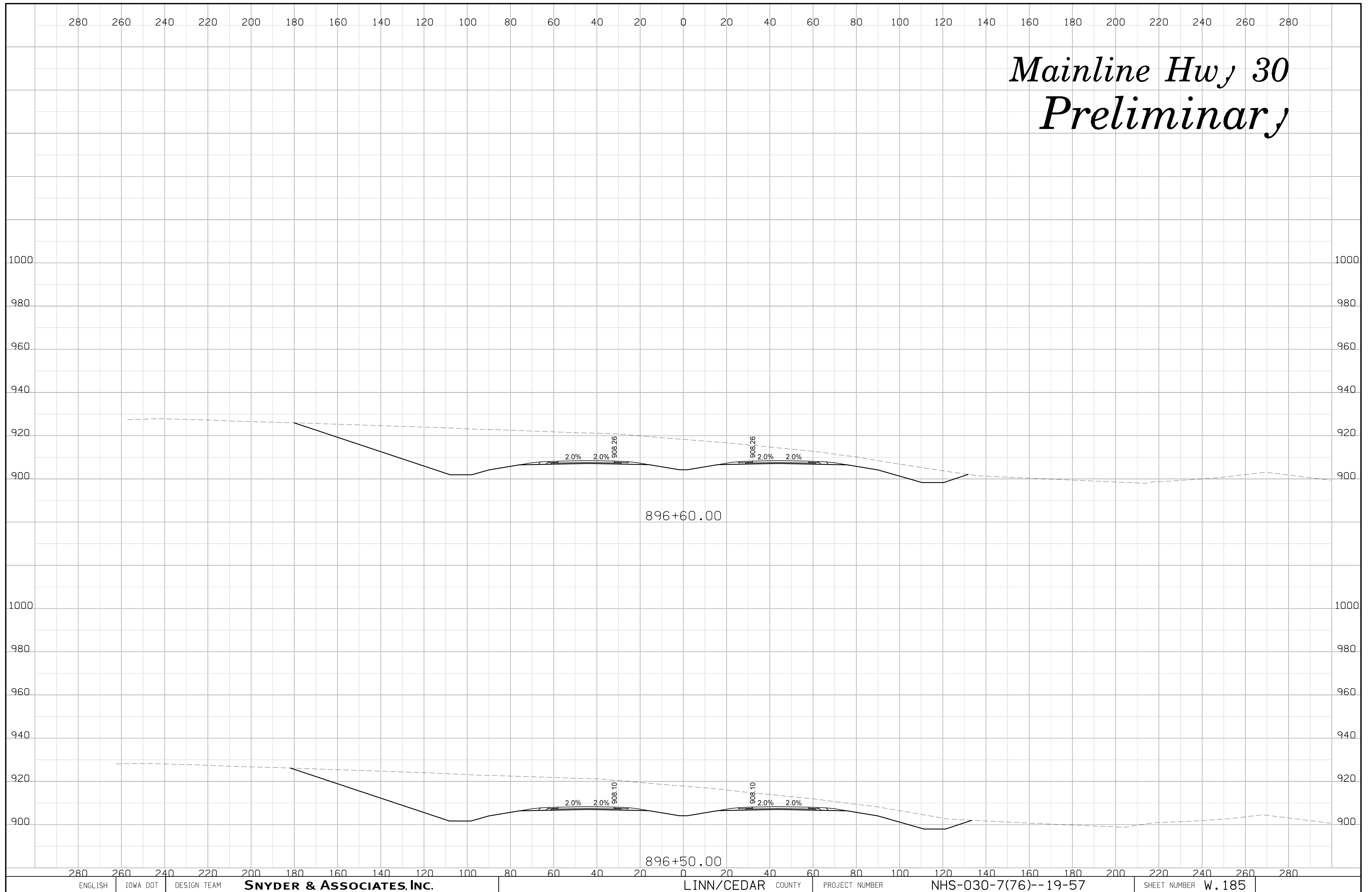




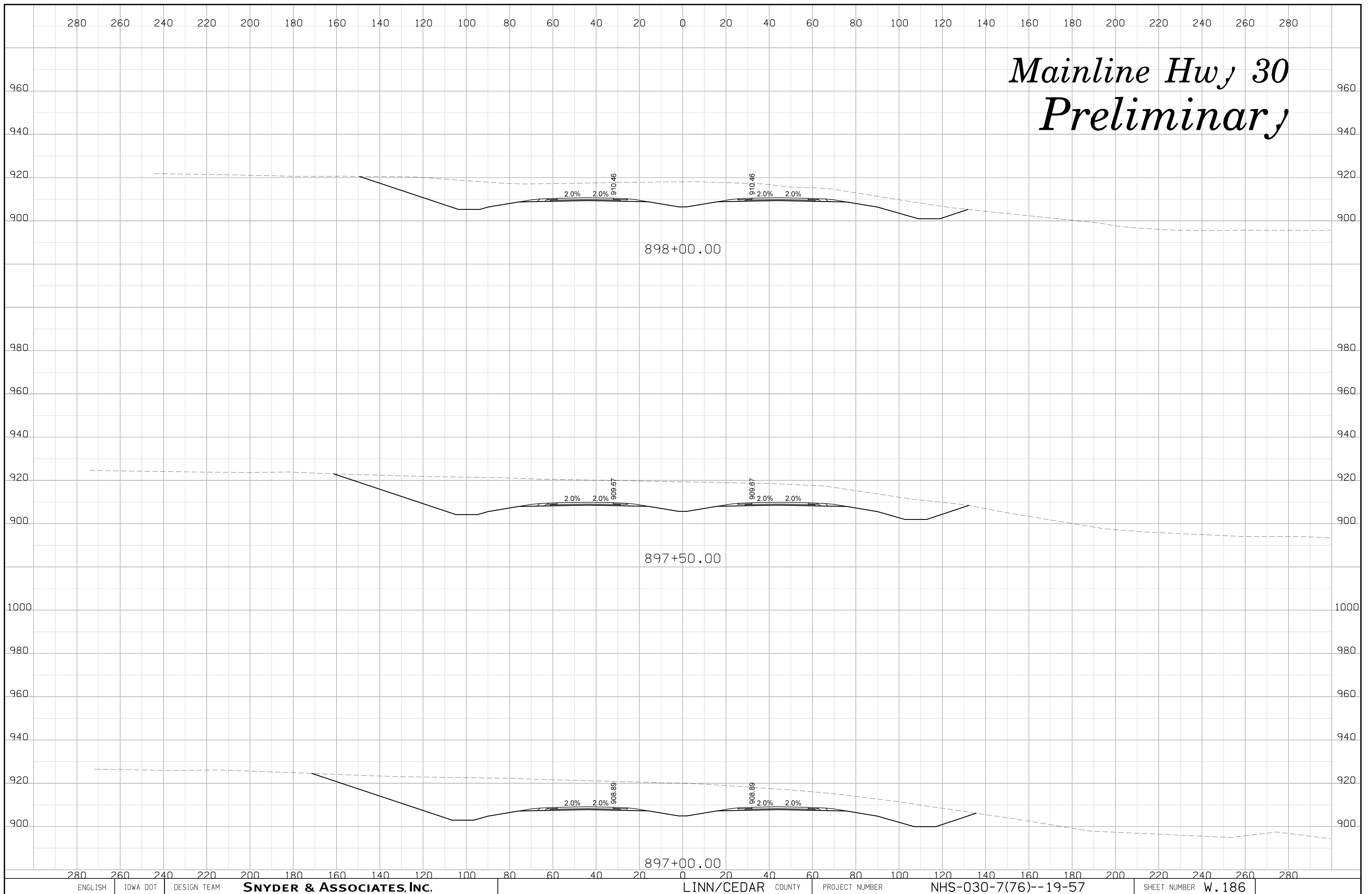
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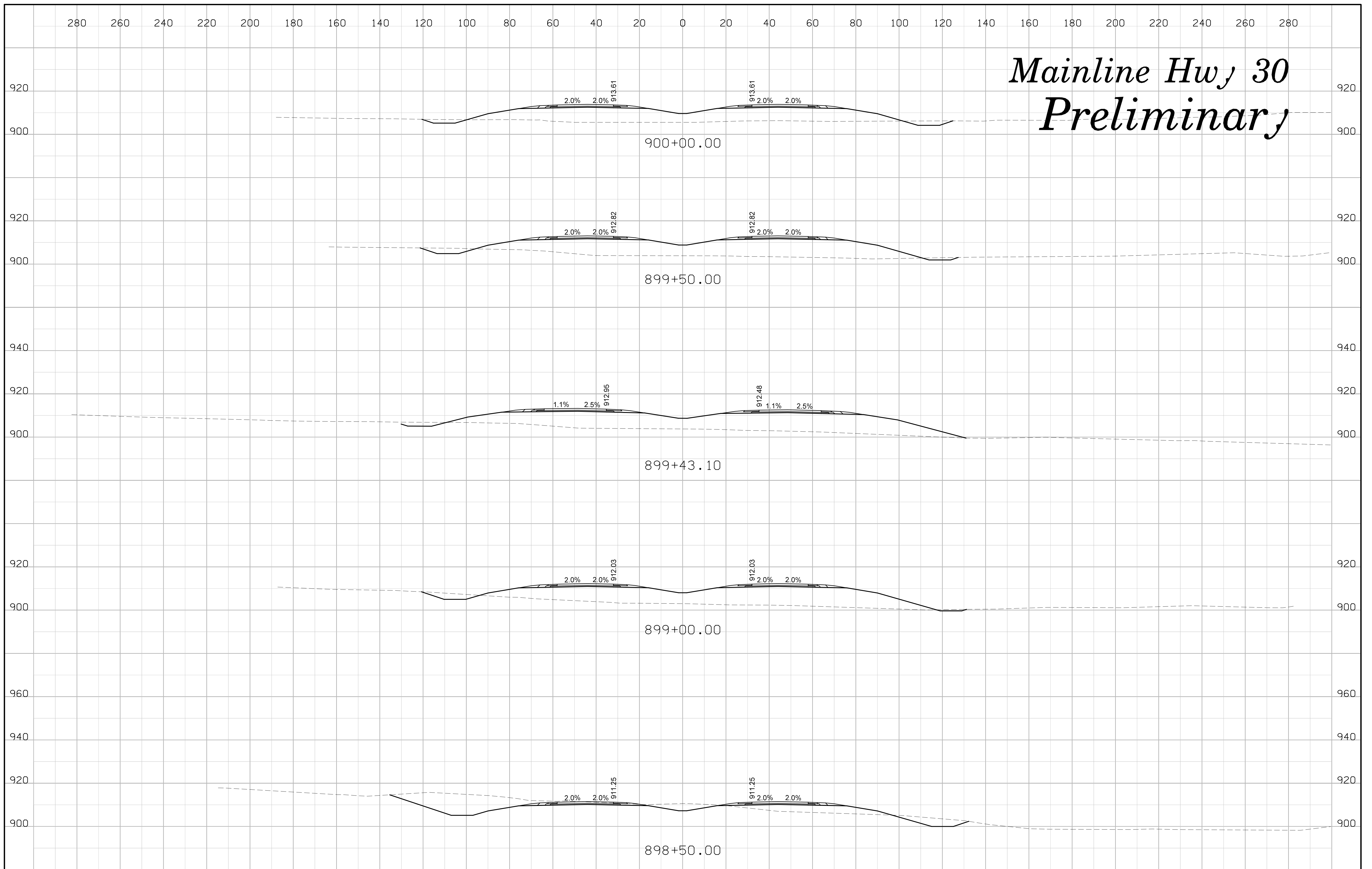
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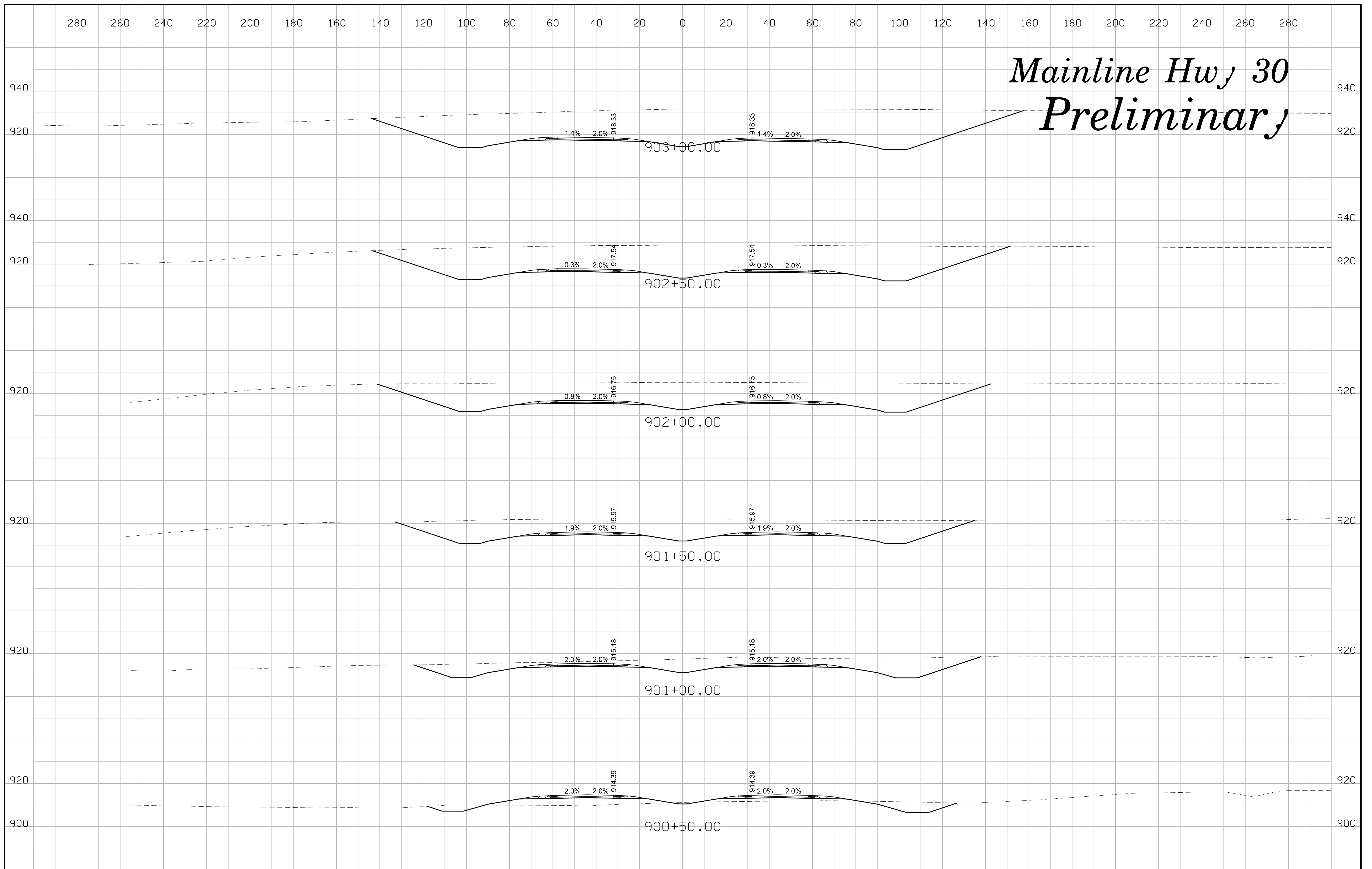
# Mainline Hwy 30 Preliminary



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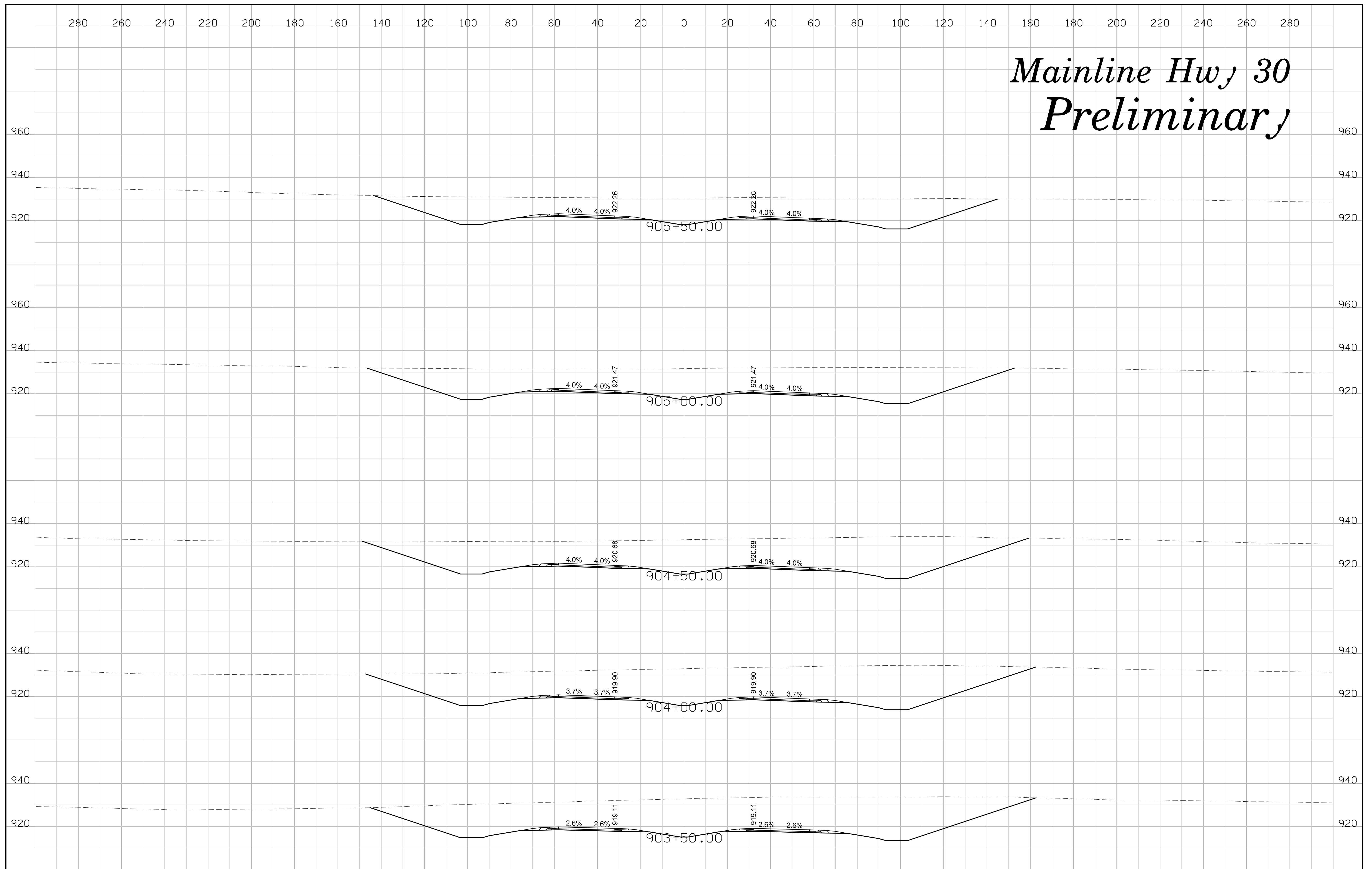


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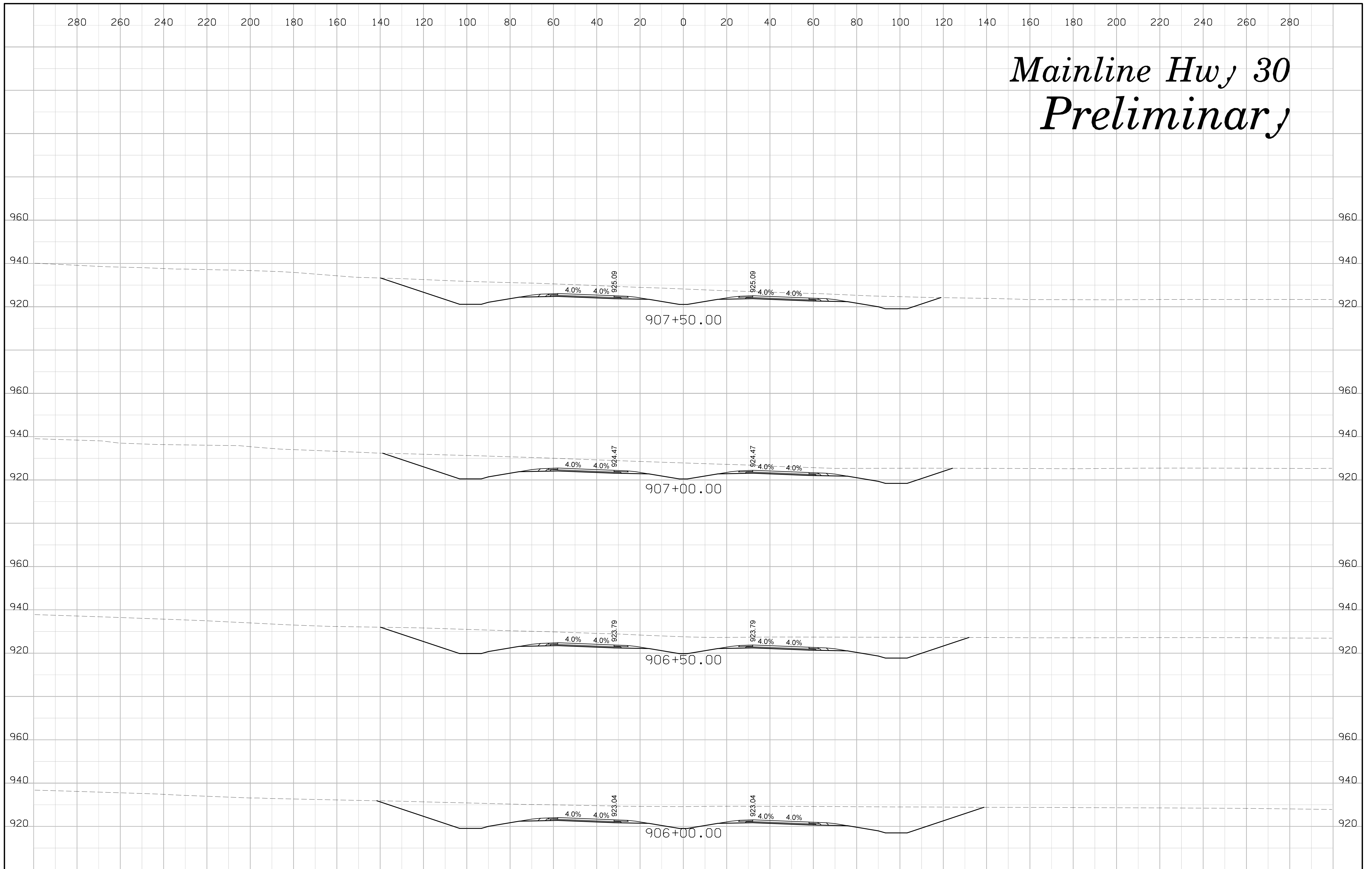




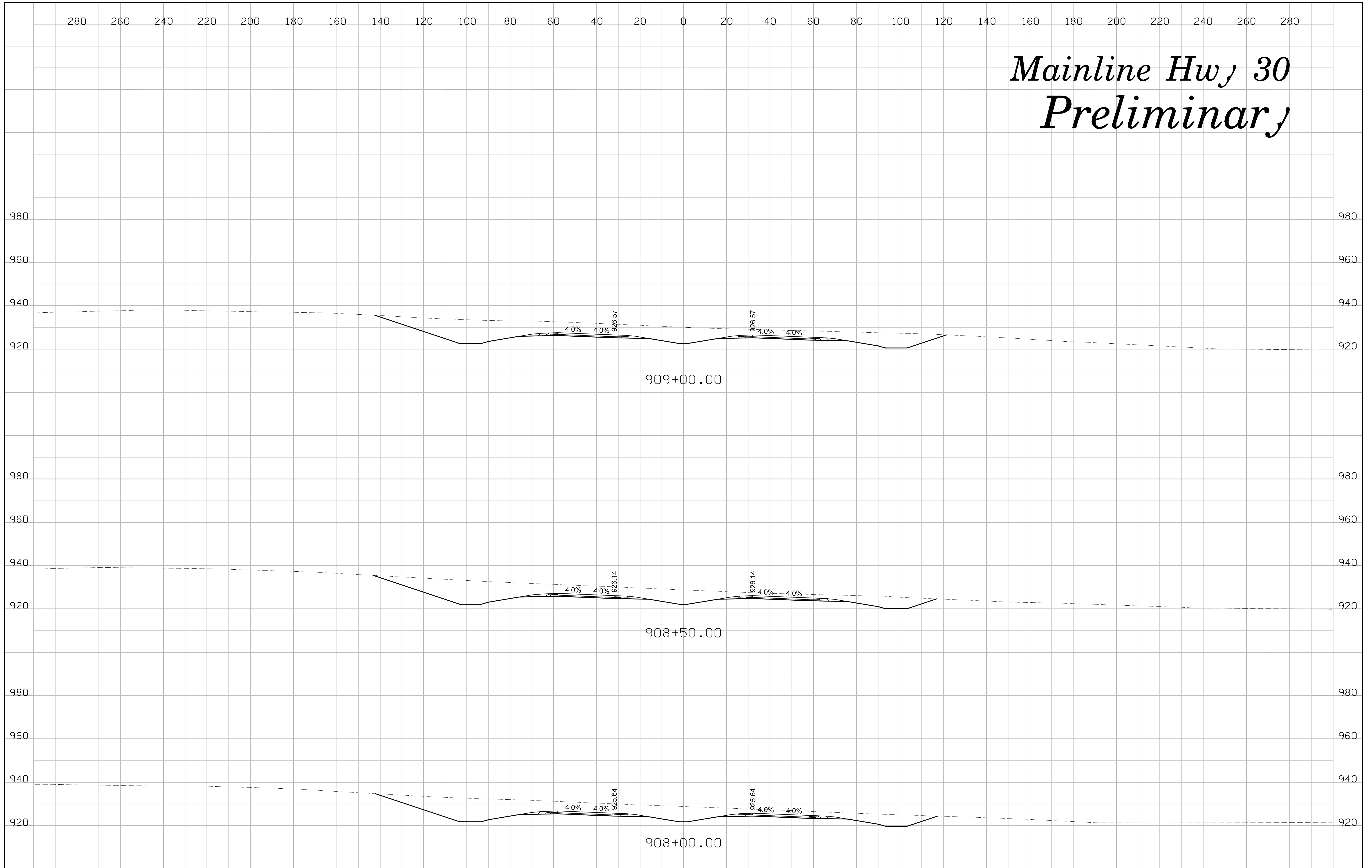
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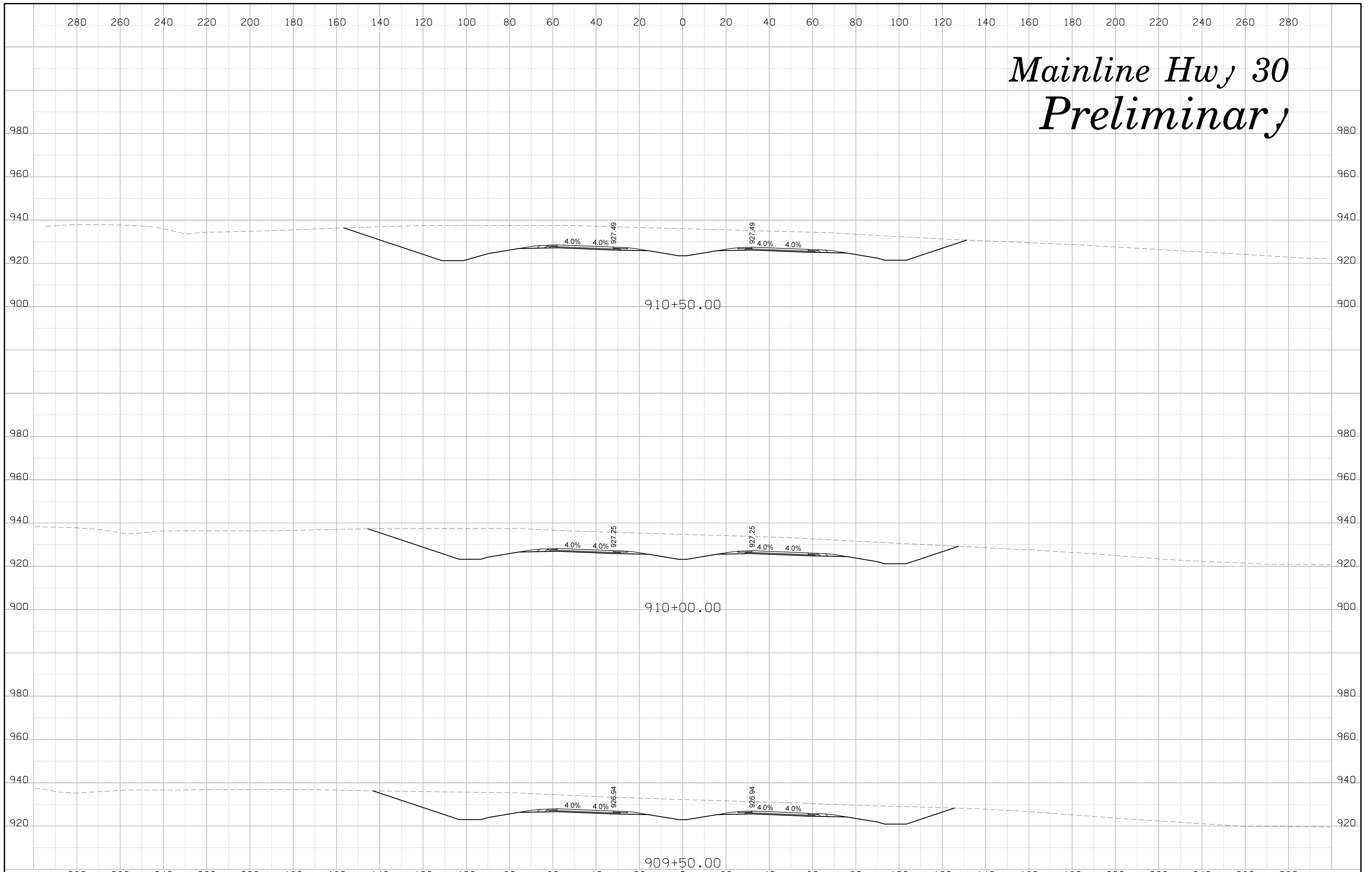
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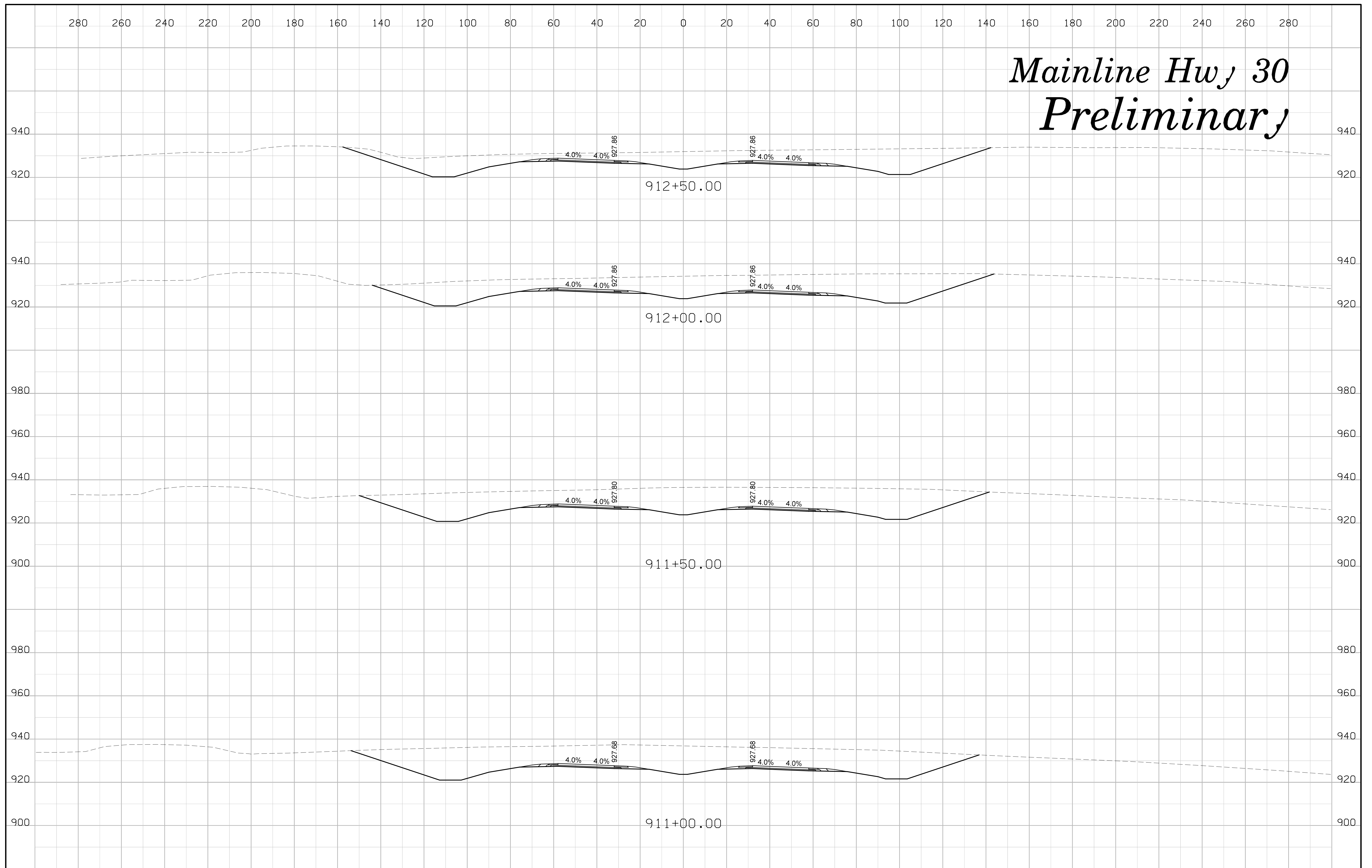
# Mainline Hwy 30 Preliminary



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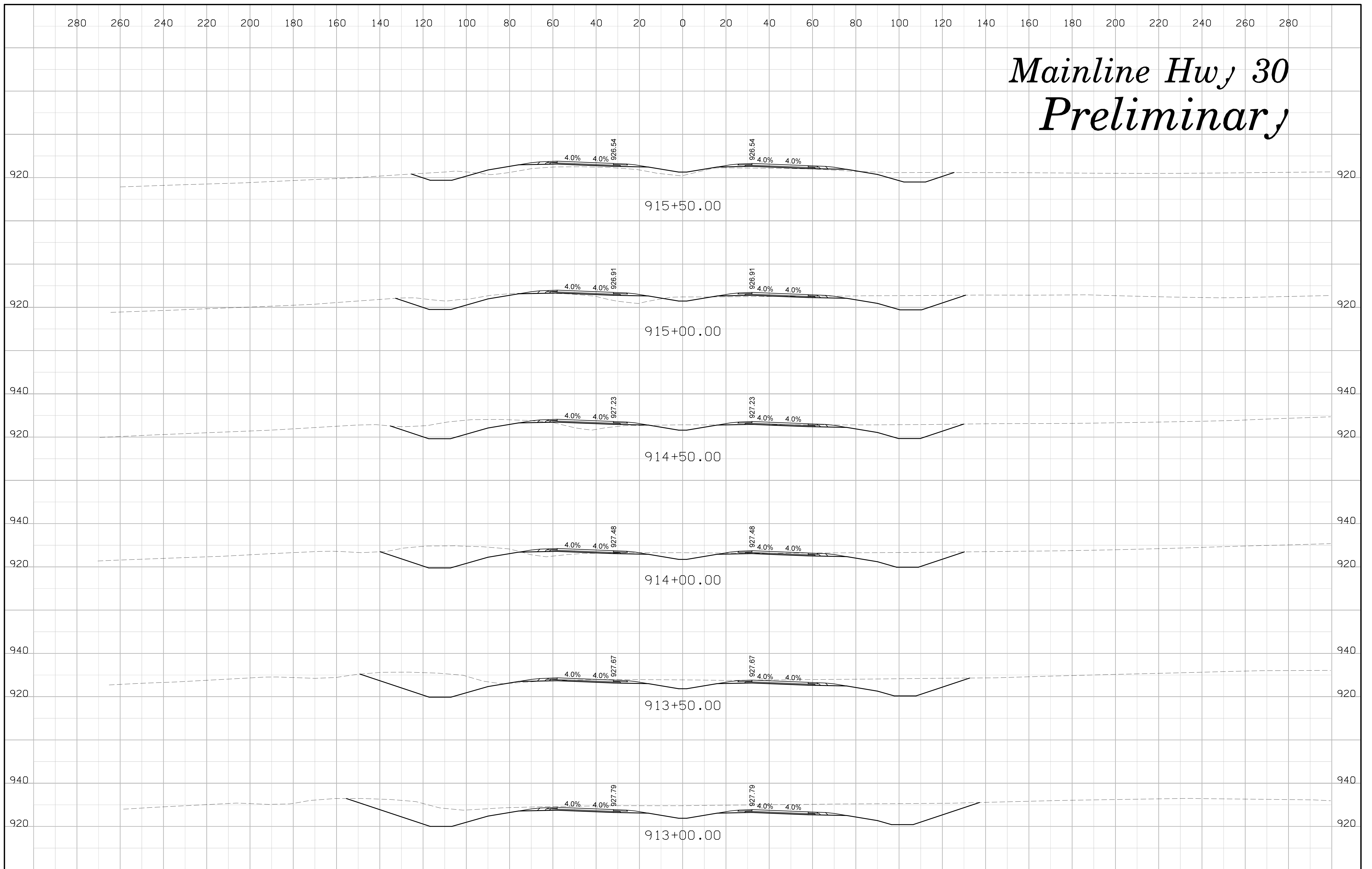


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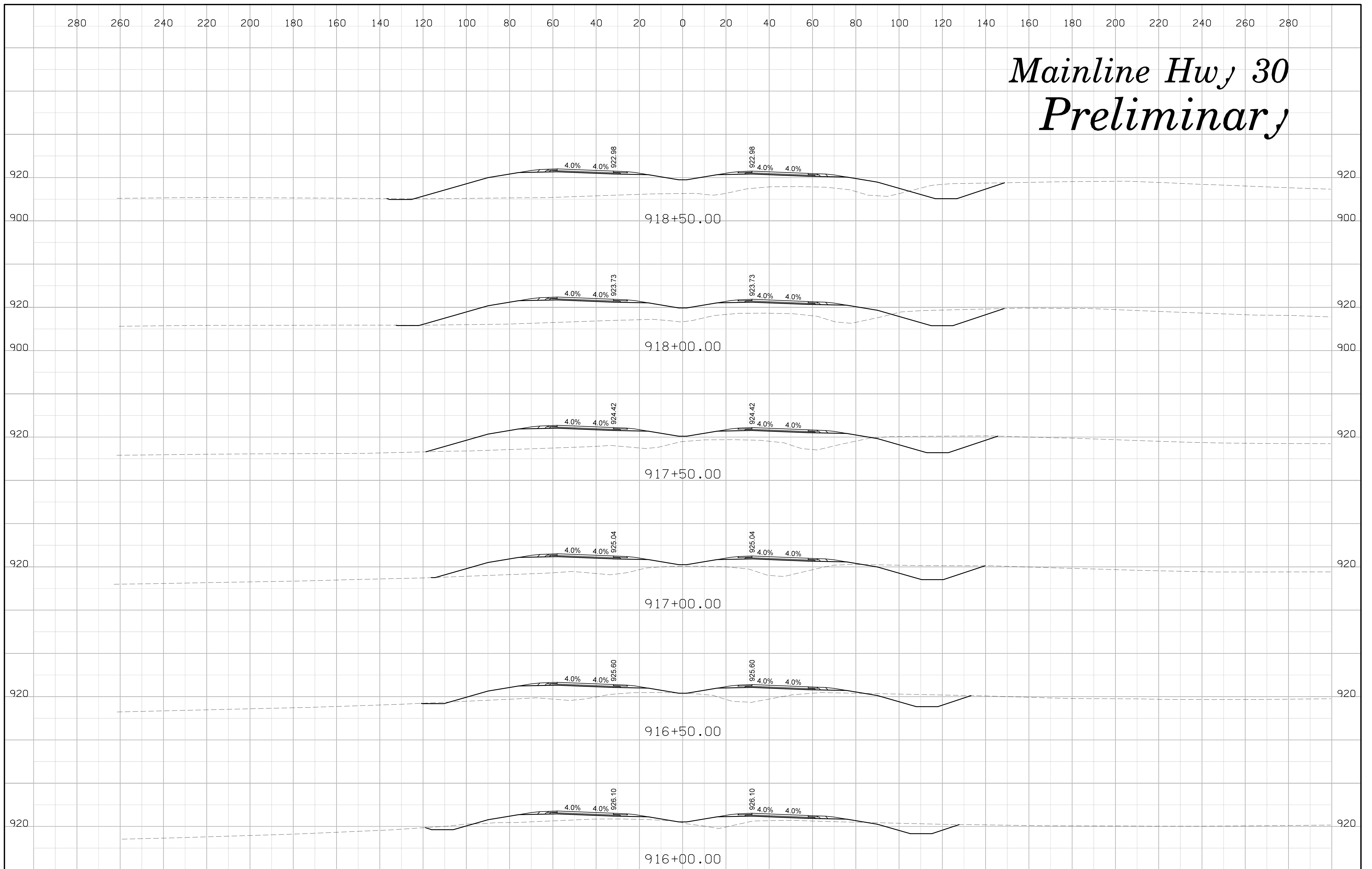




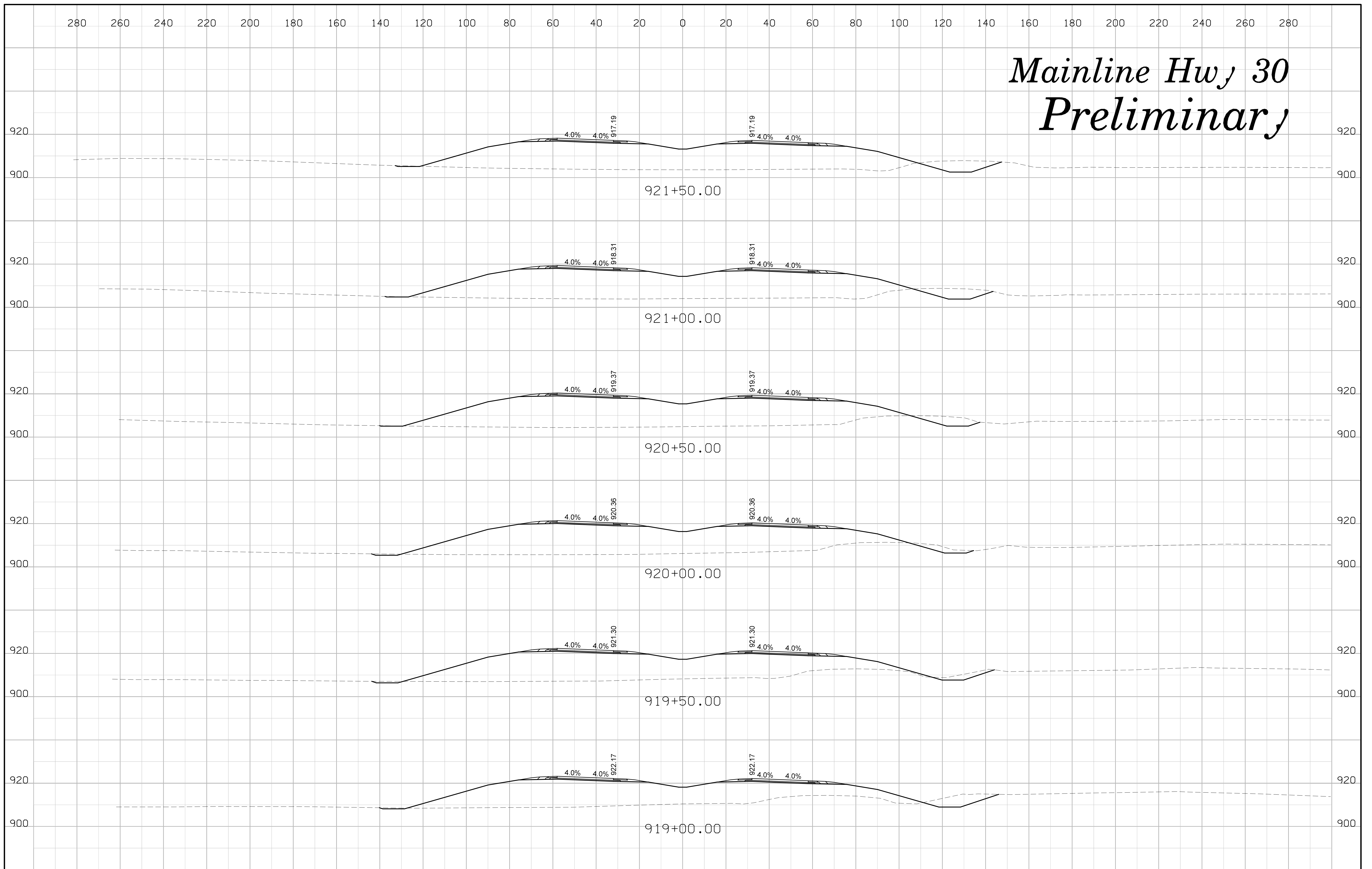
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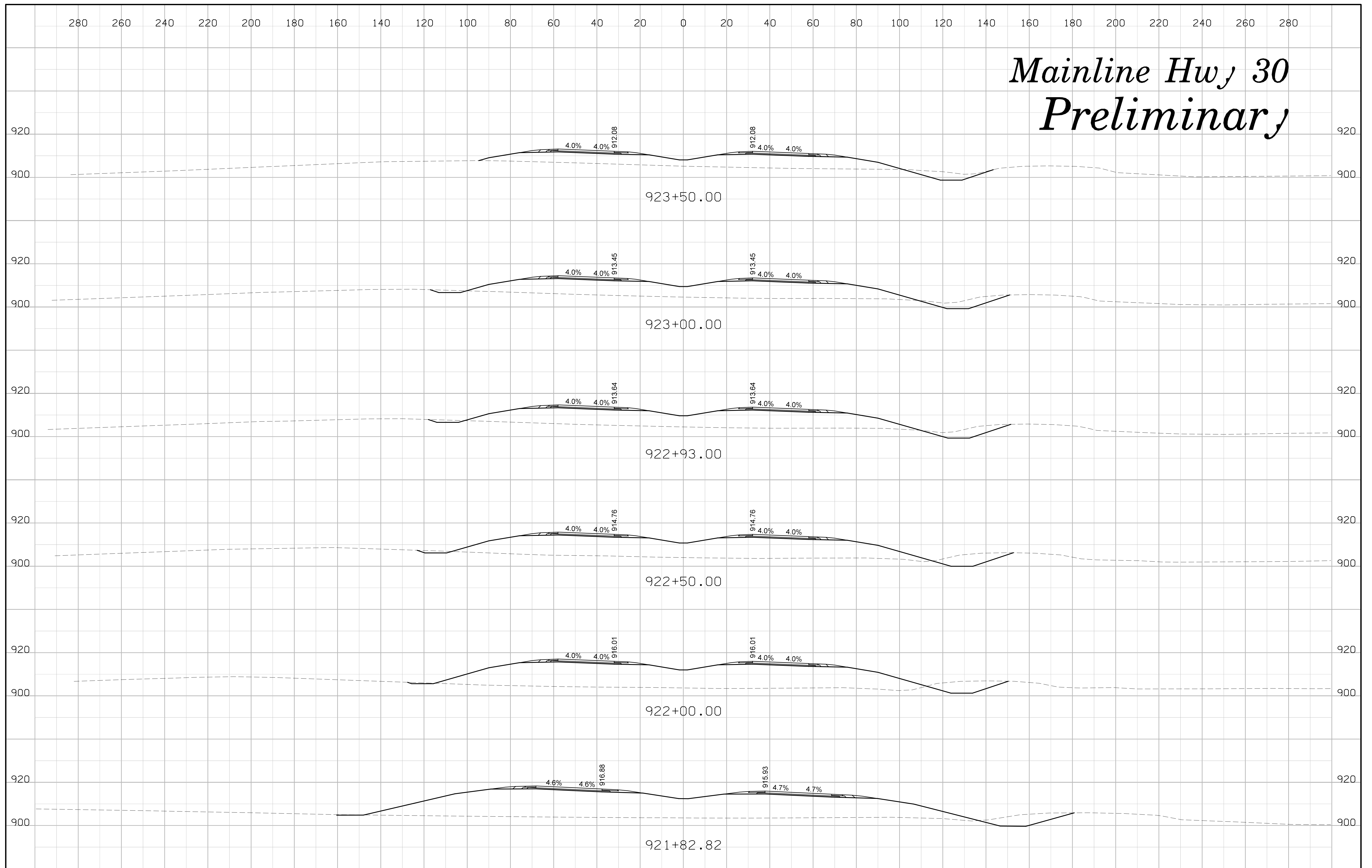
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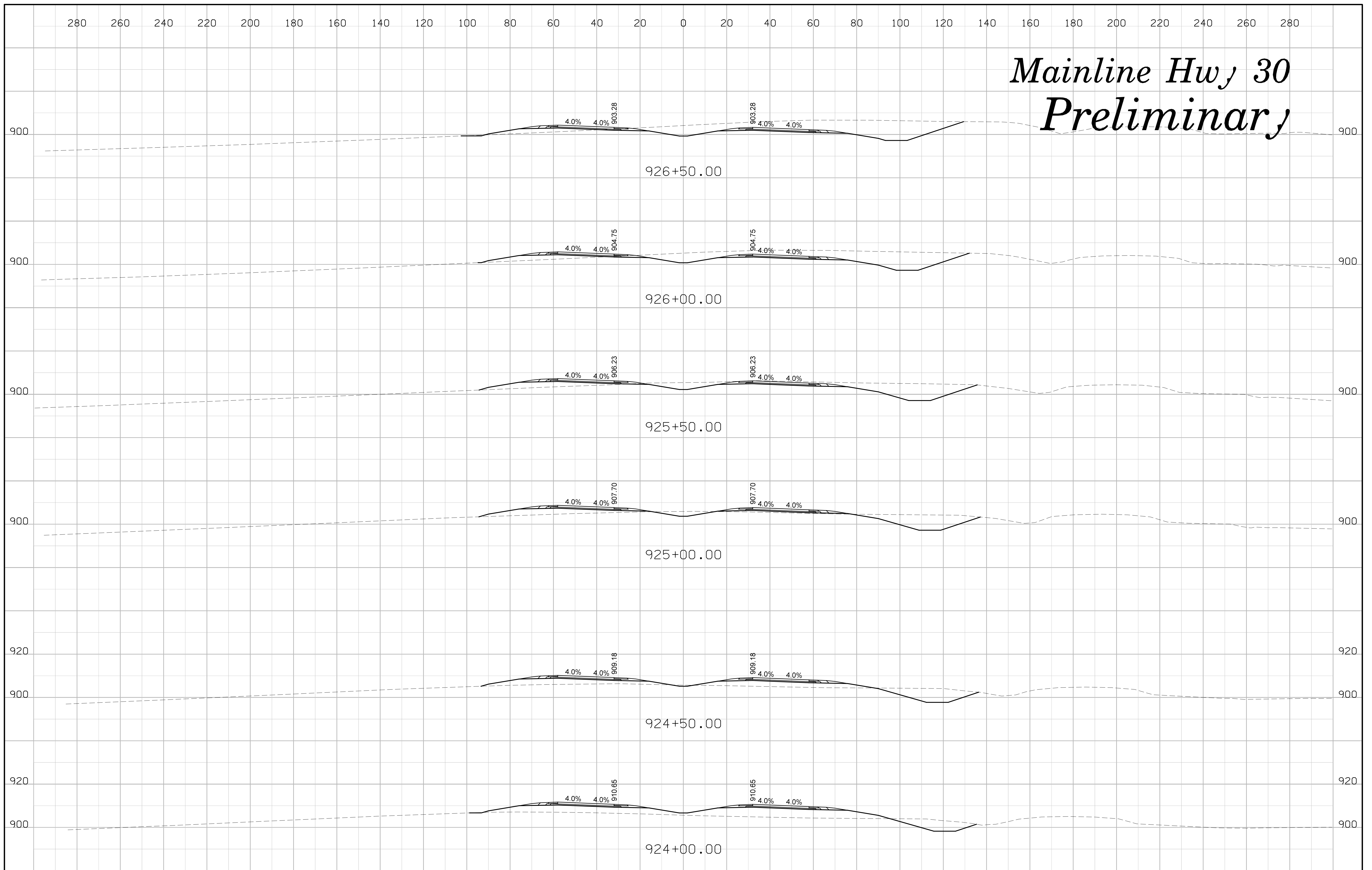
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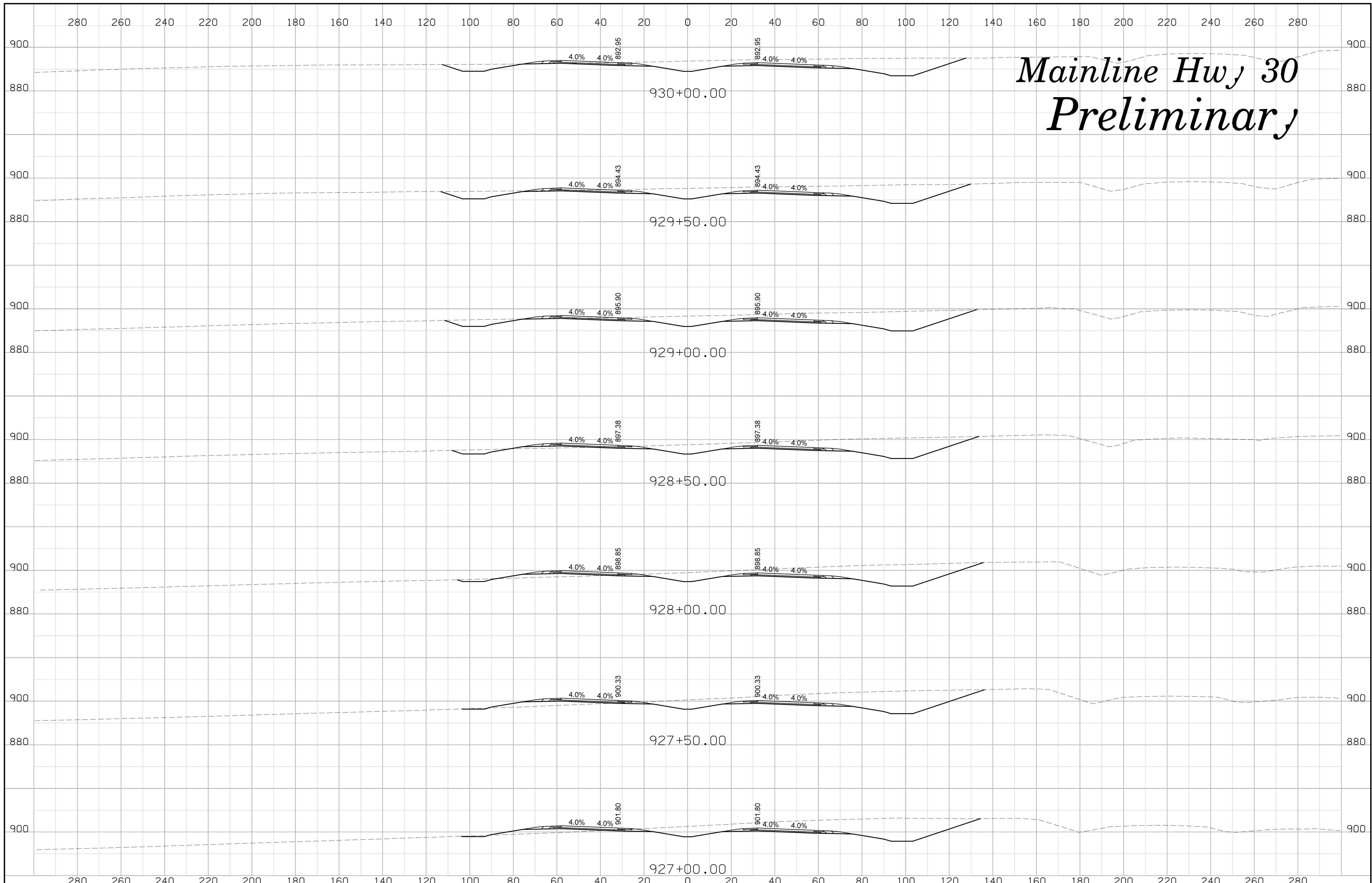
# Mainline Hwy 30 Preliminary



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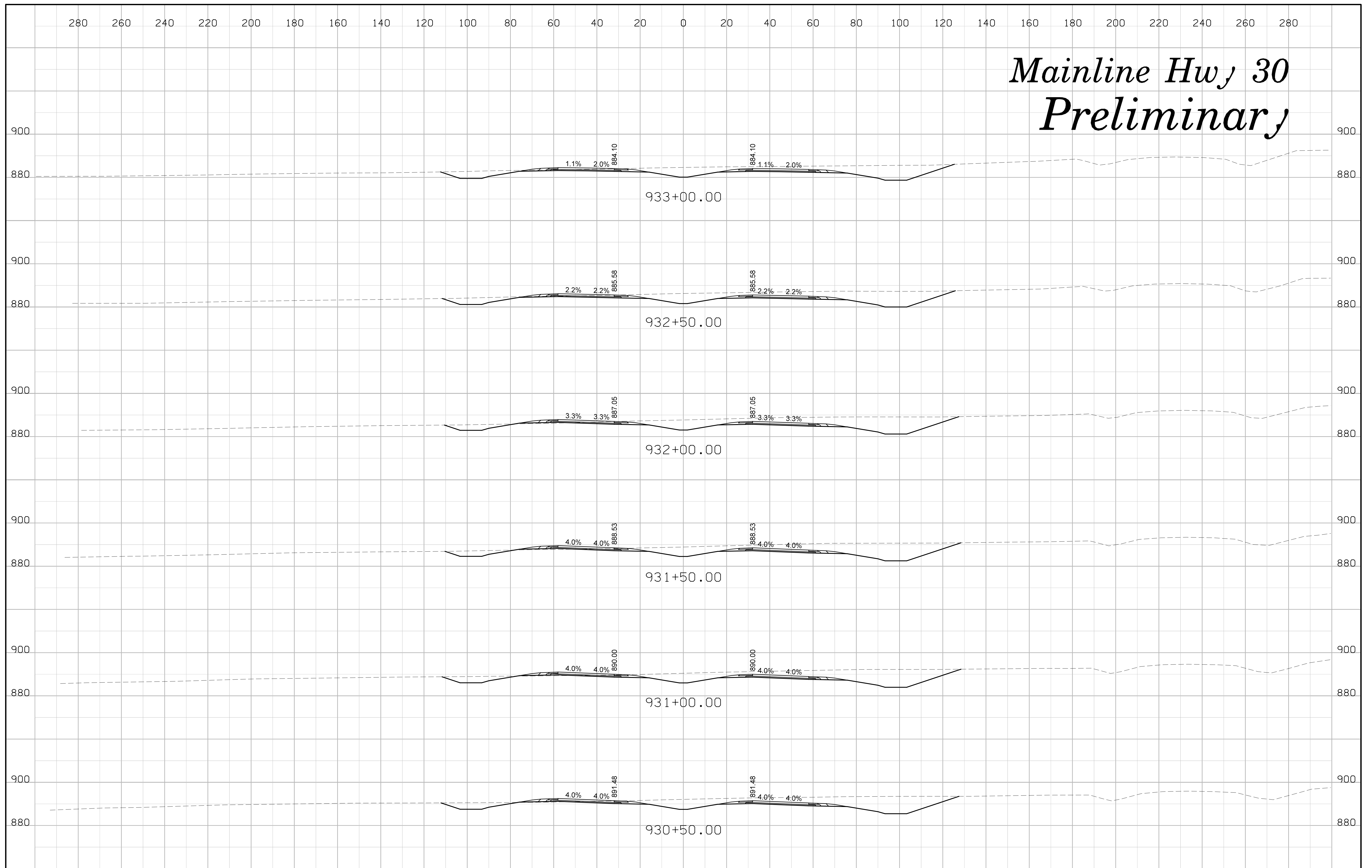




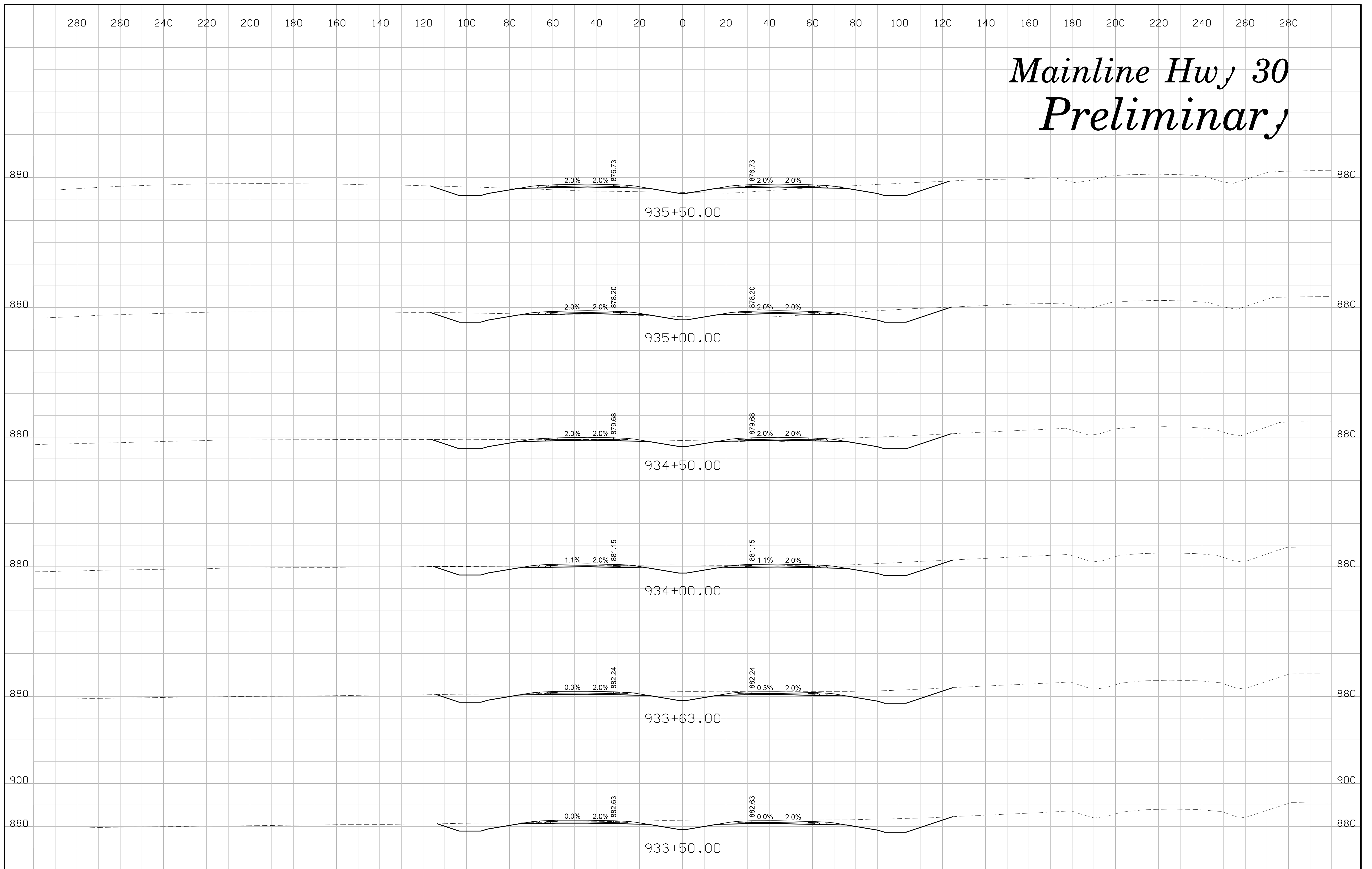


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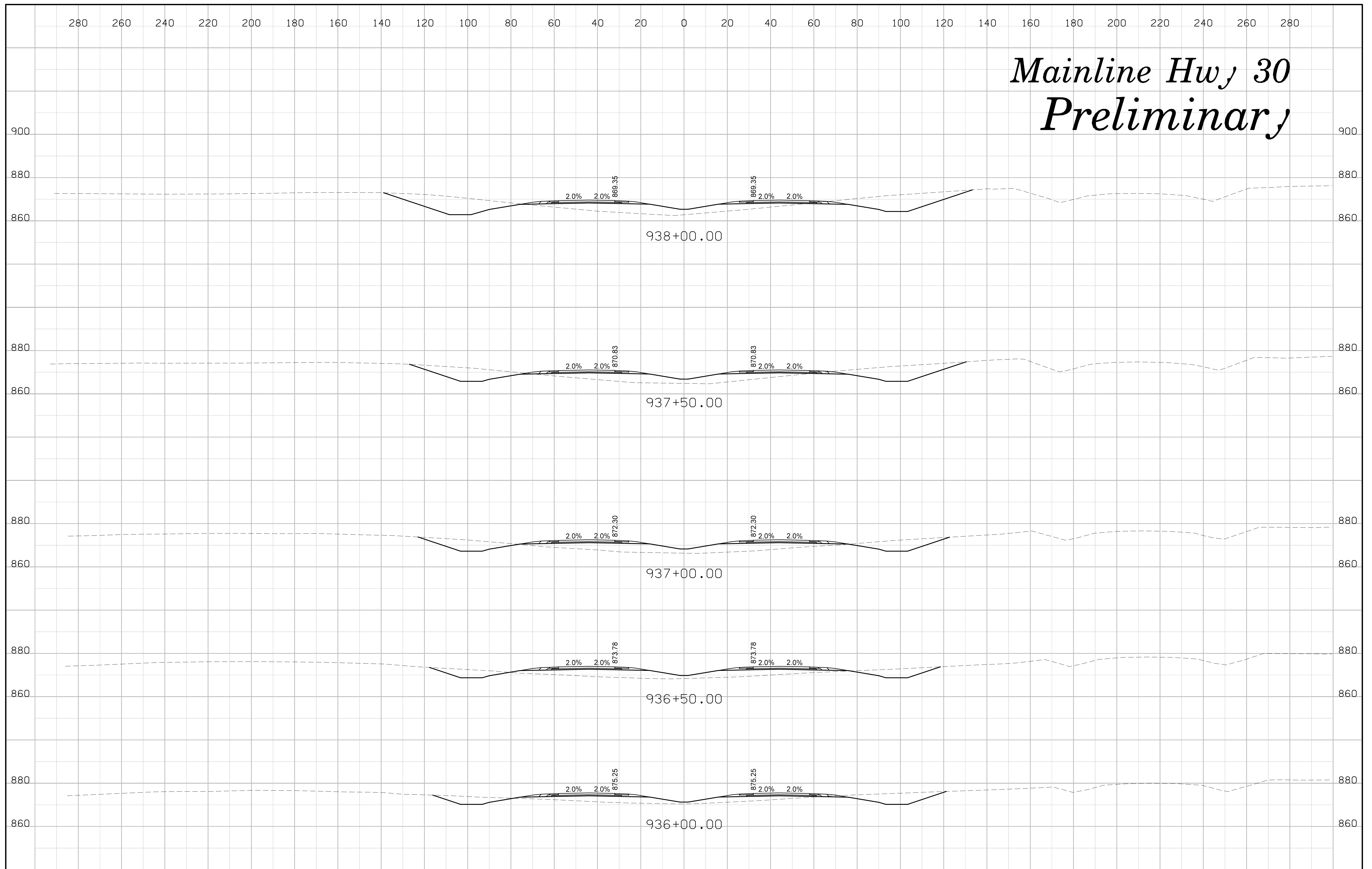
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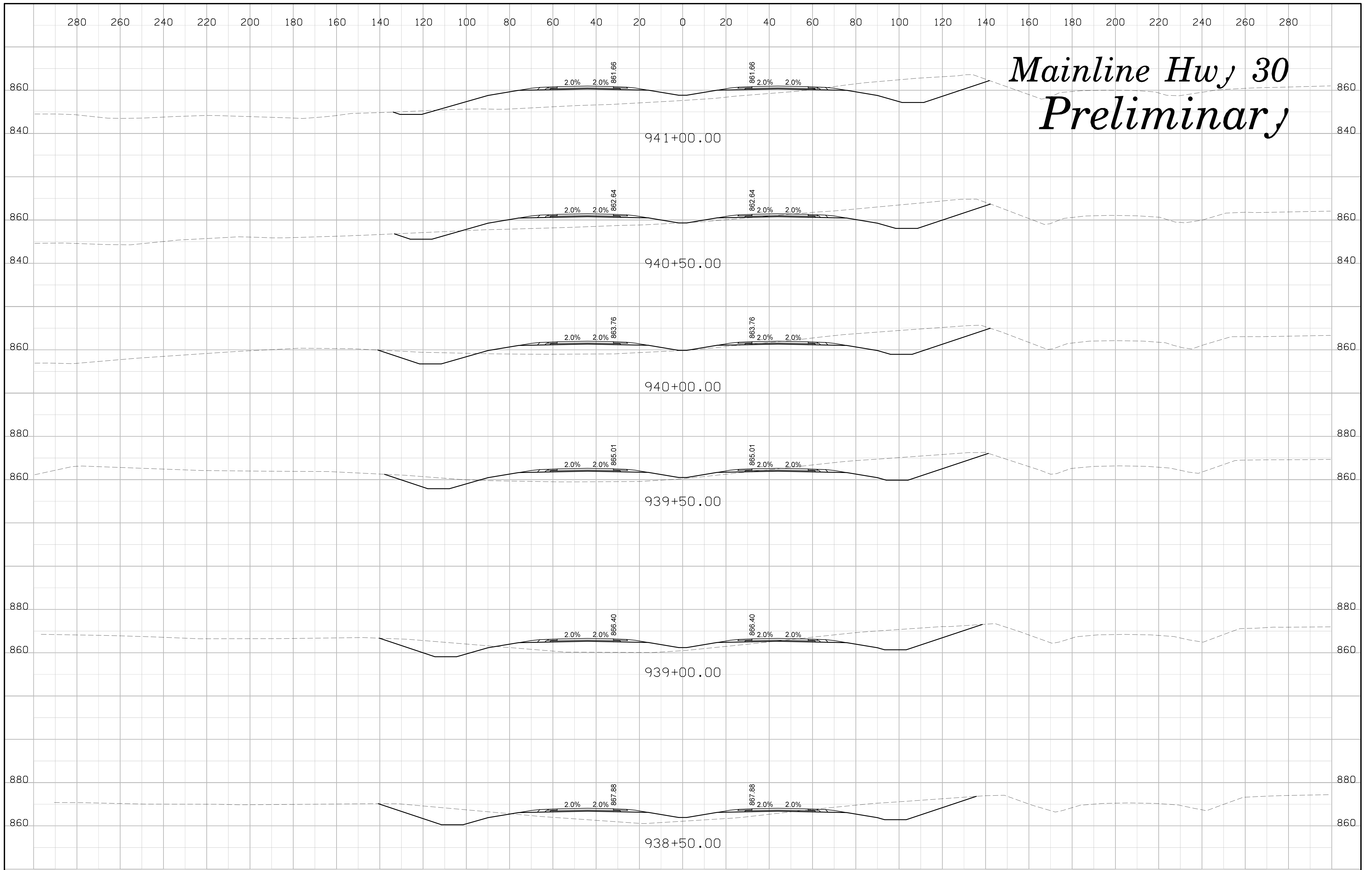
# Mainline Hwy 30 Preliminary



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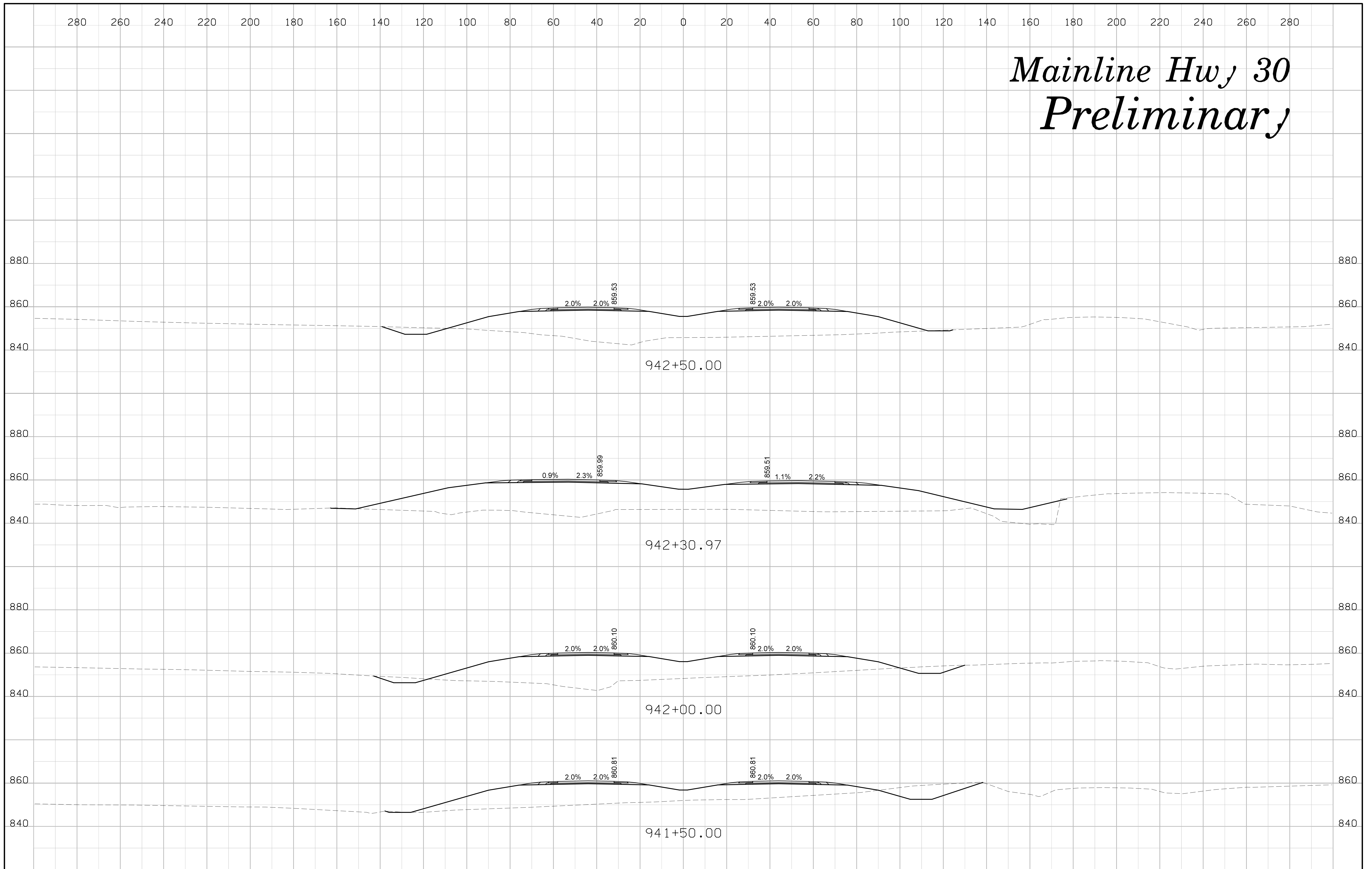


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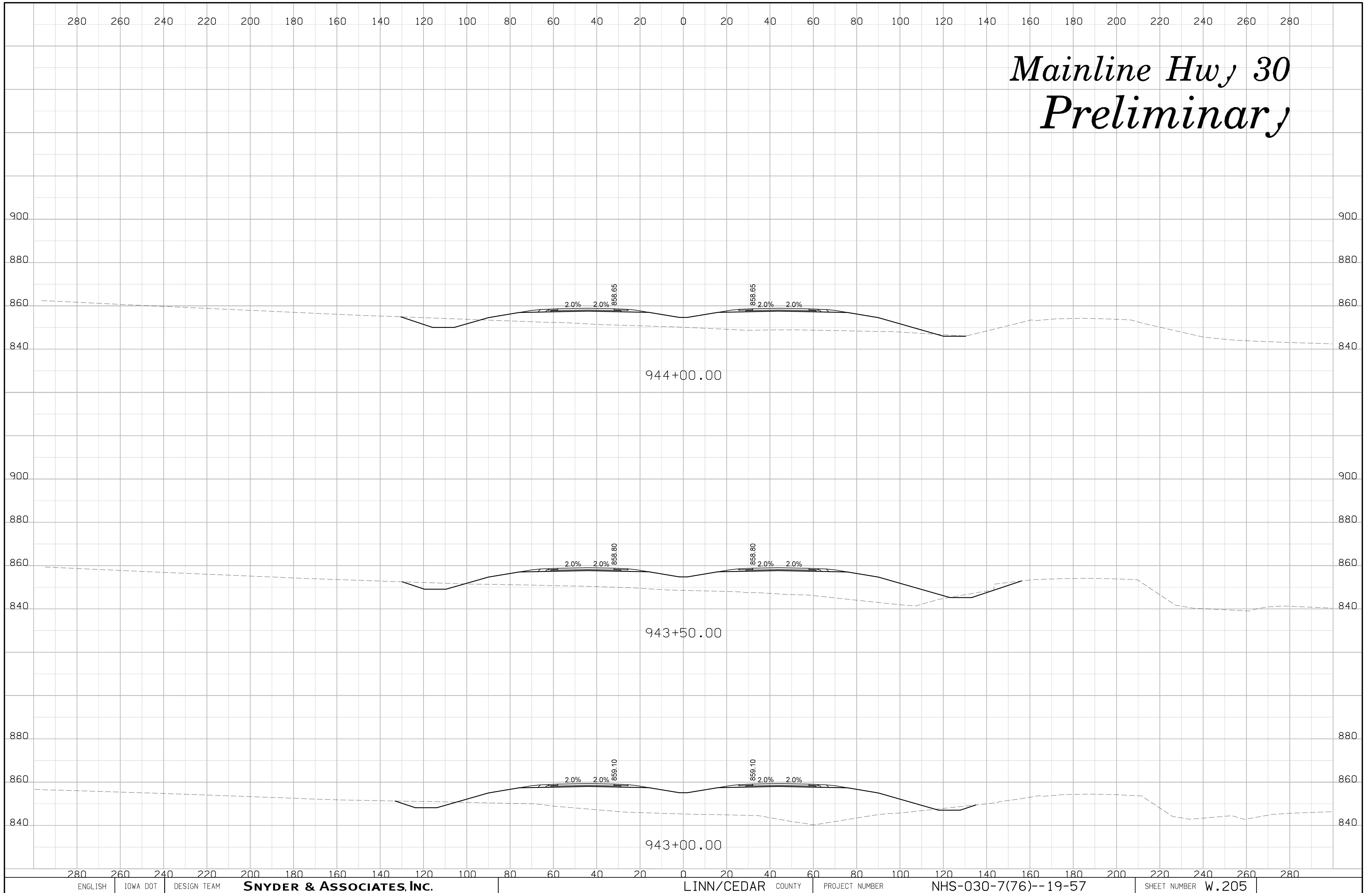




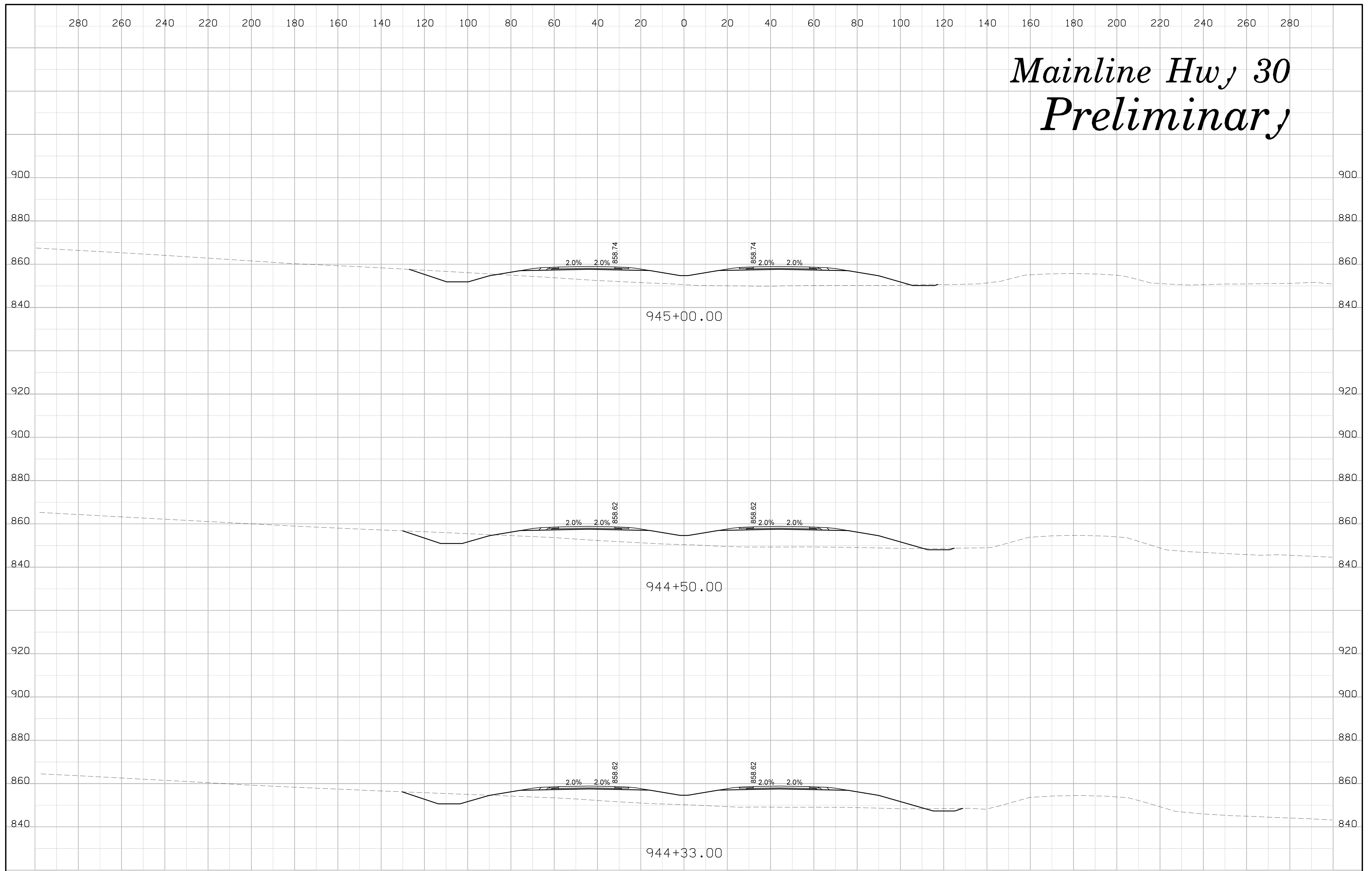
# Mainline Hwy 30 Preliminary



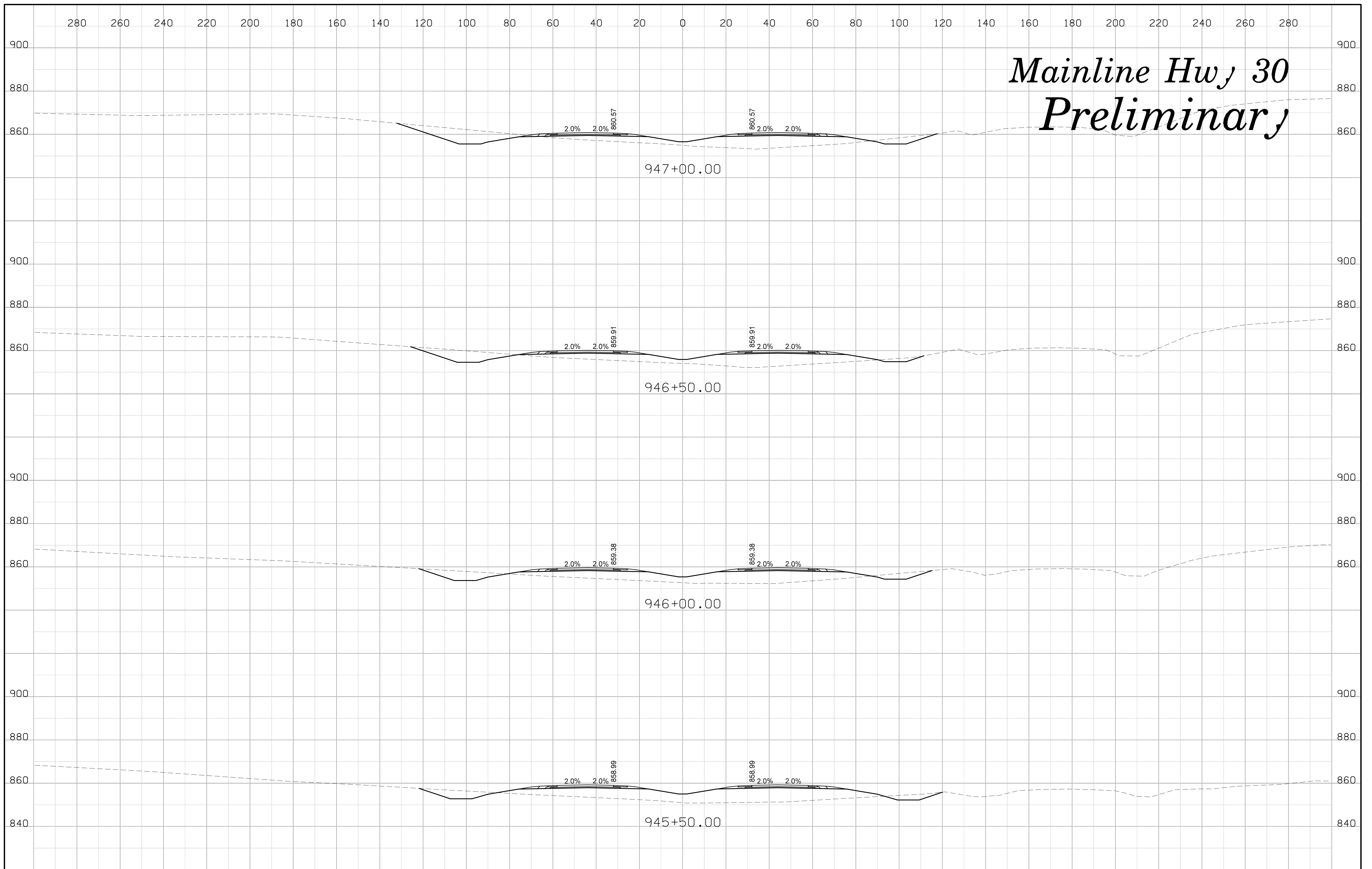
# Mainline Hwy 30 Preliminary



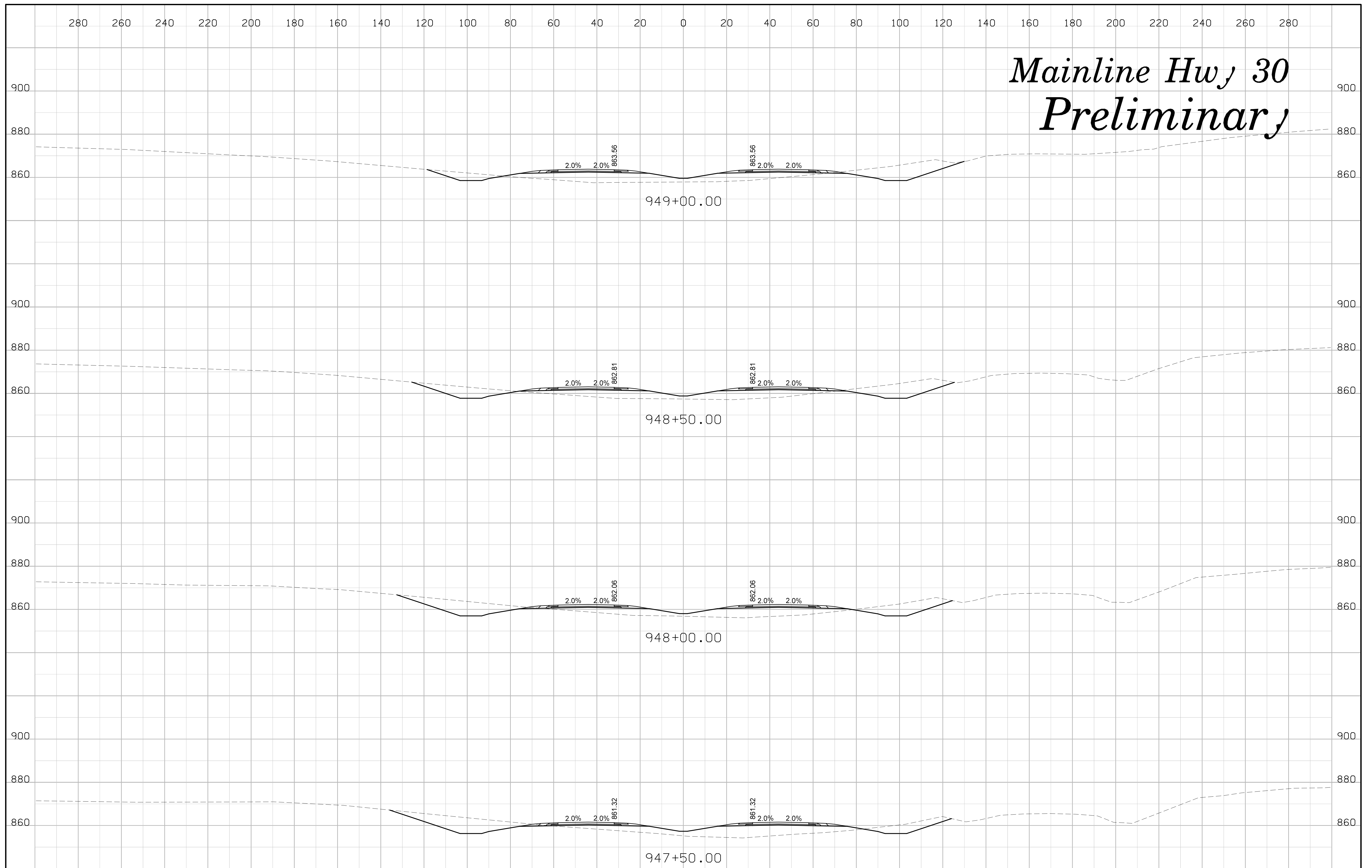
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

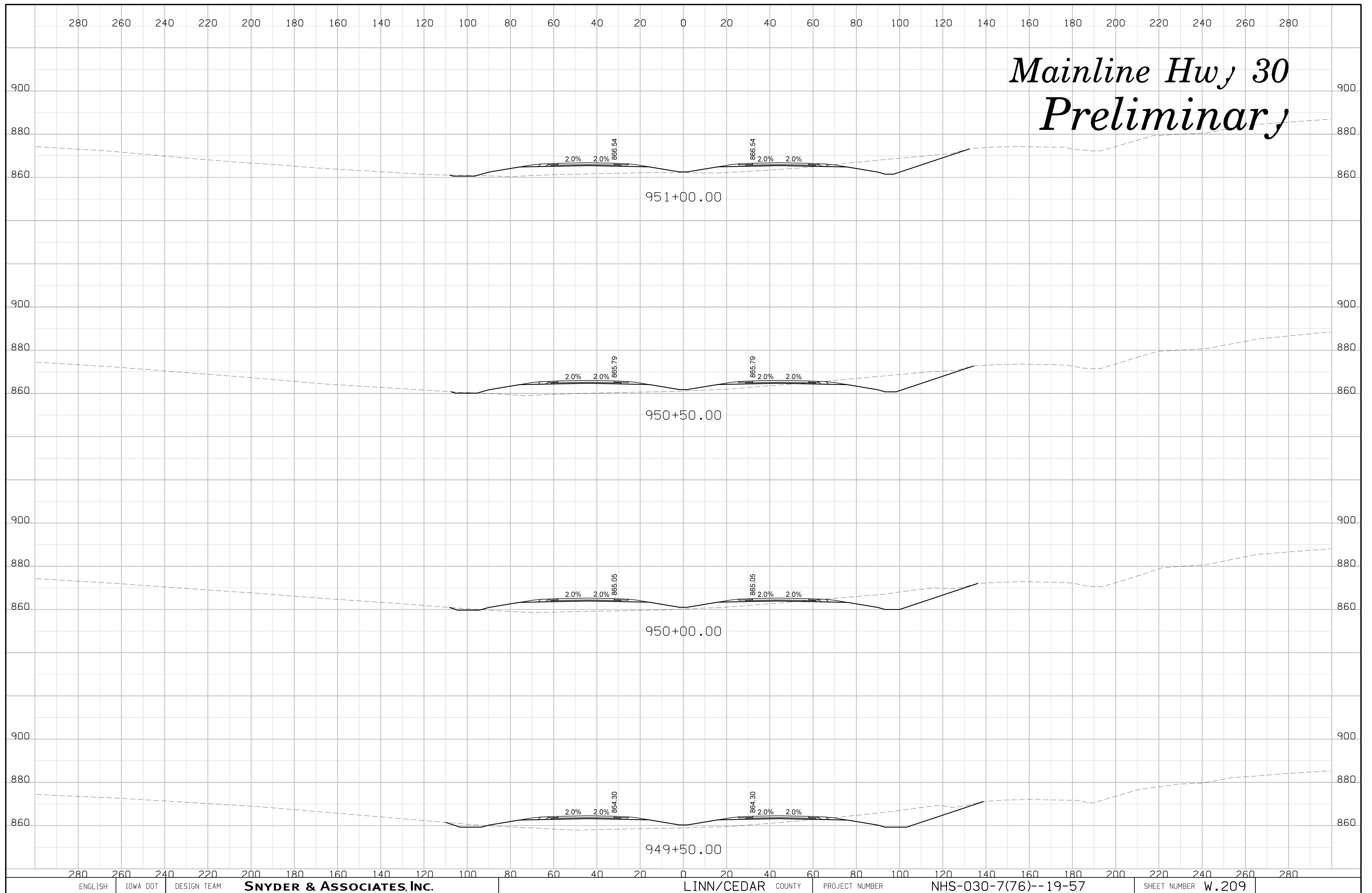


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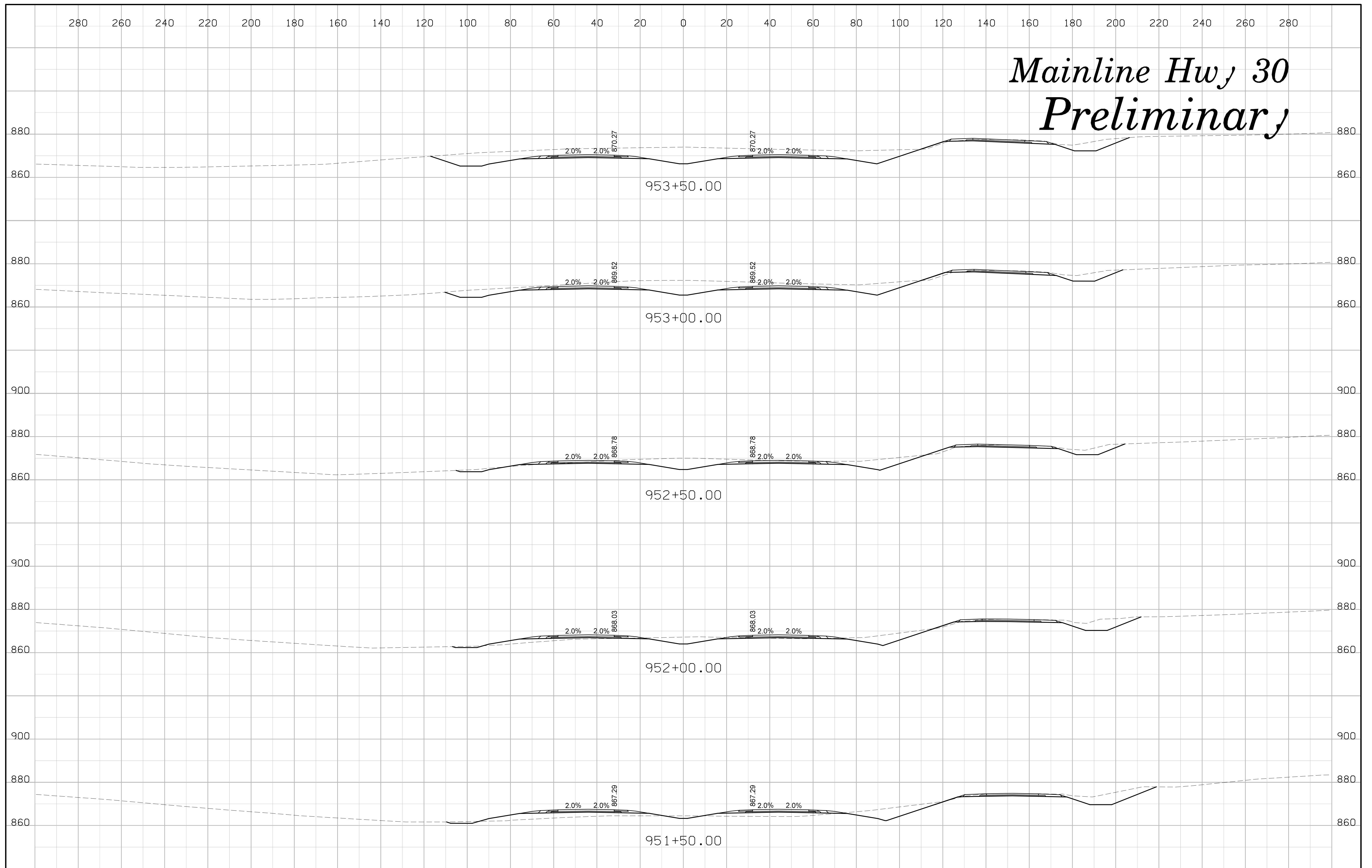




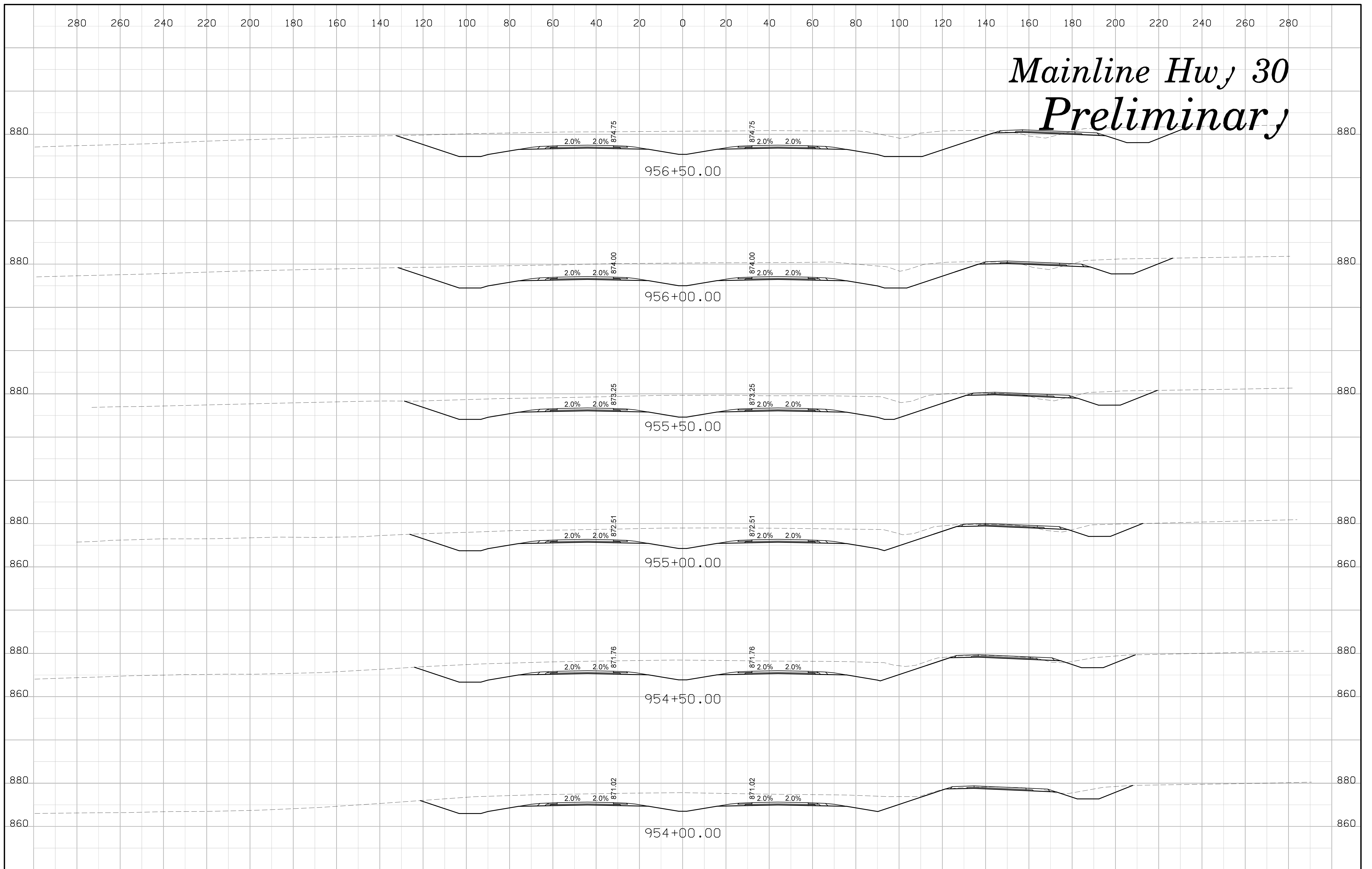
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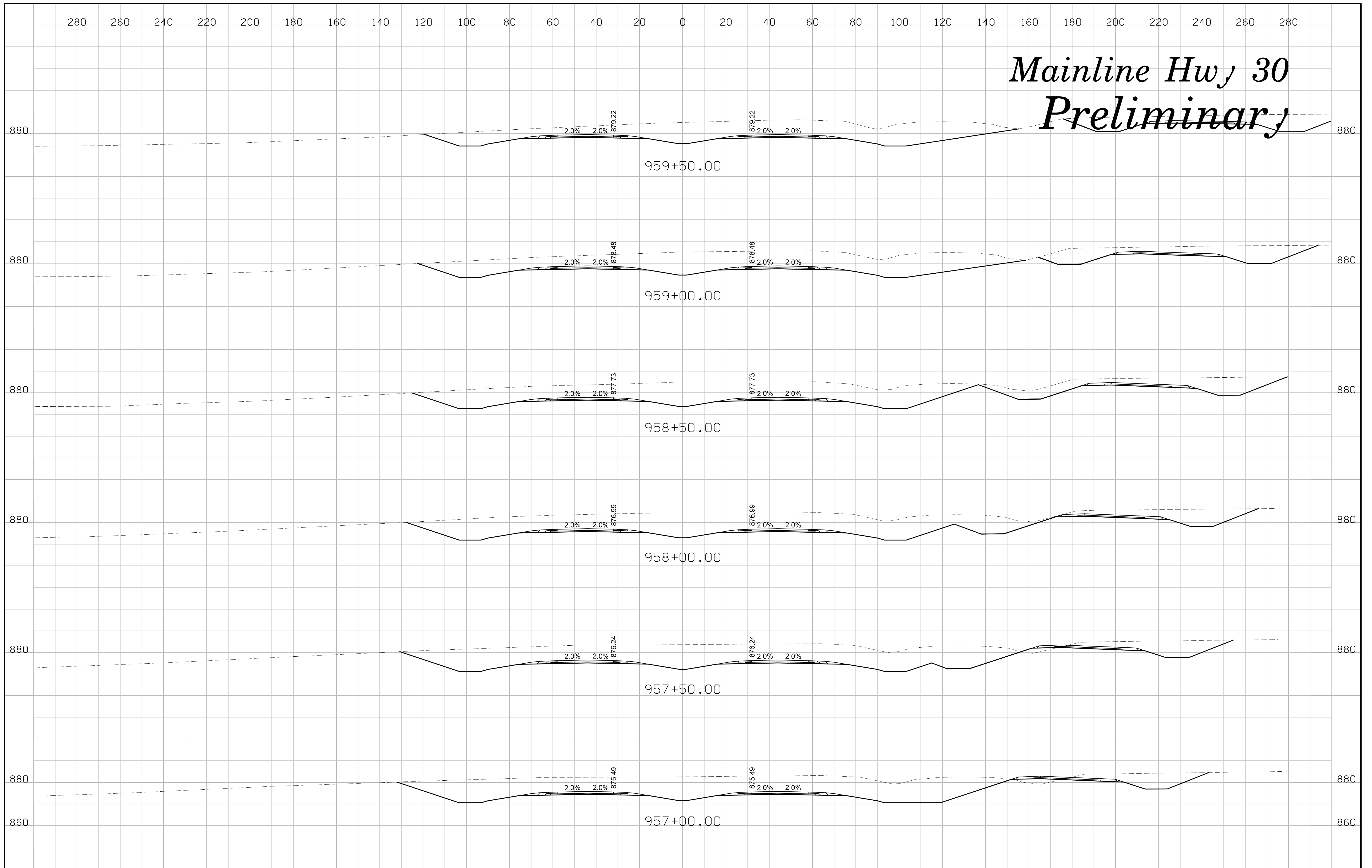
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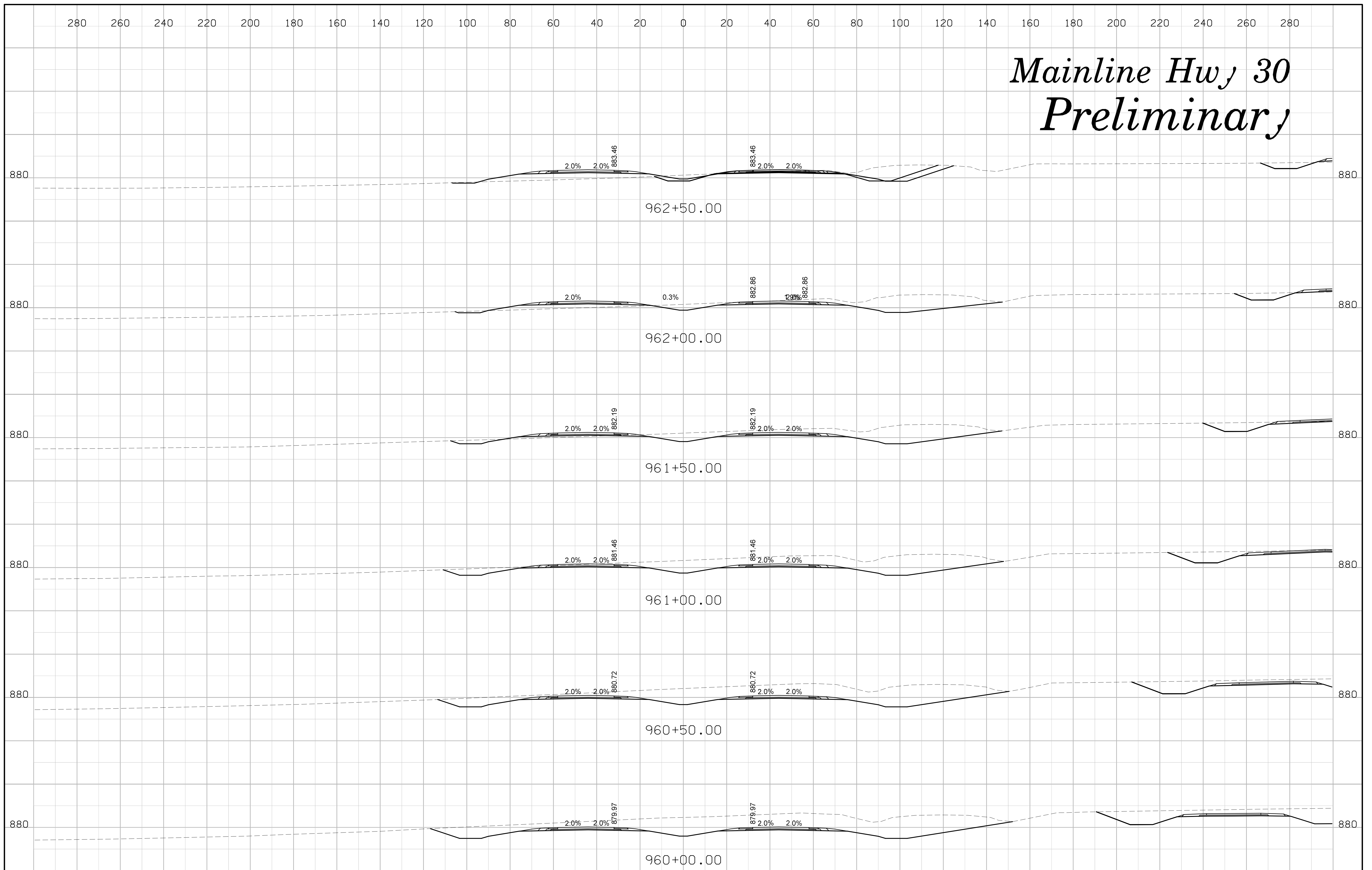
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

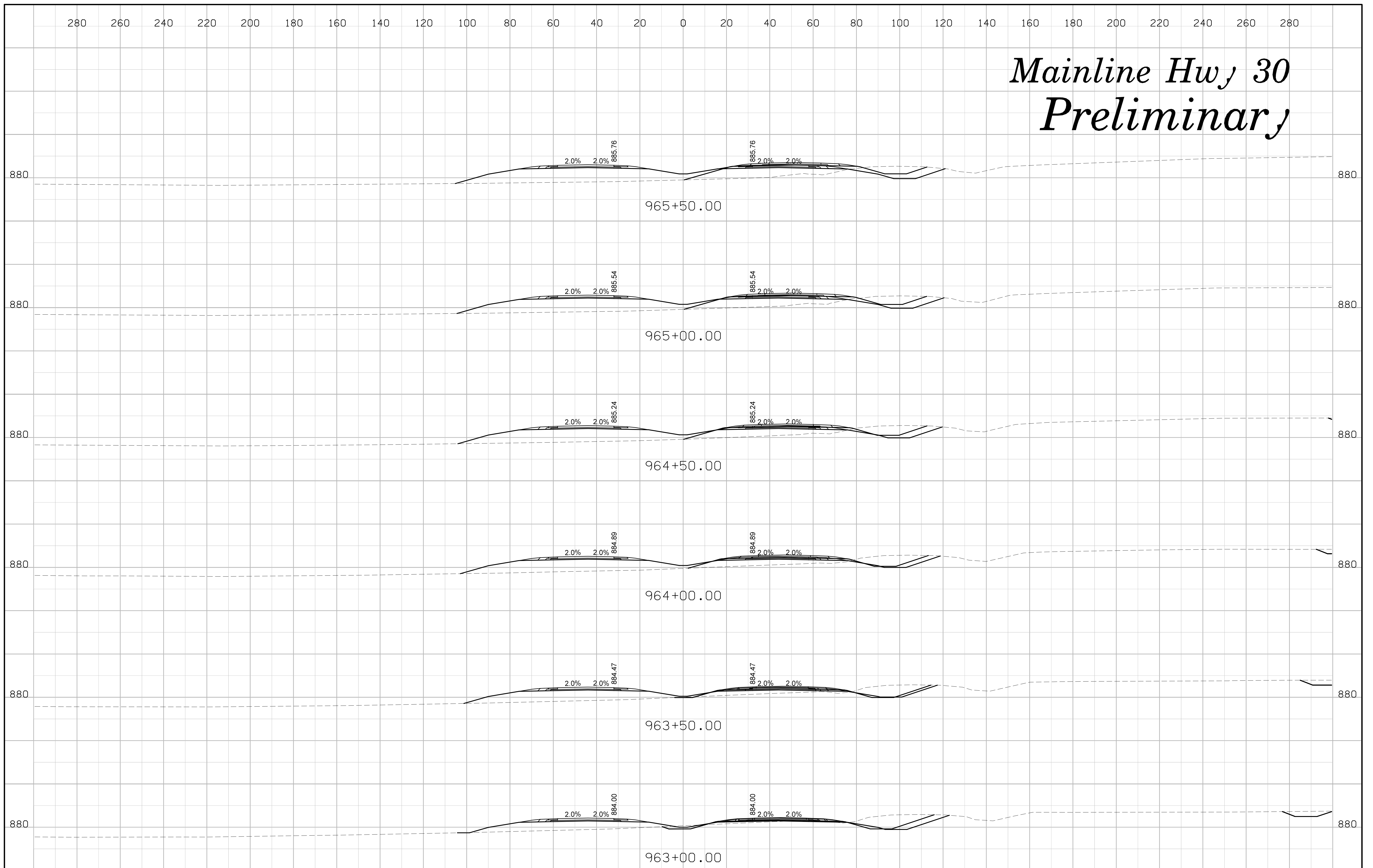


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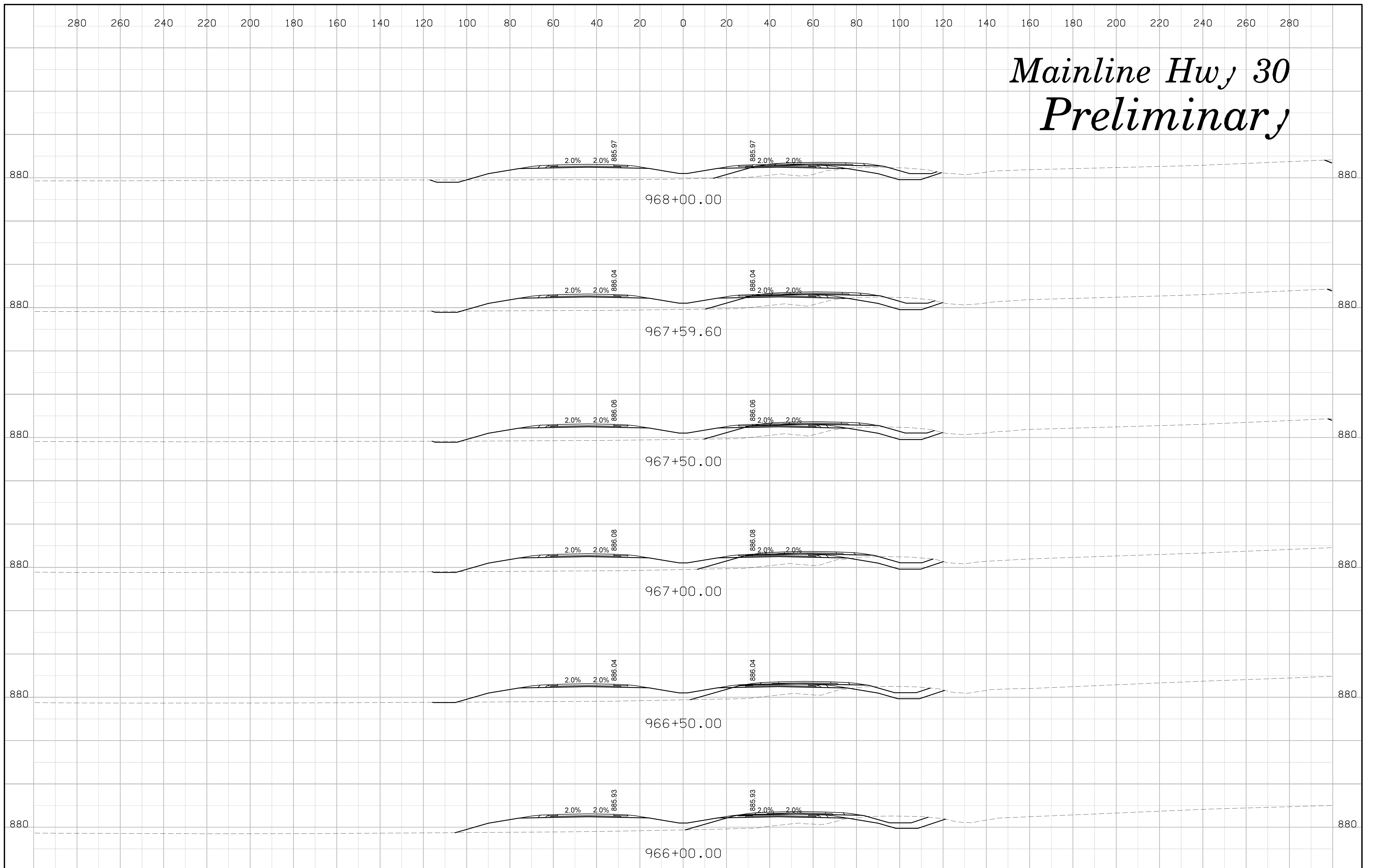




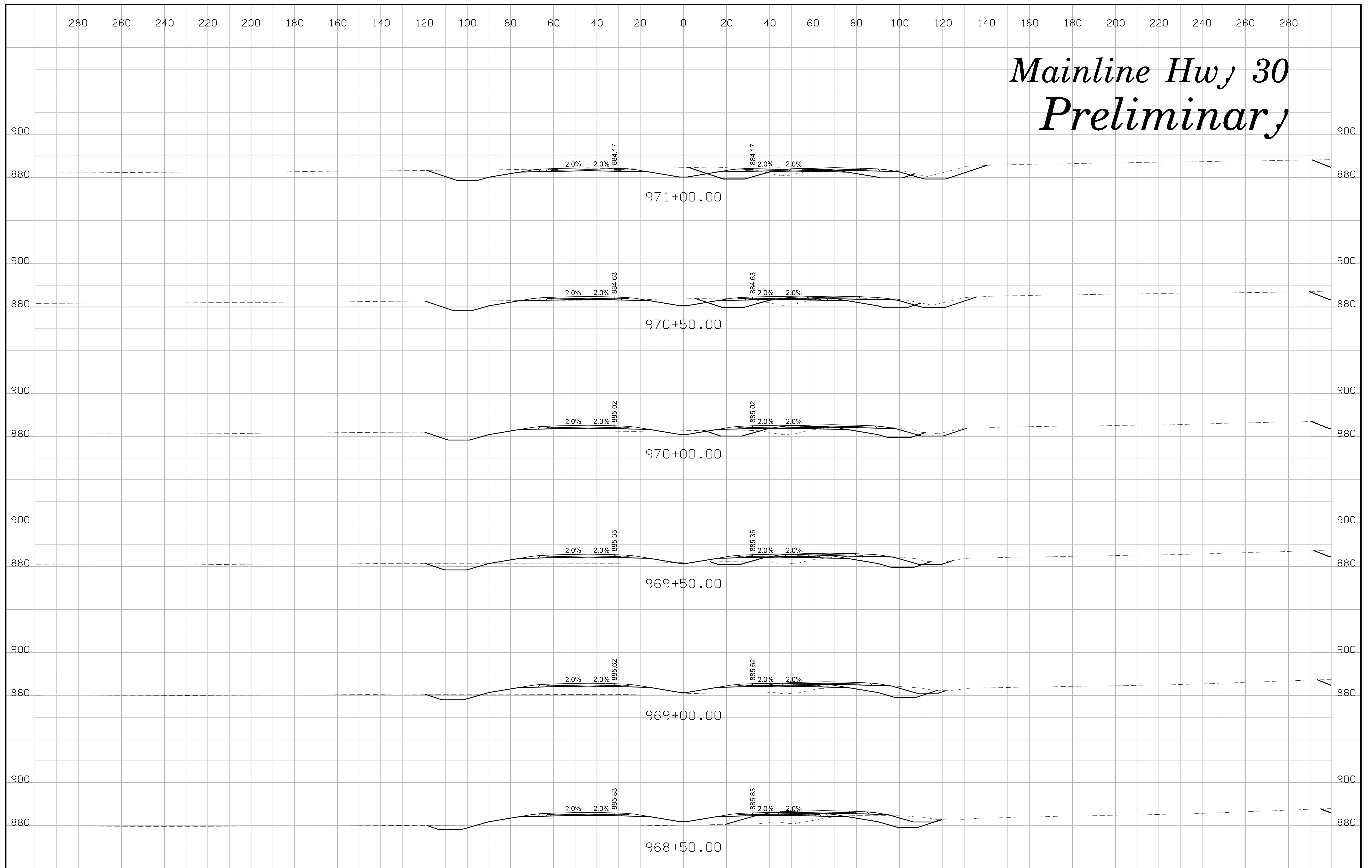
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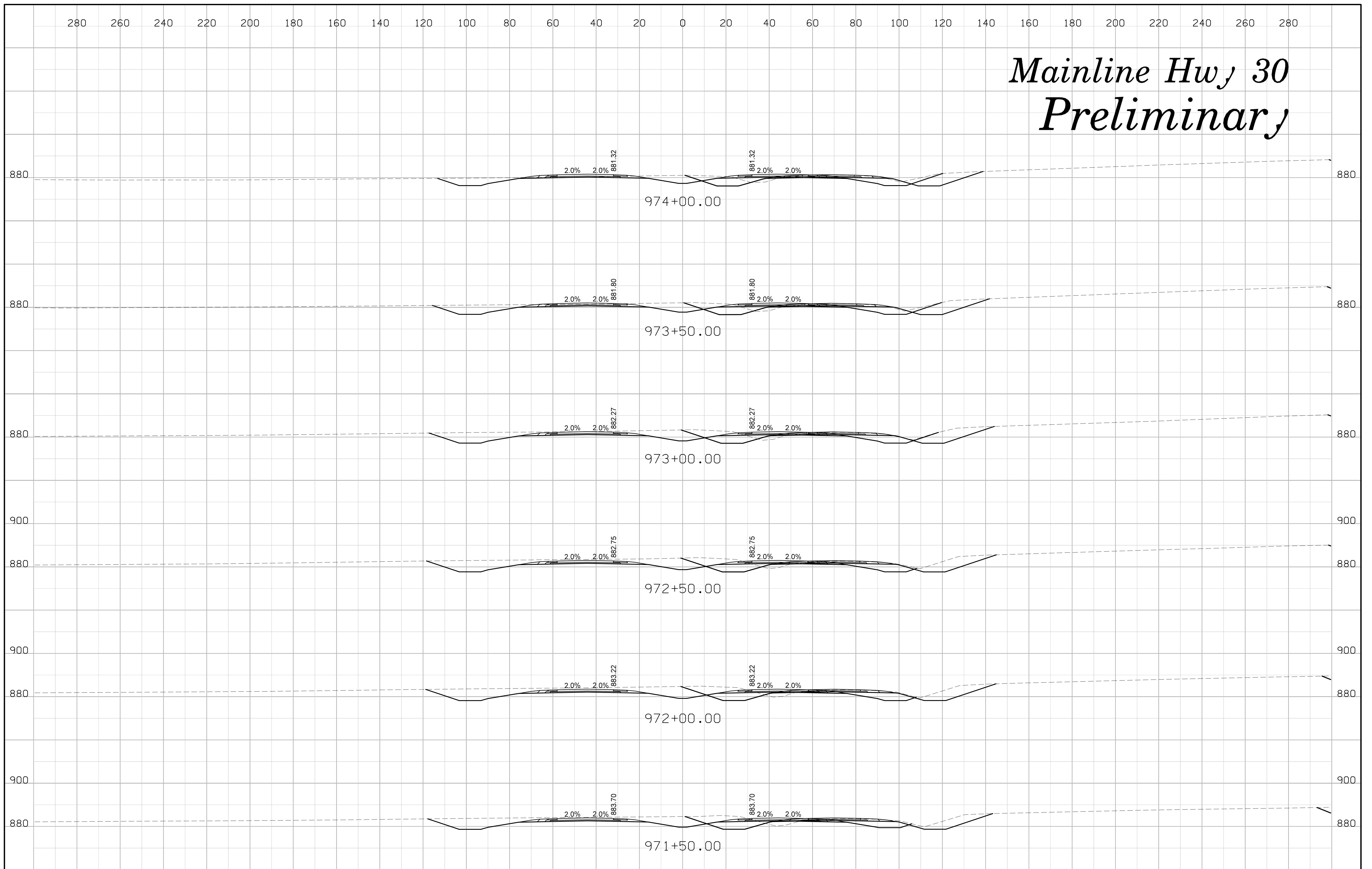
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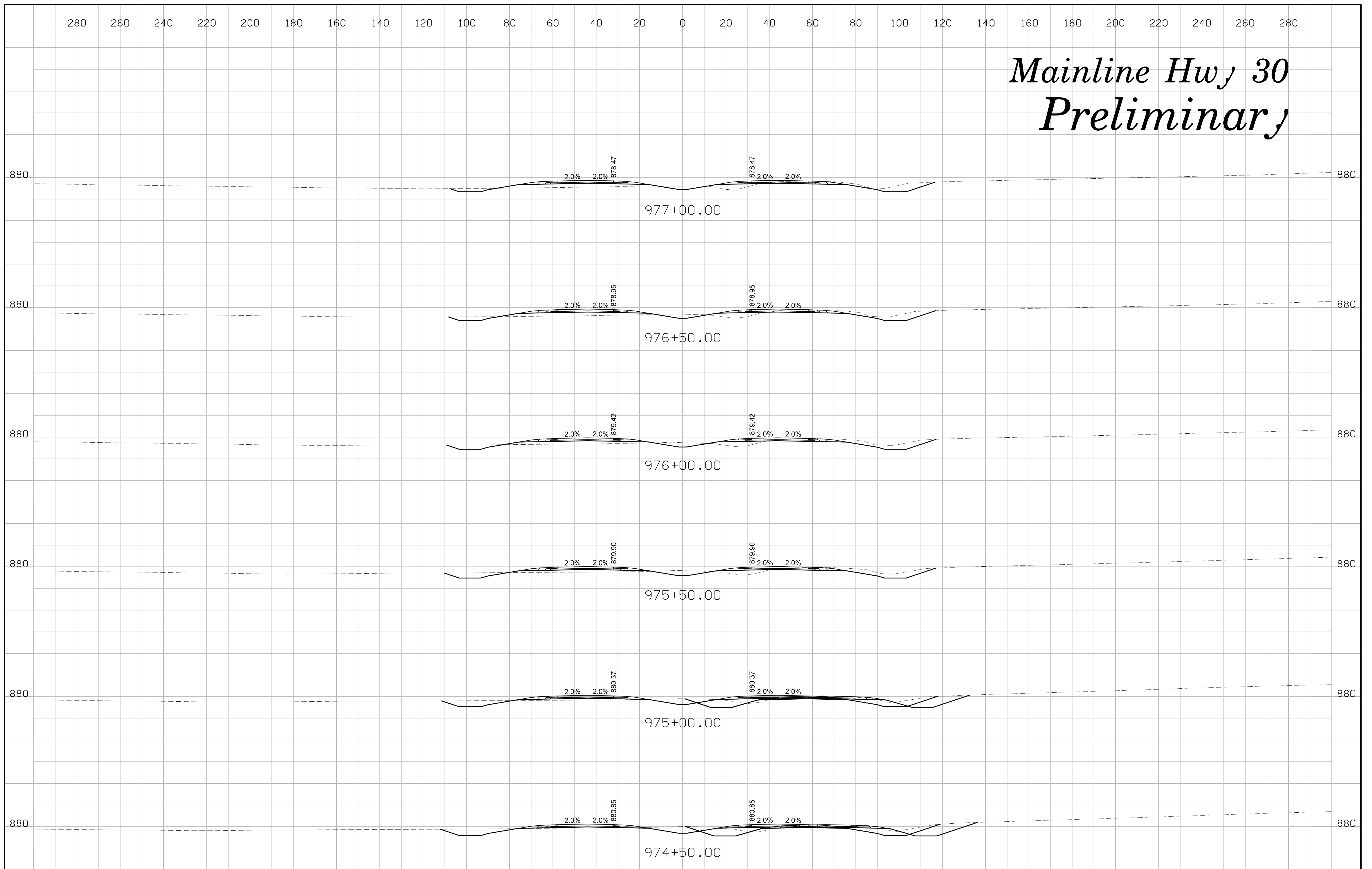
# Mainline Hwy 30 Preliminary



# Mainline Hwy 30 Preliminary

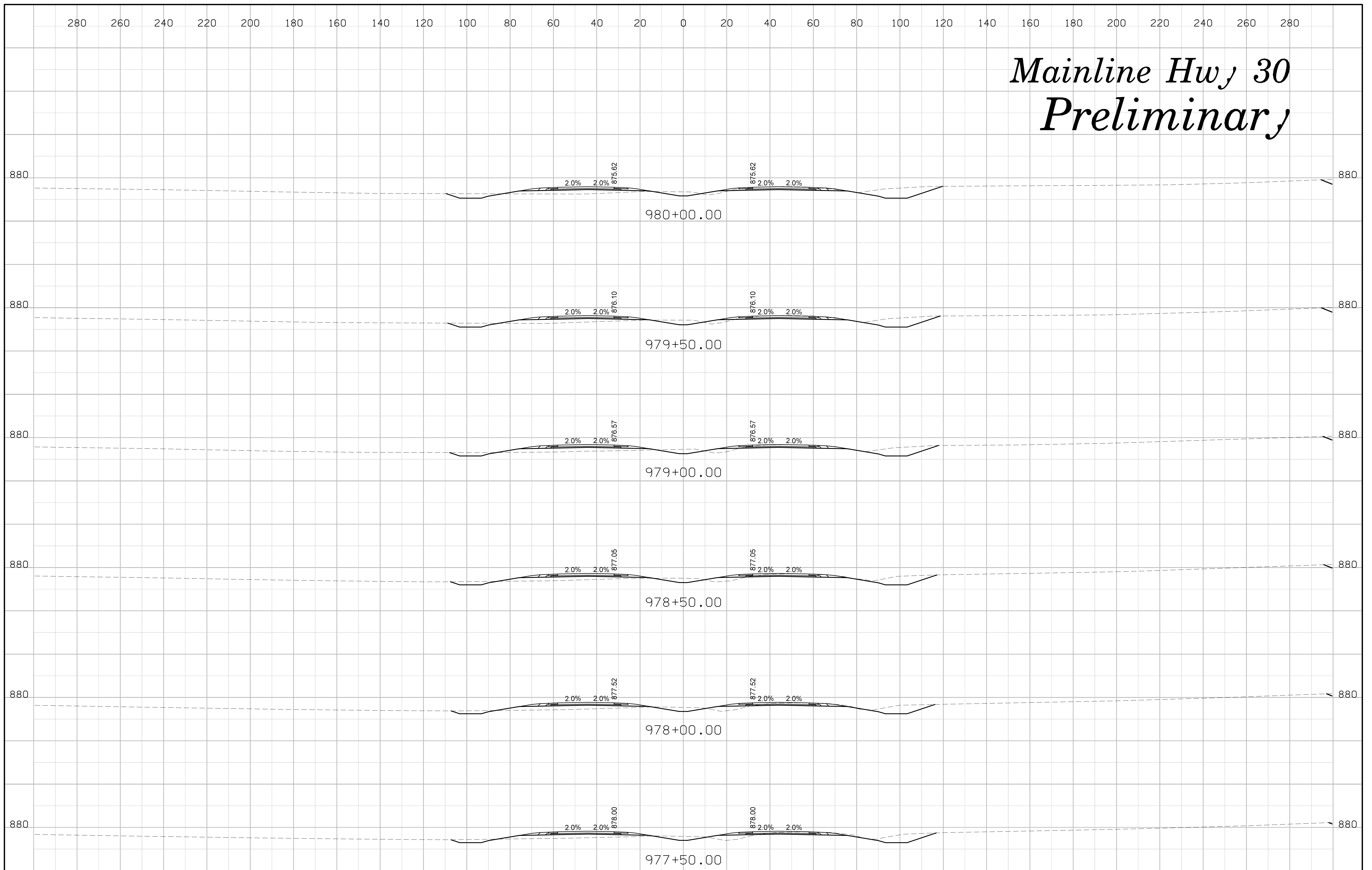


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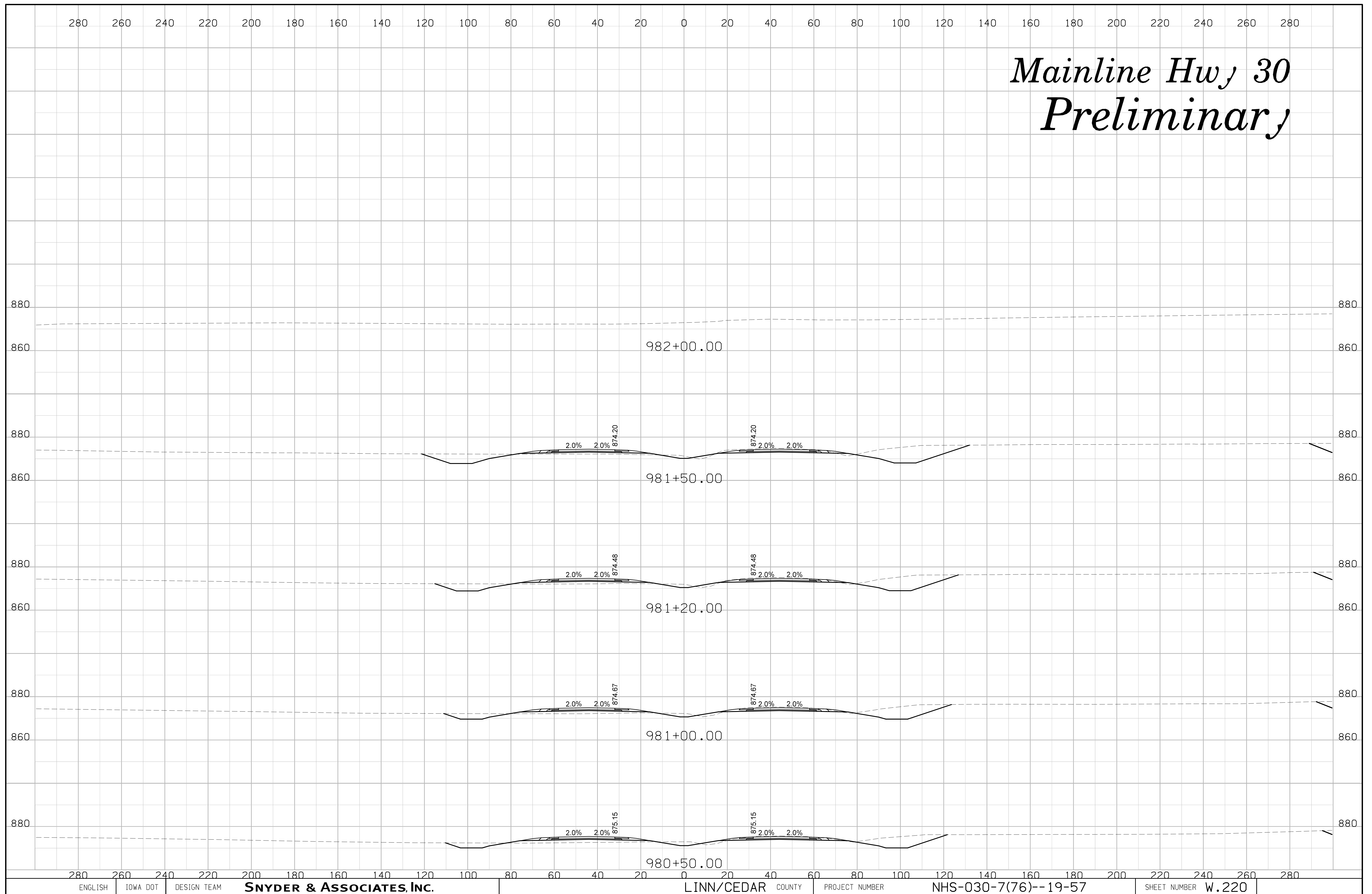




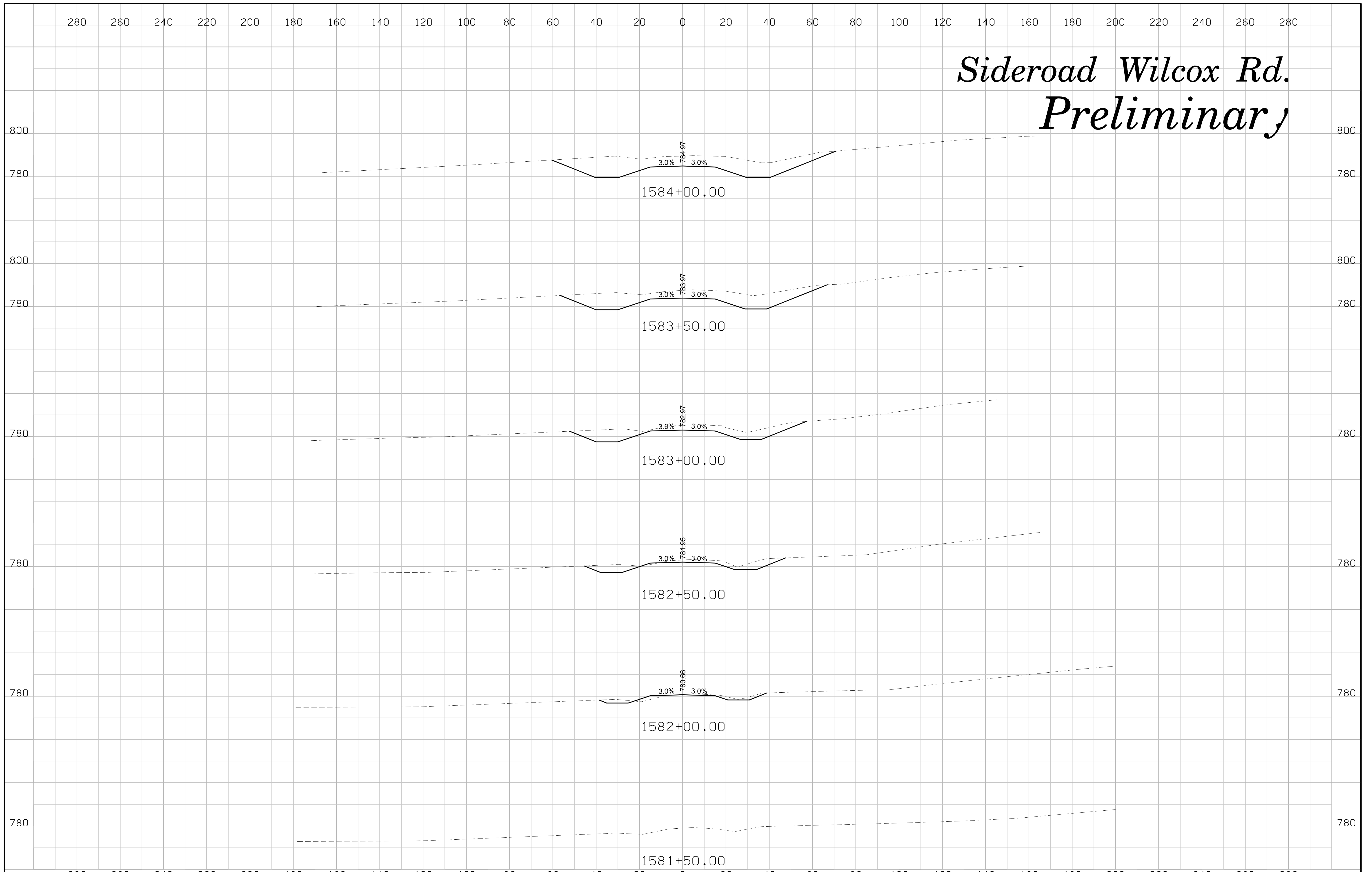
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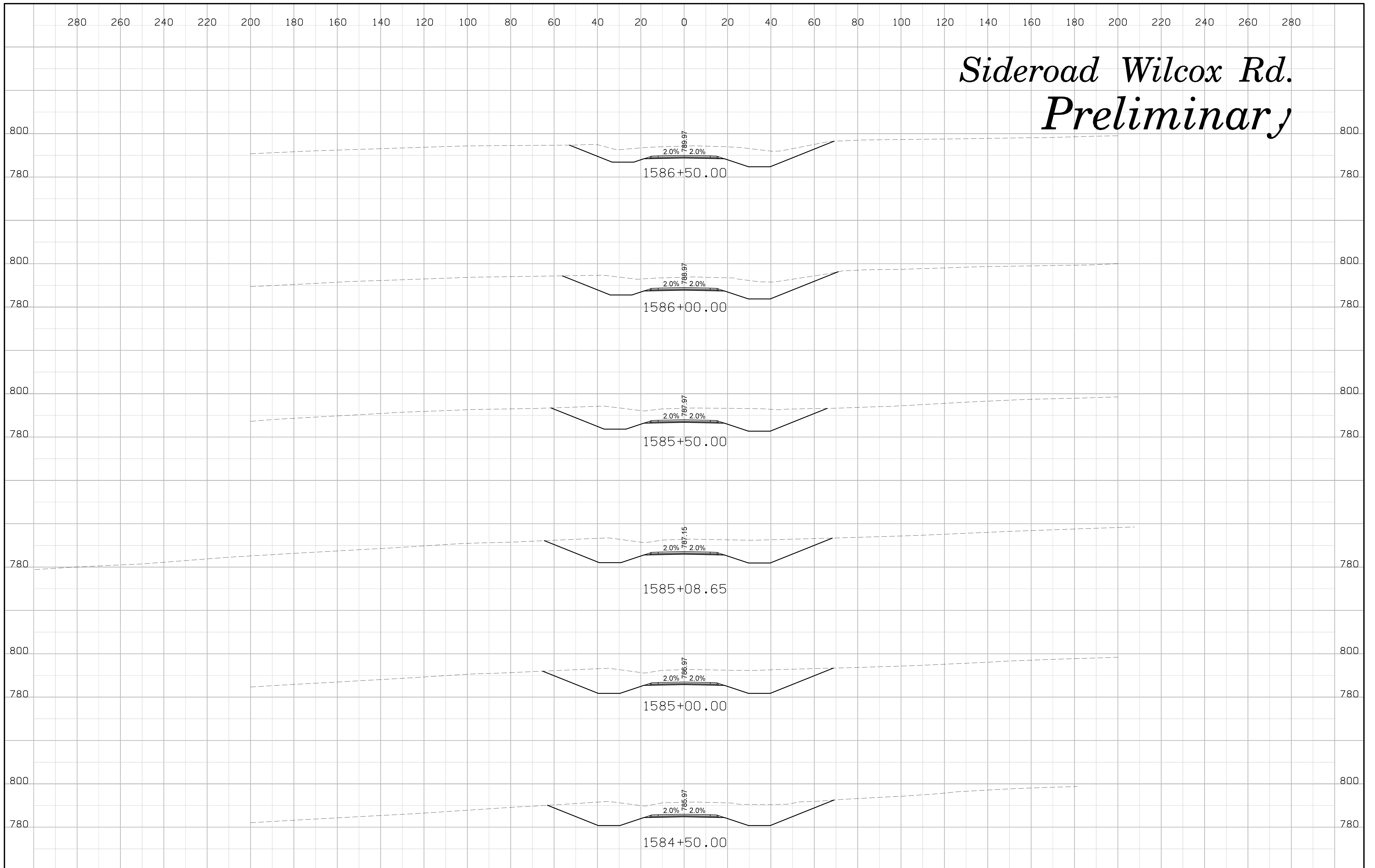
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# Sideroad Wilcox Rd. Preliminary

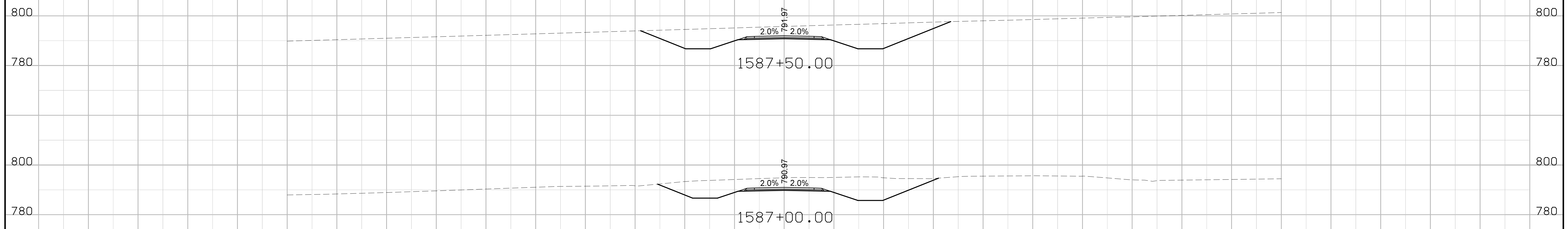


# Sideroad Wilcox Rd. Preliminary



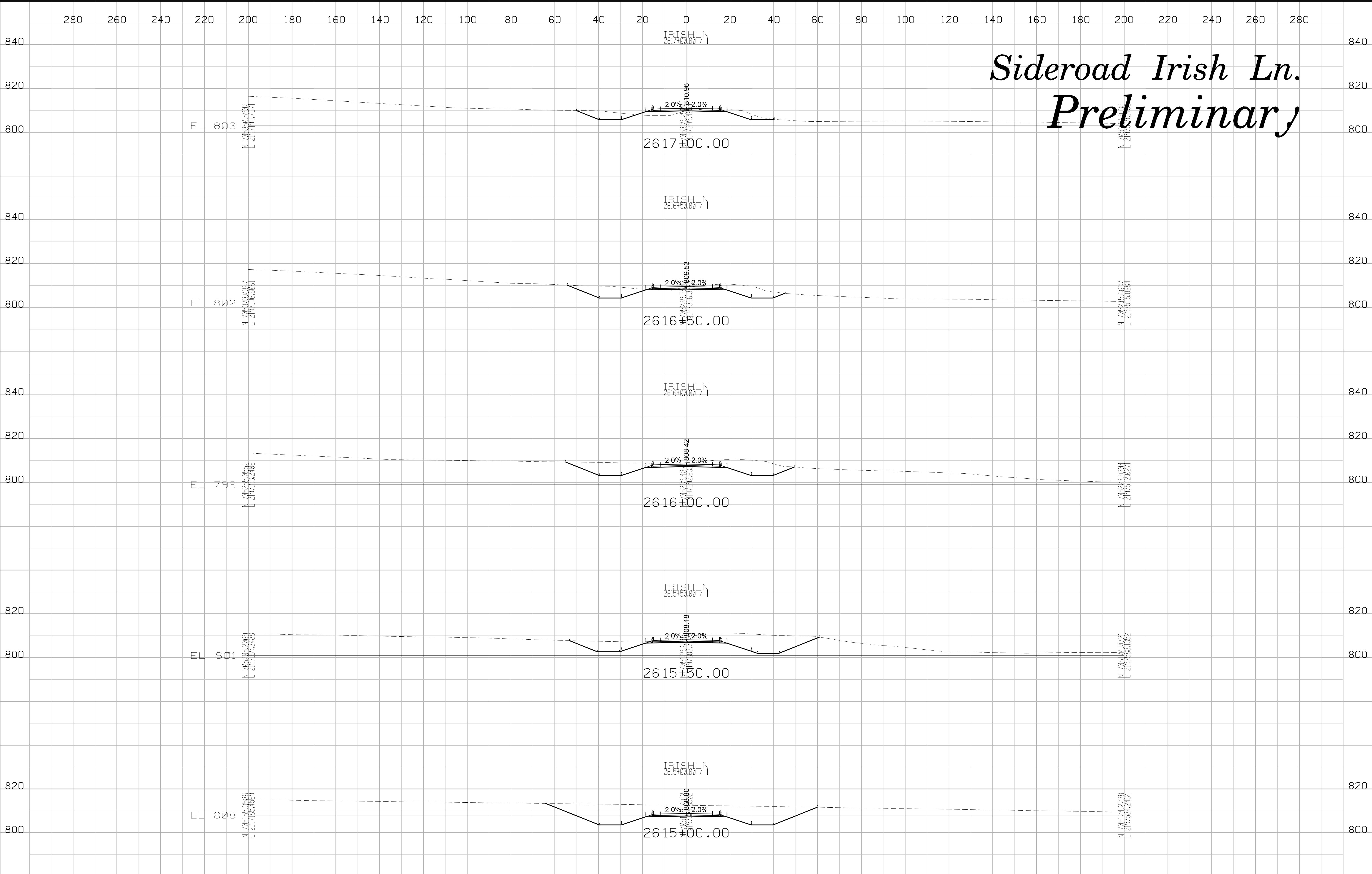
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# Sideroad Wilcox Rd. Preliminary



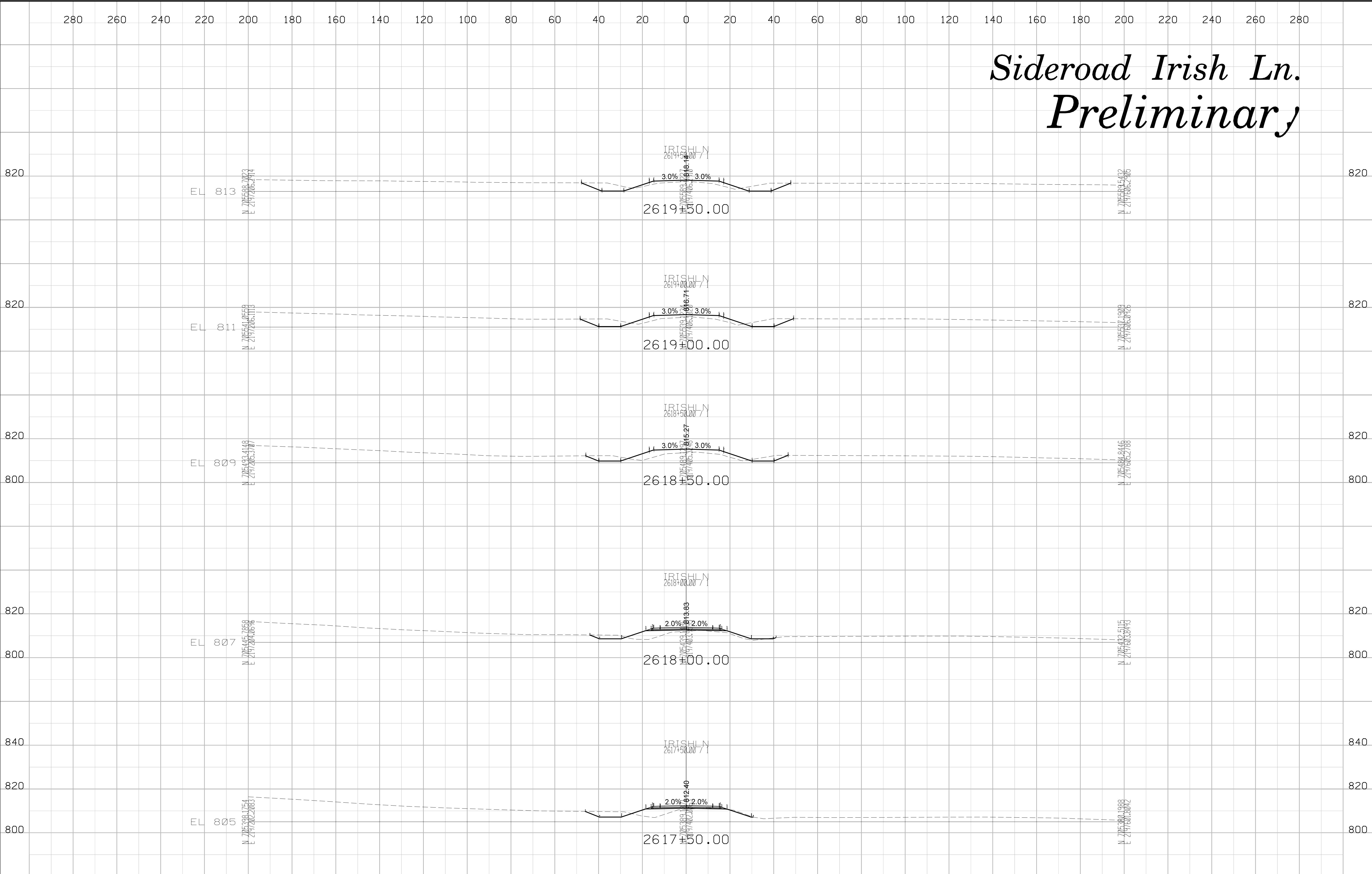
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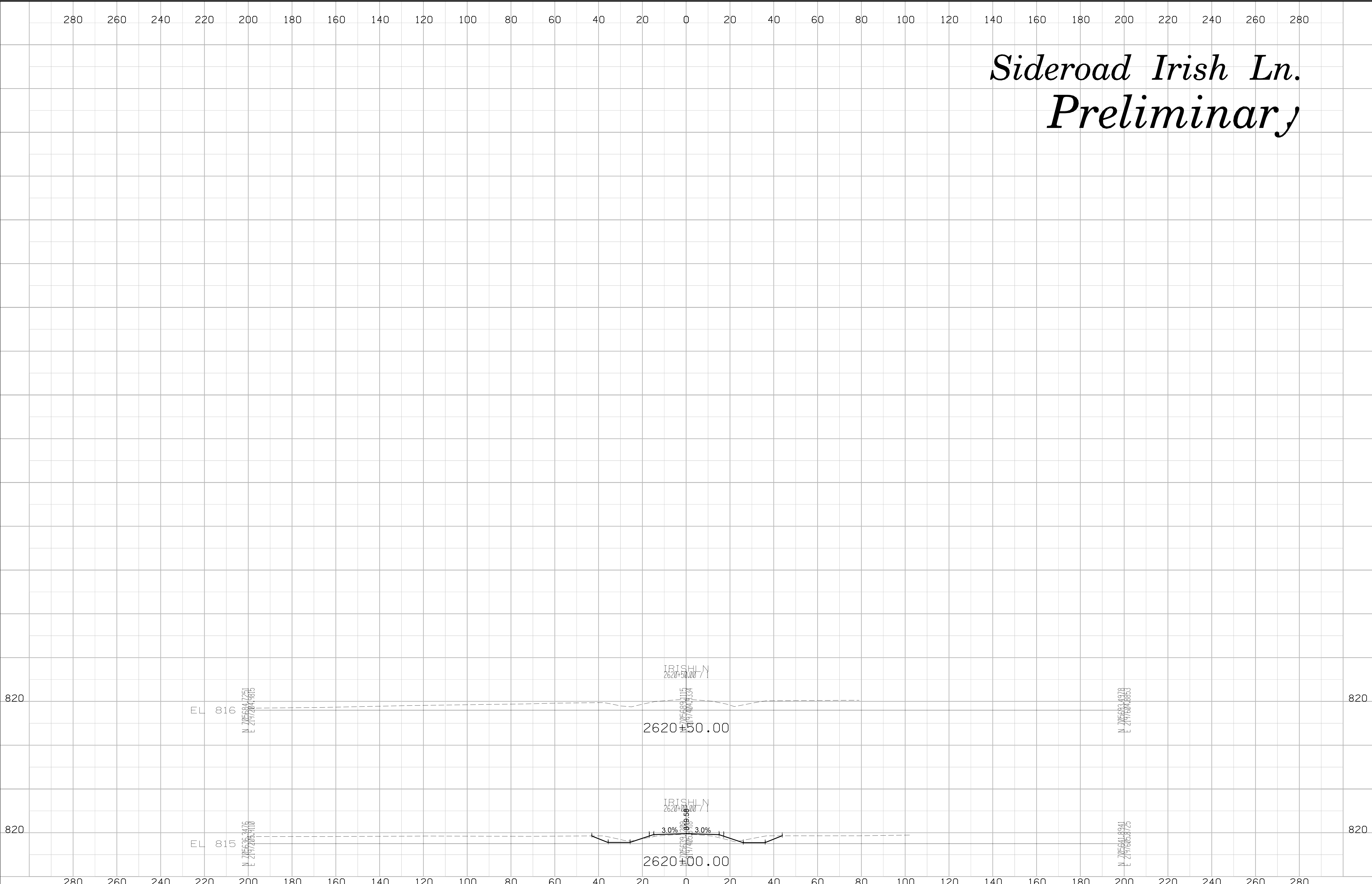




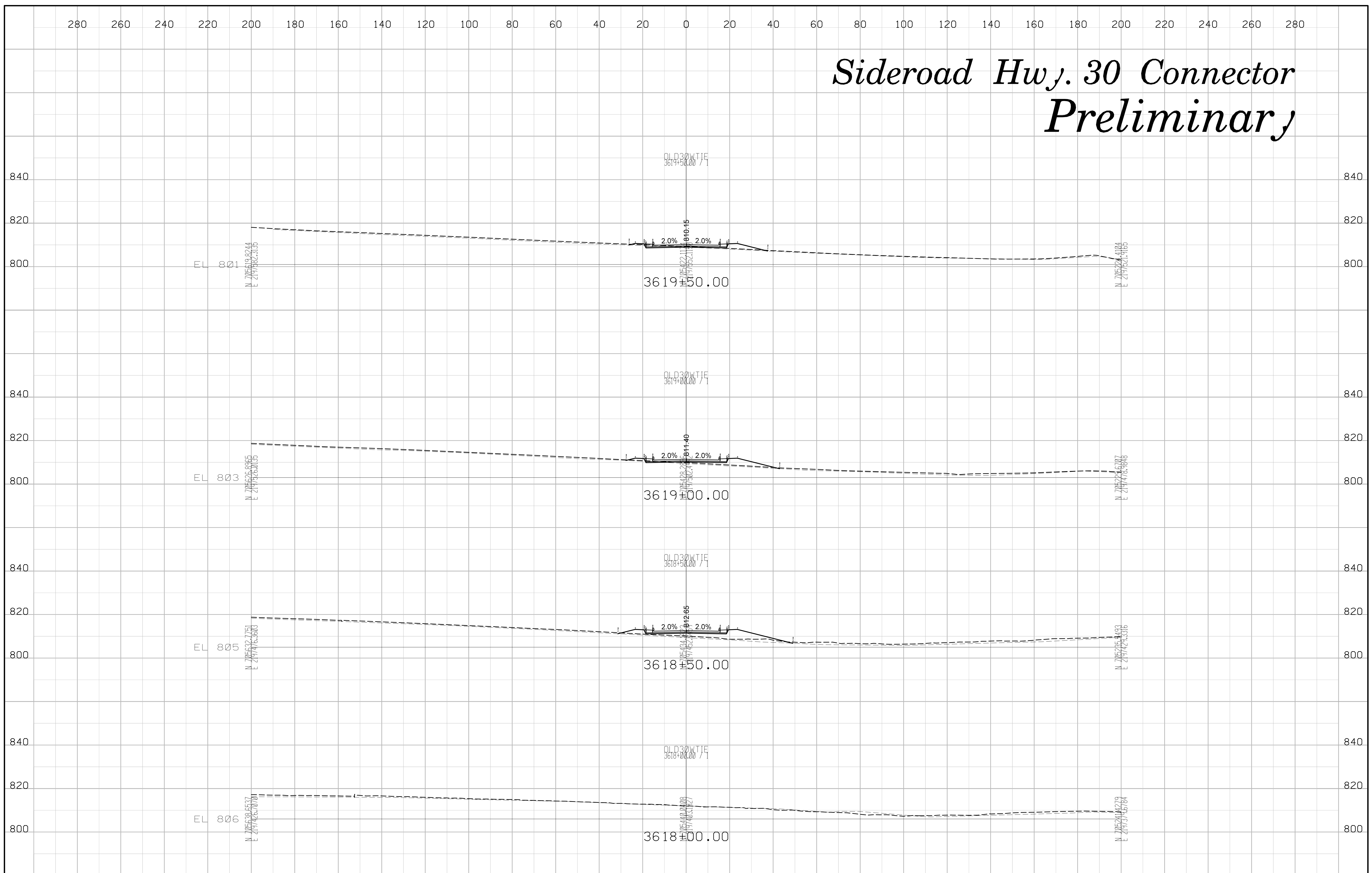
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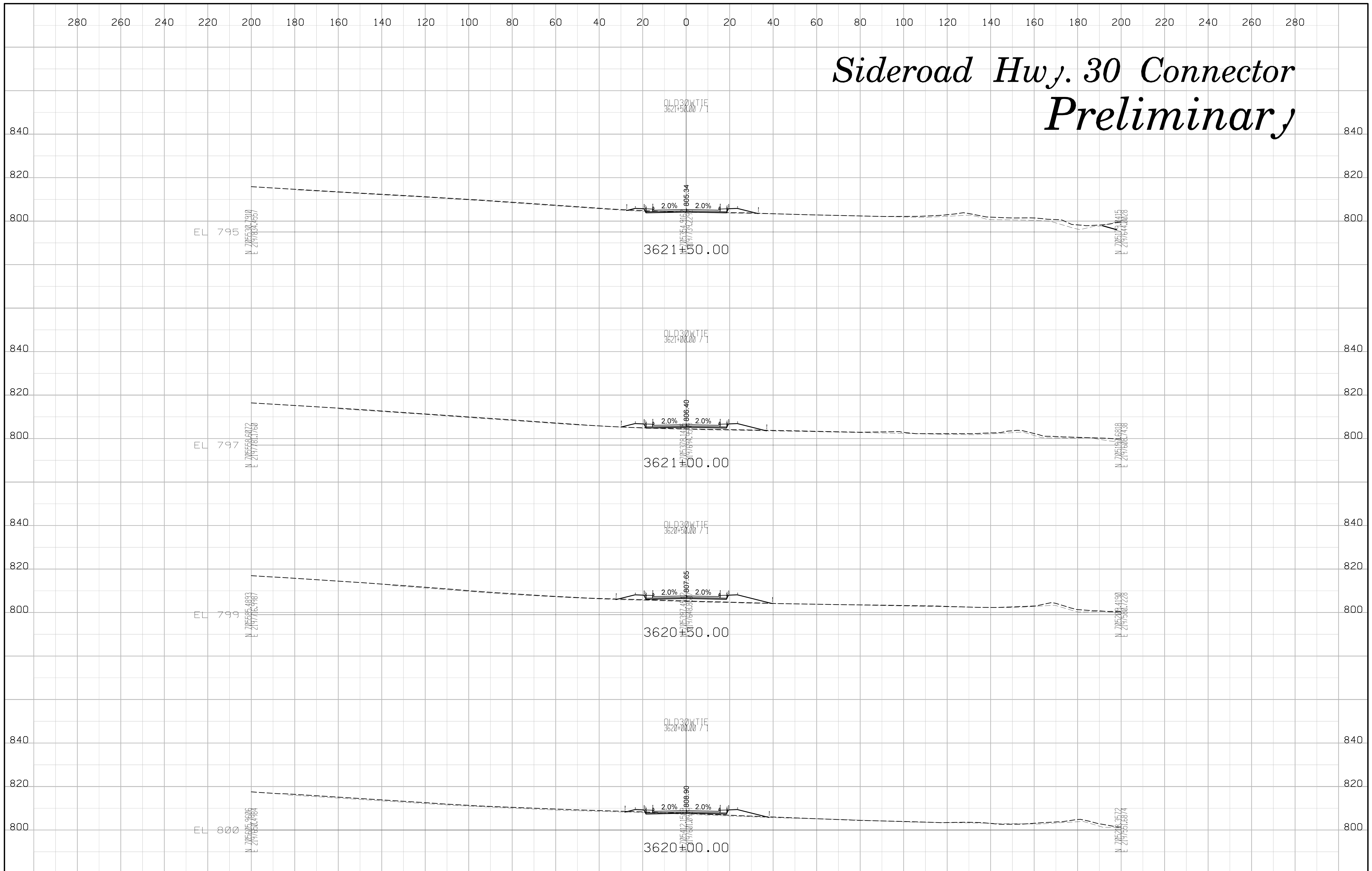
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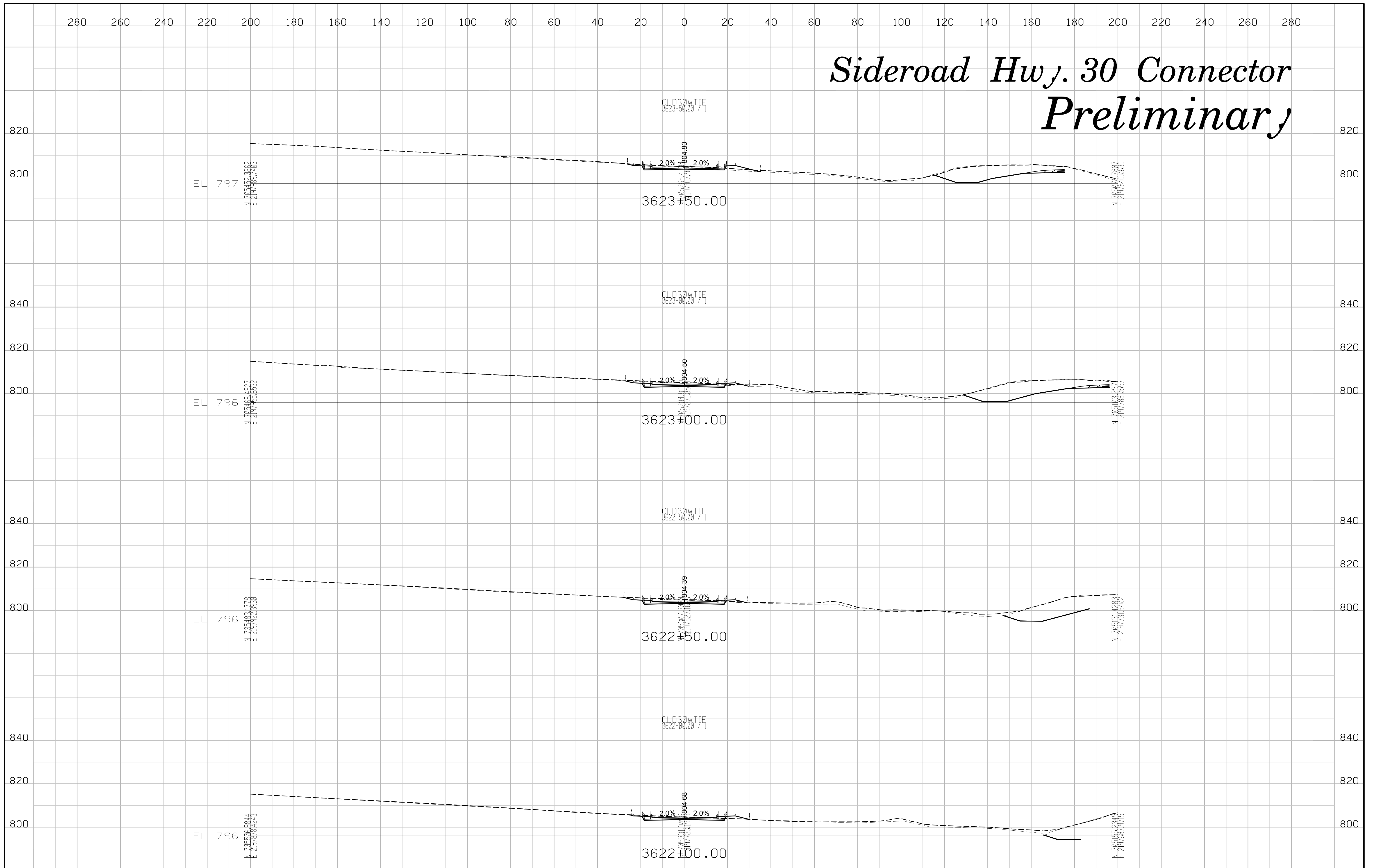
# Sideroad Hwy. 30 Connector Preliminary



# Sideroad Hwy. 30 Connector Preliminary

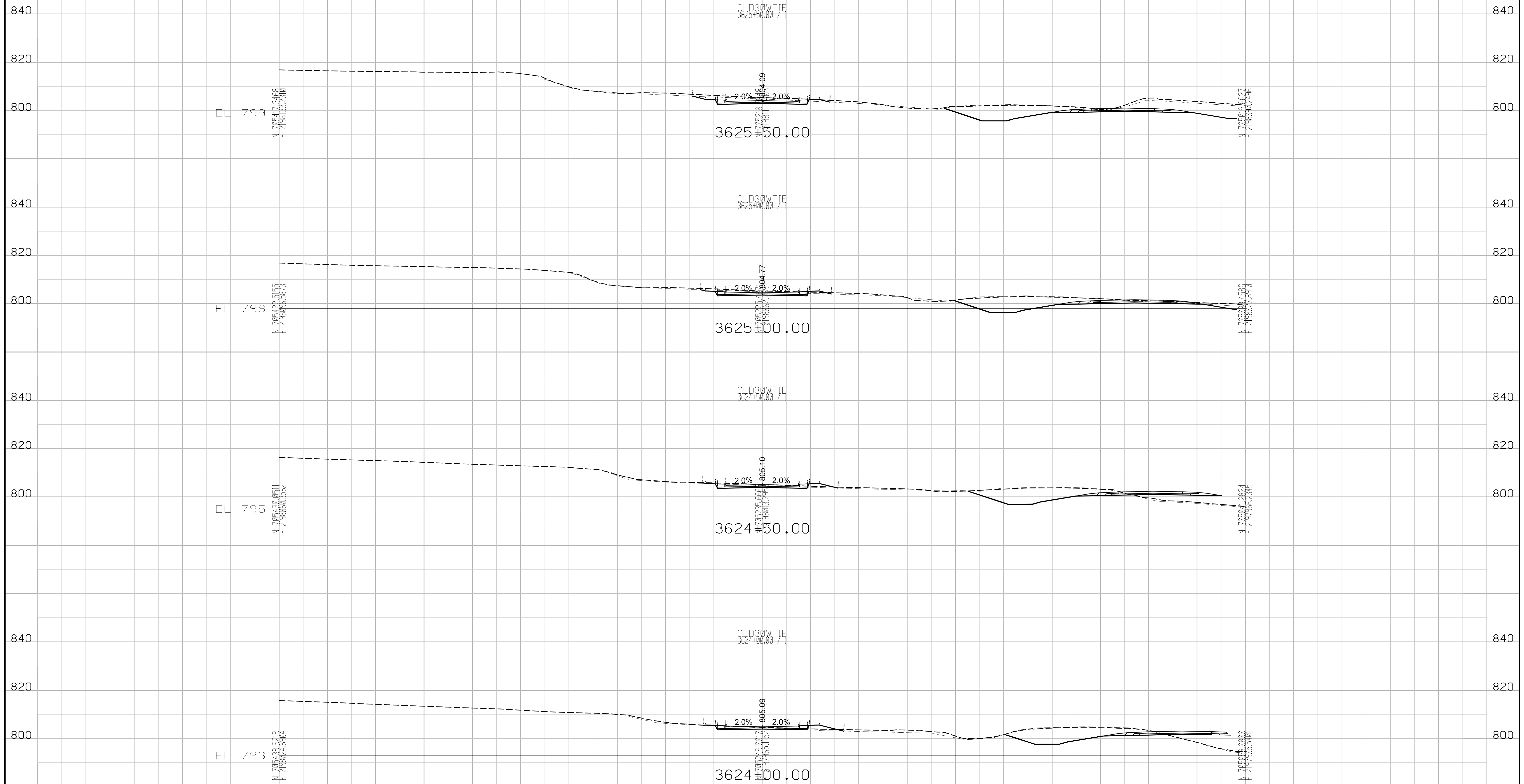


# Sideroad Hwy. 30 Connector Preliminary



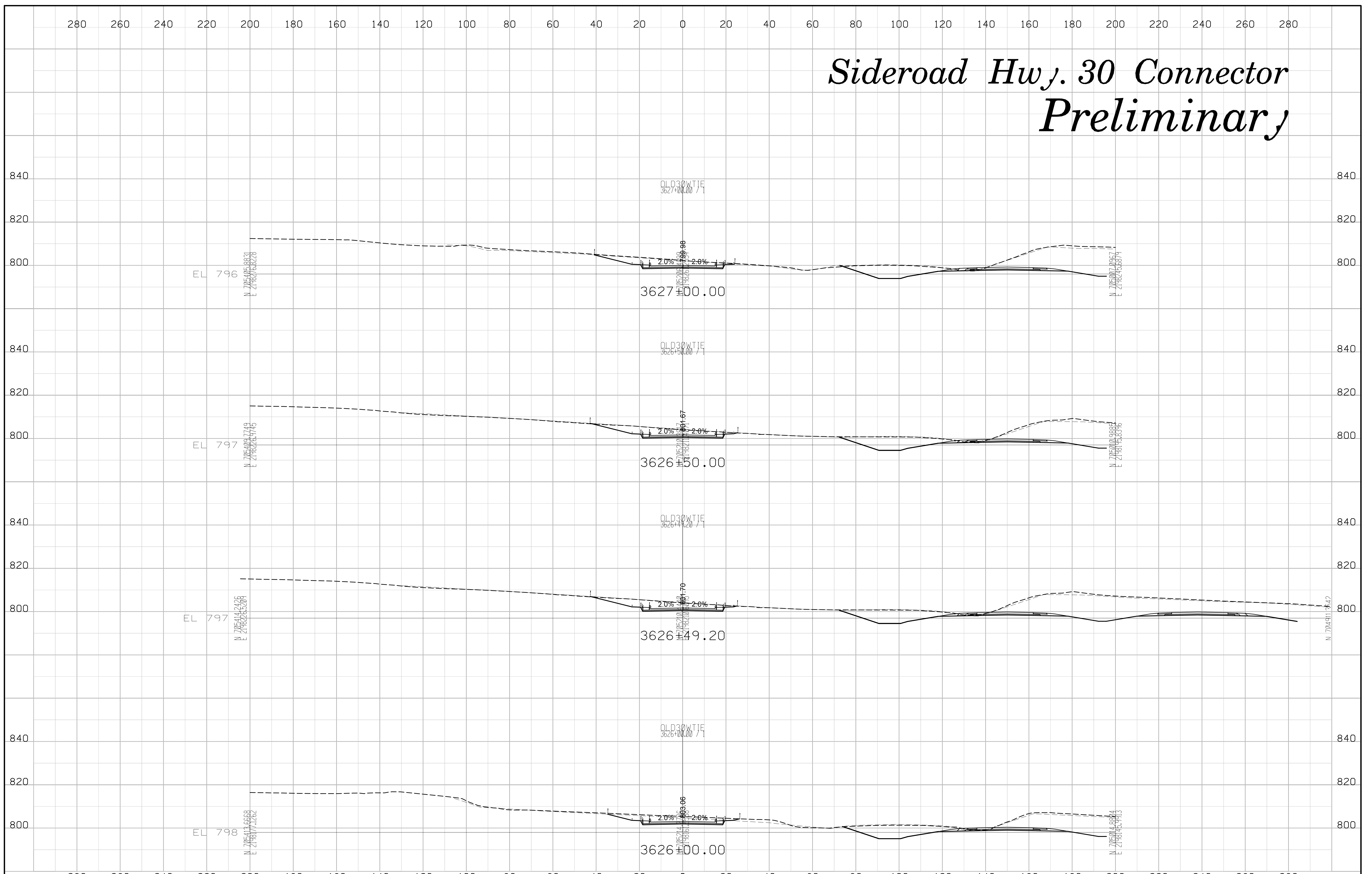
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# Sideroad Hwy. 30 Connector Preliminary

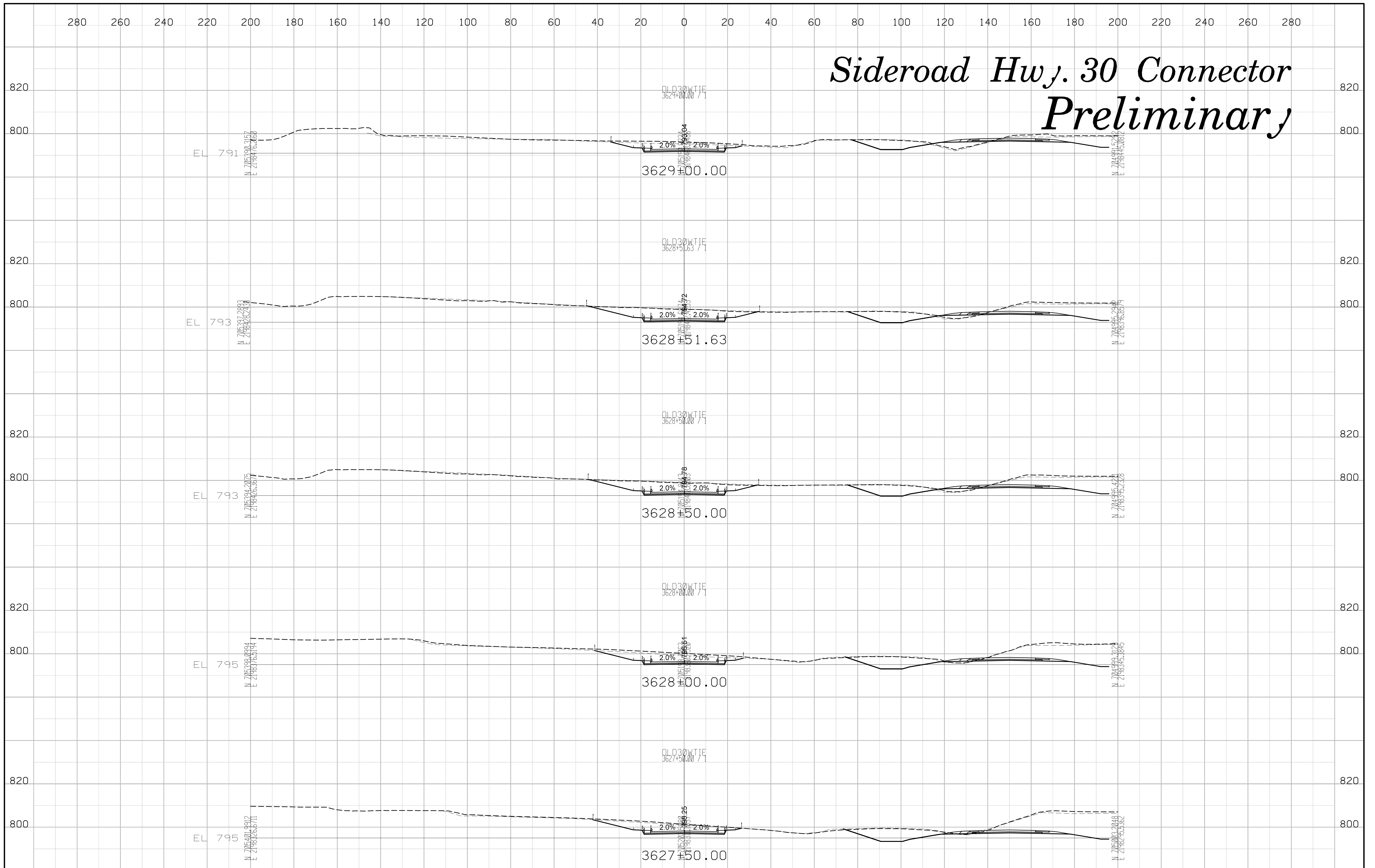




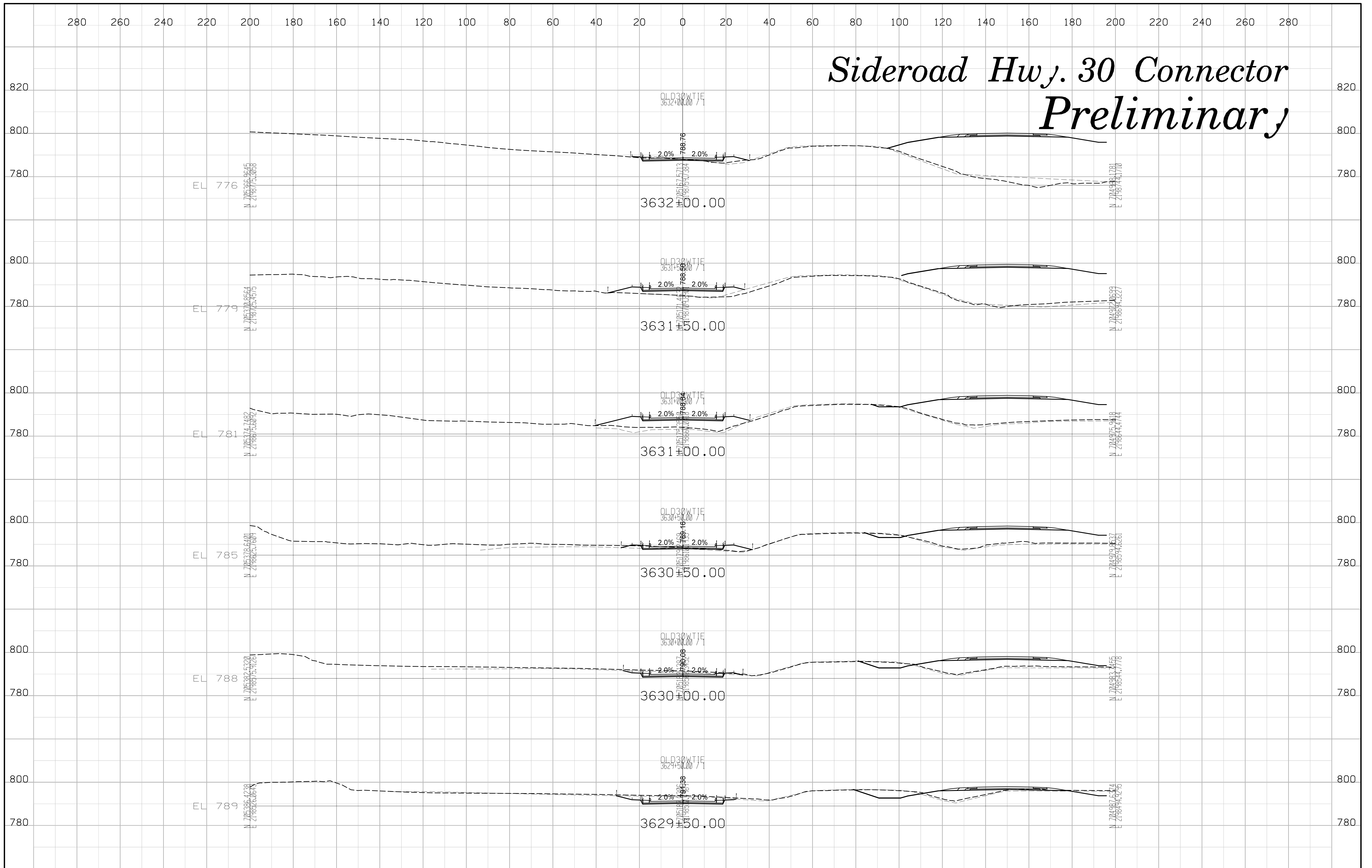
# Sideroad Hwy. 30 Connector Preliminary

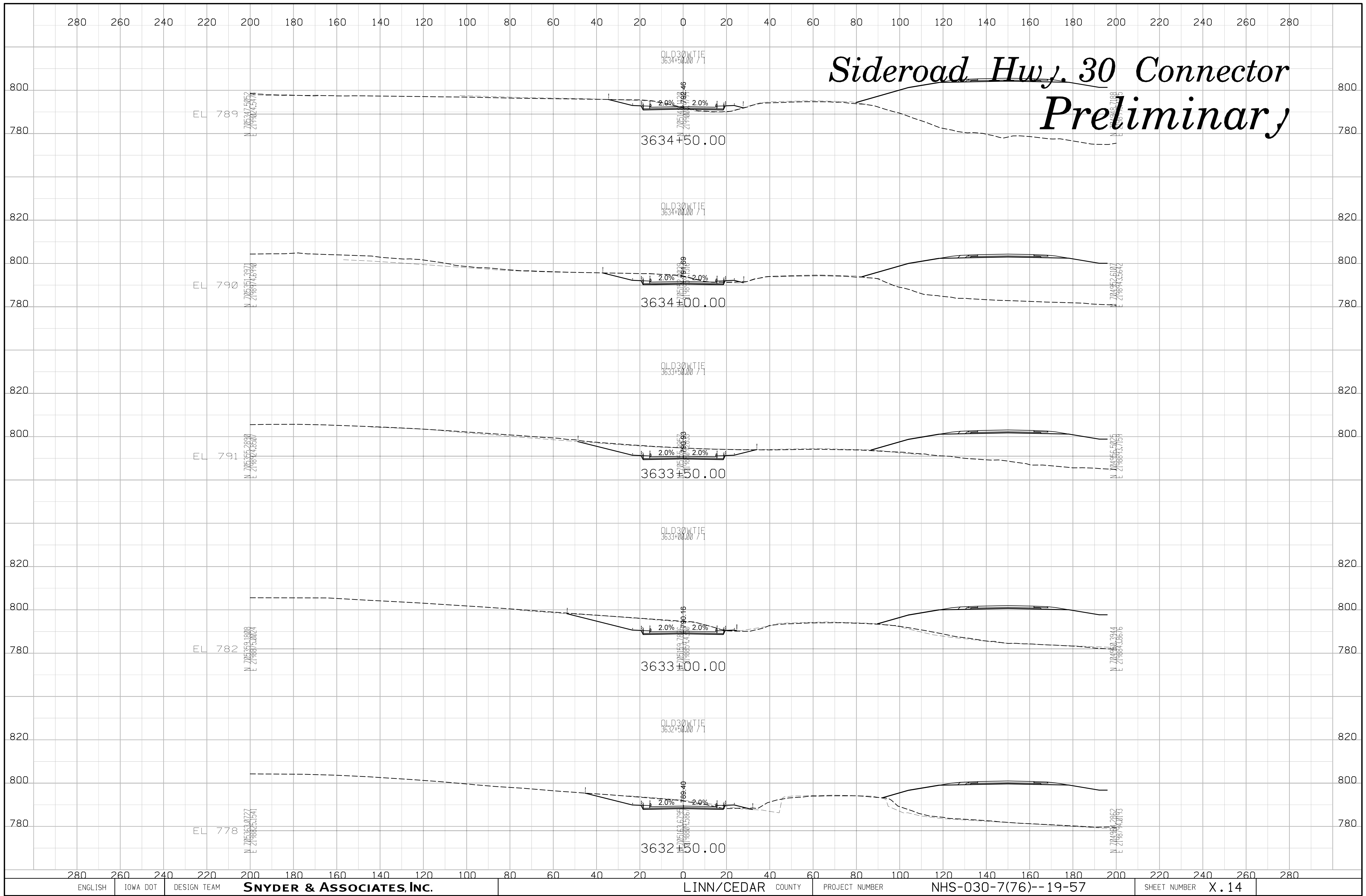


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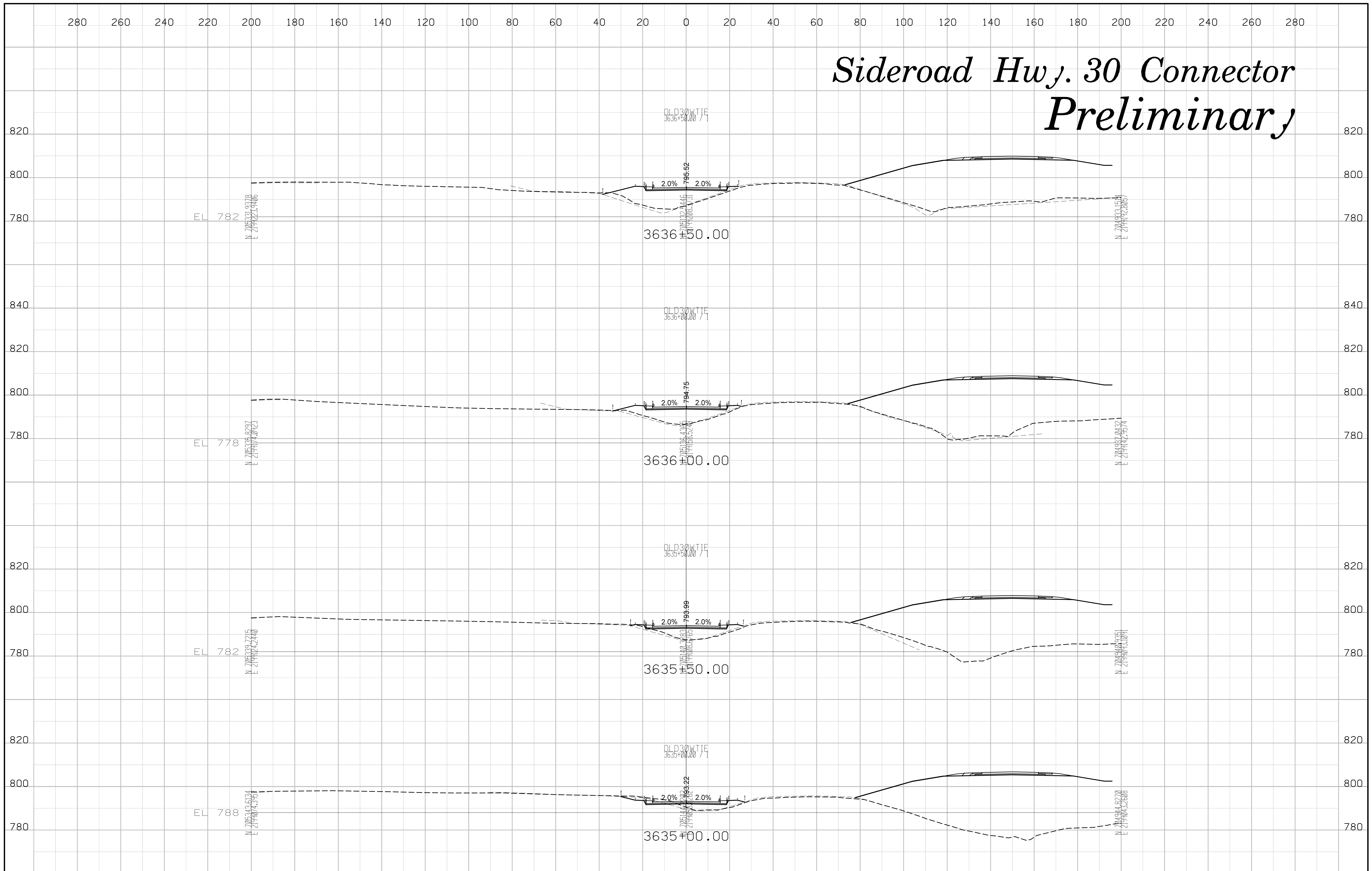


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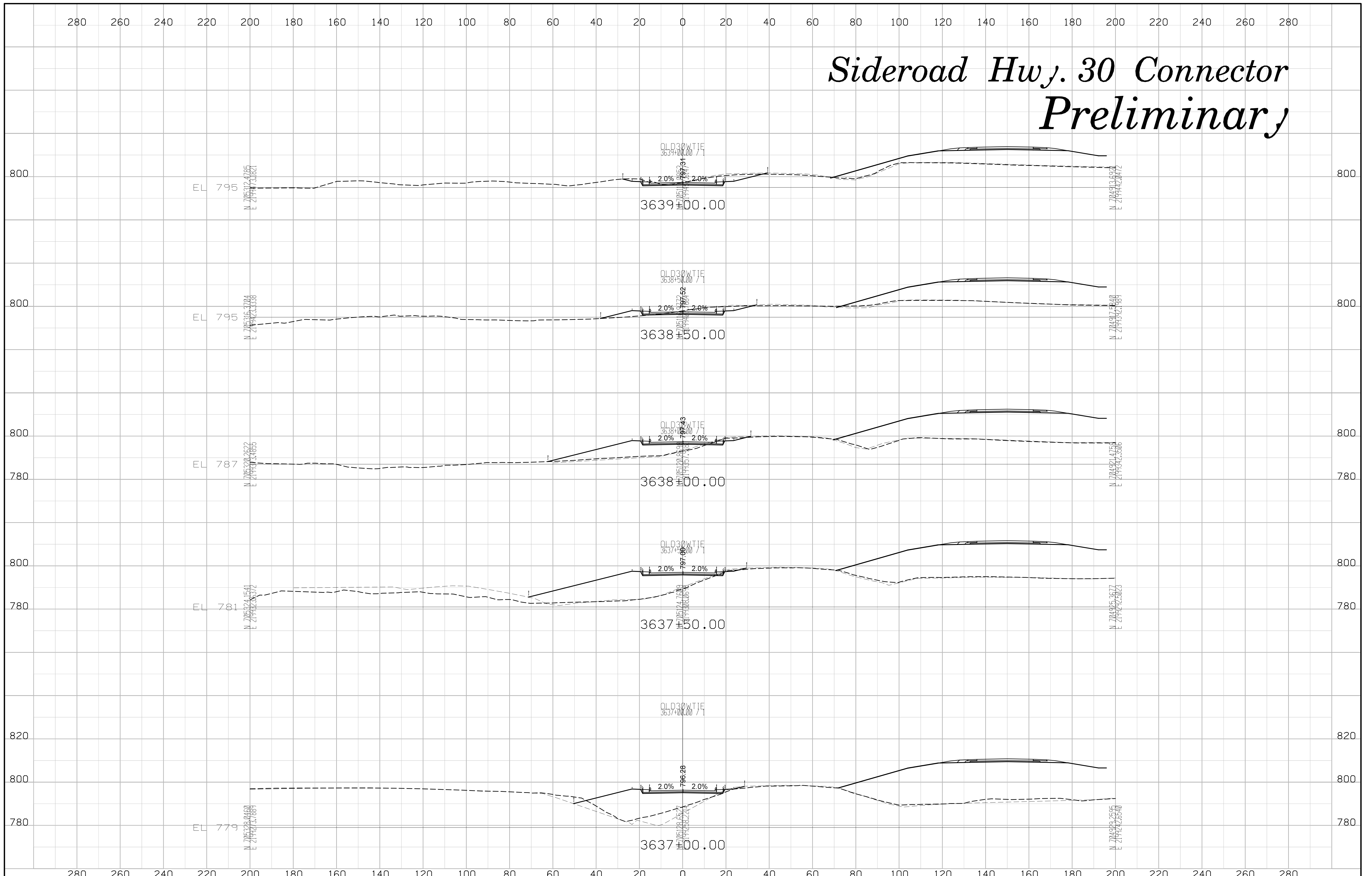




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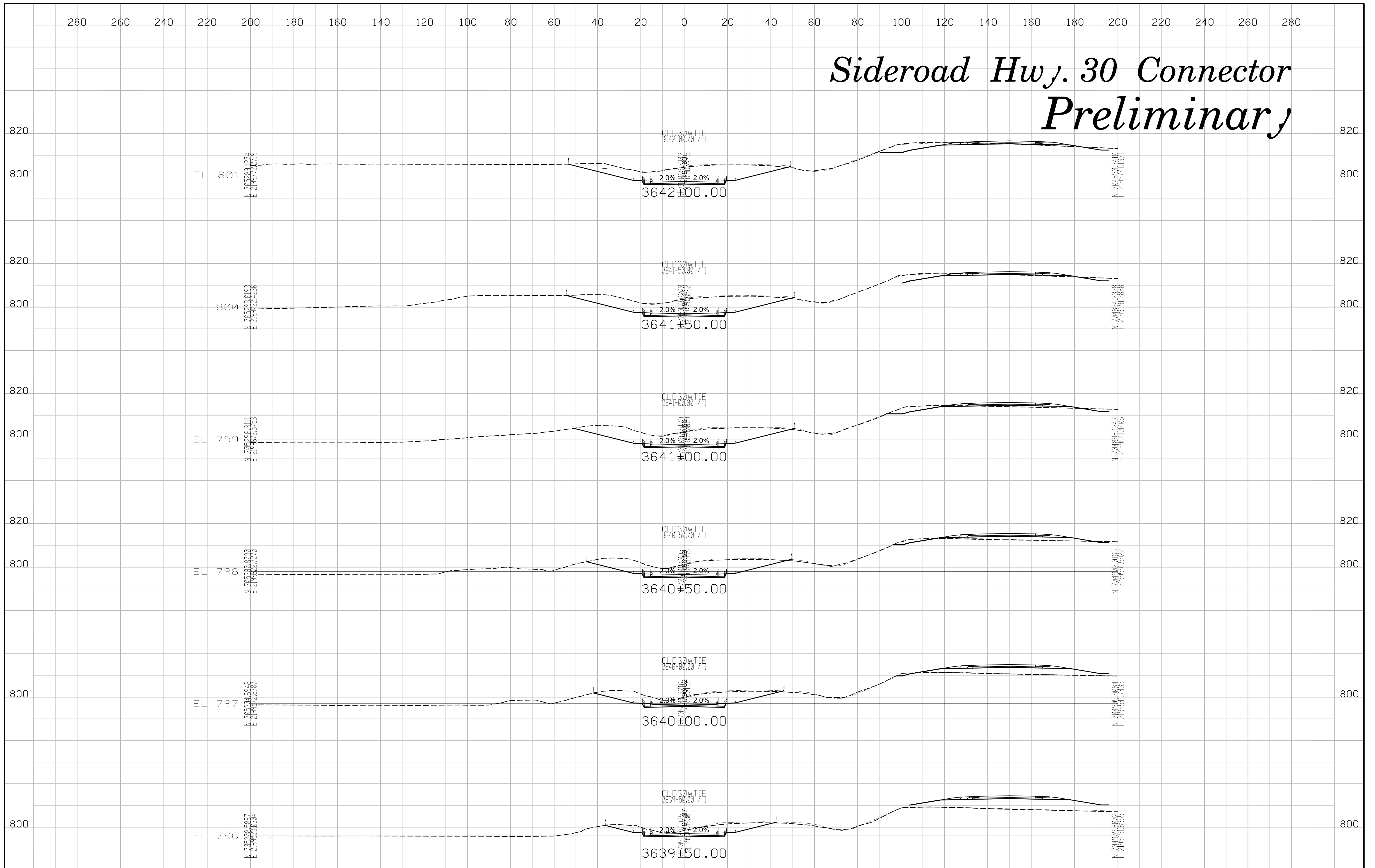


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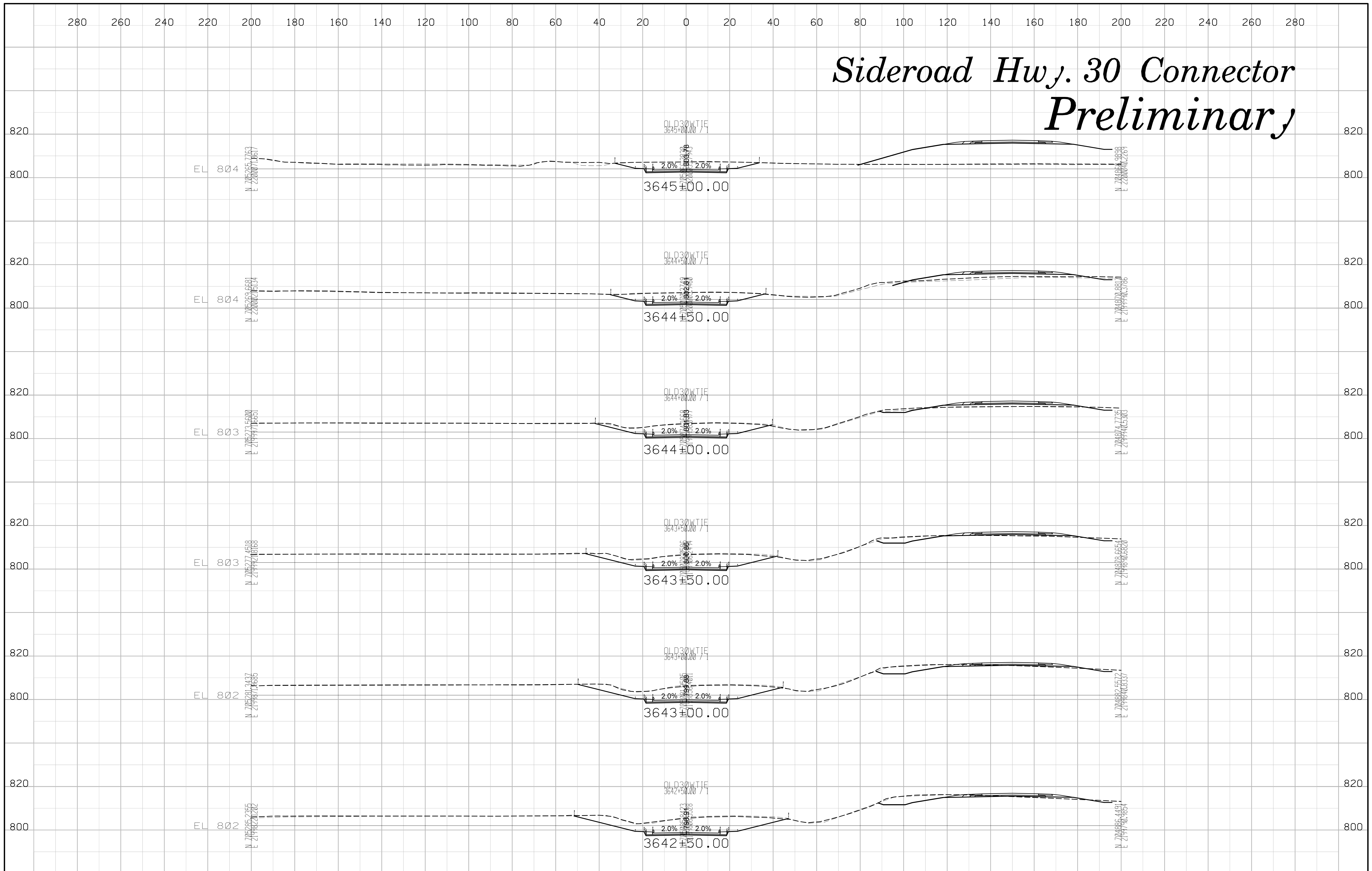




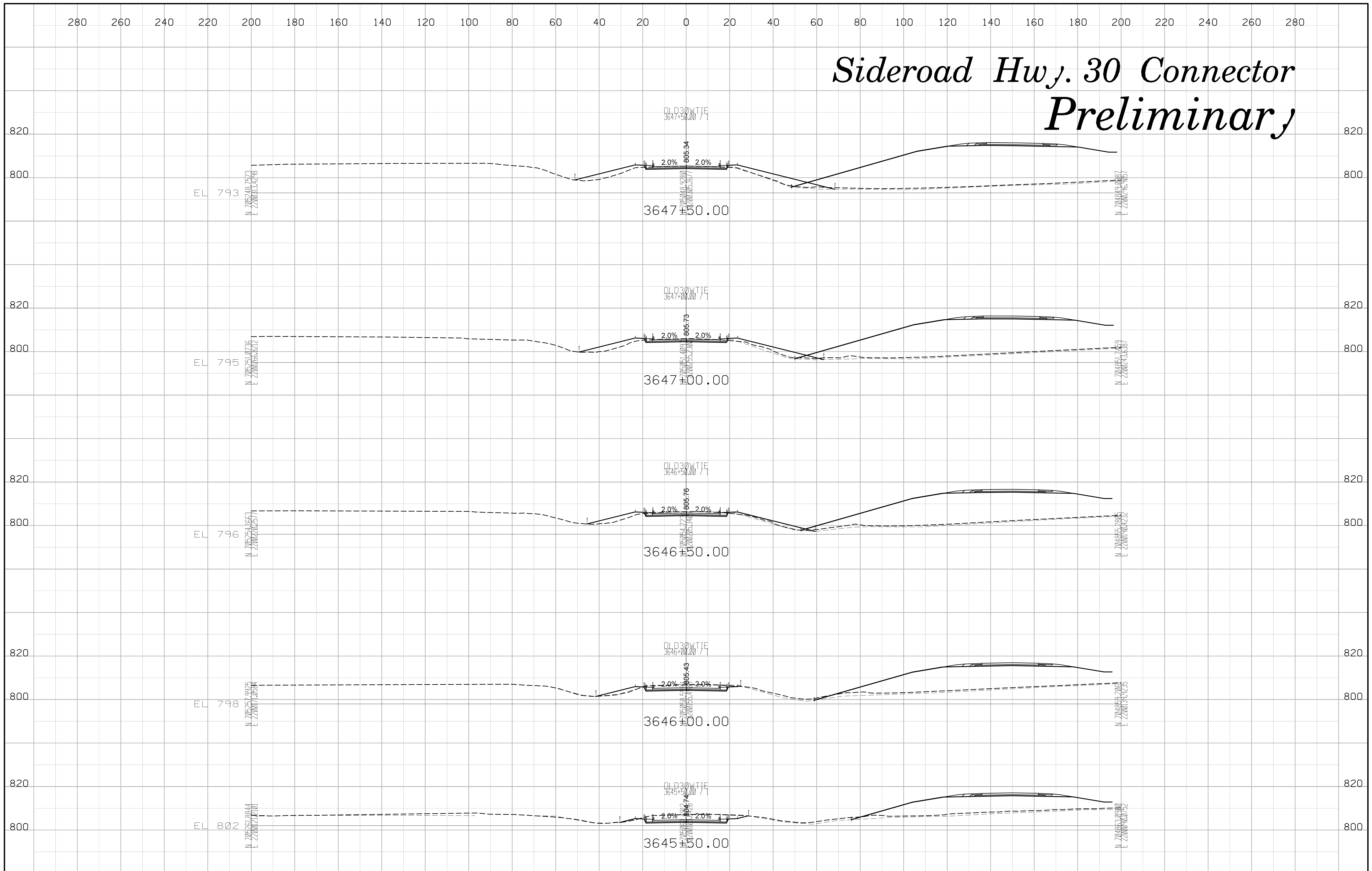
# Sideroad Hwy. 30 Connector Preliminary



# Sideroad Hwy. 30 Connector Preliminary

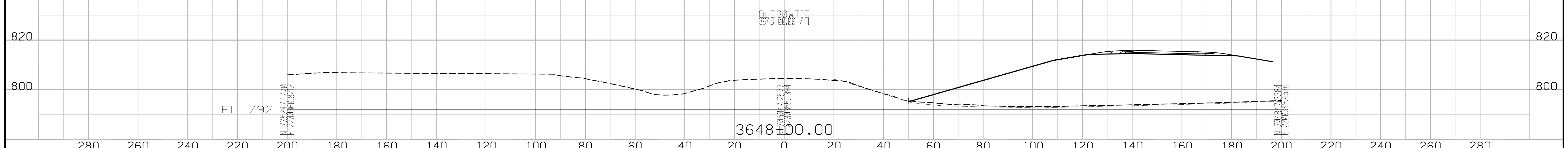


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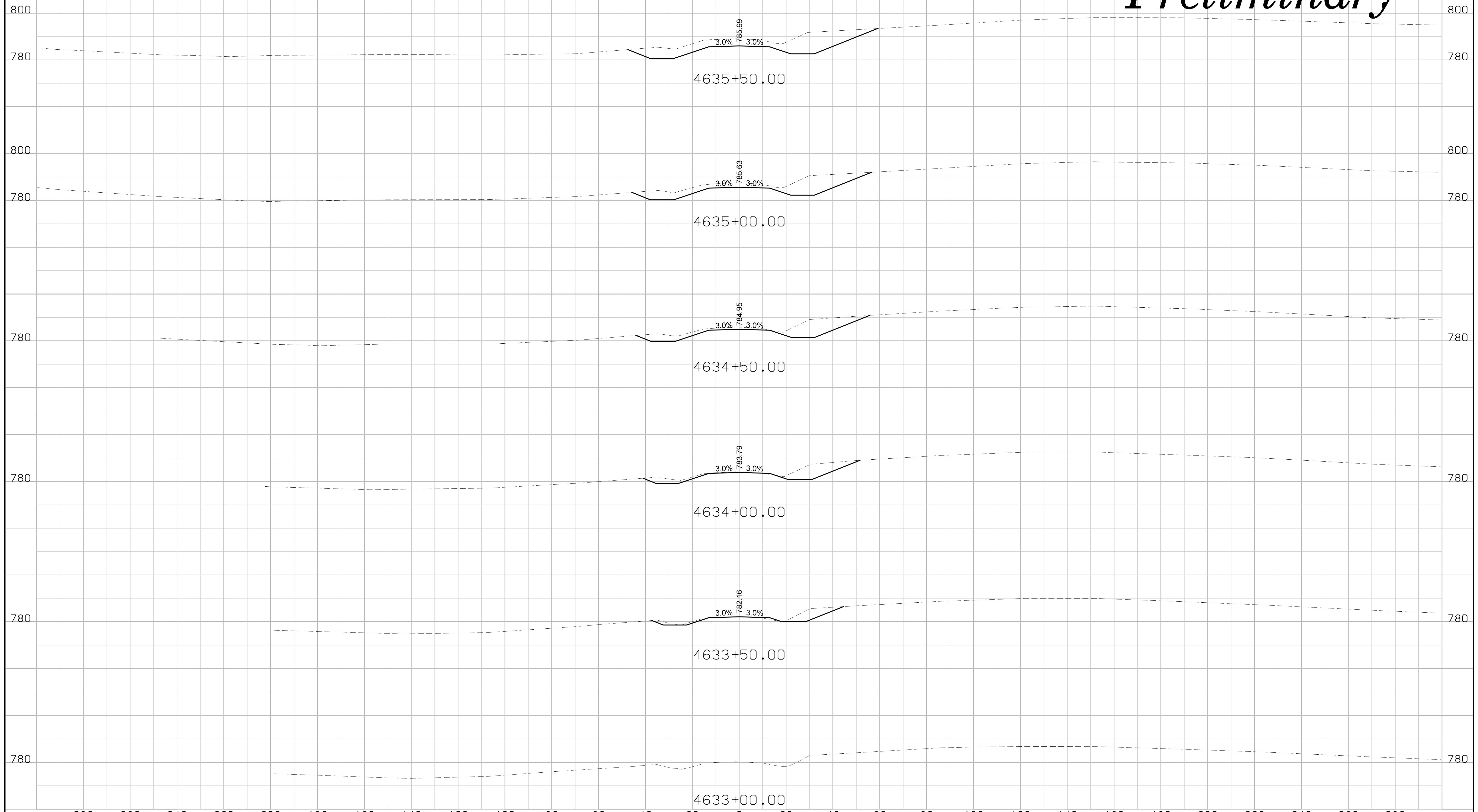
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# Sideroad Hwy. 30 Connector Preliminary



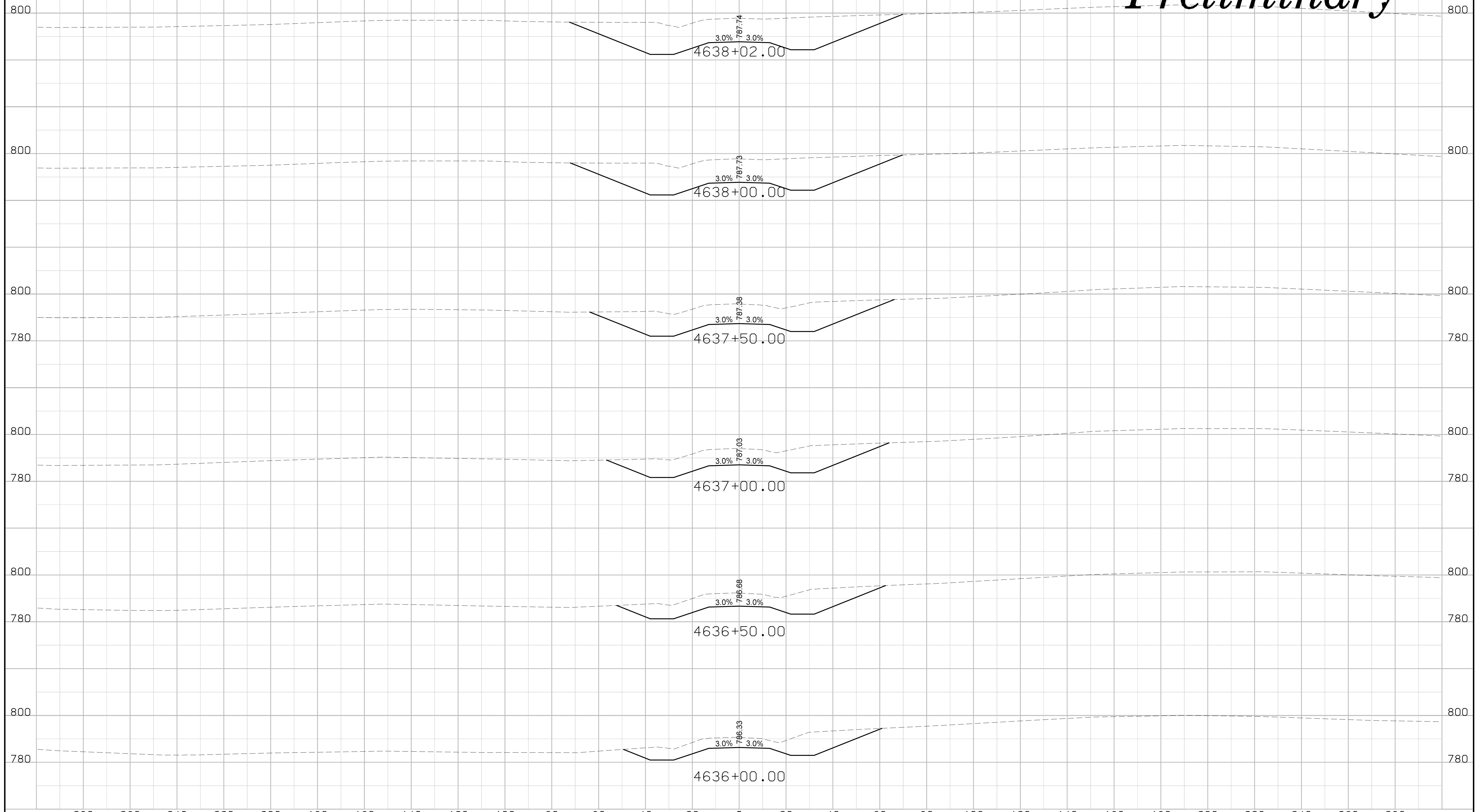
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# Sideroad Willow Creek Rd. Preliminary



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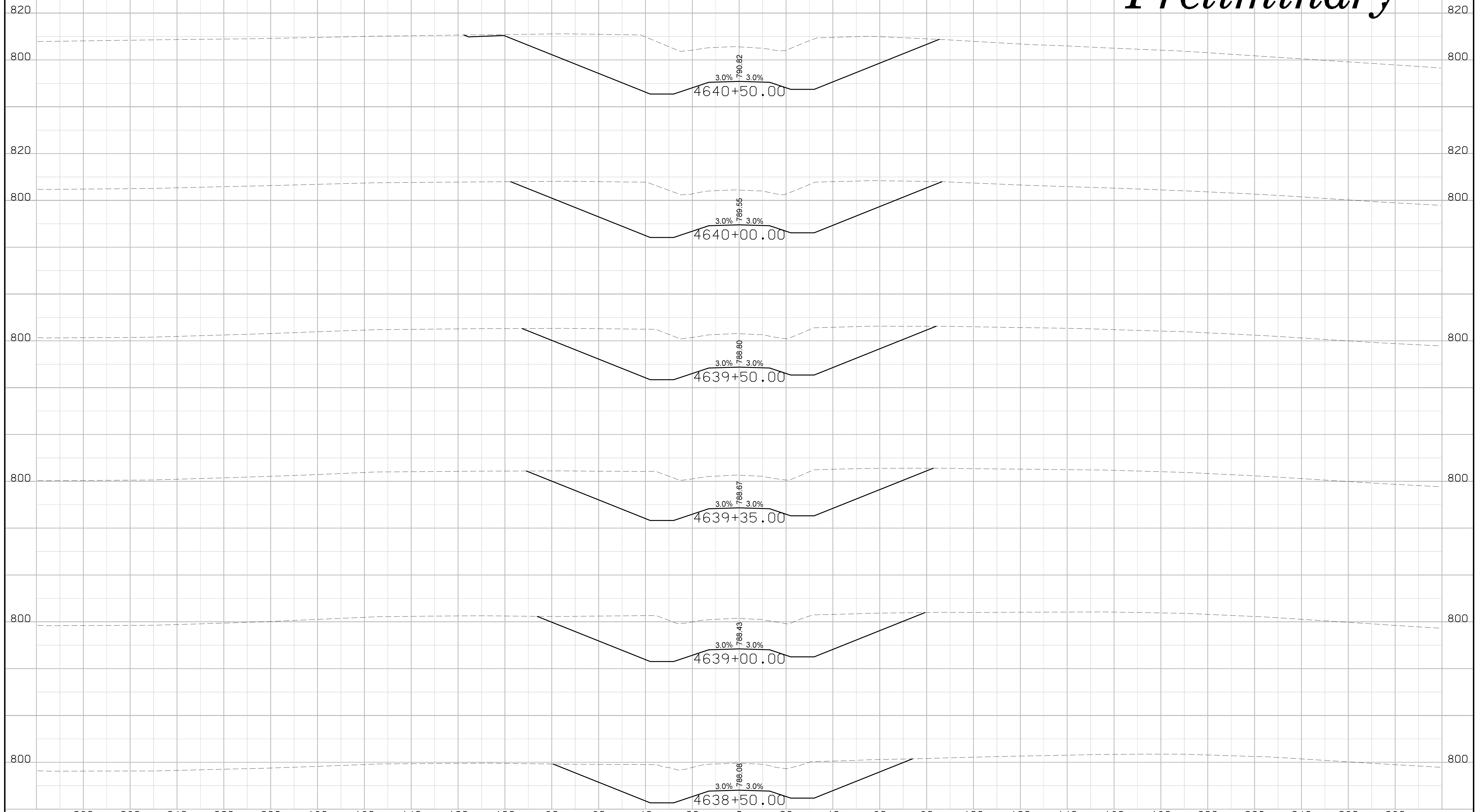
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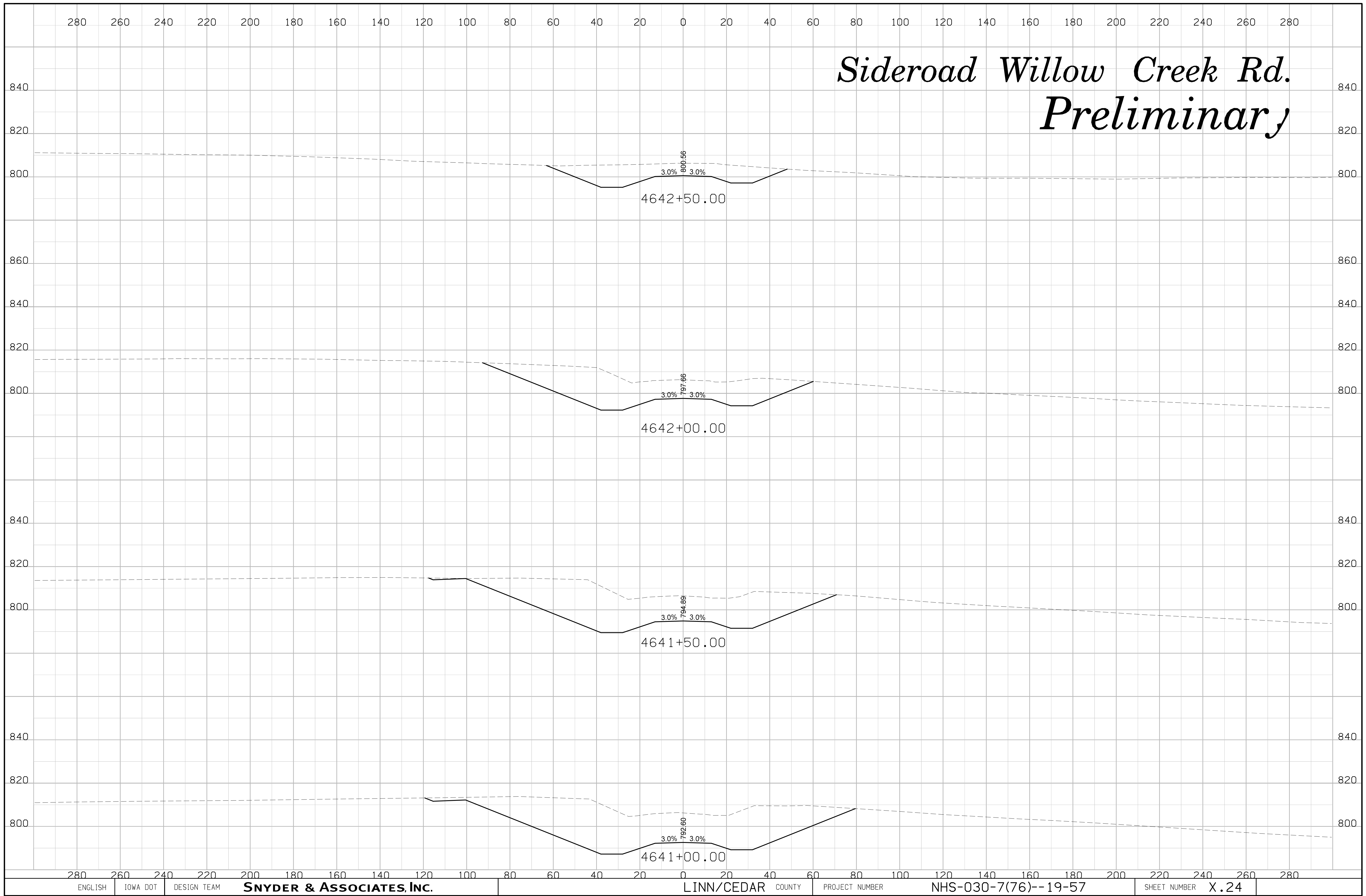


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# Sideroad Willow Creek Rd. Preliminary



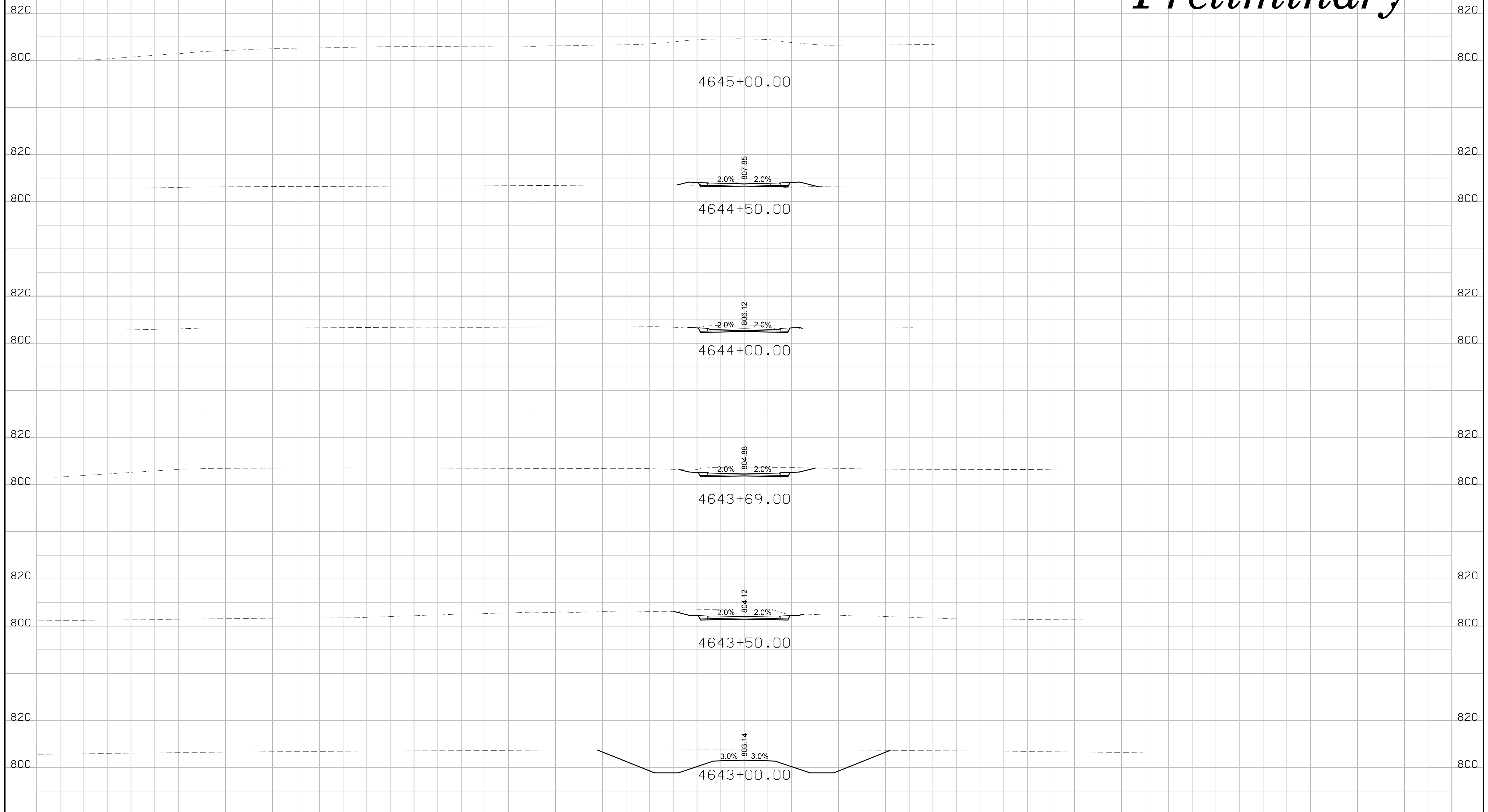
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*Sideroad Willow Creek Rd.  
Preliminary*

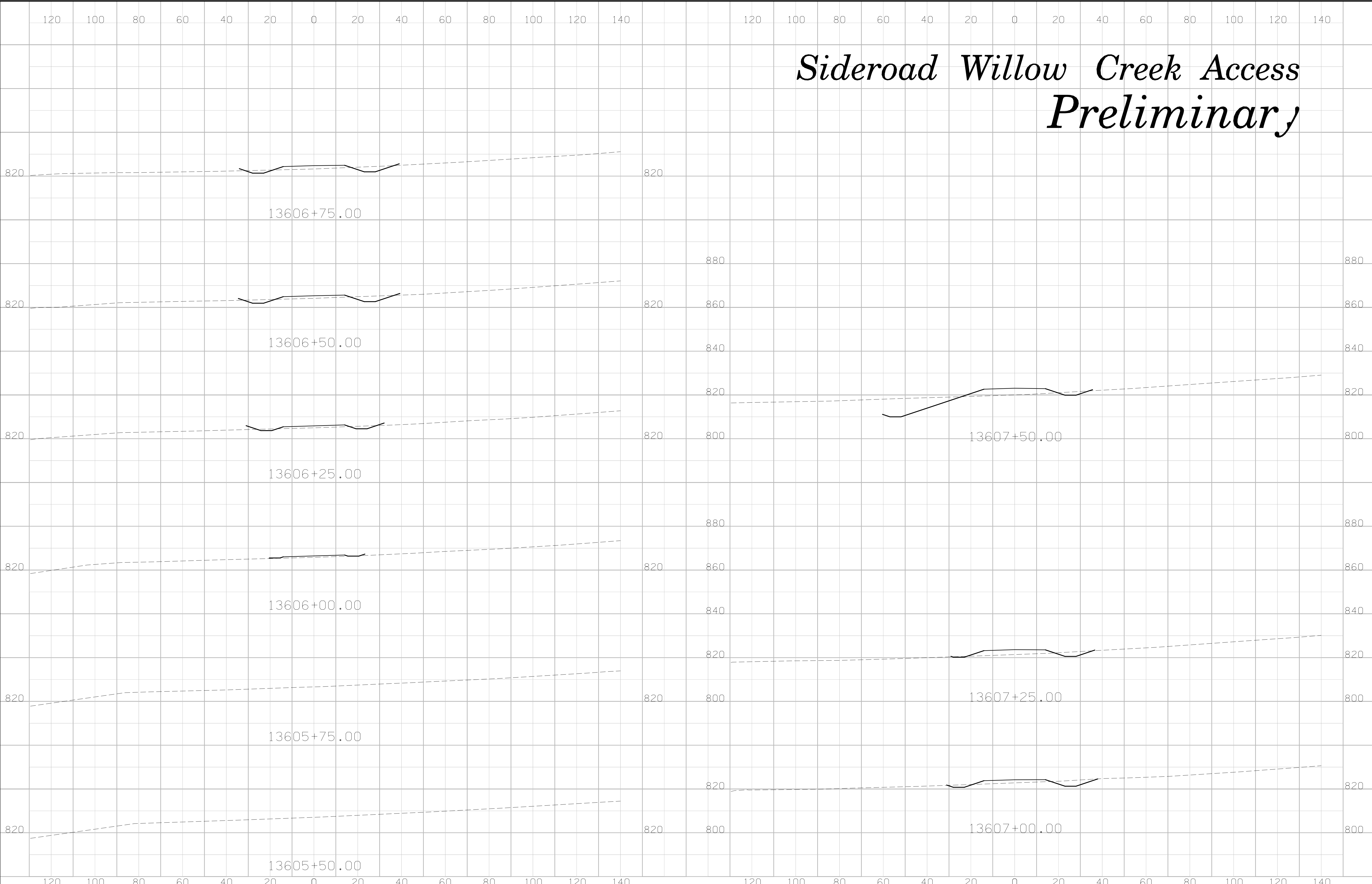
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# Sideroad Willow Creek Rd. Preliminary

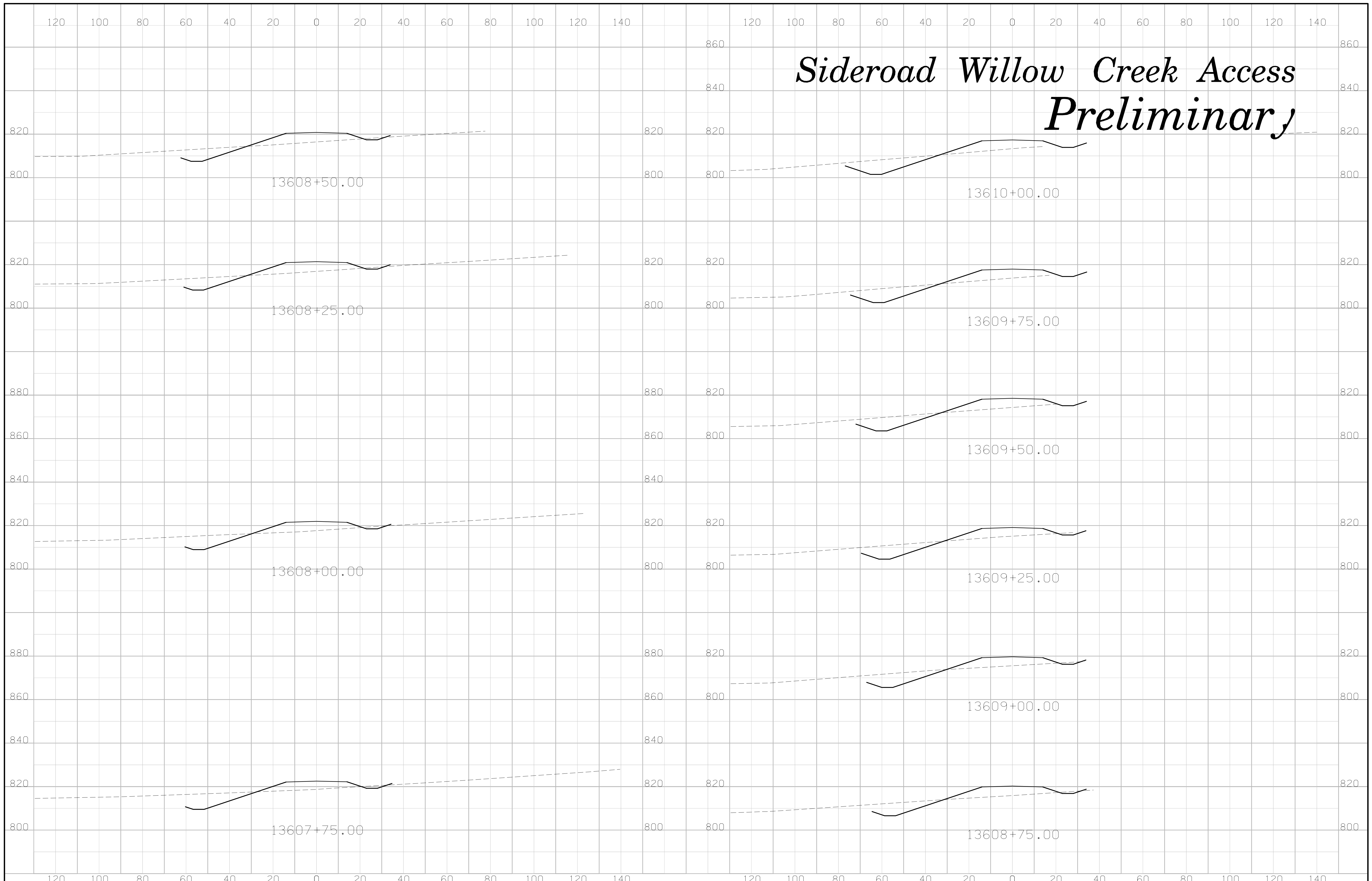


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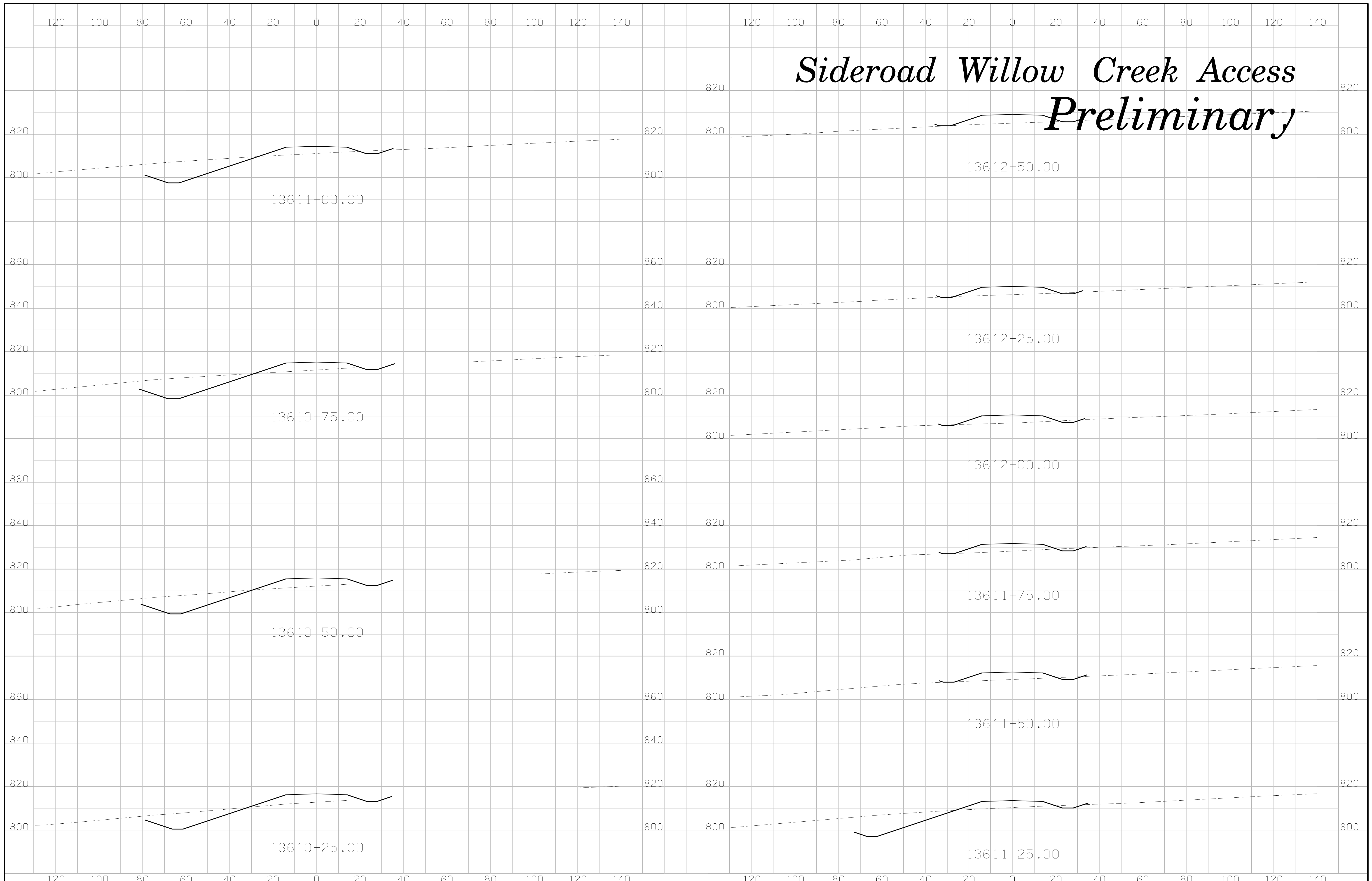
# *Sideroad Willow Creek Access Preliminary*



# Sideroad Willow Creek Access Preliminary

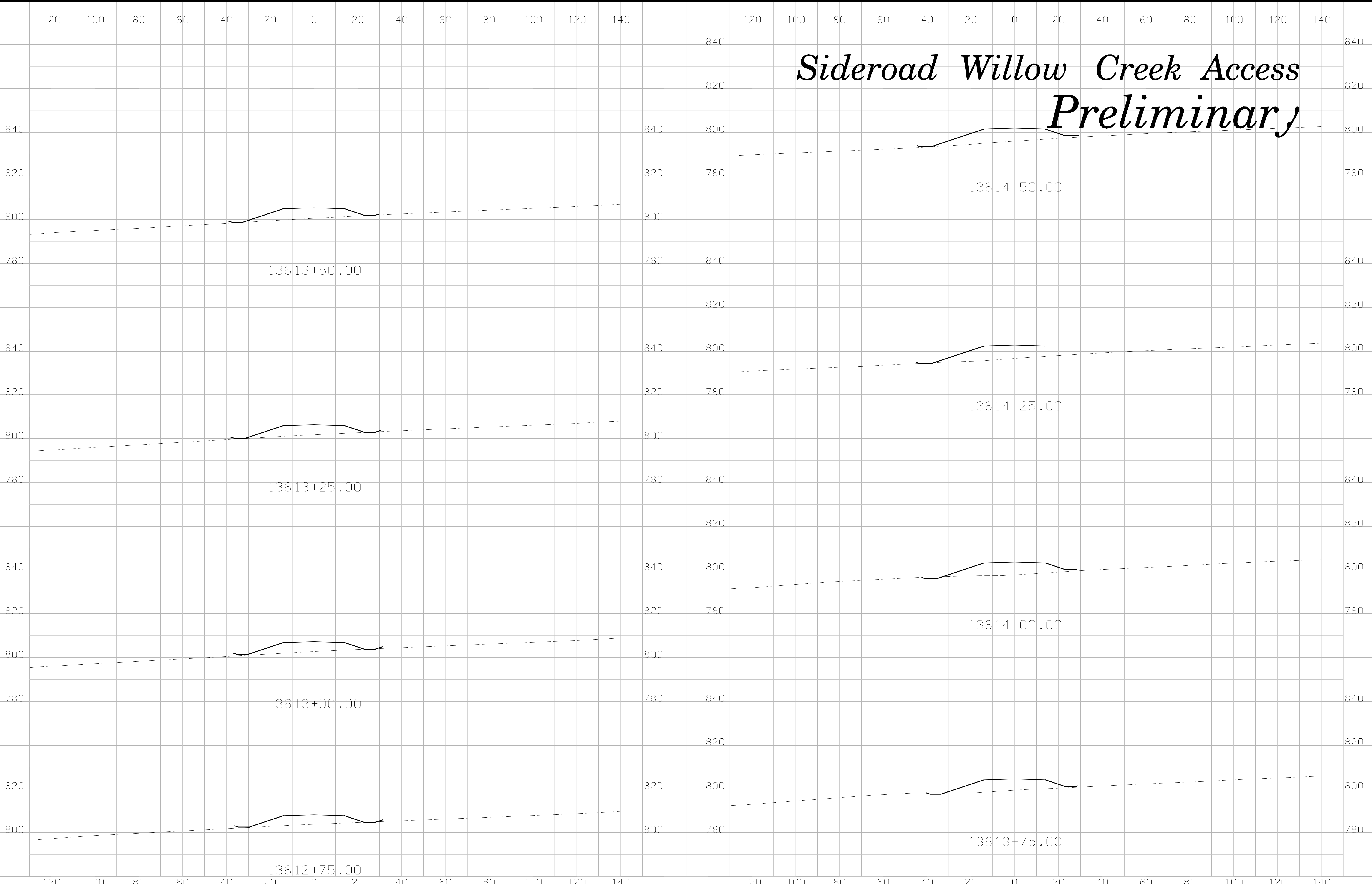


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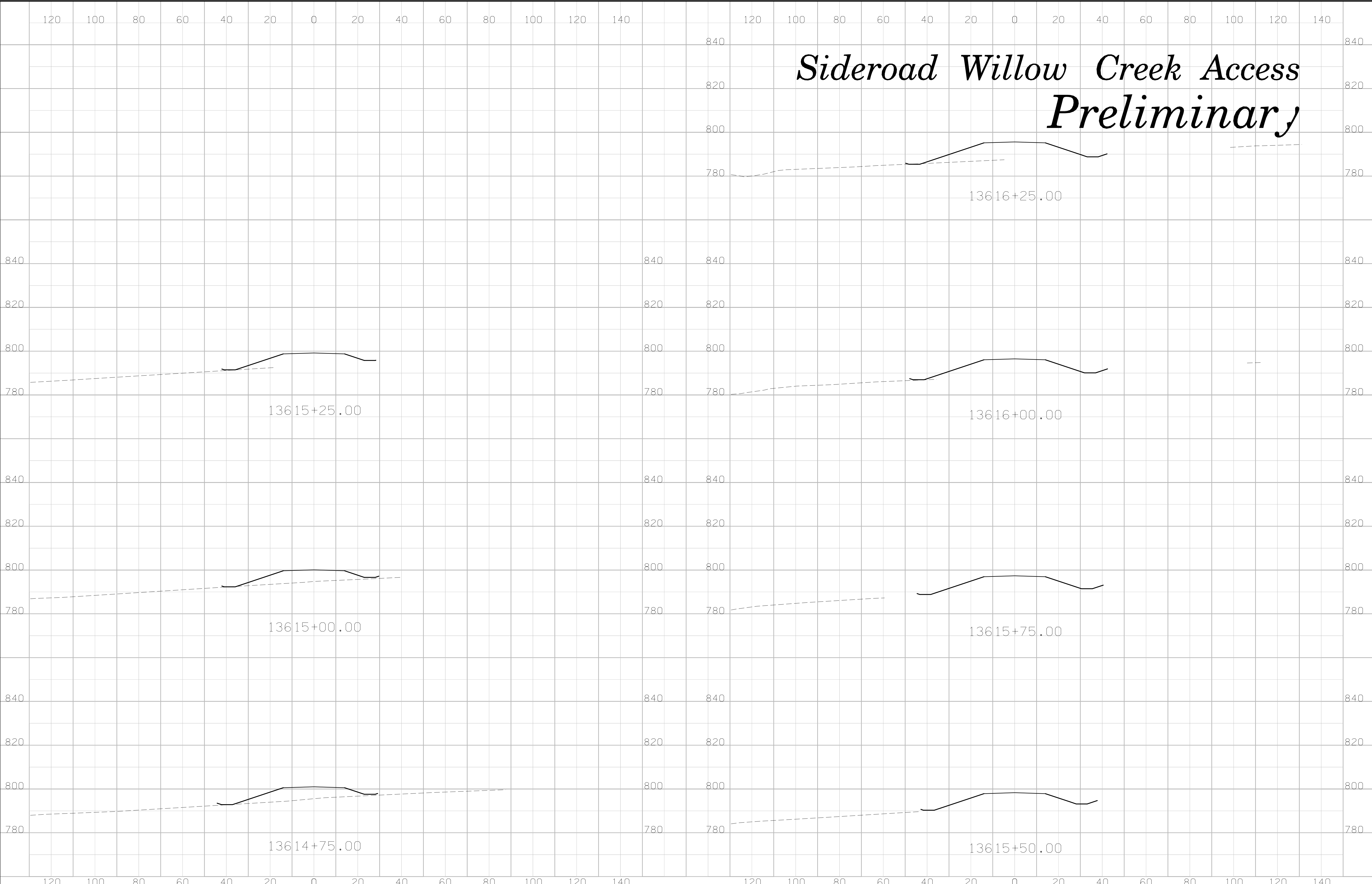




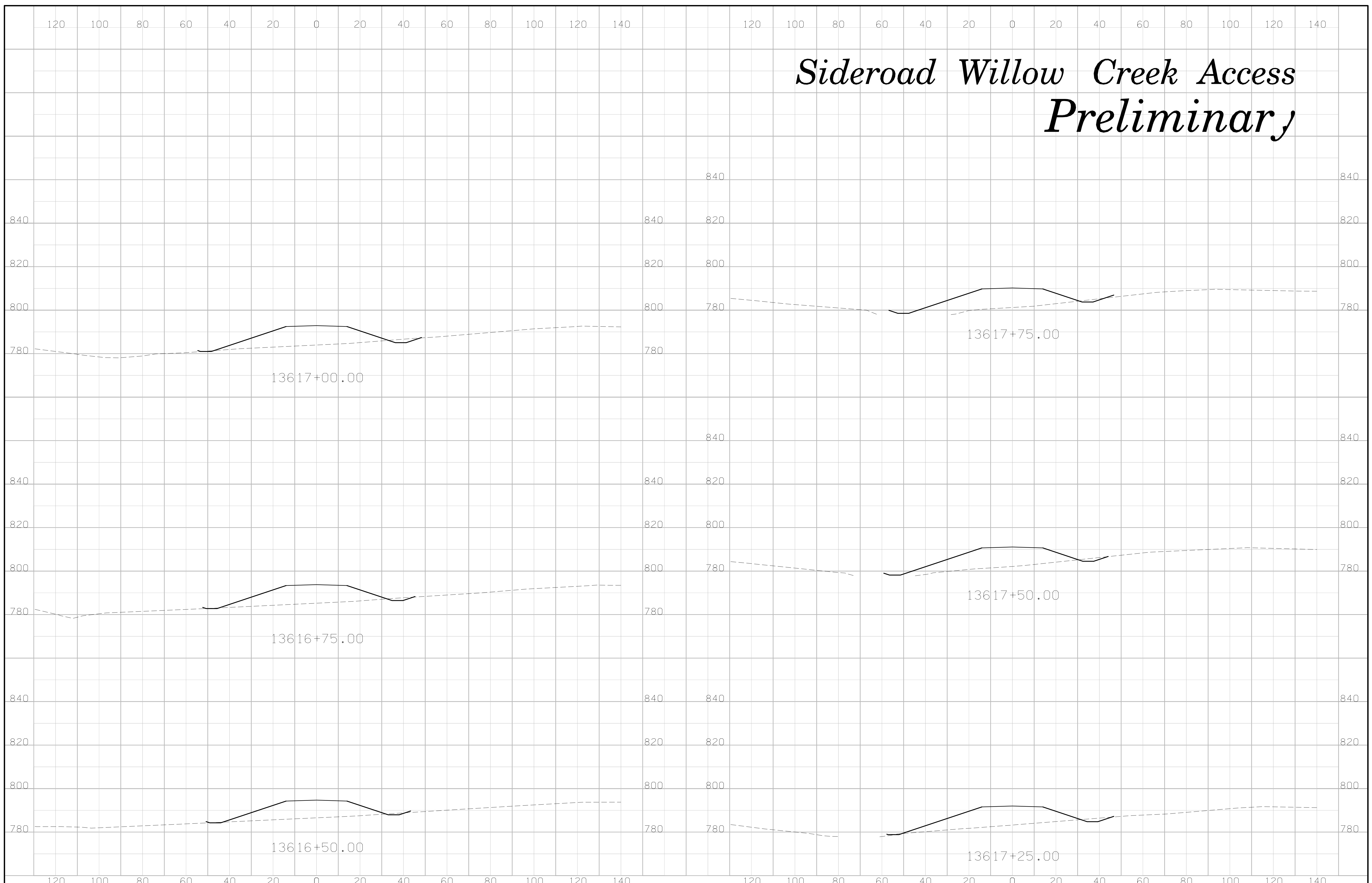
# Sideroad Willow Creek Access Preliminary



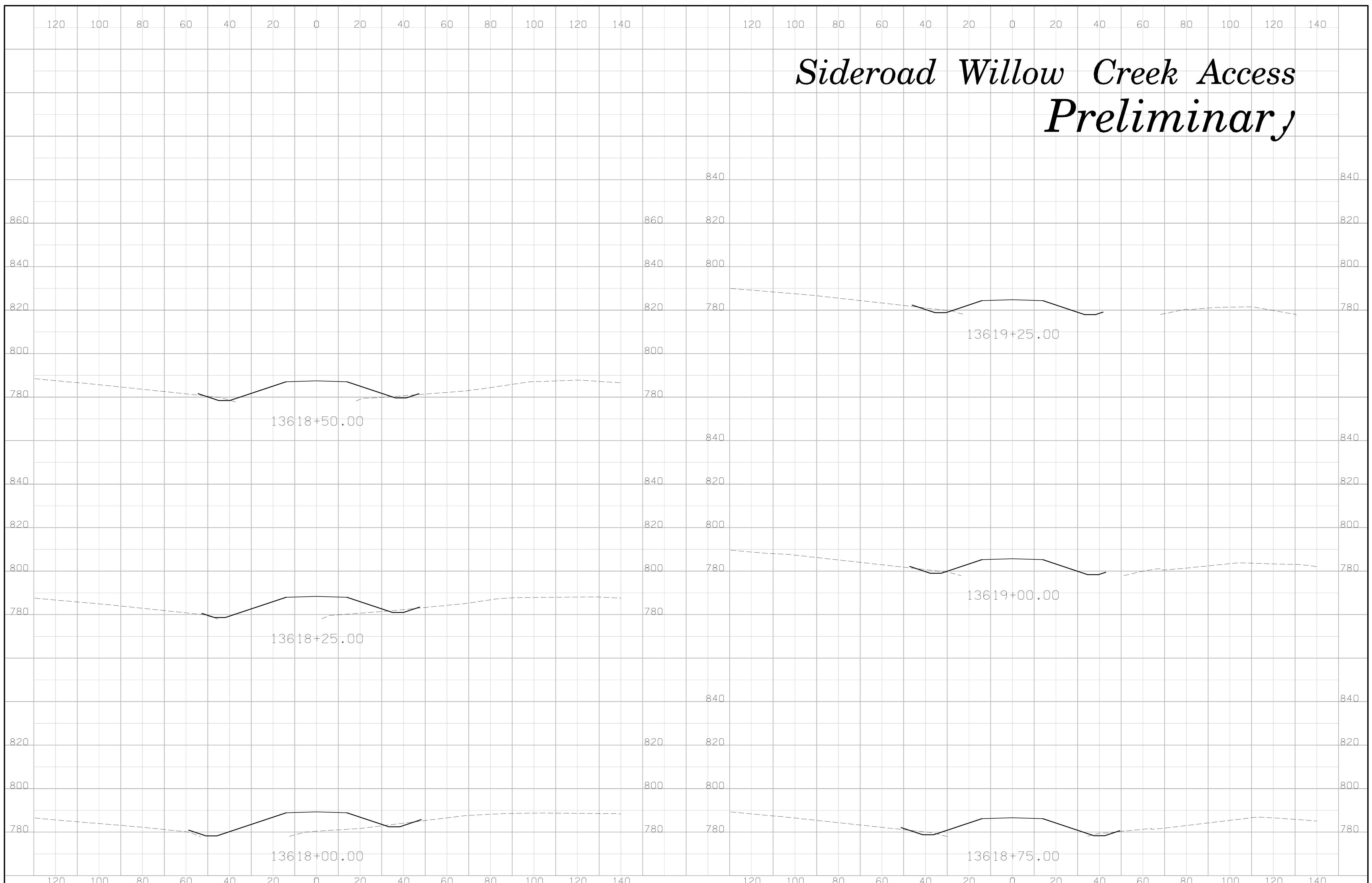
# Sideroad Willow Creek Access Preliminary



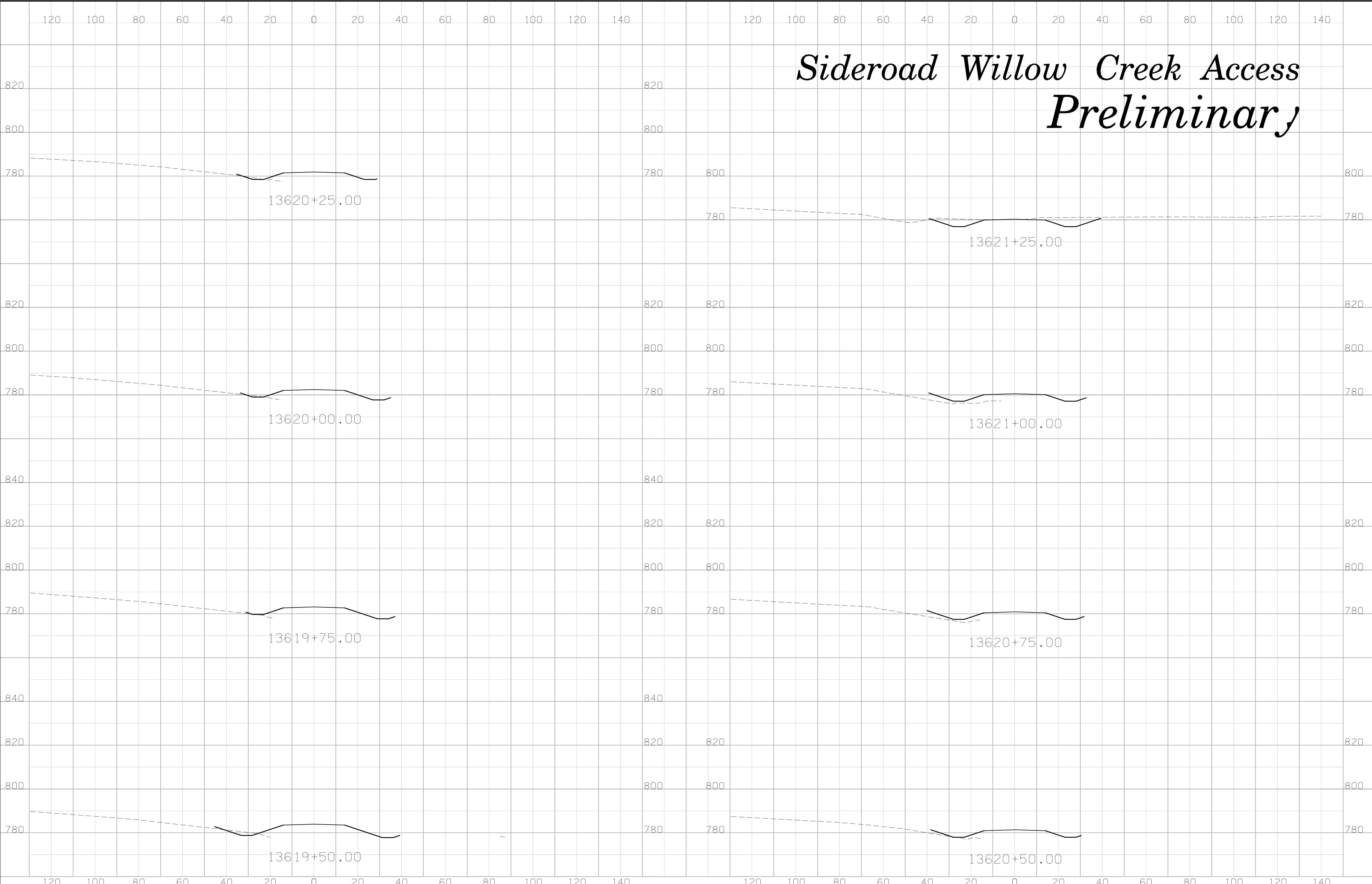
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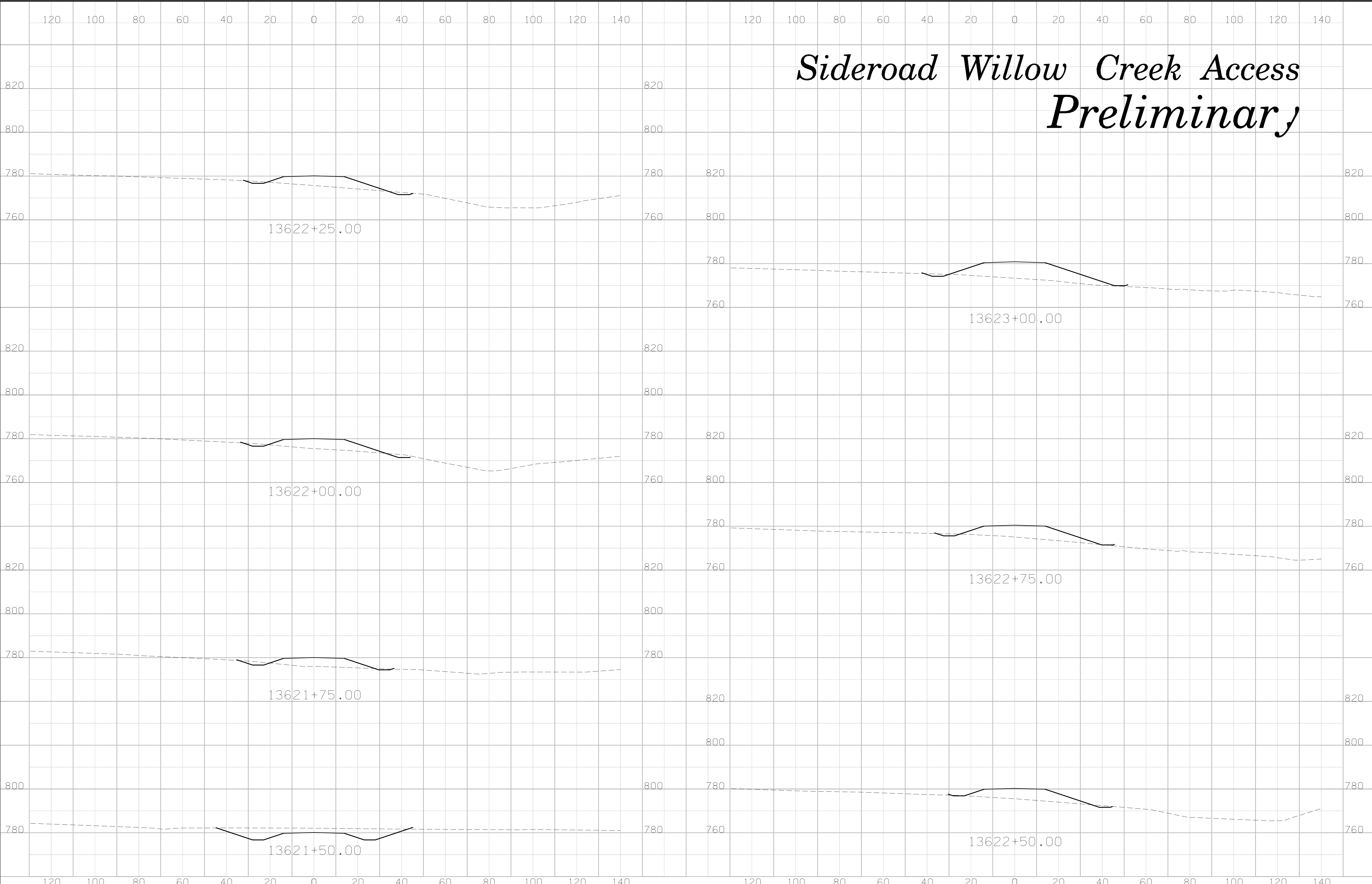
# Sideroad Willow Creek Access Preliminary



# Sideroad Willow Creek Access Preliminary

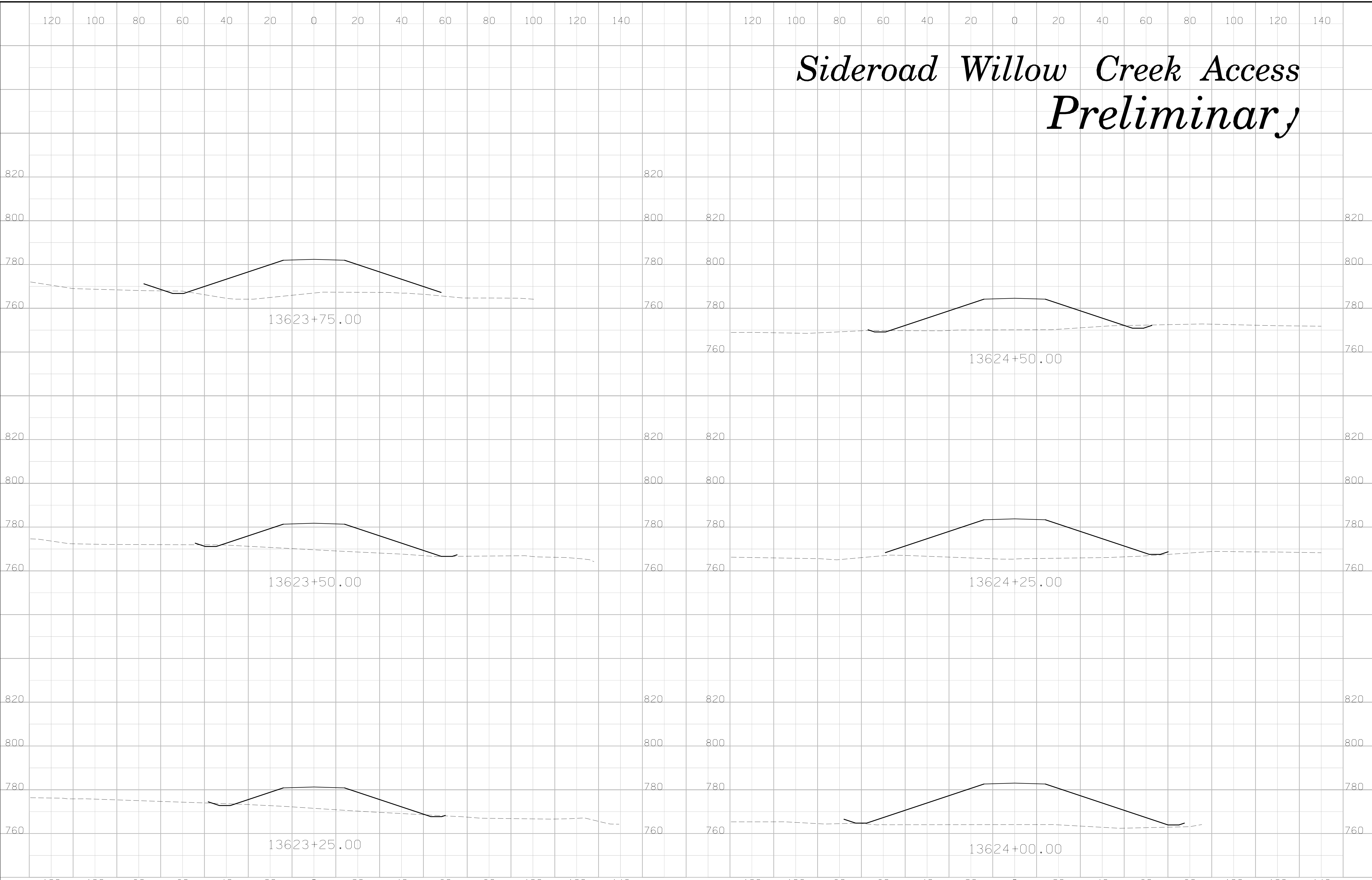


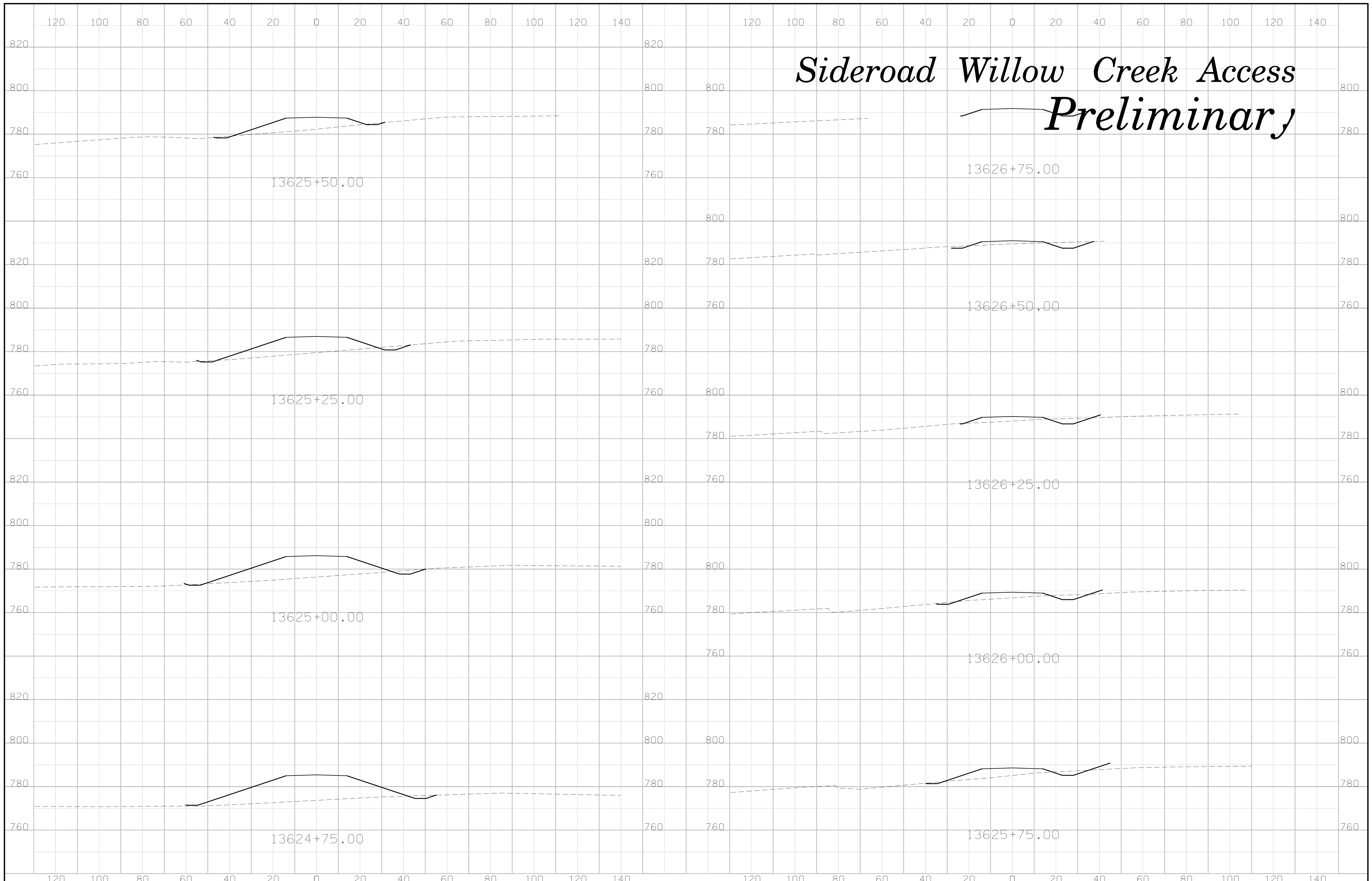
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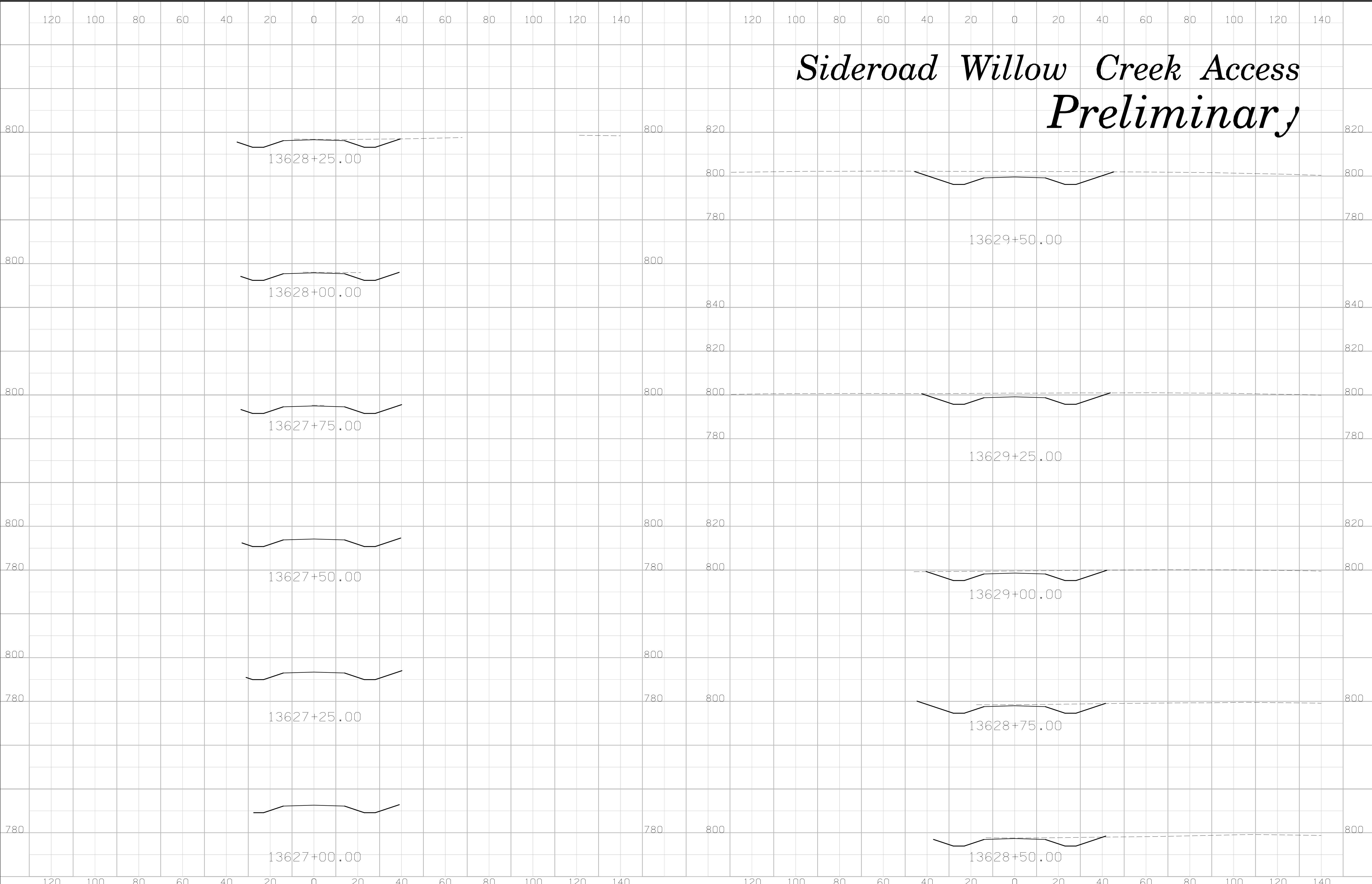
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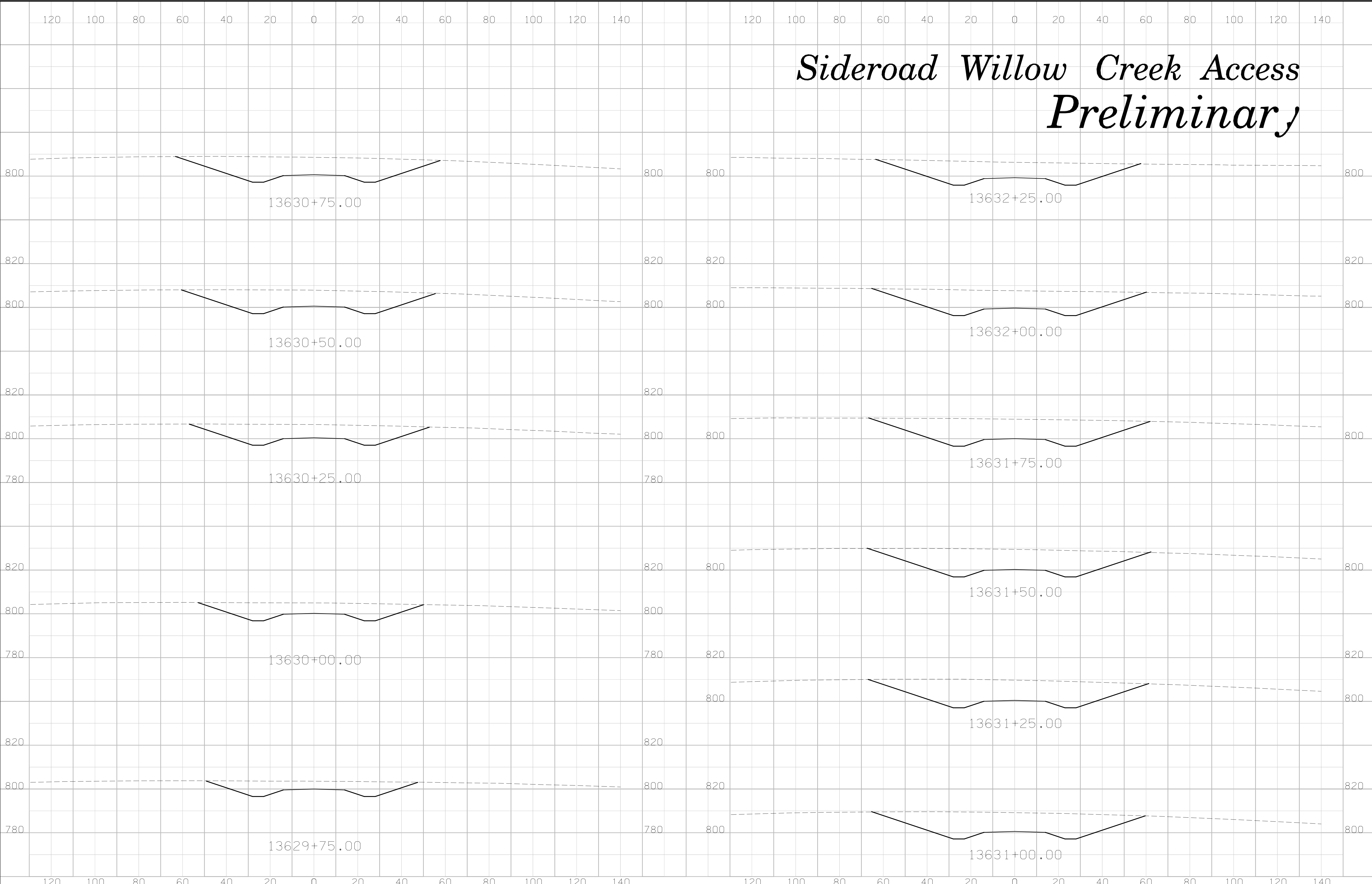


# Sideroad Willow Creek Access Preliminary

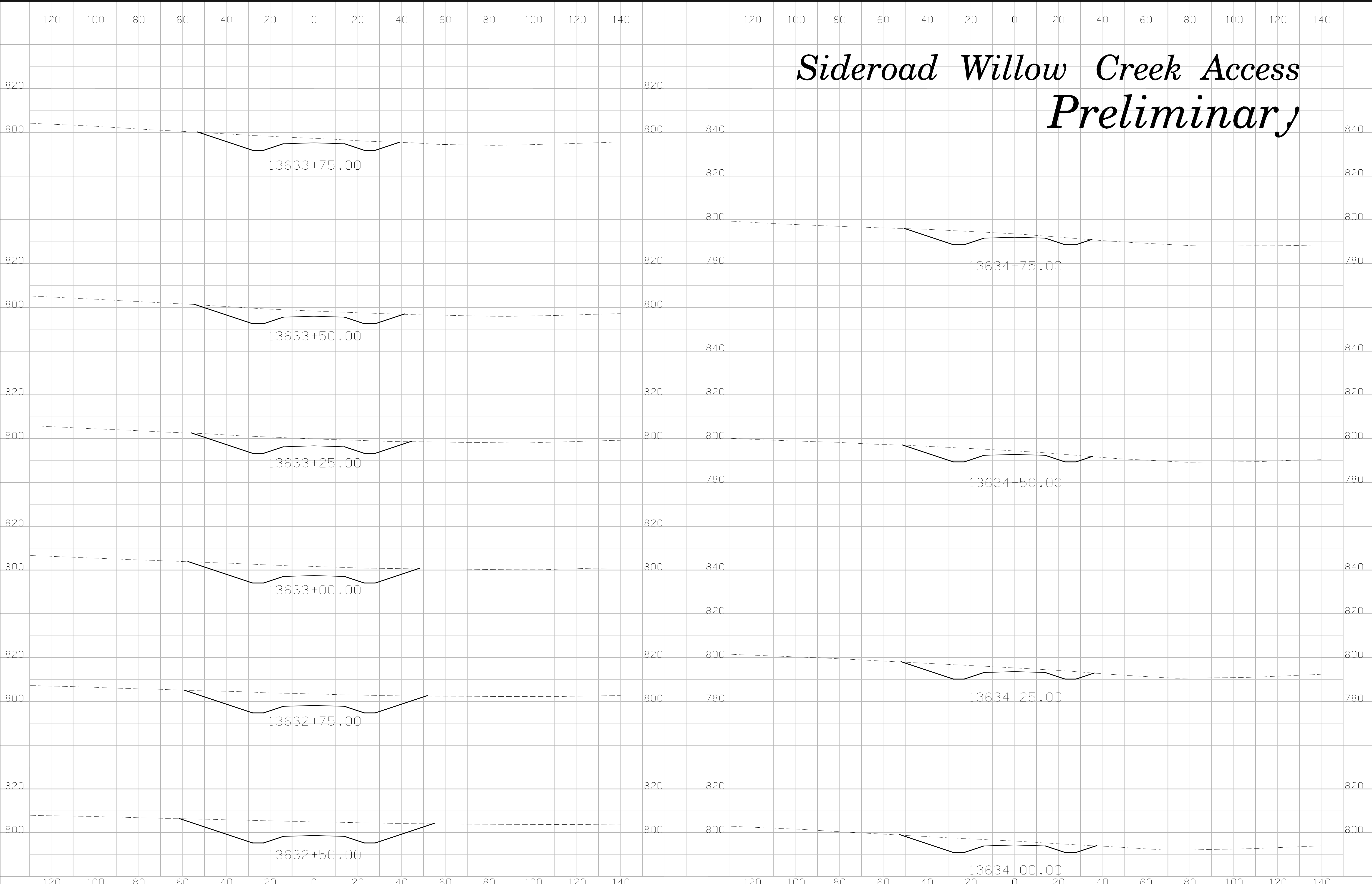
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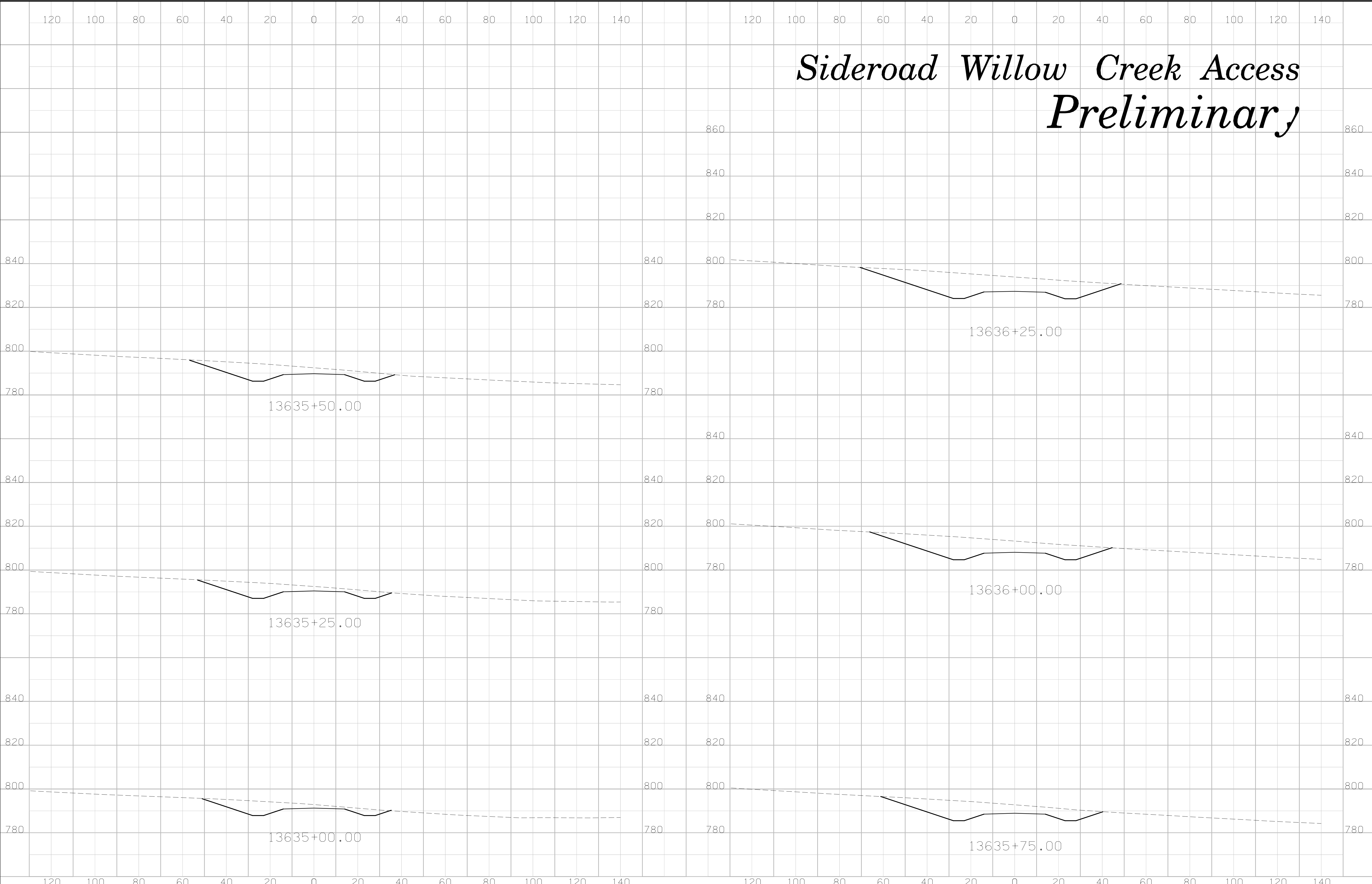
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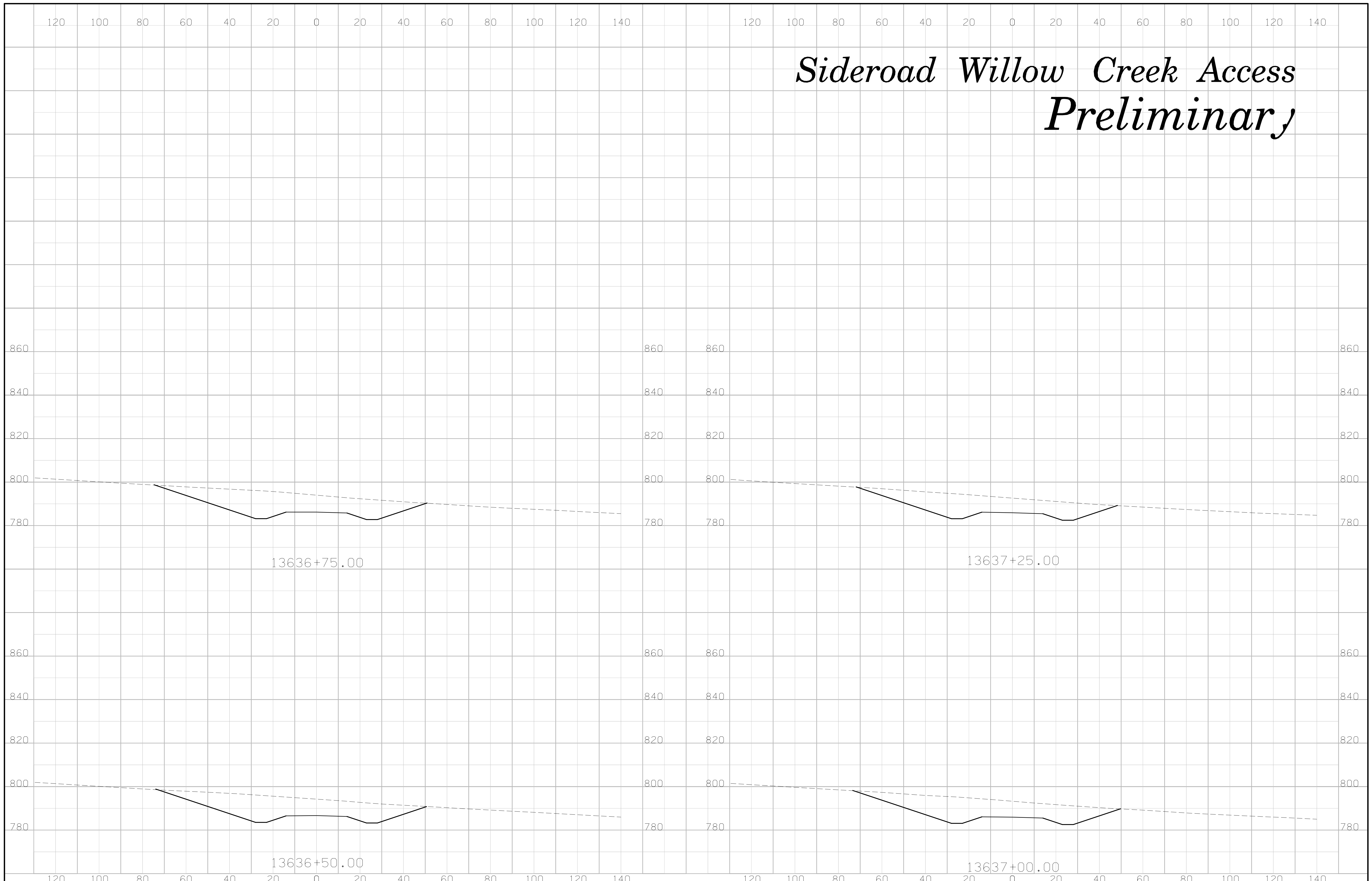


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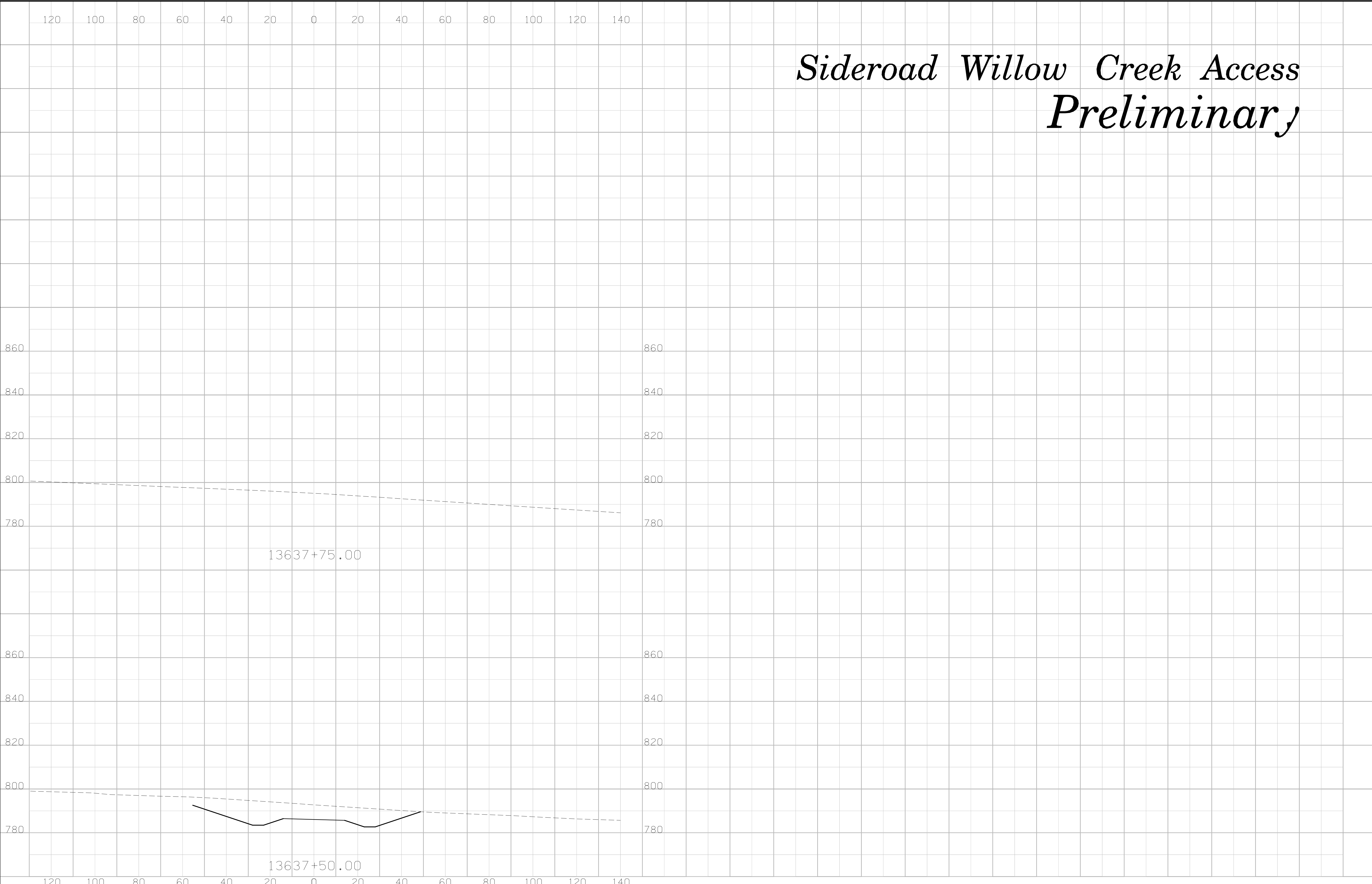




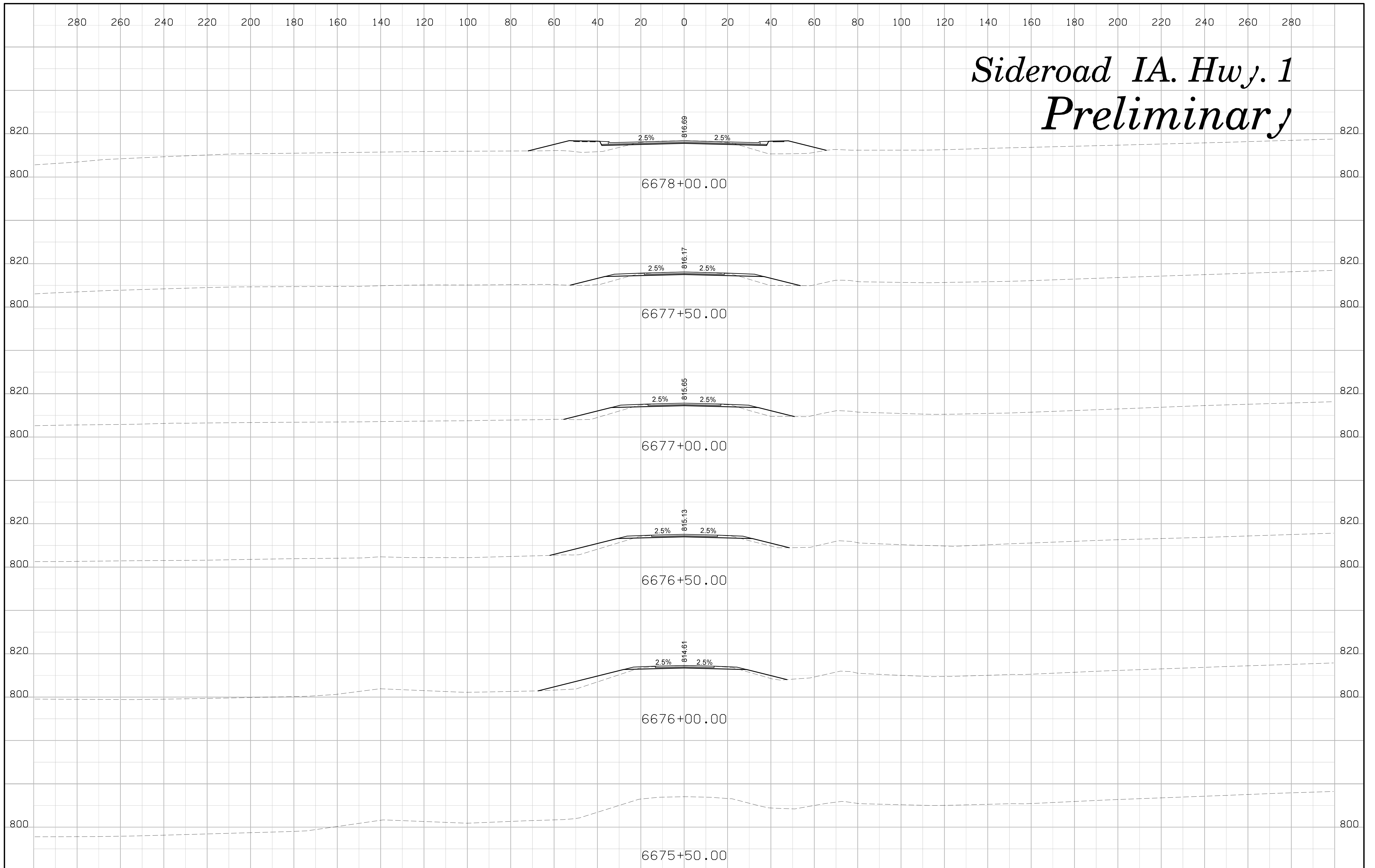
# *Sideroad Willow Creek Access Preliminary*



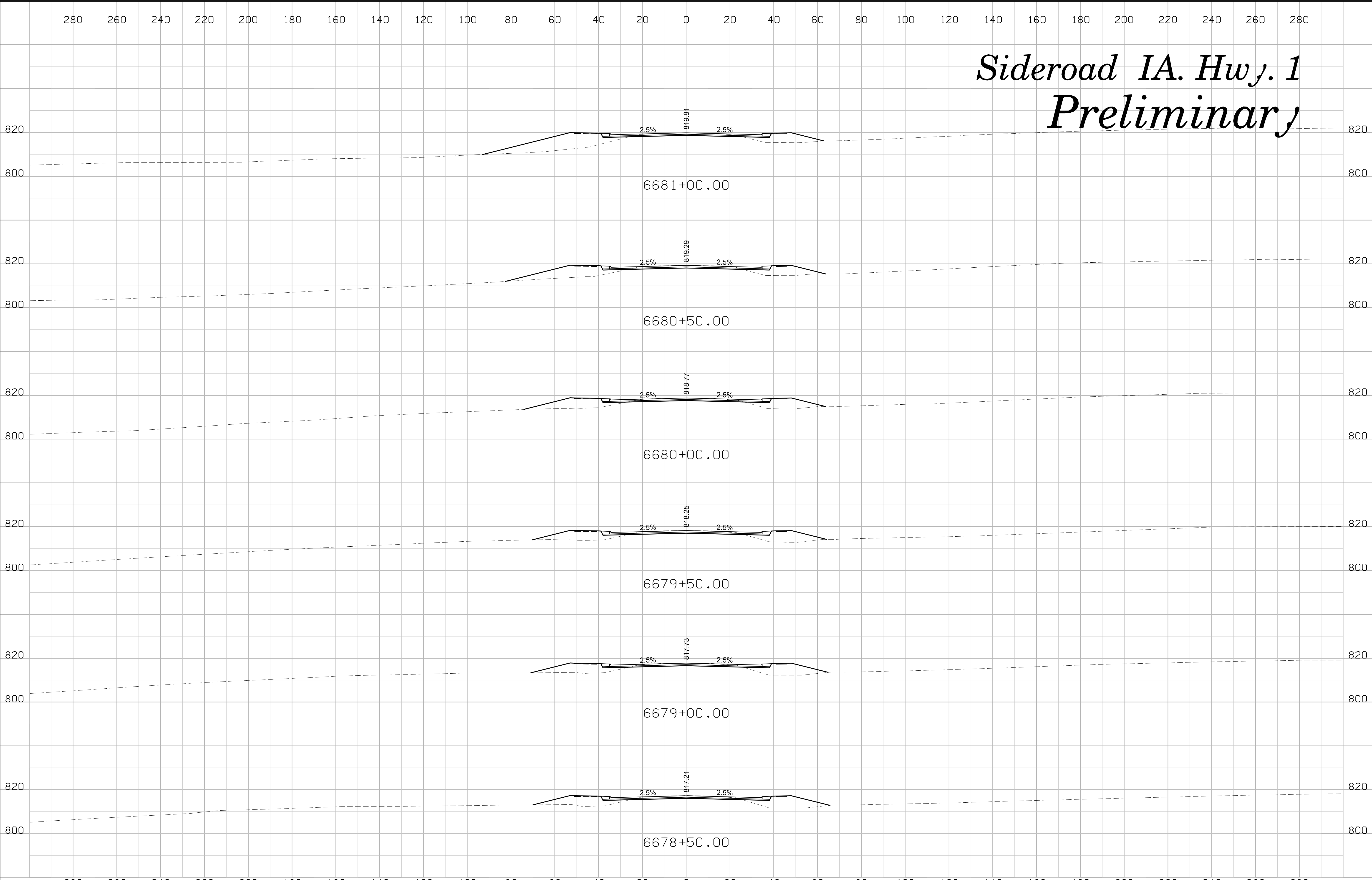
# Sideroad Willow Creek Access Preliminary



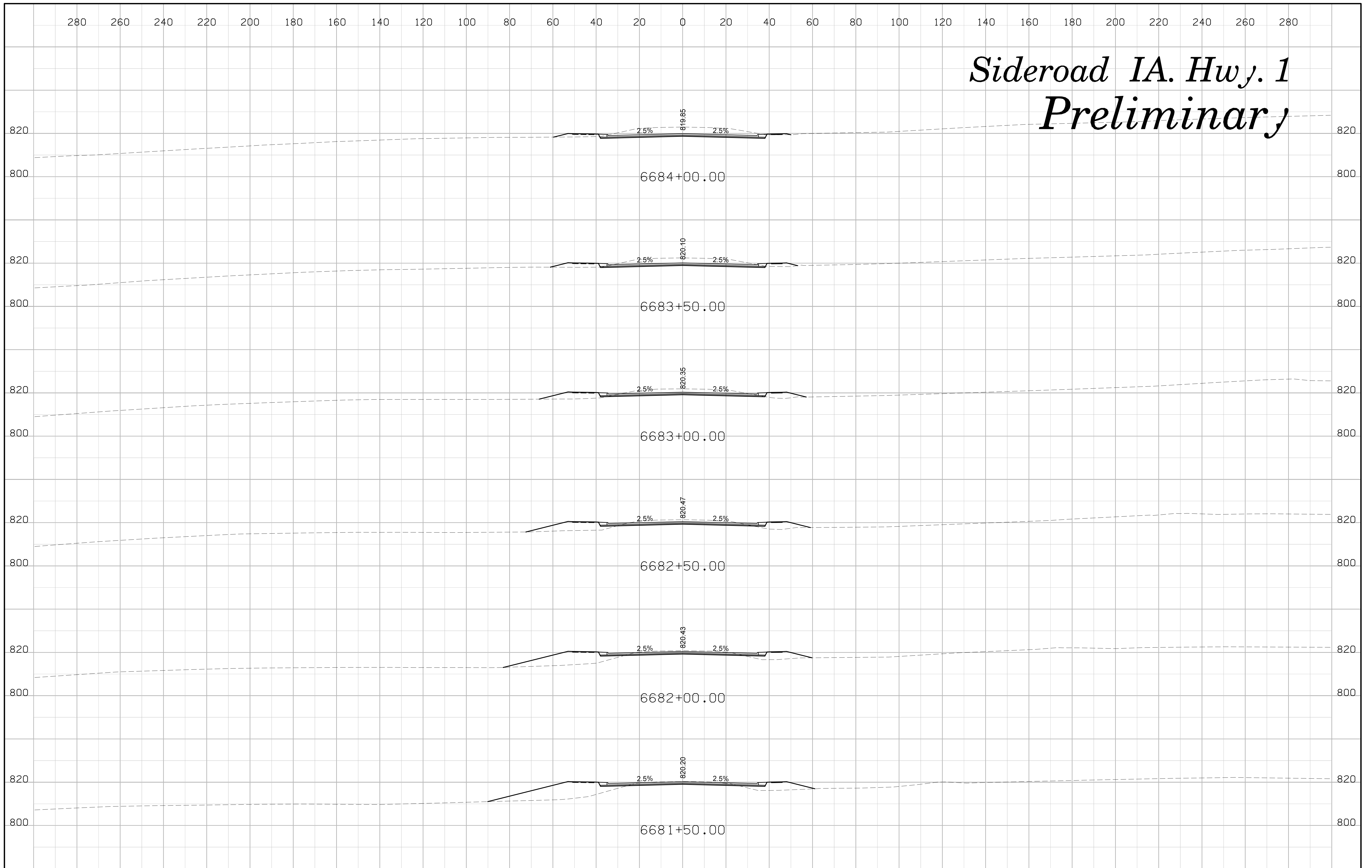
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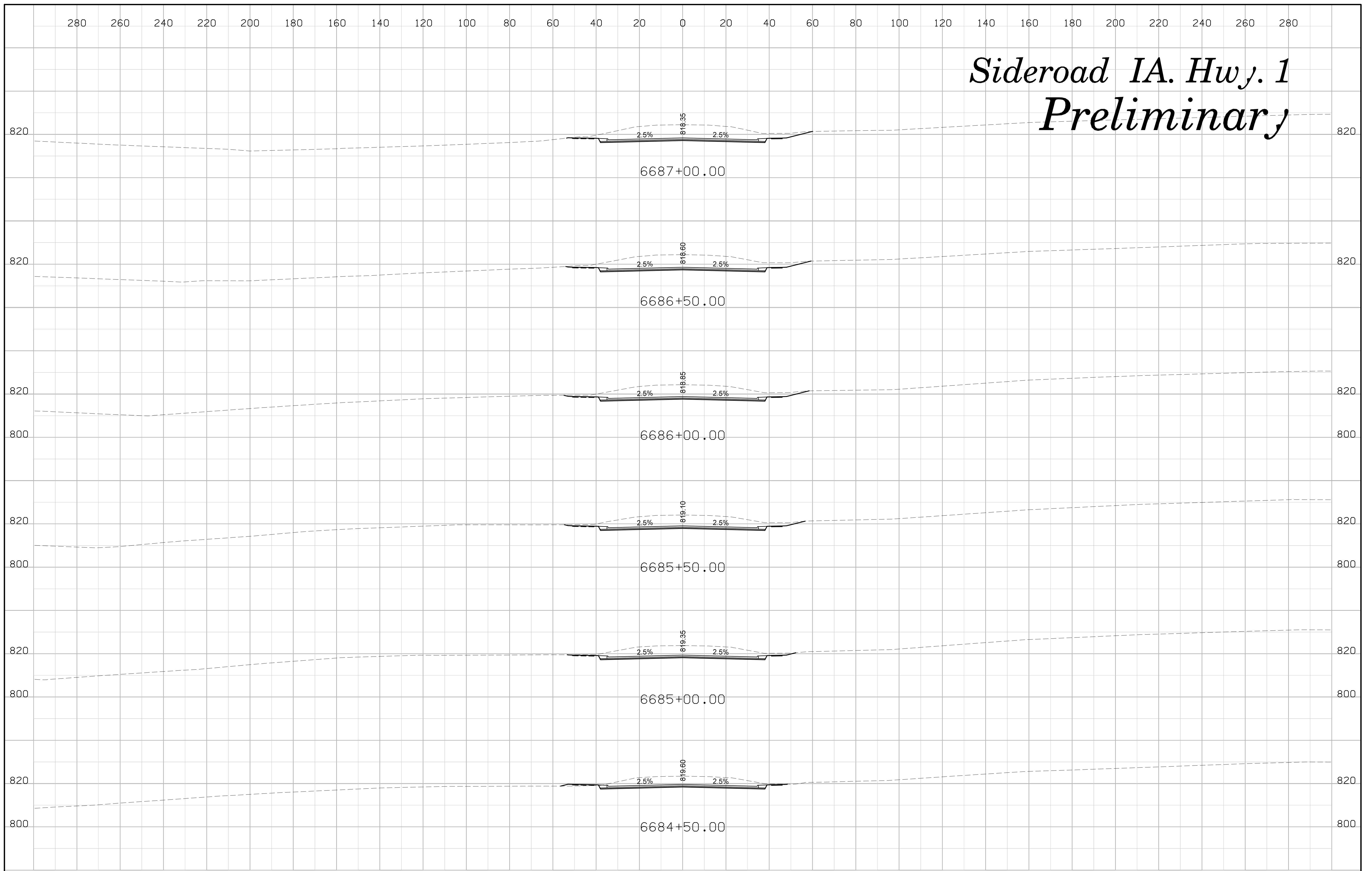
# Sideroad IA. Hwy. 1 Preliminary



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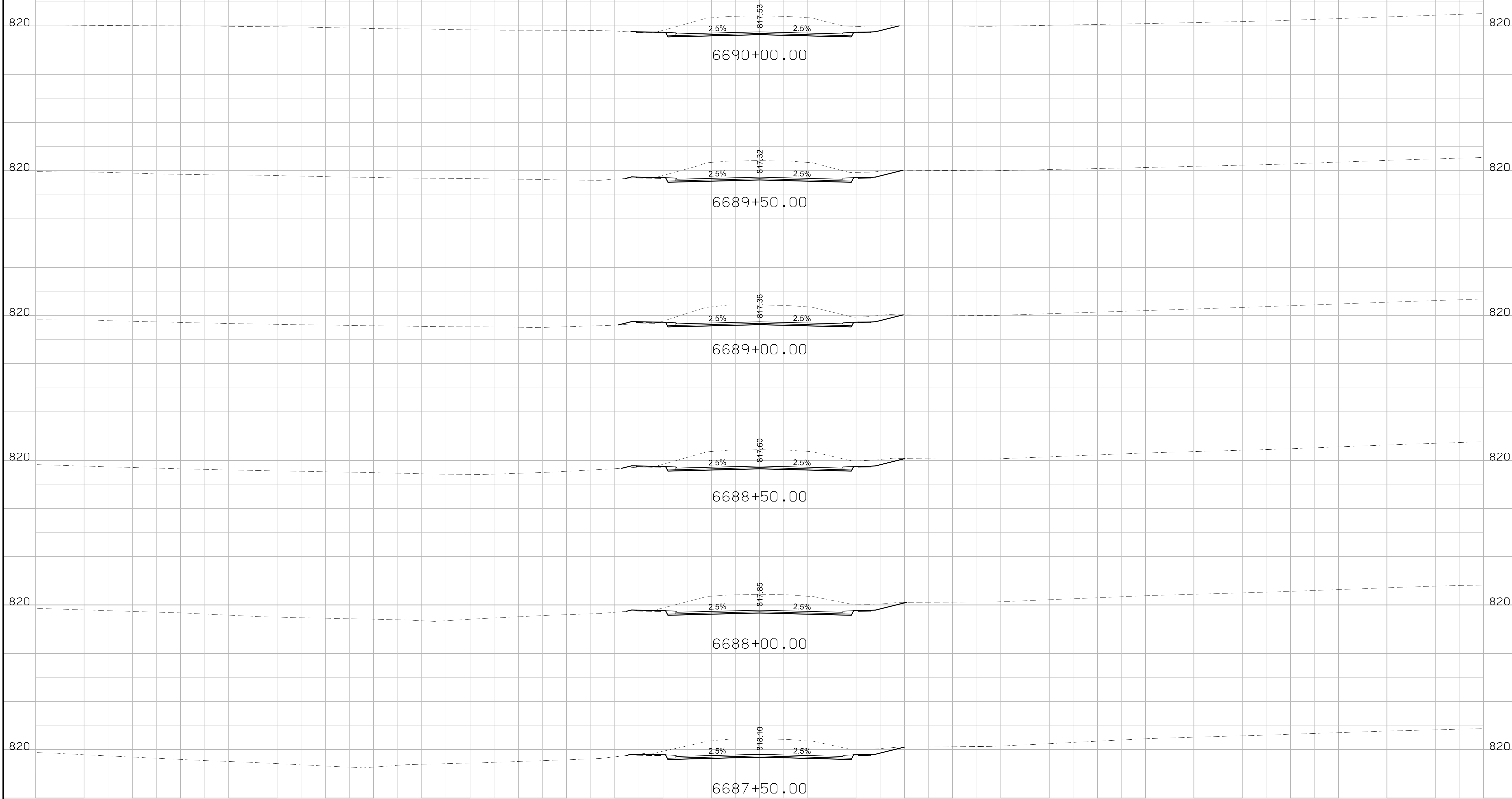
# Sideroad IA. Hwy. 1 Preliminary





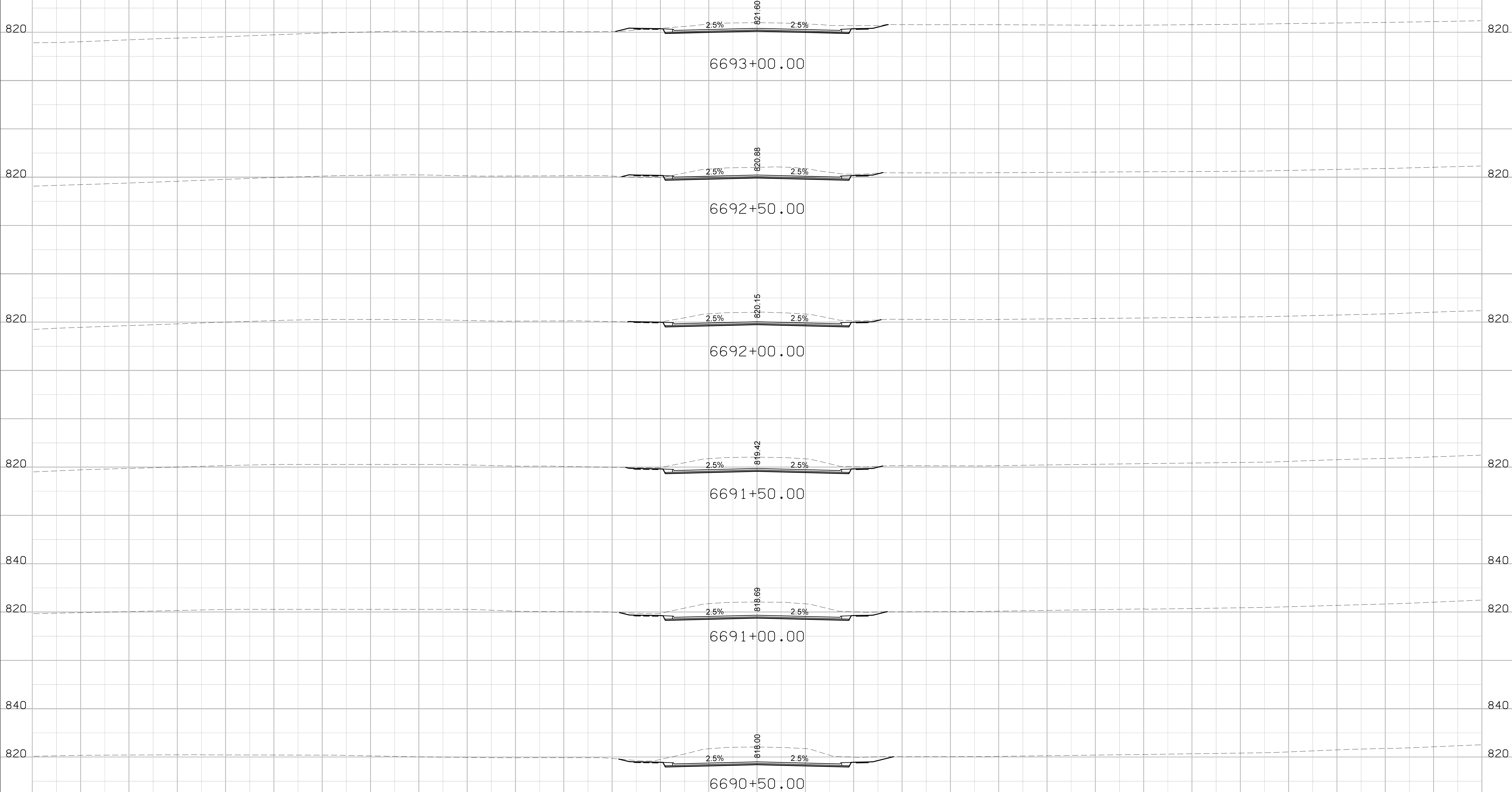
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# Sideroad IA. Hwy. 1 Preliminary



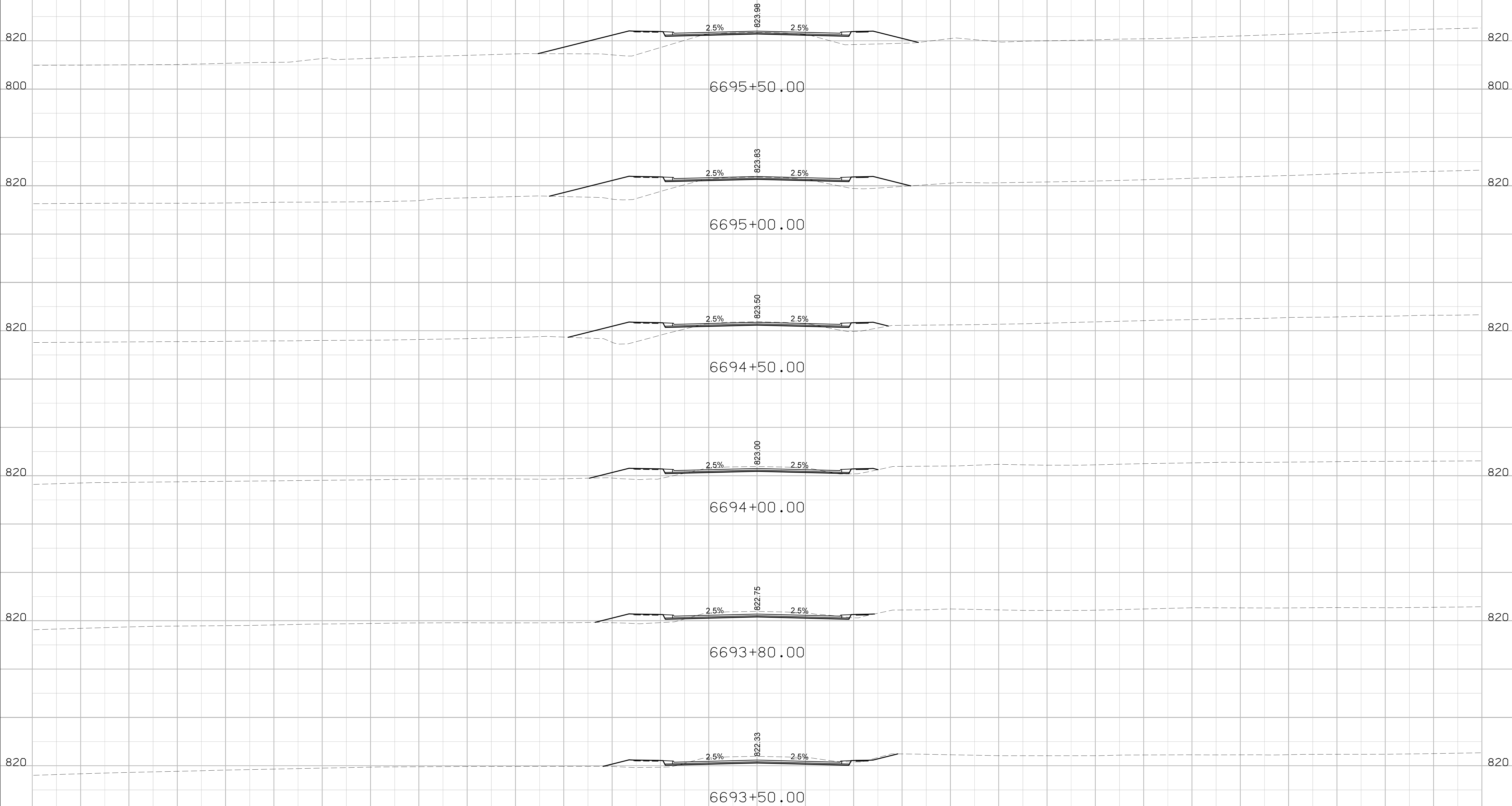
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# Sideroad IA. Hwy. 1 Preliminary



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# Sideroad IA. Hwy. 1 Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

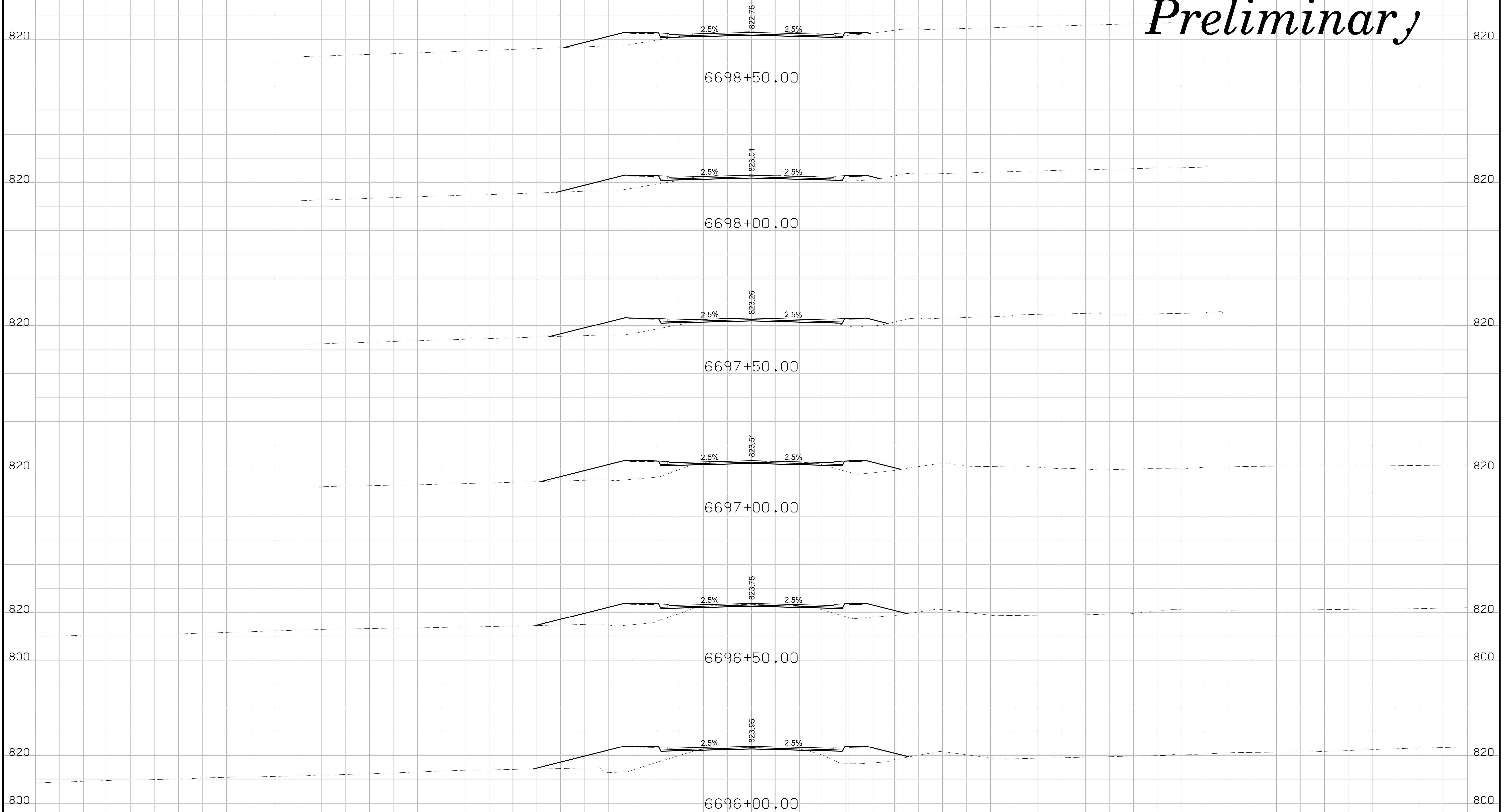
PROJECT NUMBER

NHS-030-7(76)--19-57

SHEET NUMBER X.32

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# Sideroad IA. Hwy. 1 Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

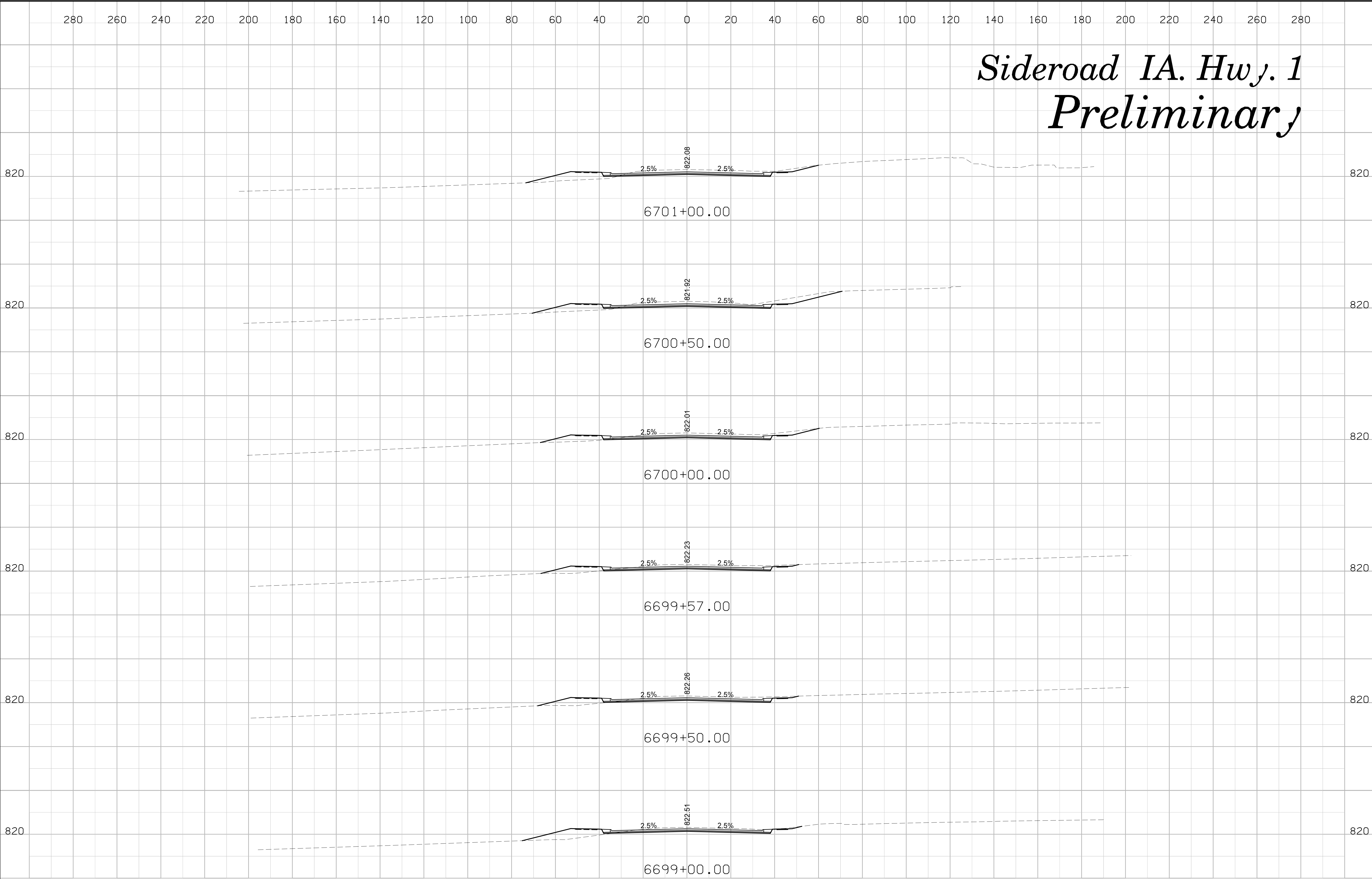
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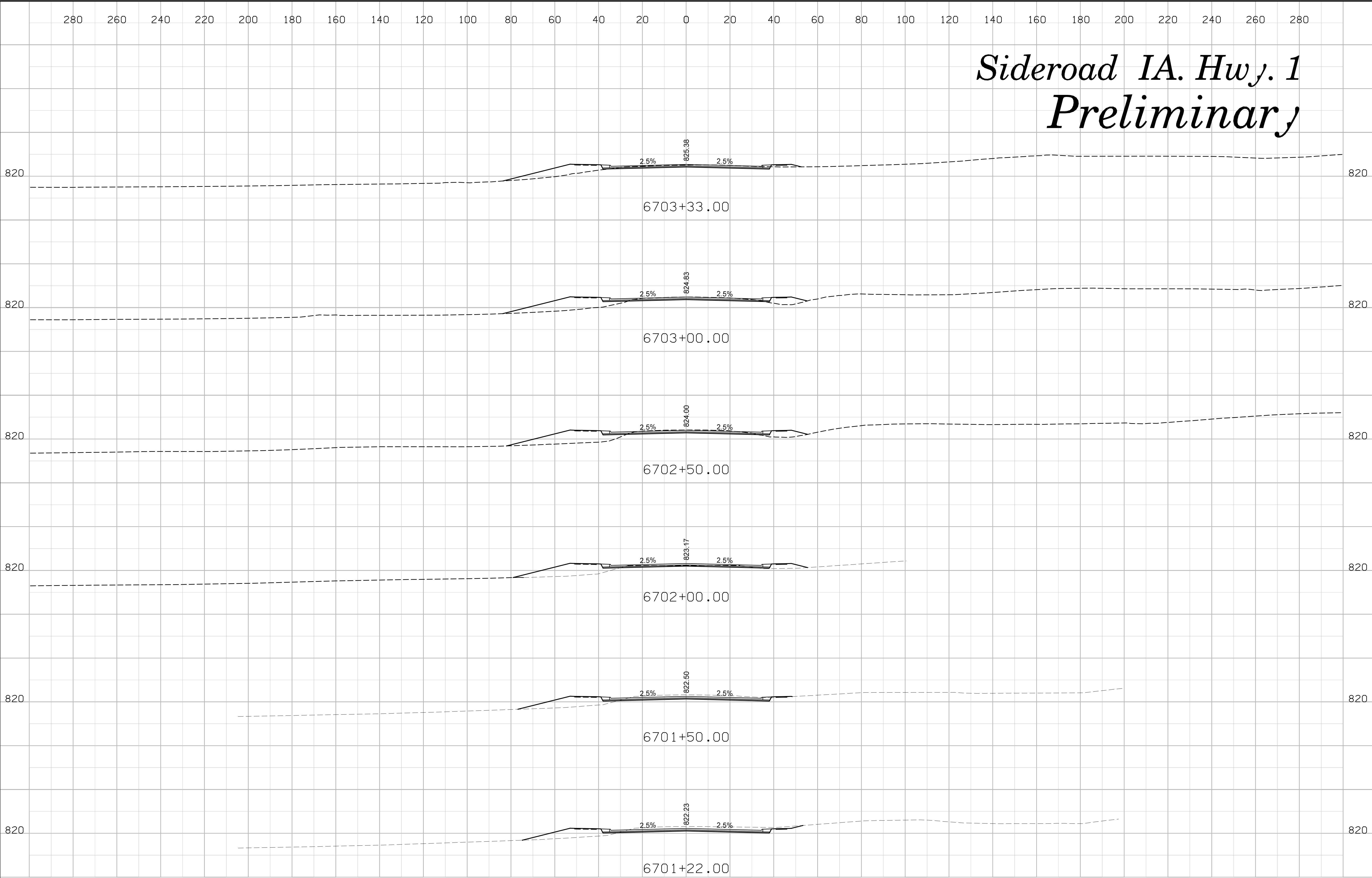
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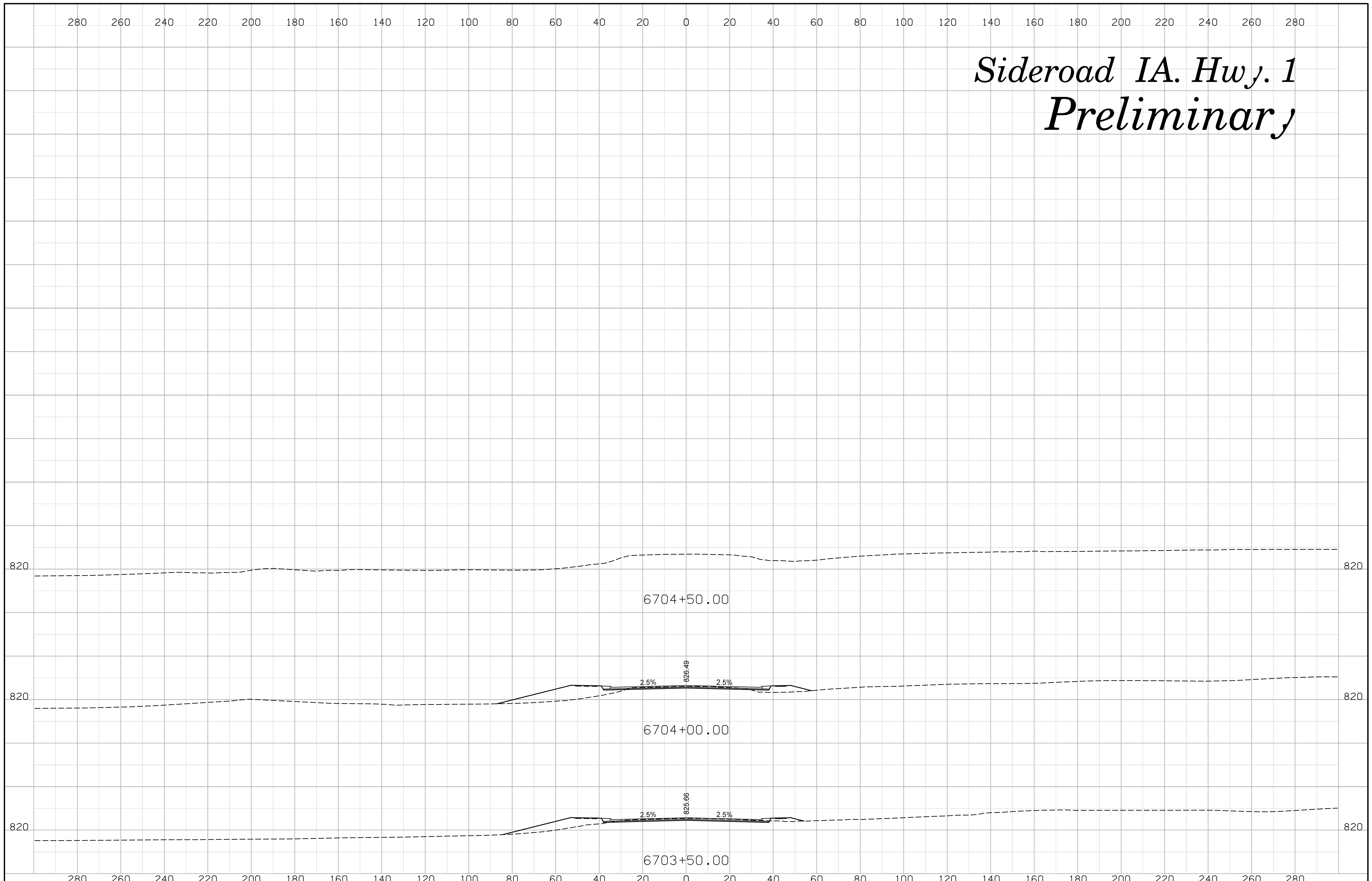


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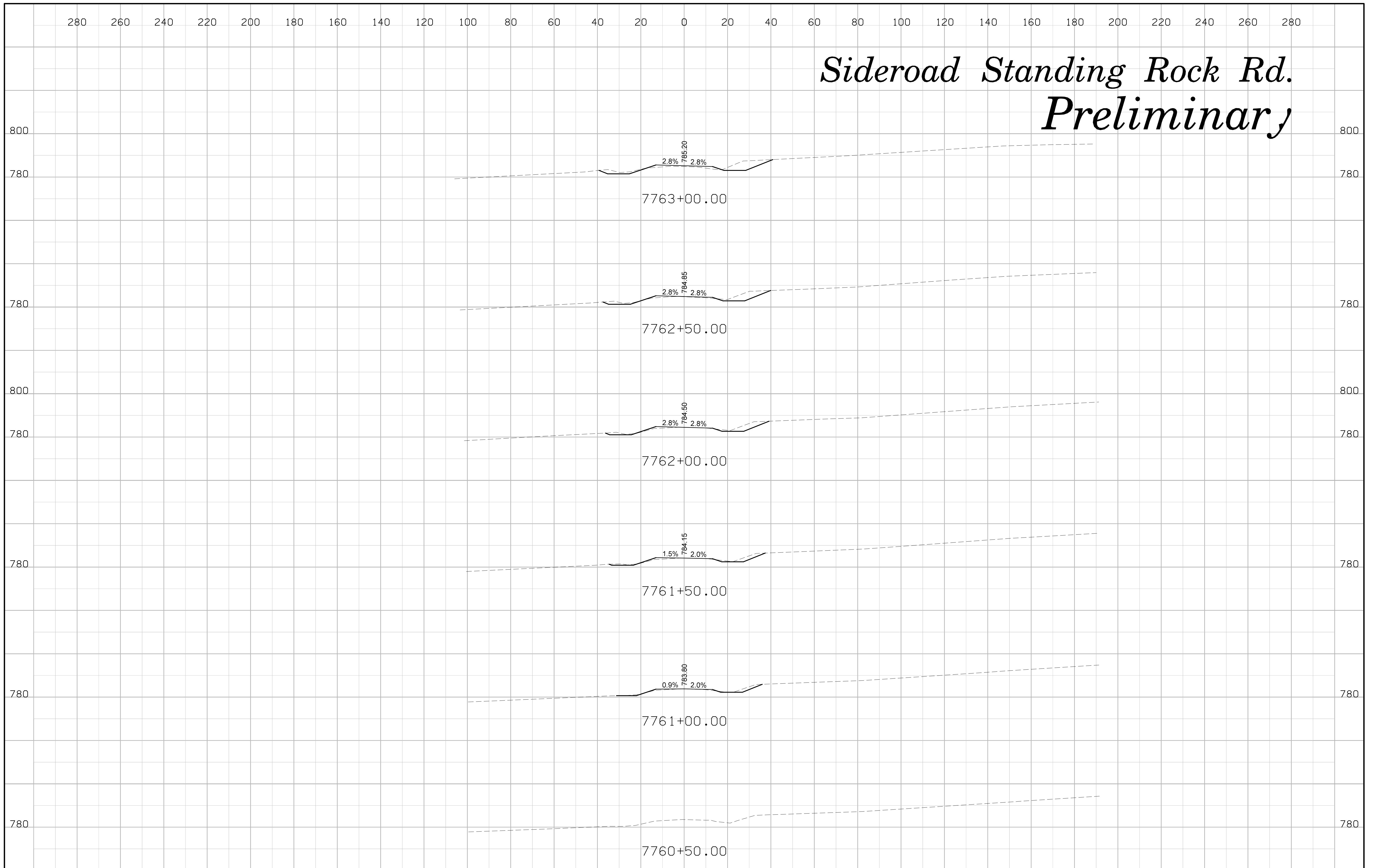




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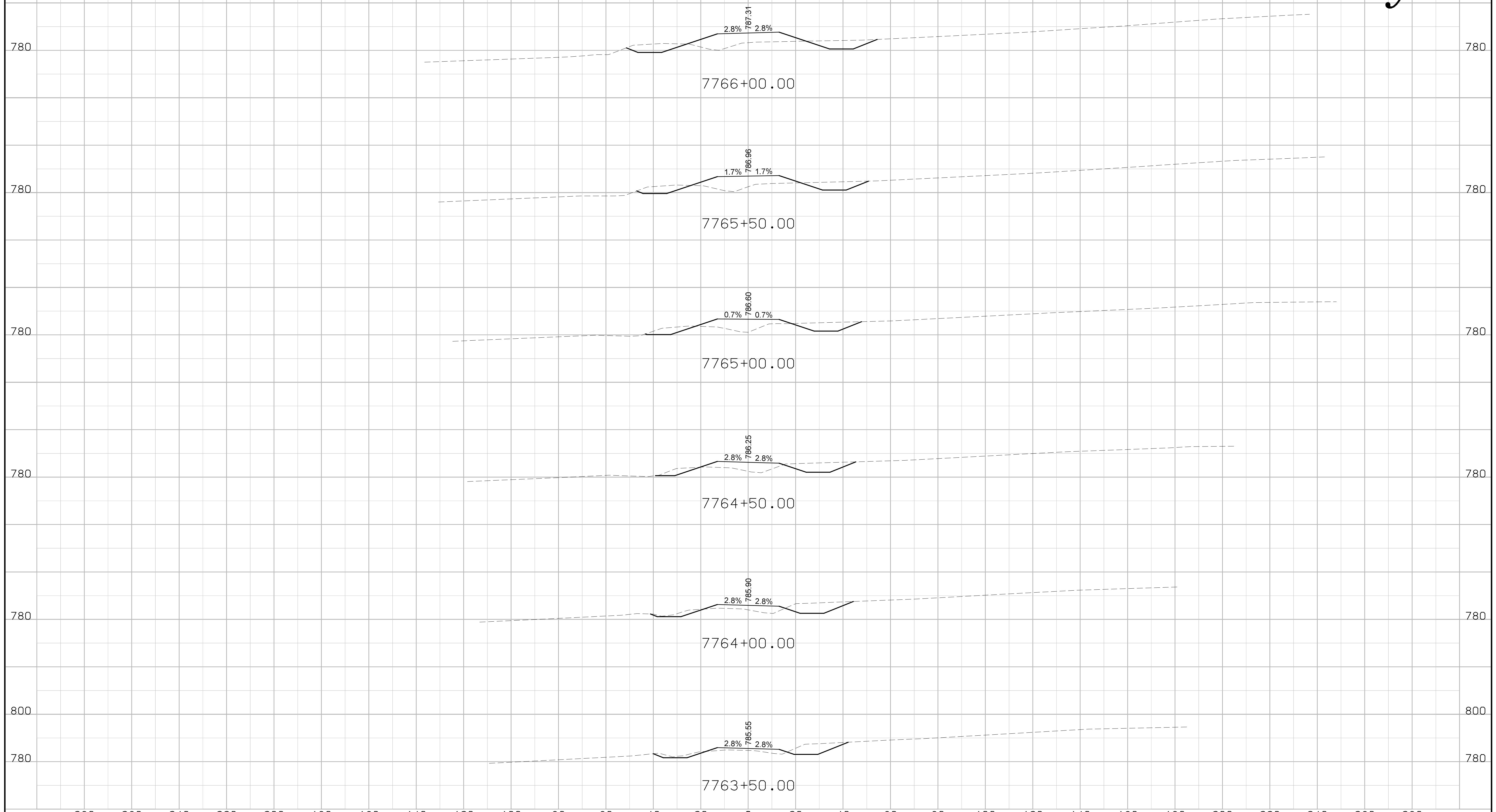


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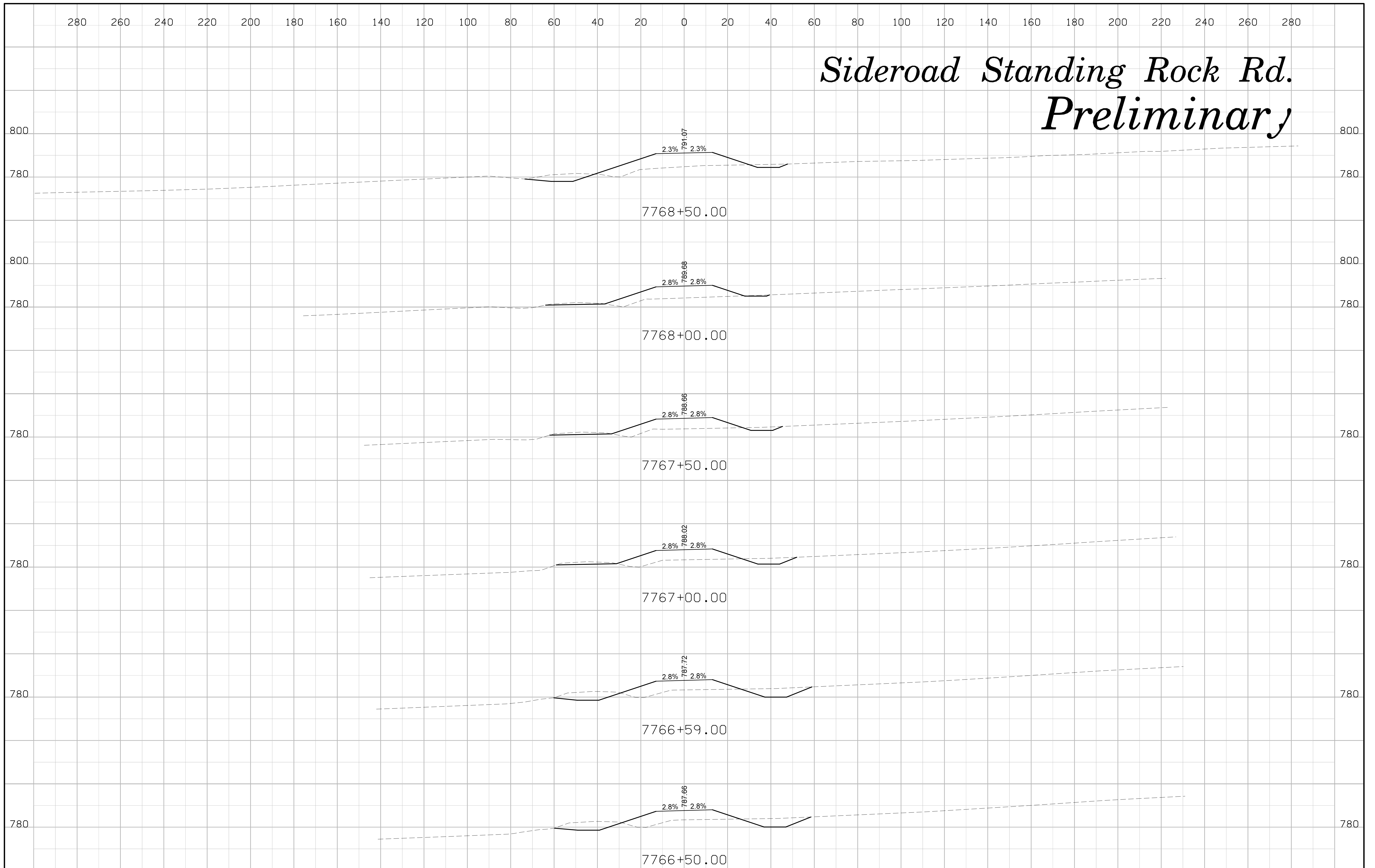
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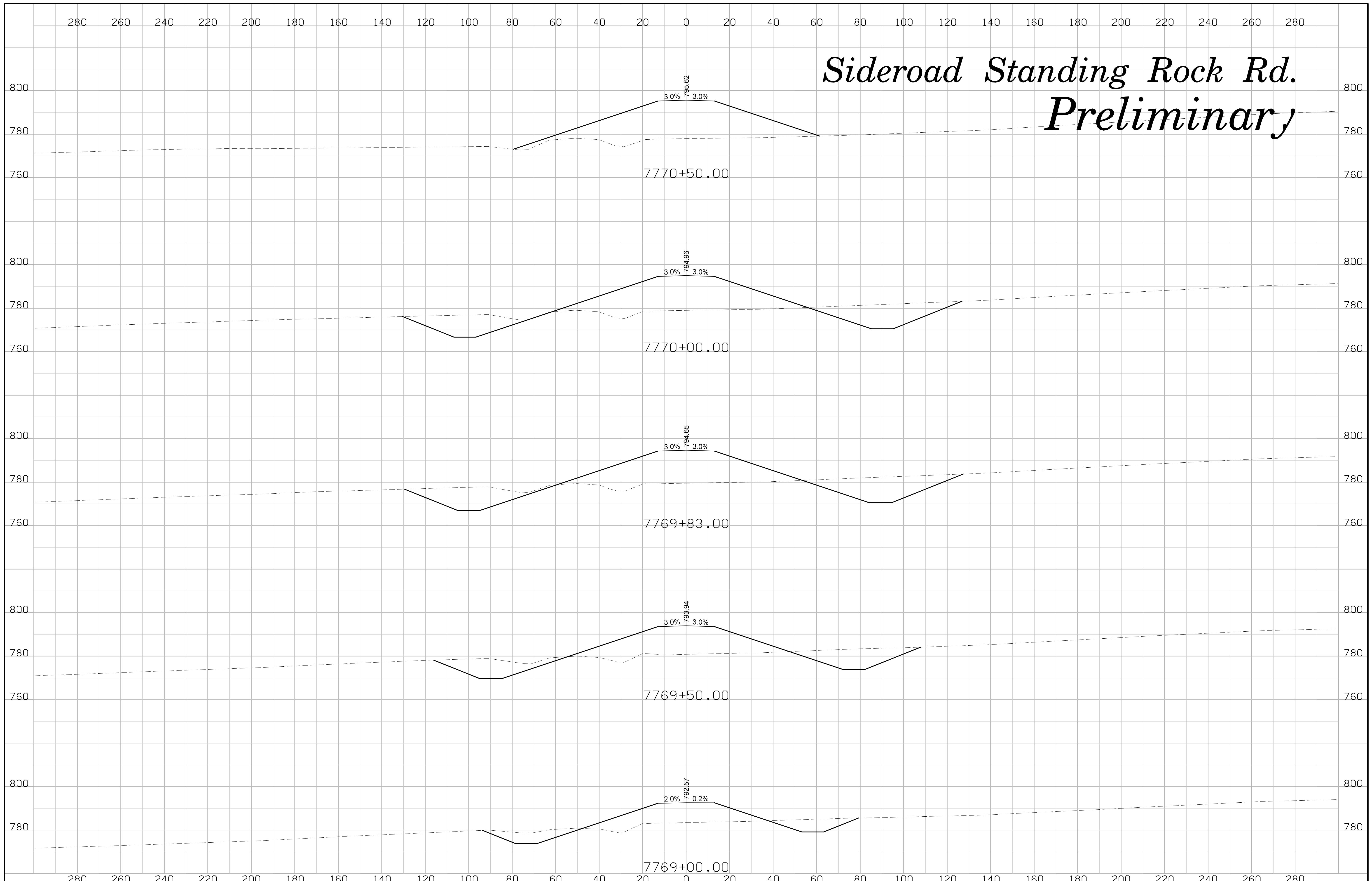
# Sideroad Standing Rock Rd. Preliminary



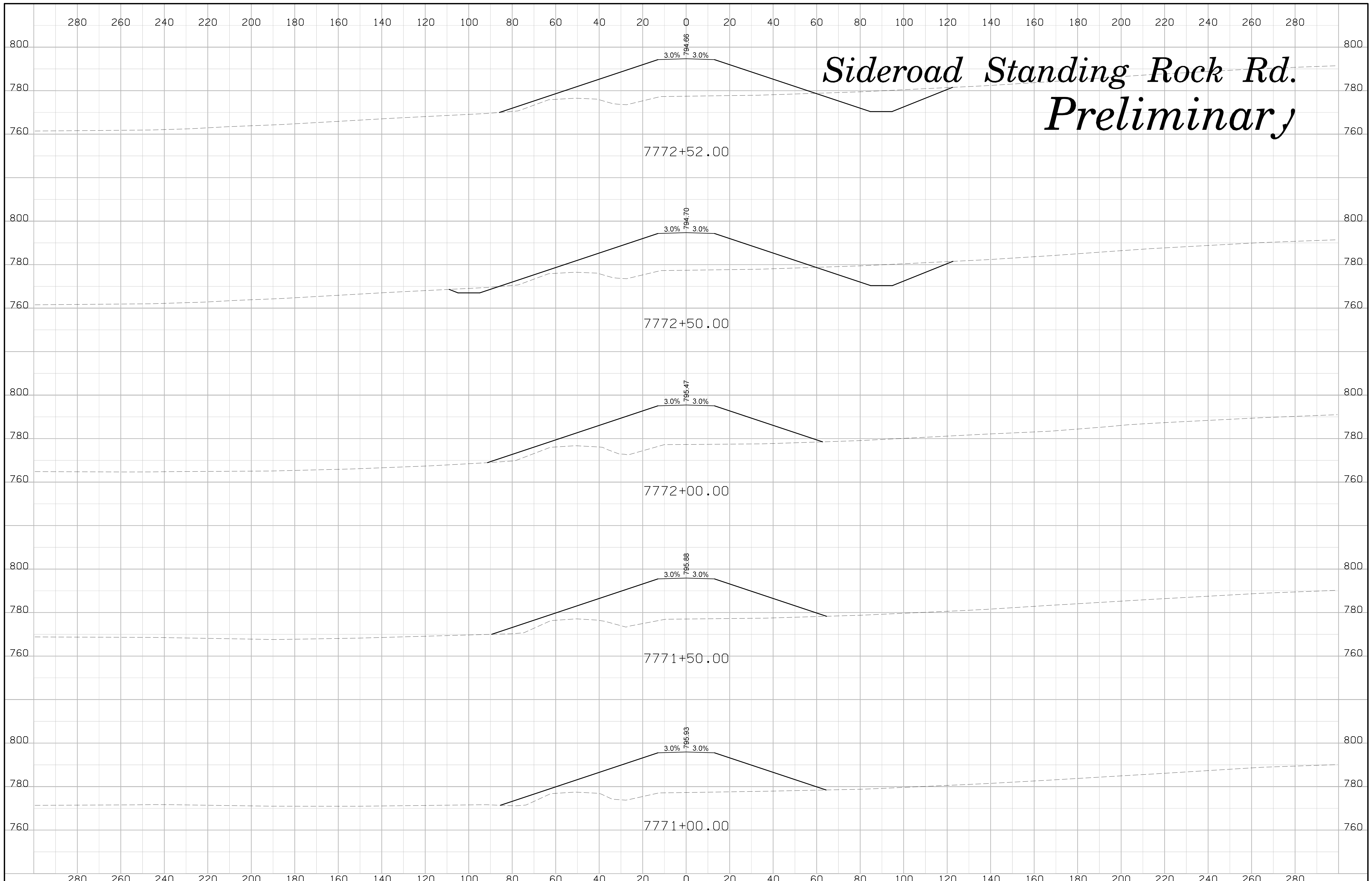
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# Sideroad Standing Rock Rd. Preliminary



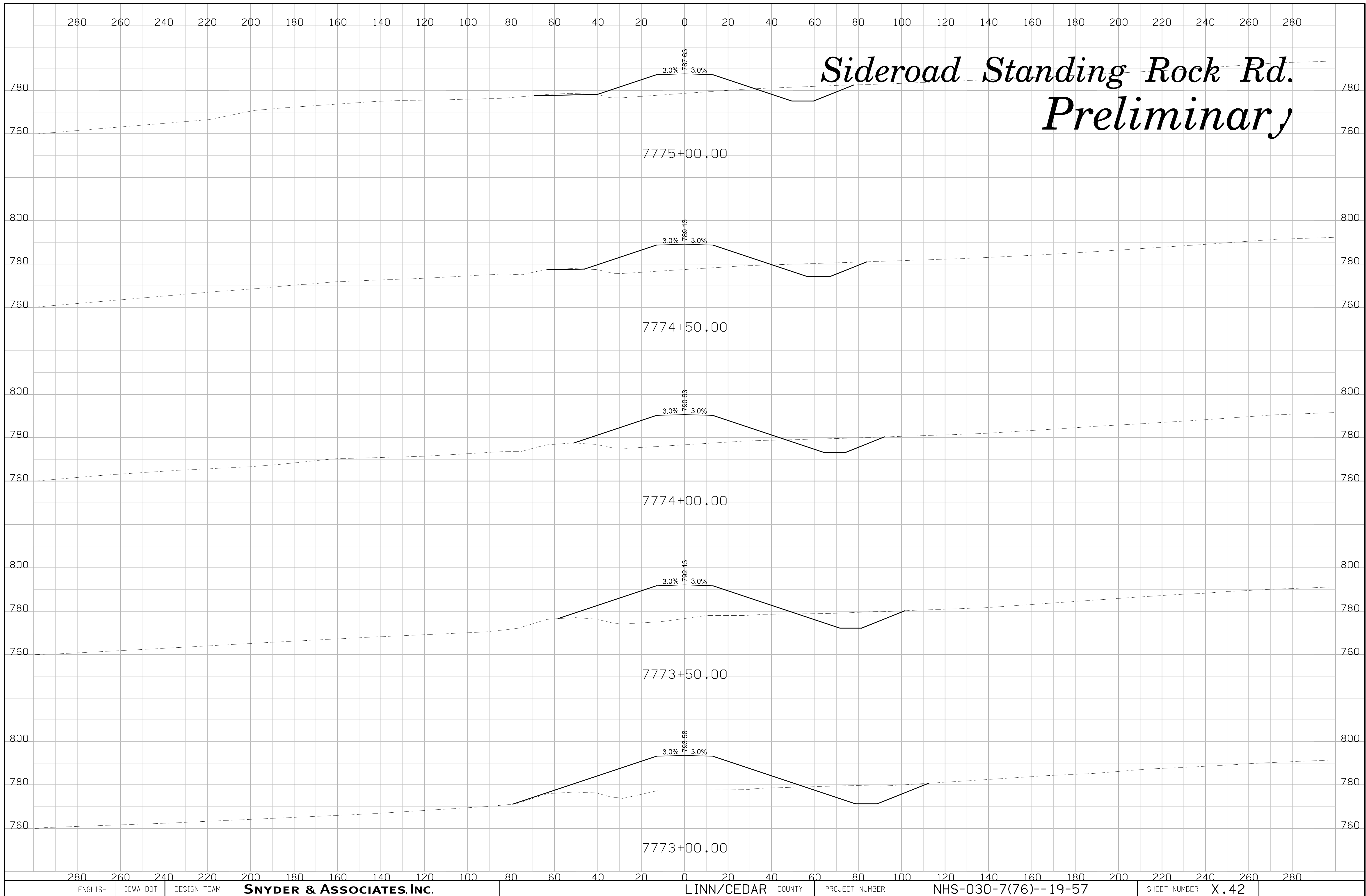


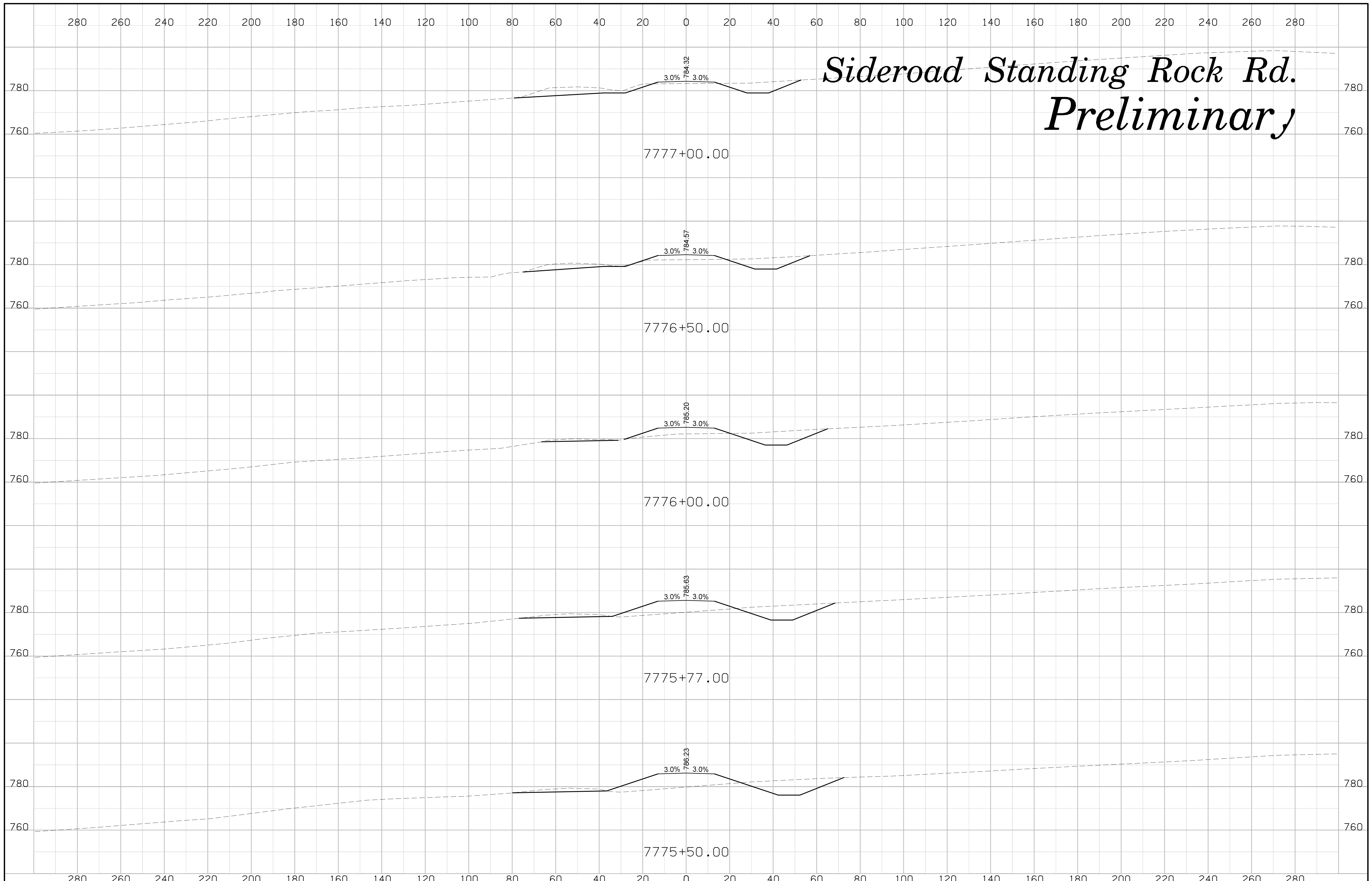
*Sideroad Standing Rock Rd.  
Preliminary*

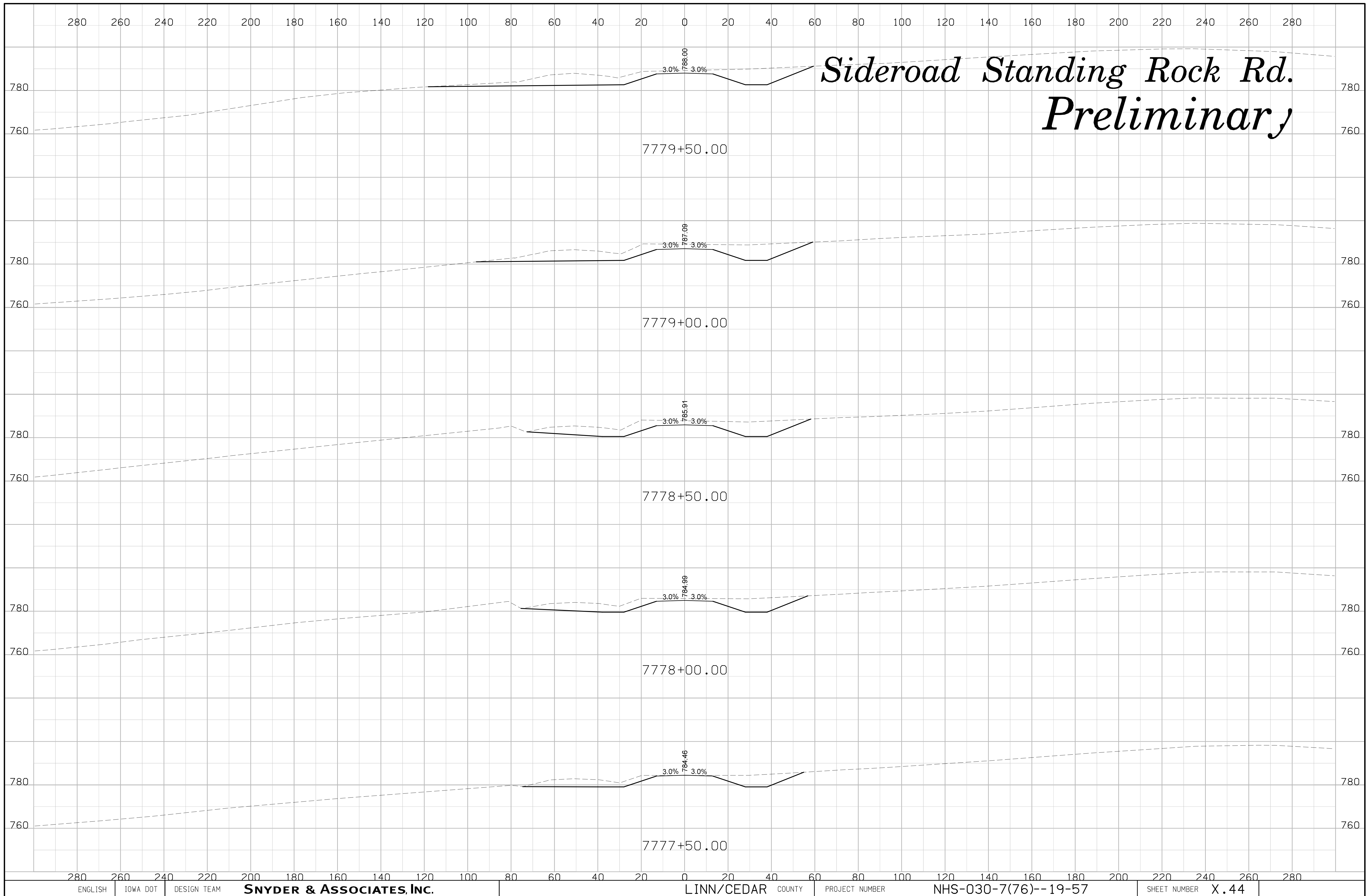


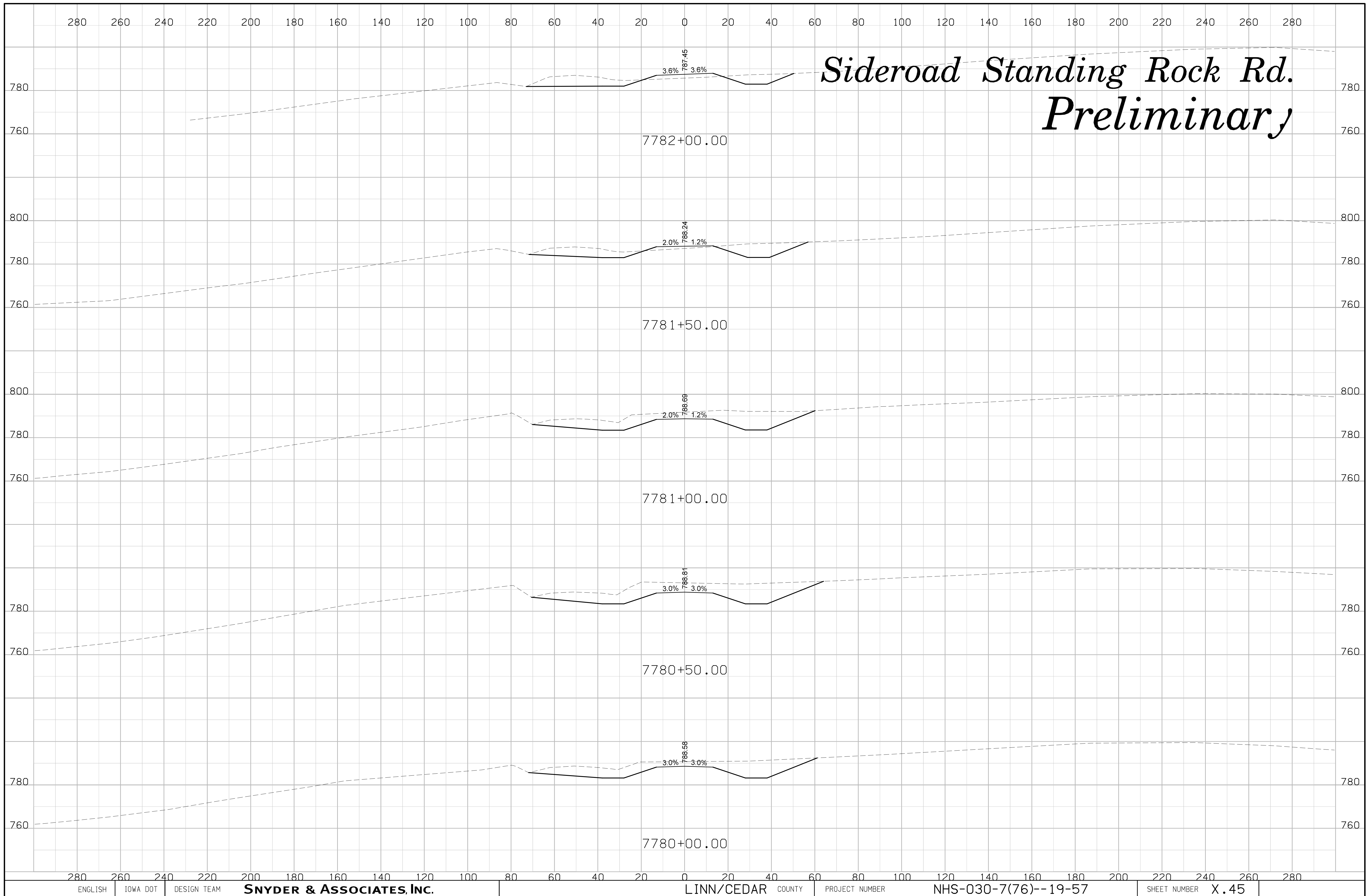
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Preliminary*

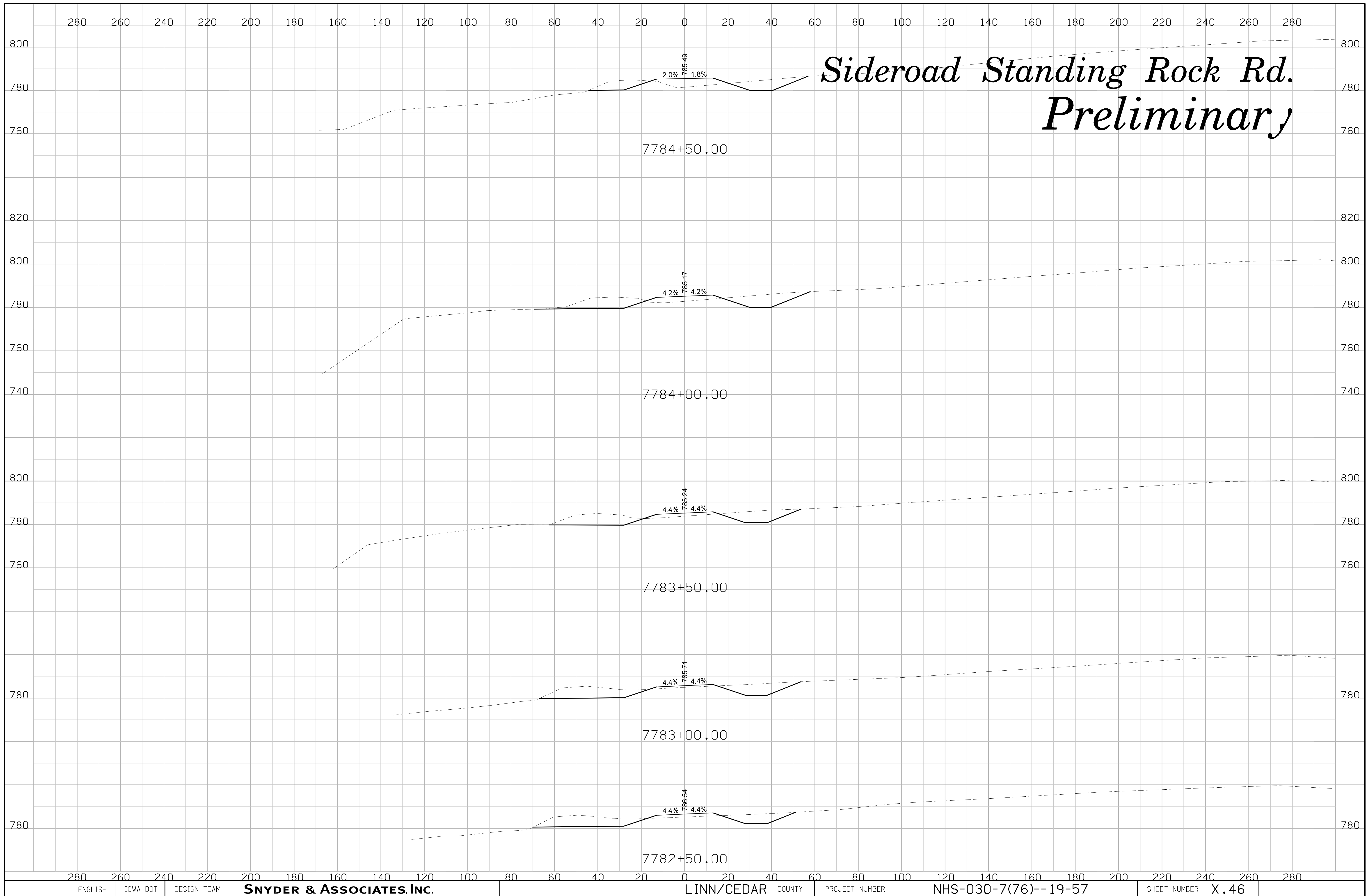


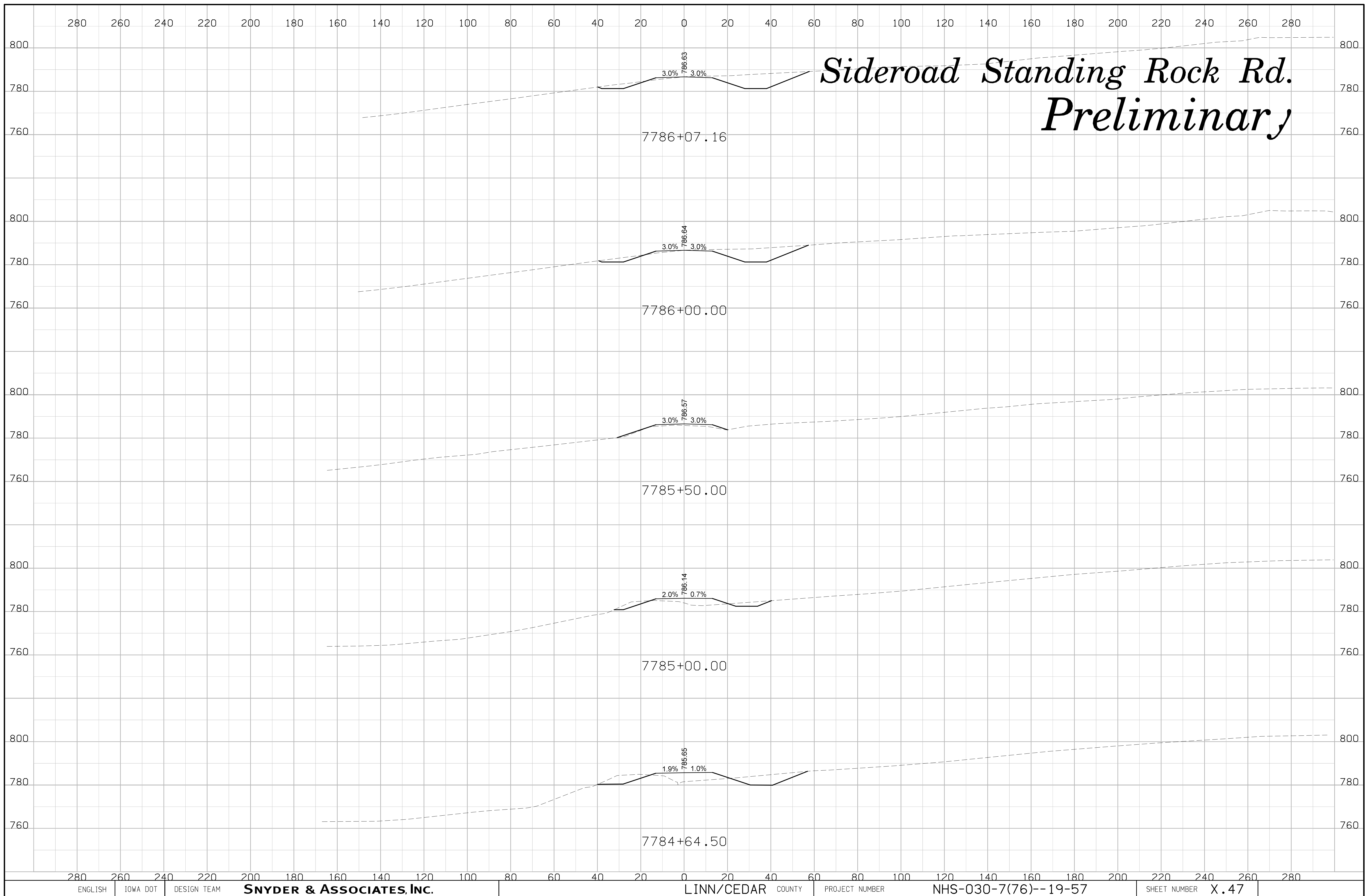








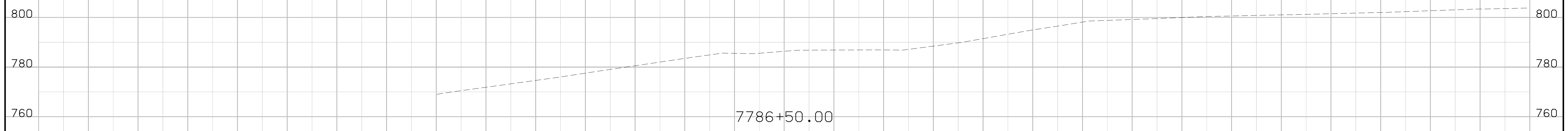






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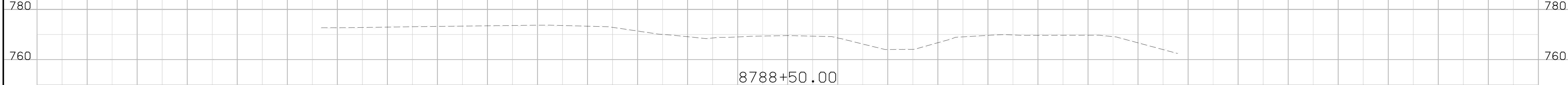
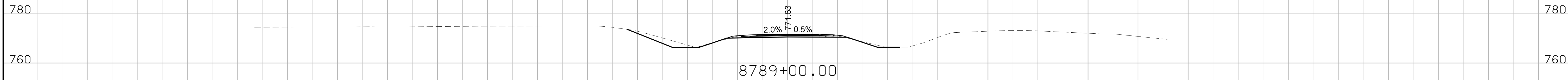
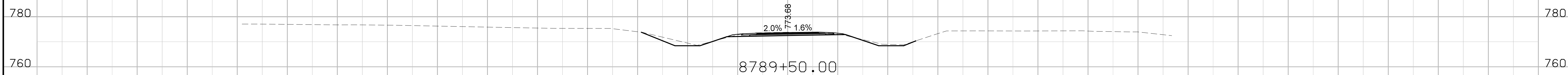
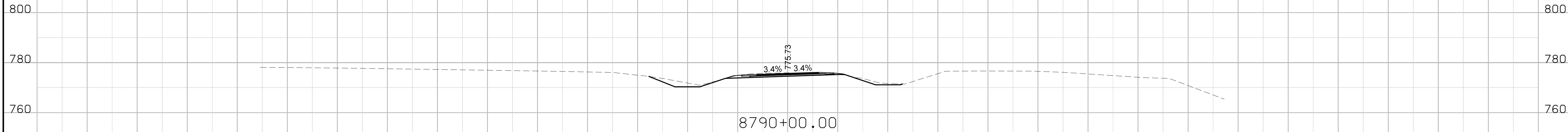
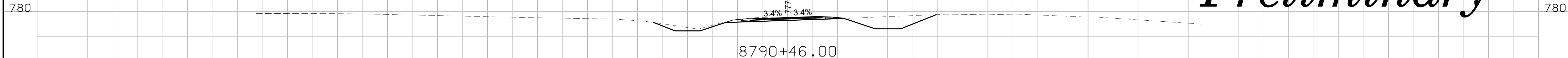
# *Sideroad Standing Rock Rd. Preliminary*



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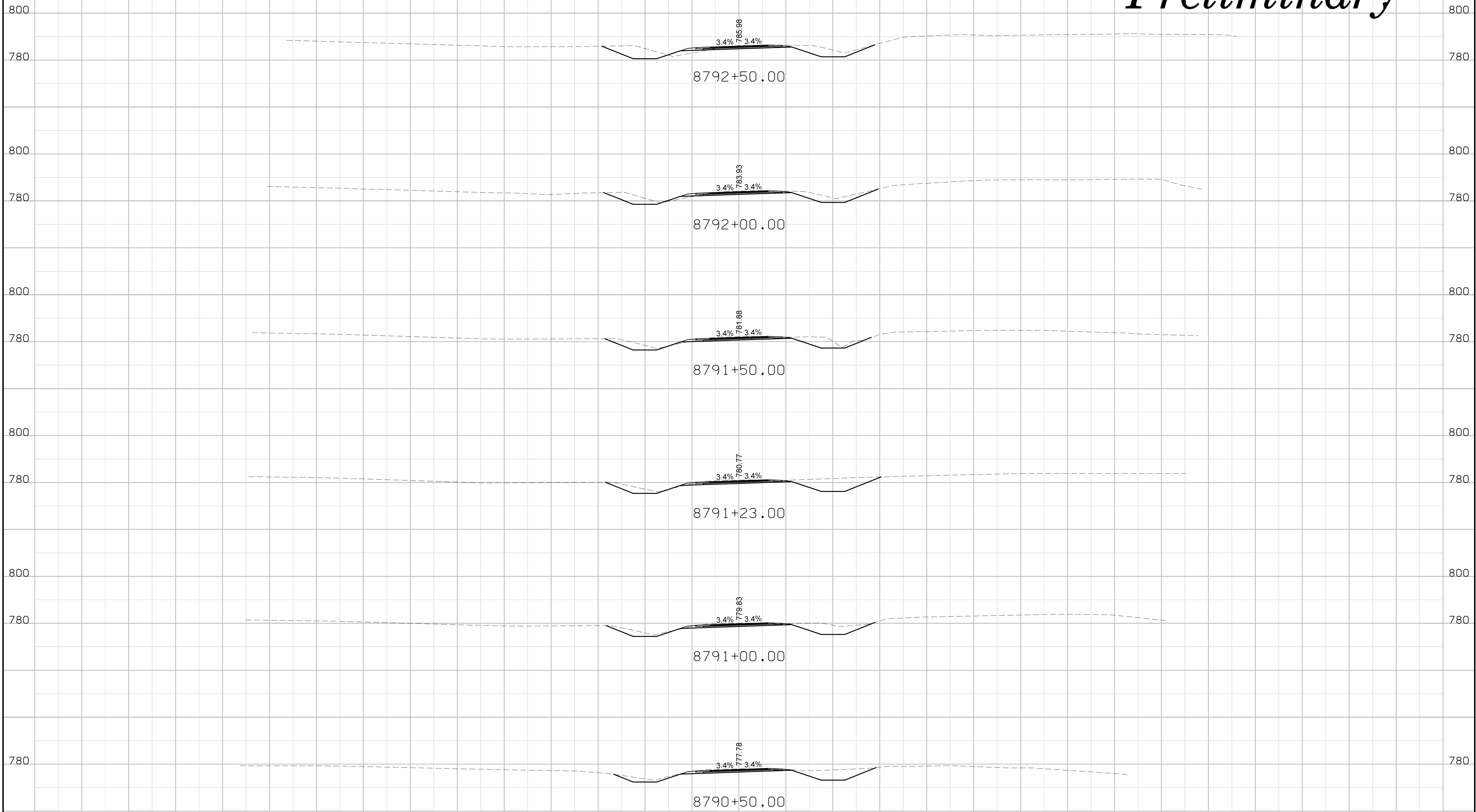
# Sideroad Sutliff Rd. Preliminary



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# Sideroad Sutliff Rd. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

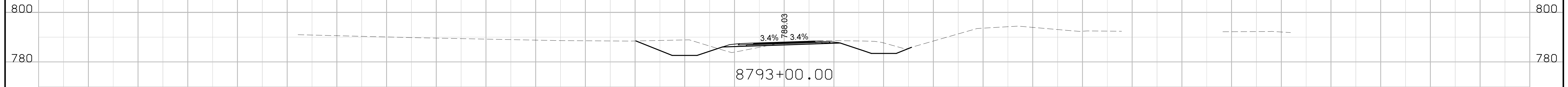
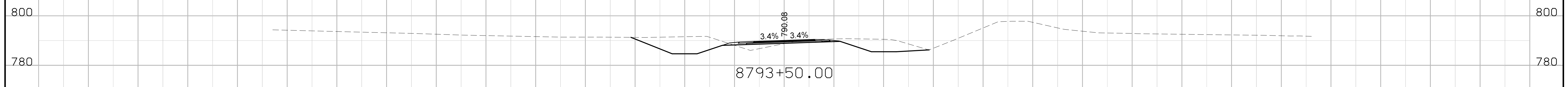
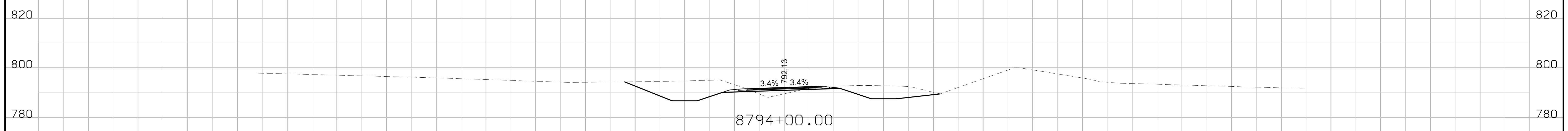
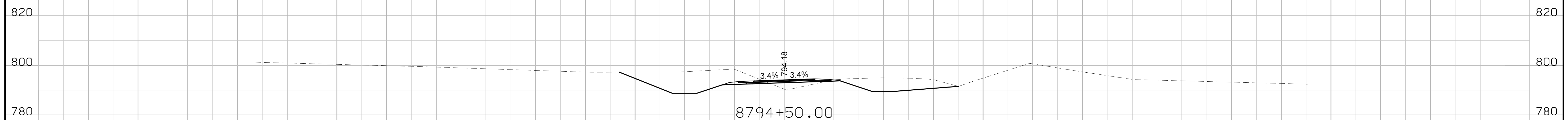
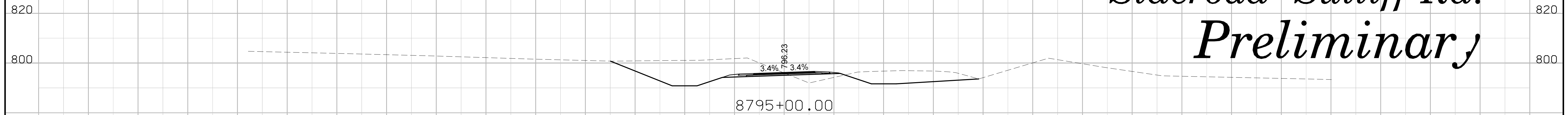
NHS-030-7(76)--19-57

SHEET NUMBER

X.50

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# Sideroad Sutliff Rd. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

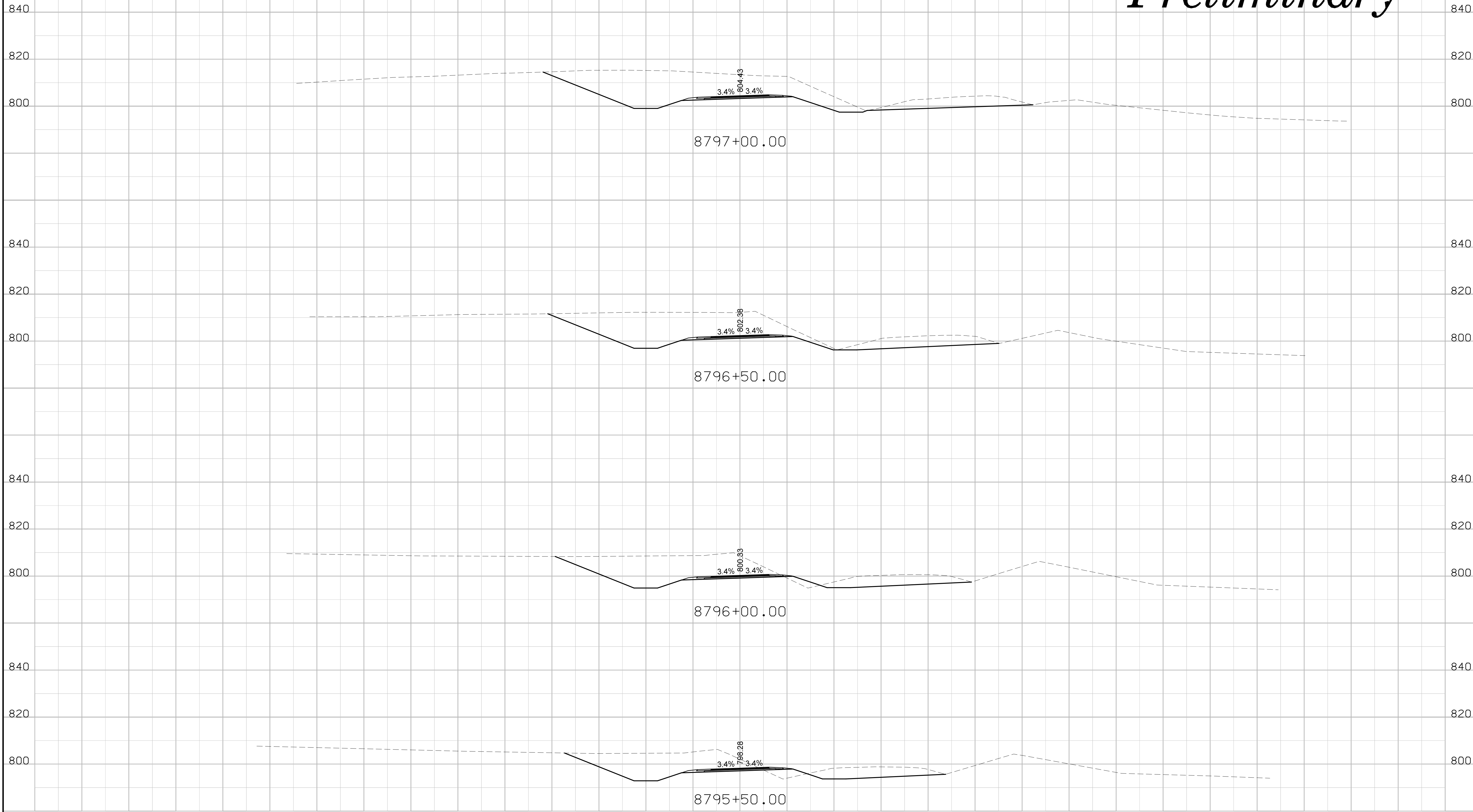
PROJECT NUMBER

NHS-030-7(76)--19-57

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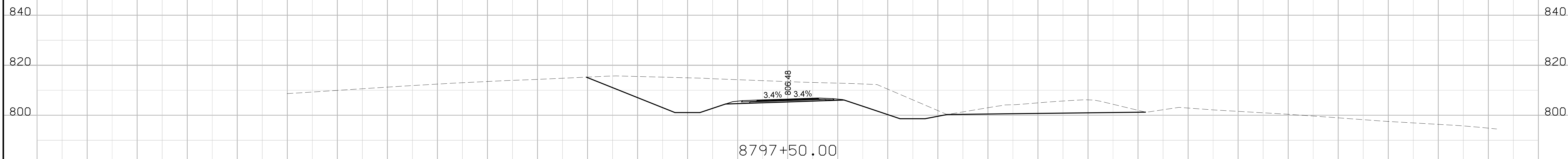
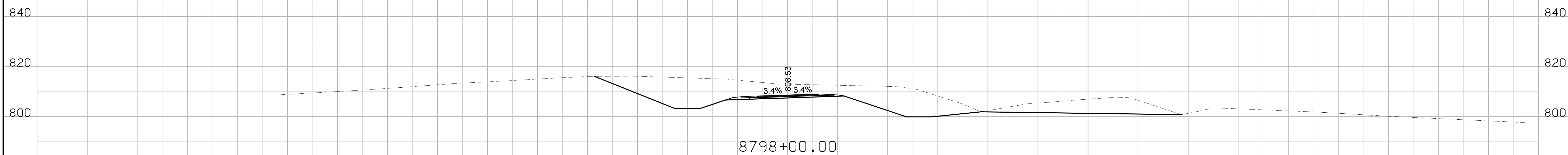
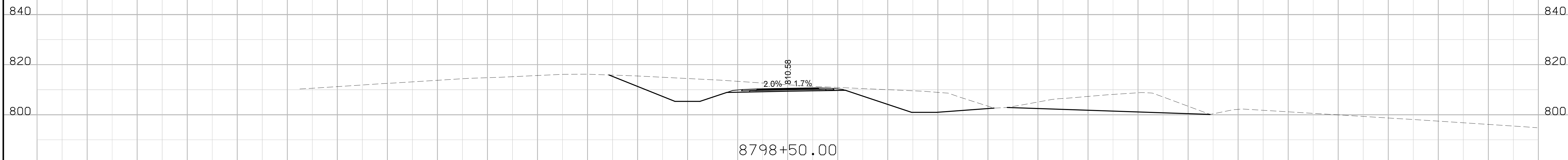
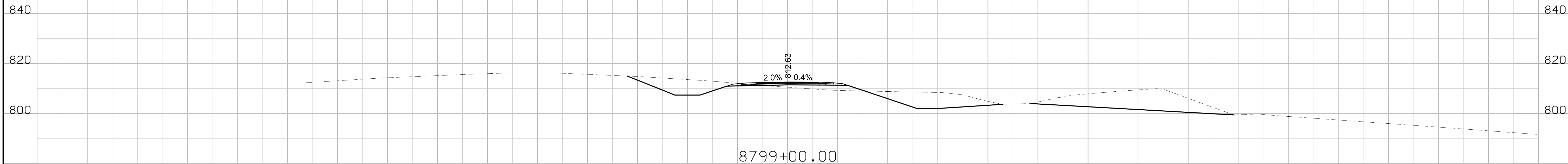
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# Sideroad Sutliff Rd. Preliminary



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# Sideroad Sutliff Rd. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

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DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

NHS-030-7(76)--19-57

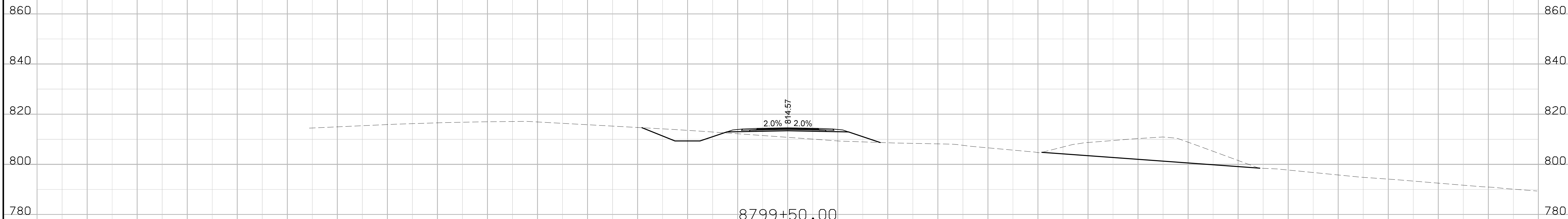
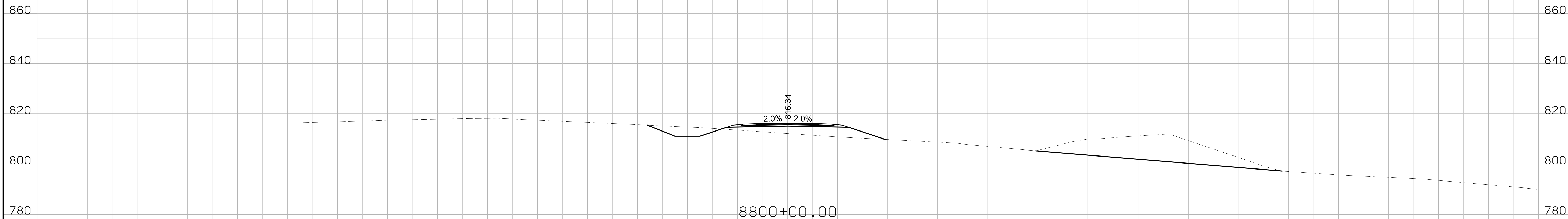
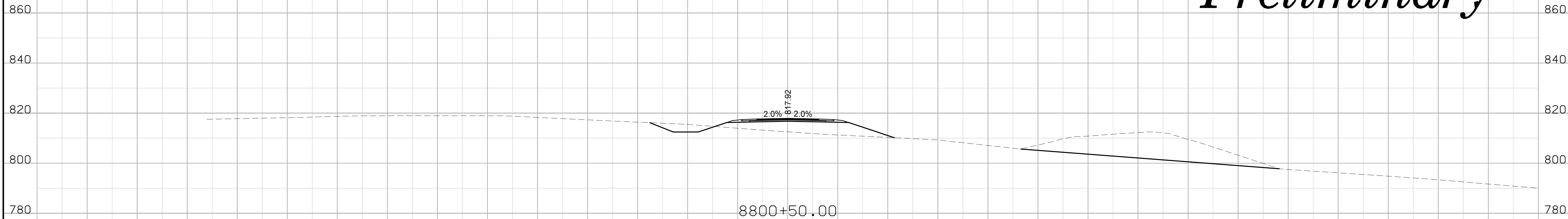
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# Sideroad Sutliff Rd. Preliminary



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ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

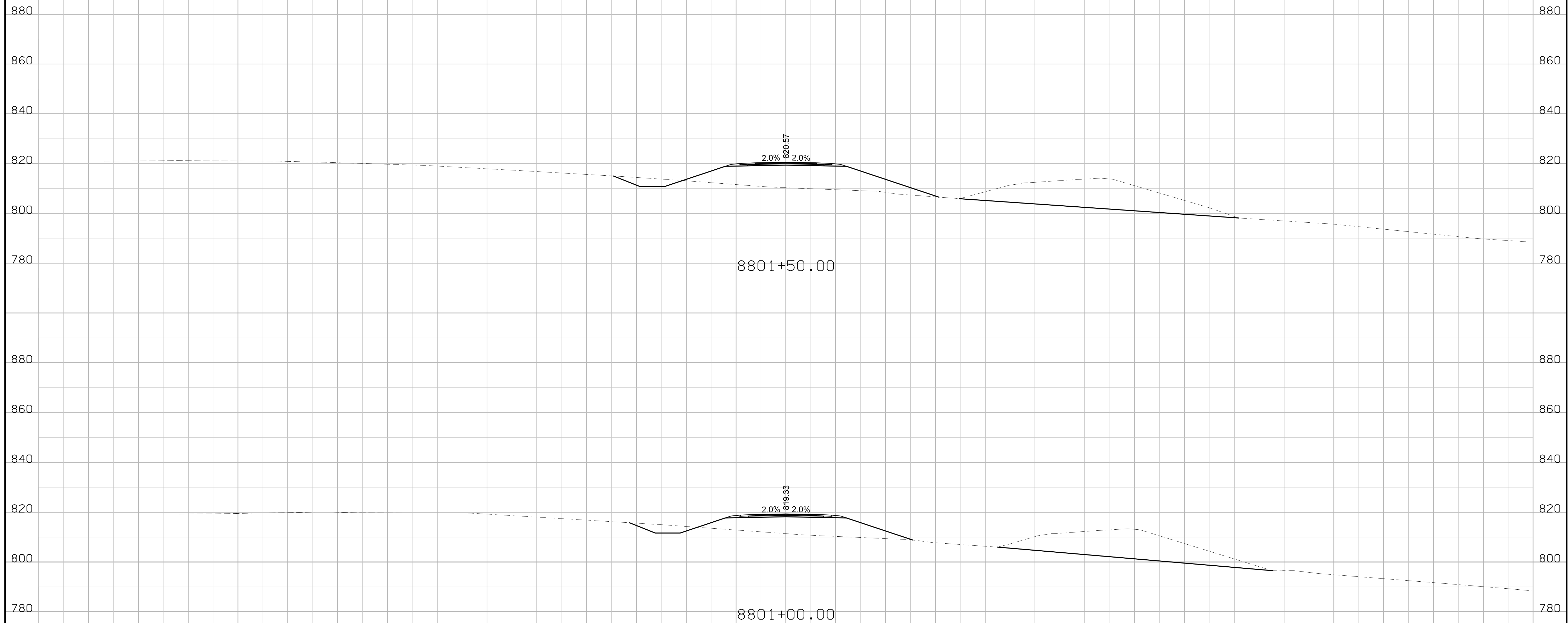
NHS-030-7(76)--19-57

SHEET NUMBER

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# Sideroad Sutliff Rd. Preliminary



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ENGLISH

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DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

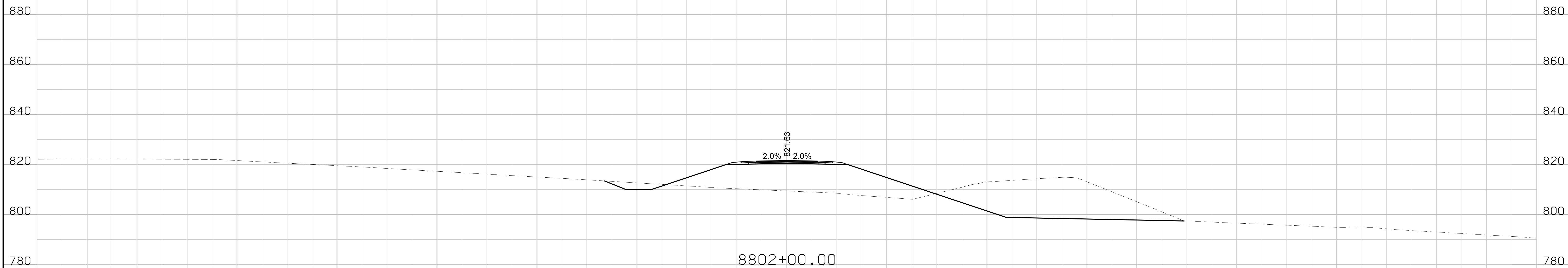
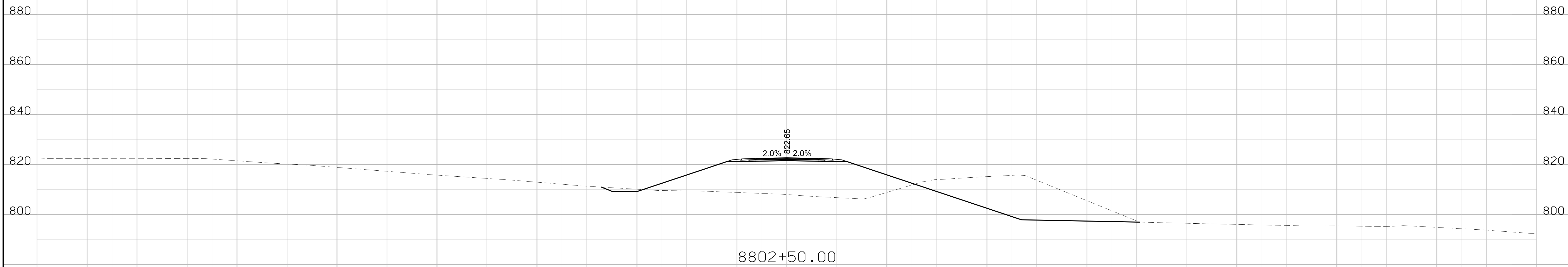
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NHS-030-7(76)--19-57

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# Sideroad Sutliff Rd. Preliminary



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DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

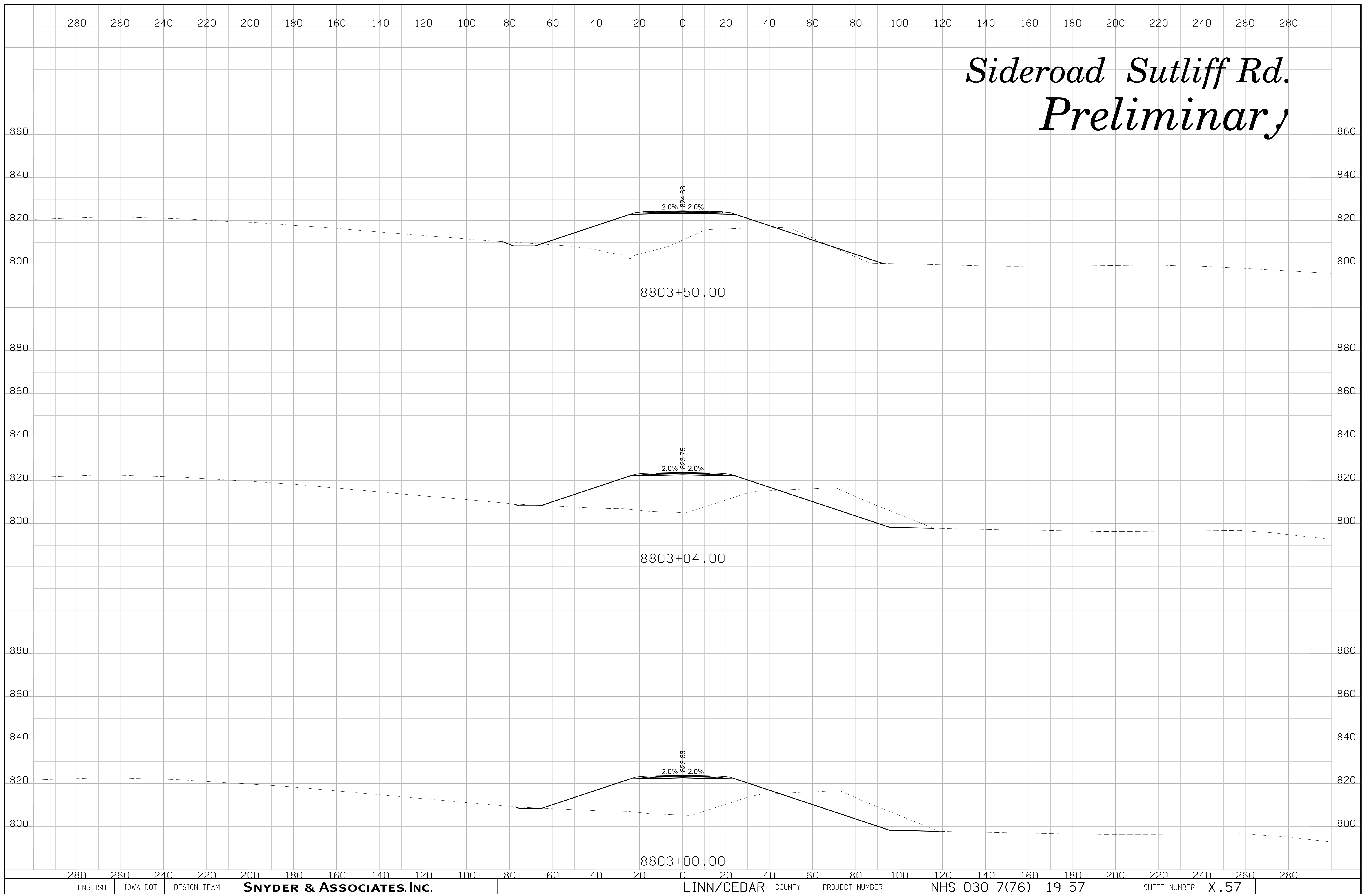
LINN/CEDAR COUNTY

PROJECT NUMBER

NHS-030-7(76)--19-57

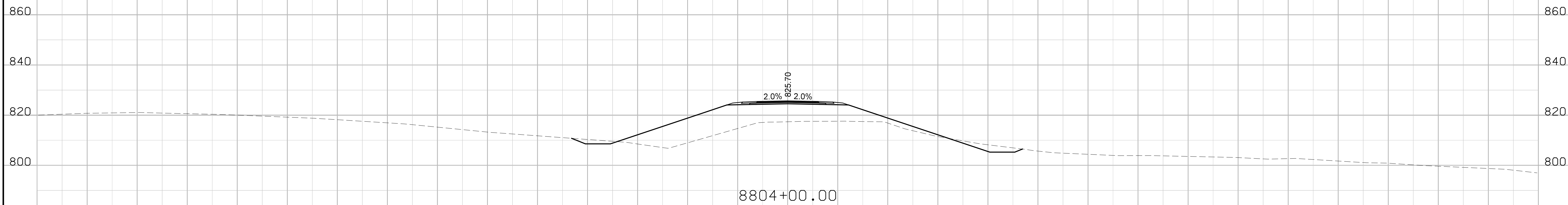
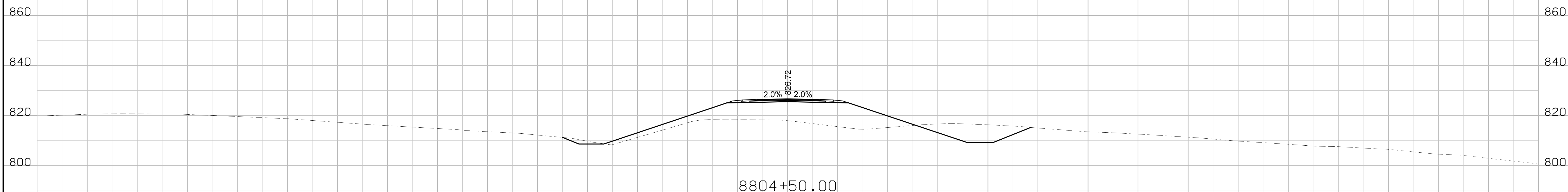
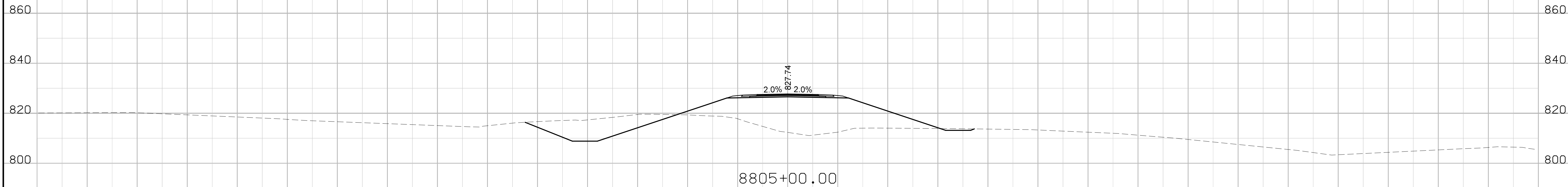
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# Sideroad Sutliff Rd. Preliminary



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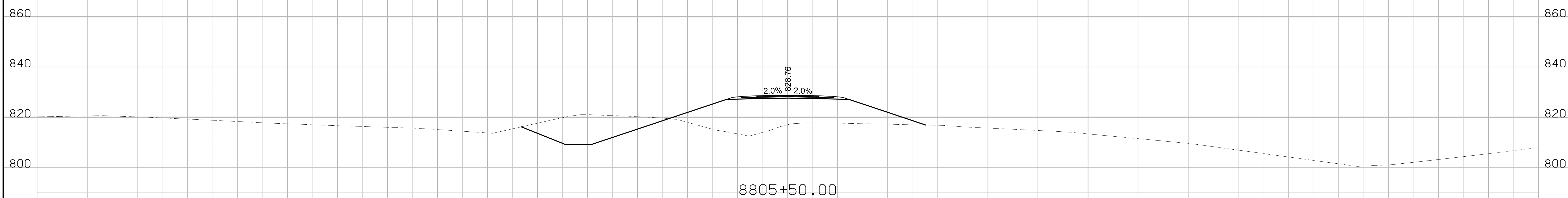
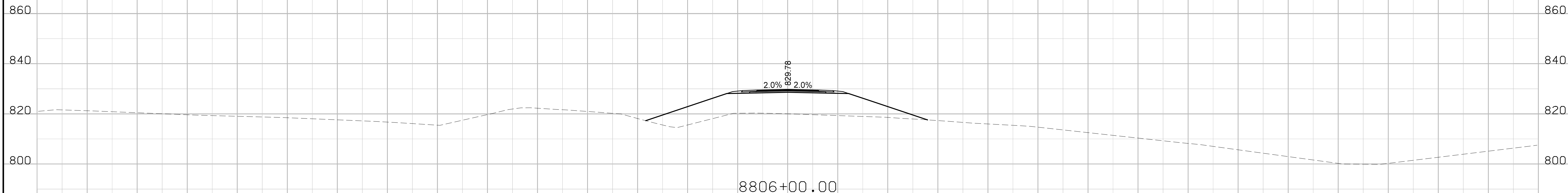
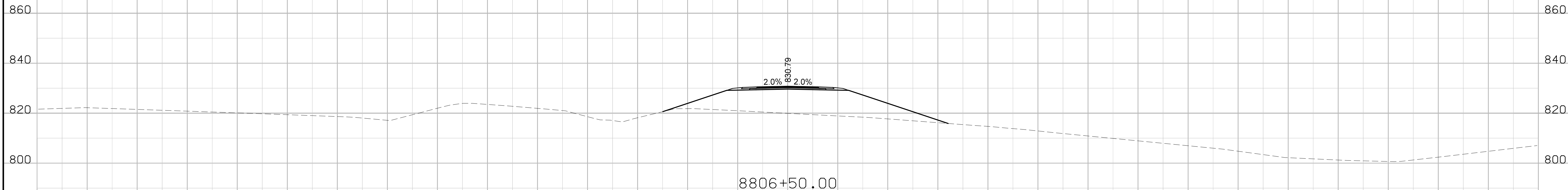
# Sideroad Sutliff Rd. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

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# Sideroad Sutliff Rd. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

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IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

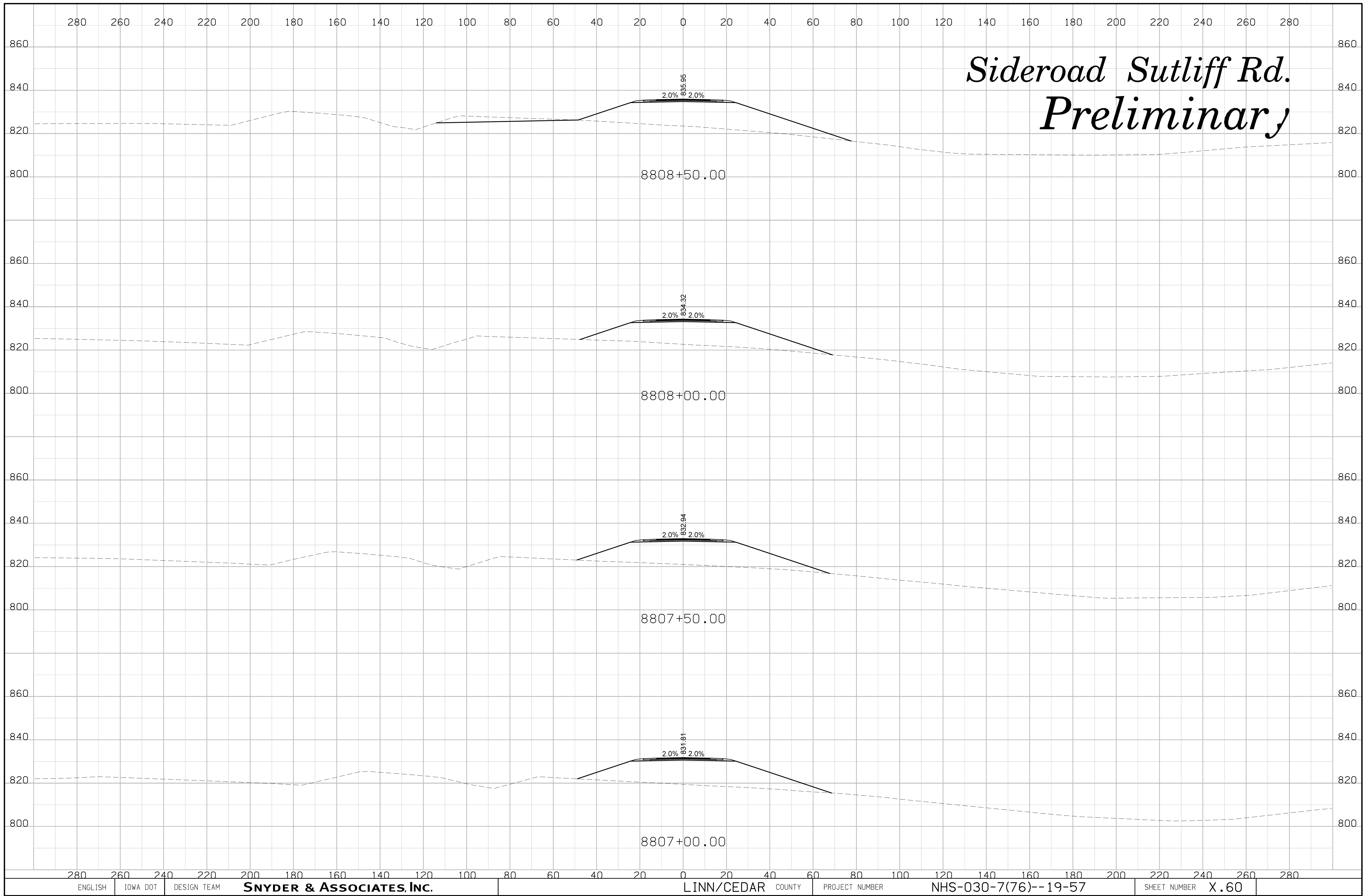
LINN/CEDAR COUNTY

PROJECT NUMBER

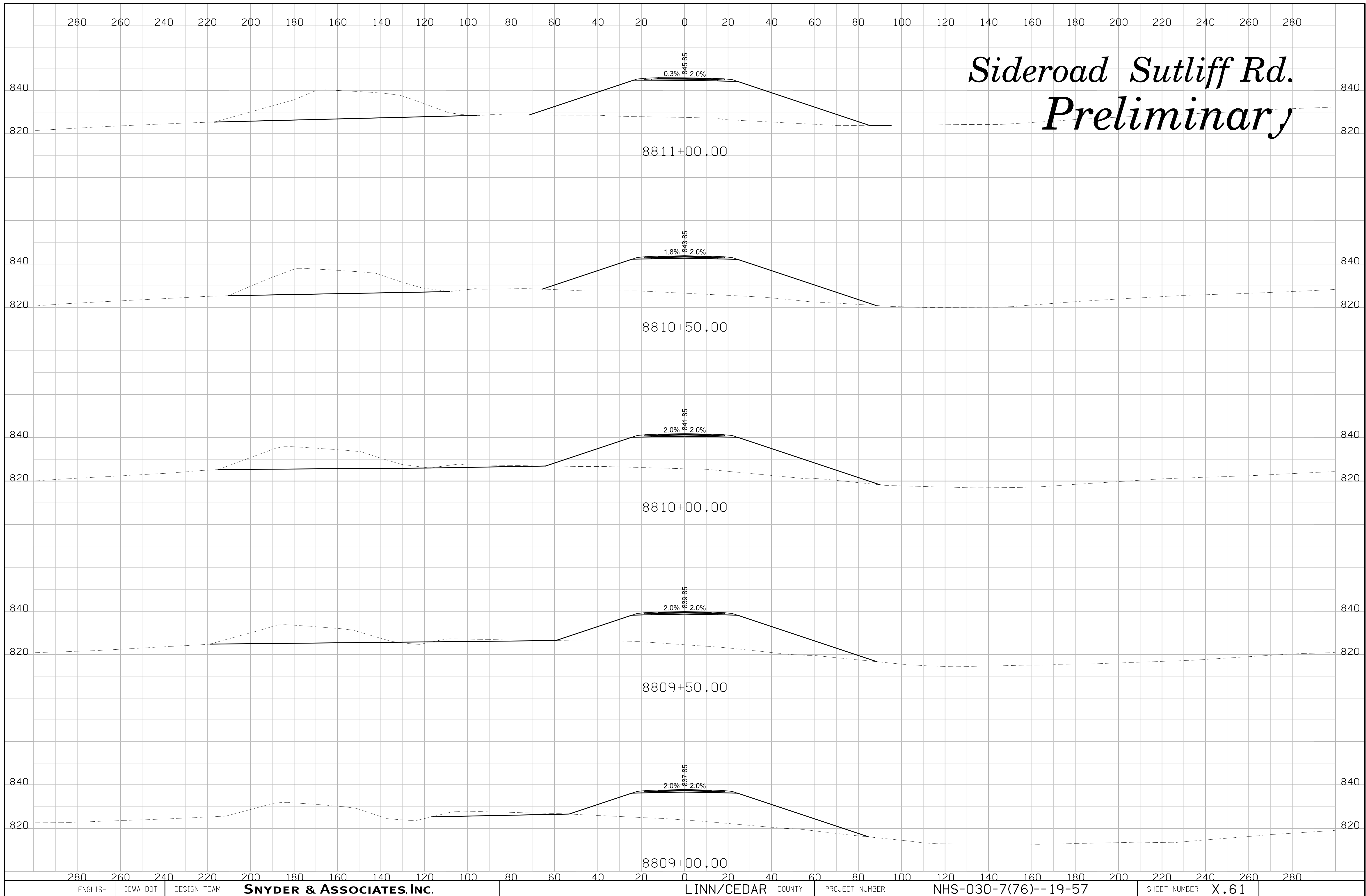
NHS-030-7(76)--19-57

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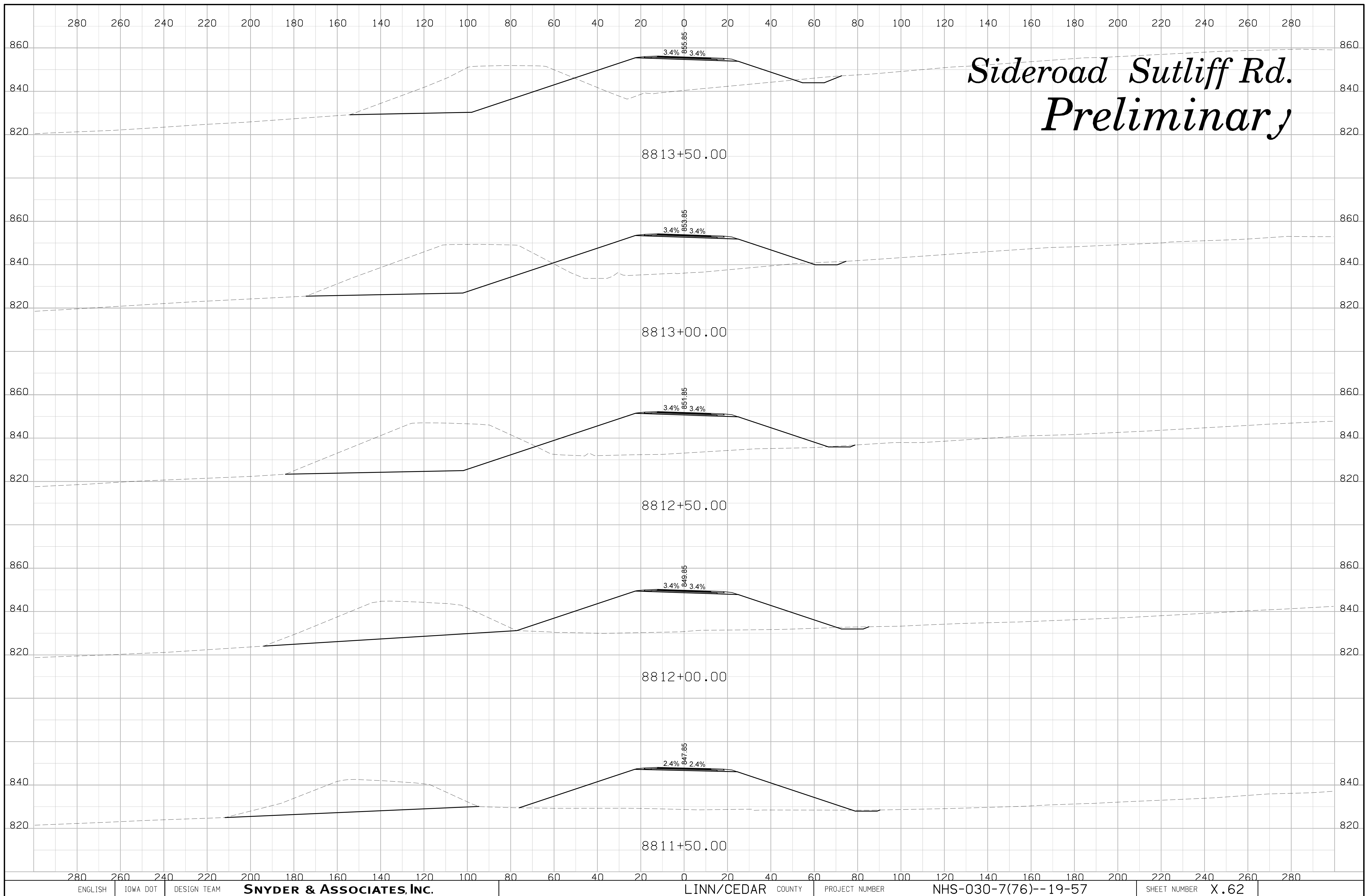




*Sideroad Sutliff Rd.  
Preliminary*

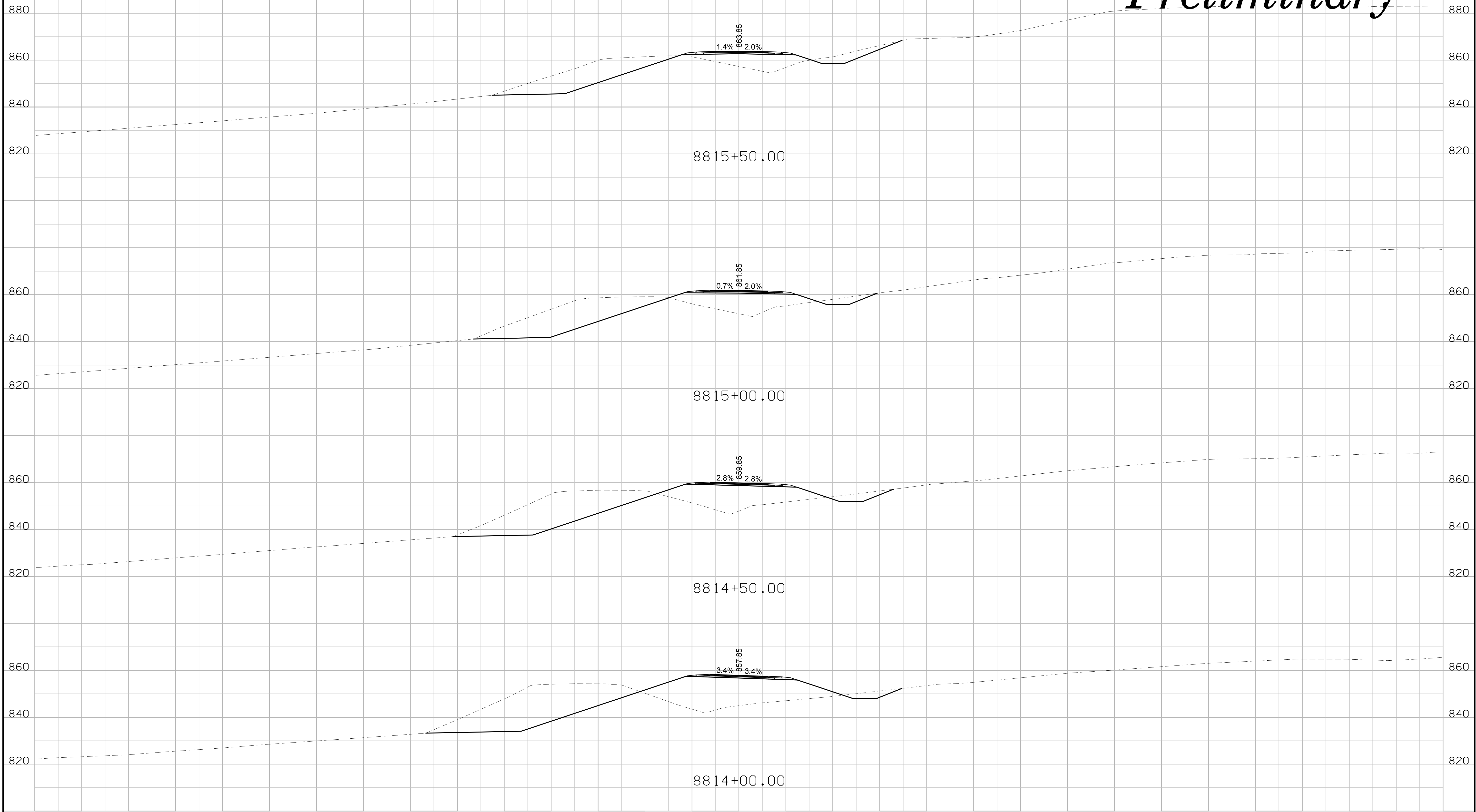


*Sideroad Sutliff Rd.  
Preliminary*

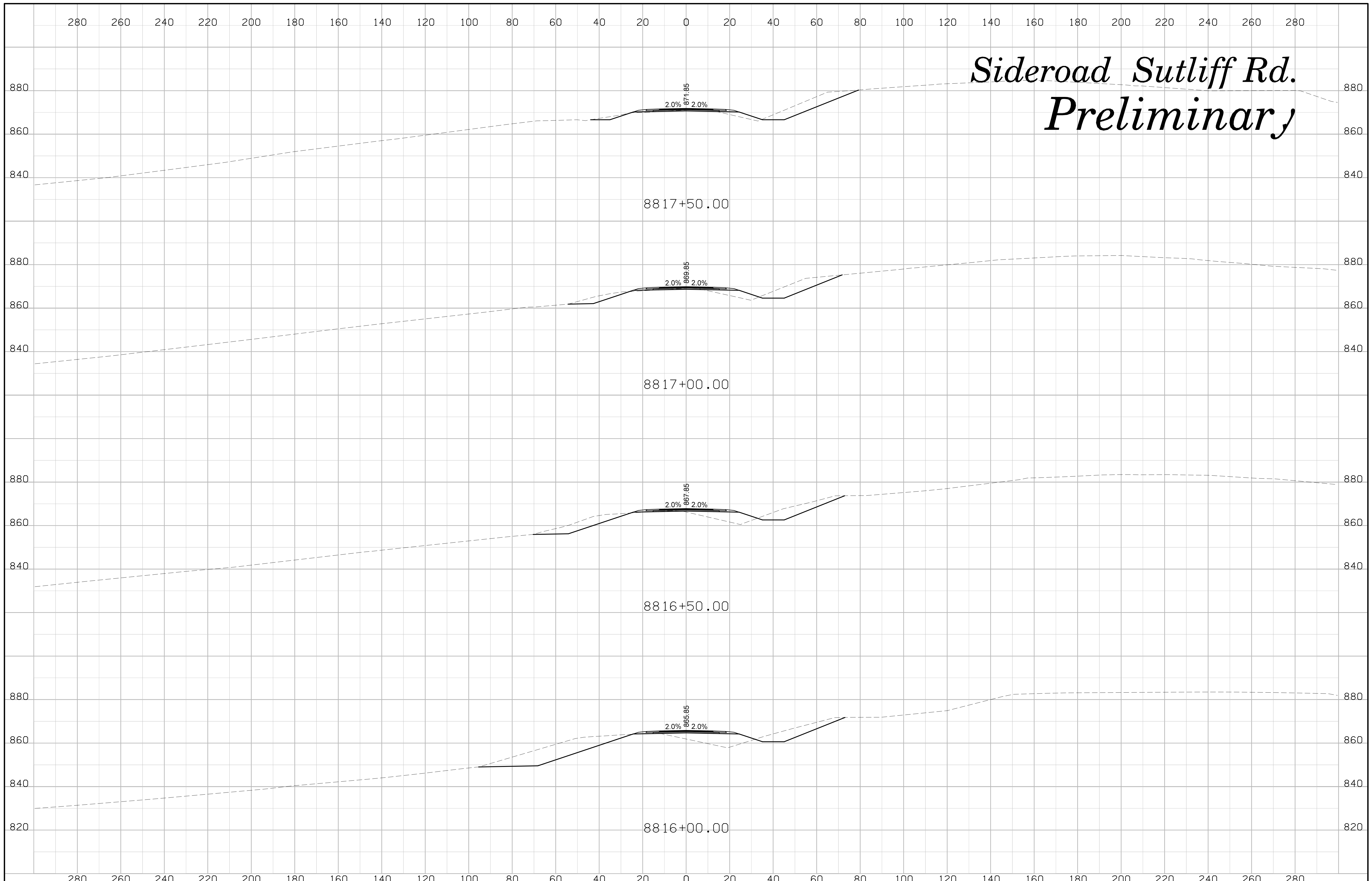


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# Sideroad Sutliff Rd. Preliminary



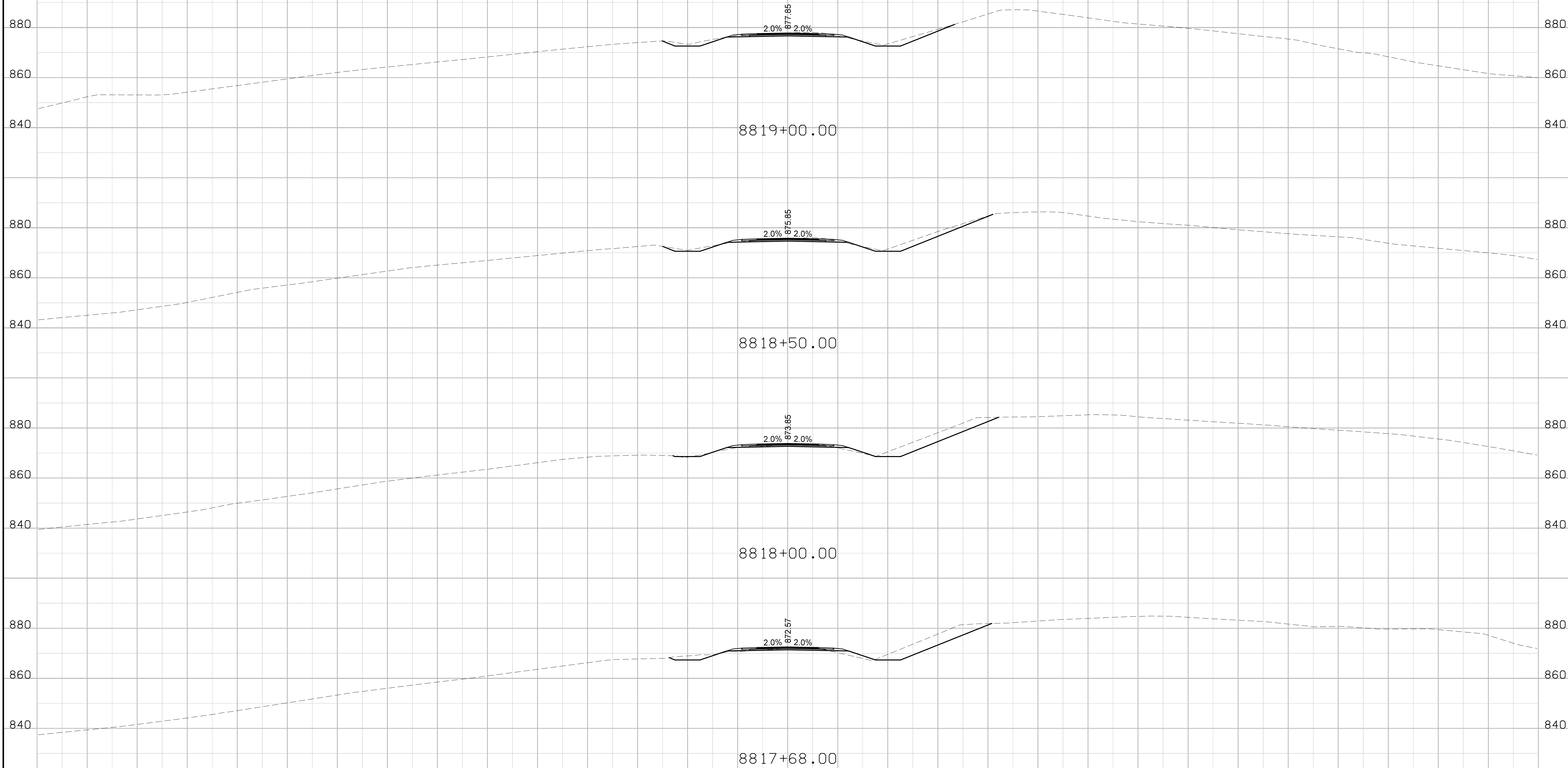
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*Sideroad Sutliff Rd.  
Preliminary*

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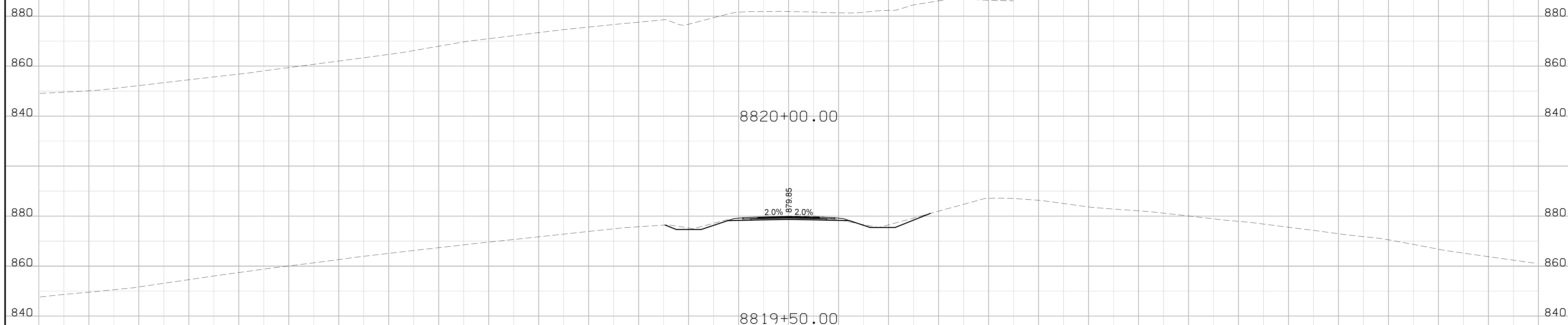
# Sideroad Sutliff Rd. Preliminary





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# Sideroad Sutliff Rd. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

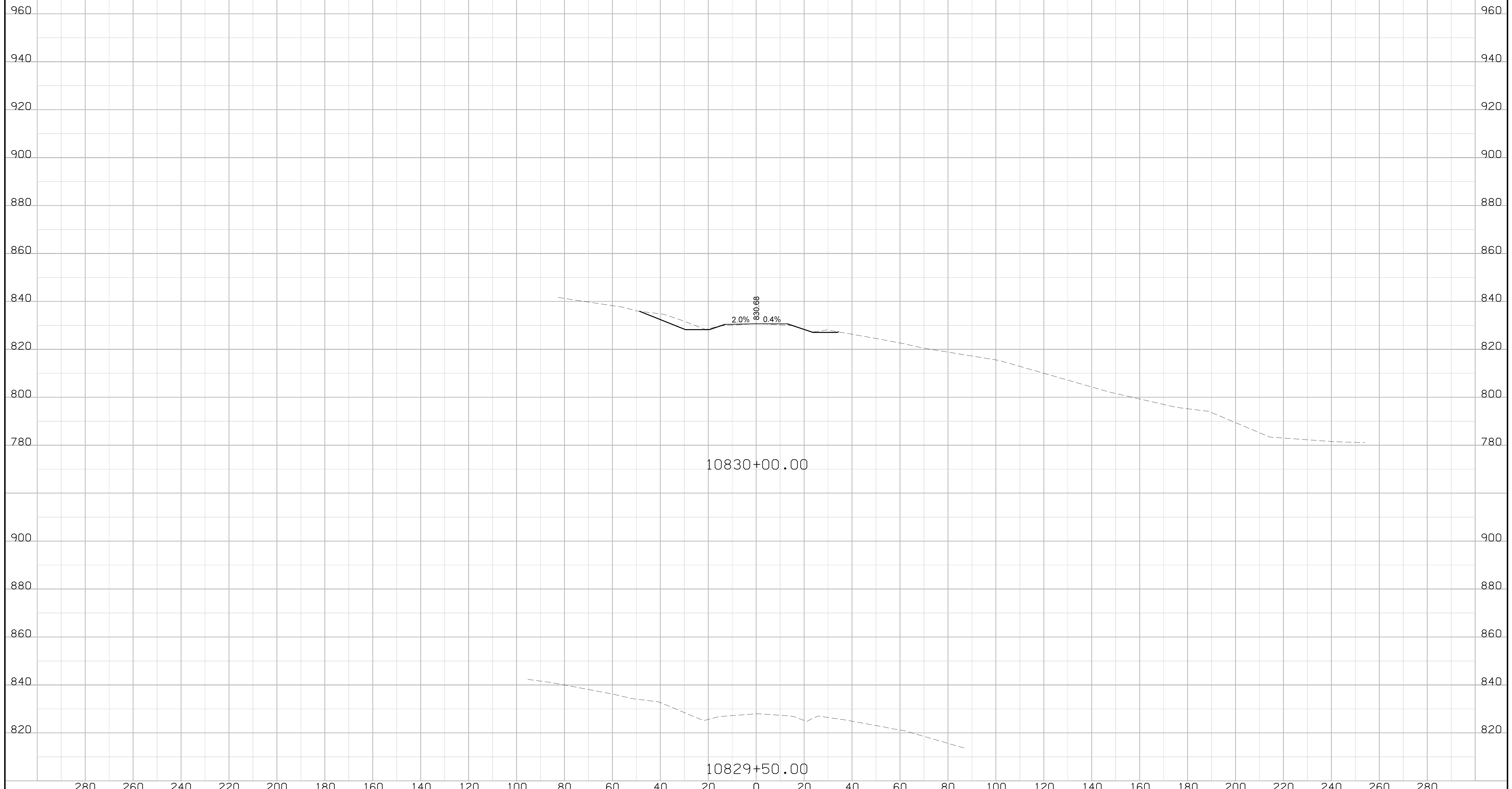
NHS-030-7(76)--19-57

SHEET NUMBER

X.66

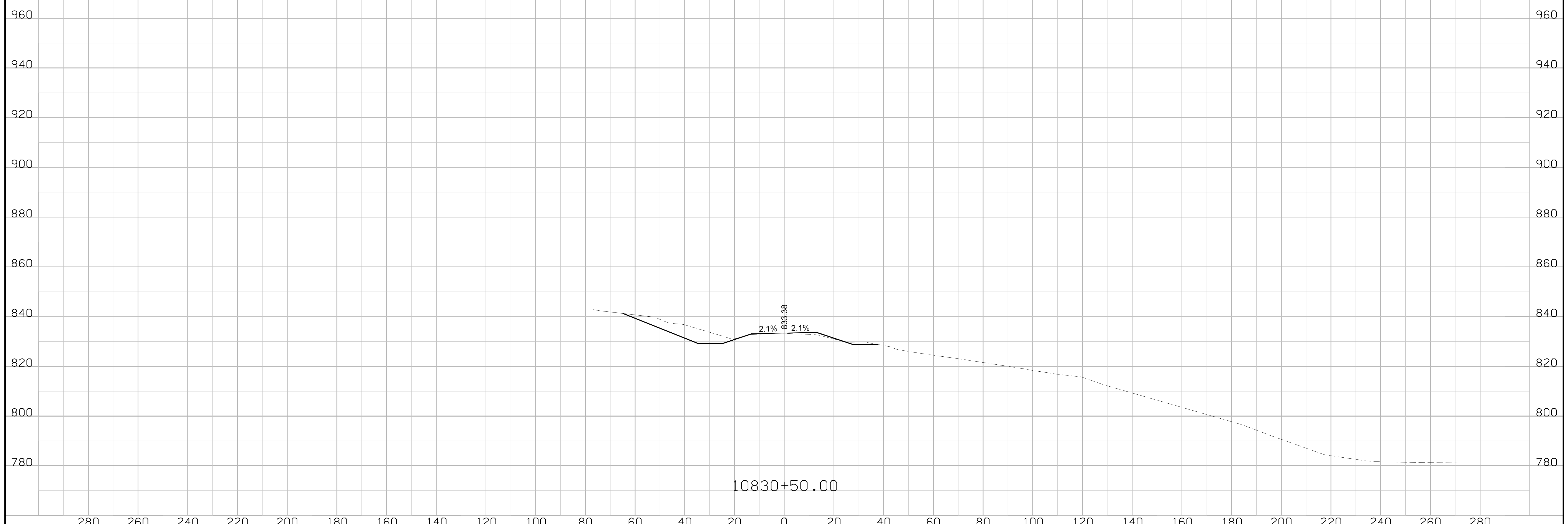
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# Sideroad Green Ridge Rd. Preliminary



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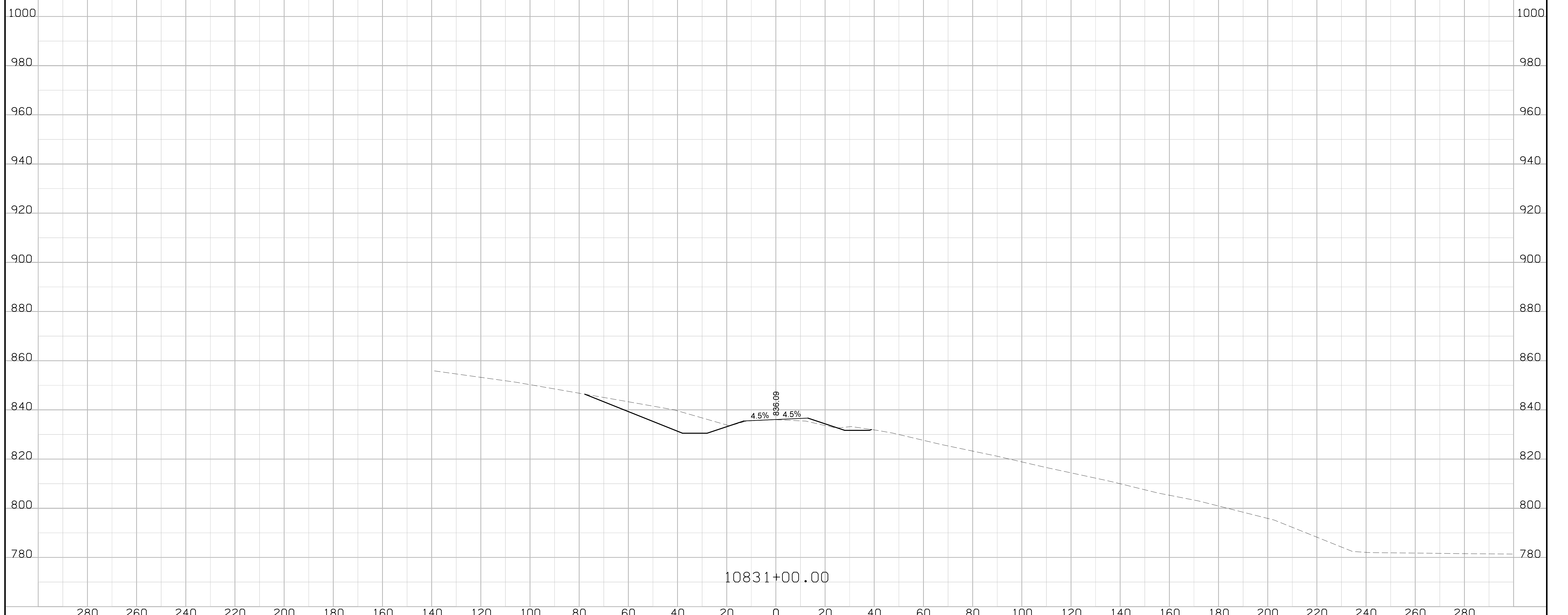
# Sideroad Green Ridge Rd. Preliminary



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280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

# Sideroad Green Ridge Rd. Preliminary

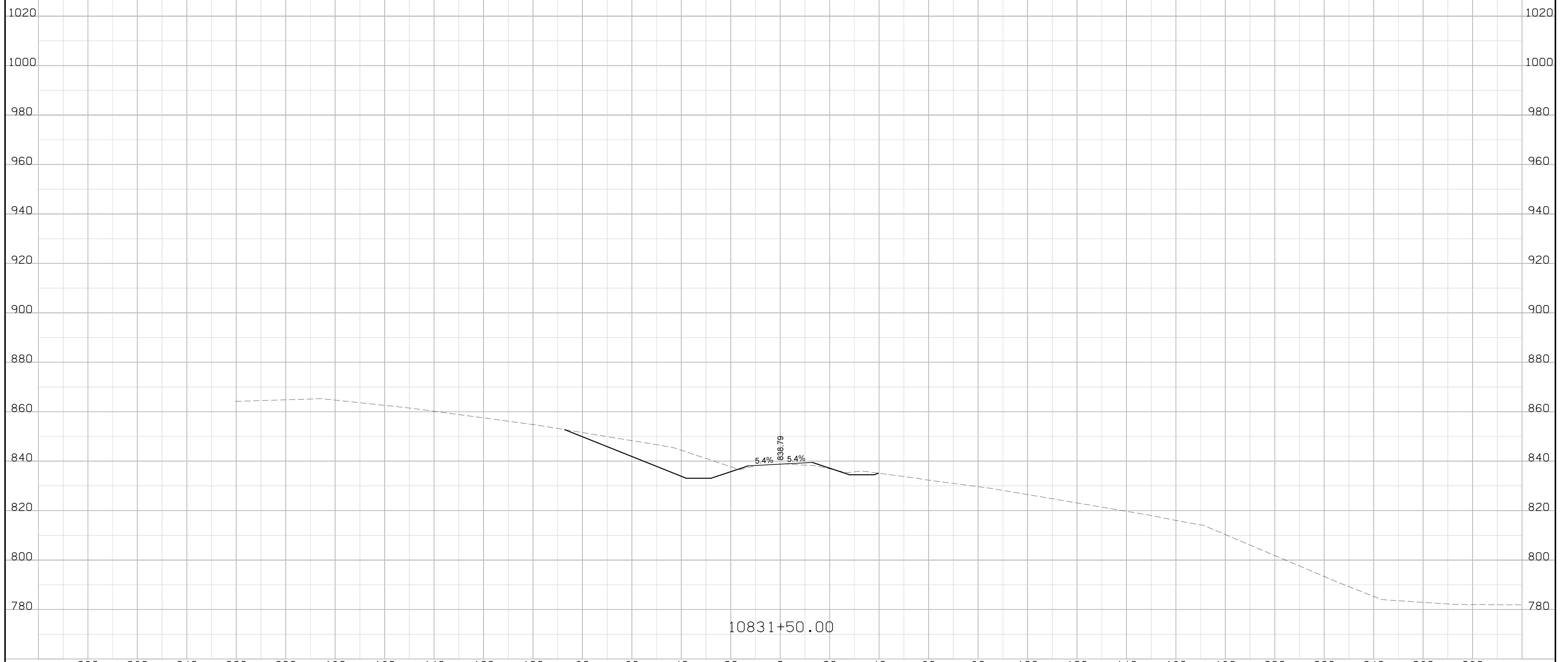


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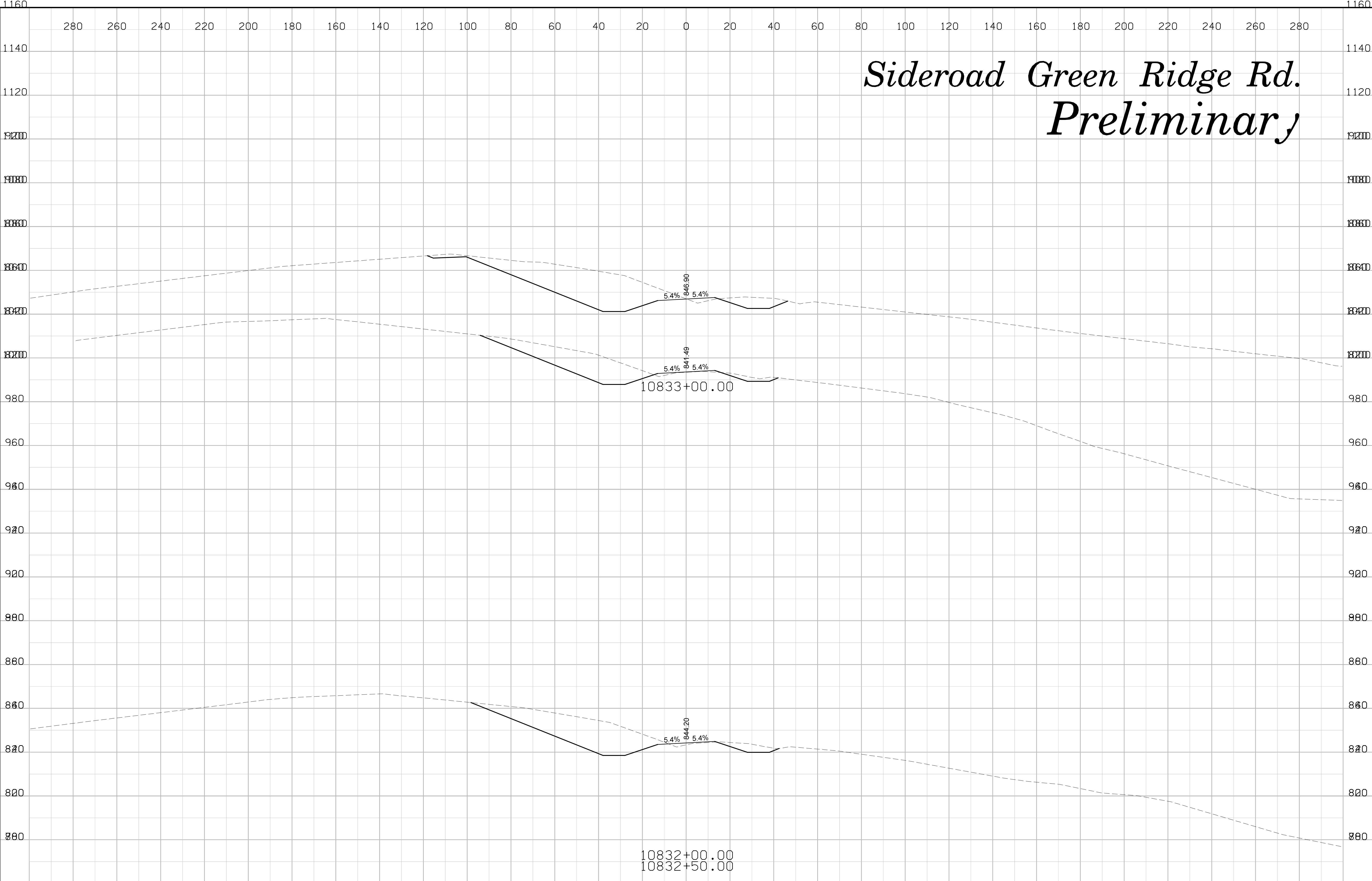
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# Sideroad Green Ridge Rd. Preliminary



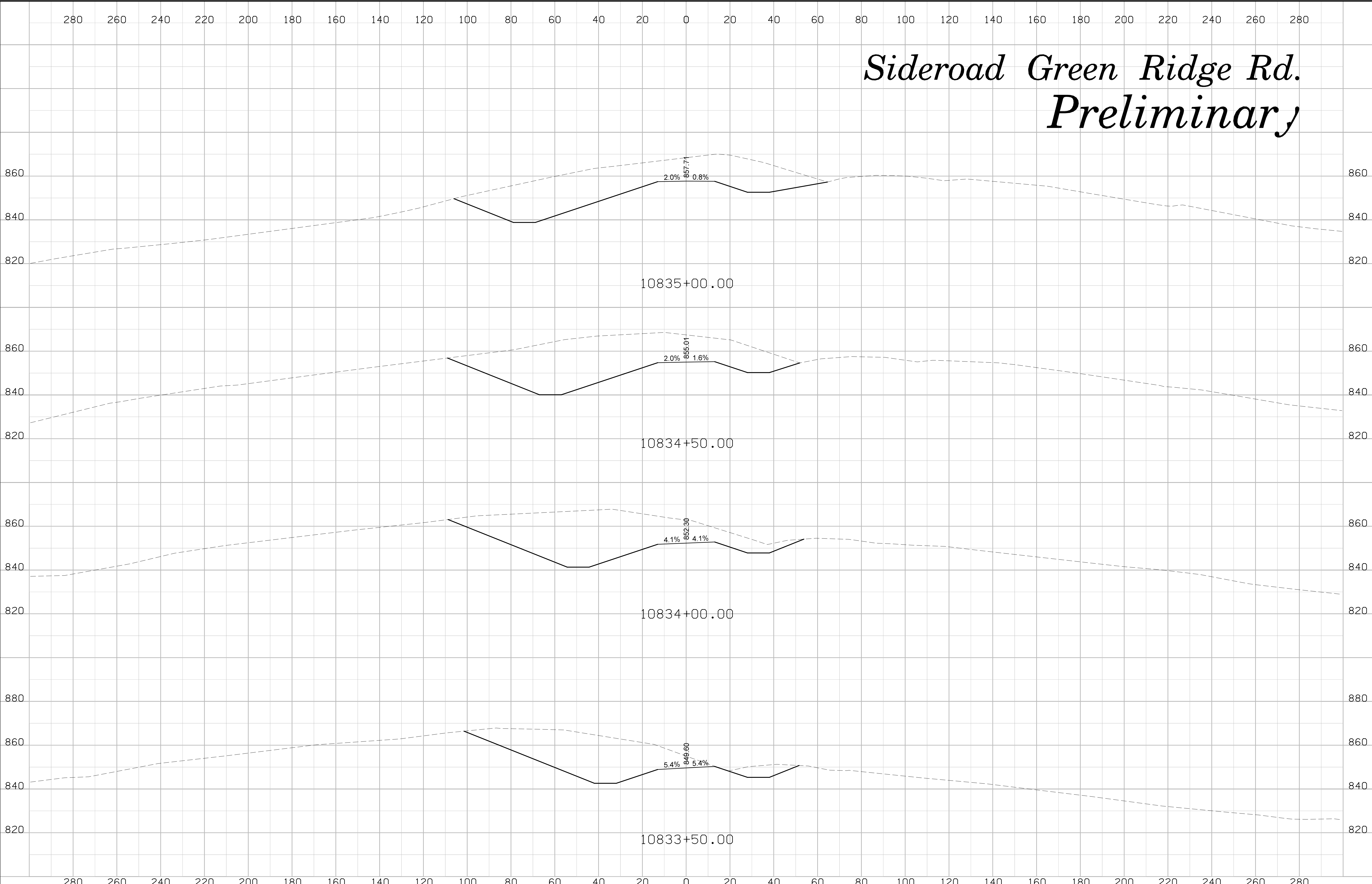
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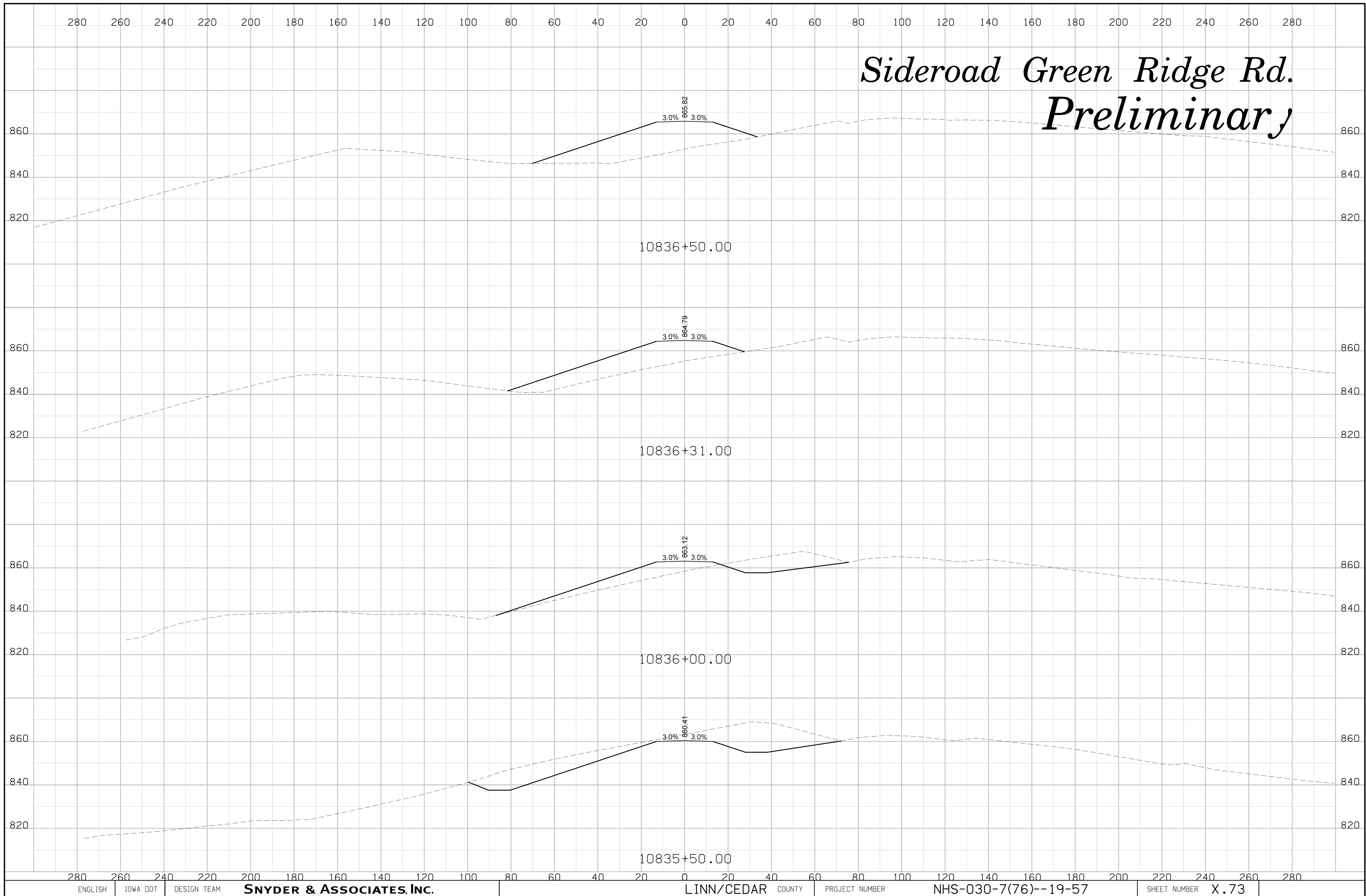
# Sideroad Green Ridge Rd. Preliminary





# *Sideroad Green Ridge Rd. Preliminary*





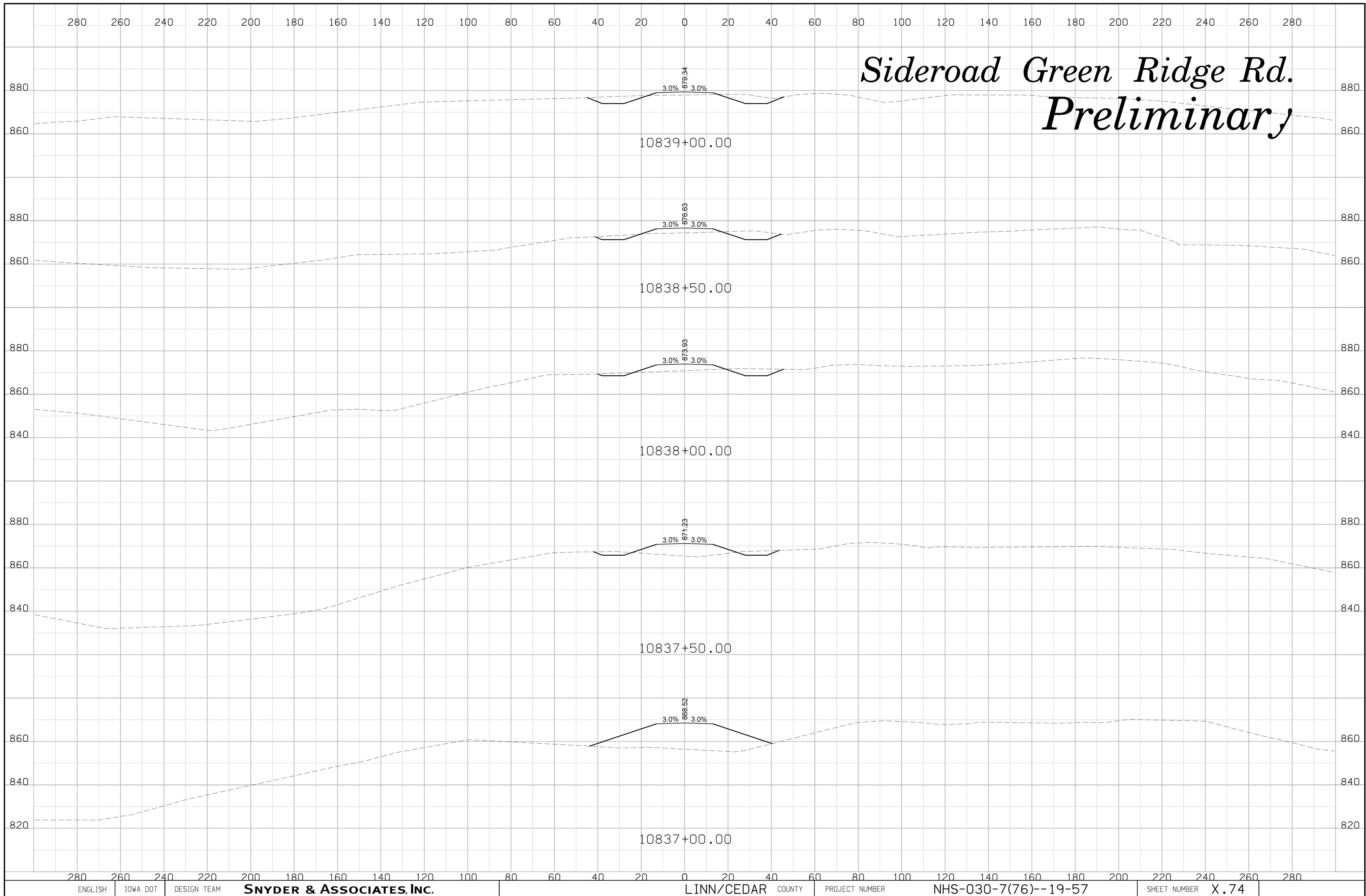
*Sideroad Green Ridge Rd.  
Preliminary*

10836+50.00

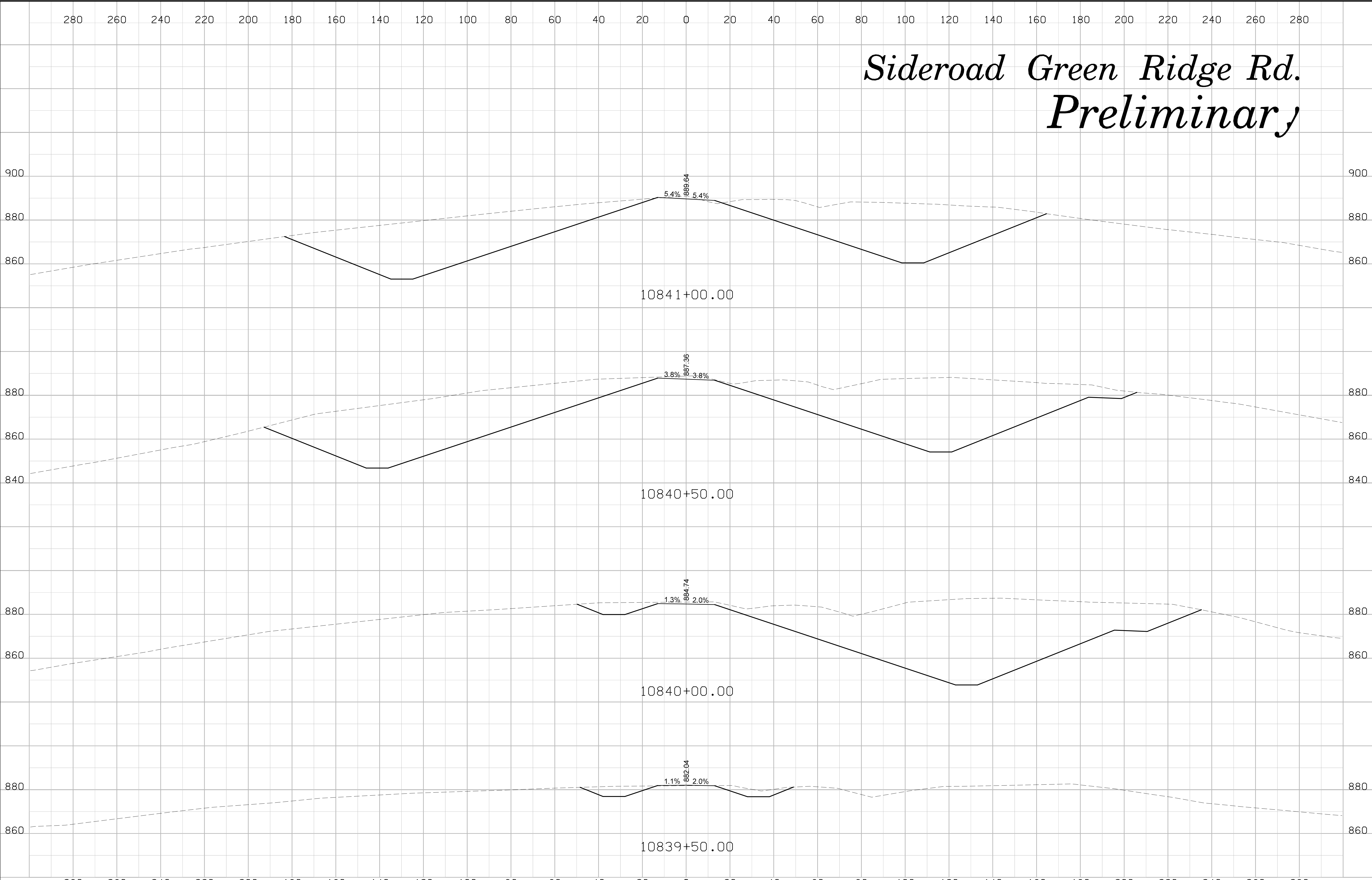
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10836+00.00

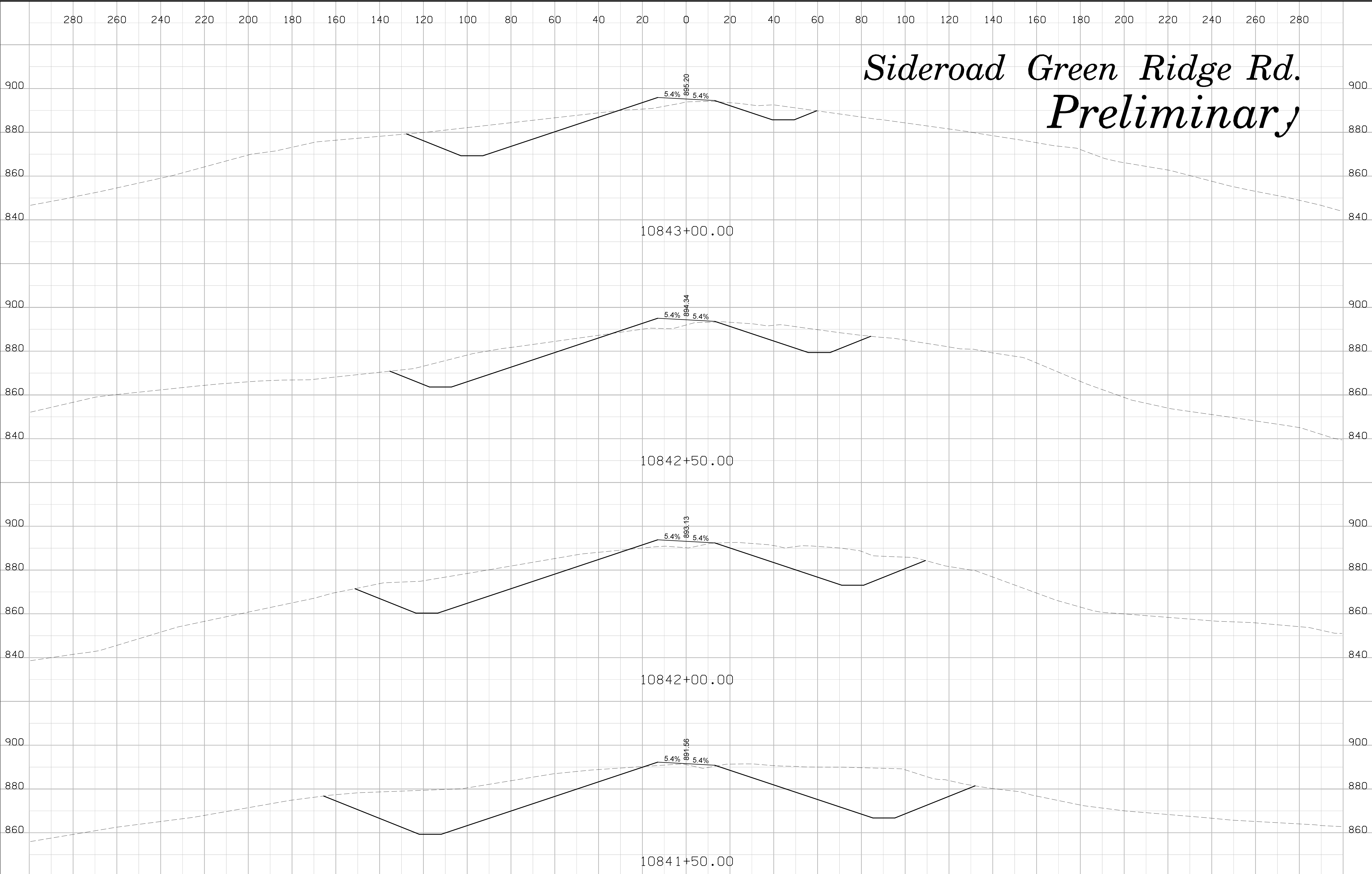
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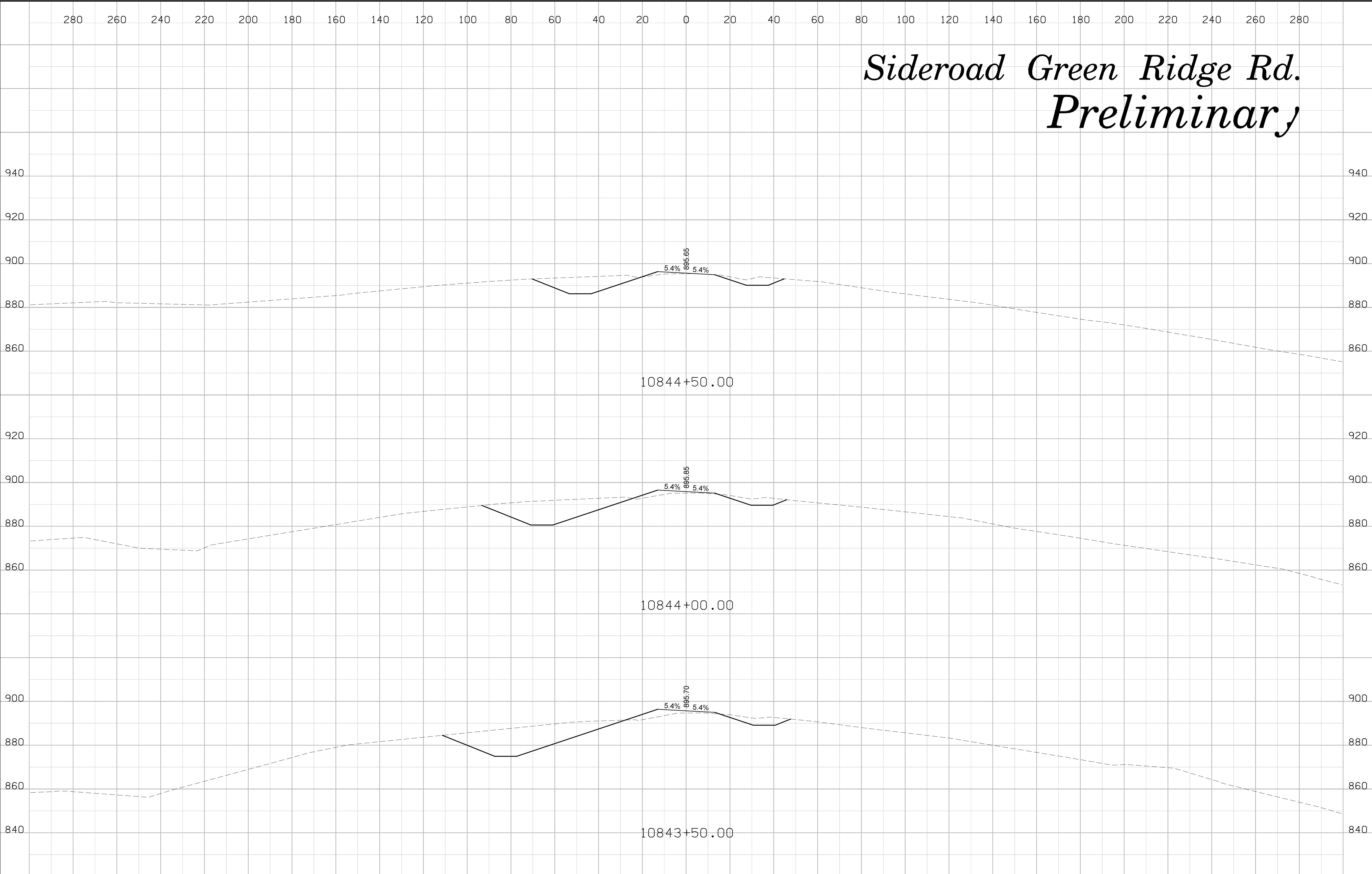
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# *Sideroad Green Ridge Rd. Preliminary*



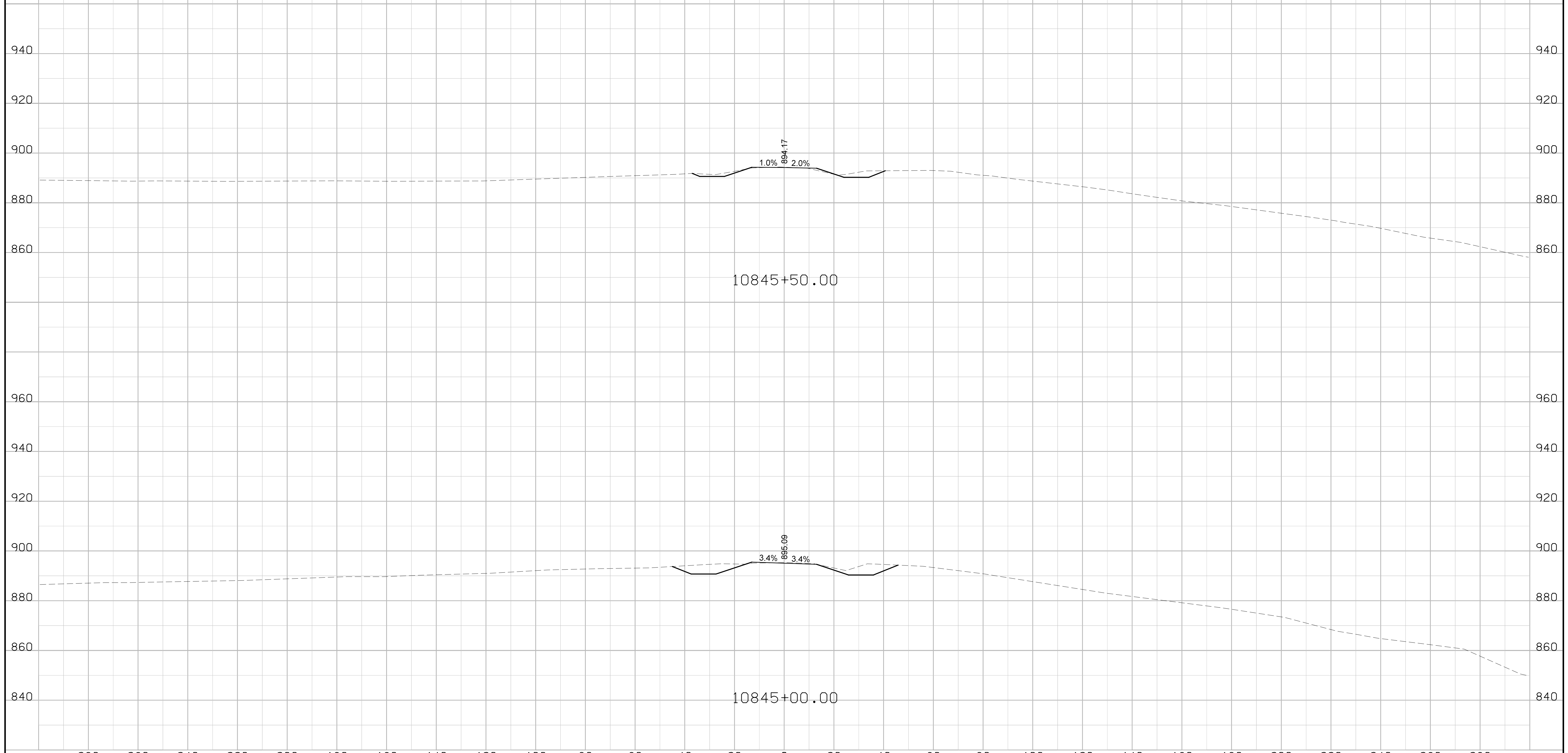
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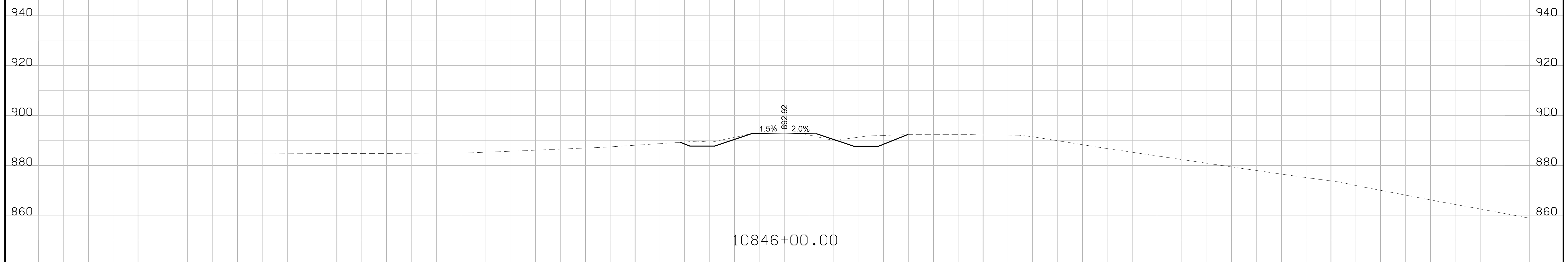
# Sideroad Green Ridge Rd. Preliminary



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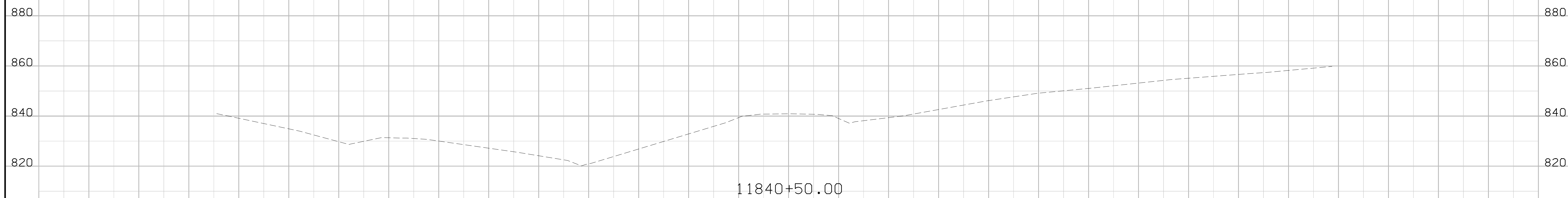
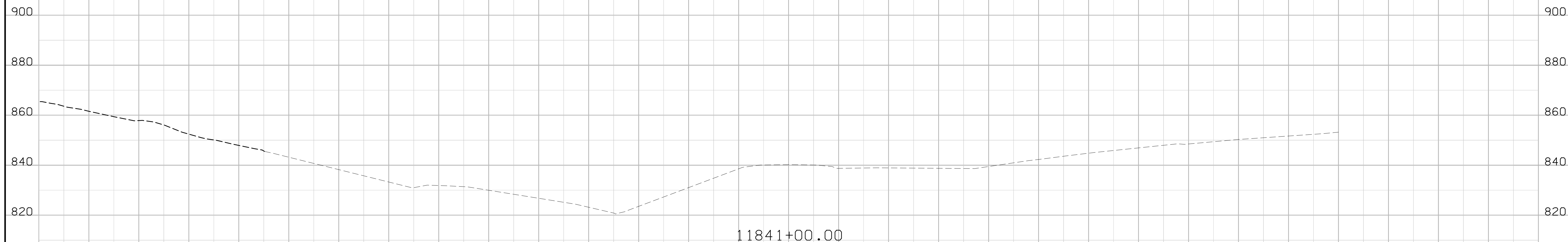
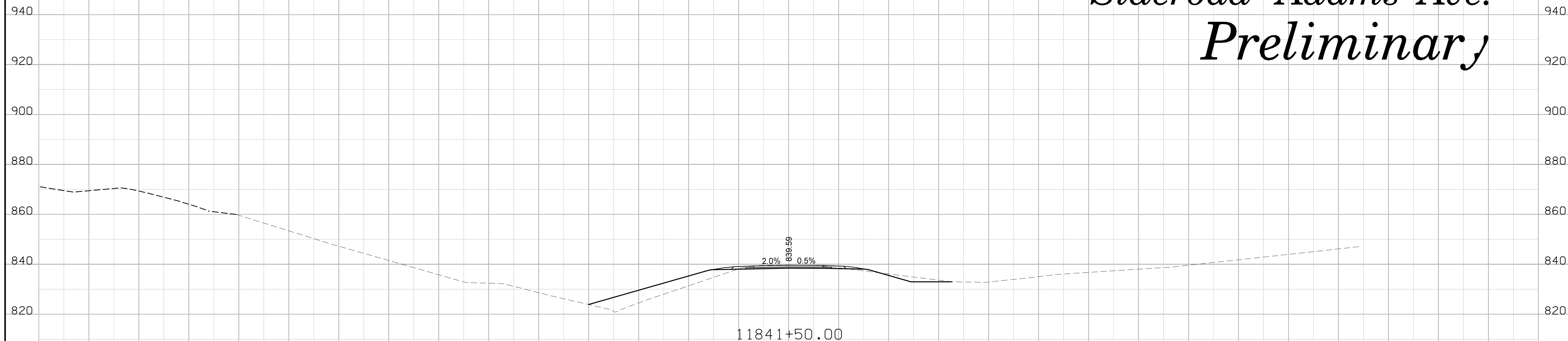
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# Sideroad Green Ridge Rd. Preliminary



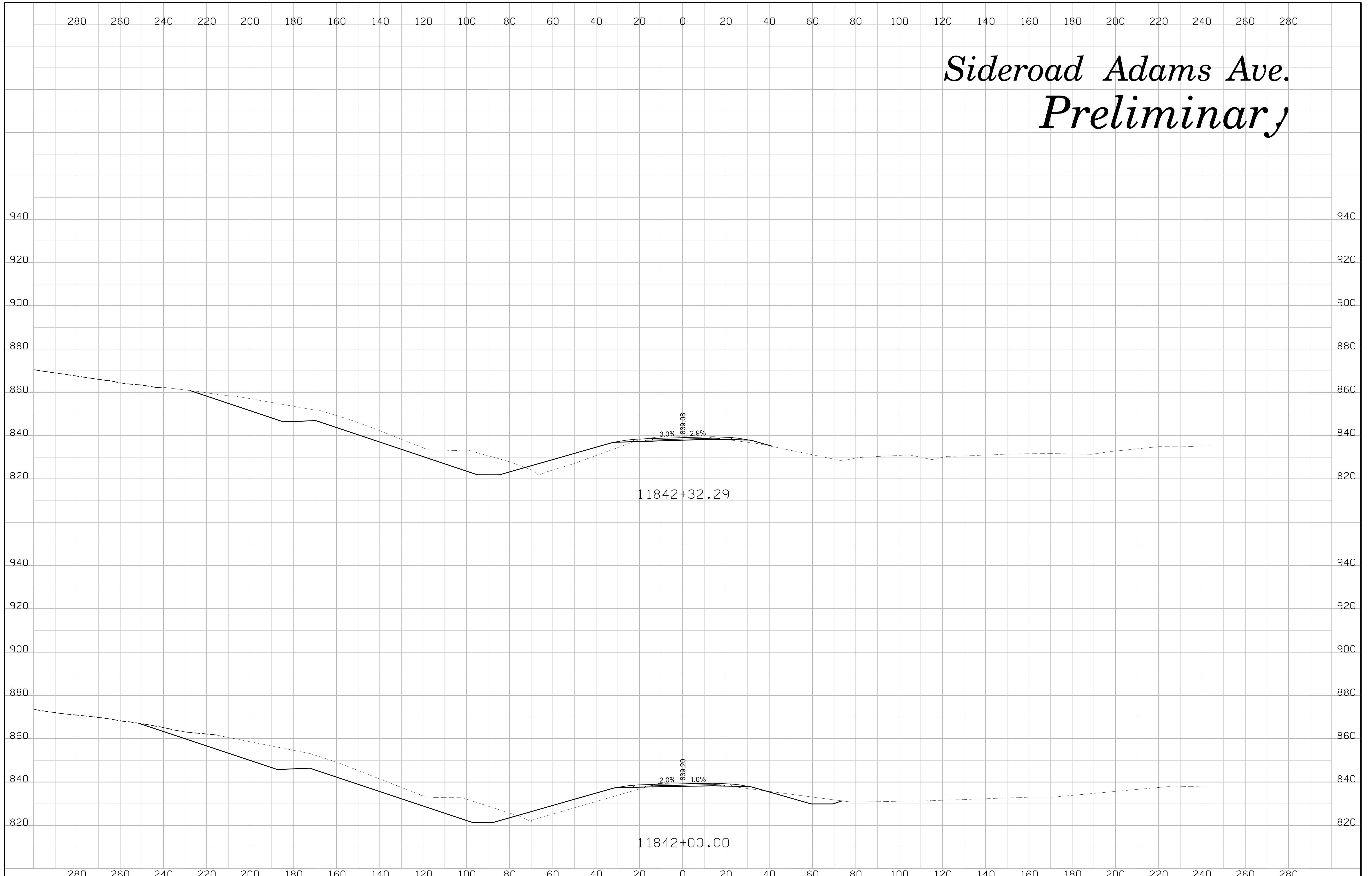
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# Sideroad Adams Ave. Preliminary

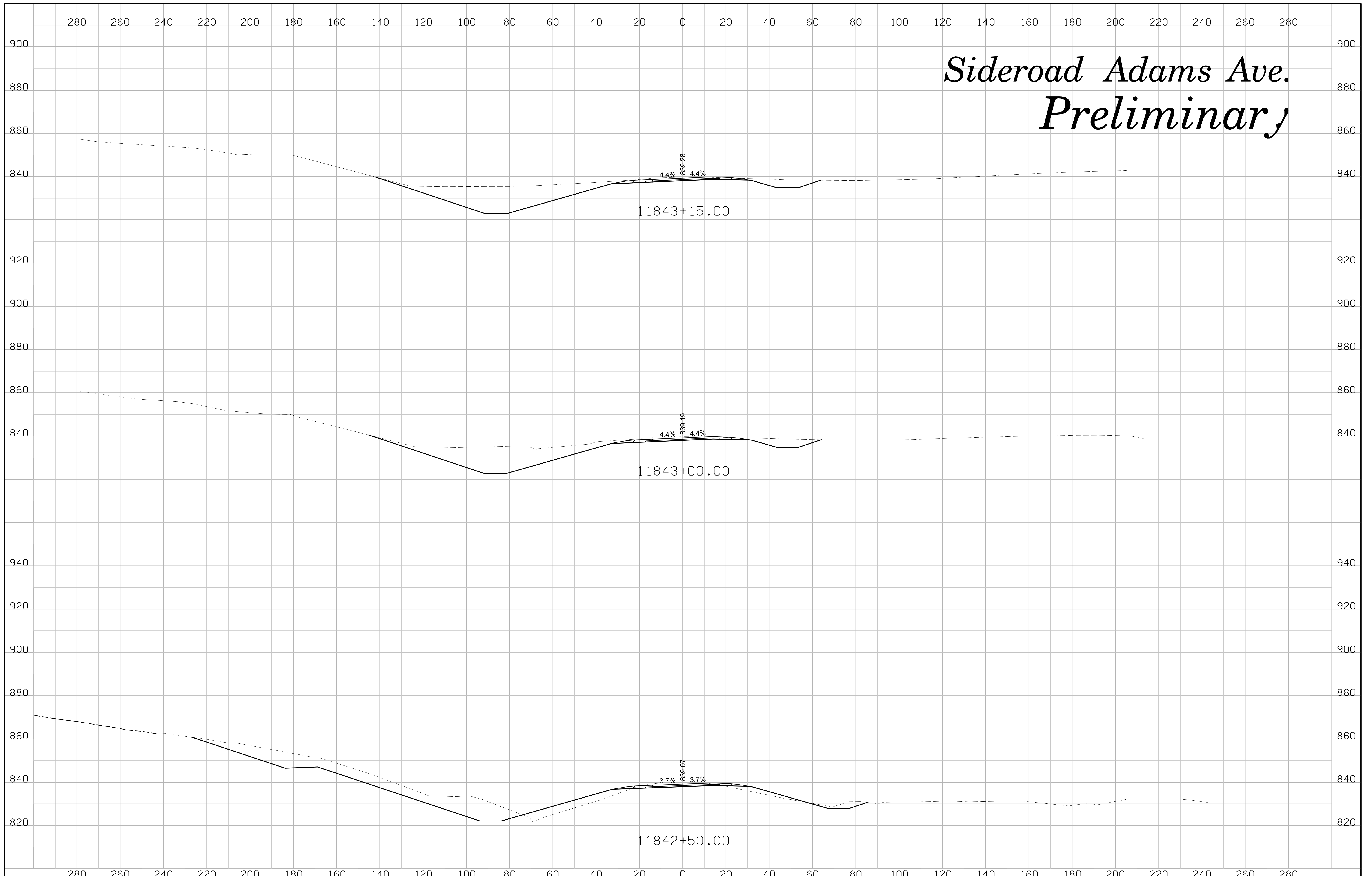


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# Sideroad Adams Ave. Preliminary

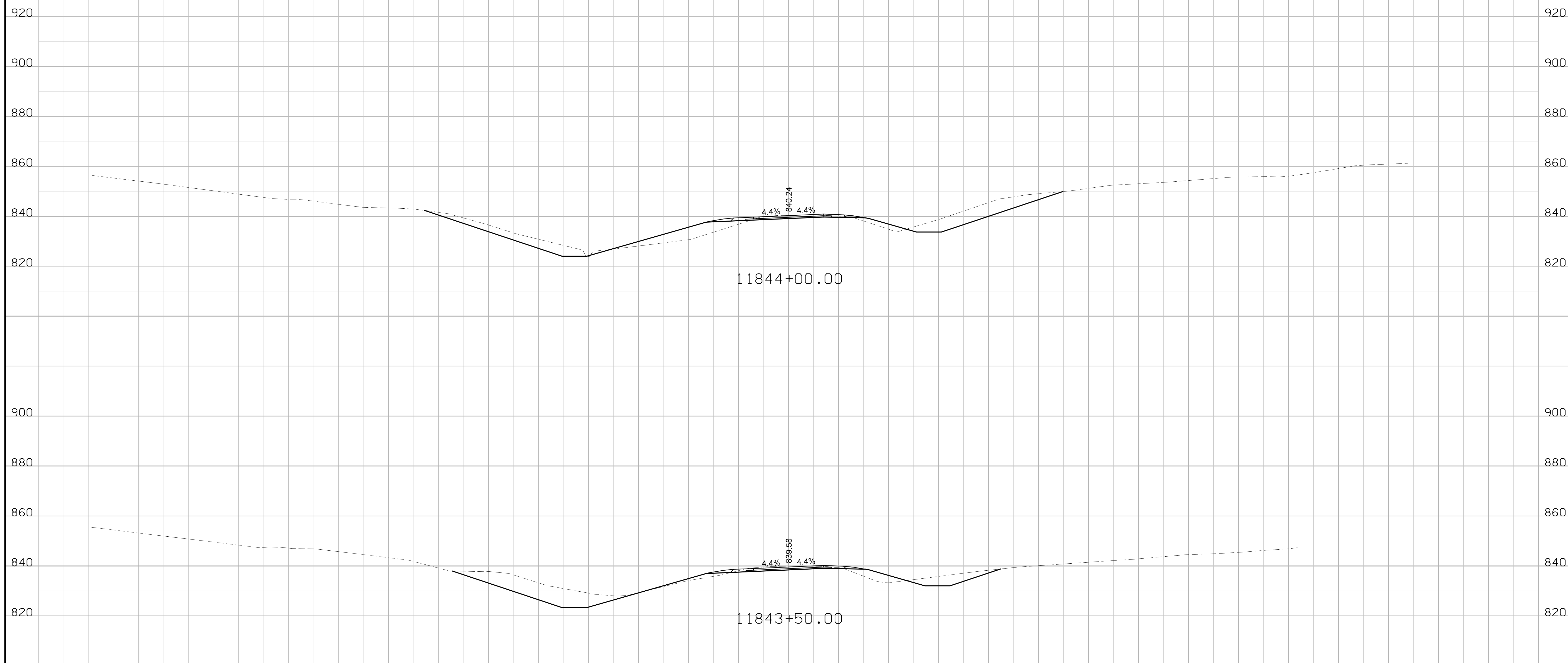


# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

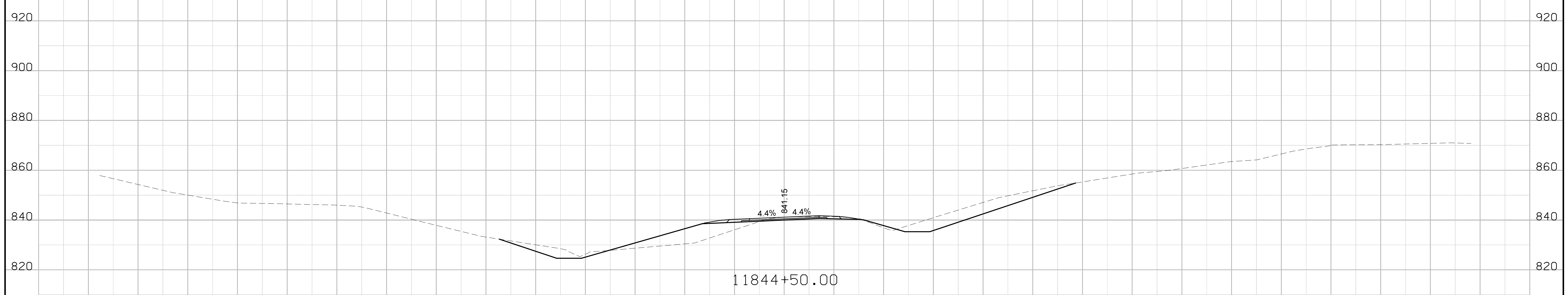
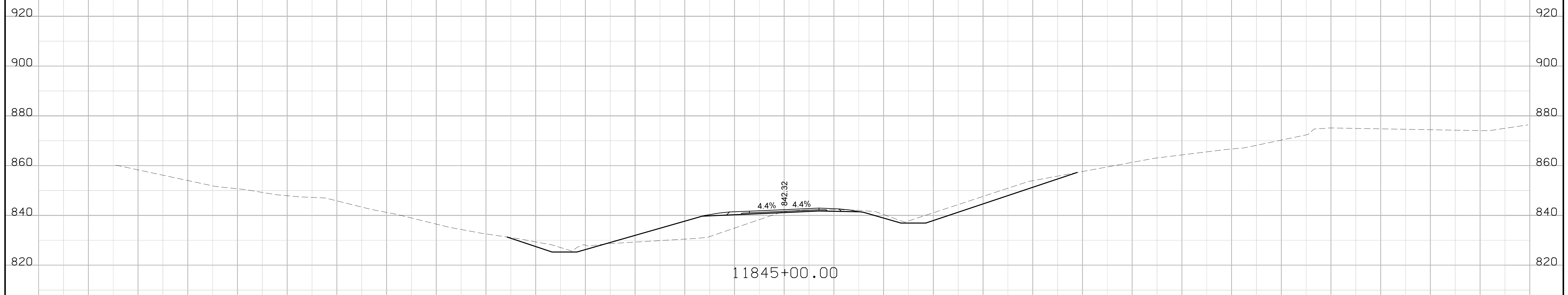
NHS-030-7(76)--19-57

SHEET NUMBER X.83



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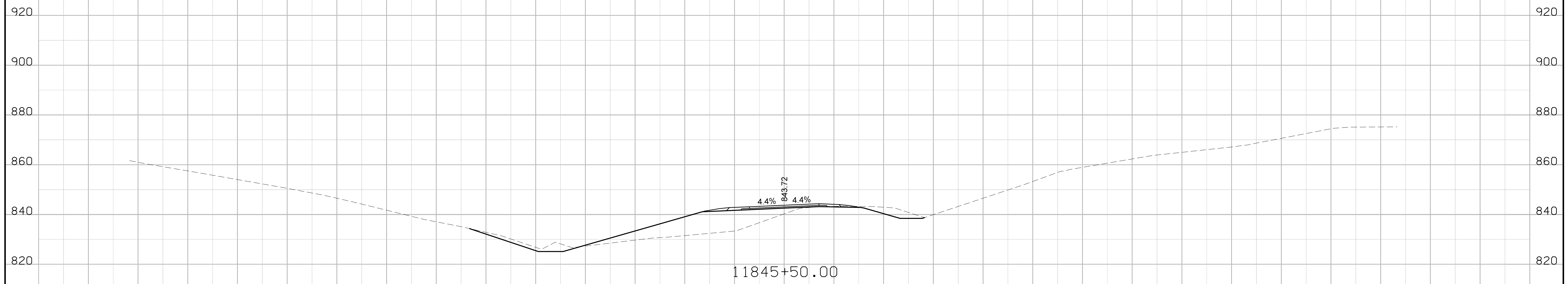
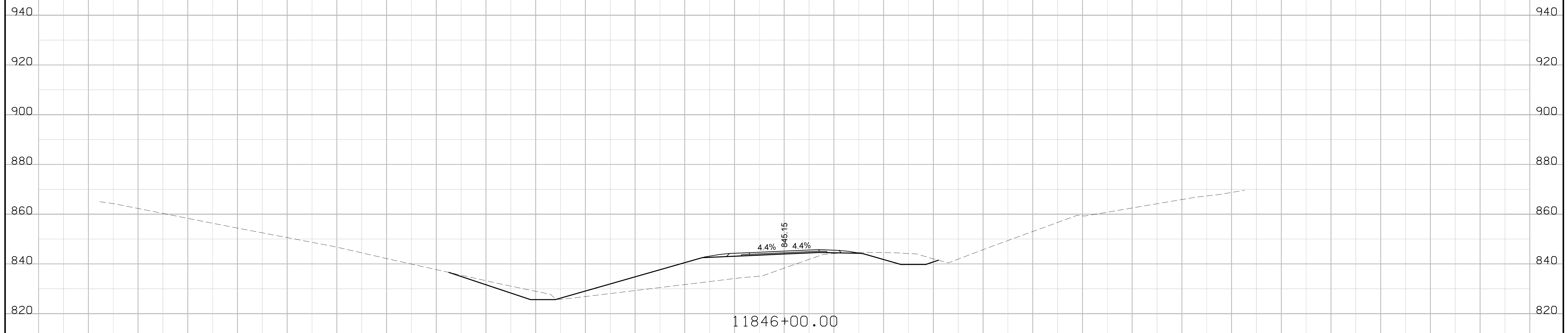
# Sideroad Adams Ave. Preliminary



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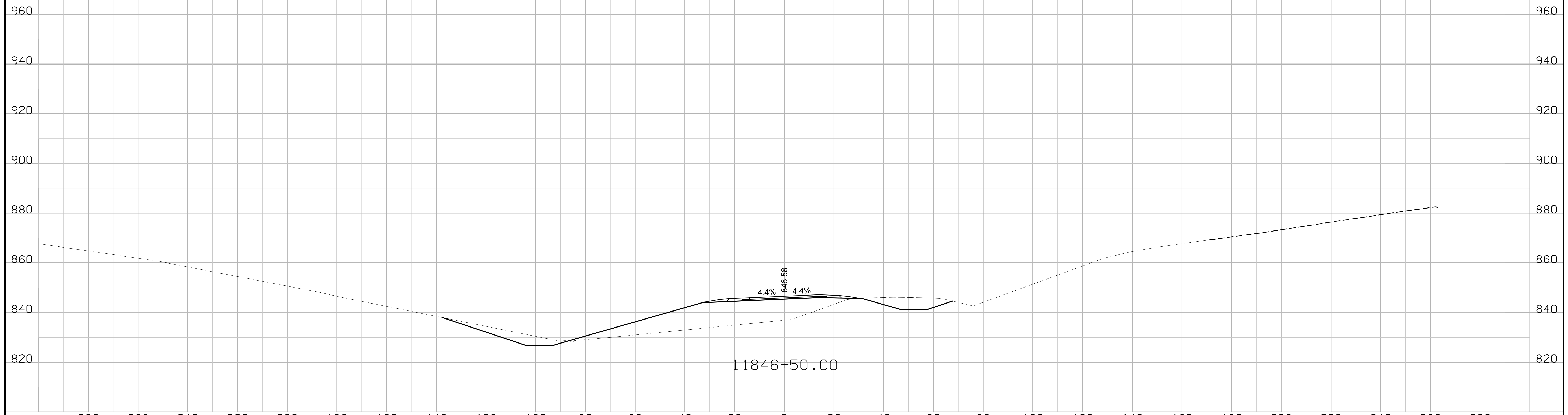
# Sideroad Adams Ave. Preliminary



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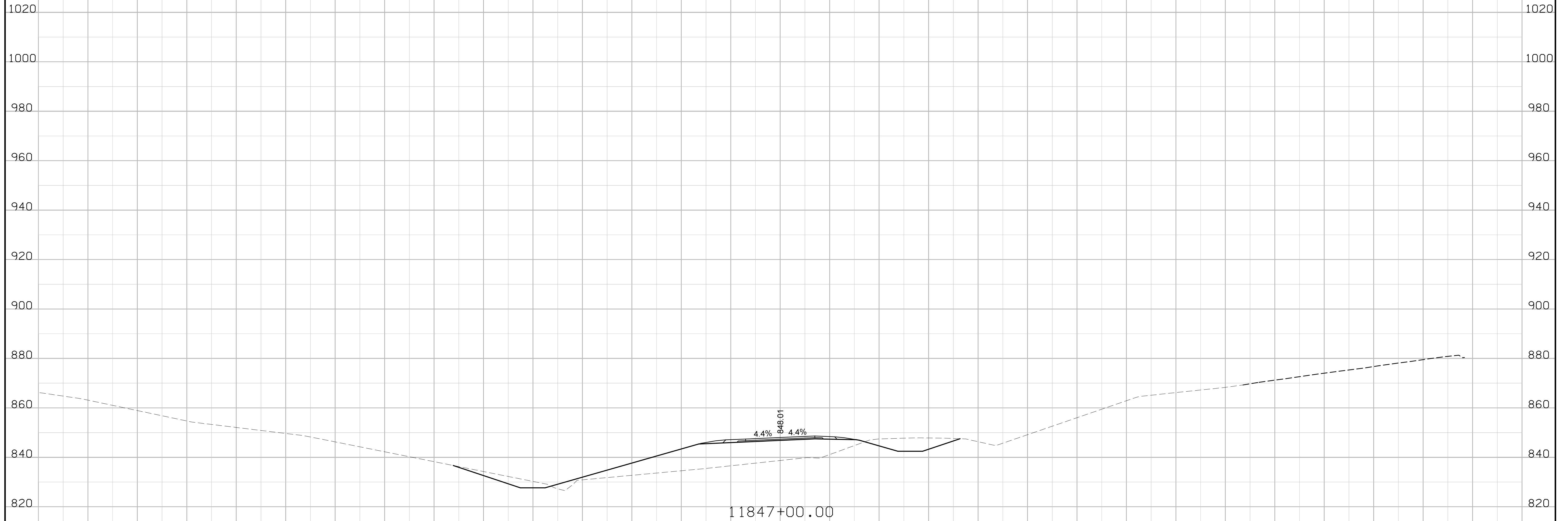
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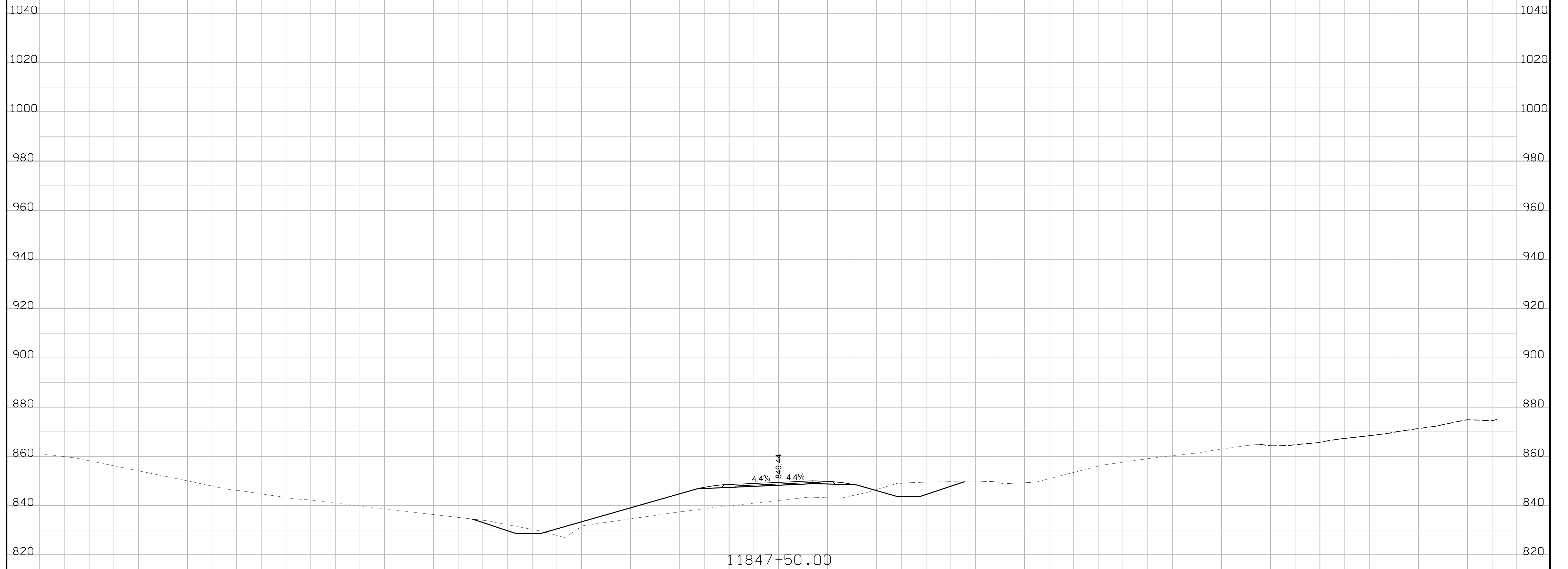
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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

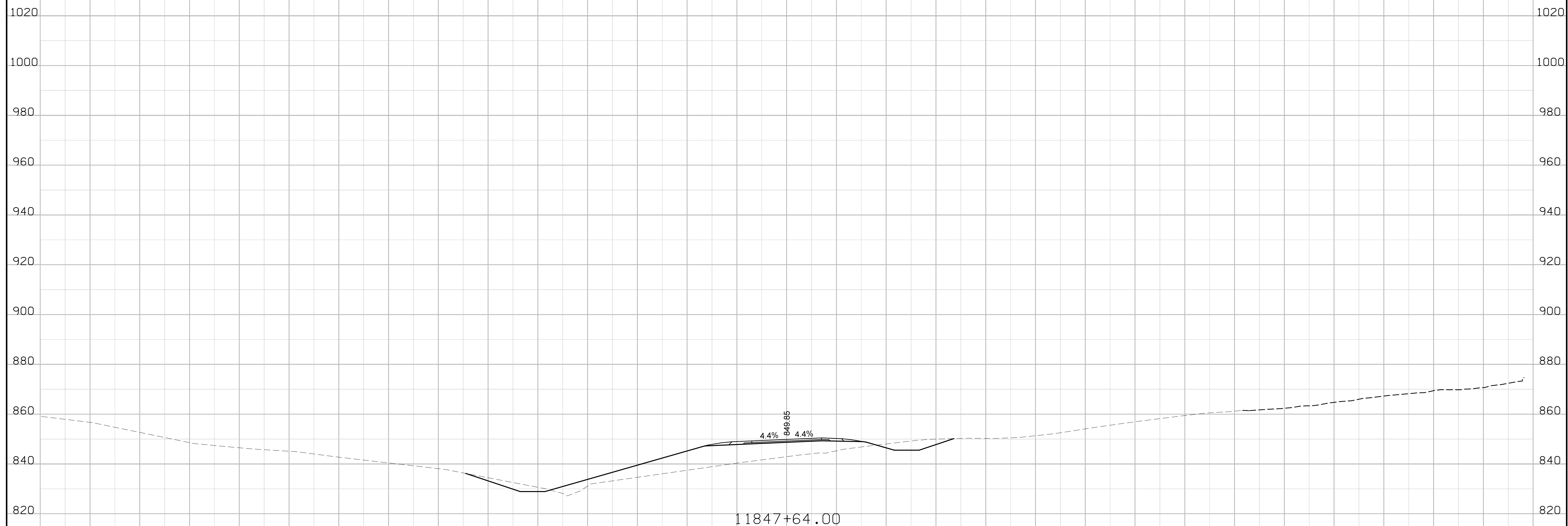
NHS-030-7(76)--19-57

SHEET NUMBER

**X.88**

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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

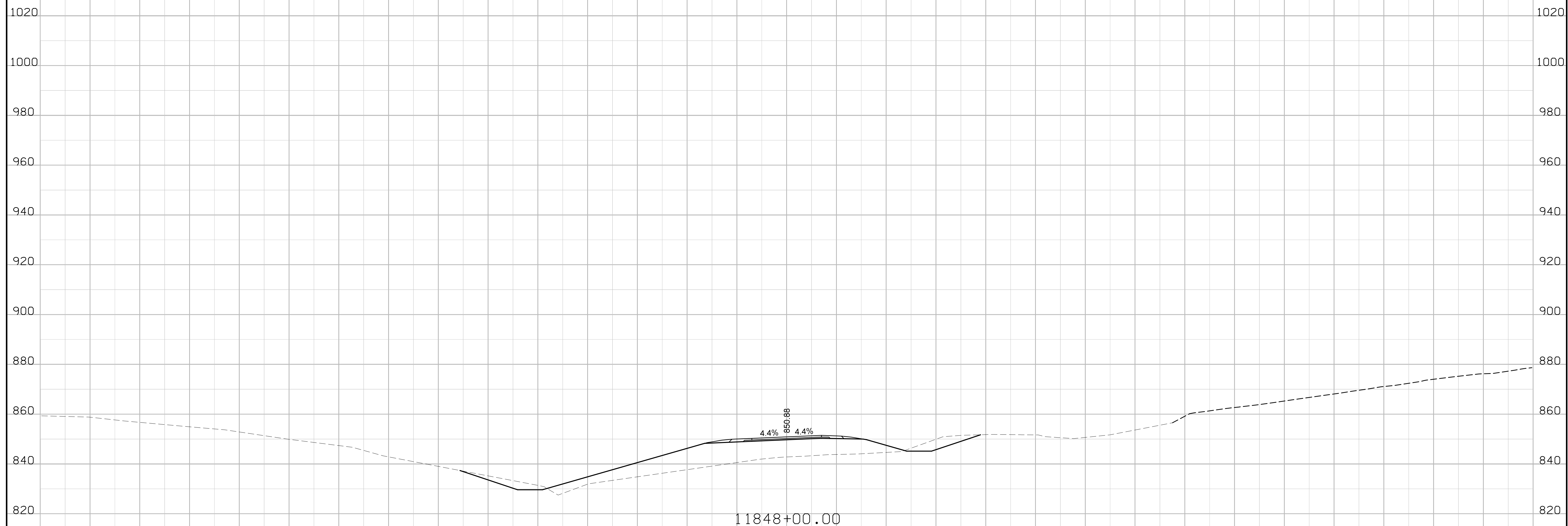
NHS-030-7(76)--19-57

SHEET NUMBER X.89



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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

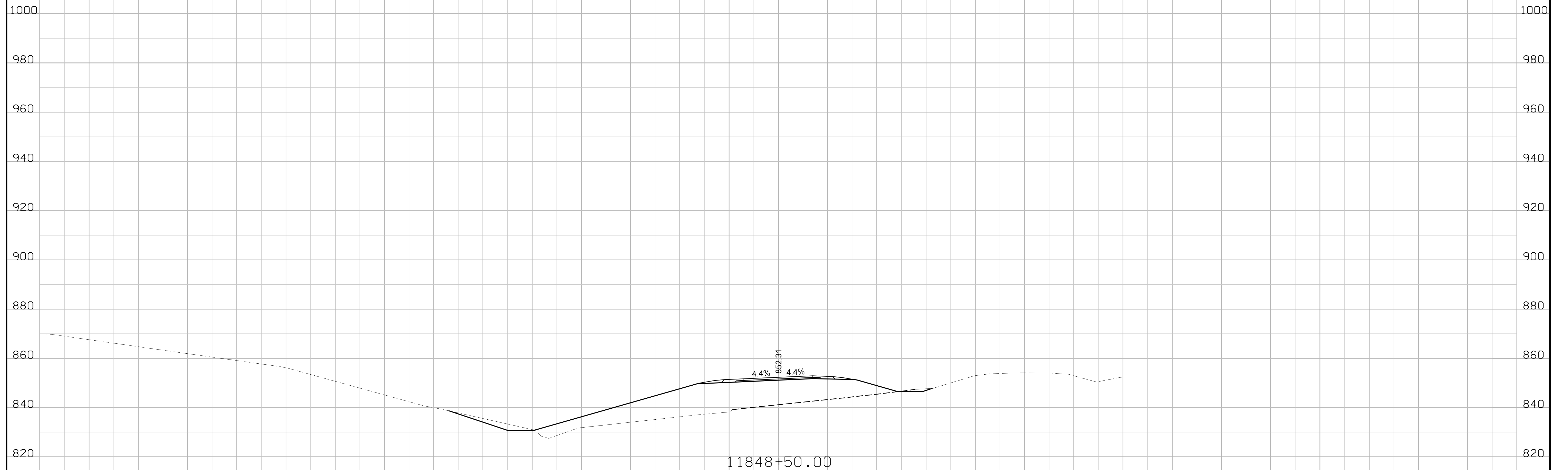
NHS-030-7(76)--19-57

SHEET NUMBER

X.90

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# Sideroad Adams Ave. Preliminary



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ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

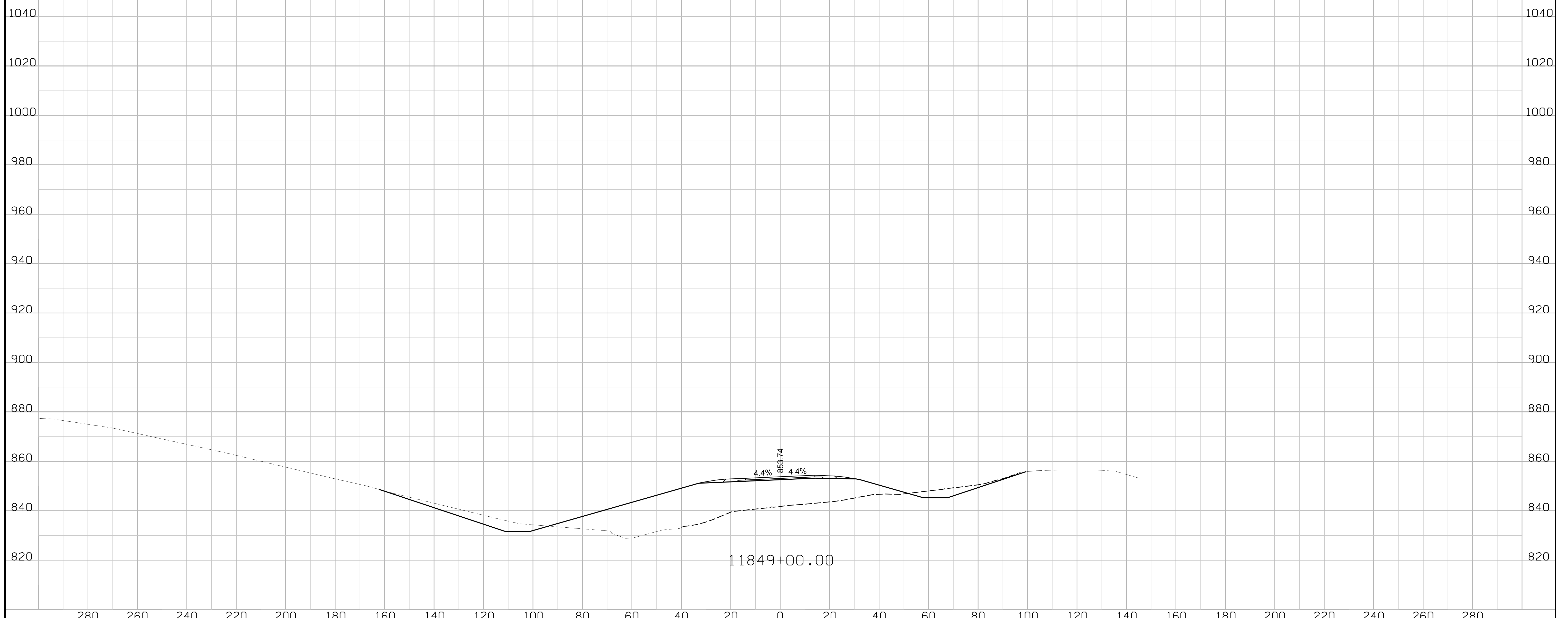
NHS-030-7(76)--19-57

SHEET NUMBER

X.91

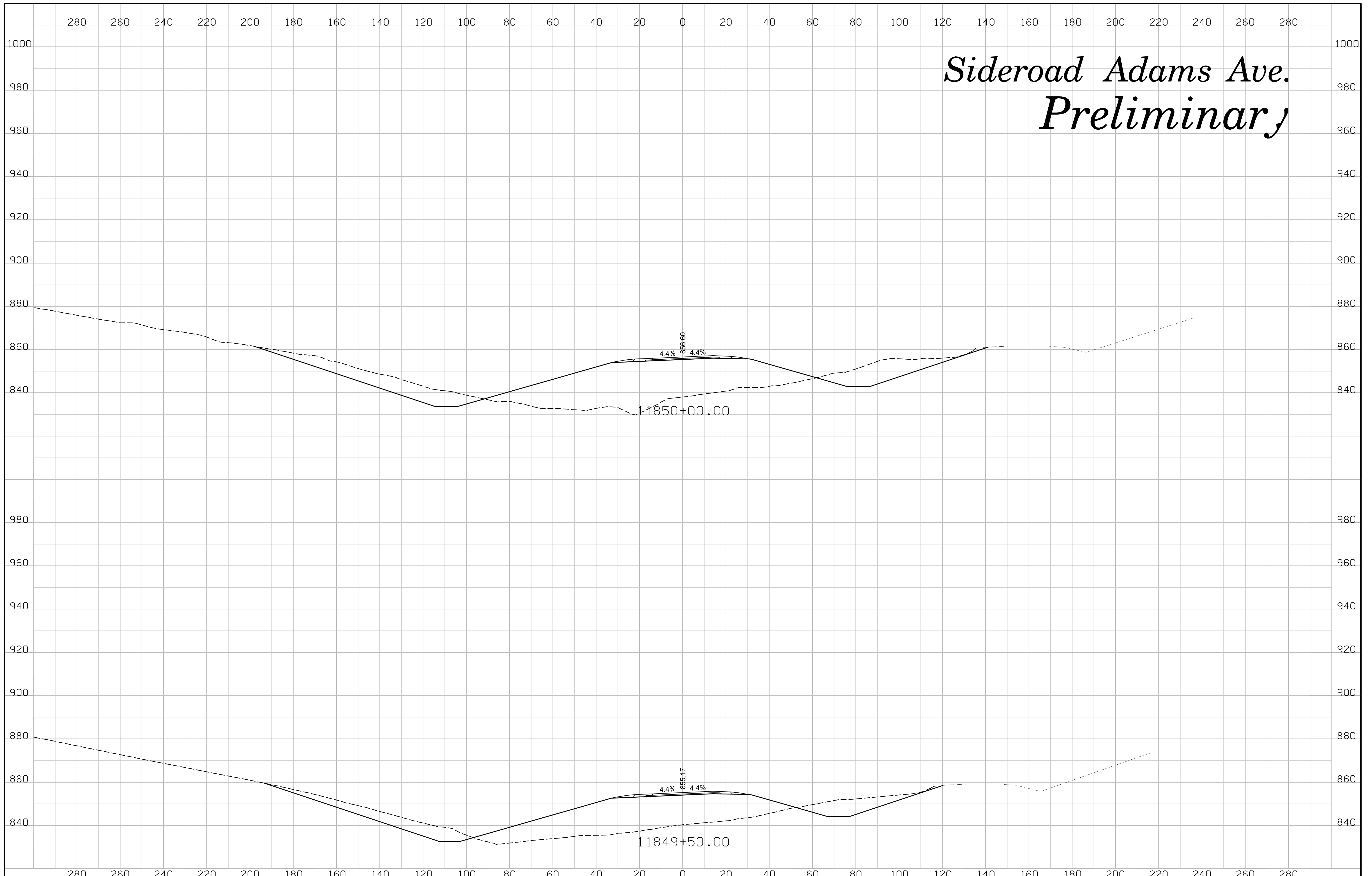
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# Sideroad Adams Ave. Preliminary



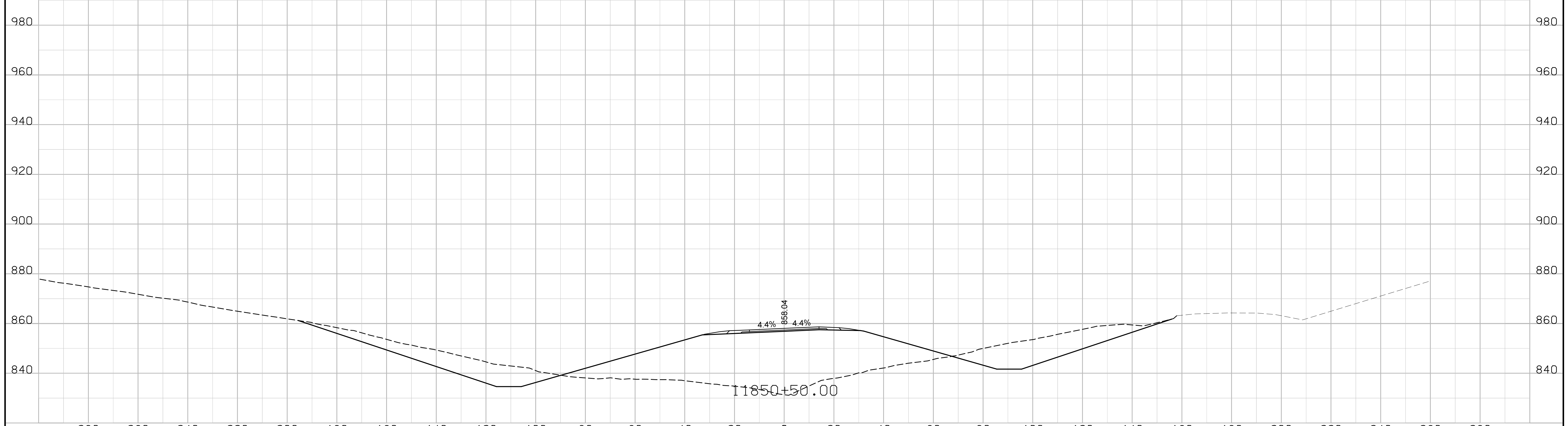
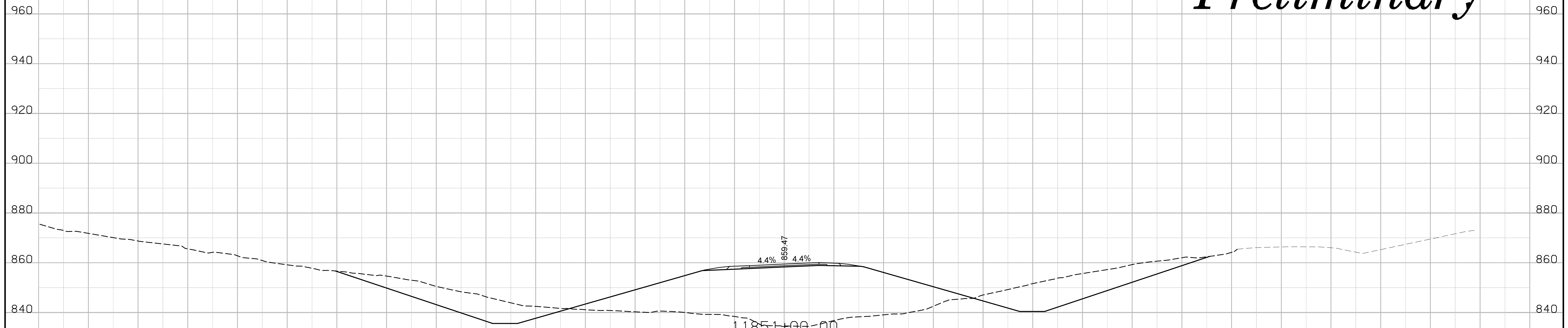
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# Sideroad Adams Ave. Preliminary



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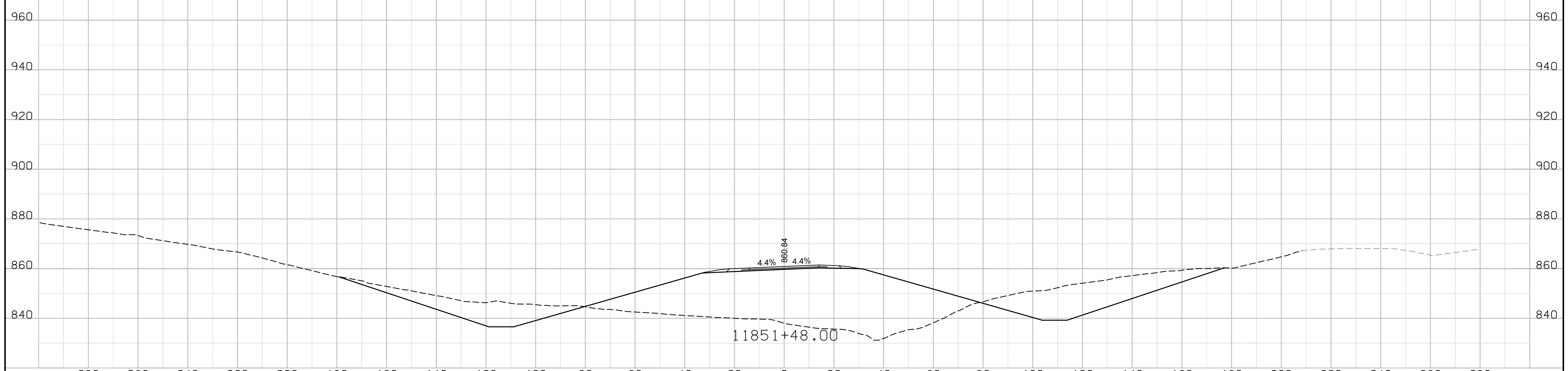
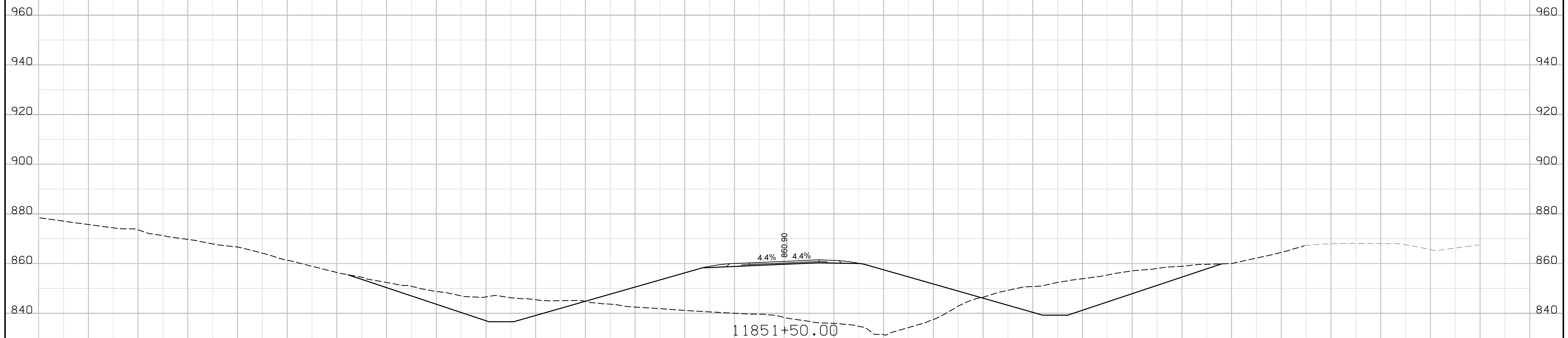
# Sideroad Adams Ave. Preliminary



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# Sideroad Adams Ave. Preliminary

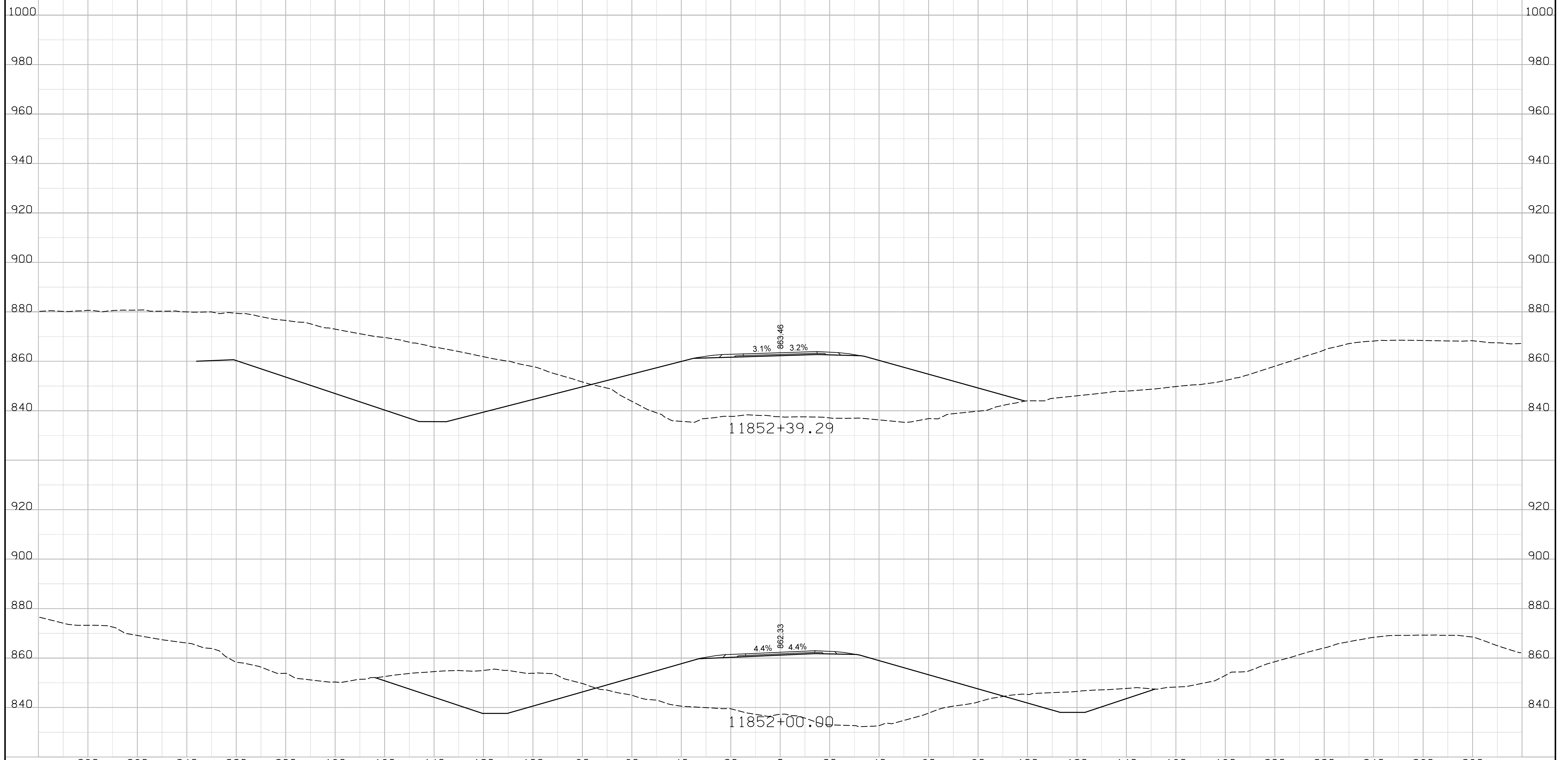


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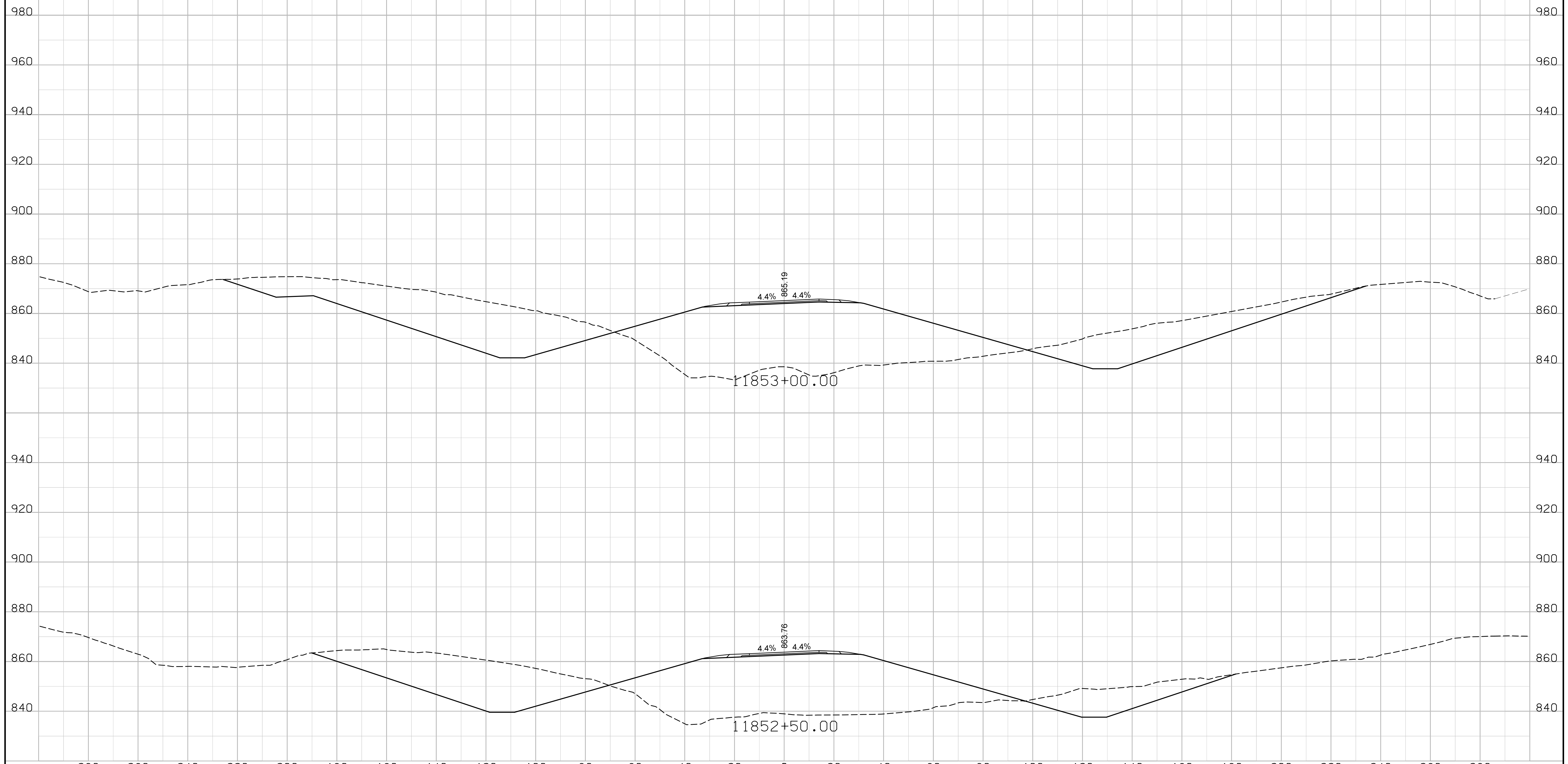
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# Sideroad Adams Ave. Preliminary



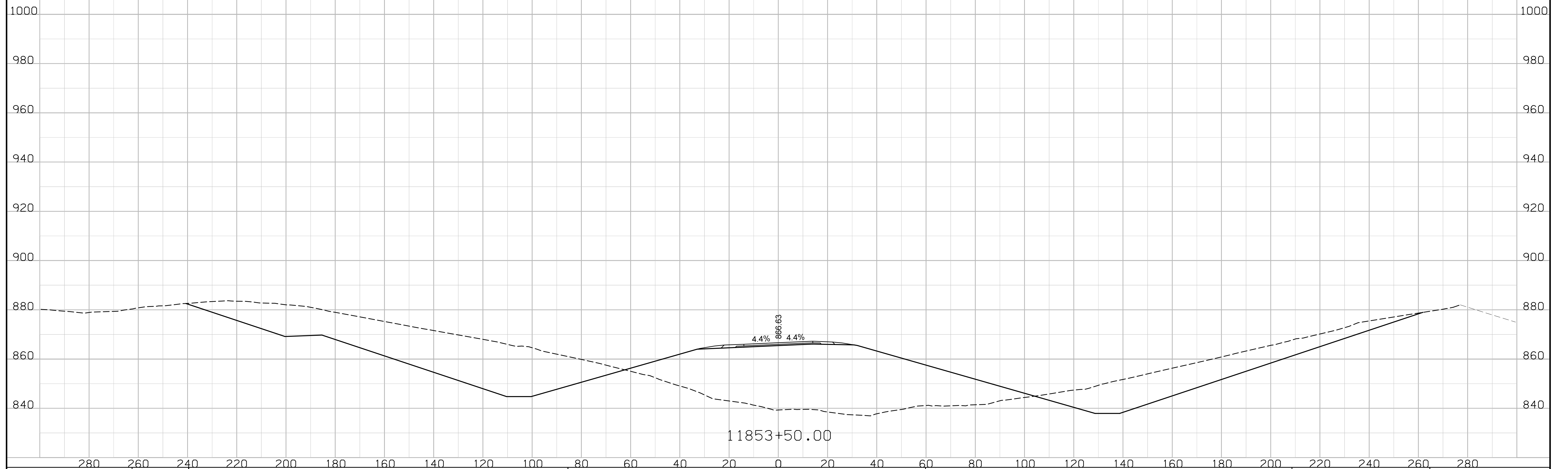
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# Sideroad Adams Ave. Preliminary



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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

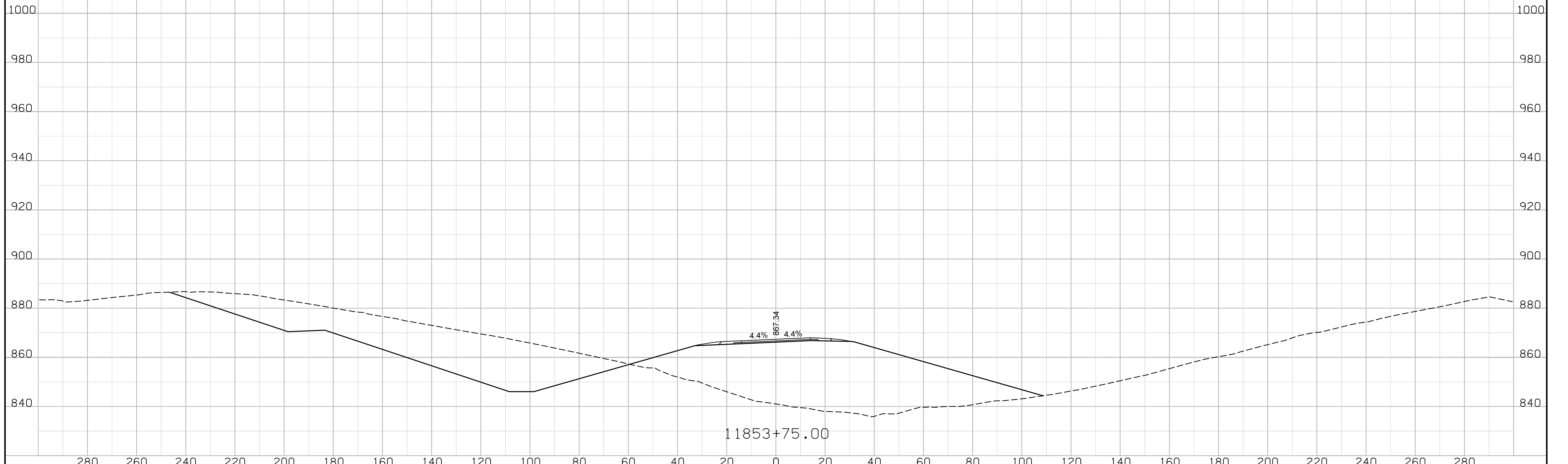
PROJECT NUMBER

NHS-030-7(76)--19-57

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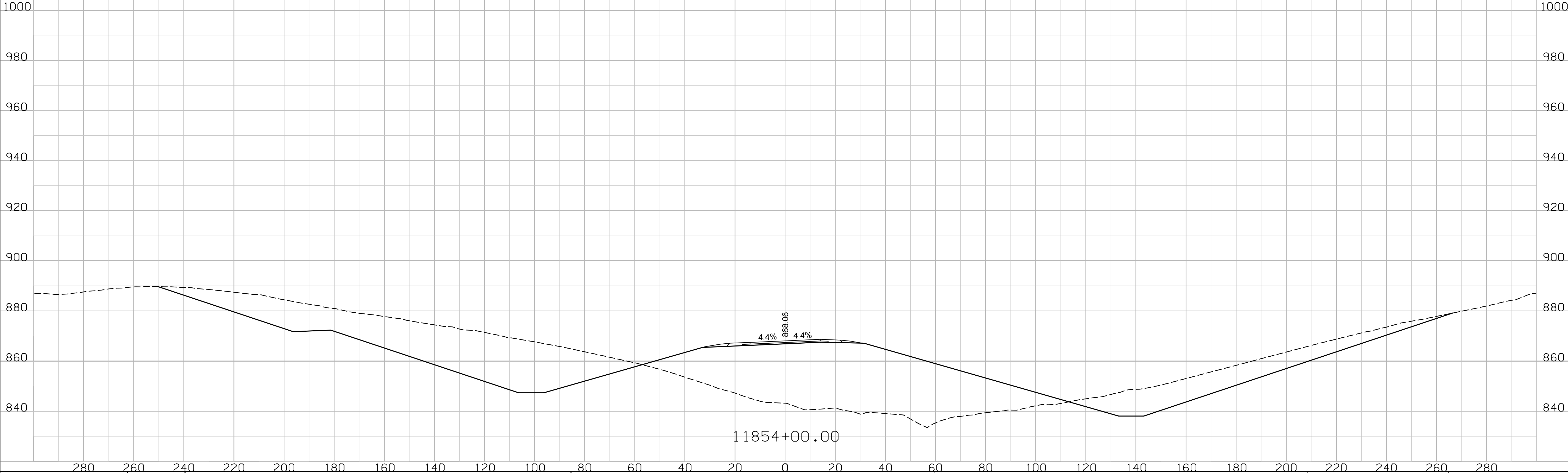
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# Sideroad Adams Ave. Preliminary



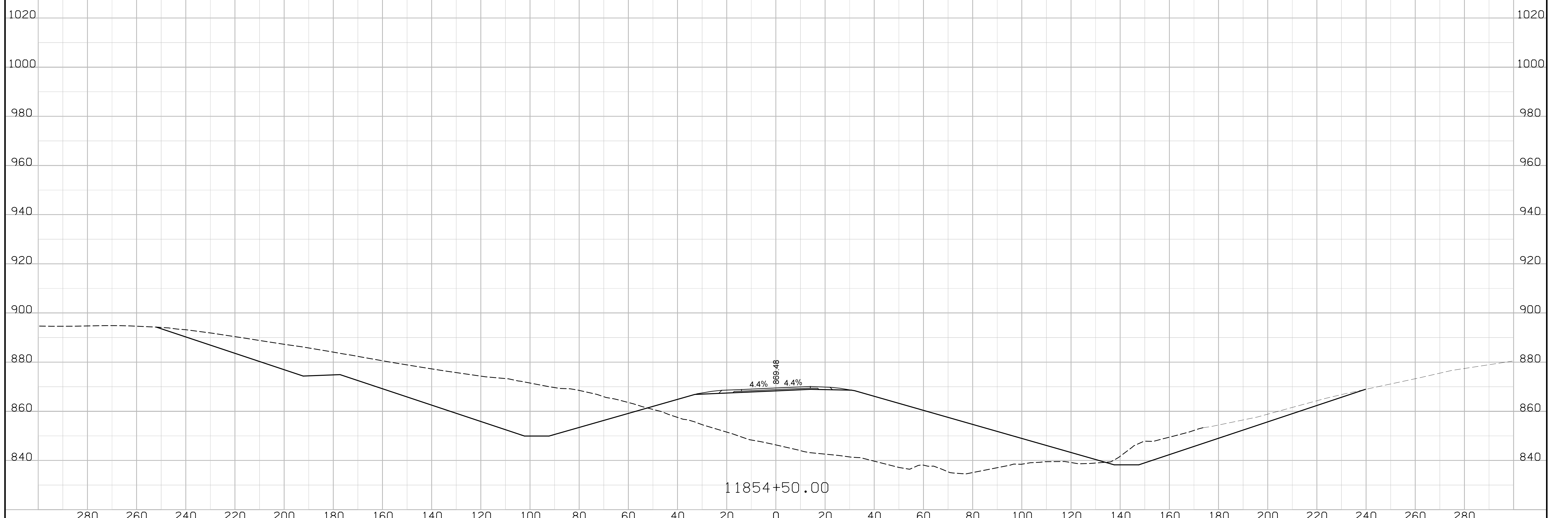
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# Sideroad Adams Ave. Preliminary



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# Sideroad Adams Ave. Preliminary

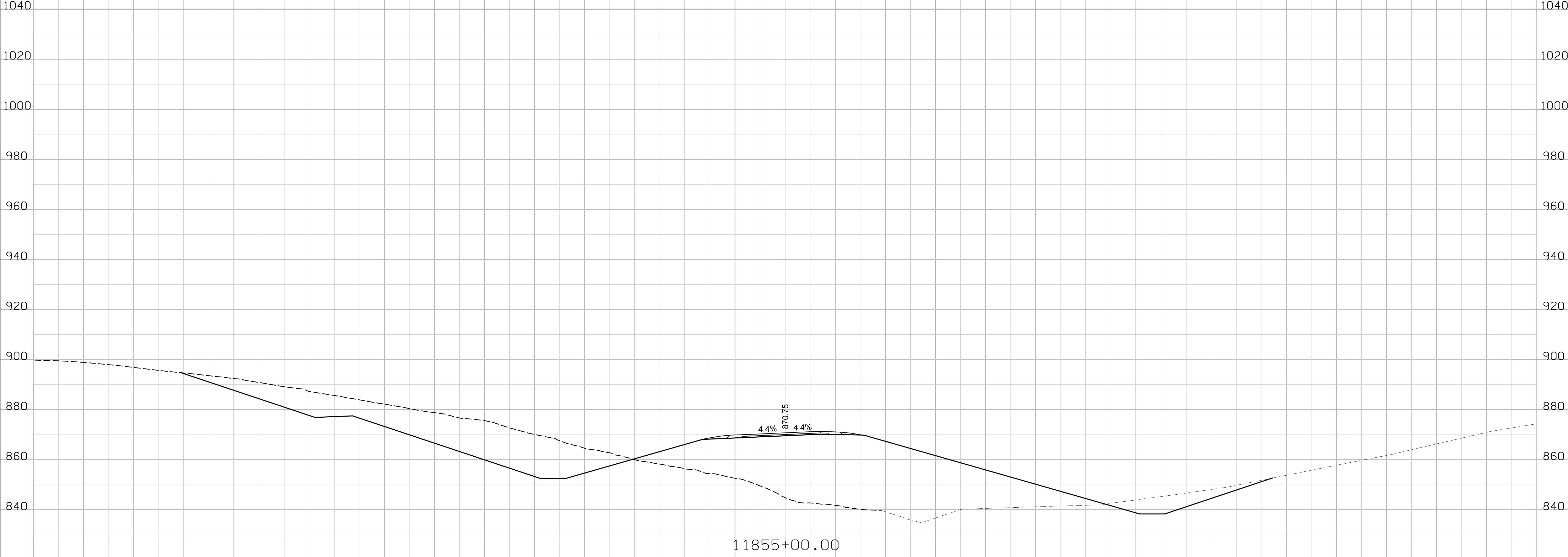


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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

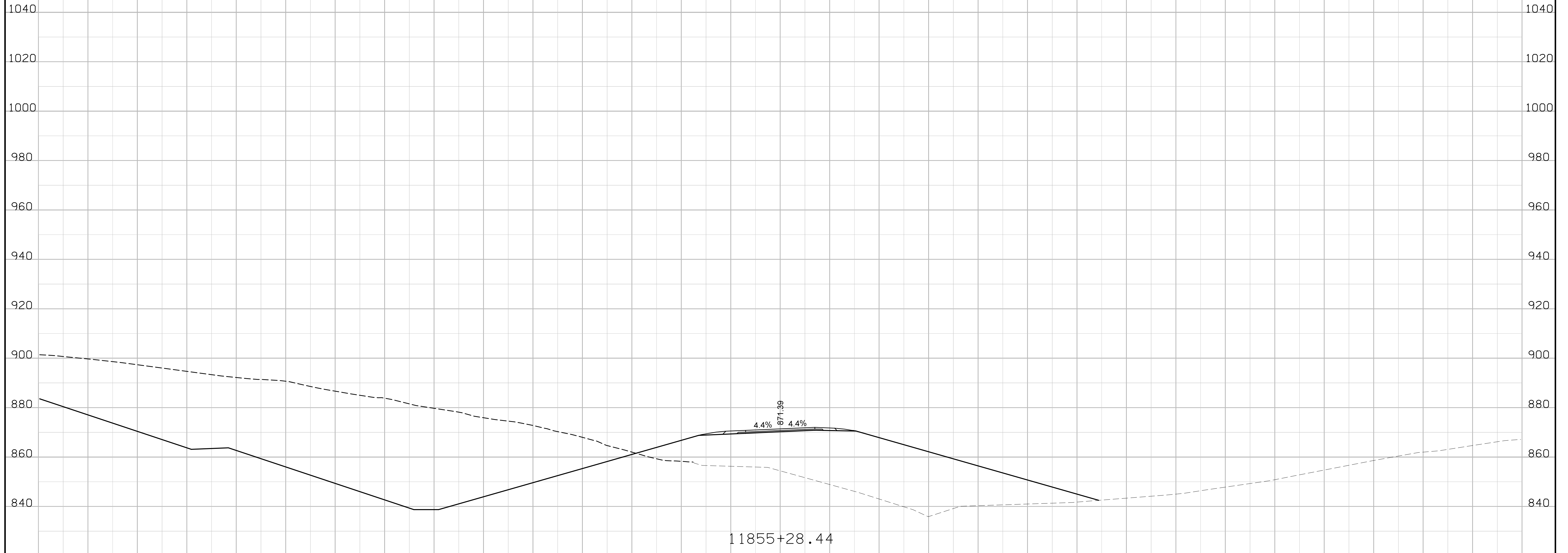
PROJECT NUMBER

NHS-030-7(76)--19-57

SHEET NUMBER X.102

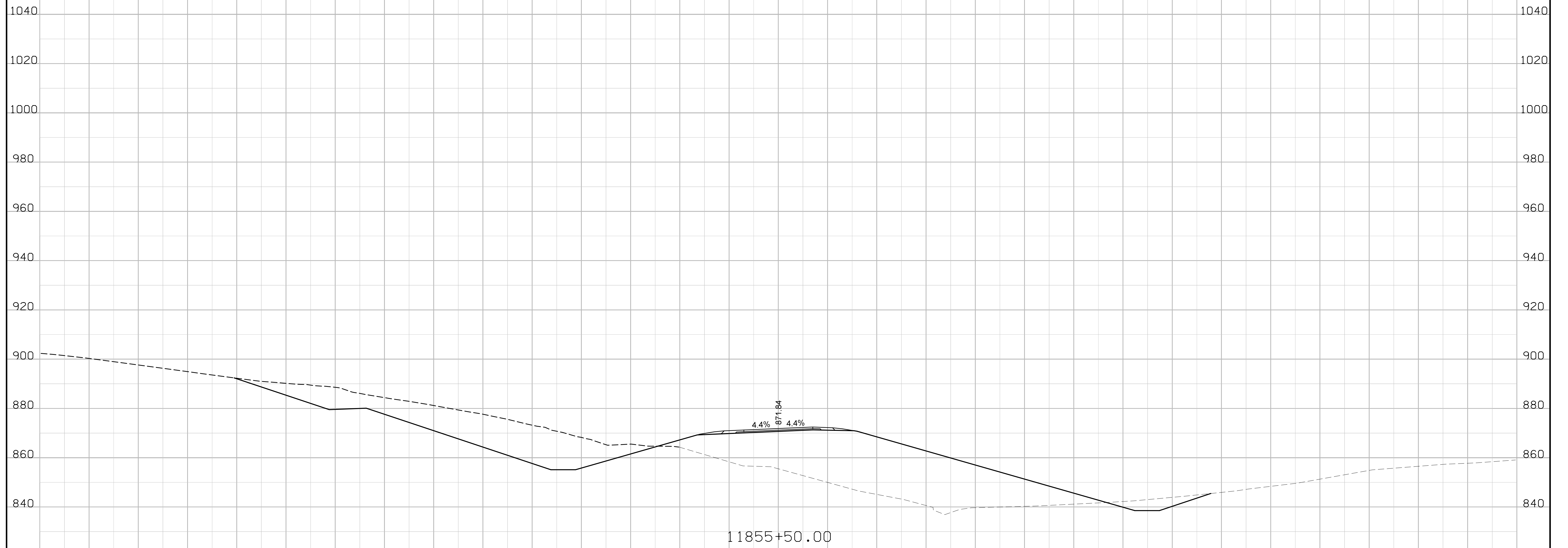
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# Sideroad Adams Ave. Preliminary



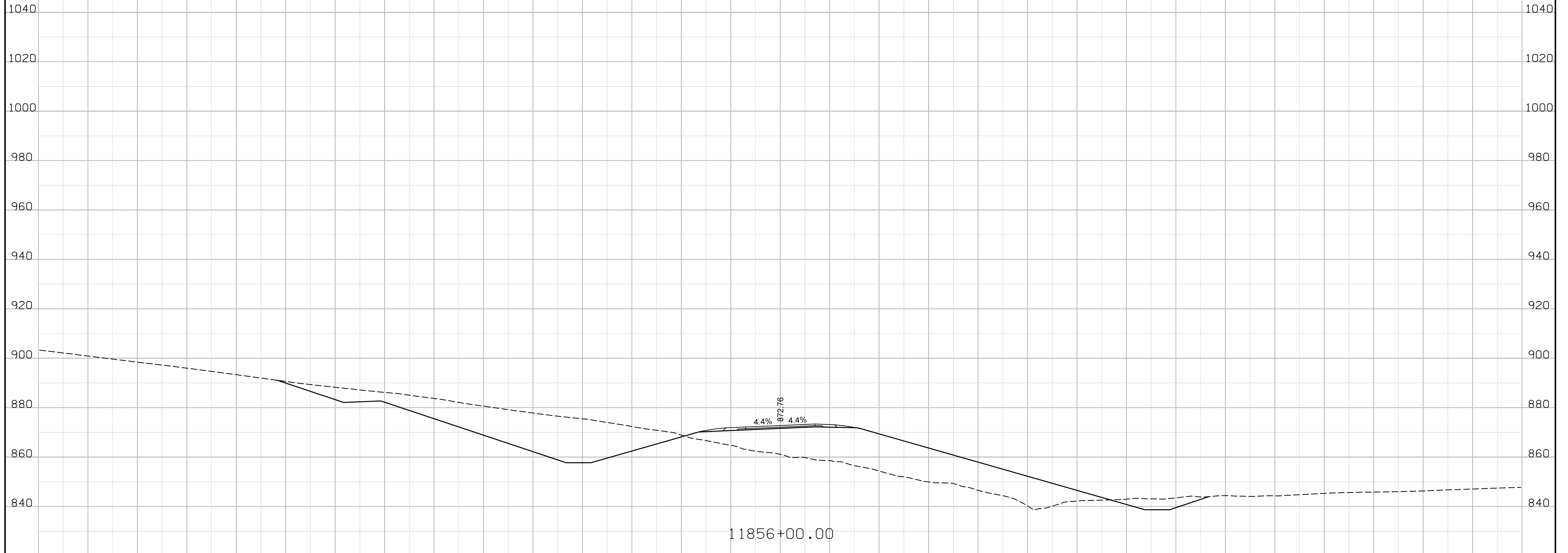
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# Sideroad Adams Ave. Preliminary



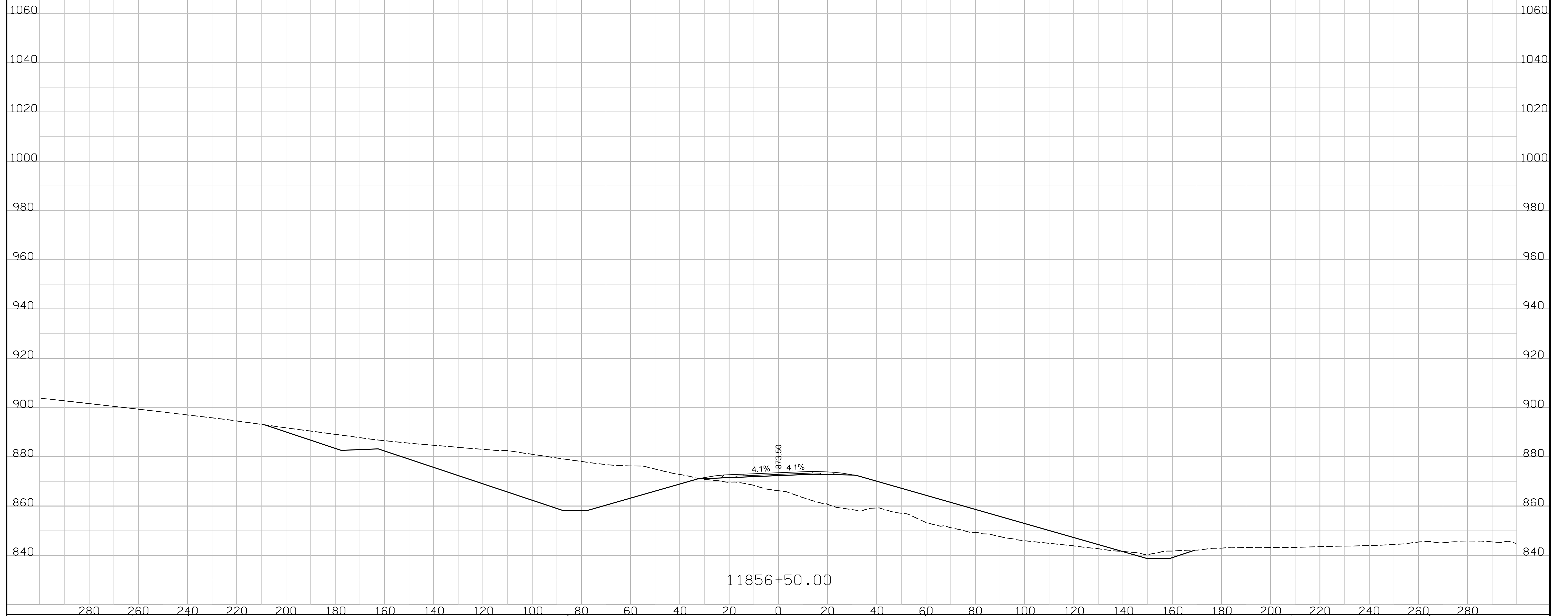
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# Sideroad Adams Ave. Preliminary



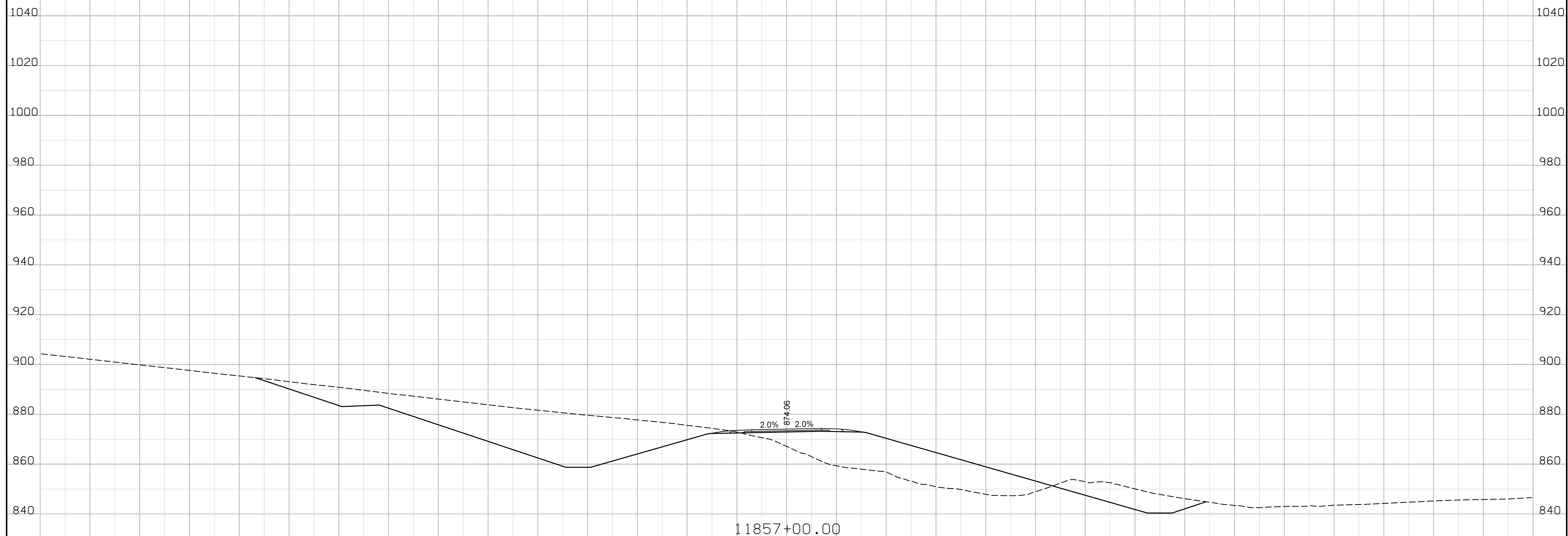
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# Sideroad Adams Ave. Preliminary



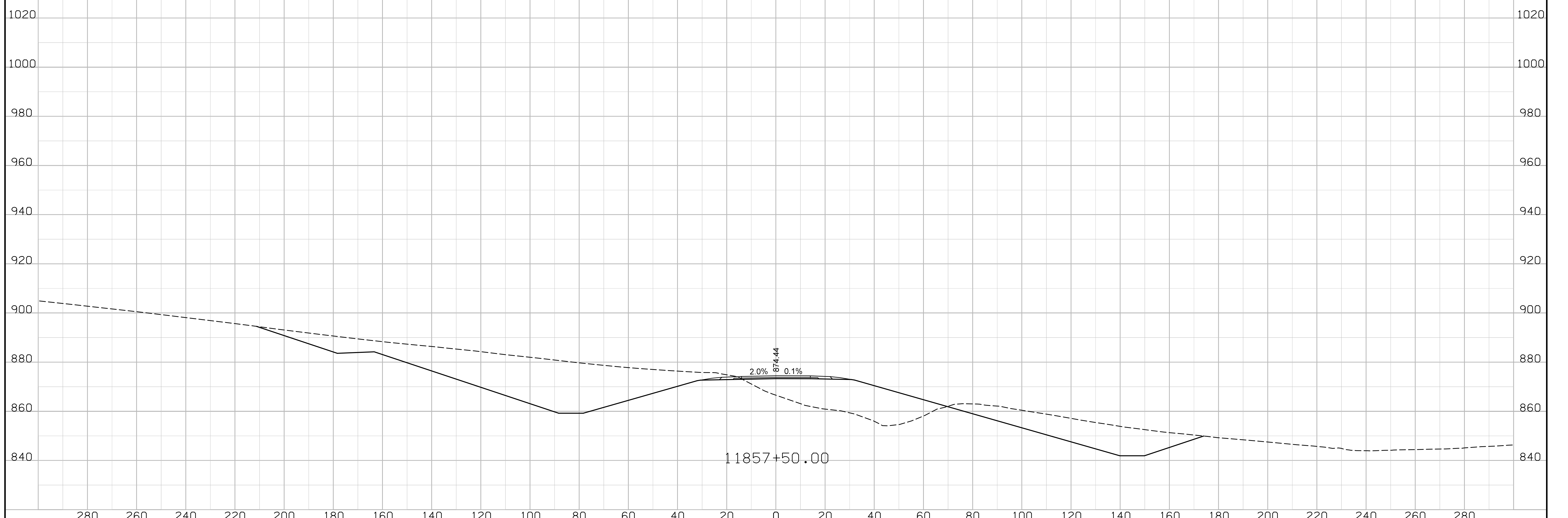
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# Sideroad Adams Ave. Preliminary



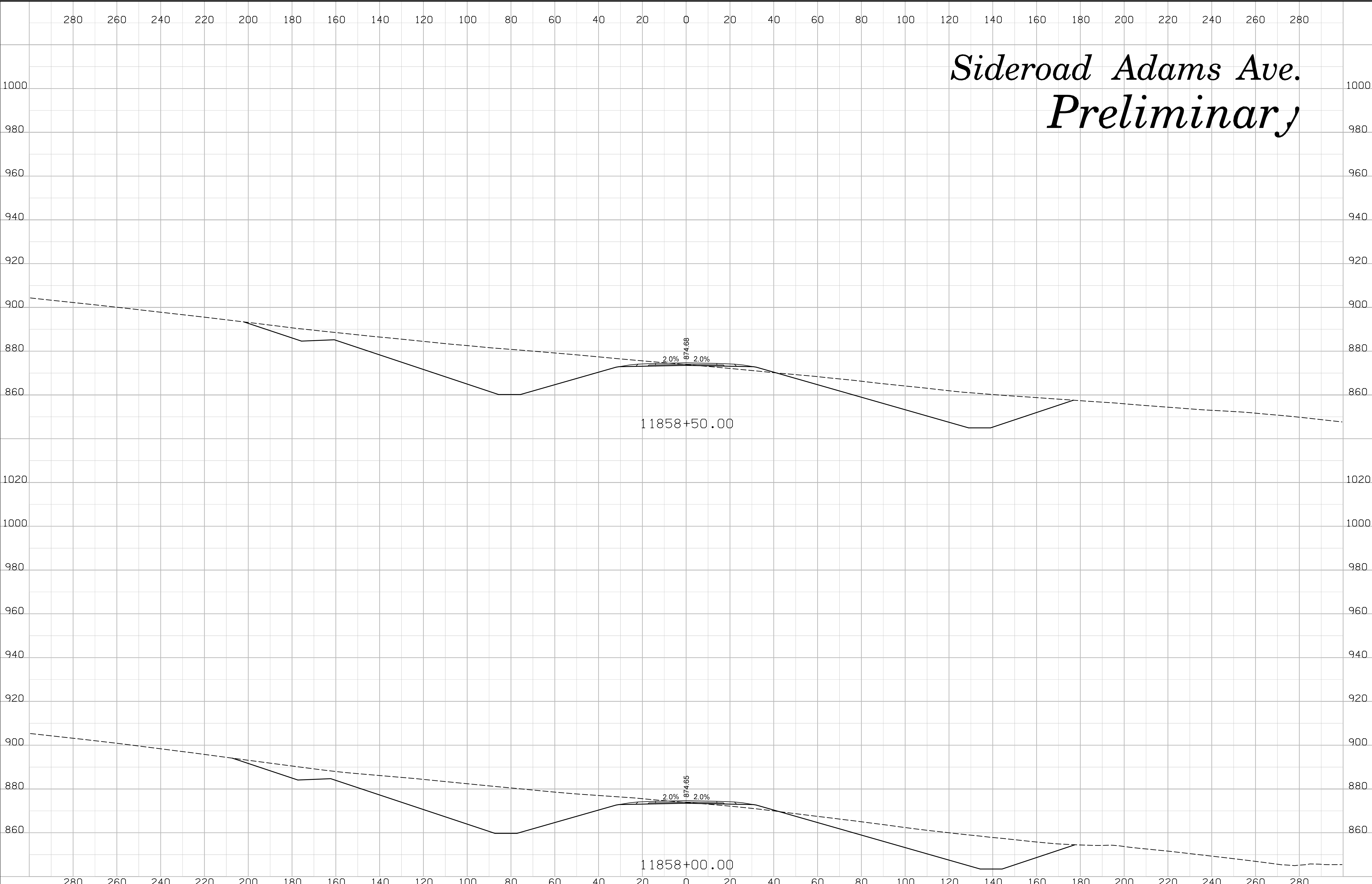
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# Sideroad Adams Ave. Preliminary



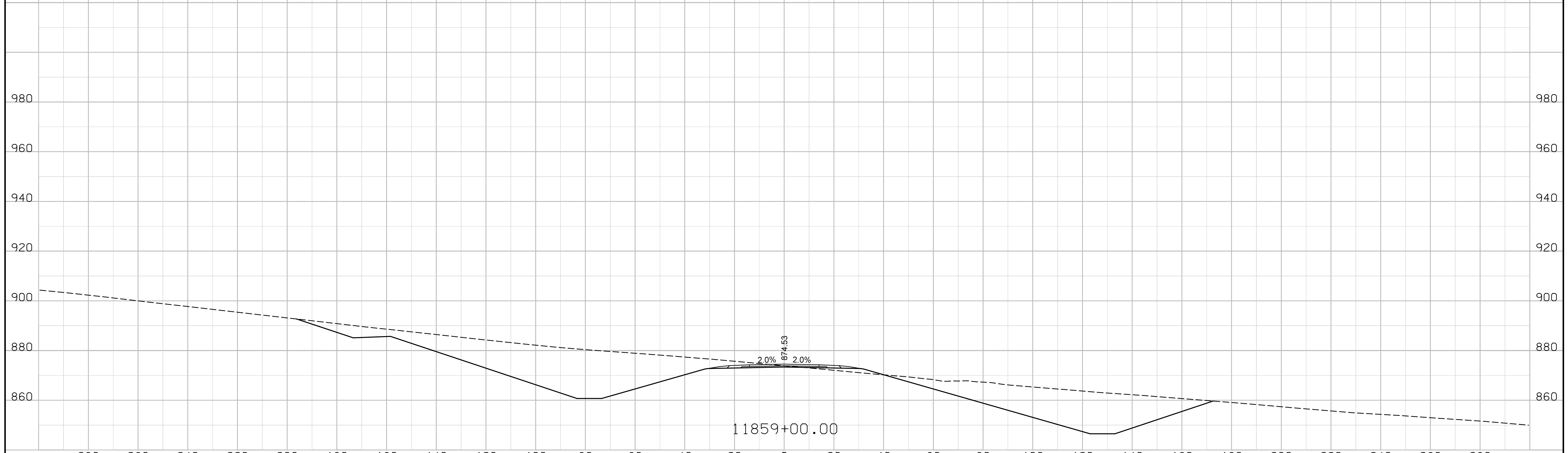
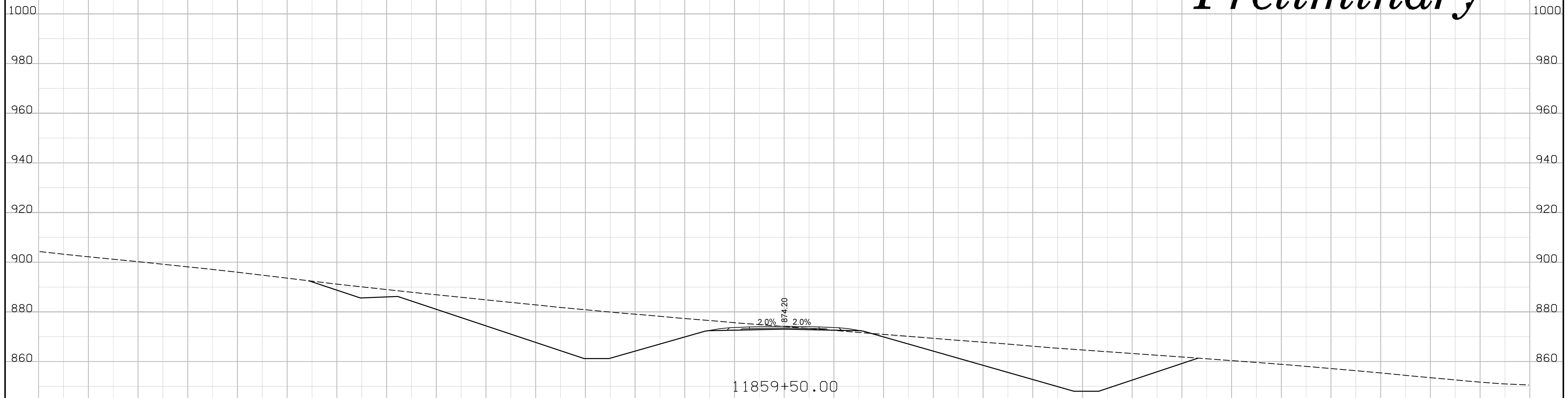


*Sideroad Adams Ave.  
Preliminary*



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

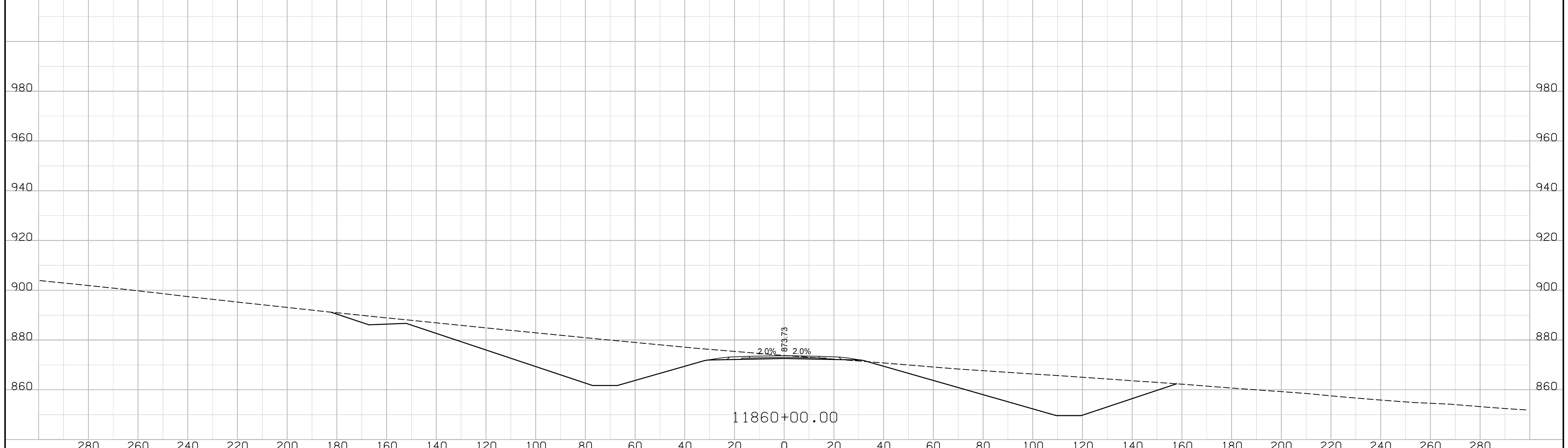
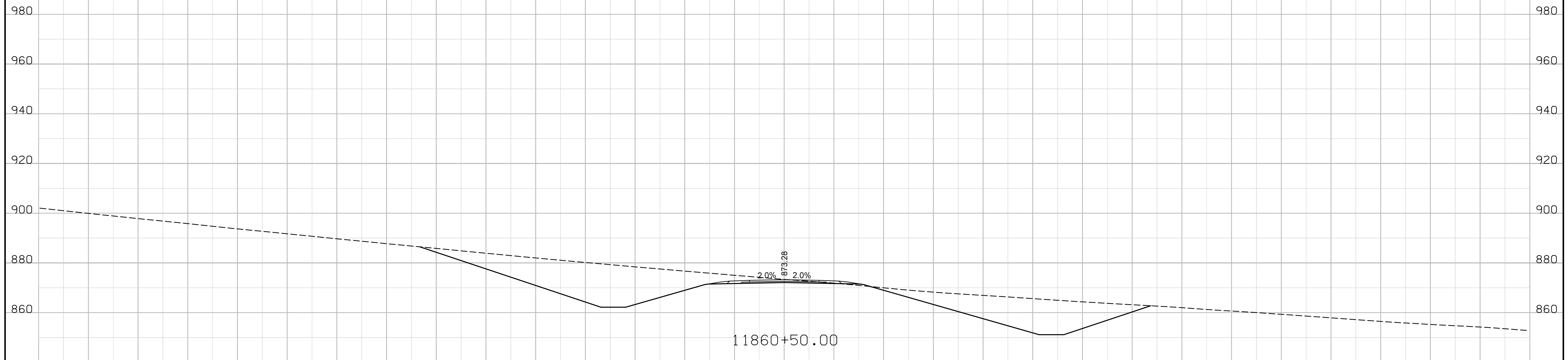
# Sideroad Adams Ave. Preliminary



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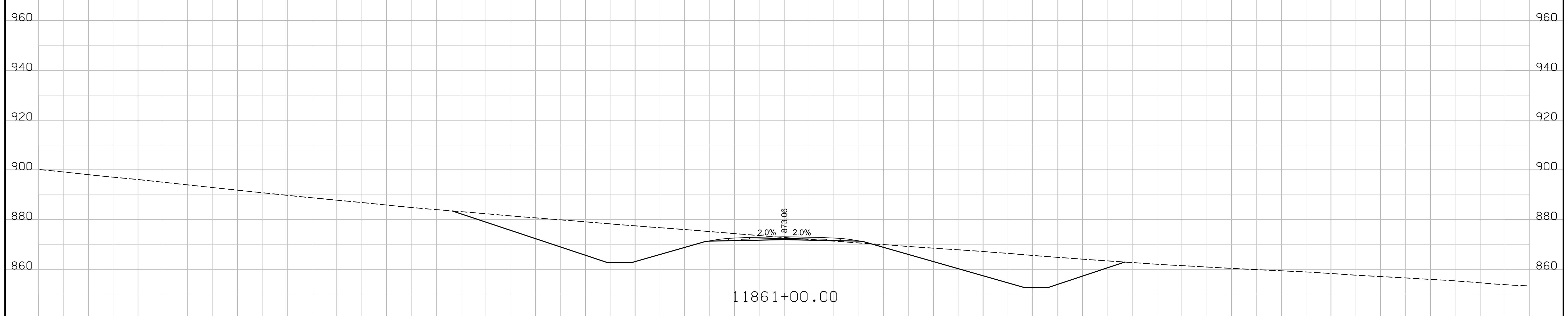
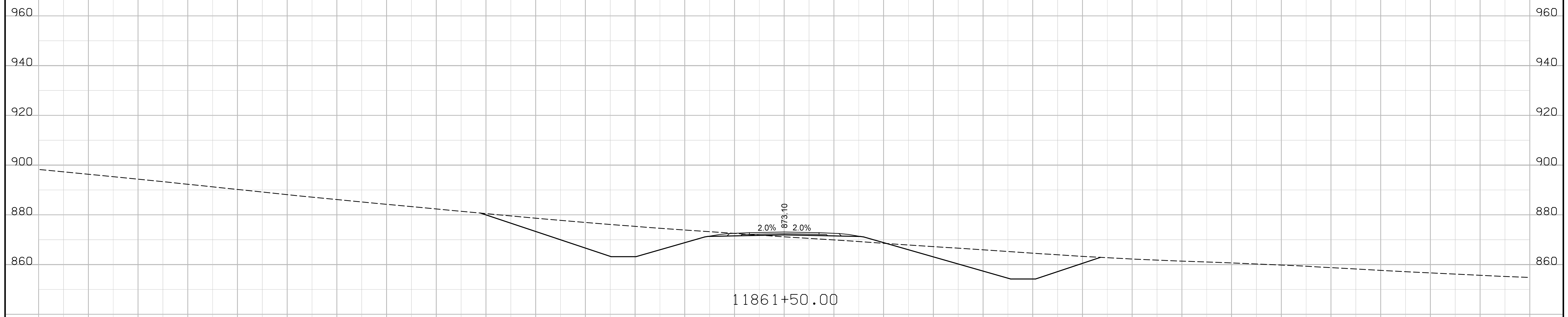
# Sideroad Adams Ave. Preliminary



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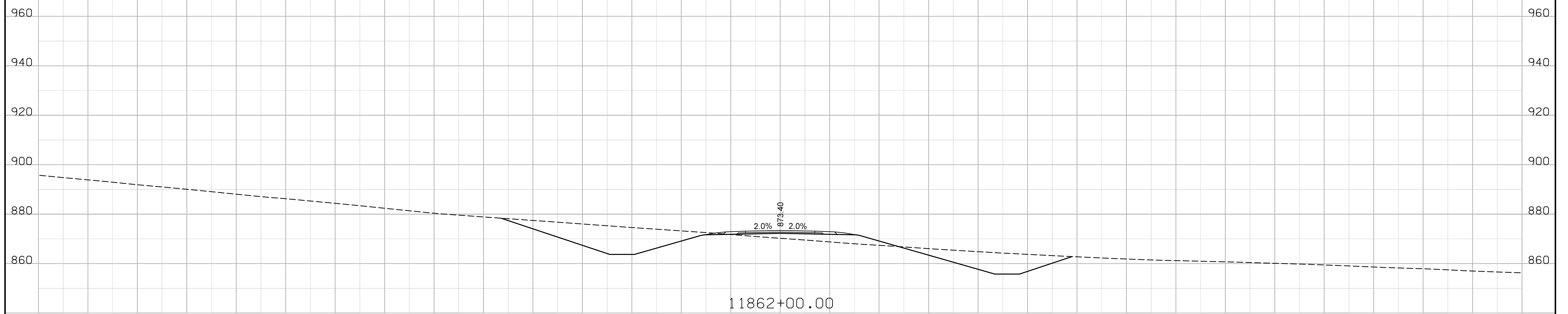
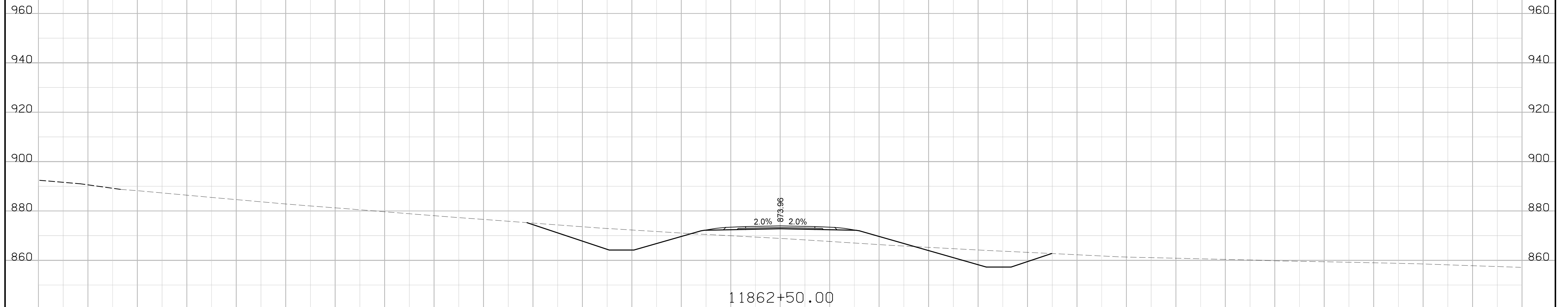
# Sideroad Adams Ave. Preliminary



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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

IOWA DOT

DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

COUNTY

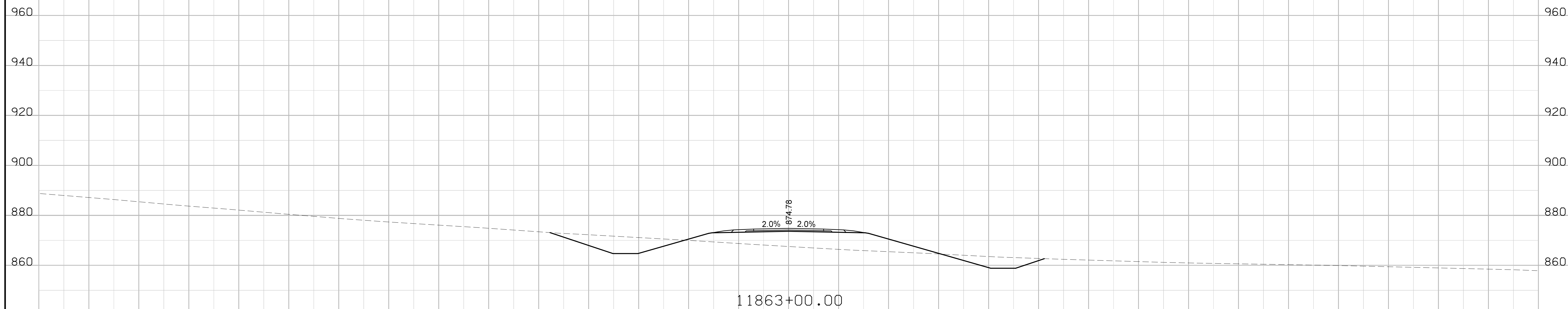
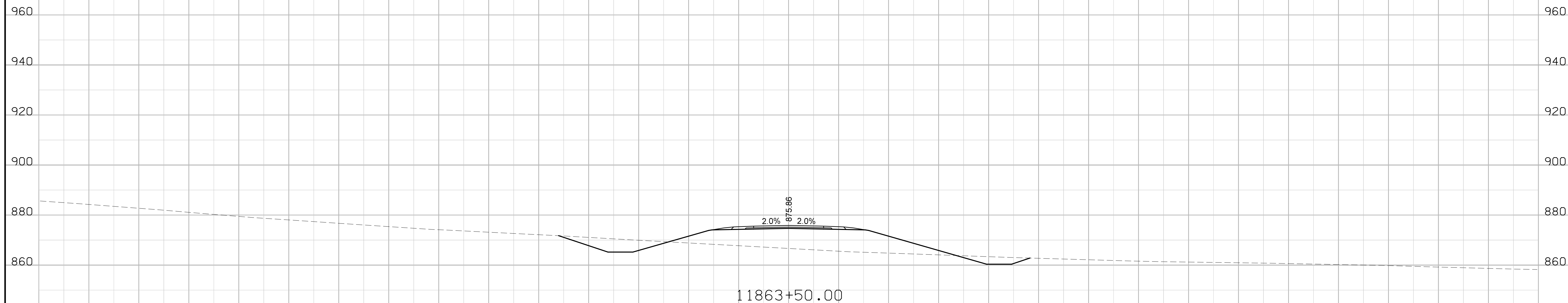
PROJECT NUMBER

NHS-030-7(76)--19-57

SHEET NUMBER X.113

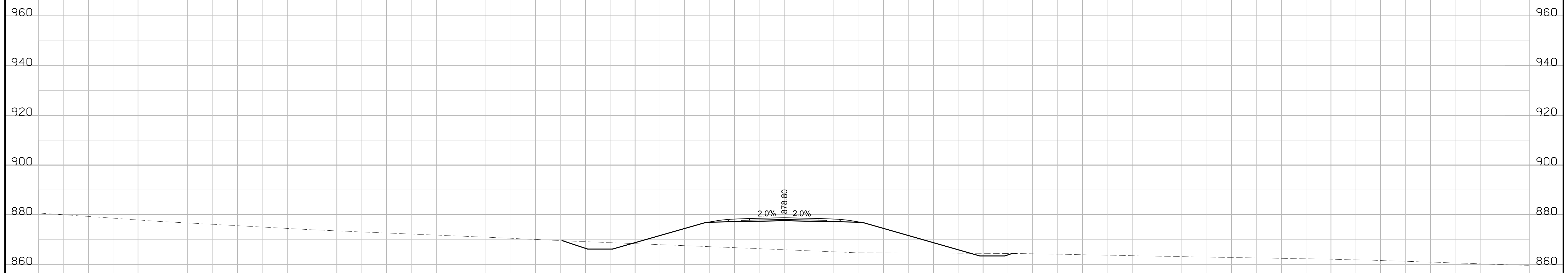
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# Sideroad Adams Ave. Preliminary

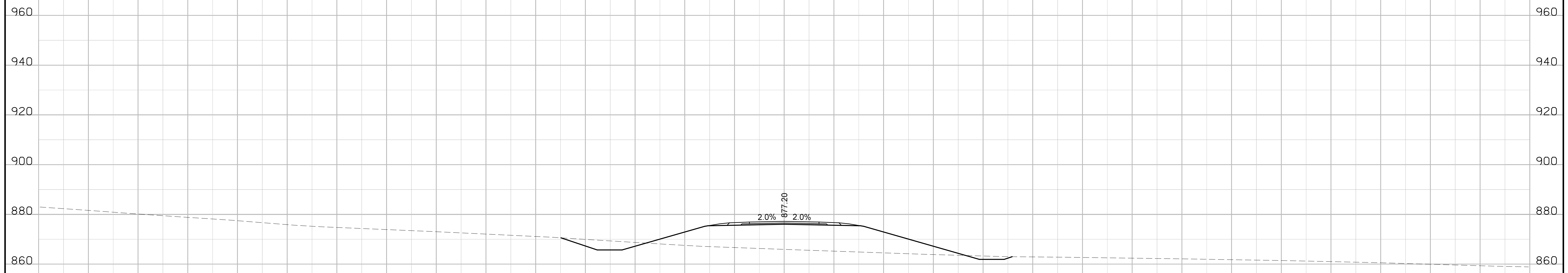


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# Sideroad Adams Ave. Preliminary



11864+50.00

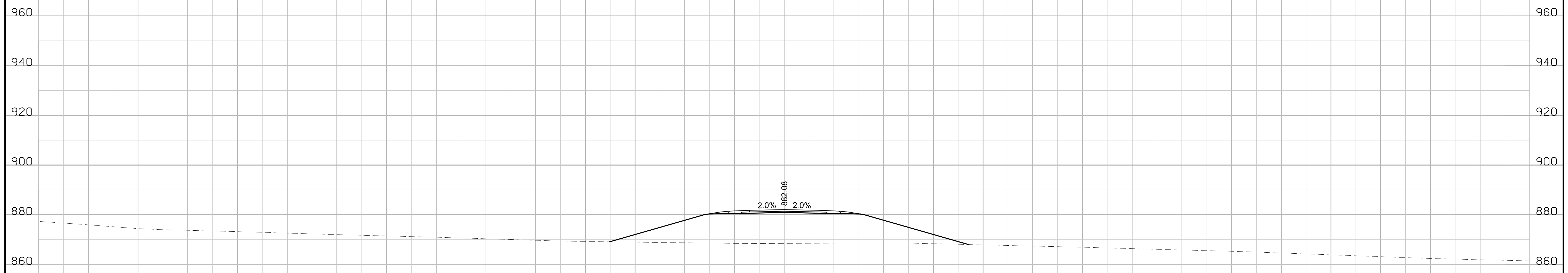


11864+00.00

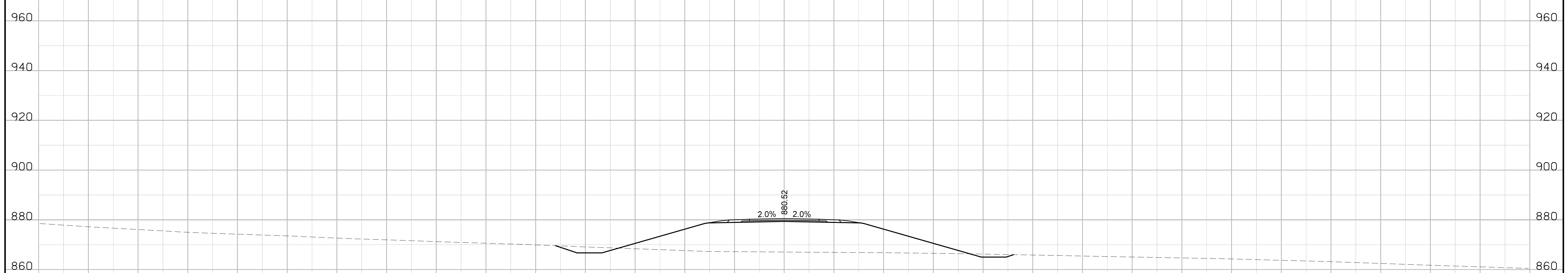


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# Sideroad Adams Ave. Preliminary



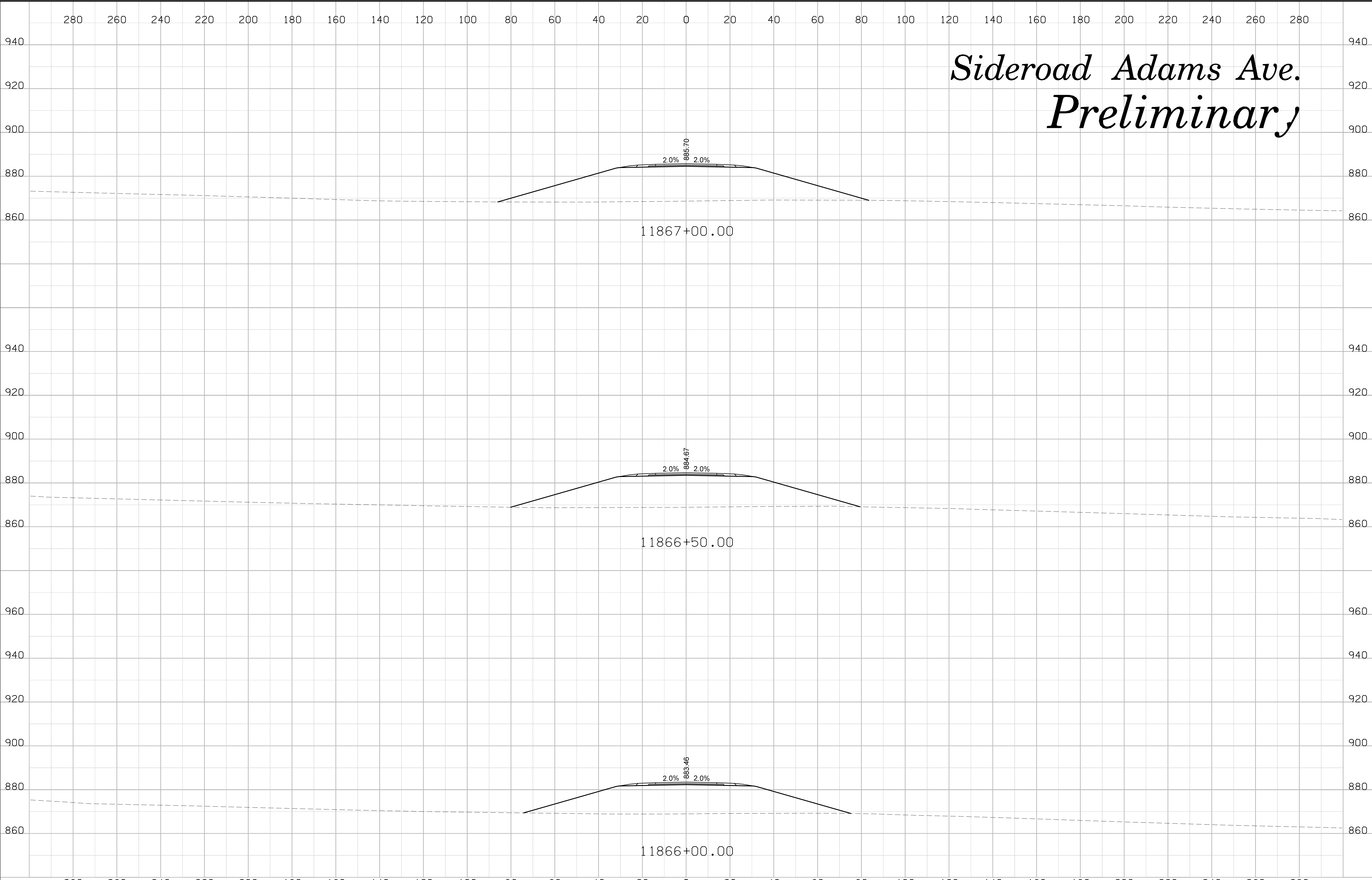
11865+50.00



11865+00.00

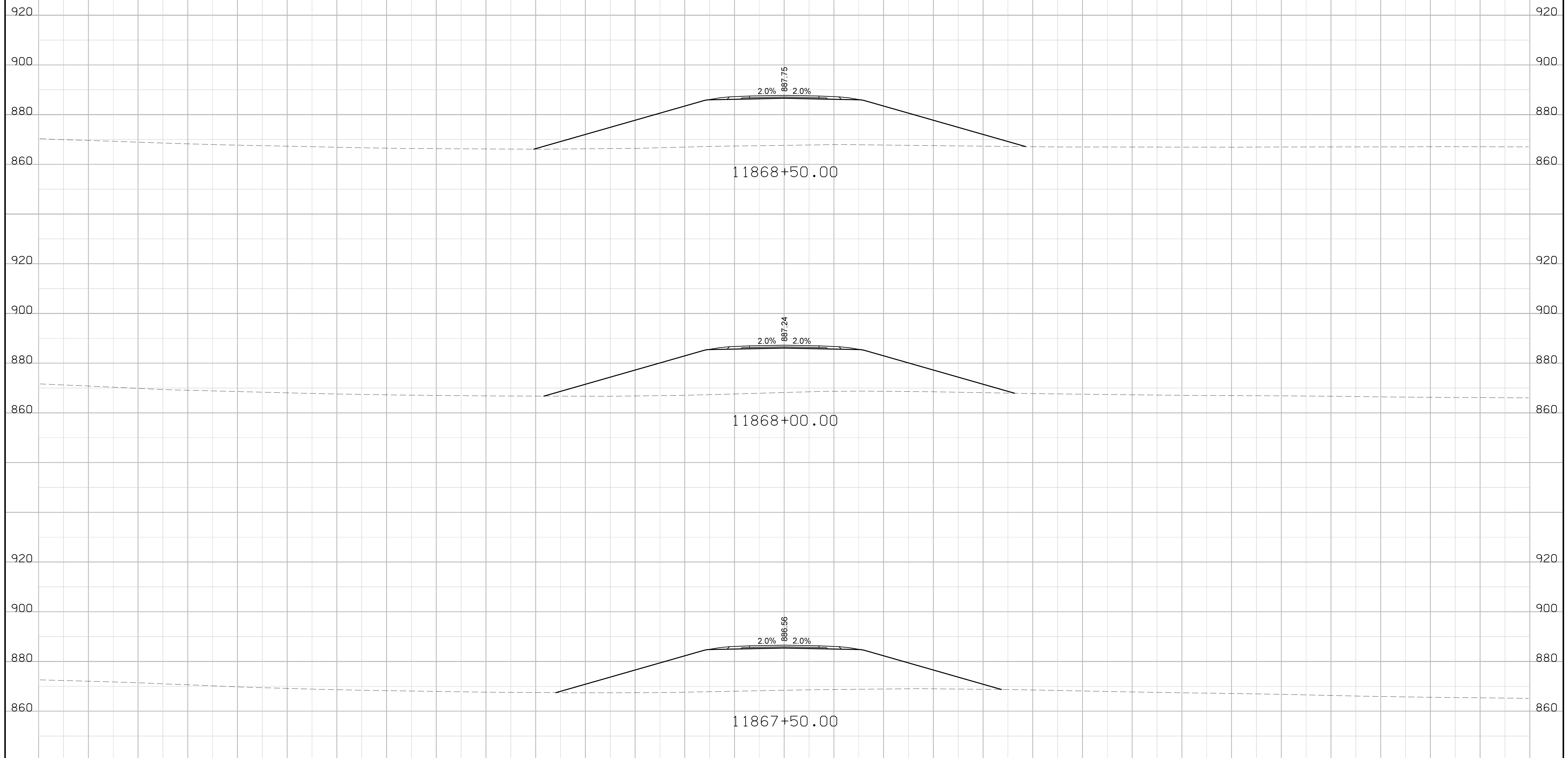
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# Sideroad Adams Ave. Preliminary



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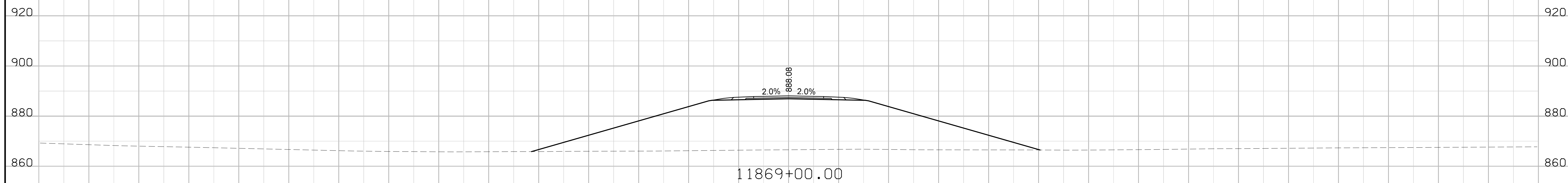
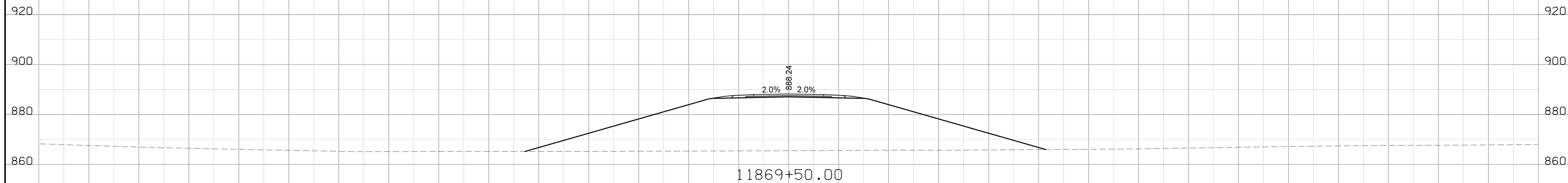
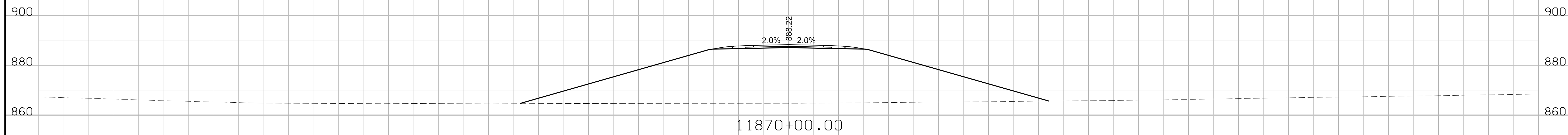
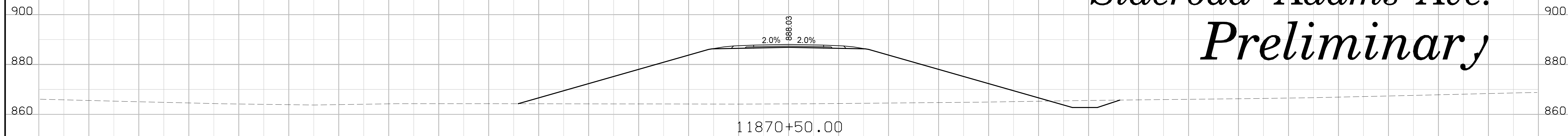
# Sideroad Adams Ave. Preliminary



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# Sideroad Adams Ave. Preliminary



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ENGLISH

IOWA DOT

DESIGN TEAM

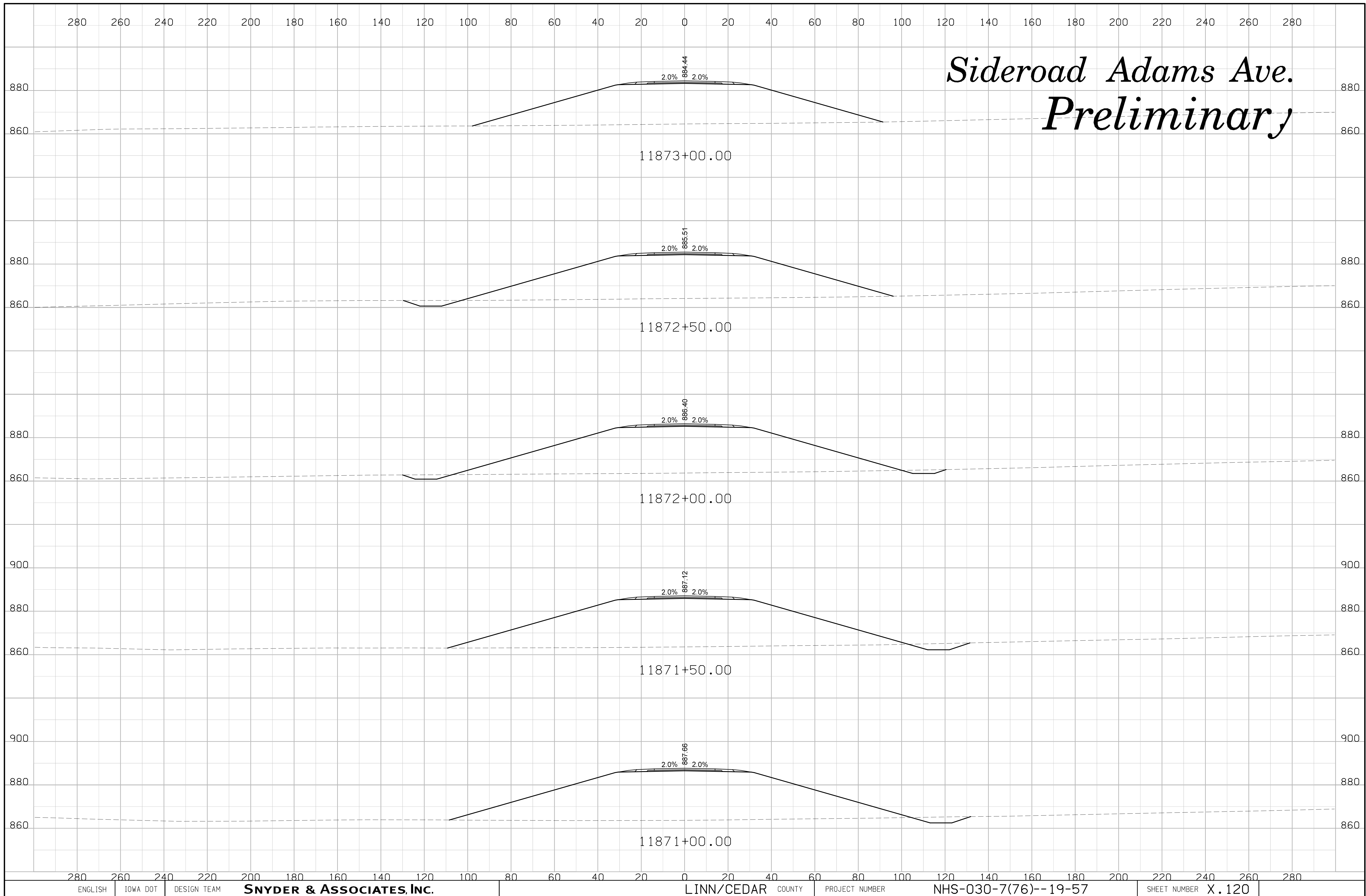
**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

PROJECT NUMBER

NHS-030-7(76)--19-57

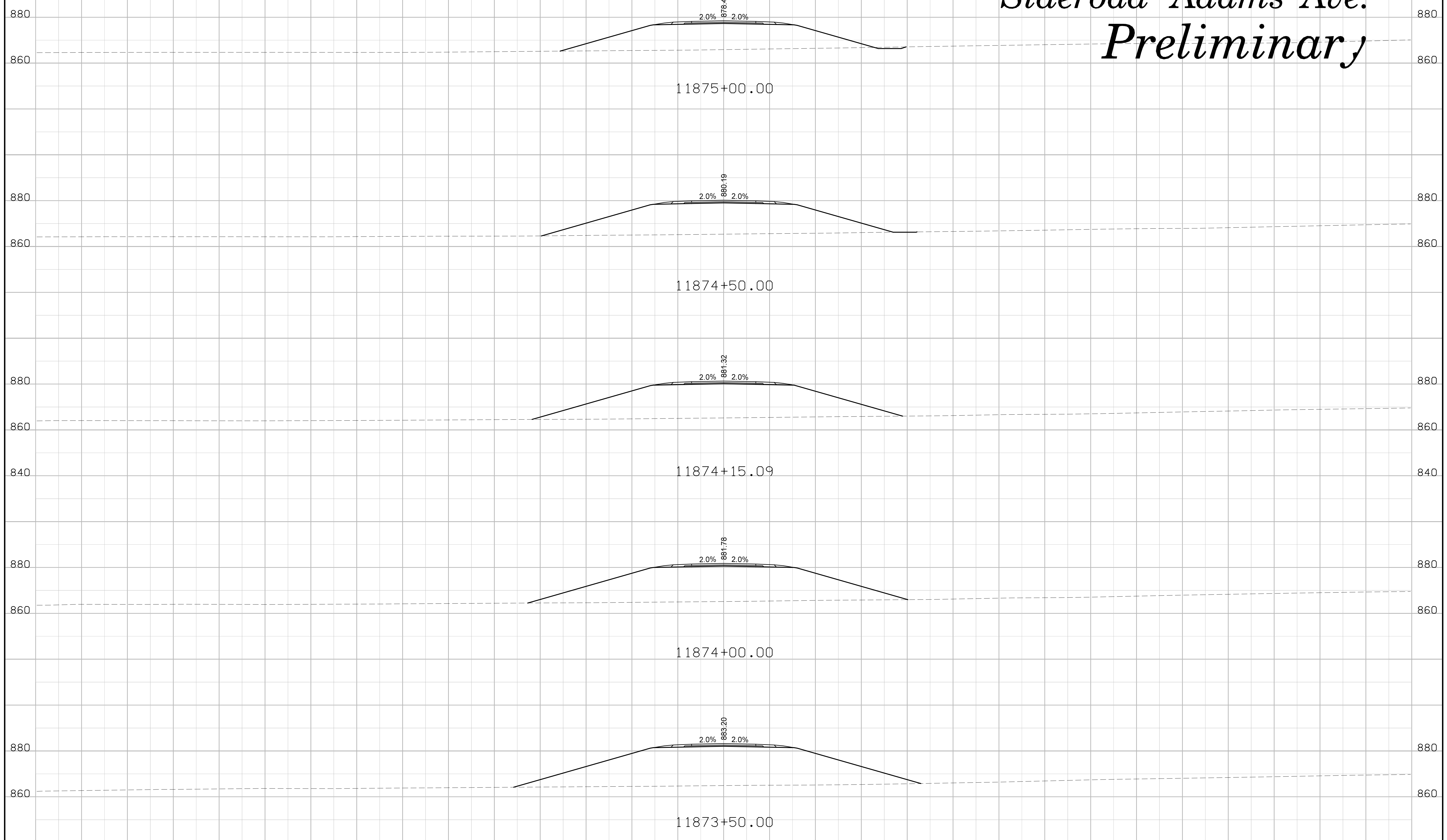
SHEET NUMBER X.119



*Sideroad Adams Ave.  
Preliminary*

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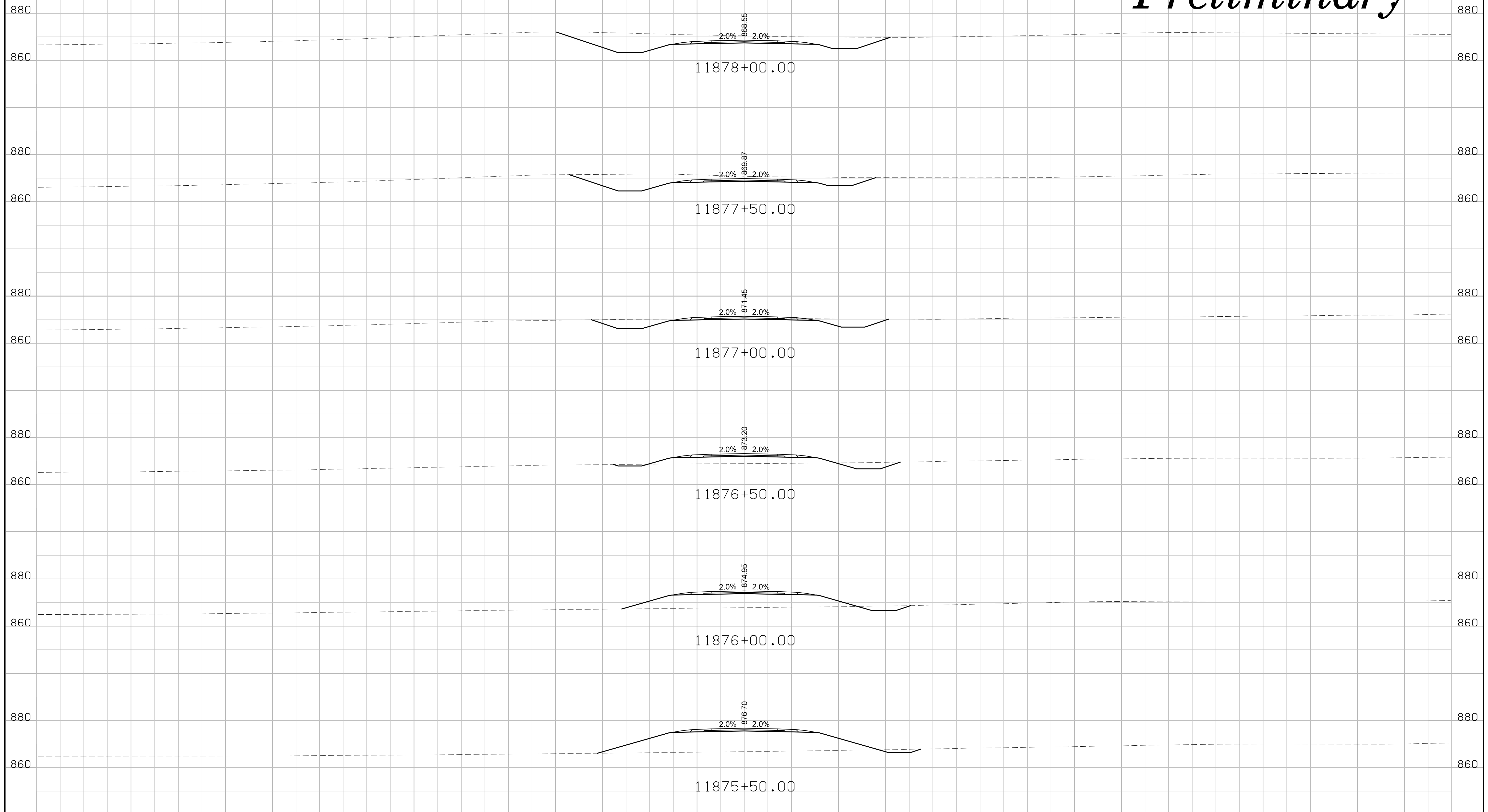
# Sideroad Adams Ave. Preliminary



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# Sideroad Adams Ave. Preliminary

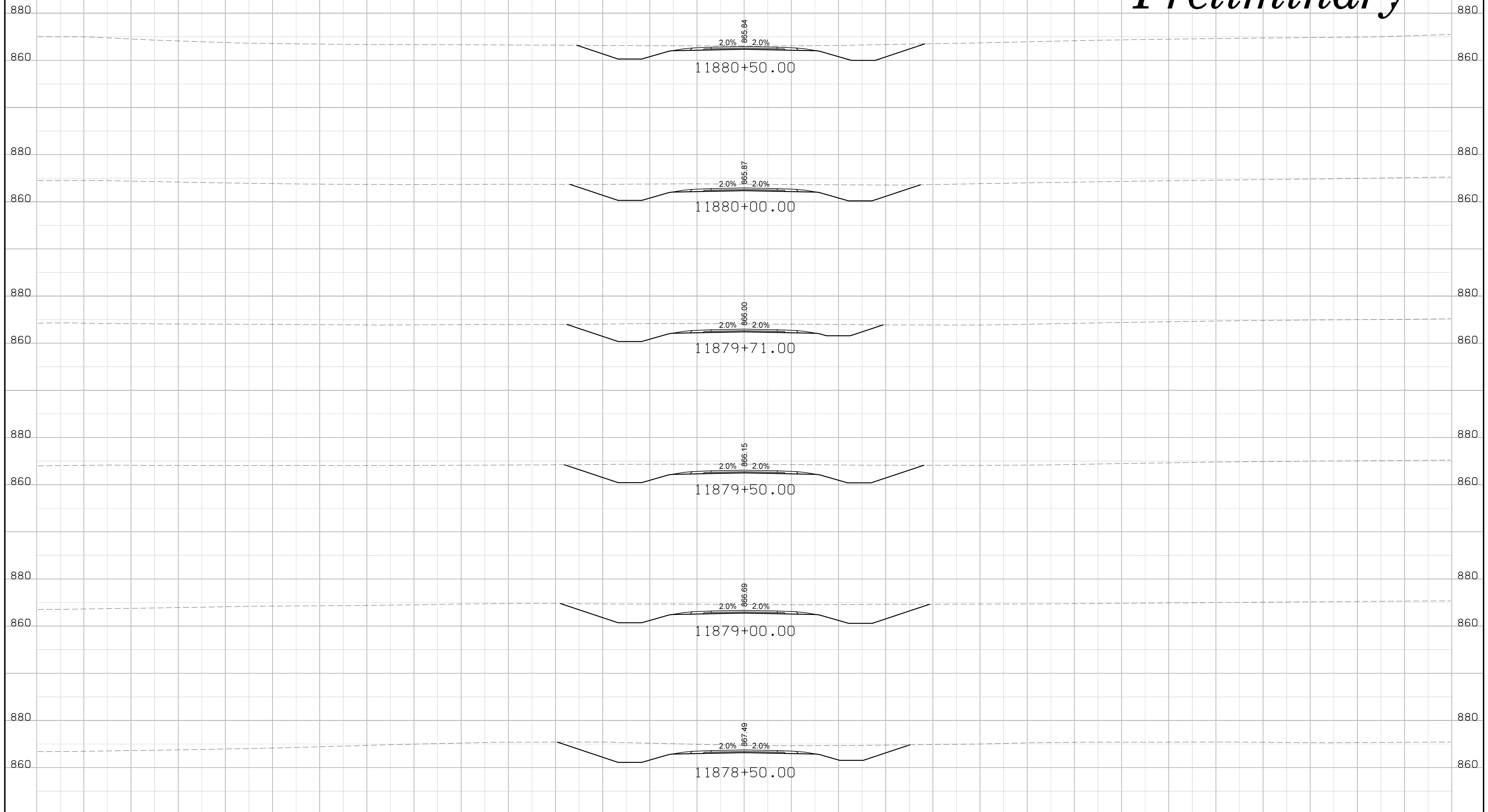


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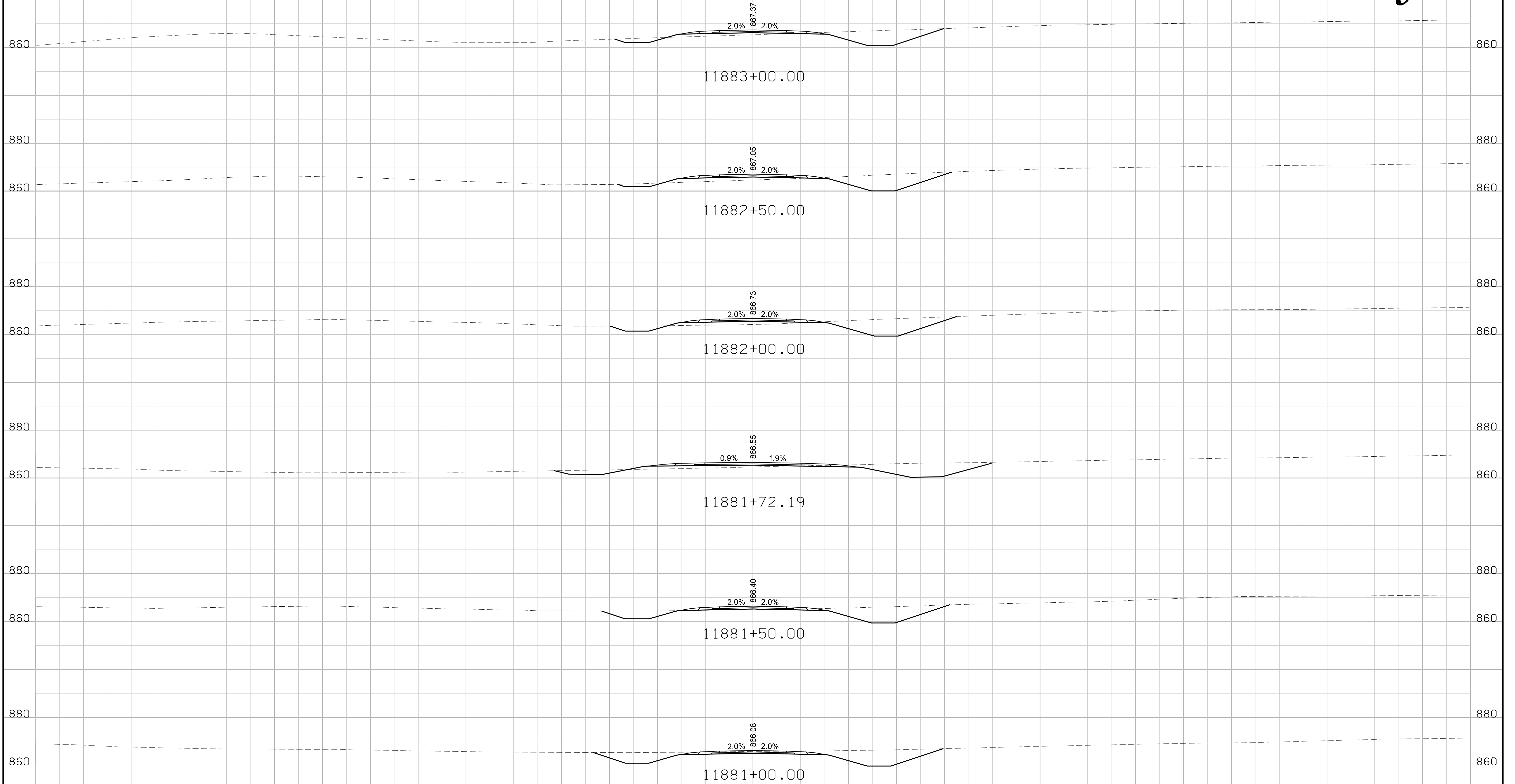
# Sideroad Adams Ave. Preliminary



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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

ENGLISH

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DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

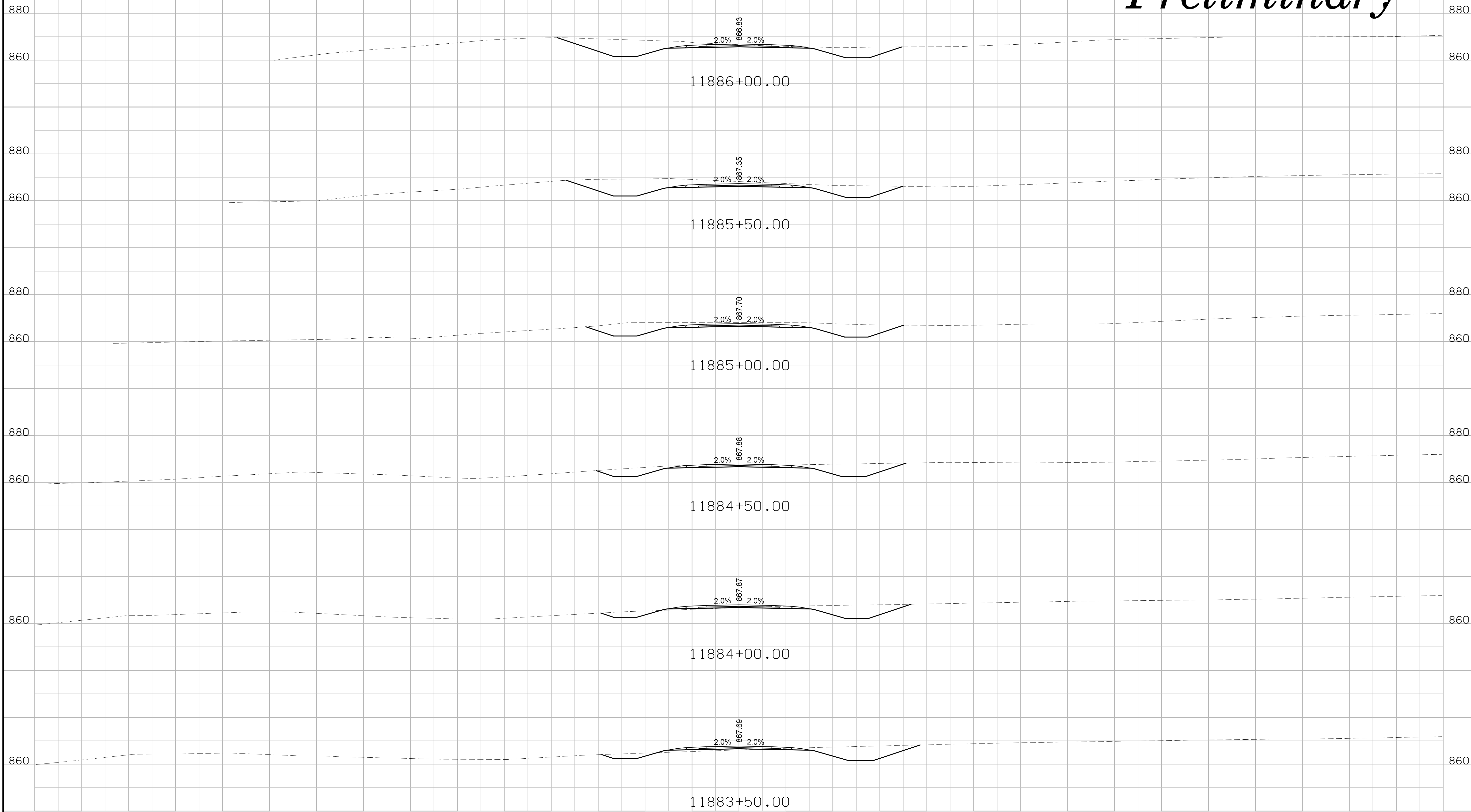
PROJECT NUMBER

NHS-030-7(76)--19-57

SHEET NUMBER X.124

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# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

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DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

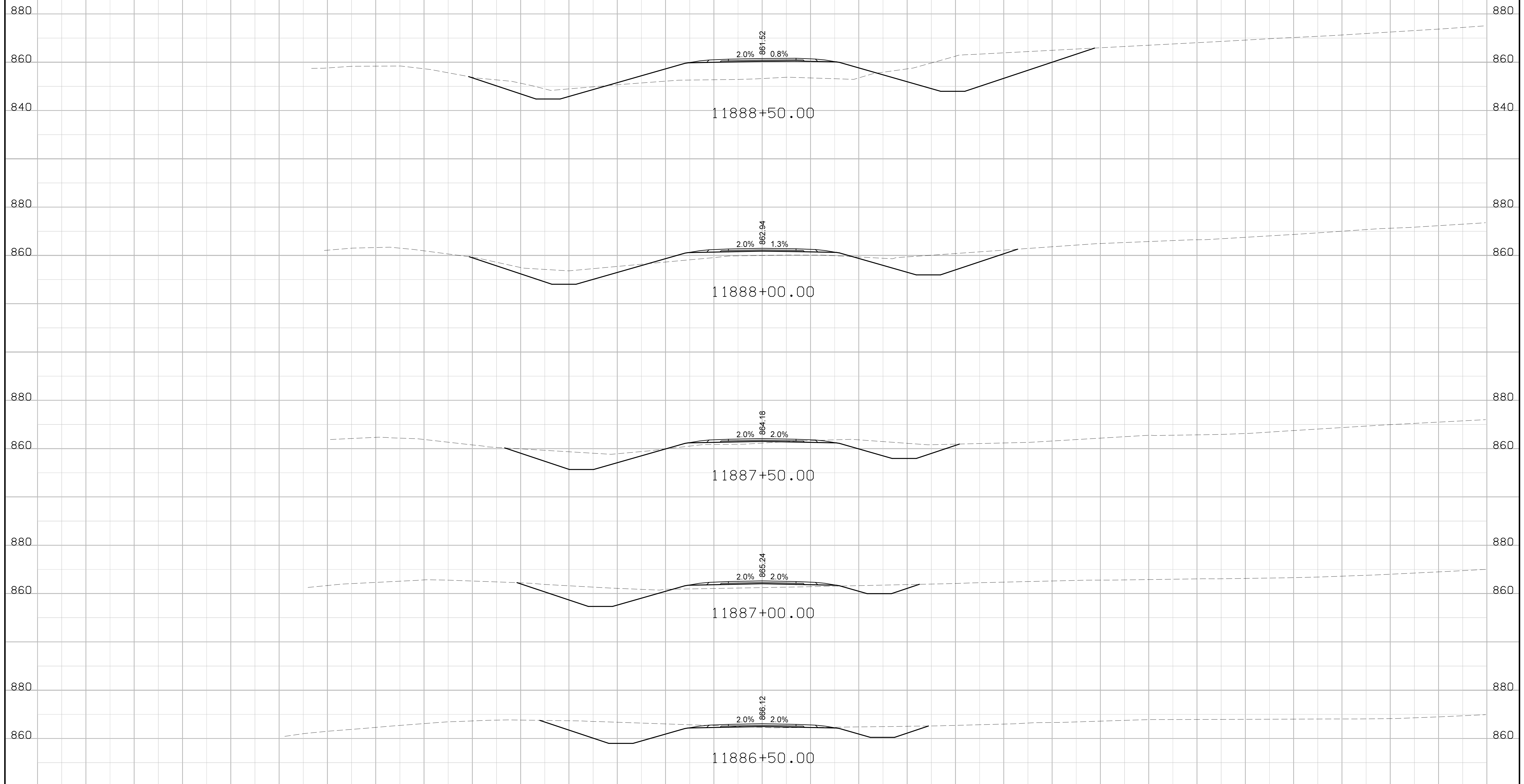
PROJECT NUMBER

NHS-030-7(76)--19-57

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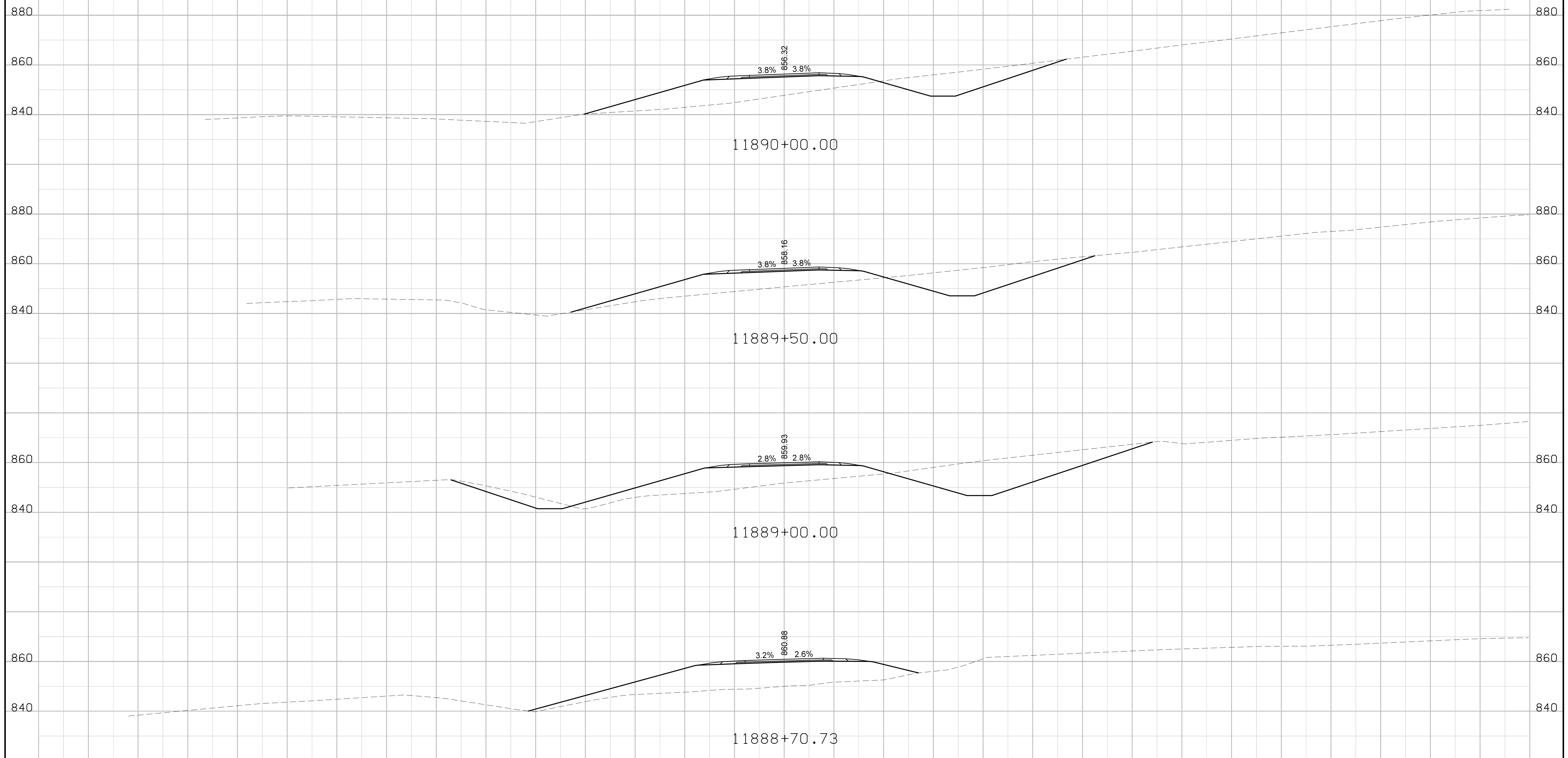
# Sideroad Adams Ave. Preliminary



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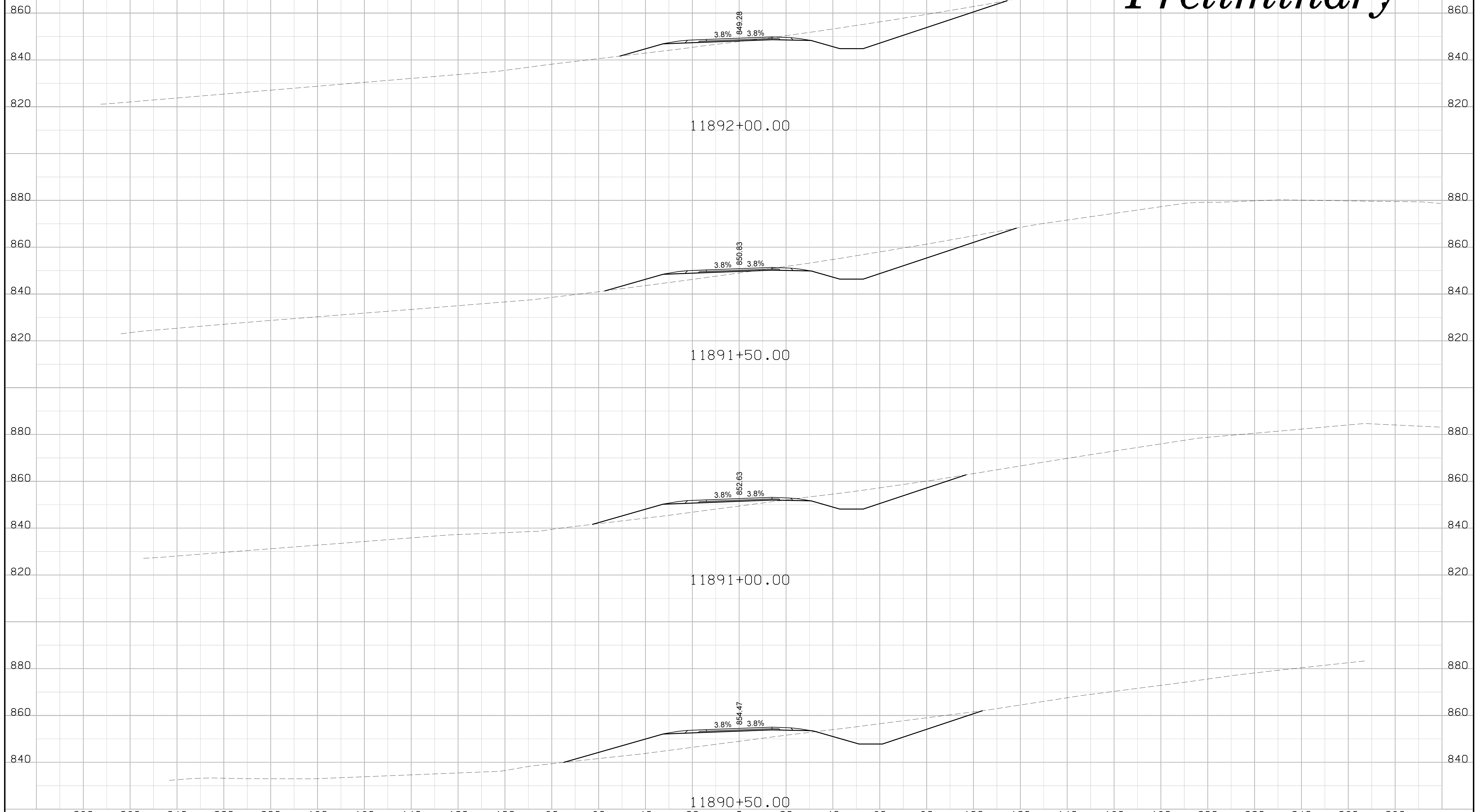
# Sideroad Adams Ave. Preliminary



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280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

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DESIGN TEAM

**SNYDER & ASSOCIATES, INC.**

LINN/CEDAR COUNTY

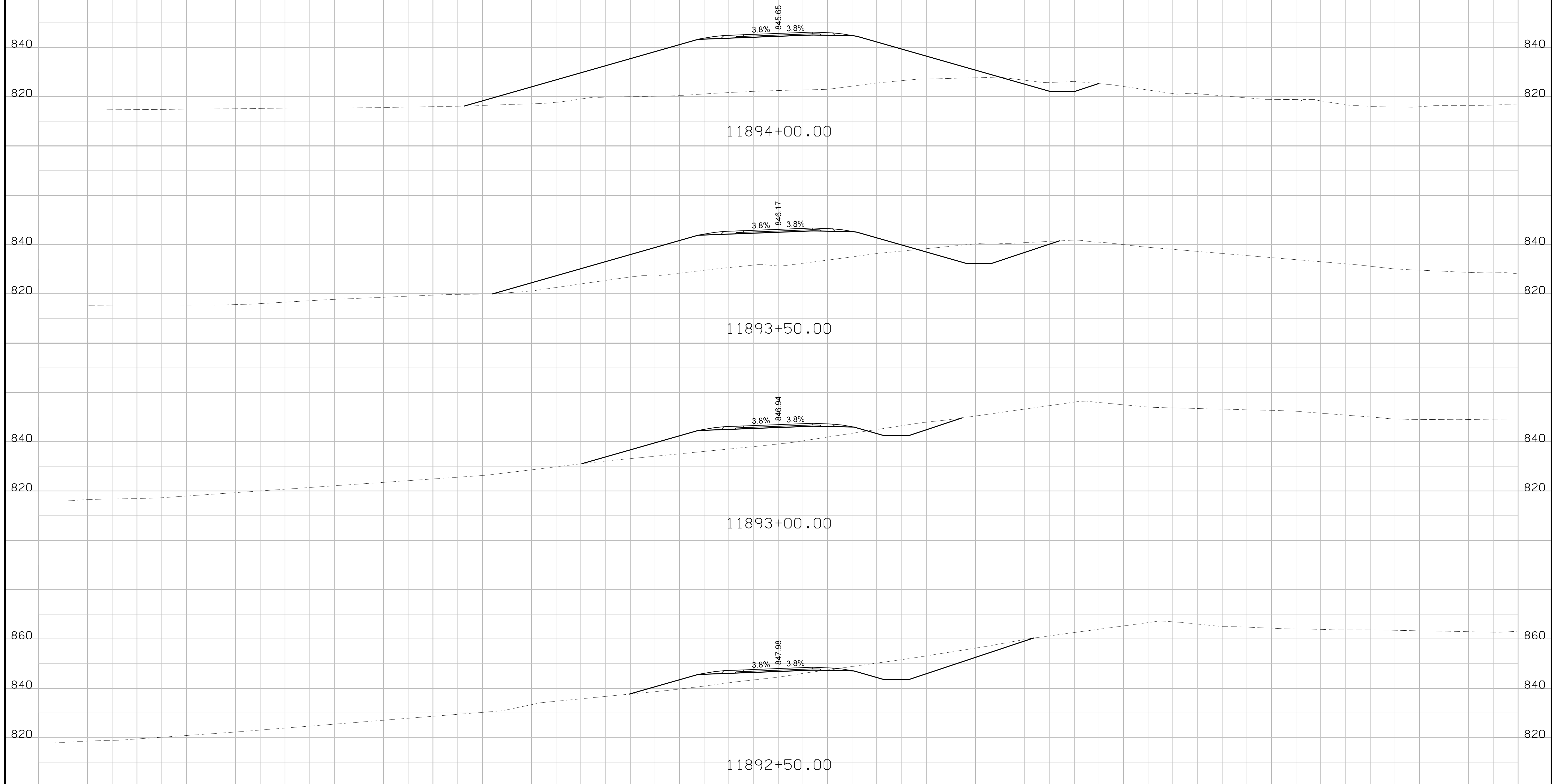
PROJECT NUMBER

NHS-030-7(76)--19-57

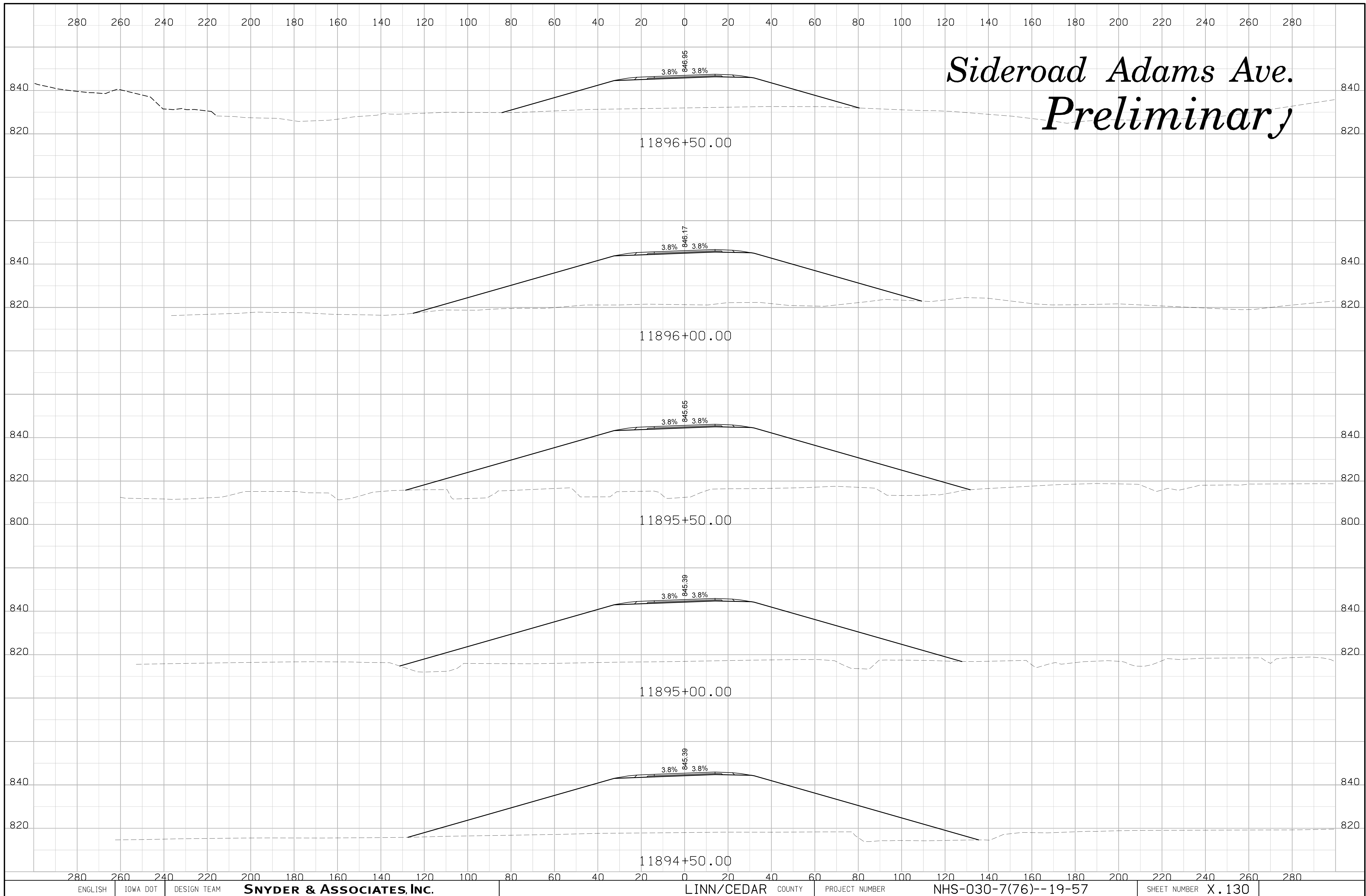
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# Sideroad Adams Ave. Preliminary

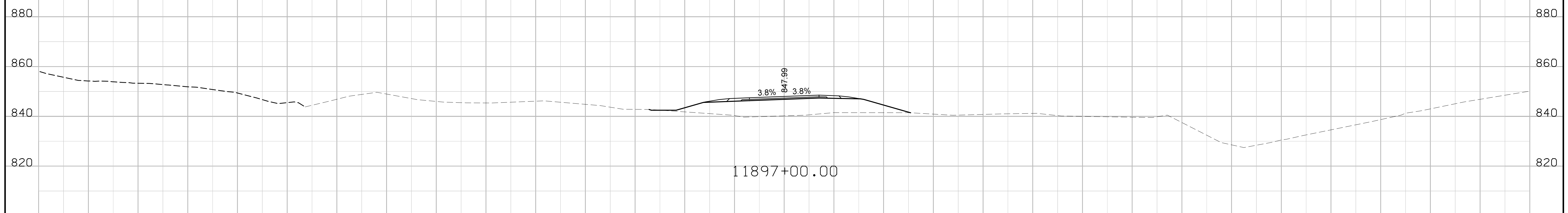
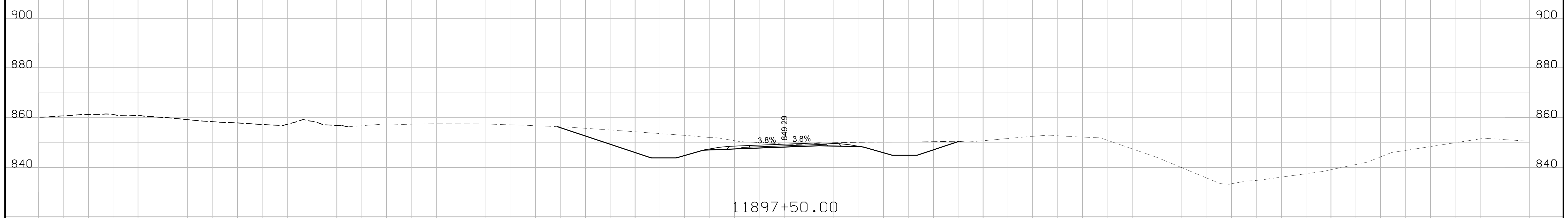
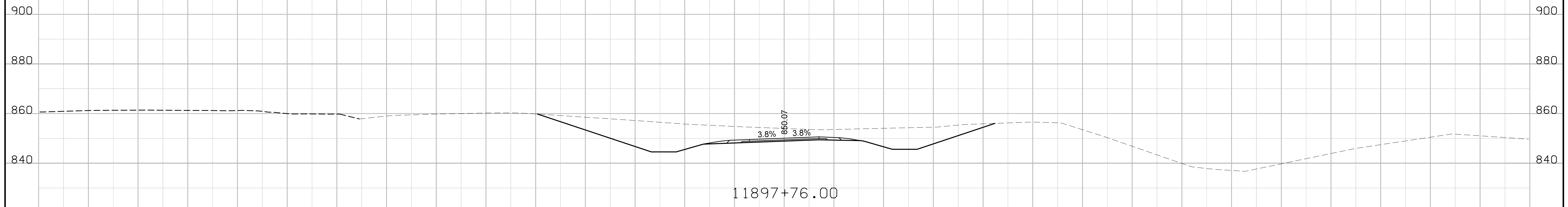






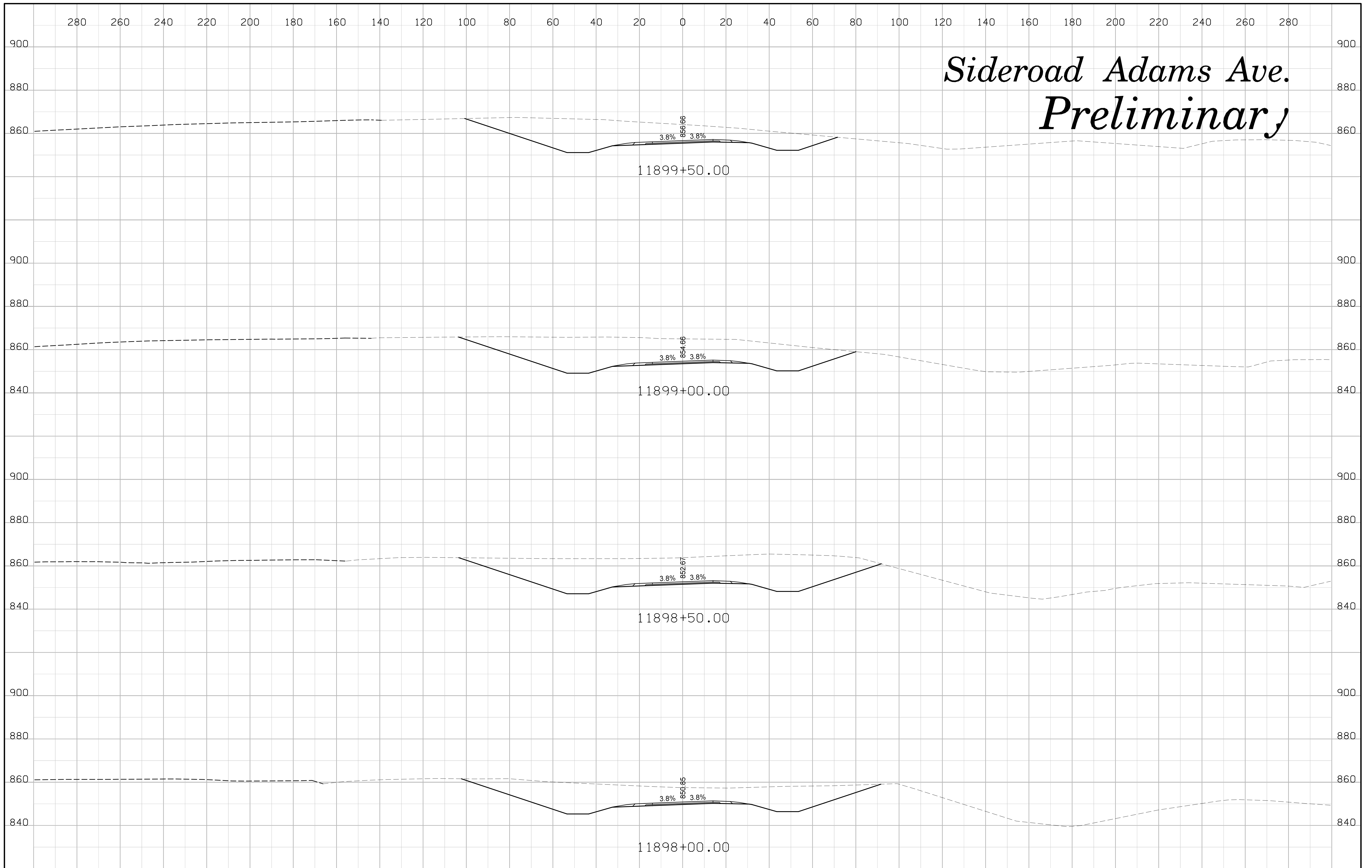
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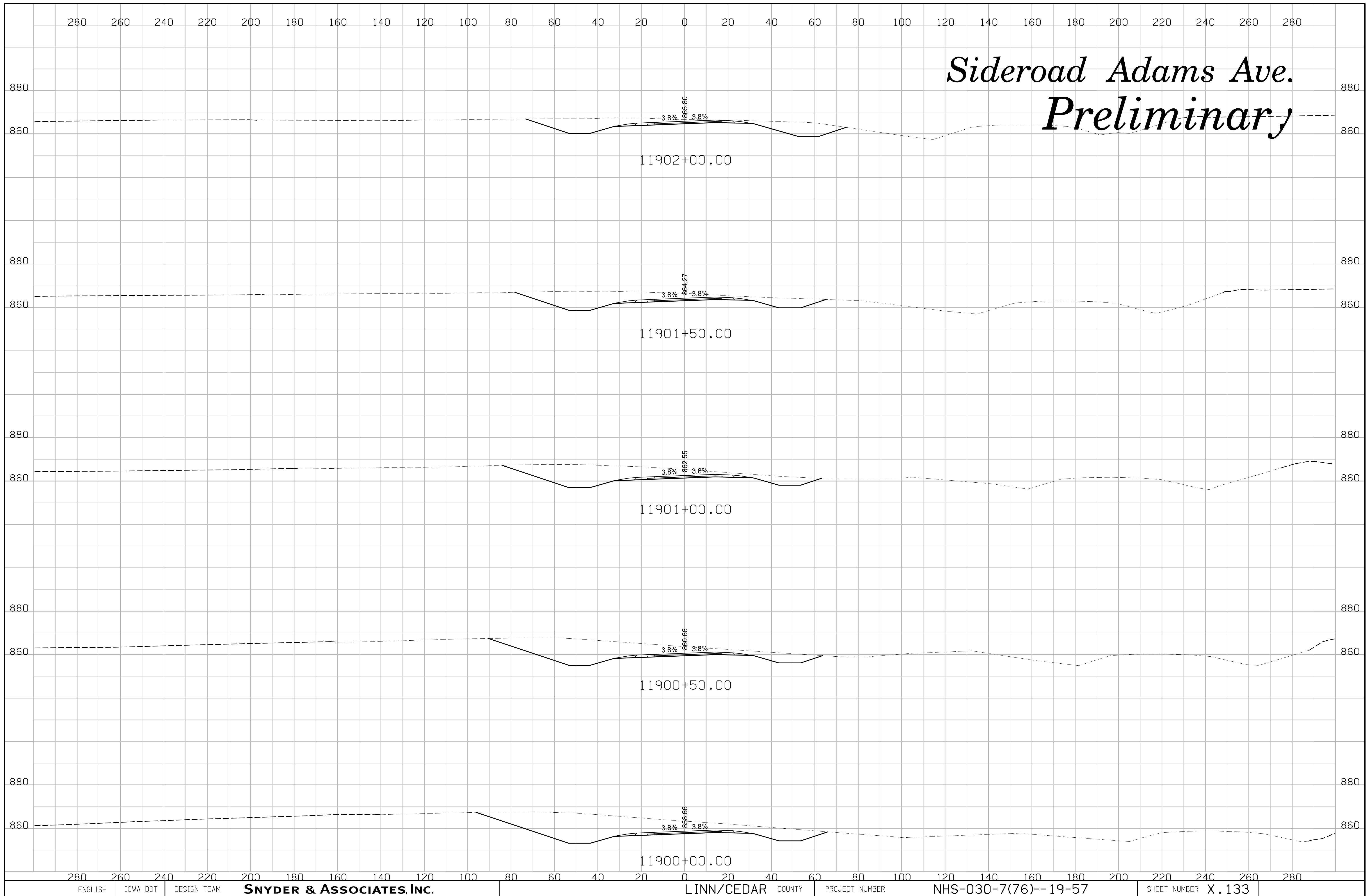
# Sideroad Adams Ave. Preliminary



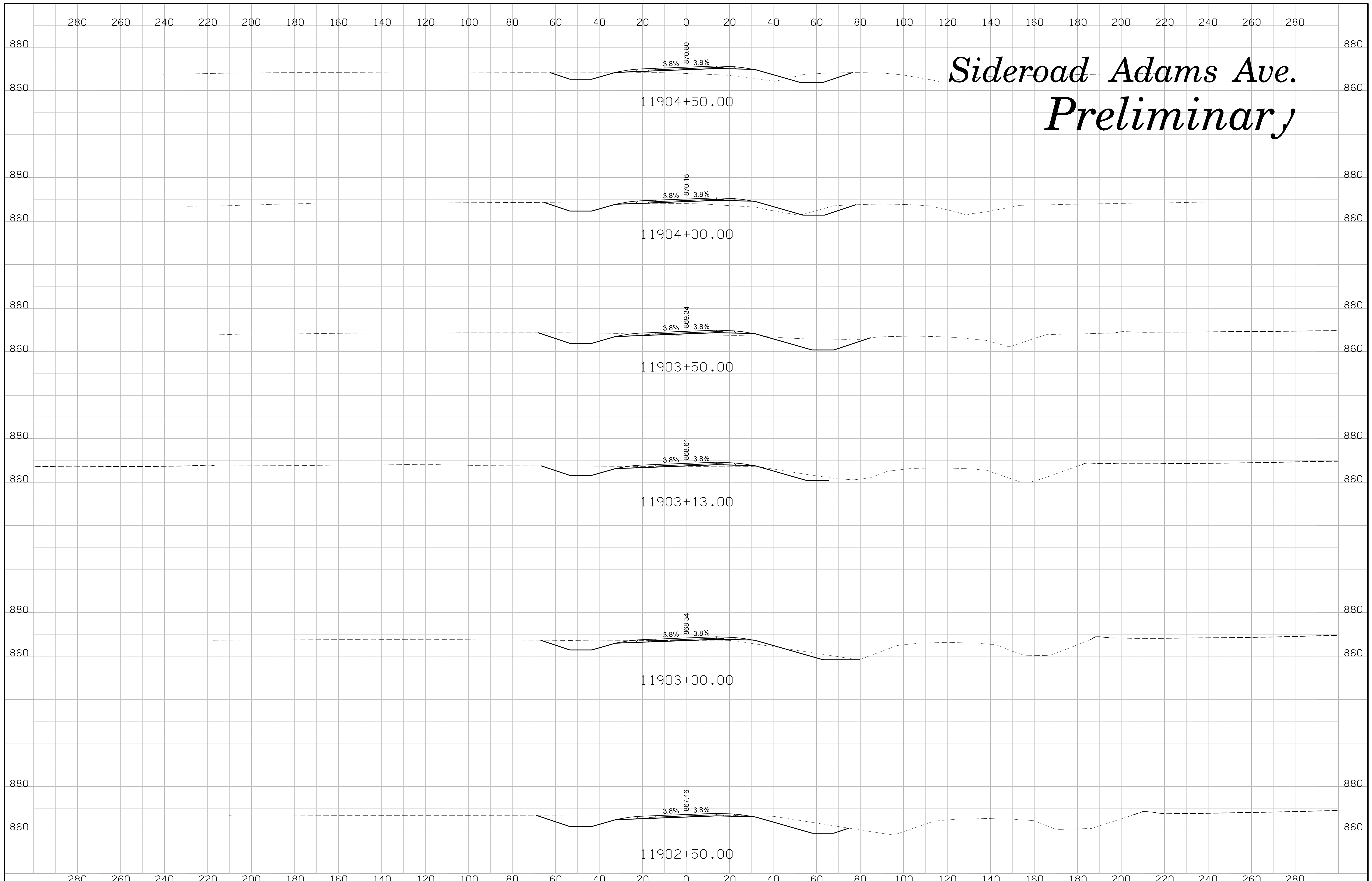
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# Sideroad Adams Ave. Preliminary





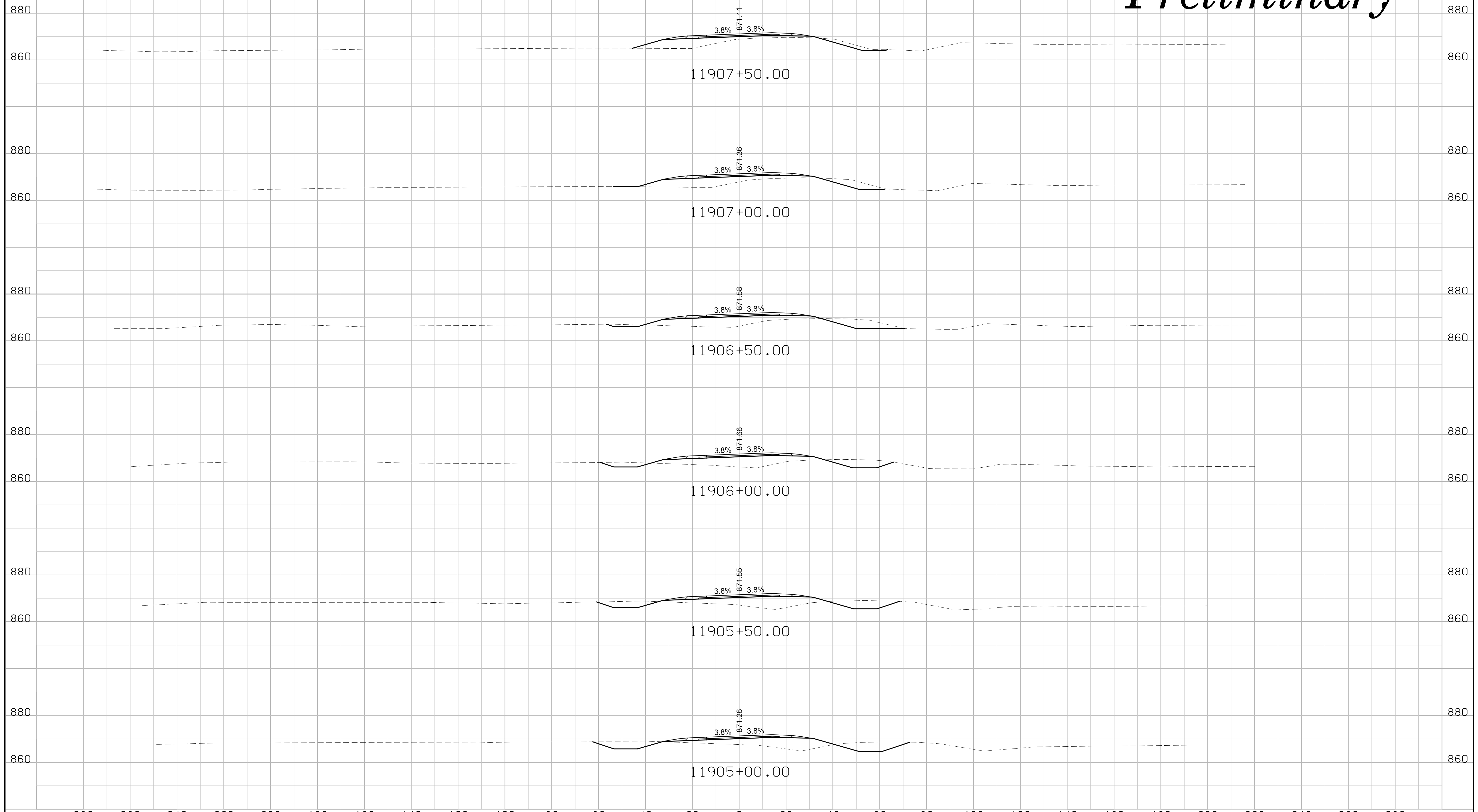
*Sideroad Adams Ave.  
Preliminary*



*Sideroad Adams Ave.  
Preliminary*

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

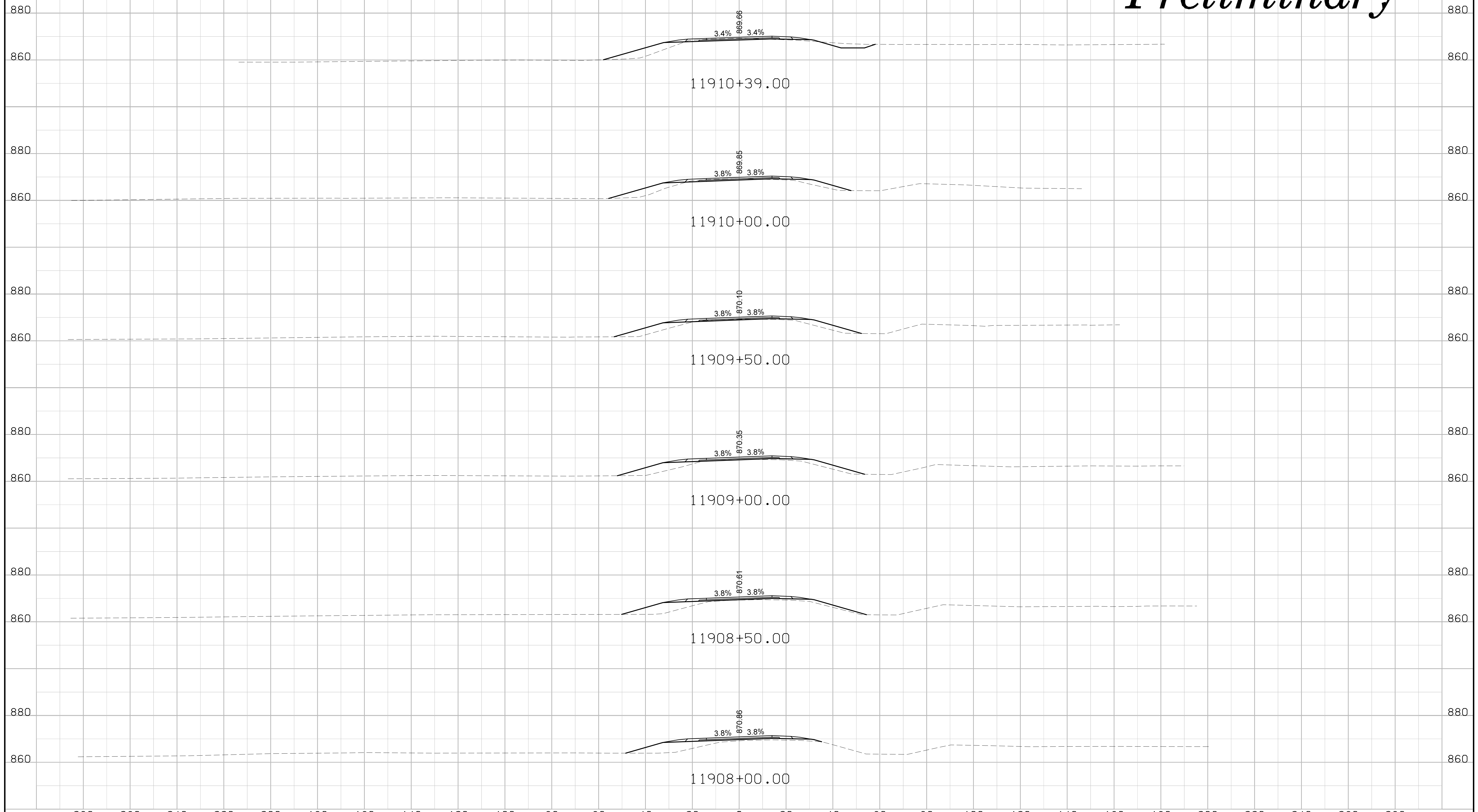
# Sideroad Adams Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

# Sideroad Adams Ave. Preliminary

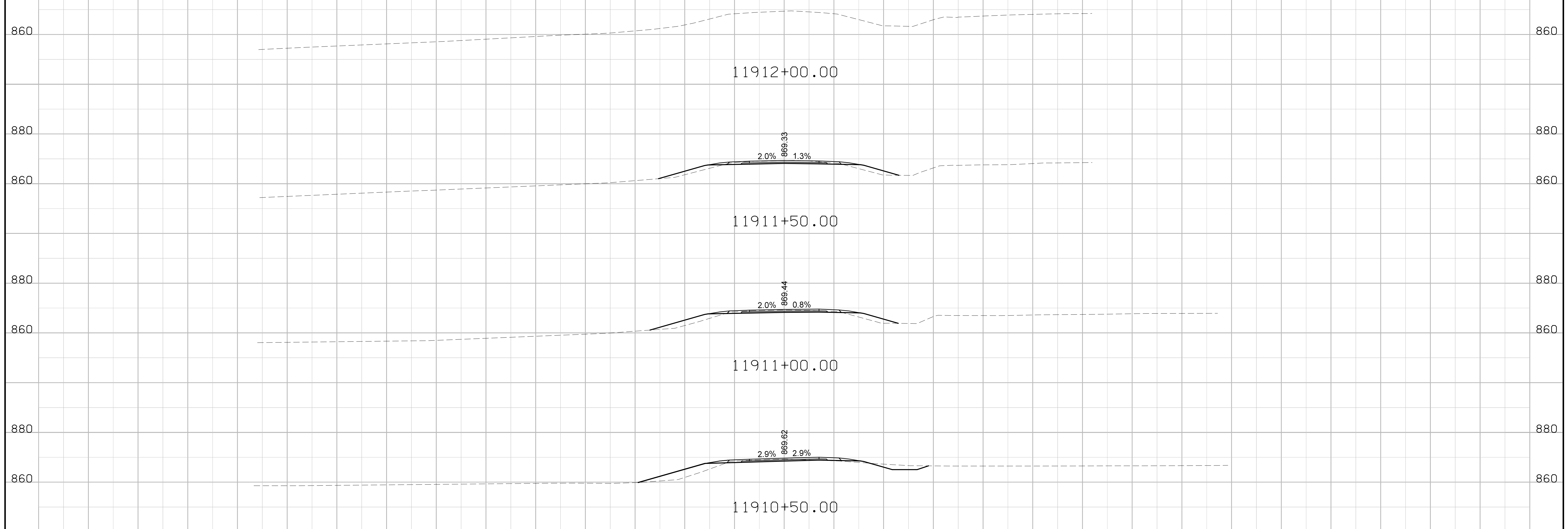


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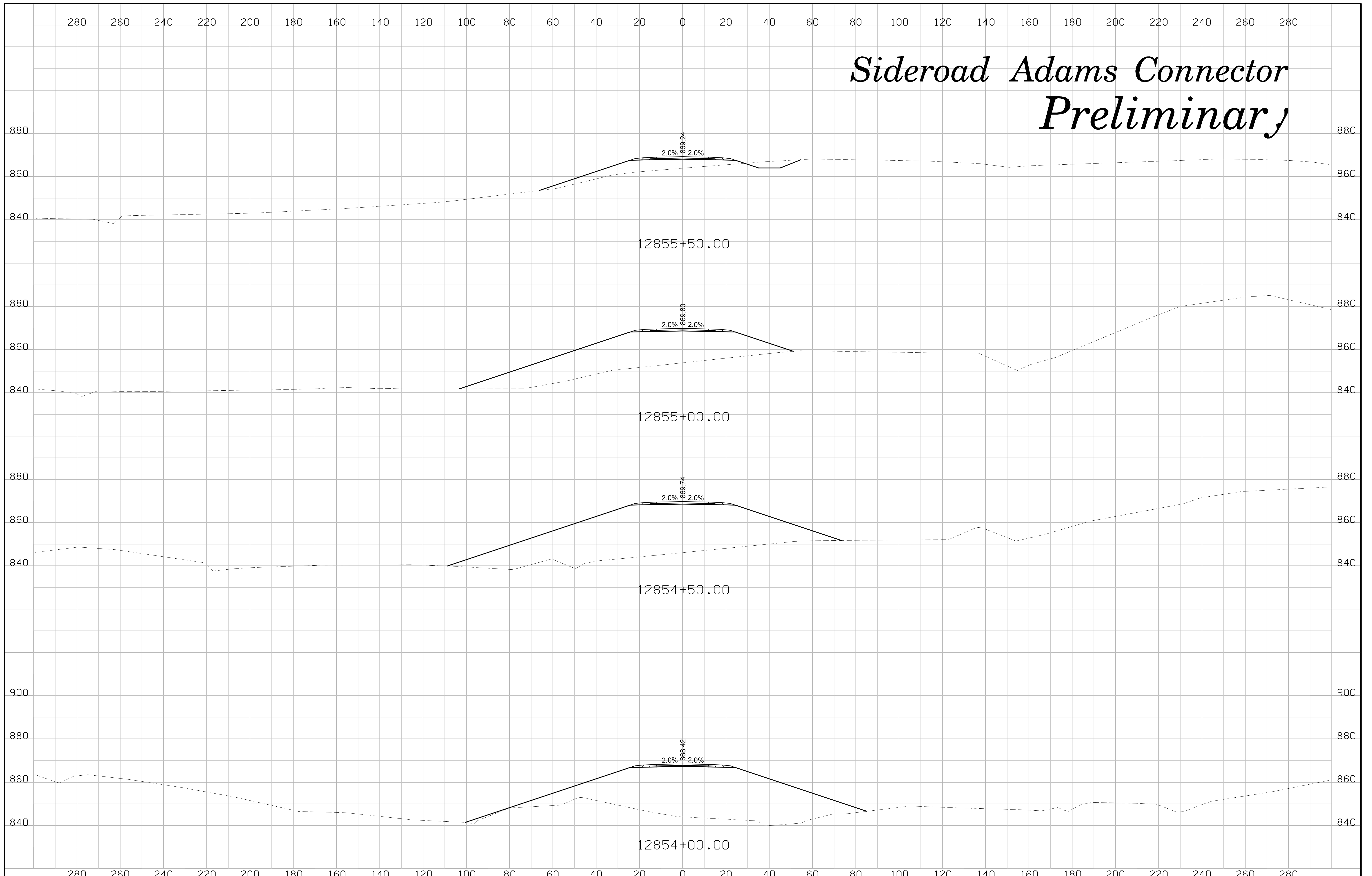
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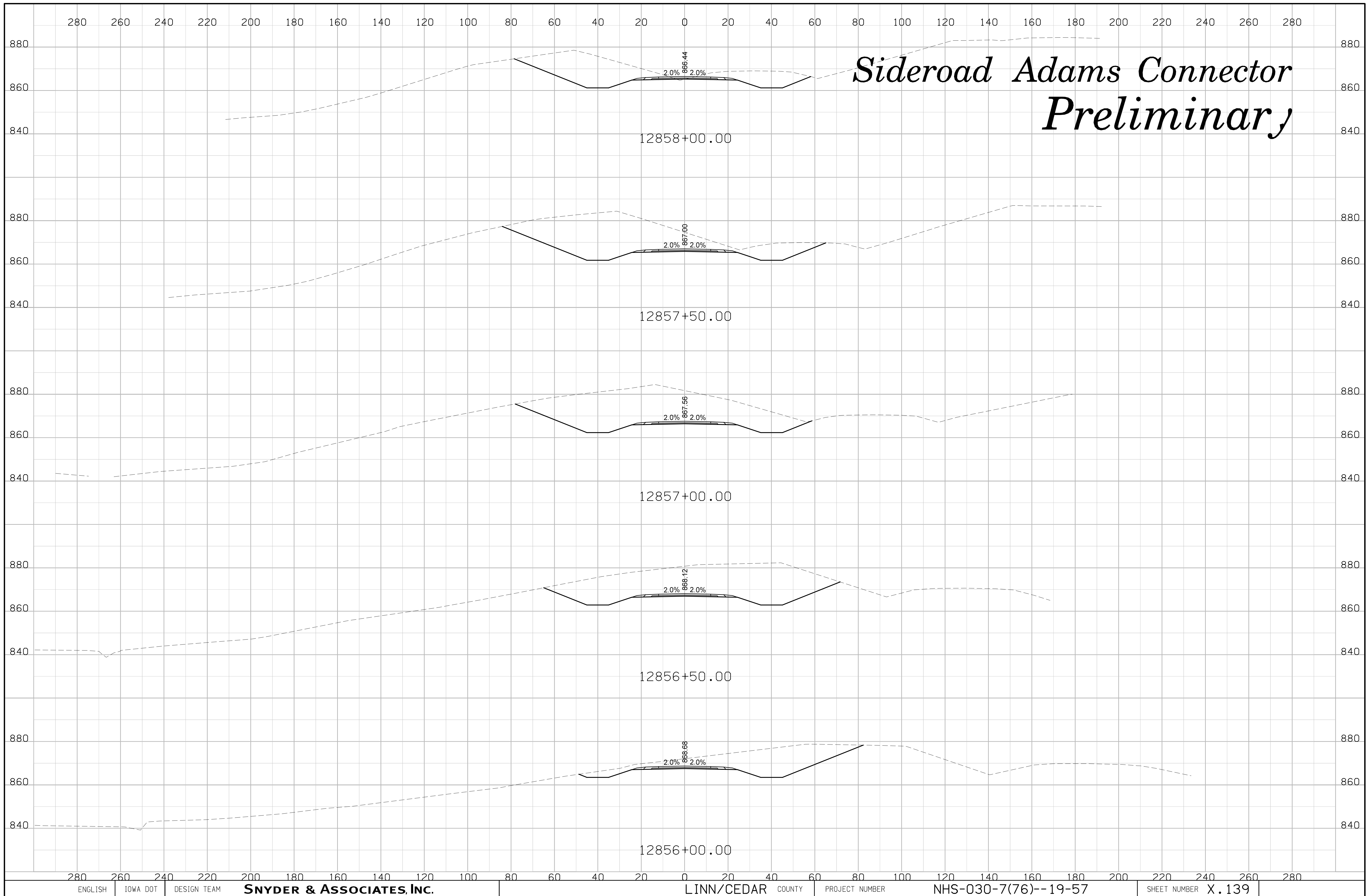
# Sideroad Adams Ave. Preliminary



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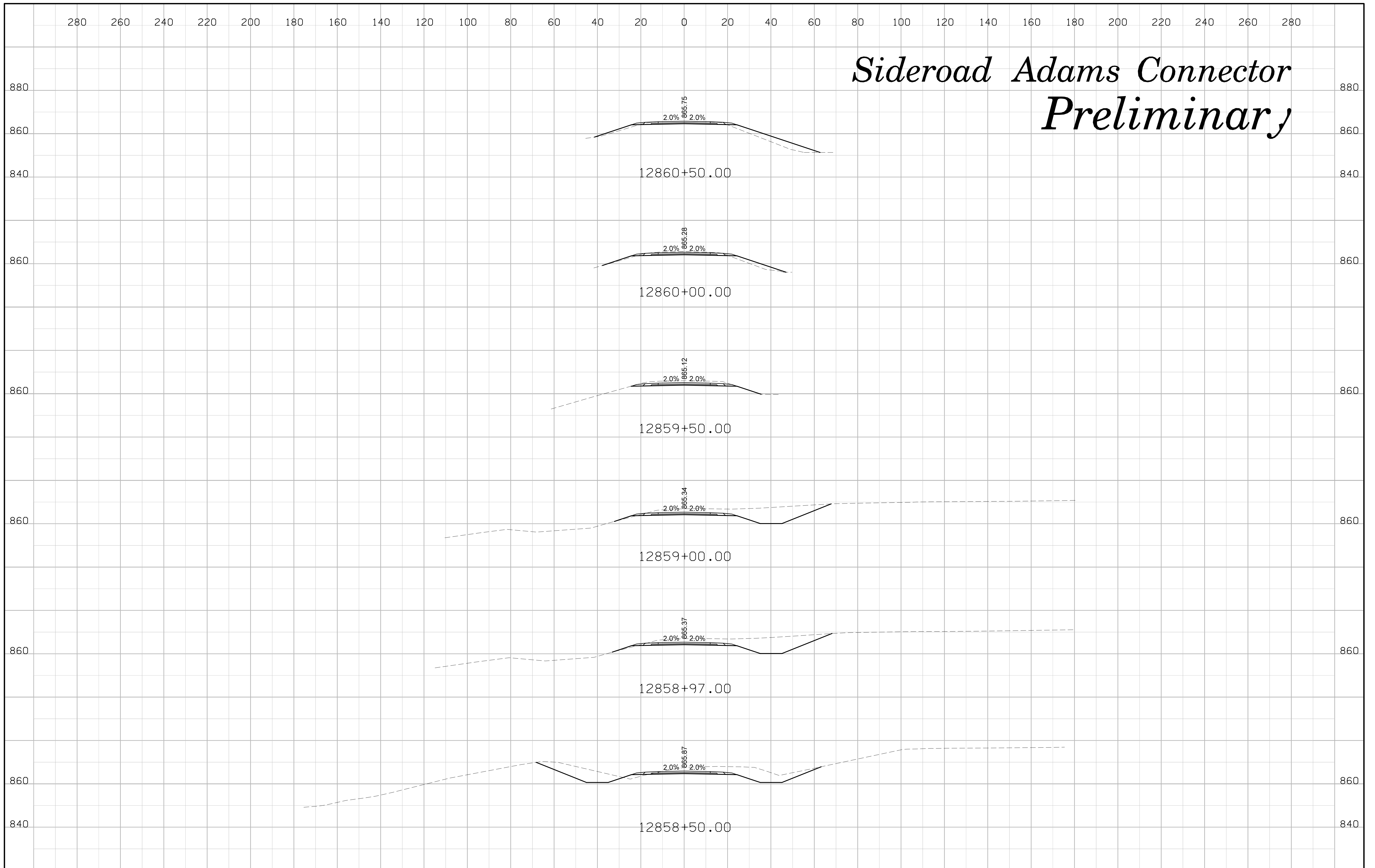
# Sideroad Adams Connector Preliminary





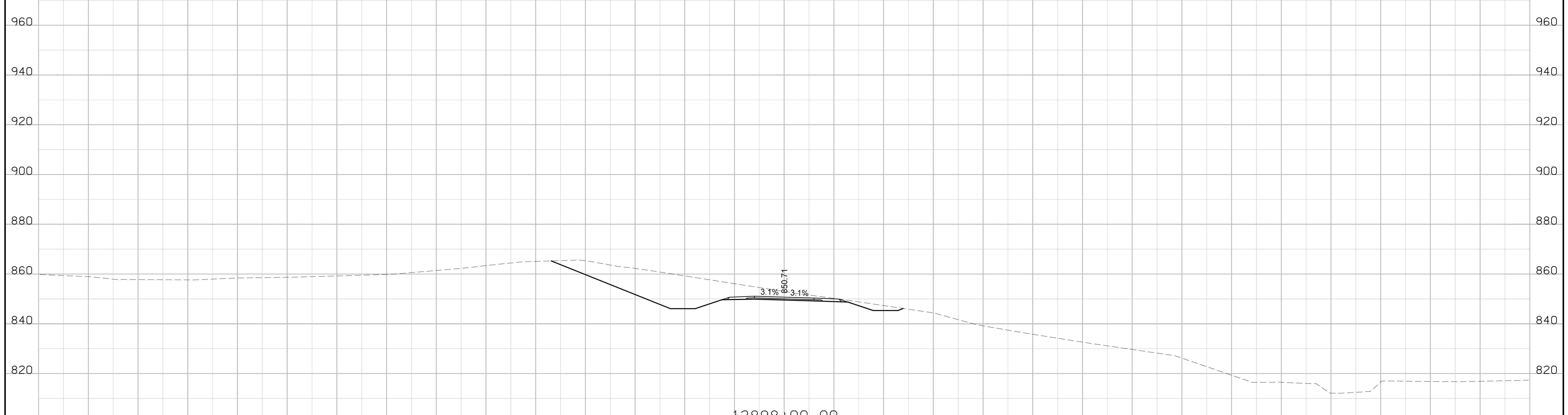
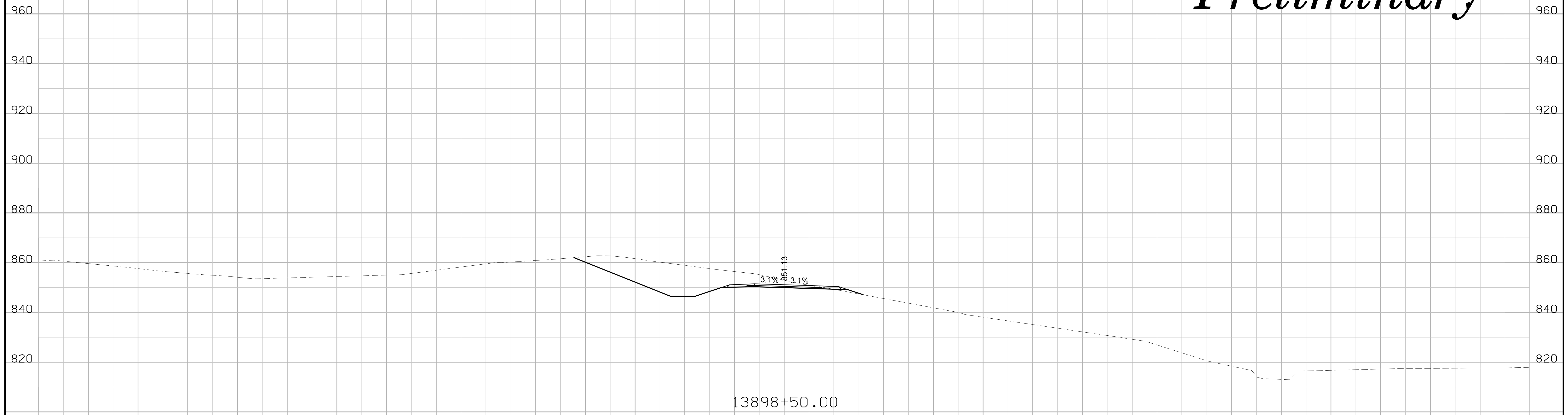
# Sideroad Adams Connector Preliminary

# Sideroad Adams Connector Preliminary



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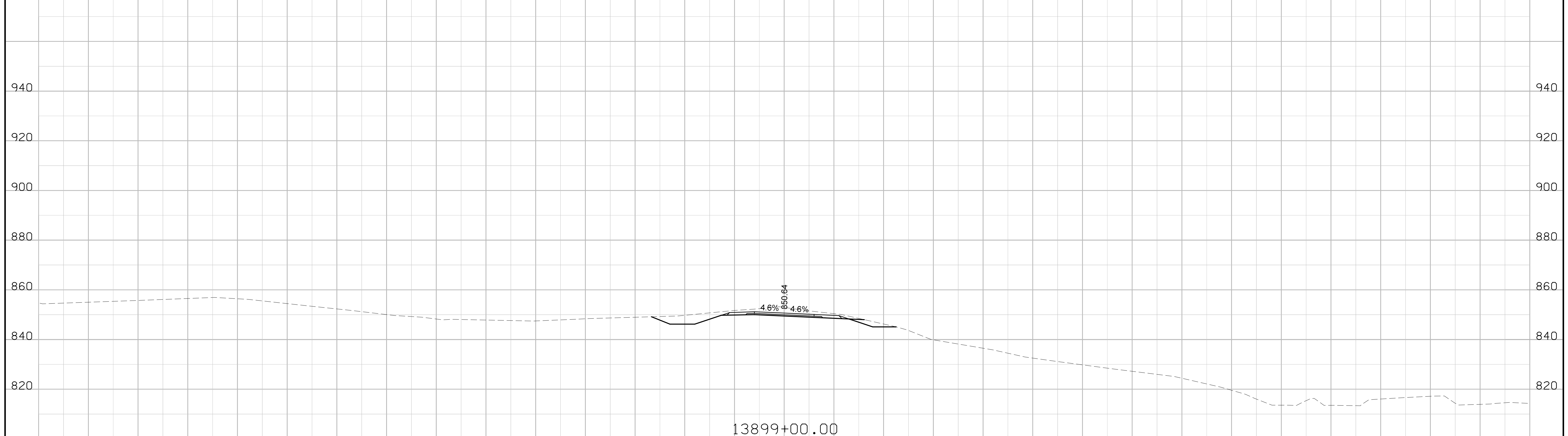
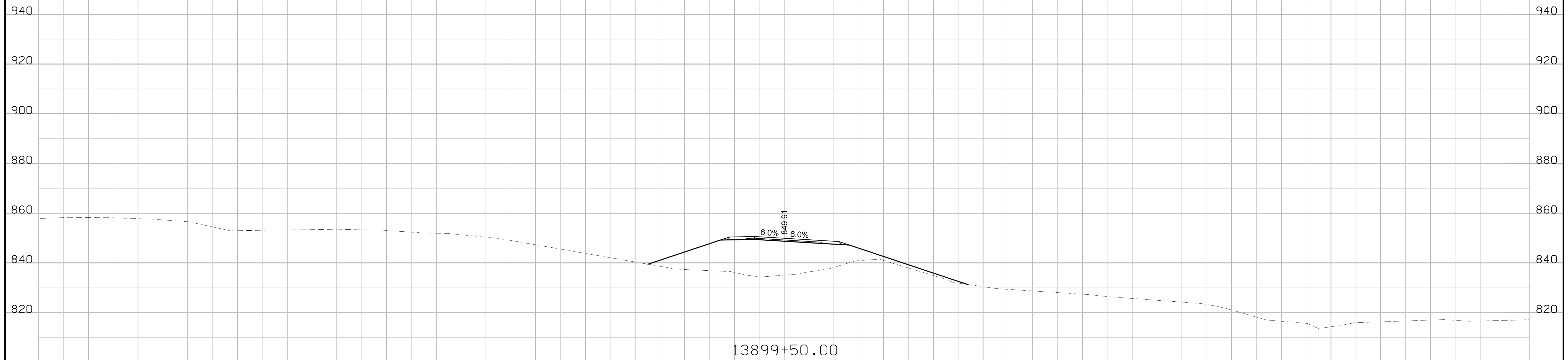
# Sideroad Kirkwood Blvd. Preliminary



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280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

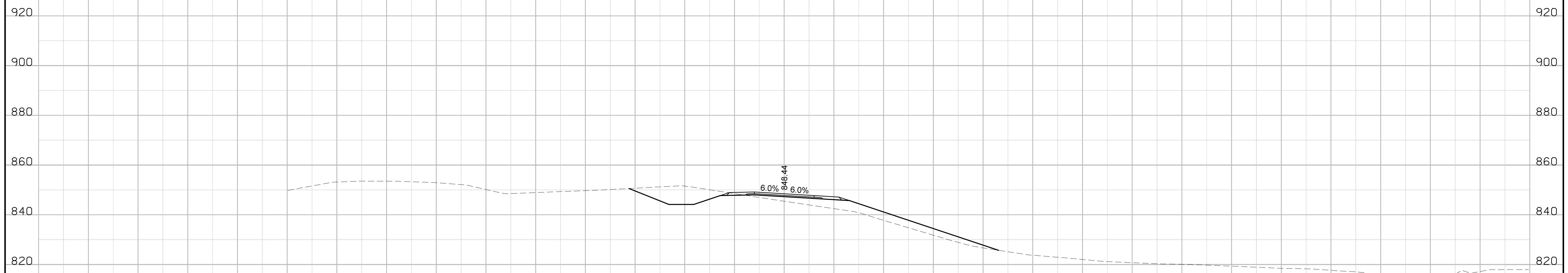
# Sideroad Kirkwood Blvd. Preliminary



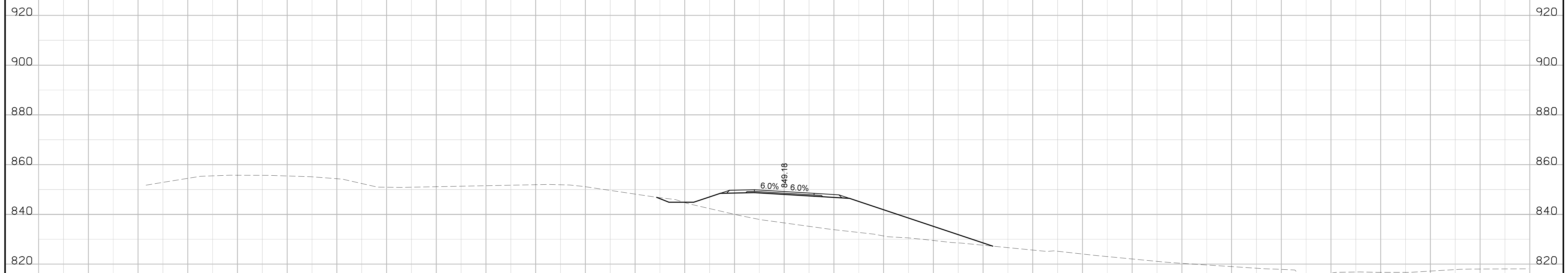
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# Sideroad Kirkwood Blvd. Preliminary



13900+50.00

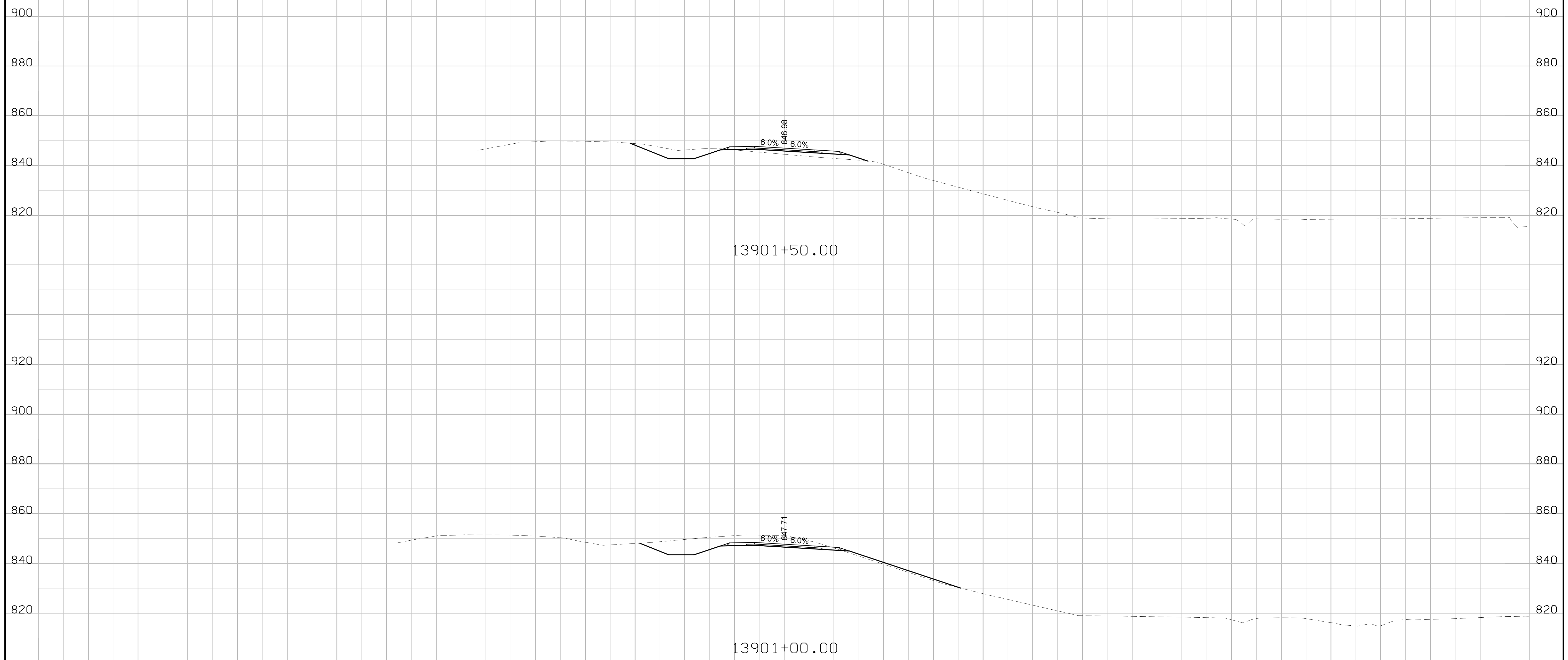


13900+00.00

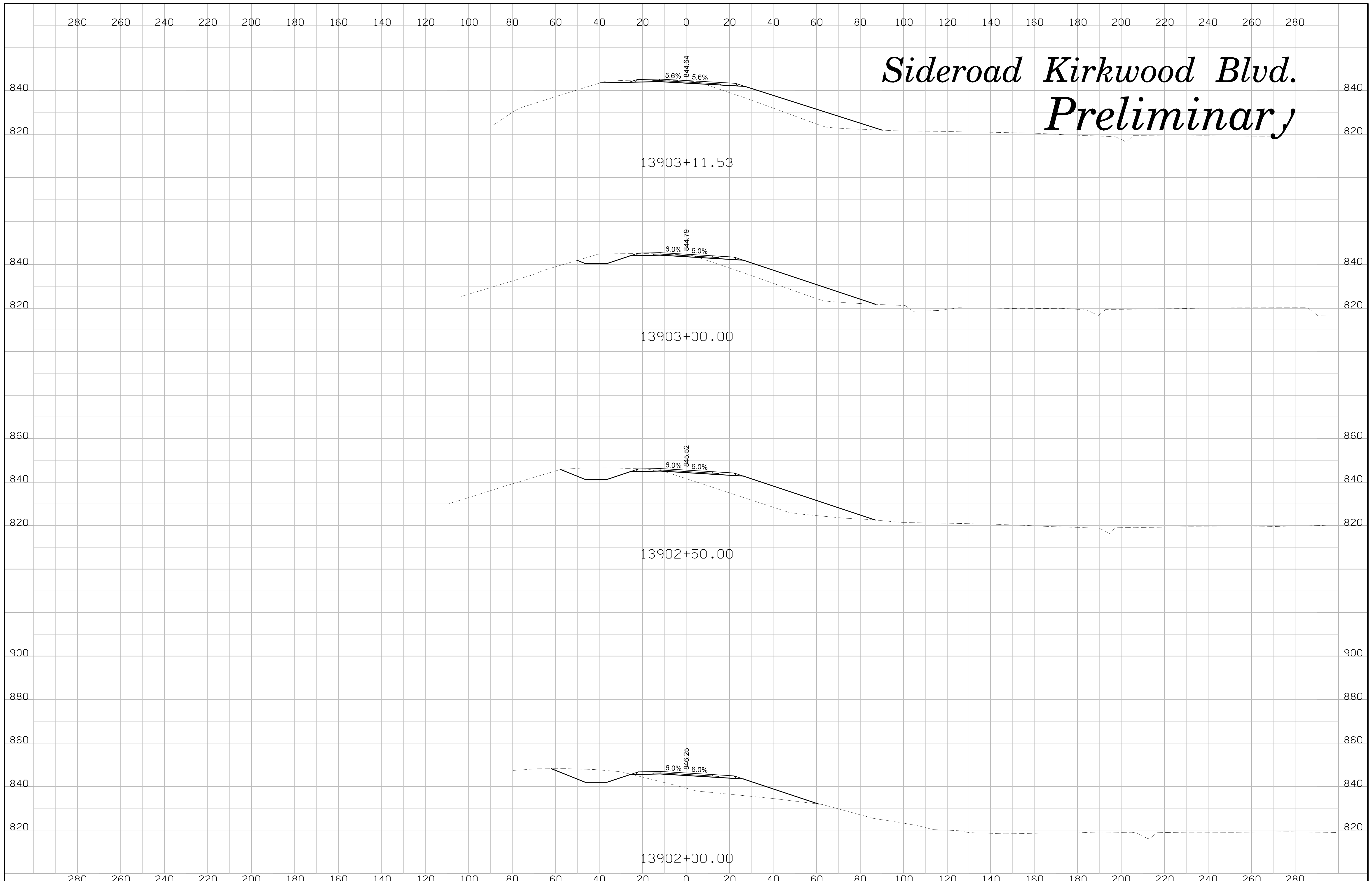


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# Sideroad Kirkwood Blvd. Preliminary



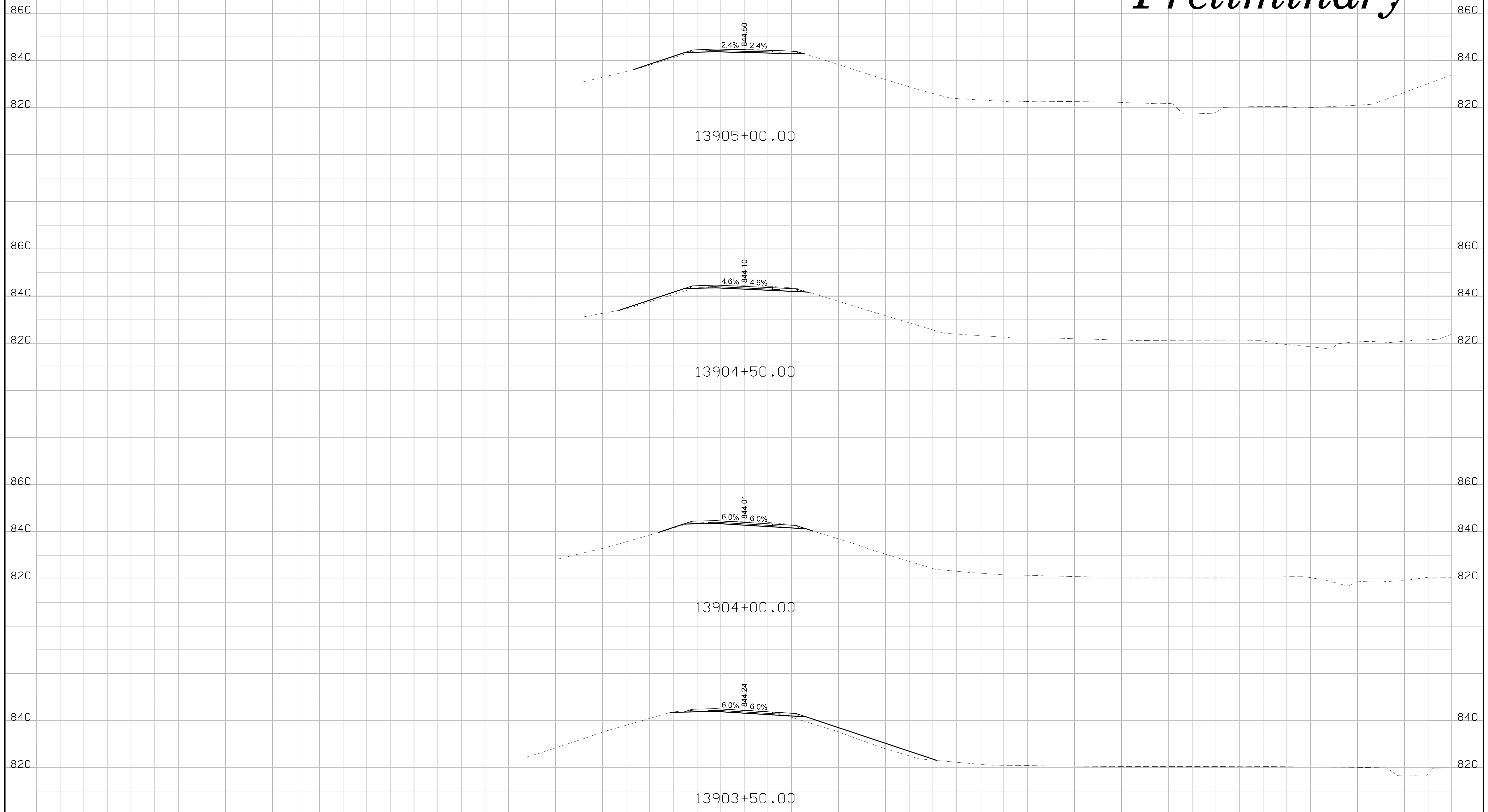
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*Sideroad Kirkwood Blvd.  
Preliminary*

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

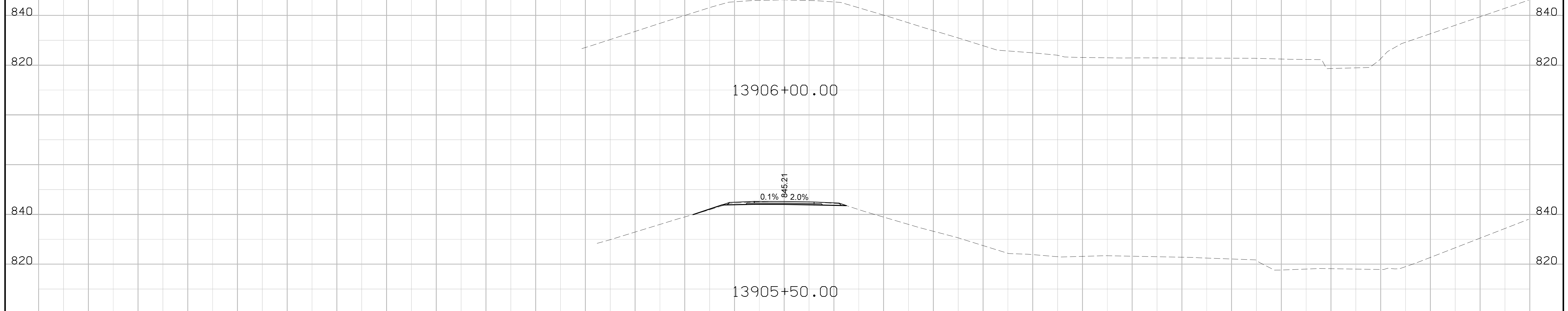
# Sideroad Kirkwood Blvd. Preliminary



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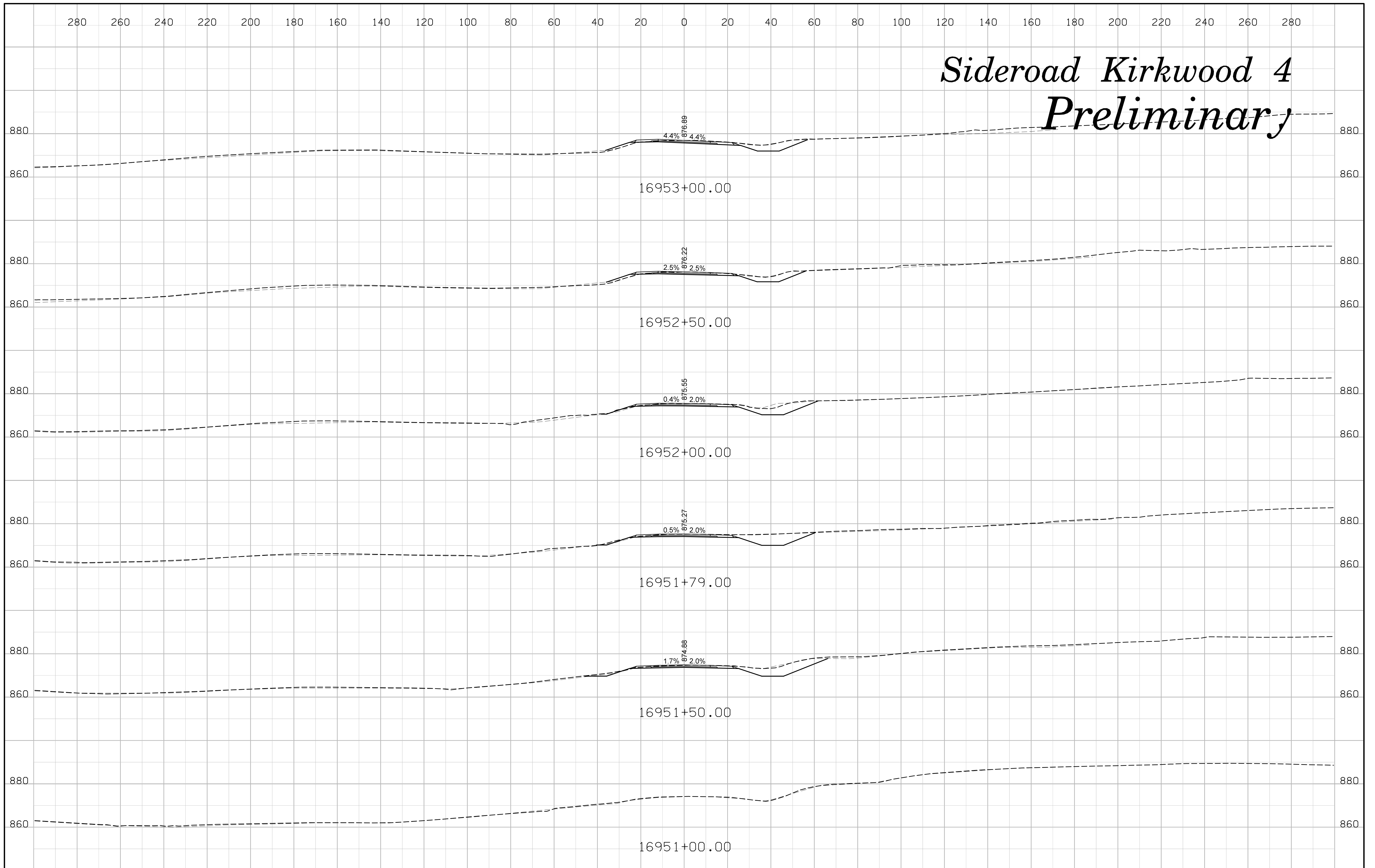
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# Sideroad Kirkwood Blvd. Preliminary



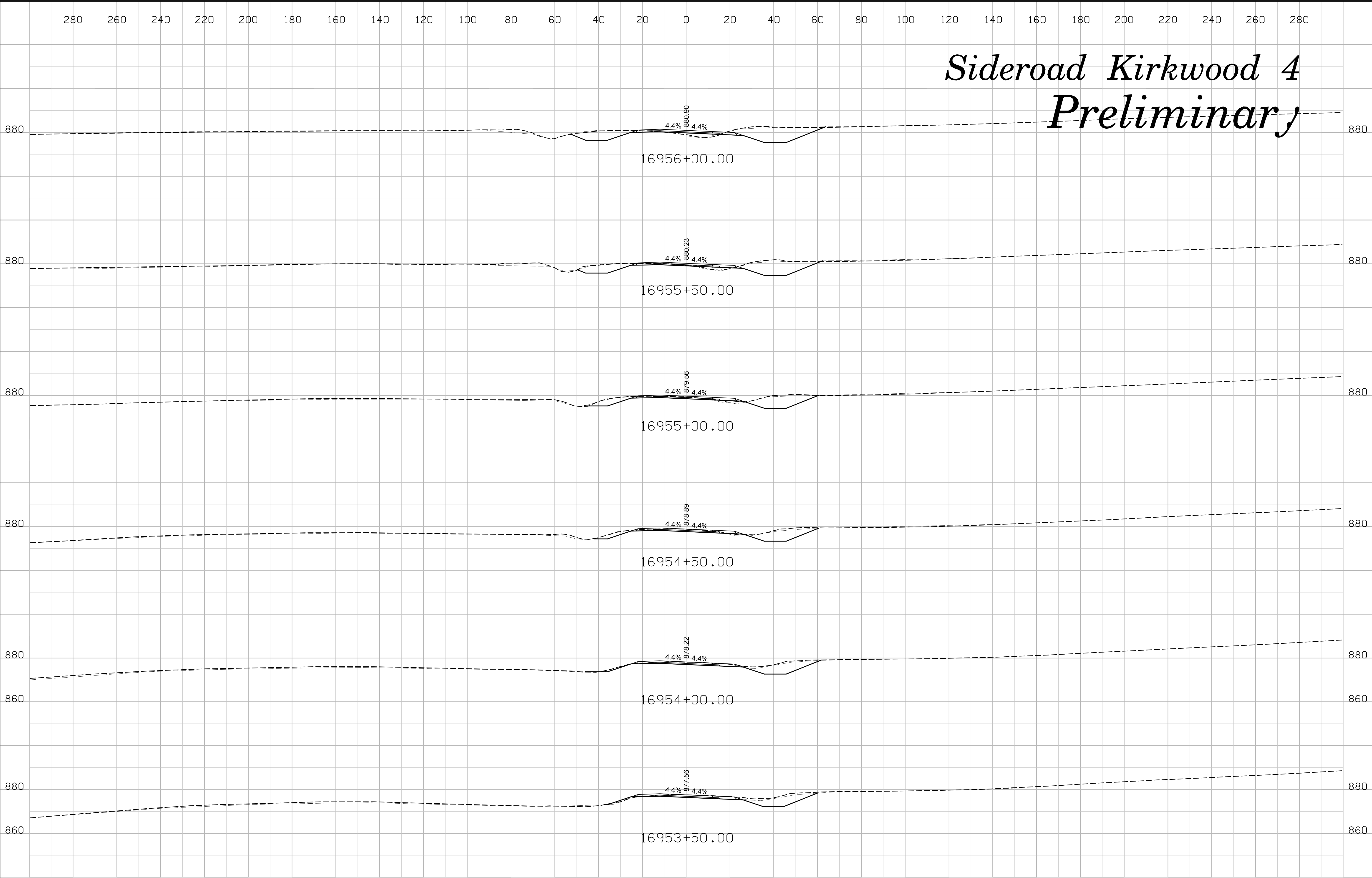
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# Sideroad Kirkwood 4 Preliminary

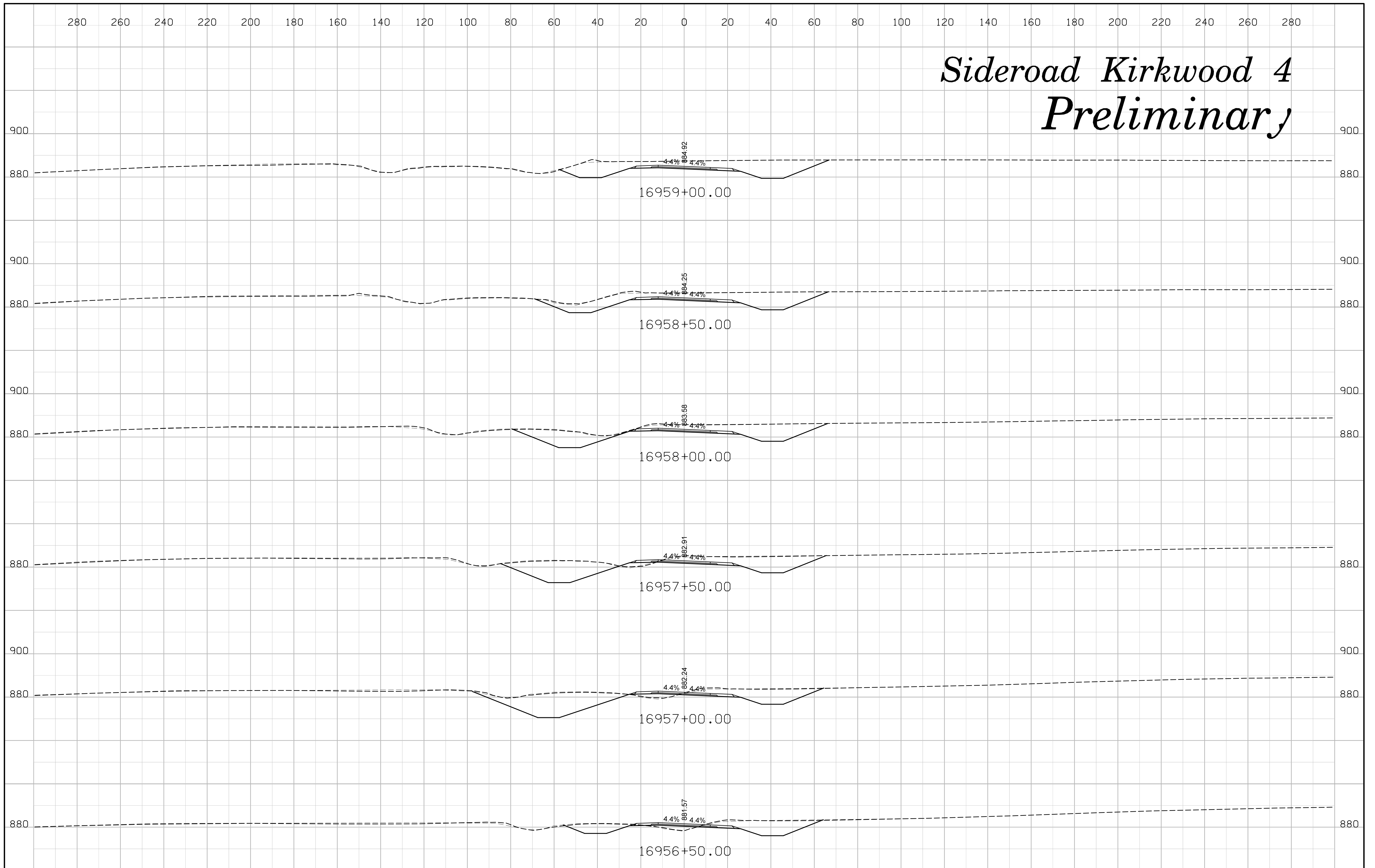


# *Sideroad Kirkwood 4*

## *Preliminary*

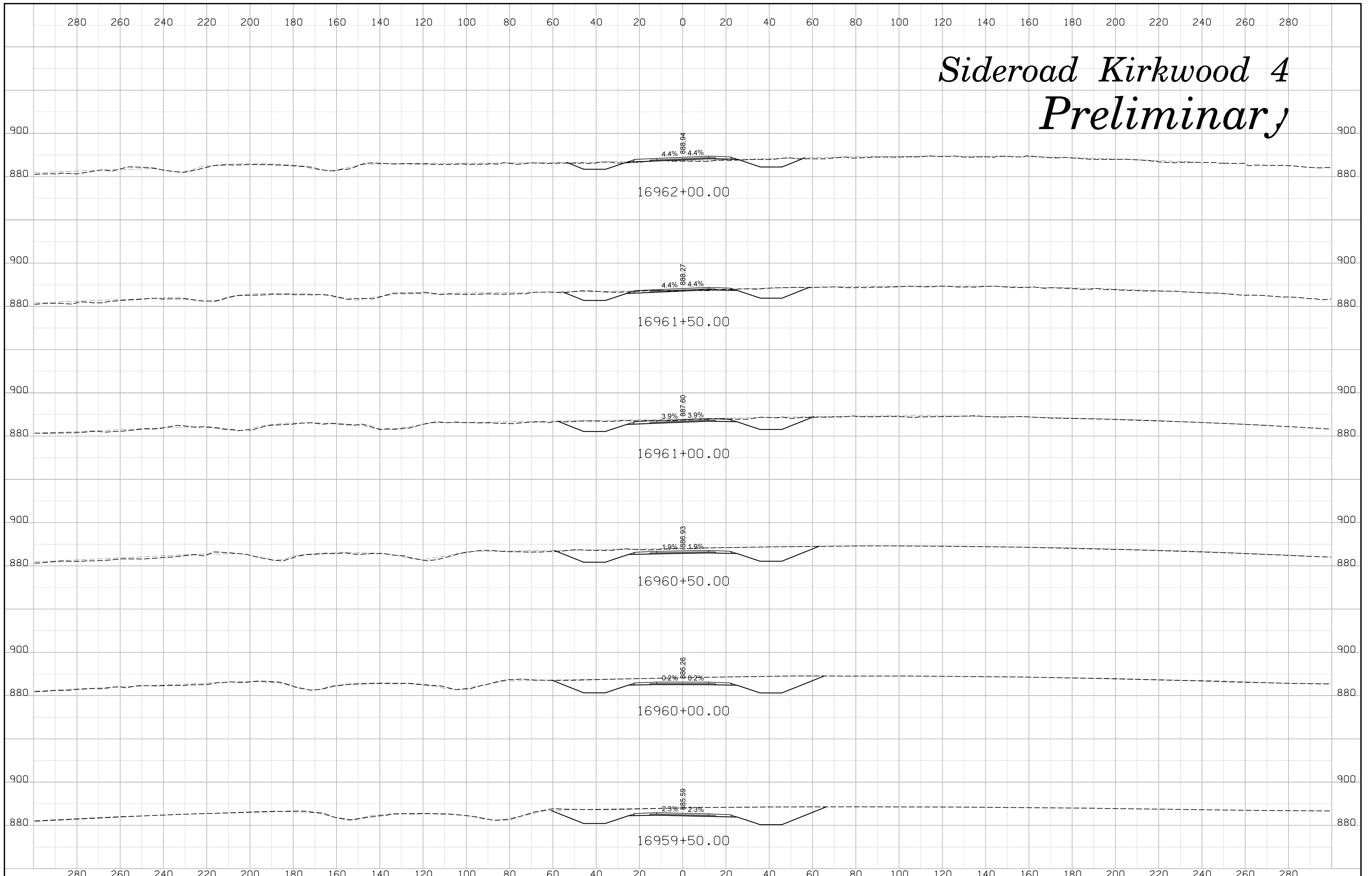


# Sideroad Kirkwood 4 Preliminary

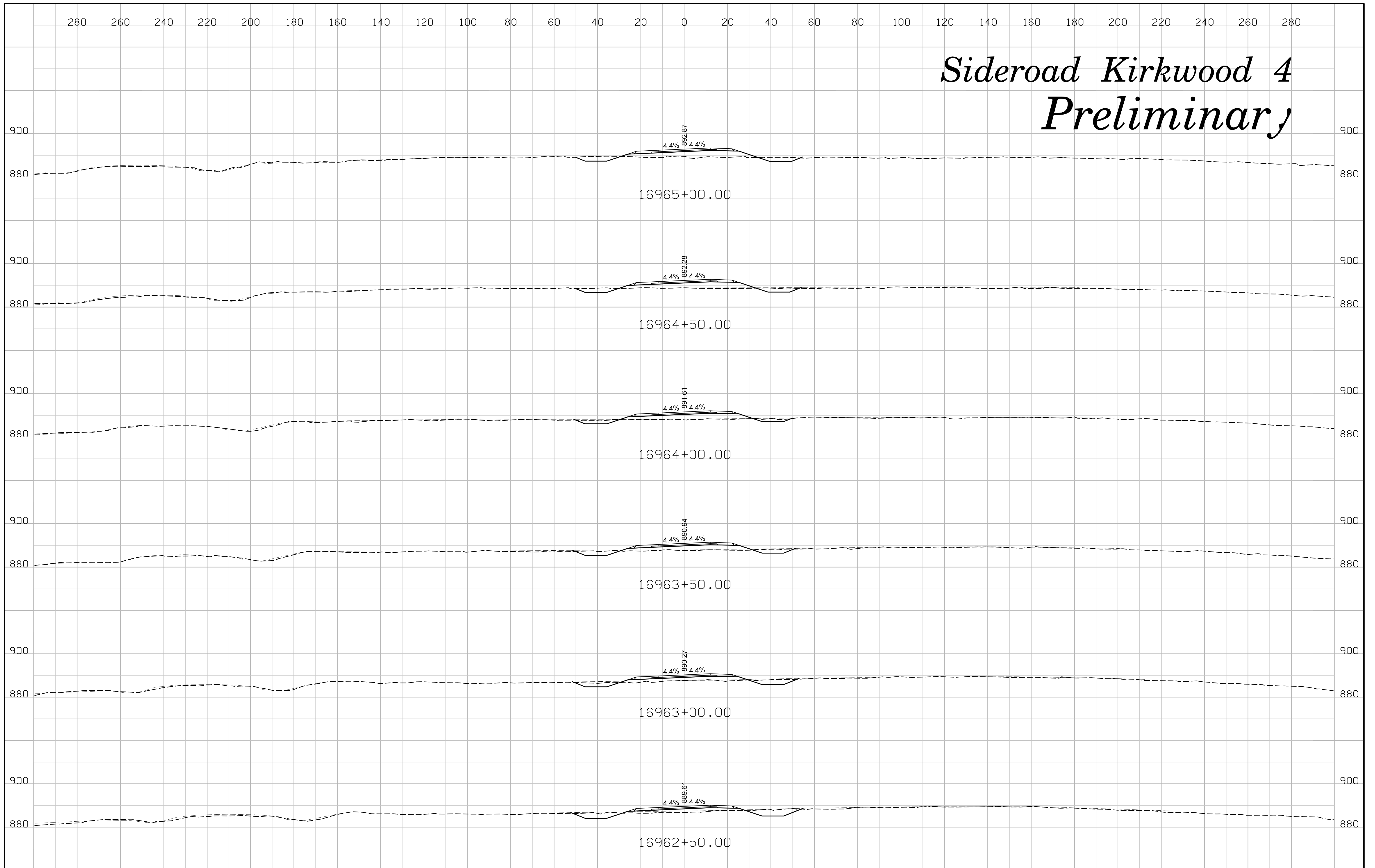




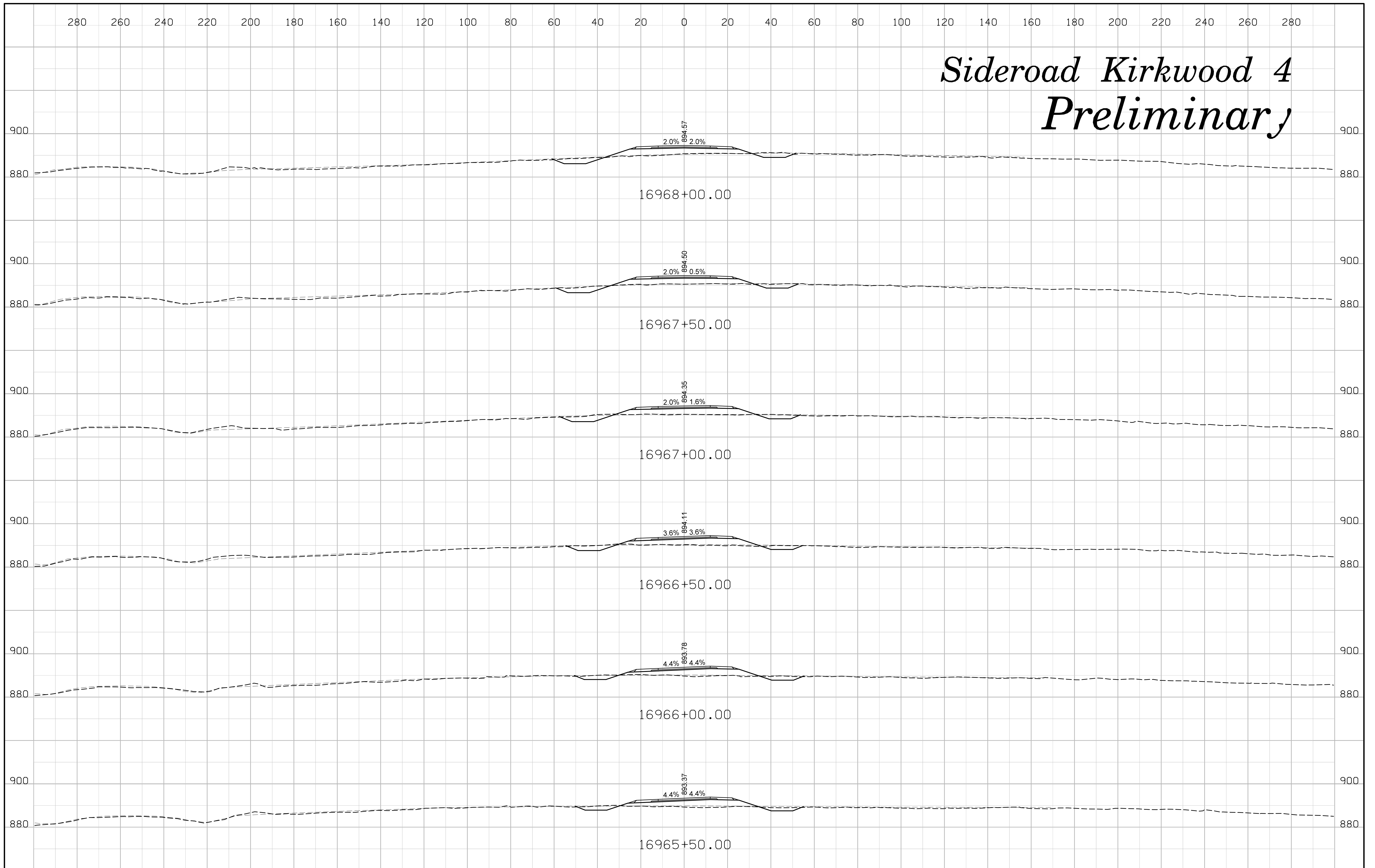
# Sideroad Kirkwood 4 Preliminary



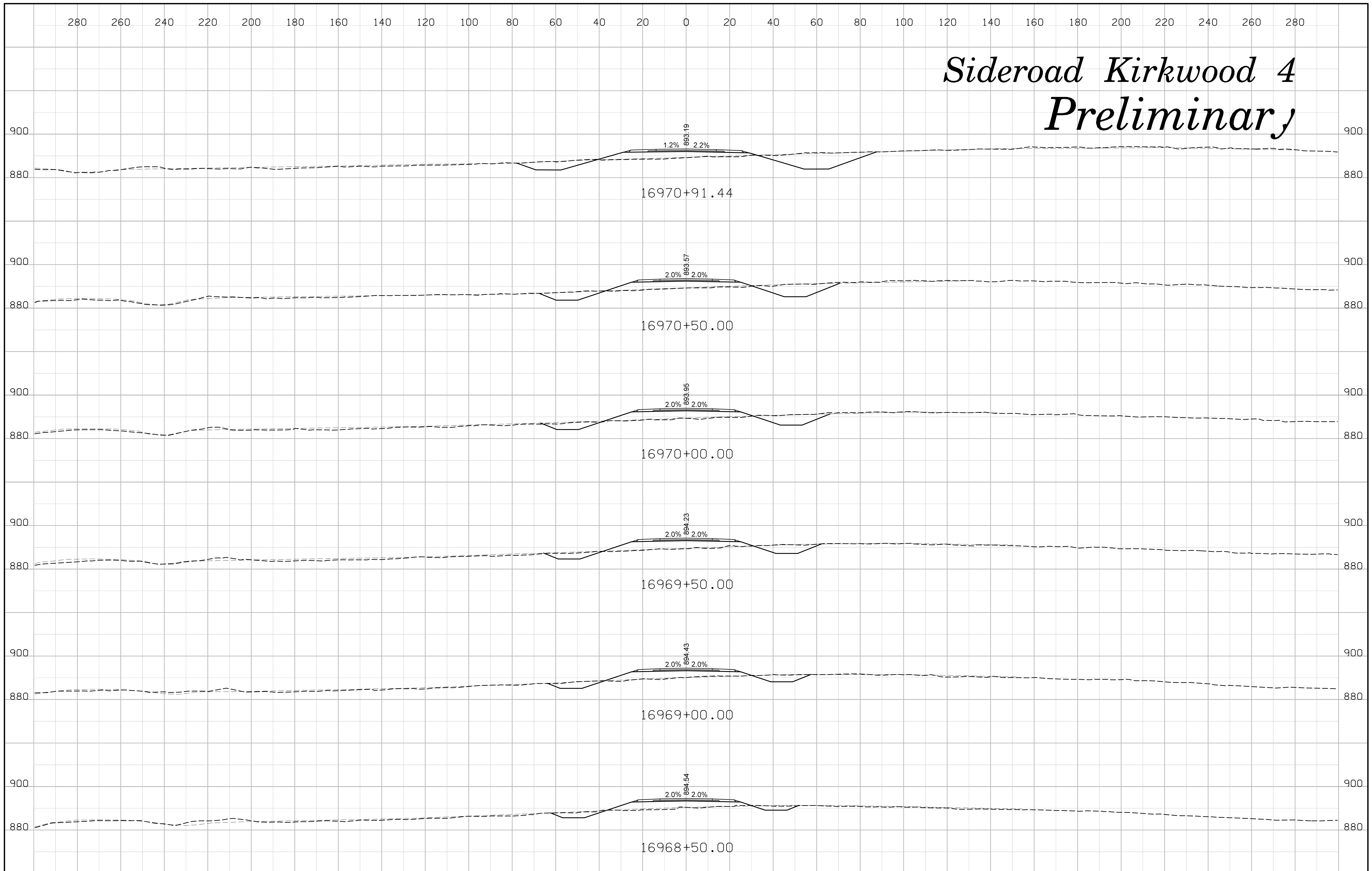
# Sideroad Kirkwood 4 Preliminary



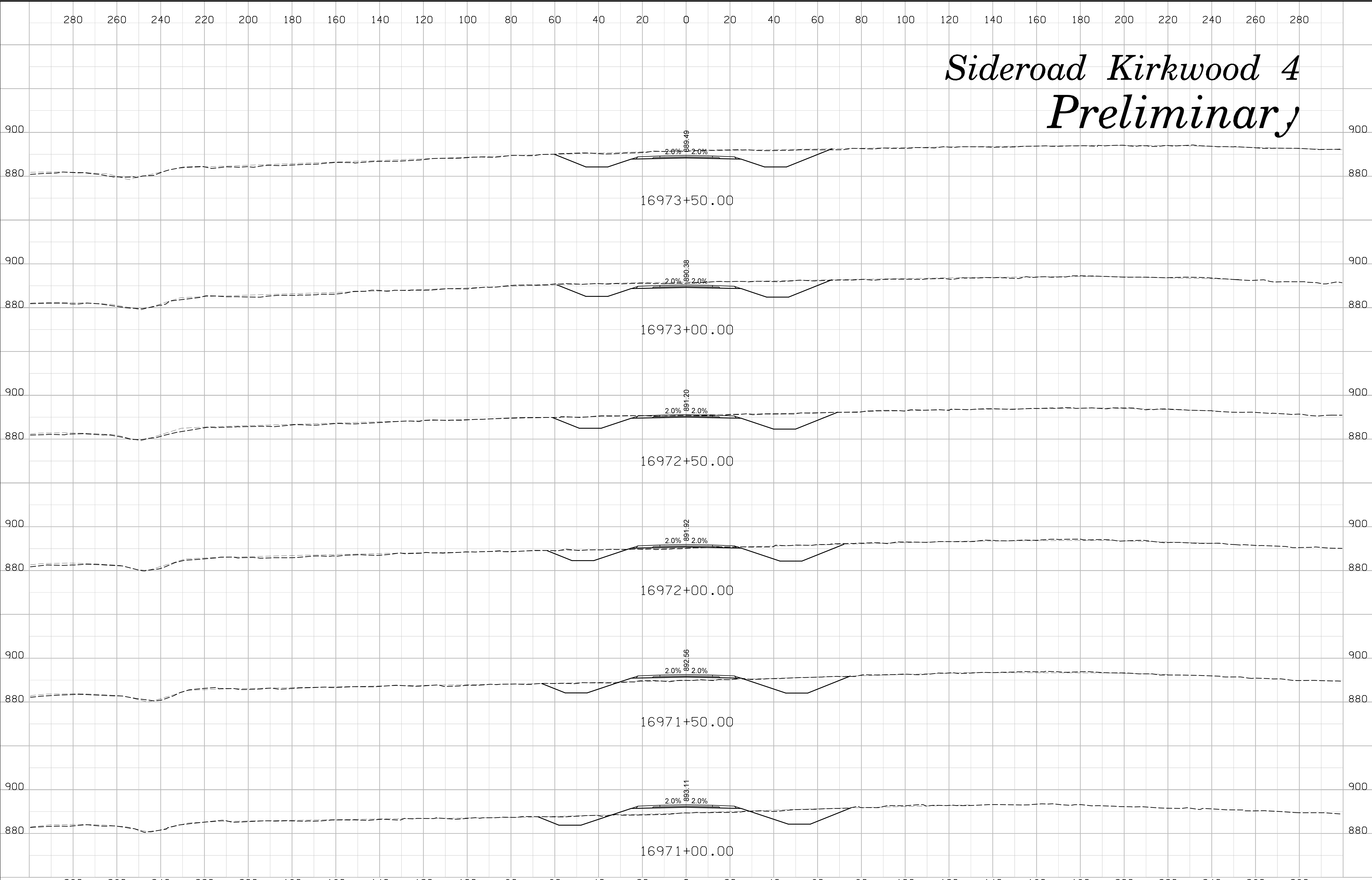
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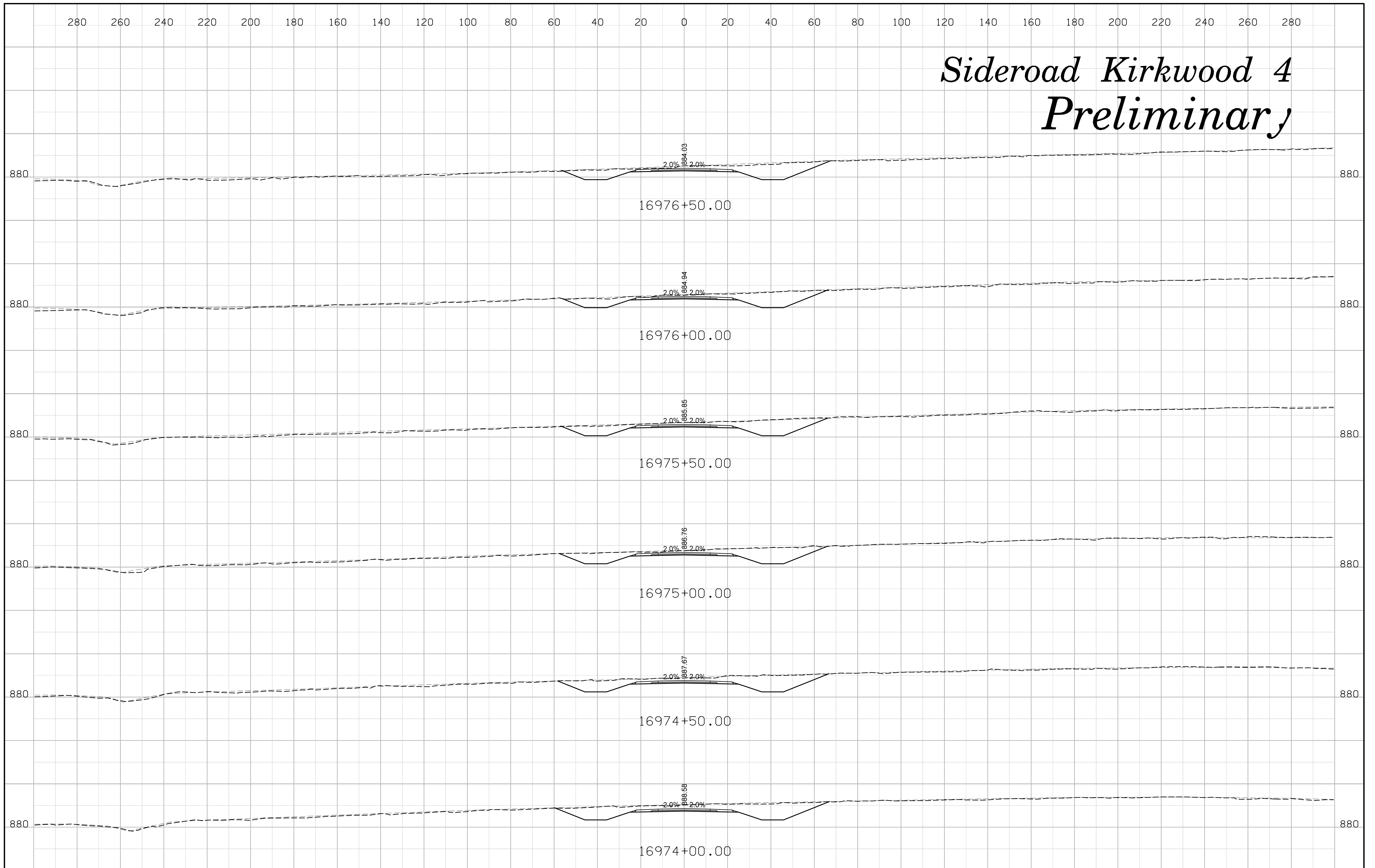
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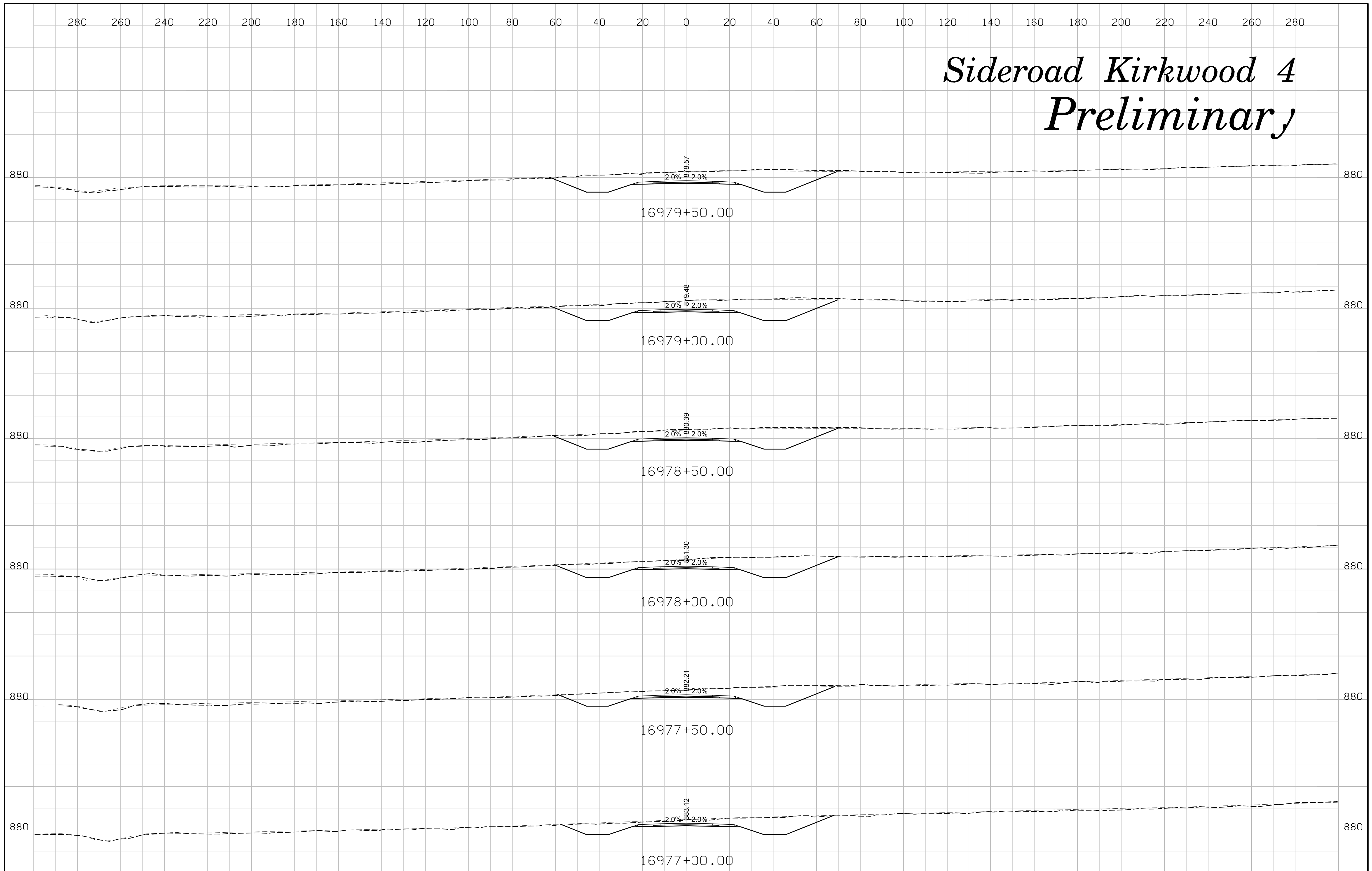
# Sideroad Kirkwood 4 Preliminary



# Sideroad Kirkwood 4 Preliminary

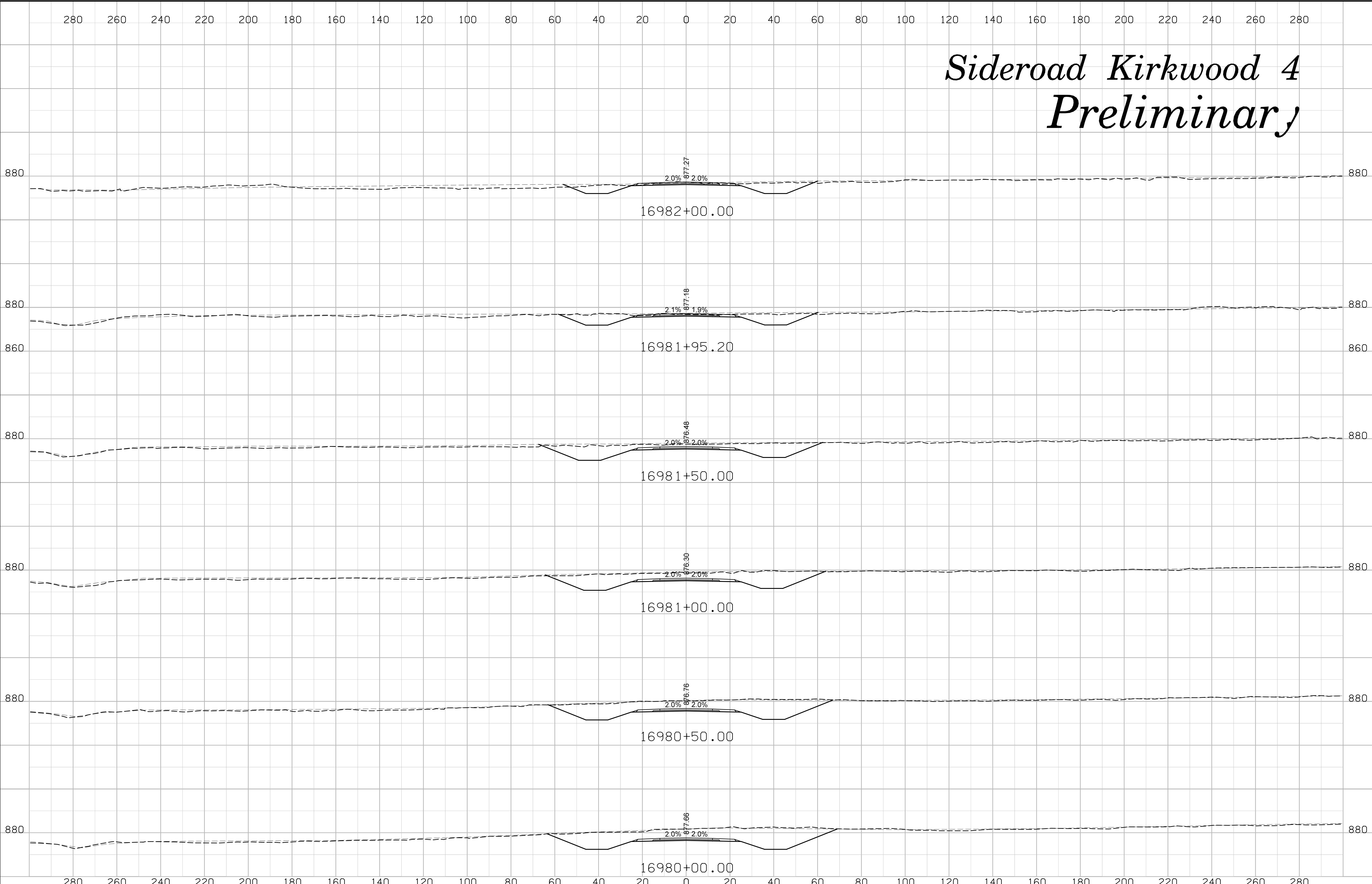


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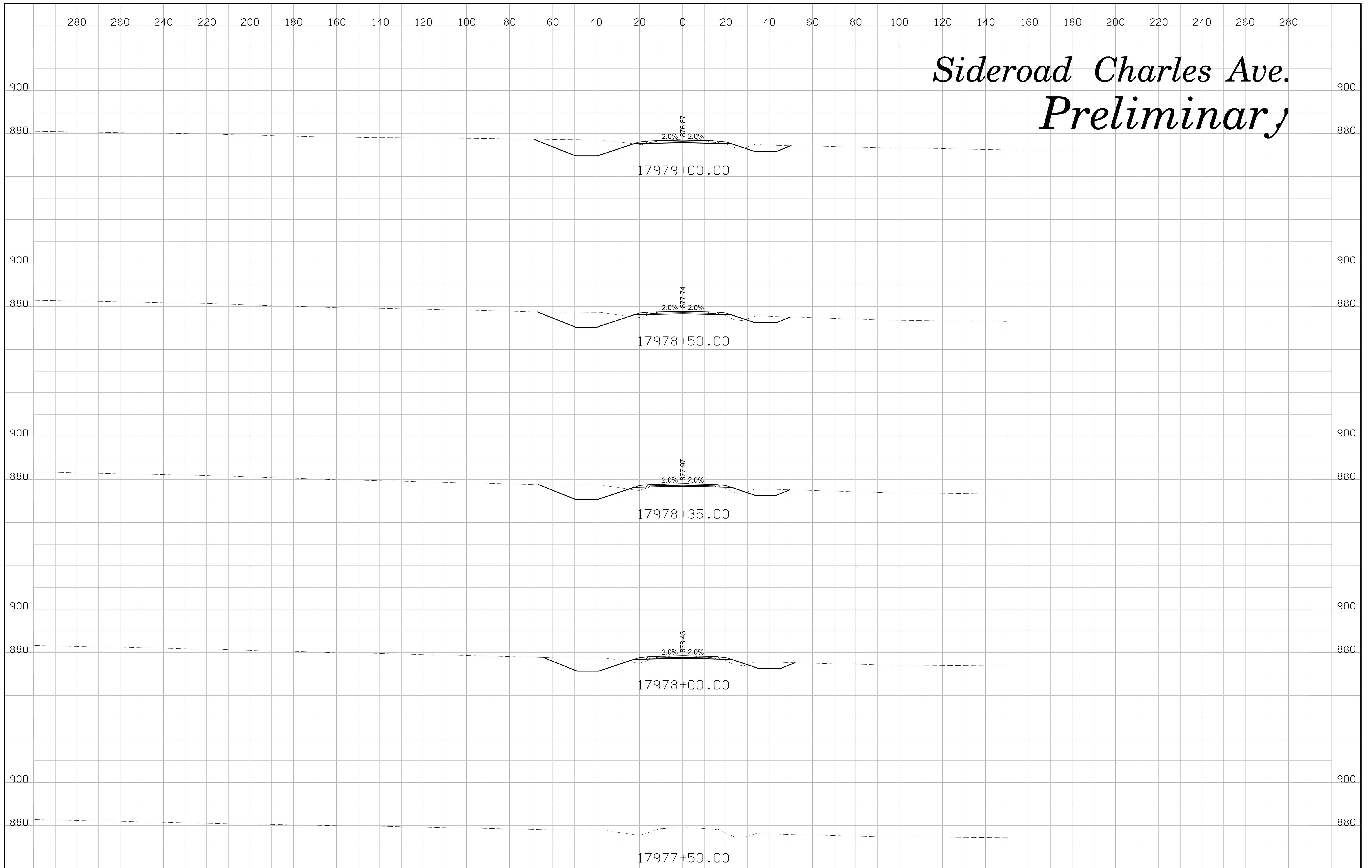




# Sideroad Kirkwood 4 Preliminary

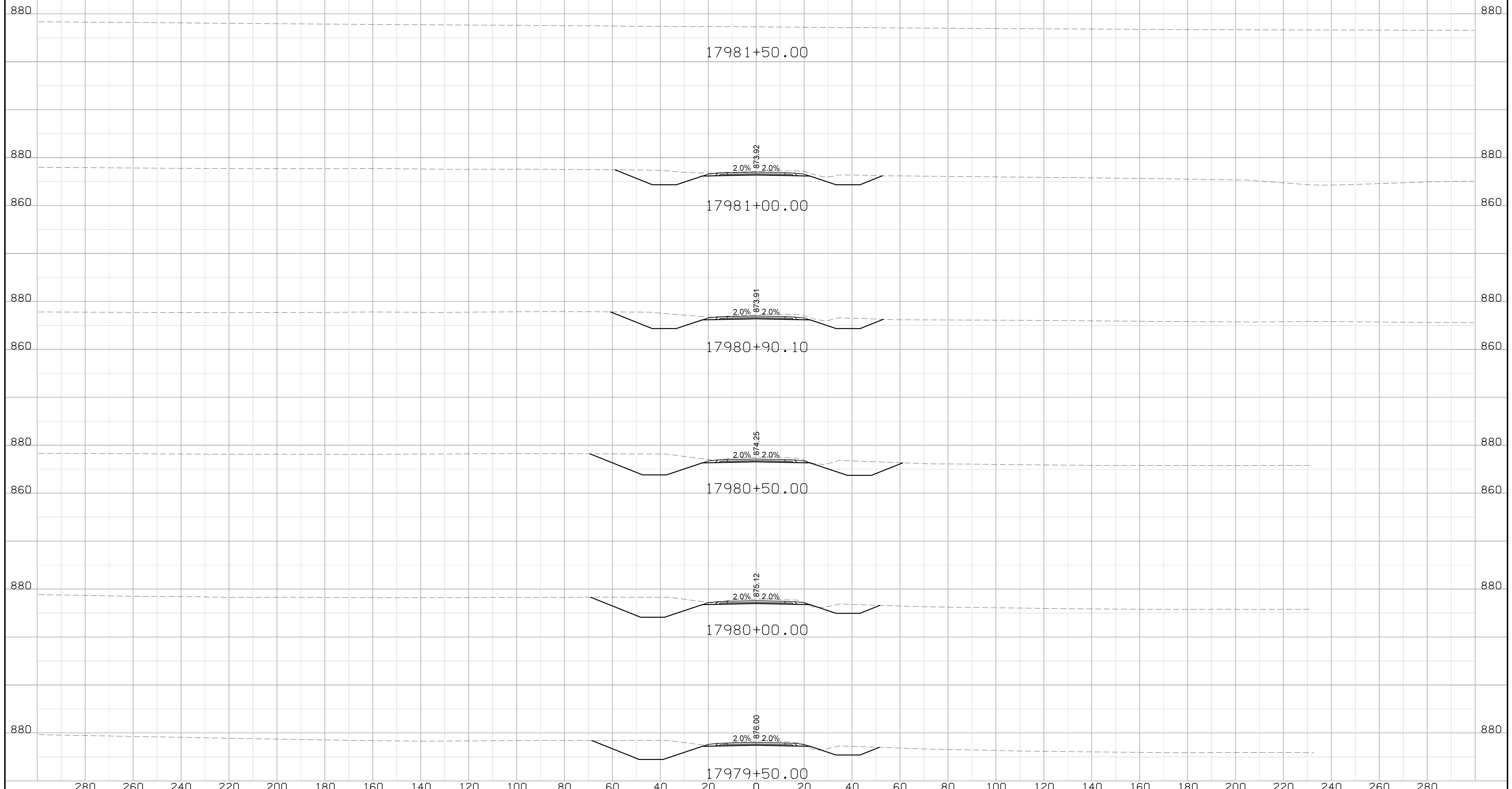


# Sideroad Charles Ave. Preliminary



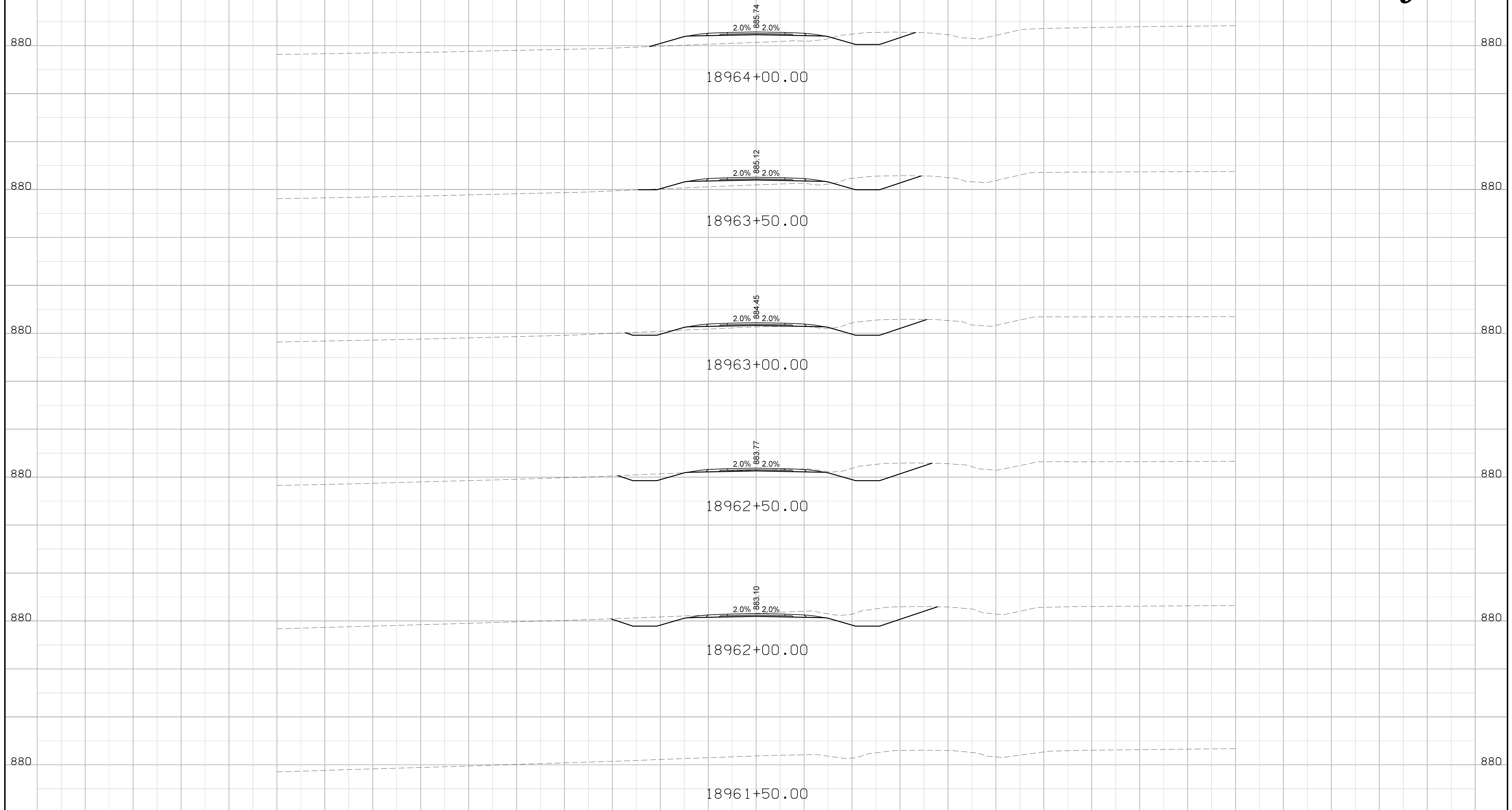
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# Sideroad Charles Ave. Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

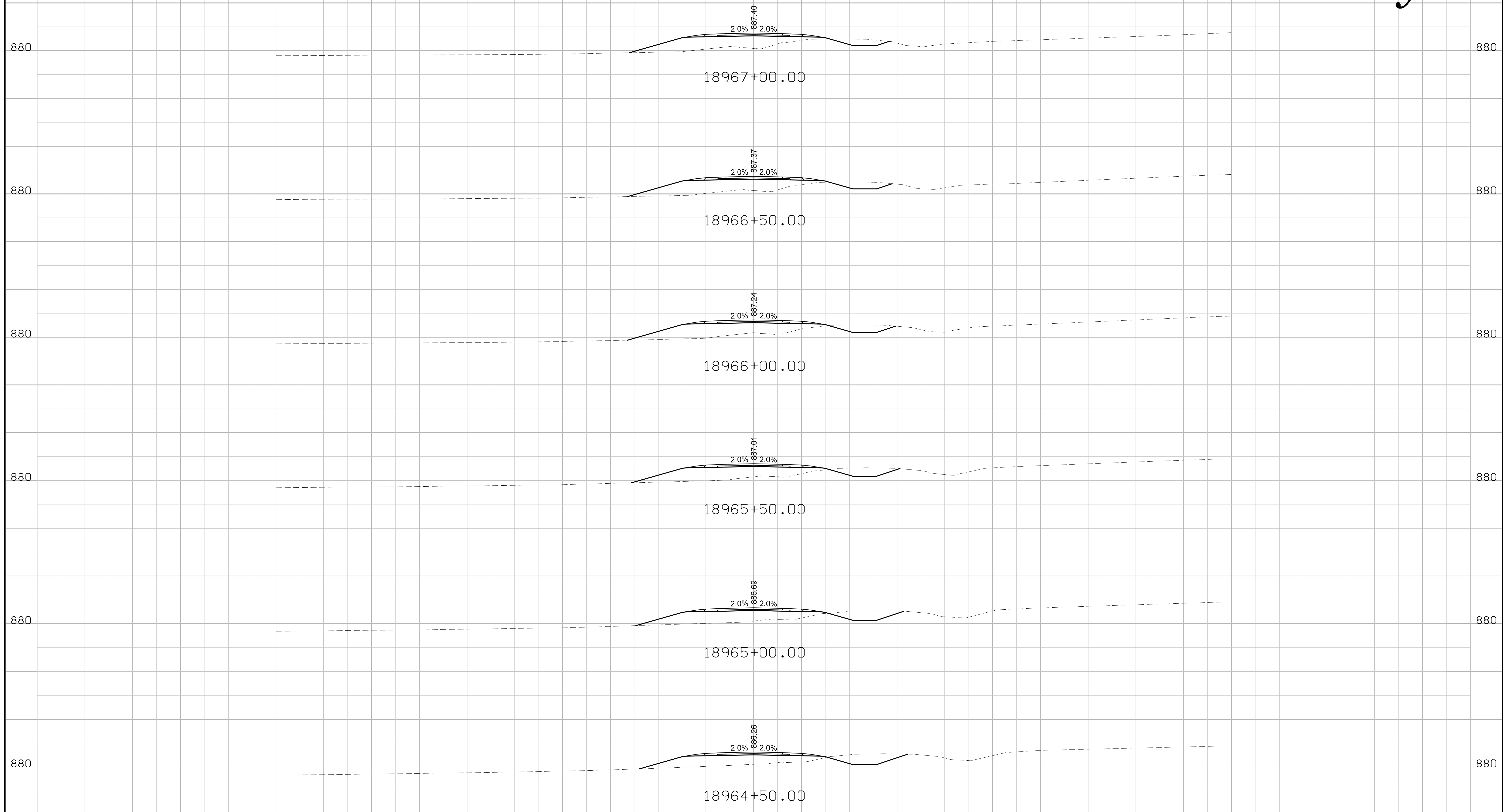
# Sideroad Hwy. 30 East Transition Preliminary



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280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

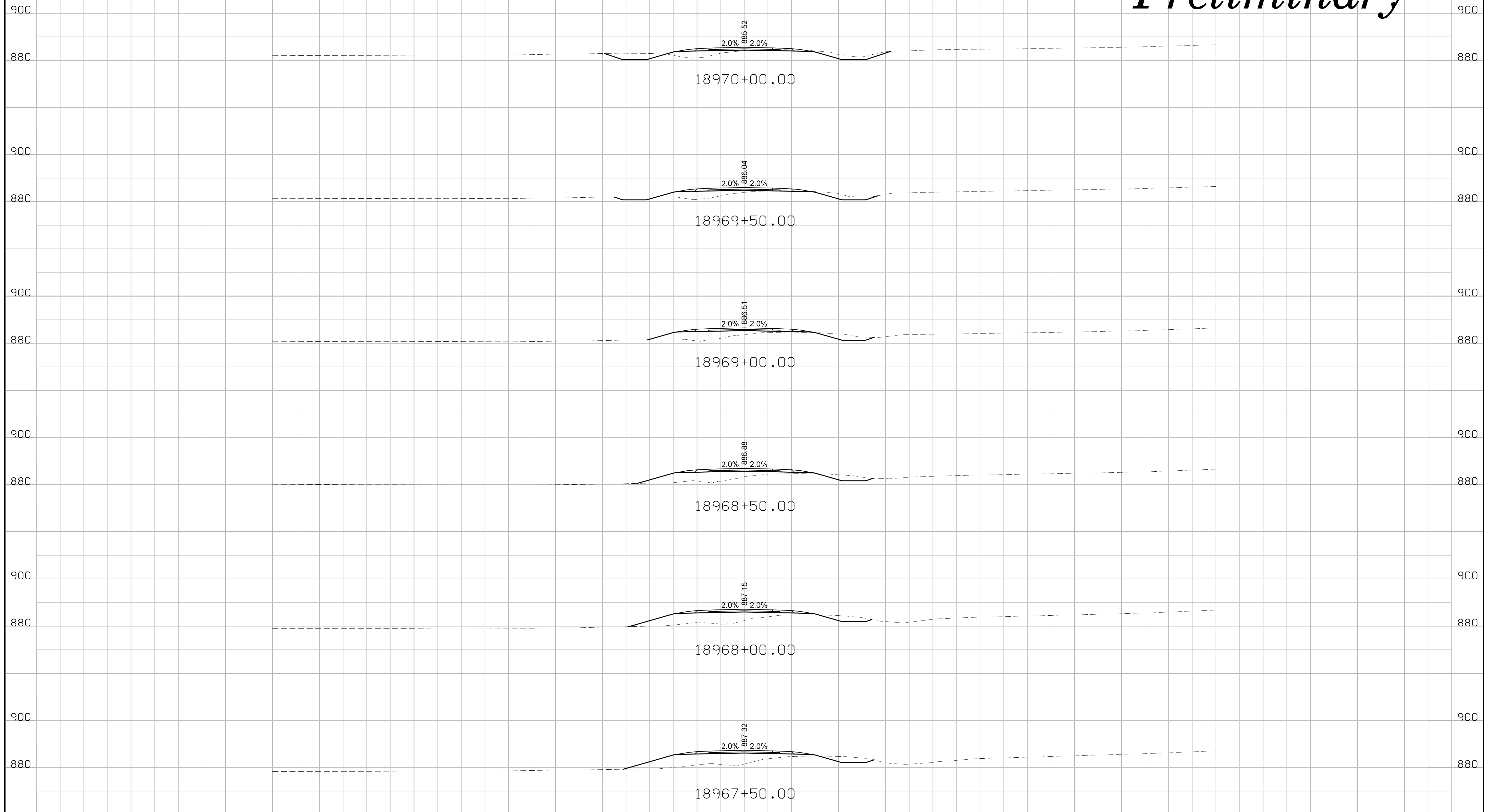
# Sideroad Hwy. 30 East Transition Preliminary



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280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

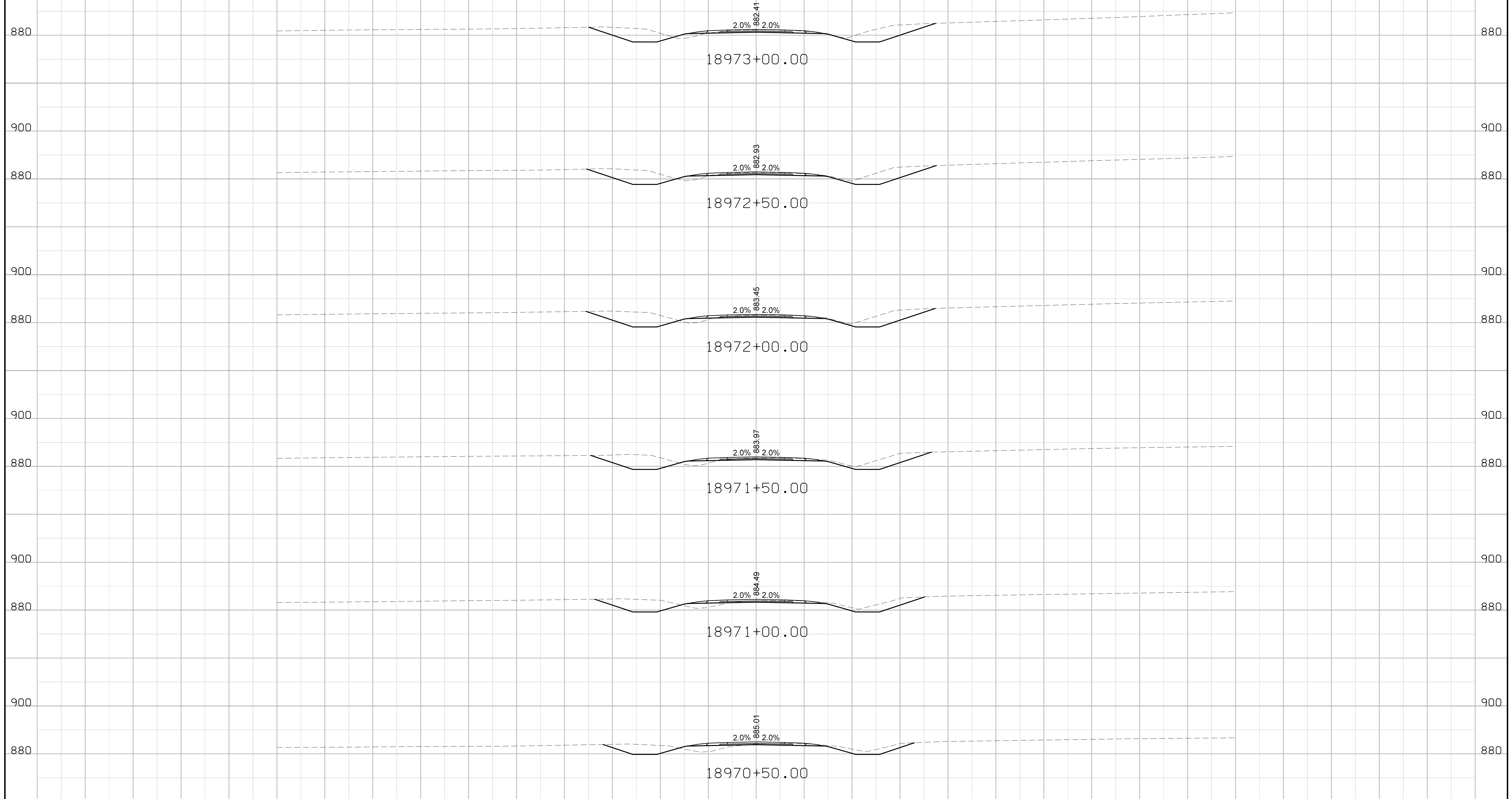
# Sideroad Hwy. 30 East Transition Preliminary



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280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

# Sideroad Hwy. 30 East Transition Preliminary

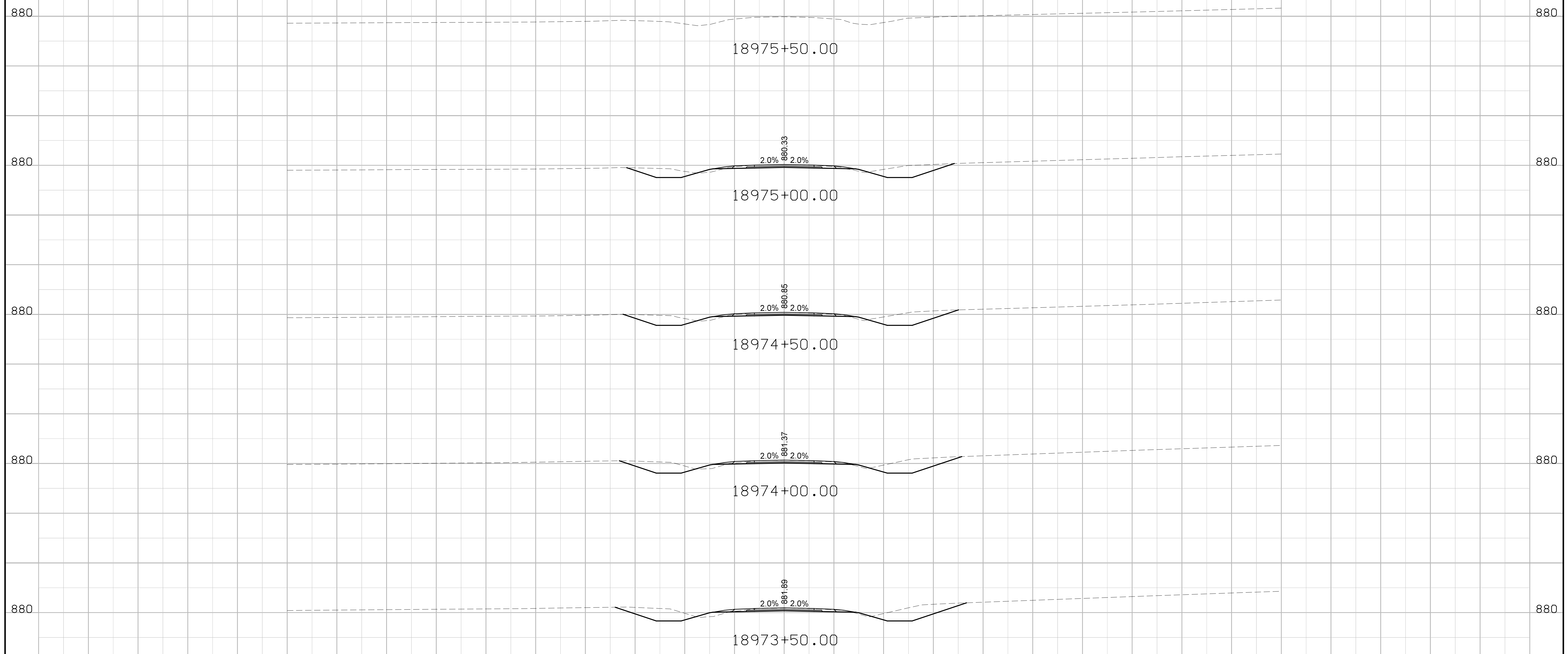


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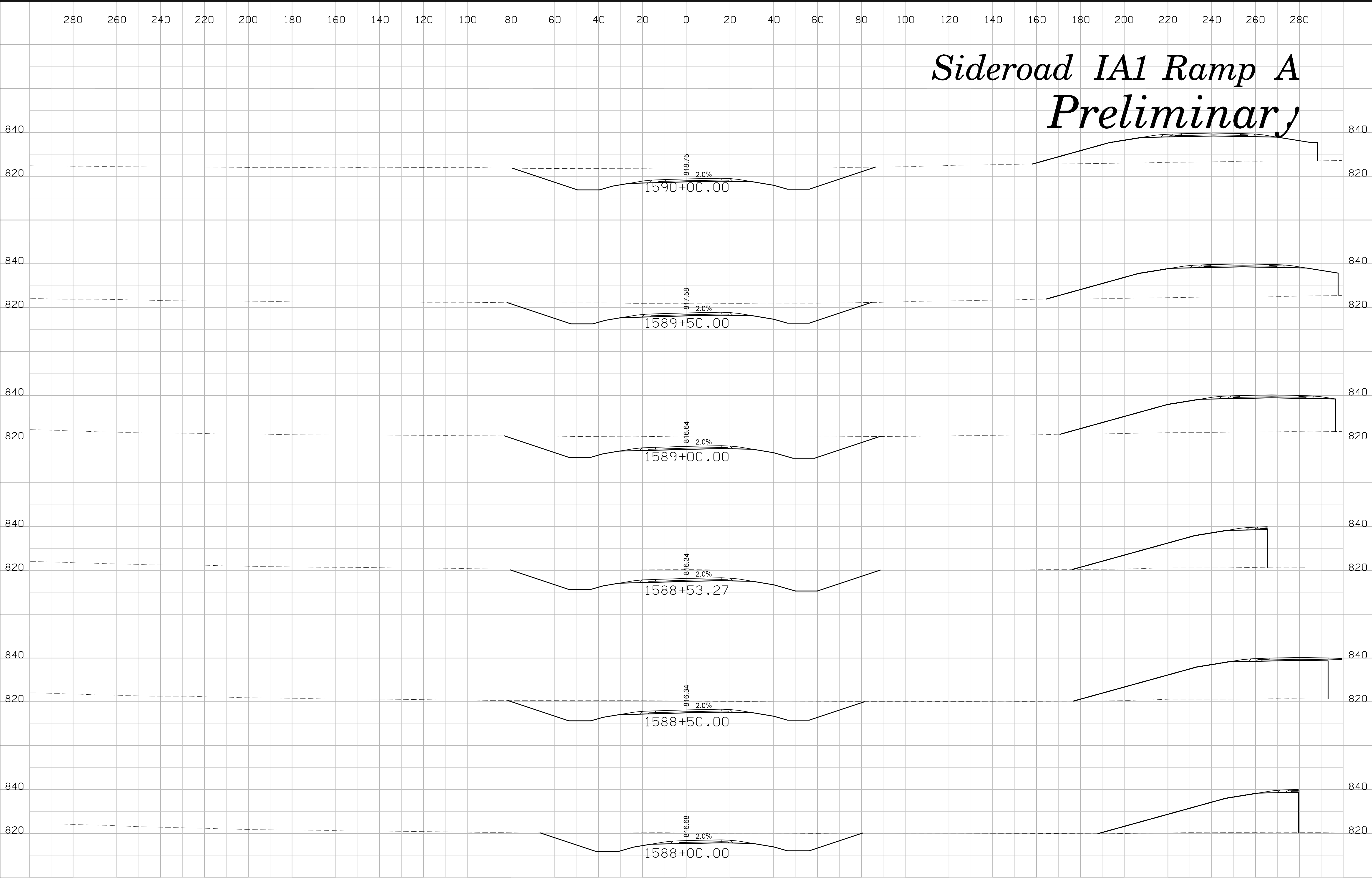
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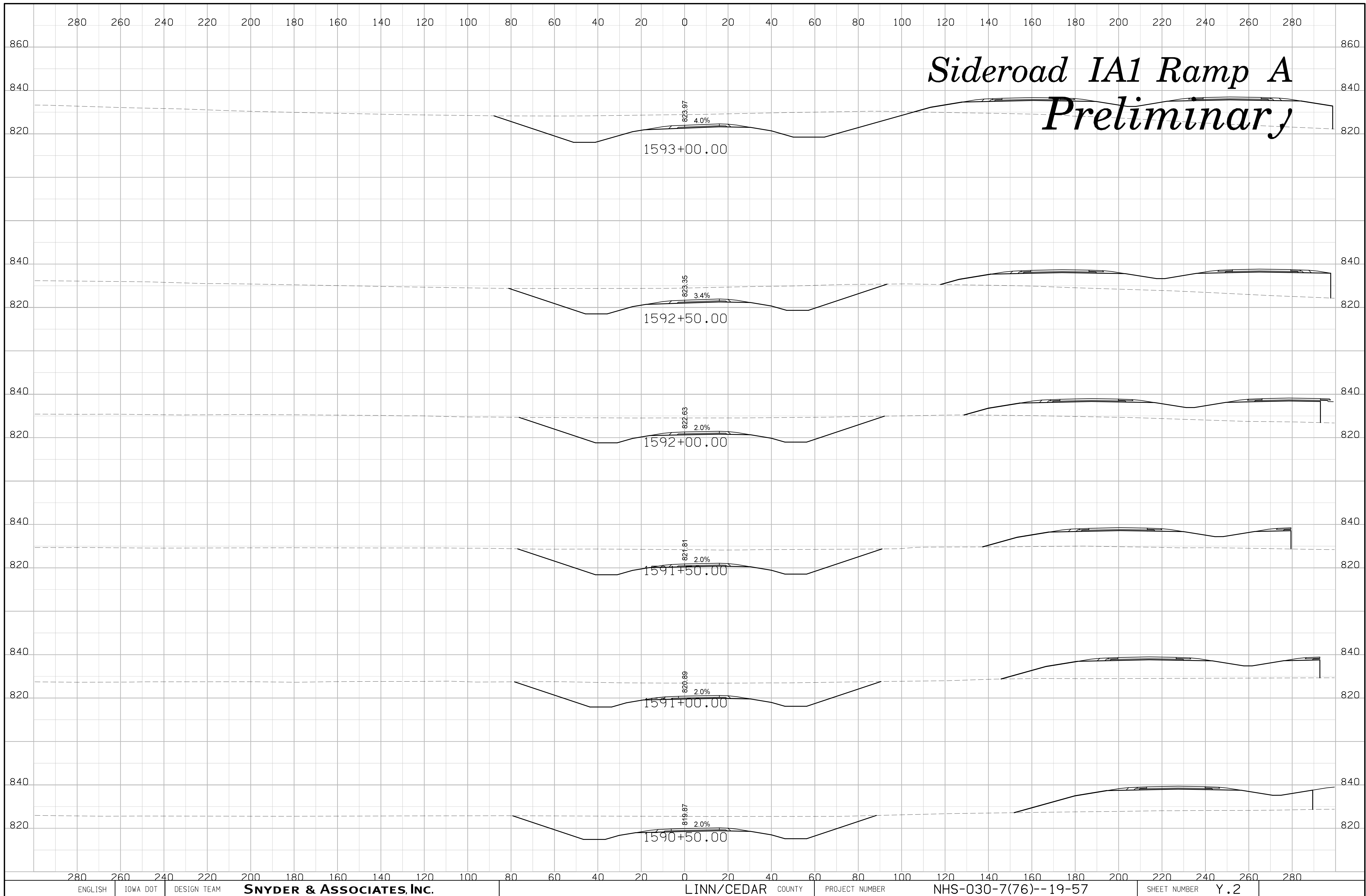
# Sideroad Hwy. 30 East Transition Preliminary



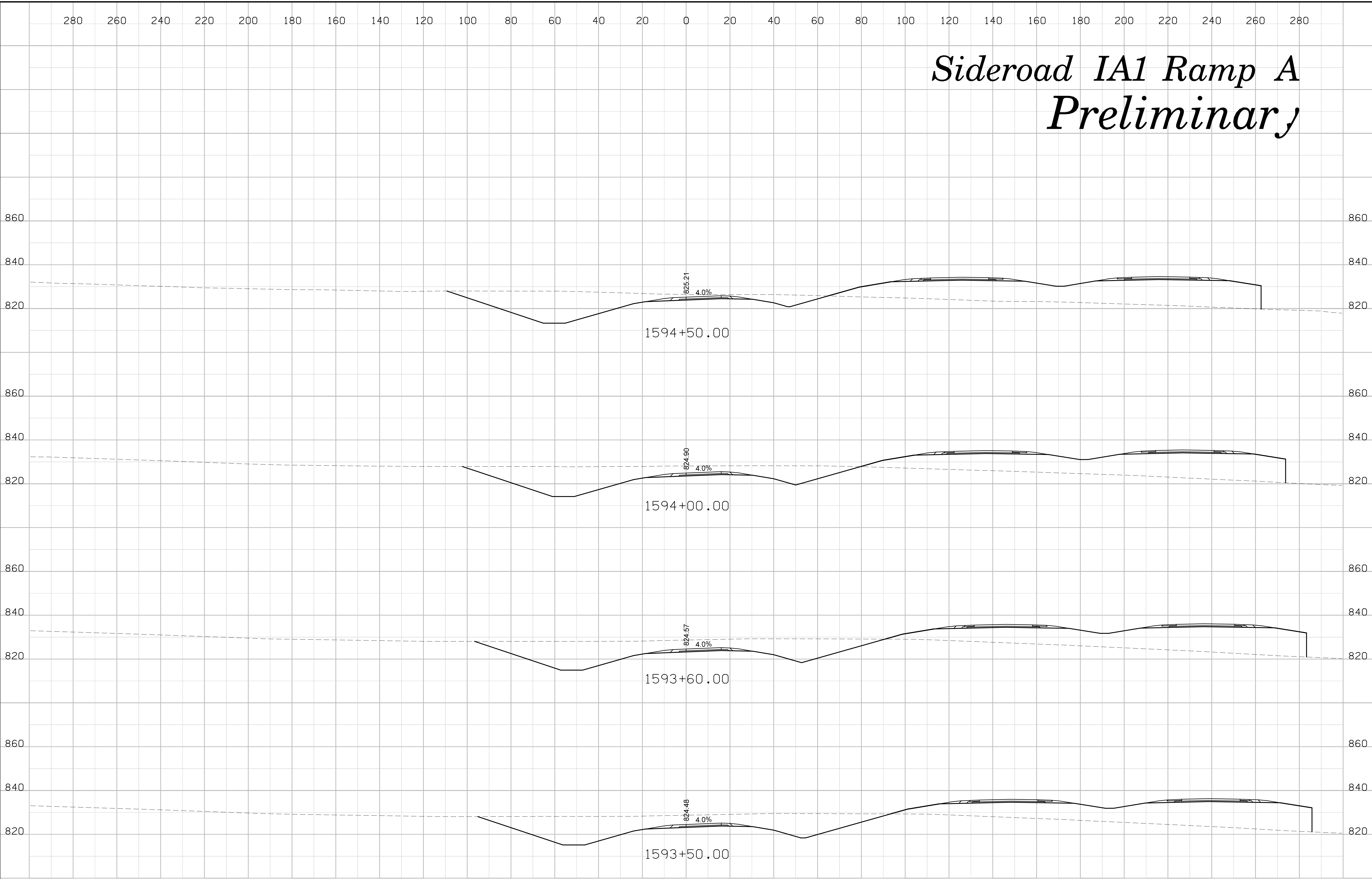
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# Sideroad IA1 Ramp A Preliminary



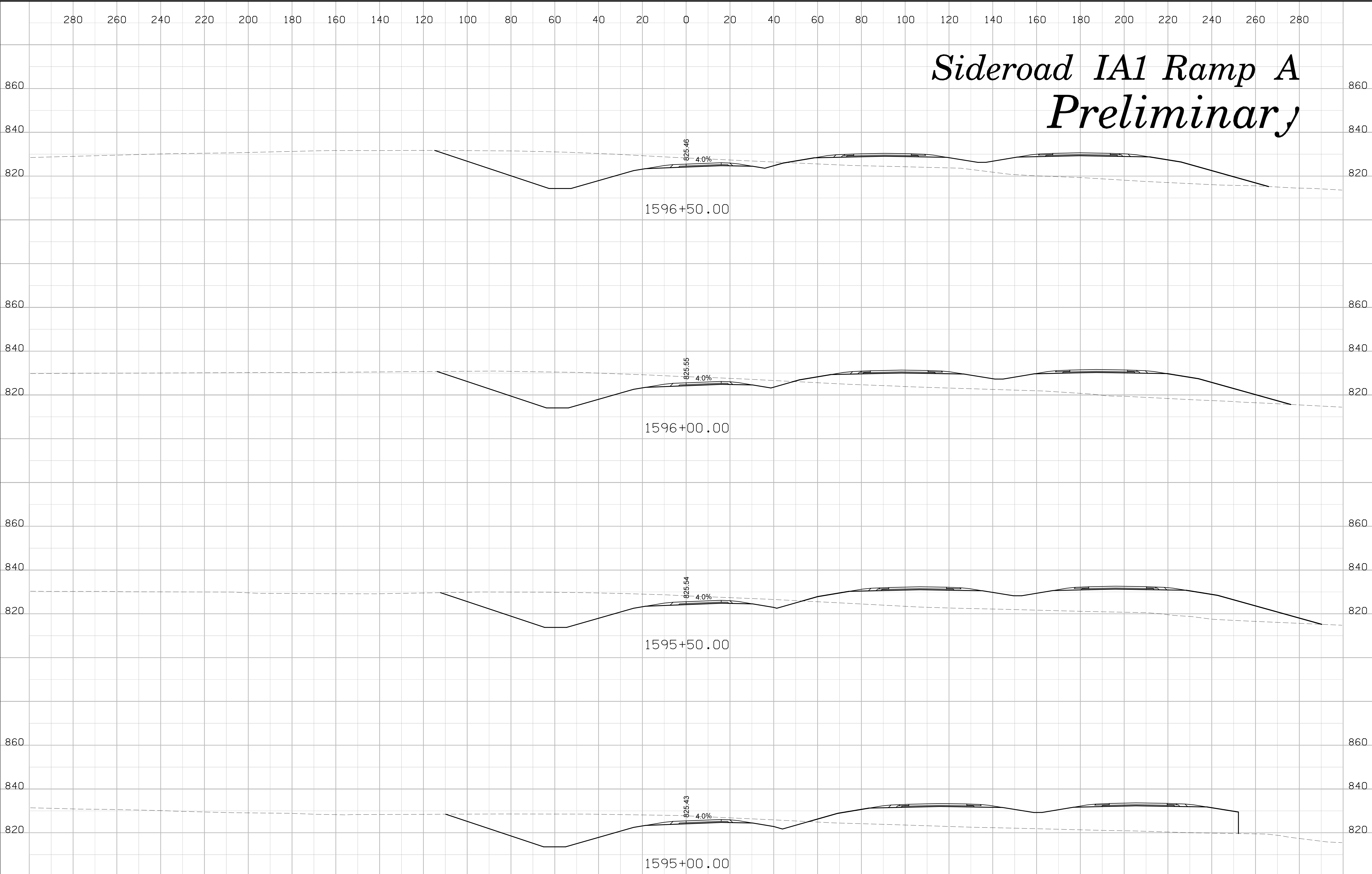


# *Sideroad IA1 Ramp A Preliminary*



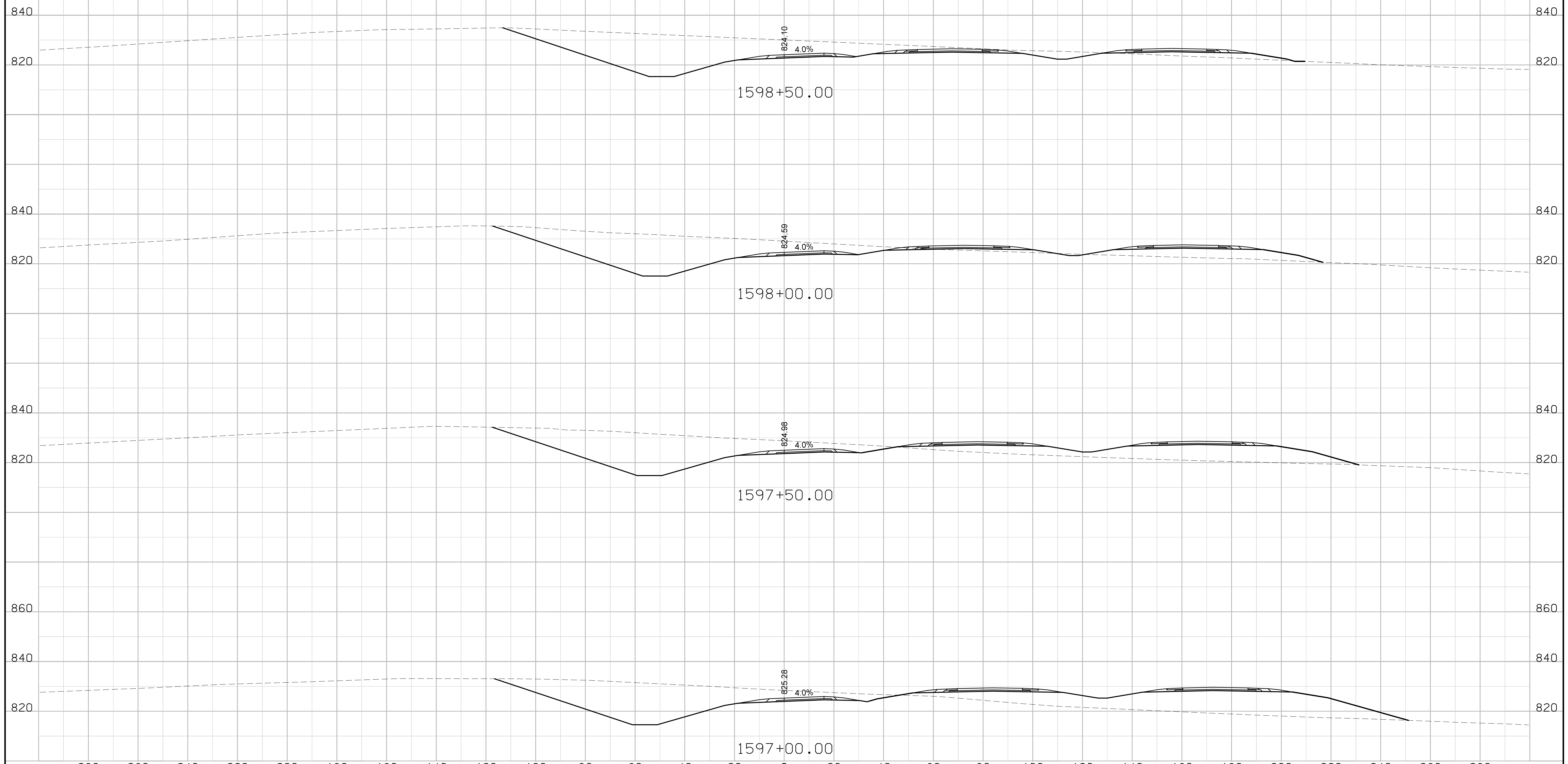
# *Sideroad IA1 Ramp A*

## *Preliminary*



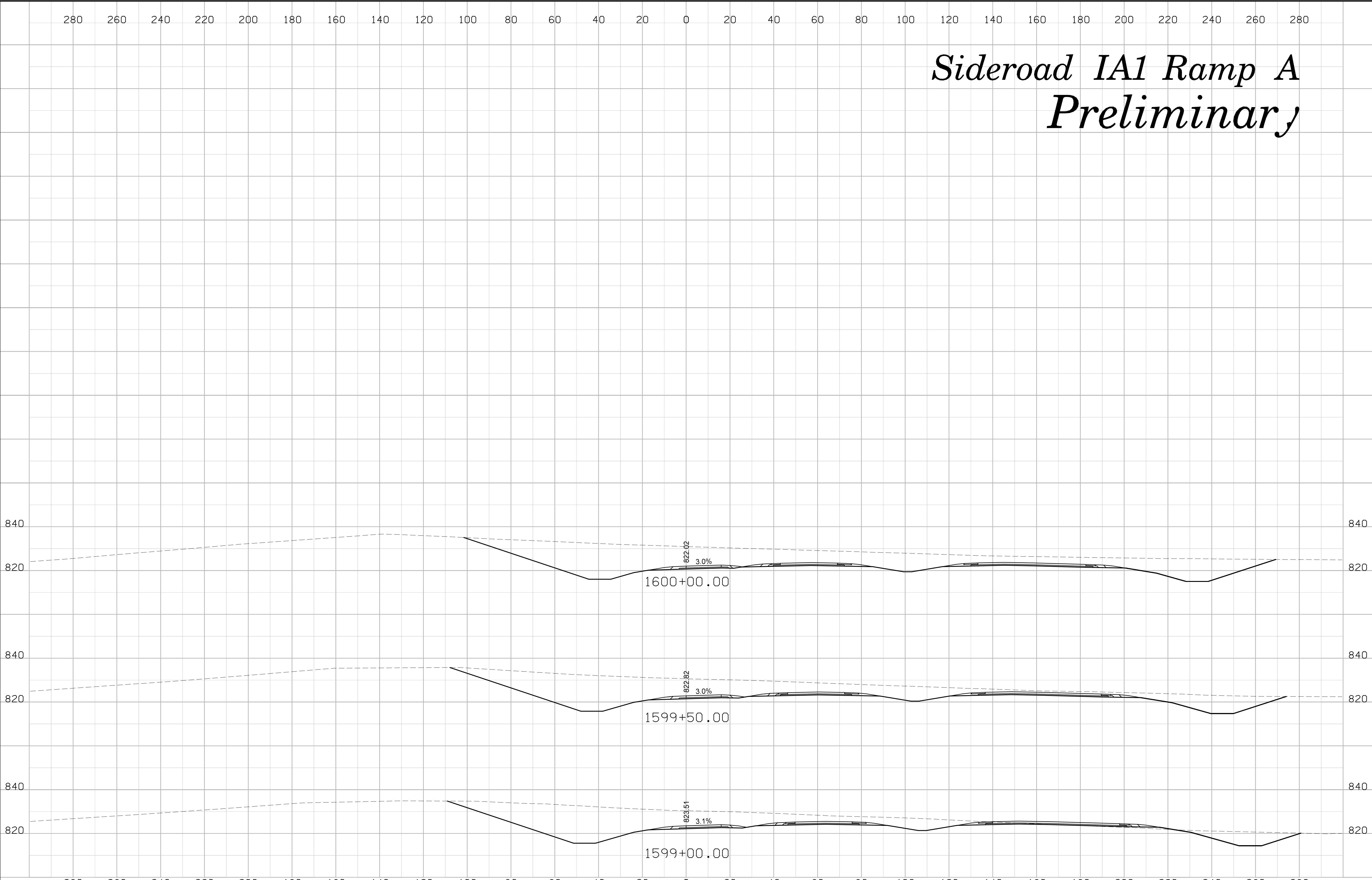
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# Sideroad IA1 Ramp A Preliminary



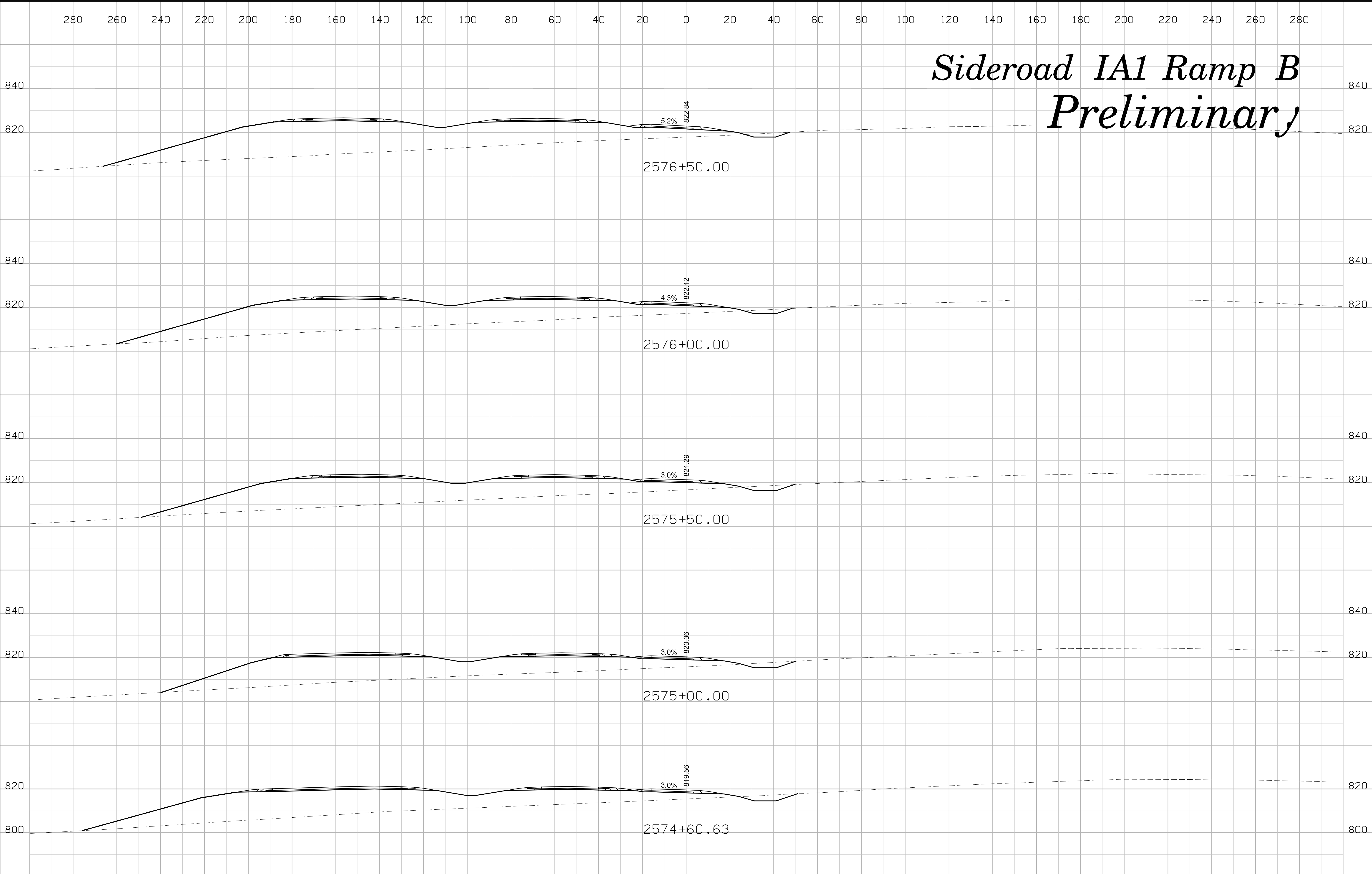
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# Sideroad IA1 Ramp A Preliminary

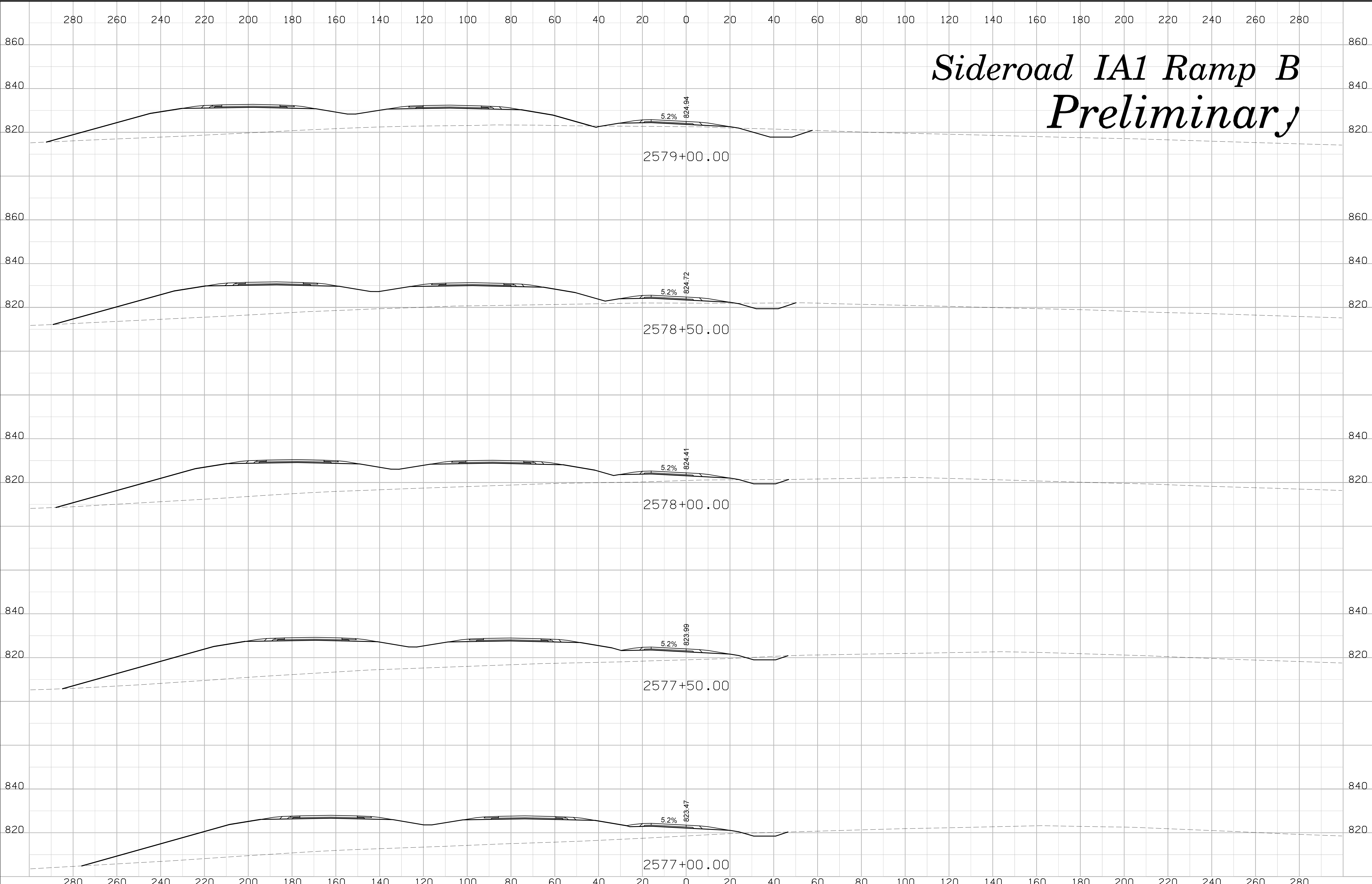




# Sideroad IA1 Ramp B Preliminary

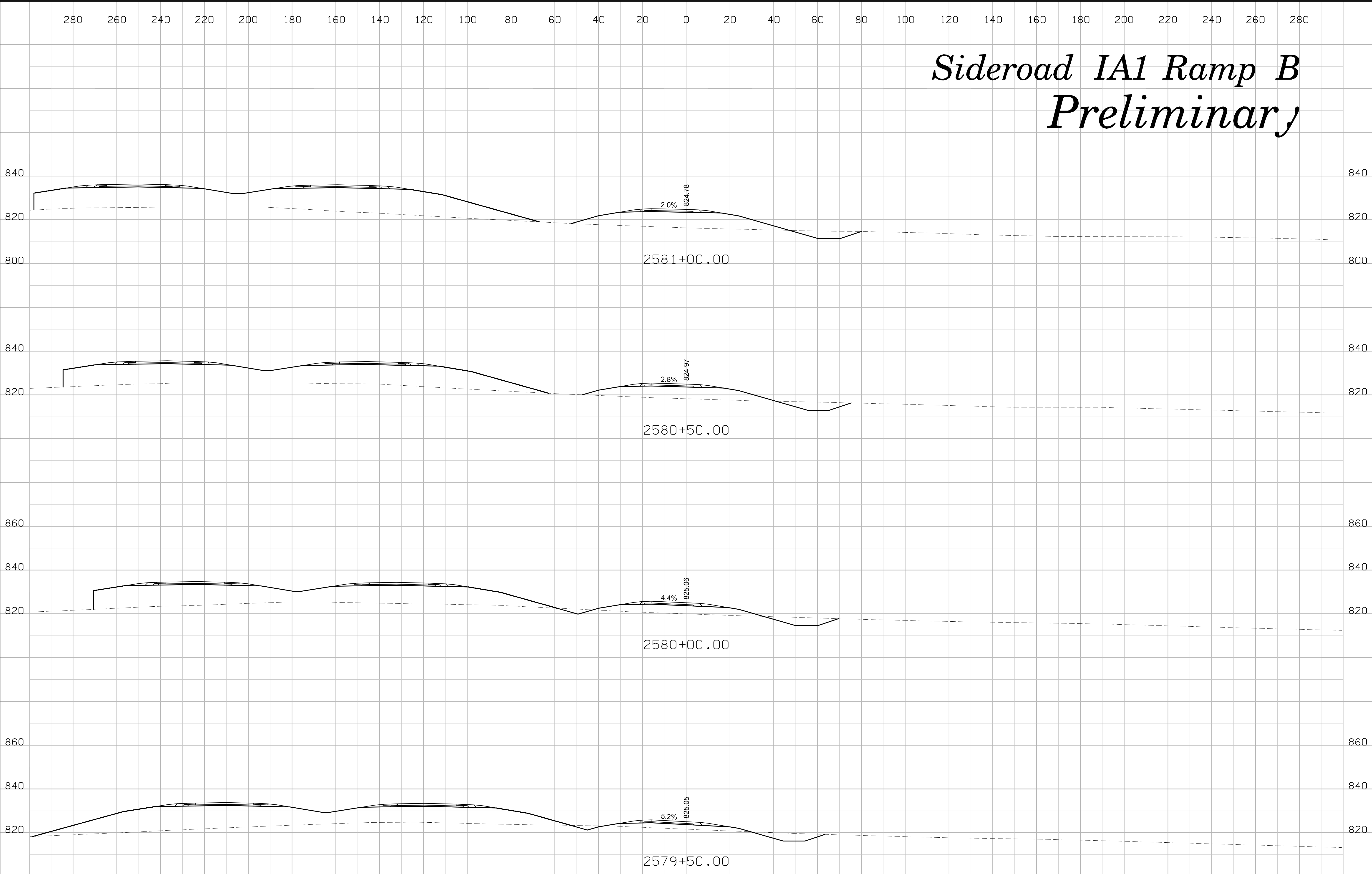


# Sideroad IA1 Ramp B Preliminary

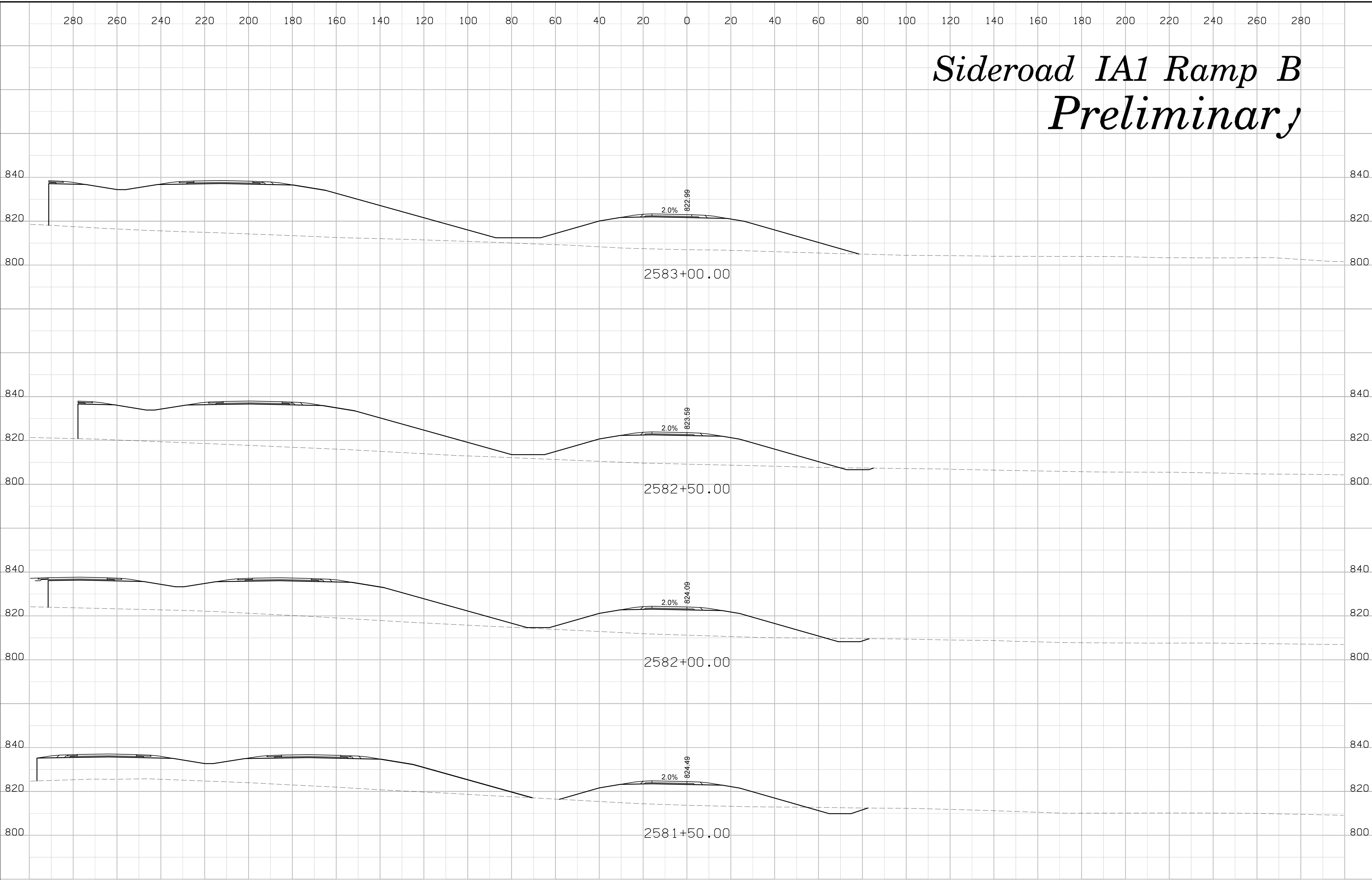


# *Sideroad IA1 Ramp B*

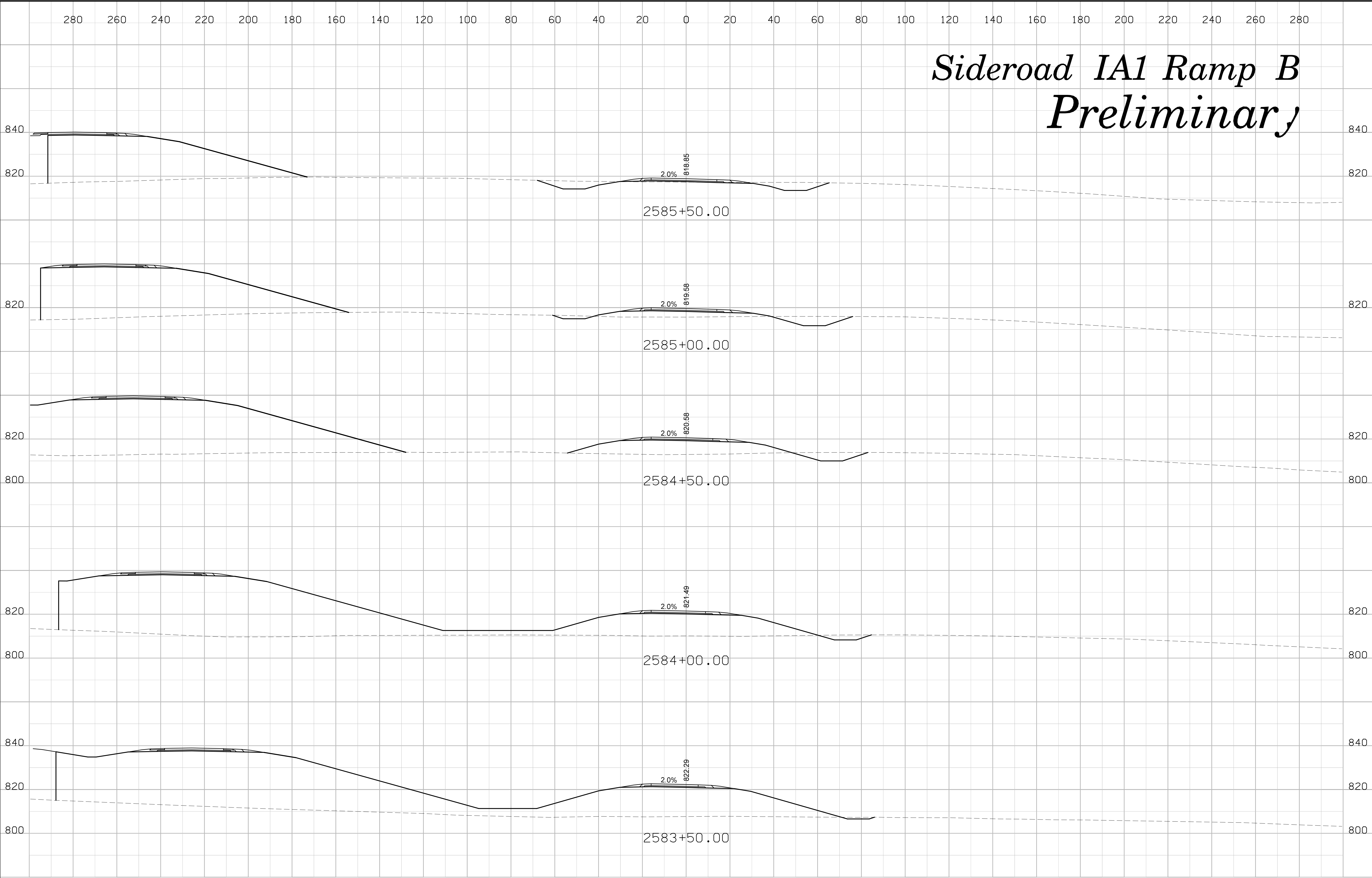
## *Preliminary*



# Sideroad IA1 Ramp B Preliminary

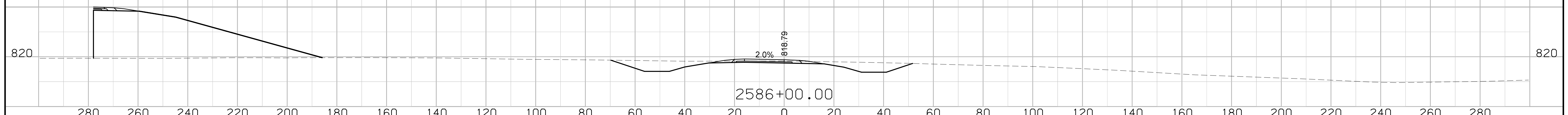


# Sideroad IA1 Ramp B Preliminary

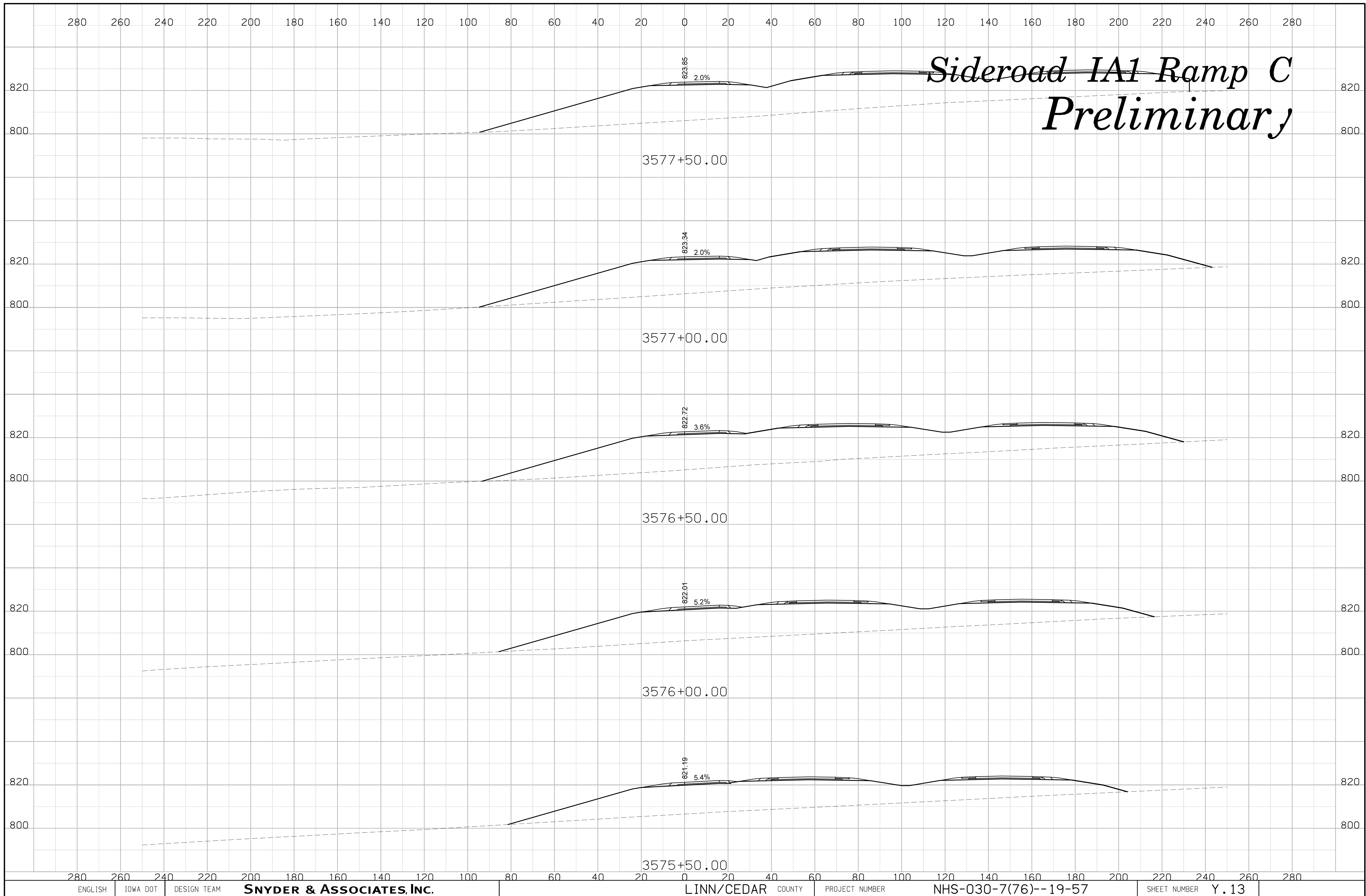


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# Sideroad IA1 Ramp B Preliminary

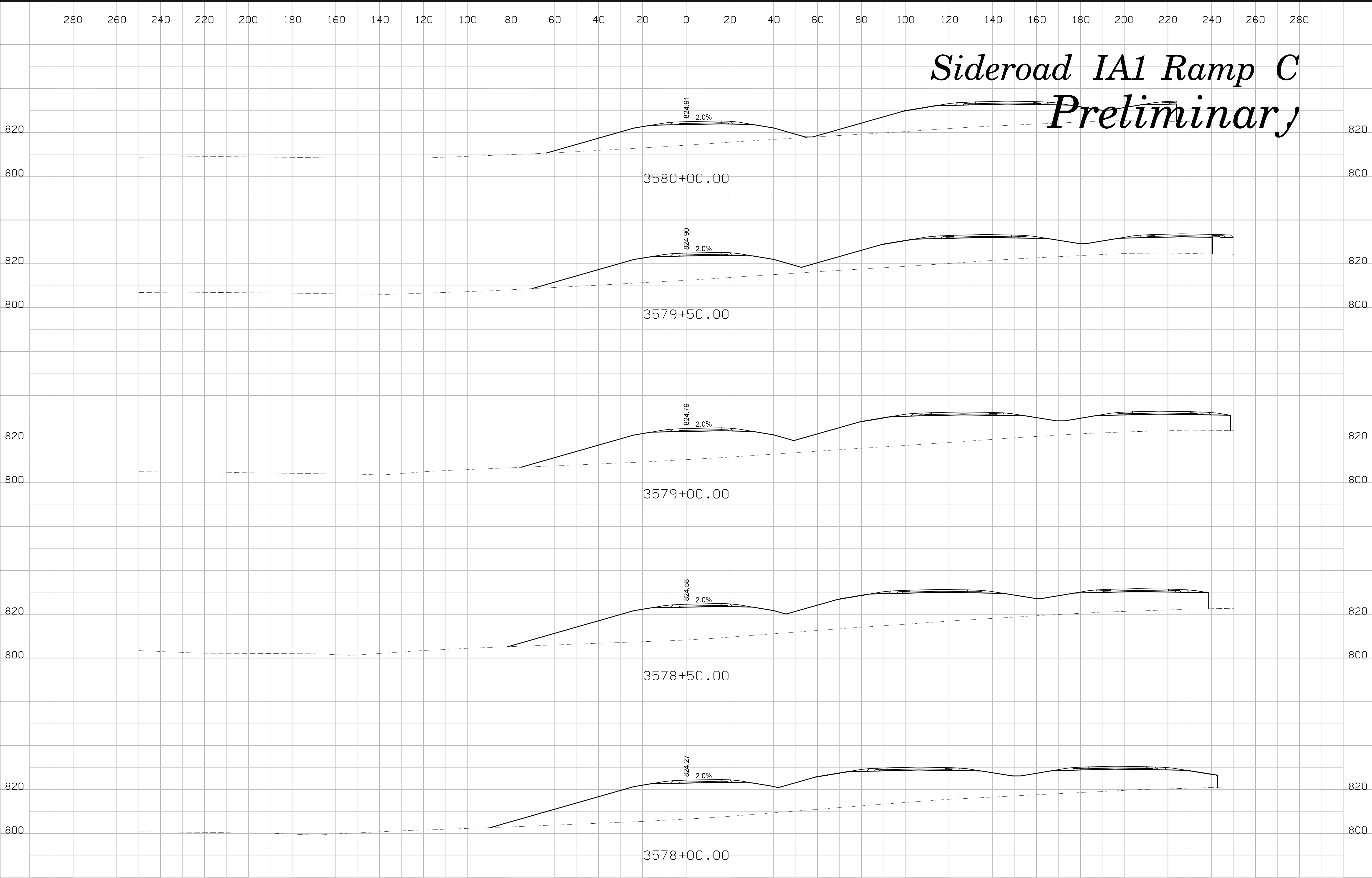


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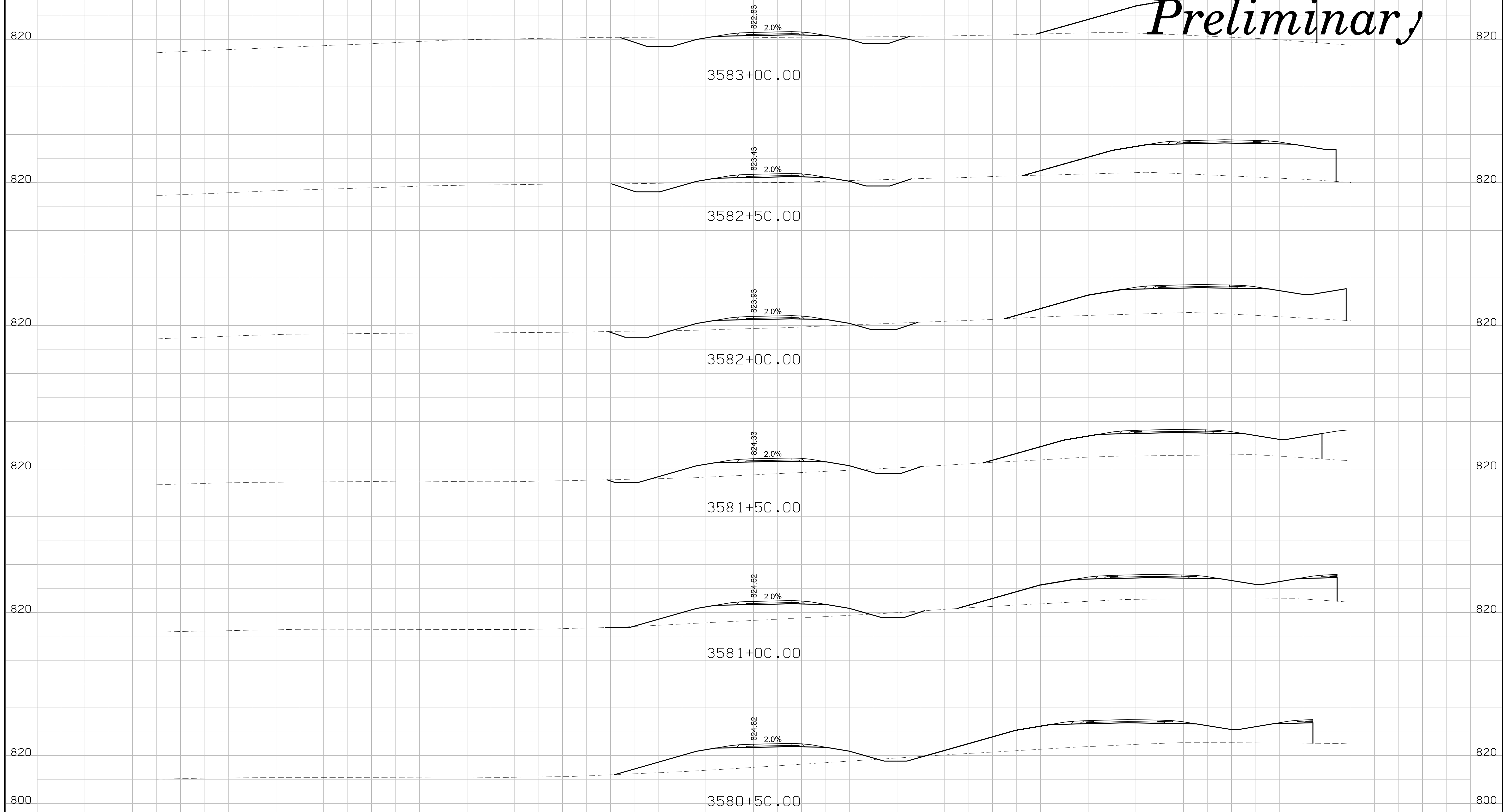
# Sideroad IA1 Ramp C Preliminary



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# Sideroad IA1 Ramp C

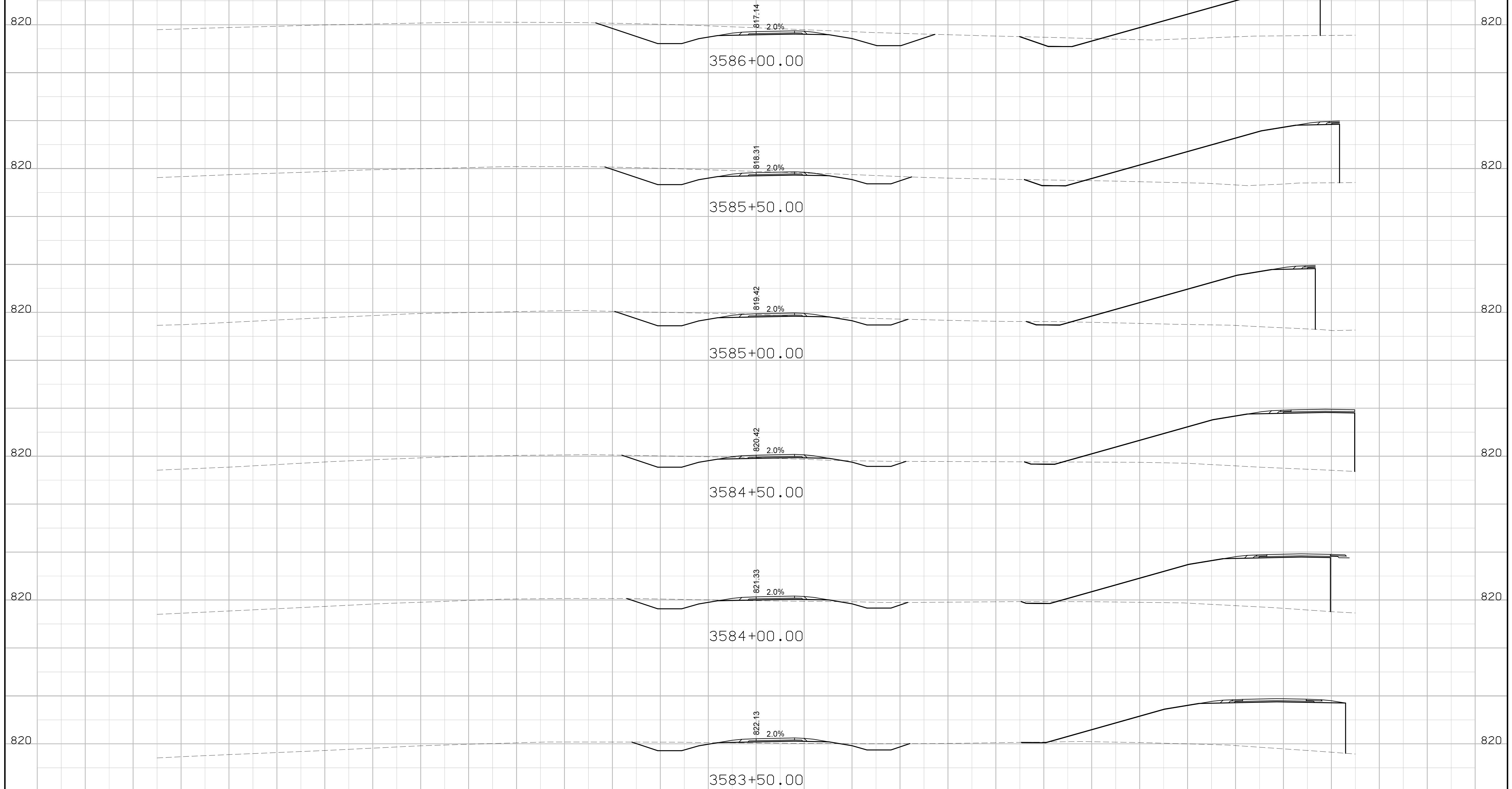
## Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

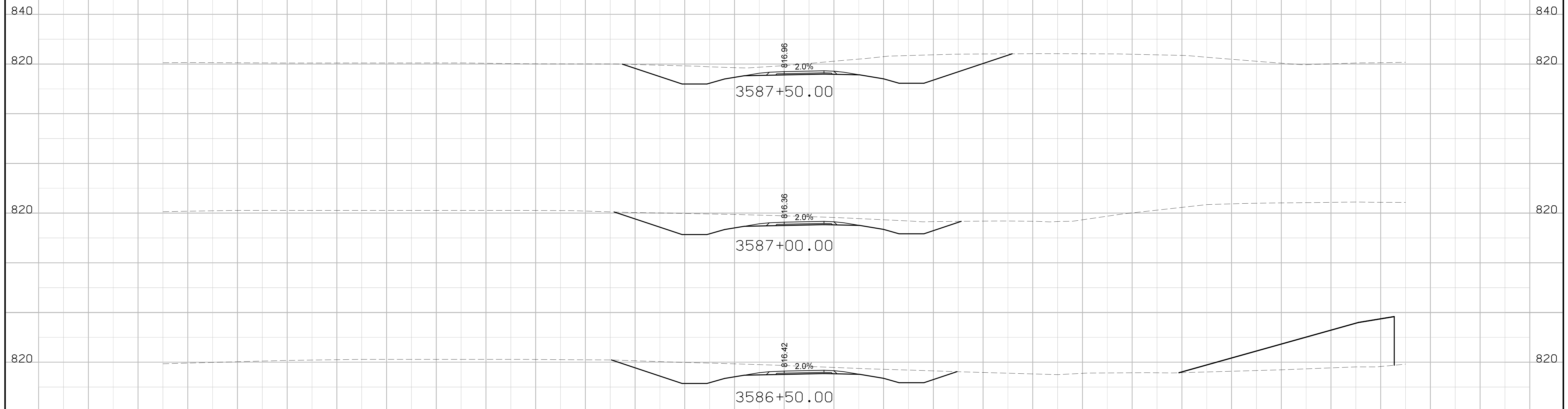
# Sideroad IA1 Ramp C Preliminary



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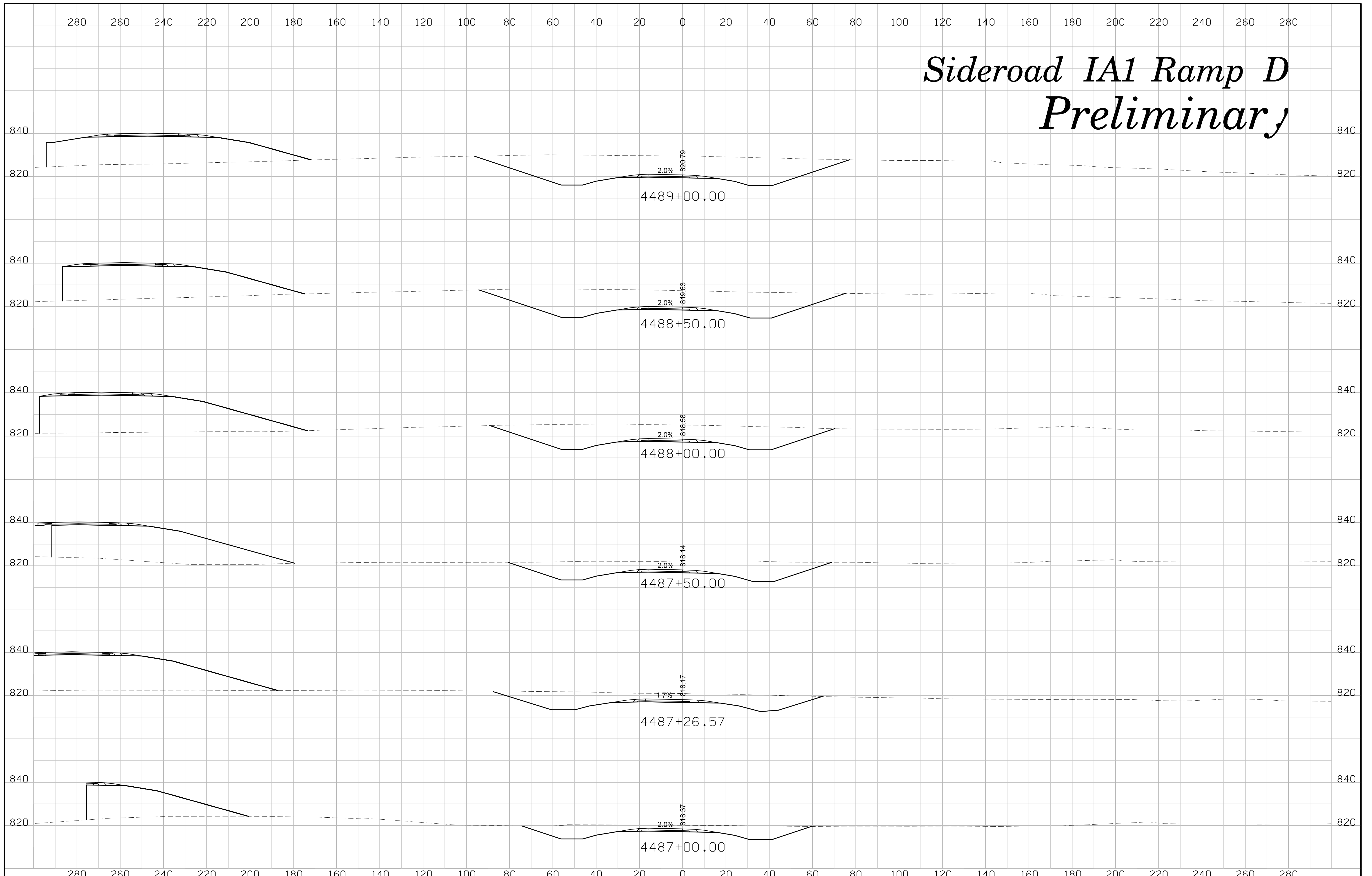
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# Sideroad IA1 Ramp C Preliminary

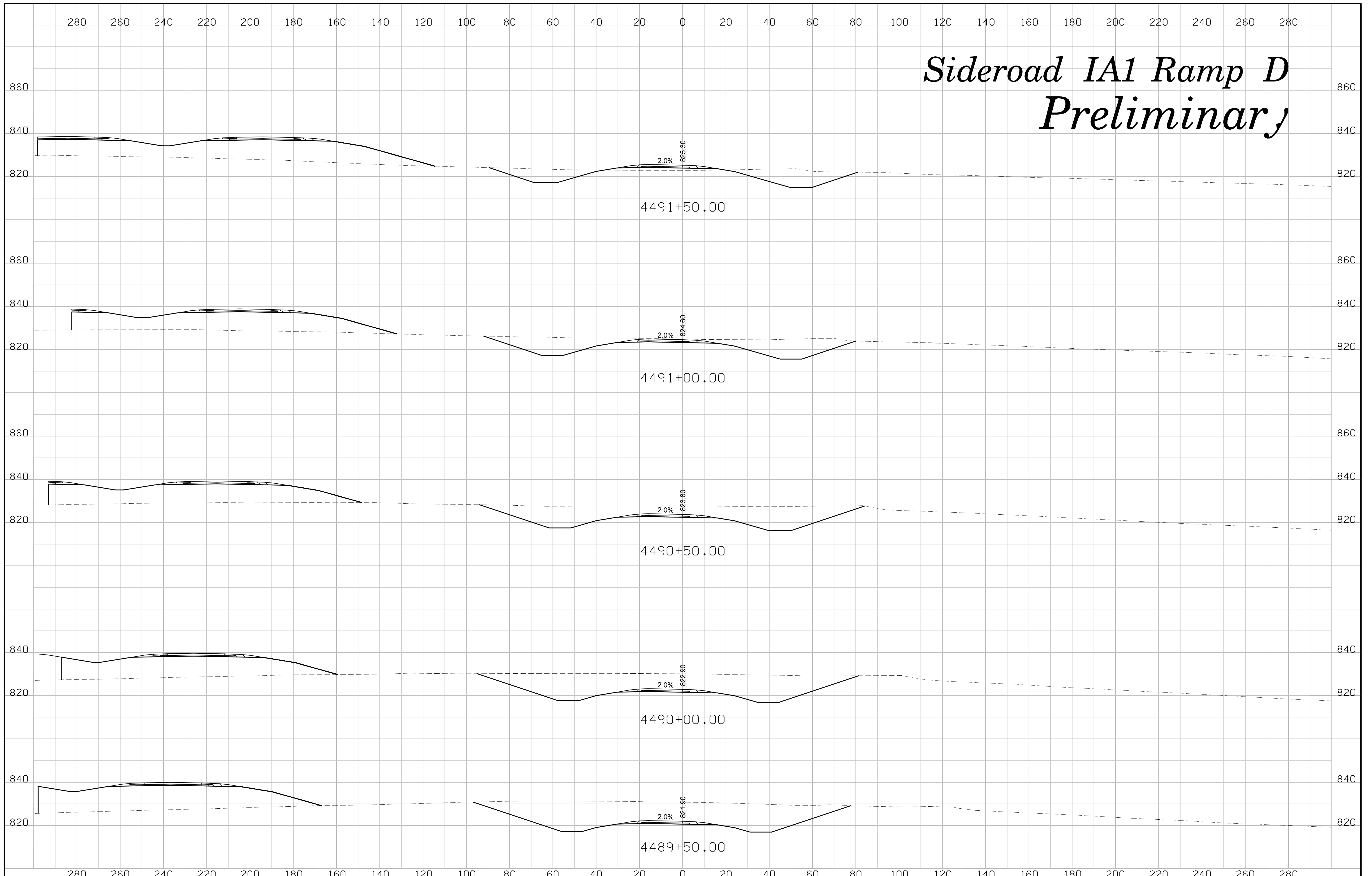


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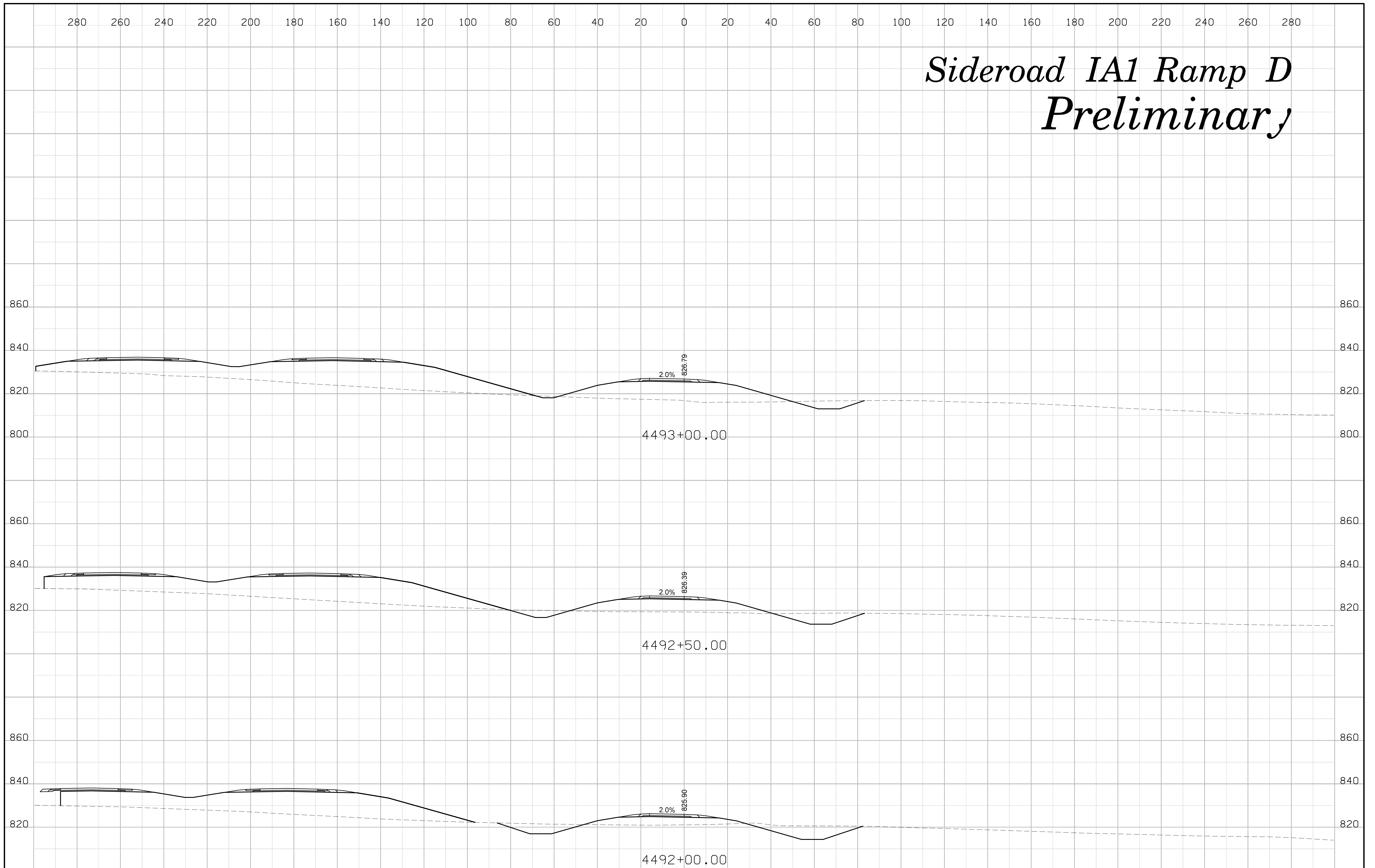
# Sideroad IA1 Ramp D Preliminary



# Sideroad IA1 Ramp D Preliminary

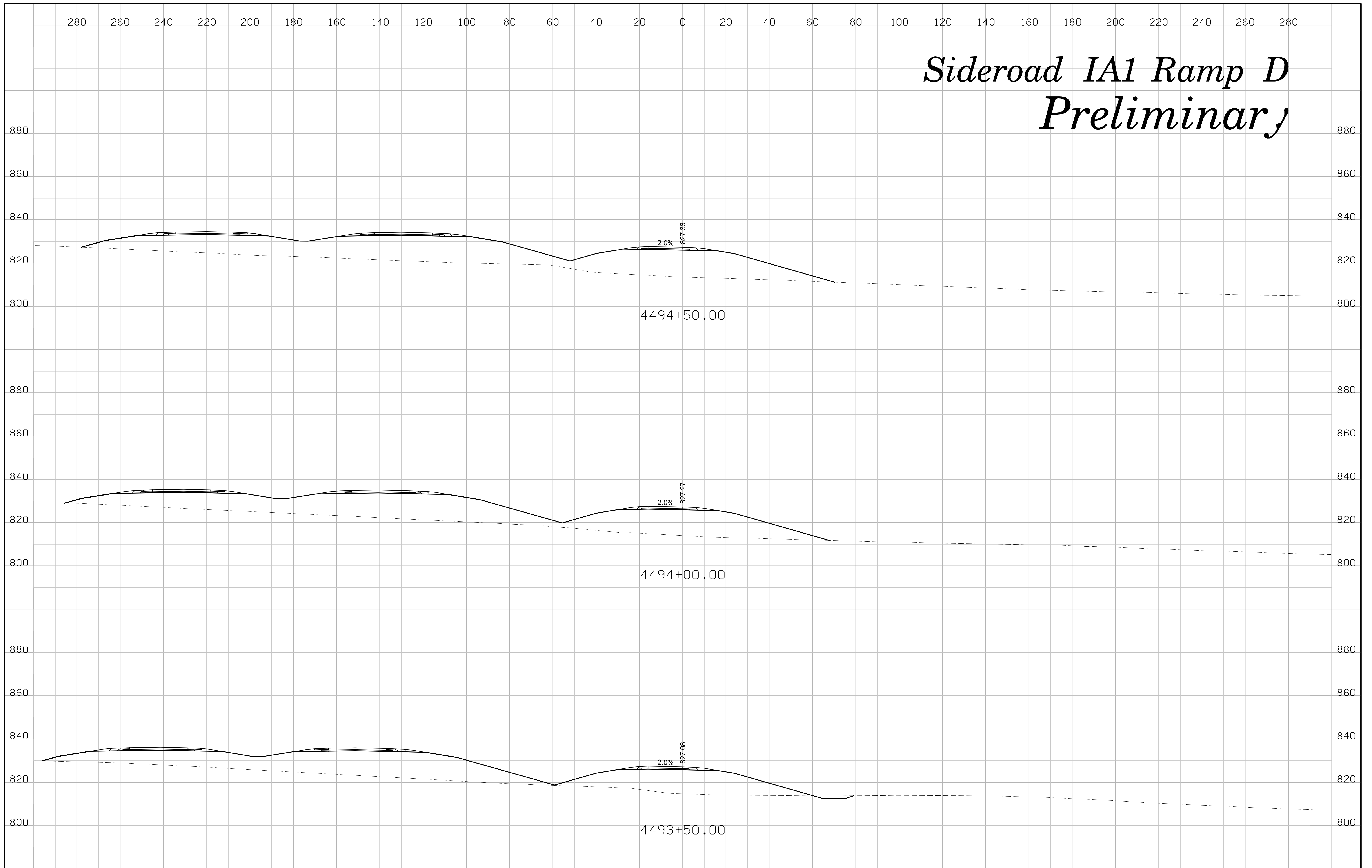


# Sideroad IA1 Ramp D Preliminary

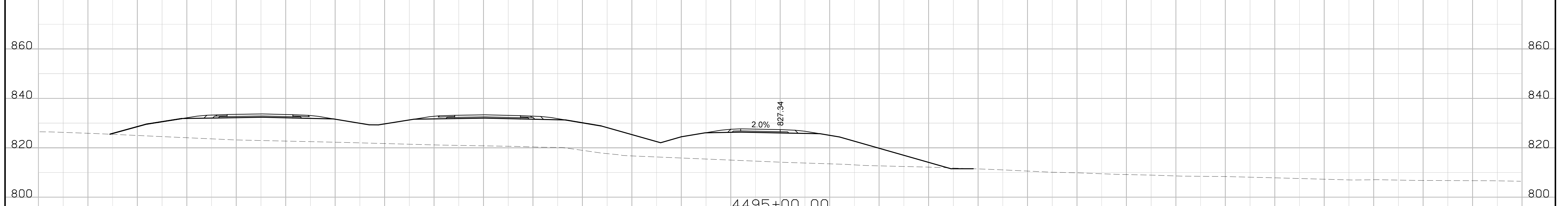
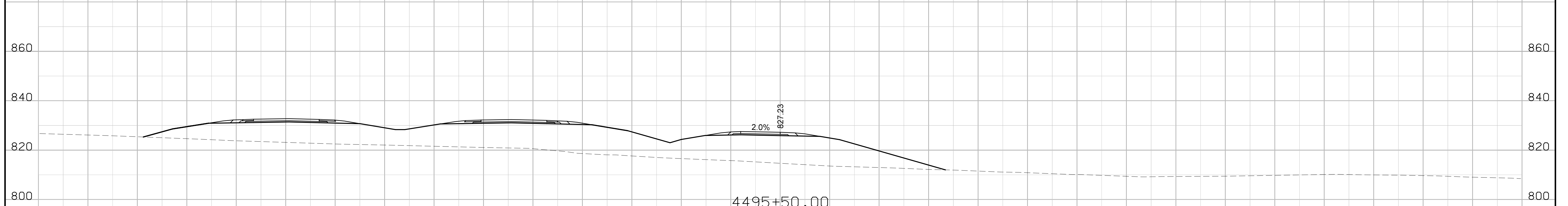
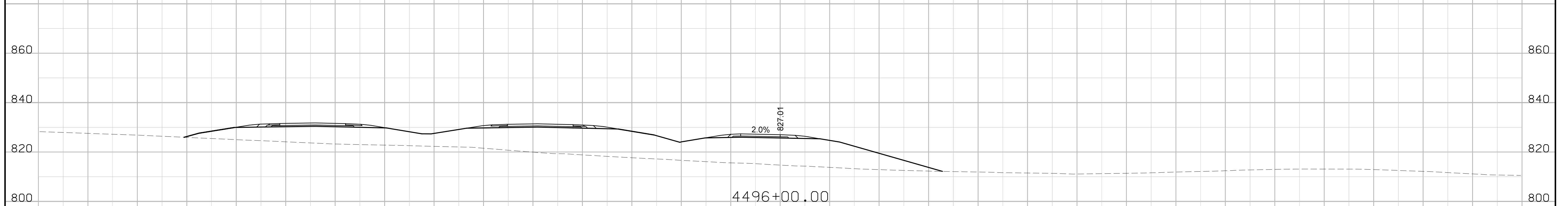
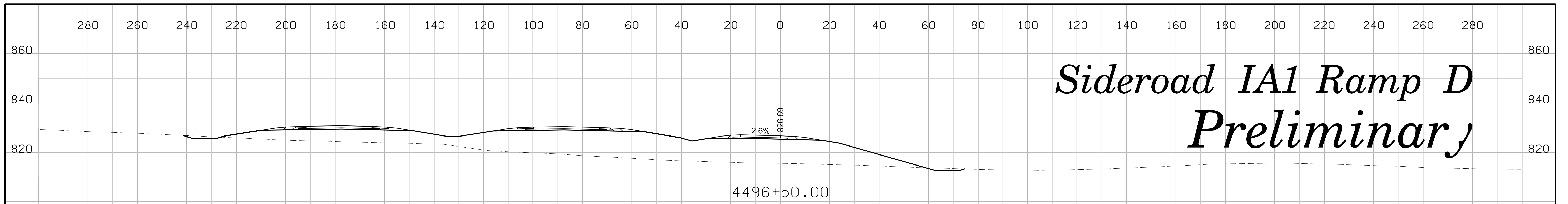




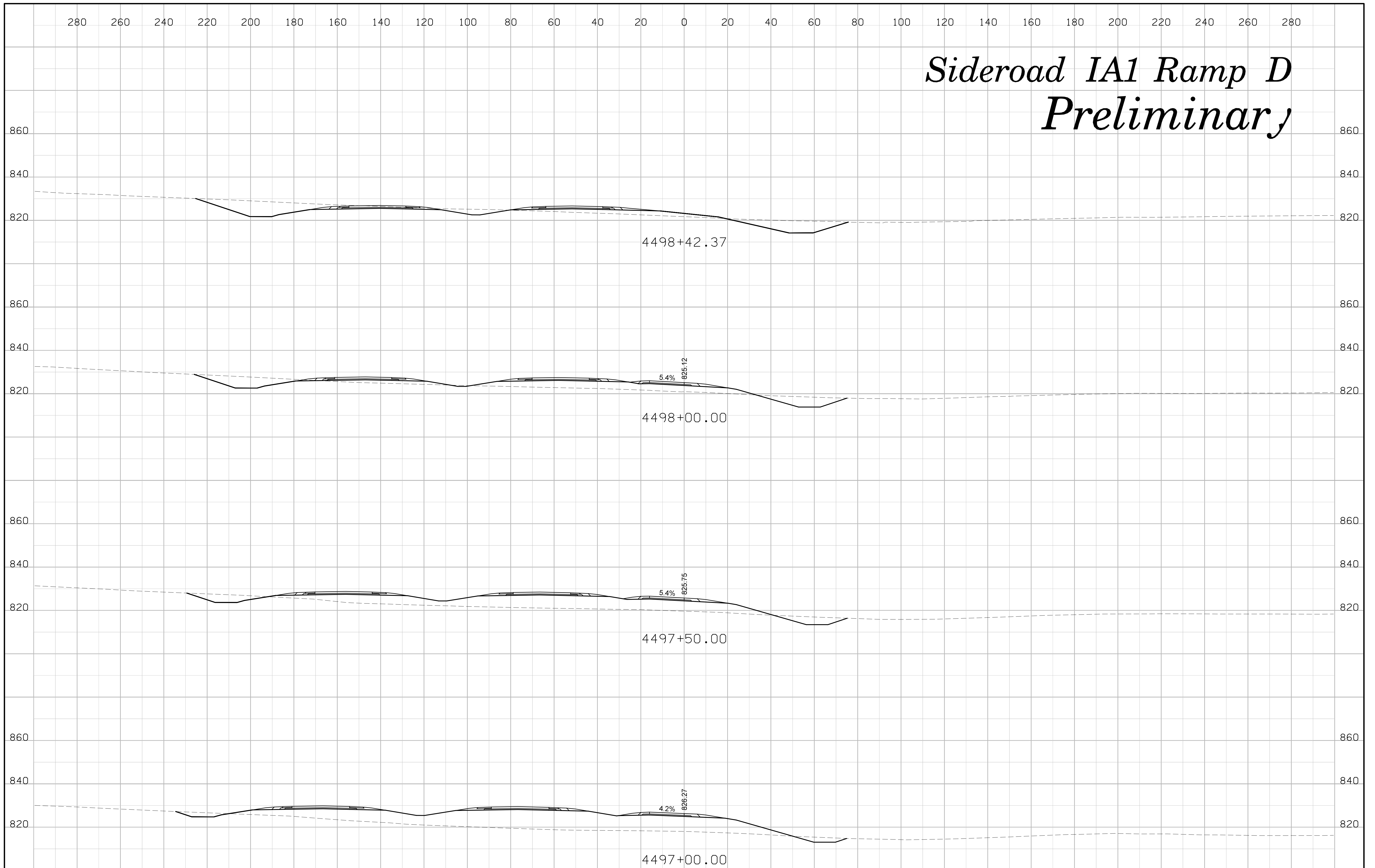
# Sideroad IA1 Ramp D Preliminary



# Sideroad IA1 Ramp D Preliminary

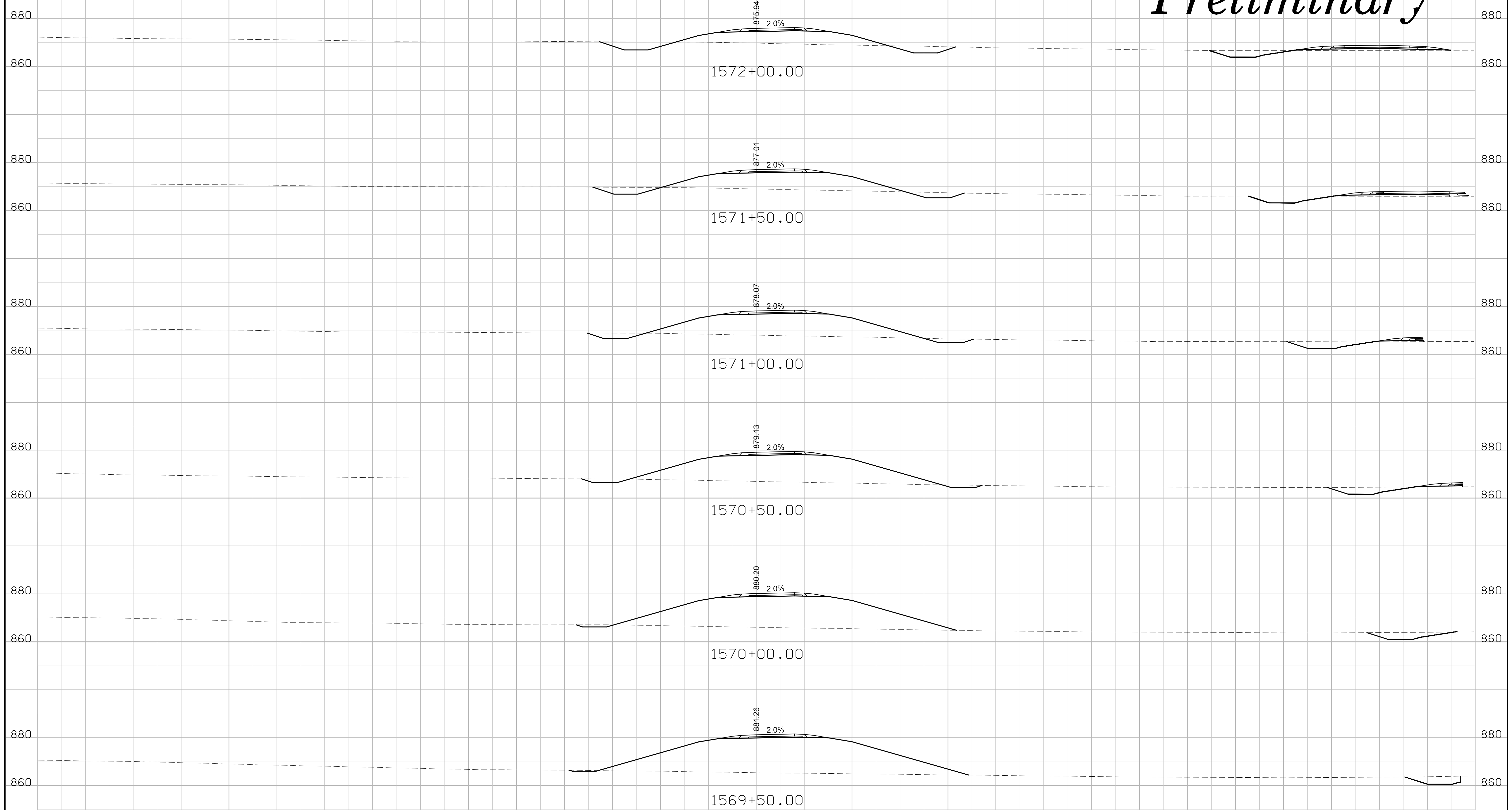


# Sideroad IA1 Ramp D Preliminary



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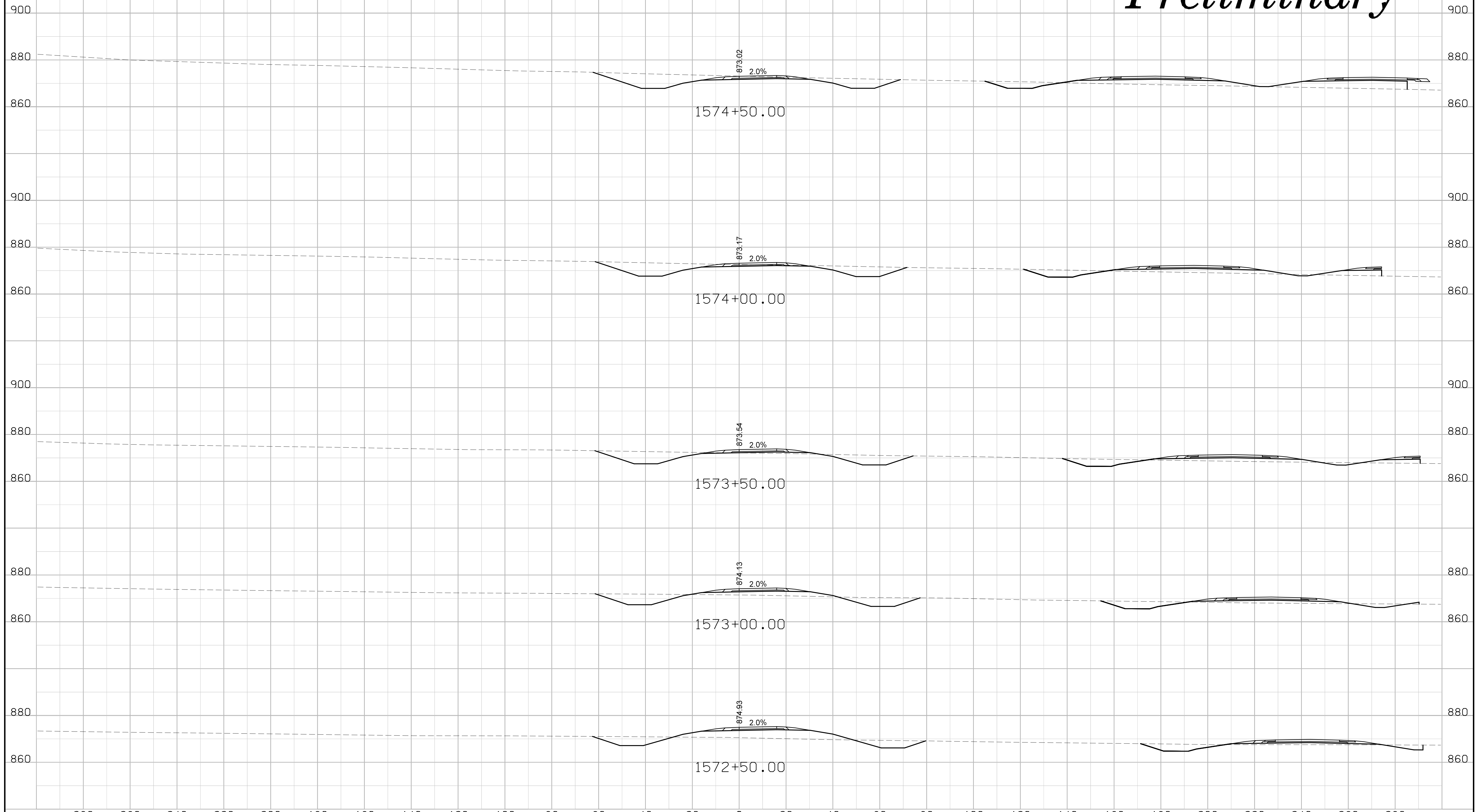
# Sideroad Adams Ramp A Preliminary



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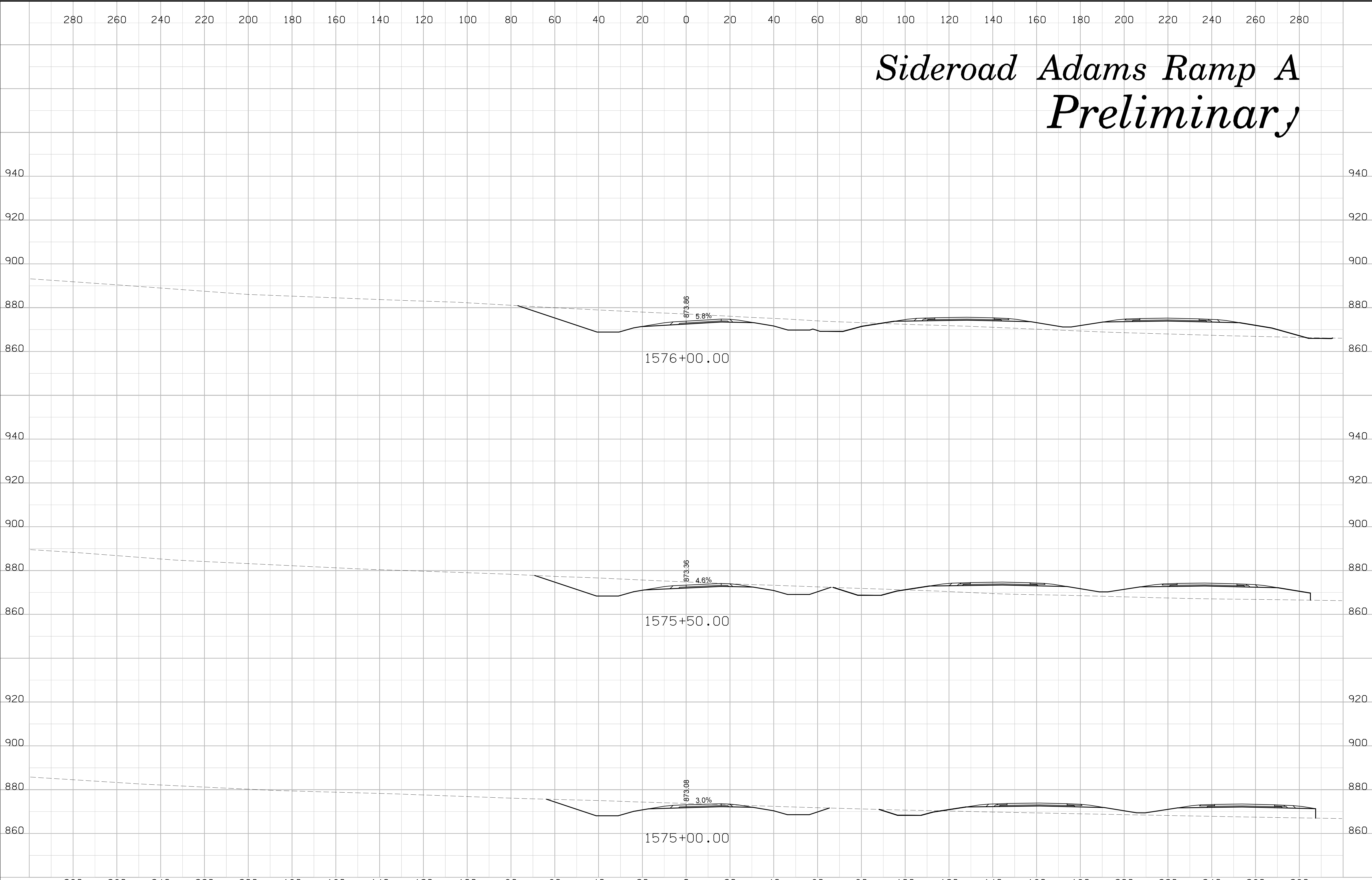
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# Sideroad Adams Ramp A Preliminary



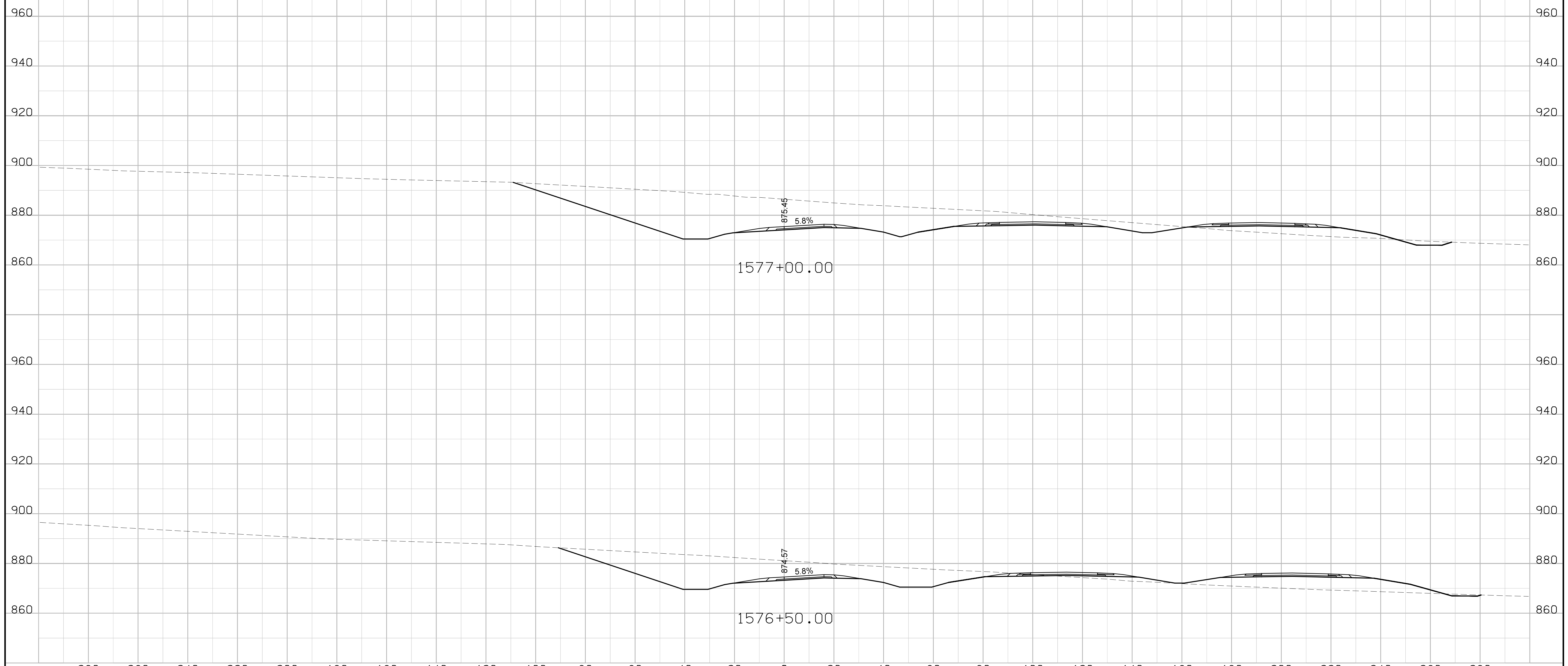
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# Sideroad Adams Ramp A Preliminary



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# Sideroad Adams Ramp A Preliminary

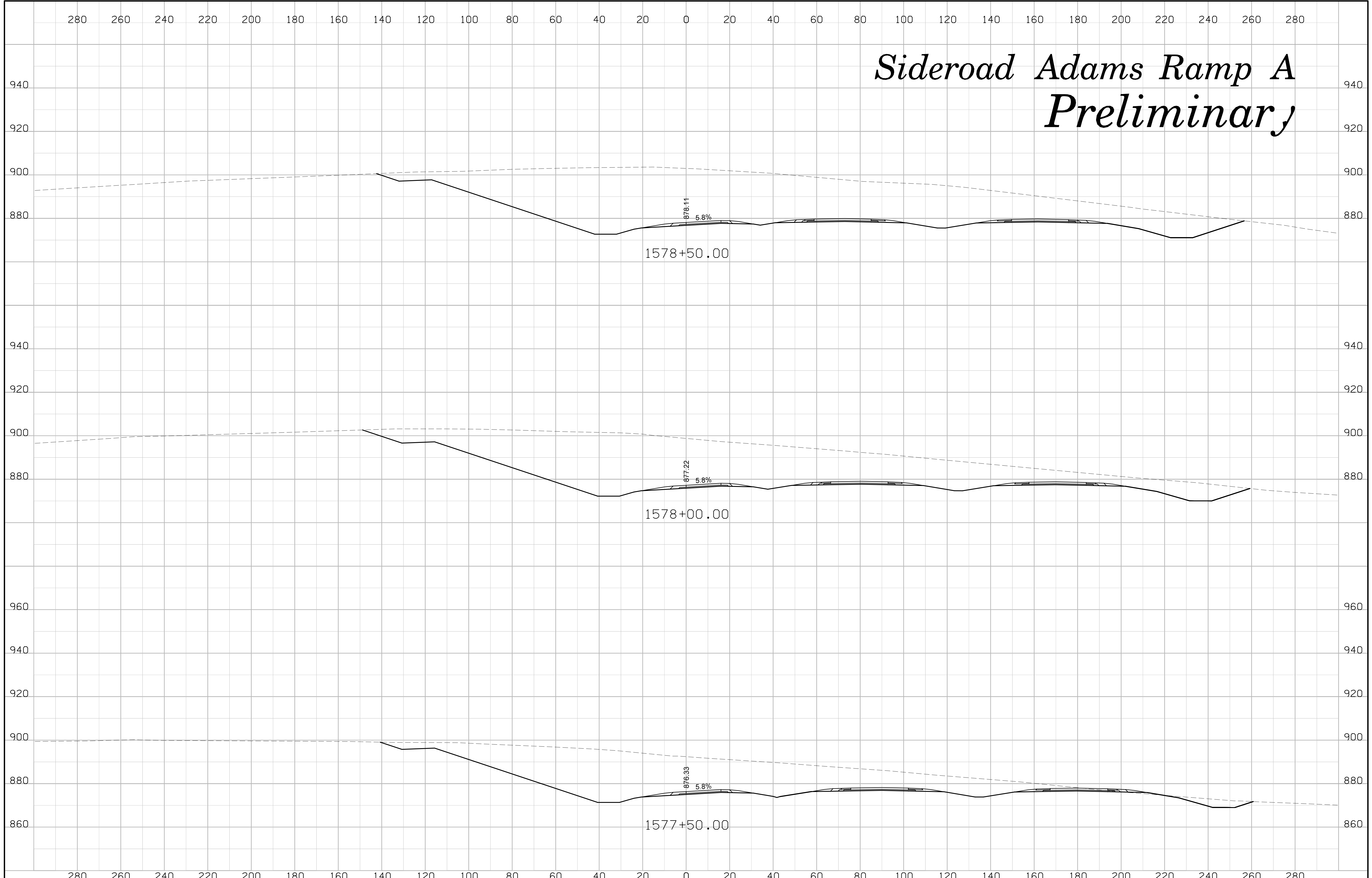


1577+00.00

1576+50.00

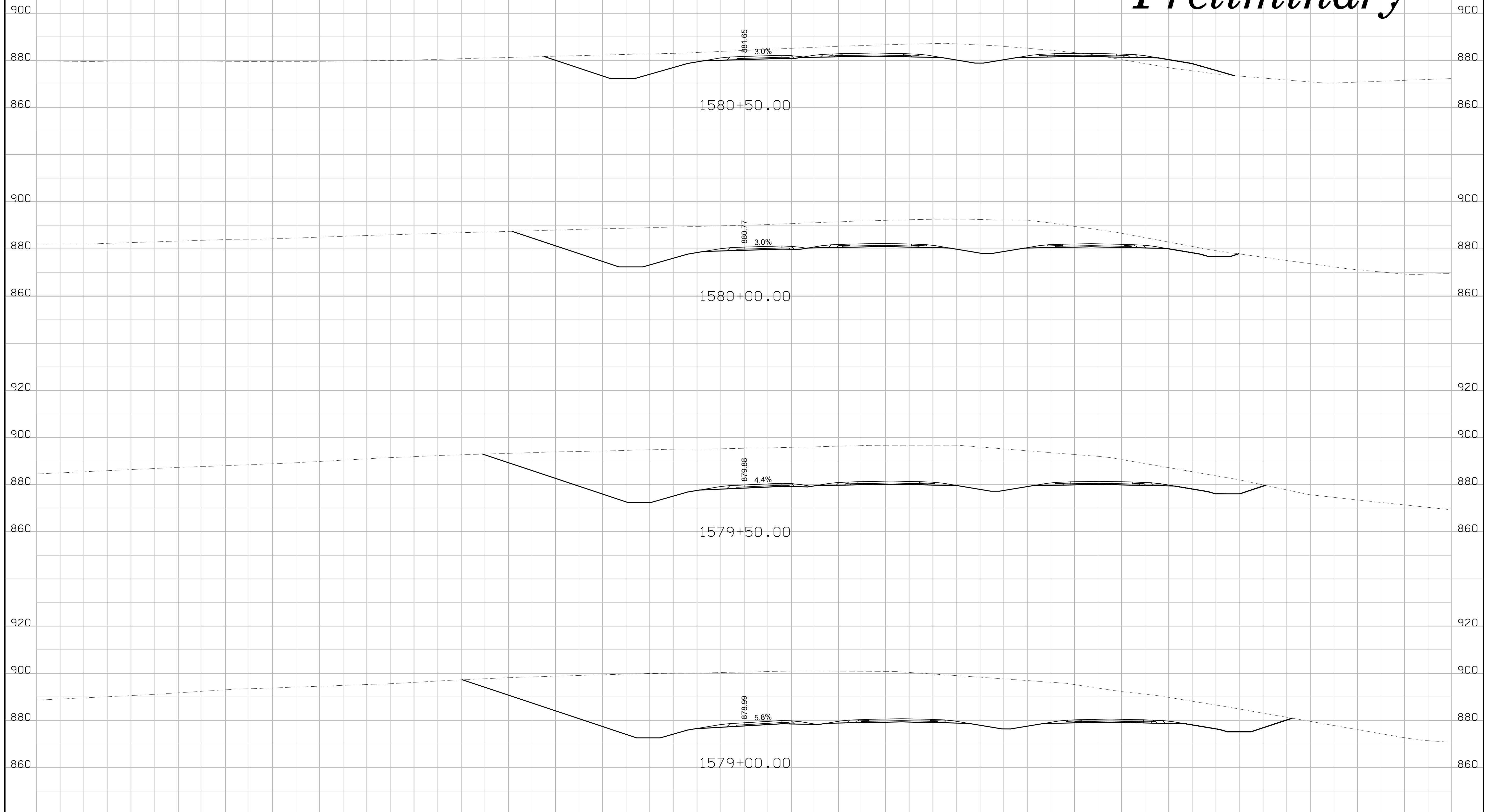


# Sideroad Adams Ramp A Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

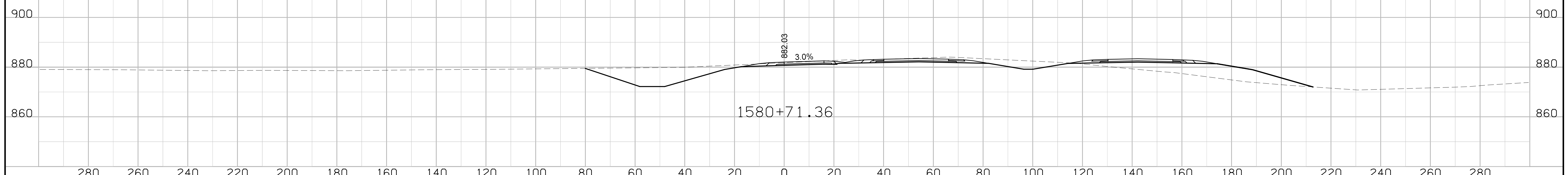
# Sideroad Adams Ramp A Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280

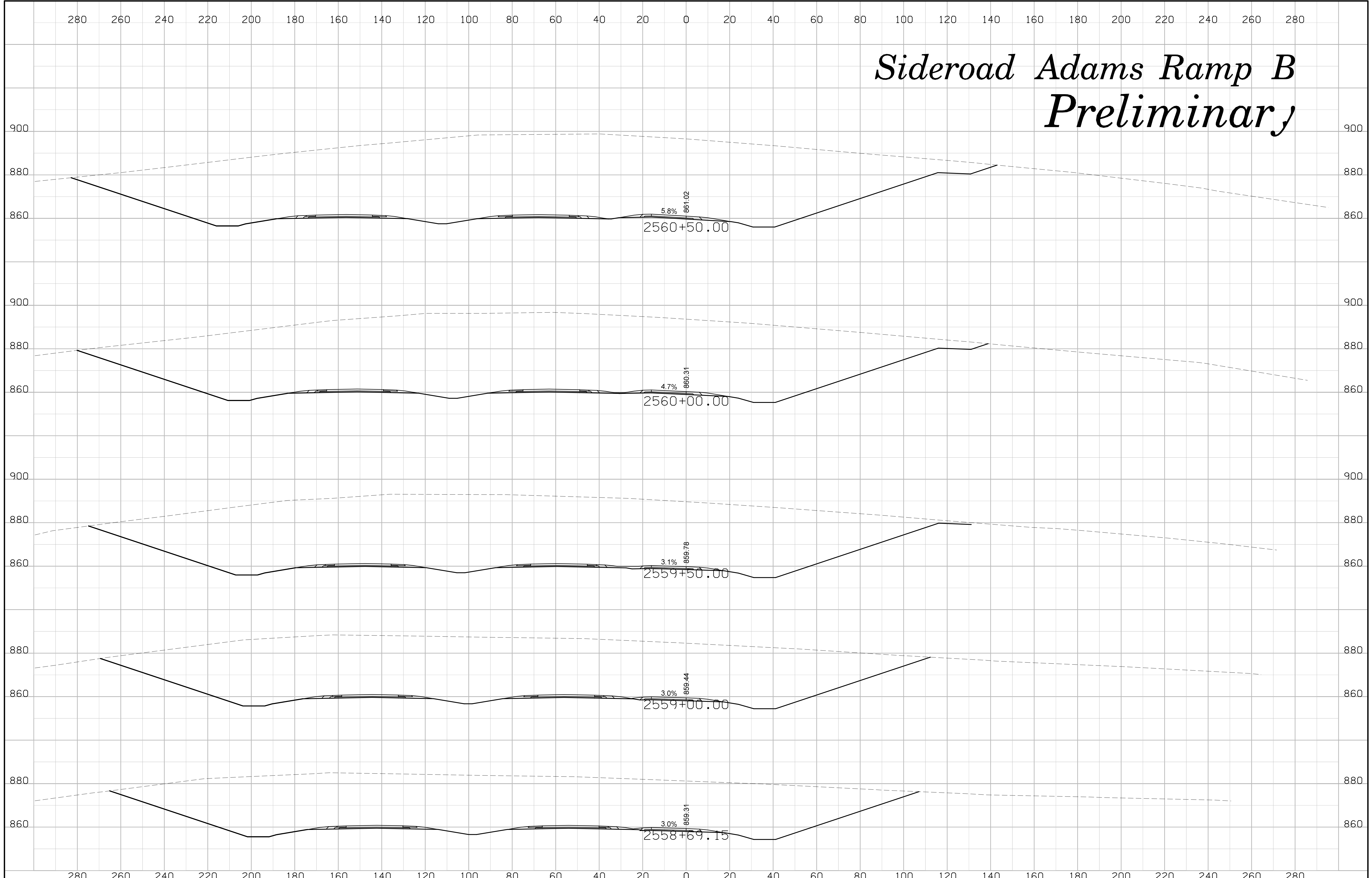
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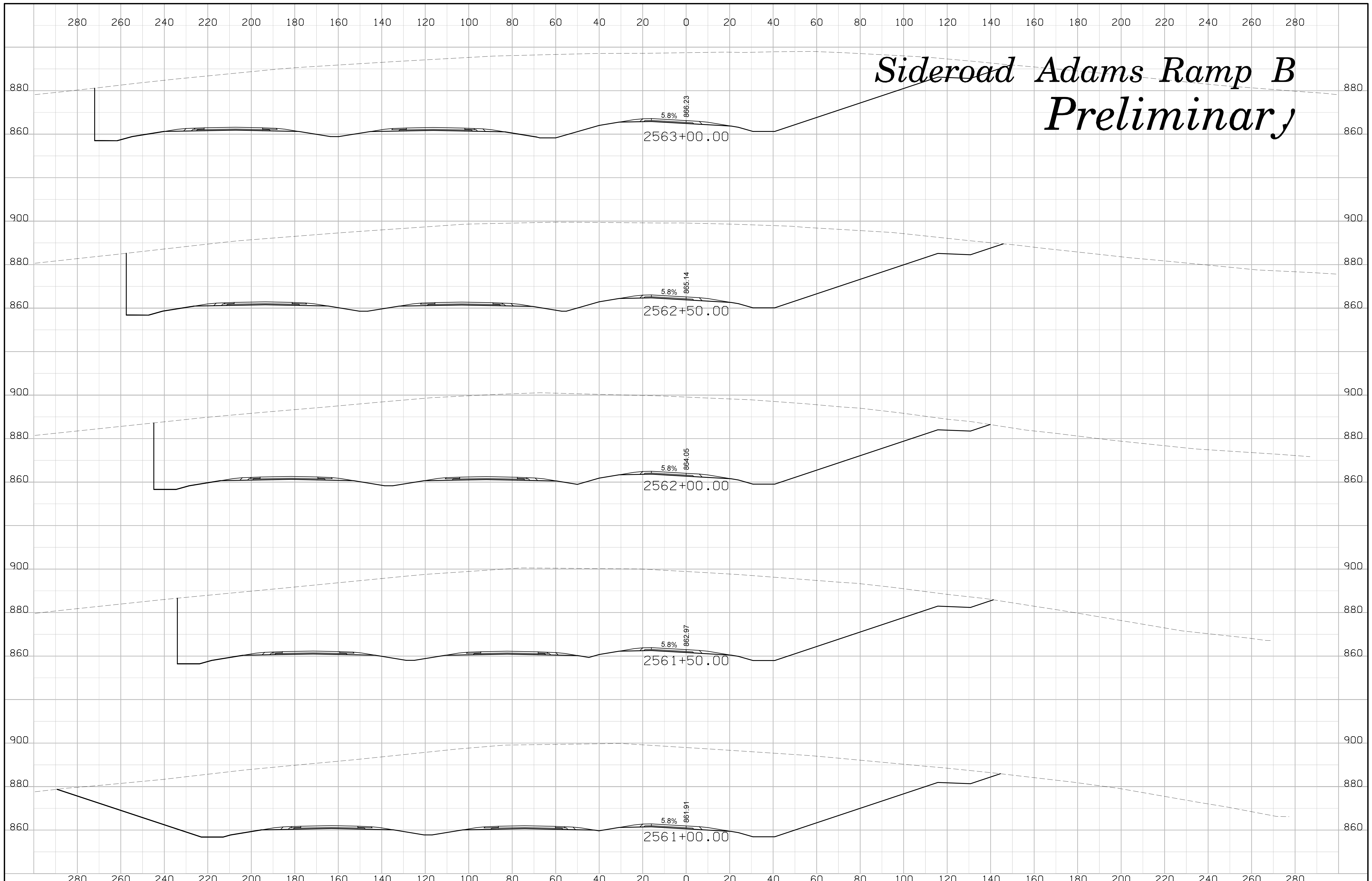
# Sideroad Adams Ramp A Preliminary



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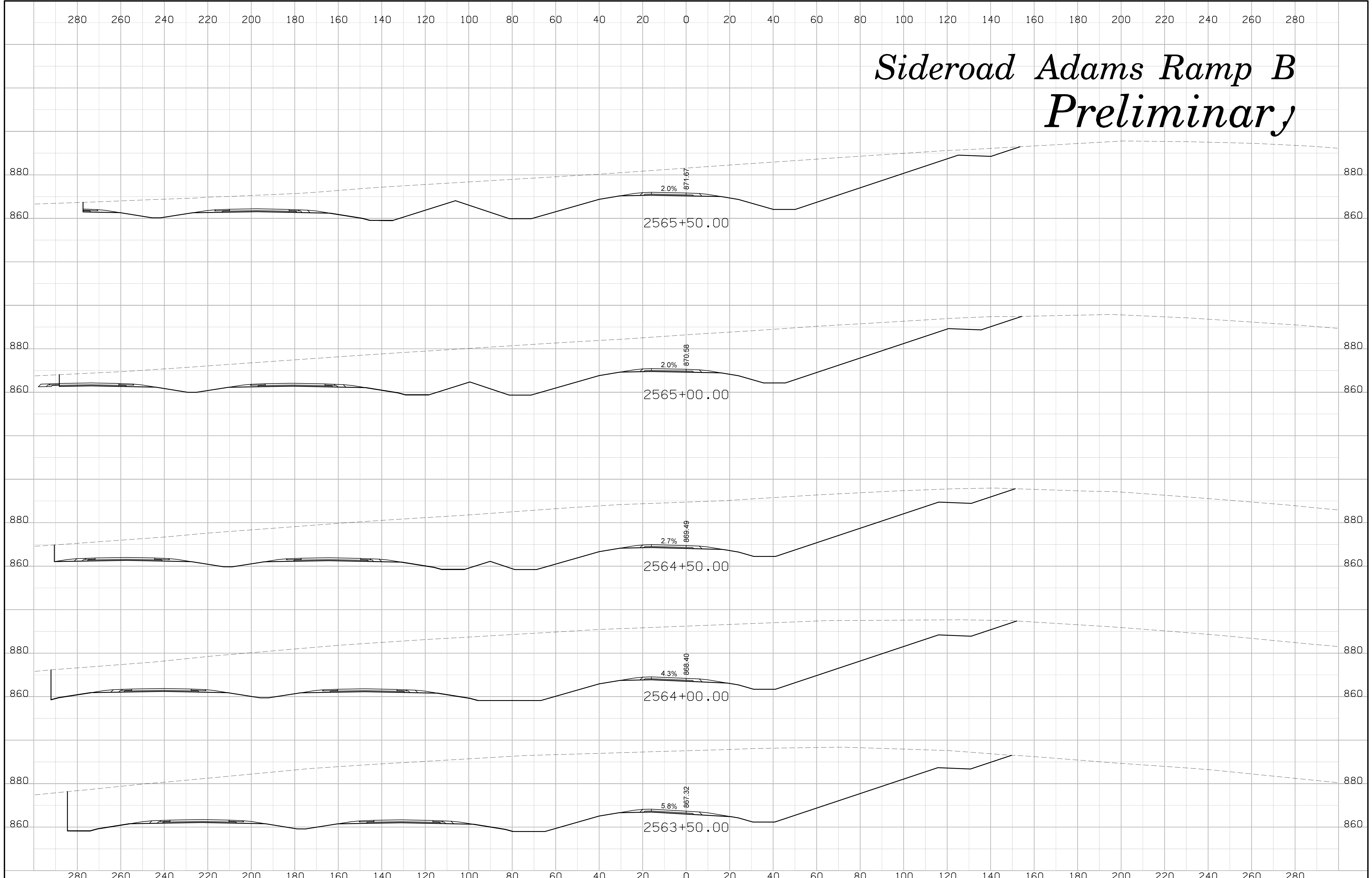
# Sideroad Adams Ramp B Preliminary



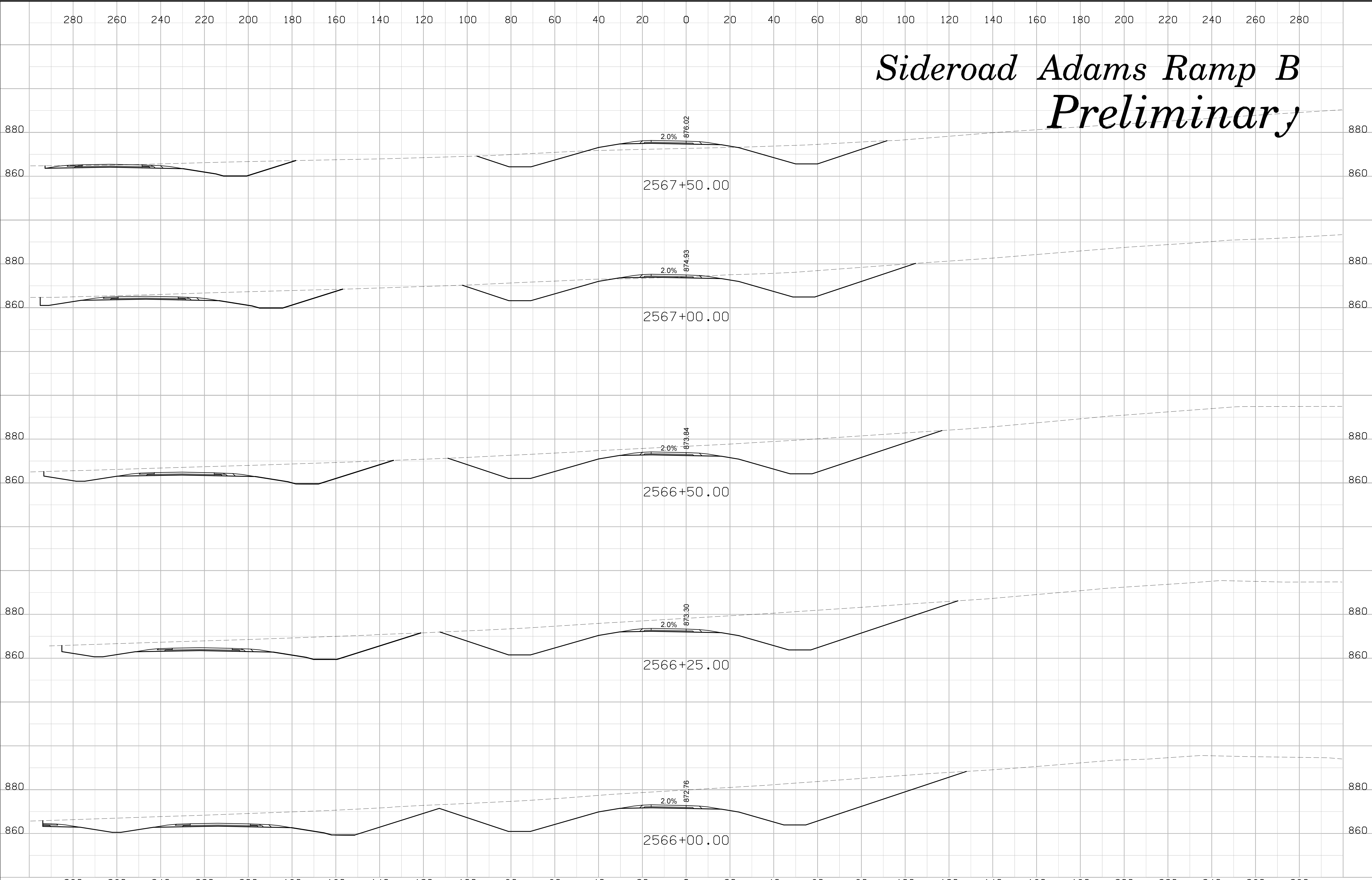


*Sideroad Adams Ramp B  
Preliminary*

# Sideroad Adams Ramp B Preliminary



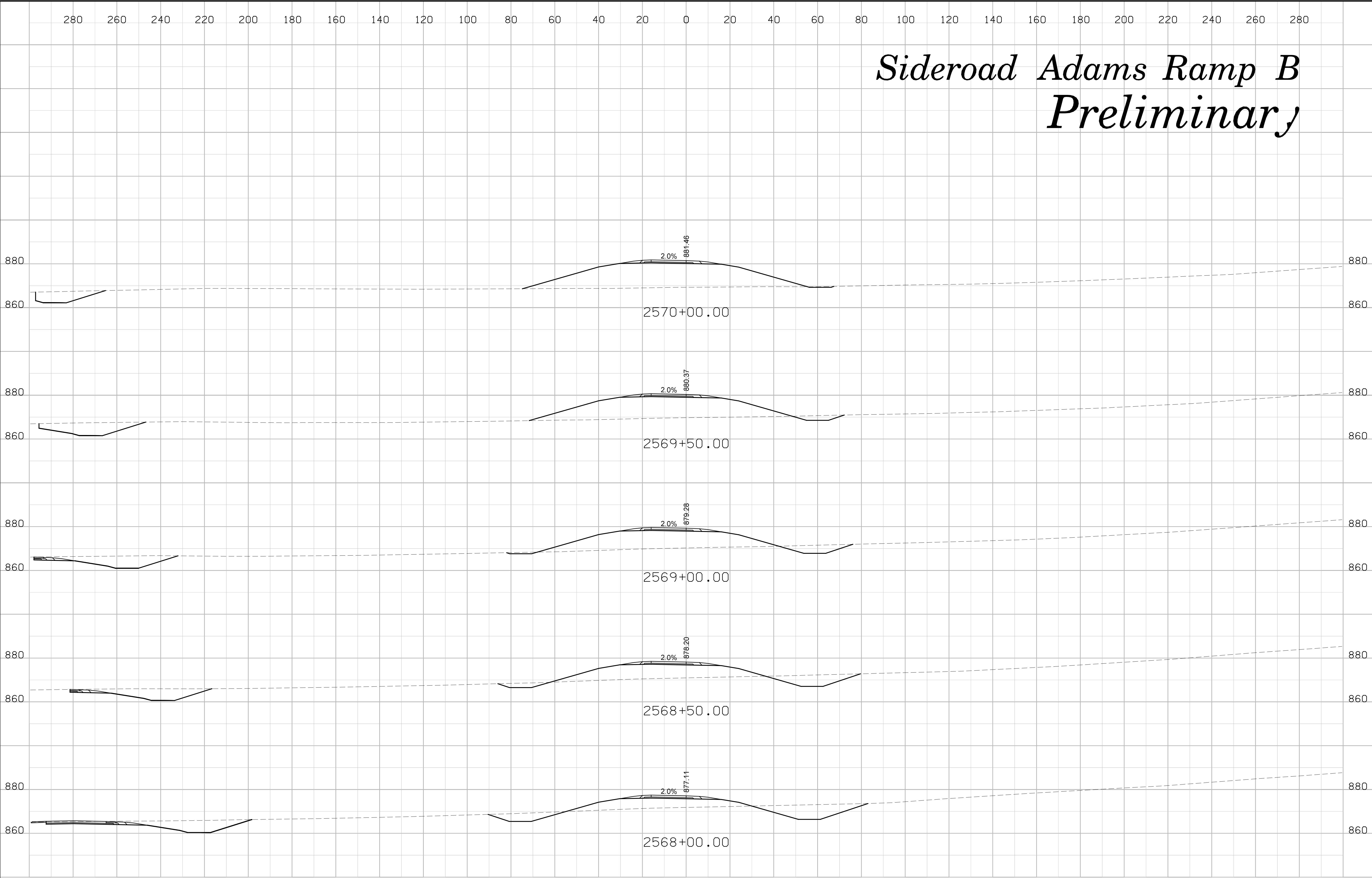
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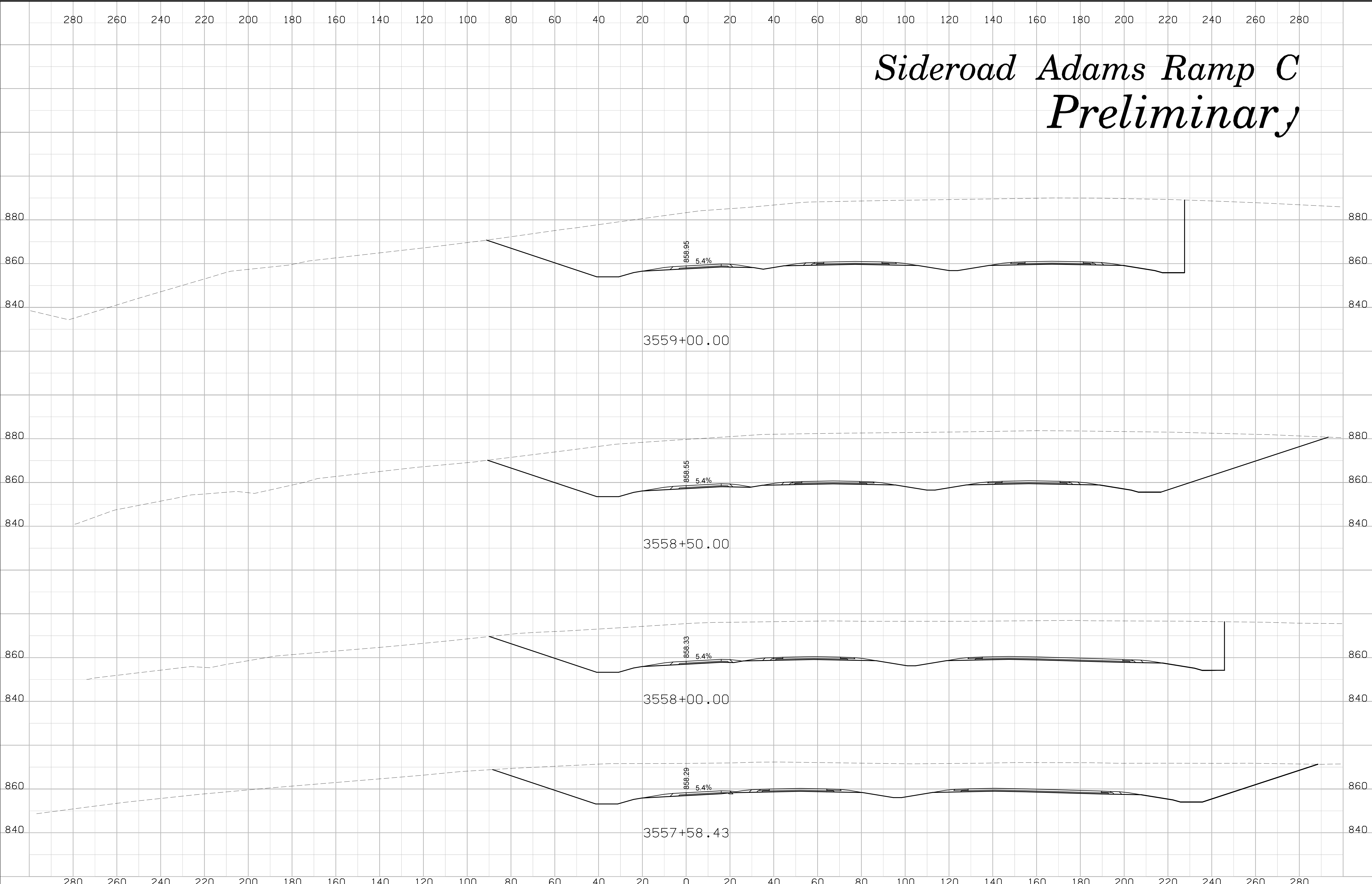


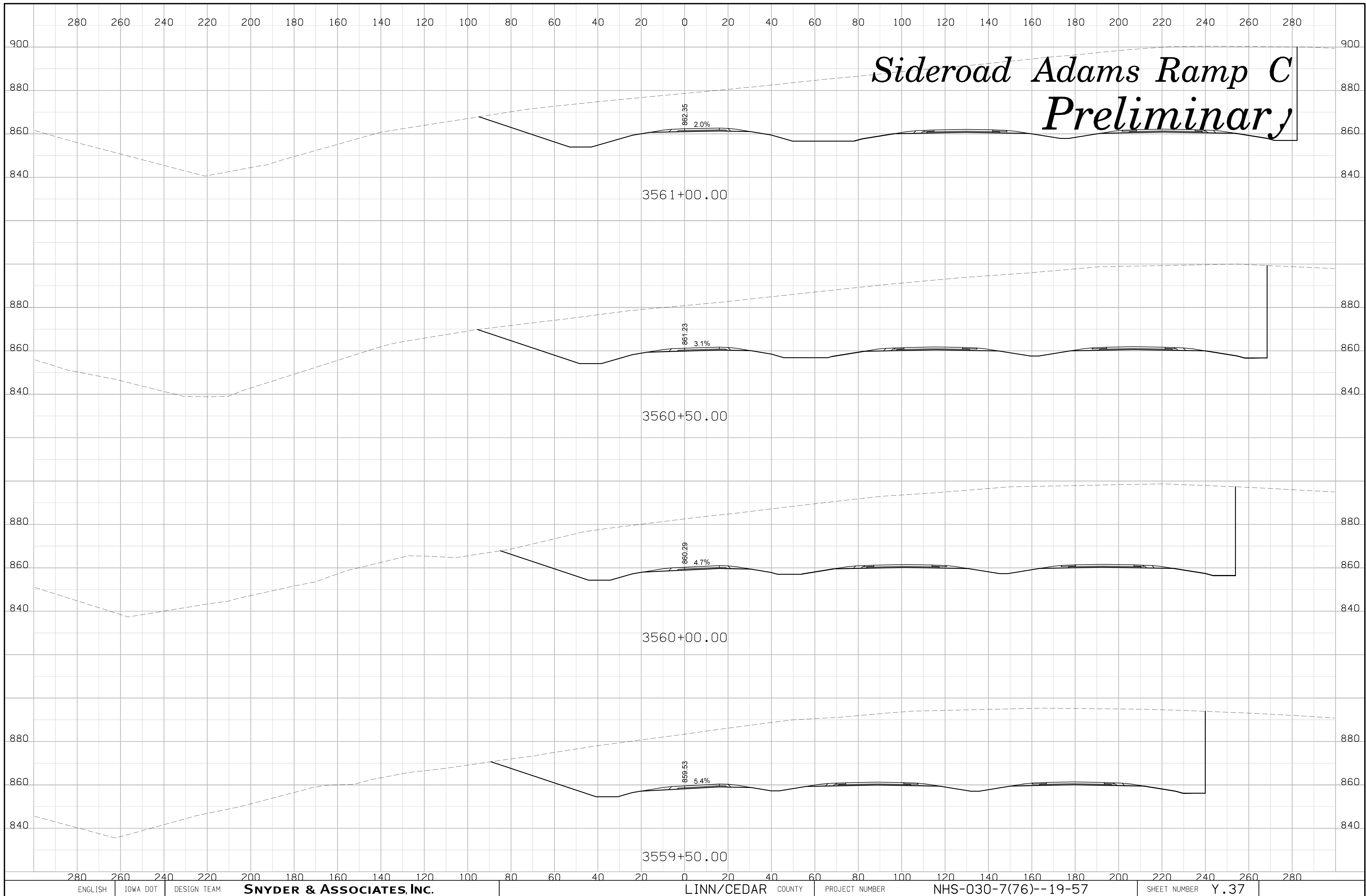
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## *Preliminary*

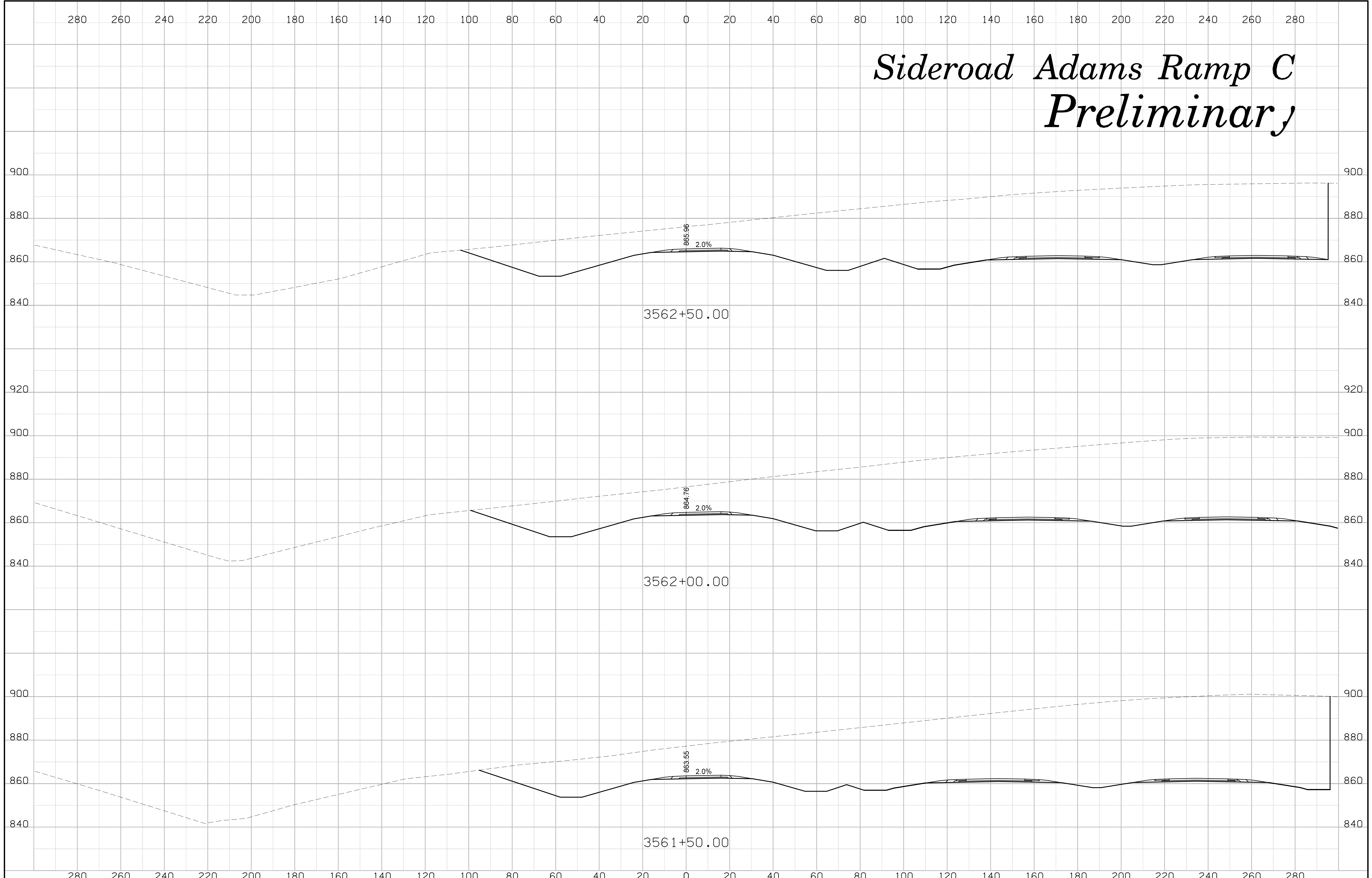


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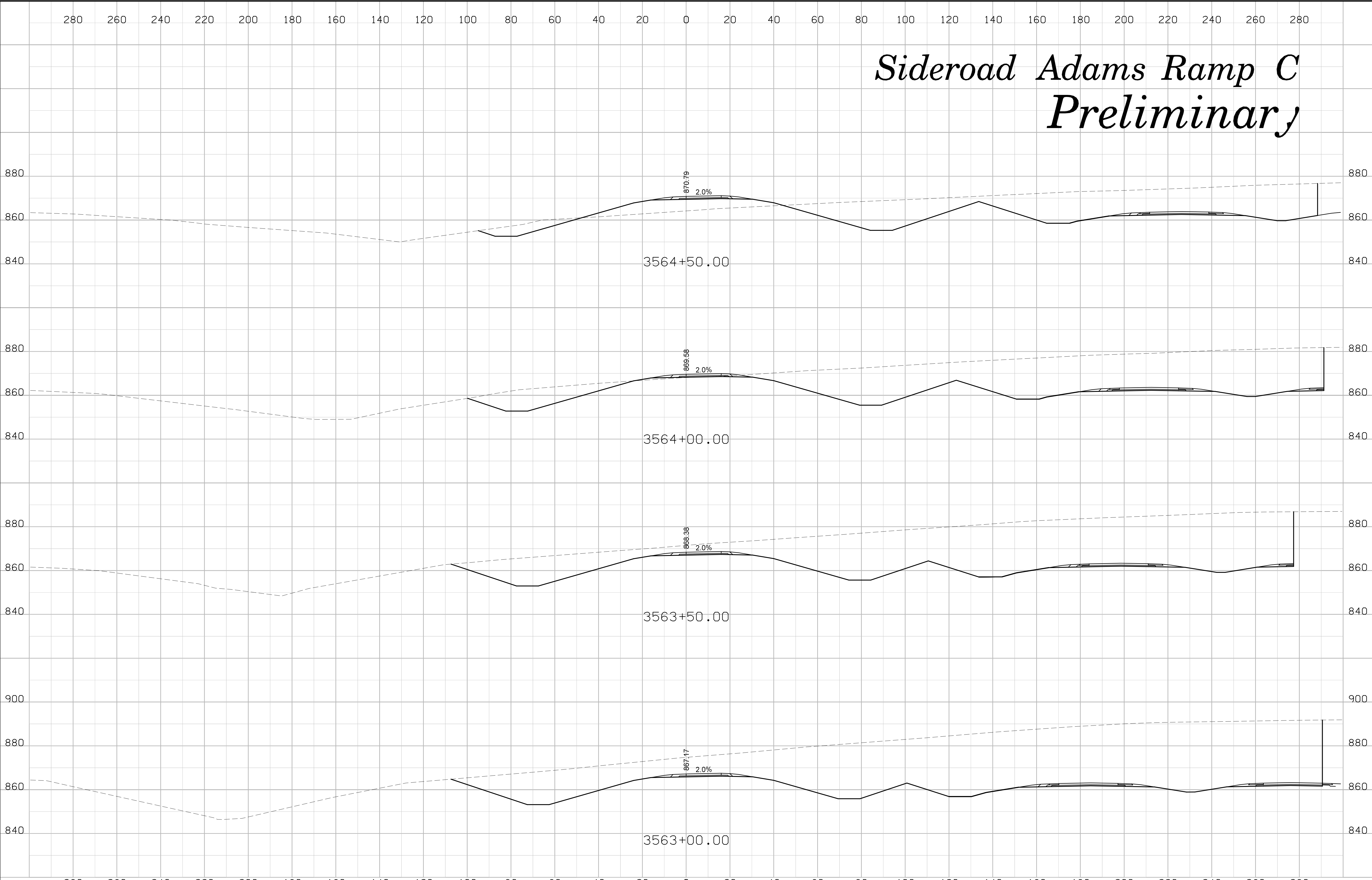




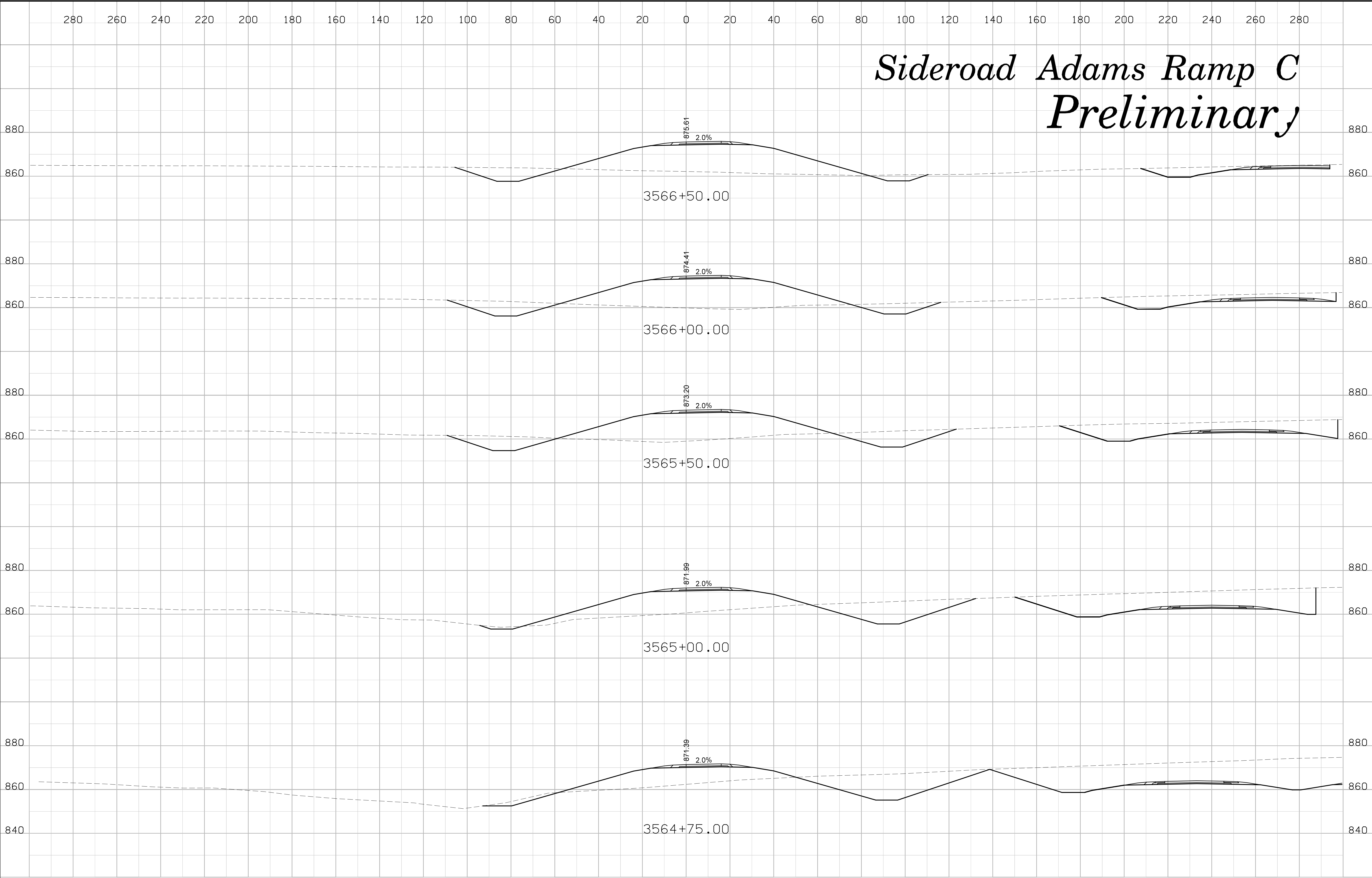
# Sideroad Adams Ramp C Preliminary



# Sideroad Adams Ramp C Preliminary

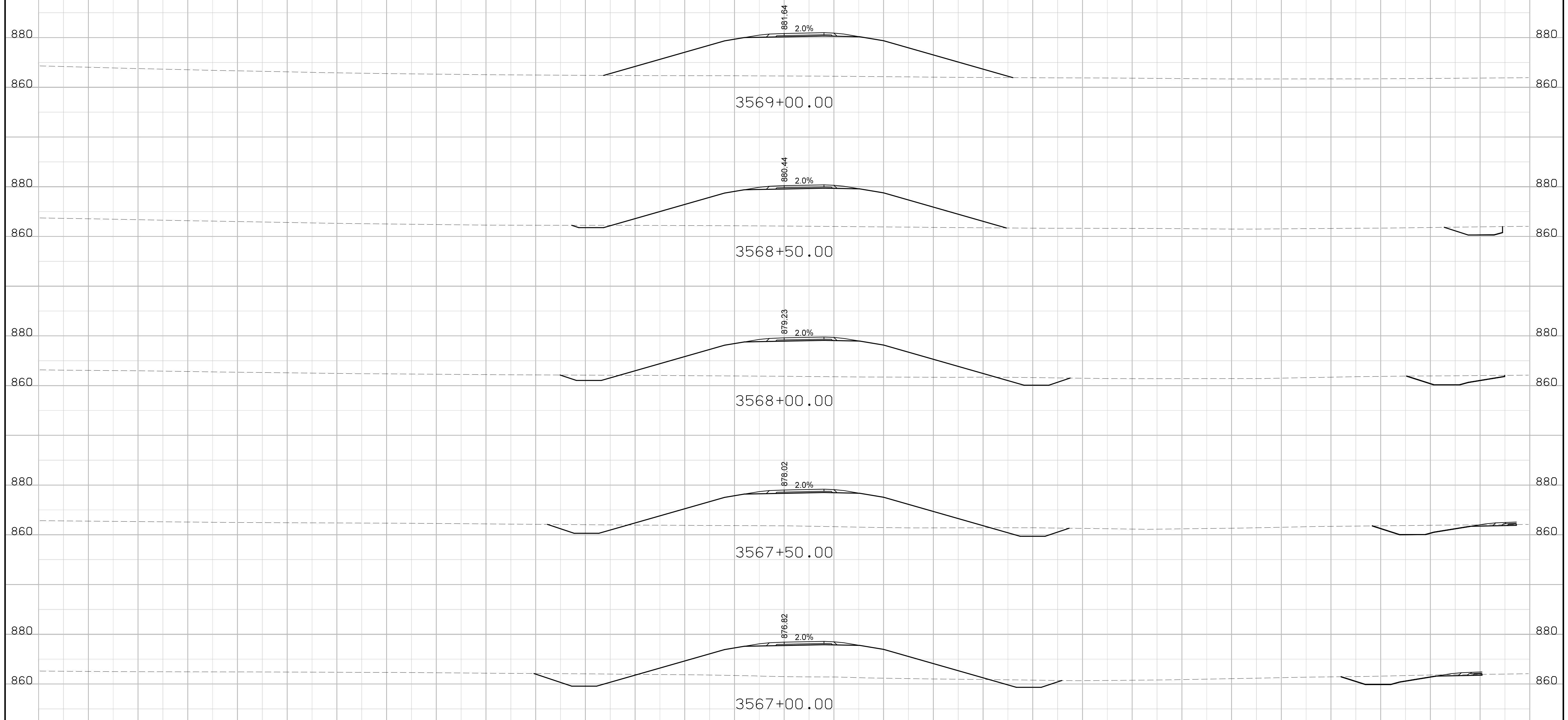


# Sideroad Adams Ramp C Preliminary



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# Sideroad Adams Ramp C Preliminary

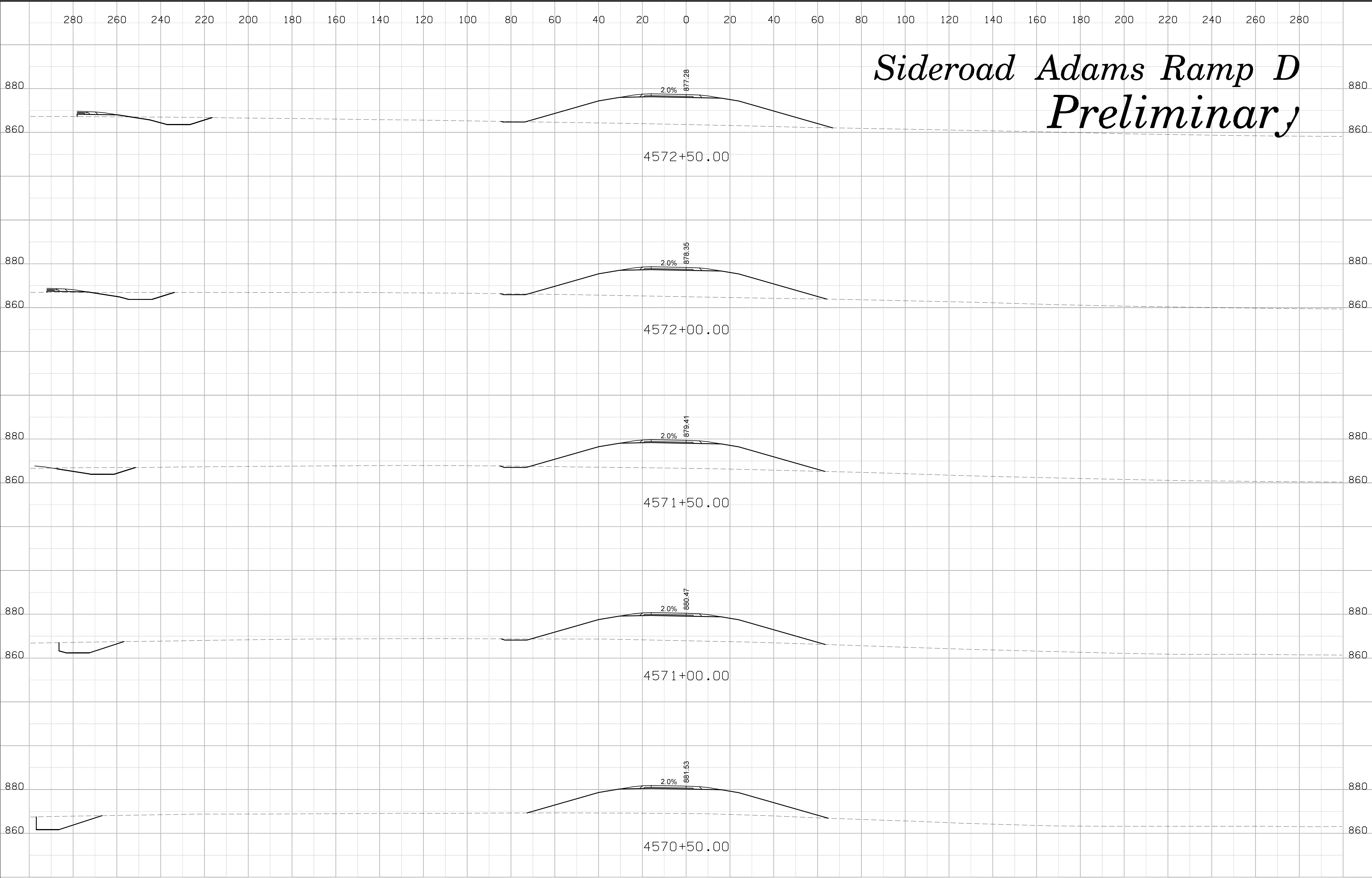


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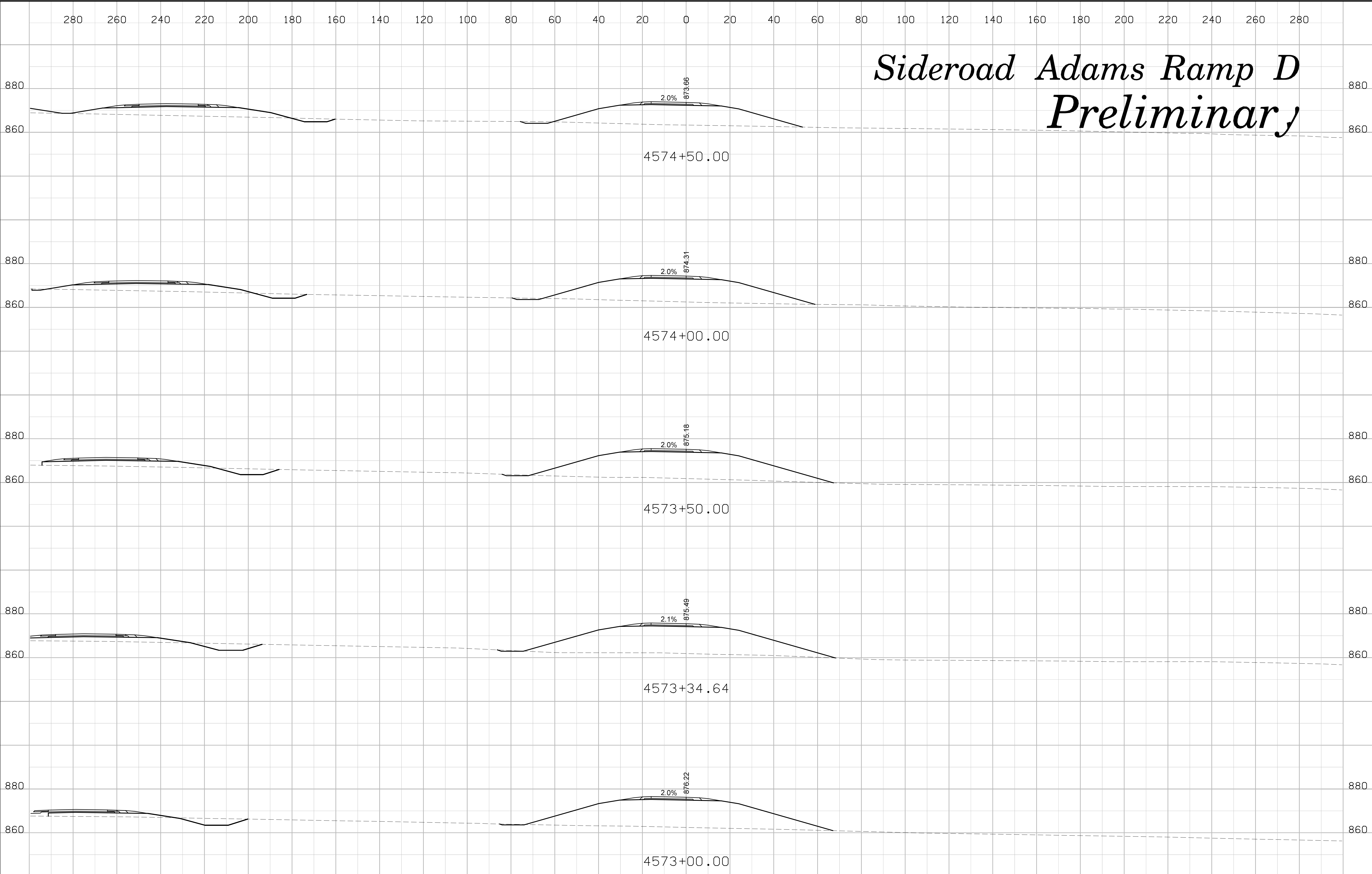


# *Sideroad Adams Ramp D*

## *Preliminary*

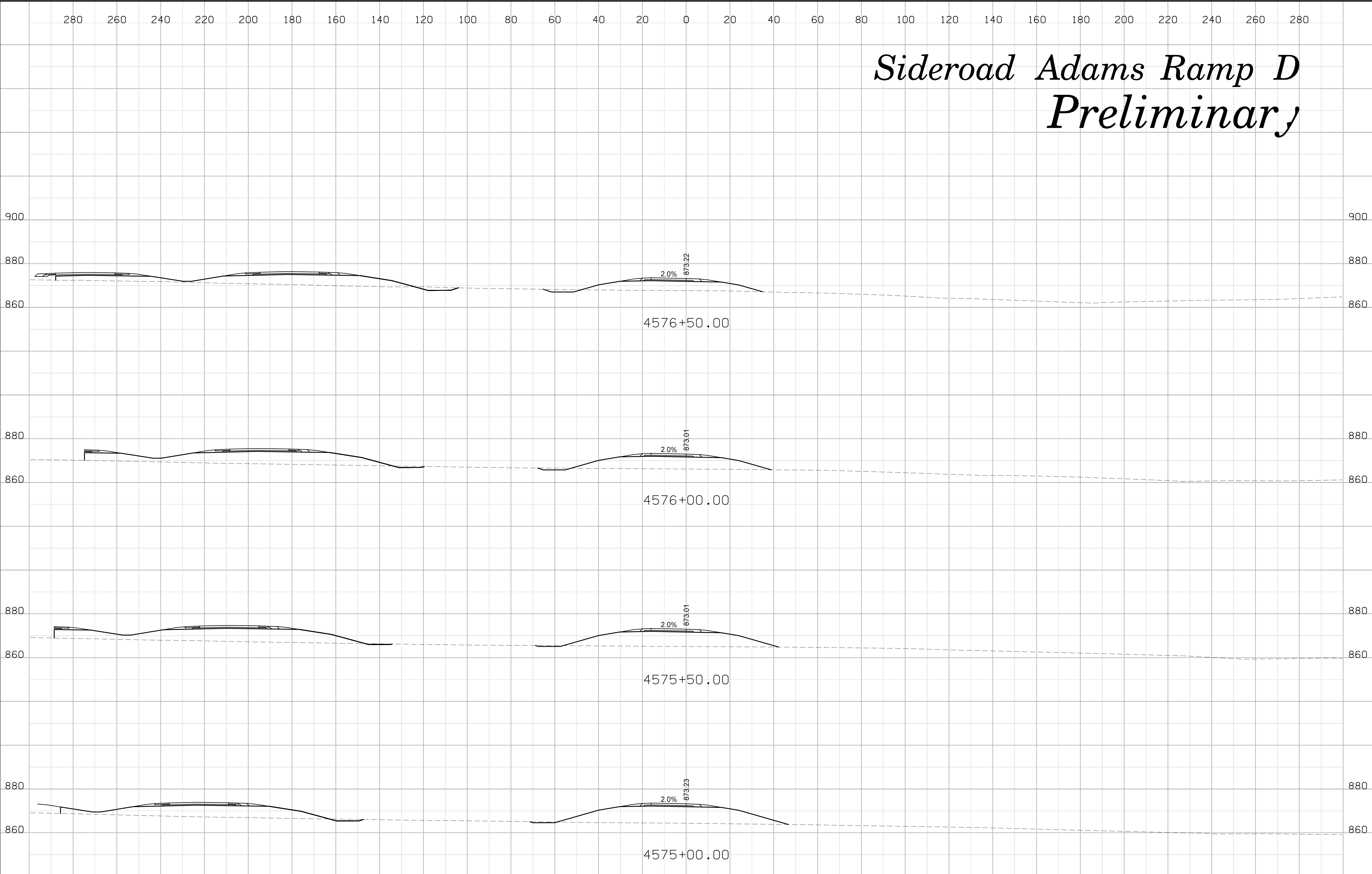


# Sideroad Adams Ramp D Preliminary



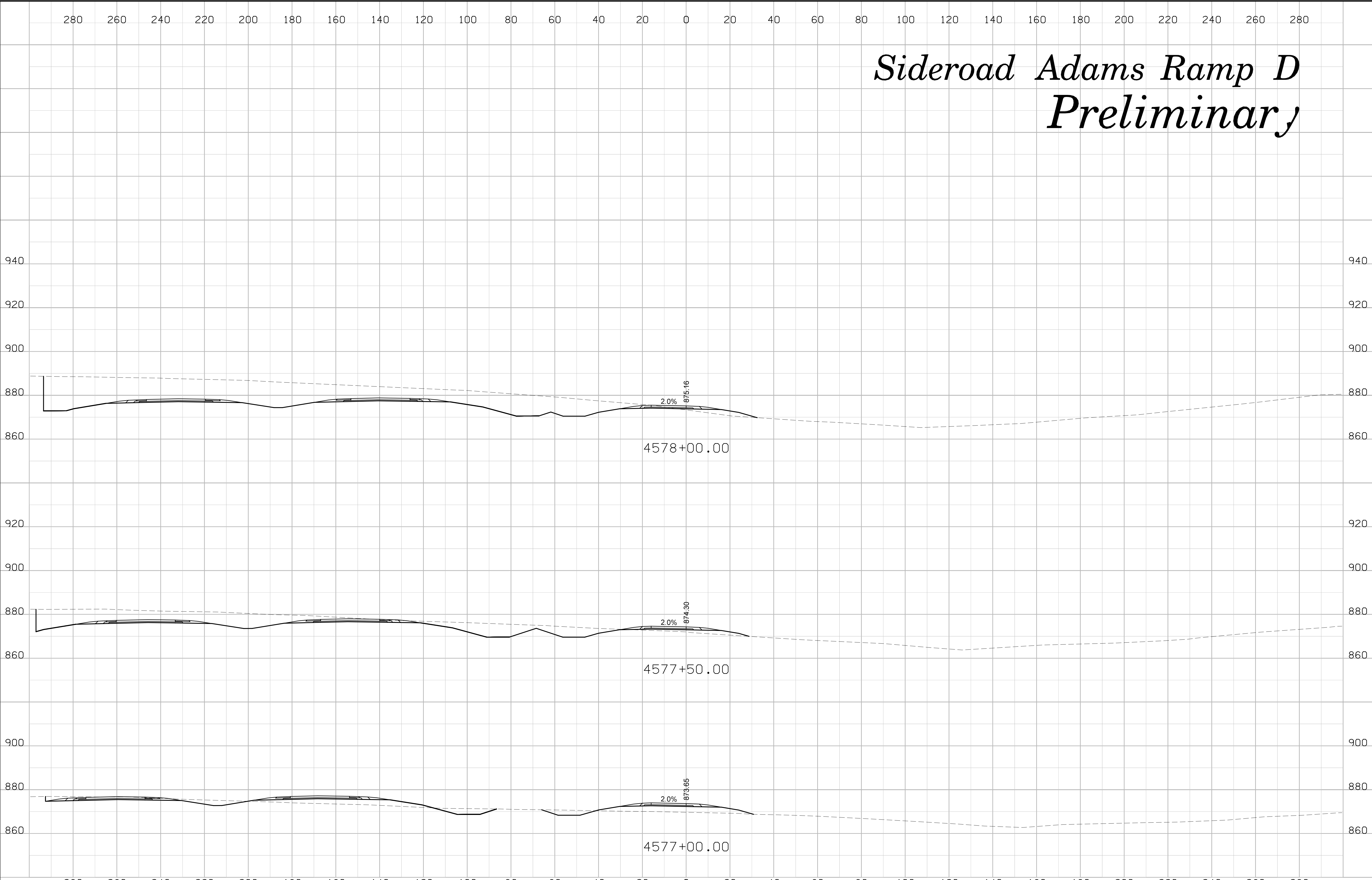
# *Sideroad Adams Ramp D*

## *Preliminary*



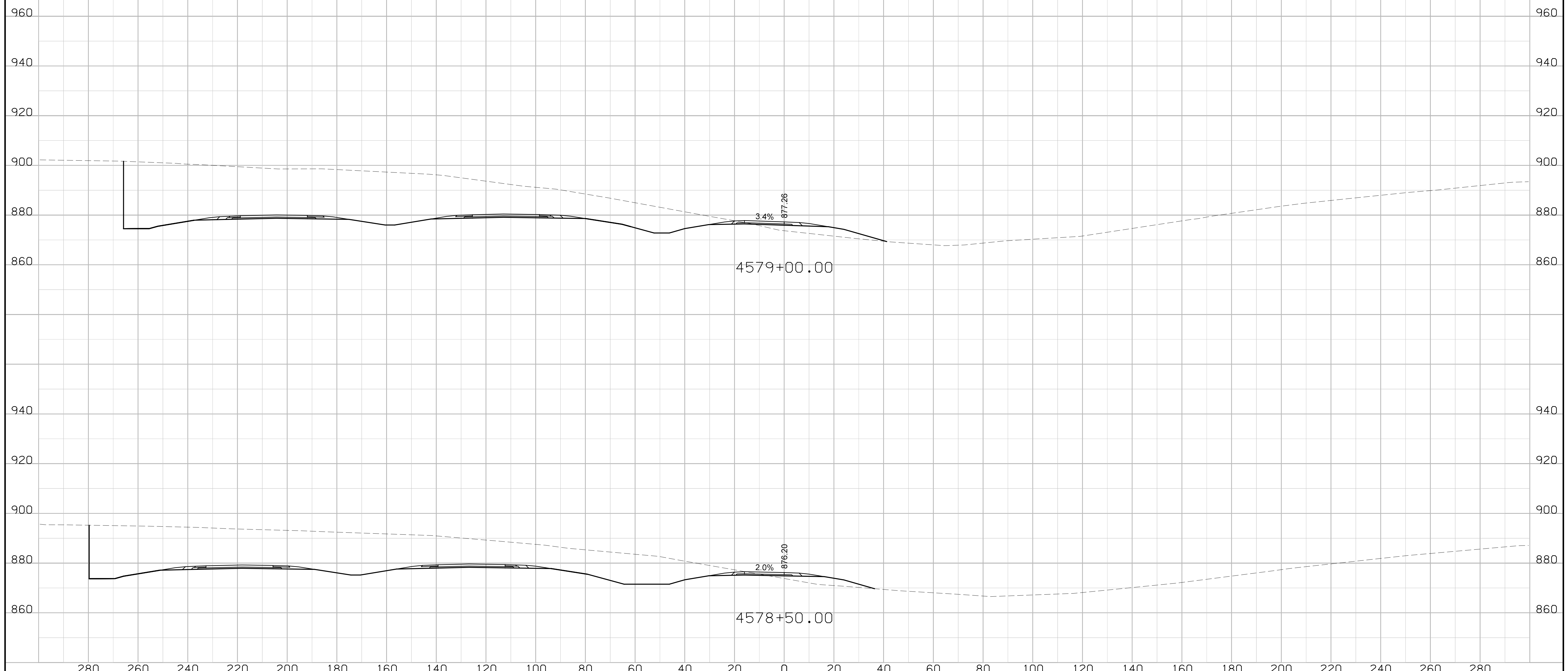
# *Sideroad Adams Ramp D*

## *Preliminary*



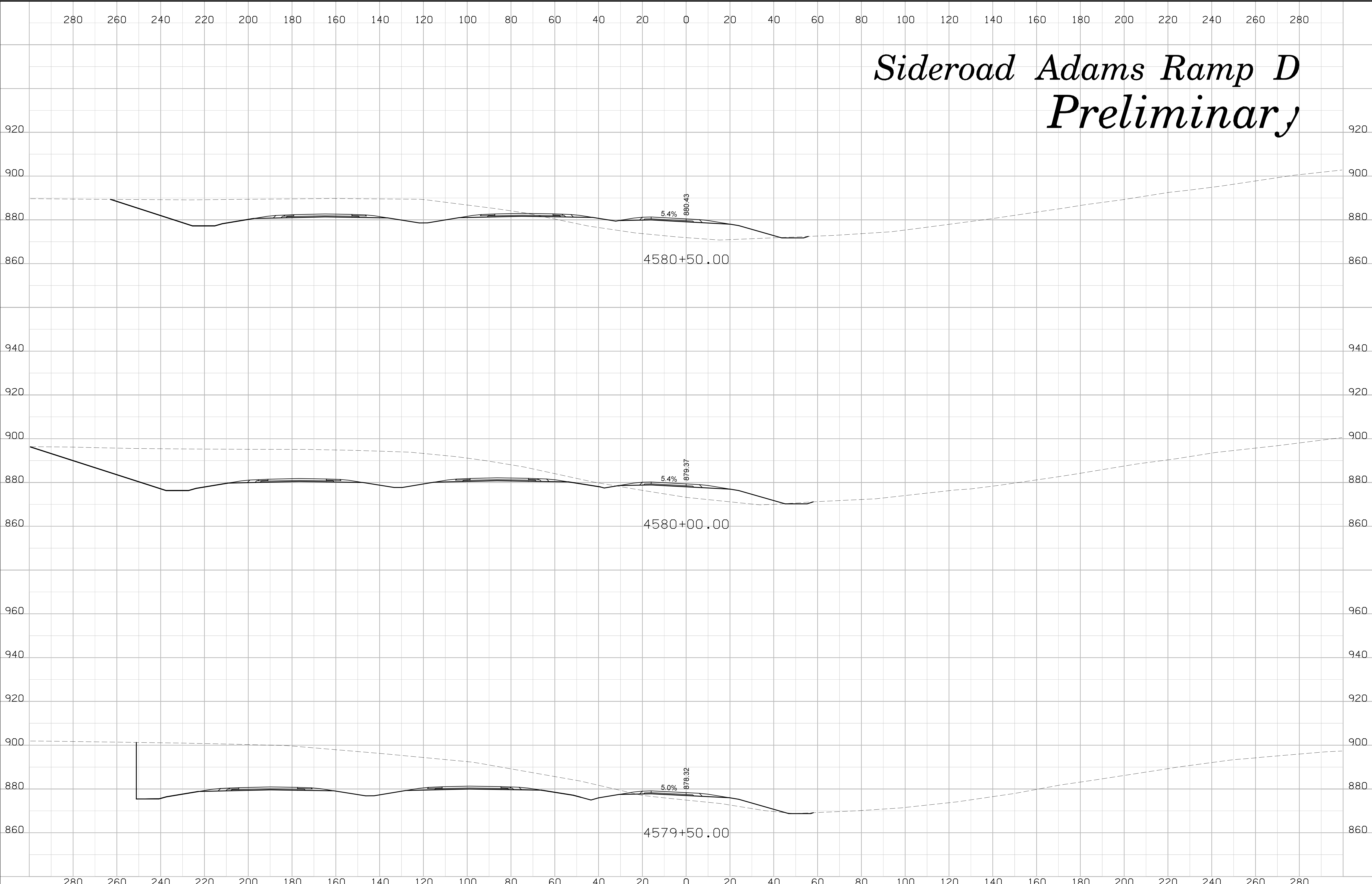
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# Sideroad Adams Ramp D Preliminary



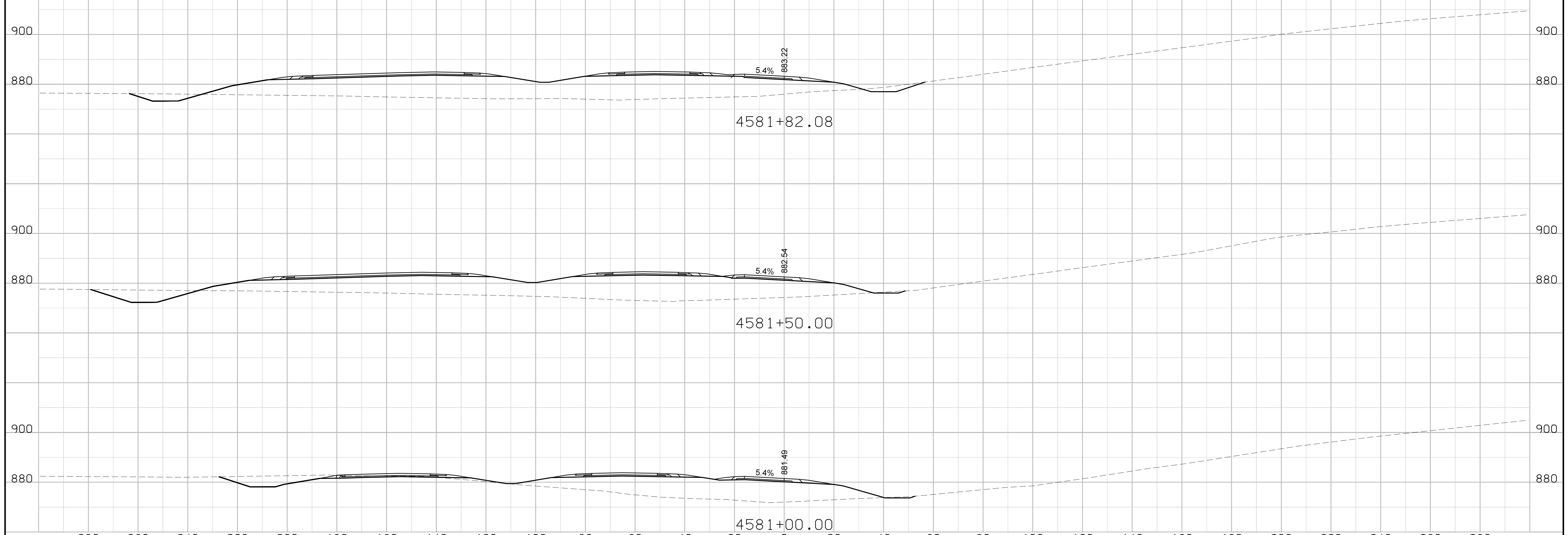
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# *Sideroad Adams Ramp D Preliminary*



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# Sideroad Adams Ramp D Preliminary



280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280