PRELIMINARY ENGINEERING
IM-380-6(200)25--13-57

LETTING DATE

LINN Co.

# IOWA DOT

## Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

# PRIMARY ROAD SYSTEM
# LINN COUNTY
## PRELIMINARY ENGINEERING

### TOWER TERRACE ROAD INTERCHANGE

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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

For Project Location Map refer to sheet A.2

NO MILEAGE SUMMARY

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

REVISIONS

| TOTAL |
|---|
| 174 |

PROJECT IDENTIFICATION NUMBER
96-57-380-050-01

PROJECT NUMBER
IM-380-6(200)25--13-57

### INDEX OF SHEETS


| No. | DESCRIPTION |
|---|---|
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PRELIMINARY EARTHWORK CALCULATIONS

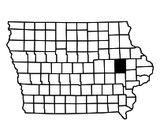
TOWER TERRACE ROAD INTERCHANGE
CUT: 195,000 CY
FILL+30%: 295,000 CY
BORROW: 100,000 CY

SCHEDULE

FIELD EXAM PLANS (D2) - 7/16/18
FIELD EXAM (D2) - 8/13/18
PLANS FOR PRELIMINARY BRIDGE (D3) - 9/17/18
BRIDGES AND STRUCTURES LAYOUT (B1) - 12/17/18
DRAINAGE DESIGN AND MISCELLANEOUS LAYOUT (B2) - 12/17/18
IDENTIFICATION OF SOILS RELATED ROW ISSUES (S2) - 3/18/19
PRELIMINARY DESIGN PLANS (D5) - 6/7/19

| I-380 DESIGN DATA URBAN | | | |
|---|---|---|---|
| 2016 | AADT | 44,600 | V.P.D. |
| 2040 | AADT | 75,500 | V.P.D. |
| 20-- | DHV | -- | V.P.H. |
| TRUCKS | | -- | % |
| Total Design ESALs | | -- | |

| TOWER TERRACE ROAD DESIGN DATA URBAN | | | |
|---|---|---|---|
| 2016 | AADT | 3100 | V.P.D. |
| 2040 | AADT | 29,000 | V.P.D. |
| 20-- | DHV | -- | V.P.H. |
| TRUCKS | | -- | % |
| Total Design ESALs | | -- | |



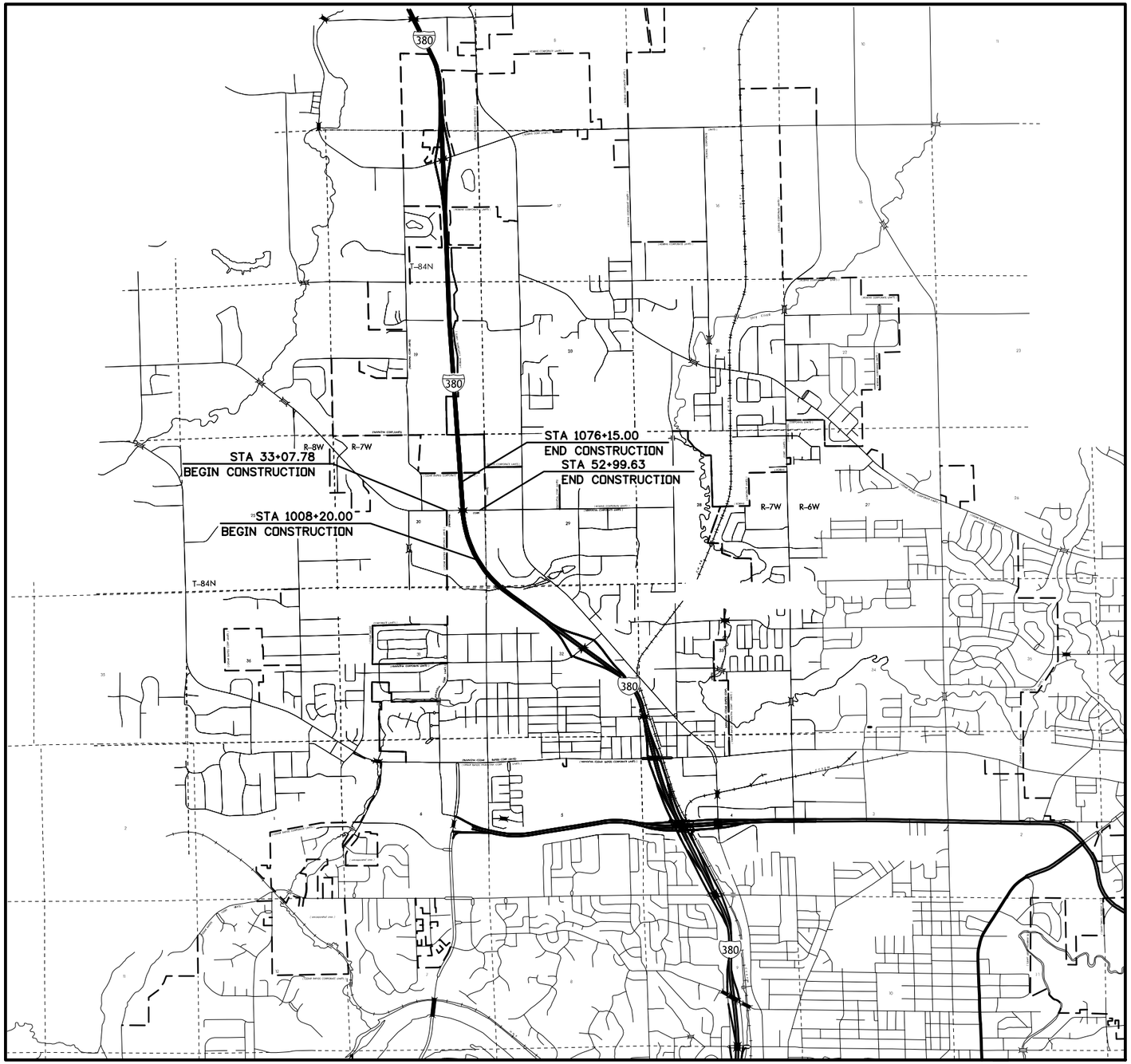
INDEX OF SEALS

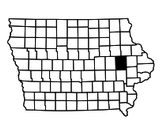
| SHEET NO. | NAME | TYPE |
|---|---|---|
| A.1 | GREGORY D. CABALKA | Primary Signature Block |

# PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN – Date: 6/7/2019



LOCATION MAP SCALE
0 0.4 0.8 1.2
Miles

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER A.2 |
|---|---|---|---|---|---|

11:36:54 AM 5/24/2019 rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200_A01.dgn

| | | | | |
|---|---|---|---|---|
| **Roadway** | I-380 Mainline | | | |
| **PIN Number** | | | **Submittal Date** | 02/10/17 |
| **Project Number** | IM-380-6(224)25--13-57 | | | **Approval Date** |
| **District** | District 6 | **Assistant District Engineer** | Ken Yanna | |
| **County** | Linn (57) | **or** | | |
| **Route** | I-380 | **Office Director** | | |
| **Location** | I-380 (Collins Road/Highway 100 to County Home Road) | | | |
| **Work Type** | Reconstruction/Widening | | | |
| **Segment Manager** | | | | |
| **Designer** | HNTB / Iowa DOT | | | |
| Design Manual Section 1C-1 last update: 05-06-14 | **Urban Interstates (Urban Freeways)** | | | |

| Design Element | | Preferred | Acceptable | Project Values |
|---|---|---|---|---|
| Design speed (mph) | | 5 miles above the anticipated posted speed limit | 50 | 60 (S. of T.) / 45 (N. of T.) |
| Maximum superelevation rate (%) (Refer to Section 2A-2) | | 6 | 8 | 8 (per existing) |
| Design lane width (ft) | | 12 | 12 | 12 |
| Full depth paved width (ft) | Outside lane | 12 | 12 | 12 |
| | Inside lane(s) | 12 | 12 | 12 |
| Auxiliary-lane width (ft) | | 12 | 12 | 12 |
| Pavement cross-slope | Through lanes | 2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3% | 1.5% minimum, 3 % maximum | 2% min. - 3% max. |
| | Auxiliary lanes | 3% | 3% maximum | 3% |
| | Crown break at centerline | 4% | 4% maximum | 4% |
| Shoulder cross-slope | Interstates | 4% | 6% max, but not less than the cross slope of the adjacent lane | 4% |
| | Freeways | 4% | 6% max, but not less than the cross slope of the adjacent lane | N/A |
| Curb type (Refer to Section 3C-2) | Interstates | 4-inch sloped | 4-inch sloped | N/A |
| | Freeways | 4-inch sloped | 4-inch sloped | N/A |
| Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance) | Adjacent to shoulder | 10:1 for 4' then 6:1 | 4:1 for Interstates, * 3:1 for Freeways | 4:1 |
| | Beyond standard ditch depth and design clear zone | 3.5:1 | 3:1 | 3.5:1 |
| | Curbed roadways | 2% | 4:1 for Interstates, * 3:1 for Freeways | N/A |
| Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.) | | 3:1 | 2.5:1 | 3:1 |
| Transverse Slopes | w/ drainage structures | 8:1 | 6:1 | 8:1 |
| | w/o drainage structures | 10:1 | 6:1 | 10:1 |
| Ditches (Refer to Section 3G-1) | Outside ditch (depth x width) (ft) | 5 x 10 | -- | 5 x 10 |
| | Median ditch depth (ft) | 4 | -- | 4 (where possible) |
| Median width (ft) (Refer to Section 3E-1) | Interstates | 36 | 10 | 10 |
| | Freeways | 36 | 10 | N/A |
| Bridge width—new | Bridge length ≤ 200 ft | design lane widths + effective shoulder widths | design lane widths + effective shoulder widths | Preferred |
| | Bridge length > 200 ft | design lane widths + effective shoulder widths | design lane width + 4' right and left of the design lane widths | Preferred |
| Bridge width—existing | Bridge length ≤ 200 ft | design lane widths + no less than 10' right and 3.5' left | design lane widths + 10' right shoulder and 3.5' left shoulder | Preferred |
| | Bridge length > 200 ft | design lane widths + no less than 3.5' left and right | design lane widths + 3.5' right and left of the design lane widths | Preferred |
| Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)) | Over primary | 16.5 | 16 | 16.5 |
| | Over non-primary | 16.5 at interchange locations, 15 ft at all other locations | 14 | Preferred |
| | Over railroad | 23.3 | 23.3 | N/A |
| | Sign trusses and pedestrian crossings | 17.5 | 17 | 17.5 |
| Structural Capacity | | Contact Office of Bridges and Structures | Contact Office of Bridges and Structures | N/A |
| Level of Service | Freeway segments | C | **C | C |
| | Auxiliary Facilities | C | **C | C |

*Design Exception not required for Freeways
**LOS D may be acceptable in spot locations with FHWA approval

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con

| Roadway Design Speed (mph) = | | | 65 (S. of TT) / 75 (N. of) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design Manual Section 1C-1<br>last update: 05-06-14 | | | **Design Criteria for High Speed Roadways** | | | | | | | | | | | | |
| Design Element | | | Preferred Criteria | | | | | | Acceptable Criteria | | | | | | Project Values |
| | | | Design Speed, mph | | | | | | Design Speed, mph | | | | | | |
| | | | 50 | 55 | 60 | 65 | 70 | 75 | 50 | 55 | 60 | 65 | 70 | 75 | |
| Stopping sight distance (ft) (Refer to Section 6D-1) | | | 425 | 495 | 570 | 645 | 730 | 820 | 425 | 495 | 570 | 645 | 730 | 820 | 645 / 820 |
| Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3) | Method 5 superelevation and side friction distribution | $e_{max}$ = 6% | 833 | 1060 | 1330 | 1660 | 2040 | 2500 | 833 | 1060 | 1330 | 1660 | 2040 | 2500 | 1660/2500 |
| | | $e_{max}$ = 8% | -- | -- | -- | -- | -- | -- | 758 | 960 | 1200 | 1480 | 1810 | 2210 | N/A |
| Minimum vertical curve length (ft) (Refer to Section 2B-1) | | | 150 | 165 | 180 | 195 | 210 | 225 | 150 | 165 | 180 | 195 | 210 | 225 | 195 / 225 |
| Minimum rate of vertical curvature (K) (Refer to Section 2B-1) | crest vertical curves | | 84 | 114 | 151 | 193 | 247 | 312 | 84 | 114 | 151 | 193 | 247 | 312 | 193 / 312 |
| | sag vertical curves | roadways without fixed-source lighting | 96 | 115 | 136 | 157 | 181 | 206 | 96 | 115 | 136 | 157 | 181 | 206 | 157 / 206 |
| | | roadways with fixed-source lighting | 96 | 115 | 136 | 157 | 181 | 206 | 54 | 66 | 78 | 91 | 106 | 121 | 157 / 206 |
| Minimum gradient (%) | (Refer to Section 2B-1) | | 0.5 | | | | | | 0.3% with a curb, 0.0% without a curb | | | | | | 0.5 |
| Maximum gradient (%) | (Refer to Section 2B-1) | Urban roadways | 4 | | 3 | | | | 7 | 6 | 6 | -- | -- | -- | 3 |
| | | Rural roadways | | | | | | | 5 | 5 | 4 | 4 | 4 | 4 | 3 |
| | | Interstates | | | | | | | 5 | 5 | 4 | 4 | 4 | 4 | 3 |
| Clear zone | | | See "Preferred Clear Zone" table in Section 8A-2 | | | | | | See "Acceptable Clear Zone" table in Section 8A-2 | | | | | | 34 |

| Directional Design Hourly Volume (DDHV) for Trucks = | | |
|---|---|---|

Design Manual Section 1C-1
last update: 05-06-14

## Effective Shoulder Width and Type for Interstates (Freeways)

| Auxiliary Lanes | Preferred (values shown in feet) | | Acceptable (values shown in feet) | | Project Values |
|---|---|---|---|---|---|
| | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | |
| | 6 | 6 | 6 | 6 | 6 |

### 4-Lane Sections

| Design Year Traffic | Outside | | Median Side | | Outside | | Median Side | | Project Values |
|---|---|---|---|---|---|---|---|---|---|
| | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | |
| Less than or equal to 250 DDHV | 10 | 10 | 6 | 6 | 10 | 10 | 4 | 4 | N/A |
| Greater than 250 DDHV | 12 | 12 | 6 | 6 | 12 | 12 | 4 | 4 | N/A |

### Sections with 6 or more lanes

| Design Year Traffic | Outside | | Median Side | | Outside | | Median Side | | Project Values |
|---|---|---|---|---|---|---|---|---|---|
| | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | |
| Less than or equal to 250 DDHV | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | N/A |
| Greater than 250 DDHV | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12' Outside, 12' Median |

Curbs should be located beyond the outer edge of the paved shoulder

**Notes:**

| | | | | |
|---|---|---|---|---|
| **Roadway** | Tower Terrace Road (Miller Rd to N. Center Point Rd) | | | |
| **PIN Number** | | | **Submittal Date** | 08/29/16 |
| **Project Number** | IM-380-6(224)25--13-57 | | | **Approval Date** |
| **District** | District 6 | **Assistant District Engineer** | Ken Yanna | |
| **County** | Linn (57) | **or** | | |
| **Route** | I-380 at Tower Terrace | **Office Director** | | |
| **Location** | Tower Terrace Road (Miller Rd to N. Center Point Rd) | | | |
| **Work Type** | Widening / Reconstruction for New Interchange | | | |
| **Segment Manager** | | | | |
| **Designer** | HNTB / Iowa DOT | | | |
| Design Manual Section 1C-1 last update: 05-06-14 | **Urban Multilane Roadways (Urban Arterials)** | | | |

| Design Element | | Preferred | Acceptable Criteria | Project Values |
|---|---|---|---|---|
| Design speed (mph) | | The anticipated posted speed limit | 30 | 45 (30 thru DDI) |
| Maximum superelevation rate (Refer to Section 2A-2) | | 4% | 8% | 4% |
| Design lane width (ft) | | 12 | 11 | 12 |
| Full depth paved width (ft) | Outside lane | Design lane width + curb and gutter unit or 14 feet for roadways with shoulders, 12' if using full depth shoulders | Match design lane width | Preferred |
| | Inside lane(s) | Design lane width + curb and gutter unit. 12' for roadways without a curb and gutter unit | Match design lane width | Preferred |
| Right turn lane or an auxiliary lane (ft) | | 12 | 10 | 12 |
| Left turn lane (ft) | With raised or painted median | 12 ft + median | 10 ft + median | 12 ft + median |
| | With depressed median | 12 | 10 | N/A |
| Two-way left turn lane (ft) | | 14 | 11 | N/A |
| Parking lane width (ft) | | 10 | 7 | N/A |
| Pavement cross-slope (on tangent sections) | Through lanes | 2%, However, when adjacent lanes slope in the same direction, increase slope by 0.5% per lane up to 3% | 1.5% minimum, 3% maximum | 2% |
| | Auxiliary and turn lanes | 3% | 3% maximum | 3% |
| | Crown break at centerline | 4% | 4% maximum | 4% |
| Shoulder cross-slope (on tangent sections) | Shoulders | 4% | Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders | 4% |
| | Curb and gutter units | Match pavement cross-slope | 6% maximum | Preferred |
| | Parking lanes | 1% greater than pavement cross-slope | 6% maximum | N/A |
| Curb type (Refer to Section 3C-2) | Design speed ≤ 45 mph | 6-inch standard | any shape | 6-inch standard |
| Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance) | Adjacent to shoulder | 10:1 for 4' then 6:1 | 3:1 | 10:1 for 4' then 6:1 |
| | Beyond standard ditch depth and design clear zone | 3.5:1 | 3:1 | 3.5:1 |
| | Curbed roadways | 2% | not steeper than 3:1 | 2% |
| Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.) | | 3:1 | 2.5:1 | 3:1 |
| Transverse Slopes | w/ drainage structures | 8:1 | 6:1 | 8:1 |
| | w/o drainage structures | 10:1 | 6:1 | 10:1 |
| Ditches (Refer to Section 3G-1) | Outside ditch (depth x width) (ft) | 5 x 10 | -- | N/A |
| Median width (ft) (Refer to Section 3E-1) | | See Section 3E-1 | 0 | N/A |
| Bridge width—new | Bridge length ≤ 200 ft | design lane widths + effective shoulder widths or curb-to-curb width | design lane widths + effective shoulder widths or curb-to-curb width | Preferred |
| | Bridge length > 200 ft | design lane widths + effective shoulder widths or curb-to-curb width | Curb-to-curb width or design lane widths + 4 ft offset each side for roadways with shoulders | Preferred |
| Bridge width—existing | | design lane widths + no less than 2 ft left and right | design lane widths + 2 ft left and right of the design widths | Preferred |
| Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks) | Over primary | 16.5 | 16 | 16.5 |
| | Over non-primary | 16.5 at interchange locations, 15 at all other locations | 14 | N/A |
| | Over railroad | 23.3 | 23.3 | N/A |
| | Sign truss and pedestrian crossings | 17.5 | 17 | 17.5 |
| Structural Capacity | | Contact Office of Bridges and Structures | Contact Office of Bridges and Structures | Preferred |
| Level of Service | | C | D | C |

| Roadway Design Speed (mph) = | 45 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design Manual Section 1C-1<br>last update: 05-06-14 | **Design Criteria for Low Speed Roadways** | | | | | | | | | | |
| Design Element | Preferred Criteria | | | | | Acceptable Criteria | | | | | Project Values |
| | Design Speed, mph | | | | | Design Speed, mph | | | | | |
| | 25 | 30 | 35 | 40 | 45 | 25 | 30 | 35 | 40 | 45 | |
| Stopping sight distance (ft) (Refer to Section 6D-1) | 155 | 200 | 250 | 305 | 360 | 155 | 200 | 250 | 305 | 360 | 360 |
| Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3) — Method 2 superelevation and side friction distribution, e = 4% max | See Table 10 in Section 2A-3 | | | | | -- | | | | | 711 |
| Method 5 superelevation and side friction distribution, $e_{max}$ = 6% | 144 | 231 | 340 | 485 | 643 | 144 | 231 | 340 | 485 | 643 | 643 |
| Method 5 superelevation and side friction distribution, $e_{max}$ = 8% | -- | -- | -- | -- | -- | 134 | 214 | 314 | 444 | 587 | -- |
| Minimum vertical curve length (ft) (Refer to Section 2B-1) | 75 | 90 | 105 | 120 | 135 | 75 | 90 | 105 | 120 | 135 | 135 |
| Minimum rate of vertical curvature (K) (Refer to Section 2B-1) — crest vertical curves | 12 | 19 | 29 | 44 | 61 | 12 | 19 | 29 | 44 | 61 | 61 |
| sag vertical curves, roadways without fixed-source lighting | 26 | 37 | 49 | 64 | 79 | 26 | 37 | 49 | 64 | 79 | 79 |
| sag vertical curves, roadways with fixed-source lighting | 26 | 37 | 49 | 64 | 79 | 14 | 20 | 27 | 35 | 44 | 79 |
| Minimum gradient (%) (Refer to Section 2B-1) | 0.5 | | | | | 0.3% with a curb, 0.0% without a curb | | | | | 0.5 |
| Maximum gradient (%) (Refer to Section 2B-1) — Urban roadways | 5 | | | | | -- | 9 | 8 | 8 | 7 | 5 |
| Maximum gradient (%) (Refer to Section 2B-1) — Rural roadways | 5 | | | | | -- | -- | -- | 6 | 6 | 5 |
| Clear zone | See "Preferred Clear Zone" table in Section 8A-2 | | | | | See "Acceptable Clear Zone" table in Section 8A-2 | | | | | 22 |

| **Design year ADT =** | TBD |
|---|---|
| Design Manual Section 1C-1<br>last update: 05-06-14 | **Effective Shoulder Width and Type for Multilane Arterials** |

| Preferred (Values shown in feet) | | | | | Acceptable (Values shown in feet) | | | | | Project Values |
|---|---|---|---|---|---|---|---|---|---|---|
| | Rural Roadways | | Urban Roadways | | | Rural Roadways | | Urban Roadways | | |
| Auxiliary lanes or turn lanes with shoulders | 6 | | 6 | | Auxiliary lanes or turn lanes with shoulders | 6 | | 0 | | 0 |
| Turn lanes with curbs | 6 | | See Section 3C-2 | | Turn lanes with curbs | 6 | | 0 | | 0 |
| Expressways | Outside | | Median Side | | Expressways | Outside | | Median Side | | N/A |
| | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | | Effective Shoulder Width | Paved Width | Effective Shoulder Width | Paved Width | |
| Routes where bicycles are to be accommodated | 10 | 10 | 6 | 6 | Routes where bicycles are to be accommodated | 8 | 4 | 4 | 4 | N/A |
| On roadways approaching urban areas (due to increased bike traffic) | 10 | 10 | 6 | 6 | | | | | | |
| On all curves with a superelevation rate of 7.0% or greater | 10 | 10 | 6 | 6 | On all other Expressways (Multilane Arterials) | 8 | 2* | 4 | 4 | |
| On roadways with design year ADT > 6500 vpd | 10 | 6 | 6 | 6 | | | | | | |
| On all other Expressways (Multilane Arterials) | 10 | 4 | 6 | 4 | | | | | | |

*Requires safety edge-See Section 3C-6
Curbs should be located beyond the outer edge of the effective shoulder width in rural areas
Refer to Section 3C-2 for curb offsets in urban areas

**Notes:**

| | | | | |
|---|---|---|---|---|
| **Roadway** | Service Ramps at I-380 and Blairs Ferry, Boyson, Tower Terrace, and County Home | | | |
| **PIN Number** | | | **Submittal Date** | 02/10/17 |
| **Project Number** | IM-380-6(224)25--13-57 | | | **Approval Date** |
| **District** | District 6 | **Assistant District Engineer** | Ken Yanna | |
| **County** | Linn (57) | **or** | | |
| **Route** | I-380 | **Office Director** | | |
| **Location** | I-380 (Collins Road/Highway 100 to County Home Road) | | | |
| **Work Type** | Interchange Reconstruction at Blairs Ferry + County Home for I-380 Widening, Interchange Conversion to DDI at Boyson, Interchange Addition at Tower Terrace | | | |
| **Segment Manager** | | | | |
| **Designer** | HNTB / Iowa DOT | | | |
| Design Manual Section 1C-1 last update: 05-06-14 | **Ramps** | | *Design Exception required for ramps on the Interstate system only | |

| Design Element | | Preferred Values | Acceptable Values | Project Values |
|---|---|---|---|---|
| Design speed (mph) | | See Design Speed for Ramps Table Below | See Design Speed for Ramps Table Below | 60 or 30 (Loop) |
| Design lane width (ft) | | | | |
| Turn-lane width (ft) | Interstate ramps | 12 | 12 | 12 |
| | Non-Interstate ramps | 12 | 10 | N/A |
| Pavement cross-slope (on tangent sections) | | 2% | 1.5% minimum, 2% maximum | 2% |
| Shoulder cross-slope (on tangent sections) | | 4 | Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders | 4 |
| Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance) | Adjacent to shoulder | 10:1 for 4' then 6:1 | *4:1 for interstates, 3:1 for other roadways | 10:1 for 4' then 6:1 |
| | Beyond standard ditch depth and design clear zone | 3.5:1 | 3:1 | 3.5:1 |
| | Curbed roadways | 2% | not steeper than 3:1 | 2% |
| Bridge width—new | | design lane widths + effective shoulder widths | design lane widths + effective shoulder widths | Preferred |
| Bridge width—existing | | design lane widths + effective shoulder widths | design lane widths + effective shoulder widths | Preferred |
| Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks) | Over primary | 16.5 | 16 | 16.5 |
| | over non-primary | 16.5 at interchange locations, 15 at all other locations | 14 | 16.5 |
| | over railroad | 23.3 | 23.3 | N/A |
| | sign truss and pedestrian bridges | 17.5 | 17 | 17.5 |
| Structural Capacity | | Contact Office of Bridges and Structures | Contact Office of Bridges and Structures | N/A |

| Ramp Design Speed (mph) = | 60 |
|---|---|

| Design Manual Section 1C-1<br>last update: 05-06-14 | Design Speed for Ramps | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design Element | Ramp Type | | | | | | | | | | Project Values |
| | Preferred | | | | | Acceptable | | | | | |
| | All curves near free flow terminals | Diagonal<br>Curves near at-grade terminals | Loop | Semi-Directional | Directional | All curves near free flow terminals | Diagonal<br>Curves near at-grade terminals | Loop | Semi-Directional | Directional | |
| Design speed (mph) | 60 | 40 | 30 | 50 | 60 | 50 | 35 | 25 | 40 | 40 | 60 |
| Maximum superelevation rate (Refer to Section 2A-2 for details) | 6% | 4% | 6% | | | 8% | | | | | 6% |

| Ramp Design Speed (mph) = | 60 | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design Manual Section 1C-1<br>last update: 05-06-14 | **Design Criteria for Ramps Based Upon Design Speed** | | | | | | | | | | | | | | | | |
| Design Element | Preferred Criteria | | | | | | | | Acceptable Criteria | | | | | | | | Project Values |
| | Design Speed, mph | | | | | | | | Design Speed, mph | | | | | | | | |
| | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | |
| Stopping sight distance (ft) (Refer to Section 6D-1) | 155 | 200 | 250 | 305 | 360 | 425 | 495 | 570 | 155 | 200 | 250 | 305 | 360 | 425 | 495 | 570 | 570 |
| Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3) — Method 2 superelevation and side friction distribution, e = 4% max | See Table 10 in Section 2A-3 | | | | | -- | -- | -- | -- | | | | | | | | -- |
| Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3) — Method 5 superelevation and side friction distribution, $e_{max}$ = 6% | 144 | 231 | 340 | 485 | 643 | 833 | 1060 | 1330 | 144 | 231 | 340 | 485 | 643 | 833 | 1060 | 1330 | 1330 |
| Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections 2A-2 and 2A-3) — Method 5 superelevation and side friction distribution, $e_{max}$ = 8% | -- | -- | -- | -- | -- | -- | -- | -- | 134 | 214 | 314 | 444 | 587 | 758 | 960 | 1200 | -- |
| Minimum vertical curve length (ft) (Refer to Section 2B-1) | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 | 180 |
| Design Manual Section 1C-1 last update: 07-08-13 (Refer to Section 2B-1) — crest vertical curves | 12 | 19 | 29 | 44 | 61 | 84 | 114 | 151 | 12 | 19 | 29 | 44 | 61 | 84 | 114 | 151 | 151 |
| Design Manual Section 1C-1 last update: 07-08-13 (Refer to Section 2B-1) — sag vertical curves, roadways without fixed-source lighting | 26 | 37 | 49 | 64 | 79 | 96 | 115 | 136 | 26 | 37 | 49 | 64 | 79 | 96 | 115 | 136 | 136 |
| Design Manual Section 1C-1 last update: 07-08-13 (Refer to Section 2B-1) — sag vertical curves, roadways with fixed-source lighting | 26 | 37 | 49 | 64 | 79 | 96 | 115 | 136 | 14 | 20 | 27 | 35 | 44 | 54 | 66 | 78 | 136 |
| Minimum gradient (%) (Refer to Section 2B-1) | 0.5 | | | | | | | | 0.3% with a curb, 0.0% without a curb | | | | | | | | 0.5 |
| Maximum gradient (%) on ramps (Refer to Sections 2B-1) — Upgrades | 4 | | | | | | | | 8 | 7 | 6 | 6 | 5 | 5 | 5 | 5 | 4 |
| Maximum gradient (%) on ramps (Refer to Sections 2B-1) — Downgrades | 4 | | | | | | | | Equal to the maximum upgrade gradient. In special cases, may be 2% greater but in no case greater than 8% | | | | | | | | 4 |
| Clear zone | See "Preferred Clear Zone" table in Section 8A-2 | | | | | | | | See "Acceptable Clear Zone" table in Section 8A-2 | | | | | | | | 32 |

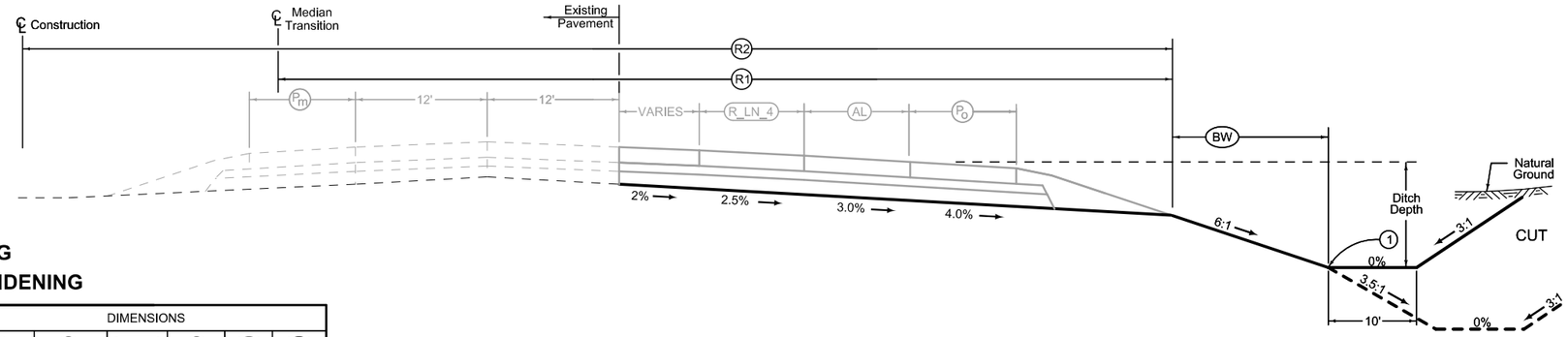
Design Manual Section 1C-1
last update: 05-06-14

## Effective Shoulder Width and Type for Ramps

| Design Element | | Ramp Type | | | | | | | | | | | | | | Project Values |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Preferred | | | | | | | Acceptable | | | | | | | |
| | | Diagonal | | Loop | Semi-Directional | | Directional | | Diagonal | | Loop | Semi-Directional | | Directional | | |
| | | one lane | two lane | | one lane | two lane | one lane | two lane | *Radius > 500 feet | | | *Radius > 500 feet | | Radius > 500 feet | | |
| | | | | | | | | | one lane | two lane | | one lane | two lane | one lane | two lane | |
| Full depth paved width (ft) | | 16 | 24 | 18 | 16 | 24 | 16 | 24 | 14 | 22 | 17 | 14 | 22 | 14 | 22 | Diagonal |
| Design lane width (ft) | | 16 | 12 | 18 | 16 | 12 | 16 | 12 | 14 | 11 | 17 | 14 | 11 | 14 | 11 | Diagonal |
| **Paved shoulder width (ft) (in the direction of travel) | Left | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | Right | 6 | 6 | 6 | 6 | 6 | 8 | 8 | 6 | 6 | 6 | 6 | 6 | 8 | 8 | 6 |
| ***Granular shoulder width (ft) (in the direction of travel) | Left | 4 | - | - | - | - | - | - | 4 | - | - | - | - | - | - | N/A |
| | Right | 6 | - | - | - | - | - | - | 6 | - | - | - | - | - | - | N/A |
| Curb type | Interstate | 4-inch sloped | | | | | | | 4-inch sloped | | | | | | | 4-inch sloped |
| | Non-Interstate | 4-inch sloped | | | | | | | 6-inch sloped | | | | | | | N/A |

*For radii less than 500 feet, refer to design widths of pavement for turning roadways in A Policy on Geometric Design of Highways and Streets
**Left and right shoulders widths may be reversed if needed to provide additional sight distance
***Non-Interstate interchanges only

Notes:



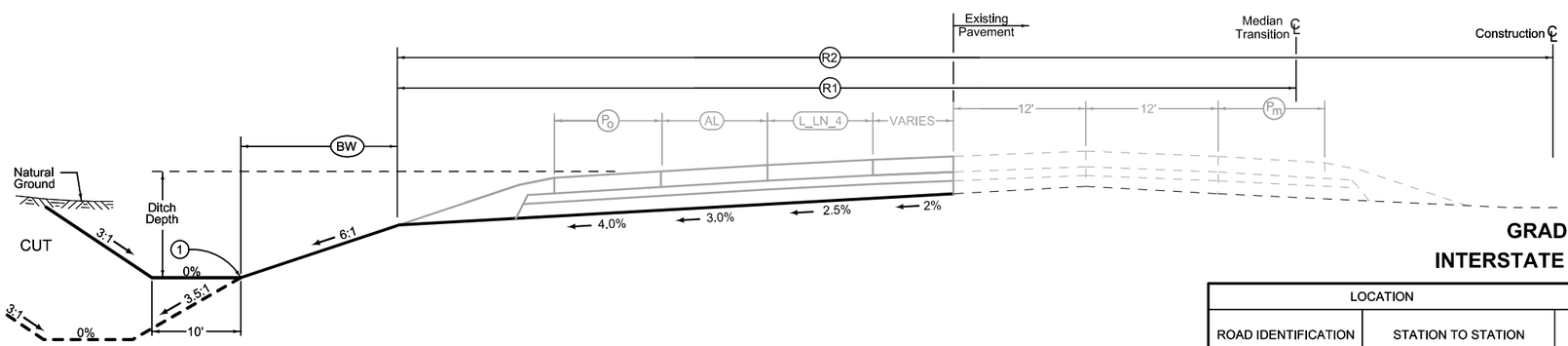

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Plan & Profiles 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.

## GRADING
## INTERSTATE WIDENING

| LOCATION | | | DIMENSIONS | | | | | |
|---|---|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (R1) Feet | (R2) Feet | (R_LN_4) Feet | (AL) Feet | ($P_o$) Feet | (BW) Feet |
| I-380 | 1008+20.00 | 1008+33.13 | VARIES | - | 0-12 | 0-1-0 | 0-11 | VARIES |
| I-380 | 1008+33.13 | 1009+61.55 | 81.5 | - | 12 | 1-6 | 11-6 | 0.5 |
| I-380 | 1009+61.55 | 1011+14.68 | 81.5-87.6 | - | 12 | 6-12 | 6 | 0.5 |
| I-380 | 1011+14.68 | 1021+40.20 | 87.6 | - | 12 | 12 | 6 | 0.5 |
| I-380 | 1021+40.20 | 1023+61.57 | VARIES | - | 12 | VARIES | 6 | VARIES |
| I-380 | 1054+59.69 | 1055+86.53 | - | VARIES | 12 | VARIES | 6 | VARIES |
| I-380 | 1055+86.53 | 1059+76.58 | - | 116.2 | 12 | 12 | 6 | 0.8 |
| I-380 | 1059+76.58 | 1065+86.53 | - | 114.2 | 12 | 12 | 6 | 2.8 |
| I-380 | 1065+86.53 | 1067+56.58 | - | 114.2-110.8 | 12 | 12-8.6 | 6 | 2.8 |
| I-380 | 1067+56.58 | 1071+86.53 | - | 110.8-105.8 | 12 | 8.6-0 | 6 | 4.9-5.2 |
| I-380 | 1071+86.53 | 1075+36.58 | - | 105.8 | 12 | 0 | 6 | 5.2 |
| I-380 | 1075+36.58 | 1076+15.00 | - | VARIES | 12-0 | 0 | 6-0 | VARIES |




## GRADING
## INTERSTATE WIDENING

| LOCATION | | | DIMENSIONS | | | | | |
|---|---|---|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (R1) Feet | (R2) Feet | (L_LN_4) Feet | (AL) Feet | ($P_o$) Feet | (BW) Feet |
| I-380 | 1009+40.00 | 1010+19.54 | VARIES | - | 0-12 | 0 | 0-12 | VARIES |
| I-380 | 1010+19.54 | 1011+17.26 | 68.3 | - | 12 | 0 | 12 | 13.7 |
| I-380 | 1011+17.26 | 1012+89.52 | 68.3-70.6 | - | 12 | 0-6 | 12-6 | 13.7-11.4 |
| I-380 | 1012+89.52 | 1017+04.56 | 70.6-76.6 | - | 12 | 6-12 | 6 | 11.4 |
| I-380 | 1017+04.56 | 1021+98.01 | 76.6 | - | 12 | 12 | 6 | 11.4 |
| I-380 | 1021+98.01 | 1024+92.09 | 86.9 | - | 12 | 12 | 6 | 1.1 |
| I-380 | 1024+92.09 | 1026+64.62 | VARIES | - | 12 | VARIES | 6 | 1.1 |
| I-380 | 1053+39.43 | 1054+00.01 | - | VARIES | 12 | VARIES | 6 | 0.8 |
| I-380 | 1054+00.01 | 1054+90.24 | - | 116.2 | 12 | 12 | 6 | 0.8 |
| I-380 | 1054+90.24 | 1056+70.24 | - | 114.2 | 12 | 12 | 6 | 2.8 |
| I-380 | 1056+70.24 | 1064+00.00 | - | 112.9 | 12 | 12 | 6 | 4.1 |
| I-380 | 1064+00.00 | 1065+50.02 | - | 112.9-107.1 | 12 | 12-6 | 6 | 4.1-3.9 |
| I-380 | 1065+50.02 | 1067+00.04 | - | 107.1-106.7 | 12 | 6-0 | 6-12 | 3.9-4.3 |
| I-380 | 1067+00.04 | 1068+87.90 | - | 106.7 | 12 | 0 | 12 | 4.3 |
| I-380 | 1068+87.90 | 1069+70.00 | - | VARIES | 12-0 | 0 | 12-0 | VARIES |

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

See Plan & Profiles 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.

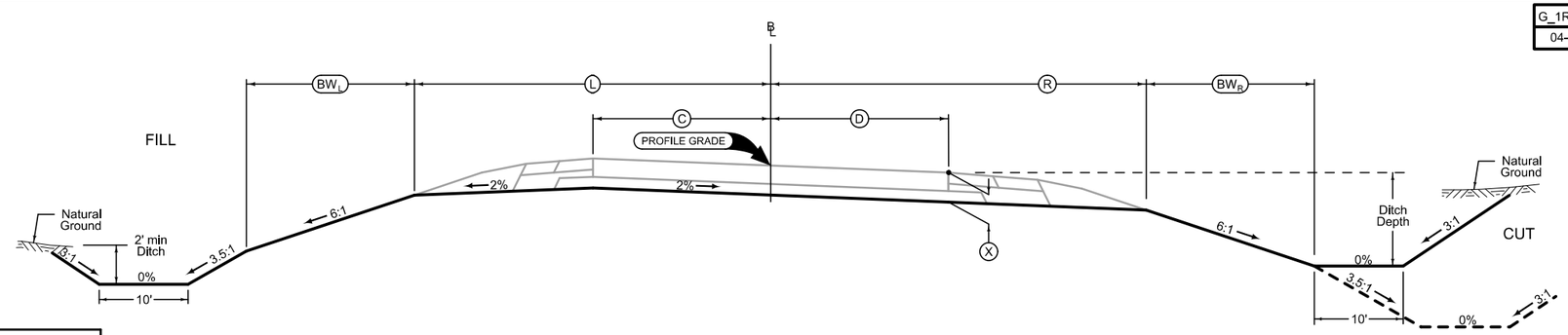
**INTERSTATE 380**

G_1R_Grade
04-15-14

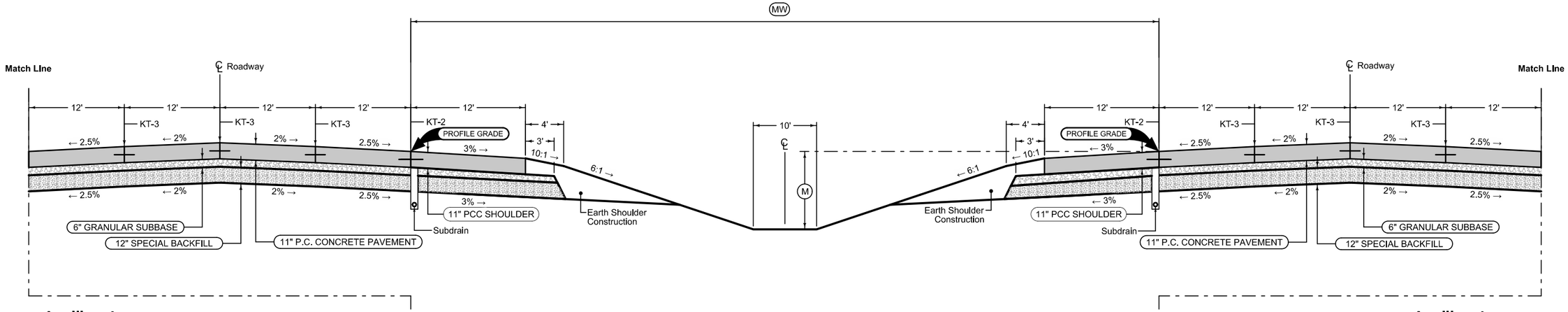
Section view is in direction of traffic.

Normal sections shown may be appropriately modified for areas specifically designated by the Engineer such as intersections or superelevated curves.

## RAMP GRADING



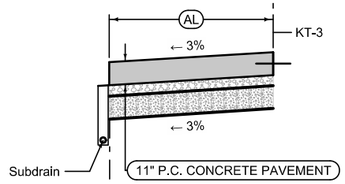

| LOCATION | | | | DIMENSIONS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| INTERCHANGE | RAMP | STATION TO STATION | | L Feet | R Feet | C Feet | D Feet | X Inches | BW$_L$ Feet | BW$_R$ Feet |
| | | | | | | | | | | |
| TOWER TERRACE RD | A | 3041+77.22 | 3042+77.22 | 51.8 | 36.5 | 34 | 17 | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | A | 3042+77.22 | 3045+31.57 | VARIES | VARIES | VARIES | VARIES | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | A | 3045+31.57 | 3053+41.36 | 33.8 | 19.5 | 16 | 0 | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | B | 5023+64.75 | 5029+54.14 | 33.8 | 19.5 | 16 | 0 | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | B | 5029+54.14 | 5031+94.14 | 33.8 | VARIES | 16 | VARIES | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | B | 5031+94.14 | 5034+64.14 | VARIES | VARIES | VARIES | VARIES | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | B | 5034+64.14 | 5036+19.14 | 51.8 | 53.5 | 34 | 34 | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | C | 4026+55.28 | 4030+34.23 | 33.8 | 19.5 | 16 | 0 | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | C | 4030+34.23 | 4037+28.62 | 33.8 | VARIES | 16 | VARIES | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | D | 6041+64.68 | 6041+84.65 | VARIES | VARIES | VARIES | VARIES | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | D | 6041+84.65 | 6049+28.72 | 33.8 | VARIES | 16 | VARIES | 22 | 16.9 | 16.7 |
| TOWER TERRACE RD | D | 6049+28.72 | 6054+61.73 | 33.8 | 19.5 | 16 | 0 | 22 | 16.9 | 16.7 |




## Auxiliary Lane

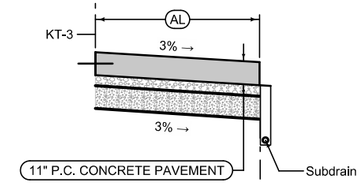
Longitudinal joint: L or KT
Transverse joints: Match Mainline

| 4_AuxLane_PCC_ 10-18-16 | | | |
|---|---|---|---|
| Direction of Travel | BEGIN STATION | END STATION | (AL) Feet |
| SB | 1011+17.26 | 1017+04.56 | 0-12 |
| SB | 1017+04.56 | 1024+92.09 | 12 |
| SB | 1054+00.04 | 1064+00.00 | 12 |
| SB | 1064+00.04 | 1067+00.04 | 12-0 |




Mainline Jointing:
Transverse joints: CD at 20' spacing

| BEGIN STATION | END STATION | (MW) Feet | (M) Feet |
|---|---|---|---|
| 1005+30.40 | 1038+68.24 | 58-82 | 2.09-4.09 |
| 1038+68.24 | 1162+60.03 | 82 | 4.09 |
| | | | |
| | | | |




## Auxiliary Lane

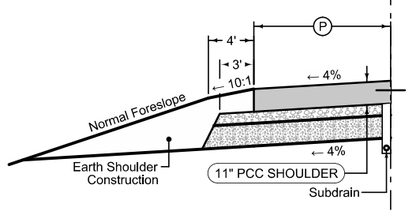
Longitudinal joint: L or KT
Transverse joints: Match Mainline

| 4_AuxLane_PCC_ 10-18-16 | | | |
|---|---|---|---|
| Direction of Travel | BEGIN STATION | END STATION | (AL) Feet |
| NB | 1008+09.03 | 1011+14.68 | 0-12 |
| NB | 1011+14.68 | 1021+39.96 | 12 |
| NB | 1055+86.53 | 1065+86.53 | 12 |
| NB | 1065+86.53 | 1071+86.53 | 12-0 |

## Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 20' spacing

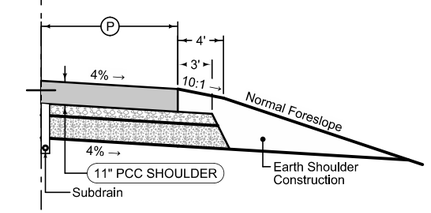
| 6D_Dprs_P_FullPCC_ 04-19-11 | | | |
|---|---|---|---|
| Direction of Travel | BEGIN STATION | END STATION | (P) Feet |
| SB | 1005+30.40 | 1011+17.26 | 12 |
| SB | 1011+17.26 | 1012+89.52 | 12-6 |
| SB | 1012+89.52 | 1029+47.28 | 6 |
| SB | 1029+47.28 | 1038+09.87 | 12 |
| SB | 1038+09.87 | 1038+53.79 | 17 |
| SB | 1040+28.20 | 1040+73.20 | 17 |
| SB | 1040+73.20 | 1049+81.37 | 12 |
| SB | 1049+81.37 | 1065+50.16 | 6 |
| SB | 1065+50.16 | 1067+00.04 | 6-12 |
| SB | 1067+00.04 | 1132+15.40 | 12 |

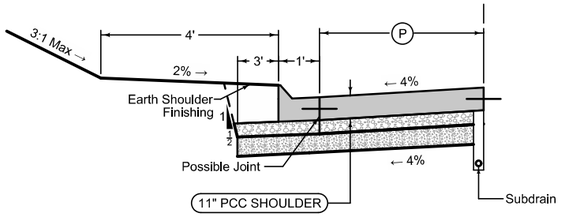



## Full Depth PCC Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: C at 20' spacing

| 6D_Dprs_P_FullPCC_ 04-19-11 | | | |
|---|---|---|---|
| Direction of Travel | BEGIN STATION | END STATION | (P) Feet |
| NB | 1005+30.40 | 1008+09.03 | 12 |
| NB | 1008+09.03 | 1009+61.55 | 12-6 |
| NB | 1009+61.55 | 1025+69.08 | 6 |
| NB | 1025+69.08 | 1037+94.35 | 12 |
| NB | 1037+94.35 | 1038+40.47 | 17 |
| NB | 1040+15.94 | 1040+60.94 | 17 |
| NB | 1040+60.94 | 1052+76.38 | 12 |
| NB | 1052+76.38 | 1068+86.59 | 6 |
| NB | 1068+86.59 | 1071+86.53 | 6-12 |
| NB | 1071+86.53 | 1133+67.78 | 12 |




## Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

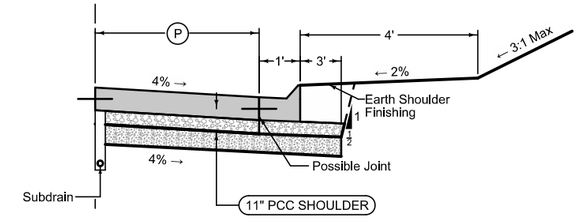
| STATION TO STATION | | (P) Feet | Curb Type See PV-102 |
|---|---|---|---|
| 1038+53.79 | 1040+28.20 | 17 | 6" SLOPED CURB |
| | | | |

## Curbed Shoulder

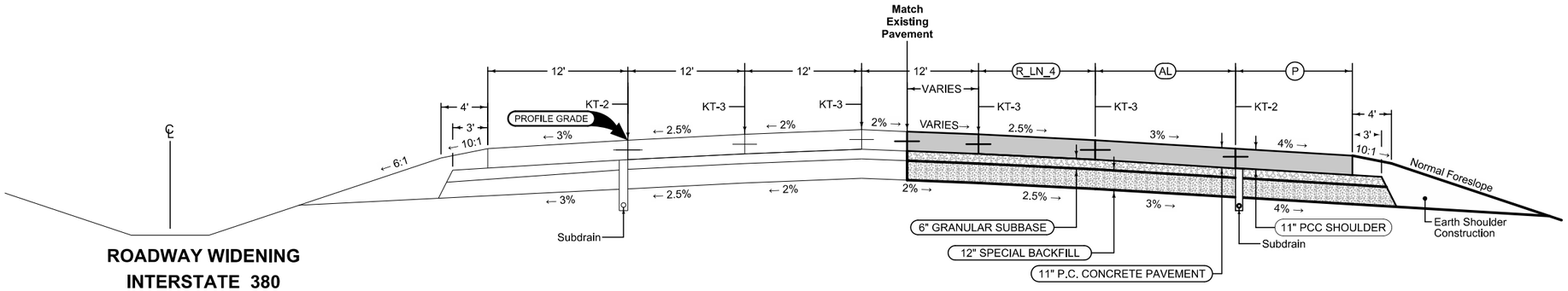
Shoulder Jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2
Staged : KT-2
Transverse:C at 20' spacing

| STATION TO STATION | | (P) Feet | Curb Type See PV-102 |
|---|---|---|---|
| 1038+40.47 | 1040+15.94 | 17 | 6" SLOPED CURB |
| | | | |




**INTERSTATE 380**
**ULTIMATE BUILD - 8 LANES**
****FOR REFERENCE ONLY****



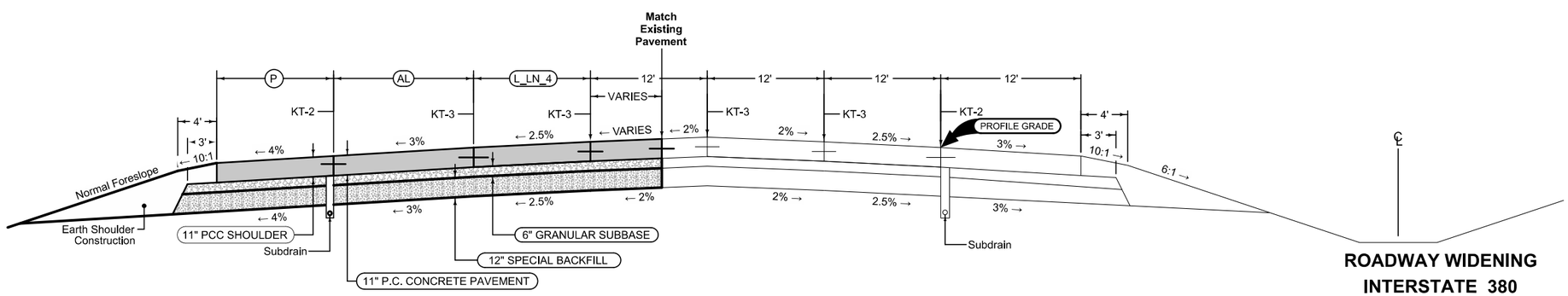

## ROADWAY WIDENING
## INTERSTATE 380

| LOCATION | | | DIMENSIONS | | |
|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (R_LN_4) Feet | (AL) Feet | (P) Feet |
| I-380 | 1008+20.00 | 1008+33.22 | 0 | 0 | 0 |
| I-380 | 1008+33.22 | 1020+80.16 | 12 | 0 | 0 |
| I-380 | 1020+80.16 | 1021+39.96 | 12 | 12 | 0 |
| I-380 | 1021+39.96 | 1021+90.17 | 12 | 12-12.4 | 6 |
| I-380 | 1021+90.17 | 1023+61.57 | 12 | VARIES | 6 |
| I-380 | 1054+59.69 | 1055+86.53 | 12 | 16-12 | 6 |
| I-380 | 1055+86.53 | 1059+76.58 | 12 | 12 | 6 |
| I-380 | 1059+76.58 | 1065+86.53 | 12 | 12 | 0 |
| I-380 | 1065+86.53 | 1067+56.58 | 12 | 12-8.6 | 0 |
| I-380 | 1067+56.58 | 1075+36.58 | 12 | 0 | 0 |
| I-380 | 1075+36.58 | 1076+15.00 | 0 | 0 | 0 |

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

See Plan & Profiles 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.




## ROADWAY WIDENING
## INTERSTATE 380

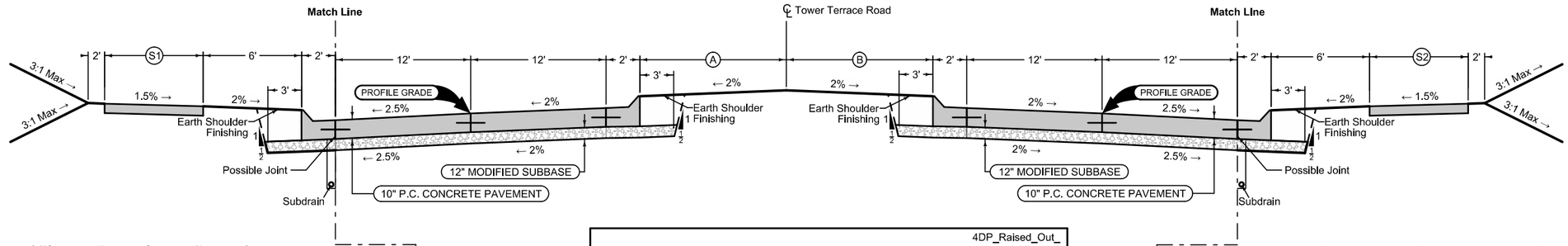
| LOCATION | | | DIMENSIONS | | |
|---|---|---|---|---|---|
| ROAD IDENTIFICATION | STATION TO STATION | | (L_LN_4) Feet | (AL) Feet | (P) Feet |
| I-380 | 1009+40.00 | 1010+21.15 | 0 | 0 | 0 |
| I-380 | 1010+21.15 | 1016+09.79 | 12 | 0 | 0 |
| I-380 | 1016+09.79 | 1017+04.56 | 12 | 11.7-12 | 0 |
| I-380 | 1017+04.56 | 1021+98.01 | 12 | 12 | 0 |
| I-380 | 1021+98.01 | 1024+92.16 | 12 | 12 | 6 |
| I-380 | 1024+92.16 | 1026+64.62 | 12 | 12-16 | 6 |
| I-380 | 1053+39.43 | 1054+00.03 | 12 | 16-12 | 6 |
| I-380 | 1054+00.03 | 1054+90.24 | 12 | 12 | 6 |
| I-380 | 1054+90.24 | 1056+70.14 | 12 | 12 | 0 |
| I-380 | 1056+70.14 | 1068+87.90 | 12 | 0 | 0 |
| I-380 | 1068+87.90 | 1069+70.00 | 0 | 0 | 0 |

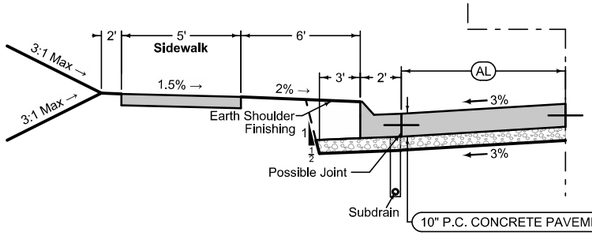
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

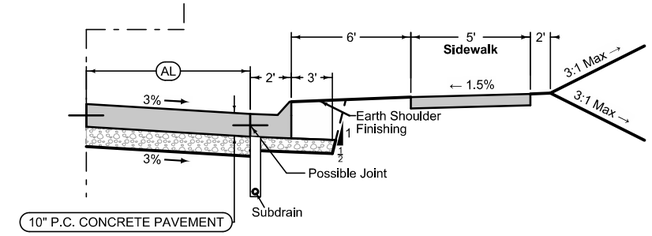
See Plan & Profiles sheets and cross sections for additional details of ditches and backslopes.

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

**INTERSTATE 380**




4DP_Raised_Out_
04-21-15

| BEGIN STATION | END STATION | (A) Feet | (B) Feet | (S1) Feet | (S2) Feet | Curb Type See PV-102 |
|---|---|---|---|---|---|---|
| 33+07.78 | 41+50.58 | VARIES | VARIES | 10' TRAIL | 5' SIDEWALK | 6" STANDARD |
| 44+43.49 | 52+99.63 | VARIES | VARIES | 5' SIDEWALK | 10' TRAIL | 6" STANDARD |
| | | | | | | |
| | | | | | | |

## Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

| Direction of Travel | BEGIN STATION | END STATION | (AL) Feet | Curb Type See PV-102 |
|---|---|---|---|---|
| WB | 8047+98.60 | 8049+29.35 | 12 | 6" STANDARD |
| WB | 8049+29.35 | 8050+59.78 | 12-0 | 6" STANDARD |
| | | | | |
| | | | | |

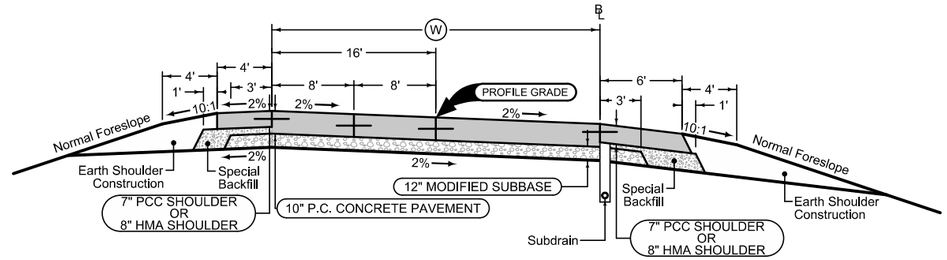
## Auxiliary Lane

Longitudinal joint: L or KT
Transverse joint: Match Mainline

| Direction of Travel | BEGIN STATION | END STATION | (AL) Feet | Curb Type See PV-102 |
|---|---|---|---|---|
| EB | 7035+44.95 | 7036+81.26 | 0-12 | 6" STANDARD |
| EB | 7036+81.26 | 7038+19.72 | 12 | 6" STANDARD |
| | | | | |
| | | | | |

See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

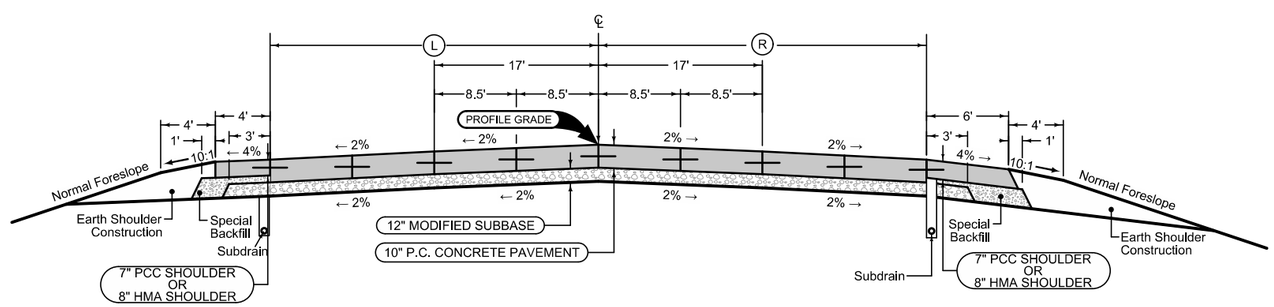
**TOWER TERRACE ROAD**




Section shown in the direction of traffic.

Ramp Jointing:
Transverse joints: See L Sheets.
Longitudinal joint: L-2

| INTERCHANGE PAVEMENT | | | |
|---|---|---|---|
| ROADWAY | BEGIN STATION | END STATION | W Feet |
| RAMP A - SB | 3045+31.57 | 3053+41.36 | 16 |
| RAMP B - NB | 5023+64.75 | 5029+54.14 | 16 |
| RAMP C - SB | 4026+55.28 | 4030+35.20 | 16 |
| RAMP D - NB | 6049+28.72 | 6054+61.73 | 16 |




Section shown in the direction of traffic.

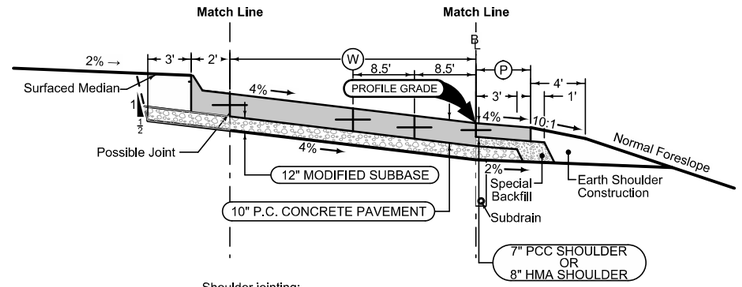
Ramp Jointing:
Transverse joints: See L Sheets.
Longitudinal joint: L-2

| INTERCHANGE PAVEMENT | | | | |
|---|---|---|---|---|
| ROADWAY | BEGIN STATION | END STATION | L Feet | R Feet |
| RAMP A - SB | 3041+77.22 | 3042+77.22 | 34 | 17 |
| RAMP A - SB | 3042+77.22 | 3045+31.57 | 34-16 | 17-0 |
| RAMP B - NB | 5029+54.14 | 5031+94.14 | 16 | 0-16 |
| RAMP B - NB | 5031+94.14 | 5034+64.14 | 16-34 | 16-34 |
| RAMP B - NB | 5034+64.14 | 5036+19.14 | 34 | 34 |
| RAMP C - SB | 4030+35.20 | 4037+28.62 | 16 | 0-15.7 |
| RAMP D - NB | 6041+64.68 | 6041+84.65 | 17-16 | 17-16.6 |
| RAMP D - NB | 6041+84.65 | 6049+28.72 | 16 | 16.6-0 |

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

## RAMPS - TOWER TERRACE ROAD

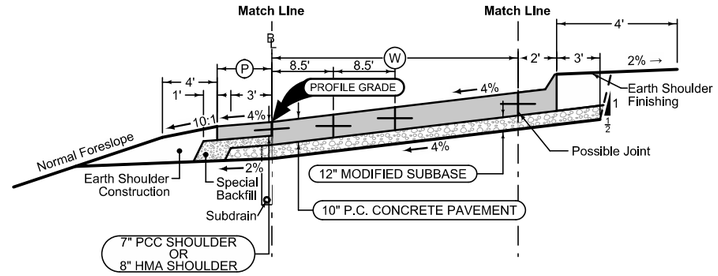



Shoulder jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 16':

Section shown in the direction of traffic.

Loop Jointing:
Transverse joints: See L Sheets.
Longitudinal joint: L-2

| LOOP PAVEMENT | | | | | |
|---|---|---|---|---|---|
| ROADWAY | BEGIN STATION | END STATION | W Feet | P Feet | Curb Type See PV-102 |
| RAMP A - WEST | 13039+79.91 | 13041+16.52 | 17 | 6 | 4" SLOPED CURB |
| RAMP B - EAST | 25036+64.66 | 25037+98.96 | 34 | 6 | 4" SLOPED CURB |
| RAMP C - WEST | 14038+91.61 | 14040+07.08 | 17 | 6 | 4" SLOPED CURB |
| RAMP D - EAST | 26039+33.40 | 26040+84.83 | 17 | 6 | 4" SLOPED CURB |




Shoulder jointing:
Longitudinal joint not required when distance from back of curb to nearest joint is less than 16':

Section shown in the direction of traffic.

Loop Jointing:
Transverse joints: See L Sheets.
Longitudinal joint: L-2

| LOOP PAVEMENT | | | | | |
|---|---|---|---|---|---|
| ROADWAY | BEGIN STATION | END STATION | W Feet | P Feet | Curb Type See PV-102 |
| RAMP A - EAST | 23040+01.85 | 23041+29.81 | 34 | 4 | 4" SLOPED CURB |
| RAMP B - WEST | 15036+73.09 | 15038+00.08 | 34 | 4 | 4" SLOPED CURB |
| RAMP C - EAST | 24037+80.36 | 24039+78.31 | 17 | 4 | 4" SLOPED CURB |
| RAMP D - WEST | 16039+43.78 | 16041+10.68 | 17 | 4 | 4" SLOPED CURB |

See Tab 100-24 or 100-25 for pavement quantities.

See Tab 112-9 for shoulder quantities.

## LOOPS - TOWER TERRACE ROAD

## SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Earth Dam or Dike (Proposed)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Proposed Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Proposed Intake
- Existing Utility Access (Manhole)
- Proposed Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- Septic Tank
- Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Luminaire
- Traffic Signal
- Traffic Signal with Luminaire
- TP Telephone Pedestal
- TVP Television Pedestal
- Telephone Pole
- Telephone Pole (Second Company)
- Telephone Pole (Third Company)
- Telephone Pole (Fourth Company)
- Telephone Pole (Fifth Company)
- Power Pole
- Power Pole (Second Company)
- Power Pole (Third Company)
- Power Pole (Fourth Company)
- Power Pole (Fifth Company)
- Electrical Highline Tower (Metal or Concrete)
- Telephone Riser Pole
- Power Riser Pole
- Telegraph Pole
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor

## UTILITY LEGEND

| | |
|---|---|
| - - -E1- - - | Iowa Department of Transportation |
| - - -E2- - - | City of Hiawatha |
| - - -E3- - - | Unidentified Electric |
| - - -FO- - - | Aureon Fiber |
| - - -FO2- - - | Unknown Fiber |
| - - -FO3- - - | Iowa Communications Network |
| - - -FO4- - - | Unite Private Networks, LLC |
| - - -FO5- - - | Aureon Network Services |
| - - -FO6- - - | Iowa Health System |
| - - -GHP- - - | MidAmerican |
| - - -T1- - - | IMON Buried Cable |
| - - -T2- - - | Century Link |
| - - -T3- - - | Windstream |
| - - -TV- - - | Mediacom |
| - - - W - - - | City of Hiawatha |

## 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 |

## UTILITY CONTACTS

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MEDIACOM
Joe Ernster or David Riley
3193959699
jernster@mediacomcc.com driley@mediacomcc.com

- 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

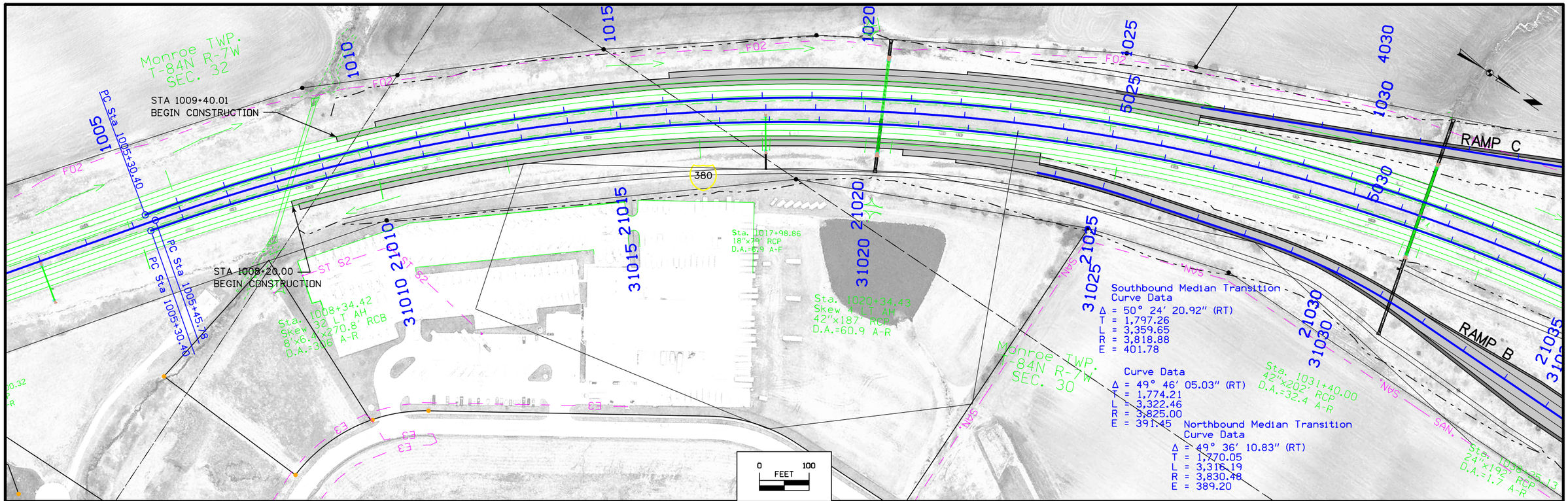
## RIGHT-OF-WAY LEGEND

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

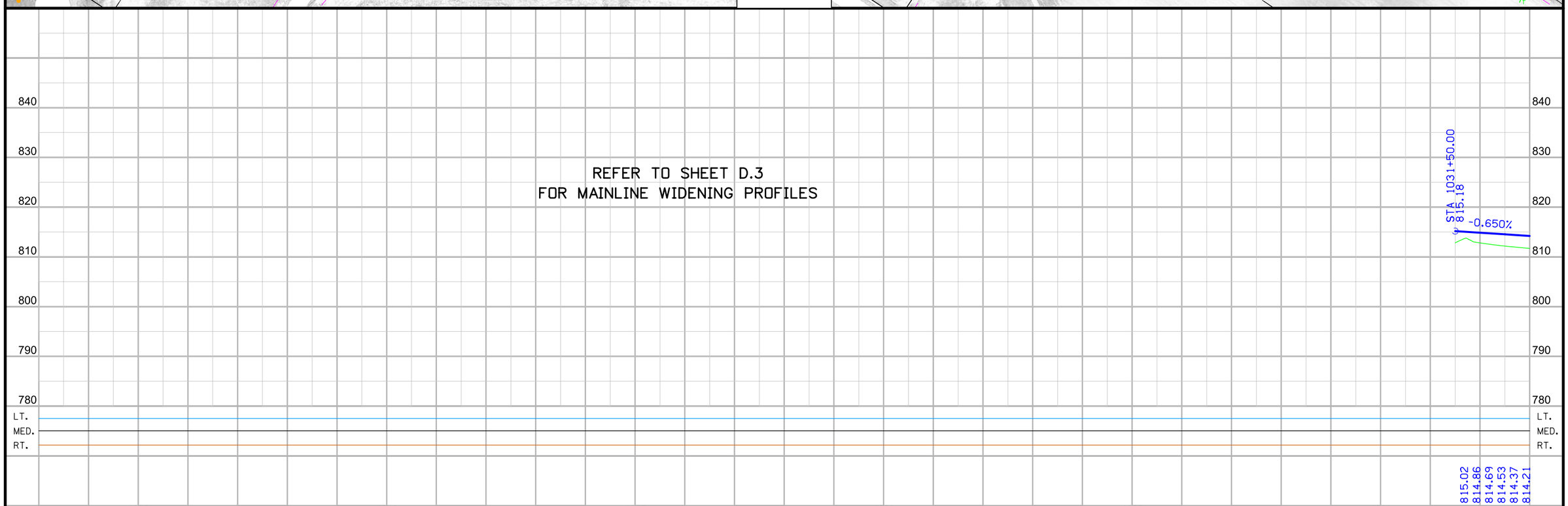
# PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER D.1 |
|---|---|---|---|---|---|




REFER TO SHEET D.3
FOR MAINLINE WIDENING PROFILES




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER D.2 |
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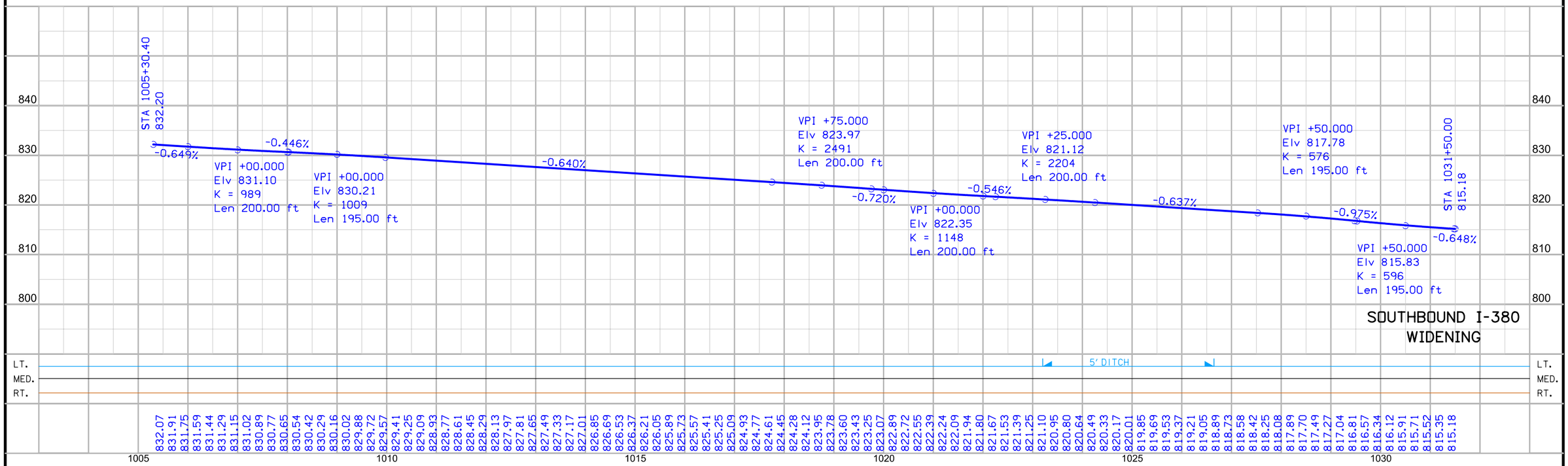


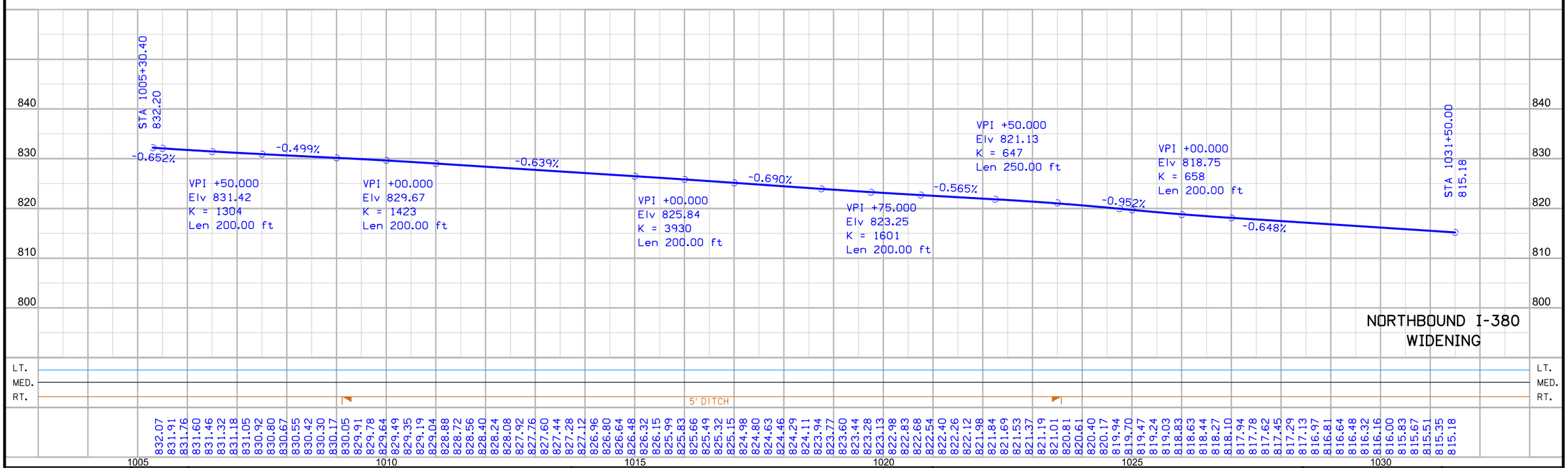


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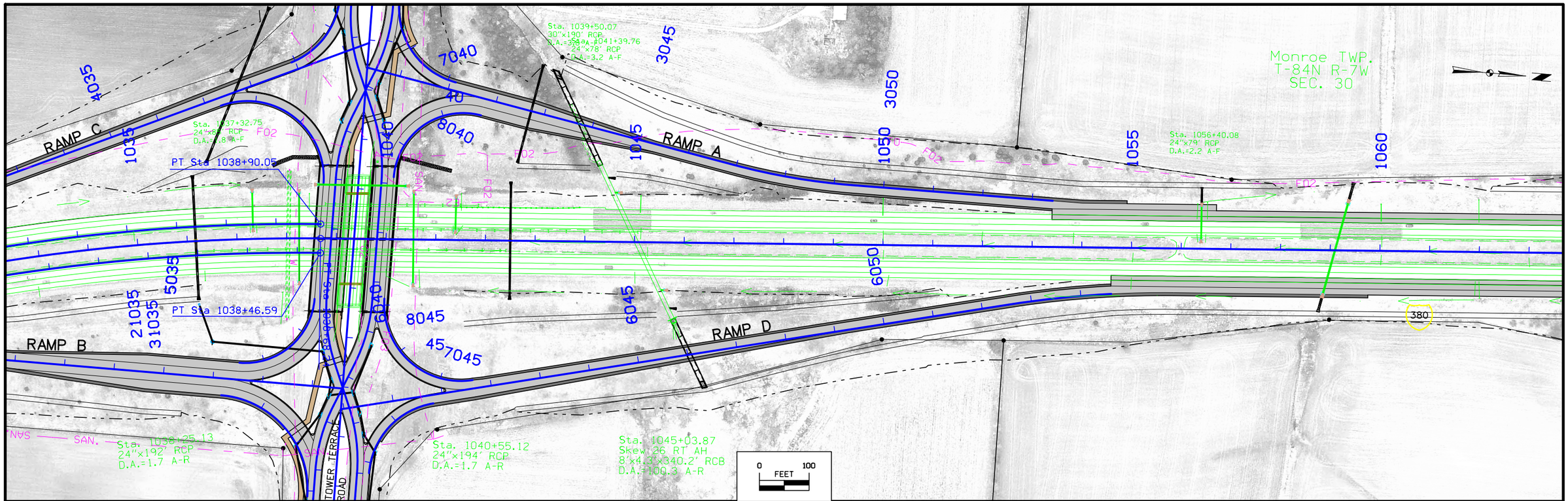


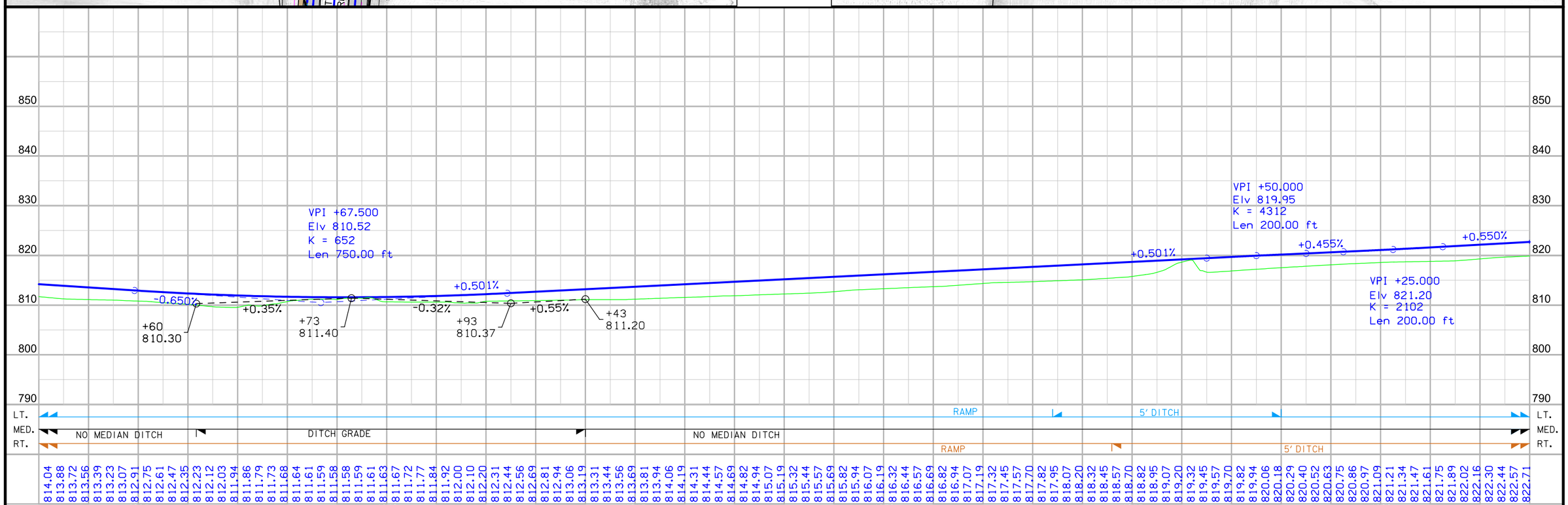


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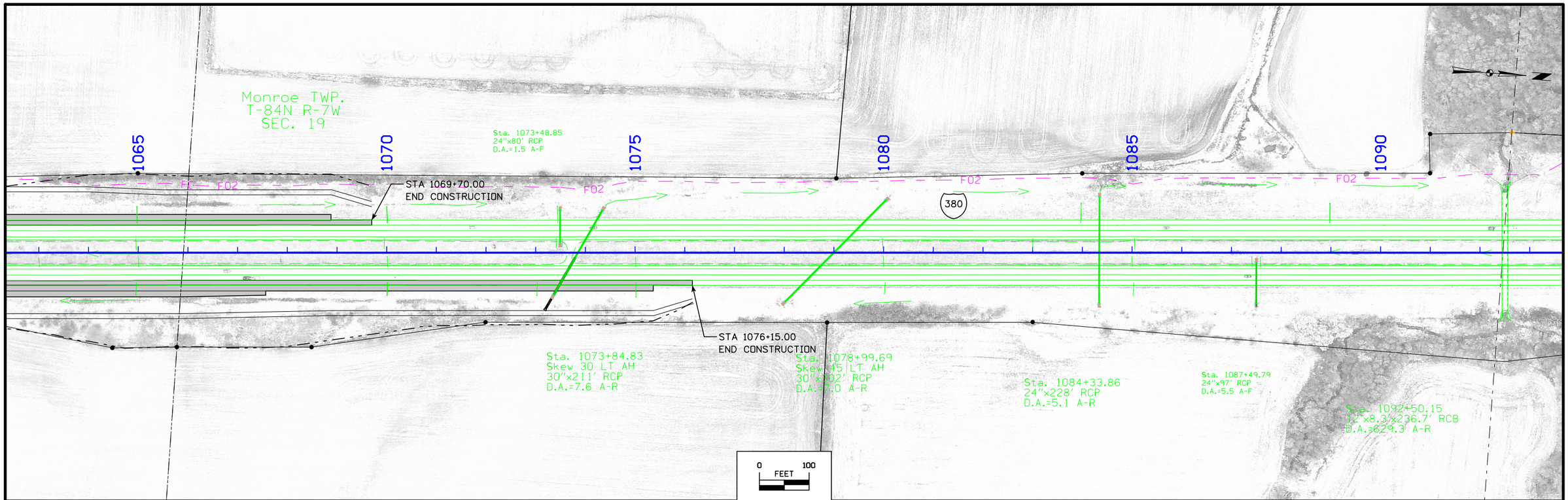


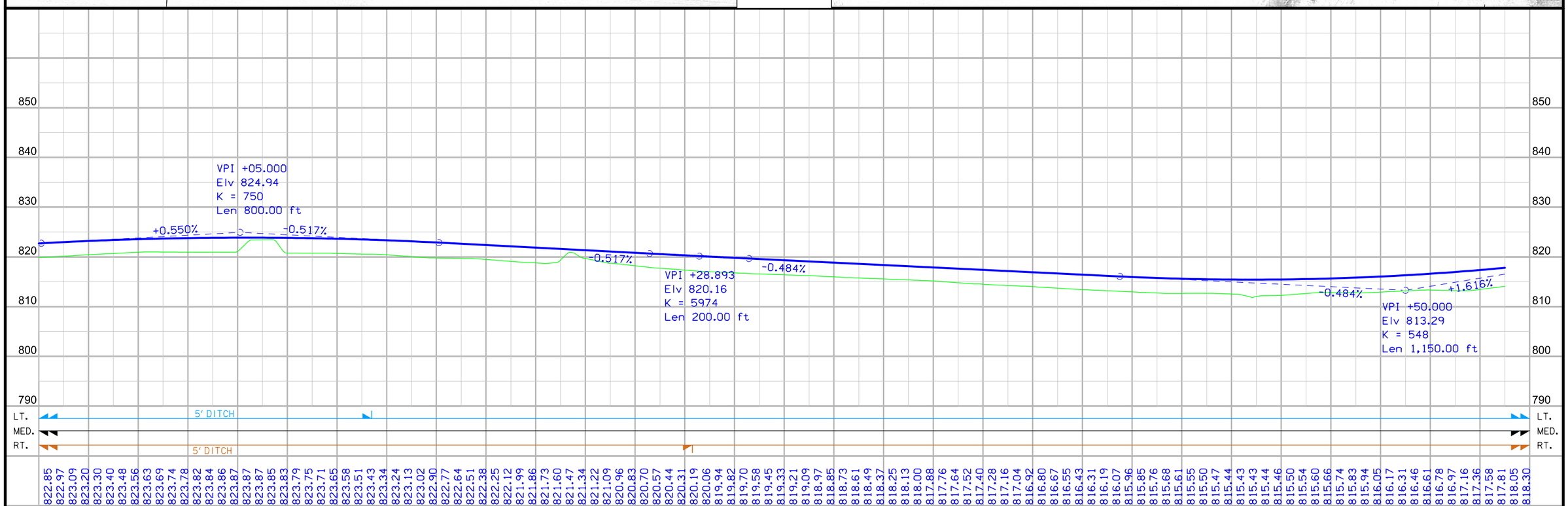


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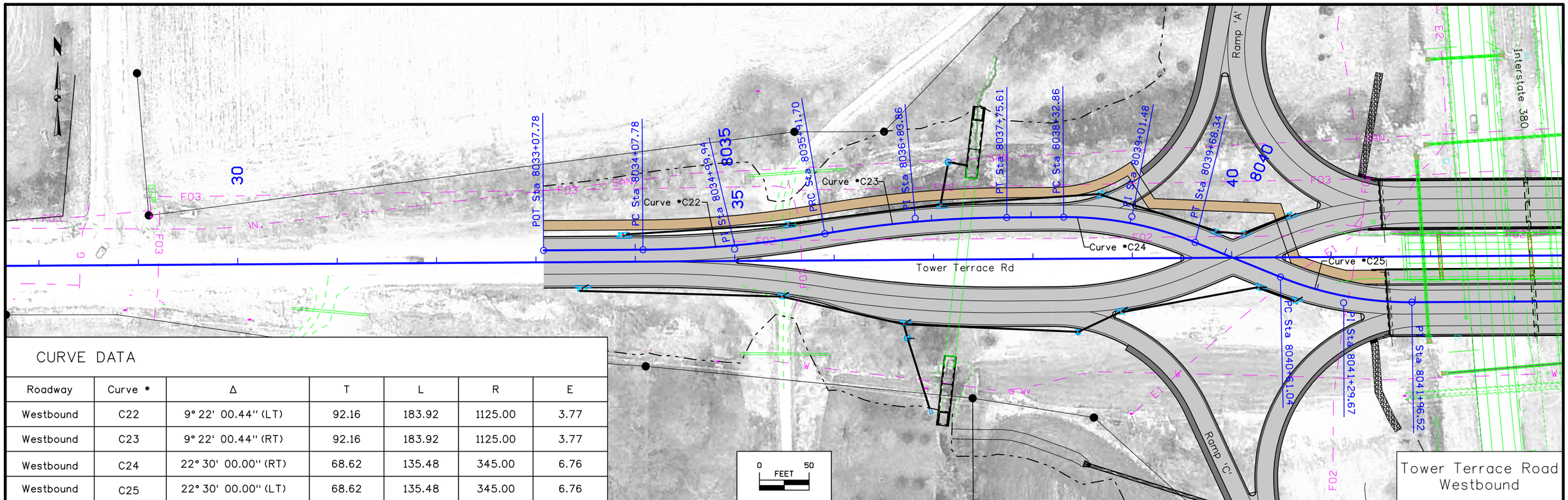
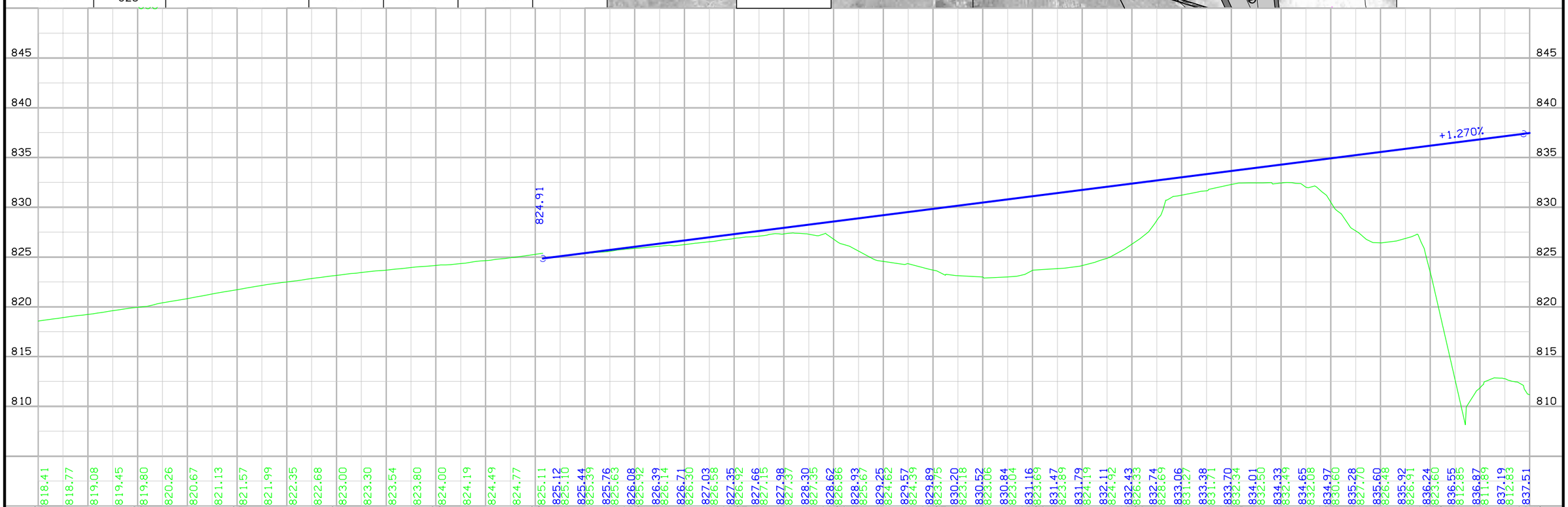



CURVE DATA

| Roadway | Curve # | Δ | T | L | R | E |
|---|---|---|---|---|---|---|
| Westbound | C22 | 9° 22' 00.44" (LT) | 92.16 | 183.92 | 1125.00 | 3.77 |
| Westbound | C23 | 9° 22' 00.44" (RT) | 92.16 | 183.92 | 1125.00 | 3.77 |
| Westbound | C24 | 22° 30' 00.00" (RT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Westbound | C25 | 22° 30' 00.00" (LT) | 68.62 | 135.48 | 345.00 | 6.76 |




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER E.1 |
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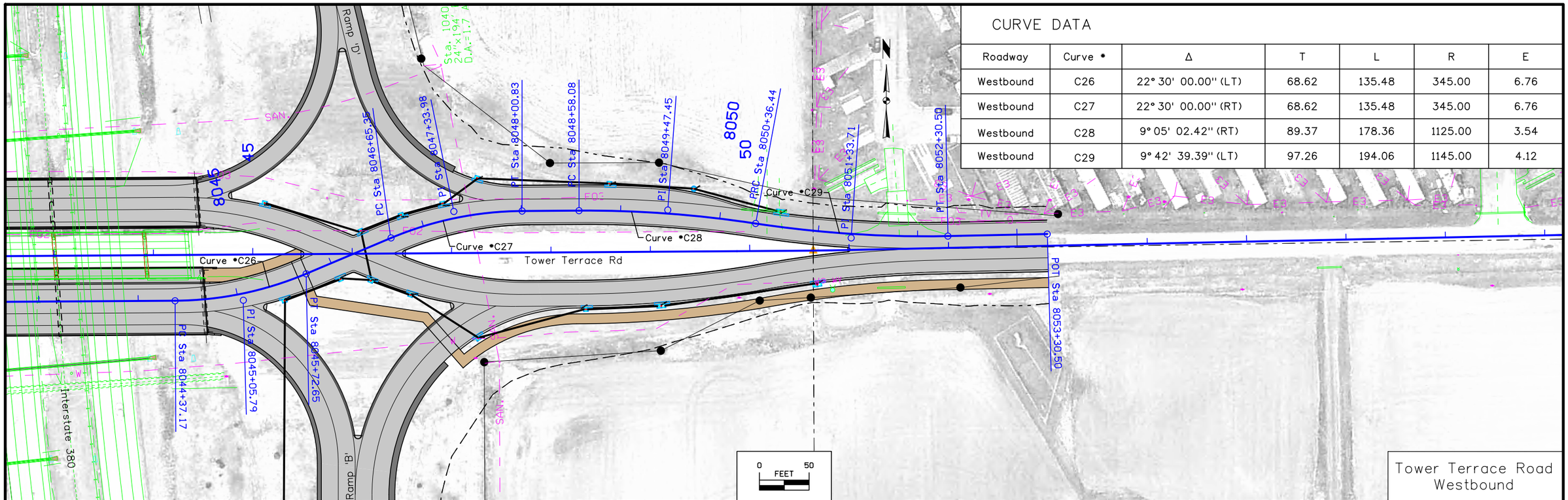
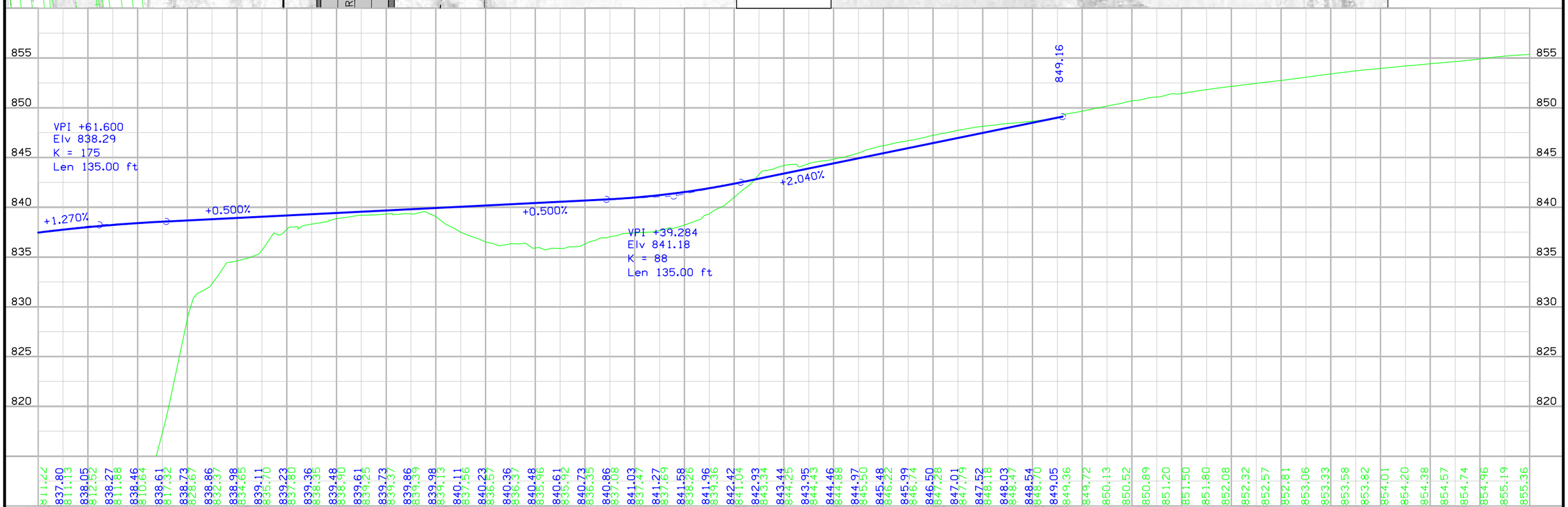



## CURVE DATA

| Roadway | Curve # | Δ | T | L | R | E |
|---|---|---|---|---|---|---|
| Westbound | C26 | 22° 30' 00.00'' (LT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Westbound | C27 | 22° 30' 00.00'' (RT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Westbound | C28 | 9° 05' 02.42'' (RT) | 89.37 | 178.36 | 1125.00 | 3.54 |
| Westbound | C29 | 9° 42' 39.39'' (LT) | 97.26 | 194.06 | 1145.00 | 4.12 |




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER E.2 |
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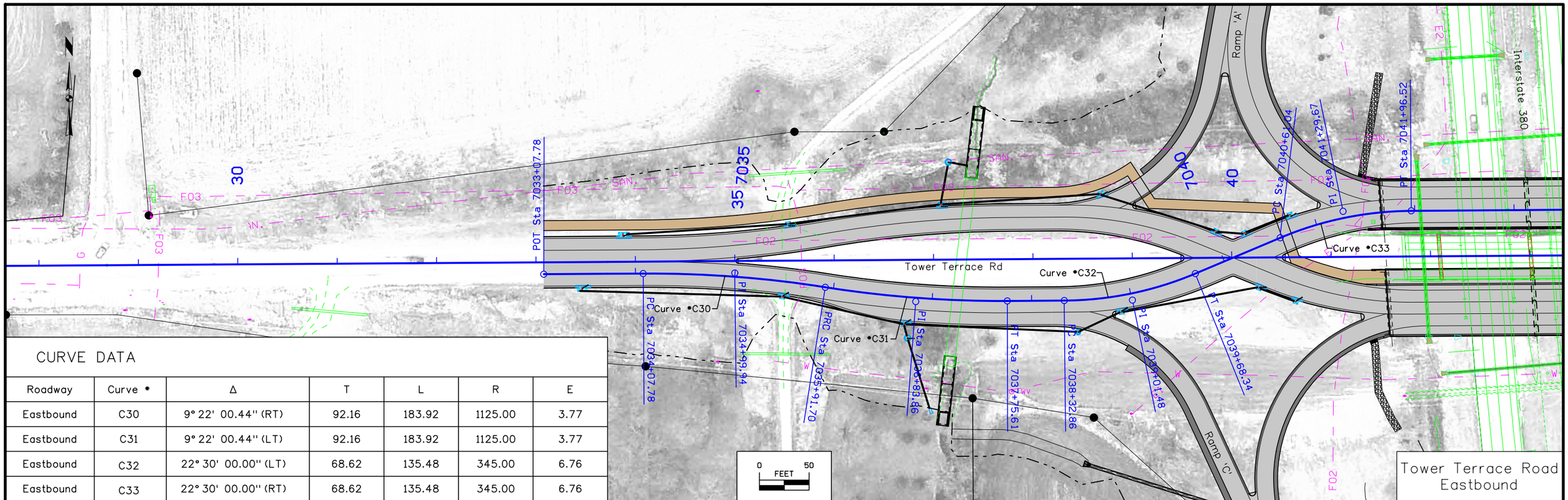
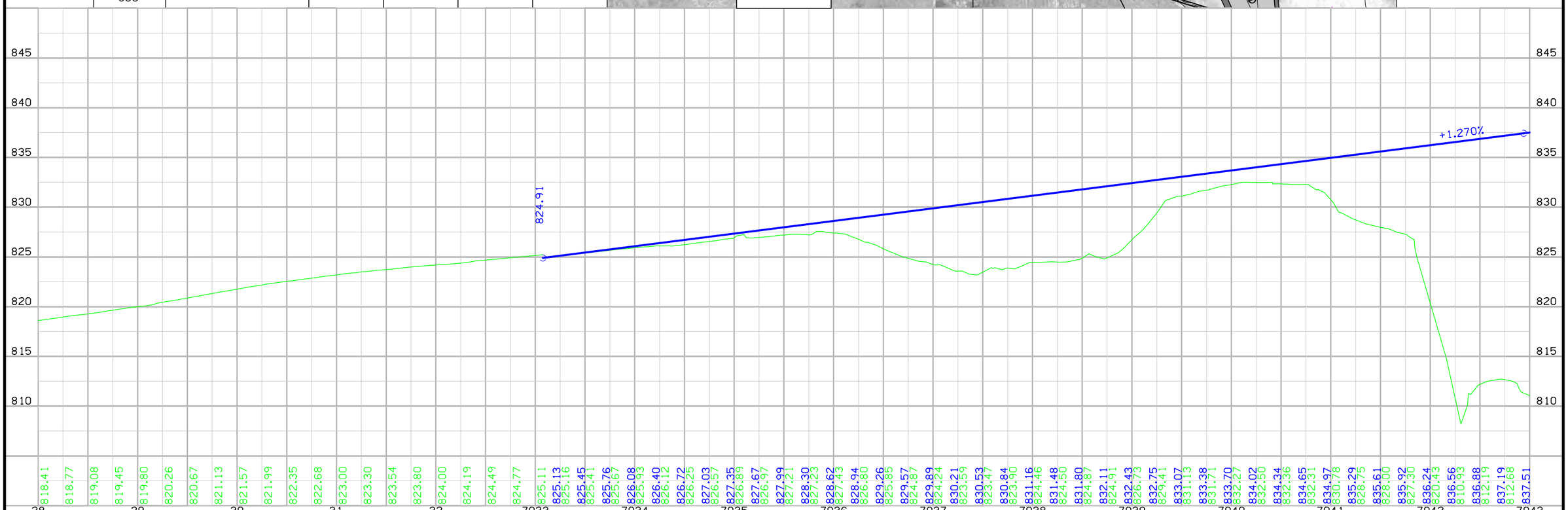



CURVE DATA

| Roadway | Curve # | Δ | T | L | R | E |
|---|---|---|---|---|---|---|
| Eastbound | C30 | 9° 22' 00.44" (RT) | 92.16 | 183.92 | 1125.00 | 3.77 |
| Eastbound | C31 | 9° 22' 00.44" (LT) | 92.16 | 183.92 | 1125.00 | 3.77 |
| Eastbound | C32 | 22° 30' 00.00" (LT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Eastbound | C33 | 22° 30' 00.00" (RT) | 68.62 | 135.48 | 345.00 | 6.76 |




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER E.3 |
|---|---|---|---|---|---|

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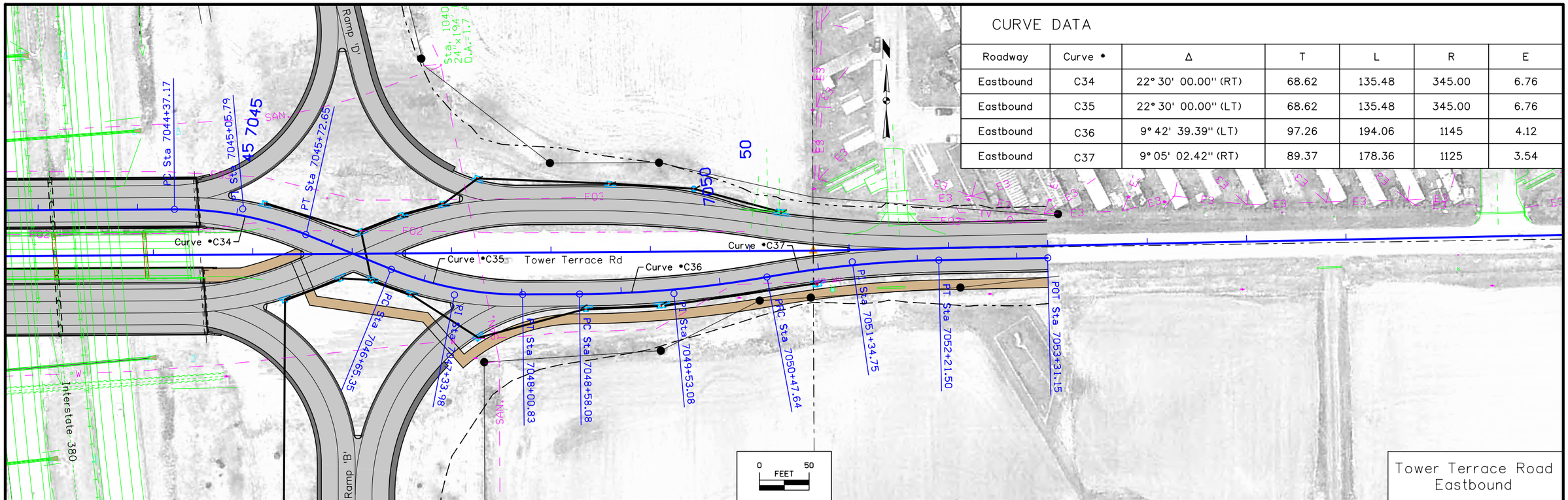
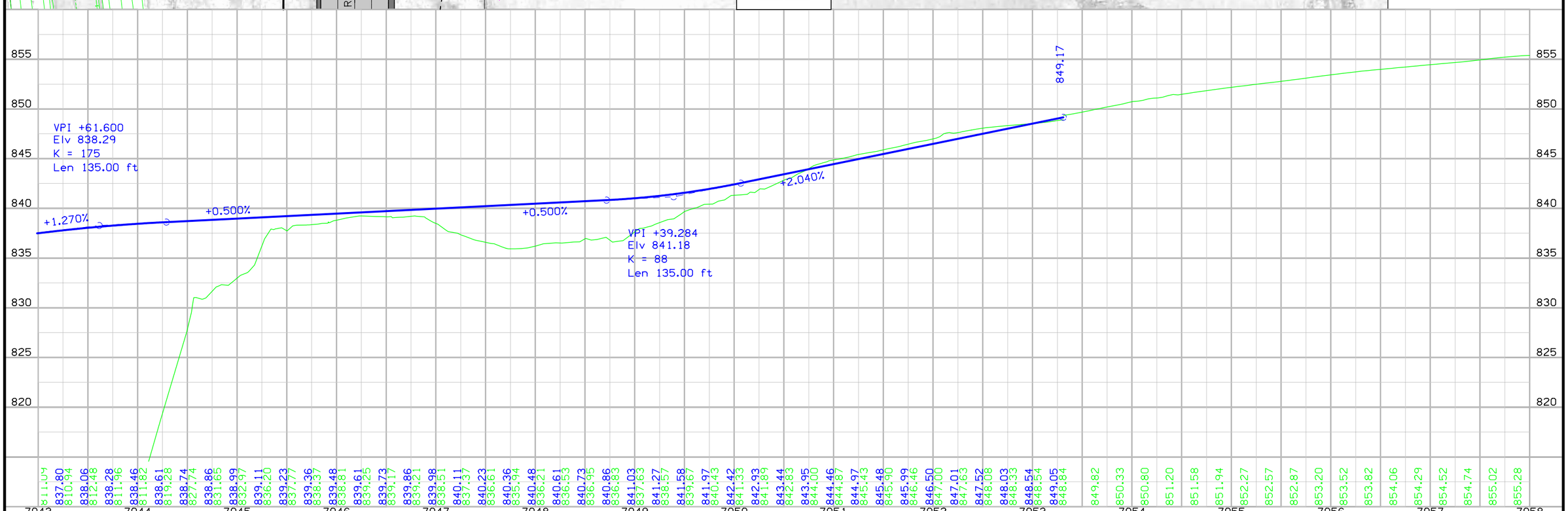



## CURVE DATA

| Roadway | Curve # | Δ | T | L | R | E |
|---|---|---|---|---|---|---|
| Eastbound | C34 | 22° 30' 00.00" (RT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Eastbound | C35 | 22° 30' 00.00" (LT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Eastbound | C36 | 9° 42' 39.39" (LT) | 97.26 | 194.06 | 1145 | 4.12 |
| Eastbound | C37 | 9° 05' 02.42" (RT) | 89.37 | 178.36 | 1125 | 3.54 |

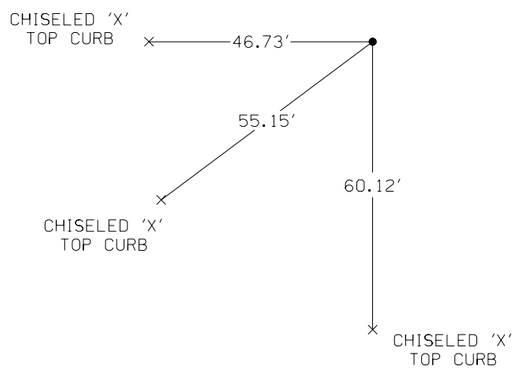



| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER E.4 |
|---|---|---|---|---|---|

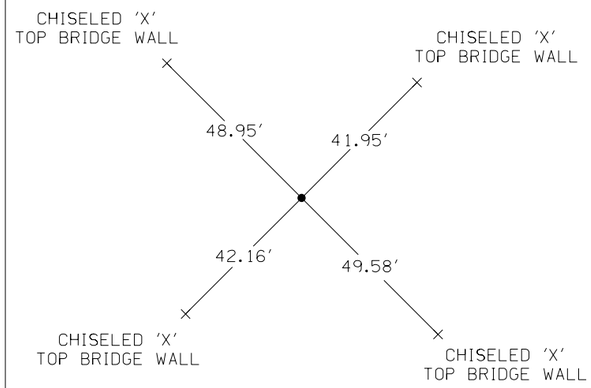
9:07:17 AM 5/24/2019 bsmith pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200_E1.dgn

| BENCHMARKS | | | | ELEVATION |
|---|---|---|---|---|
| NO. 500 | STA. 595+66.24 | 133.823 LT. | IHC DISC EASTBOUND COLLINS ROAD BRIDGE | 814.683 |
| NO. 501 | STA. 542+79.26 | 121.100 LT. | IHC DISC WESTBOUND COLLINS ROAD BRIDGE | 816.405 |
| NO. 502 | STA. 554+05.15 | 139.076 LT. | CHISELED "X" LIGHT POLE BASE | 791.845 |
| NO. 503 | STA. 565+62.63 | 121.855 RT. | IHC DISC BLAIRS FERRY ROAD BRIDGE | 809.502 |
| NO. 504 | STA. 940+23.40 | 111.247 LT. | IHC DISC EMMONS STREET BRIDGE | 826.548 |
| NO. 505 | STA. 936+08.14 | 75.044 RT. | CHISELED "X" LIGHT POLE BASE | 795.879 |
| NO. 506 | STA. 945+85.45 | 57.024 RT. | CHISELED "X" LIGHT POLE BASE | 809.563 |
| NO. 507 | STA. 957+30.66 | 58.251 RT. | CHISELED "X" LIGHT POLE BASE | 829.037 |
| NO. 508 | STA. 969+79.96 | 57.959 RT. | CHISELED "X" LIGHT POLE BASE | 849.838 |
| NO. 509 | STA. 973+01.91 | 123.341 LT. | IHC DISC BOYSON ROAD BRIDGE | 877.997 |
| NO. 510 | STA. 983+54.88 | 106.486 RT. | CHISELED "X" LIGHT POLE BASE | 843.242 |
| NO. 511 | STA. 995+78.58 | 148.474 RT. | 80D SPIKE IN FENCE POST | 841.843 |
| NO. 512 | STA. 1007+68.45 | 102.313 RT. | IHC DISC ON TOP OF RBC INLET | 818.153 |
| NO. 513 | STA. 1018+61.15 | 138.189 RT. | 80D SPIKE IN FENCE POST | 823.926 |
| NO. 514 | STA. 1031+39.76 | 82.414 RT. | CHISELED "X" ON TOP OF 42" RCP | 812.116 |
| NO. 515 | STA. 1039+03.19 | 143.255 RT. | IHC DISC TOWER TERRACE ROAD BRIDGE | 839.653 |
| NO. 516 | STA. 1050+08.47 | 188.679 RT. | 80D SPIKE IN FENCE POST | 825.970 |
| NO. 517 | STA. 1061+90.81 | 138.424 RT. | 80D SPIKE IN FENCE POST | 823.369 |
| NO. 518 | STA. 1075+27.65 | 138.053 RT. | 80D SPIKE IN FENCE POST | 820.183 |
| NO. 519 | STA. 1084+34.28 | 114.966 LT. | CHISELED "X" ON TOP OF 24" RCP | 805.071 |
| NO. 520 | STA. 1092+50.27 | 116.062 RT. | IHC DISC ON TOP OF RCB INLET | 802.924 |
| NO. 521 | STA. 1102+41.28 | 138.285 RT. | 80D SPIKE IN FENCE POST | 830.719 |
| NO. 522 | STA. 1112+98.28 | 87.328 RT. | CHISELED "X" ON TOP OF 24" RCP | 846.098 |
| NO. 523 | STA. 1125+44.28 | 151.958 RT. | IHC DISC ON TOP OF RCB INLET | 831.650 |
| NO. 524 | STA. 1138+00.67 | 149.051 RT. | 80D SPIKE IN FENCE POST | 864.108 |
| NO. 525 | STA. 1147+00.90 | 87.891 RT. | CHISELED "X" ON TOP OF 24" RCP | 842.401 |
| NO. 526 | STA. 1162+14.40 | 153.431 RT. | IHC DISC COUNTY HOME ROAD BRIDGE | 845.818 |
| NO. 527 | STA. 1173+99.77 | 178.462 RT. | 80D SPIKE IN FENCE POST | 808.537 |
| NO. 528 | STA. 1184+76.37 | 138.260 RT. | 80D SPIKE IN FENCE POST | 802.932 |
| NO. 529 | STA. 529+46.31 | 99.023 LT. | CHISELED "X" LIGHT POLE BASE | 792.203 |
| NO. 530 | STA. 519+16.74 | 83.947 LT. | CHISELED "X" LIGHT POLE BASE | 797.614 |

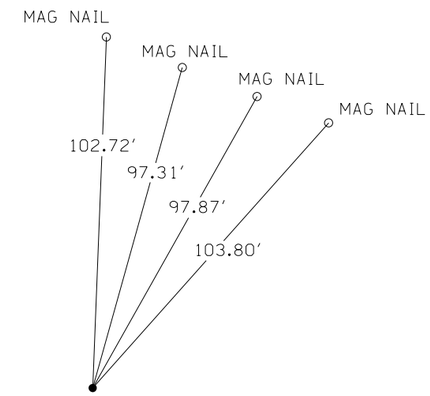
## CP100
IDOT Monument
XC=5412213.175, YC=3489789.389




## CP101
Chiseled 'X'
XC=5410062.684, YC=3489690.186




## CP102
5/8" Rebar
XC=5407726.429, YC=3489674.421




## CP103
FENO Monument
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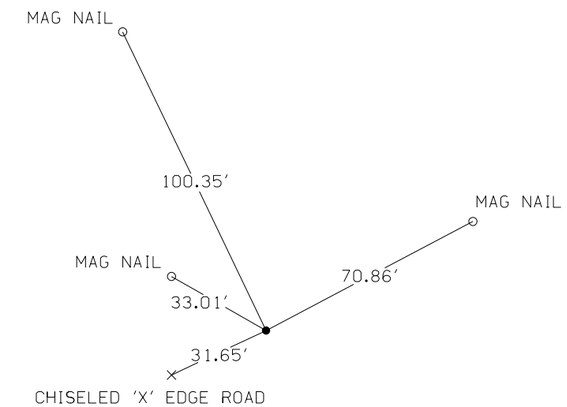


## CP104
FENO Monument
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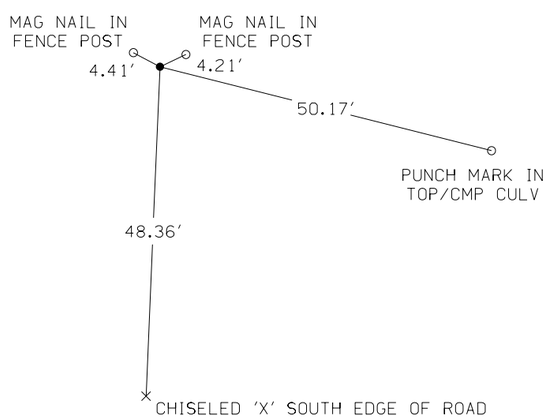
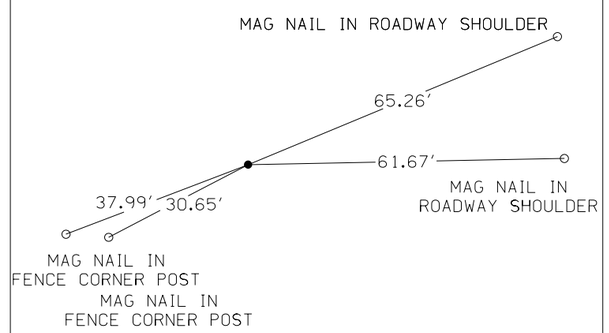



## CP105
IDOT Monument
XC=5409461.072, YC=3496321.629

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IDOT Monument
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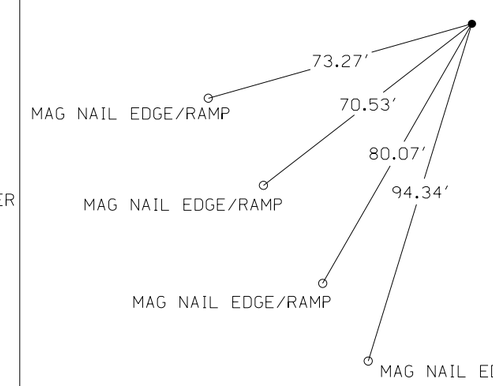


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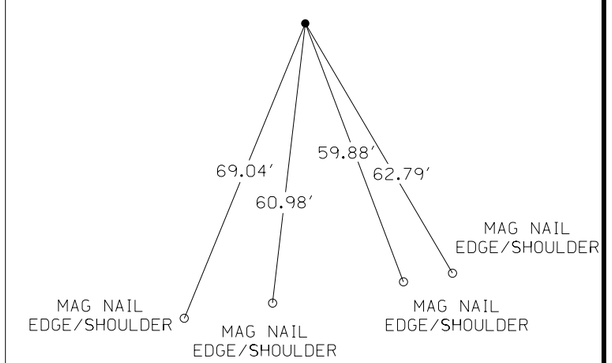


## CP108
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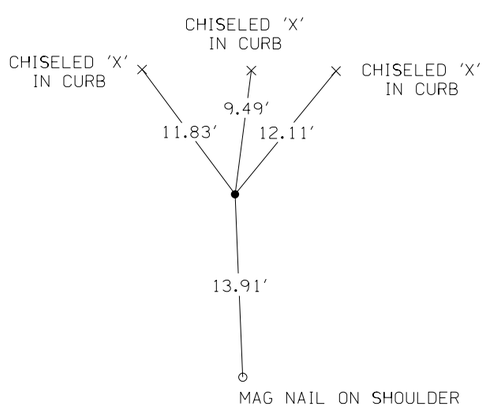


## CP109
FENO Monument
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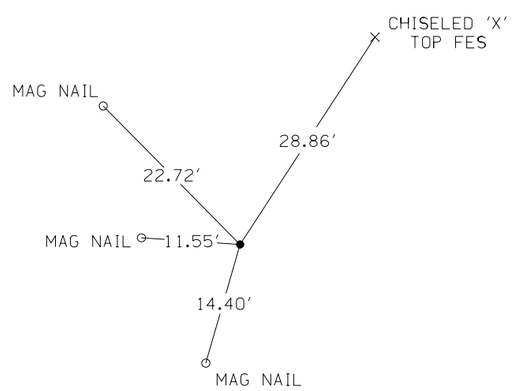
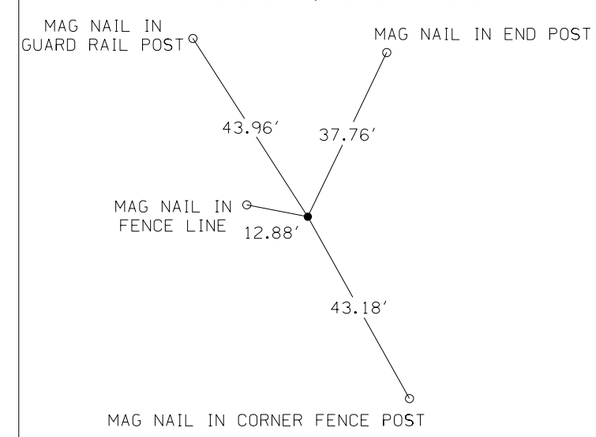



## CP110
FENO Monument
XC=5408545.131, YC=3506777.088



# ALIGNMENT COORDINATES

| Name | Location | Point on Tangent | | | Begin Spiral | | | Begin Curve | | | Simple Curve PI or Master PI of SCS | | | End Curve | | | End Spiral | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | |
| | | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) |
| ML380 | | | | | | | | | | | | | | | | | | | |
| | | 509+55.28 | 3475894.00 | 5419068.35 | | | | | | | | | | | | | | | |
| C1 | | | | | | | | 540+67.74 | 3478664.56 | 5417650.12 | 553+95.28 | 3479846.27 | 5417045.20 | 567+11.04 | 3481134.99 | 5416726.49 | | | |
| C2 | | | | | | | | 943+15.90 | 3482832.14 | 5416306.76 | 950+21.88 | 3483517.48 | 5416137.27 | 956+70.06 | 3483933.59 | 5415566.96 | | | |
| C3 | | | | | | | | 1005+45.78 | 3486807.39 | 5411628.19 | 1023+19.99 | 3487853.13 | 5410194.92 | 1038+68.24 | 3489622.76 | 5410067.55 | | | |
| C4 | | | | | | | | 1101+30.64 | 3495869.00 | 5409617.98 | 1106+31.11 | 3496368.18 | 5409582.05 | 1111+31.50 | 3496868.25 | 5409561.76 | | | |
| C5 | | | | | 1185+81.62 | 3504312.23 | 5409259.72 | | | | | | | | | | | | |
| C6 | | | | | | | | 1187+81.62 | 3504511.95 | 5409249.29 | 1192+90.21 | 3505019.09 | 5409210.94 | 1197+88.31 | 3505482.05 | 5409000.38 | | | |
| C7 | | | | | | | | | | | | | | | | | 1199+88.31 | 3505662.11 | 5408913.37 |
| Median Width Transition Northbound Lanes | | | | | | | | | | | | | | | | | | | |
| C8 | | | | | | | | 20526+50.98 | 3477407.07 | 5418302.80 | 20528+46.01 | 3477580.67 | 5418213.94 | 20530+41.01 | 3477756.28 | 5418129.10 | | | |
| C9 | | | | | | | | 20530+41.01 | 3477756.28 | 5418129.10 | 20532+36.04 | 3477931.89 | 5418044.26 | 20534+31.05 | 3478105.49 | 5417955.40 | | | |
| C10 | | | | | | | | 31005+30.40 | 3486812.06 | 5411650.63 | 31023+00.45 | 3487859.37 | 5410223.66 | 31038+46.59 | 3489624.84 | 5410096.47 | | | |
| C11 | | | | | | | | 31155+97.81 | 3501332.05 | 5409409.55 | 31157+62.77 | 3501496.87 | 5409402.86 | 31159+27.72 | 3501661.48 | 5409391.94 | | | |
| C12 | | | | | | | | 31159+27.72 | 3501661.48 | 5409391.94 | 31160+93.92 | 3501827.31 | 5409380.94 | 31162+60.10 | 3501993.37 | 5409374.19 | | | |
| Median Width Transition Southbound Lanes | | | | | | | | | | | | | | | | | | | |
| C13 | | | | | | | | 10526+50.98 | 3477399.78 | 5418288.56 | 10528+46.01 | 3477573.38 | 5418199.69 | 10530+41.01 | 3477744.89 | 5418106.85 | | | |
| C14 | | | | | | | | 10530+41.01 | 3477744.89 | 5418106.85 | 10532+36.04 | 3477916.40 | 5418014.00 | 10534+31.05 | 3478090.00 | 5417925.13 | | | |
| C15 | | | | | | | | 21005+30.40 | 3486784.59 | 5411630.59 | 21023+27.66 | 3487828.02 | 5410167.24 | 21038+90.05 | 3489620.68 | 5410038.62 | | | |
| C16 | | | | | | | | 21155+97.80 | 3501329.69 | 5409351.60 | 21157+63.23 | 3501494.98 | 5409344.89 | 21159+28.64 | 3501660.39 | 5409342.42 | | | |
| C17 | | | | | | | | 21159+28.64 | 3501660.39 | 5409342.42 | 21160+94.37 | 3501826.11 | 5409339.95 | 21162+60.09 | 3501991.71 | 5409333.23 | | | |
| Tower Terrace Rd Westbound | | | | | | | | | | | | | | | | | | | |
| | | 8033+07.78 | 3489695.43 | 5409069.18 | | | | | | | | | | | | | | | |
| C22 | | | | | | | | 8034+07.78 | 3489696.10 | 5409169.18 | 8034+99.94 | 3489696.72 | 5409261.34 | 8035+91.70 | 3489712.34 | 5409352.18 | | | |
| C23 | | | | | | | | 8035+91.70 | 3489712.34 | 5409352.18 | 8036+83.86 | 3489727.95 | 5409443.01 | 8037+75.62 | 3489728.56 | 5409535.17 | | | |
| C24 | | | | | | | | 8038+32.86 | 3489728.95 | 5409592.41 | 8039+01.48 | 3489729.40 | 5409661.04 | 8039+68.34 | 3489703.57 | 5409724.61 | | | |
| C25 | | | | | | | | 8040+61.04 | 3489668.66 | 5409810.50 | 8041+29.67 | 3489642.82 | 5409874.07 | 8041+96.52 | 3489643.27 | 5409942.69 | | | |
| C26 | | | | | | | | 8044+37.17 | 3489644.88 | 5410183.33 | 8045+05.79 | 3489645.34 | 5410251.95 | 8045+72.65 | 3489672.03 | 5410315.18 | | | |
| C27 | | | | | | | | 8046+65.35 | 3489708.07 | 5410400.59 | 8047+33.98 | 3489734.76 | 5410463.81 | 8048+00.84 | 3489735.22 | 5410532.43 | | | |
| C28 | | | | | | | | 8048+58.08 | 3489735.60 | 5410589.68 | 8049+47.45 | 3489736.19 | 5410679.04 | 8050+36.44 | 3489722.67 | 5410767.38 | | | |
| C29 | | | | | | | | 8050+36.44 | 3489722.67 | 5410767.38 | 8051+28.86 | 3489708.71 | 5410858.74 | 8052+20.86 | 3489709.84 | 5410951.14 | | | |
| | | 8053+30.50 | 3489712.15 | 5411060.76 | | | | | | | | | | | | | | | |
| Tower Terrace Rd Eastbound | | | | | | | | | | | | | | | | | | | |
| | | 7033+07.78 | 3489671.43 | 5409069.35 | | | | | | | | | | | | | | | |
| C30 | | | | | | | | 7034+07.78 | 3489672.10 | 5409169.34 | 7034+99.94 | 3489672.72 | 5409261.50 | 7035+91.69 | 3489658.34 | 5409352.54 | | | |
| C31 | | | | | | | | 7035+91.69 | 3489658.34 | 5409352.54 | 7036+83.86 | 3489643.95 | 5409443.57 | 7037+75.61 | 3489644.57 | 5409535.73 | | | |
| C32 | | | | | | | | 7038+32.85 | 3489644.95 | 5409592.97 | 7039+01.48 | 3489645.41 | 5409661.60 | 7039+68.33 | 3489672.09 | 5409724.82 | | | |
| C33 | | | | | | | | 7040+61.04 | 3489708.14 | 5409810.23 | 7041+29.66 | 3489734.82 | 5409873.46 | 7041+96.52 | 3489735.27 | 5409942.08 | | | |
| C34 | | | | | | | | 7044+37.16 | 3489736.88 | 5410182.72 | 7045+05.79 | 3489737.34 | 5410251.34 | 7045+72.64 | 3489711.50 | 5410314.91 | | | |
| C35 | | | | | | | | 7046+65.35 | 3489676.60 | 5410400.80 | 7047+33.97 | 3489650.76 | 5410464.37 | 7048+00.83 | 3489651.22 | 5410532.99 | | | |
| C36 | | | | | | | | 7048+58.07 | 3489651.60 | 5410590.24 | 7049+47.44 | 3489652.20 | 5410679.60 | 7050+36.44 | 3489666.89 | 5410767.76 | | | |
| C37 | | | | | | | | 7050+36.44 | 3489666.89 | 5410767.76 | 7051+28.85 | 3489683.89 | 5410858.60 | 7052+20.85 | 3489685.83 | 5410950.99 | | | |
| | | 7053+31.16 | 3489688.15 | 5411061.27 | | | | | | | | | | | | | | | |
| Tower Terrace Rd Ramp A | | | | | | | | | | | | | | | | | | | |
| | | 3039+31.56 | 3489687.82 | 5409717.10 | | | | | | | | | | | | | | | |
| C38 | | | | | | | | 3046+94.58 | 3490439.05 | 5409850.73 | 3048+15.50 | 3490558.10 | 5409871.91 | 3049+35.75 | 3490679.01 | 5409871.27 | | | |
| | | 3053+41.36 | 3491084.62 | 5409869.13 | | | | | | | | | | | | | | | |
| Tower Terrace Rd Ramp A West Loop | | | | | | | | | | | | | | | | | | | |
| C39 | | | | | | | | 13039+02.76 | 3489740.87 | 5409581.27 | 13040+30.91 | 3489741.73 | 5409709.42 | 13041+16.52 | 3489867.90 | 5409731.86 | | | |
| Tower Terrace Rd Ramp A East Loop | | | | | | | | | | | | | | | | | | | |
| C40 | | | | | | | | 23039+31.73 | 3489759.21 | 5409932.37 | 23040+99.97 | 3489758.09 | 5409764.13 | 23041+77.22 | 3489923.73 | 5409793.60 | | | |
| Tower Terrace Rd Ramp C | | | | | | | | | | | | | | | | | | | |
| | | 4026+55.28 | 3488420.24 | 5410255.40 | | | | | | | | | | | | | | | |
| | | 4040+52.35 | 3489687.43 | 5409667.15 | | | | | | | | | | | | | | | |
| Tower Terrace Rd Ramp C West Loop | | | | | | | | | | | | | | | | | | | |
| C41 | | | | | | | | 14038+91.61 | 3489534.47 | 5409719.39 | 14039+88.48 | 3489621.51 | 5409676.86 | 14040+64.55 | 3489620.86 | 5409579.99 | | | |
| Tower Terrace Rd Ramp C East Loop | | | | | | | | | | | | | | | | | | | |
| C42 | | | | | | | | 24037+28.62 | 3489400.53 | 5409817.97 | 24039+68.13 | 3489617.77 | 5409717.13 | 24040+36.43 | 3489619.37 | 5409956.63 | | | |
| Tower Terrace Rd Ramp B | | | | | | | | | | | | | | | | | | | |
| | | 5025+64.45 | 3488409.31 | 5410484.21 | | | | | | | | | | | | | | | |
| C43 | | | | | | | | 5023+64.75 | 3488220.74 | 5410549.62 | 5024+64.71 | 3488313.10 | 5410511.36 | 5025+64.45 | 3488409.31 | 5410484.21 | | | |
| C44 | | | | | | | | 5028+23.80 | 3488658.95 | 5410413.93 | 5030+07.86 | 3488836.13 | 5410364.06 | 5031+89.60 | 3489020.19 | 5410364.17 | | | |
| | | 5038+61.51 | 3489692.10 | 5410364.60 | | | | | | | | | | | | | | | |
| Tower Terrace Rd Ramp B West Loop | | | | | | | | | | | | | | | | | | | |

# ALIGNMENT COORDINATES

| Name | Location | Point on Tangent | | | Begin Spiral | | | Begin Curve | | | Simple Curve PI or Master PI of SCS | | | End Curve | | | End Spiral | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | | Station | Coordinates | |
| | | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) | | Y (Northing) | X (Easting) |
| C45 | | | | | | | | 15036+50.23 | 3489480.84 | 5410330.47 | 15037+91.26 | 3489621.87 | 5410330.56 | 15038+71.16 | 3489620.93 | 5410189.54 | | | |
| Tower Terrace Rd Ramp B East Loop | | | | | | | | | | | | | | | | | | | |
| C46 | | | | | | | | 25036+14.14 | 3489449.70 | 5410398.45 | 25038+02.76 | 3489638.32 | 5410398.57 | 25039+11.20 | 3489639.58 | 5410587.18 | | | |
| Tower Terrace Rd Ramp D | | | | | | | | | | | | | | | | | | | |
| | | 6038+93.84 | 3489692.23 | 5410406.73 | | | | | | | | | | | | | | | |
| C47 | | | | | | | | 6052+53.11 | 3491012.81 | 5410084.73 | 6053+57.51 | 3491114.24 | 5410060.00 | 6054+61.73 | 3491217.69 | 5410045.96 | | | |
| Tower Terrace Rd Ramp D West Loop | | | | | | | | | | | | | | | | | | | |
| C48 | | | | | | | | 16038+87.07 | 3489760.85 | 5410177.47 | 16040+81.79 | 3489762.15 | 5410372.18 | 16041+64.78 | 3489951.33 | 5410326.05 | | | |
| Tower Terrace Rd Ramp D East Loop | | | | | | | | | | | | | | | | | | | |
| C49 | | | | | | | | 26038+78.73 | 3489759.20 | 5410529.89 | 26040+00.52 | 3489758.39 | 5410408.10 | 26040+84.83 | 3489876.71 | 5410379.24 | | | |

# SPIRAL OR CIRCULAR CURVE DATA

| Name | Location | ΔSCS | Horizontal Alignment Data | | | | | | | | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Spiral Data | | | | | | | | Curve Data | | | | | |
| | | | θS | Ls | Ts | Es | Xc | Yc | L.T. | S.T. | ΔC | T | L | R | E | |
| ML380 | | | | | | | | | | | | | | | | |
| C1 | | | | | | | | | | | 13° 12' 59.40" (RT) | 1,327.5417 | 2,643.3000 | 11,459.1560 | 76.6415 | |
| C2 | | | | | | | | | | | 39° 59' 37.21" (LT) | 705.9809 | 1,354.1611 | 1,940.0000 | 124.4634 | |
| C3 | | | | | | | | | | | 49° 46' 05.03" (RT) | 1,774.2104 | 3,322.4584 | 3,825.0000 | 391.4496 | |
| C4 | | | | | | | | | | | 1° 47' 35.61" (RT) | 500.4758 | 1,000.8698 | 31,979.0400 | 3.9160 | |
| C5 | | | ° 00' 00.00" (LT) | 200.0001 | 66.6744 | | 199.9757 | 2.3269 | 133.3419 | 66.6744 | | | | | | |
| C6 | | | | | | | | | | | 20° 08' 01.58" (LT) | 508.5888 | 1,006.6890 | 2,864.7900 | 44.7949 | |
| C7 | | | ° 00' 00.00" (LT) | 200.0001 | 66.6744 | | 199.9757 | 2.3269 | 133.3419 | 66.6744 | | | | | | |
| Median Width Transition Northbound Lanes | | | | | | | | | | | | | | | | |
| C8 | | | | | | | | | | | 1° 19' 19.74" (RT) | 195.0260 | 390.0346 | 16,902.2560 | 1.1251 | |
| C9 | | | | | | | | | | | 1° 19' 19.74" (LT) | 195.0260 | 390.0346 | 16,902.2560 | 1.1251 | |
| C10 | | | | | | | | | | | 49° 36' 10.83" (RT) | 1,770.0545 | 3,316.1878 | 3,830.4847 | 389.1961 | |
| C11 | | | | | | | | | | | 1° 28' 14.83" (LT) | 164.9647 | 329.9113 | 12,852.0000 | 1.0587 | |
| C12 | | | | | | | | | | | 1° 28' 14.83" (RT) | 166.1970 | 332.3757 | 12,948.0000 | 1.0666 | |
| Median Width Transition Southbound Lanes | | | | | | | | | | | | | | | | |
| C13 | | | | | | | | | | | 1° 19' 19.75" (LT) | 195.0260 | 390.0346 | 16,902.2499 | 1.1251 | |
| C14 | | | | | | | | | | | 1° 19' 19.75" (RT) | 195.0260 | 390.0347 | 16,902.2499 | 1.1251 | |
| C15 | | | | | | | | | | | 50° 24' 20.92" (RT) | 1,797.2634 | 3,359.6465 | 3,818.8764 | 401.7838 | |
| C16 | | | | | | | | | | | 1° 28' 14.83" (RT) | 165.4268 | 330.8355 | 12,888.0000 | 1.0616 | |
| C17 | | | | | | | | | | | 1° 28' 14.83" (LT) | 165.7349 | 331.4515 | 12,912.0000 | 1.0636 | |
| Tower Terrace Rd Westbound | | | | | | | | | | | | | | | | |
| C22 | | | | | | | | | | | 9° 22' 00.8" (LT) | 92.165 | 183.919 | T1903xt | 3.7689 | |
| C23 | | | | | | | | | | | 9 °22' 00.4" (RT) | 92.1636 | 183.916 | T1903xt | 3.7689 | |
| C24 | | | | | | | | | | | 22° 30' 00.0" (RT) | 68.6248 | 135.4812 | T1900xt | 6.7589 | |
| C25 | | | | | | | | | | | 22° 29' 59.3" (LT) | 68.624 | 135.4812 | T1900xt | 6.7589 | |
| C26 | | | | | | | | | | | 22° 30' 00.0" (LT) | 68.6248 | 135.4812 | T1900xt | 6.7589 | |
| C27 | | | | | | | | | | | 22° 30' 00.0" (RT) | 68.6248 | 135.4812 | T1900xt | 6.7589 | |
| C28 | | | | | | | | | | | 9° 05' 02.4" (RT) | 89.3693 | 178.3640 | T1903xt | 3.5441 | |
| C29 | | | | | | | | | | | 9° 23' 31.8" (LT) | 92.415 | 184.415 | T1903xt | 3.789 | |
| Tower Terrace Rd Eastbound | | | | | | | | | | | | | | | | |
| C30 | | | | | | | | | | | 9° 21' 59.9" (RT) | 92.162 | 183.914 | 1125.0000 | 3.7689 | |
| C31 | | | | | | | | | | | 9° 22' 00.4" (LT) | 92.1636 | 183.916 | 1125.0000 | 3.7689 | |
| C32 | | | | | | | | | | | 22° 30' 00.0" (LT) | 68.6248 | 135.4812 | 345.0000 | 6.7589 | |
| C33 | | | | | | | | | | | 22° 29' 59.3" (RT) | 68.624 | 135.4812 | 345.0000 | 6.7589 | |
| C34 | | | | | | | | | | | 22° 30' 00.0" (RT) | 68.6248 | 135.4812 | 345.0000 | 6.7589 | |
| C35 | | | | | | | | | | | 22° 30' 00.0" (LT) | 68.6248 | 135.4812 | 345.0000 | 6.7589 | |
| C36 | | | | | | | | | | | 9° 05' 02.4" (LT) | 89.369 | 178.364 | 1125.0000 | 3.544 | |
| C37 | | | | | | | | | | | 9° 23' 31.8" (RT) | 92.415 | 184.415 | 1125.0000 | 3.789 | |
| Tower Terrace Rd Ramp A | | | | | | | | | | | | | | | | |
| C38 | | | | | | | | | | | 10° 23' 22.1" (LT) | 120.9162 | 241.169 | 1330.0000 | 5.4852 | |
| Tower Terrace Rd Ramp A West Loop | | | | | | | | | | | | | | | | |
| C39 | | | | | | | | | | | 79° 31' 51.8" (LT) | 128.1511 | 213.7642 | 154.0000 | 46.346 | |
| Tower Terrace Rd Ramp A East Loop | | | | | | | | | | | | | | | | |
| C40 | | | | | | | | | | | 100° 28' 08.2" (RT) | 168.2389 | 245.4919 | 140.0000 | 78.871 | |
| Tower Terrace Rd Ramp C West Loop | | | | | | | | | | | | | | | | |
| C41 | | | | | | | | | | | 64° 20' 31.7" (LT) | 96.87 | 172.939 | 154.0000 | 27.934 | |
| Tower Terrace Rd Ramp C East Loop | | | | | | | | | | | | | | | | |
| C42 | | | | | | | | | | | 114° 31' 08.6" (RT) | 239.507 | 307.805 | 154.0000 | 130.745 | |
| Tower Terrace Rd Ramp B | | | | | | | | | | | | | | | | |
| C43 | | | | | | | | | | | 6 °44' 36.4" (RT) | 99.966 | 199.701 | 1696.76 | 2.942 | |
| C44 | | | | | | | | | | | 15°45'30.6" (RT) | 184.062 | 365.8000 | 1330.0000 | 12.6760 | |
| Tower Terrace Rd Ramp B West Loop | | | | | | | | | | | | | | | | |
| C45 | | | | | | | | | | | 90° 25' 07.7" (LT) | 141.0271 | 220.9348 | 140.0000 | 58.717 | |
| Tower Terrace Rd Ramp B East Loop | | | | | | | | | | | | | | | | |
| C46 | | | | | | | | | | | 89° 34' 52.3" (RT) | 188.6163 | 297.0625 | 190.0000 | 77.7239 | |
| Tower Terrace Rd Ramp D | | | | | | | | | | | | | | | | |
| C47 | | | | | | | | | | | 5° 58' 35.0" (RT) | 104.402 | 208.521 | 2000.0000 | 2.723 | |
| Tower Terrace Rd Ramp D West Loop | | | | | | | | | | | | | | | | |
| C48 | | | | | | | | | | | 103° 19' 15.1" (LT) | 194.7212 | 277.7065 | 154.0000 | 94.2586 | |
| Tower Terrace Rd Ramp D East Loop | | | | | | | | | | | | | | | | |
| C49 | | | | | | | | | | | 76° 40' 44.9" (RT) | 121.7947 | 206.0987 | 154.0000 | 42.341 | |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Linn | ROW: IMN-380-6(222)25--0E-57 | | | | PIN | 96-57-380-050 | | | | | | | | | | | | | | | |
| | S of Blairs Ferry Rd in Cedar Rapids to County Home Rd / Co Rd E34 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | STATE | | | COUNTY | | | CITY | | | | TEMP EASE | | BORROW | | | | | | | |
| PARCEL NO. | OWNER NAME | FEE | EASE | | FEE | EASE | | FEE | EASE | | EXCESS | | | FEE | T.E. | MITIGATION | OTHER | HOUSE | BUILDING(S) | A/C ONLY | TOTAL ACQ. |
| 1 | Wahlstrom Family Trust - Fee | 10.32 AC | | | | | | | | | | | | | | | | X | | | X |
| 2 | Ketelsen Realty, LLC - Fee | .3 AC | | | | | | | | | | | | | | | | | | | |
| 3 | RRRP Farms, LLC - Fee | 1.21 AC | | | | | | | | | | | | | | | | | | | |
| 4 | Gray Television Group, INC - Fee | .57 AC | | | | | | | | | | 0.24 AC | | | | | | | | | |
| 5 | Rex A Hamilton - Fee | 2.05 AC | | | | | | | | | 12.95 AC | | | | | | | | | | |
| 6 | Tower Partners CIC - Fee | .07 AC | | | | | | | | | | | | | | | | | | | |
| 7 | Francis J. Pruss Education Trust - Fee | .8 AC | | | | | | | | | | | | | | | | | | | |
| 8 | Jane Ellen Fink Trust - Fee | .05 AC | | | | | | | | | | | | | | | | | | | |
| 9 | HJD Investments LLC - Fee | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 9 Parcels | "TOTALS | 15.37 AC | 0 AC | | 0 AC | 0 AC | | 0 AC | 0 AC | | 12.95 AC | 0.24 AC | | 0 AC | 0 AC | 0 AC | | | | | |
| | | 0 SF | | 0 SF | 0 SF | | 0 SF | 0 SF | | 0 SF | 0 SF | | 0 SF | | | | | | | | |

| | | | |
|---|---|---|---|
| **To:** | **Nikki Cuva/Jeff Larson**<br>**Office of Right of Way Design** | **Review Date:** | June 21, 2019 |
| **District 6:** | **Jim Schnoebelen**<br>**Kenneth Yanna** | **Project Details:**<br>PIN:<br>Project #:<br>ROW #: | <br>**96-57-380-050-01**<br>**IM-380-6(200)25—13-57**<br>**IMN-380-6(222)25—0E-57** |
| **TAS:** | **Jan Laaser-Webb**<br>**Office of Traffic & Safety** | | |
| **From:** | **Leilah Armstrong**<br>**Office of Traffic & Safety** | **LINN COUNTY**<br>**Tower Terrace Road Interchange in Cedar Rapids/Hiawatha** | |
| **SUBJECT:** | **Access Review** | | |

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## PROJECT LOCATION AND DESCRIPTION:

This project is the proposed interchange of Tower Terrace Road on I-380 in Hiawatha. The access classification for I-380 will be maintained as a Priority 1 interstate facility. Note: The project limits are approximately from Miller Road to Center Point Road.

## ACCESS PRIORITY CLASSIFICATION:

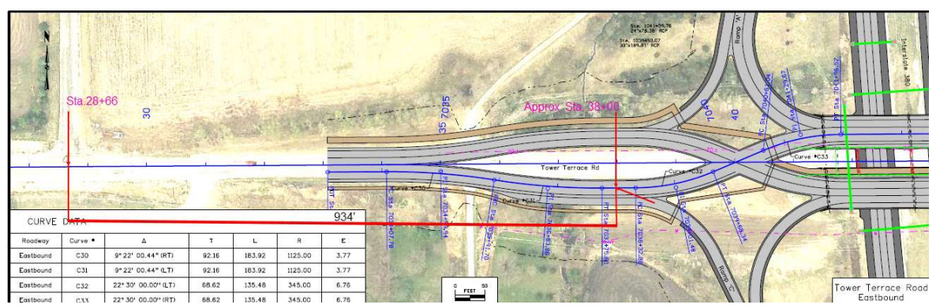
Priority 1 facilities provide for full access control with access allowed at interchanges.

### ACCESS CONTROL LIMITS:

In accordance with chapter 112.11(5): Access rights along intersecting roadways at interchanges, no access shall be allowed for a minimum distance of **600 feet** from point of ramp bifurcation. No access shall be allowed between stations **28+66 to 55+84** (between Loggerhead Road and the RIRO tower access).

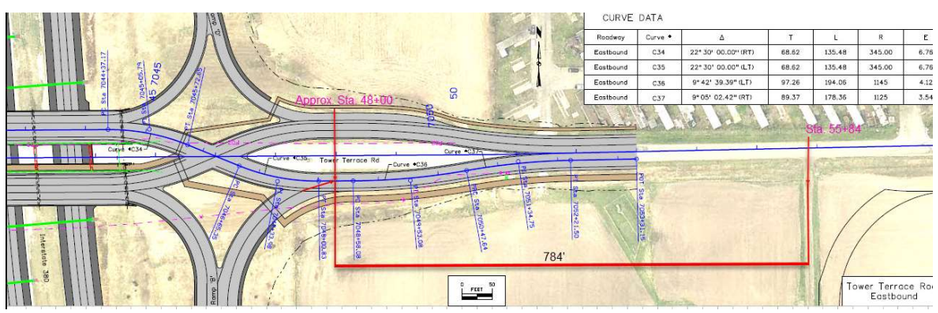
## ACCESS LOCATION DETAILS:

| Location | Access | Comments |
|---|---|---|
| | | |
| 33+07.78 | - | Begin Project Construction |
| 24+27 RT | **Miller Road** | Existing |
| 25+29 LT | Type C Entrance | Existing |
| 25+55 RT | Type C Entrance | Existing |
| 28+66 LT | **Loggerhead Road** | Existing; 3-Way |
| 28+66 RT | Type A Entrance | Existing |
| 35+50 LT | Type C Entrance | **Close** |
| 35+50 RT | Type C Entrance | **Close** |
| 50+13 LT | Type C Entrance | **Close** |
| 51+44 RT | Type C Entrance | **Close** |
| 51+52 LT | Type B Entrance | **Close** |
| 55+84 RT | Type C Entrance | Existing; RIRO, Tower Access |
| 57+58 LT | **Morningdove Lane** | Existing; RIRO |
| 59+75 LT | Type C Entrance | Existing; RIRO |
| 61+62 LT | **Song Sparrow Lane** | Existing; RIRO |
| 63+83 | **Center Point Road** | Existing |
| 52+99.63 | - | End Project Construction |




CURVE DATA

| Roadway | Curve # | Δ | T | L | R | E |
|---|---|---|---|---|---|---|
| Eastbound | C30 | 9° 22' 00.44" (RT) | 92.16 | 183.92 | 1125.00 | 3.77 |
| Eastbound | C31 | 9° 22' 00.44" (LT) | 92.16 | 183.92 | 1125.00 | 3.77 |
| Eastbound | C32 | 22° 30' 00.00" (LT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Eastbound | C33 | 22° 30' 00.00" (RT) | 68.62 | 135.48 | 345.00 | 6.76 |




CURVE DATA

| Roadway | Curve # | Δ | T | L | R | E |
|---|---|---|---|---|---|---|
| Eastbound | C34 | 22° 30' 00.00" (RT) | 68.62 | 135.48 | 345.00 | 6.78 |
| Eastbound | C35 | 22° 30' 00.00" (LT) | 68.62 | 135.48 | 345.00 | 6.76 |
| Eastbound | C36 | 9° 42' 39.39" (LT) | 97.26 | 194.06 | 1145 | 4.12 |
| Eastbound | C37 | 9° 05' 02.42" (RT) | 89.37 | 178.36 | 1125 | 3.54 |

3

RRRP FARMS, LLC

3

RRRP FARMS, LLC

NW 1/4 NW 1/4 32-84-7

SE 1/4 SE 1/4 30-84-7

SW 1/4 SW 1/4 29-84-7

1010

1015

1020

1014+86.48
℄140'±EX.R/W

1019+80
℄175'

1009+66
℄134'±EX.R/W

1019+41
℄152'±EX.R/W

FO8

Tile

St.S.2

2

KETELSEN
REALTY, LLC

SW 1/4 SW 1/4 29-84-7

**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

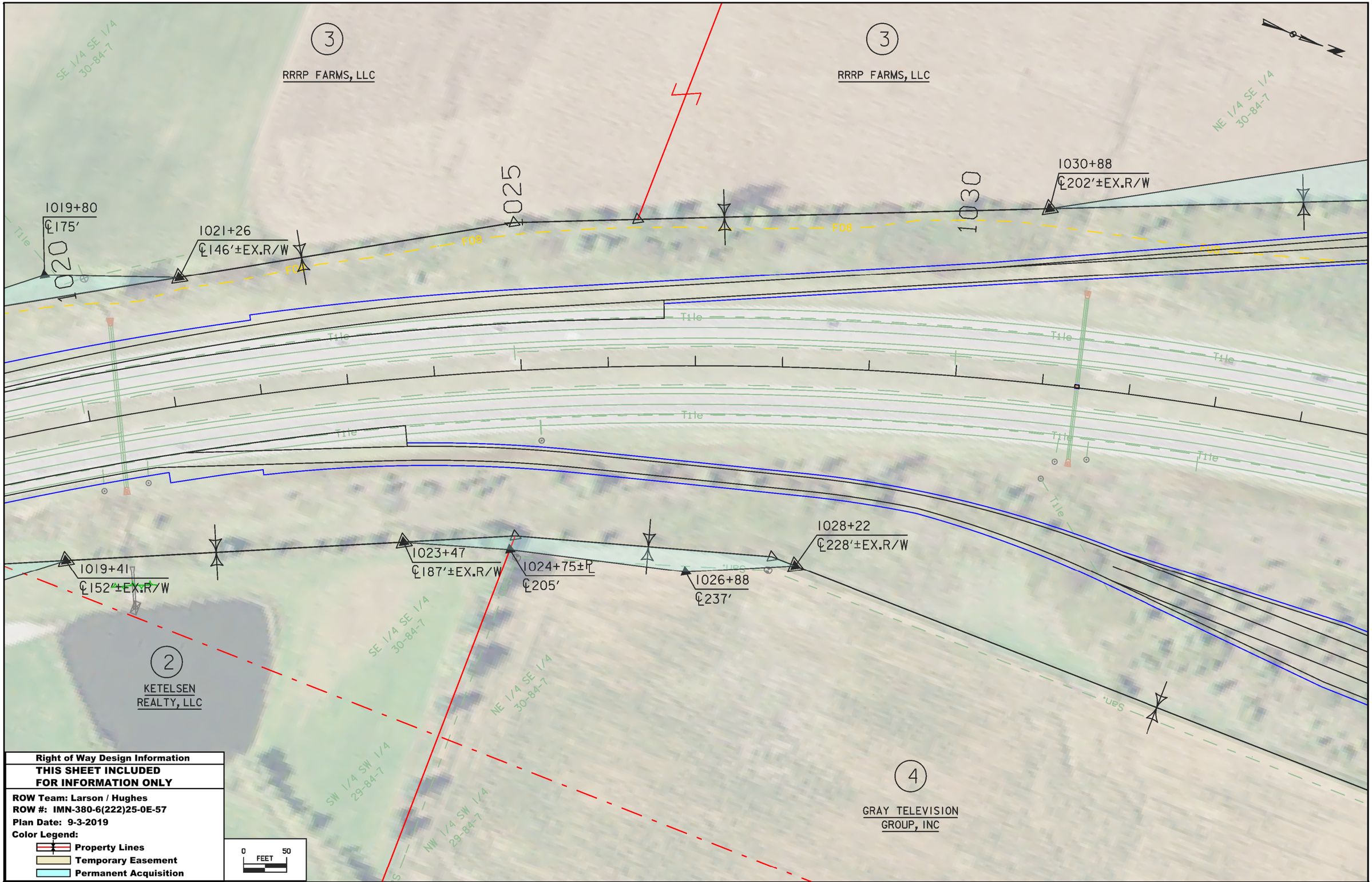
**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25-0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**

- Property Lines
- Temporary Easement
- Permanent Acquisition

0 FEET 50

| FILE NO. | ENGLISH | DESIGN TEAM | KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER | IM-380-6(200)25--13-57 | SHEET NUMBER | H.1 |
|---|---|---|---|---|---|---|---|---|

6:22:49 AM 9/4/2019 chughes pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\5738005096\ROW\IMN-380-6(222)25- -0E-57\5738005096.sht




**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25-0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

| FILE NO. | ENGLISH | DESIGN TEAM | KIRKHAM MICHAEL | LINN | COUNTY | PROJECT NUMBER | IMN-380-6(200)25--13-57 | SHEET NUMBER | H.2 |
|---|---|---|---|---|---|---|---|---|---|

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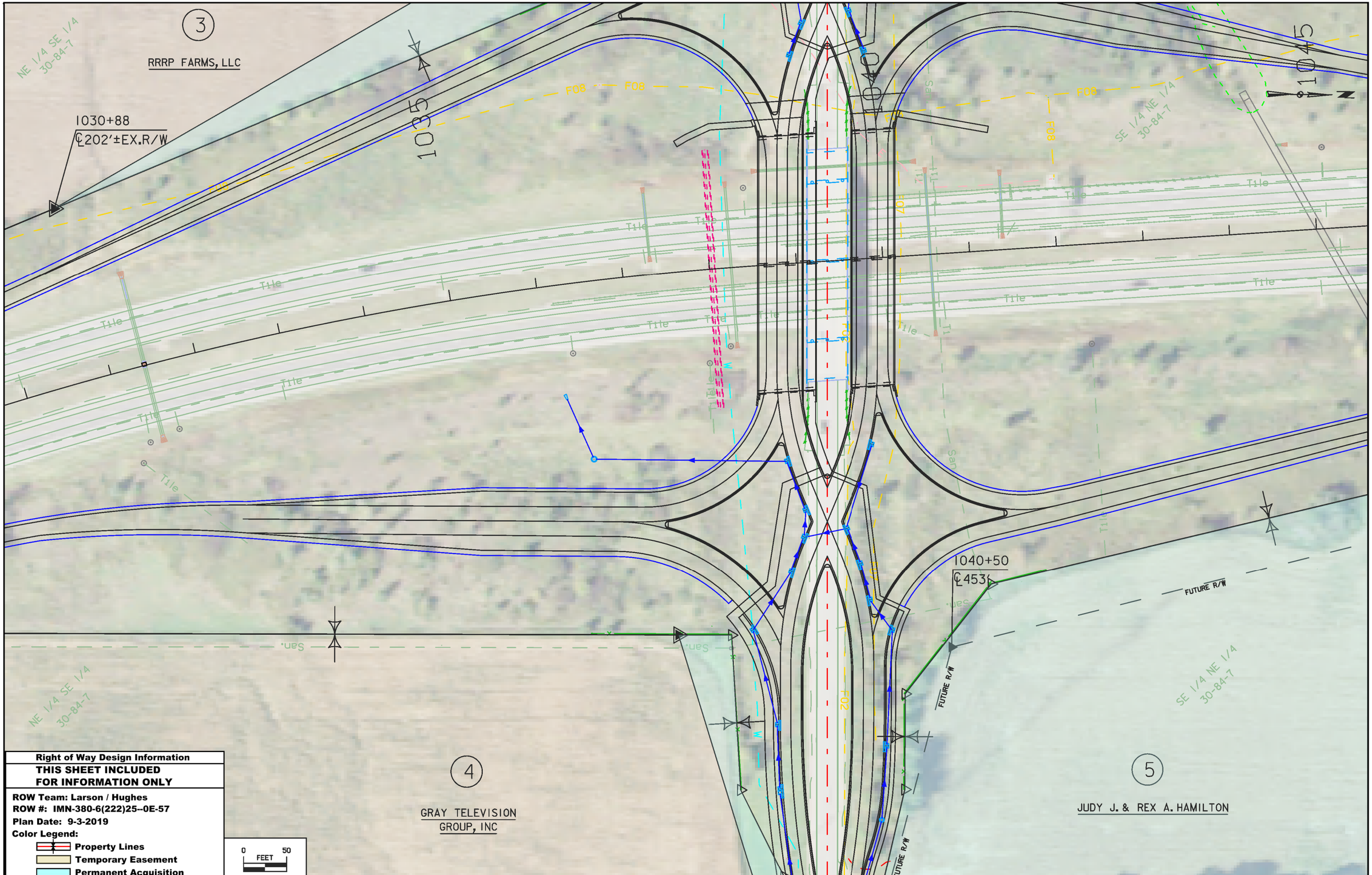


| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IMN-380-6(200)25--13-57 | SHEET NUMBER H.3 |
|---|---|---|---|---|---|

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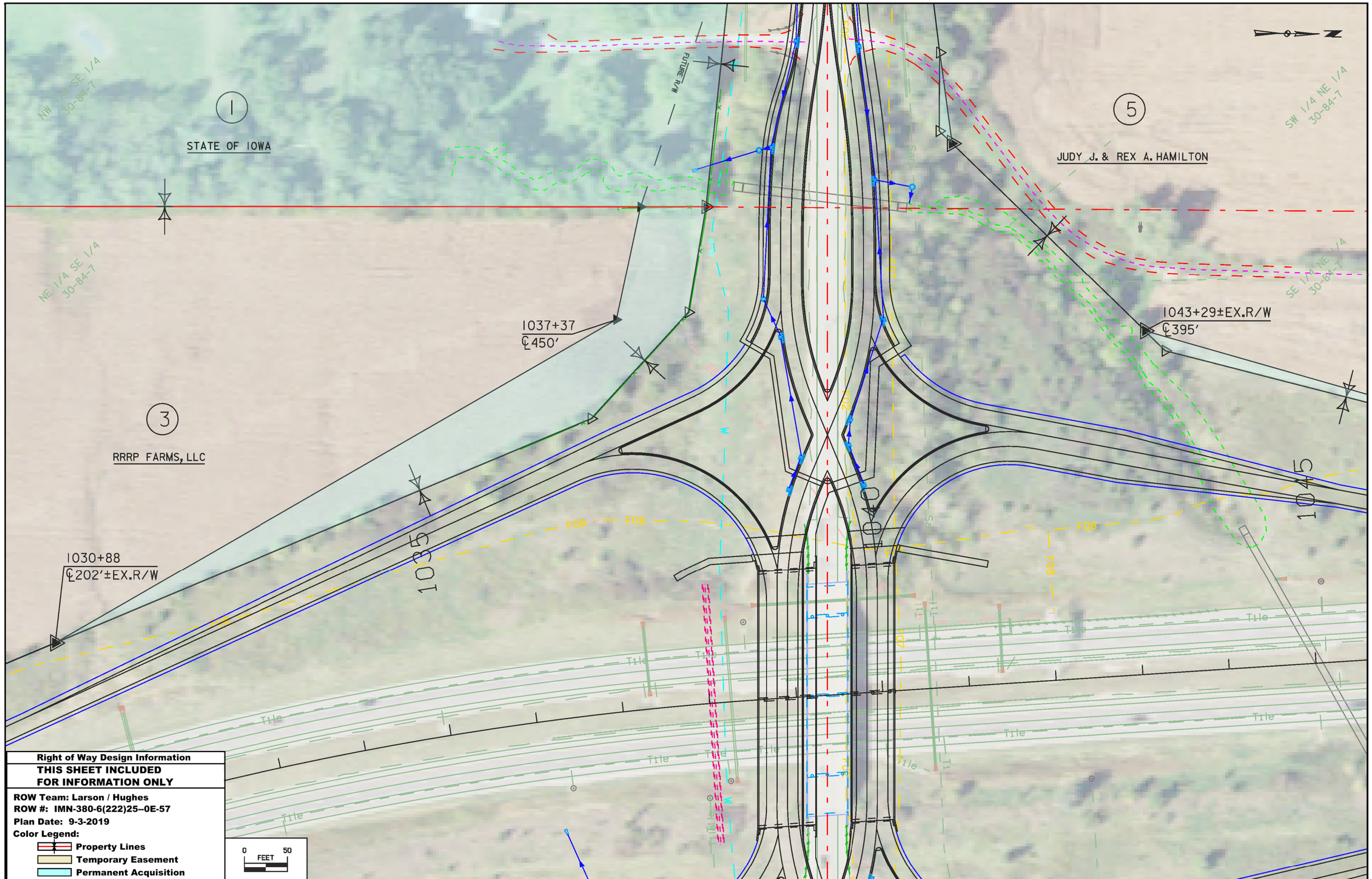


| FILE NO. | ENGLISH | DESIGN TEAM | KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER | IMN-380-6(200)25--13-57 | SHEET NUMBER | H.4 |
|---|---|---|---|---|---|---|---|---|

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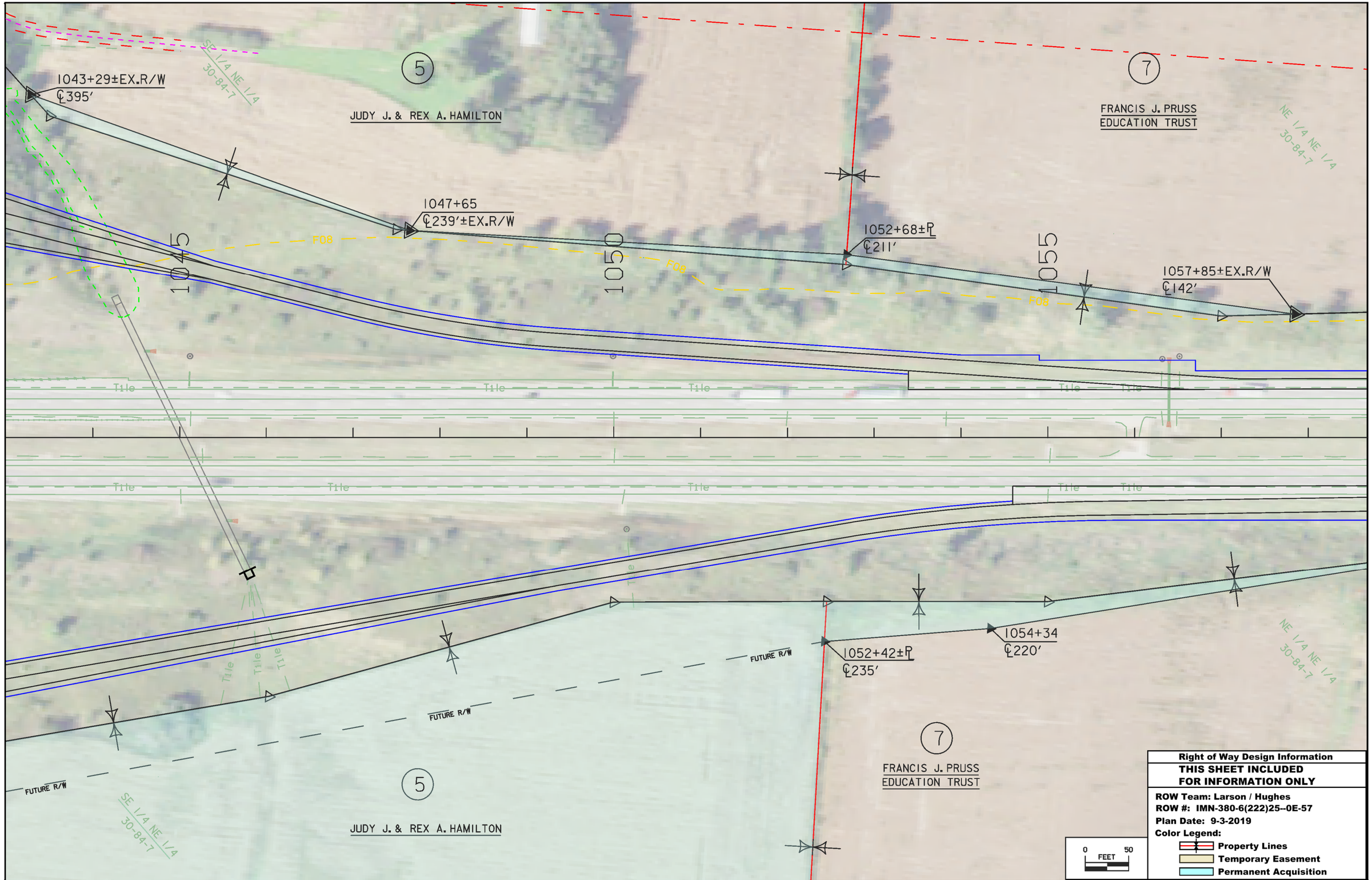


**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25--0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**

- Property Lines
- Temporary Easement
- Permanent Acquisition

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IMN-380-6(200)25--13-57 | SHEET NUMBER H.5 |
|---|---|---|---|---|---|

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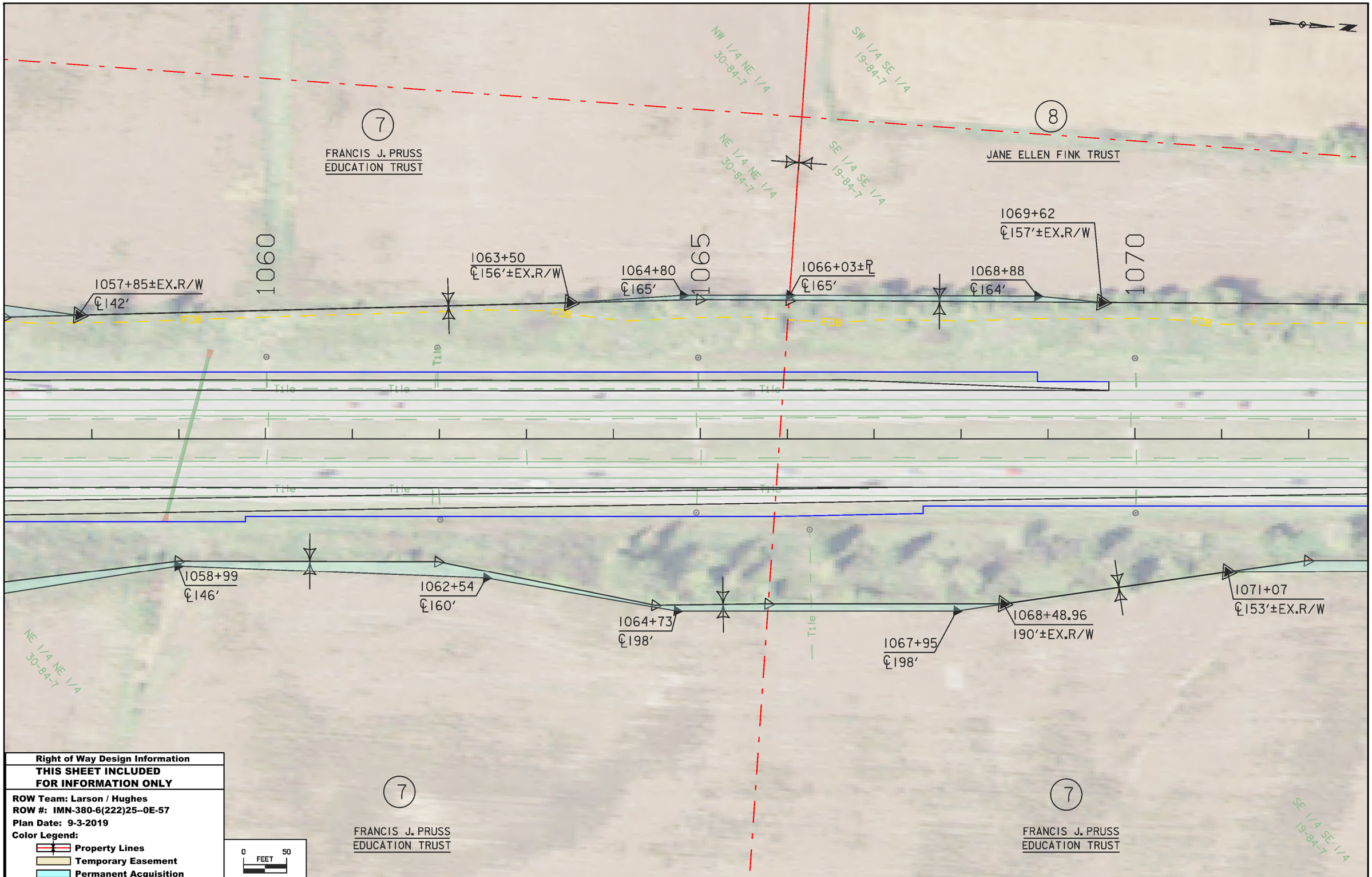


**Right of Way Design Information**

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**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25--0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

| FILE NO. | ENGLISH | DESIGN TEAM | KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER | IMN-380-6(200)25--13-57 | SHEET NUMBER | H.6 |
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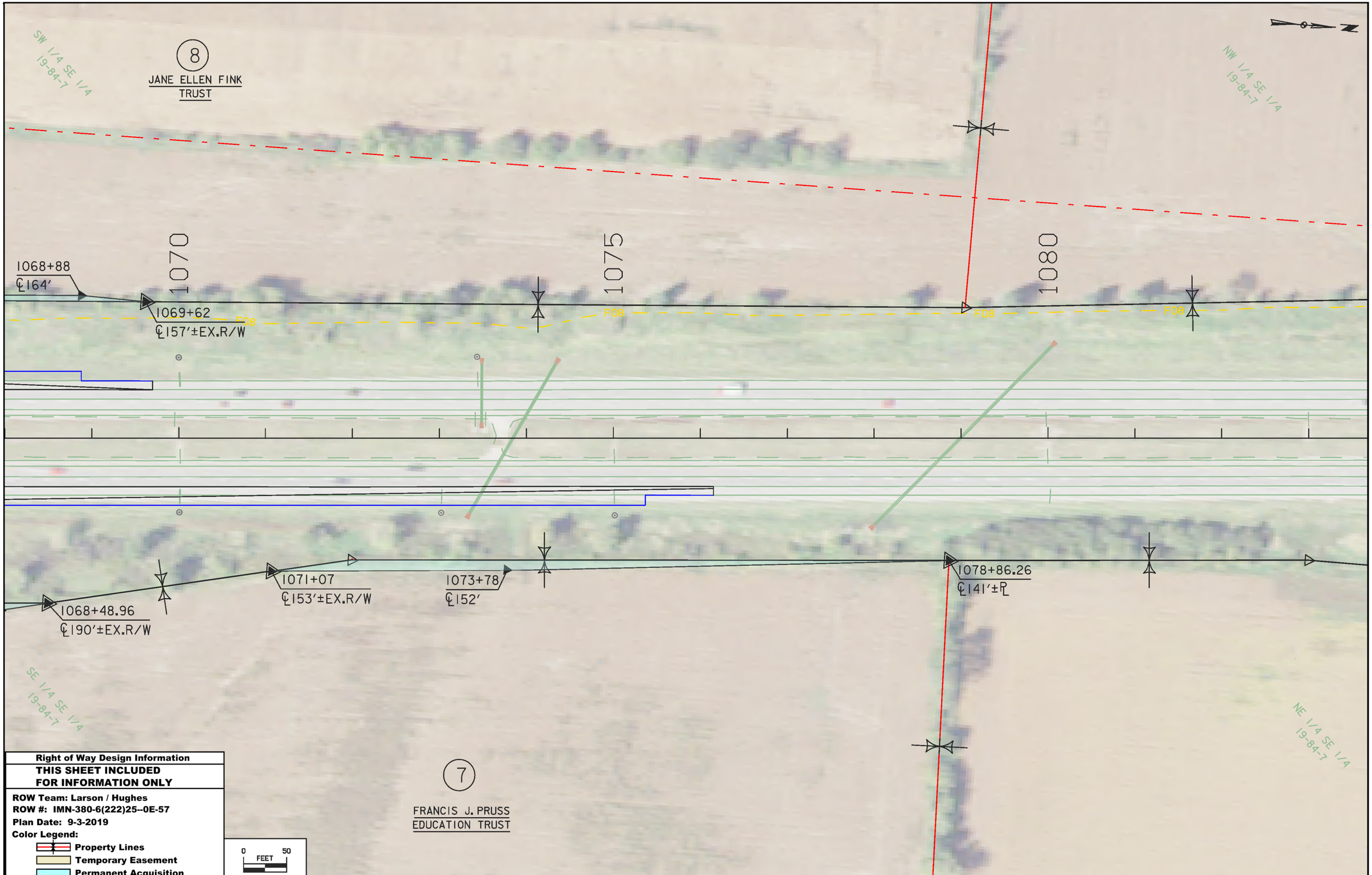


**Right of Way Design Information**

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**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25--0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

| FILE NO. | ENGLISH | DESIGN TEAM | KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER | IMN-380-6(200)25--13-57 | SHEET NUMBER | H.7 |
|---|---|---|---|---|---|---|---|---|

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5

JUDY J. & REX A. HAMILTON

SW 1/4 NE 1/4 30-84-7

NE 1/4 NE 1/4 30-84-7

N

25

25+29
U.A.C.
TYPE C

30

28+66
U.A.C.
TYPE C

35+60.93
℄130'±EX.R/W

36+65±EX.R/W
℄144'

35

35+50
CLOSE ENT

F07

F02

San.

25+55
U.A.C.
TYPE C

28+66
U.A.C.
TYPE C

ACQUIRE ACCESS CONTROL ON
S.R. FROM 28+66 TO 55+84

34+09.73
℄105'±P

35+50
CLOSE ENT

FUTURE R/W

37+38±P
℄215'

NW 1/4 SE 1/4 30-84-7

NE 1/4 SE 1/4 30-84-7

9

HJD INVESTMENTS, LLC

1

STATE OF IOWA

3

RRRP FARMS, LLC

**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25--0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**
- **Property Lines**
- **Temporary Easement**
- **Permanent Acquisition**

0 50
FEET

| FILE NO. | ENGLISH | DESIGN TEAM | KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER | IMN-380-6(200)25--13-57 | SHEET NUMBER | HE.1 |
|---|---|---|---|---|---|---|---|---|

4:03:18 PM 9/5/2019 chughes pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\5738005096\ROW\IMN-380-6(222)25- -0E-57\5738005096.sht

5
JUDY J. & REX A. HAMILTON

5
JUDY J. & REX A. HAMILTON

SW 1/4 NE 1/4 30-84-7

SE 1/4 NE 1/4 30-84-7

SW 1/4 NW 1/4 29-84-7

NW 1/4 SE 1/4 30-84-7

NE 1/4 SE 1/4 30-84-7

FUTURE R/W

36+65±EX.R/W
℄144'

37+38±P
℄215'

47+32±EX.R/W
℄171'

50+64±P
℄69'

50+65±P
℄66'

50+13
CLOSE ENT

51+52
CLOSE ENT

51+44
CLOSE ENT

45

1035

1
STATE OF IOWA

3
RRRP FARMS, LLC

4
GRAY TELEVISION GROUP, INC

0 FEET 50

**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25--0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**
- Property Lines
- Temporary Easement
- Permanent Acquisition

| FILE NO. | ENGLISH | DESIGN TEAM | KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER | IMN-380-6(200)25--13-57 | SHEET NUMBER | HE.2 |
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5

JUDY J. & REX A. HAMILTON

6

TOWER CIC
PARTNERS, LLC

SE 1/4 NE 1/4
30-84-7

SW 1/4 NW 1/4
29-84-7

50+13
CLOSE ENT

51+52
CLOSE ENT

FUTURE R/W

50+66±R
℄60'

53+10
℄50'

53+30
℄33'±EX.R/W

57+58
RIRO

59+75
RIRO
TYPE C

6

TOWER CIC
PARTNERS, LLC

61+52
RIRO

50+64±R
℄69'

53+11
℄69'

53+45
℄33'±EX.R/W

51+44
CLOSE ENT

55+84
RIRO
TYPE C

ACQUIRE ACCESS CONTROL ON
S.R. FROM 28+66 TO 55+84

4

GRAY TELEVISION
GROUP, INC

NE 1/4 SE 1/4
30-84-7

NW 1/4 SW 1/4
29-84-7

N

0 FEET 50

**Right of Way Design Information**

**THIS SHEET INCLUDED FOR INFORMATION ONLY**

**ROW Team: Larson / Hughes**
**ROW #: IMN-380-6(222)25--0E-57**
**Plan Date: 9-3-2019**
**Color Legend:**

- Property Lines
- Temporary Easement
- Permanent Acquisition

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IMN-380-6(200)25--13-57 | SHEET NUMBER HE.3 |
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108-23A
08-01-08

## TRAFFIC CONTROL PLAN

Tower Terrace Road will be closed to traffic during construction. See detour route in J Sheets.

I-380
Maintain two lanes of traffic, both northbound and southbound at all times during all stages of construction except as follows:

(1) Temporary Lane Closure:
A temporary lane closure will be allowed during specified times to place TBR and perform shoulder strengthening.

(2) Temporary Road Closure:
A temporary closure will be required for setting bridge beams or other overhead work. Closure must take place during specified times. See detour route in J Sheets.

108-26A
08-01-08

## STAGING NOTES

Stage 1 Traffic
Lane closure of northbound and southbound inside lanes, per Standard Road Plan TC-418.

Stage 1 Construction
Shoulder strengthening of median shoulders.

Stage 2A Traffic
Shift northbound and southbound lanes according to the staging plan for Stages 2A and 2B.

Stage 2A Construction
Remove existing shoulders.

Stage 2B Traffic
Shift northbound and southbound lanes according to the staging plan for Stages 2A and 2B.

Stage 2B Construction
Construct pavement widening of I-380.

Stage 3 Traffic
Lane closure of northbound and southbound outside lanes, per Standard Road Plan TC-418.

Stage 3 Construction
Shoulder strengthening of outside shoulders.

Stage 4 Traffic
Shift northbound and southbound lanes according to the staging plan for Stage 4.

Stage 4 Construction
Perform bridge demoltion/construction within the median.

## CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

| SHADING | Design Color No. | |
|---|---|---|
| Green, Light | (225) | Existing Pavement Shading |
| Gray, Light | (48) | Previously Constructed Pavement Shading |
| Gray, Med | (80) | Previously Constructed Granular Surface Shading |
| Blue, Light | (230) | Proposed Pavement Shading |
| Lavender | (9) | Temporary Pavement Shading |
| Brown, Med | (237) | Future Proposed Pavement Shading |

## CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

| | |
|---|---|
| Pavement Removal | Proposed Granular Shoulder |
| Proposed Granular Subbase | Temporary Shoulder |
| Proposed Special Backfill | Existing Shoulder Strengthening |
| Temporary Barrier Rail | Permanent Barrier Rail |
| | Channelizing Device |

## PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

| LINEWORK | Design Color No. | |
|---|---|---|
| Green | (2) | Existing Topographic Features and Labels |
| Magenta | (5) | Pavement Marking Call Outs |
| Blue | (1) | Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation |
| Yellow | (4) | Pavement Markings, Yellow |
| Off White | (254) | Pavement Markings, White |
| Violet | (15) | Temporary barrier rail, Unpinned |
| Flush Orange | (228) | Temporary barrier rail, Pinned |

| SHADING | Design Color No. | |
|---|---|---|
| Green, Light | (225) | Existing Pavement Shading |
| Gray, Light | (48) | Previously Constructed Pavement Shading |
| Gray, Med | (80) | Proposed Granular Surface Shading |
| Gray, Med | (80) | Previously Constructed Granular Surface Shading |
| Blue, Light | (230) | Proposed Pavement Shading |
| Lavender | (9) | Temporary Pavement Shading |
| Brown, Light | (236) | Proposed Grading Limits Shading |
| Pink, Dark | (13) | Proposed MSE or CIP Wall Shading |
| Red | (3) | Proposed Bridge Shading and Sign Trusses |
| Black w/Gray, Light Fill | (0,48) | Previously Constructed Structure |

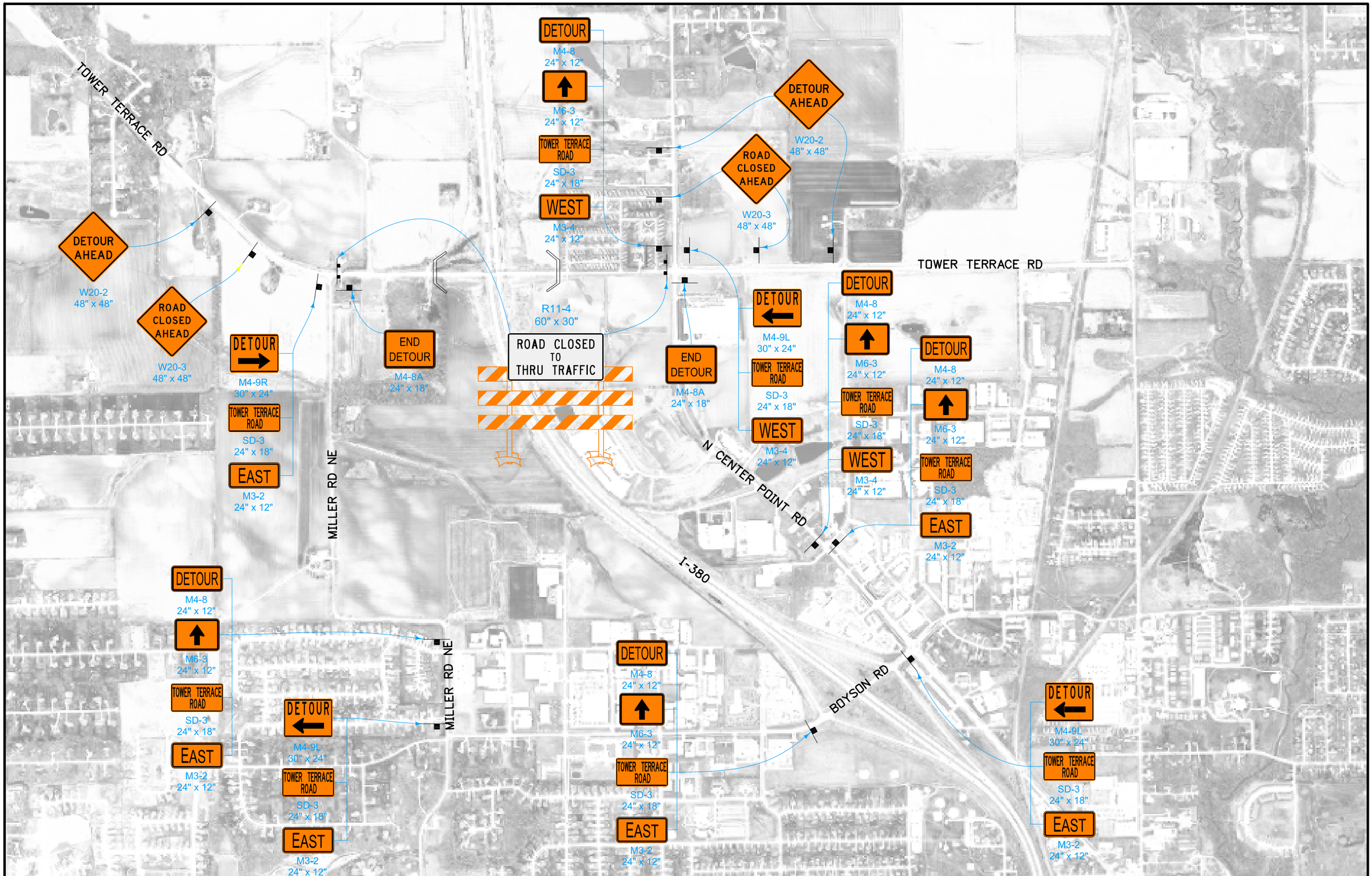
## PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

| | |
|---|---|
| Channelizing Device | Crash Cushion (Temp or Perm) |
| Drum | Traffic Signal |
| Temporary Lane Separator | Flagger |
| Tubular Marker | Temporary Floodlighting |
| Channelizer Marker | Traffic Sign |
| Concrete Barrier Marker | Type III Barricade |
| Delineator | Type A Warning Light |
| Temporary Barrier Rail | Direction of Traffic |
| Pavement Removal | Safety Closure |
| Sand Barrel Layout | Lane Identification |

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

# TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

**(COVERS SHEET SERIES J)**

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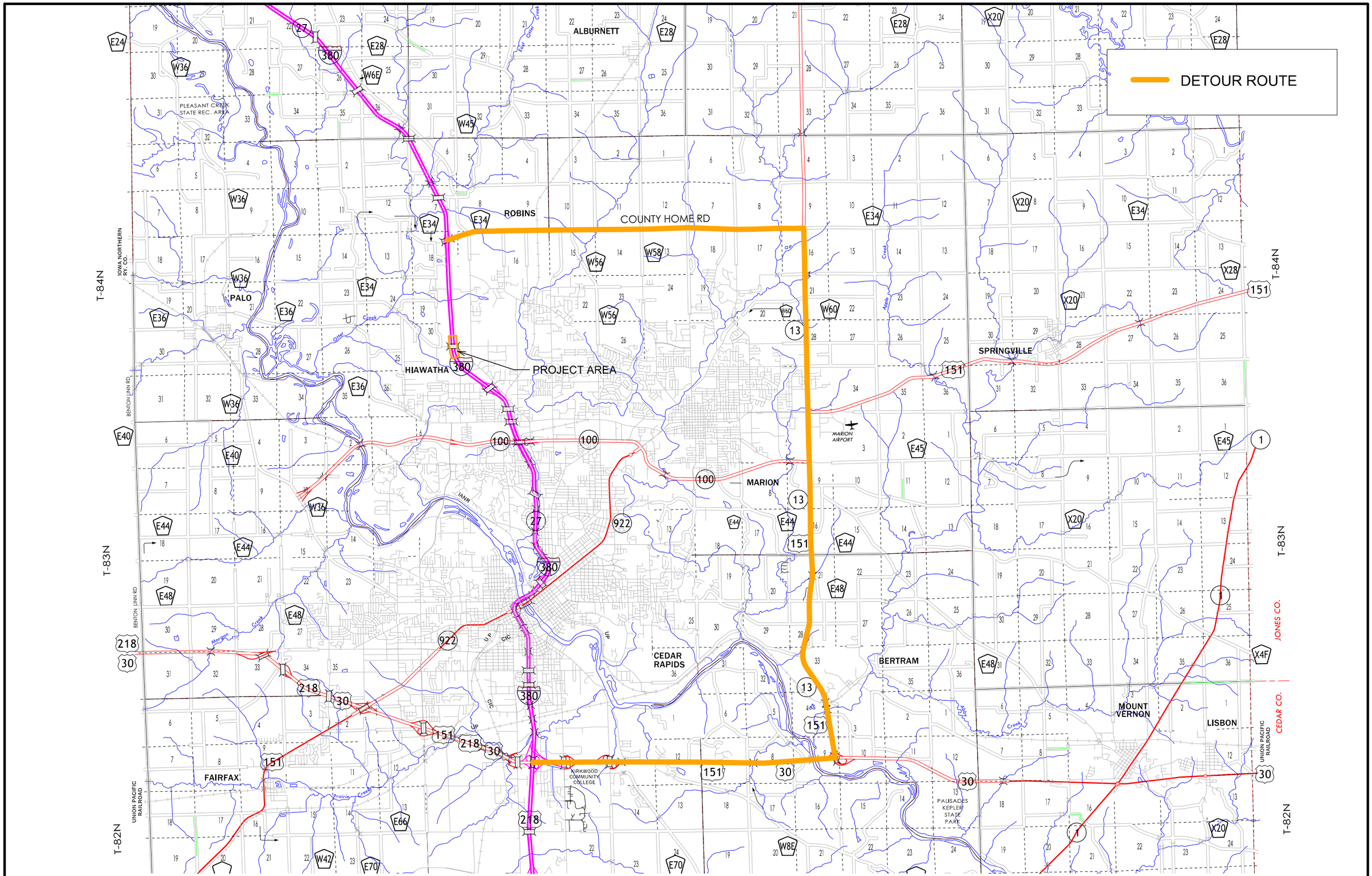


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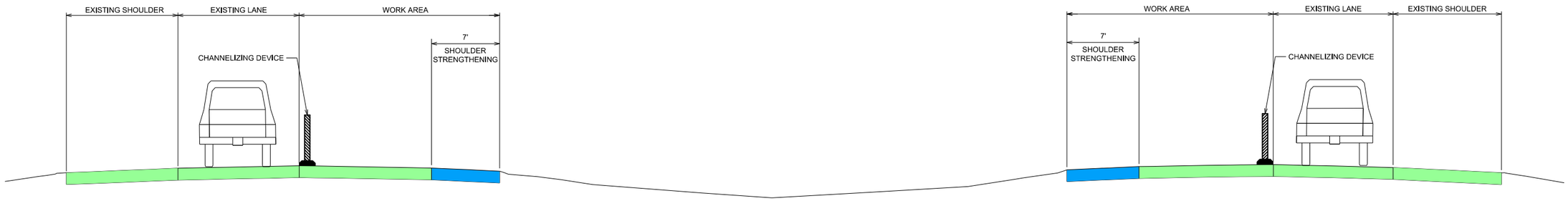
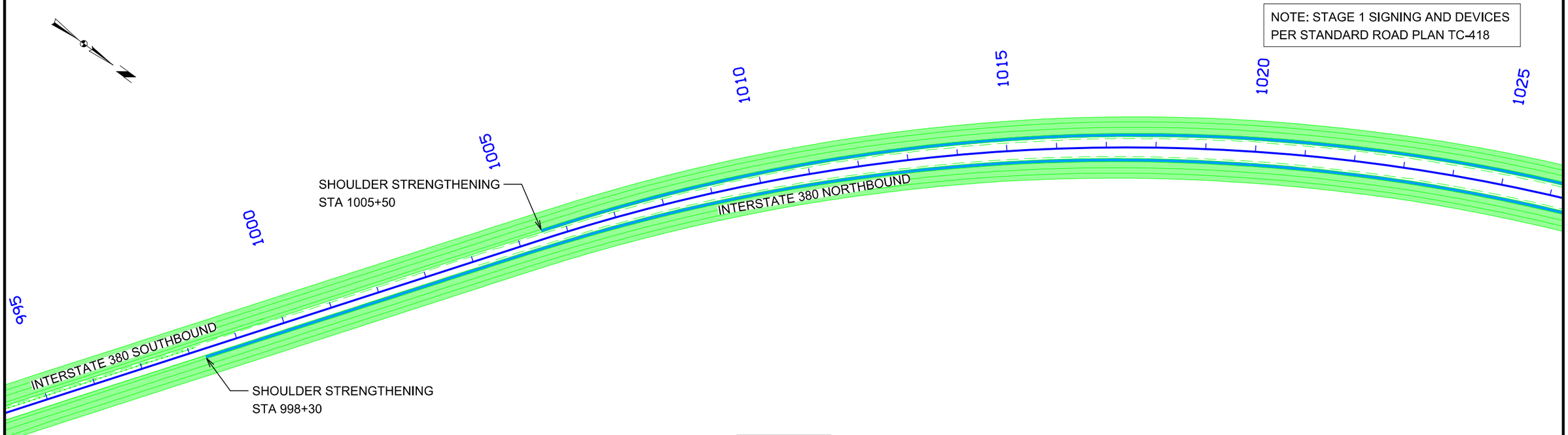



INTERSTATE 380 - STAGE 1

NOTE: STAGE 1 SIGNING AND DEVICES PER STANDARD ROAD PLAN TC-418




**TRAFFIC CONTROL - STAGE 1**

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER J.5 |
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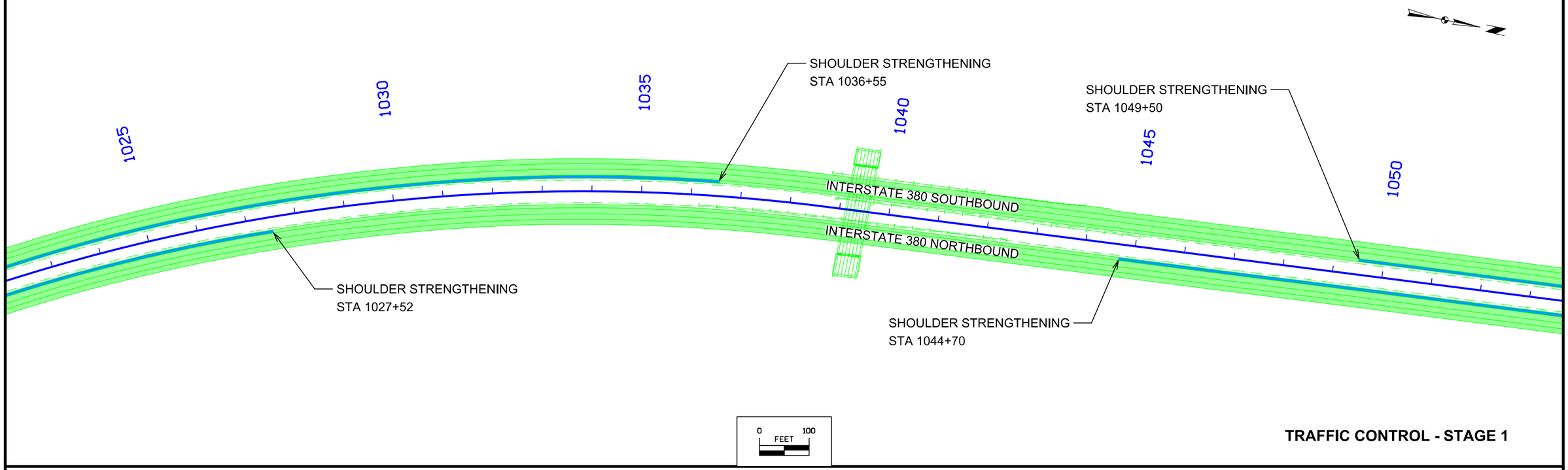
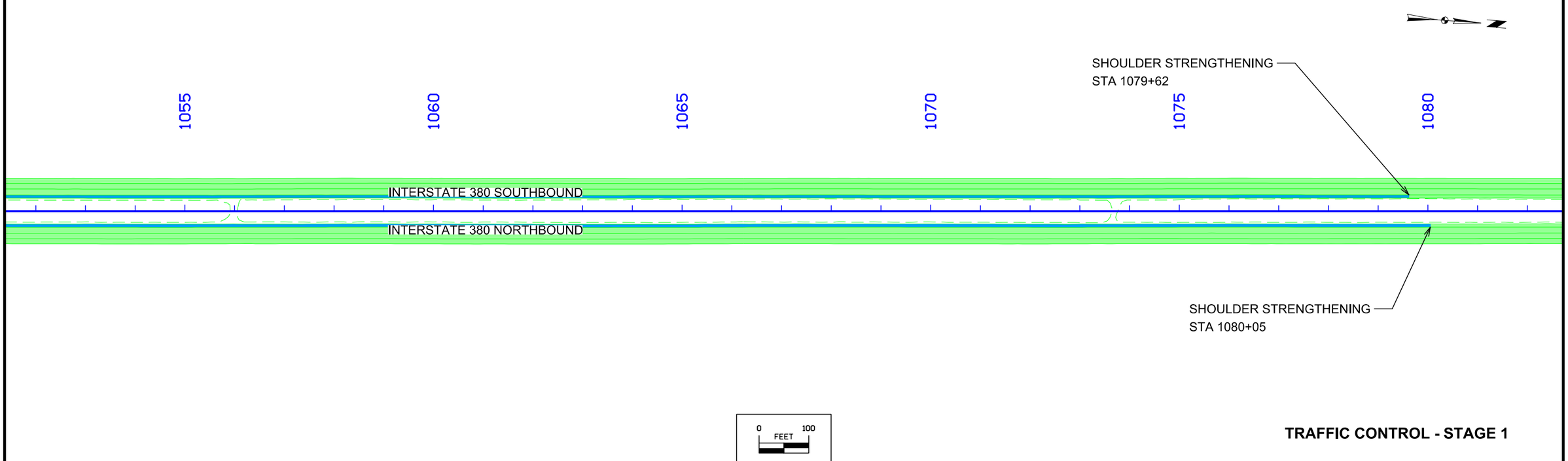



**TRAFFIC CONTROL - STAGE 1**




**TRAFFIC CONTROL - STAGE 1**

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER J.6 |
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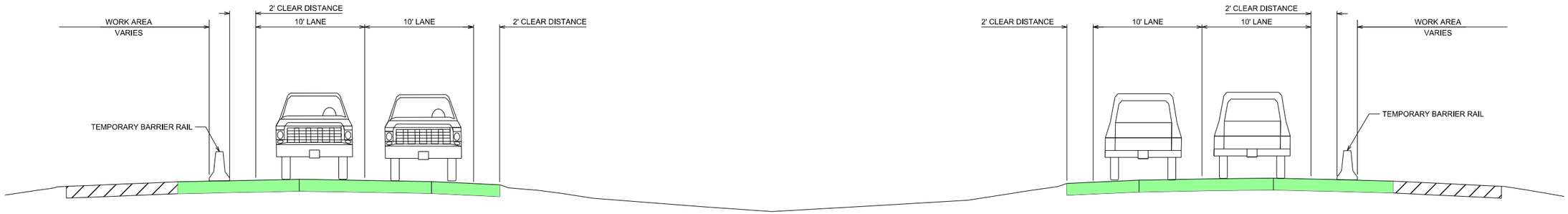
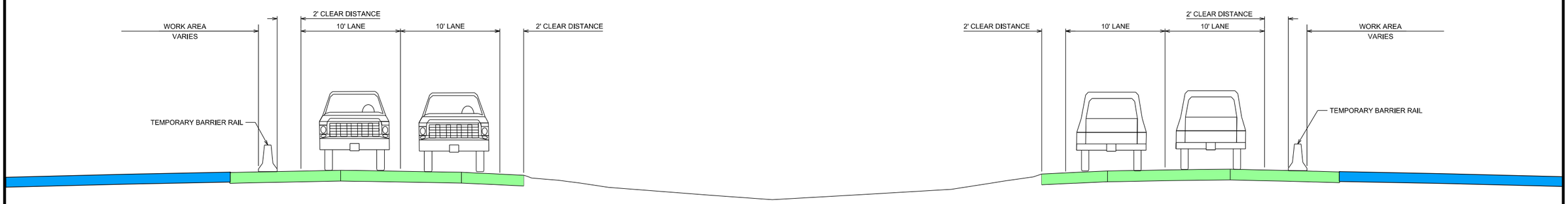



INTERSTATE 380 - STAGE 2A




INTERSTATE 380 - STAGE 2B

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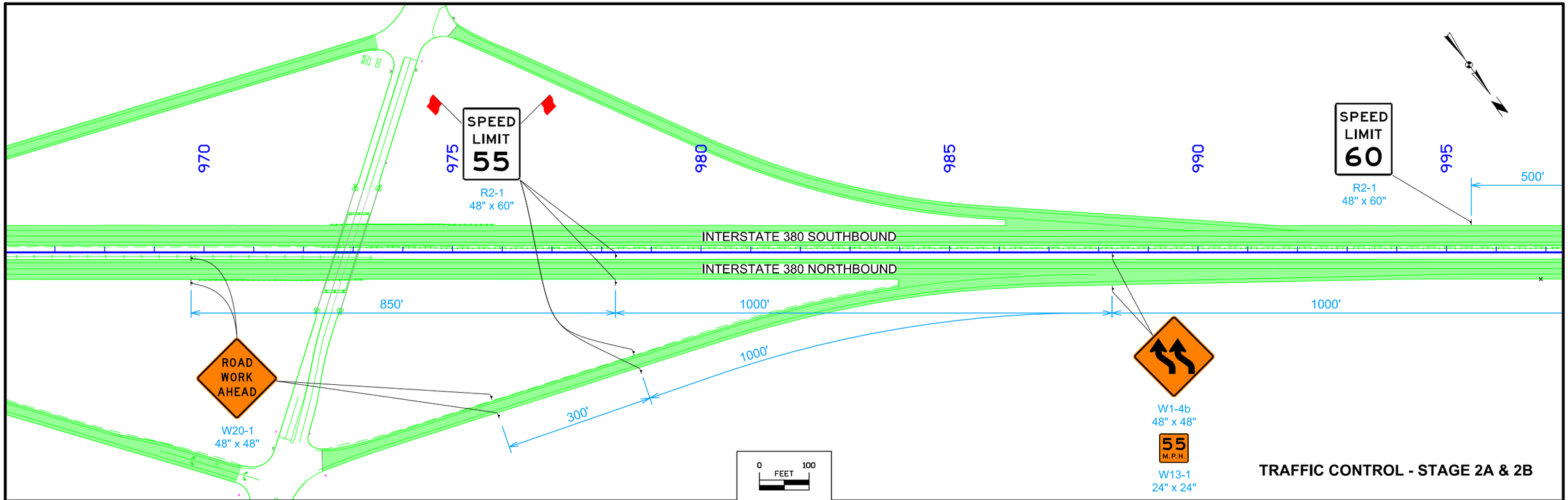
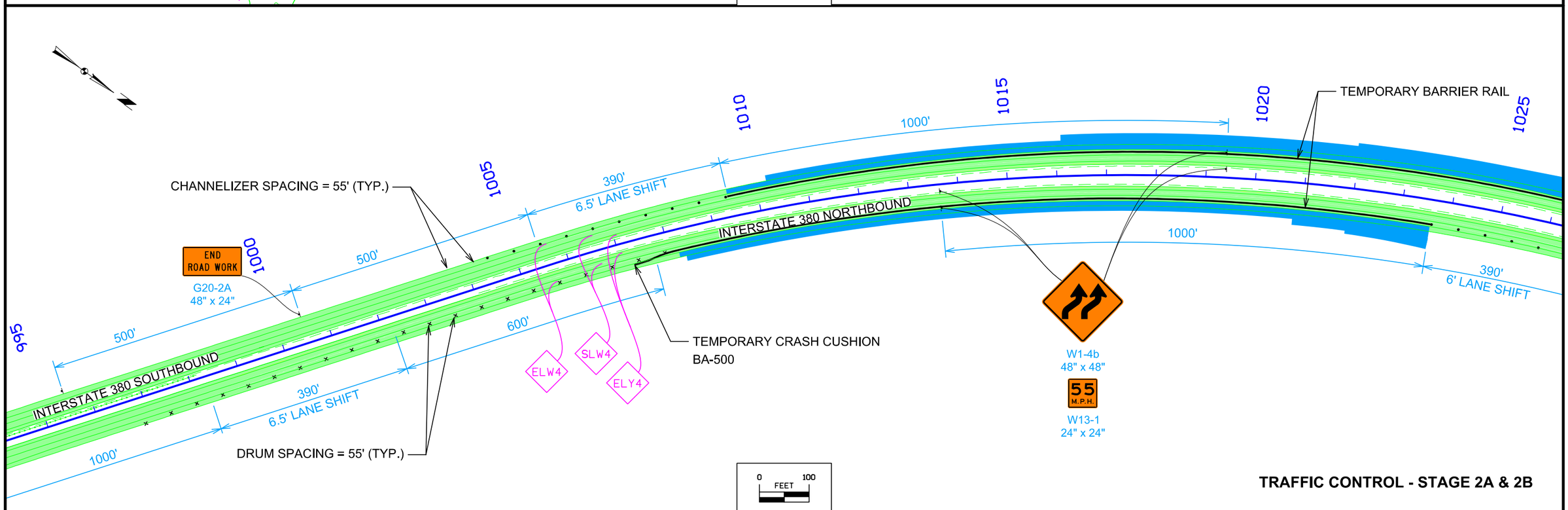



TRAFFIC CONTROL - STAGE 2A & 2B




TRAFFIC CONTROL - STAGE 2A & 2B

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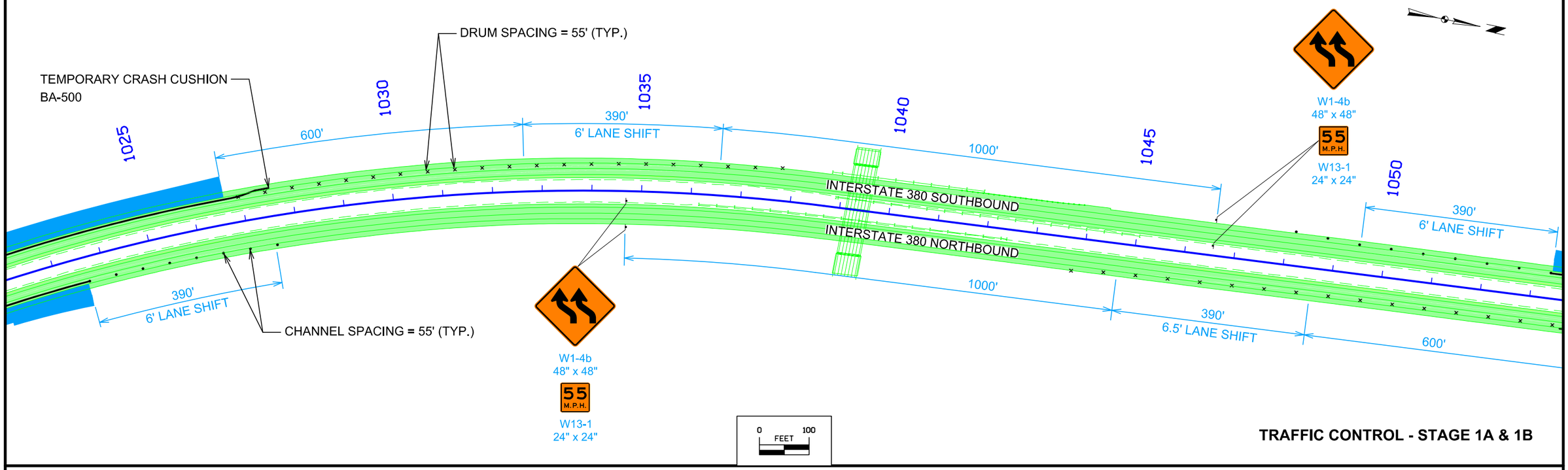
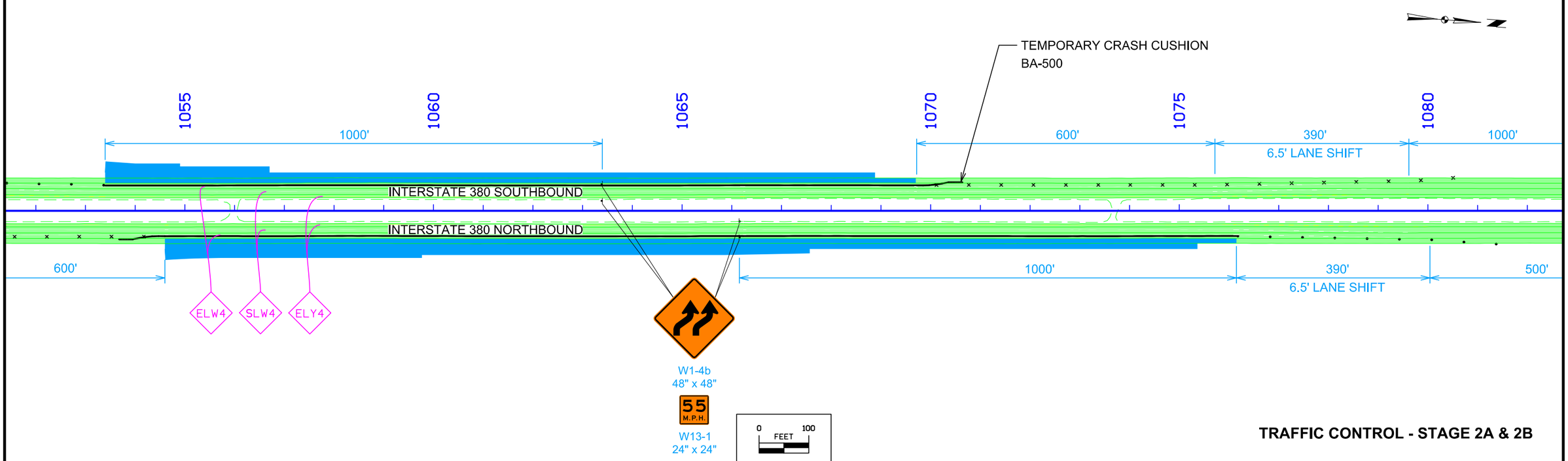



TRAFFIC CONTROL - STAGE 1A & 1B




TRAFFIC CONTROL - STAGE 2A & 2B

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER J.9 |
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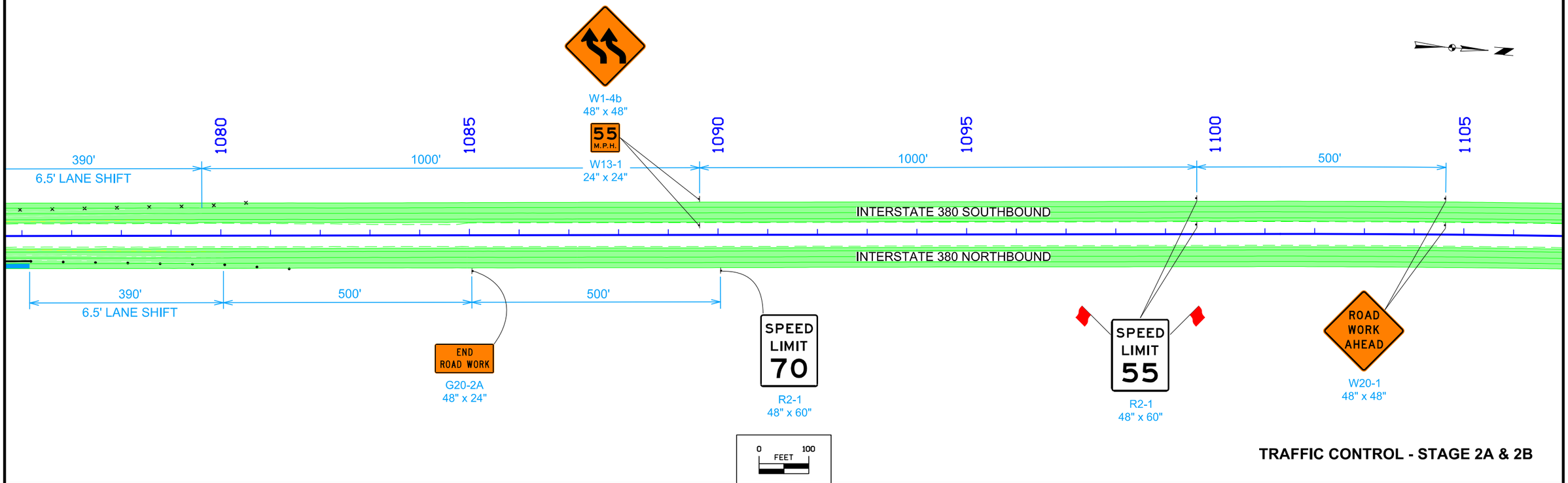


TRAFFIC CONTROL - STAGE 2A & 2B

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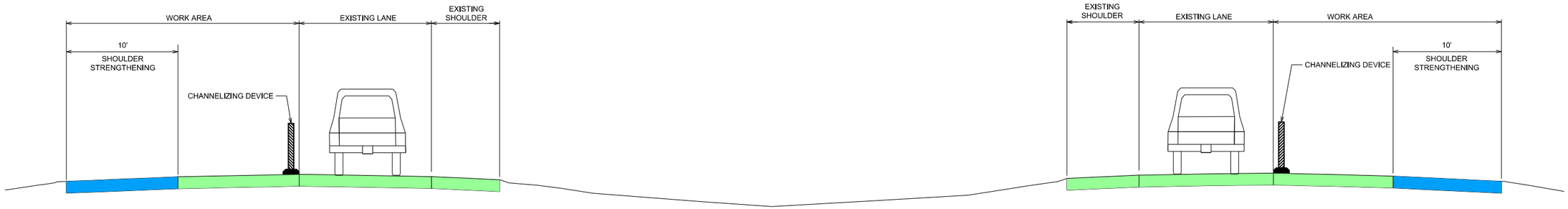
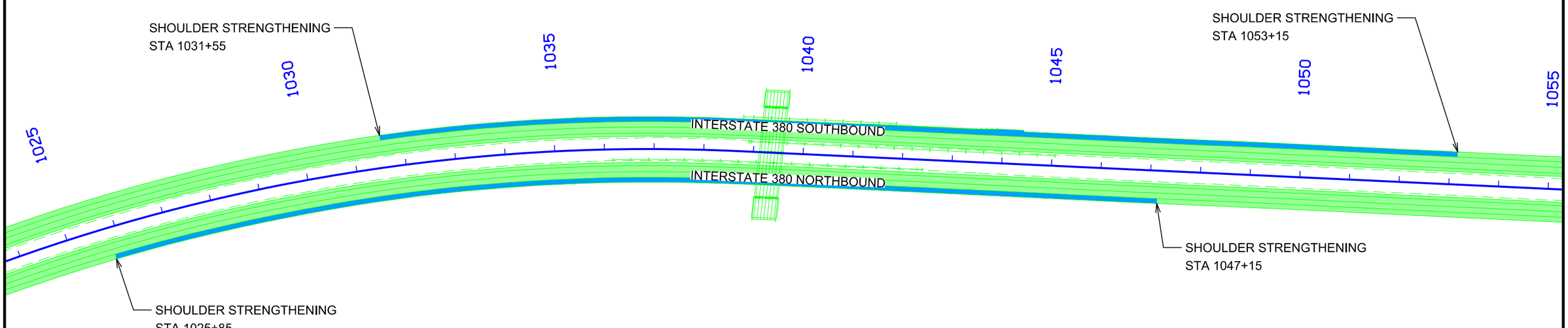



INTERSTATE 380 - STAGE 3

NOTE: STAGE 1 SIGNING AND DEVICES PER STANDARD ROAD PLAN TC-418




**TRAFFIC CONTROL - STAGE 3**

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER J.11 |
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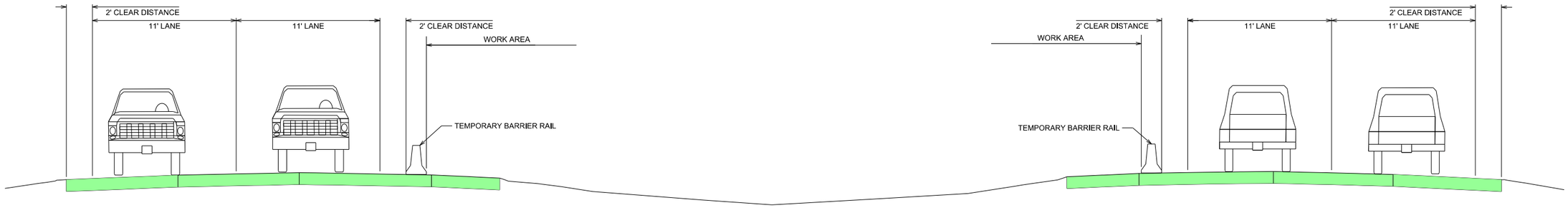
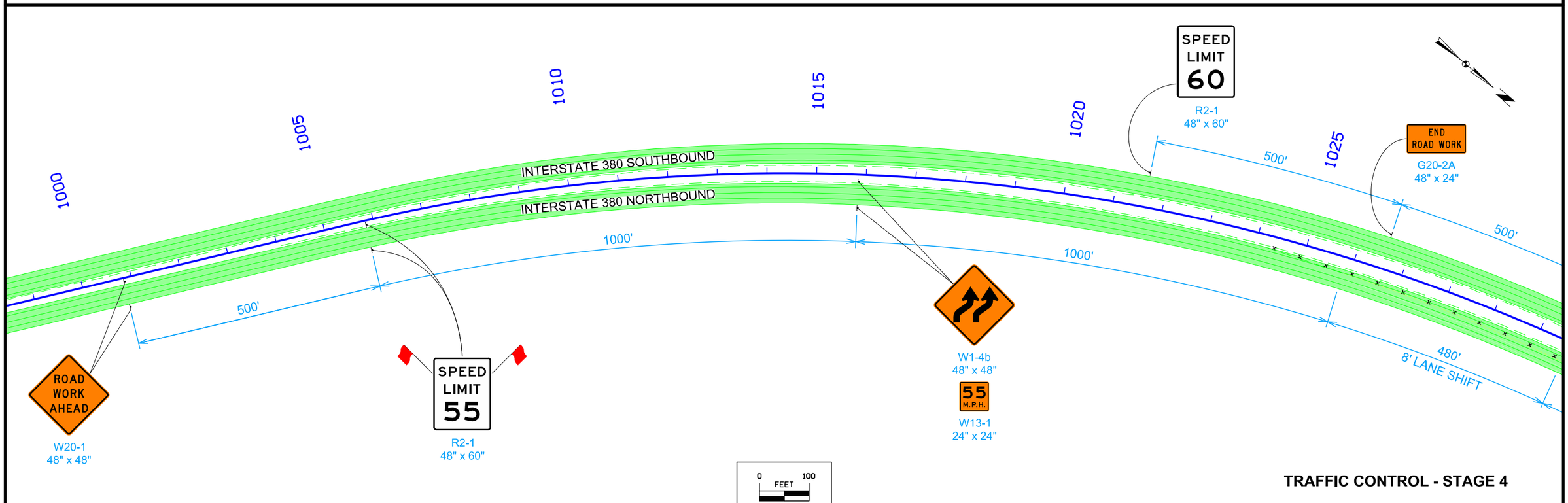



INTERSTATE 380 - STAGE 4




TRAFFIC CONTROL - STAGE 4

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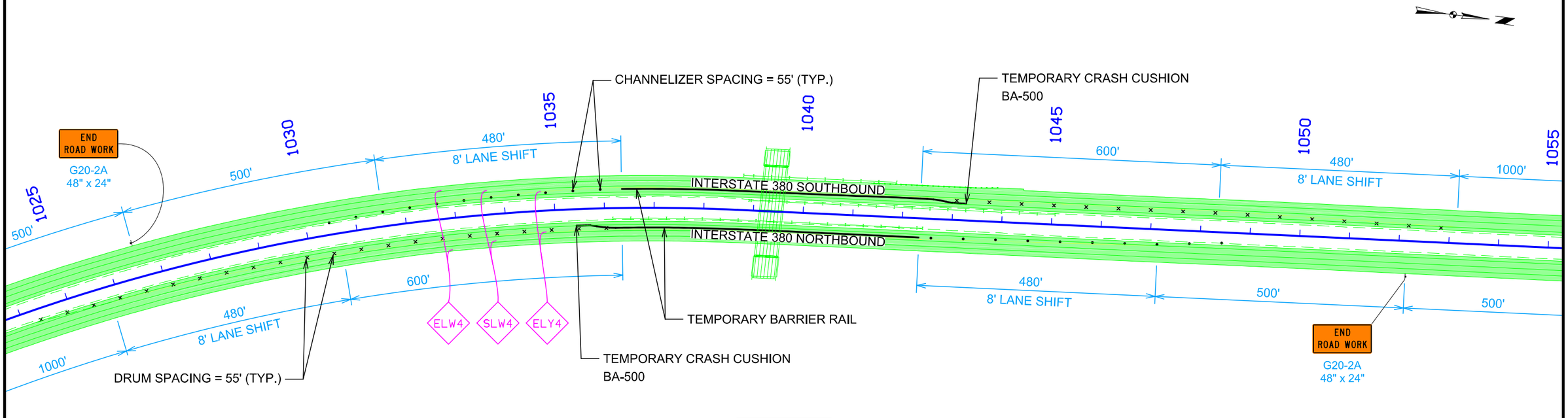
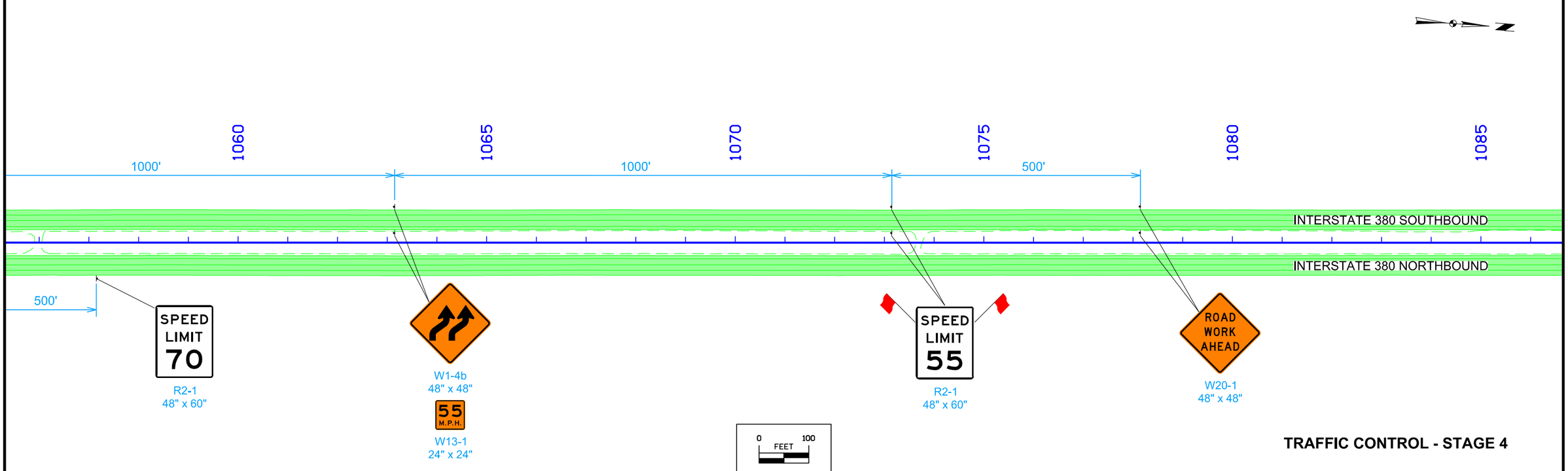



TRAFFIC CONTROL - STAGE 4




TRAFFIC CONTROL - STAGE 4

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER J.13 |
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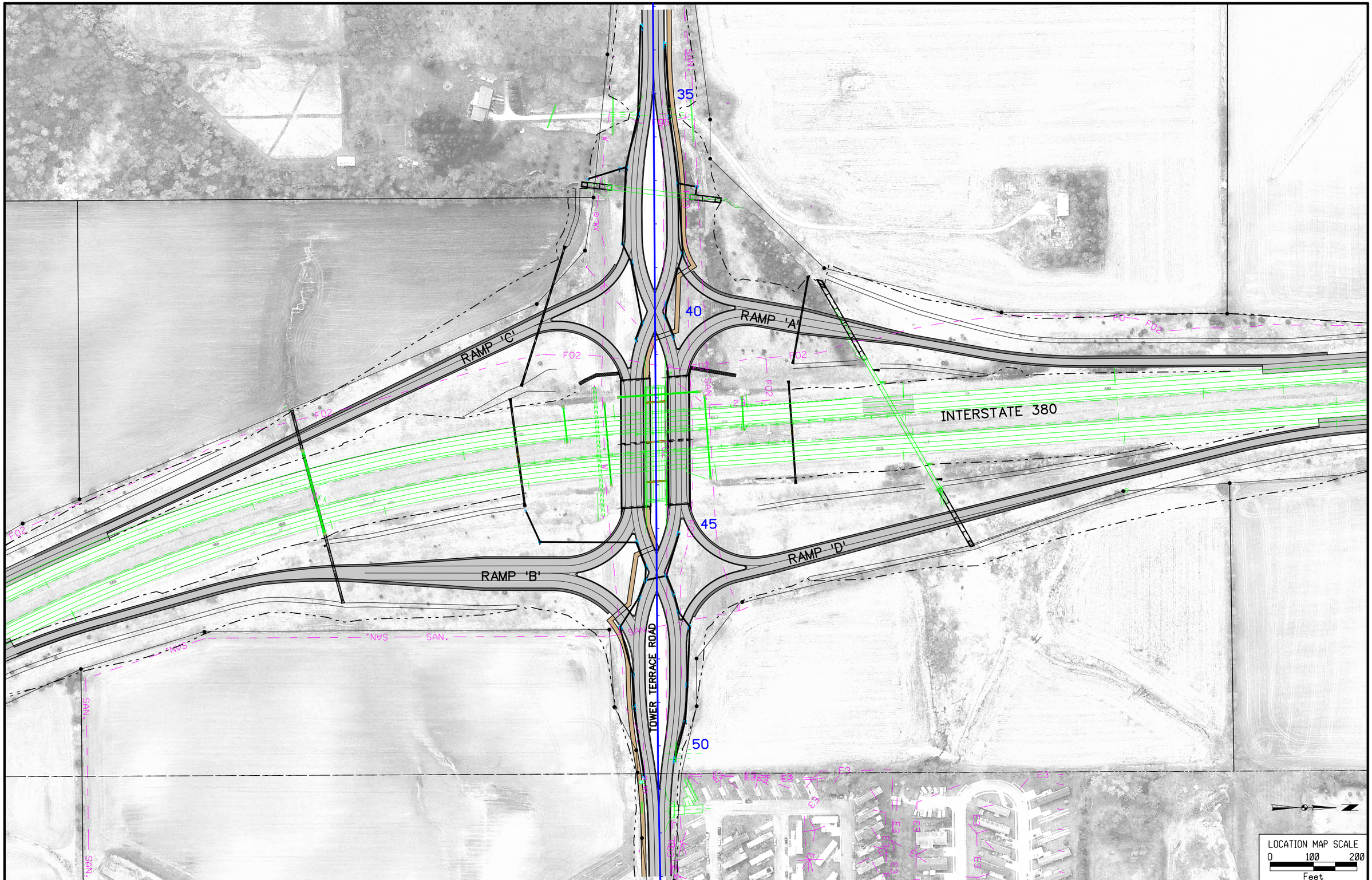


| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(224)25--13-57 | SHEET NUMBER K.1 |
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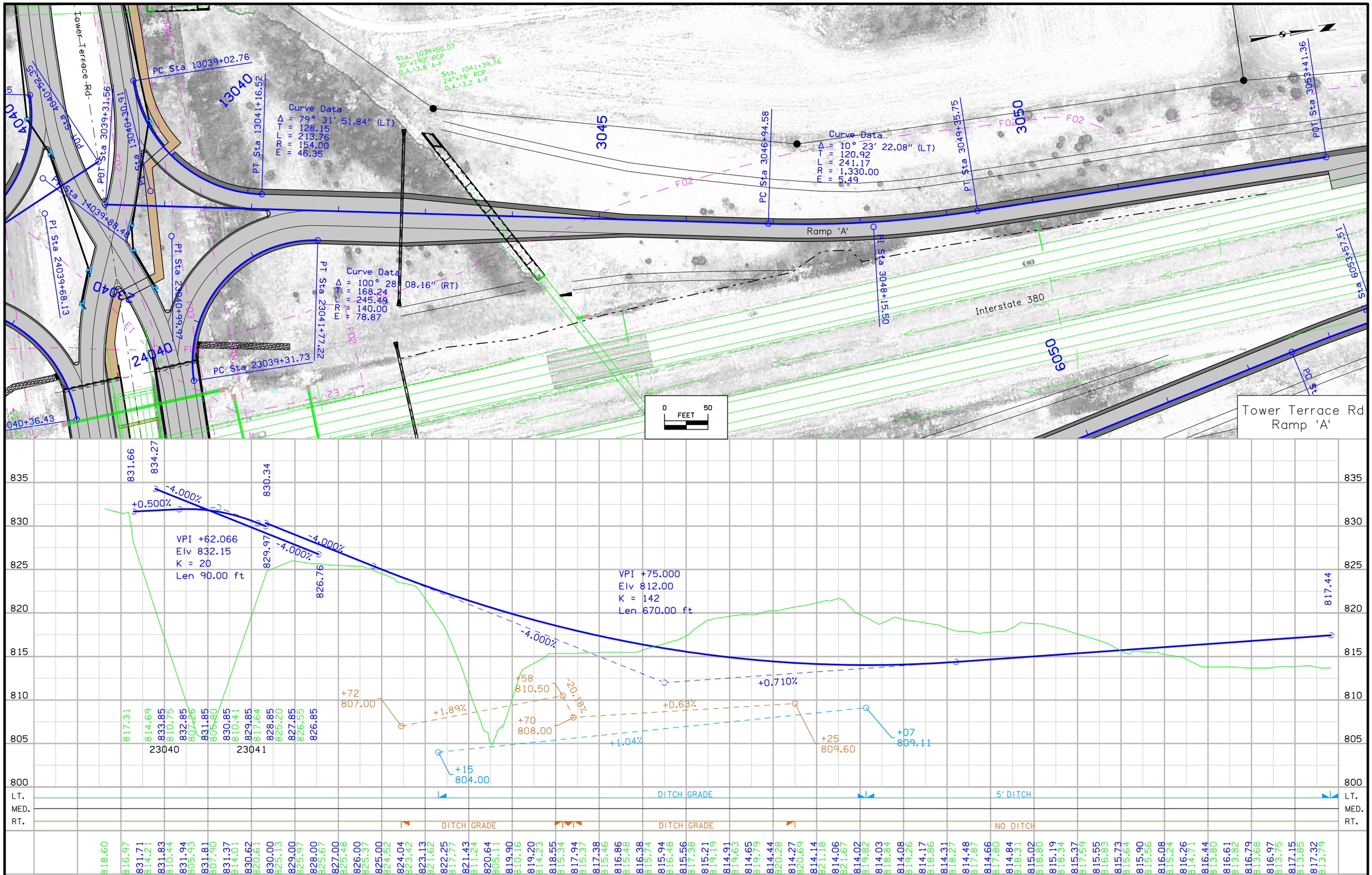


Tower Terrace Rd
Ramp 'A'

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER K.2 |
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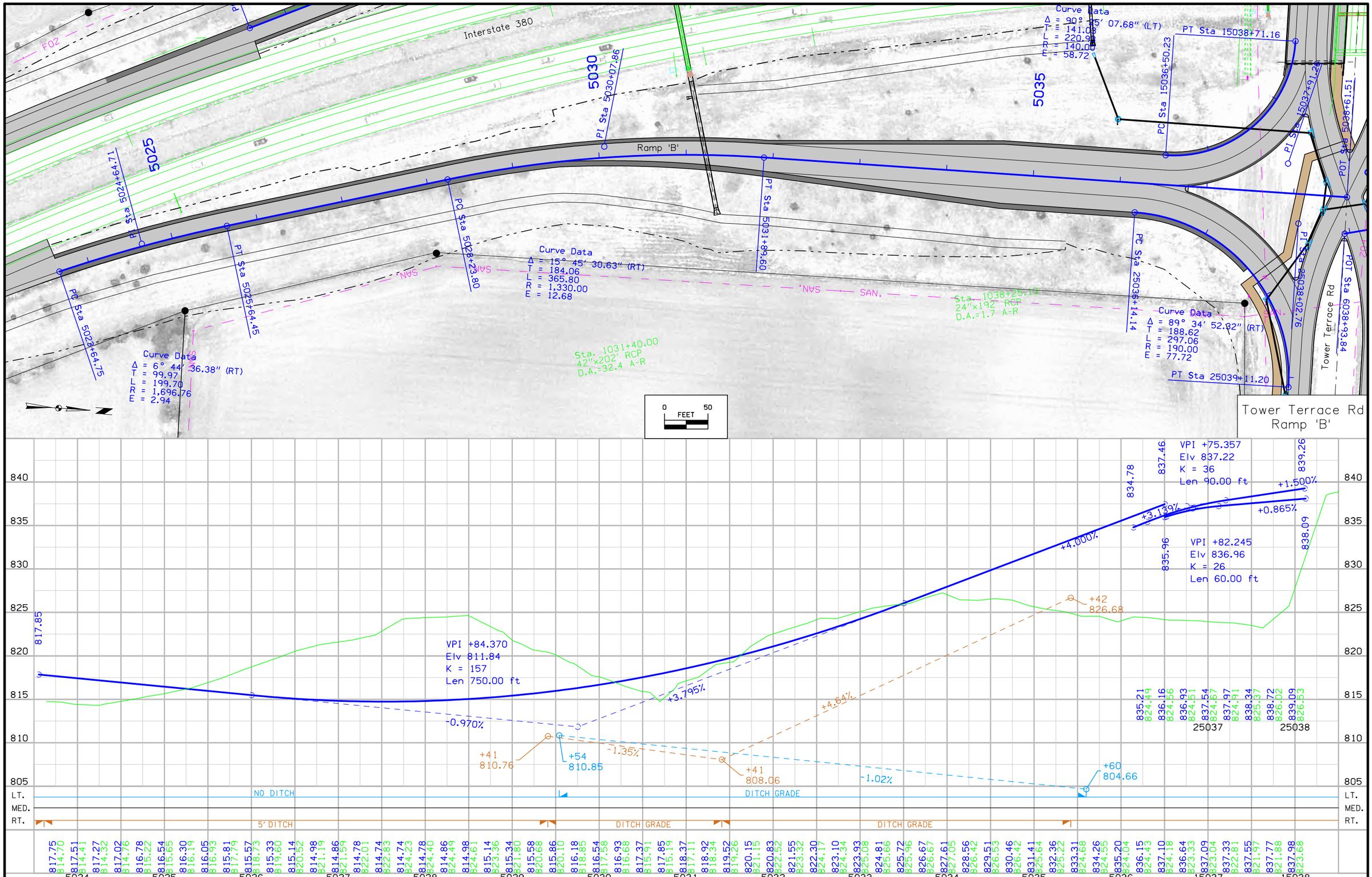


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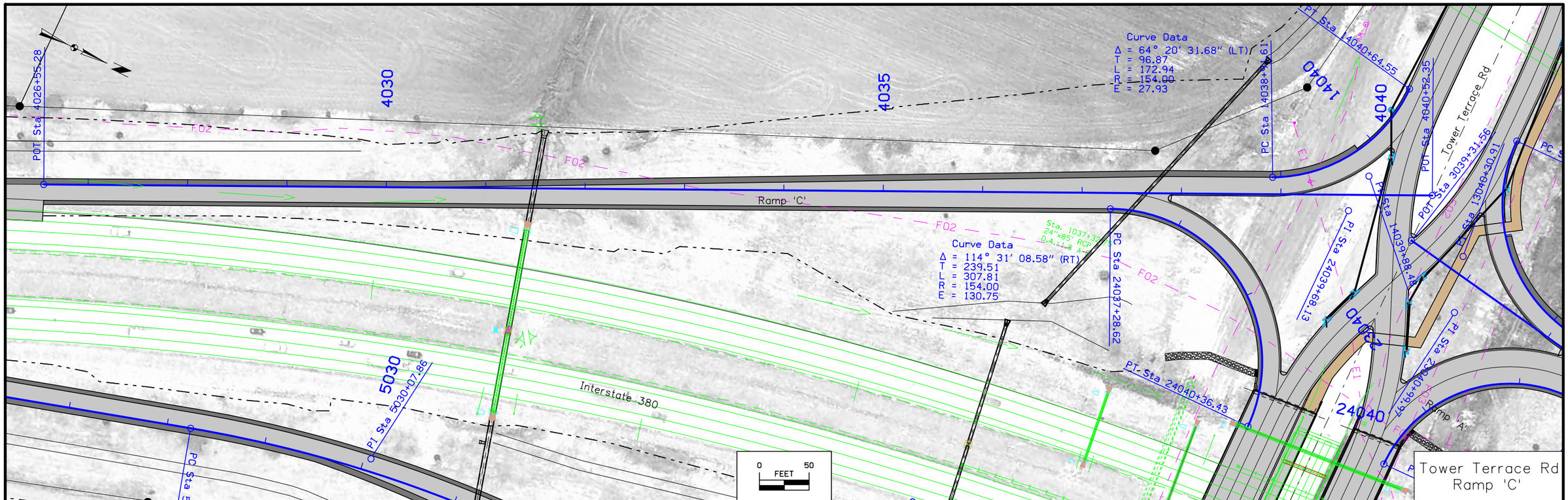


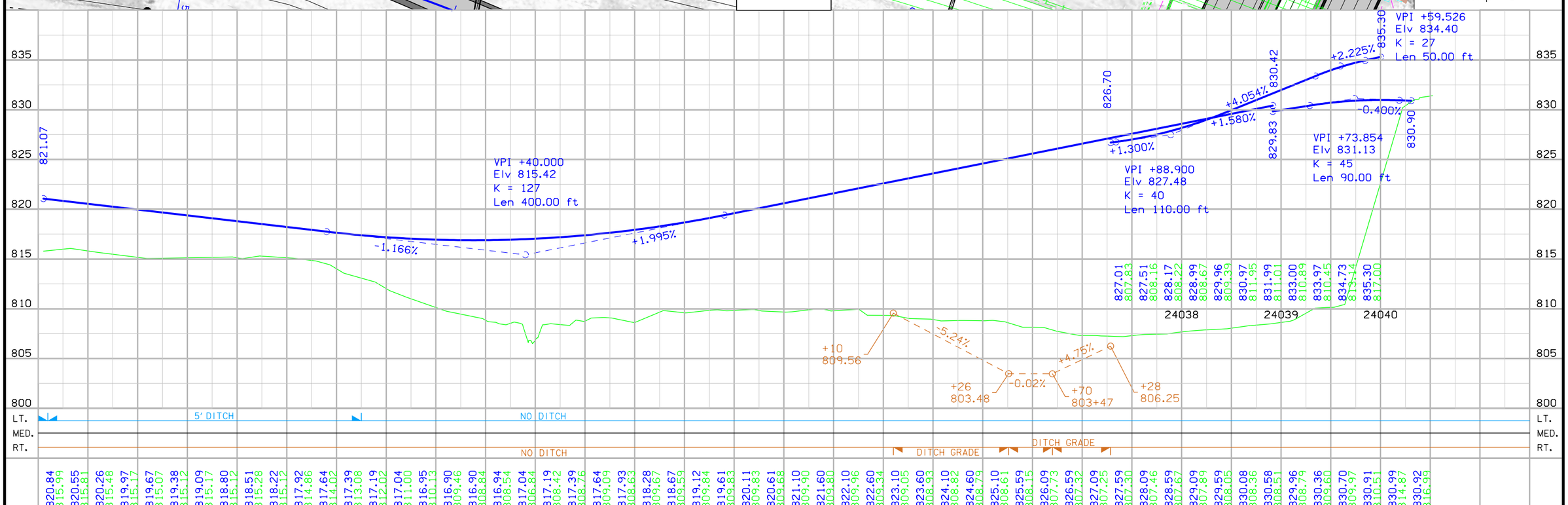


| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER K.4 |
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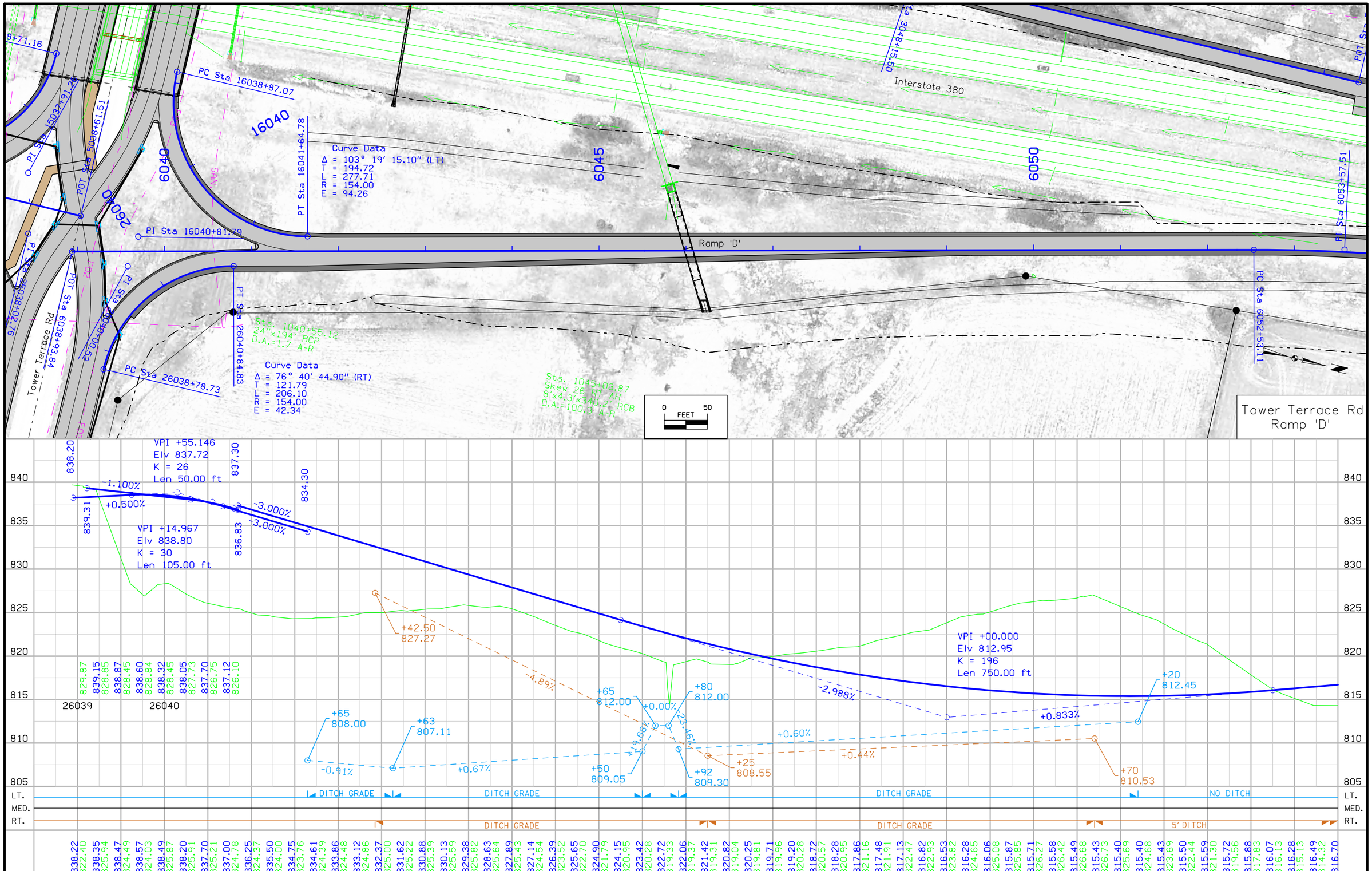


| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER K.5 |
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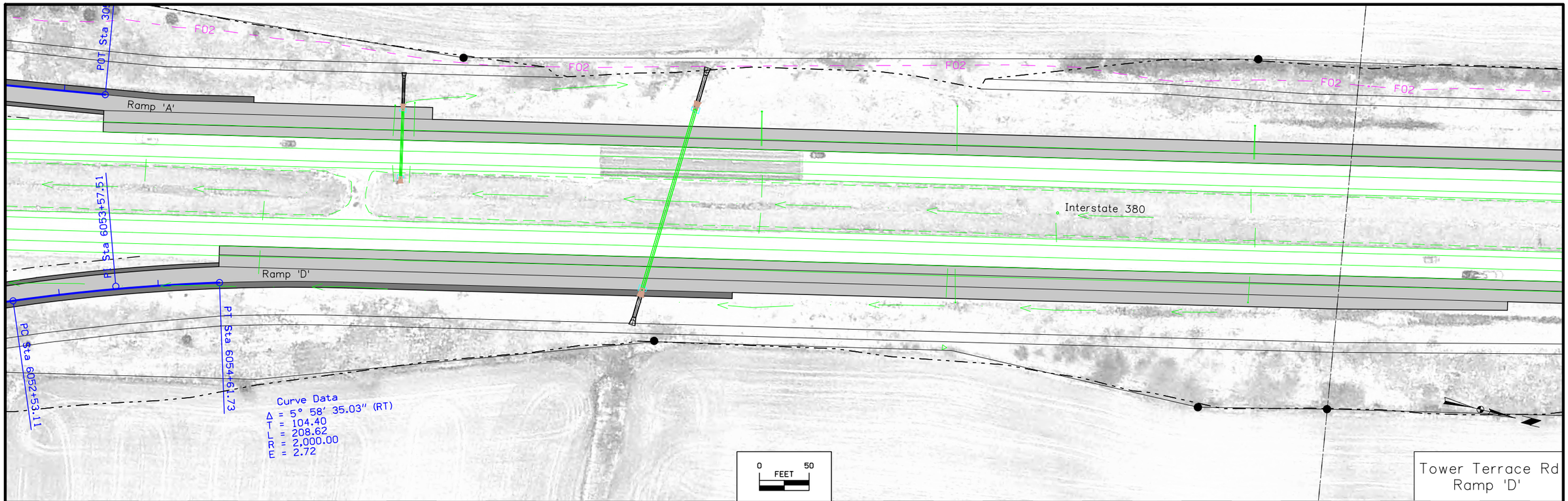


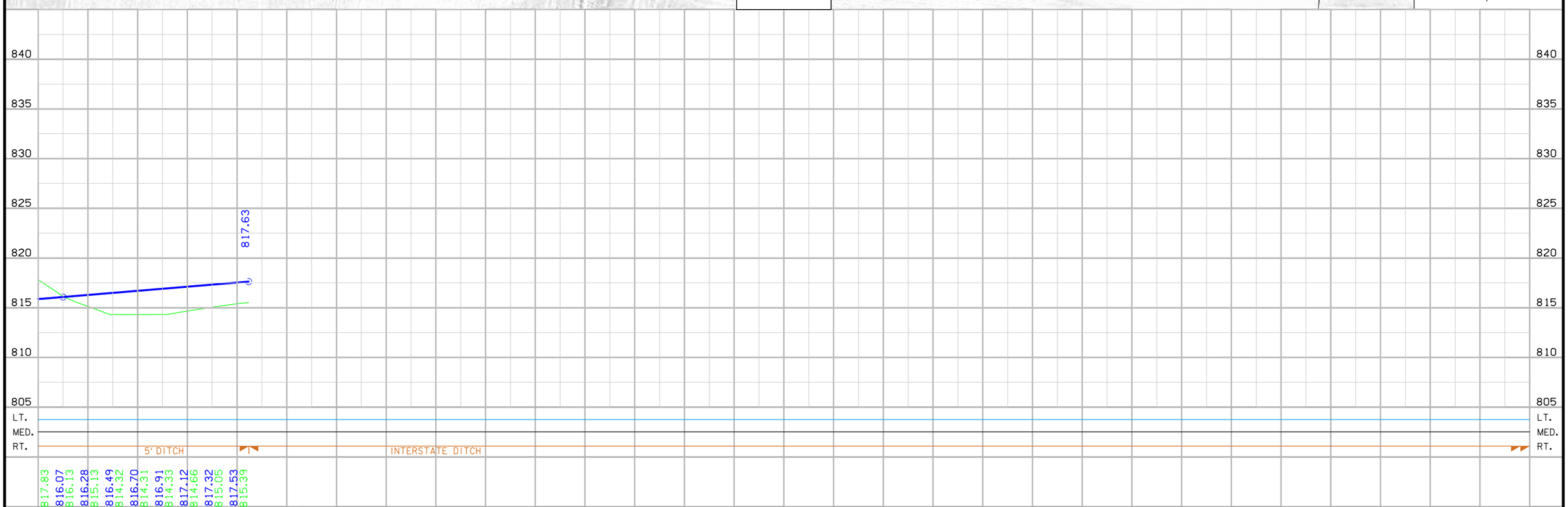


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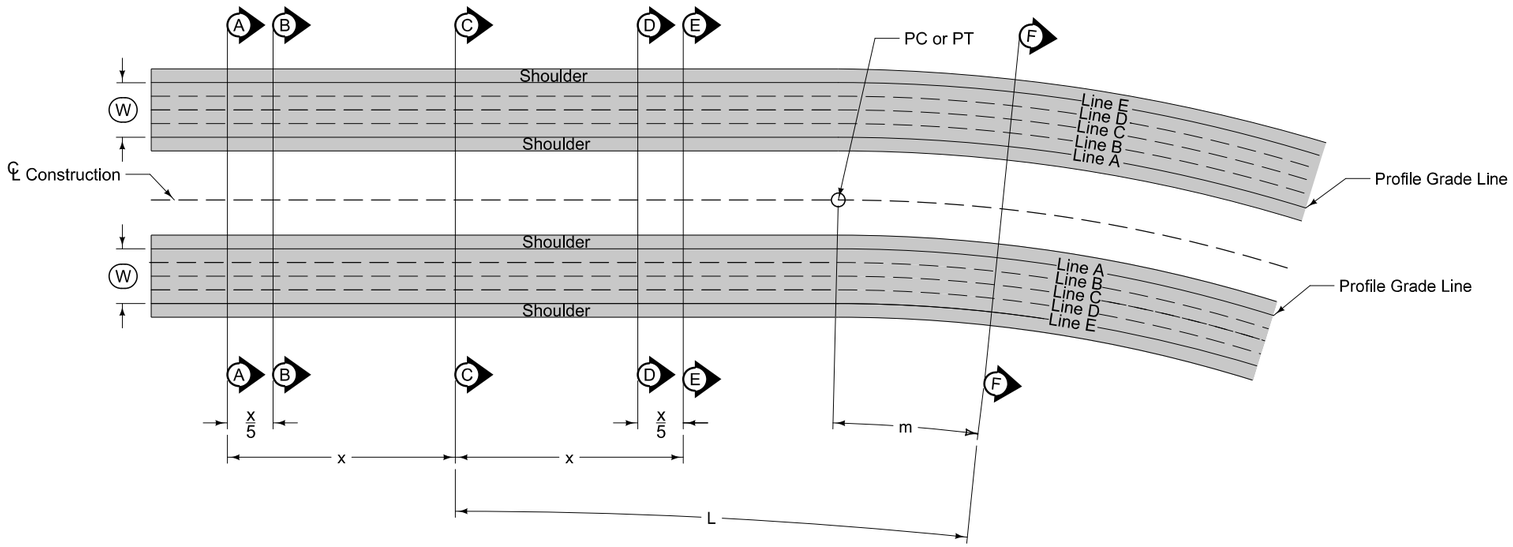



**TRANSITION DETAILS - TANGENT TO CURVE**

Refer to specific curve data contained in project plans for tangent runout length (x), runoff length (L) and full superelevation (e).

When spiral curve transitions are not required:
Place 70% of full superelevation at the PC and PT.
Place 30% of the runoff length within the curve.

Unless otherwise specified, all lengths are measured along the centerline of construction.

Superelevations on this standard are shown for curves to the right. Curves to the left are a mirror image of what is shown.

Smooth curves should be established at the time of construction at sections A-F along the profile edges of lines A-D.

Axis of rotation coincides with profile grade location.

m = 30% of Runoff Length (L)

W = 48' Regardless of Pavement Width

g = Normal Cross Slope (2.5%)

L = Distance to Change Cross Slope from 0% to e

e = Supereleavtion Rate

x = Distance to Change Cross Slope from 0% to 2.5%

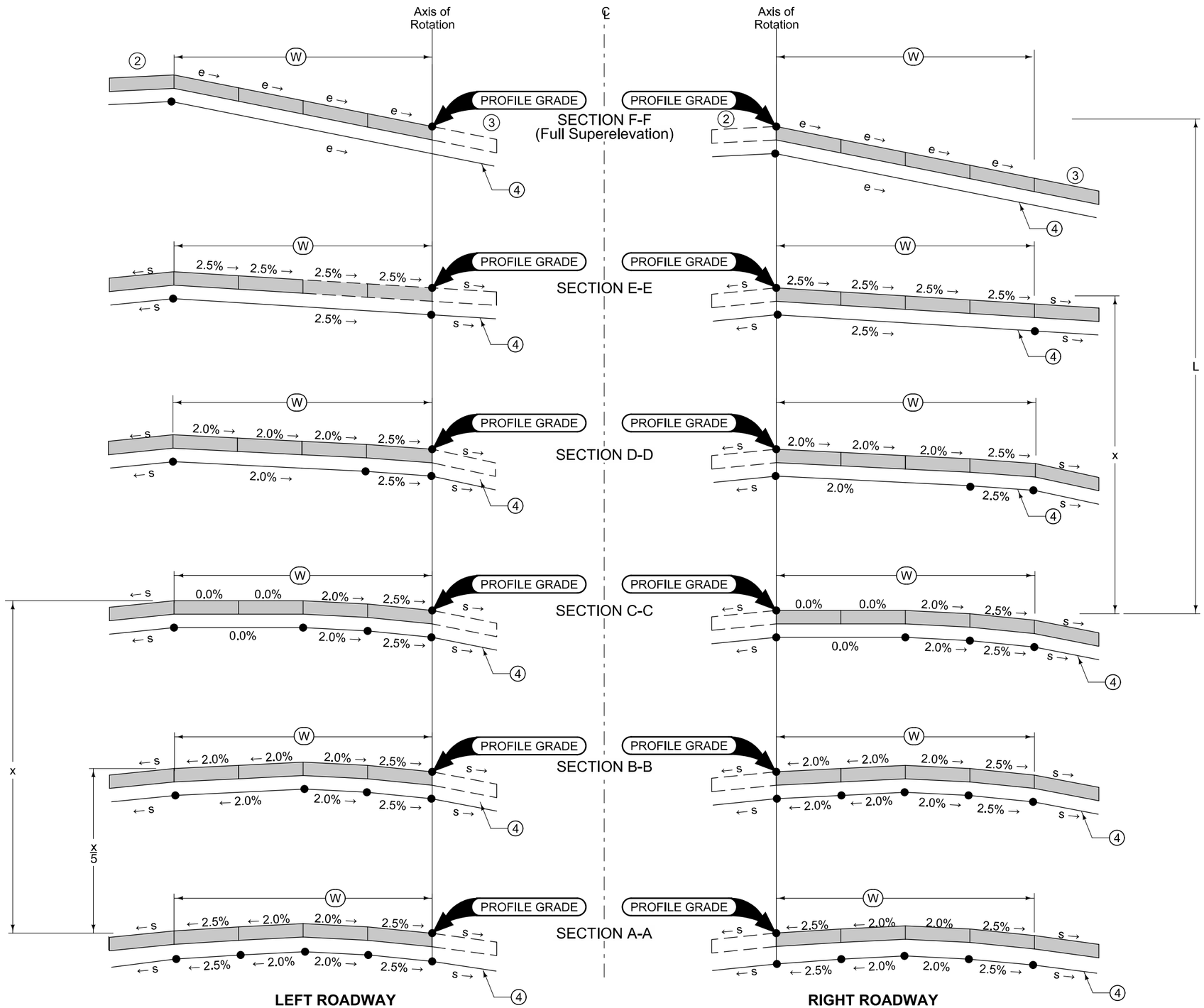
s = Normal Shoulder Slope

1 Spiral curve length coincides with runoff length (L)

Possible Tabulation:
101-18

**CURVE P.I. 1023+19.99**

**SUPERELEVATION DETAILS**
**EIGHT LANE ROADWAY**
**DEPRESSED MEDIAN**




(2) High Side Shoulder: Maintain normal shoulder cross slope(s), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.

(3) Low Side Shoulder: Maintain normal shoulder cross slope(s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.

(4) Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

**CURVE P.I. 1023+19.99**

**SUPERELEVATION DETAILS**
**EIGHT LANE ROADWAY**
**DEPRESSED MEDIAN**

| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER U.2 |
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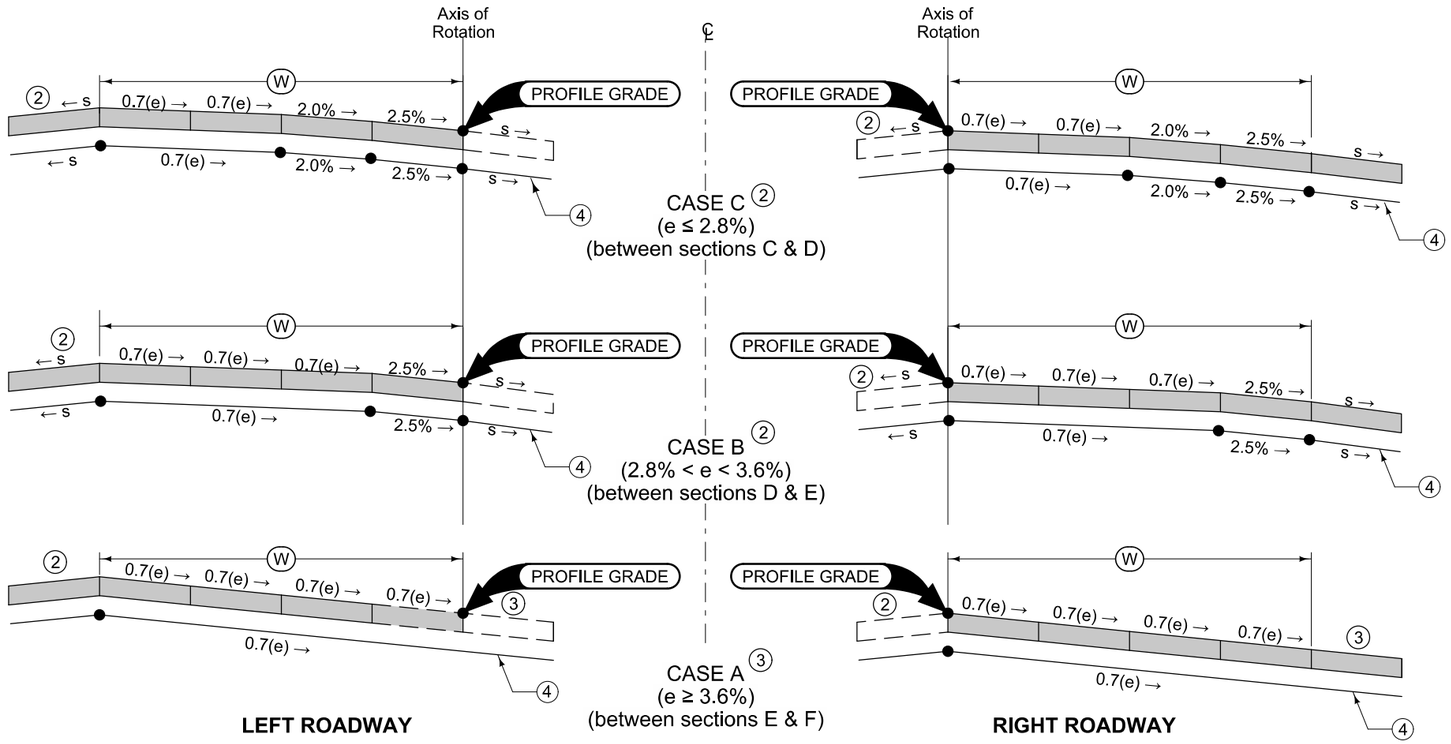
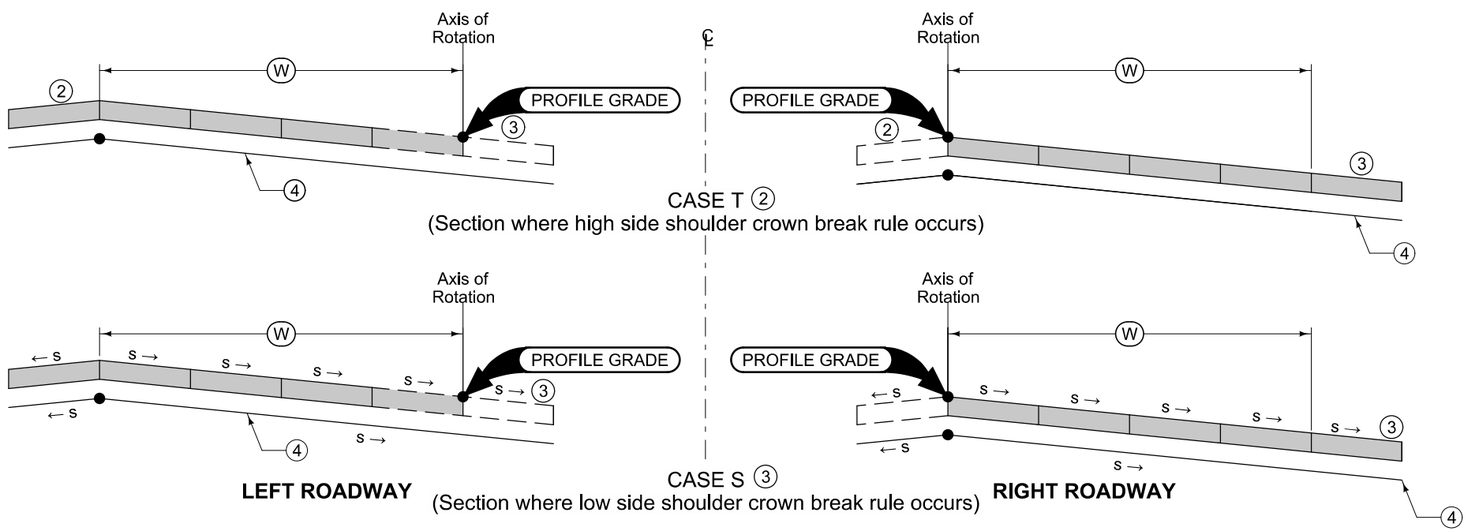



**SECTION AT THE PC OR PT**

② High Side Shoulder: Maintain normal shoulder cross slope(s), until the cross slope break with the adjacent pavement reaches 8.0%. Maintain 8% breakover until superelevation rate reaches 7%. If superelevation rate exceeds 7.0%, maintain a 1% shoulder cross slope away from the adjacent pavement.

③ Low Side Shoulder: Maintain normal shoulder cross slope(s) until the adjacent pavement slope equals s, then slope the shoulder at the same cross slope as the adjacent pavement.

④ Subgrade Surface: Subgrade surface cross slope parallel to pavement surface cross slope.

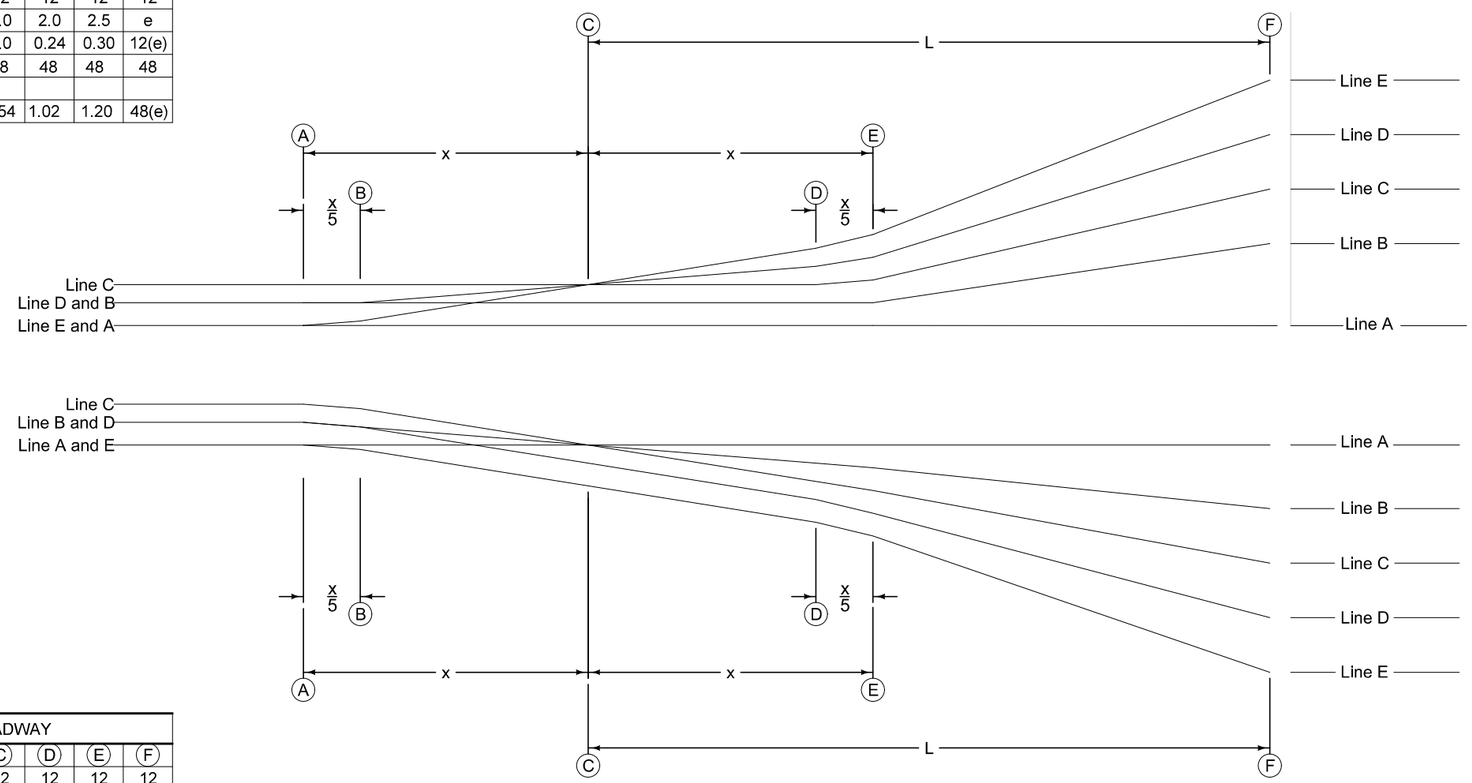



**SECTION WHERE SHOULDER SLOPE TRANSITION BEGINS**

**CURVE P.I. 1023+19.99**

**SUPERELEVATION DETAILS**
**EIGHT LANE ROADWAY**
**DEPRESSED MEDIAN**

| TABLE OF OFFSETS AND DROPS FOR LEFT ROADWAY | | | | | | | |
|---|---|---|---|---|---|---|---|
| Location of Cross Sections | | (A) | (B) | (C) | (D) | (E) | (F) |
| From Line A To Line B | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | e |
| | Drop (Ft.) | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 12(e) |
| From Line B To Line C | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 | e |
| | Drop (Ft.) | 0.24 | 0.24 | 0.24 | 0.24 | 0.30 | 12(e) |
| From Line C To Line D | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | -2.0 | -2.0 | 0.0 | 2.0 | 2.5 | e |
| | Drop (Ft.) | -0.24 | -0.24 | 0.0 | 0.24 | 0.30 | 12(e) |
| From Line D To Line E | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | -2.5 | -2.0 | 0.0 | 2.0 | 2.5 | e |
| | Drop (Ft.) | -0.30 | -0.24 | 0.0 | 0.24 | 0.30 | 12(e) |
| From Line A To Line E | Offset (Ft.) | 48 | 48 | 48 | 48 | 48 | 48 |
| | | | | | | | |
| | Drop (Ft.) | 0.00 | 0.06 | 0.54 | 1.02 | 1.20 | 48(e) |




| TABLE OF OFFSETS AND DROPS FOR RIGHT ROADWAY | | | | | | | |
|---|---|---|---|---|---|---|---|
| Location of Cross Sections | | (A) | (B) | (C) | (D) | (E) | (F) |
| From Line A To Line B | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | 2.5 | 2.0 | 0.0 | -2.0 | -2.5 | -e |
| | Drop (Ft.) | 0.30 | 0.24 | 0.0 | -0.24 | -0.30 | -12(e) |
| From Line B To Line C | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | 2.0 | 2.0 | 0.0 | -2.0 | -2.5 | -e |
| | Drop (Ft.) | 0.24 | 0.24 | 0.0 | -0.24 | -0.30 | -12(e) |
| From Line C To Line D | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | -2.0 | -2.0 | -2.0 | -2.0 | -2.5 | -e |
| | Drop (Ft.) | -0.24 | -0.24 | -0.24 | -0.24 | -0.30 | -12(e) |
| From Line D To Line E | Offset (Ft.) | 12 | 12 | 12 | 12 | 12 | 12 |
| | Slope (%) | -2.5 | -2.5 | -2.5 | -2.5 | -2.5 | -e |
| | Drop (Ft.) | -0.30 | -0.30 | -0.30 | -0.30 | -0.30 | -12(e) |
| From Line A To Line E | Offset (Ft.) | 48 | 48 | 48 | 48 | 48 | 48 |
| | Slope (%) | | | | | | |
| | Drop (Ft.) | 0.00 | -0.06 | -0.54 | -1.02 | -1.20 | -48(e) |

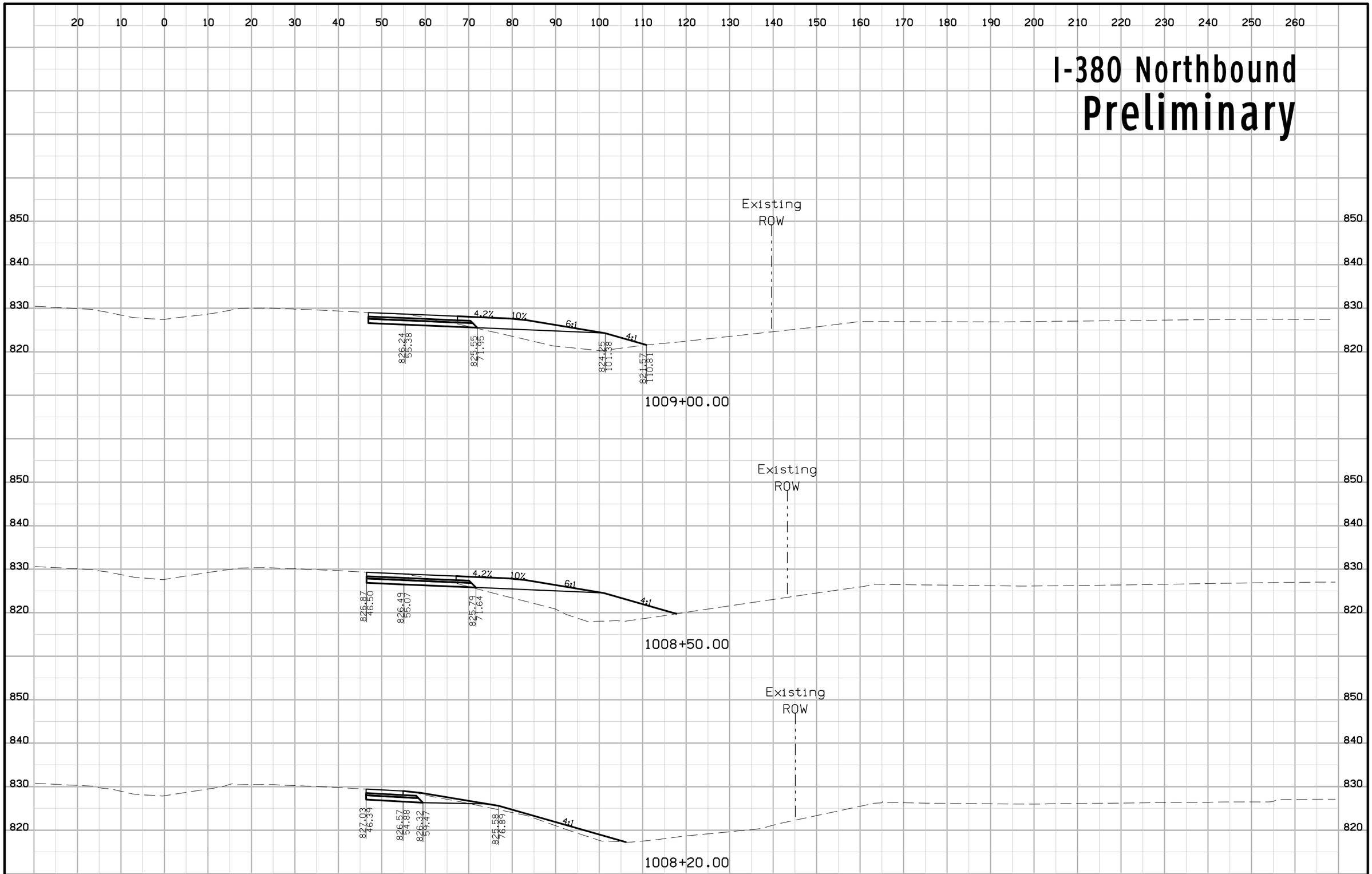
* Refer to plan details for shoulder width

**DIAGRAMMATIC PROFILES OF THE PAVEMENT EDGE LINES**

**CURVE P.I. 1023+19.99**

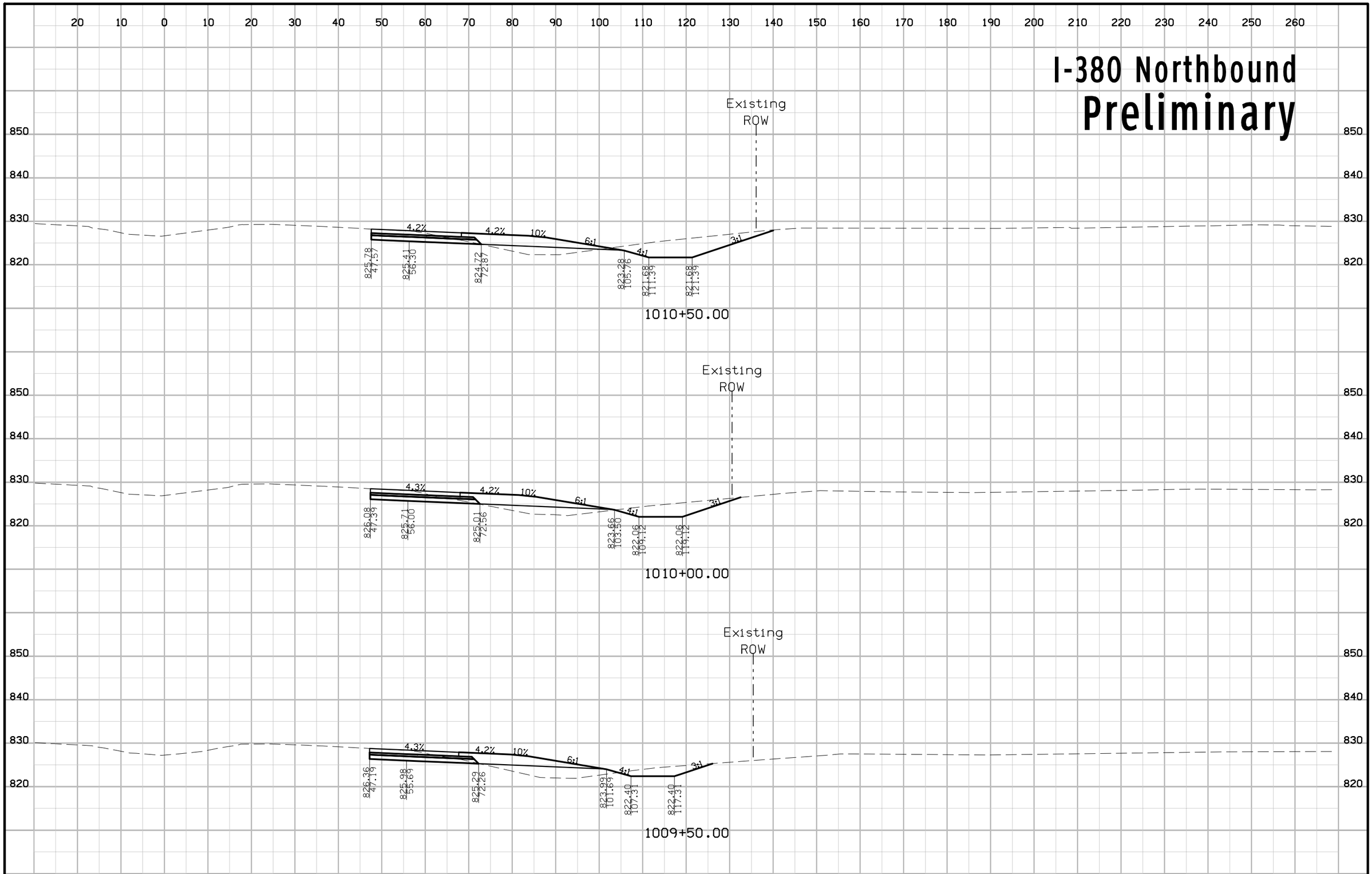
**SUPERELEVATION DETAILS**
**EIGHT LANE ROADWAY**
**DEPRESSED MEDIAN**

# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.1 |
|---|---|---|---|---|---|

# I-380 Northbound
# Preliminary

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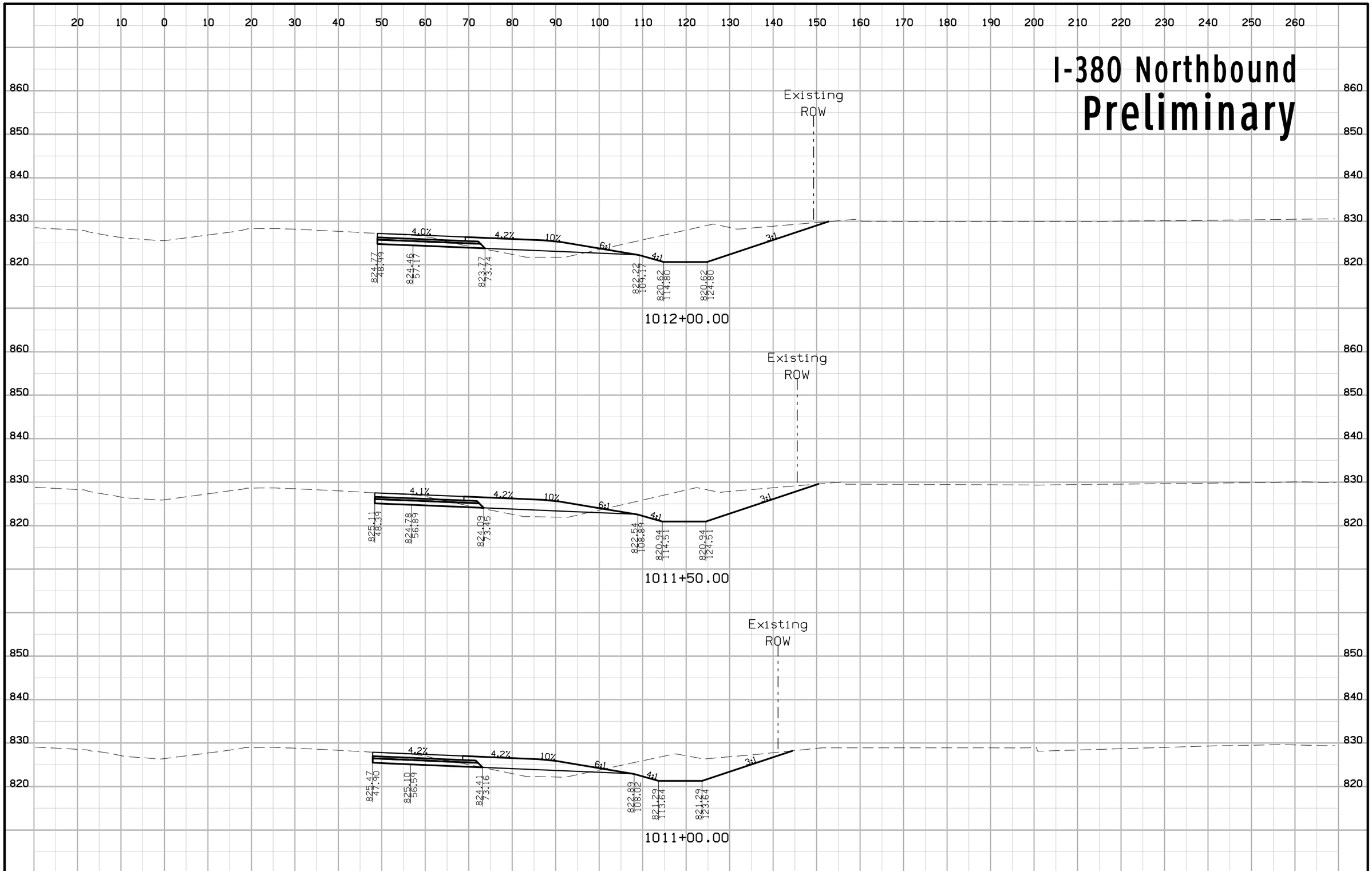
# I-380 Northbound
# Preliminary

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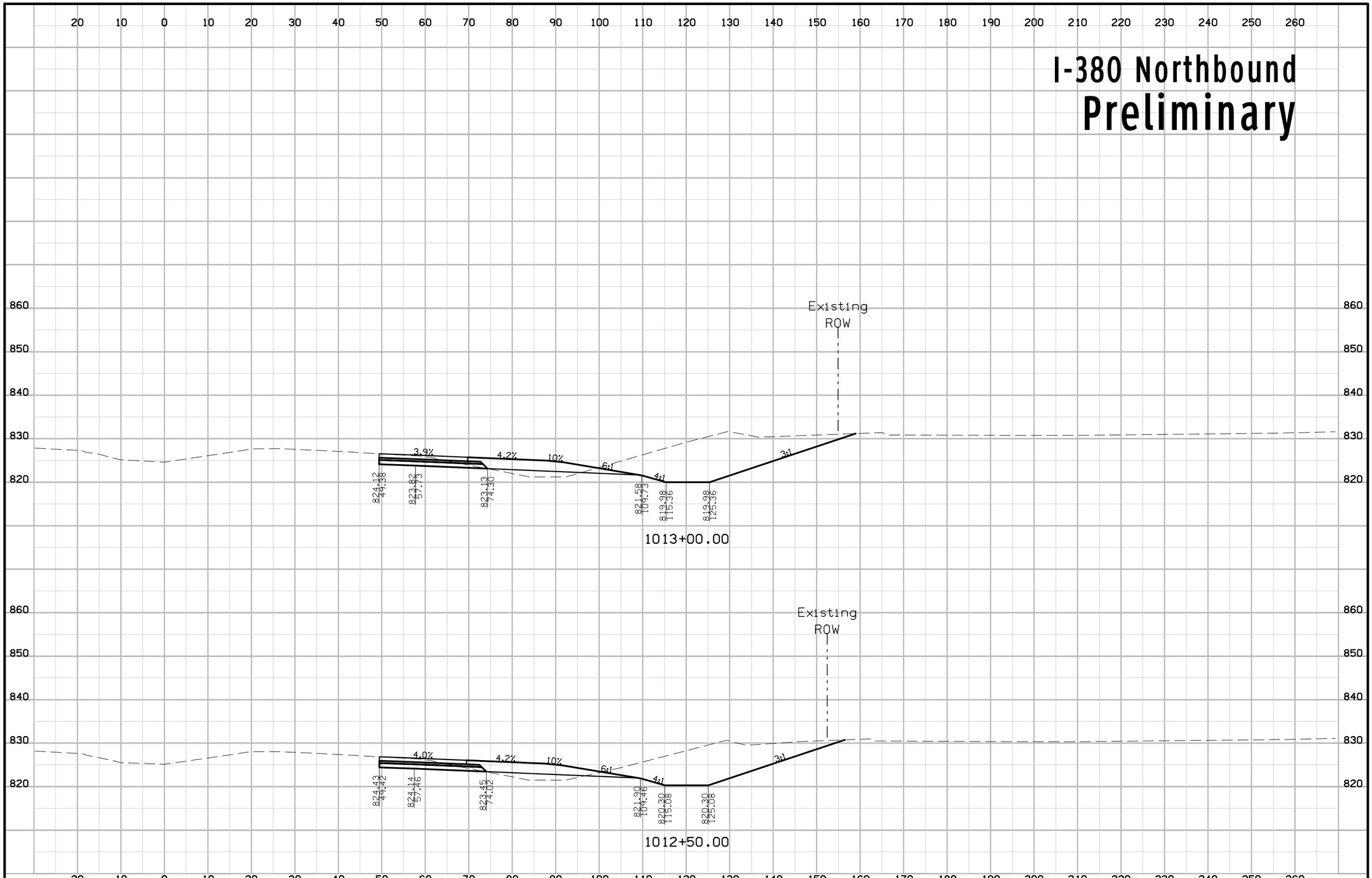
# I-380 Northbound
# Preliminary

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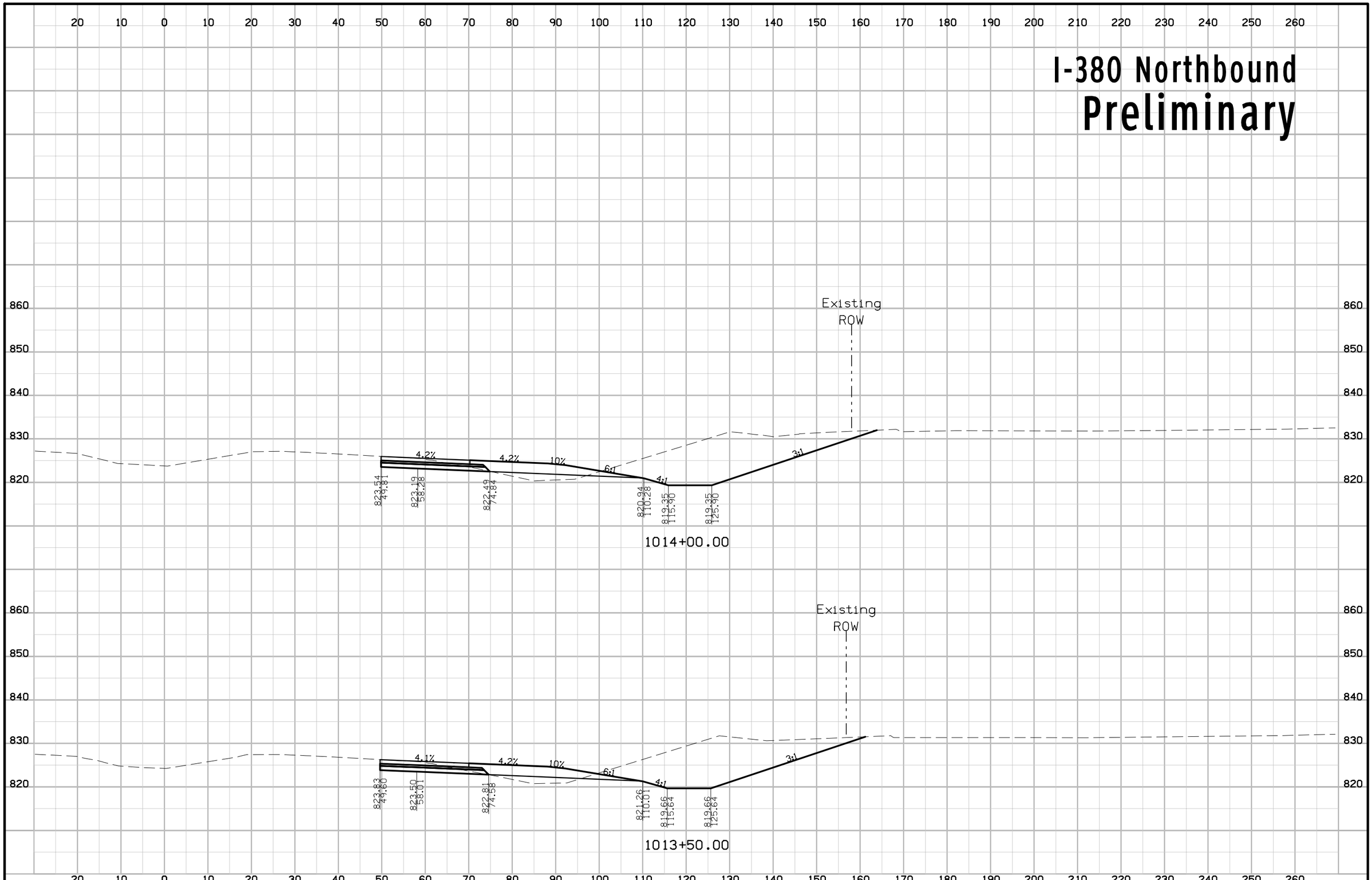
# I-380 Northbound
# Preliminary

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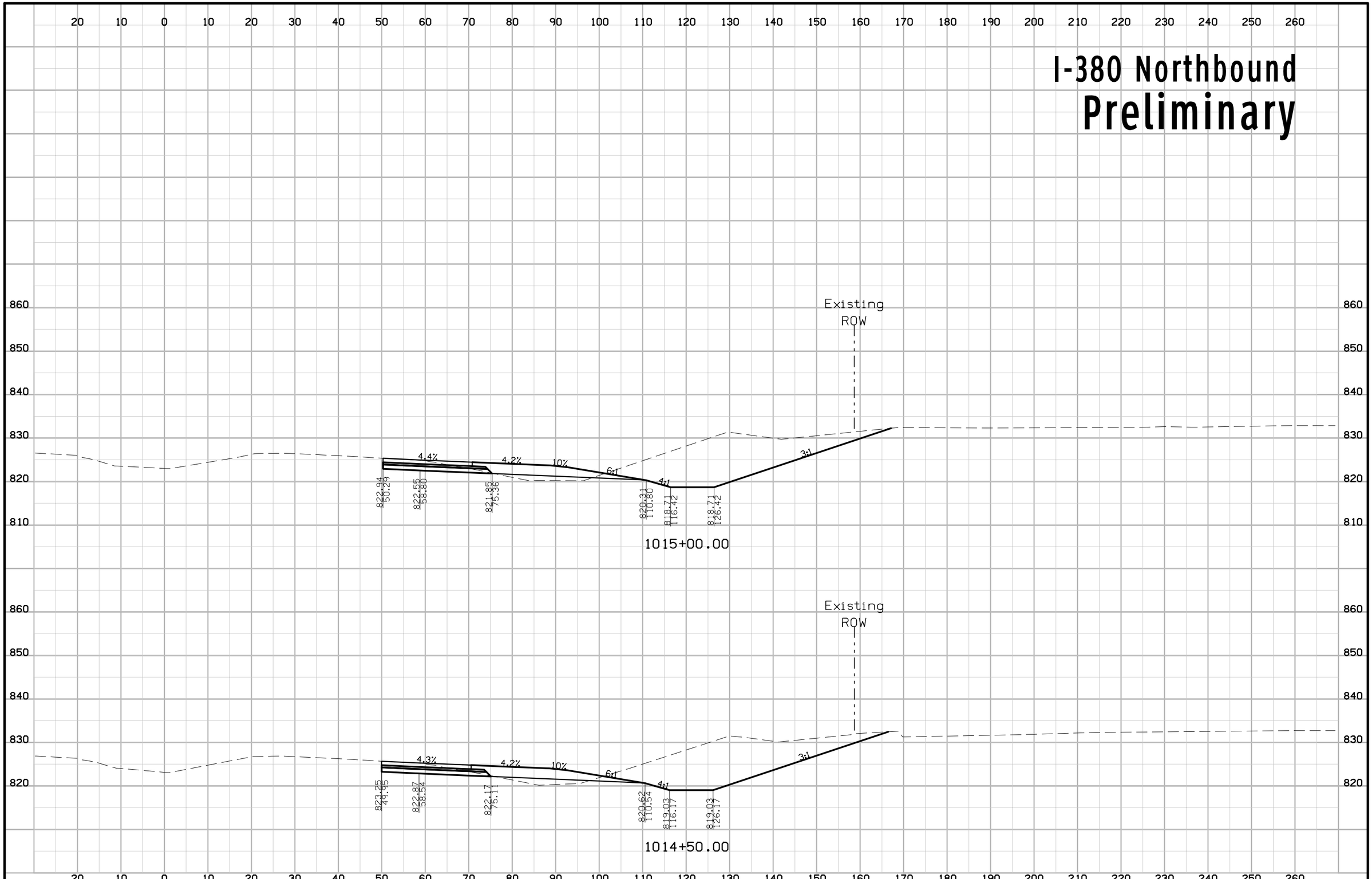
# I-380 Northbound
# Preliminary

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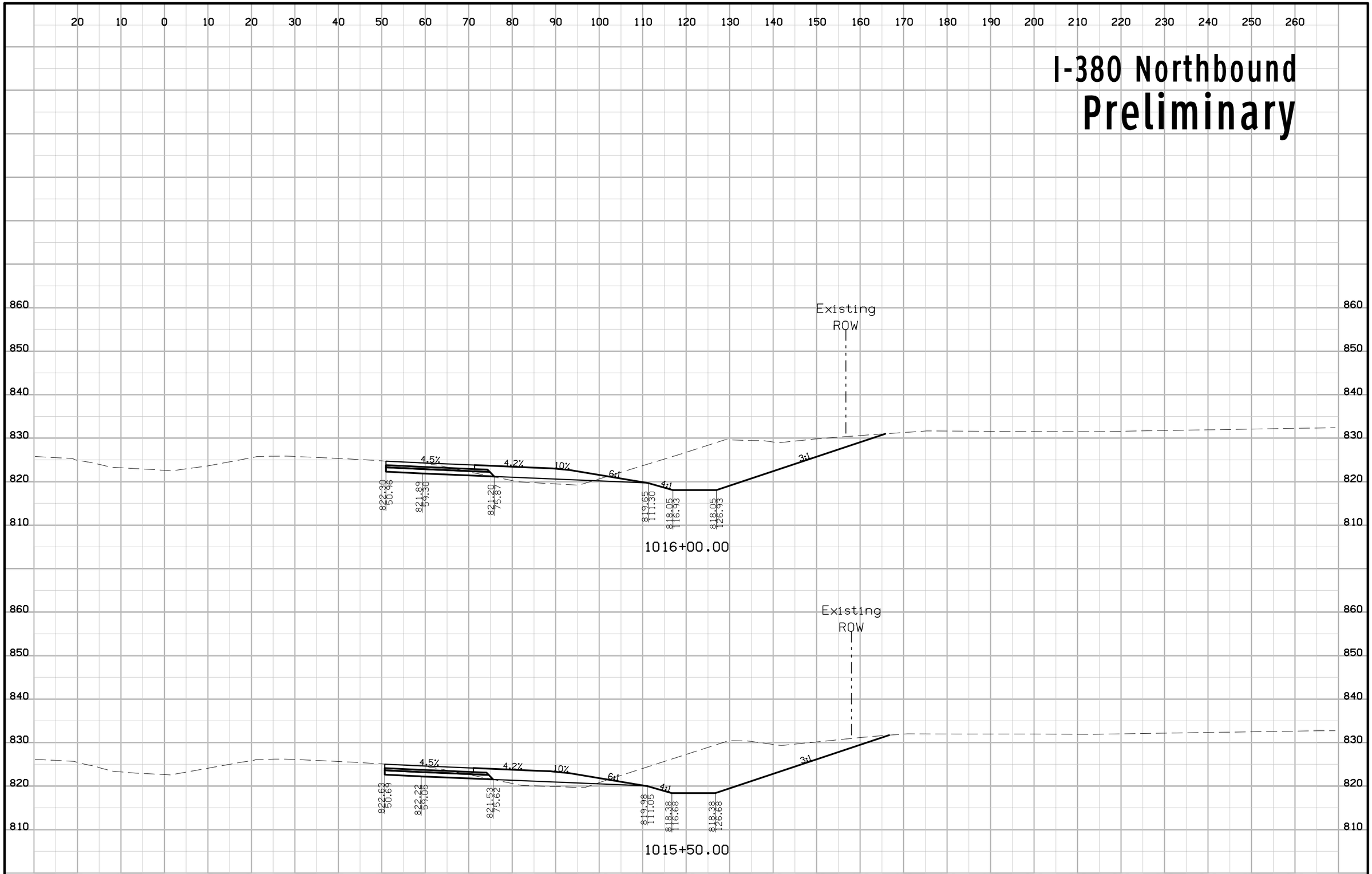
# I-380 Northbound
# Preliminary

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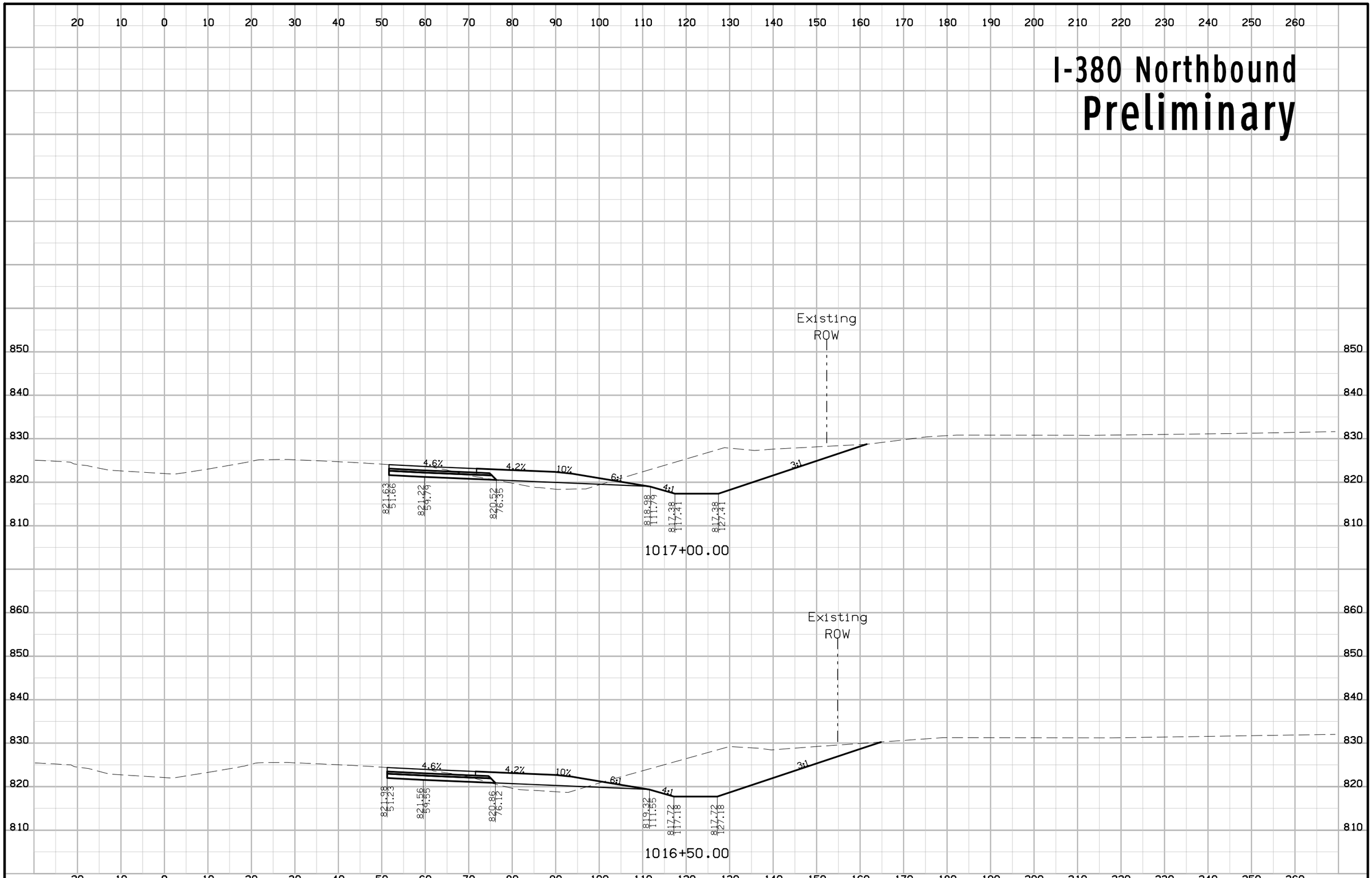
# I-380 Northbound
# Preliminary

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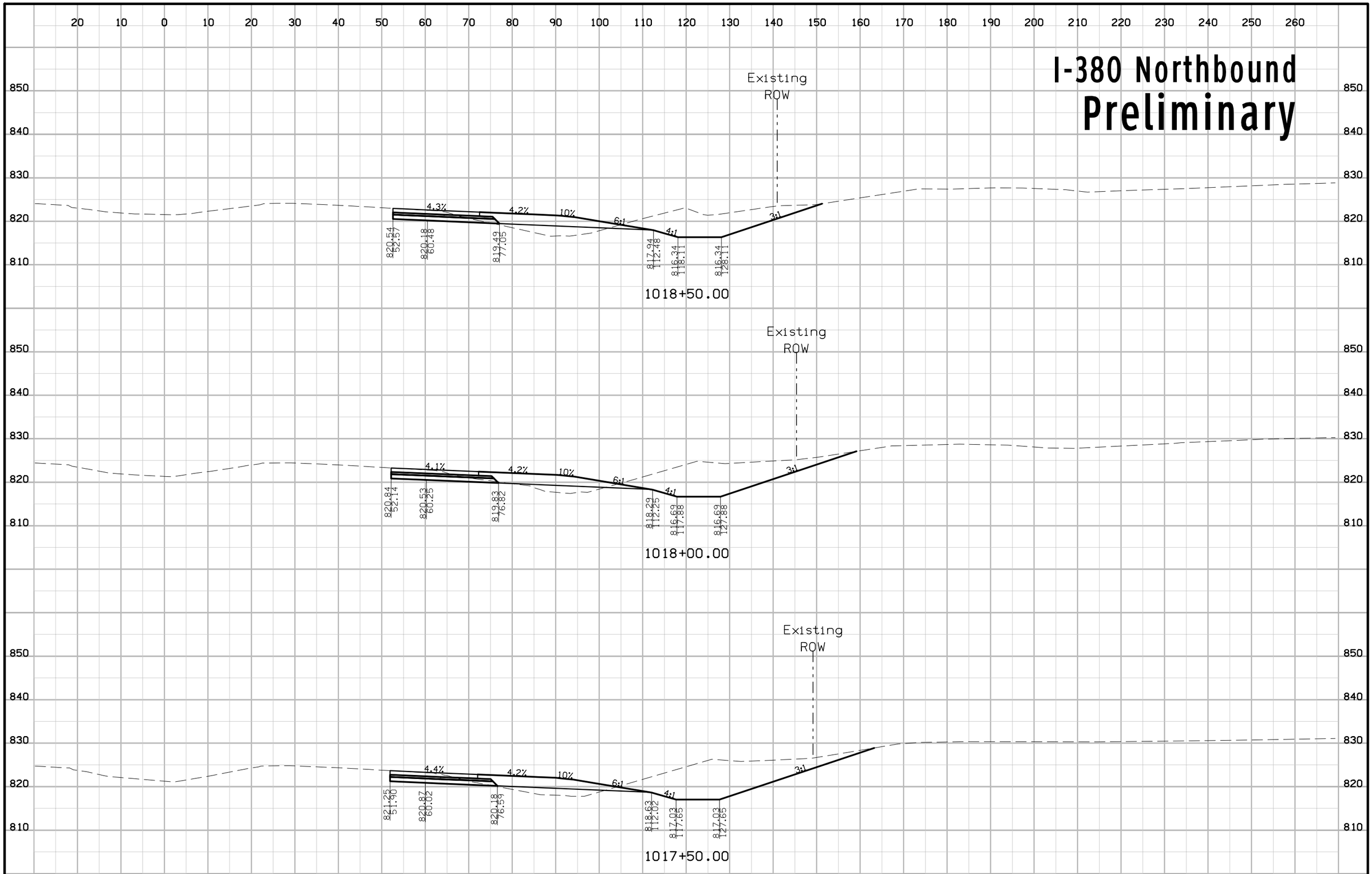
# I-380 Northbound
# Preliminary

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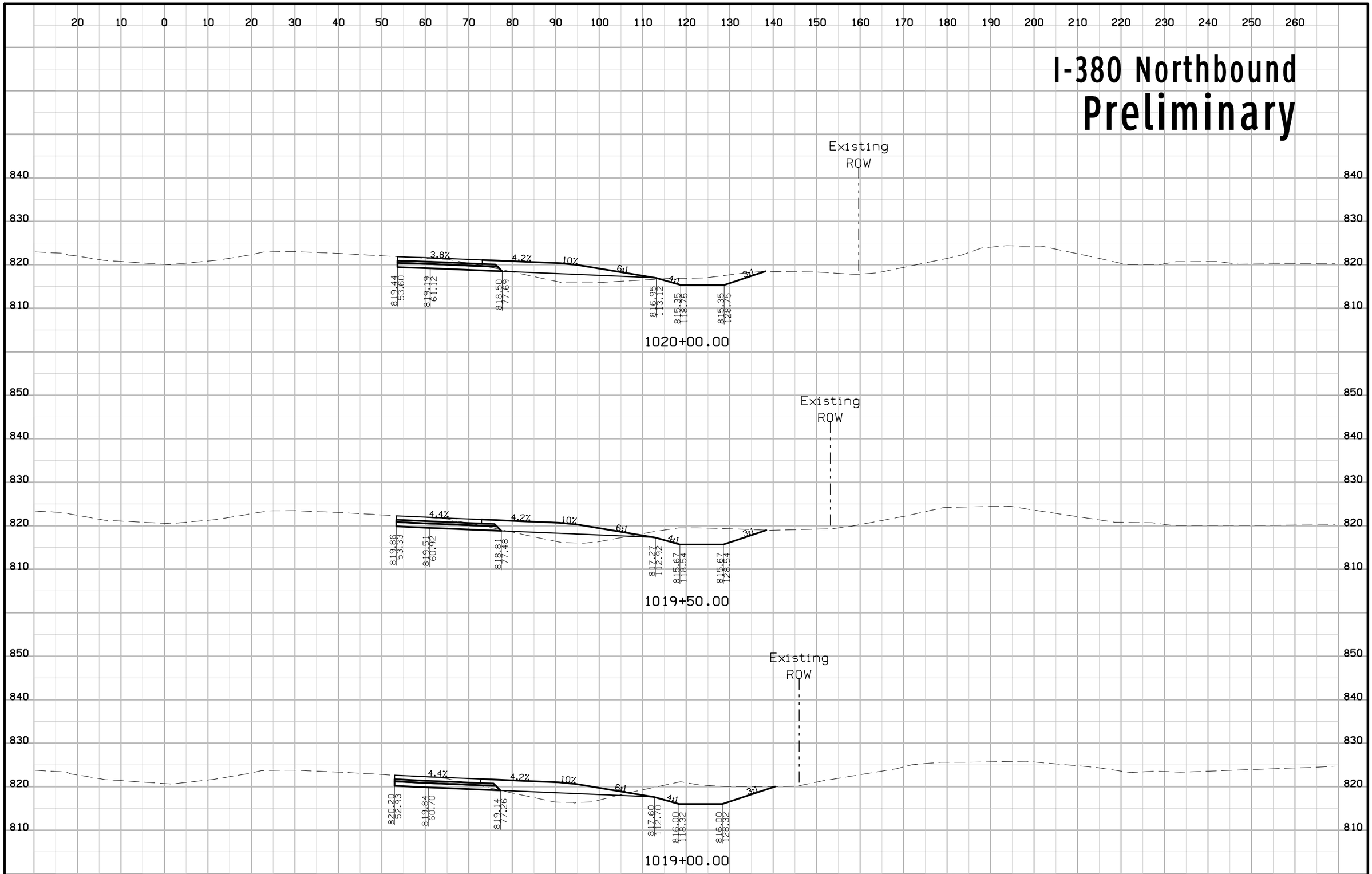
# I-380 Northbound
# Preliminary

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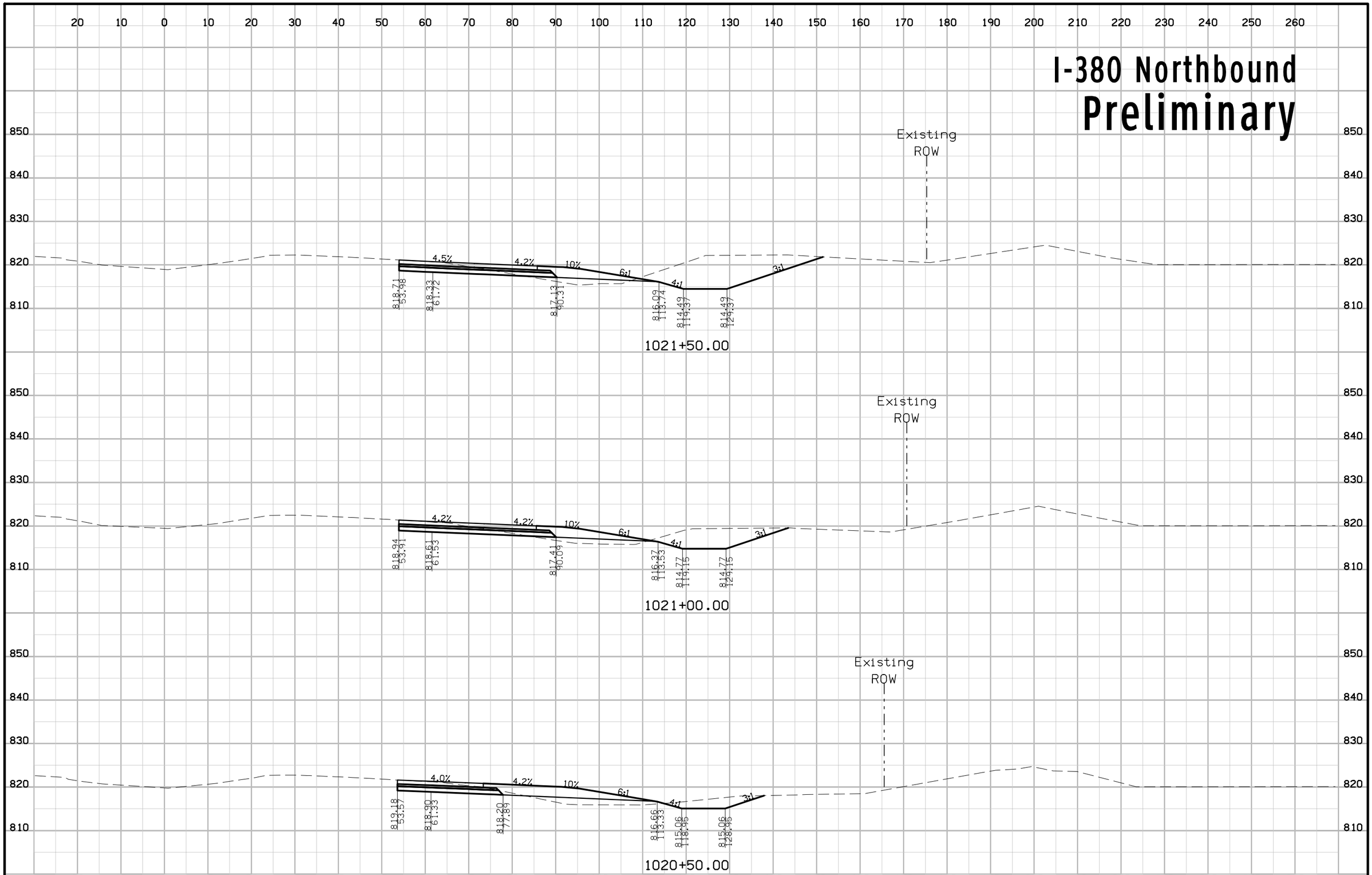
# I-380 Northbound
# Preliminary

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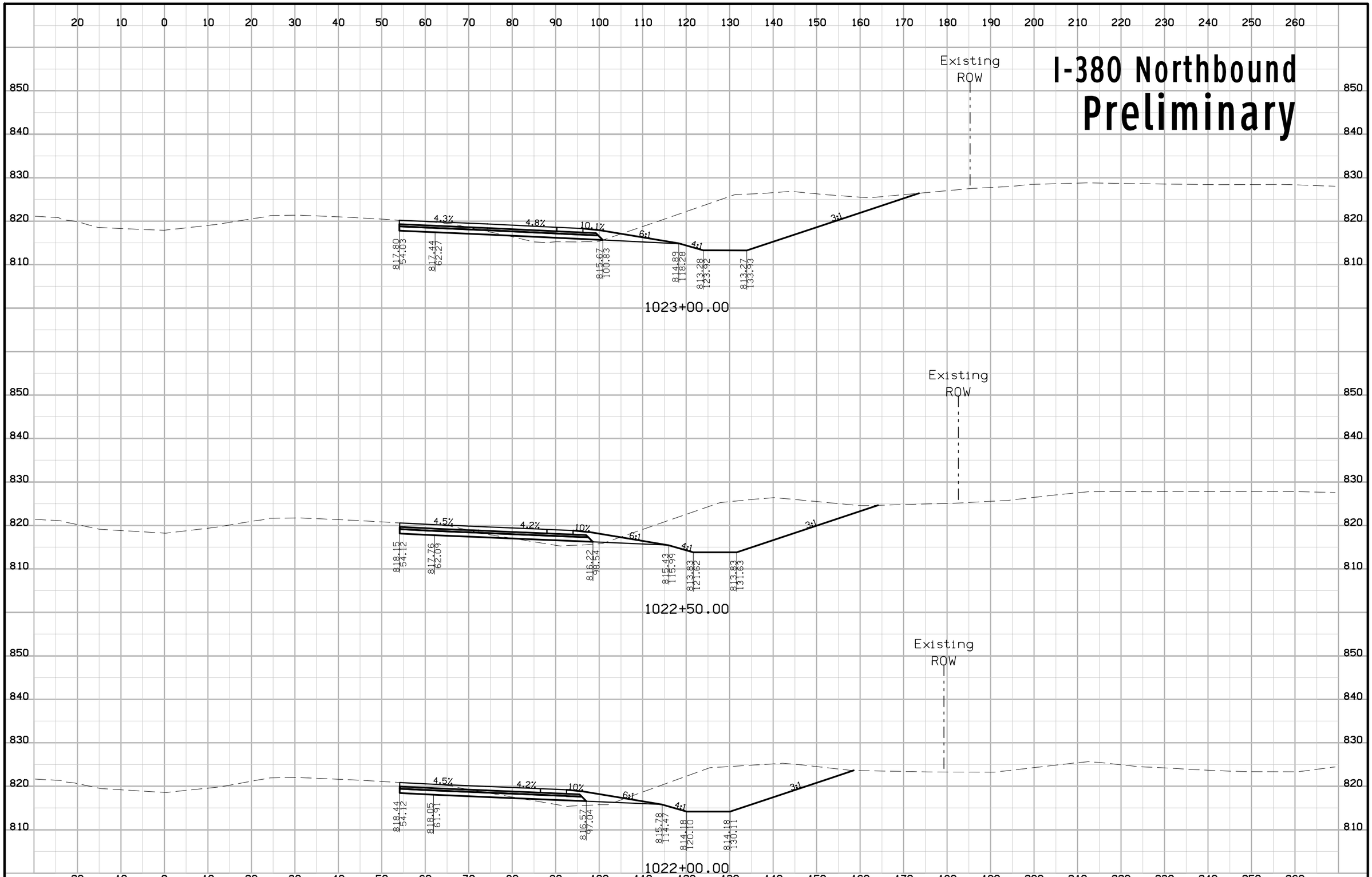
# I-380 Northbound
# Preliminary

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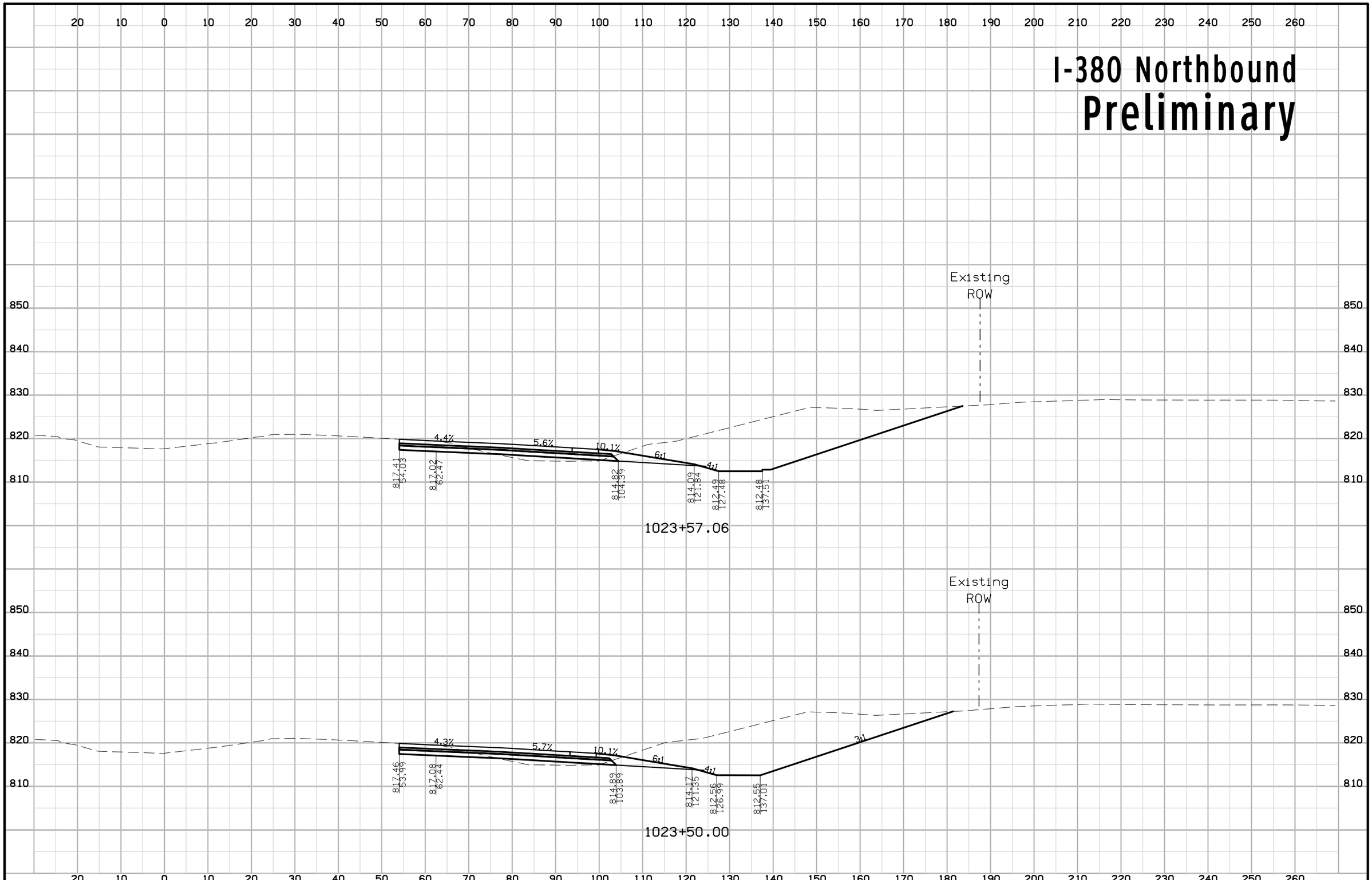
# I-380 Northbound
# Preliminary

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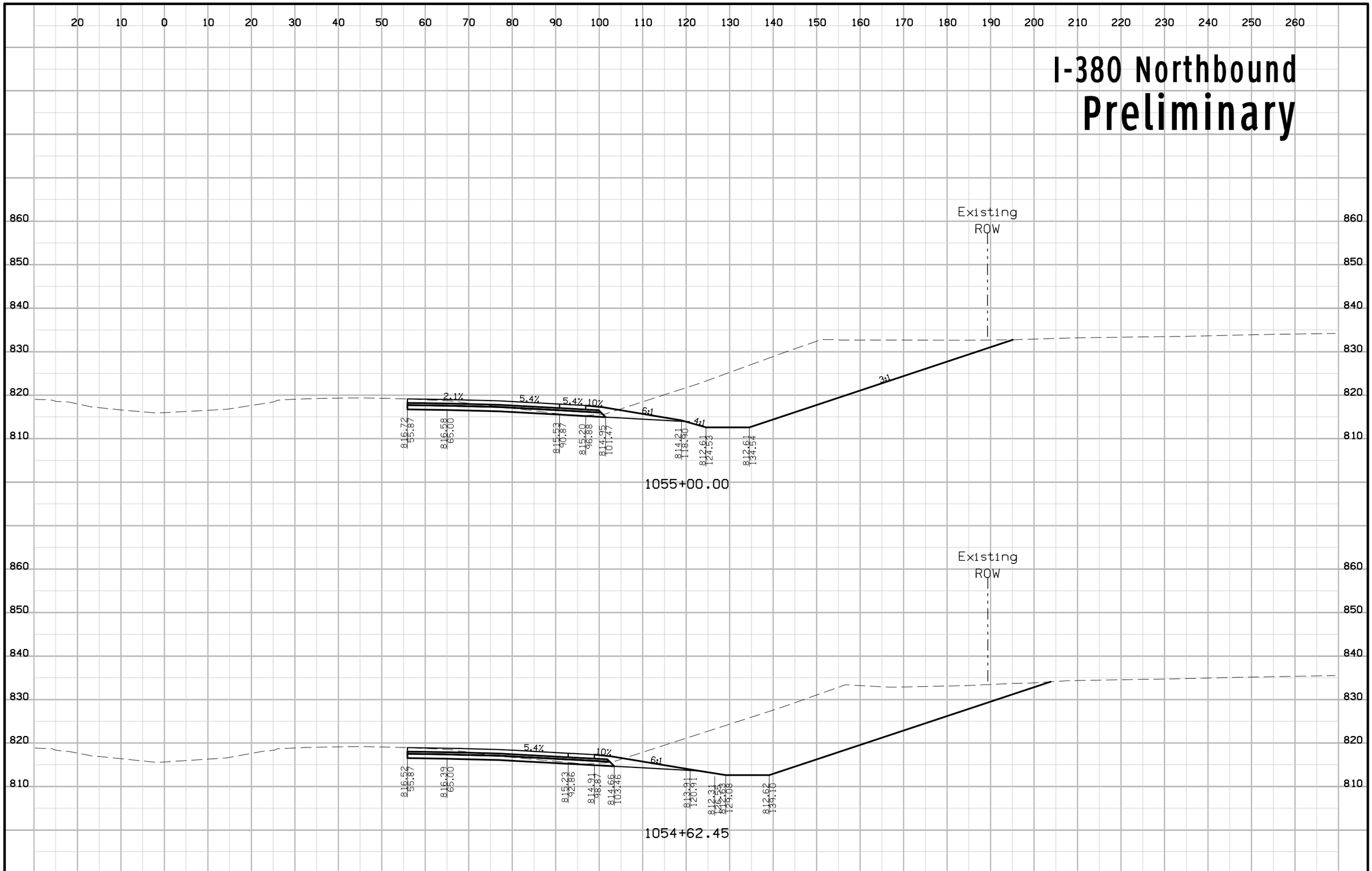
# I-380 Northbound
# Preliminary

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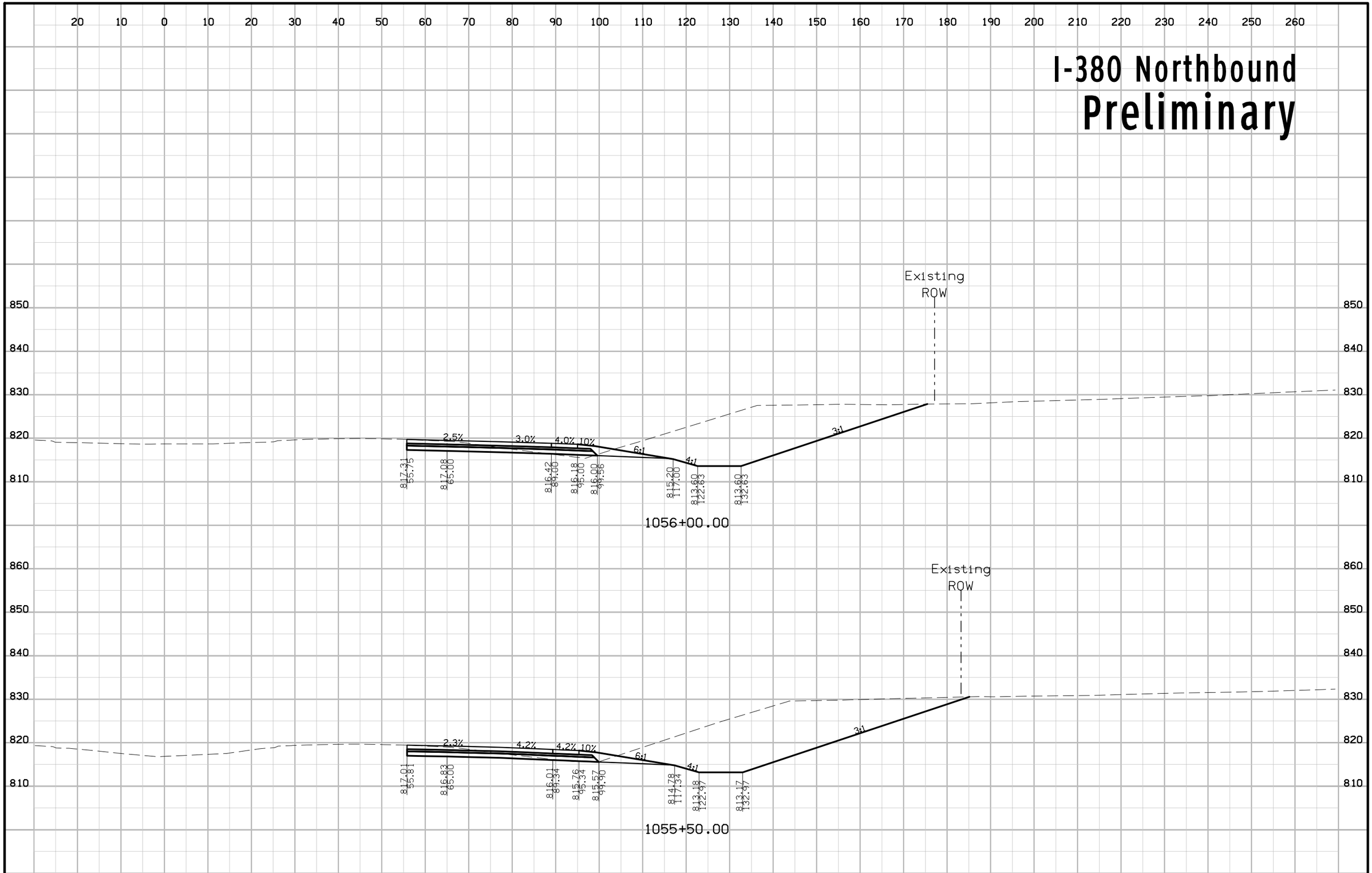
# I-380 Northbound
# Preliminary

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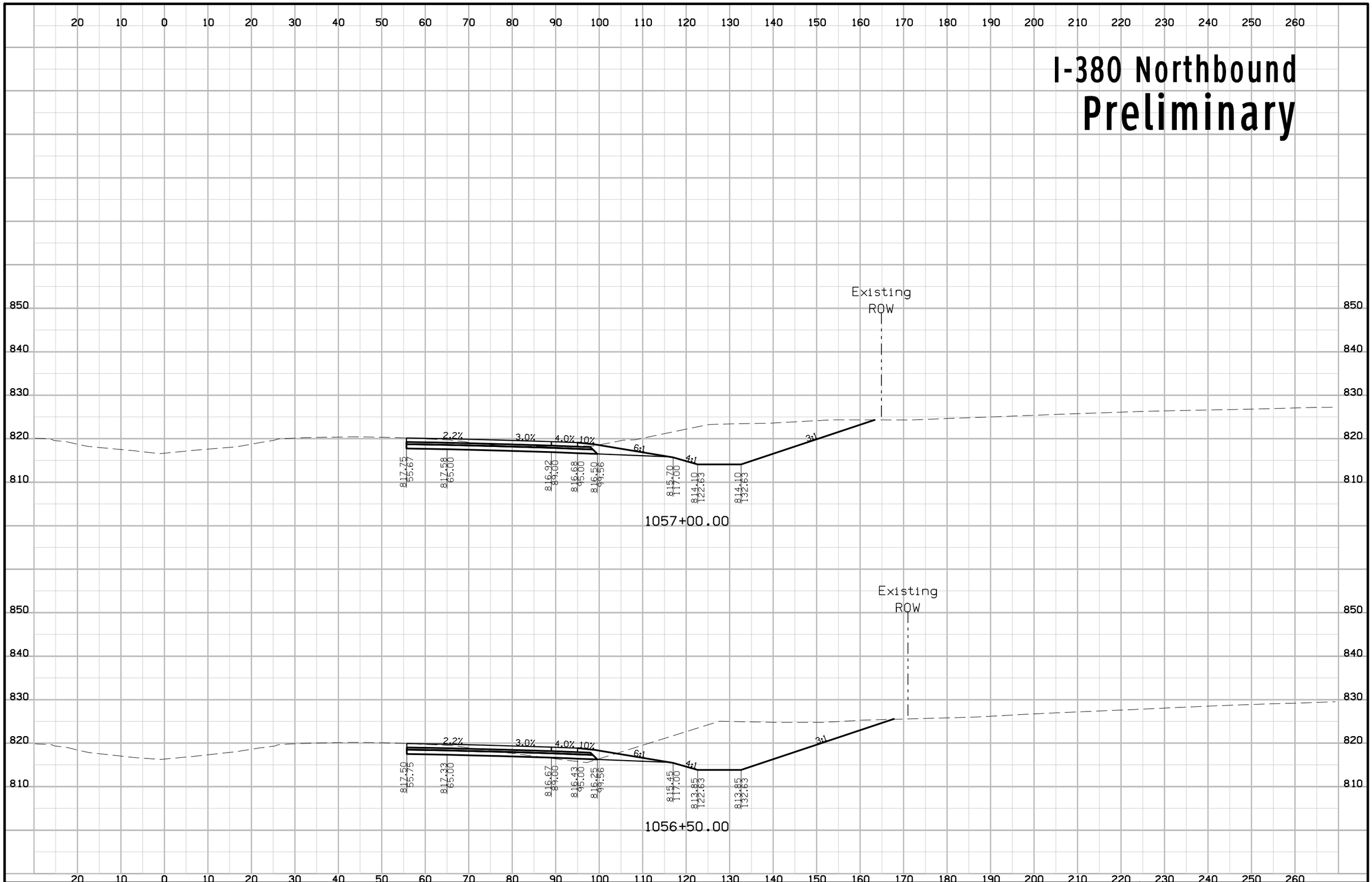
# I-380 Northbound
# Preliminary

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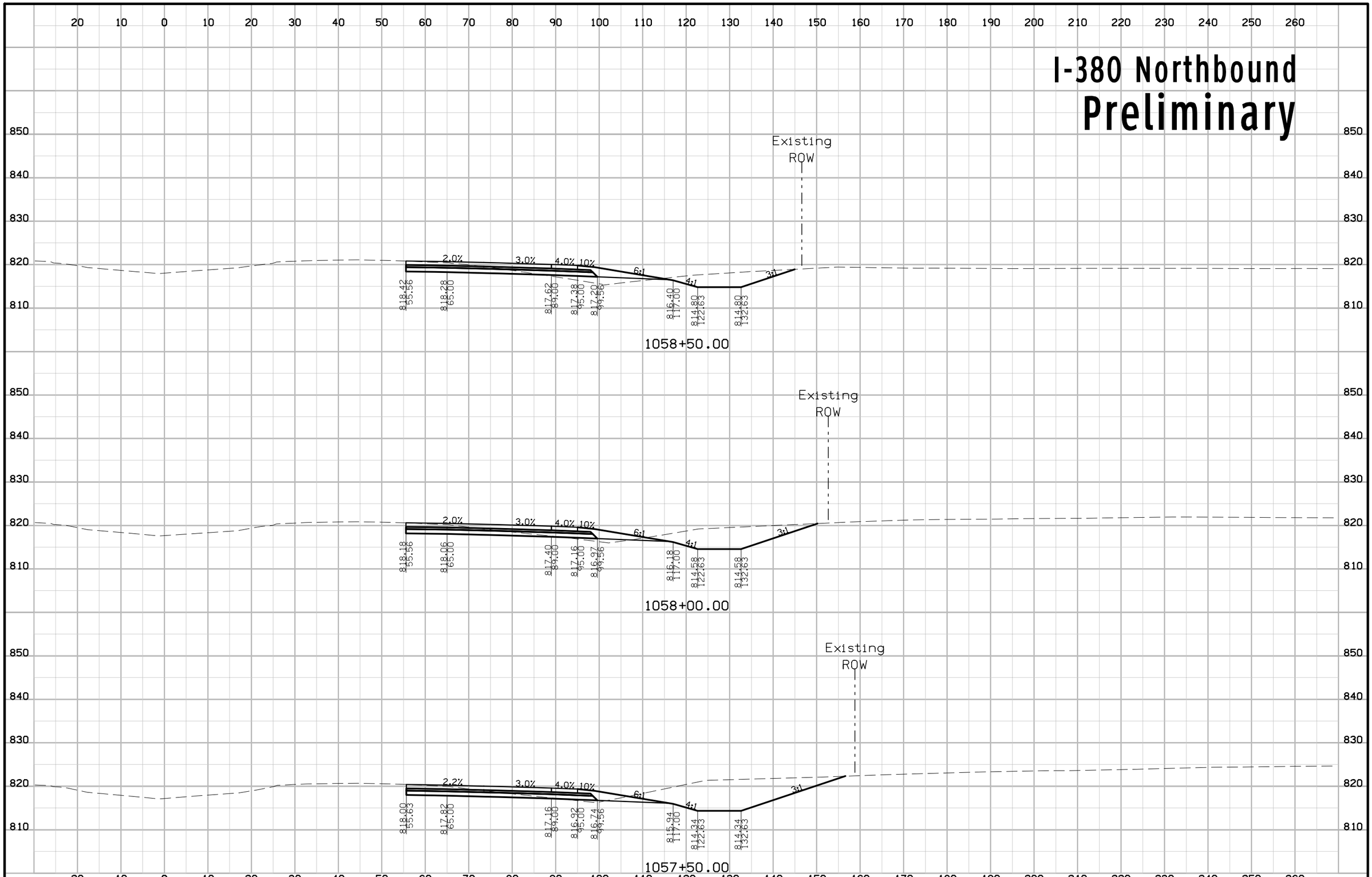
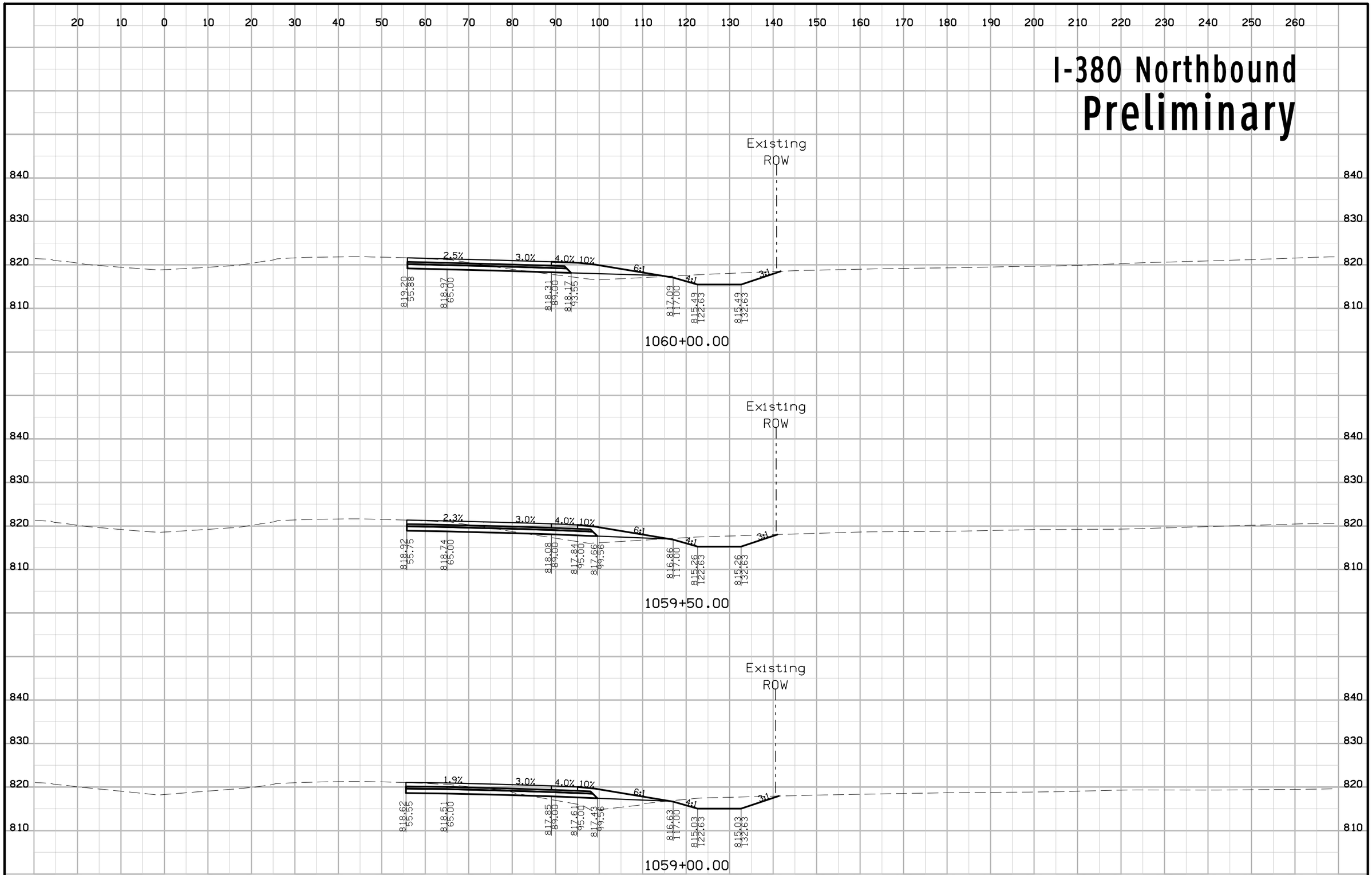
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.17 |
|---|---|---|---|---|---|

# I-380 Northbound
# Preliminary

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|---|---|---|---|---|---|

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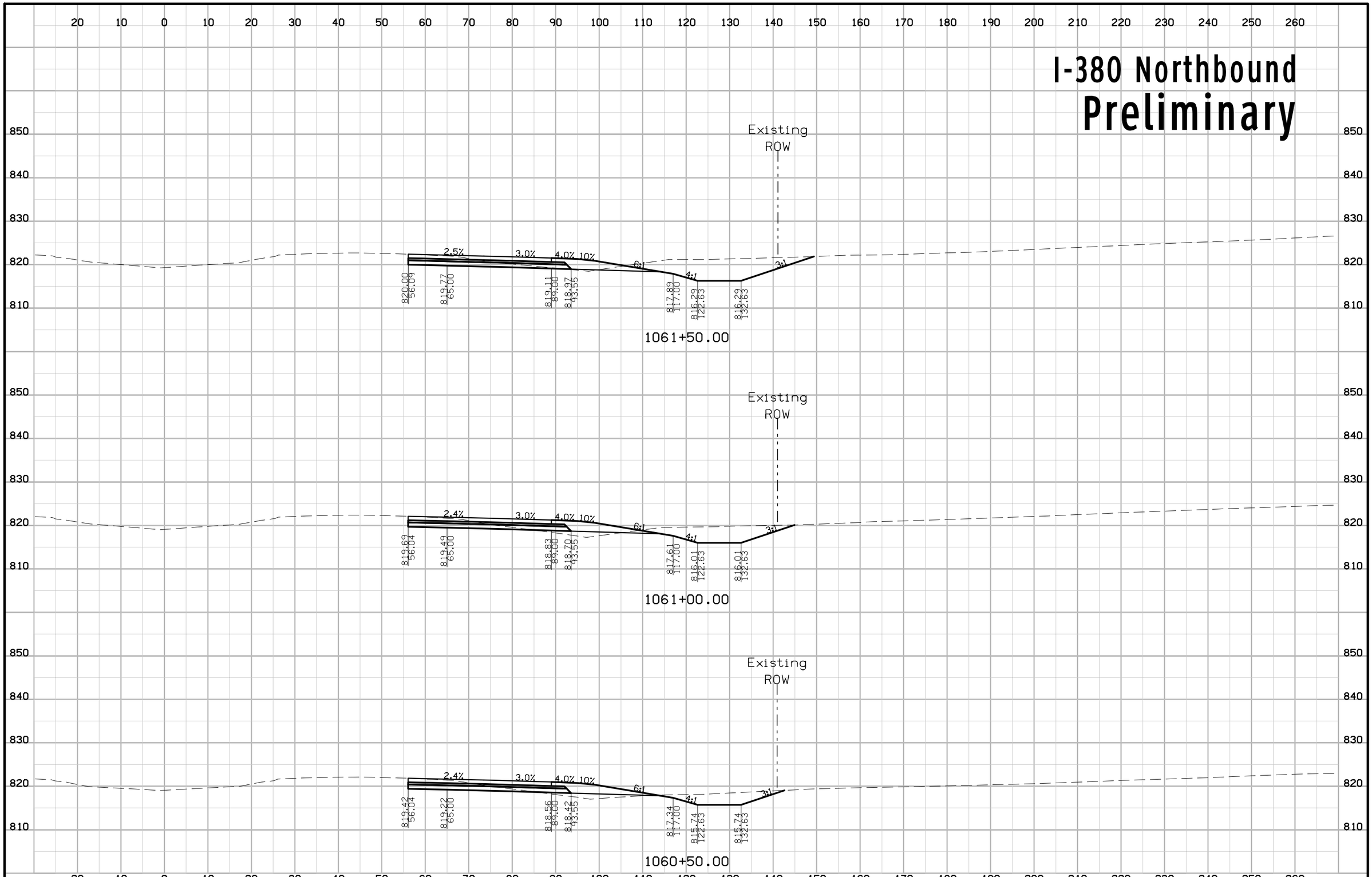
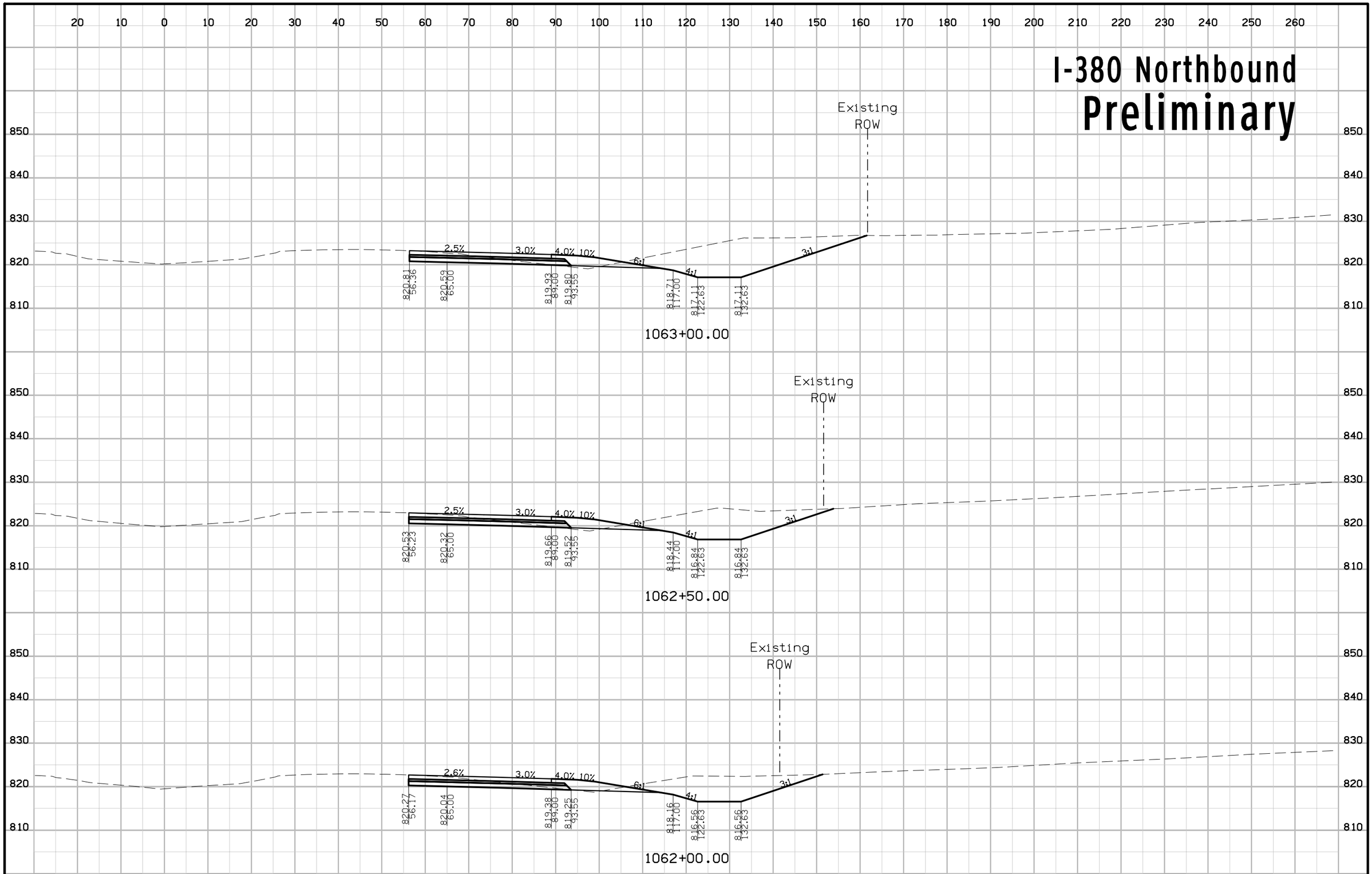
# I-380 Northbound
# Preliminary



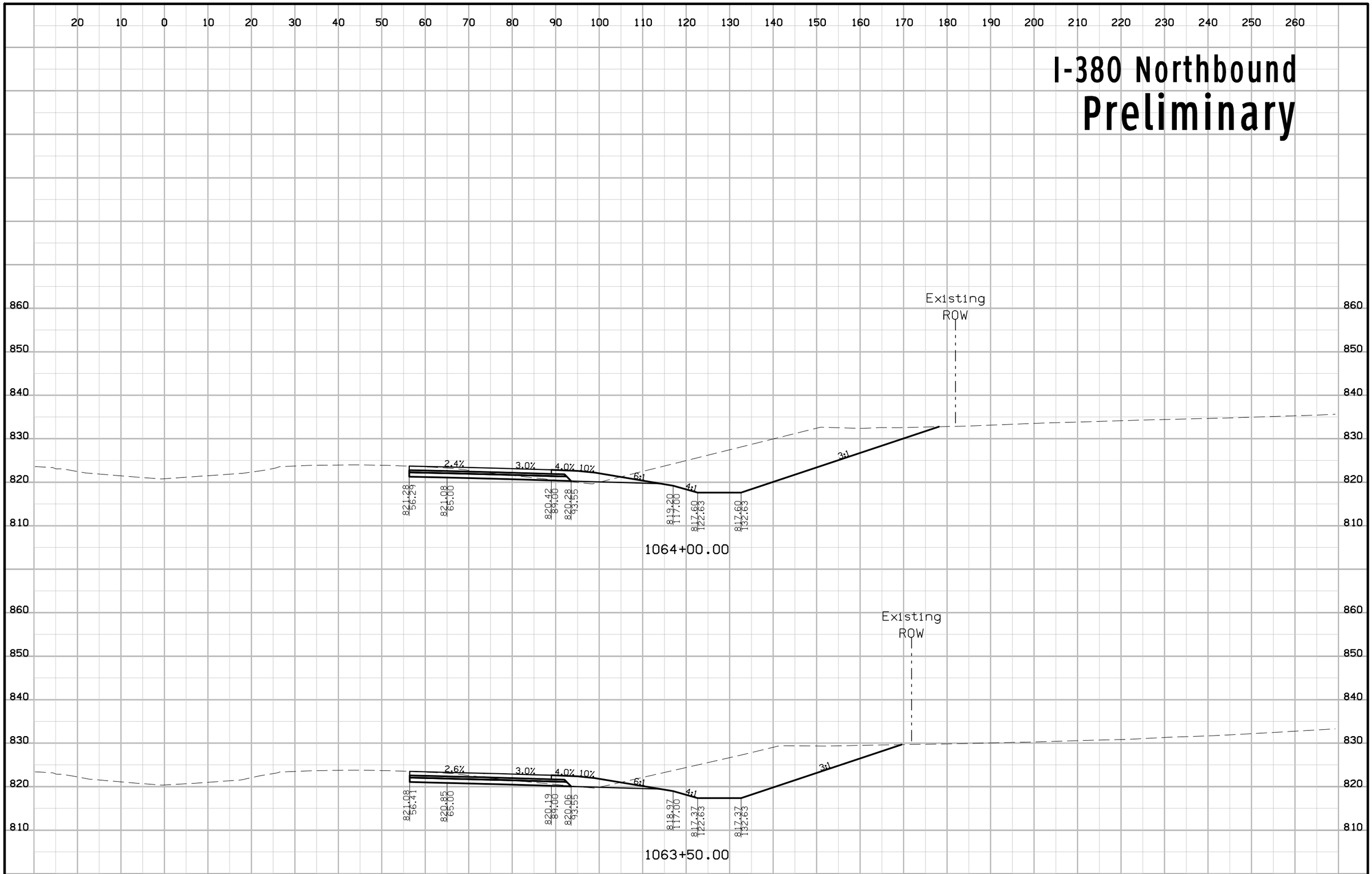

| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.19 |
|---|---|---|---|---|---|

# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.20 |
|---|---|---|---|---|---|

# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.21 |
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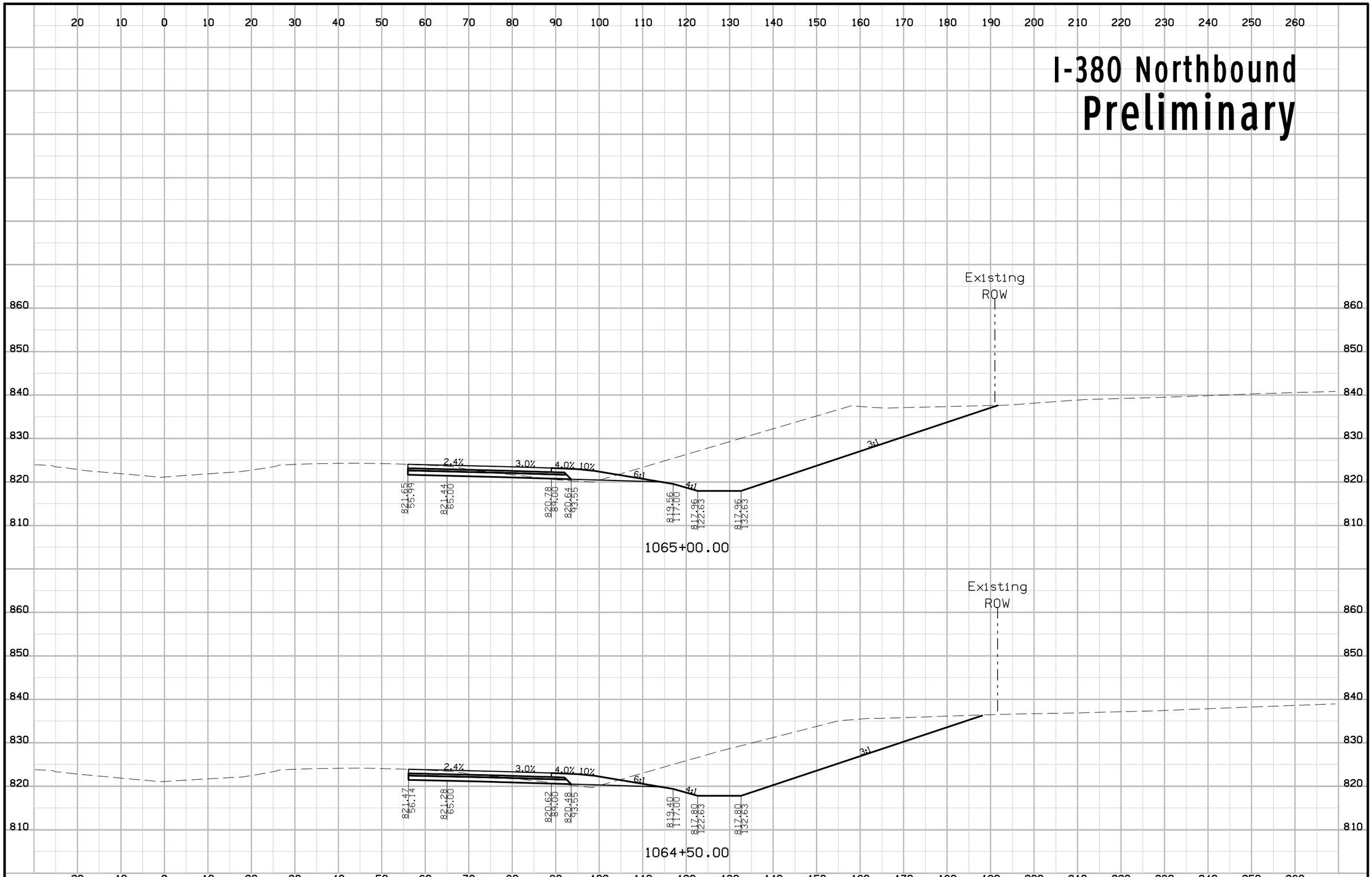
3:17:59 PM rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200W01.dgn

# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.22 |
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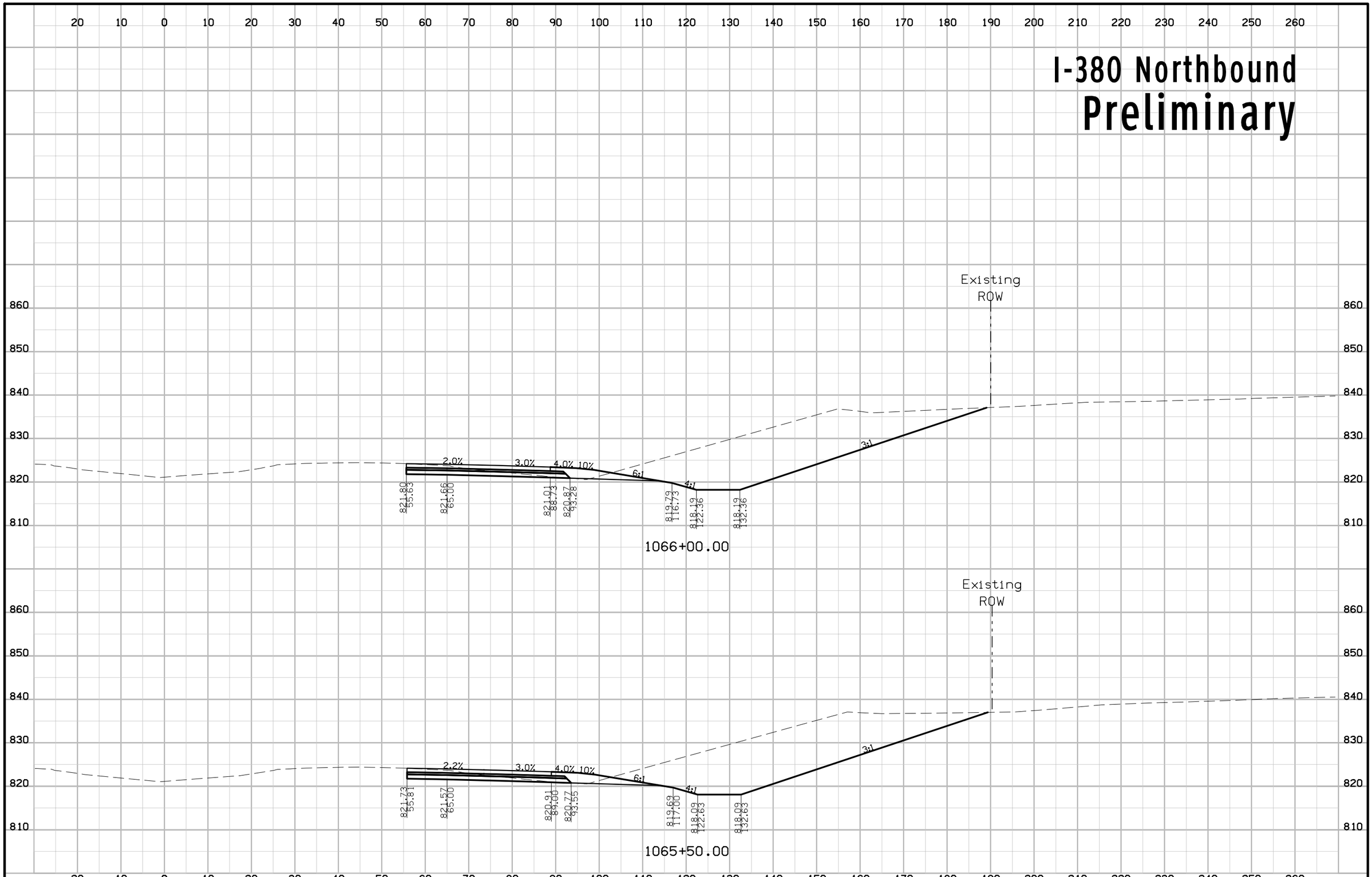
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.23 |
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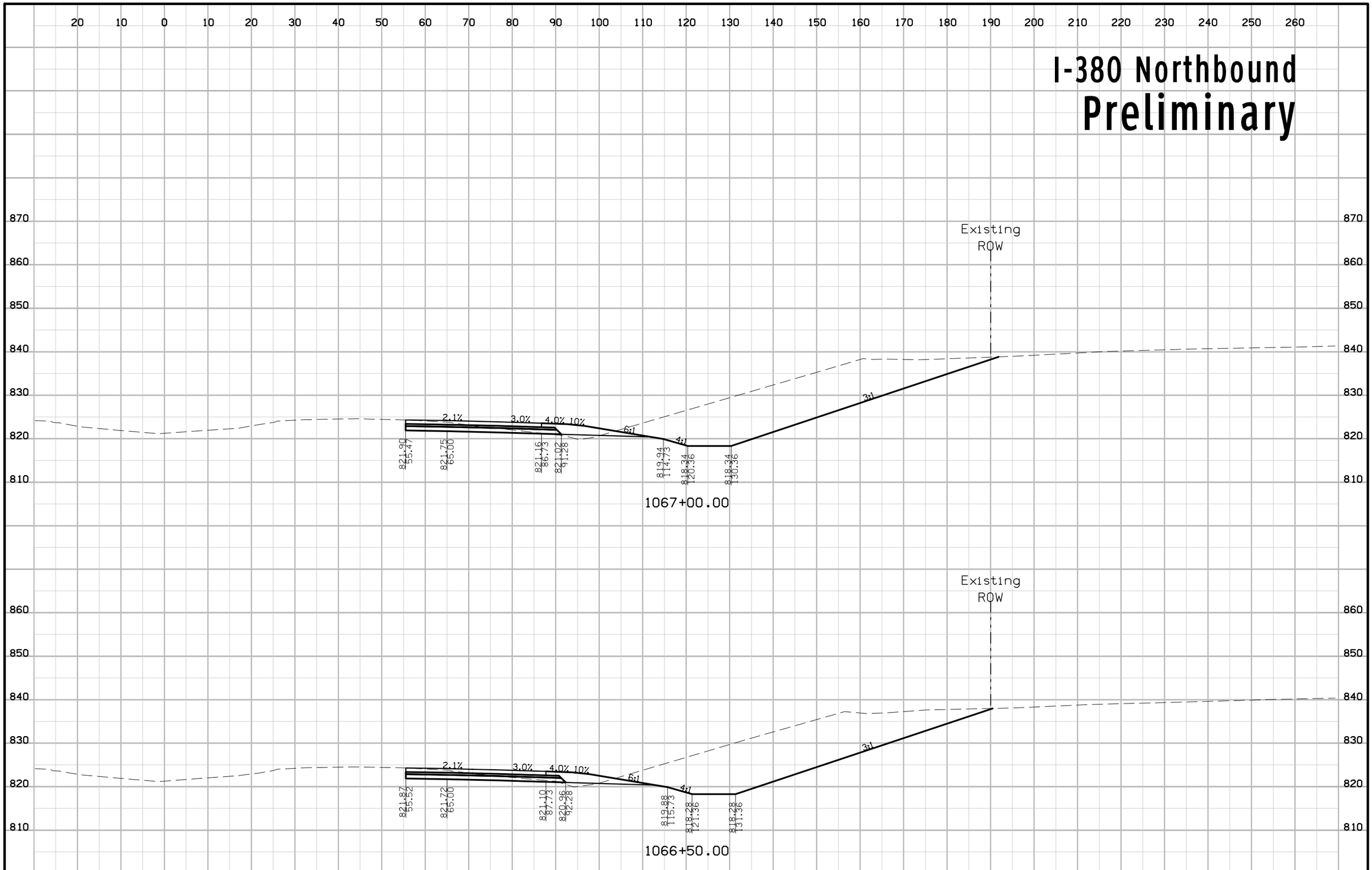
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.24 |
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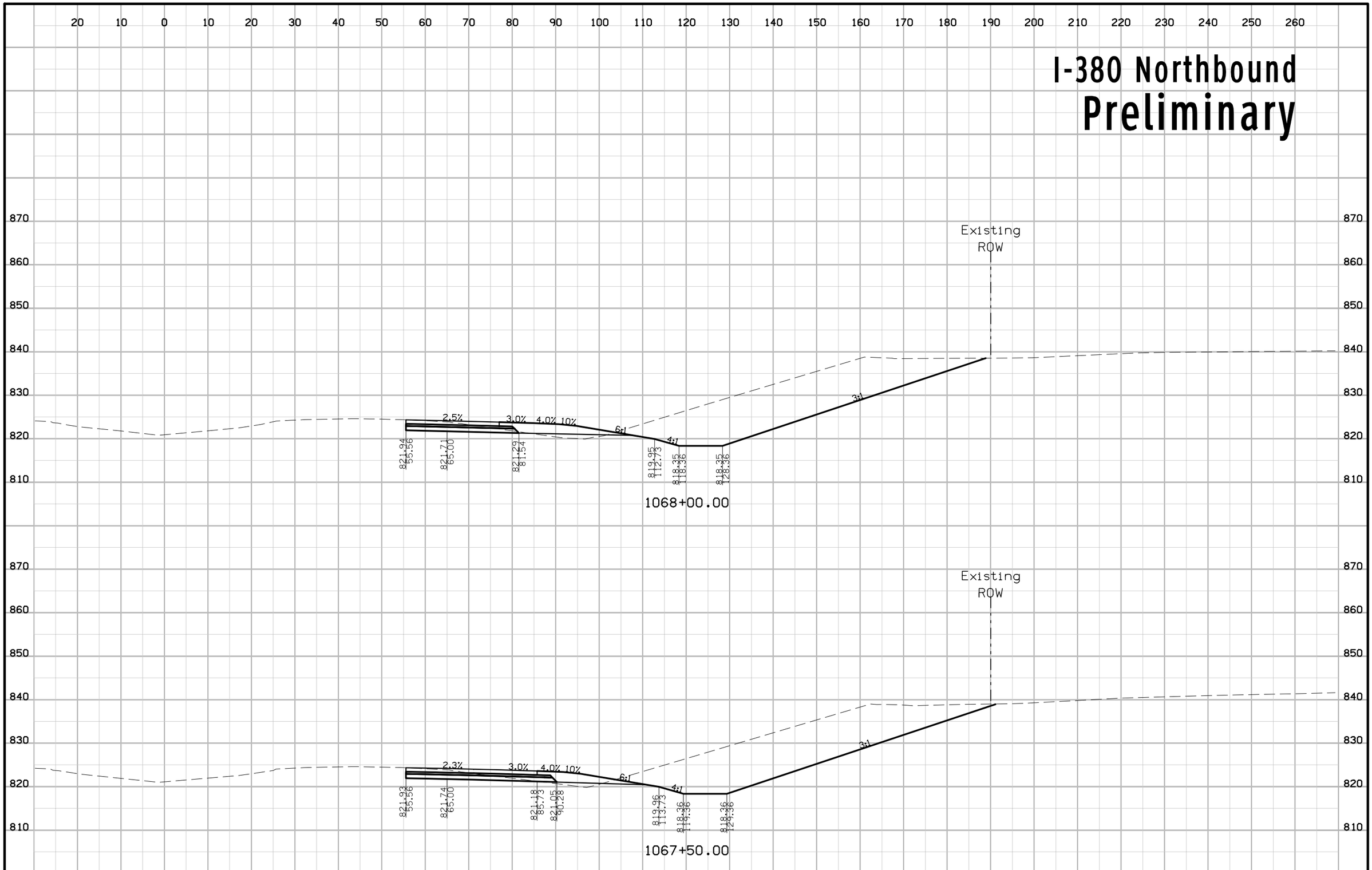
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.25 |
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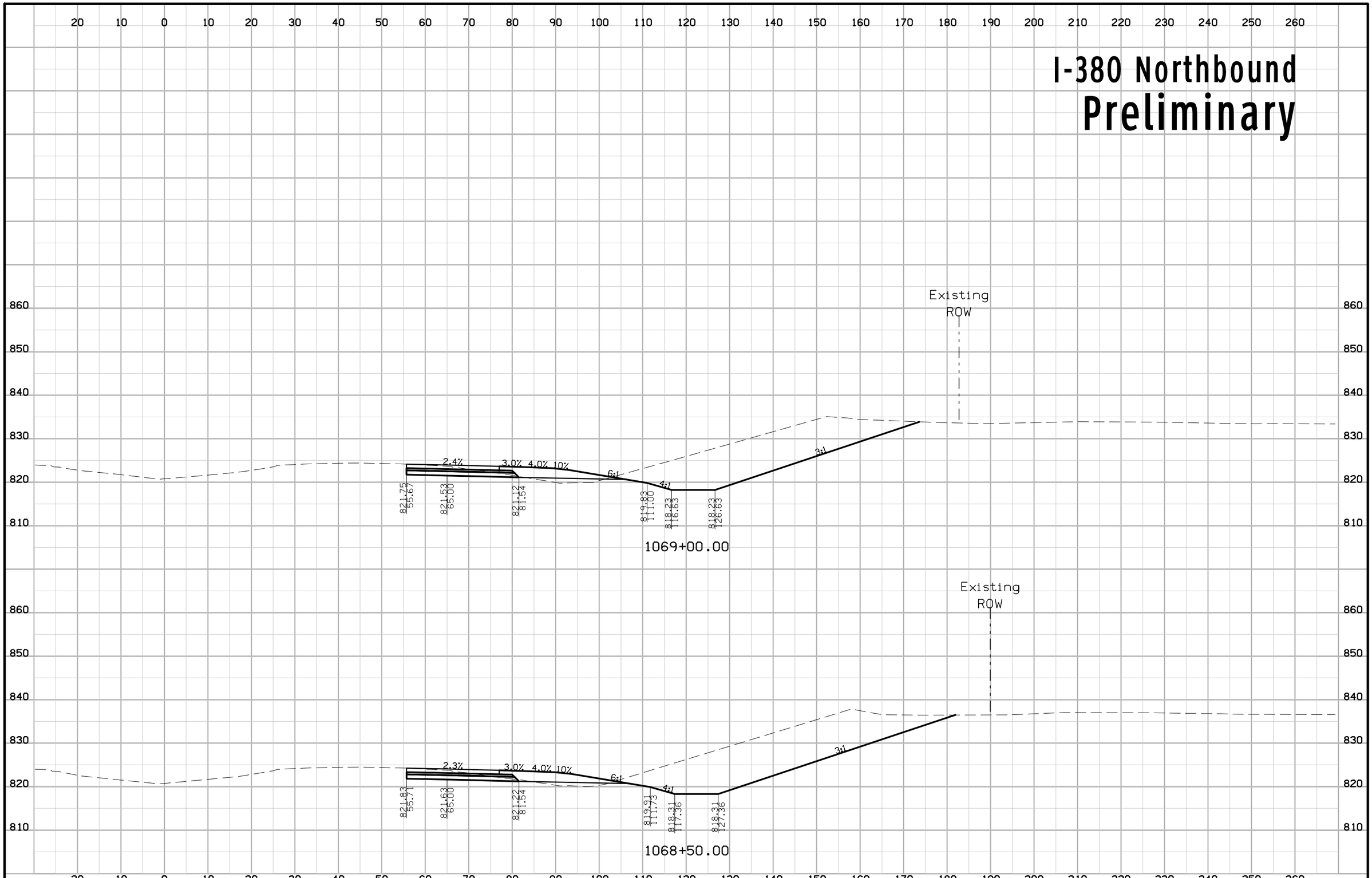
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.26 |
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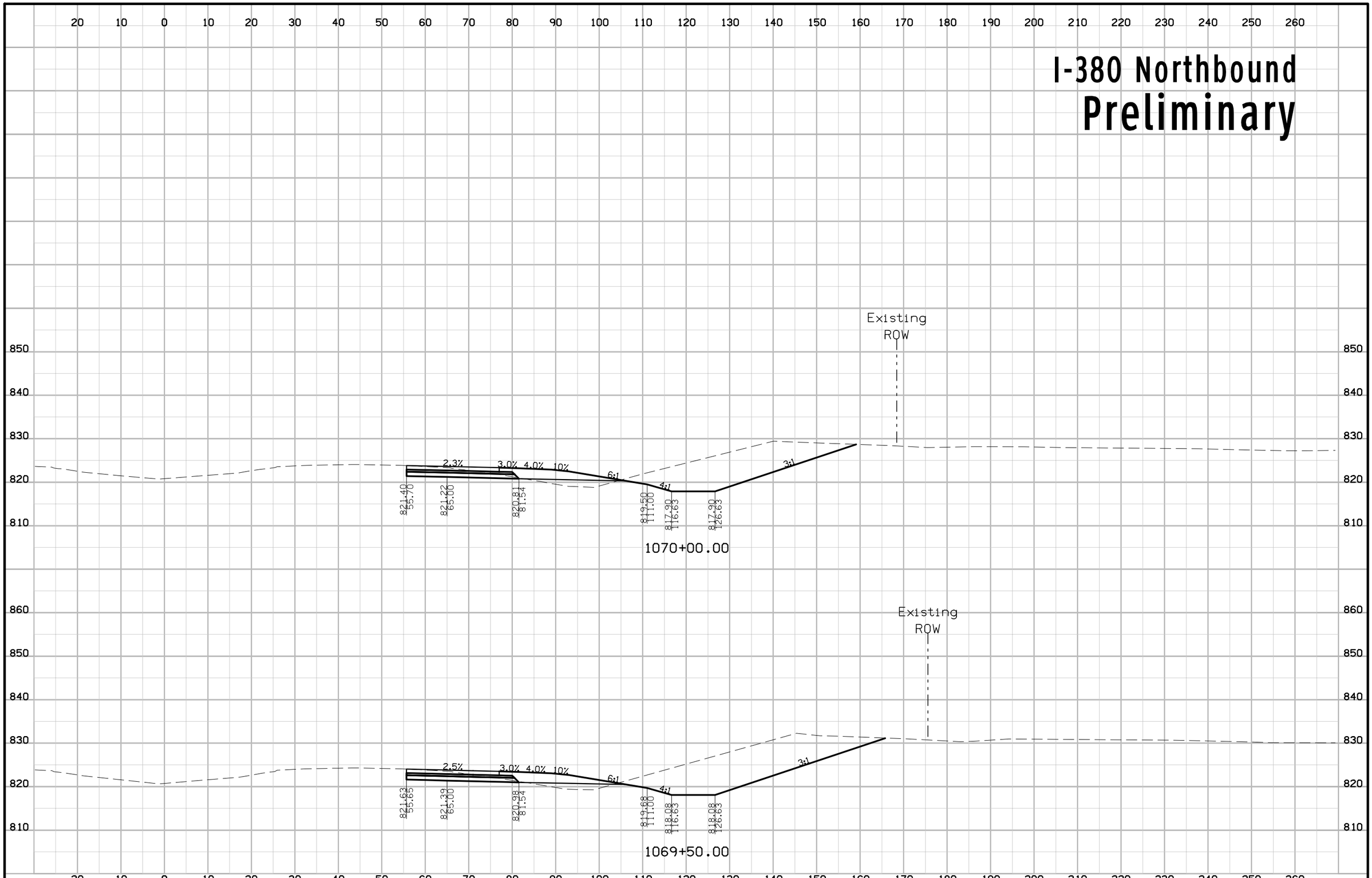
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.27 |
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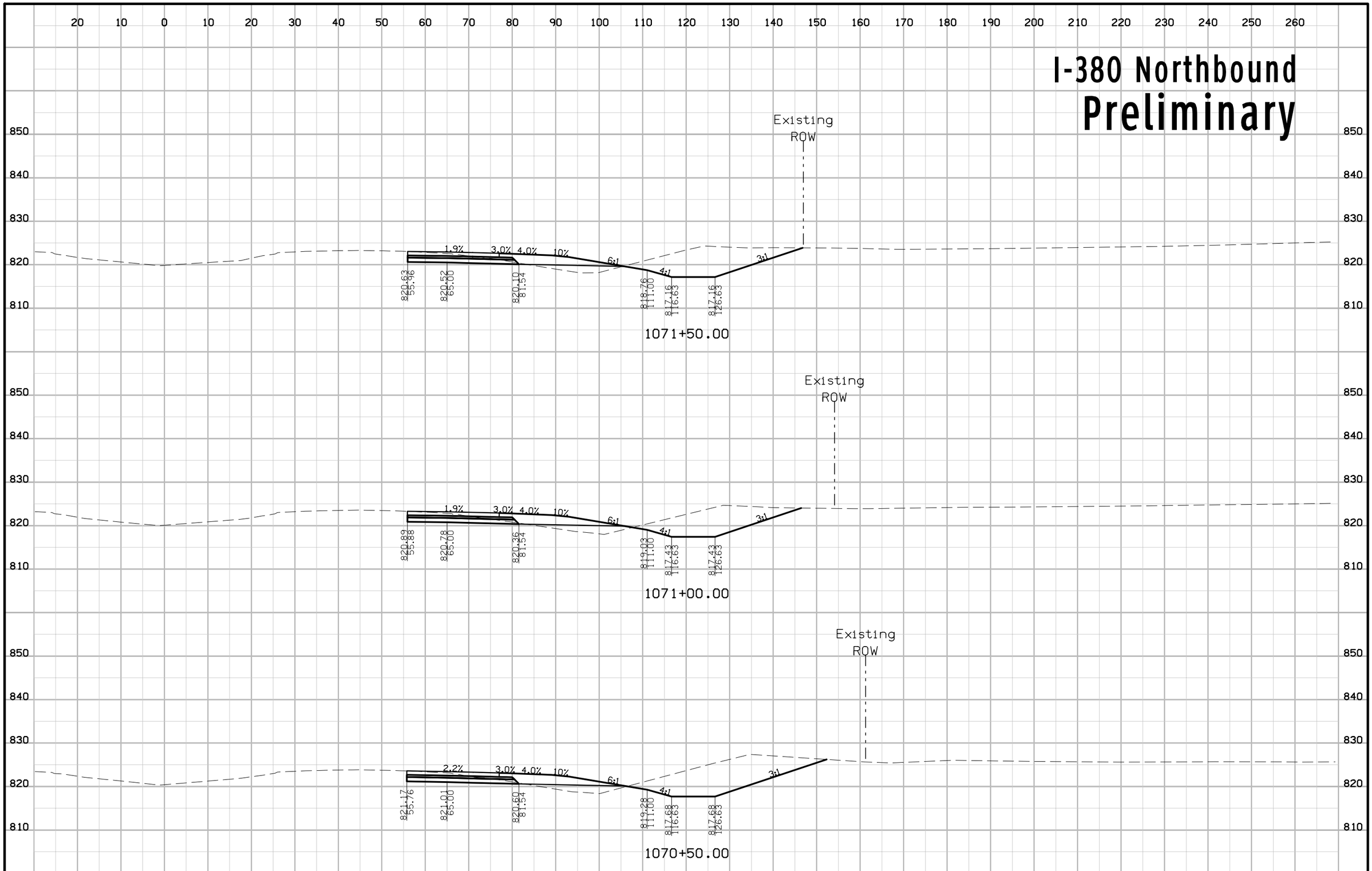
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.28 |
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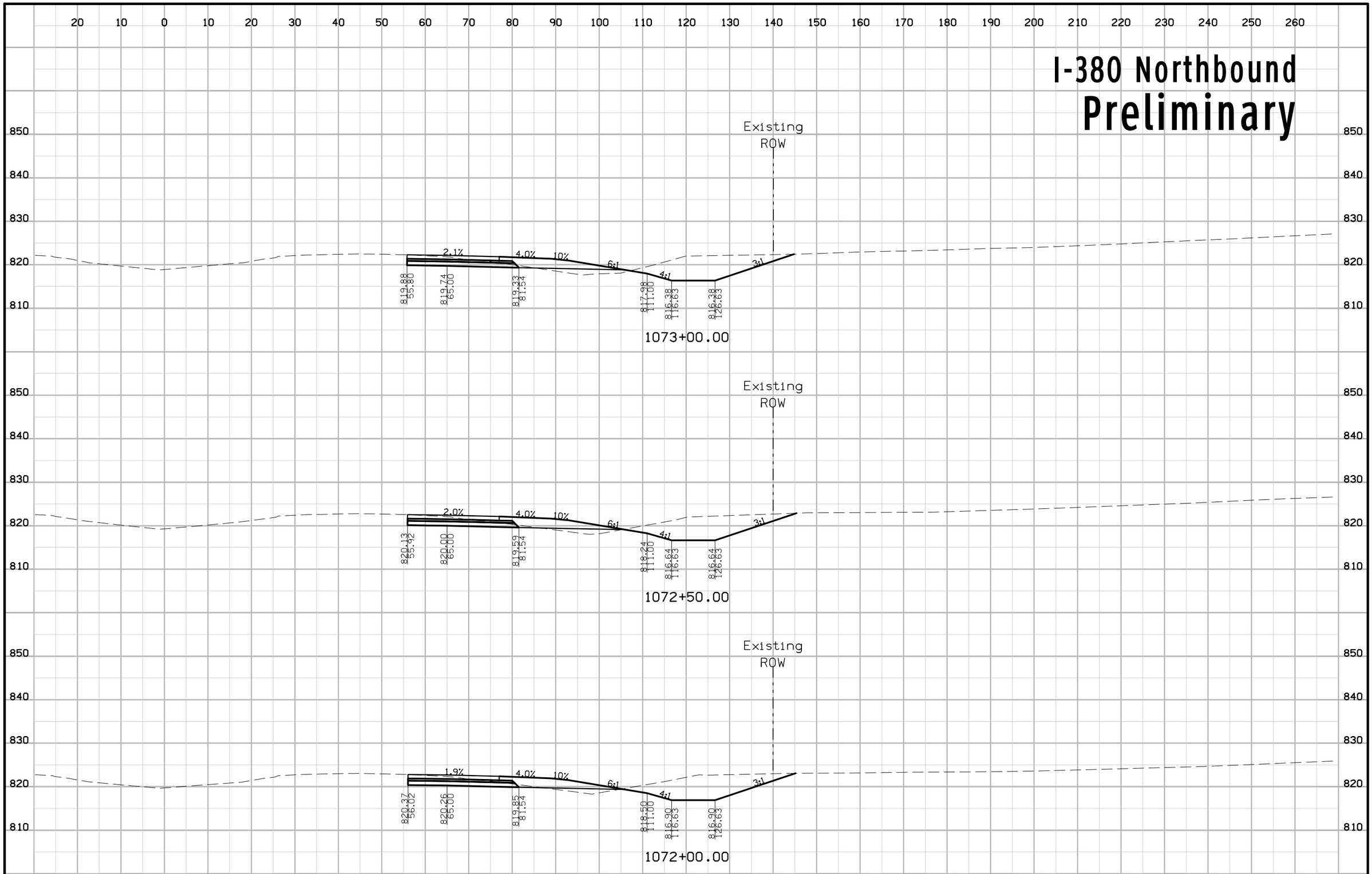
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.29 |
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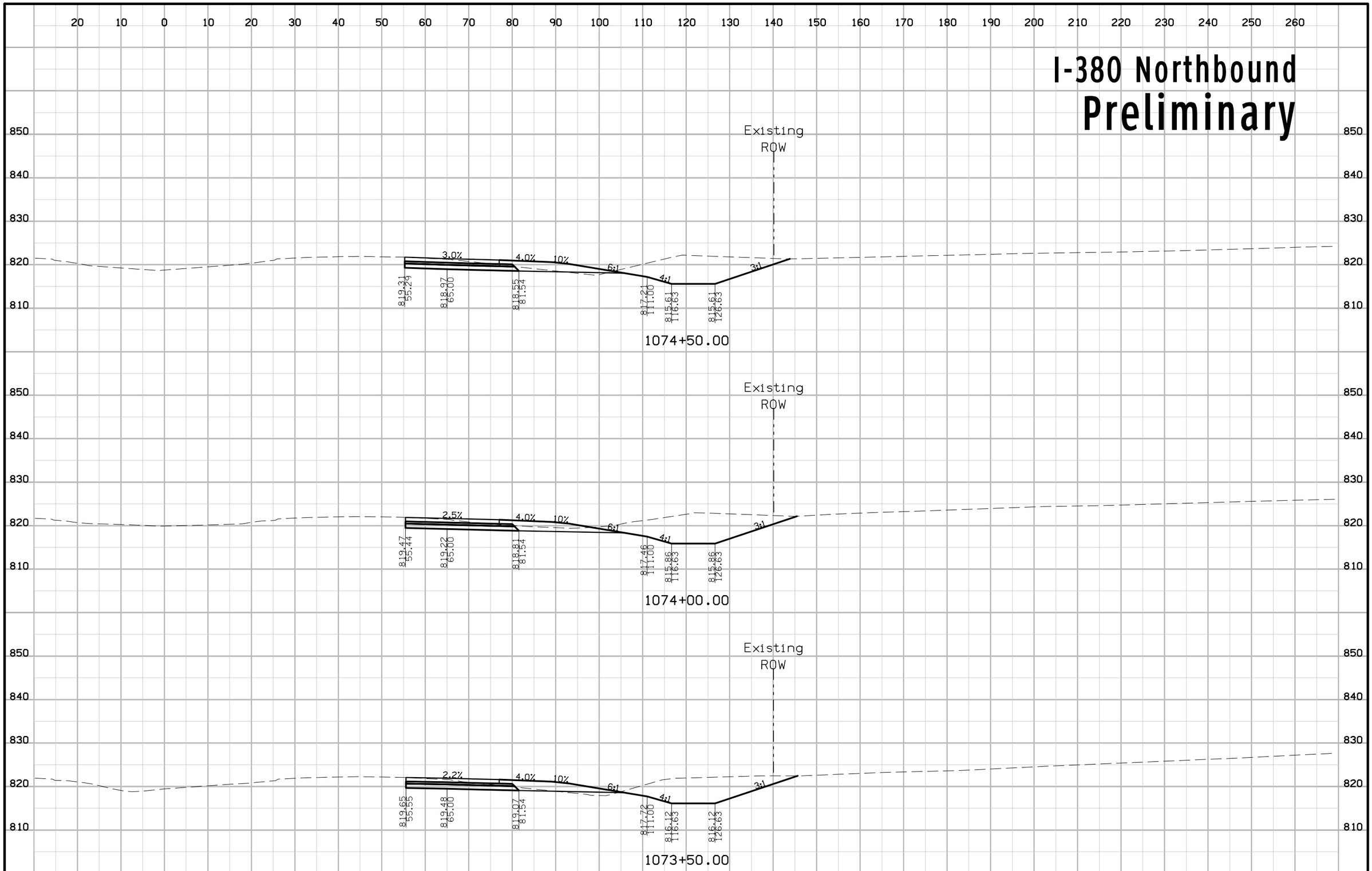
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.30 |
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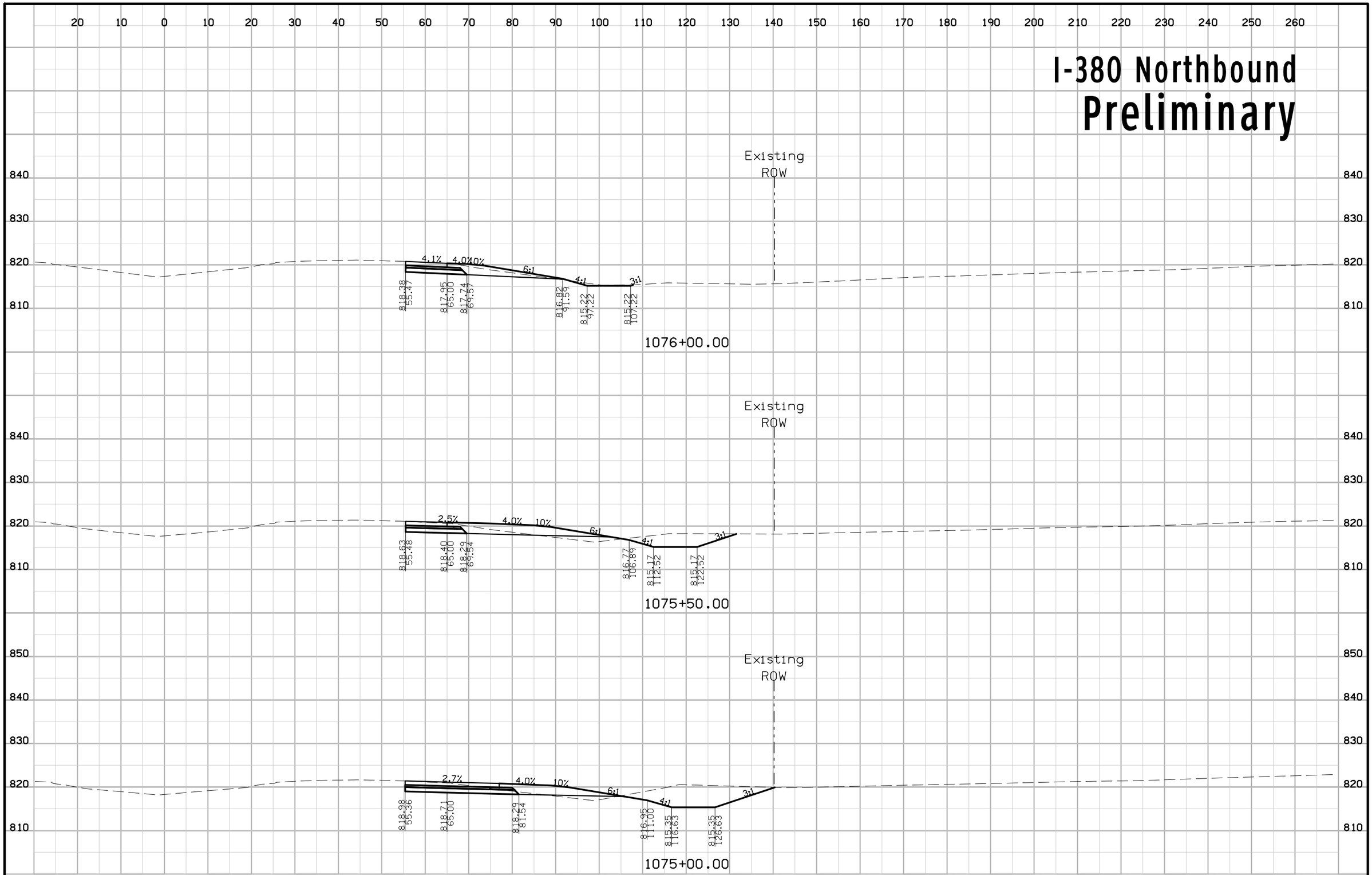
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.31 |
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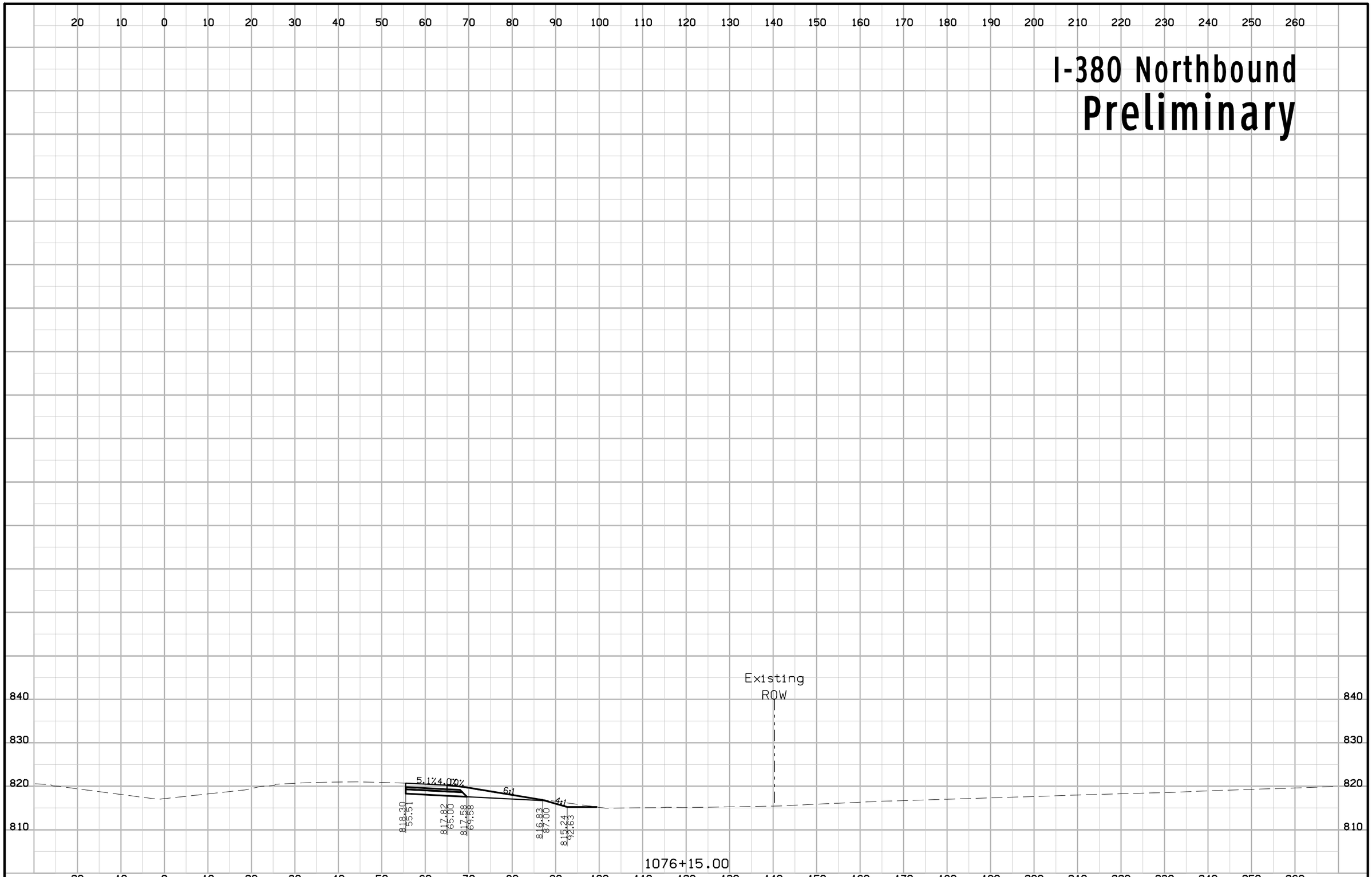
# I-380 Northbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.32 |
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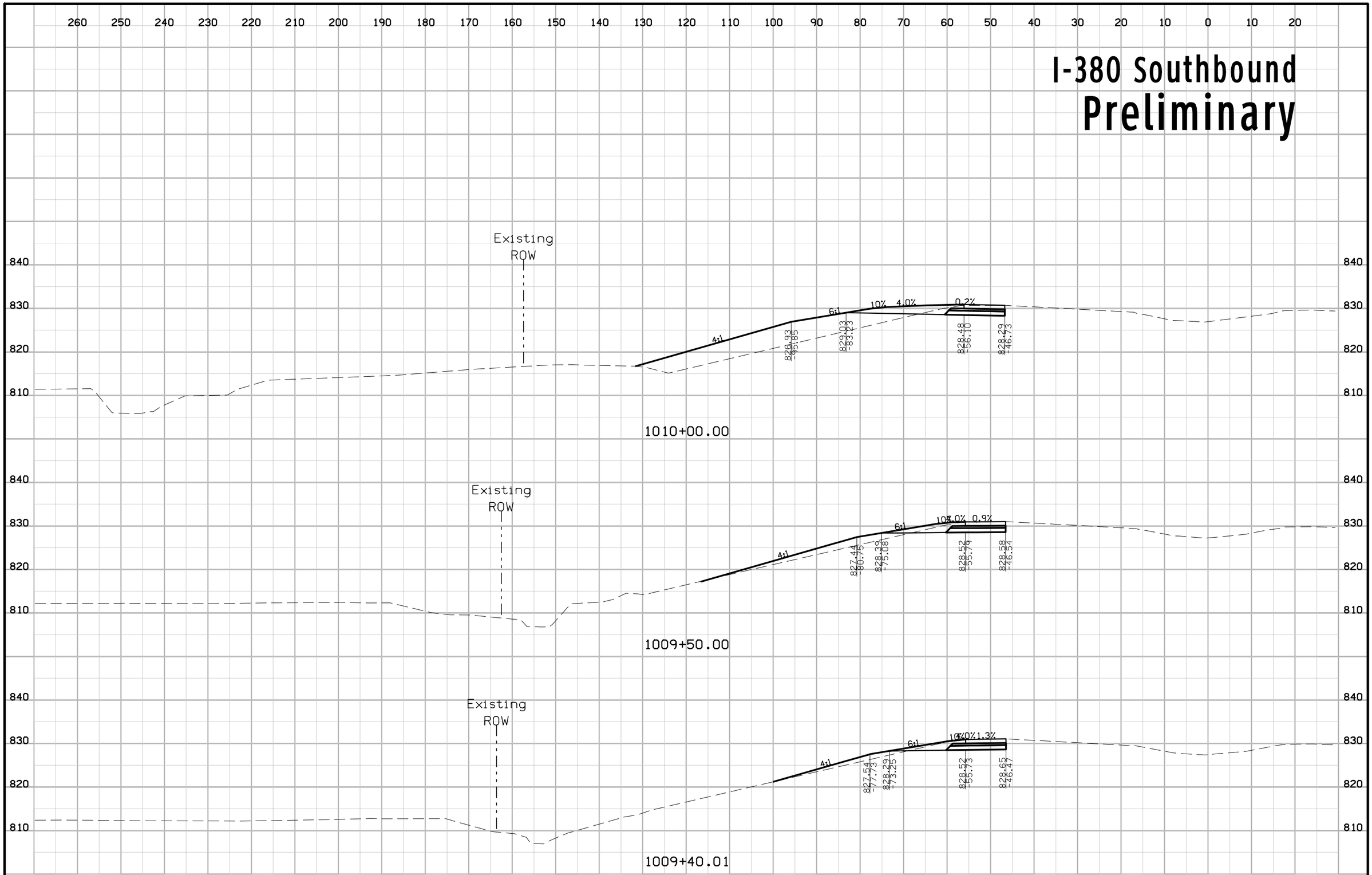
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.33 |
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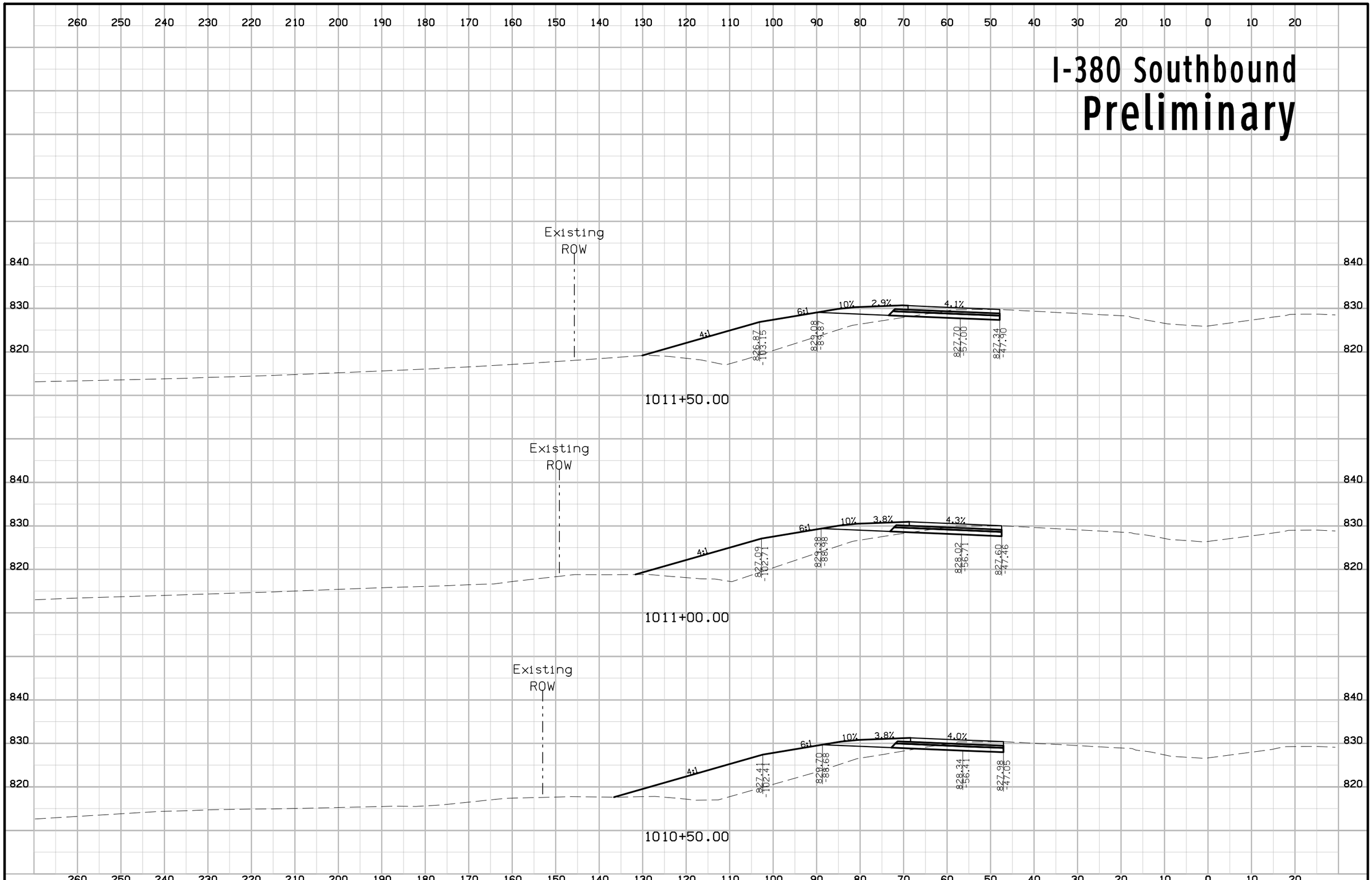
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.34 |
|---|---|---|---|---|---|

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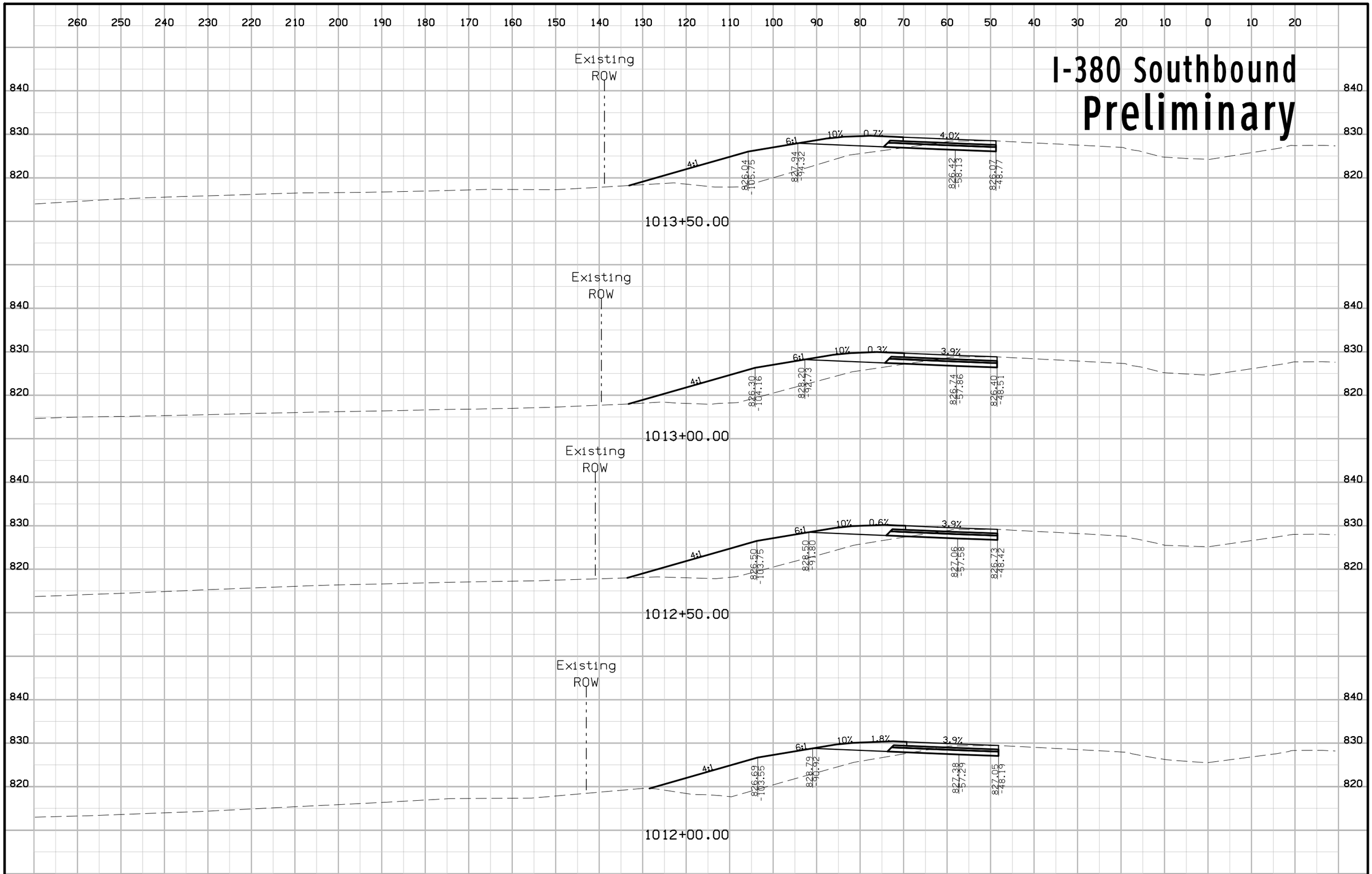
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.35 |
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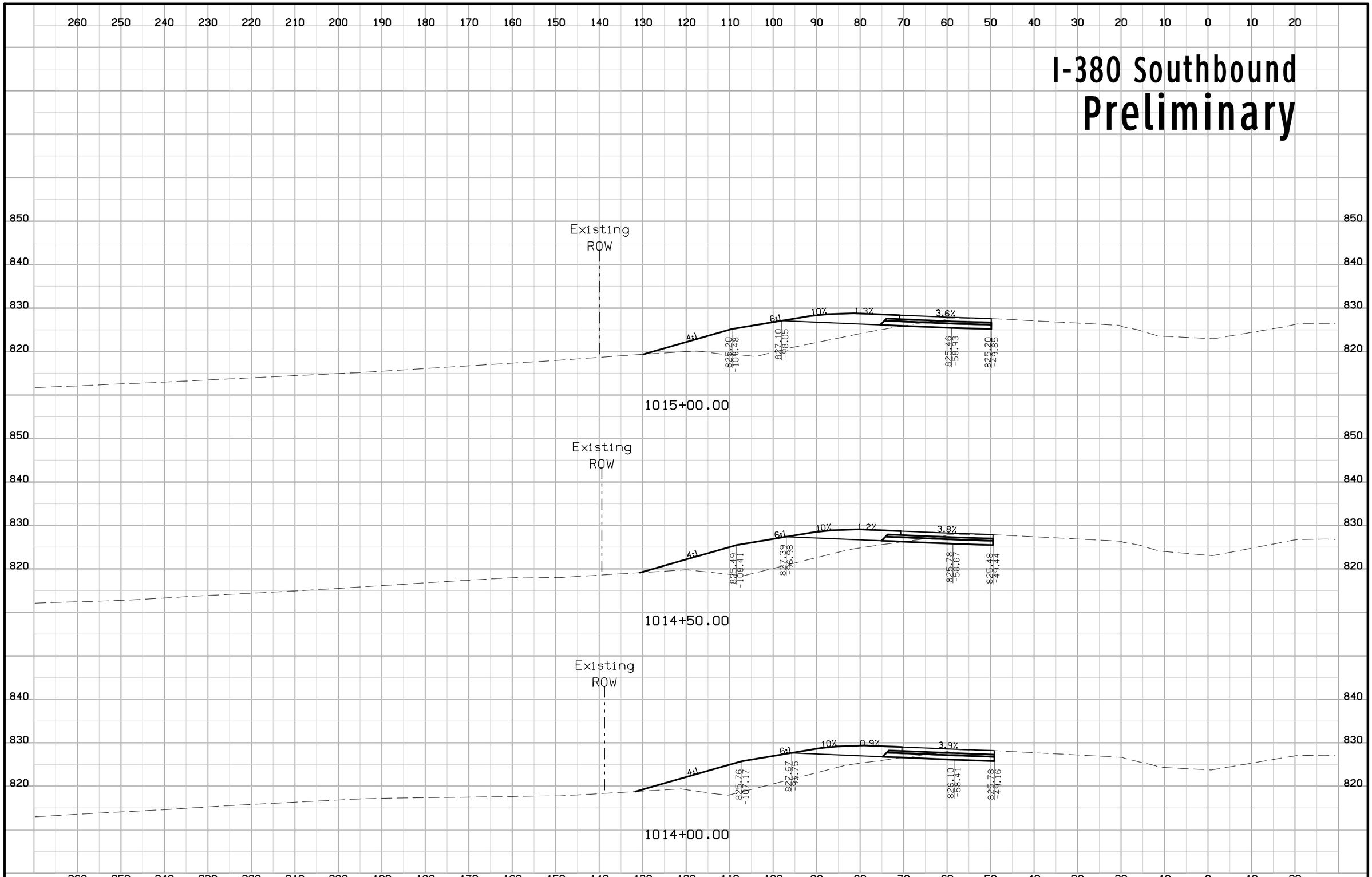
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.36 |
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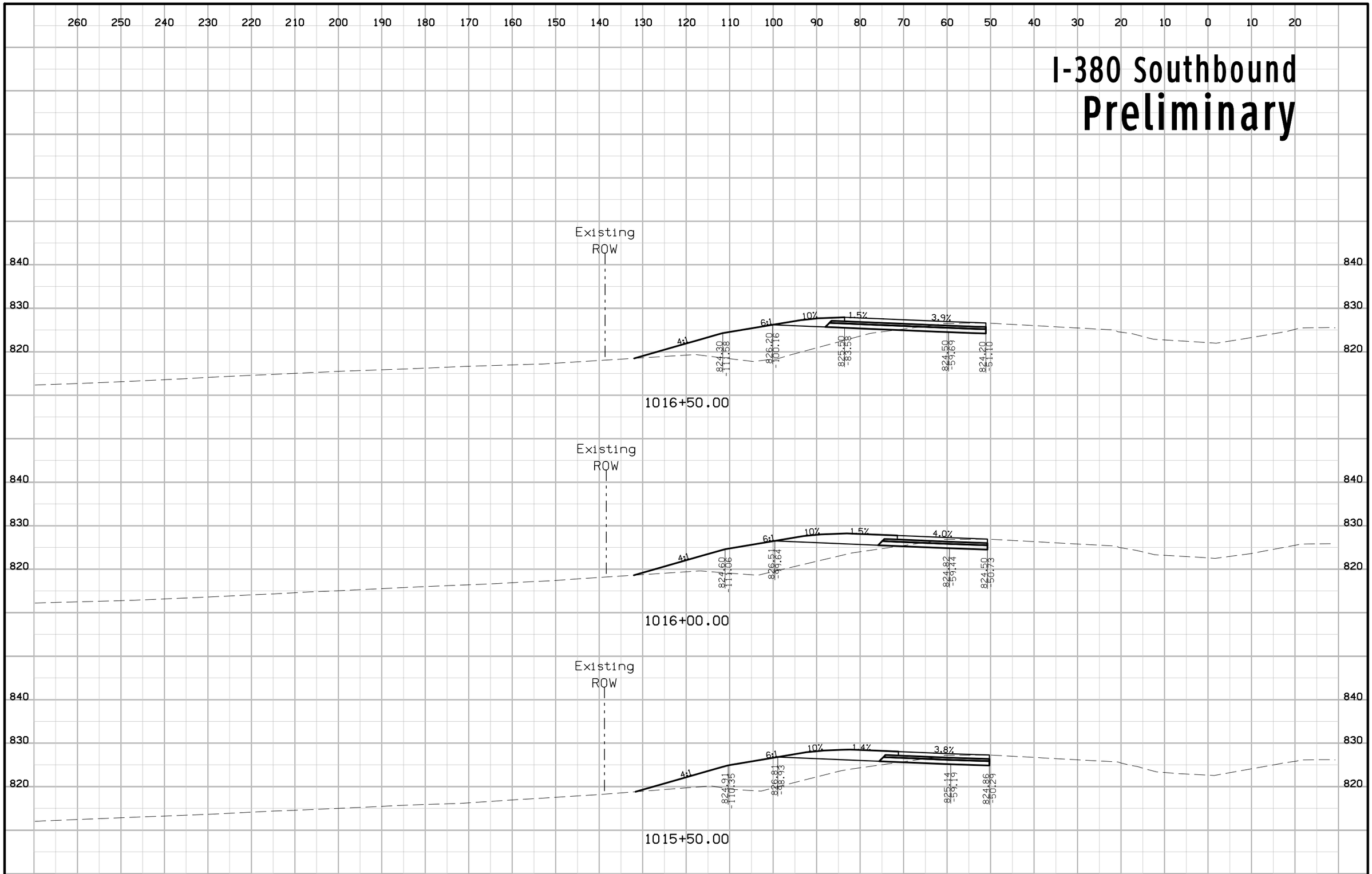
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.37 |
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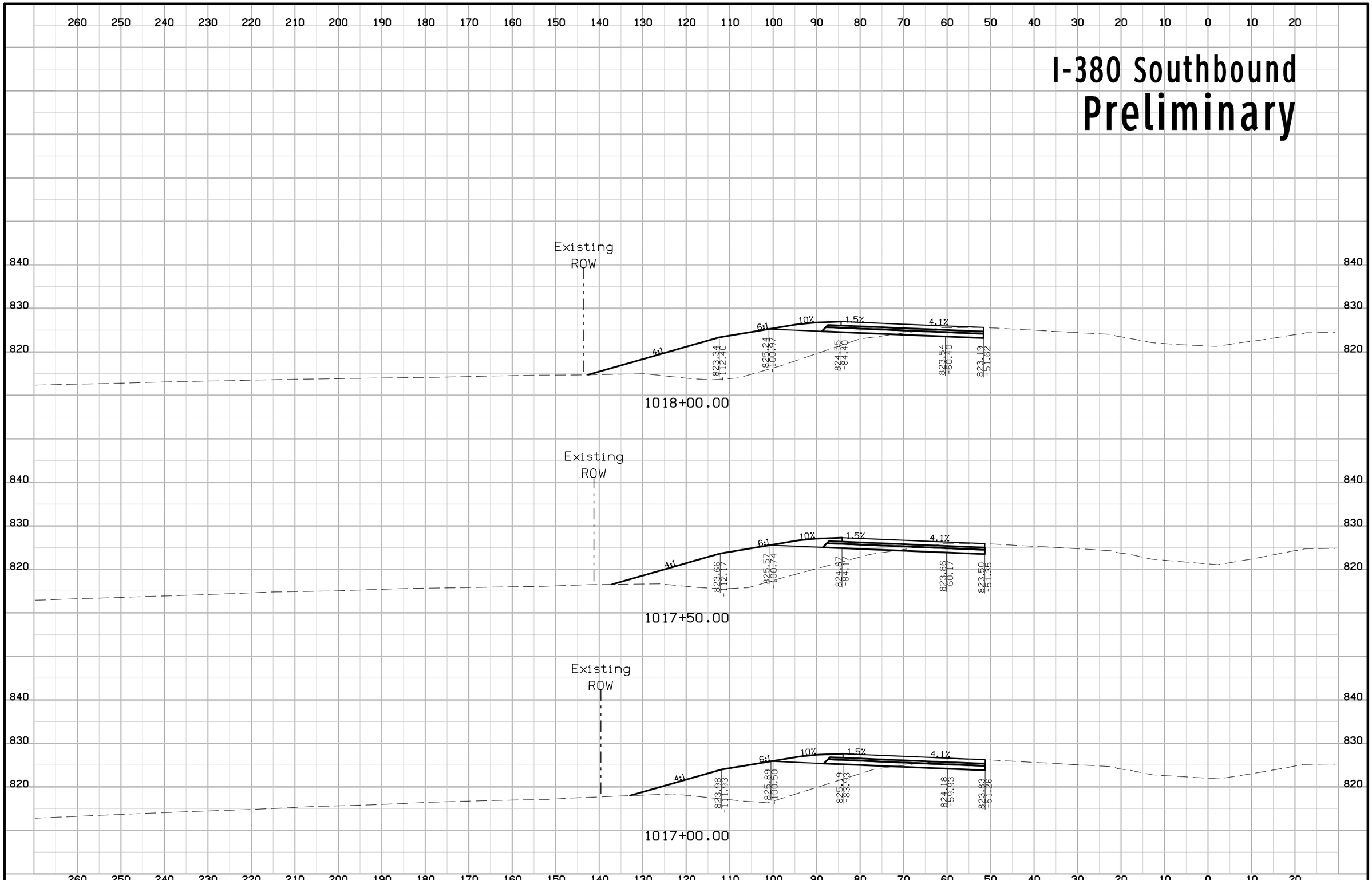
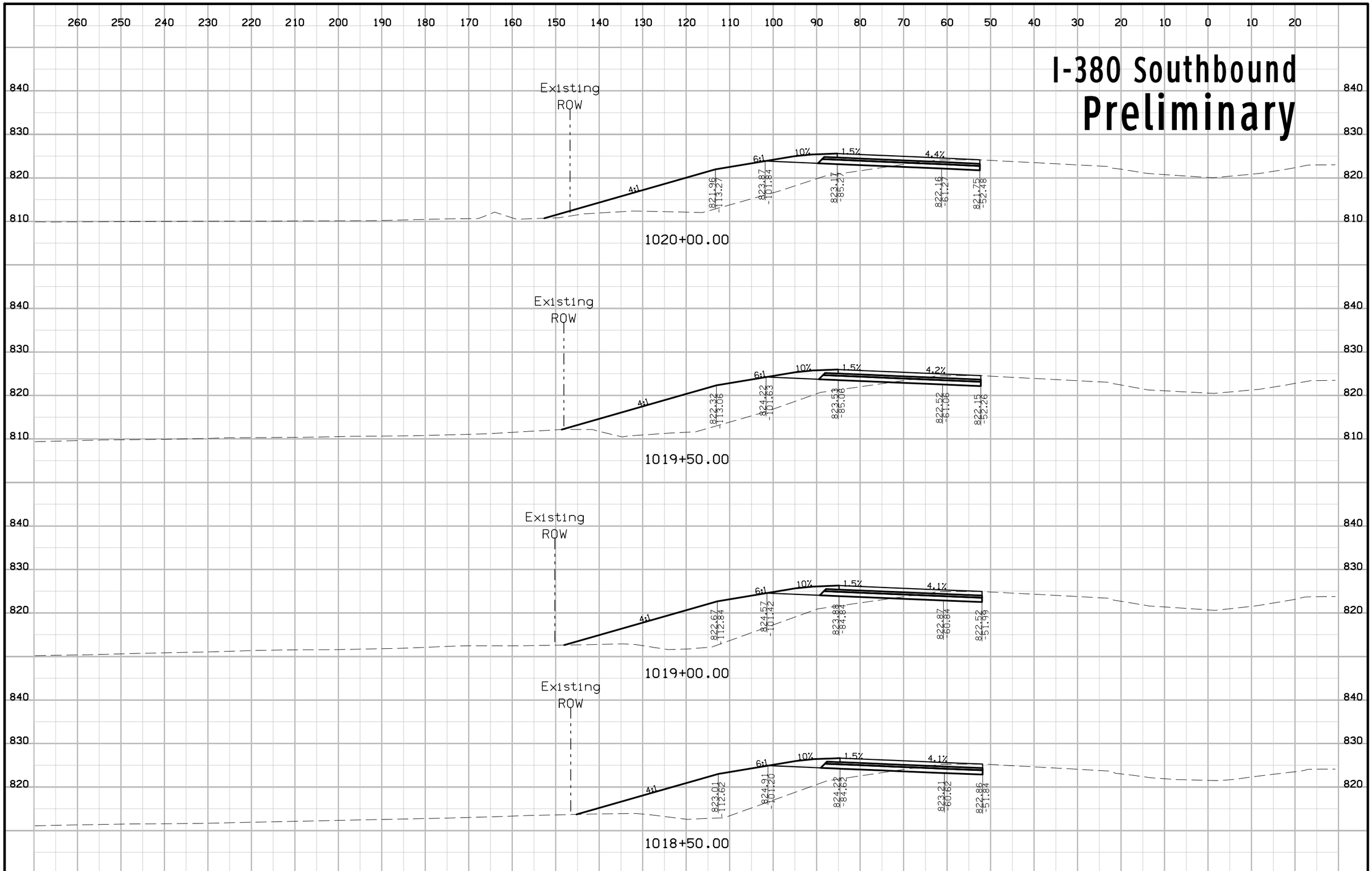
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.38 |
|---|---|---|---|---|---|

# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.39 |
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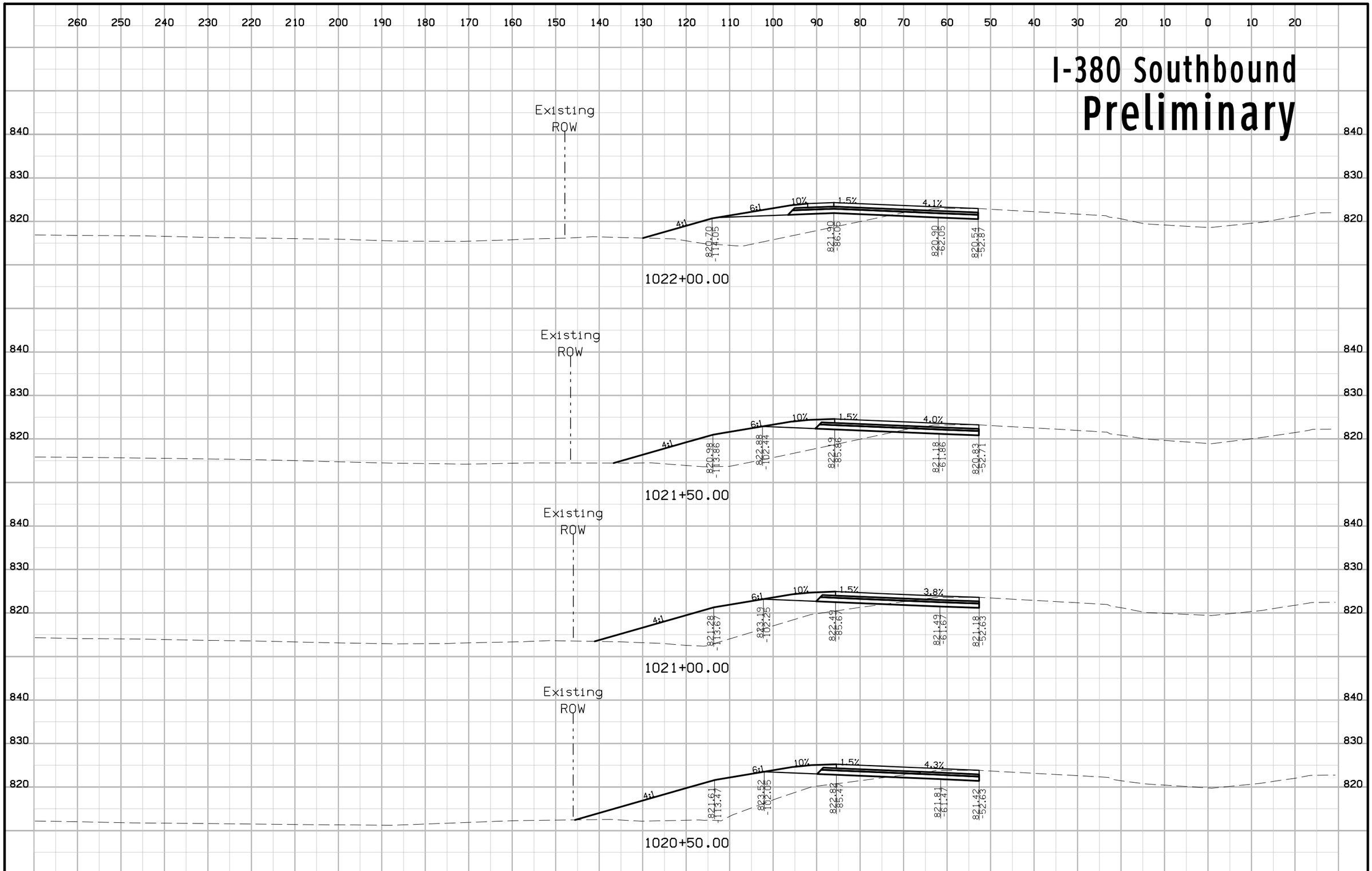
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.40 |
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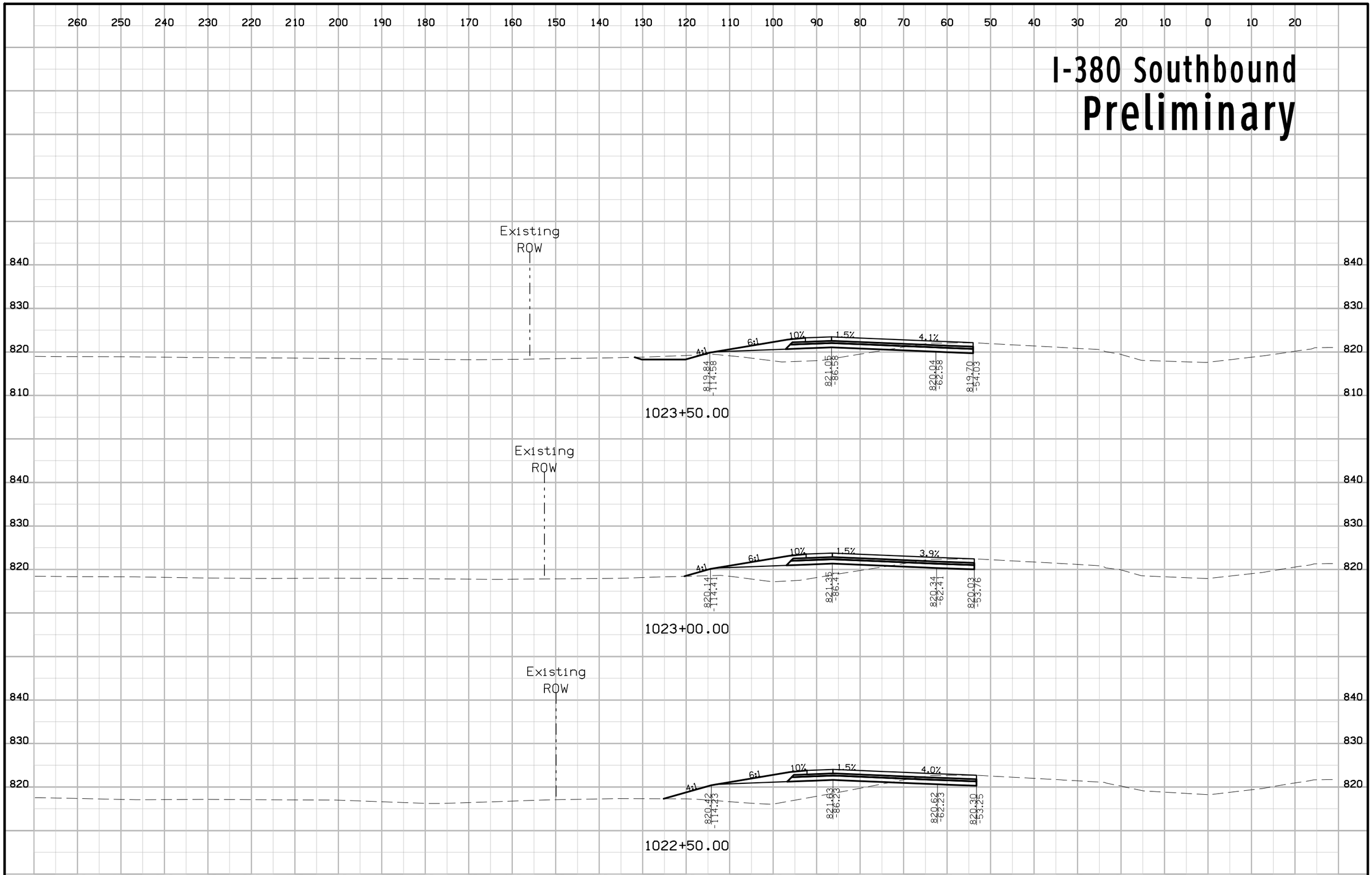
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.41 |
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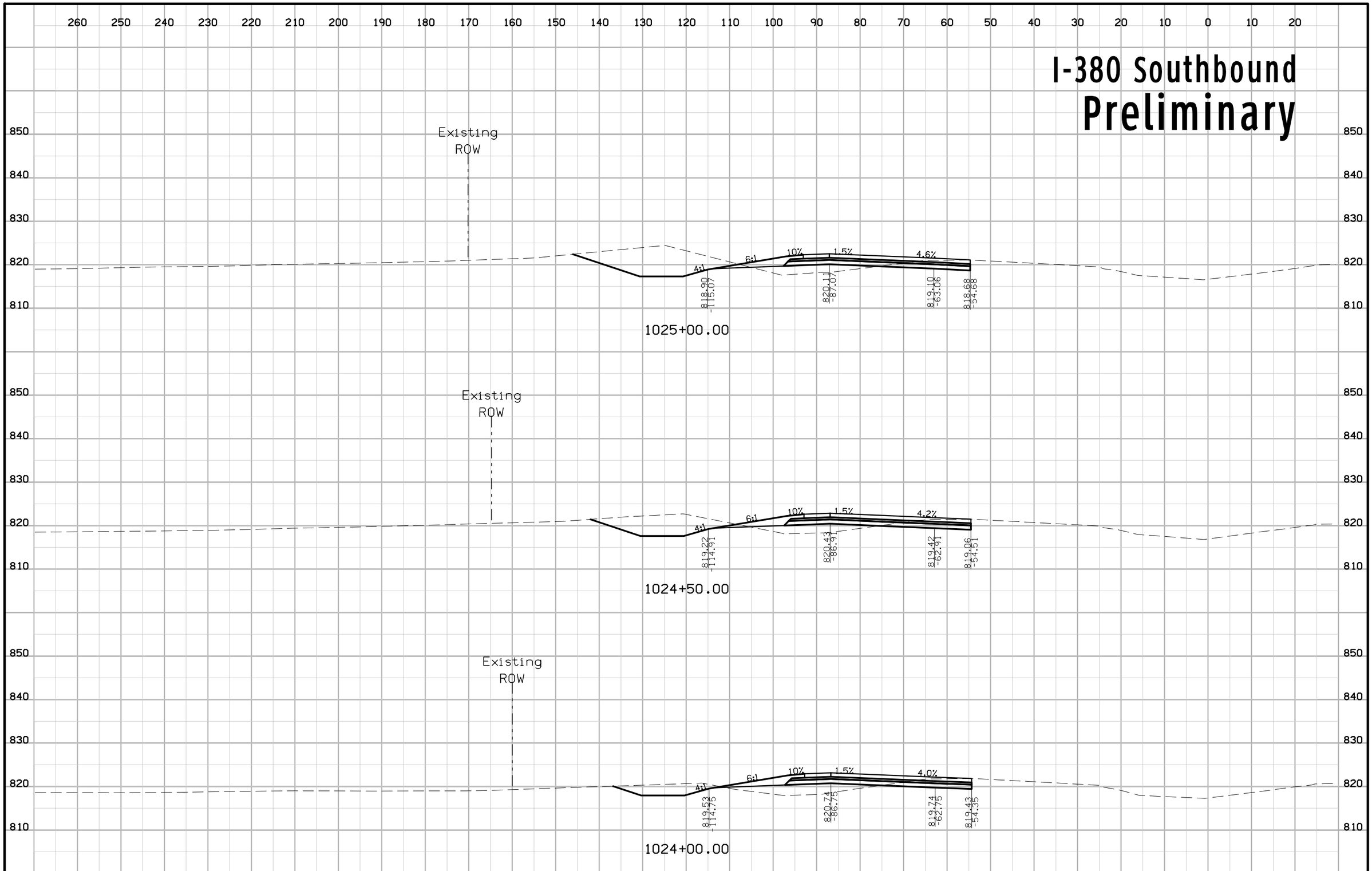
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.42 |
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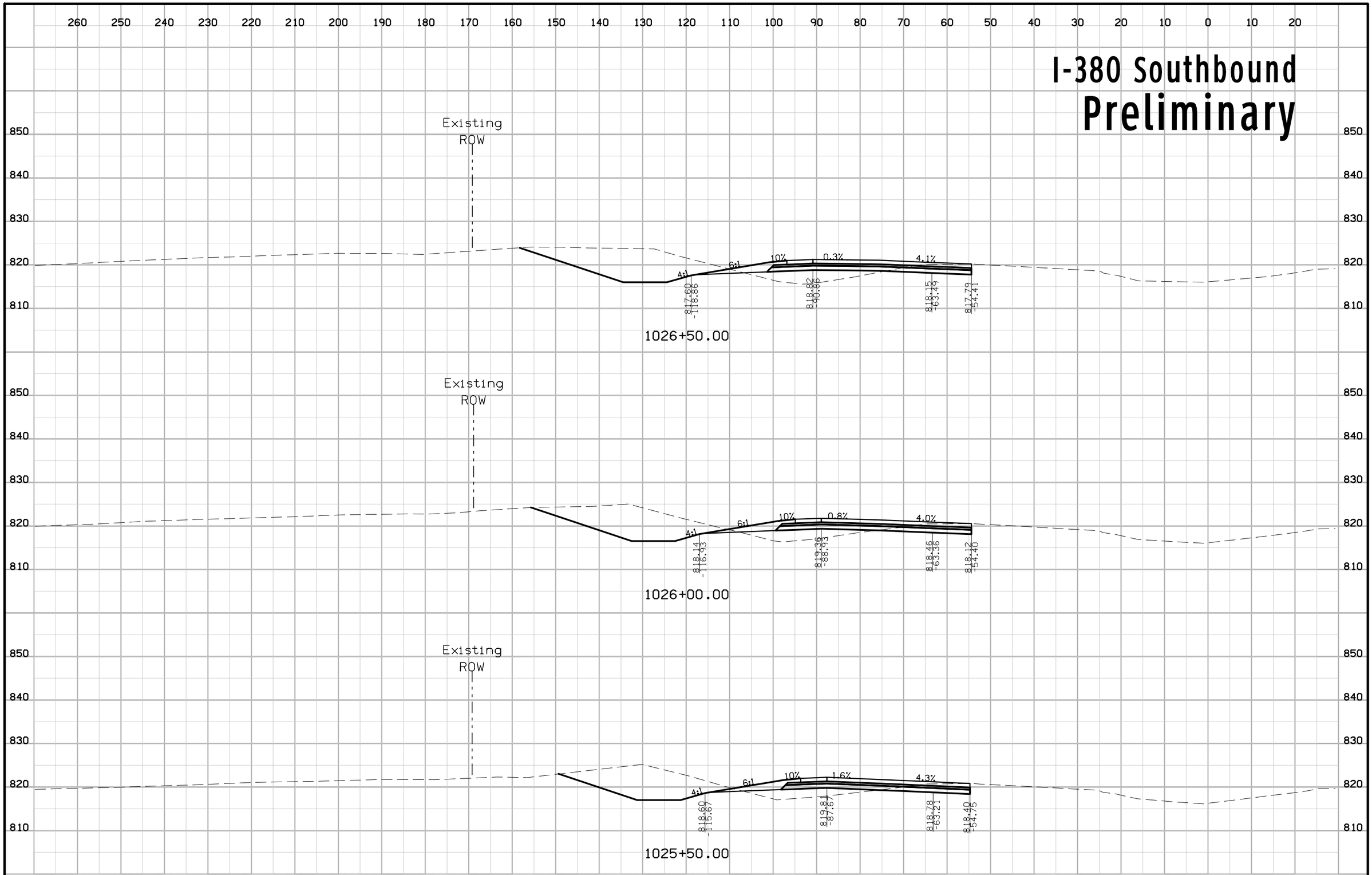
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.43 |
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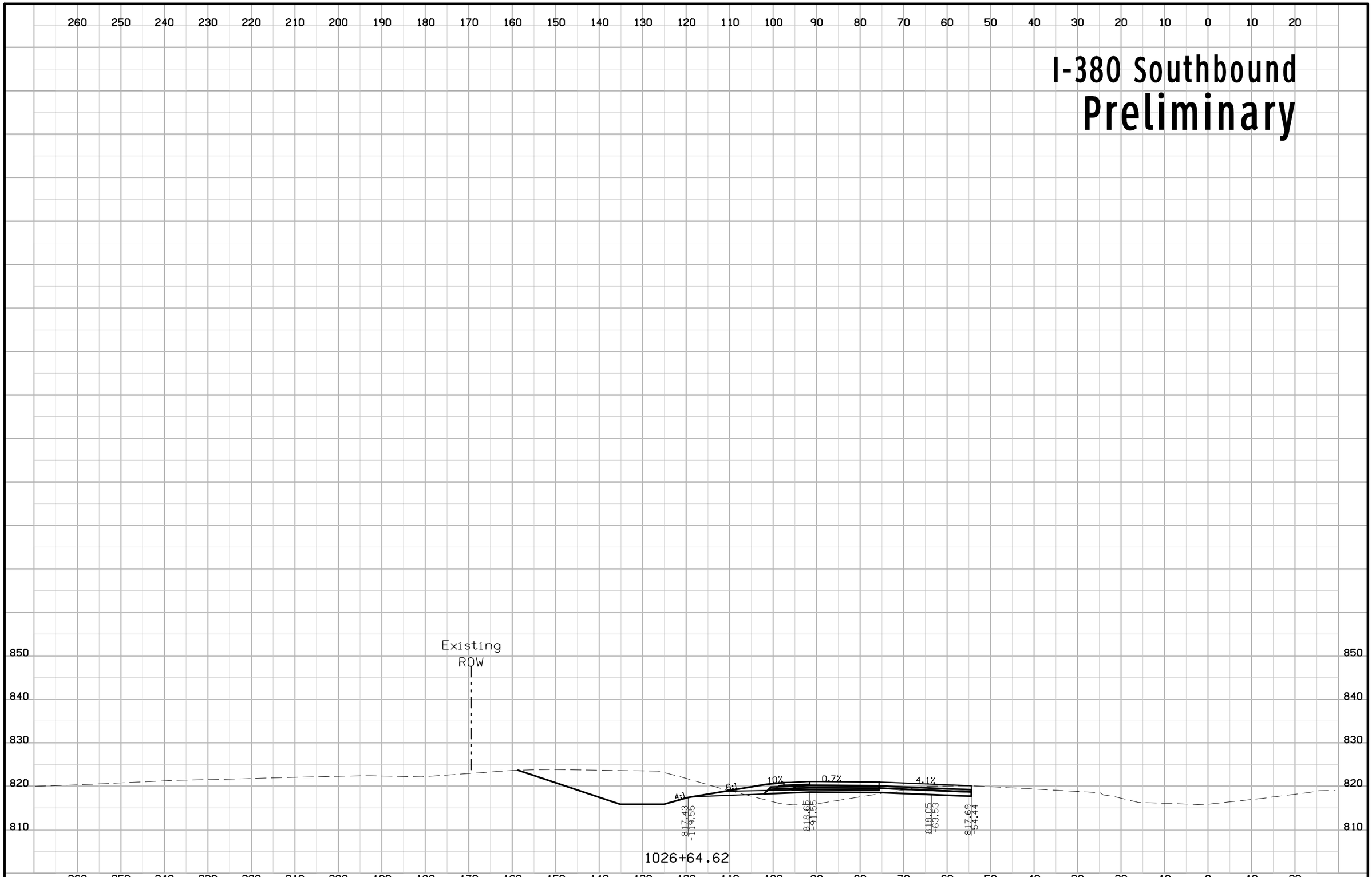
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.44 |
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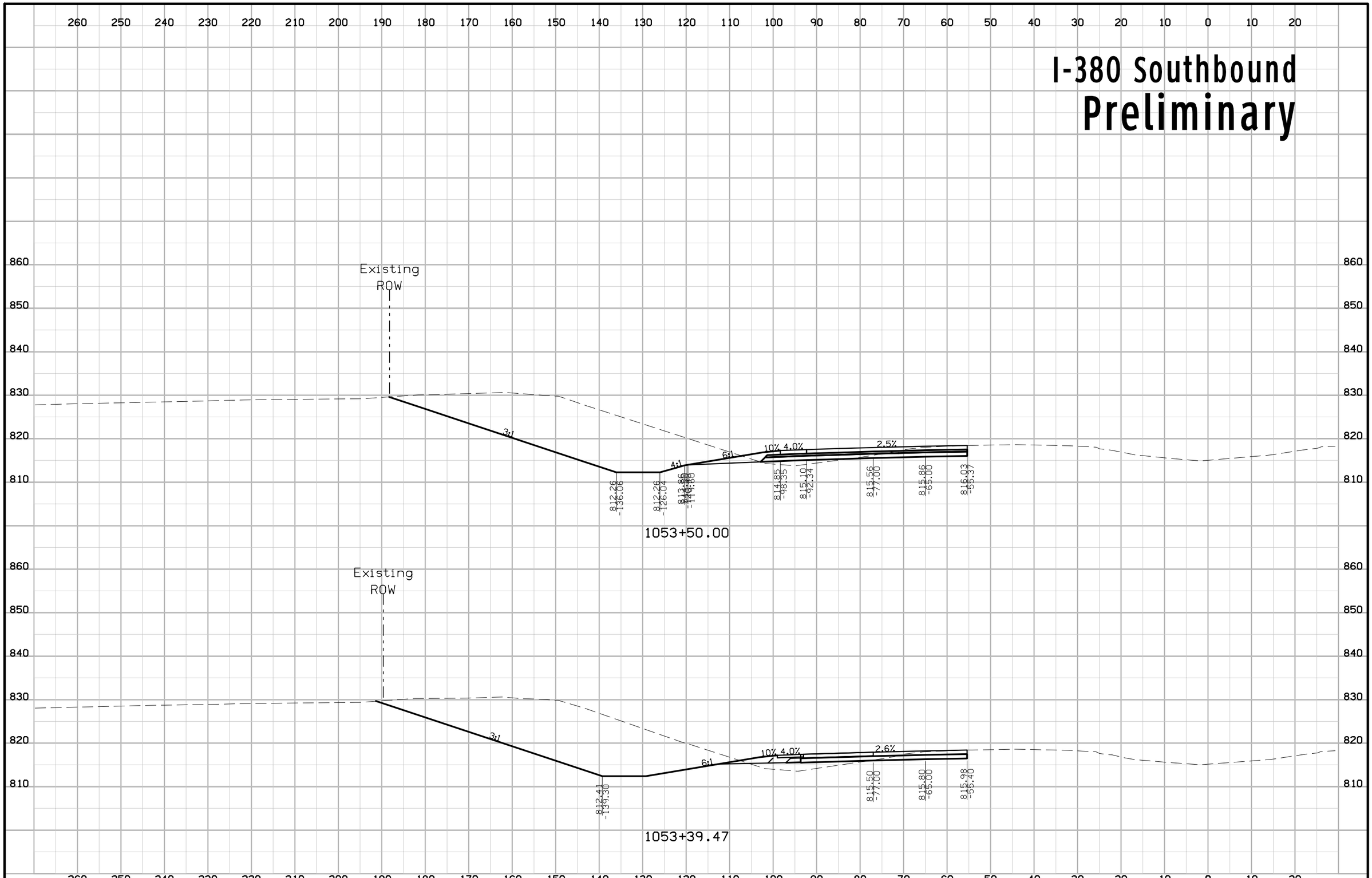
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.45 |
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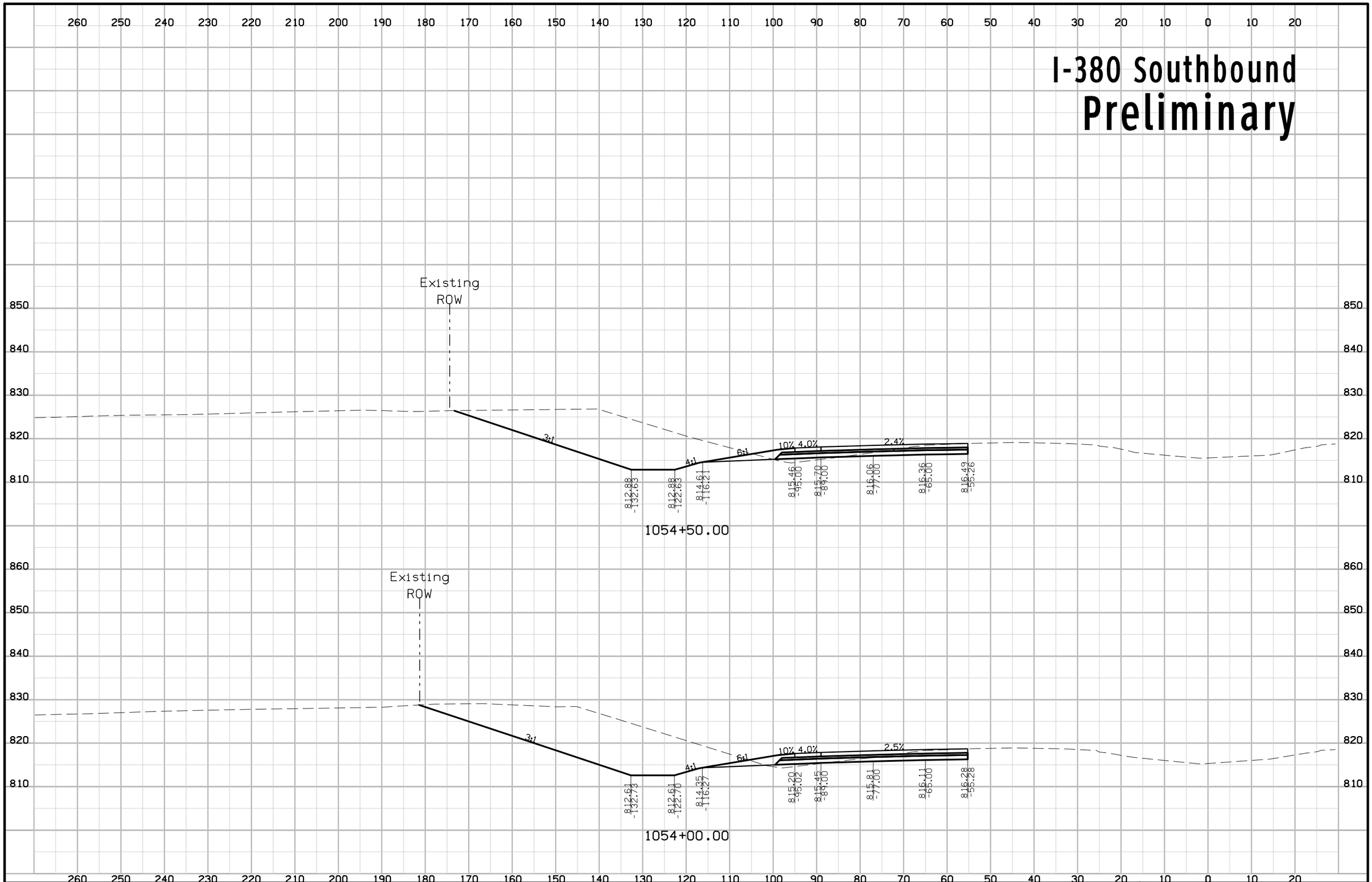
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.46 |
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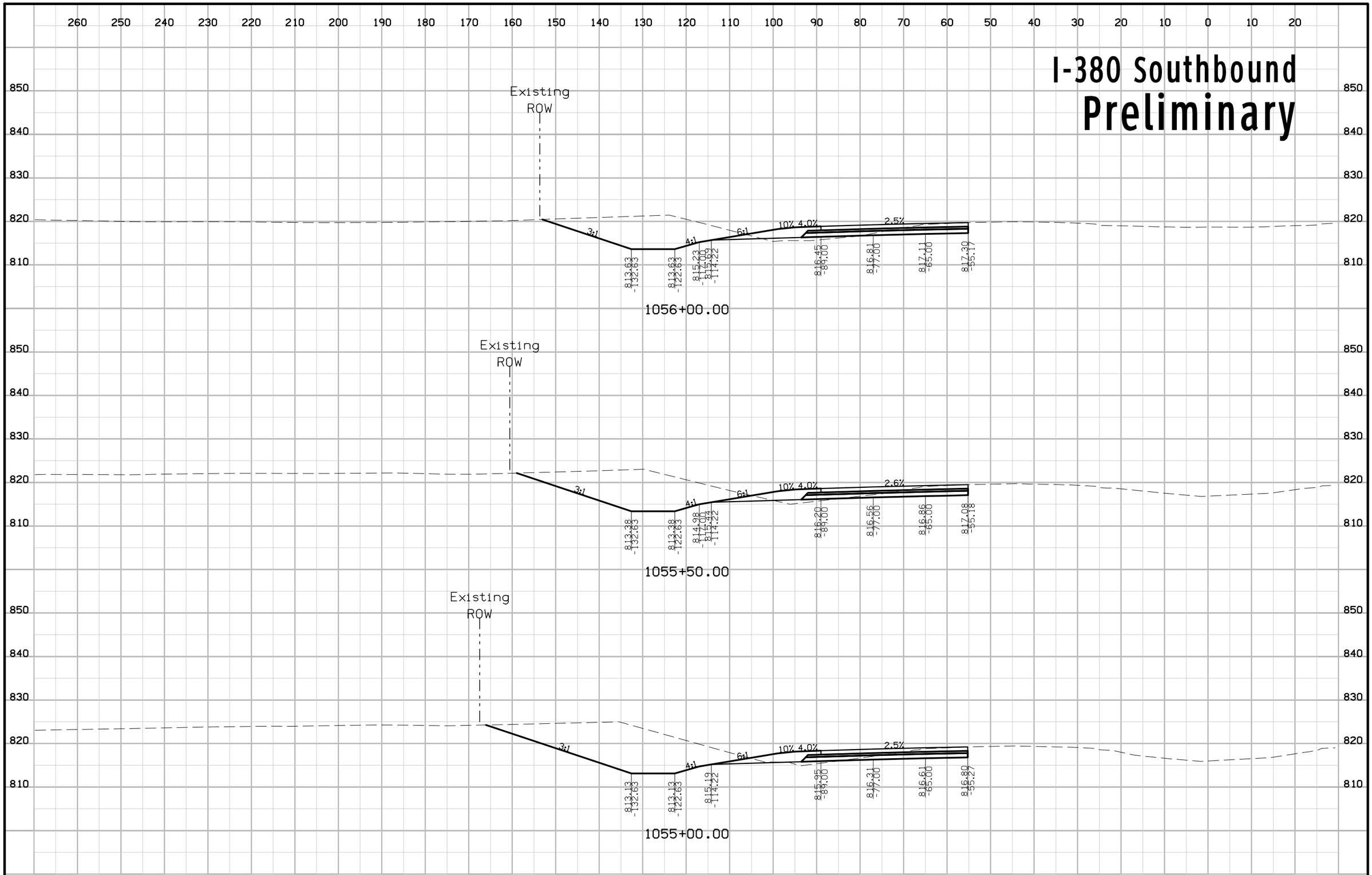
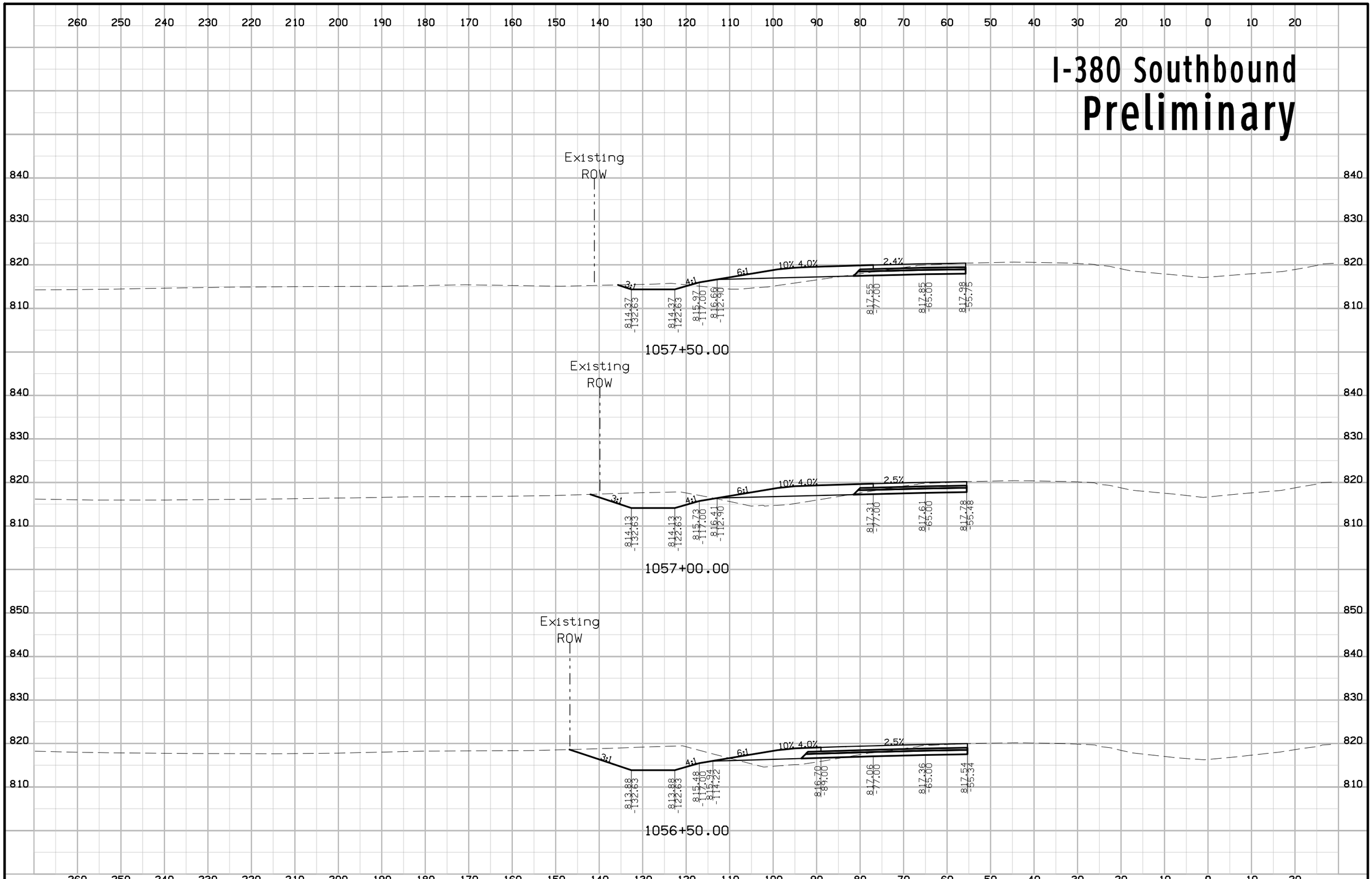
# I-380 Southbound
# Preliminary



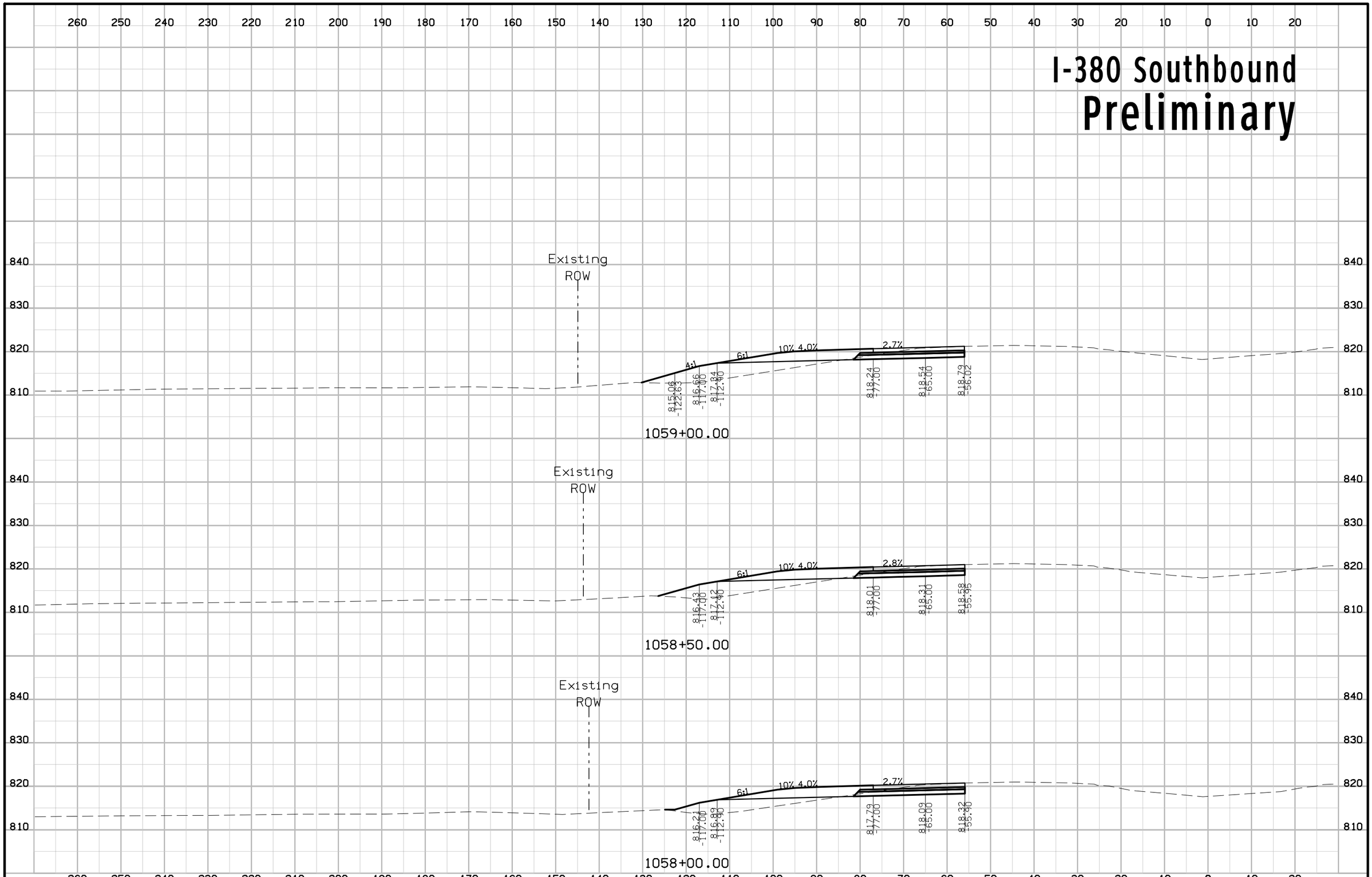

| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.47 |
|---|---|---|---|---|---|

# I-380 Southbound
# Preliminary



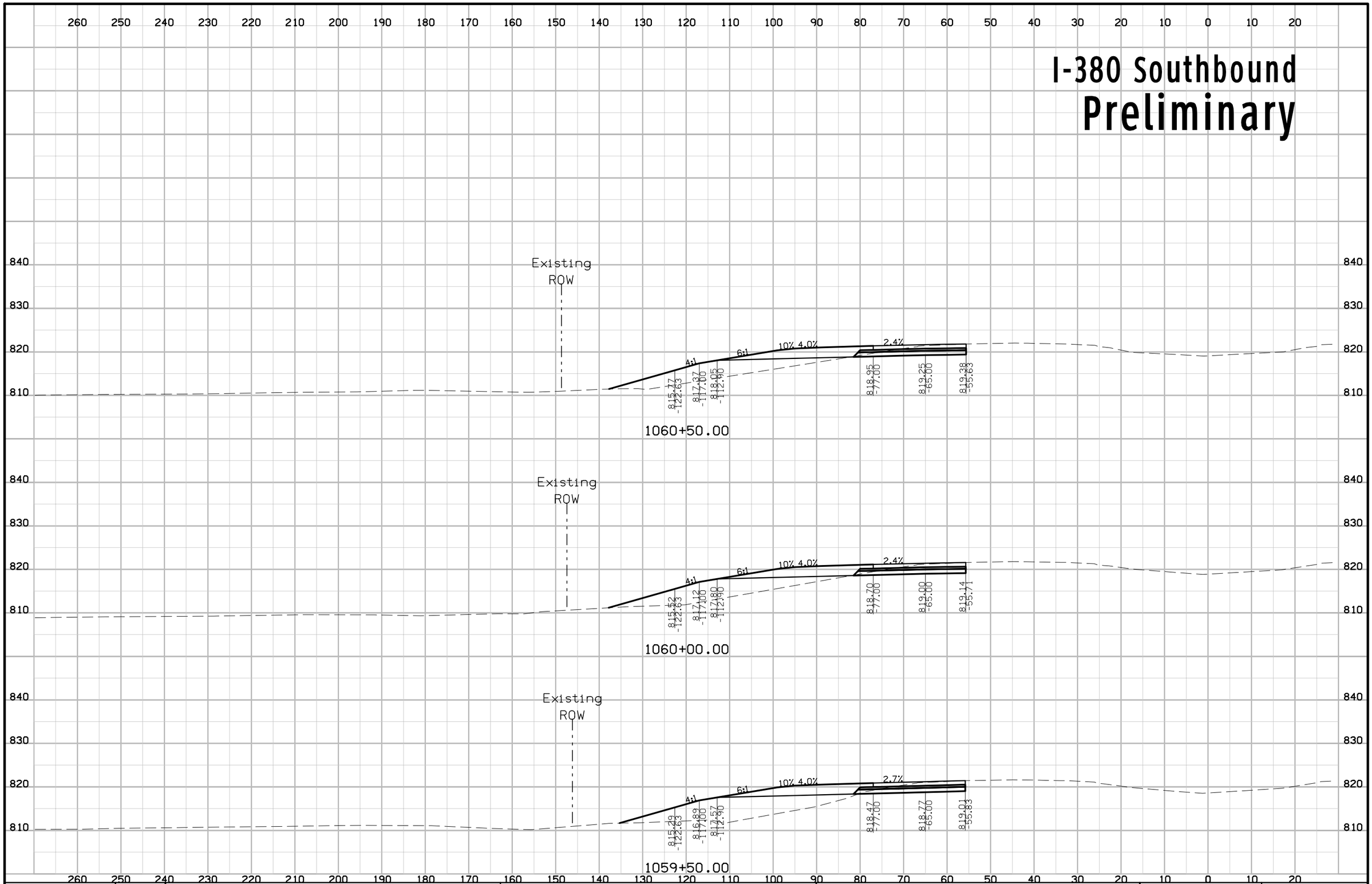

| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.48 |
|---|---|---|---|---|---|

# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.49 |
|---|---|---|---|---|---|

# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.50 |
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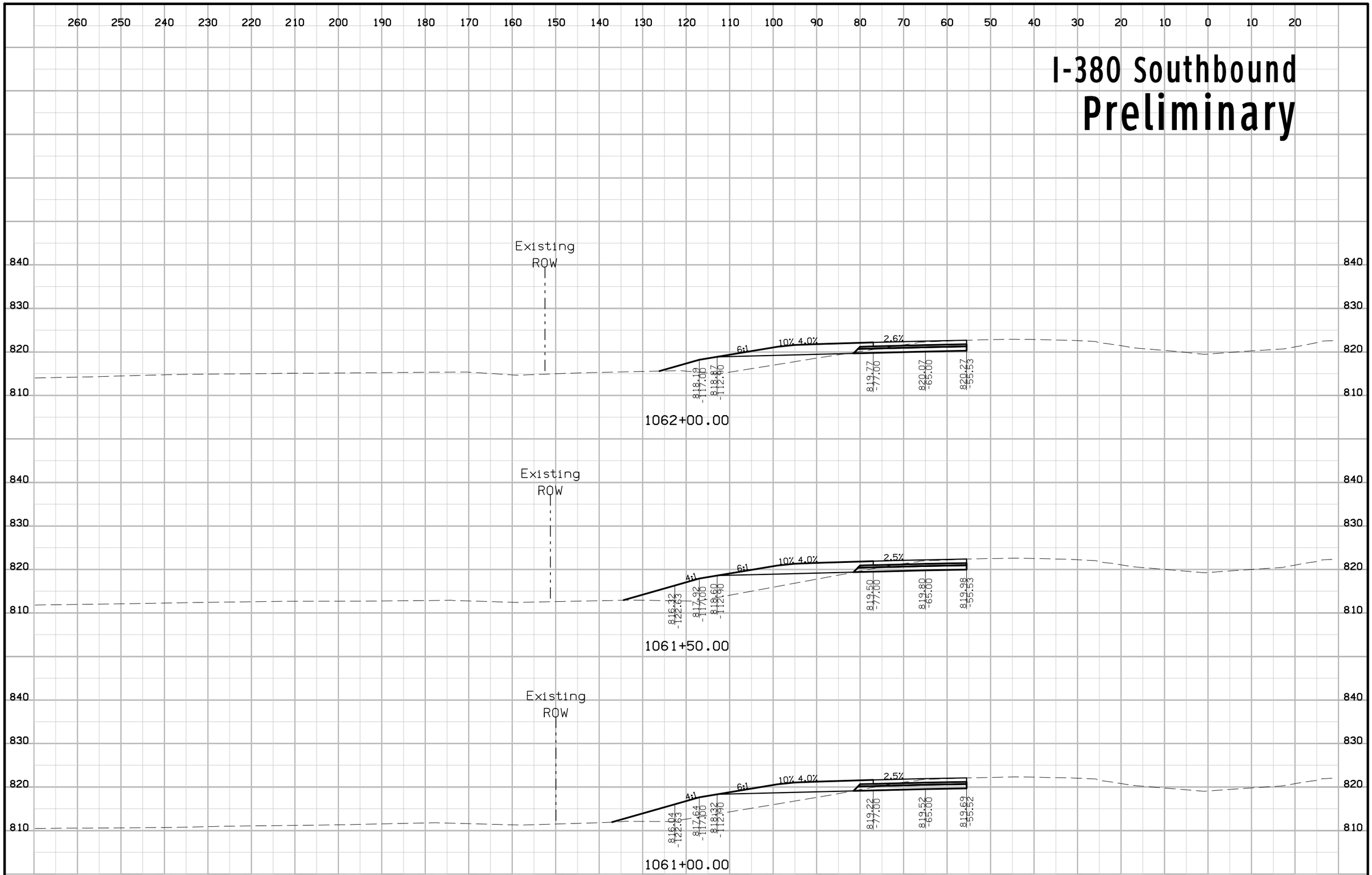
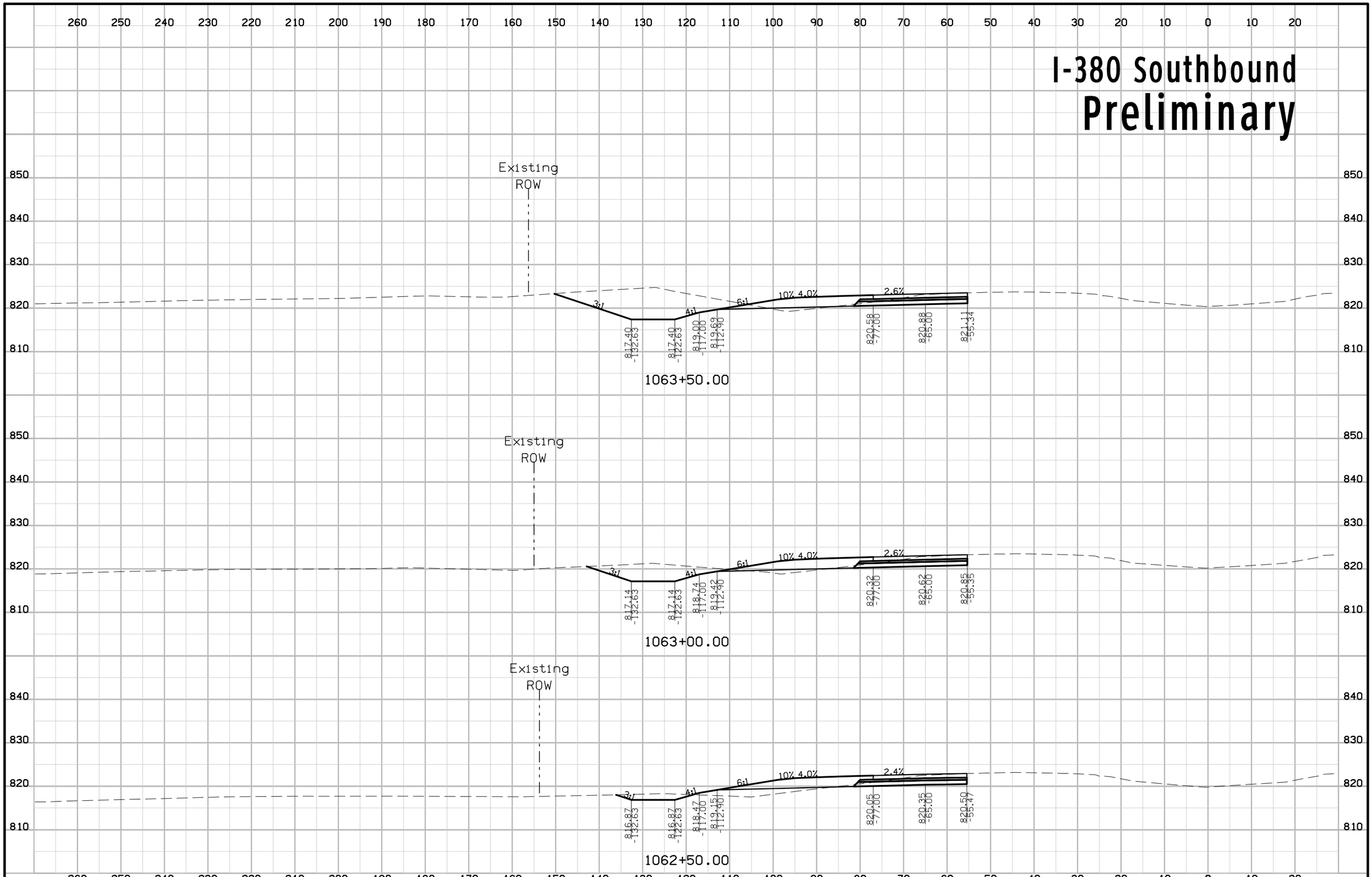
3:18:49 PM rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200W01.dgn

# I-380 Southbound
# Preliminary



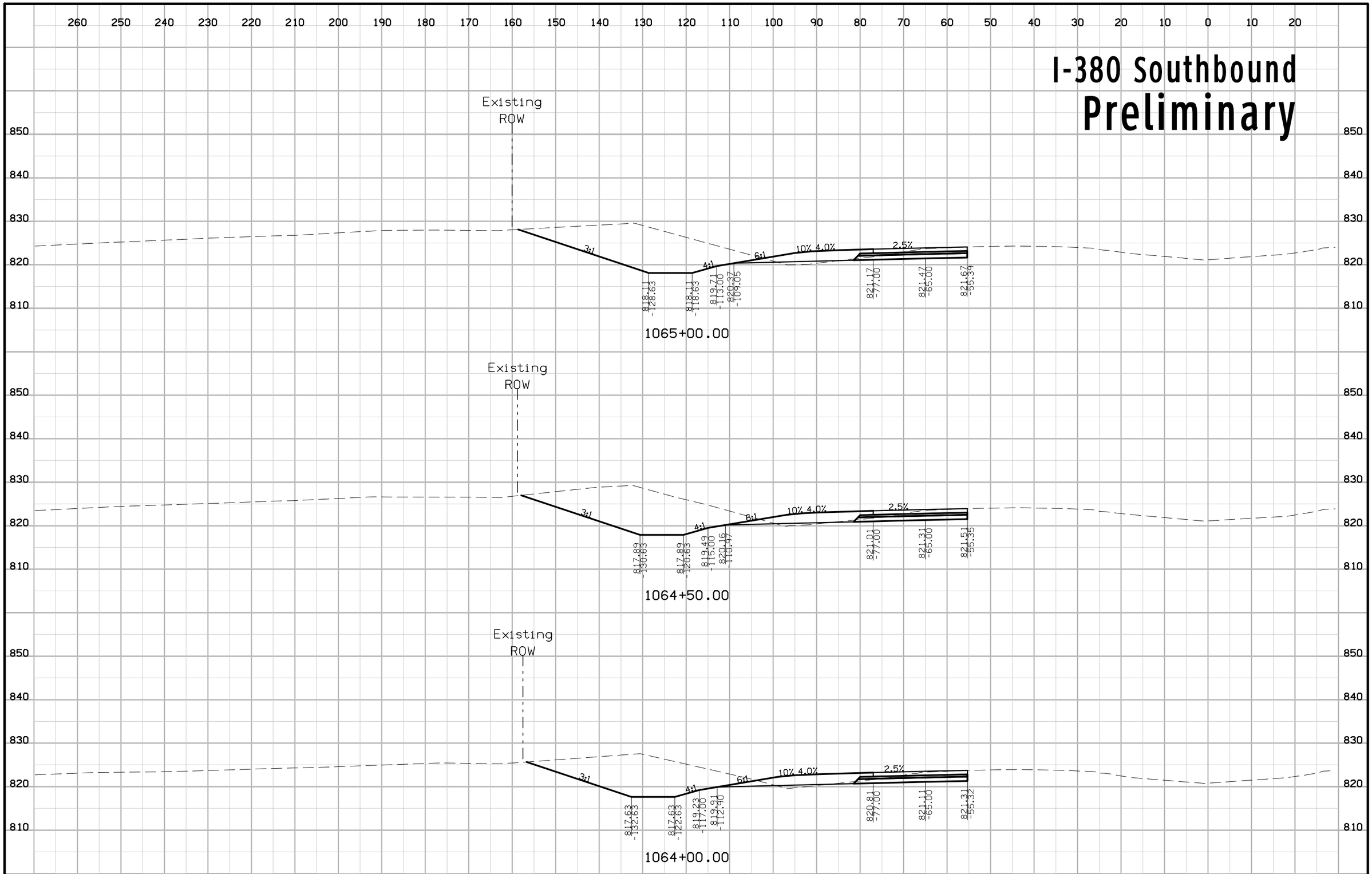

| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.51 |
|---|---|---|---|---|---|

# I-380 Southbound
# Preliminary



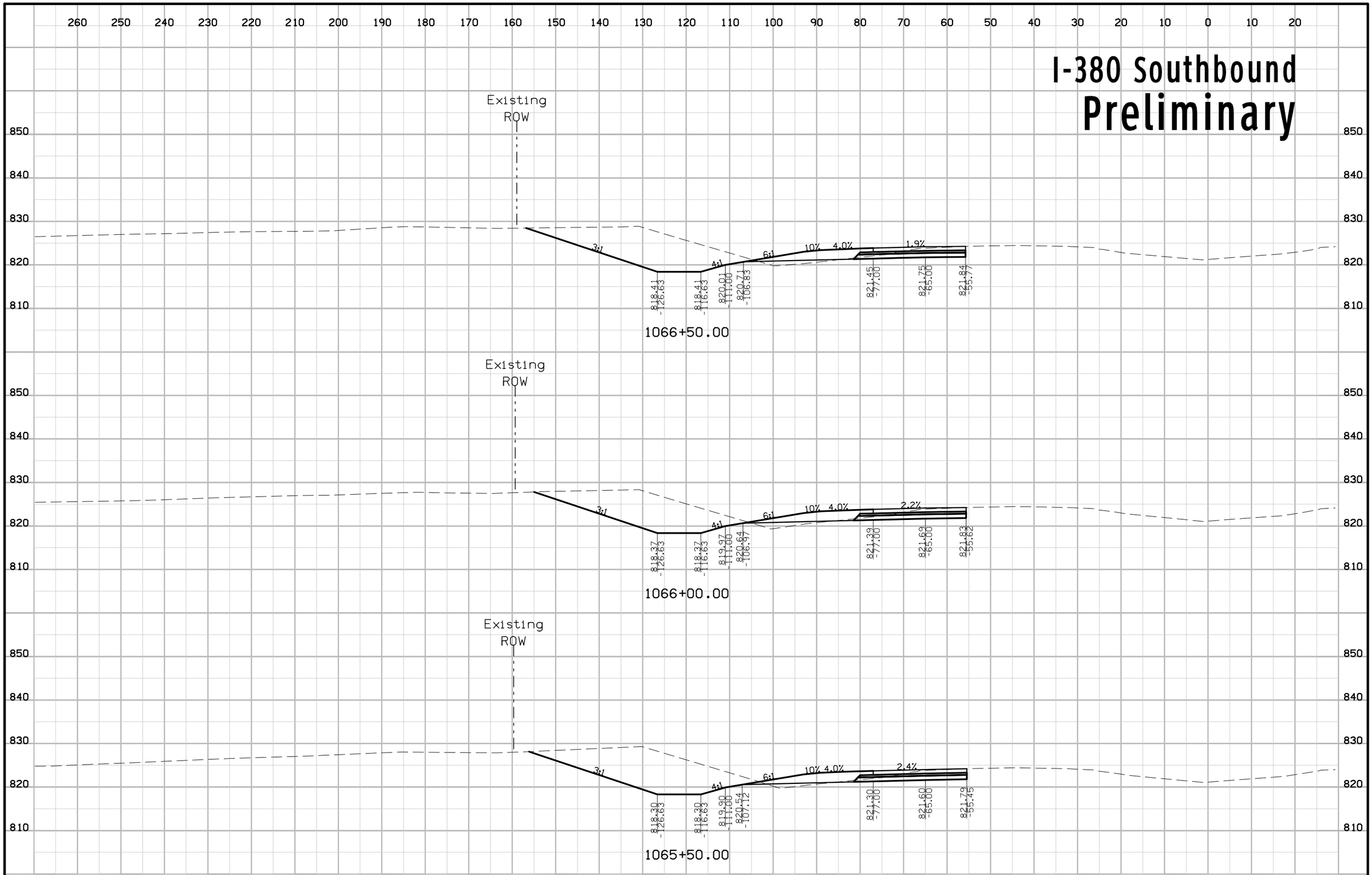

| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.52 |
|---|---|---|---|---|---|

# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.53 |
|---|---|---|---|---|---|

# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.54 |
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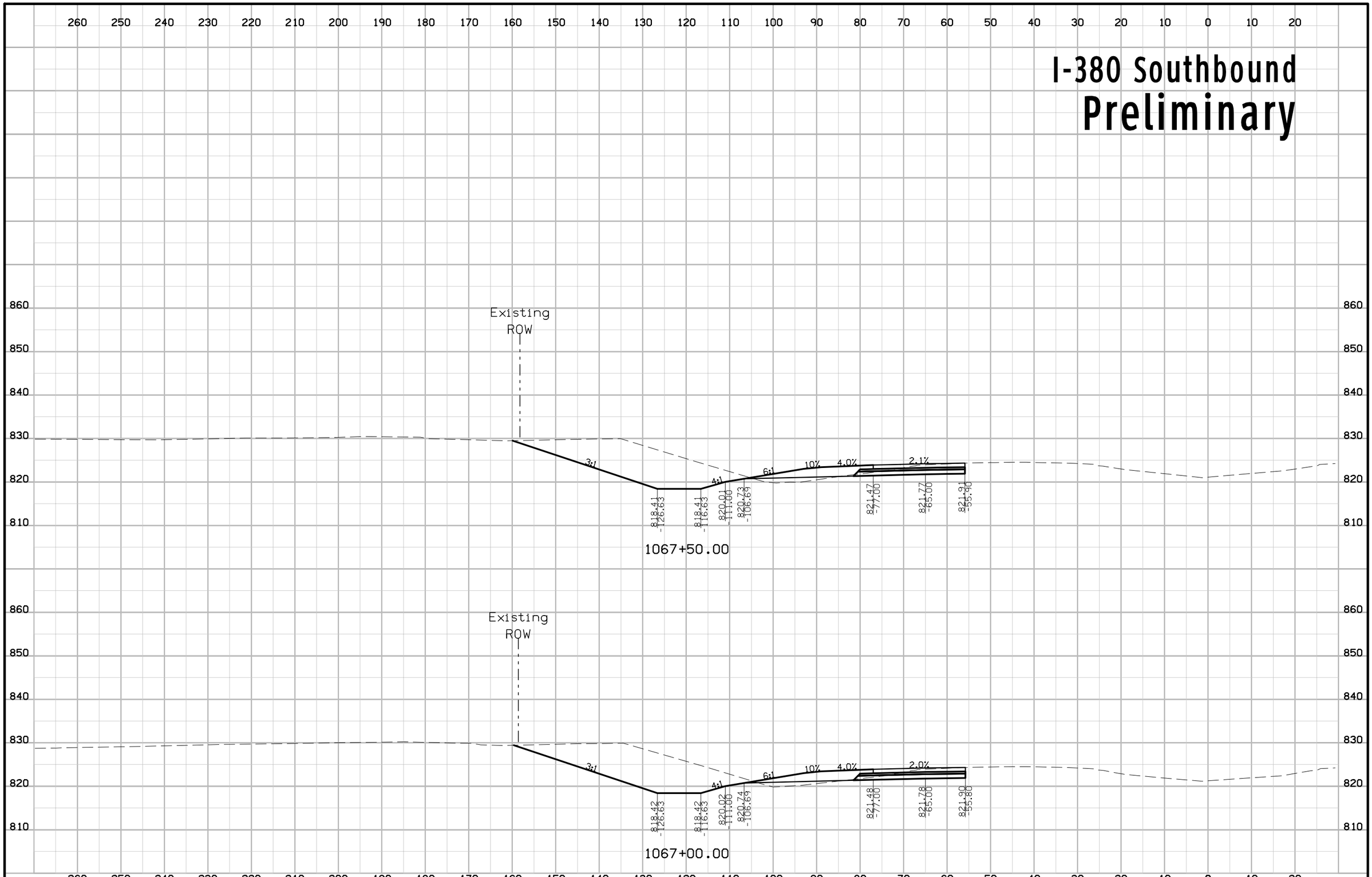
3:18:55 PM rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200W01.dgn

# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.55 |
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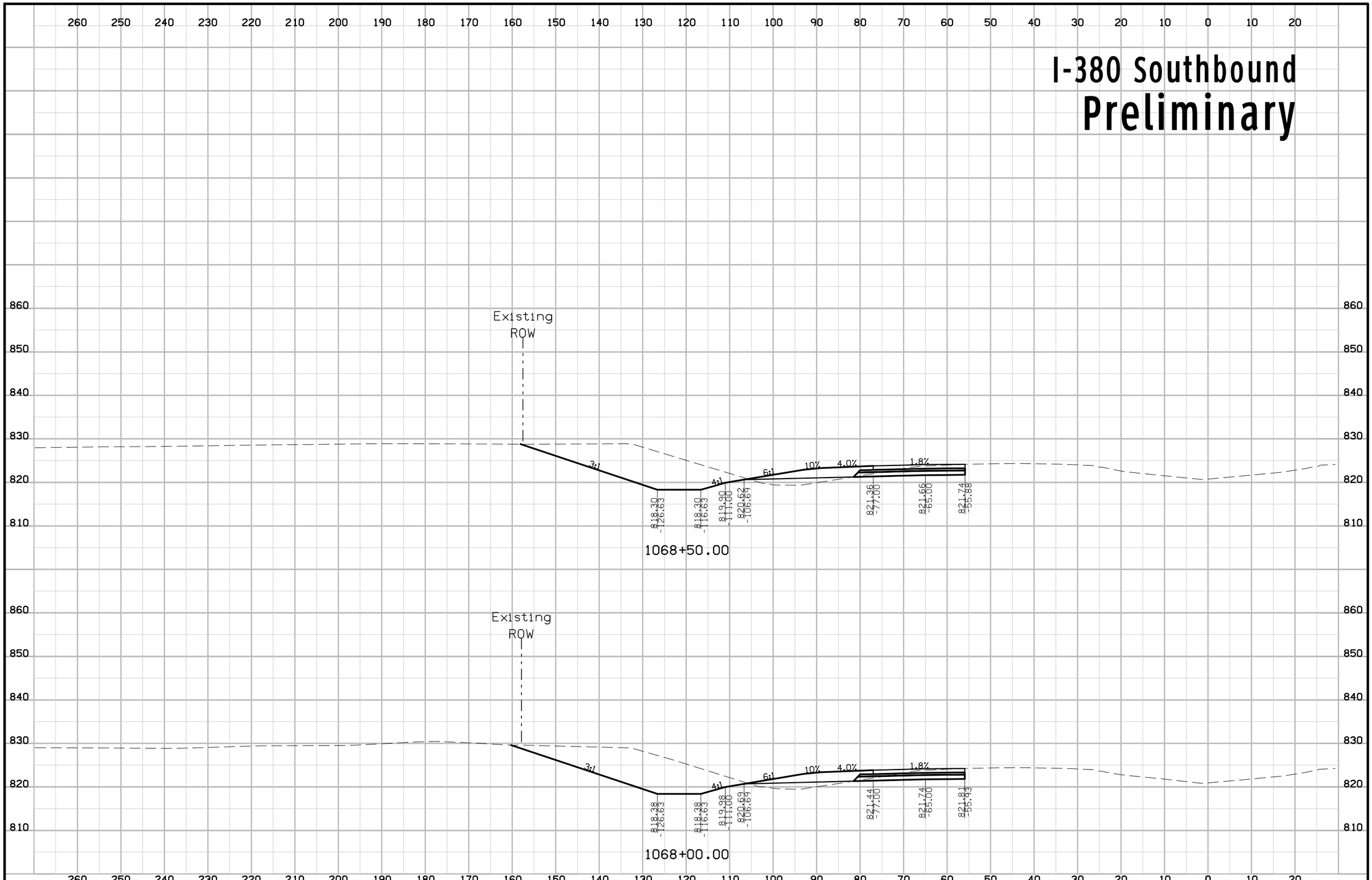
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.56 |
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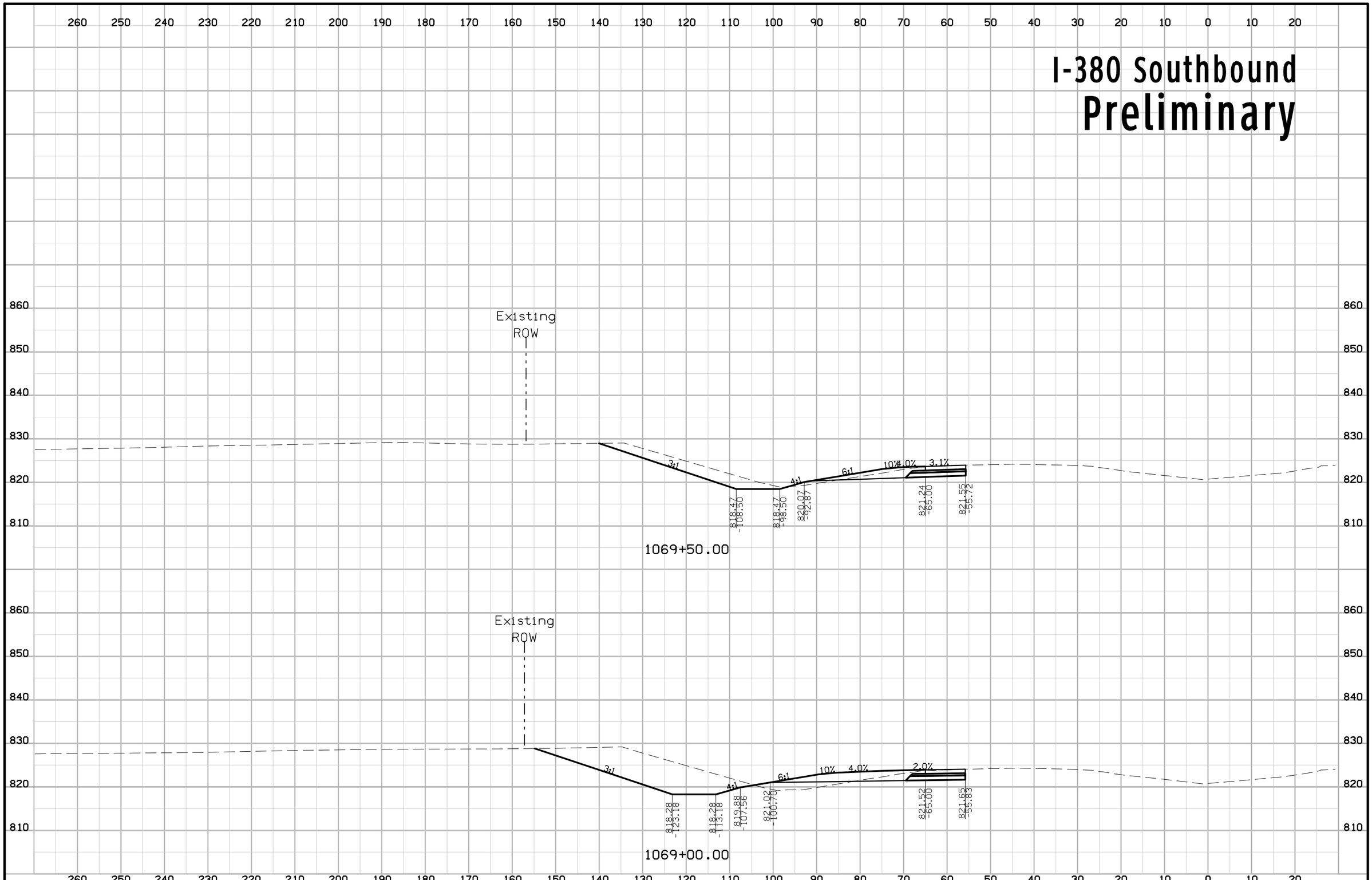
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.57 |
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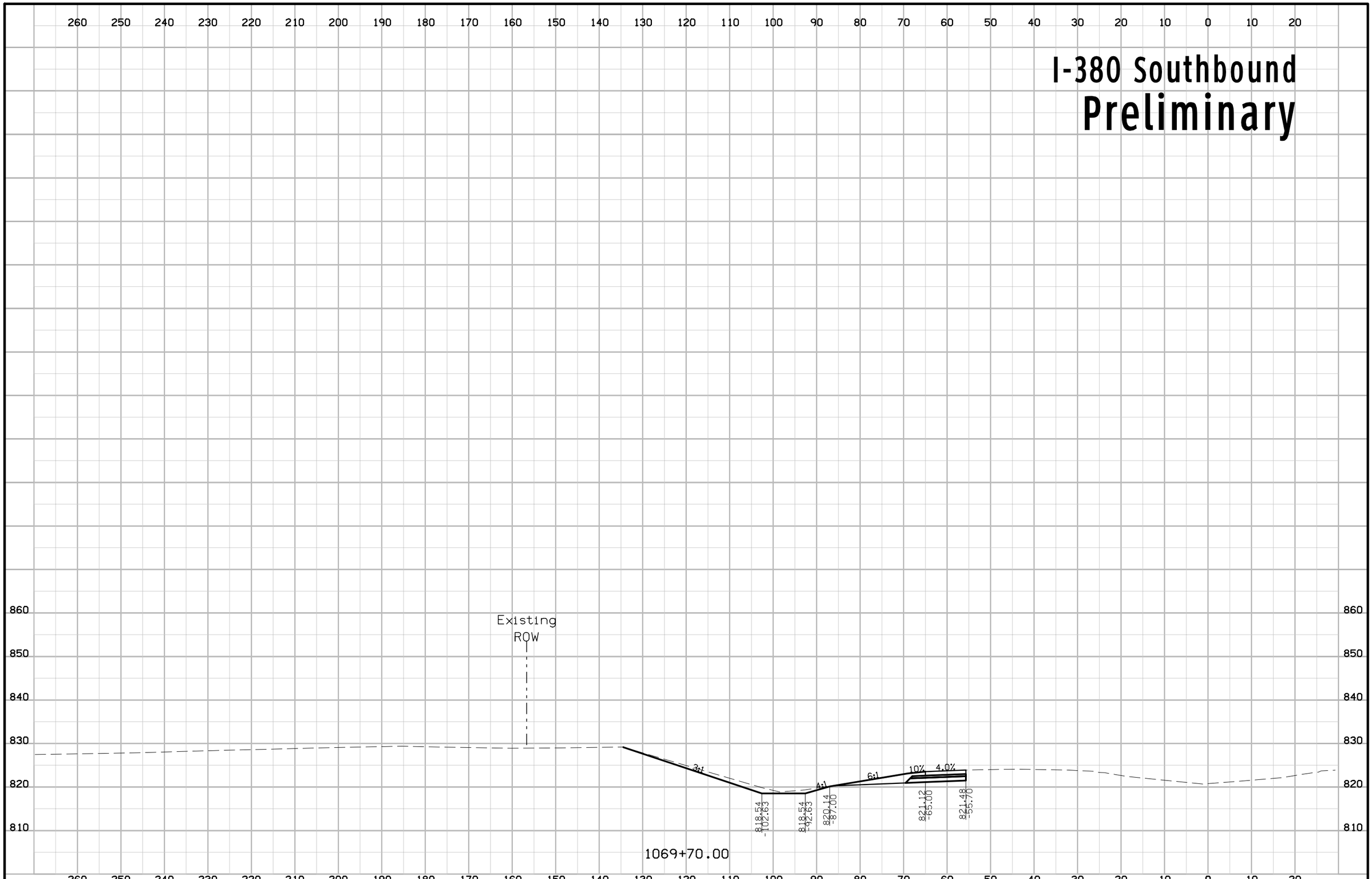
# I-380 Southbound
# Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER W.58 |
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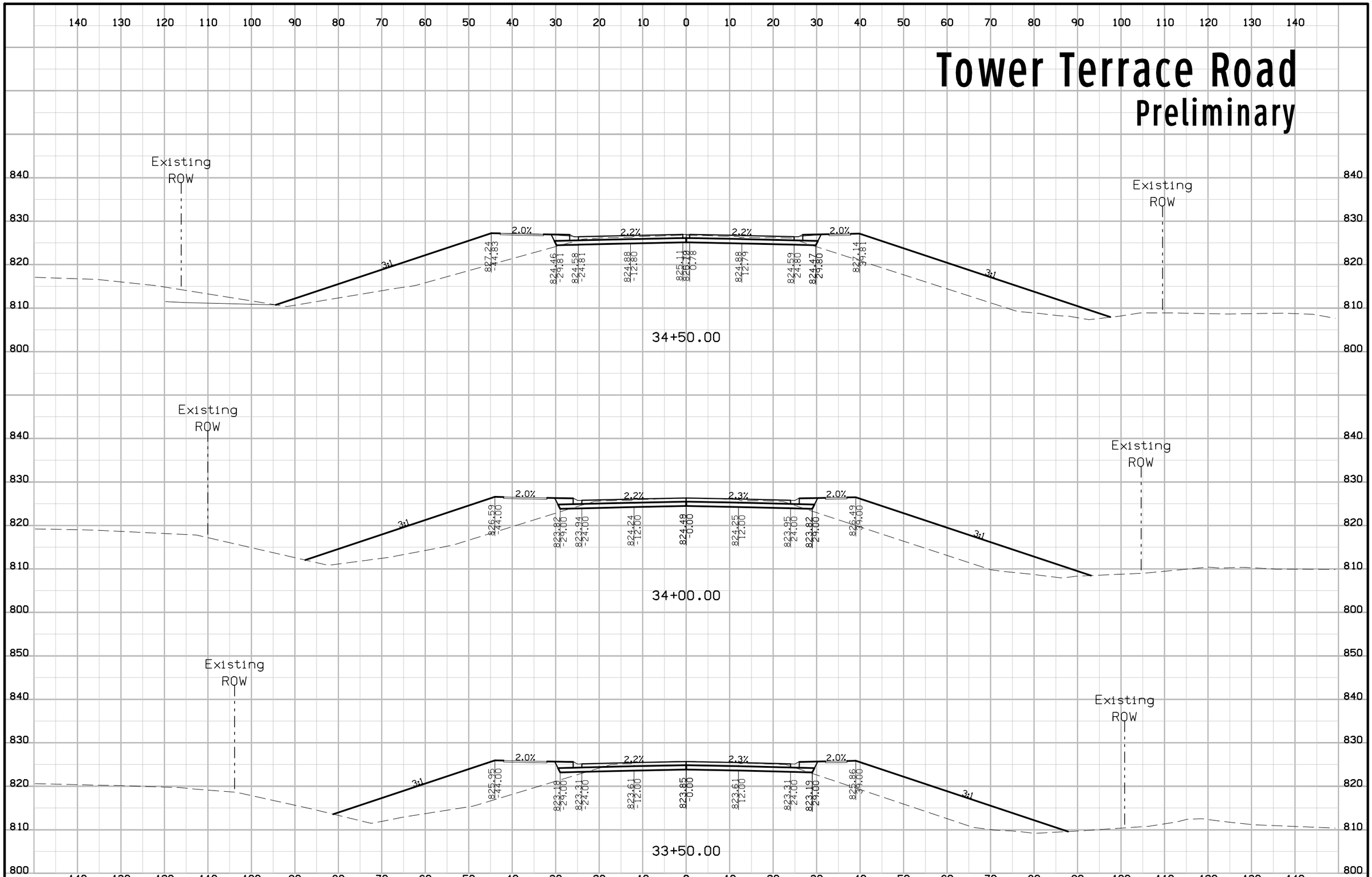
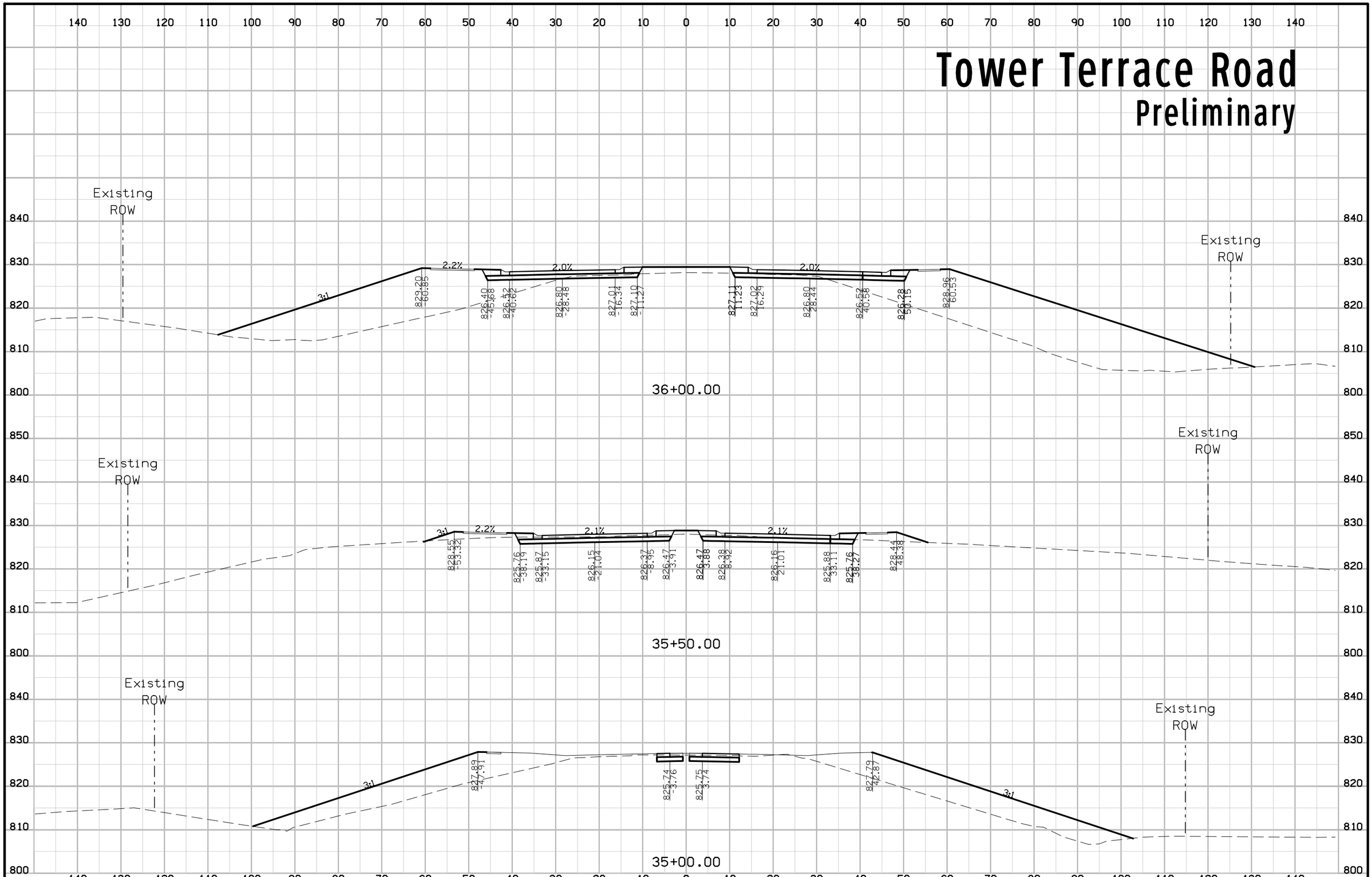
# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.1 |
|---|---|---|---|---|---|

# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.2 |
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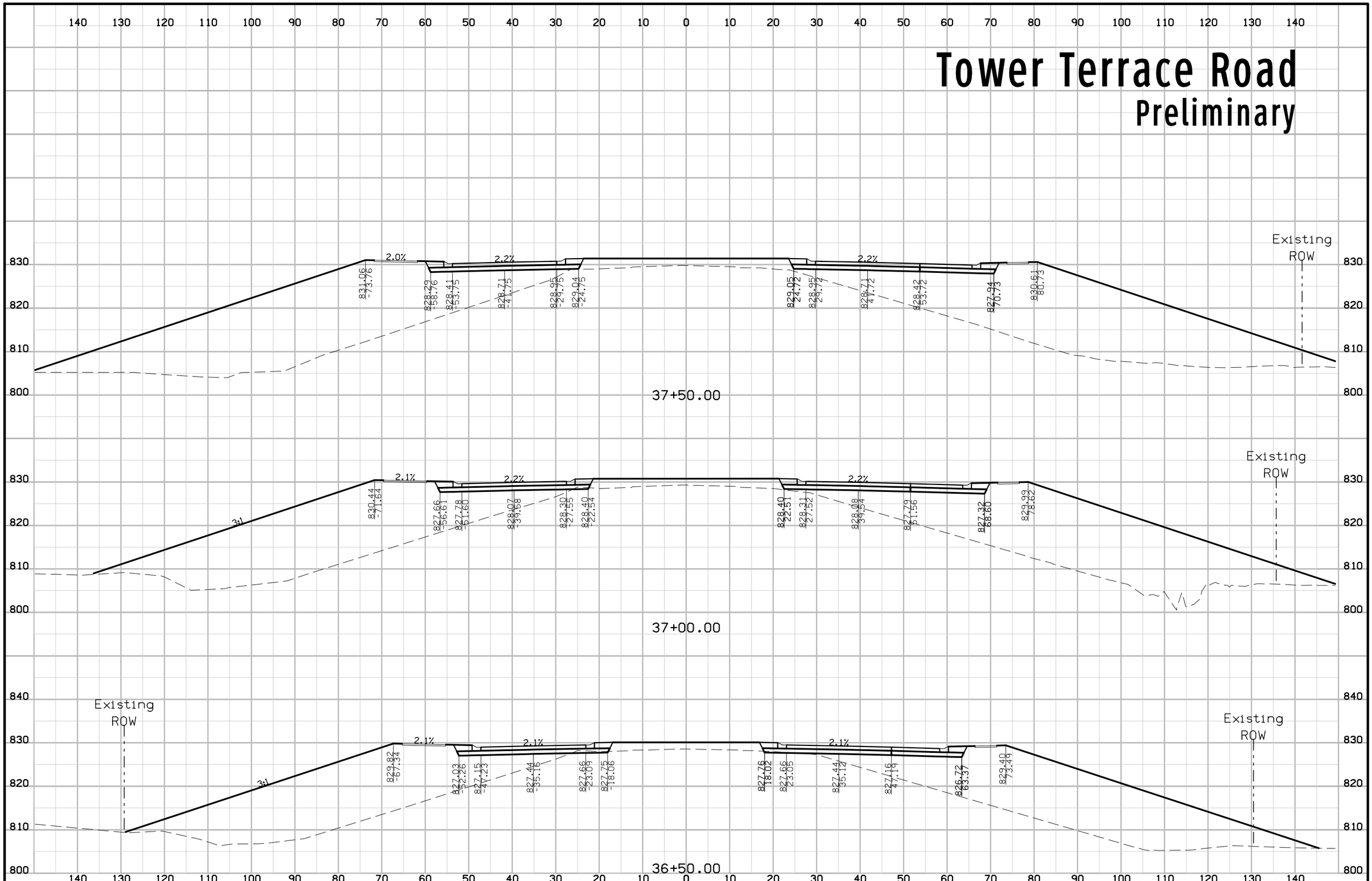
# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.3 |
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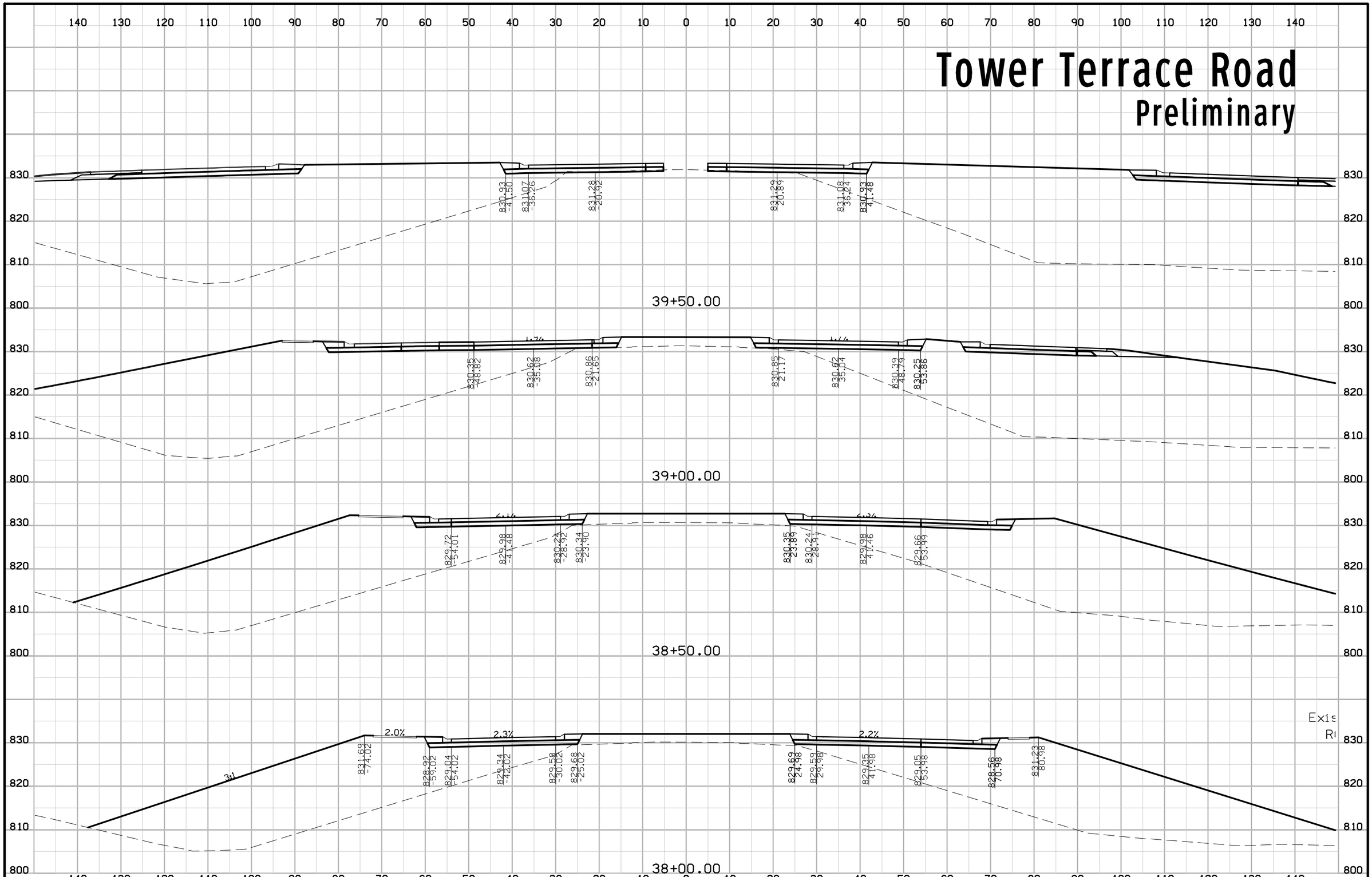
# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.4 |
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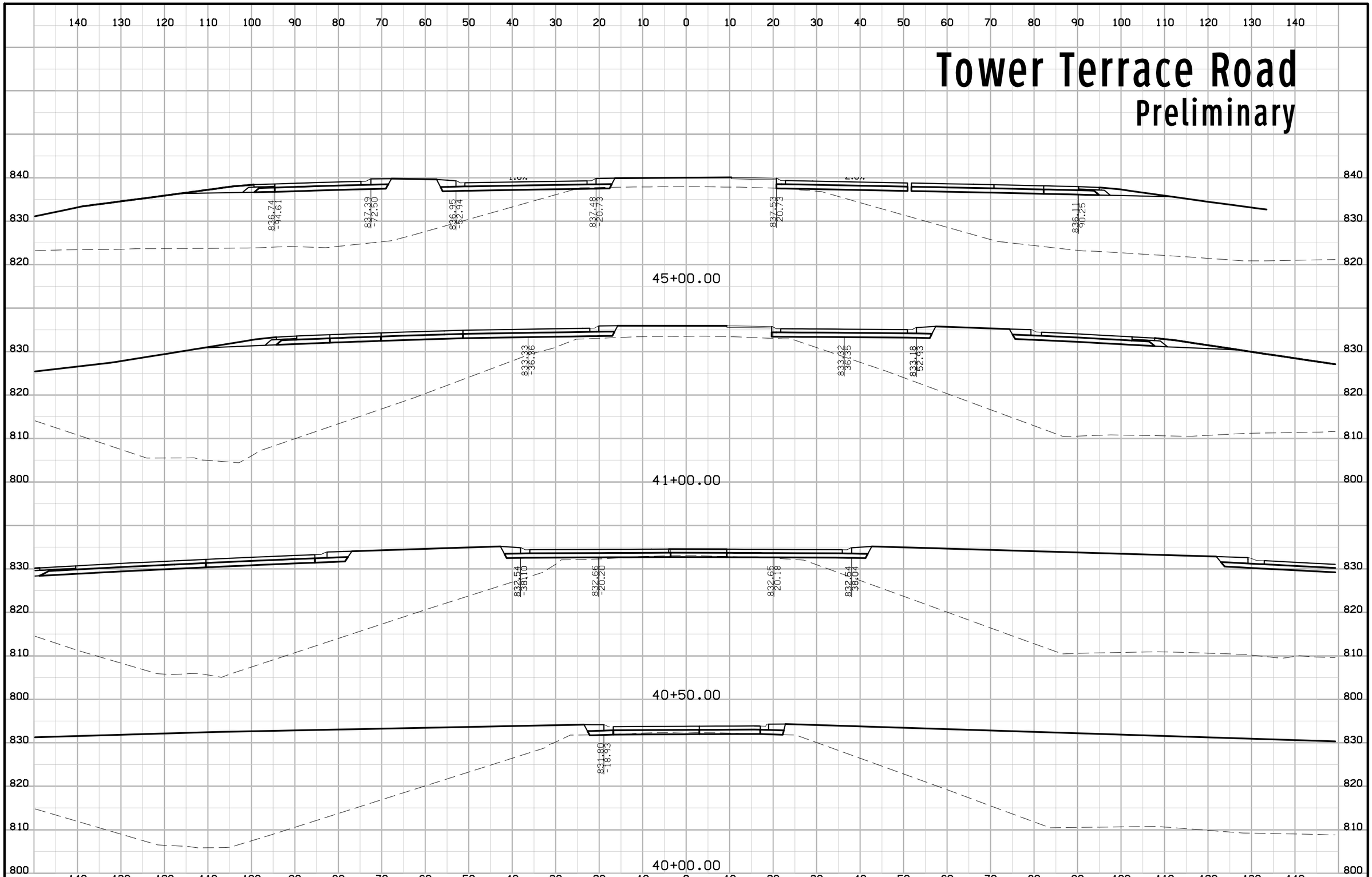
# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.5 |
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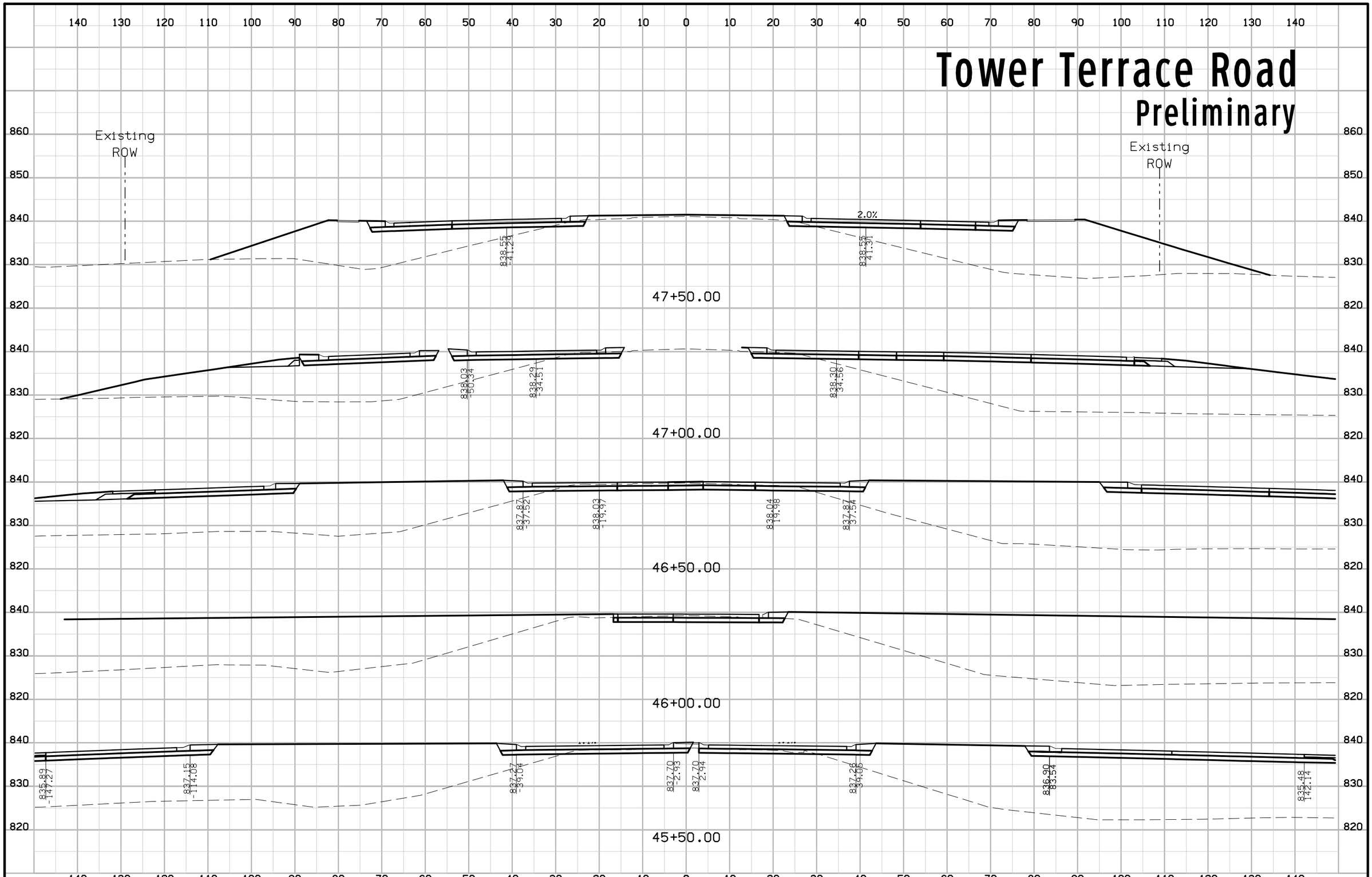
# Tower Terrace Road

## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.6 |
|---|---|---|---|---|---|

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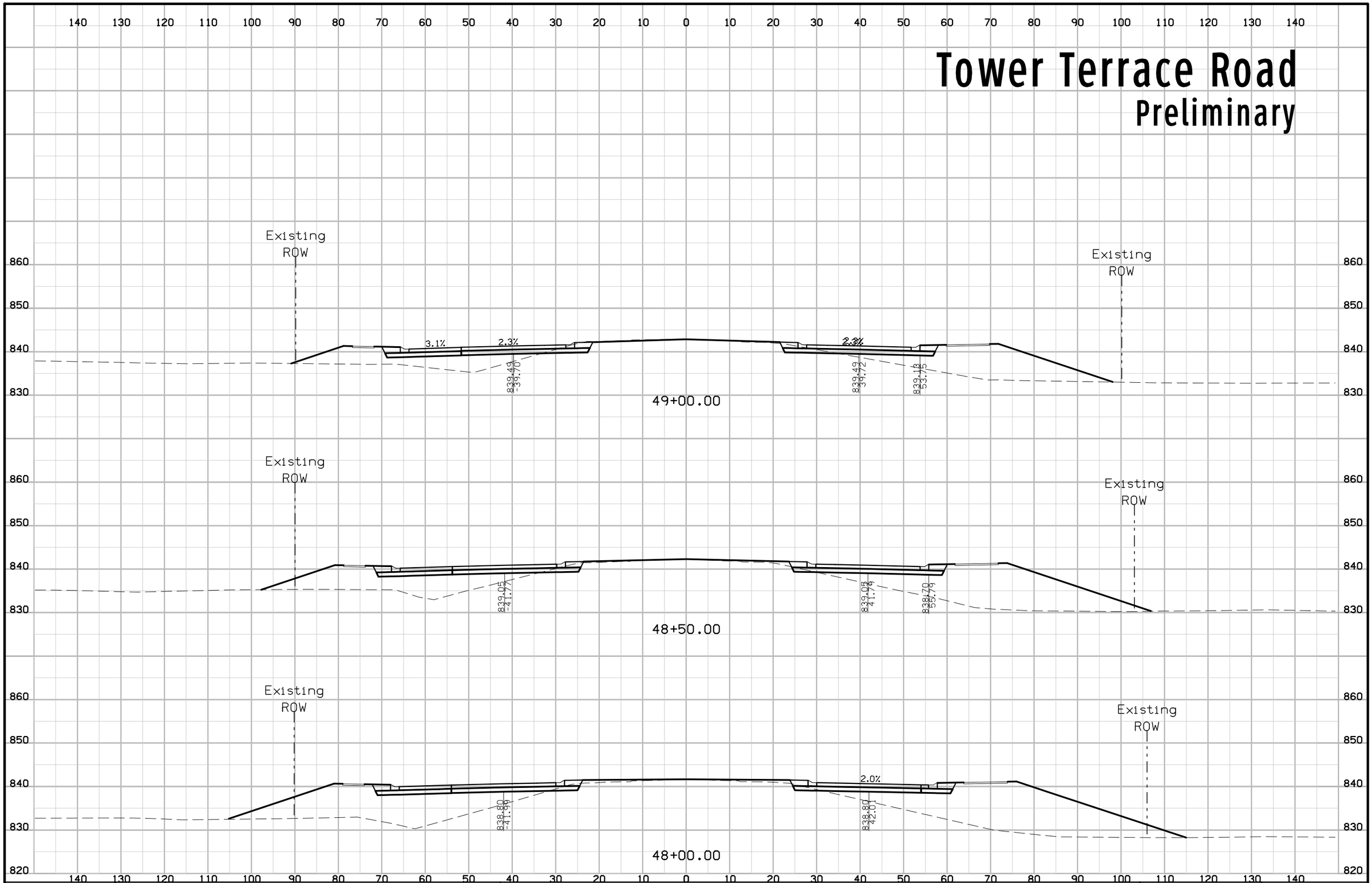
# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.7 |
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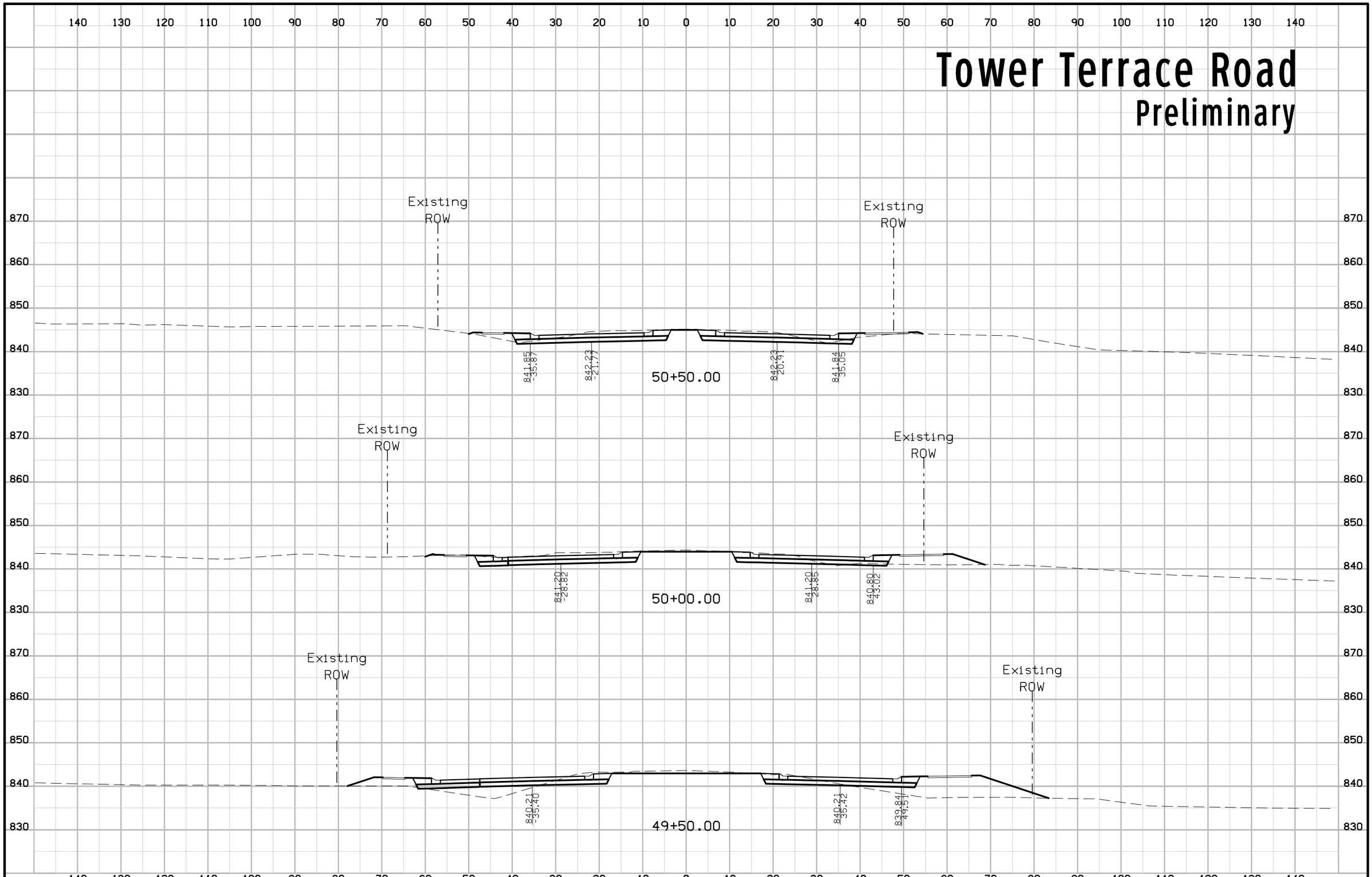
# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.8 |
|---|---|---|---|---|---|

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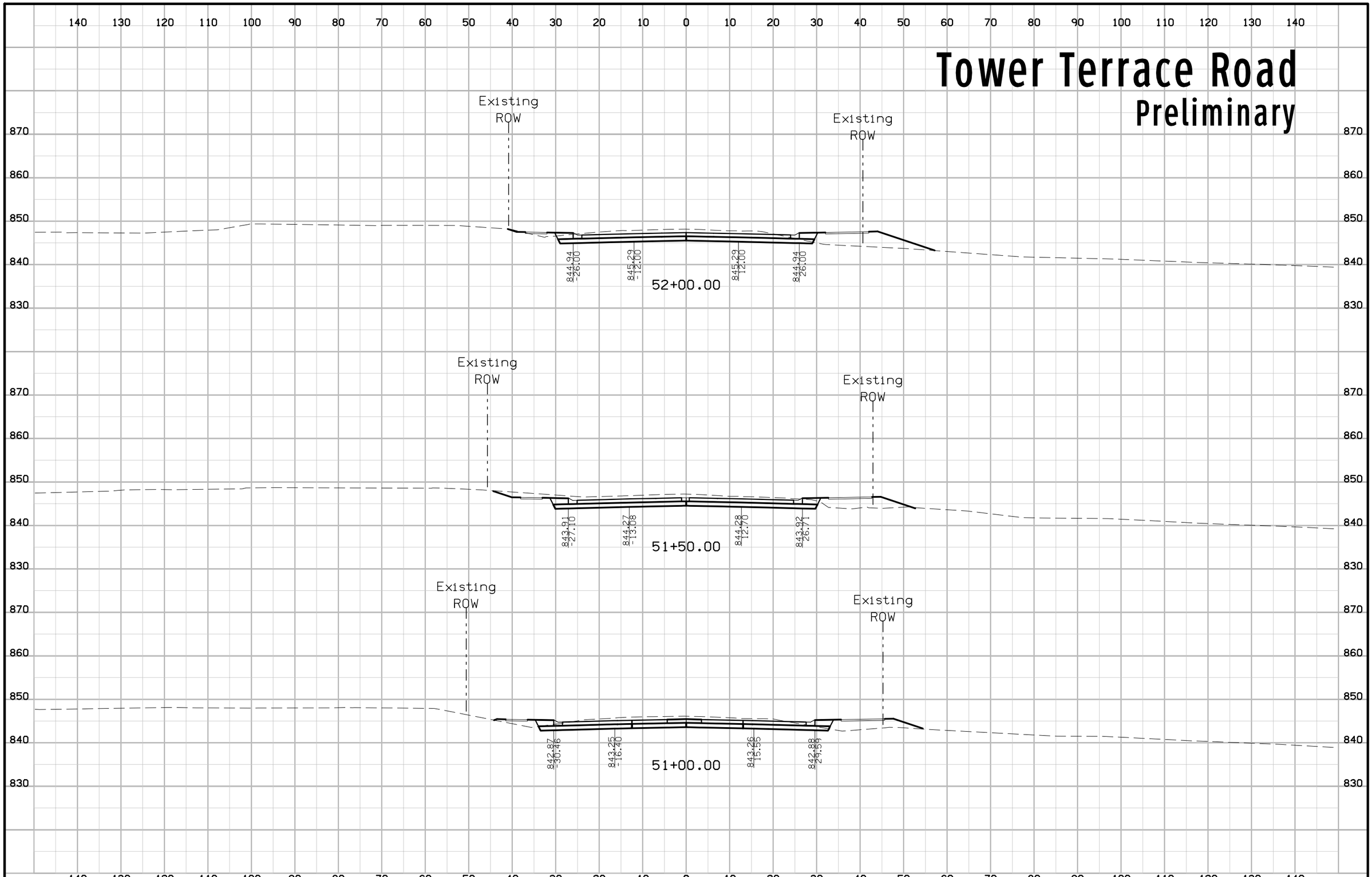
# Tower Terrace Road

## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.9 |
|---|---|---|---|---|---|

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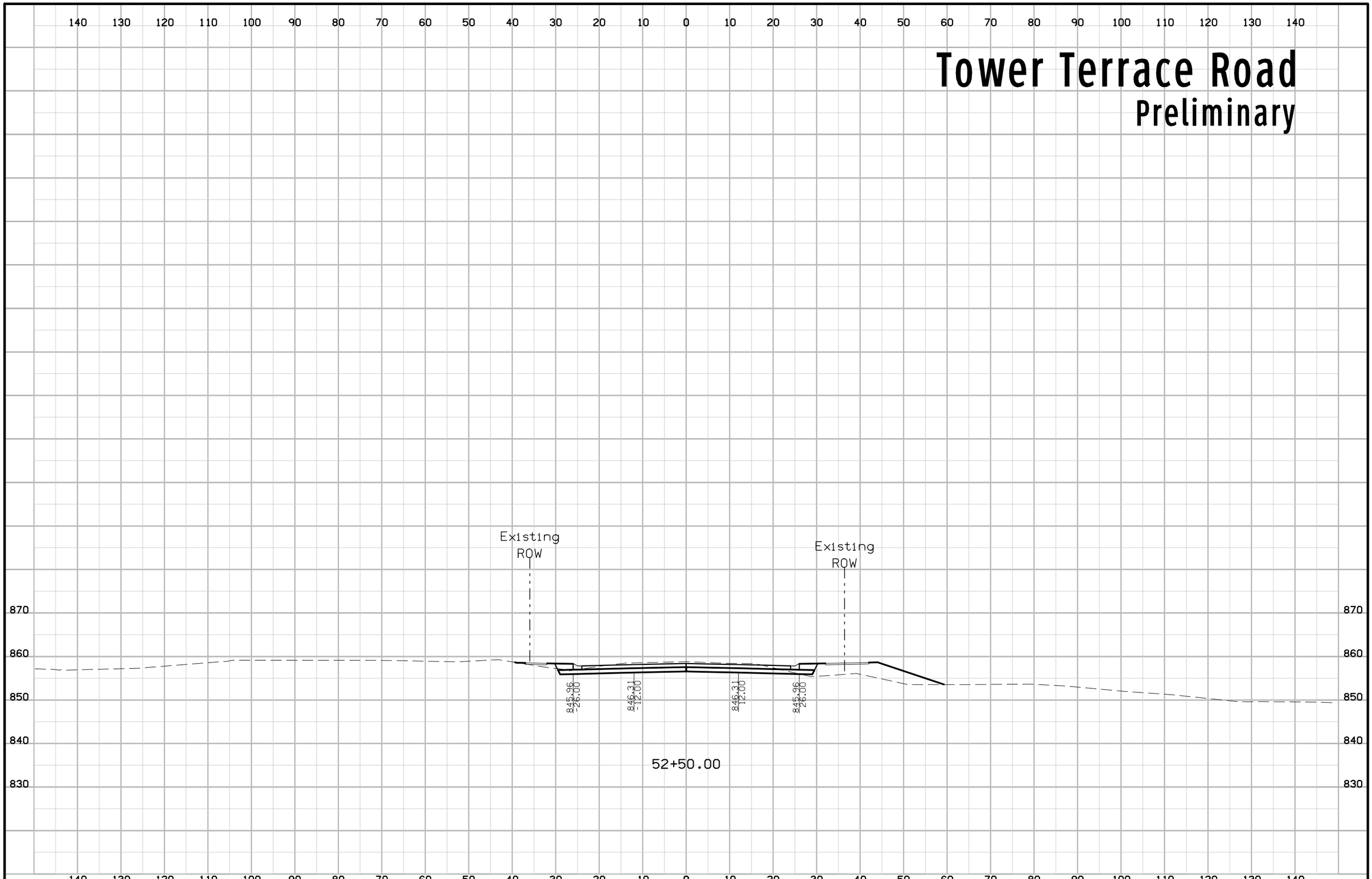
# Tower Terrace Road
## Preliminary




| ENGLISH | IOWA DOT | DESIGN TEAM | COUNTY | PROJECT NUMBER | SHEET NUMBER X.10 |
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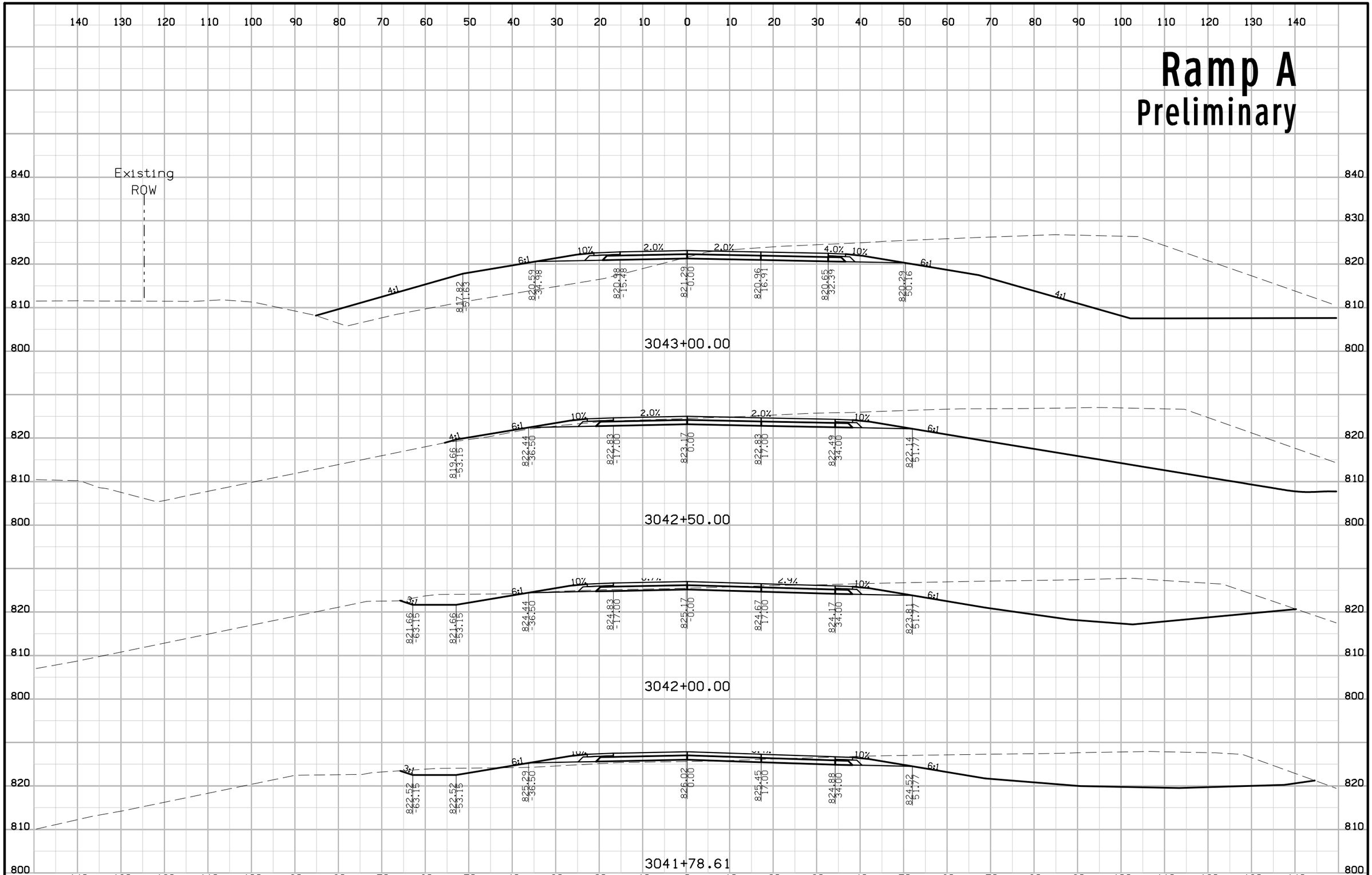
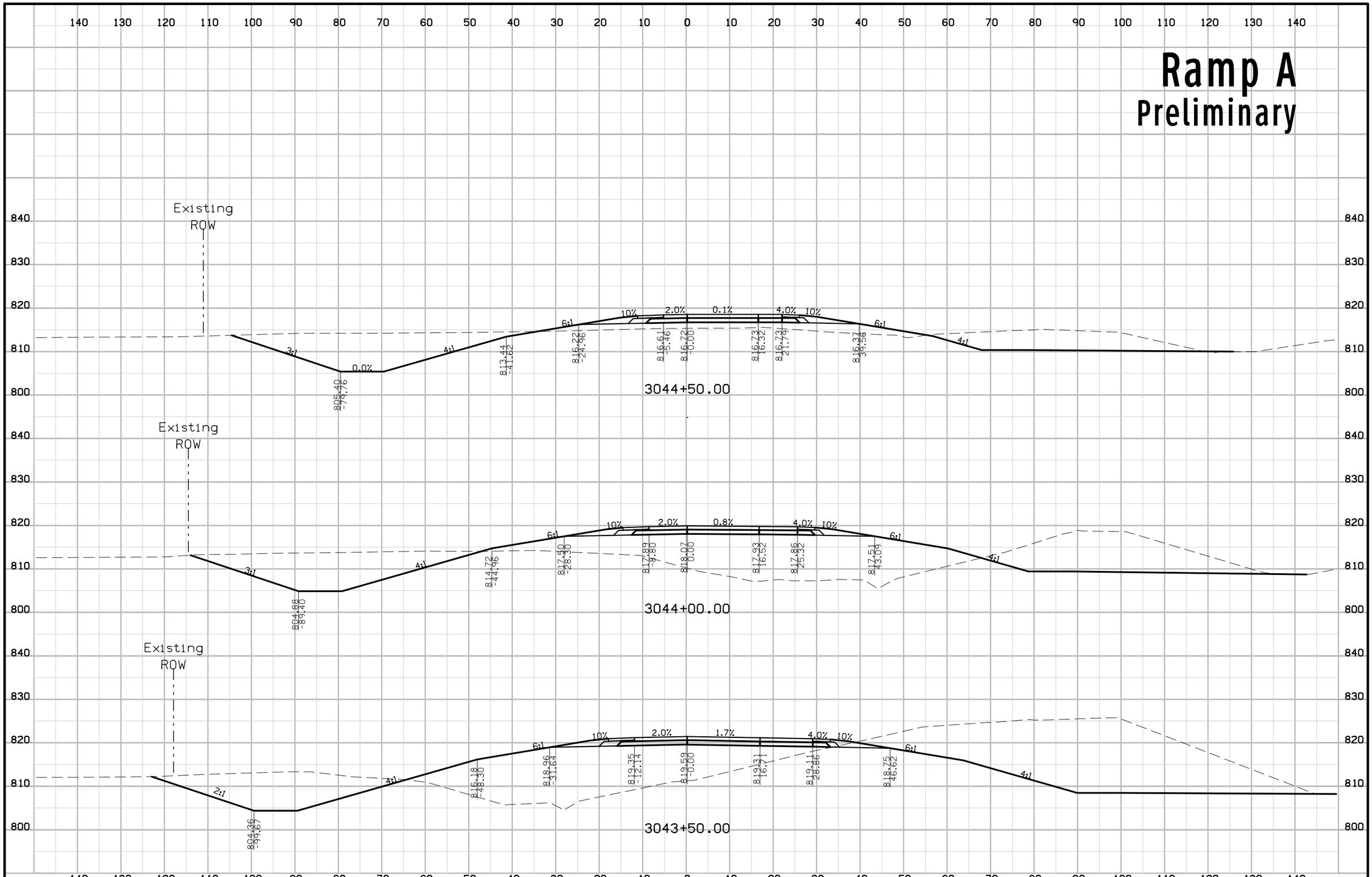
# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.1 |
|---|---|---|---|---|---|

3:21:52 PM rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200Y01.dgn

# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.2 |
|---|---|---|---|---|---|

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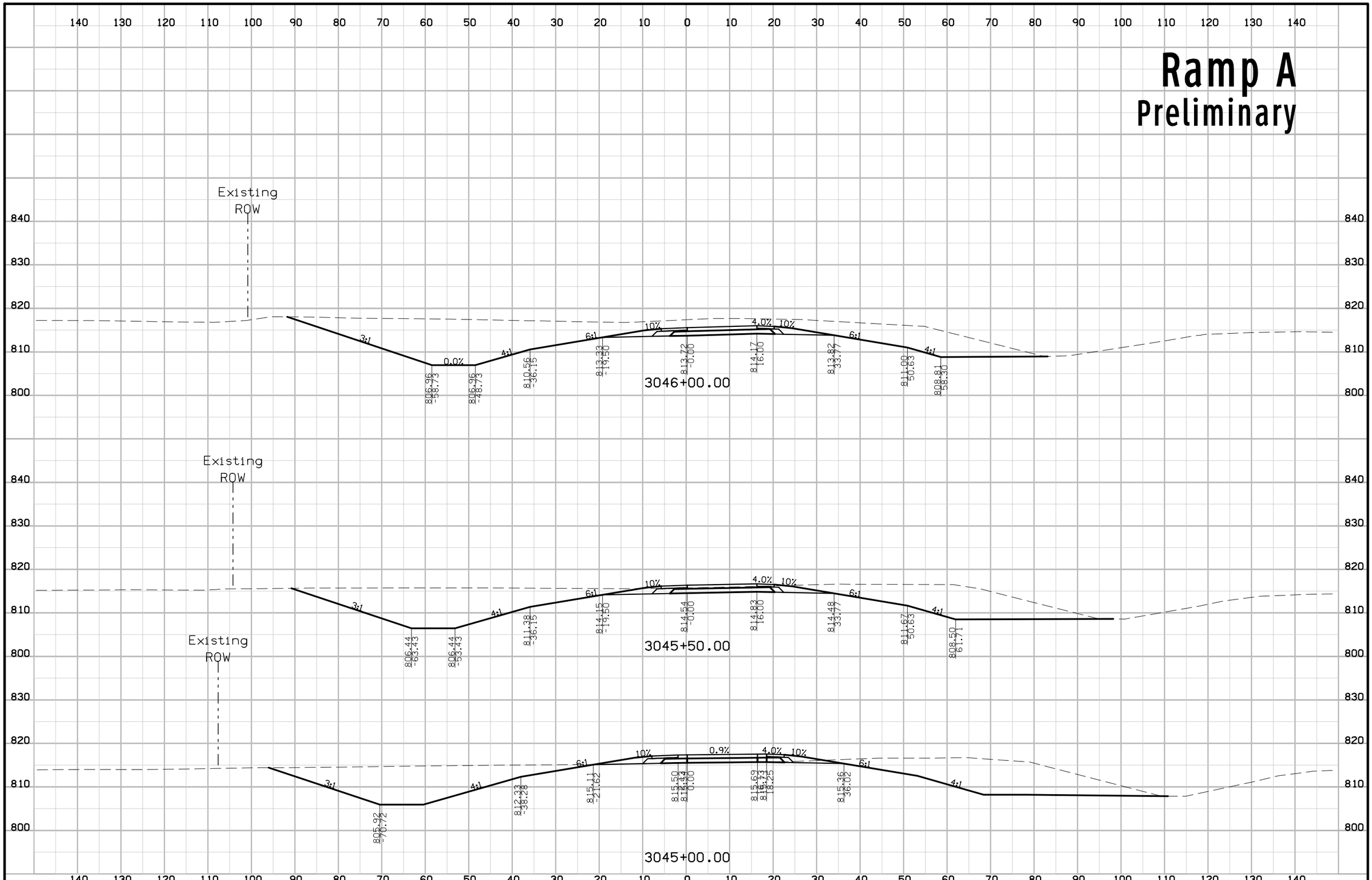
# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.3 |
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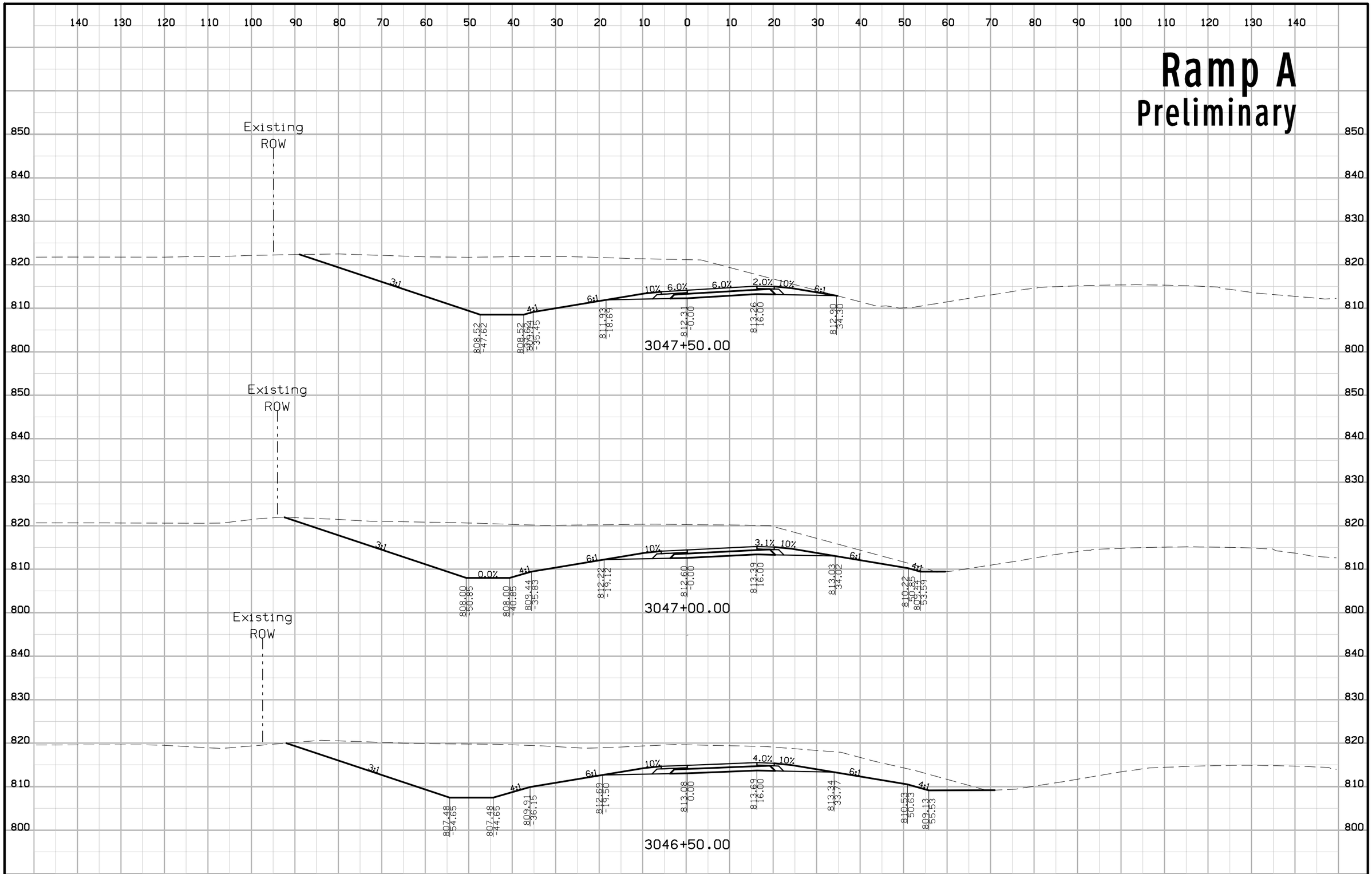
3:21:55 PM rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200Y01.dgn

# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.4 |
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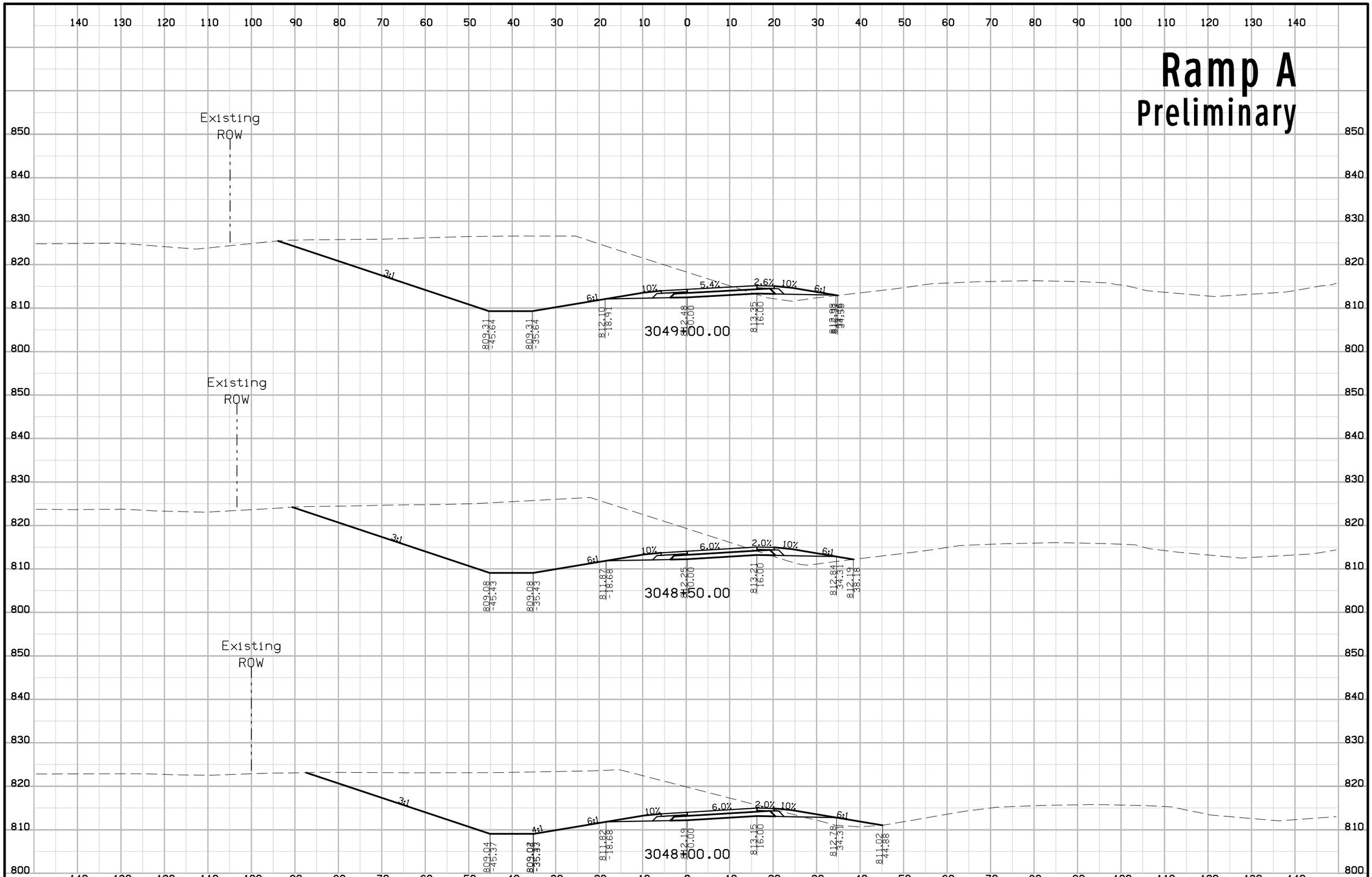
# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.5 |
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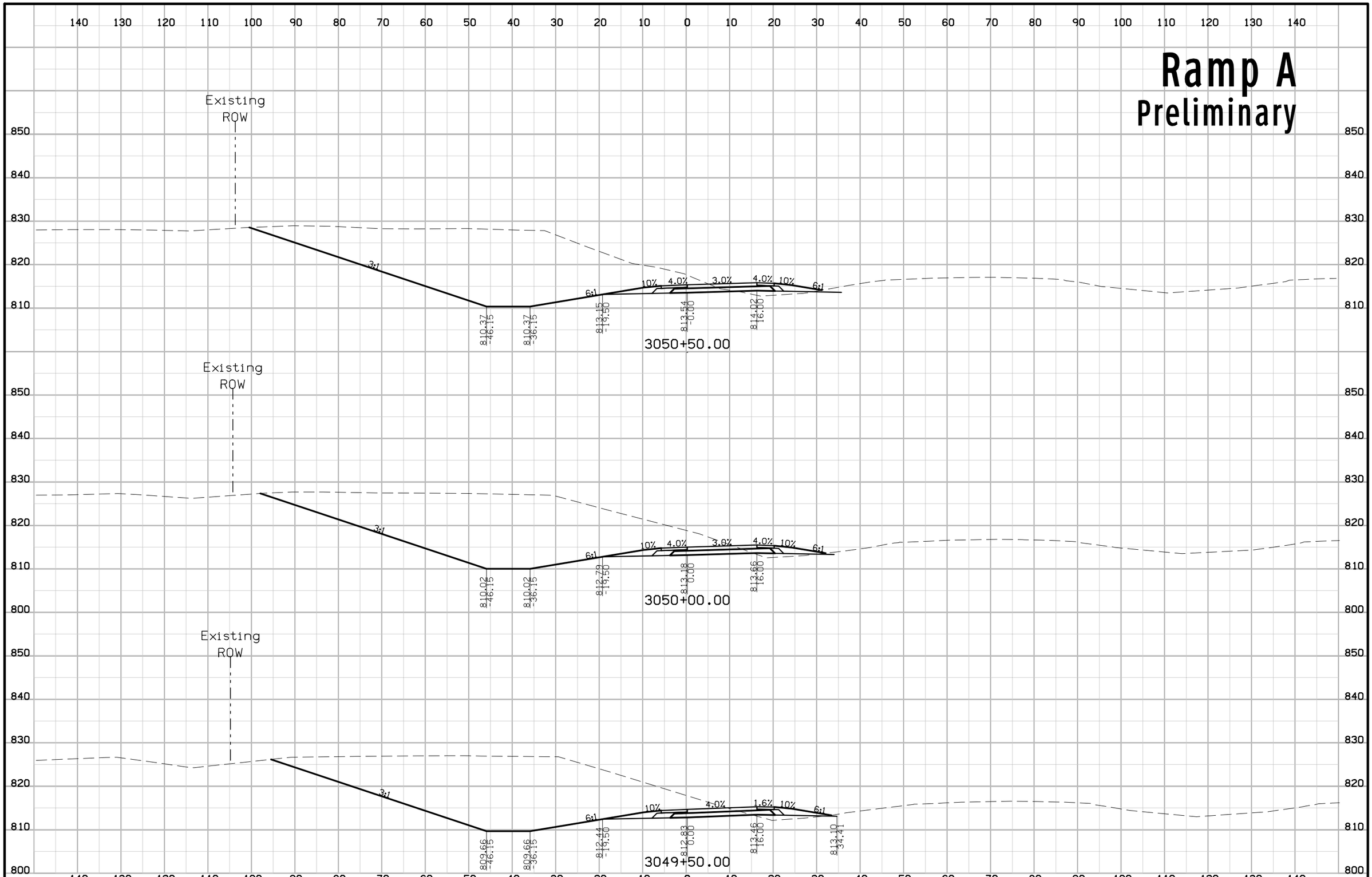
# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.6 |
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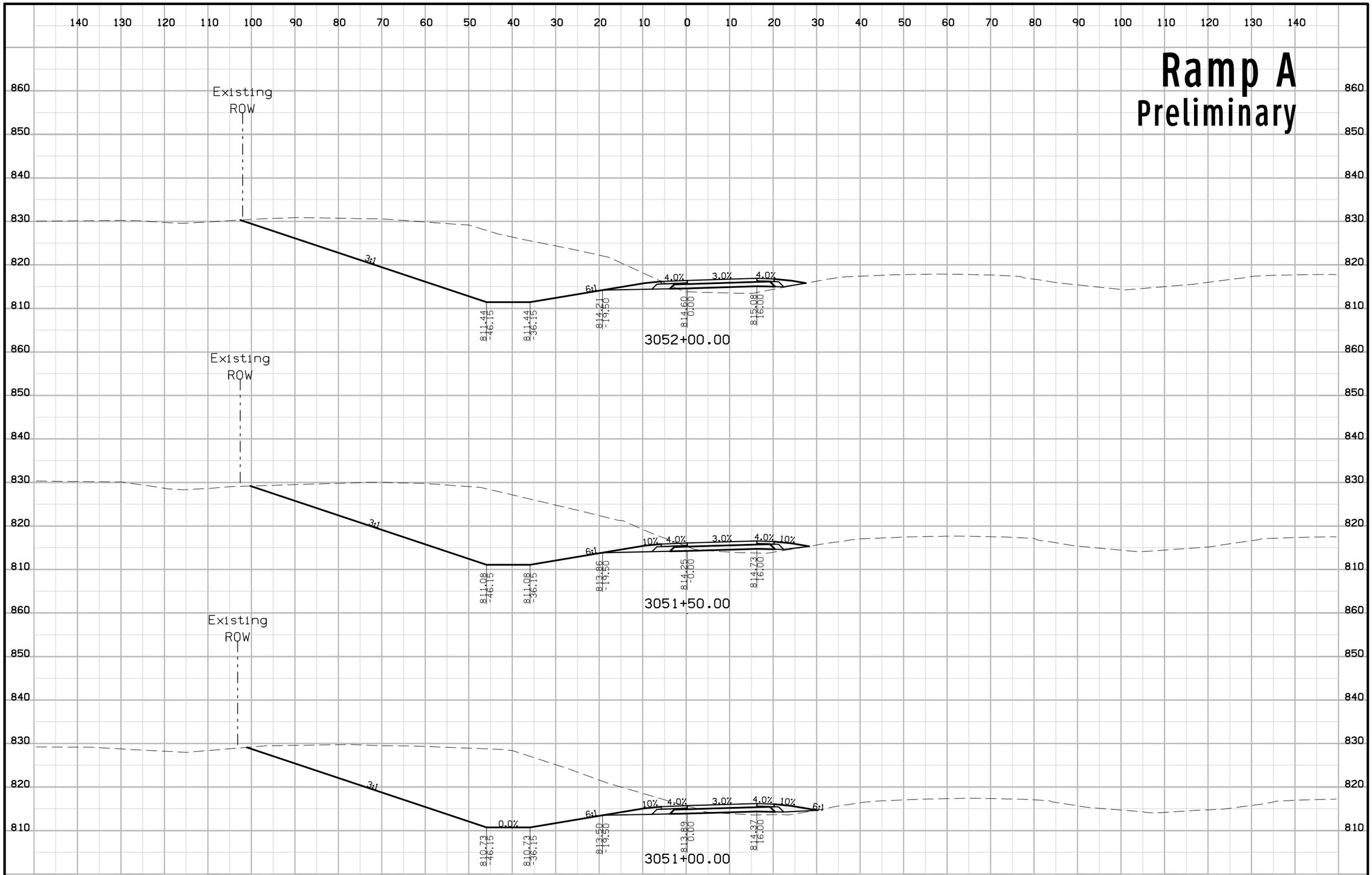
# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.7 |
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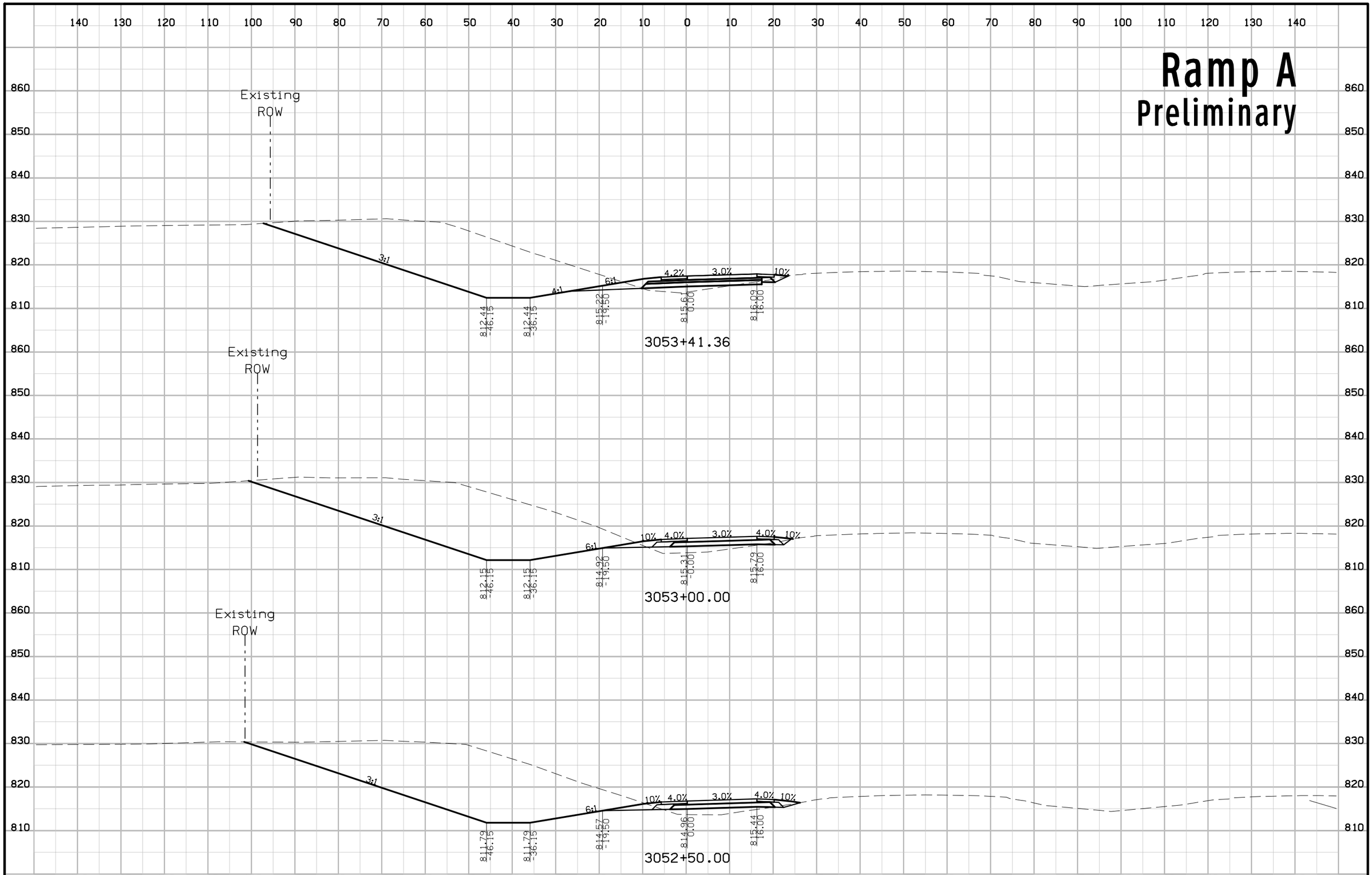
# Ramp A
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.8 |
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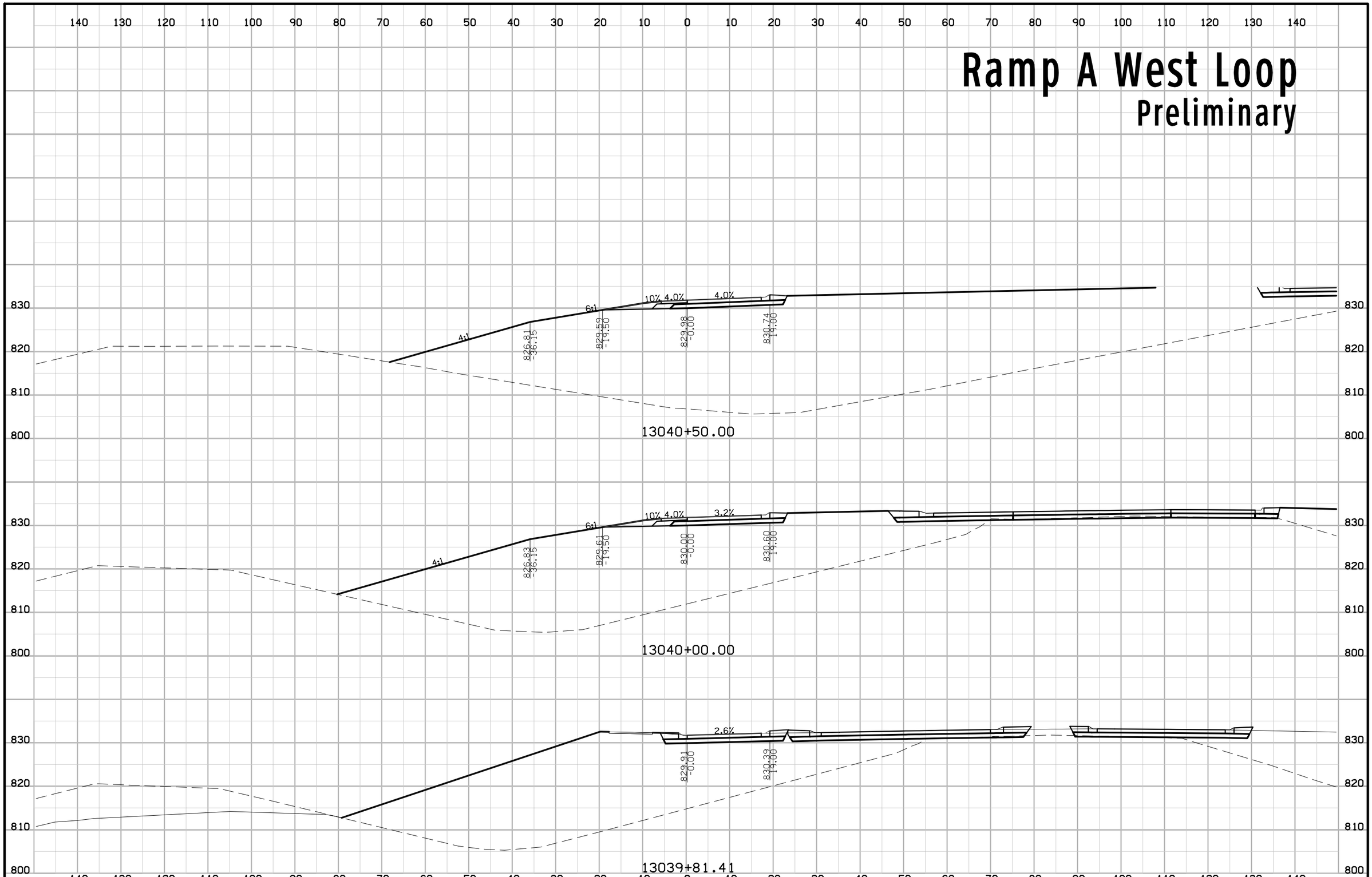
# Ramp A West Loop

## Preliminary

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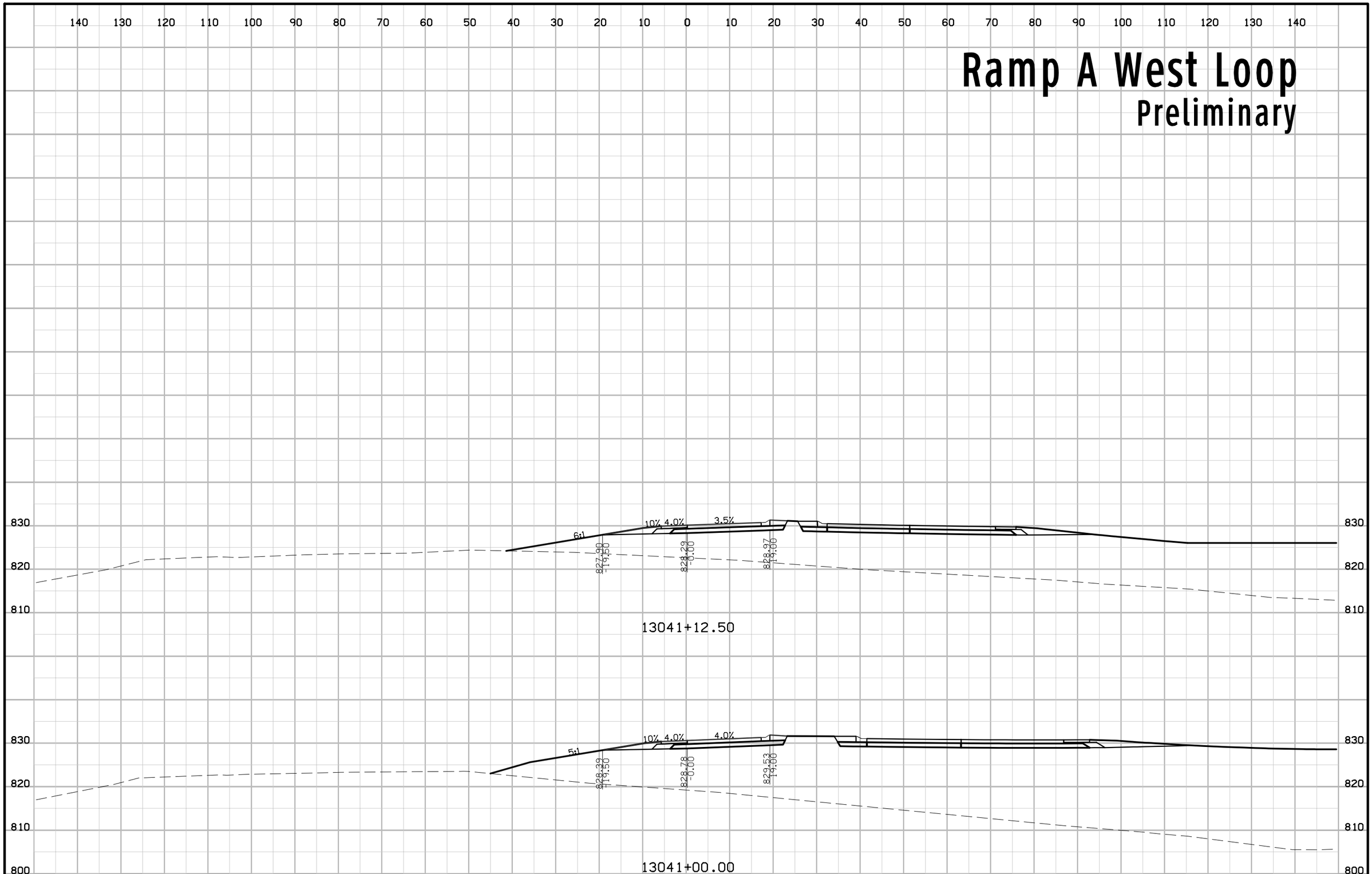
# Ramp A West Loop

## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.10 |
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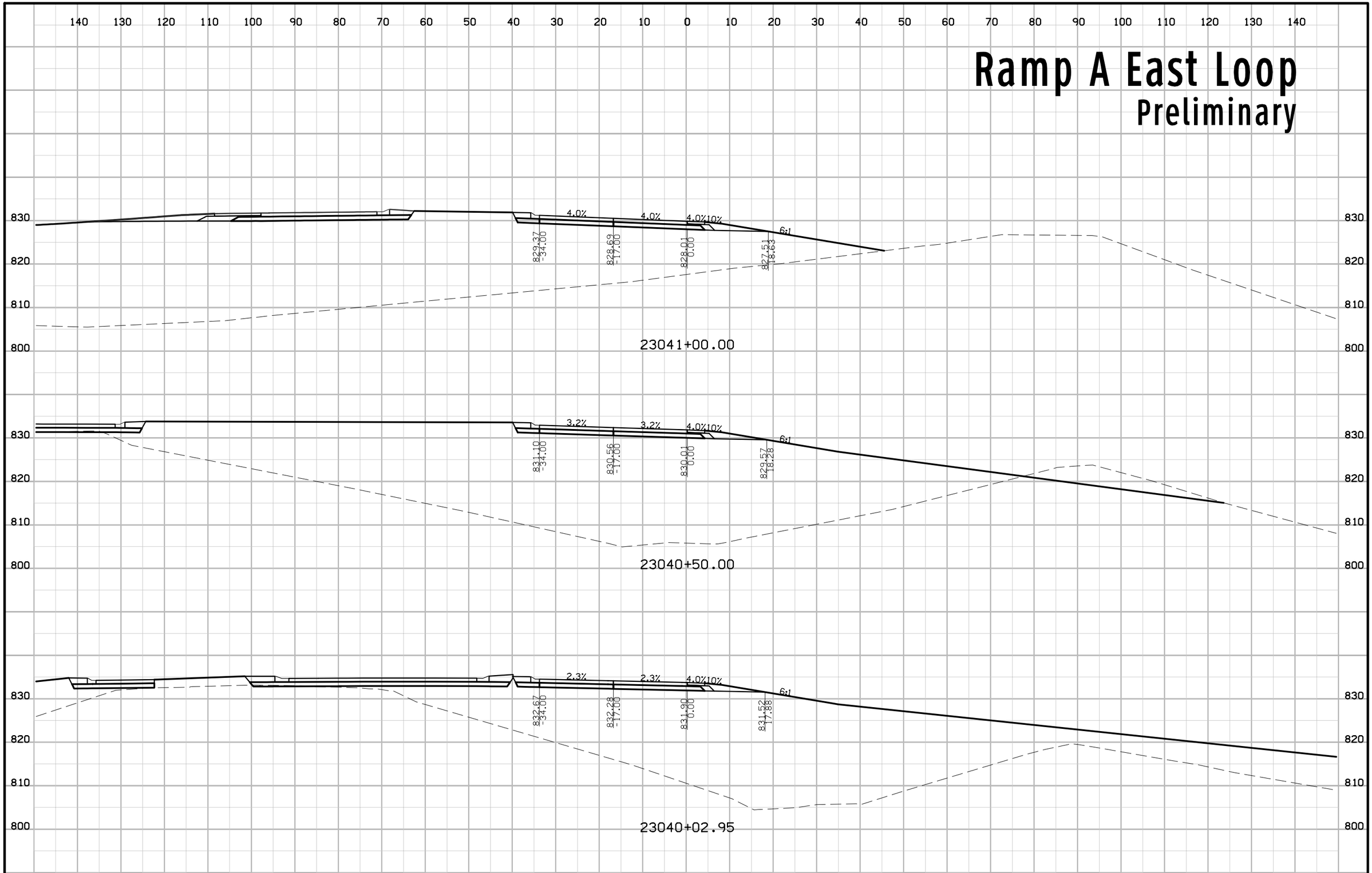
# Ramp A East Loop

## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.11 |
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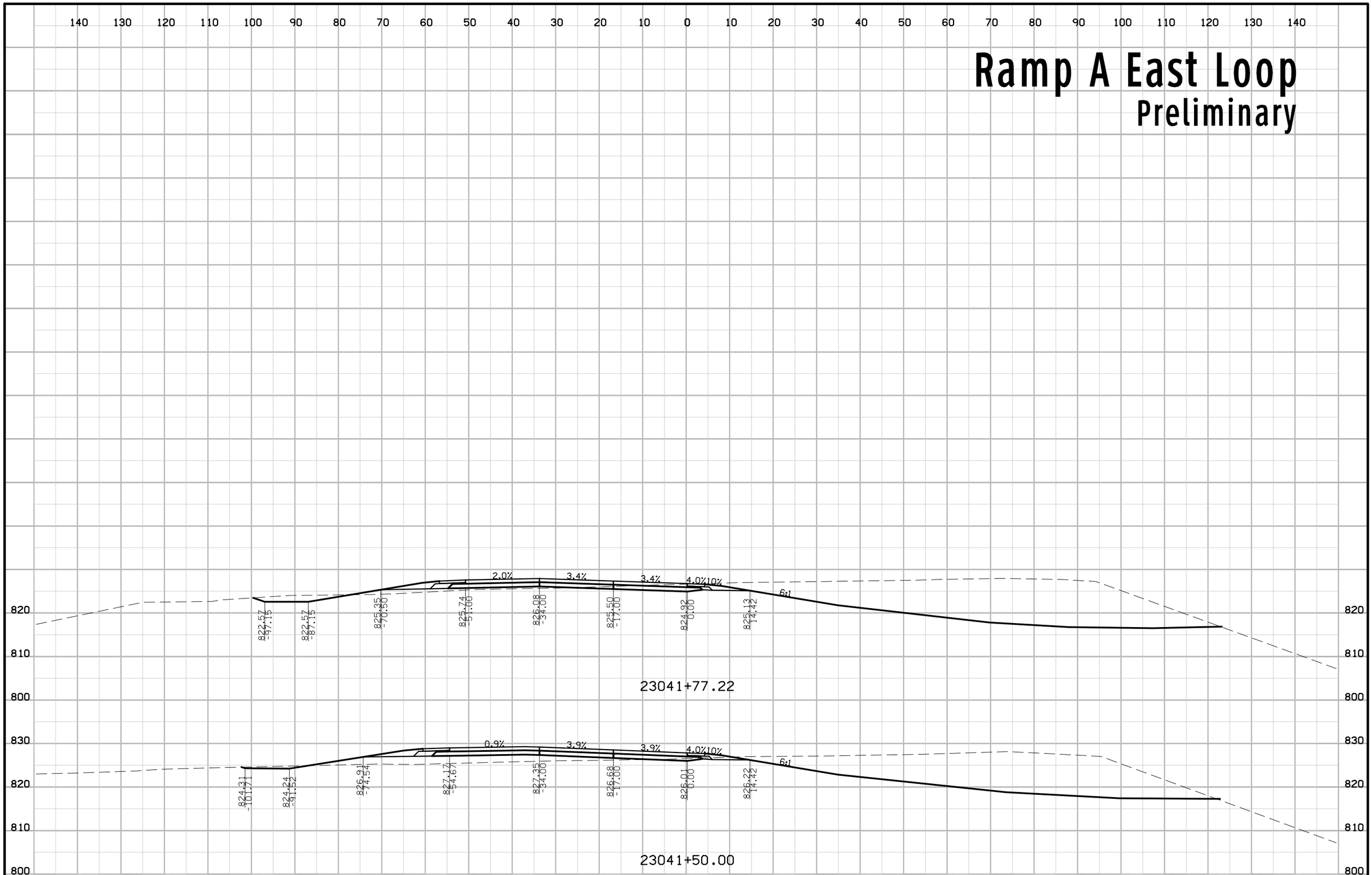
# Ramp A East Loop
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.12 |
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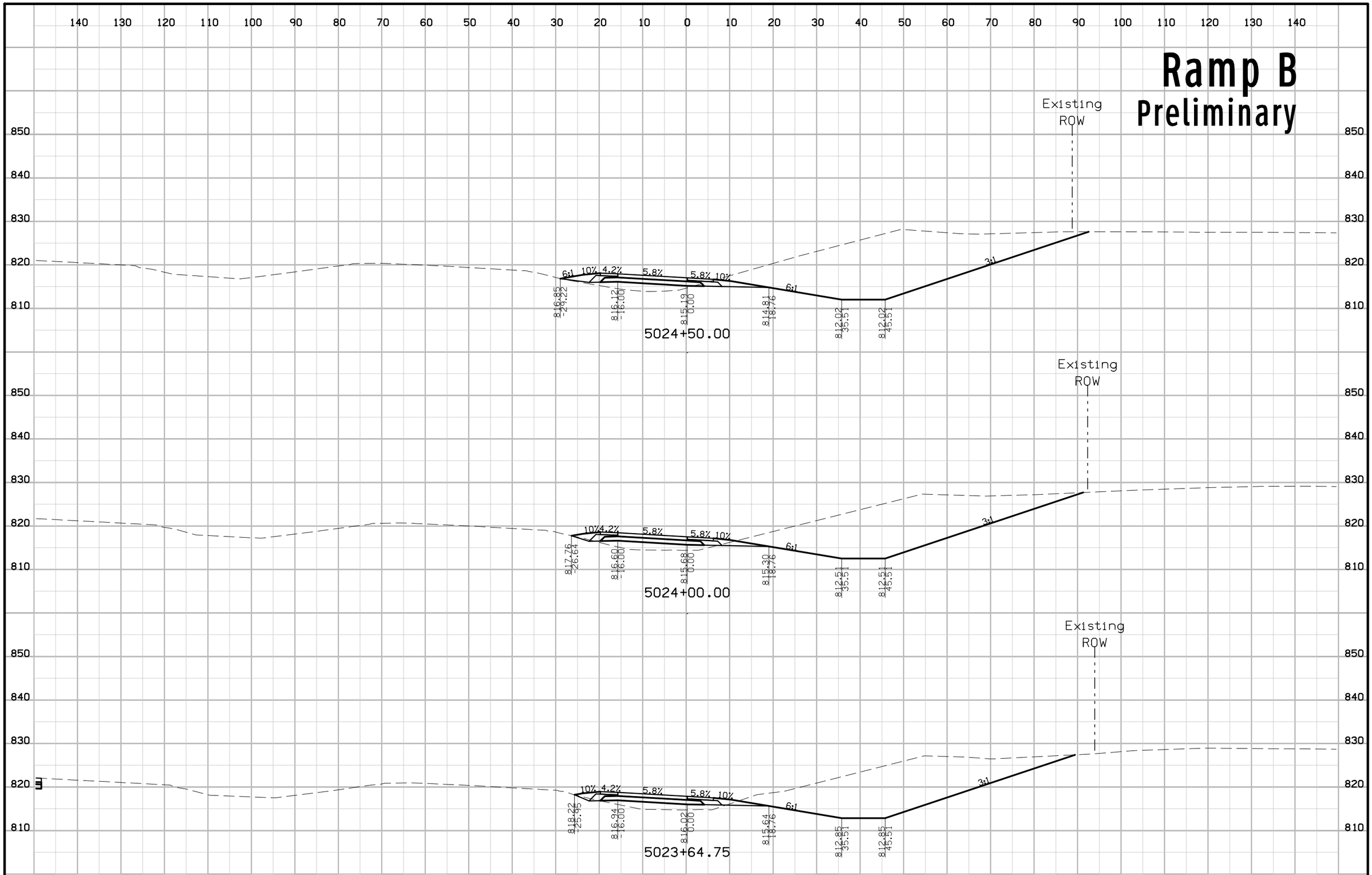
# Ramp B
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.13 |
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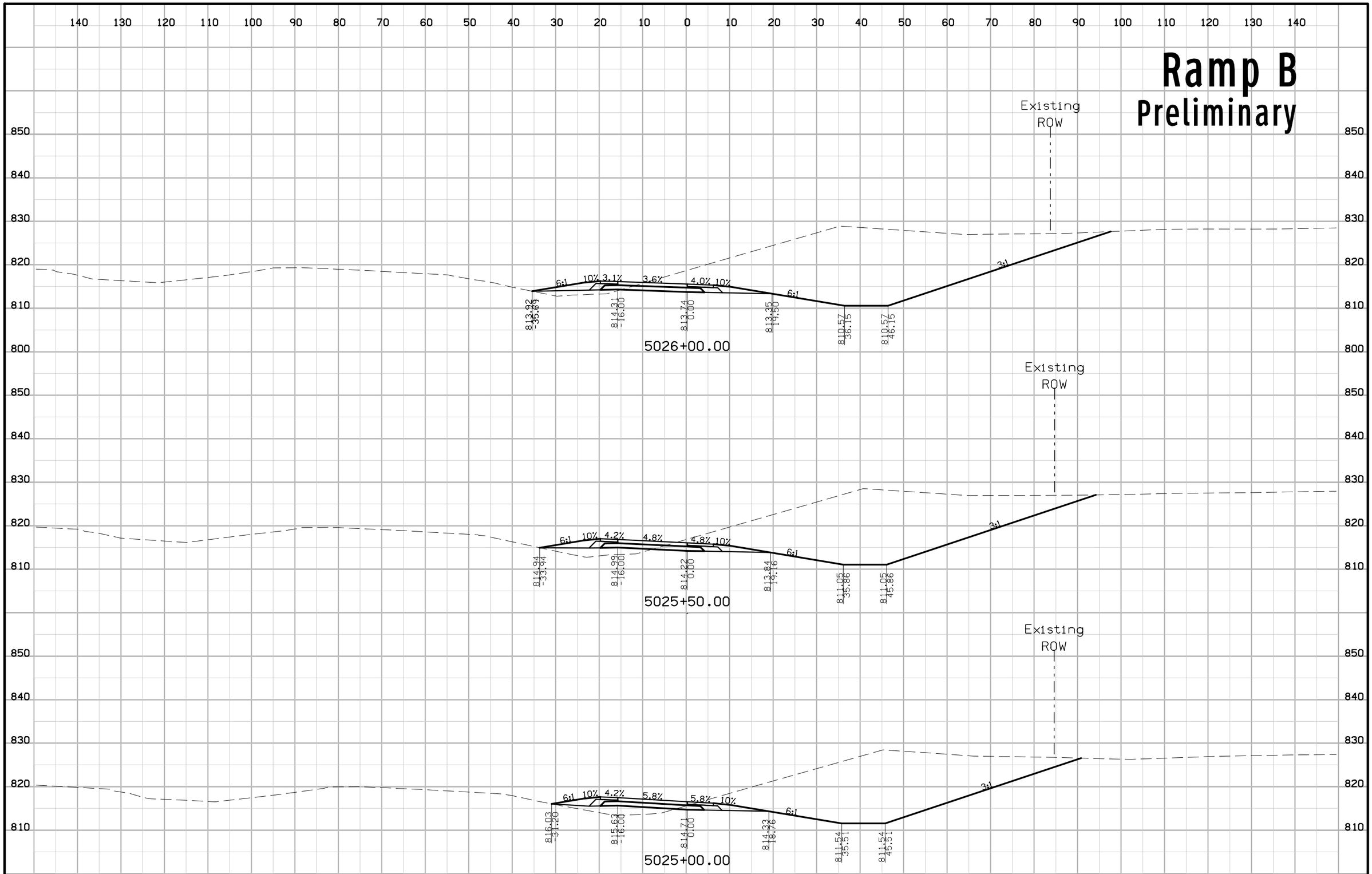
3:22:21 PM rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200Y01.dgn

# Ramp B
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.14 |
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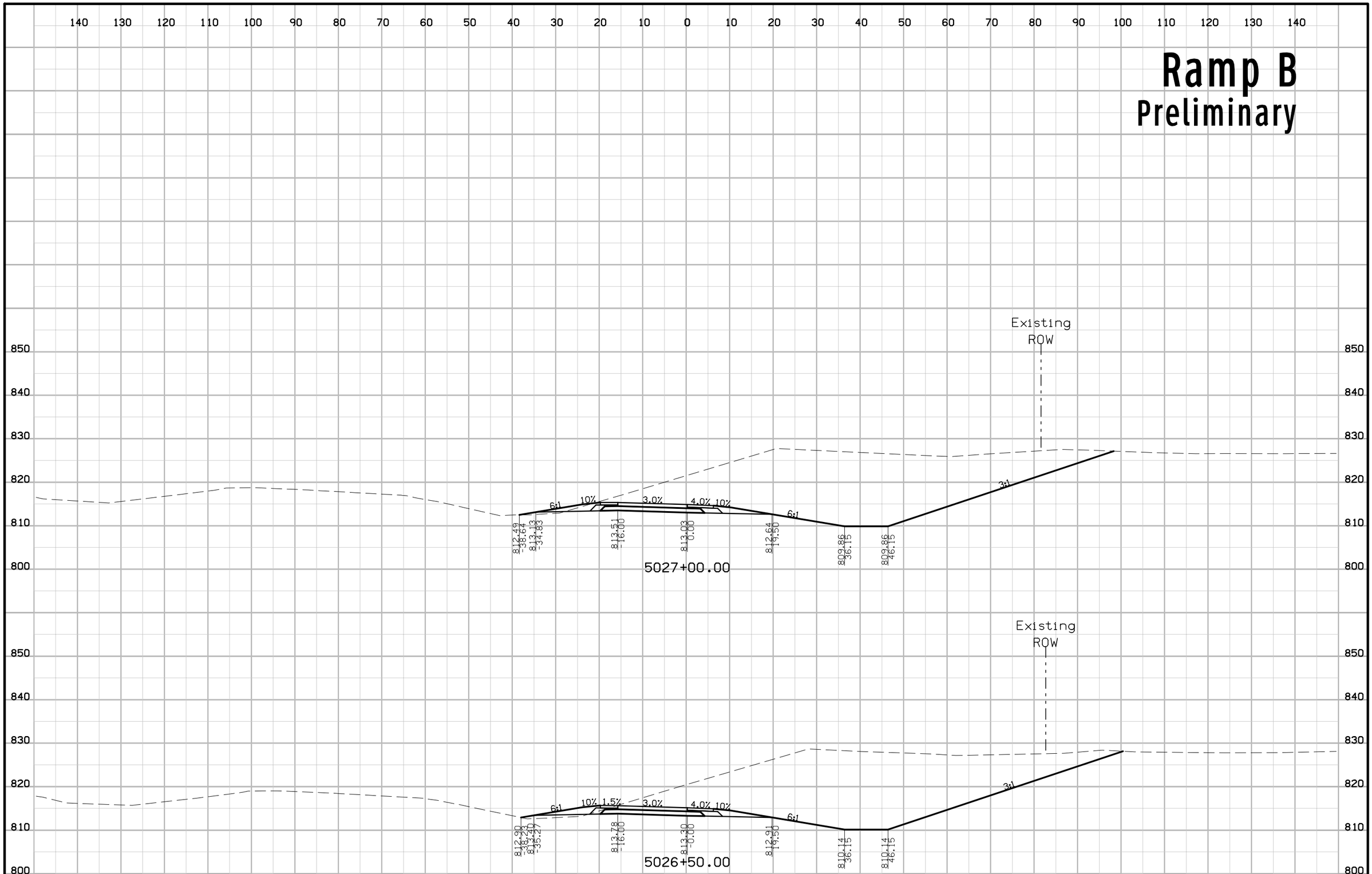
3:22:22 PM rfleming pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5738005096\Design_Tower_Terrace_Rd_D5\CADD_Files\Sheet_files\57380200Y01.dgn

# Ramp B
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.15 |
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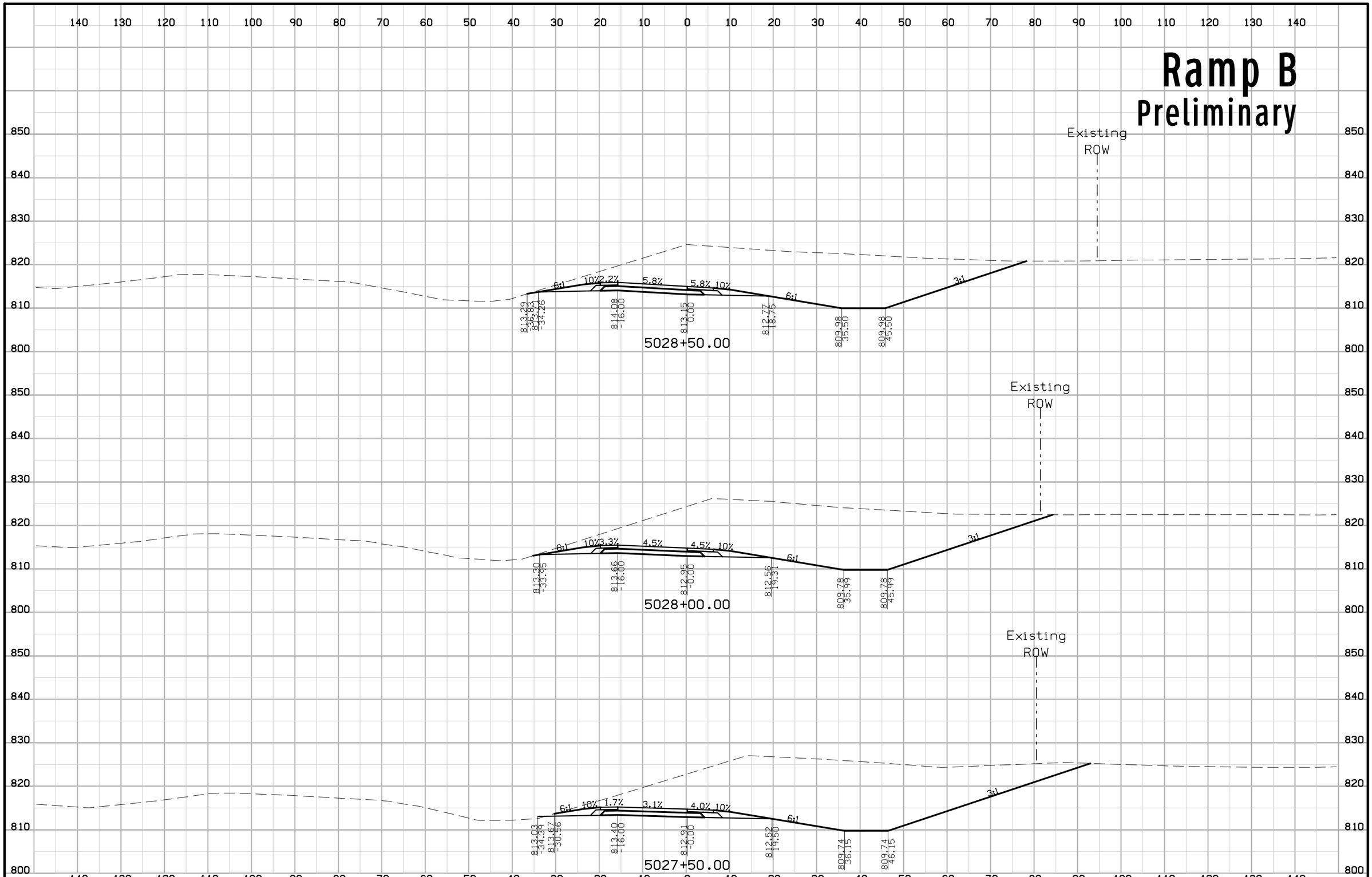
# Ramp B
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.16 |
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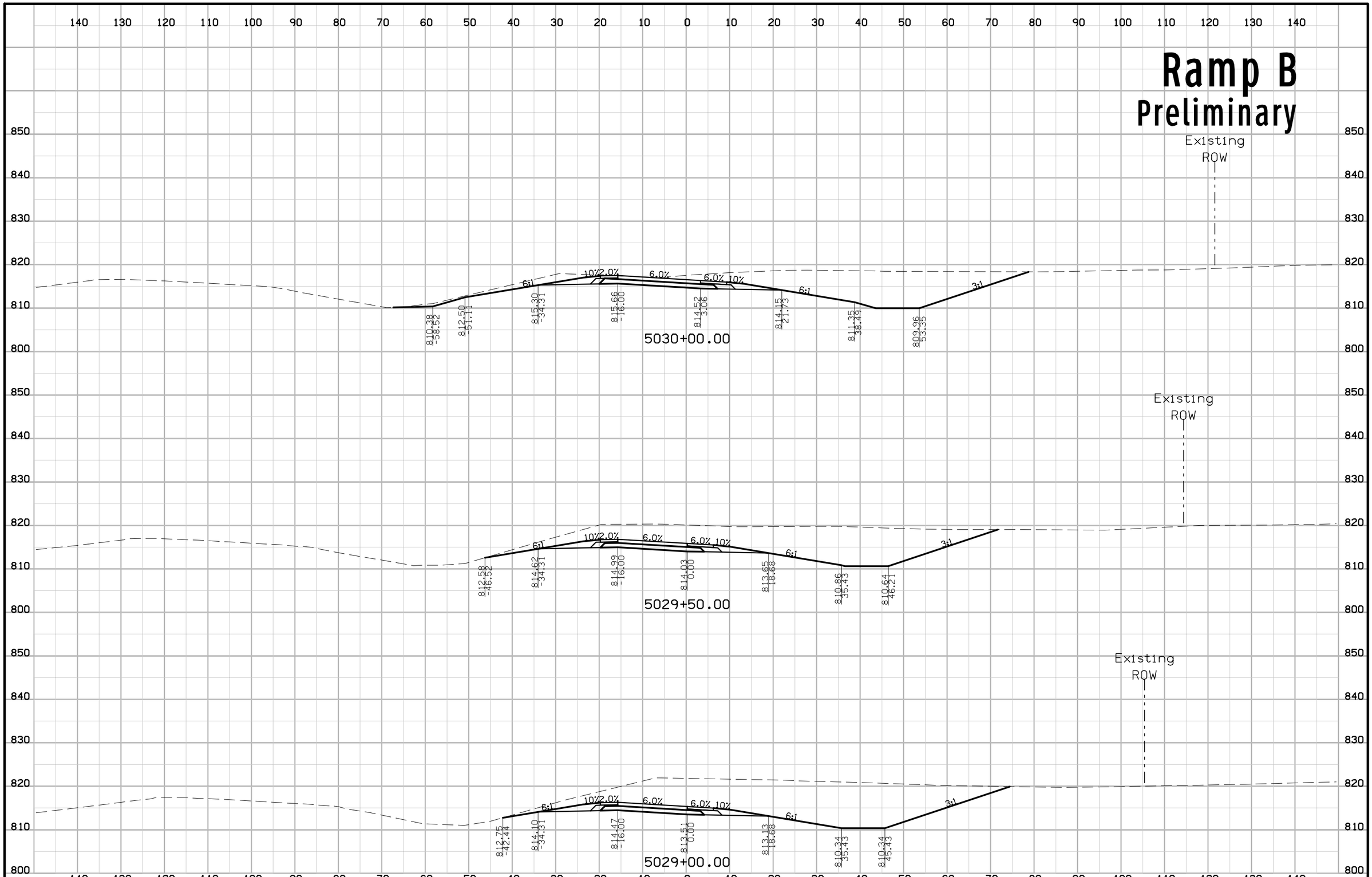
# Ramp B
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.17 |
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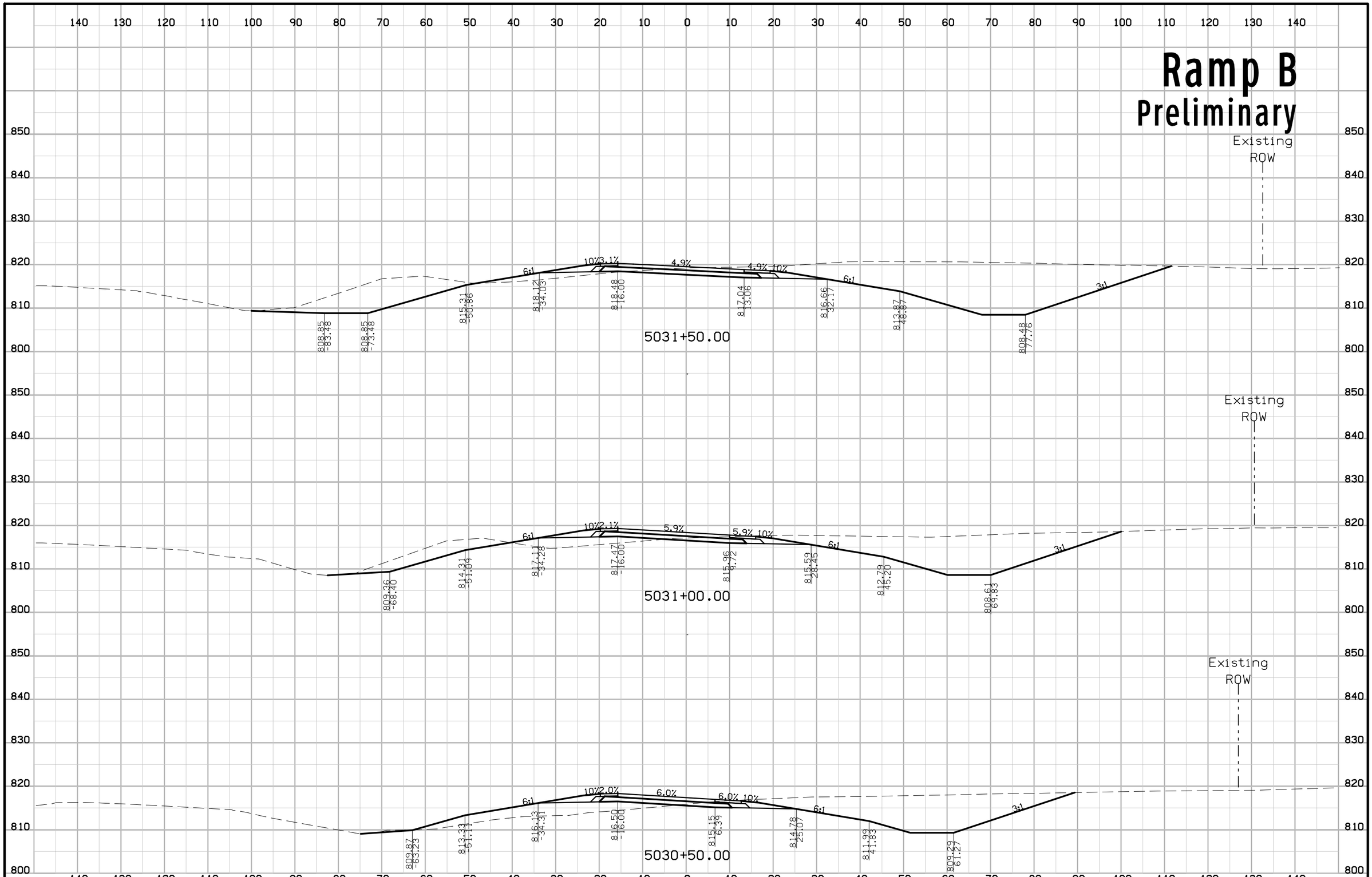
# Ramp B
## Preliminary

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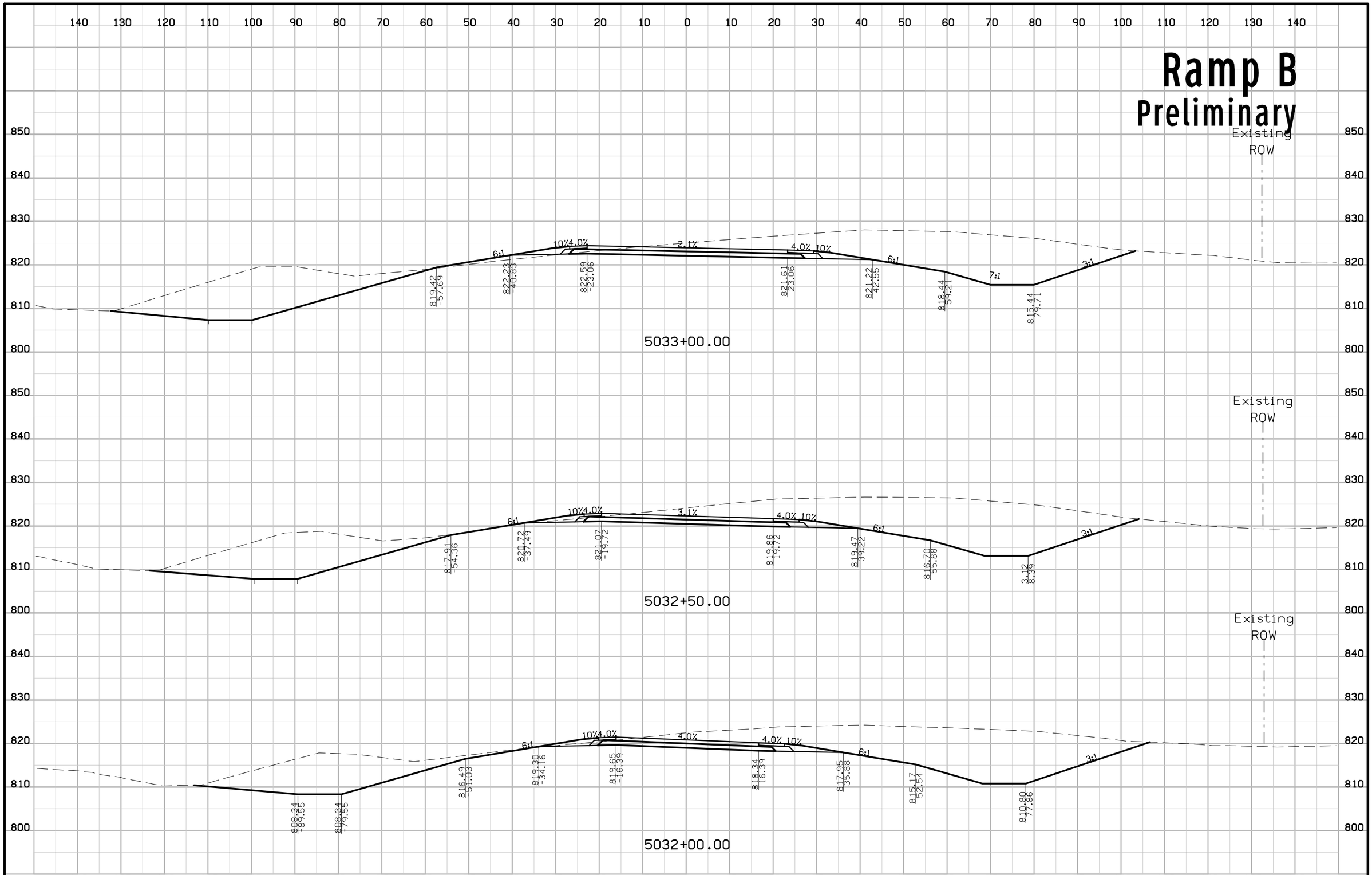
# Ramp B
## Preliminary

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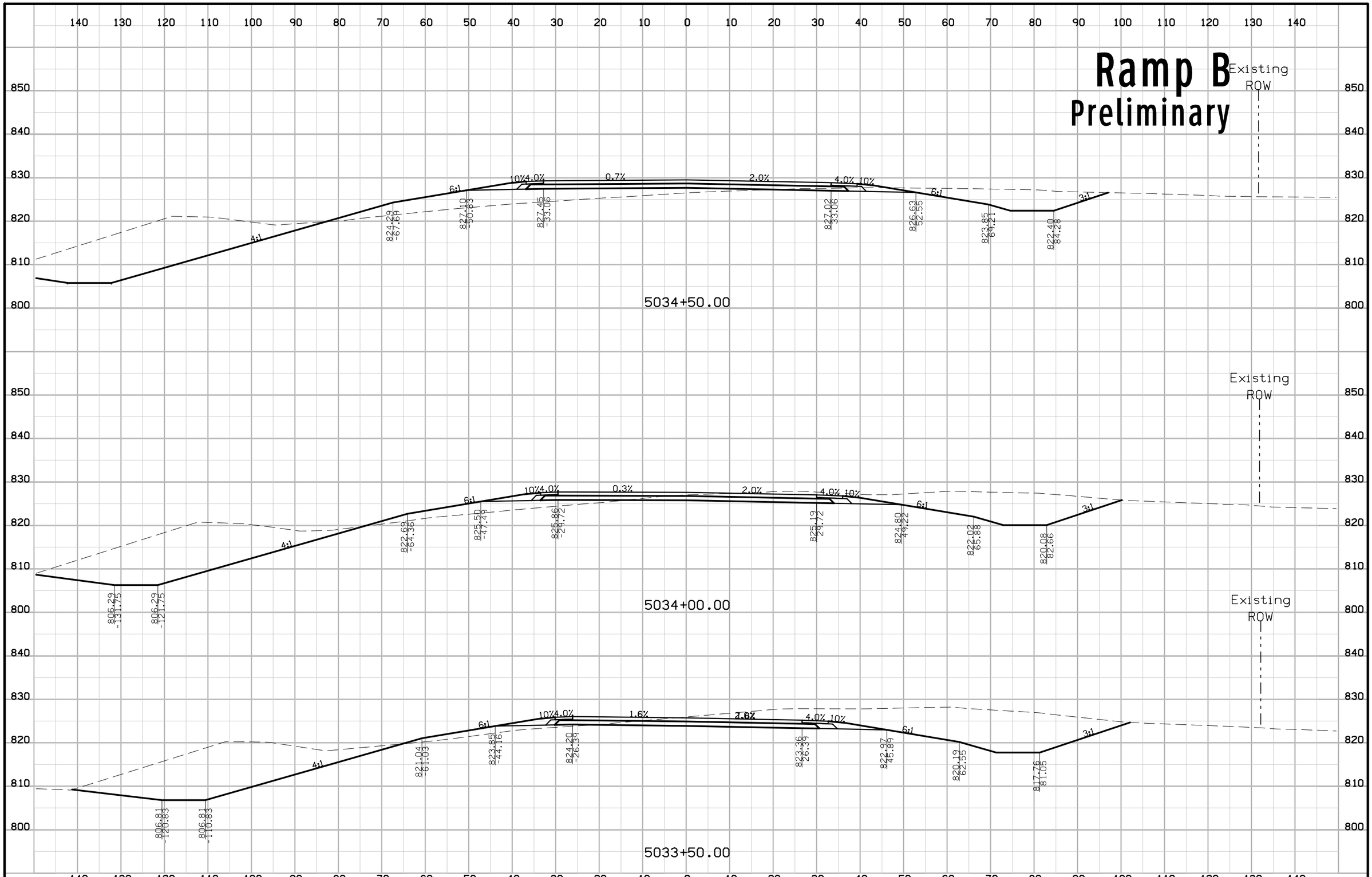
# Ramp B
## Preliminary

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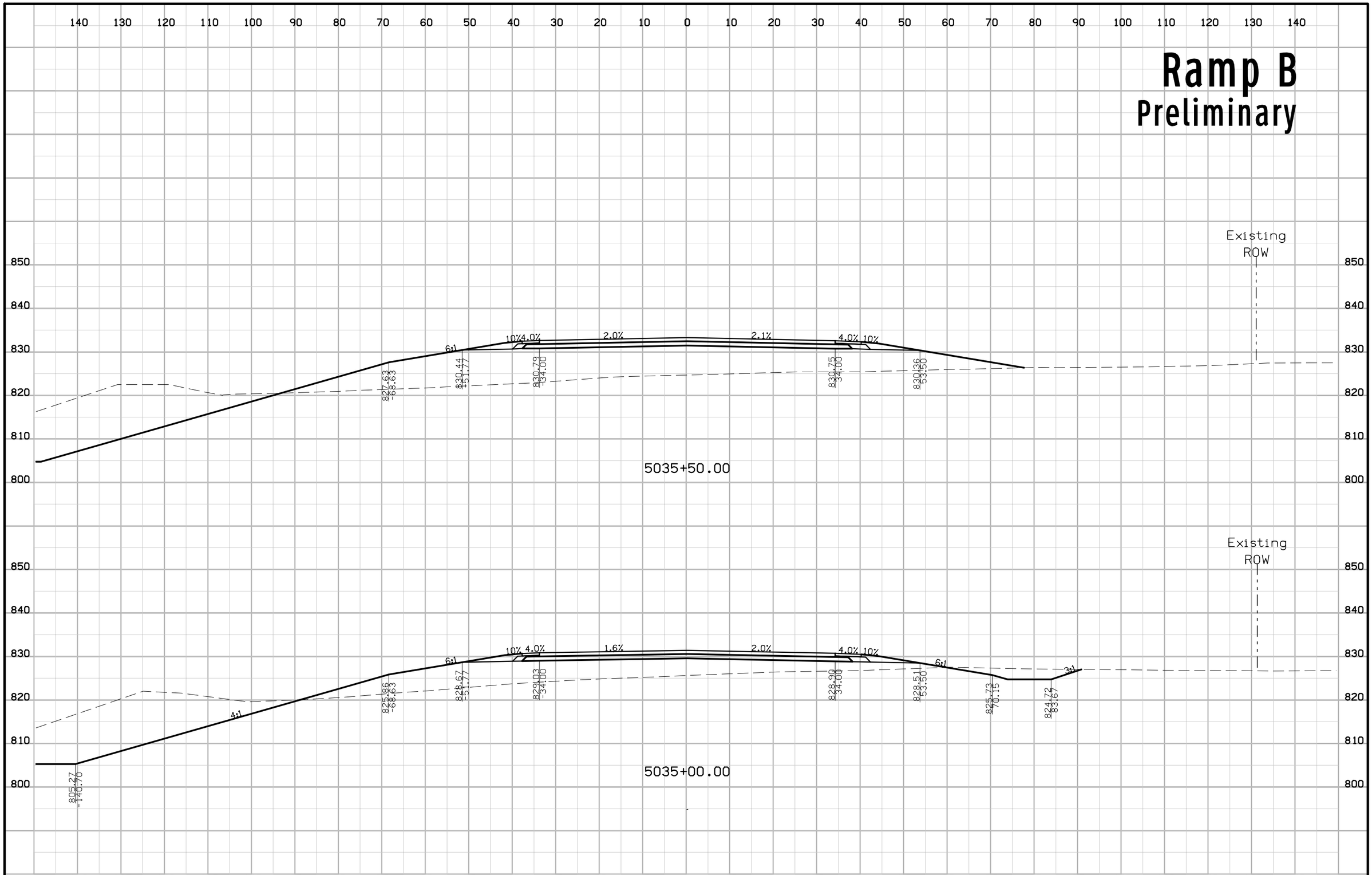
# Ramp B
## Preliminary

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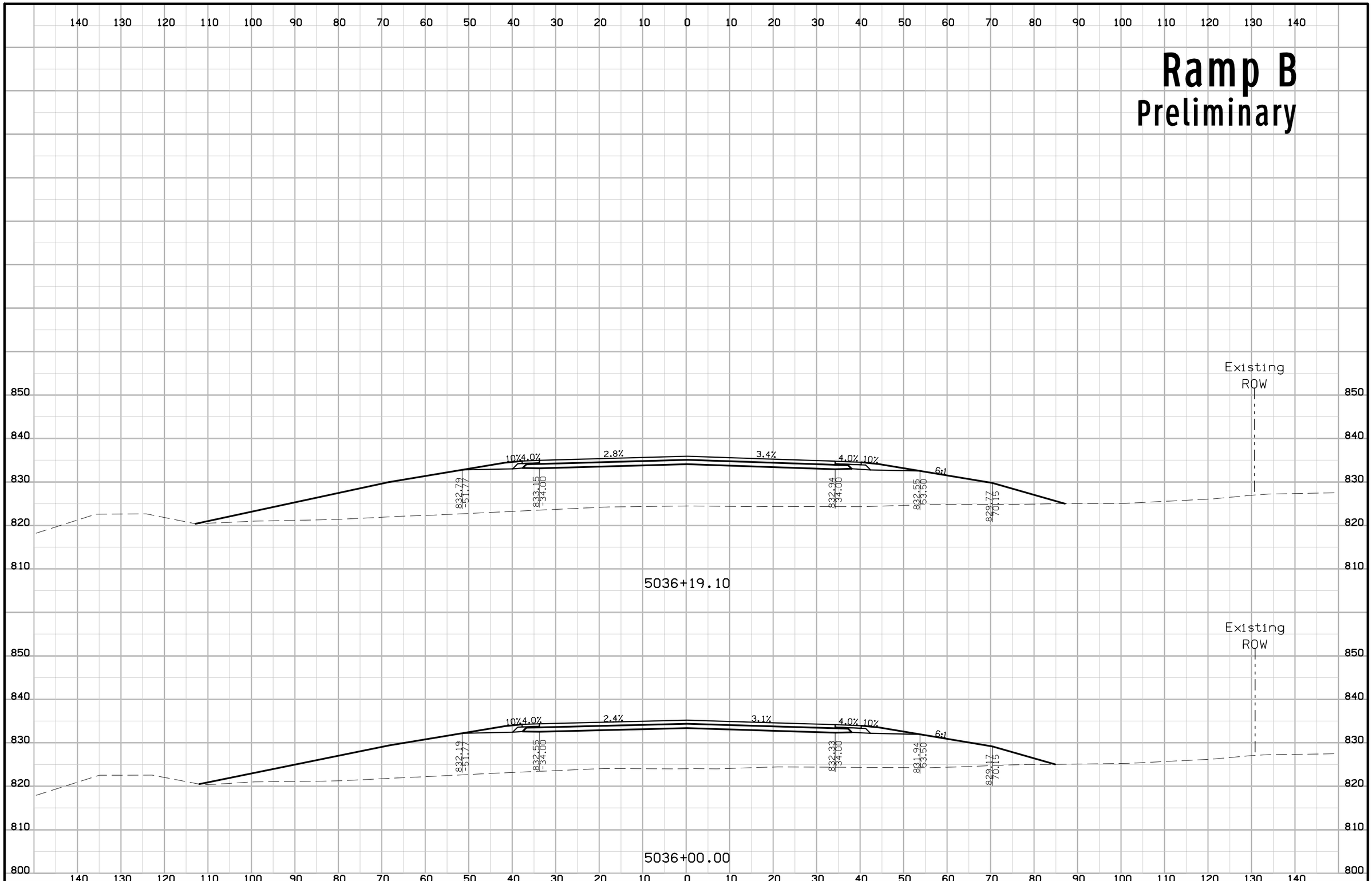
# Ramp B
## Preliminary

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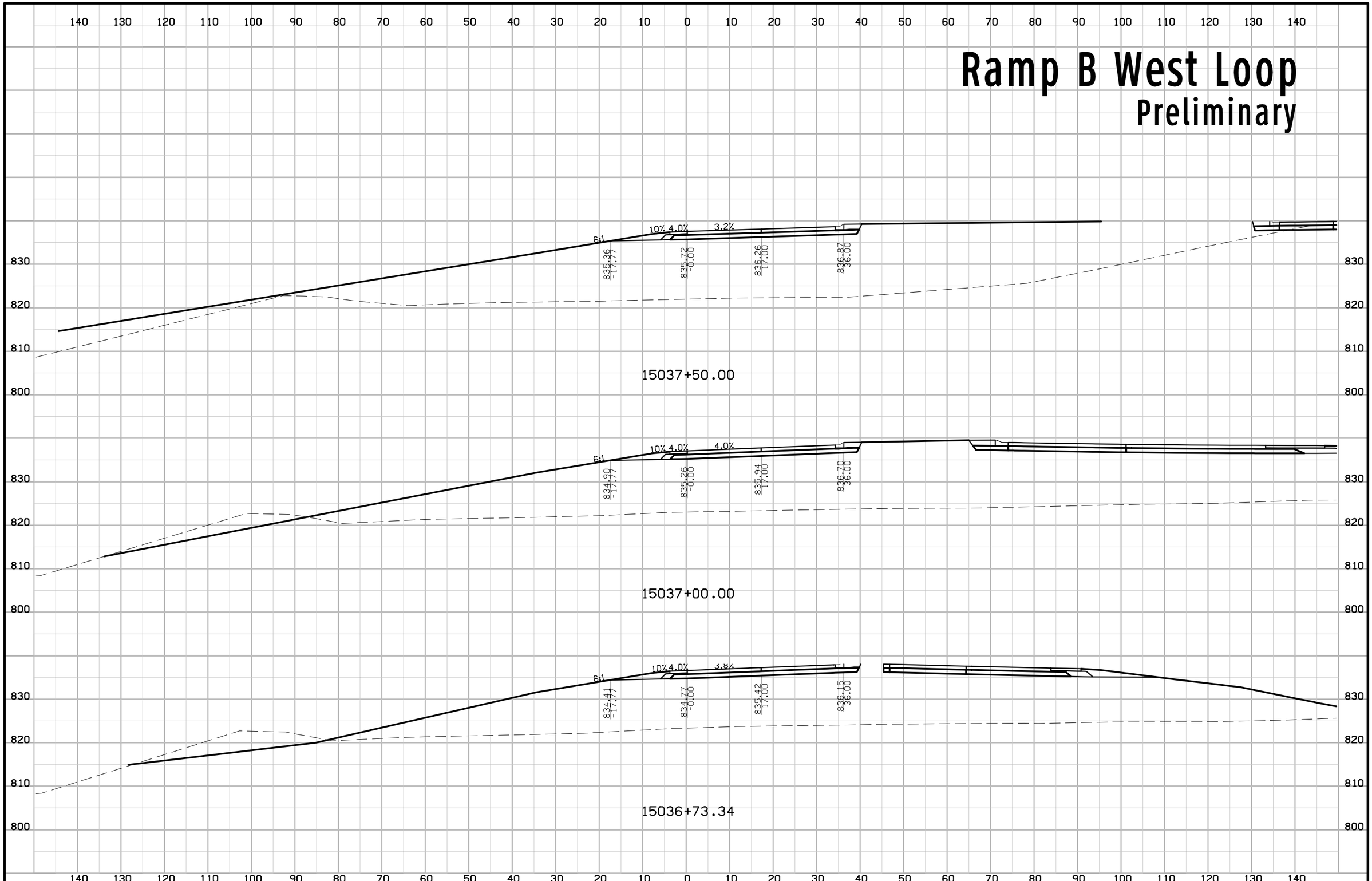
# Ramp B West Loop

## Preliminary

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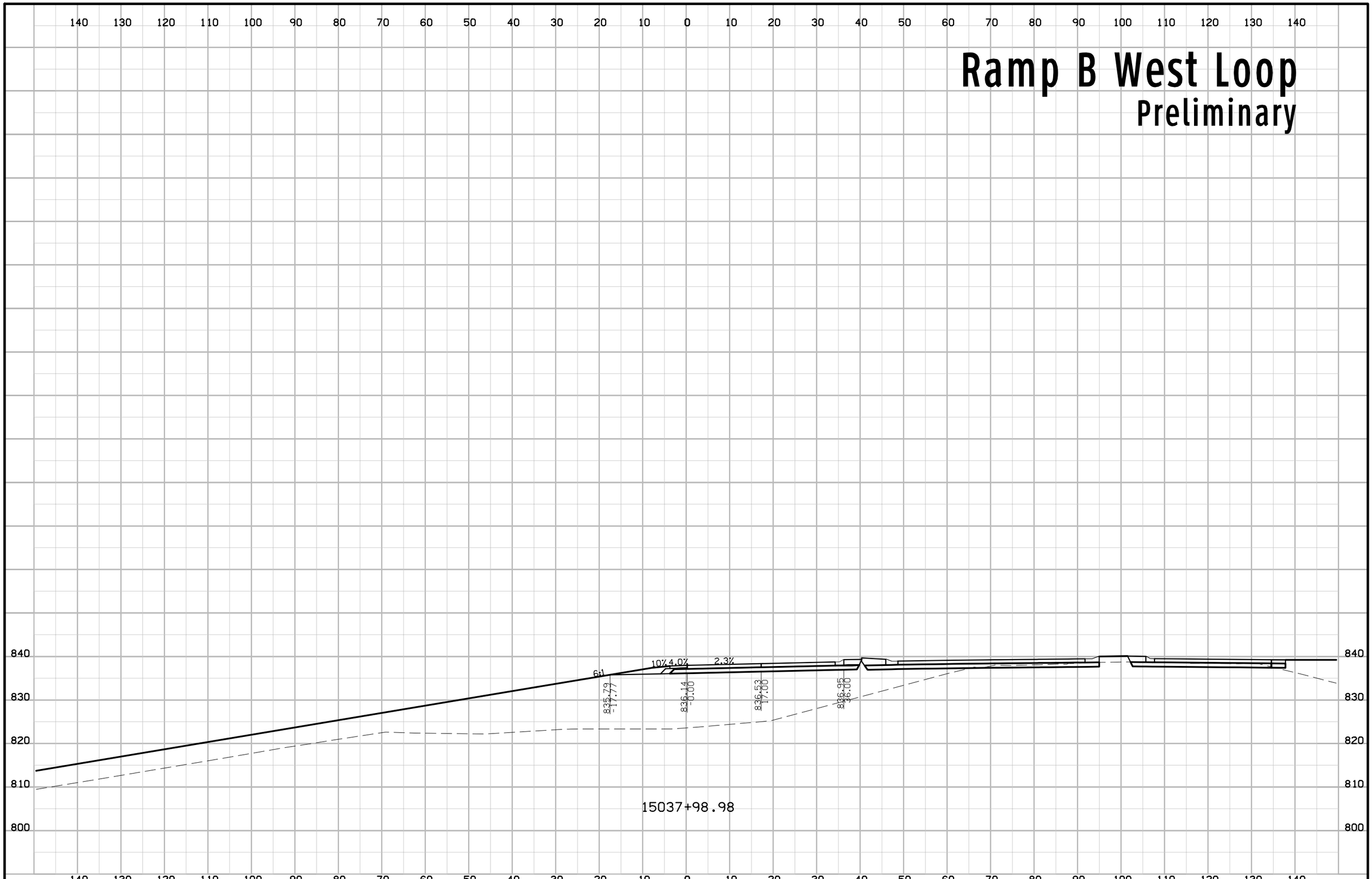
# Ramp B West Loop

## Preliminary

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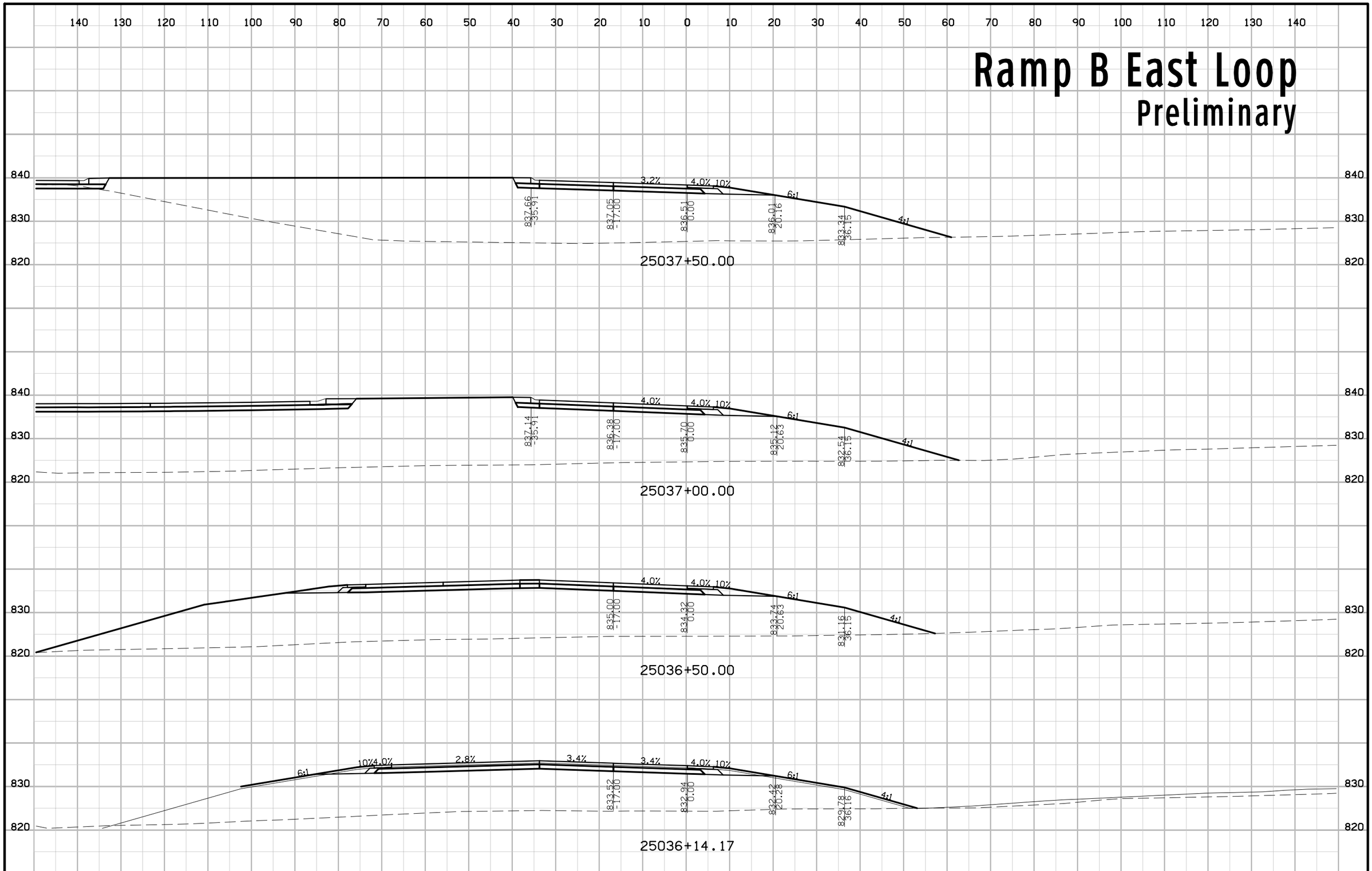
# Ramp B East Loop

## Preliminary

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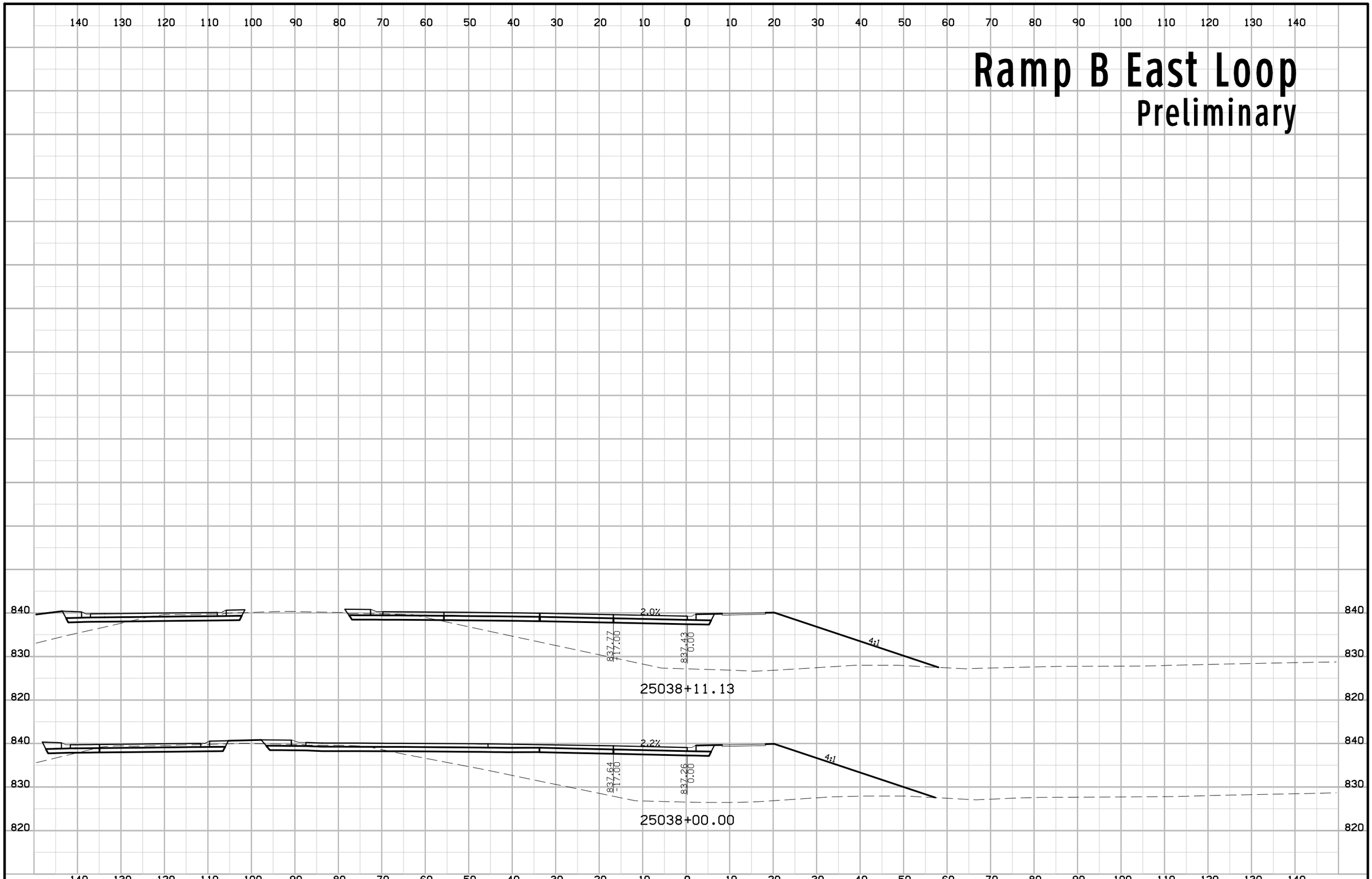
# Ramp B East Loop
## Preliminary

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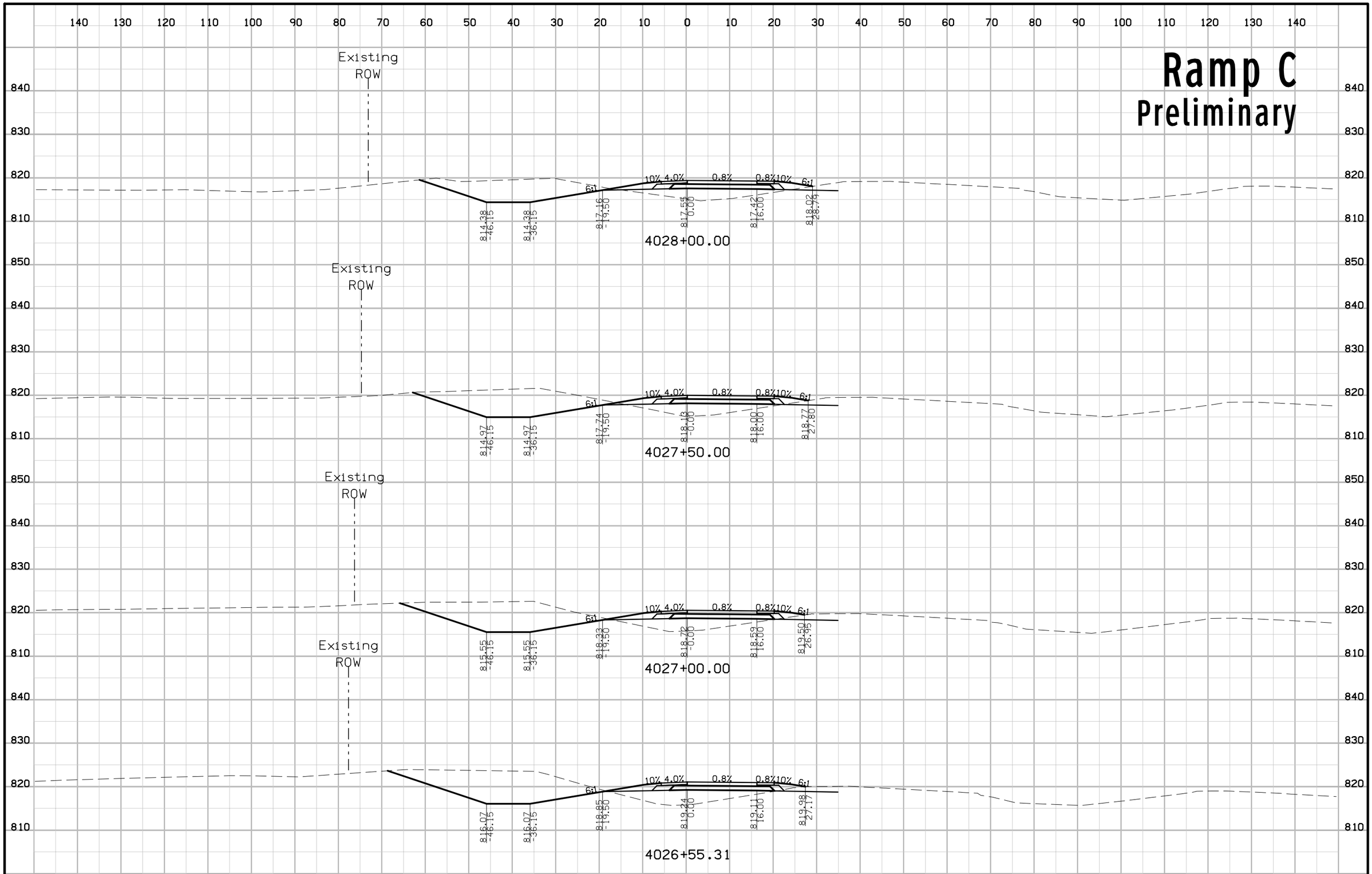
# Ramp C
## Preliminary

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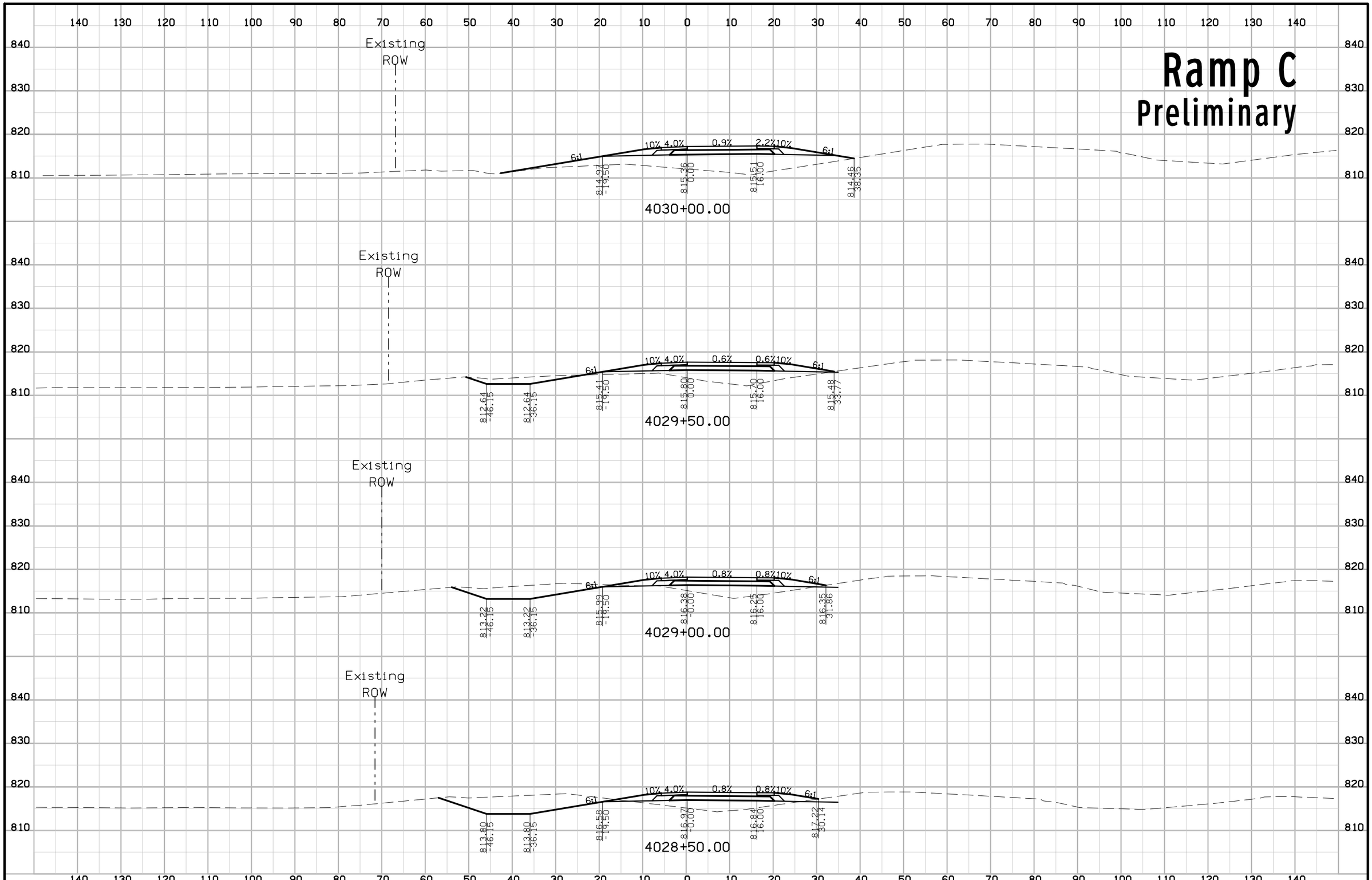
# Ramp C
## Preliminary

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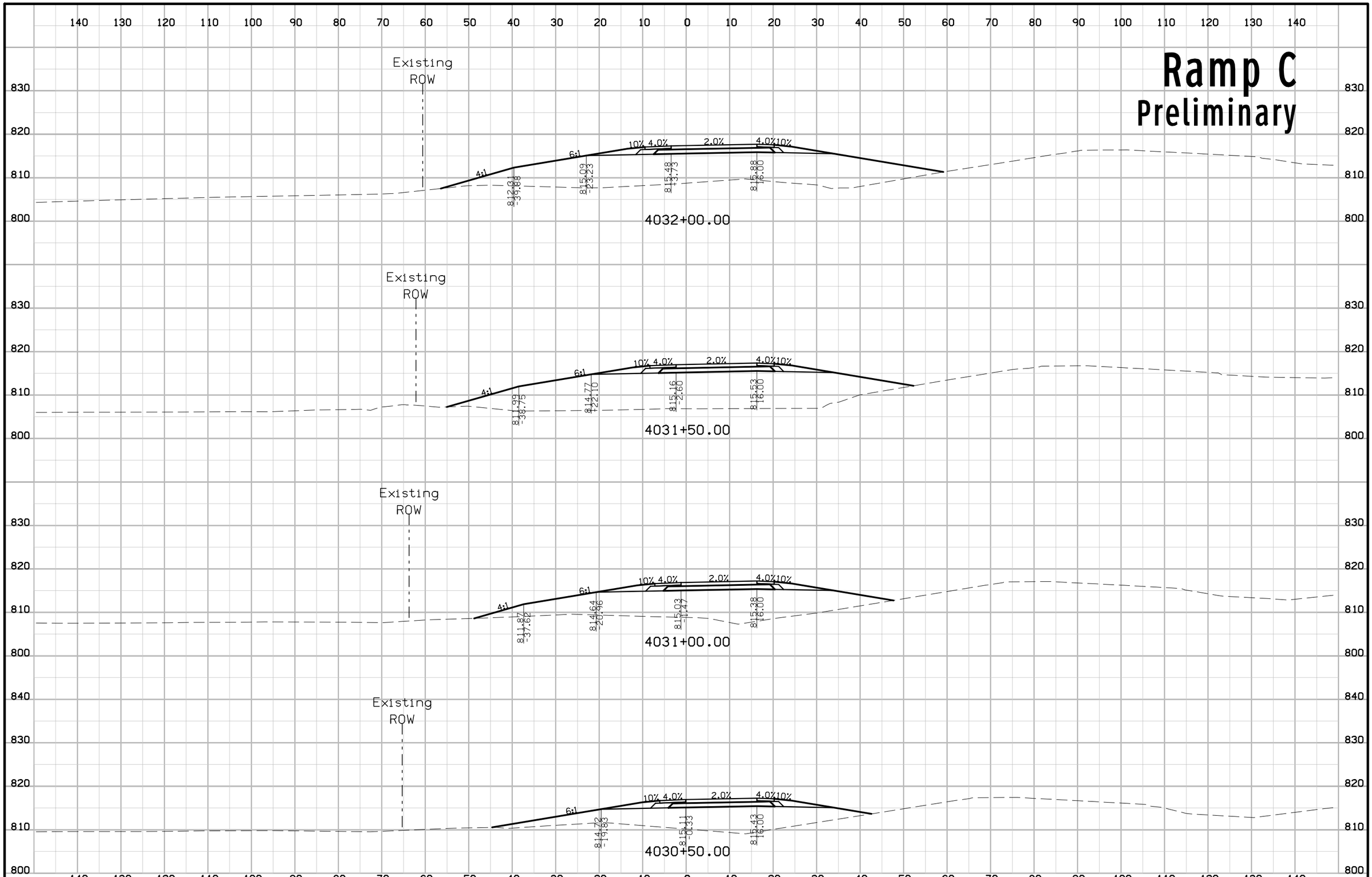
# Ramp C
## Preliminary

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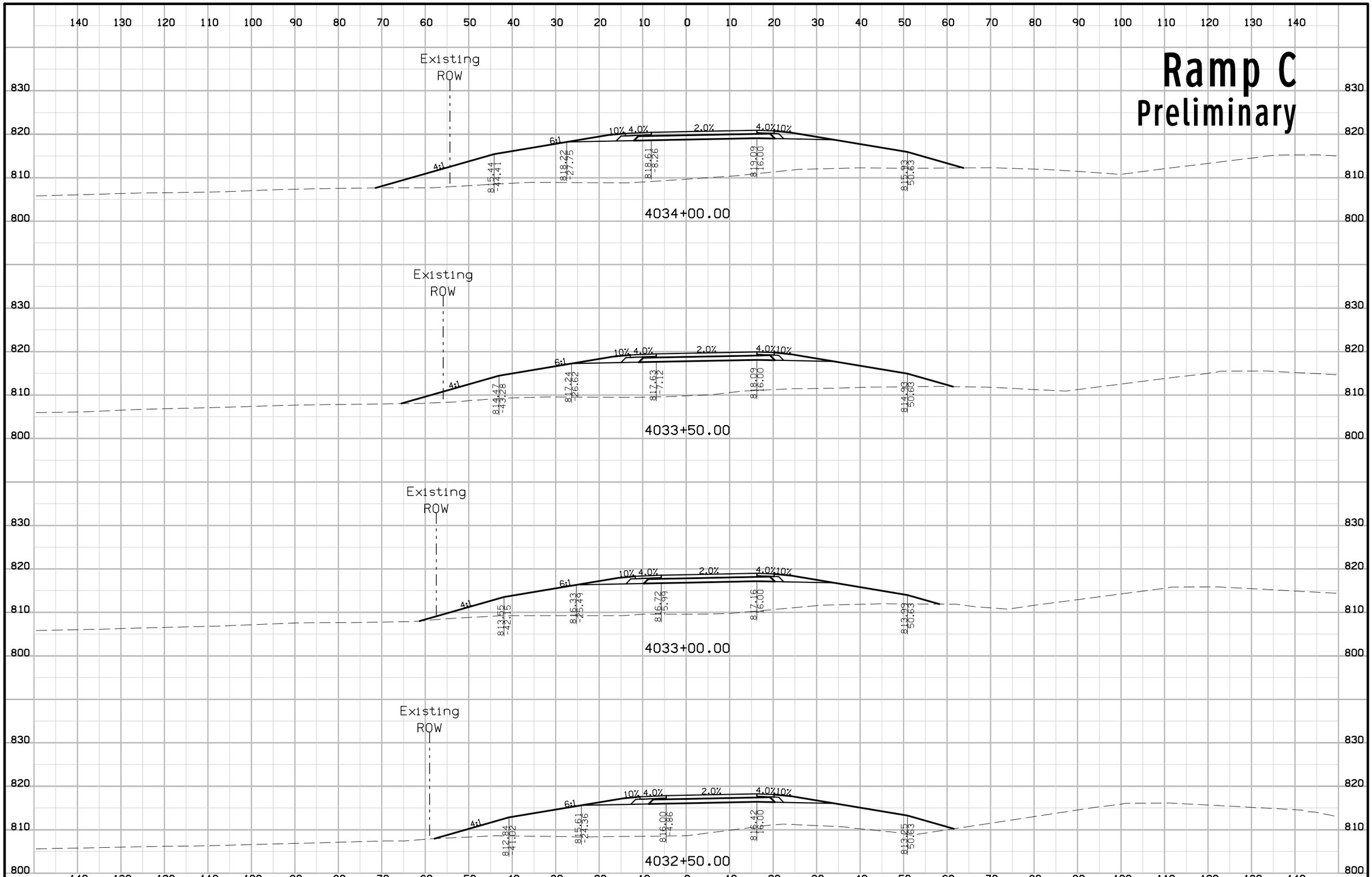
# Ramp C
## Preliminary

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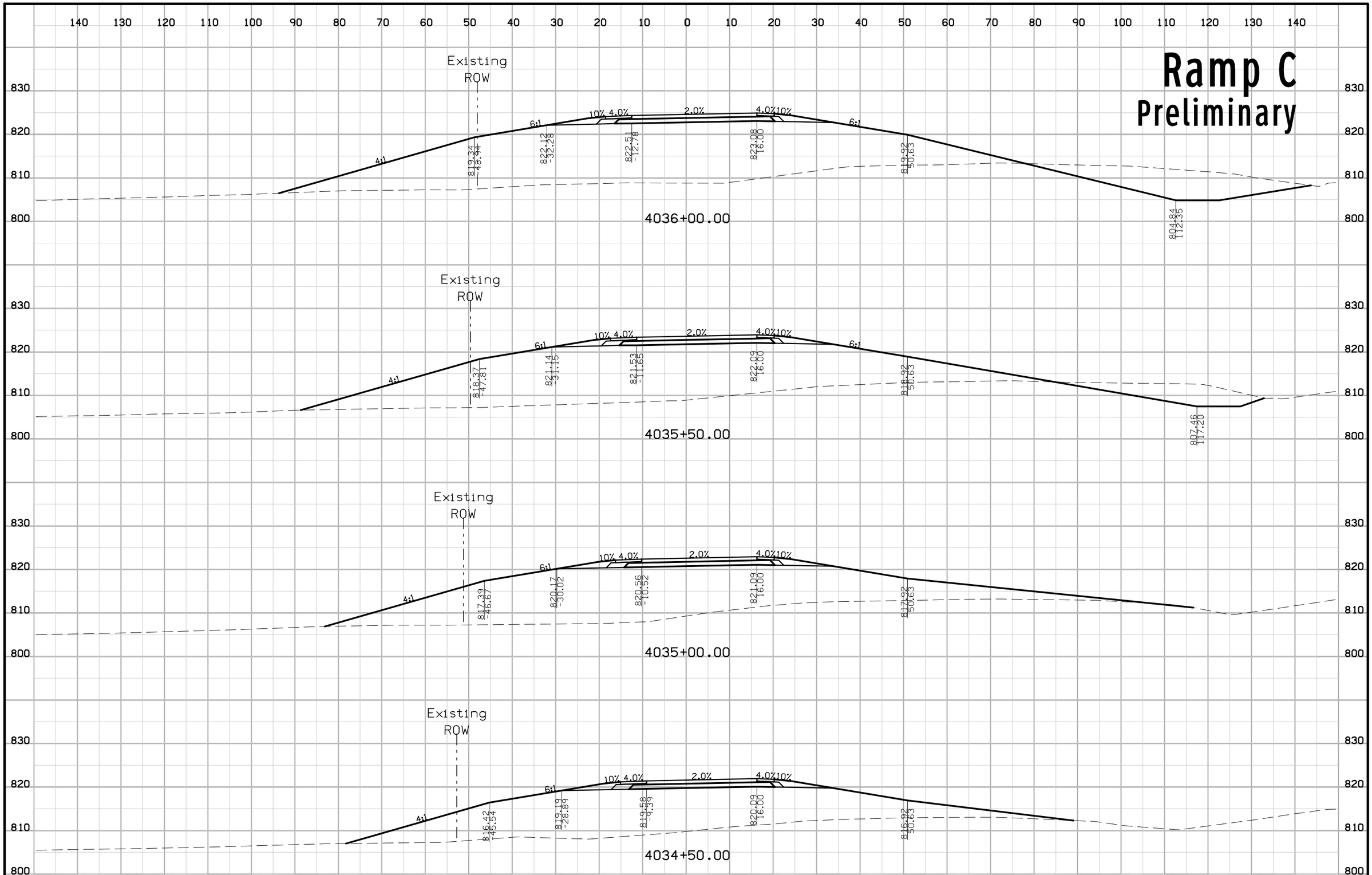
# Ramp C
## Preliminary

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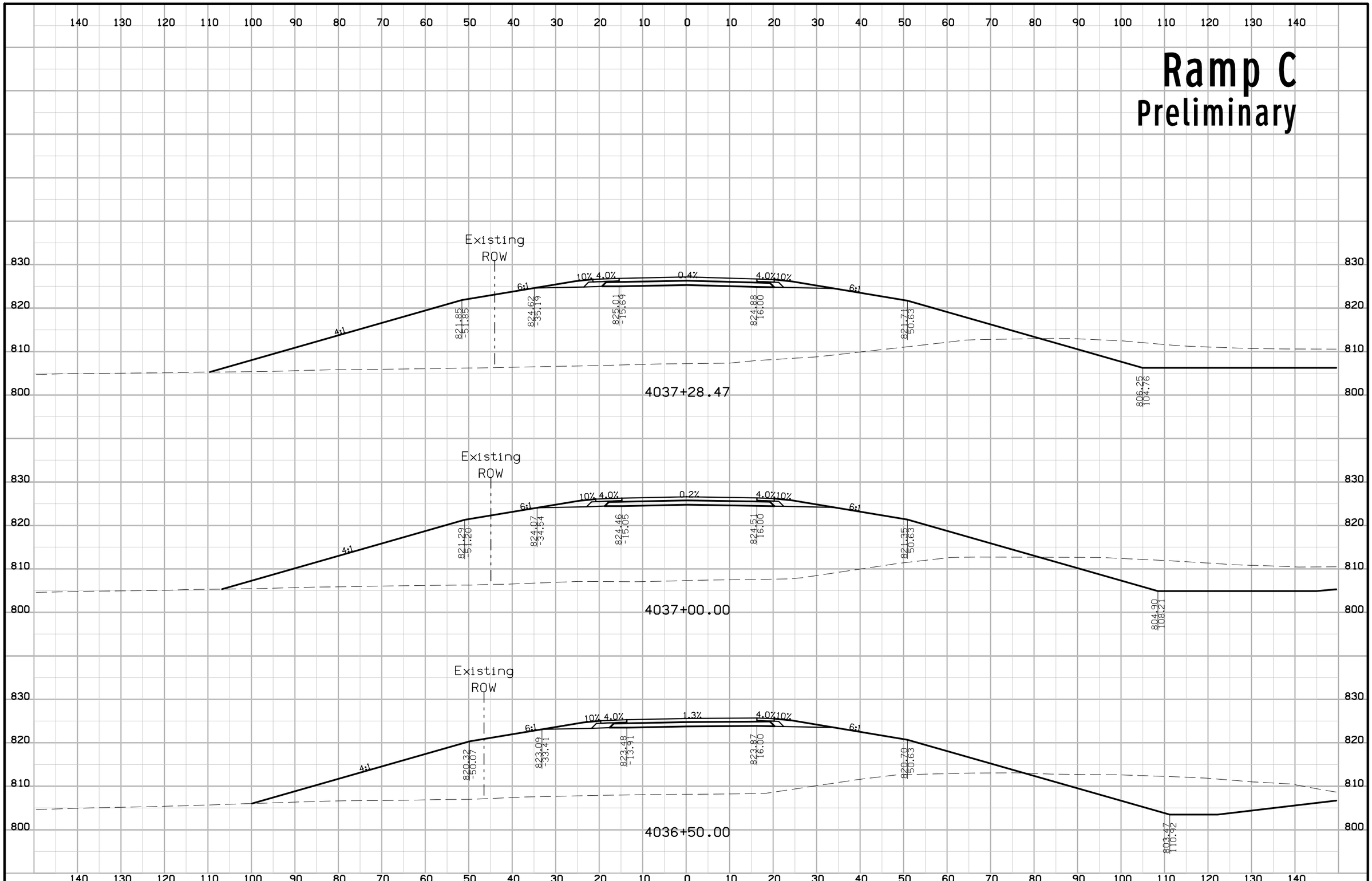
# Ramp C
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.32 |
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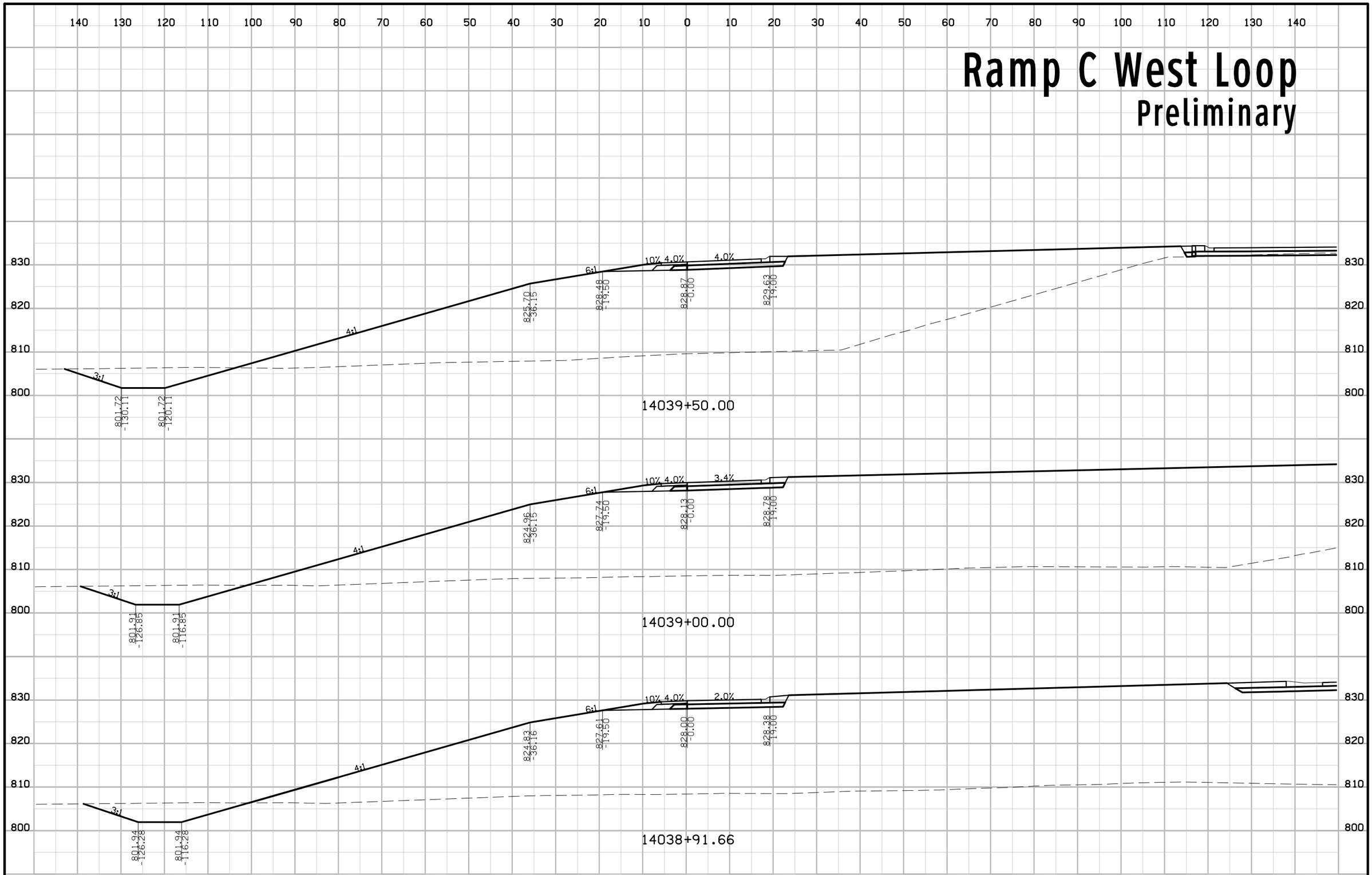
# Ramp C West Loop
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.33 |
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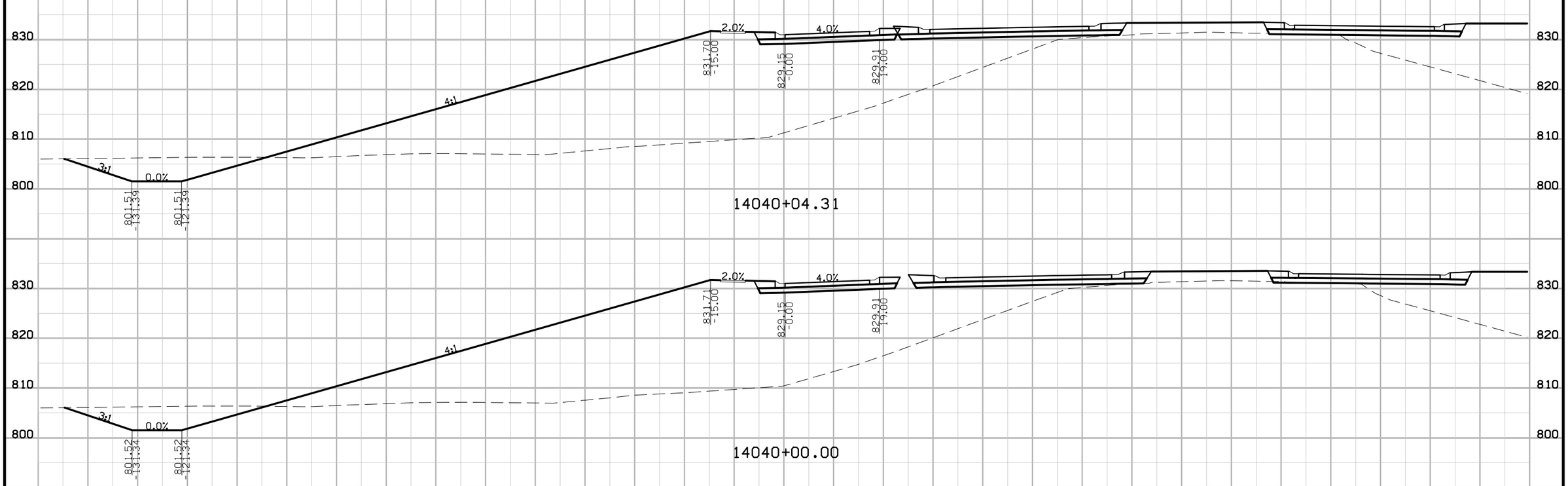
# Ramp C West Loop
## Preliminary

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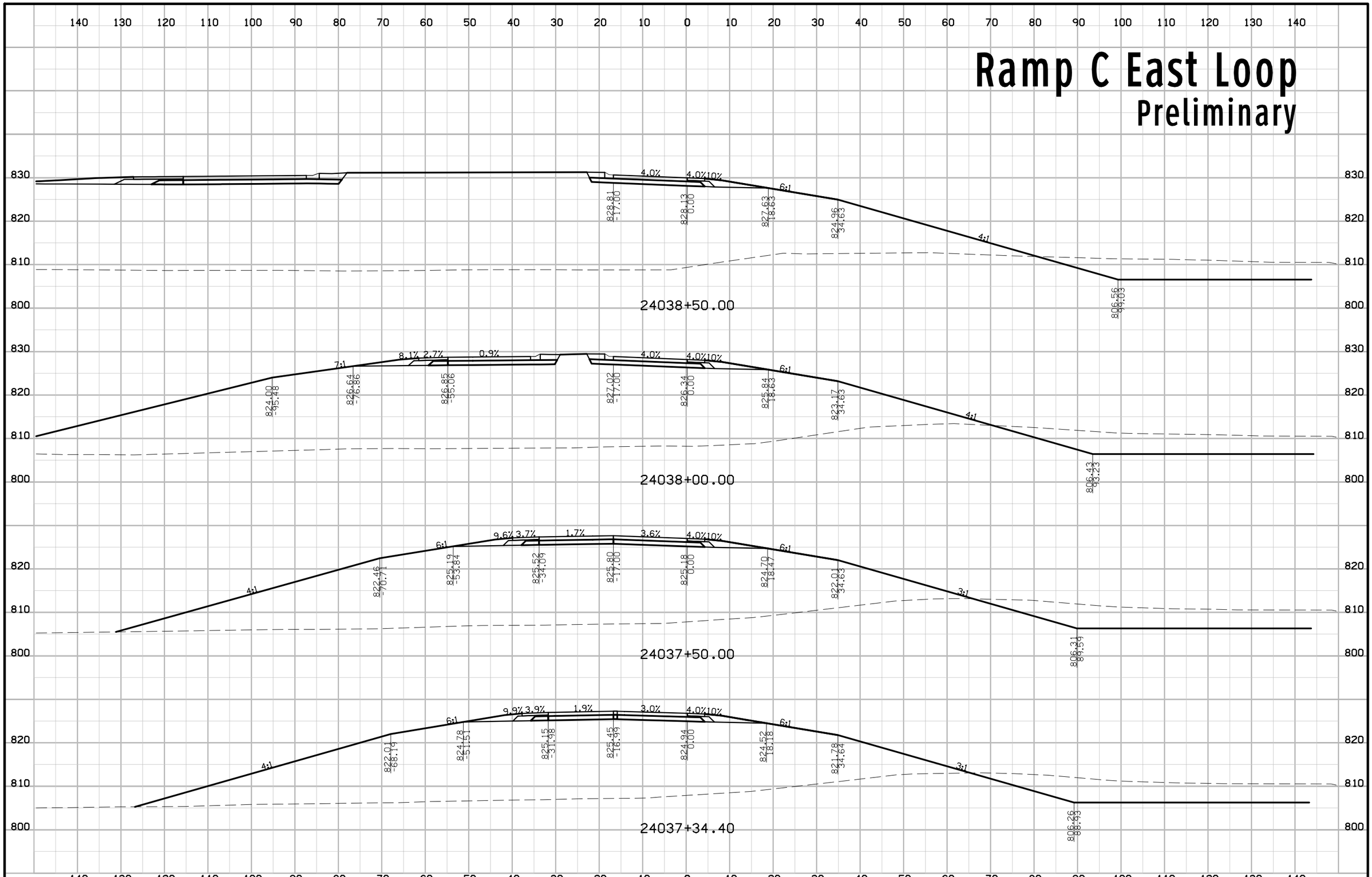
# Ramp C East Loop
## Preliminary

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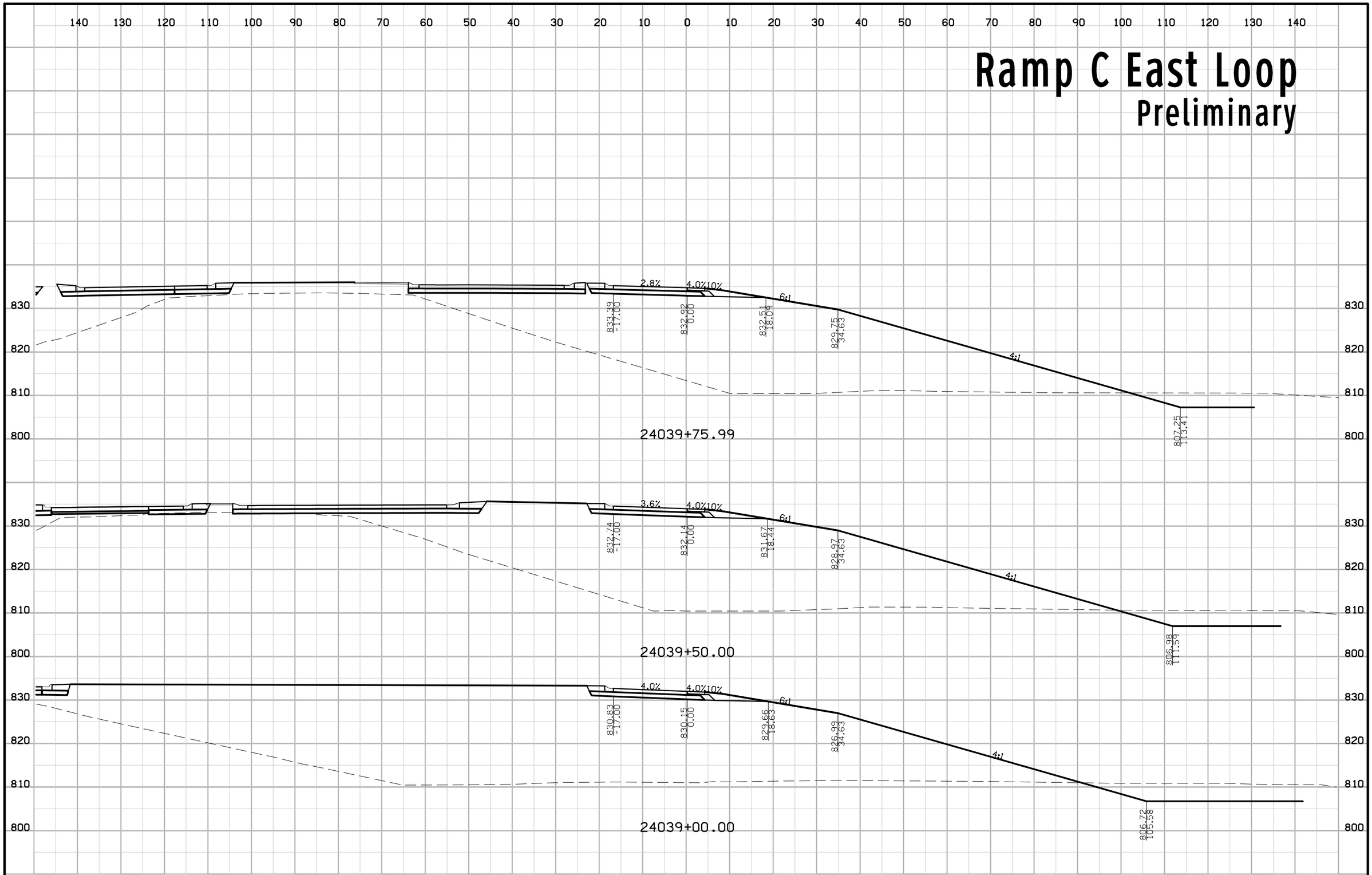
# Ramp C East Loop
## Preliminary

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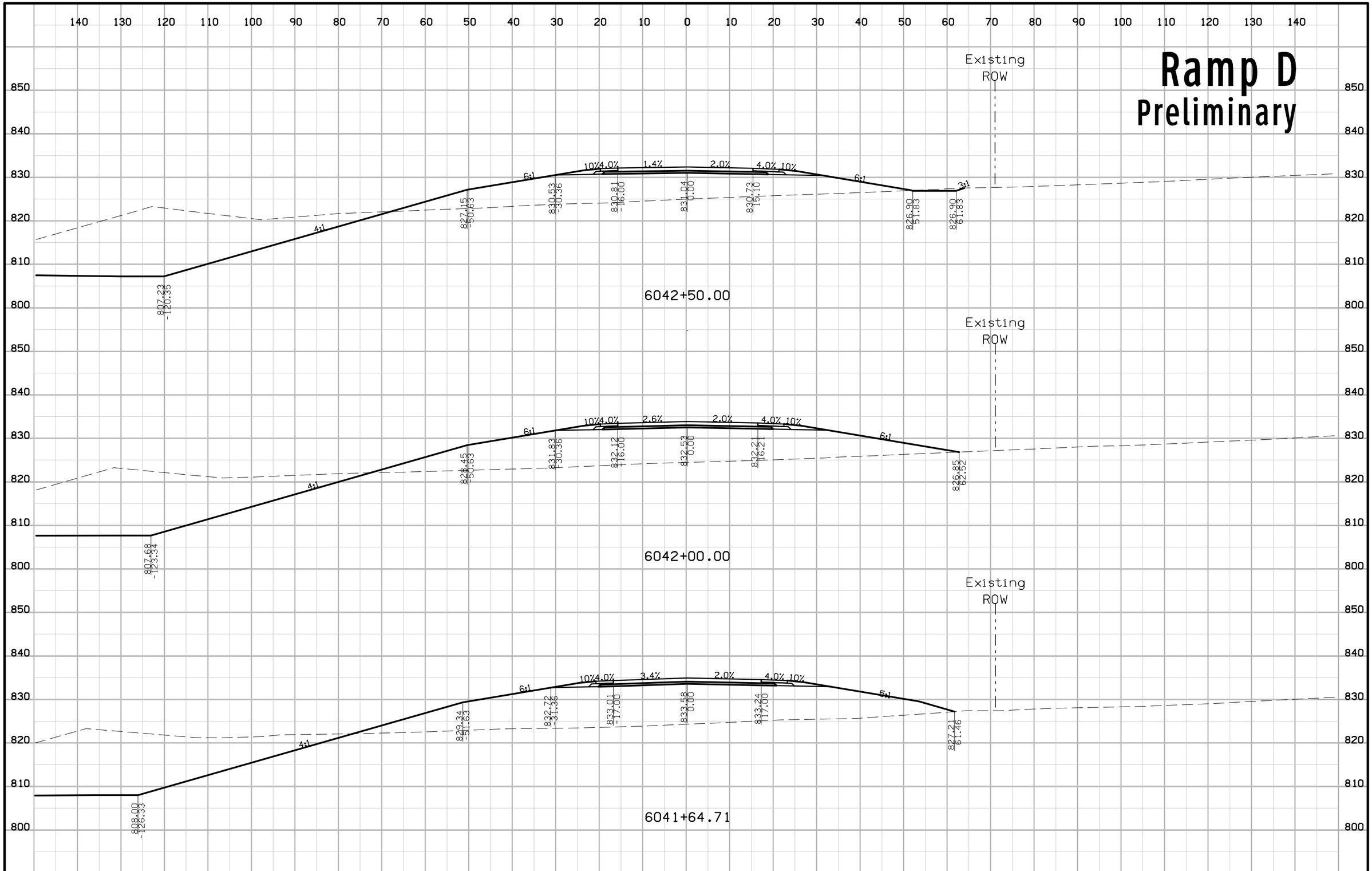
# Ramp D
## Preliminary

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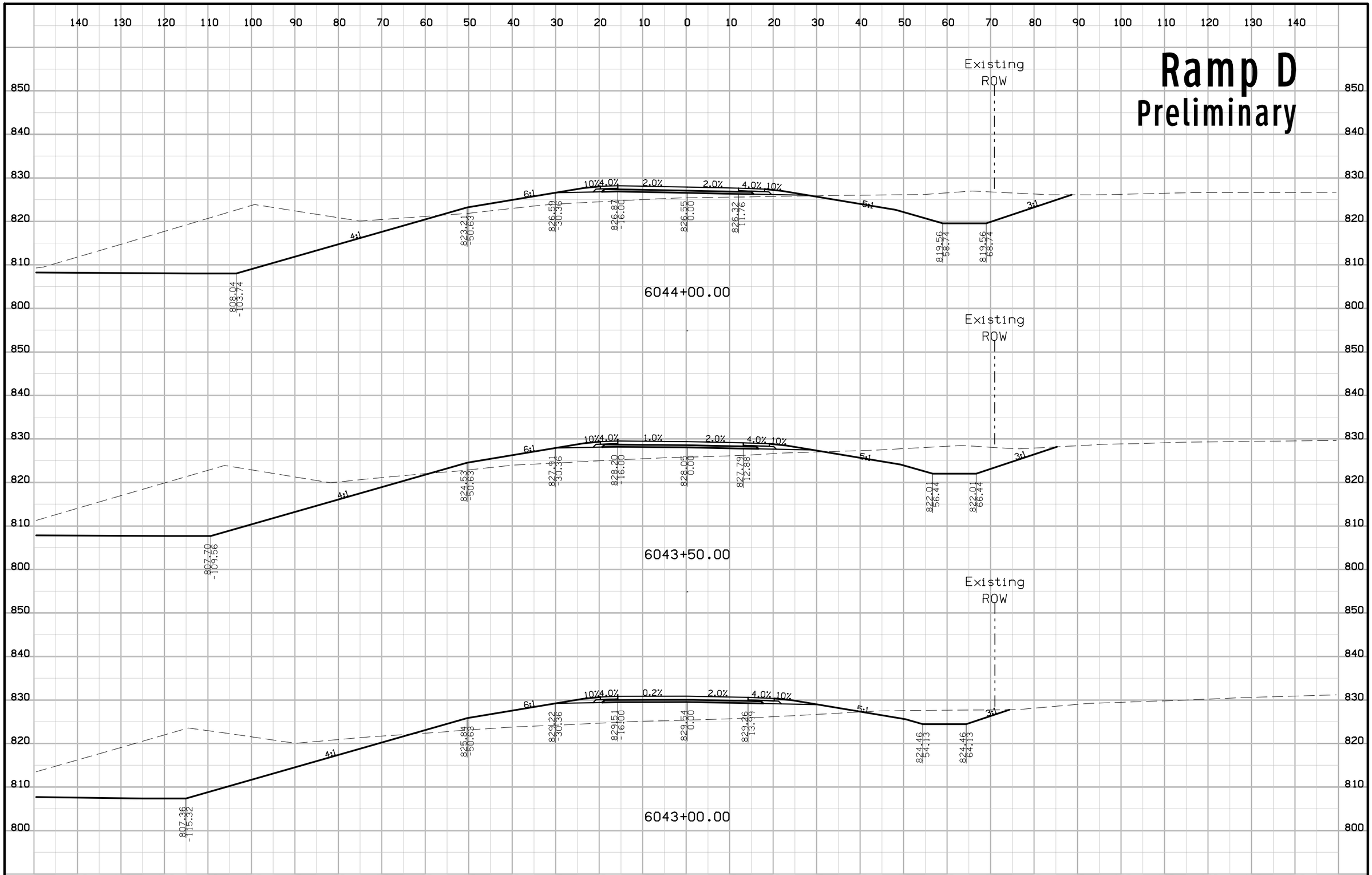
# Ramp D
## Preliminary

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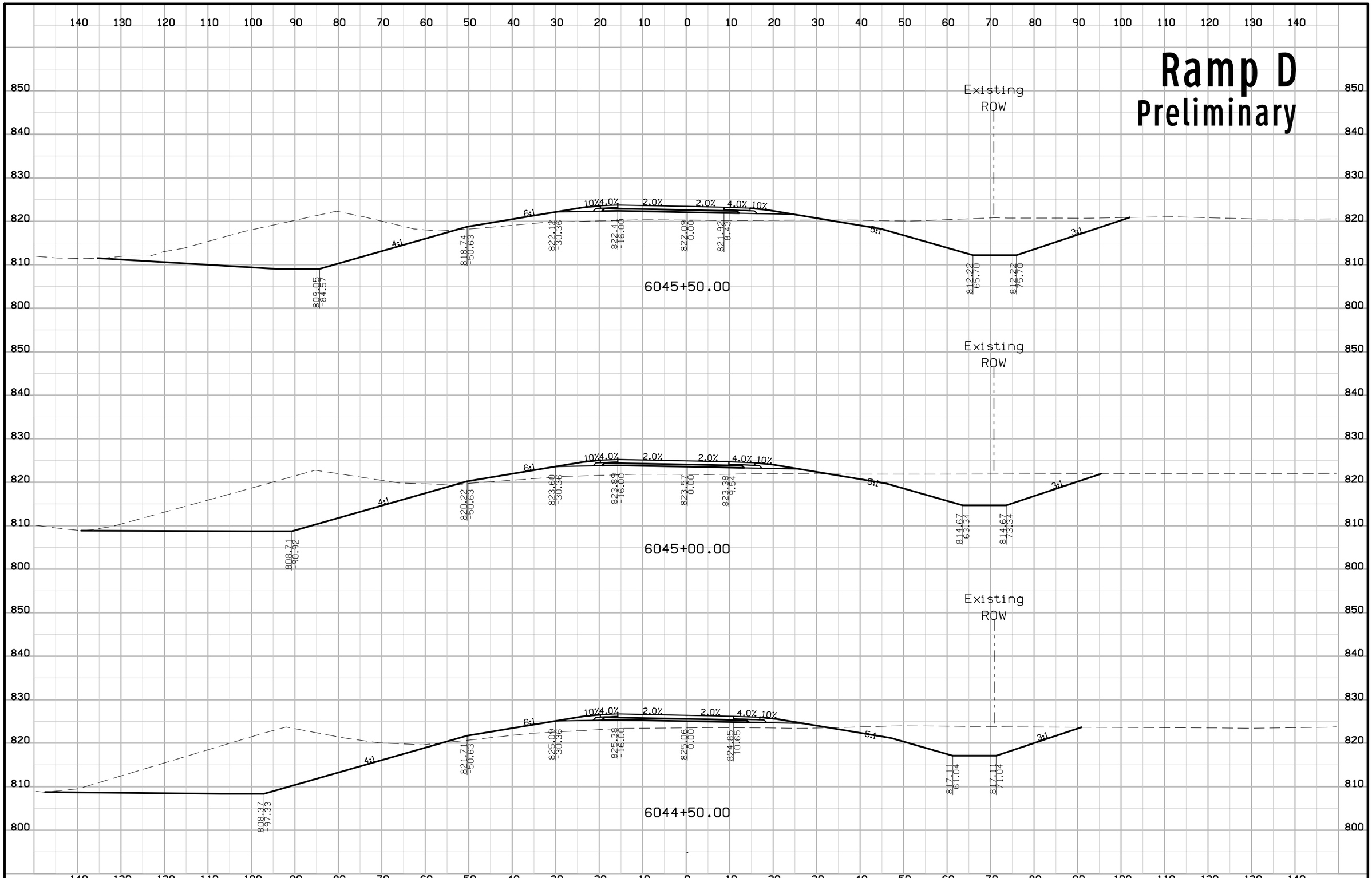
# Ramp D
## Preliminary

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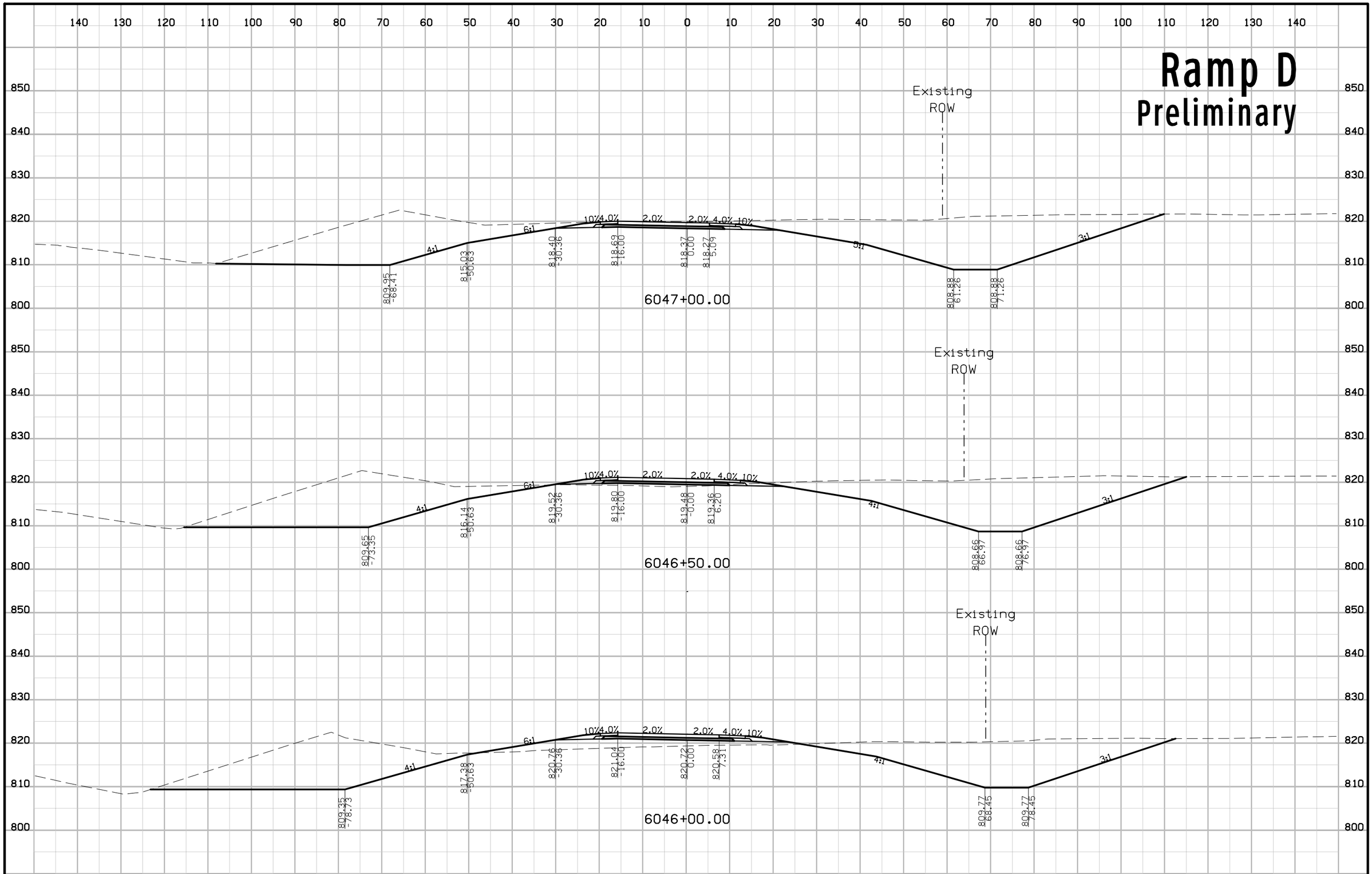
# Ramp D
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.40 |
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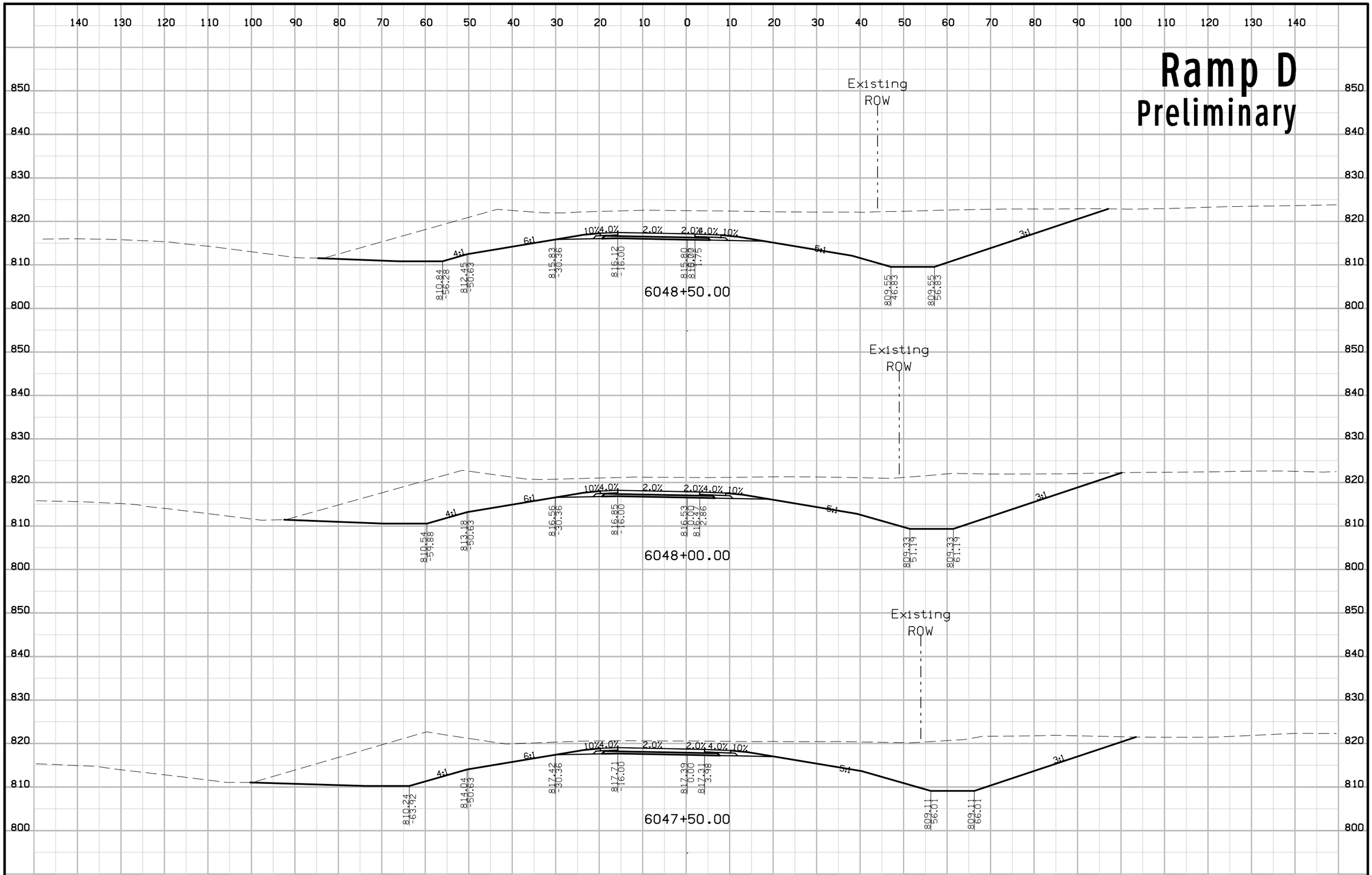
# Ramp D
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.41 |
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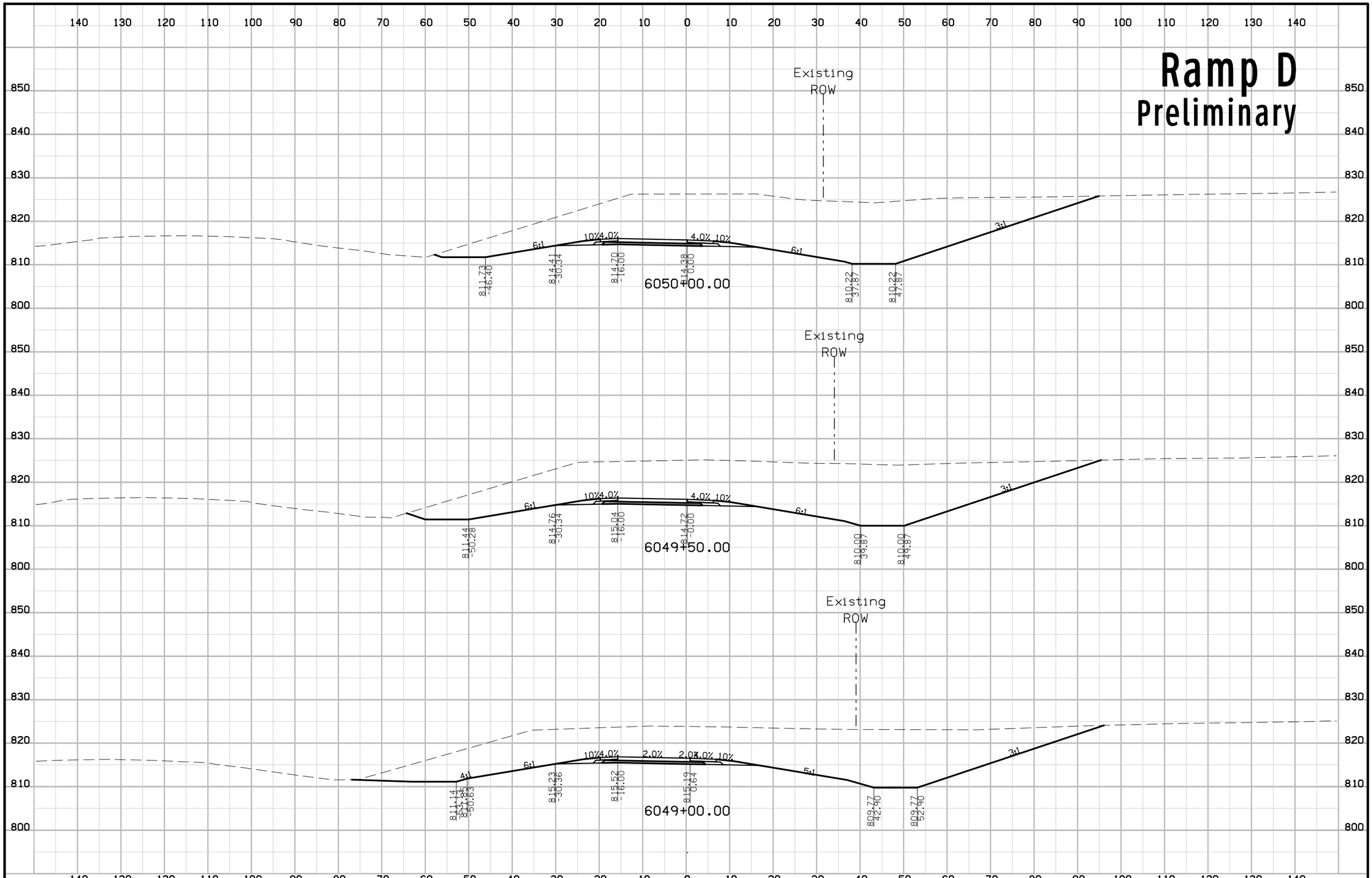
# Ramp D
## Preliminary

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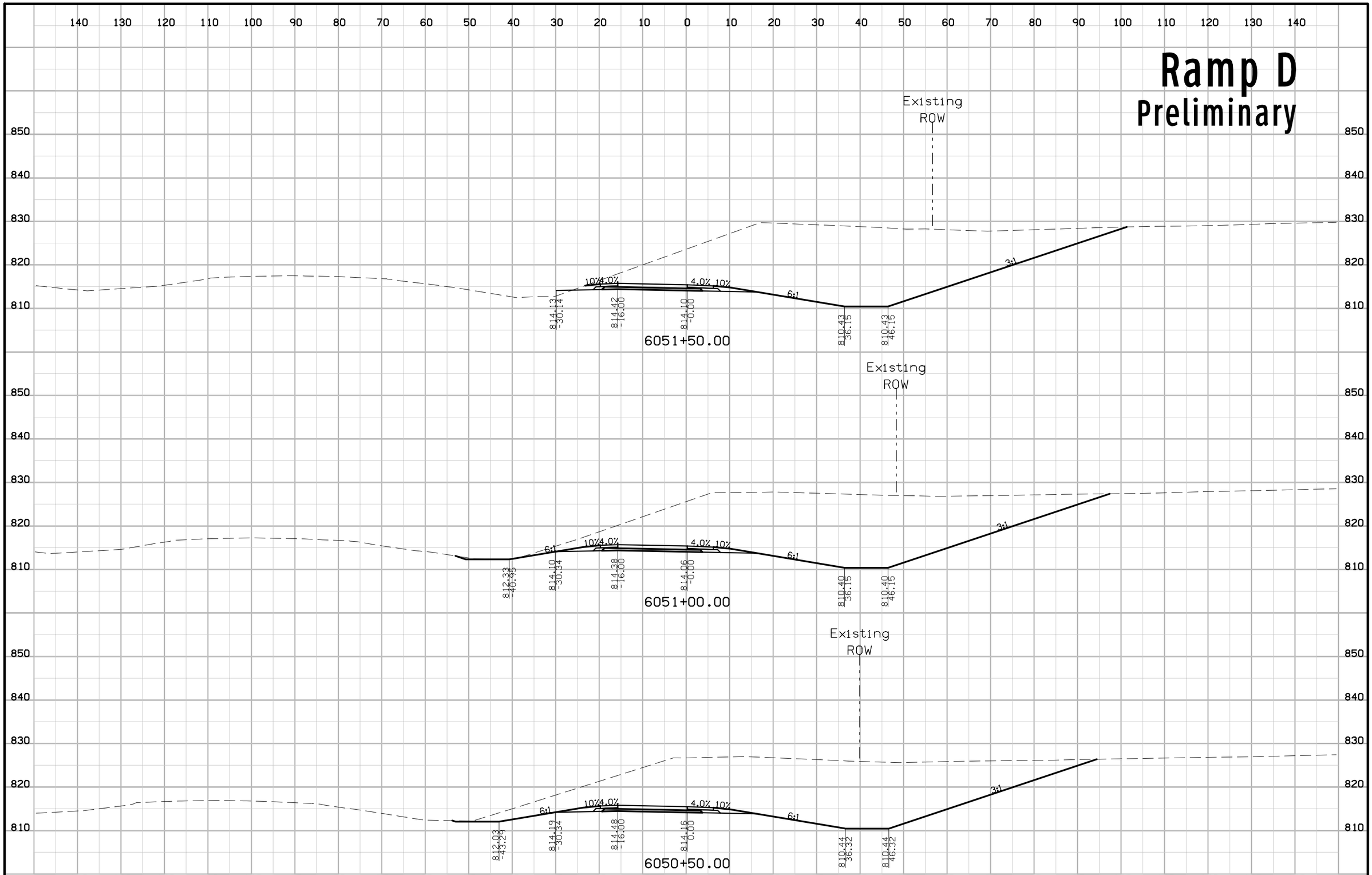
# Ramp D
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.43 |
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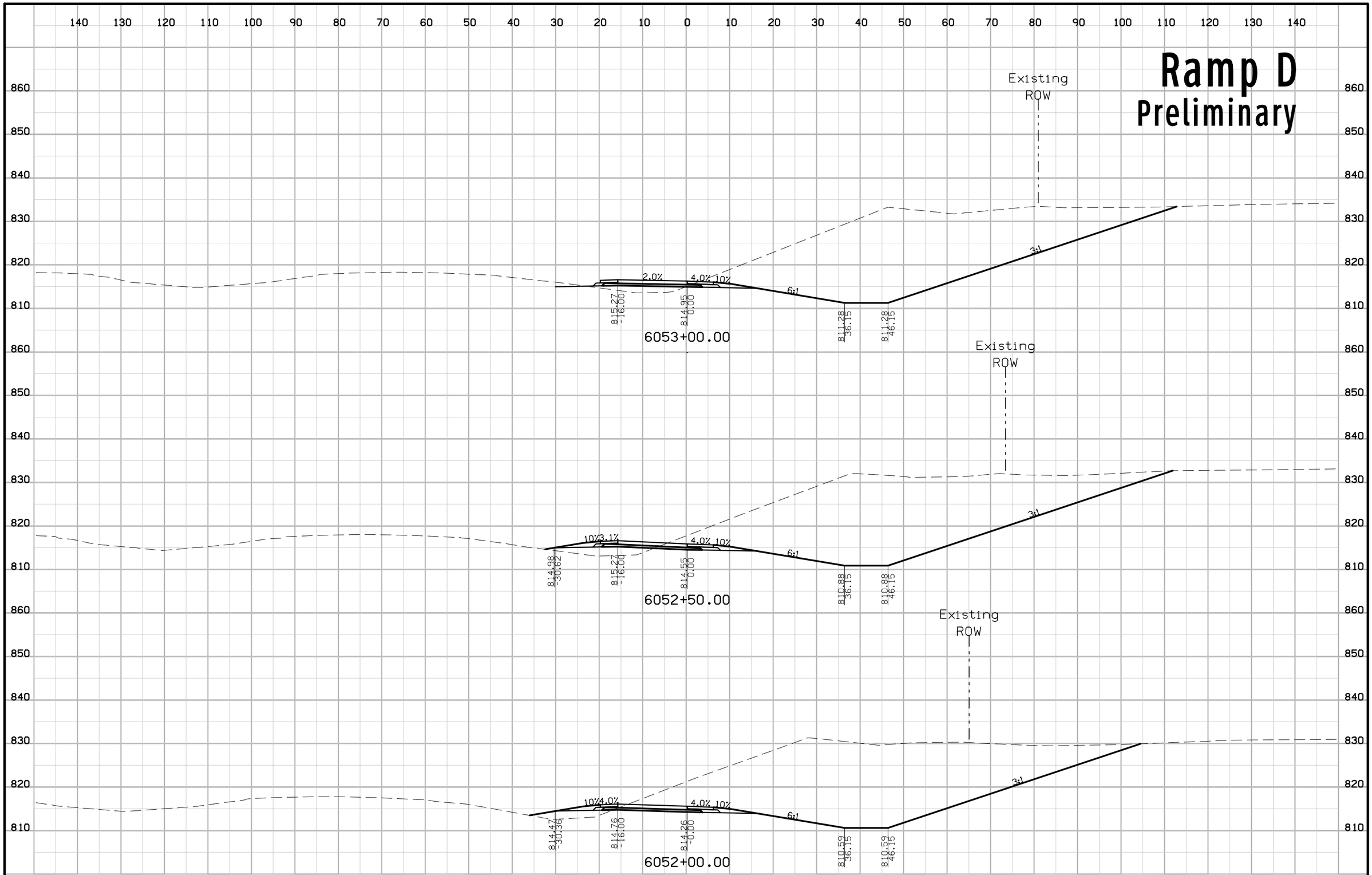
# Ramp D
## Preliminary

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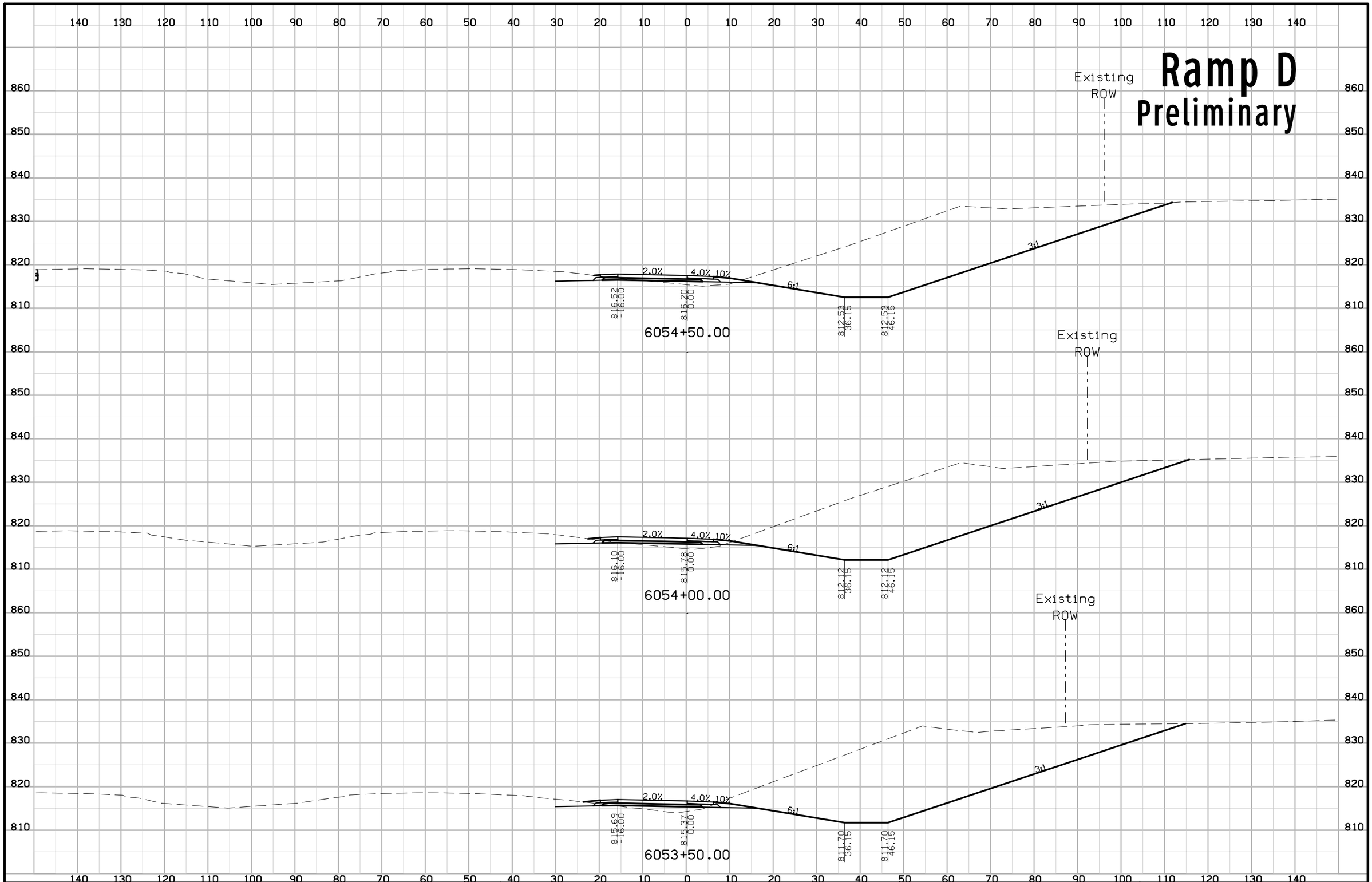
# Ramp D
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.45 |
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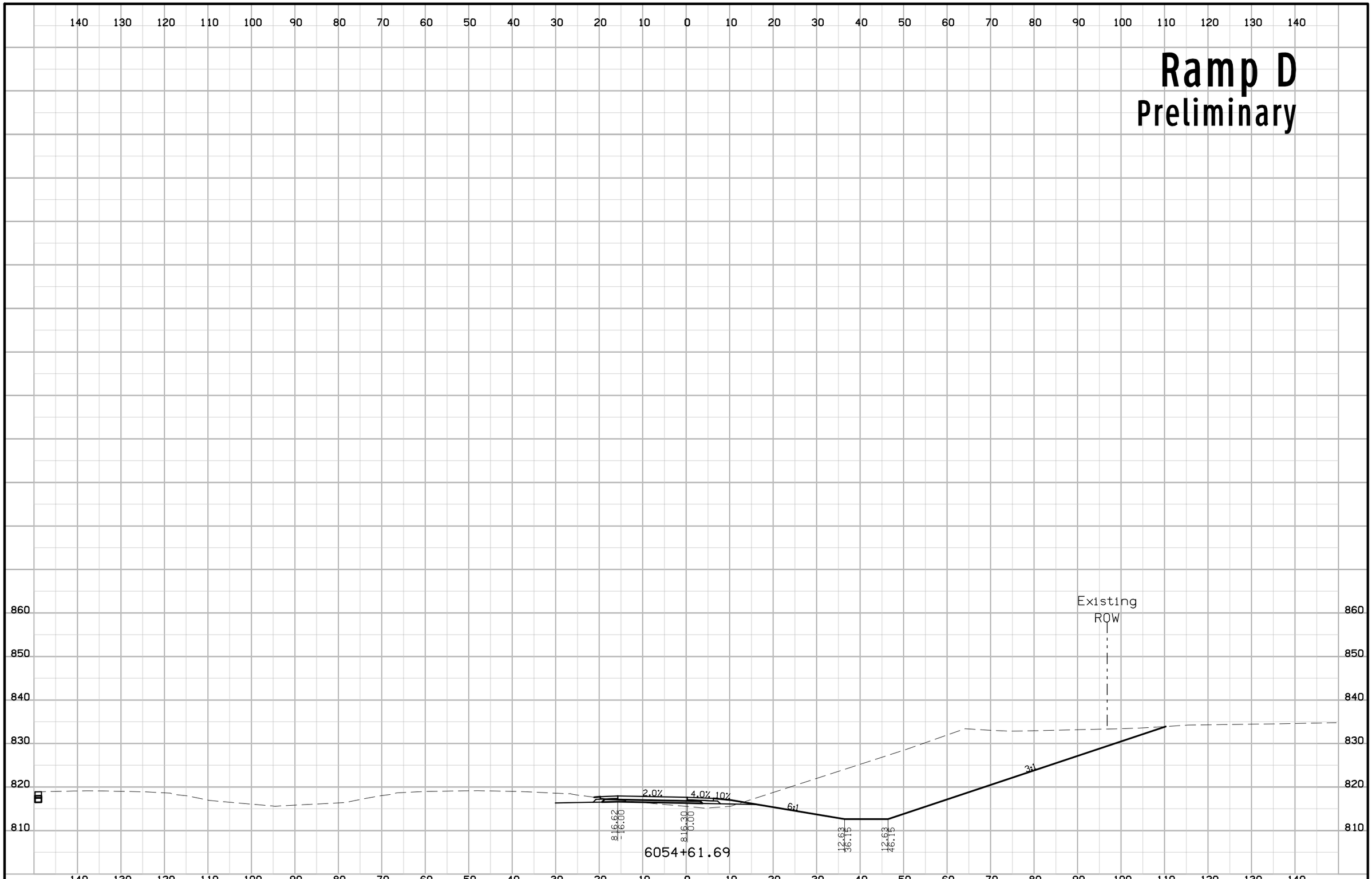
# Ramp D
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.46 |
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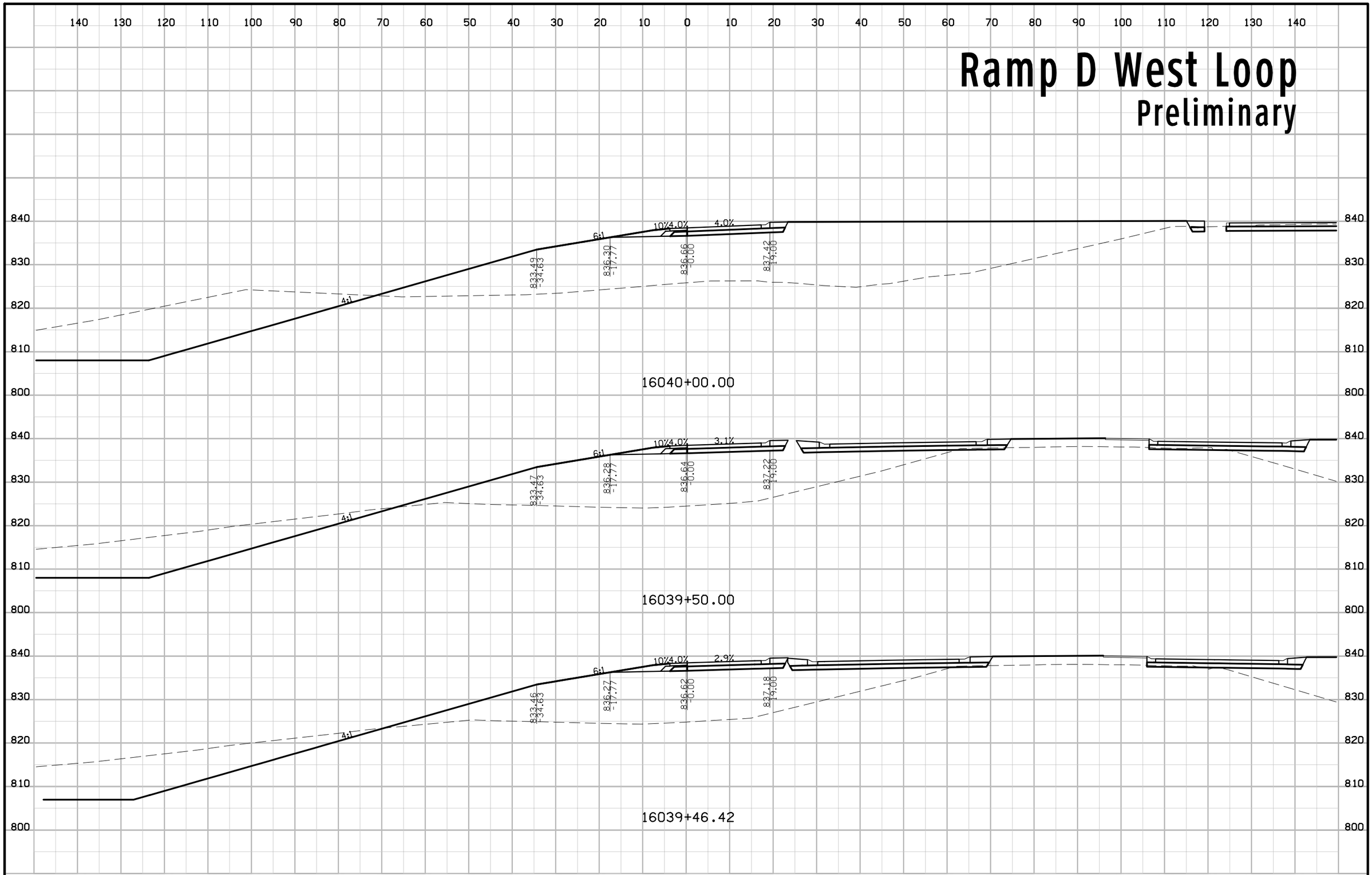
# Ramp D West Loop
## Preliminary

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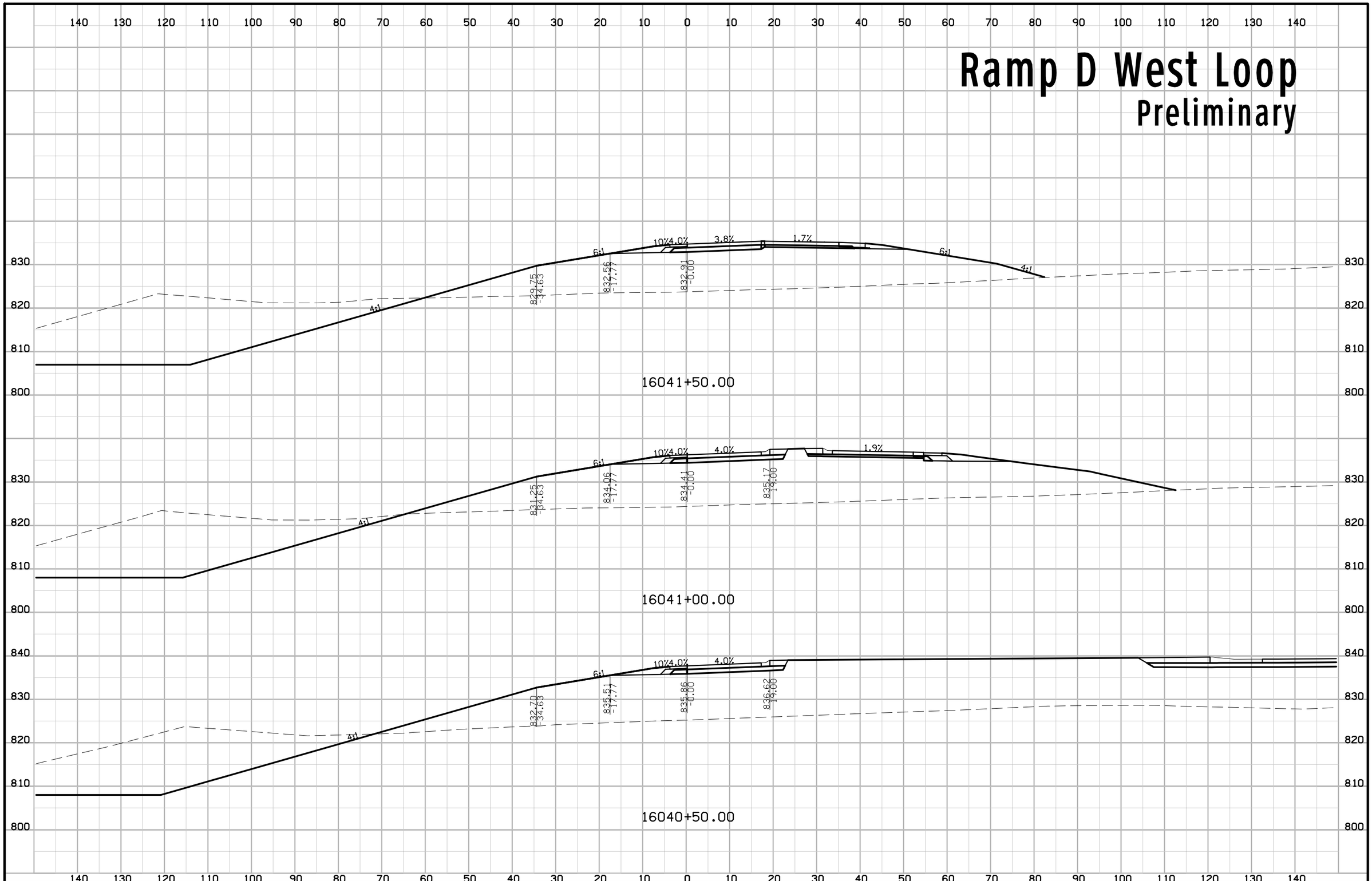
# Ramp D West Loop
## Preliminary

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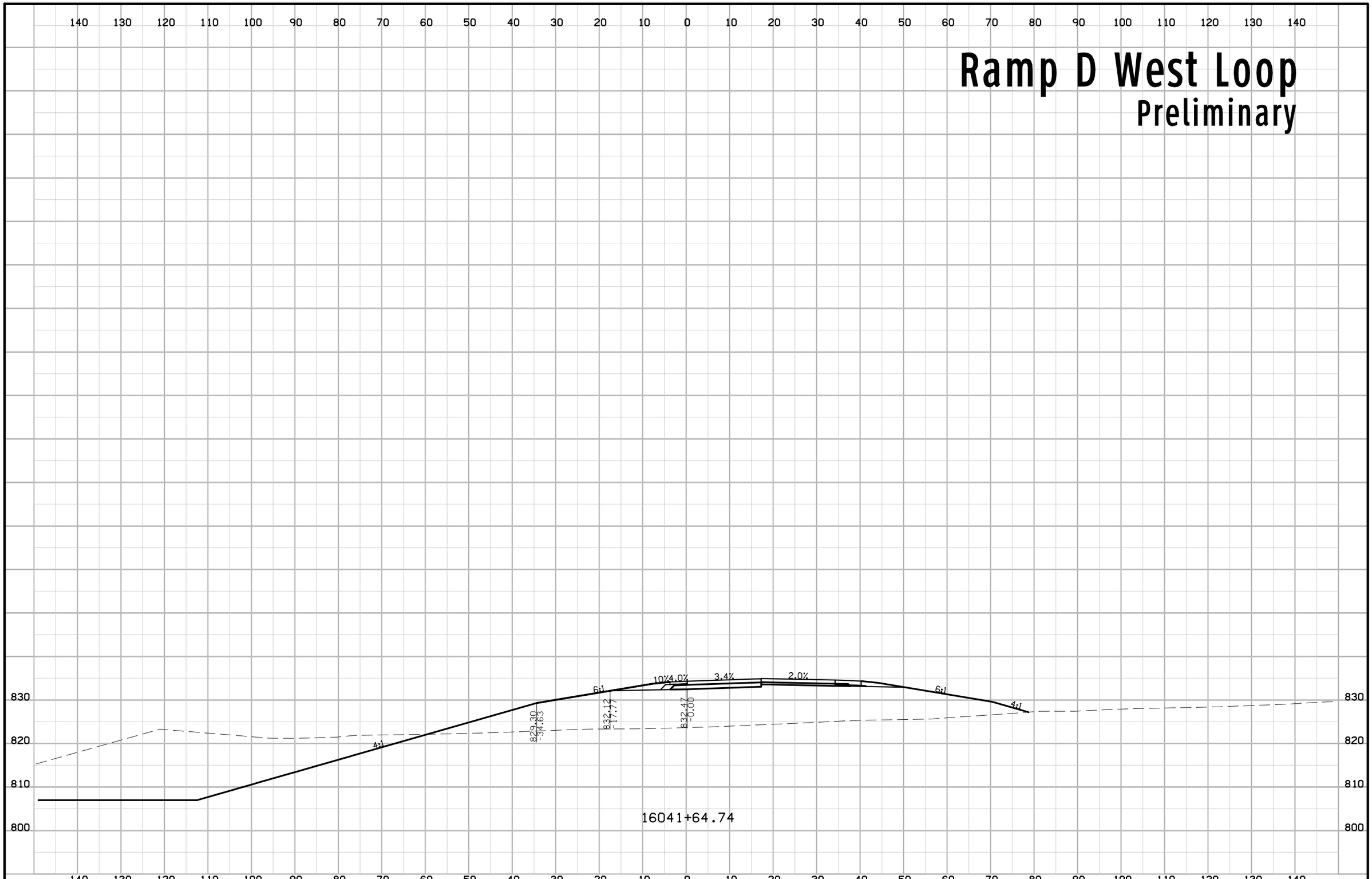
# Ramp D West Loop
## Preliminary




| FILE NO. | ENGLISH | DESIGN TEAM KIRKHAM MICHAEL | LINN COUNTY | PROJECT NUMBER IM-380-6(200)25--13-57 | SHEET NUMBER Y.49 |
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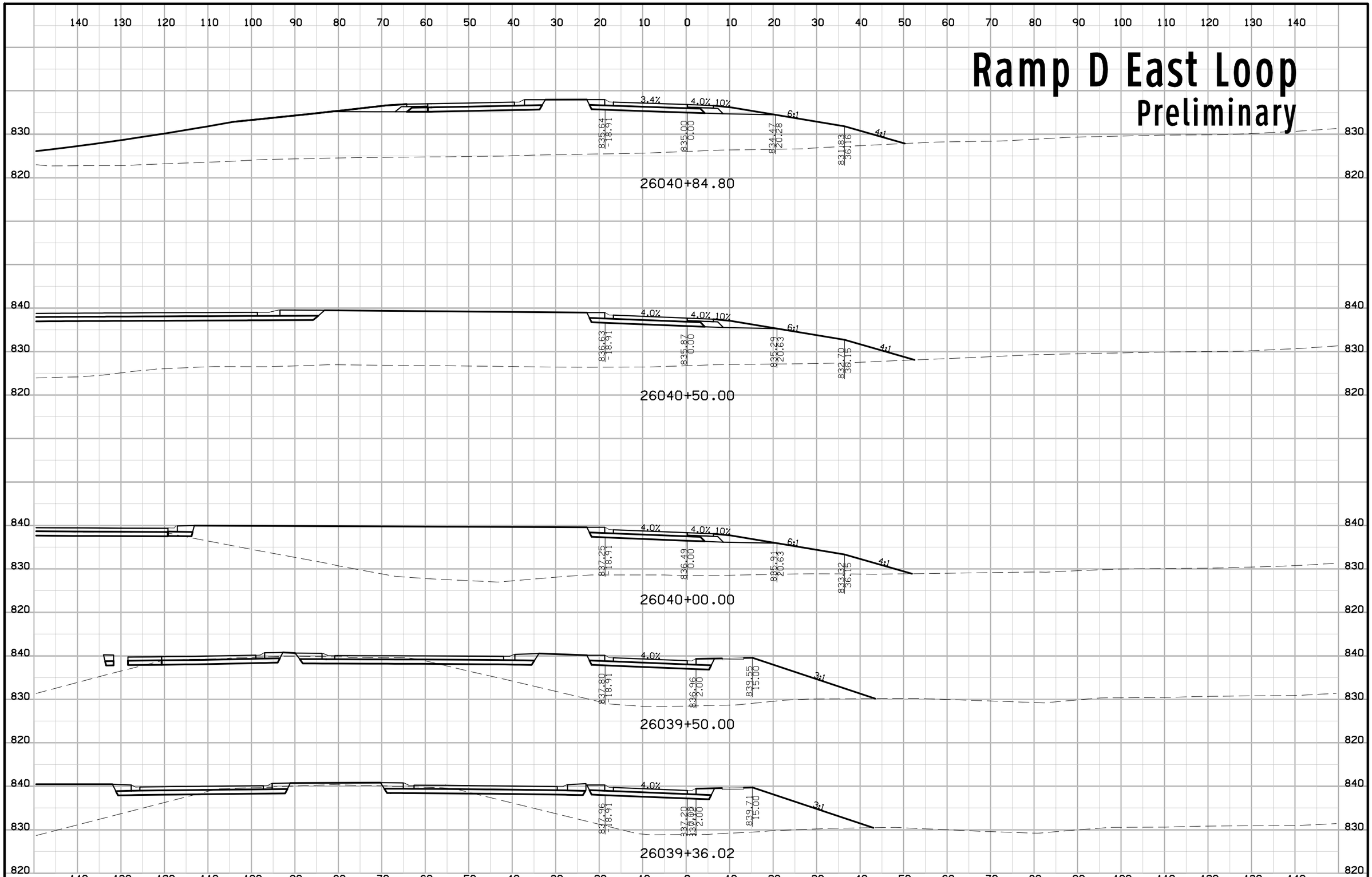
# Ramp D East Loop

## Preliminary

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