

HARRISON CO.
BRIDGE AND APPROACHES - CCS
BRF-030-1(155)--38-43
 LETTING DATE 12/18/18

| INDEX OF SHEETS | |
|------------------|--|
| No. | DESCRIPTION |
| A Sheets | Title Sheets |
| A.1 | Title Sheet |
| A.2 | Location Map Sheet |
| B Sheets | Typical Cross Sections and Details |
| B.1 - 3 | Typical Cross Sections and Details |
| CD Sheets | Drainage Tabulations |
| CD.1 | Drainage Tabulations |
| D Sheets | Mainline Plan and Profile Sheets |
| * D.1 | Plan & Profile Legend & Symbol Information Sheet |
| * D.2 | US HWY 30 |
| F Sheets | Detour or Temporary Pavement Sheets |
| * F.1 | Detour Plan and Profile Sheets |
| G Sheets | Survey Sheets |
| G.1 | Bench Marks |
| G.1 | Horizontal Control Tab. & Super for all Alignments |
| J Sheets | Traffic Control and Staging Sheets |
| * J.1 | Traffic Control Plan |
| U Sheets | 500 Series, Mod.Stds. and Detail Sheets |
| U.1 - 3 | 500 Series, Modified Standards and Detail Sheets |
| V Sheets | Bridge and Culvert Situation Plans |
| V.1 - 4 | Bridge and Culvert Situation Plans |
| W Sheets | Mainline Cross Sections |
| W.1 | Cross Sections Legend & Symbol Information Sheet |
| W.2 - 7 | Mainline Cross Sections |
| X Sheets | Side Road Cross Sections |
| X.1 - 8 | Detour Cross Sections |
| | * Color Plan Sheets |



Highway Division

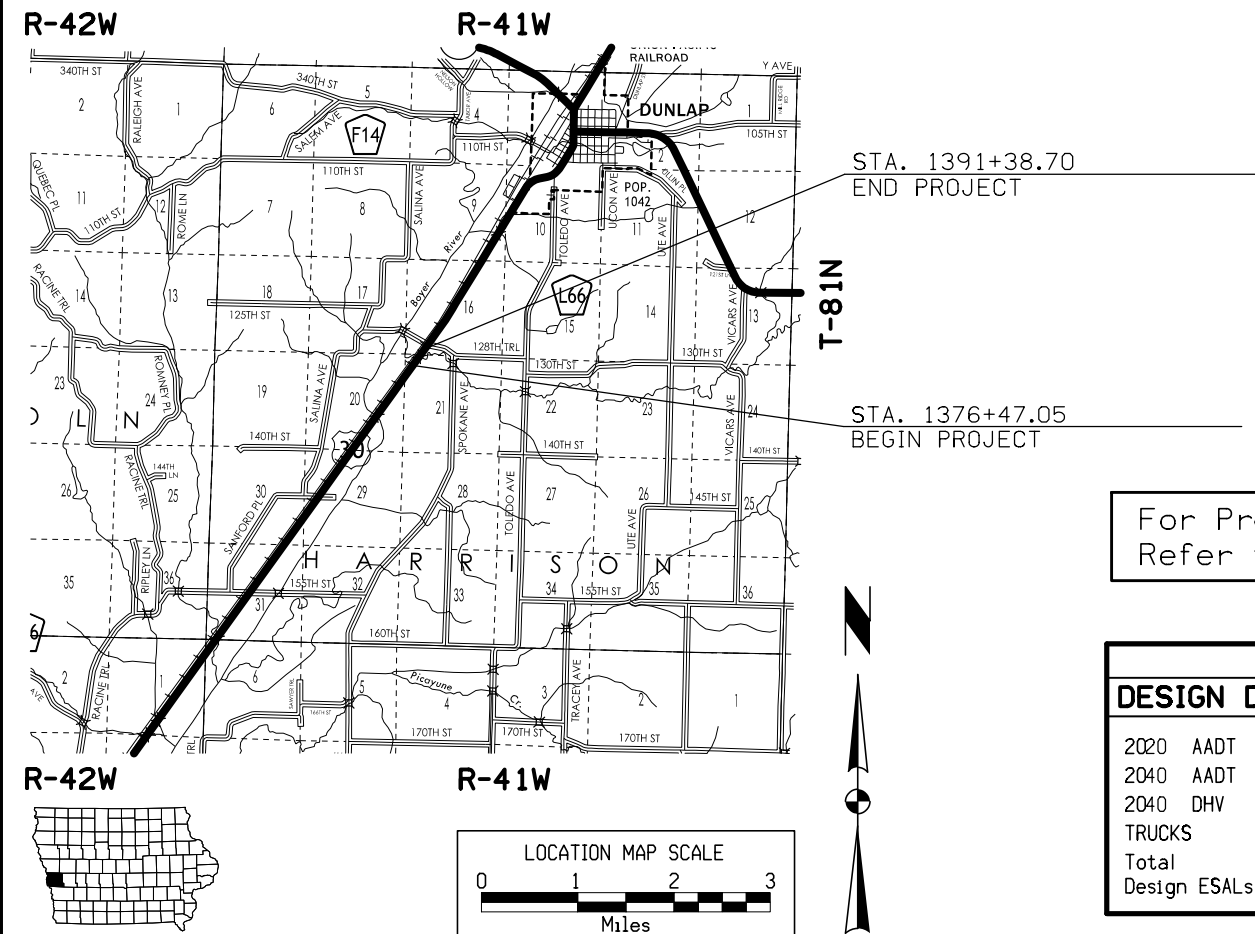
PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM HARRISON COUNTY BRIDGE AND APPROACHES - CCS

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

| DESIGN DATA RURAL | | | |
|--------------------|------|--------|--|
| 2020 AADT | 3400 | V.P.D. | |
| 2040 AADT | 4000 | V.P.D. | |
| 2040 DHV | 410 | V.P.H. | |
| TRUCKS | 23 | % | |
| Total Design ESALs | -- | | |

| INDEX OF SEALS | | |
|----------------|-----------------------|-------------------------|
| SHEET NO. | NAME | TYPE |
| A.1 | Brian T. Higginbotham | Primary Signature Block |
| V.1 | Stephen W. Moffitt | Hydraulic & Structural |
| | | |
| | | |

PRELIMINARY PLANS

Subject to change by final design.

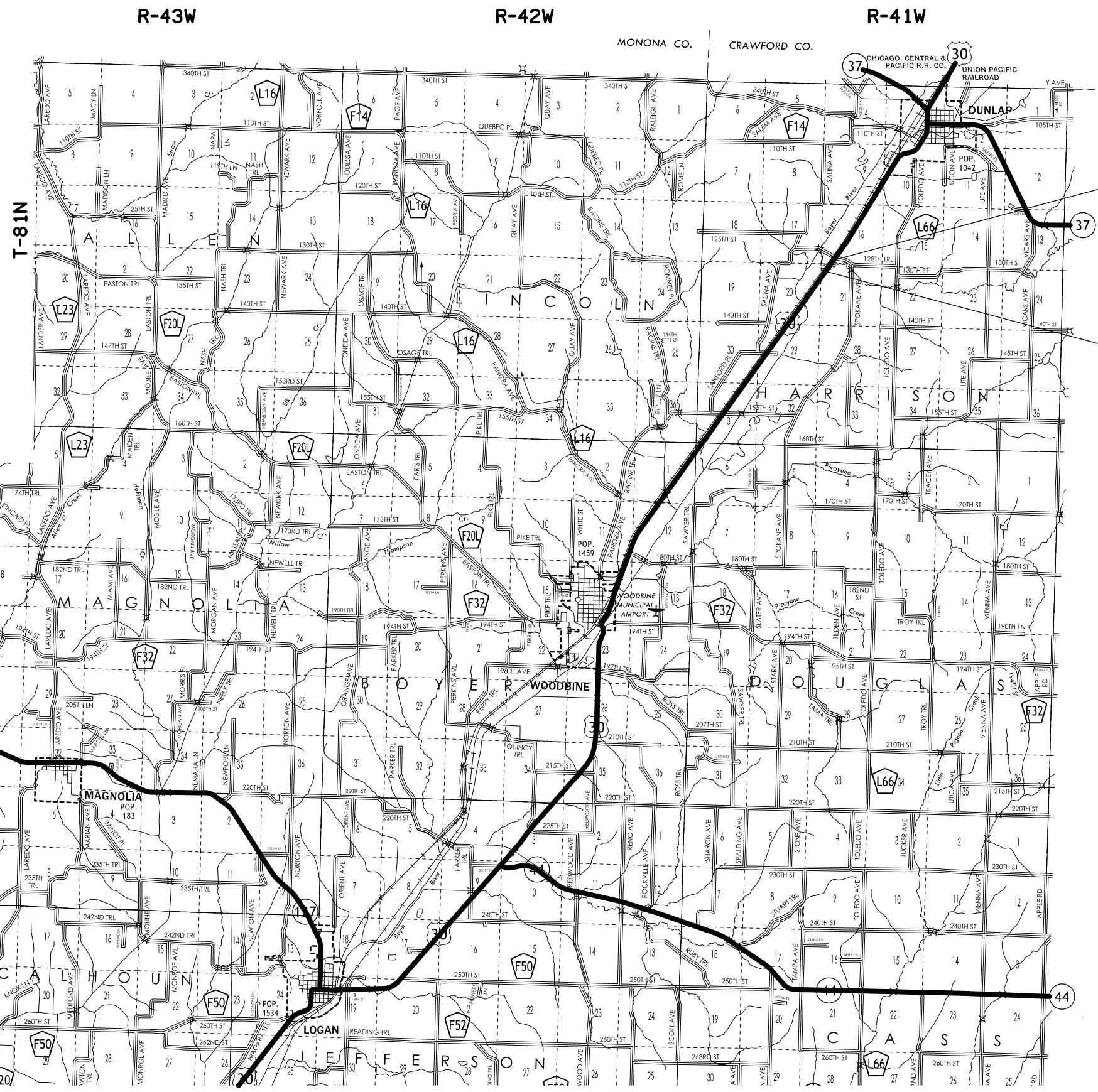
D5 PLAN - Date: 12/20/16

| REVISIONS | TOTAL |
|-------------------------------|-------|
| | 33 |
| PROJECT IDENTIFICATION NUMBER | |
| 15-43-030-030 | |
| PROJECT NUMBER | |
| BRF-030-1(155)--38-43 | |
| R.O.W. PROJECT NUMBER | |
| NHSN-030-1(156)--2R-43 | |
| NHSN-030-1(156)--2R-43 | |

MILEAGE SUMMARY

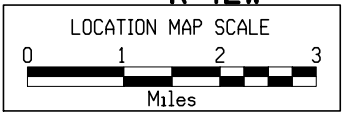
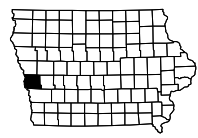
105-1
09-27-94

| Div. | Location | Lin. Ft. | Miles |
|------|--|-------------------|----------------|
| 1 | Sta. 1376+47.05 to Sta. 1391+38.70 Deduct Bridge at Sta. 1383+68.00 | 1491.65 120.86 | 0.283 0.023 |
| | Length of Roadway on Project | 1370.79 | 0.26 |
| | Length of Bridge on Project | 130.83 | 0.025 |
| | Total Length of Project | 1501.62 | 0.284 |



STA. 1391+38.70
END PROJECT

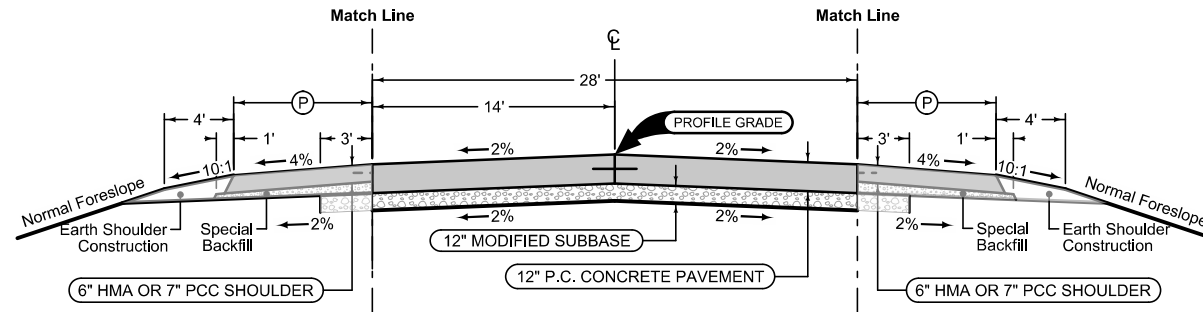
STA. 1376+47.05
BEGIN PROJECT



Paved Shoulder at Guardrail

PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

| 2_P_Guard_ Modified | | |
|------------------------|------------|-------------|
| STATION TO STATION | | (P) Feet |
| 1381+71.85 | 1381+91.85 | 14 |
| 1381+91.85 | 1382+34.51 | 12.1 |
| 1382+34.51 | 1382+44.51 | 10.0-9.6 |
| 1382+44.51 | 1382+64.51 | 9.6 |
| Br Idges | | |
| 1384+71.49 | 1384+92.46 | 9.6 |
| 1384+92.46 | 1385+01.49 | 9.6-10.5 |
| 1385+01.49 | 1385+05.07 | 12.8-13.1 |
| 1385+05.07 | 1385+17.59 | 13.1 |
| 1385+17.59 | 1385+69.79 | 13.1-15.2 |
| 1385+69.79 | 1385+89.79 | 15.2 |



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

| 2P_ Modified | |
|--------------------|------------|
| STATION TO STATION | |
| 1382+34.51 | 1383+07.51 |
| 1384+28.49 | 1385+01.49 |

Paved Shoulder at Guardrail

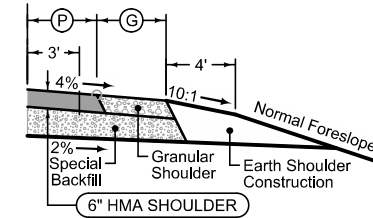
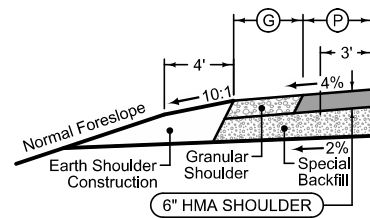
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 20' spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

| 2_P_Guard_ Modified | | |
|------------------------|------------|-------------|
| STATION TO STATION | | (P) Feet |
| 1381+46.21 | 1381+66.21 | 14.6 |
| 1381+66.21 | 1382+18.41 | 14.6-12.4 |
| 1382+18.41 | 1382+30.93 | 12.4 |
| 1382+30.93 | 1382+34.51 | 12.4-12.0 |
| 1382+34.51 | 1382+43.52 | 10.5-9.6 |
| 1382+43.52 | 1382+64.51 | 9.6 |
| Br Idge | | |
| 1384+71.49 | 1384+91.96 | 9.6 |
| 1384+91.96 | 1385+01.49 | 9.6-10.0 |
| 1385+01.49 | 1385+44.15 | 11.9-13.7 |
| 1385+44.15 | 1385+64.15 | 13.7 |

Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: B

| 2_C_ Modified | | | |
|--------------------|------------|-------------|-------------|
| STATION TO STATION | | (P) Feet | (G) Feet |
| 1381+42.25 | 1381+71.85 | UAC | 5.4-9.7 |
| 1385+89.79 | 1386+29.01 | UAC | 11.0-4.1 |



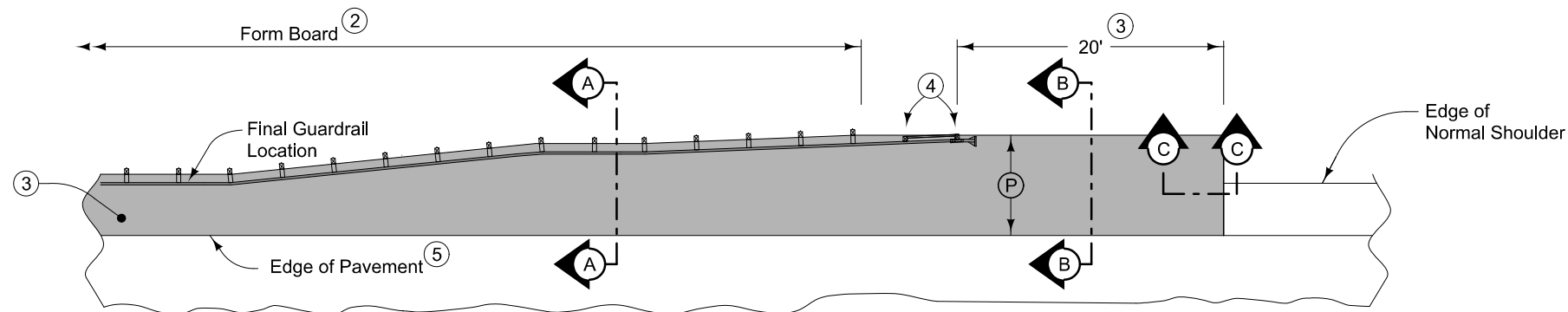
Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: B

| 2_C_ Modified | | | |
|--------------------|------------|-------------|-------------|
| STATION TO STATION | | (P) Feet | (G) Feet |
| 1376+47.0 | 1379+49.0 | 4 | 6 |
| 1381+17.14 | 1381+46.21 | UAC | 6.8-11.0 |
| 1385+64.15 | 1385+92.59 | UAC | 9.7-5.8 |
| 1388+40.5 | 1391+38.7 | 4 | 6 |

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

U.S. 30



PLAN VIEW

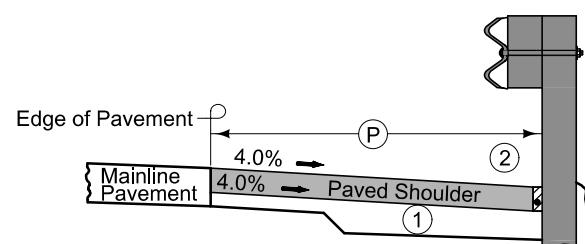
9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

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

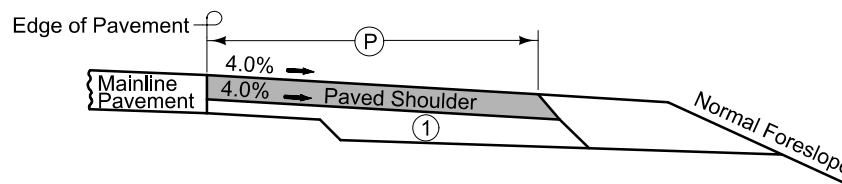
Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

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

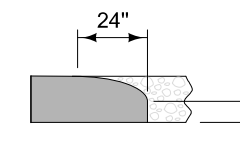


Section A-A

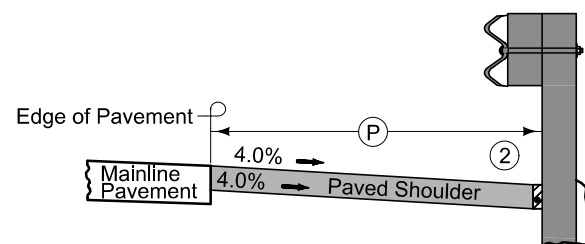


Section B-B

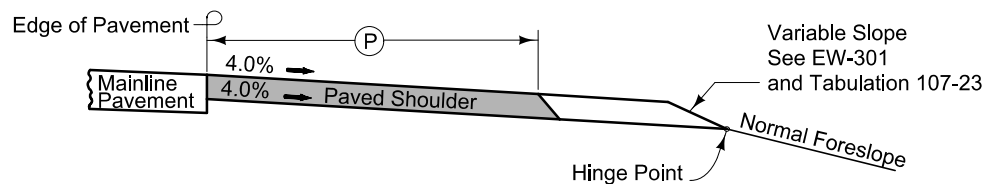
NEW CONSTRUCTION



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



Section A-A



Section B-B

EXISTING SHOULDER

PAVED SHOULDER AT GUARDRAIL

STORMWATER DRAINAGE BASIN

| Basin No. | Station to Station | | Side | Disturbed Area Acres | Discharge Point | | Required Storage Volume CF | Remarks |
|-----------|--------------------|-------------|------|----------------------|-----------------|------|----------------------------|---------------------------------------|
| | | | | | Station | Side | | |
| 1 | 1381+13.40 | 1383+32.82 | LT | 0.3 | 1383+11.10 | LT | 1047.6 | Mainline-Left and NW of Bridge |
| 2 | 1383+75.20 | 1387+01.50 | LT | 0.4 | 1387+00.30 | LT | 1404.0 | Mainline- Left and NE of Bridge |
| 3 | 1380+89.60 | 1383+41.00 | RT | 0.3 | 1381+17.00 | RT | 1155.6 | Mainline- Right and SW of Bridge |
| 4 | 1383+84.10 | 1385+96.60 | RT | 0.3 | 1384+18.70 | RT | 1162.8 | Mainline- Right and SE of Bridge |
| 5 | 11378+88.70 | 11383+63.41 | LT | 0.3 | 11383+63.40 | LT | 1177.2 | Detour- Left and NW of Detour Bridge |
| 6 | 11384+18.47 | 11389+22.70 | LT | 0.4 | 11384+29.53 | LT | 1335.6 | Detour- Left and NE of Detour Bridge |
| 7 | 11376+43.30 | 11383+58.80 | RT | 0.8 | 11376+53.40 | RT | 2991.6 | Detour- Right and SW of Detour Bridge |
| 8 | 11384+34.73 | 11391+65.73 | RT | 0.9 | 11384+34.40 | RT | 3193.2 | Detour- Right and SE of Detour Bridge |
| | | | | | | | 13467.6 | |

SUMMARY OF STORMWATER STORAGE

| Basin No. | Item | Total Storage Volume Provided | Total Storage Volume Required | Remarks |
|-----------|---|-------------------------------|-------------------------------|----------------|
| | | CF | CF | |
| 1 | SILT FENCE DITCH CHECK - CONTAINING BOTH ENDS OF FLAT DITCH | 1127.7 | 1047.6 | |
| 2 | SILT FENCE DITCH CHECK - CONTAINING BOTH ENDS OF FLAT DITCH | 1788.6 | 1404.0 | |
| 3 | SILT FENCE FOR SHALLOW OR NO DITCH | 2594.3 | 1155.6 | END OF STAGE 2 |
| 4 | SILT FENCE DITCH CHECK | 2920.3 | 1162.8 | END OF STAGE 2 |
| 5 | SILT FENCE DITCH CHECK | 3273.8 | 1177.2 | STAGE 1 |
| 6 | SILT FENCE DITCH CHECK | 5027.0 | 1335.6 | STAGE 1 |
| 7 | SILT FENCE DITCH CHECK AND SILT FENCE FOR SHALLOW OR NO DITCH | 3302.6 | 2991.6 | STAGE 1 |
| 8 | SILT FENCE DITCH CHECK | 3819.7 | 3193.2 | STAGE 1 |

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201 Possible Detail: 570-4



* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: $[0.5 * Spacing * (0.5 * H^2 * FS + DW * H + 0.5 * H^2 * BS)]$

| Basin No. | Type | Location | | Bid Items | | | Stormwater Storage Volume Summary | | | | | Remarks |
|-----------|------|-------------|------|-----------------|----------------|------------|-----------------------------------|----------------|----------------|--------------|------------|---------|
| | | Station | Side | Installation LF | Maintenance LF | Removal LF | Foreslope FS:1 | Backslope BS:1 | Ditch Width FT | Avg. % Slope | Volume* CF | |
| 1 | 1 | 1383+11.00 | LT | 20.0 | | | 3.0 | 3.0 | 5.0 | 0.0% | 563.9 | |
| 1 | 1 | 1381+25.00 | LT | 20.0 | | | 3.0 | 3.0 | 5.0 | 0.0% | 563.9 | |
| 2 | 1 | 1386+95.00 | LT | 20.0 | | | 3.0 | 3.0 | 5.0 | 0.1% | 894.3 | |
| 2 | 1 | 1384+00.00 | LT | 20.0 | | | 3.0 | 3.0 | 5.0 | 0.1% | 894.3 | |
| 3 | 4 | 1381+00.00 | RT | 127.0 | | | 3.0 | 3.0 | 10.0 | 1.5% | 942.0 | |
| 3 | 4 | 1382+00.00 | RT | 117.0 | | | 3.0 | 6.0 | 10.0 | 1.5% | 1023.5 | |
| 3 | 4 | 1382+95.00 | RT | 70.0 | | | 3.0 | 10.0 | 10.0 | 1.5% | 628.8 | |
| 4 | 1 | 1384+25.00 | RT | 20.0 | | | 3.0 | 3.0 | 10.0 | 0.9% | 1460.2 | |
| 4 | 1 | 1385+80.00 | RT | 20.0 | | | 3.0 | 3.0 | 10.0 | 0.9% | 1460.2 | |
| 5 | 1 | 11380+35.00 | LT | 15.0 | | | 3.0 | 3.0 | 8.0 | 0.3% | 1179.3 | |
| 5 | 1 | 11383+50.00 | LT | 10.0 | | | 4.3 | 3.0 | 5.0 | 0.3% | 2094.5 | |
| 6 | 1 | 11384+50.00 | LT | 15.0 | | | 3.4 | 3.0 | 5.0 | 0.5% | 1966.7 | |
| 6 | 1 | 11387+65.00 | LT | 35.0 | | | 3.0 | 3.0 | 25.0 | 0.5% | 3060.4 | |
| 7 | 1 | 11377+50.00 | RT | 14.0 | | | 3.0 | 3.0 | 5.0 | 0.5% | 1212.6 | |
| 7 | 1 | 11379+50.00 | RT | 15.0 | | | 3.0 | 3.0 | 5.0 | 0.5% | 606.3 | |
| 7 | 4 | 11380+50.00 | RT | 316.0 | | | 3.0 | 0.0 | 5.0 | 0.5% | 1483.7 | |
| 8 | 1 | 11384+35.00 | RT | 15.0 | | | 3.0 | 3.0 | 5.0 | 0.5% | 1909.8 | |
| 8 | 1 | 11387+50.00 | RT | 20.0 | | | 3.0 | 3.0 | 5.0 | 0.5% | 1909.8 | |

SURVEY SYMBOLS

- BL Topo Breakline
- BRG Bridge
- x- FW Wire Fence
- PPA Power Pole Co. 1
- TPD Telephone Pedestal
- GDL Guard Rail Steel
- SNP Unpaved Shoulder
- SH Paved Shoulder
- EP Edge of Paved Roads (ML or SR)
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- D Centerline Draw or Stream (Down)
- DU Centerline Draw or Stream (Up)
- DIK Centerline of Dike or Dam
- BNK Stream Bank
- RR Centerline of Railroad Tracks
- EW Edge of Water
- SP Stream Profile
- T1 --- Windstream - Quality D
- FO --- Windstream - Quality D
- BD Bridge Deck
- PRO Profile Shot
- RRR Railroad Rail
- BCL Bridge Centerline
- SBR Size of Bridge
- BLS Bridge Low Steel
- TW Top of Water
- GR Ground Shot

UTILITY LEGEND

- T1 --- Windstream - Quality D
- FO --- Windstream - Quality D
- Harrison County REC

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

- RIGHT-OF-WAY LEGEND**
- ▲ Proposed Right-of-Way
 - △ Existing Right of Way
 - ▲ Existing and Proposed Right-of-Way
 - ▲ Easement and Existing Right-of-Way
 - Easement (Temporary)
 - Easement
 - C/A Access Control
 - Property Line

----- Silt Fence (color varies by drainage basin)

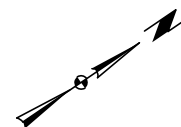
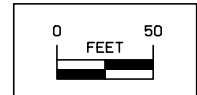
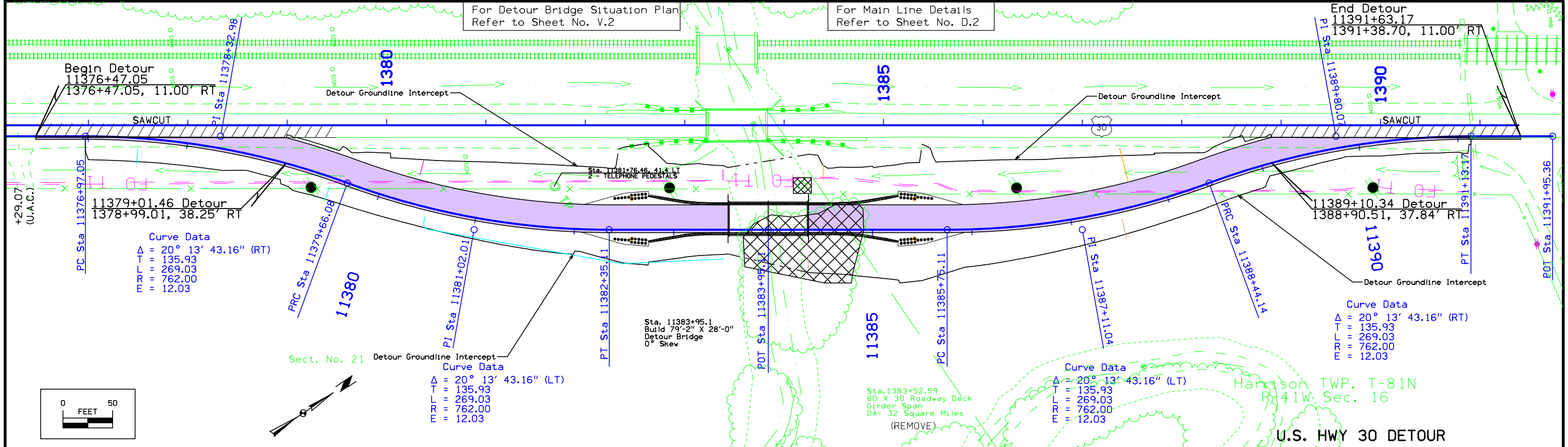
**PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET**

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

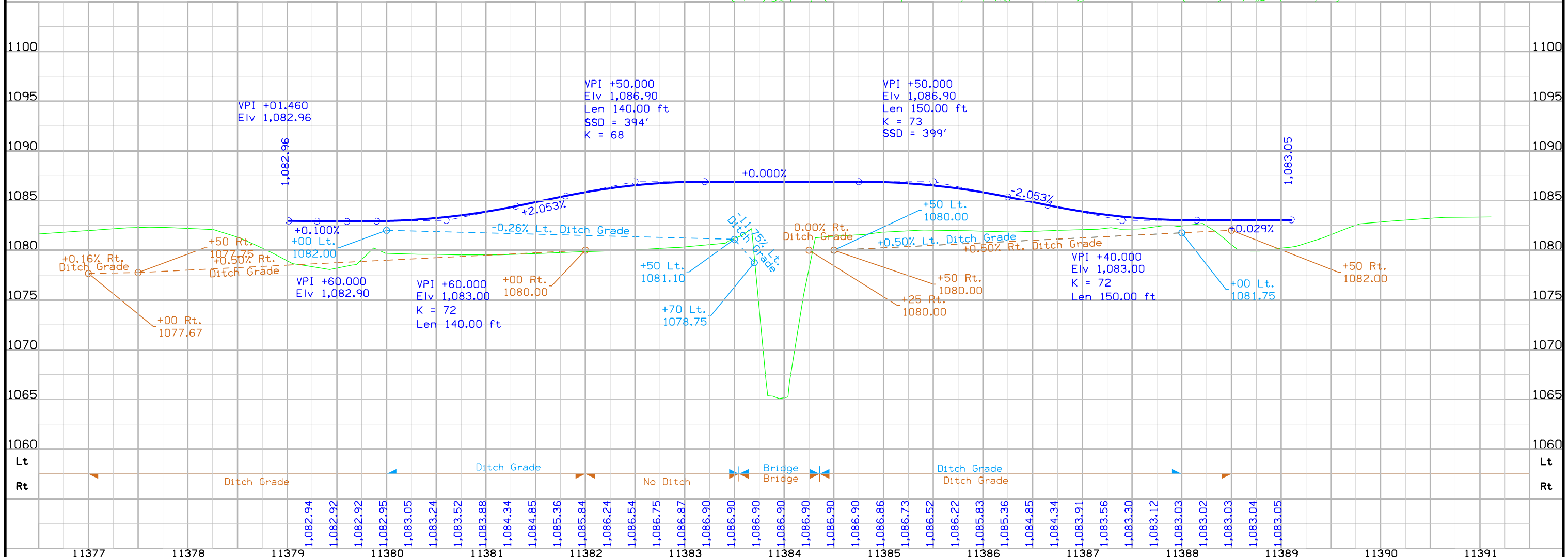
For Detour Bridge Situation Plan Refer to Sheet No. V.2

For Main Line Details Refer to Sheet No. D.2

End Detour
11391+63.17
1391+38.70, 11.00' RT



U.S. HWY 30 DETOUR



ALIGNMENT COORDINATES

101-16
10-20-09

| 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) |
| US 30 | | | | | | | | | | | | | | | | | | | |
| 20000 | | 1375+65.60 | 7,171,375.03 | 16,527,210.13 | | | | | | | | | | | | | | | |
| 20001 | | 1391+38.70 | 7,172,676.27 | 16,528,094.12 | | | | | | | | | | | | | | | |
| US 30 DETOUR | | | | | | | | | | | | | | | | | | | |
| 10100 | | 11375+65.60 | 7,171,368.85 | 16,527,219.23 | | | | | | | | | | | | | | | |
| 10101 | | | | | | | 11376+97.05 | 7,171,477.59 | 16,527,293.10 | 11378+32.98 | 7,171,590.02 | 16,527,369.48 | 11379+66.08 | 7,171,669.12 | 16,527,480.03 | | | | |
| 10102 | | | | | | | 11379+66.08 | 7,171,669.12 | 16,527,480.03 | 11381+02.01 | 7,171,748.21 | 16,527,590.58 | 11382+35.11 | 7,171,860.64 | 16,527,666.97 | | | | |
| 10103 | | 11383+95.11 | 7,171,992.99 | 16,527,756.88 | | | | | | | | | | | | | | | |
| 10104 | | | | | | | 11385+75.11 | 7,172,141.89 | 16,527,858.03 | 11387+11.04 | 7,172,254.32 | 16,527,934.41 | 11388+44.14 | 7,172,386.24 | 16,527,967.21 | | | | |
| 10105 | | | | | | | 11388+44.14 | 7,172,386.24 | 16,527,967.21 | 11389+80.07 | 7,172,518.15 | 16,528,000.00 | 11391+13.17 | 7,172,630.59 | 16,528,076.39 | | | | |
| 10106 | | 11391+95.36 | 7,172,698.57 | 16,528,122.57 | | | | | | | | | | | | | | | |
| PIPE 1 CONST. RL | | | | | | | | | | | | | | | | | | | |
| 20050 | | 21381+81.50 | 7,171,884.49 | 16,527,556.23 | | | | | | | | | | | | | | | |
| 20051 | | 21382+51.50 | 7,171,923.83 | 16,527,498.33 | | | | | | | | | | | | | | | |
| PIPE 2 CONST. RL | | | | | | | | | | | | | | | | | | | |
| 20060 | | 31385+80.00 | 7,172,214.12 | 16,527,780.16 | | | | | | | | | | | | | | | |
| 20061 | | 31386+50.00 | 7,172,253.46 | 16,527,722.26 | | | | | | | | | | | | | | | |

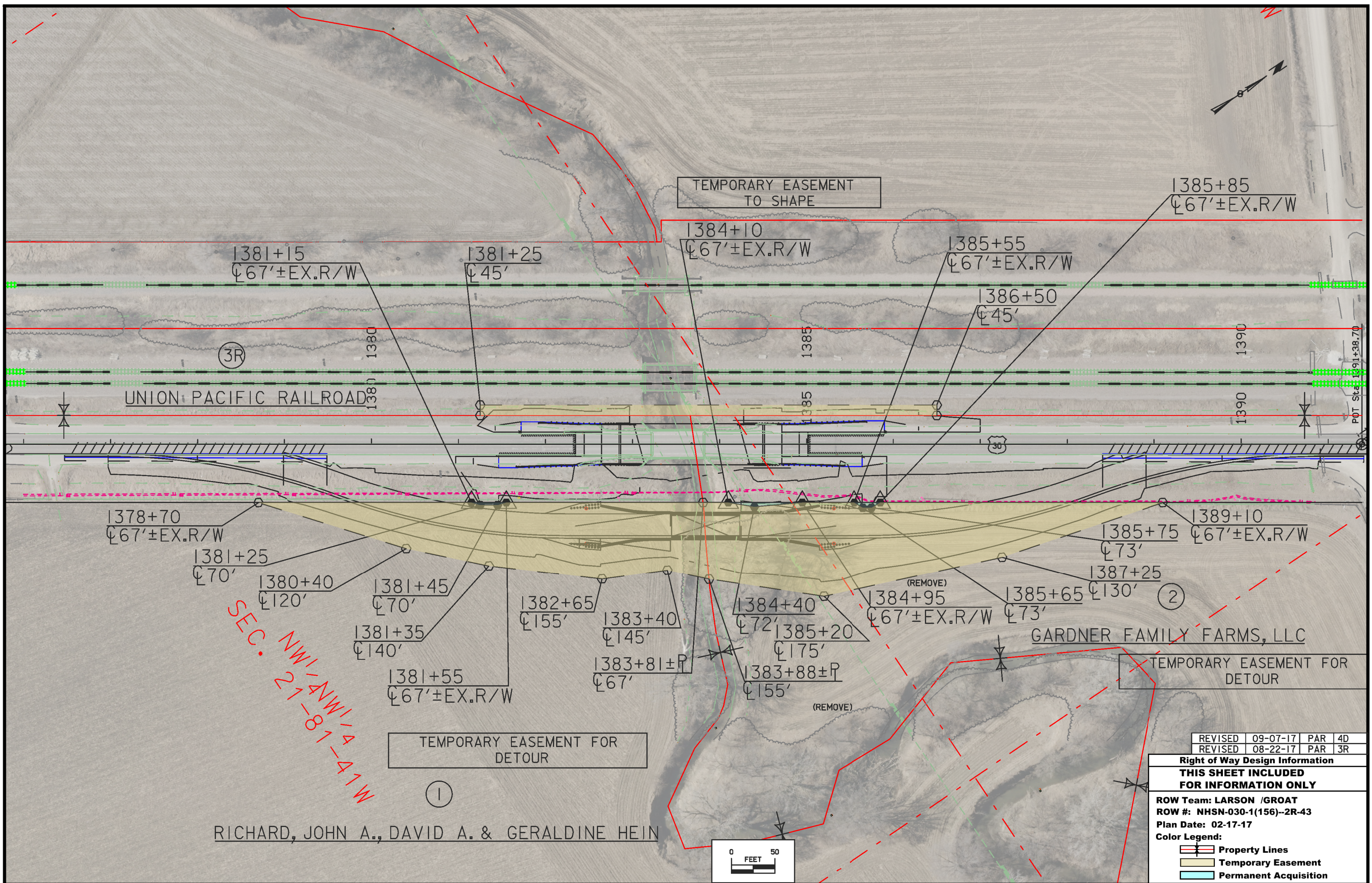
SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

| Name | Location | Δ_{scs} | Horizontal Alignment Data | | | | | | | | | | | | Remarks | | | |
|--------------|----------|----------------|---------------------------|-------|-------|-------|-------|-------|------------|------|------------|---|---|---|---------|---|--|--|
| | | | Spiral Data | | | | | | Curve Data | | | | | | | | | |
| | | | θ_s | L_s | T_s | E_s | X_c | Y_c | L.T. | S.T. | Δ_c | T | L | R | | E | | |
| US 30 DETOUR | | | | | | | | | | | | | | | | | | |
| 10101 | | | | | | | | | | | | | | | | | | |
| 10102 | | | | | | | | | | | | | | | | | | |
| 10104 | | | | | | | | | | | | | | | | | | |
| 10105 | | | | | | | | | | | | | | | | | | |

Control Point Coordinate Table
 IaRCS Zone 6 - NAD83(2011) Datum - NAVD88 Vertical Datum
 Points may be recovered by using IaRTN positioning device

| Point | North | East | Elevation | Station | Offset | Feature | Description |
|-------|-------------|--------------|-----------|------------|-----------|---------|------------------------|
| 1 | 7172707.086 | 16528216.660 | 1082.698 | Off Chain | Off Chain | FENO | FENO MONUMENT |
| 500 | 7172061.141 | 16527656.960 | 1088.850 | 1383+84.22 | -15.945 | BM | 500 FND SQUARE NE WING |
| 2 | 7168561.364 | 16525403.408 | 1081.172 | Off Chain | Off Chain | FENO | FENO MONUMENT |



SEC. NW1/4NW1/4
27-87-41W

RICHARD, JOHN A., DAVID A. & GERALDINE HEIN



| | | | |
|---------|----------|-----|----|
| REVISED | 09-07-17 | PAR | 4D |
| REVISED | 08-22-17 | PAR | 3R |

Right of Way Design Information
THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
 ROW #: NHSN-030-1(156)--2R-43
 Plan Date: 02-17-17
 Color Legend:

- Property Lines
- Temporary Easement
- Permanent Acquisition

511 TRAVEL RESTRICTIONS

| Route | Direction | County | Location Description | Feature Crossed | Object Type | Maint. Bridge No., Structure ID, or FHWA No. | Type of Restriction | Existing Measurement | Construction Measurement | Construction Measurement as Signed | Projected As Built Measurement | Remarks |
|-------|-----------|--------------------|------------------------------------|-----------------|------------------------|--|------------------------|-------------------------|-----------------------------|--|--------------------------------------|---------|
| US 30 | E-W | Harrison | 7.2 Miles East of County Road F-32 | Mill Creek | Traffic Control Device | | Horizontal | 12 | 12 | | | (1) |
| US 30 | E-W | Harrison | 7.2 Miles East of County Road F-32 | Mill Creek | Traffic Control Device | | Horizontal | 12 | 11 | | | (2) |
| | | (1) Lane Closure | | | | | | | | | | |
| | | (2) On-site detour | | | | | | | | | | |

STAGING NOTES

108-26A
08-01-08

Stage 1
Traffic:
Maintain two-way traffic on mainline. Utilize TC213 for construction of detour tie-ins.
Construction:
Construct two-lane detour with temporary bridge south of US 30.

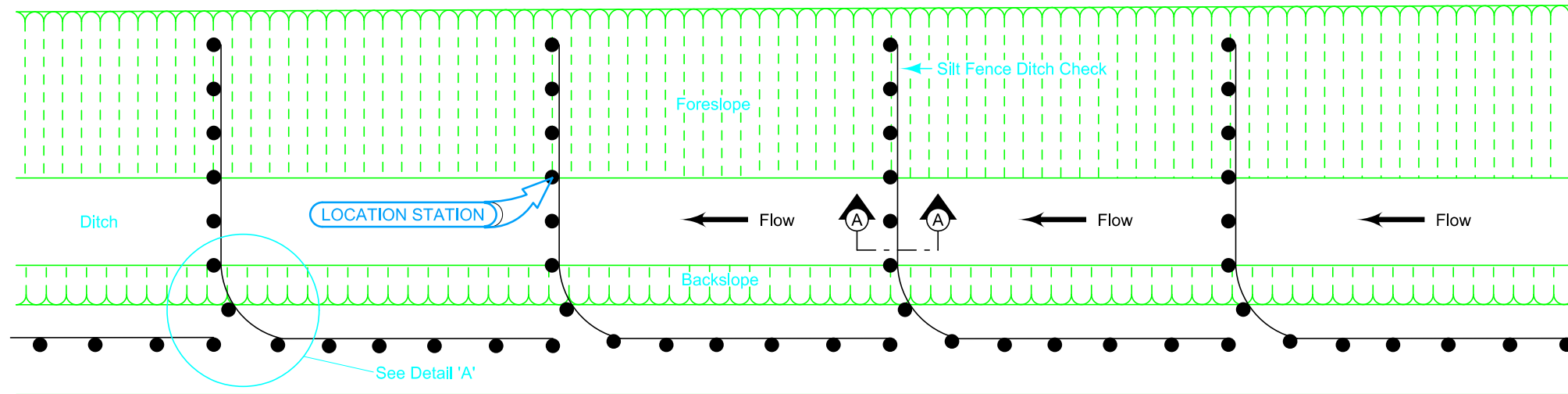
Stage 2
Traffic:
Maintain two-way traffic on paved detour.
Construction:
1. Remove existing bridge.
2. Build new 130' X 44' Bridge.
3. Construct Bridge Approach Pavement, guardrail, adjacent paved shoulders and granular shoulders.

Stage 3
Traffic:
Maintain two way traffic on mainline. Utilize TC-202 for removal of detour. Utilize TC-213 for restoration of tie-in locations and construction of south ditch and foreslope.
Construction:
1. Remove detour and temporary bridge.
2. Reconstruct shoulders at detour tie-ins.

TRAFFIC CONTROL PLAN

108-23A
08-01-08

1. Traffic on US 30 will be maintained at all times during construction with the use of a paved on-site detour.
2. Maintain access to Entrance at Sta. 1376+29.07 RT at all times.
3. Maintain access to Entrance at Sta. 1391+38 LT at all times.
4. Maintain access to Entrance at Sta. 1391+40 RT at all times.



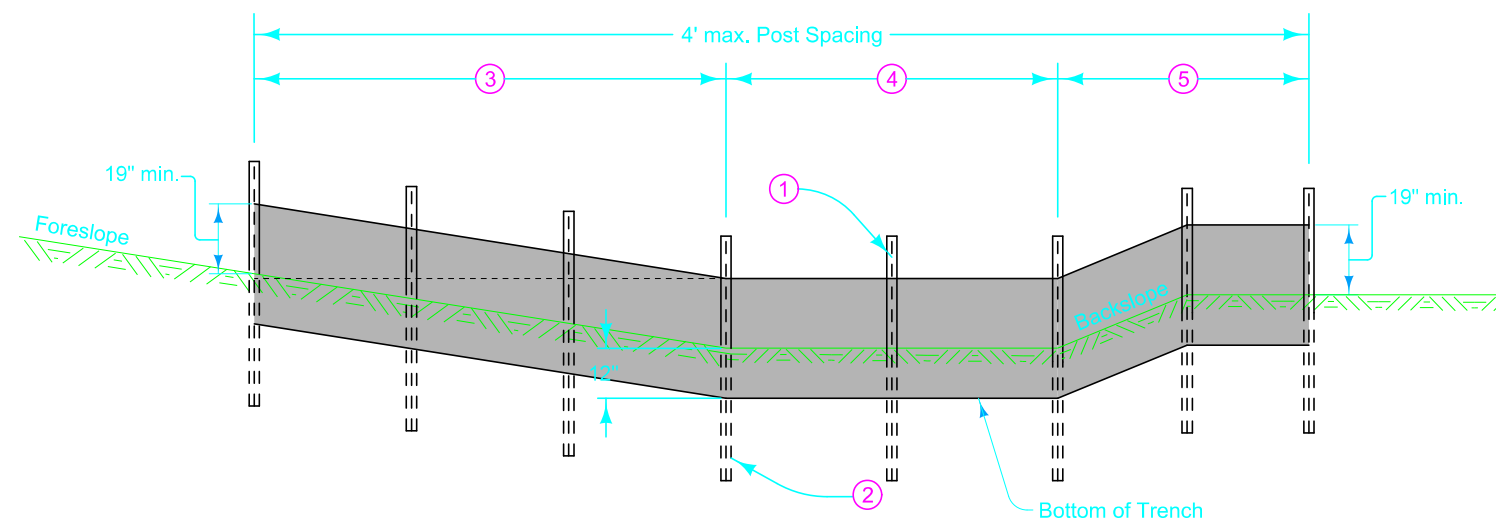
PLAN FOR SILT DITCH (SHALLOW DITCH SECTION-TYPE 4) ⁶

Install all silt fence using a silt fence machine. Use manual (trench) installation if physical conditions prohibit machine installation.

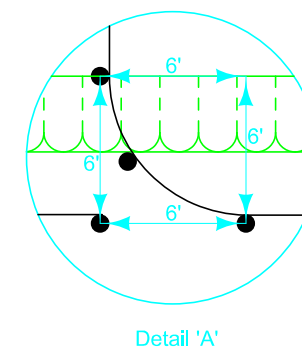
For machine installation, compact by driving over each side of silt fence at least two times with device exerting 60 p.s.i. or greater.

For manual installation, compact with a mechanical or pneumatic tamper.

- 1 Secure top of engineering fabric to steel posts using cable ties (50 lb.) or wire. See attachment to post.
- 2 Embed all posts 28 inches below the ground line.
- 3 The minimum end span (in feet) = 2 X Foreslope (H:V).
- 4 Locate posts at toe of foreslope and toe of backslope and space remaining posts equally.
- 5 Place posts as shown in Detail 'A' to transition from transverse to parallel installation. Place one post at the backslope intercept and the other beyond the intercept.
- 6 Refer to Tab. 100-18.



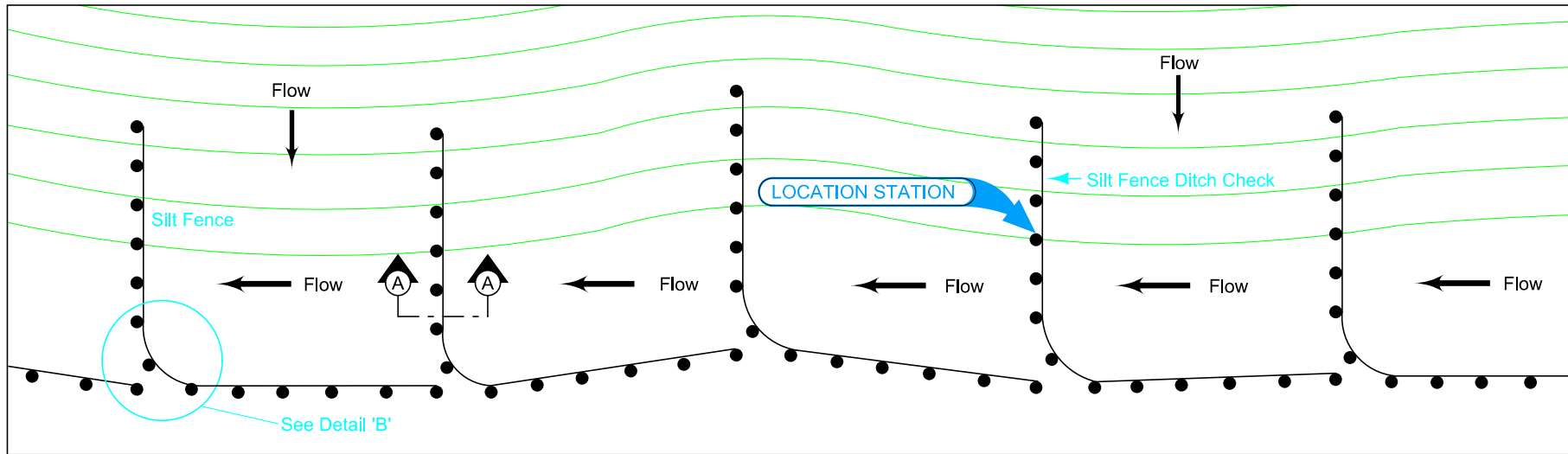
FRONT VIEW



Possible Contract Items:
Silt Fence for Ditch Checks

Possible Tabulations:
100-18

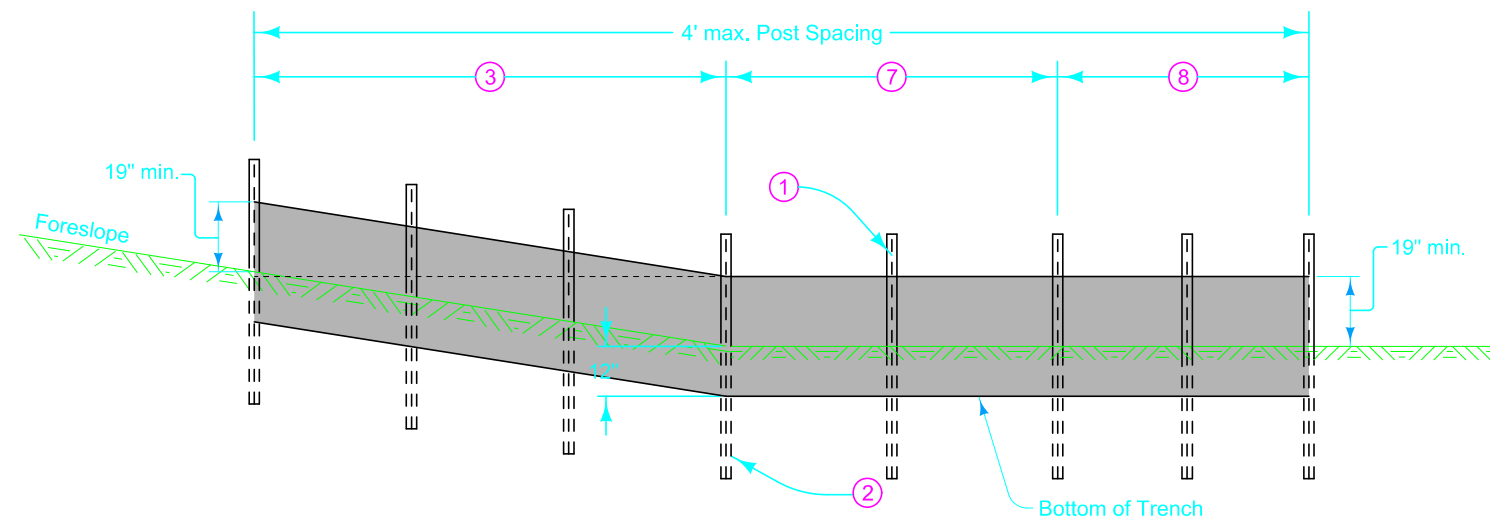
| | | |
|--|--------------|--------------|
| ROAD DESIGN DETAIL | REVISION | |
| | NEW | 10-18-16 |
| | 570-4 | |
| | | SHEET 1 of 3 |
| SILT FENCE INSTALLATION FOR SHALLOW OR NO DITCH | | |



PLAN FOR SILT FENCE (NO DITCH SECTION-TYPE 5) ⑥

- ① Secure top of engineering fabric to steel posts using cable ties (50 lb.) or wire. See attachment to post.
- ② Embed all posts 28 inches below the ground line.
- ③ The minimum end span (in feet) = 2 X Foreslope (H:V).
- ⑥ Refer to tabulation 100-18.
- ⑦ Locate post at toe of foreslope. Locate 2 additional posts at 4 foot spacing.
- ⑧ Place posts as shown in Detail 'B' to transition from transverse to parallel installation. The parallel portion of the installation should approximately parallel the intercept of the foreslope.

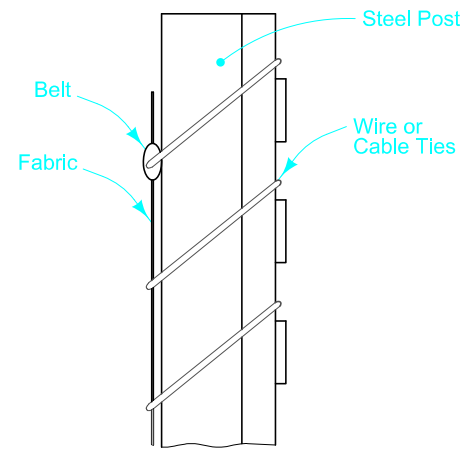
 Contour Lines



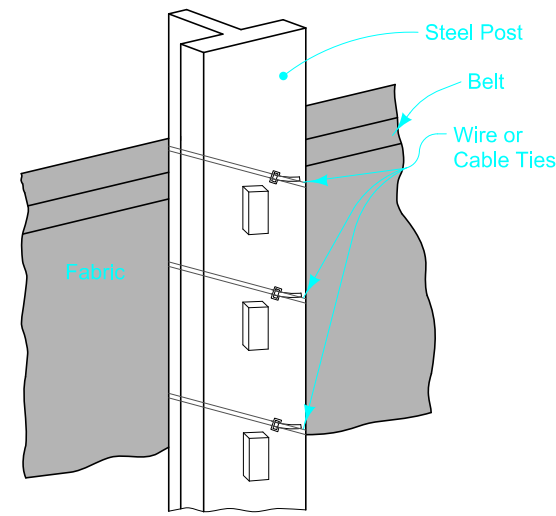
FRONT VIEW

| | | |
|---------------------------|--------------|--------------|
| ROAD DESIGN DETAIL | REVISION | |
| | NEW | 10-18-16 |
| | 570-4 | |
| | | SHEET 2 of 3 |

**SILT FENCE INSTALLATION
FOR SHALLOW OR NO DITCH**



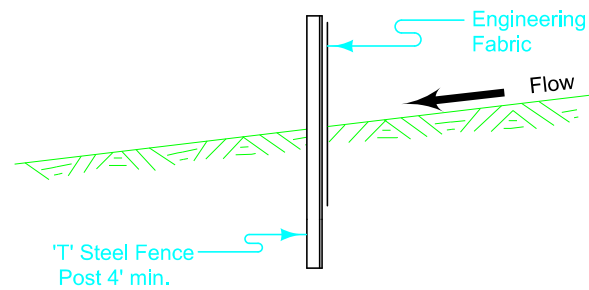
**PROFILE VIEW
ATTACHMENT TO POST**



**BACK VIEW
ATTACHMENT TO POST**

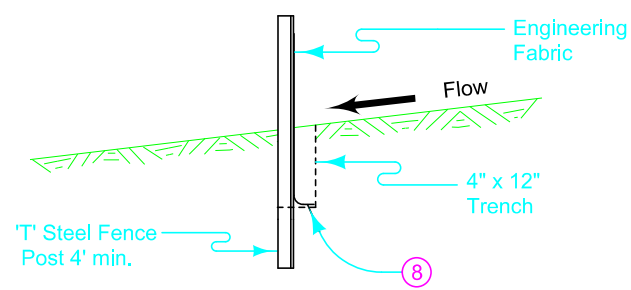
⑧ For manual installation only, fold engineering fabric along bottom of trench.

DITCH CHECK - MACHINE INSTALLATION



SECTION A-A

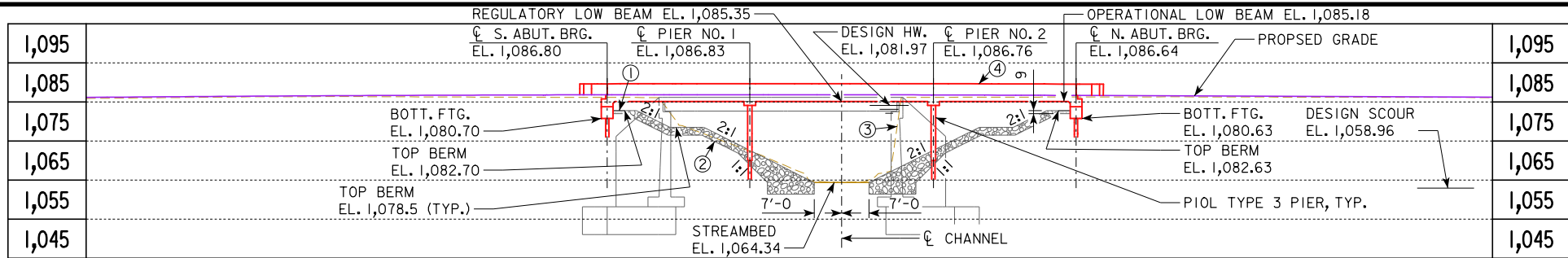
DITCH CHECK - MANUAL INSTALLATION



SECTION A-A

| | | |
|---------------------------|--------------|----------|
| ROAD DESIGN DETAIL | REVISION | |
| | NEW | 10-18-16 |
| | 570-4 | |
| SHEET 3 of 3 | | |

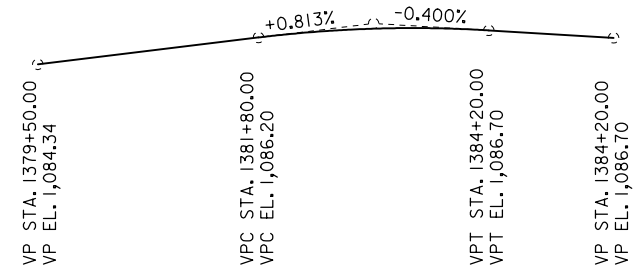
**SILT FENCE INSTALLATION
FOR SHALLOW OR NO DITCH**



- ① BERM PROTECTION
EROSION STONE (0-9 THICK. MIN.)
UNDERLAIN W/ ENGR. FABRIC
 - ② BERM PROTECTION
CLASS E REVET. (2' THICK. MIN.)
UNDERLAIN W/ ENGR. FABRIC
 - ③ EXISTING GROUND
 - ④ TL-4 BRIDGE RAILING
PROPOSED
- BENCH MARK NO. 500
FOUND SQUARE, NE WING
STA. 1383+54.22, 15.945' LT.
N 7172061.141
E 16527656.960
- VPI STA. 1383+00.00
VPI EL. 1,087.18
L = 240.0'
K = 198

TOP OF BRIDGE DECK AT CL ROADWAY IS 0.03' BELOW THE PROFILE GRADE.

LONGITUDINAL SECTION ALONG CL APPROACH ROADWAY



PROPOSED PROFILE GRADE
US 30

HYDRAULIC DATA

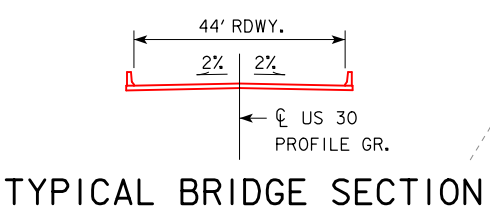
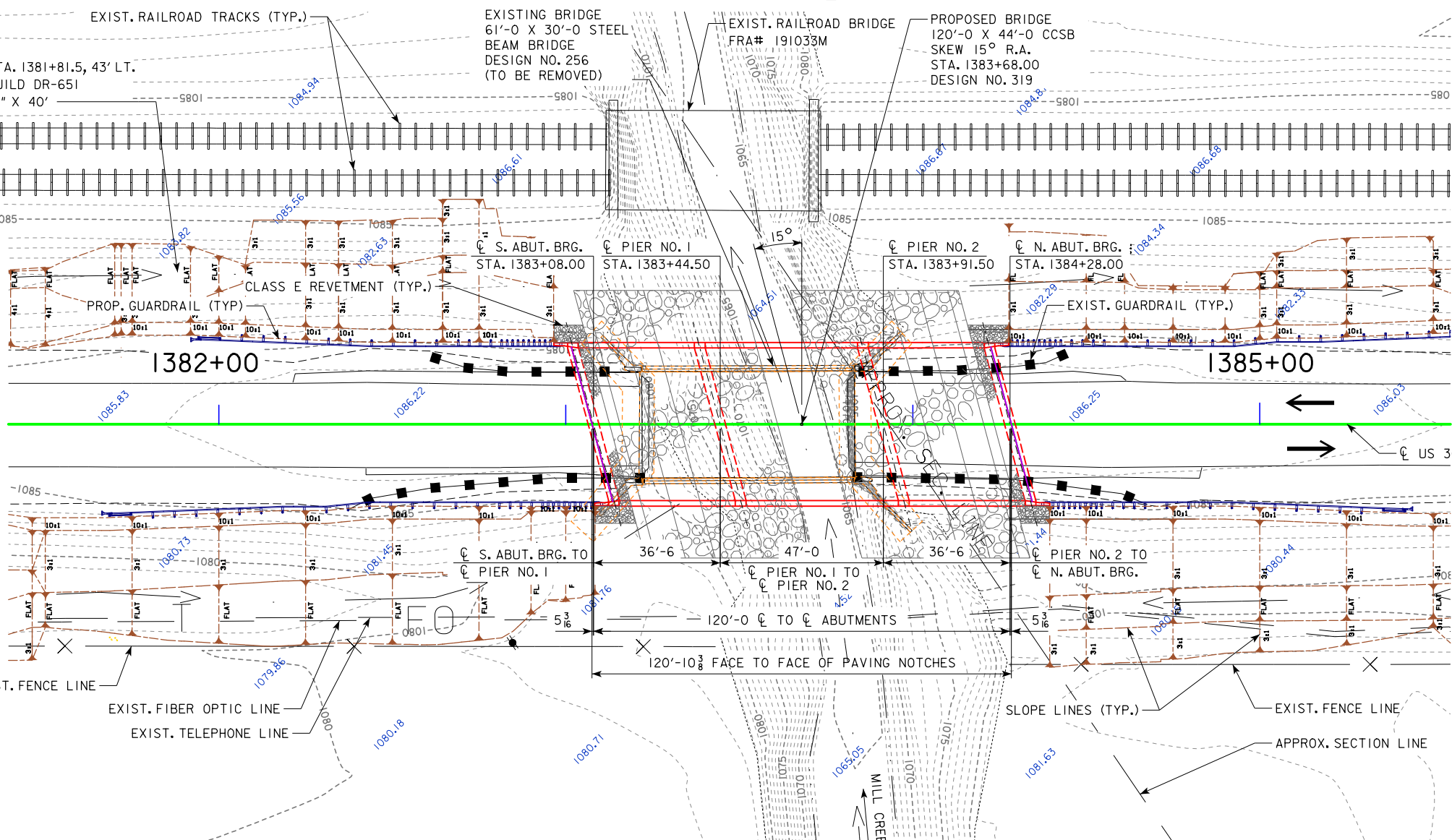
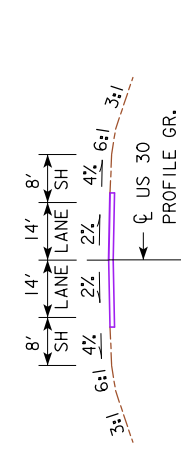
DRAINAGE AREA = 37.5 SQ. MI.
STREAM SLOPE = 5.28 FT./MI.
AVG. LOW WATER STAGE = 1,075.37

Q CHANNEL CAPACITY = 4,675 CFS
STAGE = 1,081.97
REGULATORY LOW BEAM = 1,085.35
OPERATIONAL LOW BEAM = 1,085.18
AVERAGE BRIDGE VELOCITY = 5.02 FPS
CALCULATED DESIGN & CHECK SCOUR = 1,058.96
ROAD OVERTOP = 1,075.58
STA. = 1360+35.09

Q₂₅ = 7,340 CFS
Q₅₀ = 9,020 CFS
Q₁₀₀ = 10,900 CFS
Q₅₀₀ = 15,200 CFS
Q CHANNEL CAPACITY = 4,675 CFS

FLOWRATE AT BRIDGE IS LIMITED TO CHANNEL CAPACITY UPSTREAM OF THE BRIDGE. DISCHARGES IN EXCESS OF CHANNEL CAPACITY WILL FLOW SOUTH ACROSS THE BOYER RIVER FLOOD PLAIN TO THE BOYER RIVER LEVEE, WHERE IT WILL OVERTOP AT APPROXIMATE EL. 1,079.

TYPICAL APPROACH SECTION



TYPICAL BRIDGE SECTION
SITUATION PLAN

UTILITIES LEGEND:

- FO — : FIBER OPTIC
- T — : TELEPHONE

LOCATION

U.S. 30 OVER MILL CREEK
T-81N R-41W
SECTION 21
HARRISON TOWNSHIP
HARRISON COUNTY
FHWA NO. 27571
BRIDGE MAINT. NO. 4334.8S030
LATITUDE 41.819852
LONGITUDE -95.631913

TRAFFIC ESTIMATE

| | | |
|--------------------|-------|--------|
| 2020 AADT | 3,400 | V.P.D. |
| 2040 AADT | 4,000 | V.P.D. |
| 2040 DHV | | V.P.H. |
| TRUCKS | 23 | % |
| TOTAL DESIGN ESALS | | |

DESIGN FOR 15° SKEW (R.A.)

120'-0 X 44'-0 CONTINUOUS CONCRETE SLAB BRIDGE

36'-6 END SPANS 47'-0 CENTER SPAN

SITUATION PLAN

STATION 1383+68.00 (U.S. 30) DECEMBER 2016

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 2 FILE NO. 31404 DESIGN NO. 319

HYDRAULIC & STRUCTURAL DESIGN

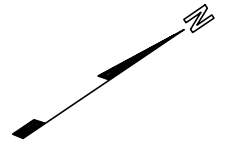
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature: **Stephen W. Moffitt** Date: _____

Printed or Typed Name: _____

My license renewal date is December 31, 2017.

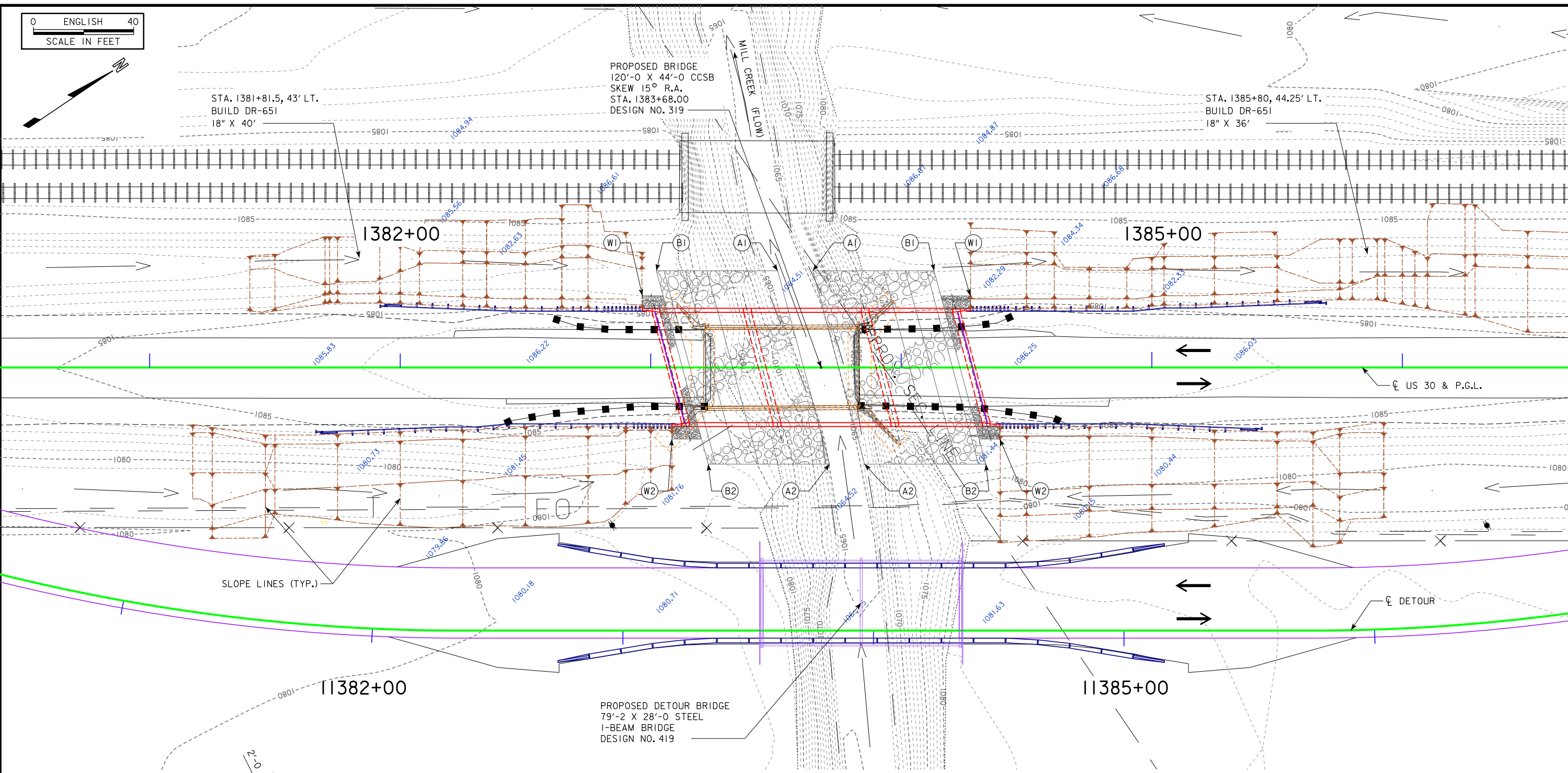
Pages or sheets covered by this seal: SHEETS V.1 - V.4



STA. 1381+81.5, 43' LT.
BUILD DR-651
18" X 40'

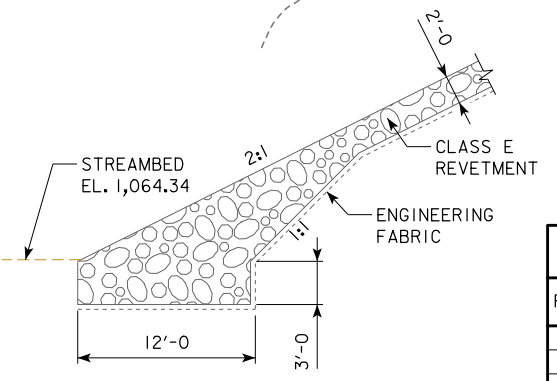
PROPOSED BRIDGE
120'-0" X 44'-0" CCSB
SKEW 15° R.A.
STA. 1383+68.00
DESIGN NO. 319

STA. 1385+80, 44.25' LT.
BUILD DR-651
18" X 36'



SITE PLAN

PROPOSED DETOUR BRIDGE
79'-2" X 28'-0" STEEL
I-BEAM BRIDGE
DESIGN NO. 419



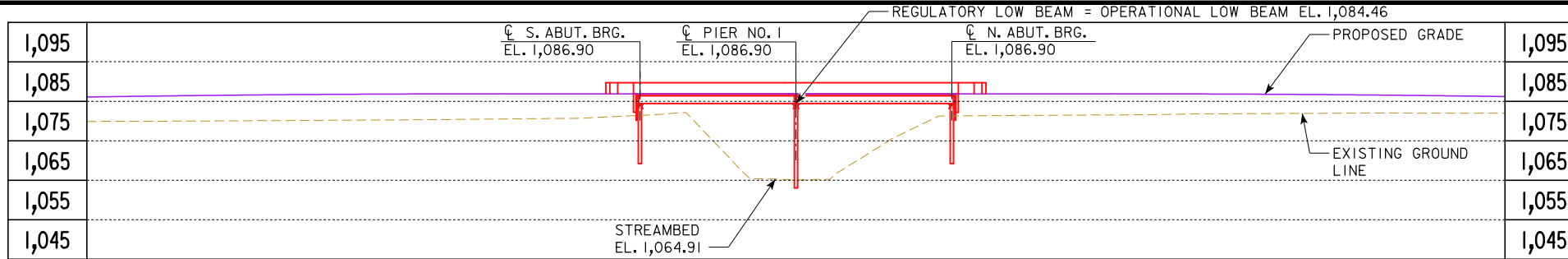
**STREAMBANK
REVETMENT DETAIL**
NORMAL TO CHANNEL

| POINTS | SOUTH ABUTMENT | | | NORTH ABUTMENT | | |
|--------|----------------|-----------|----------|----------------|-----------|----------|
| | STATION | OFFSET | ELEV. | STATION | OFFSET | ELEV. |
| A1 | 1383+50.68 | 38.58' LT | 1,064.34 | 1383+64.48 | 38.58' LT | 1,064.34 |
| A2 | 1383+71.36 | 38.58' RT | 1,064.34 | 1383+85.36 | 38.58' RT | 1,064.34 |
| B1 | 1383+02.28 | 38.58' LT | 1,082.70 | 1384+13.11 | 38.58' LT | 1,082.63 |
| B2 | 1383+22.96 | 38.58' RT | 1,082.70 | 1384+33.79 | 38.58' RT | 1,082.63 |
| W1 | 1382+96.66 | 28.58' LT | 1,082.70 | 1384+27.55 | 28.58' LT | 1,082.63 |
| W2 | 1383+08.45 | 28.58' RT | 1,082.70 | 1384+39.34 | 28.58' RT | 1,082.63 |

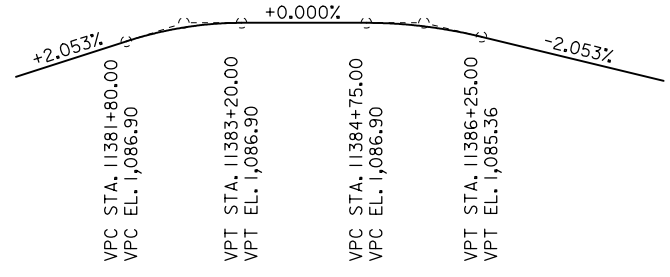
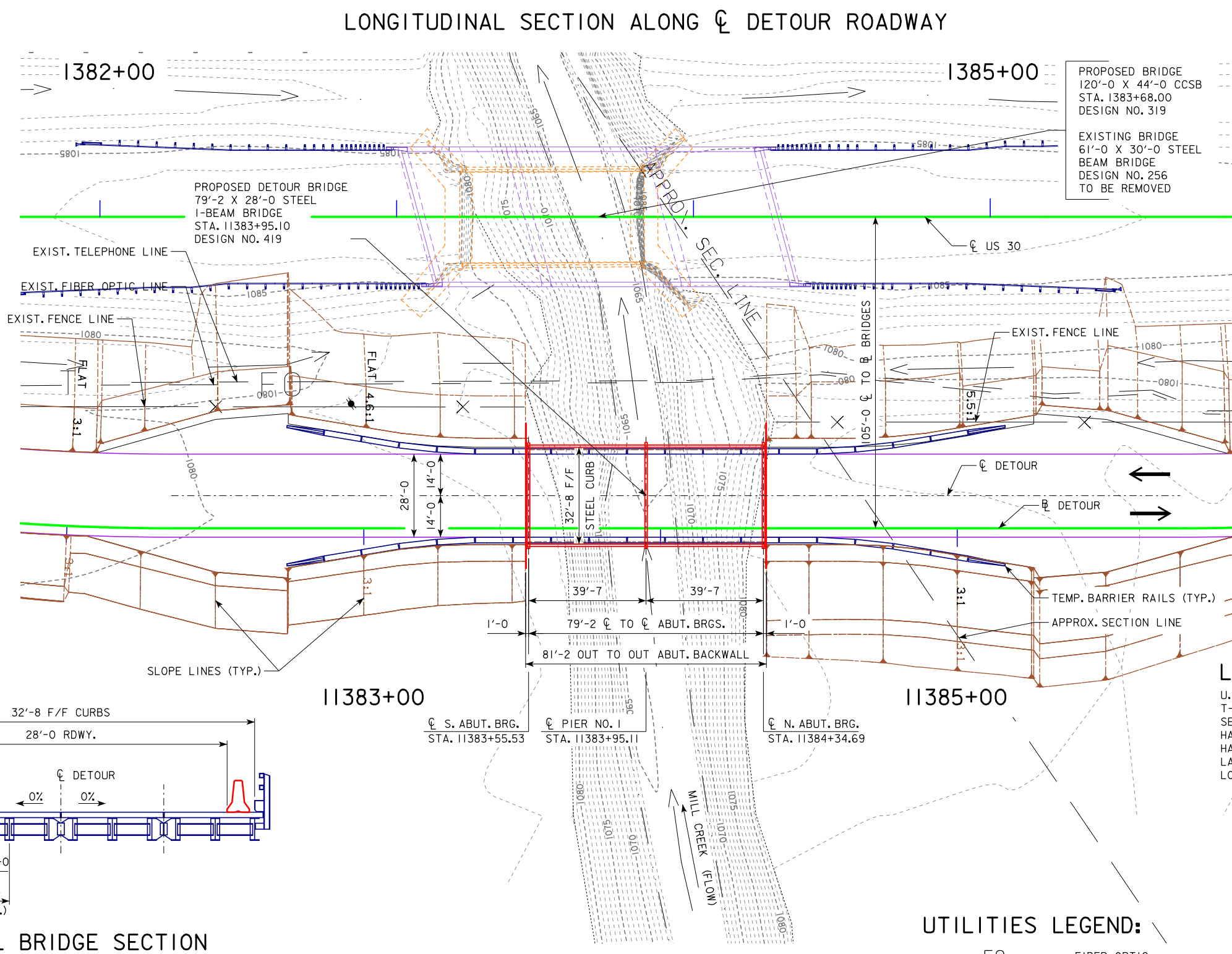
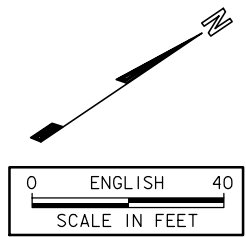
BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

| ESTIMATED REVETMENT QUANTITIES | | | | | | |
|--------------------------------|------|----------|--------------------|------|----------|--------|
| SOUTH ABUTMENT | | | NORTH ABUTMENT | | | TOTALS |
| ITEM | UNIT | QUANTITY | ITEM | UNIT | QUANTITY | |
| CLASS E REVETMENT | TONS | 431 | CLASS E REVETMENT | TONS | 431 | 862 |
| EROSION STONE | TONS | 12 | EROSION STONE | TONS | 12 | 24 |
| ENGINEERING FABRIC | SY | 399 | ENGINEERING FABRIC | SY | 399 | 798 |
| EXCAVATION, CL. 10 | CY | 283 | EXCAVATION, CL. 10 | CY | 283 | 566 |

DESIGN FOR 15° SKEW (R.A.)
**120'-0" X 44'-0" CONTINUOUS
 CONCRETE SLAB BRIDGE**
 36'-6" END SPANS 47'-0" CENTER SPAN
SITUATION PLAN - SITE
 STATION 1383+68.00 (U.S. 30) DECEMBER 2016
HARRISON COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 2 FILE NO. 31404 DESIGN NO. 319



BENCH MARK NO. 500
 FOUND SQUARE, NE WING
 STA. 1383+54.22, 15.945' LT.
 N 7172061.141
 E 16527656.960



PROPOSED PROFILE GRADE ON DETOUR

HYDRAULIC DATA
 DRAINAGE AREA = 37.5 SQ. MI.
 STREAM SLOPE = 5.28 FT./MI.
 AVG. LOW WATER STAGE = 1,075.77

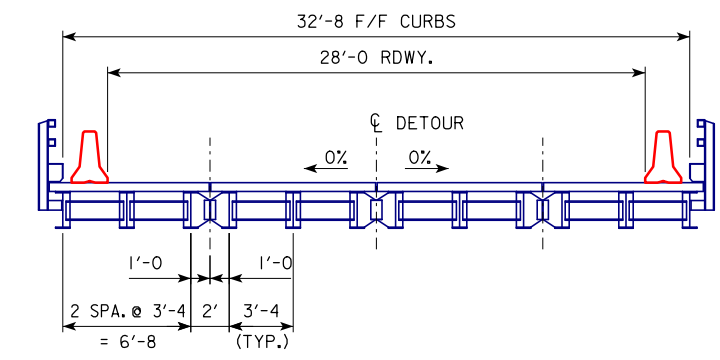
Q CHANNEL CAPACITY = 4,675 CFS
 STAGE = 1,082.33
 REGULATORY LOW BEAM = 1,084.46
 OPERATIONAL LOW BEAM = 1,084.46
 AVERAGE BRIDGE VELOCITY = 6.05 FPS.
 CALCULATED DESIGN & CHECK SCOUR = 1,057.86
 ROAD OVERTOP = 1,076.58
 STA. = 1361+40.10

Q₂ = 1,680 CFS
 Q₁₀ = 5,080 CFS
 Q₅₀ = 9,020 CFS
 Q CHANNEL CAPACITY = 4,675 CFS

FLOWRATE AT BRIDGE IS LIMITED TO CHANNEL CAPACITY UPSTREAM OF THE BRIDGE. DISCHARGES IN EXCESS OF CHANNEL CAPACITY WILL FLOW SOUTH ACROSS THE BOYER RIVER FLOOD PLAIN TO THE BOYER RIVER LEVEE, WHERE IT WILL OVERTOP AT APPROXIMATE EL. 1,079.

| LOCATION | | TRAFFIC ESTIMATE | |
|--------------------------------|--|------------------|--------------|
| U.S. 30 DETOUR OVER MILL CREEK | | 2020 AADT | 3,400 V.P.D. |
| T-8IN R-41W | | 2040 AADT | 4,000 V.P.D. |
| SECTION 21 | | 2040 DHV | - V.P.H. |
| HARRISON TOWNSHIP | | TRUCKS | 23 % |
| HARRISON COUNTY | | TOTAL | |
| LATITUDE 41.8198522 | | DESIGN ESALS | |
| LONGITUDE -95.63191299 | | | |

TYPICAL APPROACH SECTION



TYPICAL BRIDGE SECTION

UTILITIES LEGEND:
 — FO — : FIBER OPTIC
 — T — : TELEPHONE

DESIGN FOR 0° SKEW

79'-2 X 28'-0 STEEL I-BEAM DETOUR BRIDGE

39'-7 END SPANS

SITUATION PLAN

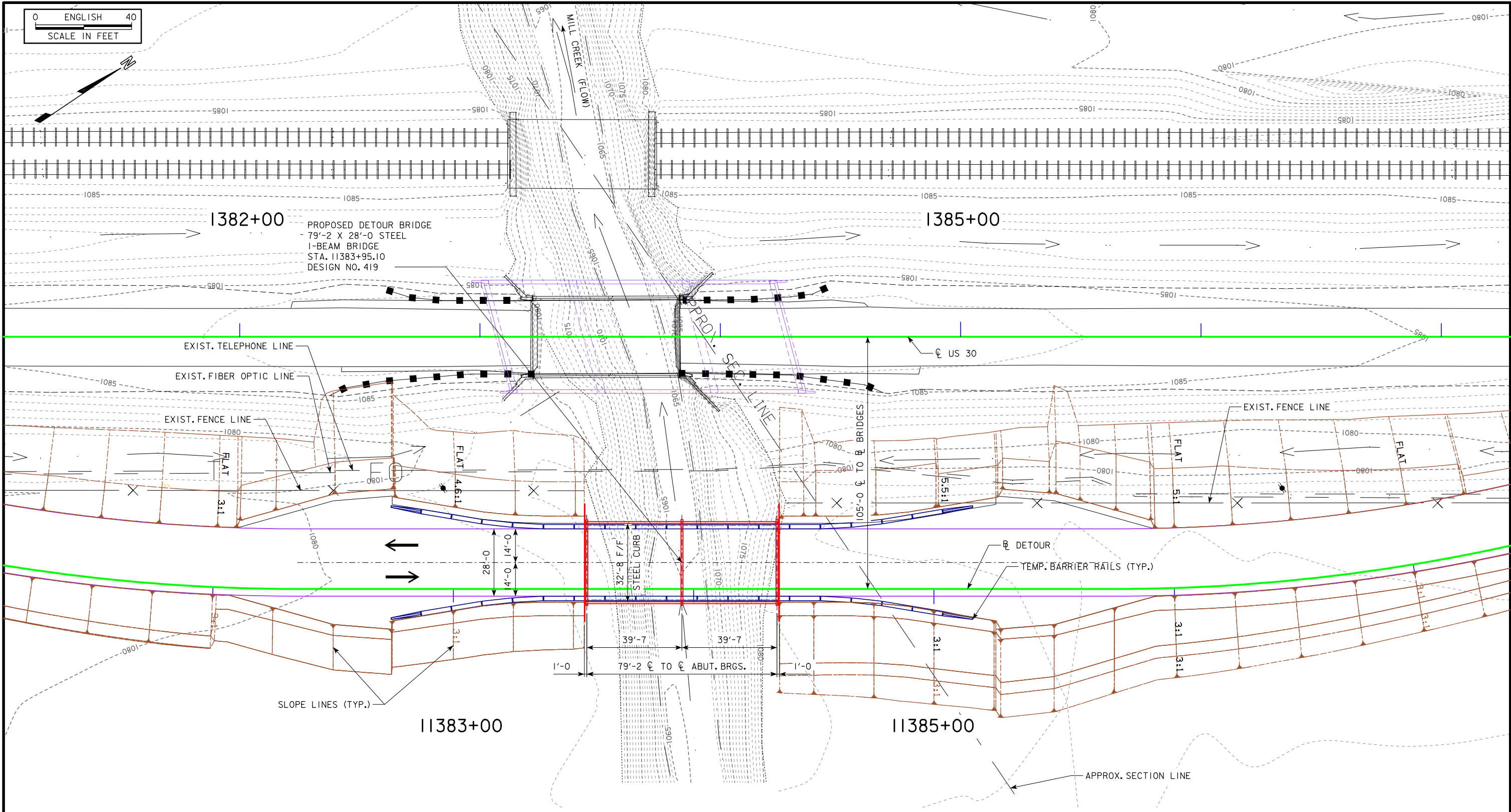
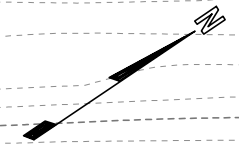
STATION 11383+95.10 (CL US 30 DETOUR) OCTOBER 2016

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 31404 DESIGN NO. 419

0 ENGLISH 40
SCALE IN FEET



PROPOSED DETOUR BRIDGE
- 79'-2 X 28'-0 STEEL
I-BEAM BRIDGE
STA. 11383+95.10
DESIGN NO. 419

SITE PLAN

DESIGN FOR 0° SKEW
79'-2 X 28'-0 STEEL I-BEAM
DETOUR BRIDGE
39'-7 END SPANS
SITUATION PLAN - SITE PLAN
STATION 11383+95.10 (CL US 30 DETOUR) OCTOBER 2016
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 2 FILE NO. 31404 DESIGN NO. 419

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

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

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

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

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

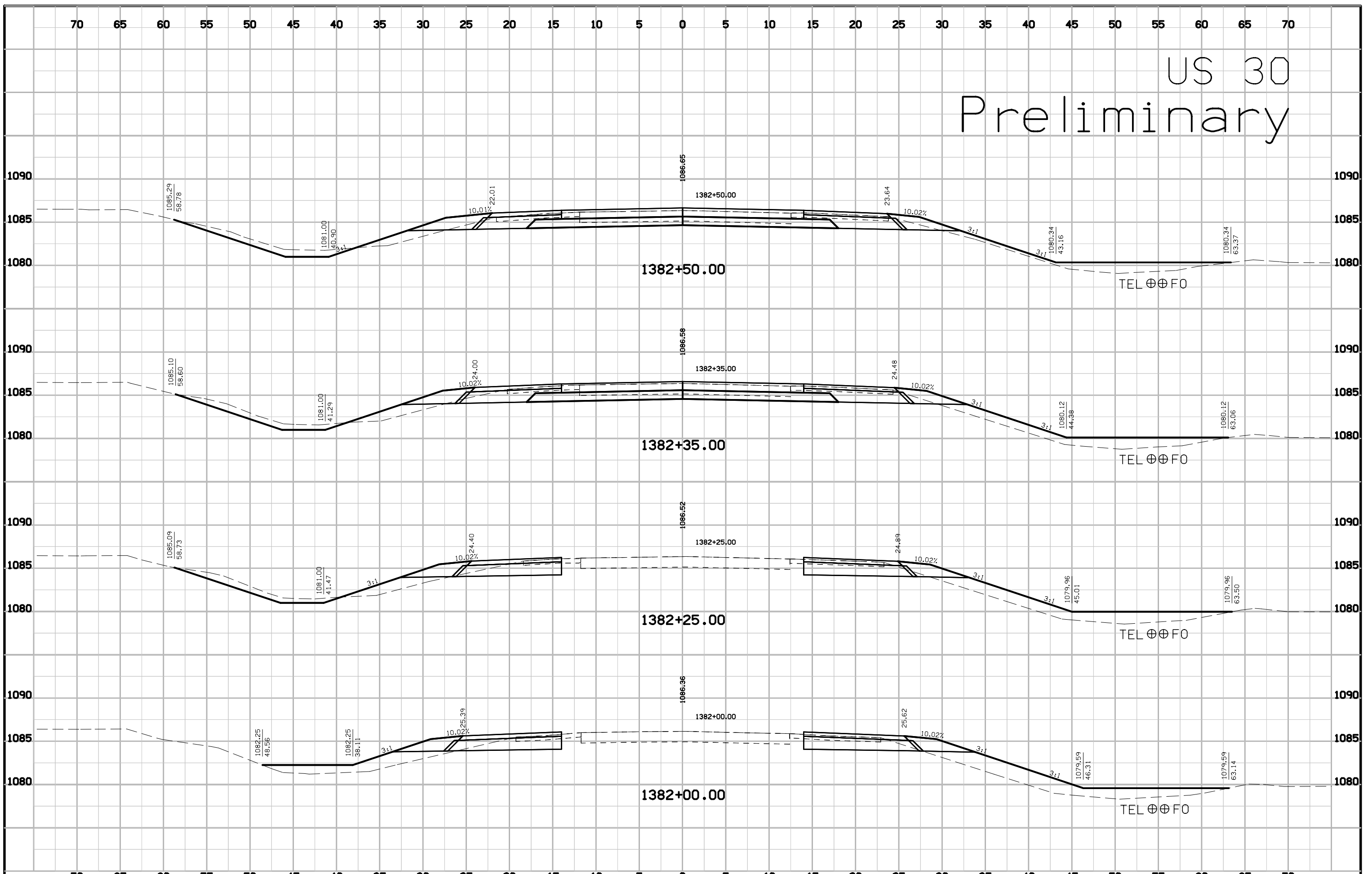
Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

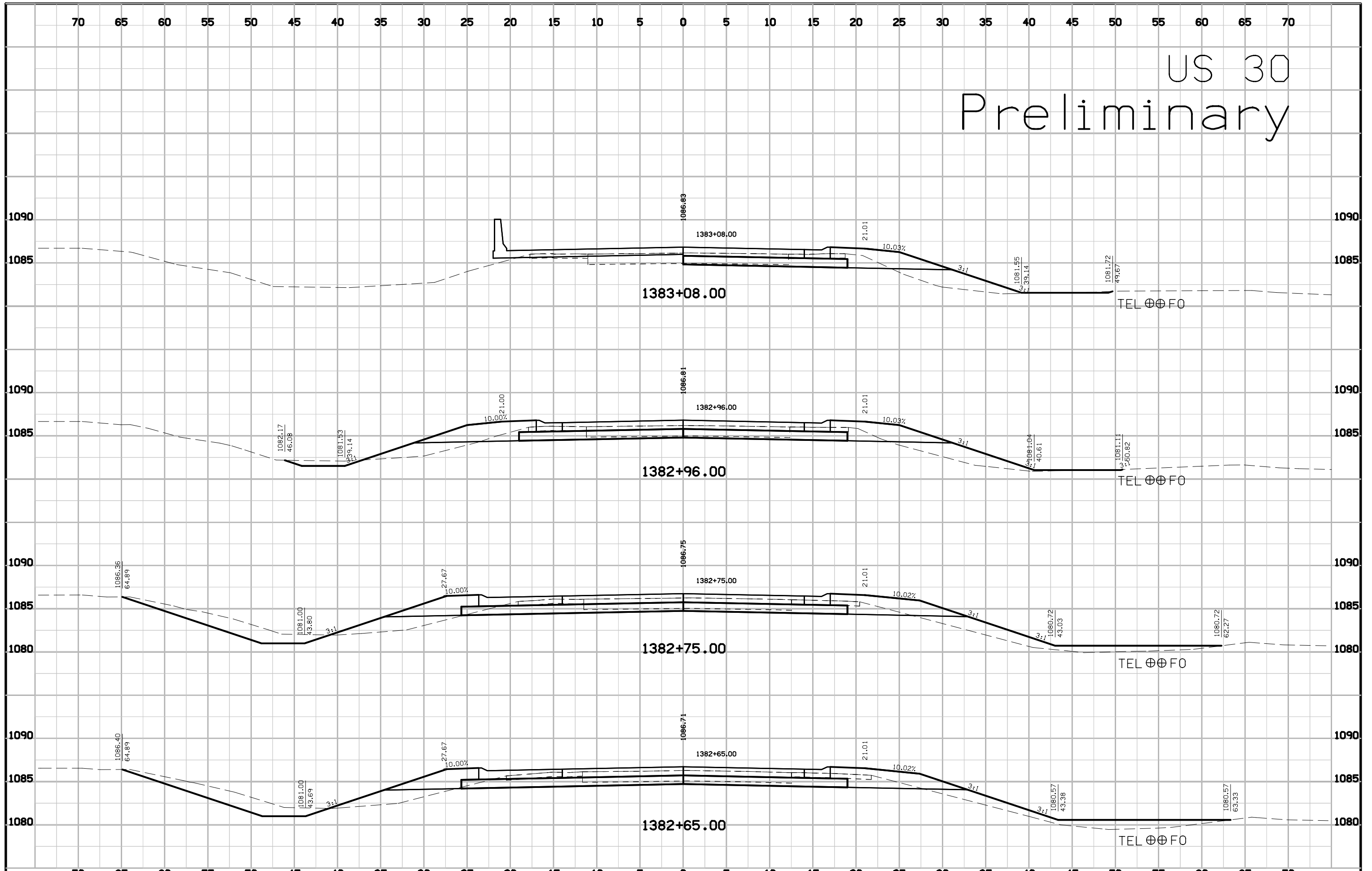
- Existing ROW
|
Existing Right-of-Way Limit
- Proposed ROW
|
Proposed Right-of-Way Limit
- Temporary ROW
|
Temporary Right-of-Way Limit

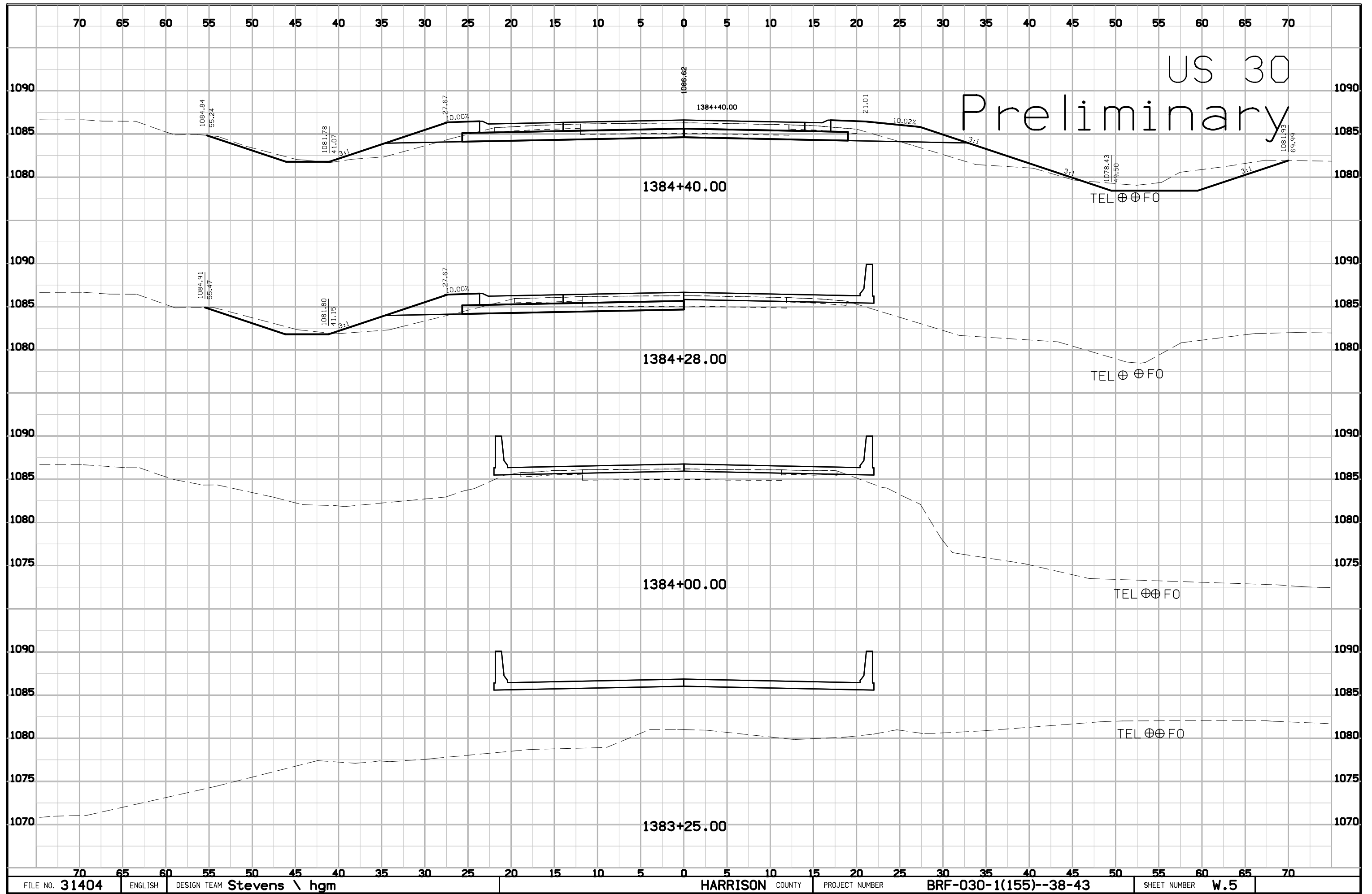
**CROSS SECTION
LEGEND AND SYMBOL
INFORMATION SHEET
(COVERS SHEET SERIES W, X, Y, & Z)**

US 30 Preliminary

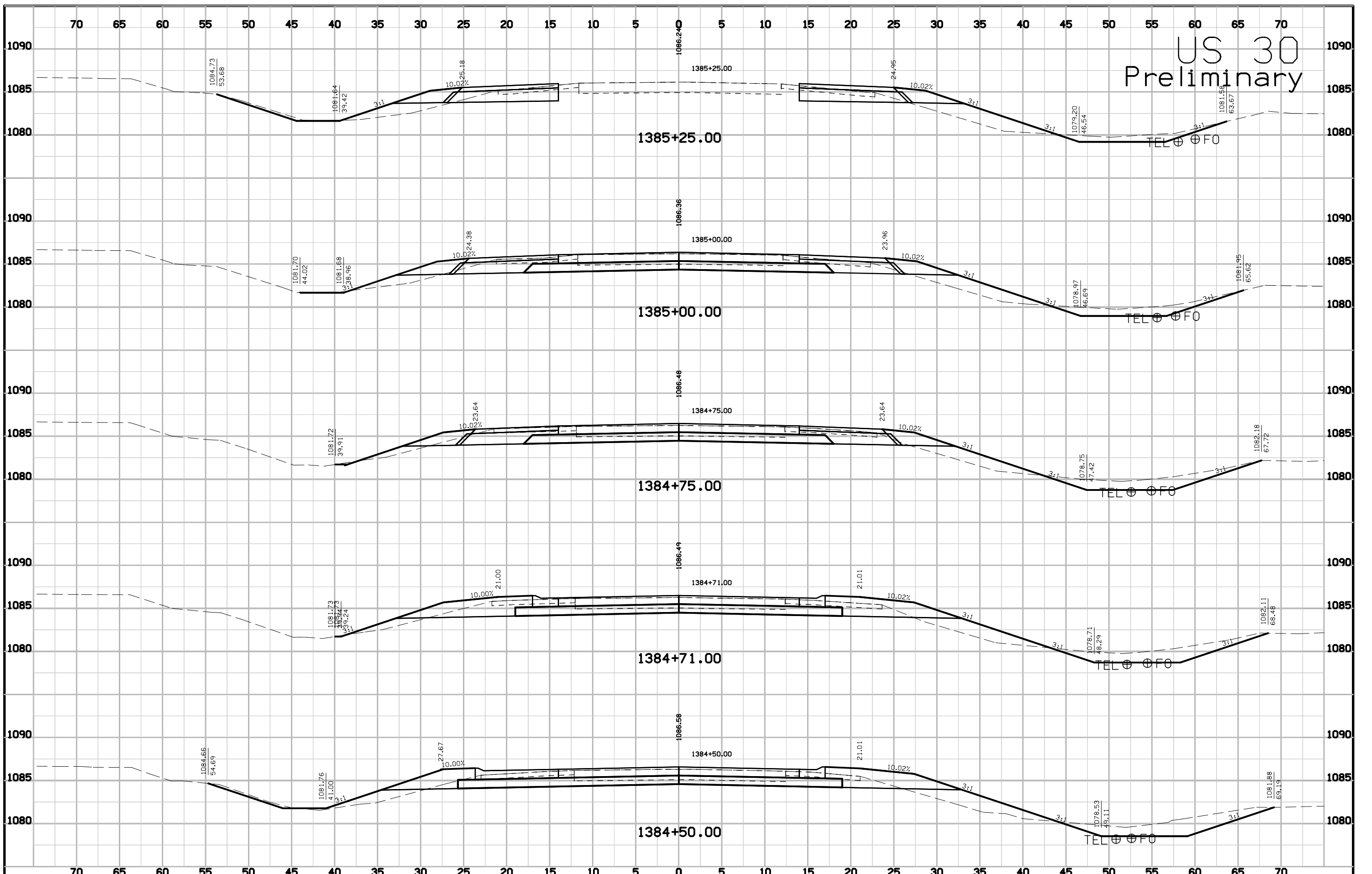


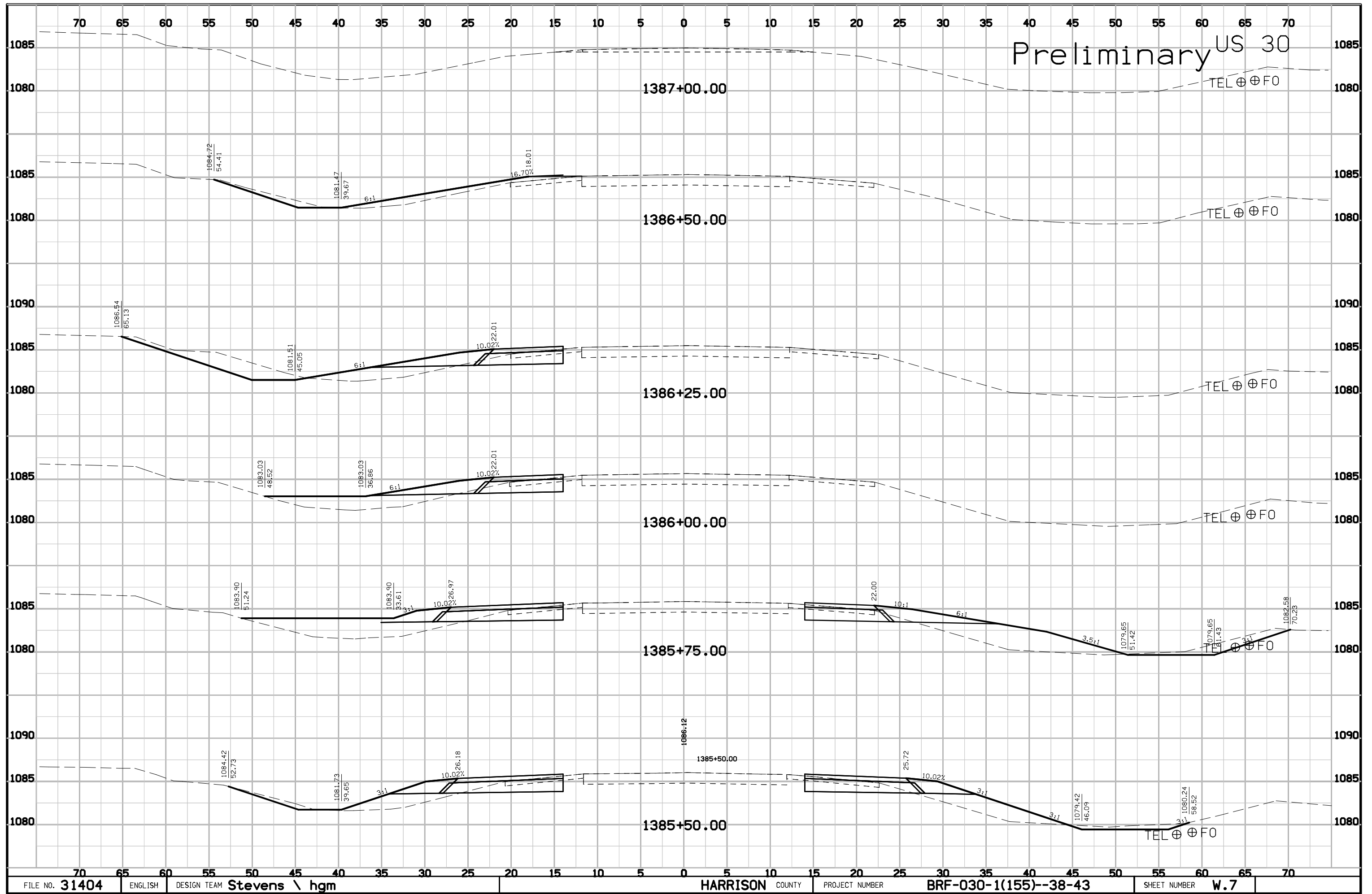
US 30 Preliminary





US 30 Preliminary





Preliminary US 30

TEL ⊕ ⊕ FO

1387+00.00

1386+50.00

1386+25.00

1386+00.00

1385+75.00

1385+50.00

TEL ⊕ ⊕ FO

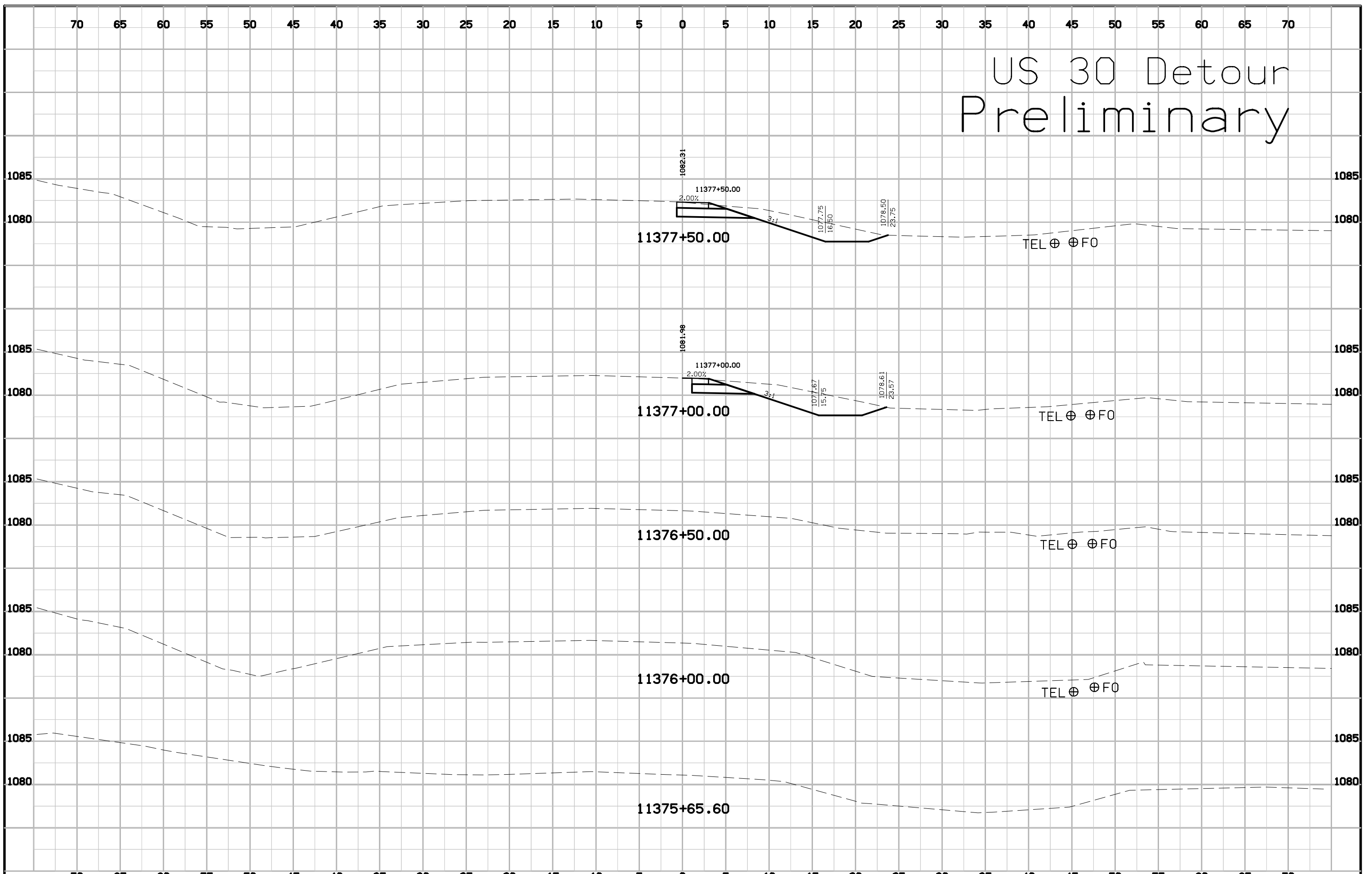
TEL ⊕ ⊕ FO

TEL ⊕ ⊕ FO

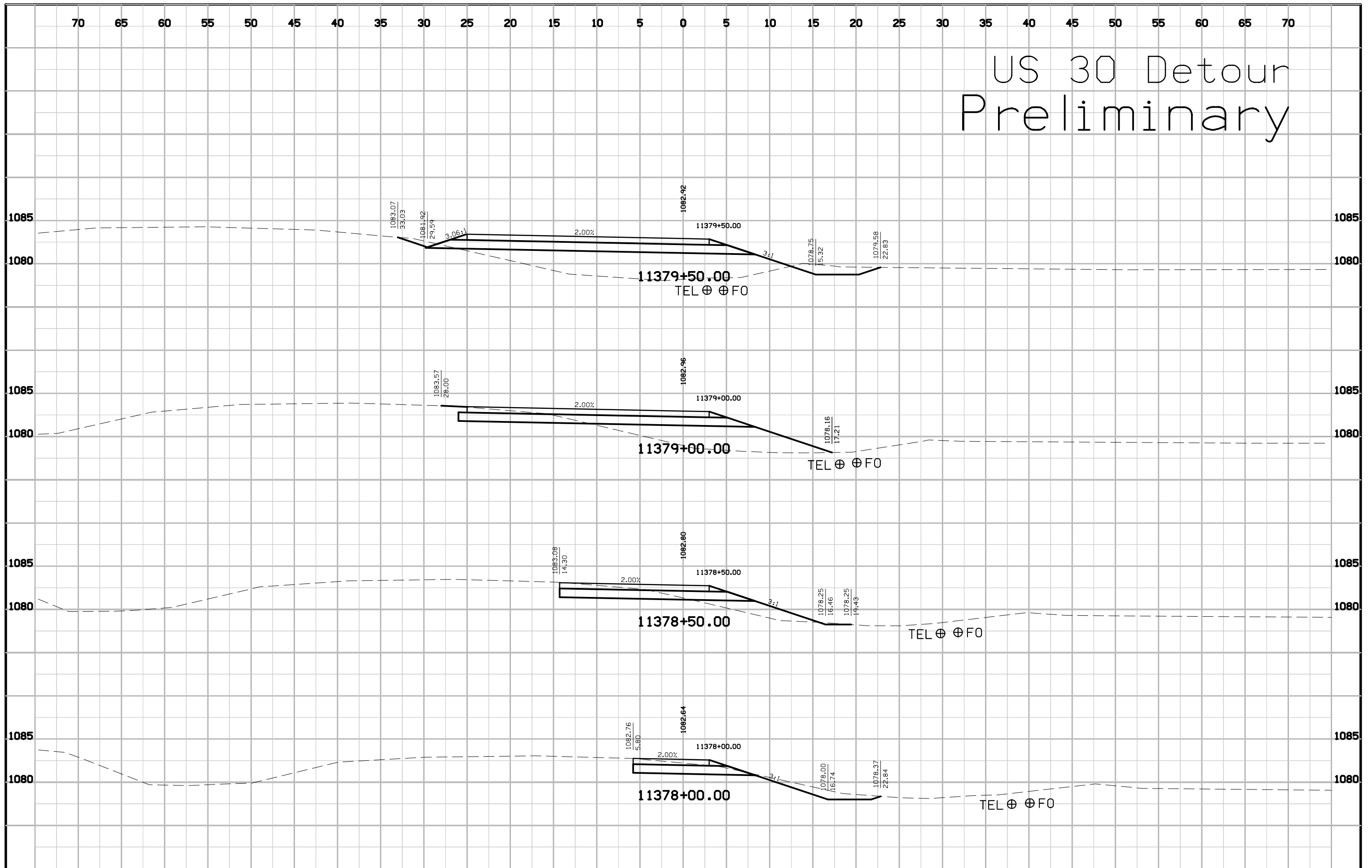
TEL ⊕ ⊕ FO

TEL ⊕ ⊕ FO

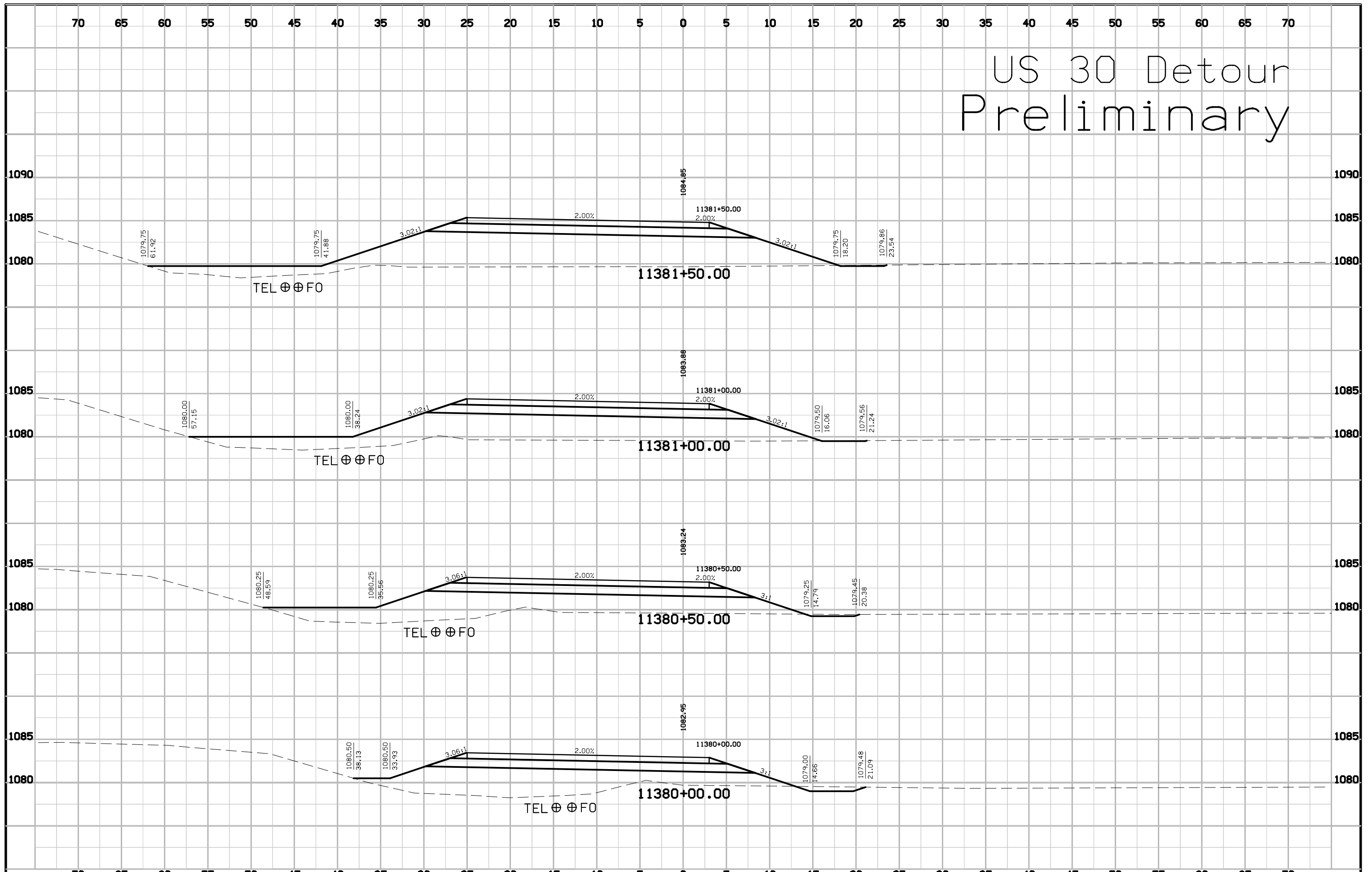
US 30 Detour Preliminary



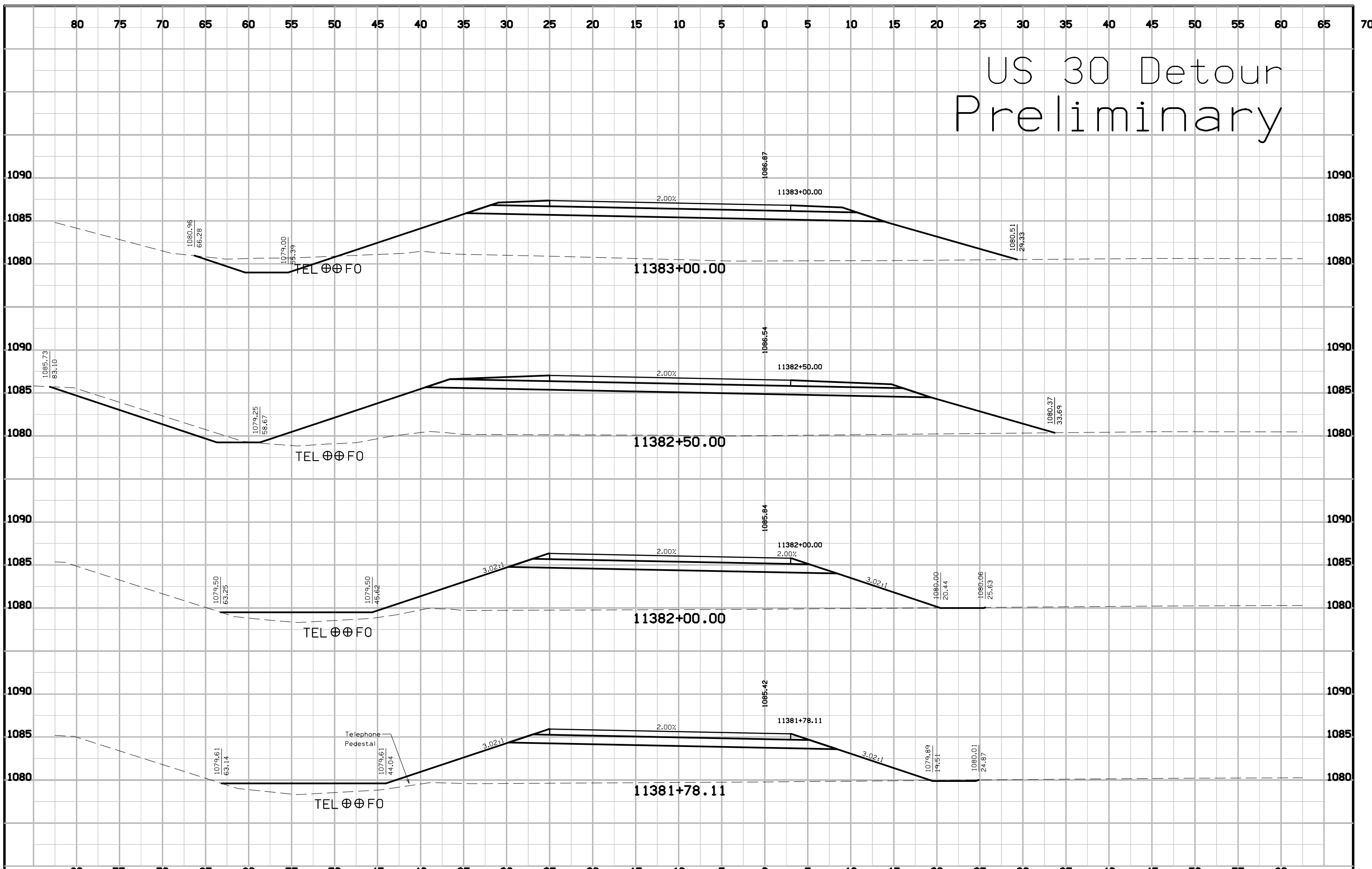
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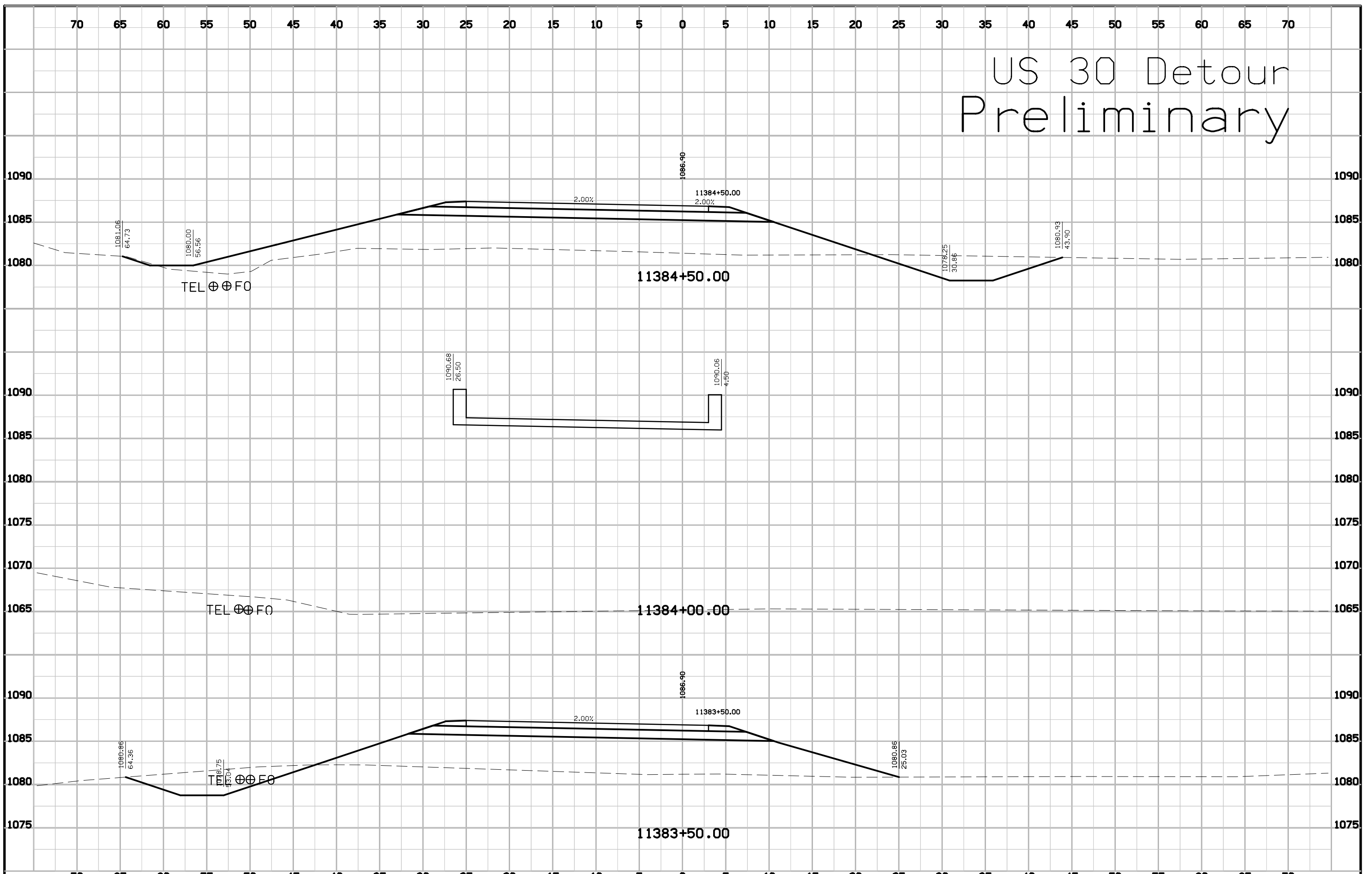
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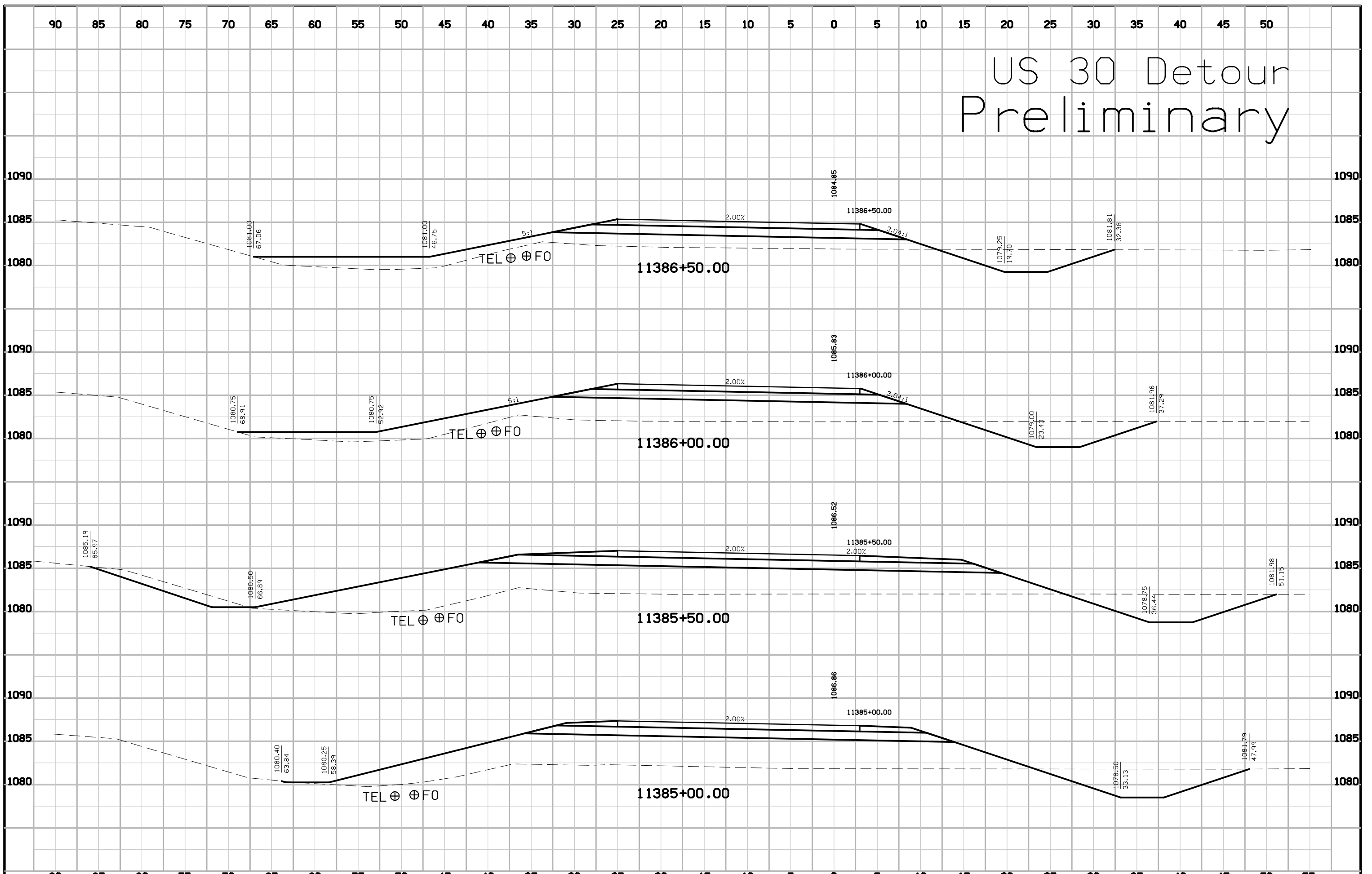
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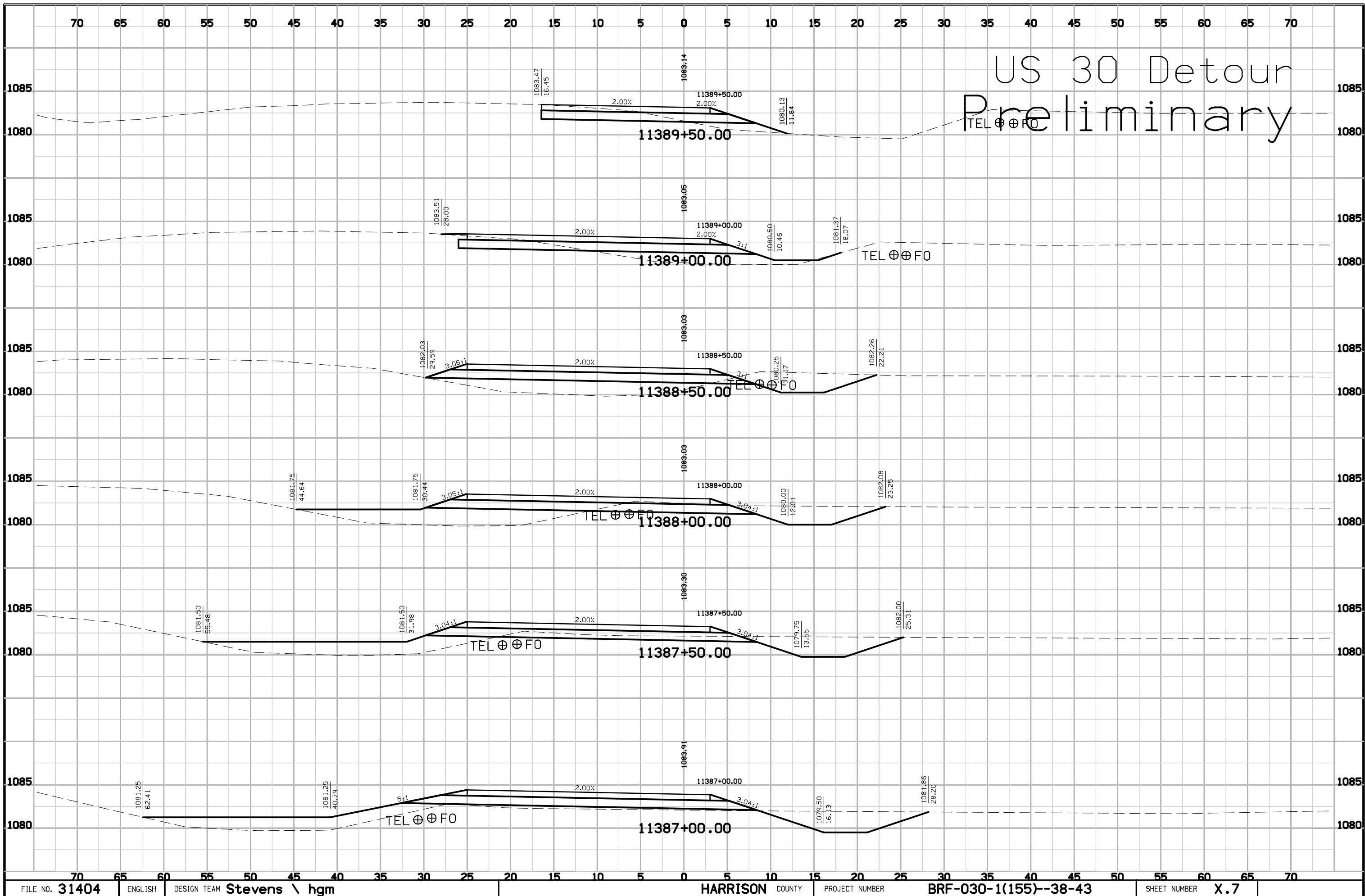


US 30 Detour Preliminary



US 30 Detour Preliminary





US 30 Detour Preliminary

