

MILLS CO.
RCB CULVERT REPLACEMENT - SINGLE BOX
BRF-034-1(96)--38-65
 LETTING DATE
12-19-2017

PRODUCTION SCHEDULE		
EVENT	Proposed Date	Completed Date
D-1 Survey	11-28-2014	02-11-2015
D-2 Field Exam	04-10-2015	
D-3 To Prelim. Culverts	04-17-2015	
B-1 Structures Layout	07-10-2015	
D-5 To Right of Way	07-30-2015	
D-4 Design Plans to Bridge	08-22-2017	



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

MILLS COUNTY

RCB CULVERT REPLACEMENT - SINGLE BOX

Wabash Trace Nature Trail 1.1 Mi W of Co Rd L63

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL

22

PROJECT IDENTIFICATION NUMBER

13-65-034-030

PROJECT NUMBER

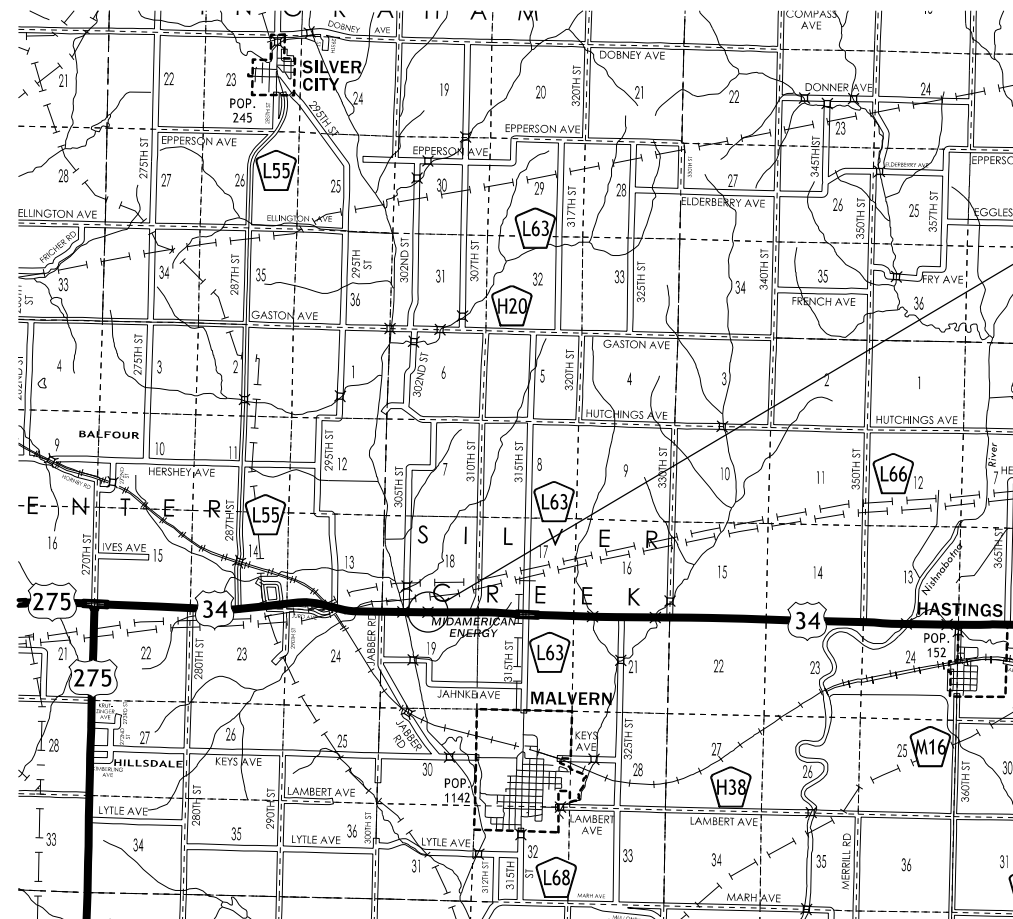
BRF-034-1(96)--38-65

R.O.W. PROJECT NUMBER

N/A

INDEX OF SHEETS

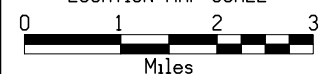
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.1	Location Map Sheet
A.3	Legend Sheet (B&W Plans Only)
A.4	Revision Sheets (if needed)
B Sheets	Typical Cross Sections and Details
B.1 - 2	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	US 34
E Sheets	Side Road Plan and Profile Sheets
* E.1	Wabash Trace Nature Trail
G Sheets	Survey Sheets
G.1	Survey Data and Bench Marks
G.2	Reference Ties
G.3	Horizontal Control Tab. For all alignments
G.4	Curve Data and Super for all Alignments
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 11	Mainline Cross Sections
	* Color Plan Sheets



PROJECT LOCATION
 Sta. 984+01
 M.P. 15.63
 Maint. No. 6516.9S034
 FHWA# 35890



LOCATION MAP SCALE



DESIGN DATA RURAL

2018 AADT	5,200	V.P.D.
2038 AADT	5,400	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	13-15	%
Total Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Paul W. Flattery	Primary Signature Block
X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 07-30-2015

FILE NO.

ENGLISH

DESIGN TEAM **Flattery \ Smejkal**

MILLS COUNTY

PROJECT NUMBER

BRF-034-1(96)--38-65

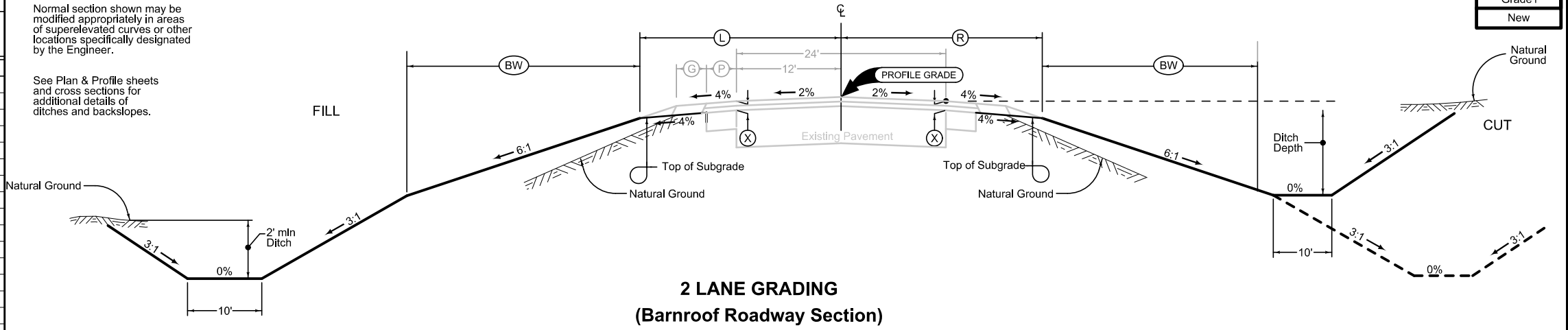
SHEET NUMBER

A.1

LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	X Inches	BW Feet
US 34	981+30.00 - 983+26.95	23.95	23.95	3	18.05
US 34	984+61.70 - 986+60.00	23.95	23.95	3	18.05

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

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

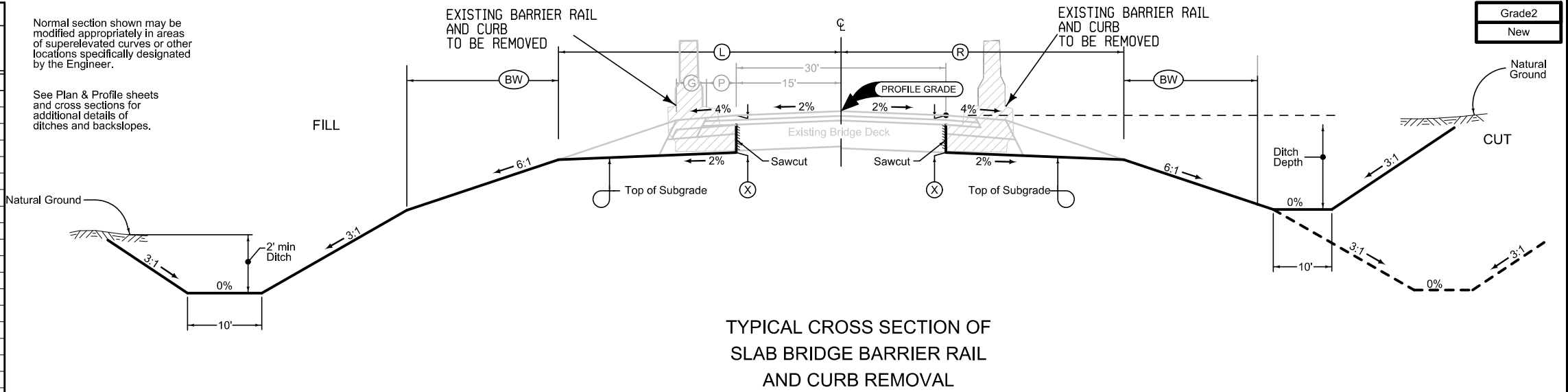


Grade1
New

LOCATION		DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION	L Feet	R Feet	X Inches	BW Feet
US 34	983+26.95 - 984+61.70	25.73	25.73	12	16.27

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

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



Grade2
New

Combination Shoulder

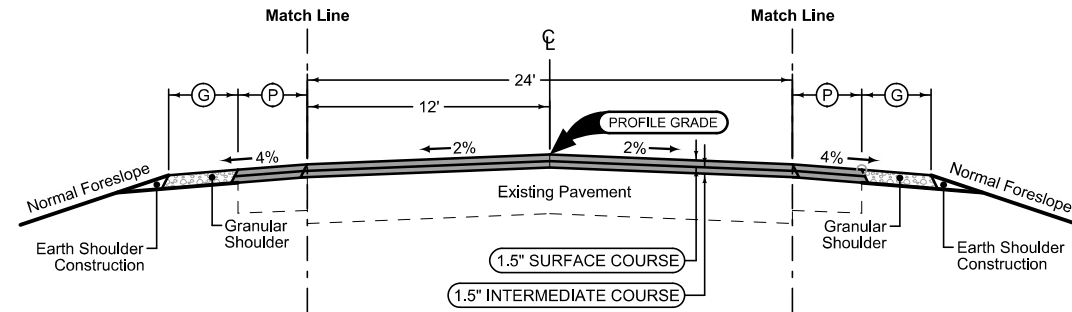
Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
981+30.00	983+26.95	4.0	6.0
984+61.70	986+60.00	4.0	6.0

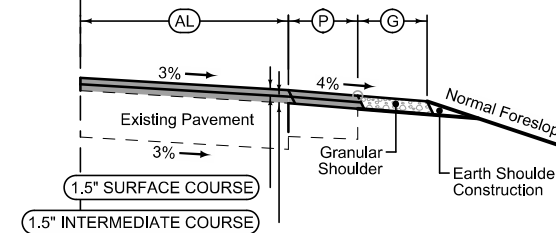
Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
981+30.00	983+26.95	4.0	6.0



STATION TO STATION	
981+30.00	983+26.95
984+61.70	986+60.00



Auxiliary Lane with Combination Shoulder

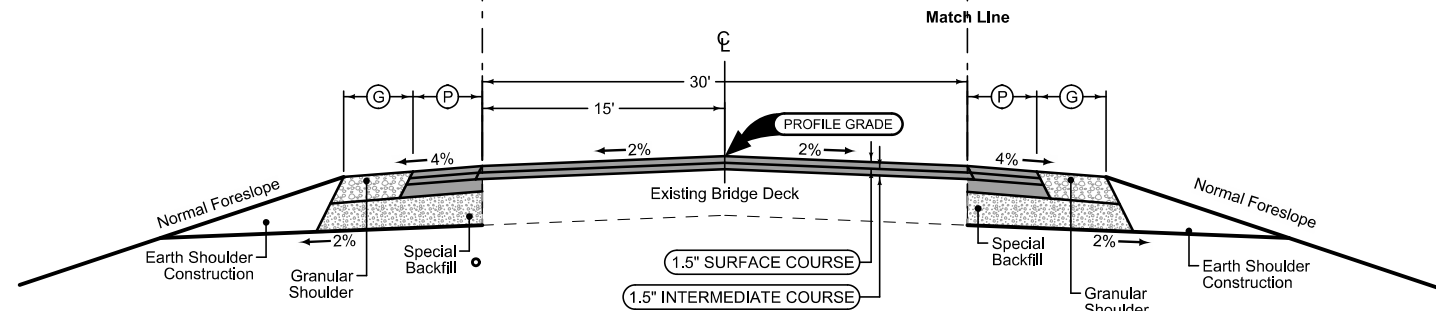
Longitudinal joint: L or KT
Transverse joint: Match Mainline

STATION TO STATION		(AL) Feet	(P) Feet	(G) Feet
984+61.70	985+00.00	0	3.0	7.0
985+00.00	985+85.00	0 - 4.0	0	6.0
985+85.00	986+60.00	4 - 7.61	0	6.0

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
983+26.95	984+61.70	1.0	6.0



STATION TO STATION	
983+26.95	984+61.70

Combination Shoulder

Shoulder Jointing:
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
983+26.95	984+61.70	1.0	6.0

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

US Highway 34

SURVEY SYMBOLS

- GDL Guard Rail Steel
- MM Mile Marker Post
- BRG Bridge
- PIP Pipe Culvert
- SI Sign
- RET Retaining Walls
- EP Edge of Paved Roads (ML or SR)
- SH Paved Shoulder
- SNP Unpaved Shoulder
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- DU Centerline Draw or Stream (Up)
- D Centerline Draw or Stream (Down)
- EG Edge of Gravel Road
- EP Edge of Paved Roads (ML or SR)
- SNP Unpaved Shoulder
- SH Paved Shoulder
- CUL Culvert
- ENU Edge Unpaved Entrance & Parking
- TER Terrace
- TDC Tree Deciduous
- PPA Power Pole Co. 1
- T1 TL1D Telephone Line Co. 1 - Quality D
- FO FO1D Fiber Optic Co. 1 - Quality D

UTILITY LEGEND

- T1 Century Link
- FO INS

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

- ### RIGHT-OF-WAY LEGEND
- Proposed Right-of-Way
 - Existing Right of Way
 - Existing and Proposed Right-of-Way
 - Easement and Existing Right-of-Way
 - Easement (Temporary)
 - Easement
 - Access Control
 - Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

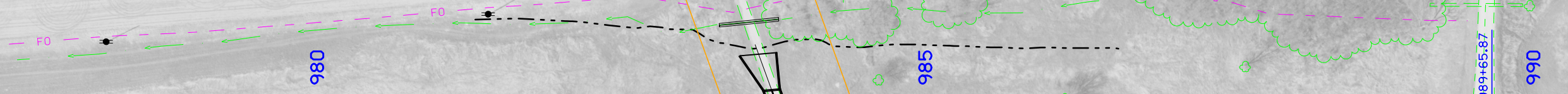


Silver Creek TWP.
T-72N R-41W
SEC. 18

U.A.C.
Sta. 983+79.43, 134.00 L_T
36 X 49 Conc Pipe
D.A. = 13.5 Ac - R

Remove Handrails
Sta. 983+94.13
132 X 30 I-Beam Bridge

Silver Creek TWP.
T-72N R-41W
SEC. 19

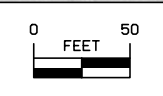


APPROX. SEC. LINE

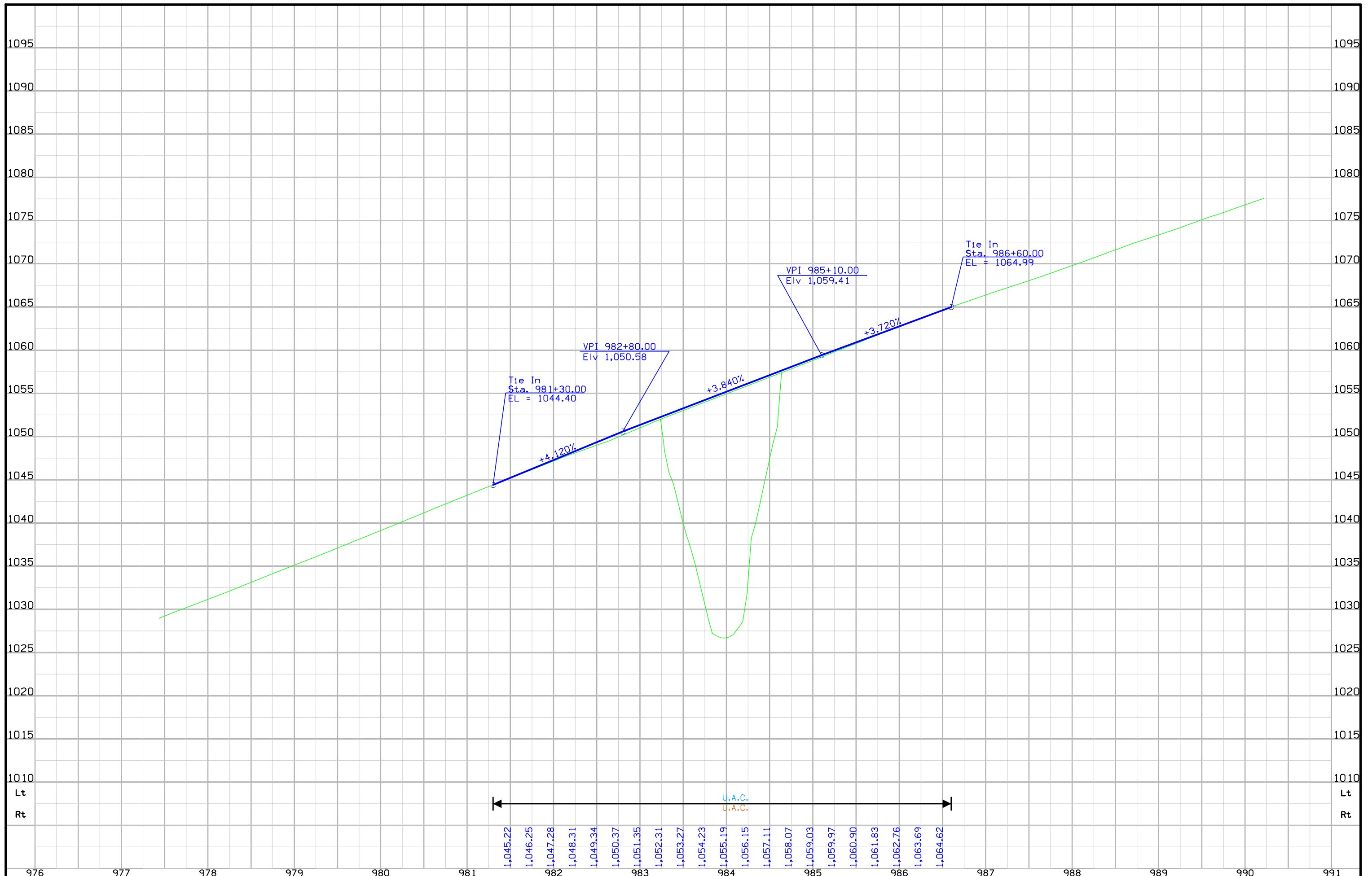
BEGIN RESURFACING
STA. 981+30.00

END RESURFACING
STA. 986+60.00

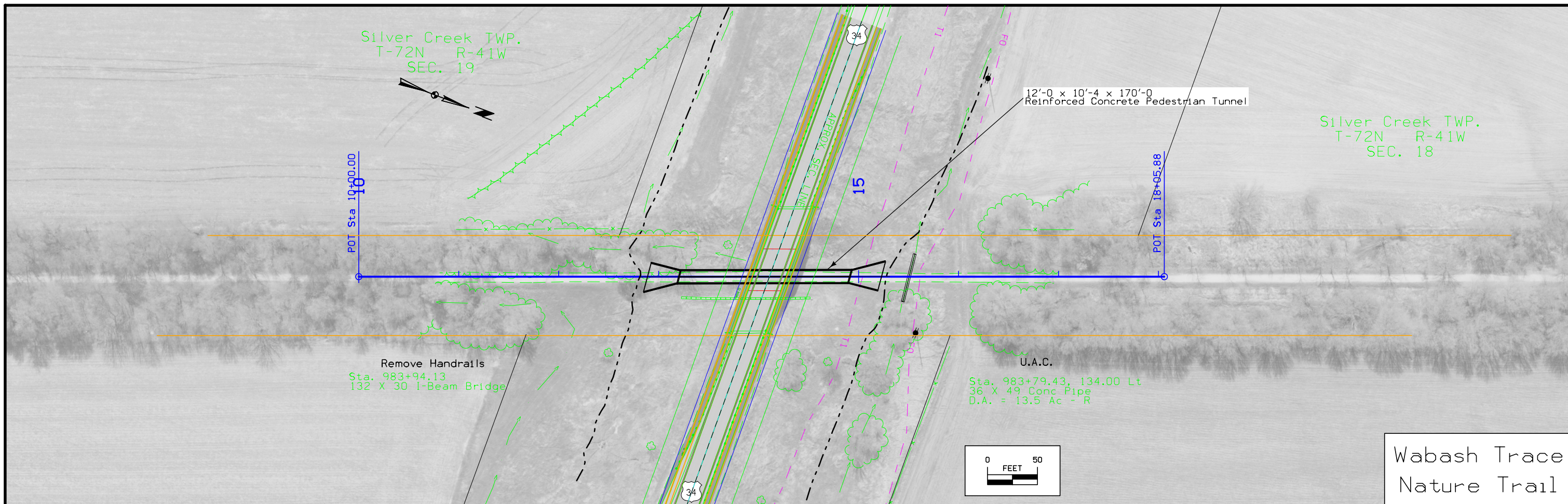
SIGN



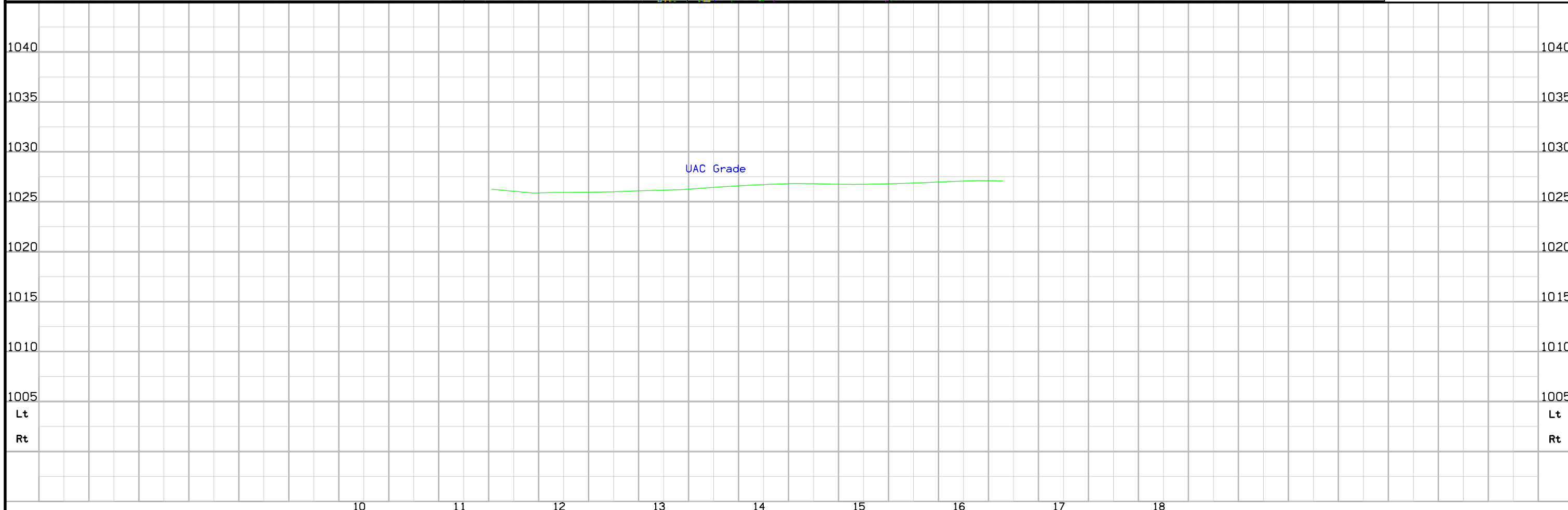
US 34



Station	Elevation (EL)
981.22	1,045.22
981.25	1,046.25
981.28	1,047.28
981.31	1,048.31
981.34	1,049.34
981.37	1,050.37
981.35	1,051.35
981.31	1,052.31
981.27	1,053.27
981.23	1,054.23
981.19	1,055.19
981.15	1,056.15
981.11	1,057.11
981.07	1,058.07
981.03	1,059.03
980.97	1,059.97
980.90	1,060.90
980.83	1,061.83
980.76	1,062.76
980.69	1,063.69
980.62	1,064.62



Wabash Trace
Nature Trail



Survey Information

Mills County
 BRF-034-1(96)--38-65
 Abandon RR 1.1 mi W of Co Rd L63
 PIN 13-65-034-030
 Sap-0844

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction and reconstruction of US 34 over the Wabash Trace Trail. Project datum and control information is provided by Design Survey Office. This project is a Partial DTM with Photo control.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12A). GRS80 Ellipsoidal Height was computed at project Pt. 65010, by conducting a six hour static observation. Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup relative to Pt. 65010.

This survey observed 1 NGS Control Monuments with published NAVD88 heights to compare to local ground control:

NGS 2nd. order mark designated P 97 has a published Elev. Of 1031.19
 Survey Elev. = 1031.108

This survey observed 1 local area Mills County Control Monuments with published NAVD88 heights to compare to local ground control:

Mills County Control mark GPS 28 has a published Elev. of 1005.78
 Survey Elev. = 1005.64

This survey observed 2 As-Built plan bench marks to compare to local ground control:

BM 31 Project FN-FGN-15(5) Elev. 1008.15
 BM 500 Survey Elev. = 1011.127

BM 32 Project FN-FGN-15(5) Elev. 1049.60
 BM 501 Survey Elev. = 1052.46

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 6 (U.S. Survey Alignment Information

The horizontal alignment for this survey is a retrace of As-built Plans No. FN-FGN-15(5) Survey stationing was equated to the plan POT at Sta. 958+96.52 and run ahead with one equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

POT Sta. 958+96.52 As-built Plans Project No. FN-FGN-15(5)
 Survey POT Sta. 958+96.52

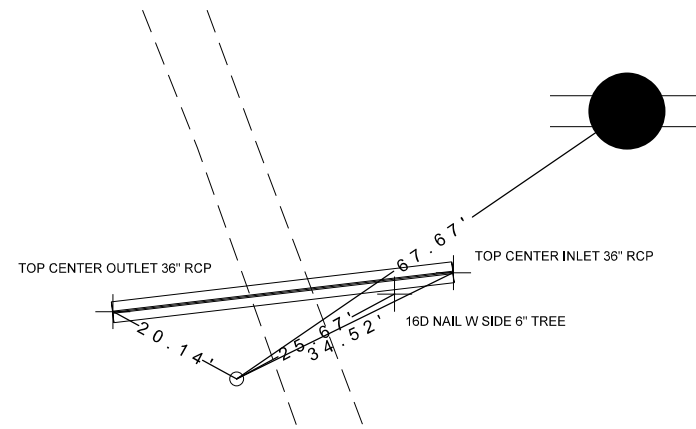
Station Equation 962+58.30 Back
 = 961+93.79 Ahead

PI Sta. 992+94.07 As-built Plans Project No. FN-FGN-15(5)
 Survey PI Sta. 992+87.21

VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
500	6884401.2670	16534026.8200	1011.1270	968+82.61	18.2957	BM	500 IHC BUTTON ON SW WING
501	6884423.7680	16535477.4160	1052.4610	983+33.38	18.5787	BM	501 IHC BUTTON ON SW WING
65010	6884561.8040	16535490.1200	1026.1080	983+48.25	-119.2407	CP	SET FENO MONUMENT STAMPED 65010

CP STA. 983+48.25, 119.24 LT.
GPS 65010, Set FENO Monument Stamped 65010
N=6884561.804, E=16535490.120, Z=1026.108



Mills	ROW: NHSN-034-1(97)--2R-65			PIN	13-65-034-030												
	Wabash Trace Nature Trail 1.1 mi W of Co Rd L63																
		STATE		COUNTY		CITY		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	Mills County, Iowa - Fee		0.84 AC														
1 Parcel	"TOTALS	0 AC	0.84 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC	0 AC					
		0 SF		0 SF	0 SF	0 SF	0 SF		0 SF	0 SF							



Silver Creek TWP.
T-72N R-41W
SEC. 18



MILLS COUNTY, IOWA

U.A.C.
Sta. 983+79.43, 134.00 L
36 X 49 Conc Pipe
D.A. = 13.5 Ac - R

983+95±R
190'(EX. R/W)

FO
FO
980

982+89±R
190'

985

990

APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

BEGIN RESURFACING
STA. 981+30.00

984+13±R
155'(EX. R/W)

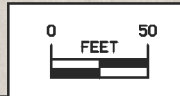
985+20±R
155'

END RESURFACING
STA. 986+60.00

Remove Handrails
Sta. 983+94.13
132 X 30 I-Beam Bridge

Silver Creek TWP.
T-72N R-41W
SEC. 19

10



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON / CUVA	
ROW #: NHSN-034-1(97)--2R-65	
Plan Date: 11/12/2015	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

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 L0————— 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.

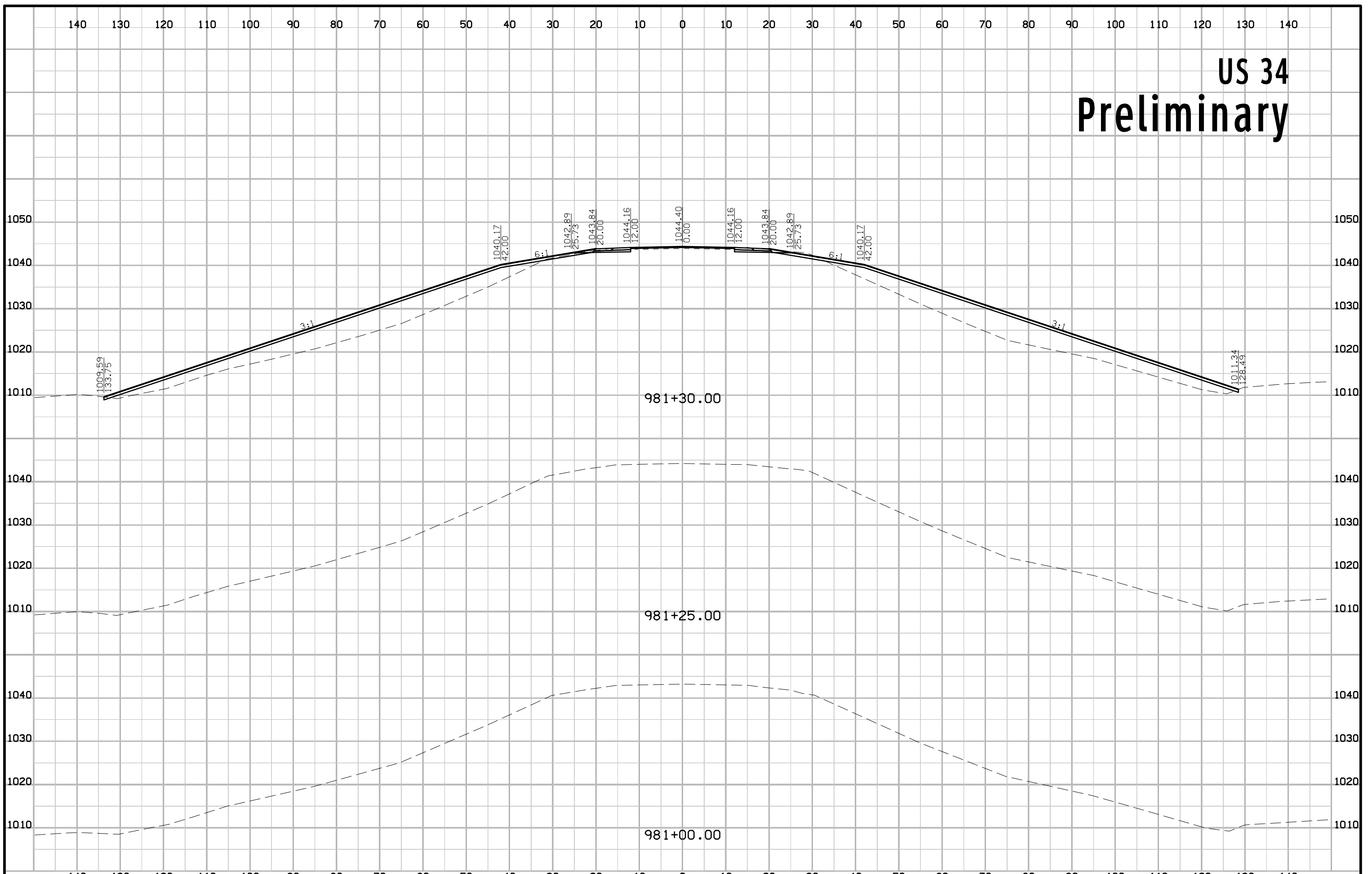
Note: Vertical or near vertical lines connecting soil layers at edges of cross sections are only for the purpose of calculating template quantities and do not depict soil stratification.

SYMBOL LEGEND OF CROSS SECTION SHEETS

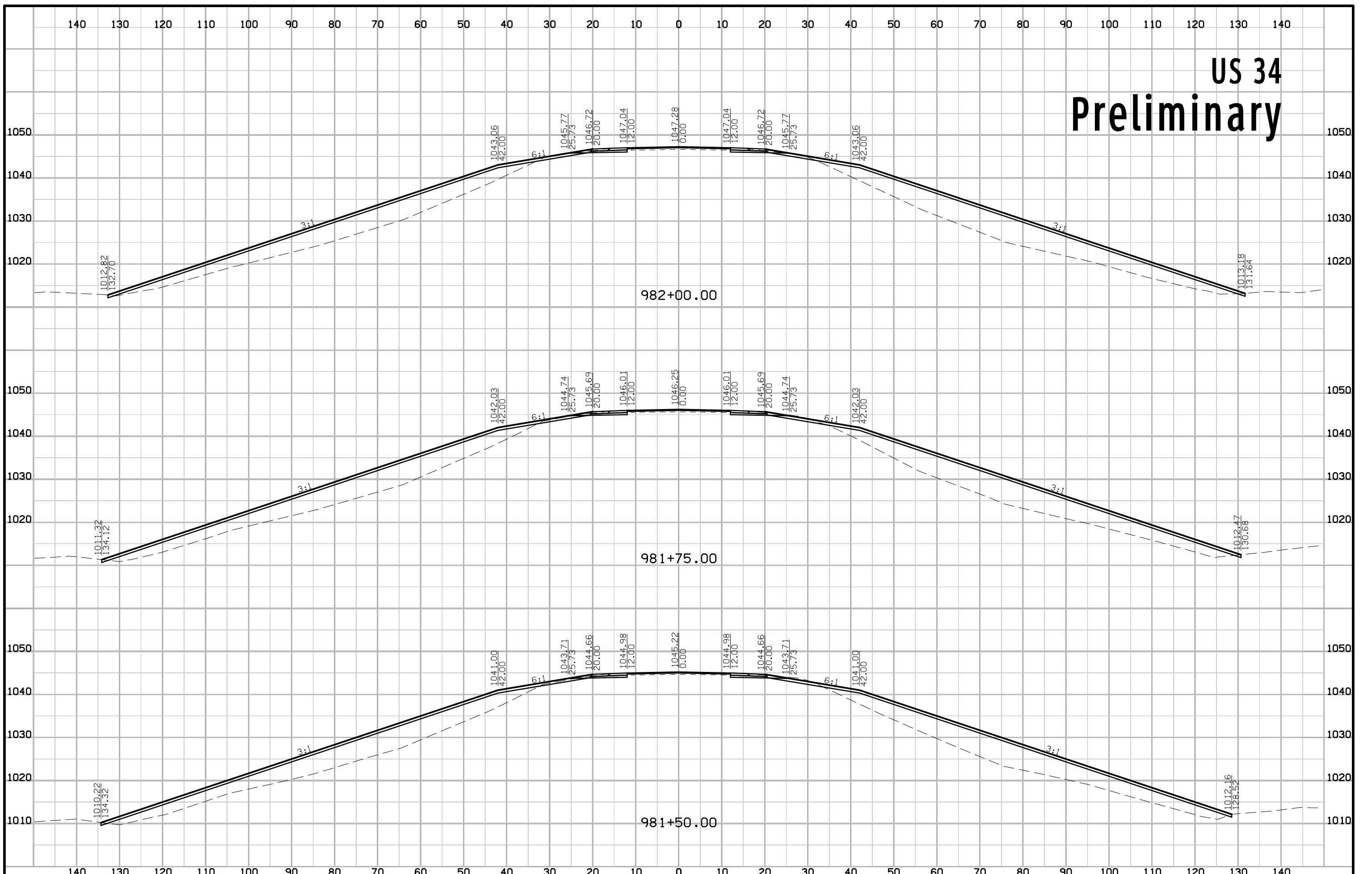
- Existing ROW
|
Existing Right-of-Way Limit
- Proposed ROW
|
Proposed Right-of-Way Limit
- Temporary ROW
|
Temporary Right-of-Way Limit

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

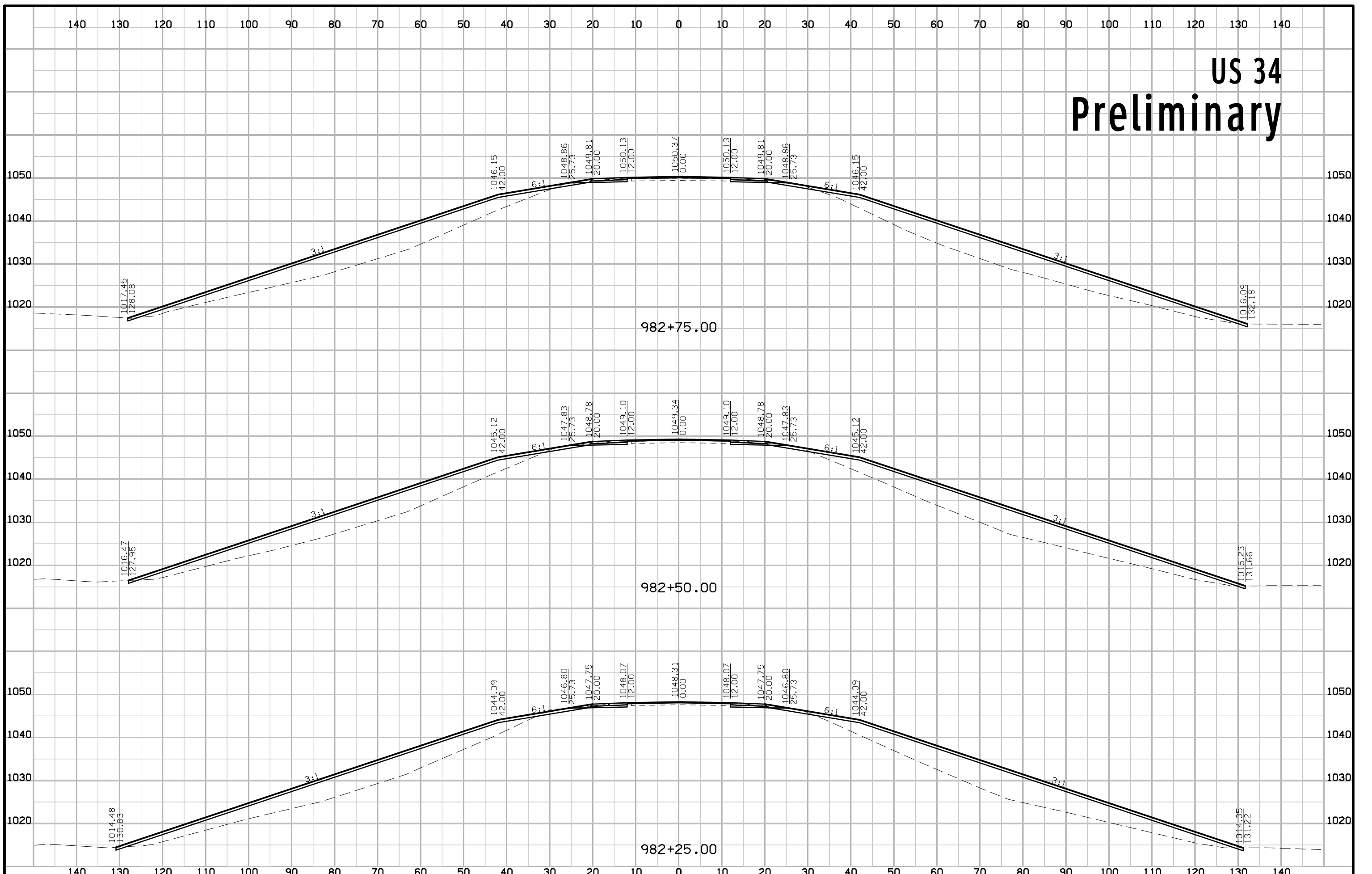
US 34 Preliminary



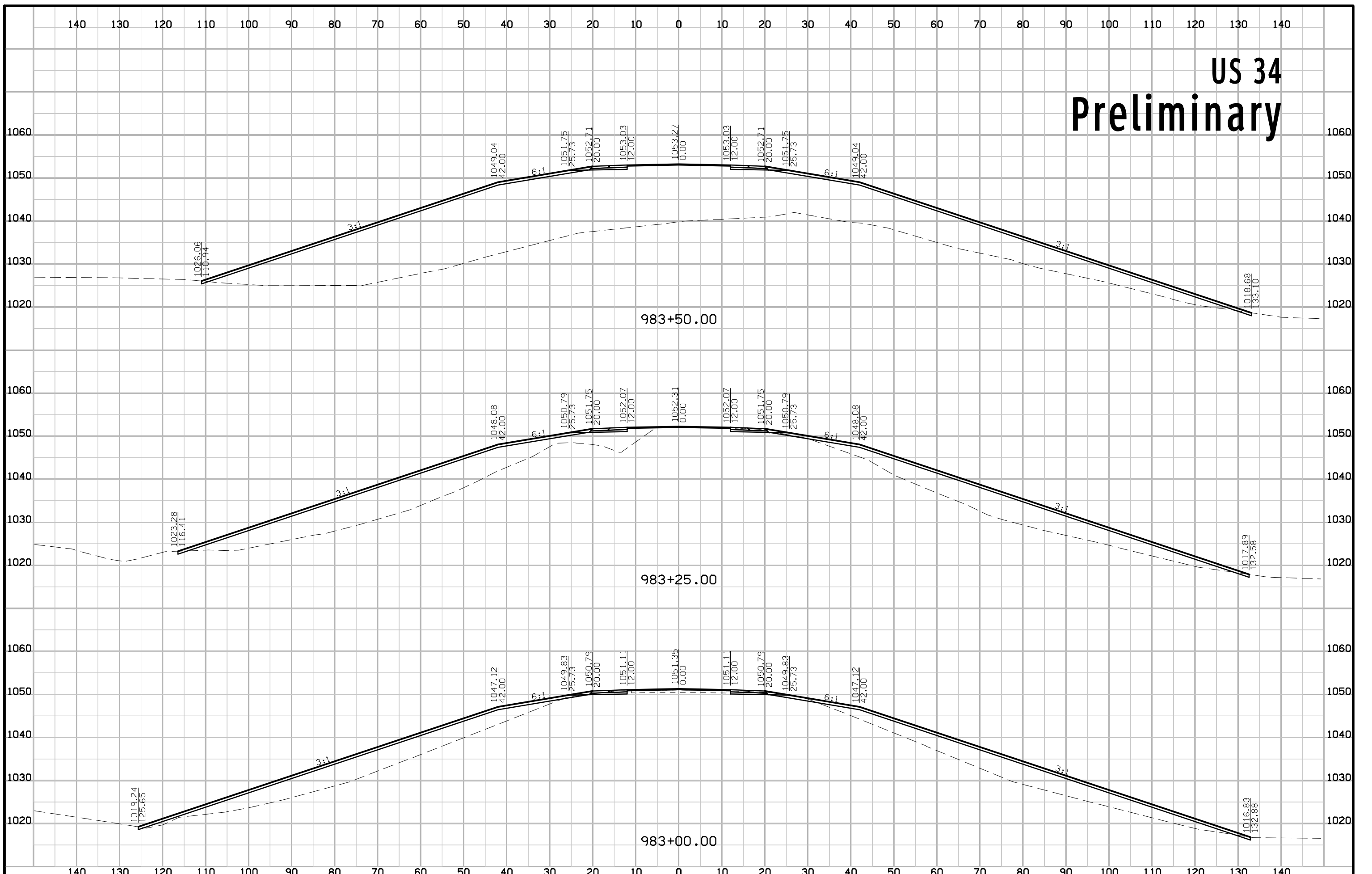
US 34 Preliminary



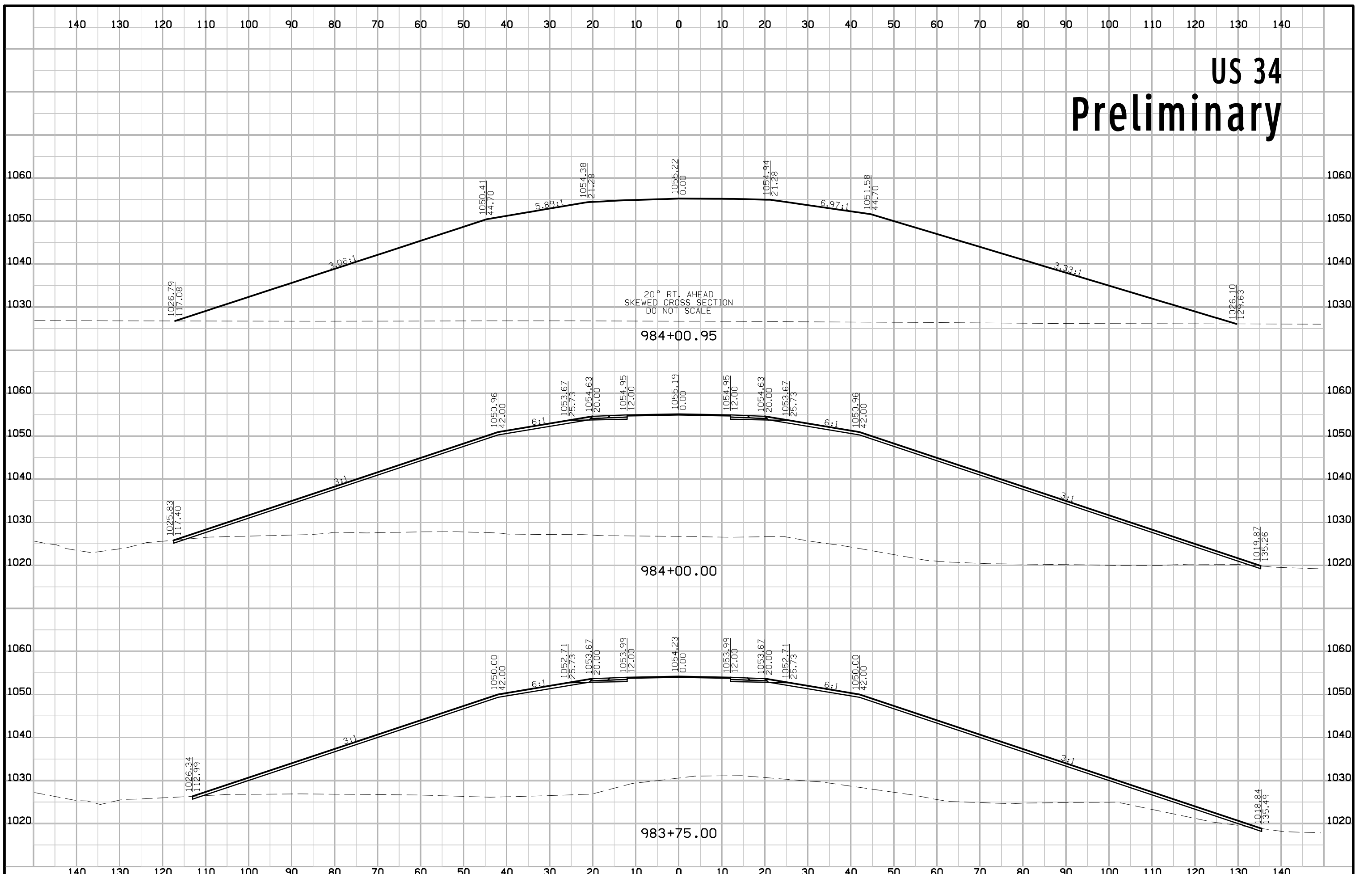
US 34 Preliminary



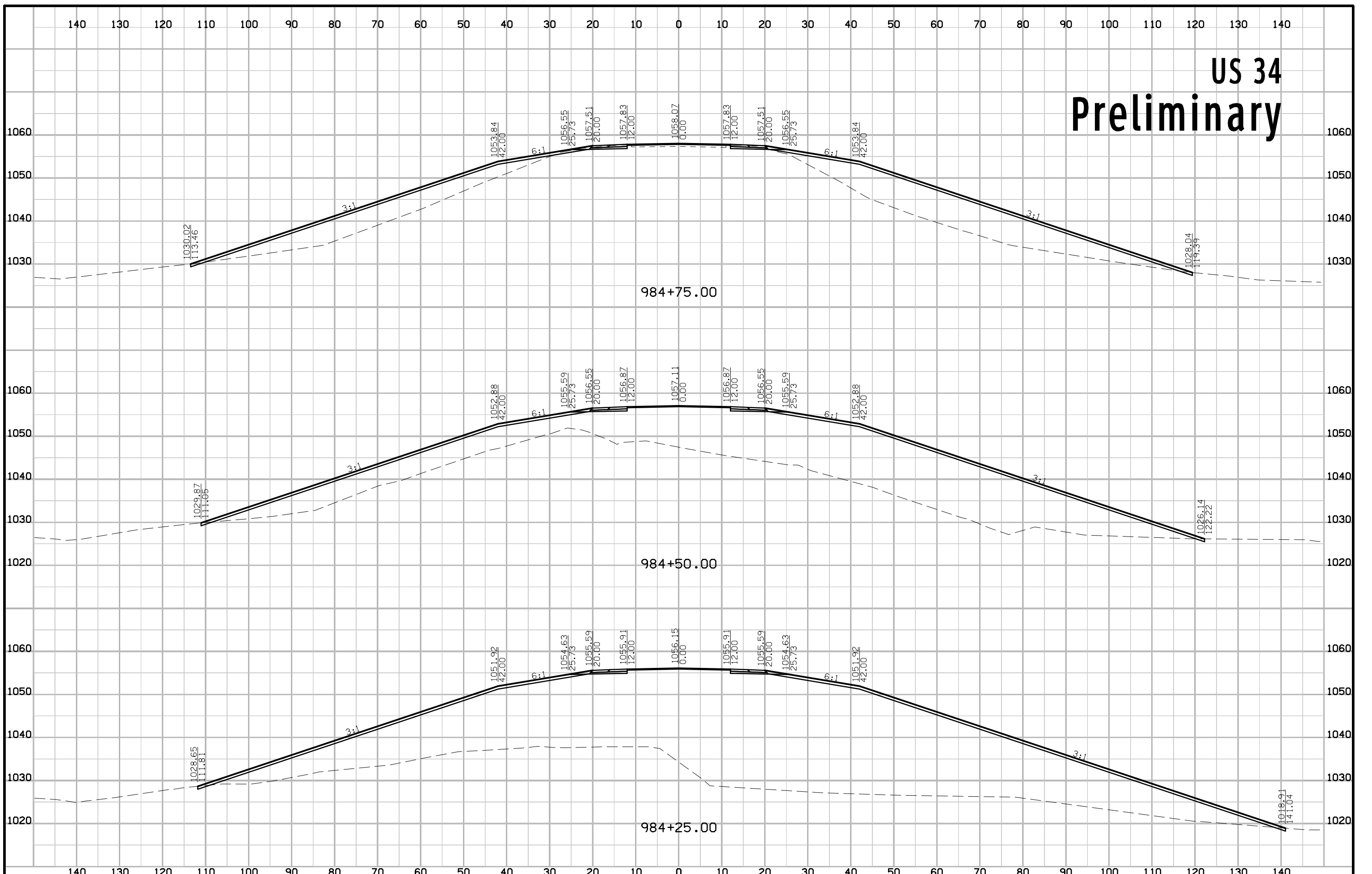
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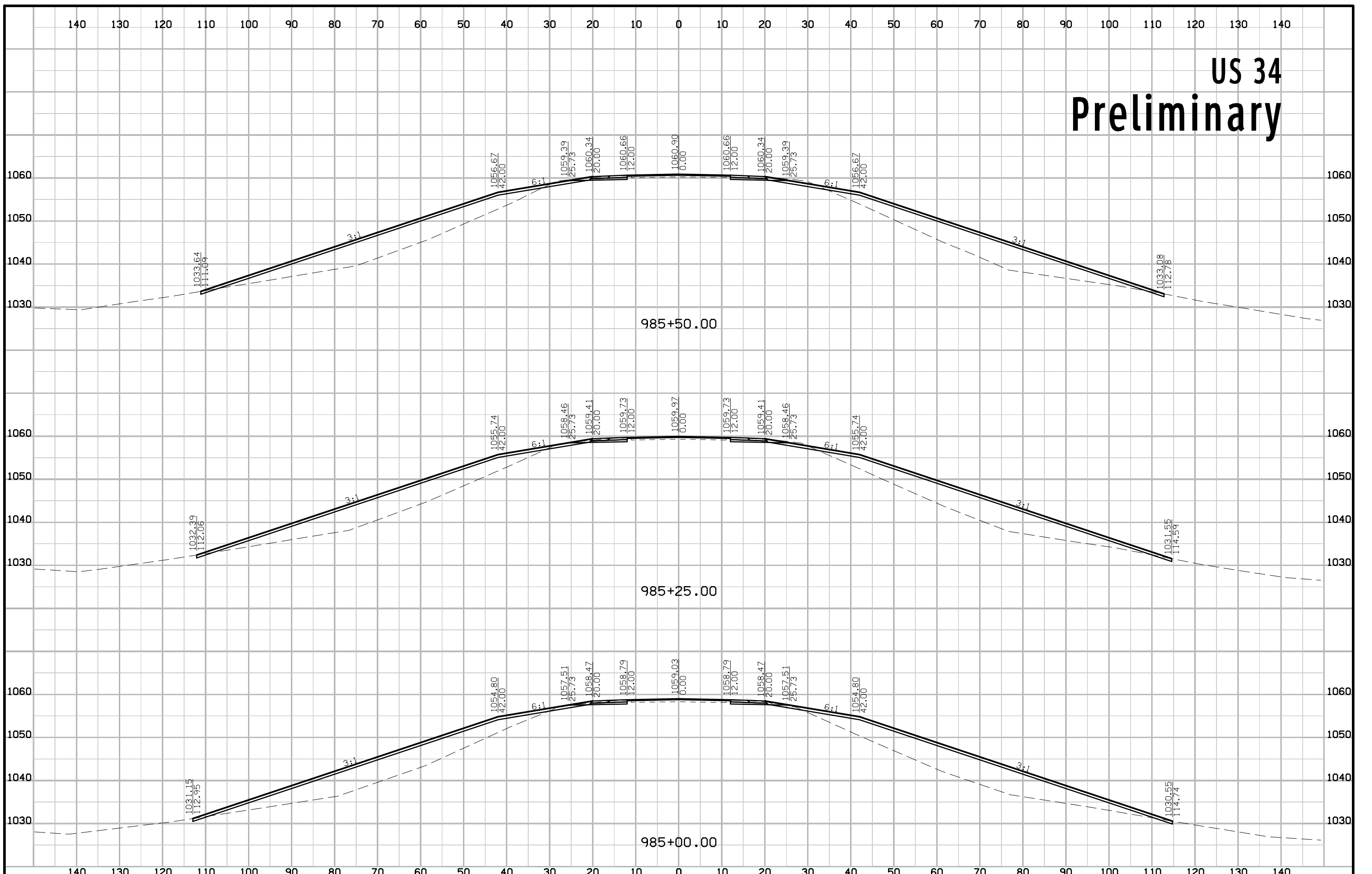
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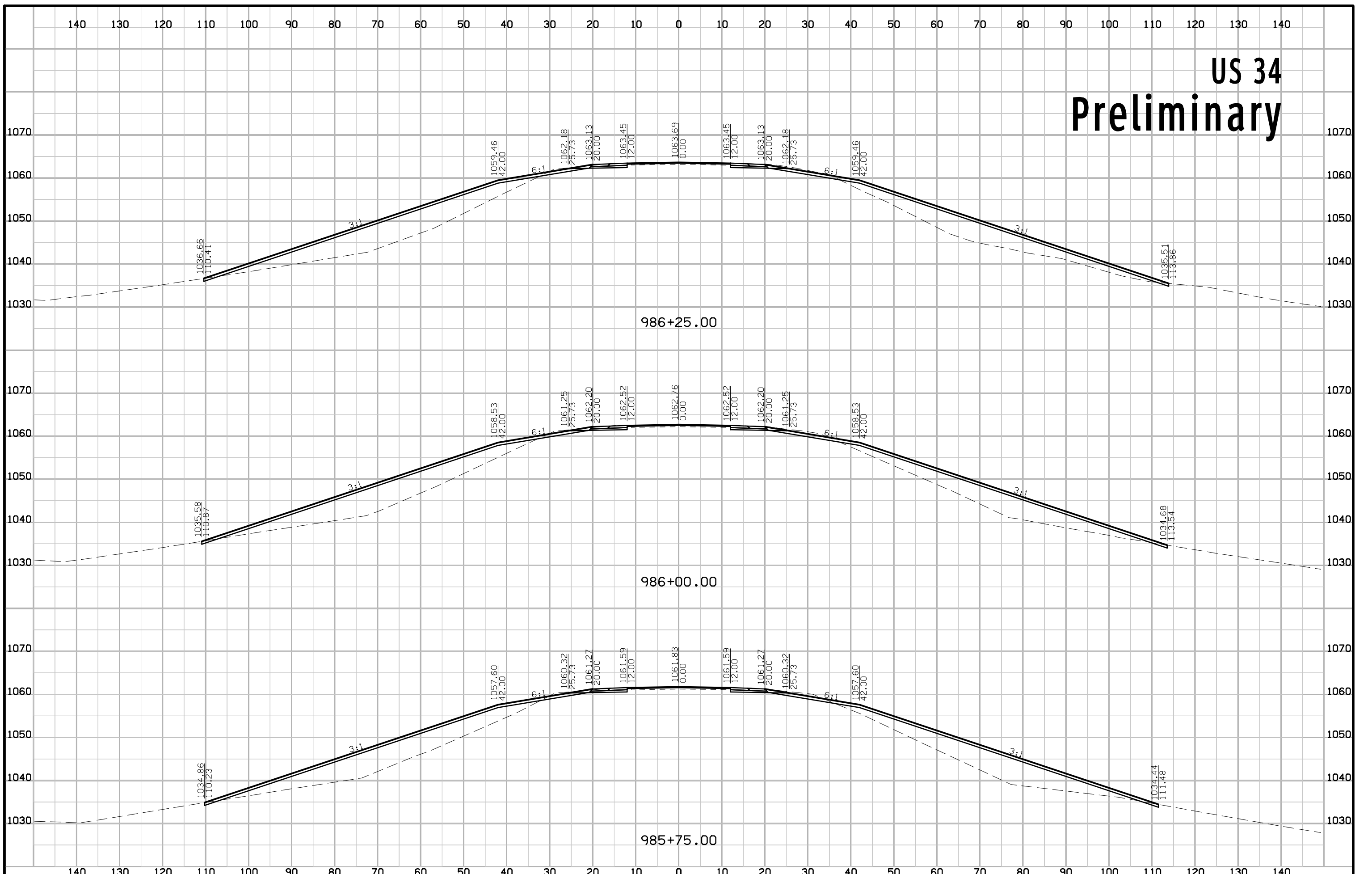
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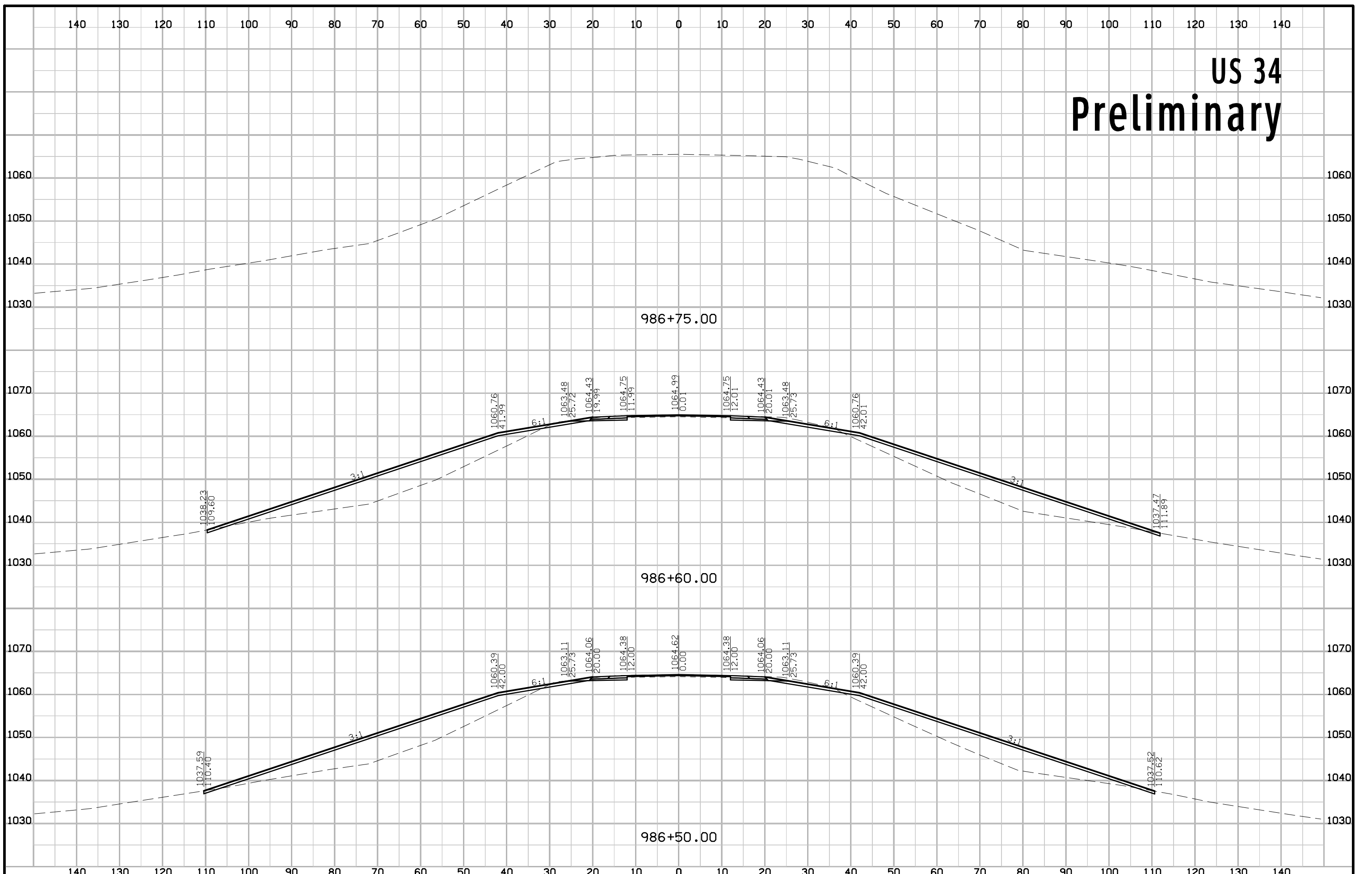
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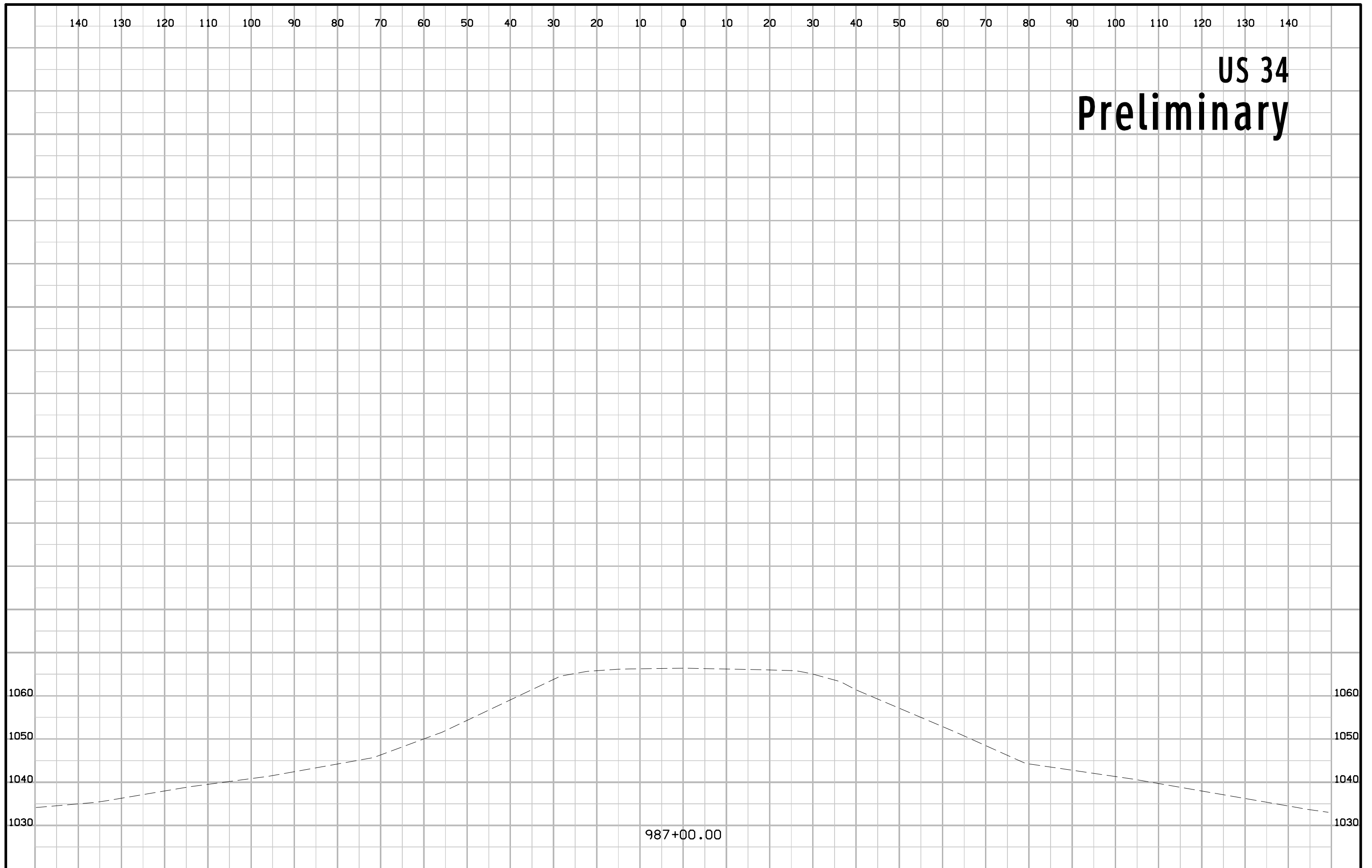
US 34 Preliminary



US 34 Preliminary



US 34 Preliminary



987+00.00