

Attendees - 8/19/21

Ally Smyth  
Ben Adey  
Mike Schneider  
Brandon Lafrenz  
Rusty Martin  
Corey Timm  
Scott Nixon



**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM  
**POWESHIEK COUNTY**  
HMA RESURFACING

W Jct US 6 to SCL Tama

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL

PROJECT IDENTIFICATION NUMBER	19-79-063-020
PROJECT NUMBER	NHSX-063-4(52)--3H-79
R.O.W. PROJECT NUMBER	

**INDEX OF SHEETS**

No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
A.2	Location Map Sheet
A.3	Field Exam Notes
A.4 - 8	Concept Sheets
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1 - 3	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 53	"US 63"
<b>W Sheets</b>	<b>Mainline Cross Sections</b>
W.1 - 157	Mainline Cross Sections
	* Color Plan Sheets

D3 PLAN - Date: 10-1-2021

D5 PLAN - Date: 1-14-2022

D8 PLAN - Date: 8-1-2023

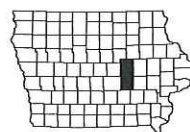
**PRELIMINARY PLANS**

Subject to change by final design.

D2 PLAN - Date: 9-1-2021

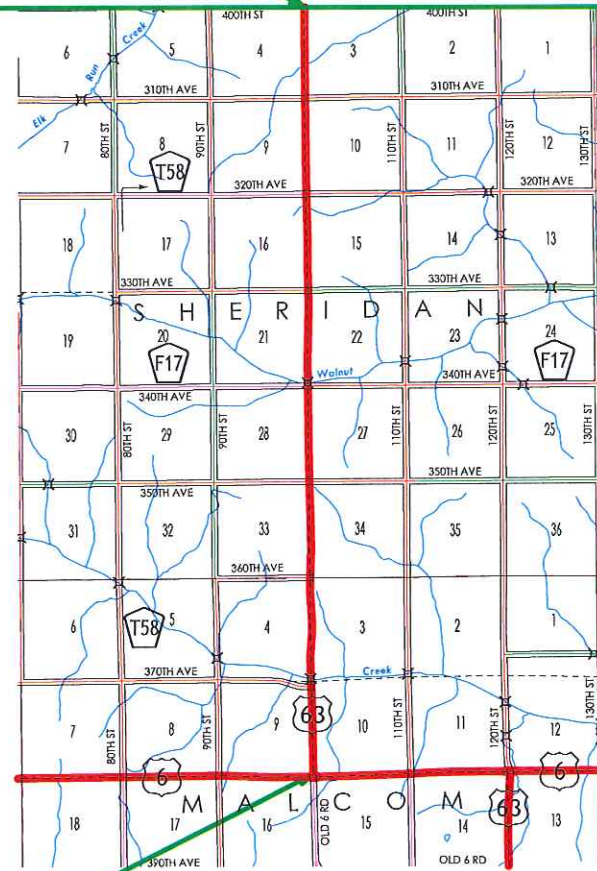
Tama County				Poweshiek County			
DESIGN DATA RURAL				DESIGN DATA RURAL			
2024	AADT	3,300	V.P.D.	2024	AADT	2,100	V.P.D.
2044	AADT	3,500	V.P.D.	2044	AADT	2,200	V.P.D.
20--	DHV	--	V.P.H.	20--	DHV	--	V.P.H.
TRUCKS		14	%	TRUCKS		21	%
Total				Total			
Design	ESALs	1,742,384		Design	ESALs	1,663,185	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Allison Smyth	Primary Signature Block



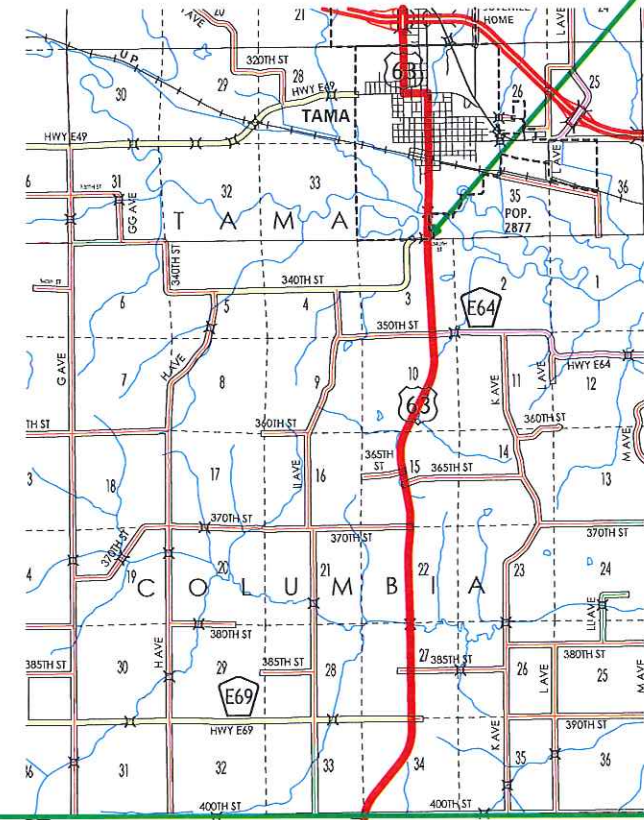
Equation:  
630+62.3 Bk  
0+00.00 Ahd

Tama  
Poweshiek

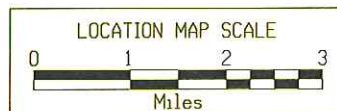
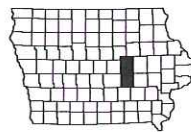


End of Project:  
Ref. Loc.: 118.49  
STA: 334+64.1

Tama  
Poweshiek



Beginning of Project  
Ref. Loc.: 102.11  
STA: 206+00.00



FIELD EXAM CHECKLIST + NEEDED INFORMATION

FIELD EXAM NOTES

1. Duration of Project? **3 months**
2. Posted Speed Limit(s) and if different during construction.
3. Any sight distance a problems?
- Any overtopping problems within the project limits? **SCL of Tama**
5. Strengthening and leveling areas (Sta-Sta).
6. Survey of culvert extensions (for RCB extensions 100' each side of RCB and 100' Lt. and Rt. of centerline at 25' intervals and provide 20-scale drawing). **app is up to date**
7. Survey of safety dikes (100' each side of proposed dike and to 100' from centerline of roadway).
8. Survey and 20-scale of proposed right-turn lanes (from centerline of sideroad back 400' and to 75' from centerline of roadway. Cross section every 50').
9. Survey of horizontal curves (at least three locations within full super. Edges and centerline).
10. Embankment and pipe quantities for sideslopes (National Highway System (NHS) routes only). Items to be tabbed by location.
11. Any known utilities potentially needing relocated (Temp. or Permanently)?
12. Names and addresses of affected utility companies.
13. Locations of entrances to be reshaped.
14. Any existing drainage issues?
15. Any suspected wetland or environmental impacts?
16. Condition of existing culverts needed, obtained by whom?
17. Any existing subdrain locations?
18. Names of affected special events. **Ben to Check**
19. Locations of mailboxes to be relocated to a minimum of 8' from pavement edge.
20. Survey trees within the roadside recovery area (trees within \_\_\_ft from edge of roadway are to be removed. Those outside \_\_\_ft will be reviewed from survey data).
21. Disposition of Exist. Bridge Approaches (UAC or Resurface them).
22. Number and location of EF joints.
23. Disposition of bridge handrail and guardrail and posts.
24. Inventory of Existing Guardrail.
25. Longitudinal joint repair locations. **N/A**
26. Listing of adjustment of fixtures.
27. Clearing and Grubbing quantities - by unit or area?
27. If this is a resurf. proj., is Dist. Survey able to preserve Section Corners & points (if no then add these items under Construction Survey).

**TO OFFICE:** District 1

**DATE:** November 12, 2019

**ATTENTION:** Scott Dockstader

**COUNTY:** Poweshiek/Tama

**FROM:** Allison Smyth

**PROJ. NO.:** NHSX-063-4(52)--3H-79

**PIN:** 19-79-063-020

**FOLDER:** <pw:\\ntPwInt1.dot.int.lan:PWMain\Documents\Projects\7906302019\Concept\D0Submittal>

**OFFICE:** District 1

**SUBJECT:** FY 2024 Concept Statement - FINAL

**PROJECT LOCATION:**

See map.

**PROJECT DATA:**

ROUTE: US 63

LENGTH: 14.38 Miles

PLANNING CLASSIFICATION:

Commercial & Industrial Network

MAINTENANCE SERVICE LEVEL: C

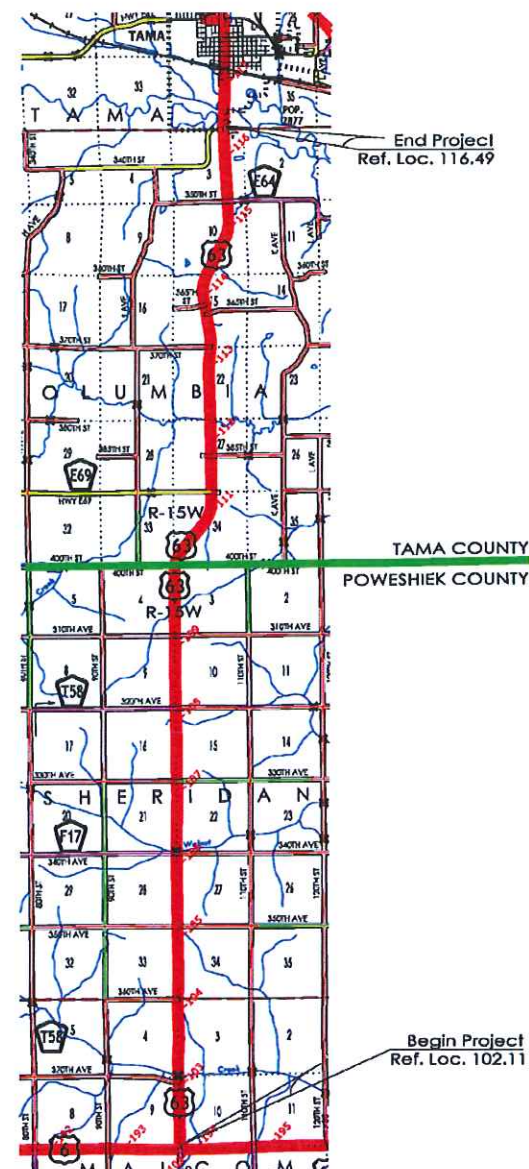
NHS ROUTE: Yes

TRAFFIC:

County	2024		2044	
	ADT	Trucks	ADT	Trucks
Poweshiek	2,100	21%	2,200	21%
Tama	3,300	14%	3,500	14%

**PURPOSE AND NEED:**

US 63 has been identified by the *Iowa in Motion 2045 State Transportation Plan (STP)* as a candidate for Super 2 corridor enhancements from US 6 in Poweshiek County to Hudson in Black Hawk County. This project will address the first segment, from US 6 in Poweshiek County to the south city limit of Tama in Tama County. The existing pavement has been overlaid multiple times and it is recommended to rehabilitate or reconstruct the roadway.



**FEASIBLE ALTERNATIVES:**

Option	Design Life	Cost
1. 9.5" PCC Reconstruction	40 Years	\$29,308,000
2. 6" PCC Overlay**	20 Years	\$10,657,000
3. 6" HMA Overlay	20 Years	\$12,360,000

\*\*For concept purposes only. Requires additional pavement testing

**RECOMMENDATIONS:**

It is recommended that the PCC Overlay option is built to provide a cost effective roadway throughout the corridor. At the time of the concept review, it was noted that the Poweshiek County portion of the road may need Rubblization and an HMA overlay. Further testing will be requested to determine the best option.

**FUNDS PROGRAMMED:**

This project is in the 2020-2024 Highway Program in FY 2024 with \$10,000,000 for grading and paving.

**PROJECT IMPACTS:**

Designed by: District 1

Design Impact	Assistance Requested (Y/N)	Remarks
ADA:	N	
Agreements/Notification Letters:	Y	Poweshiek and Tama Counties will be invited to pave side road approaches with this project.
Bridges and Structures:	Y	3 Numbered Structures to bridge deck overlay?
Consultant:	N	
Contracts:	N	
Design/Methods:	Y	Roadside Design—locations for living snow fence, Methods—Review of passing /climbing lane placement
Location and Environment:	Y	
Maintenance: (Tama)	Y	Updated list of culvert work needed
Project Management:	N	
Railroad:	N	
RCE: (Marshalltown)	Y	Provide patching tabs
Right of Way:	Y	Widening locations, culvert extensions
Soils:	Y	
Survey/Photogrammetry:	Y	Standard Survey will be requested
Systems Planning:	N	
Traffic and Safety:	Y	Review of passing/climbing lane placement
Utilities:	Y	Utilities to move where widening
Other:		

**CONCEPT ANALYSIS & SUPPORTING DATA:**

Necessary supporting data may be linked in the analysis to ProjectWise.

**Date of Field Review:**

October 24, 2019

**Participants:**

Tony Gustafson and Allison Smyth from the District 1 Office, Brandy Beavers from Location and Environment, Moe Mohamed, Rusty Martin, and Corey Timm from District 1 Maintenance.

**PAVEMENT:****Existing Conditions:**

The roadway was constructed in 1979 and is in need of rehabilitation or reconstruction.

**Pavement History:**

See attached sheets.

**PMIS Data:**

See attached sheet.

**Pavement Design & dTIMS Recommendation:****dTIMS Recommendations:**

Begin Reference Post	End Reference Post	Treatment	Treatment Year
102.11	103.16	PRI_MAJ_REHAB_STR1	2020-2030
103.16	110.16	PRI_MAJ_REHAB_STR1	2019-2030
103.16	110.16	PRI_MIN_REHAB_FUNC	2021-2030
103.16	110.16	PRI_RECON	2028-2030
110.16	116.49	PRI_MAJ_REHAB_STR2	2018-2030

**Subdrains:**

Subdrains have been installed throughout 100% of the project. New subdrains will be required at new climbing and passing lanes.

**Patching/Curb Repairs:**

Overlay Options: Marshalltown RCE to provide patching tabs by December 1, 2022.

**ADA/Sidewalk/Trails:**

No pedestrian facilities exist within the project limits, and none will be added. Complete Streets analysis will not be considered for this rural project.

**SAFETY:****3R Design Criteria:**

DESIGN ELEMENT	Acceptable Values for 3R Roadway Features					Project Values
	FREEWAY	NON-FREEWAY				
Regulatory Speed (mph)	65/55	55	45	35	25	55
Minimum Vertical Curve (mph)	65/55	35	25	15	5	55
Maximum Horizontal Curve (degrees)	3	6	8	14	28	2° 15'
Maximum Gradient	3%	6%	7%	10%	13%	3.96
Lane Width (feet)	12	12	11	11	11	12
Parking Lane Width (feet)	--	--	8	8	8	NA
Shoulder Width (feet)	10/6	6	4	4	2	10
Foreshores	3:1	3:1	3:1	--	--	6:1/3:1
Transverse Slopes	6:1	6:1	6:1	--	--	
Horizontal Clearance (feet)						26
Bridge Width	Approach Lanes + Shoulder Width		Approach Lanes + Offset			
Vertical Clearance - Over NHS (feet)	16.5	16.5	16.5	16.5	16.5	na
Vertical Clearance - Over Local (feet)	14.5	14.5	14.5	14.5	14.5	na

**Crash Analysis:**

See attached ICAT report.

**Corridor Crash History:**

Over the 10-year period from 2009 to 2018, the project limits had 112 crashes. Of those, one was a fatality, a single car crash that ran off the road, struck multiple trees, and caught fire. The overall crash rate for the area is 64.6, well below the statewide rural average. 4 Crashes were at intersections, 10 were related to winter driving conditions, and 81 were animal related (72%).

**Intersection Analysis:**

Turn lane warrants were checked at all paved intersection along the route. One right turn lane is warranted for the southbound to westbound movement at E69/390<sup>th</sup>. One left turn lane is warranted for the southbound to eastbound movement at E64/390<sup>th</sup>. Turn lanes will be constructed northbound and southbound at these locations with this project.

**Railroads:**

No railroads are within the project limits.

**Additional Safety & Operation Considerations:**

This project has been identified by Location and Environment as a candidate as a Super 2 highway. In addition to the turn lanes considered above, this project will include climbing lanes and passing lanes to improve overall operations on the highway. Please see attached map and plan sheets.

The project has seven locations where the critical lengths of grade for design are exceeded and trucks are likely to have a greater than ten mile per hour reduction in speed. One of these locations has an existing climbing lane. The other six will be added with this project.

**Climbing Lanes:**

VPI Station.	Direction of Travel.	Grade (%)	Length of Grade (FT)	Length of Climbing Lane (Proposed) (FT)	Comments
259+75	Southbound	3.28	1700	NA	Exists
398+25	Southbound	3.96	4200	5300	
422+75	Northbound	3.40	2450	5300	
61+50	Southbound	3.72	3150	5300	
164+00	Southbound	3.20	5012	4700	
260+00	Northbound	2.00	3400	2000	
276+00	Southbound	3.88	1600	2600	

**Passing Lanes:** No stand-alone passing lanes will be included, as the climbing lanes meet the desired passing opportunity spacing.

**STRUCTURES and DRAINAGE:****Bridges:** (from Scoping Tool or SIIMS)

FHWA No.	Maint. No.	Size/Type	Year Built	BSB Recommendation
045851	7903.2S063	146'x44' 3 span prestressed concrete I-girder, 10-degree skew	1978	Possible Deck Overlay
045861	7906.3S063	129'x44' 3 span prestressed concrete I-girder, 0-degree skew	1978	Possible Deck Overlay
049561	8612.3S063	209'x44' 3 span prestressed concrete I-girder, 15-degree skew	1978	Possible Deck Overlay

New bridges approaches will be required at all three bridges.

**Culverts/Pipes:**

Tama Maintenance to provide current list of culvert work to be completed with project.

**Guardrail:**

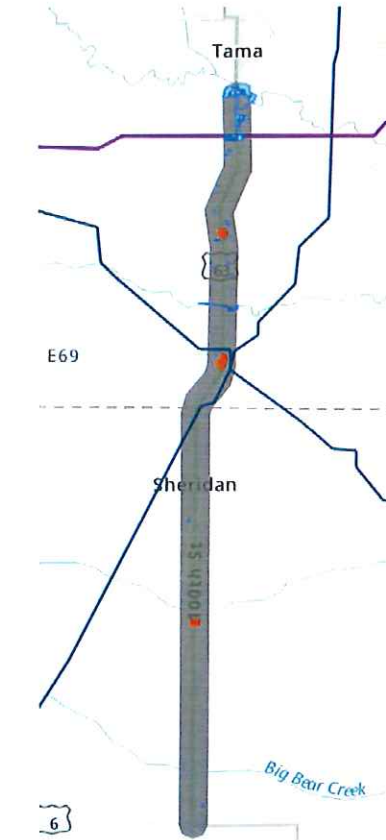
Guardrail within the projects limits is current and will not be replaced.

**Drainage District:**

No Drainage Districts have been identified within the project limits.

**PROJECT IMPACTS:****Impacts Map:**

The project area includes two pipelines, transmission lines, 52 wetlands, and 4 environmental hotspots.

**Environmental:**

Identify clearing and grubbing need, wetlands, parks, historic/cultural resources, etc.

**TSMO/Traffic Control:**

Option 2: Detour US 63 Traffic. District 1 to provide Detour and Signing for the contractor.

**ROW:**

ROW will be required at widening locations.

**Agreements/Notification Letters:**

Preconstruction agreements may be required with Tama and/or Poweshiek Counties if they elect to repave side road approaches.

Detour agreements will also be needed for either the PCC reconstruction or the PCC Overlay options.

**Previous Projects List:**

Project Number	Work Type	Year
<b>Reference Locations 102.11 to 103.16</b>		
FN-63-4(6)--21-79	8" PCC	1980
STPN-6-5(13)--3J-79	9" HMA Widening	2007
STPN-6-5(13)--3J-79	4" HMA Various Locations	2007
<b>Reference Locations 103.16 to 110.16</b>		
FN-63-4(6)--21-79	8" PCC	1980
MP-063-1(706)102--76-79	4" HMA Various Locations	2012
MP-63-1(709)103--76-79	4" HMA	2017
<b>Reference Locations 110.16 to 116.49</b>		
FN-63-5(29)--21-86	10" PCC	1979
MP-063-1(706)102--77-79	4" HMA Various Locations	2012

**Future Projects List:**

No future projects have been identified in the project area.

**FEASIBLE ALTERNATIVES & RECOMMENDATION:**

**Feasible Alternatives:**

See attached cost estimate.

**Recommendation:**

District 1 recommends Option 2, the 6" PCC Overlay (pavement testing may recommend a different thickness or determination in Poweshiek County).

Typical Cross section will include:

Two 12-foot lanes overlaid with a 1-inch bond breaker layer, then 6" PCC overlay, 4-foot wide PCC Shoulders, 6-foot wide granular shoulders. Tie into existing foreslope.

Repair paved shoulder prior to overlay

Construct new climbing and passing lanes 9.5-inch, 12-foot wide with 6-foot wide paved shoulders.

All guardrail within the project limits is in good repair and will not be replaced with this project.

Repair all deficient culverts. Extend culverts at climbing and passing lane locations.

Replace the bridge approaches at both ends of the bridges within the project limits. Extend the bridge approach pavement far enough to replace the bad sections (shown below) just beyond the approaches.

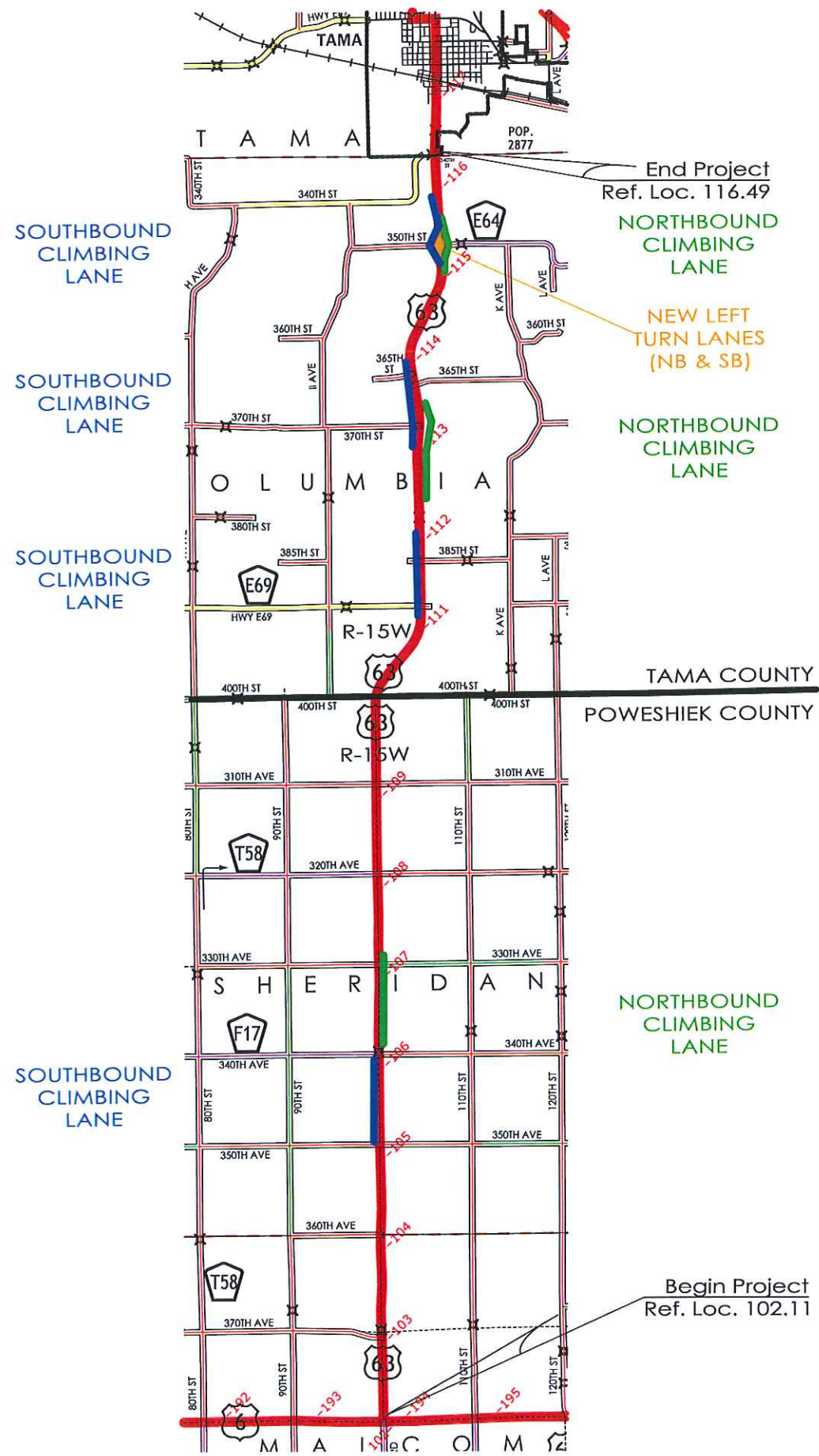


**Funds Programmed:**

This project is in the 2020-2024 Highway Program in FY 2024 with \$10,000,000 for grading and paving. The concept estimate is \$10,657,000.

**Development Schedule:**

D00 Predesign Concept	11-8-2019
D01 Survey Plan and Photogrammetry	2-28-2020
T01 Existing ROW	6-26-2020
D02 Field Exam	8-07-2020
D03 Plans for Preliminary Bridge	11-06-2020
B02 Drainage Design to Design	2-12-2021
D05 Plans to ROW	4-16-2021
R01 Right of Way Layout	8-16-2021
S03 Soils Design Complete	2-03-2023
DM5 Methods Turn-In	6-27-2023
D08 Final Grade and Pave Plans	8-01-2023
L03 Letting-Combination Grade and Pave	10-17-2023



End Project  
Ref. Loc. 116.49

Begin Project  
Ref. Loc. 102.11

*Need Station markers  
placed before project*



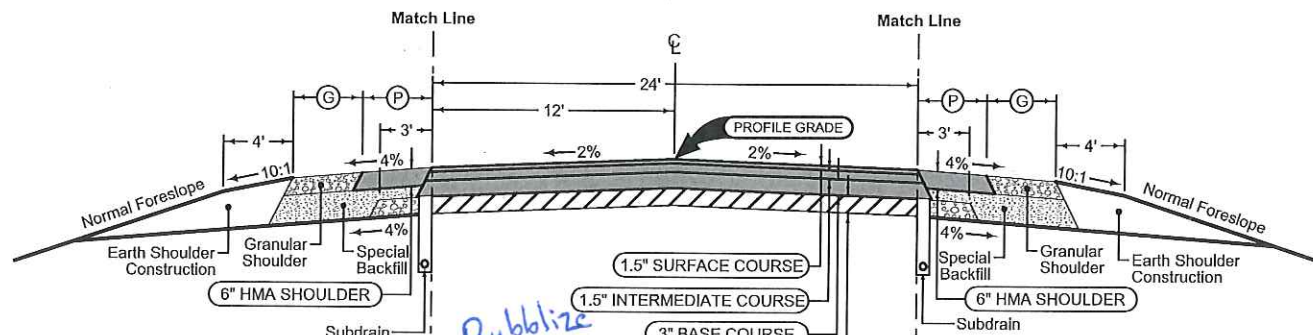


Rubblization

### Combination Shoulder

Shoulder Jointing:  
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
B.O.P.	238+54.00	4	6
258+36.00	358+60.00	4	6
420+00.00	630+62.30	4	6



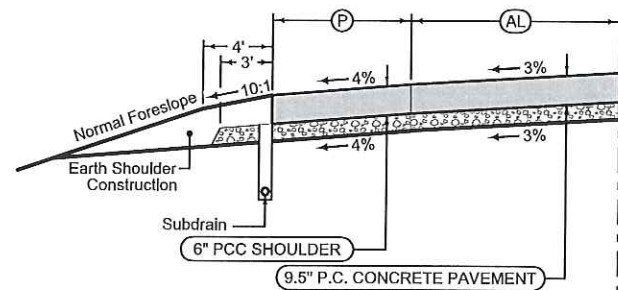
*Rubblize*  
*Check Stone b/w Rubblization and overlay - Scott Nixon*

STATION TO STATION	
B.O.P.	630+62.30

### Combination Shoulder

Shoulder Jointing:  
Longitudinal joint: B

STATION TO STATION		(P) Feet	(G) Feet
B.O.P.	423+10.00	4	6
484+50.00	630+62.30	4	6



### Full Depth PCC Shoulder

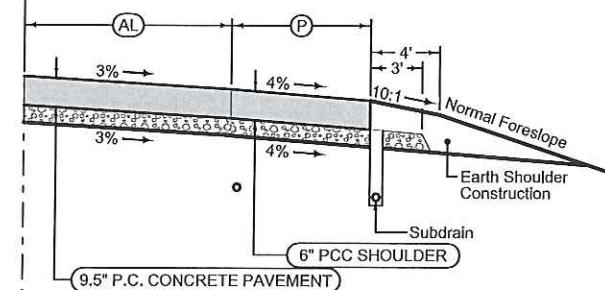
Shoulder Jointing:  
Longitudinal joint: BT-2, L-2 or KT-2  
Transverse joints: C at 17' spacing

STATION TO STATION		(P) Feet
238+54.00	258+36.00	6
358+60.00	420+00.00	6

### Auxiliary Lane

Longitudinal joint: L or KT  
Transverse joint: Match Mainline

STATION TO STATION		(AL) Feet
238+54.00	245+14.00	VAR.
245+14.00	256+56.00	12
256+56.00	258+36.00	VAR.
358+60.00	365+20.00	VAR.
365+20.00	418+20.00	12
418+20.00	420+00.00	VAR.



### Auxiliary Lane

Longitudinal joint: L or KT  
Transverse joint: Match Mainline

STATION TO STATION		(AL) Feet
423+10.00	424+90.00	VAR.
424+90.00	477+90.00	12
477+90.00	484+50.00	VAR.

### Full Depth PCC Shoulder

Shoulder Jointing:  
Longitudinal joint: BT-2, L-2 or KT-2  
Transverse joints: C at 17' spacing

STATION TO STATION		(P) Feet
423+10.00	484+50.00	6

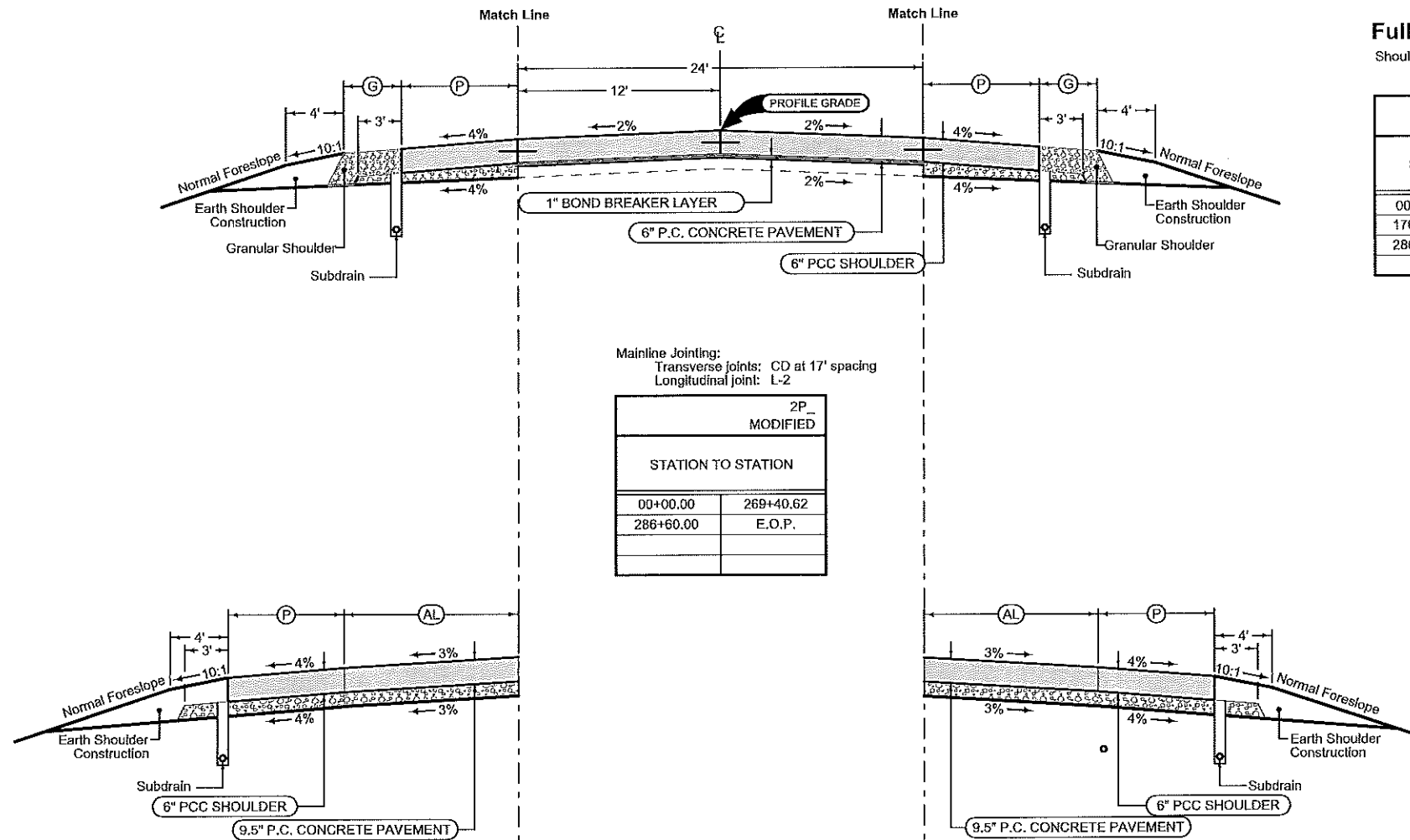
See Tab 100-24 or 100-25 for pavement quantities.  
See Tab 112-9 for shoulder quantities.

**ROADWAY IDENTIFICATION**  
**US 63 Poweshiek County**

**Full Depth PCC Shoulder**

Shoulder Jointing:  
 Longitudinal joint: L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_P_FullPCC_MODIFIED			
STATION TO STATION		(P) Feet	(G) Feet
00+00.00	49+40.00	4	6
110+80.00	157+40.00	4	6
212+80.00	269+40.62	4	6
212+80.00	269+40.62	4	6
303+80.00	329+04.34	4	6
336+15.00	E.O.P.	4	6



Mainline Jointing:  
 Transverse joints: CD at 17' spacing  
 Longitudinal joint: L-2

2P_MODIFIED	
STATION TO STATION	
00+00.00	269+40.62
286+60.00	E.O.P.

**Full Depth PCC Shoulder**

Shoulder Jointing:  
 Longitudinal joint: L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_P_FullPCC_MODIFIED			
STATION TO STATION		(P) Feet	(G) Feet
00+00.00	115+00.00	4	6
176+40.00	258+20.00	4	6
286+60.00	E.O.P.	4	6

**Full Depth PCC Shoulder**

Shoulder Jointing:  
 Longitudinal joint: BT-2, L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_P_FullPCC_04-20-21		
STATION TO STATION		(P) Feet
49+40.00	110+80.00	6
157+40.00	212+80.00	6

**Auxiliary Lane**

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

2_AuxLane_PCC_10-18-16		
STATION TO STATION		(AL) Feet
49+40.00	56+00.00	VAR.
56+00.00	109+00.00	12
109+00.00	110+80.00	VAR.
157+40.00	164+00.00	VAR.
164+00.00	211+00.00	12
211+00.00	212+80.00	VAR.
286+60.00	302+80.00	12
302+00.00	303+80.00	VAR.

**Auxiliary Lane**

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

2_AuxLane_PCC_10-18-16		
STATION TO STATION		(AL) Feet
115+00.00	116+80.00	VAR.
116+80.00	169+80.00	12
169+80.00	176+40.00	VAR.
258+20.00	260+00.00	VAR.
260+00.00	280+00.00	12
280+00.00	286+60.00	VAR.

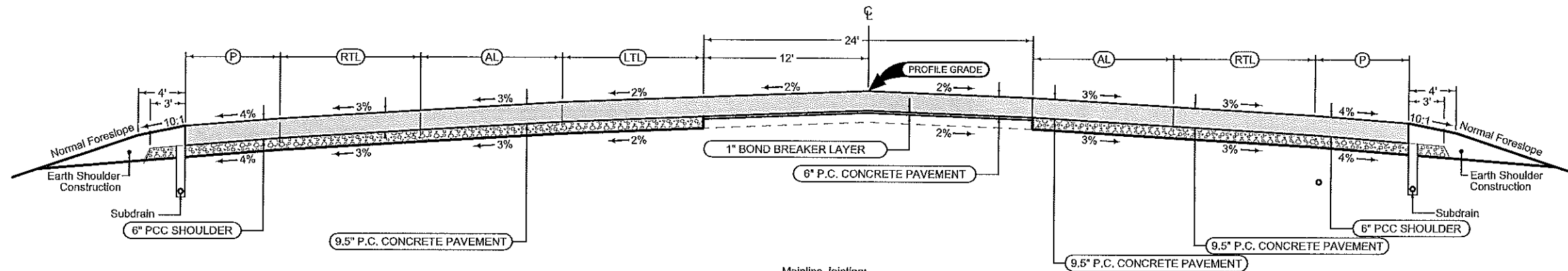
**Full Depth PCC Shoulder**

Shoulder Jointing:  
 Longitudinal joint: BT-2, L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_P_FullPCC_04-20-21		
STATION TO STATION		(P) Feet
115+00.00	176+40.00	6
258+20.00	286+60.00	6

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

**ROADWAY IDENTIFICATION**  
**US 63 Tama County**



**Full Depth PCC Shoulder**

Shoulder Jointing:  
 Longitudinal joint: BT-2, L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_P_FullPCC_04-20-21		
STATION TO STATION	(P)	Feet
269+40.62	286+60.00	6

**Auxiliary Lane**

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

2_AuxLane_PCC_10-18-16					
STATION TO STATION	(AL)	(RTL)	(LTL)	Feet	Feet
269+40.62	270+87.33	VAR.	0	0	0
270+87.33	273+64.00	VAR.	0	VAR.	16
273+64.00	276+00.00	VAR.	0	0	16
276+00.00	277+48.69	12	0	0	16
277+48.69	279+45.00	12	VAR.	VAR.	16
279+45.00	281+80.00	12	VAR.	VAR.	16
281+80.00	282+21.67	12	0	VAR.	16
282+21.67	286+60.00	12	0	0	16

Mainline Jointing:  
 Transverse joints: CD at 17' spacing  
 Longitudinal joint: L-2

2P_ MODIFIED	
STATION TO STATION	
269+40.62	286+60.00

**Auxiliary Lane**

Longitudinal joint: L or KT  
 Transverse joint: Match Mainline

2_AuxLane_PCC_10-18-16			
STATION TO STATION	(AL)	(RTL)	Feet
269+40.62	269+69.00	12	0
269+69.00	275+74.67	12	VAR.
275+74.67	280+00.00	12	0
280+00.00	286+60.00	VAR.	0

**Full Depth PCC Shoulder**

Shoulder Jointing:  
 Longitudinal joint: BT-2, L-2 or KT-2  
 Transverse joints: C at 17' spacing

2_P_FullPCC_04-20-21		
STATION TO STATION	(P)	Feet
269+40.62	286+60.00	6

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

**ROADWAY IDENTIFICATION**  
**US 63 Tama County**

**SURVEY SYMBOLS**

**UTILITY LEGEND**

- E1- T.I.P. Rural Electric Cooperative  
Cole Calkins  
612 W Des Moines St PO Box 534  
Brooklyn, IA 52211  
(641) 522-9221  
ccalkins@tiprec.com
- FO- Windstream Communications  
Joseph Barrett  
3630 109th St.  
Urbandale, IA 50322  
(515) 309-1383  
joseph.m.barrett@windstream.com
- G-HP- NuStar Energy, L.P.  
Theresa Landry  
7340 W 21st North  
Wichita, KS 67205  
(316) 721-7037  
theresa.landry@nustarenergy.com
- TI- Windstream Communications  
Joseph Barrett  
3630 109th St.  
Urbandale, IA 50322  
(515) 309-1383  
joseph.m.barrett@windstream.com
- W- Poweshiek Water Association  
Chad Coburn  
125 Industrial Drive  
Brooklyn, IA 52211  
(641) 522-7416  
chad@poweshiekwater.com

**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, T1c Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		
Design Color No.		
(4)	Yellow	Highlight for Critical Notes or Features
(3)	Red	Delineates Restricted Areas
(9)	Lavender	Temporary Pavement Shading
(48)	Gray, Light	Proposed Pavement Shading
(80)	Gray, Med	Proposed Granular Shading
(112)	Gray, Dark	Proposed Grade and Pave Shading "In conjunction with a paving project"
(236)	Brown, Light	Grading Shading
(8)	Tan	Proposed Sidewalk Shading
(230)	Blue, Light	Proposed Sidewalk Landing Shading
(11)	Pink	Proposed Sidewalk Ramp Shading

**PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS**

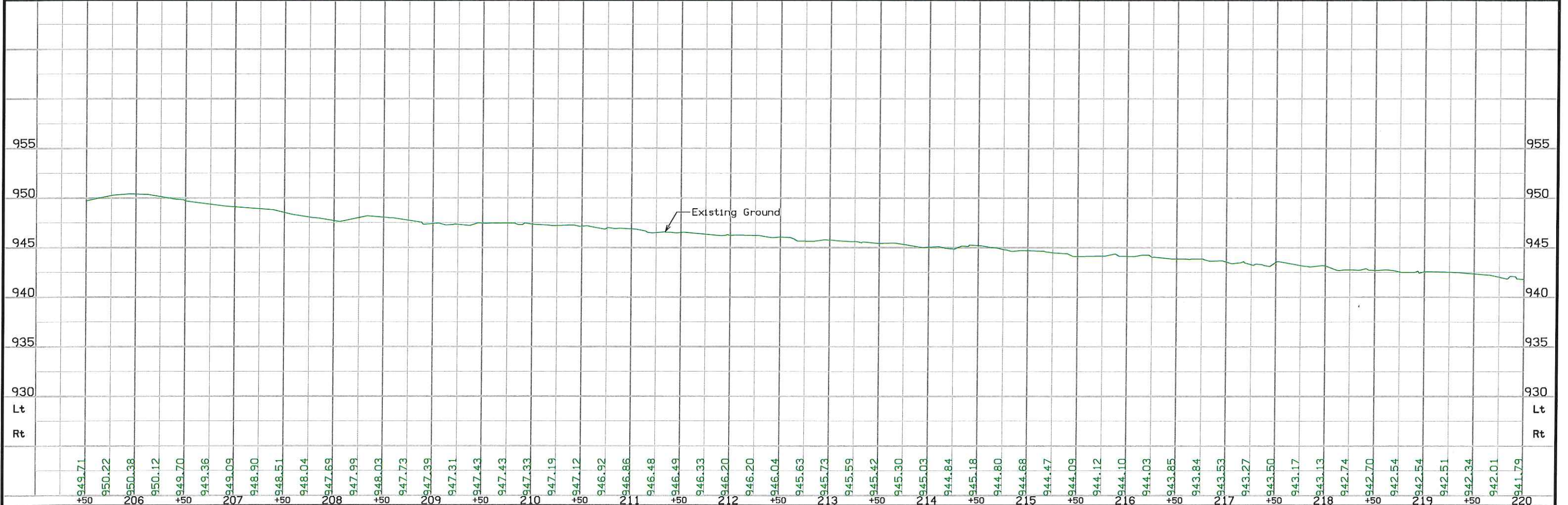
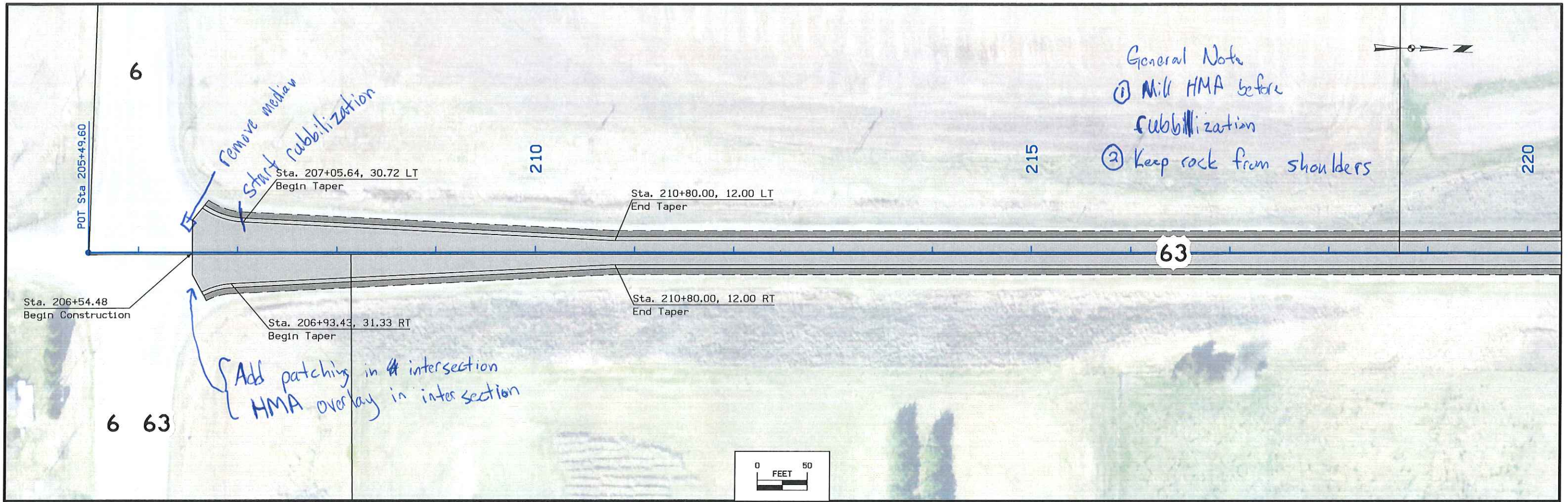
LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

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

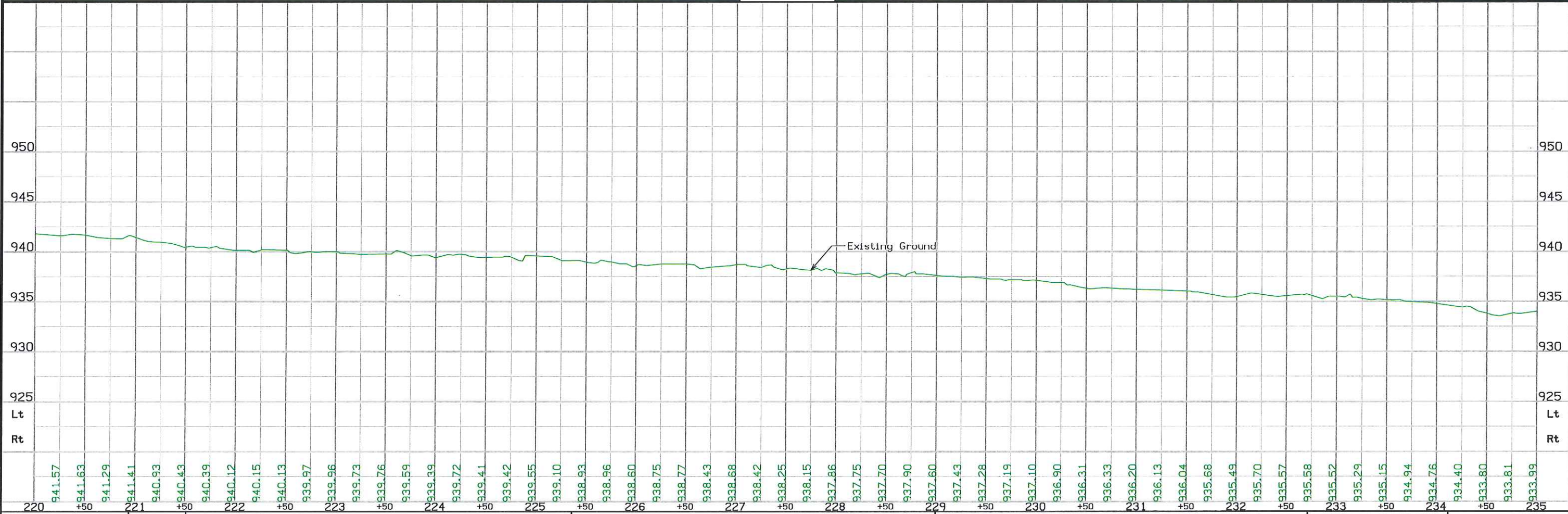
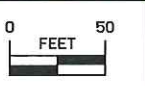
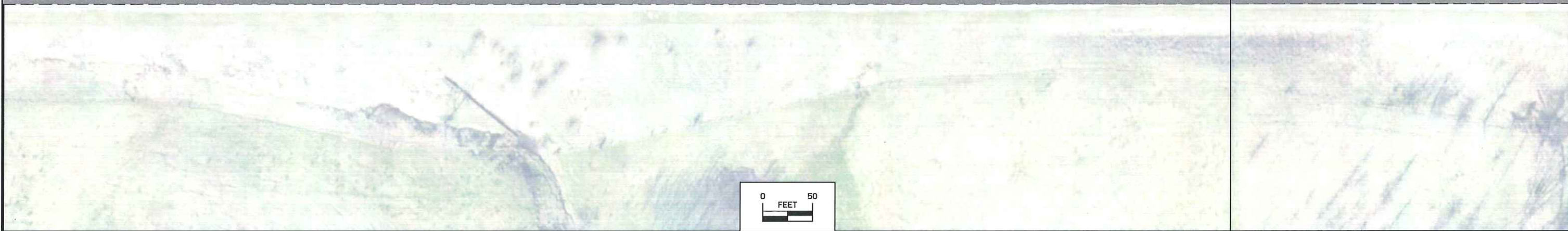
**PLAN AND PROFILE  
LEGEND AND SYMBOL  
INFORMATION SHEET  
(COVERS SHEET SERIES D, E, F, & K)**



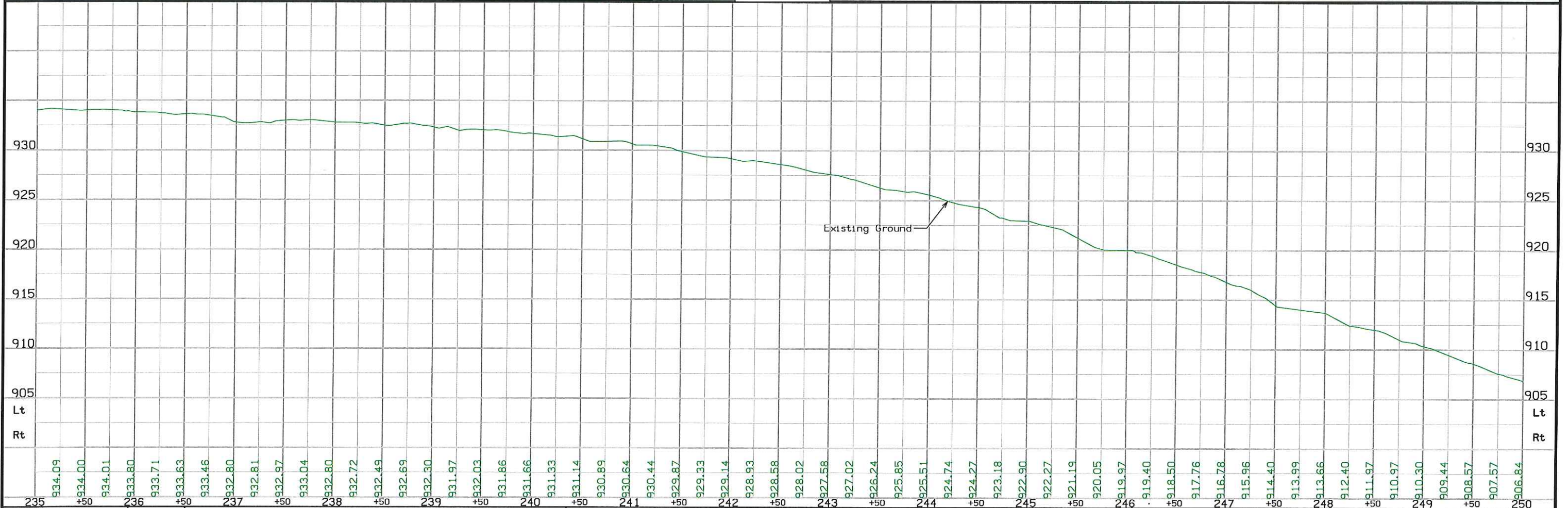
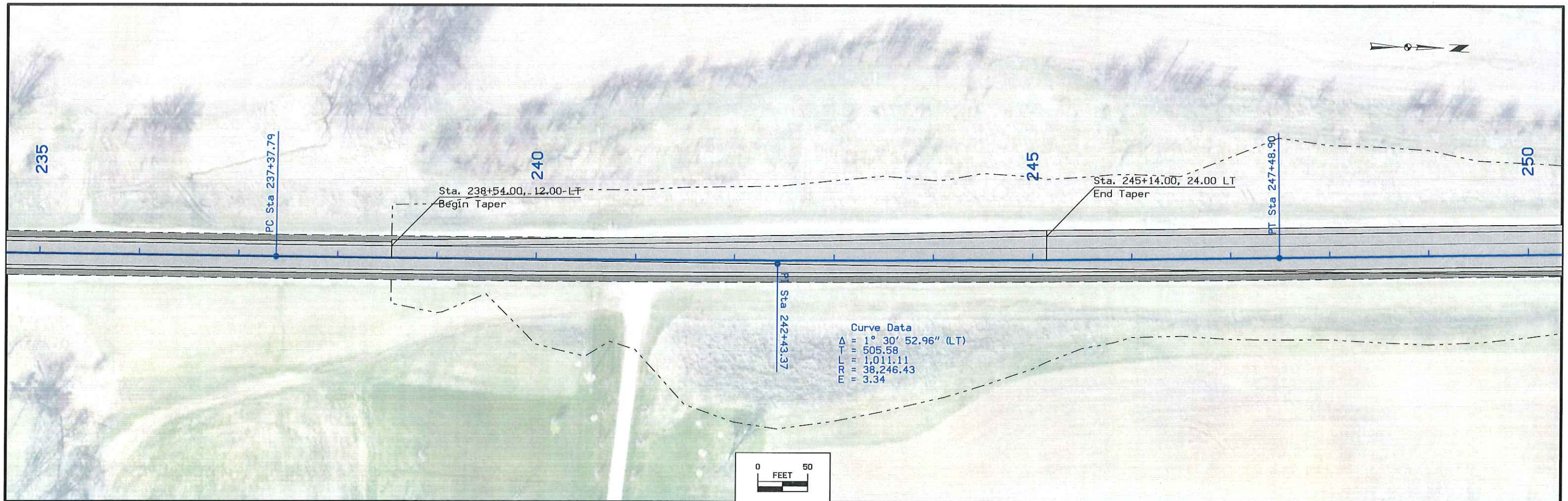
FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.2
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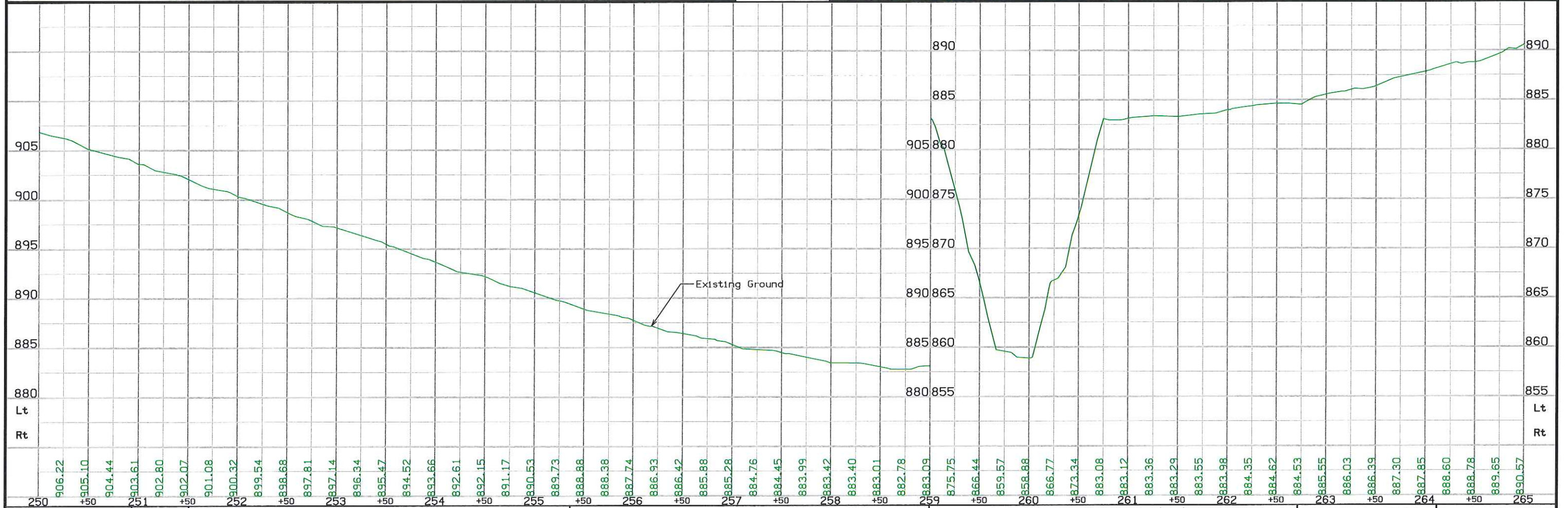
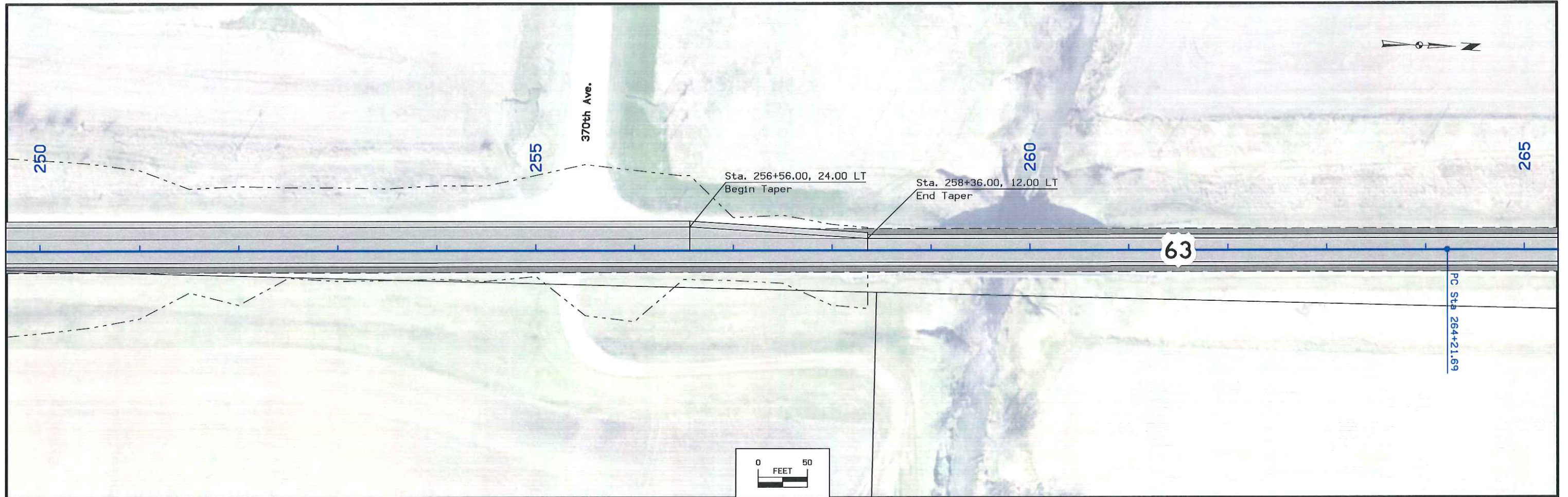


63

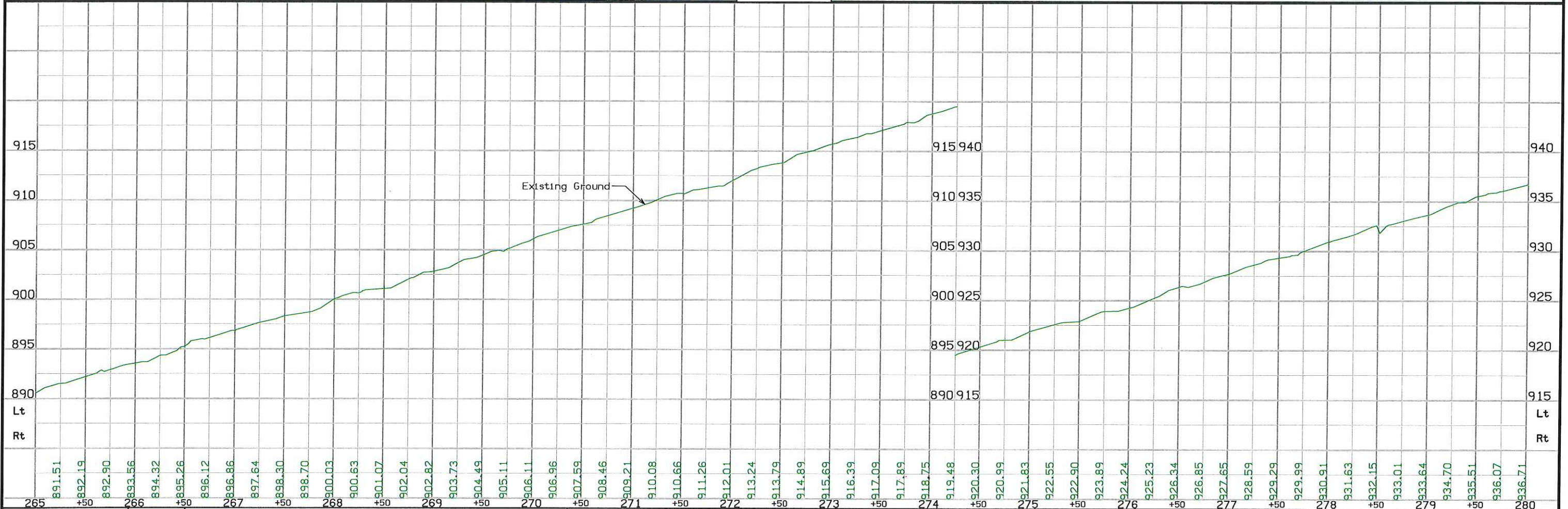
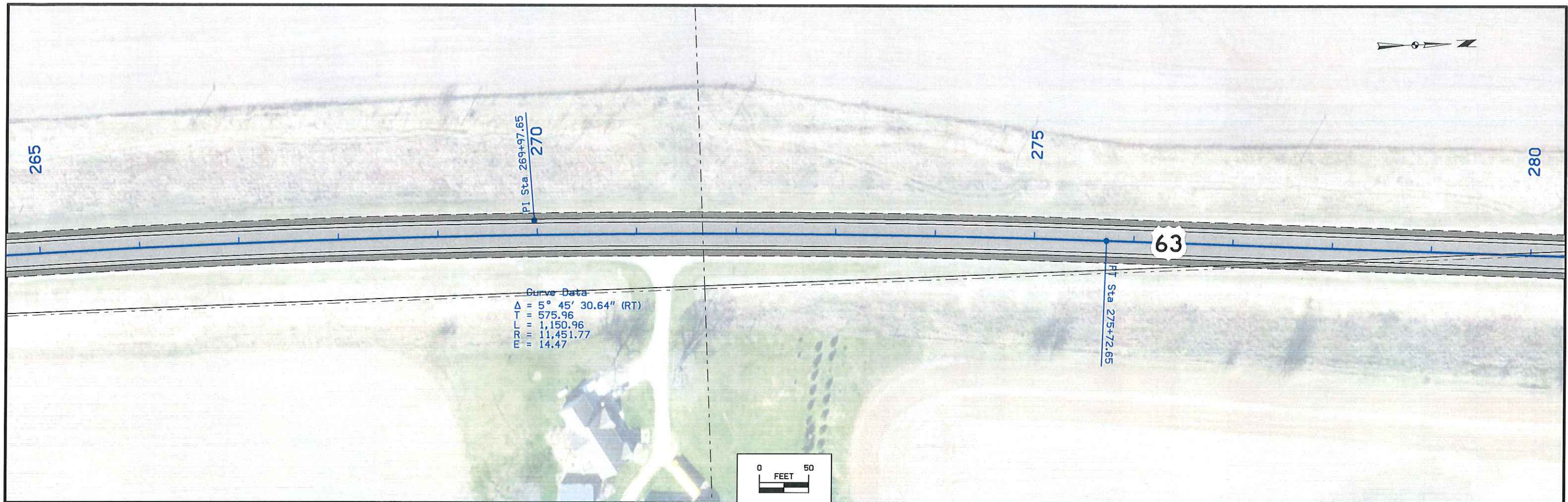


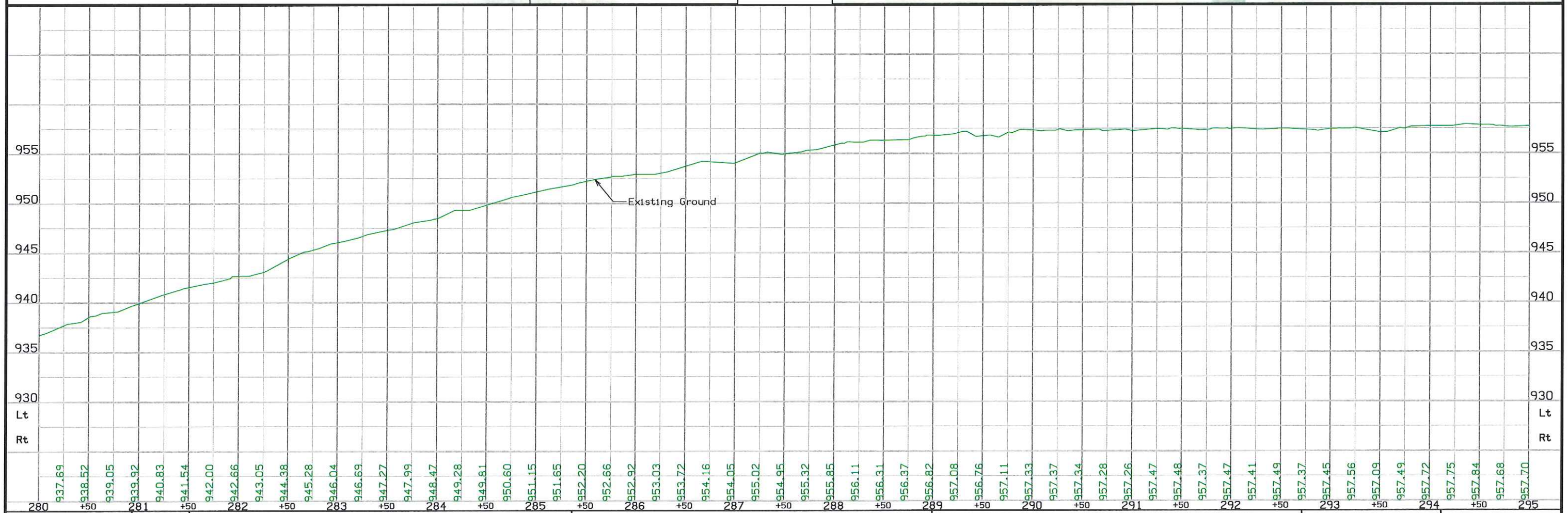
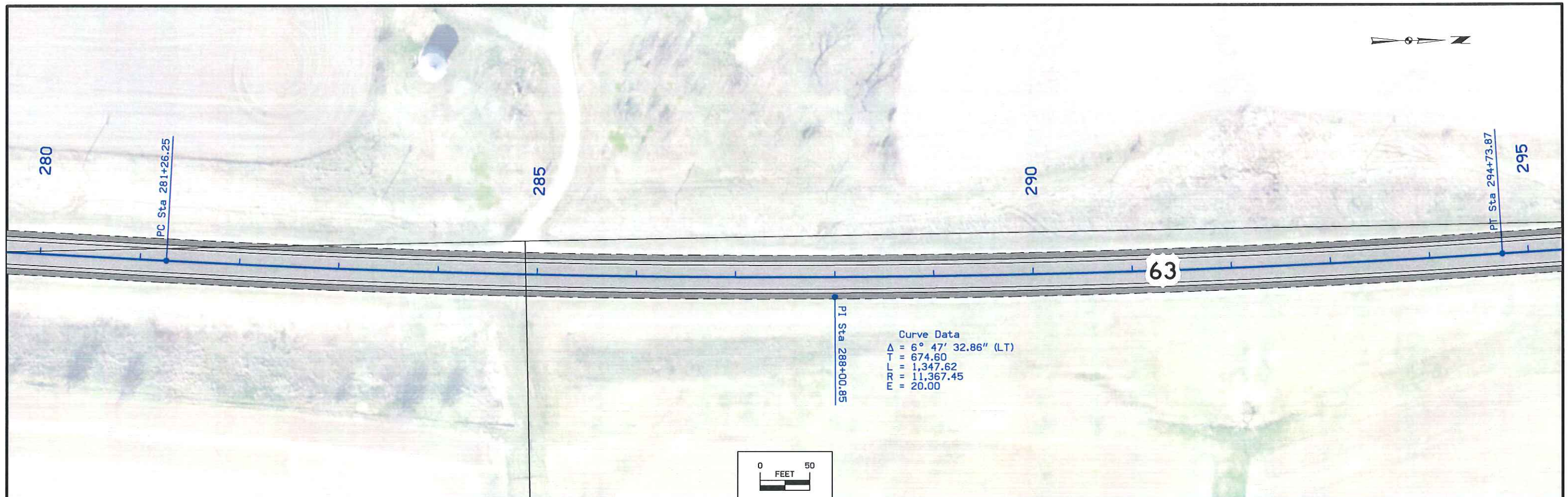
FILE NO.	ENGLISH	DESIGN TEAM	POWESHIEK COUNTY	PROJECT NUMBER	SHEET NUMBER
		Smyth \ Frostestad		NHSX-063-4(52)--3H-79	D.3

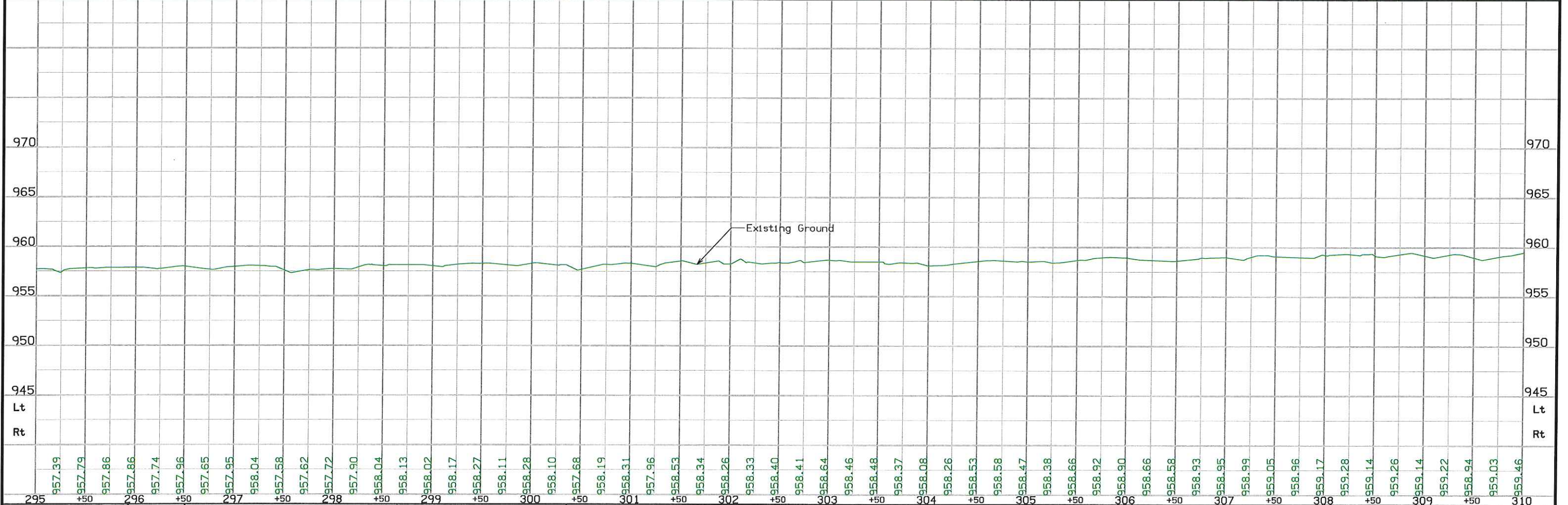
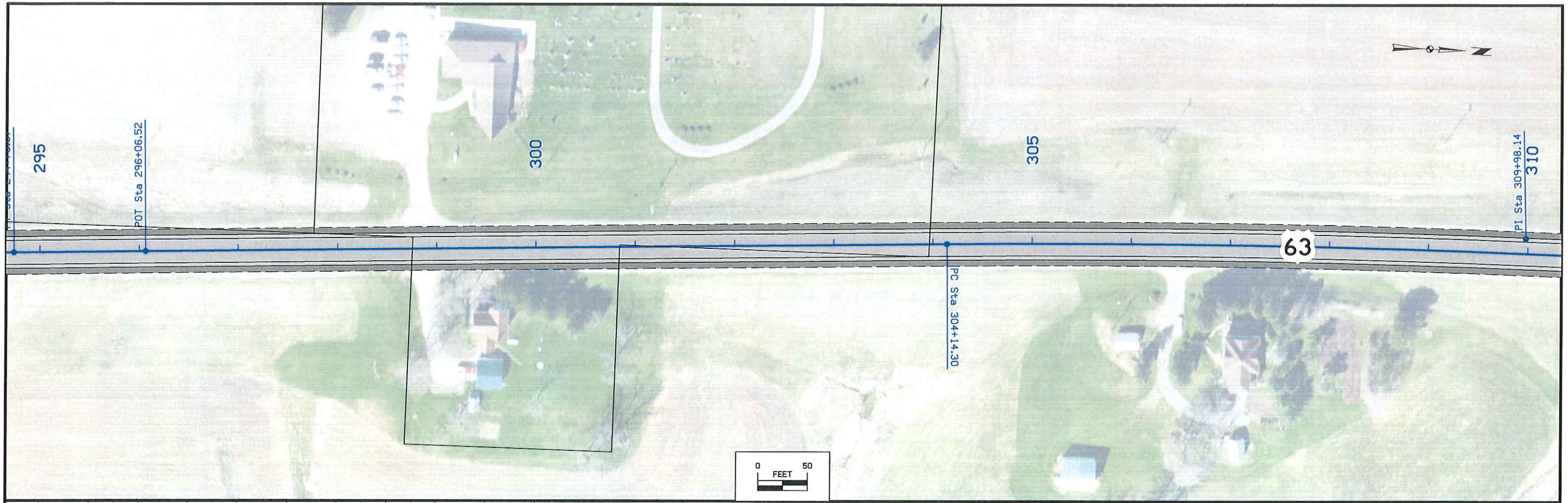


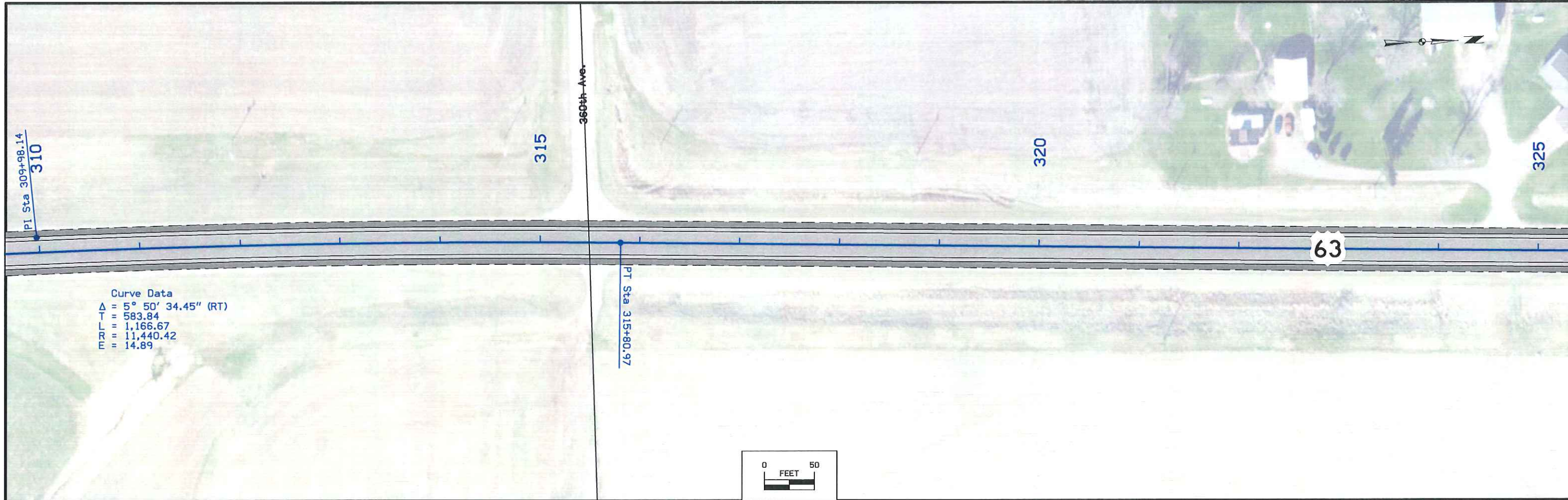




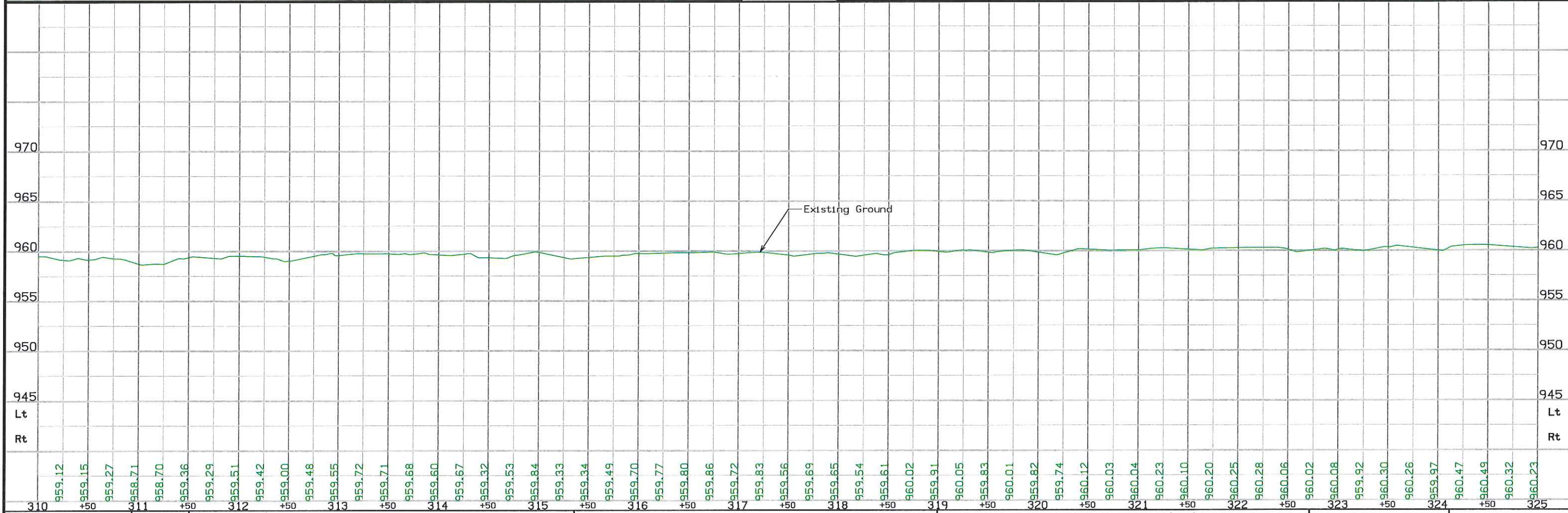
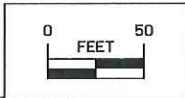




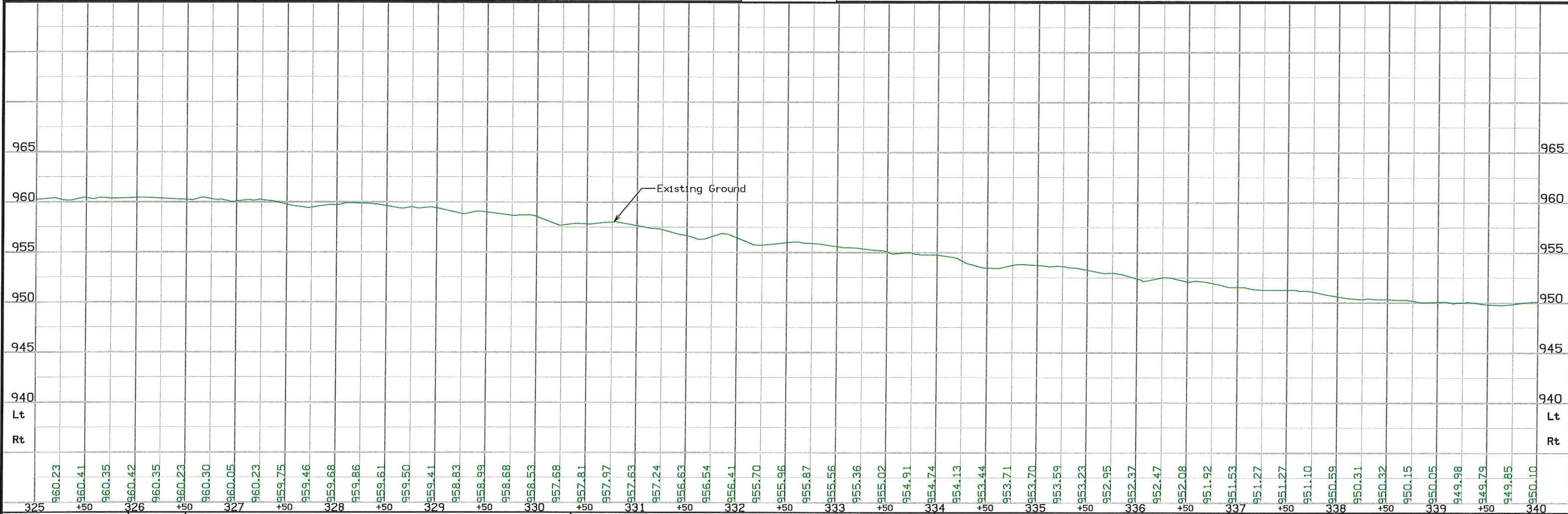
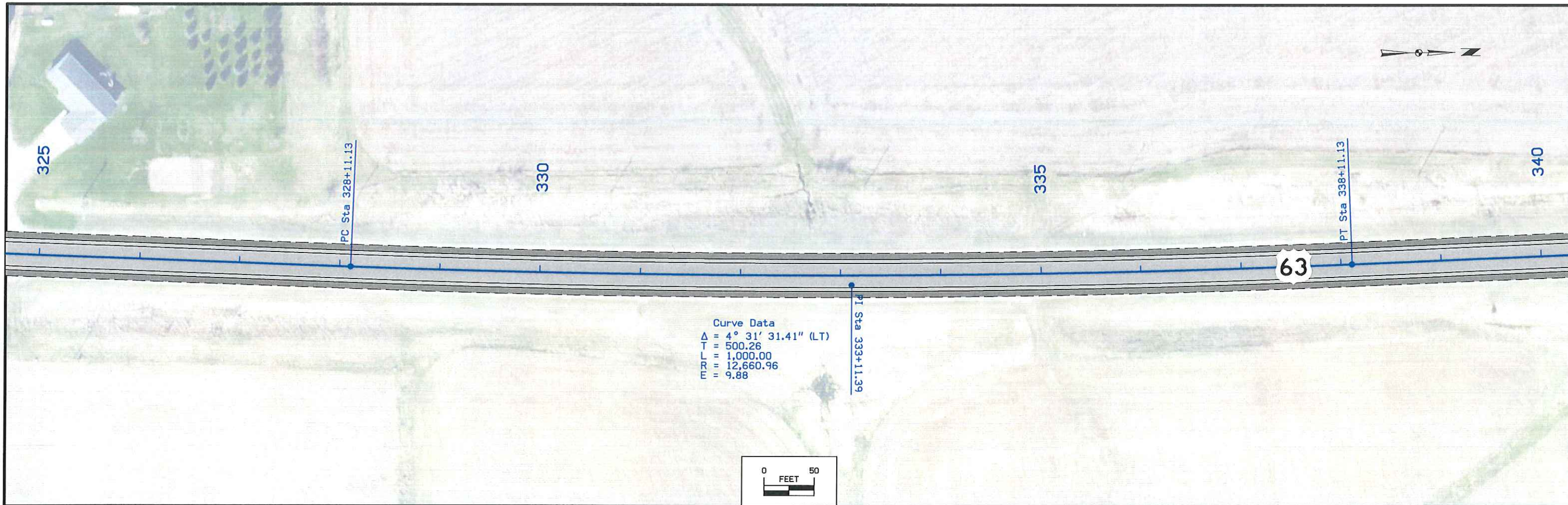


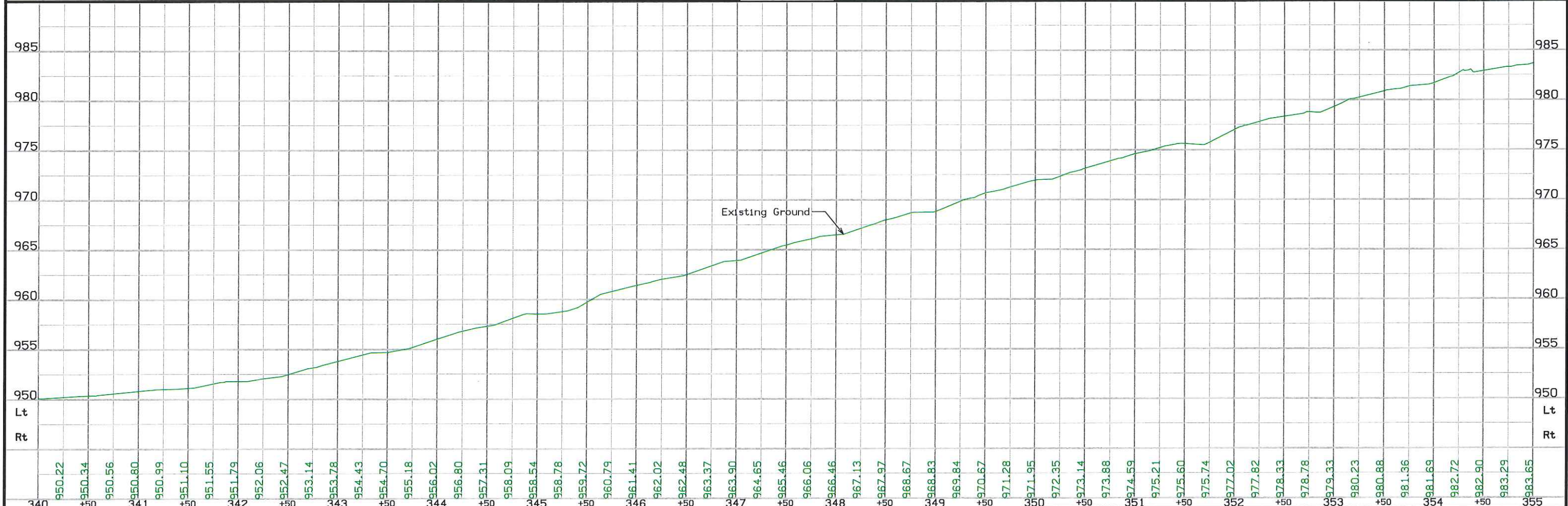
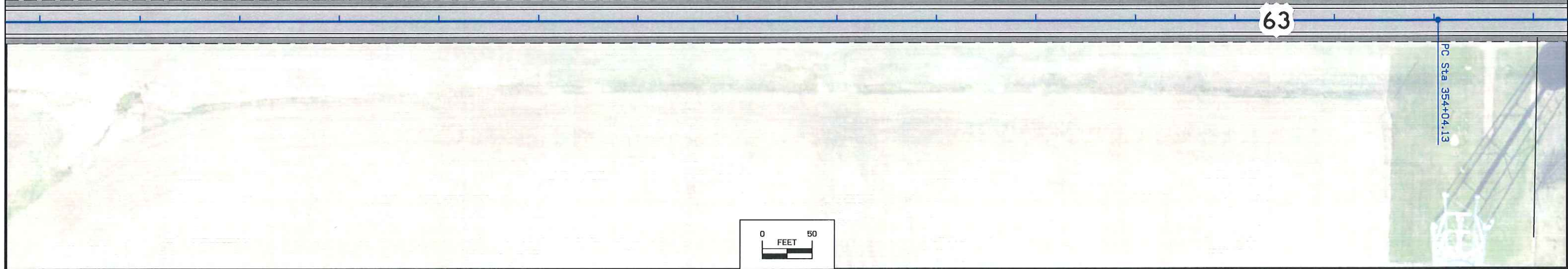
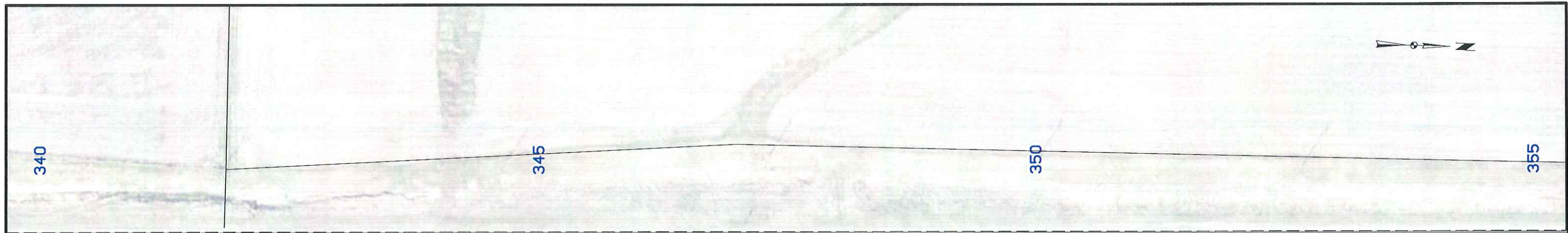


Curve Data  
 $\Delta = 5^\circ 50' 34.45''$  (RT)  
 $T = 583.84$   
 $L = 1,166.67$   
 $E = 11,440.42$   
 $F = 14.89$

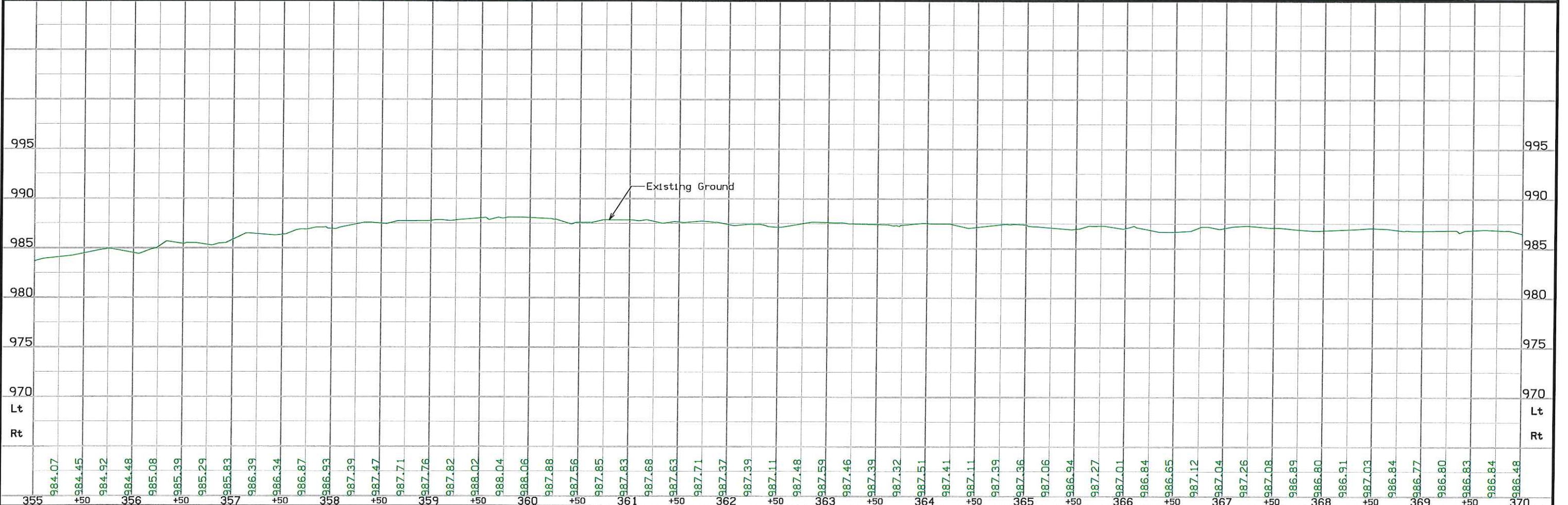
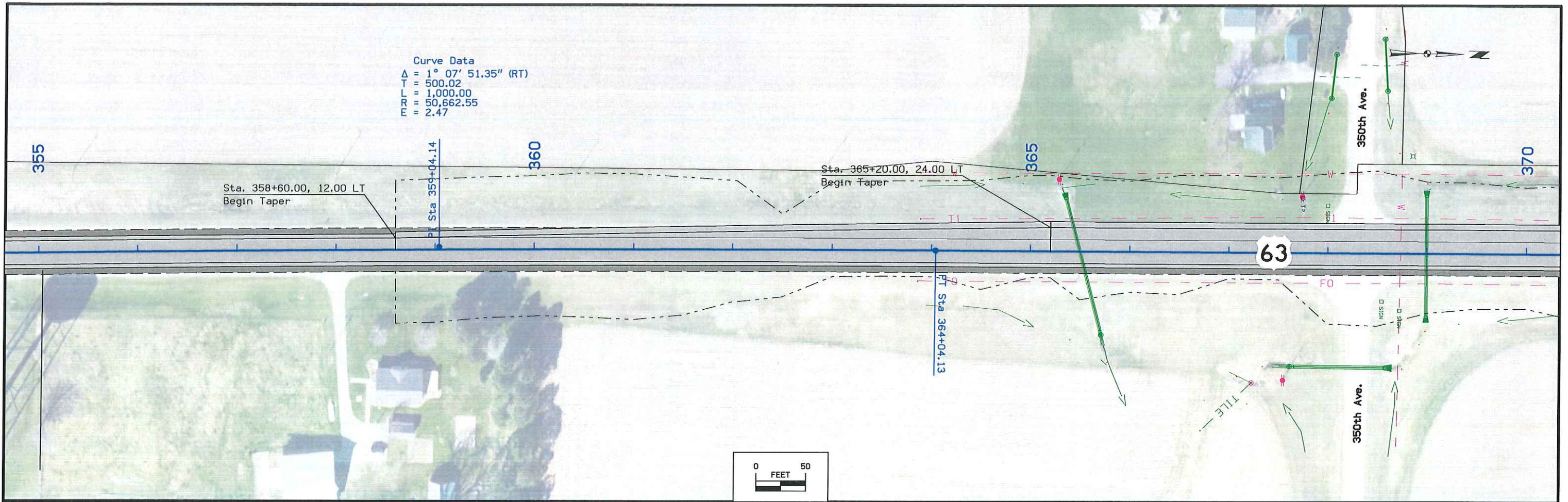


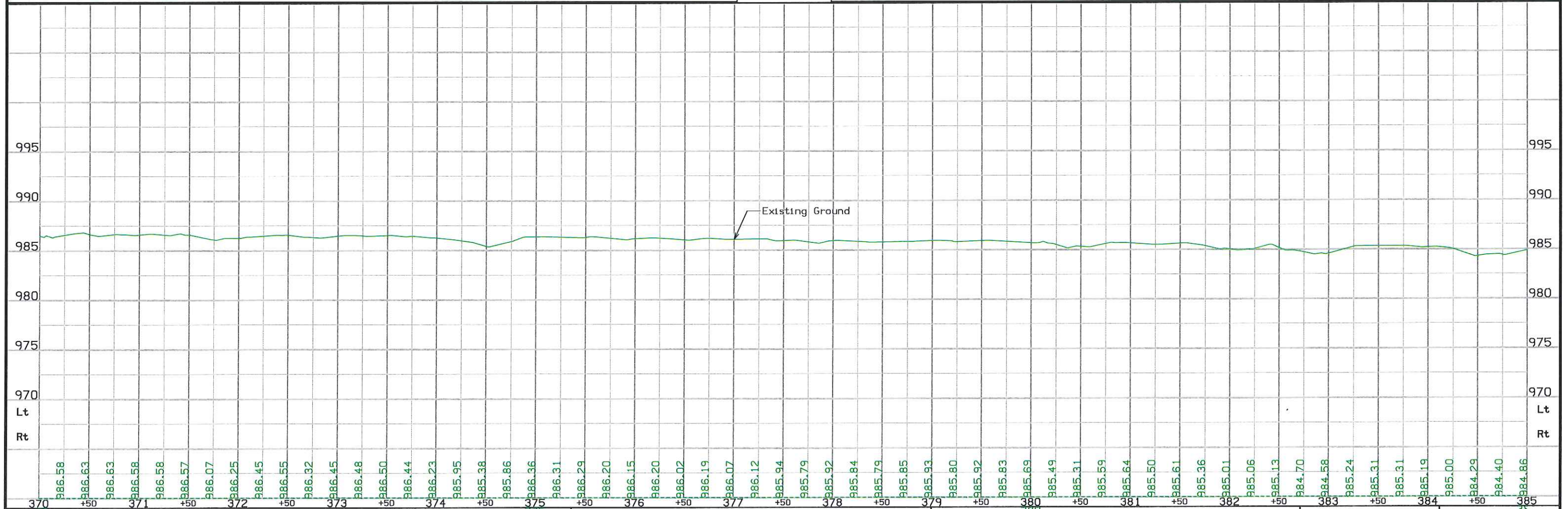
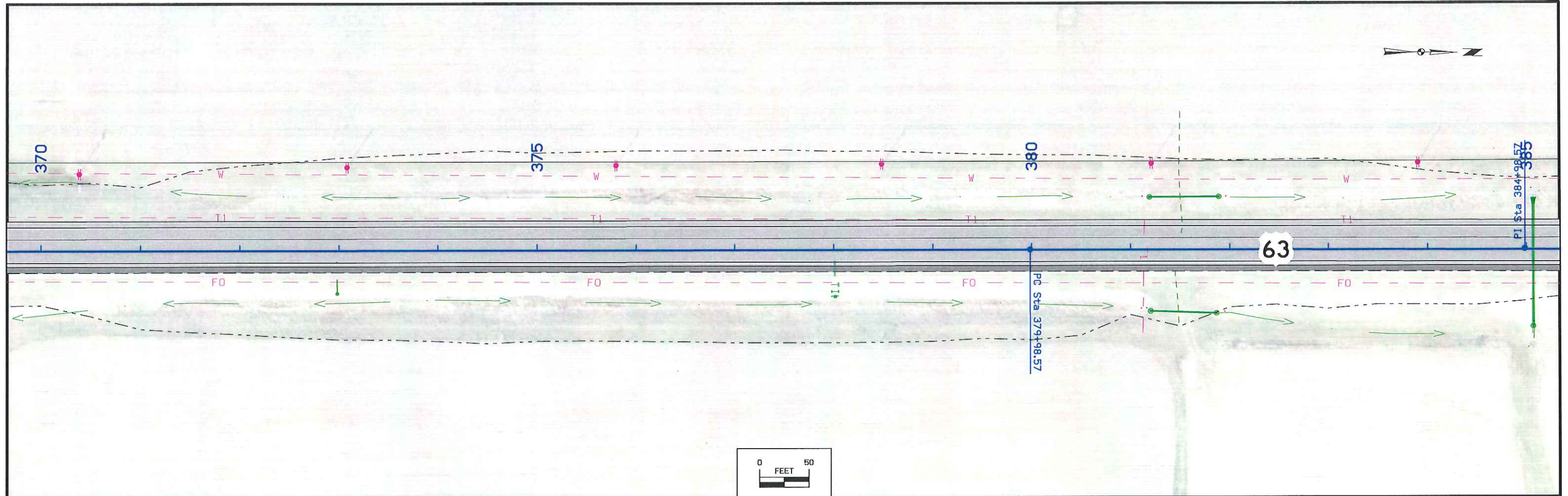
FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.9
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Curve Data  
 $\Delta = 1^\circ 07' 51.35''$  (RT)  
 T = 500.02  
 L = 1,000.00  
 R = 50,662.55  
 E = 2.47

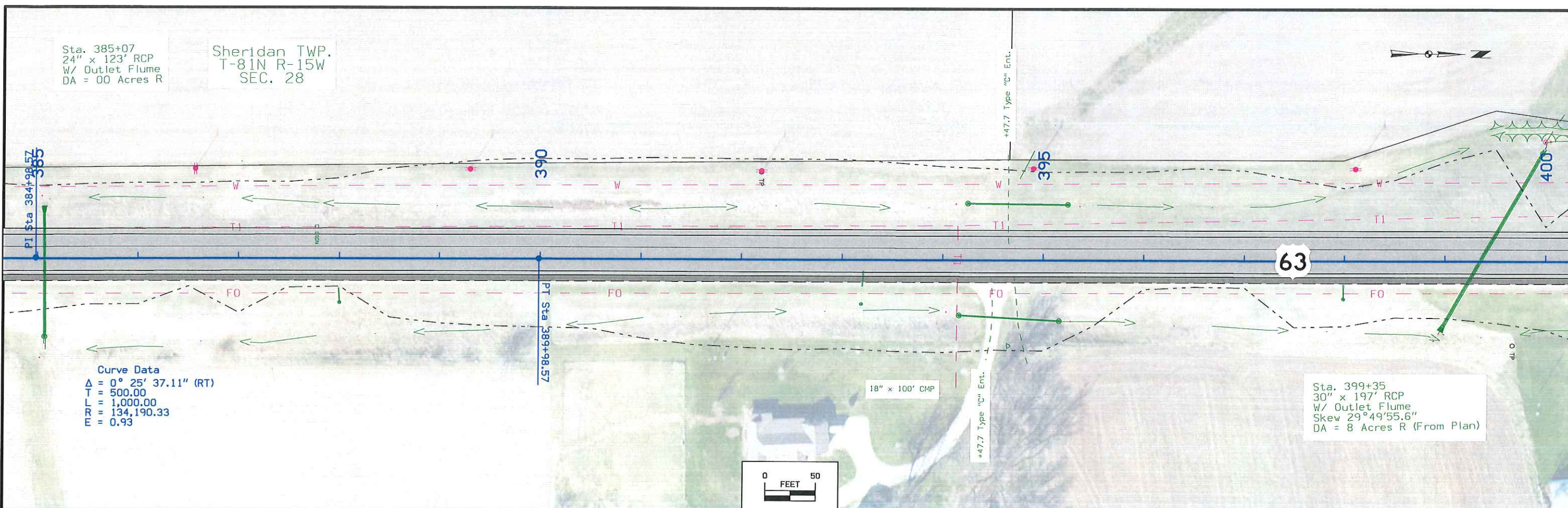






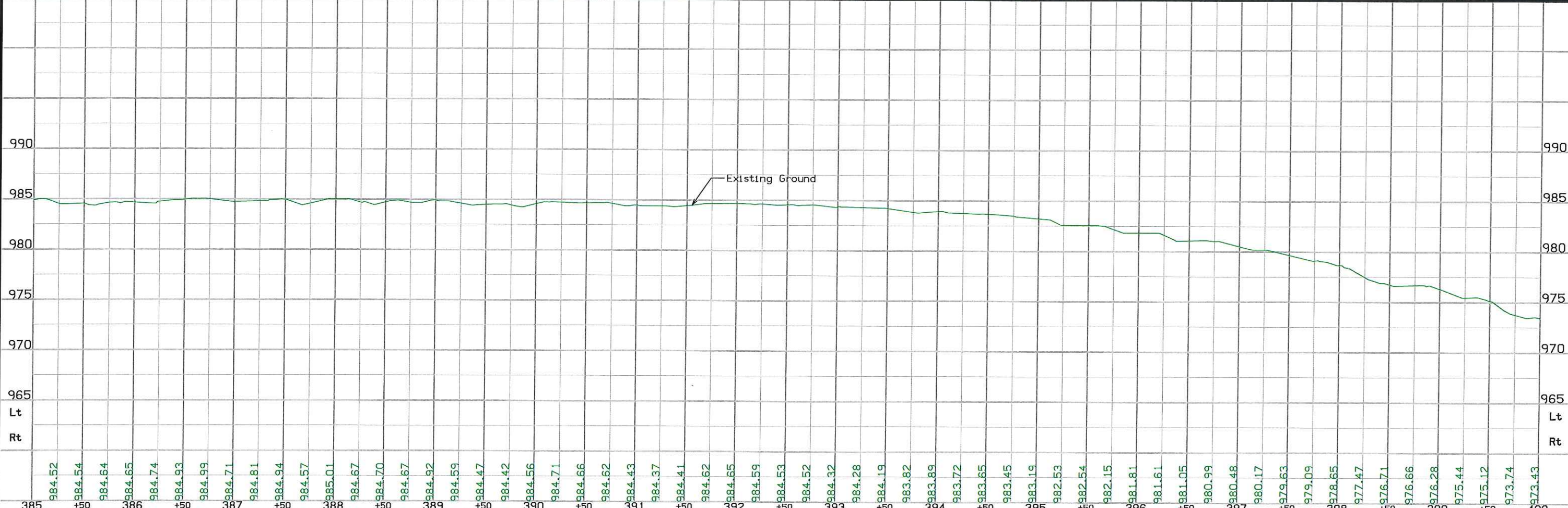
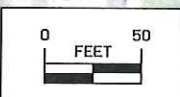
Sta. 385+07  
24" x 123' RCP  
W/ Outlet Flume  
DA = 00 Acres R

Sheridan TWP.  
T-81N R-15W  
SEC. 28

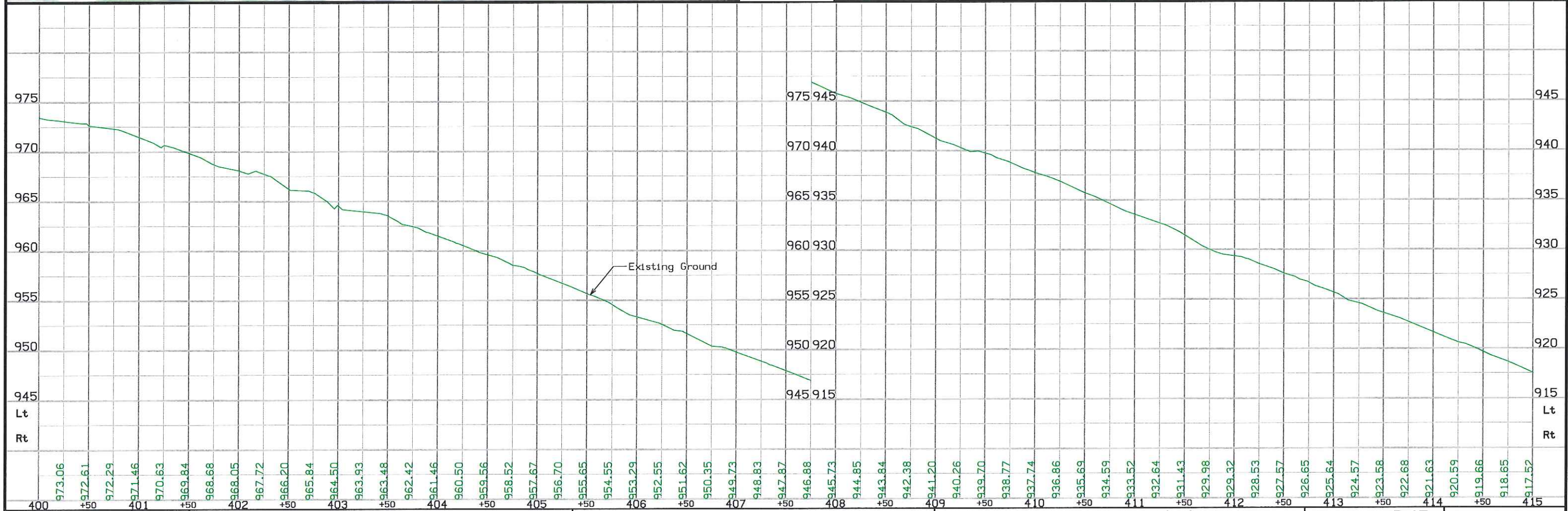
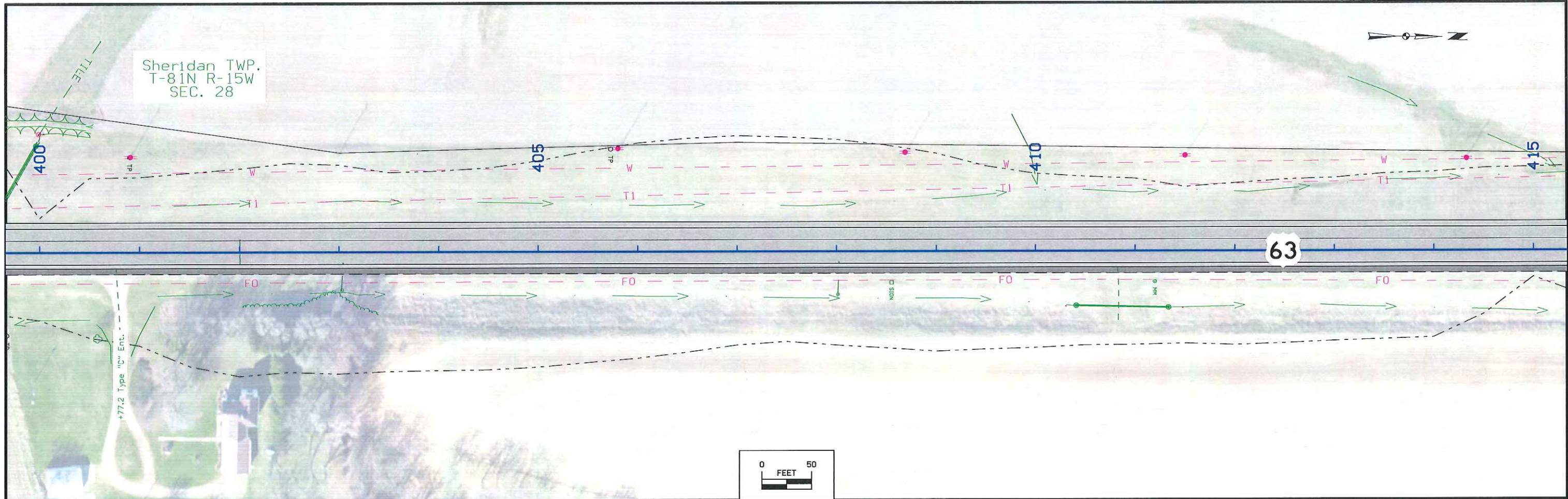


Curve Data  
 $\Delta = 0^\circ 25' 37.11''$  (RT)  
 $T = 500.00$   
 $L = 1,000.00$   
 $R = 134,190.33$   
 $E = 0.93$

Sta. 399+35  
30" x 197' RCP  
W/ Outlet Flume  
Skew  $29^\circ 49' 55.6''$   
DA = 8 Acres R (From Plan)



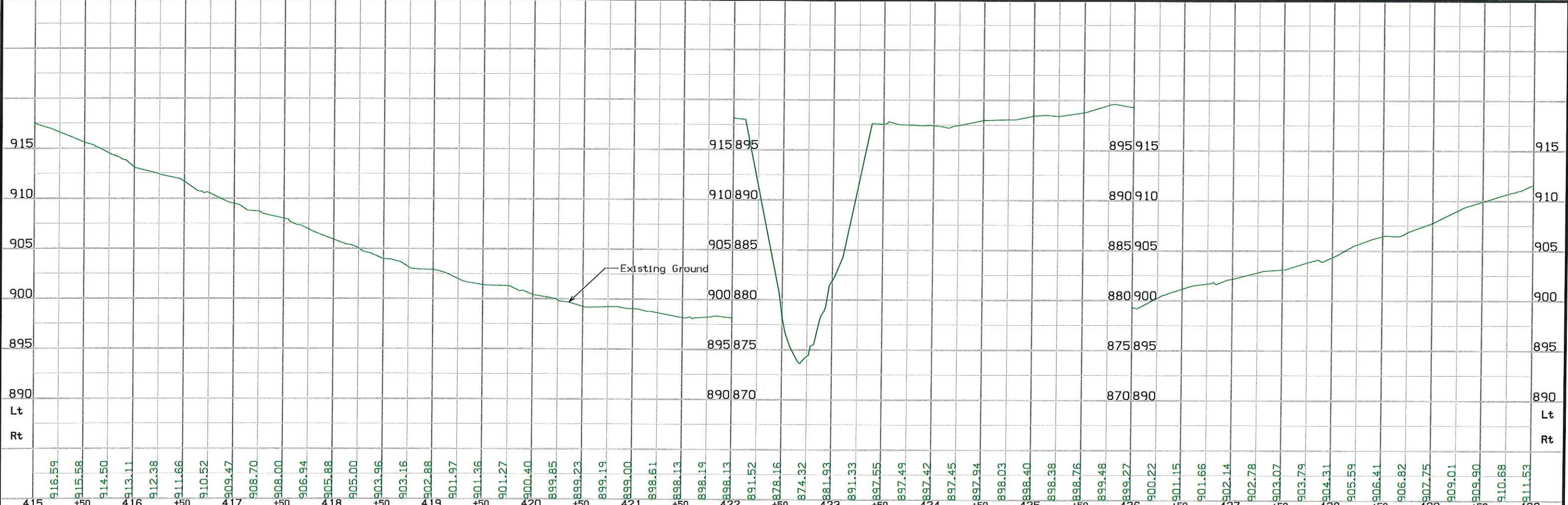
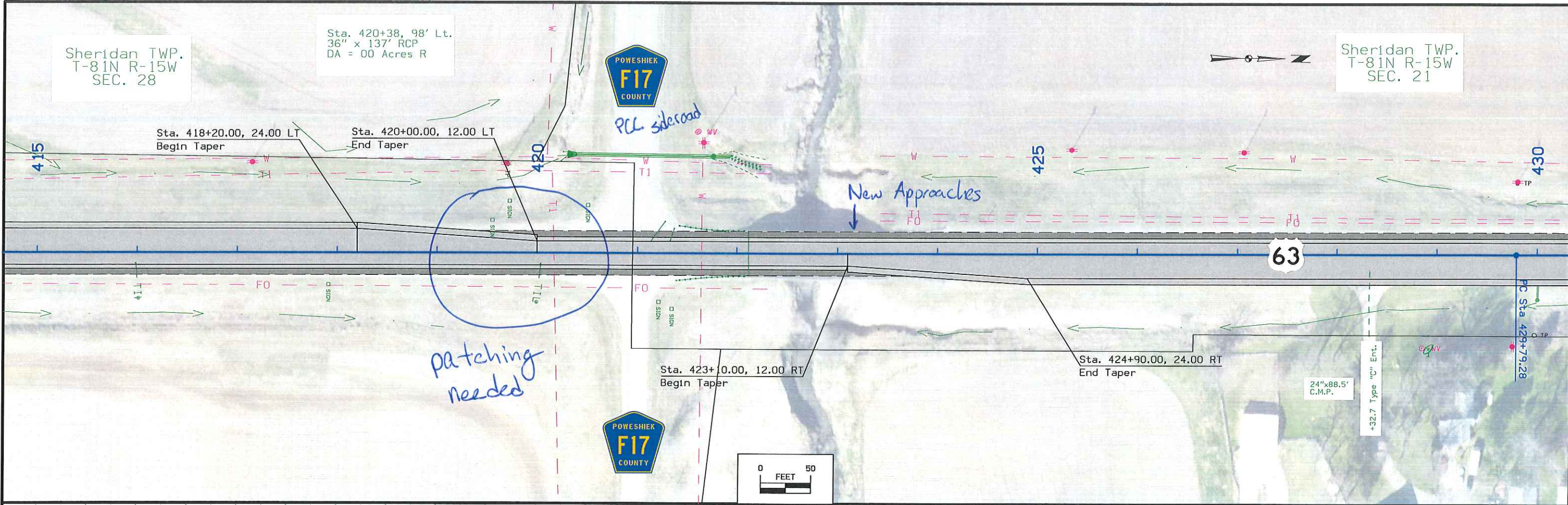
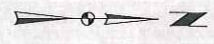
FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.14
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Sheridan TWP.  
T-81N R-15W  
SEC. 28

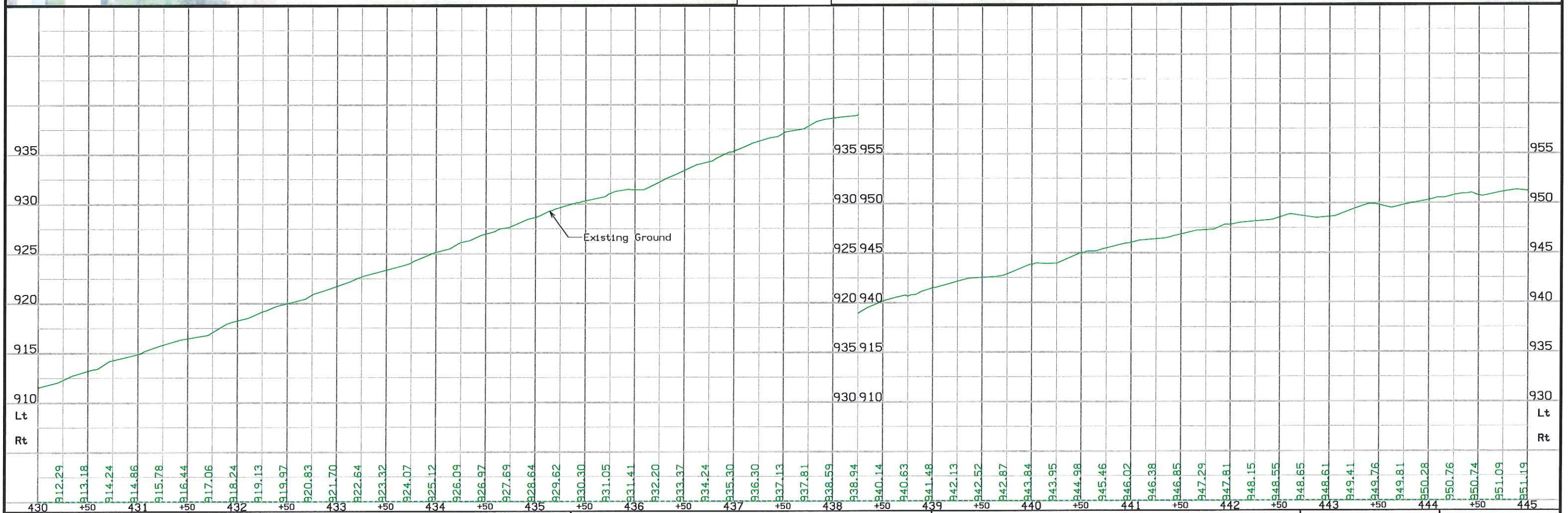
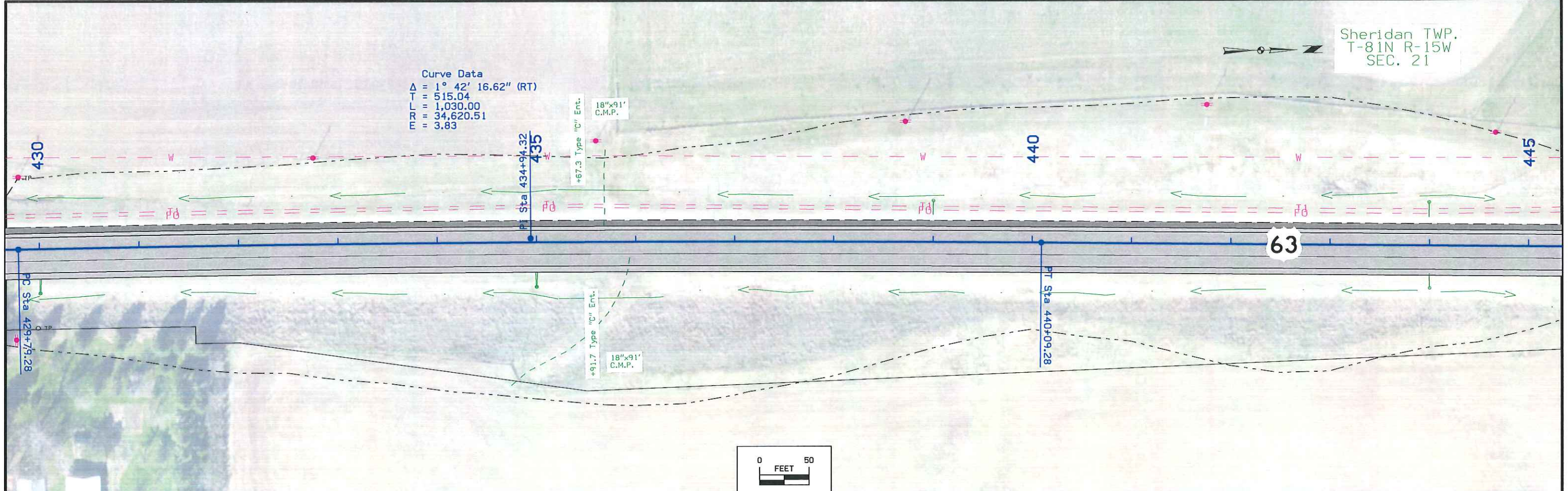
Sta. 420+38, 98' Lt.  
36" x 137' RCP  
DA = 00 Acres R

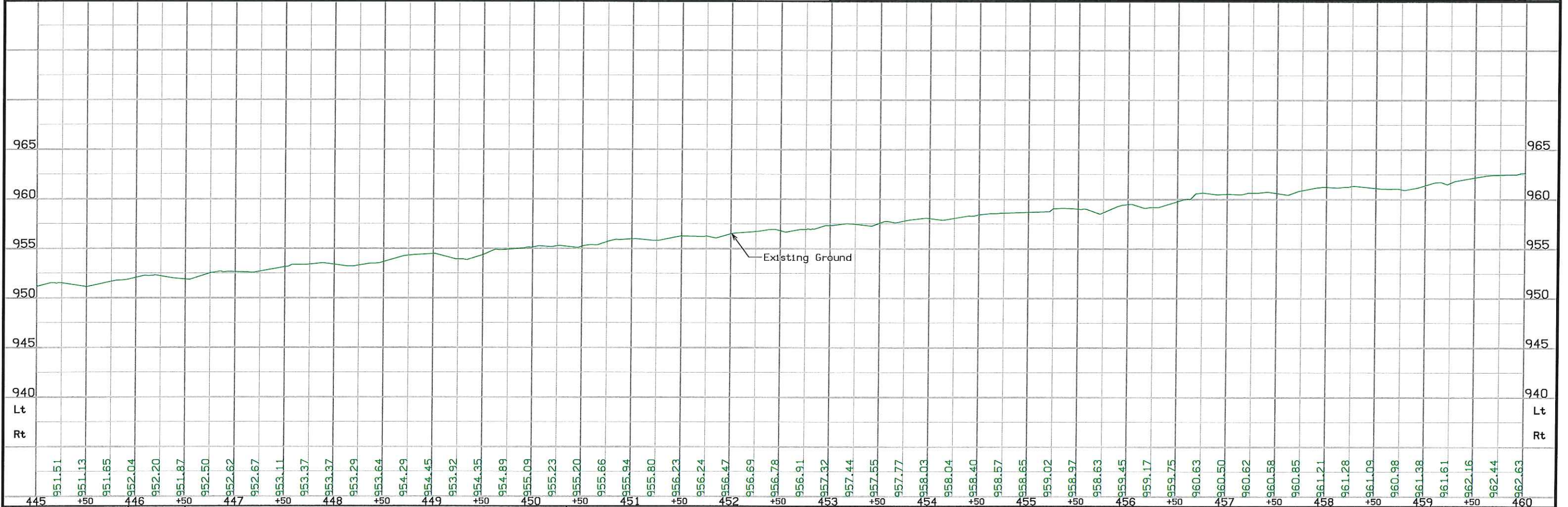
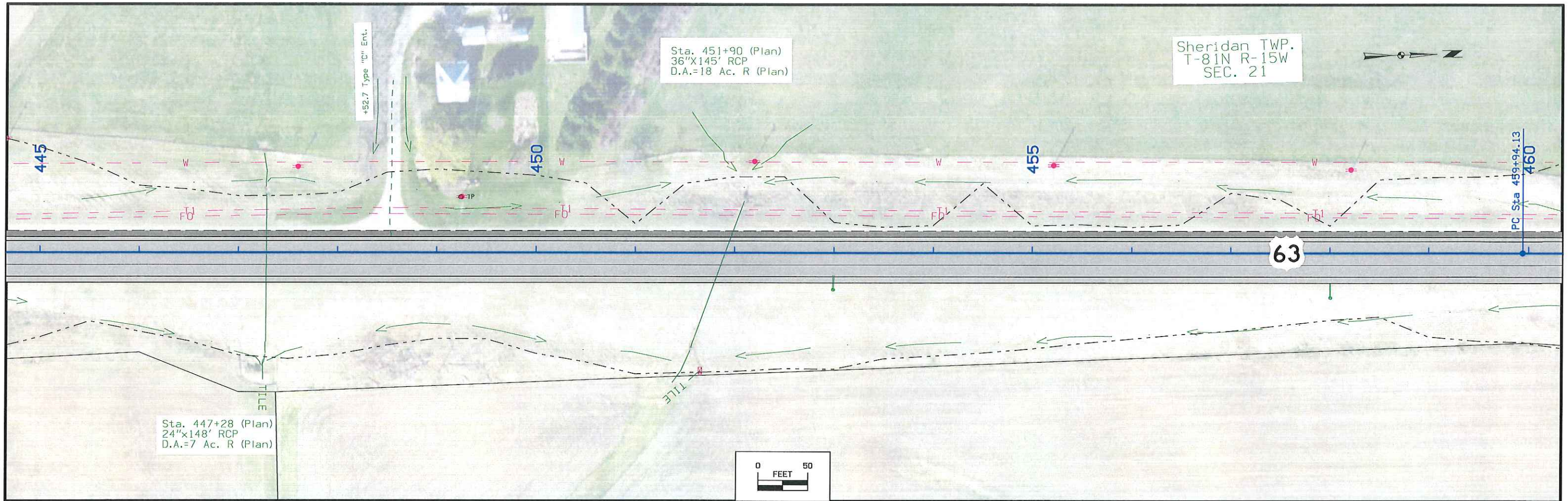
Sheridan TWP.  
T-81N R-15W  
SEC. 21

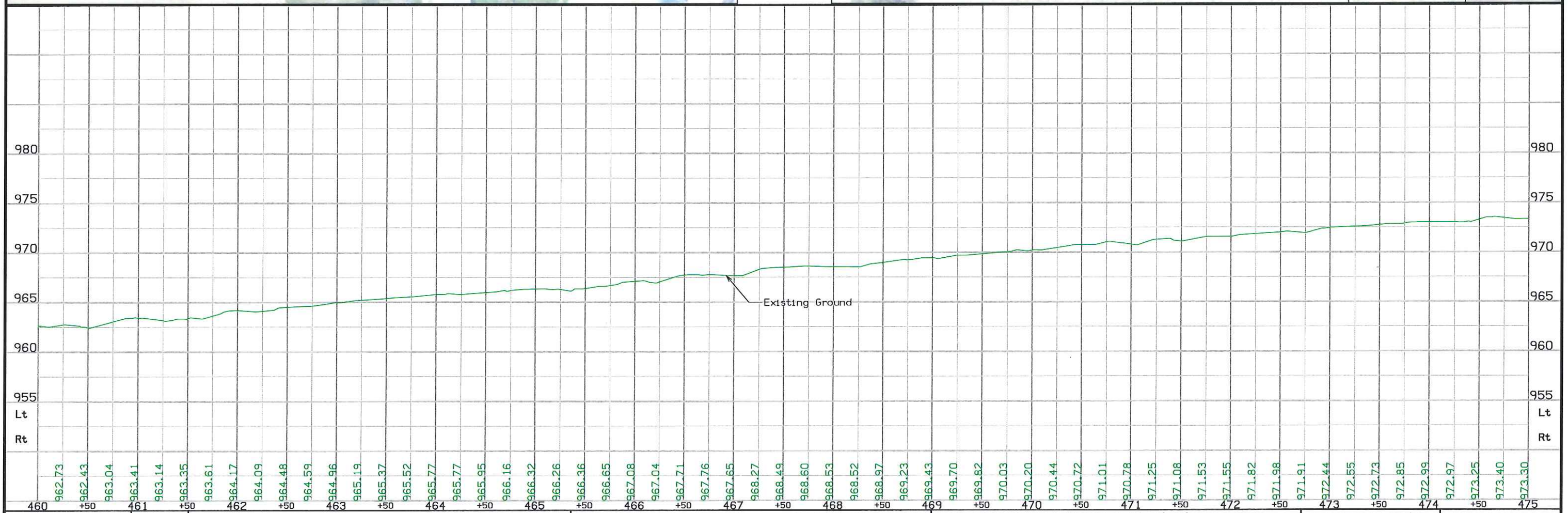
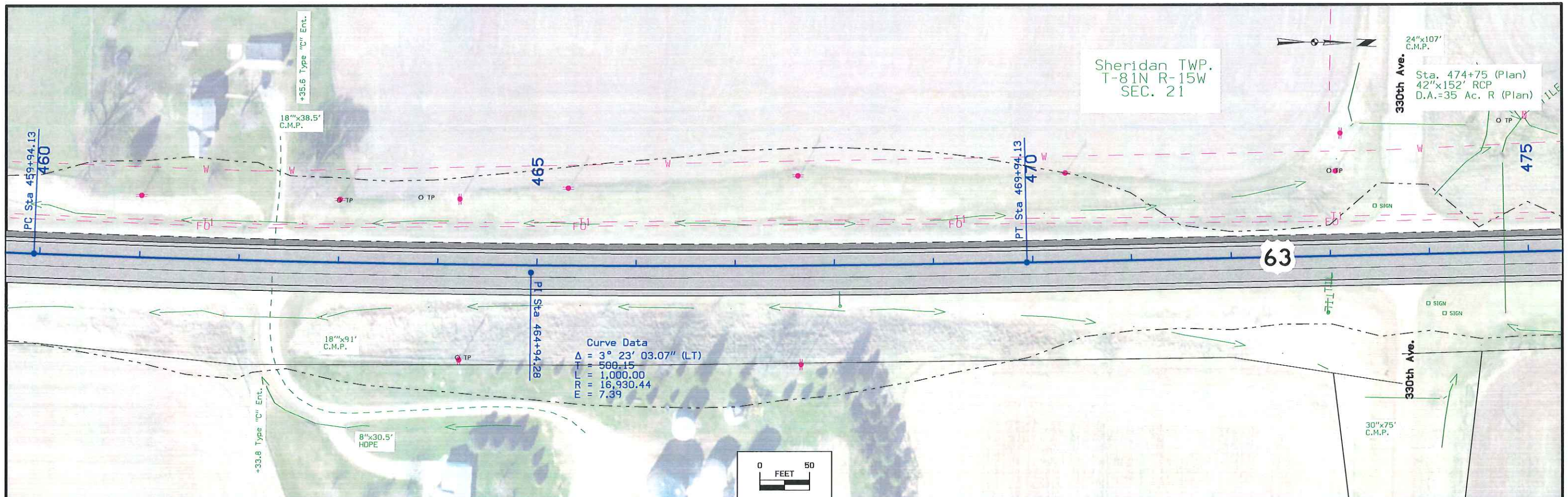


FILE NO.	ENGLISH	DESIGN TEAM	POWESHIEK COUNTY	PROJECT NUMBER	SHEET NUMBER
		Smyth \ Frostestad		NHSX-063-4(52)--3H-79	D.16

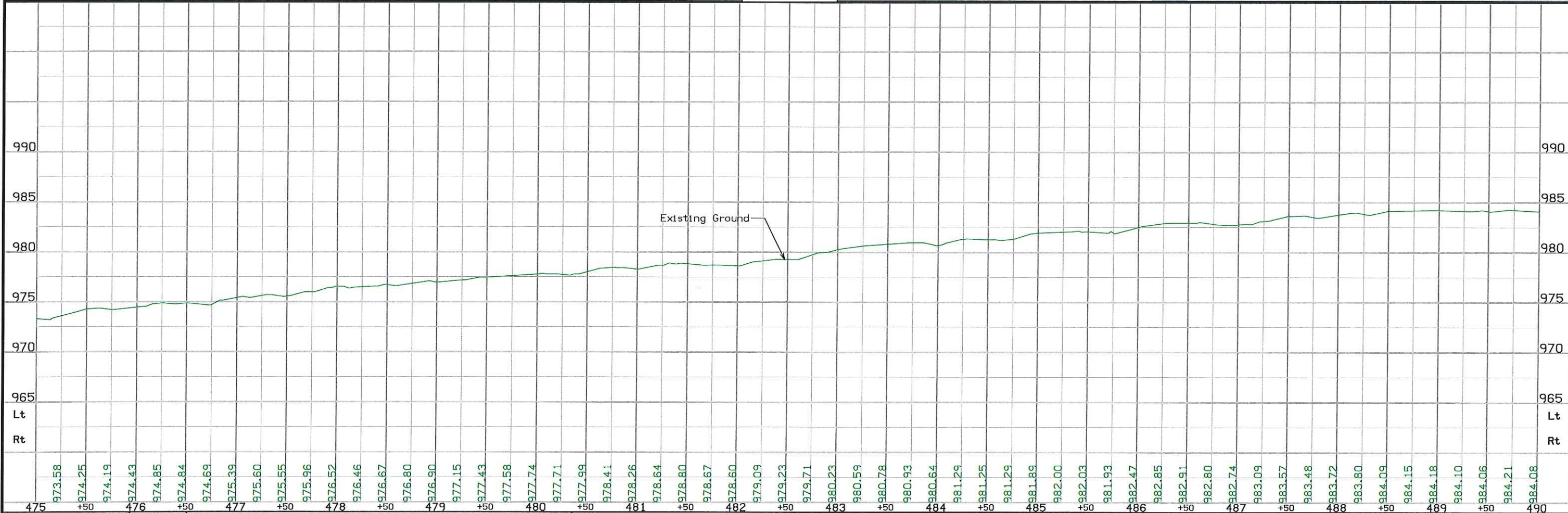
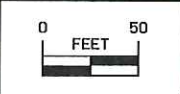
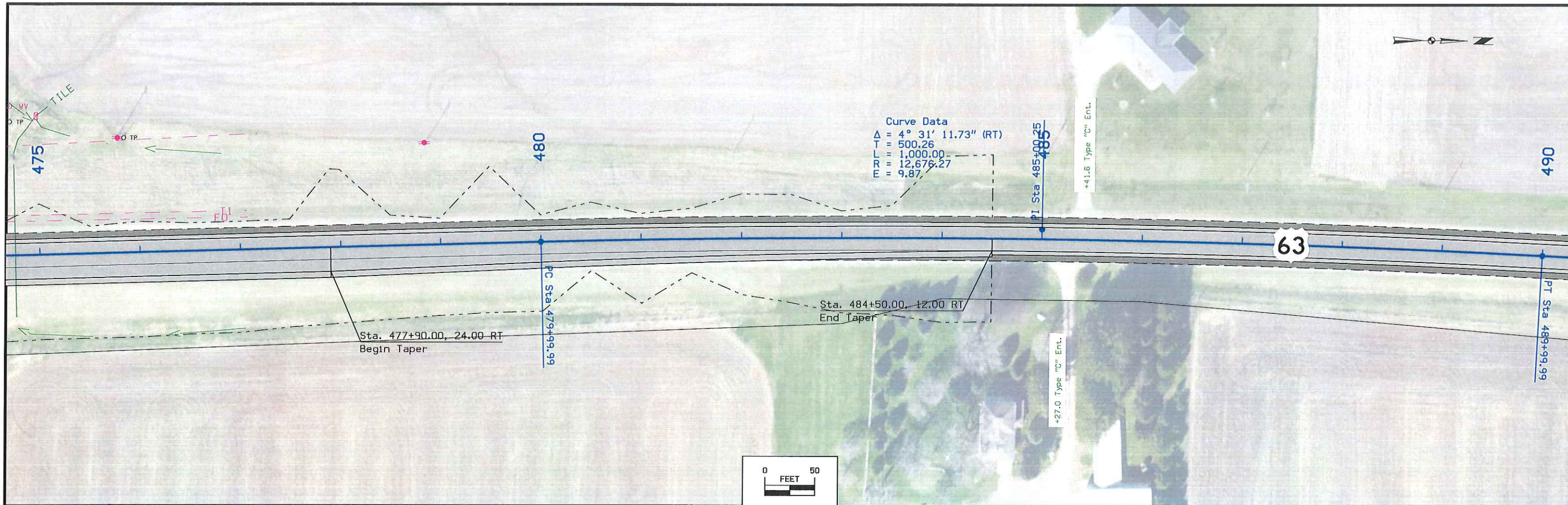
Curve Data  
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 $R = 1,030.00$   
 $E = 34,620.51$   
 $F = 3.83$



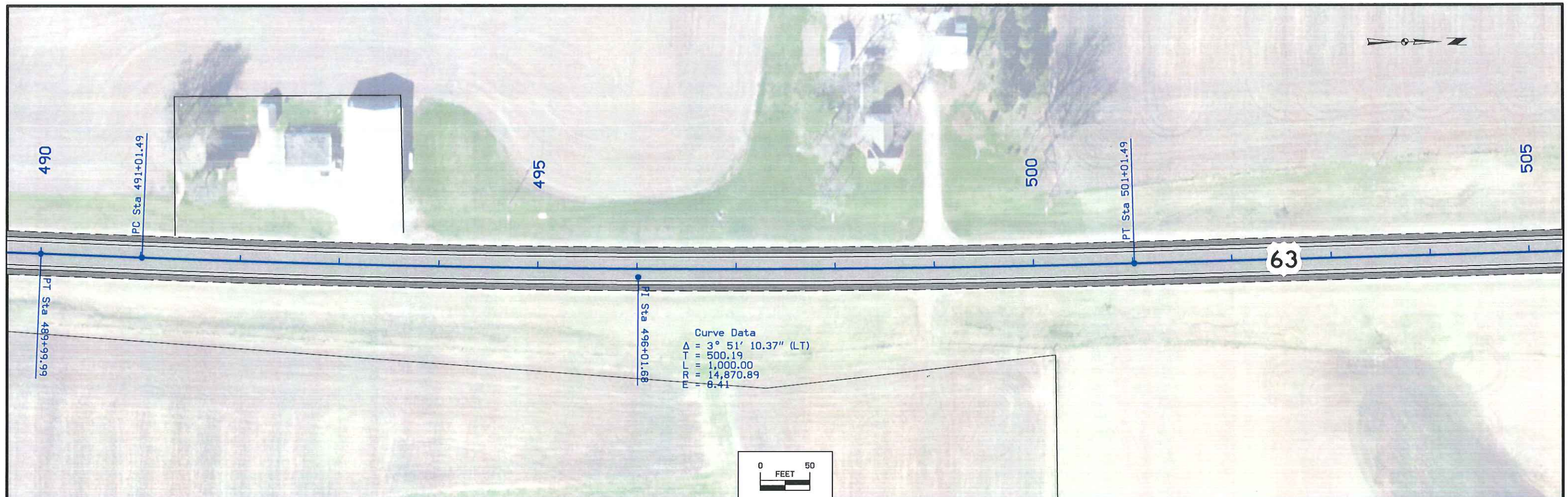




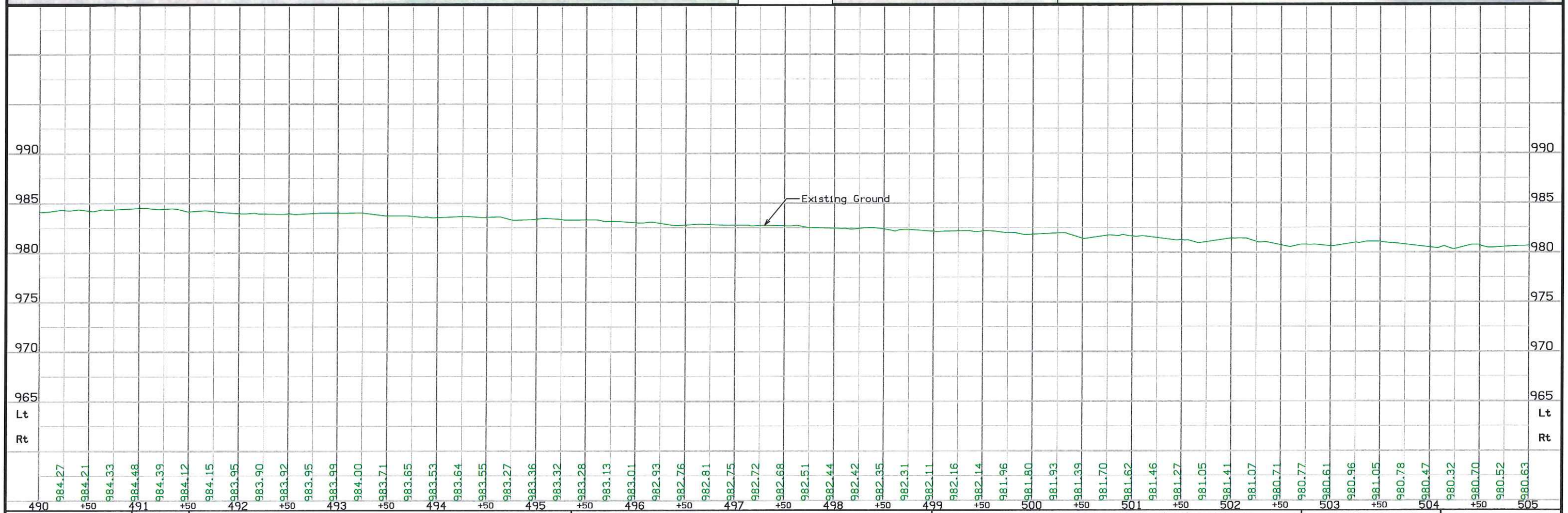
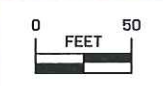
FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.19
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FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.20
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Curve Data  
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 $L = 1,000.00$   
 $R = 14,870.89$   
 $E = 8.41$

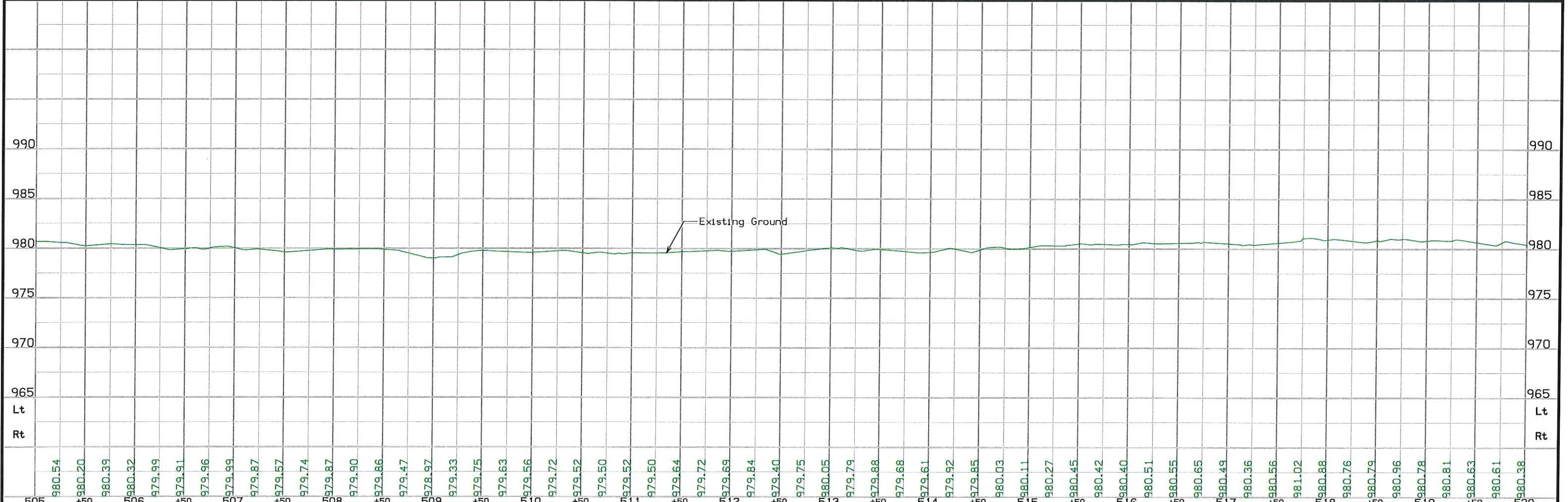
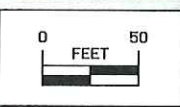


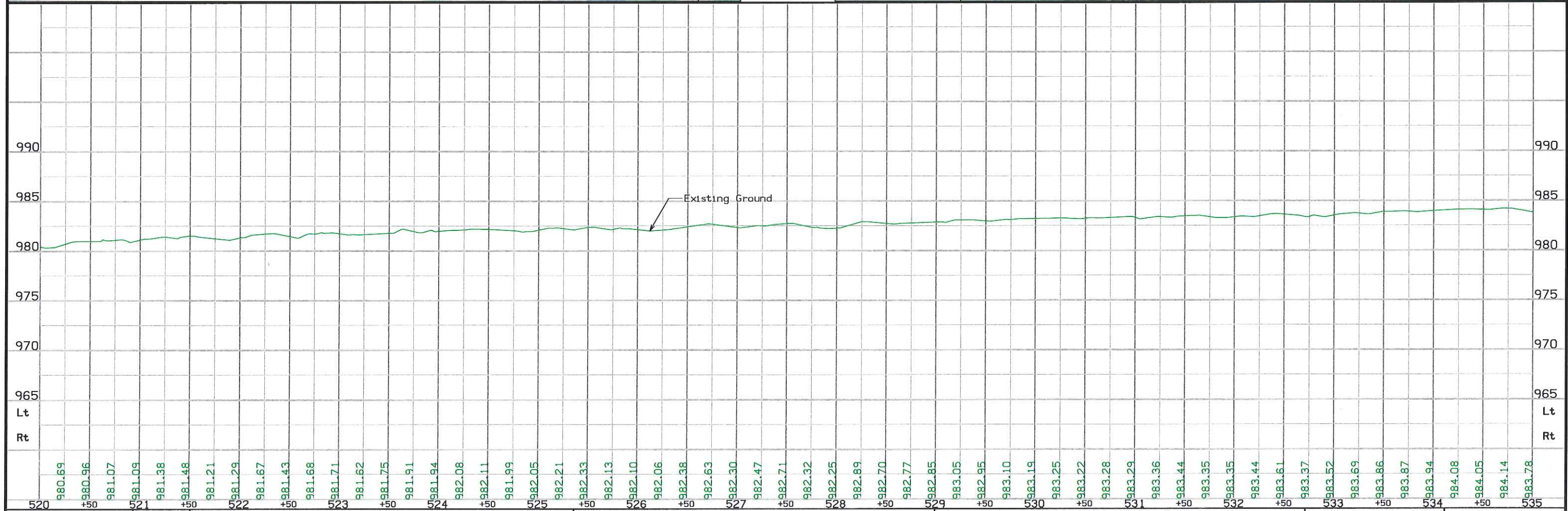
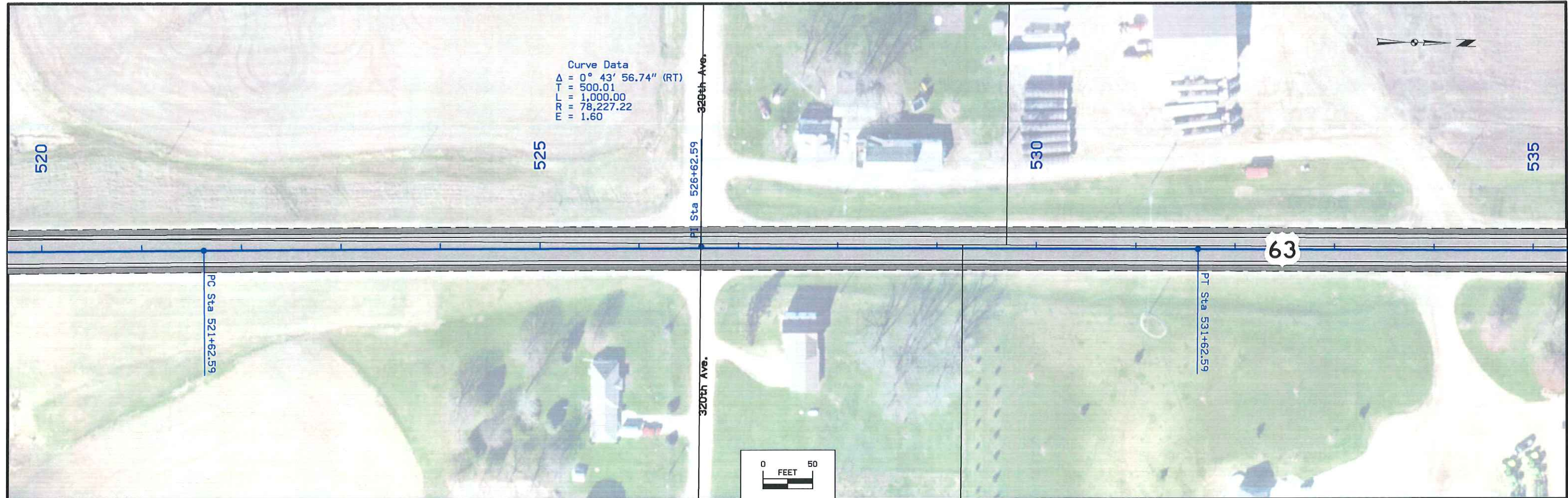
FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.21
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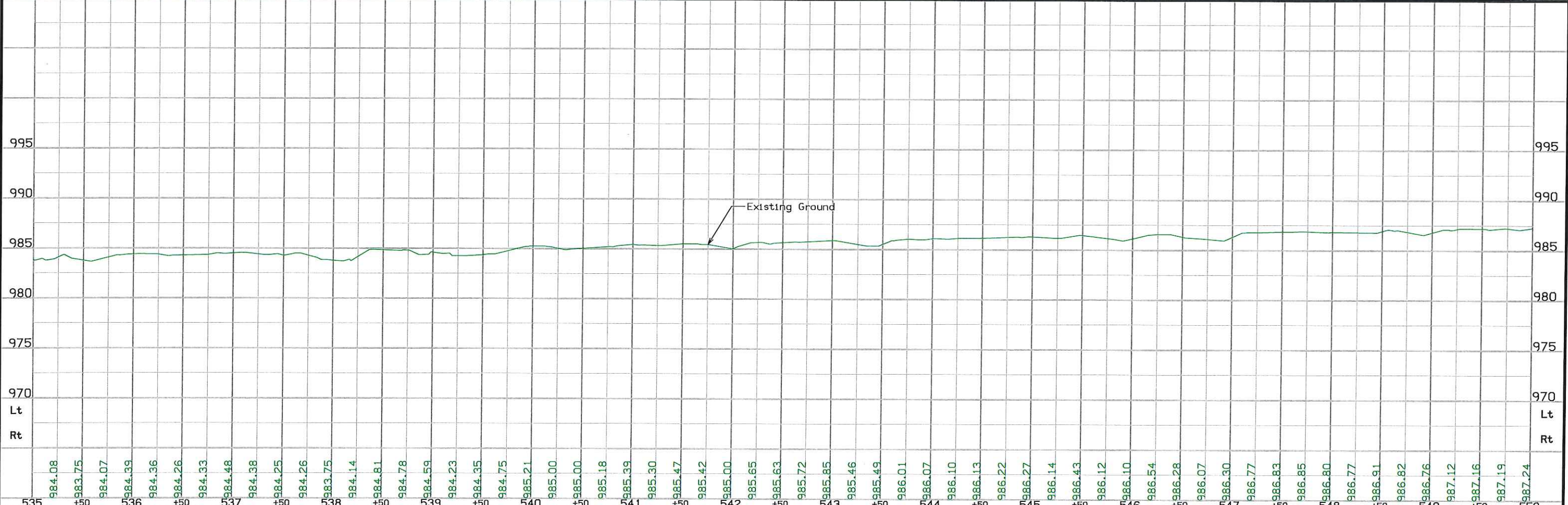
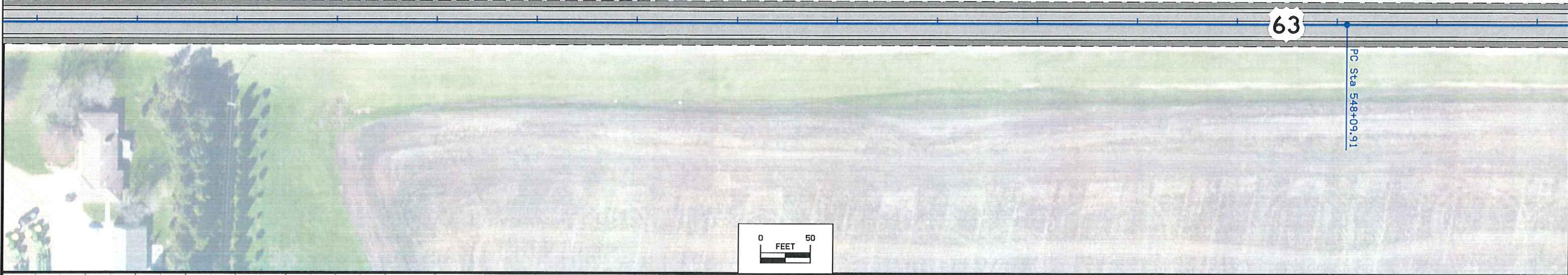


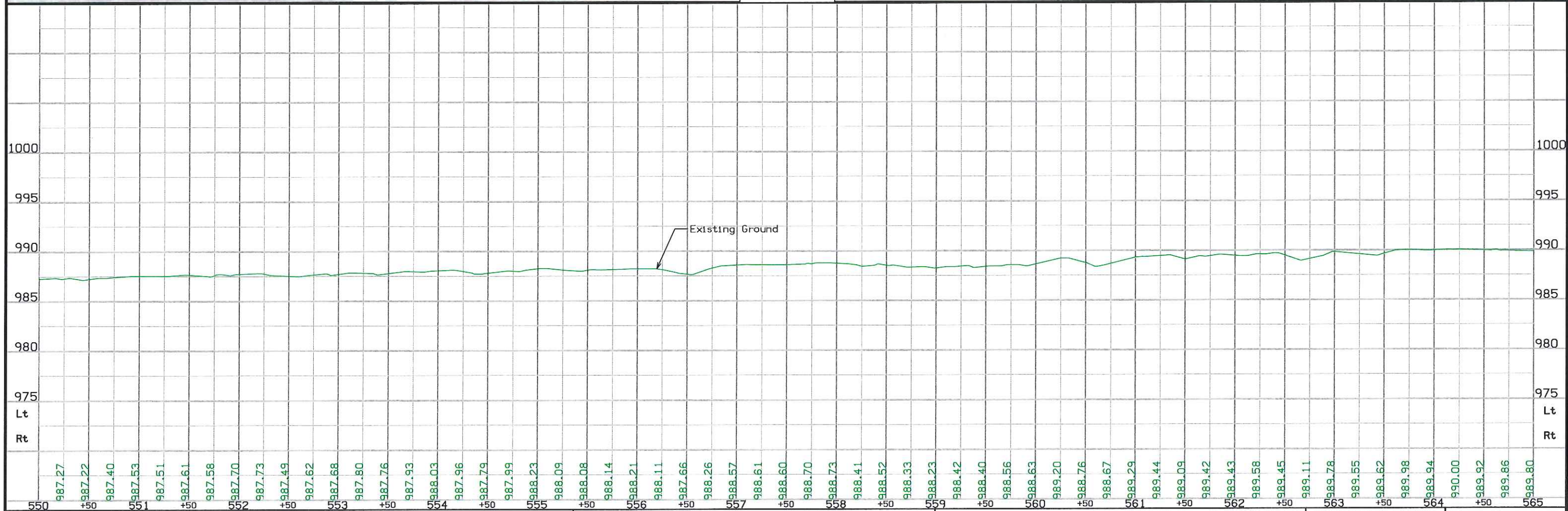
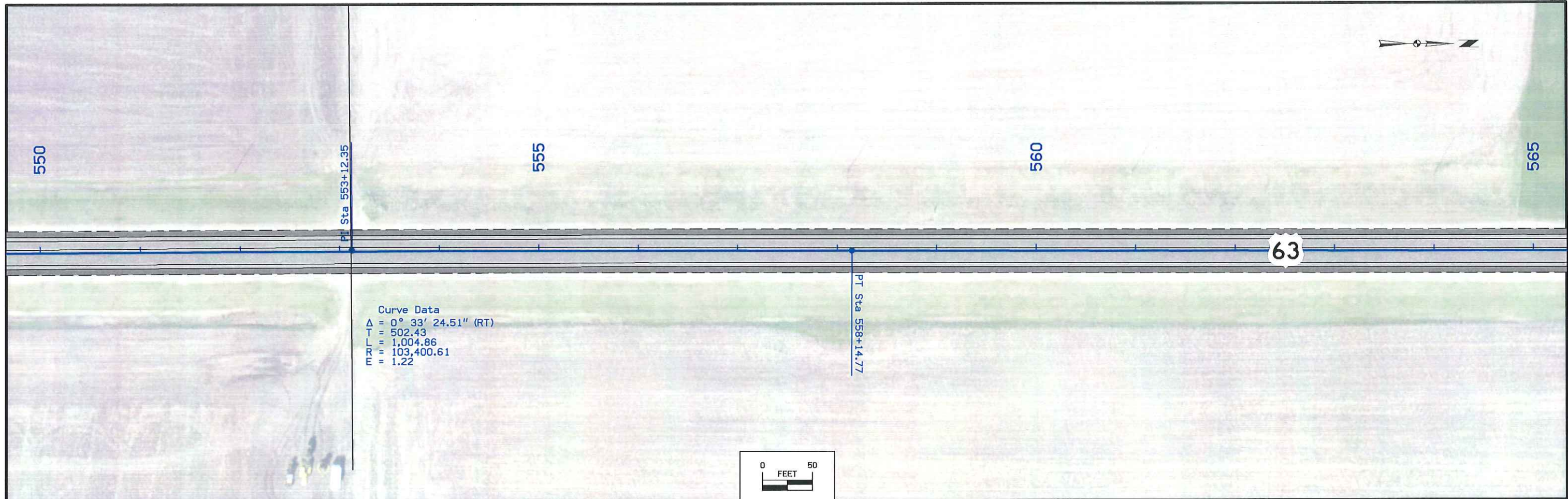


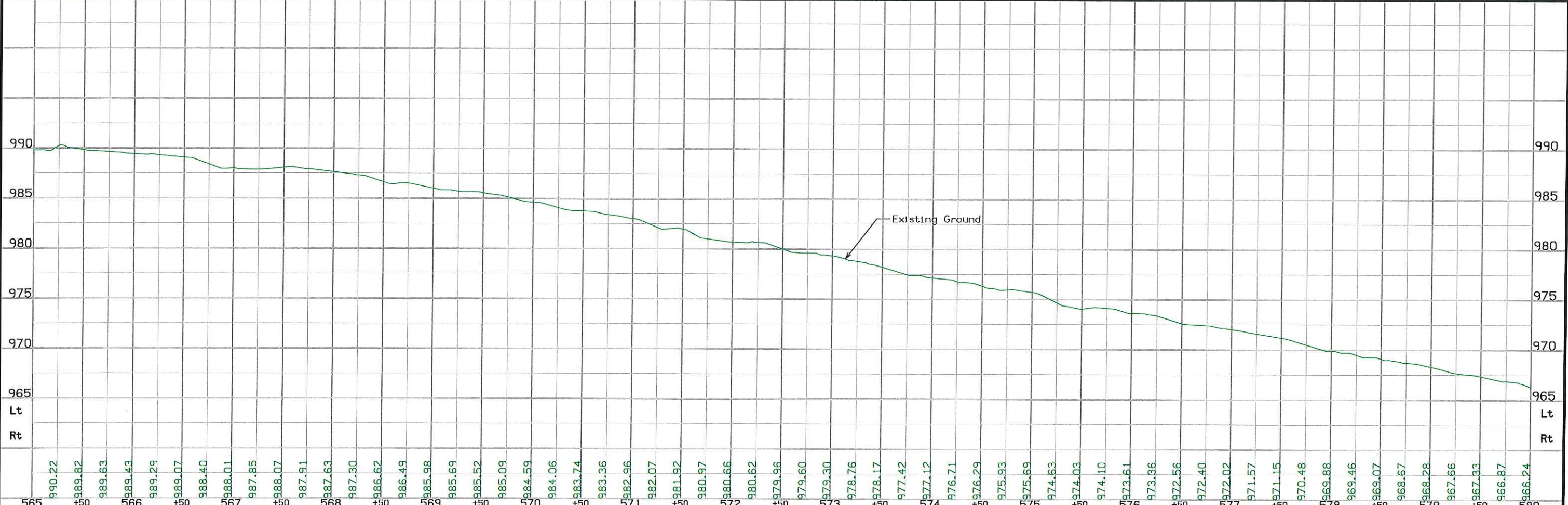
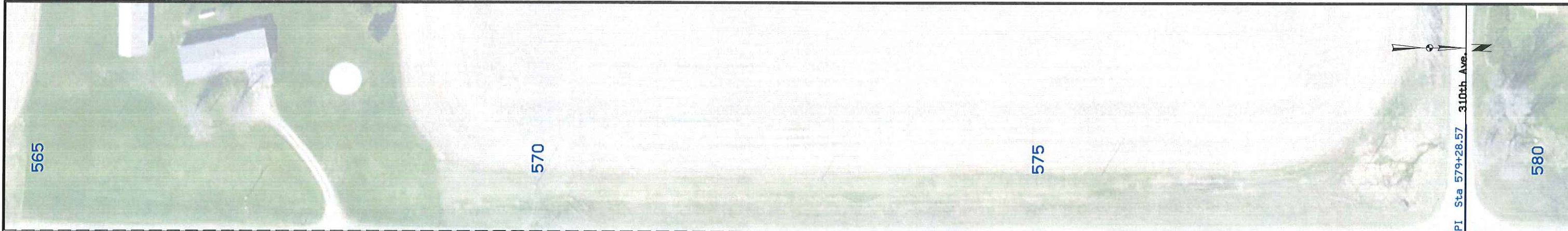
63

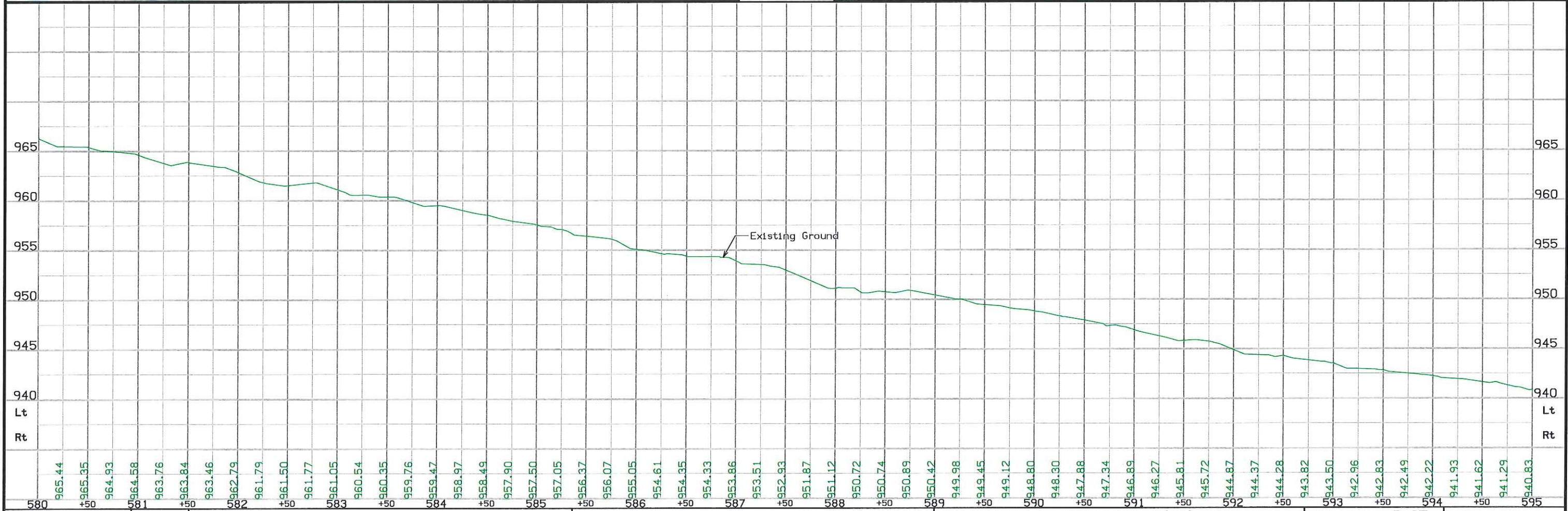
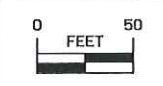
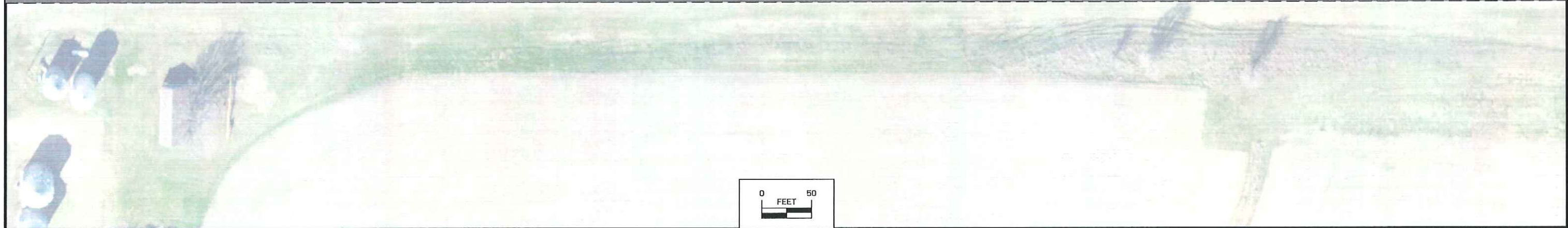
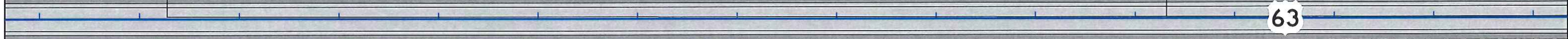
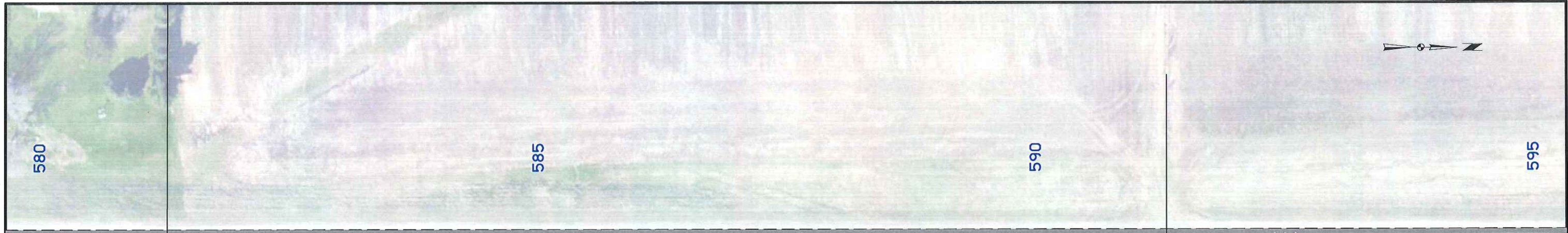


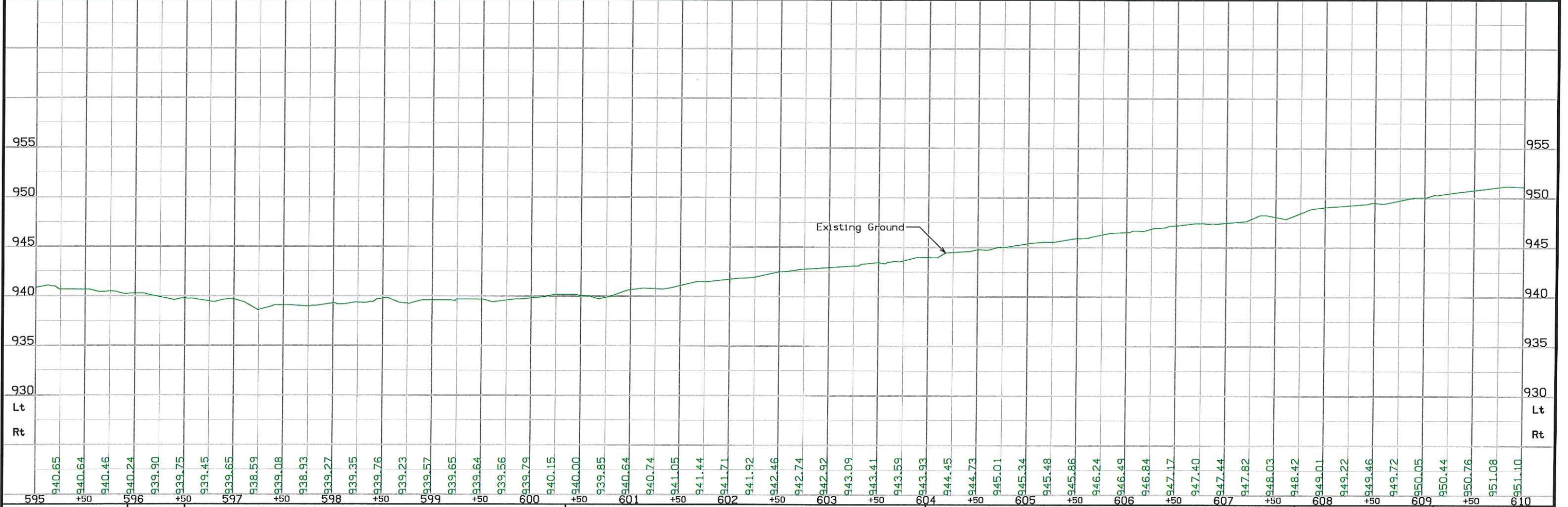


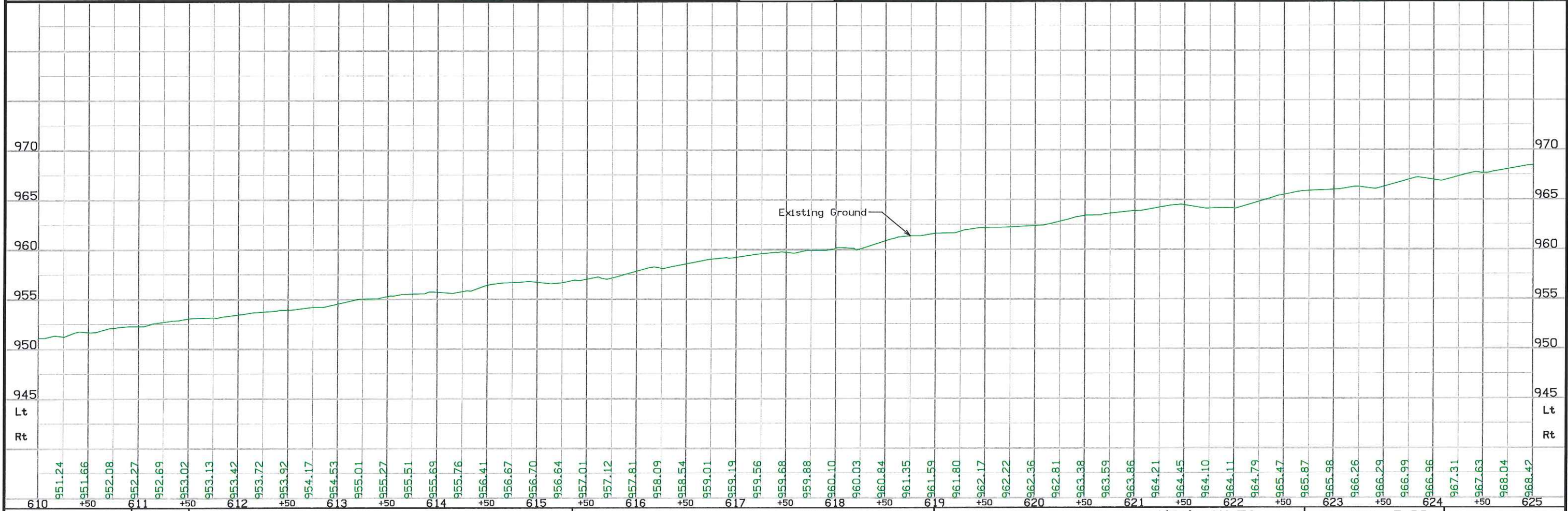
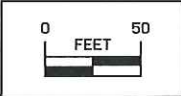
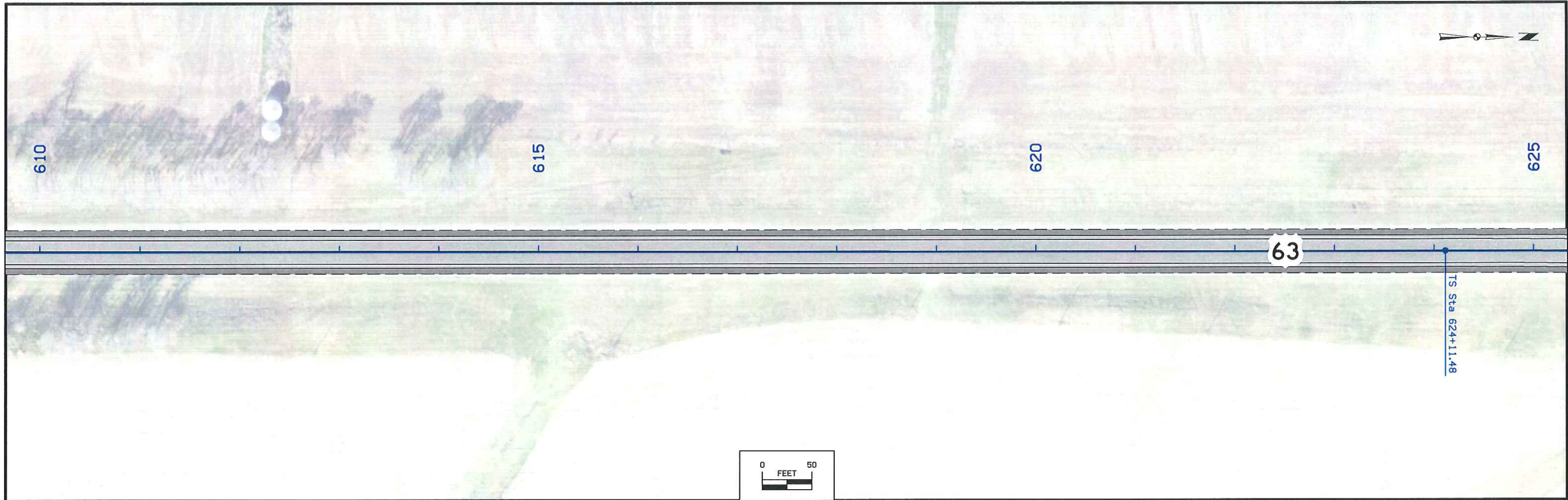




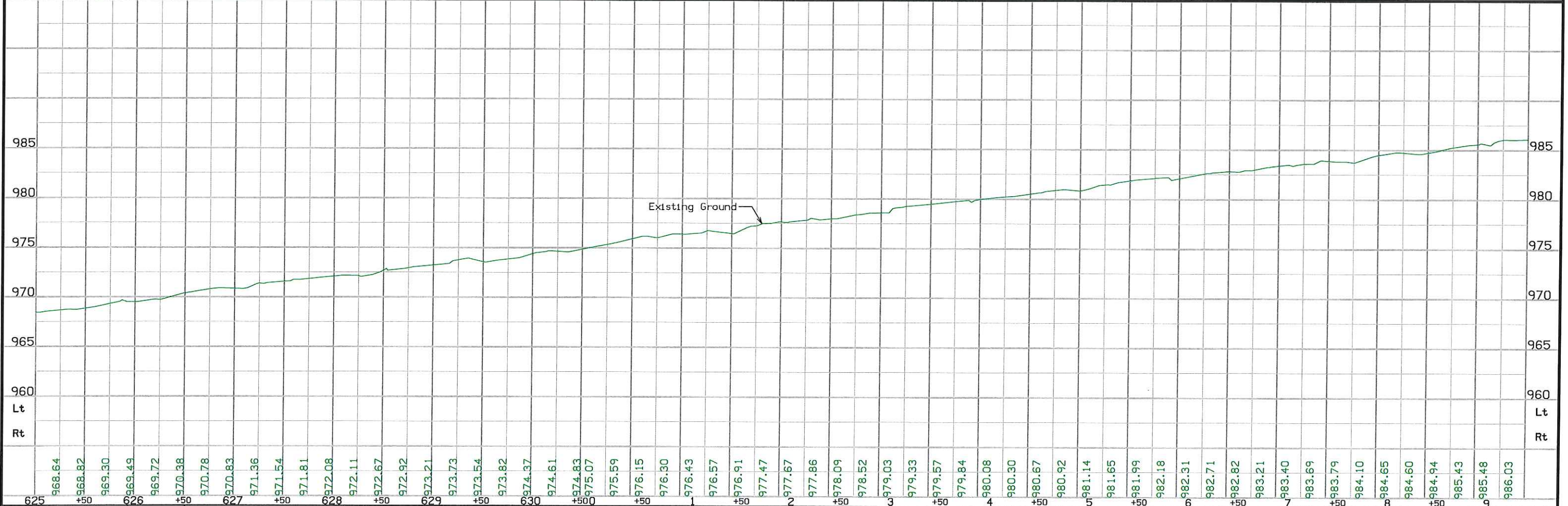
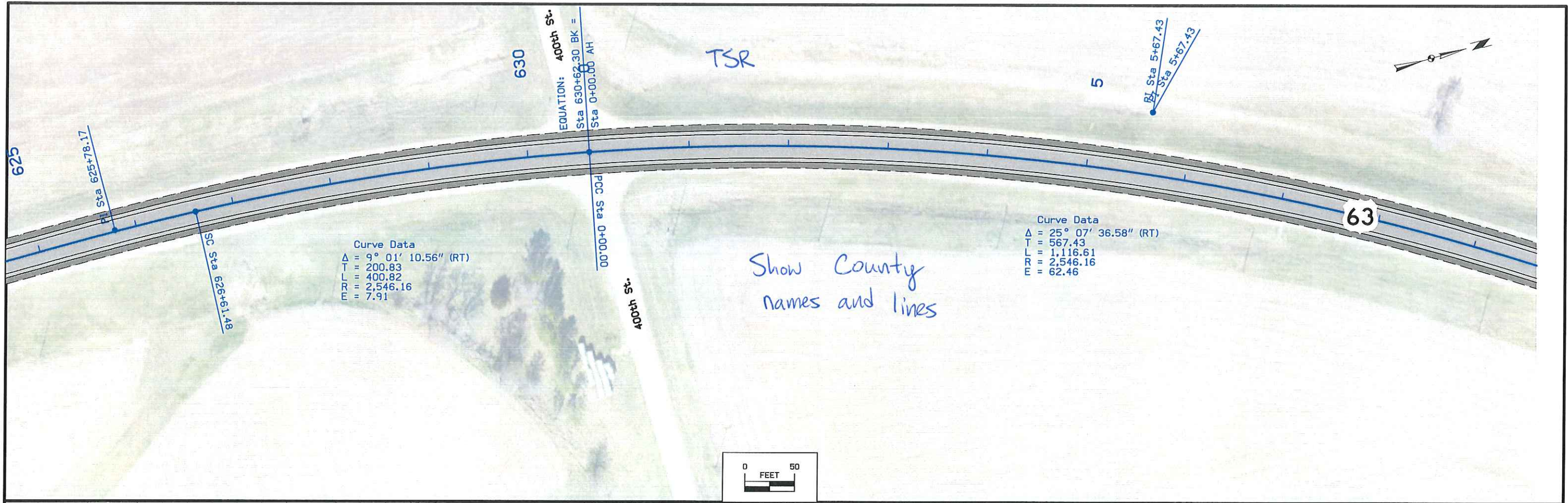


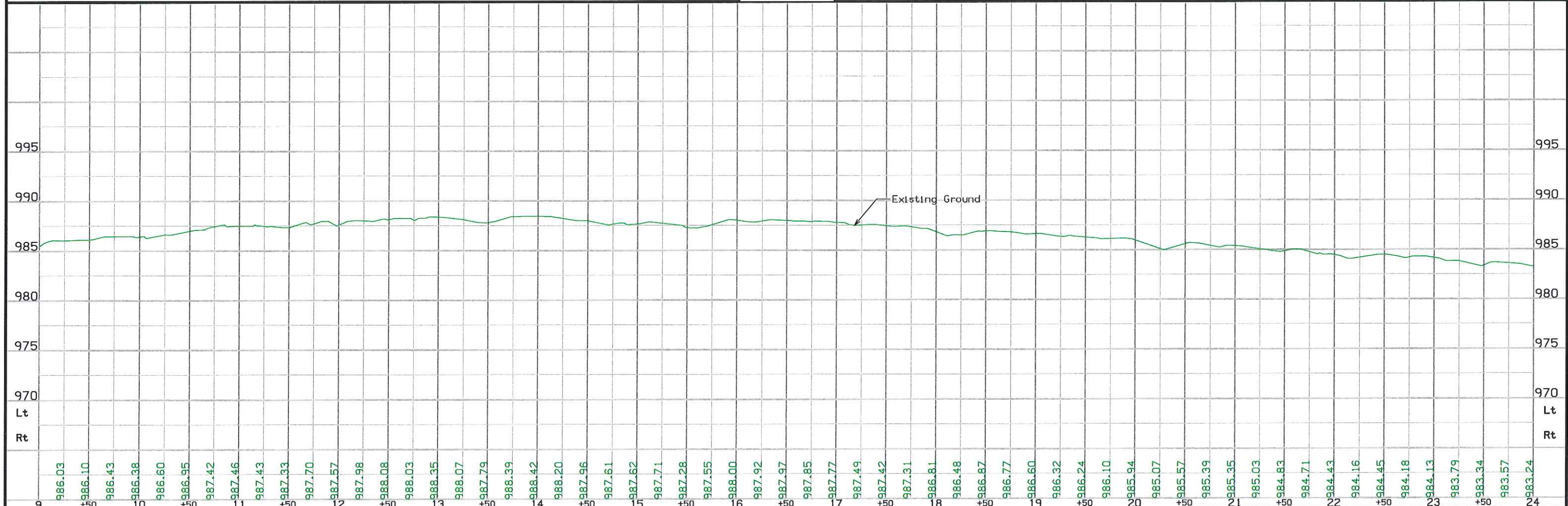
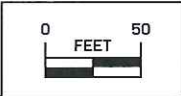
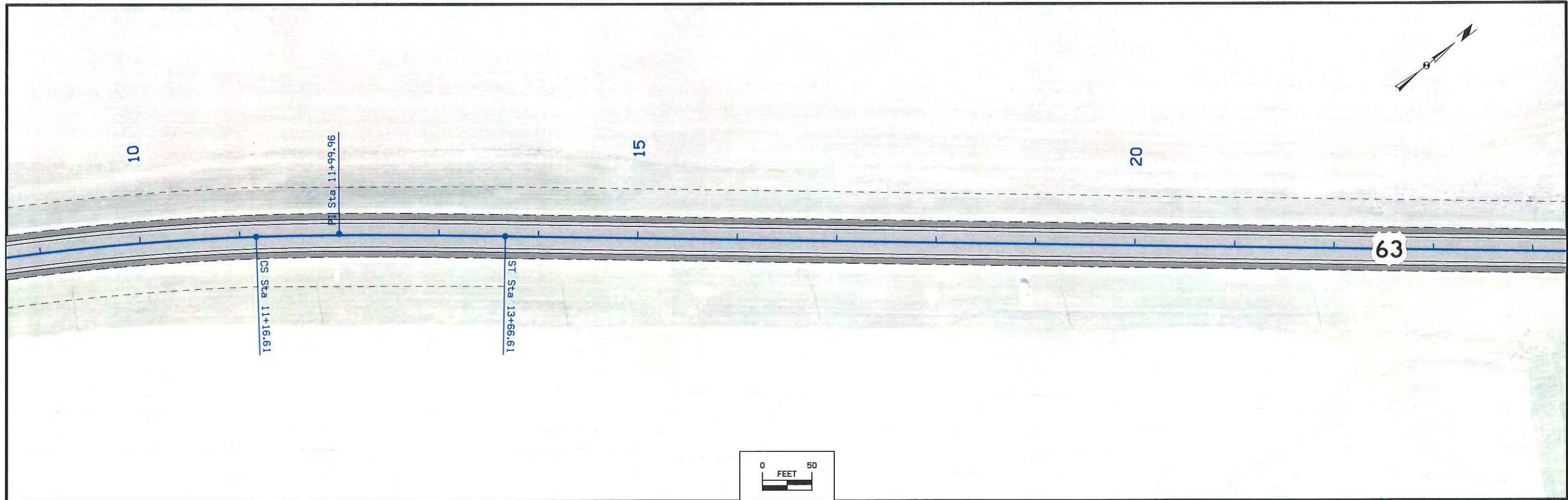




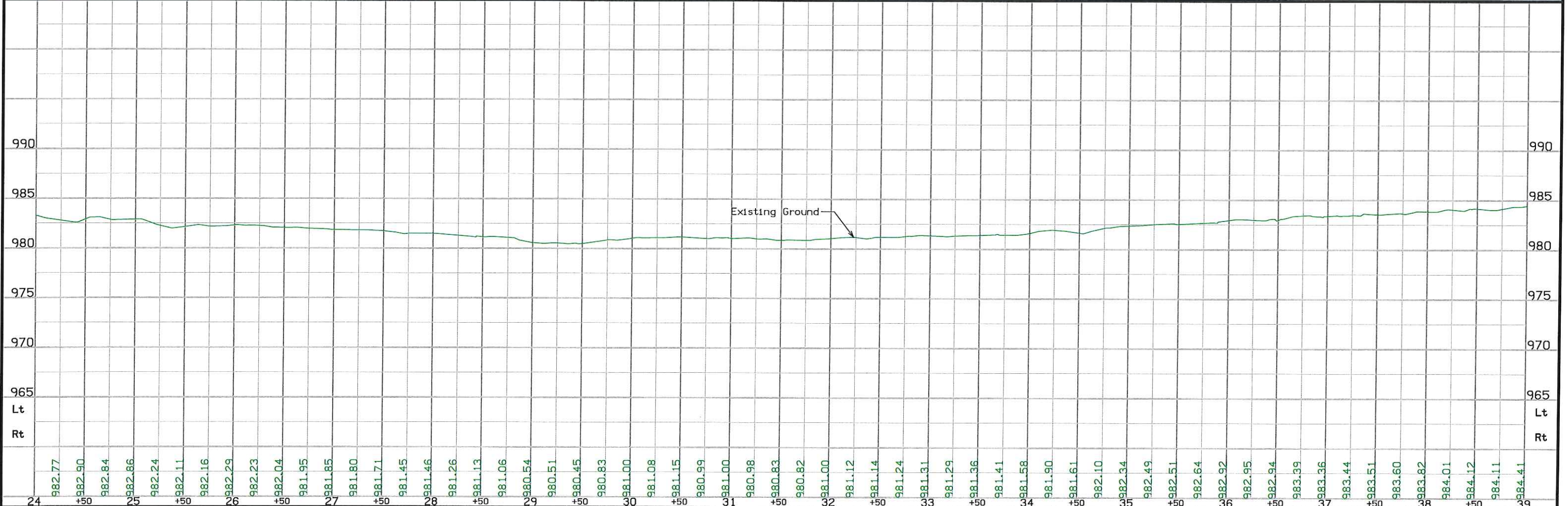
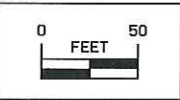
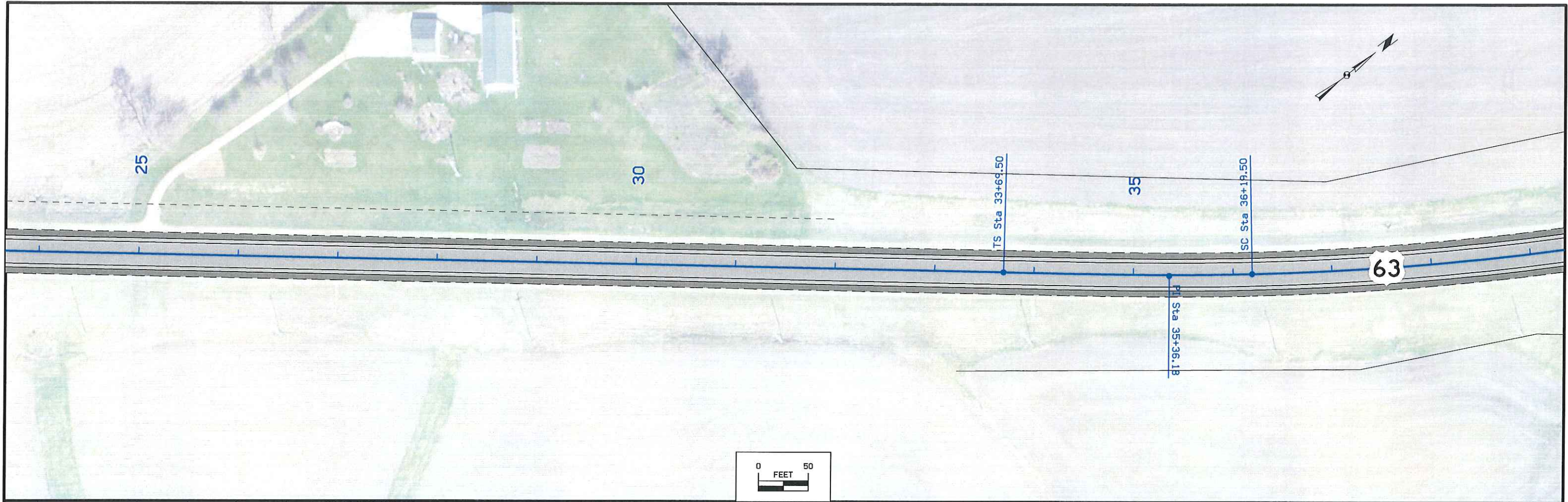


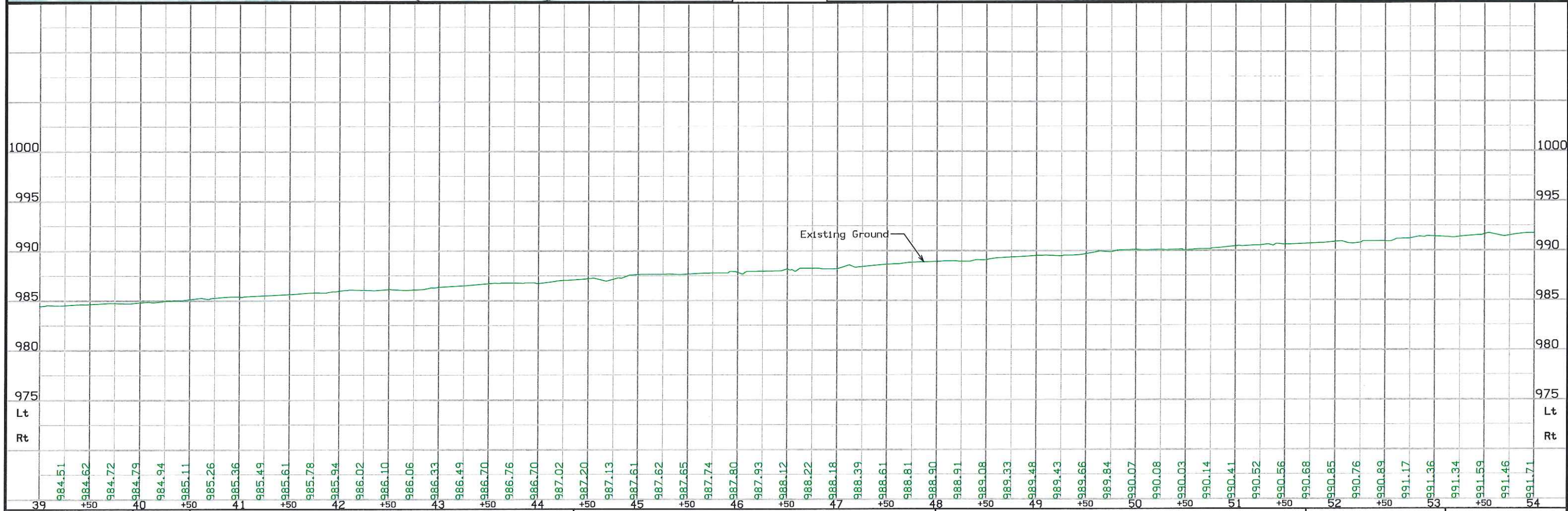
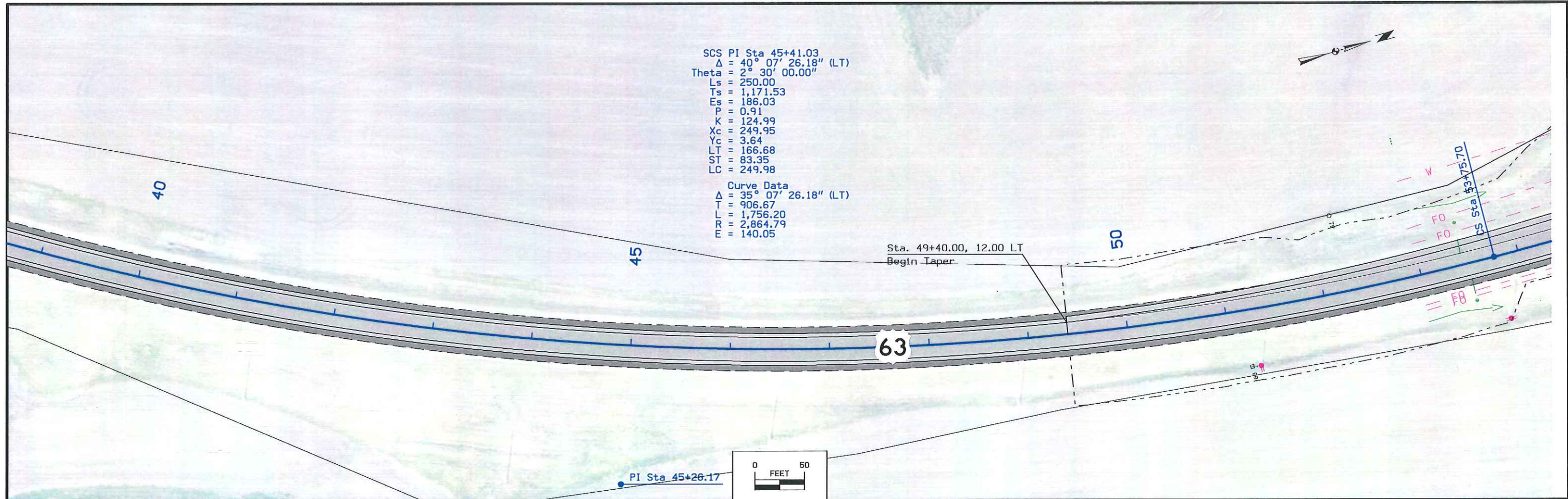


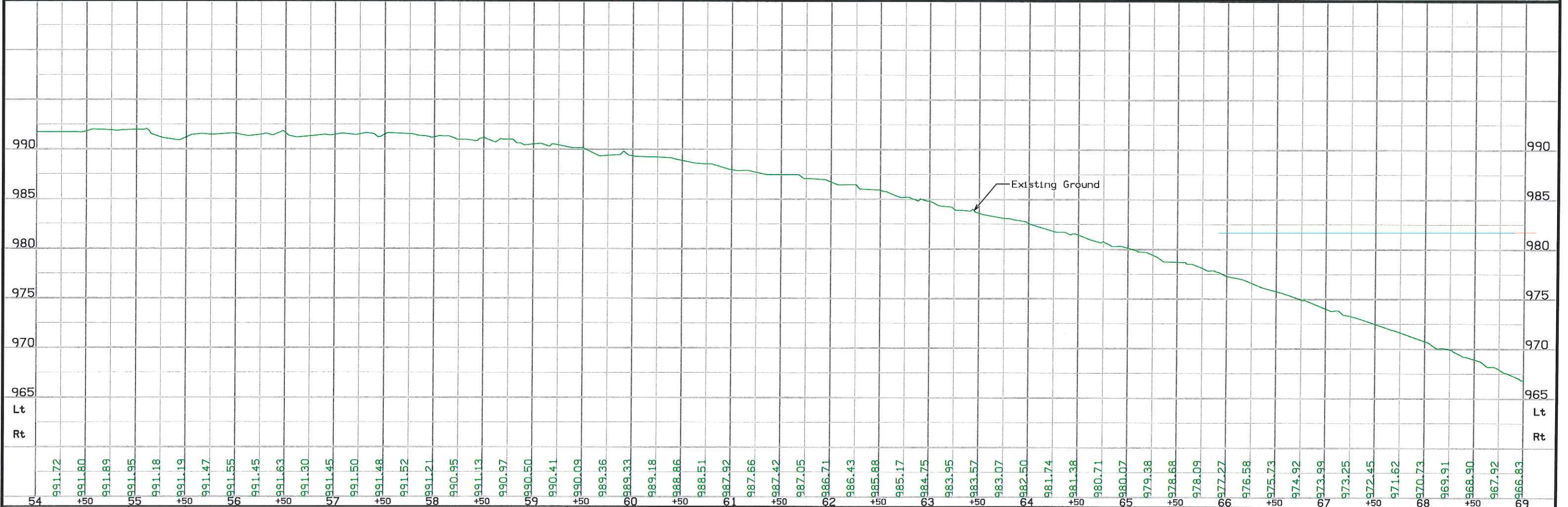
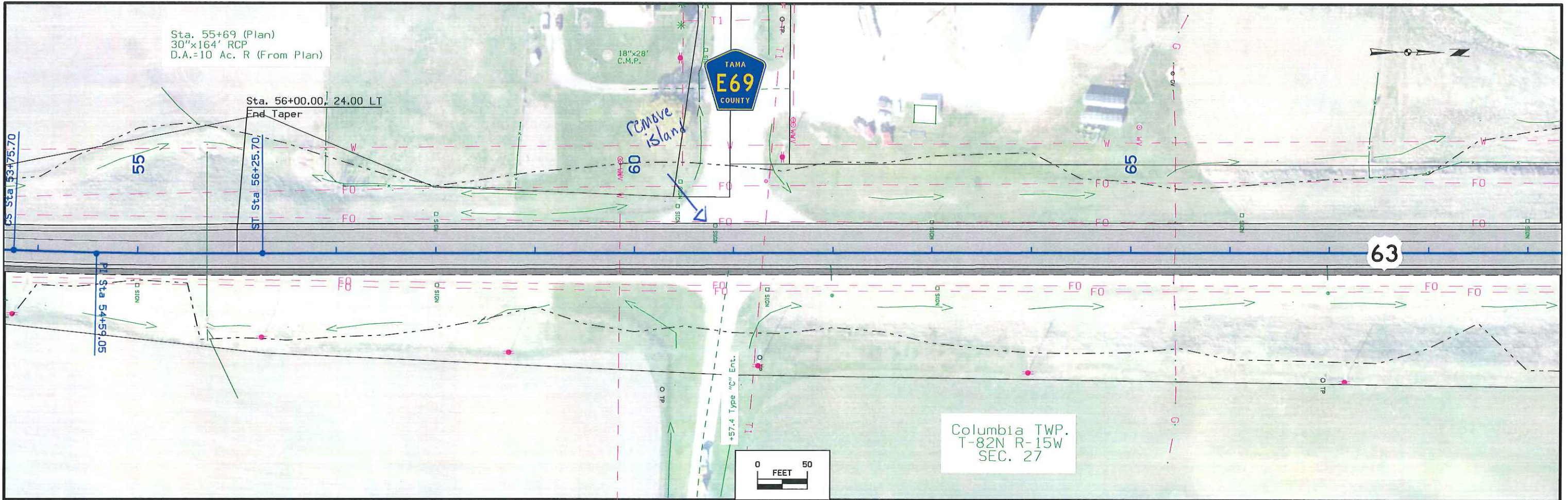




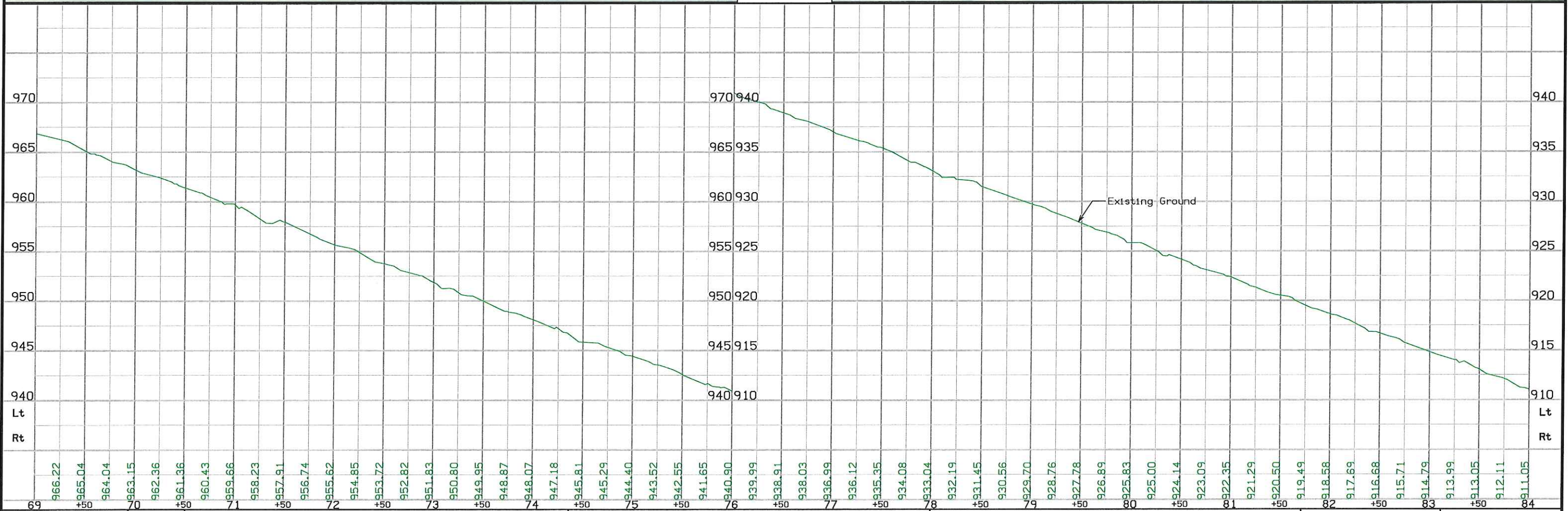
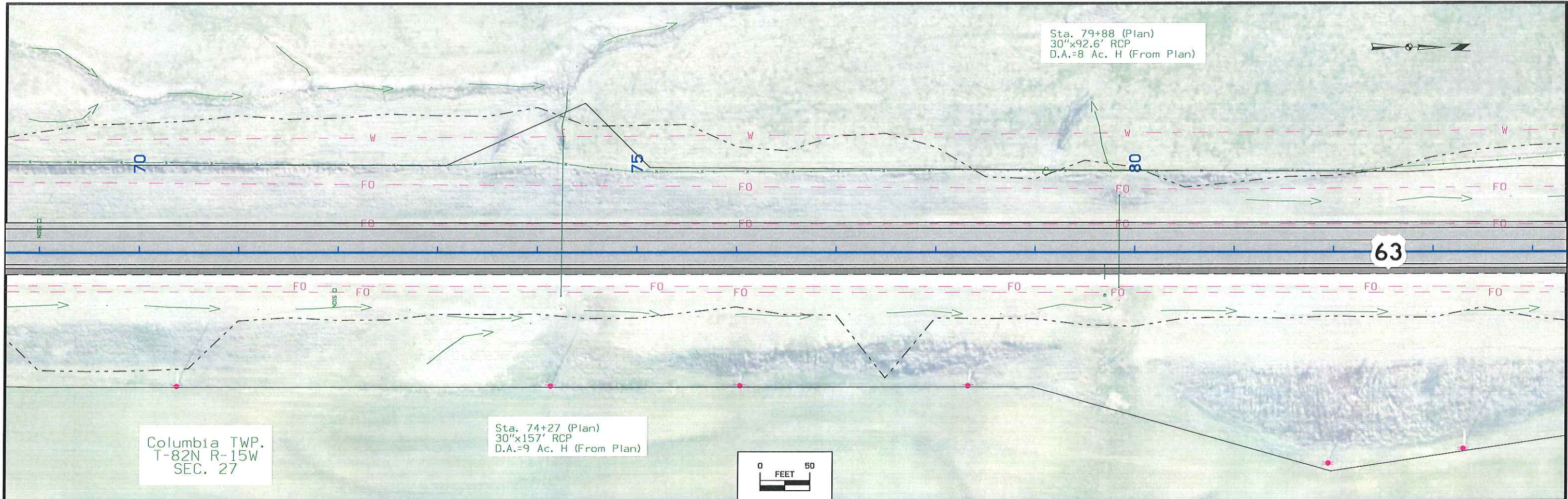
FILE NO.	ENGLISH	DESIGN TEAM	<b>Smyth \ Frostestad</b>	POWESHIEK COUNTY	PROJECT NUMBER	<b>NHSX-063-4(52)--3H-79</b>	SHEET NUMBER	<b>D.31</b>
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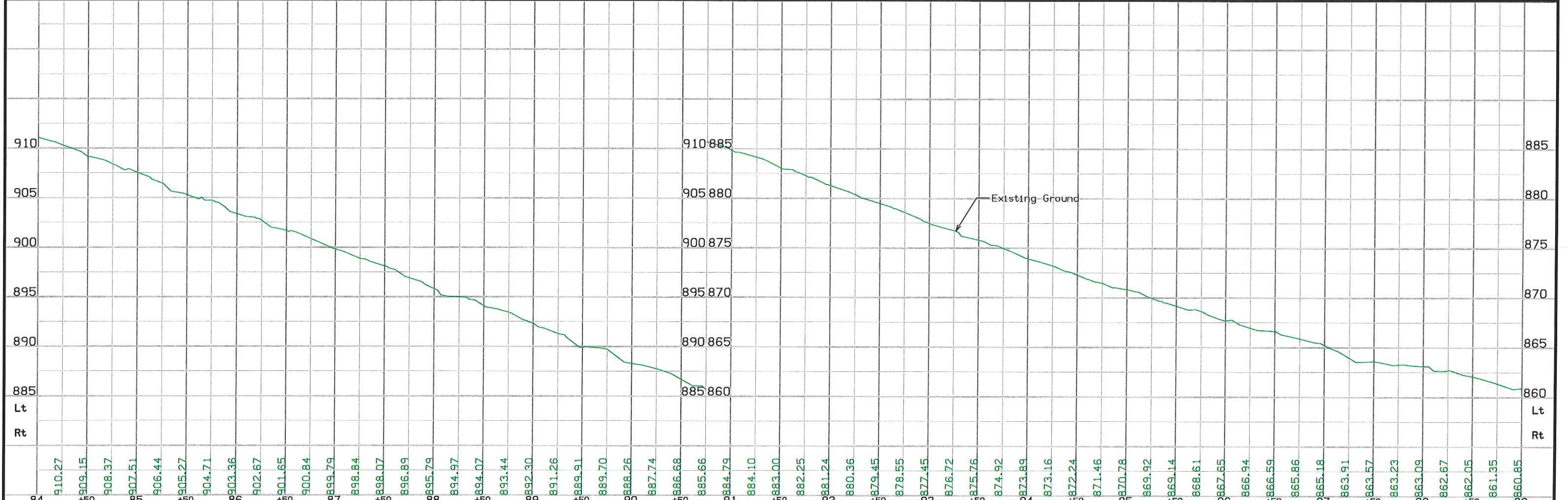
FILE NO.	ENGLISH	DESIGN TEAM	<b>Smyth \ Frostestad</b>	POWESHIEK COUNTY	PROJECT NUMBER	<b>NHSX-063-4(52)--3H-79</b>	SHEET NUMBER	<b>D.34</b>
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Columbia TWP.  
T-82N R-15W  
SEC. 27

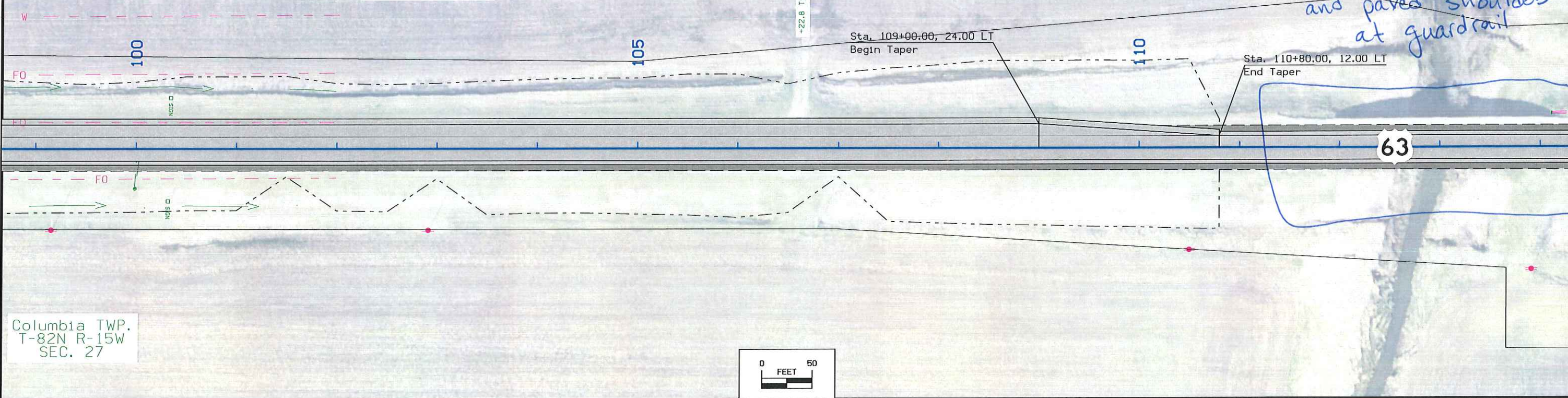
Columb  
T-82N  
SEC



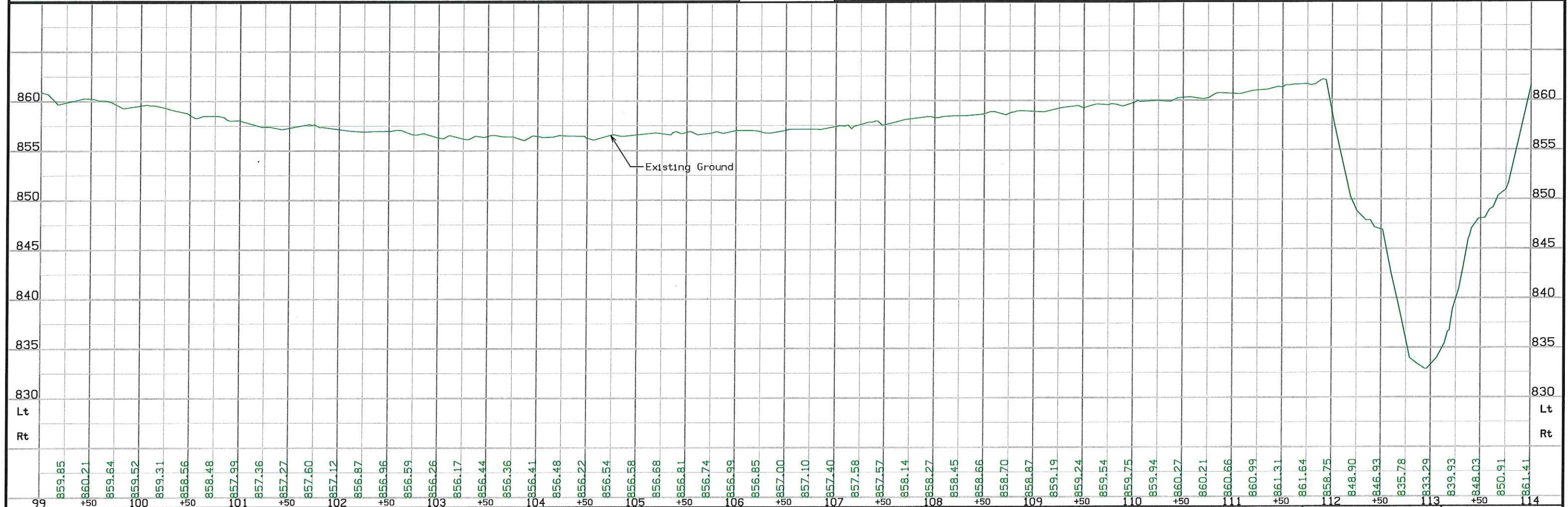
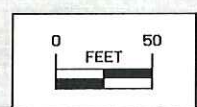
Columbia TWP.  
T-82N R-15W  
SEC. 22



*New approaches  
and paved shoulders  
at guardrail*



Columbia TWP.  
T-82N R-15W  
SEC. 27





Columbia TWP.  
T-82N R-15W  
SEC. 22

+73.3 Type "C" Ent.  
18"X103'  
CMP

115

*shows new bridge approaches*

120

PC Sta 120+4.88

125

+57.7 Type "C" Ent.

63

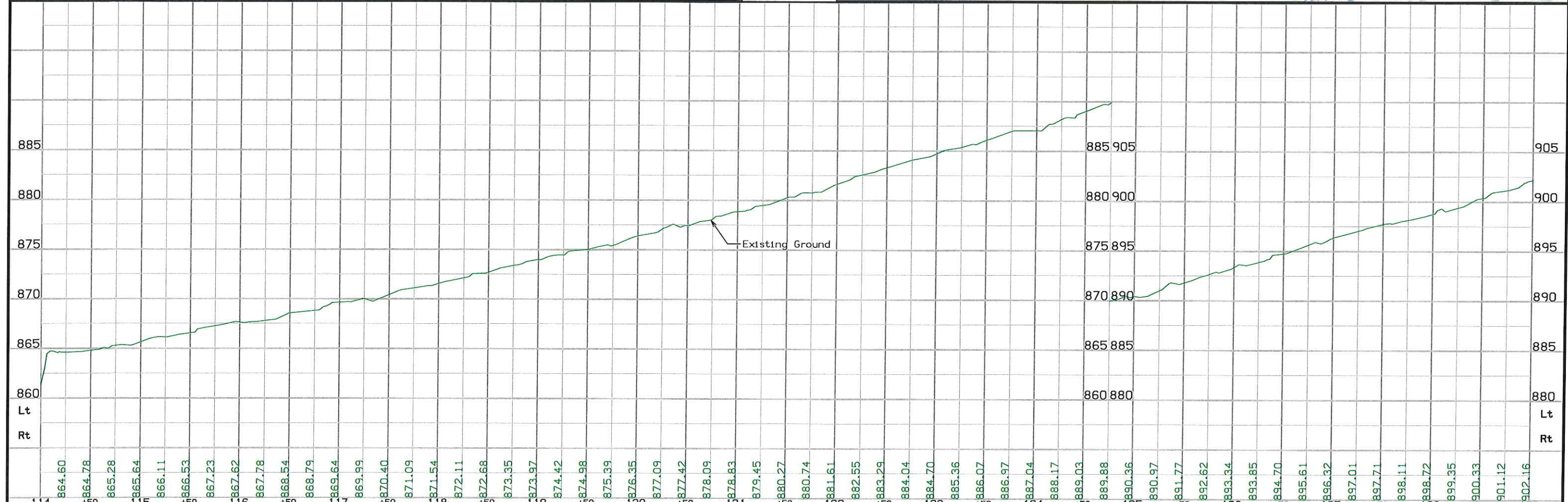
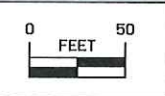
Sta. 115+00.00, 12.00 RT  
Begin Taper

Sta. 116+80.00, 24.00 RT  
End Taper

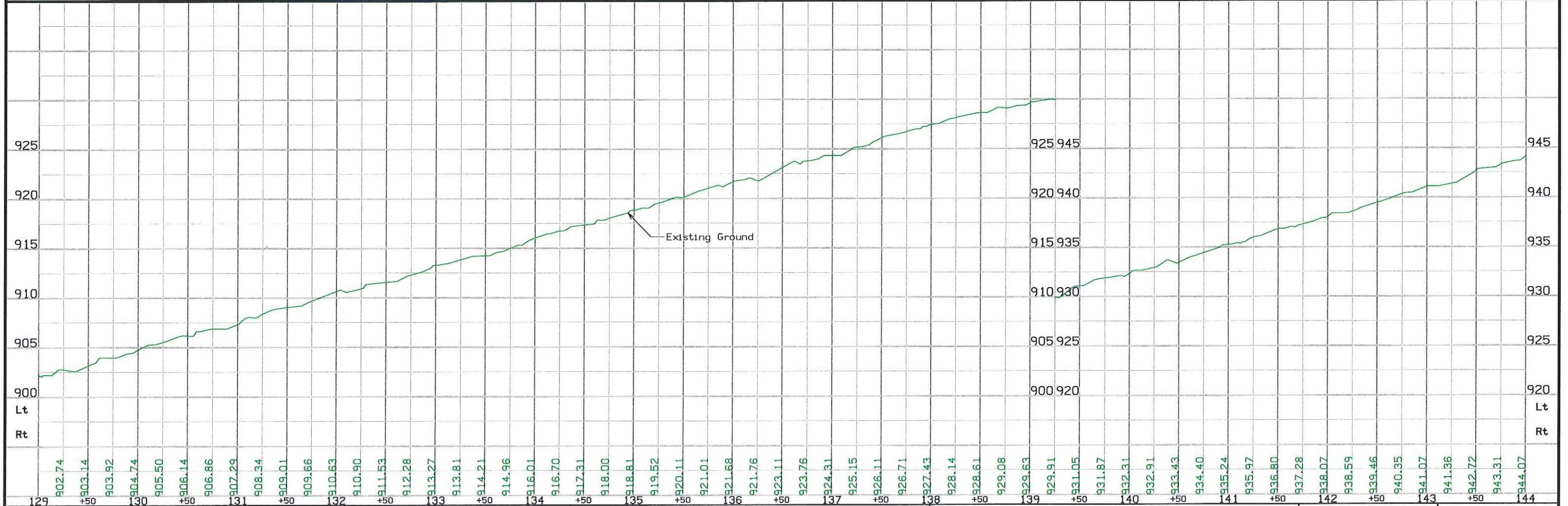
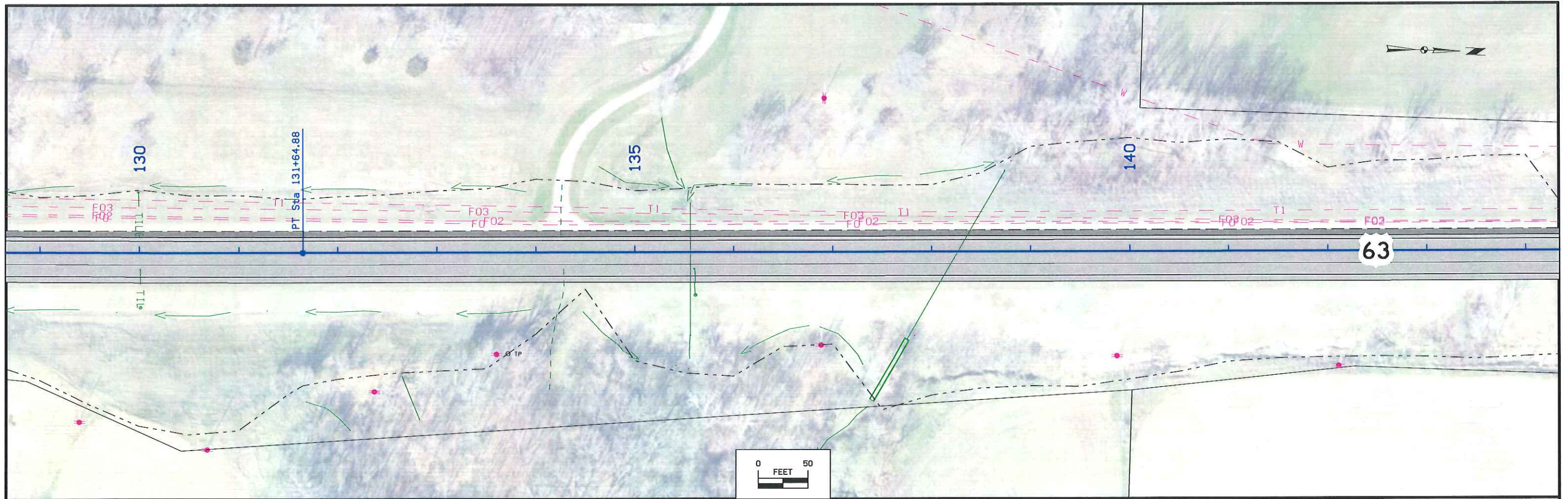
Curve Data  
Δ = 1° 32' 10.46" (LT)  
T = 575.03  
L = 1,150.00  
R = 42,890.58  
e = 3.85

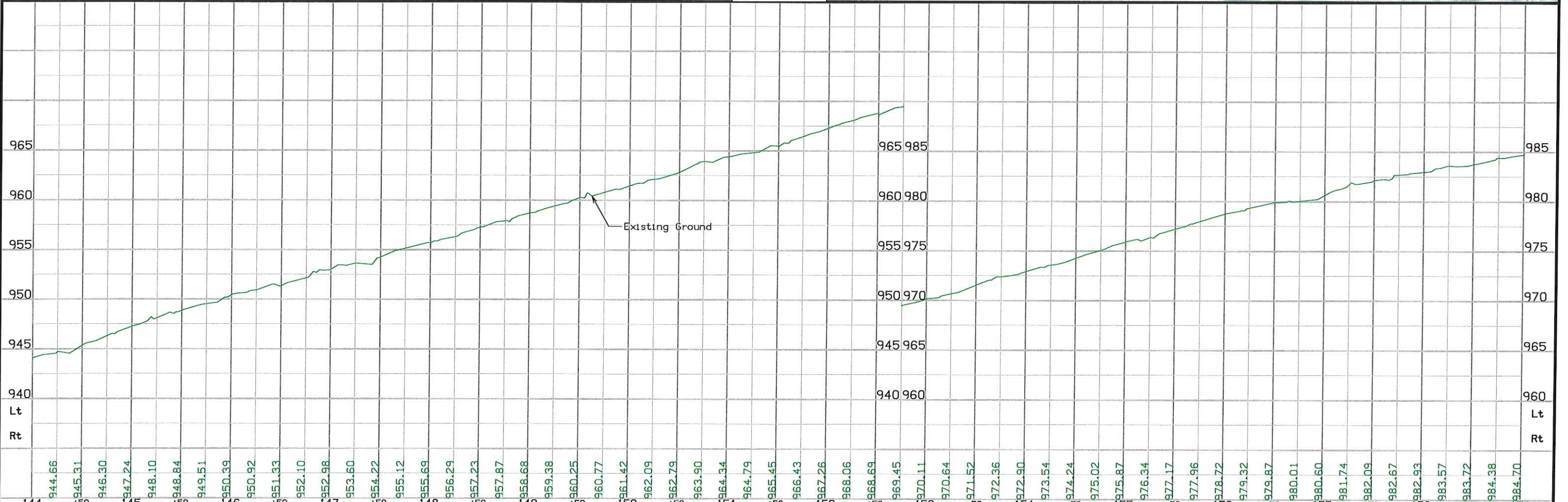
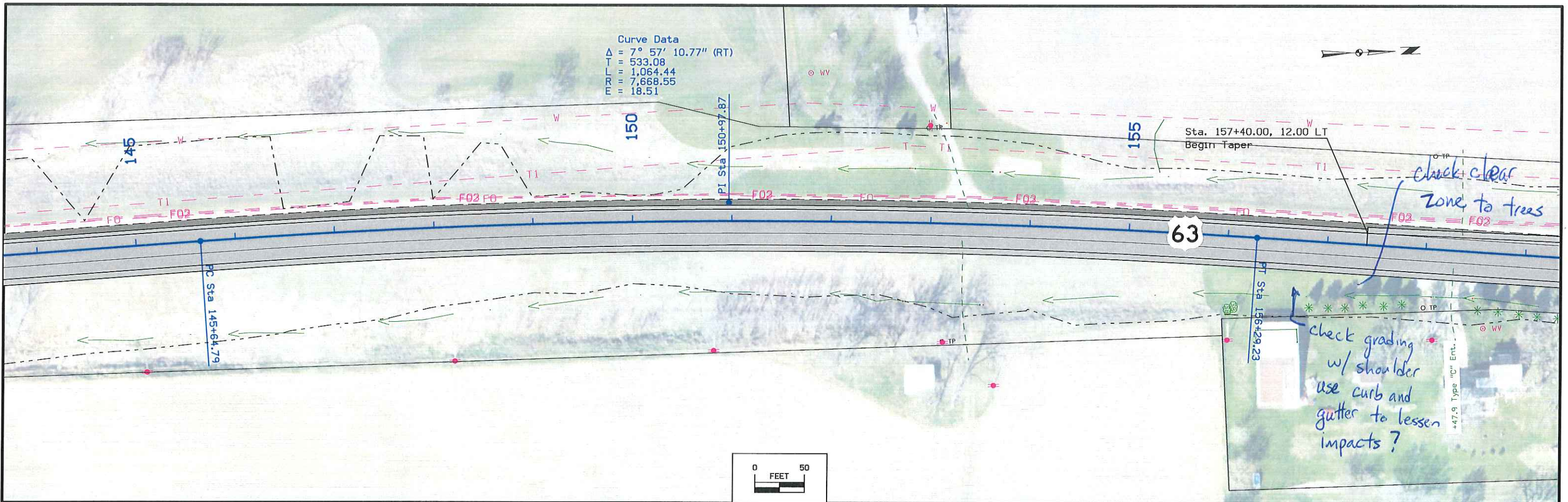
PI Sta 126+89.91

+41.3 Type "C" Ent.



FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.38																						
114	+50	115	+50	116	+50	117	+50	118	+50	119	+50	120	+50	121	+50	122	+50	123	+50	124	+50	125	+50	126	+50	127	+50	128	+50	129





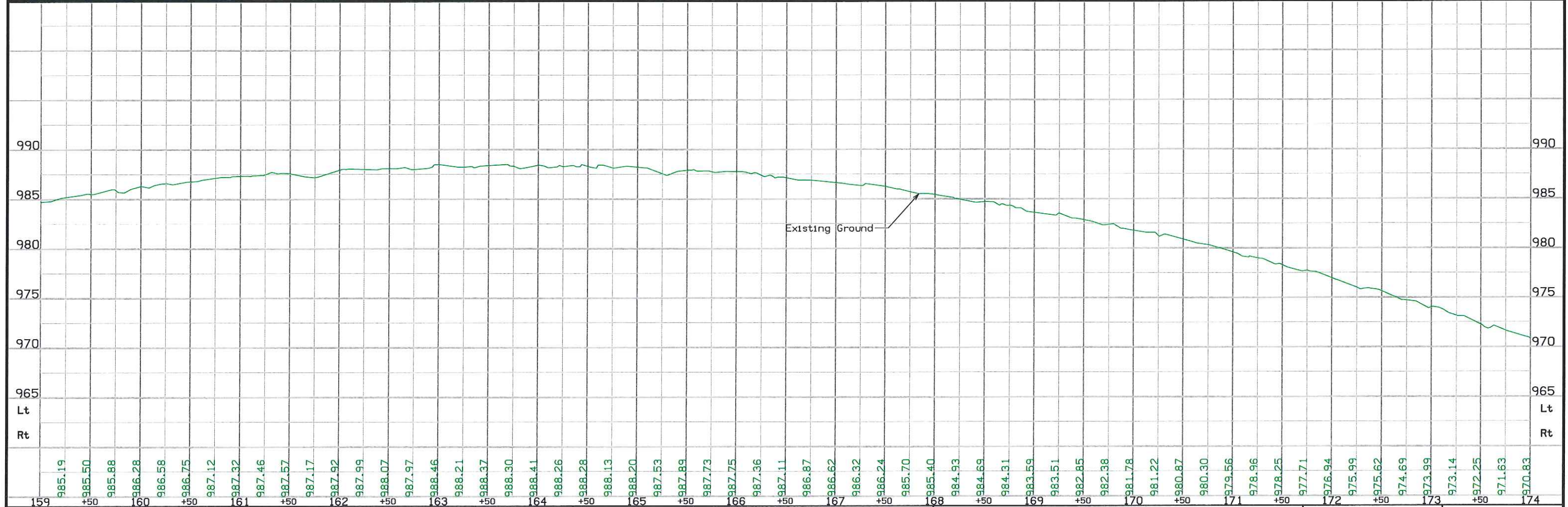
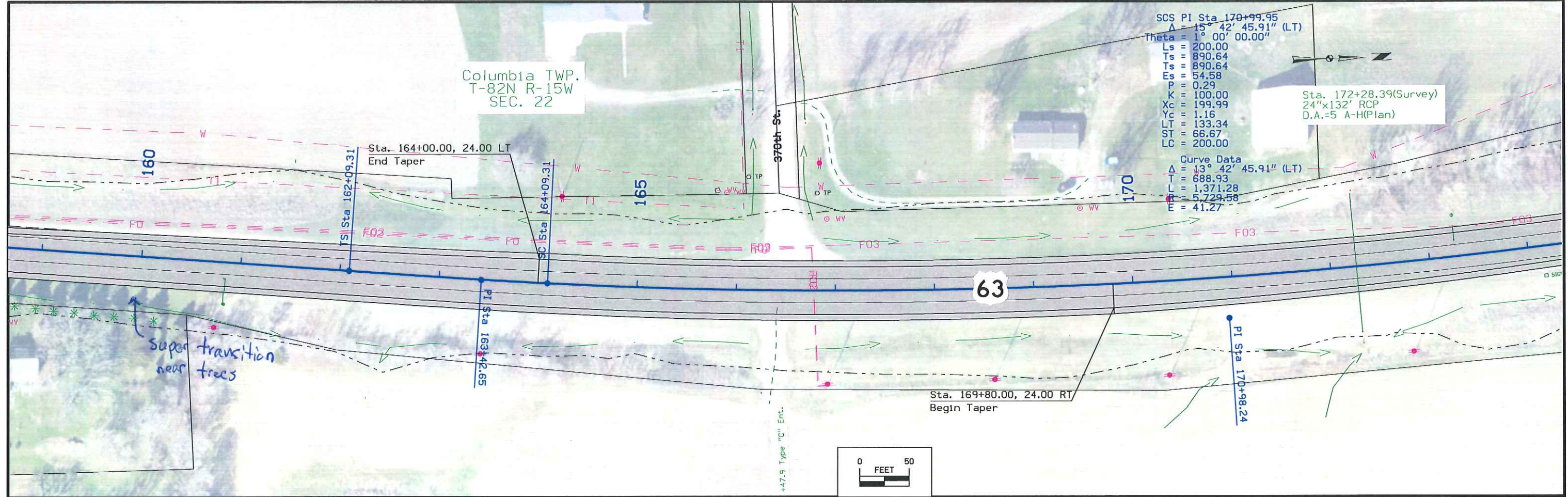
FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.40
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Columbia TWP.  
T-82N R-15W  
SEC. 22

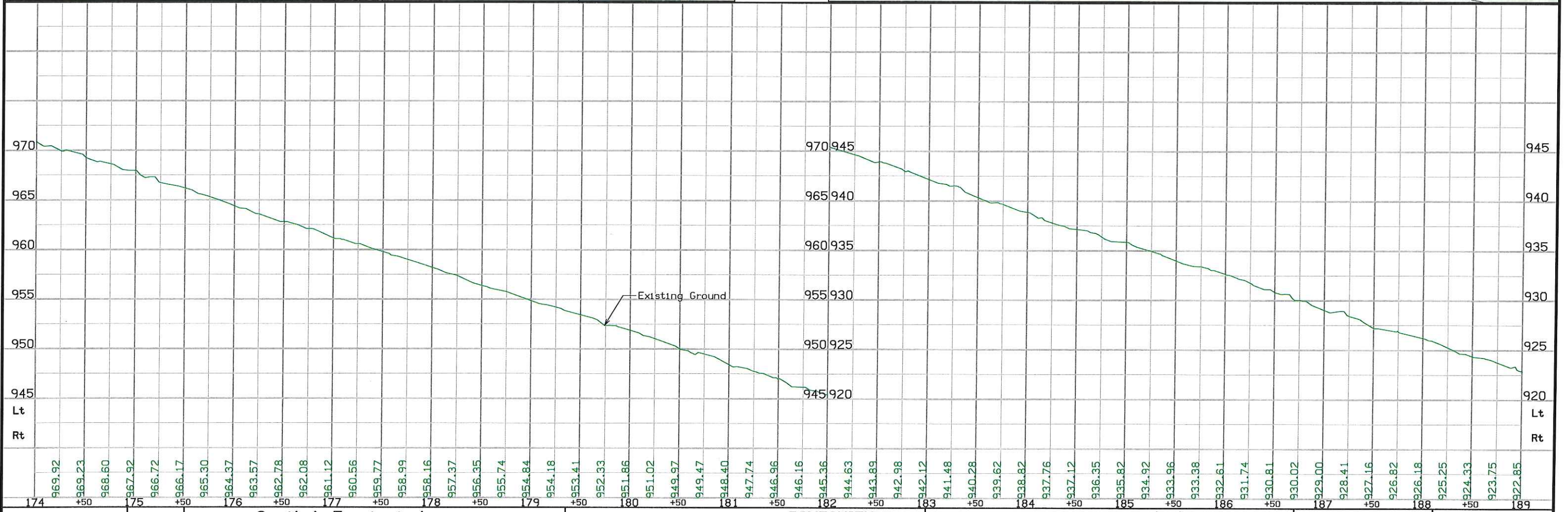
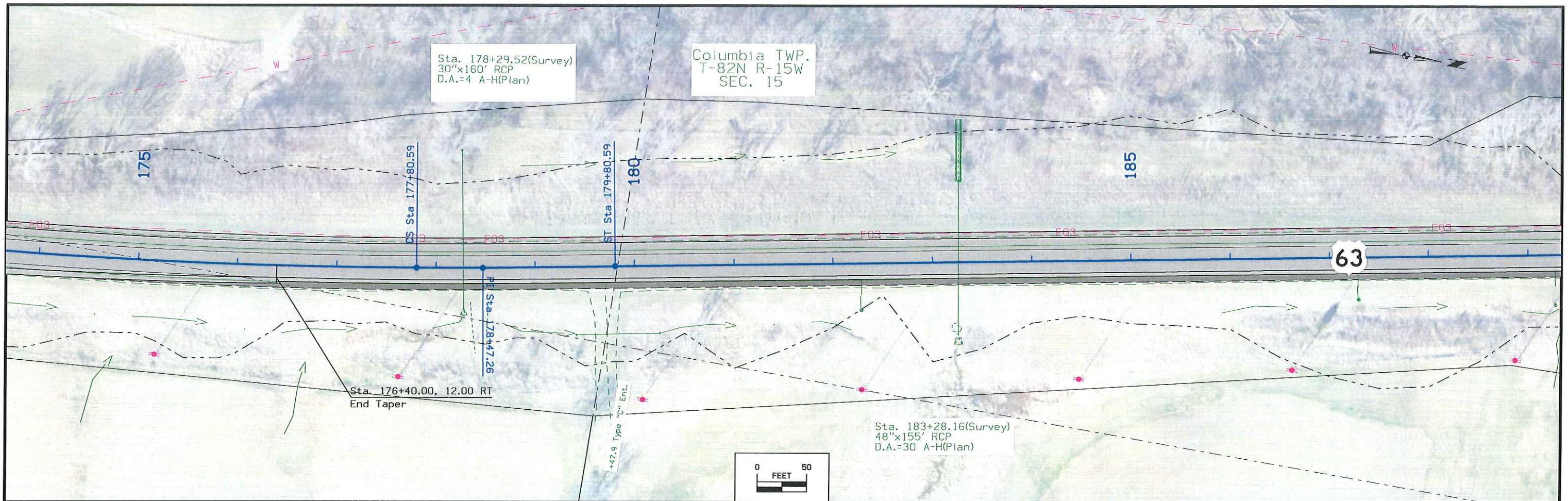
SCS PI Sta 170+99.95  
 $\Delta = 15^\circ 42' 45.91''$  (LT)  
 Theta =  $1^\circ 00' 00.00''$   
 Ls = 200.00  
 Ts = 890.64  
 Es = 890.64  
 P = 54.58  
 K = 100.00  
 Xc = 199.99  
 Yc = 1.16  
 LT = 133.34  
 ST = 66.67  
 LC = 200.00

Sta. 172+28.39(Survey)  
 24"x132' RCP  
 D.A.=5 A-H(Plan)

Curve Data  
 $\Delta = 13^\circ 42' 45.91''$  (LT)  
 T = 688.93  
 L = 1,371.28  
 E = 5,729.58  
 E = 41.27

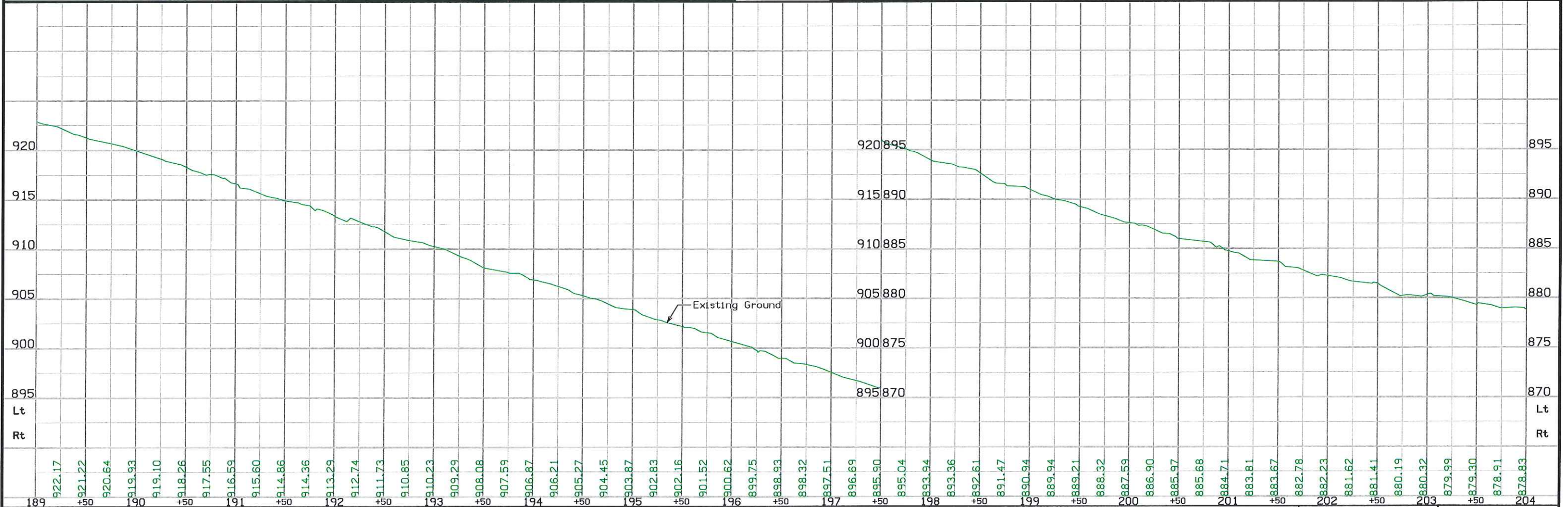
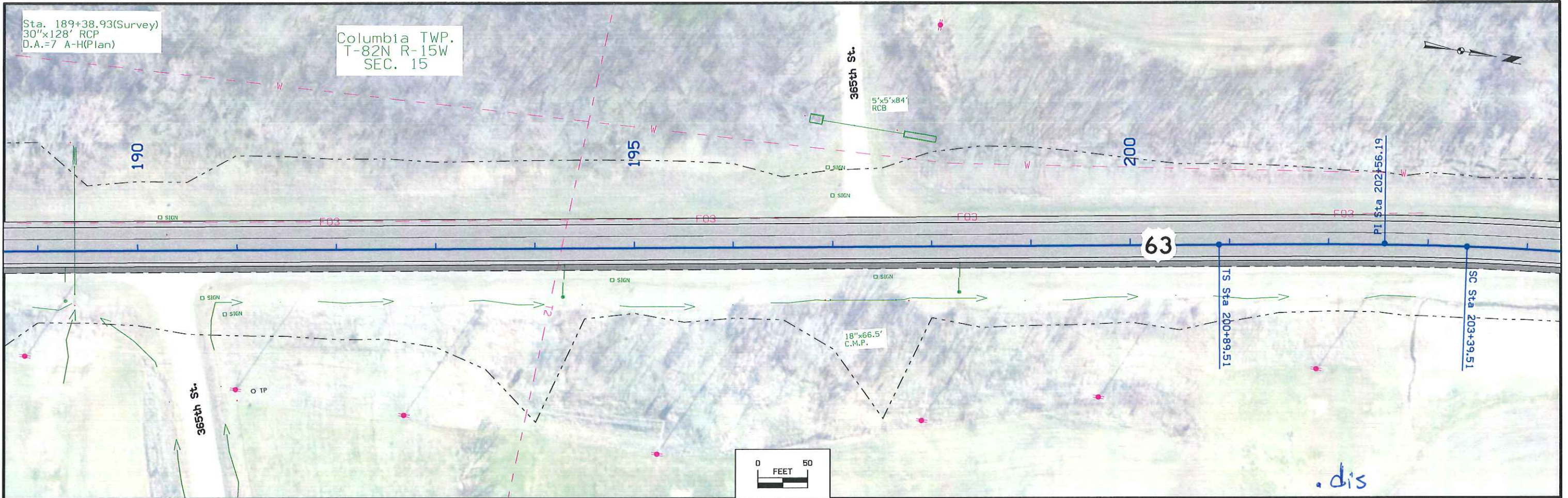


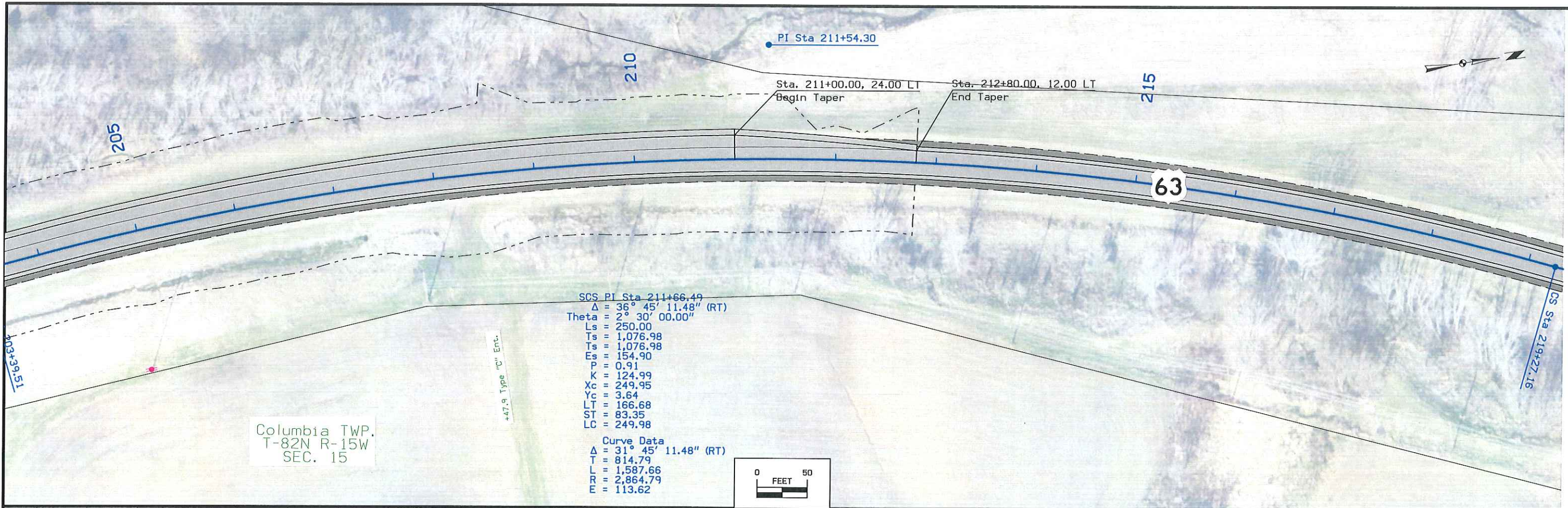
FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.41
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Sta. 189+38.93(Survey)  
30"x128' RCP  
D.A.=7 A-H(Plan)

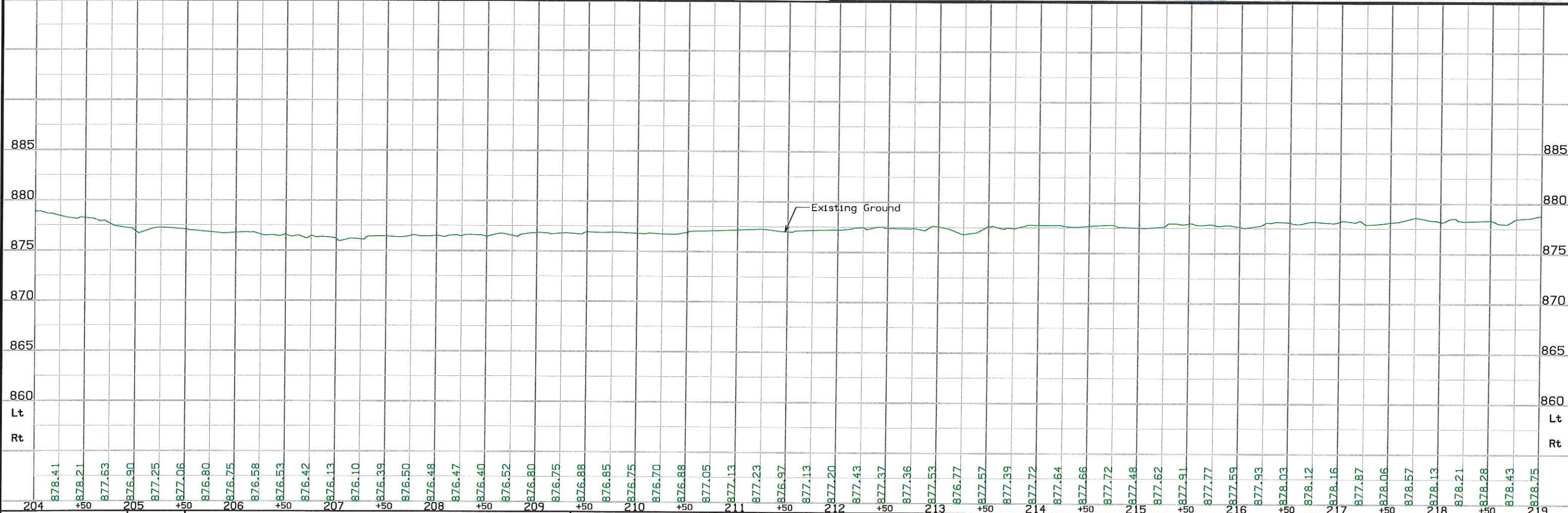
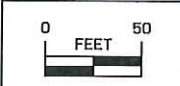
Columbia TWP.  
T-82N R-15W  
SEC. 15

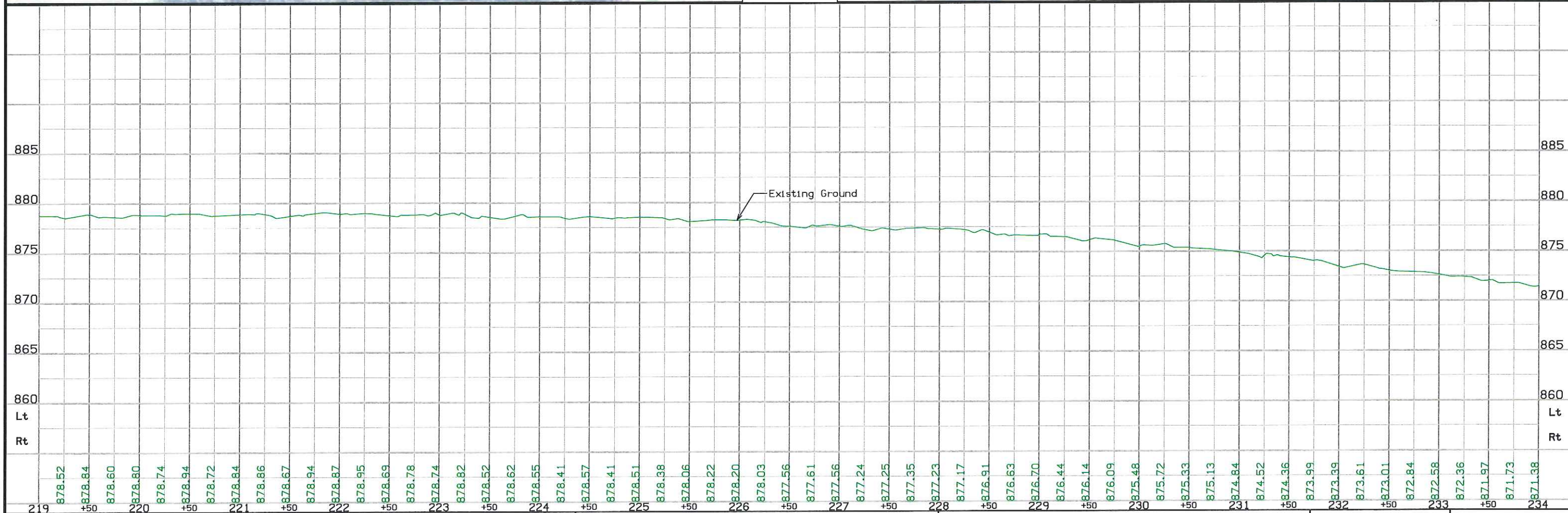
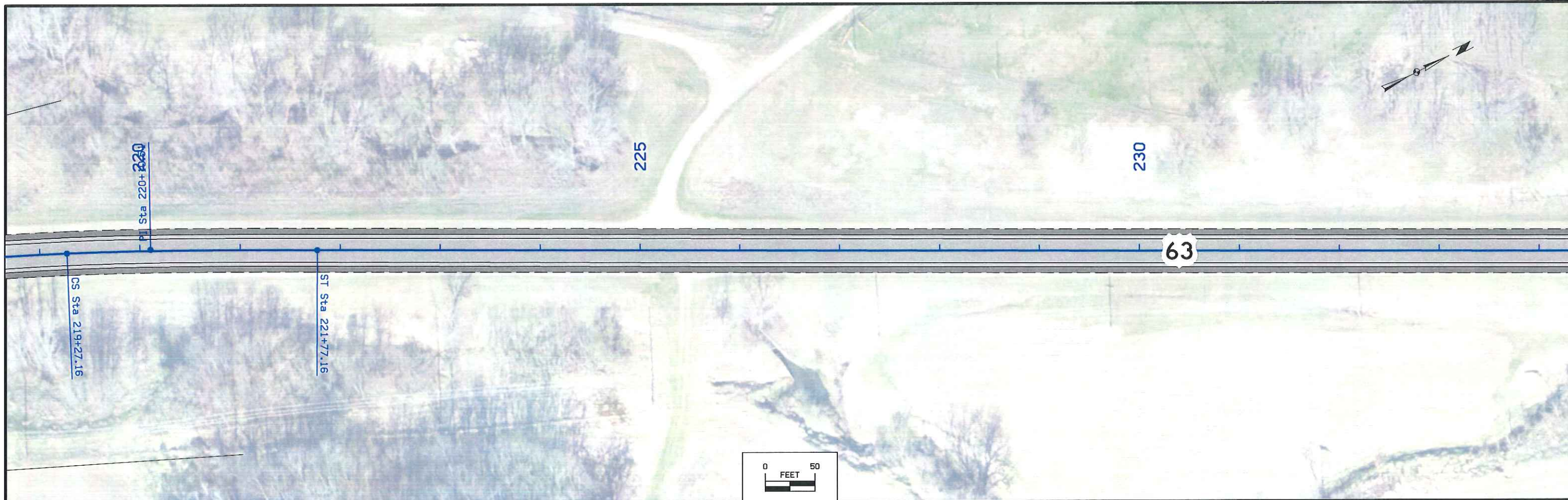




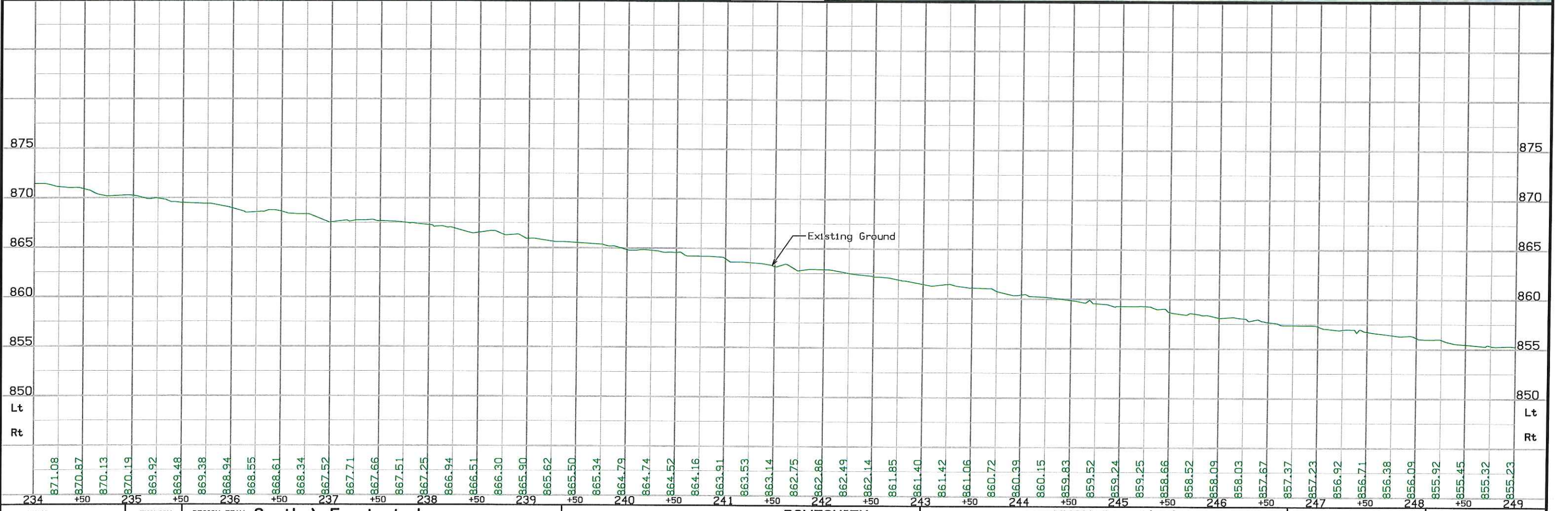
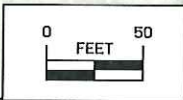
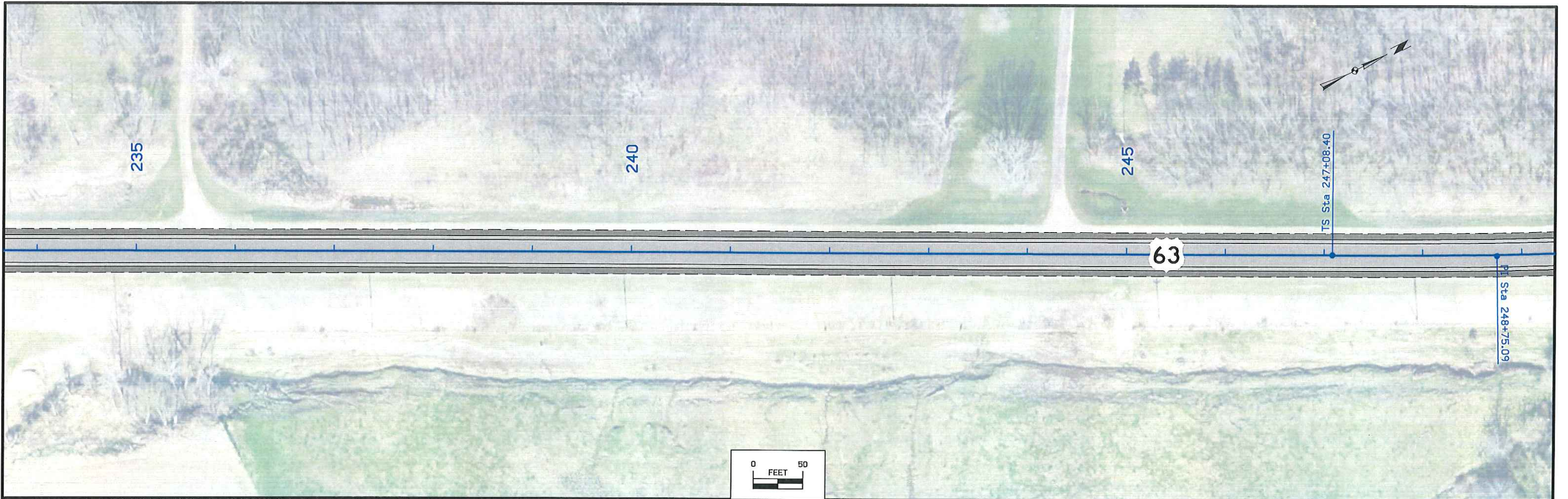
SCS PI Sta 211+66.49  
 $\Delta = 36^\circ 45' 11.48''$  (RT)  
 Theta =  $2^\circ 30' 00.00''$   
 Ls = 250.00  
 Ts = 1,076.98  
 Es = 1,076.98  
 P = 0.91  
 K = 124.99  
 Xc = 249.95  
 Yc = 3.64  
 LT = 166.68  
 ST = 83.35  
 LC = 249.98

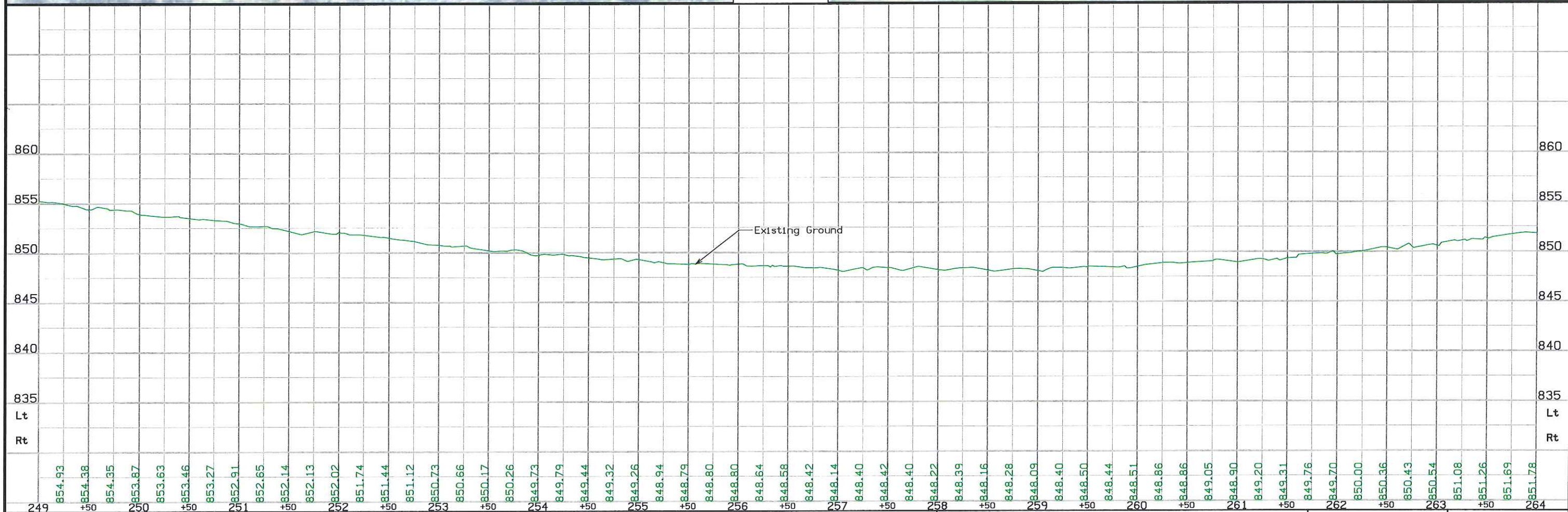
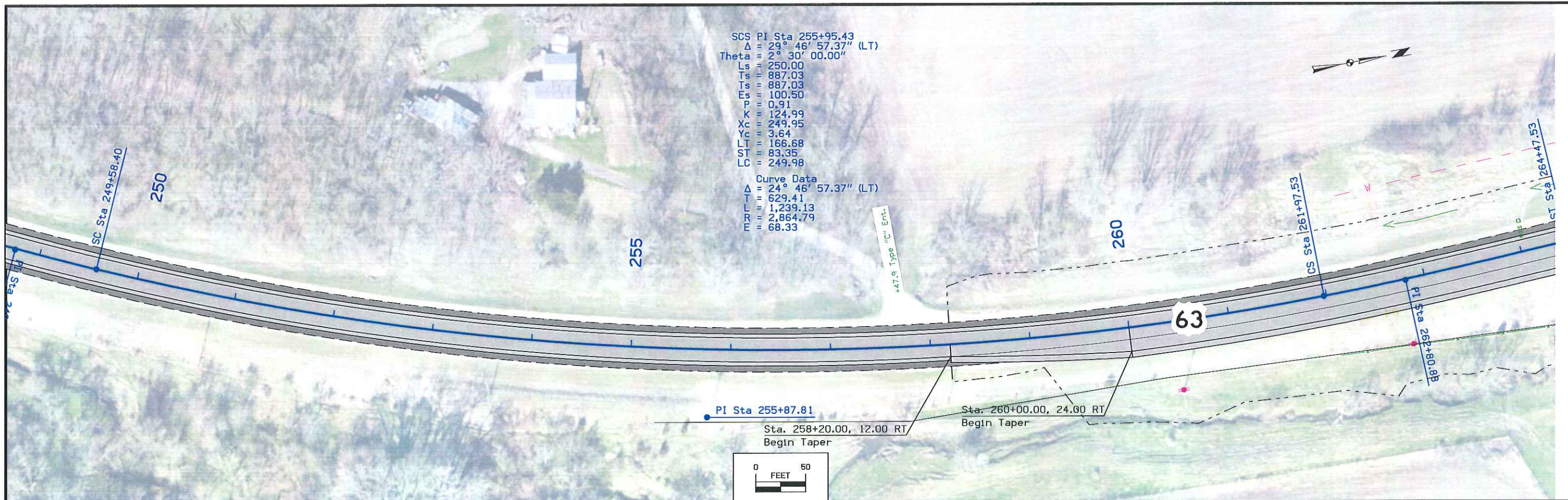
Curve Data  
 $\Delta = 31^\circ 45' 11.48''$  (RT)  
 T = 814.79  
 L = 1,587.66  
 R = 2,864.79  
 E = 113.62



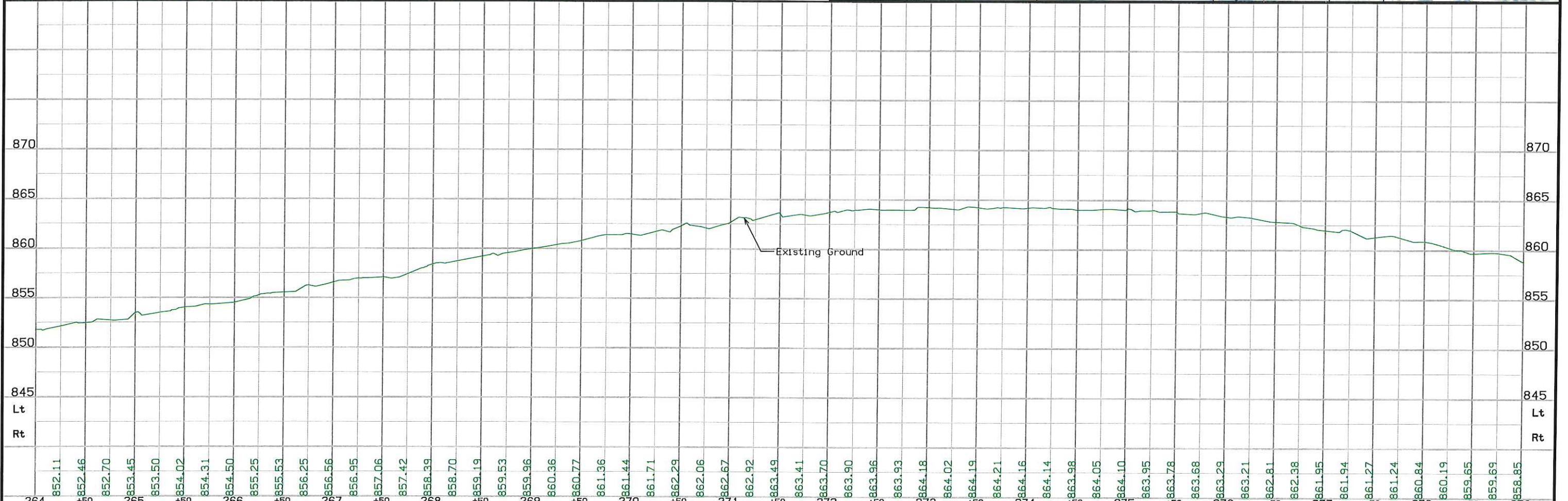
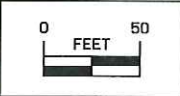
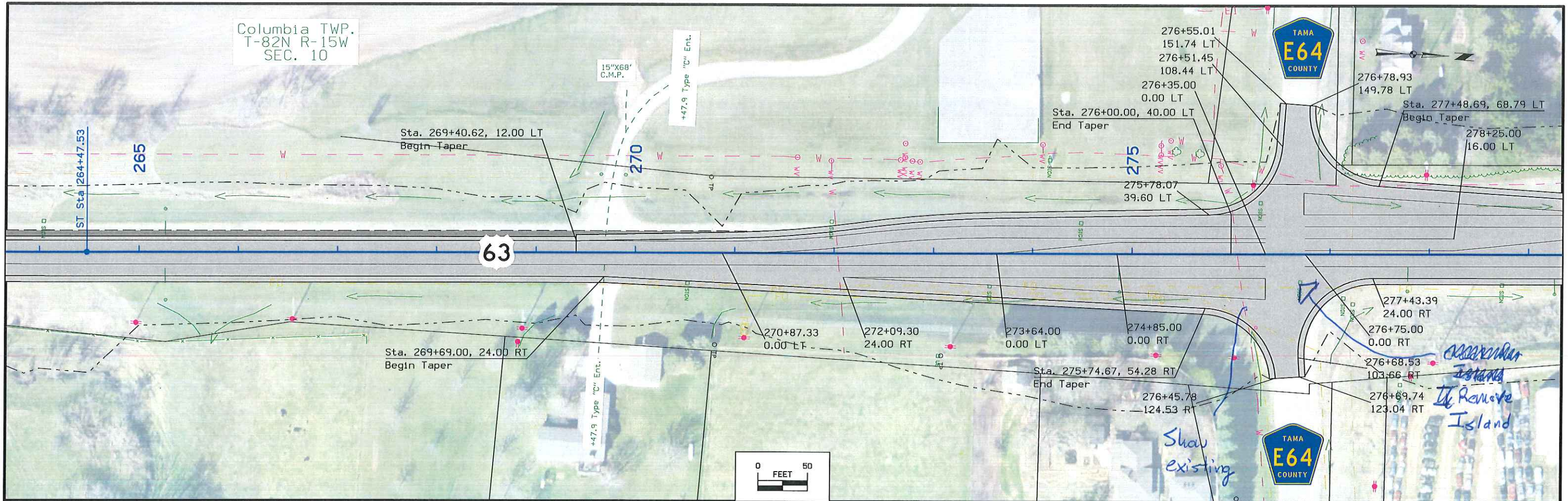


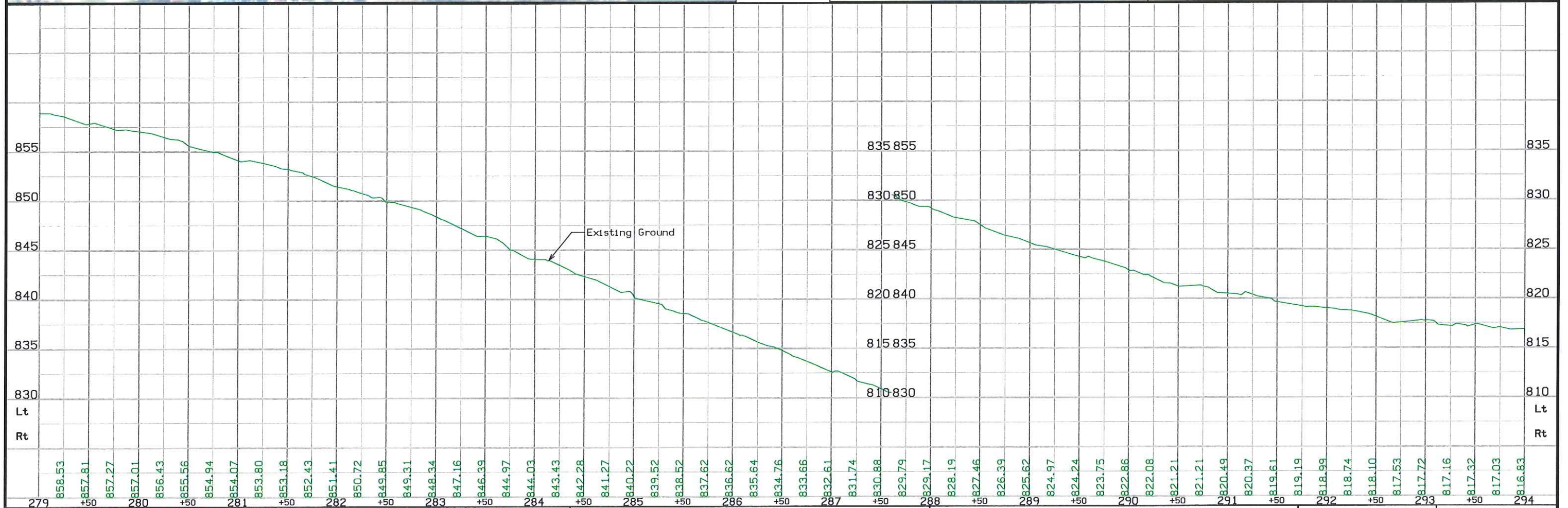
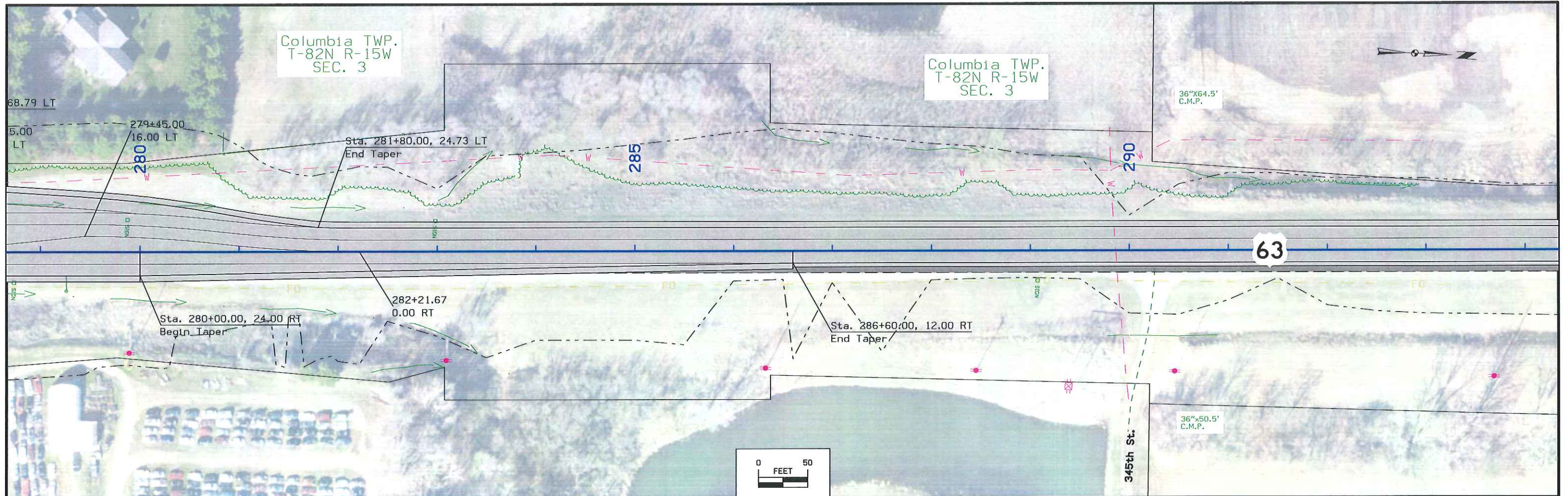




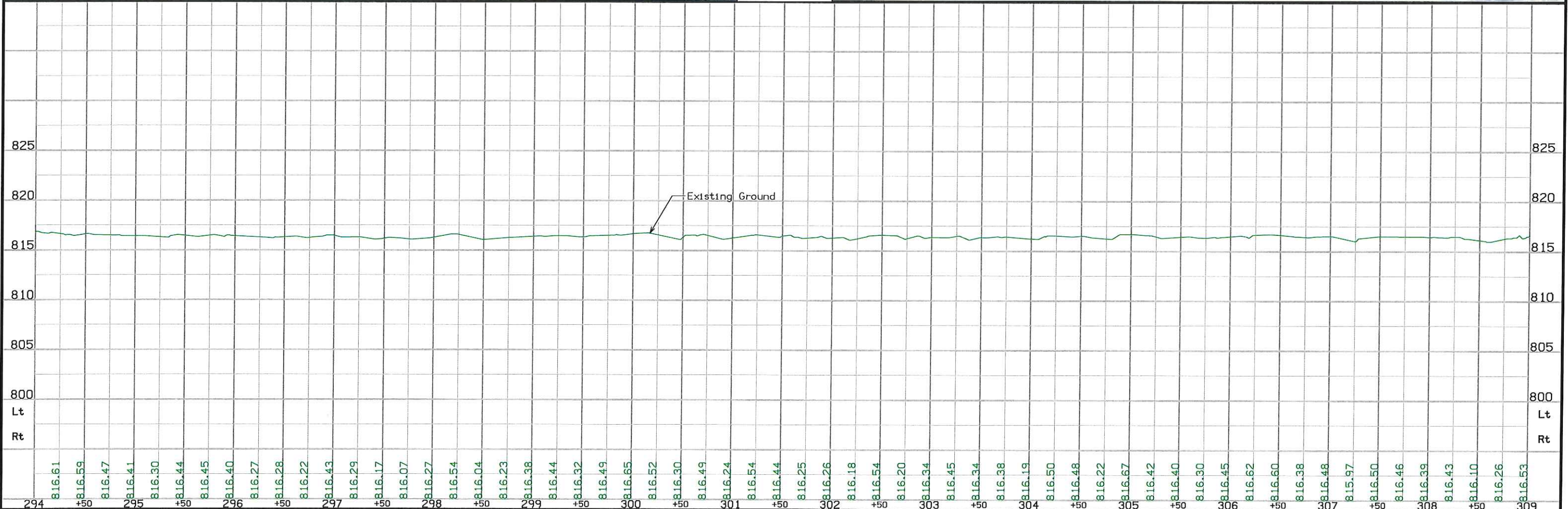
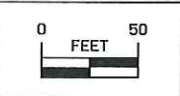
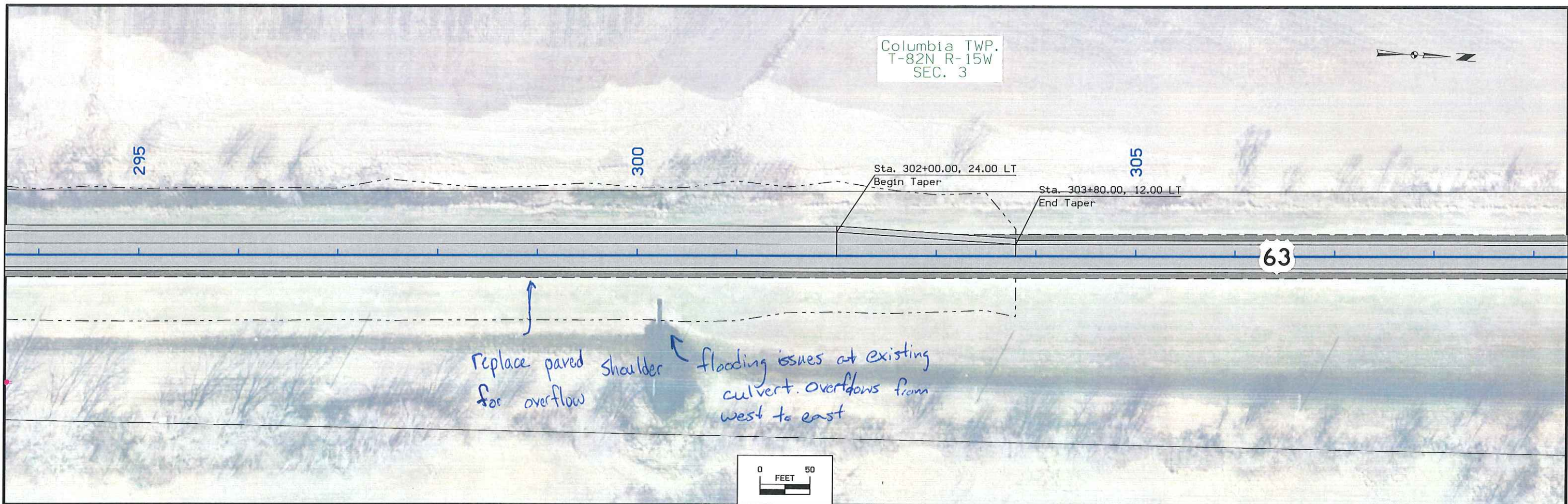


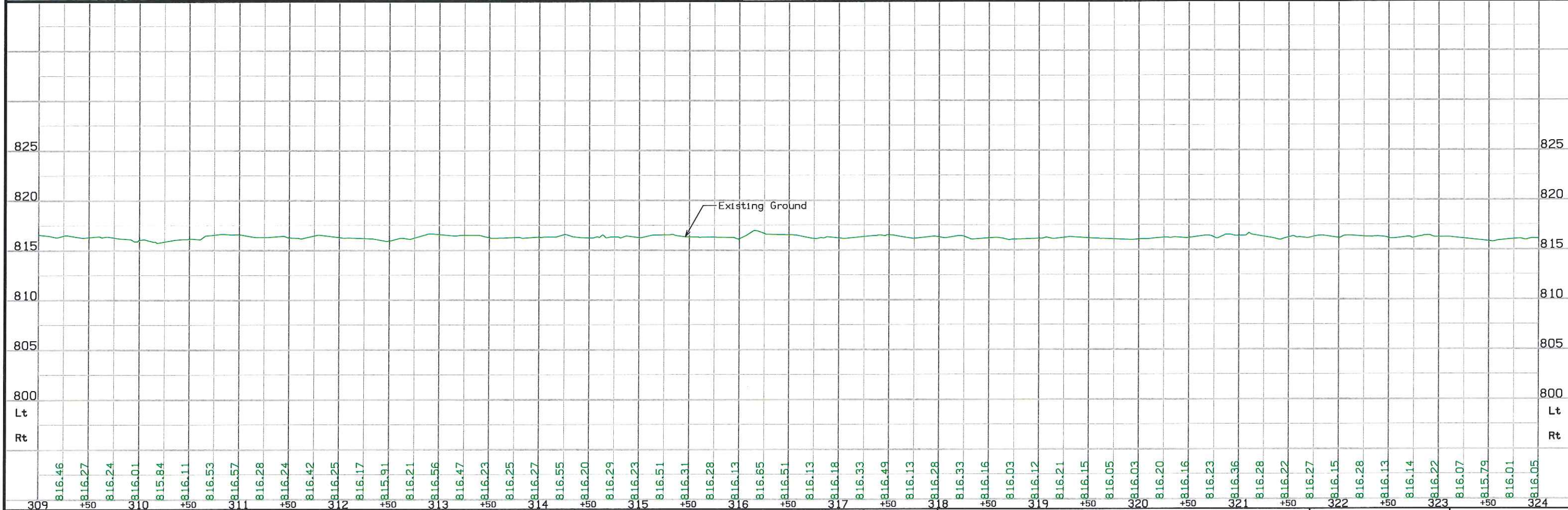
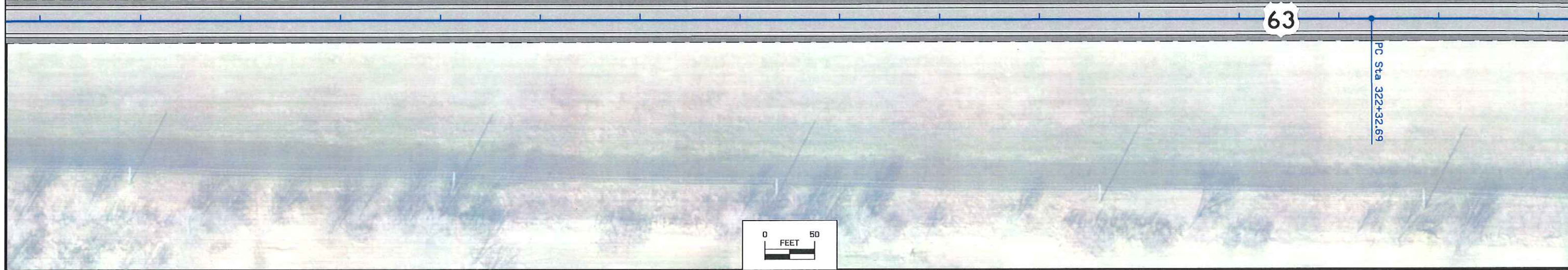
Columbia TWP.  
T-82N R-15W  
SEC. 10

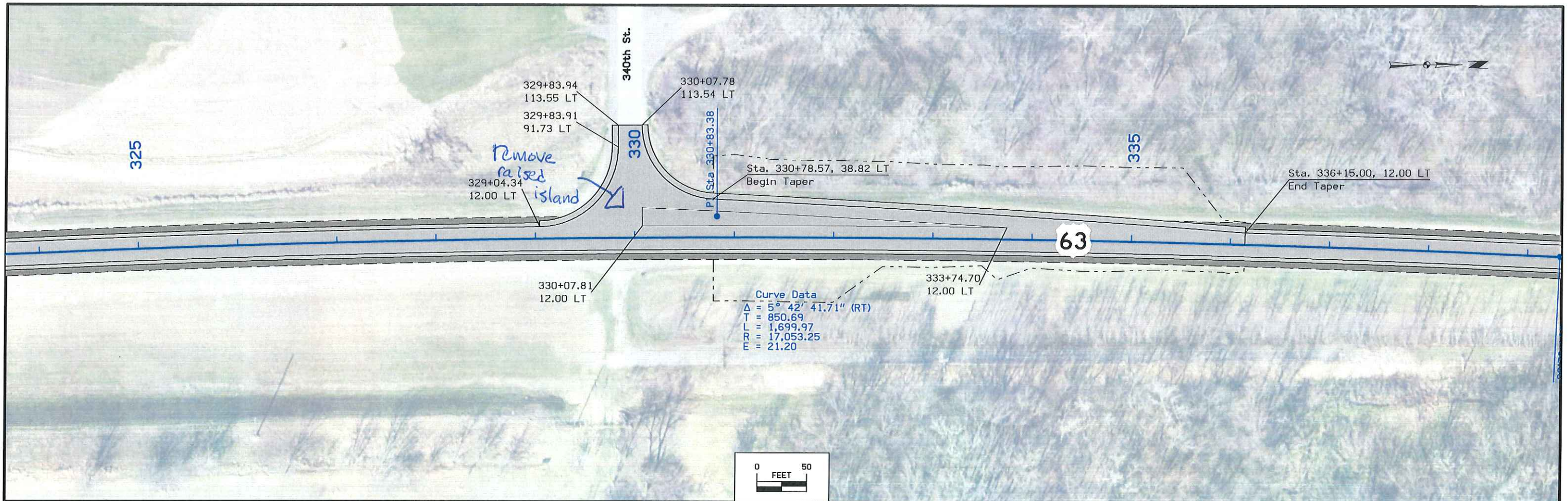




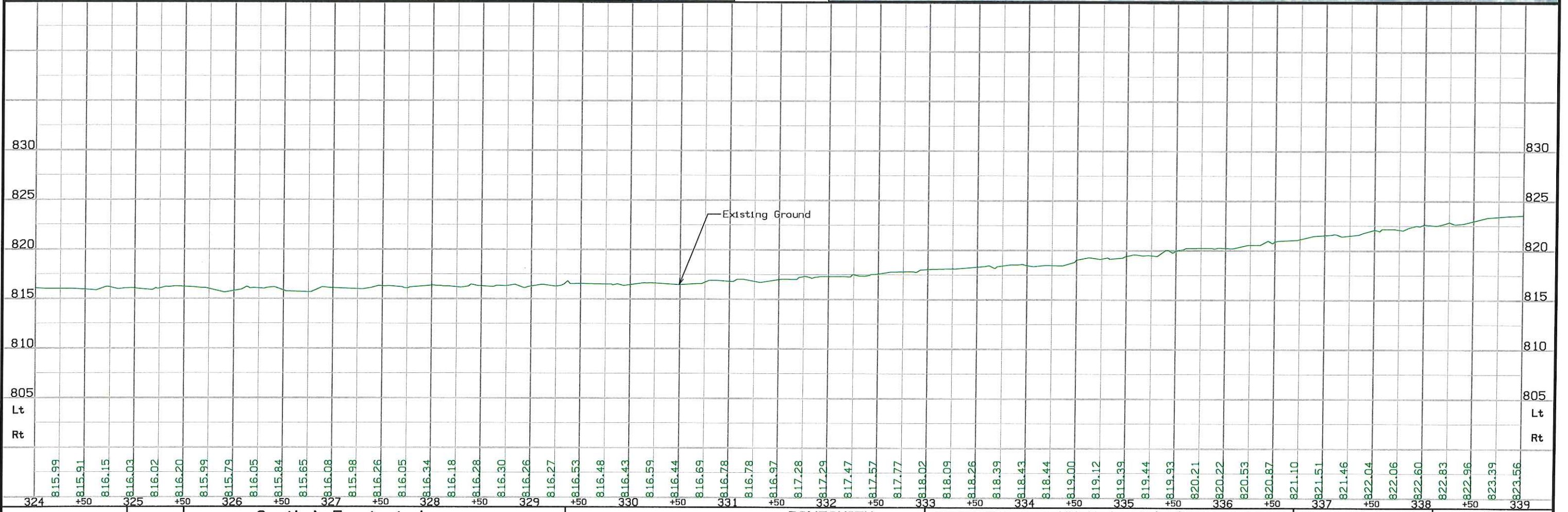
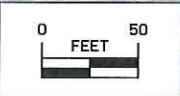
Columbia TWP.  
T-82N R-15W  
SEC. 3



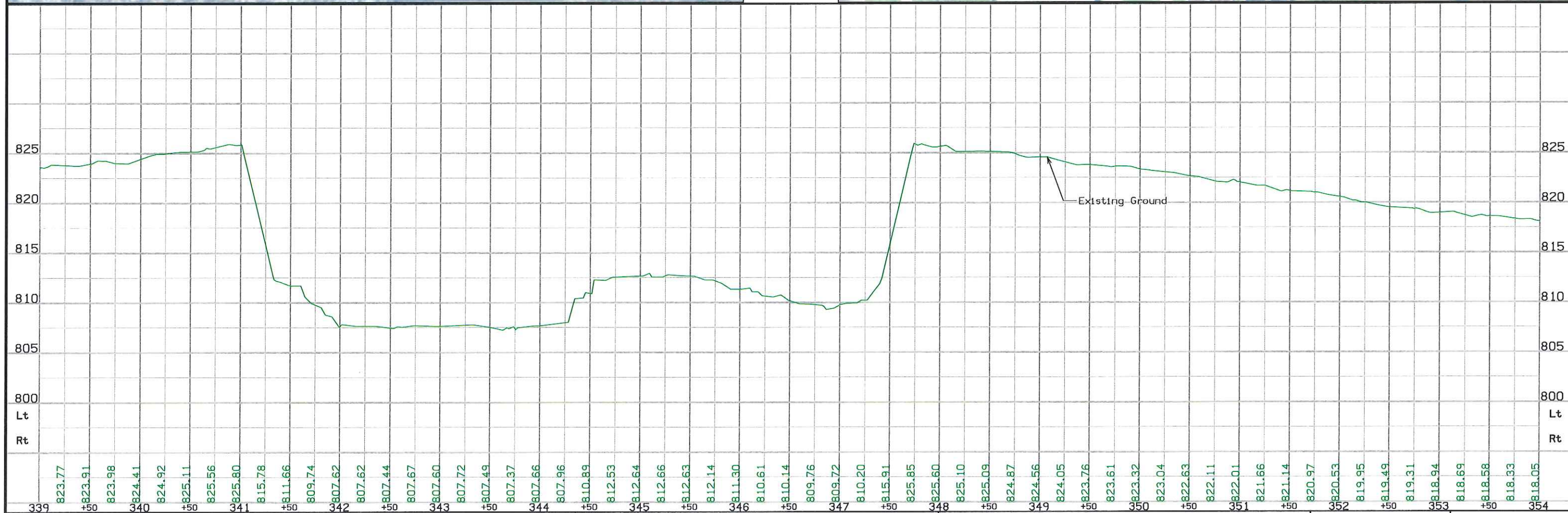




Curve Data  
 $\Delta = 5^{\circ} 42' 41.71''$  (RT)  
 T = 850.69  
 L = 1,699.97  
 R = 17,053.25  
 E = 21.20



FILE NO.	ENGLISH	DESIGN TEAM	Smyth \ Frostestad	POWESHIEK COUNTY	PROJECT NUMBER	NHSX-063-4(52)--3H-79	SHEET NUMBER	D.52
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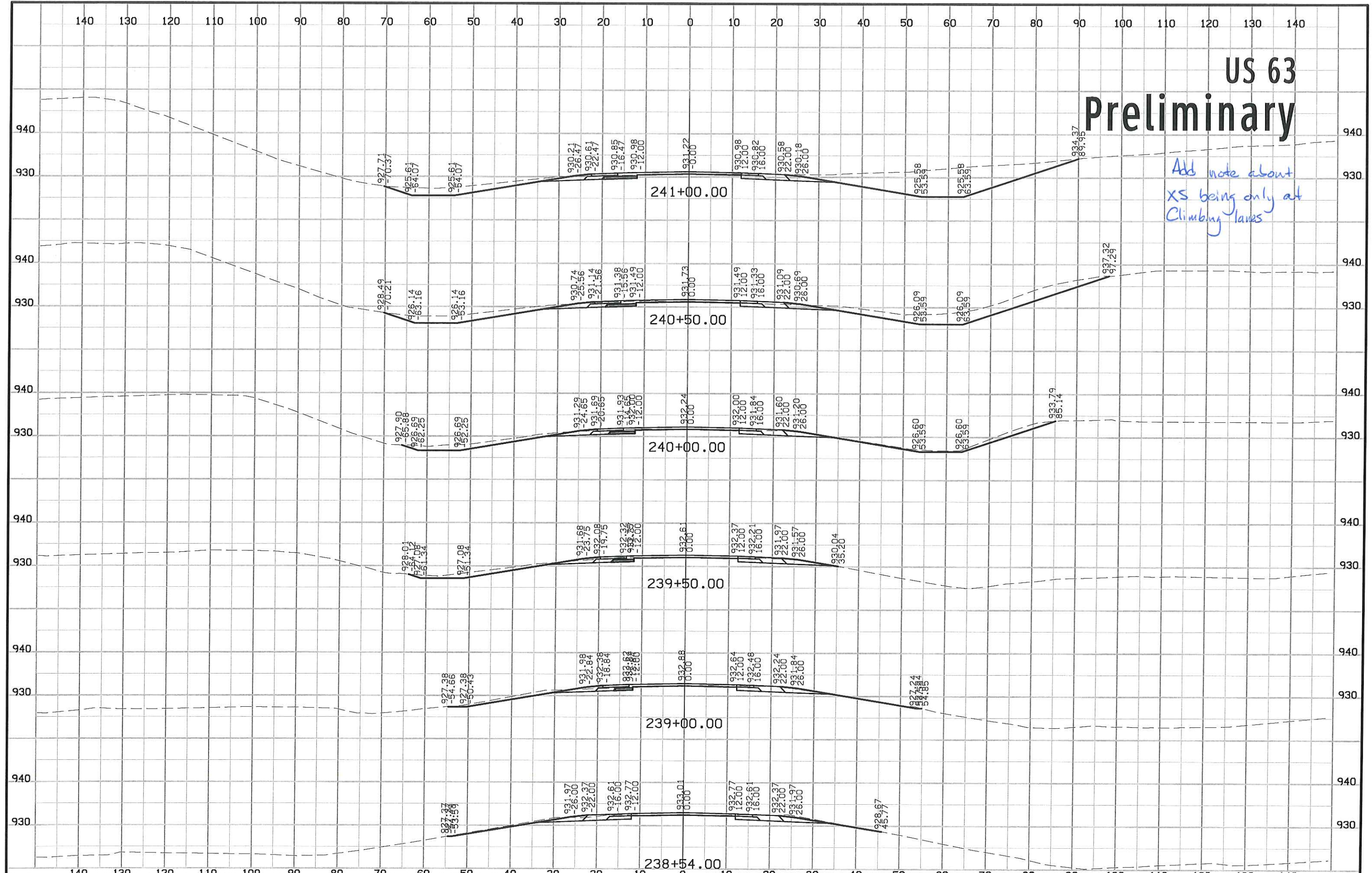




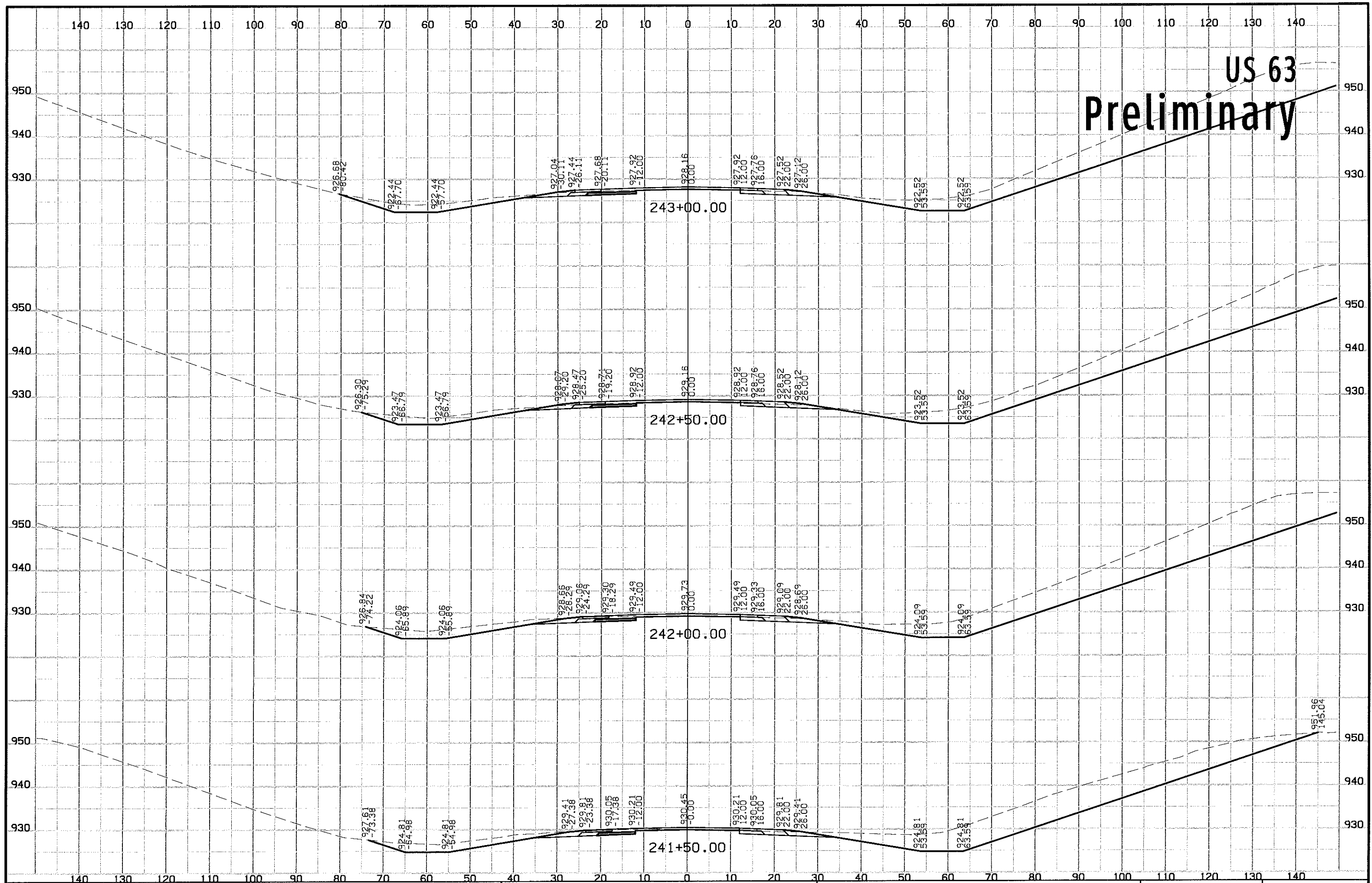
# US 63

## Preliminary

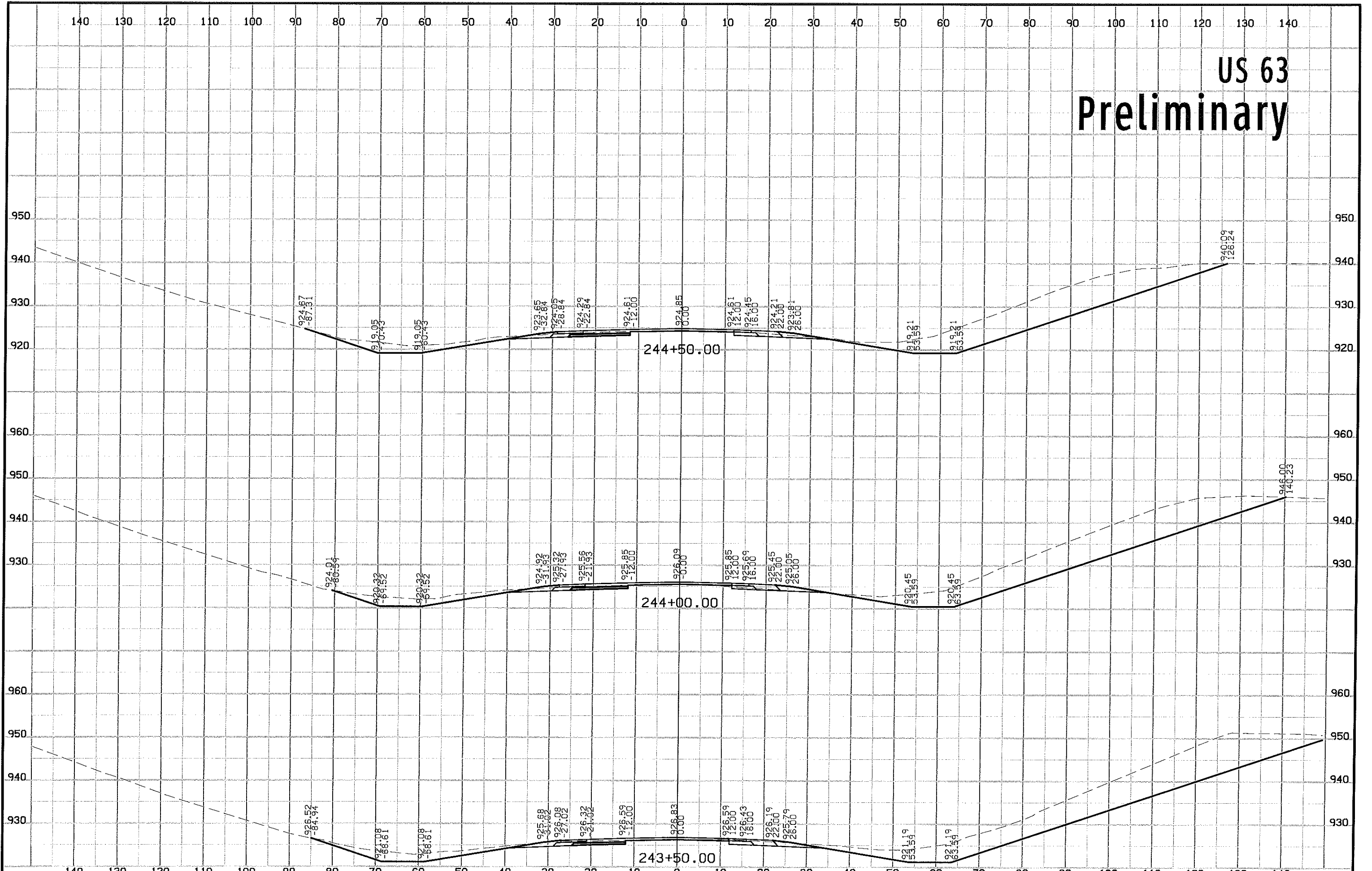
*Add note about XS being only at Climbing lanes*



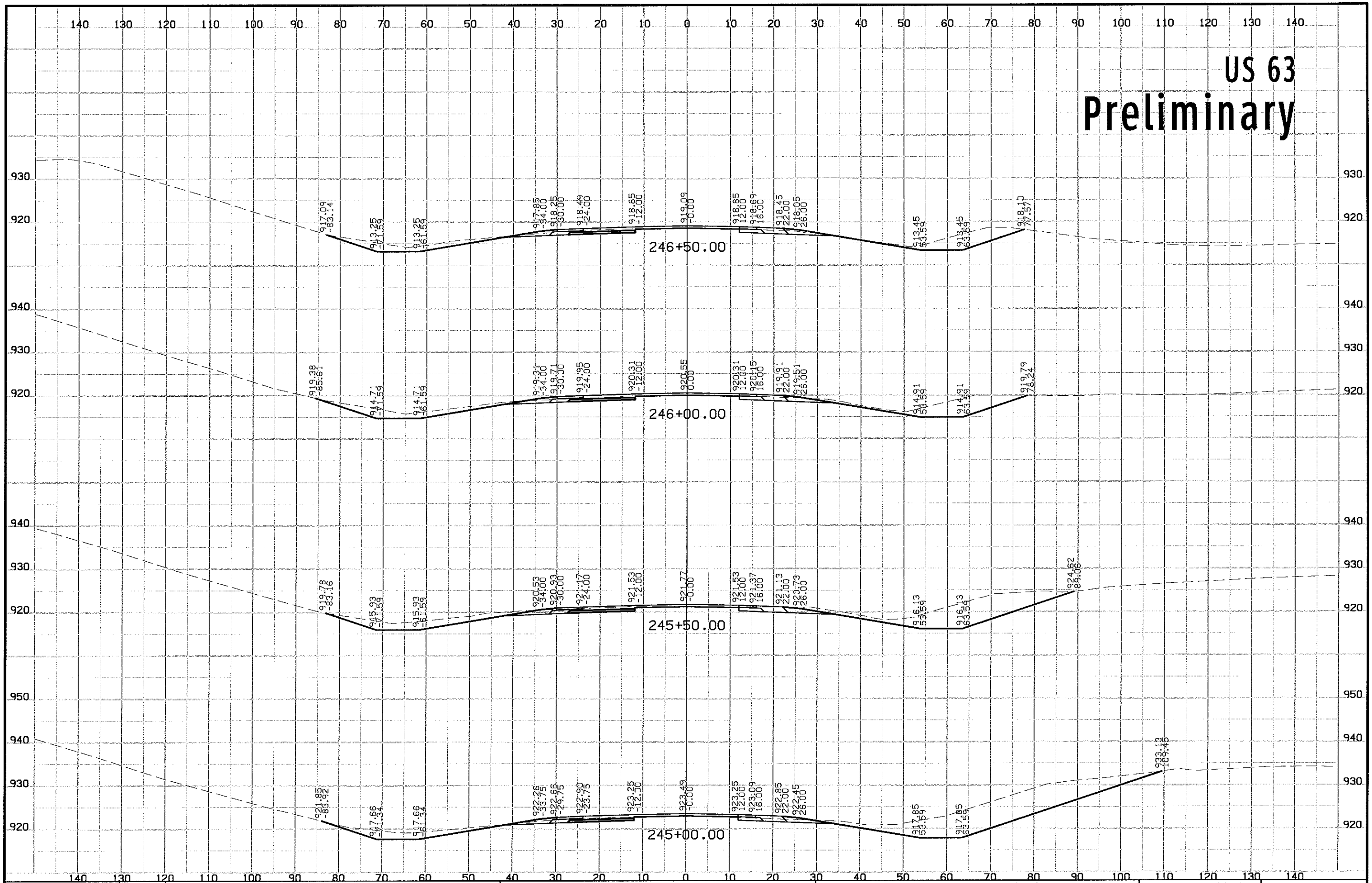
# US 63 Preliminary



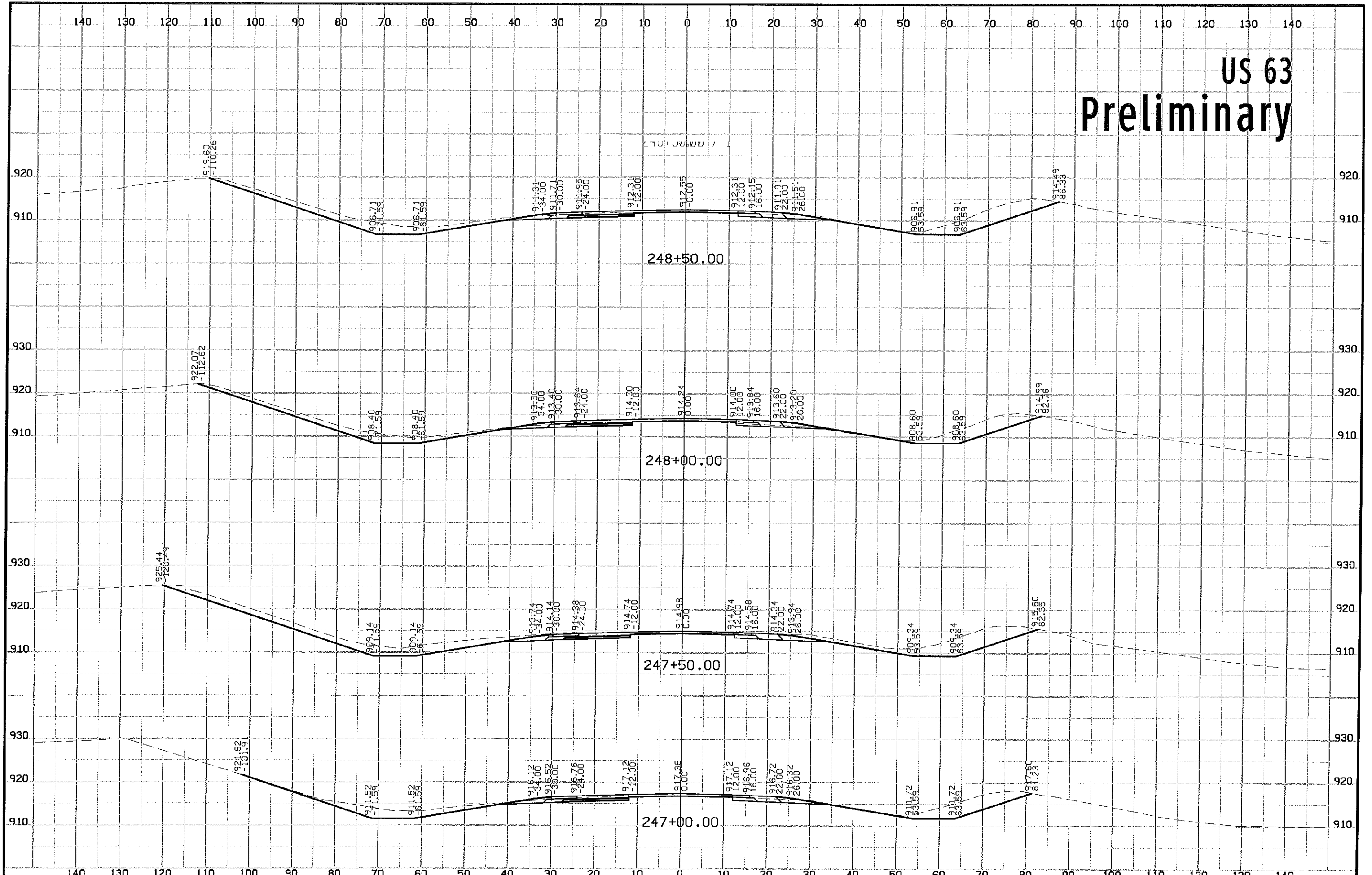
# US 63 Preliminary



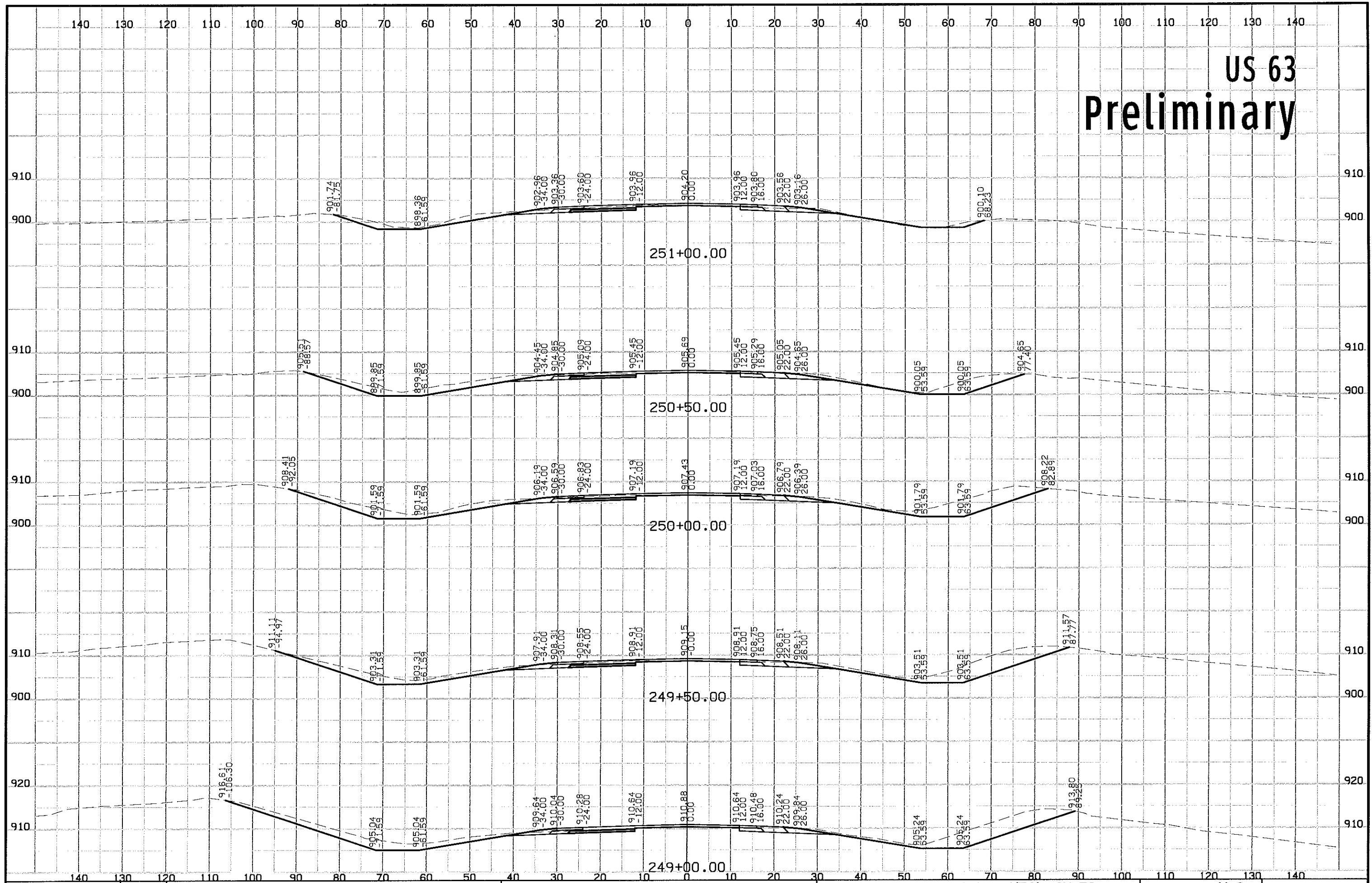
# US 63 Preliminary



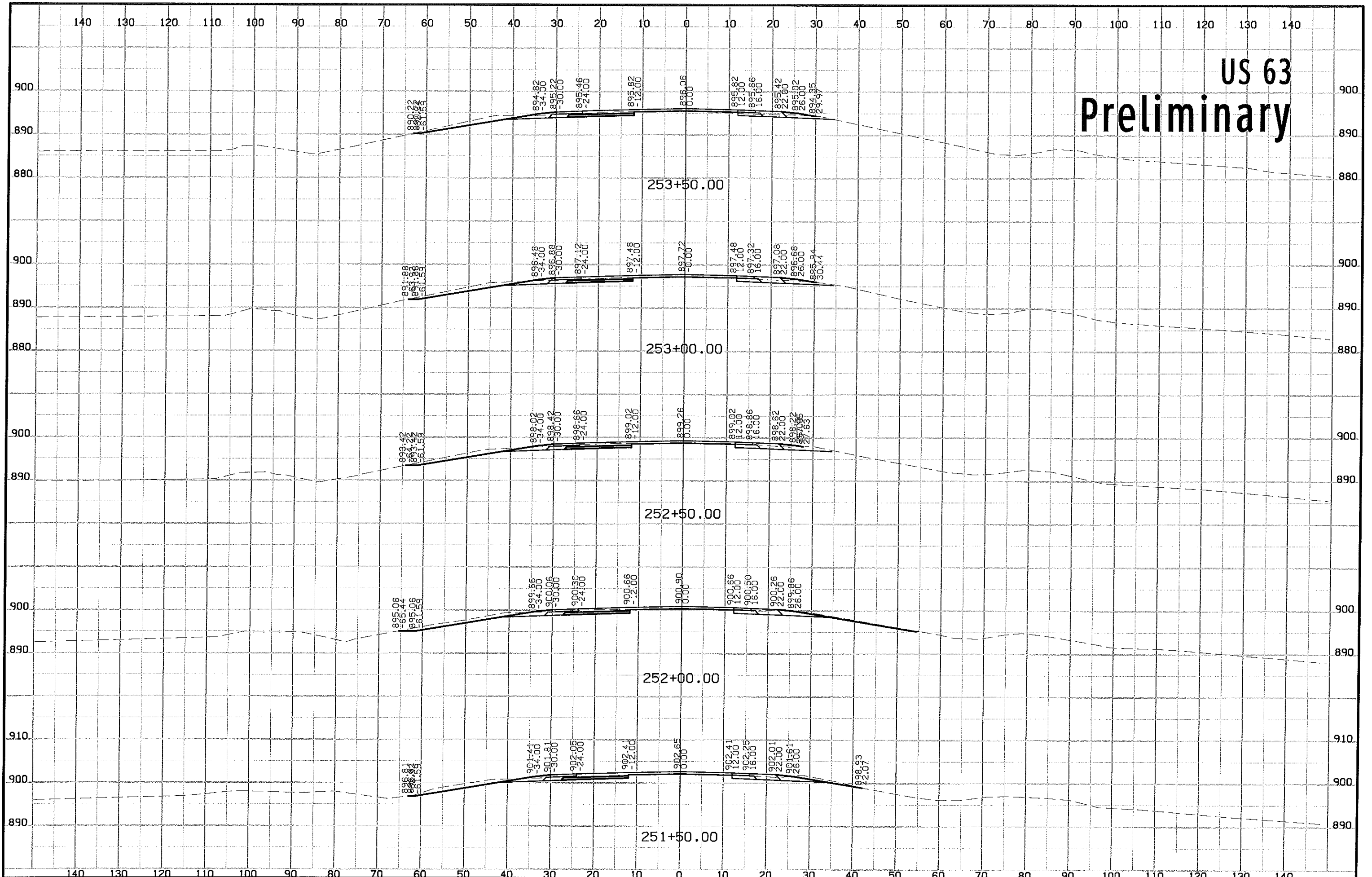
# US 63 Preliminary



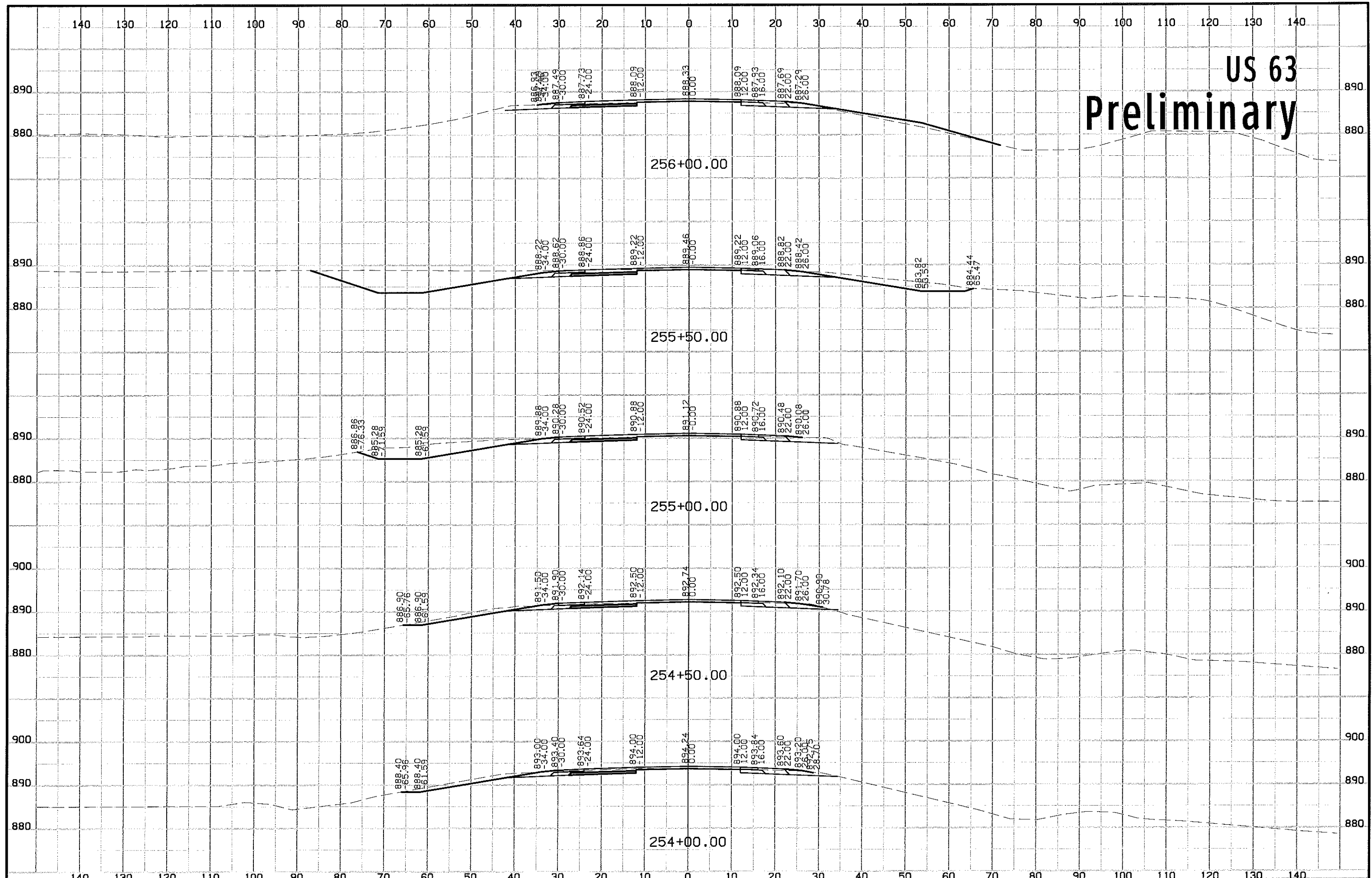
# US 63 Preliminary



# US 63 Preliminary

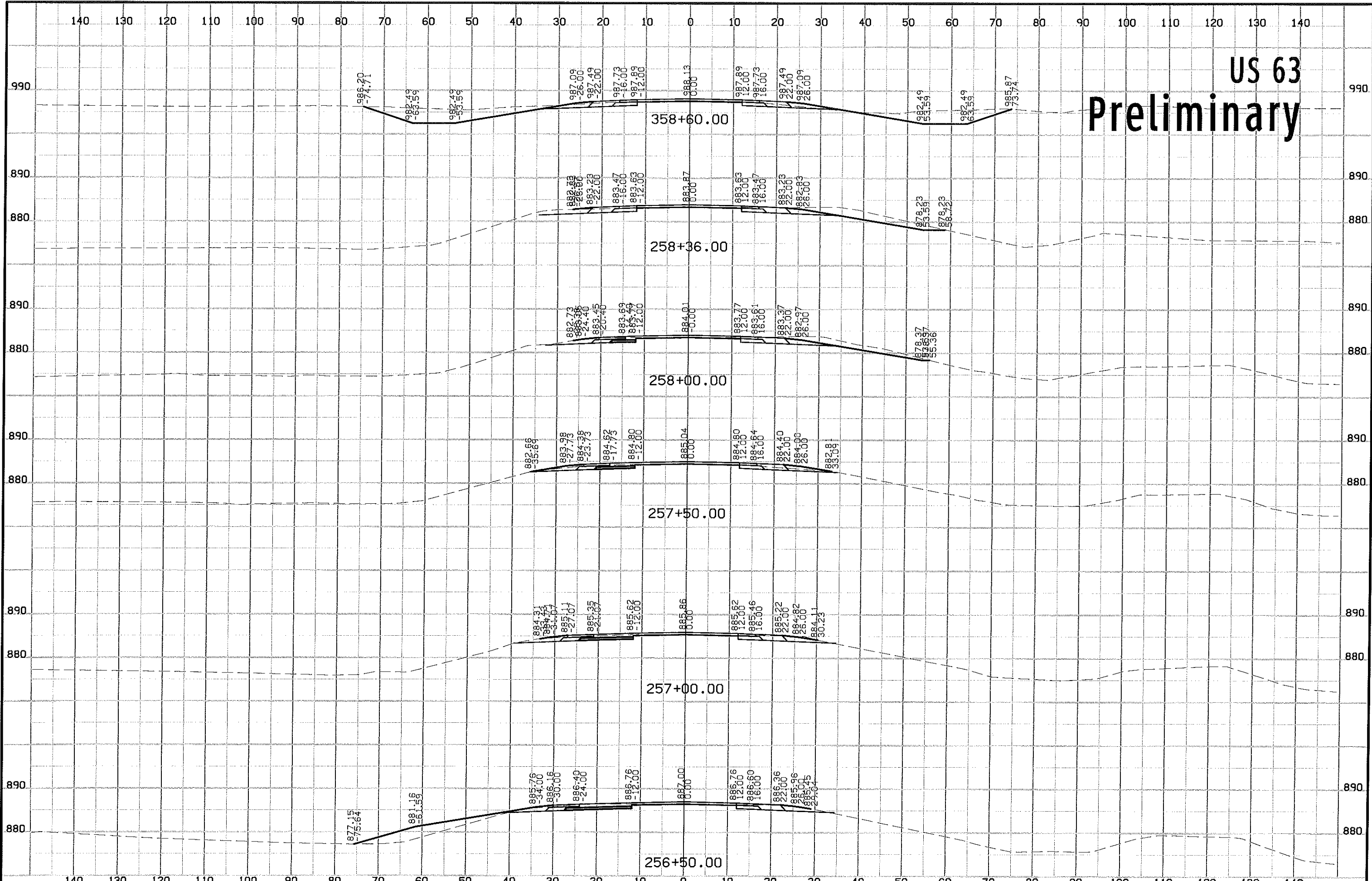


# US 63 Preliminary

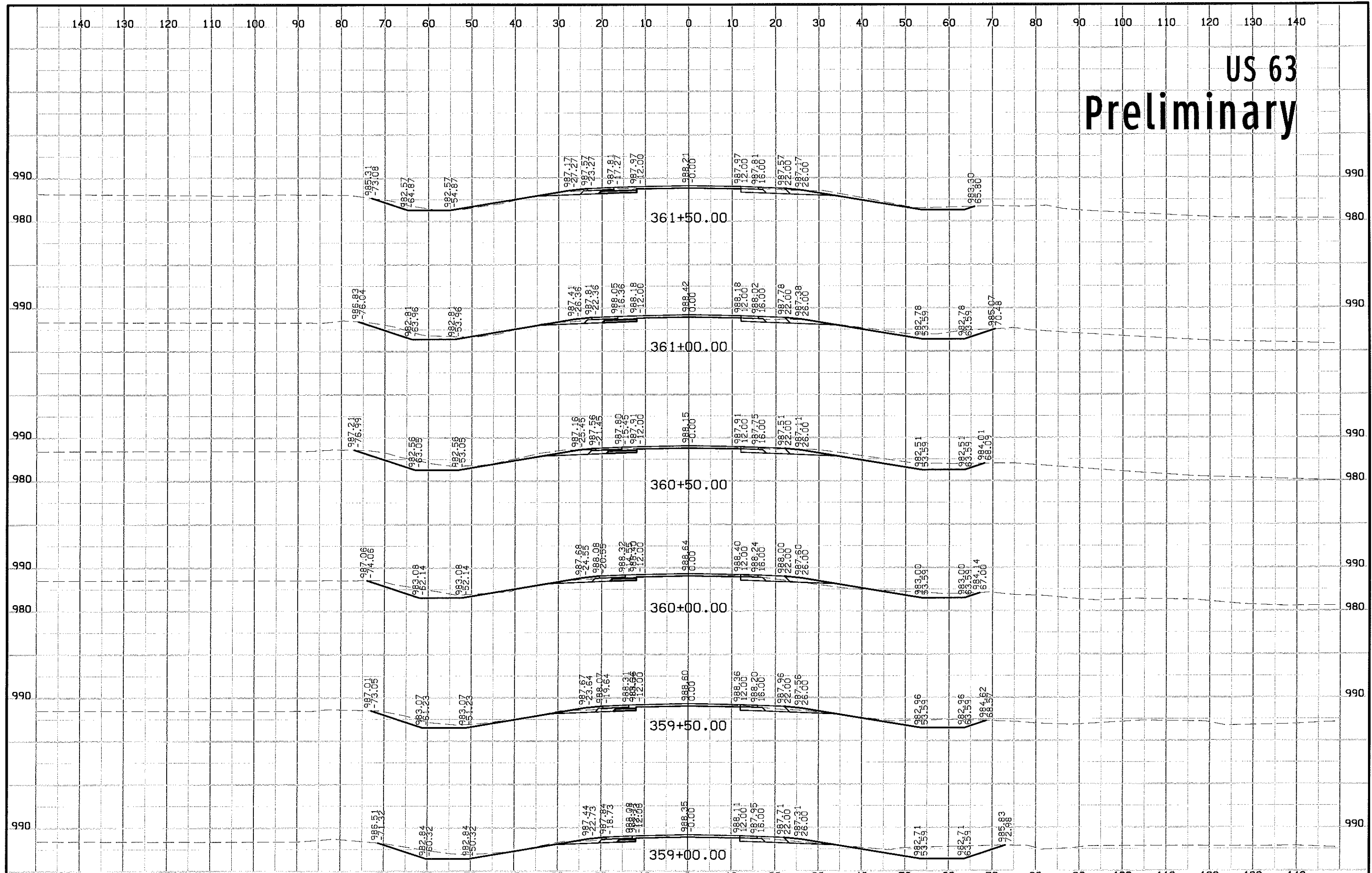




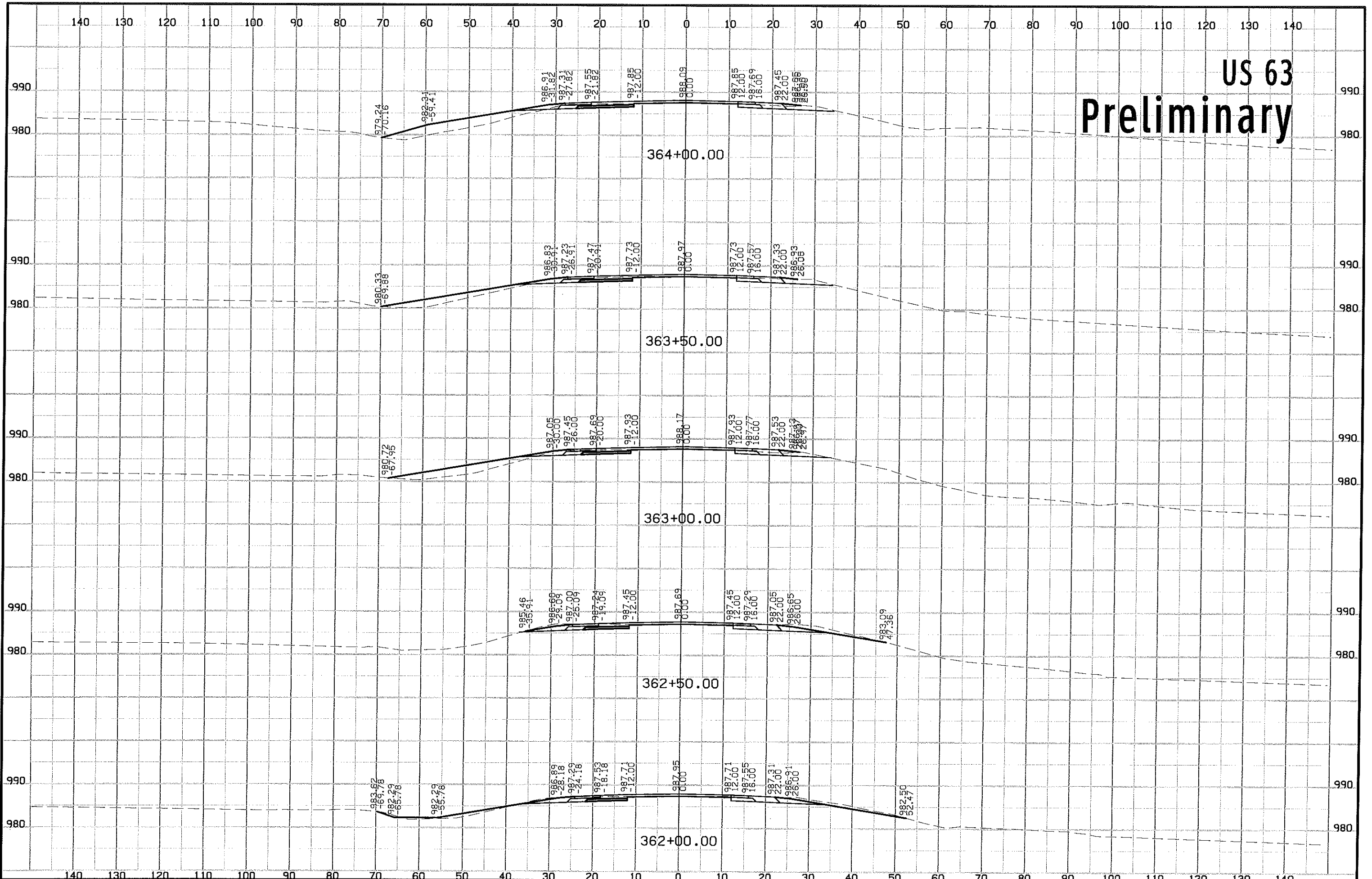
# US 63 Preliminary



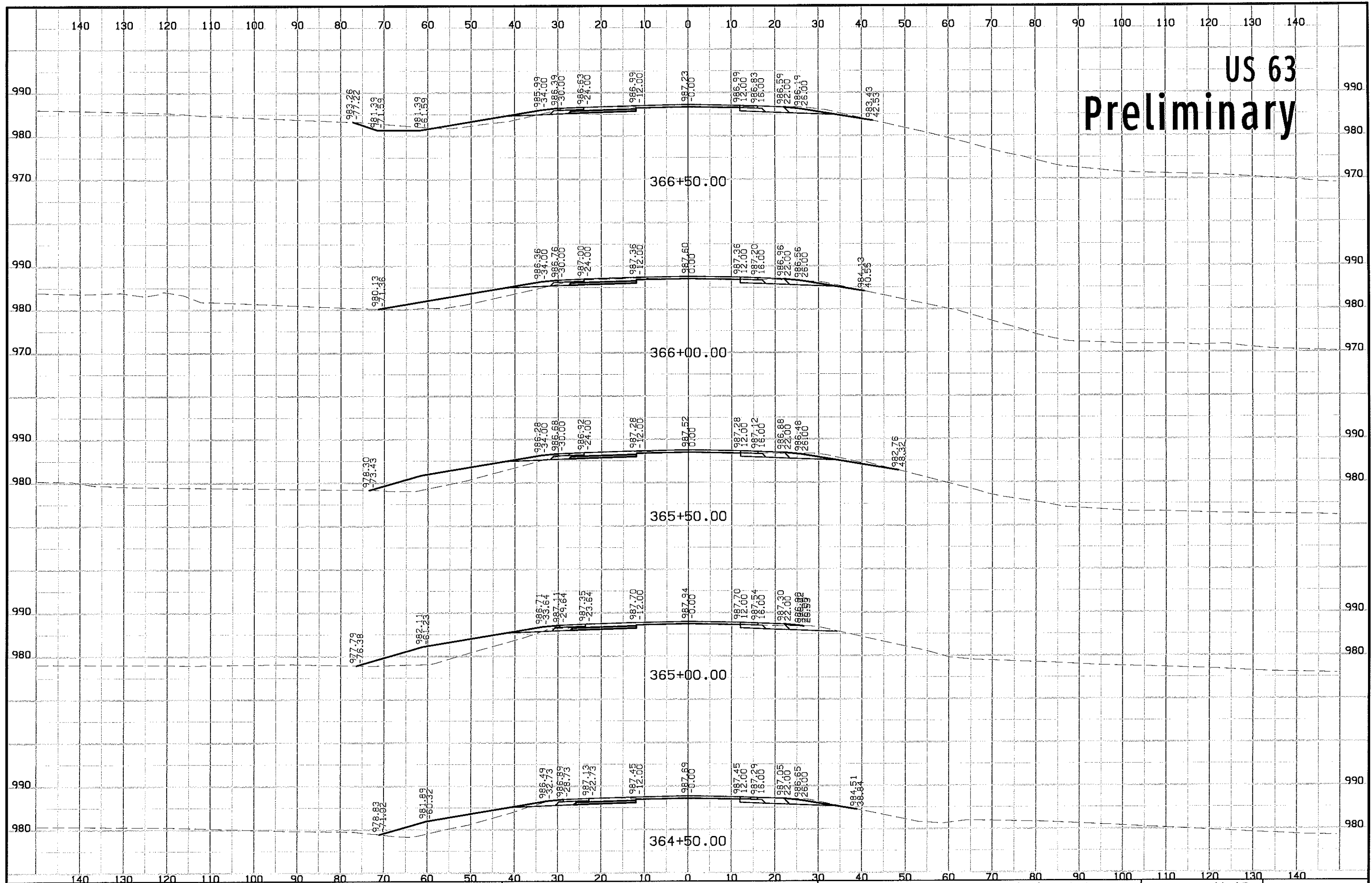
# US 63 Preliminary



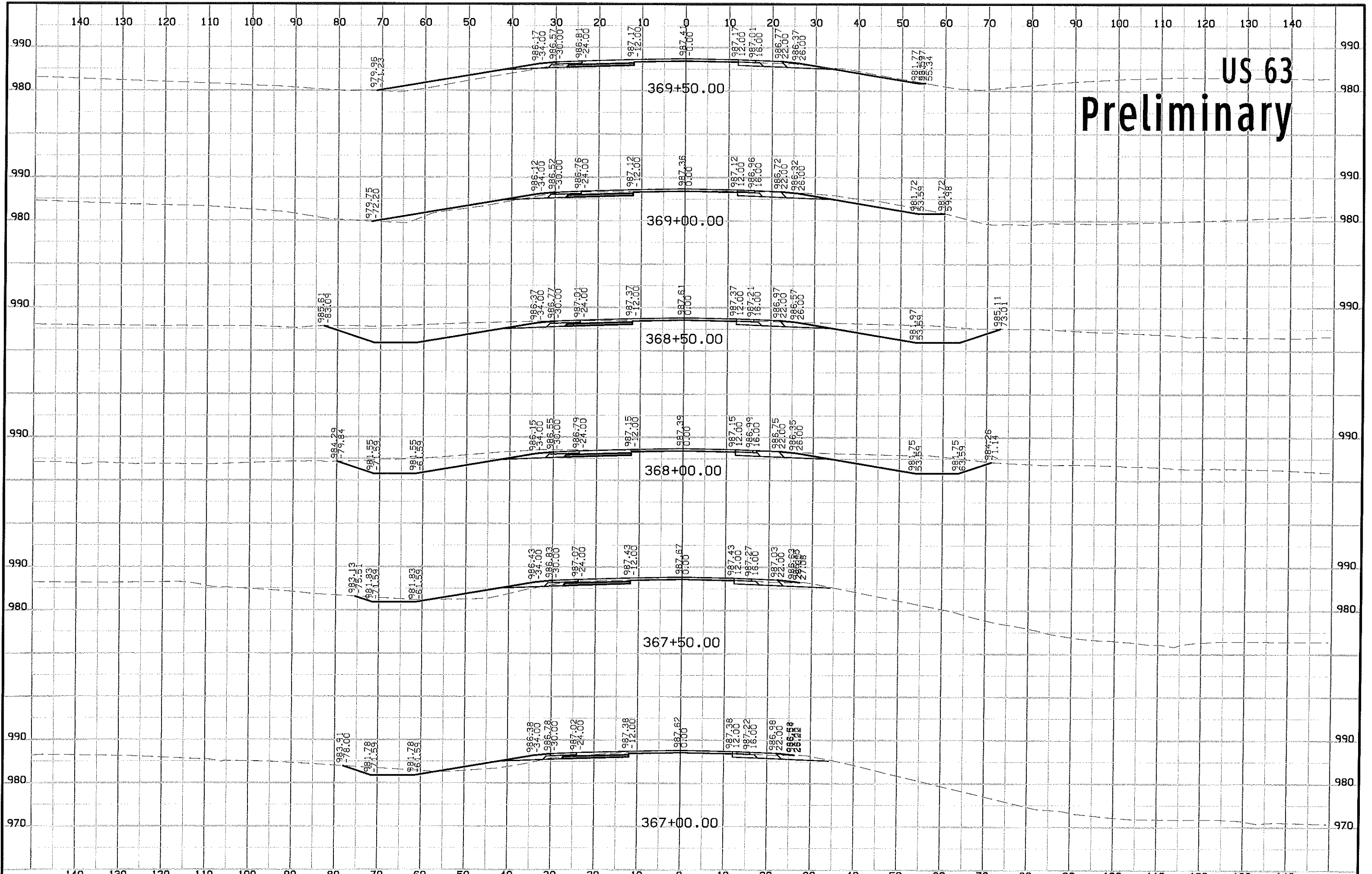
# US 63 Preliminary



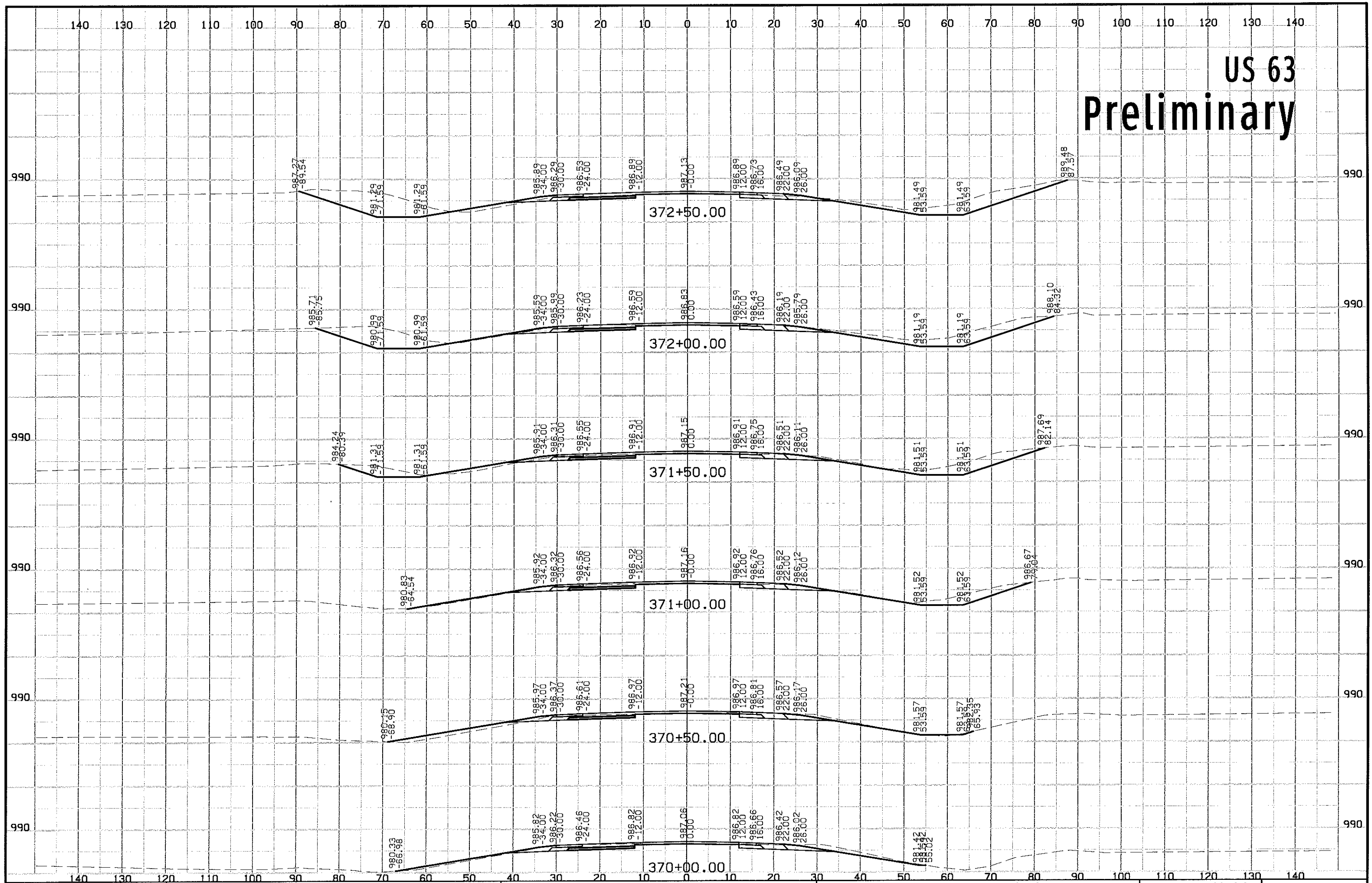
# US 63 Preliminary



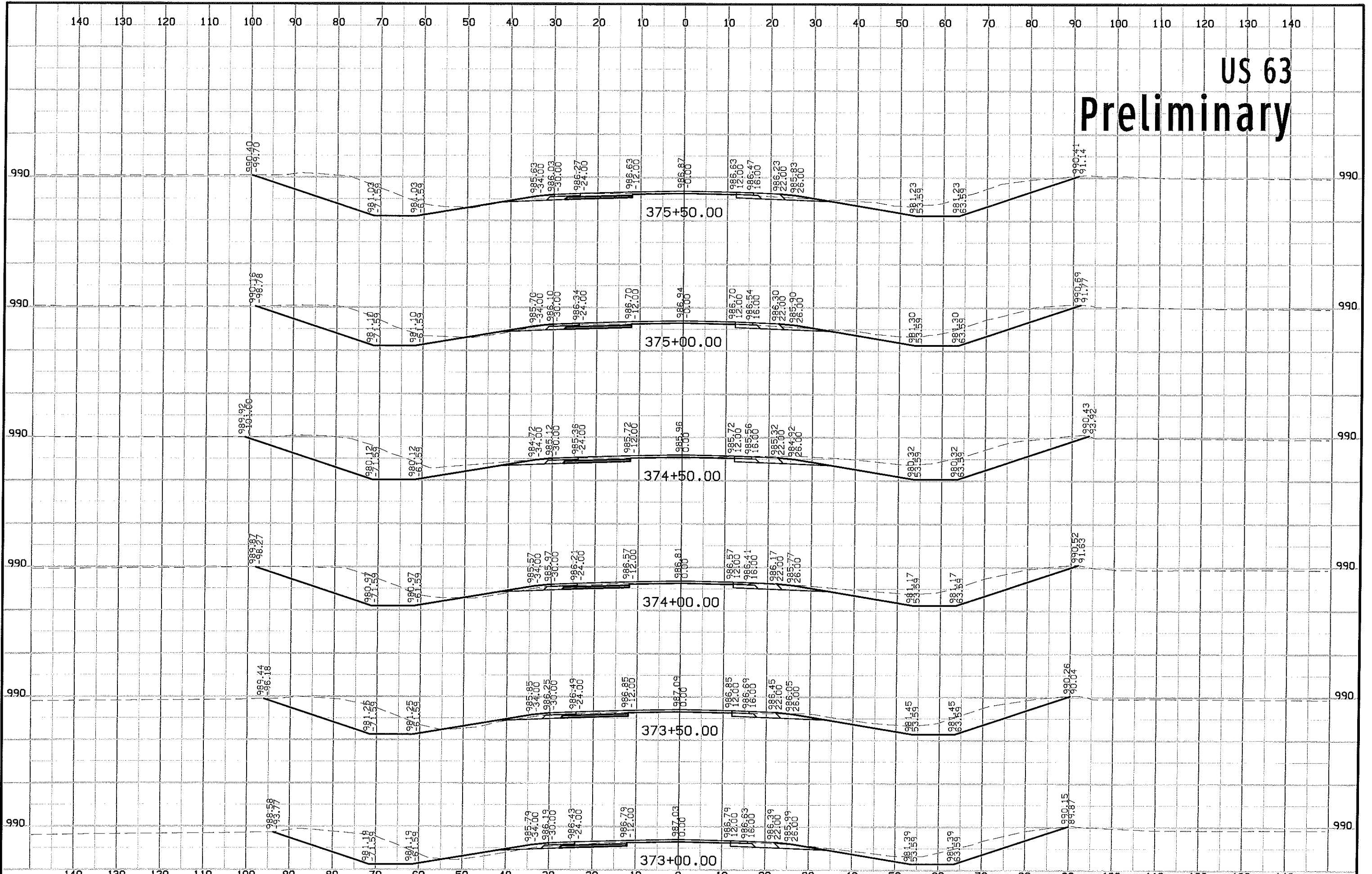
# US 63 Preliminary



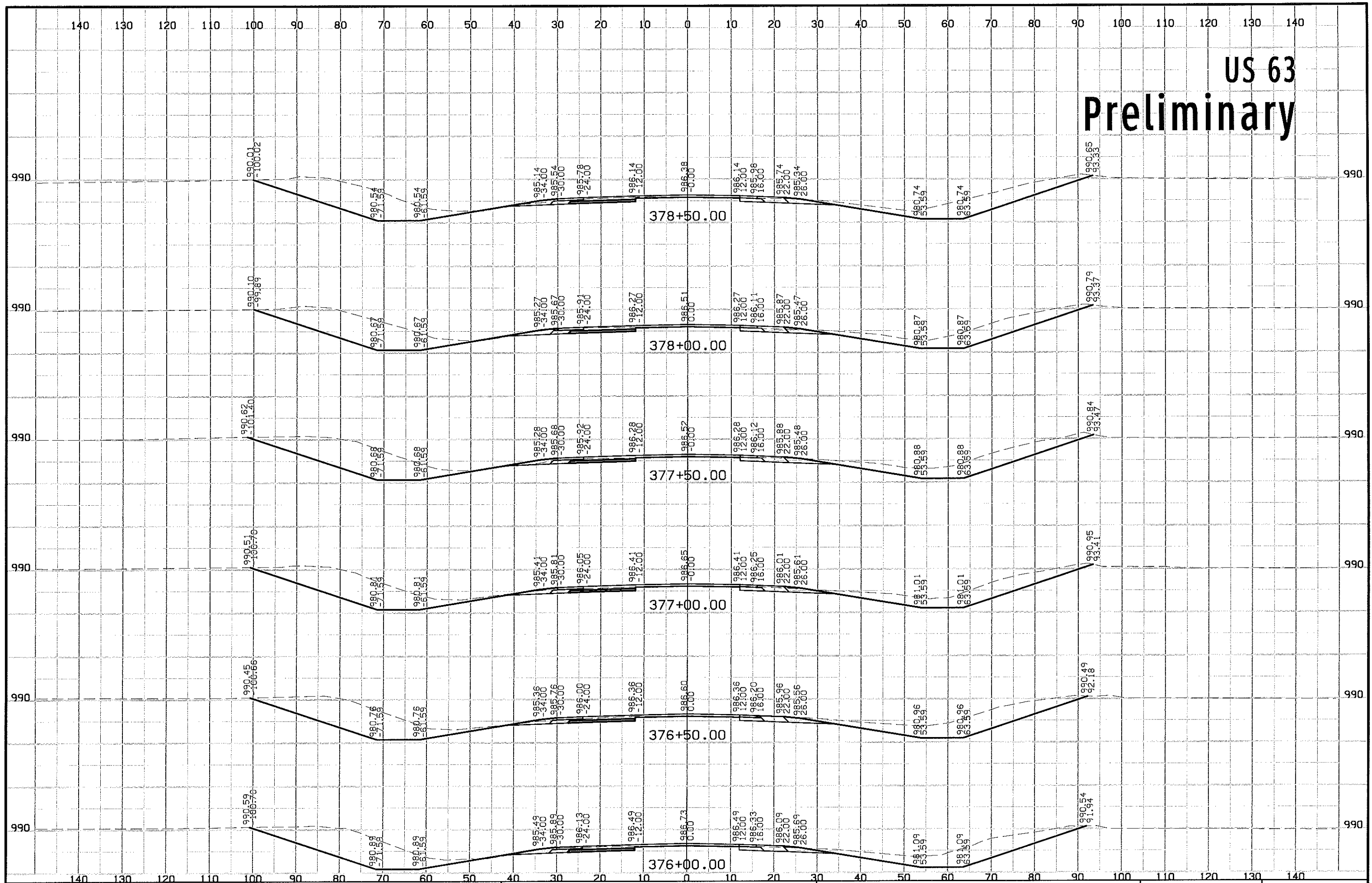
# US 63 Preliminary



# US 63 Preliminary

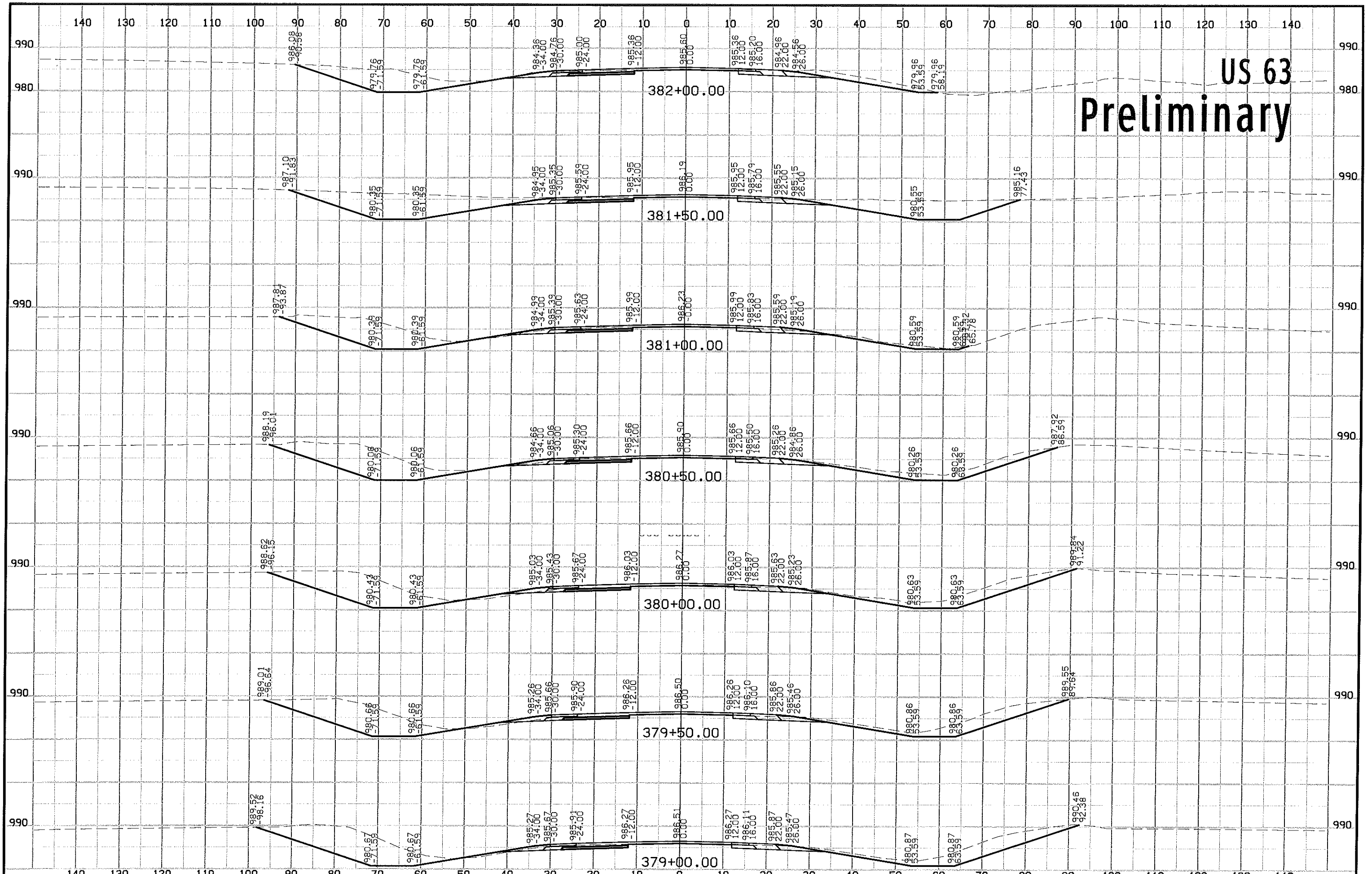


# US 63 Preliminary

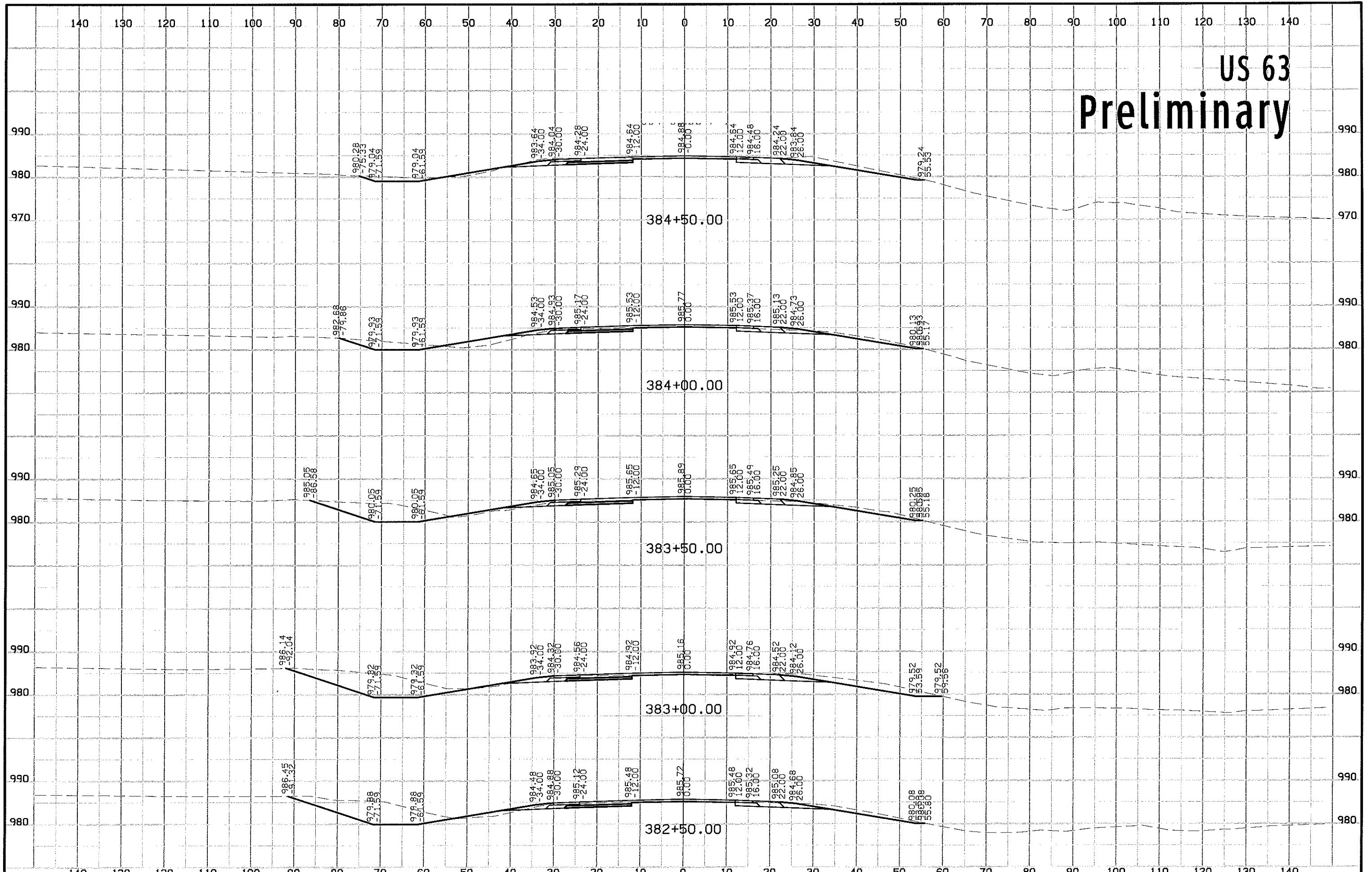




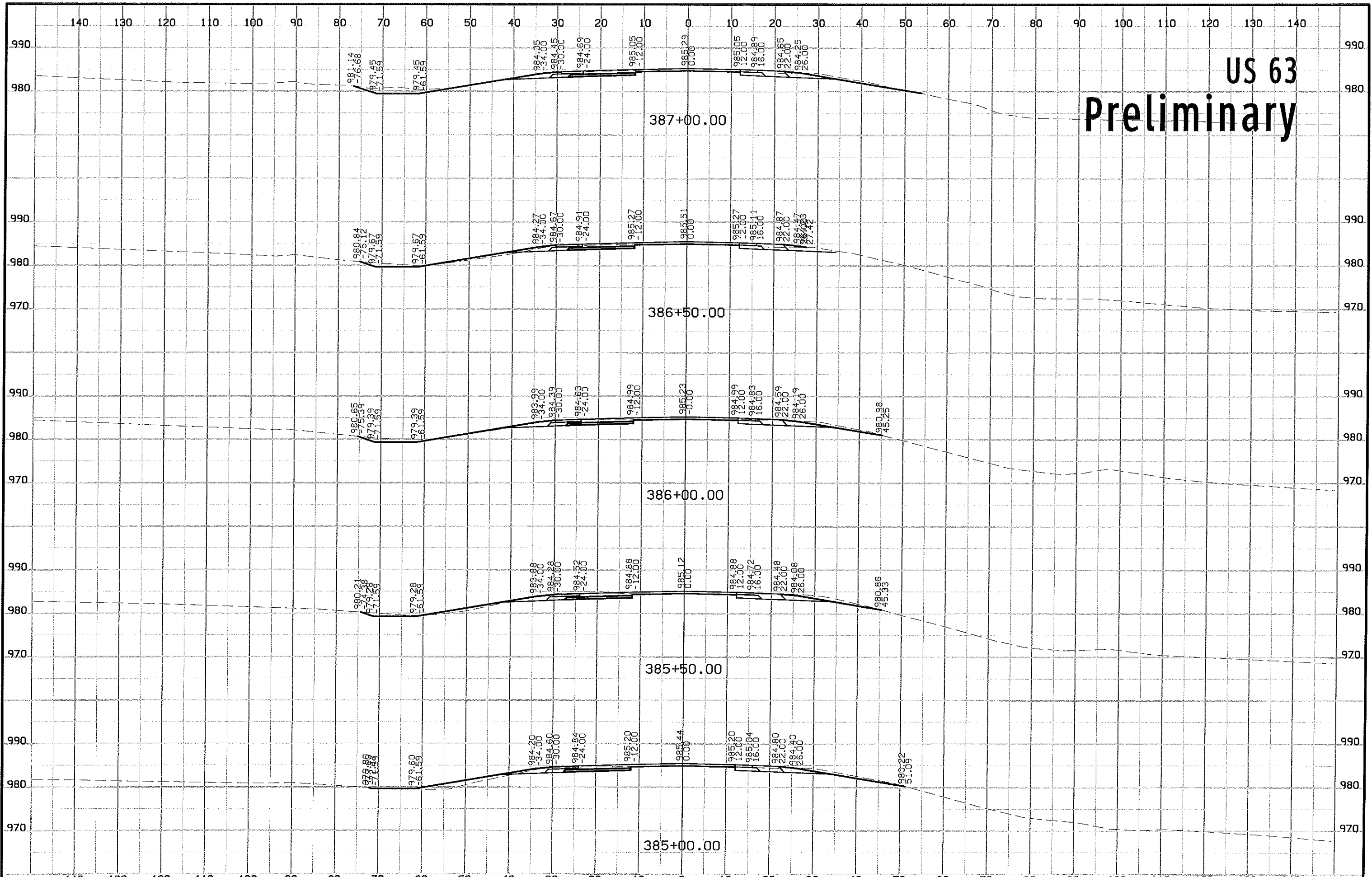
# US 63 Preliminary



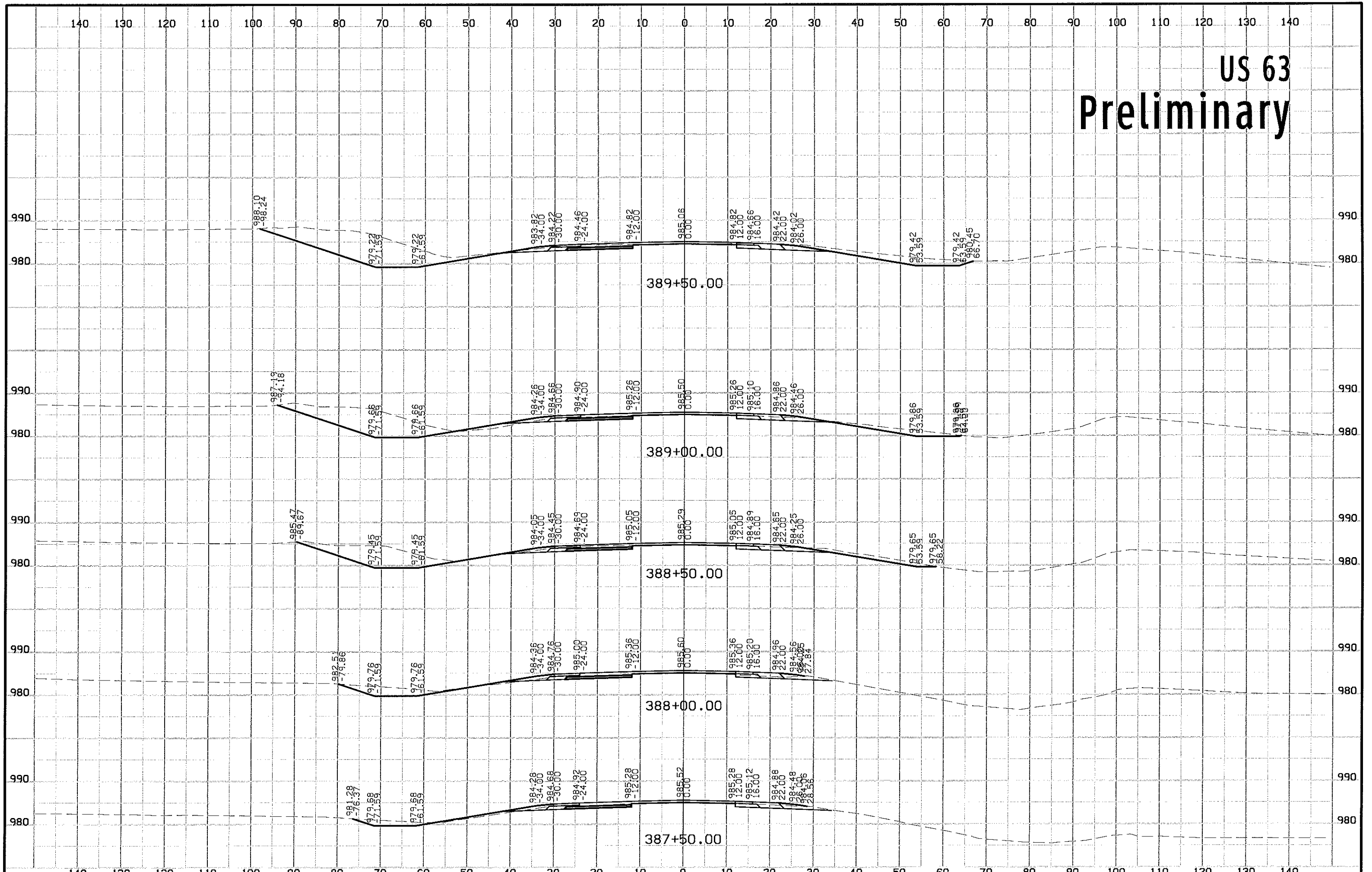
# US 63 Preliminary



# US 63 Preliminary

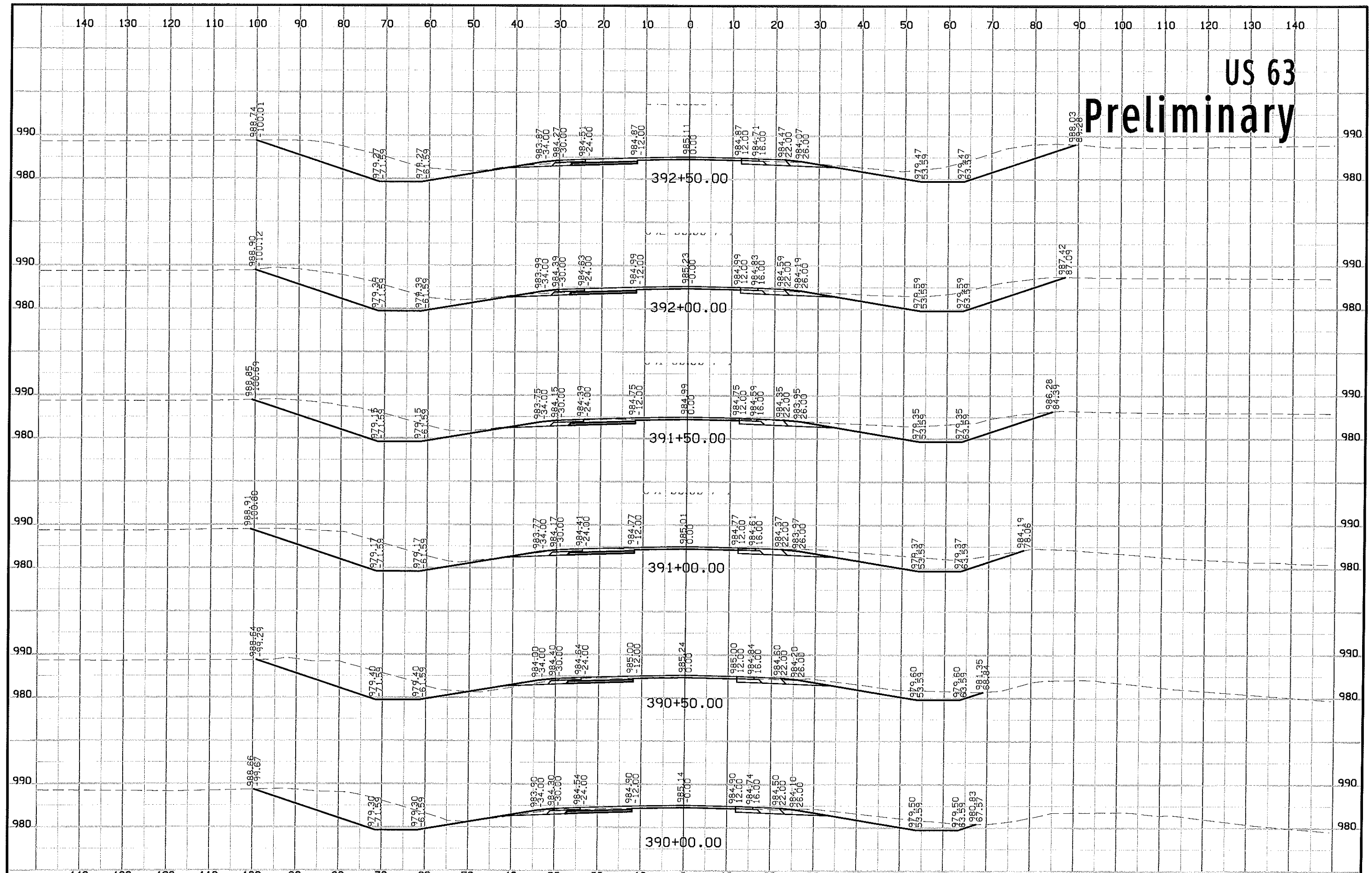


# US 63 Preliminary

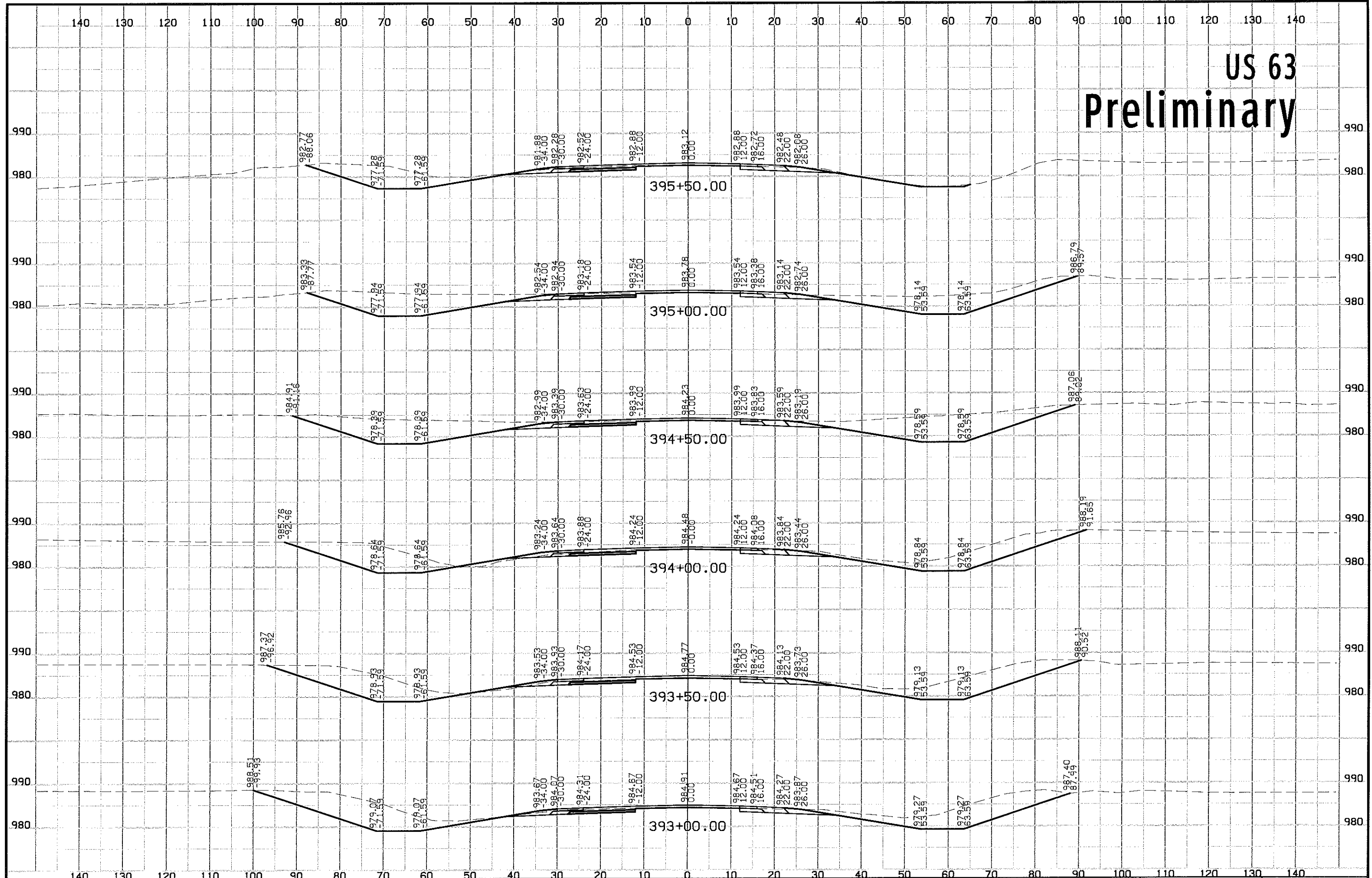


US 63

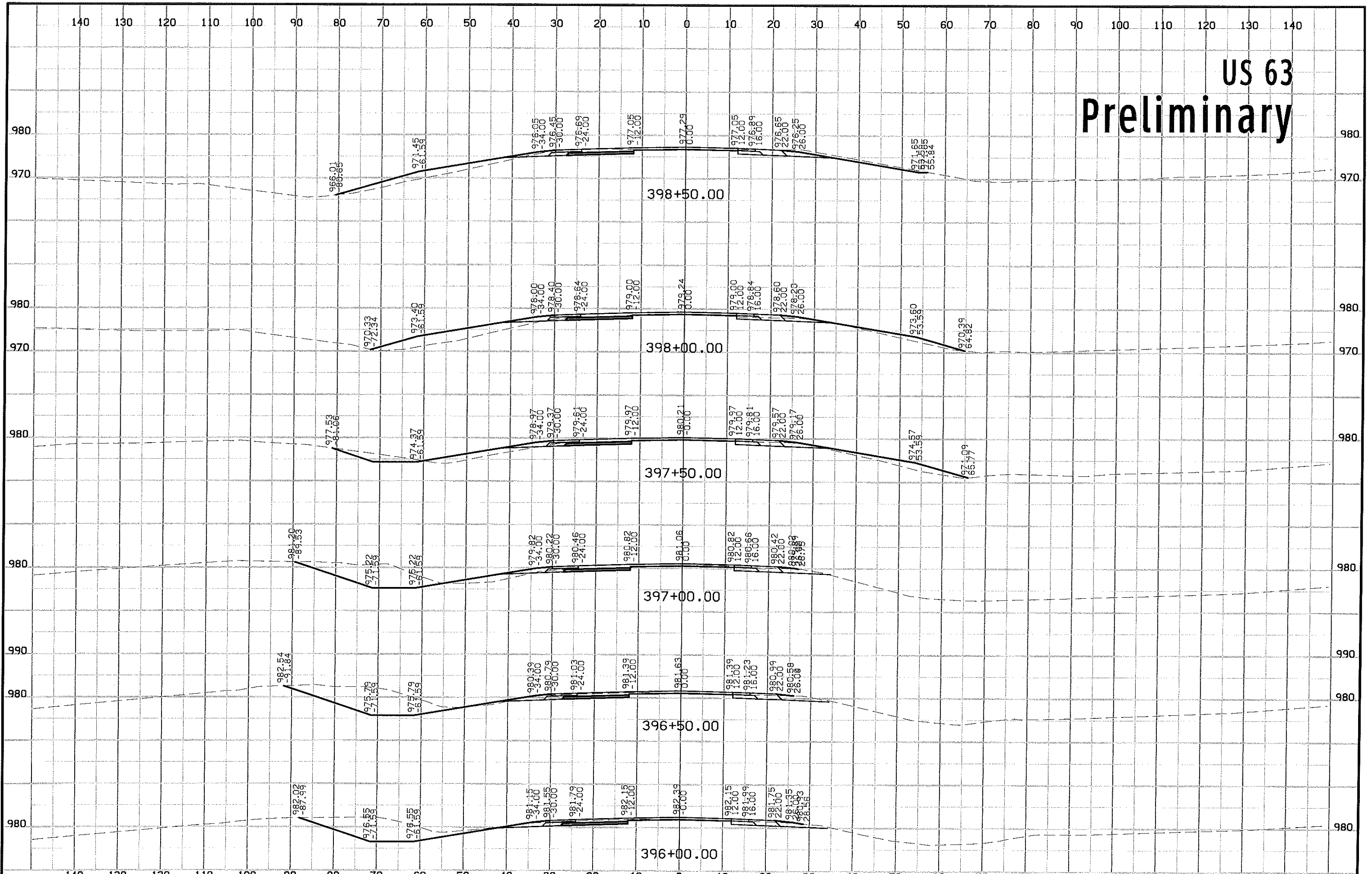
Preliminary

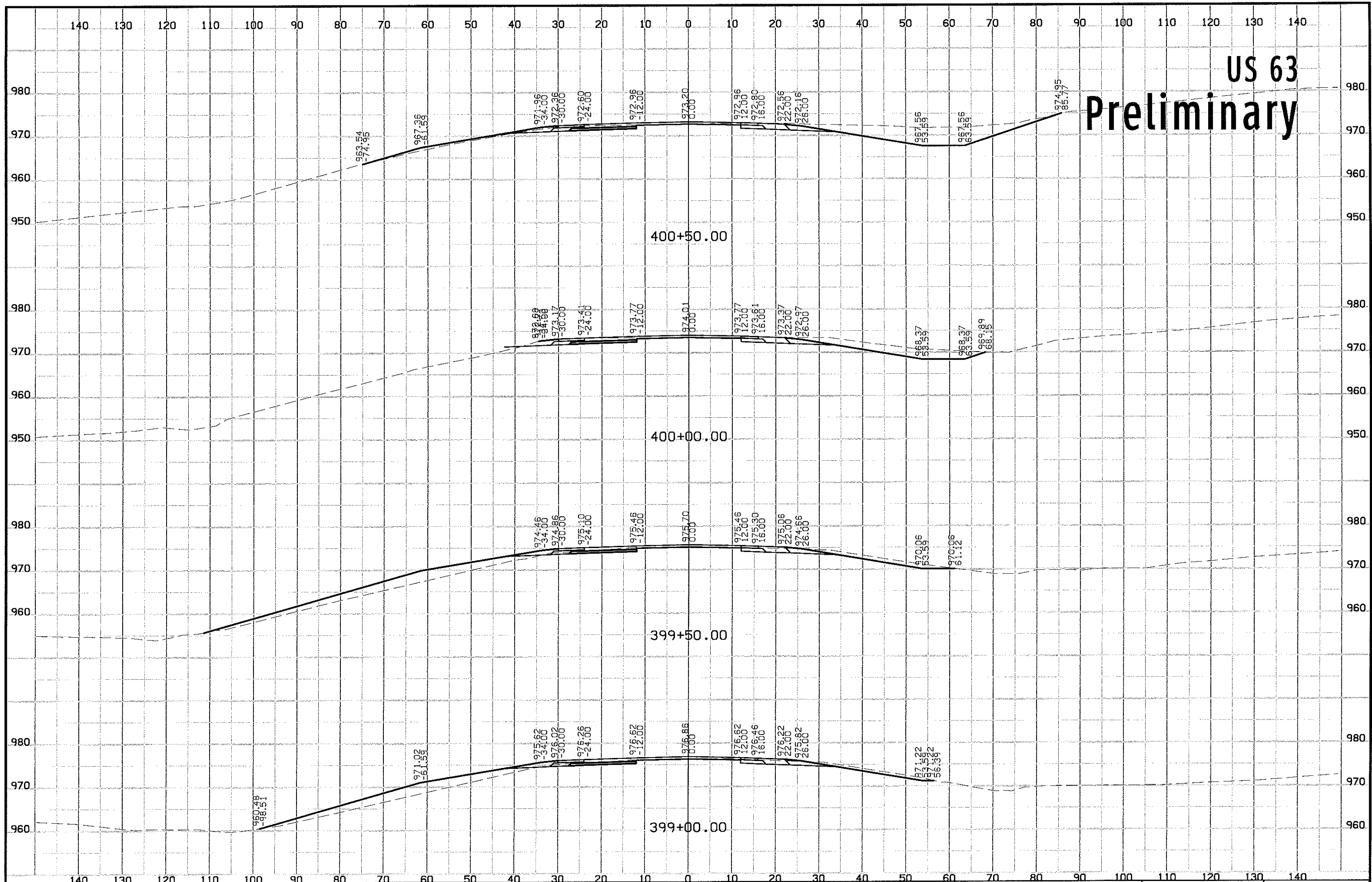


# US 63 Preliminary



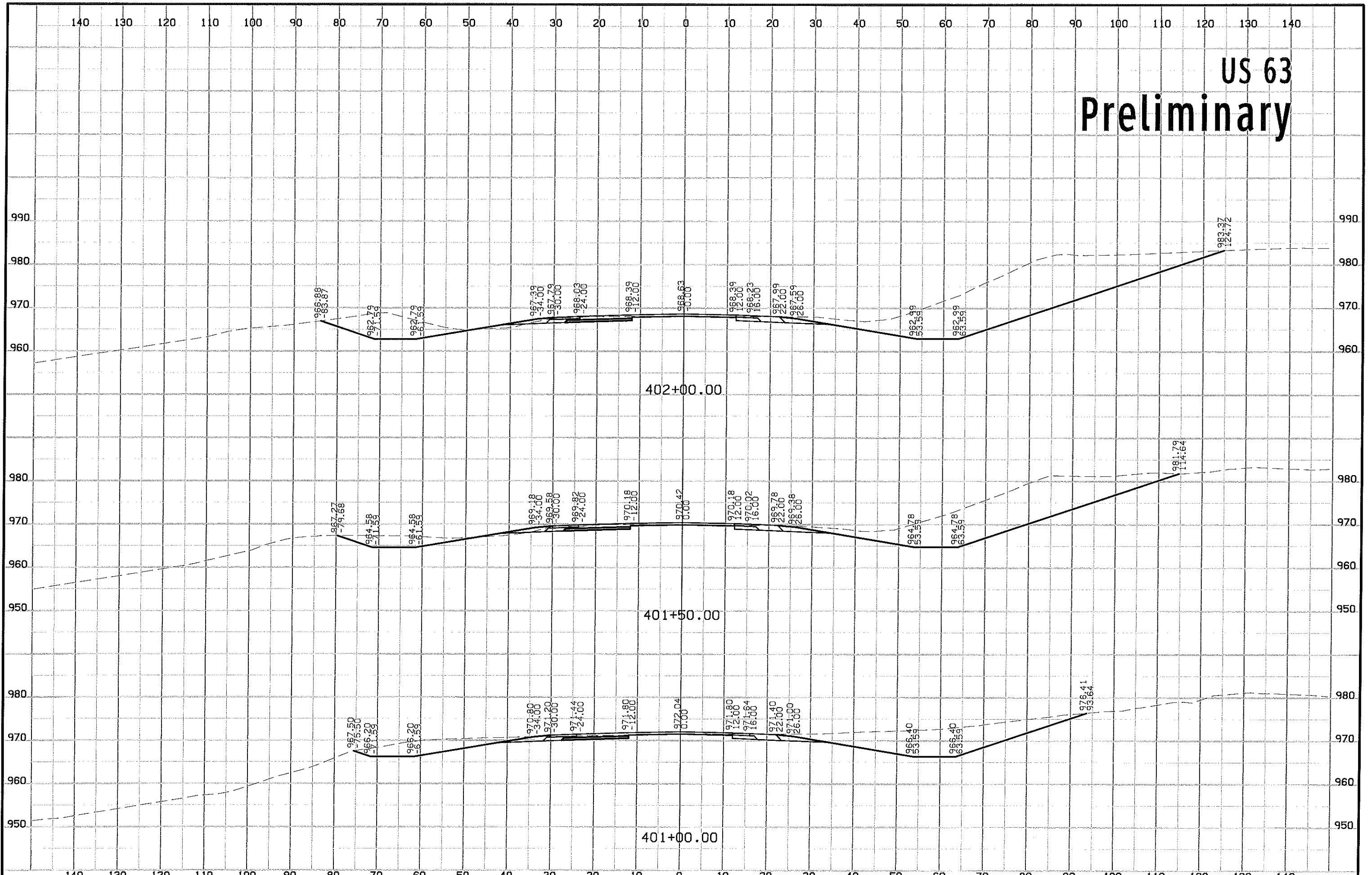
# US 63 Preliminary

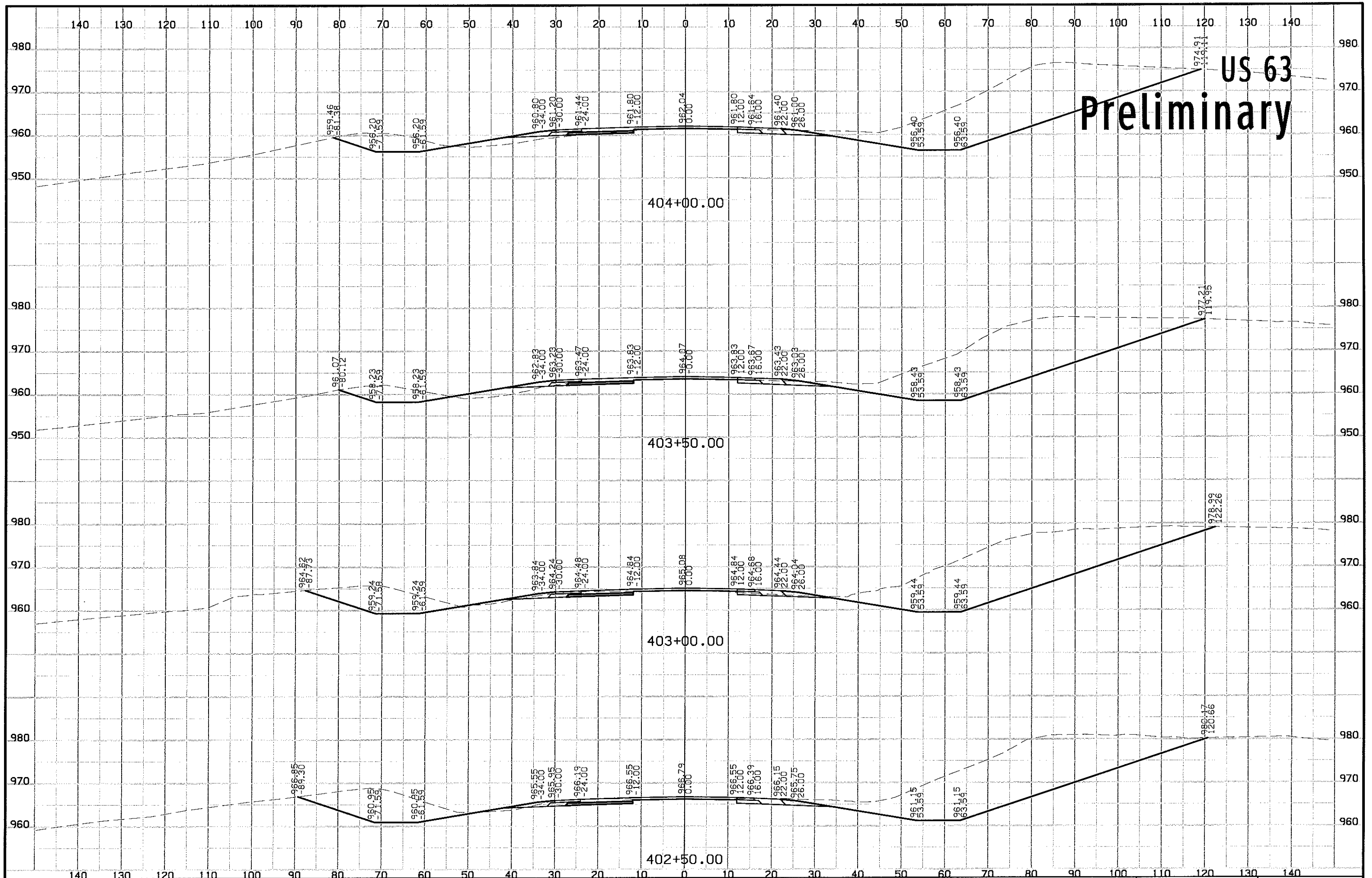




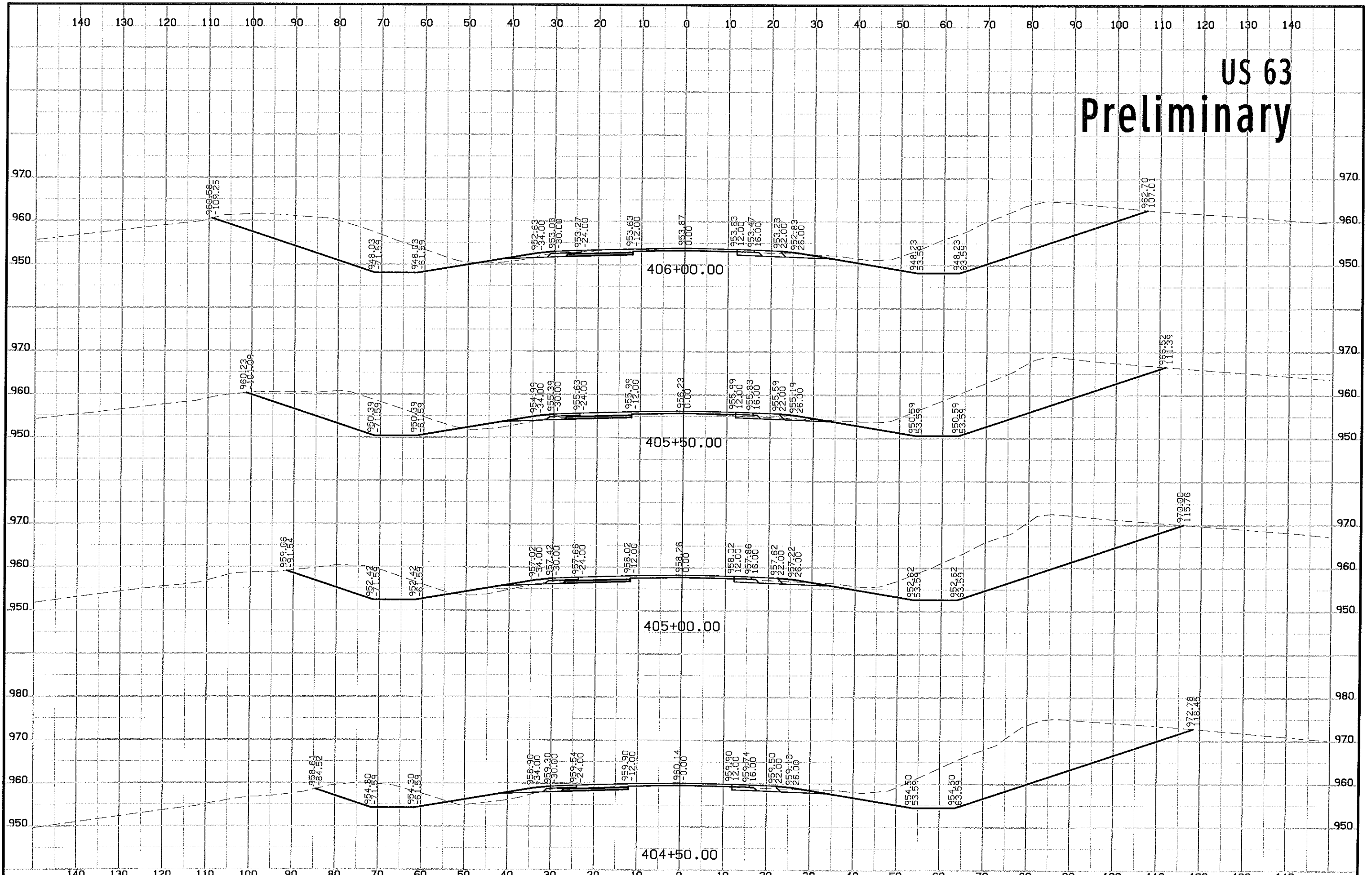


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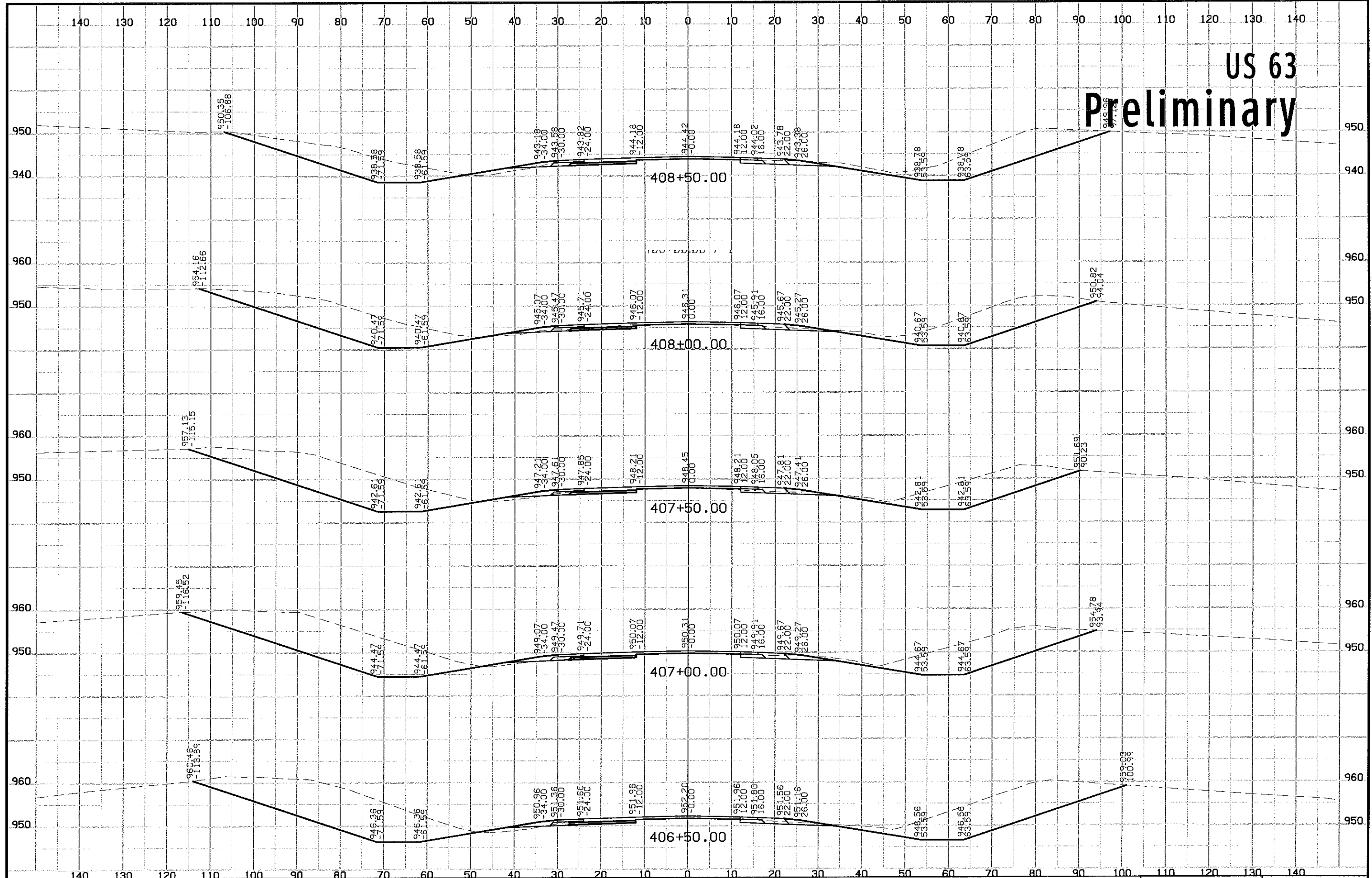




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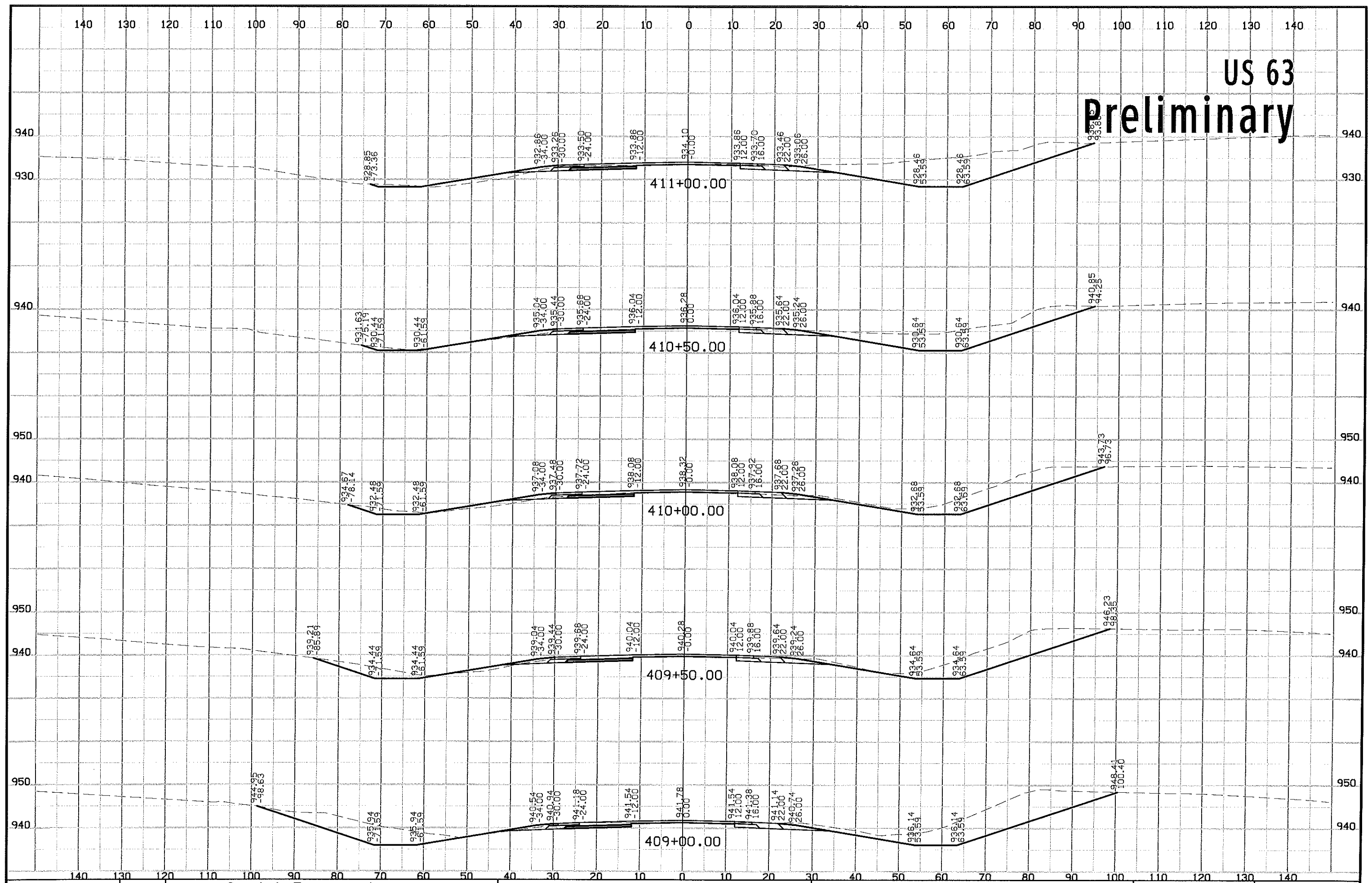


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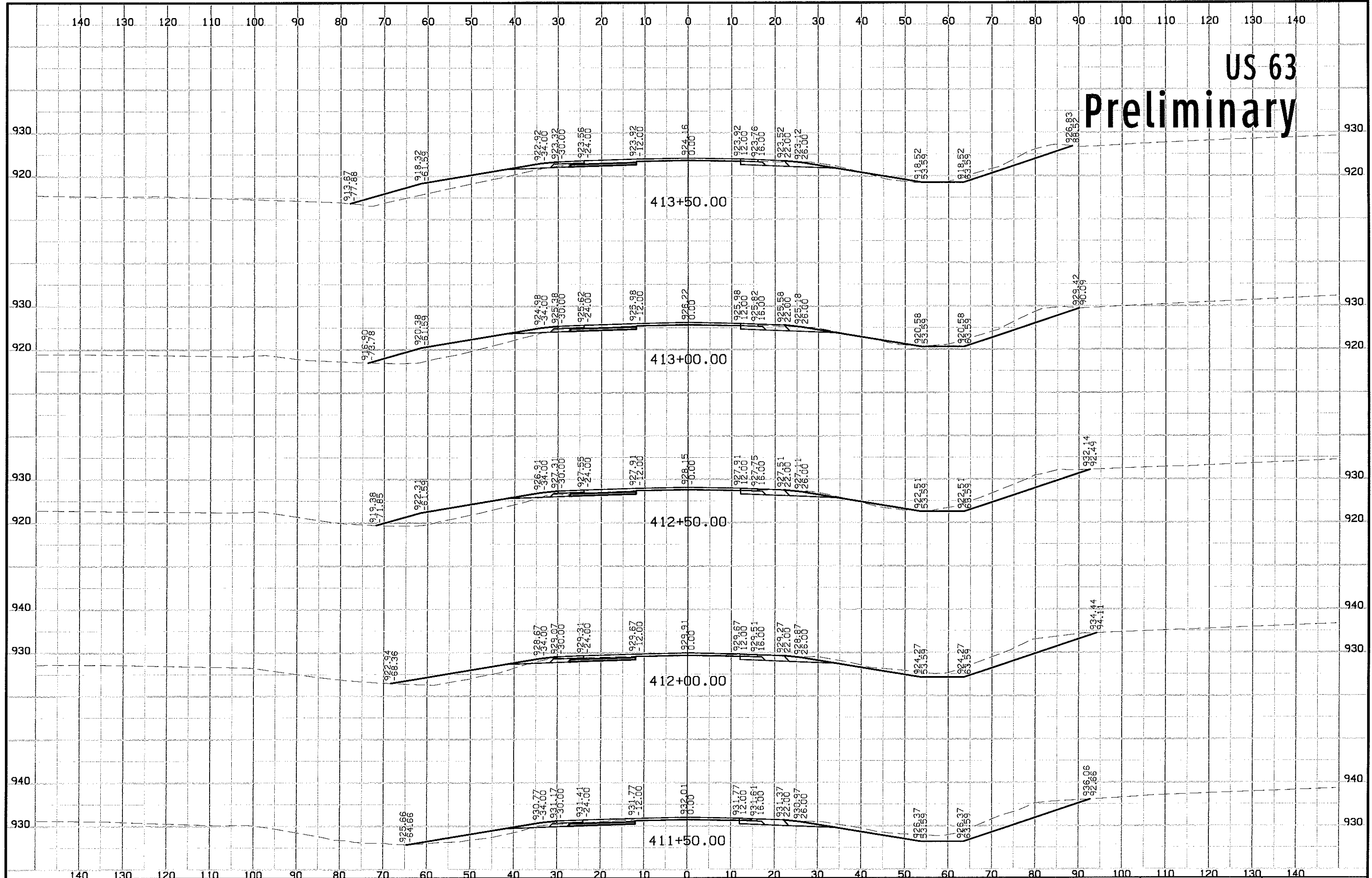


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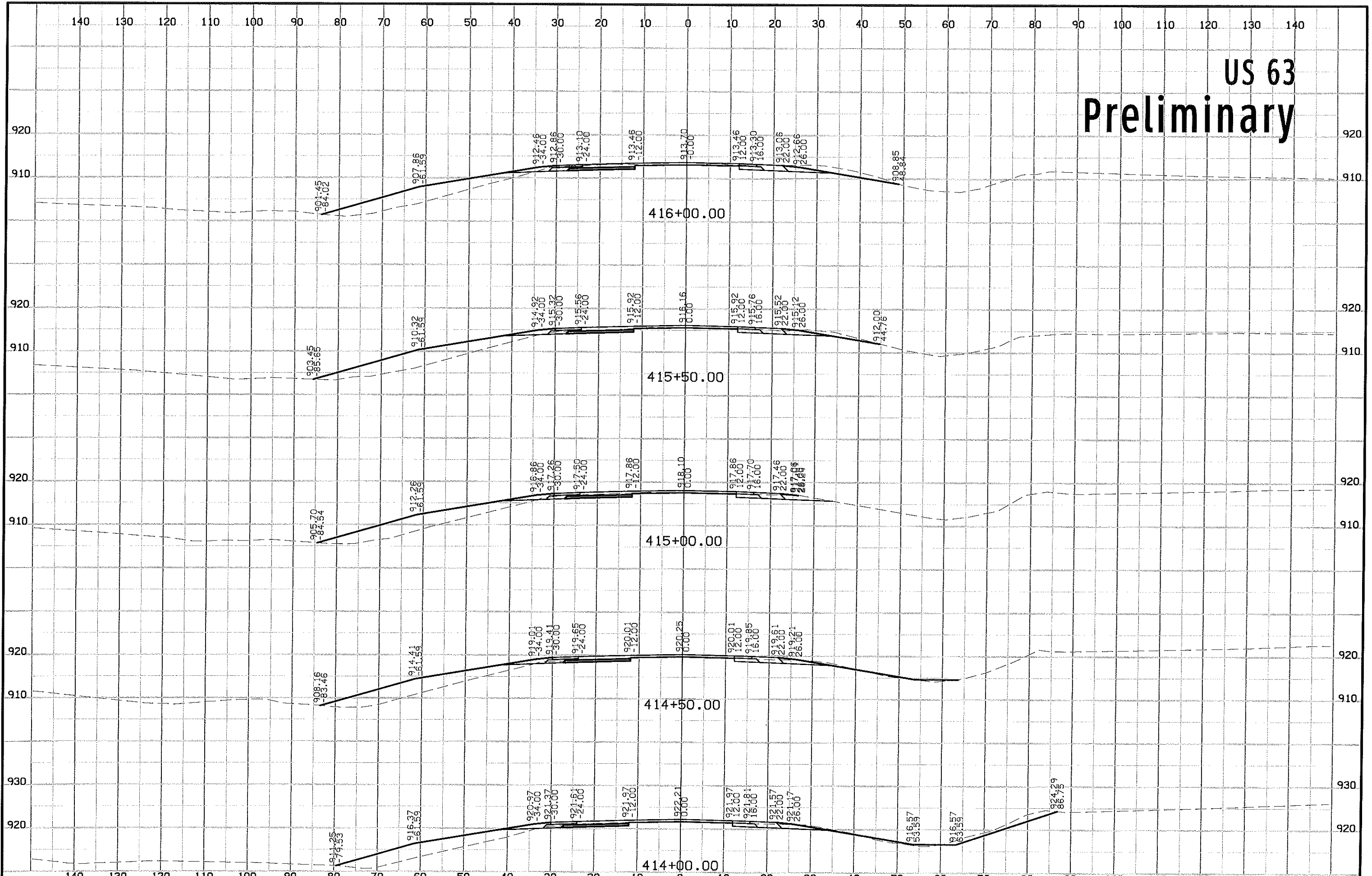
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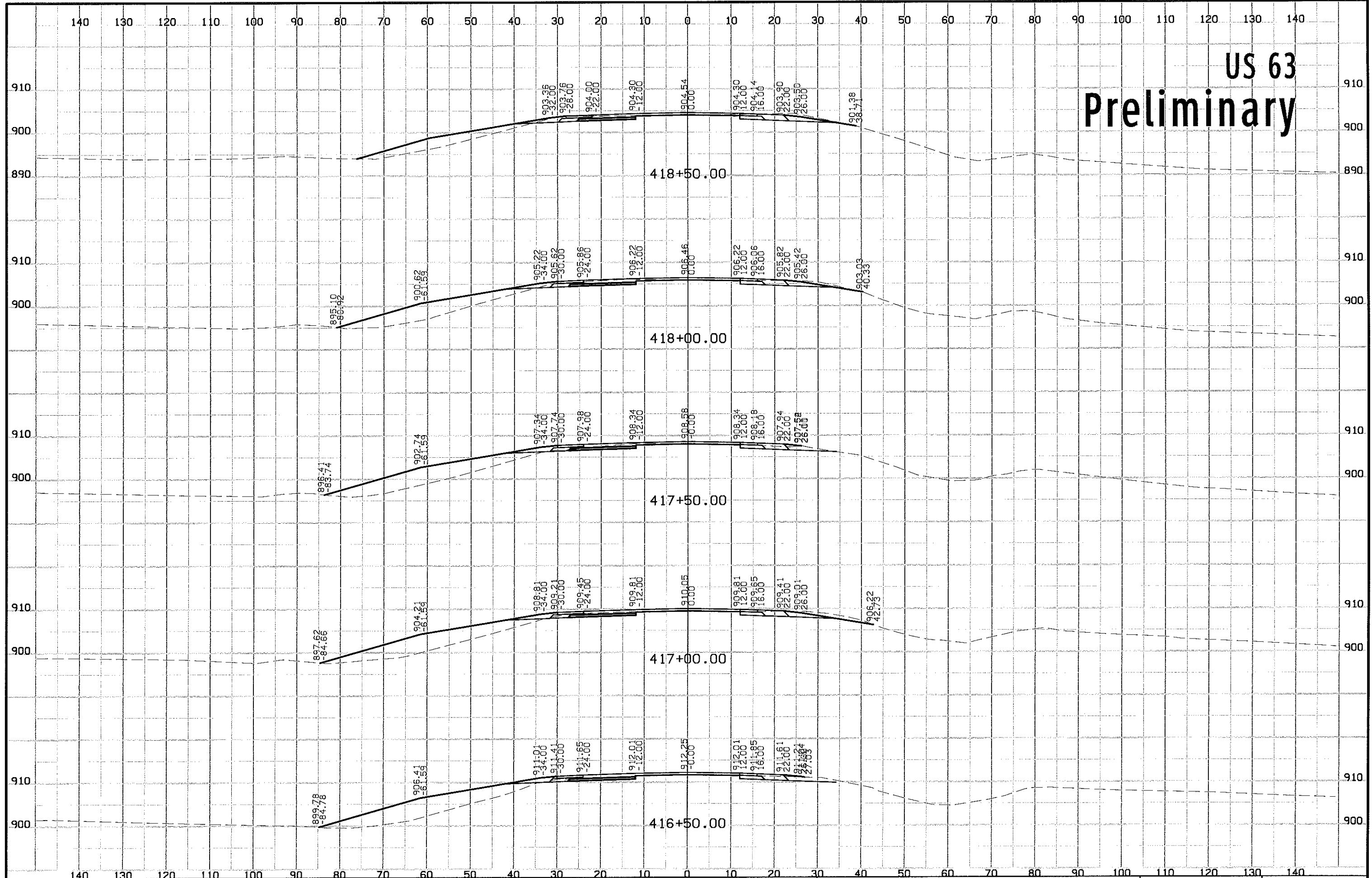
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# US 63 Preliminary

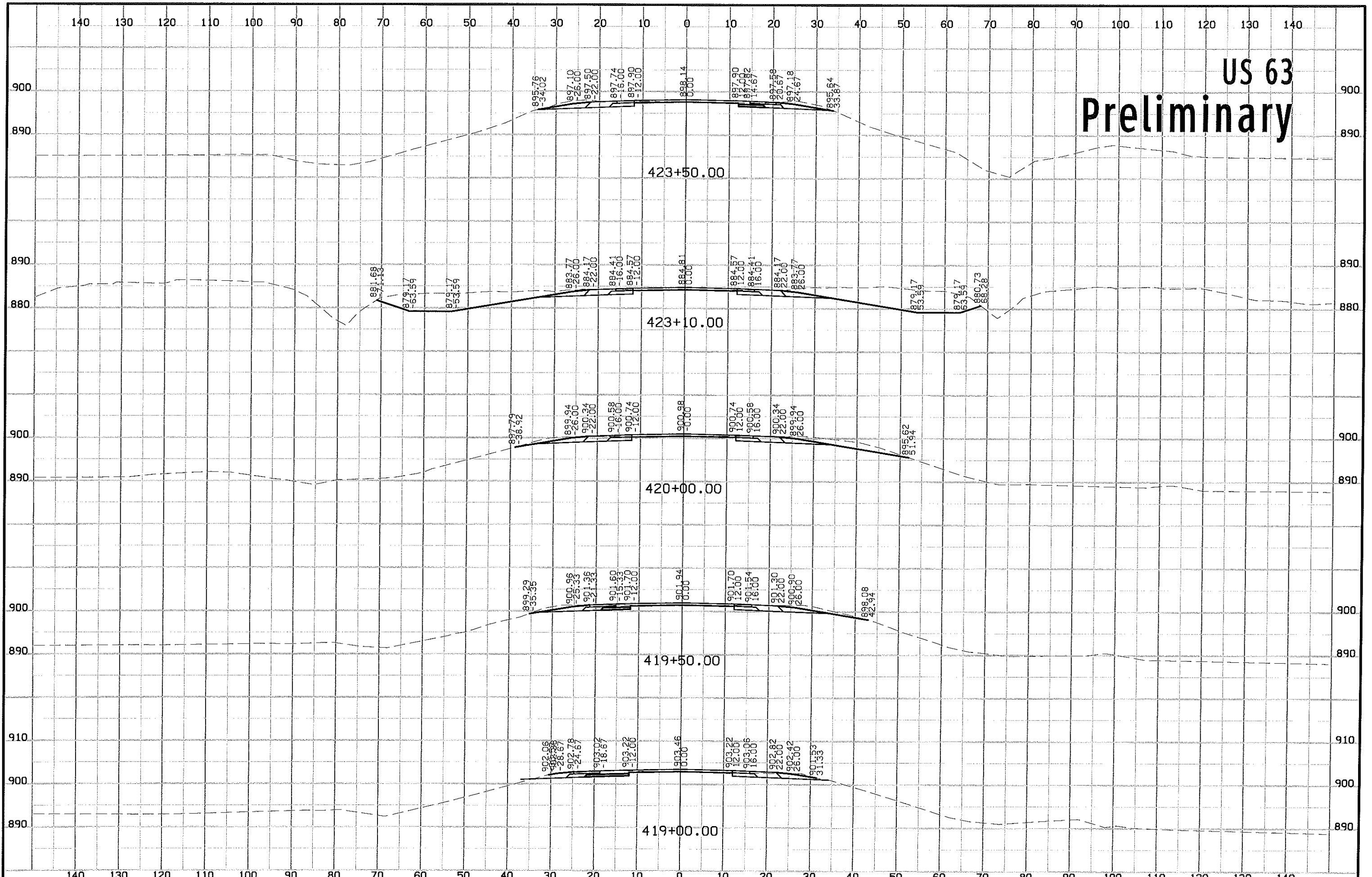


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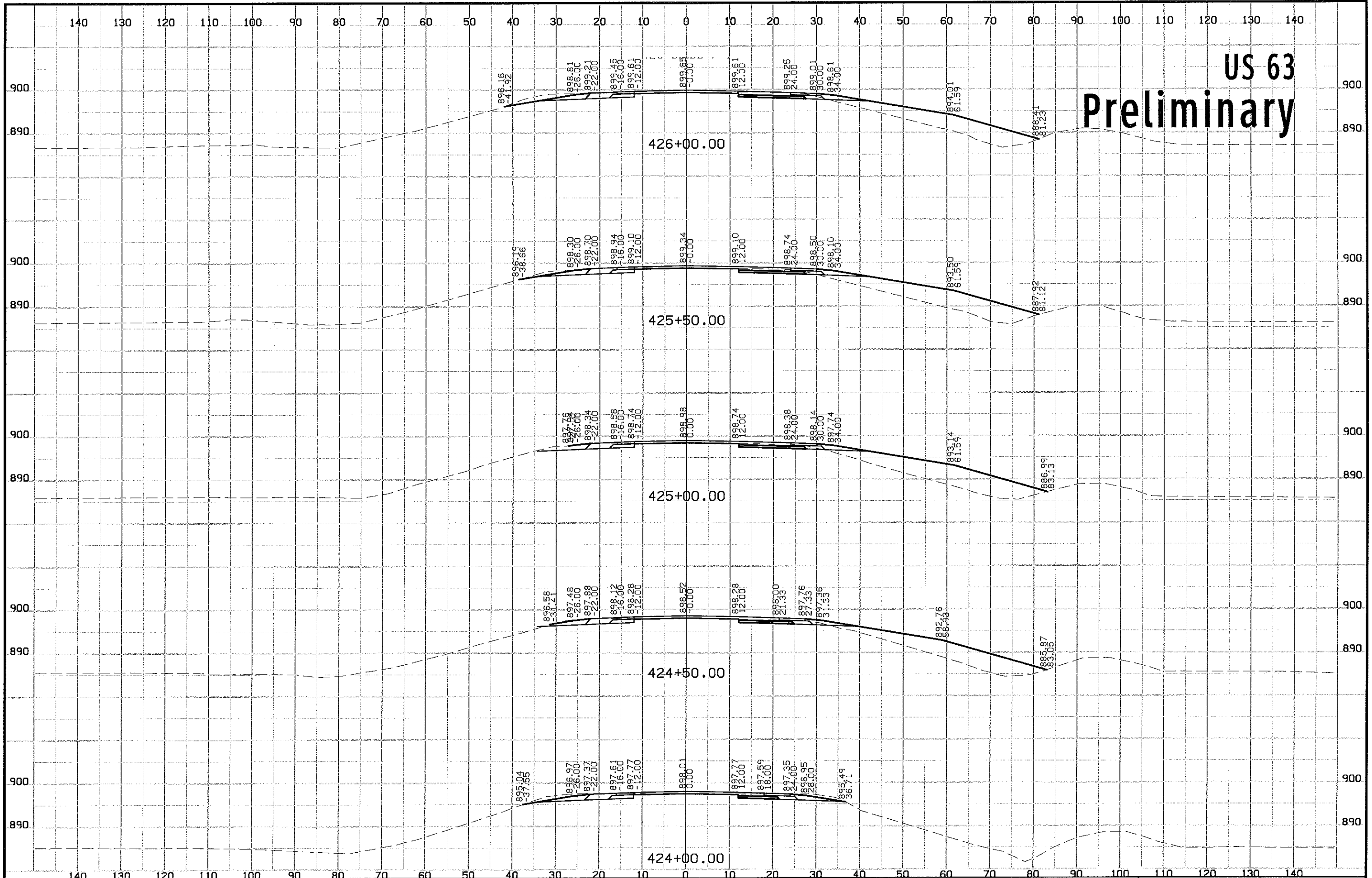




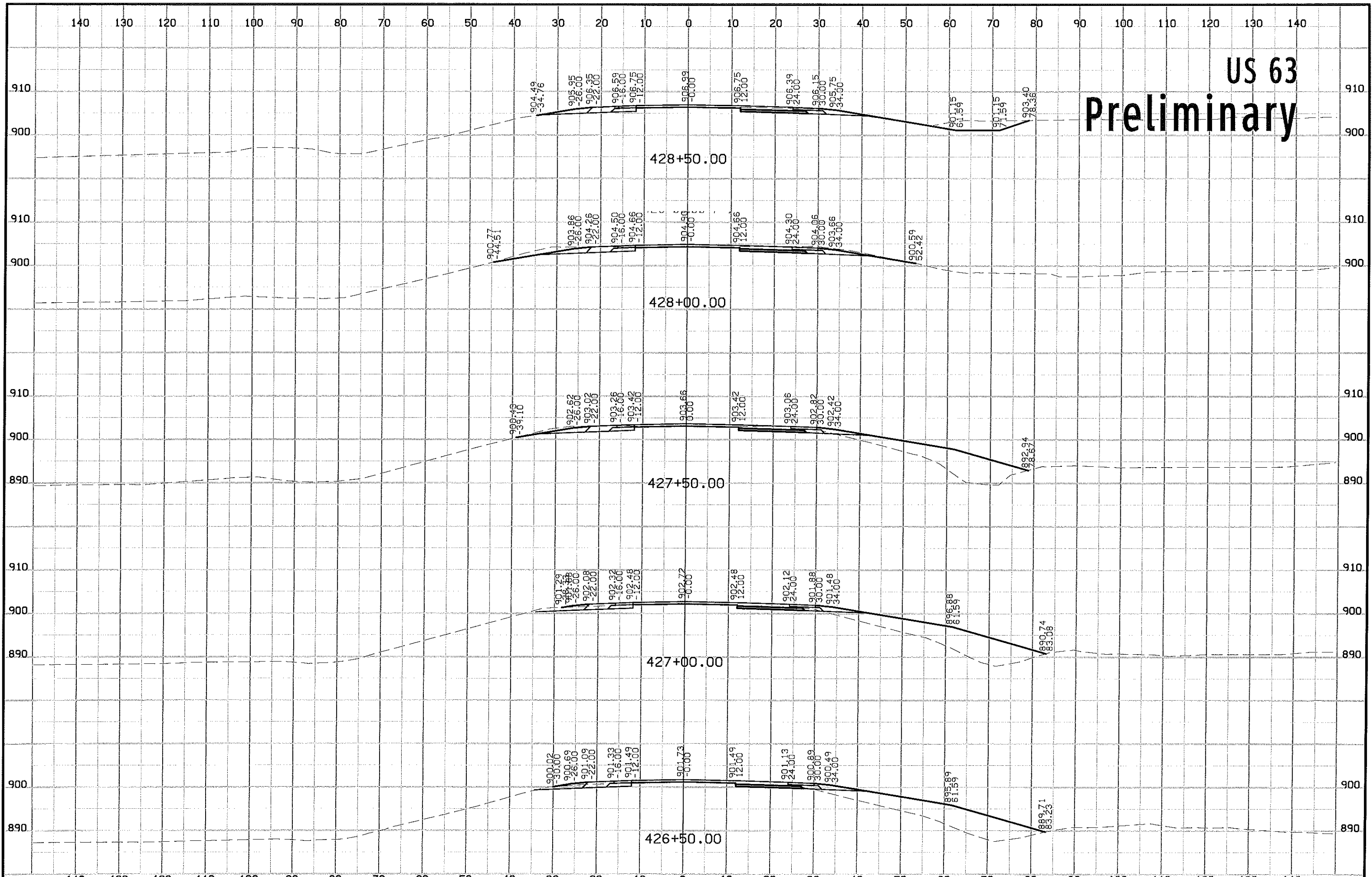
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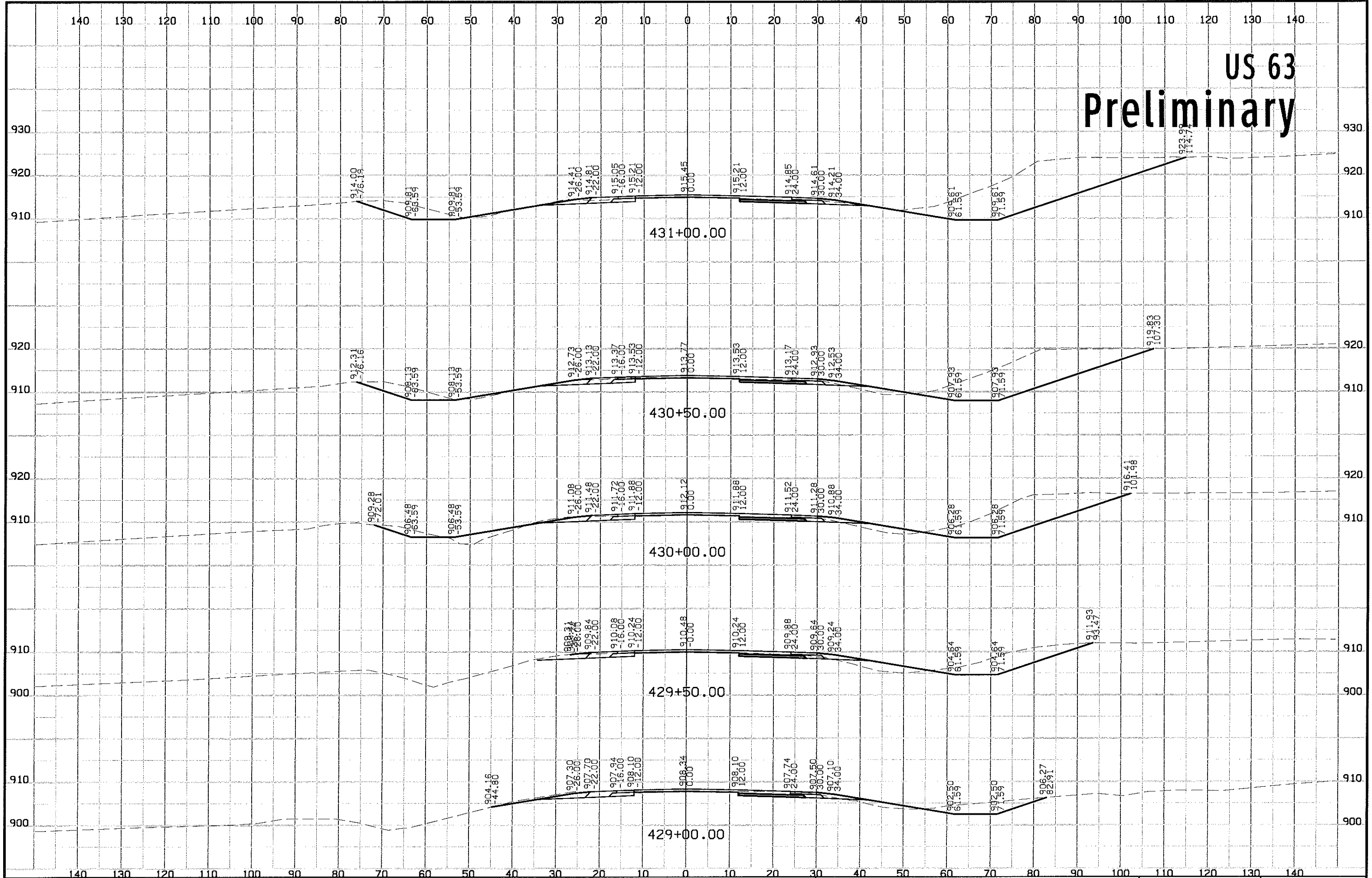
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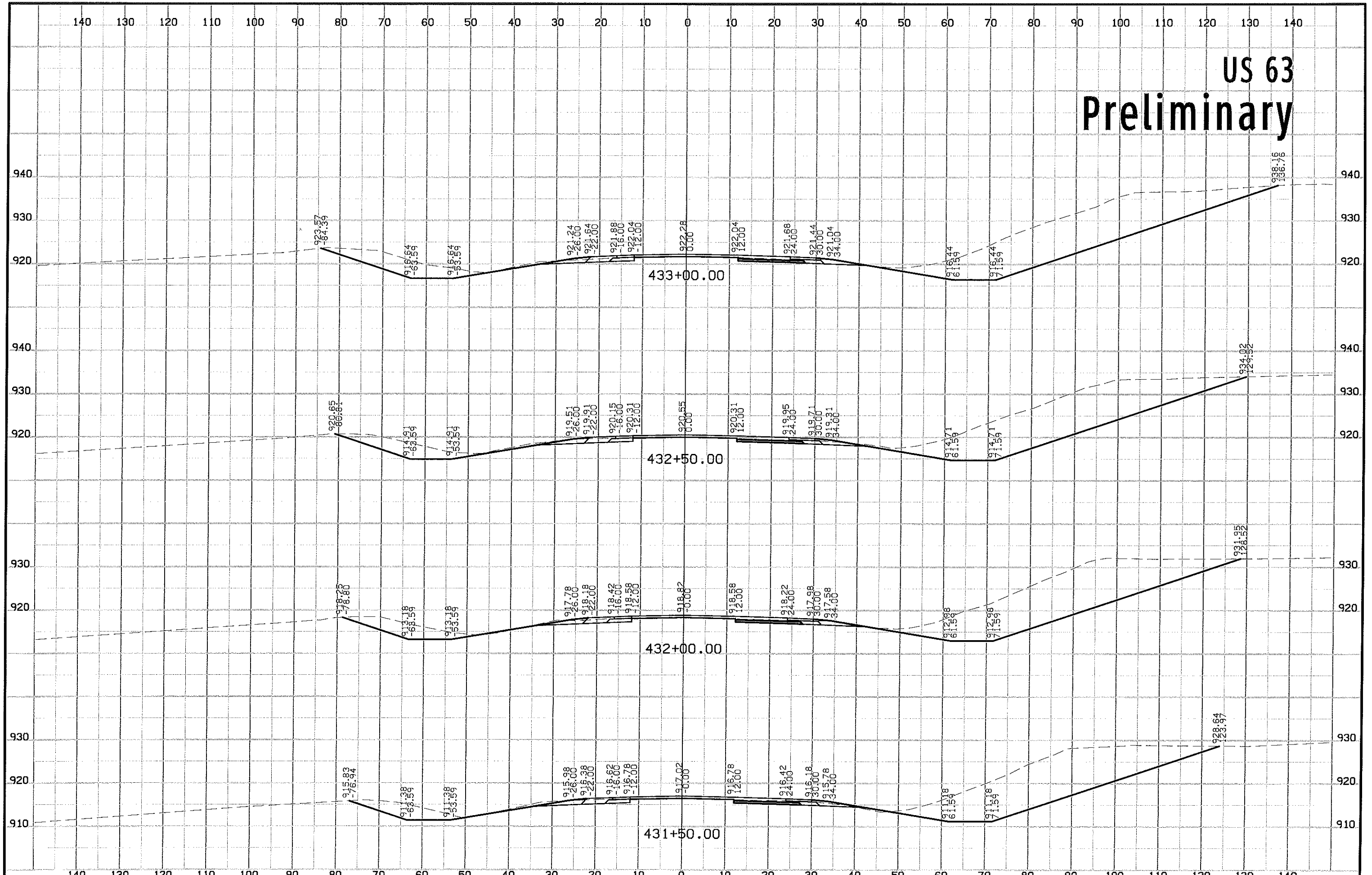
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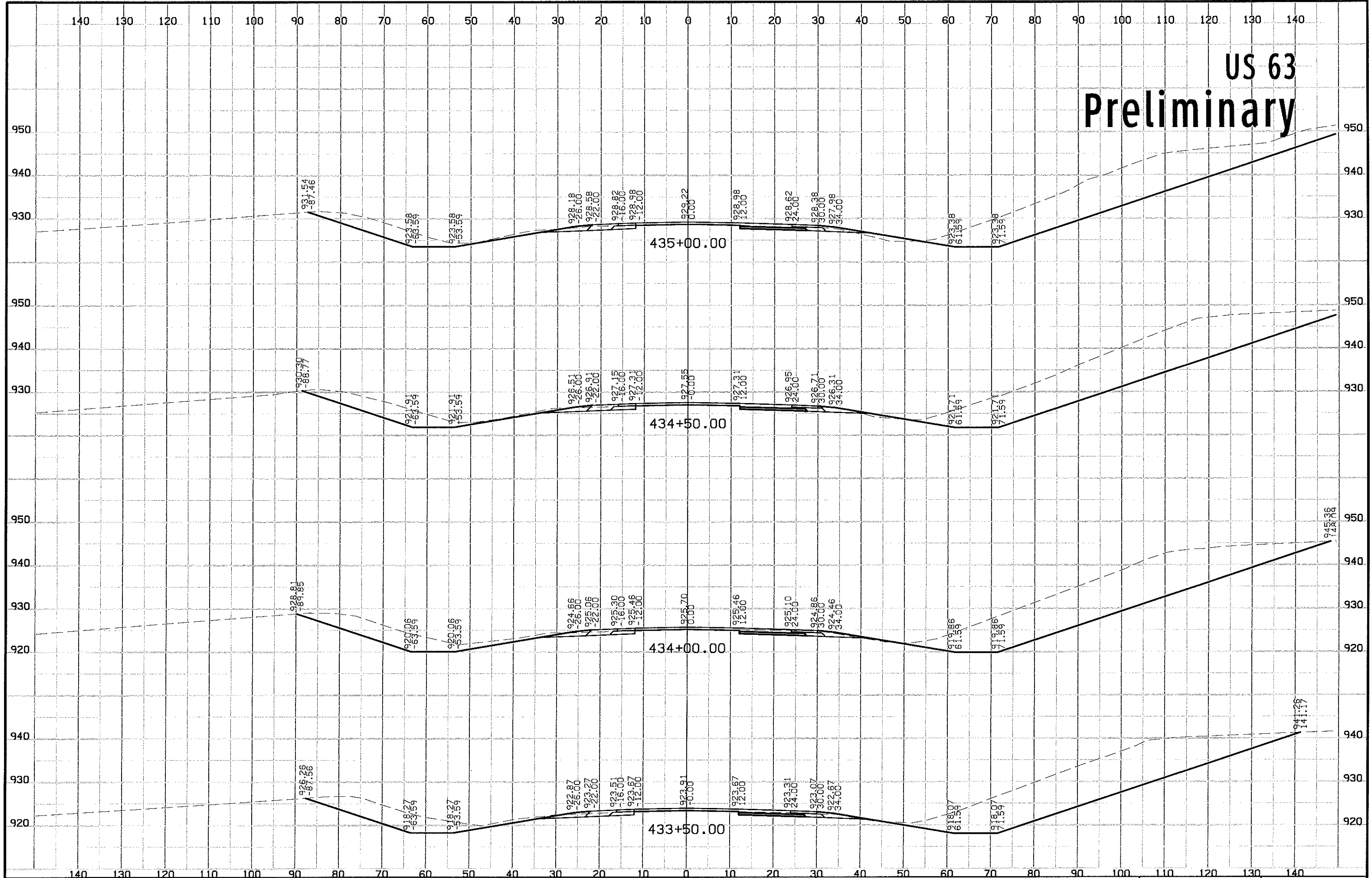
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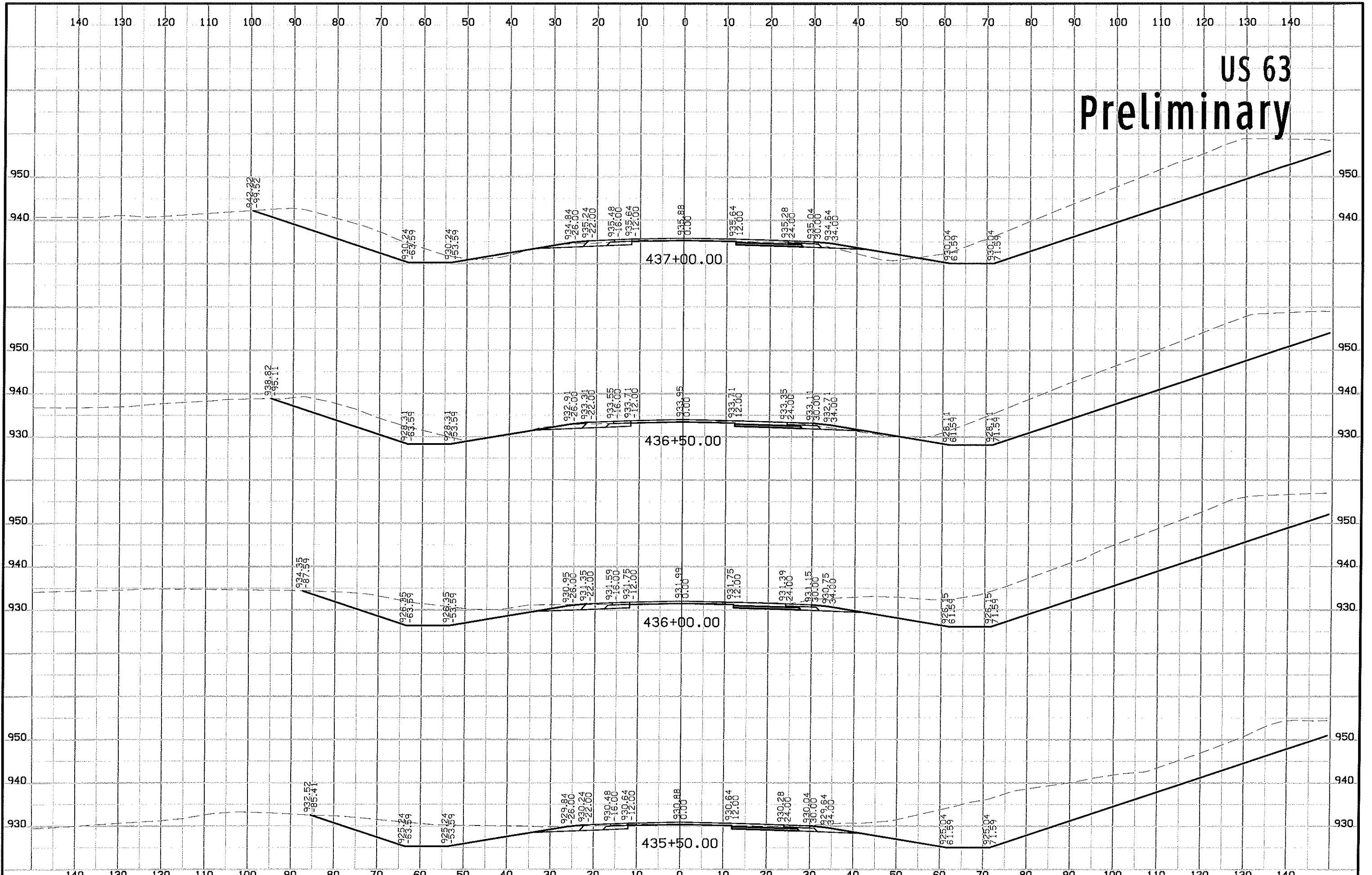
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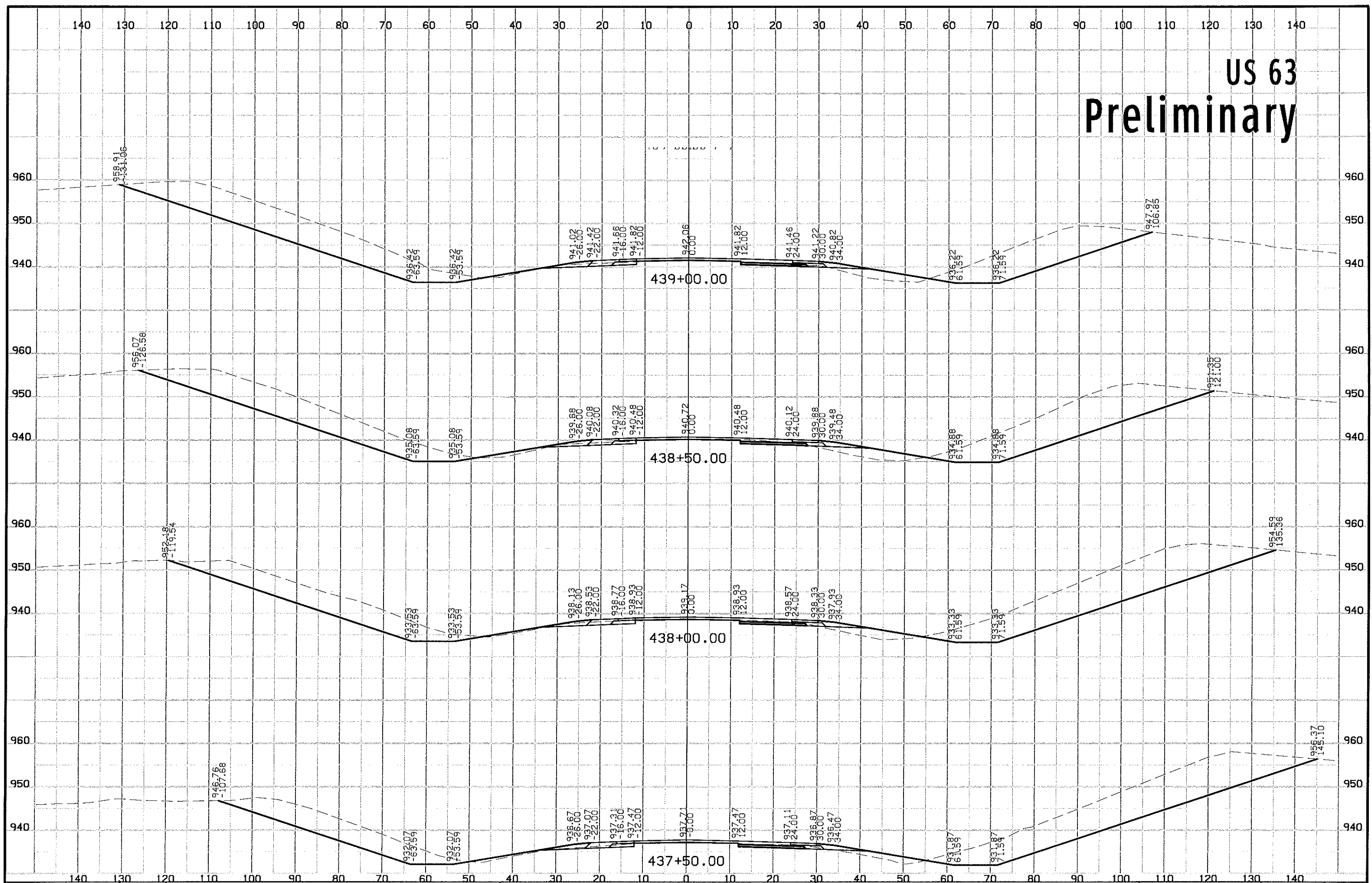
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# US 63 Preliminary

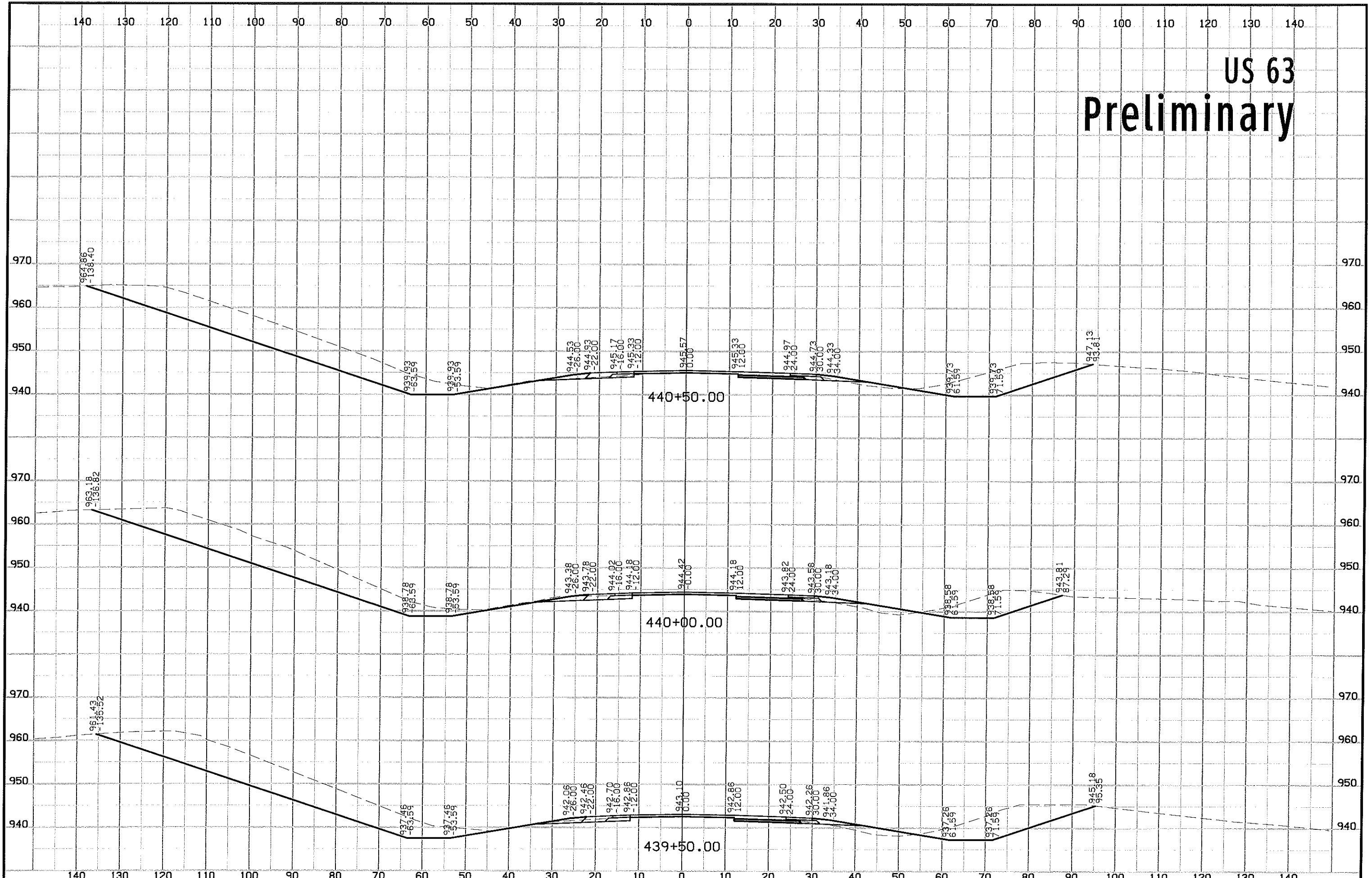


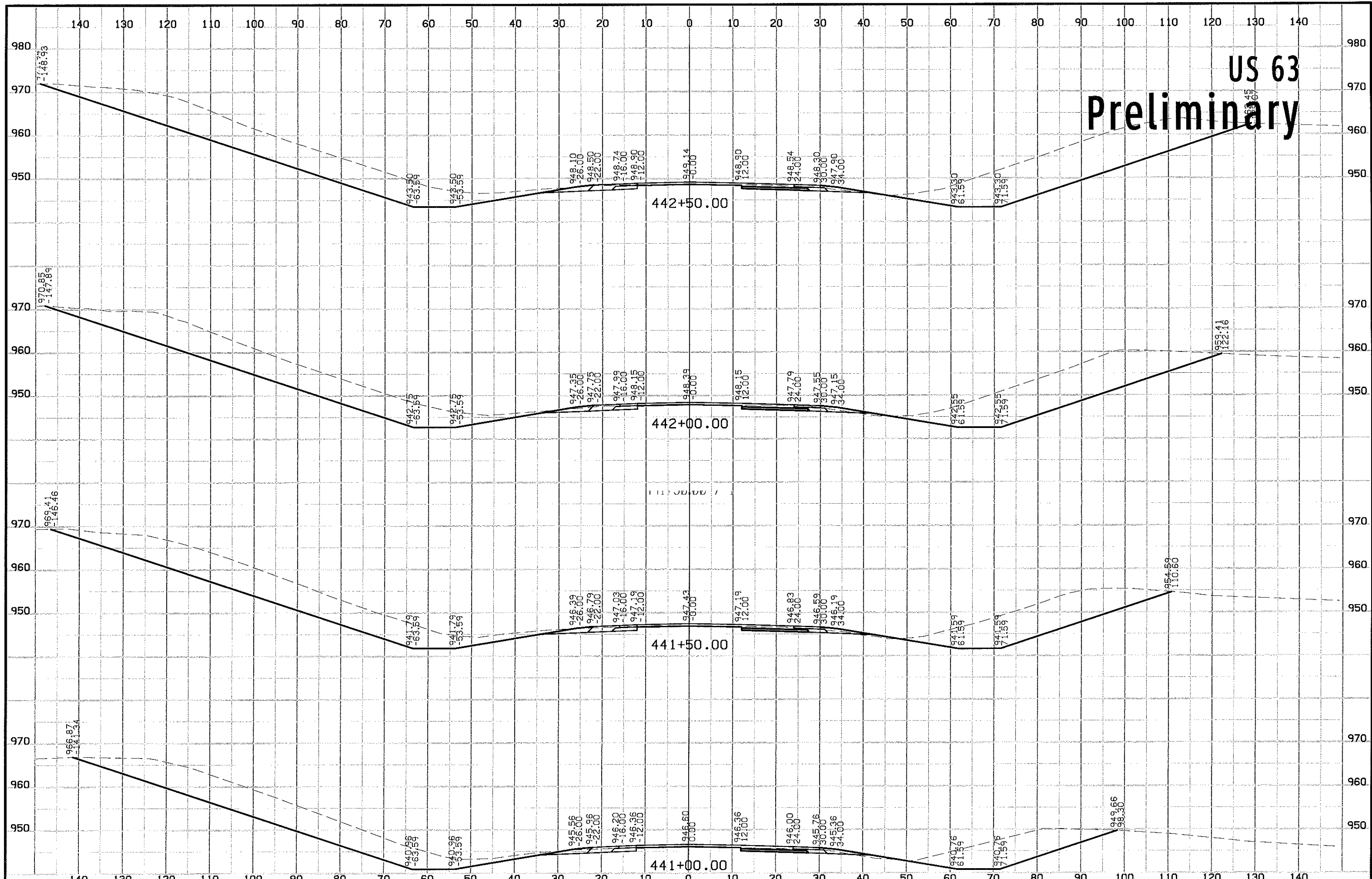
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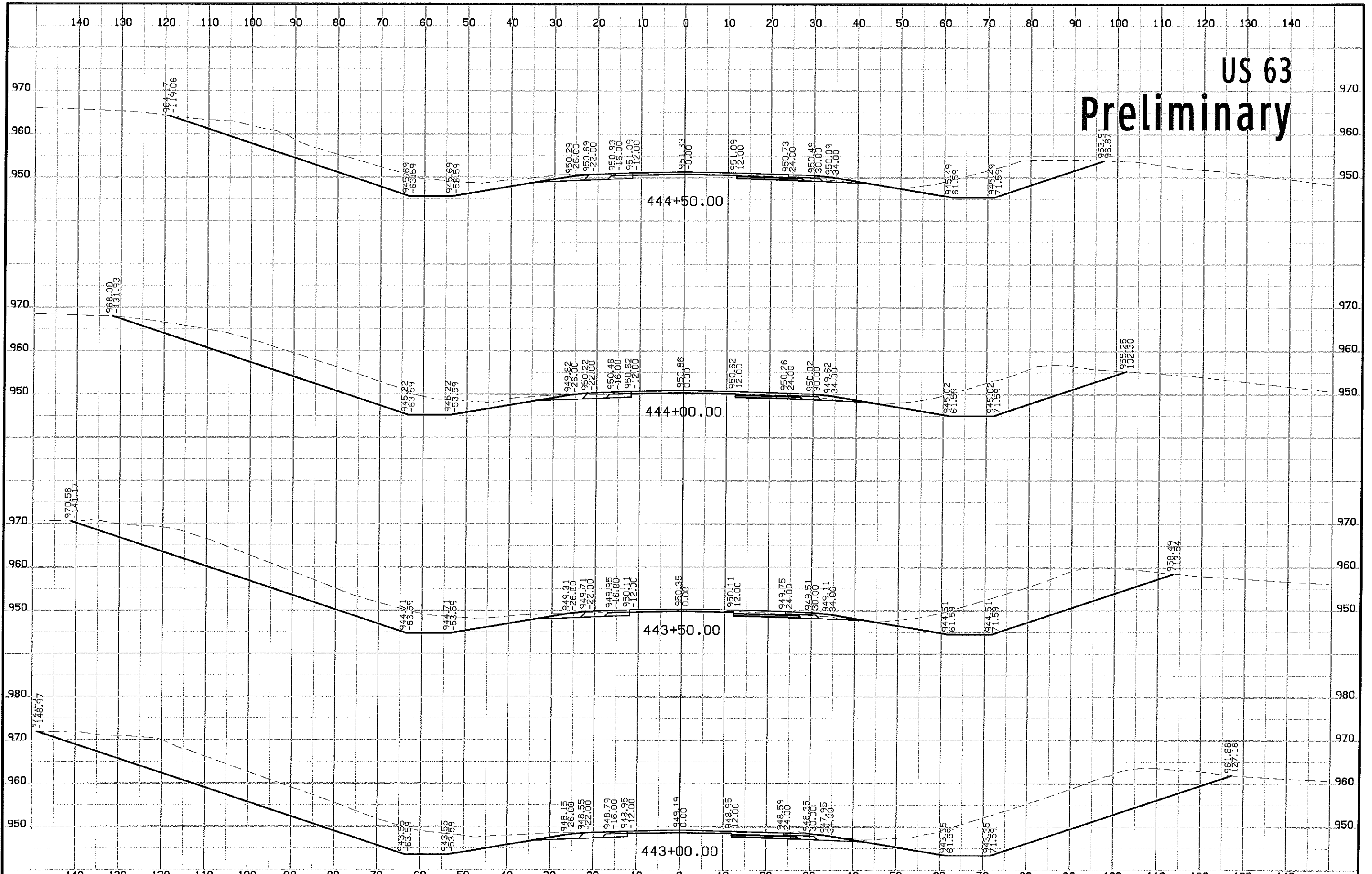


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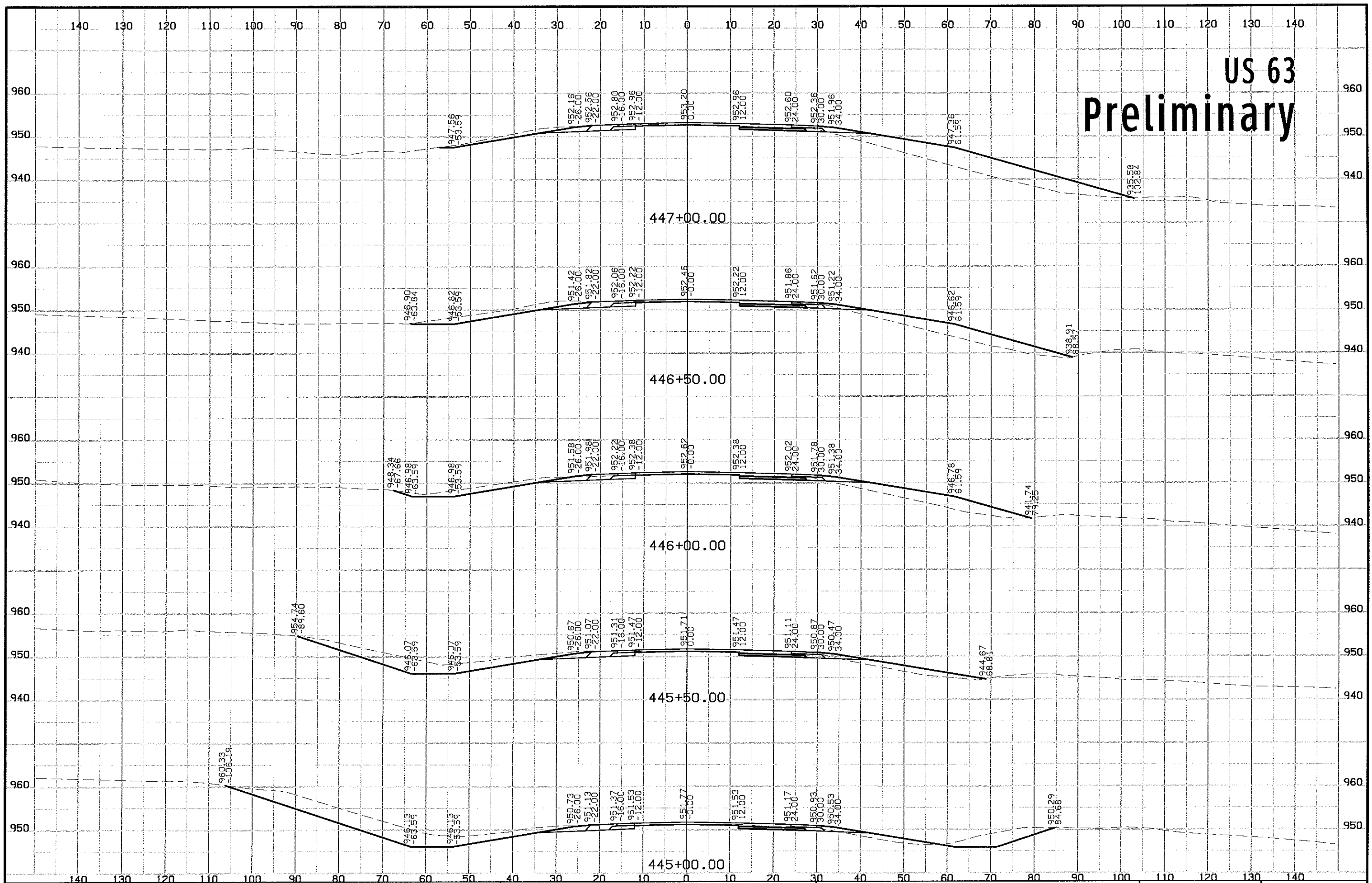




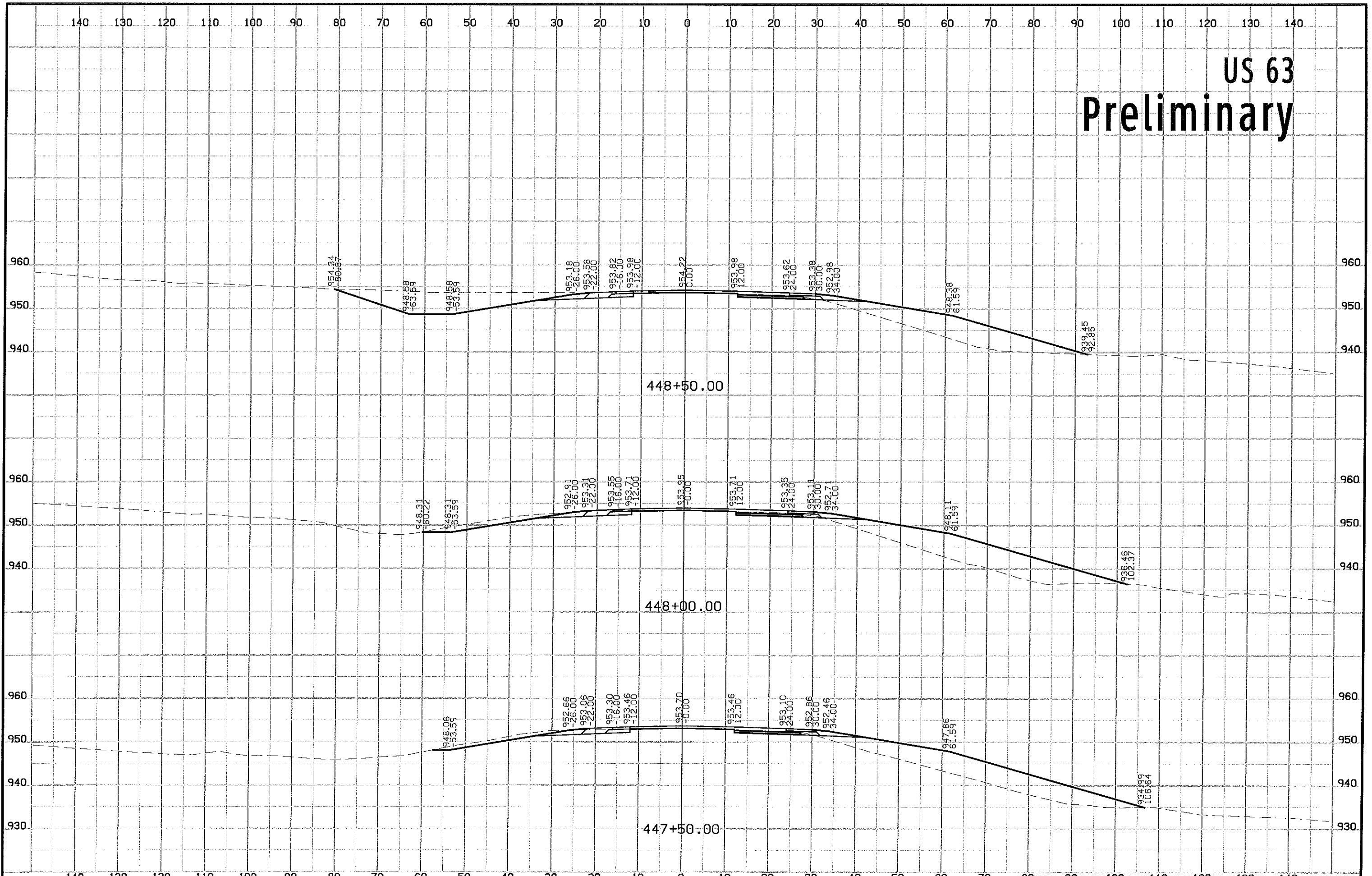
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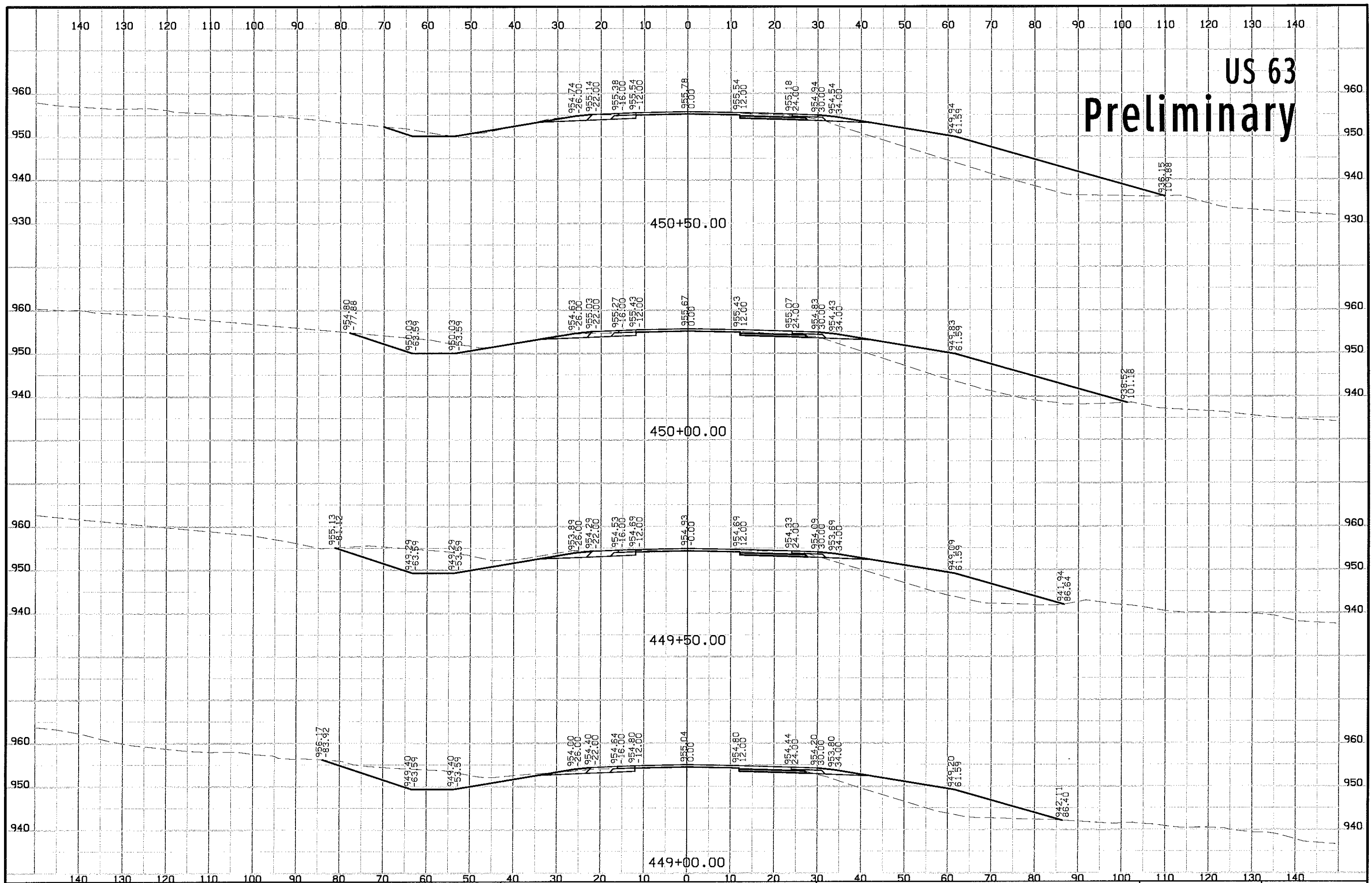
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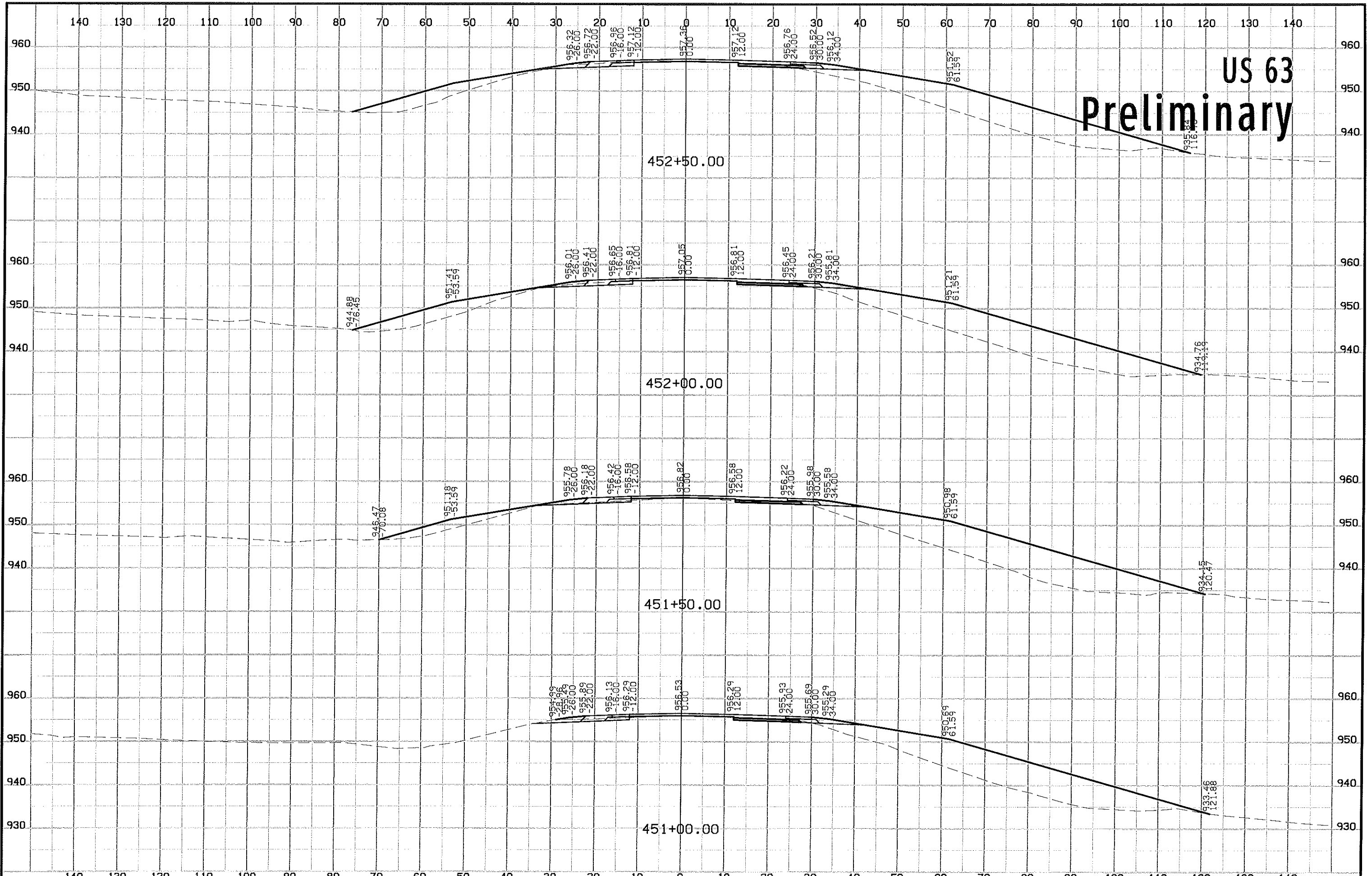
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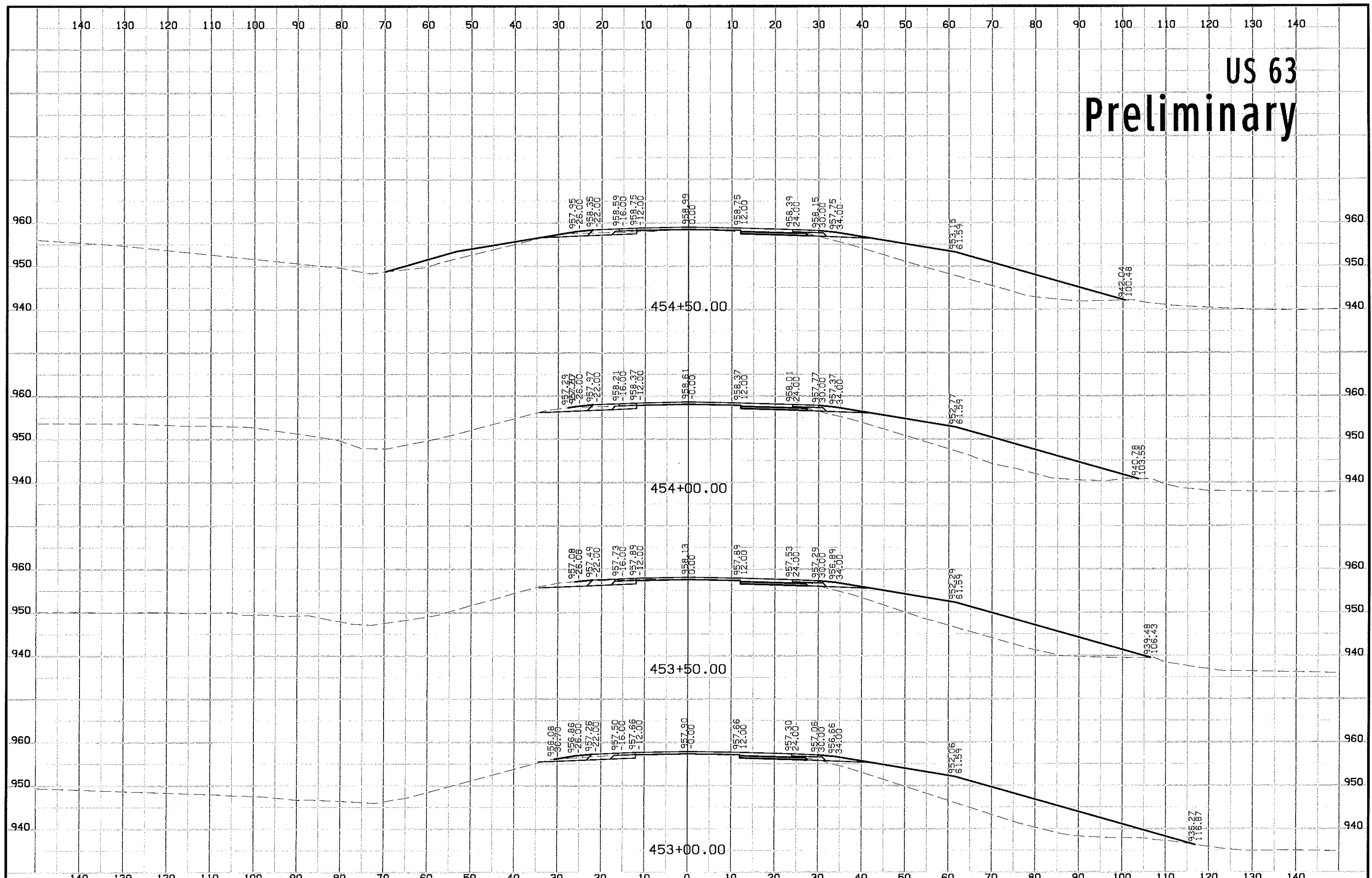
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# US 63 Preliminary

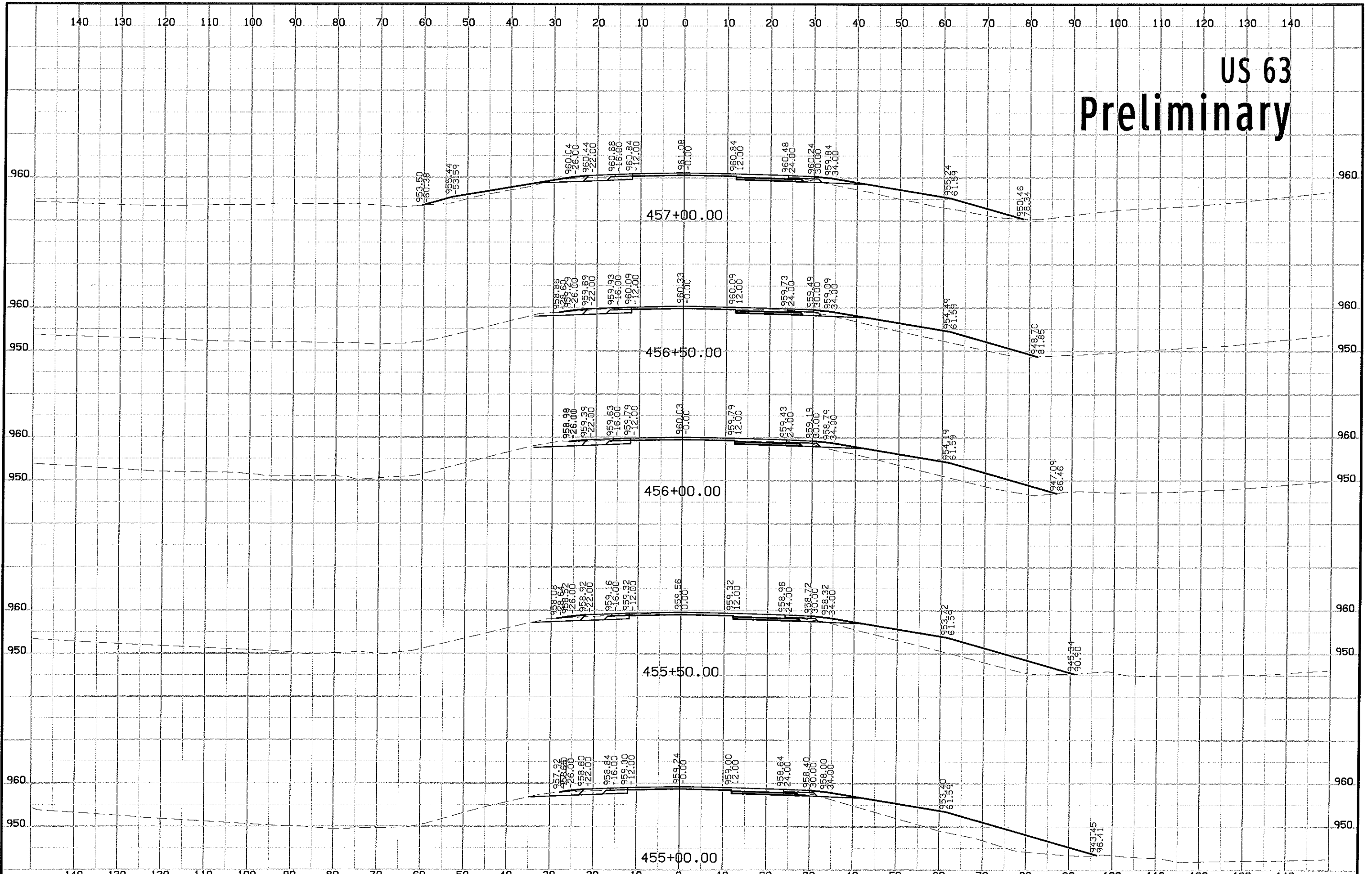


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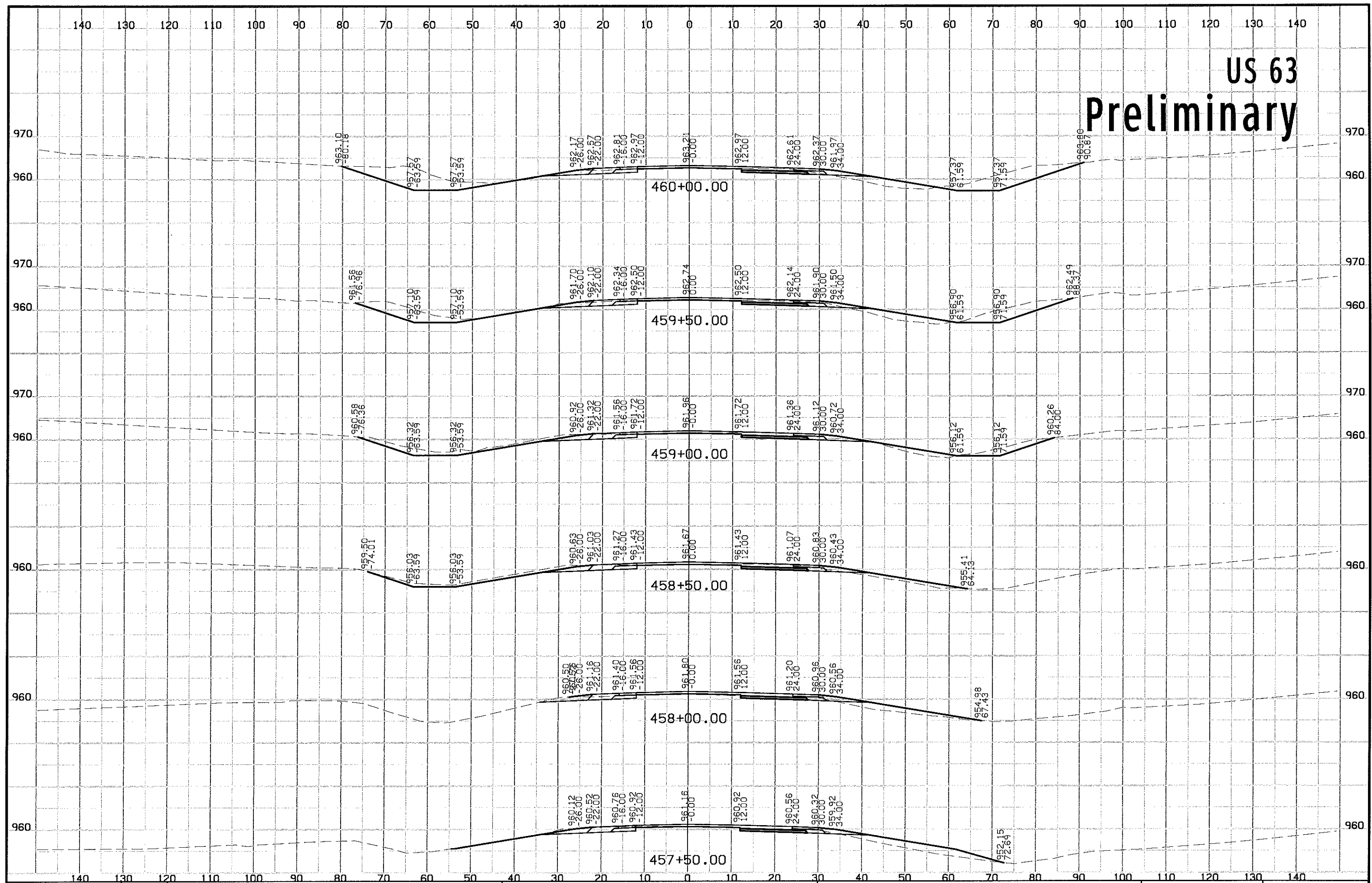




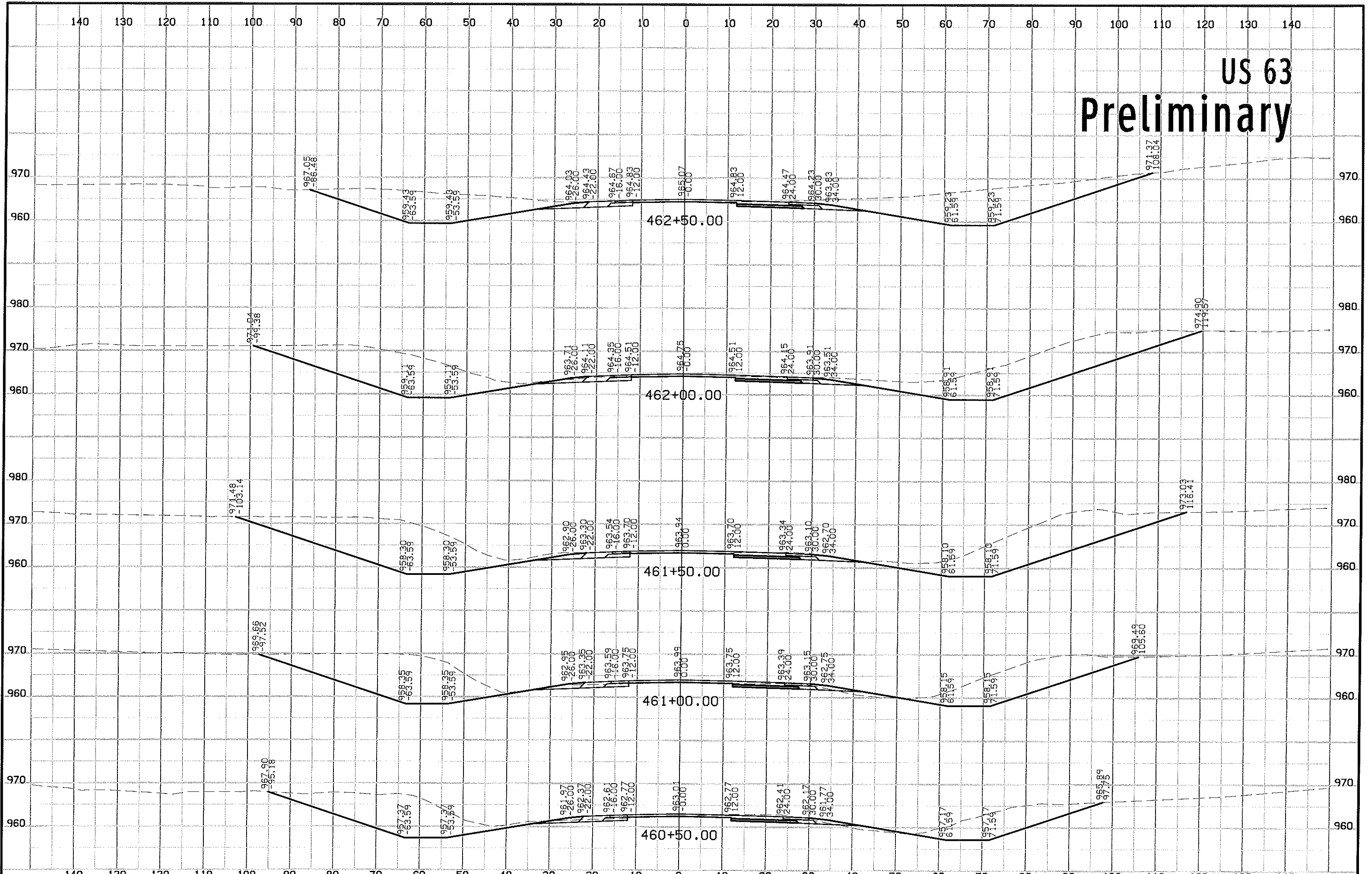
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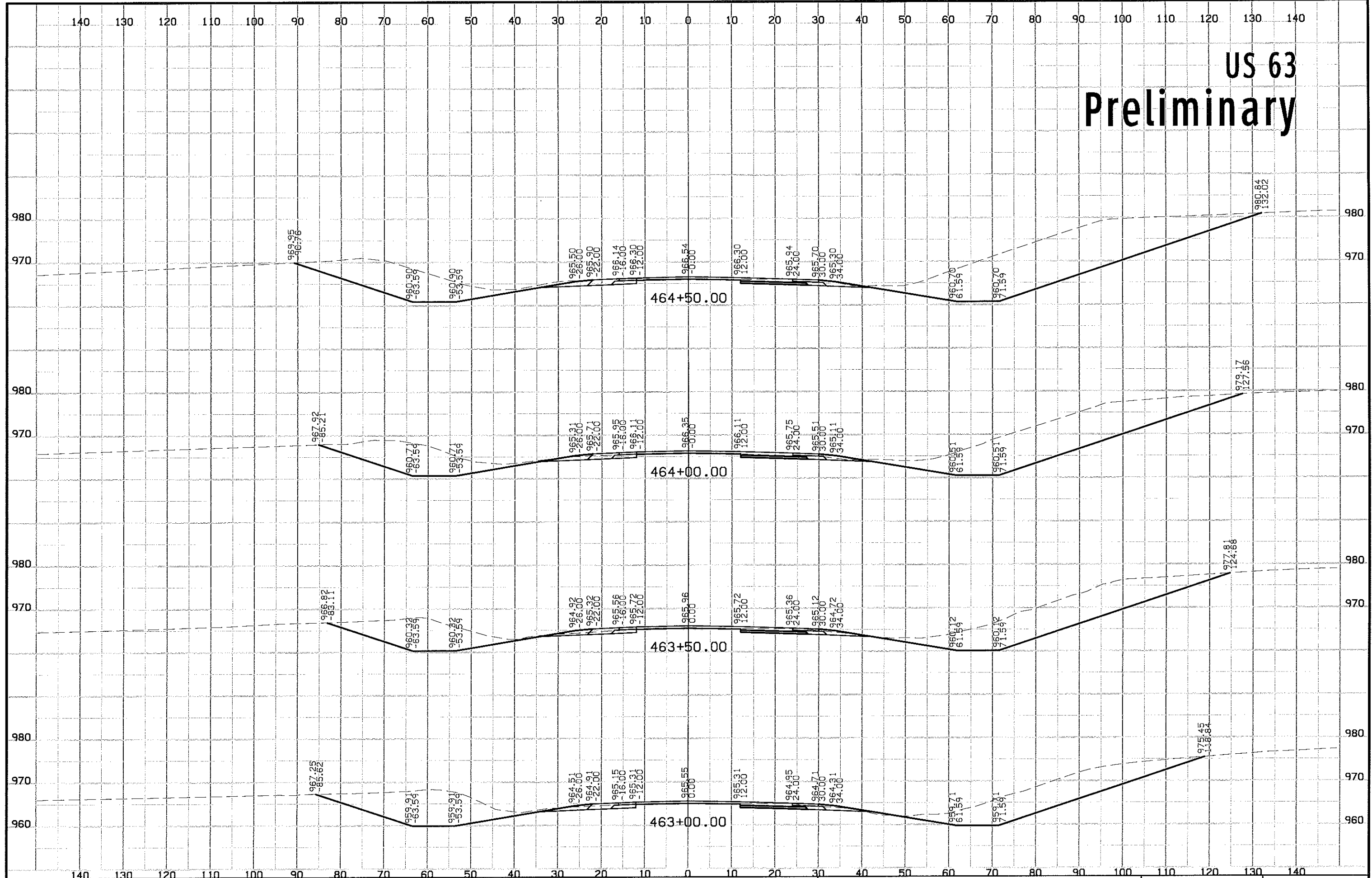
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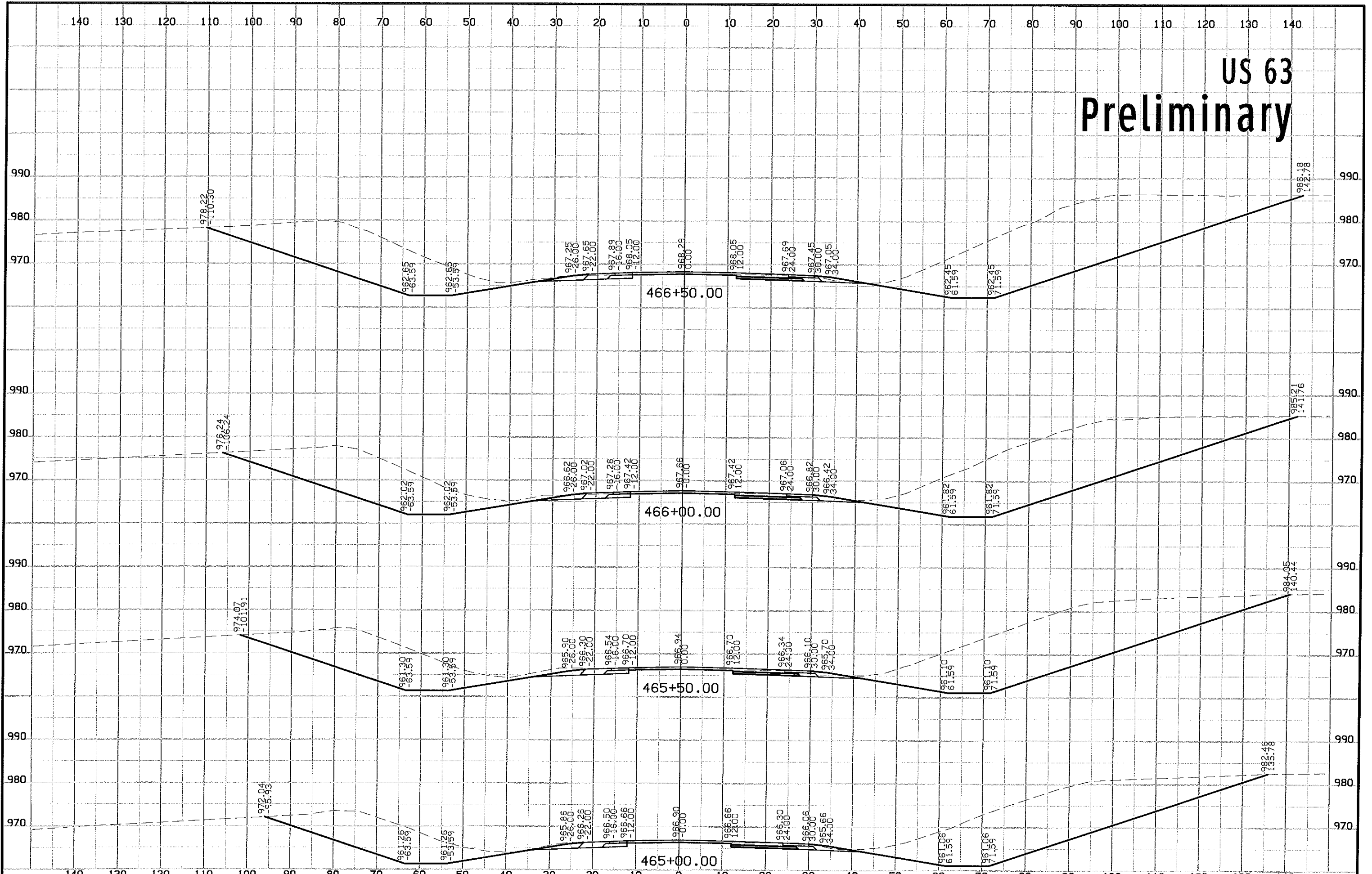
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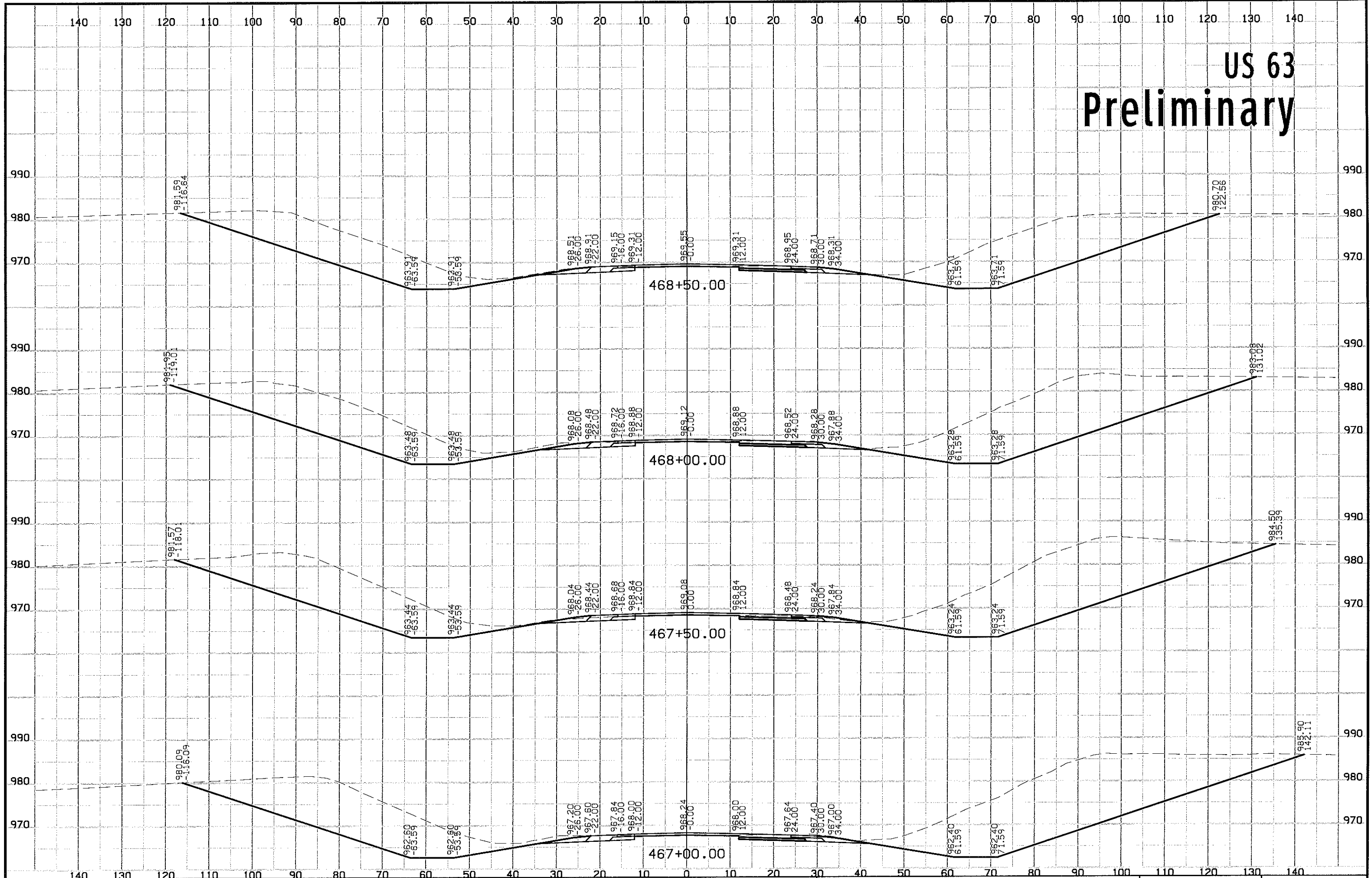
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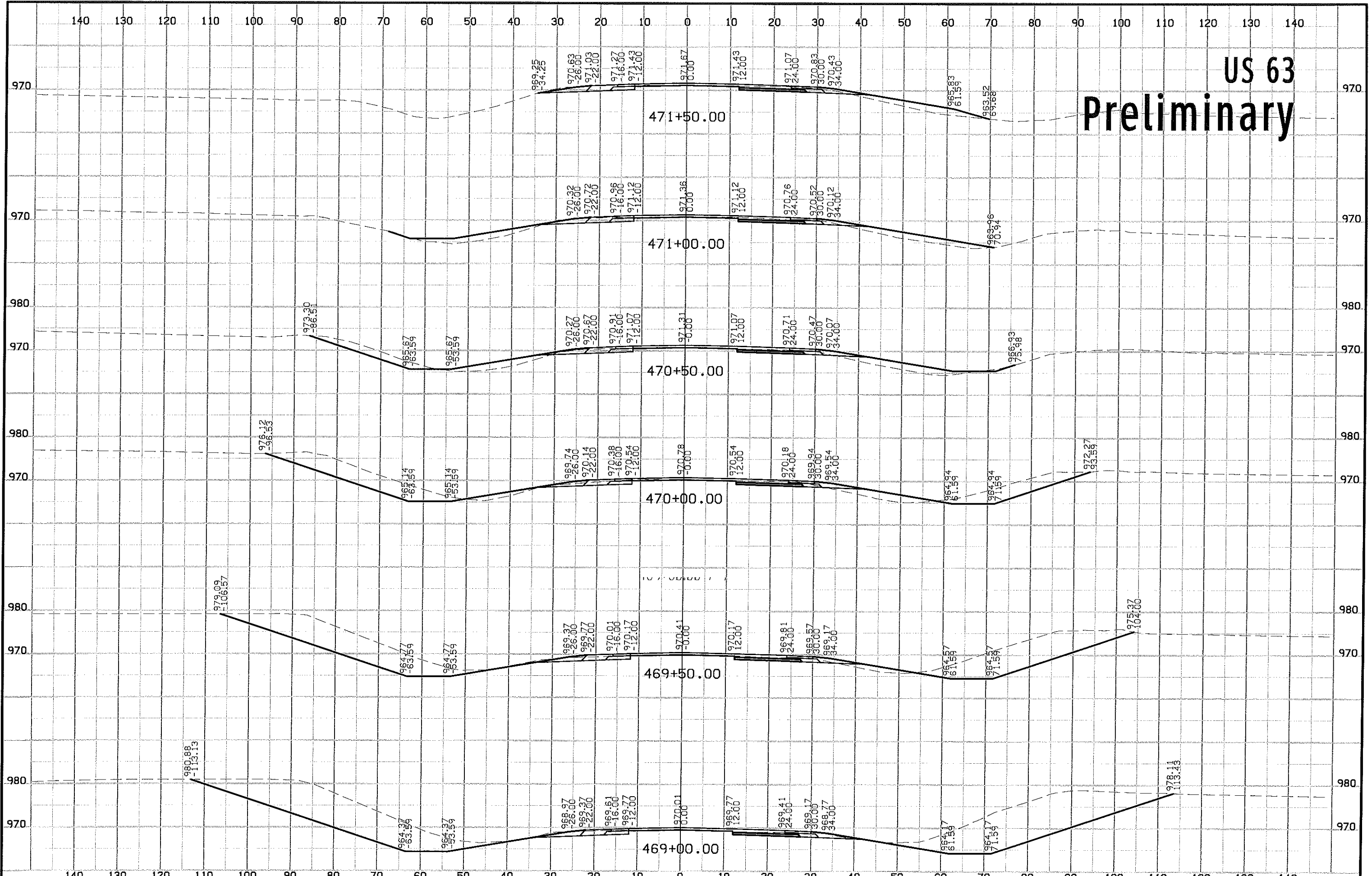
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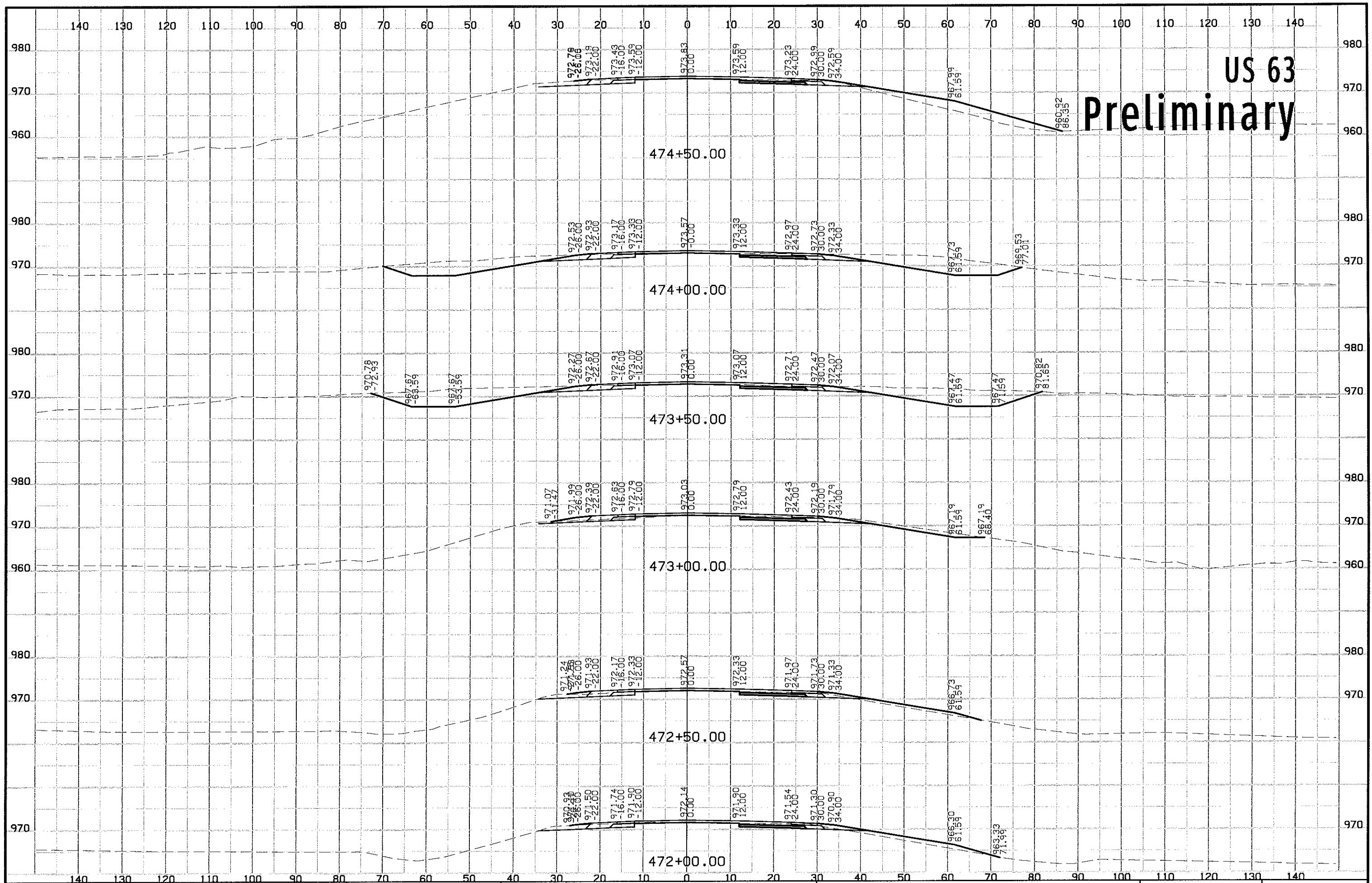
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# US 63 Preliminary

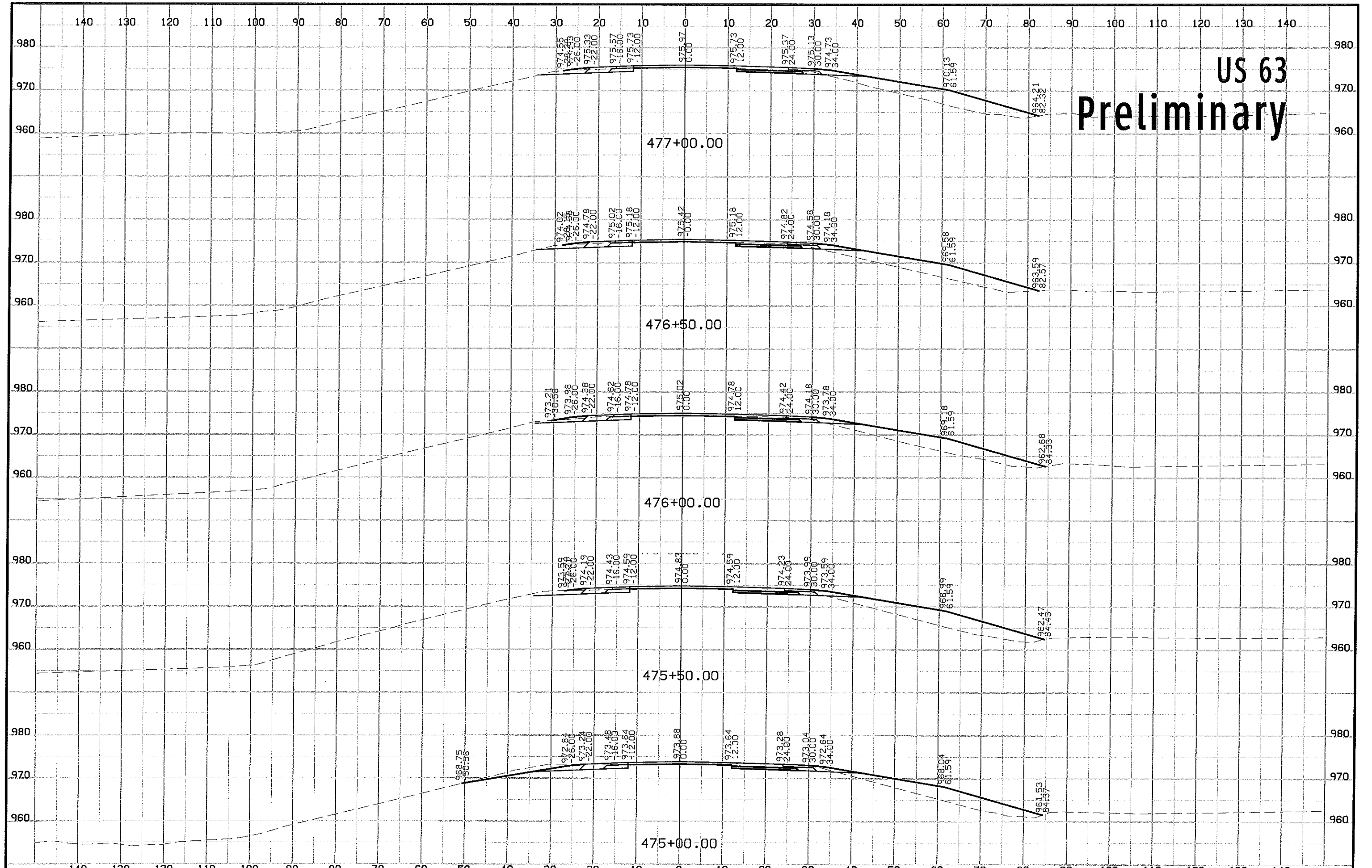


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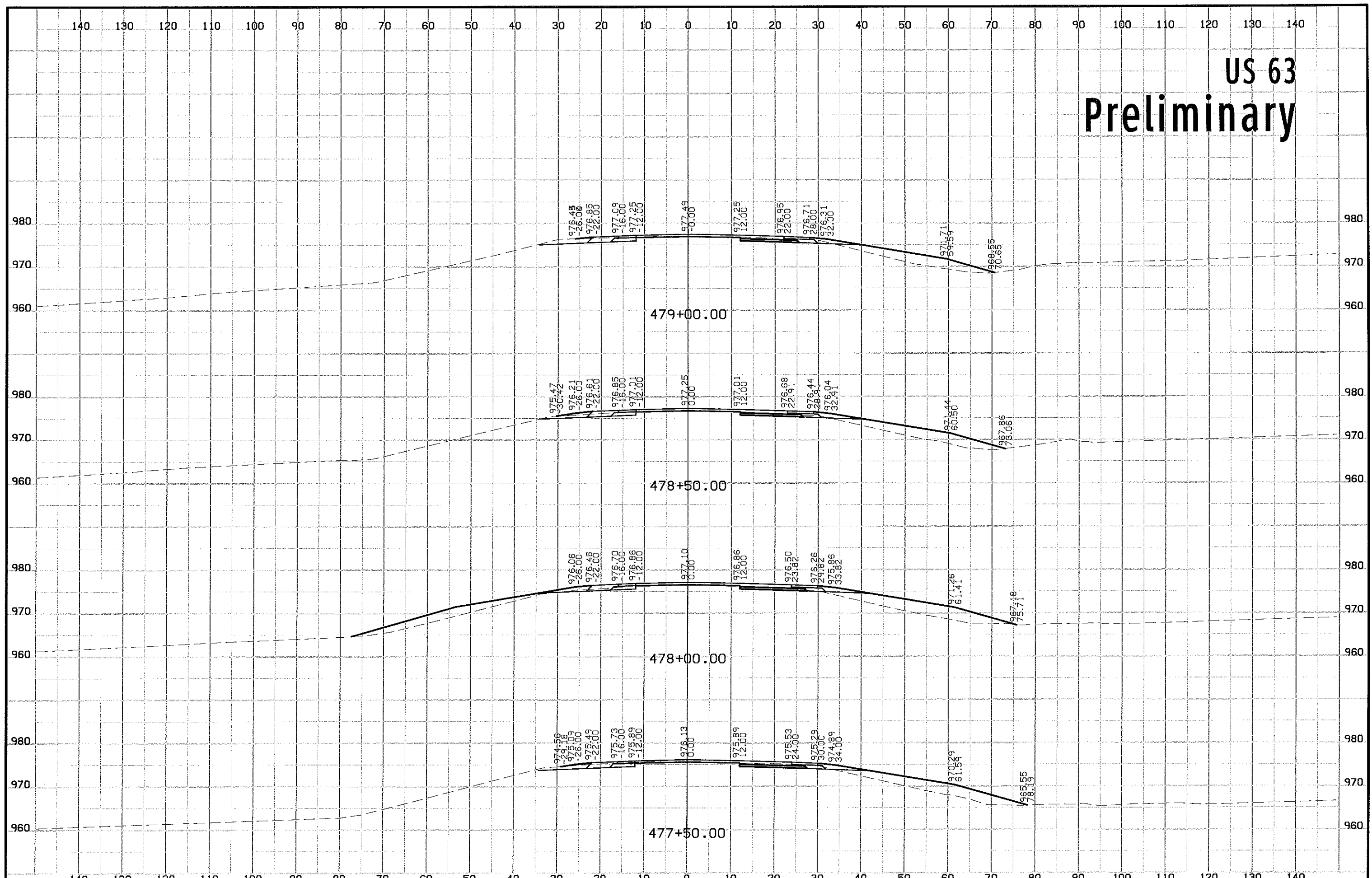




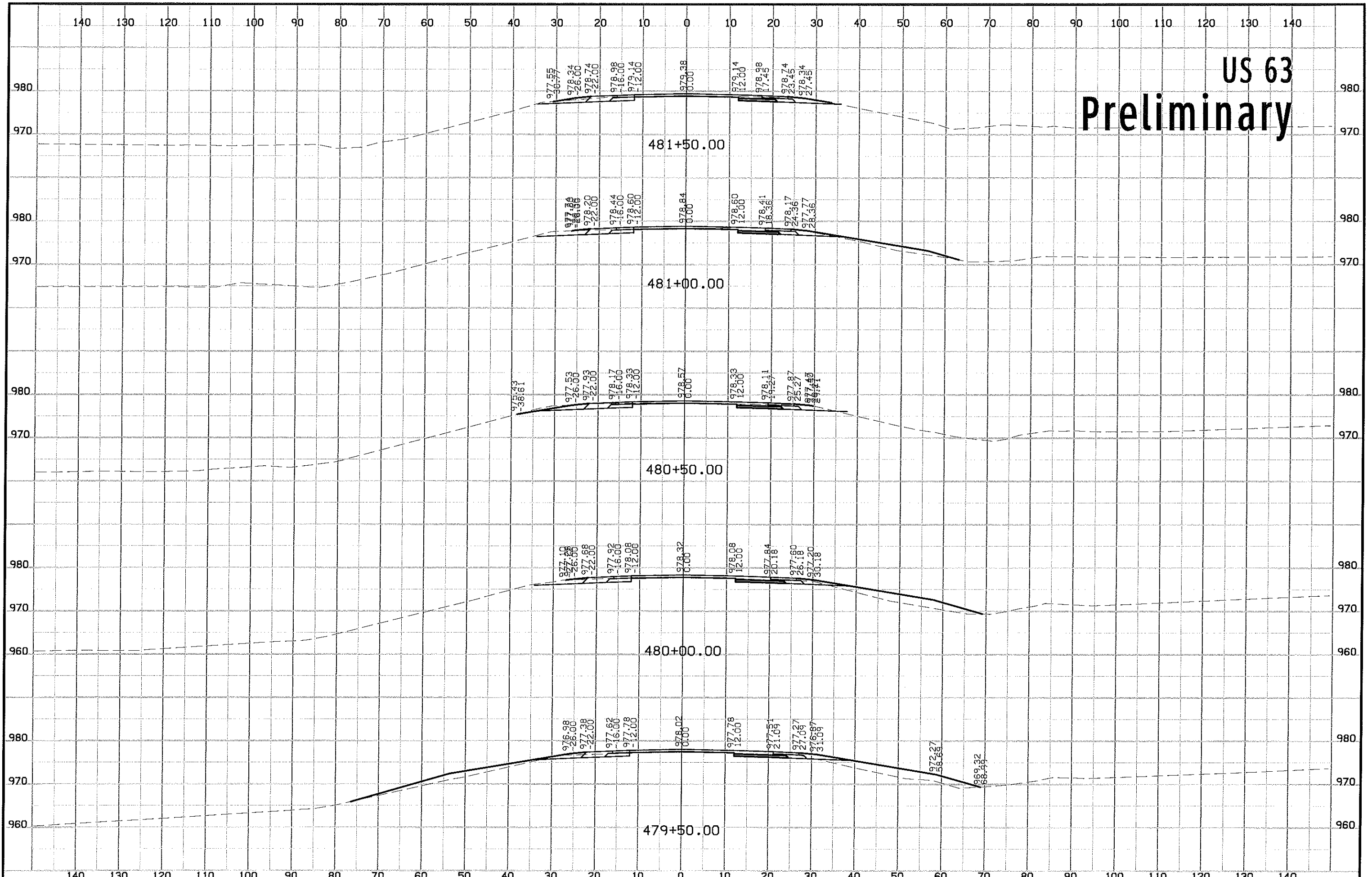
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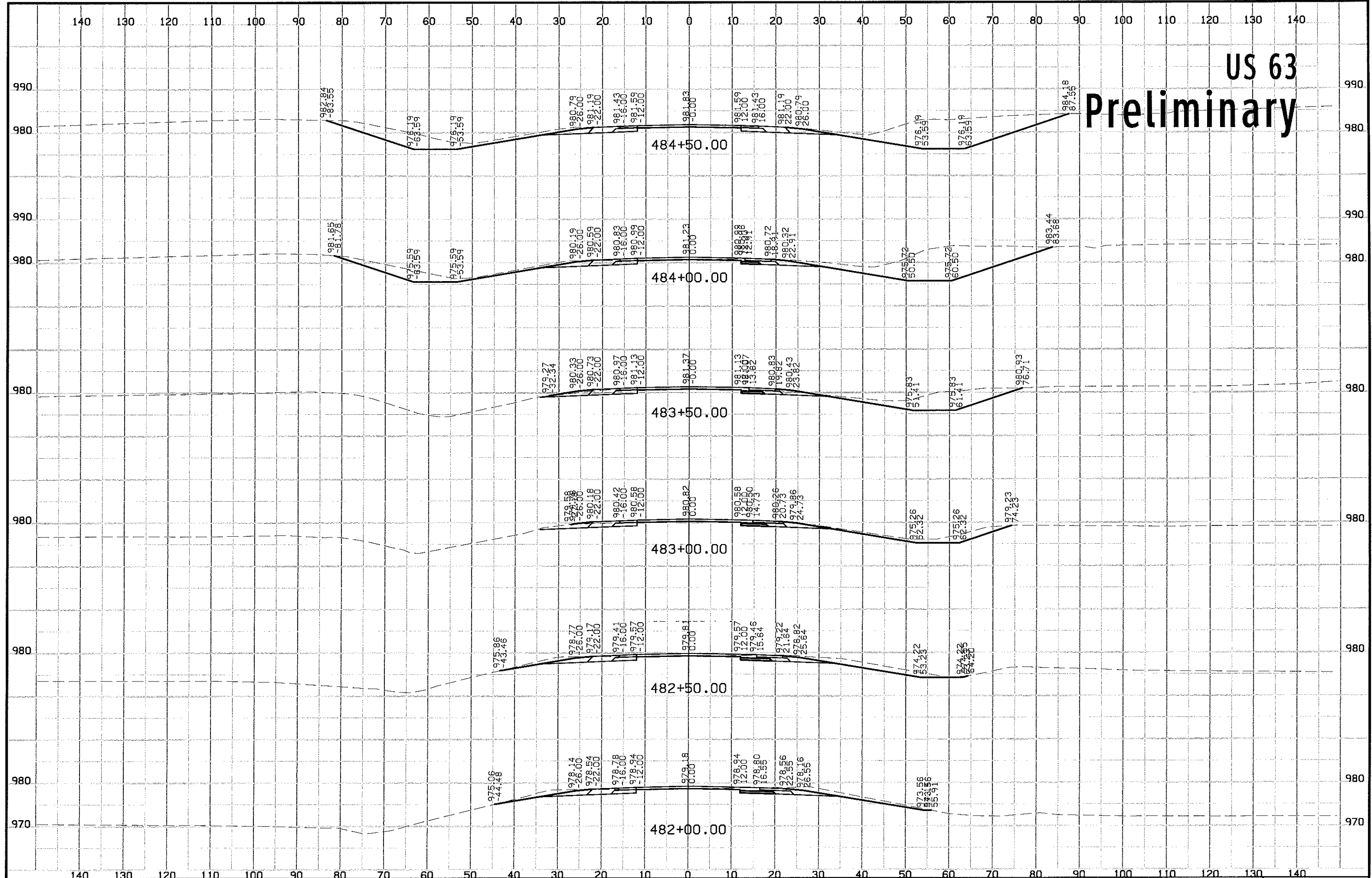
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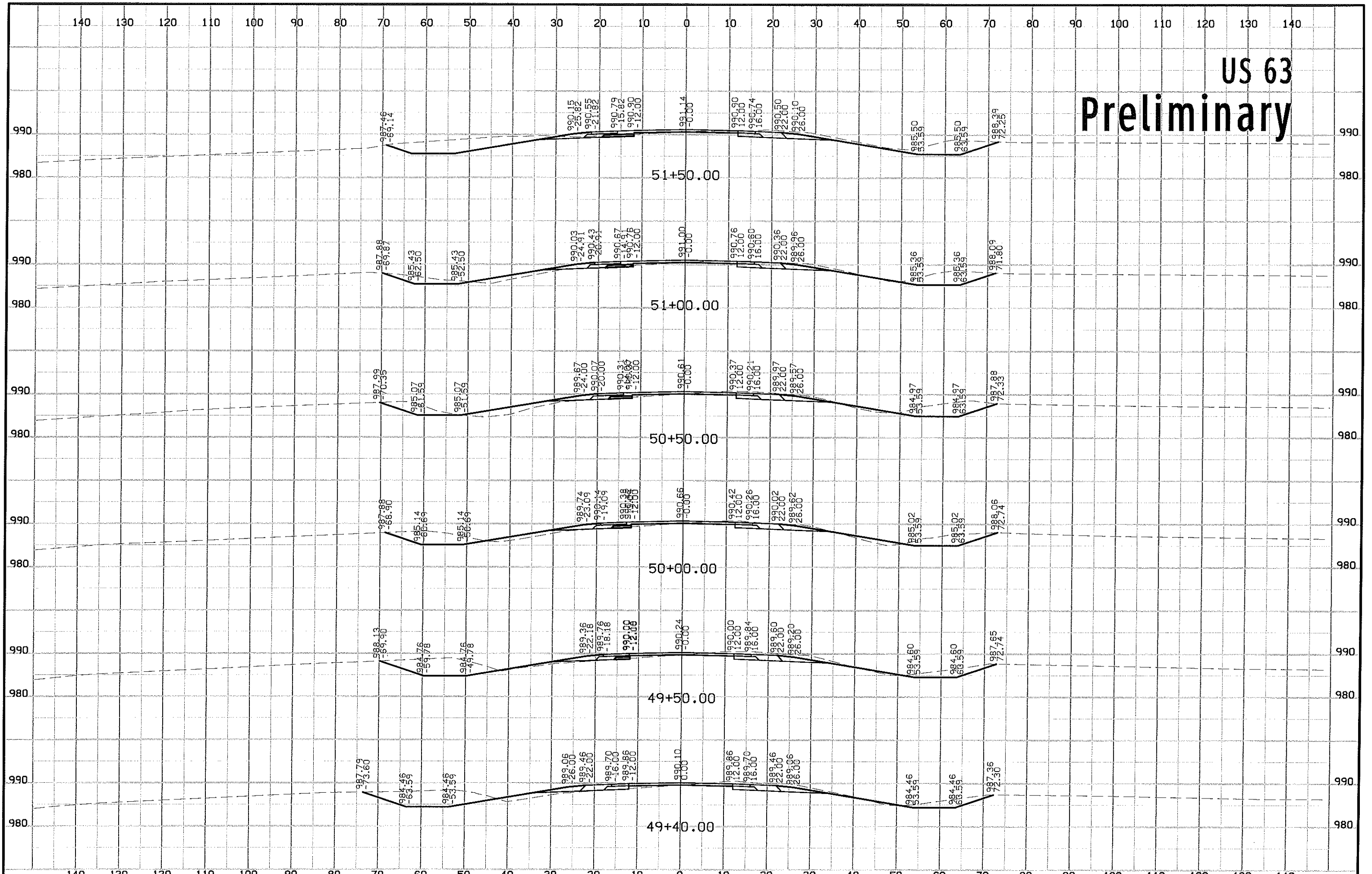
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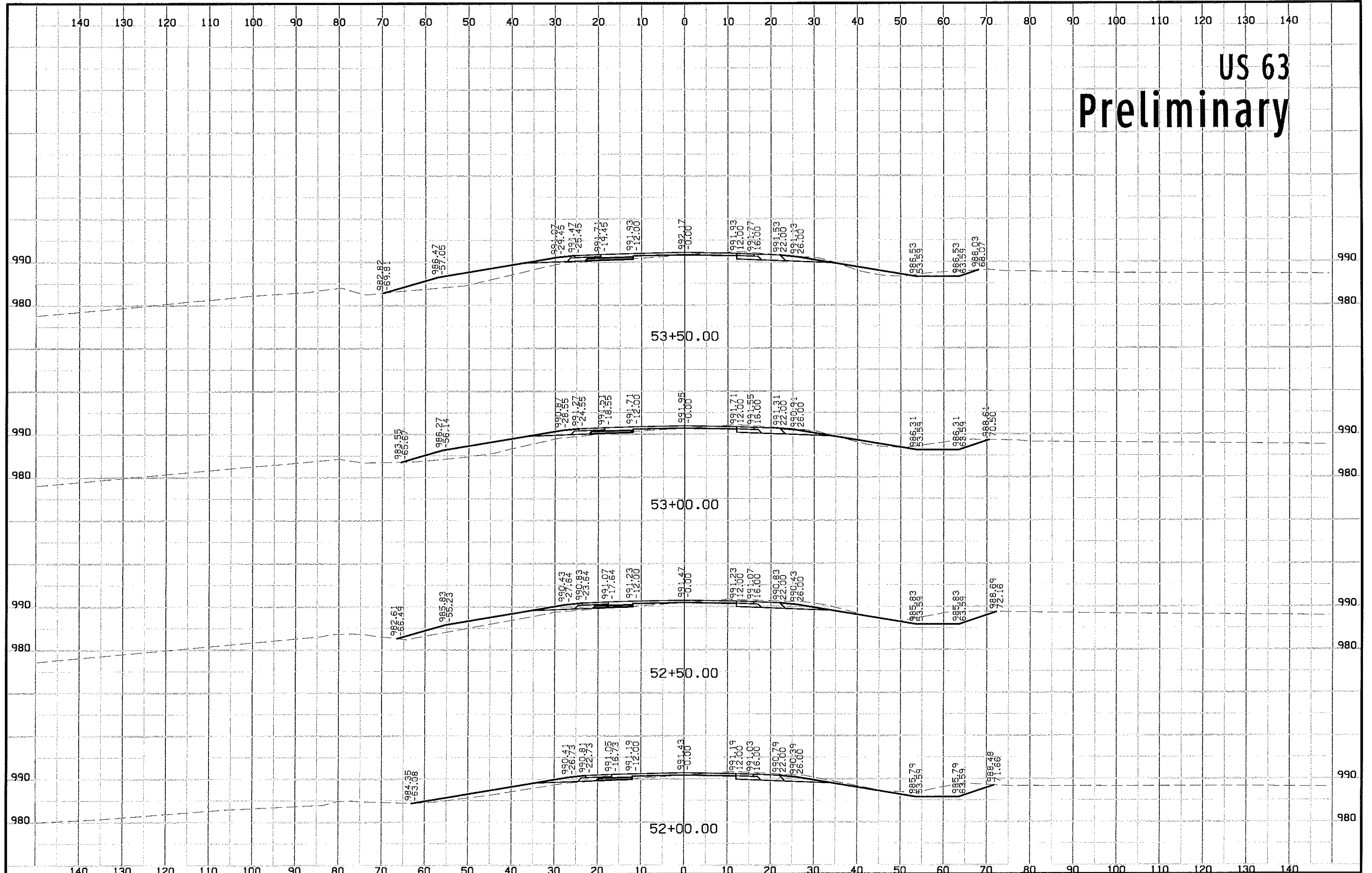
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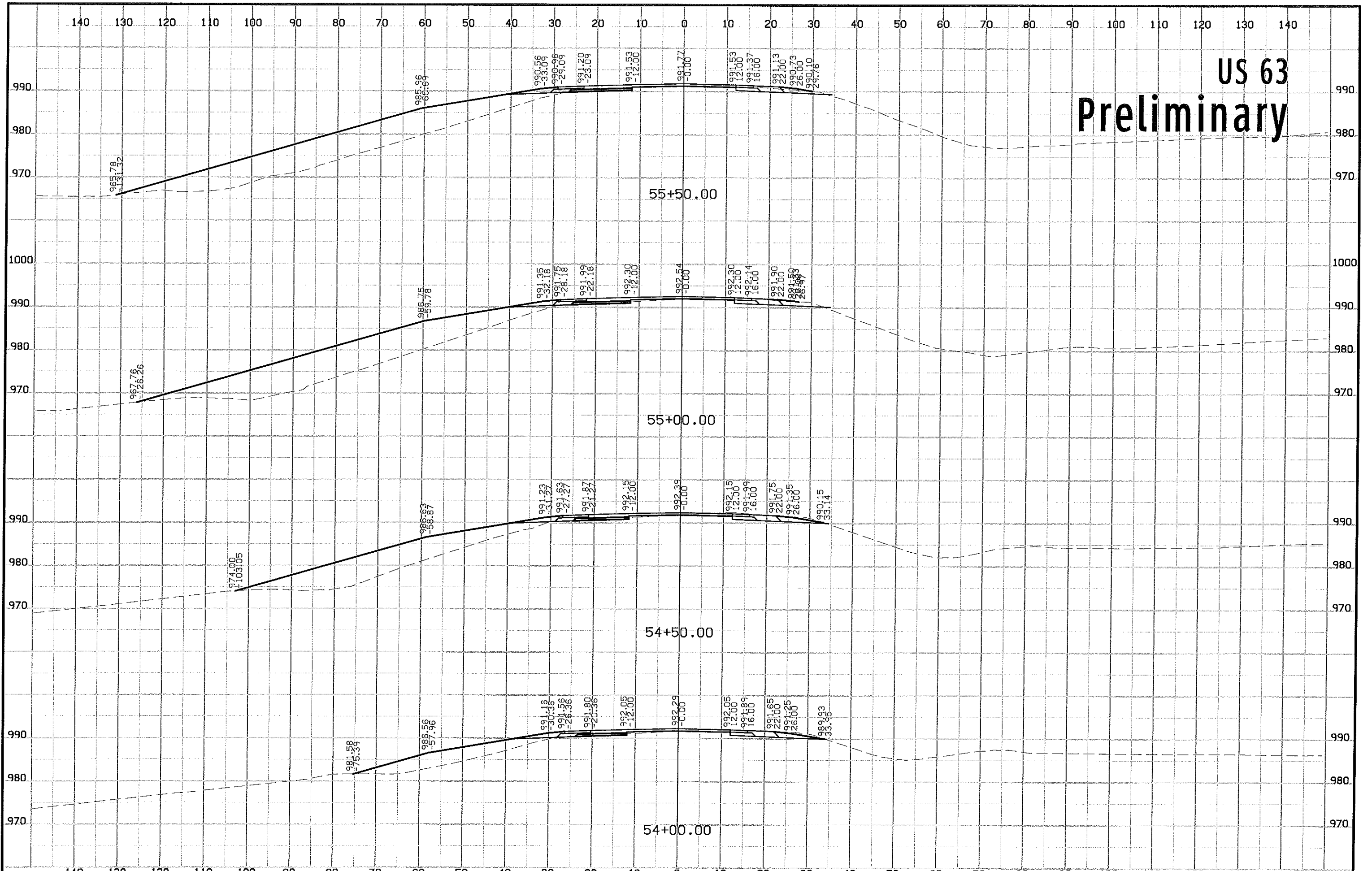
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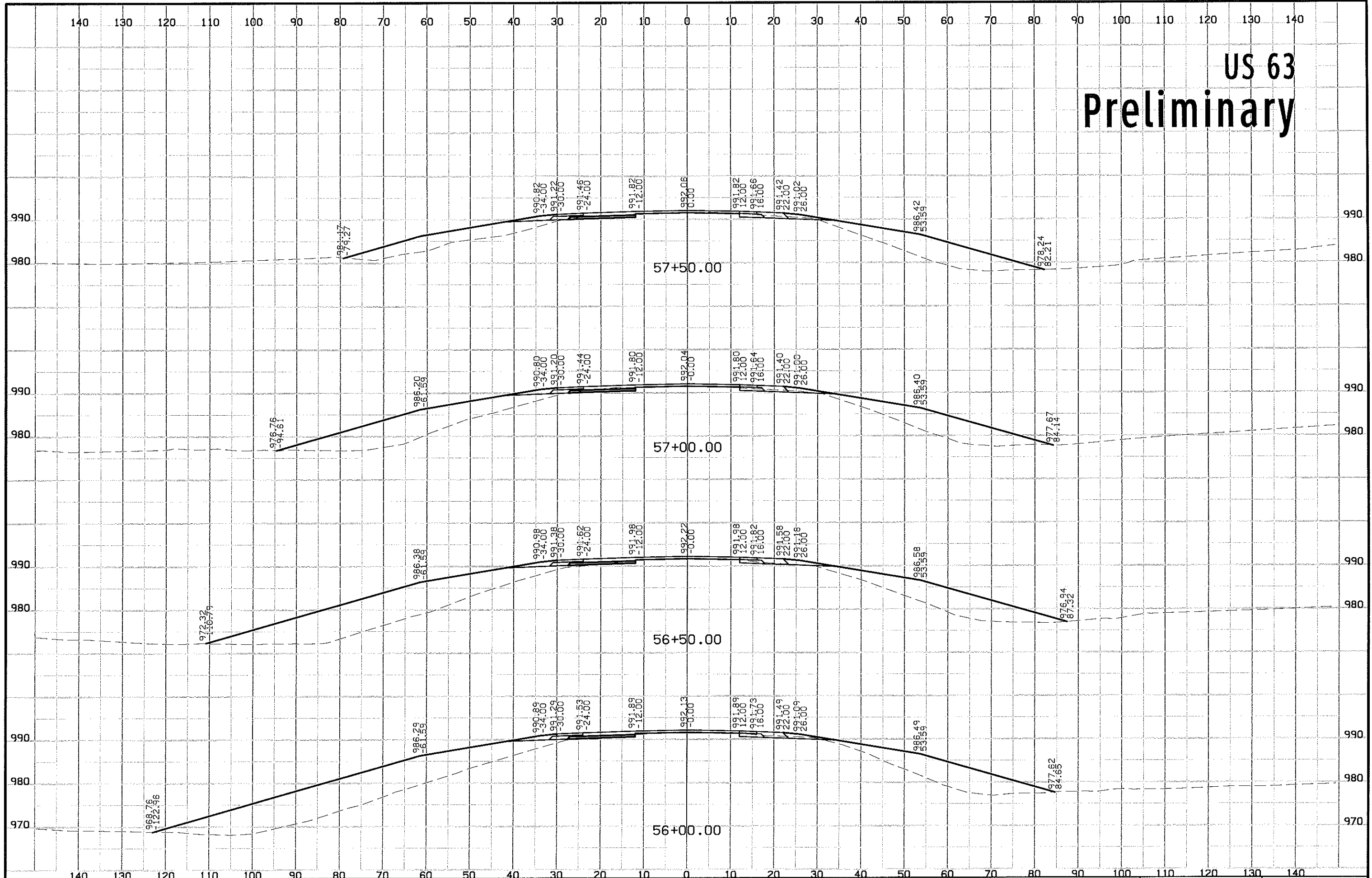
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# US 63 Preliminary

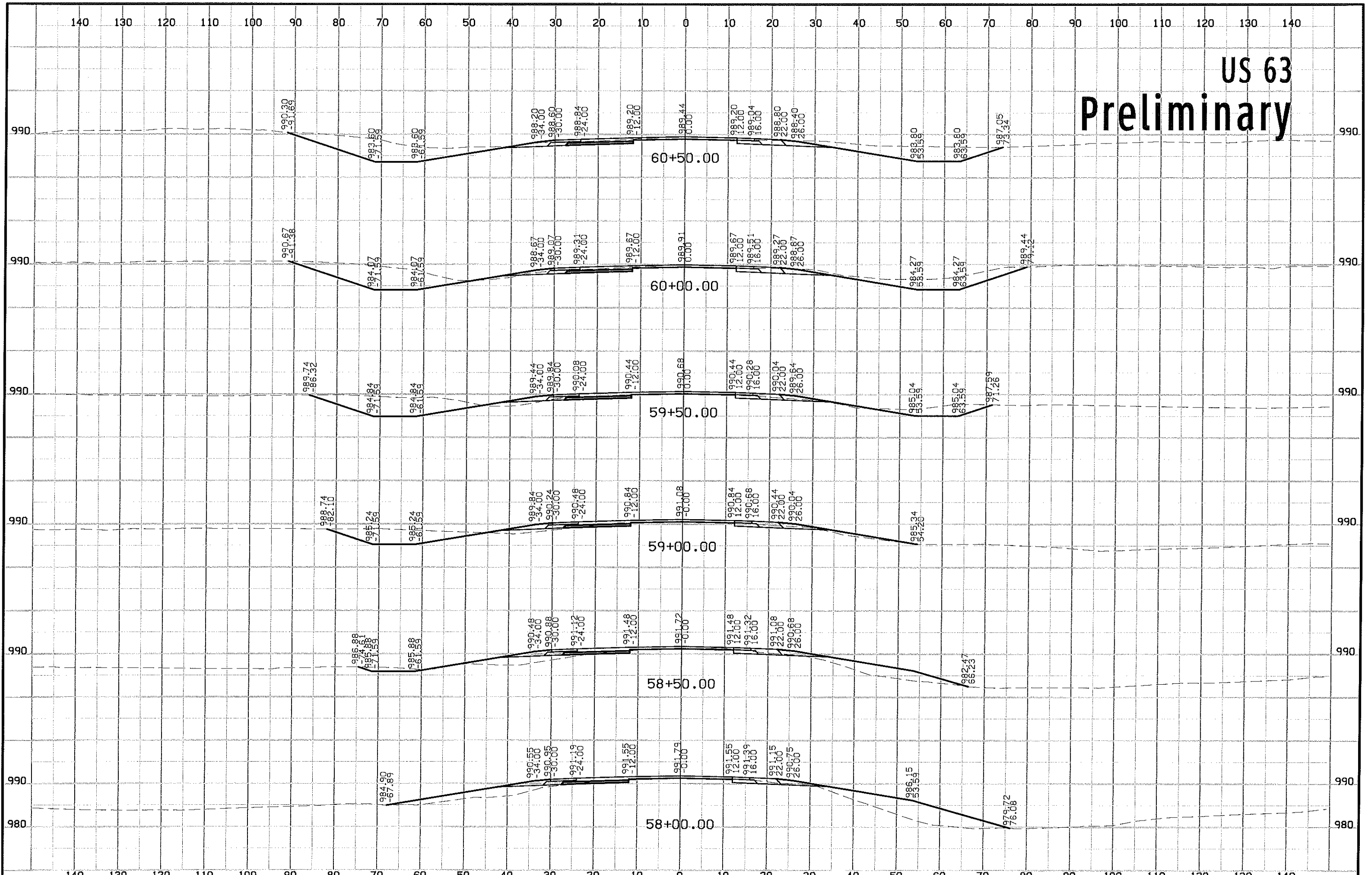


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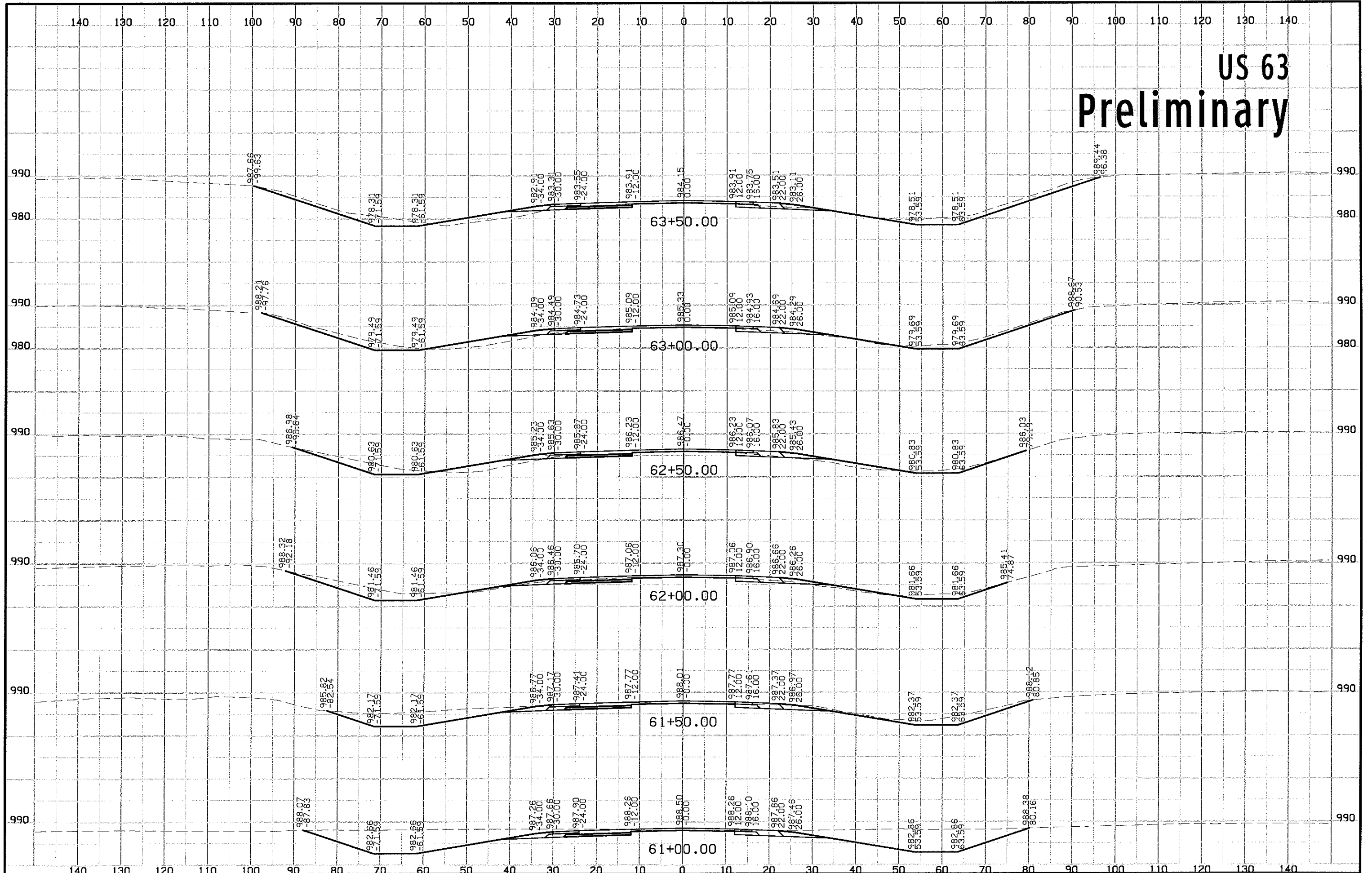




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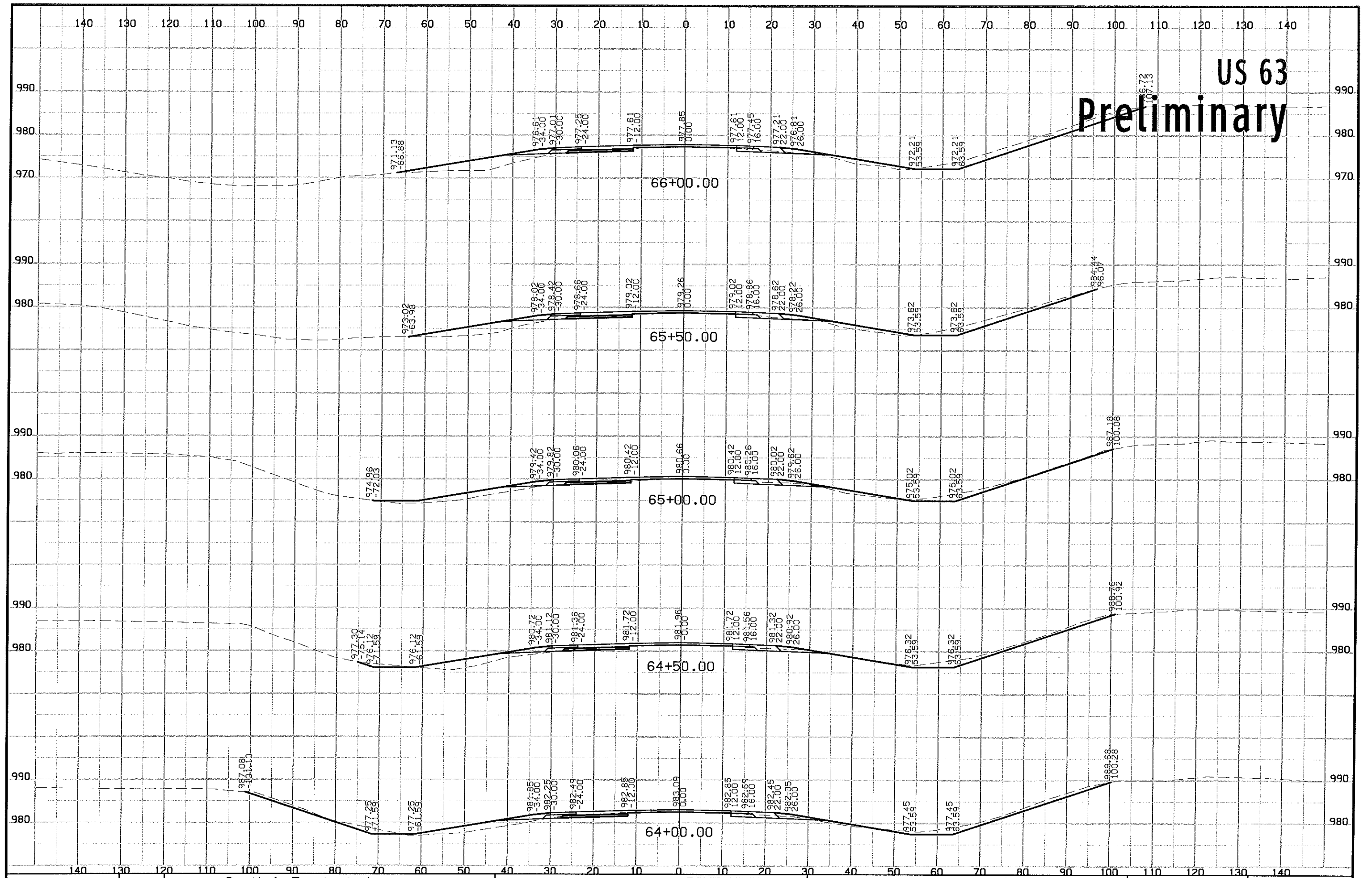


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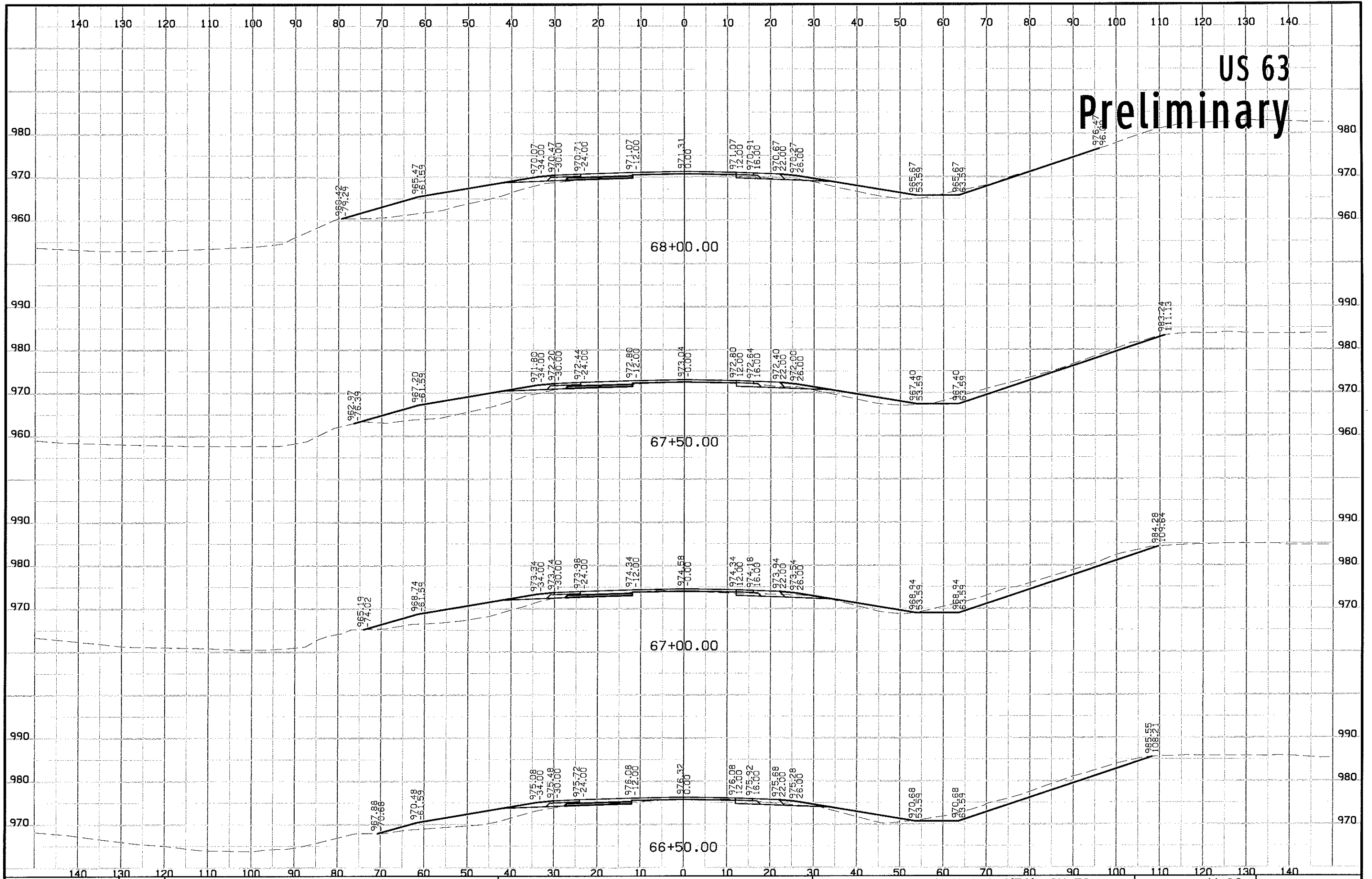


US 63

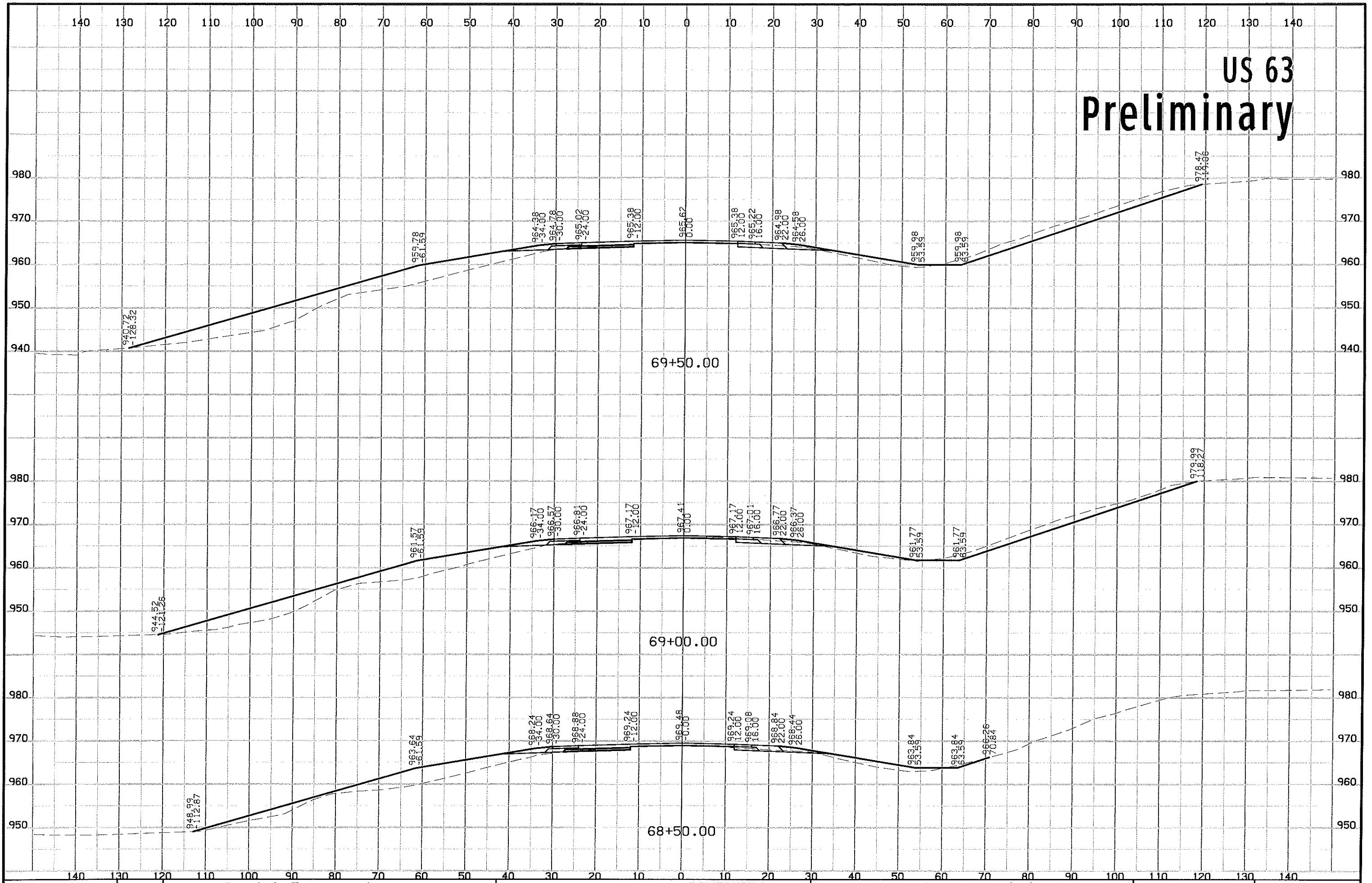
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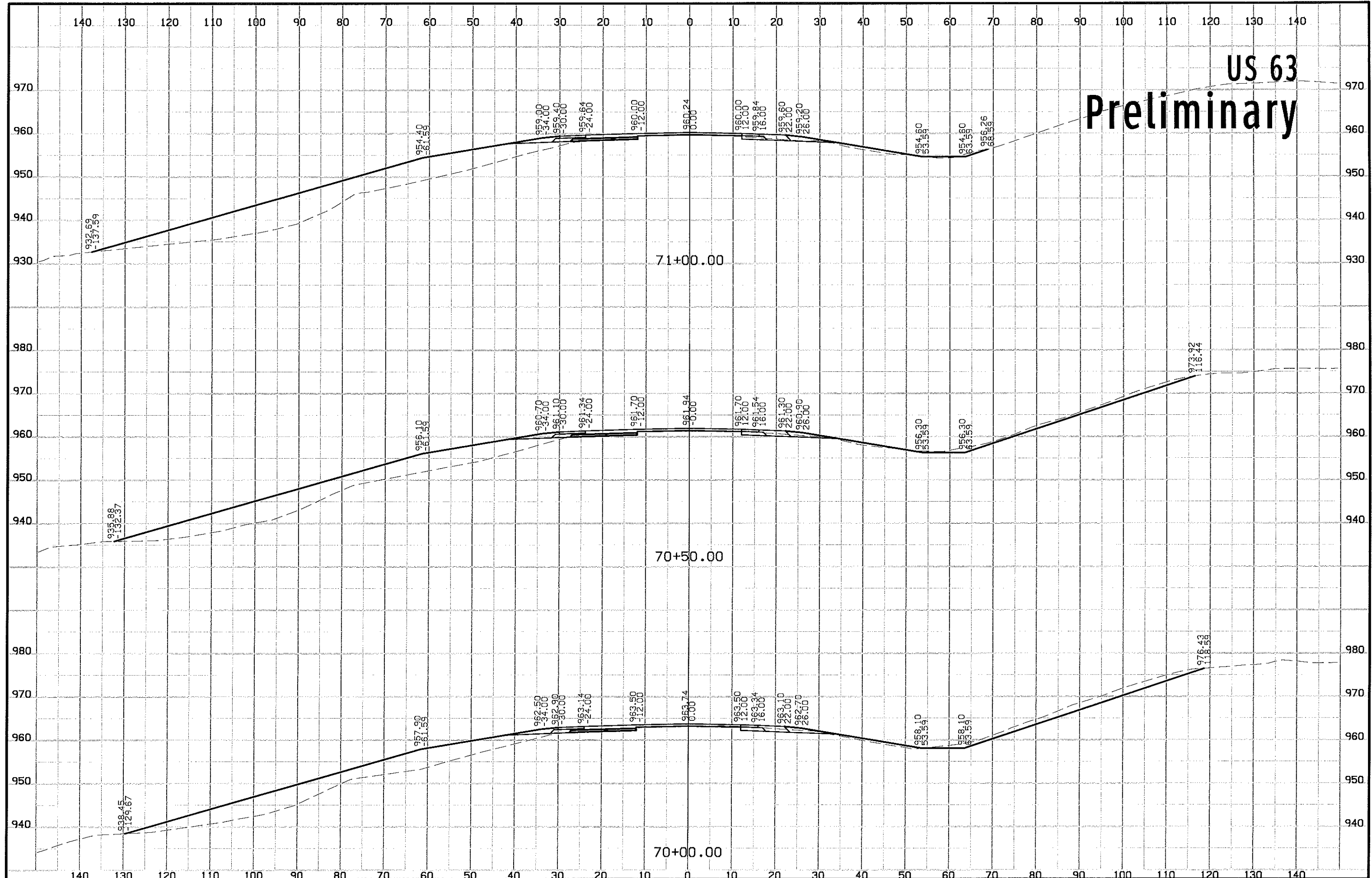
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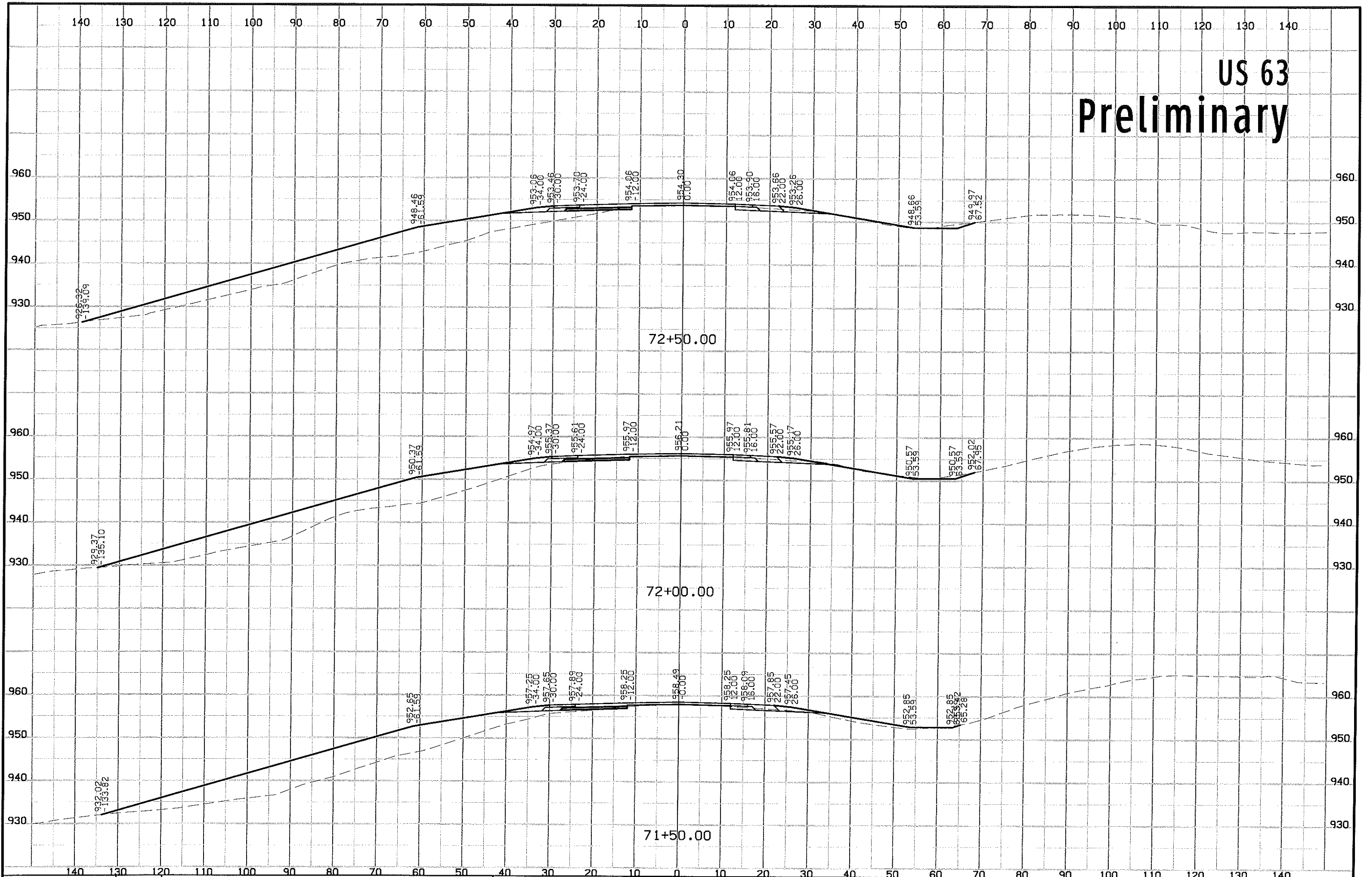
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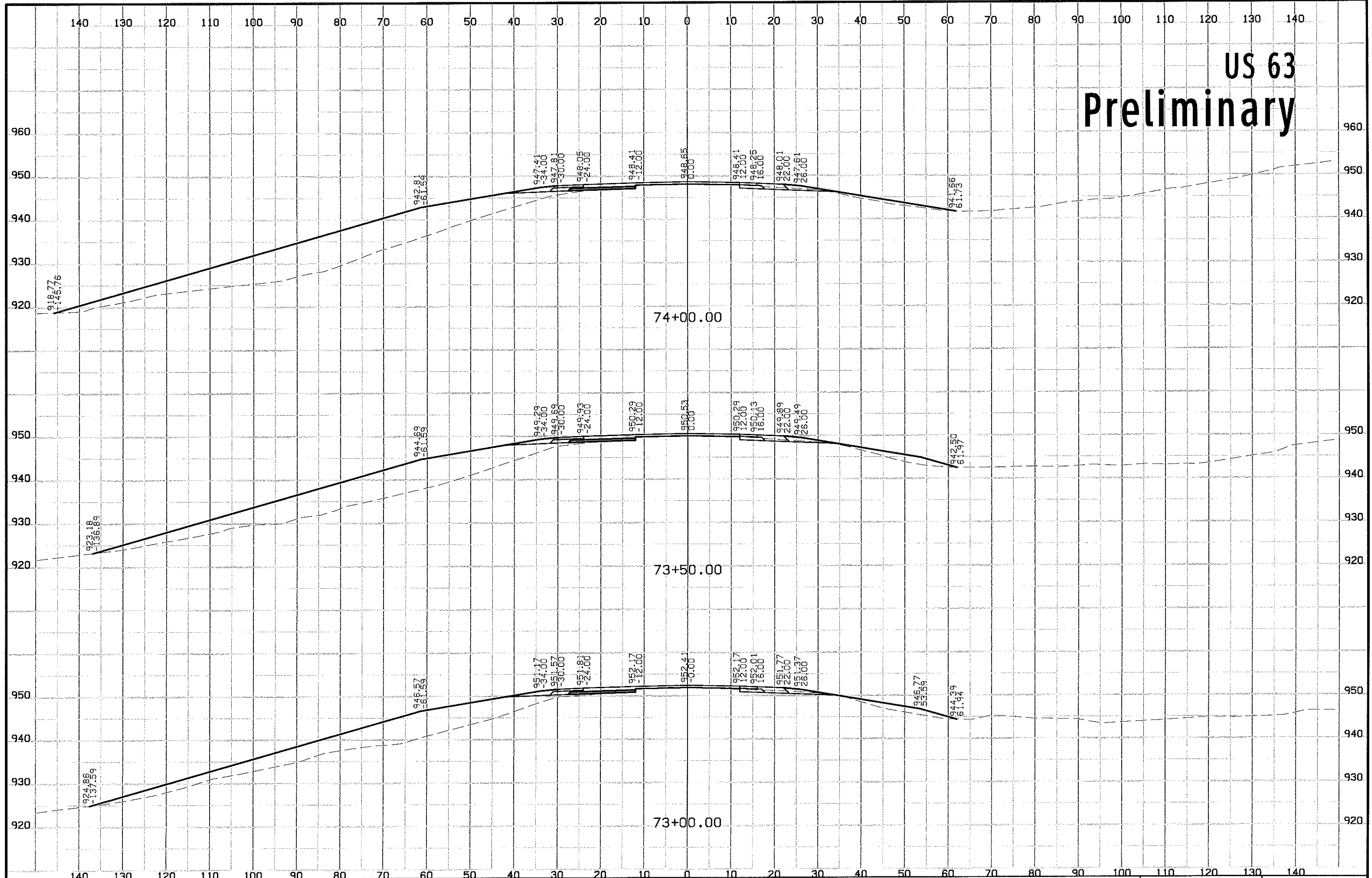
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# US 63 Preliminary

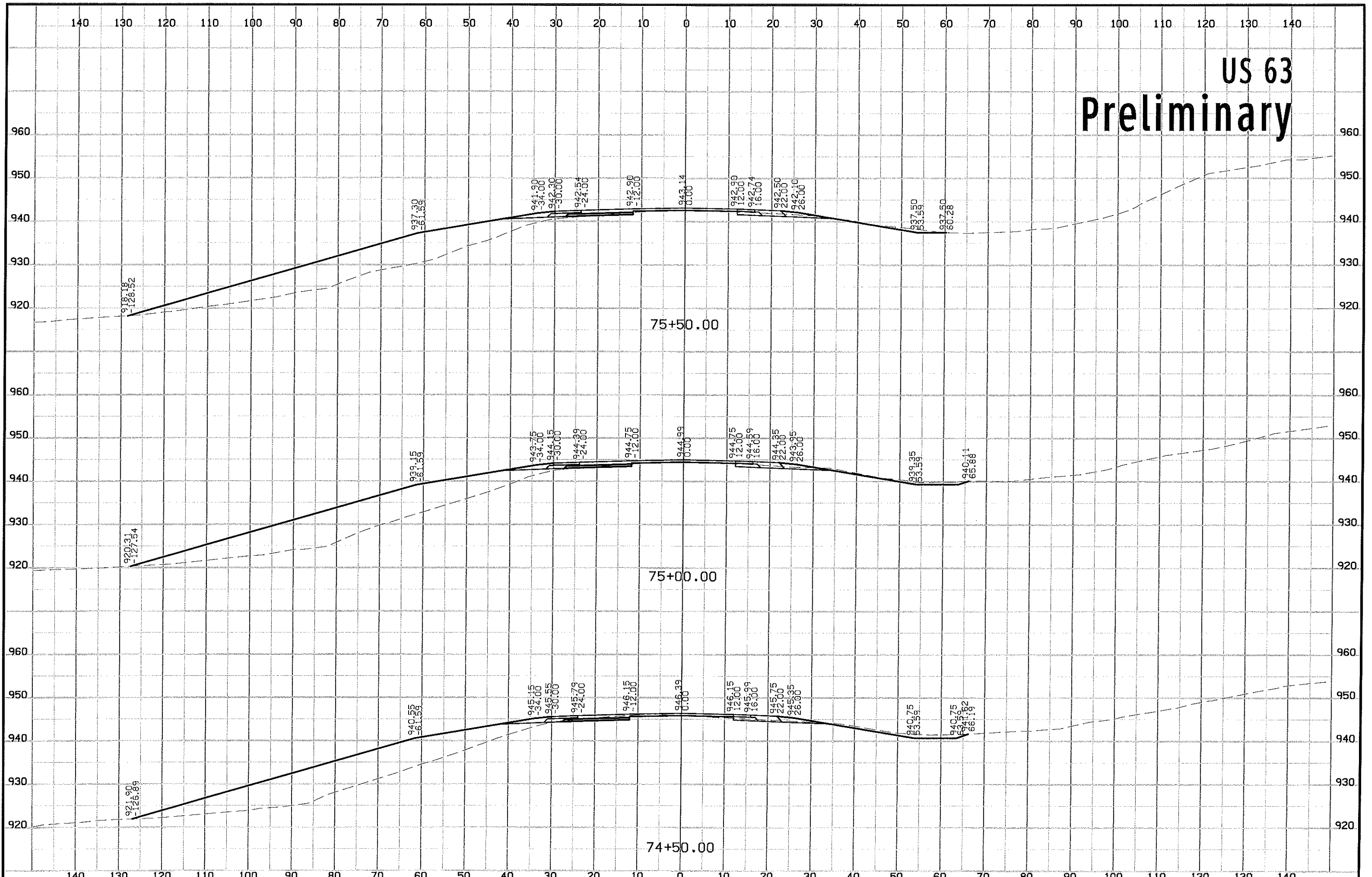


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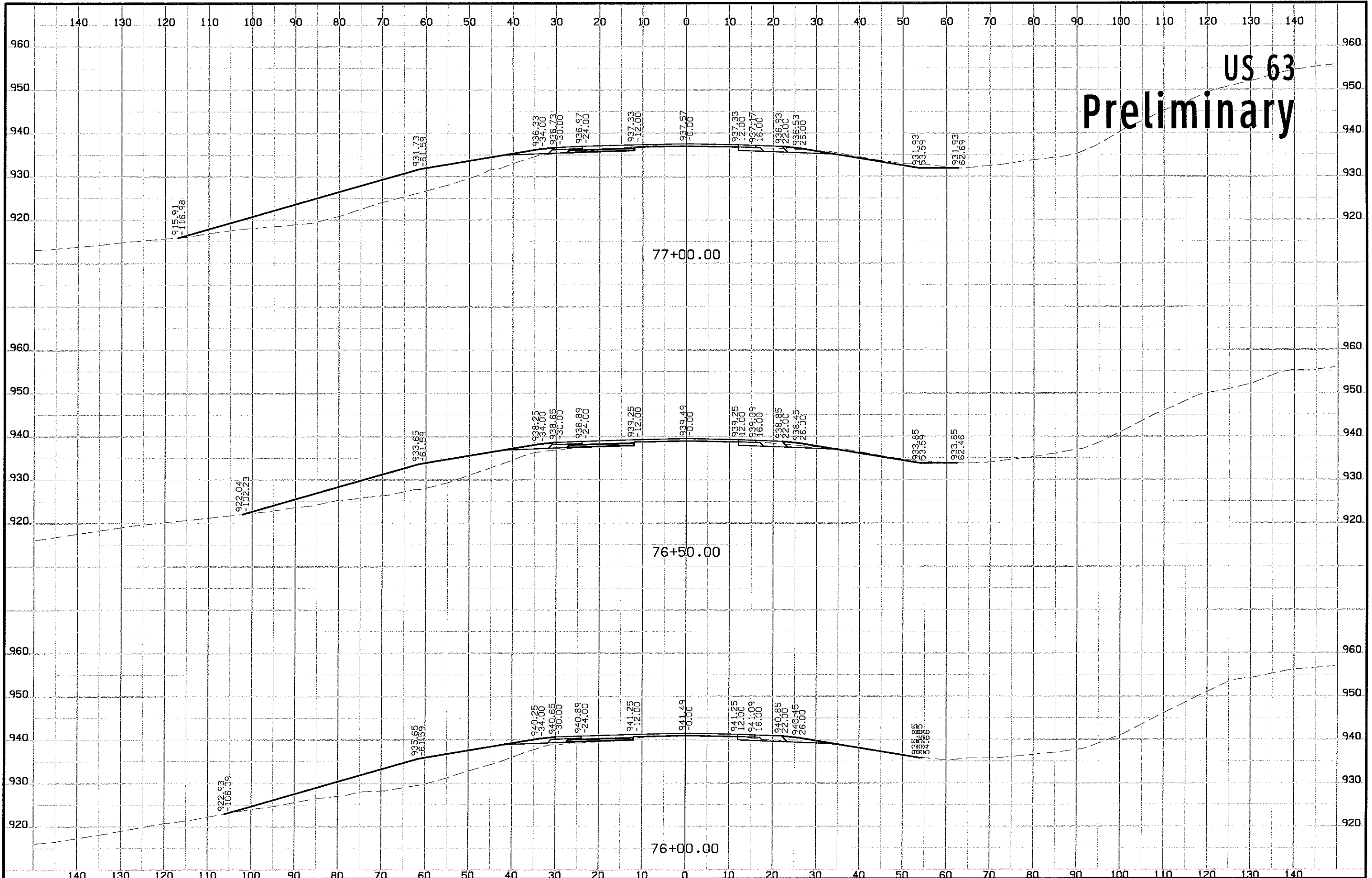




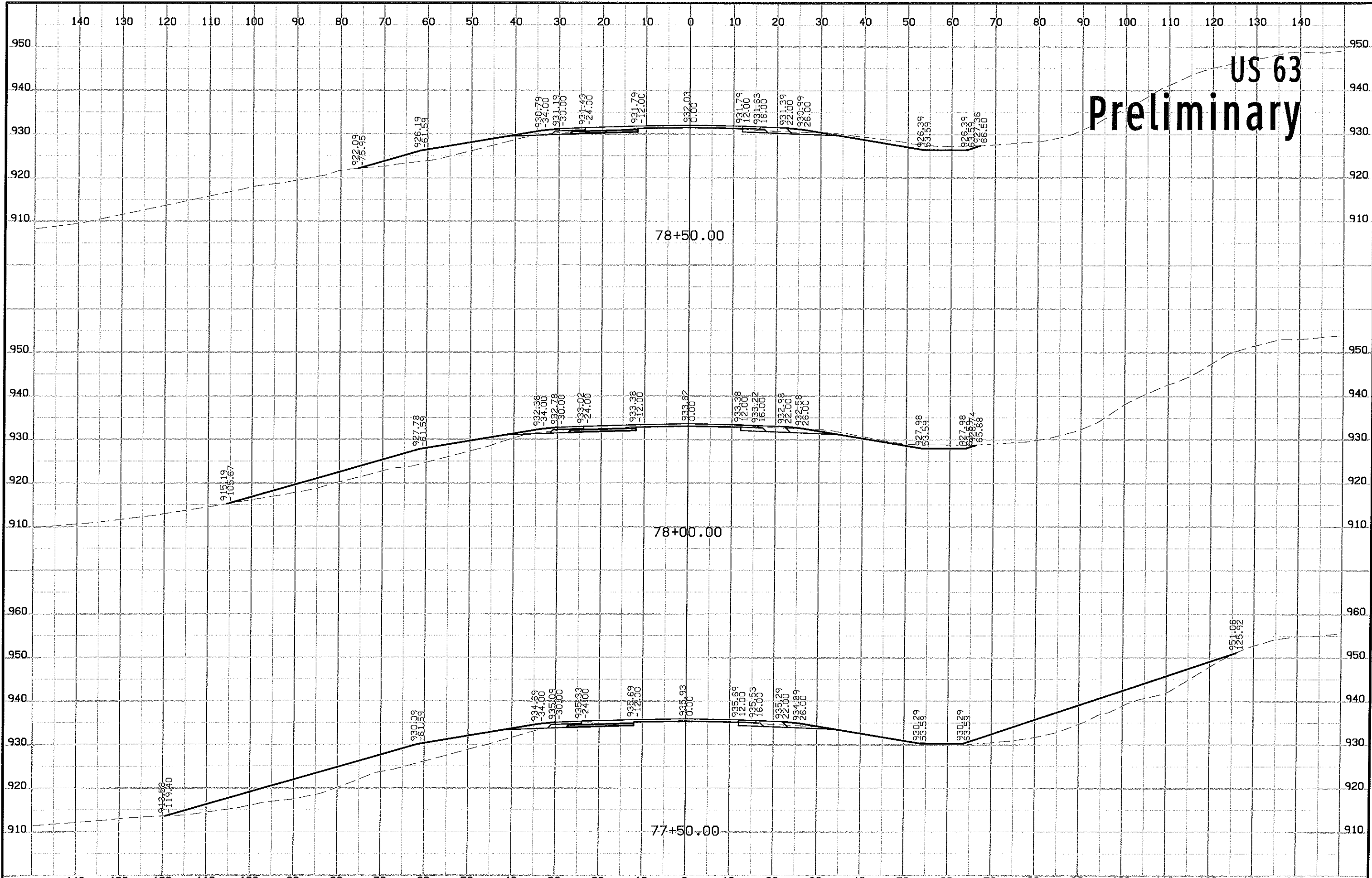
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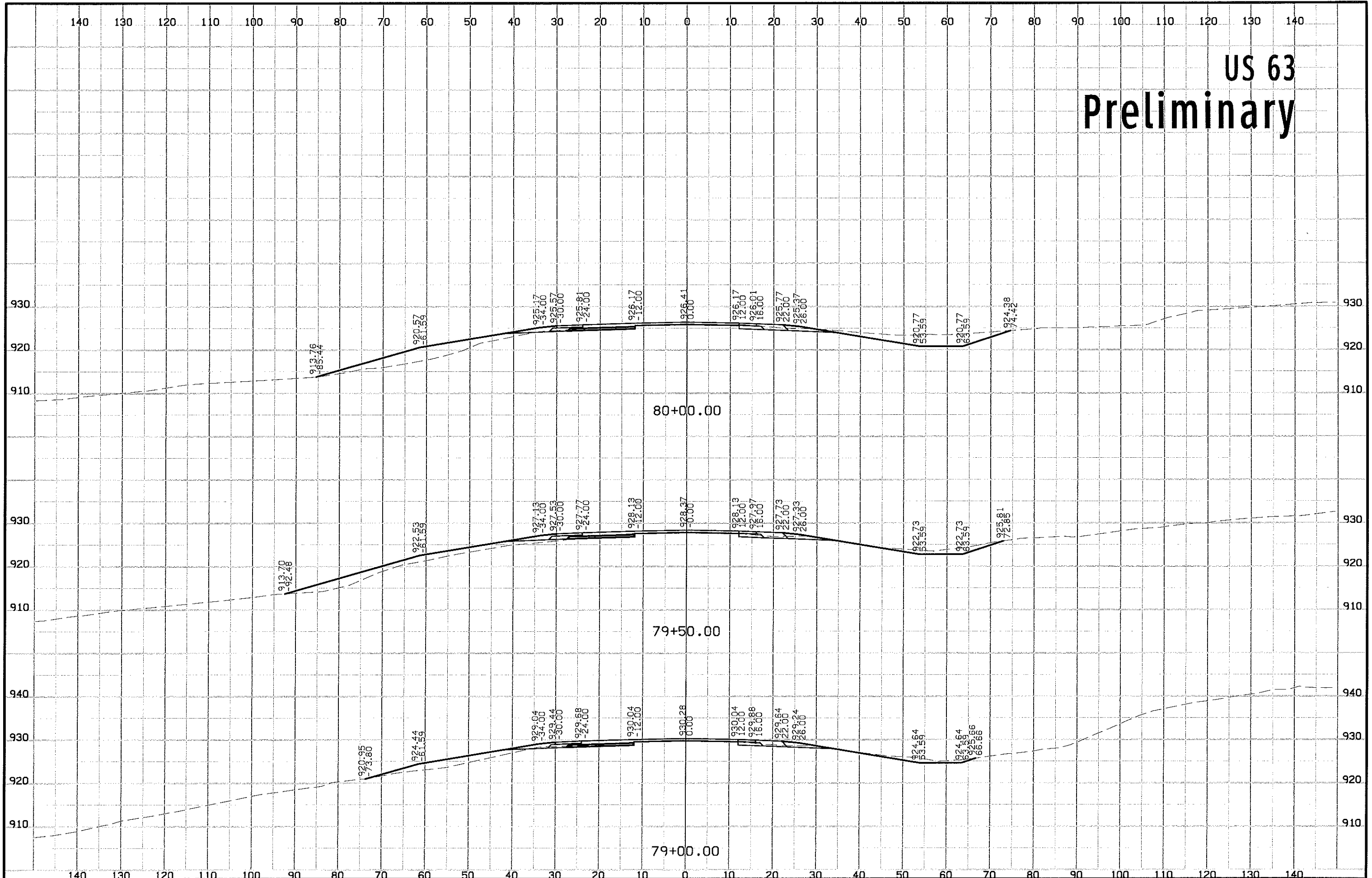
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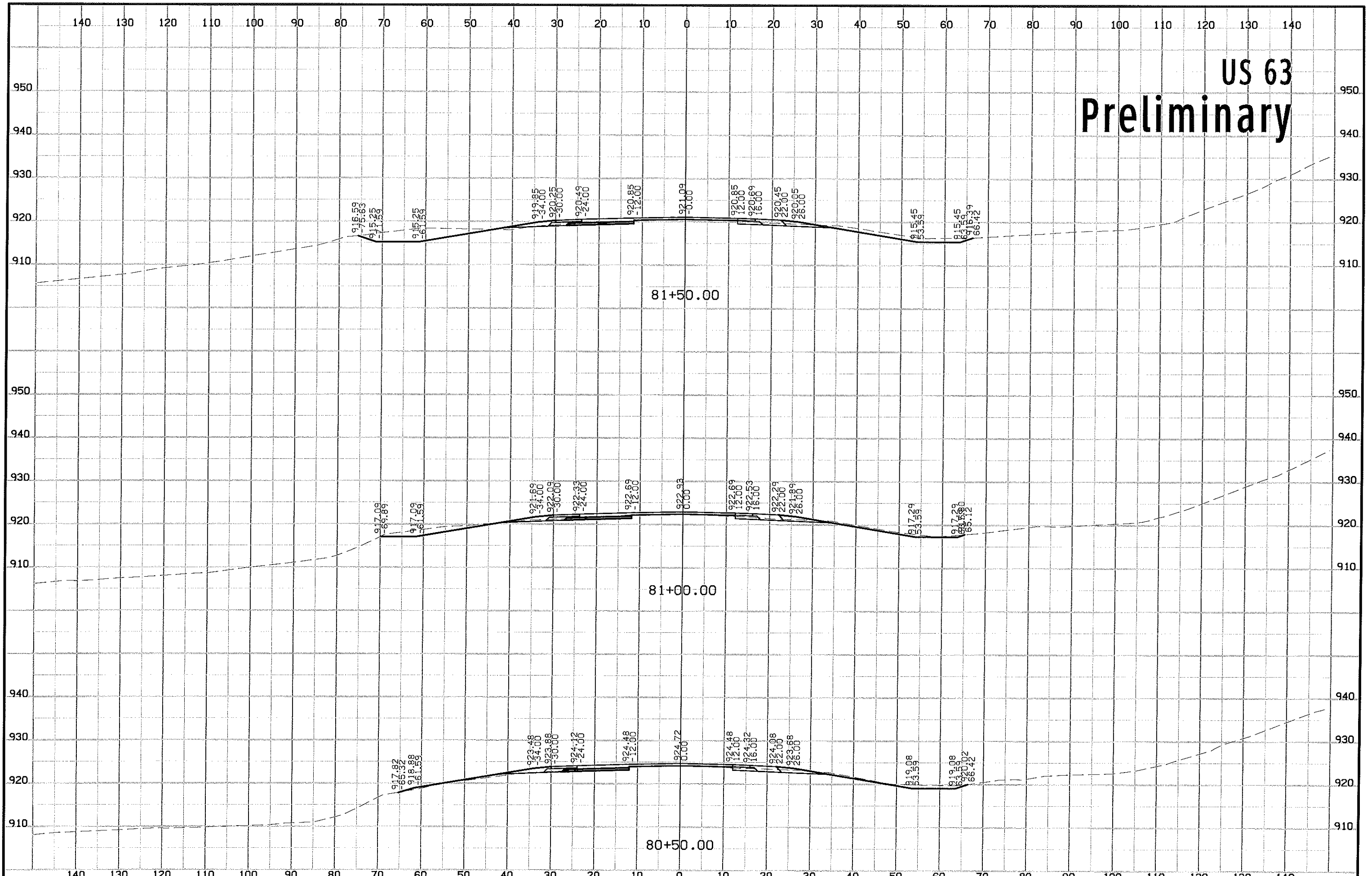
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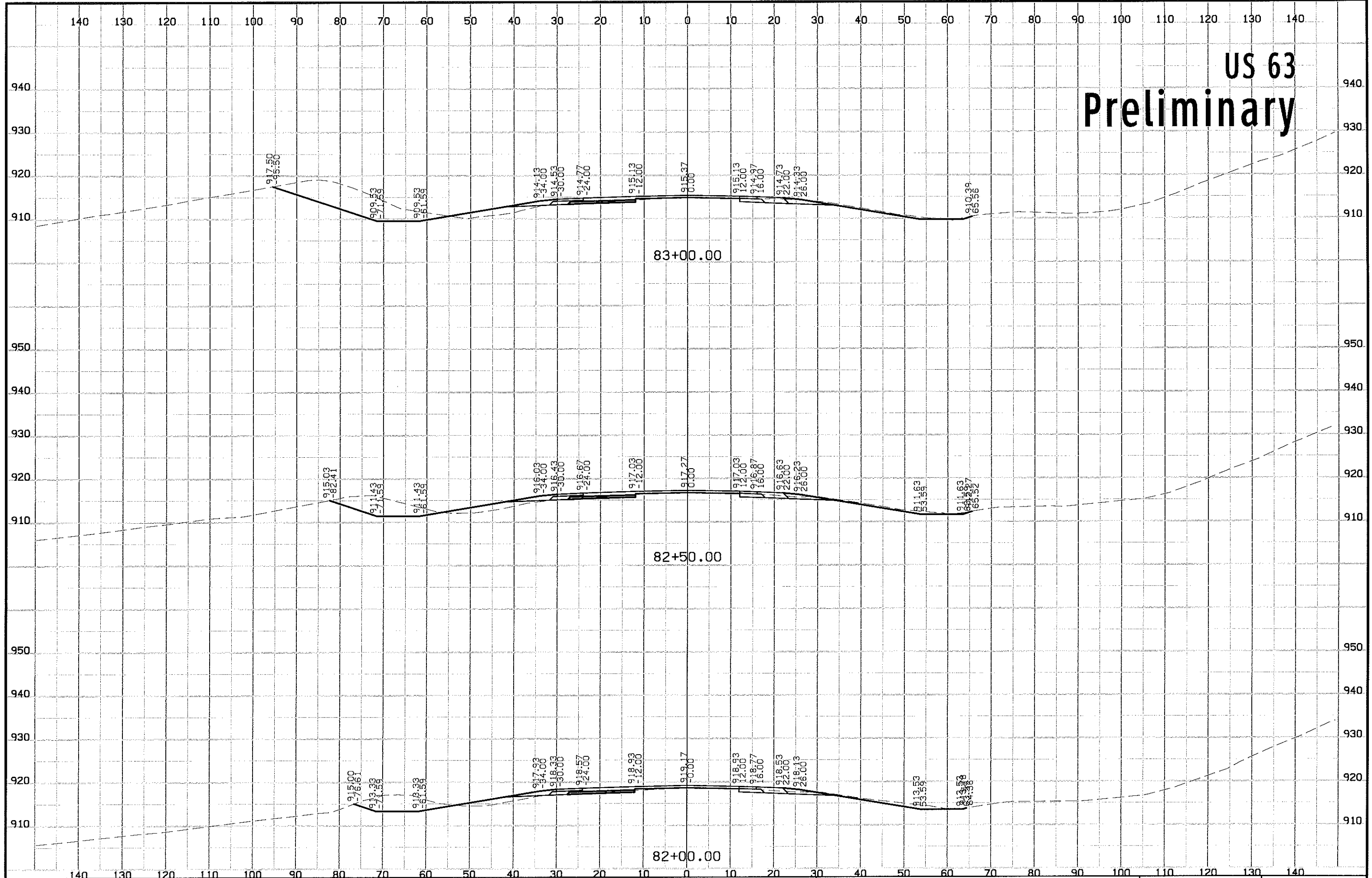
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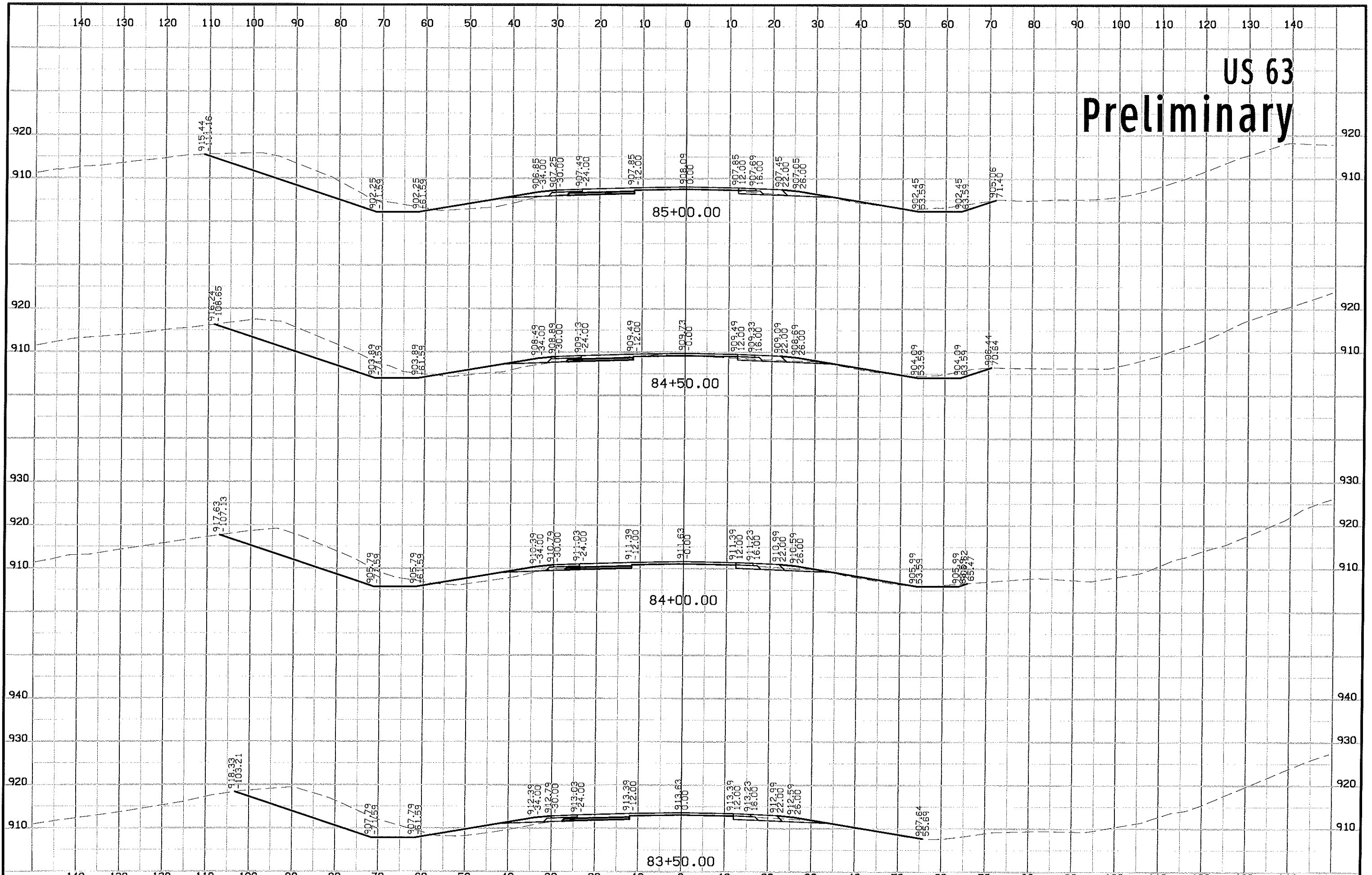
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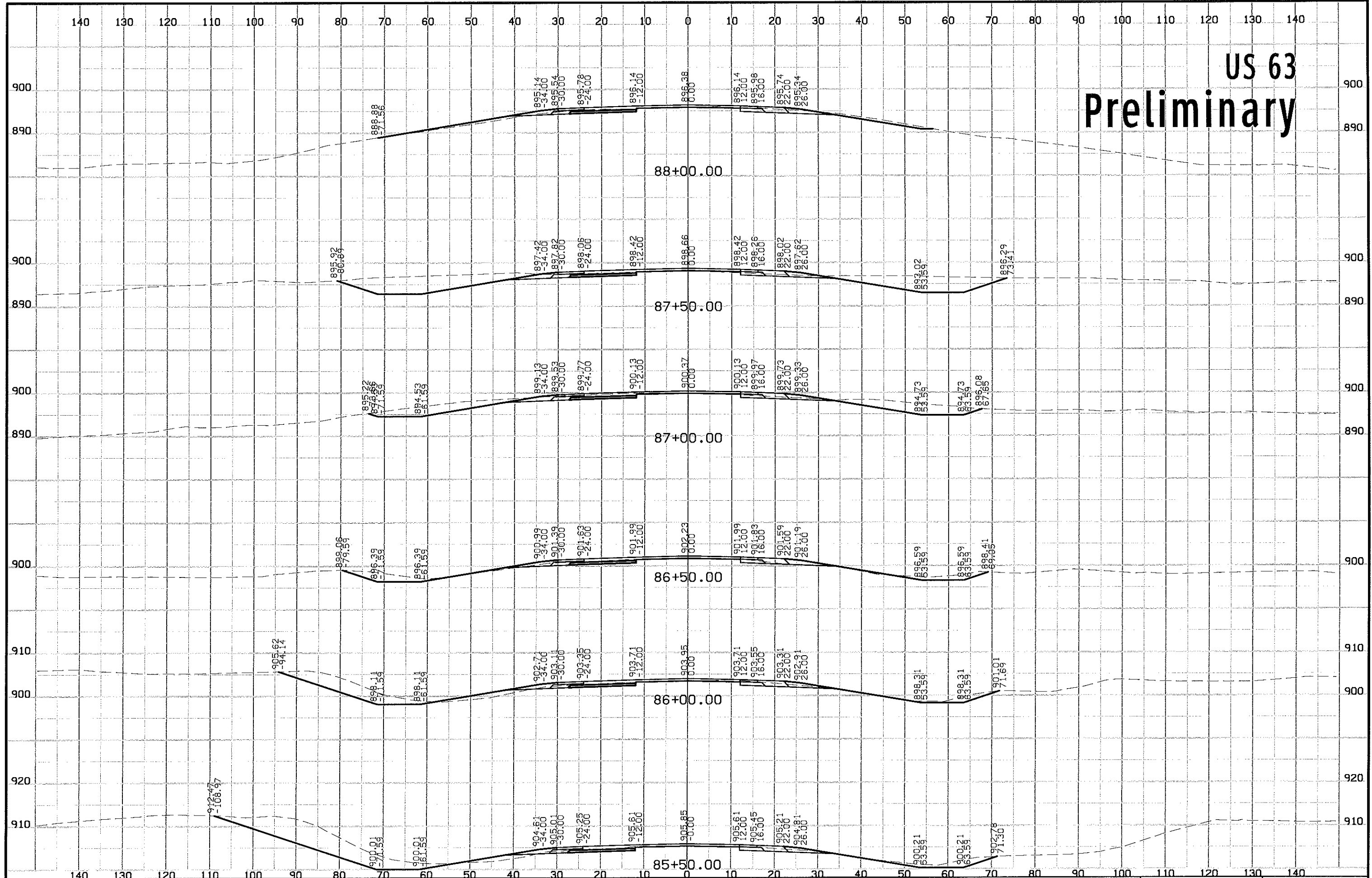
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# US 63 Preliminary

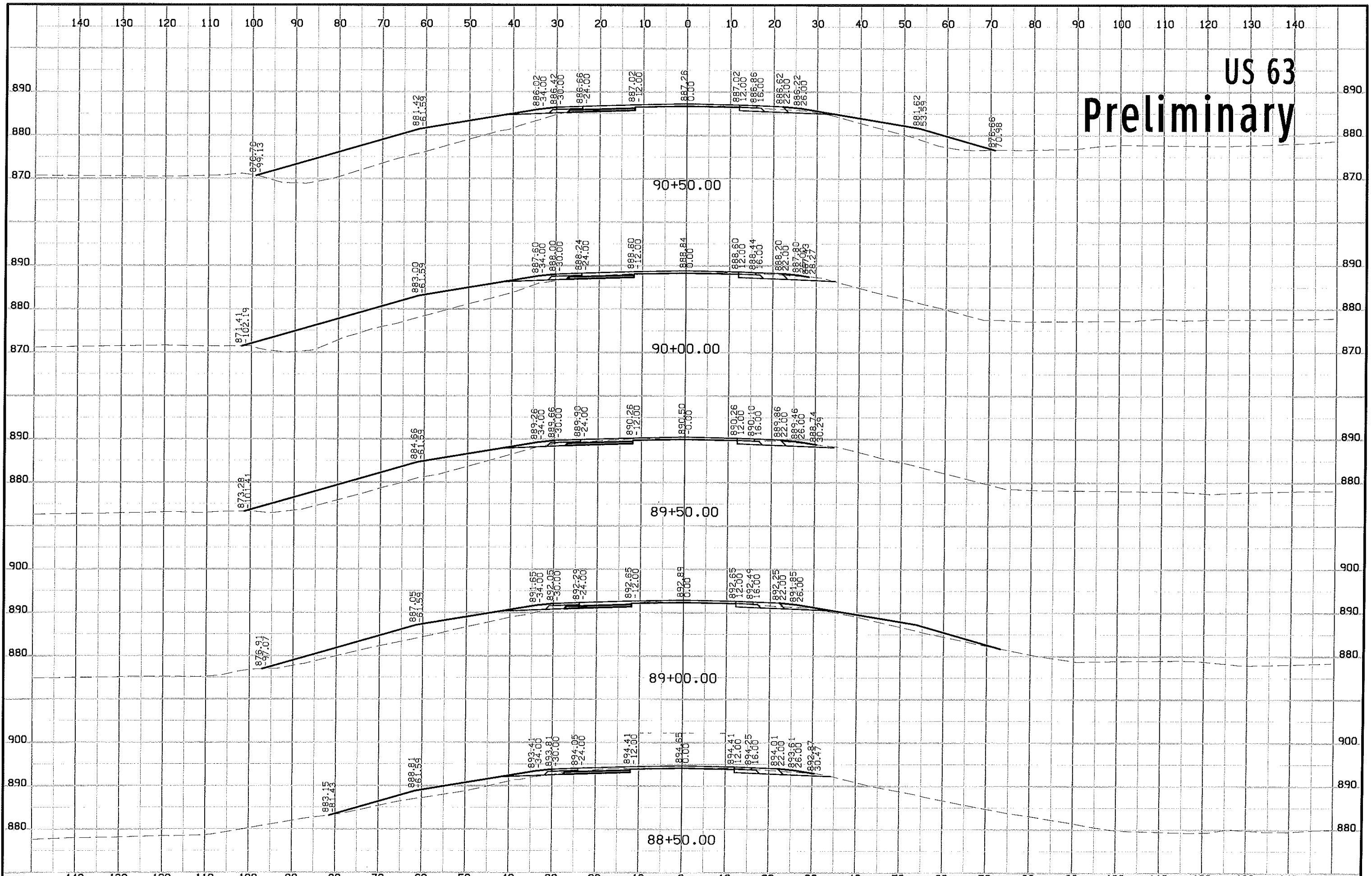


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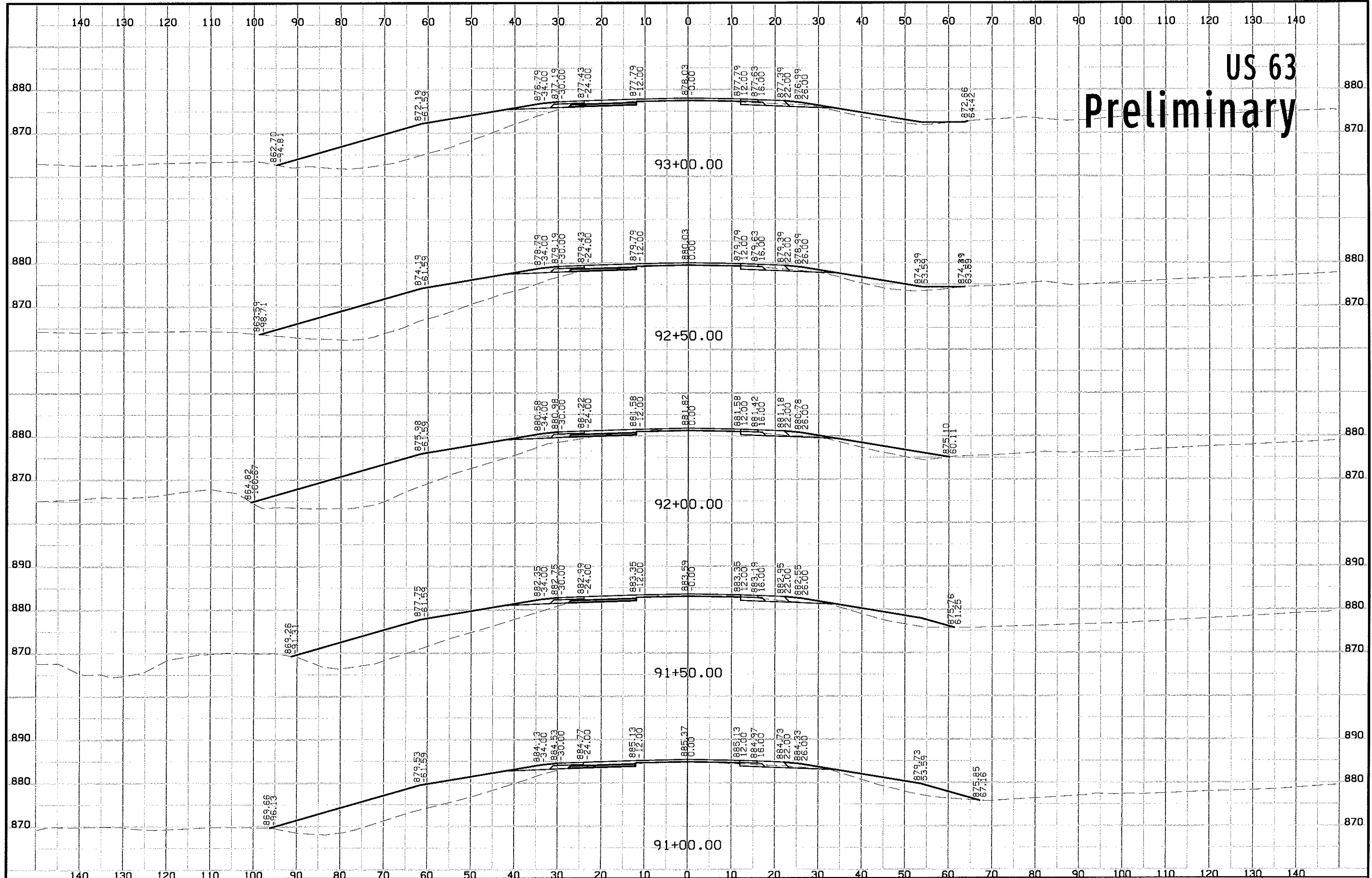




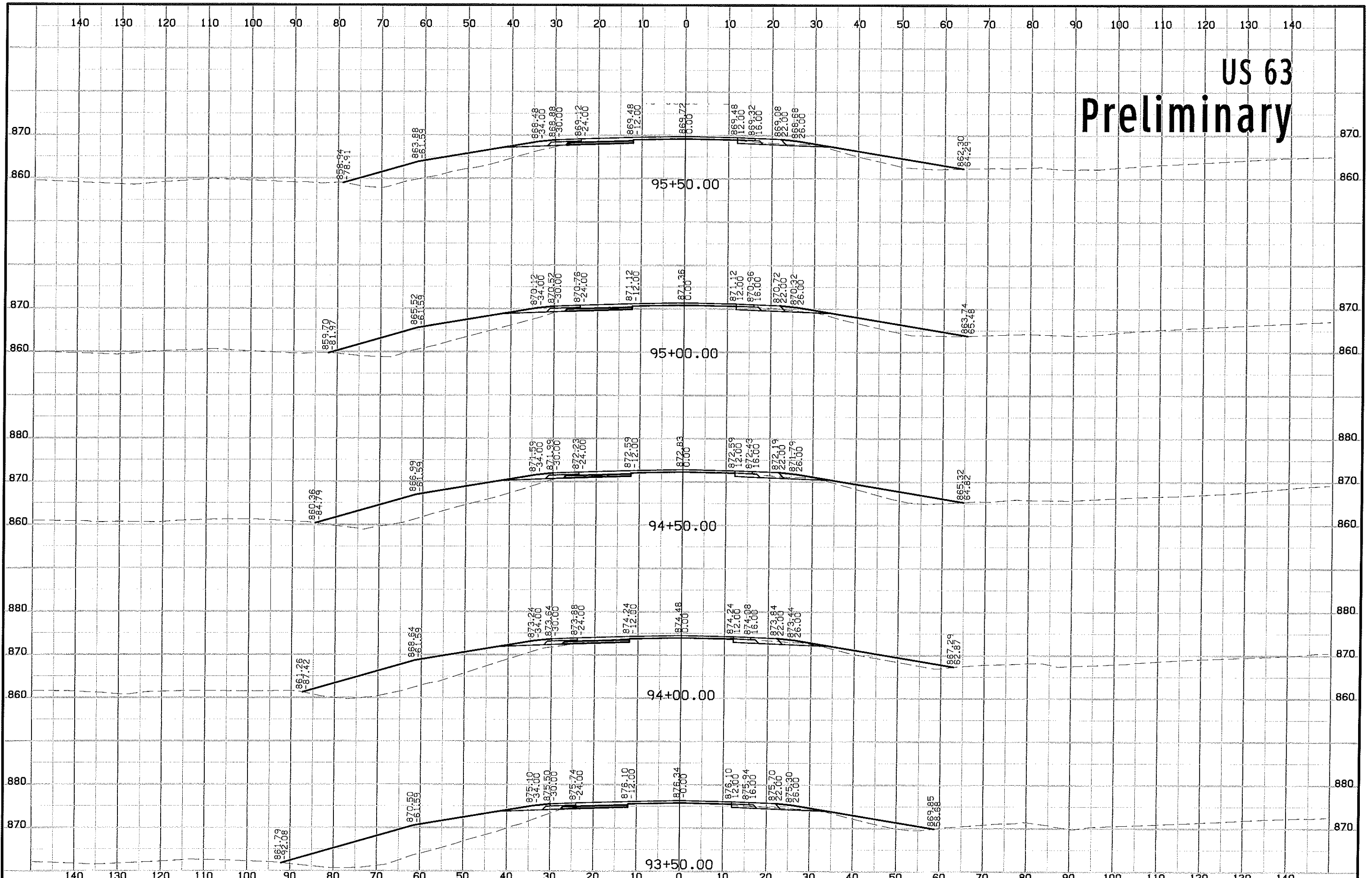
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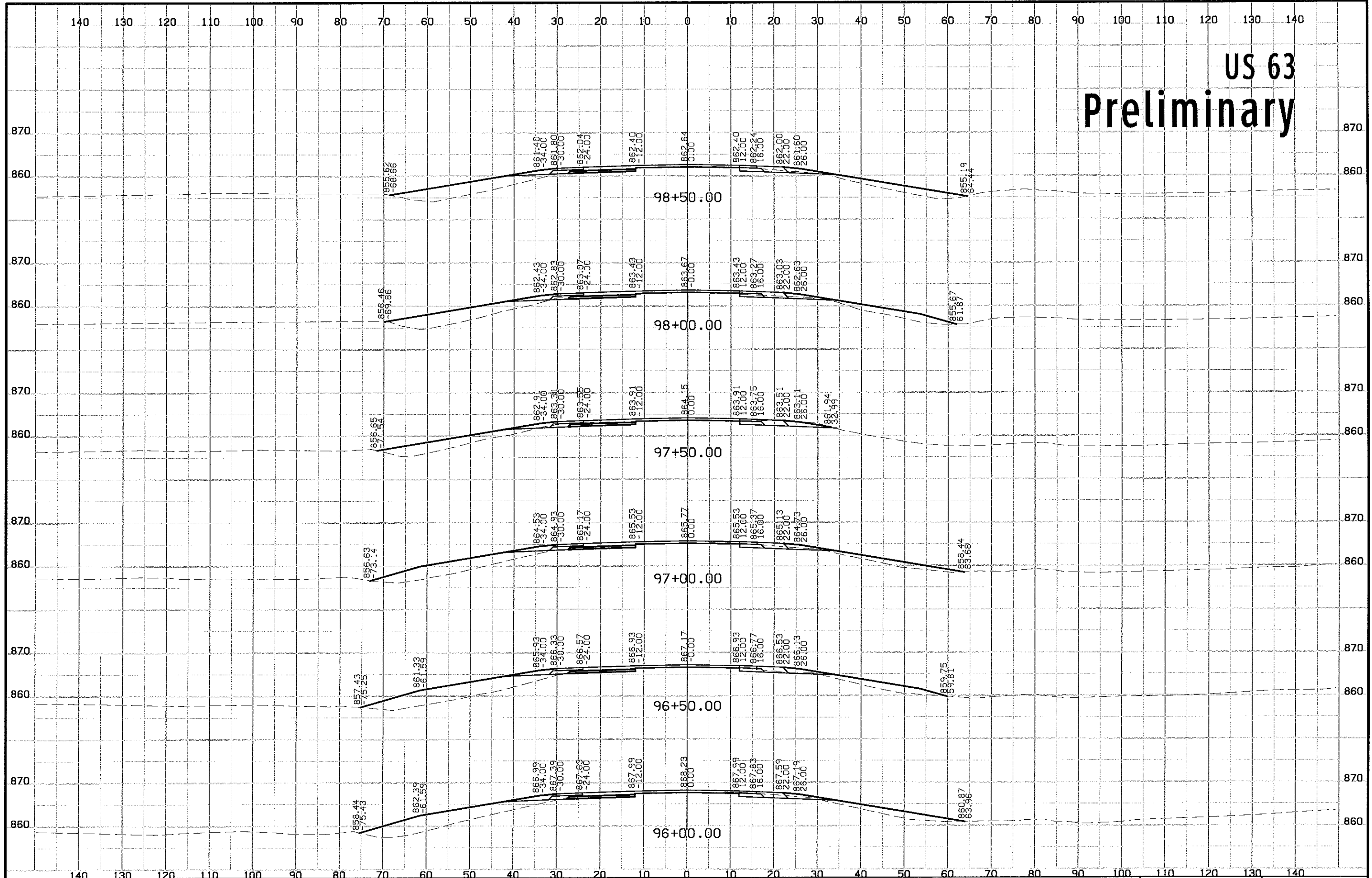
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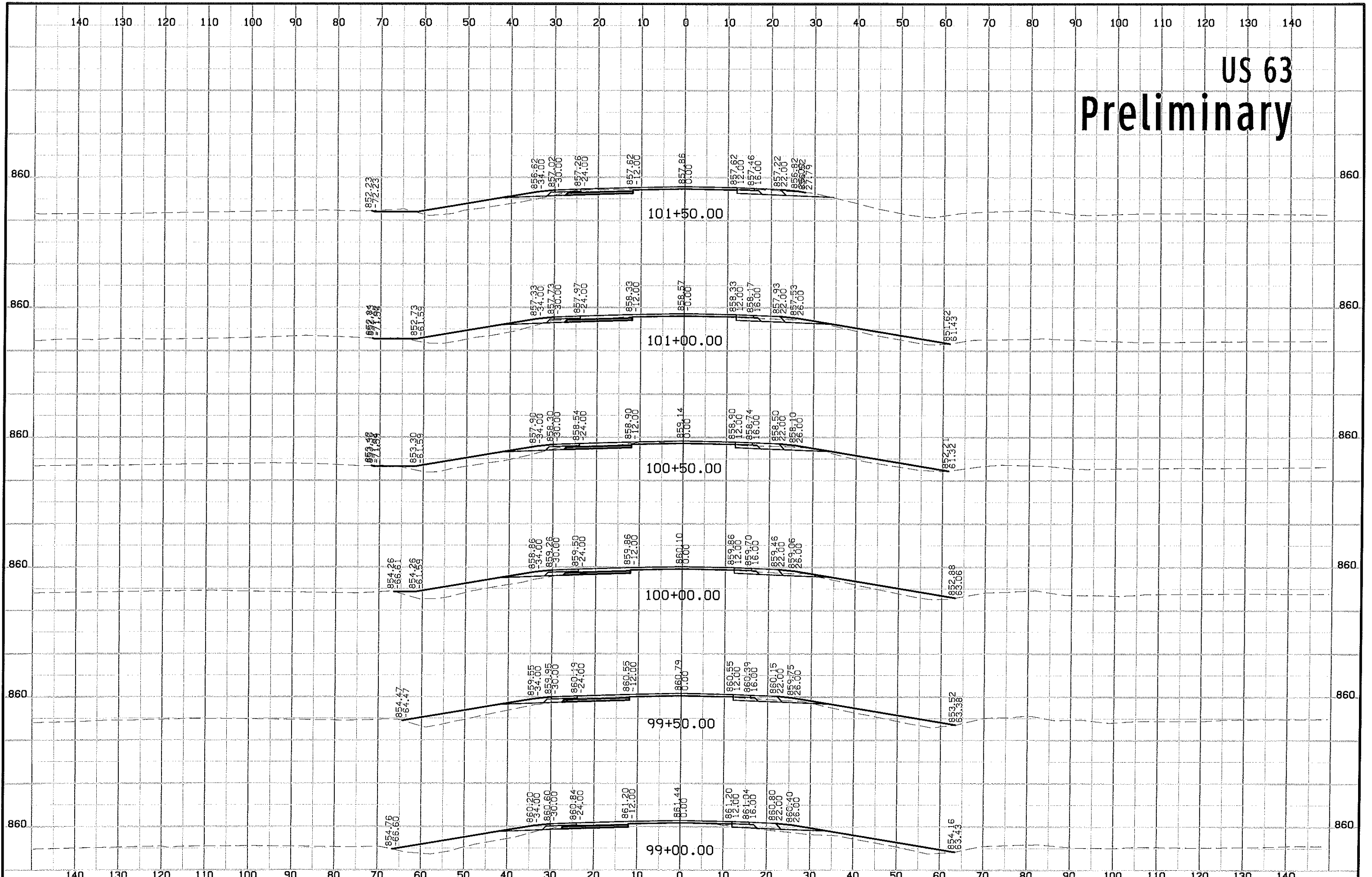
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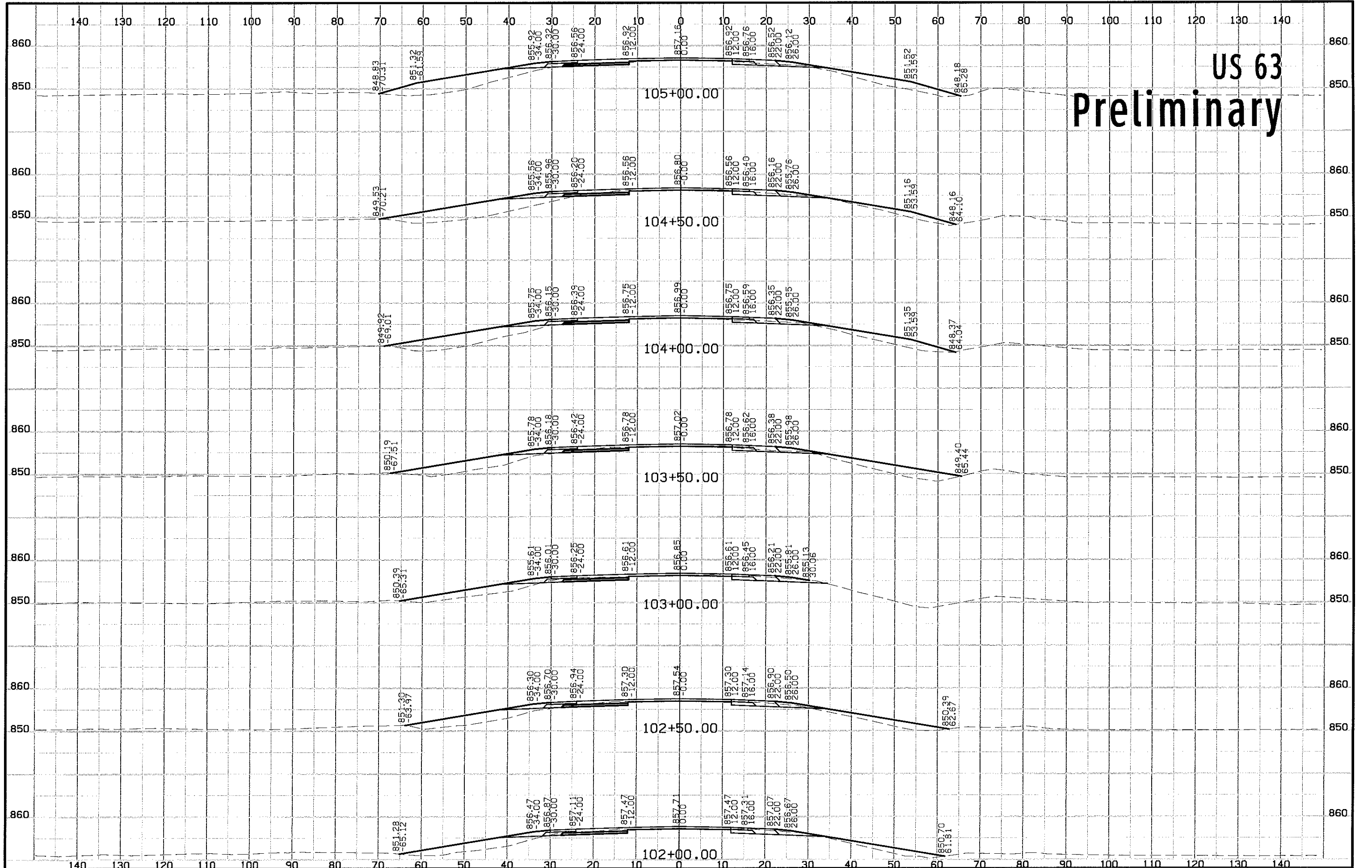
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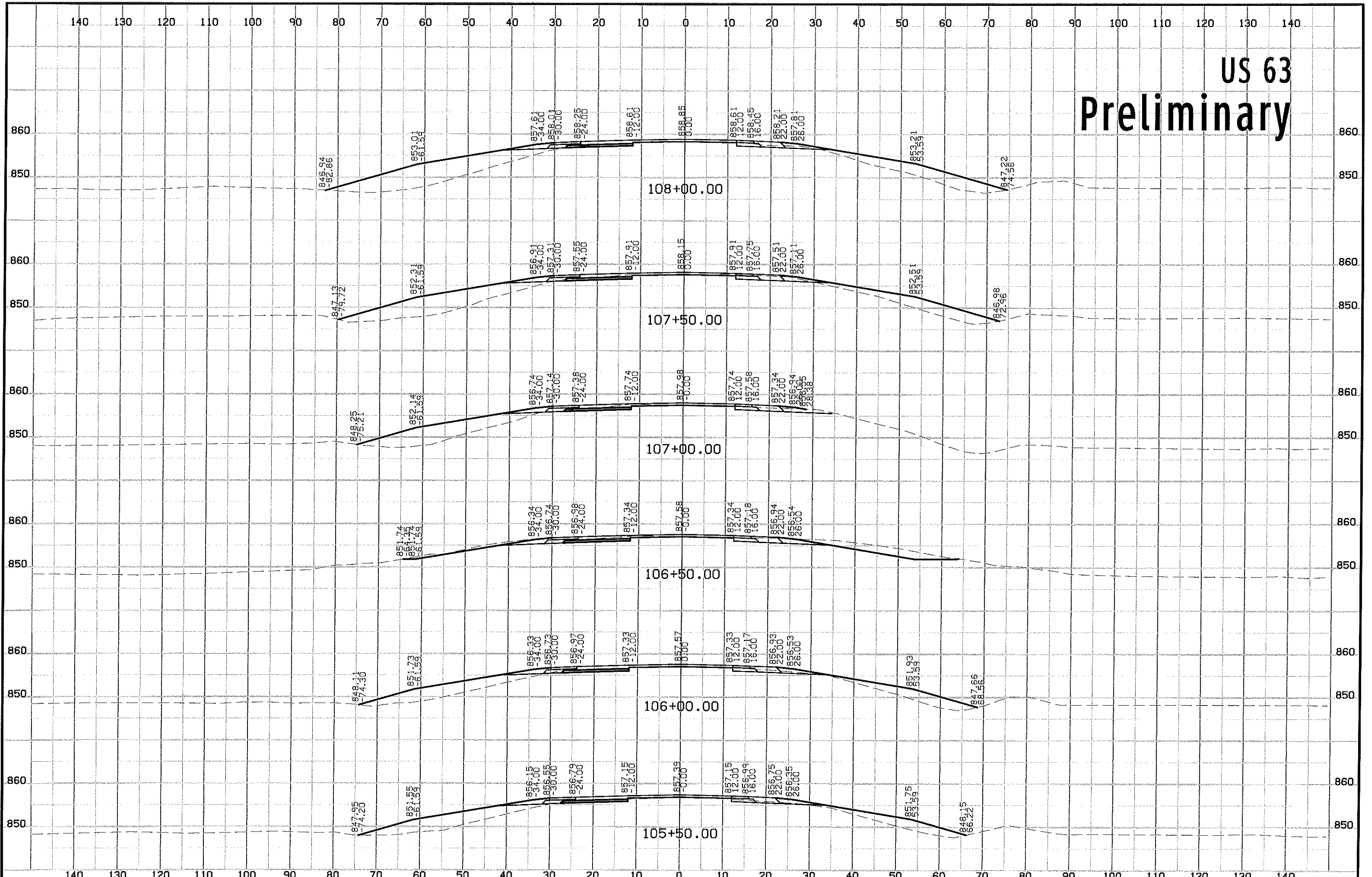
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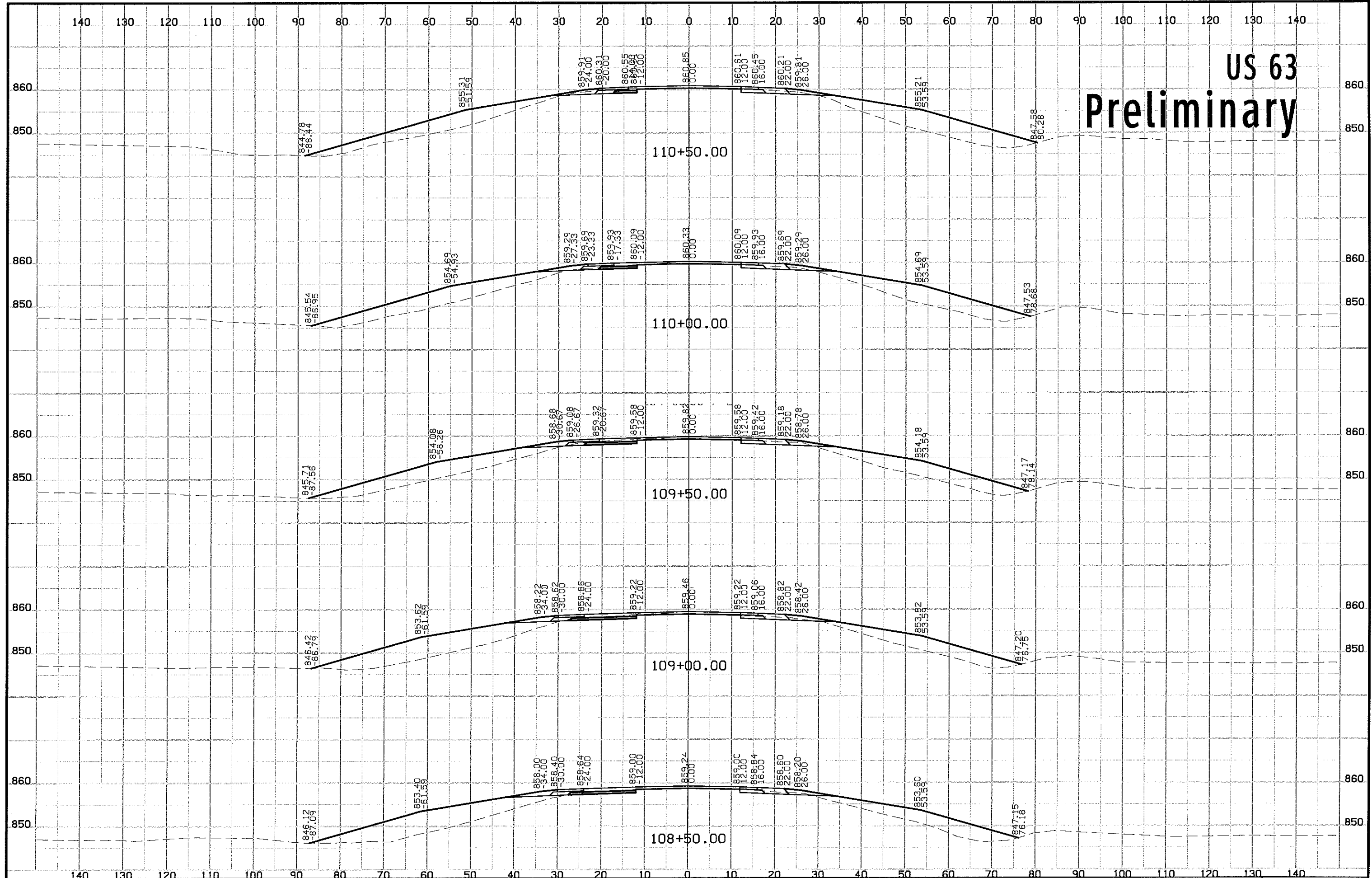
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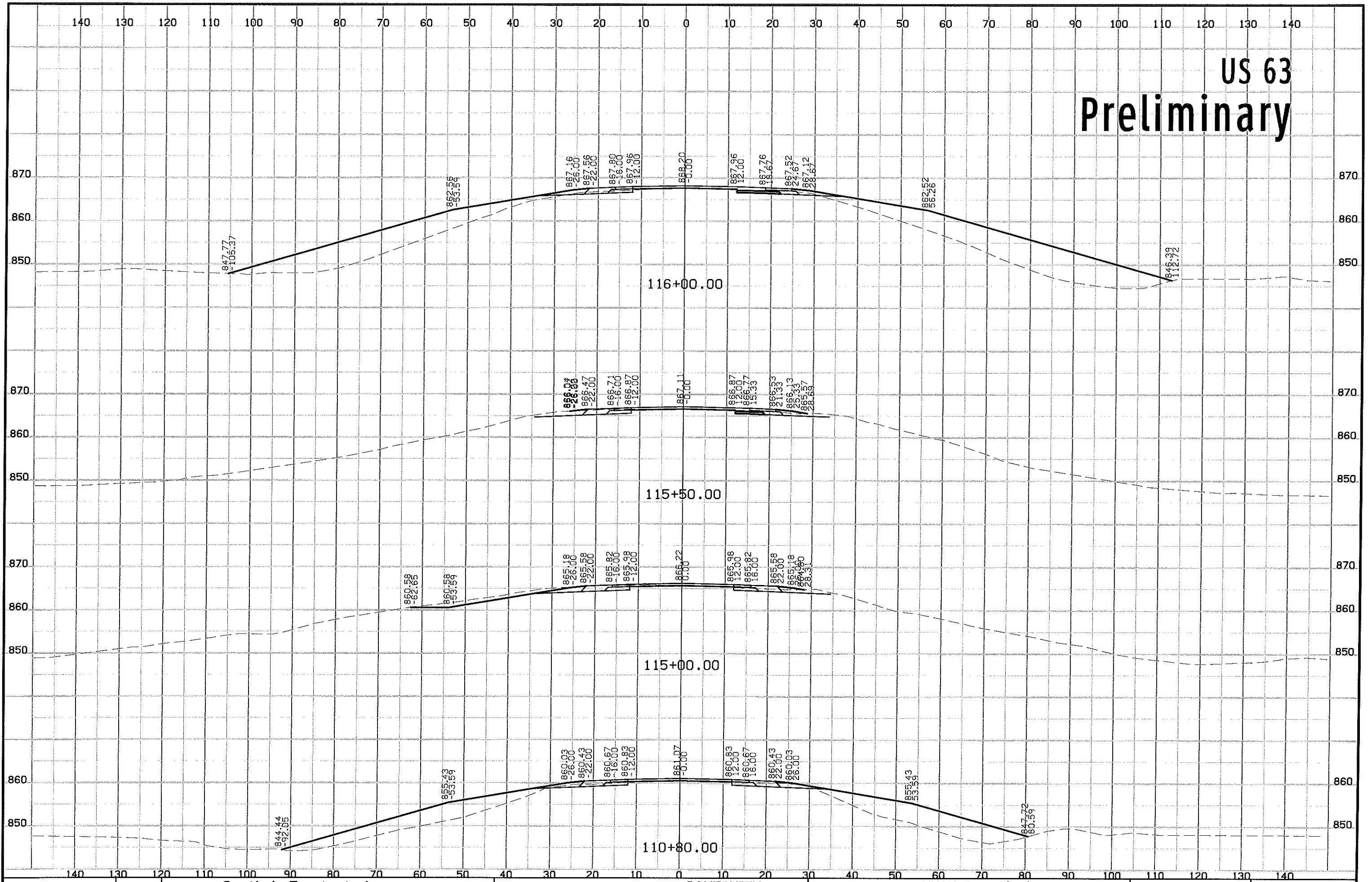


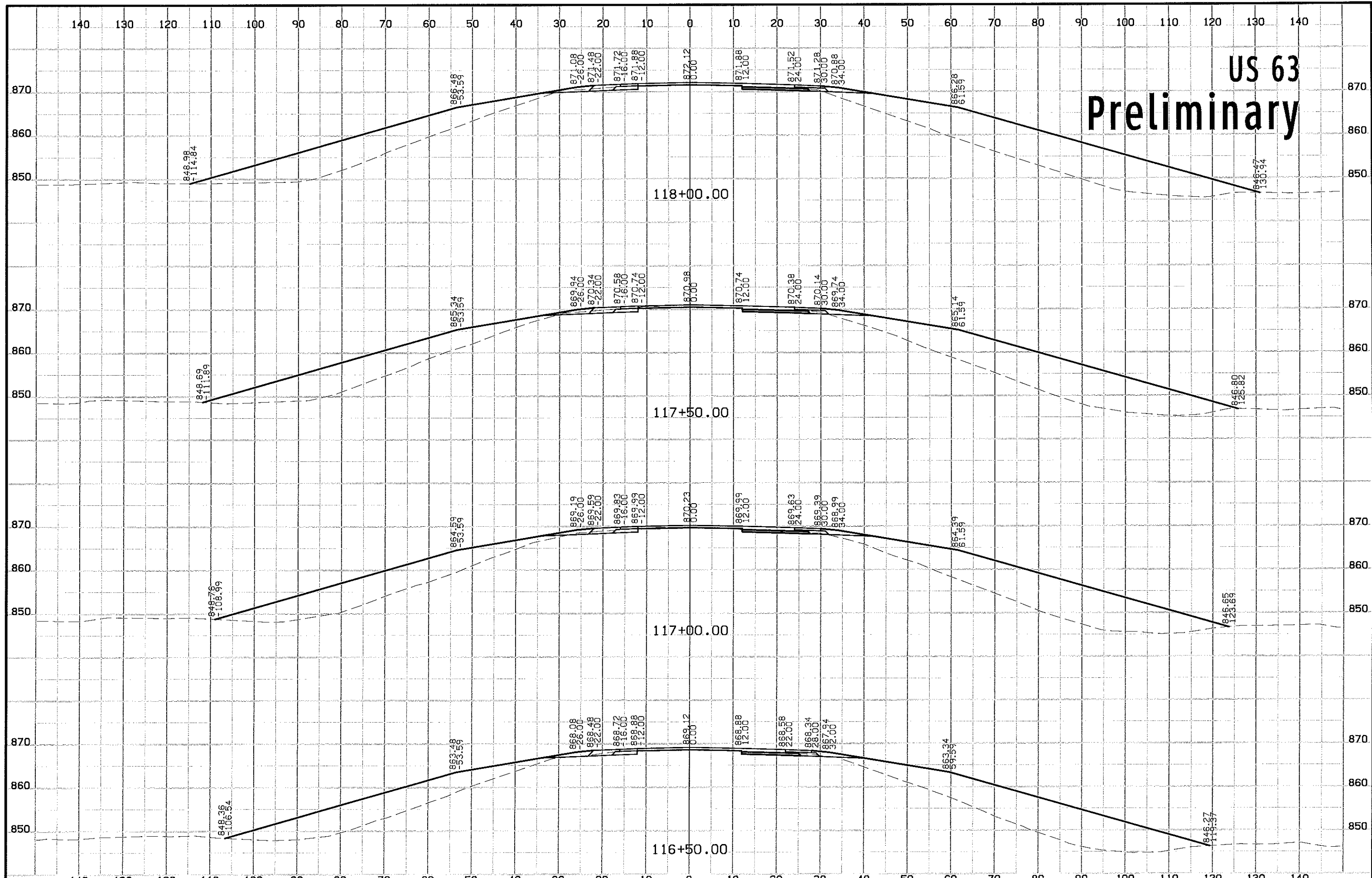
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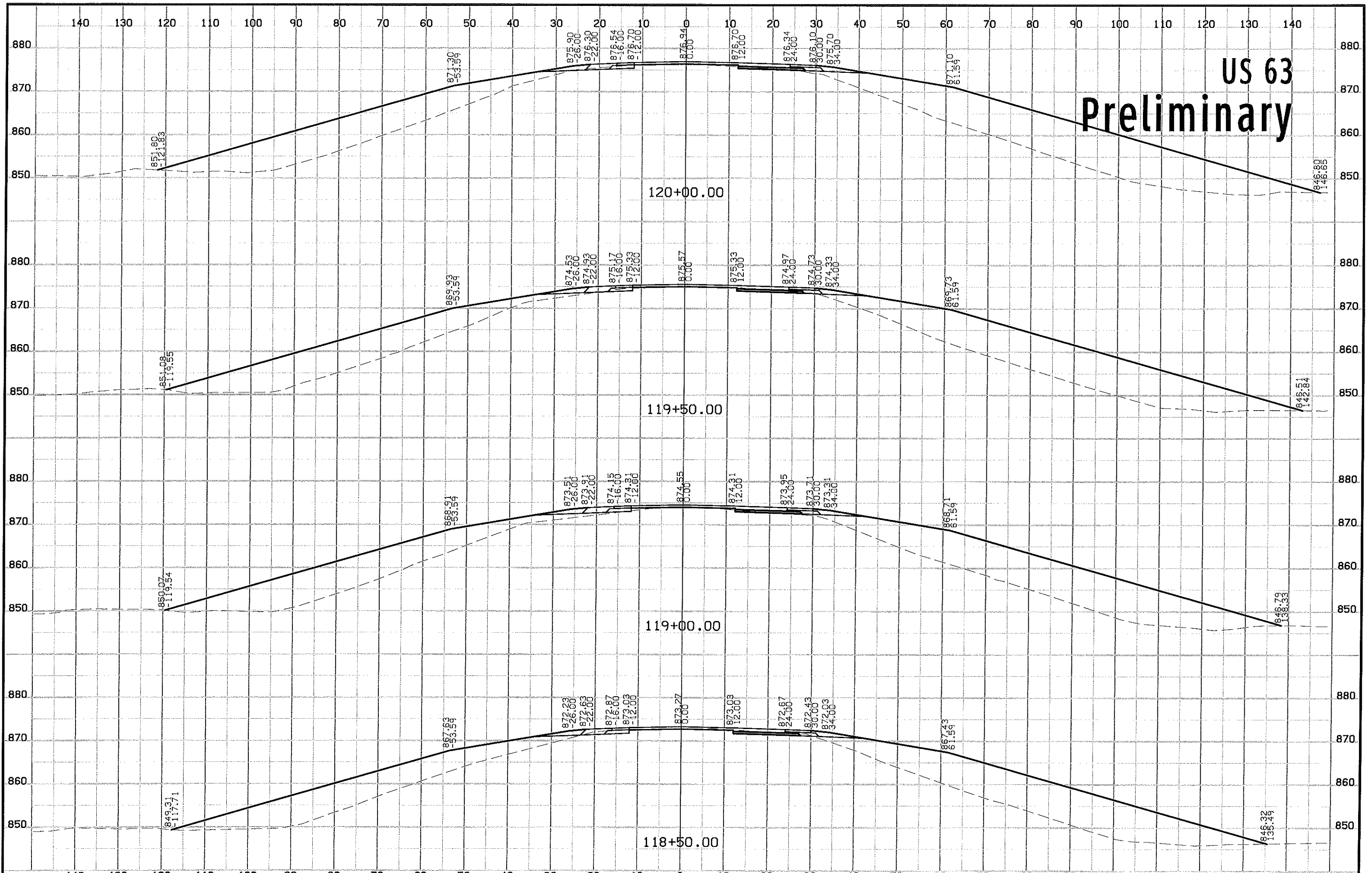


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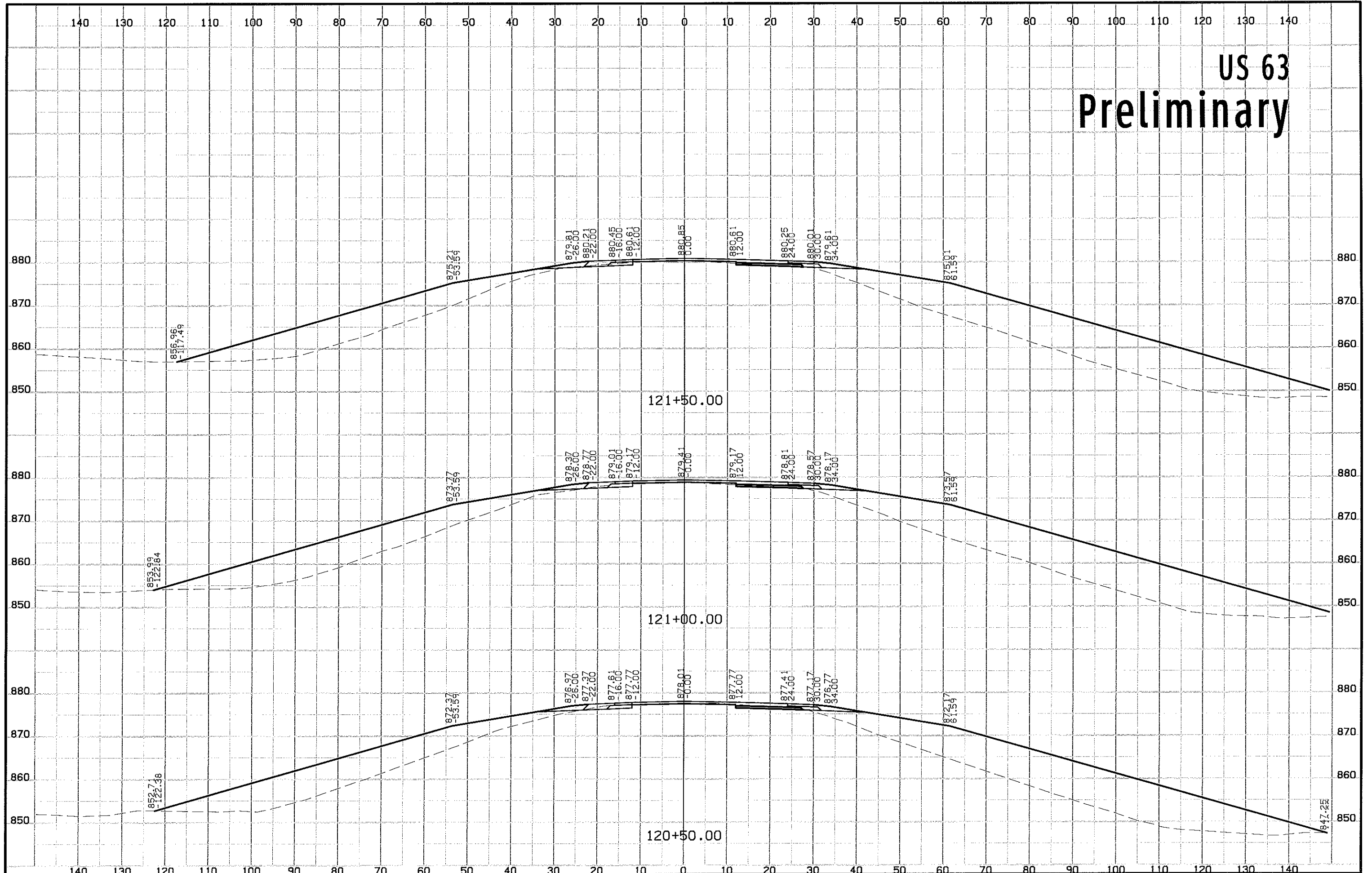




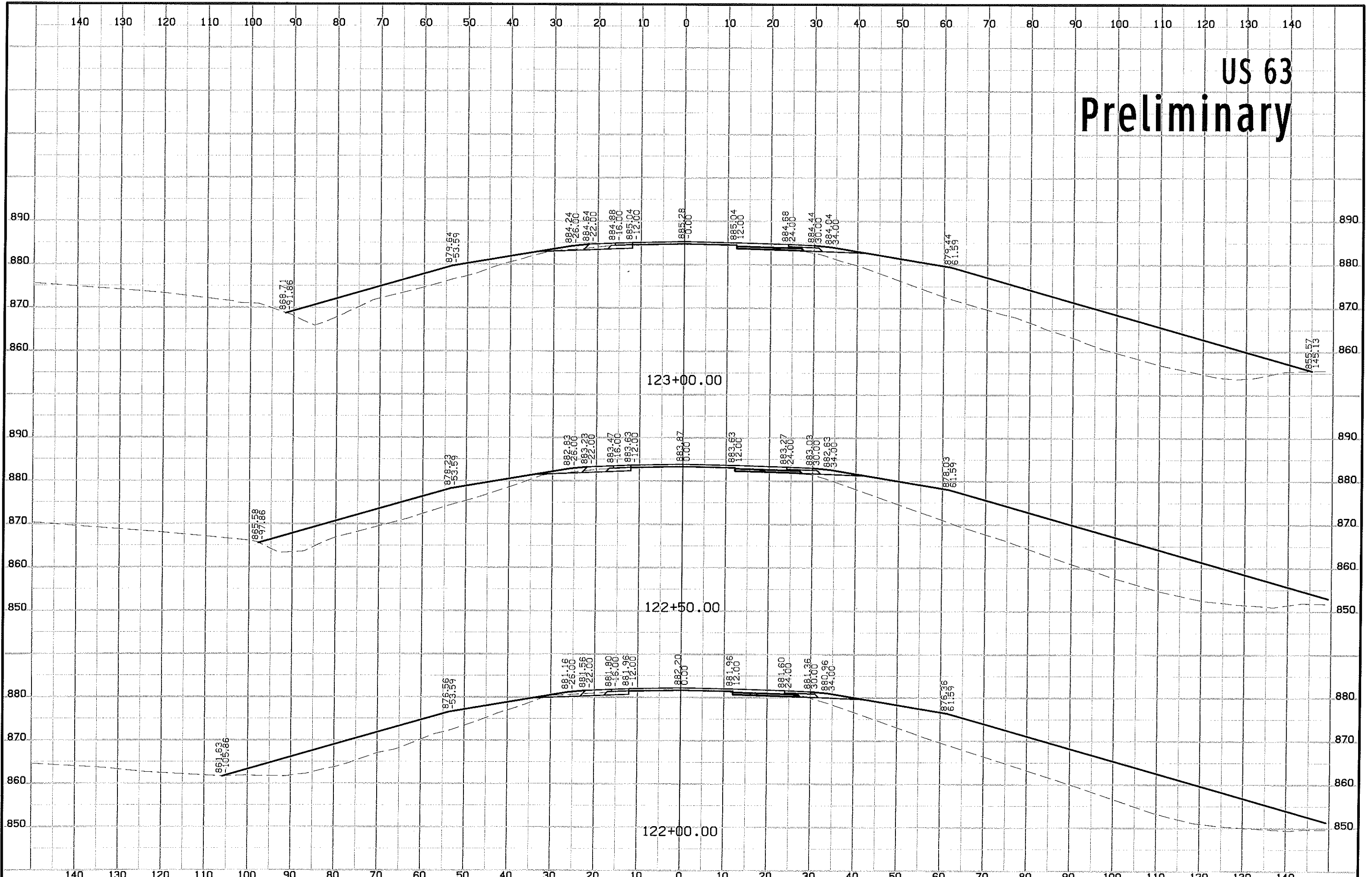
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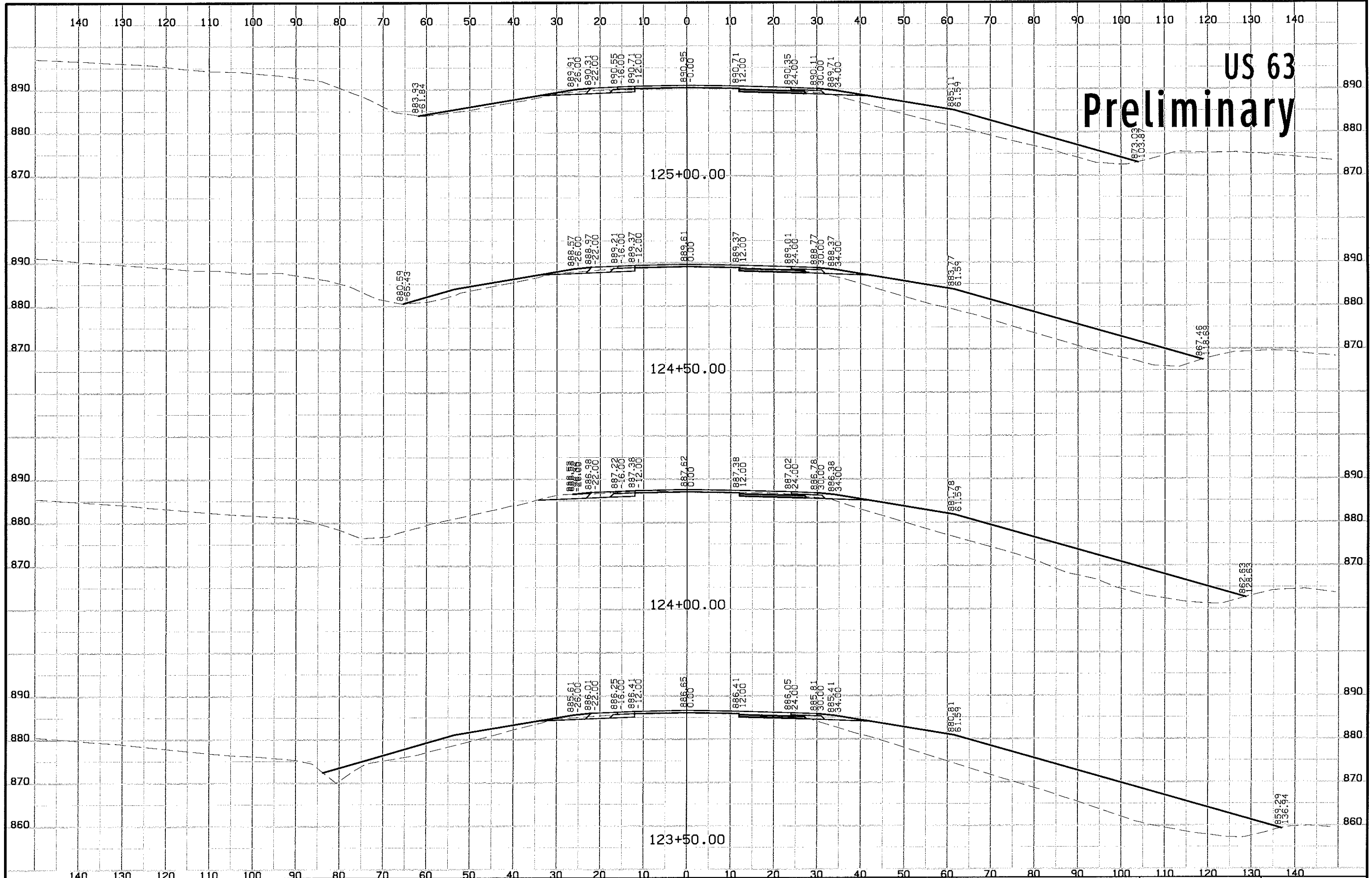


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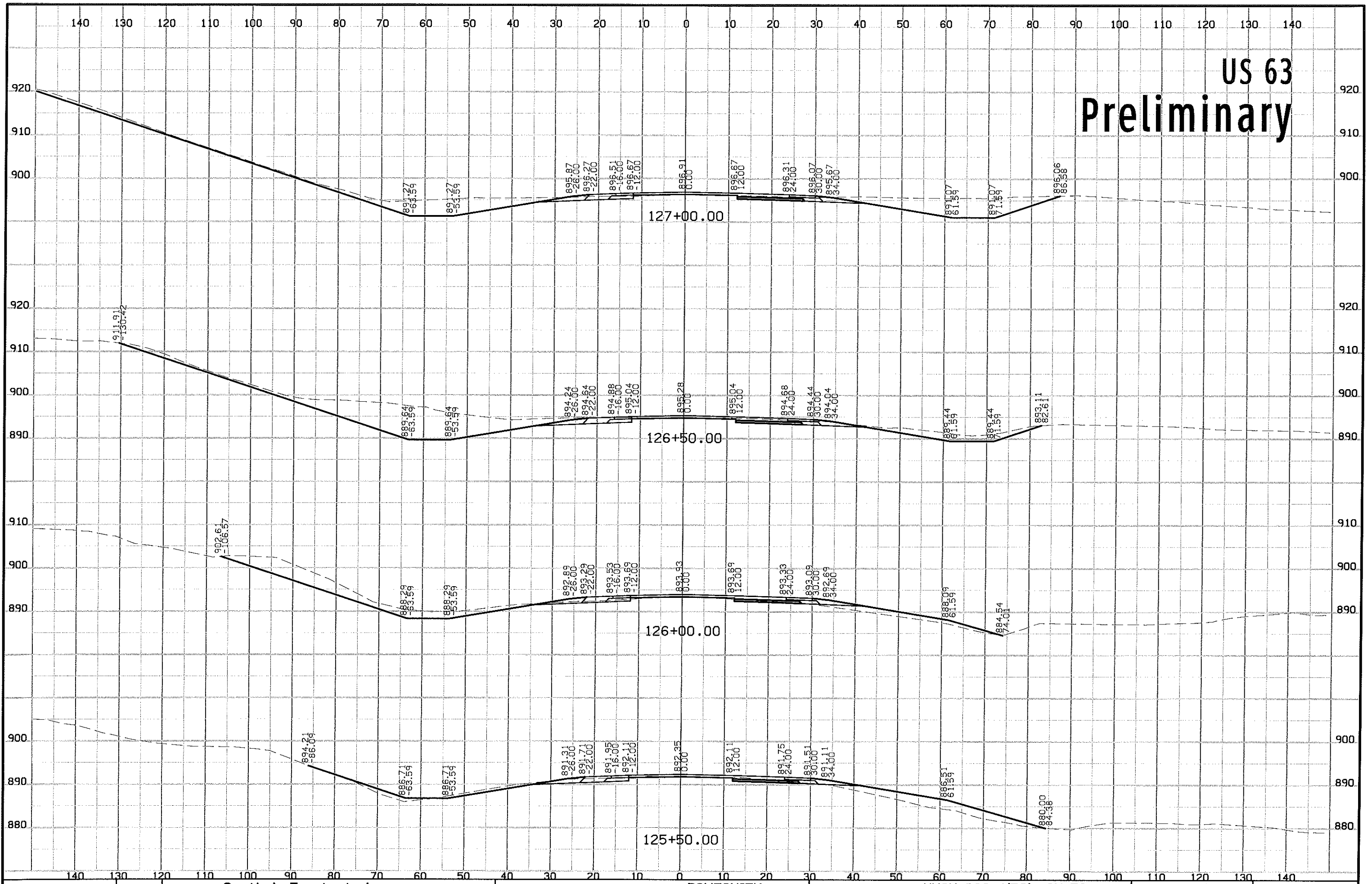


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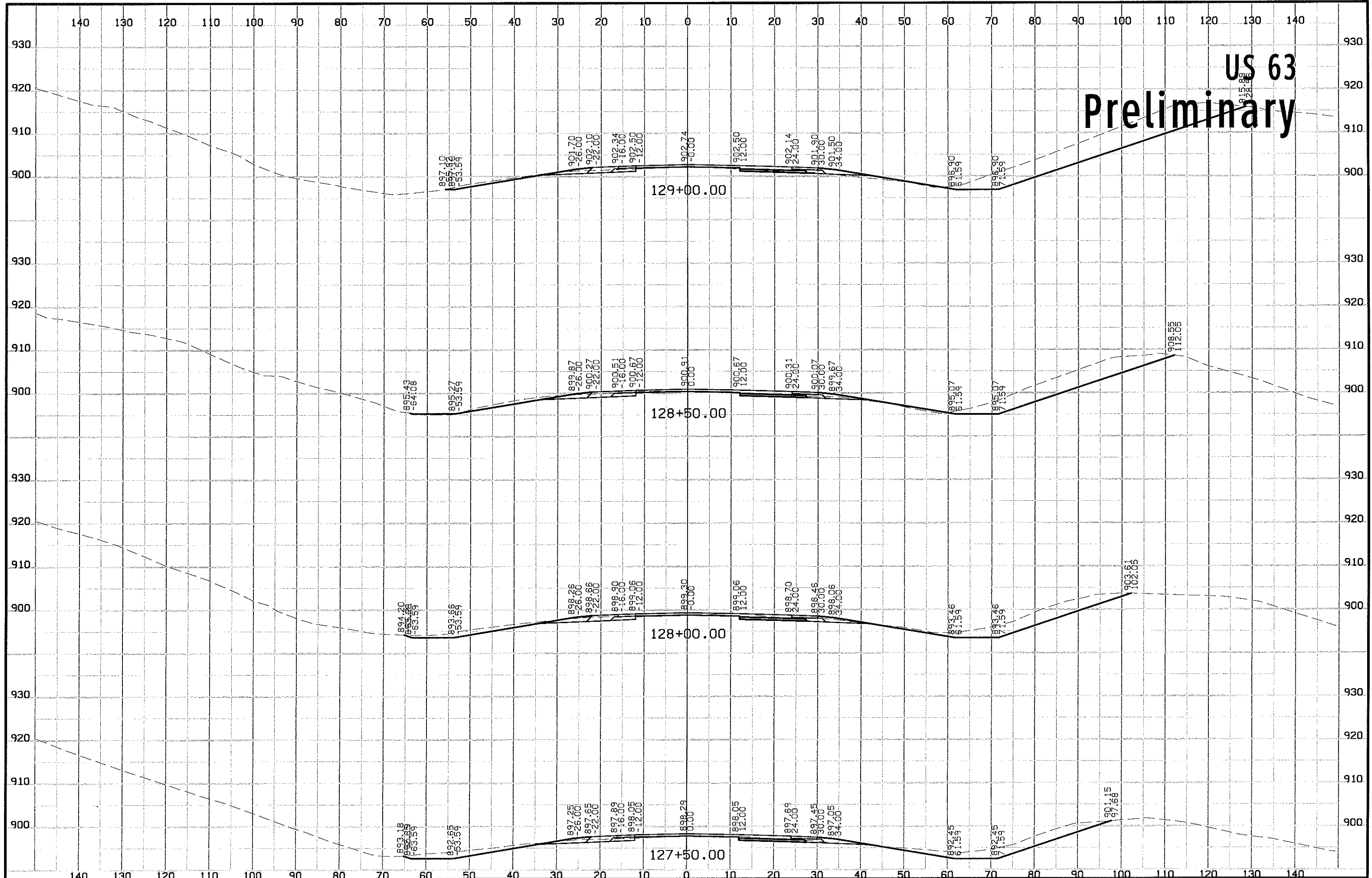




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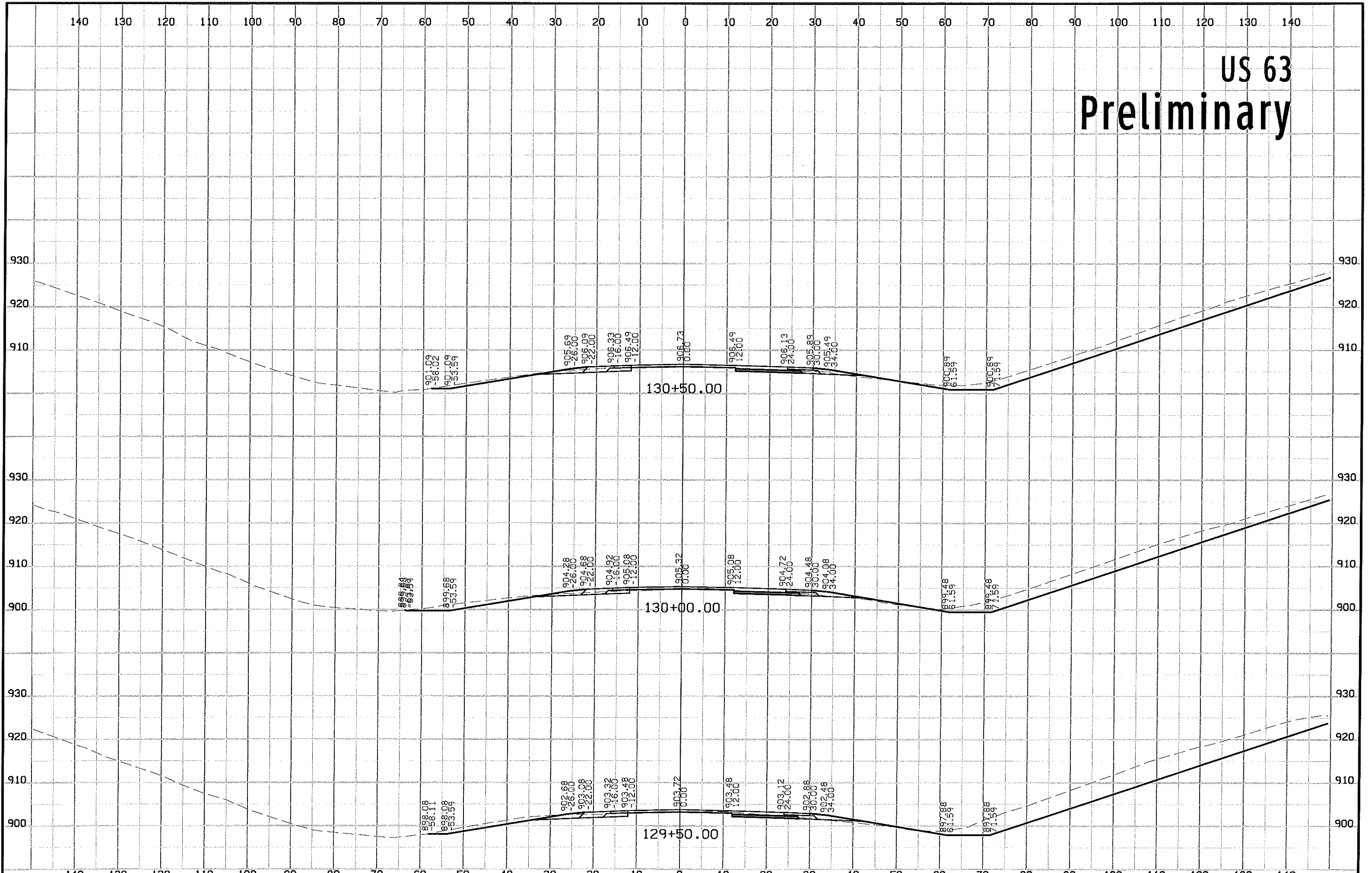


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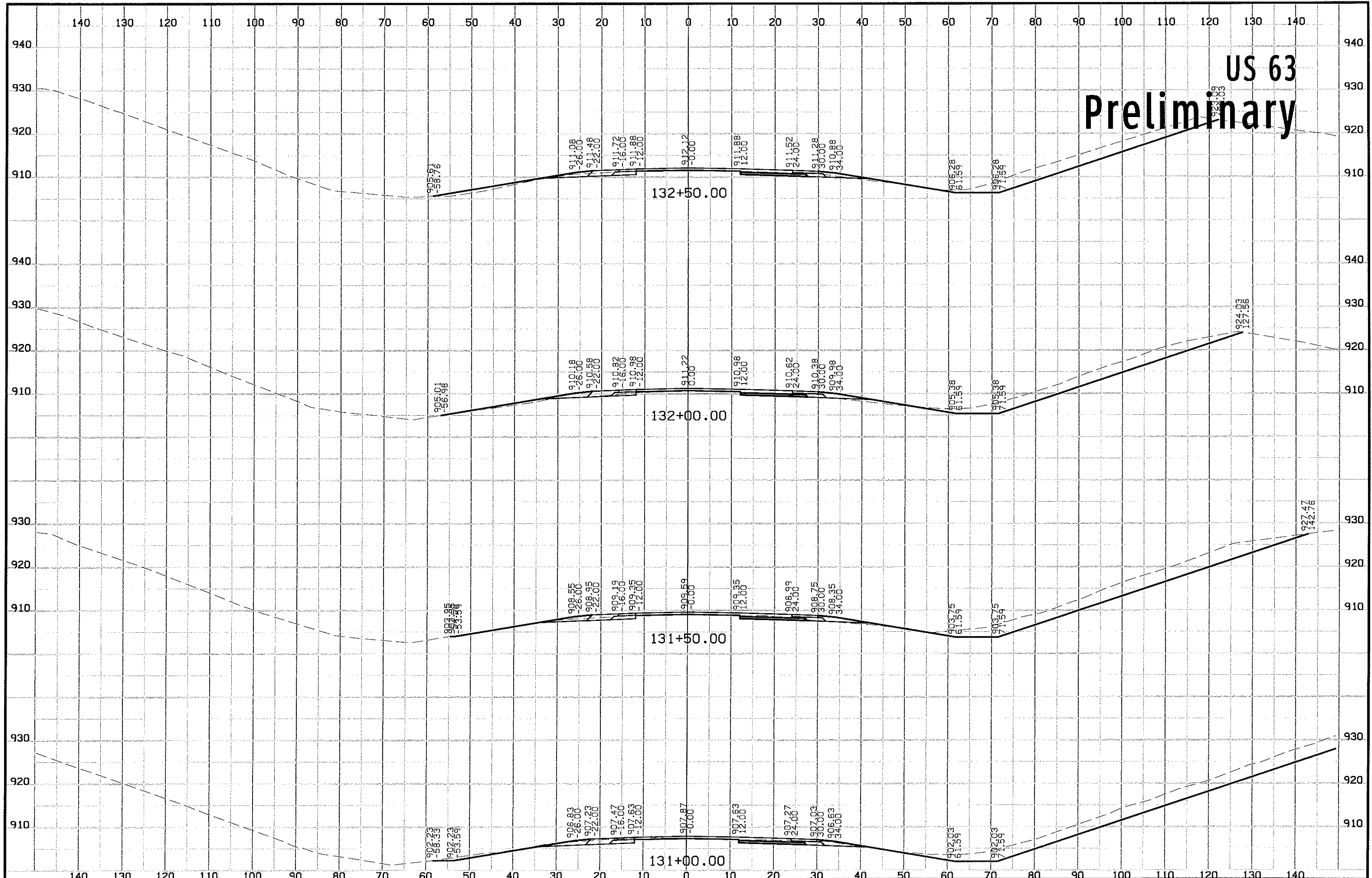




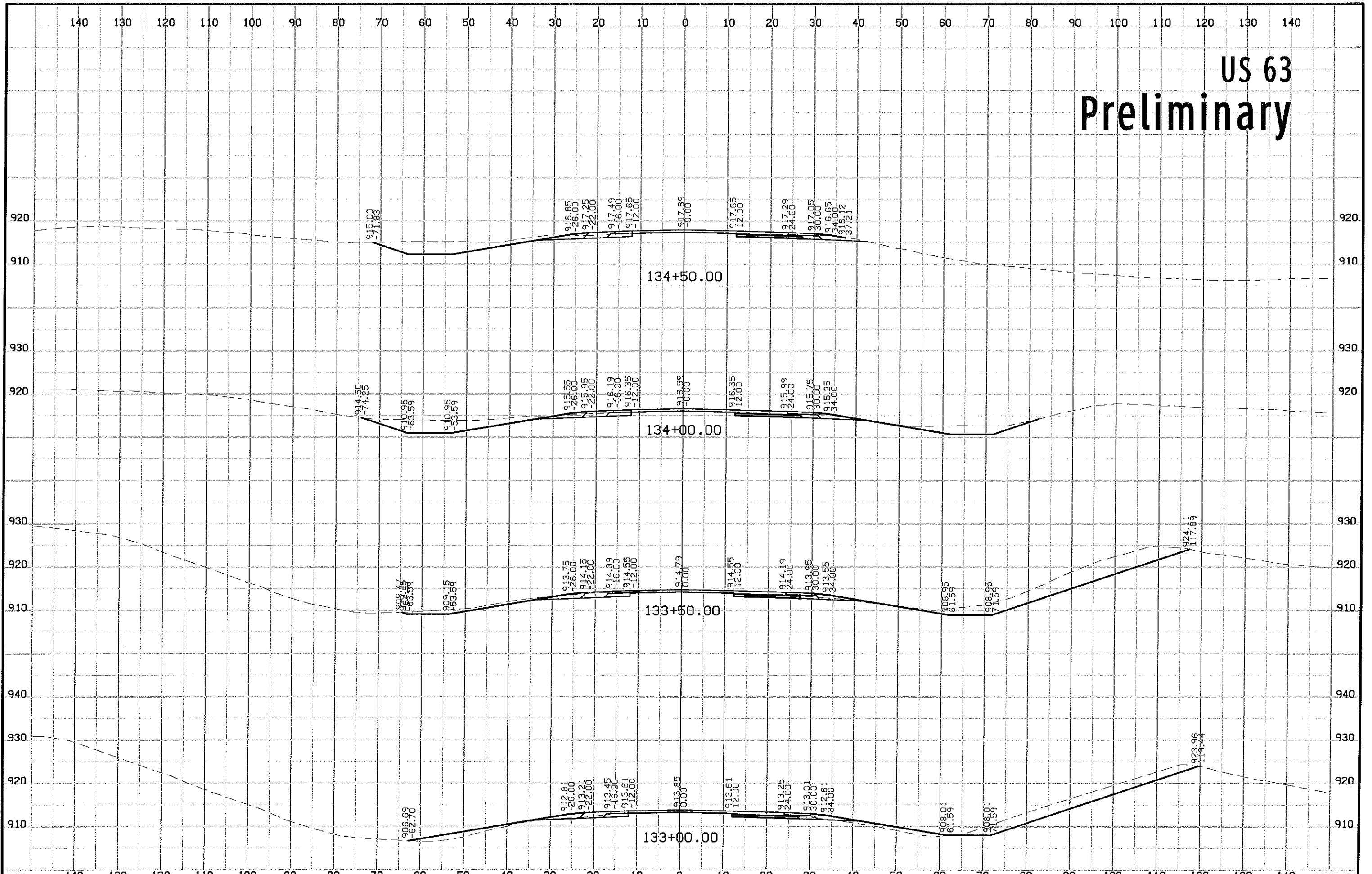
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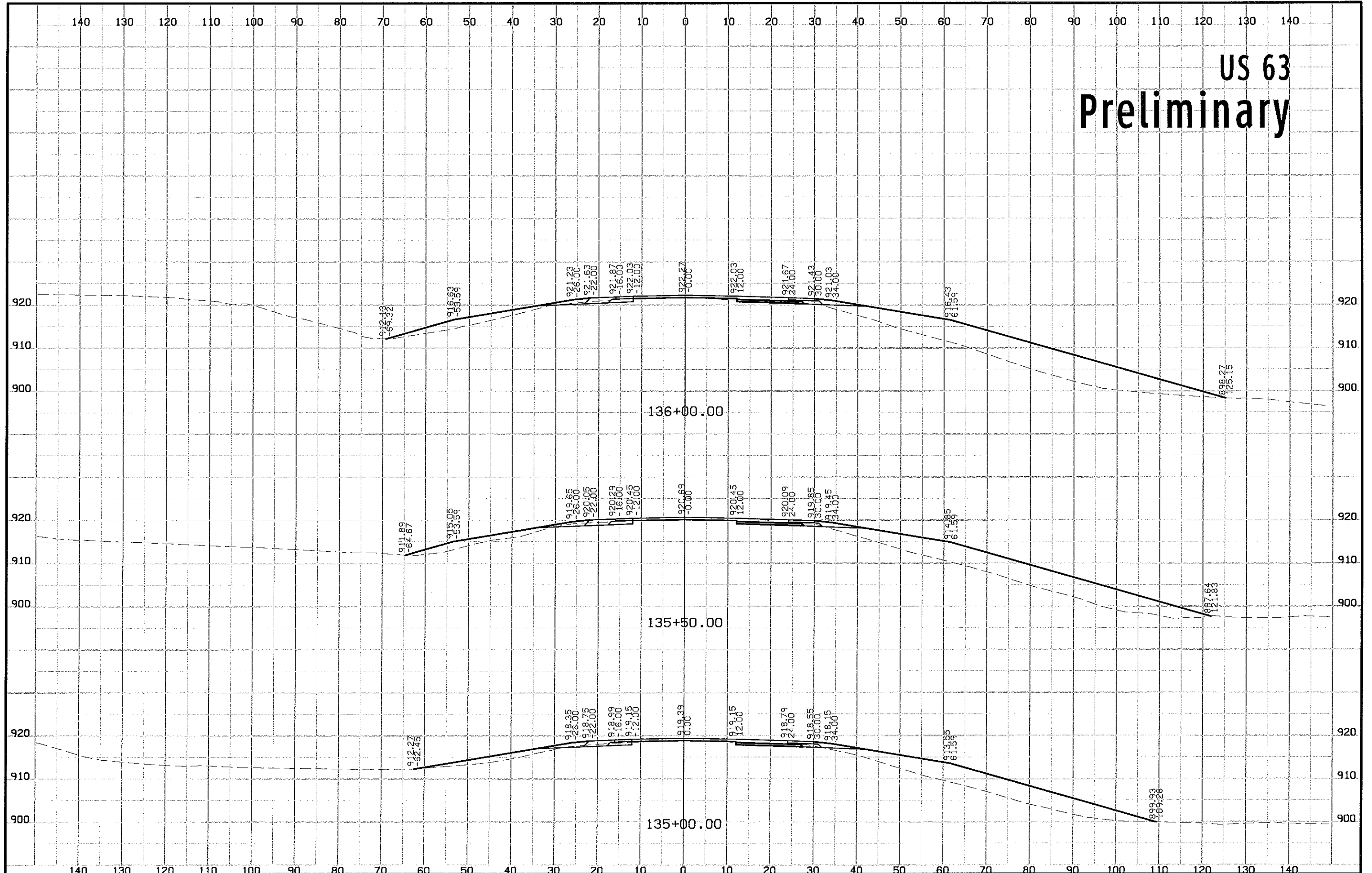
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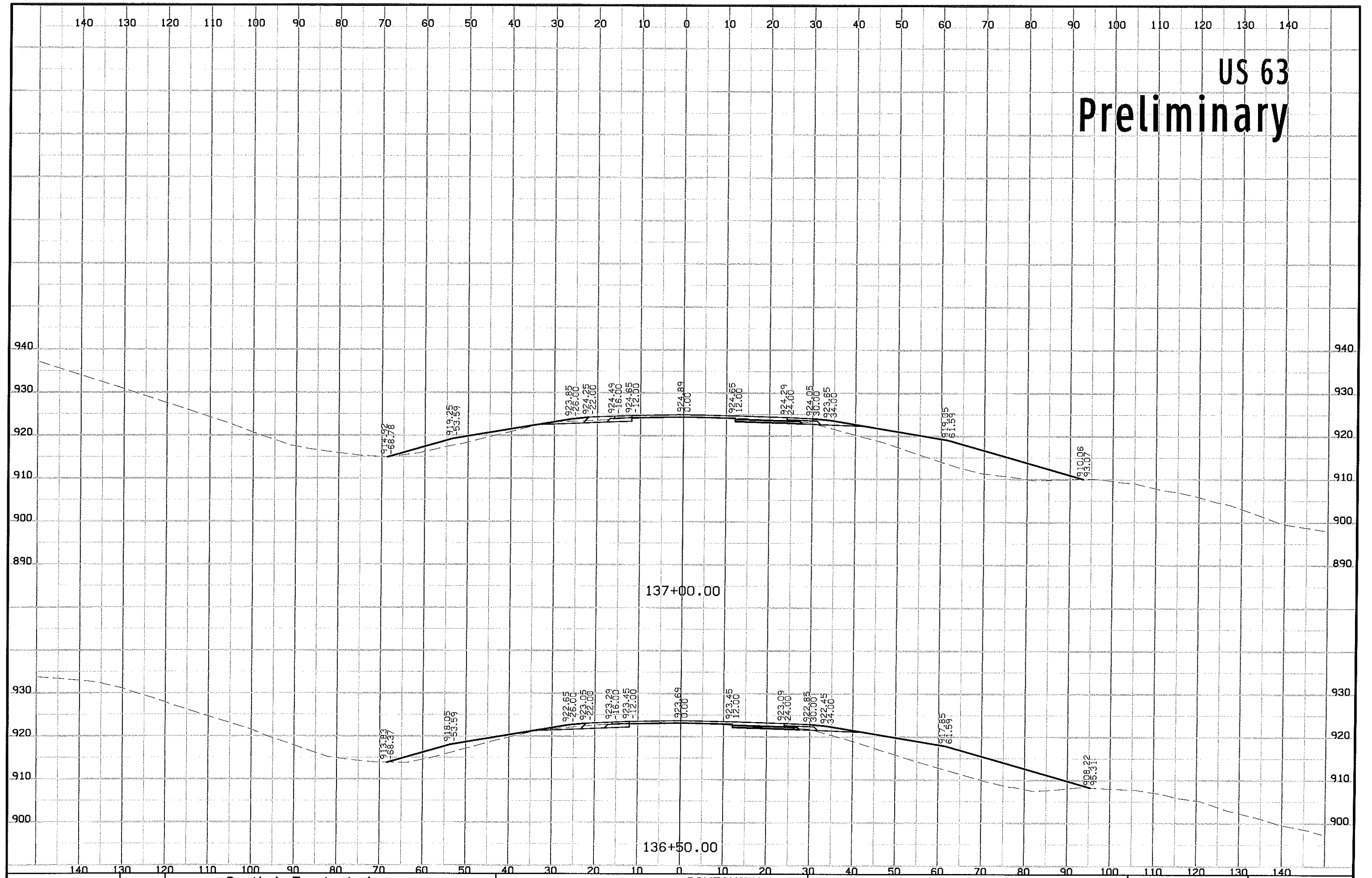
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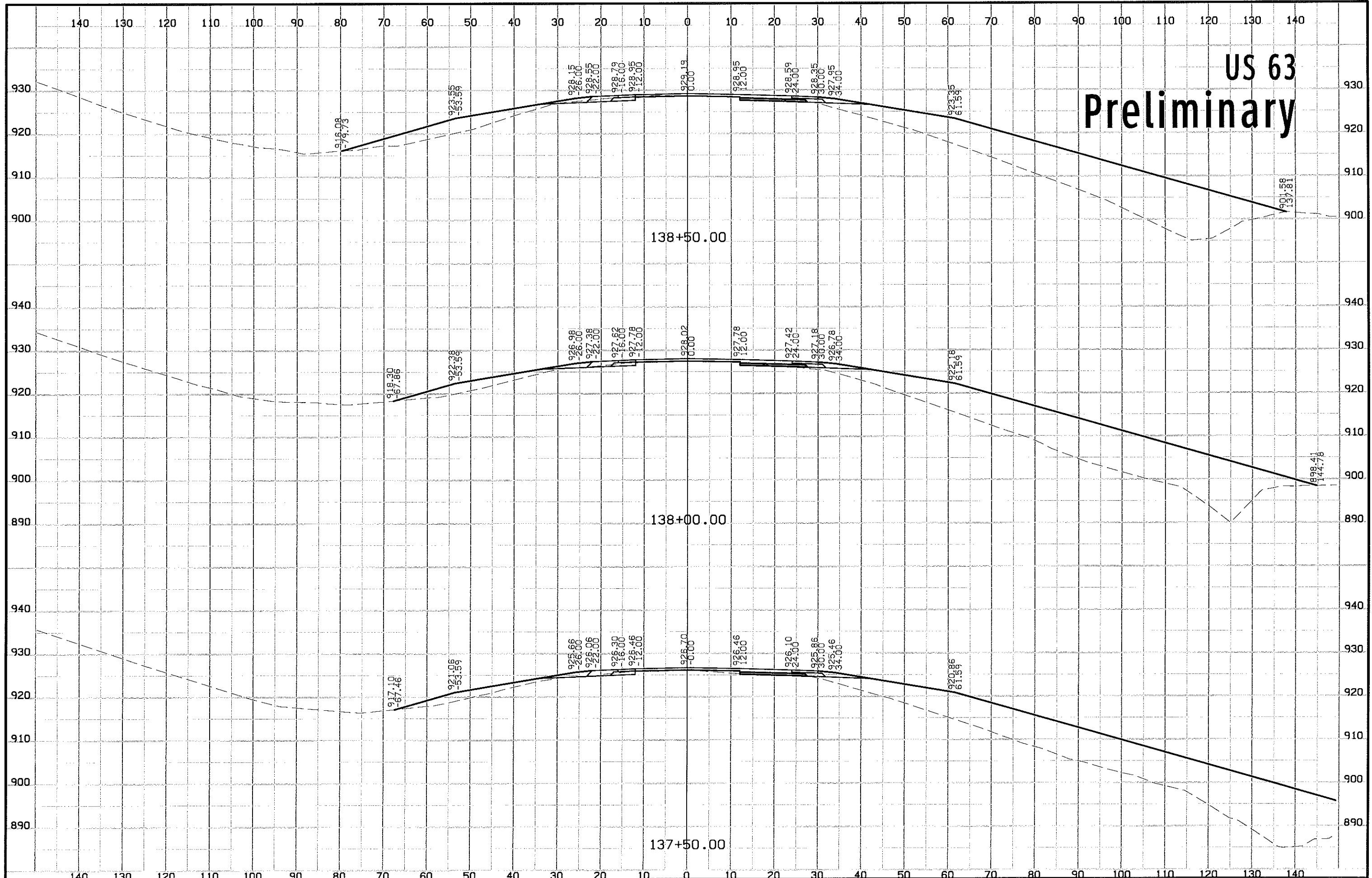


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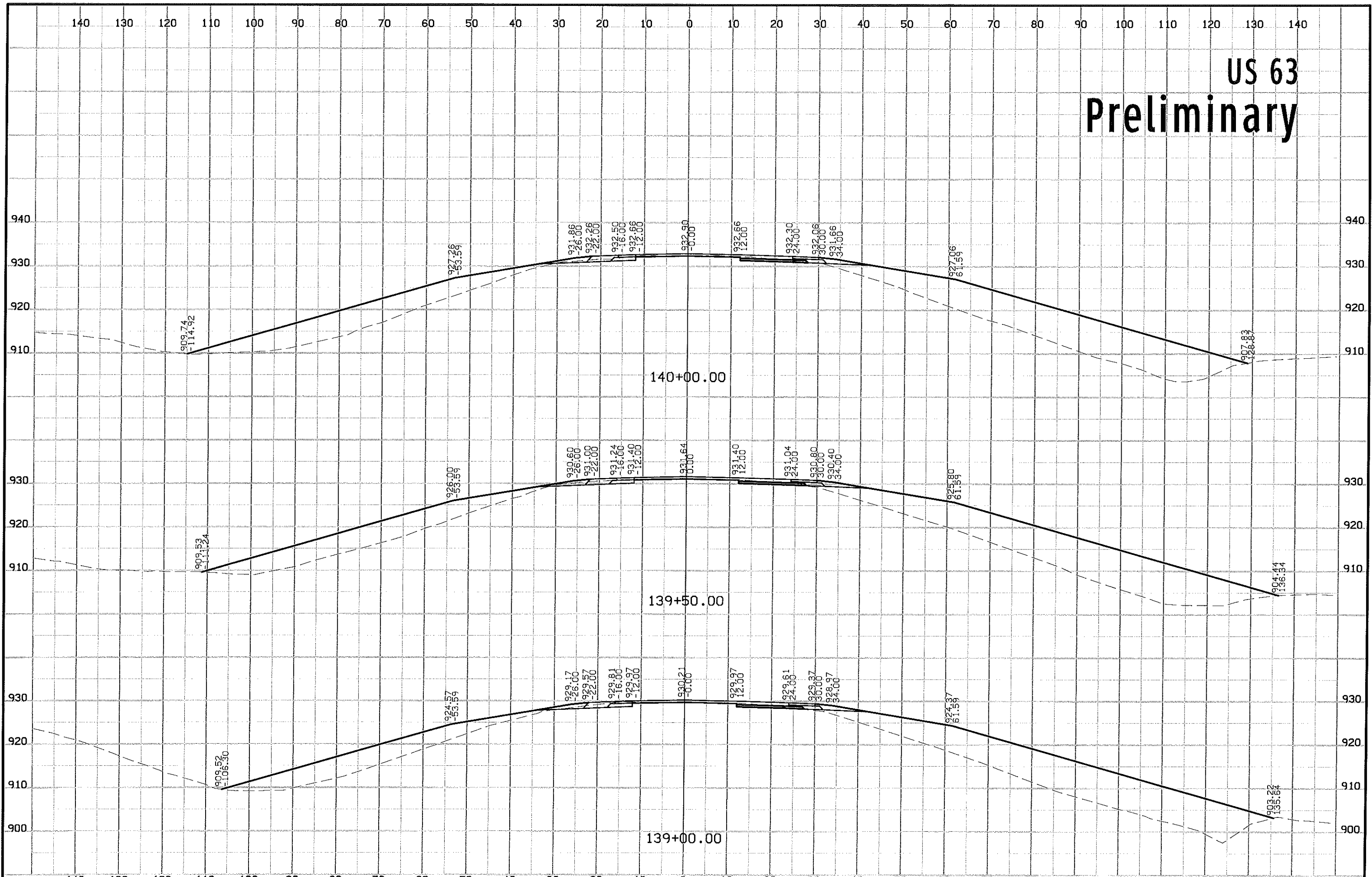


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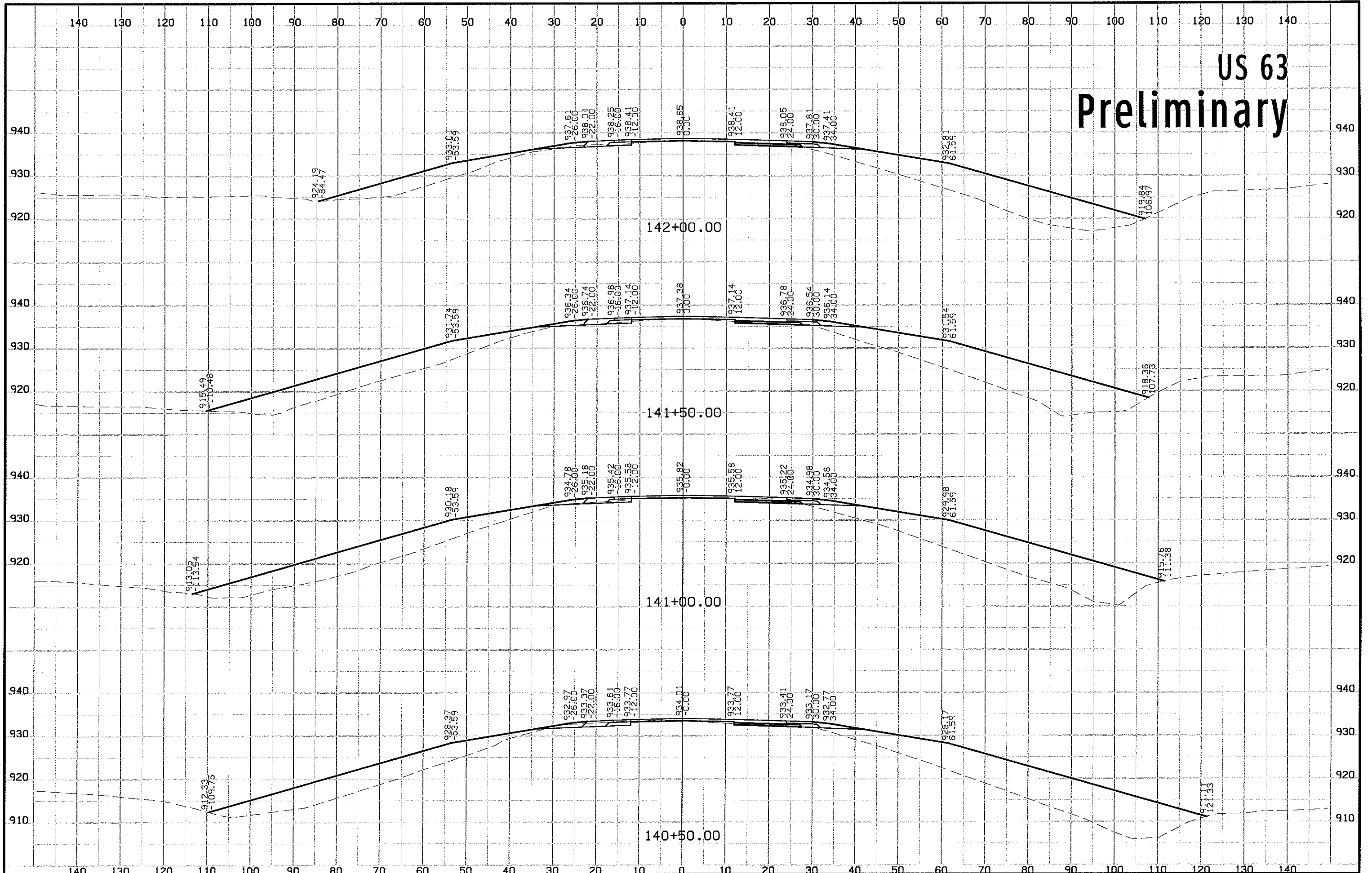




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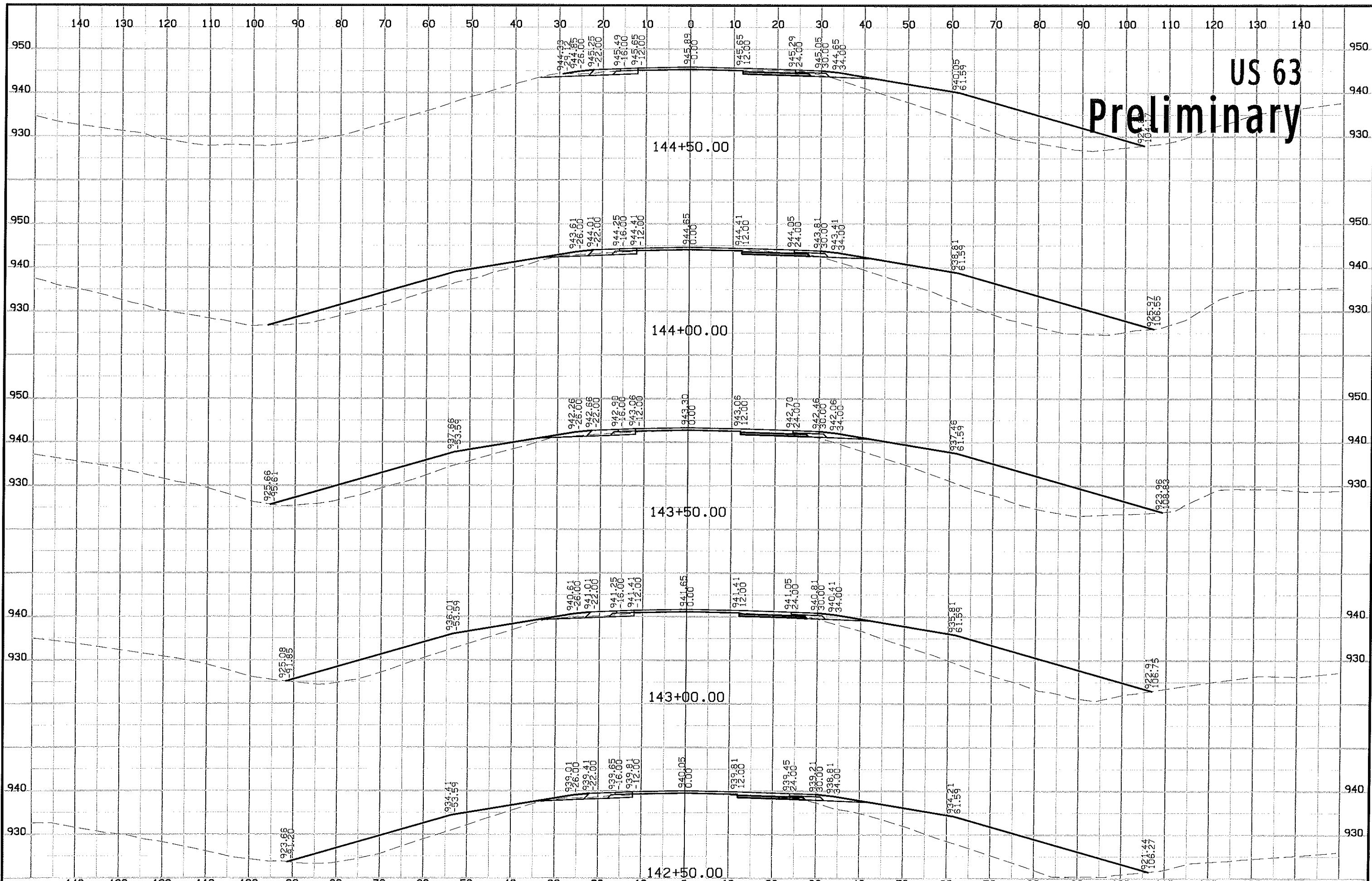


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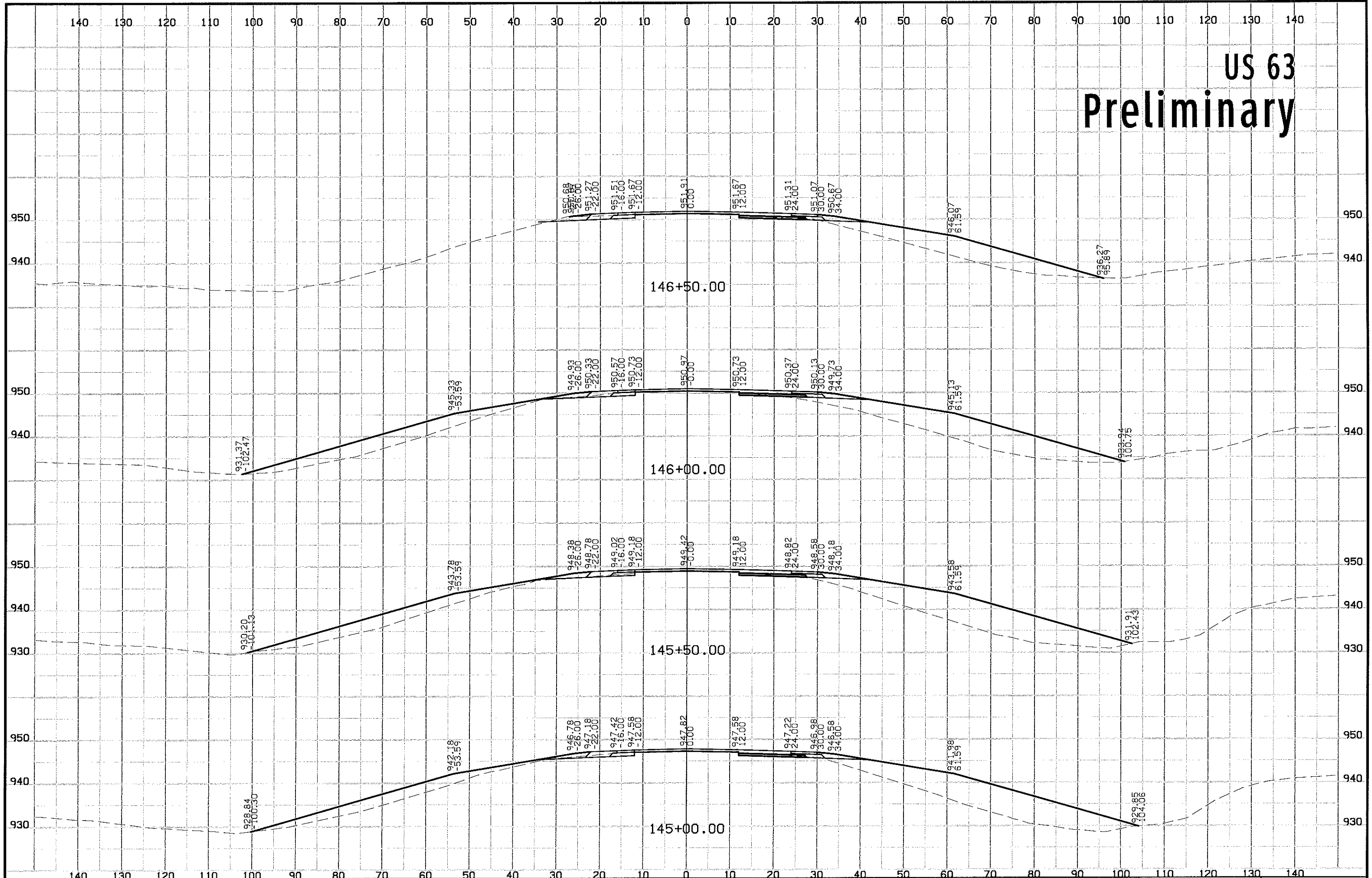




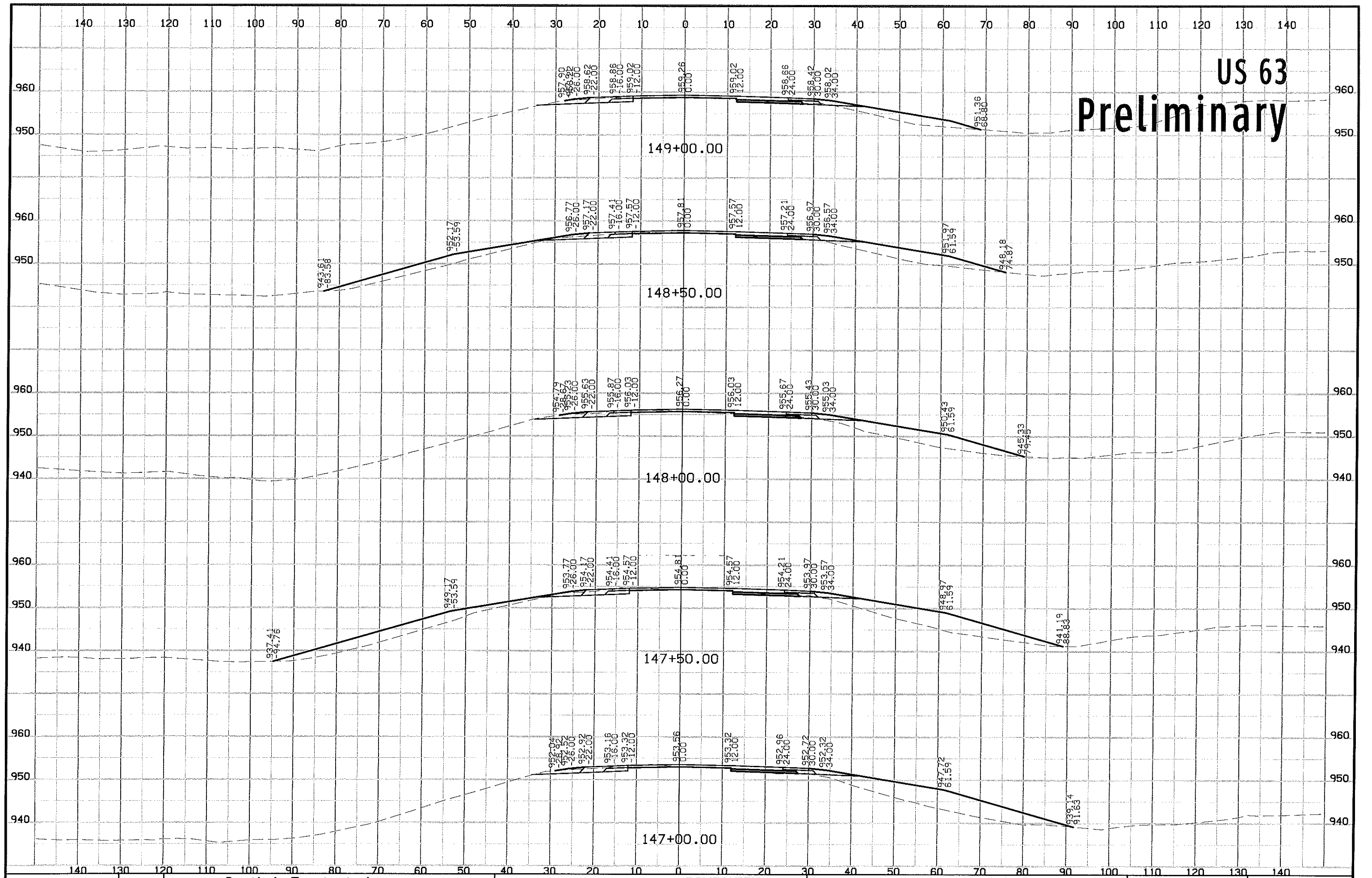
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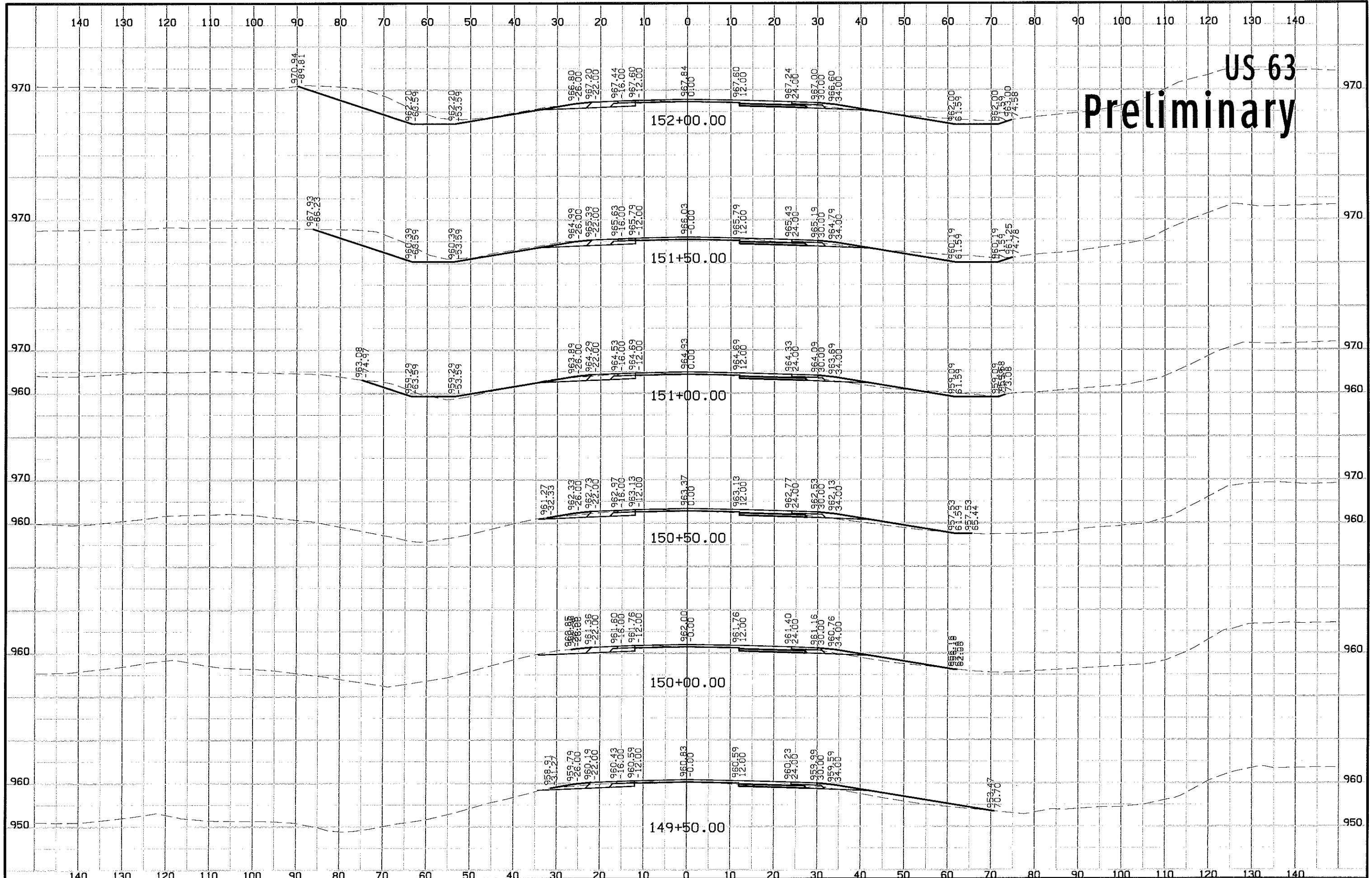


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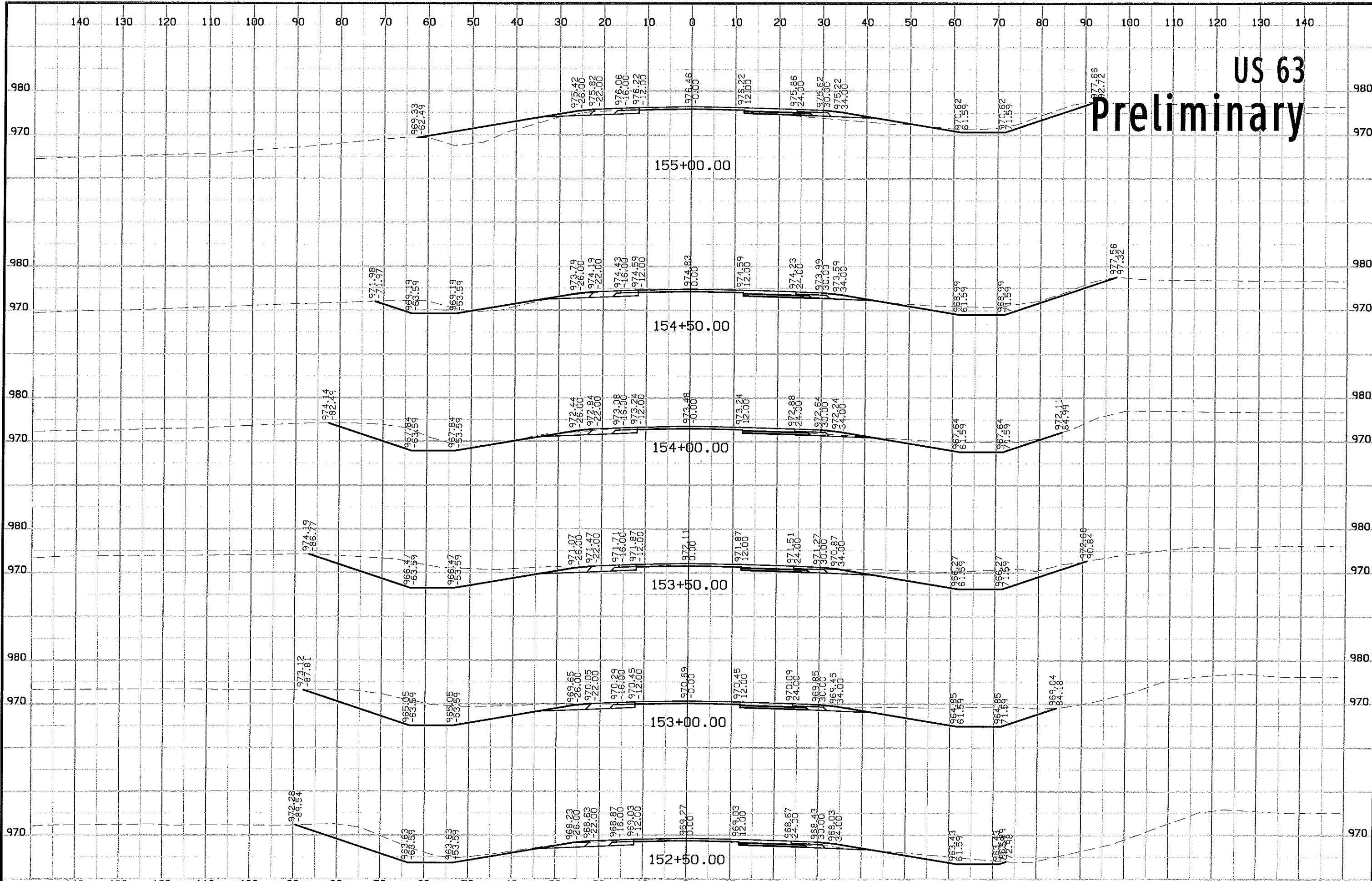


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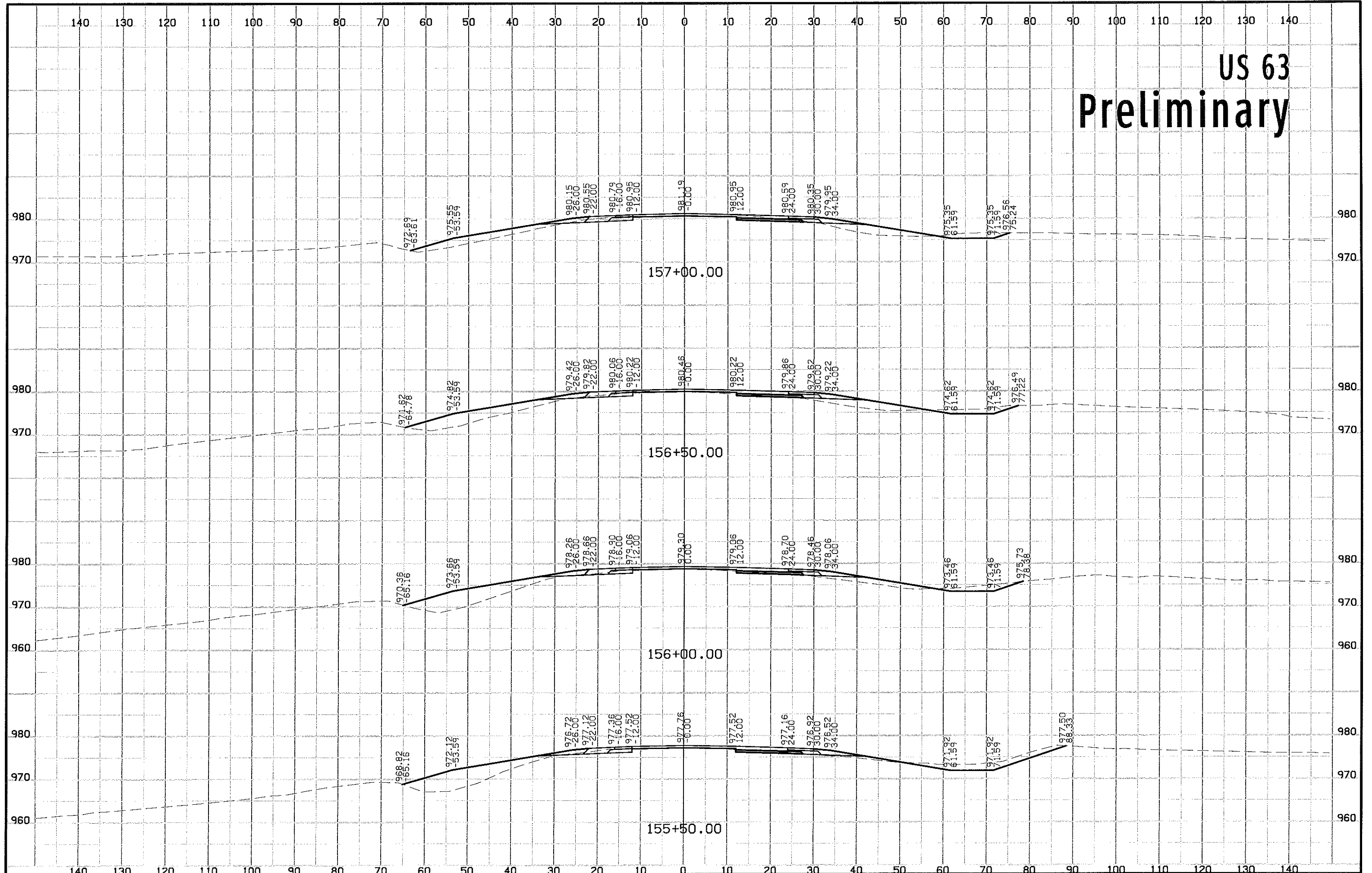




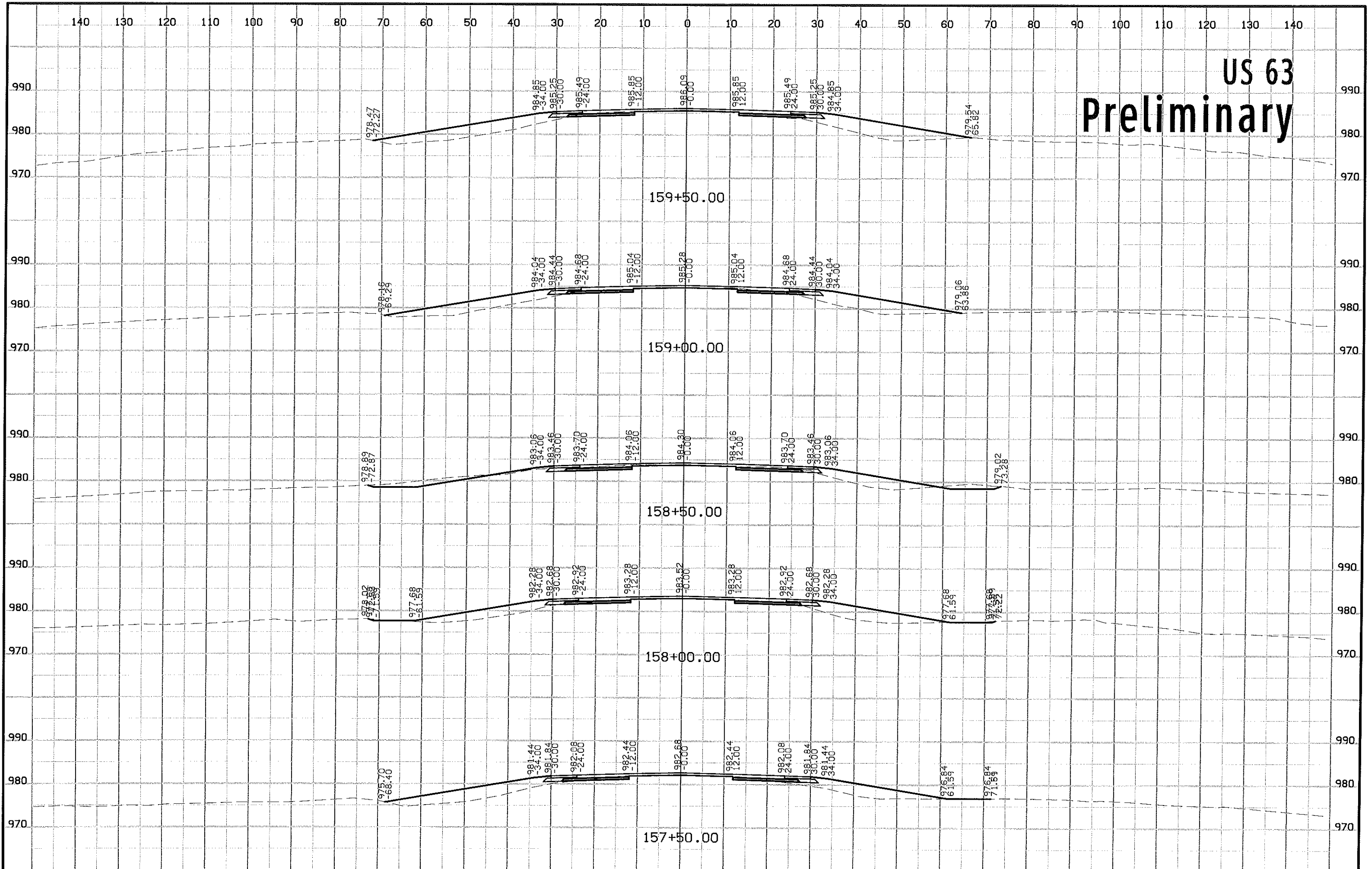
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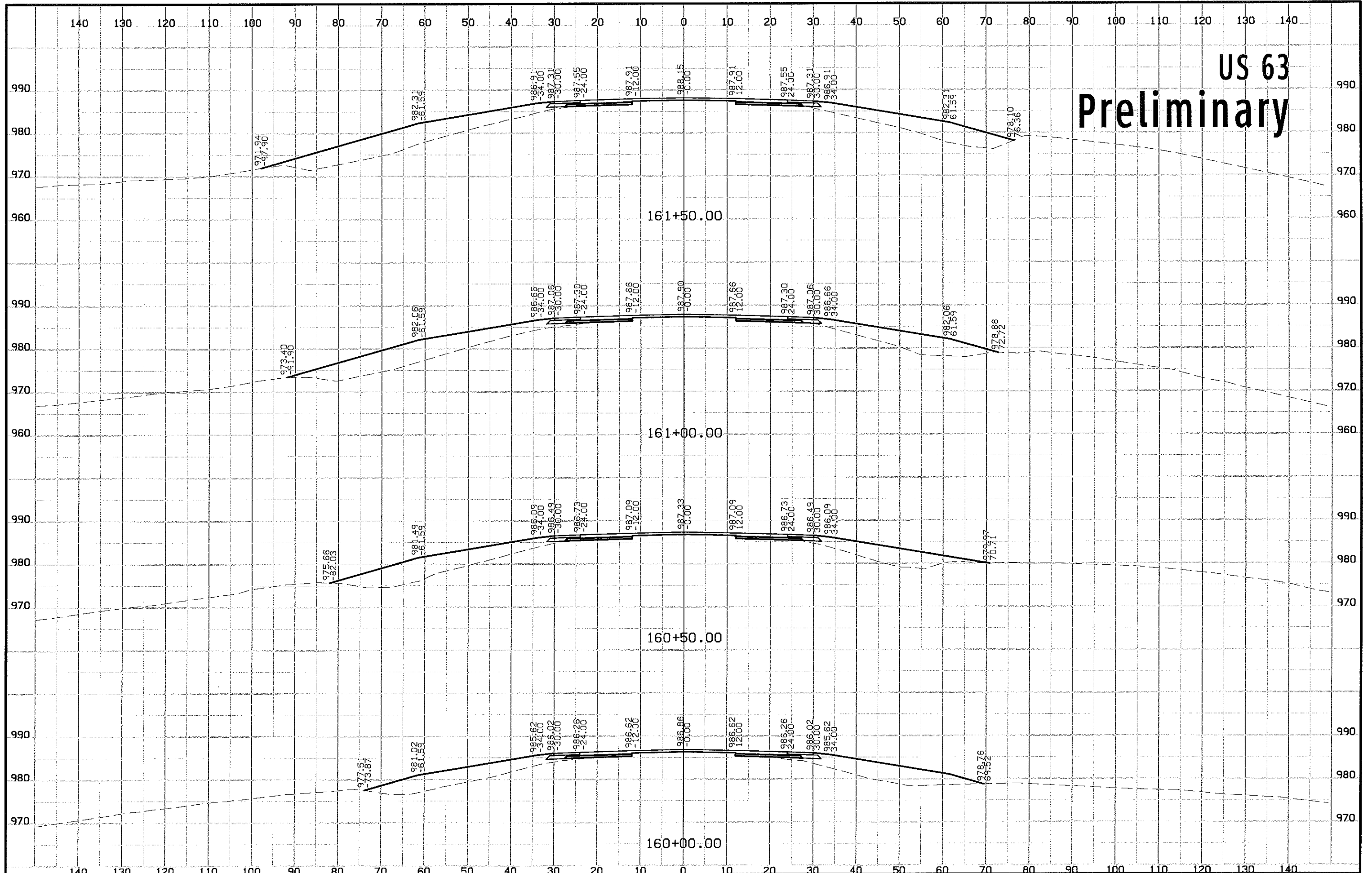
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# US 63 Preliminary

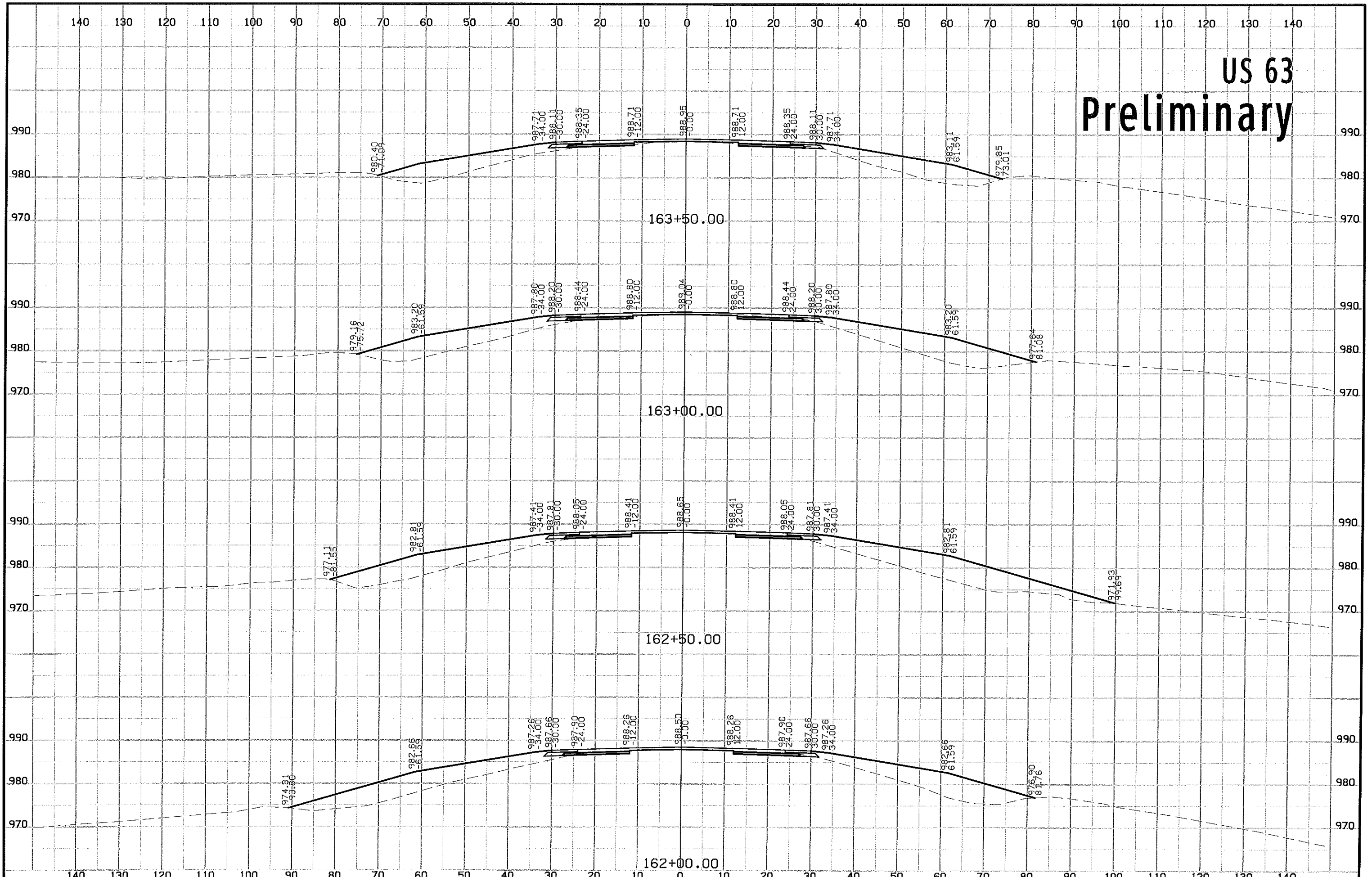


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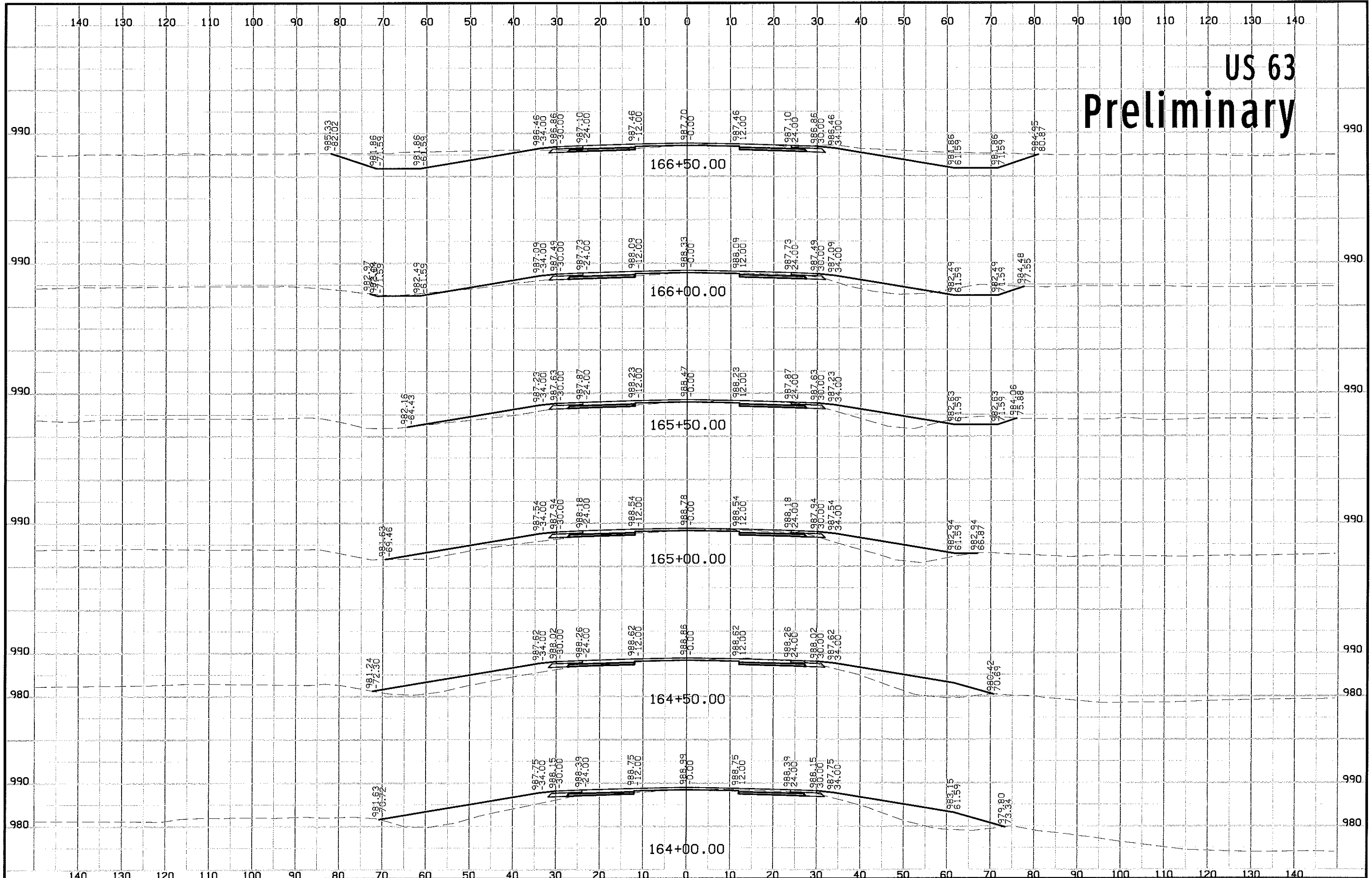




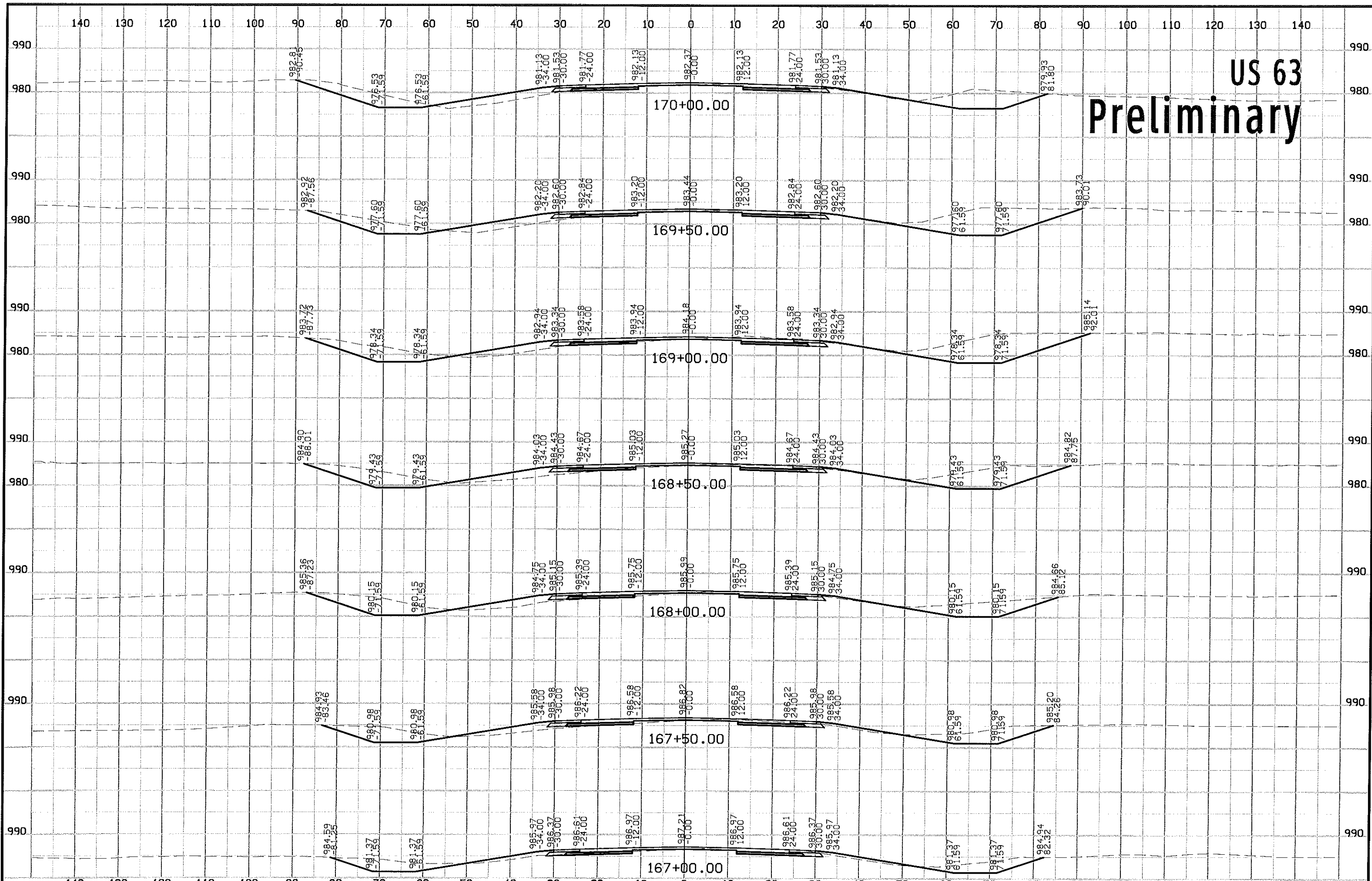
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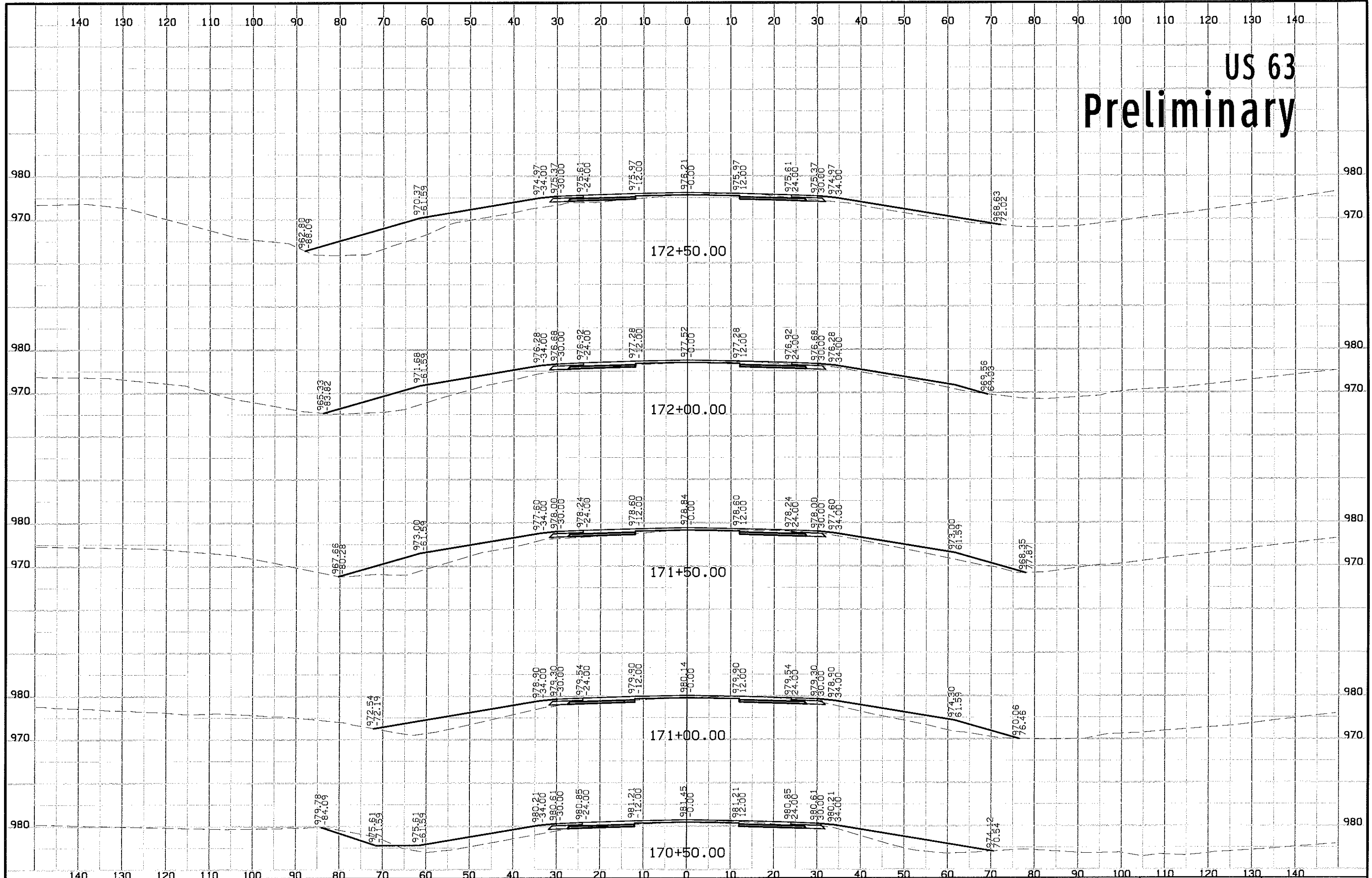
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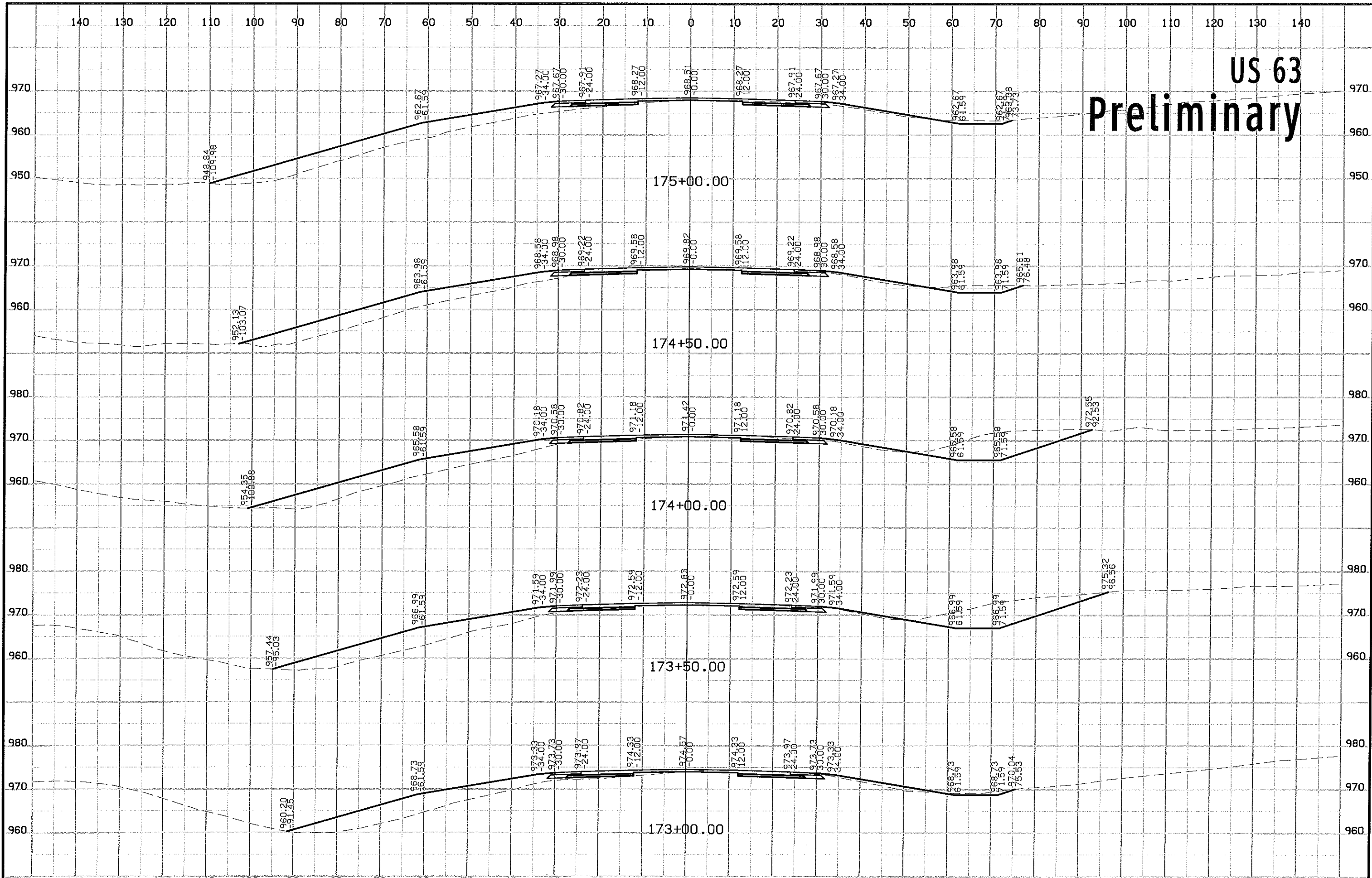
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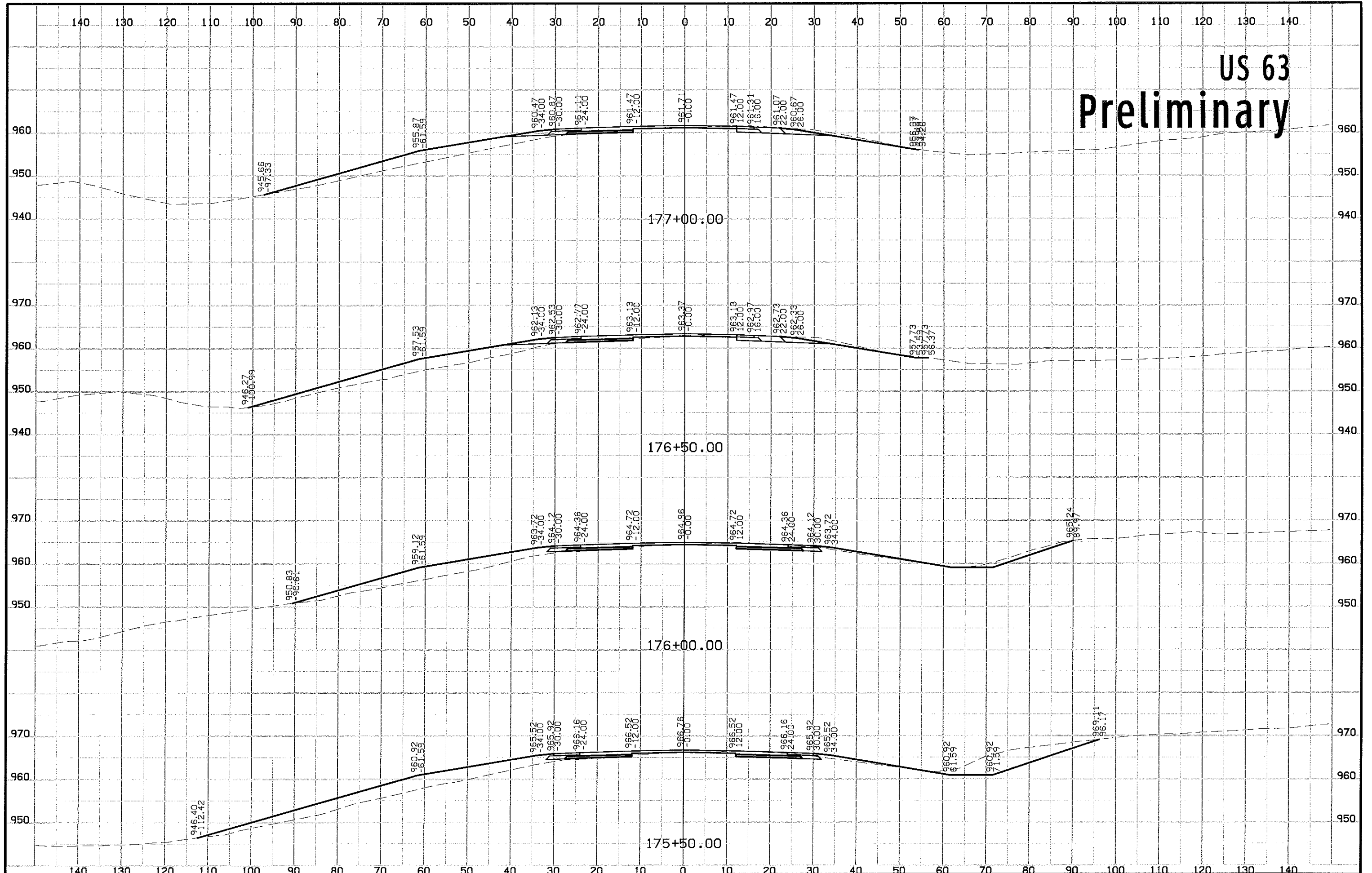
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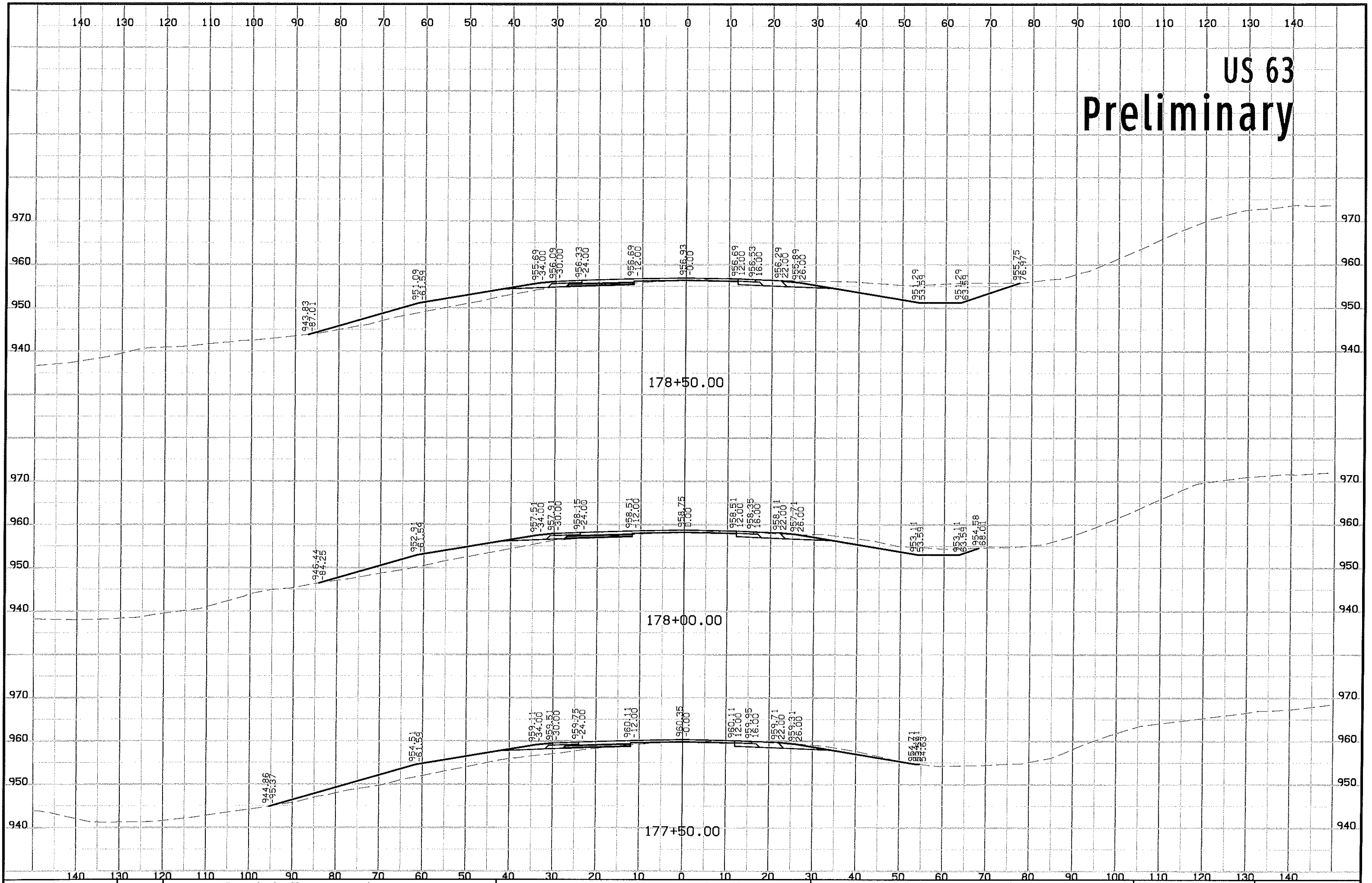
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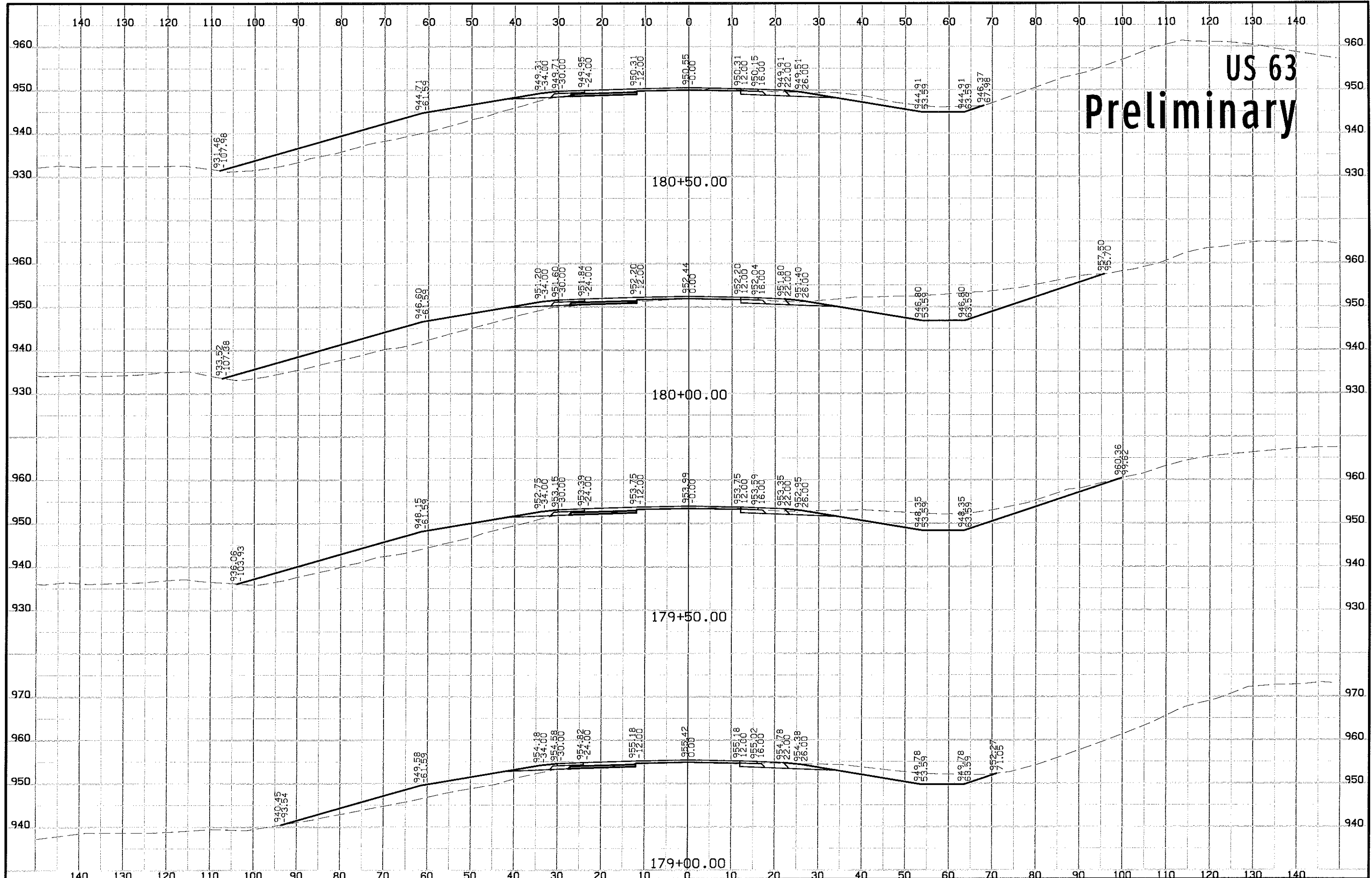


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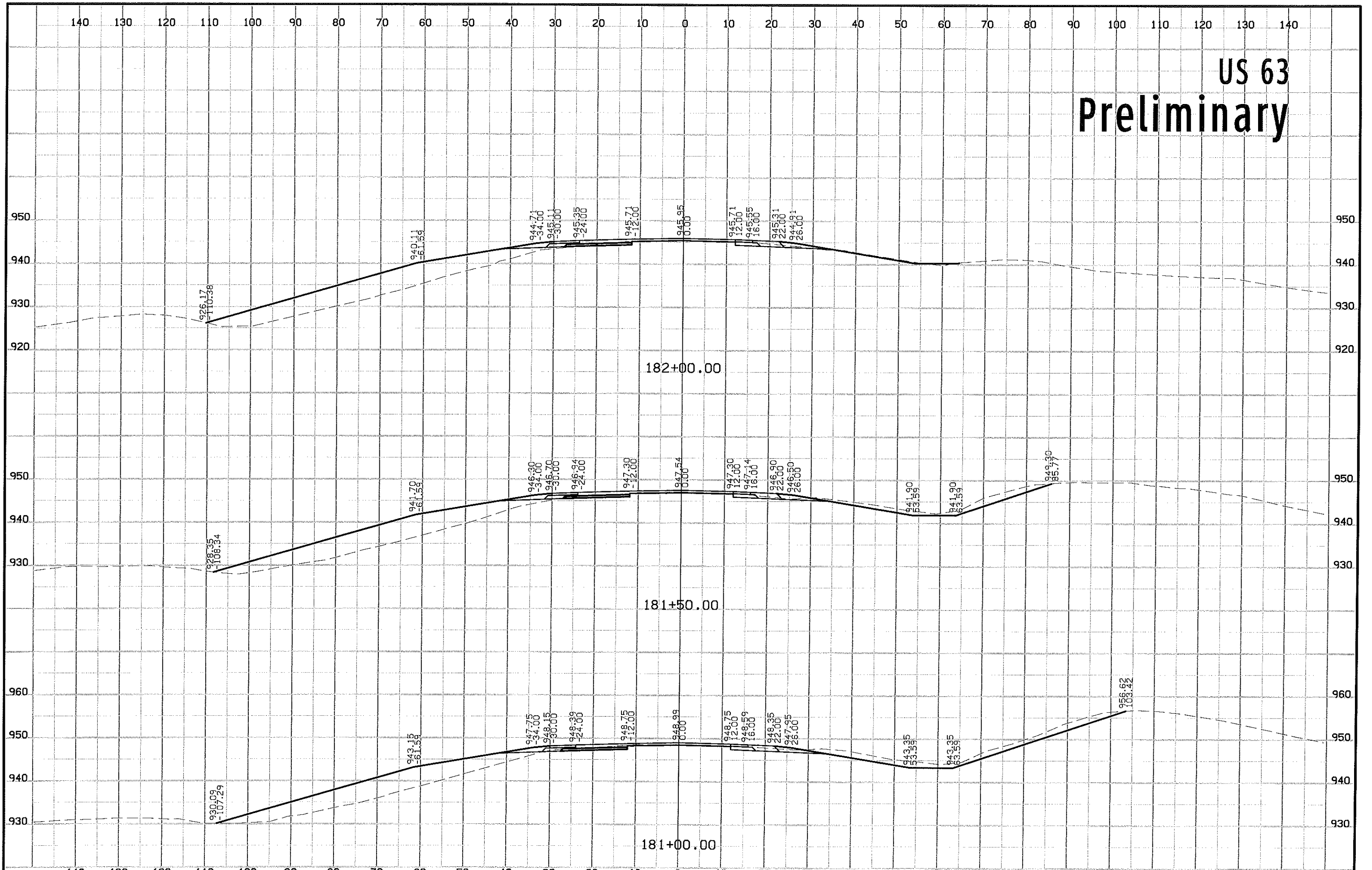
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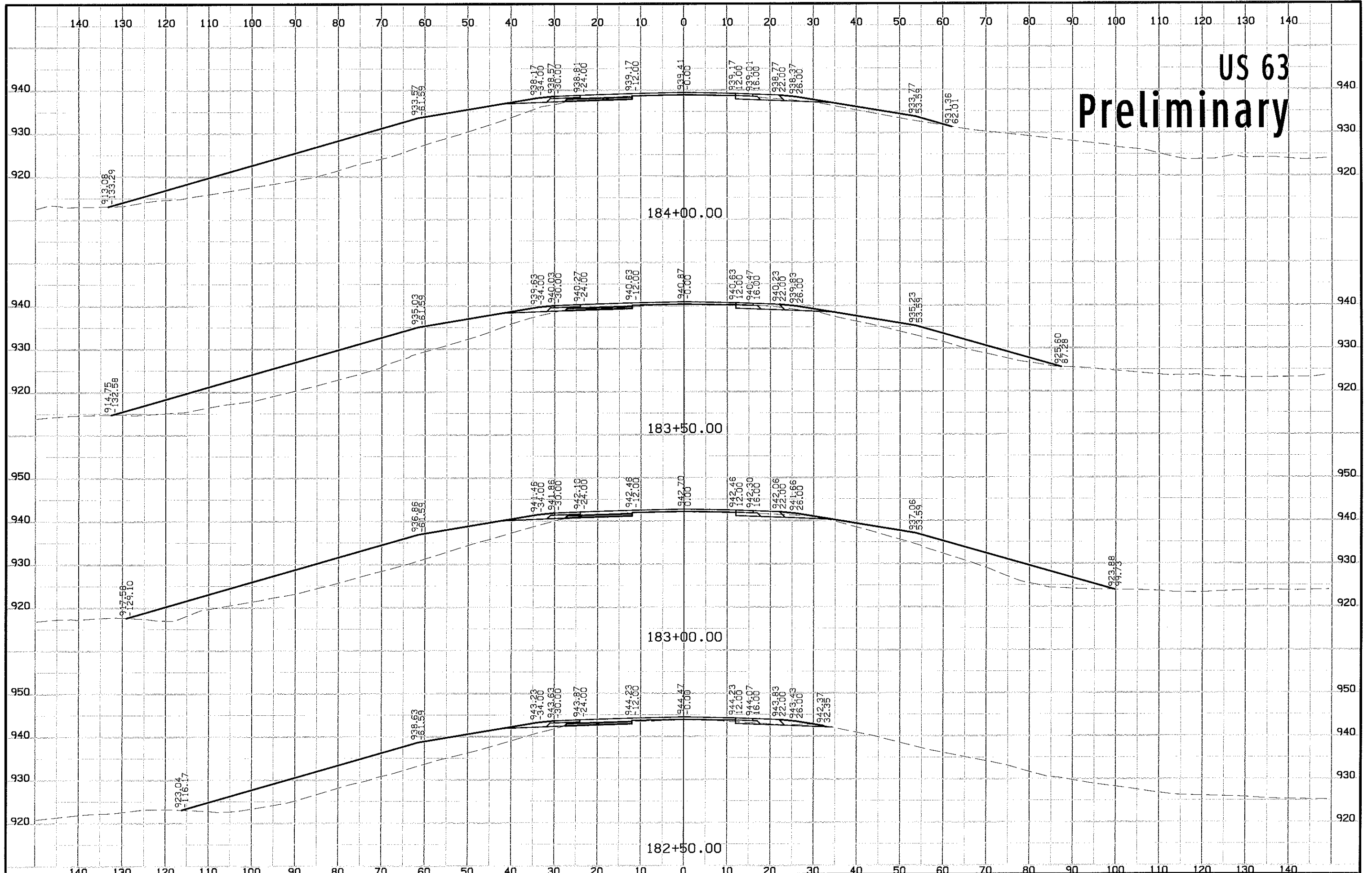




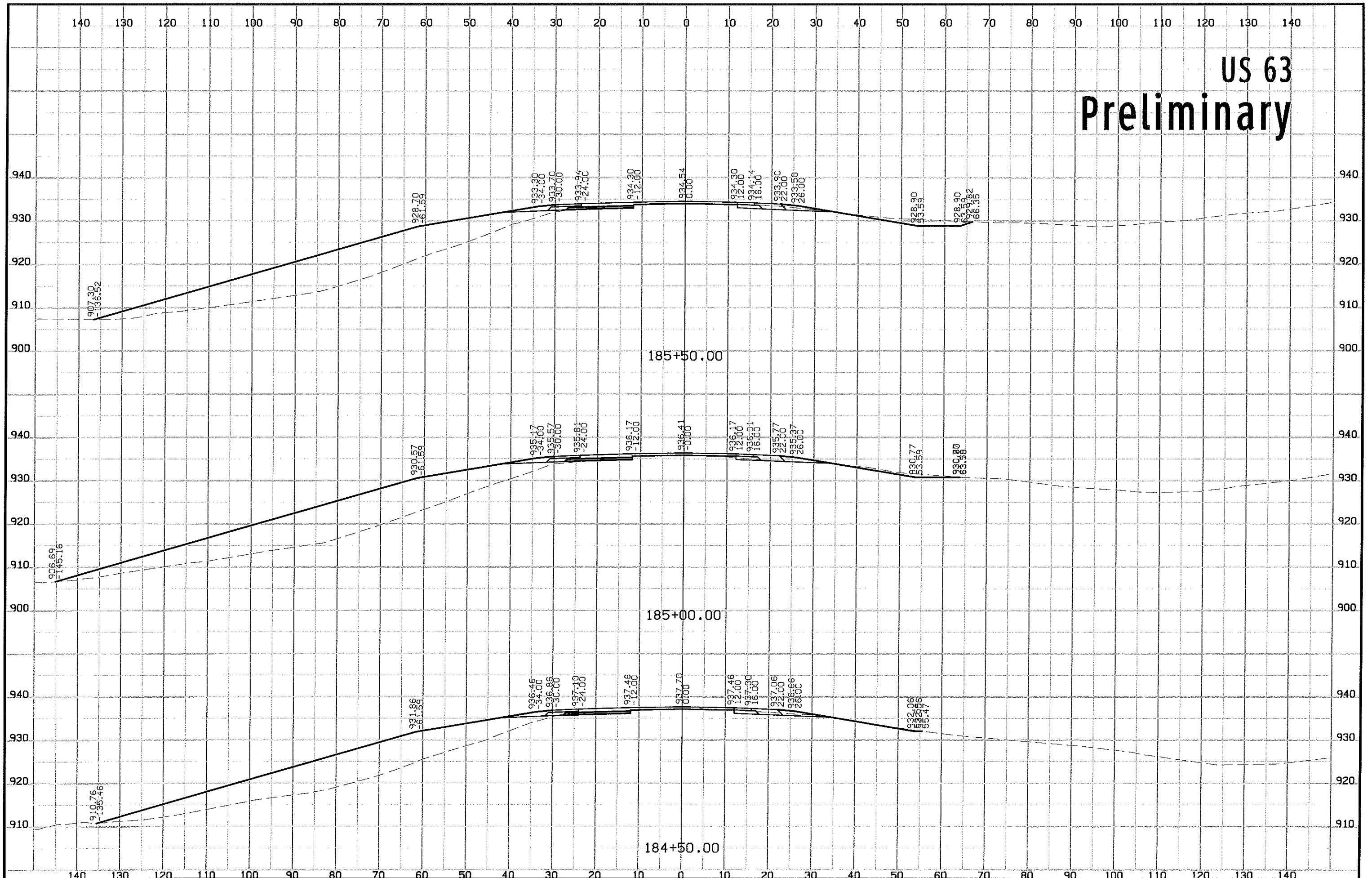
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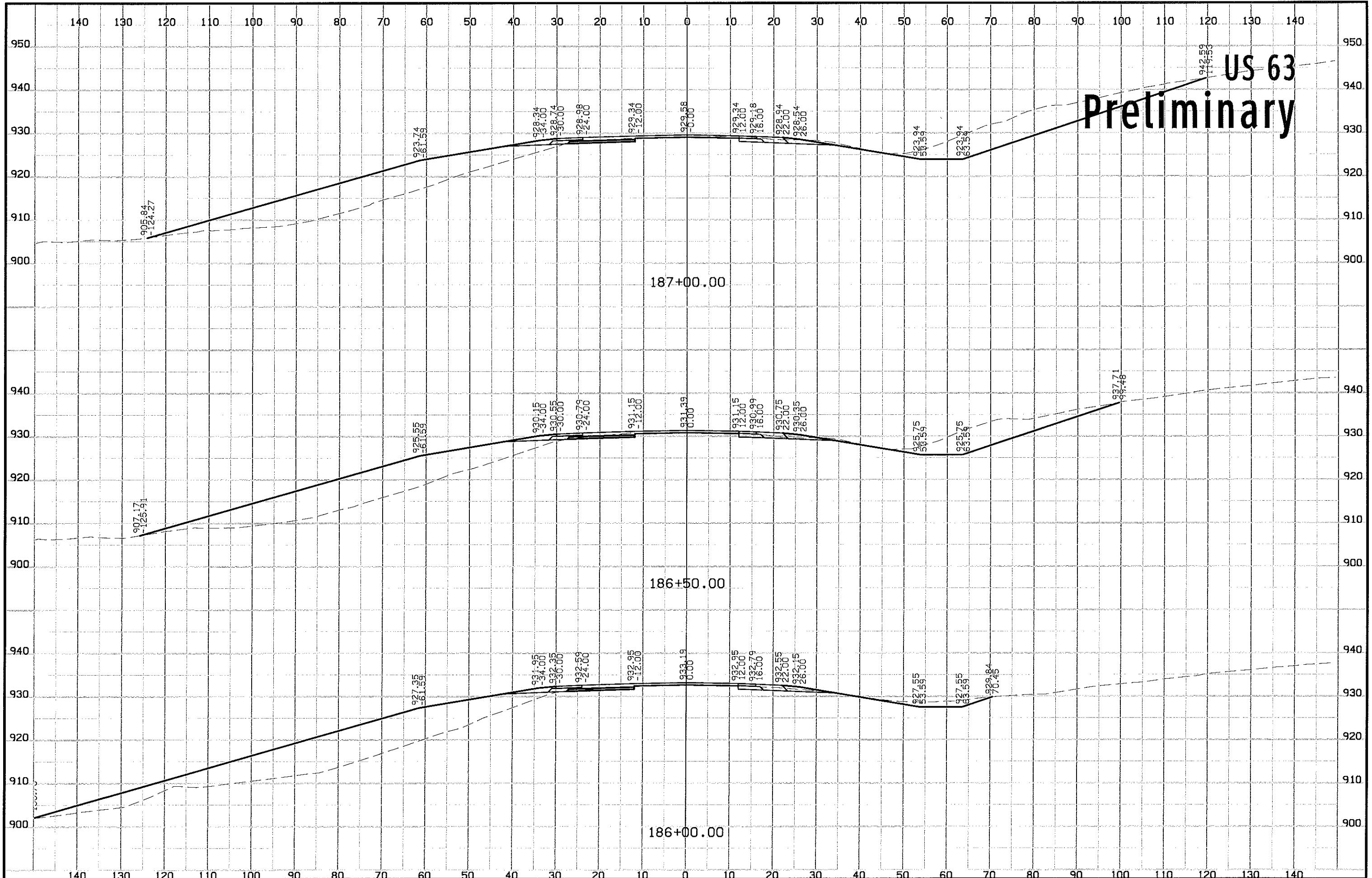


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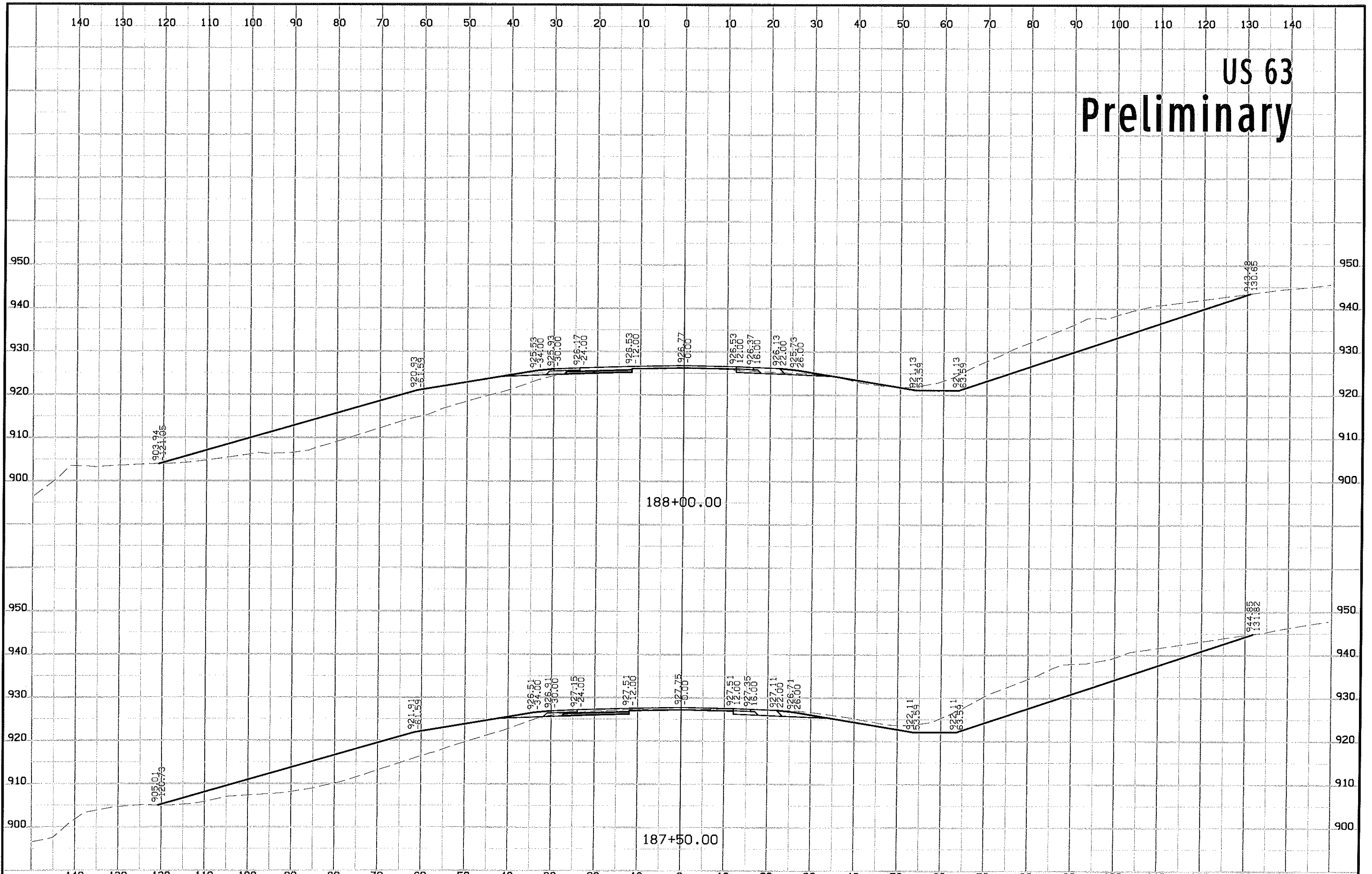


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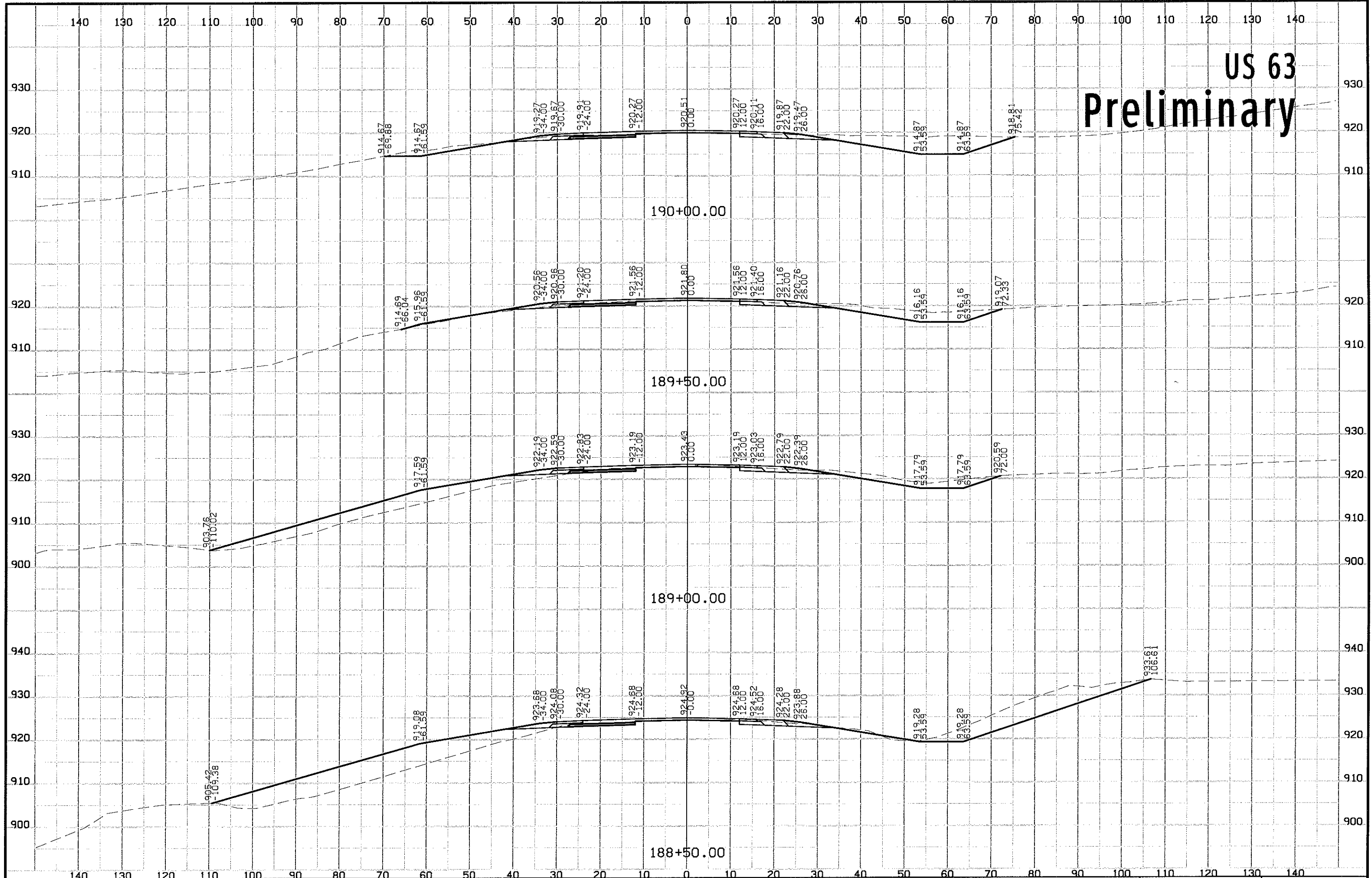




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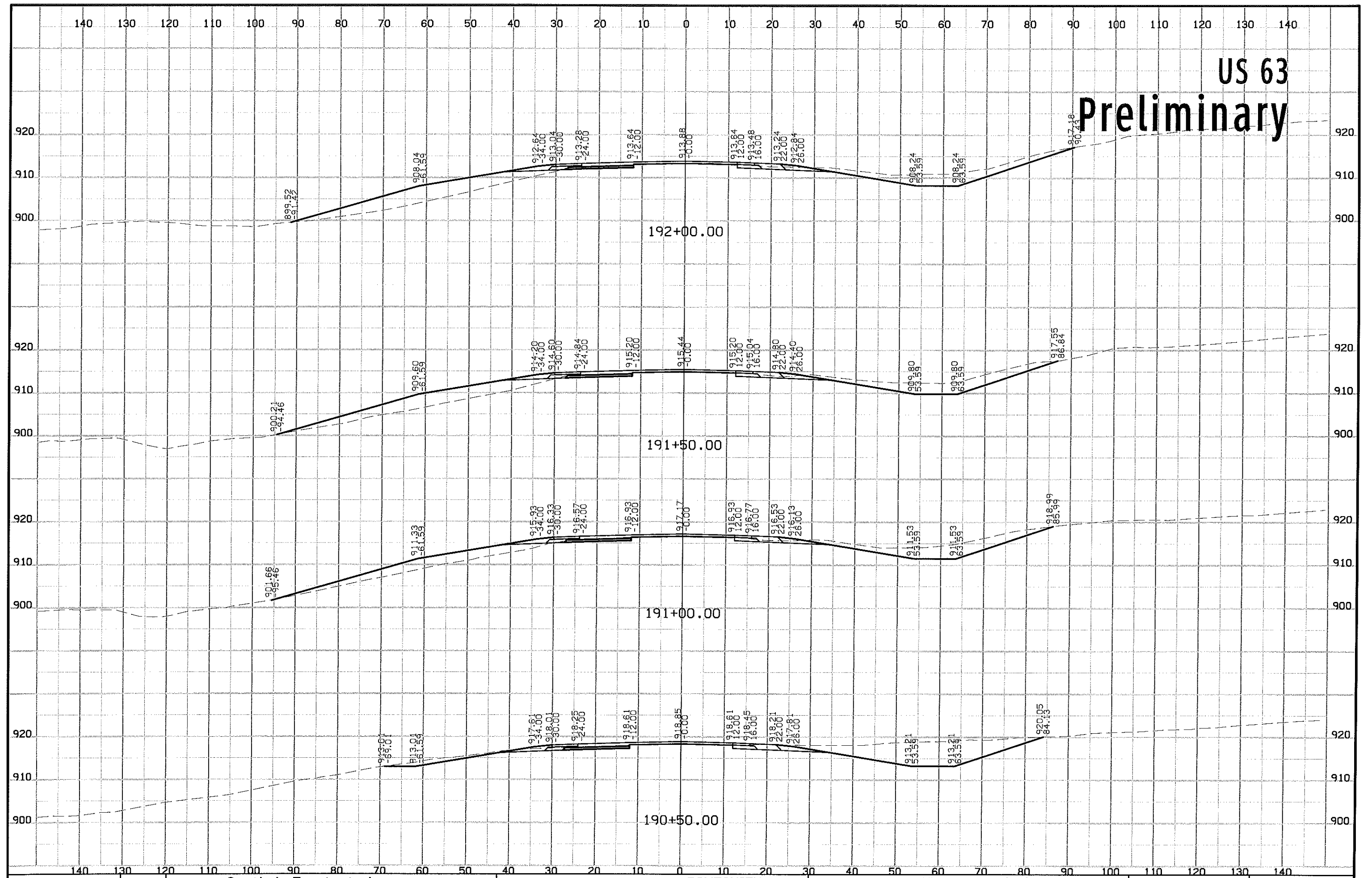


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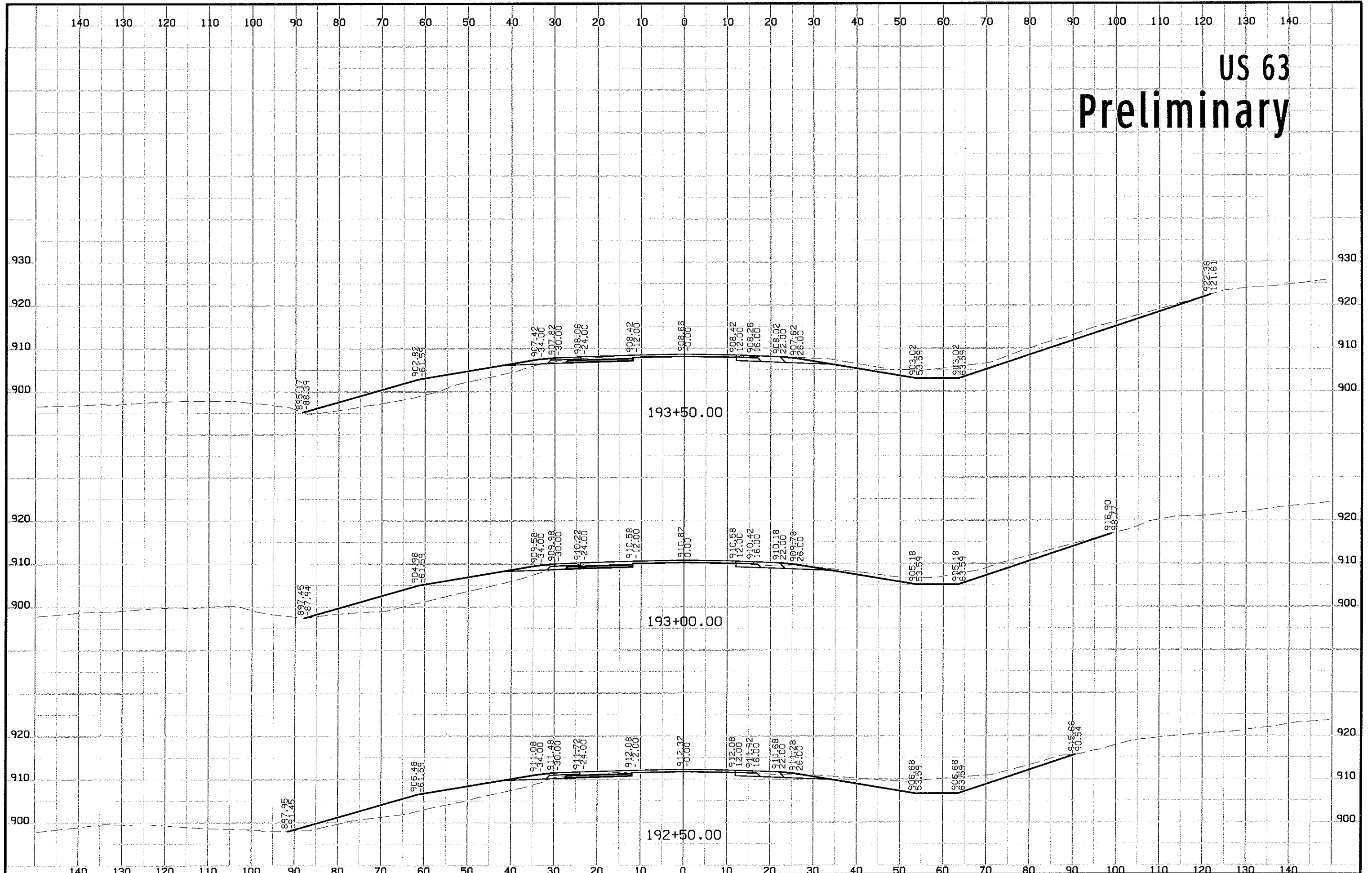


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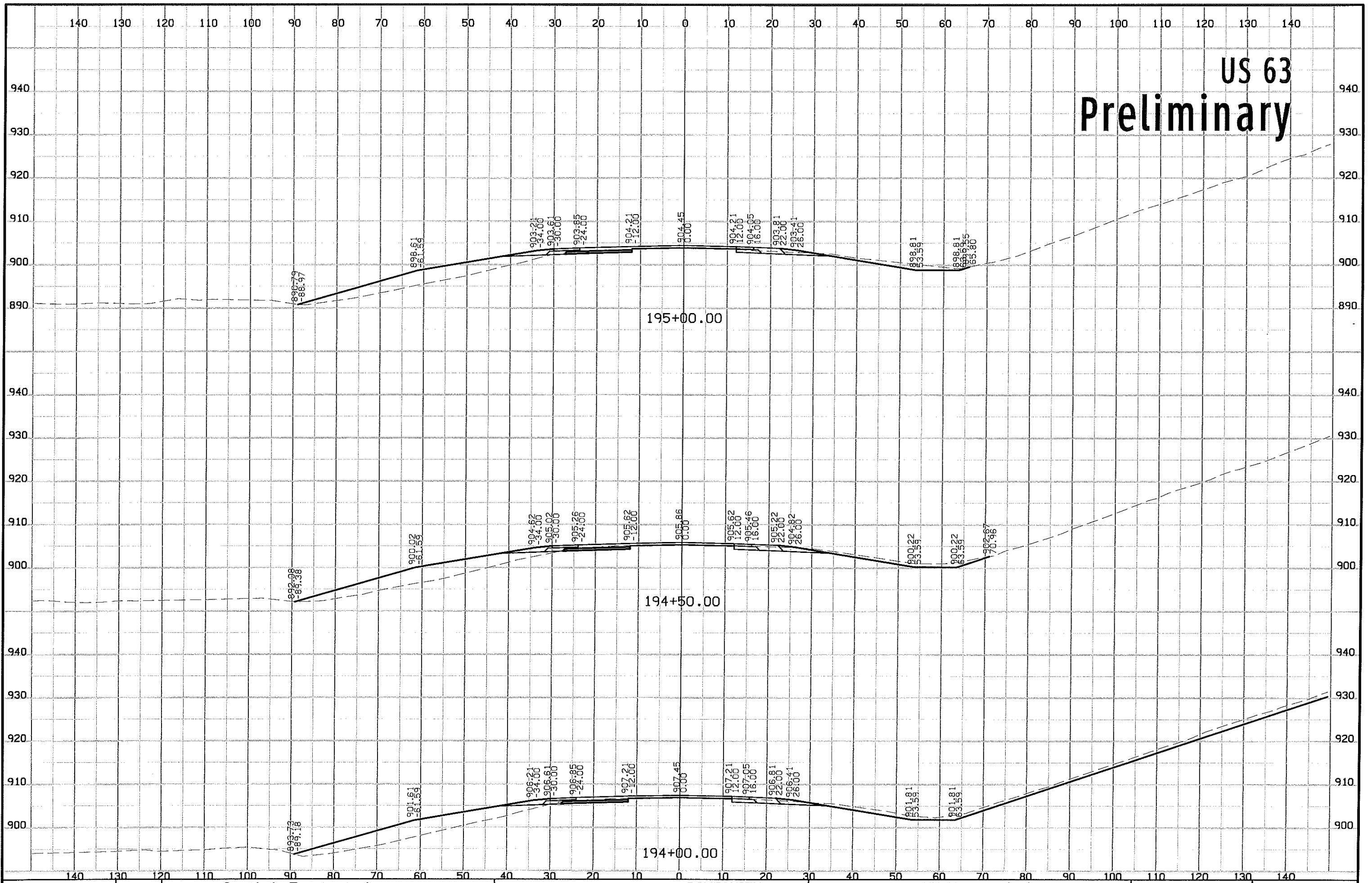


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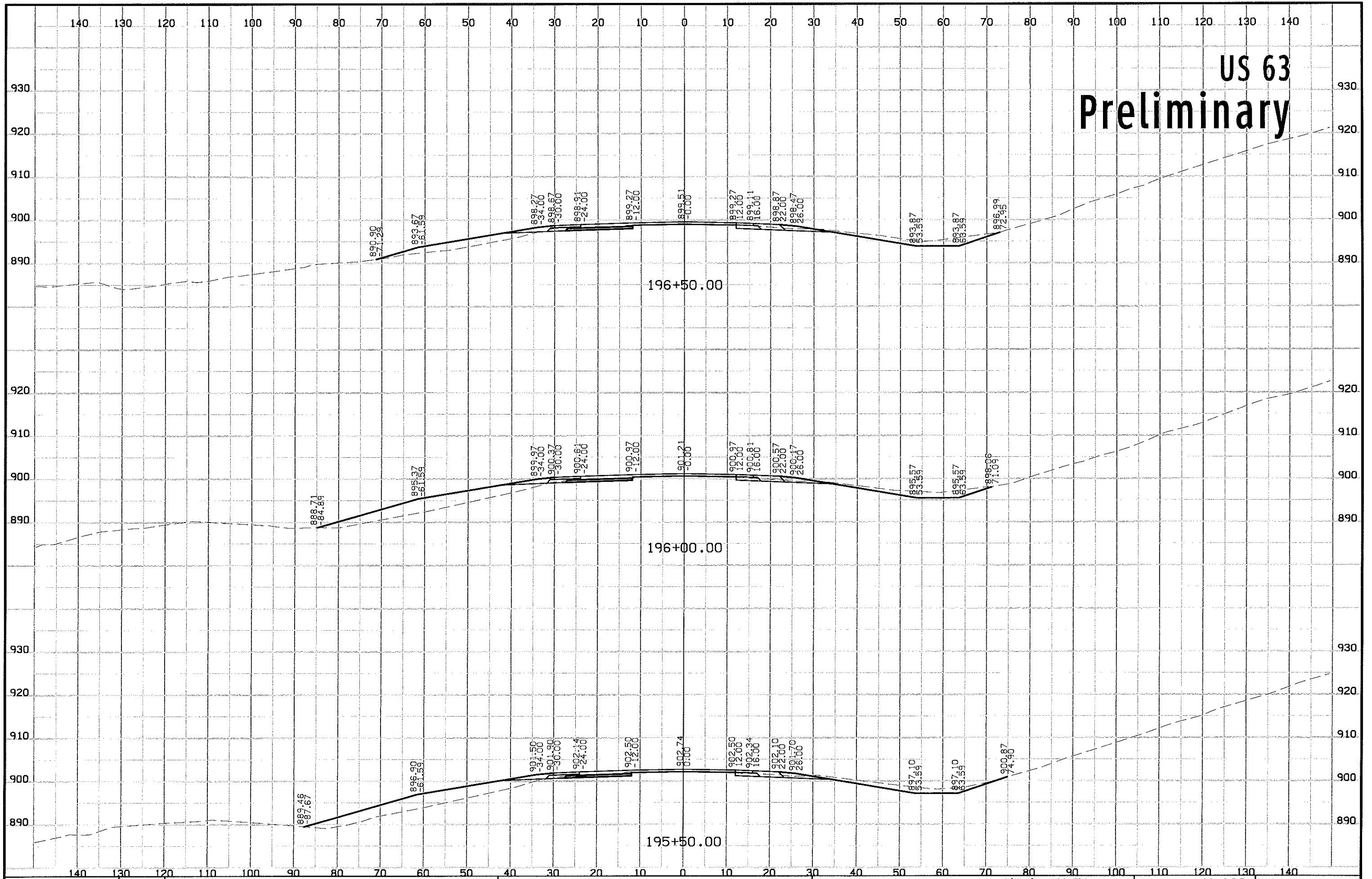




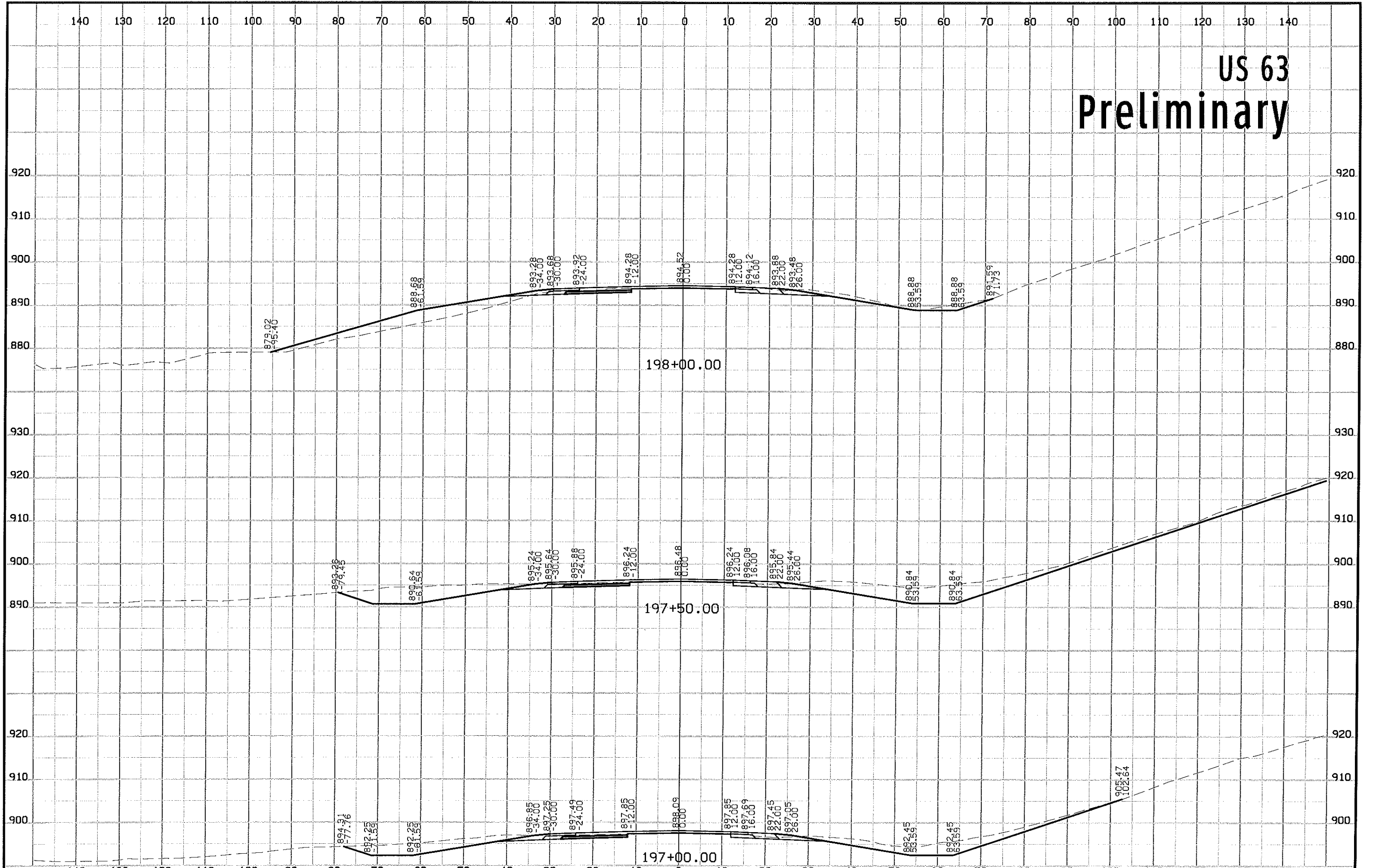
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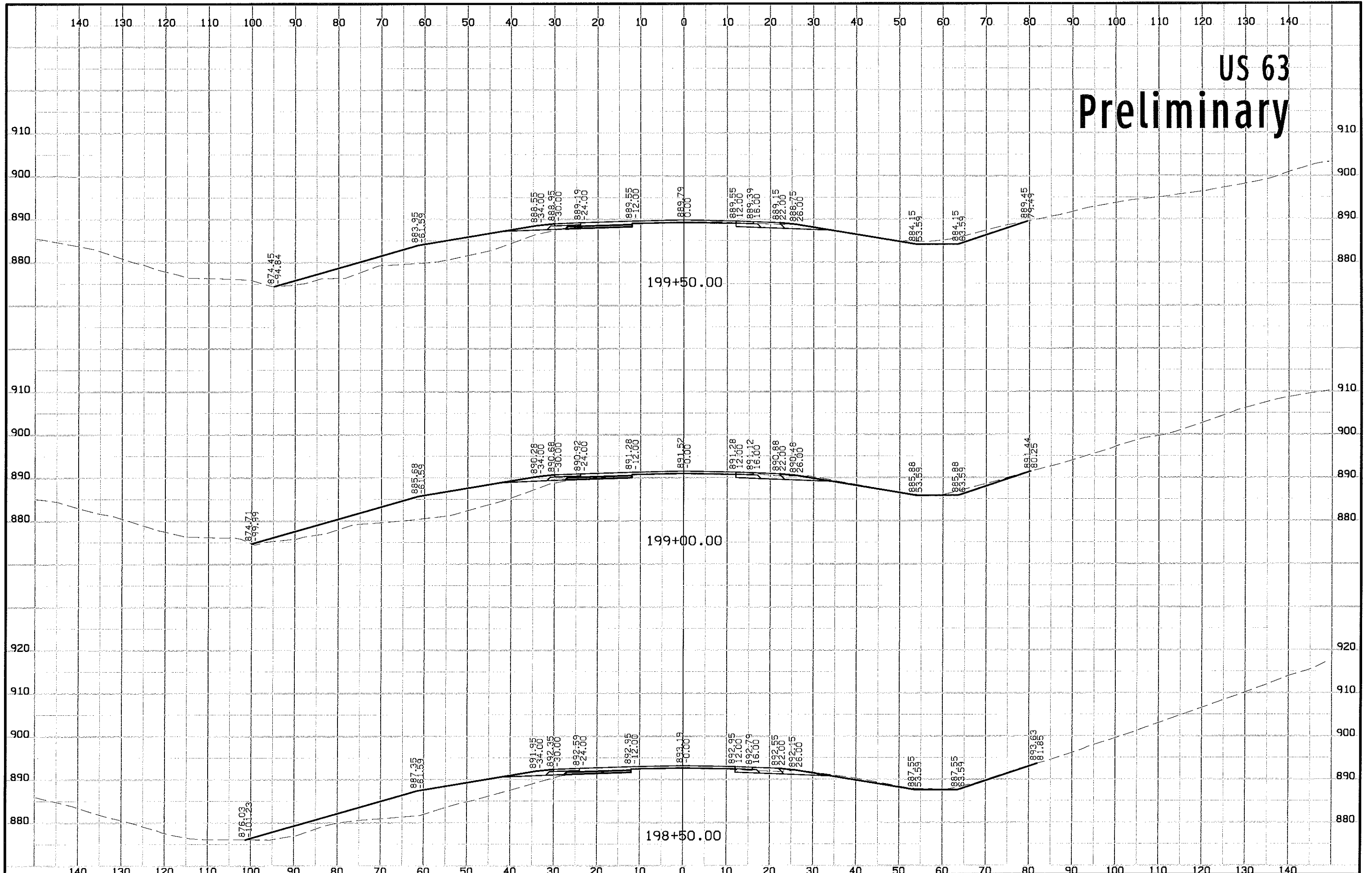
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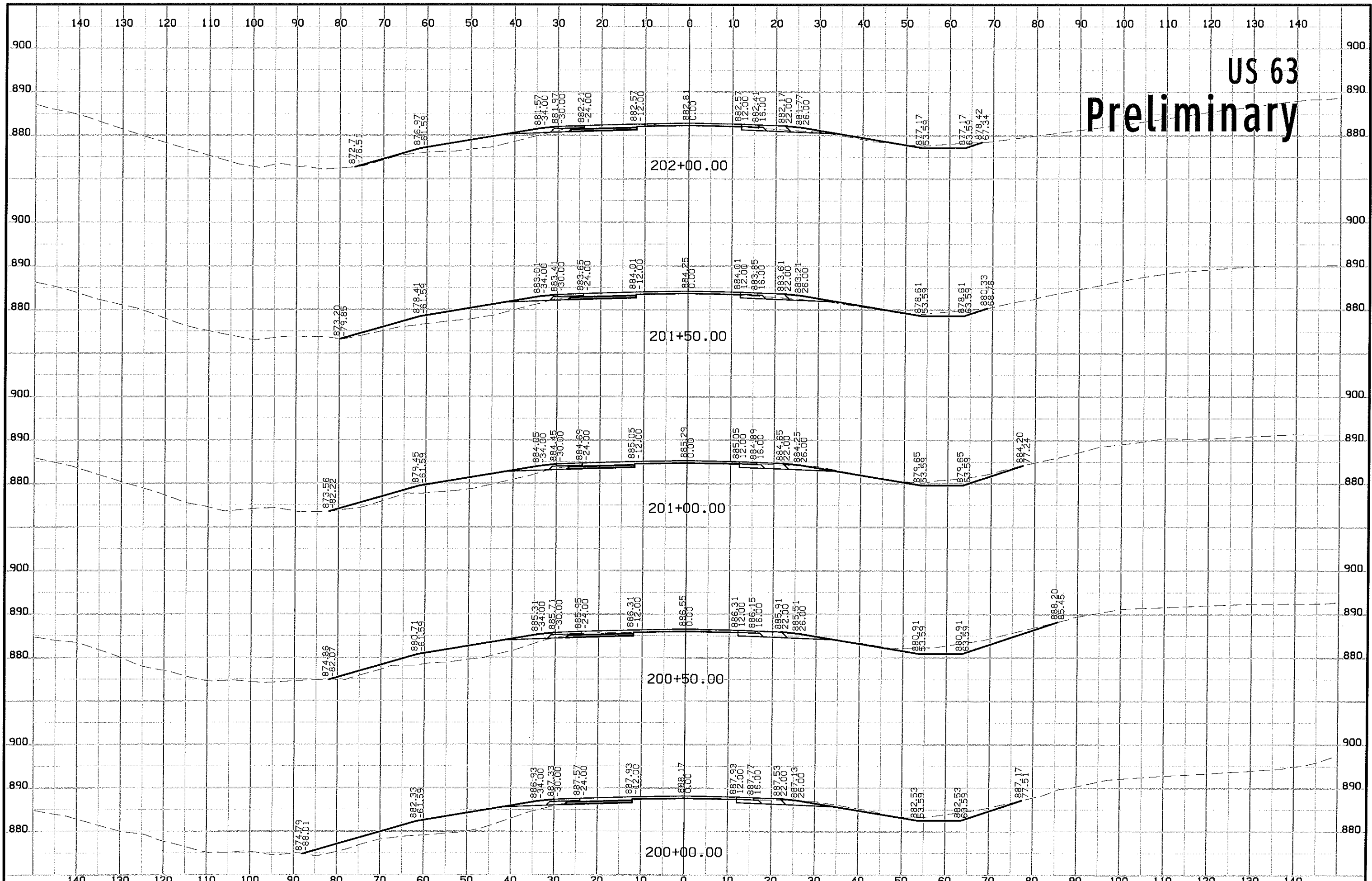
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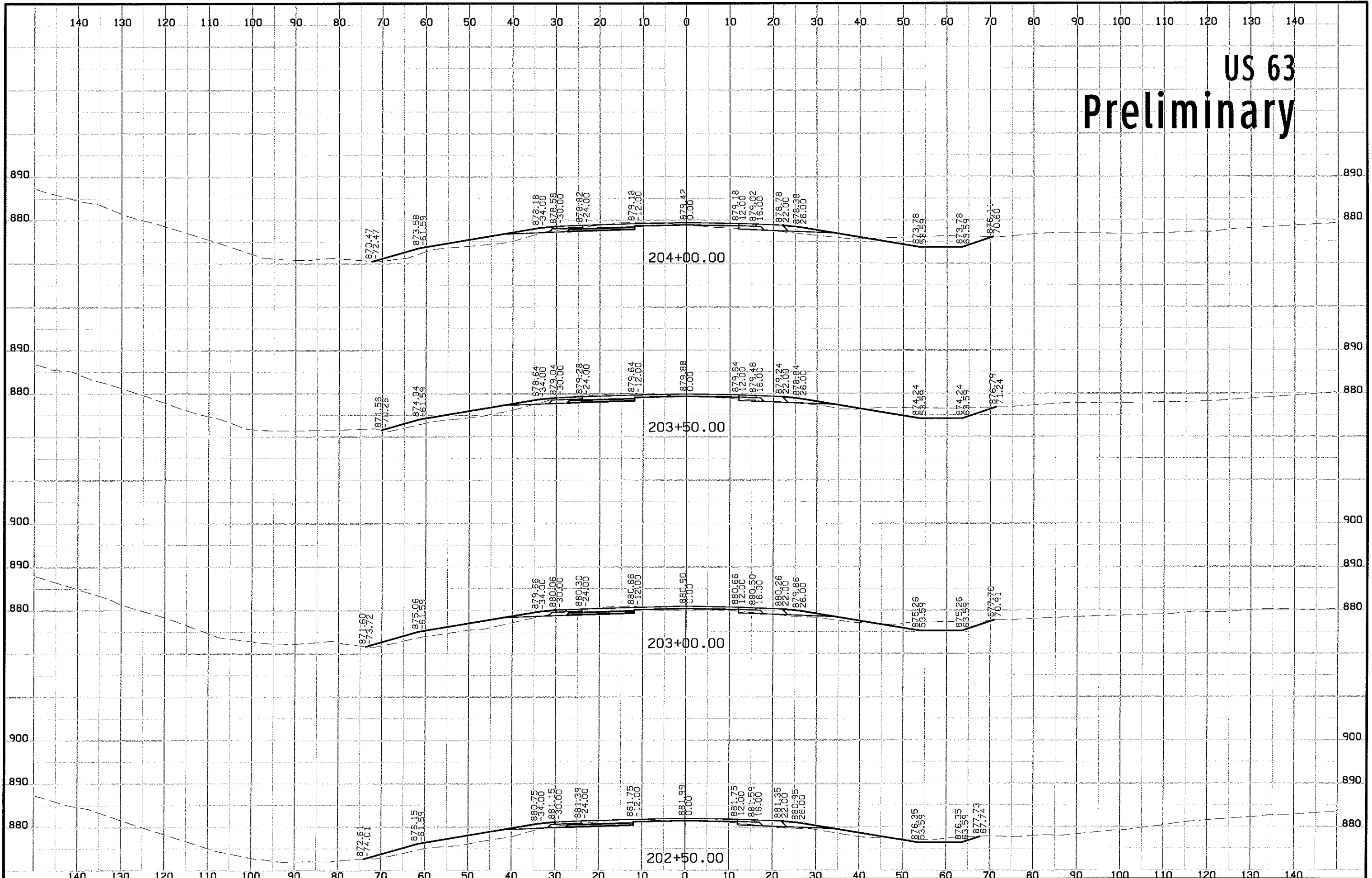
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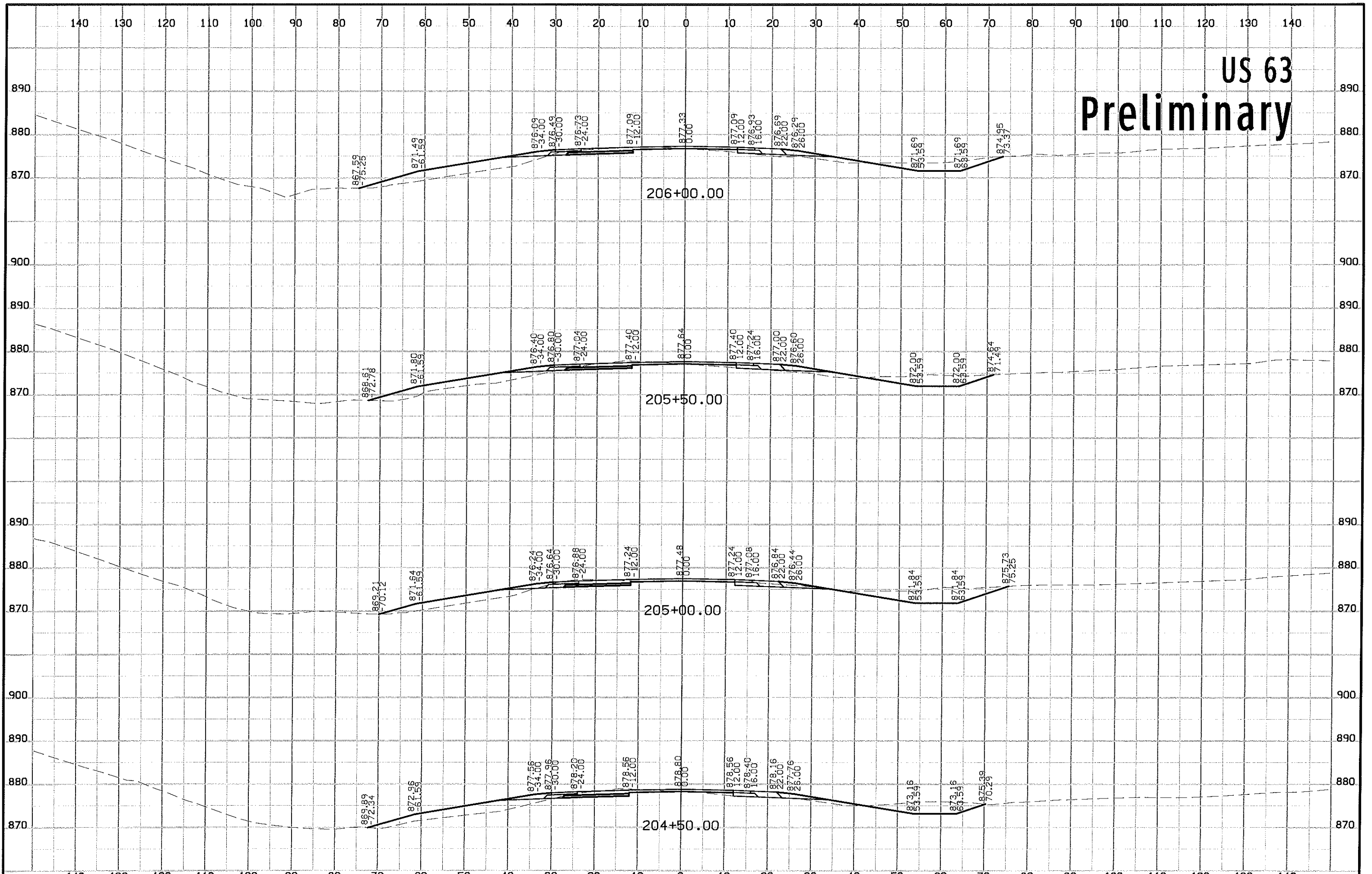
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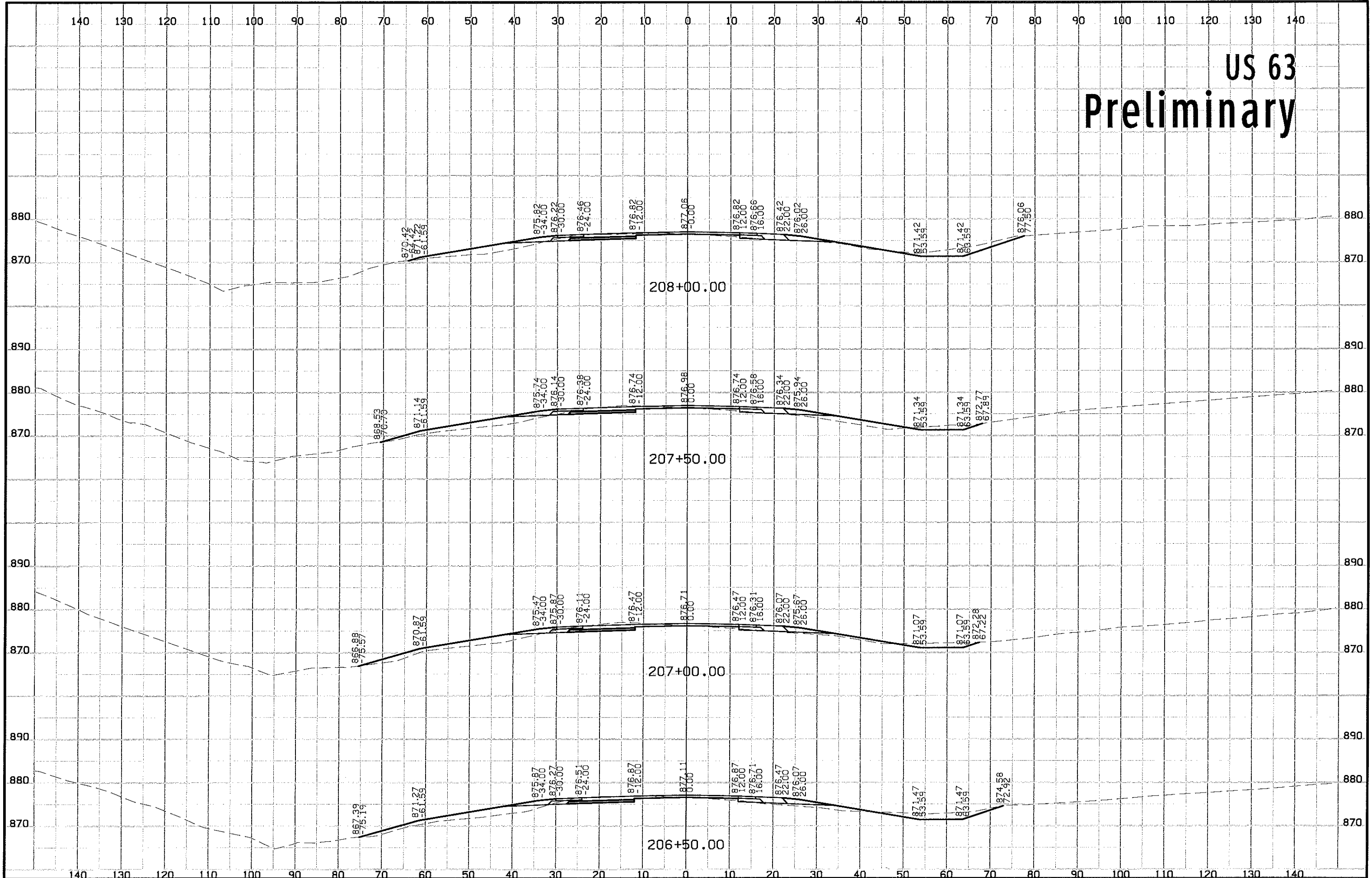
# US 63 Preliminary



# US 63 Preliminary

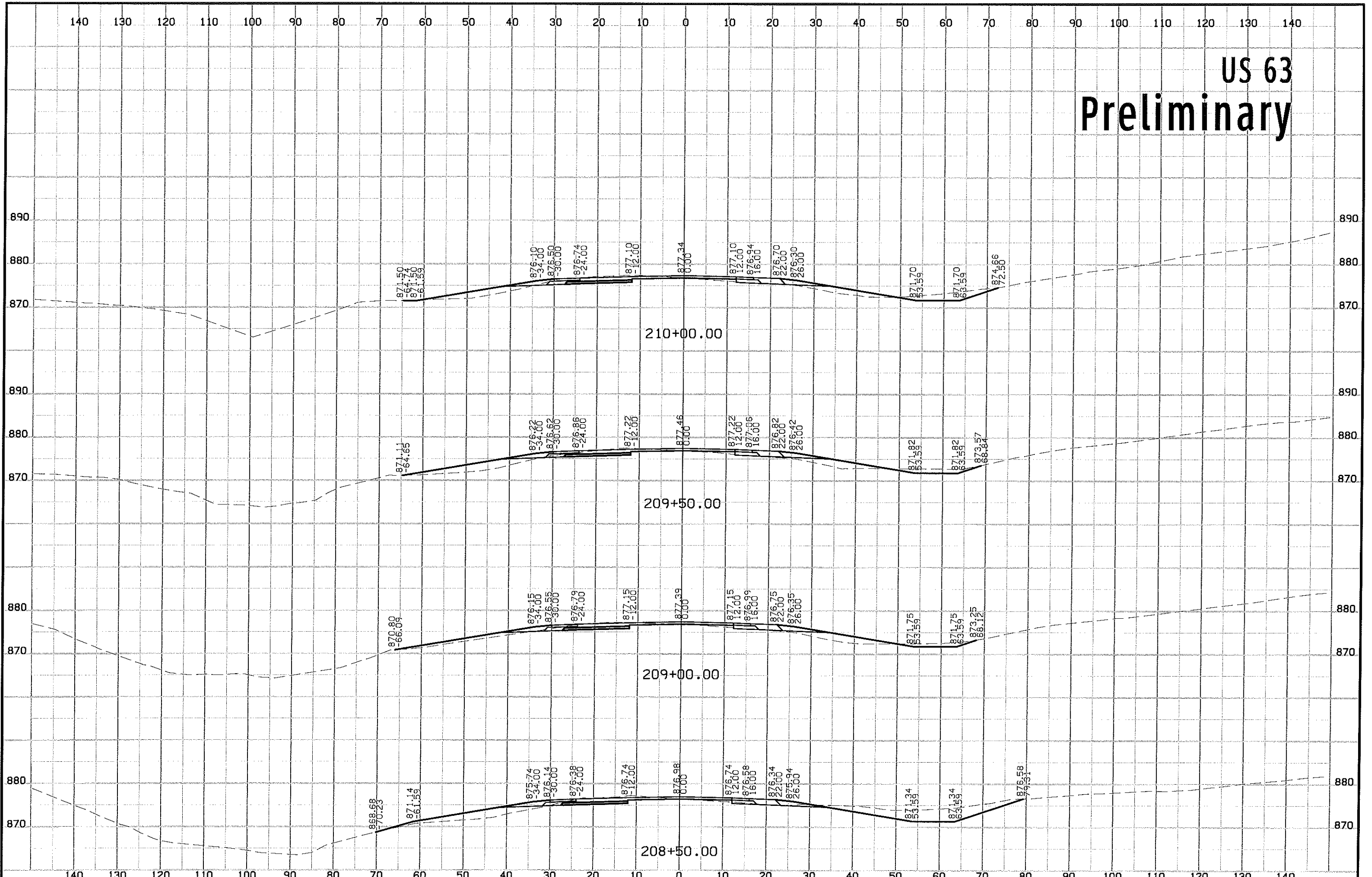


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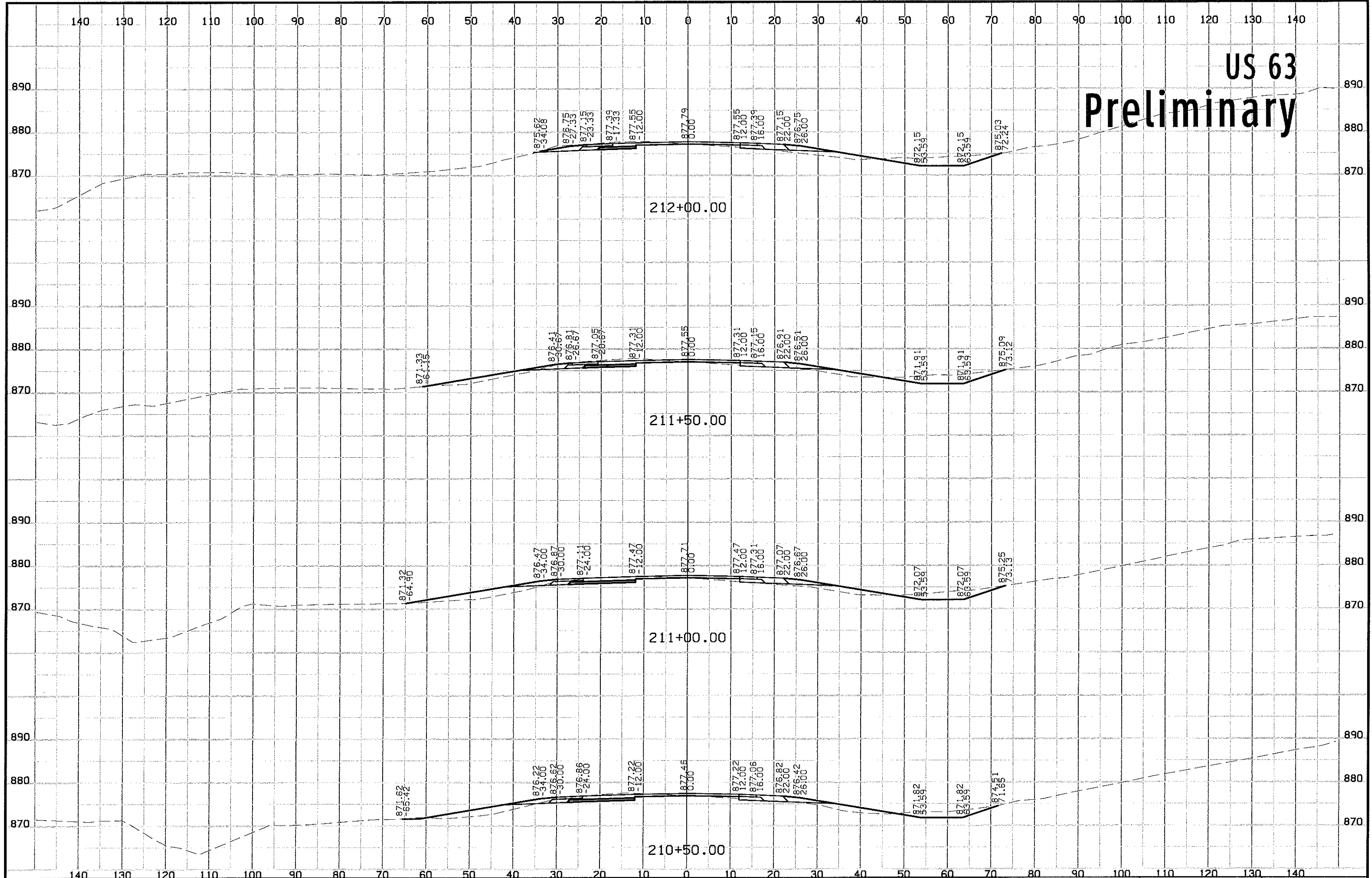




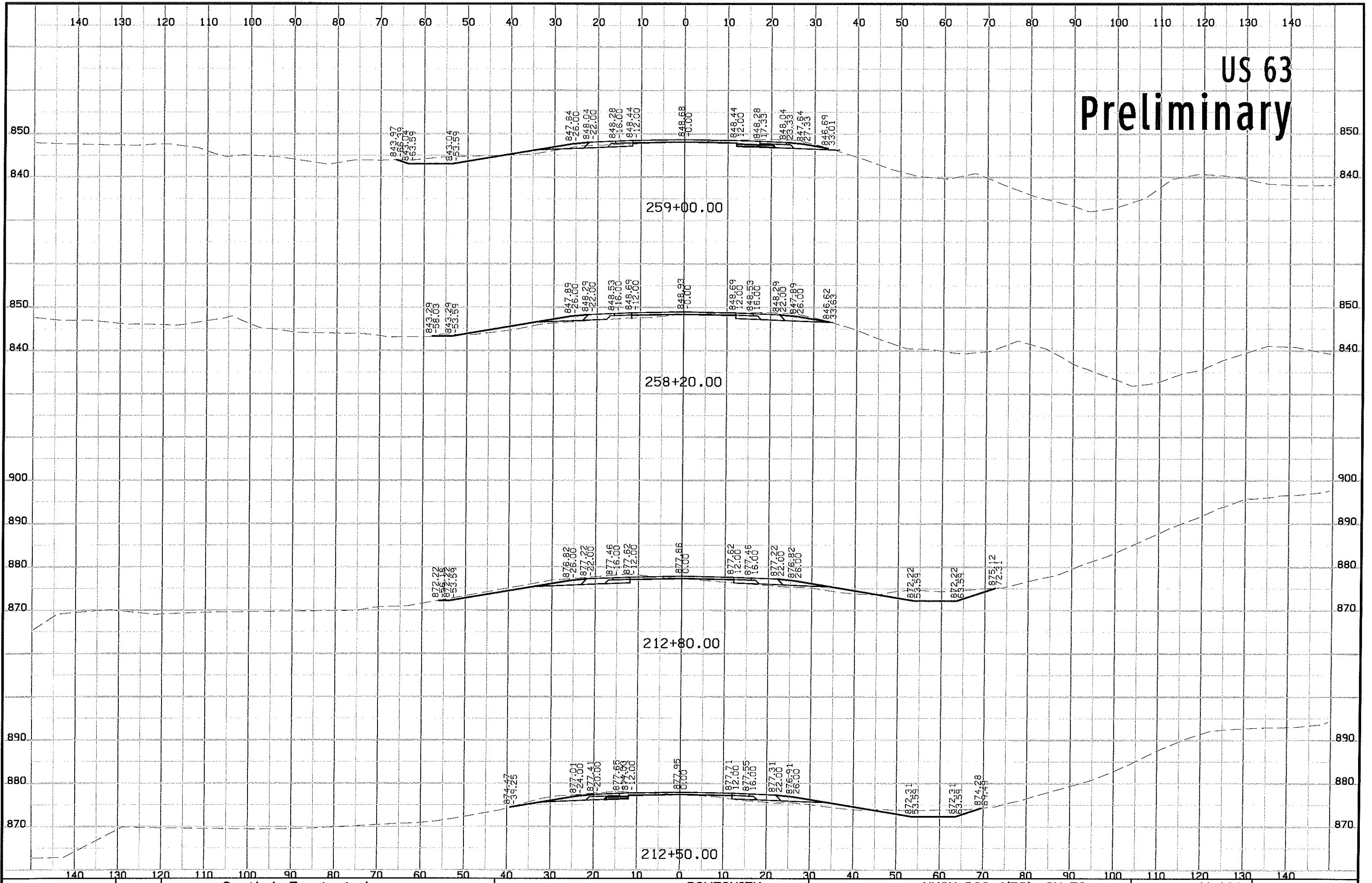
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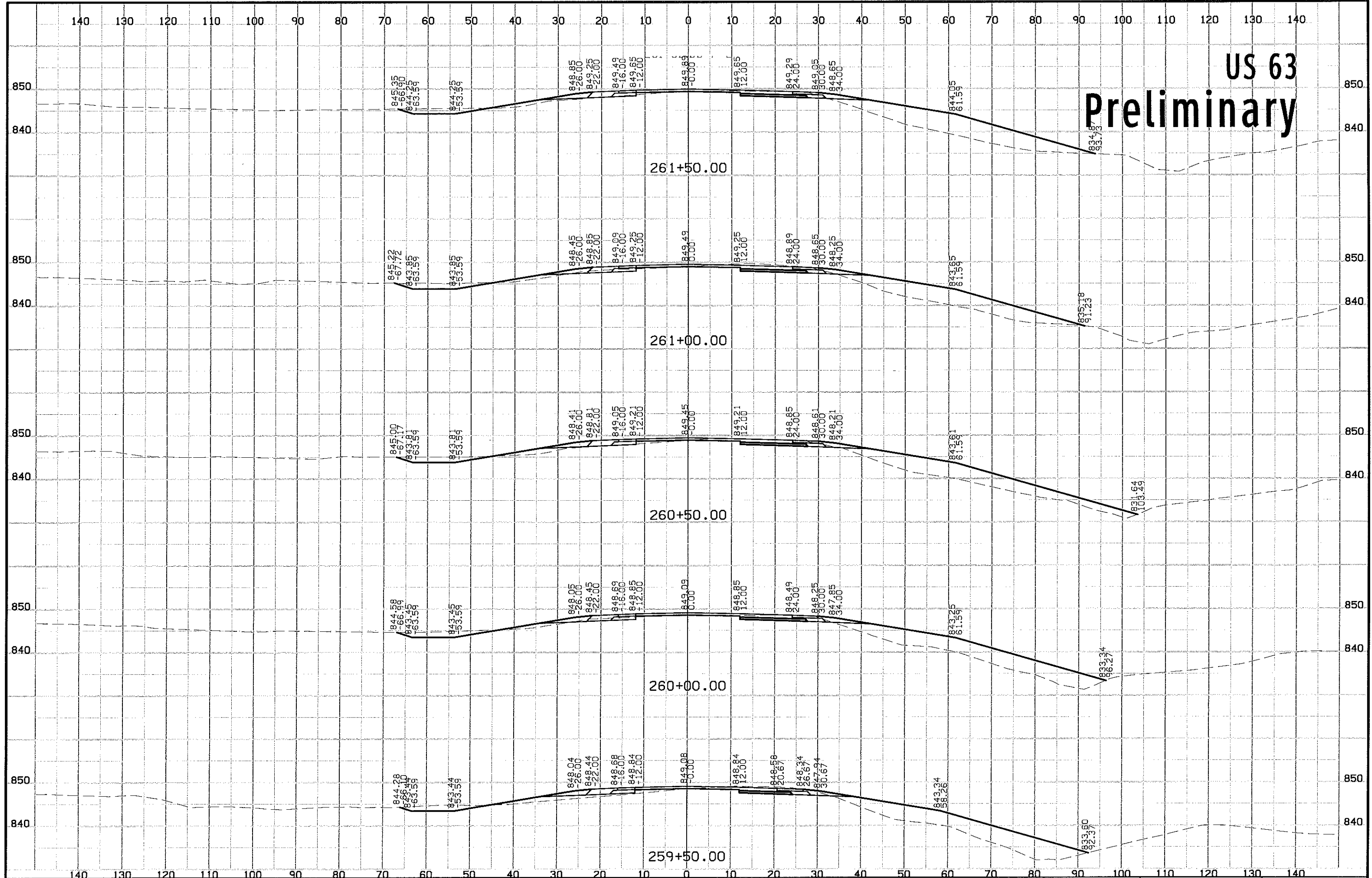
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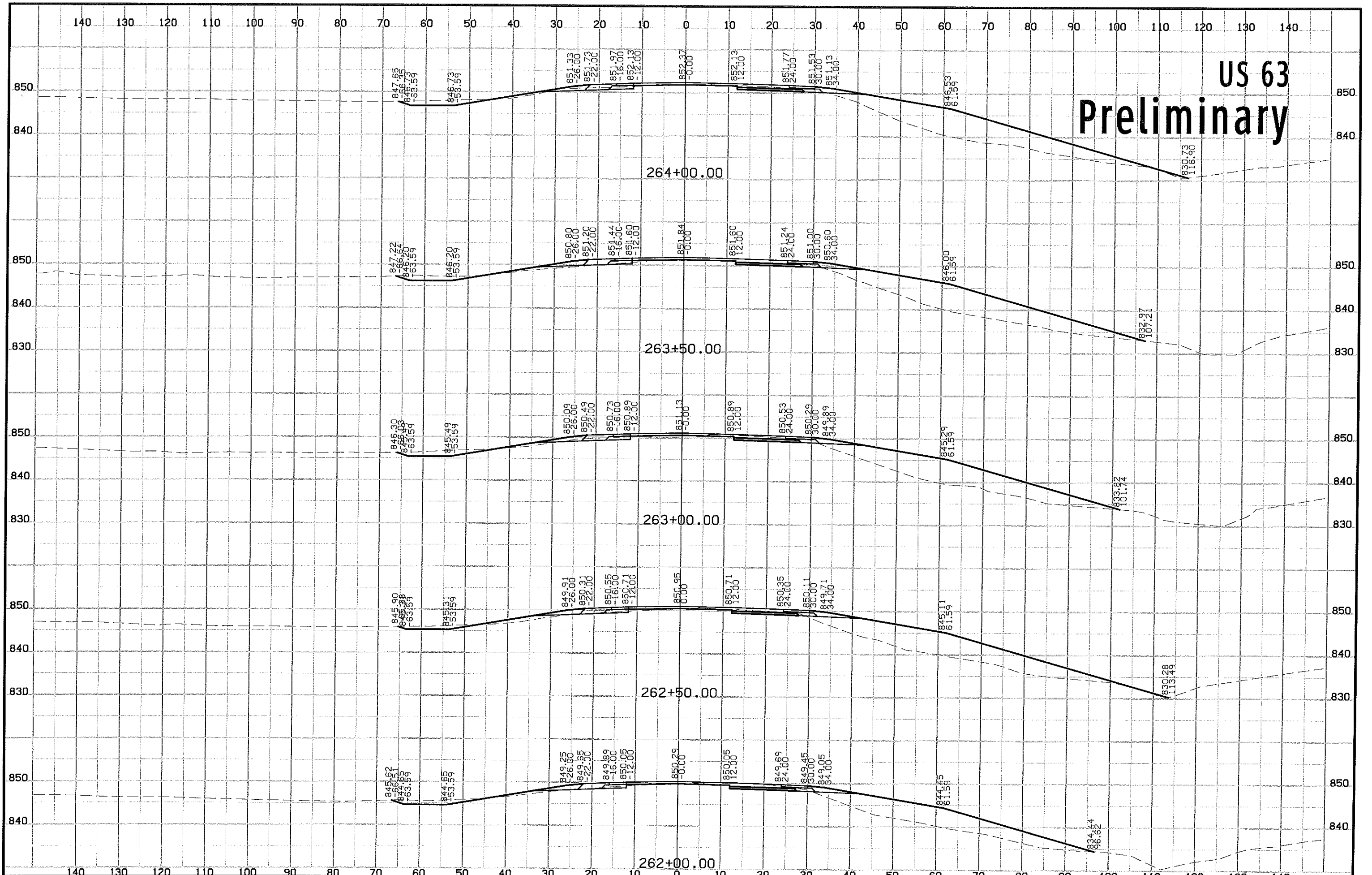
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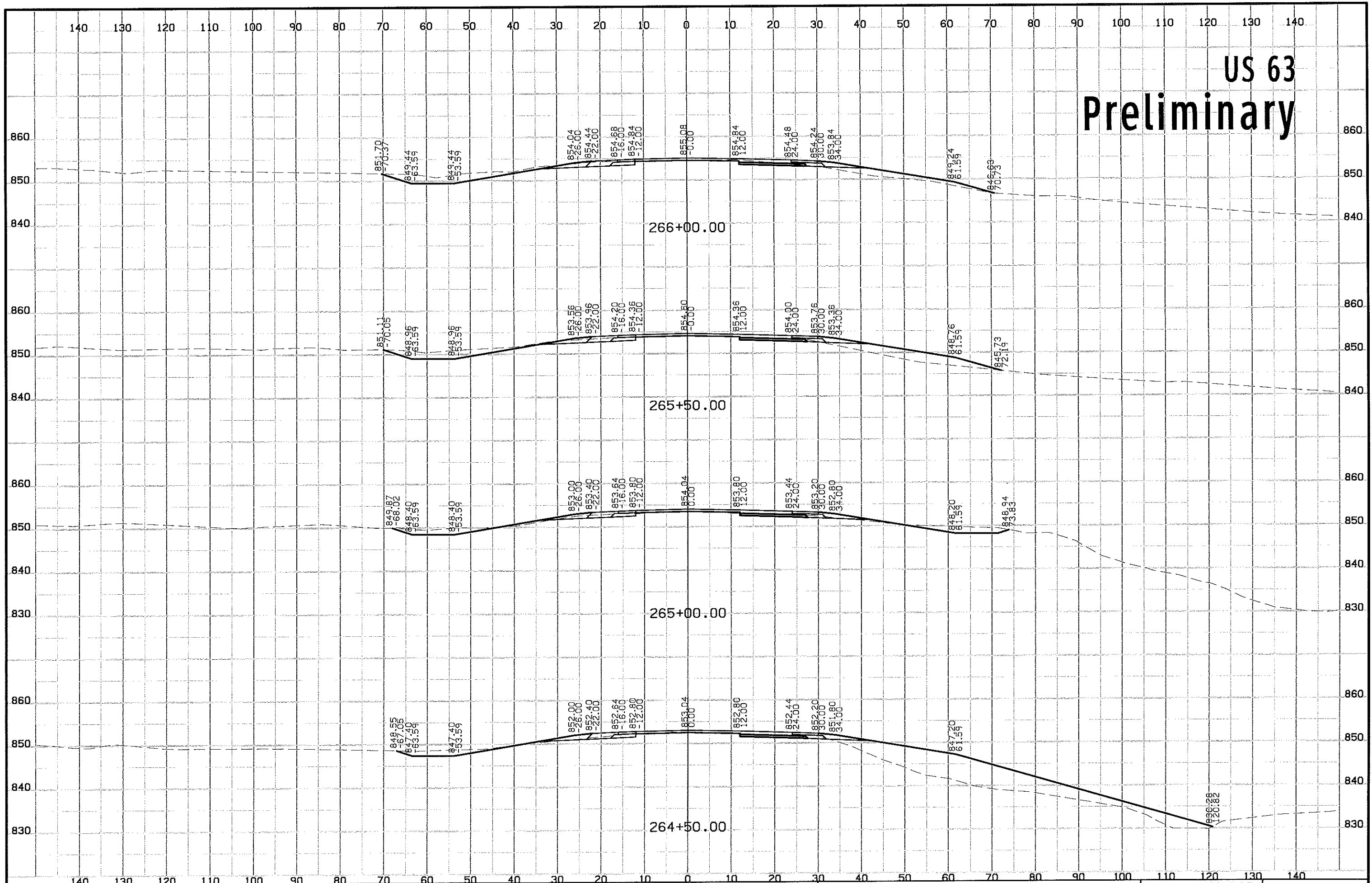
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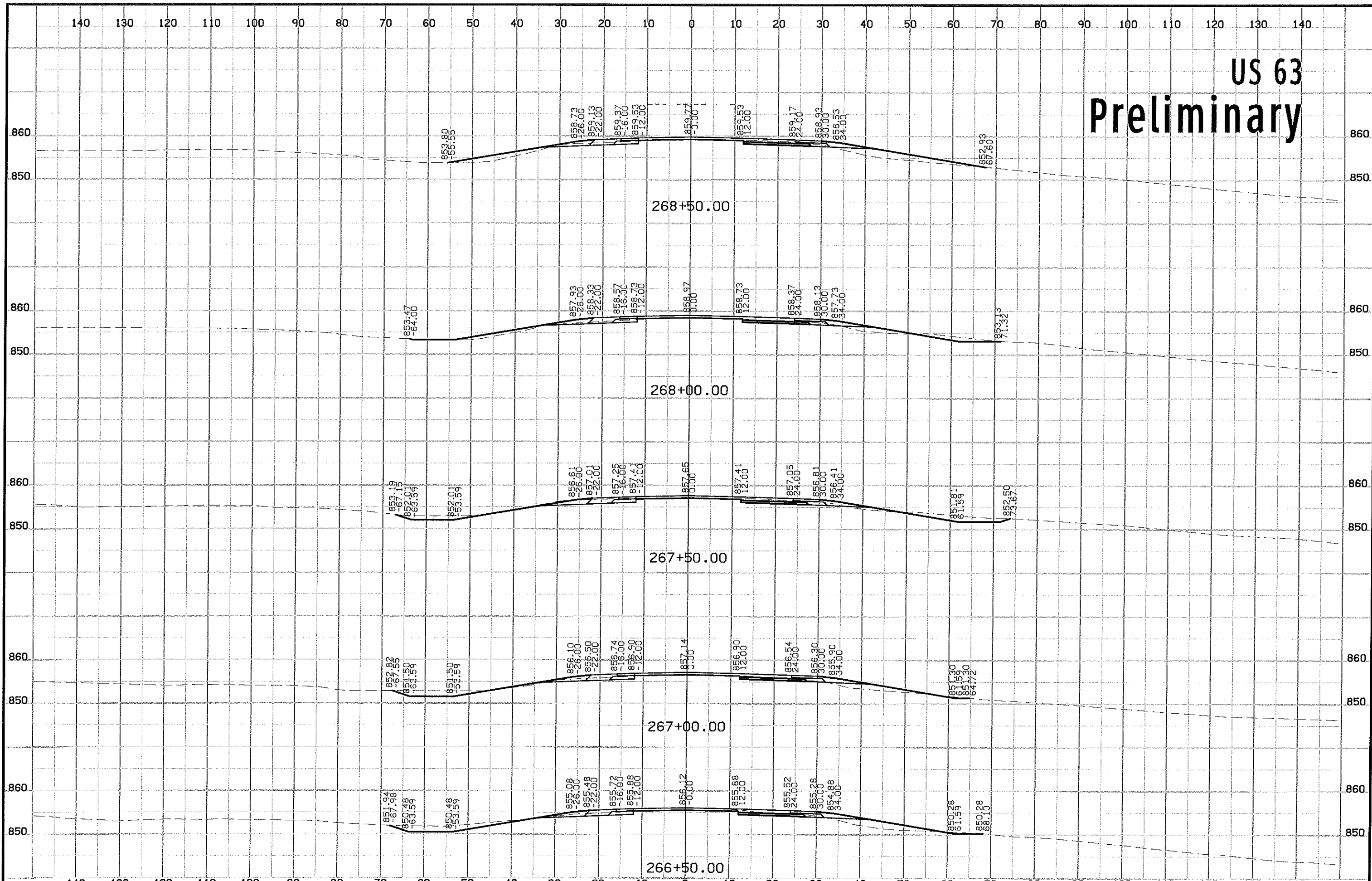
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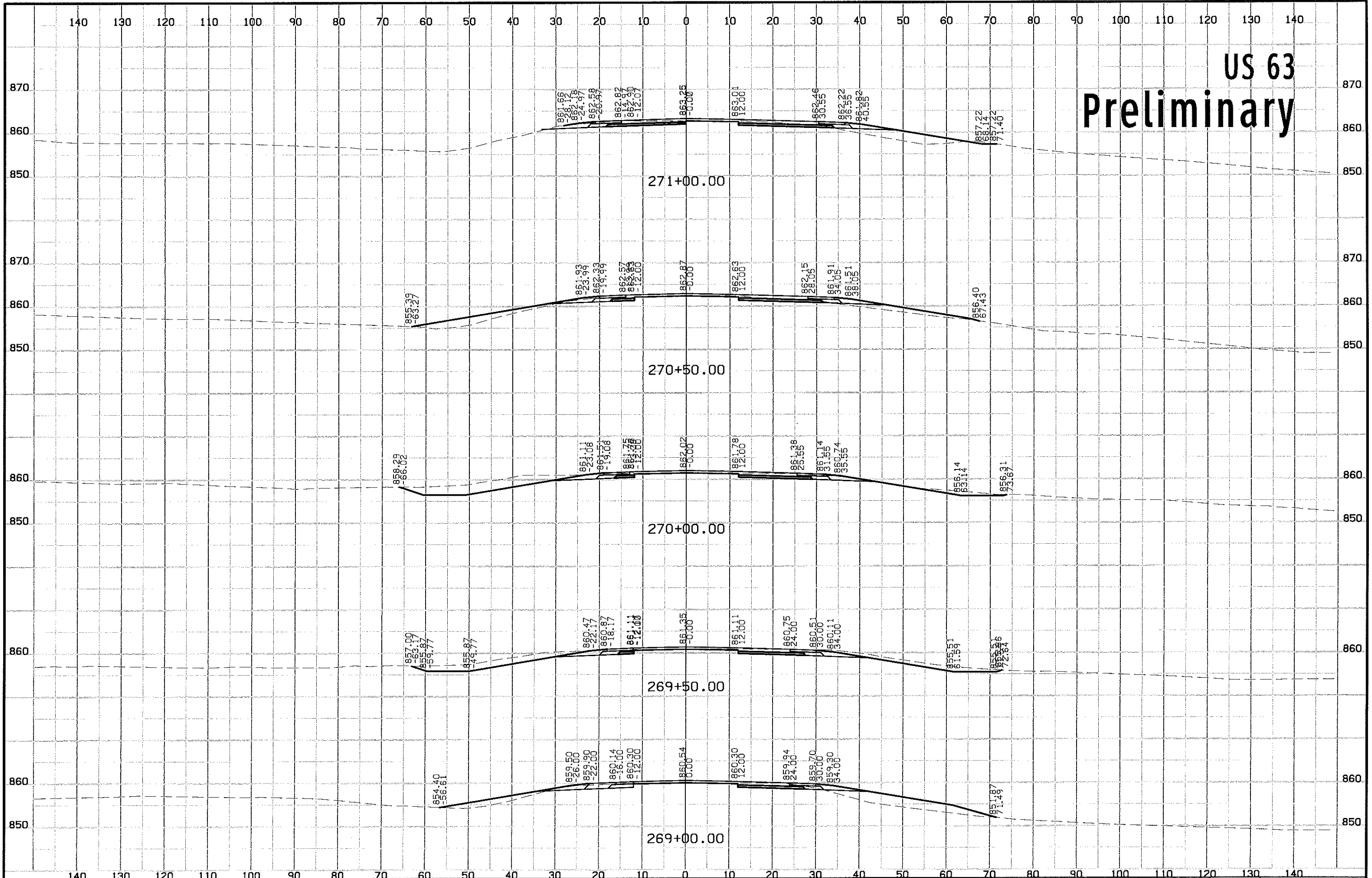
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# US 63 Preliminary

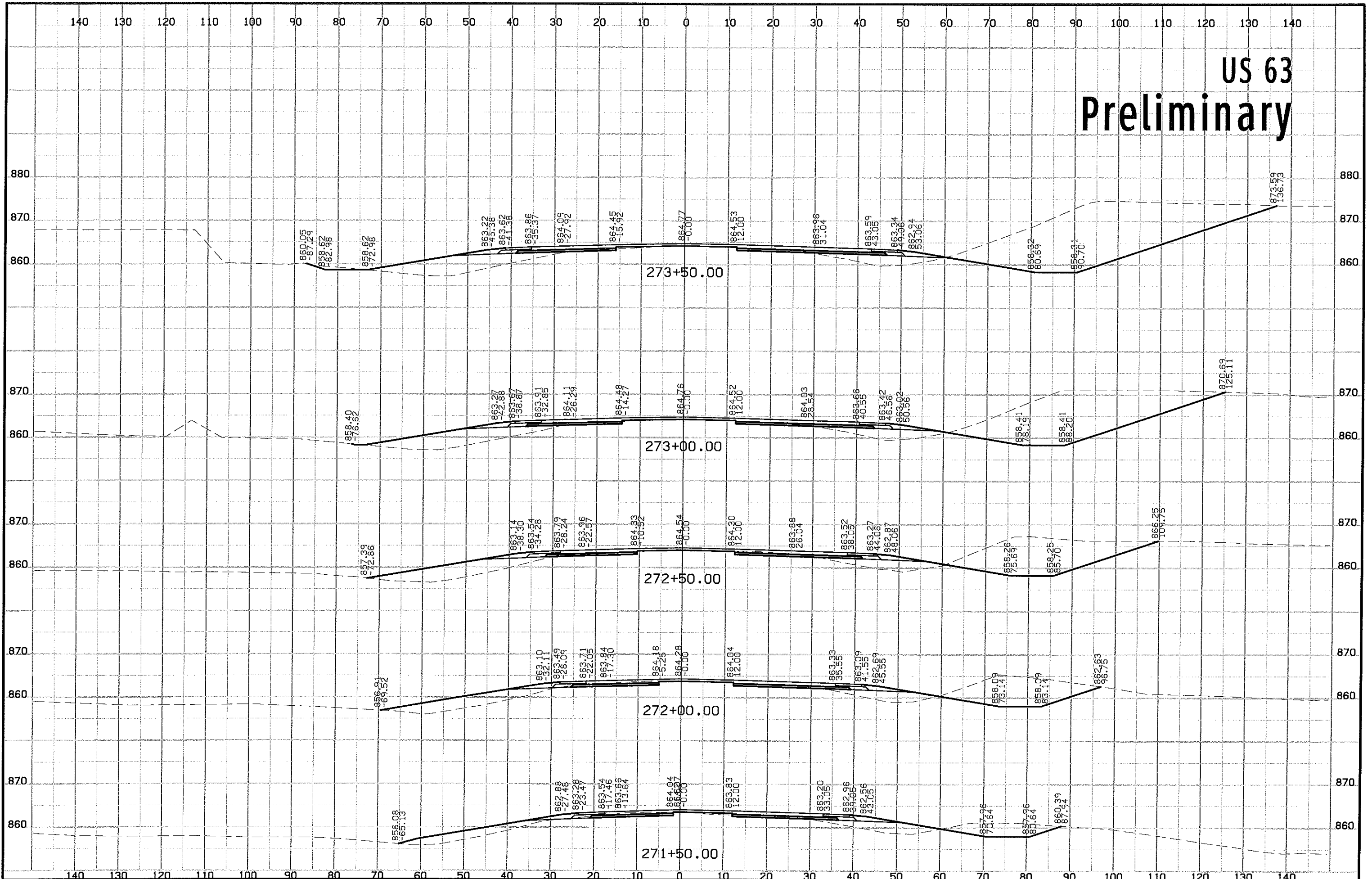


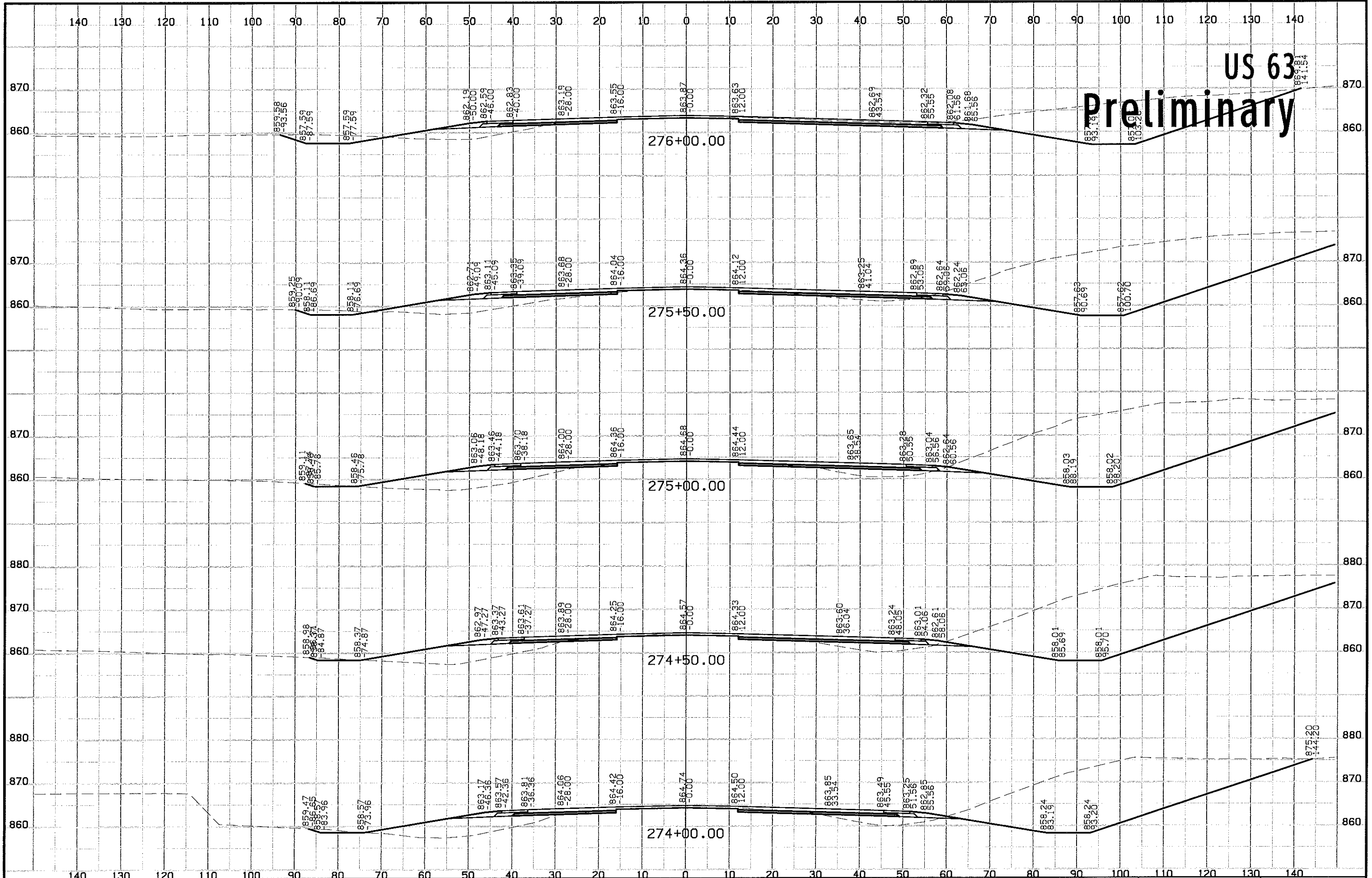
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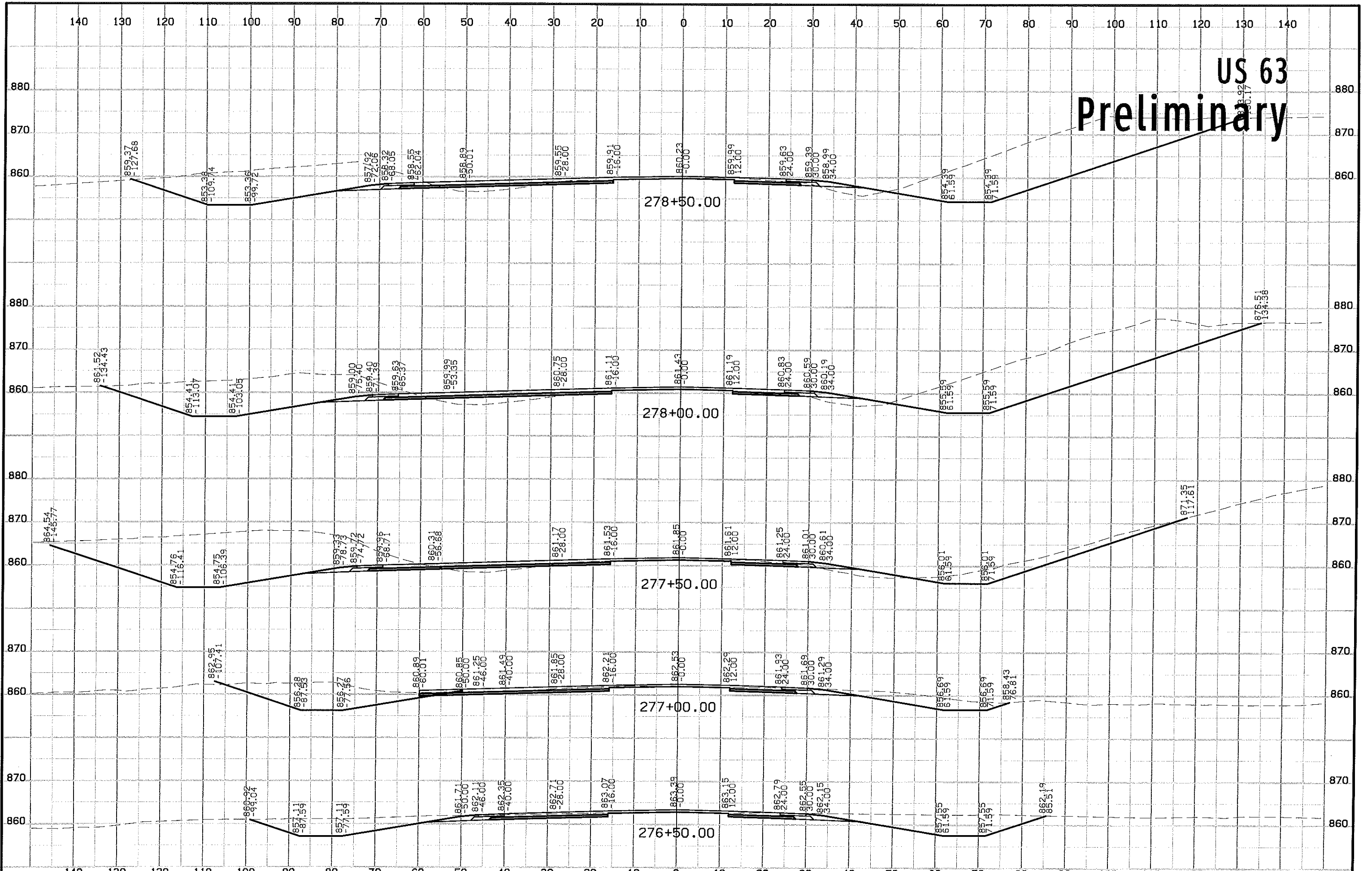




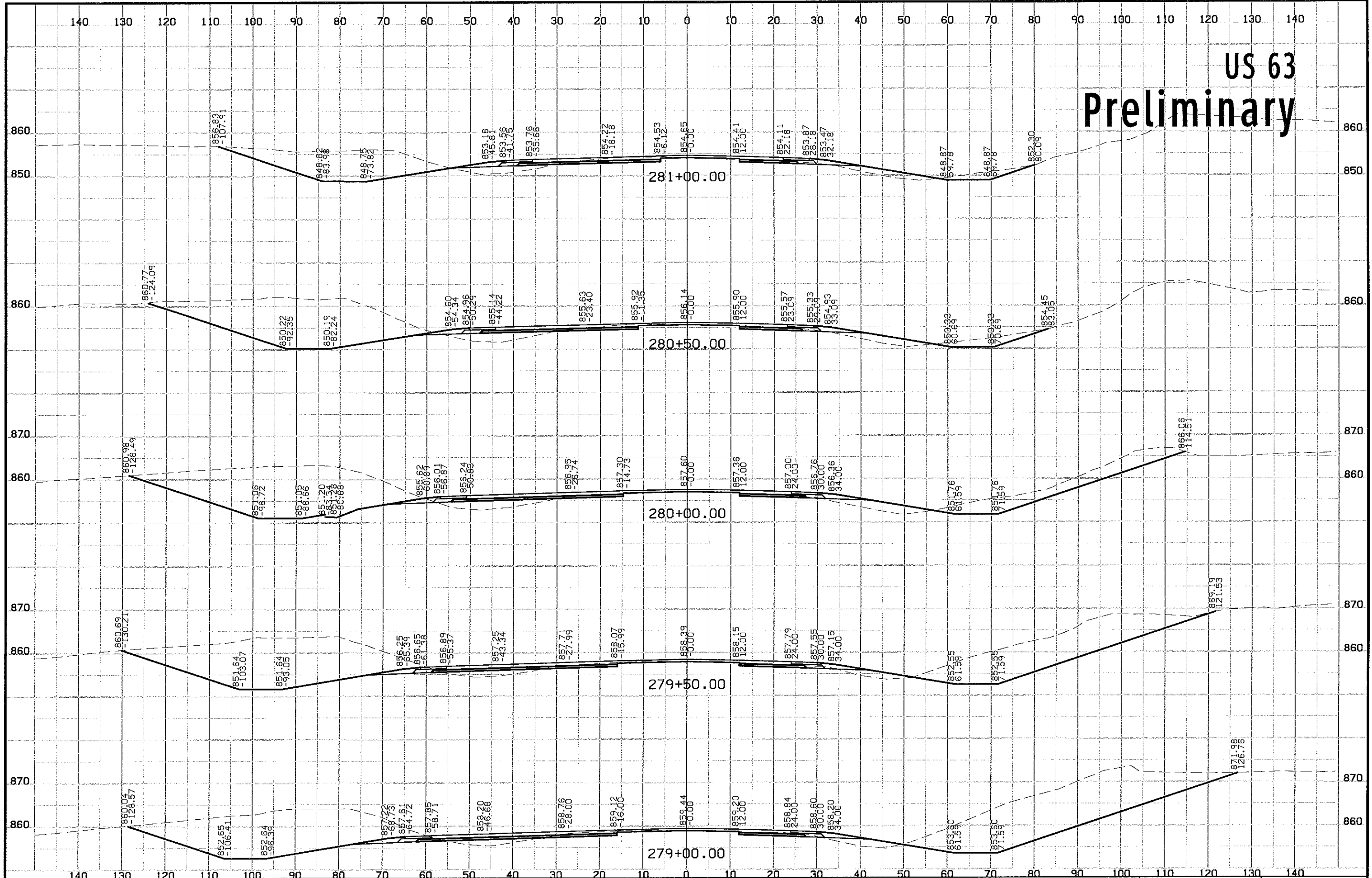
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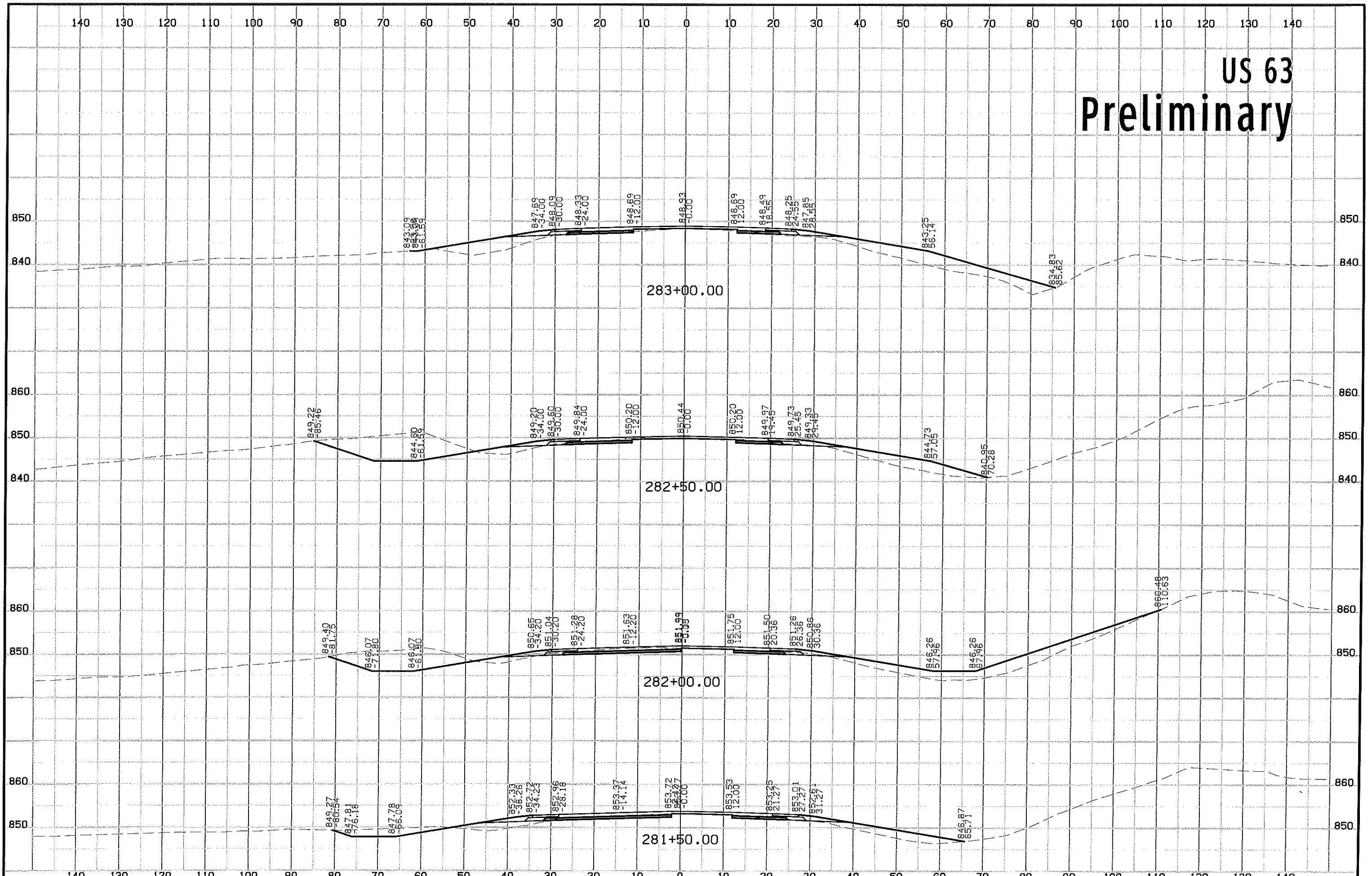




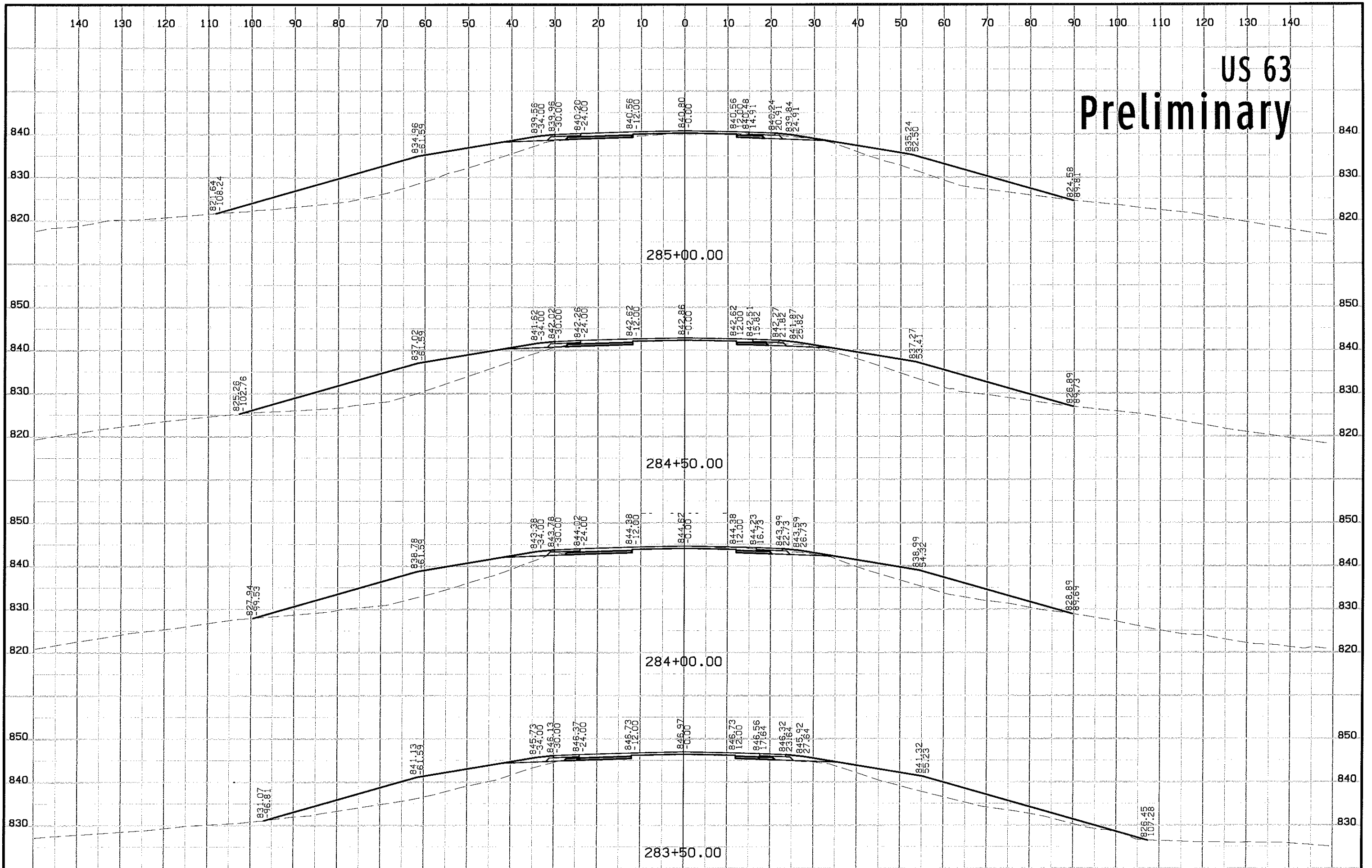
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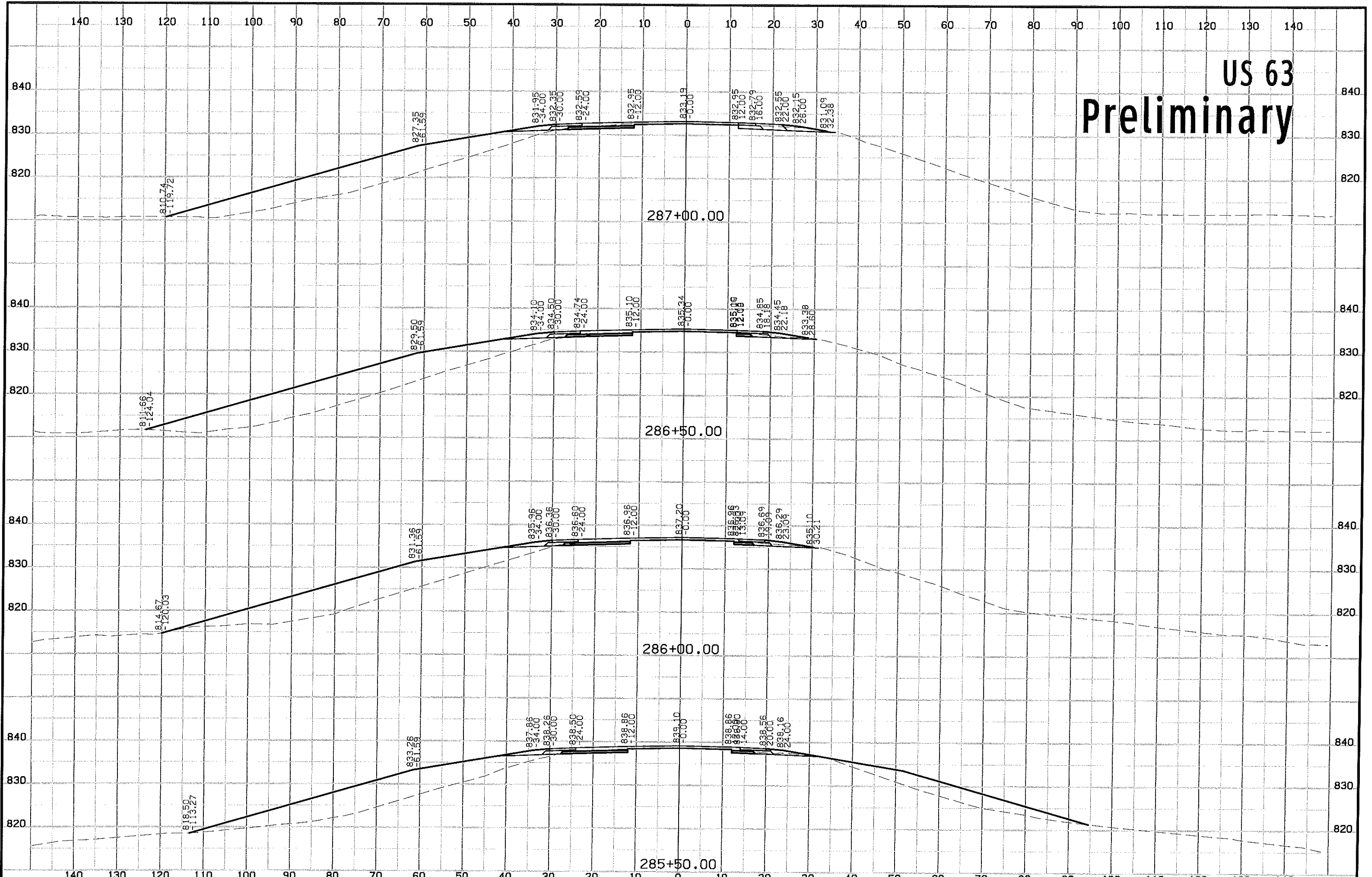
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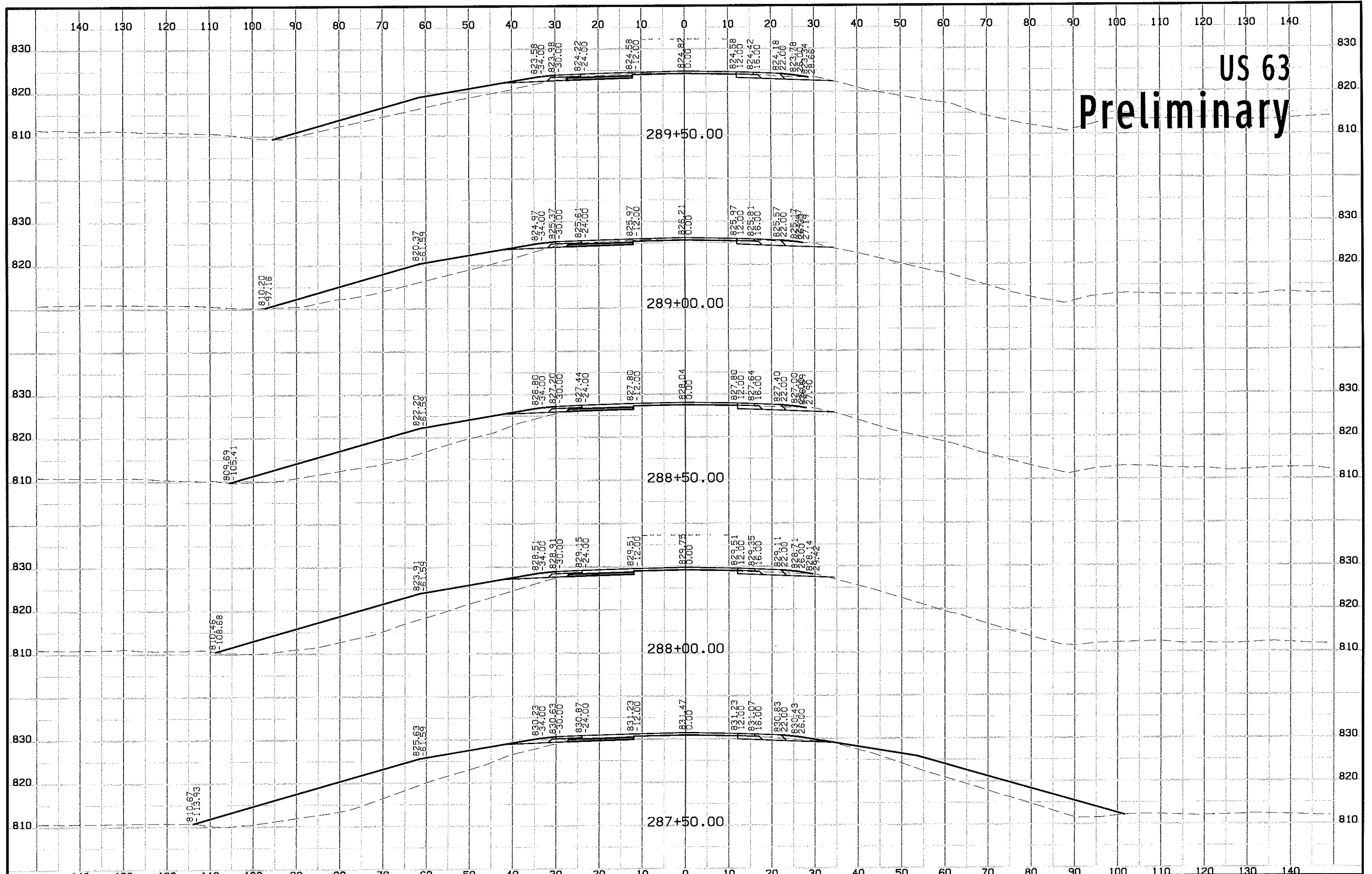
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# US 63 Preliminary

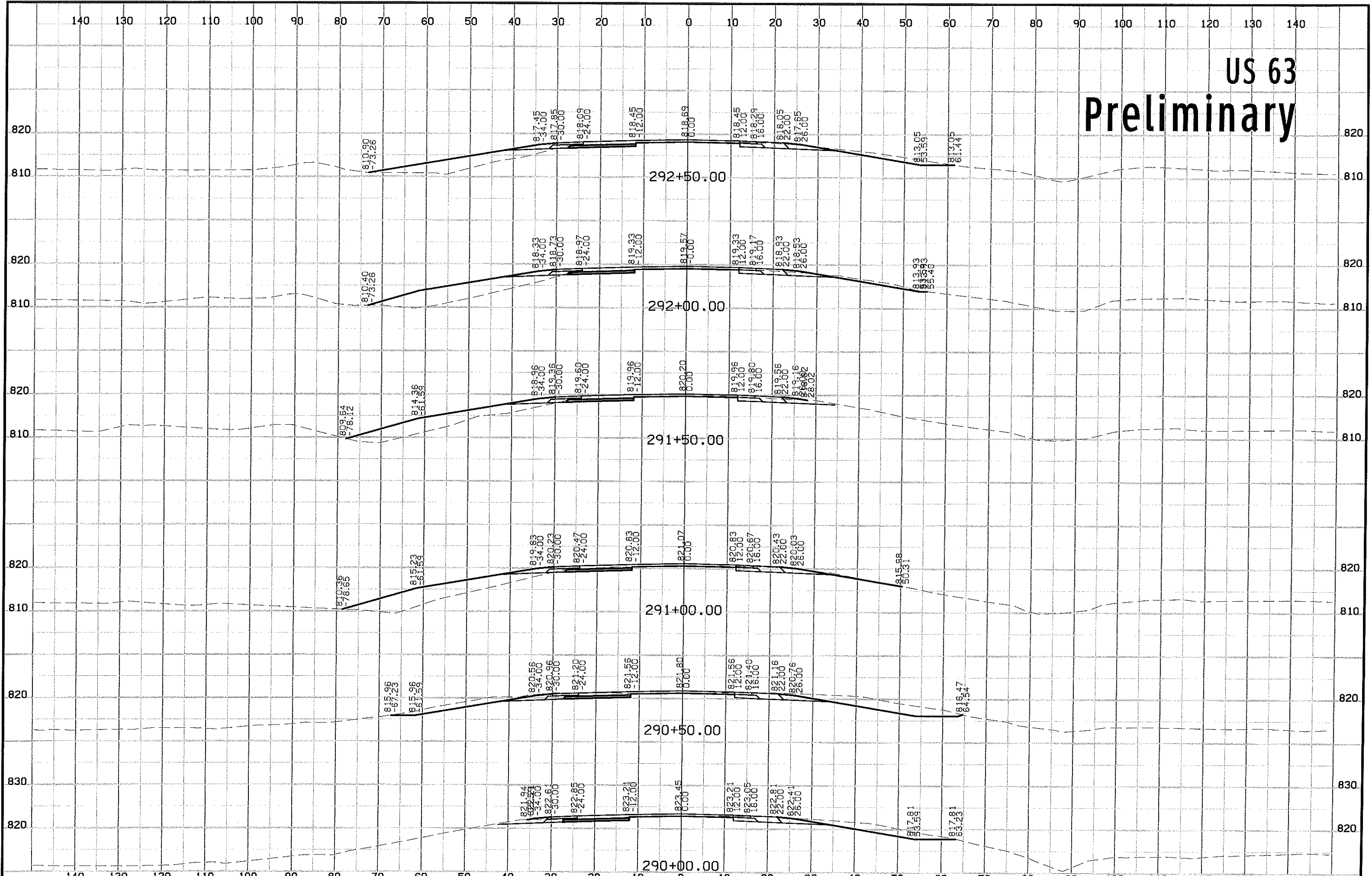


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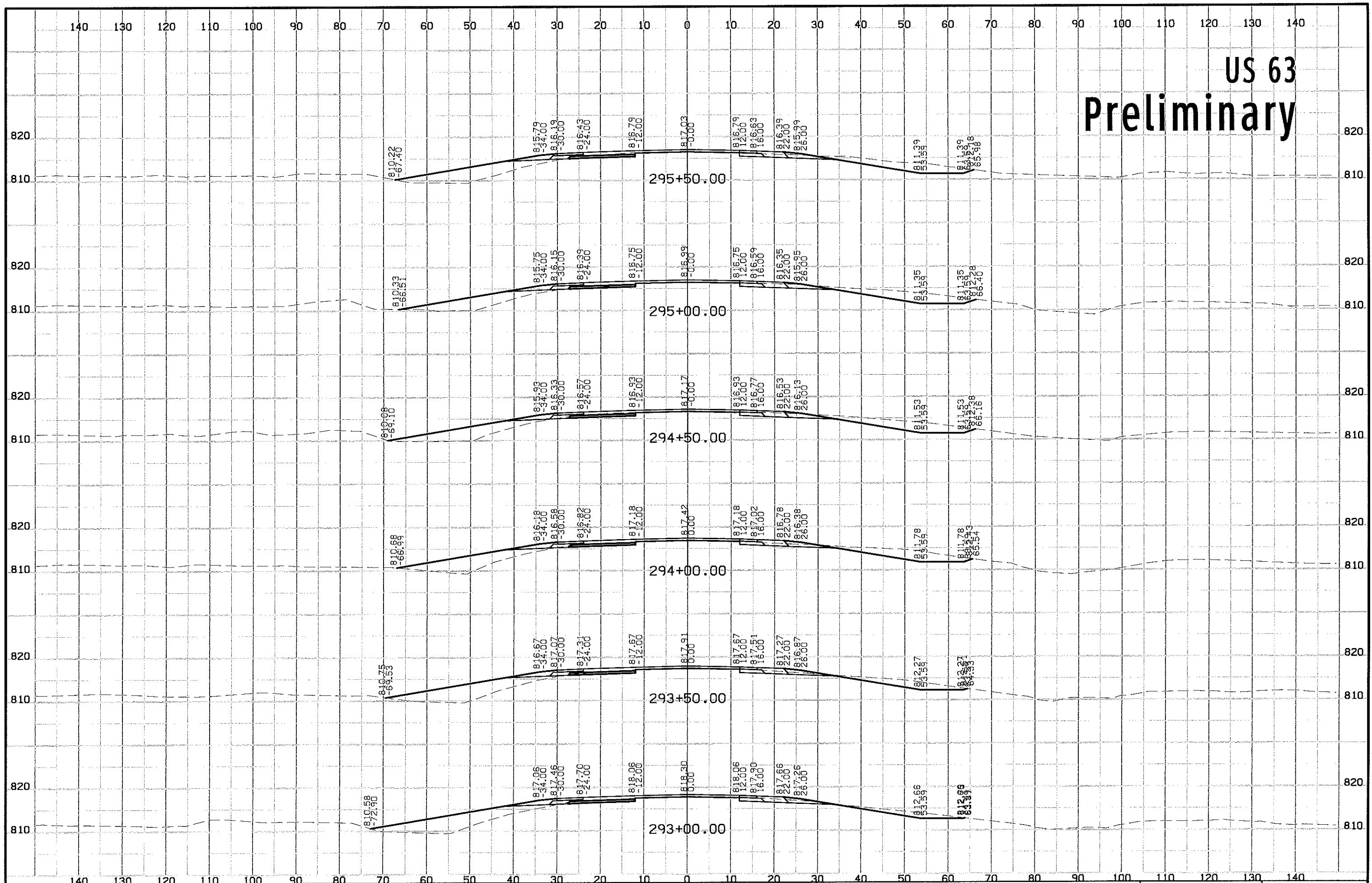




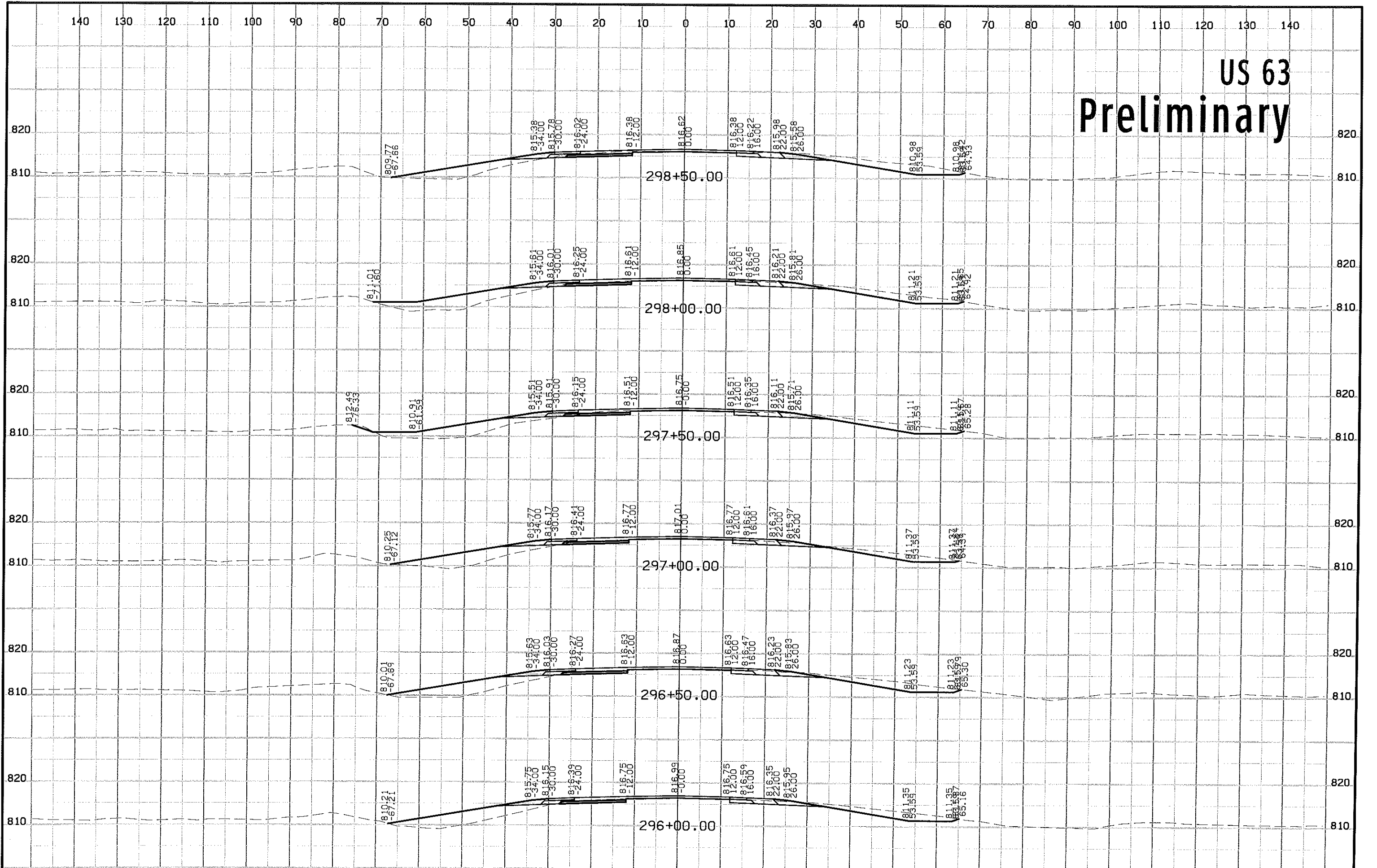
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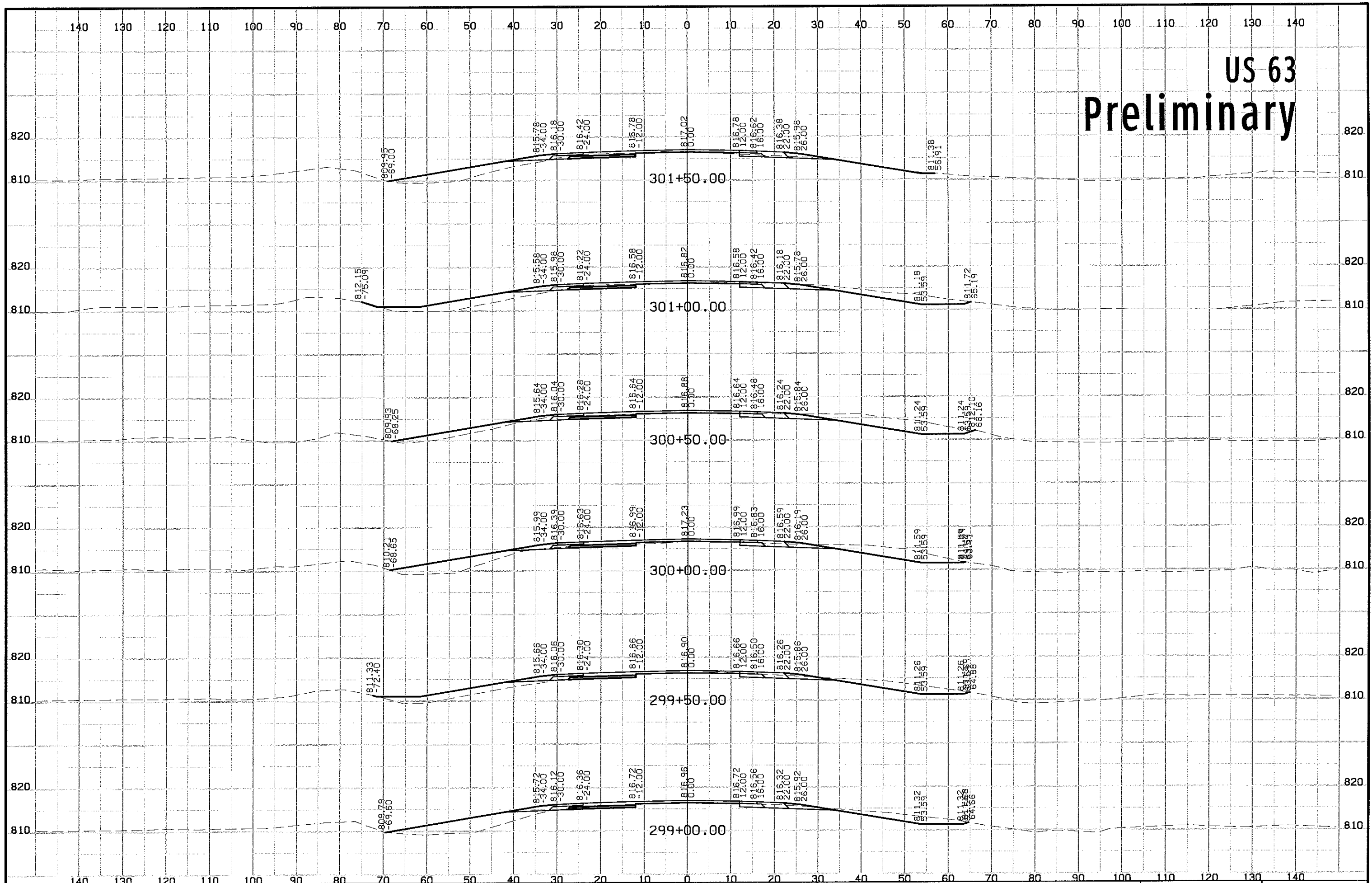
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