LETTING DATE **12/20/2016**

KOSSUTH Co.

BRIDGE AND APPROACHES - PPCB

BRF-169-8(57)--38-55

PRODUCTION SCHEDULE			
EVENT		Proposed Date	Completed Date
D-1	Survey	04-14-2014	01-14-2013
D-2	Field Exam	08-14-2014	09-24-2014
D-3	To Prelim. Culverts	09-15-2014	12-11-2014
B-1	Structures Layout	02-16-2015	02-18-2015
D-5	To Right of Way	03-06-2015	02-23-2015
D-4	Design Plans to Bridge	08-23-2016	

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

KOSSUTH COUNTY

BRIDGE AND APPROACHES - PPCB

Over Mud Creek 0.3 miles S. of Co. Rd. A-40

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

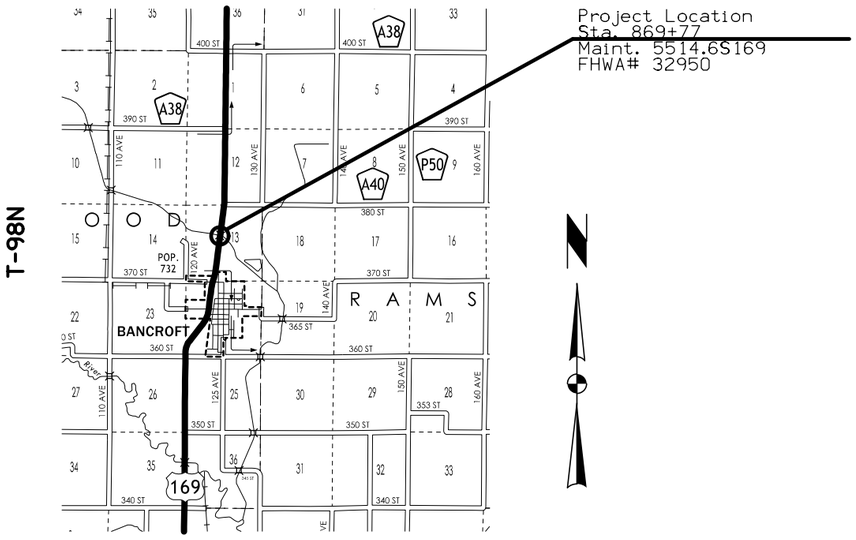
Value Engineering Saves. Refer to Article 1105.15 of the Specifications.

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

REVISIONS

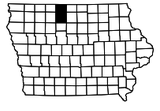
	TOTAL 42
PROJECT IDENTIFICATION NUMBER	
13-55-169-010	
PROJECT NUMBER	
BRF-169-8(57)--38-55	
R.O.W. PROJECT NUMBER	
NHSN-169-8(58)--2R-55	

INDEX OF SHEETS



Roadway Cut = 1956
Embankment In Place = 2390

Class 13 Channel = 3146



LOCATION MAP SCALE
0 1 2 3
Miles

DESIGN DATA RURAL		
2017 AADT	1600	V.P.D.
2037 AADT	1700	V.P.D.
2037 DHV	176	V.P.H.
TRUCKS	22	%
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: 2-23-2015

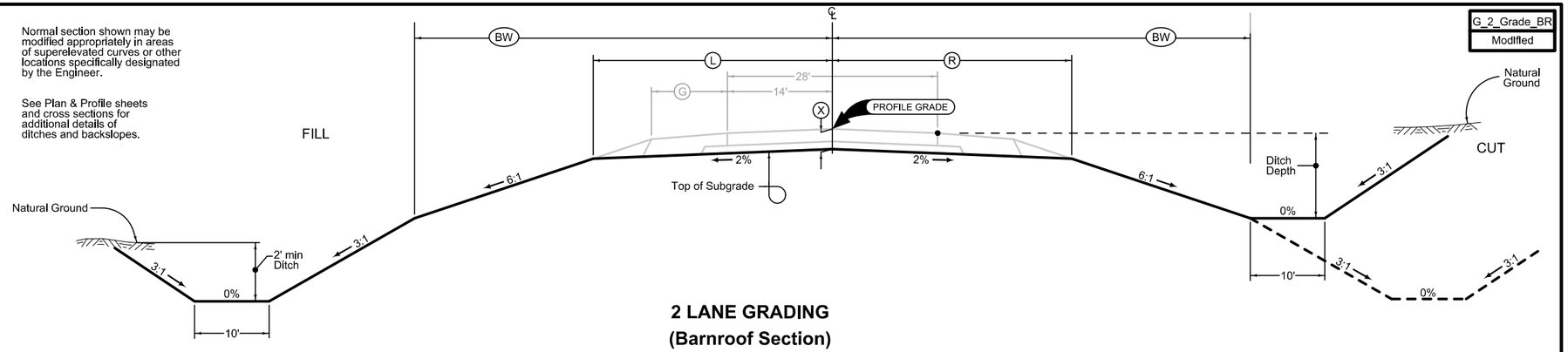
FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER A.1

12:30:25 PM 2/18/2015 jbuttol pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5516901013\Design\55169057A01.sht

LOCATION			DIMENSIONS			
ROAD IDENTIFICATION	STATION TO STATION		(L) Feet	(R) Feet	(X) Inches	(BW) Feet
US 169	862+50	874+00	33.41	33.41	22	42

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.



2 LANE GRADING
(Barnroof Section)

FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER B.1

3:28:10 PM 9/23/2014 jbuttol pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5516901013\Design\55169057B01.sht

Granular Shoulder with Safety Edge

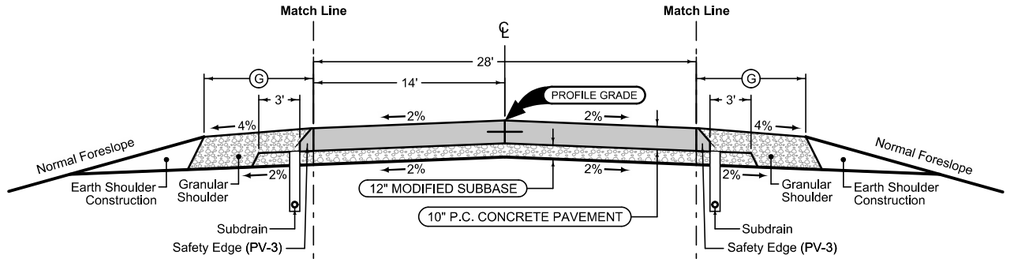
		2_G_ 10-21-14
STATION TO STATION		(G) Feet
862+50.0	868+19.6	8
See	2_P_Guard_	
871+61.4	874+00.0	8

Paved Shoulder at Guardrail

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

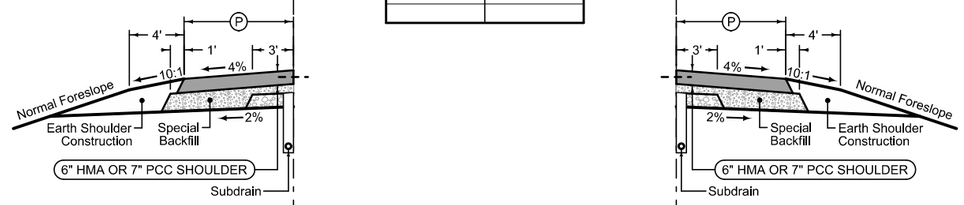
		2_P_Guard_ 10-21-14
STATION TO STATION		(P) Feet
868+19.6	869+05.5	(1)
Bridge		
870+70.5	871+61.4	(1)

(1) See Typ. 7156 and Tab. 112-9 for additional details.



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

2P_ 10-19-10	
STATION TO STATION	
862+50.0	874+00.0



Granular Shoulder with Safety Edge

		2_G_ 10-21-14
STATION TO STATION		(G) Feet
862+50.0	867+94.6	8
See	2_P_Guard_	
971.36.4	874+00.0	8

Paved Shoulder at Guardrail

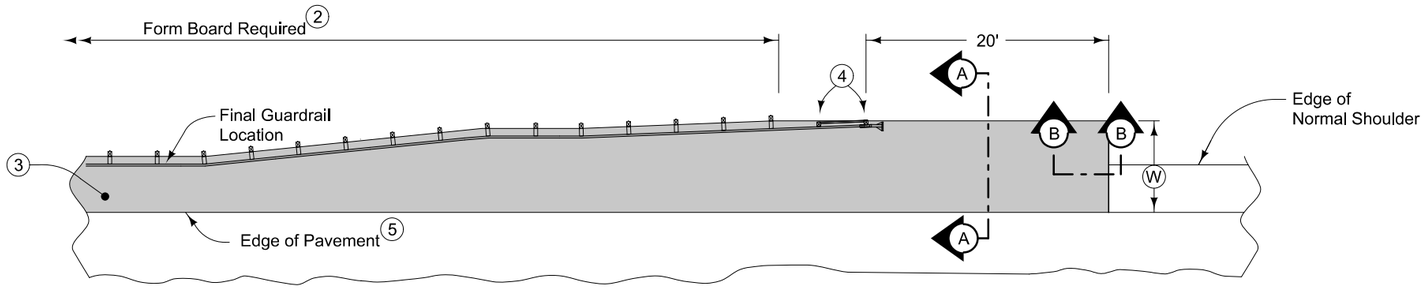
PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 20' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

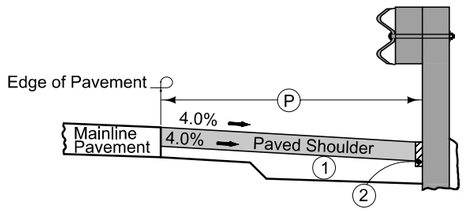
		2_P_Guard_ 10-21-14
STATION TO STATION		(P) Feet
867+94.6	869+05.5	(1)
Bridge		
871+36.4	871+61.4	(1)

(1) See Typ. 7156 and Tab. 112-9 for additional details.

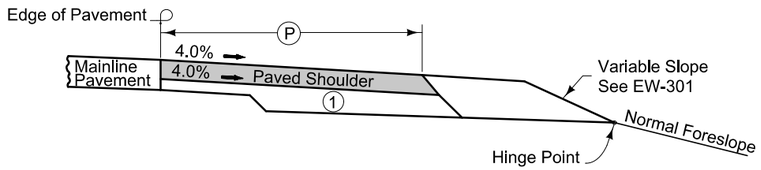
See Tab 100-24 or 100-25 for pavement quantities.
See Tab 112-9 for shoulder quantities.

ROADWAY IDENTIFICATION

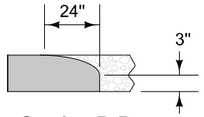




Typical Section with Form Board



Section A-A



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

6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted with the following jointing layout:

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

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

Refer to Shoulder tabulation (112-9) for quantities.

(1) 6" subgrade treatment.

(2) When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.

(3) Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.

(4) Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.

(5) 'KT-1' joint for PCC shoulder.
'B' joint for HMA shoulder.

PAVED SHOULDER AT GUARDRAIL

SURVEY SYMBOLS

- BRG Bridge
- FW Wire Fence
- PPA Power Pole Co. 1
- UB Utility Box
- LIN Miscellaneous Line
- GDL Guard Rail Steel
- SI Sign
- PIP Pipe Culvert
- TIL Tile Line
- OUT Tile Outlet
- EW Edge of Water
- DU Centerline Draw or Stream (Up)
- RIP Rip-Rap
- BNK Stream Bank
- CON Concrete or A/C Slab
- D Centerline Draw or Stream (Down)
- SP Stream Profile
- SNP Unpaved Shoulder
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- EP Edge of Paved Roads (ML or SR)
- FOA Underground Fiber Optic Co. 1
- TLA Underground Telephone Line Co. 1
- BD Bridge Deck
- TW Top of Water
- BLS Bridge Low Steel
- BCL Bridge Centerline
- SBR Size of Bridge
- SOP Size of Pipe or Culvert

UTILITY LEGEND

This is a Non-Point 25 Project

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 *Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.*

Remark Abbreviations
QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

- Heartland Telecom Hickory Tech (QLD)
- Mediacom (QLD)
- City of Bancroft

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
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

CONVENTIONAL SIGNS

- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Clearing & Grubbing Area
- Pavement Removal

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER D.1

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Sta. 862+50.00
Begin Project

865

868+00 Prop. Type "C" Ent.

(Close)

Mud Creek

870

STA. 870+31.5 72' LT
INSTALL 24 IN. X 59' C.M.P.
SKEW 90°
LENGTH LT (BACK) 29.5'
LENGTH RT (AHEAD) 29.5'
F.L. LT 1146.94
F.L. RT 1148.12
DA UNKNOWN (NO CHG)

GREENFIELD TWP.
T-98N R-29W
SEC. 13

(Remove)
18" x 72.70'
C.M.P.

871+80 Prop. Type "C" Ent.

Sta. 874+00.00
End Project

875

169

(Remove)
18' X 51'
C.M.P.

863+90 Prop. Type "C" Ent.

Prop. 24" Uncl. Ent. Pipe

(Remove)
STA. 869+80.72
40' x 44'
Conc. Bridge
D.A. = 55 Sq. Miles

Sta. 869+78
Build 105' x 44' PPCB Bridge
Design No. 117
File No. 31129

(Close)

(Remove)
18" x 100.40'
C.M.P.

STA. 869+22.8, 67' RT
INSTALL 24 IN. X 49' C.M.P.
SKEW 90°
LENGTH LT (AHEAD) 22.5'
LENGTH RT (BACK) 26.5'
F.L. LT 1147.7
F.L. RT 1148.68
DA 2.5 ACRES

(Close)

(Remove)
18" x 87.10'
C.M.P.

871+80 Prop. Type "C" Ent.

STA. 870+35.0 78' RT
INSTALL 24 IN. X 60' C.M.P.
SKEW 90°
LENGTH LT (AHEAD) 30.0'
LENGTH RT (BACK) 30.0'
F.L. LT 1150.92
F.L. RT 1149.72
DA 4.4 AC. ±

0 50
FEET

Tie In
Sta. 862+50
ELev. = 1164.31

-1.320%

+50 Lt. 1161.54
-2.0% D.G.Lt.
+50 Rt. 1160.00
-0.68% D.G.
+25 Lt. 1160.04
-0.74% Lt.
+25 Rt. 1159.49
-1.52% Ditch Grade
+85 Lt. 1159.60
-1.42% Lt.
+50 Rt. 1157.59
+00 Lt. 1157.97
-1.82% Rt. Ditch Grade
-2.00% D.G.Lt.
+00 Lt. 1153.97
+65 Lt. 1152.54
-2.20% Lt.
+80 Lt. 1153.50
-6.42% Lt.
+35 Rt. 1155.90
-2.40% Rt. D.G.
+16.68% Rt. D.G.
+50 Rt. 1150.31
+95 Rt. 1149.23

-0.500%

VPI +00.000
Elv 1,162.33
K = 366
Len 300.00 ft

Sta. 868+08
Prop. Type "C" Ent. Lt.

Sta. 863+90
Prop. Type "C" Ent. Lt.
-0.320%

-2.96%
-6.54%
+90 Lt. 1151.32
-2.24% Lt. D.G.
+31 Lt. 1152.64

VPI +00.000
Elv 1,157.83
K = 222
Len 200.00 ft

+0.400%

Tie In
Sta. 874+00
ELev. = 1158.23

+60 Rt. 1151.54
+0.72% Rt. Ditch Grade
+00 Lt. 1150.94
+00 Rt. 1152.55
+0.24% D.G.Rt.
+0.24% Lt. Ditch Grade
+00 Rt. 1152.79
+00 Lt. 1151.42

Sta. 871+00
Prop. Type "C" Ent. Rt. & Lt.

-0.1%
-2.24%
1.42%
-6.88%
-4.52%
-4.0%
+0.5%
-0.76%
+18 Rt. 1150.03
-1.04% Rt. Ditch Grade
+30 Rt. 1150.95
-0.64% Lt. Ditch Grade
+35 Lt. 1151.98
+55.45% Lt. D.G.
+05 Lt. 1153.70
+00 Lt. 1150.93

Ditch Grade
Ditch Grade
See Ent. Lt.
Channel
Channel
See Ent. Lt.
See Ent. Rt.
Ditch Grade
Ditch Grade

Lt
Rt

1165
1160
1155
1150
1145
1140
1135

1,164.31 1,163.99 1,163.68 1,163.39 1,163.12 1,162.87 1,162.63 1,162.42 1,162.21 1,162.03 1,161.86 1,161.71 1,161.58 1,161.45 1,161.33 1,161.20 1,161.08 1,160.95 1,160.83 1,160.70 1,160.58 1,160.45 1,160.33 1,160.20 1,160.08 1,159.95 1,159.83 1,159.70 1,159.58 1,159.45 1,159.33 1,159.20 1,159.08 1,158.95 1,158.83 1,158.70 1,158.58 1,158.45 1,158.33 1,158.22 1,158.13 1,158.08 1,158.05 1,158.05 1,158.08 1,158.14 1,158.23

+50 861 +50 862 +50 863 +50 864 +50 865 +50 866 +50 867 +50 868 +50 869 +50 870 +50 871 +50 872 +50 873 +50 874 +50 875 +50 876

FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER D.2

9:56:15 AM 2/23/2015 jbuttol pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5516901013\Design\55169057D2.sht

Survey Information

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Bridge reconstruction along US Highway 169 over Mud Creek. Project datum and control information is provided by Design Survey Office. This project is a Full DTM without Photo control.

Vertical Control

Project ellipsoidal height was established at Pt. 1 by averaging a minimum of five Ia RTN RTK observations with 1 hour or greater time span between each observation. NAVD88 height was computed at Pt. 1 using Geoid 09. The relative network error of height observations was less than 0.02 ft. at 95% confidence level. Additional benchmarks were placed throughout the project using a GNSS Base-Rover setup at Pt. 1. A minimum of three observations were collected with 1 hour or greater time span between each observation. The local error of these observations relative to Pt. 1 was less than 0.01 ft. at 95% confidence level.

This survey observed 1 NGS Control Monument with published NAVD88 height to compare with observed survey height: Mark K1 is located 5.5 miles south of the project.
NGS 1st. order class II mark designated K1 published height = 1152.30
IaRTN NAVD88 height computed using Geoid 09 = 1152.24
The relative network error of the height observations was less than 0.02 ft. at 95% confidence level.

This survey also observed 1 Kossuth County Control Monument with published NAVD88 height to compare with observed survey height: Mark 528 is located 5.5 miles north of the project.
Kossuth County Control mark GPS 528 published height = 1157.89
IaRTN NAVD88 height computed using Geoid 09 = 1157.89
The relative network error of the height observations was less than 0.03 ft. at 95% confidence level

Horizontal Control

The project coordinate system is modified Iowa State Plane North Zone (U.S. Survey Feet) scaled around Pt. 1 at 3942468.178 N, 4730566.203 E, 1162.056 Height. Horizontal datum is NAD83(1996CORS) (Epoch 2002.00). Project coordinates were established at Pt. 1 by averaging a minimum of five Ia RTN RTK observations with 1 hour or greater time span between each observation. The relative network error of observations was less than 0.02 ft. at 95% confidence level. Additional control points were placed throughout the project using a GNSS Base-Rover setup at Pt. 1. A minimum of three observations were collected with 1 hour or greater time span between each observation. The local error of these observations relative to Pt. 1 was less than 0.02ft. at 95% confidence level.

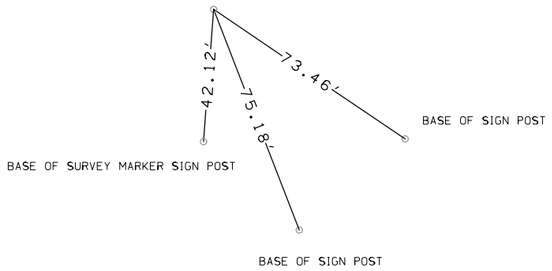
1/Combined Scale Factor of project (State plane grid modified to ground) = 1.00004225

The 1/Combined Scale Factor scaled at Pt. 1 will be used for GPS/GNSS stakeout and location survey in the Project Coordinate system. A scale factor of 1 will be used for total station stakeout and location survey in the Project Coordinate system.

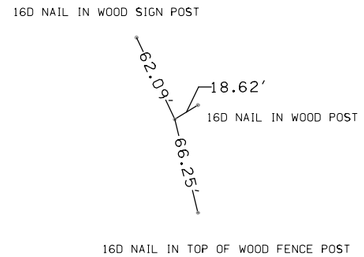
VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
1	3942468.178	4730566.203	1162.056	Off Chain	Off Chain	CP	SET FENO TYPE MONUMENT
500	3940226.151	4730249.052	1158.423	870+22.04	23.744	BM	FD CUT SQUARE NE SIDE BRIDGE WING

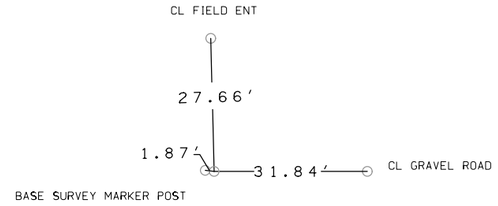
C.P. OFF CHAIN
C.P. K1, FD NGS MONUMENT
N= 3910833.121, E= 4728986.173



C.P. OFF CHAIN
C.P. 1, SET FENO TYPE MONUMENT
N= 3942468.178, E= 4730566.203



C.P. OFF CHAIN
C.P. 528, FD COUNTY GPS MONUMENT
N= 3970303.461, E= 4733394.683



ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
SUR169	Survey US169																		
100		859+79.00	3,939,194.94	4,730,090.58															
104		880+00.00	3,941,198.96	4,730,352.02															
US169	US169																		
BP1		849+79.00	3,938,203.35	4,729,961.21															
100		859+79.00	3,939,194.94	4,730,090.58															
104		880+00.00	3,941,198.96	4,730,352.02															
ENTR863	ENT@863+90 Rt.																		
ENT8631		400+00.00	3,939,602.49	4,730,143.74															
ENT8632		400+63.32	3,939,594.30	4,730,206.53															
ENT8633		400+96.14	3,939,599.35	4,730,238.96															
ENTL868	ENT@868+00 Lt.																		
ENT8680		100+00.00	3,940,009.05	4,730,196.78															
ENT8682								100+18.13	3,940,011.39	4,730,178.80	100+39.20	3,940,014.12	4,730,157.91	100+53.14	3,940,035.17	4,730,157.06			
ENT8683		100+57.44	3,940,039.46	4,730,156.88															
ENT8684								100+81.28	3,940,063.28	4,730,155.92	100+82.81	3,940,064.81	4,730,155.85	100+84.34	3,940,066.34	4,730,155.98			
ENT8685		101+07.84	3,940,089.75	4,730,157.90															
ENT8686		101+43.01	3,940,124.79	4,730,161.02															
ENTL871	ENT@871+80 Lt.																		
ENTL8710		300+00.00	3,940,385.85	4,730,245.94															
ENTL8711		300+13.57	3,940,387.61	4,730,232.49															
ENTL8712								300+29.37	3,940,381.54	4,730,217.89	300+49.12	3,940,373.97	4,730,199.66	300+65.33	3,940,354.44	4,730,196.71			
ENTL8713								301+53.12	3,940,267.63	4,730,183.62	301+66.94	3,940,253.97	4,730,181.56	301+78.36	3,940,248.45	4,730,168.89			
ENTL8714		301+79.73	3,940,247.90	4,730,167.65															
ENTR871	ENT@871+80 Rt.																		
ENTR8711		200+00.00	3,940,385.85	4,730,245.94															
ENTR8712								200+24.00	3,940,382.75	4,730,269.74	200+49.00	3,940,379.51	4,730,294.53	200+63.27	3,940,354.72	4,730,291.30			
ENTR8713								201+48.27	3,940,270.43	4,730,280.30	201+65.93	3,940,252.92	4,730,278.01	201+79.02	3,940,244.92	4,730,293.75			
ENTR8714		202+40.94	3,940,216.85	4,730,348.94															
CHANNEL	D.D. Channel																		
CHAN1		500+00.00	3,940,193.61	4,730,160.35															
CHAN2		500+86.58	3,940,182.11	4,730,246.17															
CHAN3		501+35.33	3,940,170.26	4,730,293.45															
CHAN4		501+65.34	3,940,167.39	4,730,323.33															

FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER G.3

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SPIRAL OR CIRCULAR CURVE DATA

101-17
04-19-11

Name	Location	Δ_{scs}	Horizontal Alignment Data													Remarks
			Spiral Data								Curve Data					
			θs	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	Δ_c	T	L	R	E	
ENTL868	ENT@868+00 Lt.															
ENT8682											80° 14′ 26.23″ RT	21.07′	35.01′	25.00′	7.69′	
ENT8684											7° 00′ 40.65″ RT	1.53′	3.06′	25.00′	0.05′	
ENTL871	ENT@871+80 Lt.															
ENTL8712											58° 51′ 15.25″ LT	19.74′	35.95′	35.00′	5.18′	
ENTL8713											57° 51′ 23.33″ RT	13.82′	25.24′	25.00′	3.56′	
ENTR871	ENT@871+80 Rt.															
ENTR8712											90° 00′ 00.00″ RT	25.00′	39.27′	25.00′	10.36′	
ENTR8713											70° 28′ 21.05″ LT	17.66′	30.75′	25.00′	5.61′	

FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER G.4

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1

THOMAS J. & JUDITH M.
GOCHE

Sta. 862+50.00
Begin Project

868+20
℄90′

867+65
℄77′±ExR/W

868+00 Prop.
Type "C" Ent.

(Close)

865

870

875

Mud Creek

STA. 870+31.5 72′ LT
INSTALL 24 IN. X 59′ C.M.P.
SKEW 90°
LENGTH LT (BACK) 29.5′
LENGTH RT (AHEAD) 29.5′
F.L. LT 1146.94
F.L. RT 1148.12
DA UNKNOWN (NO CHG)

GREENFIELD TWP.
T-98N R-29W
SEC. 13

872+00
℄90′

Sta. 874+00.00
End Project

(Remove)
18″ x 72.70′
C.M.P.

871+80
Prop. Type
"C" Ent.

872+65
℄77′±ExR/W

(Close)

169

861+50
℄33′±℄

862+50
℄70′

(Remove)
18′ X 51′
C.M.P.

863+20±℄
℄70′

863+90 Prop.
Type "C" Ent.

Prop. 24″
Uncl. Ent. Pipe

864+30
℄80′

863+50
℄80′

(Remove)
STA. 869+80.72
40′ x 44′
Conc. Bridge
D.A. = 55 Sq. Miles

867+25
℄75′

(Close)

(Remove)
18″ x 100.40′
C.M.P.

868+90
℄110′

Sta. 869+78
Build 105′ x 44′ PPCB Bridge
Design No. 117
File No. 31129

STA. 869+22.8, 67′ RT
INSTALL 24 IN. X 49′ C.M.P.
SKEW 90°
LENGTH LT (AHEAD) 22.5′
LENGTH RT (BACK) 26.5′
F.L. LT 1147.7
F.L. RT 1148.68
DA 2.5 ACRES

869+73±℄
℄110′

870+00
℄135′

(Close)

(Remove)
18″ x 87.10′
C.M.P.

870+60
℄135′

871+80
Prop. Type
"C" Ent.

871+95
℄110′

873+00
℄75′

874+05
℄70′

875+00
℄33′±℄

STA. 870+35.0 78′ RT
INSTALL 24 IN. X 60′ C.M.P.
SKEW 90°
LENGTH LT (AHEAD) 30.0′
LENGTH RT (BACK) 30.0′
F.L. LT 1150.92
F.L. RT 1149.72
DA 4.4 AC. ±

0 50
FEET

3

DORIS Y. MCNERTNEY REV LIVING TRUST
DONALD E. MCNERTNEY REV LIVING TRUST

2

CITY OF BANCROFT

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

3

DORIS Y. MCNERTNEY
REV LIVING TRUST
DONALD E. MCNERTNEY
REV LIVING TRUST

2

CITY OF BANCROFT

TEMPORARY EASEMENT TO CONSTRUCT ENTRANCE

3

DORIS Y. MCNERTNEY REV LIVING TRUST
DONALD E. MCNERTNEY REV LIVING TRUST

Right of Way Design Information

THIS SHEET INCLUDED FOR INFORMATION ONLY

ROW Team: Cuva /Dumdei/Gogerty
ROW #: NHSN-169-8(58)--2R-55
Plan Date: 9/22/15
Color Legend:
- Property Lines
- Temporary Easement
- Permanent Acquisition

FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER H.1

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108-23A
08-01-08

TRAFFIC CONTROL PLAN

US 169 traffic and local through traffic shall be detoured using detour map on J.2 sheet.
Property owner access shall be allowed.

Who will do the Detour signage and layout ?

111-01
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

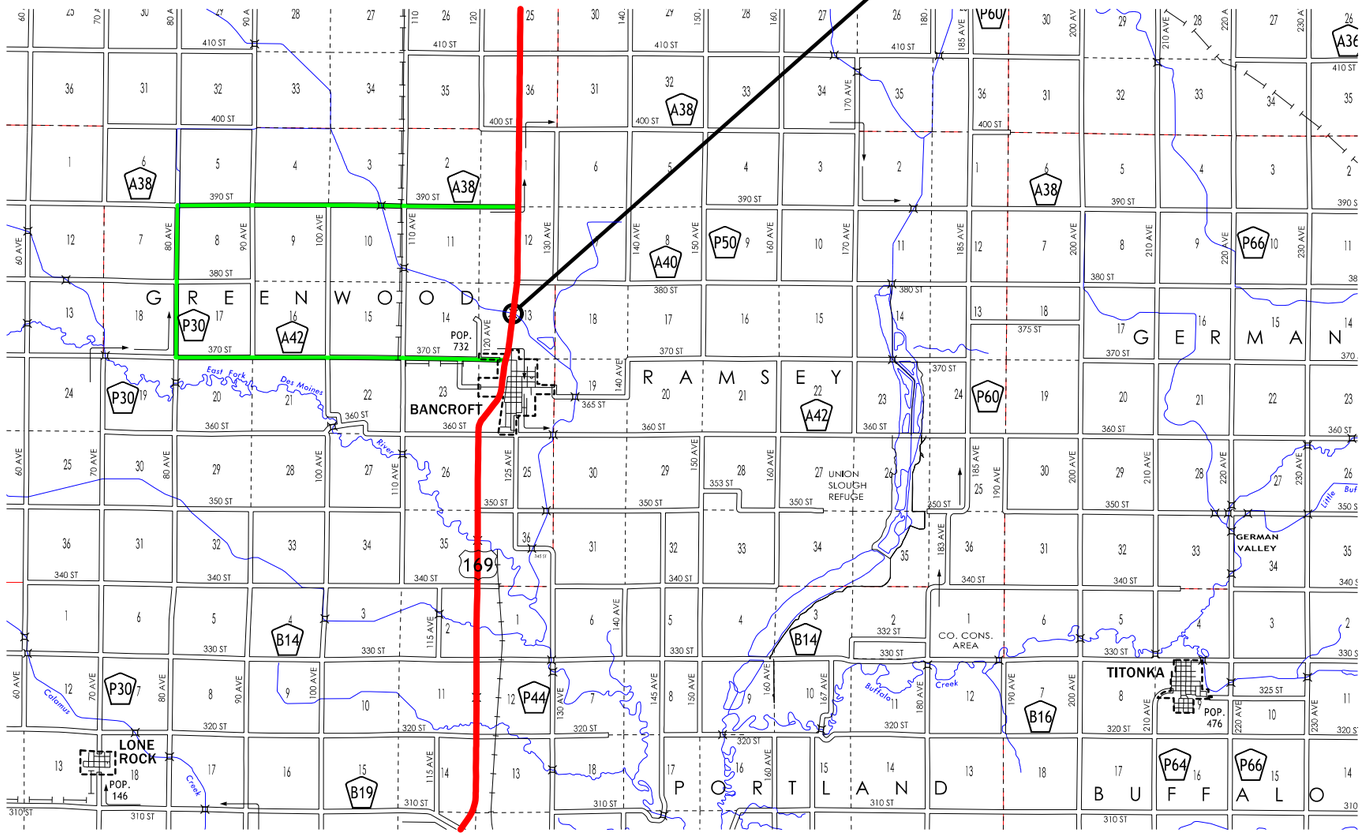
Project	Type of Work
District to Furnish	

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			District to furnish									

Project Location
Sta. 869+77
Maint. 5514.6S169
FHWA# 32950



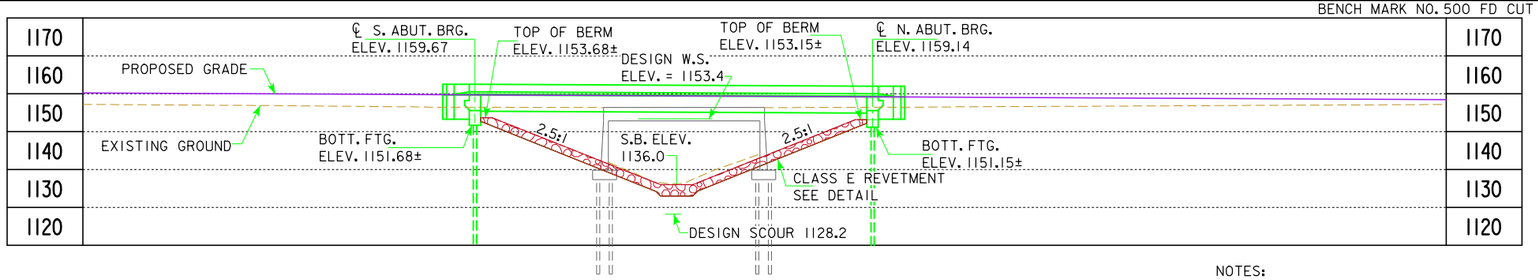
Detour Route

LOCATION MAP SCALE
0 1 2 3
Miles

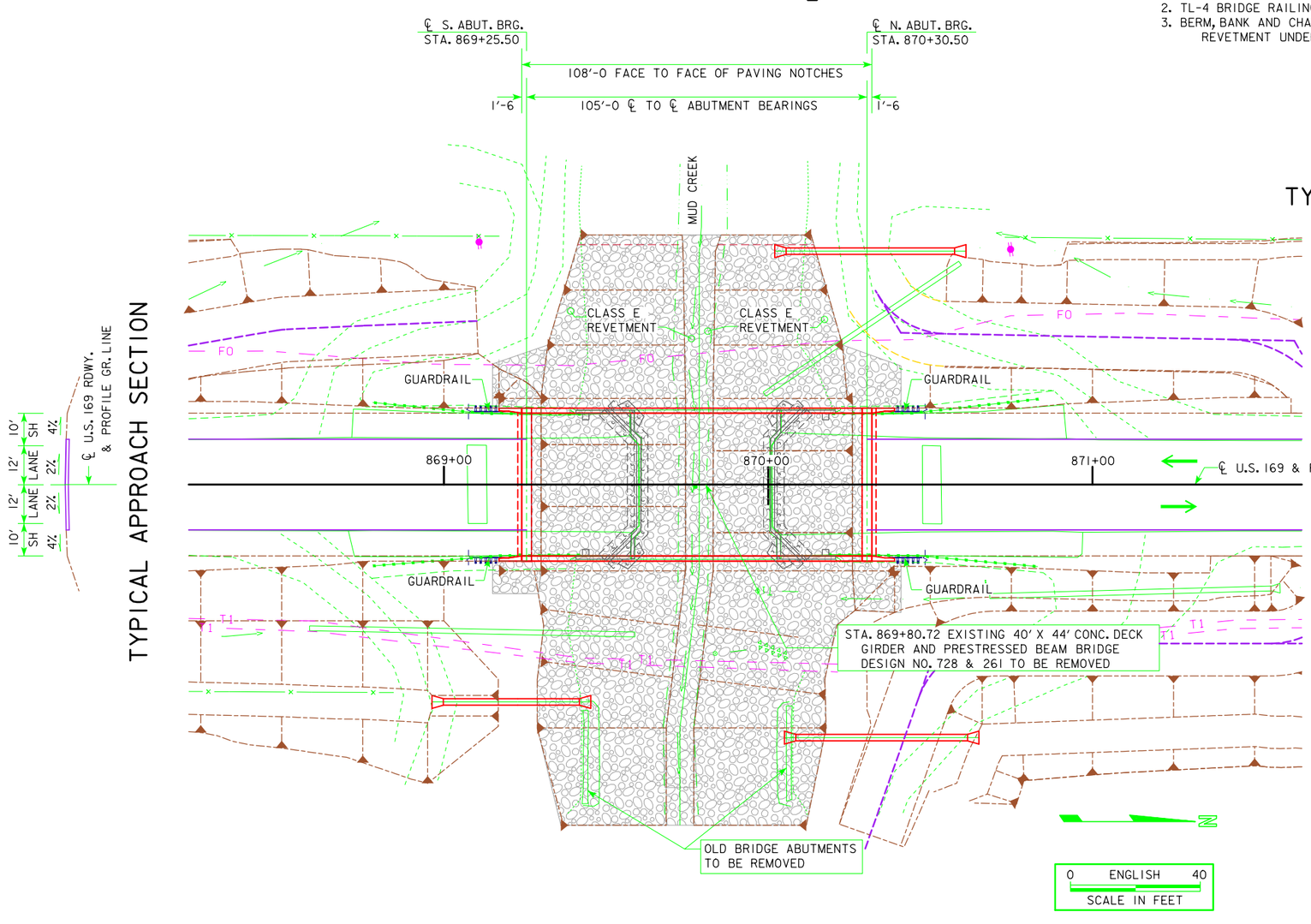
FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER J.2

3:21:03 PM 2/12/2015 jbuttol pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5516901013\Design\55169057J02.sht

BENCH MARK NO. 500 FD CUT SQUARE NE SIDE BRIDGE WING STATION 870+22.04, 23.744' RT.....1158.423



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY

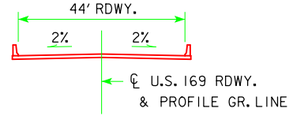


TYPICAL APPROACH SECTION

SITUATION PLAN

NOTES:

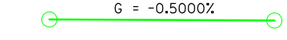
1. TOP OF BRIDGE DECK CROWN '0.03' BELOW PROFILE GRADE.
2. TL-4 BRIDGE RAILING PROPOSED.
3. BERM, BANK AND CHANNEL LINING WITH CLASS E REVETMENT UNDERLAIN WITH ENGINEERING FABRIC.



TYPICAL BRIDGE SECTION

UTILITIES LEGEND:

FO - BURIED FIBER OPTIC LINE MEDIACOM
TI - BURIED TELEPHONE LINE - ENVENTIS
● - POWER POLE - CITY OF BANCROFT



VPT STA = 865+50.000
VPT ELEV = 1161.577
VPC STA = 872+00.000
VPC ELEV = 1158.327

PROPOSED PROFILE GRADE U.S. 169

HYDRAULIC DATA

DRAINAGE AREA = 54 SQ. MI.
STREAM SLOPE = 3.6 FT./MI.
AVG. LOW WATER STAGE = 1136.7

Q_{50} = 3120 CFS
STAGE = 1153.4
BACKWATER = 0.04 FT.
AVG. BRIDGE VELOCITY = 3.5 FPS

Q_{100} = 3740 CFS
STAGE = 1154.8
BACKWATER = 0.04 FT.

Q_{200} = 4420 CFS
STAGE = 1155.7
CALCULATED DESIGN SCOUR = 1128.2*

Q_{500} = 5330 CFS
STAGE = 1156.6
CALCULATED CHECK SCOUR = 1119.1*

ROADWAY OVERTOP 1158.05
STA. 873+11.11

* TO BE CONFIRMED AFTER SOIL BORINGS ARE COMPLETE. VERY FIRM SANDY GLACIAL CLAY LAYER AT ELEVATION 1134.0±.

TRAFFIC ESTIMATE

2017 AADT	1600	V.P.D.
2037 AADT	1700	V.P.D.
2037 DHV	176	V.P.H.
TRUCKS	22	%
TOTAL DESIGN ESALs	-	

LOCATION

U.S. 169 OVER MUD CREEK
T-98N R-29W
SECTION 13
GREENWOOD TOWNSHIP
KOSSUTH COUNTY
BRIDGE MAINT. NO. 5514.6S169
FHWA NO. 32951
LATITUDE 43.307007°
LONGITUDE -94.217658°

PRELIMINARY

DESIGN FOR 0° SKEW

105'-0 X 44'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

105'-0 SPAN (BTB BEAM)

SITUATION PLAN

STATION 869+78.0 FEBRUARY 2015

KOSSUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 2 FILE NO. 31129 DESIGN NO. 117

DESIGN TEAM	KOSSUTH COUNTY	PROJECT NUMBER	BRF-169-8(57)--38-55	SHEET NUMBER	V.1

BENCH MARK NO. 500 FD CUT SQUARE NE SIDE BRIDGE WING STATION 870+22.04, 23.744' RT.....1158.423

BERM SLOPE LOCATION TABLE

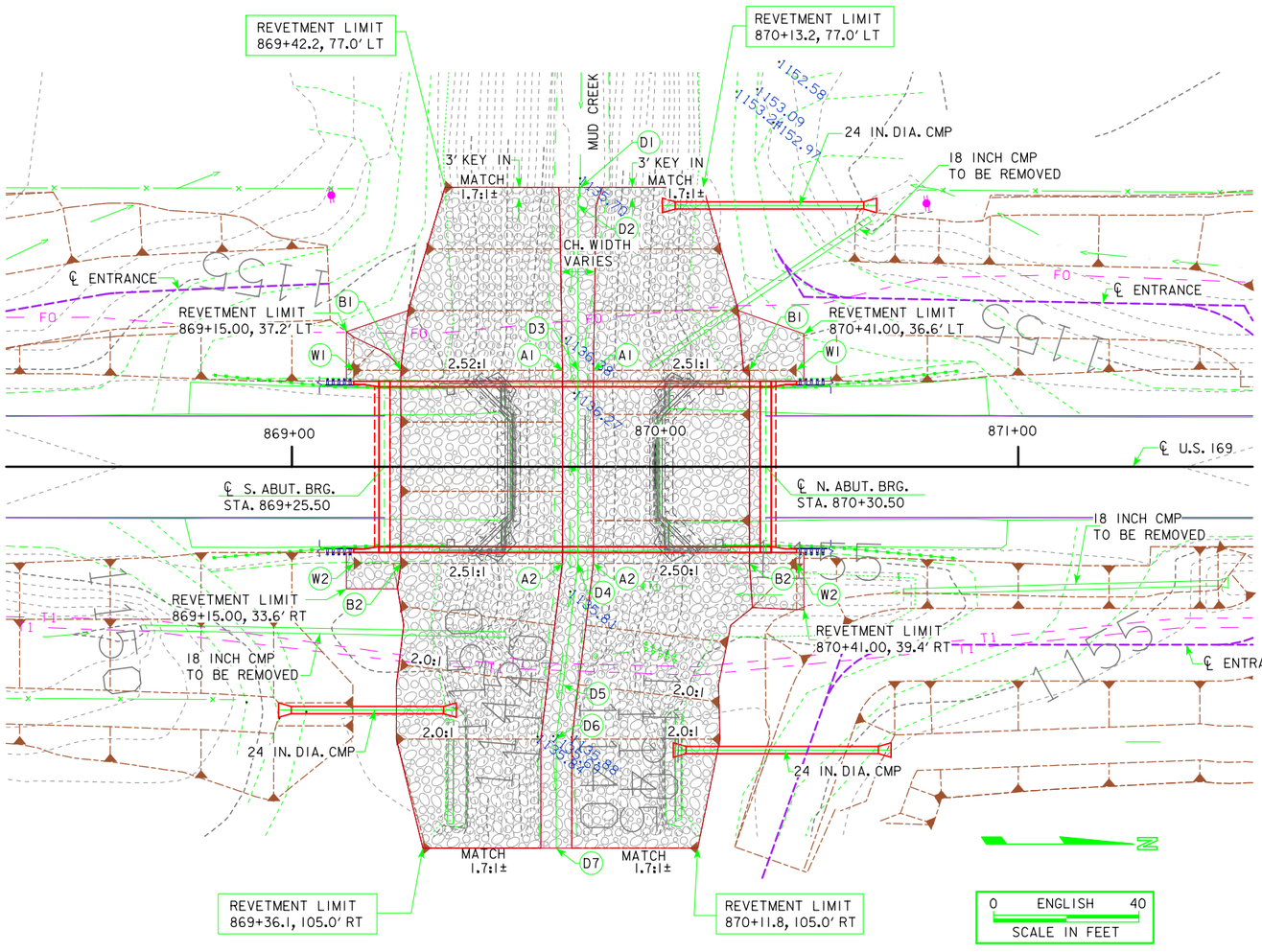
POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	869+74.50	26.58' LT	1136.02	869+83.00	26.58' LT	1136.02
A2	869+74.50	26.58' RT	1135.98	869+83.00	26.58' RT	1135.98
B1	869+30.00	26.58' LT	1153.68	870+26.00	26.58' LT	1153.15
B2	869+30.00	26.58' RT	1153.68	870+26.00	26.58' RT	1153.15
W1	869+17.00	26.58' LT	1159.15	870+39.00	26.58' LT	1158.54
W2	869+17.00	26.58' RT	1159.15	870+39.00	26.58' RT	1158.54

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM AND BANK LINING - SOUTH	1050.7	0.0	1005.8	668.2
BERM AND BANK LINING - NORTH	1035.7	0.0	991.5	658.8
CHANNEL LINING	283.9	0.0	177.5	177.4
TOTALS	2370.3	0.0	2174.8	1504.4

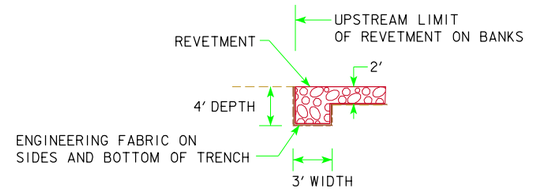
EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.
QUANTITIES INCLUDE WING ARMORING



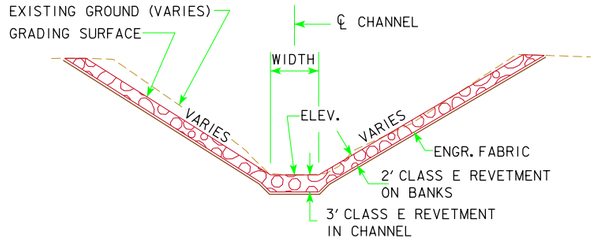
SITE PLAN

GRADING CONTROL POINTS AT ℄ CHANNEL-

D1: 869+79.50, 77.00' LT, 1136.05, CH. WIDTH = 12.0'
D2: 869+78.75, 72.00' LT, ELEV. 1136.05, CH. WIDTH = 10.0'
D3: 869+78.75, 26.58' LT, ELEV. = 1136.02, CH. WIDTH = 8.5'
D4: 869+78.75, 26.58' RT, ELEV. = 1135.98, CH. WIDTH = 8.5'
D5: 869+74.65, 60.00' RT, ELEV. = 1135.73, CH. WIDTH = 8.5'
D6: 869+72.81, 75.00' RT, ELEV. = 1135.62, CH. WIDTH = 8.5'
D7: 869+72.81, 105.00' RT, ELEV. =1135.40, CH. WIDTH = 8.5'



SECTION THROUGH KEY-IN TRENCH



TYPICAL SECTION THROUGH EMBEDDED REVETMENT

PRELIMINARY

DESIGN FOR 0° SKEW

105'-0 X 44'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

105'-0 SPAN (BTB BEAM)

SITUATION PLAN - SITE

STATION 869+78.0 FEBRUARY 2015

KOSSUTH COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. 31129 DESIGN NO. 117

DESIGN TEAM | KOSSUTH COUNTY | PROJECT NUMBER BRF-169-8(57)--38-55 | SHEET NUMBER V.2

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\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

LINE STYLE LEGEND OF CROSS SECTION SHEETS (SOILS)

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

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

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

SYMBOL LEGEND OF CROSS SECTION SHEETS

Existing ROW — Existing Right-of-Way Limit

Proposed ROW — Proposed Right-of-Way Limit

Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

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

FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.1

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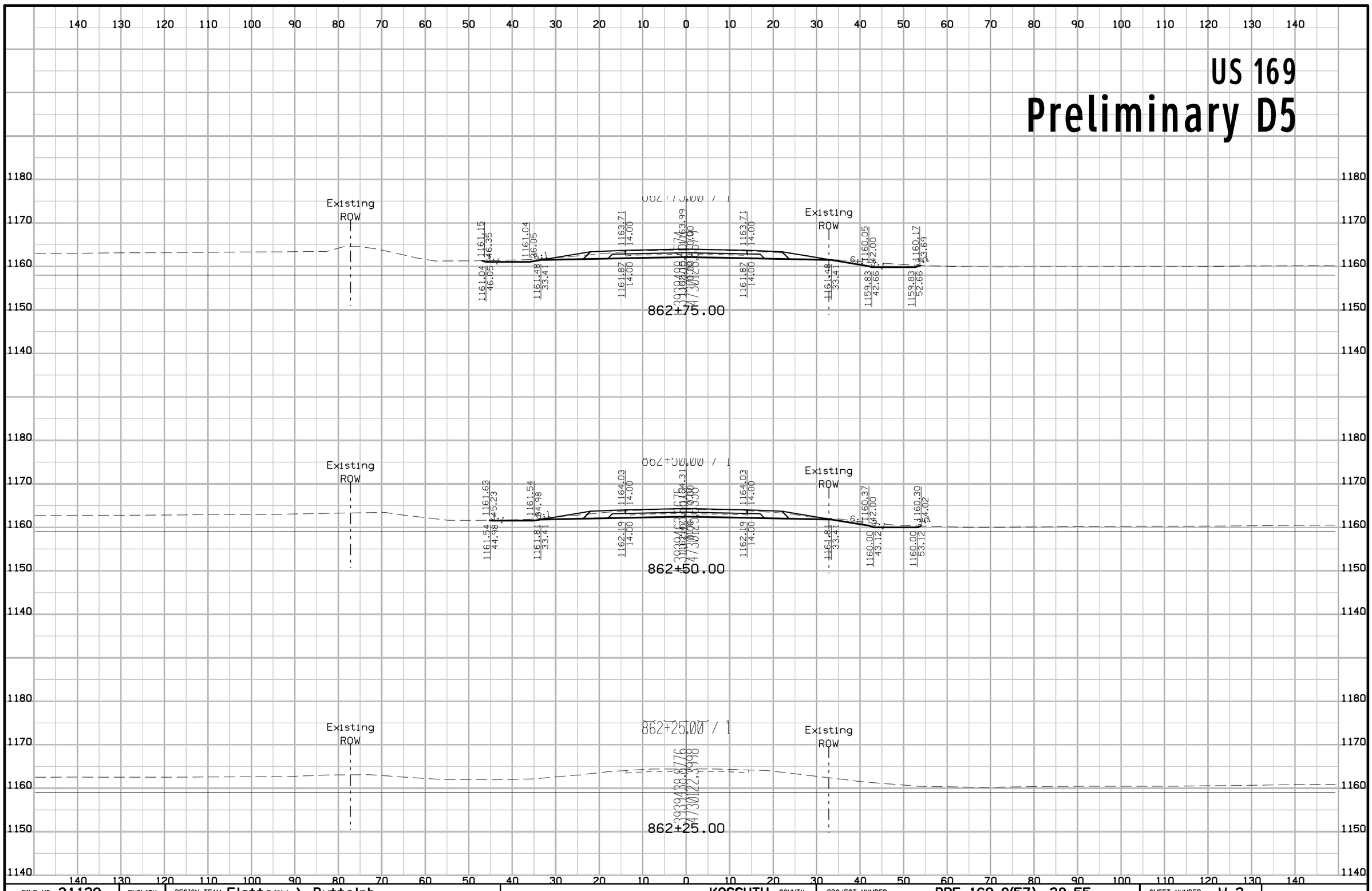
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.2

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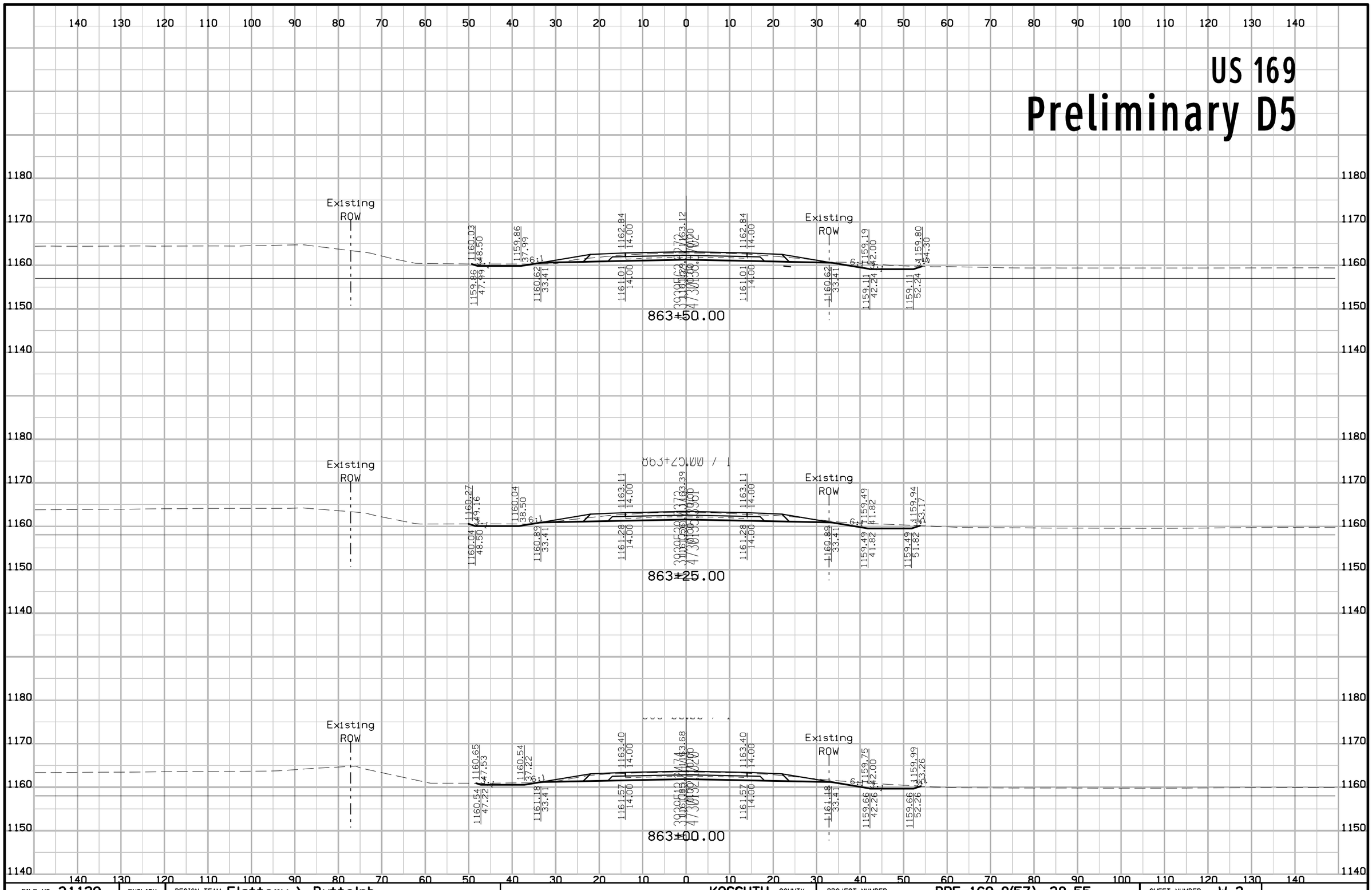
US 169
Preliminary D5



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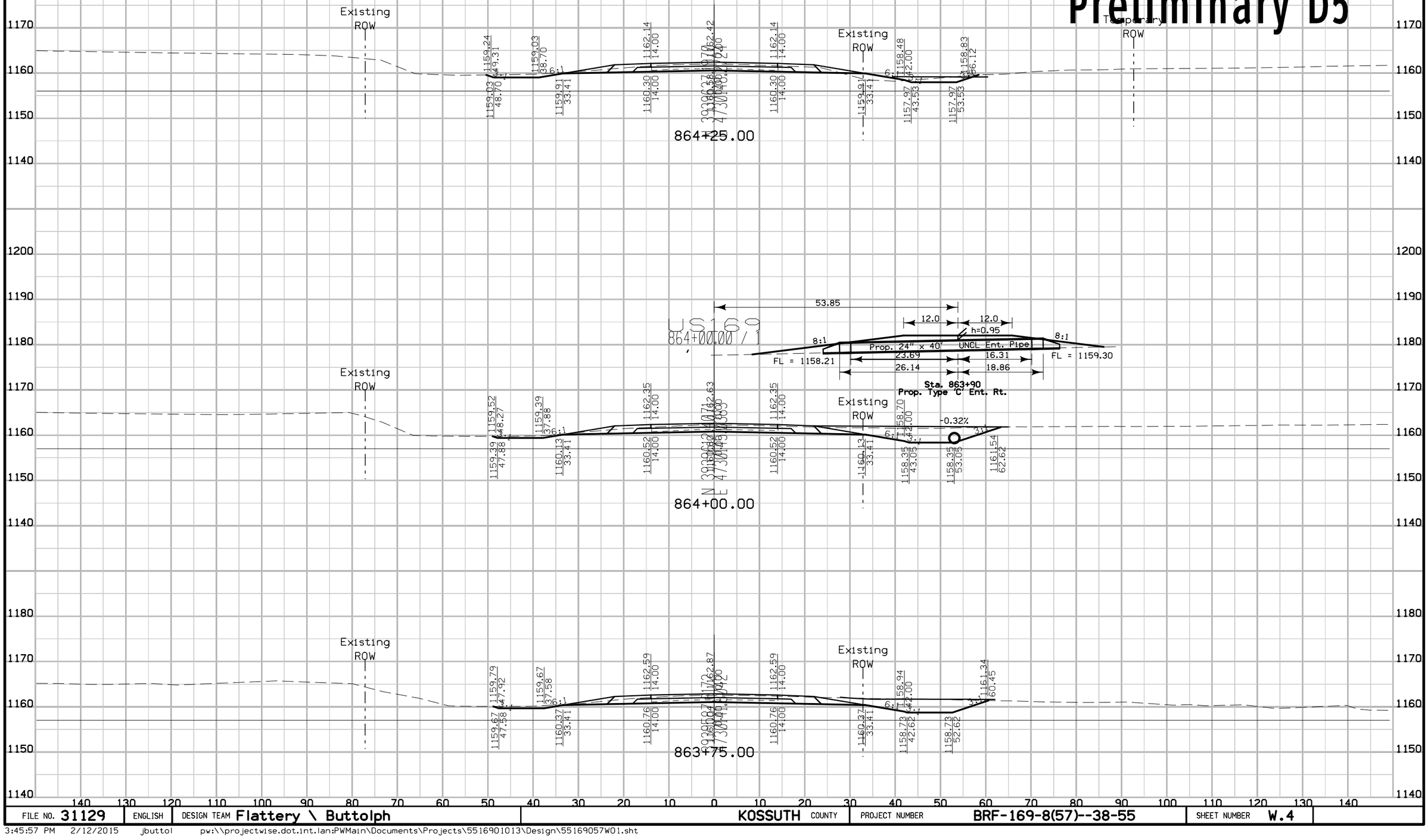
US 169
Preliminary D5



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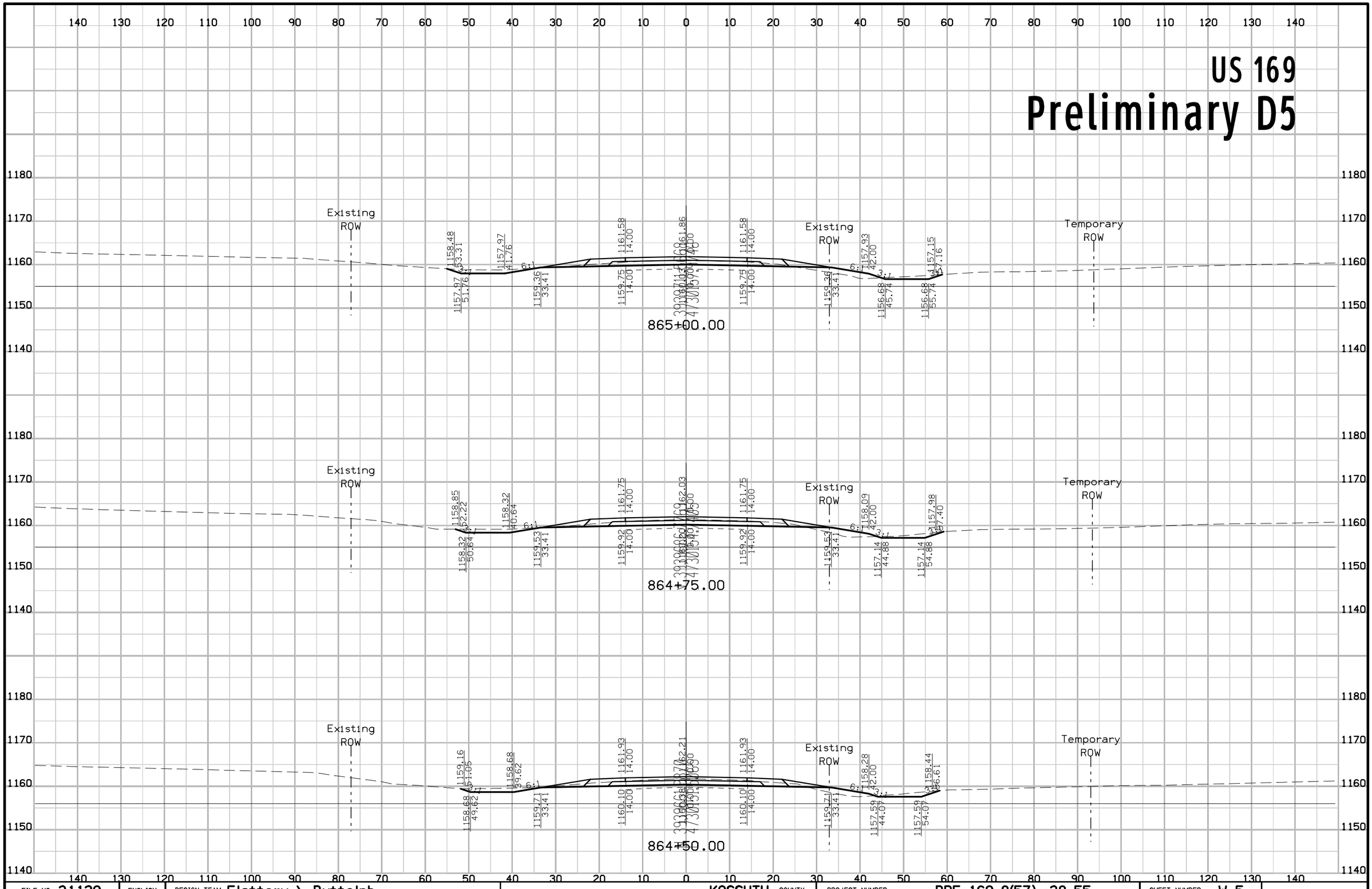
US 169
Preliminary D5



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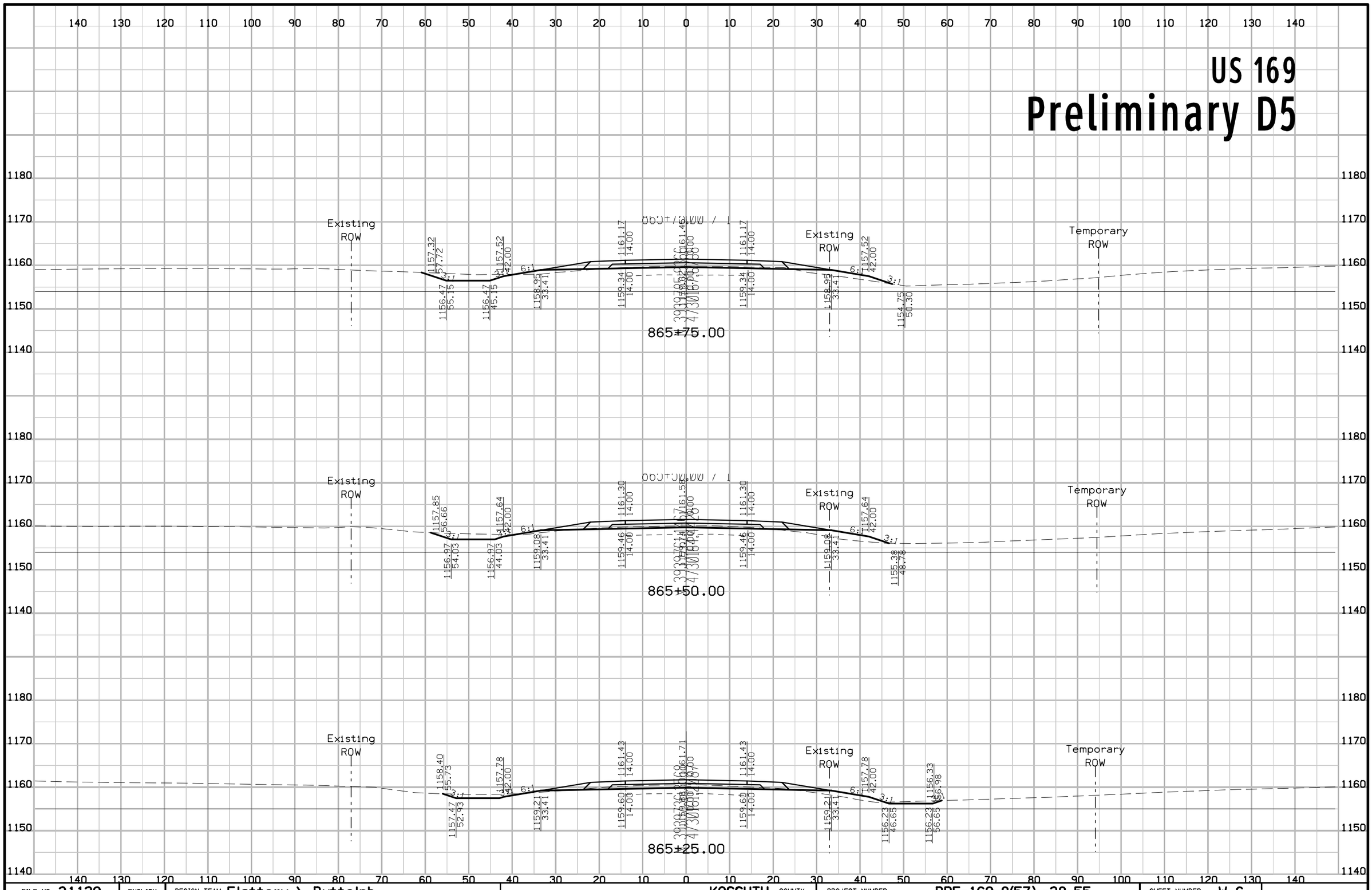
US 169
Preliminary D5



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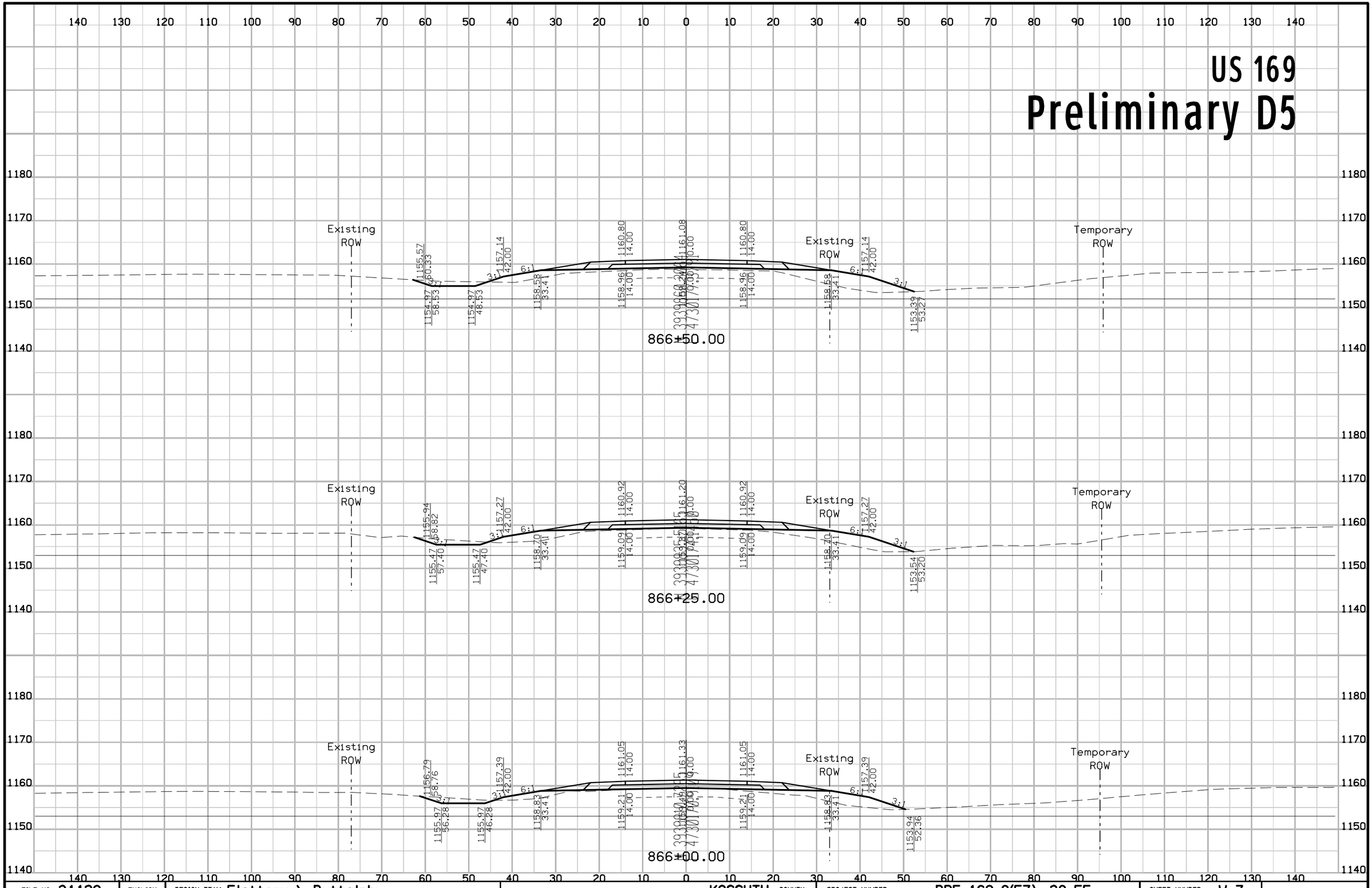
US 169
Preliminary D5



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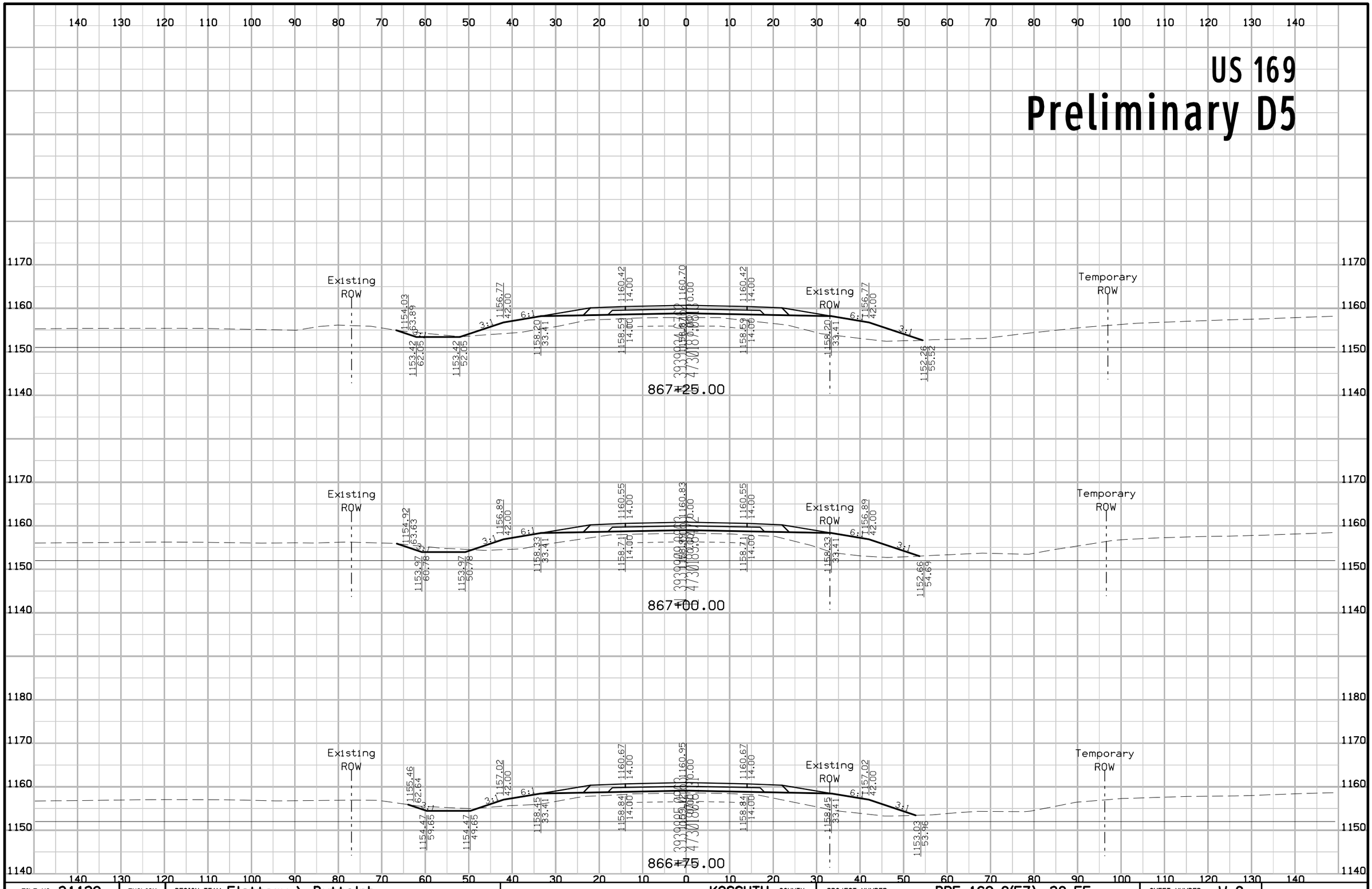
US 169
Preliminary D5



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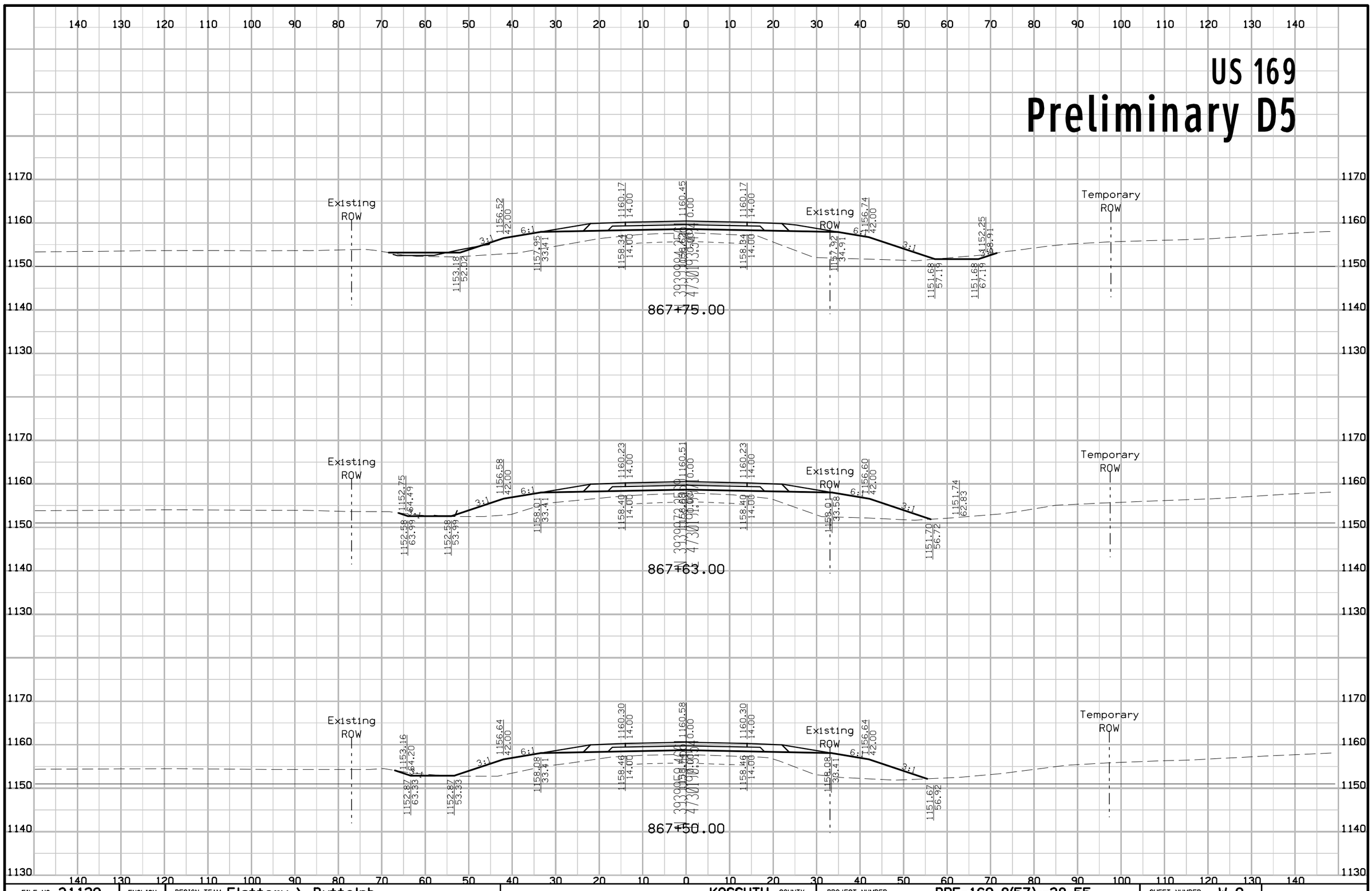
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.9

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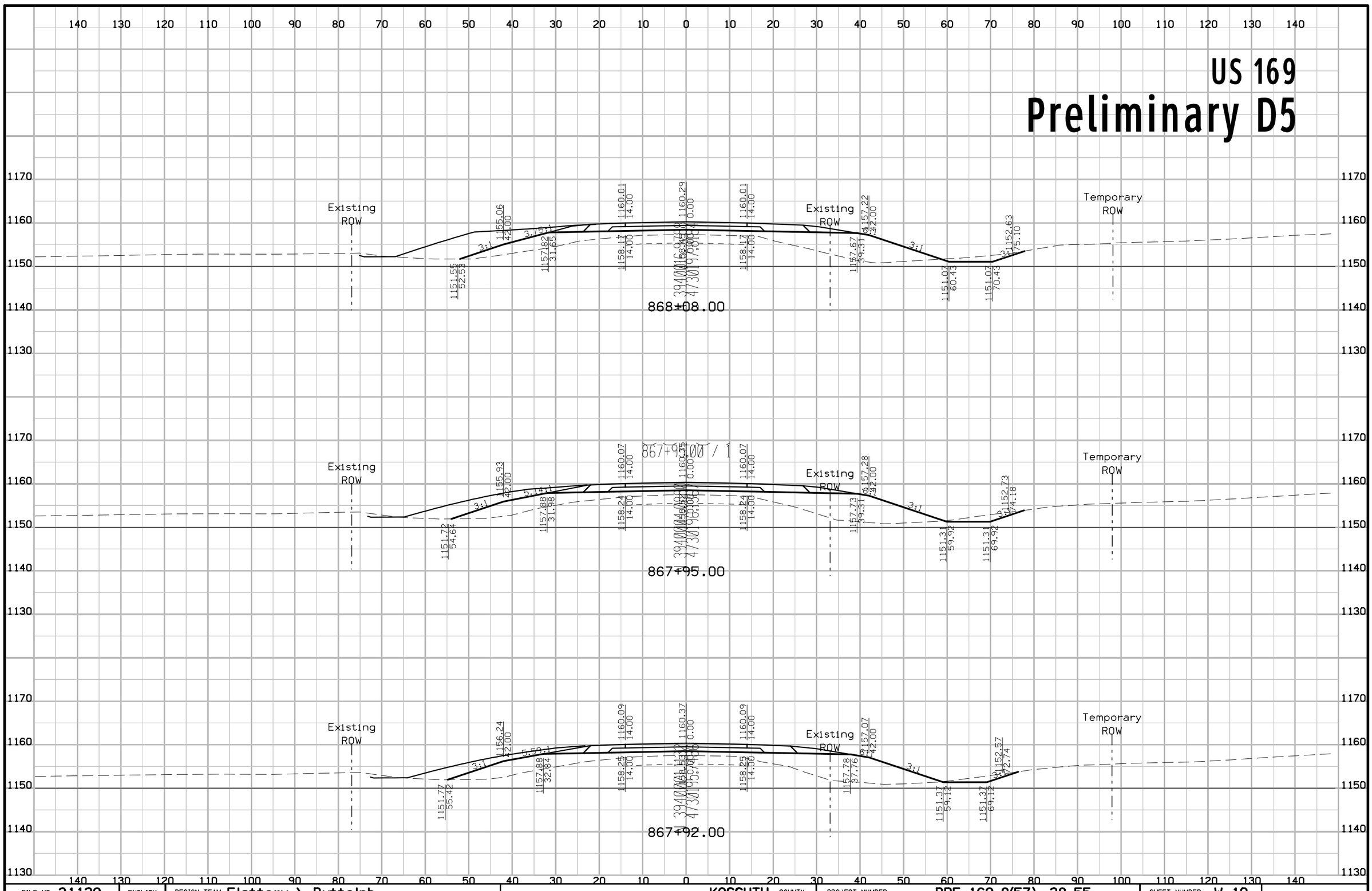
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.10

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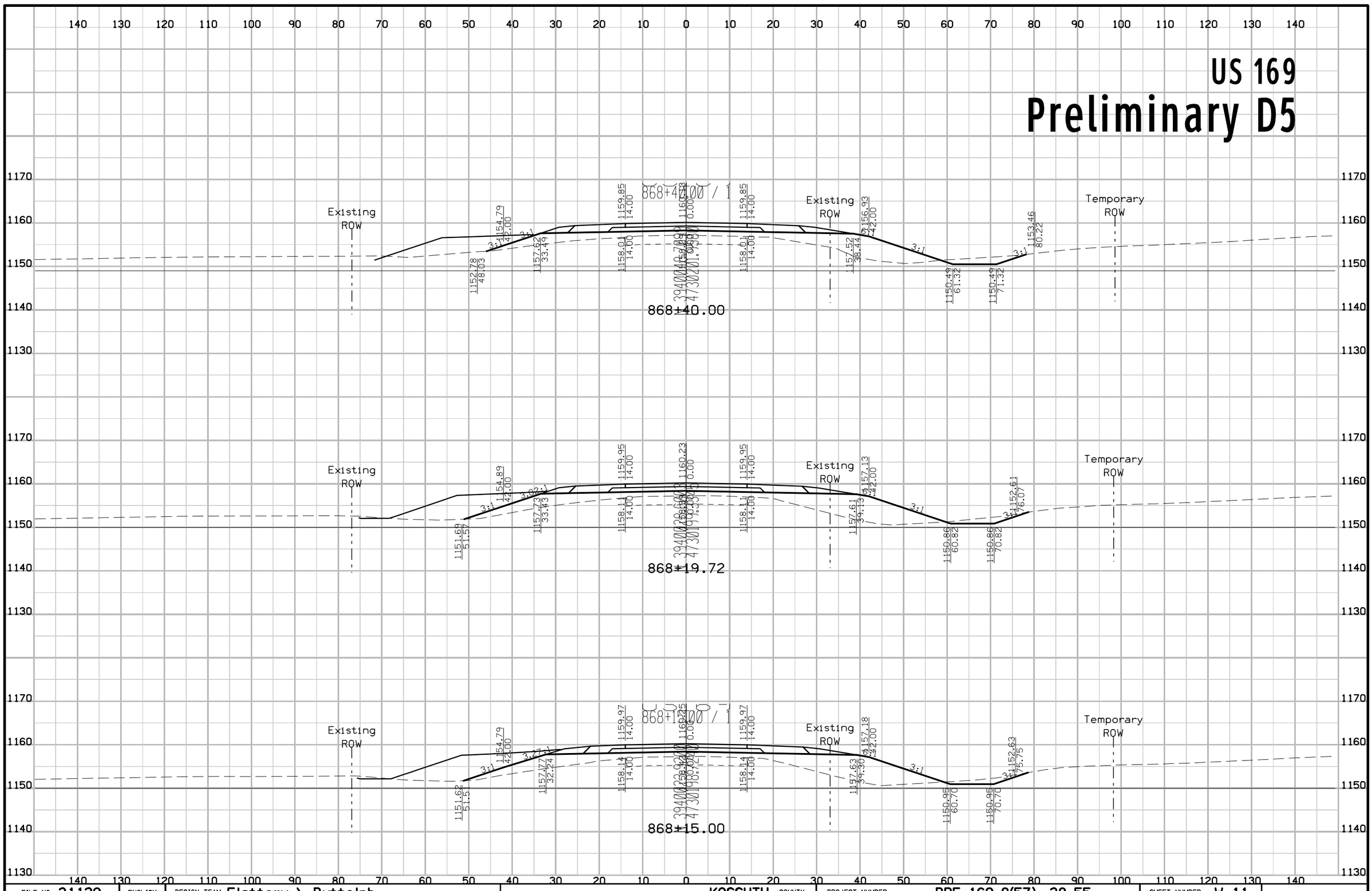
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.11

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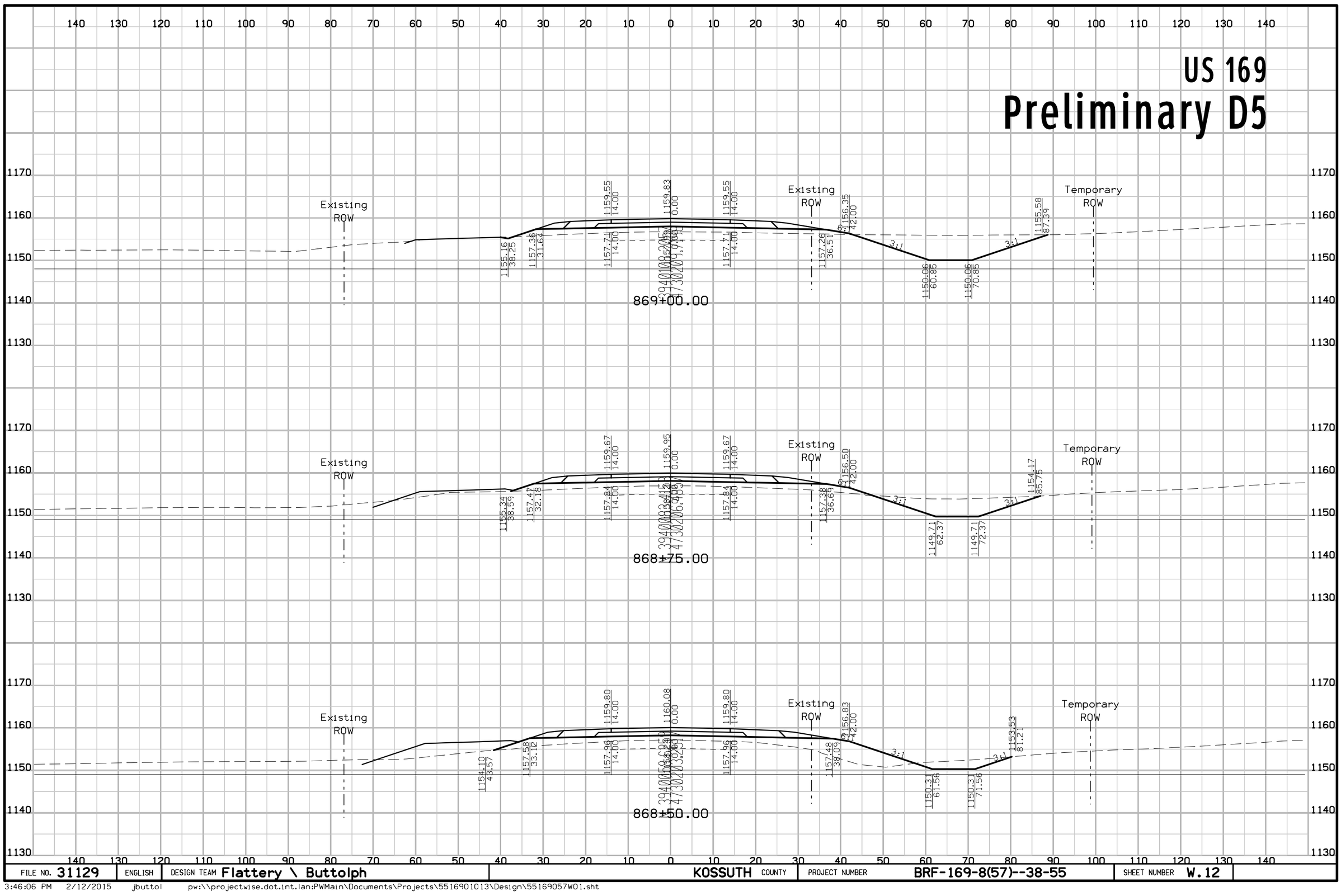
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.12

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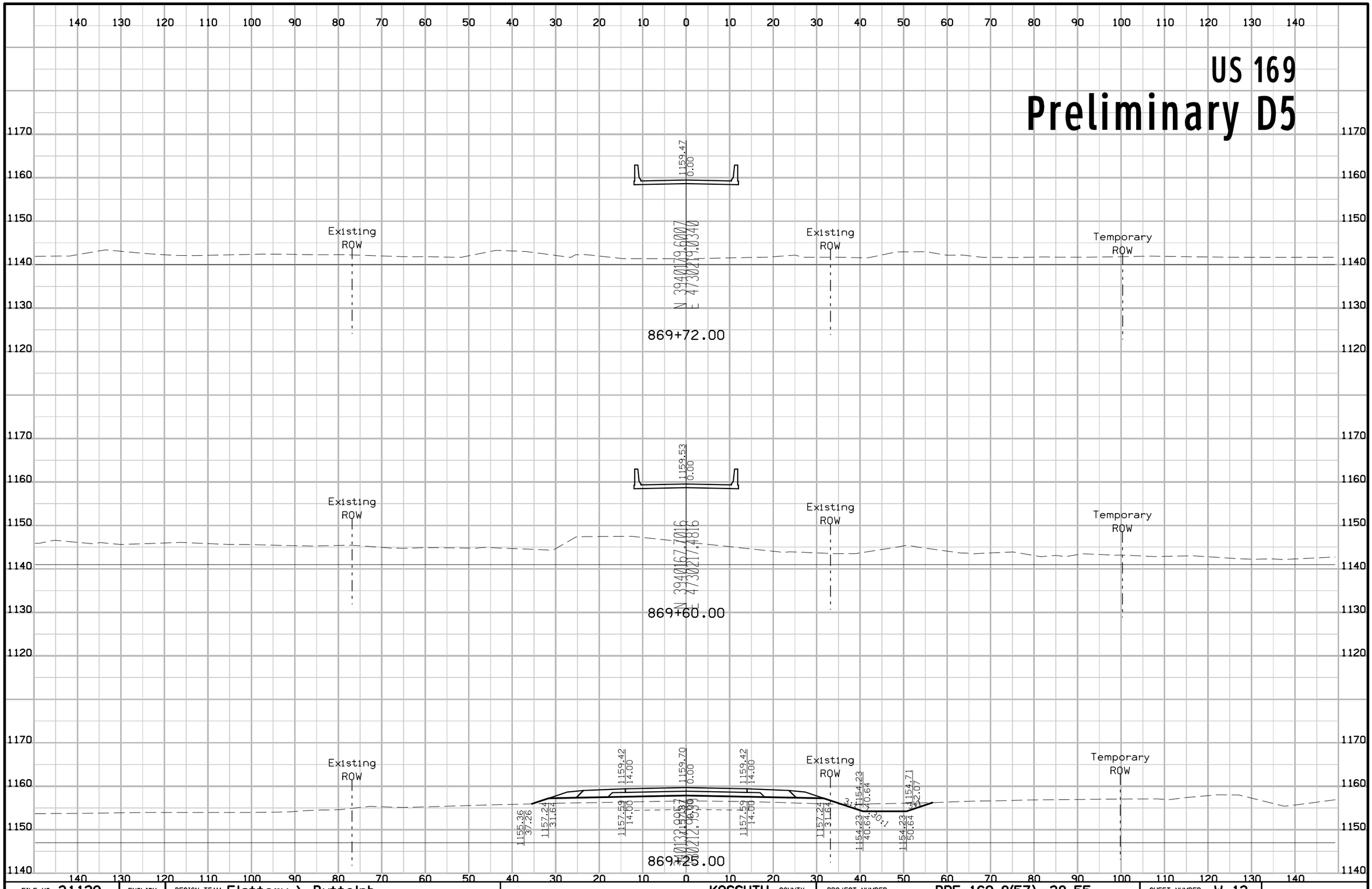
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.13

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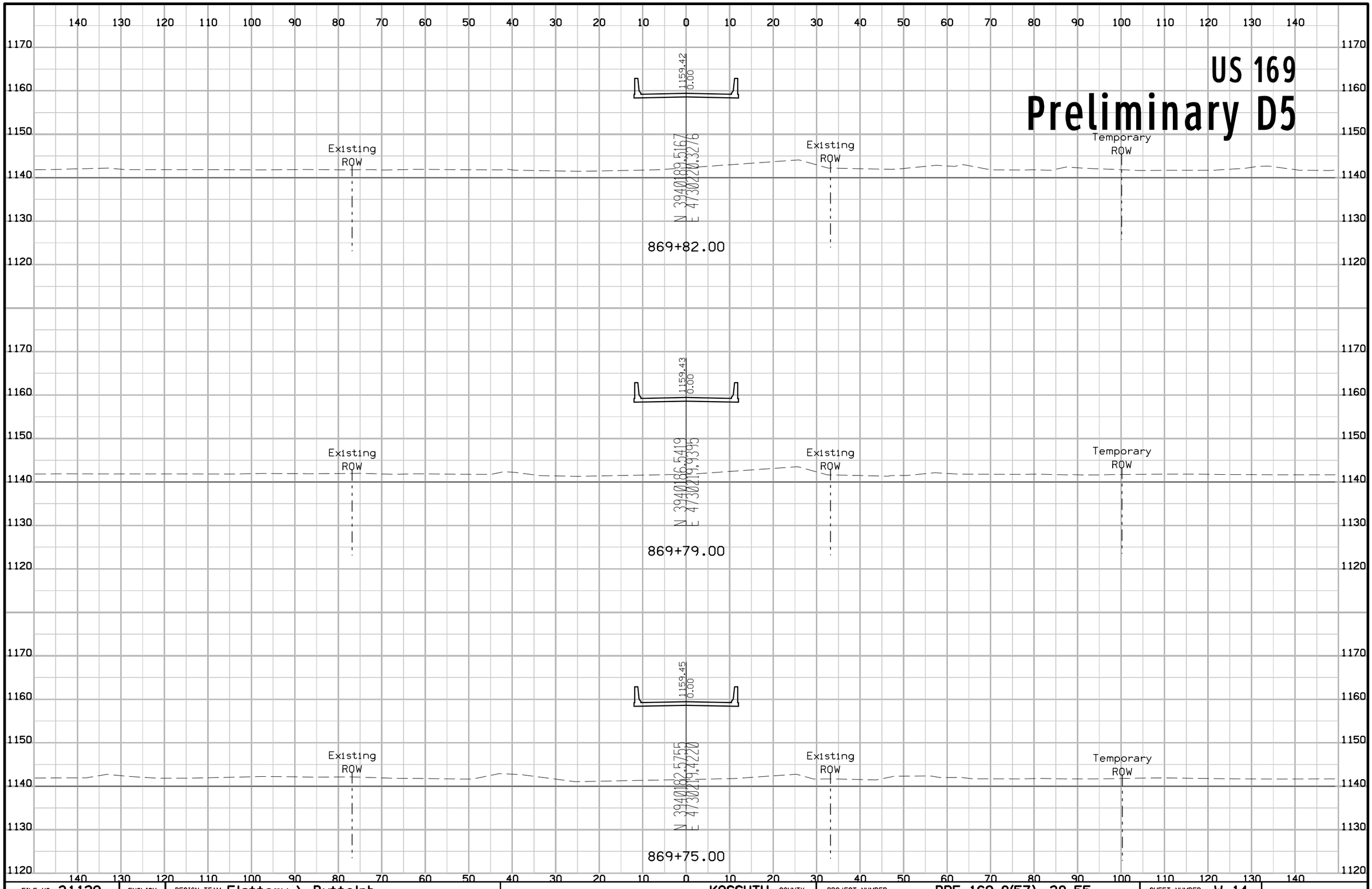
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.14

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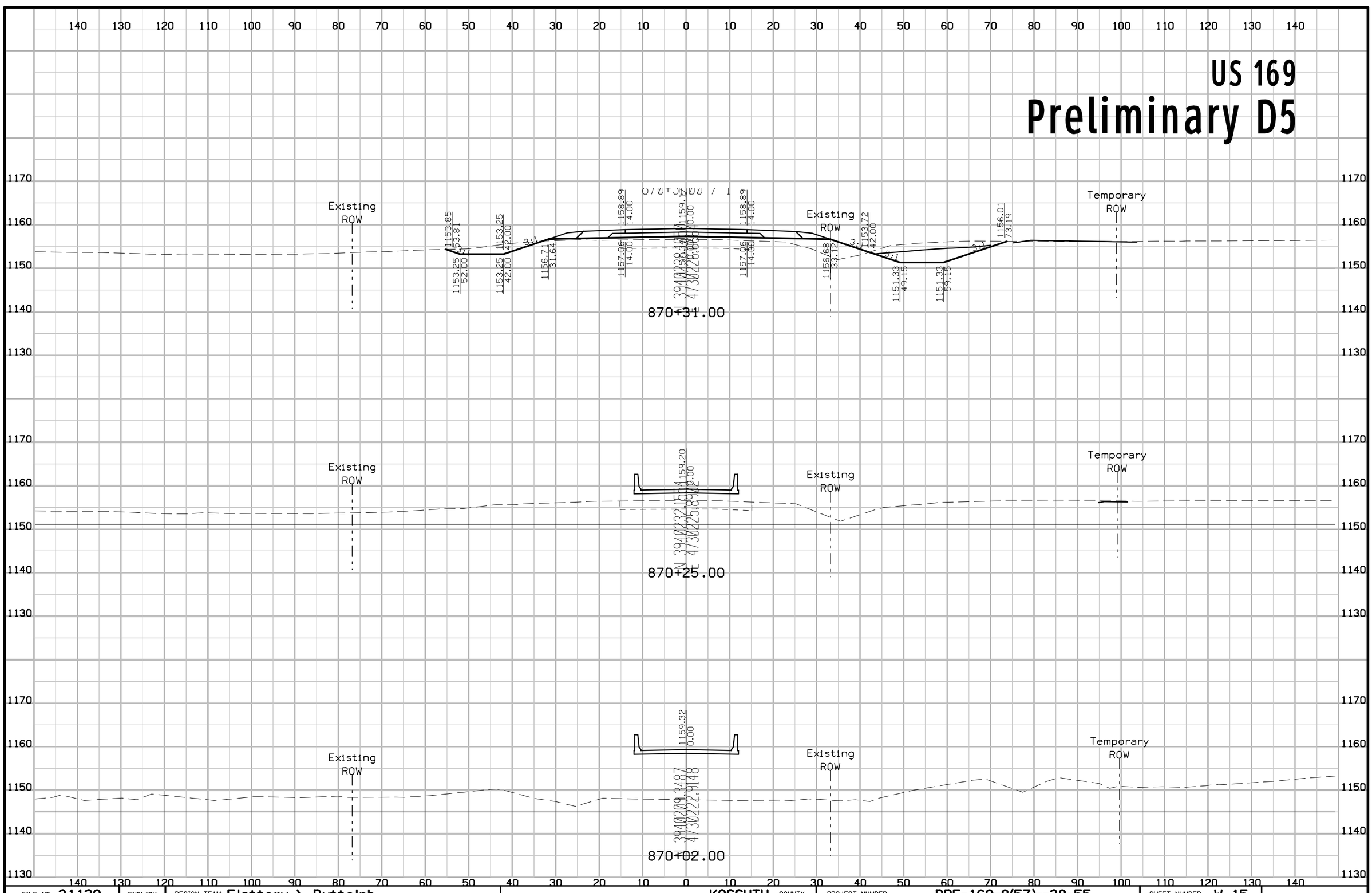
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.15

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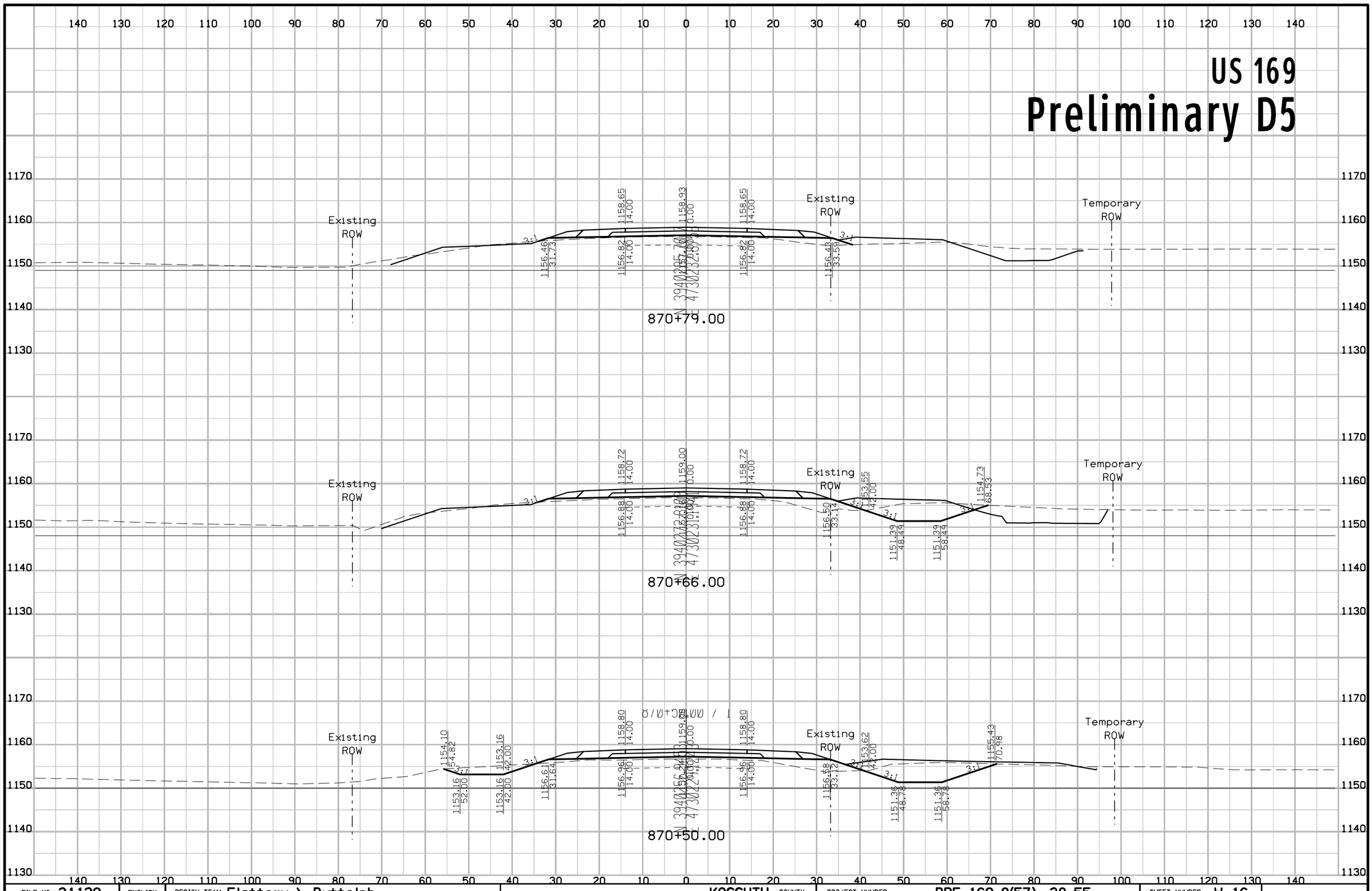
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.16

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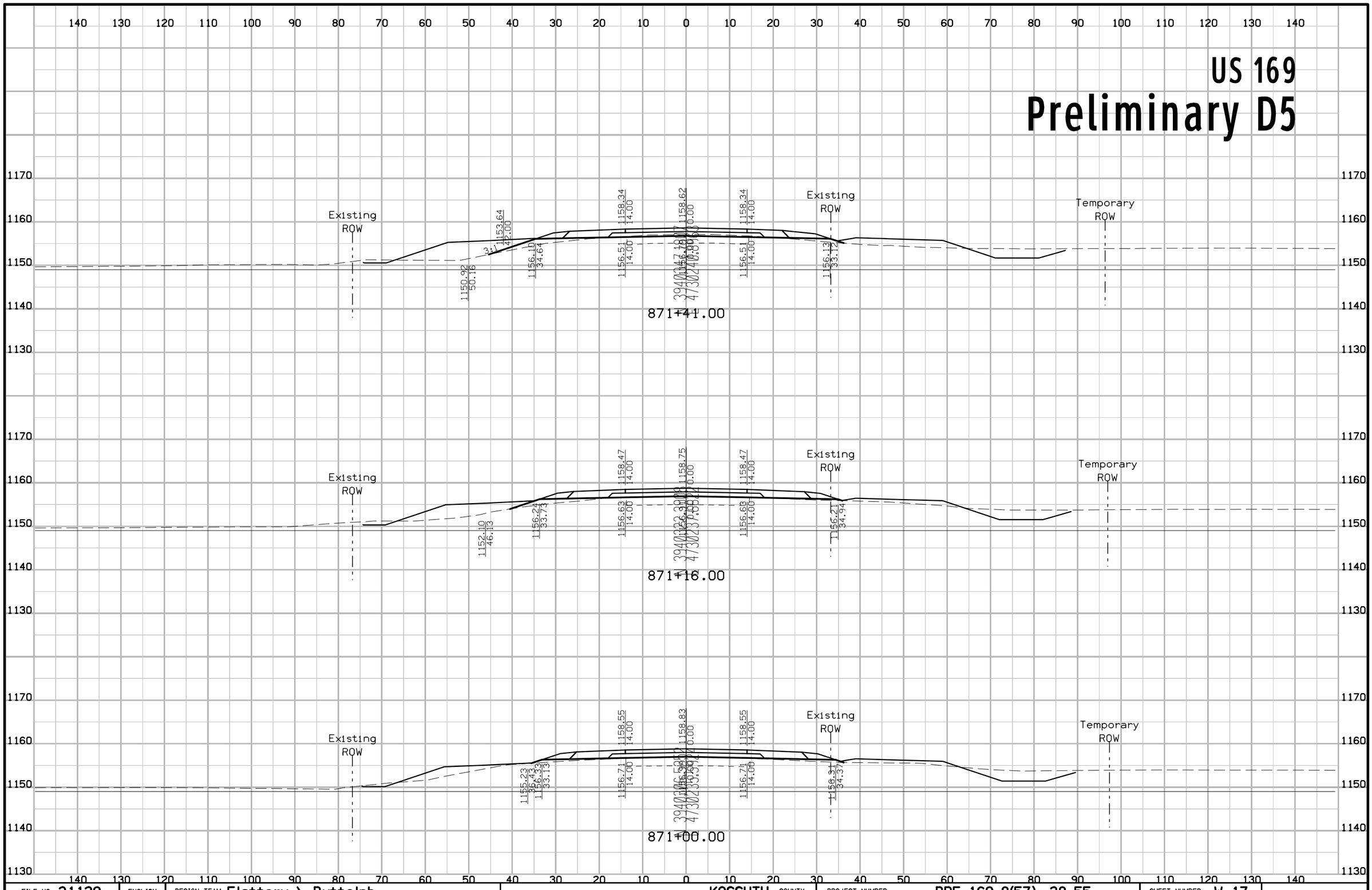
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.17

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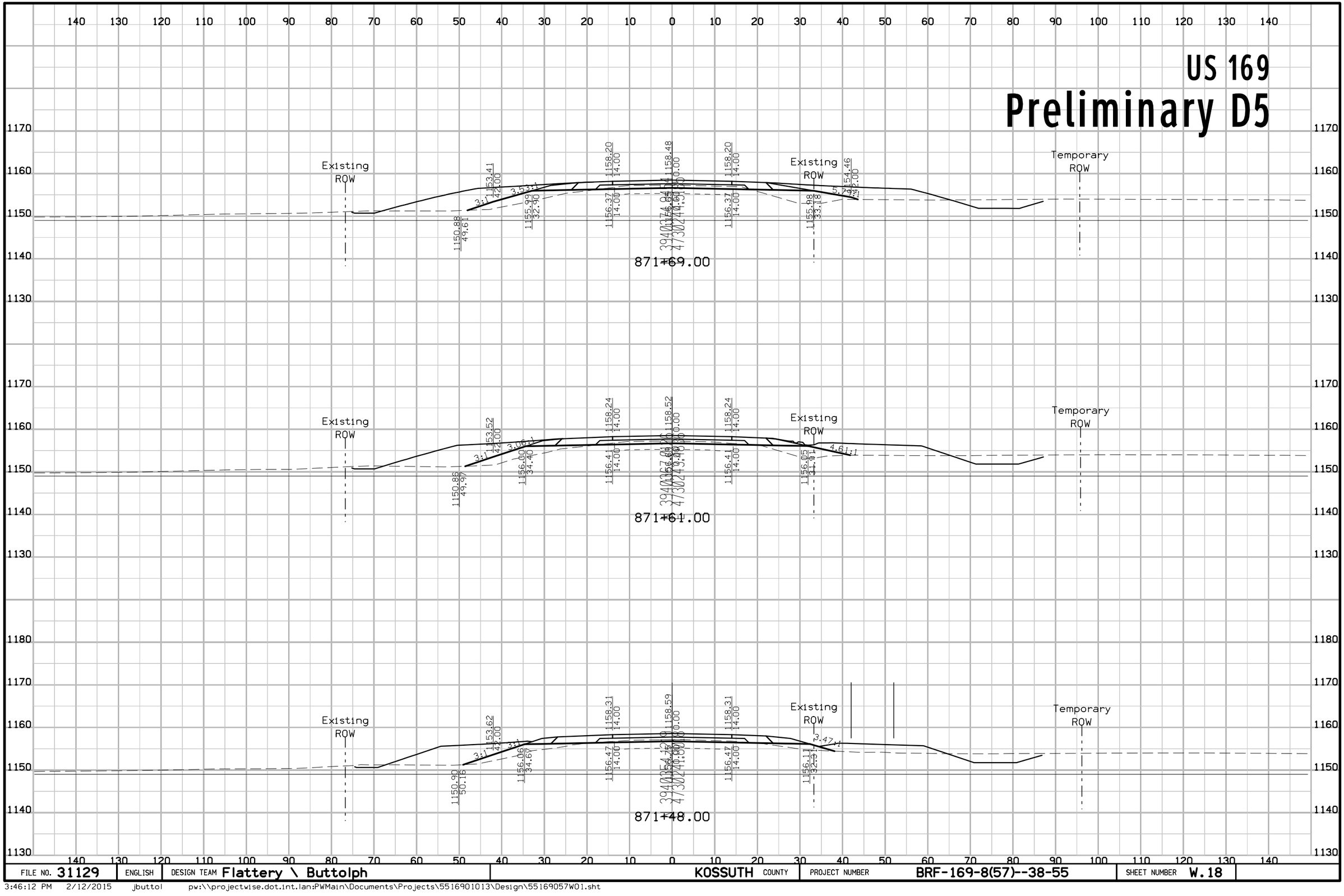
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.18

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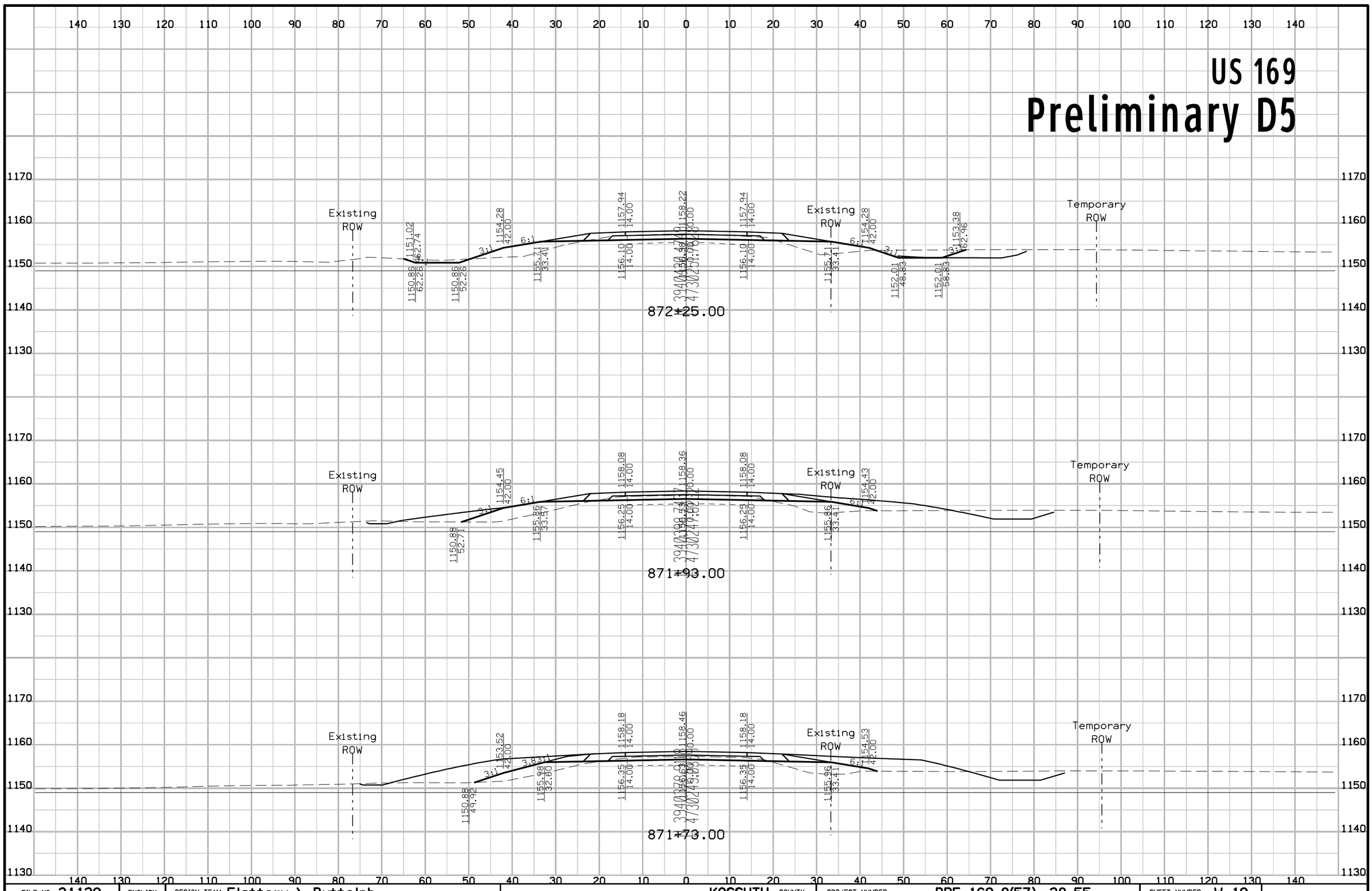
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.19

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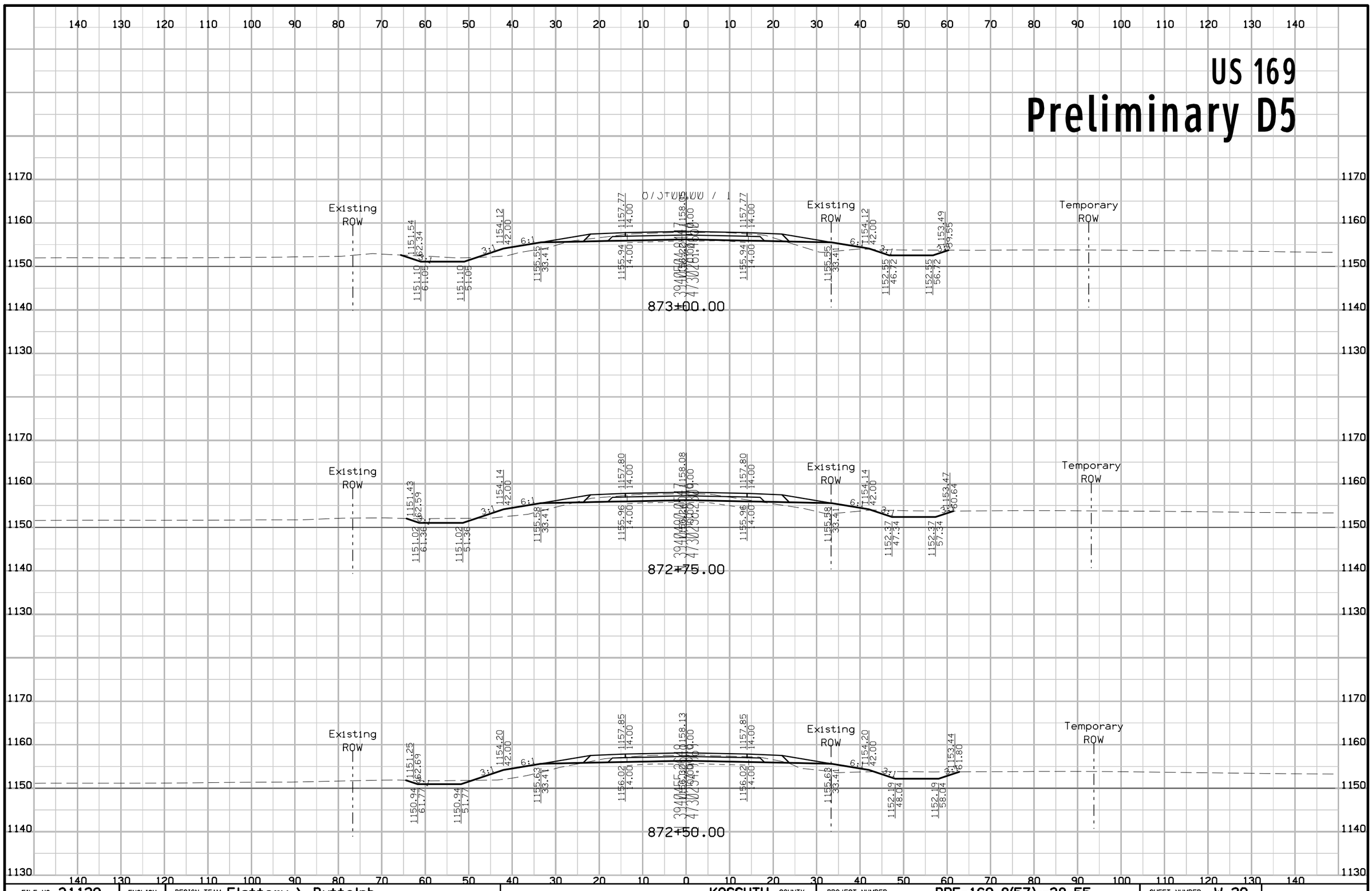
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.20

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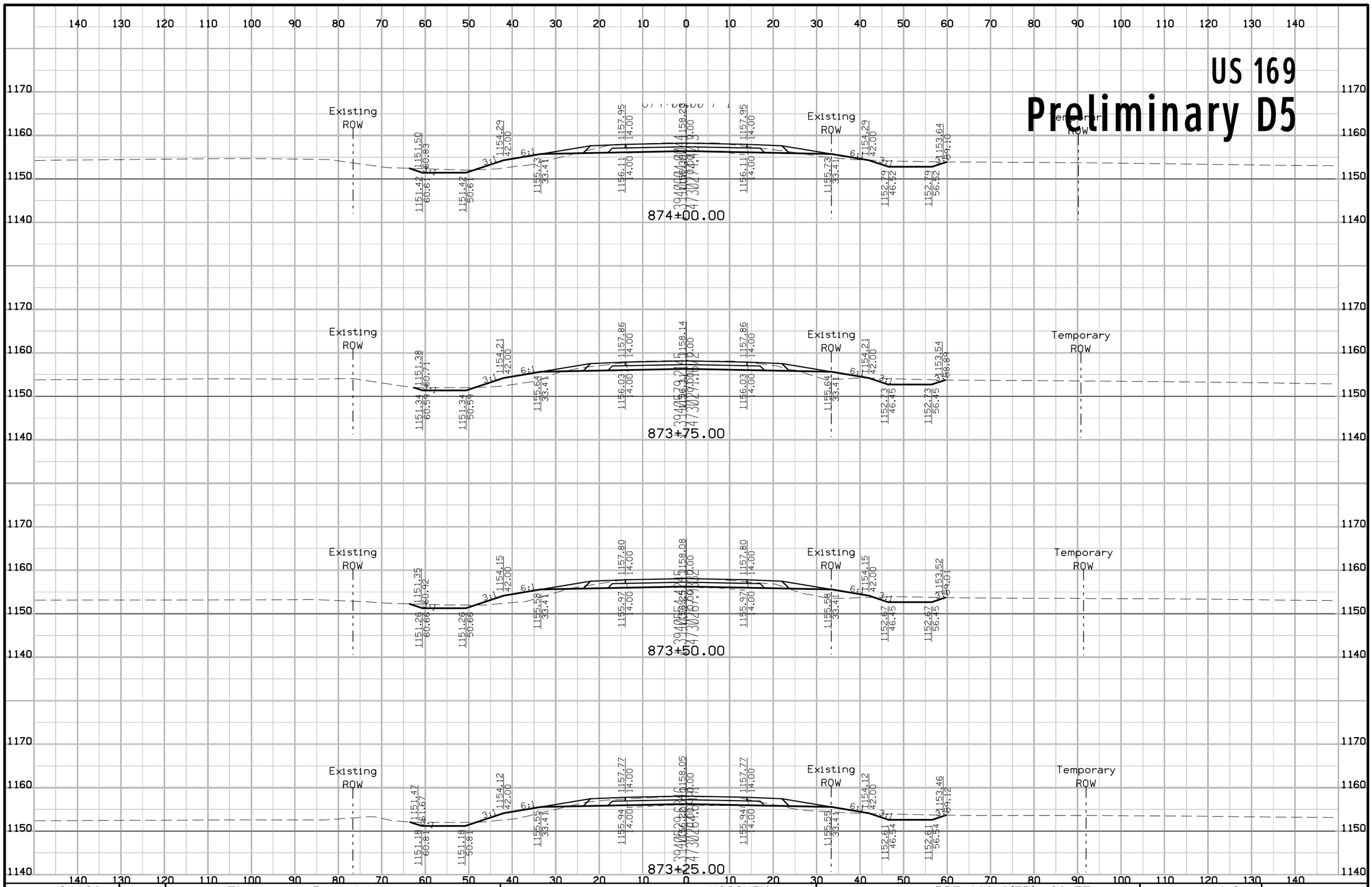
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.21

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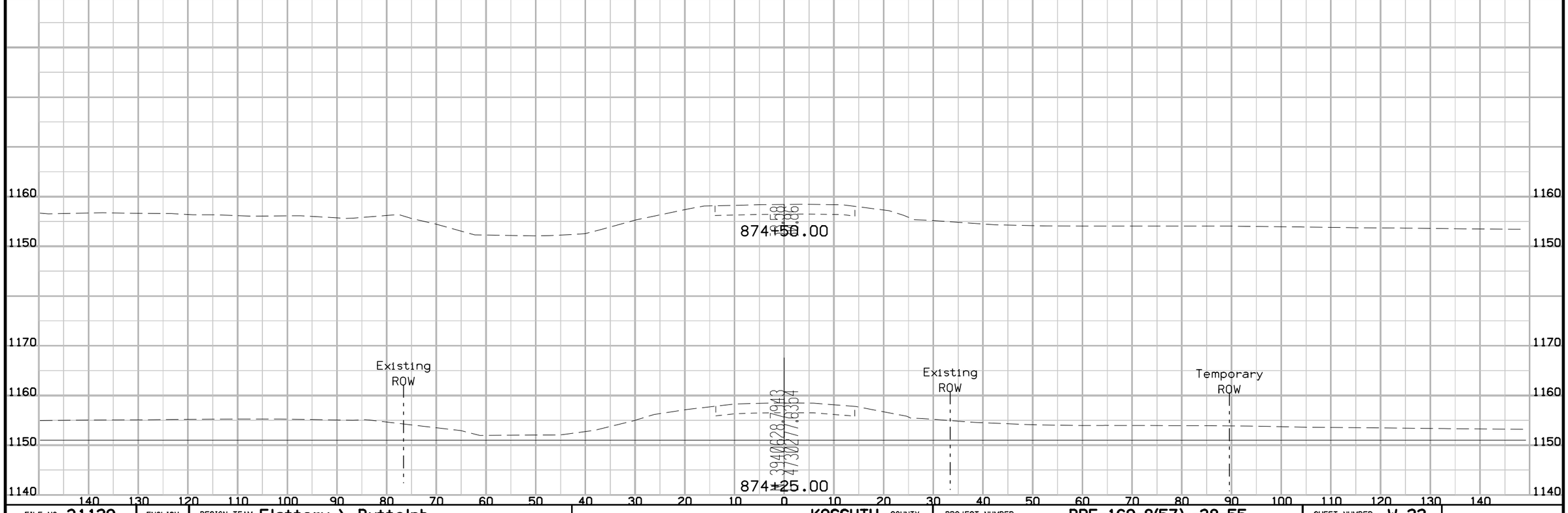
US 169
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER W.22

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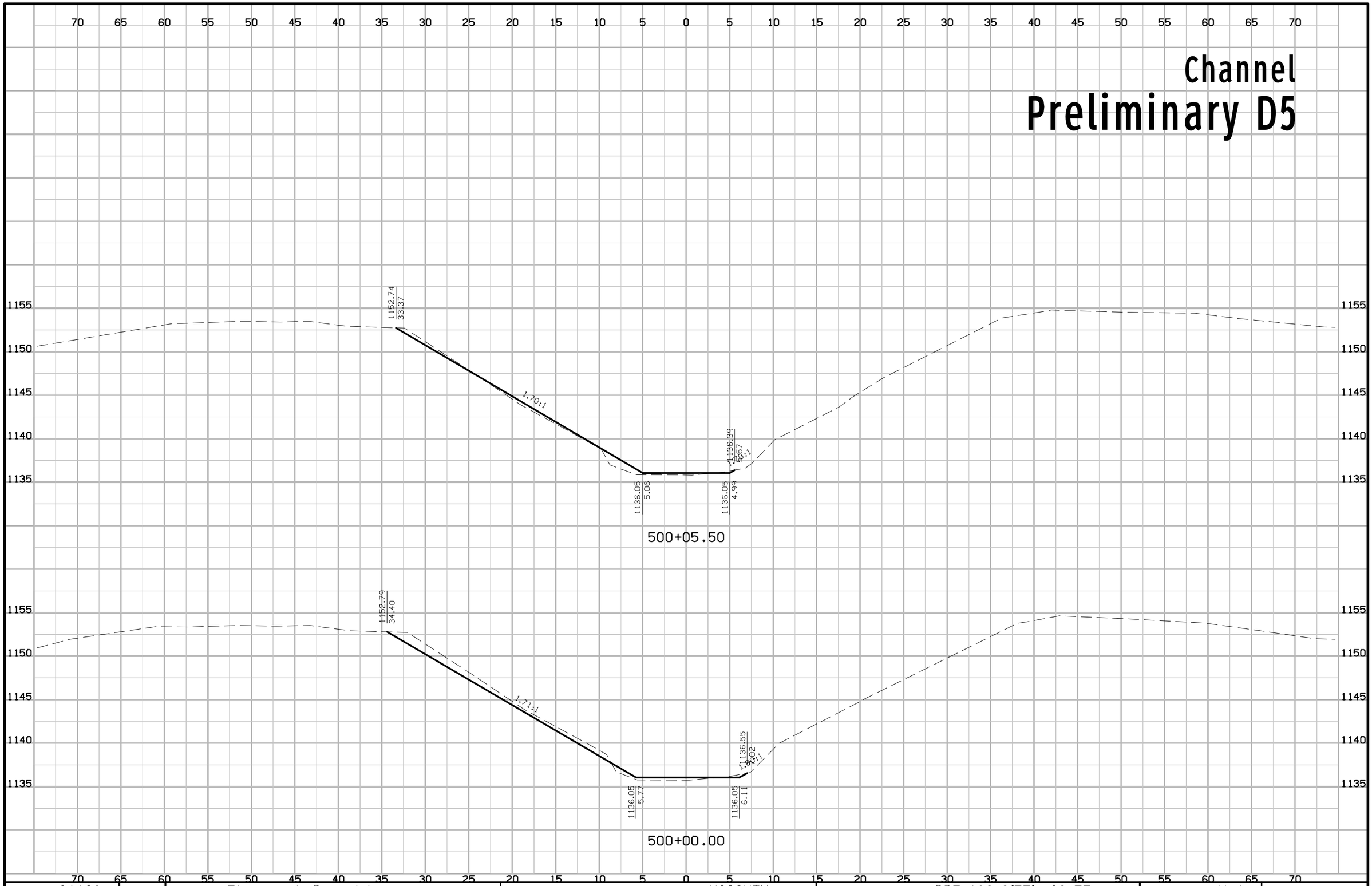
Channel
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER X.1

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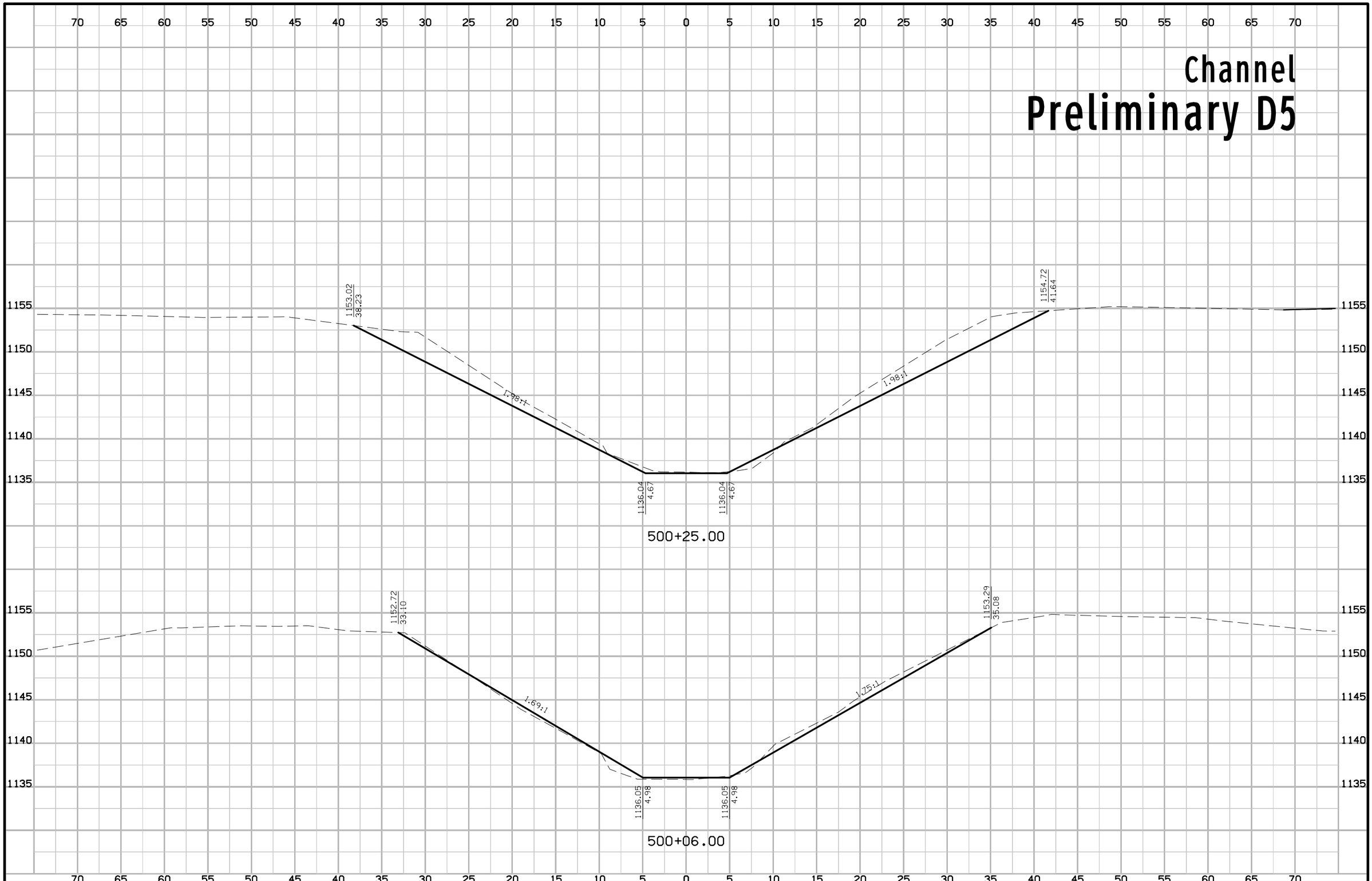
Channel
Preliminary D5



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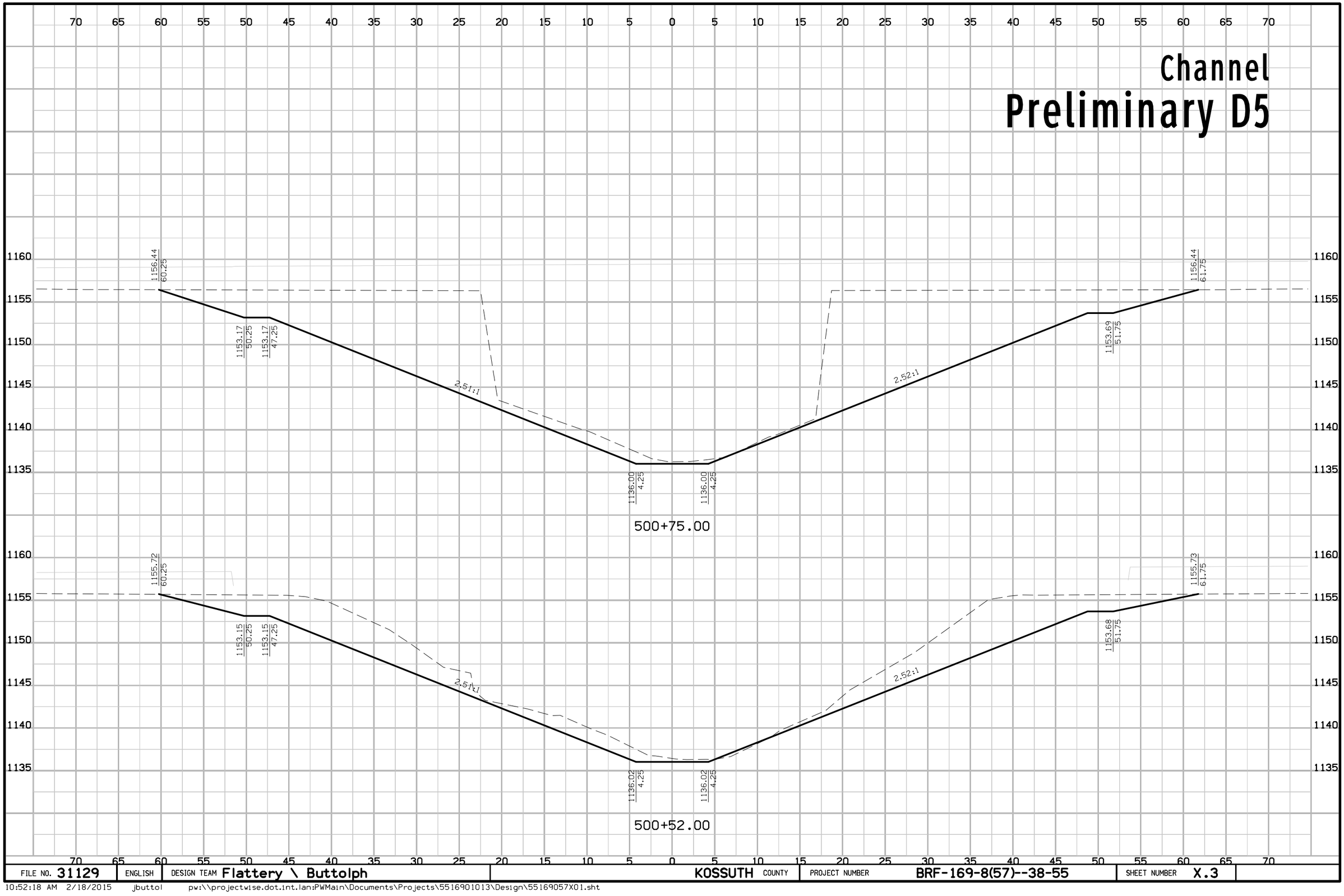
Channel
Preliminary D5



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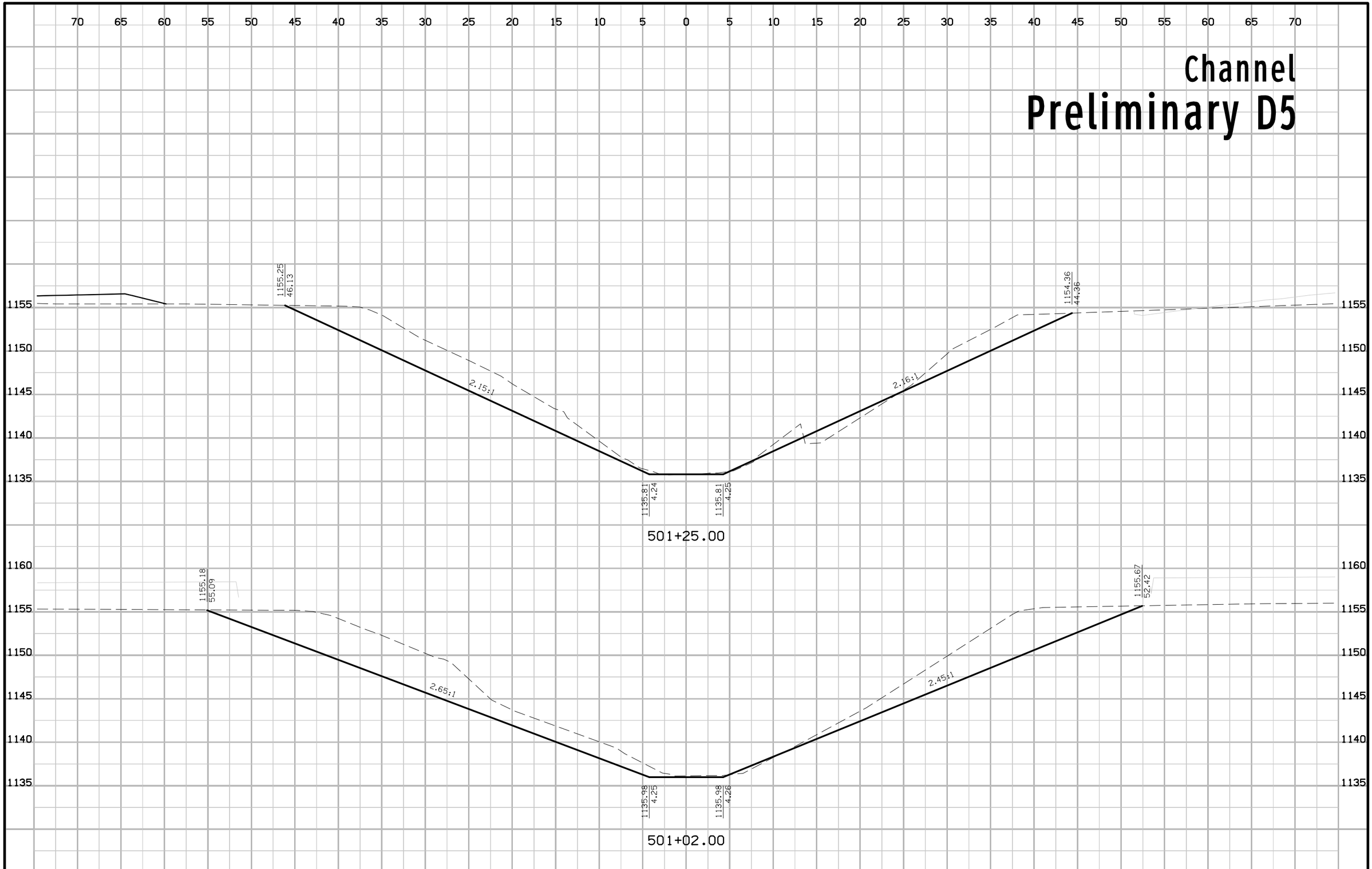
Channel
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER X.4

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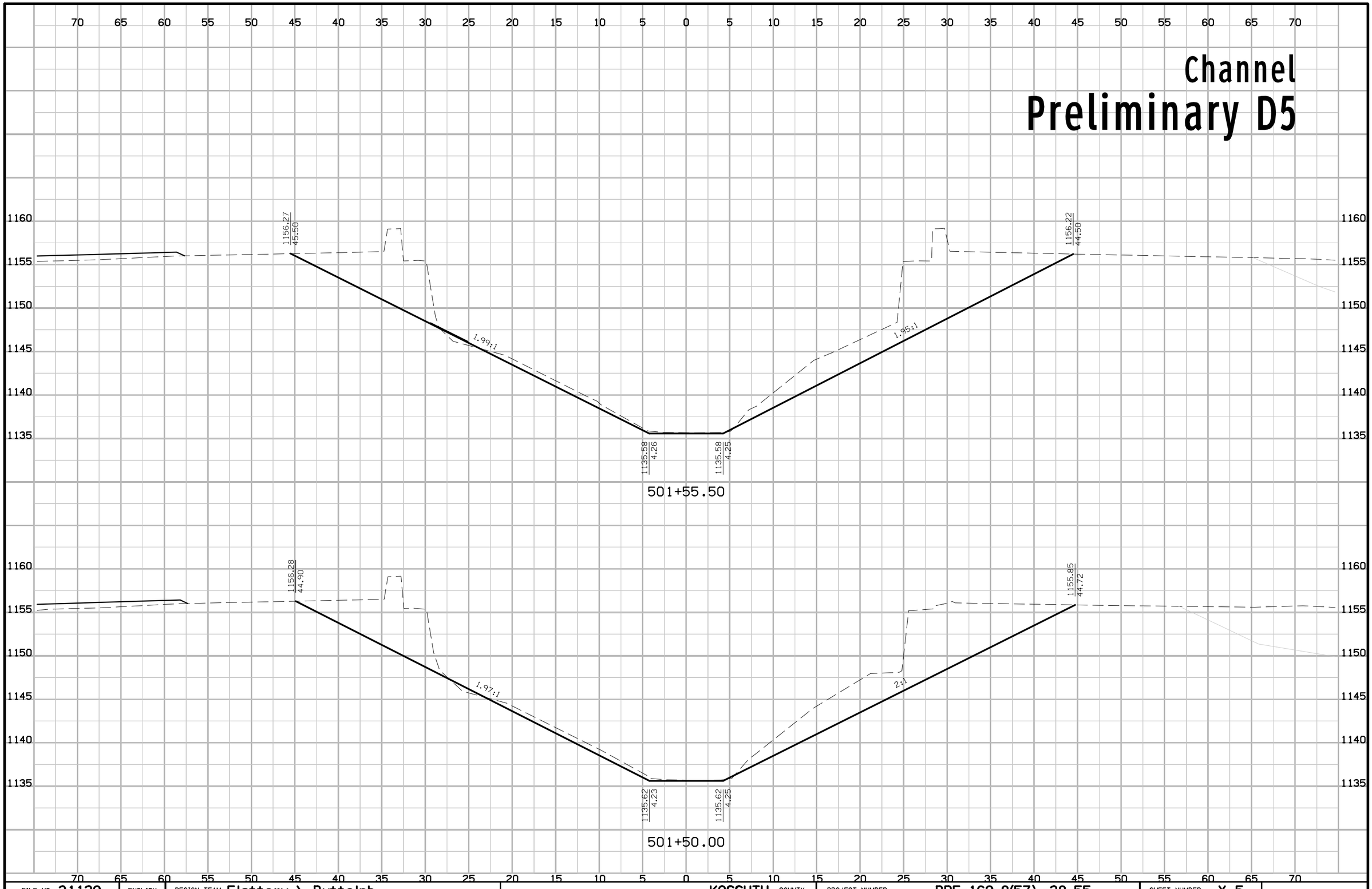
Channel
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER X.5

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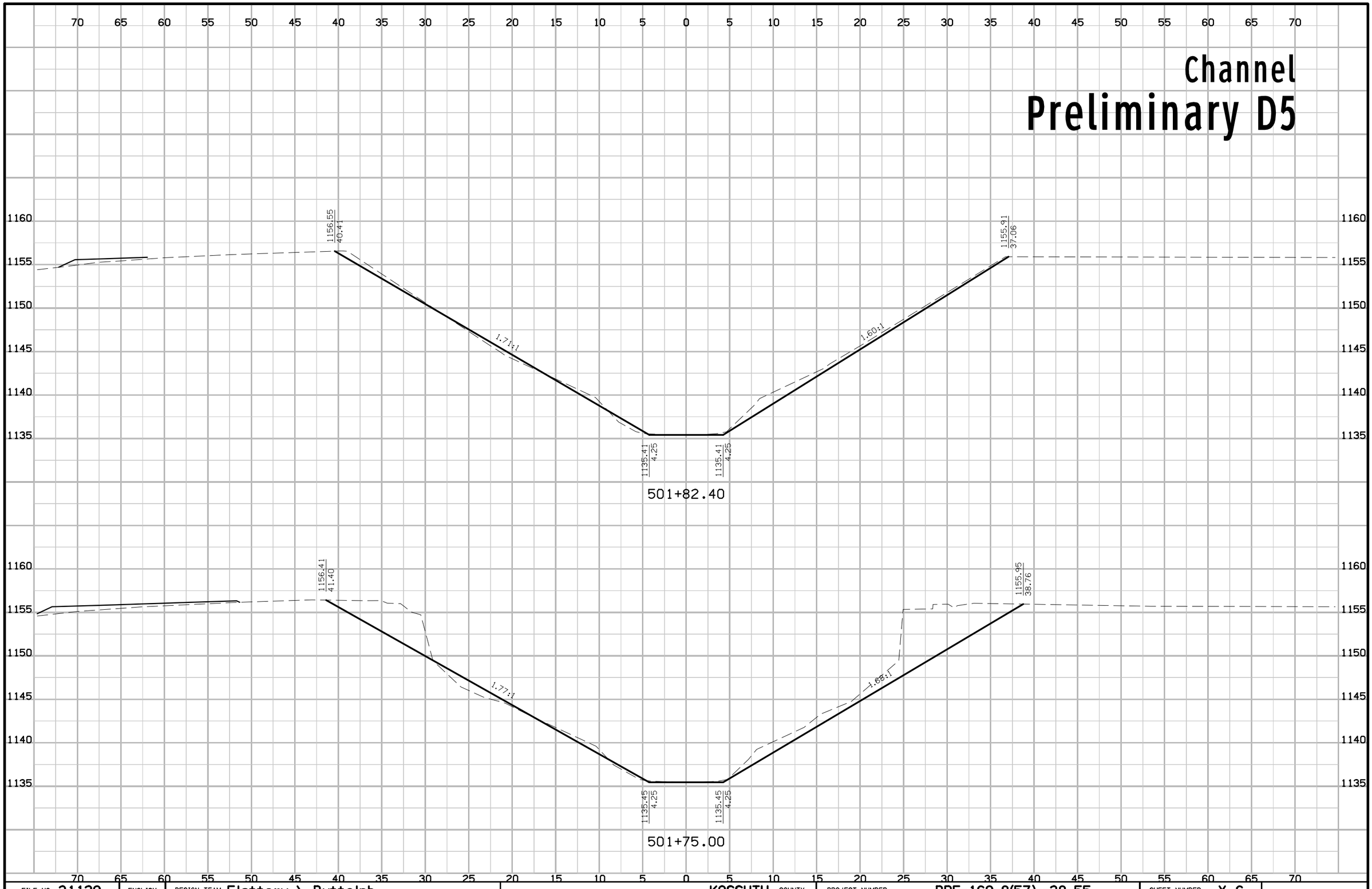
Channel
Preliminary D5



FILE NO. 31129	ENGLISH	DESIGN TEAM Flattery \ Buttolph	KOSSUTH COUNTY	PROJECT NUMBER BRF-169-8(57)--38-55	SHEET NUMBER X.6

10:52:21 AM 2/18/2015 jbuttol pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5516901013\Design\55169057X01.sht