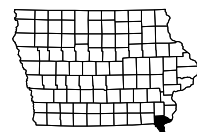


LETTING DATE 04-16-2019
 REVENMENT NHSN-019-1(48)--2R-56

LEE CO.



INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Project Description
C.1	Estimated Project Quantities
C.1	Estimate Reference Information
C.2	Standard Road Plans
C.2	Index of Tabulations
C.2	General Notes
C.2	Tabulations
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 3	Channel
G Sheets	Survey Sheets
G.1	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
T Sheets	Earthwork Quantity Sheets
T.1 - 2	Earthwork Quantity Sheets
W Sheets	Mainline Cross Sections
W.1 - 6	Channel Cross Sections
	* Color Plan Sheets



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM LEE COUNTY REVENMENT

0.3 mi N of Missouri State Line in Keokuk

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

18

PROJECT IDENTIFICATION NUMBER

19-56-019-010

PROJECT NUMBER

NHSN-019-1(48)--2R-56

R.O.W. PROJECT NUMBER

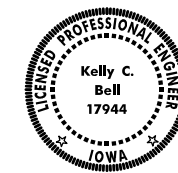
DESIGN DATA RURAL

2015	AADT	4850	V.P.D.
20--	AADT	--	V.P.D.
20--	DHV	--	V.P.H.
	TRUCKS	11	%
	Total		
	Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Kelly C. Bell	Primary Signature Block

ROADWAY DESIGN



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

Signature Kelly C. Bell Date 2/4/2019

Printed or Typed Name
Kelly C. Bell

My license renewal date is December 31, 2019

Pages or sheets covered by this seal: A.1-A.2, B.1, C.1-C.2, D.1-D.3, G.1, J.1, T.1-T.2, W.1-W.6

FILE NO.

ENGLISH

DESIGN TEAM **Flattery \ Bell \ Hain**

LEE COUNTY

PROJECT NUMBER

NHSN-019-1(48)--2R-56

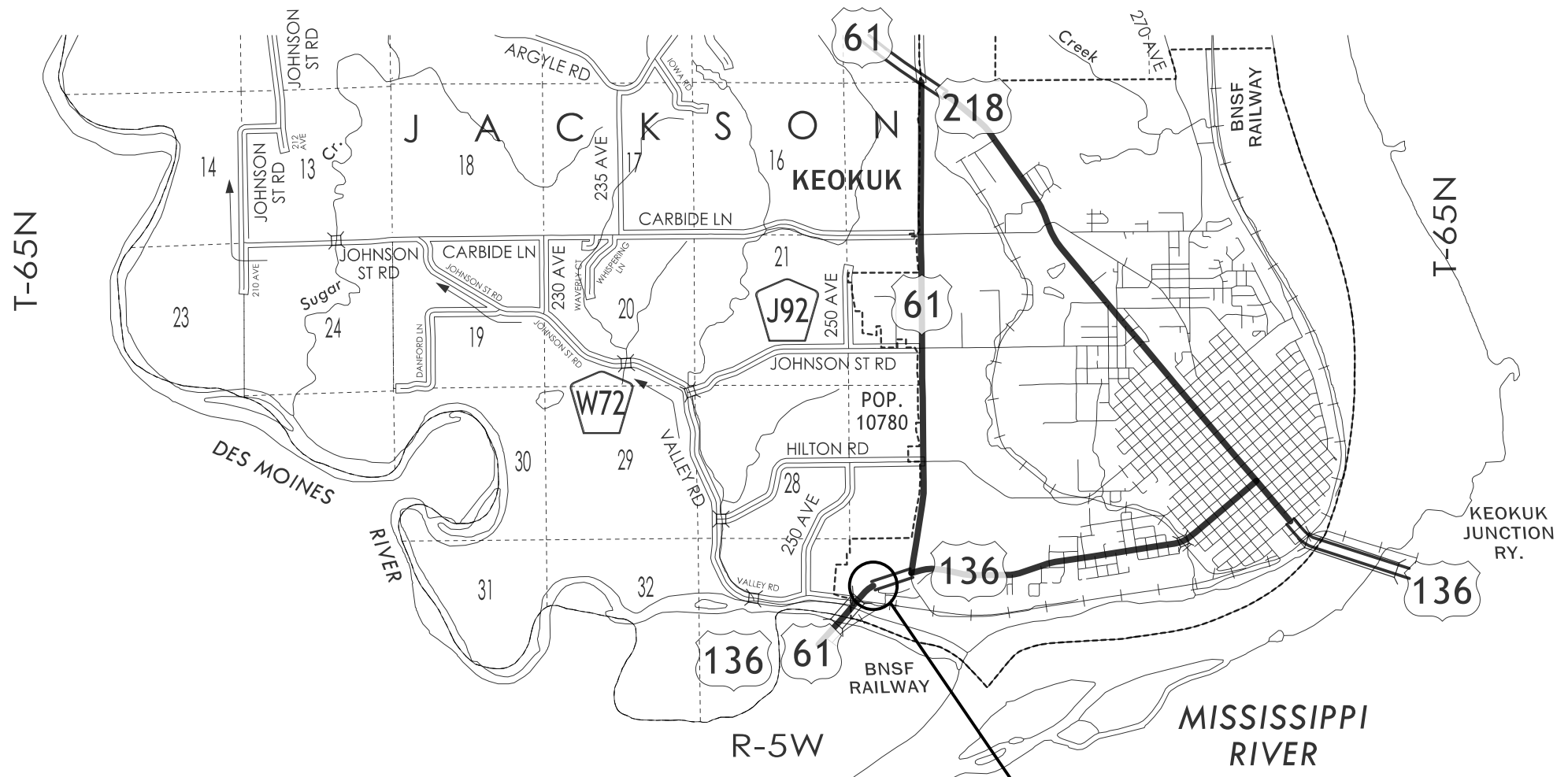
SHEET NUMBER

A.1

4:25:37 PM 2/14/2019

dhain

pw:\projectwise.dot.int.lan:PWMain\Documents\Projects\5601901019\Design\CADD_Files\Sheet_Files\56019048-A01.dgn

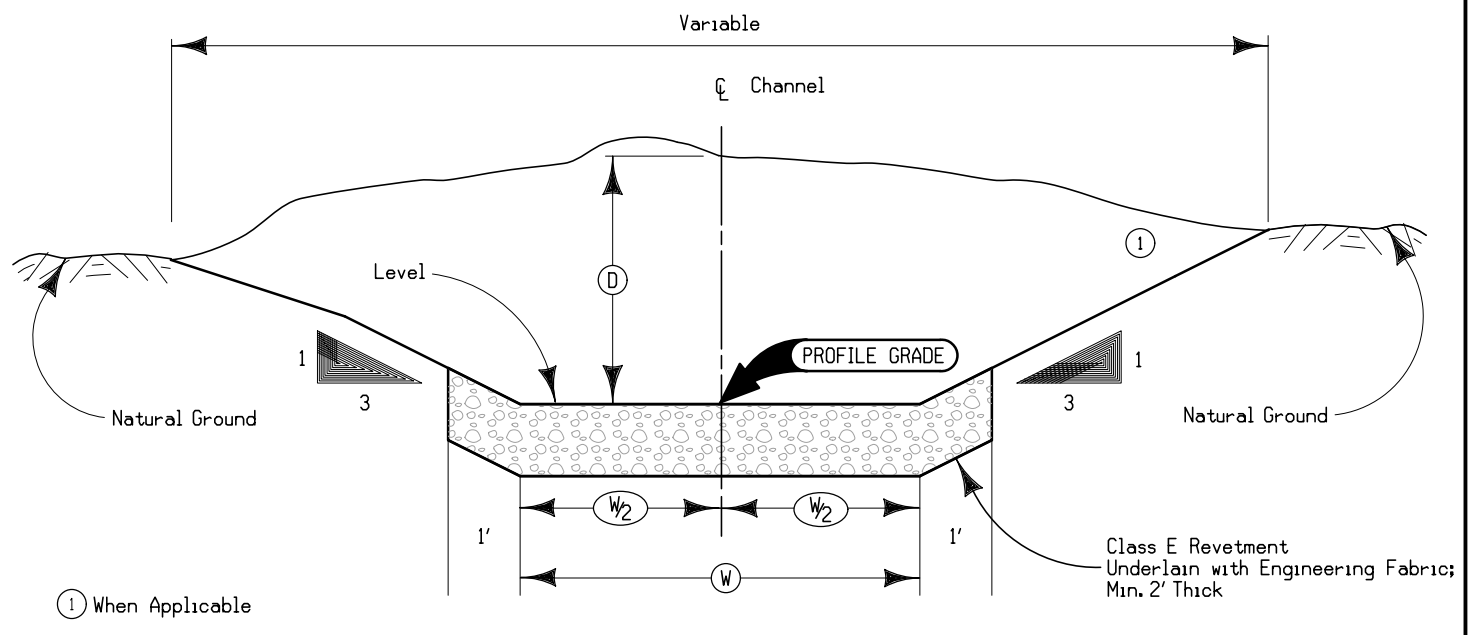


PROJECT LOCATION
 US HWY 61, MM 0.3
 US HWY 136, MM 100.34

LOCATION MAP NOT TO SCALE



4201M
Modified



① When Applicable

Note: See Tab 100-23

TYPICAL CROSS SECTION
TYPE 1 CHANNEL

ALIGNMENT	LOCATION		WIDTH Ⓜ	DEPTH (Average) Ⓧ
	STATION	SIDE		
DITCH	0+40.00 to 3+16.10		5.0	VARIABLE

100-1D 10-18-05	PROJECT DESCRIPTION
This project involves a ditch improvement approximately 0.3 miles North of the Missouri State Line in Keokuk.	

100-0A 10-28-97					
ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)					
Item No.	Item Code	Item	Unit	Total	As Built Qty.
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.6	
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	692.0	
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1,314.0	
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	913.0	
5	2507-3250005	ENGINEERING FABRIC	SY	225.9	
6	2507-6800061	REVTMENT, CLASS E	TON	294.7	
7	2526-8285000	CONSTRUCTION SURVEY	LS	1.00	
8	2528-8445110	TRAFFIC CONTROL	LS	1.00	
9	2533-4980005	MOBILIZATION	LS	1.00	
10	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.6	
11	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	750.0	
12	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	LF	750.0	
13	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1	
14	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1	

100-4A 10-29-02		
ESTIMATE REFERENCE INFORMATION		
Item No.	Item Code	Description
1	2101-0850001	CLEARING AND GRUBBING Tree clearing date restrictions per Iowa DOT Specification 2101.01A are not required for this project.
-	-	-
2	2102-2625000	EMBANKMENT-IN-PLACE See Tab 107-28 in T sheets.
-	-	-
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW See D Sheets for location of ditch cleanout. Overhaul shall be incidental to the bid item. See Tab 107-28 in T sheets.
-	-	-
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD Approximately 71 CY of topsoil is available as additional Class 10 material. See Tab 103-10 in C sheets. See Tab 107-28 in T sheets.
-	-	-
5	2507-3250005	ENGINEERING FABRIC
6	2507-6800061	REVTMENT, CLASS E See Typical 4201M in B sheets, Tab 100-23 in C sheets, and D sheets for locations and details.
-	-	-
7	2526-8285000	CONSTRUCTION SURVEY
-	-	-
8	2528-8445110	TRAFFIC CONTROL
-	-	-
9	2533-4980005	MOBILIZATION
-	-	-
10	2601-2636043	SEEDING AND FERTILIZING (RURAL) Seed and fertilize all areas 8 foot adjacent to the shoulder mainline, medians, and side according to Article 2601.03, C, 3, of the Standard Specifications. Use ground driven equipment.
-	-	-
11	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA. Item is included for temporary perimeter sediment control, inlet protection, and water velocity reduction on slopes or ditches at locations to be determined during construction. Verify specific locations with the Engineer prior to beginning placement. Use Perimeter and Slope Sediment Control Devices fabricated using wood excelsior.
-	-	-
12	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE
-	-	-
13	2602-0010010	MOBILIZATIONS, EROSION CONTROL
-	-	-
14	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL
-	-	-

INDEX OF TABULATIONS			111-25 10-18-11
Tabulation	Tabulation Title	Sheet No.	
C Sheets			
100-0A	ESTIMATED ROADWAY QUANTITIES (1 DIVISION PROJECT)	C.1	
100-1D	PROJECT DESCRIPTION	C.1	
100-4A	ESTIMATE REFERENCE INFORMATION	C.1	
100-23	ROCK EROSION CONTROL	C.2	
103-10	TOPSOIL STRIPPING AND PLACEMENT	C.2	
105-4	STANDARD ROAD PLANS	C.2	
111-25	INDEX OF TABULATIONS	C.2	

STANDARD ROAD PLANS			105-4 10-18-11
The following Standard Road Plans apply to construction work on this project.			
Number	Date	Title	
EC-204	04-18-17	Perimeter and Slope Sediment Control Devices	
EC-301	10-18-16	Rock Erosion Control (REC)	
EC-502	04-21-15	Seeding in Rural Areas	
TC-1	04-16-13	Work Not Affecting Traffic (Two-Lane or Multi-Lane)	
TC-402	04-21-15	Work Within 15 ft of Traveled Way	
TC-418	04-16-19	Lane Closure on Divided Highway	

231-2
10-16-12

HERBICIDE

For all herbicide applications, the following provisions shall apply.

- Follow all laws, rules and regulations related to the handling of pesticides, including but not limited to:
 - Follow all herbicide label directions, restrictions, and precautions.
 - The company responsible for the herbicide applicator must be licensed with Iowa Department of Agriculture and Land Stewardship (IDALS) as a commercial pesticide applicator company.
 - The person applying the herbicide must be certified through IDALS as a pesticide applicator in Category 6, Right-of-Way. For herbicide applications that require an aquatic certification, the applicator must also be certified as a pesticide applicator in Category 5, Aquatics.
 - Use herbicide and adjuvant products labeled for the application site:
 - For applications on the primary highway right-of-way, use only products labeled for use on highway rights-of-way or roadsides.
 - For applications to or over water, use only products labeled for corresponding use in aquatic sites, unless intermittent pockets of standing water, such as tire ruts, and the product is labeled for such use.
 - For applications to areas in the water conveyance portion of the ditch that do not contain water at the time of application, use only products labeled for non-irrigation ditch banks or aquatic sites.
 - Do not apply any herbicide to or over standing or flowing water unless required coverage is obtained under a National Pollutant Discharge and Elimination System (NPDES) Pesticide Discharge Permit through Iowa DNR. If standing or flowing water is encountered in areas when they need to be sprayed, notify Iowa DOT (Roadside Development) to determine if submittal of a Notice of Intent (NOI) is required.
- Schedule work according to weather conditions and take measures to avoid off-target damage, such as runoff, leaching, drift and volatilization.
 - Do not spray herbicide 24 hours prior to forecast precipitation that is expected to cause significant runoff conditions.
 - For areas with saturated soil, such as ditch bottoms, do not spray herbicide 24 hours prior to forecast precipitation, unless using products labeled for aquatic sites.
 - For conventional applications, avoid applications when wind speed exceeds 10 mph. For invert applications, avoid applications when wind speed exceeds 15 mph.
 - For conventional foliar applications, use a drift retardant and maintain drift control throughout the application period by adding more to the tank as it breaks down from agitation.
 - Avoid spraying volatile products when temperatures are forecast to exceed 85° F within 3 days.
 - Check the IDALS Sensitive Crops Directory and do not spray adjacent to a listed operation when wind is blowing towards it.
- Respond to allegations of any off-target damage attributed to handling and spraying of herbicide.
- Provide the following documents to the Engineer for approval not less than 2 weeks prior to the application.
 - A copy of the herbicide and adjuvant labels, including any applicable supplemental labels.
 - A copy of the herbicide and adjuvant Material Safety Data Sheets (MSDS.)
- Have copies of the herbicide and adjuvant labels and MSDSs on-hand and at locations of storage, transport, and application.

231-2
10-16-12

HERBICIDE

- Schedule work to maximize efficiency of the herbicide application in relation to weather conditions and plant growth stage. Follow any label recommendations given as "for best results."
 - For weed applications:
 - To determine if weeds are "actively growing," use as a guideline that there needs to have been at least 1 hour of temperature above 65° F and 1 hour of sun in the day prior to, of, or forecast before a rain the day after the application.
 - For spring applications to thistles, apply after basal leaves of Canada thistles are fully extended, and after rosettes of musk thistle are at least 8 inches diameter, but before flower stage.
 - For fall applications to thistles, apply prior to the second hard freeze of 28° F, unless otherwise listed in the label directions.
 - For tree and brush applications:
 - For foliar applications and cut stump/surface applications with water-soluble products, apply after leaves are fully opened in the spring and prior to leaf discoloration in the fall.
 - For cut stump applications with oil soluble products, do not apply during periods of heavy sap flow. Use as a guideline that heavy sap flow occurs in late winter to early spring when nighttime temperatures below 32° F are followed by daytime temperatures above 32° F with sunny conditions.
 - For cut stump and basal bark applications, add sufficient dye so that treated areas are visible to inspection 7 days after application.
- Notify the Engineer prior to calibrating, mixing and applying herbicides, including incidental items.
- Provide copies of daily spray logs to the RCE at the end of each week of spraying (form provided by Iowa DOT).
- If Contractor does not complete spray item on schedule, the Engineer may adjust the schedule.

232-10
04-18-17

EMERALD ASH BORER

Any living, dead, cut or fallen material of the ash (Fraxinus spp.) including trees, nursery stock, logs, firewood, stumps, roots, branches, and composted or uncomposted ash chips can be freely moved within the yellow areas of the most recent Federal EAB Quarantine & Authorized Transit.

https://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab_quarantine_map.pdf.

Obtain appropriate Compliance Agreements from USDA APHIS PPQ prior to moving any of the above listed ash articles to areas outside the yellow zone on the map.

For questions, concerns, and general assistance, contact:
USDA APHIS PPQ, Iowa office, 515-414-3295

Or
Iowa Department of Agriculture & Land Stewardship
515-725-1470
Entomology@IowaAgriculture.gov

232-3A
04-16-19

EROSION CONTROL (RURAL SEEDING)

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

262-6
10-18-05

UTILITIES (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

103-10
04-18-17

TOPSOIL STRIPPING AND PLACEMENT

Location				Topsoil Stripping Thickness	Topsoil Placement Thickness	Remarks
Road Identification	Dir. of Traffic	Begin Station	End Station	IN	IN	
Ditch		0+40.00	3+16.10	12.0	8.0	

100-23
04-17-18

ROCK EROSION CONTROL

Refer to EC-301 and Detail 570-8














Location				Rock Erosion Control (REC)					Material Bid Quantities			Remarks		
Road Identification	Begin Station	End Station	Side	L	W	Type 1	Type 2	Type 3	Type 4	Type 5	Eng. Fabric		Class E Revetment	Erosion Stone
						Rock Ditch Check	Rock Ditch	Rock Flume	Rock Splash Basin	Rock Slope Protection	SY		TON	TON
DITCH	0+30.00	3+16.10		286.1	7		1				225.9	294.7		

SURVEY SYMBOLS







UTILITY LEGEND













Utility Survey Not Conducted









PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

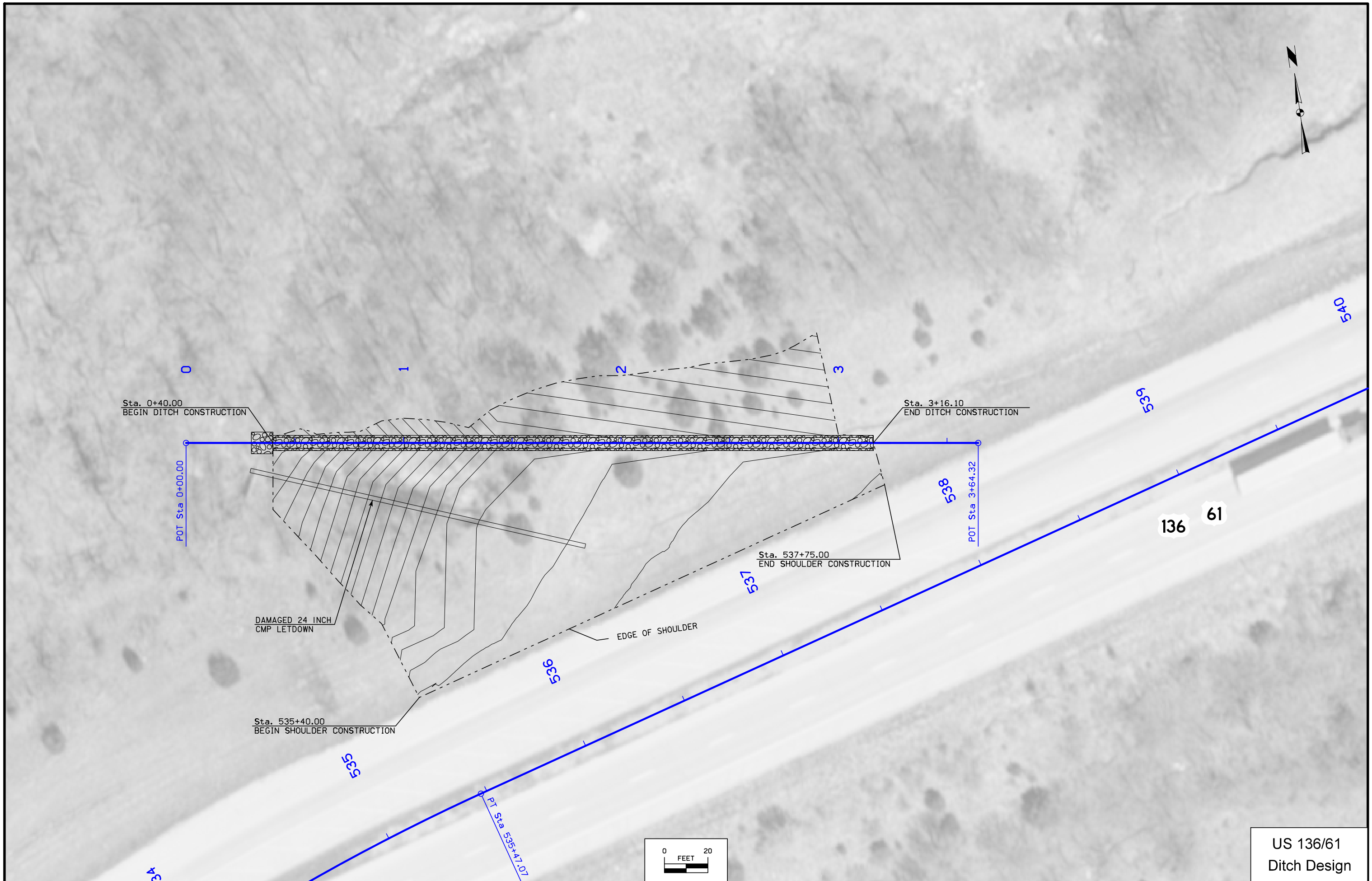
LINEWORK		Design Color No.	
Green	(2)		Existing Ground Line Profile
Blue	(1)		Proposed Profile and Annotation
Magenta	(5)		Existing Utilities
Blue, Light	(230)		Proposed Ditch Grades, Left
Black	(0)		Proposed Ditch Grades, Median
Rust	(14)		Proposed Ditch Grades, Right

	Reference Point
	Station
	Survey Line
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Trench Drain
	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)



US 136/61
Ditch Design



108-23A
08-01-08

TRAFFIC CONTROL PLAN

US 136/61 traffic shall be maintained at all times.

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
			None Expected									

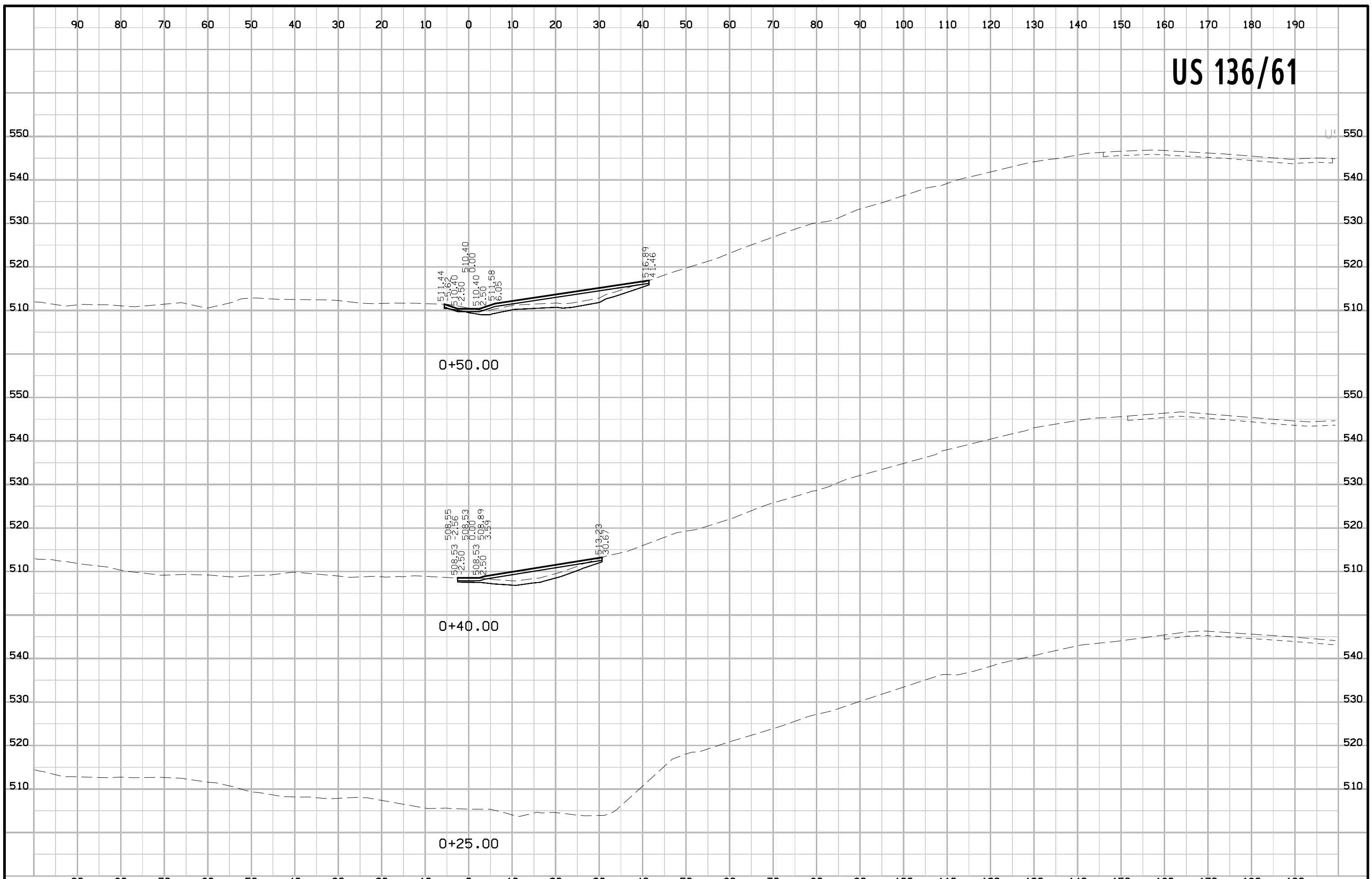
TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut				Fill				Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
Ditch																						
+40.00	15	0	15	0	11	13	24	31	-31	0	0	15	10	14	1							
+50.00	59	3	56	3	114	48	162	211	-208	0	0	56	37	52	4							
+75.00	99	12	87	12	286	73	359	467	-455	0	0	87	56	78	9							
1+00.00	117	10	107	10	335	88	423	550	-540	0	0	107	69	97	10							
1+25.00	181	72	109	72	168	66	234	304	-232	0	0	109	73	102	7							
1+50.00	319	211	108	211	20	25	45	59	153	0	0	108	72	101	7							
2+00.00	376	274	102	274	26	22	48	62	212	0	0	102	68	95	7							
2+25.00	359	266	94	266	45	35	80	104	162	0	0	94	63	88	6							
2+50.00	323	237	86	237	32	32	64	83	154	0	0	86	58	81	5							
2+75.00	247	168	80	168	23	31	54	70	98	0	0	80	53	74	6							
3+00.00	114	61	53	61	11	25	36	47	14	0	0	53	36	50	3							
3+16.10	16	0	16	0	1	13	14	18	-18	0	0	16	7	10	6							
Ditch																						
Totals:	2,225	1,314	913	1,314	1,072	471	1,543	2,006	-692	0	0	913	602	843	71							

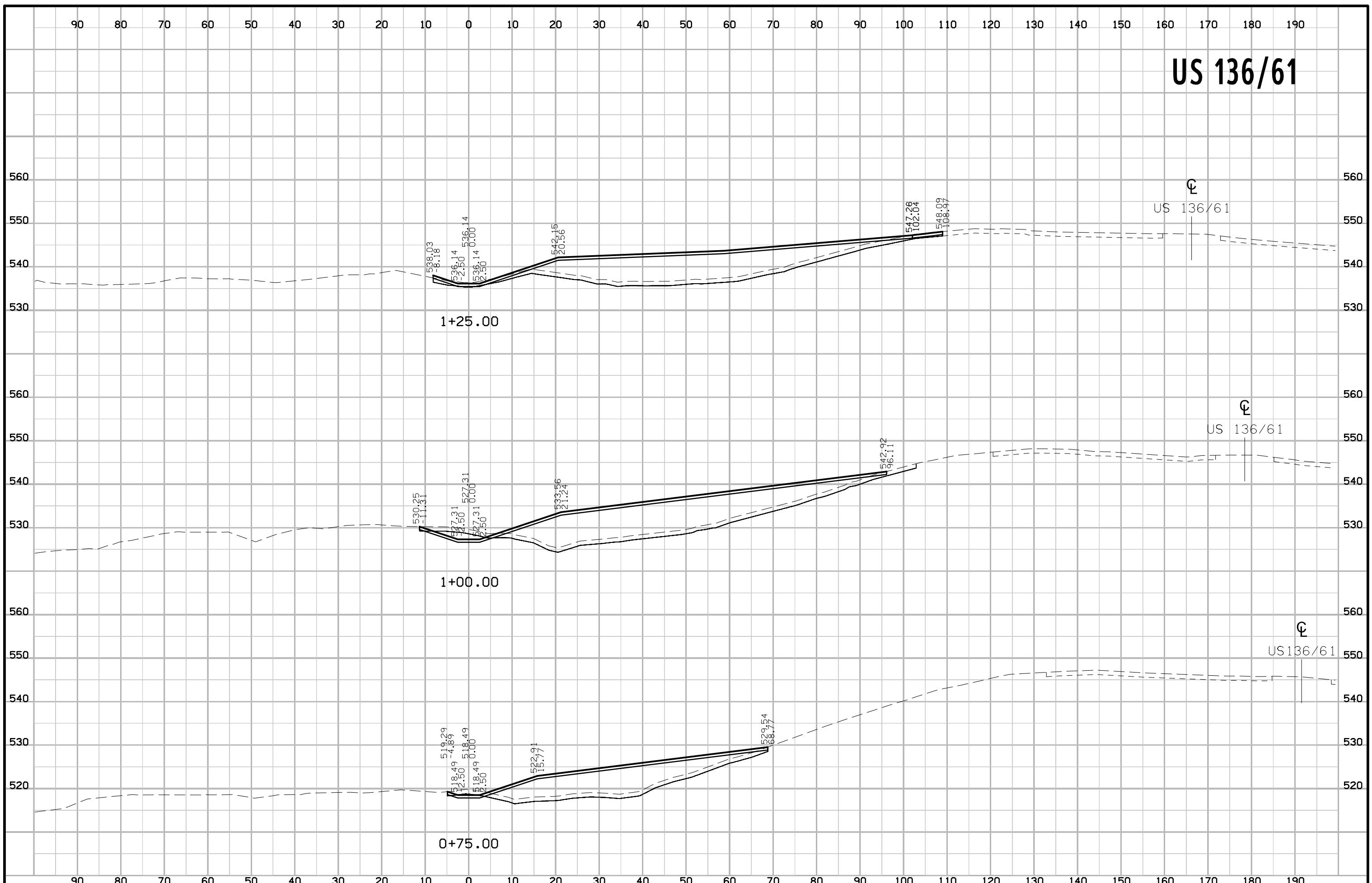
TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut				Fill					Checks (EW-102)		Topsoil				[16]	[17]	[18]	[19]	[20]	[21]	[22]
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]							
				[2]			[5+6]	[7+1.3]	[4-8]					[13x1.4]	[12-14]							
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Existing Topsoil Stripping Undercut (+ Fill)	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink							
Summary:																						
Ditch	2,225	1,314	913	1,314	1,072	471	1,543	2,006	-692	0	0	913	602	843	71							
Project Totals:	2,225	1,314	913	1,314	1,072	471	1,543	2,006	-692	0	0	913	602	843	71							
BID ITEMS:																						
	EMBANKMENT-IN-PLACE:																					
			692	CY																		
			[9]																			
	EXCAVATION, CLASS 10, ROADWAY AND BORROW:																					
			1,314	CY																		
			[4]																			
	TOPSOIL, STRIP, SALVAGE AND SPREAD:																					
			913	CY																		
			[12]																			

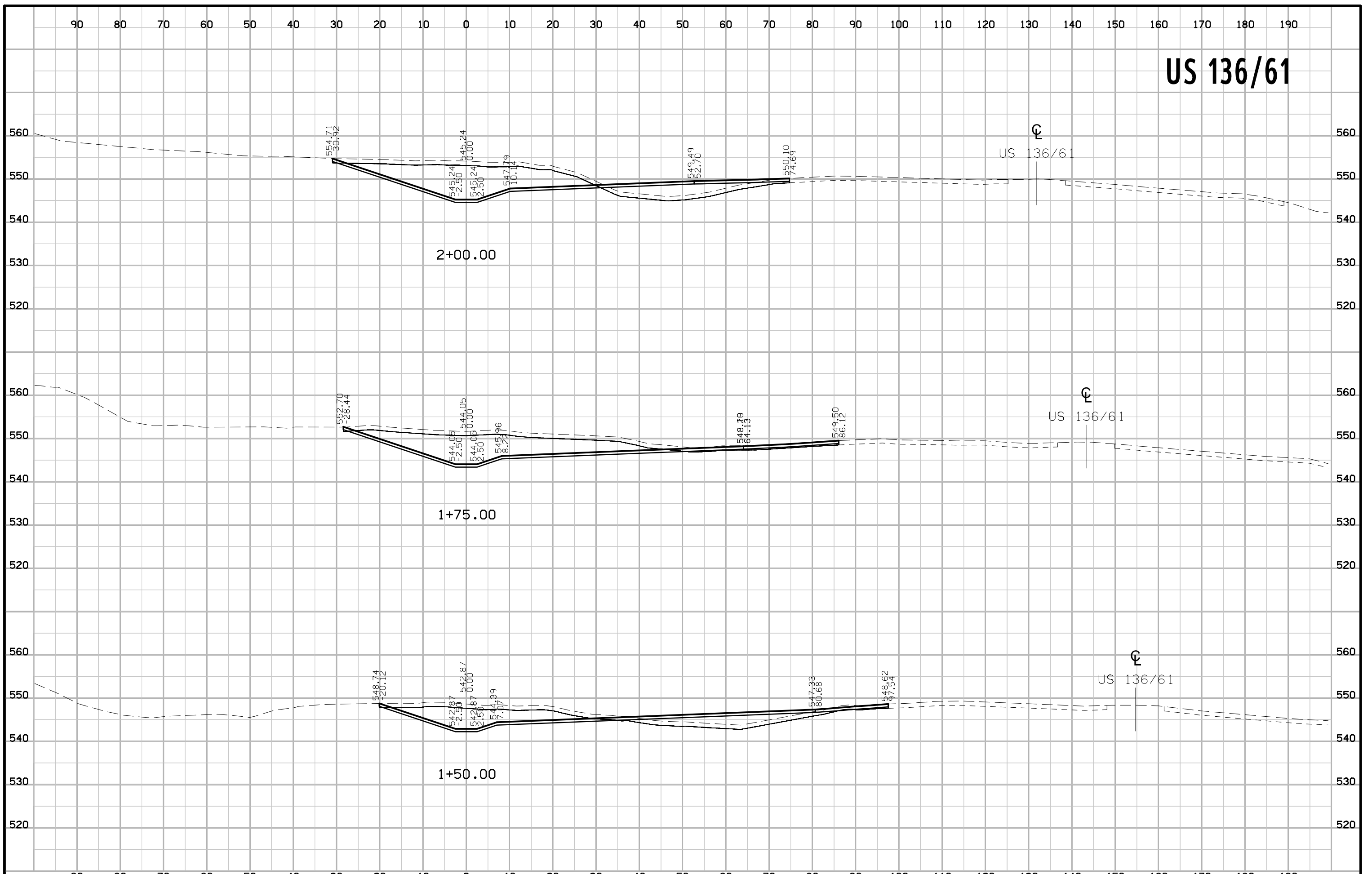
US 136/61



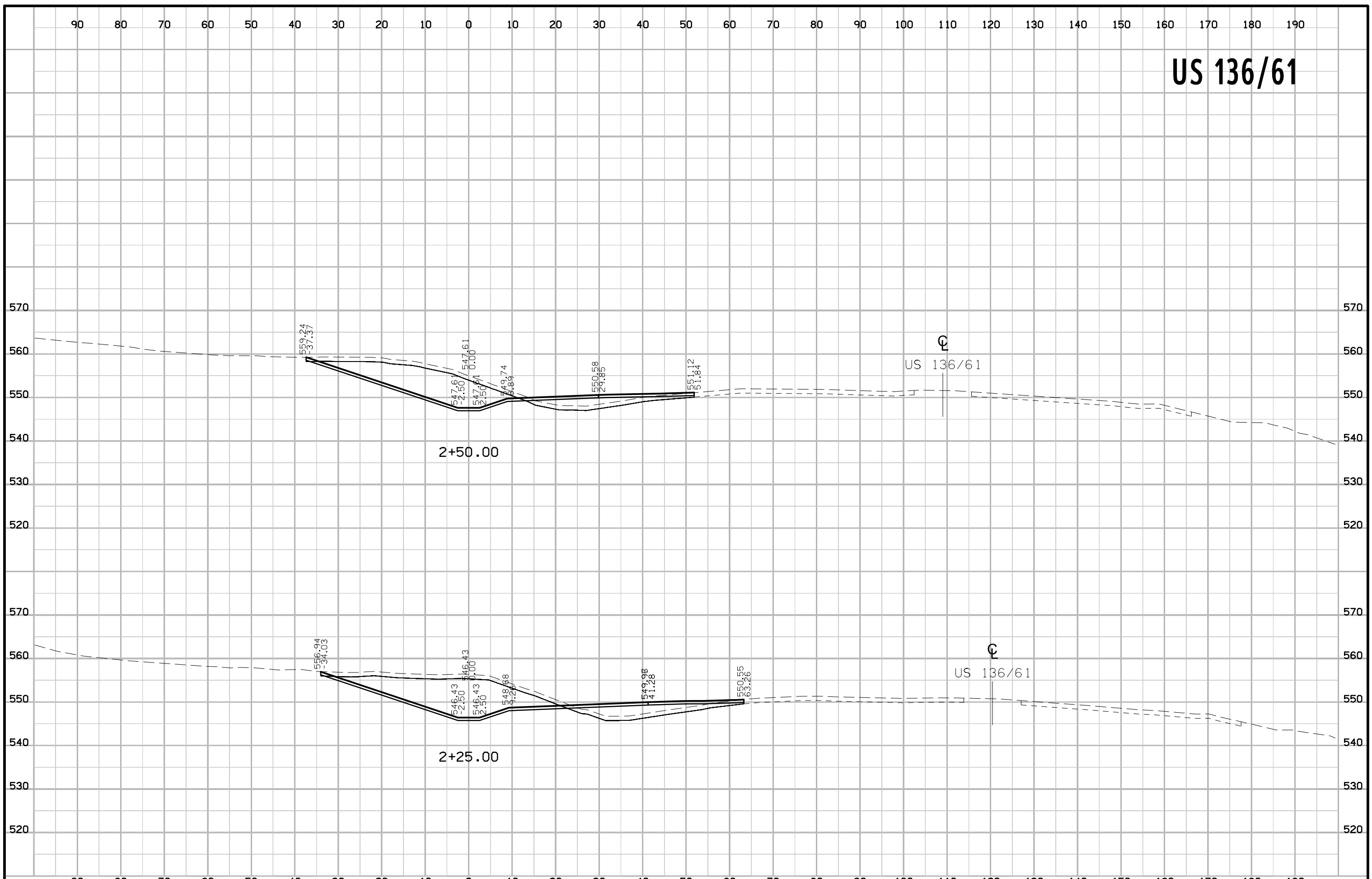
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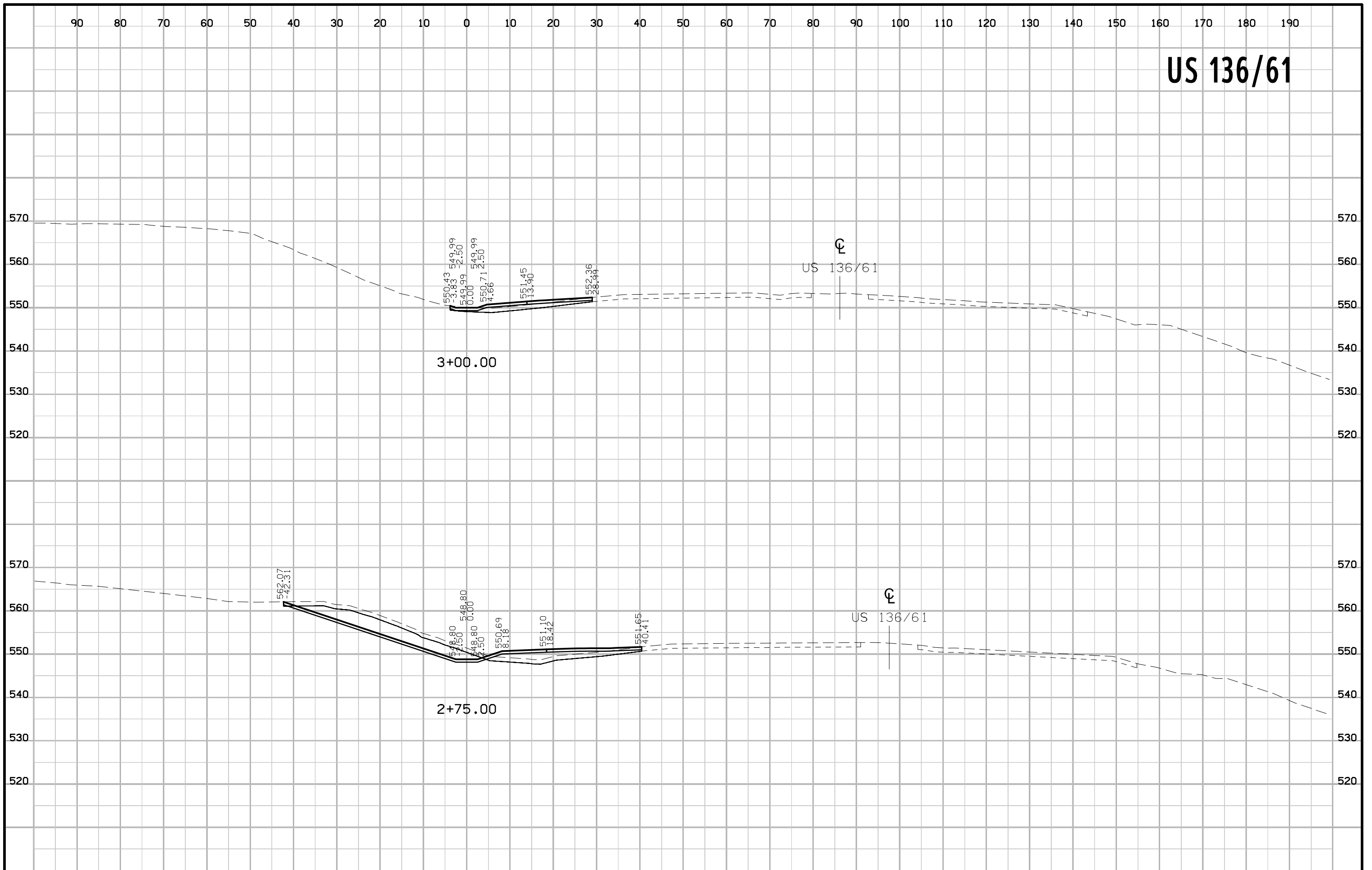
US 136/61



US 136/61



US 136/61



US 136/61

