

LETTING DATE
06/18/2019

SLIDE REPAIR
NHSN-065-2(24)--2R-59

LUCAS CO.



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

LUCAS COUNTY

SLIDE REPAIR

2.4 mi S of US 34 to 1.1mi S of US 34 (4 Locations)

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

17-59-065-020

PROJECT NUMBER

NHSN-065-2(24)--2R-59

R.O.W. PROJECT NUMBER

NHSN-065-2(25)--2R-59

PROJECT LOCATION

REF. LOC. 30.5
STA. 427+81

PROJECT LOCATION

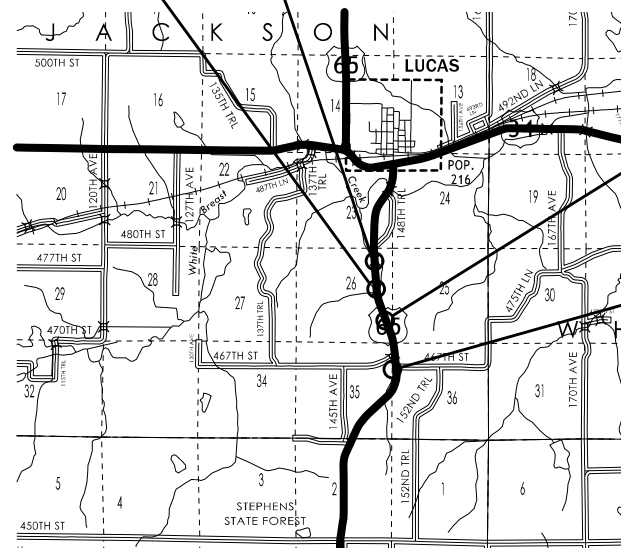
REF. LOC. 30.8
STA. 437+02

PROJECT LOCATION

REF. LOC. 30.2
STA. 406+05

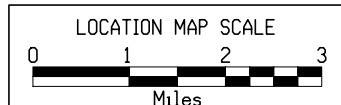
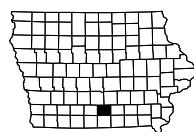
PROJECT LOCATION

REF. LOC. 29.6
STA. 380+60



T-72N

R-23W



DESIGN DATA RURAL

2015	AADT	1310	V.P.D.
20--	AADT	--	V.P.D.
20--	DHV	--	V.P.H.
	TRUCKS	19	%
	Total		
	Design ESALs	--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN - Date: 8/17/2018

FILE NO.

ENGLISH

DESIGN TEAM Holst \ Nading

LUCAS COUNTY

PROJECT NUMBER

NHSN-065-2(24)--2R-59

SHEET NUMBER

A.1

Jackson TWP
T-72 R23W
Section 36

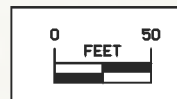
①

VIRGIL E. MCCAULEY

380+20
±110'

381+05
±110'

Sta. 380+63.38
Skew 3°30' LA (Plan)
5.0'X5.0X77' RCB
DA=64 Ac - H



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-065-2(25)--2R-59	
Plan Date: 11-14-18	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

Sta. 406+91.3 (Plan)
 Sta. 406+88.76 (Survey)
 3.0'X3.0'X75.3' RCB
 DA=17.4 Ac - H

②
 DWAIN & CLETA SPENCER

405+50
 ±125'

407+05
 ±135'

407+05
 ±60'±Ex.R/W

405+00
 ±60'±Ex.R/W

Jackson TWP
 T-72 R23W
 Section 26

Section No. 26

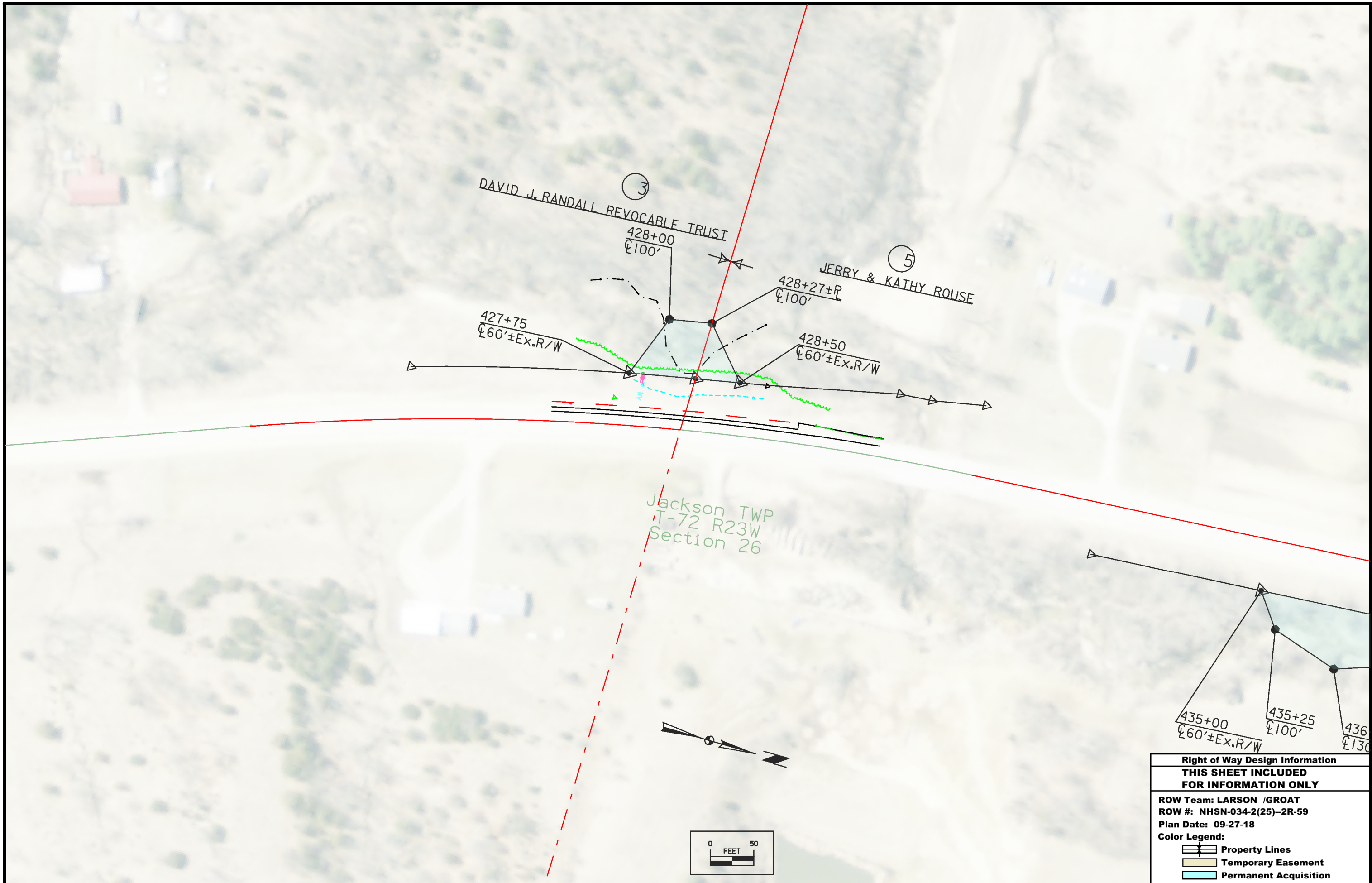





Right of Way Design Information
THIS SHEET INCLUDED
FOR INFORMATION ONLY

ROW Team: LARSON /GROAT
 ROW #: NHSN-065-2(25)--2R-59
 Plan Date: 09-27-18

Color Legend:

-  Property Lines
-  Temporary Easement
-  Permanent Acquisition

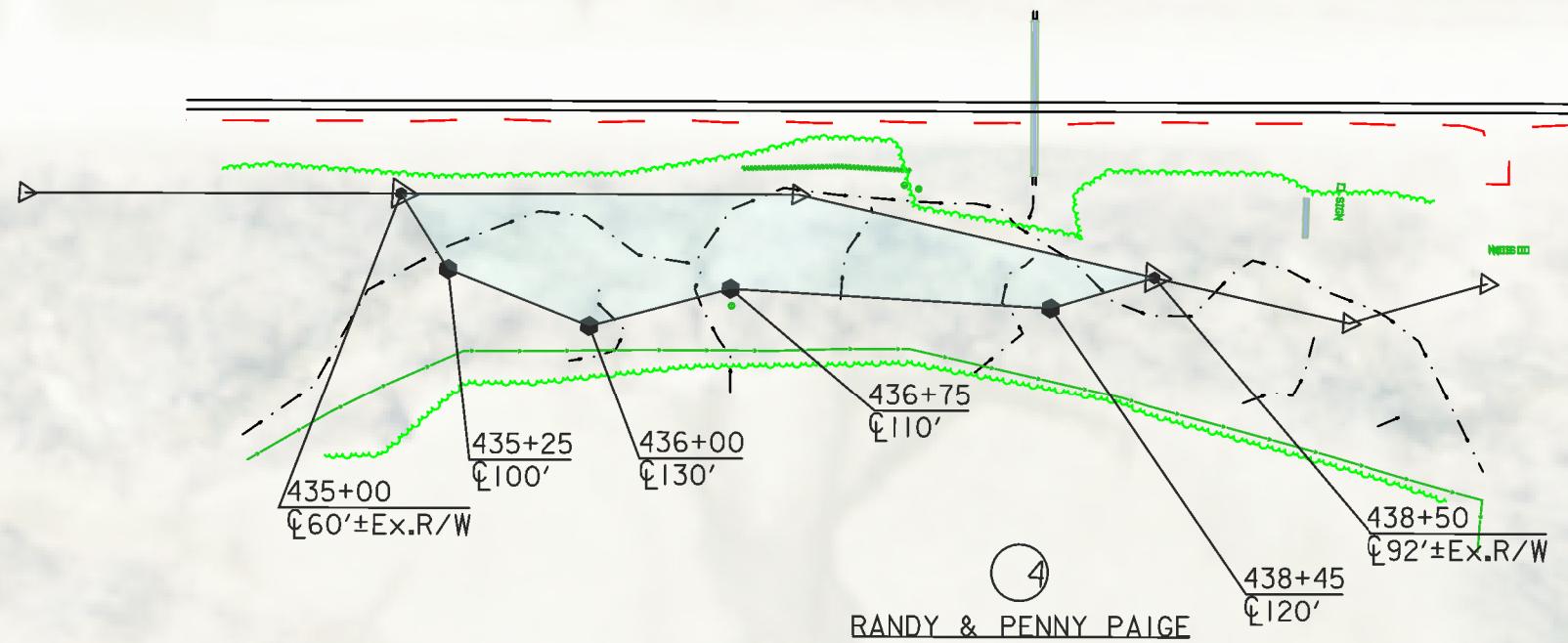


Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-034-2(25)--2R-59	
Plan Date: 09-27-18	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

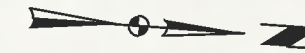
Y ROUSE

Sta. 438+37 (Plan)
2.0'X3.0X82.4' RCB
DA= 6 Ac - H

+/- Sta. 439+83, 71' Rt
21' of 18" RCP (Arch)
Abandoned



Jackson TWP
T-72 R23W
Section 26



Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: LARSON /GROAT	
ROW #: NHSN-065-2(25)--2R-59	
Plan Date: 09-27-18	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic will 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
			No restrictions are expected.									

SURVEY SYMBOLS

UTILITY LEGEND

PLAN VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Purple (Halo)	(15)	Backslope Drains
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation

SHADING	Design Color No.	
Brown, Light	(236)	Core Out

PROFILE VIEW COLOR LEGEND OF SOILS SHEETS

LINEWORK	Design Color No.	
Blue	(1)	Proposed Alignment, Stationing, and Alignment Annotation
Green	(2)	Existing Ground Line Profile
Green, Med	(227)	Topsoil
Green, Med	(227)	Slope Dressing Only
Orange	(6)	Loam
Brown, Dark	(238)	Class 10
Brown, Med	(237)	Sand
Red	(3)	Unsuitable A
Pink, Dark	(13)	Unsuitable B
Pink	(11)	Unsuitable C
Red	(3)	Shale
Red	(3)	Waste
Gray, Light	(48)	Broken and Weathered Rock
Gray, Med	(80)	Rock
Gray, V.Dark	(128)	Boulders

PATTERN AND SYMBOL LEGEND OF SOILS SHEETS

Symbol	Description	Date(s) Drilled
	Drill	
	Dig/Core	
	Water	
	Dry	
	Sample	
	Plugged	
	Moisture	
	Shelby	
	Blow Count	
	Dens. Core	
	Treatment	
	Sand Blanket	
	Soil Remediation Area	
	Select Soil	
	Select Sand	
	Slope Dressing Only	
	Broken and Weathered Rock	
	Rock	
	Sandstone	
	Unsuitable A	
	Unsuitable B	
	Unsuitable C	
	Sandy Soil	
	Boulders	
	Shale	

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

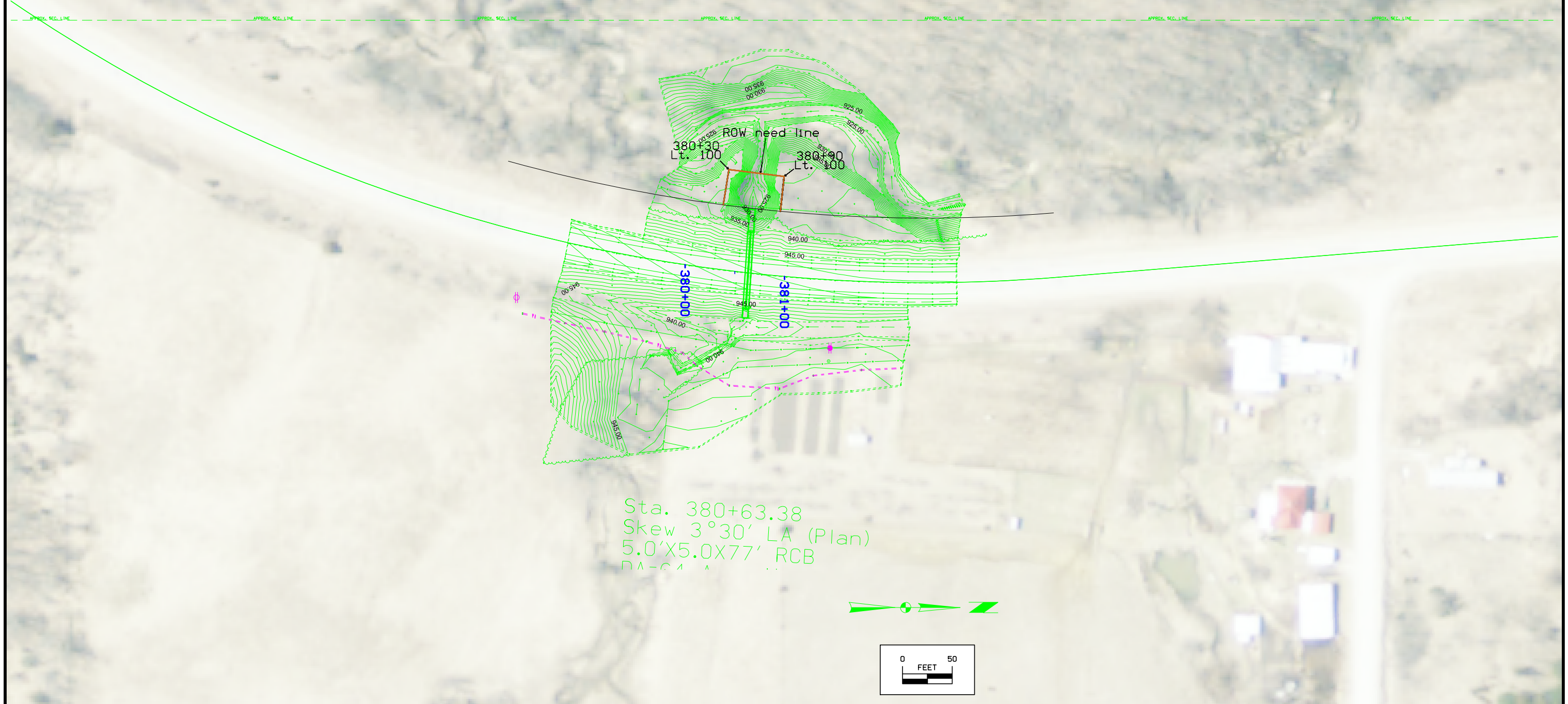
RIGHT-OF-WAY LEGEND	
	Proposed Right-of-Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Borrow
	Easement (Temporary)
	Easement
	Excess
	A/C Access Control

NOTE: Sounding and test boring data shown in the plans were accumulated for designing and estimating purposes. Their appearance on the plans does not constitute a guarantee that conditions other than those indicated will be encountered. Details and notes shown elsewhere shall be used for roadway and structure construction.

SOILS LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES Q)

Jackson TWP
T-72 R23W
Section 36



Sta. 380+63.38
Skew 3°30' LA (Plan)
5.0'X5.0X77' RCB
PA-C4

Sta. 406+91.3 (Plan)
 Sta. 406+88.76 (Survey)
 3.0'X3.0X75.3' RCB
 DA=17.4 Ac - H

Dwayne and Cleta Spencer
 Bok 45 Page 111

Jerry and Mable Babcock
 to State of Iowa - Easement
 Book 48 Page 261

Jackson TWP
 T-72 R23W
 Section 26

Section No. 26

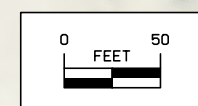
Channel Reshaping - U.S. 65, MM 30.2

From Station 405+40 to 406+58 on the west side of U.S. 65 rebuild/reshape the outside bank (as depicted on Sheets W.1-W.3) with Revetment underlain with Engineering Fabric. The Revetment placement shall be carried around the bend to the west for a distance of approximate 60 feet.

The inside bank shall be reshaped and graded (as depicted on Sheets W.1-W.3) with the top 6 inches being covered with topsoil.

The armoring shall blend into the natural channel back at the outside limits of the repair. Remove the existing vegetation within the limits of reshaping/armoring prior to placing the Engineering Fabric.

Remove and replace the existing fence.



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER Q.3
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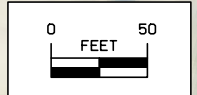
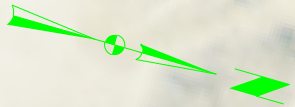
Channel Reshaping - U.S. 65, MM 30.5

From Station 427+90 to 428+40 on the west side of U.S. 65 rebuild/reshape the outside bank (as depicted on Sheet W.4) with Revetment underlain with Engineering Fabric.

The inside bank shall be reshaped and graded (as depicted on Sheet W.4) with the top 6 inches being covered with topsoil.

The armoring shall blend into the natural channel back at the outside limits of the repair. Remove the existing vegetation within the limits of reshaping/armoring prior to placing the Engineering Fabric.

Remove and replace the existing fence.



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	Q.4
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Sta. 438+37 (Plan)
2.0'X3.0X82.4' RCB
DA= 6 Ac - H

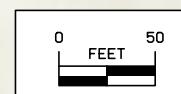
+/- Sta. 439+83, 71'
21' of 18" RCP (Arch
Abandoned

Channel Reshaping - U.S. 65, MM 30.8

From Station 435+25 to 435+50 on the east side of U.S. 65 rebuild/reshape the outside & inside bank, (as depicted on Sheets W.5-W.10.) with Revetment underlain with Engineering Fabric and using Class 10 material.

The armoring shall blend into the natural channel back at the outside limits of the repair. Remove the existing vegetation within the limits of reshaping/armoring prior to placing the Engineering Fabric.

Station
T-72 R23W
Section 26



FILE NO.	ENGLISH	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER Q.5
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ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
1	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	257.0	
2	2105-8425005	TOPSOIL, FURNISH AND SPREAD	CY	97.0	
3	2507-3250005	ENGINEERING FABRIC	SY	204.0	
4	2507-6800021	REVTMENT, CLASS B	TON	258.0	
5	2599-9999003	('CUBIC YARDS' ITEM) GROUT FOR PARTIALLY GROUTED REVTMENT	CY	23.0	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
1	2104-2710020	EXCAVATION, CLASS 10, CHANNEL MATERIAL EXCAVATED FOR THE BANK SHAPING WILL BE USED FOR ALL EARTH FILL NEEDED FOR THE PROJECT. EXISTING TOP SOIL WILL NOT BE USED FOR ANY EARTH FILL NEEDED FOR THE PROJECT. ESTIMATE 257 CY OF CLASS 10 CHANNEL EXCAVATION (INCLUDES EXISTING TOP SOIL). ESTIMATE 11 CY OF EARTH FILL REQUIRED. FILL ESTIMATES INCLUDE 25% SHRINKAGE FACTOR. THE WASTE (246 CY) WILL BECOME THE PROPERTY OF THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE DISPOSAL SITE FOR WASTE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT AREAS (INCLUDING HAUL ROADS) SELECTED FOR WASTE OR DISPOSAL NOT IMPACT 1) CULTURALLY SENSITIVE SITES OR GRAVES OR 2) WETLANDS OR "WATERS OF THE U.S.", INCLUDING STREAMS OR STREAM BANKS BELOW THE "ORDINARY HIGH WATER MARK", WITHOUT AN APPROVED U.S. ARMY CORPS OF ENGINEERS 404 PERMIT. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT OF WAY.
2	2105-8425005	TOPSOIL, FURNISH AND SPREAD QUANTITY INCLUDES A 25% SHRINKAGE FACTOR. TOP SOIL TO BE PROVIDED BY THE CONTRACTOR.
3	2507-3250005	ENGINEERING FABRIC ENGINEERING FABRIC SHALL BE MATERIAL AS SPECIFIED FOR EMBANKMENT EROSION CONTROL IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.
4	2507-6800021	REVTMENT, CLASS B ESTIMATED AT 1.6 TON/CY.
5	2599-9999003	('CUBIC YARDS' ITEM) GROUT FOR PARTIALLY GROUTED REVTMENT REFER TO SPECIAL PROVISION FOR SPECIFICATIONS.

GENERAL NOTES:

THIS DESIGN IS FOR THE CONSTRUCTION OF STREAM STABILIZATION MEASURES AT THE OUTLET OF AN EXISTING 5' X 5' RCB CULVERT LOCATED AT STATION 380+63.38 ALONG U.S. HIGHWAY 65. PROJECT LOCATION IS APPROXIMATELY 0.12 MILES SOUTH OF 467TH STREET.

PROJECT SHALL CONSIST OF:

- I. INSTALLATION OF PARTIALLY GROUTED CLASS B REVTMENT STREAM STABILIZATION.


ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

REFER TO TITLE SHEET FOR TRAFFIC DATA.

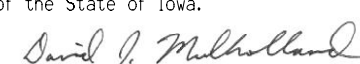
SPECIFICATIONS:

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES OF 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

HYDRAULIC 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.

 7/9/2018
 Signature _____ Date _____
David J. Mulholland
 Printed or Typed Name

My license renewal date is December 31, 2018

Pages or sheets covered by this seal: _____ V.1, V.2 AND V.3

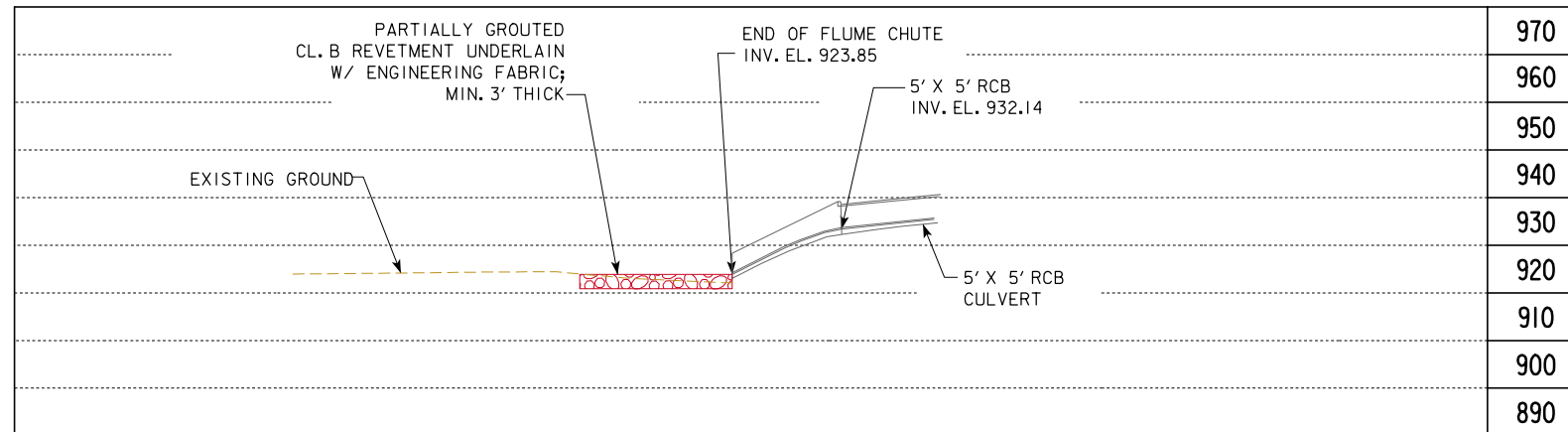
PRELIMINARY
DESIGN FOR

**5' X 5' RCB CULVERT
STREAMBANK STABILIZATION
QUANTITIES AND GENERAL NOTES**

STATION 380+63.38 JULY 2018
LUCAS COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 3 FILE NO. 31637 DESIGN NO. 219

CP-4 N 6228699.614, E 22579928.405, FENO 0.08 MILES SOUTH OF 467TH ST ON WEST SIDE OF US 65 9' FROM EOP, EL. 943.71
 CP-5 N 6228301.661, E 22579934.231, FENO 0.16 MILES SOUTH OF 467TH ST ON EAST SIDE OF US 65 9' FROM EOP AND 46.9' NW OF PP, EL. 950.30



LONGITUDINAL SECTION ALONG THALWEG OF CREEK

BANK STABILIZATION REVETMENT TOE LOCATIONS

- | | |
|--|--|
| ① STA. 380+59.42, 95.58' LT, ELEV. 924.00
N 6228508.23, E 22579847.55 | ⑤ STA. 380+56.17, 95.23' LT, ELEV. 924.00
N 6228505.16, E 22579847.55 |
| ② STA. 380+68.41, 82.59' LT, ELEV. 924.00
N 6228515.27, E 22579861.39 | ⑥ STA. 380+50.98, 76.94' LT, ELEV. 924.00
N 6228498.16, E 22579865.14 |
| ③ STA. 380+71.70, 73.93' LT, ELEV. 924.00
N 6228517.47, E 22579870.33 | ⑦ STA. 380+51.45, 66.54' LT, ELEV. 924.00
N 6228497.38, E 22579875.53 |
| ④ STA. 380+63.80, 63.67' LT, ELEV. 924.00
N 6228508.85, E 22579879.72 | ⑧ STA. 380+57.36, 63.47' LT, ELEV. 924.00
N 6228502.67, E 22579879.23 |

BANK GRADING LIMITS

- | | | |
|---|---|--|
| ⑨ STA. 380+92.73, 102.04' LT
N 6228540.02, E 22579844.30 | ⑫ STA. 380+94.91, 54.61' LT
N 6228537.78, E 22579891.72 | ⑮ STA. 380+24.34, 57.47' LT
N 6228470.37, E 22579881.26 |
| ⑩ STA. 380+99.98, 85.35' LT
N 6228545.34, E 22579861.54 | ⑬ STA. 380+28.20, 102.82' LT
N 6228480.00, E 22579836.80 | |
| ⑪ STA. 380+99.85, 62.02' LT
N 6228543.18, E 22579884.77 | ⑭ STA. 380+20.83, 74.40' LT
N 6228469.31, E 22579864.03 | |

NOTE: CONTRACTOR TO PROVIDE 8 INCH THICK TOP SOIL
 ALONG ALL NEWLY GRADED BANK AREAS;
 PROVIDE POSITIVE DRAINAGE AND TYPE A COMPACTION.

LOCATION

US 65 OVER UNNAMED CREEK
 T-72N R-23W
 SECTION 36
 JACKSON TOWNSHIP
 LUCAS COUNTY
 LATITUDE 40.994541°
 LONGITUDE -93.460698°

HYDRAULIC DATA

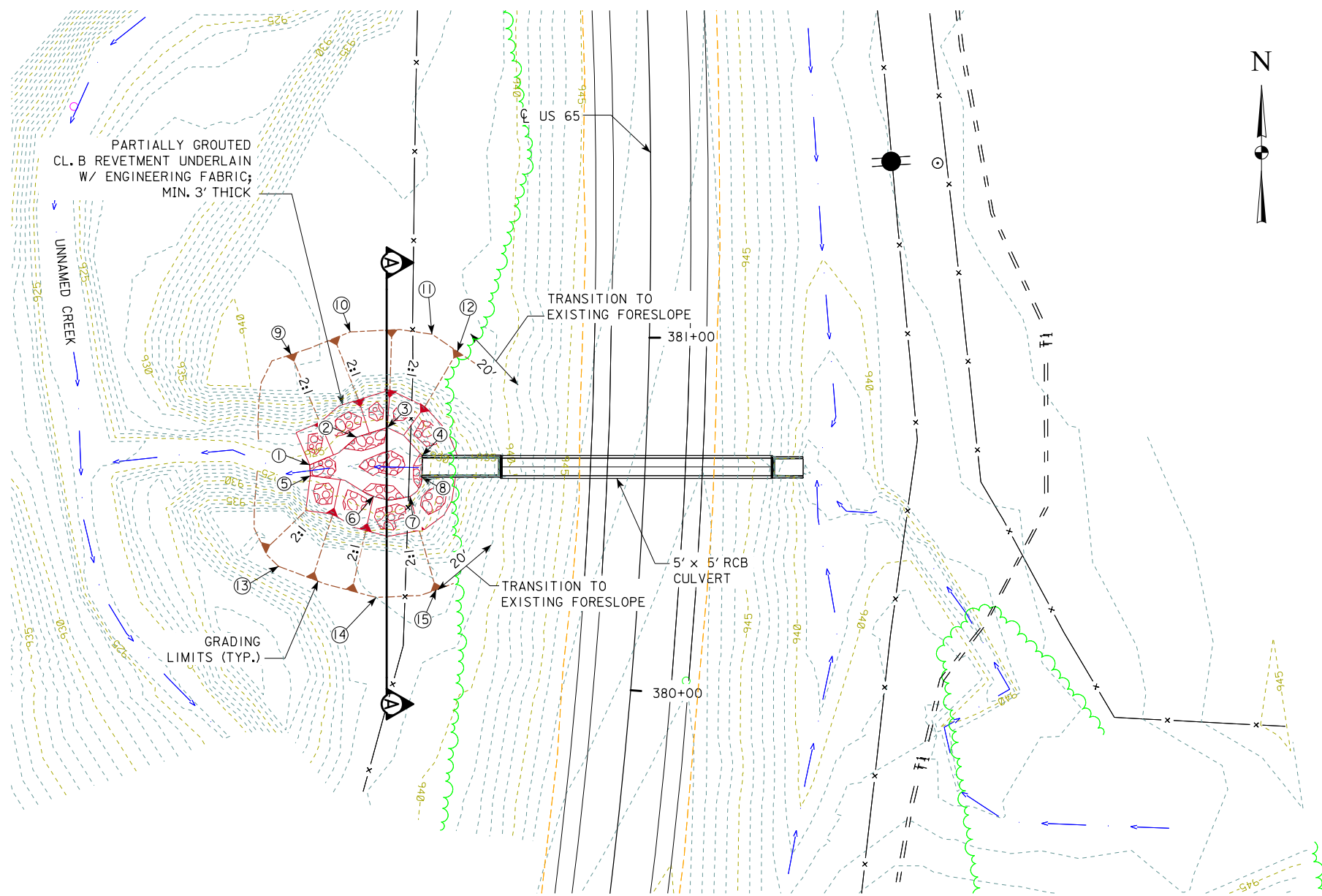
DRAINAGE AREA = 71.5 ACRES
 $Q_{50} = 174$ CFS
 HW ELEV. = 942.67
 STREAM SLOPE = 20 FT./MI

UTILITIES LEGEND:

- TI - TELEPHONE - WINDSTREAM COMMUNICATIONS
 ● - POWER POLE - ALLIANT ENERGY

TRAFFIC ESTIMATE

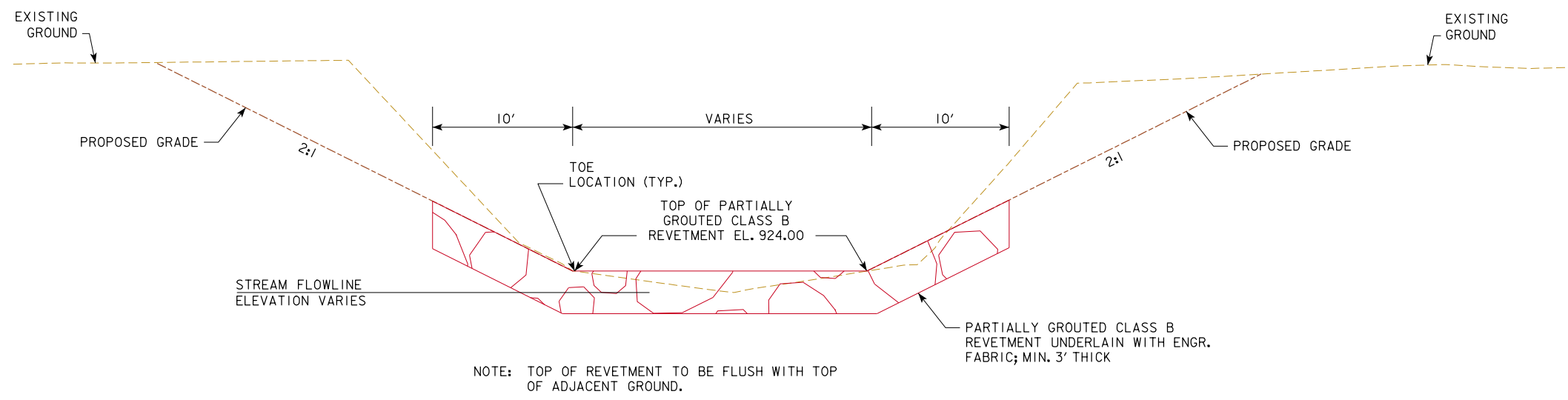
2014 AADT	1,300	V.P.D.
202_ AADT	-	V.P.D.
202_ DHV	-	V.P.H.
TRUCKS	-	%
TOTAL DESIGN ESALS	-	



SITUATION PLAN



PRELIMINARY
 DESIGN FOR
**5' X 5' RCB CULVERT
 STREAMBANK STABILIZATION
 SITUATION PLAN**
 STATION 380+63.38 JULY 2018
LUCAS COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 2 OF 3 FILE NO. 31637 DESIGN NO. 219

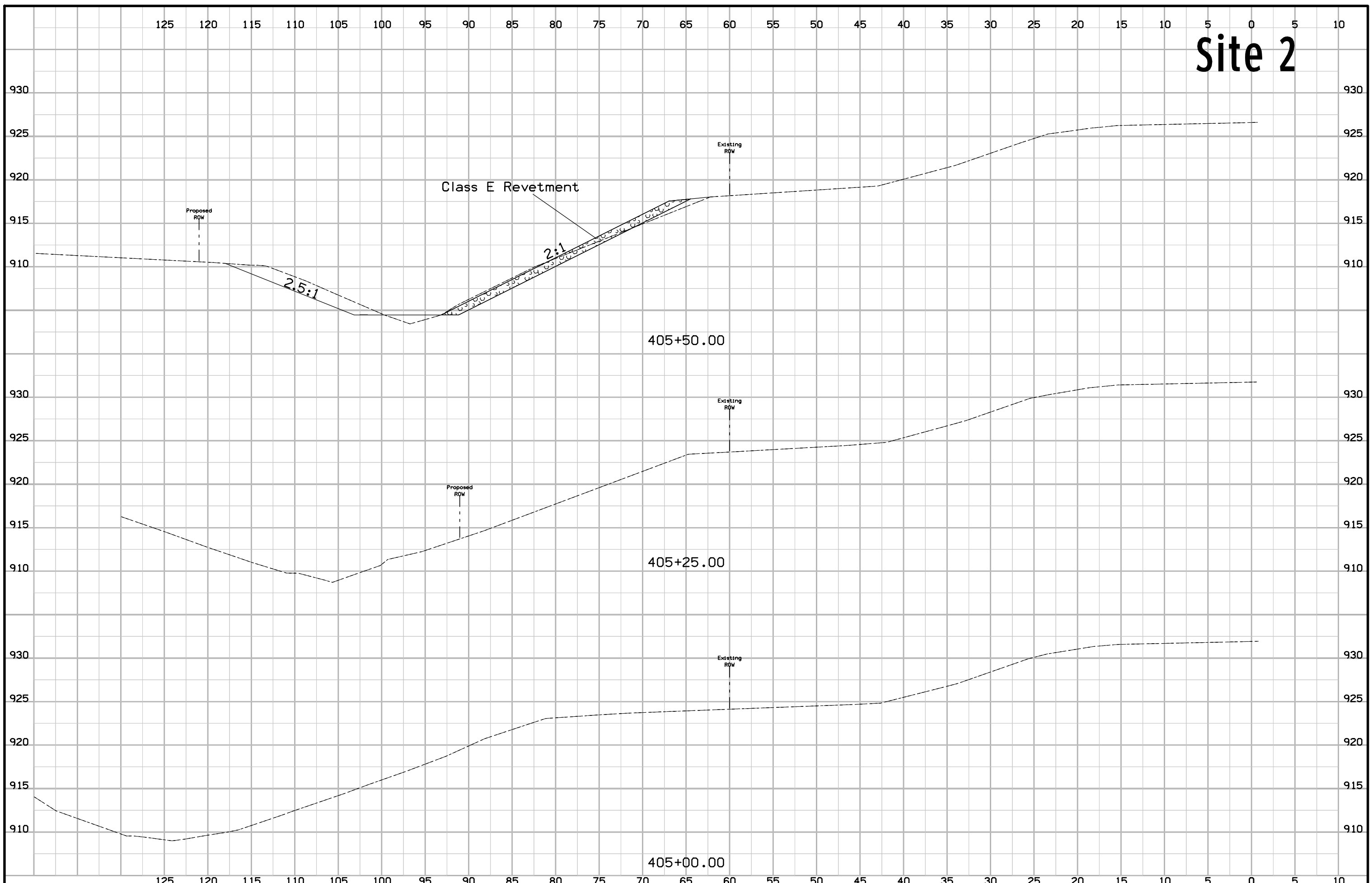


STREAM STABILIZATION
TYPICAL CROSS SECTION
SECTION A-A
NOT TO SCALE

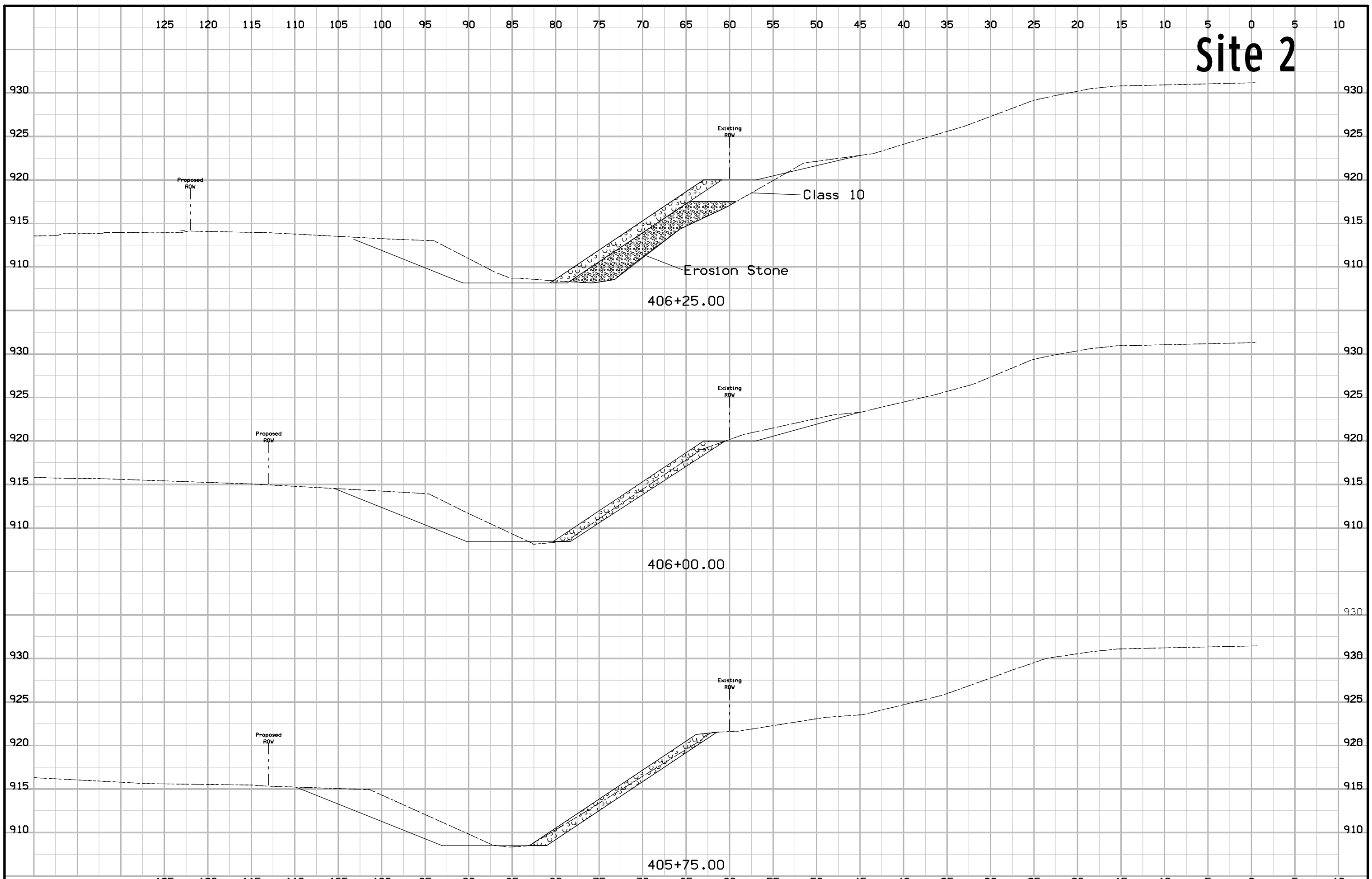
STREAMBANK STABILIZATION DETAILS

PRELIMINARY
DESIGN FOR
**5' X 5' RCB CULVERT
STREAMBANK STABILIZATION
DETAILS**
STATION 380+63.38 JULY 2018
LUCAS COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 3 OF 3 FILE NO. 31637 DESIGN NO. 219

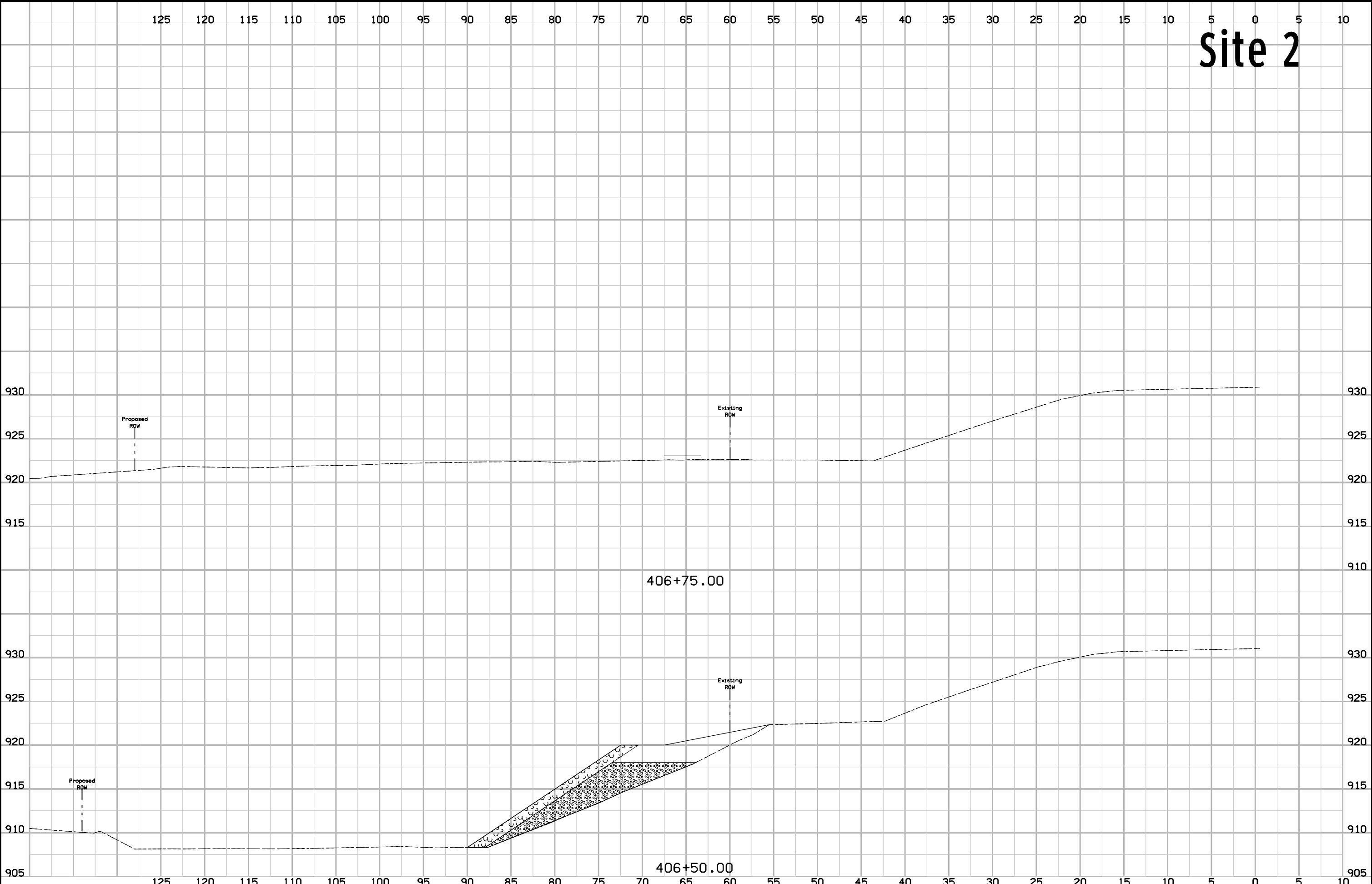
Site 2

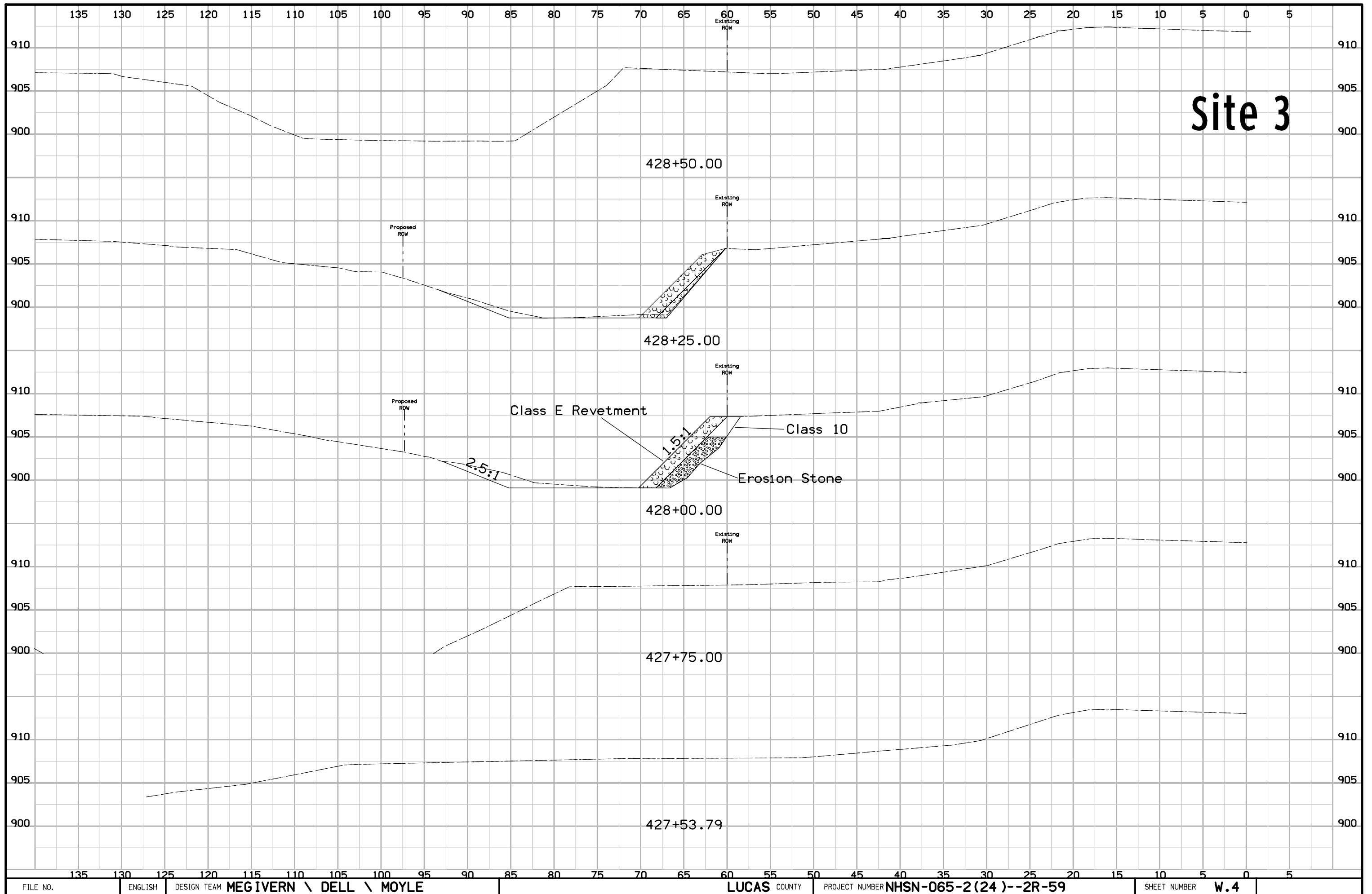


Site 2

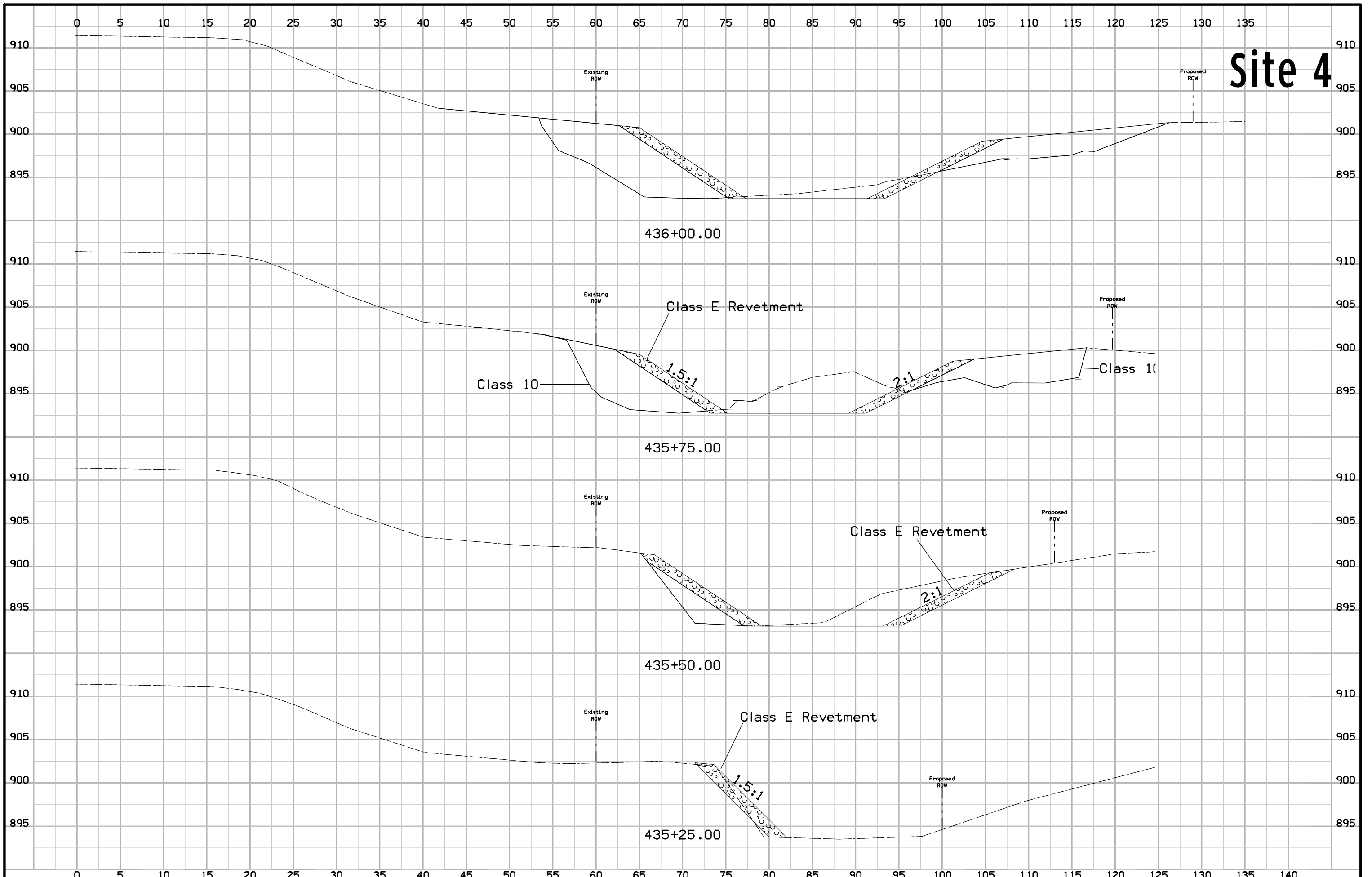


Site 2

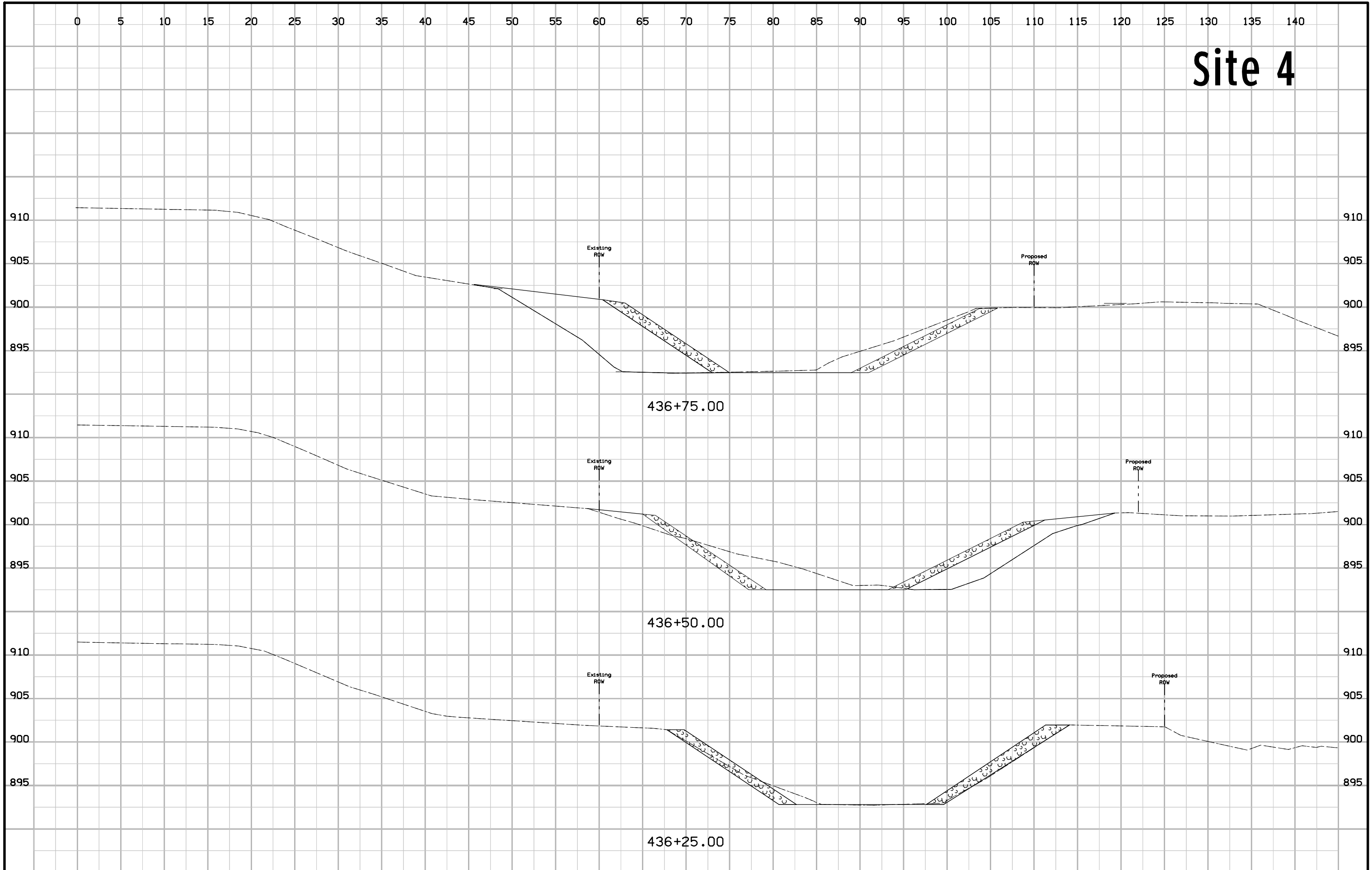




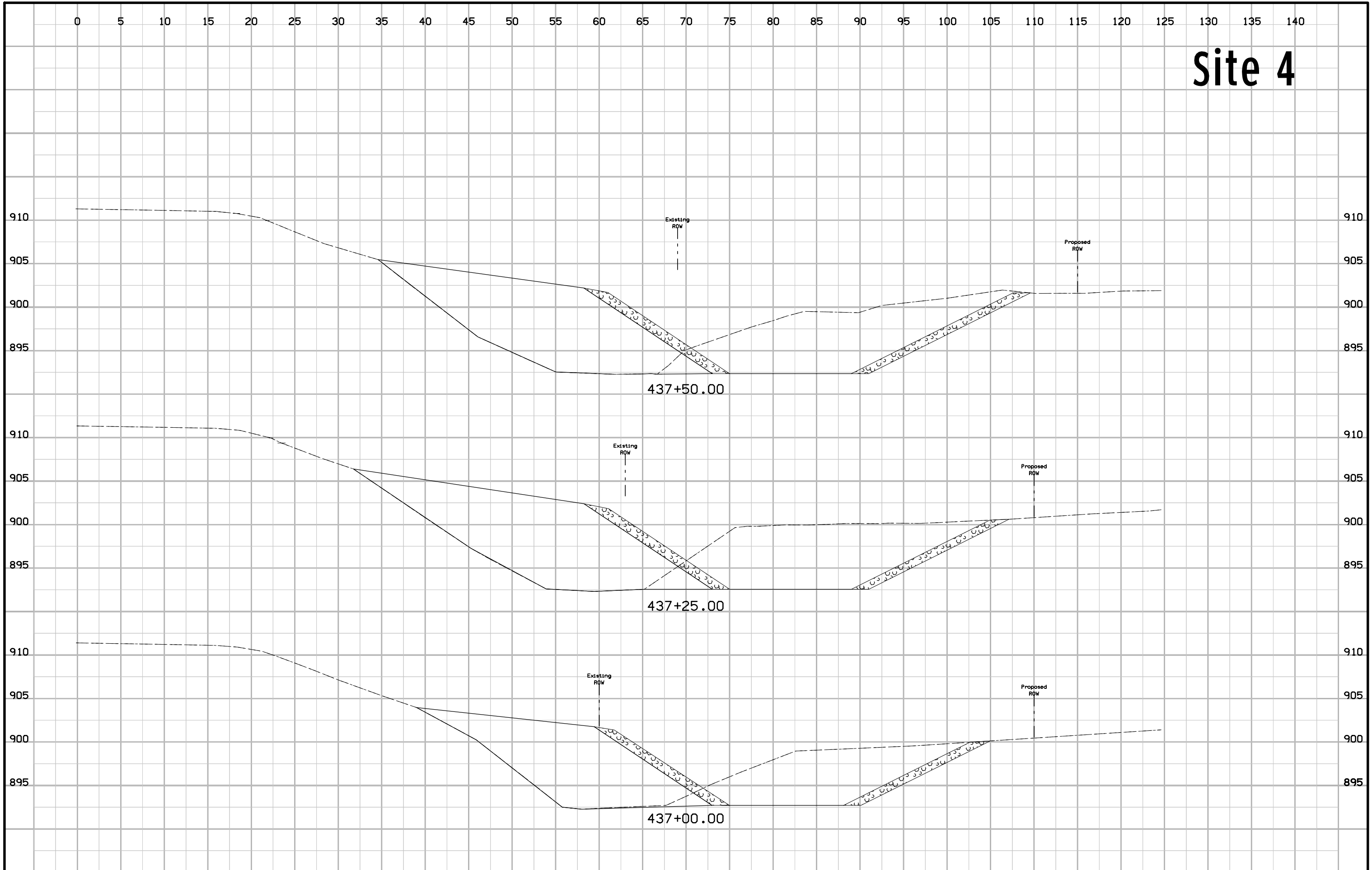
Site 4



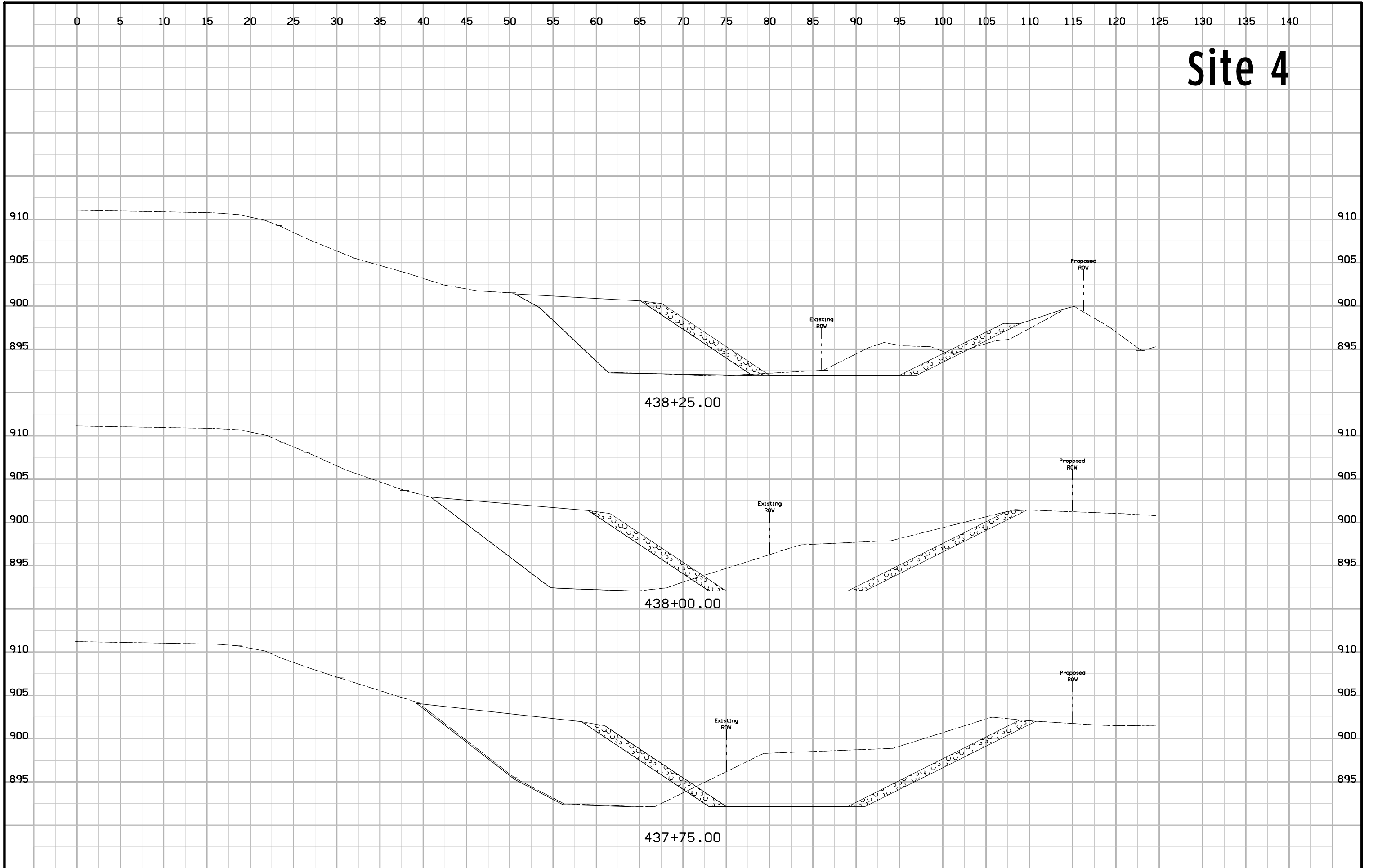
Site 4



Site 4



Site 4



Site 4

