

VAN BUREN CO.

LETTING DATE
October 20, 2020

STRUCTURES - MISCELLANEOUS
STPN-001-1(32)--2J-89



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
VAN BUREN COUNTY
STRUCTURES - MISCELLANEOUS

0.1 mi N of Franklin St in Keosauqua

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

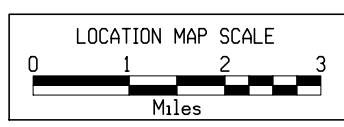
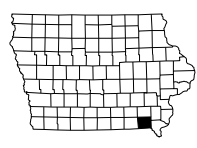
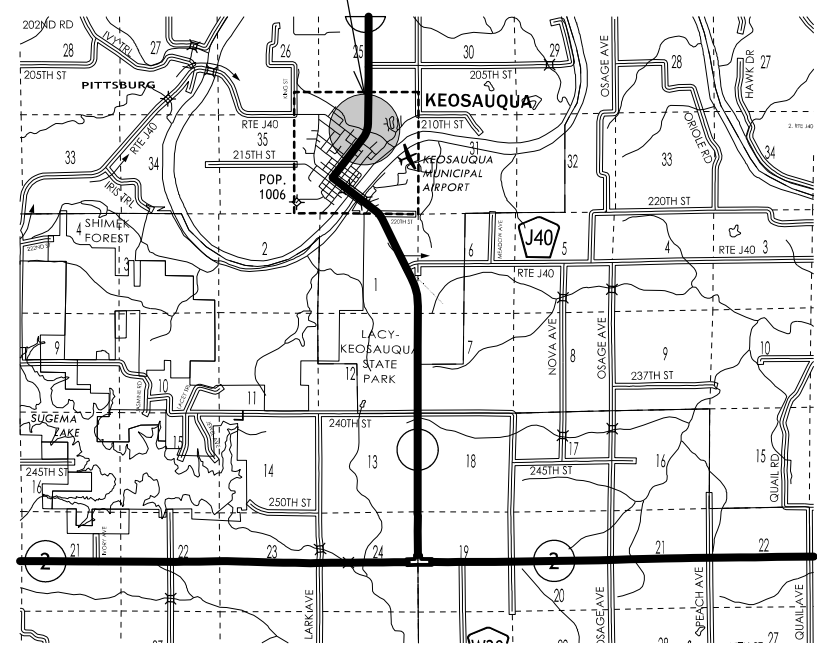
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



REVISIONS	TOTAL 26
PROJECT IDENTIFICATION NUMBER	18-89-001-010
PROJECT NUMBER	STPN-001-1(32)--2J-89
R.O.W. PROJECT NUMBER	
ROW NUMBER	STPN-001-1(33)--2J-89

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA-1 Plan
* D.3	IA-1 Profile
E Sheets	Channel Plan and Profile Sheets
* E.1	Creek Plan
* E.2	Creek Profile
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
* J.1	Traffic Control Plan
V Sheets	Culvert Situation Plan
V.1	Culvert Situation Plan
W Sheets	Roadway Cross Sections
W.1 - 2	Highway 1 Cross Sections
X Sheets	Channel Cross Sections
X.1 - 12	Creek Cross Sections
	* Color Plan Sheets

Project Location



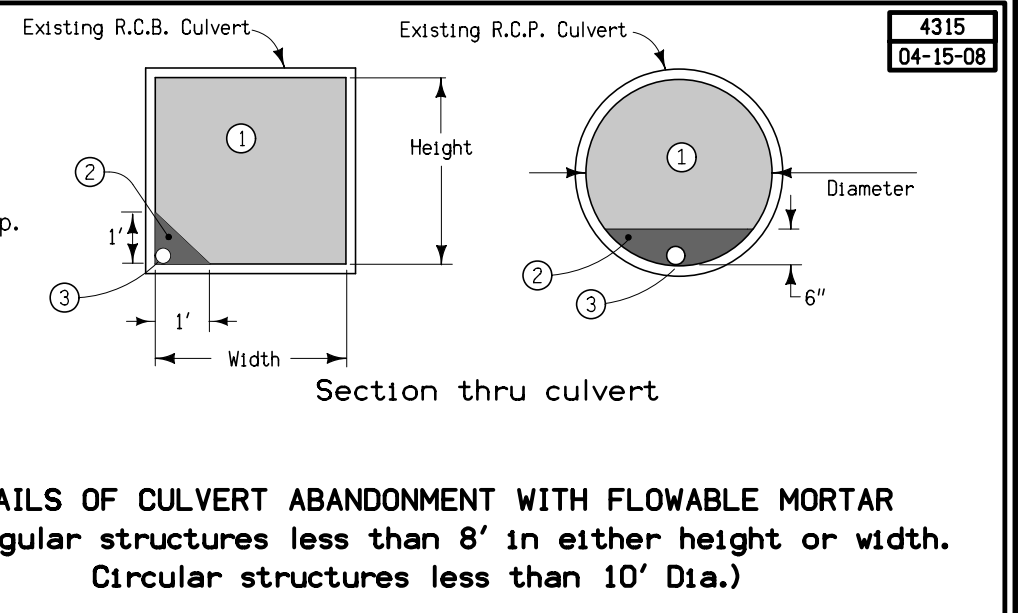
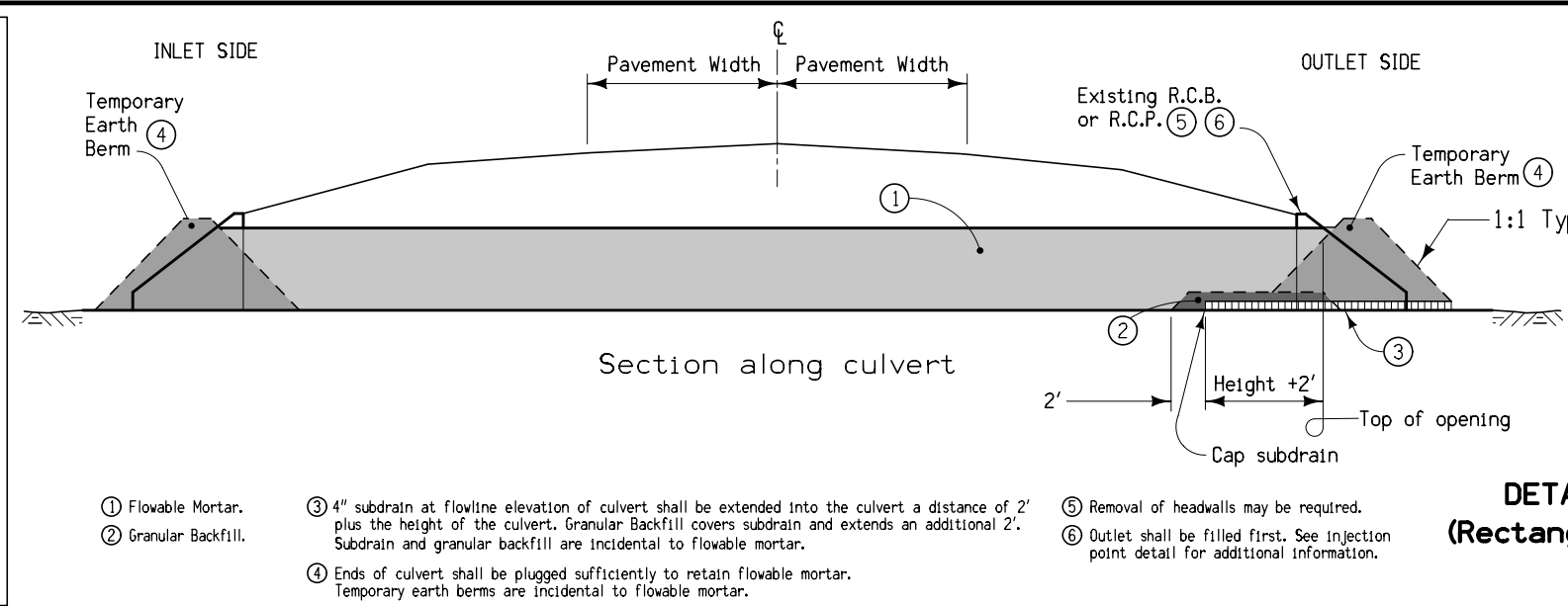
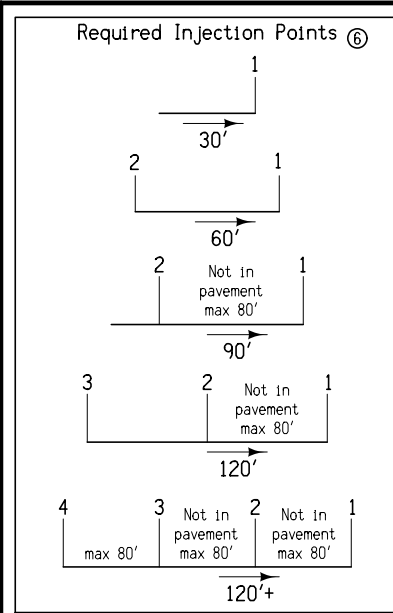
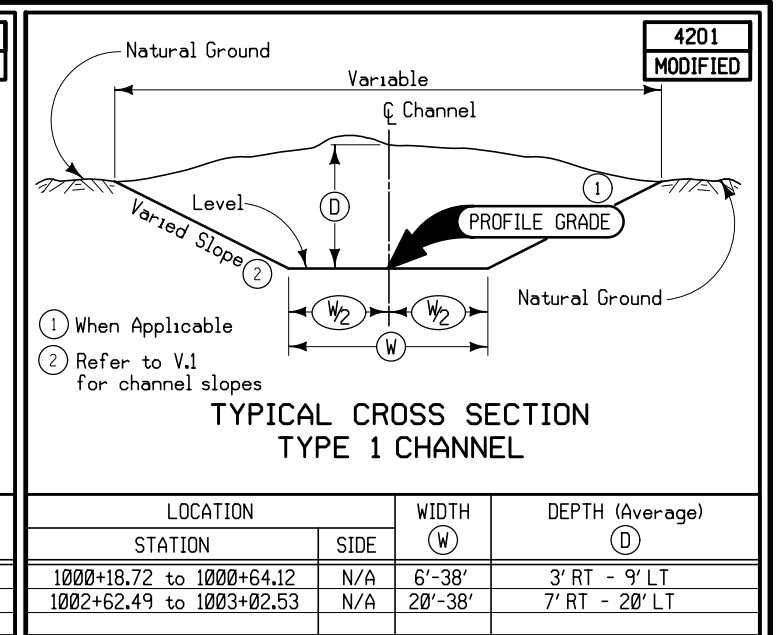
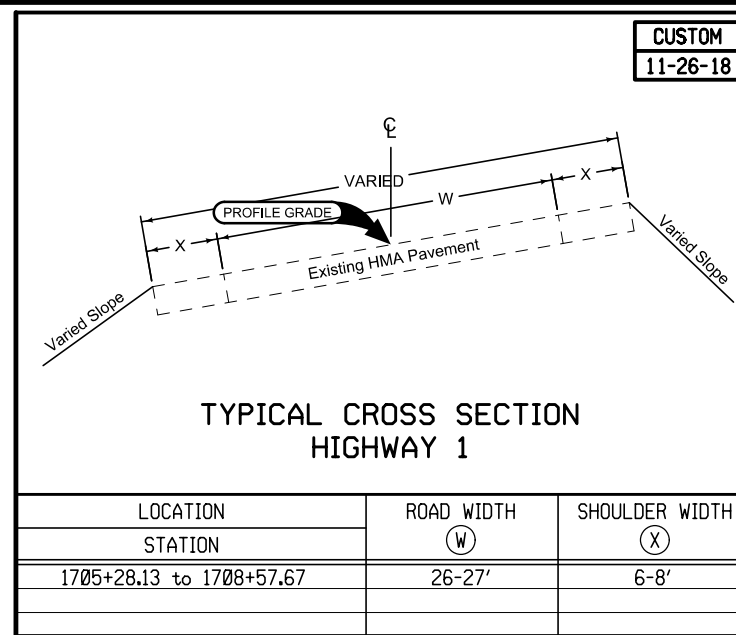
DESIGN DATA RURAL			
2014	AADT	2100	V.P.D.
2021	AADT	2250	V.P.D.
2021	DHV	225	V.P.H.
	TRUCKS	10	%
	Total		
	Design ESALs	--	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Brian Sandberg	Primary Signature Block

PRELIMINARY PLANS

Subject to change by final design.

D5 PLAN-Date: 11-23-2018



- ① Flowable Mortar.
- ② Granular Backfill.
- ③ 4" subdrain at flowline elevation of culvert shall be extended into the culvert a distance of 2' plus the height of the culvert. Granular Backfill covers subdrain and extends an additional 2'. Subdrain and granular backfill are incidental to flowable mortar.
- ④ Ends of culvert shall be plugged sufficiently to retain flowable mortar. Temporary earth berms are incidental to flowable mortar.
- ⑤ Removal of headwalls may be required.
- ⑥ Outlet shall be filled first. See injection point detail for additional information.

DETAILS OF CULVERT ABANDONMENT WITH FLOWABLE MORTAR
(Rectangular structures less than 8' in either height or width.
Circular structures less than 10' Dia.)

SURVEY SYMBOLS

- BM Bench Mark
- ▣ FENO FENO Monument
- BL Topo Breakline
- GR Ground Shot
- WC Wild Card (Misc. Field Shot)
- E1 — EL1D Electric Line Co. 1 - Quality D
- F03 — FO3D Fiber Optic Co. 3 - Quality D
- TV — TV1D TV Cable Co. 1 - Quality D
- San. — SA1D Sanitary Sewer Co. 1- Quality D
- F02 — FO2D Fiber Optic Co. 2 - Quality D
- G — GL1D Gas Line Co. 1 - Quality D
- PPA Power Pole Co. 1
- PR Electric Riser Pole
- ▣ TSB Telephone Switch Box
- SH Paved Shoulder
- C Centerline BL of Road (ML or SR)
- ENP Edge Paved Entrance & Park Lot
- GDL Guard Rail Steel
- CU Back of Curb
- GU Gutter In Front of Curb
- CON Concrete or A/C Slab
- SWK Sidewalk
- > D Centerline Draw or Stream (Down)
- ▲▲▲▲▲ RIP Rip-Rap
- SNP Unpaved Shoulder
- F0 — FO1D Fiber Optic Co. 1 - Quality D
- BNK Stream Bank
- ▣ IN Storm Sewer Intake
- UE Utility Elevation
- PIP Pipe Culvert
- MH Utility Access (Manhole)
- SOP Size of Pipe or Culvert
- EW Edge of Water
- #—# FCL Chain Link and Security Fence
- ENT Centerline BL of Entrance

SURVEYED UTILITY OWNER SYMBOLS

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

- E1 — Alliant Energy - Quality D
- F03 — Van Buren Telephone Co. - Quality D
- TV — Starwest Inc. - Quality D
- San. — City of Keasauqua- Quality D
- F02 — ICN - Quality D
- G — Alliant Energy - Quality D
- Alliant Energy
- Alliant Energy
- ▣ TSB ICN
- F0 — Windstream - Quality D

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
- ▲ Section Corner
- Ground Line Intercept
- //// Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

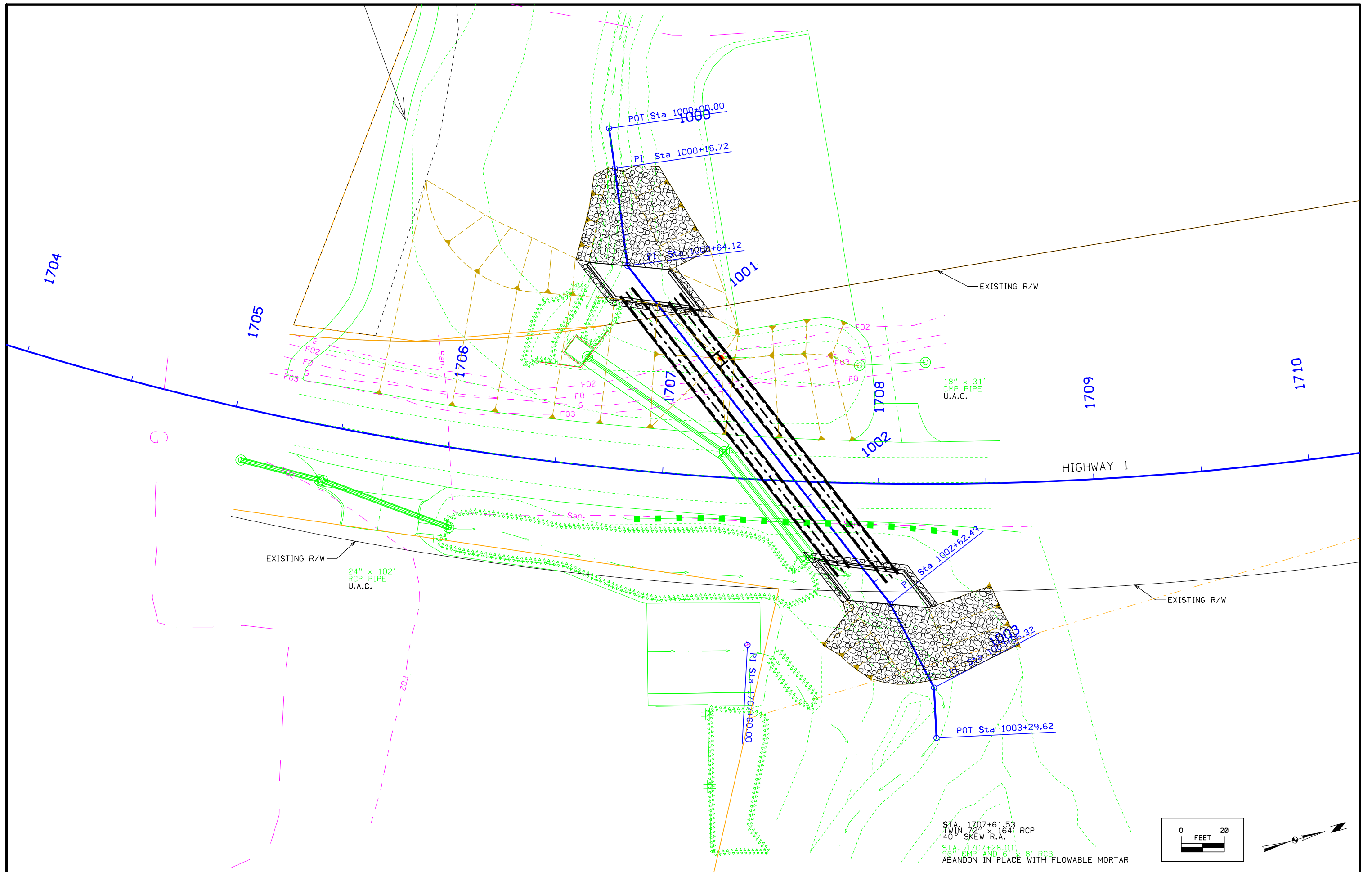
RIGHT-OF-WAY LEGEND

- ▲ Proposed Right-of-Way
- △ Existing Right of Way
- ▲△ Existing and Proposed Right-of-Way
- △△ Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- ↔ Property Line

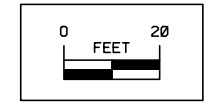
PLAN AND PROFILE

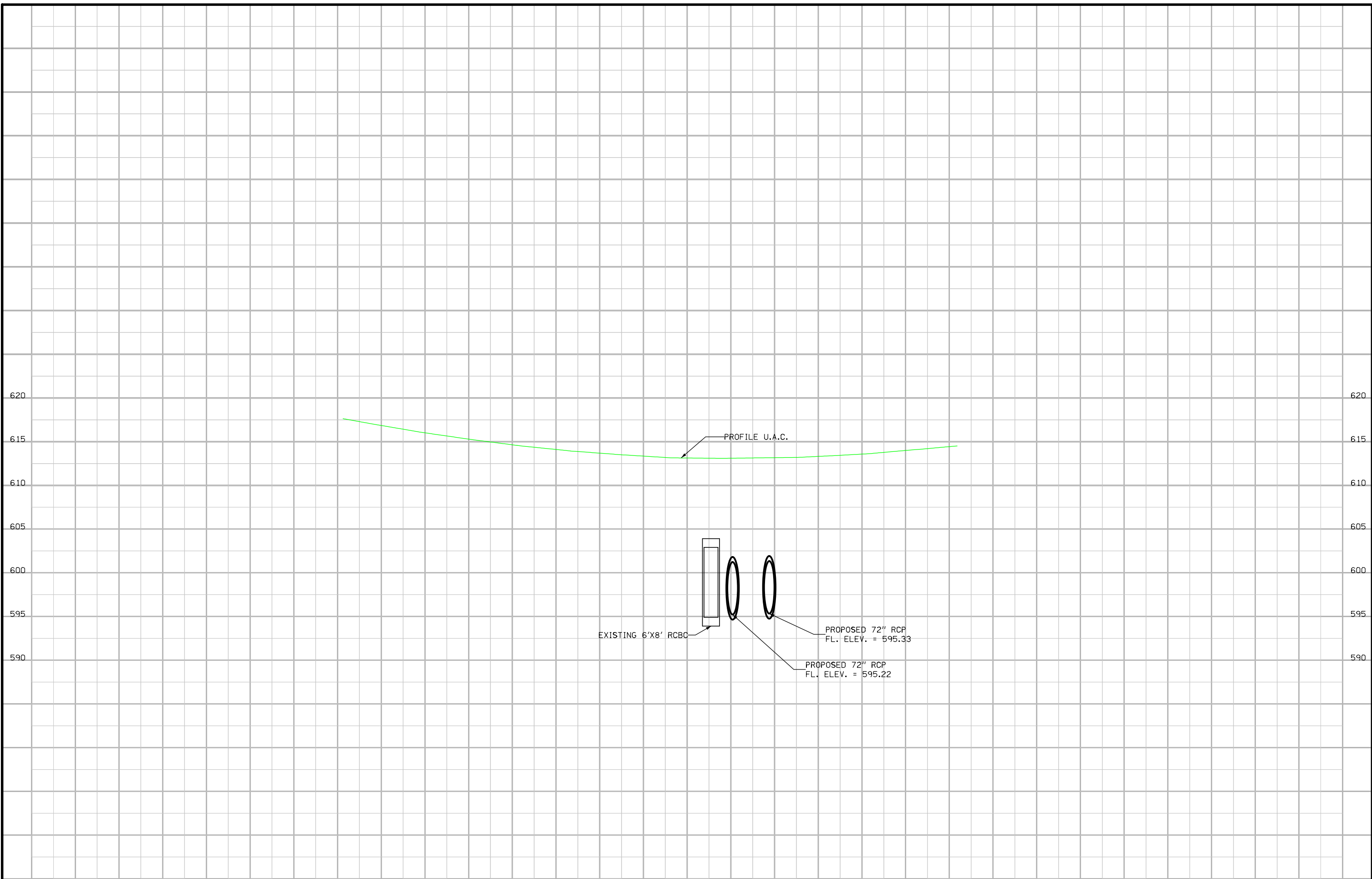
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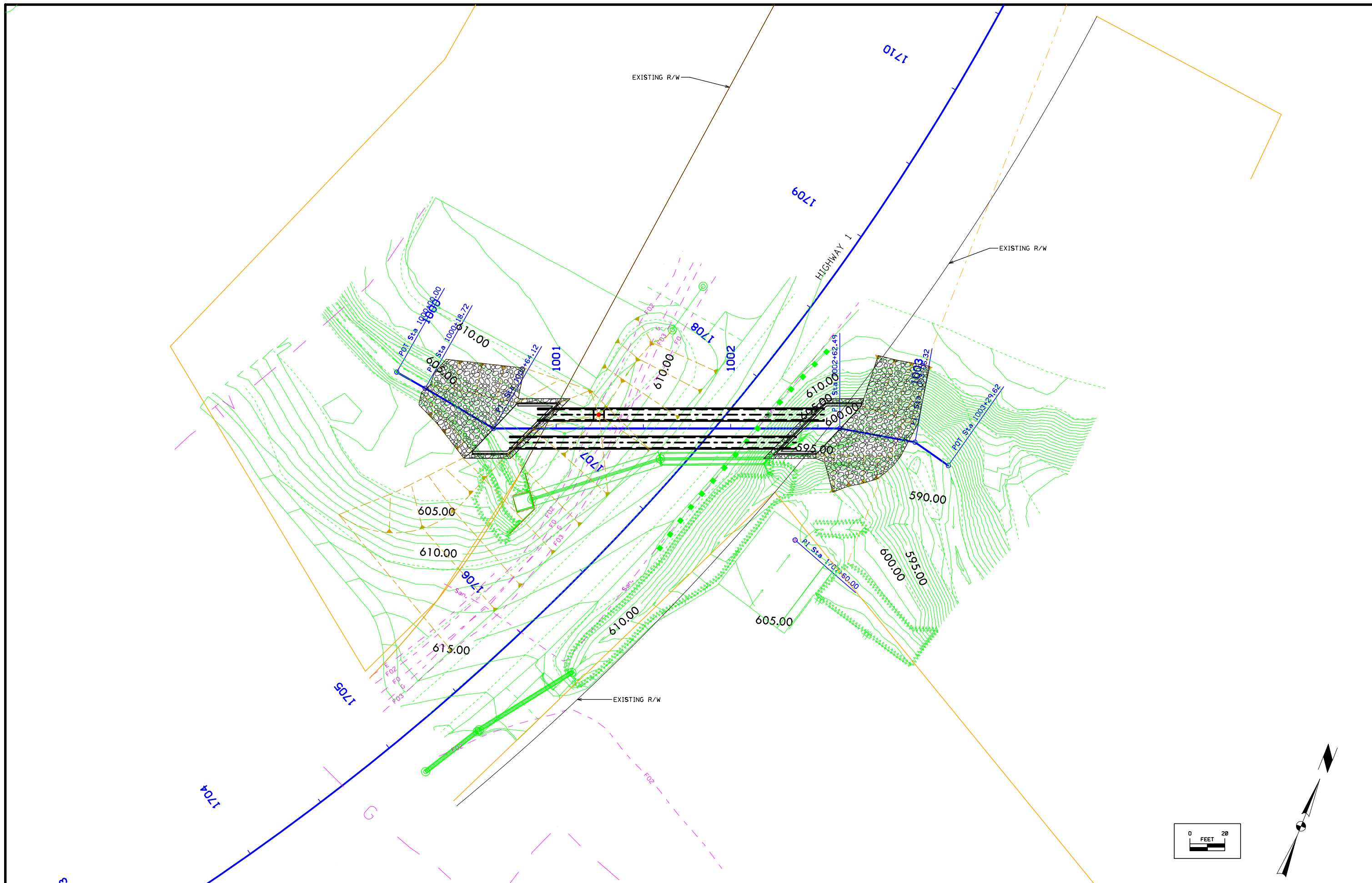
FILE NO.	ENGLISH	DESIGN TEAM IOWA DOT\McCLURE	COUNTY VAN BUREN	PROJECT NUMBER STPN-001-1(32)--2J-89	SHEET NUMBER D.1
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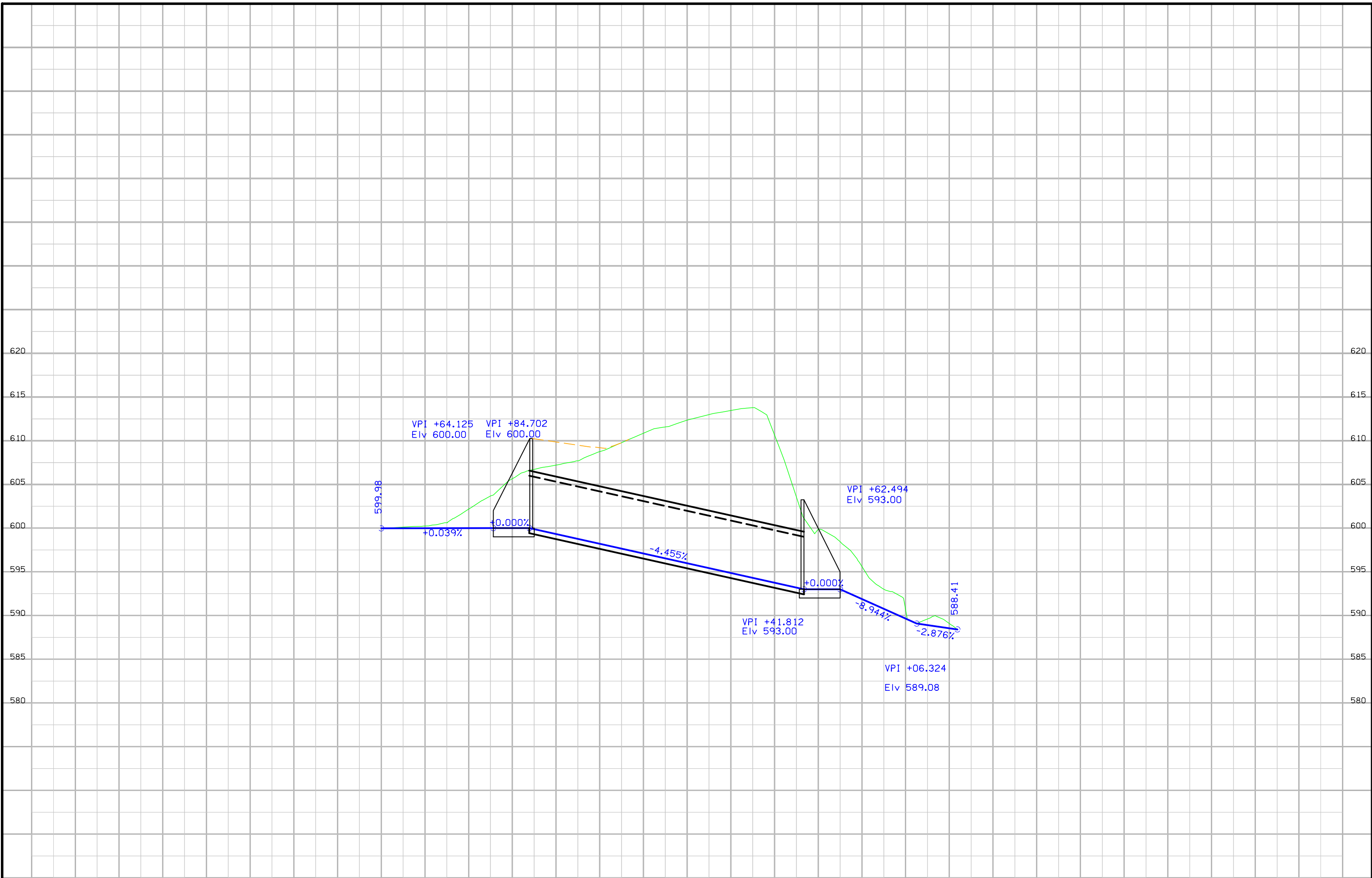


STA. 1707+61.53
 TWIN 72" X 164" RCP
 40' SKEW R.A.
 STA. 1707+28.01
 96" CMP AND 6' X 8' RCB
 ABANDON IN PLACE WITH FLOWABLE MORTAR









Survey Information

County: Van Buren
SAP 930
PIN: 18-89-001-010
Project Number: STPN-001-1(32)--2J-89
Location: 0.1 mi N of Franklin St in Keosauqua
Type of Work: RCB Culvert Replacement - Single Box
Project Directory: 8900101018

General Information

Measurement units for this survey are US survey feet. This survey is for proposed Culvert reconstruction on IA 1 in Keosauqua, Van Buren County. Project datum and control information is provided by Design Survey Office. This project is a Full DTM Survey. This survey request was for the IA 1 corridor only.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12A). Benchmarks were placed throughout the project using post processed static observations relative to laRTN Base Network. A minimum of 6hrs of data was simultaneously collected on each of these primary control points.

Van Buren County Control Pt. 141 was checked for vertical tolerance. The vertical difference is about 0.2 ft.
Van Buren County Control Pt. 161 was checked for vertical tolerance. The vertical difference is about 0.2 ft.

Horizontal Control

The project coordinate system for this survey is laRCS Zone 13 (U.S. Survey Feet). This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00.

Van Buren County Control Pt. 141 was checked for horizontal tolerance. The horizontal difference is about 0.1 ft.
Van Buren County Control Pt. 161 was checked for horizontal tolerance. The horizontal difference is about 0.1 ft.

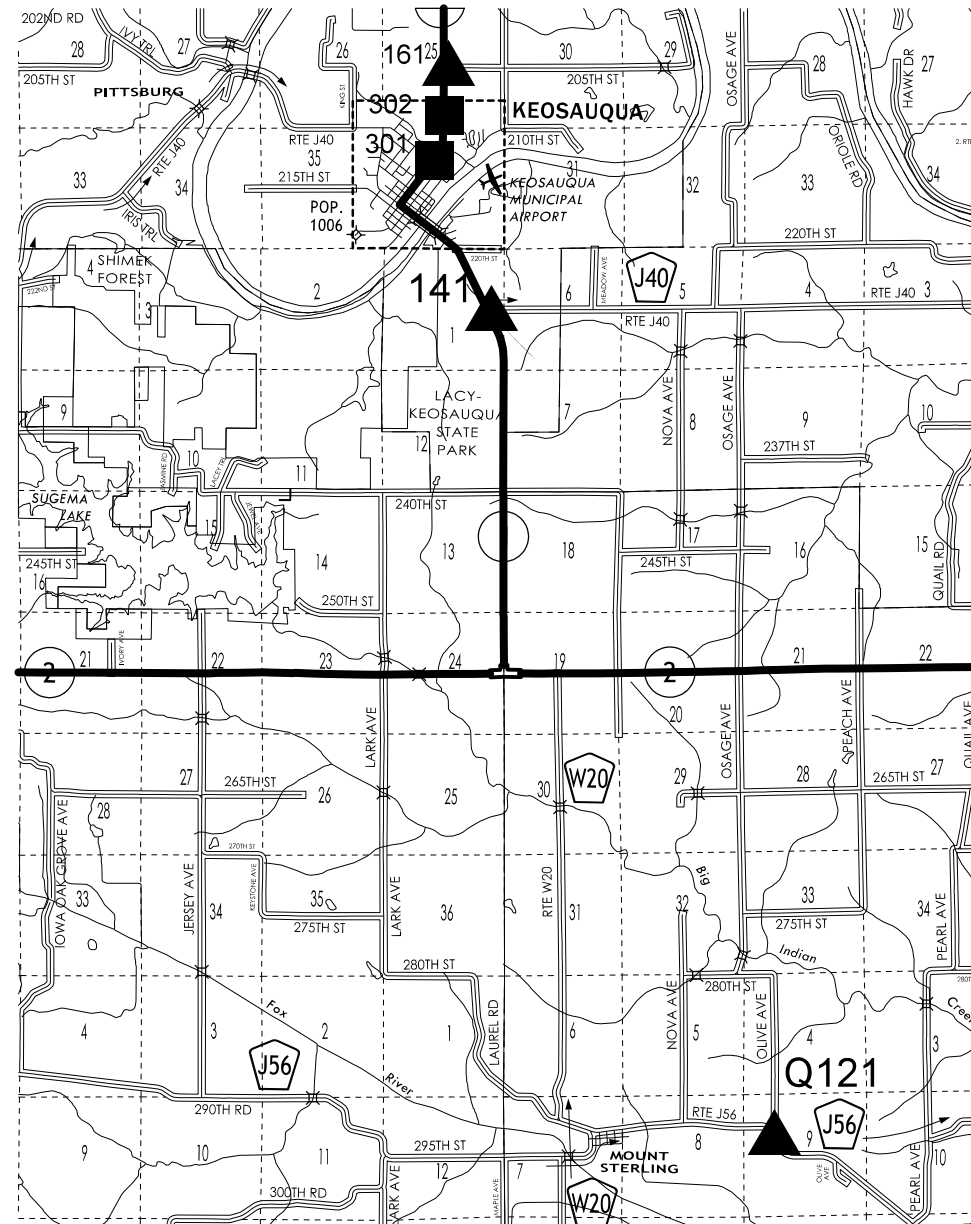
Point Name	Northing	Easting	Elevation	Feature Definition
Q121	6534158.35	23503060.65	738.89	BM CGS BENCHMARK DISK STAMPED Q 121 8" ABOVE GROUND LOCATED 111.5' W OF CL CO RD W20 44.3' N OF CL TRACK ROAD 36.4' W OF THE SE CON COR POST OF WIRE FENCE 1' SE OF FIBERGLASS WITNESS POST AND 0.7' S OF WIRE FENCE
161	6581106.17	23488750.57	673.73	BM COUNTY MONUMENT #161 2-1/2" DIA CAP IN A 5" DIA PVC PIPE WITH AN ALUMINUM ACCESS COVER NEAR VAN BUREN CO HIGHWAY DEPT OFFICE BUILDING
301	6577129.80	23488154.38	632.06	FENO1 MONUMENT STAMPED #1 50' SE OF CL HWY 1 30' NE OF CL FRANKLIN ST AND 12.5' NW OF NW COR OF VAN BURAN CO HOSPITAL SIGN
302	6579141.42	23488562.42	639.48	FENO2 MONUMENT STAMPED #2 33' E OF CL HWY 1 AND 21' N OF CL DRIVE AT MAILBOX NO.1576
141	6570339.43	23490638.29	719.56	BM COUNTY MONUMENT #141 2-1/2" DIA CAP IN A 5" DIA PVC PIPE WITH AN ALUMINUM ACCESS COVER 30' S OF J40 50' E OF HWY 1

Alignment Information

The horizontal alignment for this survey was provided by the IDOT District 5 Land Survey Office, Fairfield, Iowa.

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points
 Primary control is for use with RTK base stations and for RTN validation.
 Future surveys will use primary project control to establish temporary
 control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 13

Coordinate listing from next sheet will be used with 1aRTN for monument
 recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2013.00

VERT. DATUM: NAVD88

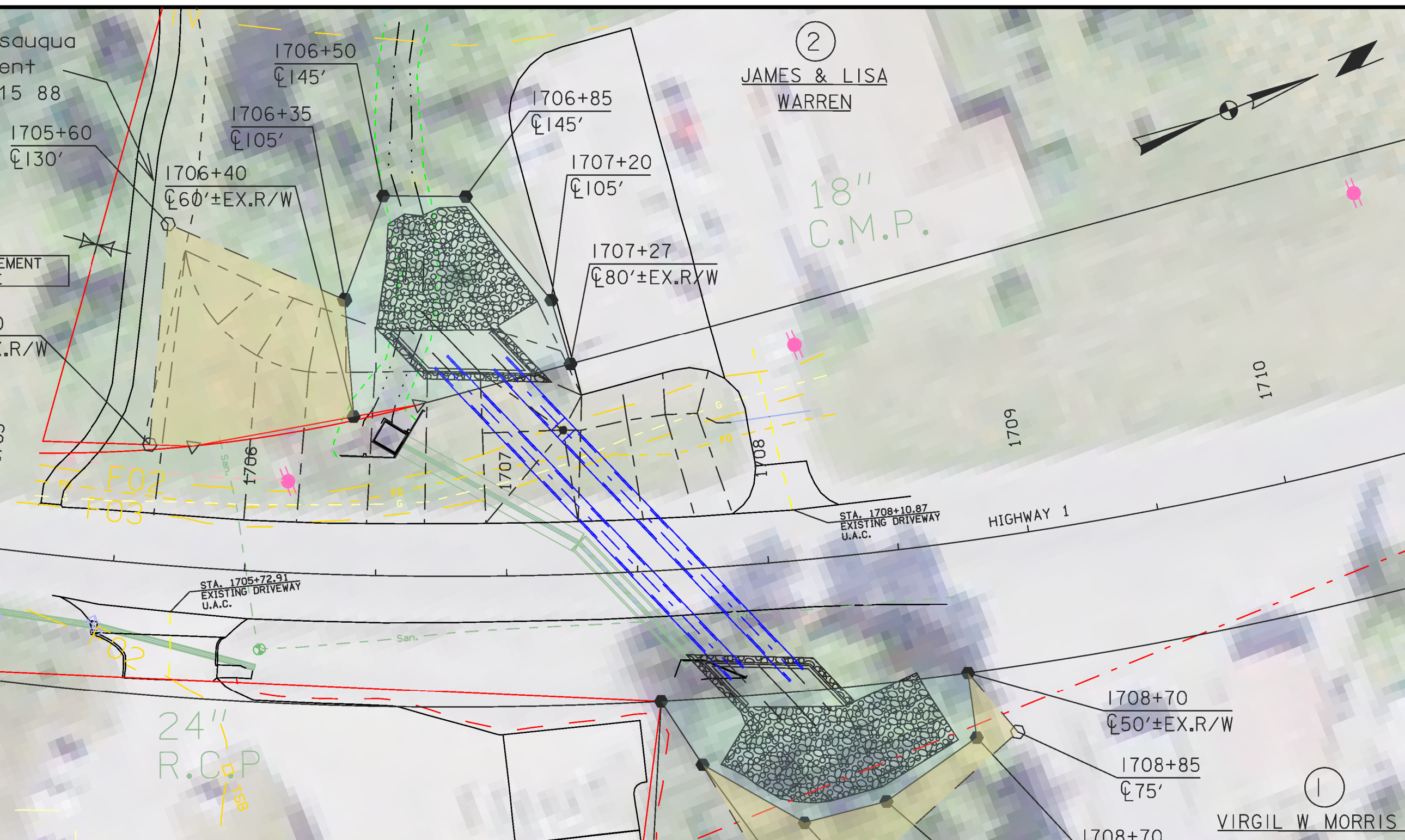
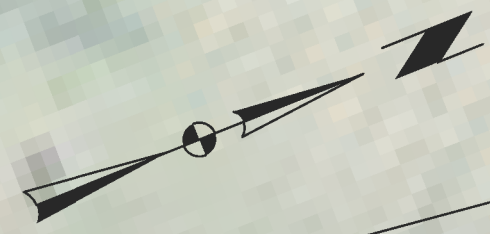
Ia. Regional Coordinate System Zone 13

Point Name	Northing	Easting	Elevation	Feature/Definition
Q121 6534158.35	23503060.65	738.89	738.89	BM CGS BENCHMARK DISK STAMPED Q 121 8" ABOVE GROUND LOCATED 111.5' W OF CL CO RD W20 44.3' N OF CL TRACK ROAD 36.4' W OF THE SE CON COR POST OF WIRE FENCE 1' SE OF FIBERGLASS WITNESS POST AND 0.7' S OF WIRE FENCE
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NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.

City of Keosauqua
Trail Easement
Document 2015 88

②
JAMES & LISA
WARREN



TEMPORARY EASEMENT
TO SHAPE

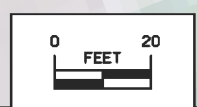
18"
C.M.P.

24"
R.C.P.

TEMPORARY EASEMENT
TRENCHLESS PIPE CONSTRUCTION

①
VIRGIL W MORRIS &
CYNTHIA K MORRIS
LIVING TRUST

Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: CARMAN /CUVA	
ROW #: STPN-001-1(33)--2J-89	
Plan Date: 02/08/2019	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition

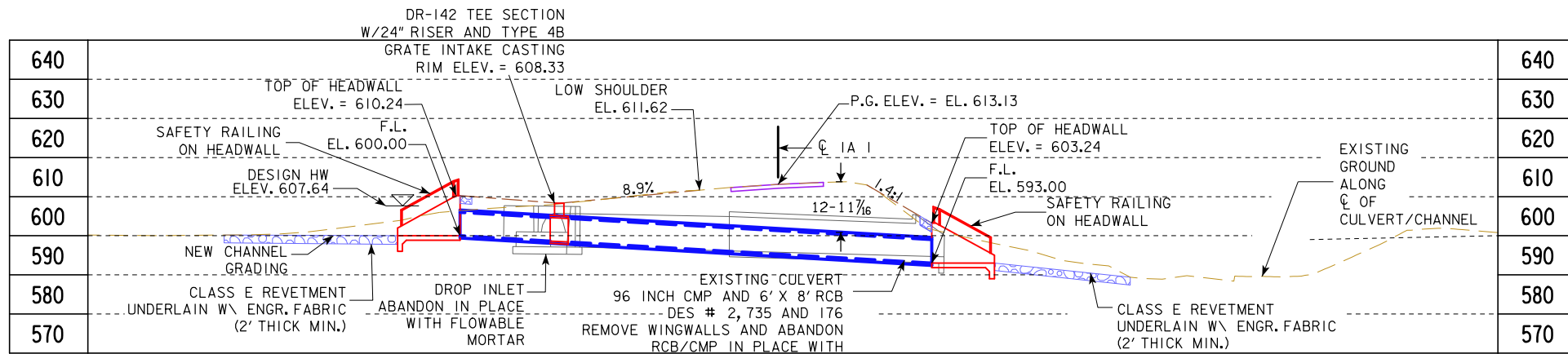


TRAFFIC CONTROL PLAN

Single lane traffic shall be maintained on northbound and southbound IA Hwy 1 at all times.
Access to funeral home and daycare/hospital shall be maintained at all times.

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



BENCH MARK: NO. 301 FENO MONUMENT
 STAMPED #1 50' SE OF CL HWY 1 30' NE OF
 CL FRANKLIN ST AND 12.5' NW OF NW COR OF
 VAN BUREN CO HOSPITAL SIGN
 N: 6579141.42
 E: 23488562.42
 ELEV.: 632.06

**EXISTING PROFILE GRADE
ON IA-1 - U.A.C.**

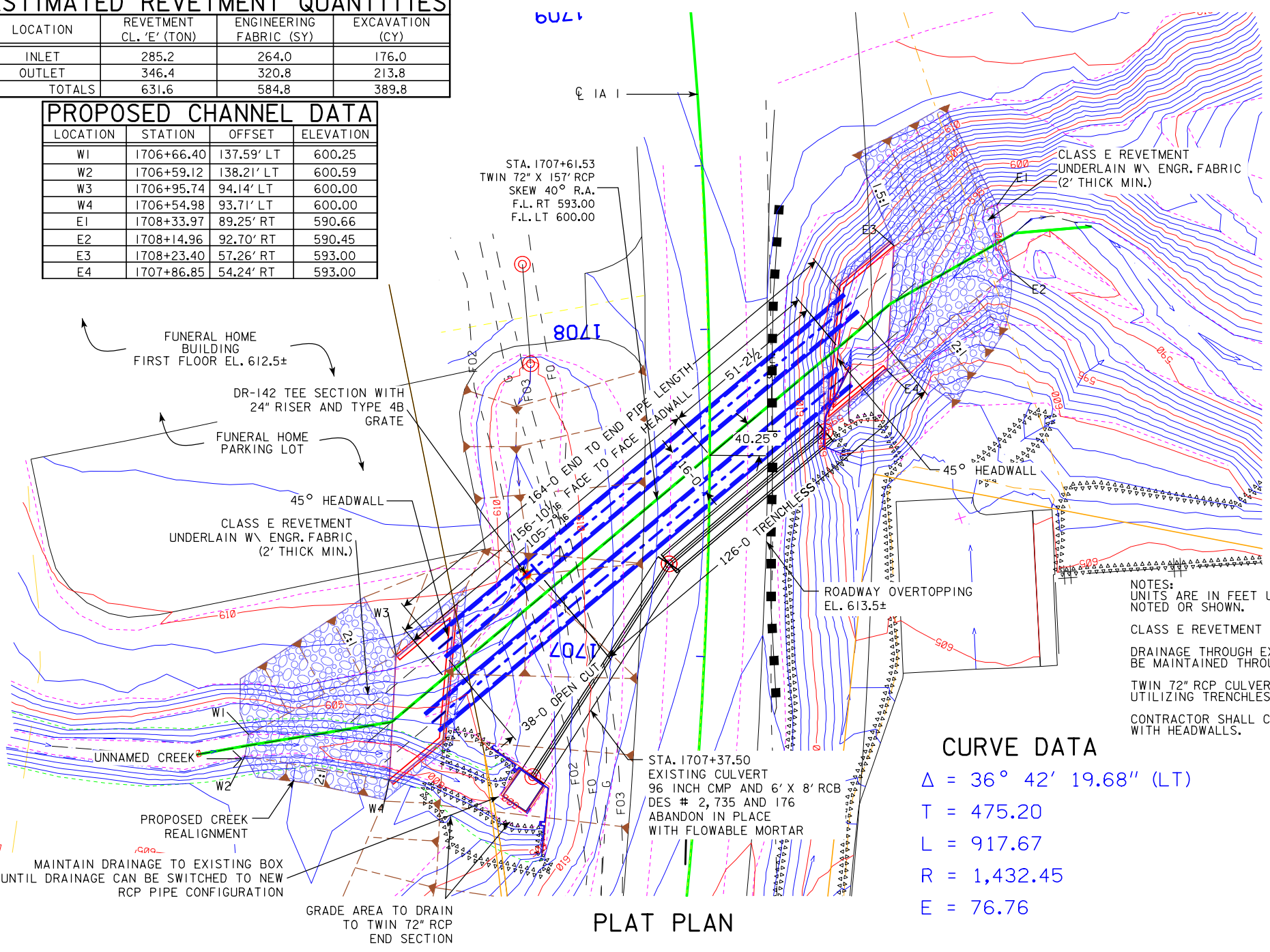
ESTIMATED REVETMENT QUANTITIES

LOCATION	REVETMENT CL. 'E' (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
INLET	285.2	264.0	176.0
OUTLET	346.4	320.8	213.8
TOTALS	631.6	584.8	389.8

PROPOSED CHANNEL DATA

LOCATION	STATION	OFFSET	ELEVATION
W1	1706+66.40	137.59' LT	600.25
W2	1706+59.12	138.21' LT	600.59
W3	1706+95.74	94.14' LT	600.00
W4	1706+54.98	93.71' LT	600.00
E1	1708+33.97	89.25' RT	590.66
E2	1708+14.96	92.70' RT	590.45
E3	1708+23.40	57.26' RT	593.00
E4	1707+86.85	54.24' RT	593.00

LONGITUDINAL SECTION ALONG CULVERT

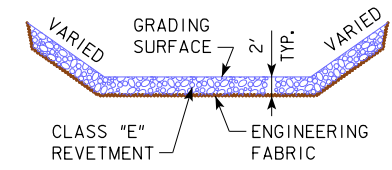


UTILITIES

- G - ALLIANT ENERGY
- F02 - IOWA COMMUNICATIONS NETWORK
- San. - CITY OF KEOSAUQUA
- F0 - WINDSTREAM COMMUNICATIONS
- TV - STARWEST, INC.
- F03 - VAN BUREN TELEPHONE COMPANY

HYDRAULIC DATA

DRAINAGE AREA = 0.72 SQ. MI.
 STREAM SLOPE = 29 FT./MI.
 Q₅₀ = 604 CFS
 HW ELEV. = 607.64
 Q₁₀₀ = 700 CFS
 HW ELEV. = 608.78
 Q₅₀₀ = 880 CFS
 HW ELEV. = 611.38
 Q₀₇ = 1000 CFS
 HW ELEV. = 613.50



**TYPICAL CHANNEL SECTION AT
OUTLET/INLET**

TRAFFIC ESTIMATE

2014 AADT	2,100	V.P.D.
2021 AADT	2,250	V.P.D.
2021 DHV	225	V.P.H.
TRUCKS	10	%
TOTAL DESIGN ESALS	-	

LOCATION

IA-1 OVER AN UNNAMED CREEK
 T-69N R-10W
 SECTION 36
 CITY OF KEOSAUQUA
 VAN BUREN TOWNSHIP
 VAN BUREN COUNTY
 LATITUDE 40.737650°
 LONGITUDE 91.958472°

NOTES:
 UNITS ARE IN FEET UNLESS OTHERWISE NOTED OR SHOWN.
 CLASS E REVETMENT STONE IS EMBEDDED.
 DRAINAGE THROUGH EXISTING CULVERT MUST BE MAINTAINED THROUGHOUT CONSTRUCTION.
 TWIN 72\"/>

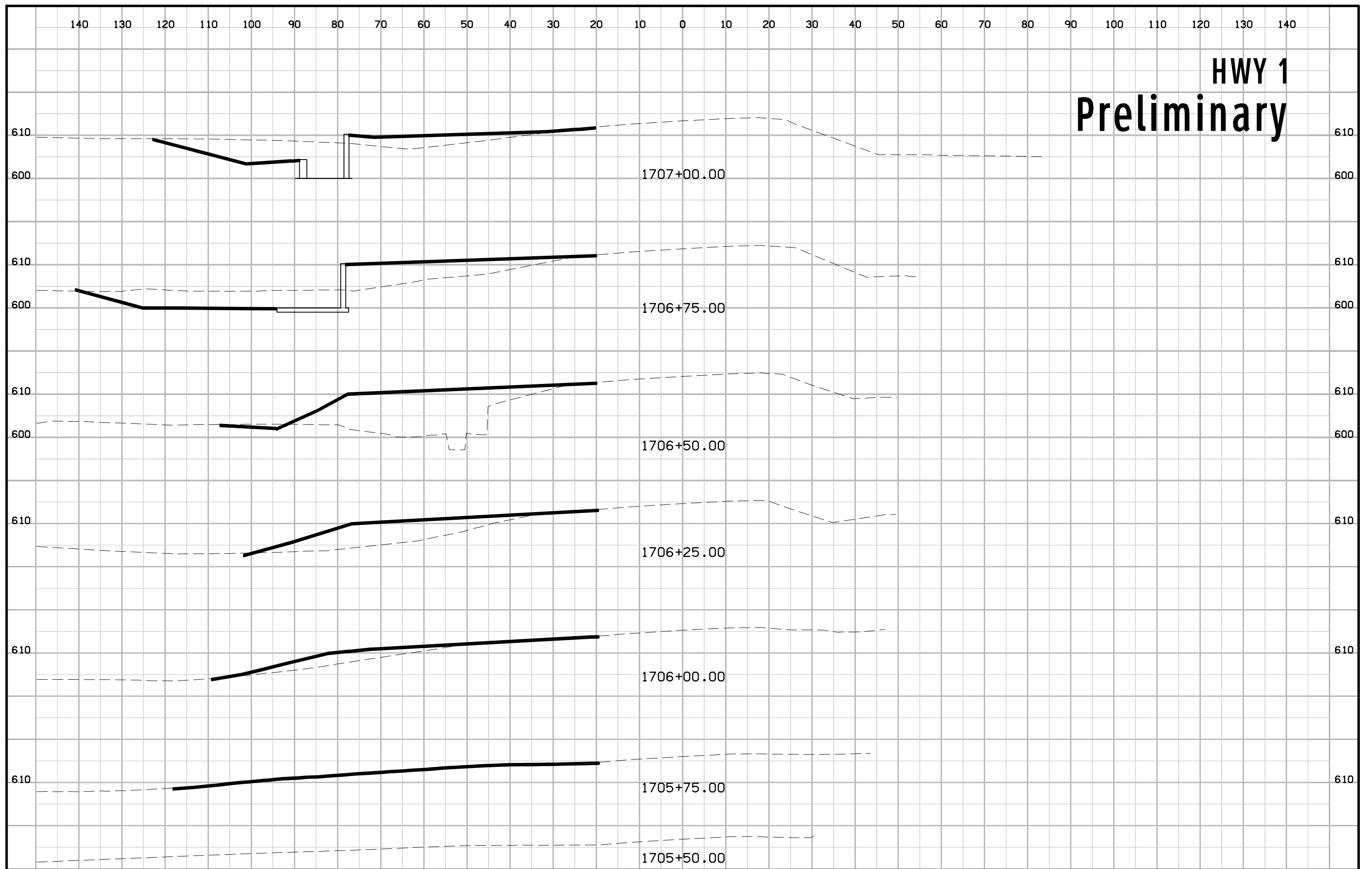
CURVE DATA

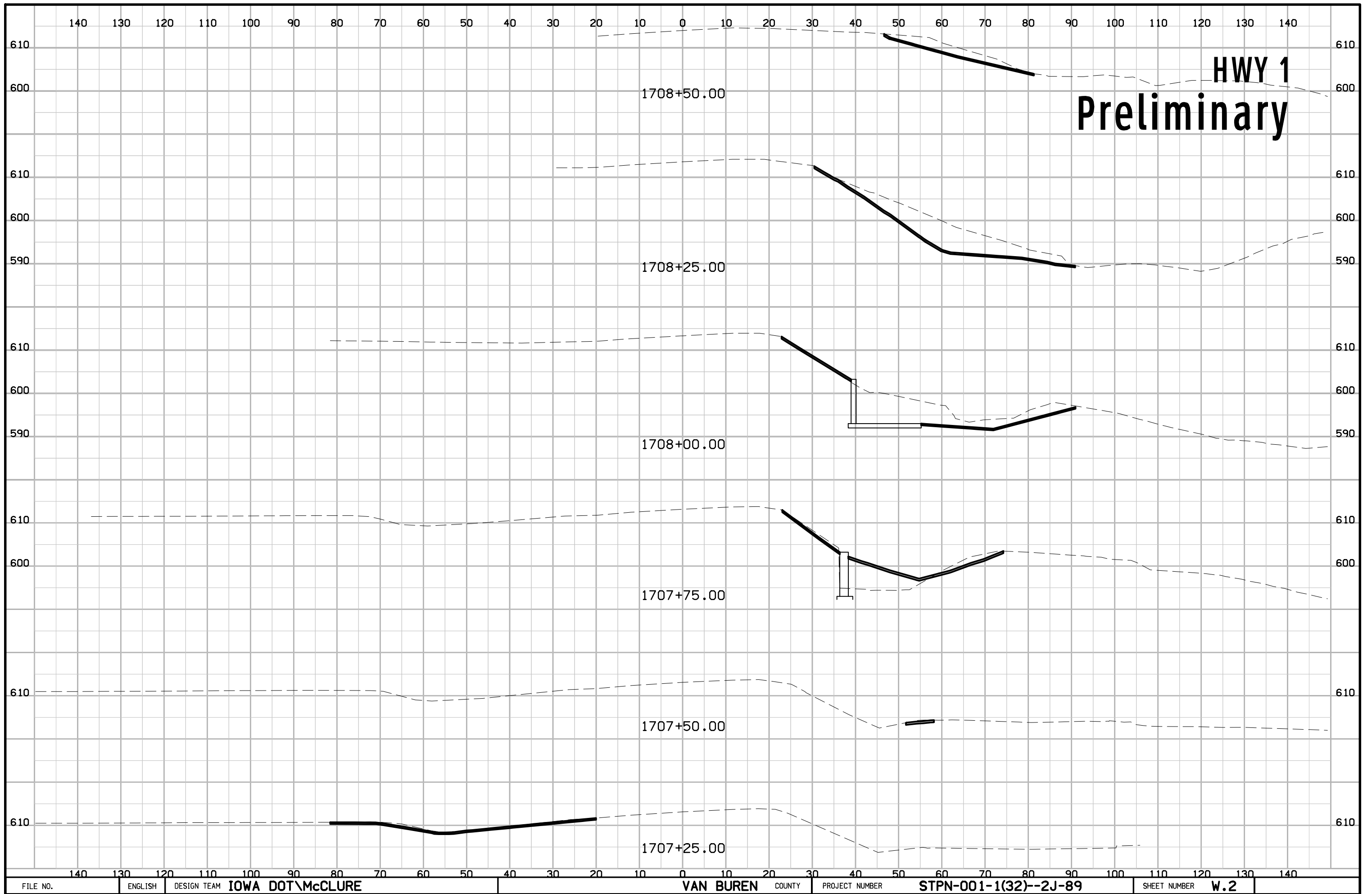
$\Delta = 36^\circ 42' 19.68''$ (LT)
 T = 475.20
 L = 917.67
 R = 1,432.45
 E = 76.76



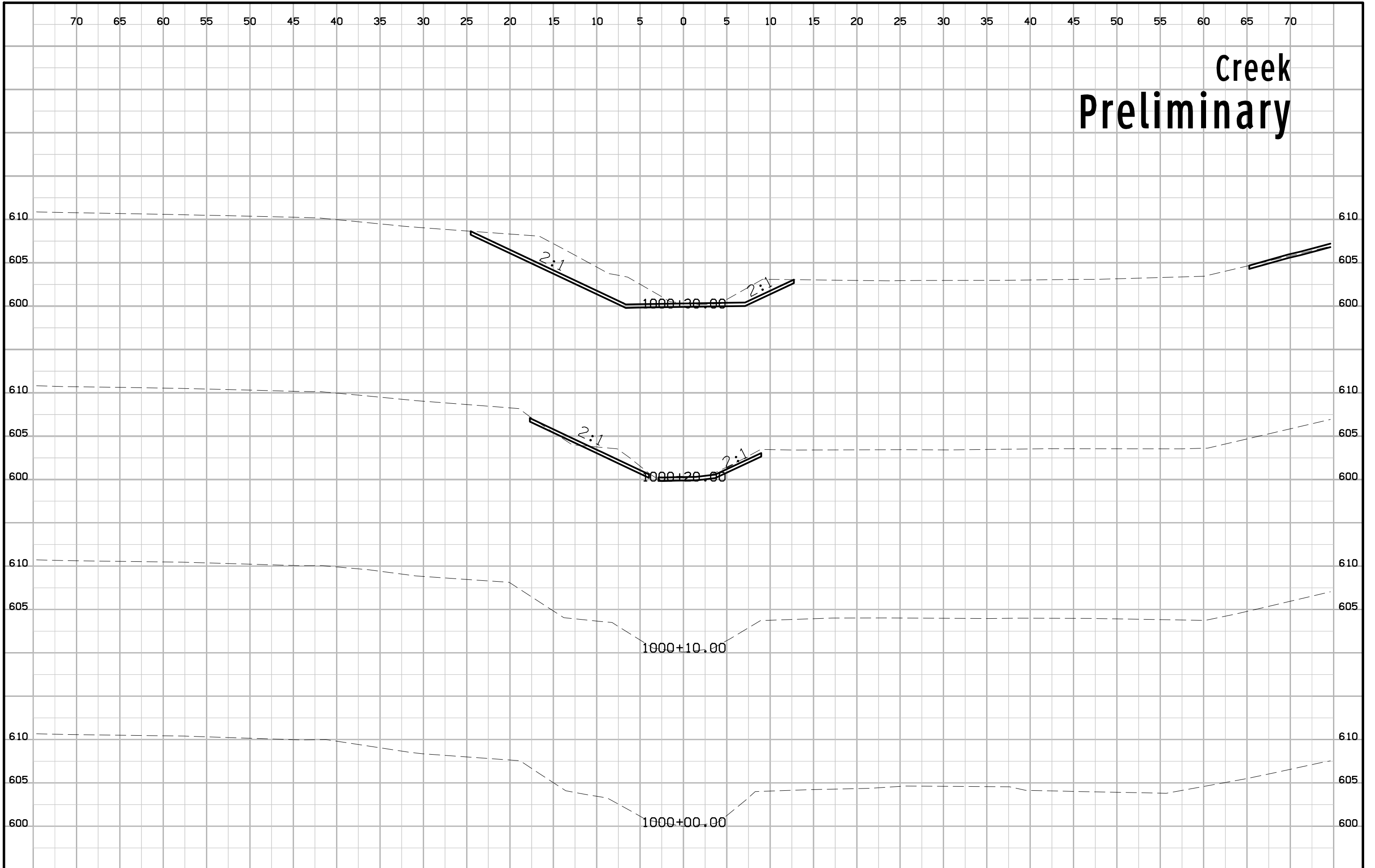
DESIGN FOR 40° SKEW R.A.
**TWIN 72" x 164' REINFORCED
CONCRETE PIPE CULVERT**
SITUATION PLAN
 STATION 1707+61.53 AUGUST 2020
VAN BUREN COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 1 OF 1 FILE NO. 31635 DESIGN NO. 120

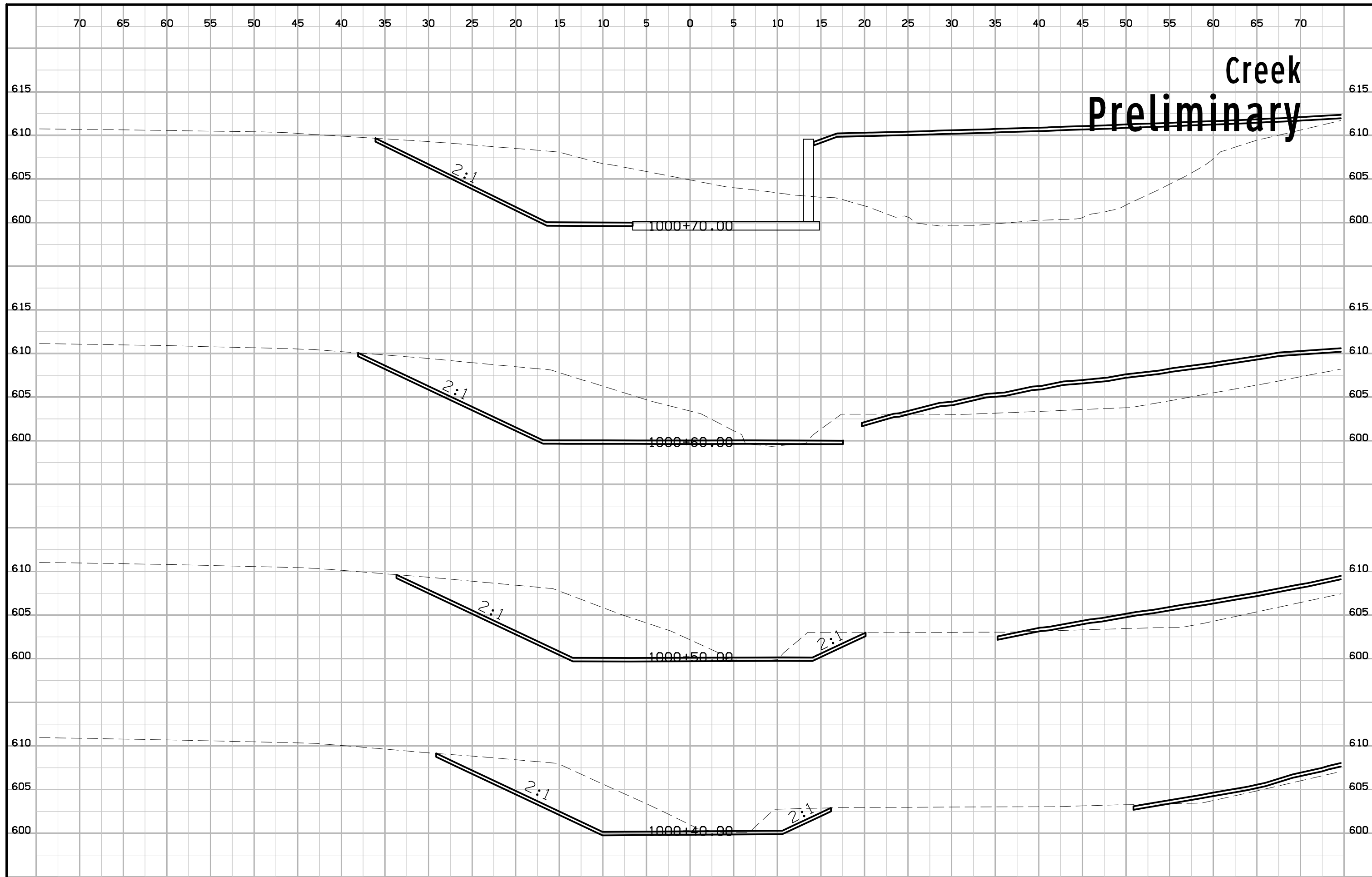
HWY 1 Preliminary





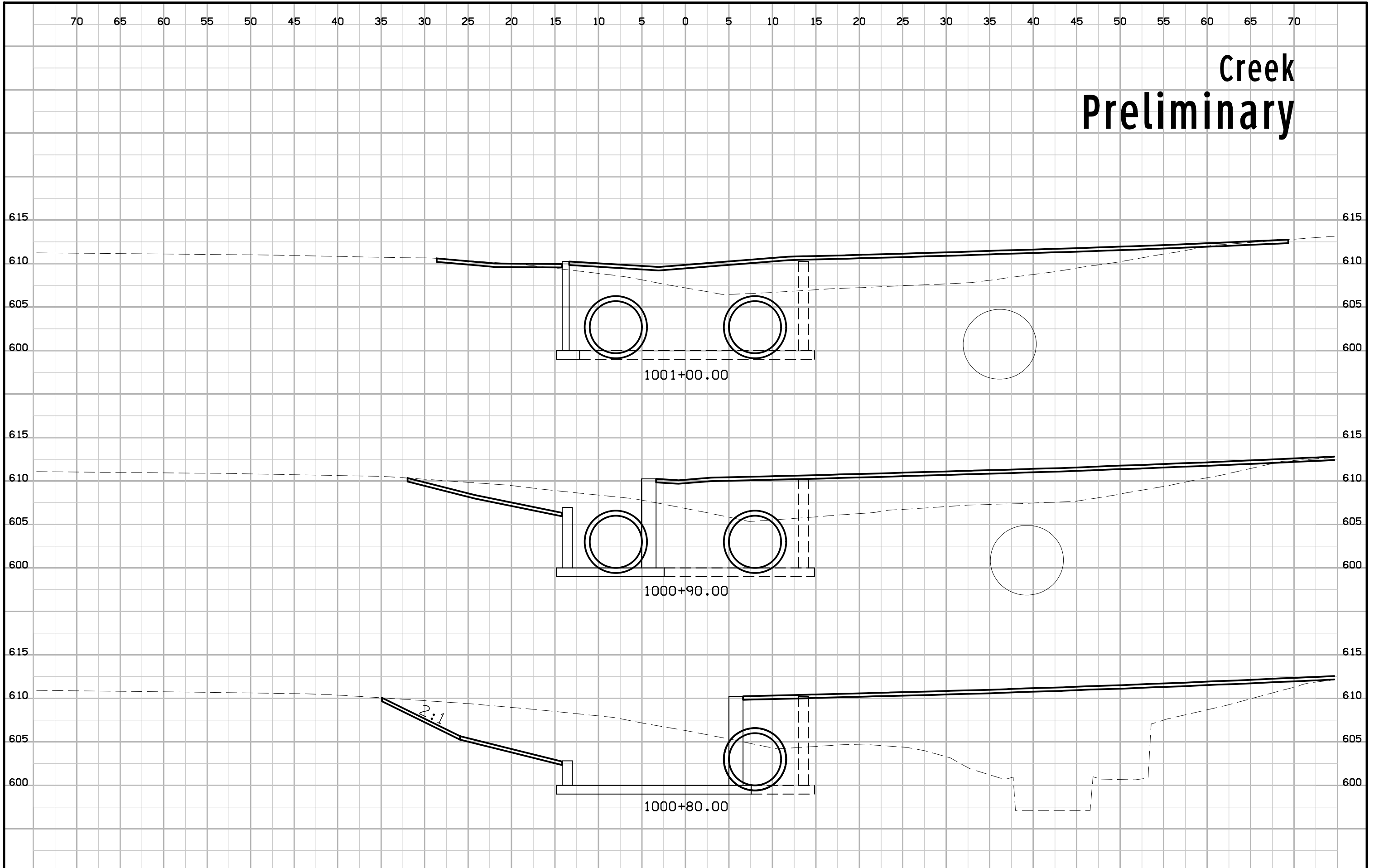
Creek Preliminary



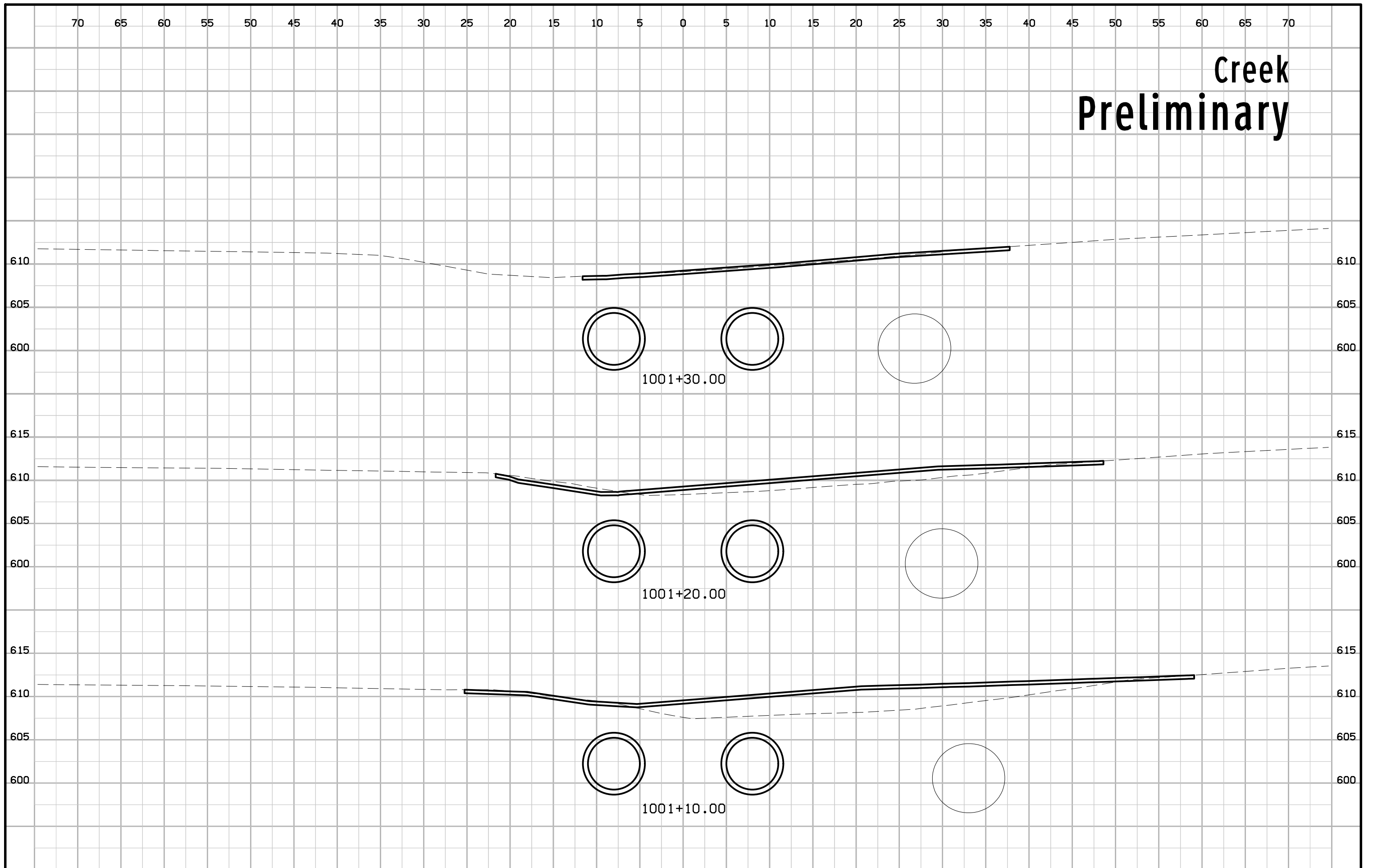


Creek
Preliminary

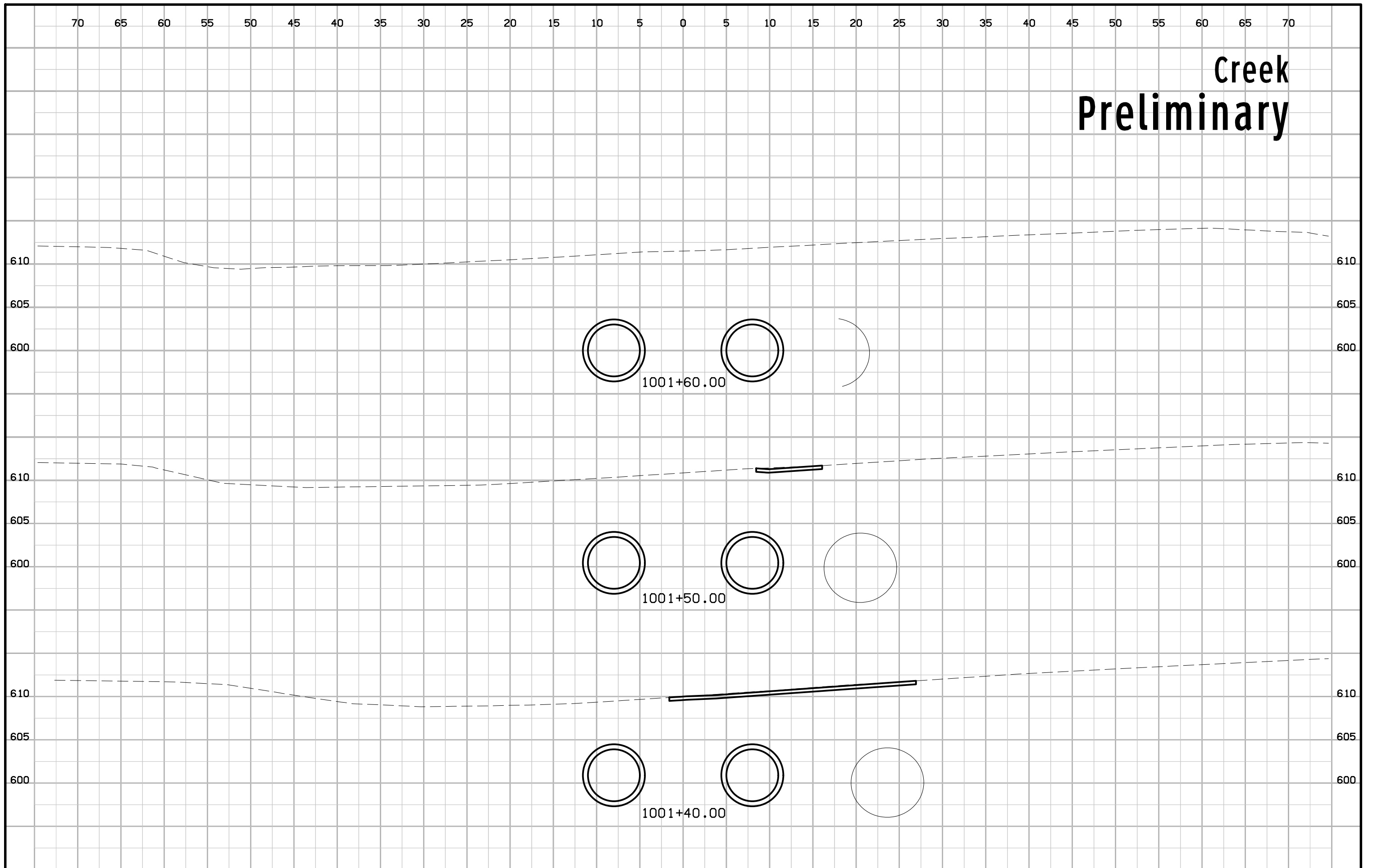
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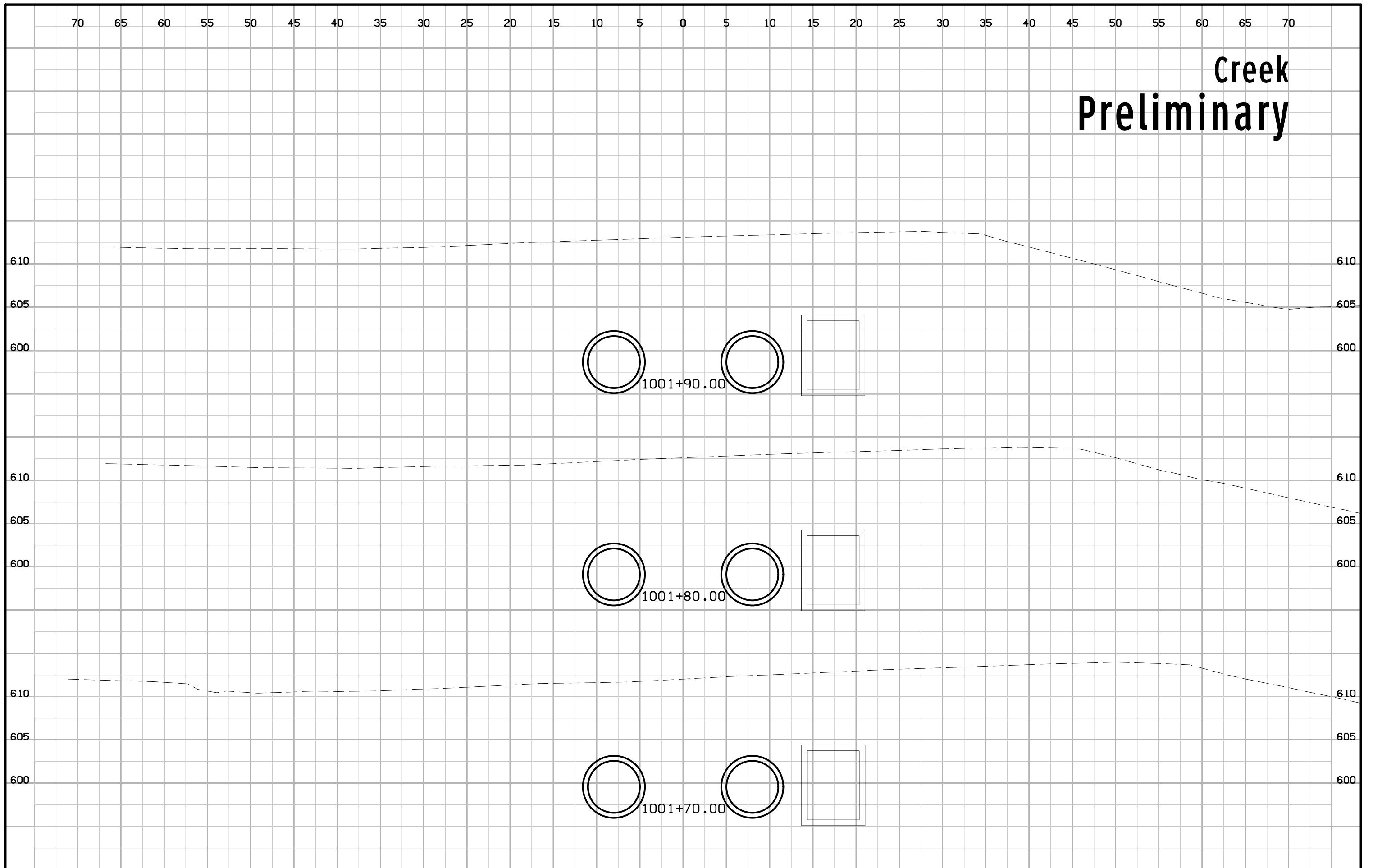
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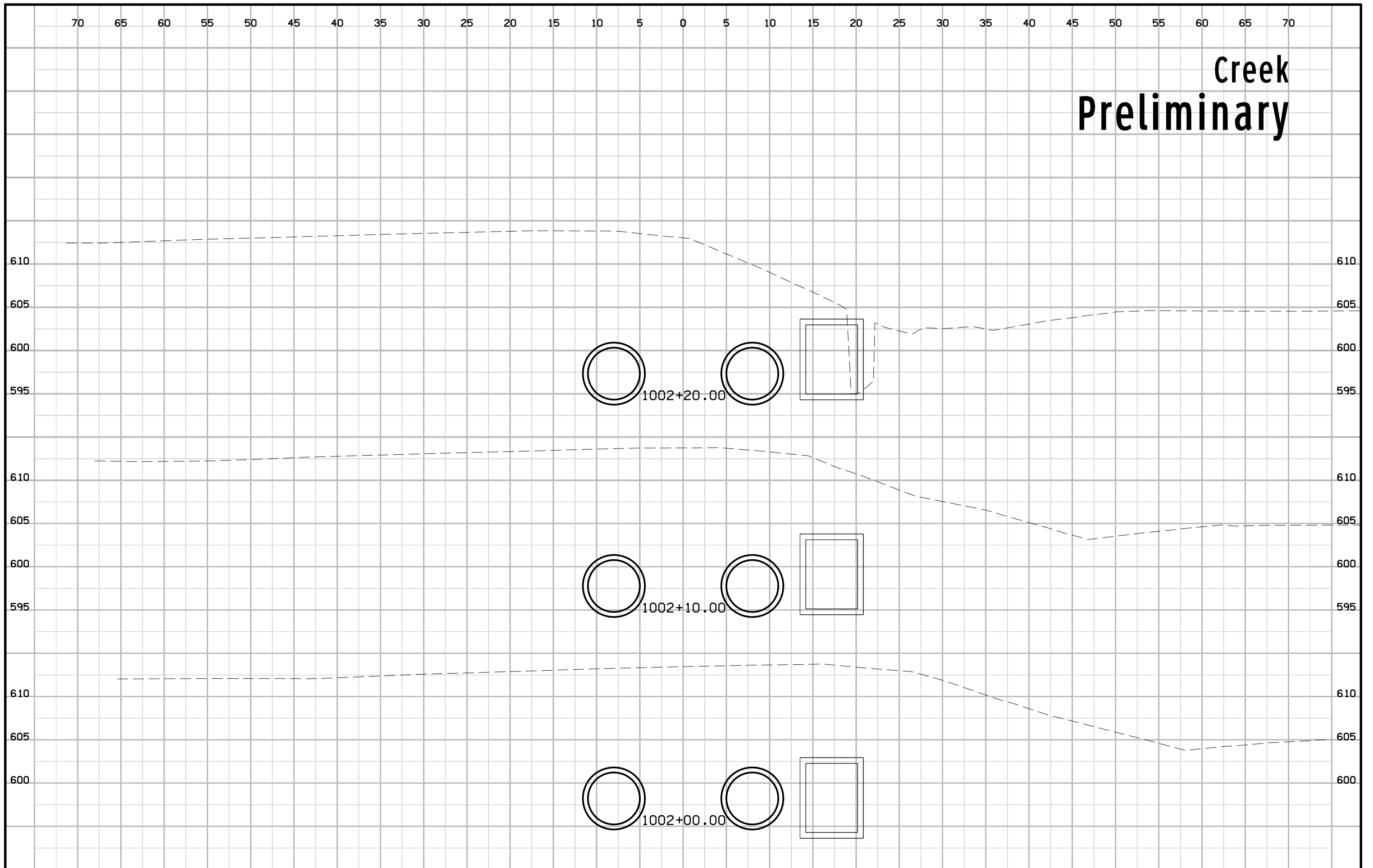
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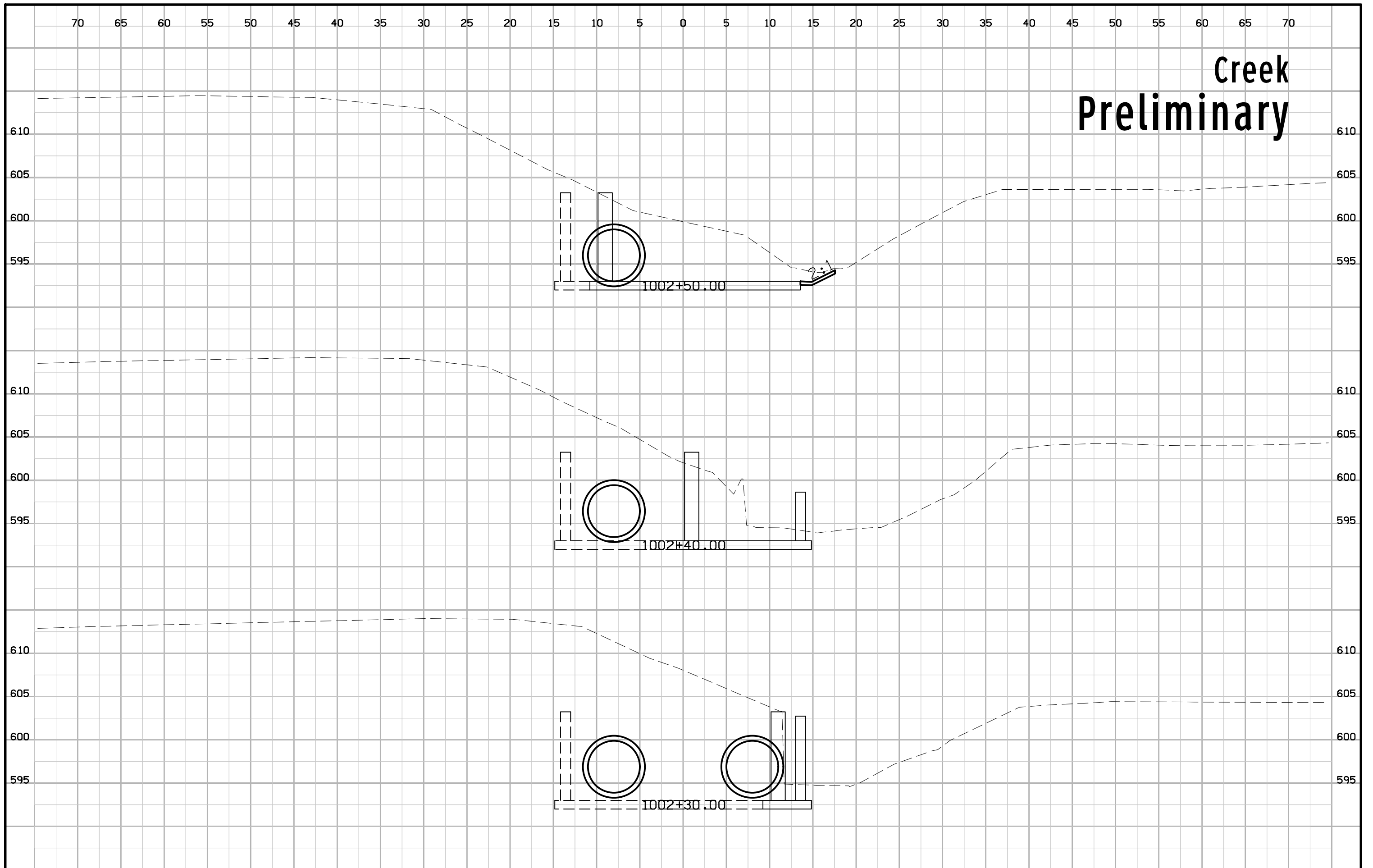
Creek Preliminary



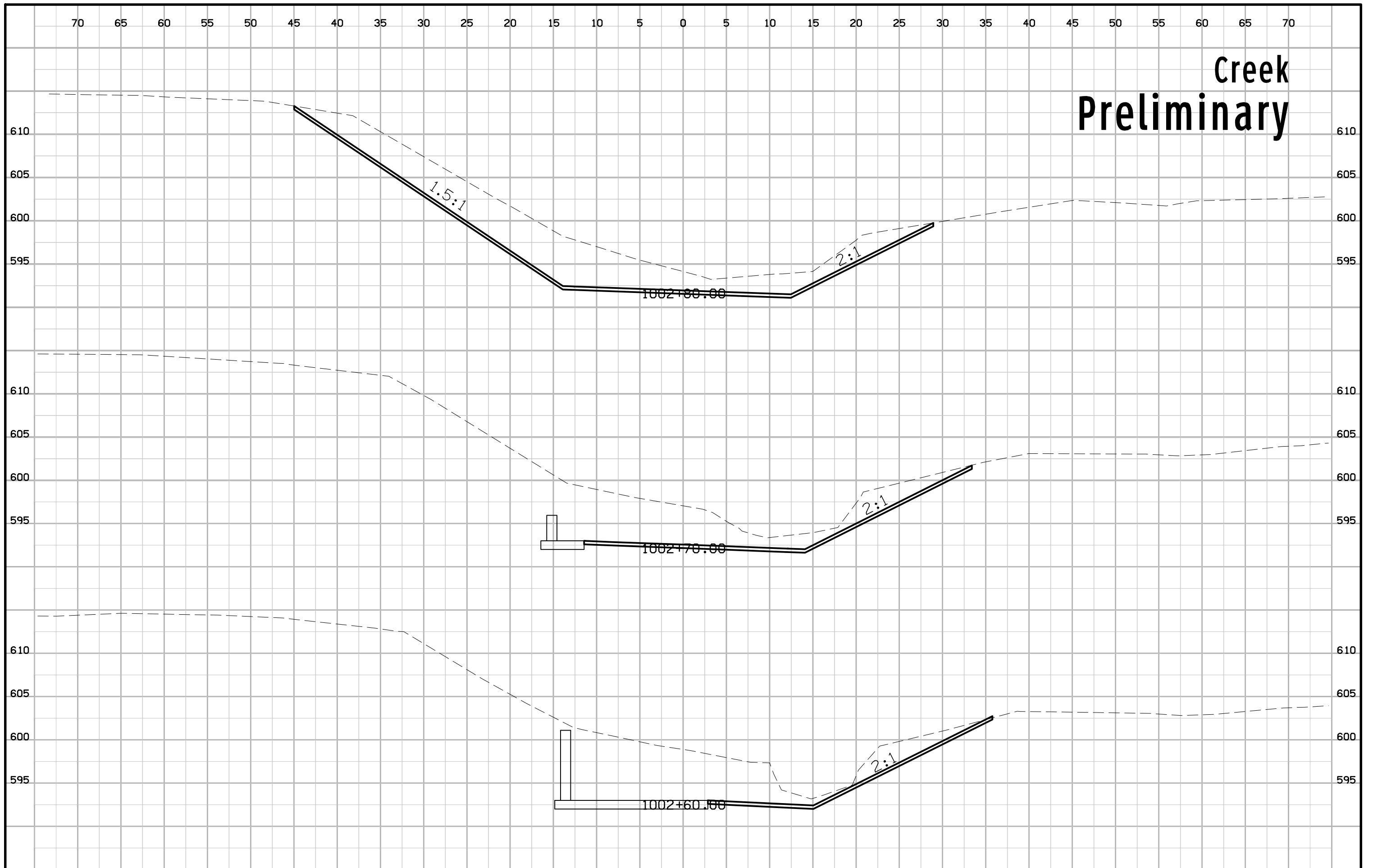
Creek Preliminary



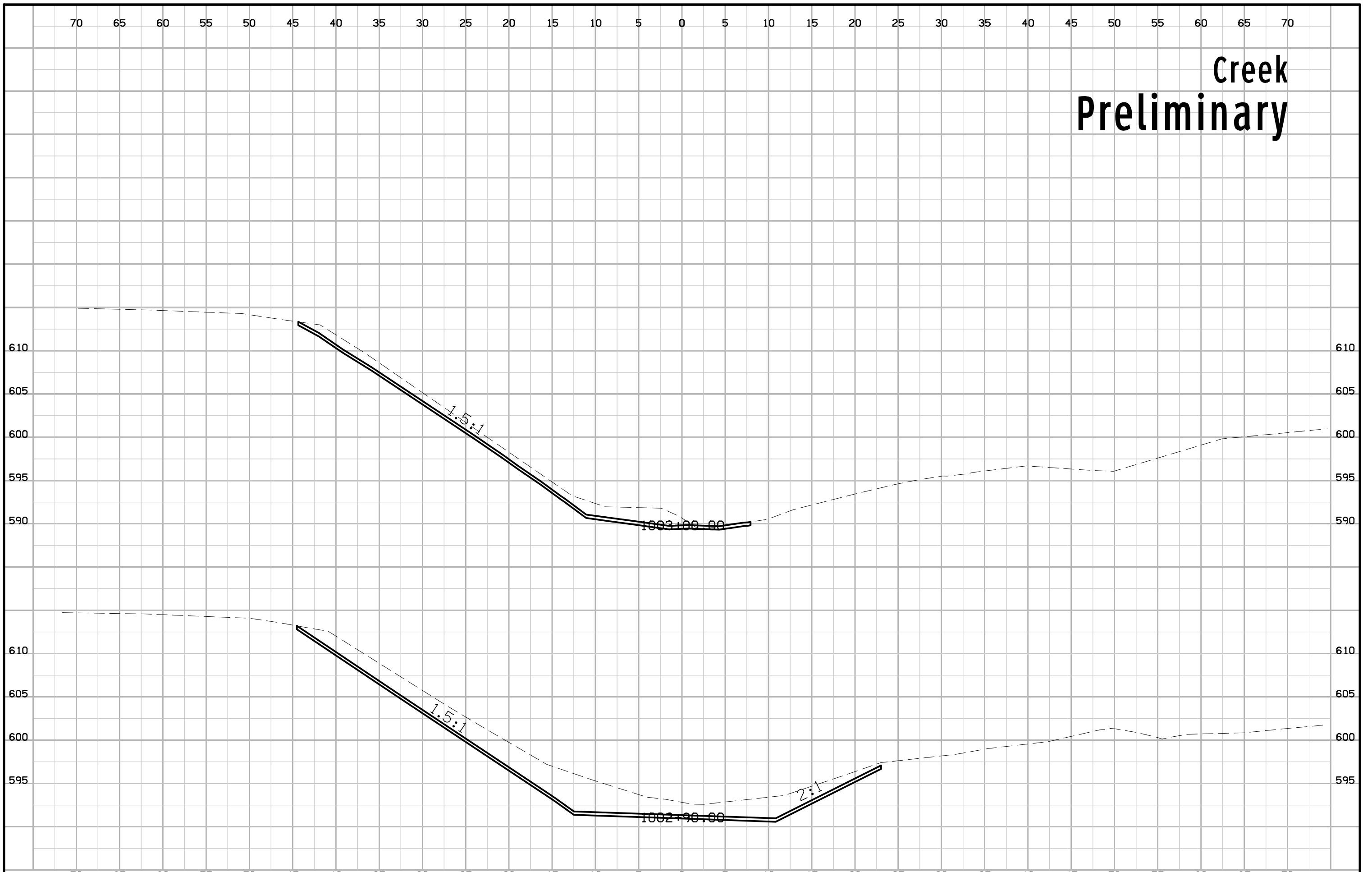
Creek Preliminary



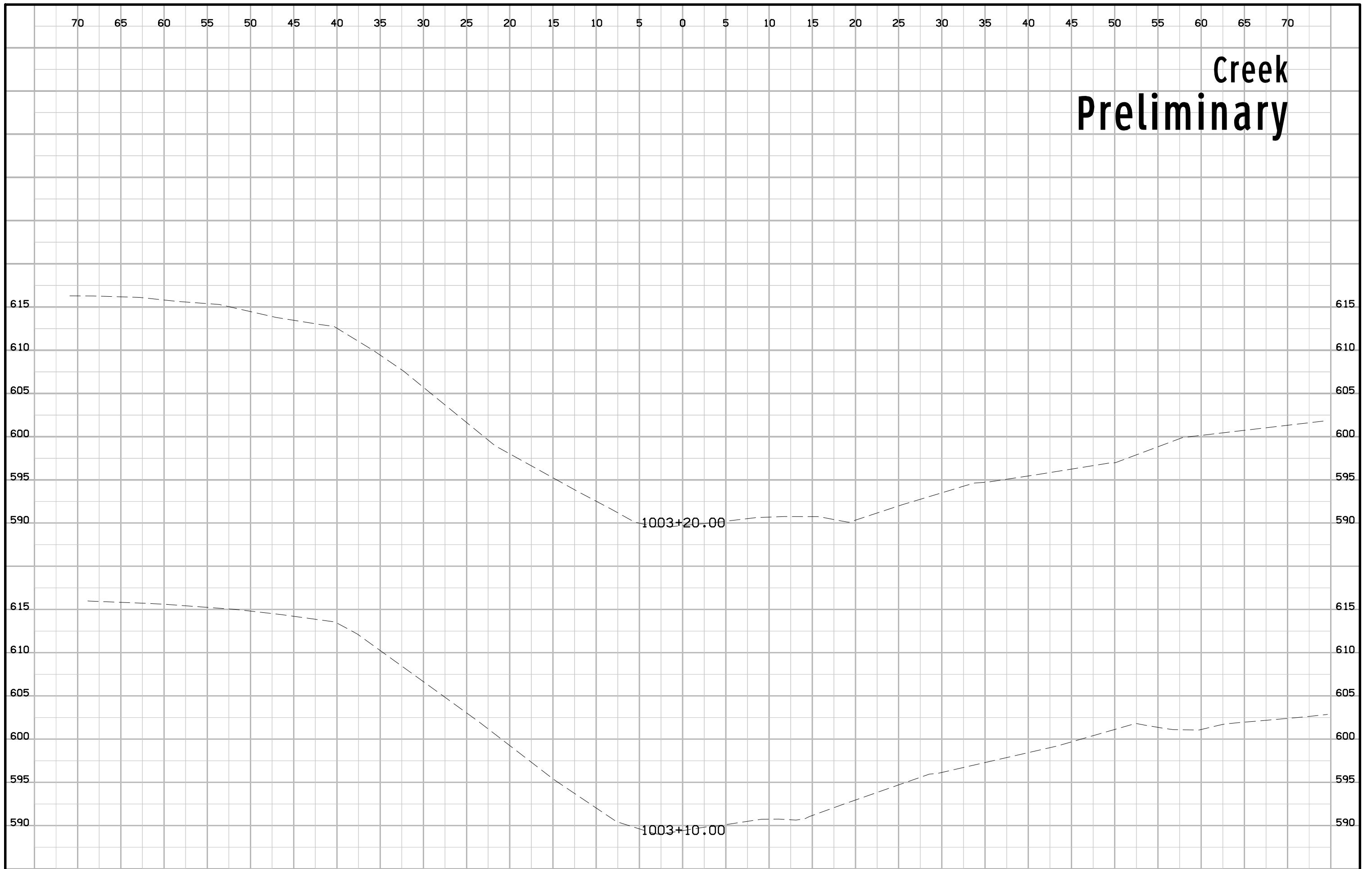
Creek Preliminary



Creek Preliminary



Creek Preliminary



Creek Preliminary

