
MONTANA DEPARTMENT OF TRANSPORTATION STREAM MITIGATION MONITORING REPORT

*U.S. 2 - Swamp Creek East
Lincoln County, Montana*

*Project Completed: 2019
Monitoring Report #1: December, 2019*



Prepared for:



Prepared by:



MONTANA DEPARTMENT OF TRANSPORTATION

STREAM MITIGATION MONITORING REPORT #1

YEAR 2019

U.S. 2 – Swamp Creek East
Lincoln County, Montana

MDT Project Number: NH 1-1(35)49 F, CN 1027000

Control Number: 1027000

USACE Permit: NWO-2012-00146-MTM
SPA Authorization: MDT-R1-04-2018

Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION
2701 Prospect Ave
Helena, MT 59620-1001

Prepared by

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Bozeman, MT 59771

December 2019

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1.0 INTRODUCTION

As part of the U.S. Highway 2 – Swamp Creek East road reconstruction project (NH 1-1(35)49 F), the Montana Department of Transportation (MDT) modified two reaches of Swamp Creek to allow for highway widening and roadway improvements. To mitigate for unavoidable impacts from this project, MDT proposed on-site stream mitigation actions within the highway right-of-way. Once completed, the project will reconstruct a total of 1,084 feet of Swamp Creek adjacent to U.S. Highway 2.

The lower reach, located east of the U.S. Highway 2 corridor and approximately 170 linear feet, was completed prior to the 2019 monitoring event and was assessed in 2019. The upper reach, located west of the U.S. Highway 2 corridor and approximately 899 linear feet, was still under construction during the 2019 monitoring event and will be assessed in 2020. This report documents the site's baseline condition immediately following completion of the lower reach. Post-construction monitoring of both the upper and lower reaches will occur in 2020.

The relocation of Swamp Creek was permitted in a modification to the U.S. Army Corps of Engineers (USACE) permit NWO-2012-00146-MTM. The modified permit allows the highway widening and roadway improvement project to impact 0.751 acres of wetland and 1,315 linear feet of stream channel. Provisions outlined in the modified USACE permit include monitoring the two relocated reaches of Swamp Creek for at least three years following construction.

Quantitative success criteria for Swamp Creek East include:

1. **Revegetation Success** will be achieved when areal cover of vegetation is $\geq 75\%$.

Additional reporting requirements:

1. **Photo Documentation** of the restored stream channel and adjacent riparian vegetation community will be conducted annually from established photo points to monitor the development of the site, and to provide certification showing distinct positive changes from pre-construction to the final monitoring year. Photo points will be established along each reach to show the stream channel and vegetation establishment both upstream and downstream.

Baseline monitoring results for the lower reach of the Swamp Creek East project site are presented in Section 4 and compared to success criteria in Section 5. Additional documentation of the site's condition is provided in the report appendices, including maps displaying locations of vegetation transects, photographs, and a plant species list.

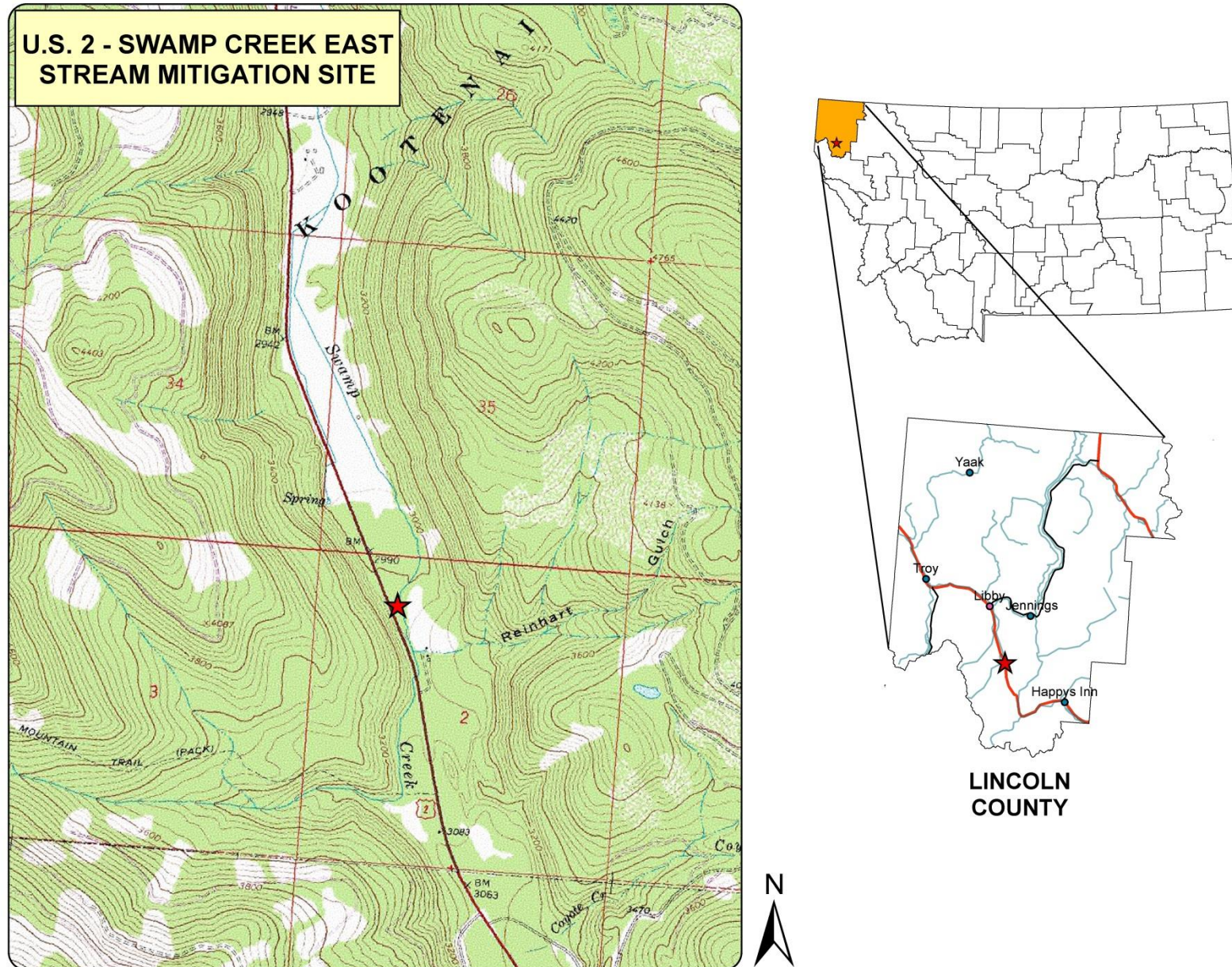


Figure 1. Location of the Swamp Creek East stream mitigation site.

2.0 SITE LOCATION

The Swamp Creek East project area lies approximately 19 miles south of Libby, Montana. The project is located on a mix of private and MDT-owned parcels in Section 2 of Township 27 North, Range 30 West, in Lincoln County, Montana (Figure 1). The stream mitigation project includes two reconstructed channel reaches (upper and lower) totaling approximately 1,069 linear feet within the U.S. Highway 2 project corridor. Lengths of each reconstructed channel reach are based on the design plans, and are indicated in Table 1.

Table 1. Reconstructed channel reach lengths and nomenclature.

Reconstructed Channel Reach	Channel stationing Begin	Channel Stationing End	Total Length (meters)	Total Length (feet)	Year Constructed
Upper	900+00.00	902+73.95	273.95	898.79	2020
Lower	800+00.00	800+51.74	51.74	169.75	2019
Total			325.69	1,068.54	

3.0 MONITORING METHODS

A field crew conducted baseline monitoring activities at the project site on August 19th, 2019. The following data were collected at the Swamp Creek East stream mitigation site:

3.1. Vegetation Monitoring

During the 2019 monitoring event, two permanent vegetation monitoring transects were established perpendicular to the lower reach. The transect locations were randomly selected and spaced 80 feet apart. Transect lengths were determined by the width of the disturbed area, and were 42.0 feet and 42.1 feet long, for Transects 1 and 2, respectively (Map 1; Appendix A). Due to the incomplete construction, no transects were established in the upper reach. Monitoring transects will be installed during the 2020 monitoring event in the upper reach following completion of channel construction activities.

Vegetation establishment within the areas adjacent to the channel was assessed using the Line Point Intercept (LPI) method (Elzinga et al. 1998). This method entails measuring vegetation cover along a linear transect by dropping a pin flag at predetermined intervals and recording whether the pin flag contacts vegetation, and if so, species presence at that point. At each interval point, if the pin flag contacts any plant, the point is recorded as a 'hit'. If the pin flag does not touch a plant, the point is recorded as 'bare'. Vegetation data were collected at 22 equally spaced points along each transect.

Percent cover was calculated for vegetation and for bare ground, where:

$$\text{Percent cover} = (\# \text{ of hits per cover category} / \text{total \# of points}) \times 100$$

3.2. Photo Documentation

The project site was photographed to document baseline stream channel conditions and vegetation establishment. Monitoring photos were taken at three permanent photo-documentation sites, at the endpoints of each vegetation transect, and at each rock weir installed across the channel. Photos will be taken at these locations during future monitoring events to document changes in site conditions over time. The permanent photo documentation locations were recorded with a GPS and noted on field maps to allow for repetition during subsequent monitoring years.

4.0 MONITORING RESULTS

4.1. Vegetation Monitoring

Table 2 summarizes the areal percent cover of total vegetation and bare ground observed along the vegetation transects. In 2019, total vegetation cover was 75% and 83%, for Transects 1 and 2, respectively. Total vegetation cover averaged across the two transects was calculated as 79% and bare ground 21%. Dominant species recorded along the transects included spreading bent (*Agrostis stolonifera*) and great mullein (*Verbascum thapsus*).

Table 2. Percent cover of vegetation transects within the Lower Reach of Swamp Creek East in 2019.

Location	Length (ft)	% Cover	
		Bare Ground/Fabric	Vegetation
Transect 1	42	25	75
Transect 2	42.1	17	83
Total		21	79

Appendix C includes a list of plant species observed during the 2019 monitoring event. Six of the 16 plant species observed in 2019 were hydrophytic based on the 2016 National Wetland Plant List (NWPL) (Lichvar *et al.*, 2016). Three of the 16 plant species observed on site were native and considered beneficial to the restoration efforts within the project area. These native plant species included strawberry goosefoot (*Chenopodium capitatum*), slender wild rye (*Elyus trachycaulus*), and reed canary grass (*Phalaris arundinacea*). Three Montana Listed Priority 2B noxious weed species were observed within the lower reach, including Canada thistle (*Cirsium arvense*), ox-eye daisy (*Leucanthemum vulgare*), and common tansy (*Tanacetum vulgare*).

5.0 COMPARISON OF RESULTS TO SUCCESS CRITERIA

Monitoring of the Swamp Creek East mitigation project is intended to document whether the site is meeting, or moving toward meeting the success criteria outlined in the modified USACE permit issued for the project. The following section compares the results of the first year of monitoring with success criteria to document whether the lower reach of the project is succeeding as intended.

5.1. Lower Reach

The lower reach of the Swamp Creek East mitigation site was constructed in 2019 and has undergone one growing season. The vegetation observed along the transects was dominated by non-native annual to perennial species which generally provide some stability over bare ground and cover for small animals, but decrease overall native species diversity and do not enhance riparian habitat complexity. The two most dominant species recorded along the transects were spreading bent and common mullein. The first year of monitoring indicates the lower reach of the site is meeting the single quantitative success criteria outlined in the permit (Table 3). By August 2019, areal cover of riparian and stream bank vegetation exceeded the 75% success criteria threshold, and is expected to progress toward increasing vegetation cover during subsequent monitoring years.

Table 3. Status of quantitative success criteria for the Lower Reach of Swamp Creek East in 2019.

Parameter	Success Criteria	Status	Site Meeting Success Criteria?
Vegetation Success	Vegetation Success will be achieved when areal cover of riparian and streambank vegetation is $\geq 75\%$.	Lower Reach exhibits an average of 79% vegetation cover.	YES

6.0 LITERATURE CITED

- Elzinga, C.L., D.W. Salzer, and J.W. Willoughby. 1998. *Measuring and monitoring plant populations*. Bureau of Land Management (BLM) Technical Reference 1730-1. Washington, DC: U.S. Department of the Interior.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List. 2016 Update of Wetland Ratings*. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X
- Montana Department of Agriculture. *Montana Noxious Weed List*. June 2019. Accessed December 2019 at:
<https://agr.mt.gov/Portals/168/Documents/Weeds/2019%20Montana%20Noxious%20Weed%20List.pdf?ver=2019-07-02-095540-487>

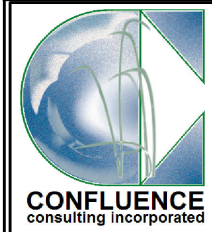
Appendix A

Monitoring Feature Maps

MDT Stream Mitigation Monitoring
U.S. 2 - Swamp Creek East
Lincoln County, Montana

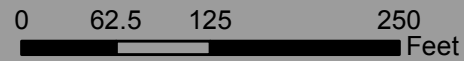


Note: Aerial photo taken prior to construction.



Legend

- Approximate Channel Reach Breaks
- Vegetation Transects
- ★ Photo Points



**Swamp Creek East
2019 - Upper and
Lower Reaches
Monitoring Features**

Map 1
Date: 12/5/2019
SwampEast_monitor2019.mxd

Appendix B

Project Area Photos

MDT Stream Mitigation Monitoring
U.S. 2 - Swamp Creek East
Lincoln County, Montana

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019
Photo Point 1: View looking south (upstream) of lower reach.



2013
Photo Point 2: View looking north (downstream) of lower reach

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019

Additional Photo 1: View looking east across rock weir #1 in lower reach..



2019

Additional Photo 2: View looking upstream at rock weir #1 in lower reach

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019

Additional Photo 3: View looking east across rock weir #2 in lower reach..



2019

Additional Photo 4: View looking upstream at weir #2 in lower reach

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019

Additional Photo 5: View looking east across rock weir #3 in lower reach..



2019

Additional Photo 6: View looking upstream at weir #3 in lower reach.

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019

Additional Photo 7: View looking east across rock weir #4 in lower reach..



2019

Additional Photo 8: View looking upstream at weir #4 in lower reach.

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019
Additional Photo 9: View looking west across Vegetation Transect #1.



2019
Additional Photo 10: View looking east across Vegetation Transect #1

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019
Additional Photo 11: View looking west across Vegetation Transect #2.



2019
Additional Photo 12: View looking east across Vegetation Transect #2

PHOTO INFORMATION

PROJECT NAME: Swamp Creek East Stream Mitigation Site

DATES: 2019 Monitoring Event



2019

Photo Point 3: View looking south (upstream) of upper reach during construction.

Appendix C

2019 Plant Species List

MDT Stream Mitigation Monitoring
U.S. 2 - Swamp Creek East
Lincoln County, Montana

Plant species list for the Lower Reach of Swamp Creek East in 2019.

Scientific Name	Common Name	WMVC Indicator Status*
<i>Agrostis stolonifera</i>	Spreading Bent	FAC
<i>Bromus inermis</i>	Smooth Brome	UPL
<i>Bromus japonicus</i>	Japanese Brome	UPL
<i>Bromus squarrosus</i>	Corn Brome	UPL
<i>Cerastium fontanum</i>	Common Mouse-Ear Chickweed	FACU
<i>Chenopodium capitatum</i>	Strawberry Goosefoot	UPL
<i>Cirsium arvense</i>	Canada Thistle	FAC
<i>Elymus repens</i>	Creeping Wild Rye	FAC
<i>Elymus trachycaulus</i>	Slender Wild Rye	FAC
<i>Leucanthemum vulgare</i>	Ox-Eye Daisy	FACU
<i>Phalaris arundinacea</i>	Reed Canary Grass	FACW
<i>Plantago major</i>	Great Plantain	FAC
<i>Sisymbrium altissimum</i>	Tall Hedge-Mustard	FACU
<i>Tanacetum vulgare</i>	Common Tansy	FACU
<i>Thlaspi arvense</i>	Field Pennycress	UPL
<i>Verbascum thapsus</i>	Great Mullein	FACU

*2016 National Wetland Plant List; *Western Mountains, Valleys, and Coasts* (WMVC) (Lichvar *et al.* 2016)

Appendix D

Project Design Sheets

MDT Stream Mitigation Monitoring
U.S. 2 - Swamp Creek East
Lincoln County, Montana

MONTANA DEPARTMENT OF TRANSPORTATION

CHANNEL RE-ALIGNMENT PLANS FEDERAL AID PROJECT NH 1-1(35) 49

SWAMP CREEK - EAST LINCOLN COUNTY

TABLE OF CONTENTS

CHANNEL PLANS	SHEET NO.
TITLE SHEET/TABLE OF CONTENTS	CC1
CENTERLINE COORDINATE TABLE	CC2
CHANNEL TYPICAL SECTIONS	CC3
SUMMARIES	CC4
DETAILS	CC5-CC6
CHANNEL WEIR DROP POOL DETAIL	CC5
HABITAT BOULDER DETAIL	CC6
PLAN & PROFILE	CC7
CHANNEL 800 AND CHANNEL 900	CC7
CHANNEL RE-ALIGNMENT CROSS-SECTIONS	CC1-CC15
CHANNEL 800	CC1-CC2
CHANNEL 900	CC3-CC15



DESIGNER: JEFFREY L. GIBSON DATE: 11/21/2017 DRAWN BY: JEFFREY L. GIBSON CHECKED BY: JEFFREY L. GIBSON PROJECT NO.: 06603	
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STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 1-1055 49 F	CC 2

CHANNEL 800

CHANNEL 900

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
800+00.00	POT	10,438.662	14,393.940	
800+36.86	PC	10,412.716	14,390.260	BEGIN CHANNEL 800
800+40.35	PI	10,410.336		
800+43.33	PT	10,406.947	14,392.676	
800+43.79	PC	10,406.480	14,392.483	
800+48.18	PI	10,409.192	14,392.205	
800+51.74	PT	10,389.738	14,395.608	END CHANNEL 800

GPK NAME: JOB127.GPK

CHAIN NAME: CHANNEL800

PROFILE NAME:

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
900+00.00	POT	10,319.537	14,435.421	
900+29.13	PC	10,294.837	14,419.997	BEGIN CHANNEL 900
900+39.31	PI	10,286.199	14,414.689	
900+45.53	PT	10,280.154	14,422.767	
900+51.53	PC	10,276.608	14,427.588	
900+54.71	PI	10,274.723	14,430.183	
900+57.80	PT	10,271.963	14,431.726	
901+67.25	PI	10,185.558	14,480.958	
902+03.09	PI	10,145.076	14,502.476	
902+29.48	PC	10,121.052	14,513.440	
902+31.38	PI	10,119.342	14,514.720	
902+33.25	PT	10,117.547	14,514.781	
902+73.85	POT	10,079.702	14,526.922	END CHANNEL 900

GPK NAME: JOB127.GPK

CHAIN NAME: TESTHYD

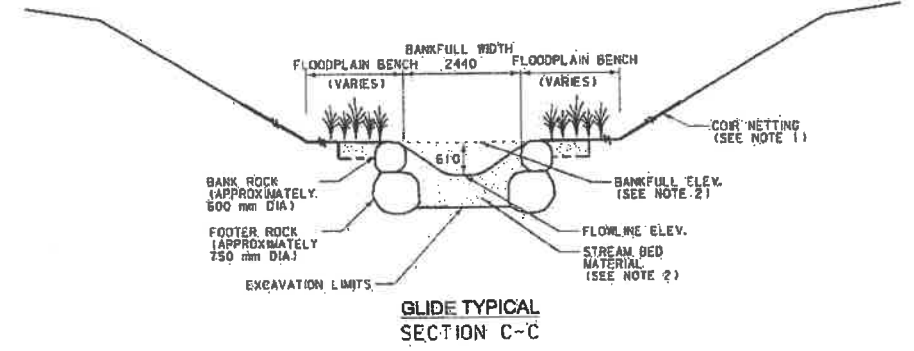
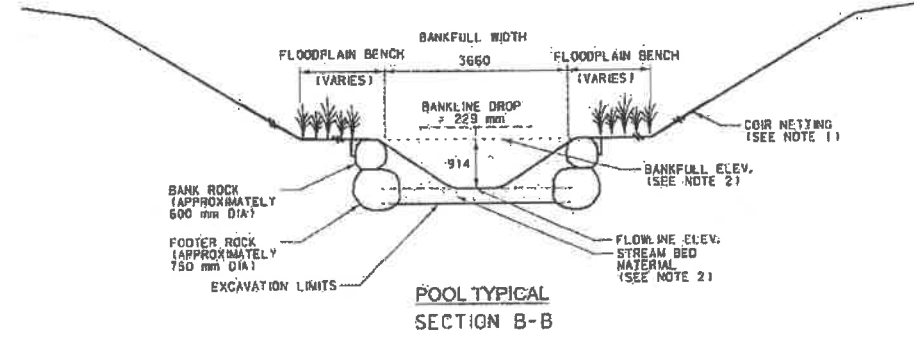
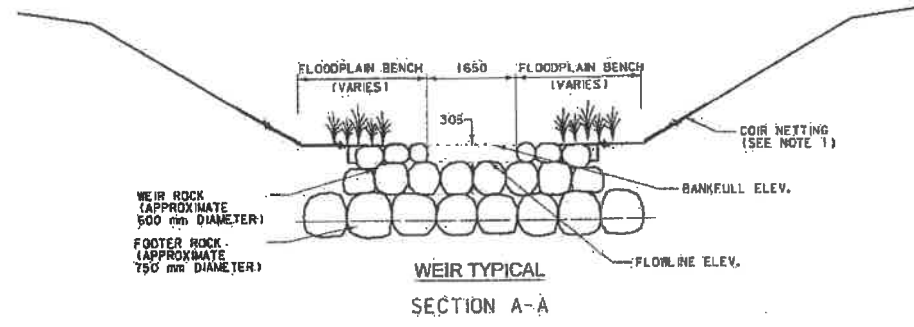
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MONTANA
 DIVISION OF TRANSPORTATION
 MDT
 MONTANA
 CAD

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DATE	BY	BY
11/21/2017	BY	BY
DATE	BY	BY
11/21/2017	BY	BY
DATE	BY	BY
11/21/2017	BY	BY

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	RD 1-1331 49 F	CC 3

MDTA Montana Department of Transportation
 MONTANA CADD



NOTES:

- ① COIR NETTING TO BE PLACED FROM EDGE OF STREAM BED MATE RAIL TO A MINIMUM ONE ROLL WIDTH ON SIDE SLOPES.
- ② BOTTOM OF CHANNEL WIDTH VARIES BETWEEN SECTIONS. CHANNEL BOTTOM POOL TYPICAL ~.1 m. BOTTOM OF CHANNEL WIDTH VARIES BETWEEN SECTIONS. CHANNEL BOTTOM GLIDE TYPICAL ~.600 mm. SRS CAN CHANGE DIMENSIONS BASED ON SITE CONDITIONS.

CHANNEL TYPICAL

6/1/06	10/21/08	10/21/08	10/21/08
11/28/17	11/28/17	11/28/17	11/28/17
11/28/17	11/28/17	11/28/17	11/28/17
11/28/17	11/28/17	11/28/17	11/28/17

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MONTANA	NH 7-1.135149 F	CC 4

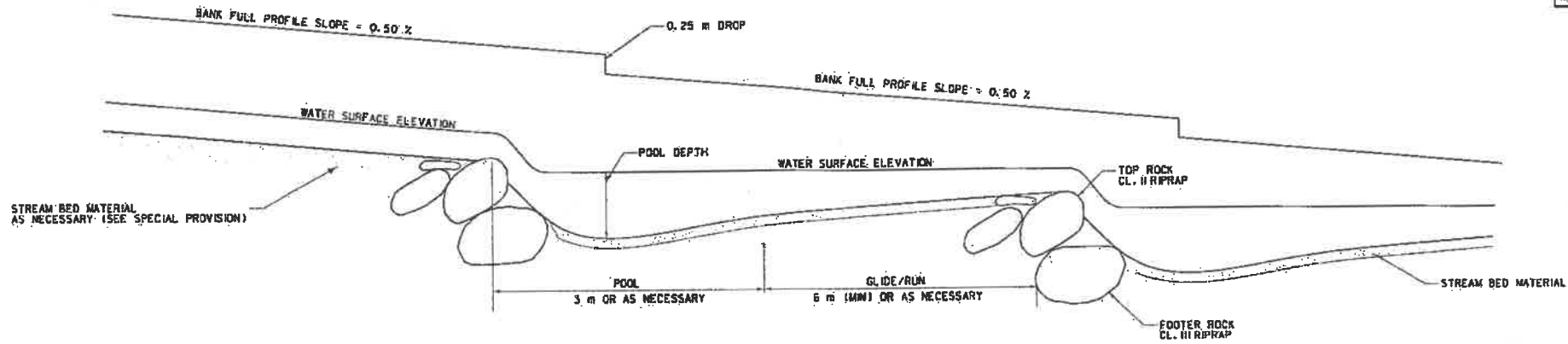
MONTANA REGISTERED PROFESSIONAL ENGINEER
MDIX
 MONTANA
 C.A.S.

STATION	CHANNEL										REMARKS	
	CHANNEL Exc.	EXCESS	EMB.+	cubic meters			square meters					
				STREAM MATERIAL	@NATIVE SOB.S	RANDOM RIPRAP	PERM. BRD.CS. CUB. CL. A	CONC. EGGS. NETTING	TOPSOIL			
				CL. 1	CL. 2	CL. 3						
800+00.00												
800+51.74	339			107			44.0			620	912	CHANNEL CHANGE 800 LT.
800+95.00												
800+73.95	4749			550			116.0			3 300	1 624	CHANNEL CHANGE 800 LT. & RT.
							90.0	180.0				30 WEIR STRUCTURES
								10.0				HABITAT BOULDER
TOTAL	5 088			657			90.0	560.0		3 920	2 736	

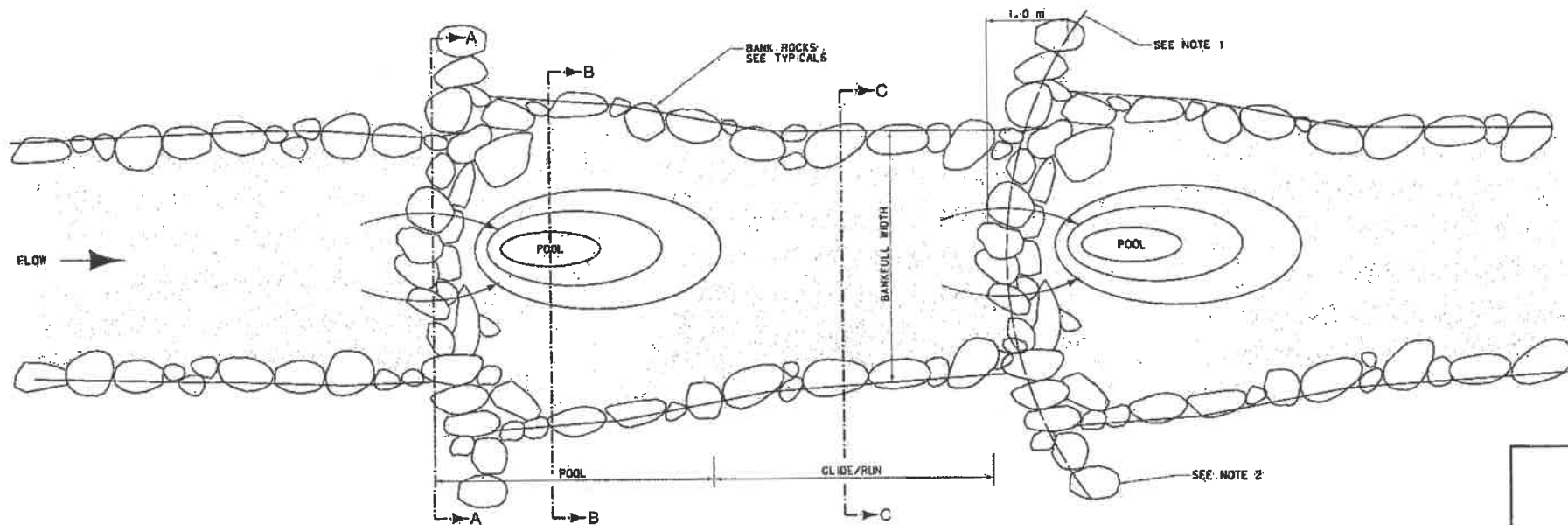
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 - 1524 P.S. - D0889

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 1-1 (35149 F	CC-5

MDTX MONTANA DEPARTMENT OF TRANSPORTATION
 MONTANA CADDD



- NOTES:
- ① CONSTRUCT WEIR IN ARCH TO DIRECT FLOW TOWARD CENTER OF CHANNEL. ALTERNATE LOWEST POINT OF WEIR LEFT AND RIGHT DOWN THE DROP/POOL SERIES.
 - ② ANCHOR WEIR ENDS 1-2 METERS INTO STREAM BANK.

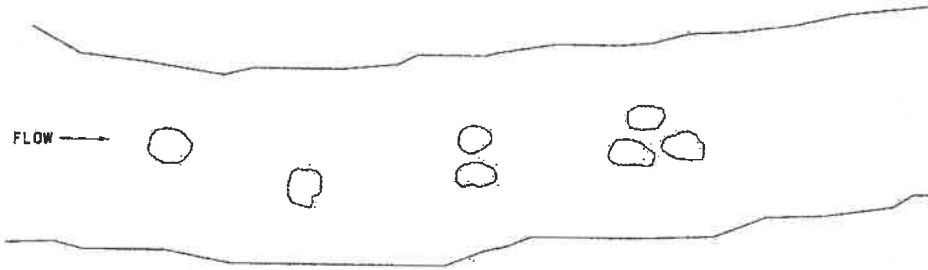


CHANNEL WEIR DROP POOL DETAIL
PRELIMINARY

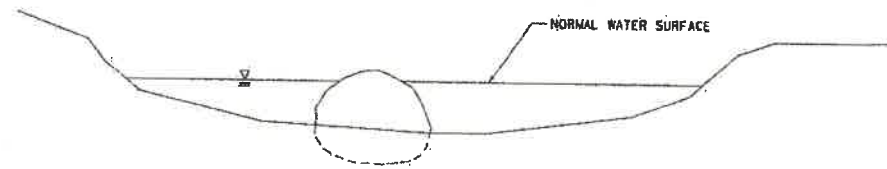
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CHECKED BY	11/21/2017
APPROVED BY	11/21/2017
PROJECT NO.	208883

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	AM 1-1135149 F	CC 6

HABITAT BOULDER DETAIL



SCHEMATIC - PLAN VIEW



SCHEMATIC - SECTION VIEW

NOTES:

- (1) BOULDERS SHOULD BE PLACED IN THE MIDDLE THIRD OF THE NORMAL WIDTH TO PREVENT DEFLECTION INTO STREAM BANKS.
- (2) BOULDERS MAY BE PLACED AS A SINGLE BOULDER (APPROX 915 mm DIAMETER), OR IN GROUPS OF 2 OR THREE (510-710 mm DIA EACH).
- (3) BOULDERS MAY BE PLACED IN GULVE SECTIONS AT DISCRETION OF SRS.
- (4) BOTTOM OF BOULDER SHOULD BE EMBEDDED 0.6 m INTO STREAMBED MATERIAL.
- (5) EMBEDDED BOULDER SHOULD TAKE UP NO MORE THAN 1/5 OF TOTAL STREAM WIDTH.

HABITAT BOULDER QUANTITIES

915 mm BOULDER - 30 EACH
610 mm BOULDER - 75 EACH

HABITAT BOULDER
DETAIL

PRELIMINARY



DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
PROJECT NO.	2088283

FOR MDT INTERNAL DISTRIBUTION ONLY

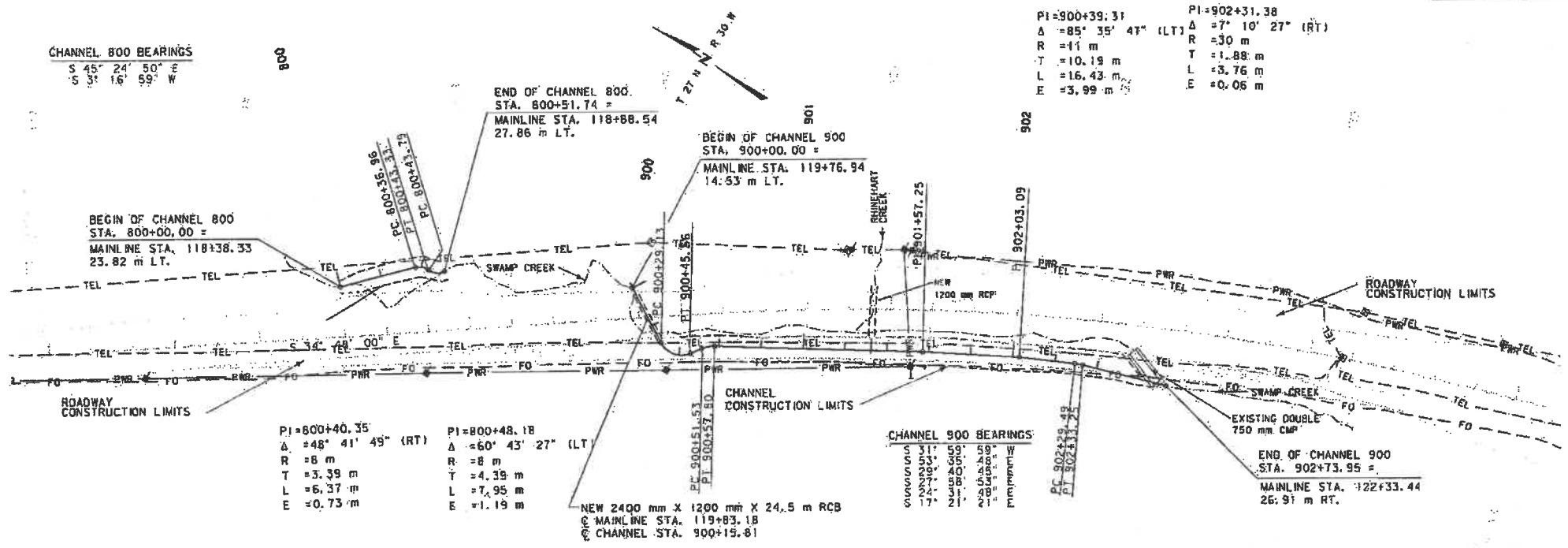
11/21/2017
Highways & Engineering
Division

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 1-1135149-F	CC 7

CHANNEL 800 BEARINGS
S 45° 24' 50" E
S 5° 16' 59" W

PI=900+39.31
Δ = 85° 35' 47" (LT)
R = 11 m
T = 10.19 m
L = 16.43 m
E = 3.99 m

PI=902+31.38
Δ = 7° 10' 27" (RT)
R = 30 m
T = 1.88 m
L = 5.76 m
E = 0.06 m



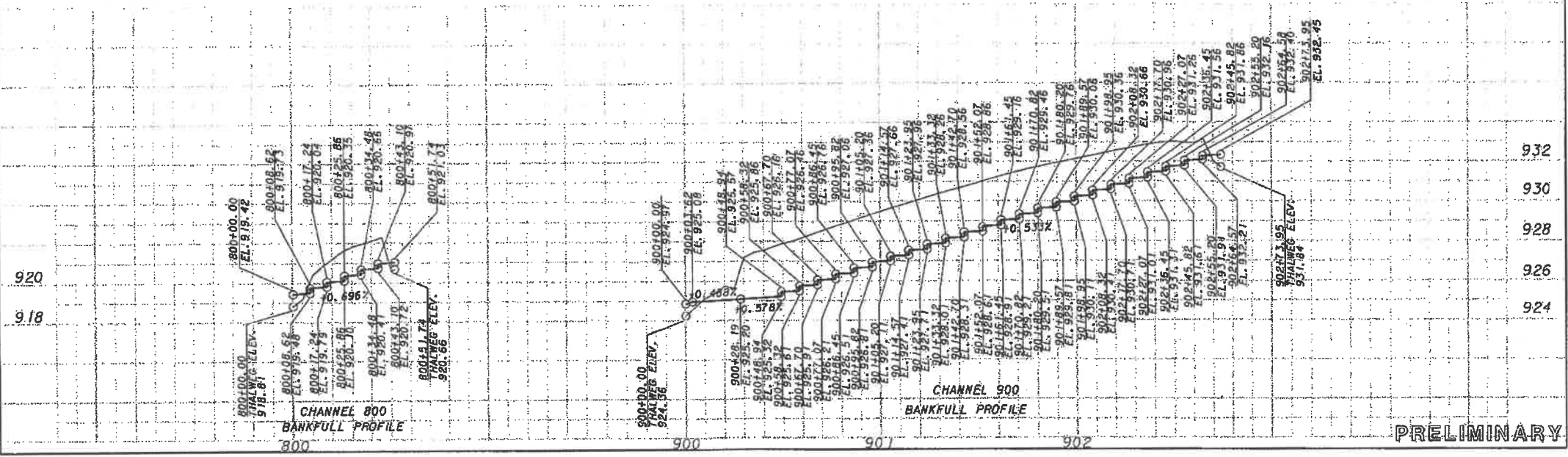
PI=800+40.35
Δ = 48° 41' 49" (RT)
R = 8 m
T = 3.39 m
L = 6.37 m
E = 0.73 m

PI=800+48.18
Δ = 60° 43' 27" (LT)
R = 8 m
T = 4.39 m
L = 7.95 m
E = 1.19 m

CHANNEL 900 BEARINGS
S 45° 24' 50" E
S 5° 16' 59" W

NEW 2400 mm X 1200 mm X 24.5 m RCB
Q MAINLINE STA. 119+83.18
Q CHANNEL STA. 900+15.81

SCALE: 1:1000
DATE: 11/21/2017
DRAWN BY: [Name]
CHECKED BY: [Name]
IN CHARGE: [Name]

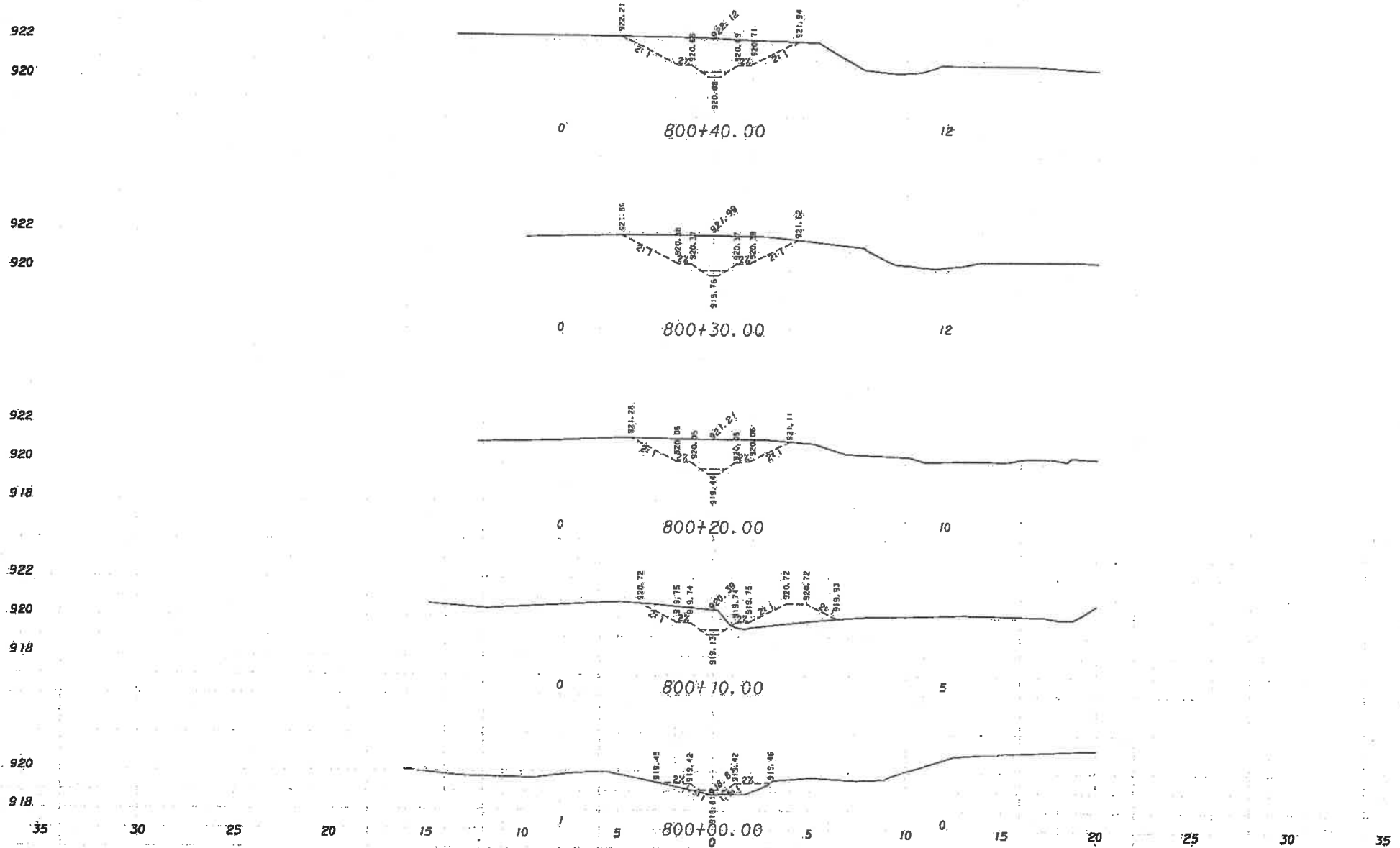


STATE	PROJECT NO.	SHEET NO.
MONTANA	HH 1-1135149F	CC 1

CHANNEL 800

EXCAVATION
cubic meters

EMBANKMENT
cubic meters



PRELIMINARY
FOR PRELIMINARY DISTRIBUTION ONLY

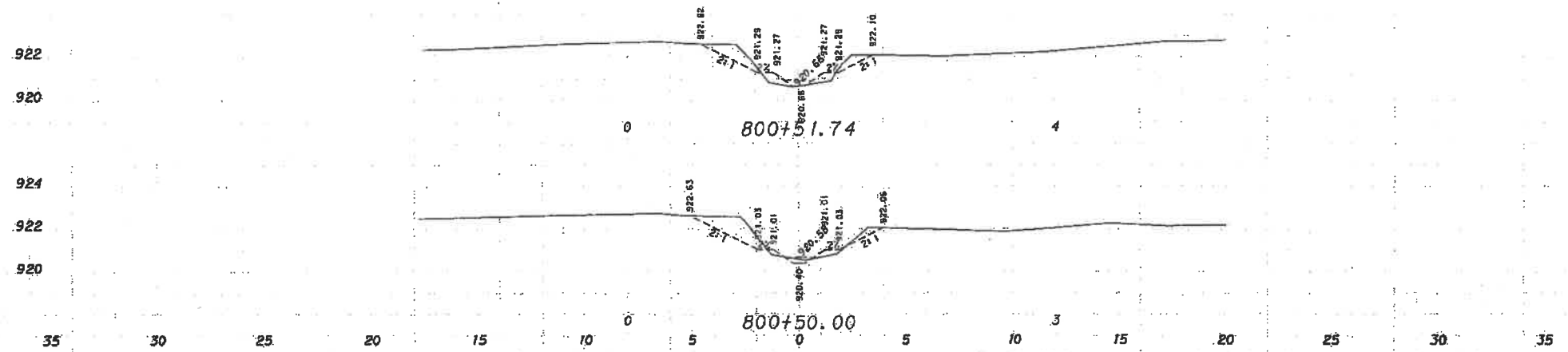
1/21/2017
Highways & Engineering
Division

STATE	PROJECT NO.	SHEET NO.
MONTANA	HH 1-1135149F	CC 2'

EXCAVATION
cubic meters

EMBANKMENT
cubic meters

CHANNEL 800

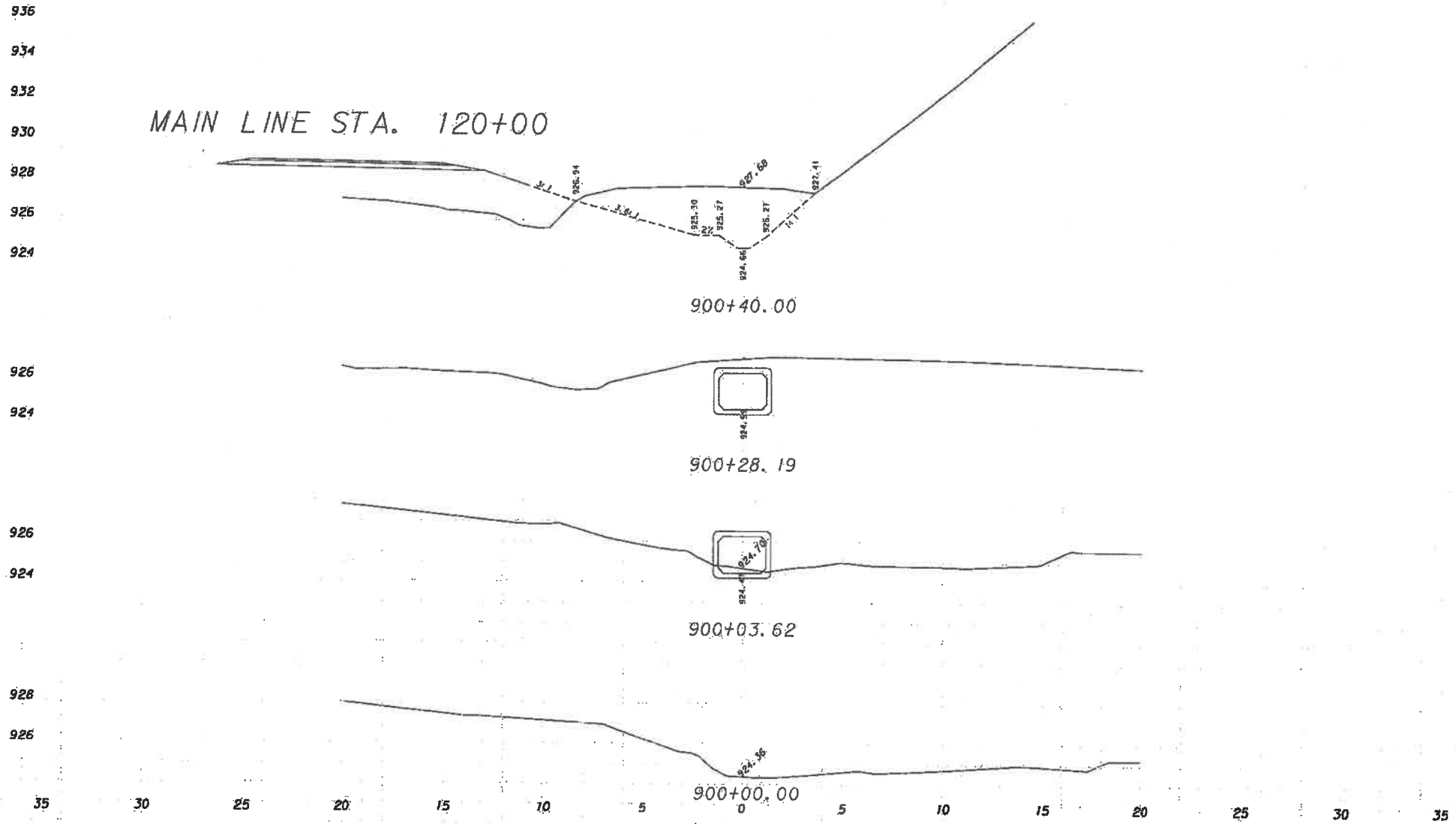


PRELIMINARY
FOR INTERNAL DISTRIBUTION ONLY

STATE	PROJECT NO.	SHEET NO.
MONTANA	NH 1-1735,49F	CC 3

EXCAVATION
cubic meters

EMBANKMENT
cubic meters



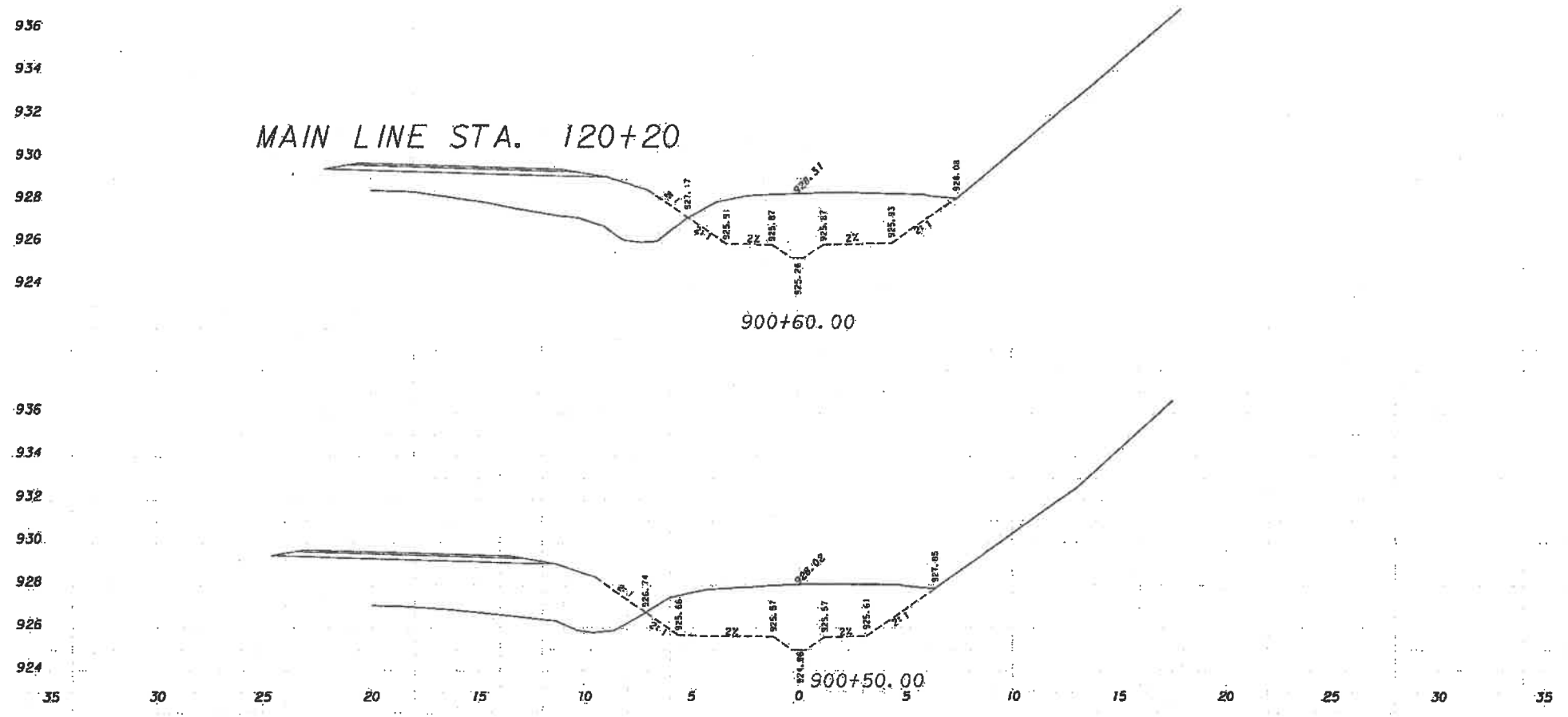
FOR PRELIMINARY DISTRIBUTION ONLY

11/21/2017
Highways & Engineering
Division

STATE	PROJECT NO.	SHEET NO.
MONTANA	NH 1-1135149F	CC 4

EXCAVATION:
cubic meters

EMBANKMENT
cubic meters



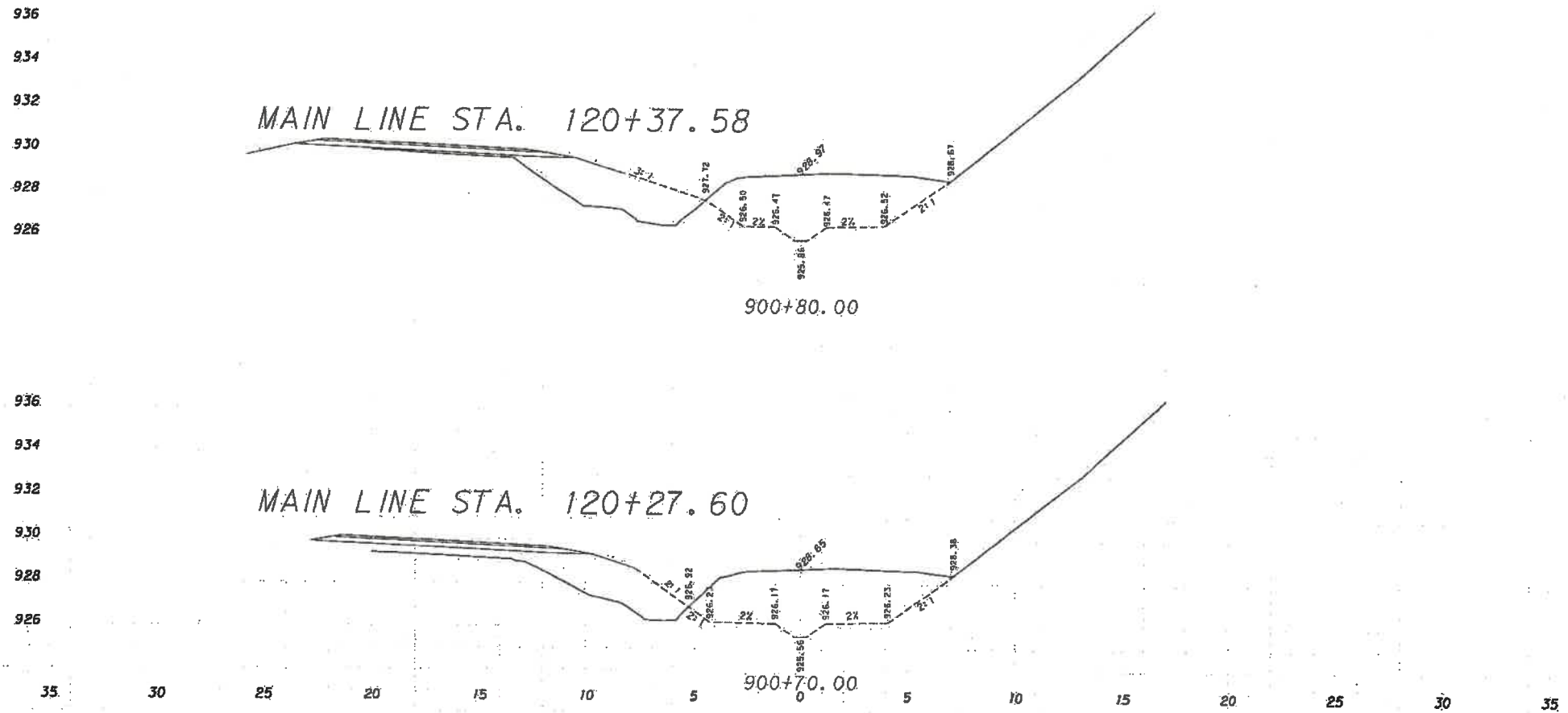
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MONTANA	NH 1-1135149F	CC-5

EXCAVATION
cubic meters

EMBANKMENT
cubic meters



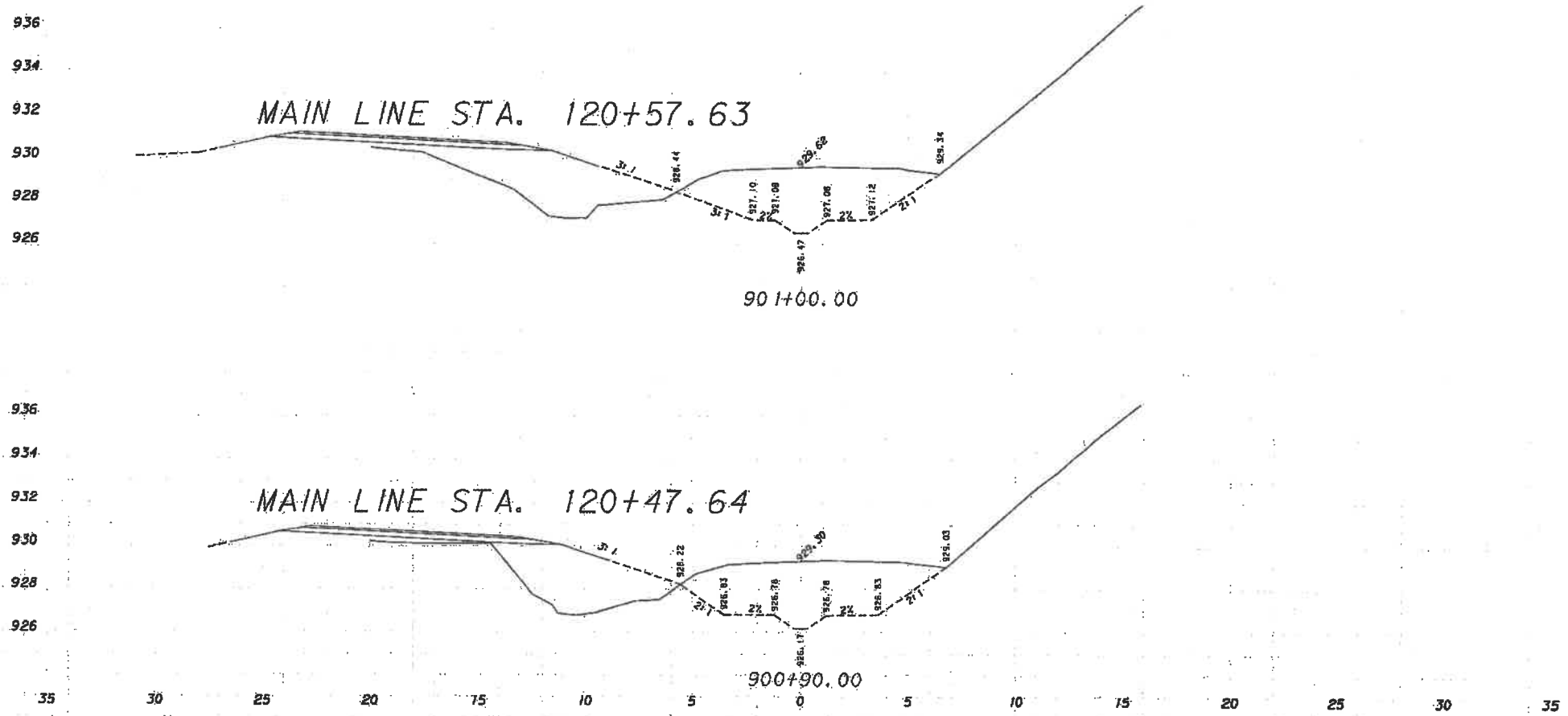
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STATE	PROJECT NO.	SHEET NO.
MONTANA	MM 1-1(35)49F	CC 6

EXCAVATION
cubic meters

EMBANKMENT
cubic meters

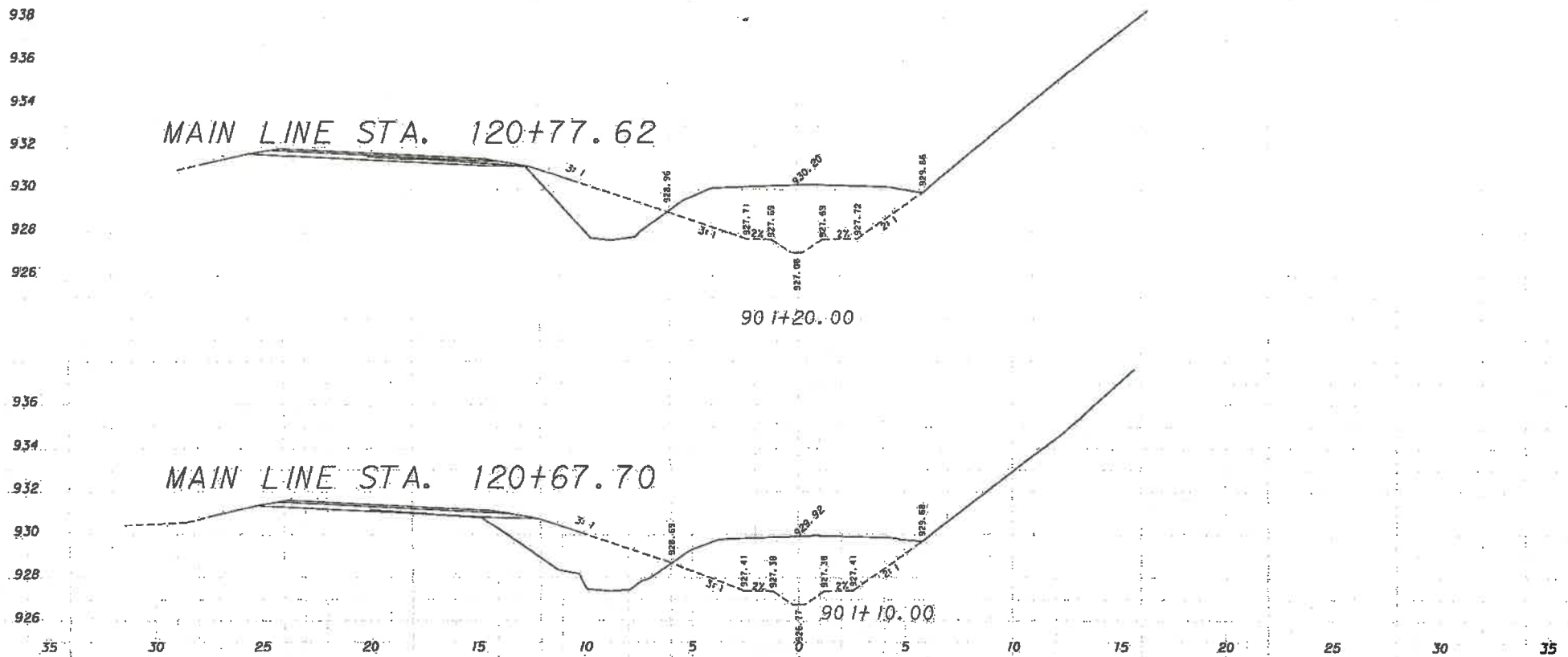


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MONTANA	NH 1-1135/49F	C6-7

EXCAVATION
cubic meters

EMBANKMENT
cubic meters

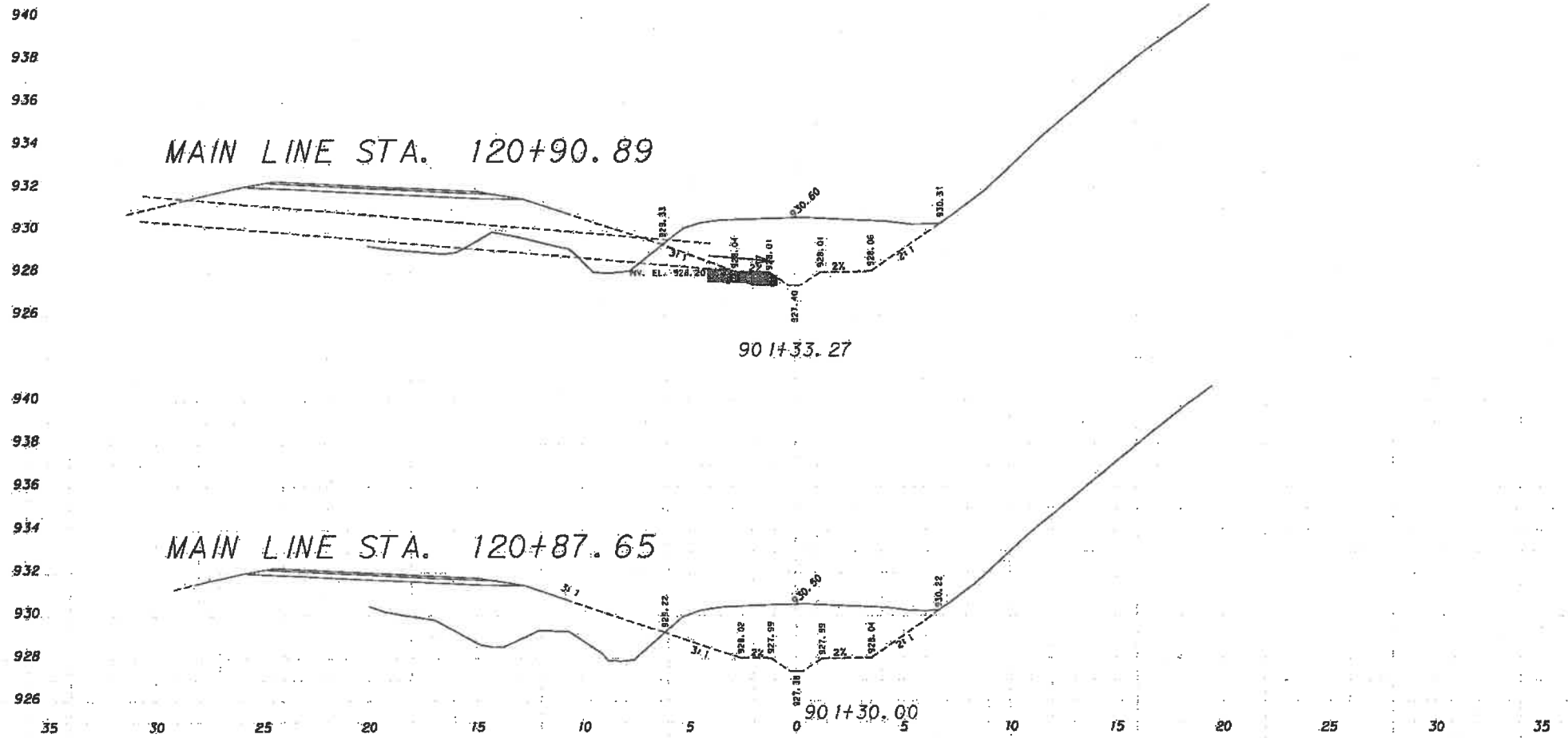


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MONTANA	NH 1-1135149F	CC 8

EXCAVATION
cubic meters

EMBANKMENT
cubic meters



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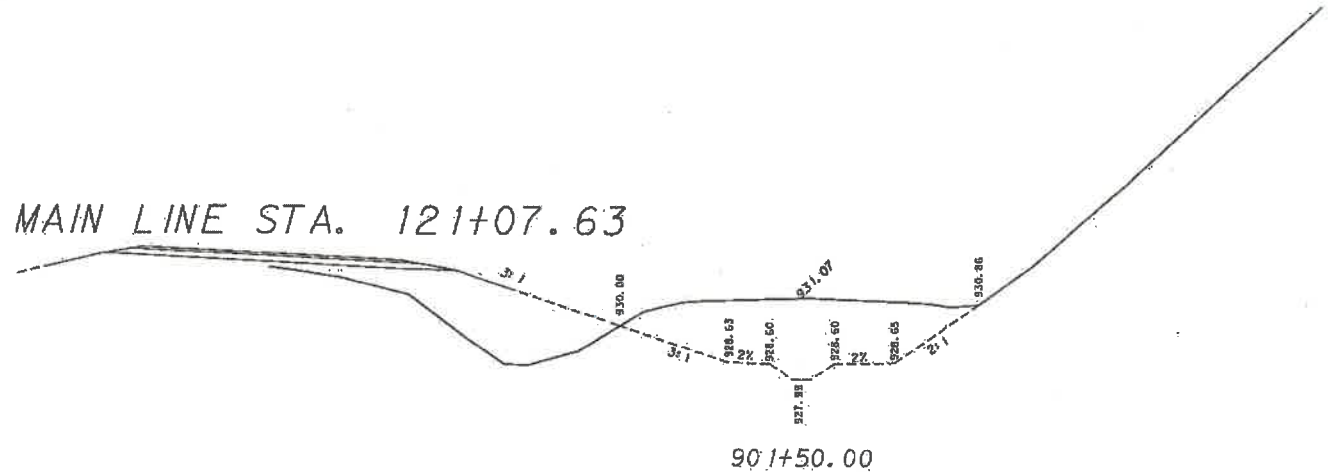
STATE	PROJECT NO.	SHEET NO.
MONTANA	RH 1-1135149F	CC 9

EXCAVATION
cubic meters

EMBANKMENT
cubic meters

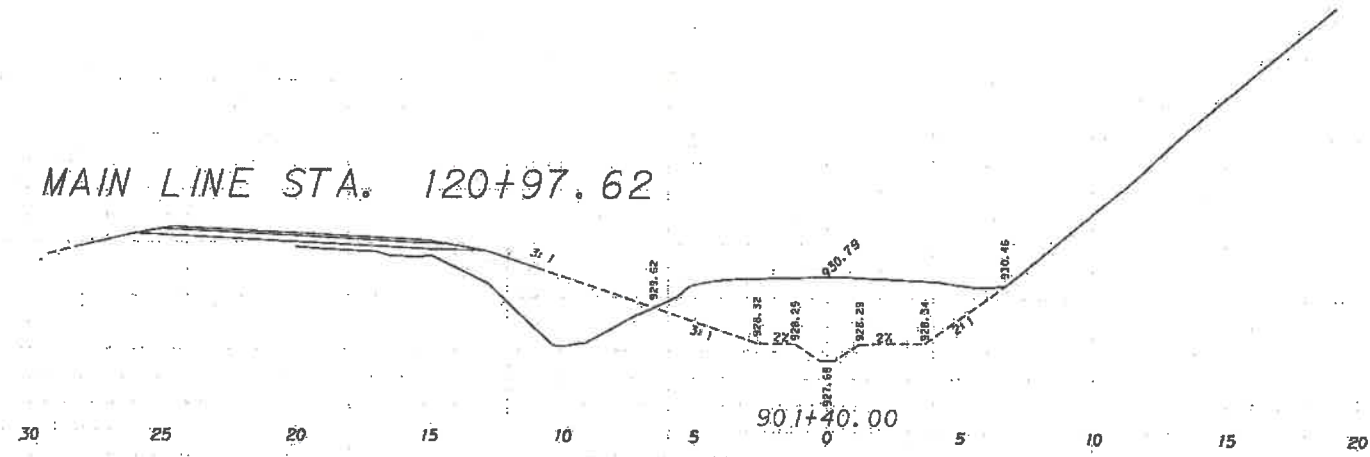
942
940
938
936
934
932
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928

MAIN LINE STA. 121+07.63



940
938
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932
930
928

MAIN LINE STA. 120+97.62



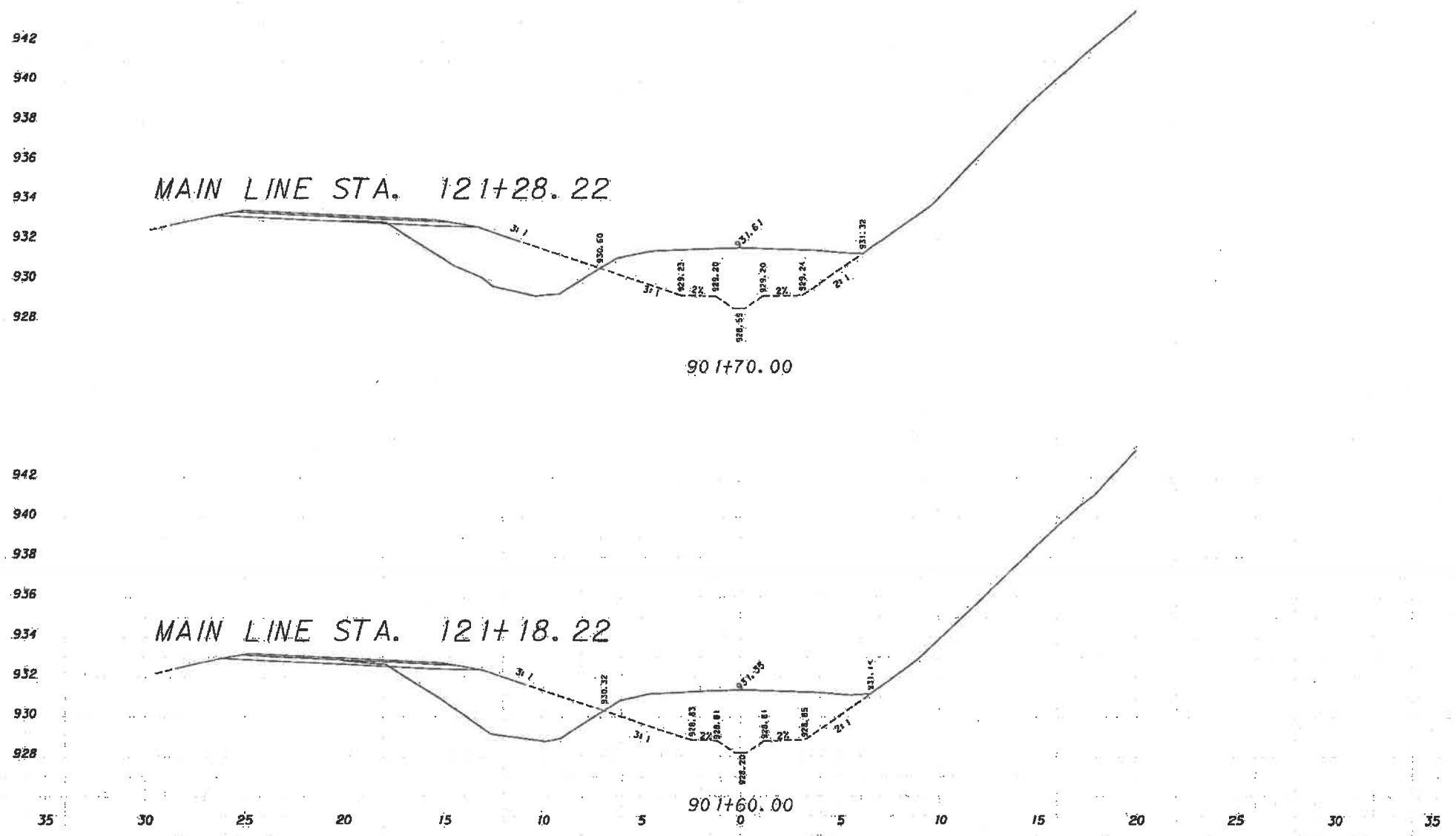
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MONTANA	NH 1-1135149F	CC 10

EXCAVATION
cubic meters

EMBANKMENT
cubic meters



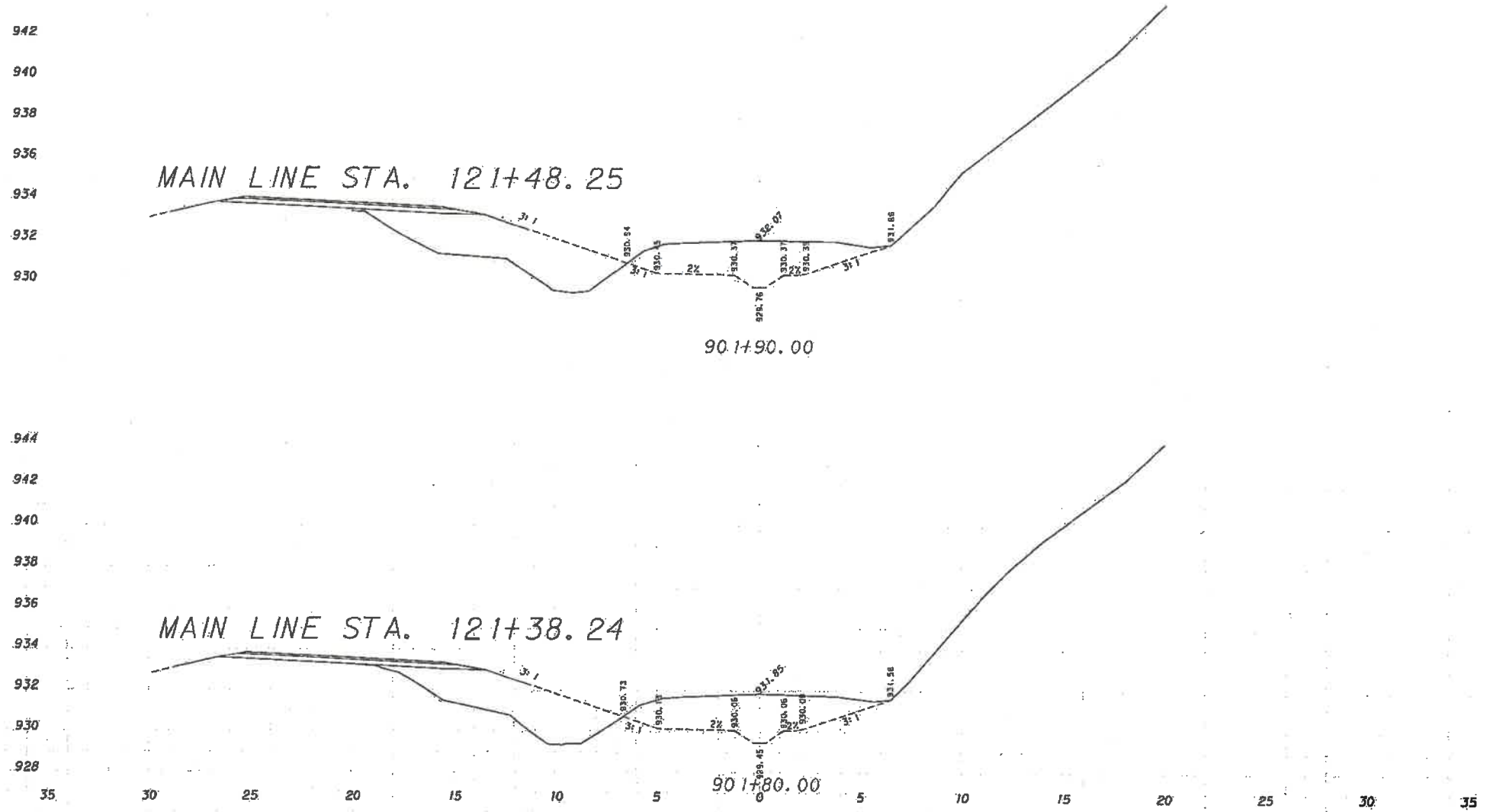
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MONTANA	NH 1-1135149F	CC 11

EXCAVATION
cubic meters

EMBANKMENT
cubic meters

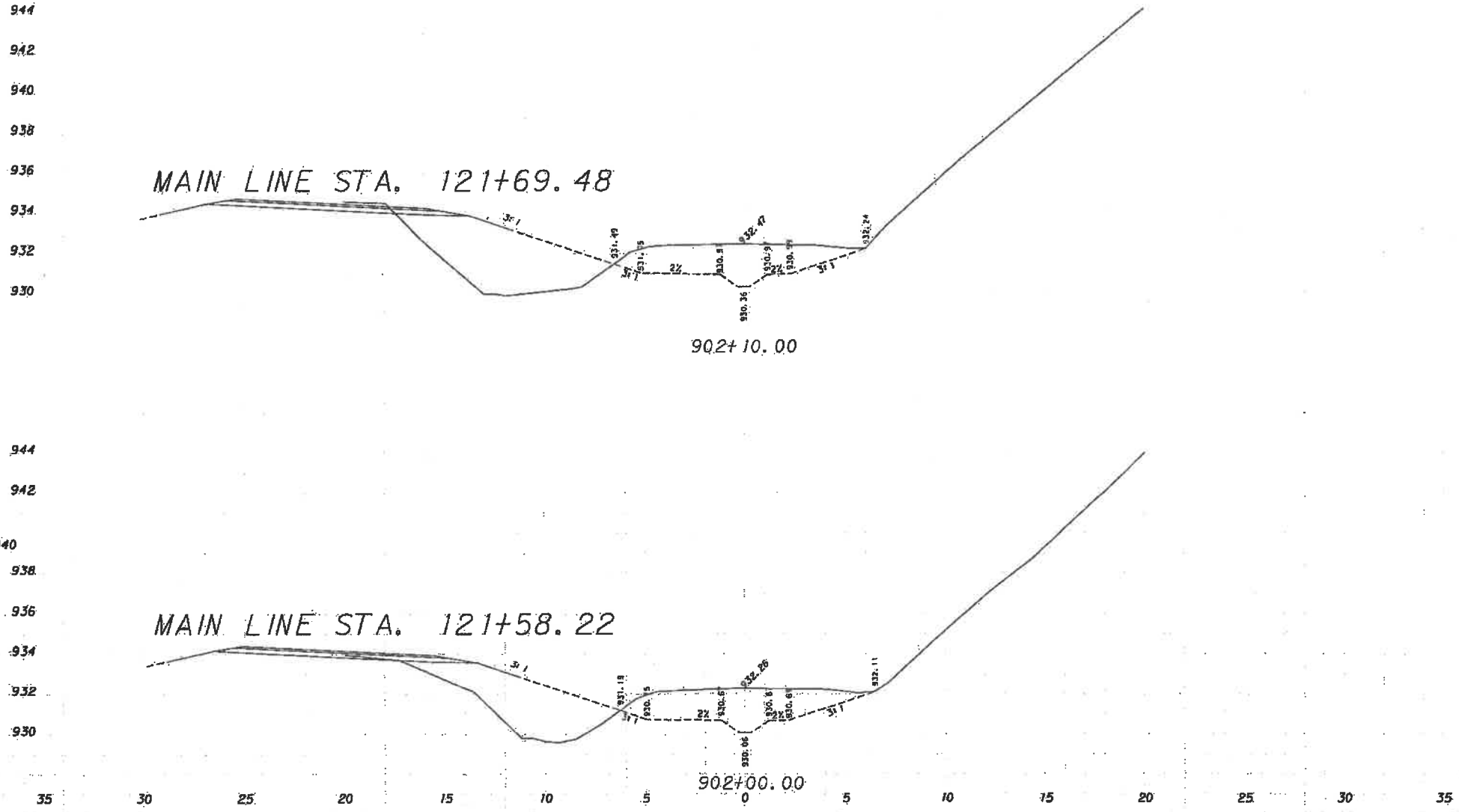


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EXCAVATION
cubic meters

EMBANKMENT
cubic meters



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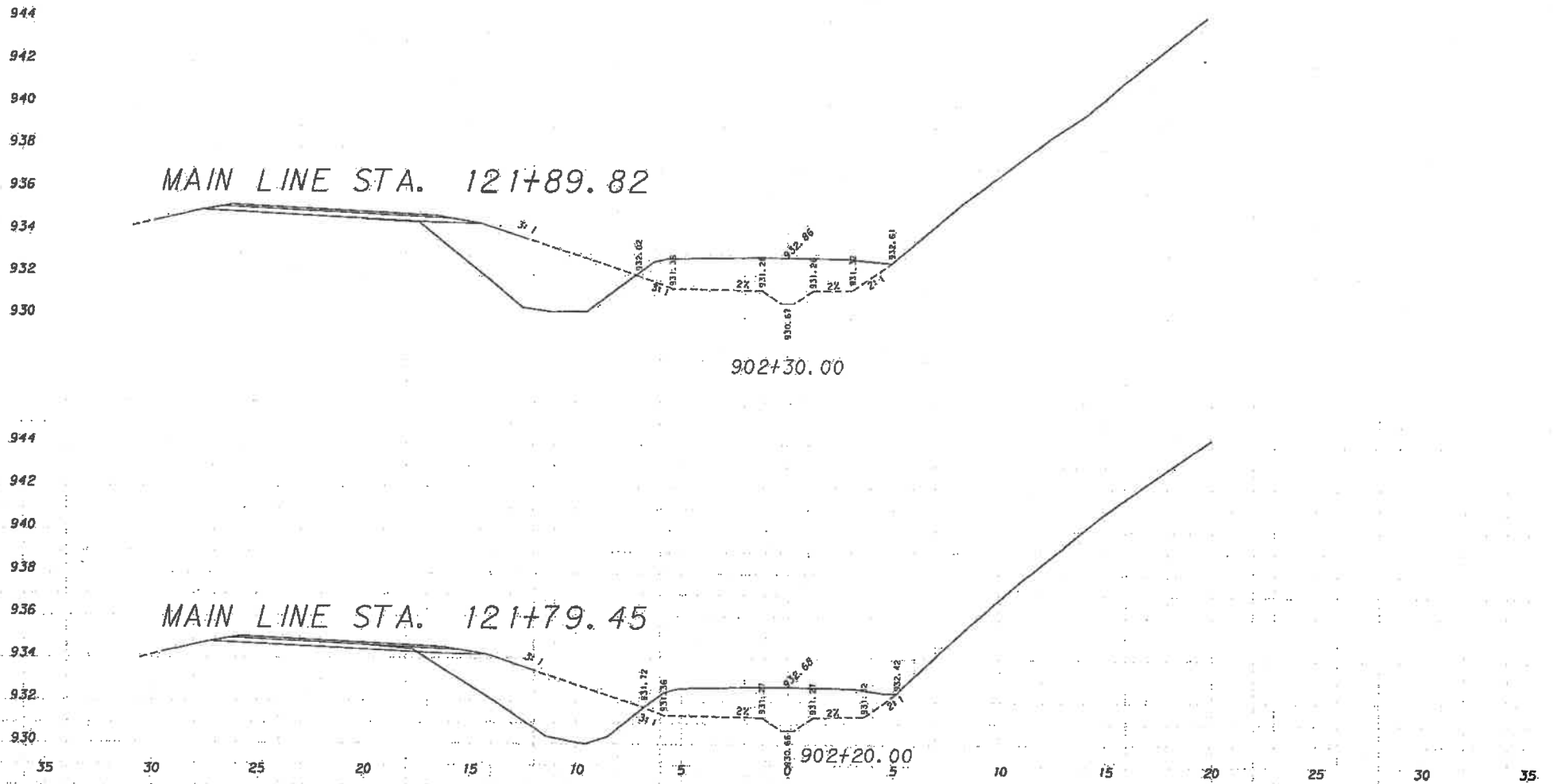
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MONTANA	NH 1-139149F	CC 13

EXCAVATION
cubic meters

EMBANKMENT
cubic meters



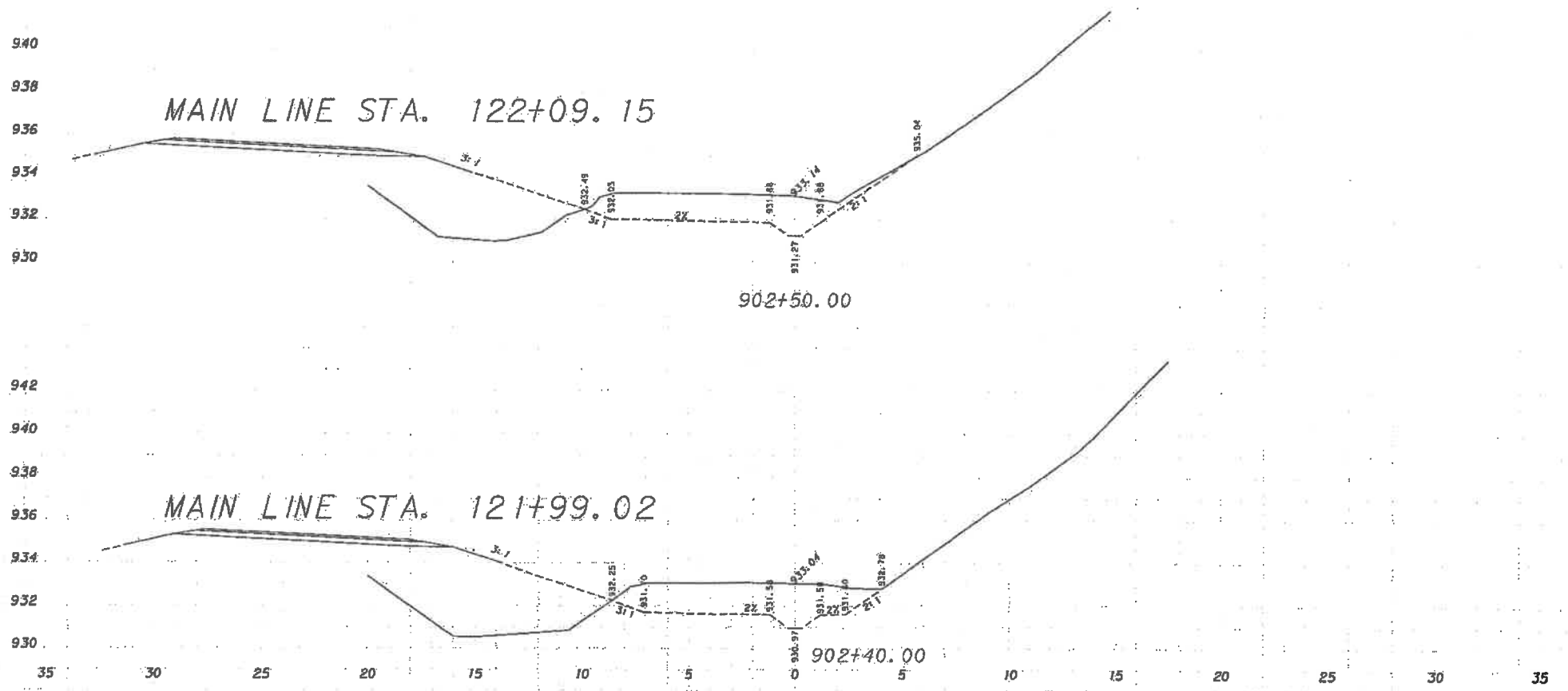
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MONTANA	WH 1-1135)49F	CC 14

EXCAVATION
cubic meters

EMBANKMENT
cubic meters



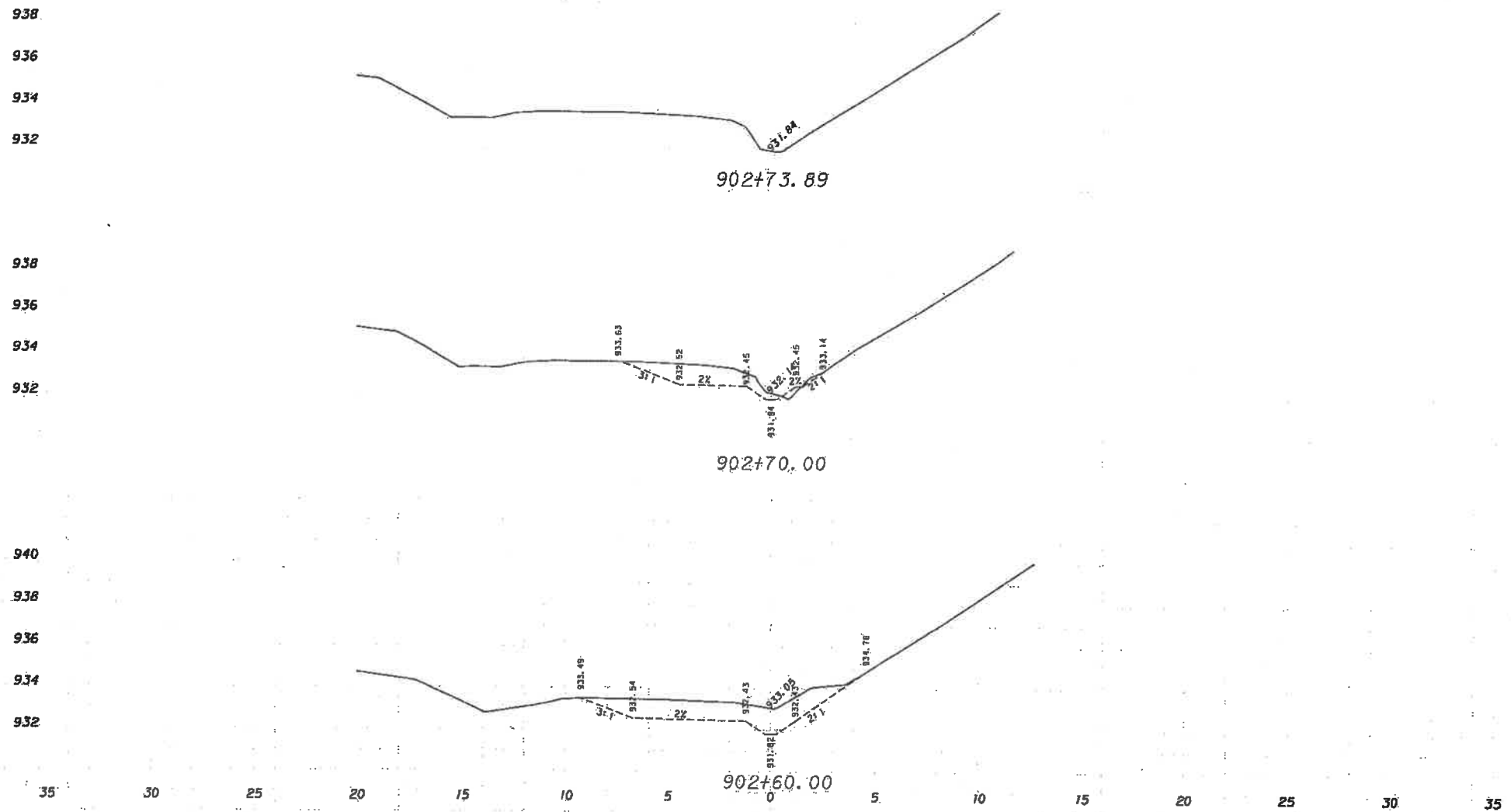
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MONTANA	NW 1-1735-149F	CC 15

EXCAVATION
cubic meters

EMBANKMENT
cubic meters

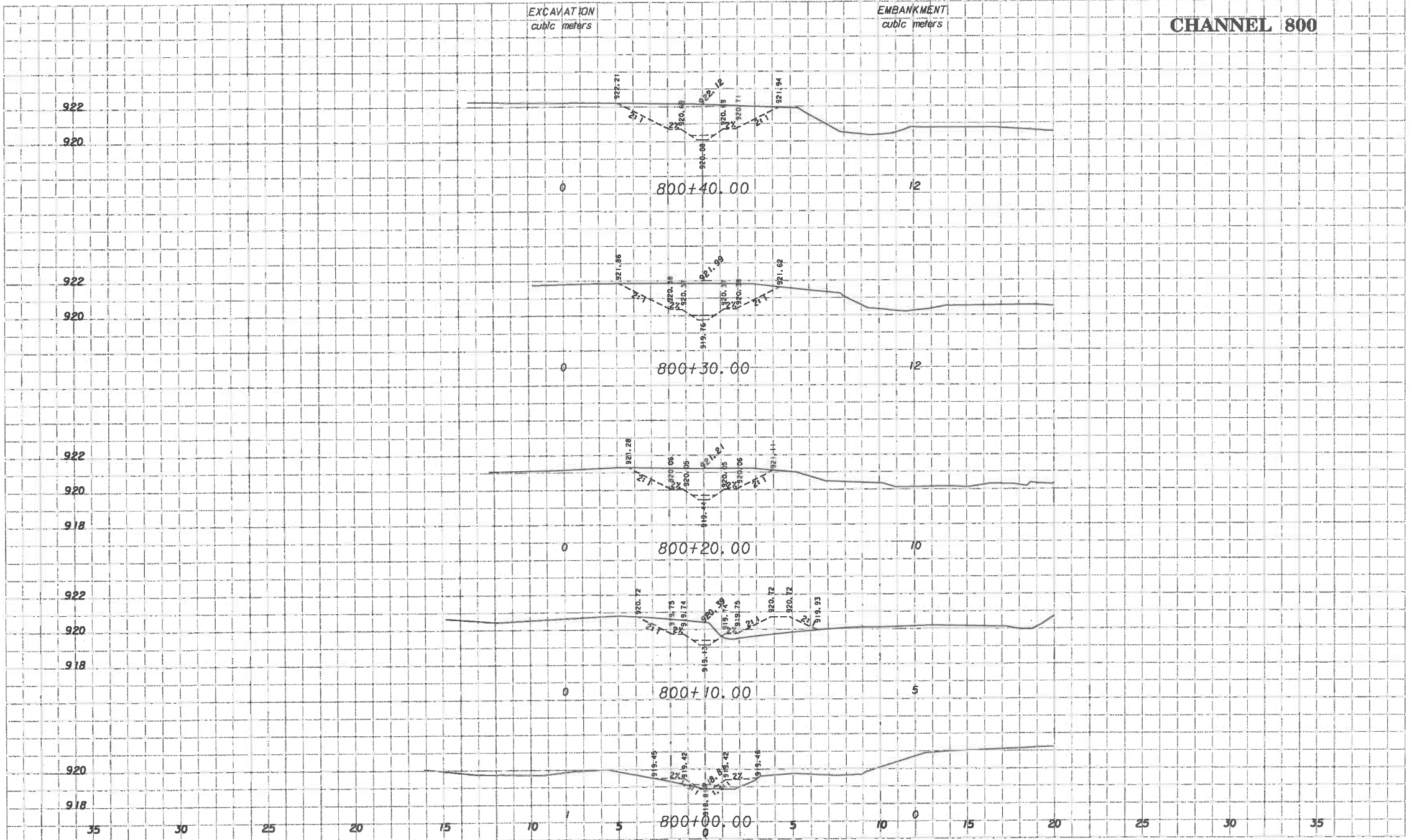


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CHANNEL 800



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CHANNEL 800

