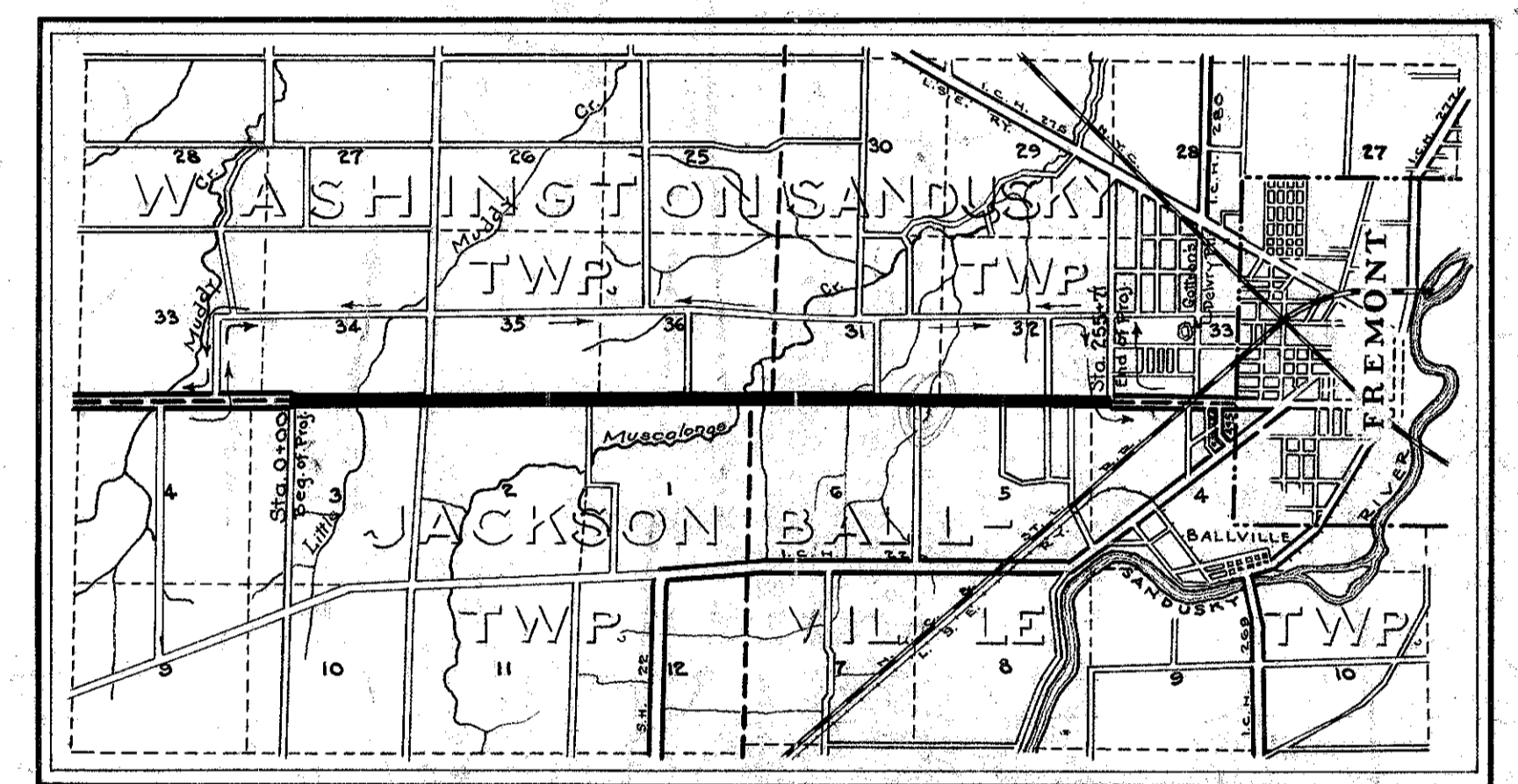


STATE OF OHIO
DEPTMT. OF HIGHWAYS
FREMONT - BOWLING GREEN ROAD
S.H. (I.C.H.) 278 SECS. BED PET. No 6456
SANDUSKY COUNTY

WASHINGTON, JACKSON, SANDUSKY, BALLVILLE TWPS., JULY, 1928

CONVENTIONAL SIGNS

Township Line	----
Section Line	-----
Property Line	-----
Center Line	—○—○—
City Line	-----
Fence Line	—x—x—
Telephone and Telegraph	T T T T
Steam Railroad	=====
Electric Railroad	=====
Drain Pipe - New	-----
Drain Pipe - Old	-----



LOCATION PLAN
SCALE OF MILES

PORTION TO BE IMPROVED
DETOURS SHOWN THUS
IMPROVED ROADS

We, the Commissioners of Sandusky County, hereby approve these plans and certify that the right-of-way, 60 feet wide, is available for the construction, maintenance and repair of the above highway.

Geo. A. Nidle
C. A. Deemer
Guy H. Hill
County Commissioners

Date: June 21, 1928

SCALES

Plan	1" = 100'
Profile (Vertical)	1" = 10'
Profile (Horizontal)	1" = 100'
Cross Sections	1" = 5'

INDEX OF SHEETS

Title Page	p. 1
Typical Cross Sections	2
Plans and Profile	3-11
Cross Sections	12-18
Structural Plans	19-25
Summary Sheet	26
Supplemental Prints	
of Structural Standards	
Drawing Number	B-36-2430
"	AS-2430
"	SB-2430
"	RR-A
"	300
"	301
"	98 or 100-Const.
"	305

The Standard Specifications of the State of Ohio, Department of Highways, in force on date of contract will govern this improvement.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as shown on the plan and estimates.

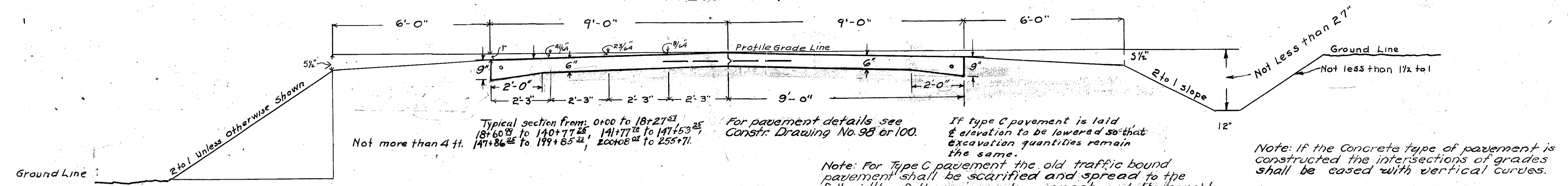
- Approved: *John R. Kuna*
Date: 6-21-28 Resident District Deputy Director.
- Approved: *M. J. Mahan*
Date: 6-15-28 Res. Division Deputy Director
- Approved: *H. H. Jones*
Date: 6-4-28 Act. Chief Eng., Bureau of Construction
- Approved: _____
Date: _____ Chief Eng., Bureau of Maintenance
- Approved: _____
Date: _____ Chief Eng., Bureau of Bridges
- Approved: *Carl O. Baighiter*
Date: 10/5/28 Chief Engineer
- Approved: *Harry J. Hill*
Date: 10/5/28 Director of Highways.

CONSTRUCTION
BUREAU
JUL 13 1928
GROUND PHOTOLAB

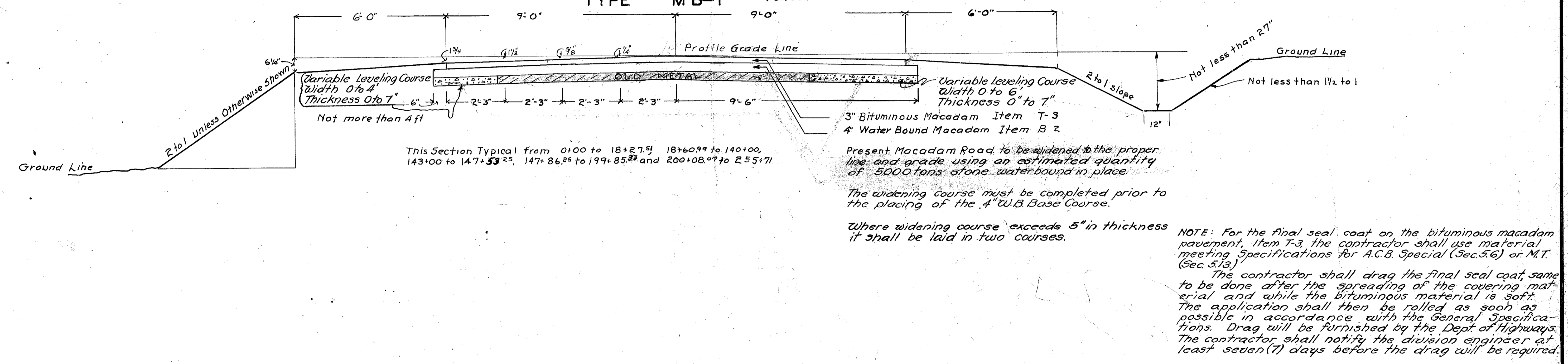
4.84 mi.
927 begin

TYPICAL SECTIONS

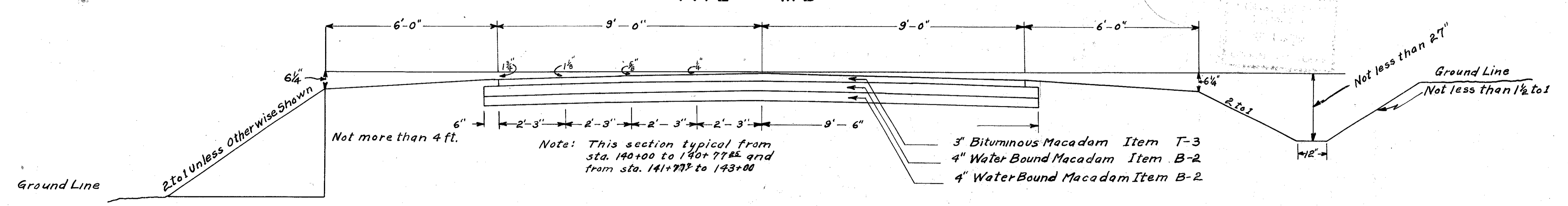
TYPE C 9"-6"-9" Concrete ITEM T-7



TYPE MB-1



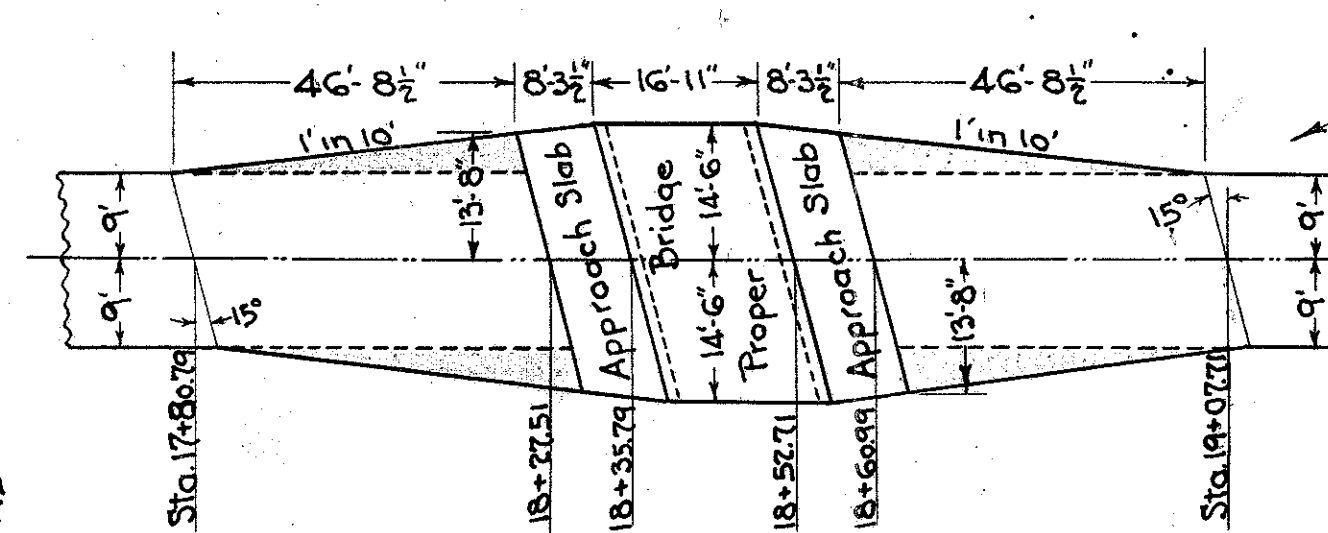
TYPE MB



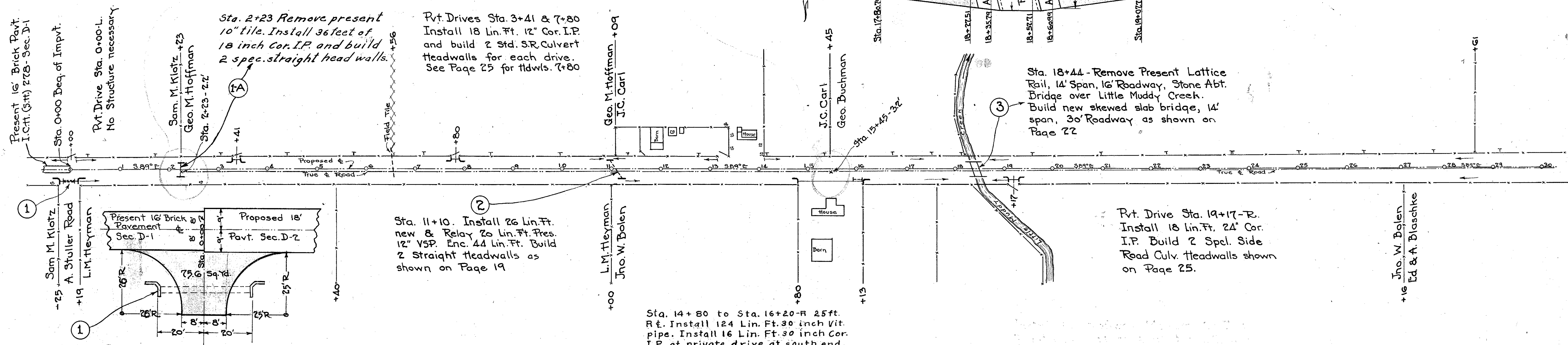
Sta. 0+00 - East Edge of last course of brick at end of Pavt. Sec. D-1.
Δ = 0°-5' L.

Sta. 2+23 Found Stone on F.L. North 2.2' S. of Proposed & Anch. Post 30' N.

Sta. 15+45 - Found Stone on F.L. North 3.20' S. of Prop. & T.P. N.W. - 30.6' Anch. P.H. - 28.6' T.P. N.E. - 31.0'



Detail of Extra Pavement at Muddy Creek Bridge 48.5 Sq.Yds. Extra Pavement to Approach Slab



Side Road Culv. Sta. 0+00 Right. Install 40 Lin. Ft. 30" Cor. I.P. Build 2 Spd. S.R.C. Headwalls as shown on Page 19. Remove stone slab and top courses of wings on Present Structure

Build approach for side road Sta. 0+00 as detailed above 75.6 Sq.Yds.

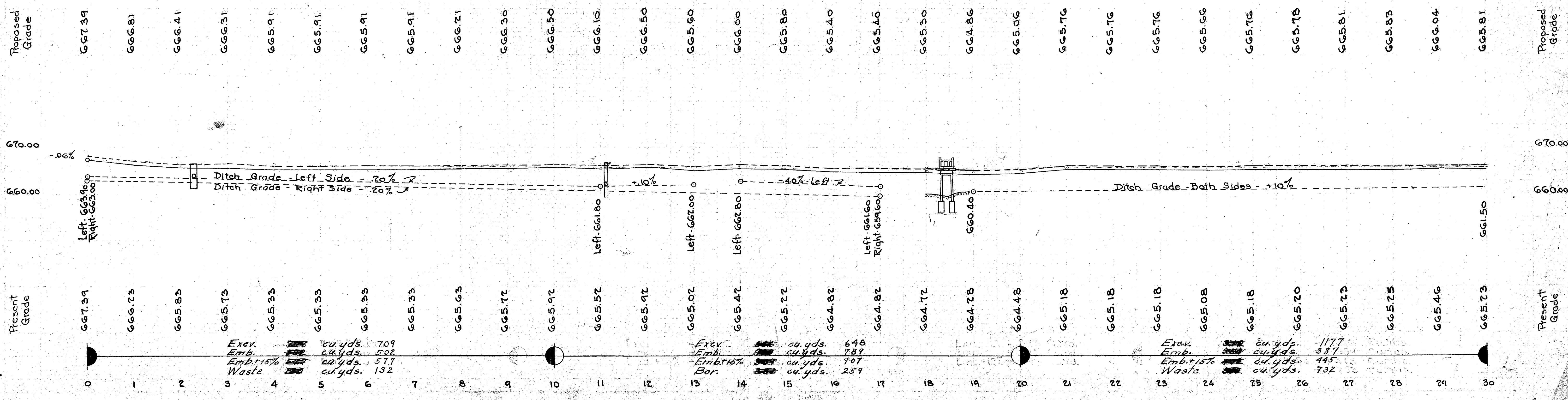
Sta. 11+10. Install 26 Lin. Ft. new & Relay 20 Lin. Ft. Pres. 12" VSP. Enc. 44 Lin. Ft. Build 2 Straight Headwalls as shown on Page 19

Sta. 14+80 to Sta. 16+20-R 25ft. R.E. Install 124 Lin. Ft. 30 inch Vit. pipe. Install 16 Lin. Ft. 30 inch Cor. I.P. at private drive at south end. Remove present structure. Build special H'd Walls Sta. 14+80 and Sta. 16+20 as shown on page 25.

Pvt. Drive Sta. 19+17-R. Install 18 Lin. Ft. 24" Cor. I.P. Build 2 Spd. Side Road Culv. Headwalls shown on Page 25.

B.M. - Sta. 0+15
N.W. c. Wing S.R. Culv.
El. 668.77

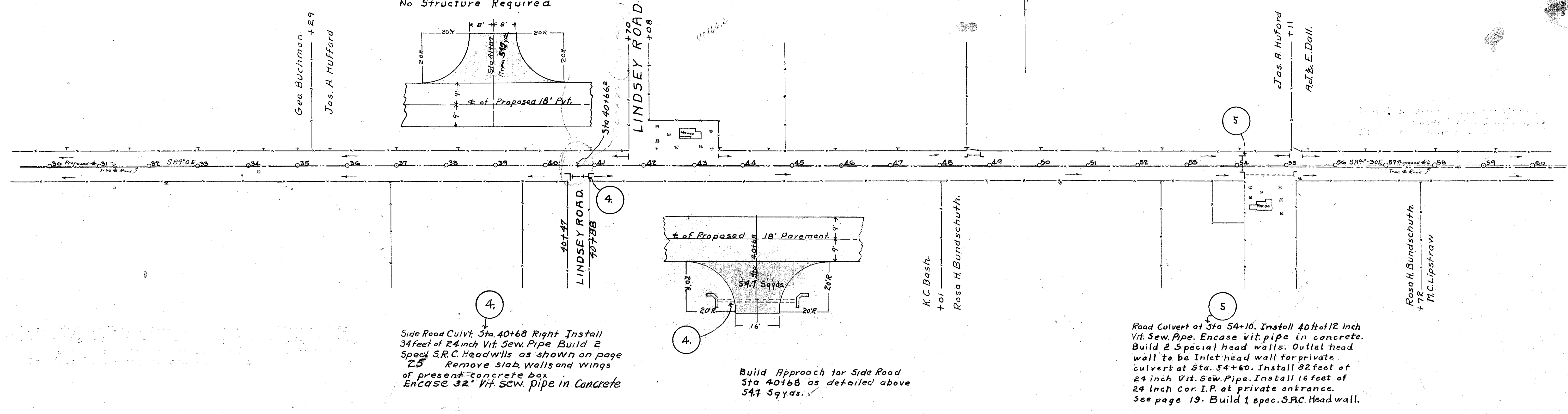
B.M. - Sta. 18+15
Sp. T.P. L.
El. 663.22



Sta. 40+66.2 Found stone \pm Rd. S.
This stone is on Proposed Rd. \pm .
 $\Delta = 0^{\circ} 31' L$
Steel Anch. P- S.E. - 35.3'
Steel Anch. P- S.W. - 37.9'
T.P. - N.E. - 29.9'

Private Entrance at Sta. 48+65
Install 18 ft of 12 inch Cor. I.P.
Pipe Build 2 spec. S.R.C. Head walls.

Build approach for Side Road
as detailed below, Area 54.7 sqyds.
No Structure Required.



Side Road Culvert Sta. 40+68 Right Install
34 feet of 24 inch Vit. Sew. Pipe Build 2
Spec. S.R.C. Headwalls as shown on page
25 Remove slab, walls and wings
of present concrete box
Encase 32' Vit. scw. pipe in concrete

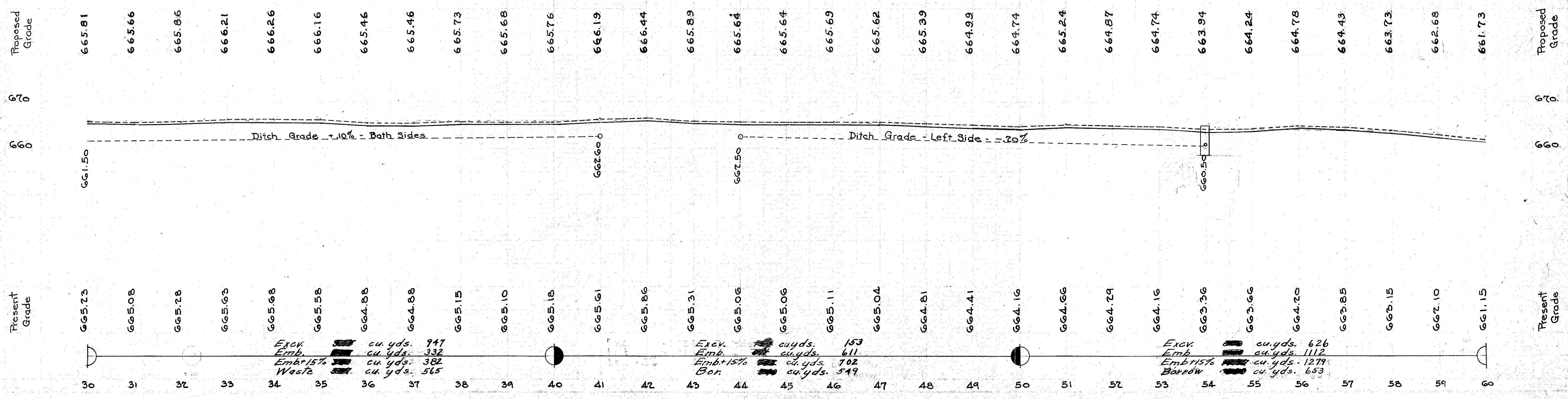
Build Approach for Side Road
Sta. 40+68 as detailed above
54.7 Sqyds.

Road Culvert at Sta. 54+10. Install 40 ft of 12 inch
Vit. Sew. Pipe. Encase vit. pipe in concrete.
Build 2 Special head walls. Outlet head
wall to be Inlet head wall for private
culvert at Sta. 54+60. Install 82 feet of
24 inch Vit. Sew. Pipe. Install 16 feet of
24 inch Cor. I.P. at private entrance.
See page 19. Build 1 spec. S.R.C. Head wall.

B.M. Sta. 33+02
Sp. T.P.-L.
El. 665.86

B.M. Sta. 40+88
Top Steel Anch. Post-R.
El. 668.98

B.M. Sta. 55+25
Sp. Cottonwood-R.
El. 664.00



Sta 64+85 Left Private Entrance.
Install 18ft of 12 Inch Cor. Pipe.
Build 2 Spec. S.R.C. Headwalls

Sta 80+40 Found Stone
6' South Proposed
Anch. Post. 30' S.

Sta 84+60 Install 18 feet of 15 inch
COR. Pipe Build 2 Standard
S.R.C. Headwalls for Private Drive

Sta 83+00 Install 36 feet of 18 inch
Vit. pipe. Encase pipe. Build 2
special head walls as shown
on page 19

Sta 79+80 Right Remove present structure.
and Headwalls Install 24 feet of 24 inch
COR. Pipe Build 2 Spec. S.R.C. Headwalls
for Private Drive.

Sta 77+35 Right Remove present
12 inch culvert and Install 52 feet
of 24 inch Vit. pipe and 16
feet of 24 inch Cor. pipe under
private drive. Build 2 special
head walls.

Sta 63+65 Right: Remove present 12
inch culvert and Install 58 feet of 24
inch Vit. Sew Pipe. Install 16 feet
of 24 inch Cor. I.P. under private
drive. Build 2 Spec. S.R.C. Headwalls.

A.J. Em. Doll
Adam Humbrey +52

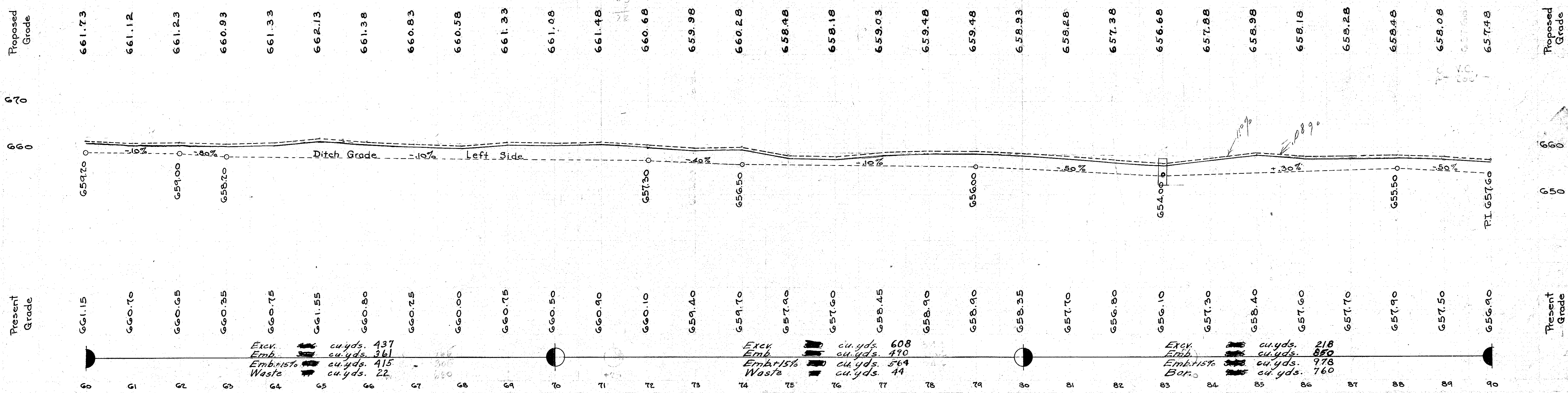
Adam Humbrey
Wm Geo. W. Haynes +12

M.C. Lipstraw
F. Inez Gephart +17

F. Inez Gephart
I.A. Hiett +81

B.M. Sta. 63+35
S.W/c Stone tidwl.-R.
El. 659.95

B.M. Sta. 77+60
S.E/c Conc. tidwl.-R.
El. 658.48



Sta. 93+64 Found Stone
7.3 South Proposed E
Stake 30 feet R & L stone
Δ - 0° 00'

Sta 97+00 Set Iron Pin 10ft R & L ±
On E. Line of Road South produced
Δ - 0° 31'
I.R. N.W. - 16.05
F.P. N.E. - 1950
F.P. N.W. - 3330
N.E.C. - N.E. Wing, 5 R. Culvert S.W. 29.5

Sta 95+50 Install 18 feet of
12 inch C.O.P. Pipe Build 2
Std S.R.C. Headwalls for
Private Entrance

Sta 96+70 Remove present 4x3 Concrete
Box Install 34 feet of 30 inch Cor. Iron
Pipe, Build 2 Special S.R.C. Headwalls
as shown on page 19

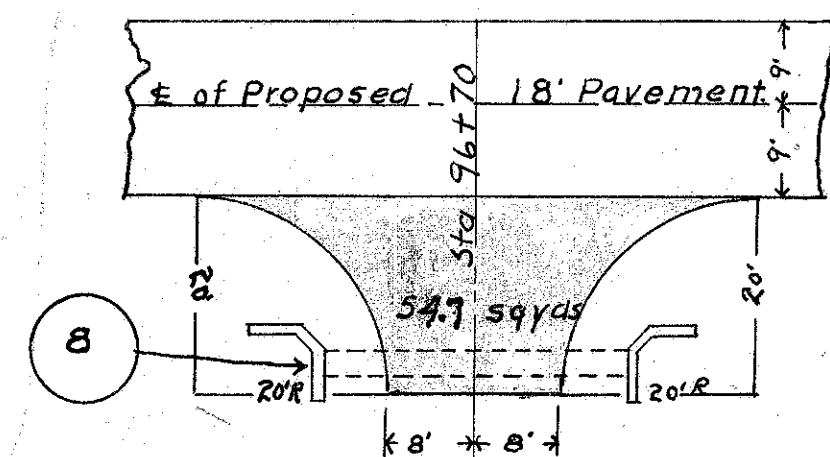
Private Drive
Sta 100+70 No Structure required

Private Drives.
Sta 108+10 Install 36 feet of
12 inch C.O.P. Pipe Build 2
Std S.R.C. Headwalls

Sta 114+63 Install 18 feet of
12 inch C.O.P. Pipe Build 2
Std S.R.C. Headwalls for
Private Drive.

Sta 94+00 Install 36 feet of 12 inch
Vit. Sew. Pipe. Build 2 Std. Headwalls
As shown on page 19. Encase pipe.

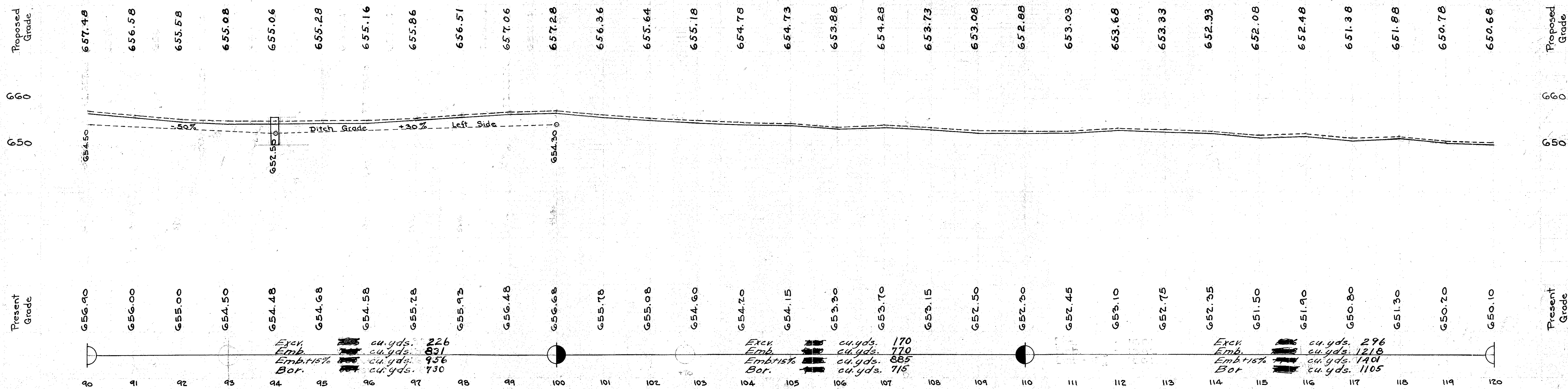
Sta 104+80 to Sta 106+16 R
Remove present culvert
and Install 120 feet of
30 inch Vit pipe and
16 feet of 30 inch Cor. pipe
under private drive.
Build 2 special head walls.



Build Approach for Side Road
at Sta 96+70 as detailed above

B.M. Sta. 96+87
N.E. 1/4 NE. Wg. S.R. Culv. R.
El. 655.55

B.M. - Sta. 111+93
Sp. T.P.L.
El. 652.40



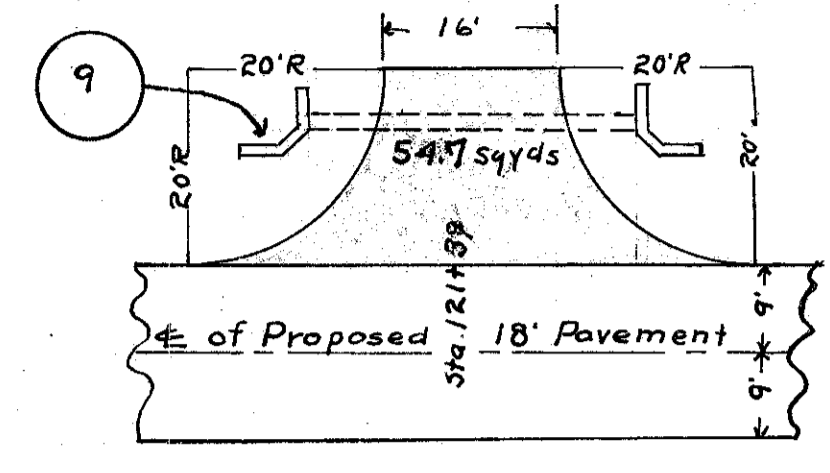
STATION	ELEVATION		
	LEFT	℄	RIGHT
141+70.25	642.77	642.85	642.77
142+20.25	643.20	643.12	643.04
142+70.25	643.84	643.60	643.52
143+20.25	644.73	644.32	644.24
143+34.42	644.98	644.57	644.49
143+84.42	645.85	645.61	645.53
144+34.42	646.84	646.76	646.68
144+84.42	647.48	647.56	647.48

Curve not widened

Bridge over Muscalonge Cr.
Sta. 141+27.5 - Remove Present 47' Span, 16' Roadway, Pony Truss and construct new Twin Std. 36' Concrete Beam Spans, 15° Left forward Skew, 30' Roadway, as shown on Pgs. 23 and 24

Sta 143+27.35 Set I.P. 10 feet L.Y.P.I
Δ = 2°-17'R Set Stake 16' N.
Tan. 57.10 D-2°-0 I.P. N.W. 75.23
P.I. 143+27.35 Mail Box S.W. 45.20
P.C. 142+70.25
P.T. 143+84.42
R = 2864.9'

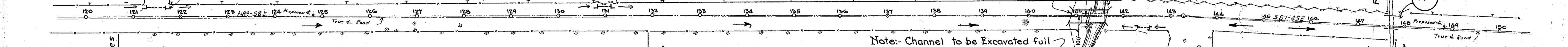
Side Road Culv. Sta. 121+39
Install 36 feet of 18 inch Cor. Iron Pipe Build 2 Spec. S.R.C. Head walls as Shown on page 20



Private Entrance Culv. Sta 131+00 Install 18 Feet of 12 inch Cor. I.P. Pipe Build 2 Standard Headwalls

Sta 142+40 Private Entrance Right Install 18 Feet of 12 inch Cor. Iron Pipe Build 2 Standard S.R.C. Headwalls

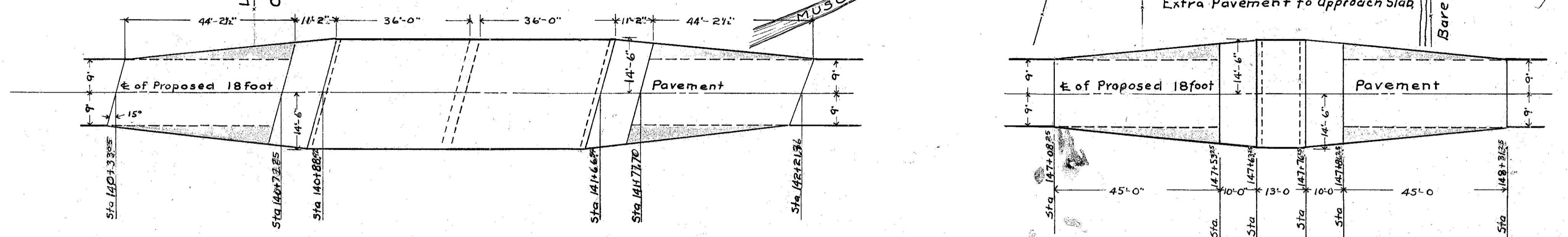
Sta 147+70 Remove Guard Rail From Present Structure and Extend as shown on page 25



Note: Channel to be Excavated full width between Abuts. at the bridge, gradually narrowing to its present width at points 100 Ft. from the ℄ of Rd. up and downstream. Side Slopes 1/2 to 1. Bottom of Exc. to be El. 634.00

Detail of Extra Pavement at Muscalonge Creek Bridge 43.2 Sqyds Extra Pavement to Approach Slab

Detail of Extra Pavement at Bridge at Sta 147+70 45.2 Sqyds Extra Pavement to Approach Slab



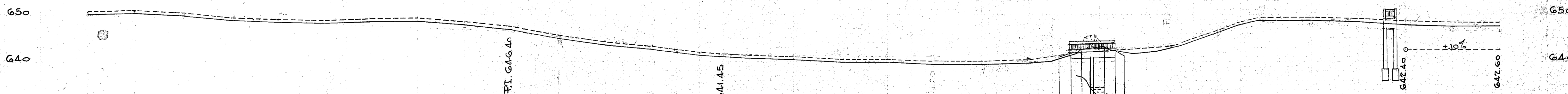
B.M. - Sta. 121+30
Top Steel Anch. P.-L.
El. 654.14

B.M. Sta. 127+95
Sp. Elm
El. 648.51

B.M. - Sta. 141+10
S.E./c SW Wing Bridge
El. 641.57

B.M. - Sta. 147+80
Top & N.E. Post of Rail-L
El. 650.30

Proposed Grade	650.68	650.88	650.42	649.47	648.97	648.72	649.12	649.07	648.33	647.33	645.44	644.13	643.18	641.83	641.25	640.90	640.50	640.50	640.20	640.20	640.35	643.65+70	642.28+20	643.49+70	643.98+20	649.35	649.38	648.98	648.40	648.10	648.20	Proposed Grade
----------------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	-----------	-----------	-----------	-----------	--------	--------	--------	--------	--------	--------	----------------



Present Grade	650.10	650.30	649.84	648.89	648.39	648.14	648.54	648.49	647.75	646.75	644.90	643.55	642.60	641.25	640.67	640.32	639.92	639.92	639.62	639.62	639.62	639.77	641.77	642.63+70	641.83+70	642.13+70	643.40+20	643.90+34	645.80+84	647.60+34	648.80+84	648.82+00	648.80	648.40	647.82	647.52	647.62	Present Grade
---------------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------	--------	--------	--------	--------	--------	---------------

Exc. ~~1397~~ cu.yds. 698
Emb. ~~1397~~ cu.yds. 1397
Emb + 15% ~~1607~~ cu.yds. 1607
Barrow ~~909~~ cu.yds. 909

Exc. ~~626~~ cu.yds. 172
Emb. ~~626~~ cu.yds. 626
Emb + 15% ~~720~~ cu.yds. 720
Barrow ~~548~~ cu.yds. 548

Exc. ~~717~~ cu.yds. 1265
Emb. ~~825~~ cu.yds. 717
Emb + 15% ~~825~~ cu.yds. 825
Waste ~~440~~ cu.yds. 440

Old Field Book
 SANDUSKY COUNTY
 No 46

Sta 158+46 Found Stone on F.L.S.
 1.9 South of Proposed
 9" Willow 26.0' South
 Conc. Onch Post 44' N.E.
 Tel. Pole 38' N.W.

Sta 164+30 Left Private Entrance
 Install 18 feet of 12 inch Cor. I.
 Pipe Build 2 Standard Headwalls
 for Private Drive.

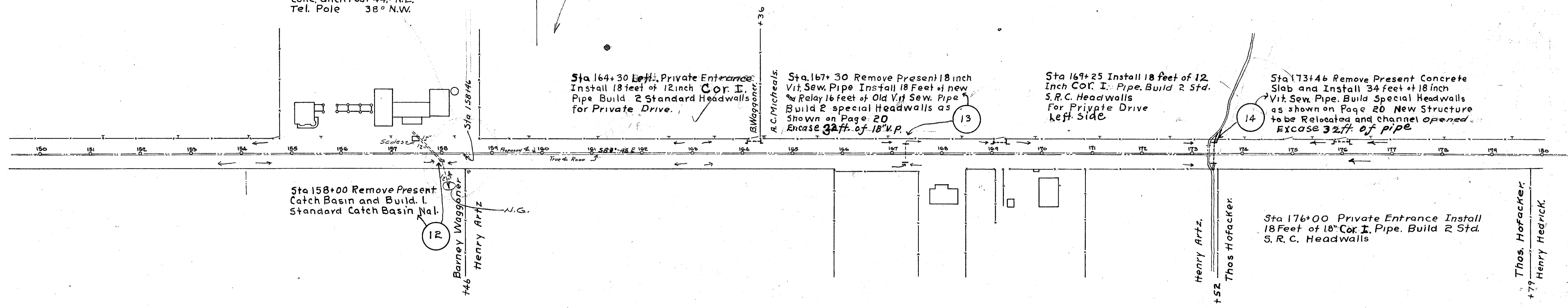
Sta 167+30 Remove Present 18 inch
 Vit. Sew. Pipe Install 18 Feet of new
 12 inch Cor. I. Pipe. Build 2 Std.
 S.R.C. Headwalls as shown on Page 20
 Encase 32 ft. of 18" V.P.

Sta 169+25 Install 18 feet of 12
 Inch Cor. I. Pipe. Build 2 Std.
 S.R.C. Headwalls
 For Private Drive
 left Side

Sta 173+46 Remove Present Concrete
 Slab and Install 34 feet of 18 inch
 Vit. Sew. Pipe. Build Special Headwalls
 as shown on Page 20 New Structure
 to be Relocated and channel opened
 Excuse 32 ft. of pipe

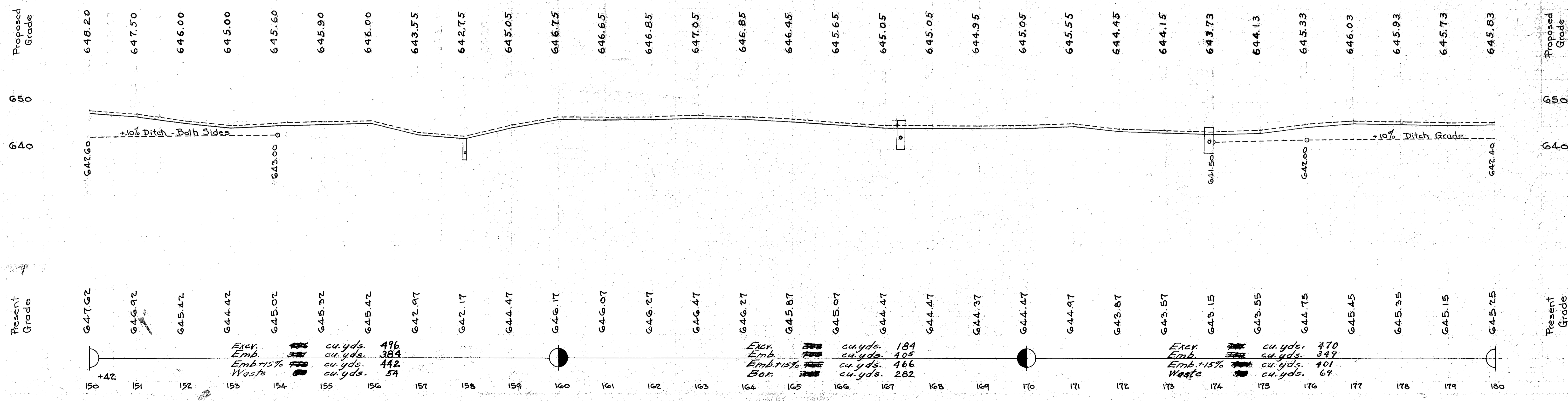
Sta 158+00 Remove Present
 Catch Basin and Build 1.
 Standard Catch Basin Nat.

Sta 176+00 Private Entrance Install
 18 Feet of 18" Cor. I. Pipe. Build 2 Std.
 S. R. C. Headwalls



B.M. - Sta. 161+20
 Sp. T.P. L
 El. 646.48

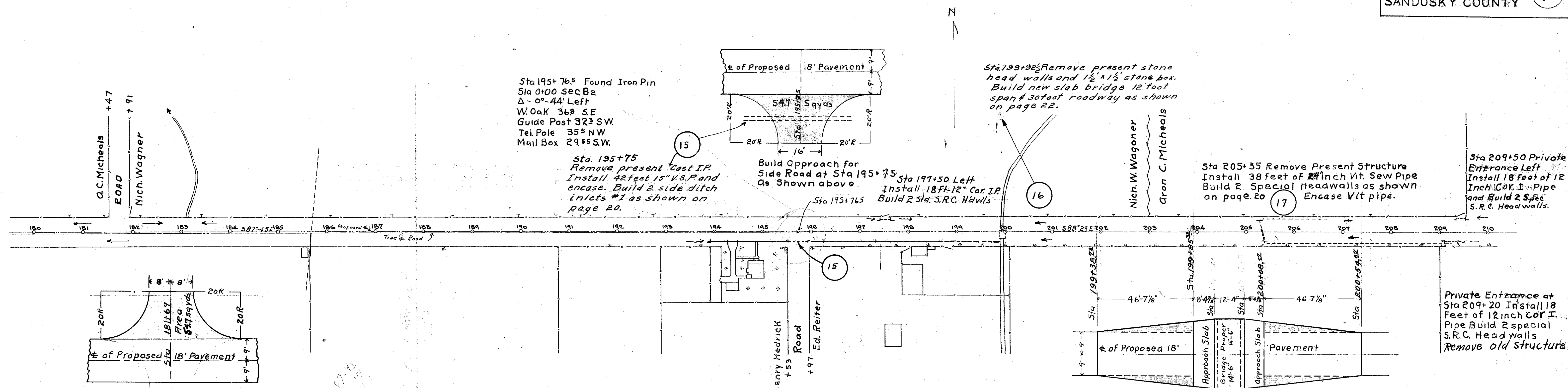
B.M. - Sta. 173+33
 E. End S. Rail Culv. R.
 El. 646.13



Excav. cu. yds. 496
 Emb. cu. yds. 384
 Waste cu. yds. 54

Excav. cu. yds. 184
 Emb. cu. yds. 405
 Waste cu. yds. 466
 Bot. cu. yds. 282

Excav. cu. yds. 470
 Emb. cu. yds. 349
 Waste cu. yds. 401
 Bot. cu. yds. 69

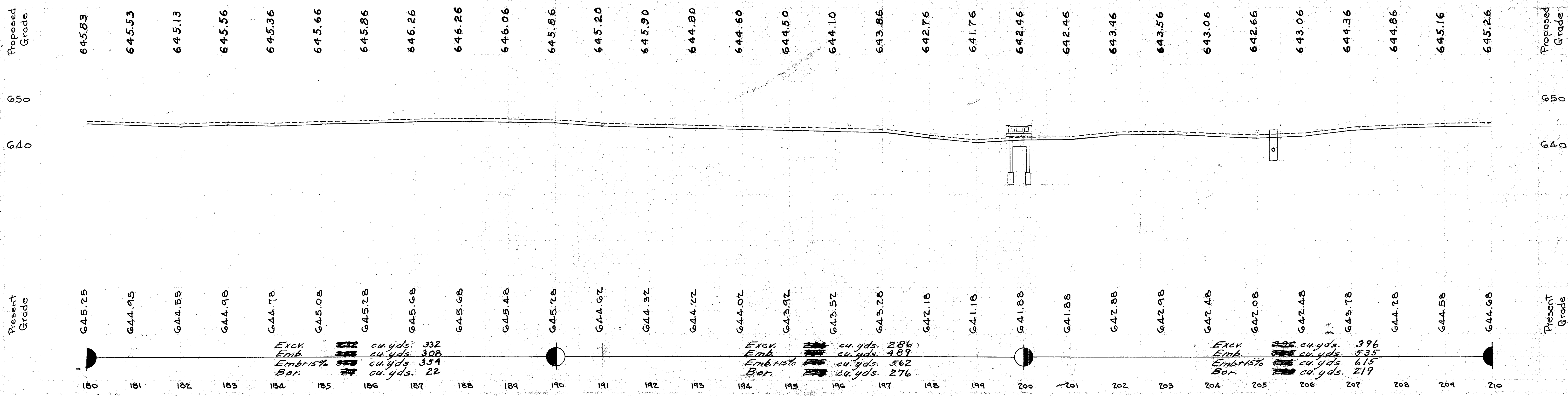


Build Approach as detailed above
For Side Road at Sta 181+69
Area 54.7 sqyds. No Structure required ✓

Detail of Extra Pavement at Bridge
at Sta. 199+92.2 48.2 sqyds to Approach Slab. ✓

B.M. Sta. 188+30
Sp. Elm R.
El. 645.97

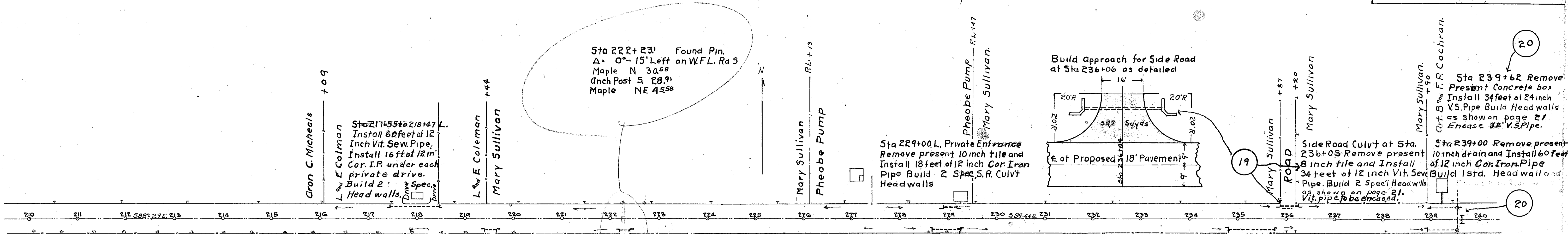
B.M. Sta. 196+25
Sp. Elm R.
El. 643.66



Exc. cu. yds. 332
Emb. cu. yds. 308
Embr. 15% cu. yds. 354
Bor. cu. yds. 22

Exc. cu. yds. 286
Emb. cu. yds. 489
Embr. 15% cu. yds. 562
Bor. cu. yds. 276

Exc. cu. yds. 396
Emb. cu. yds. 535
Embr. 15% cu. yds. 615
Bor. cu. yds. 219



Sta 219+55 Private Entrance Install 18 Feet of 12 inch Cor. I. Pipe Build 2 Std. S. R. Culvert Headwalls. Left

Sta 222+32 Right Install 18 Feet of 12 Cor. I. Pipe Build 2 Std S.R.C. Headwalls For Private Drive

Sta 228+80 to 229+40 Private Entrance Remove present 10 inch drain tile and Install 60 feet of 12 inch Cor. Iron Pipe Build 2 Special S.R.C. Headwalls

Private Entrance Sta. 235+03. Install 66 feet of 12 inch Cor. Iron Pipe. Build One Std. Side Road Culv. Headwall.

Sta 235+60 Install 24 Feet of 12 inch Vit. Sew. Pipe Build one Special S.R.C. Headwalls as shown on page 21. Vit. pipe to be encased.

Sta 239+00 Right Remove Present 3 inch tile Install 60 feet of 12 inch Cor. Iron Pipe. Build 1 Special Headwall

B.M. - Sta. 212+50
Sp. Tree R
El. 645.18

B.M. - Sta. 221+50
Sp. Tree R
El. 646.25

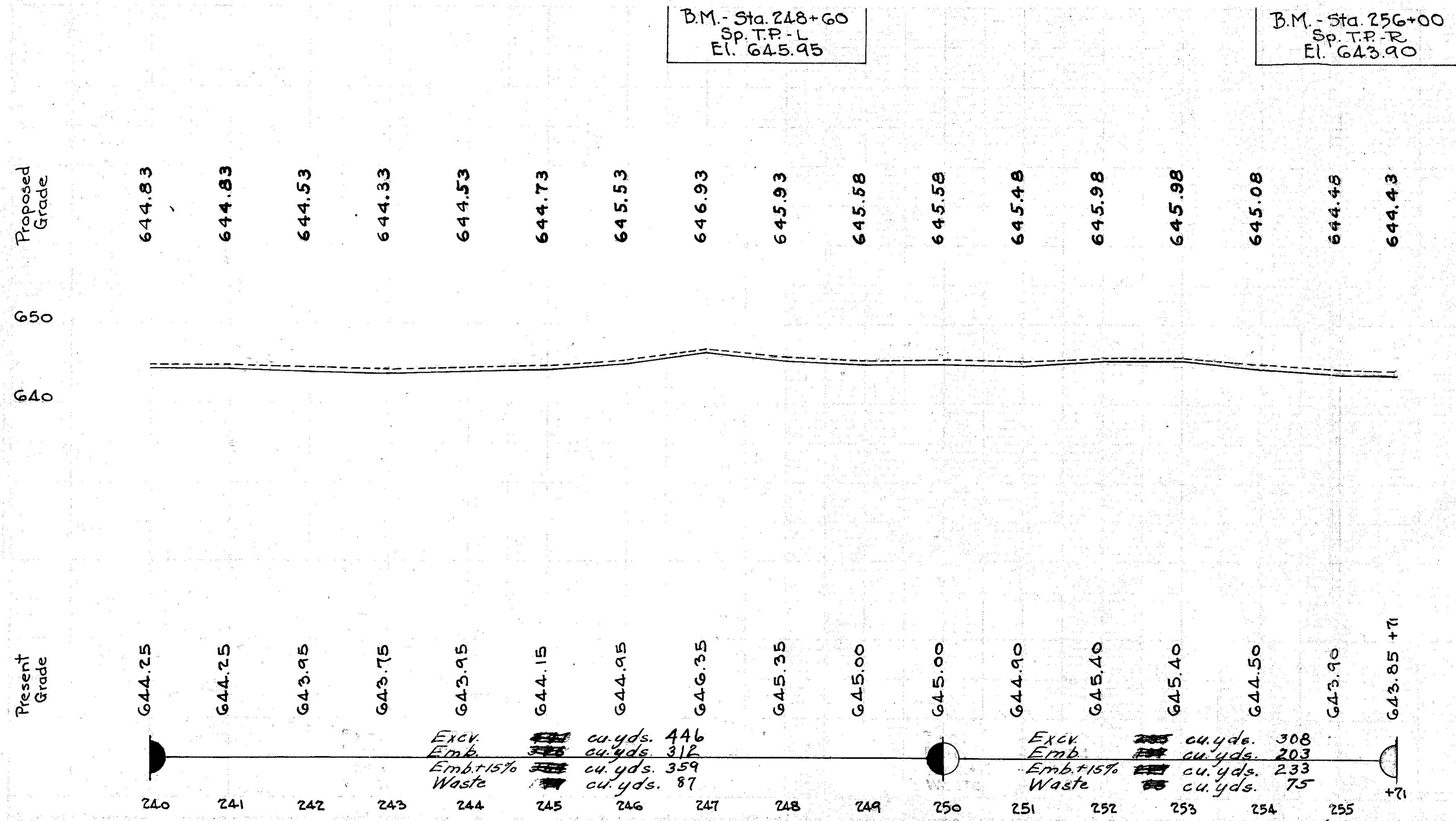
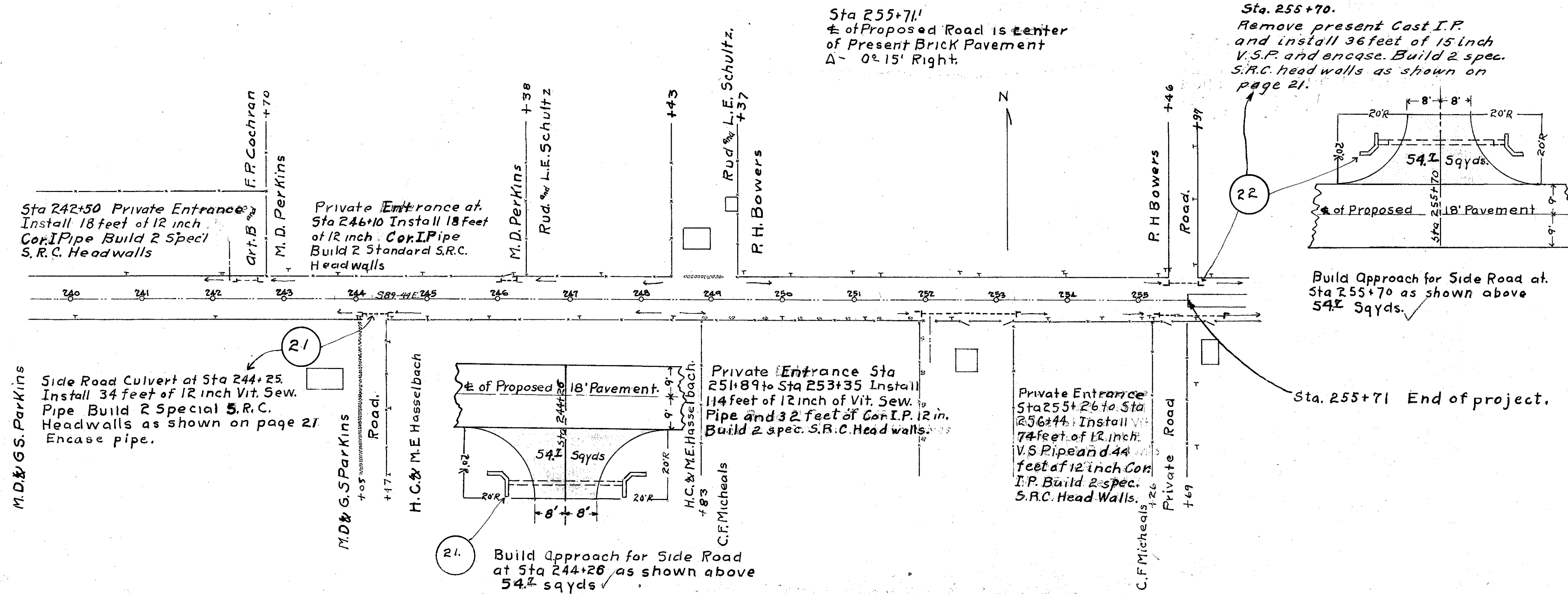
B.M. - Sta. 235+25
N.E. c Bot. Conc. Step Hts. R
El. 645.67

Station	Proposed Grade	Present Grade	Excav. cu. yds.	Emb. cu. yds.	Emb. +15% cu. yds.	Bor. cu. yds.	Waste cu. yds.
210	645.26	644.68					
211	645.36	644.78					
212	645.56	644.98					
213	645.50	644.92					
214	645.50	644.92					
215	645.60	645.02					
216	645.50	644.92					
217	645.40	644.82					
218	645.70	644.12					
219	645.80	645.22					
220	645.90	645.32					
221	646.10	645.52					
222	646.38	645.80					
223	646.58	646.00					
224	646.58	646.00					
225	646.78	646.20					
226	646.68	646.10					
227	646.68	646.10					
228	646.88	646.30					
229	646.78	646.20					
230	646.78	646.20					
231	646.38	645.80					
232	645.88	645.30					
233	645.58	645.00					
234	645.38	644.80					
235	645.68	645.10					
236	645.78	645.20					
237	645.58	645.00					
238	645.48	644.90					
239	645.48	644.90					
240	644.83	644.75					

Excav. cu. yds. 306
Emb. cu. yds. 414
Emb. +15% cu. yds. 476
Bor. cu. yds. 170

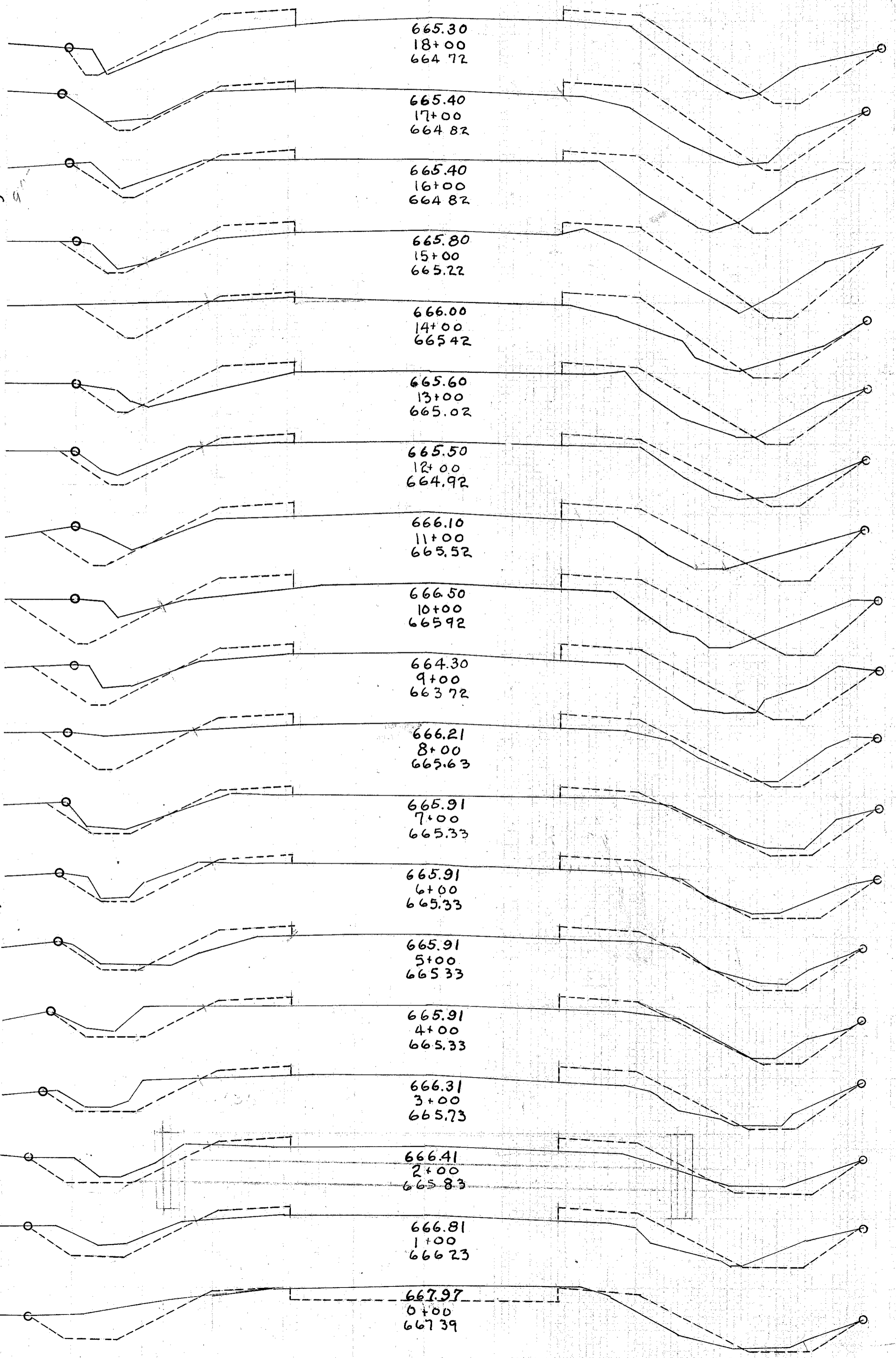
Excav. cu. yds. 426
Emb. cu. yds. 297
Emb. +15% cu. yds. 342
Waste cu. yds. 84

Excav. cu. yds. 447
Emb. cu. yds. 335
Emb. +15% cu. yds. 385
Waste cu. yds. 62



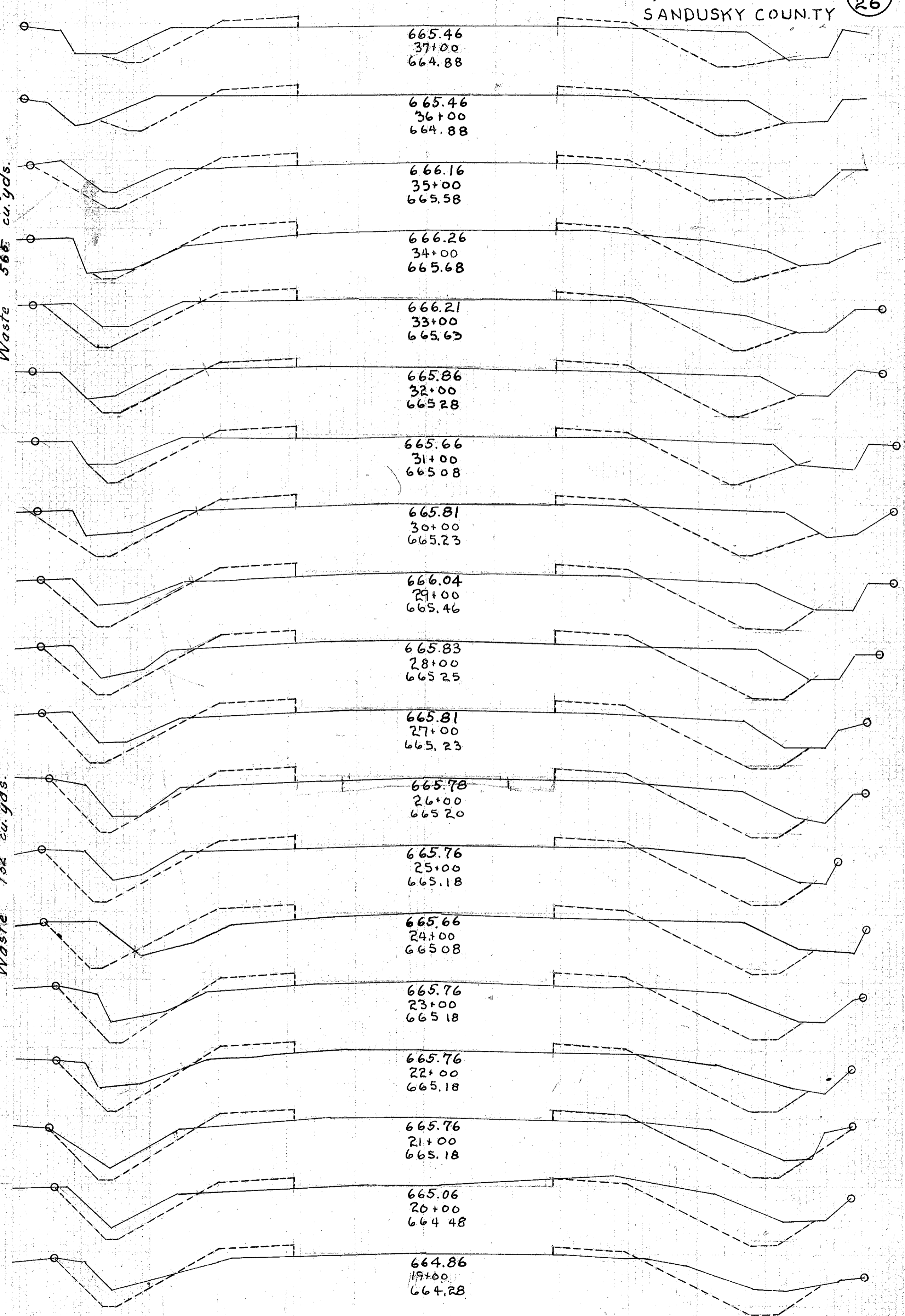
End Area		Cut Yds	
Cut	Fill	Cut	Fill
14	28		
		39	98
7	25		
		56	91
23	24		
		70	91
15	25		
		61	80
18	18		
		50	78
9	24		
		43	69
14	13		
		65	72
21	26		
		98	104
32	30		
		109	100
27	24		
		94	74
24	16		
		61	41
9	6		
		44	26
15	8		
		44	41
9	14		
		54	43
20	9		
		59	43
12	14		
		59	44
20	10		
		72	44
19	14		
		113	46
42	11		

Exc. Emb. 648 cu. yds.
Emb. 789 cu. yds.
Embris% 90%
Waste 25%
Bar. 25%
Exc. Emb. 708 cu. yds.
Emb. 502 cu. yds.
Embris% 57%
Waste 150 cu. yds.



End Area		Cu Yds	
Cut	Fill	Cut	Fill
24	8		
		89	30
24	8		
		89	32
24	9		
		78	44
18	15		
		82	43
26	8		
		78	30
27	8		
		104	32
29	9		
		124	35
38	10		
		133	35
34	9		
		128	35
35	10		
		120	37
30	10		
		122	39
36	11		
		133	37
36	9		
		132	48
35	17		
		115	54
27	12		
		102	43
28	11		
		94	35
23	8		
		78	24
30	5		
		98	32
23	12		
		68	74
14	28		

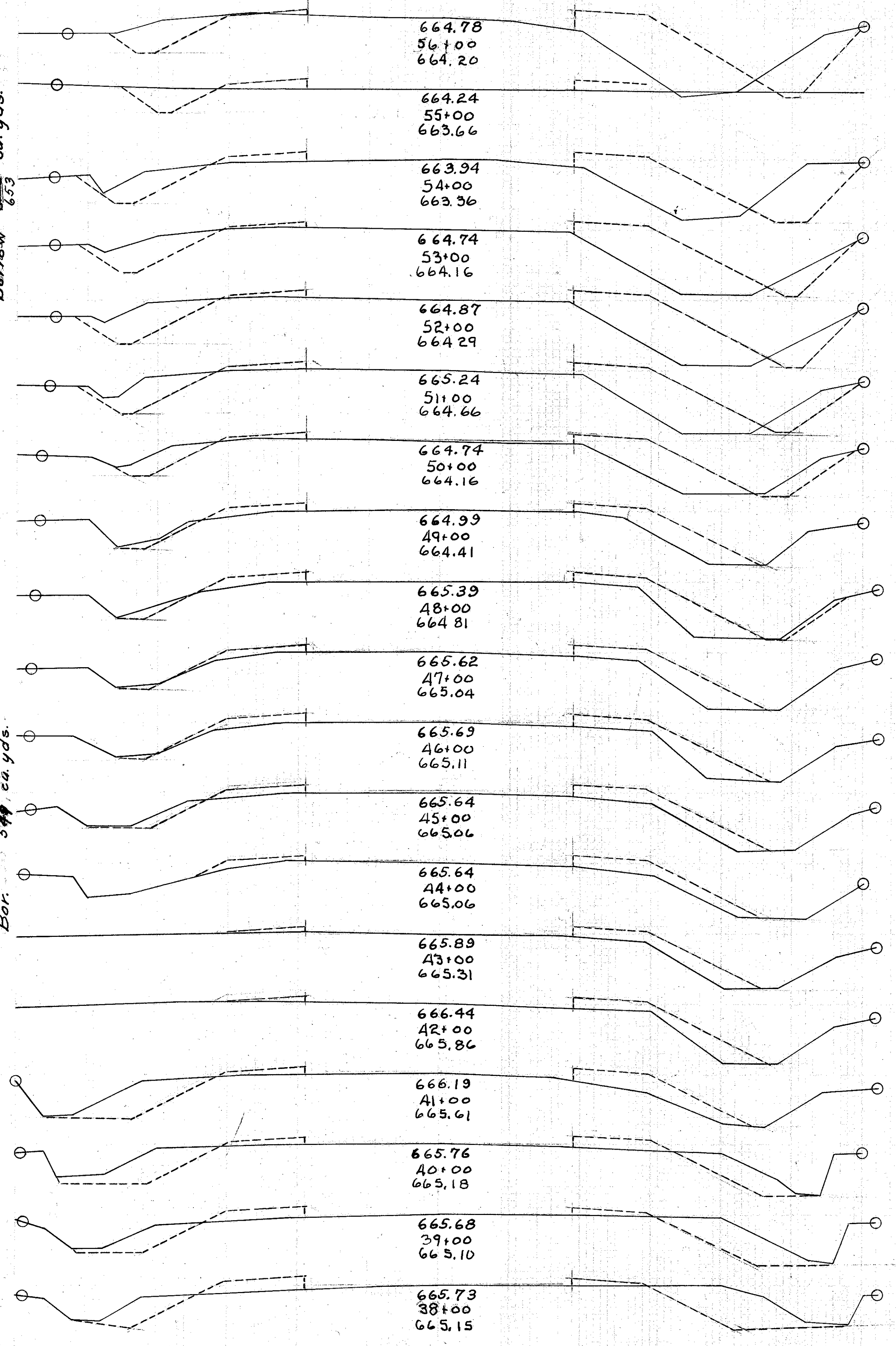
Exc. Emb. 947 cu. yds.
Emb. 332 cu. yds.
Embris% 38%
Waste 38%
Exc. Emb. 1177 cu. yds.
Emb. 387 cu. yds.
Embris% 45%
Waste 782 cu. yds.



End Area	Cu Yds	Sta
Cut	Fill	
25	38	
61	83	
8	7	
67	70	
28	31	
87	124	
19	36	
78	137	
23	38	
74	148	
18	42	
63	126	
16	26	
33	80	
2	17	
7	72	
2	22	
6	78	
11	20	
4	69	
1	17	
9	59	
4	15	
7	52	
0	13	
0	48	
0	13	
0	52	
0	15	
22	57	
12	16	
65	44	
23	8	
87	28	
24	7	
98	28	
29	8	
98	30	

Exc. 626 cu yds.
Emb. 1112 cu yds.
Emb. 1277 cu yds.
Borrow 653 cu yds.

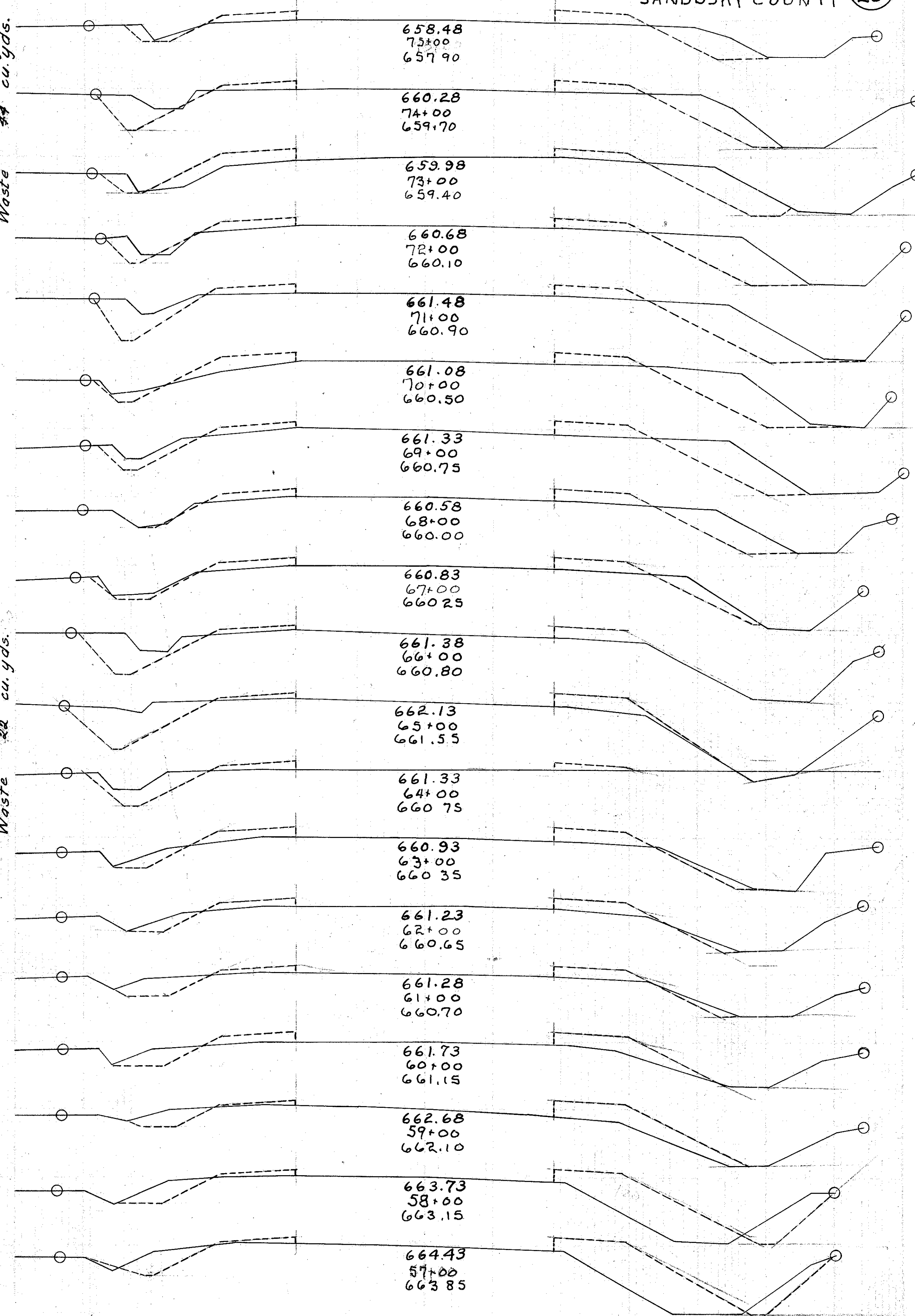
Exc. 153 cu yds.
Emb. 611 cu yds.
Emb. 702 cu yds.
Bor. 549 cu yds.



End Area	Cu Yds	Sta
Cut	Fill	
11	8	
61	30	
22	8	
76	44	
19	16	
78	43	
23	7	
111	32	
37	10	
113	39	
29	11	
85	41	
22	11	
67	37	
14	9	
37	32	
6	8	
37	30	
14	8	
59	32	
18	9	
48	30	
8	7	
30	33	
8	11	
22	46	
4	14	
24	41	
9	8	
28	39	
6	13	
20	56	
5	17	
46	89	
20	31	
59	133	
12	41	
69	146	
25	38	

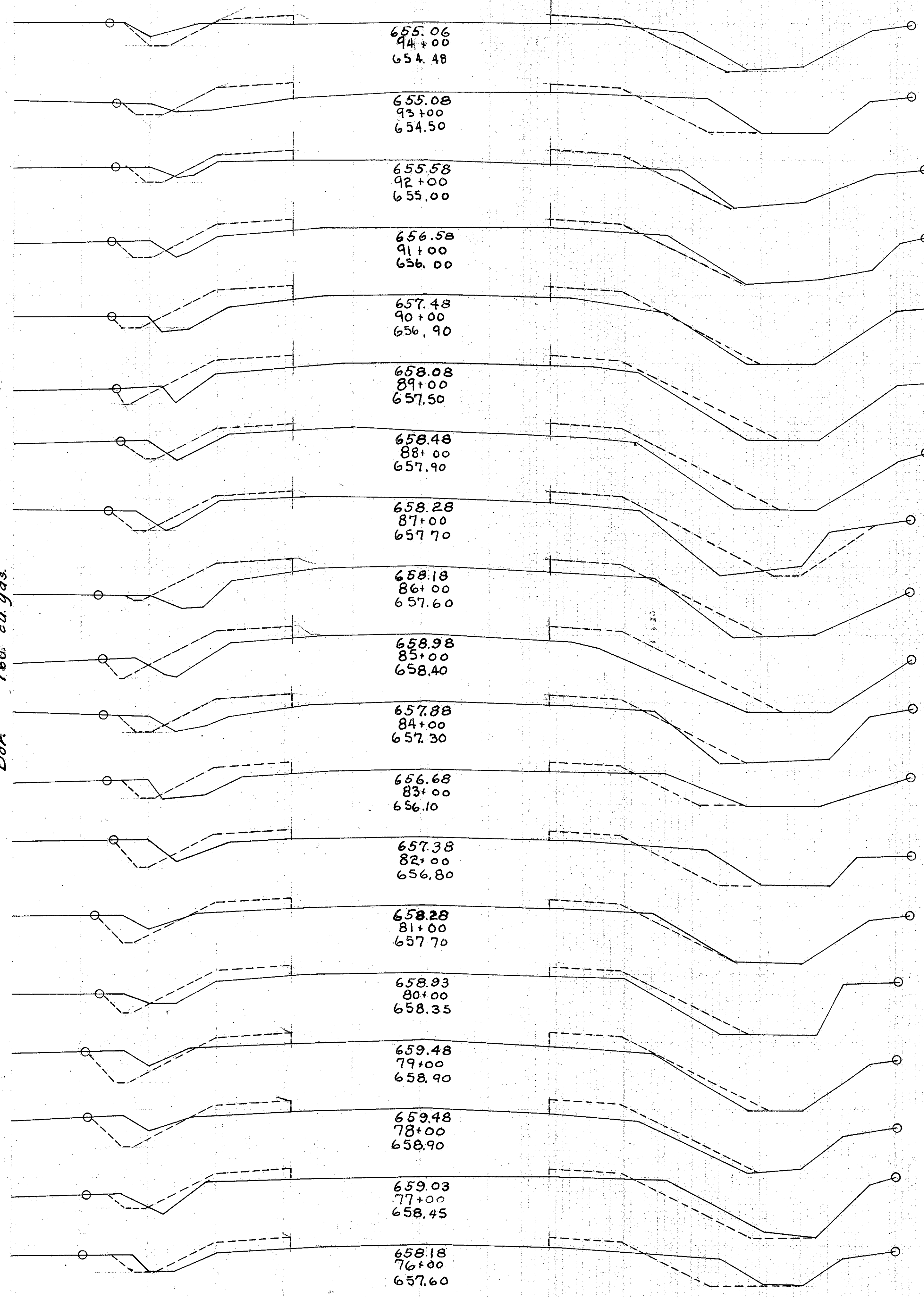
Exc. 608 cu yds.
Emb. 790 cu yds.
Emb. 589 cu yds.
Waste 74 cu yds.

Exc. 497 cu yds.
Emb. 361 cu yds.
Emb. 415 cu yds.
Waste 22 cu yds.



End Area		Cu Yds	
Cut	Fill	Cut	Fill
10	11		
	43	46	
13	14		
	35	43	
6	9		
	22	39	
6	12		
	15	65	
2	23		
	7	80	
2	20		
	9	78	
3	22		
	26	100	
11	32		
	22	118	
1	29		
	9	128	
4	40		
	13	106	
3	17		
	24	65	
10	18		
	50	52	
17	10		
	43	35	
6	9		
	15	93	
2	41		
	19	111	
8	19		
	28	65	
7	16		
	35	48	
12	10		
	44	41	
12	12		
	43	37	

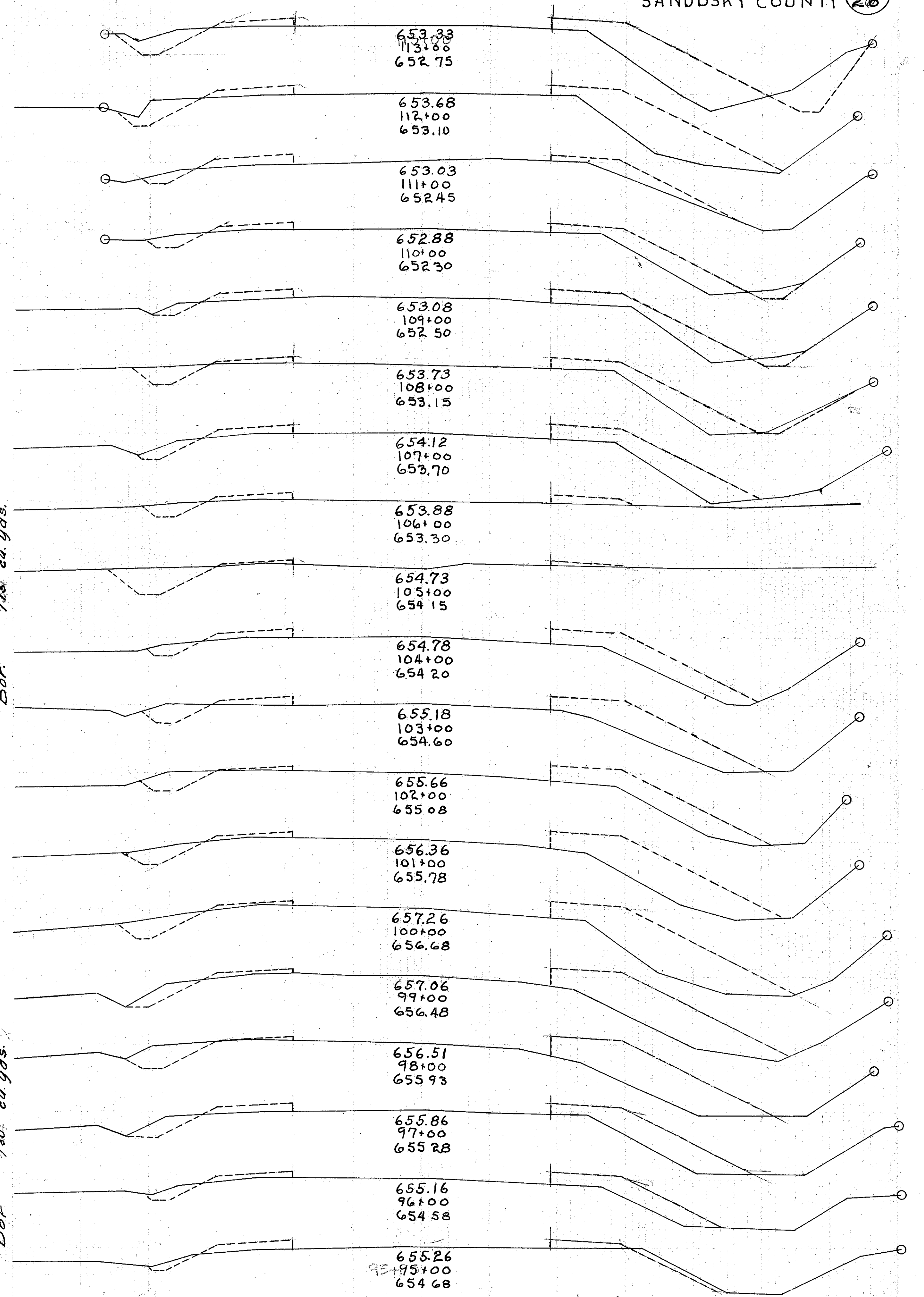
Exc. 218 cu yds.
Emb. 840 cu yds.
Emb. 978 cu yds.
Bar 760 cu yds.



End Area		Cu Yds	
Cut	Fill	Cut	Fill
6	36		
	20	137	
5	38		
	13	100	
2	16		
	113	61	
5	17		
	13	67	
2	19		
	13	70	
5	19		
	15	80	
3	24		
	11	52	
3	4		
	26	13	
11	3		
	26	48	
3	23		
	13	93	
4	27		
	17	93	
5	23		
	17	111	
4	37		
	19	143	
6	40		
	19	152	
4	42		
	20	146	
7	37		
	20	146	
4	42		
	13	109	
3	17		
	13	48	
4	9		
	26	37	

Exc. 170 cu yds.
Emb. 170 cu yds.
Emb. 885 cu yds.
Bar 715 cu yds.

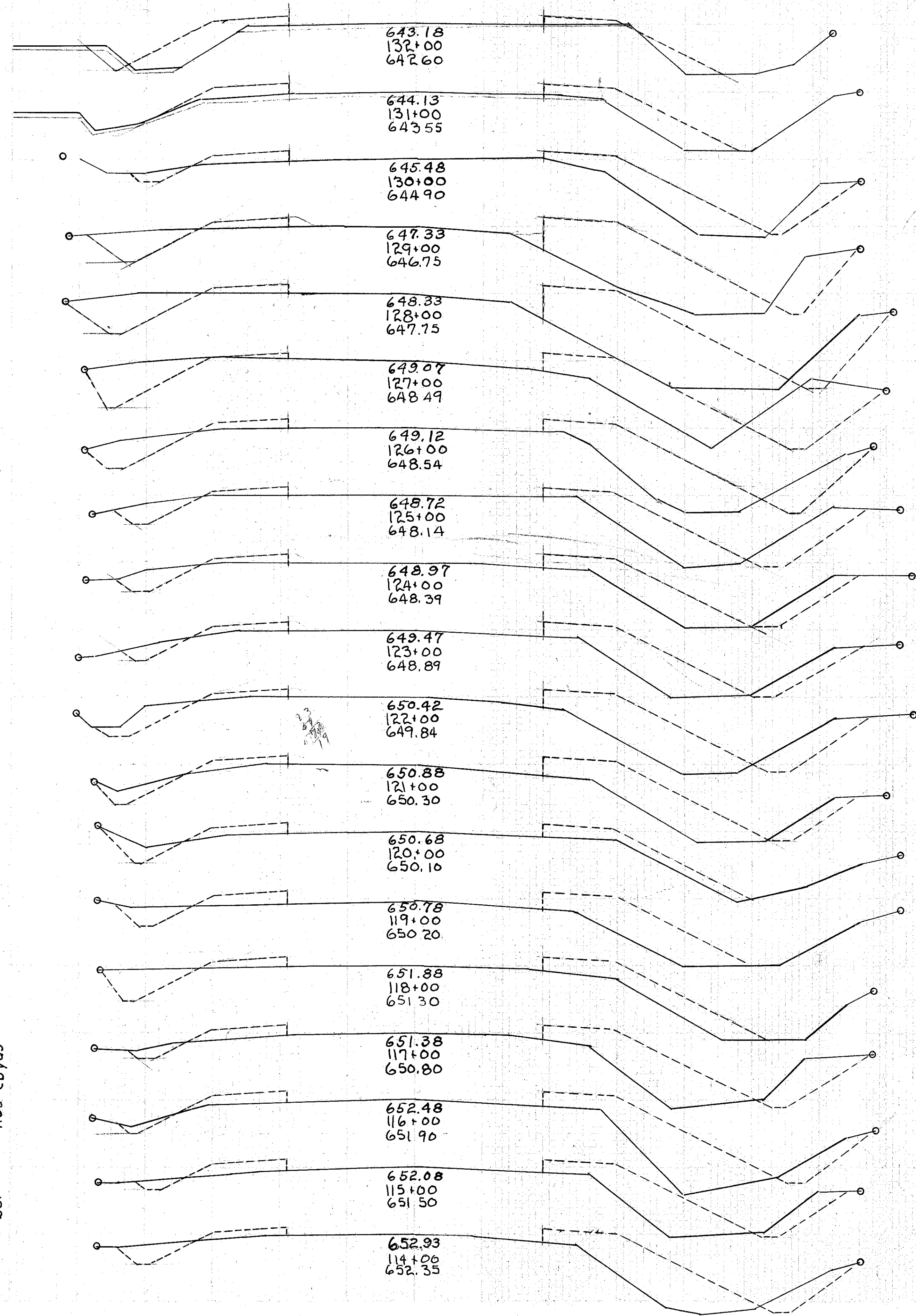
Exc. 226 cu yds.
Emb. 181 cu yds.
Emb. 856 cu yds.
Bar 700 cu yds.



End Area		Cu. Yds	
Cut	Fill	Cut	Fill
3	23		
	6	83	
	22	15	100
8	32		
	65	126	
27	36		
	102	198	
28	71		
	113	195	
33	34		
	100	144	
21	44		
	70	135	
17	29		
	59	102	
15	26		
	50	106	
12	31		
	57	135	
19	42		
	54	150	
10	39		
	28	106	
5	18		
	17	100	
4	36		
	24	113	
9	25		
	44	113	
15	36		
	48	156	
11	48		
	35	156	
8	36		
	43	141	
15	40		
	39	141	

Exc. 698 cu yds
Emb. 1397 cu yds
Emb. + 15% 1607 cu yds
Bot. 1909 cu yds

Exc. 296 cu yds
Emb. 1218 cu yds
Emb. + 15% 1401 cu yds
Bot. 1105 cu yds



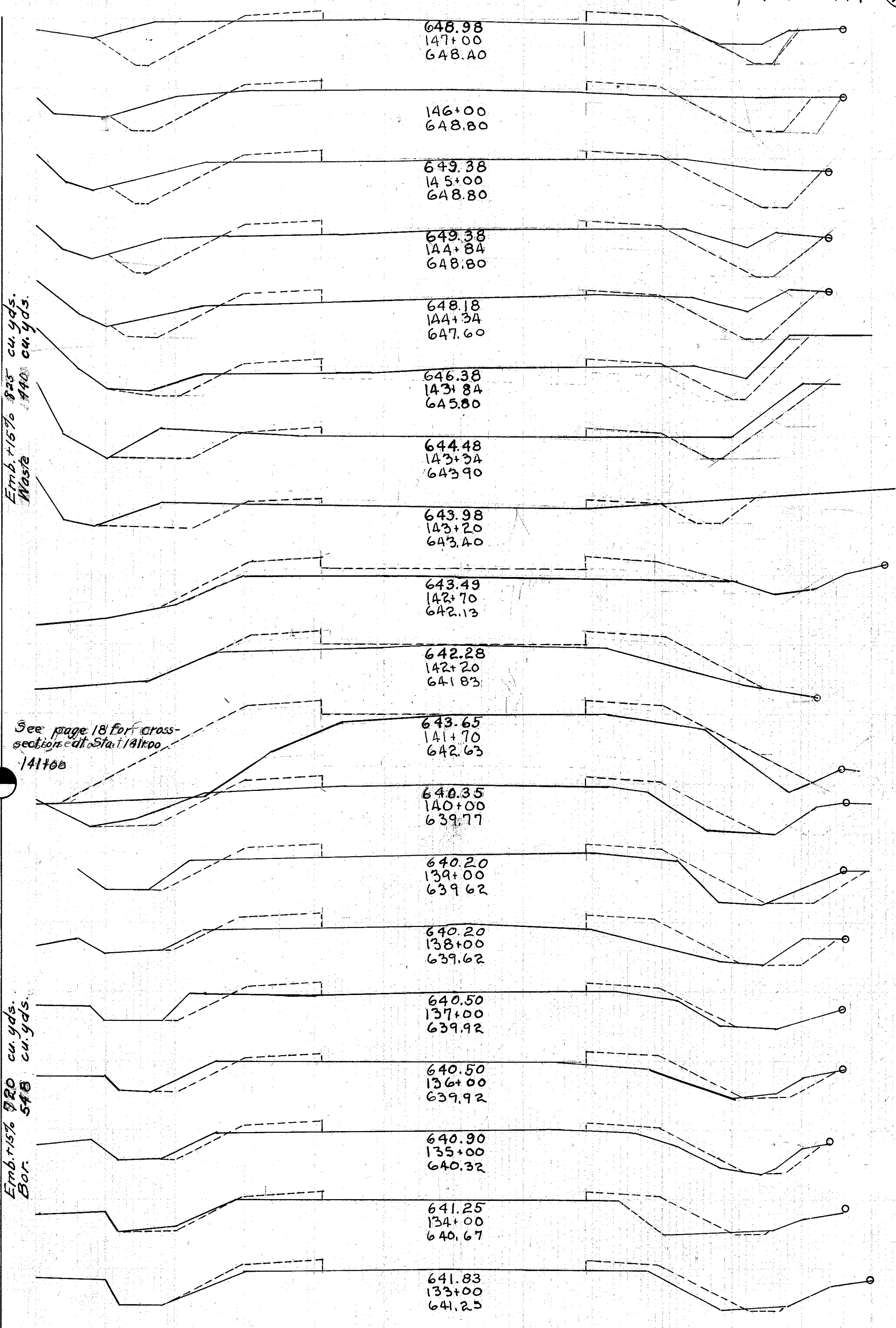
End Area		Cu. Yds	
Cut	Fill	Cut	Fill
28	9		
	85	32	
24	8		
	93	28	
26	7		
	17	4	
30	8		
	51	15	
25	8		
	38	15	
16	8		
	37	12	
24	5		
	11	2	
20	14		
	19	35	
0	34		
	0	59	
0	30		
	0	99	
0	77		
	0	170	
	0	213	
0	54	13	133
7	18		
	30	61	
9	15		
	30	67	
7	21		
	20	56	
4	9		
	20	41	
7	13		
	22	43	
5	10		
	15	48	
3	16		
	7	57	
1	15		
	7	70	

Exc. 1265 cu yds
Emb. 1717 cu yds
Emb. + 15% 1974 cu yds
Waste 1440 cu yds

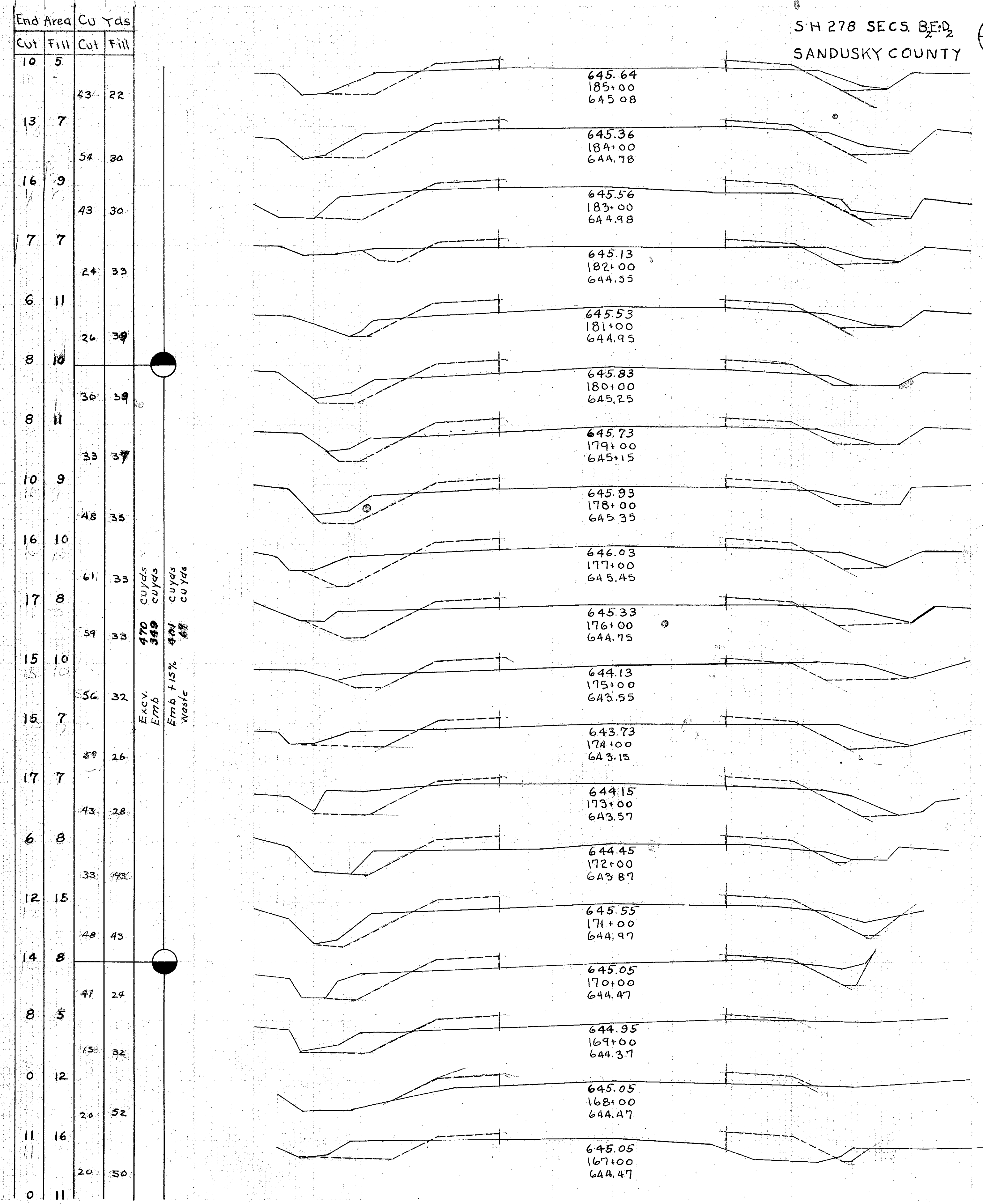
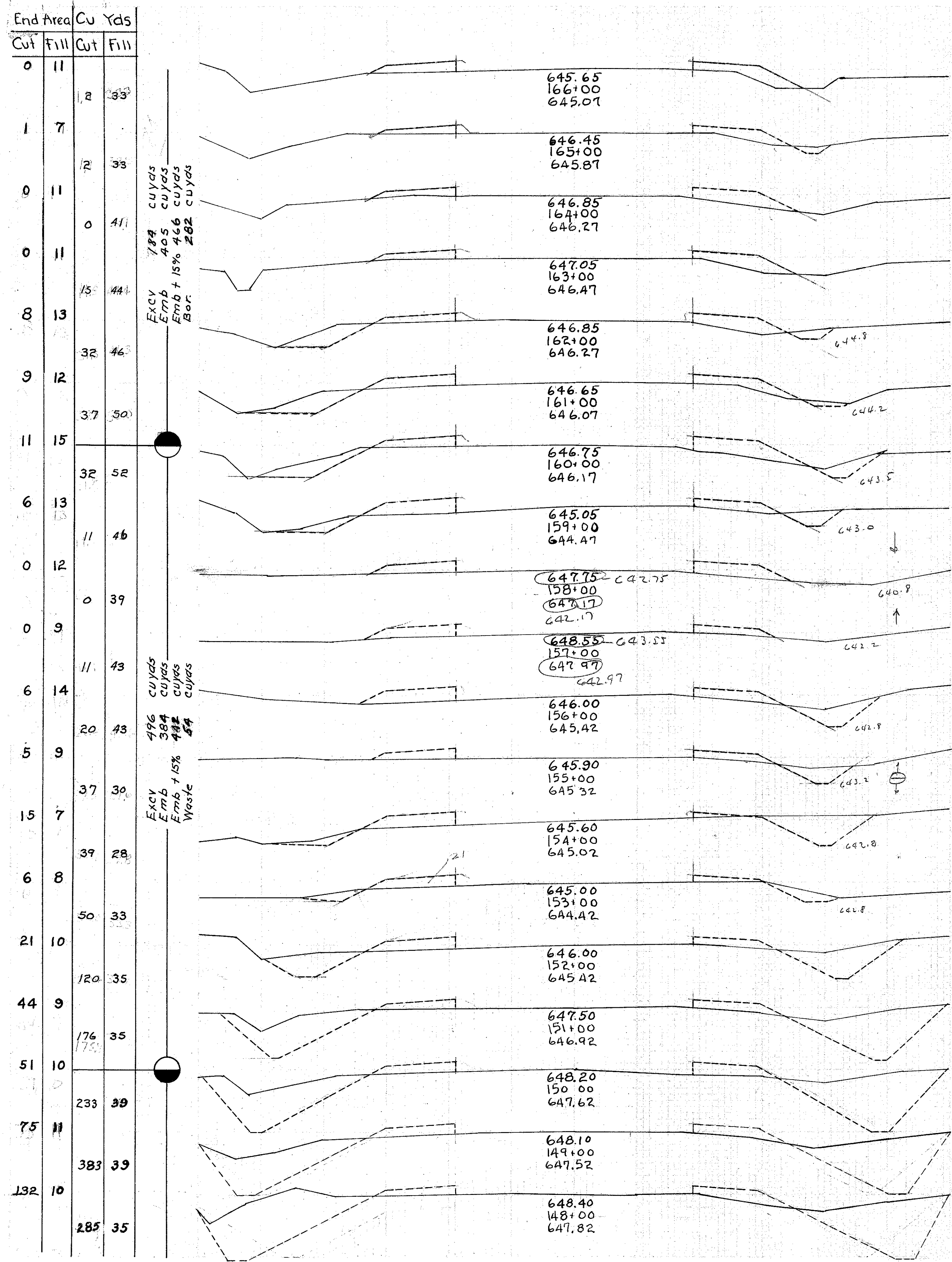
Exc. 172 cu yds
Emb. 622 cu yds
Emb. + 15% 712 cu yds
Bot. 548 cu yds

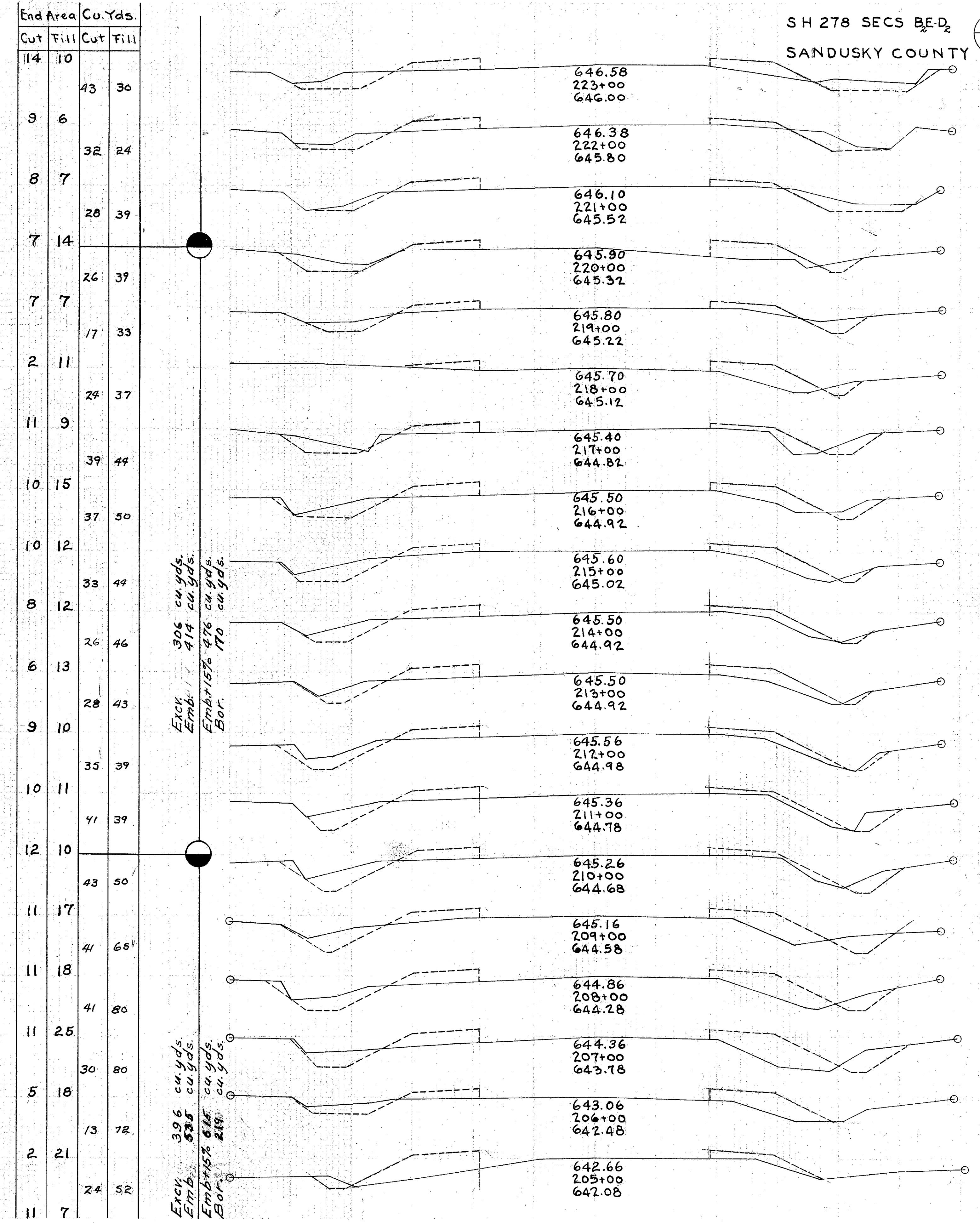
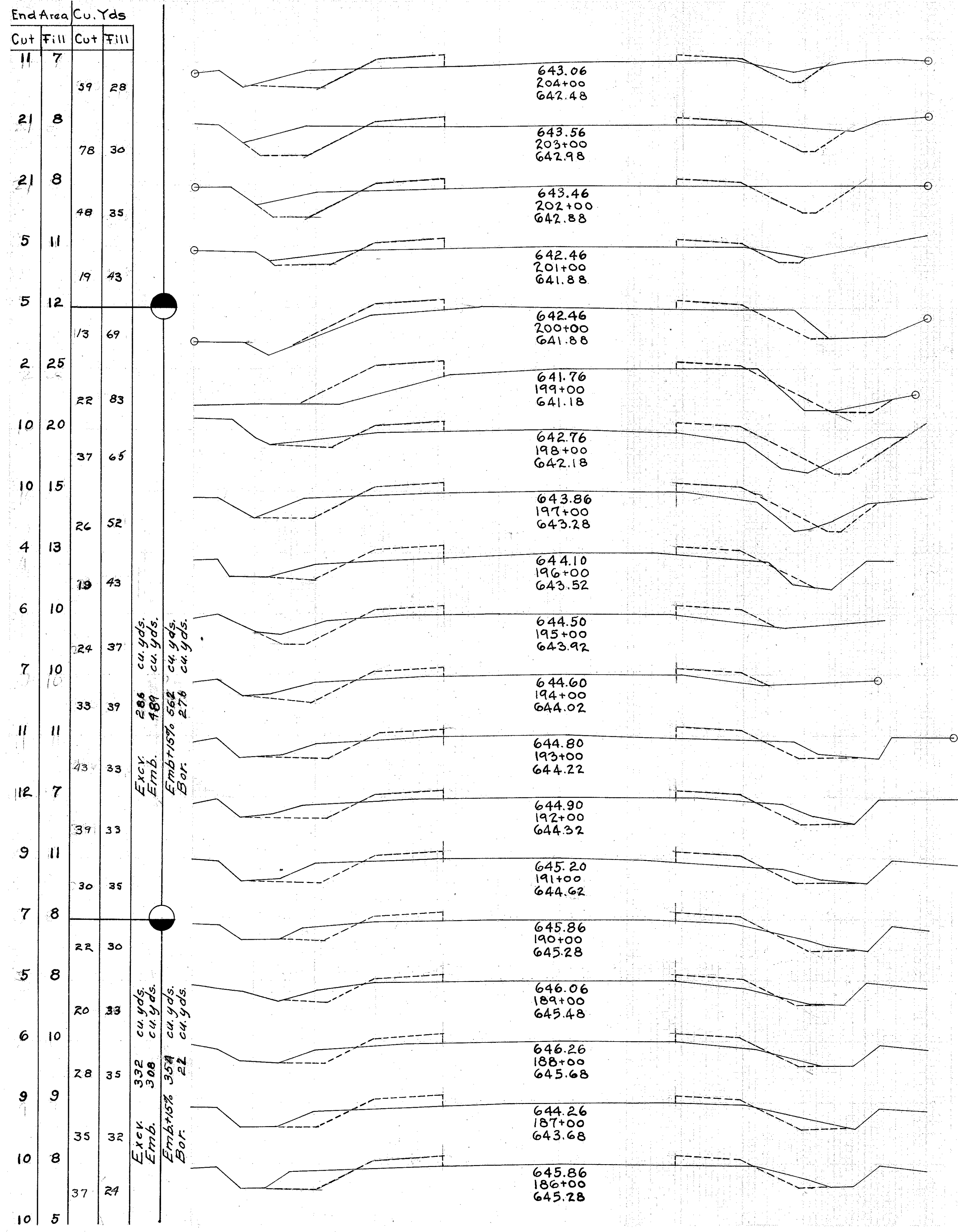
See page 18 for cross-section cut Sta. 141+00

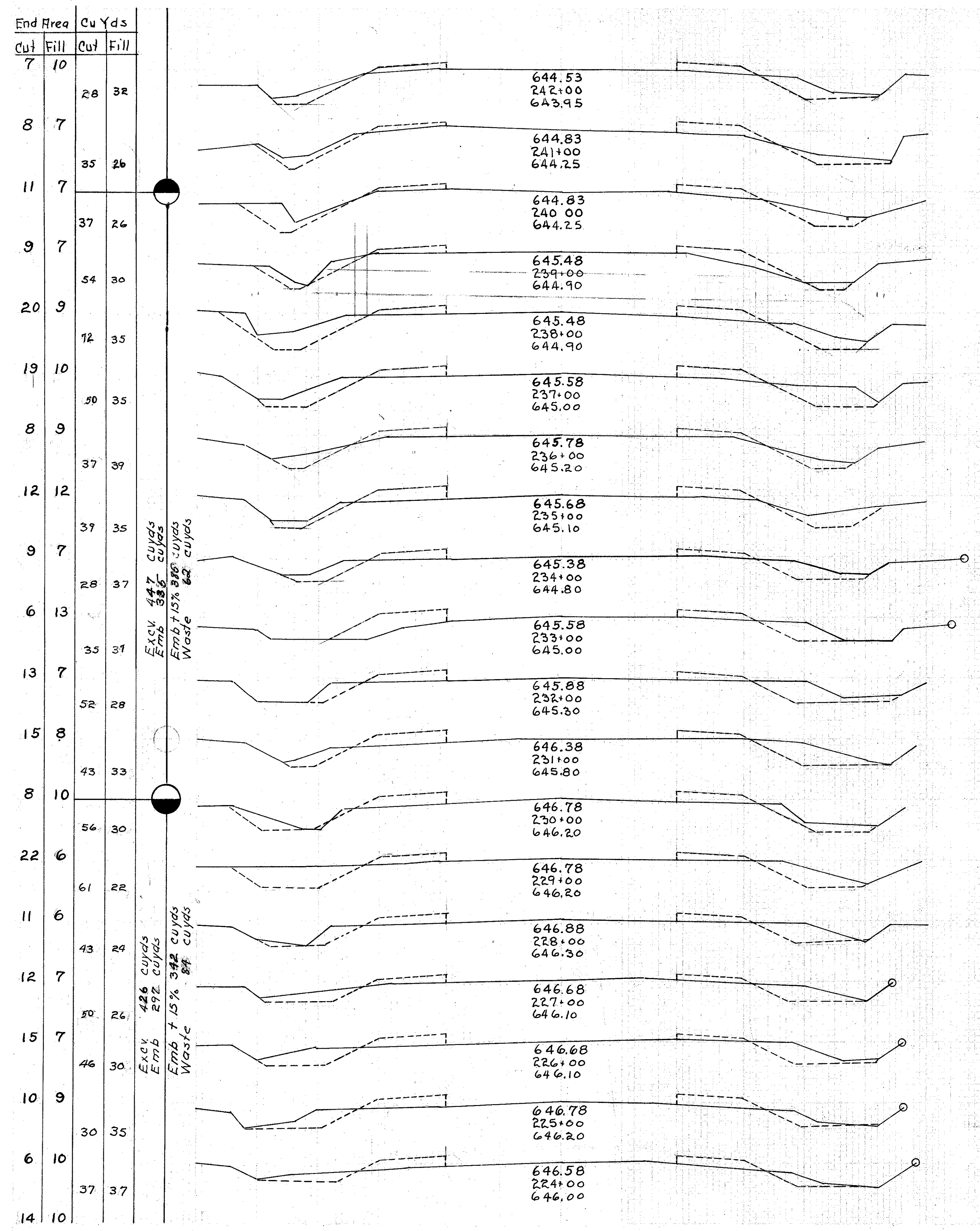
141+00



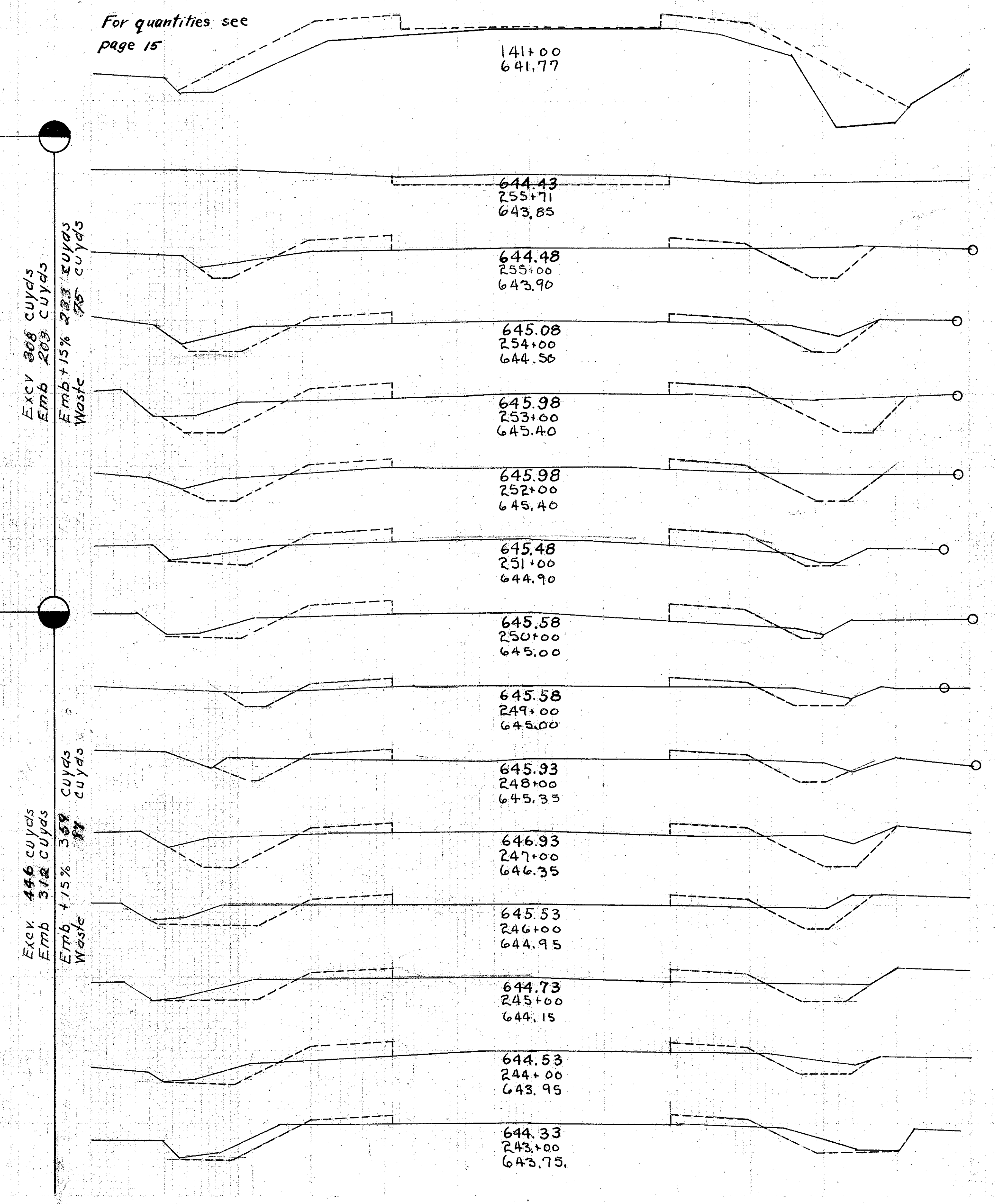
57.4
185.2
242.6
170
167.820



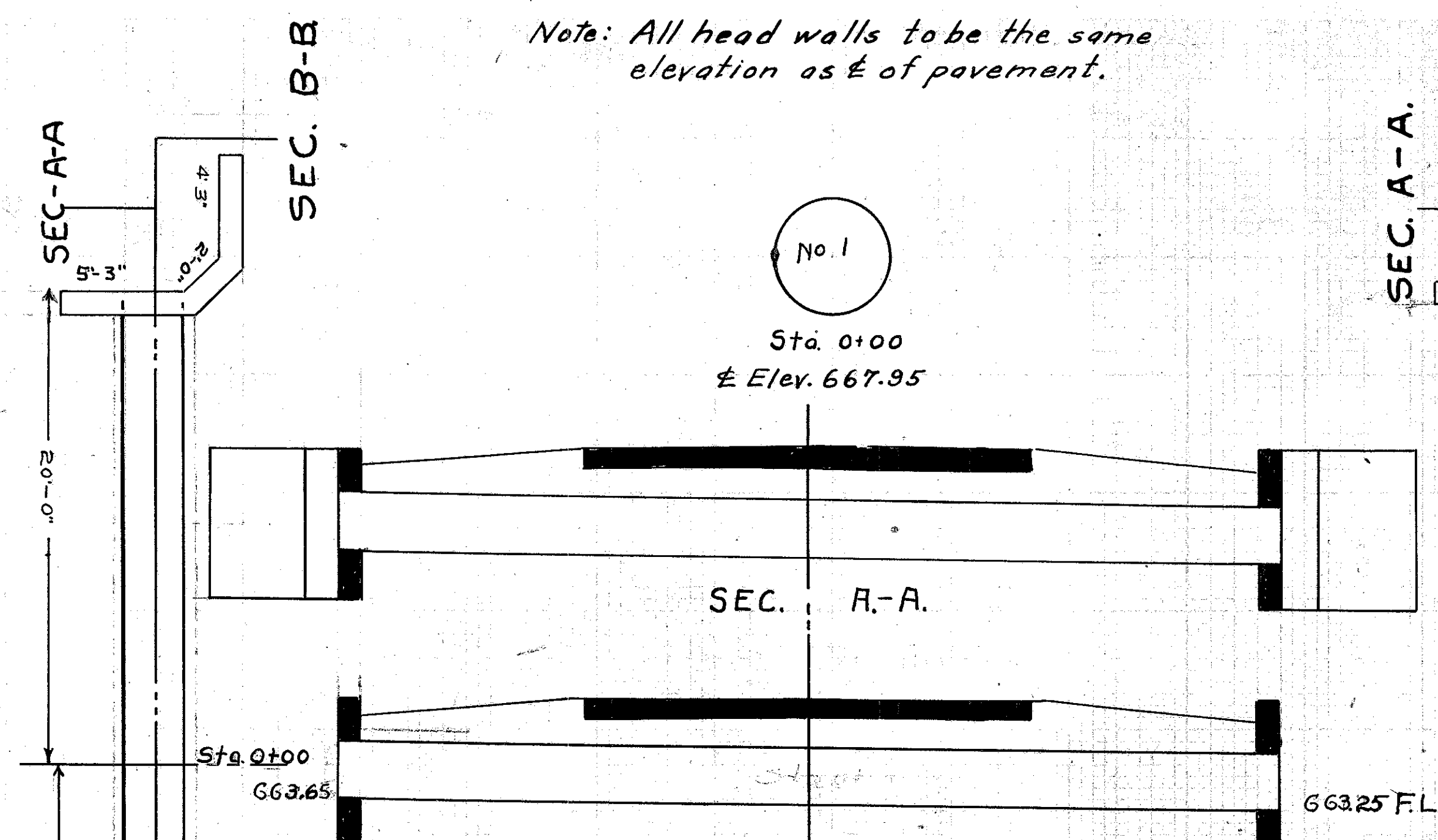




End Area		Cu. Yds	
Cut	Fill	Cut	Fill
11	0	43	19
12	10	56	30
18	6	72	32
21	11	70	35
17	8	43	39
6	13	24	48
7	13	32	39
10	8	41	26
12	6	63	26
22	8	72	30
17	8	56	30
13	8	46	35
12	11	41	35
10	8	32	33
7	10		



Note: All head walls to be the same elevation as $\frac{1}{2}$ of pavement.

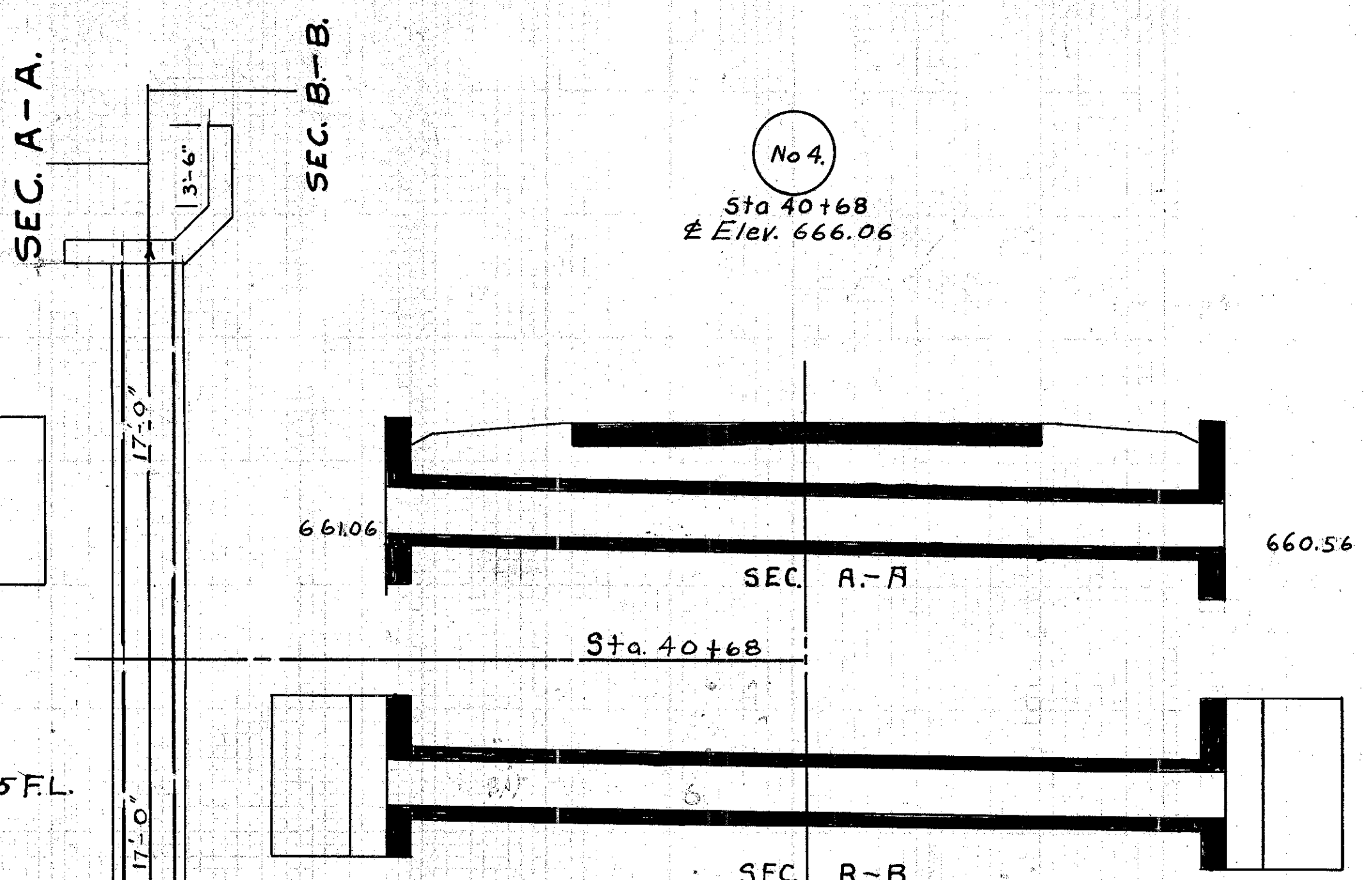


No. 1
Sta. 0+00
Elev. 667.95

SEC. B-B Est. Quants.

Exc.	26 yds
Conc. 1-5/2	5.6 yds
Reinf Steel	
2 A Bars	11'-6"
2 B Bars	12'-6"
16 C Bars	5'-10"
Weight	95 lbs.

Culvert Data.
Type Spec. Side Road Cor.I.P. Culvt. Dr. #300
Size 30" x 40'
Work Req'd Remove top of present stone box. Build Spec. Side Road Culvert.

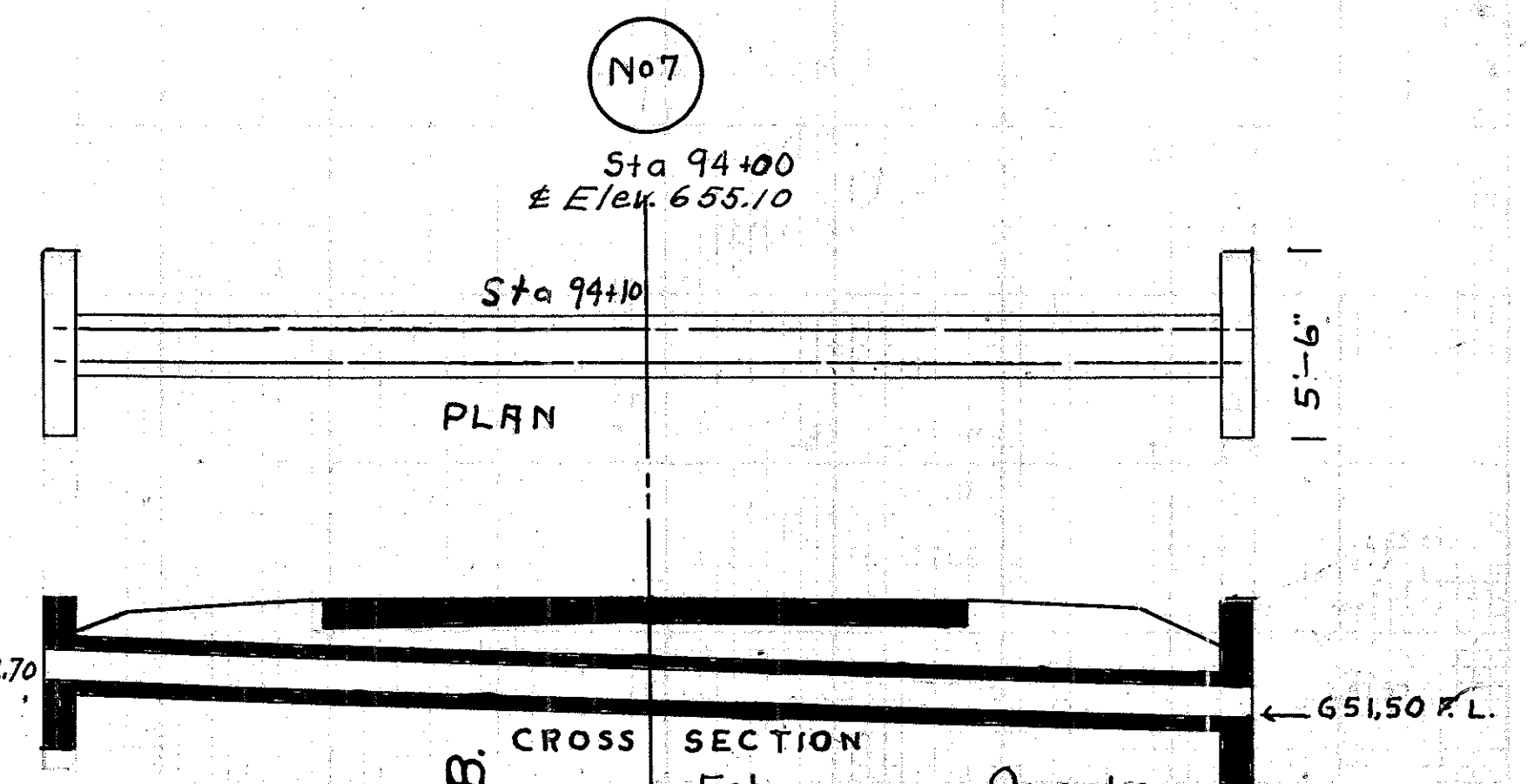


No. 4
Sta 40+68
Elev. 666.06

SEC. B-B Est. Quants.

Excav.	17 yds.
Conc. 1-8	6.6 yds
Conc. 1-5/2	5.8 yds
24" V.S.Pipe	34 ft.
Reinf Steel	
2 A Bars	10 ft
2 B Bars	11 ft.
16 C Bars	5 ft 3 ins.
Weight	85 lbs.

Culvert Data
Type Spec. Side Road V.S.P. Culvt. Dr. #300
Size 24" x 36"
Work Required Remove old conc. box. Build new V.S.P. Culvert.

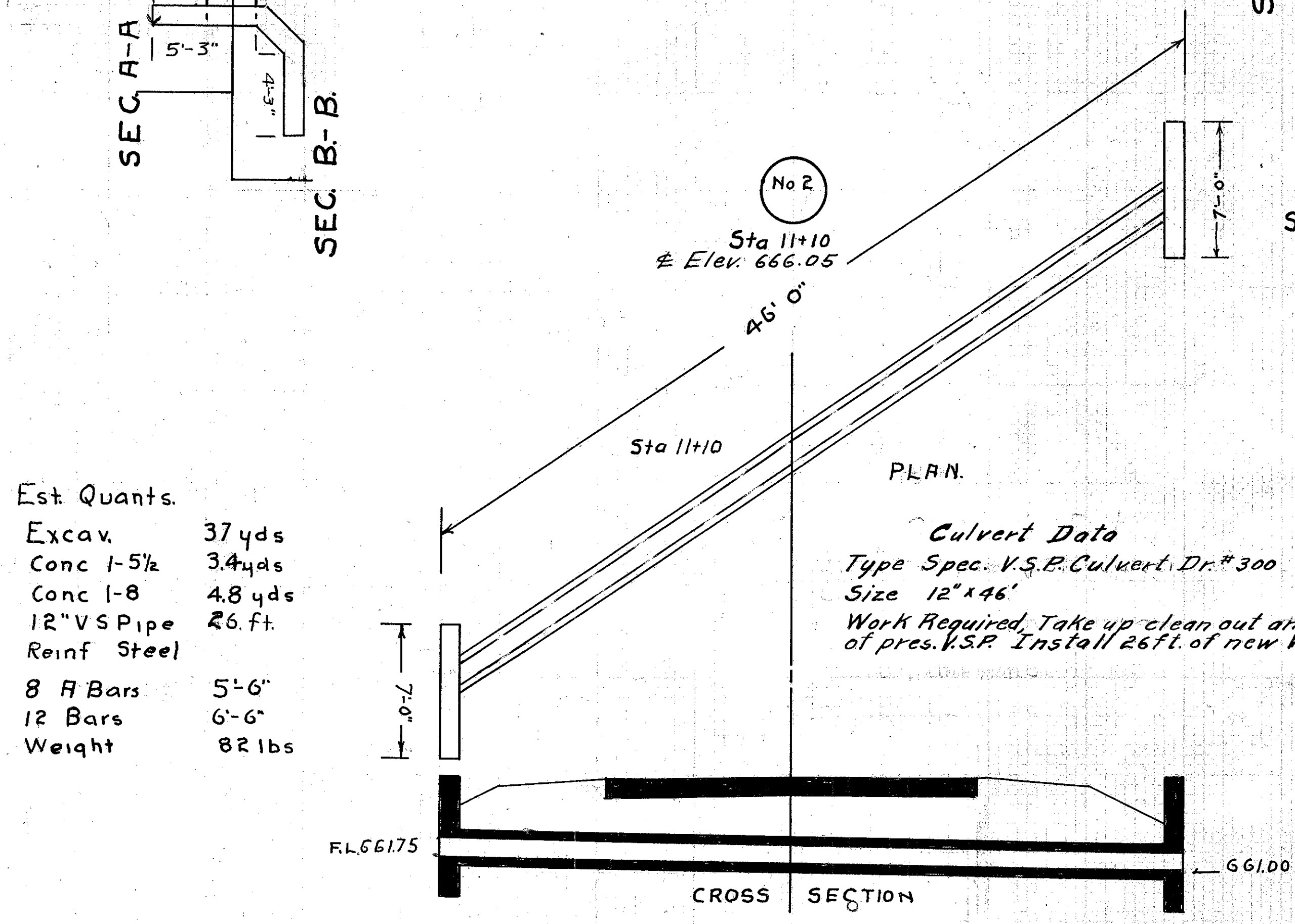


No. 7
Sta 94+10
Elev. 655.10

SEC. B-B Est. Quants.

Exc	16 yds
conc 1-8	3.7 yds.
conc. 1-5/2	2.0 yds.
12" V.S.Pipe	36 ft.
Reinf Steel	65 lbs.

Culvert Data
Type, Spec. V.S.P. Culvert Dr. #300
Size 12" x 36'
Work Req'd Build Spec. V.S.P. Culvert.



No. 2
Sta 11+10
Elev. 666.05

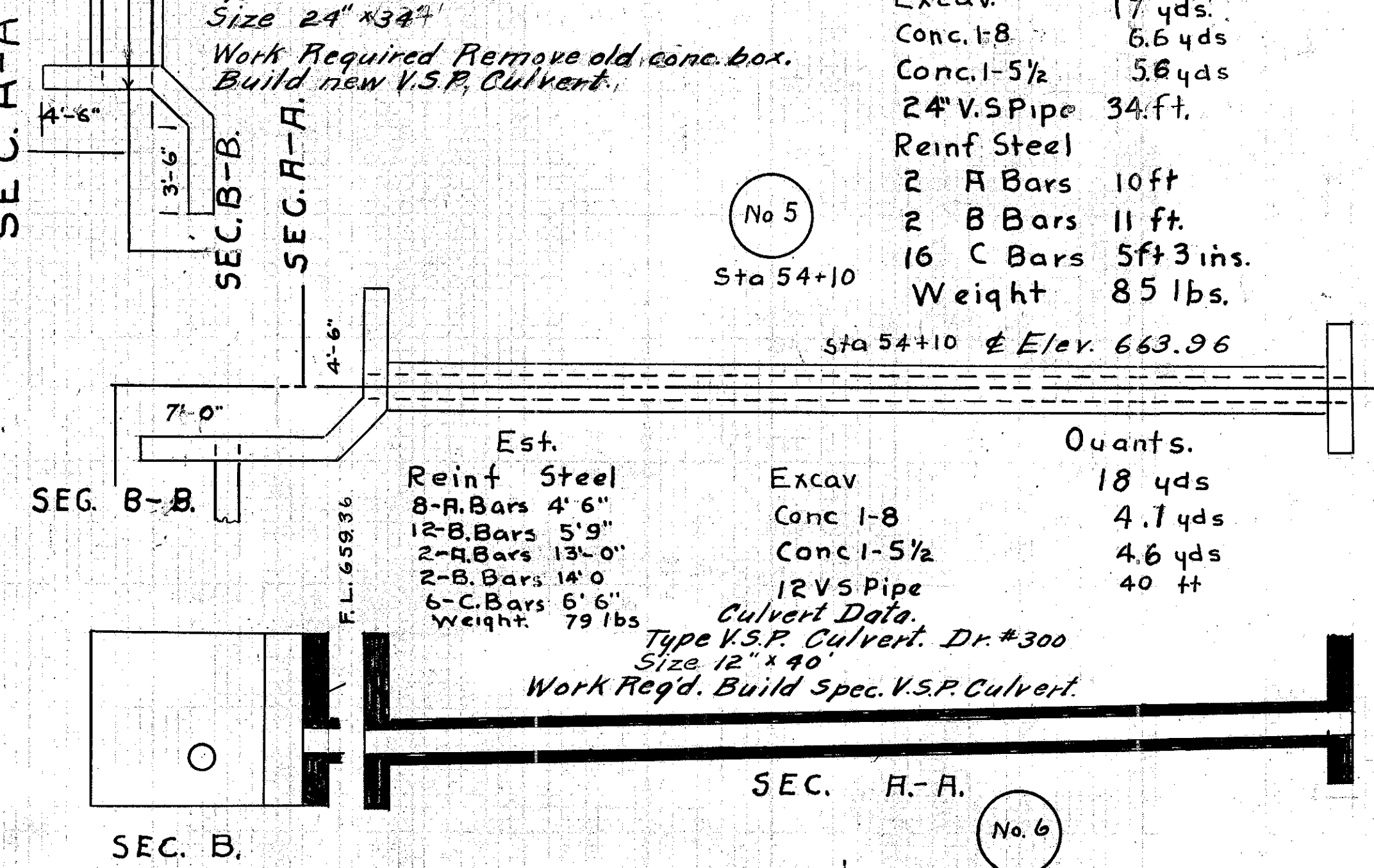
Est. Quants.

Excav.	37 yds
Conc 1-5/2	3.4 yds
Conc 1-8	4.8 yds
12" V.S.Pipe	26 ft.
Reinf Steel	
8 A Bars	5'-6"
12 Bars	6'-6"
Weight	82 lbs

SEC. B-B Est. Quants.

Excav	28 yds.
Conc 1-5/2	5.9 yds
Reinf Steel	
2-A Bars	11'-0"
2-B Bars	12'-0"
16 C Bars	5'-9"
Weight	93 lbs

Culvert Data
Type Spec. Cor.I.P. Culvt. Dr. #300
Size 30" x 34'
Work Required, Remove present struct. Build new Cor.I.P. Culvt.



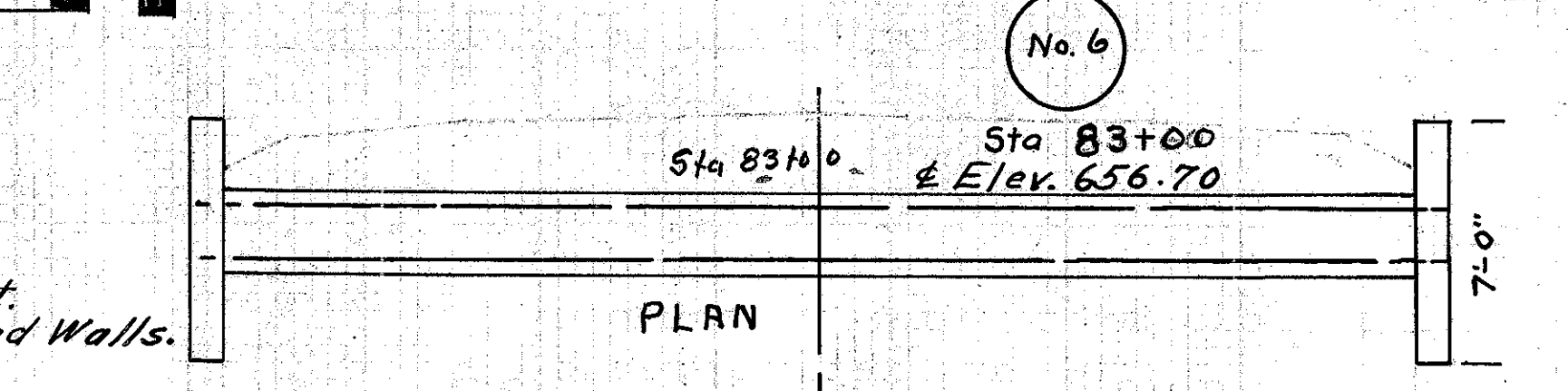
No. 5
Sta 54+10
Elev. 663.96

SEC. B-B Est. Quants.

Reinf Steel	
8-A Bars 4'-6"	
12-B Bars 5'-9"	
2-A Bars 13'-0"	
2-B Bars 14'-0"	
6-C Bars 6'-6"	
Weight	79 lbs

Excav 18 yds
Conc 1-8 4.7 yds
Conc 1-5/2 4.6 yds
12 V.S.Pipe 40 ft

Culvert Data
Type V.S.P. Culvert. Dr. #300
Size 12" x 40'
Work Req'd. Build Spec. V.S.P. Culvert.

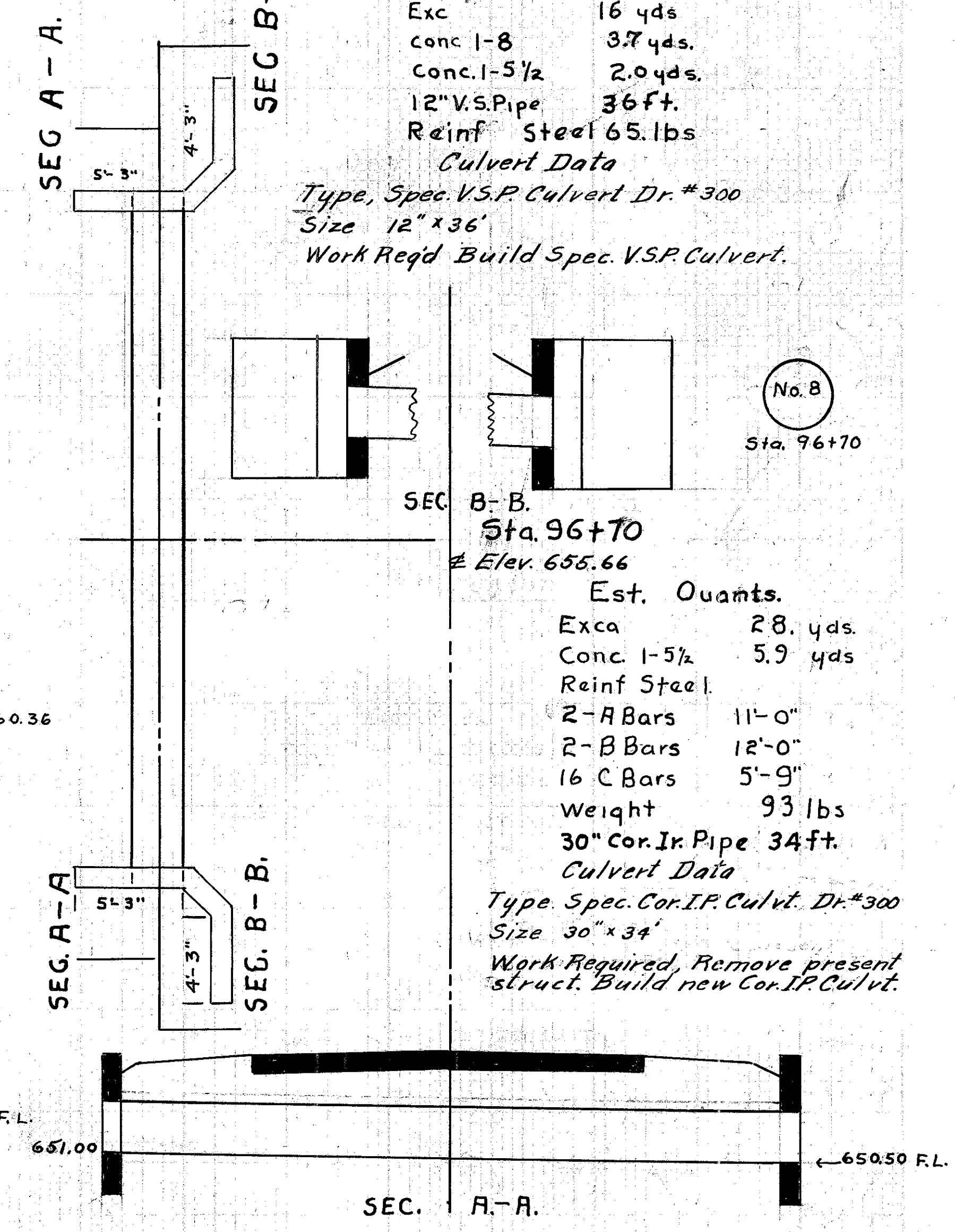


No. 6
Sta 83+00
Elev. 656.70

SEC. B-B Est. Quants.

Excav.	20 yds.
Conc. 1-8	5.2 yds.
Conc 1-5/2	2.4 yds
18" V.S.Pipe	36 ft.
Reinf Steel	80 lbs

Culvert Data
Type Spec. V.S.P. Culvert. Dr. #300
Size 18" x 36'
Work Required Build Spec. V.S.P. Culvert.



No. 8
Sta. 96+70
Elev. 655.66

SEC. B-B Est. Quants.

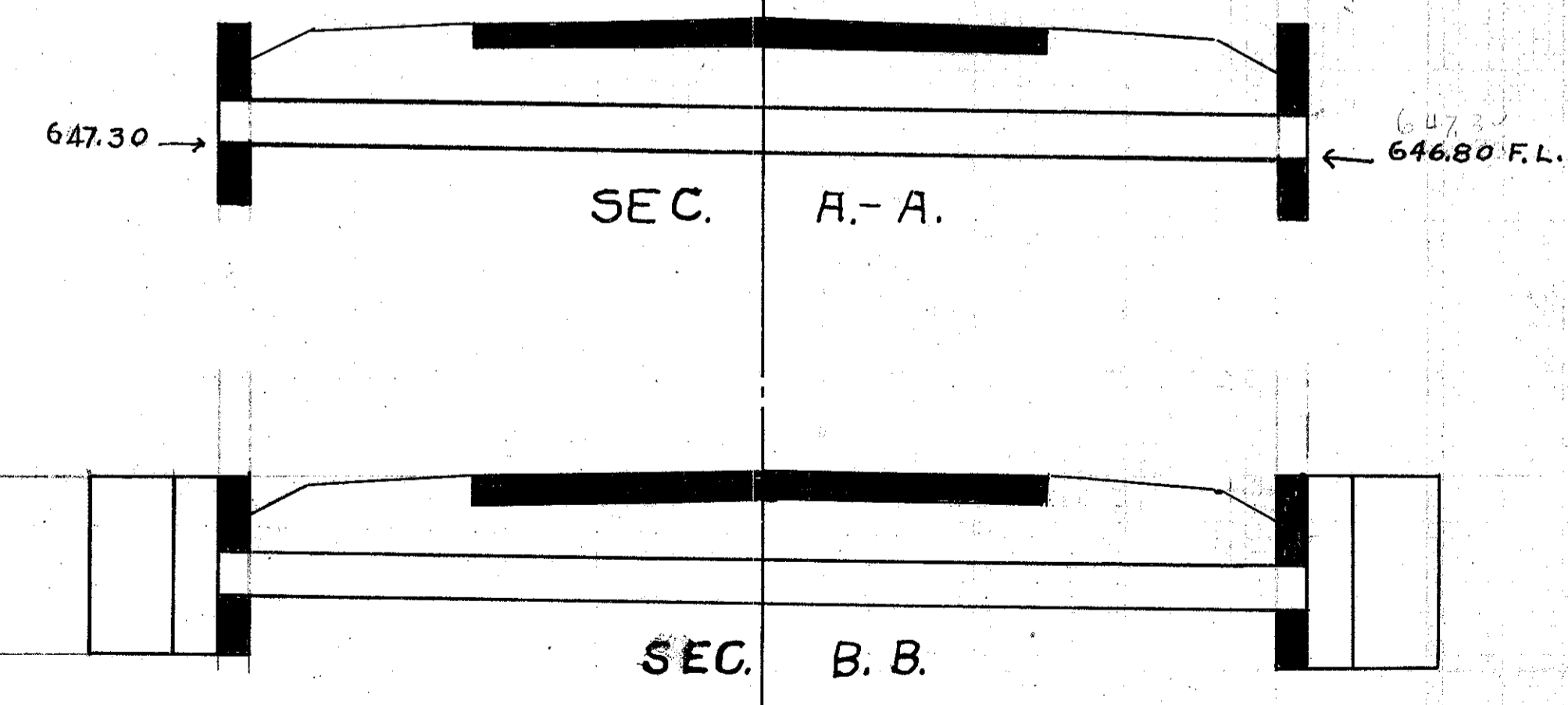
Excav	28 yds.
Conc 1-5/2	5.9 yds
Reinf Steel	
2-A Bars	11'-0"
2-B Bars	12'-0"
16 C Bars	5'-9"
Weight	93 lbs

Culvert Data
Type Spec. Cor.I.P. Culvt. Dr. #300
Size 30" x 34'
Work Required, Remove present struct. Build new Cor.I.P. Culvt.

No. 9
Sta. 121+50
± Elev. 650.70
Sta. 121+50

Est. Quants.
Exca 10 yds
Conc. 1-5 1/2 38 yds
Reinf. Steel 70 lbs.
18" Cor. Ir. Pipe 36 ft

Culvert Data.
Type, Spec. S.R. Cor. I.P. Culvert Dr. #300
Size 18" x 36'
Work Required Build Spec. Cor. I.P.
Side Road Culvert.

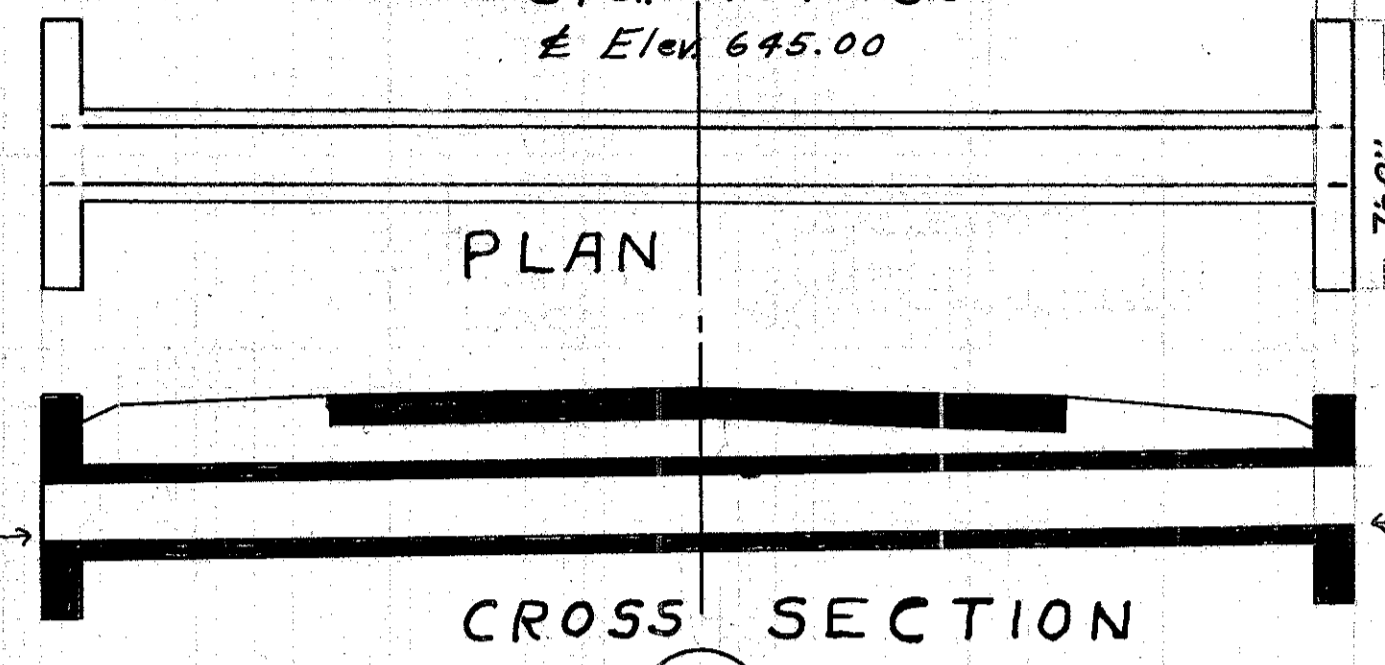


SEC. A-A
SEC. B-B

No. 13
Sta. 167+30
± Elev. 645.00

Est. Quants.
Exca 17 yds.
Conc. 1-8 4.9 yds.
Conc. 1-5 1/2 2.3 yds
Reinf. Steel 80 lbs.
18" V.S. Pipe (New) 18 ft.
18" V.S. Pipe Relaid 16 ft

Culvert Data
Type Spec. V.S.P. Culvert Dr. #300
Size 18" x 34'
Work Required, Remove pres. 18" V.S.P.
Clean out and Relay 18 ft. Lay 18 ft.
of new and Build Culvert.

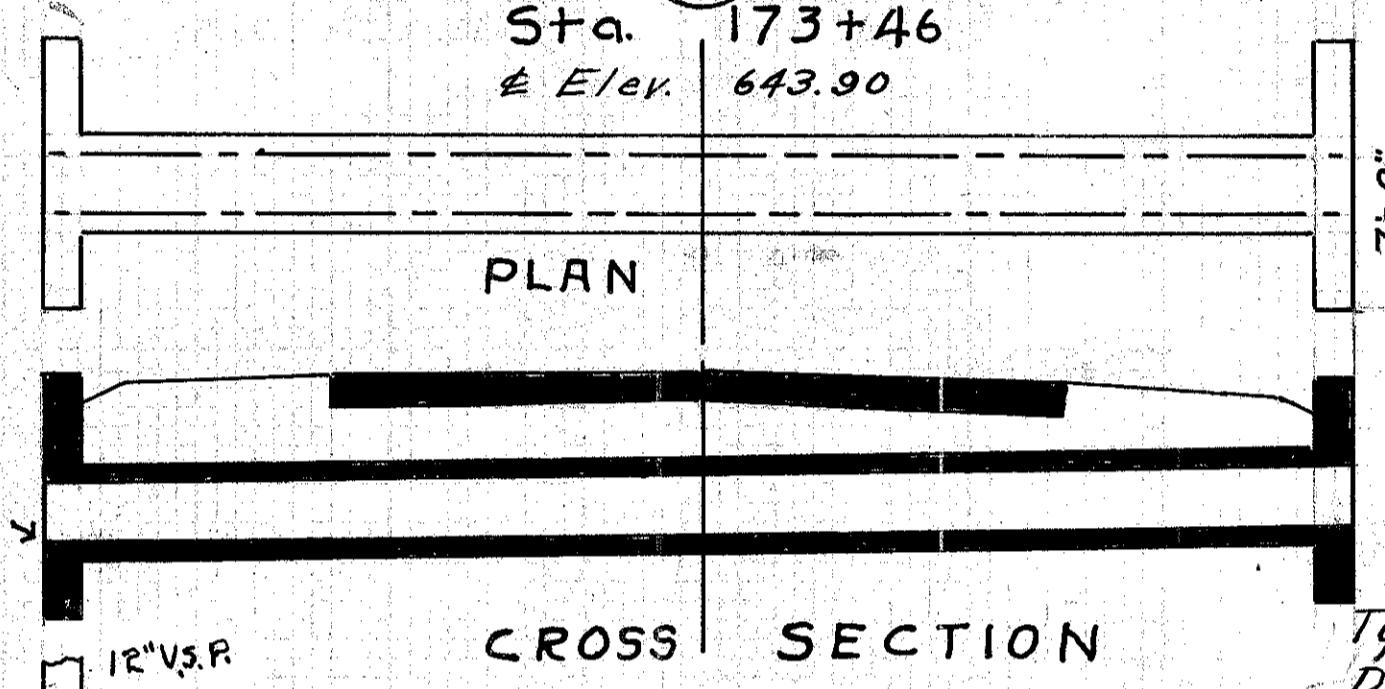


CROSS SECTION

No. 14
Sta. 173+46
± Elev. 643.90

Est. Quants.
Exca 20 yds
Conc. 1-8 4.9 yds.
Conc. 1-5 1/2 2.8 yds
Reinf. Steel 80 lbs
18" V.S. Pipe 34 ft.

Culvert Data.
Type Spec. V.S.P. Culvert
Dr. #300
Size 18" x 34'
Work Required Remove pres.
Struct. Build Spec. V.S.P. Culvert.



CROSS SECTION

Std. Side
ditch Inlet
No. 1

Std. Side
ditch
inlet No. 1.

No. 15
Sta. 195+75
± Elev. 644.17

Est. Quants.
Exca 30 yds.
Conc. 1-8 5.5 yds
15" V.S. Pipe 42 ft.
Std. Side Ditch Inlets # 1 & 2.

Culvert Data.
Type Side Road V.S.P. Culvert
and Inlets Dr. #300
Size 15" x 46'
Work Required, Remove pres.
Culvert. Build V.S.P. Culvert
and side ditch inlets.

Std. Side
Ditch Inlet No. 1

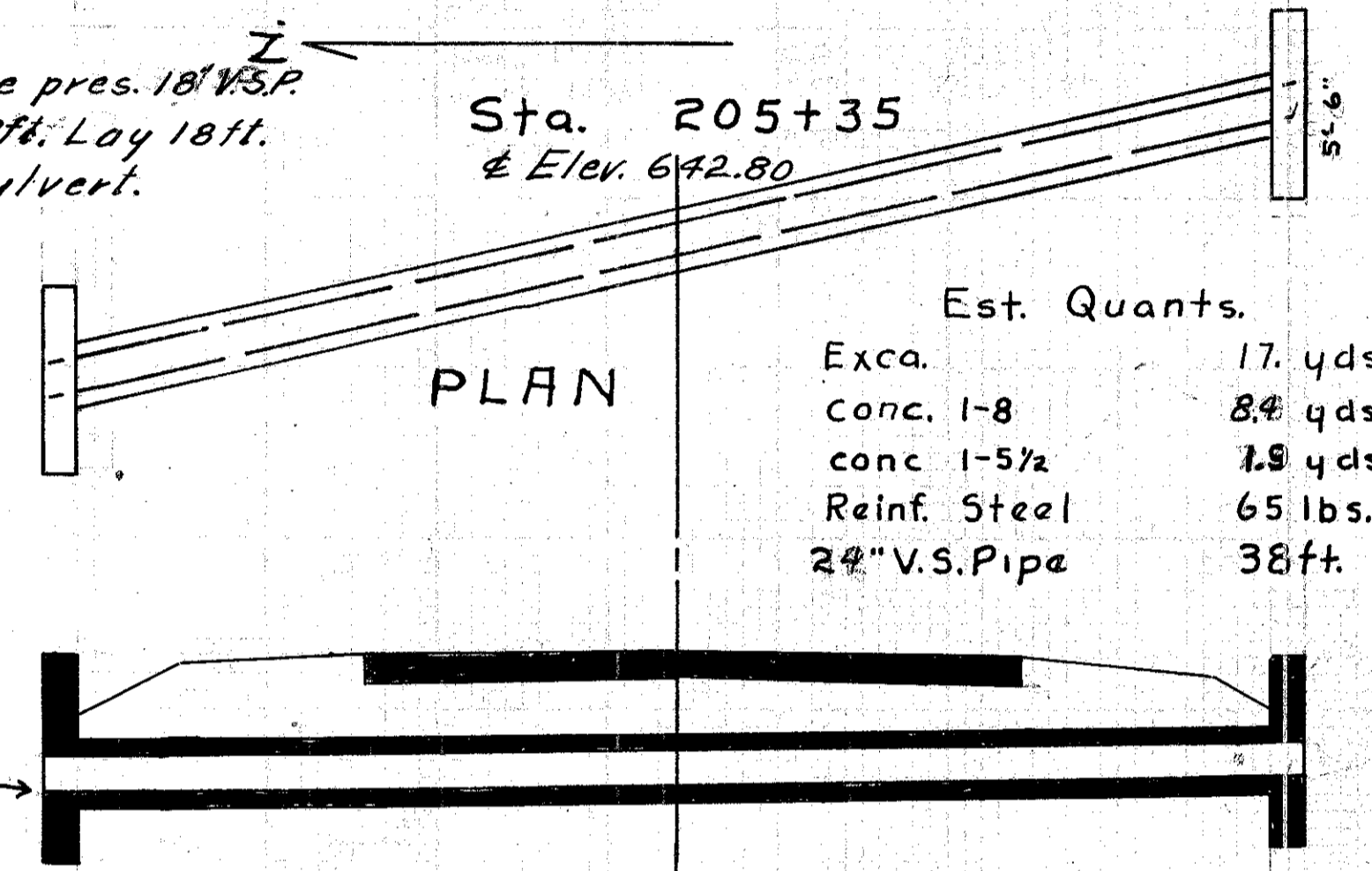
15" V.S. P.

No. 17

Sta. 205+35
± Elev. 642.80

Est. Quants.
Exca 17. yds.
Conc. 1-8 8.4 yds.
conc. 1-5 1/2 7.9 yds.
Reinf. Steel 65 lbs.
24" V.S. Pipe 38 ft.

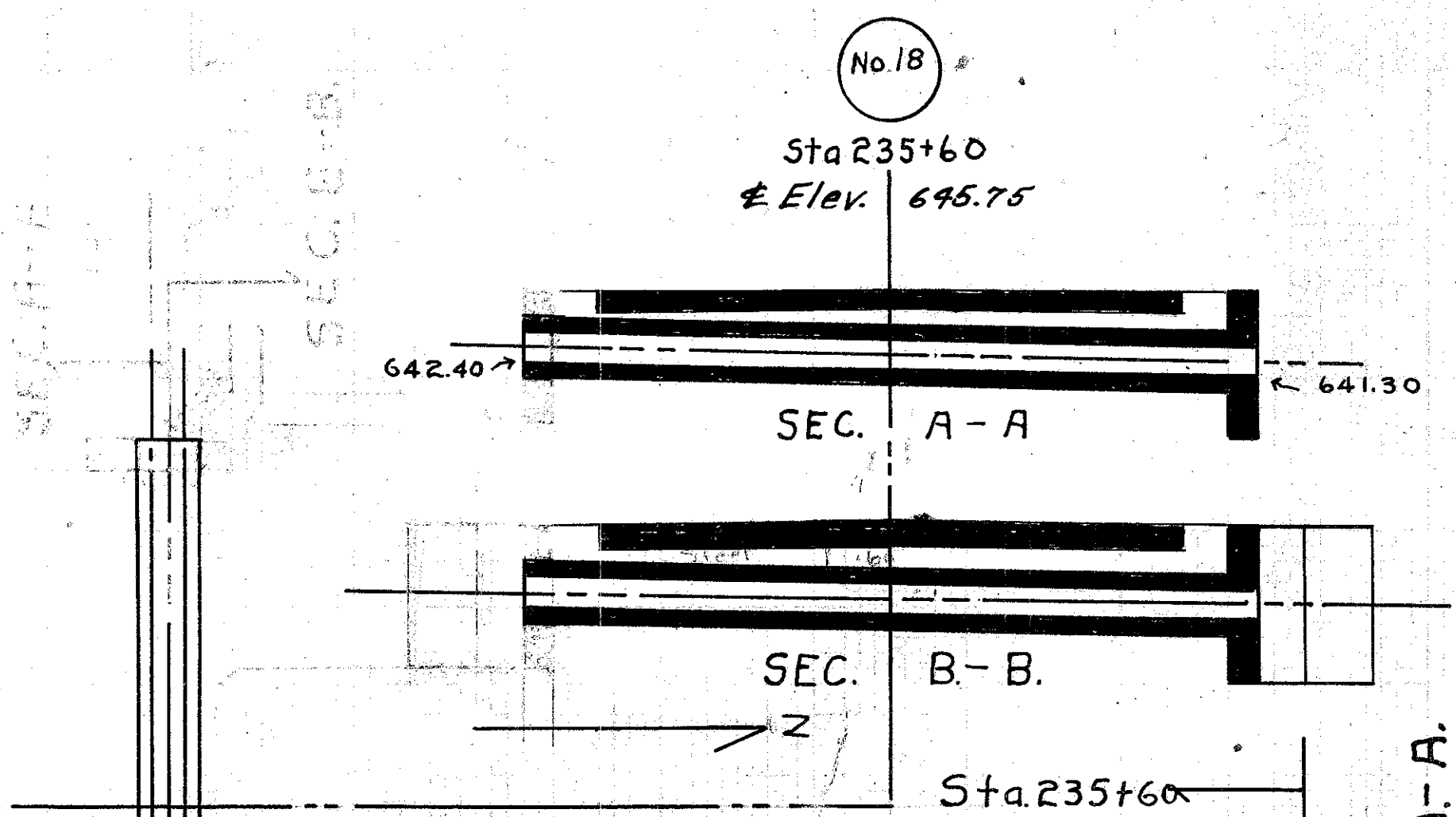
Culvert Data
Type, Spec. V.S.P. Culvert Dr. #300
Size 24" x 38'
Work Required Remove old Culvert.
Build Spec. V.S.P. Culvert.



CROSS SECTION

639.80 F.L.

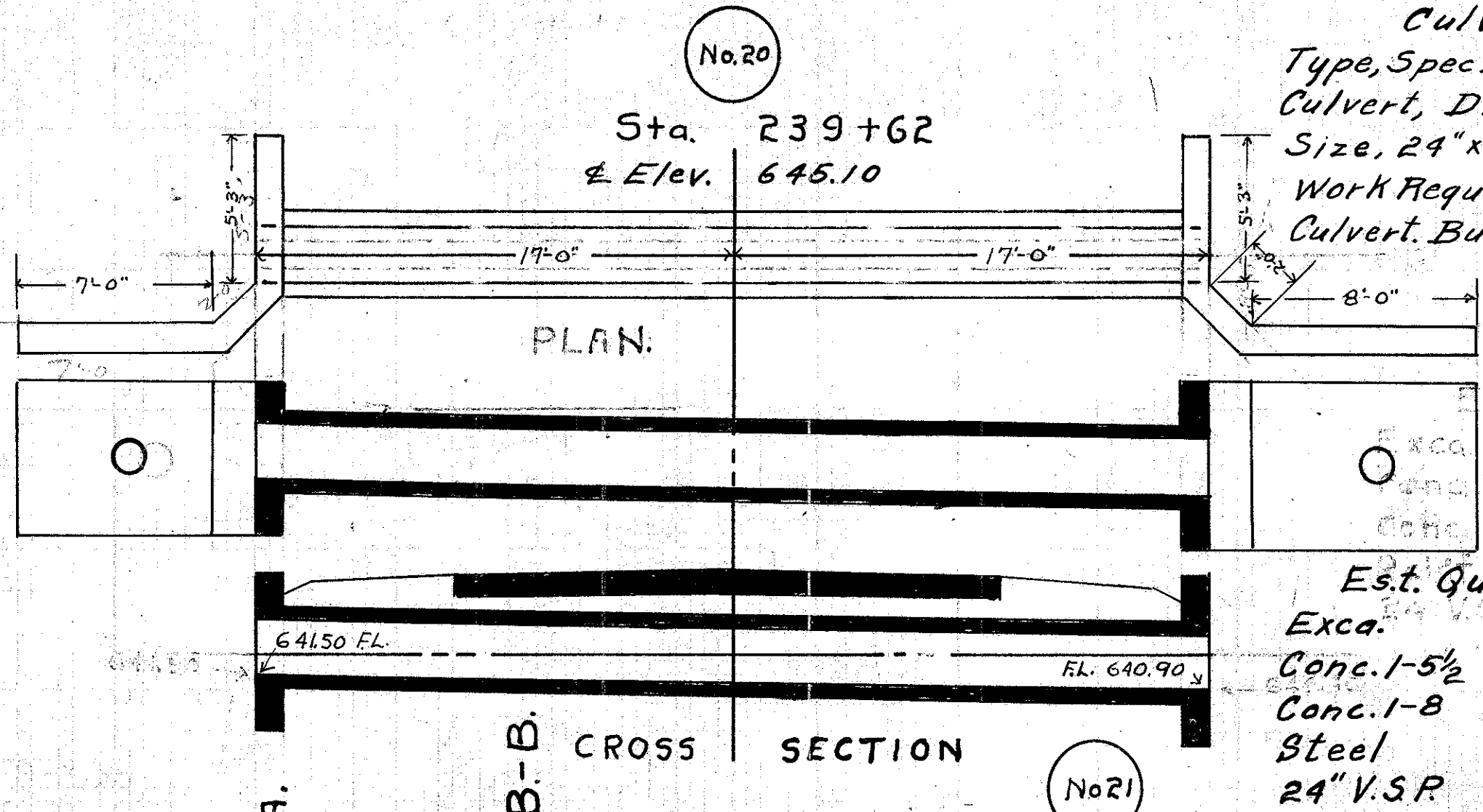
642.60
642.30
645.14



No. 18
Sta 235+60
± Elev. 645.75

Est. Quants.	
Exca.	13 yds.
Conc. 1-8	2.5 yds.
Conc. 1-5 1/2	2.0 yds.
Reinf Steel	30 lbs
12" V.S. Pipe	24 ft.

Culvert Data
Type, Spec. V.S.P. Culvert. Dr. #300
Size, 12" x 24"
Work Required, Build Spec. V.S.P. Culvert.

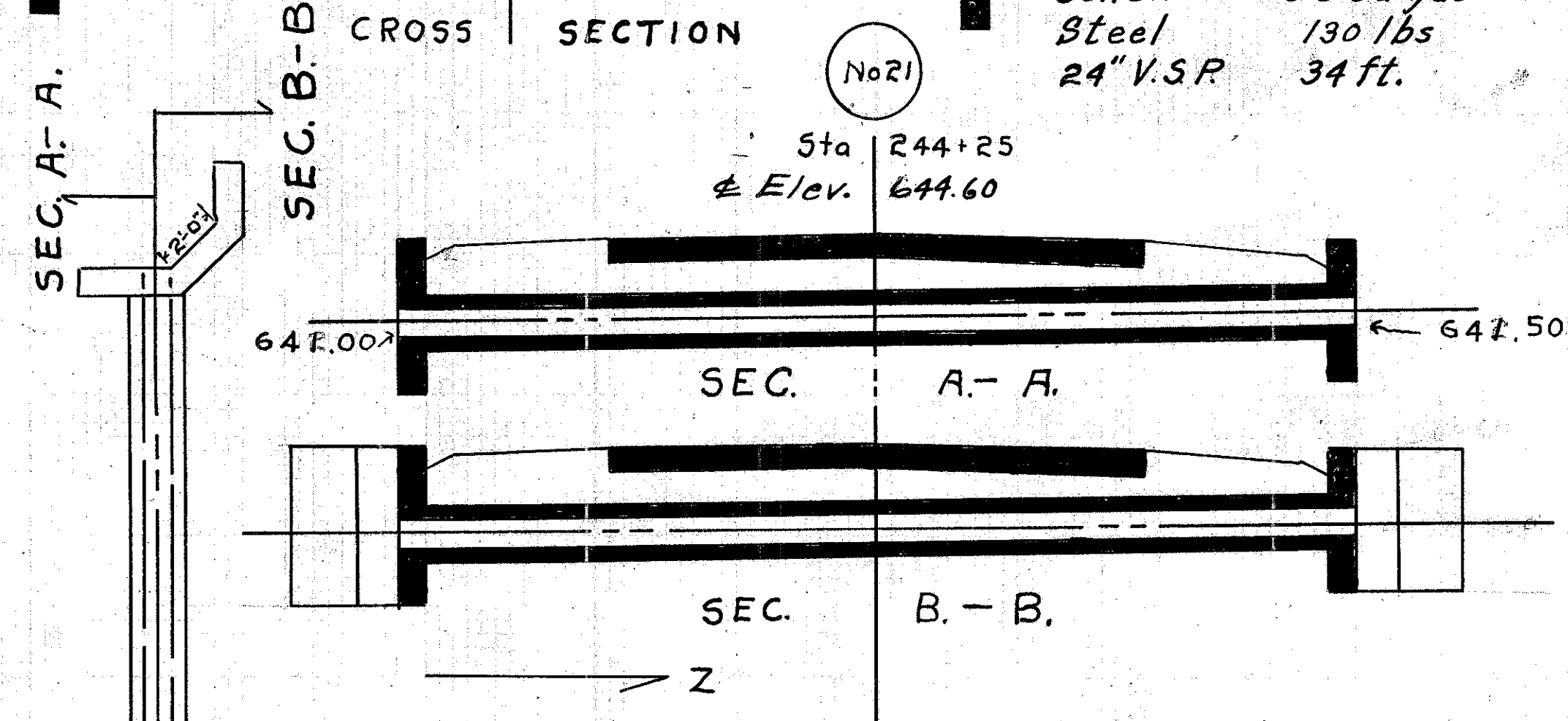


No. 20
Sta. 239+62
± Elev. 645.10

Culvert Data
Type, Spec. Side Road V.S.P. Culvert, Dr. #300
Size, 24" x 34'
Work Required, Remove old Culvert. Build Spec. V.S.P. Culvert.

Est. Quants.

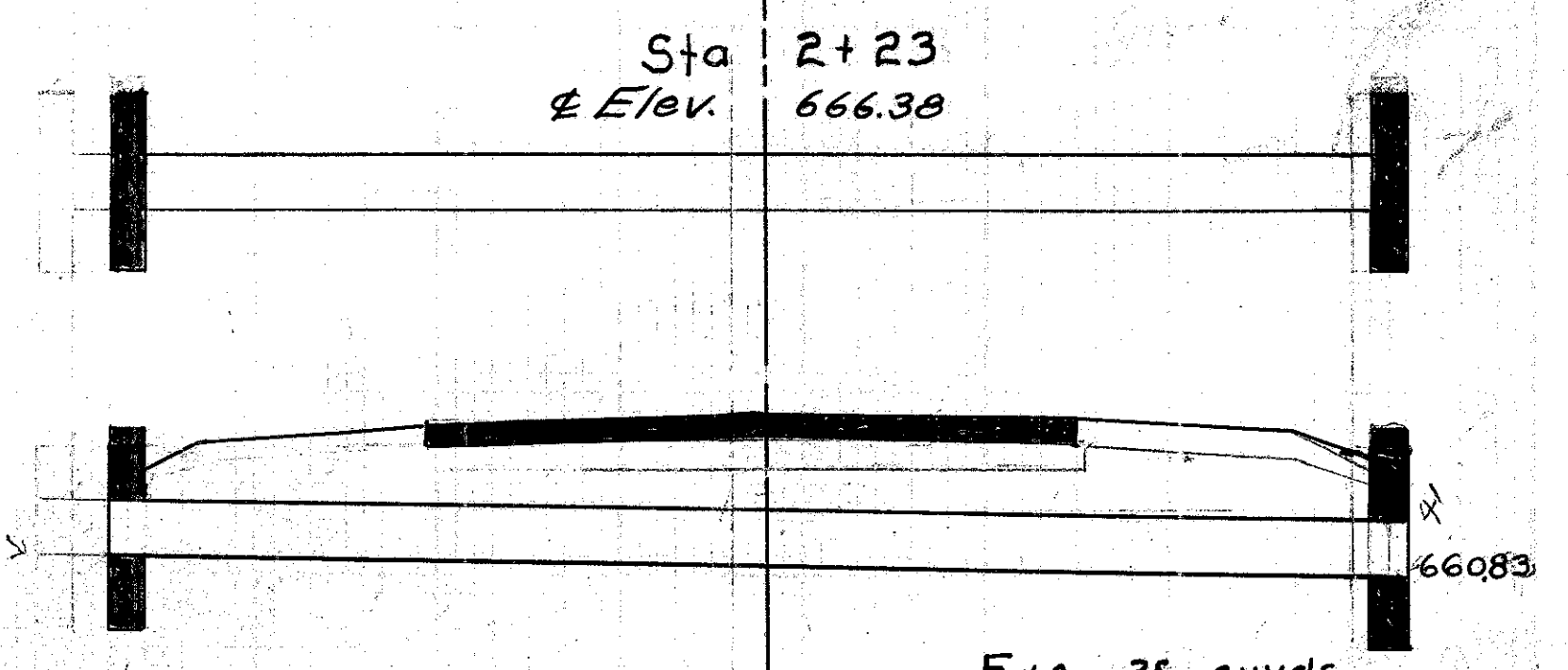
Exca.	35 cu yds.
Conc. 1-5 1/2	6.5 cu yds.
Conc. 1-8	6.6 cu yds.
Steel	130 lbs
24" V.S.P.	34 ft.



No. 21
Sta 244+25
± Elev. 644.60

Culvert Data
Type, Spec. Side Road V.S. Pipe Culvert Dr #300
Size, 12" x 34"
Work Required, Build Spec. Side Road Culvert.

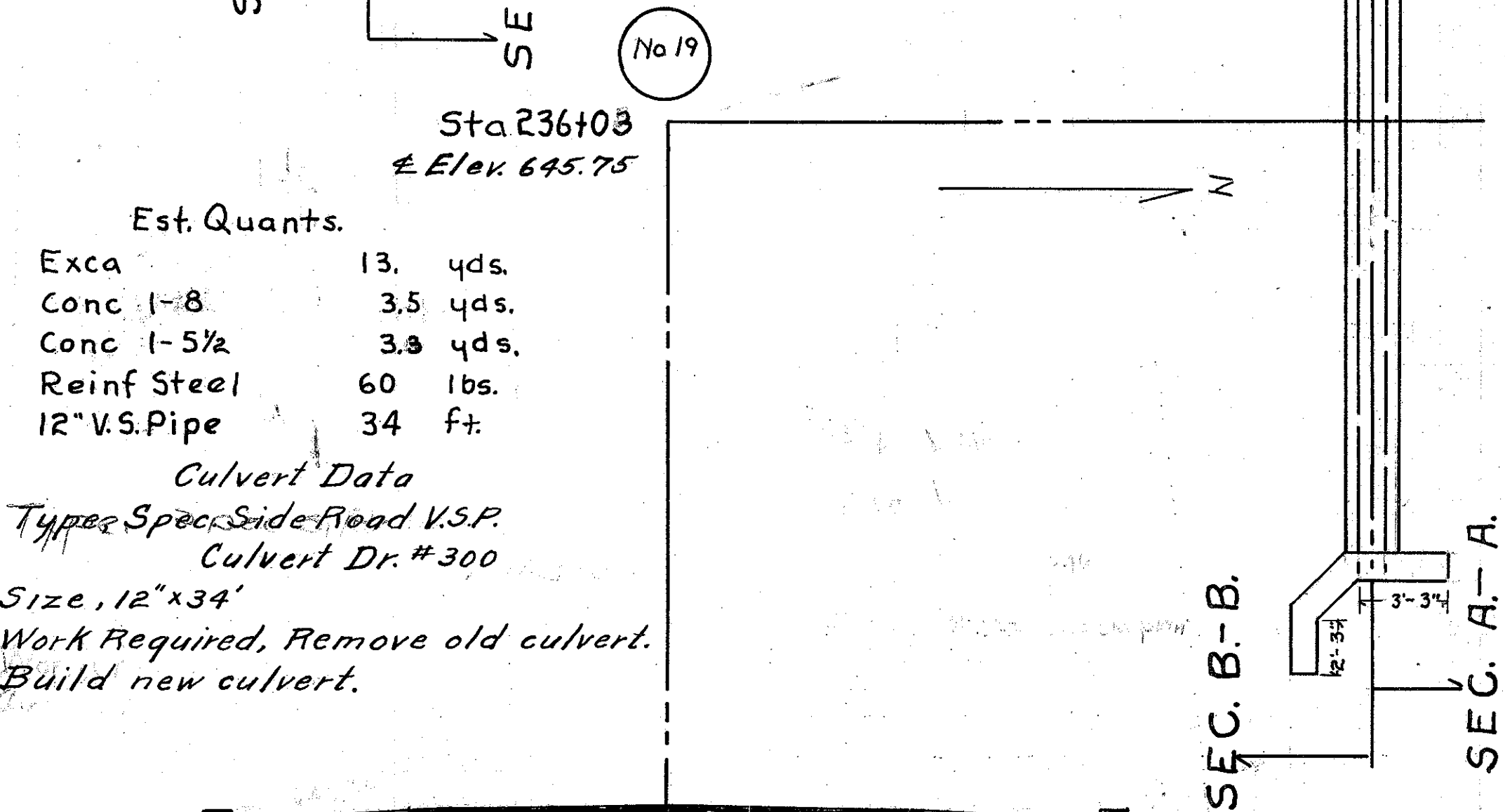
Est. Quants.	
Exca	16 yds.
Conc 1-8	3.5 yds.
Conc 1-5 1/2	3.0 yds.
Reinf Steel	60 lbs.
12" V.S. Pipe	34 ft.



No. 22
Sta 2+23
± Elev. 666.38

Culvert Data
Type, Spec. Cor. I.P. Culvert. Dr #300
Size, 18" x 36"
Work Required, Remove present culvert
Build Spec. Cor. I.P. Culvert.

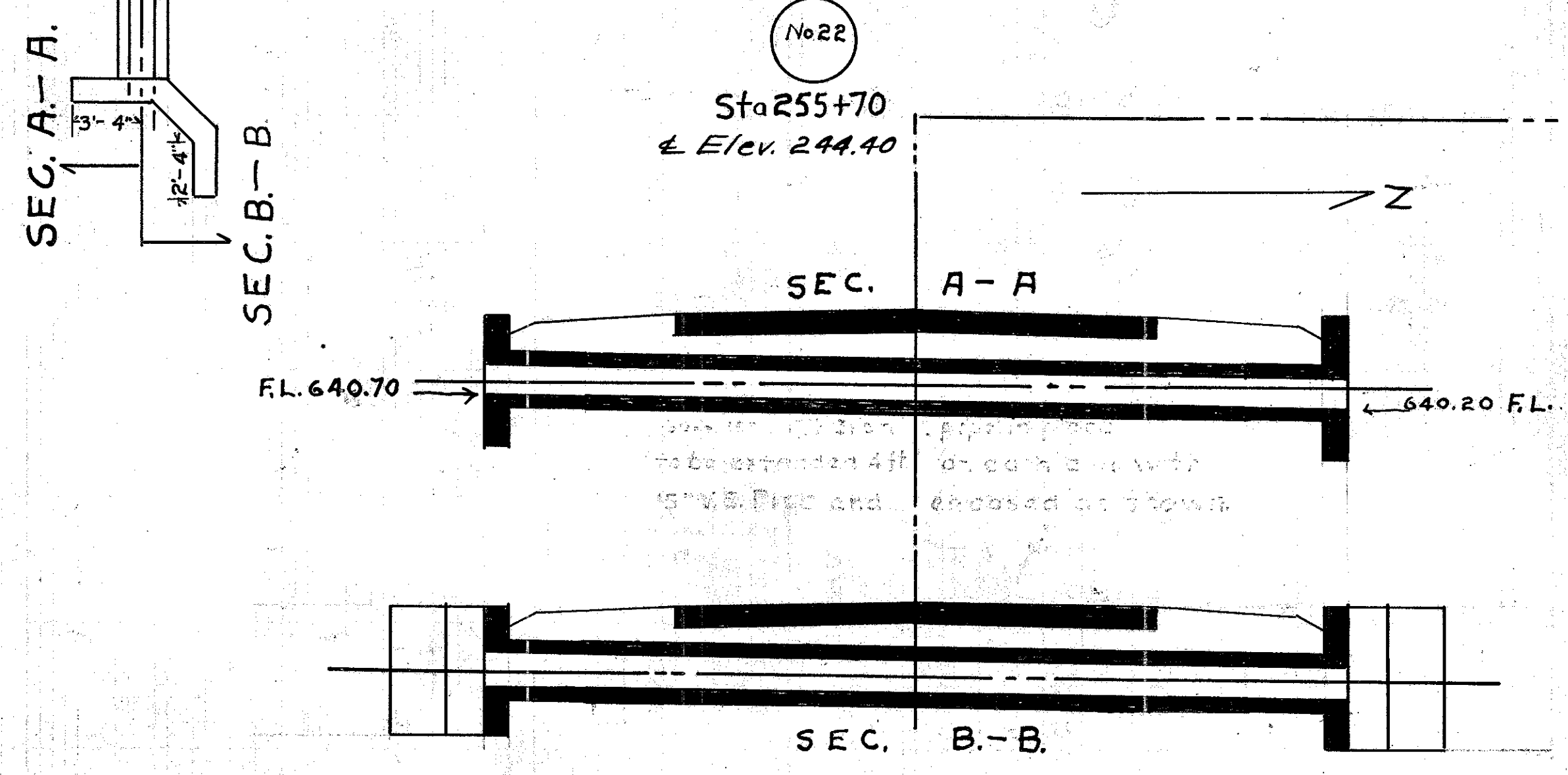
Exc	35 cu yds
steel	50 lbs
Conc. 1-5 1/2	2.6 cu yds
18" Cor. I.P.	36 ft.



No. 19
Sta 236+03
± Elev. 645.75

Est. Quants.	
Exca	13 yds.
Conc 1-8	3.5 yds.
Conc 1-5 1/2	3.3 yds.
Reinf Steel	60 lbs.
12" V.S. Pipe	34 ft.

Culvert Data
Type, Spec. Side Road V.S.P. Culvert Dr. #300
Size, 12" x 34"
Work Required, Remove old culvert.
Build new culvert.

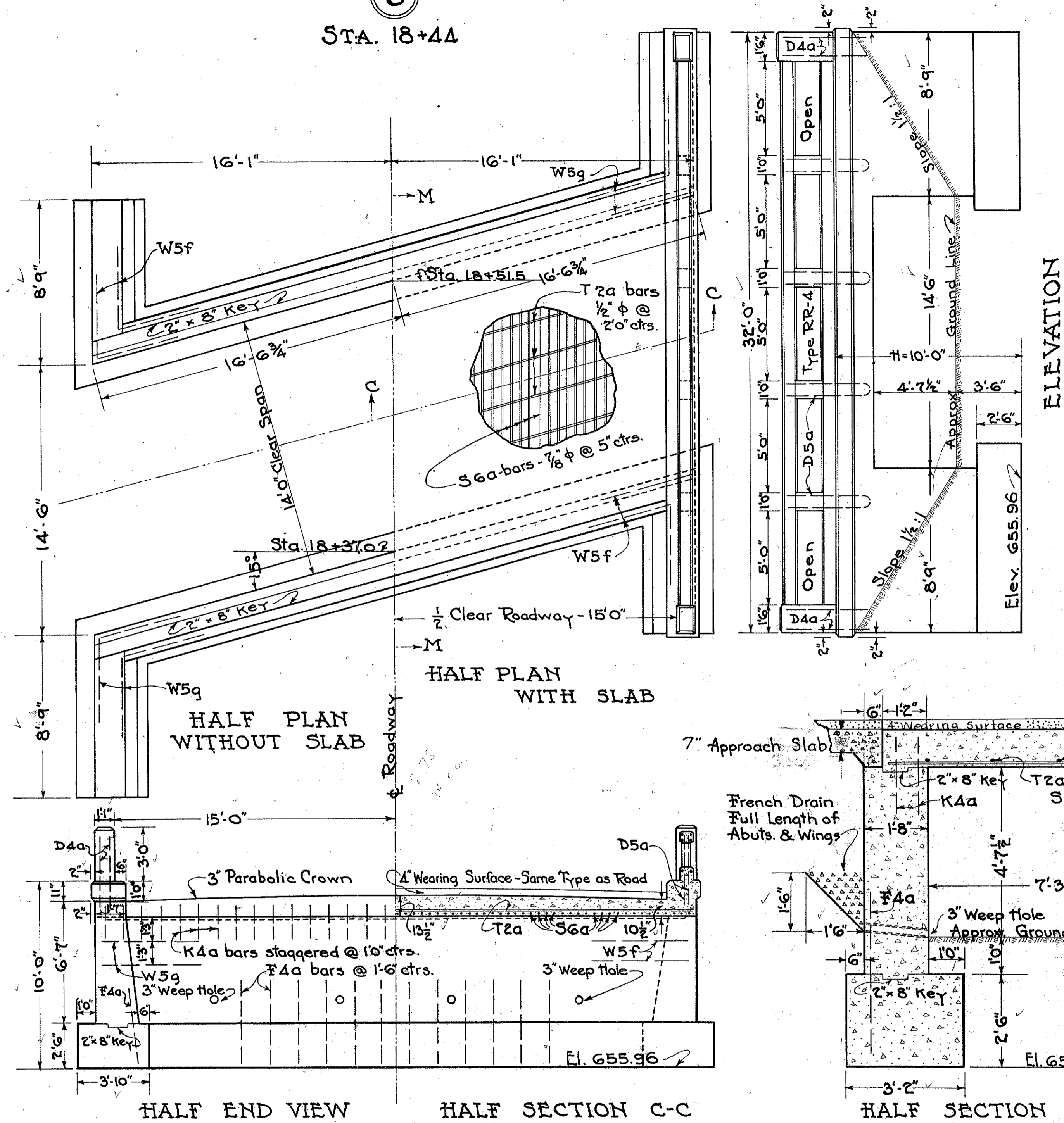


No. 22
Sta 255+70
± Elev. 244.40

Culvert Data
Type, Spec. Side Road V.S.P. Culvert #300
Size 15" x 36"
Work Required Remove present Culvert
Build Spec. Side Road Culvert.

Est. Quants	
Exca	38 yds.
Conc 1-8	4.4 yds.
Conc 1-5 1/2	3.6 yds.
Reinf Steel	60 lbs.
15" V.S. Pipe	36 ft.

3
STA. 18+44



For Details of Approach Slab see Std. Drawing AS 2430
For further details of bridge see Std. Drawings
SB 2430 and RR-A.

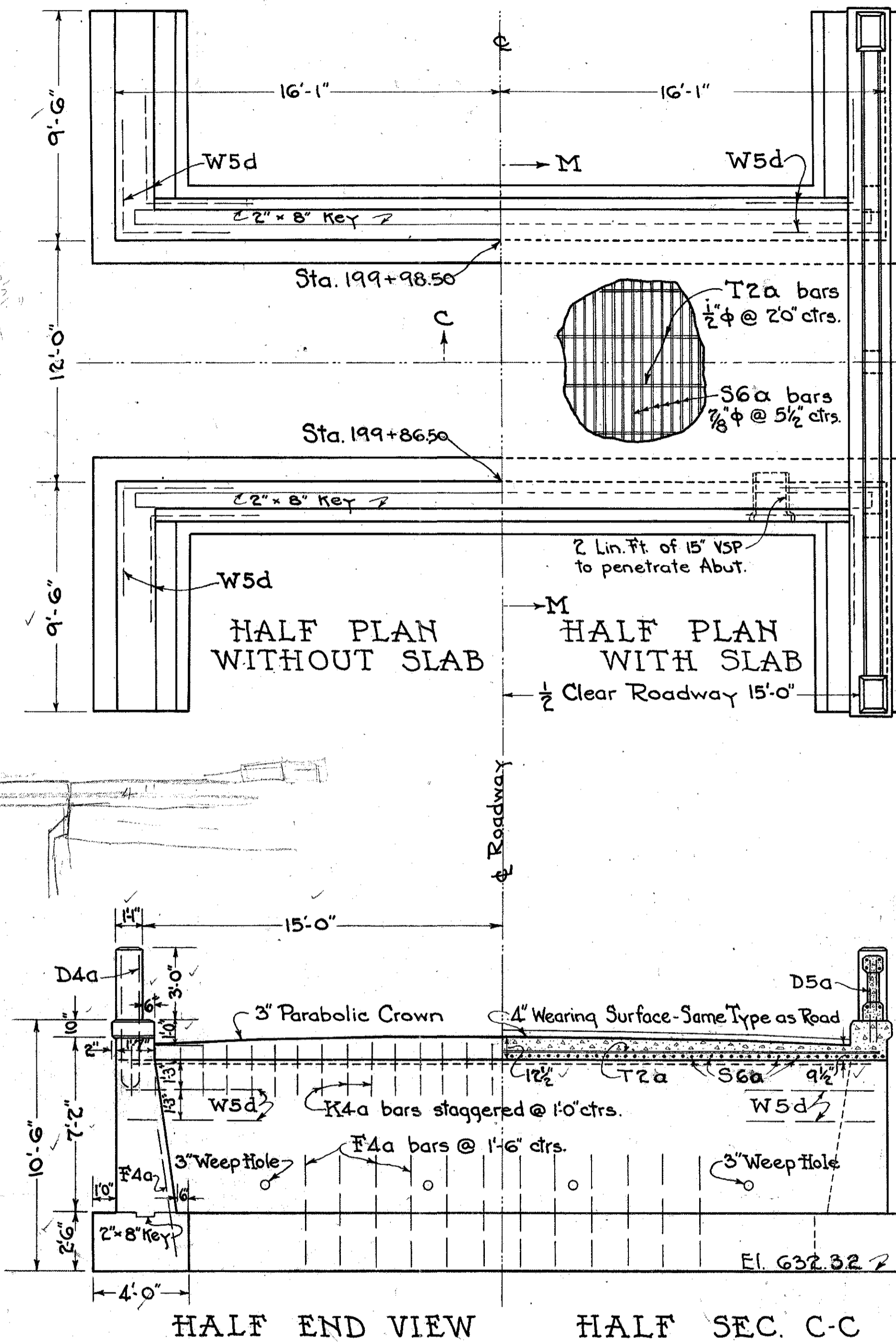
STEEL LIST				
MARK	Nº	SIZE	LENGTH	WEIGHT
D4a	8	5/8" φ	9'-0"	75
D5a	16	3/4" φ	8'-3"	198
F4a	56	5/8" φ	4'-6"	264
K4a	64	5/8" φ	2'-0"	132
S6a	77	7/8" φ	17'-6"	2755
T2a	8	1/2" φ	33'-0"	175
W5f	8	3/4" φ	9'-0"	108
W5g	8	3/4" φ	9'-0"	108
TOTAL				3815

QUANTITIES	
170	Cu. Yds. Exc. and Backfill
30.1	" 1:6 1/2 Conc. Footers
36.6	" 1:6 1/2 " Abts. & Wings
23.9	" 1:5 1/2 " Slab & Curb
3815	Lbs. Reinforcing Steel
64	Lin. Ft. Type RR-4 Railing
51.8	Sq. Yds. Approach Slab 7"
106.2	Sq. Yds. wear surf. Type M(B)
54.2	" " " " " Type C

SKewed SLAB BRIDGE
OVER
LITTLE MUDDY CREEK
STA. 18+44 - SEC. D-2 - ICH. 278
SANDUSKY COUNTY

DR. ② TR. ②

16
STA. 199+92.50



For Details of App. Slab see Std. Drawing AS 2430
For further details of bridge see Std. Drawings
SB 2430 and RR-A.

STEEL LIST				
MARK	Nº	SIZE	LENGTH	WEIGHT
D4a	8	5/8" φ	9'-0"	75
D5a	12	3/4" φ	8'-3"	149
F4a	56	5/8" φ	4'-6"	264
K4a	64	5/8" φ	2'-0"	134
S6a	70	7/8" φ	15'-0"	2003
T2a	7	1/2" φ	32'-0"	150
W5d	16	3/4" φ	9'-0"	216
TOTAL				2991

QUANTITIES	
150	Cu. Yds. Exc. & Backfill
31.2	Cu. Yds. 1:6 1/2 Conc. Footers
40.8	" " " Abts. & Wqs.
18.2	" " 1:5 1/2 " Slab & Curb
2991	Lbs. Reinforcing Steel
62	Lin. Ft. Type RR-4 Railing
2	Lin. Ft. 15" V.S.P.
52.6	Sq. Yds. Approach Slab 7"
46.2	Sq. Yds. wear surf. Type C
98.8	" " " " " M(B)

STANDARD SLAB BRIDGE
AT
STA. 199+92.50 - SH. 278 - SEC. BED
SPAN 12' - ROADWAY 30' - HEIGHT 10'-6"

DR. ② TR. ②

DATA

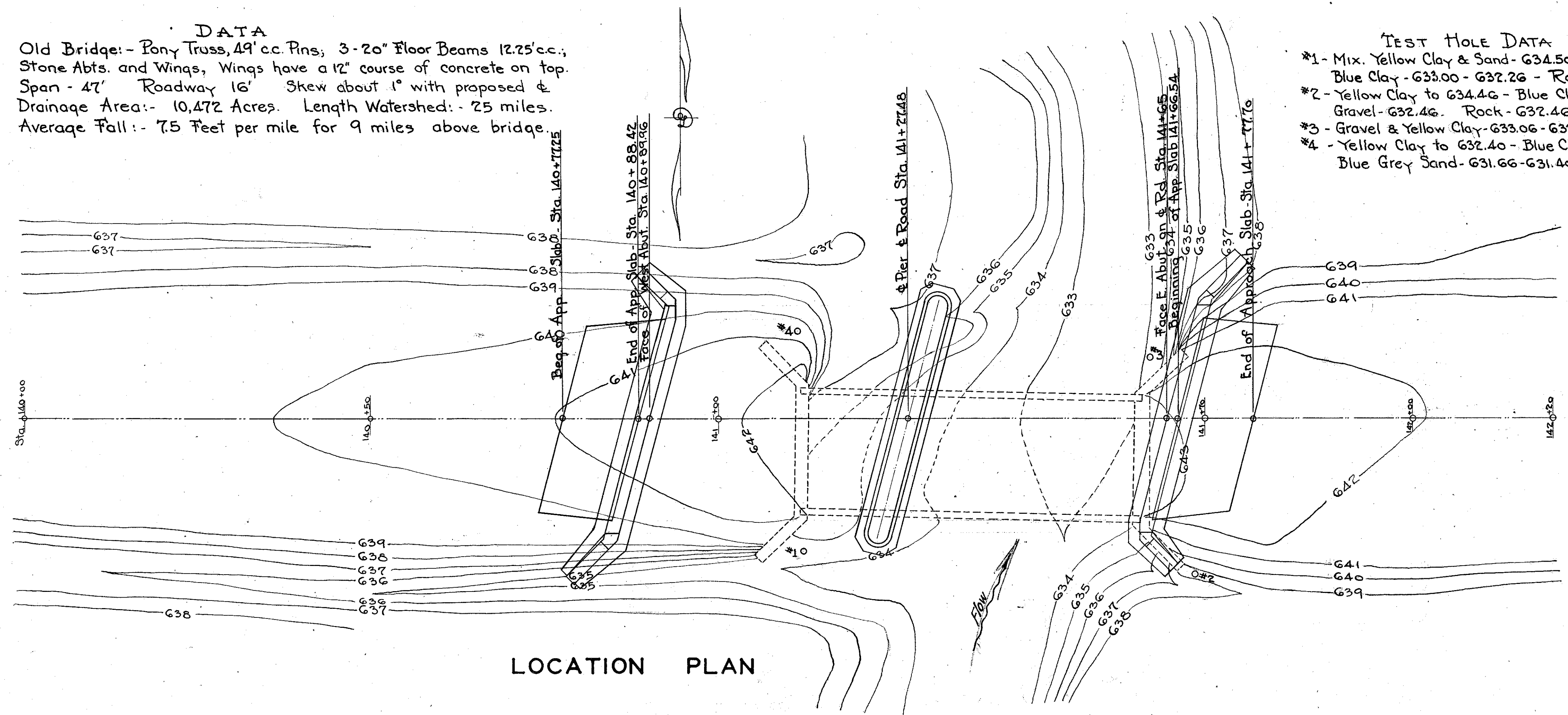
Old Bridge: - Pony Truss, 49' c.c. Pins, 3-20" Floor Beams 12.25' c.c.;
Stone Abts. and Wings, Wings have a 12" course of concrete on top.
Span - 47' Roadway 16' Skew about 1° with proposed ϕ
Drainage Area: - 10,472 Acres. Length Watershed: - 25 miles.
Average Fall: - 7.5 Feet per mile for 9 miles above bridge.

TEST HOLE DATA

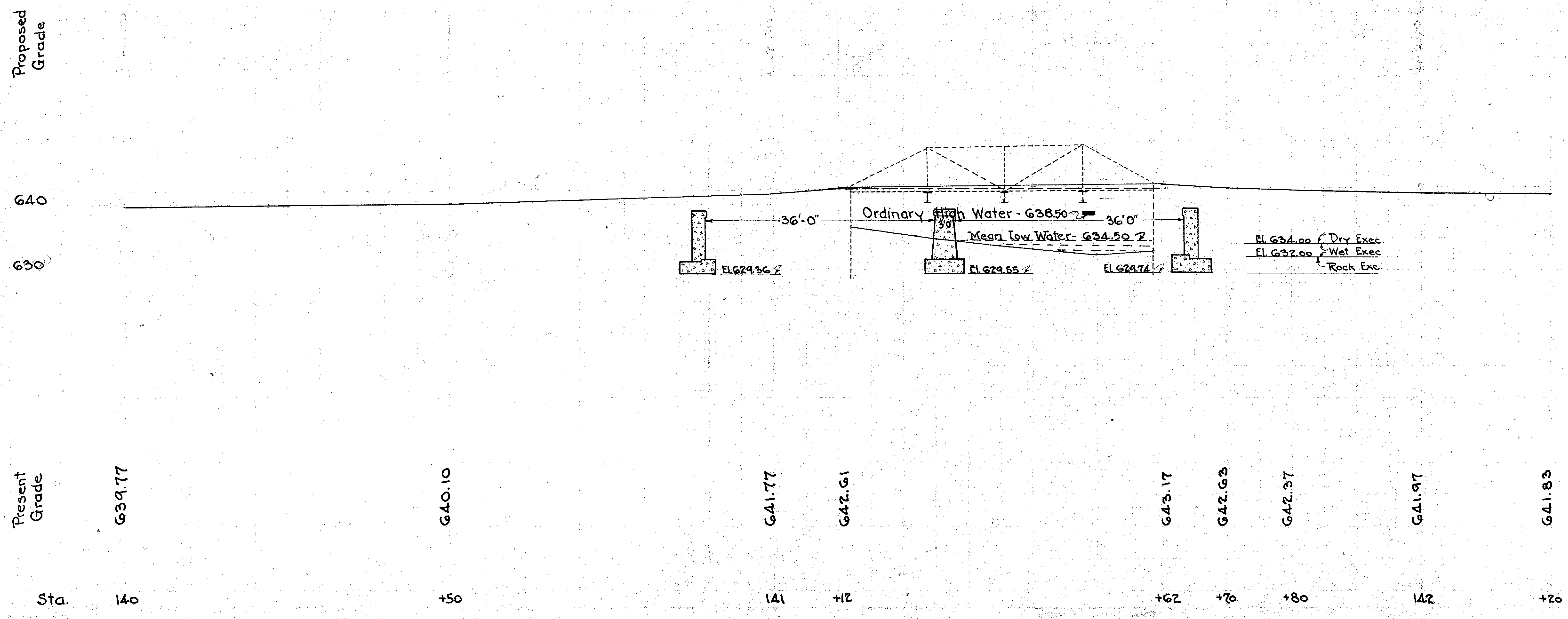
- *1 - Mix. Yellow Clay & Sand - 633.50 - 633.00
Blue Clay - 633.00 - 632.26 - Rock.
- *2 - Yellow Clay to 634.46 - Blue Clay and
Gravel - 632.46. Rock - 632.46
- *3 - Gravel & Yellow Clay - 633.06 - 632.06 - Rock
- *4 - Yellow Clay to 632.40 - Blue Clay - 631.66
Blue Grey Sand - 631.66 - 631.40 - Rock.

NEW BRIDGE

Twin Standard 36' Concrete Beam Spans,
15° Left Forward Skew, Roadway 30', Height 13'6",
Type RR-1 Railing; Wearing surface to be of the
same type as contract is let for pavement on
road, Standard Approach Slabs to be built.
Excavation down to Elev. 634 classified
as dry; between Els. 634 and Rock - as wet
Channel to be excavated
full width between Abutments at the bridge
gradually narrowing to its present width at
points 100 feet up and 100 feet downstream
from the ϕ of the Road. Side slopes to be
1/2 to 1. Bottom of Excavation to be El. 634.00

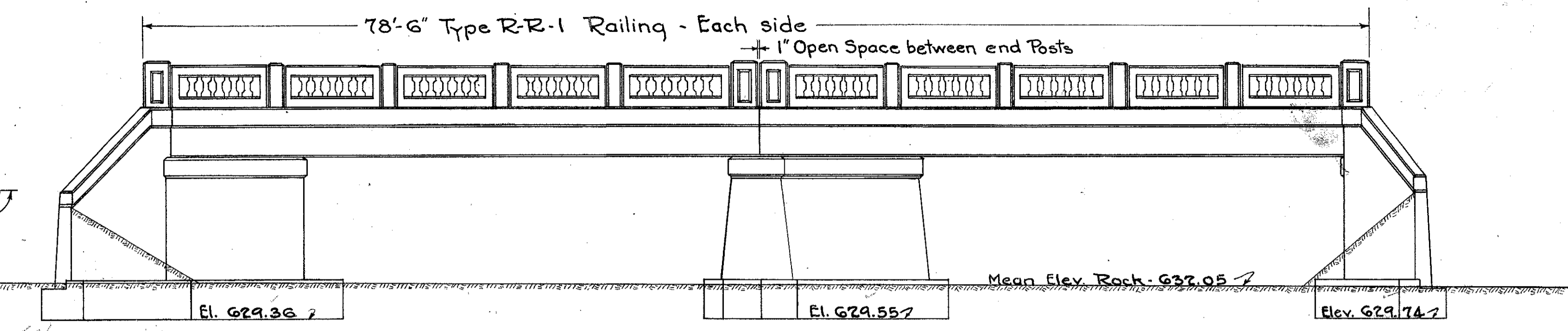


LOCATION PLAN

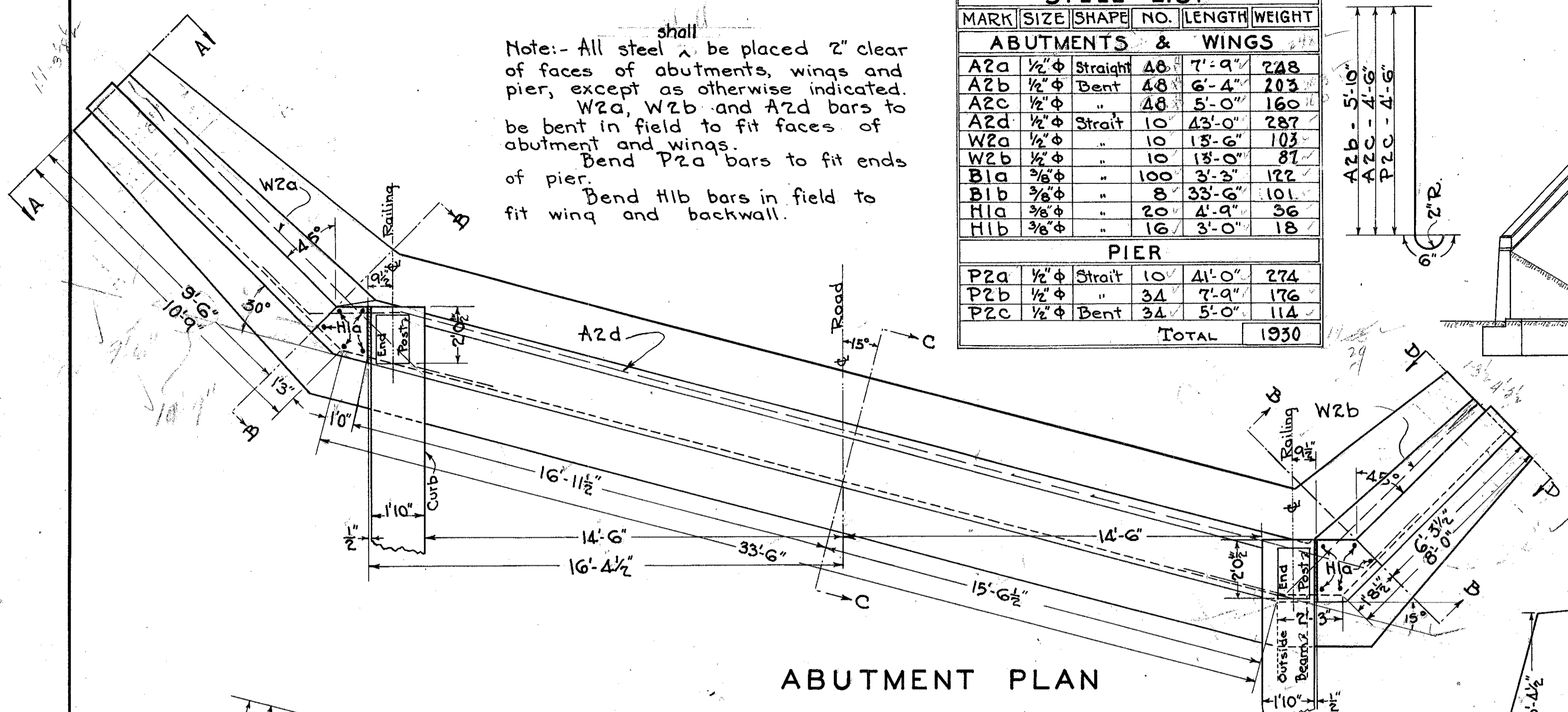


STEEL LIST					
MARK	SIZE	SHAPE	NO.	LENGTH	WEIGHT
ABUTMENTS & WINGS					
A2a	1/2" φ	Straight	48	7'-9"	248
A2b	1/2" φ	Bent	48	6'-4"	203
A2c	1/2" φ	"	48	5'-0"	160
A2d	1/2" φ	Straight	10	43'-0"	287
W2a	1/2" φ	"	10	13'-6"	103
W2b	1/2" φ	"	10	13'-0"	87
B1a	3/8" φ	"	100	3'-3"	122
B1b	3/8" φ	"	8	33'-6"	101
H1a	3/8" φ	"	20	4'-9"	96
H1b	3/8" φ	"	16	3'-0"	18
PIER					
P2a	1/2" φ	Straight	10	41'-0"	274
P2b	1/2" φ	"	34	7'-9"	176
P2c	1/2" φ	Bent	34	5'-0"	114
TOTAL				1930	

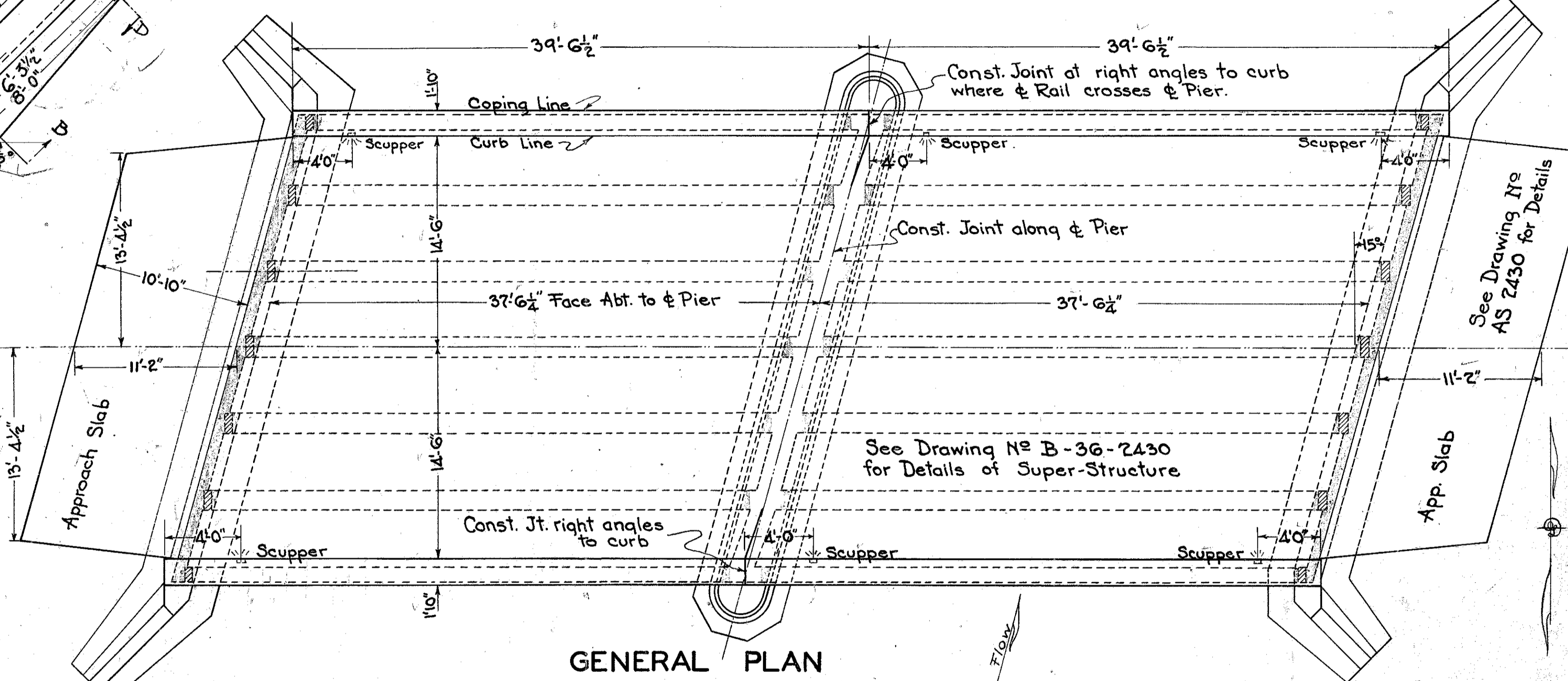
Note: - All steel shall be placed 2" clear of faces of abutments, wings and pier, except as otherwise indicated. W2a, W2b and A2d bars to be bent in field to fit faces of abutment and wings. Bend P2a bars to fit ends of pier. Bend H1b bars in field to fit wing and backwall.



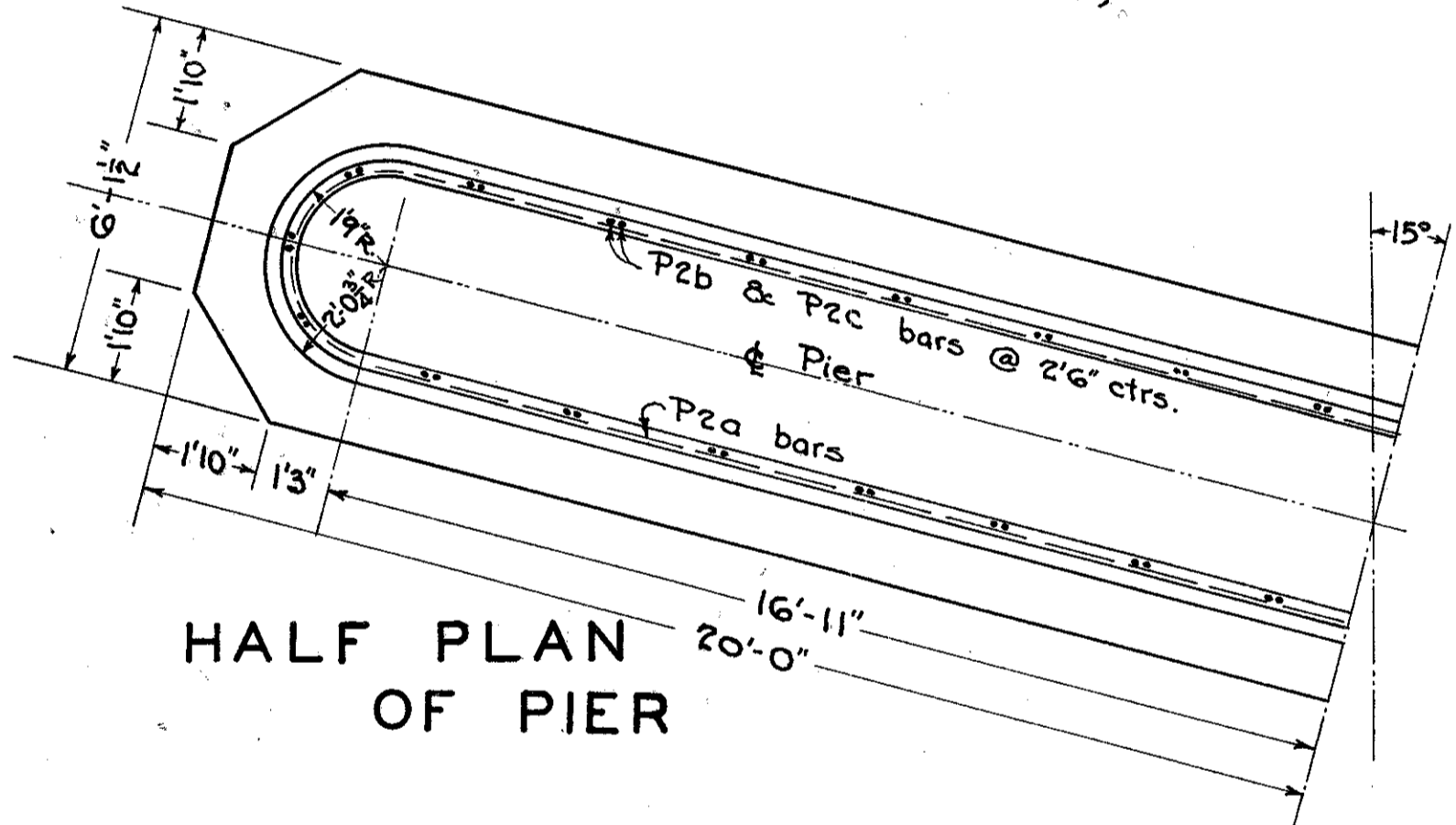
SOUTH ELEVATION (South Rail only shown)



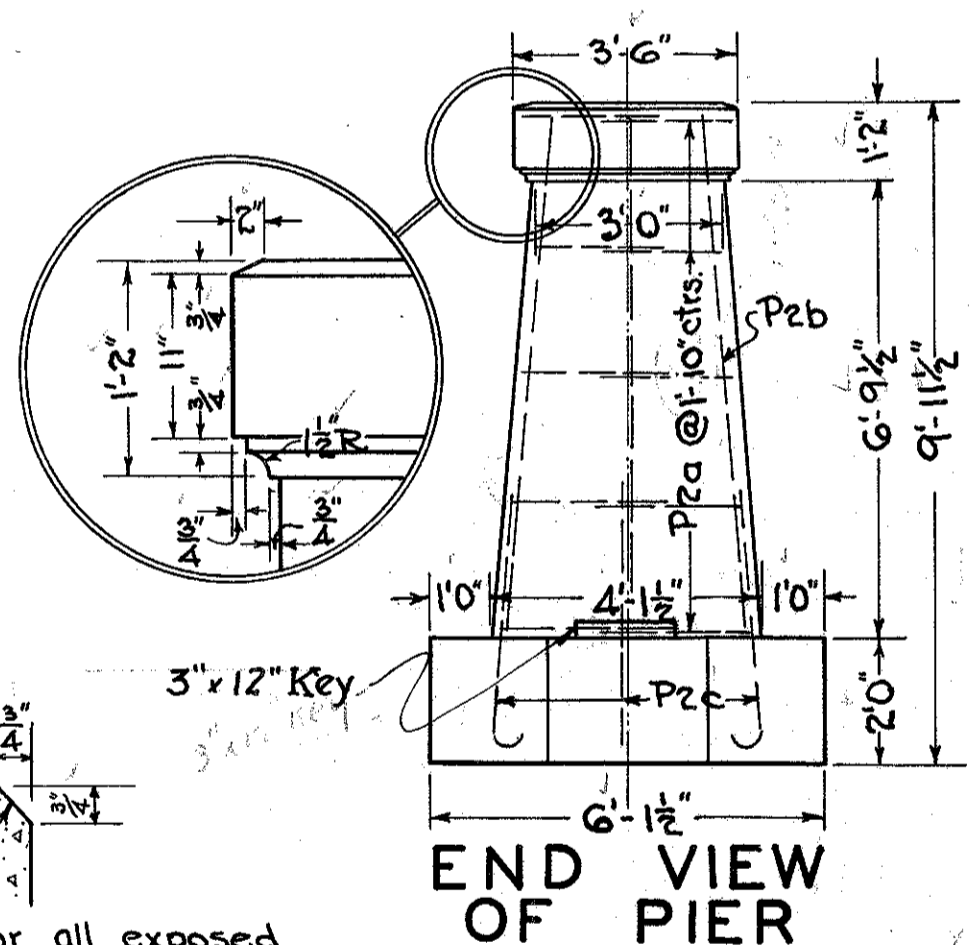
ABUTMENT PLAN



GENERAL PLAN



HALF PLAN OF PIER

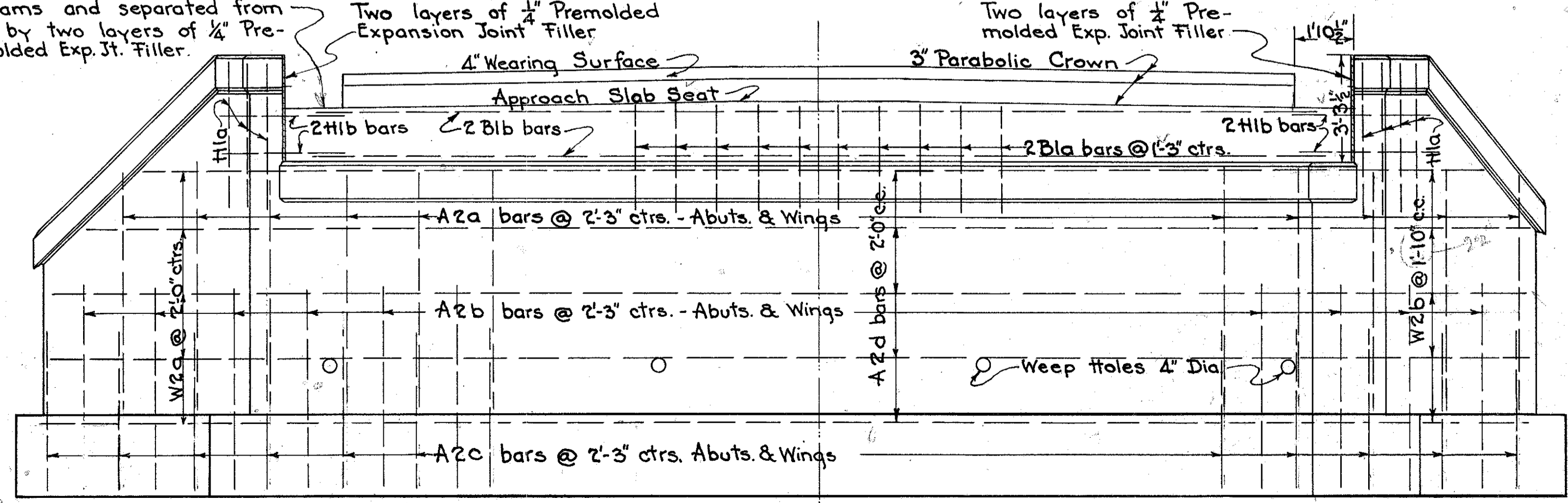


END VIEW OF PIER

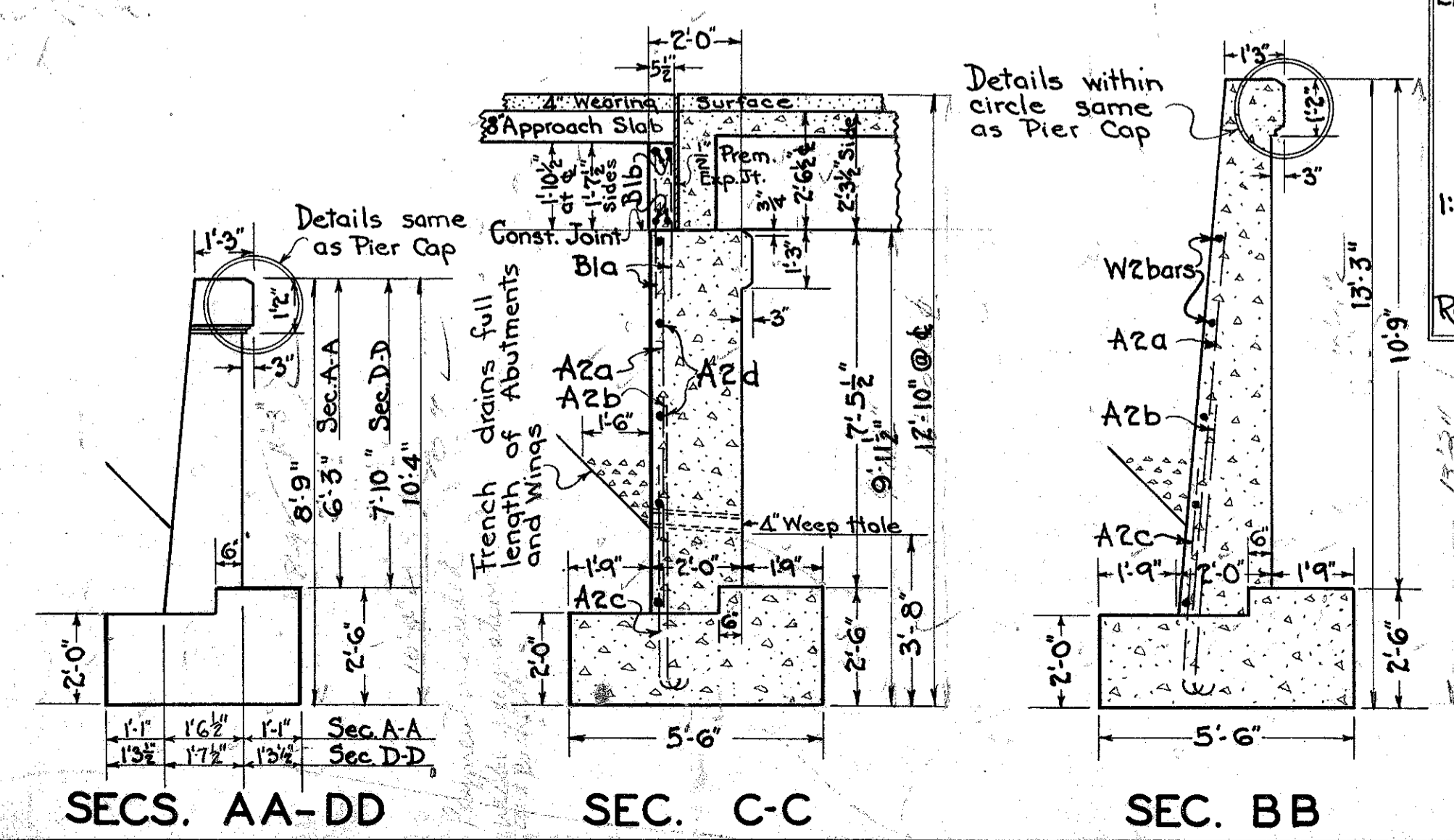
Note: - All Excavation above Elev. 634 is classified as Dry; that between 634 and Rock as Wet.

Note: - Channel to be excavated full width between Abuts. at the bridge, gradually narrowing to its present width at points 100' from the center of the road up and downstream. Side slopes to be 1 1/2 to 1. Bottom of excavation to be Elev. 634.00.

Note: - Backwall shall be level under projection of outside beams and separated from it by two layers of 1/4" Pre-molded Exp. Jt. Filler.



FRONT ELEVATION OF ABUTMENT



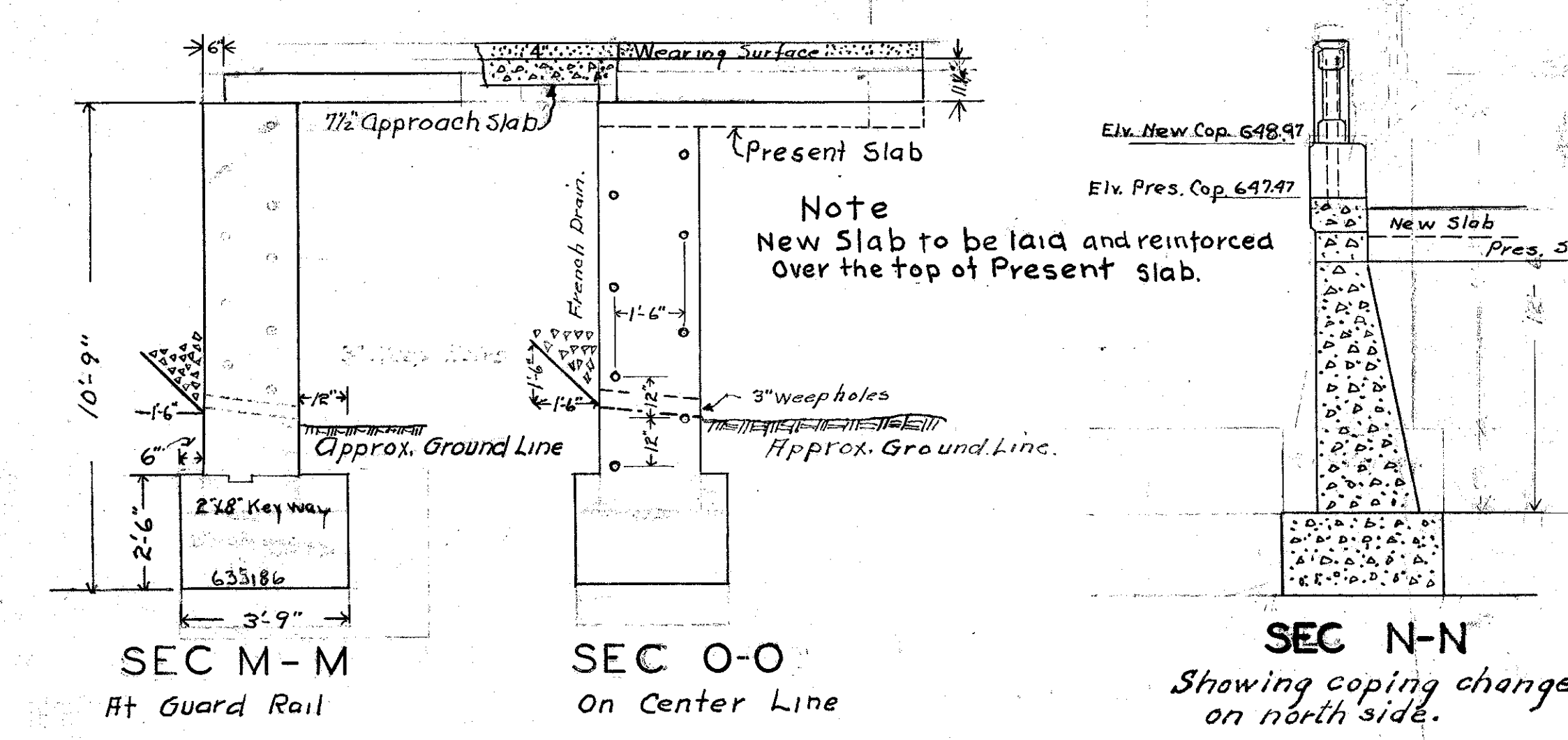
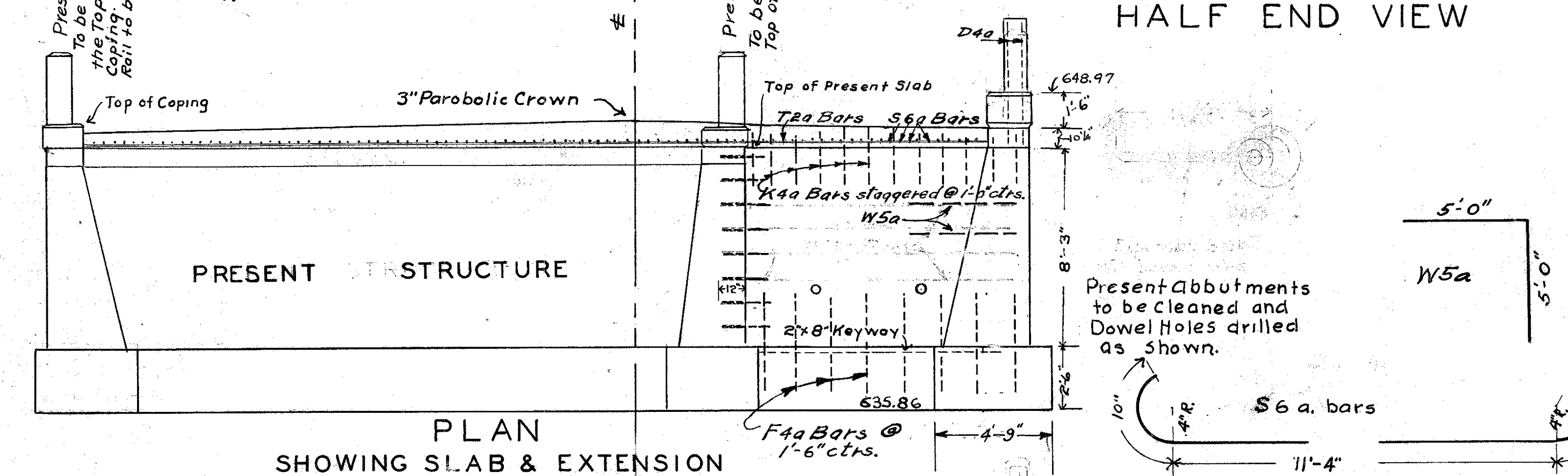
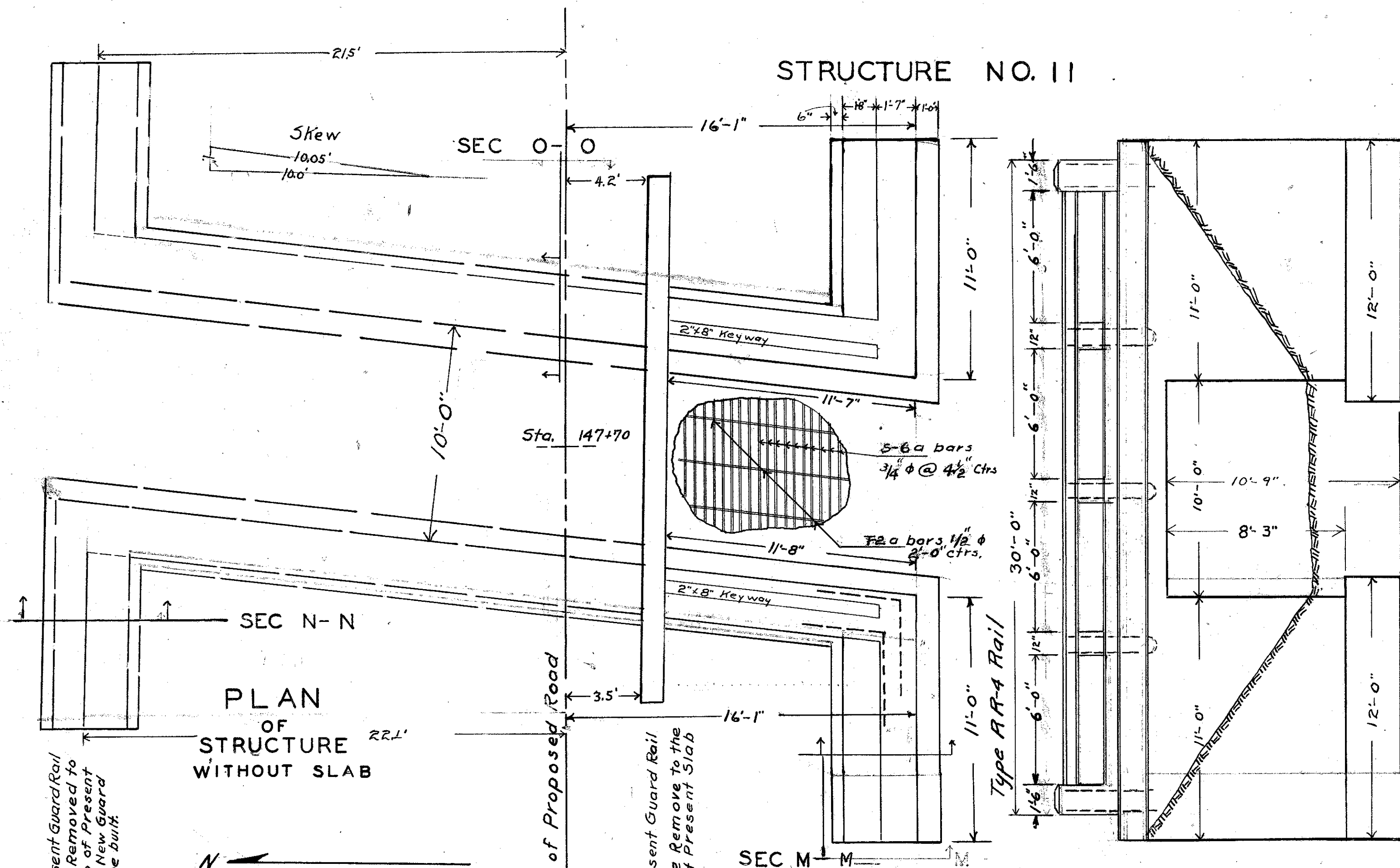
SECS. AA-DD

SEC. C-C

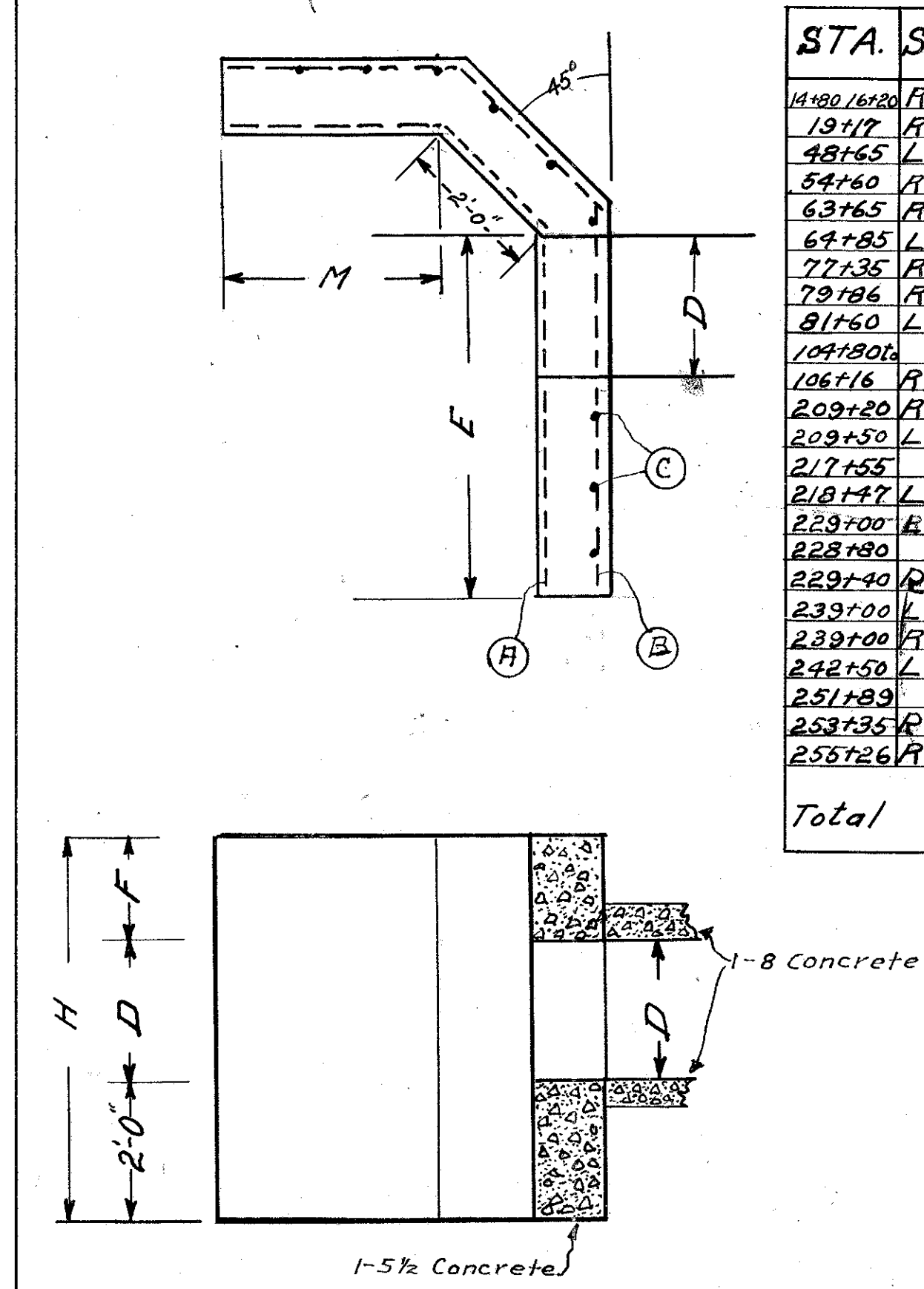
SEC. BB

ESTIMATED QUANTITIES		
SUB-STRUCTURE	SUPER-STRUCTURE	
Removing Old Struct.-Lump Sum	1:5 1/2 Concrete	115.7 Cu.Yd.
Excavation:-Rock	Reinfcg. Steel	33480 Lbs.
" Wet	1/4" Pre. Exp. Jt.	576 Sq.Ft.
" Dry	1/8" Phos. Dr. Plts.	106 Lbs.
" Channel	Cast Iron Scups	6 Pieces
1:6 1/2 Conc. Footers	Type RR-1 Rail	157 Lin.Ft.
" Pier & Abts.	Approach Slab	69.1 Sq.Yd.
Reinfcg. Steel	Wear Surf. Type C or Type Mb	2514 Sq.Yd. 320.5 Sq.Yd.

TWIN SPAN CONC. BEAM BRIDGE
OVER
MUSCALONGE CREEK
STRUCTURE No 10
HEIGHT - 13'-6" - 15' LEFT FOR'D SKEW
TWO 36' SPANS - 30' ROADWAY
Sta. 141+275 - 5H. (ICH) 278-SEC. BED
SANDUSKY COUNTY



ELEVATION



EXTENSION TO PRESENT STRUCTURE AT STATION 147+70

STEEL LIST				
MARK	NO	SIZE	LENTH	WEIGHT
D4a	16	5/8 φ	3'-0"	75
D5a	12	3/4 φ	3'-6"	171
F4a	16	5/8 φ	4'-6"	72
K4a	22	7/8 φ	2'-0"	42
Dowels	16	1" φ	2'-0"	43
S6a	121	3/4 φ	13'-0"	2387
T2a	6	1/2 φ	47'-6"	1386
W5a	16	3/4 φ	10'-0"	240
Total				4916#

QUANTITIES		
Excav	Cu. yds.	150
Conc. 1-5 1/2 Slab & Cop.	Cu. yds.	212
Conc. 1-6 1/2 Footers	Cu. yds.	16.0
Conc. 1-6 1/2 Abuts.	Cu. yds.	8.2
Guard Rail Type RR-4	Lin. ft.	60
Reinf. Steel	Lbs.	4916
Wearing Surface	Sq. yds.	500
Approach Slab 7 1/2"	Sq. yds.	62.2
Dowel Holes		16

STA.	SIZE	LGTH	E	M	H	1-5 1/2 CONC. Cu. Yds.	1-8 CONC. Cu. Yds.	A BARS	B BARS	C BARS	WGT.
147+00	R	30"	140	8'-0"	4'-3"	8'-0"	8.5				
147+17	R	12"	18	4'-6"	3'-6"	7'-0"	6.4	2	14'-3"	2	15'-3"
48+65	L	12"	18	5'-3"	4'-3"	7'-3"	6.4	2	11'-6"	2	12'-6"
54+60	R	24"									
63+65	R	24"		6'-0"	4'-0"	7'-3"	6.7	2	10'-0"	2	11'-0"
69+85	L	12"	18	7'-0"	5'-0"	7'-3"	7.7	2	14'-0"	2	15'-0"
77+35	R	24"	72	7'-6"	4'-3"	6'-9"	6.7	2	13'-3"	2	14'-9"
79+86	R	24"		6'-6"	4'-3"	7'-3"	7.3	2	13'-3"	2	14'-3"
81+60	L	15"	18	4'-0"	3'-0"	5'-8"	4.0	2	9'-0"	2	10'-0"
104+80											
106+16	R	30"	136	7'-0"	5'-0"	7'-3"	7.6	2	14'-0"	2	15'-0"
209+20	R	12"	18	4'-6"	3'-0"	5'-0"	3.8	2	9'-6"	2	10'-6"
209+50	L	12"	18	4'-6"	3'-0"	5'-6"	4.1	2	9'-6"	2	10'-6"
217+55											
218+47	L	12"	92	4'-0"	3'-0"	5'-0"	3.5	2	9'-0"	2	10'-0"
229+00	R	12"	18	4'-0"	3'-0"	5'-6"	3.9	2	9'-0"	2	10'-0"
229+40	R	12"	60	4'-0"	3'-0"	5'-6"	3.9	2	9'-0"	2	10'-0"
239+00	L	12"	60	4'-0"	3'-0"	5'-0"	1.7	1	9'-0"	1	10'-0"
239+00	R	12"	60	4'-0"	3'-0"	5'-0"	1.8	1	9'-0"	1	10'-0"
242+50	L	12"	18	4'-0"	3'-0"	5'-6"	3.9	2	9'-0"	2	10'-0"
251+89											
253+35	R	12"	146	4'-0"	3'-0"	5'-0"	3.5	2	9'-0"	2	10'-0"
255+26	R	12"	18	4'-0"	3'-0"	4'-0"	3.4	2	9'-0"	2	10'-0"
Total						93.8	69.3				

Handwritten calculations:
476 / 1995 = 0.2386
1684 / 1690 = 0.9964
4916 / 3200 = 1.53625

