

STATEMENT OF COSTS

In Account With: County Engineer
Logan County
Bellefontaine, Ohio 43311

Date: 5-10-72
Logan County - Div. No. 7
Route C.R. 10 - Section 5.09
Project No. 596-70
Contractor: Iberia Earthmoving
Service, Inc.
Type: 404 on 301 & Structure

CONTRACT COST

TOTAL PRELIMINARY ENGINEERING

\$ 575.71

CONSTRUCTION

Contract
Expense, Advertising, etc.
Construction Engineering

\$75,950.81
992.11
10,187.95

Total Construction

87,130.87

TOTAL CONTRACT COSTS

\$87,706.58

PARTICIPATION

Logan County, per contract agreement, shall pay 100% project costs less State Issue No. 1 Funds.

COST TO: LOGAN COUNTY

Total Project Costs

\$87,706.58

Total Cost to Logan County

\$87,706.58

LESS CREDITS TO: LOGAN COUNTY

Credits for State Issue No. Allocation

\$102,900.00

Total Advance Payments and Credits

102,900.00

AMOUNT OF EXCESS ALLOCATION

\$ 15,193.42

DISTRIBUTION

Original and 3 copies to Logan County, () () ()
Original Contract No. 22008, () E.E. No. 507685, ()
Division No. 7 Engineer, () Division No. 7 Auditor, ()
Auditor of State

Pre Audit - Highway Examiner, ()
Office of Budgeting & Auditing
Accounting Section, () ()
Estimate Section, () ()
Planning & Programming, ()
Division No. 7 Engineer of Design & Planning, ()

Approved *R. J. [Signature]*, Auditor
Date 5-10-72

RECEIVED
MAY 12 1972
LOGAN COUNTY ENGINEER

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

OFFICE OF BUDGETING & AUDITING
DISBURSEMENTS SECTION

STATEMENT OF COSTS

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Logan County
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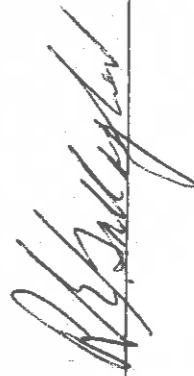
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Estimate Section,()()

Planning & Programming,()

Division No. 7 Engineer of Design & Planning,()

Approved:  _____, Auditor
Date: 5-10-72

TRUSS TYPE *Pratt Truss*

NO. OF SPANS *1*

FABRICATOR *Belle & Bridger Iron*

DATE BUILT *1898*

TYPE AND APPROX. SAFE LOAD CAPACITY OF TRUSS	LENGTH OUT TO OUT OF FLOOR	WIDTH BETWEEN CURBS OR FELLOW GUARDS	WIDTH OUT TO OUT OF TRUSSES	WIDTH OF SIDEWALKS	HEIGHT OF FLOOR ABOVE BRIDGE SEAT	CLEARANCE DIMENSIONS	HEIGHT OF FLOOR ABOVE BOTTOM CHORD
<i> 48'9" Lattice</i>	<i> 52'6"</i>	<i> 13'6"</i>	<i> None</i>	<i> 0'10"</i>	<i> 13'8"</i>	<i> 3" X 6"</i>	<i> 0'4"</i>

DESCRIPTION OF FLOOR BRAKES	ALIGNMENT AND SKEW OF STRUCTURE	APPROX. WIDTH BETWEEN BANKS	CHANNEL DEPTH	APPROACH SLABS	HEIGHT FROM GRADE TO STREAM BED	NATURE OF BOTTOM	ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE	TYPE AND SIZE OF CURB OR FELLOW GUARD
<i> 05</i>	<i> -0-</i>	<i> Mdd River</i>	<i> 40'</i>	<i> None</i>	<i> 10'</i>	<i> Gravel</i>	<i> See Sketch</i>	<i> 3" X 6"</i>

CONDITION OF BARS	APPROX. WIDTH BETWEEN BANKS	CHANNEL DEPTH	APPROX. WIDTH BETWEEN BANKS	APPROACH SLABS	HEIGHT FROM GRADE TO STREAM BED	NATURE OF BOTTOM	ALIGNMENT OF STREAM ABOVE AND BELOW STRUCTURE	TYPE AND SIZE OF CURB OR FELLOW GUARD
<i> SOD + R-rush</i>	<i> 40'</i>	<i> 6'</i>	<i> None</i>	<i> None</i>	<i> 10'</i>	<i> Gravel</i>	<i> See Sketch</i>	<i> 3" X 6"</i>

SUPERSTRUCTURE LENGTH OF SPANS - C. TO C. *51'0" X*

TYPE OF TRUSSES *Pratt*

NO. PANELS *4*

LENGTH OF PANELS *12'9"*

FLOOR BEAMS AND CONNECTIONS

TYPE	NUMBER	SPACING	SECTION	SIZE - SHAPED JOIST SECTION	RIVETTED CONNECTIONS	NO. & SIZE RIVETS FLOOR BEAM TO CORR.	NO. & SIZE RIVETS CORR. TO TRUSS
<i> INTER-MEDIATE FLOOR BEAMS</i>	<i> 3</i>	<i> 12'9"</i>	<i> 12" I @ 40#</i>	<i> 1 1/4" DU</i>	<i> Riveted Conn. sections</i>		

FLOOR JOISTS

KIND	NO. LINES	SIZE	DO JOISTS REST ON TOP OF FLOOR BEAMS	ARE SHELF ANGLES USED	END JOISTS - LENGTH	SUPPORTS
<i> 3 BEAMS</i>	<i> 8</i>	<i> 5" I @ 19.7#</i>	<i> Yes</i>	<i> Yes</i>	<i> Clamps</i>	
<i> CHANNELS</i>	<i> 2</i>	<i> 5" C @ 16.5#</i>	<i> Yes</i>	<i> Yes</i>	<i> Clamps</i>	
<i> WOOD</i>			<i> Yes</i>	<i> Yes</i>	<i> Clamps</i>	

REINFORCED CONCRETE SLAB	THICKNESS	CONCRETE	INCHES THICK	PLANK	INCHES THICK ON CORRUGATED ARCHES OR BUCKLE PLATES
<i> STRIP</i>	<i> 2" X 4"</i>	<i> Treated</i>	<i> 2"</i>	<i> STD. DRAWING NO. Clamps</i>	

ATTACHMENTS AND PIERS	MATERIAL	TYPE	HEIGHT FOOTER TO BRIDGE SEAT	WIDTH OF BRIDGE SEAT	LENGTH OF FOUNDATIONS (PILING)	WINGS (LENGTHS, ANGLES ETC.)
<i> BEAR</i>	<i> Stone + conc</i>	<i> Gravity</i>	<i> 9'0"</i>	<i> 2'0"</i>	<i> 19'0"</i>	
<i> FORWARD</i>	<i> "</i>	<i> "</i>	<i> 9'0"</i>	<i> 2'0"</i>	<i> 16'6"</i>	
<i> PIER</i>						
<i> PIER</i>						

BRIDGE NO.	COUNTY	ROUTE NO.	SPANNER	SECTION	STRENGTH	ROADWAY	CLEARANCE	TYPE
<i> 10 - 5.09</i>	<i> Logan</i>	<i> CR-10</i>	<i> JEFFERSON</i>		<i> H10 H12 H13 H30</i>	<i> 13-16 15-22 23</i>	<i> 15-14 14 14</i>	<i> A B C S T</i>

10-5.09

Logan

CR-10

Jaffevsen

SECTION OF STRUCTURE SHOWING DIMENSIONS



SECTION OF TRUSS MEMBERS

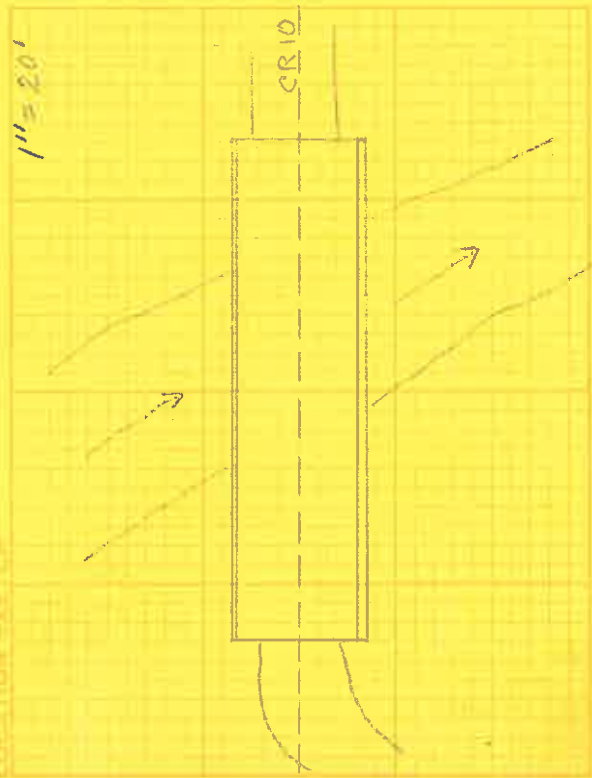
ALL MEMBERS U1-L1, U5-L5 = Red 4" x 8" Ls 1ea
TOP CHORDS U1-L1, U5-L5 = Red 4" x 8" Ls 1ea

VERTICAL MEMBERS U2-L2, U3-L3, U4-L4 = Red 2 3/4" x 3 1/2" Ls
U1-L1, U5-L5 = Red 4" x 8" Ls 1ea

DIAGONAL MEMBERS U2-L3, U3-L4, U4-L5 = Red 2 3/4" x 3 1/2" Ls
U1-L2, U5-L4 = Red 2 3/4" x 3 1/2" Ls 1ea

FINISH

LOCATION PLAN



REMARKS:

See Bridge 240

PAINTED 1965

596

LOGAN COUNTY - County Road 10 - 5.09 - (ISSUE NO. 1). Jefferson Township, Type 404 on 301 & Structure. Grading, draining and paving with asphalt concrete on a bituminous aggregate base and by constructing: Bridge No. 10-5.09, a continuous concrete slab with capped-pile substructure (spans 24'-30'-24', roadway 30'), over the Mad River. Pavement Width 20 Feet. Project Length 1,087.51 Feet or 0.205 Mile; Work Length 1,187.51 Feet or 0.224 Mile. Date set for completion August 31, 1971. Est. cost \$98,000.00.

AWARDED: Iberia Earthmoving Service, Inc.
Iberia, Ohio 43325

\$76,697.92

New structure

— 1971

HIGH WATER
APRIL 1972
1170.0 #

1182.25	1182.25
1177.34	1177.34
4.91	4.91
1182.25	1182.25
1177.34	1177.34
4.91	4.91
1182.25	1182.25
1177.34	1177.34
4.91	4.91











October 15, 1970

State of Ohio
Department of Highways
Mr. Oliver M Liggitt
Division Deputy Director
Division Seven
Sidney, Ohio 45365


Dear Mr. Liggitt:

Re: Project No. 596-10
Logan County
County Road 10-5.09

This is to request assistance and co-ordination of the construction of the above project. We will need help in the surveying and inspection areas. We shall furnish as many men as possible and where we have the ability. We will not do any testing with our forces.

We understand the county will pay for the above services.

Very truly yours,


Chester R. Kurtz, P.E.
Logan County Engineer

CRK:sjm

COPY



STATE OF OHIO
DEPARTMENT OF HIGHWAYS

Columbus, Ohio 43216

P. E. MASHEVER
Director

JAMES A. RHODES
Governor

J. W. WILSON
Chief Engineer

Division Seven
Sidney, Ohio-45365
October 2, 1970

Mr. Chester R. Kurtz
Logan County Engineer
P. O. Box 427
Bellefontaine, Ohio- 43311

RE: Project No. 596-70
Logan County
County Road 10 - 5.09

Dear Sir:

It is a policy of the Highway Department to hold a Pre-construction Conference on a Project as soon as practical after the award of the Contract and prior to the actual start of the work.

This procedure has been the result of experience which points out the desirability for reviewing the Contractor's plan of operation with utilities and other affected agencies.

The understandings reached at meetings of this nature have resulted in improved relations and co-ordination of inter-related activities by all concerned.

The Pre-construction Conference for subject Project will be held in the Division Seven Conference room at 10:00 A. M. Thursday, October 8, 1970.

Logan County should be represented at this meeting.

Sincerely yours,

Oliver M Liggitt
Division Deputy Director

Joe A. O'Brien
Division Construction Engineer

JAOB:hb

cc: Project
File

RECEIVED

OCT 6 1970

**LOGAN COUNTY
ENGINEER**

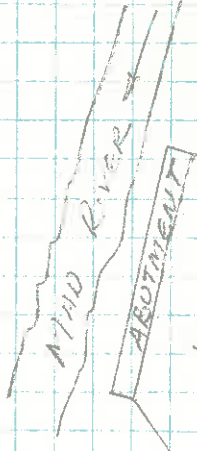
BR 10-5:09

7/25/77 026.7

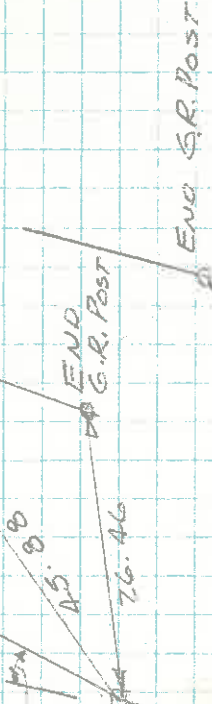
GREENLIN - BROOKS - DOWSON
SOURCES - ZUPP

STA 262+36.38
FD 3/4" PIPE

R.F. NAIL @
STA 259+00



21° 09.3'



STA 252+23.06
SET 1" #1

7° 27.9' RT
(14° 55.4')

Cap of Nail @
STA 250+98.25

5/8" ϕ FD 2" DEEP
PLACED 1" OVER

498.16
448

247+07.93
R.I.R. S.P.K. SET

STA 246+00 5/8" ϕ FD

Brdg 10-5.09

592 - 2845



Line Notes for Ordg 10-
Dec. 1965

265+14.23

262+56.38 3/4" pipe Fd
 $\Delta = 75^{\circ} 04' 1/3$ Lt

252+23.06 3/4" pipe Fd.
 $\Delta = 21^{\circ} 09' 1/3$ Rt

250+98.25 3/4" pipe Fd
 $\Delta = 7^{\circ} 26.75'$ Rt

247+07.33 5/8" ϕ Bar Fd

246+00 3/8" Rebar Fd Bent
Replaced w/5/8" Rebar

247+52.05
247+07.33
44' 7"

Dec 1965

L. Secor &
C. Ricchetti
J. Slater et

265+14.23 Capped Nail

265+14.23 3/4" Pipe

290.30

262+36.38
3/4" pipe

177 60

21-09-20

58-50-40

OR
8/25/71

21° 09' 1/3

252+23.06
3+98.25
-4.8'

252+23.06 - REPLACED
WITH 1" # 8/25/71

102.6'

(7° 27.7')

250+98.25 (14° 55.4')
1" # PLACED OVER
8/25/71

R.R. SPRK PLACED
8/25/71

246+00
5/8 Rebar

252+23.06
0+98.25
1-4.81

102.6'

Nov 3, 1960 Drag 10-

Tape

250+00

249+00

248+00

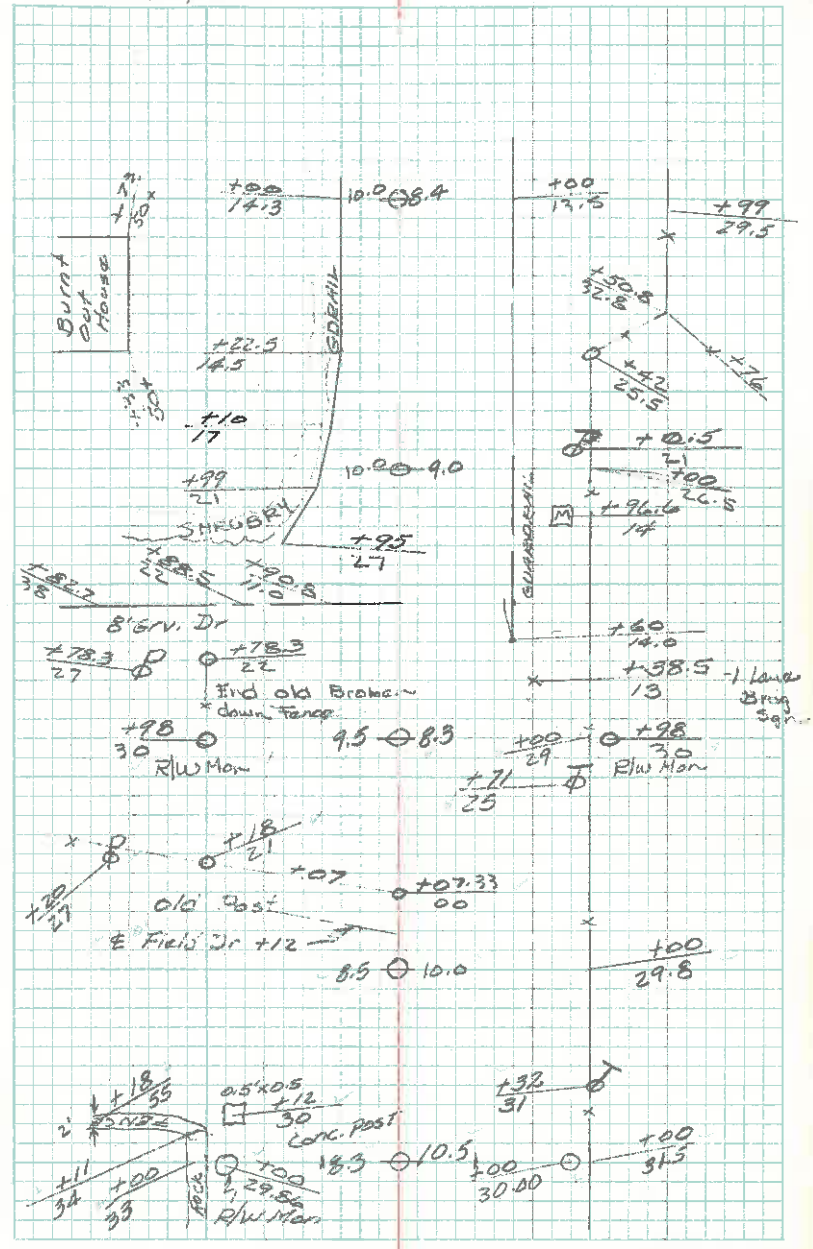
247+00

246+00

July 10

Tape

2. Gordon
J. Silber
D. Falcetta

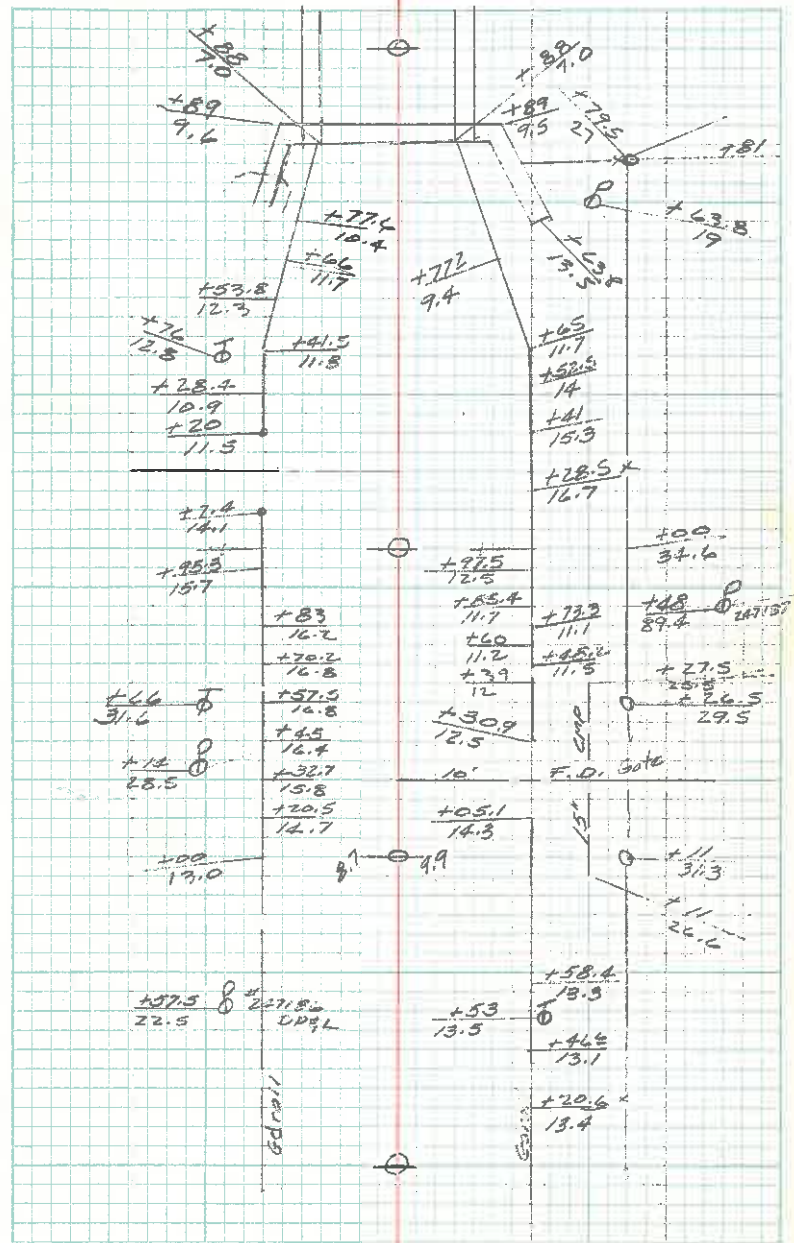


253

252+00

251+00

250+00



Nov 5-65

258

257

256

255

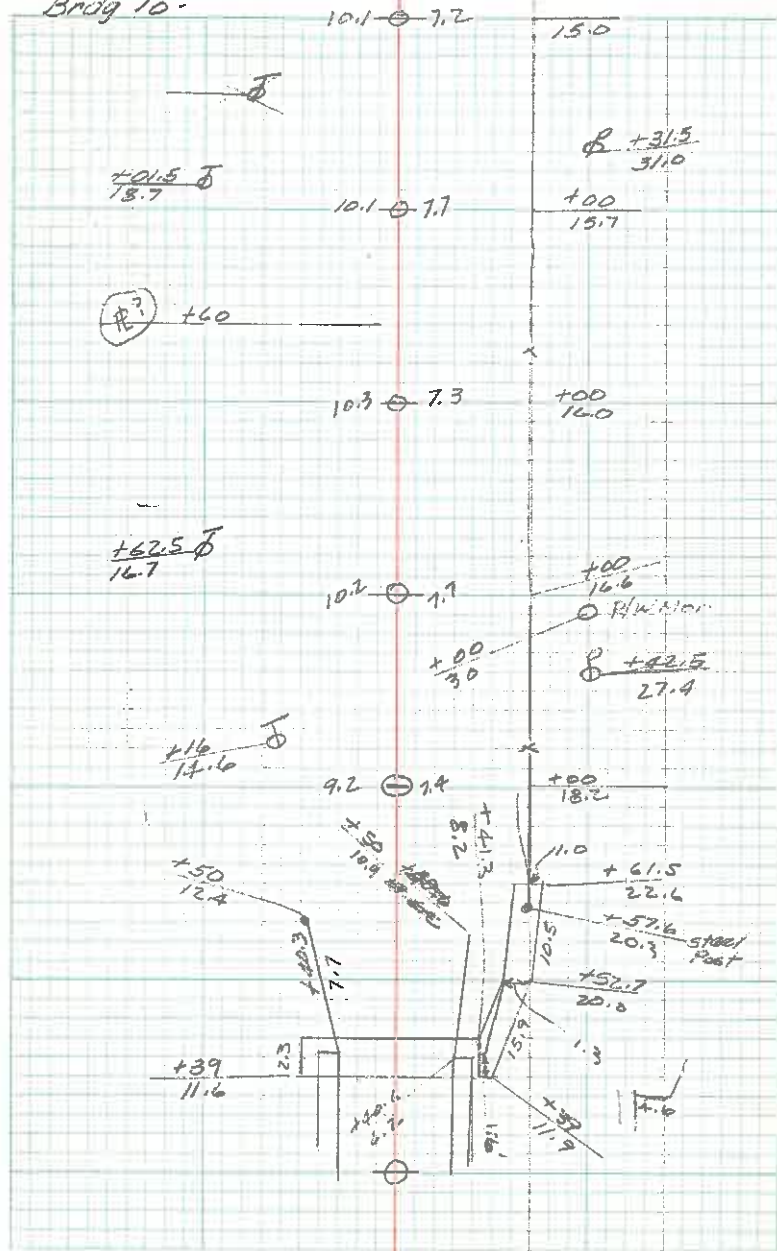
254

253

NOV 6-1165

6200
Slater

Brig 10-



263

262

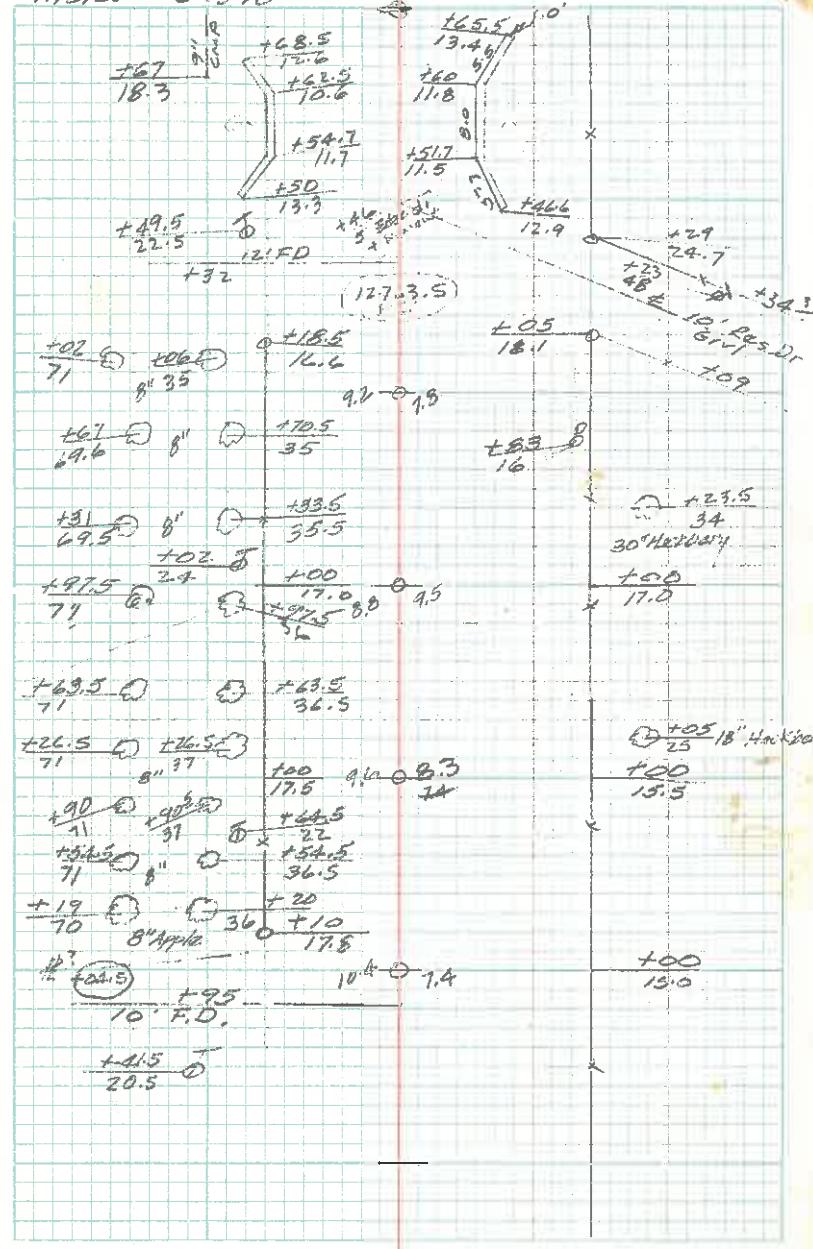
261

260

259

258

11/5/65 3rd 10..



11/8/65

265

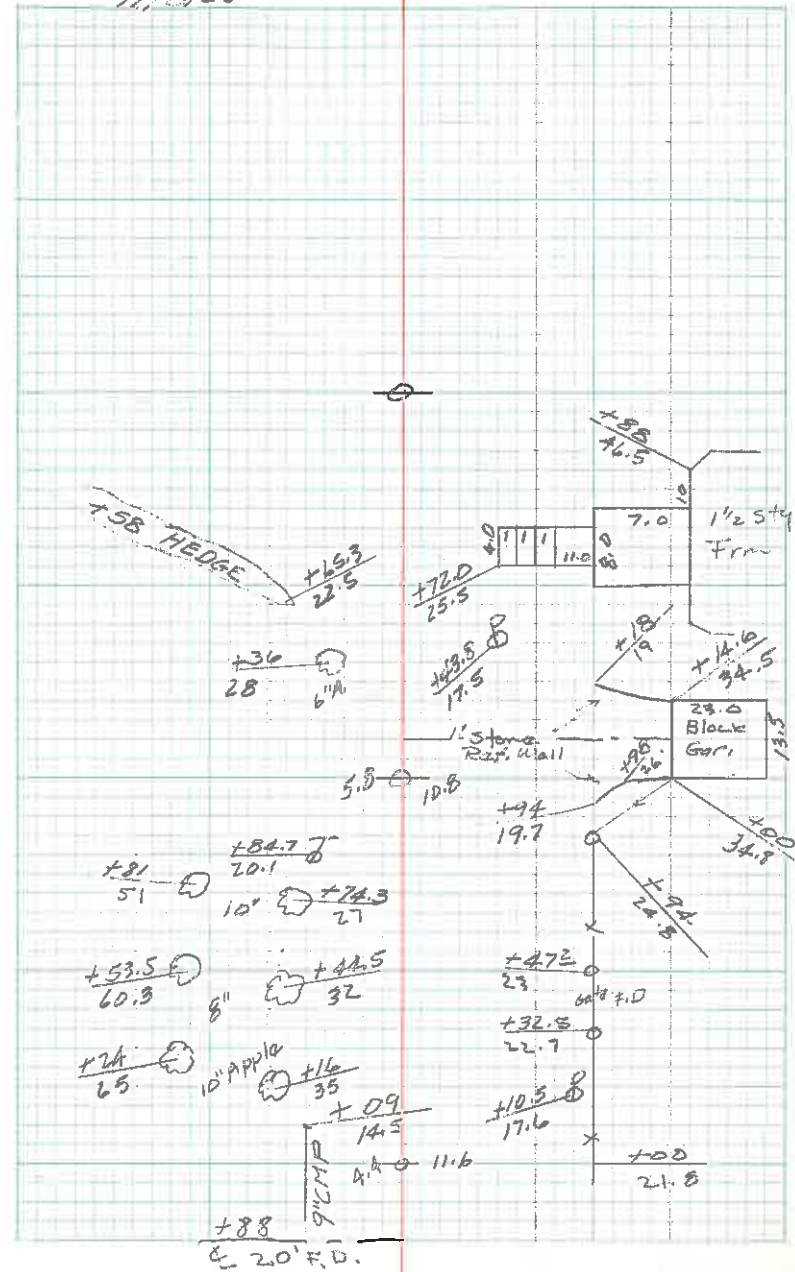
264

263

Brdg 10 -

11/8/65

Geosyn Sloter



	BM's		118165	
		Brdg 10-		
Sta.	B.S.	I.I.	F.S.	Elev
BM	1179	1181.09		1169.30
TP	9.56	1189.10	1.55	1179.54
BM	12.14	1200.03	1.21	1187.89
TP	12.43	1211.80	0.66	1199.37
TP	5.80	1217.12	0.50	1211.30
BM			1.80	1215.30
		CHECK		
BM	1.91	1217.21		1219.30
TP	0.68	1211.99	5.90	1211.31
TP	0.55	1199.97	12.60	1199.39
BM	0.59	1188.49	12.07	1187.90
TP	1.55	1181.11	8.93	1179.56
BM			11.78	1169.33
BM	2.34	1171.64		1169.30
BM	4.50	1170.92	5.22	1166.42
BM			4.82	1166.10
		CHECK		
BM	5.33	1171.43		1166.10
BM	5.64	1172.06	5.01	1166.42
BM			2.76	1169.30

BM's Brdg 10-

chisled \square NW. ~~118165~~

spike in Φ 27' Lt Sta 248175.3

Top 12/10 Mon S. side rd Sta 241100

spk in Φ 20.5 Lt Sta 258111.5

spk in Φ 16 R- Sta 261183

	X-50	3rdg	10-
253	9.66	3rdg	
+88	9.65	± at 2.000	8.70 8.16
+75	9.46		
+50	9.59		
+25	9.65		
252			
+75	29.24		
+50	70.26		
+25	71.30		
251			
+75	73.27		
+50	76.55		
+25	75.42		
250	77.52		
+75	79.40		
+50	1.22		
+25	9.26		
249			
+75	84.22		
+50	91.16		
+25	85.72		
248			
+75	149.02		
+50	201.63		
+25	104.07		
alp 247			
+75	28.27		
+50	11.12		
+25	13.58		
246			

DM 1.13

Nov 10-13 3rdg/10-

30 21 15 9 6 0	13 14 18 19 24 29 30
653 57 8.4 9.8 9.84 9.1	19.06 8.7 20 110.10 2.7 2.7 2.4
	100 90 80 70 60 50
	37 2.8 2.7 2.9 2.6 2.4
34 30 22 17 9.8 0 5	9.6 19 24 28 30 31
73 6.5 8.7 7.7 4.8 2.8 1	3.2 2.7 4.8 3.5 3.5 4.9
40	100 90 80 70 60 50 40
7.4	3.6 3.7 3.4 4.0 4.1 4.5
20 15 11 8.7 0 0.8	17 20 26 27 29 33 34
51.2 1.9 2.4 2.3 2.7 2.6	1.2 1.1 1.0 1.2 1.1 1.1 1.1
80	100 90 80 70 60 50 40 30
85	6.5 6.6 6.8 7.1 7.2 7.3 7.7 3.1
37 28 17 10.0 0	8.4 14 21 24 27 31 33
1.4 7.1 7.4 7.3 8	7.2 5.9 7.2 7.1 7.7 7.7 7.6
	100 90 80 70 60 50 40 30
	2.5 2.0 0.4 0.5 0.6 70.7 5.6 2.6
32 24 17 10.0 0	8.0 14 18 21 24 27 31
3.9 3.3 6.5 5.7 5.7 6.2 5.4	3.7 3.3 5.0 5.8 7.0
40 37 30 17 10.0 0	8.4 14 18 21 24 27 31 33 34
3.1 3.3 5.9 6.6 9.6 2.2	3.8 3.5 5.3 3.7 3.4 3.7
30 24 15 14 8 0	13 14 18 23 24
5.3 4.3 4.4 6.0 6.2 12.0 6.8	5.4 5.1 2.9 1.8 1.3
40 37 30 17 10.0 0	8.4 14 18 21 24 27 31 33 34
4.7 2.7 5.0 5.3 6.5 7.0 6.5 2.1	2.5 2.1 1.0 1.1 1.1 1.1

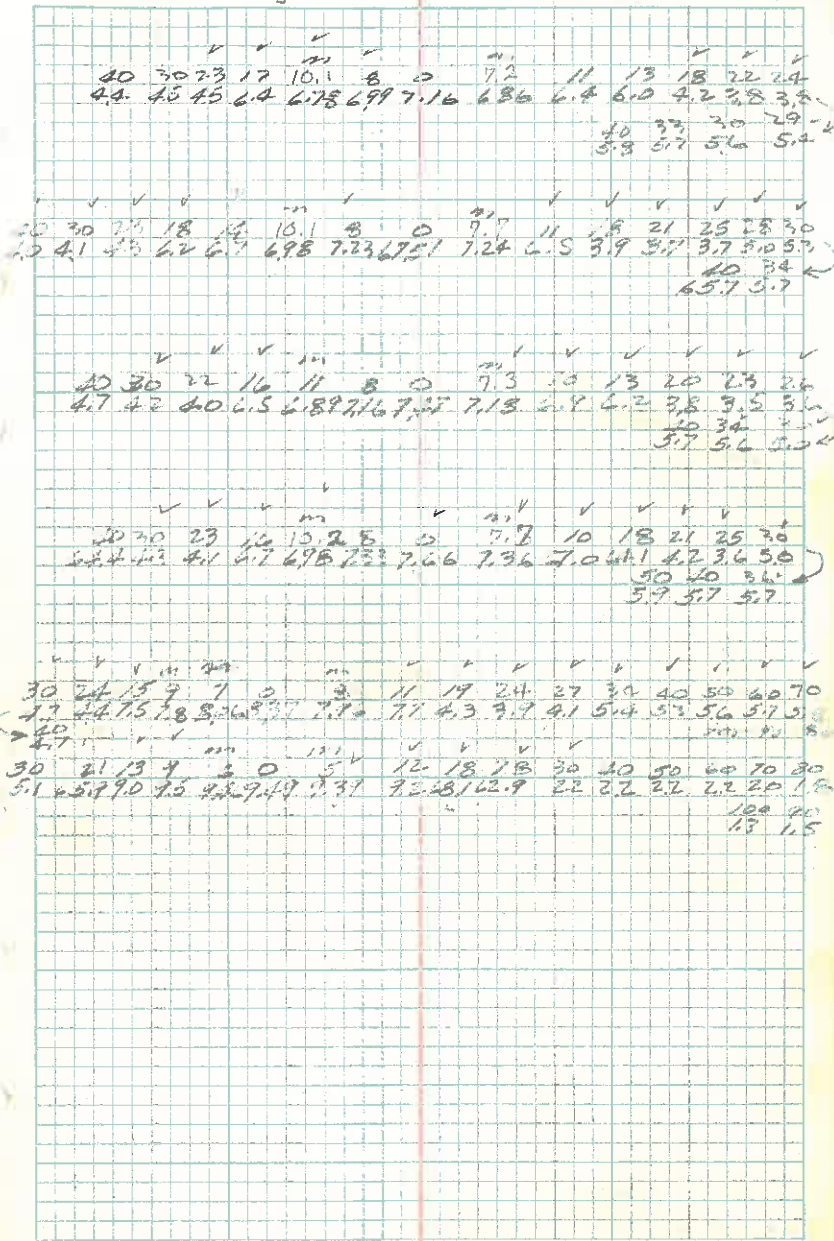
Sta R Elev

298			
+75	67.25		
+50	67.36		
+25	67.44		
297			
+75	67.48		
+50	67.43		
+25	67.44		
296			
+75	7.53		
+50	67.58		
+25	67.58		
295			
+75	67.79		
+50	7.88		
+25	5.02		
294	68.37		
+75	68.92		
+50			
+39	58.25	9.85	8.55
+39	59.2		
+34	59.4		
+27	58.8		
+21	58.2		
+17	57.8		
+13	57.3		
+27	57.2		
+23	57.3		
293 +00	59.3	59.67	
+26	60.6		
292 +91	59.0		

Nov 10-65

W035011 4P
G025/10 4
3/10/10

X-sec 3rdy



	11-10-65		
266	72.52		
+75	6.20		
+50	5.76		
+25	4.98		
265	74.01	2	
+75	73.09	267	77.57
+50	72.02	+75	7.40
+25	70.95	+50	7.21
264		266+25	76.86
+75	69.04		
+50	68.25		
+25	68.12		
263	67.98		
+75	65.16		
+50	67.98		
+25	7.85	F/L Col 1	59.98
262		" "	60.50
+75	6.89	F/L 8' Col 2	63.13
+50	6.82	W. "	4.89
+25	66.80		
261	66.90		
+75	67.09		
+50	67.18		
+25	67.21		
260	67.24		
+75	7.20		
+50	7.28		
+25	67.41		
259			
+75	7.24		
+50	7.14		
258+25	67.09		

X-500 5104 100
11/12/65
S. 200 ft
S. 100 ft

30	30	25	22	19	15	11	"	0	"										
6.9	6.1	5.9	4.8	4.5	3.5	3.6	3.74	4.01	3.97	3.9	4.3	5.7	6.3						
60	50	40	30	20	10	5	0	3	"	10.8	13	20	30	35					
69.3	77	69.9	70.3	70.4	72.7	77.8	89.87	99.5	99.5	70.1	99	9.1	7.7						
Gar →																			
60	50	40	30	20	10	4	0	4	"	11.6	13	17	23	27					
5.3	5.9	6.2	6.5	6.9	7.1	7.8	7.95	8.14	8.20	8.2	6.7	5.1	4.9						
60	50	40	30	20	10	9	0	7	"	10	20	22	30	25					
5.4	3.7	4.0	4.2	3.9	4.8	6.26	7.26	7.40	7.2	4.1	4.0	5.1	5.7						
70	80	95	10																
3.0	3.0	3.5	3.0																
40	30	30	31	17	11	8	0	7.5	13	19	23	28	30	35					
4.5	4.2	3.5	3.5	4.3	5.9	6.9	6.90	6.30	6.1	4.2	3.9	4.0	4.5	5.0					
40	30	22	17	11	0	8	0	9	17				30	35	40				
4.2	4.2	3.1	4.2	6.73	7.24	6.72	6.6	3.9					6.6	5.3	5.2				
40	30	19	14	10	0	9	0	9	13	14	16	19							
4.8	4.5	4.9	6.5	6.9	7.5	7.0	6.8	4.6	4.2	5.1	6.1								
													40	35					
													3.4	6.9					

Shot #	B	C	T	Horiz
1	2.24	2.17		93° Lt
	2.57	1.90		103° 49°
	3.56	3.10	2.69	112° 48° Lt
	3.50	3.21	2.17	131° 28° Lt
	3.00	3.17	3.13	132° 08° Rt
	4.23	3.63	3.02	111° 07° Rt
	4.21	3.50	2.69	102° 51° Rt
	3.99	3.21	2.43	105° 13° Rt

General 10-4
5/5

F/L file ~~to~~ E ditch

SUMMARY OF QUANTITIES

BR. 10-5.09

REF. No.	ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	AMOUNT
		ROADWAY			500 ⁰⁰
201		CLEARING AND GRUBBING	LUMP		
202		EXISTING STRUCTURE REMOVED	LUMP		
202		PIPE REMOVED AND STORED	16 L.I.F.		
202		EXISTING PAVEMENT REMOVED	2094 SQ.YD.		
202		GUARD RAIL REMOVED & STORED	740 L.F.		
202		FENCE REMOVED & STORED	1022 L.F.		
203		CHANNEL EXCAVATION			
203		EXCAVATION NOT INCLUDING EMBANKMENT	6.40		
203		EMBANKMENT	6.40		
606		CONCRETE RAIL TYPED	662.5 L.F.		
607		FENCE, TYPE A7	984 L.F.		
607		GATE, TYPE	1 EACH		
659		SEEDING & MULCHING	SQ.YD.		
659		COMMERCIAL FERTILIZER	TON		
659		AGRICULTURAL LIMING	TON		
		DRAINAGE			
601		DUMP ROCK CHANNEL PROTECTION	483 L.YD.		
603		24" CONDUIT TYPE F	36 L.F.		
		PAVEMENT			
301		BITUMINOUS AGGREGATE BASE	384 L.YD.		
402		ASPHALT CONCRETE	80 L.YD.		
404		ASPHALT CONCRETE	64 L.YD.		
408		PRIME COAT	202 GAL.		
409		SEAL COAT BITUMINOUS MATERIAL	142 GAL.		
409		SEAL COAT LOWER AGGREGATE 100.9	4 L.YD.		

Summary of Quantities
 Bd. 10-5109

Ref. No.	Item	Description	Quantity	Unit	Amount
		PAVEMENT (Cont'd)			
304		AGGREGATE BASE	111 cu. yd.		
		STRUCTURE OVER 20'			
505		FIRST TEST PILE	Lump		
507		12" CAST IN PLACE REINFORCED CONCRETE PILES	312 L.F.		
509		REINFORCING STEEL	32,525 lb.		
511		CLASS C CONCRETE, ^{SUPERSTRUCTURES} & PIER CAPS.	112 cu. yd.		
511		CLASS C CONCRETE, SUBSTRUCTURES	46 cu. yd.		
517		RAILING TYPE 4	200 L.F.		
518		POROUS BACKFILL	13 cu. yd.		
601		CRUSHED AGGREGATE SLOPE PROTECTION	170 cu. yd.		
507		14" CAST IN PLACE REINFORCED CONCRETE PILES	408 L.F.		

approved, and confirmed, and that said Administrator should execute and deliver a proper deed to the purchaser, of the real estate so sold.

All of which will more fully appear by the records of said Court, to which reference is here made.

Now, therefore, I, the said Elmer M. Godwin, Administrator

of the estate of Frank Laundry,

deceased, aforesaid, by virtue of said judgment, order of sale, sale and confirmation and of the statute in such cases made and provided, and of the powers vested in him and for and in consideration of the premises, and the sum of

Seven Hundred (\$700.00) Dollars (\$700.00) paid, or secured to be paid to me by said

Ina L. Snadden

the receipt whereof is hereby acknowledged, do hereby GRANT, BARGAIN, SELL AND CONVEY to the said Ina L. Snadden her heirs and assigns forever, the following REAL ESTATE, situated in the County of Logan

in the State of Ohio and in the Township of Jefferson, and bounded and described as follows:

The following premises, situated in the County of Logan, in the State of Ohio, and in the Township of Jefferson and bounded and described as follows:

Being part of Virginia Military Survey No. 3137; Beginning at the northeast corner of a

tract of land conveyed by the Sheriff of Logan County to John Sullivan, July 14th, 1858; thence with the south side of the State road S. 83 $\frac{1}{2}$ Deg. W. 39 poles to a stone on the east bank of Madriver; thence with the south side of said Road N. 63 $\frac{1}{2}$ Deg. W. 34.2 poles to a stone; thence S. 16 W. 23 poles to a stone; thence S. 74 E. 20.6 poles to a stone in Madriver; thence south 74 E. 45.4 poles to a stone; thence N. 16 E. 26 $\frac{1}{2}$ poles to the place of beginning, containing Eight (8) acres and forty-seven (47) square poles, more or less.

premises were conveyed to the said "E. Lee Pennock and Florence Pennock for the term of their joint lives, then to the survivor thereof, his or her heirs and assigns forever":

Situated in the County of Logan, State of Ohio, and Township of Jefferson, bounded and described as follows:

TRACT I: Being part of V.M.S. 3139 and beginning at a stone formerly a corner to George Folsom's southeast corner near a poplar and a beech; thence S. 75 E. 65.8 poles to a stone planted in the Sandusky road; thence with the said road N. 30-3/4 E. 113.3 poles to a stone and a large burr oak tree (now down); thence N. 85 W. and with a line of B. Haas, 203 poles to a stone planted in George Folsom's east line, from which a very large black walnut bears S. 17 E. 239 links; thence S. 15-1/2 E. 200.2 poles to the beginning, containing 100 acres, more or less.

TRACT II: Being part of V.M.S. 3137 and beginning at a post S. E. corner to the John Horn tract of land and corner to T. E. Pennock's land; thence N. 35-3/4 E. 44.4 poles to a stone in the south line of Nelson Dickinson's land; thence N. 71-1/4 W. 27.82 poles with the said Nelson Dickinson's south land line to a stone; thence S. 12 W. 42.8 poles, running parallel with the line of the pike leading from Zanesfield to Rushsylvania, to a stone in Rebecca Pennock's north land line; thence S. 71-1/4 E. 9.78 poles to the beginning, containing five (5) acres.

TRACT III: Being part of V.M.S. 3137 and beginning at a stone northeast corner to John Horn's land; thence S. 72-3/4 E. 18.9 poles to a stone on the east bank of a Mill Race; thence in a southwesterly course with the east bank of said Mill Race to a stake in the north line of 2-1/2 acres of land sold by said Robert Dickinson to J. C. Smith and Margaret A. Smith; thence N. 53 W. 7.6 poles, crossing a mill race and passing about one foot north of the N. E. corner of a barn, to a post in T. E. Pennock's east land line; thence N. 34-1/2 E. 23.1 poles to a stone marked with a cross; thence N. 71-3/4 W. 18.9 poles to a post S. E. corner of said John Horn's land; thence N. 35 E. 44.4 poles to the beginning, containing five and one-half (5-1/2) acres, more or less.

TRACT IV: Situated in the County of Logan, State of Ohio and in both
 the Township of Jefferson and the Village of Zanesfield, being part of
 V. M. S. 3137 and beginning at a stone in the north side of the road lead-
 ing from Zanesfield eastward; thence N. 34 E. 10-1/2 poles; thence N.
 54 W. 14.6 poles to a stone; thence N. 36-1/2 E. 16 poles, crossing
 Mad River to a stake; thence N. 51 W. 8 poles to a stake in the River;
 thence N. 62-1/2 W. 15.3 poles to a stake in the west bank of a mill race;
 to a stake; thence N. 72 W. 96.6 poles to a stake in the West Liberty,
 Zanesfield and Rushsylvania free turn pike; thence S. 11-1/2 W. 35.4 poles
 to a culvert; thence S. 5 E. 34.9 poles; thence leaving the pike S. 26
 71-1/4 E. 43 poles to a road; thence with said road S. 37-1/2 W. 26
 poles to the north side of the Zanesfield and East Liberty road; thence
 with the north side of said road, S. 64 E. 53.7 poles to the beginning,
 containing 44.92 acres, more or less, 44.61 acres being in Jefferson
 Township and 0.31 acre being in the Village of Zanesfield.

Containing in the aggregate 155.42 acres, more or less.

Affiant further says that as survivor of the said E. Lee Pennock,
 and by virtue of said conveyance, she is now seized of the fee simple title to said
 premises hereinabove described, and that this affidavit is made for the purpose of
 enabling the Auditor of Logan County, Ohio, to transfer said premises on the tax
 duplicate in his office and to complete the chain of title in the office of the Recorder
 of Logan County, Ohio.

Further affiant saith not.

Sworn to before me and subscribed in my presence this _____
 of August _____

Thomas C. Sherrick

Vol 326 Pa. 982

Know all Men by these Presents

That Reed B. Proctor and Virginia E. Proctor, husband and wife

City of Big Rapids, Michigan ~~REPUBLICAN~~
in consideration of one dollar and other good and valuable considerations

to them in hand paid by Virgil E. Marine aka Virgil Marine and Bertha G. Marine, husband and wife whose address is Route 1; Lanesfield, Ohio,

to the said Virgil E. Marine and Bertha G. Marine jointly for and during the term of their joint lives with remainder in fee simple to the survivor, thereof, his or her assigns forever, the following described Real Estate, situate in the Township of Jefferson in the County of Lorain; V. M. S. No. 3137

Commencing at the N. W. corner of Jorotha R. Strayer's 10.67 A. tract and in the center of County Highway No. 10 at Sta. 244 plus 69 as shown on Page 26 of the Lorain County Engineer's Field Book 615; thence with the center of said County Highway No. 10 S. 87 deg. 38 min. W. 131.0 feet to an iron at Sta. 242 plus 00; thence N. 89 deg. 50 min. W. 107.7 feet to an iron pin; said pin being the beginning point of this description;

thence S. 23 deg. 17 min. W. 379.8 feet to an iron pin in the N. line of Jas. Van Hynning's 75.20 A. tract; thence with said Van Hynning's line N. 59 deg. 03 min. W. 550.00 feet to the center of Mad River; thence with the center of said Mad River northerly 224.0 feet to the center of said County Highway No. 10; thence with the center of said County Highway No. 10 S. 61 deg. 21 min. E. 90.4 feet to an iron; thence S. 82 deg. 29 min. E. 125.0 feet to an iron; thence S. 89 deg. 59 min. E. 392.3 feet to the place of beginning, containing 3.59 acres, more or less.

Next preceding deed is in Volume 276 at Page 105 Lorain County Deed Records.

Possession is reserved until April 15, 1965.



and all the Estate, Right, Title and Interest of the said grantors in and to said premises; We have and to hold the same, with all the privileges and appurtenances thereunto belonging, to said grantors, their heirs and assigns forever.

And the said grantors

do hereby Covenant and Warranty that the title so conveyed is Clear, Free and Unincumbered, and that they will defend the same against all lawful claims of all persons whomsoever. Taxes and assessments for the tax year, 1965, are to be pro-rated and settled for between the parties upon delivery of the within deed.

The grantees, herein assume and agree to pay the taxes and assessments for the tax year, 1965, and thereafter.

Warranty Deed

155413

FROM Howard V. Shultz, et ux.

TO

William Fraser, et ux.

Zanesfield, Ohio

Transferred *Thomas J. Shultz* 23 1960

Charles N. Shultz County Auditor

State of Ohio, Logan County, ss.

Presented for record on the 23rd day

of 1960, at 2:50

o'clock, P. M.

Recorded Feb. 26, 1960

In Deed Book No. 264

Page 377-379

Public in Commonly Recorder

HOVER, SMITH & SHELLHAAS ATTORNEYS

BELLEFONTAINE, OHIO

Vol. 264 Page 377

Know All Men by These Presents

That HOWARD V. SHULTZ and Marjorie Shultz, husband and wife,

in consideration of One Dollar and other valuable considerations

Grantors

to them paid by William Fraser and Mary Elizabeth Fraser, husband and wife, Zanesfield, Ohio,

Grantees

the receipt whereof is hereby acknowledged, do hereby Grant, Bargain, Sell and Convey to the said William Fraser and Mary Elizabeth Fraser, to them jointly, their heirs and assigns, and to the survivor of them, his or her separate

heirs and assigns forever.

the following described real estate, situated in the County of Logan, in the State of Ohio, and in the Township of Jefferson, and being part of Military Survey No. 3137, 4948, 9423, 9876, bounded and described as follows:

Beginning at the southeast corner of a tract of land deeded by Ebenezer Zane to Daniel Cowgill on the east side of Madrivor on the north side of the road leading from near Curtiss's Store to Garwood's Mill; thence north 34° east 10-1/2 poles to a post; thence north 45° west 14.6 poles to a stone; thence north 36-1/2° east 16 poles crossing Madrivor to a stake; thence north 51° west 8 poles to a stake on the river; thence north 34° east 33-1/2 poles to a stake on the west bank of the mill race; thence north 62-1/2° west 15.3 poles to a stone; thence north 35° east 20.3 poles to a stake; thence south 71° east 7.6 poles to a stake in the east bank of the mill race; thence north 31° east following said mill race south 72° east 114 poles to a stake in the east line of Military Survey #3137; thence south 39-1/4° east 54 poles to a post; thence south 62-1/2° west 24 poles to a post; thence north 74° west 28.5 poles to a post in the east line of Survey #3137; thence with survey line south 18° west 30.6 poles to a post; thence north 75° west 5 poles to a stone in the line run by Anson L. Hunt; thence south 15° west 27 poles to a stone about the center of the road leading from the east bank of Madrivor to Delaware; thence north 80° west 20 poles to a stone; thence south 88° west 28 poles to a post; thence south 78° west 20 poles to a post; thence south 83° west 48 poles to a post; thence north 62° west 11.6 poles to the beginning, containing in all 109.4 acres, more or less, but subject to all legal highways.

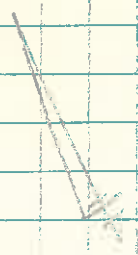
Vol. 264 Page 377

BEGS LOT

9.9
6

10.9
10.9

10.0
10.0



10.0
10.0

518.100

517.6

395.10
10.1

80°58'

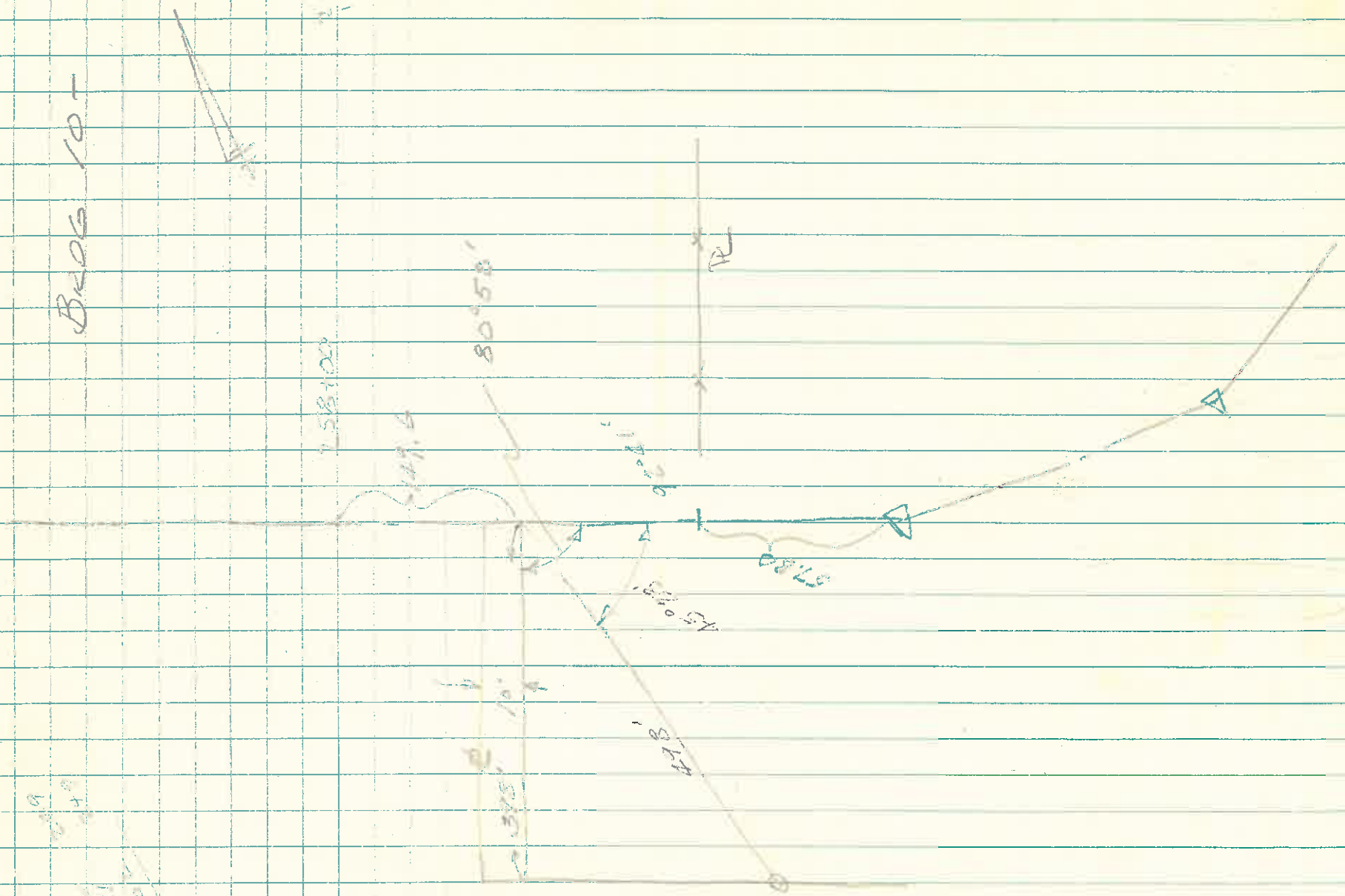
15.0

9.2

49.8



57.8



BRDG 10-5.09
AREA COMP.

RACKOFF ASSOCIATES
ENGINEERS
COLUMBUS, OHIO

Location: _____

Computed By: LHG Date: 4/28 Checked By: _____ Date: _____ Job No. _____ Sheet _____ of _____

STATION	DIST.	BEARING	COSINE	SINE	NORTH	EAST	CURVE DATA
246+00					10 000	10 000	
	408 25	N 87° 57' W	00029	10000			
250+98.25					10 000	9 501 75	
	124 21	N 82-32-15W	129 2773	911 5300			
252+23.06					10 016 21	9 378 00	
	576 94	N 41° 22' 55W	478 9716	877 8308			
258+00					10 292 55	8 871 54	
					10 000	10 000	
	252 06	N 89° 59' W	0	1000			
PI SPIRAL					10 000	9 747 94	
	50 01	N 86° 59' W	052 6264	998 6143			
S.C.					10 002 63	9 693 00	
	1432 40	N 3° 01' E	998 6143	032 2264			
⊙ CURVE					11 433 05	9 773 38	
	1432 40	S 25-37-05W	901 6968	432 3696			
E.S.					10 141 46	9 154 05	
	50 01	N 64-22-55W	132 3696	901 6968			
PI SPIRAL					10 163 08	9 108 96	
	270 144	N 61-24-55W	078 9716	877 8308			
258+00					10 292 61	8 871 56	
					10 000	10 000	
	100	N 89-59W	00	/			
247+00					10 000	9 900	
	50	N 0° 01' E	/	0			
50' RT 247+00					10 050 000	9 900	
					11 433 05	9 773 38	⊙ CURVE
	1367 40	S 10-56-05W	981 8440	189 6904			
65' RT STA 251+00					10 090 48	9 514 00	
					11 433 05	9 773 38	⊙
	1377 40	S 25-37-05W	901 6968	432 3696			
55' RT STA 251					10 191 05	9 177 83	



RACKOFF ASSOCIATES

ENGINEERS

COLUMBUS, OHIO

Location: _____

Job No. _____

Computed By: _____ Date: _____

Checked By: _____ Date: _____

Sheet _____ of _____

STATION	DIST.	BEARING	COSINE	SINE	NORTH	EAST	CURVE DATA
258+00					10 292 61	8 871 50	
	30 00	N 28-37- W E	87783	47897			
30' RT 258+00					10 318 94	8 885 93	
					11 433 05	9 773 38	① CURVE
	1367 40	S 16-56-05W	9566373	291 2818			
65' RT - 258+50					10 124 94	9 375 08	
					10 030 000	10000 00	
	494 33	N 89-59W	00029	1 000			
					10 030 14	9 505 67	
	109 28	N 82-32W	12995	99152			
					10 044 34	9 397 32	
	565 33	N 61-23W	47895	87784			
					10 315 11	8 901 05	3.5 / 16 10318.94 / 8885.93

AREA TO BE ACQUIRED FROM WILLIAM FRAZER

L.G.
4/28/70

COSINE	BEARING	SINE	LATITUDE		DEPARTURE		D.M.D.	DOUBLE AREA	
	DISTANCE		COSINE X DISTANCE		SINE X DISTANCE			D.M.D. X LATITUDE	
			N+	S-	E+	W-		N+	S-
40115	S 66° 21' E 318.79	91601	127.84	127.98	291.91	291.97		37366	
31786	S 71° 28' E 208.03	94814		66.12	197.24	781.18		51652 ✓	
24079	S 76° 00' E 143.13	97058		34.46	138.92	1117.34		38504 ✓	
10424	S 84° 01' E. 388.12	99455		40.46	386.00	1642.26		66446	
19623	S 78° 41' E. 101.98	98056		20.01	100.00	2128.26		42586	
.00029	N 89° 59' W. 496.30	1.0	0.14			496.30	1731.96	242	
12995	N 82° 32' W 117.27	99152	15.24			116.28	1119.38	17059	
47895	N 61° 23' W 571.35	87784	273.65			501.55	501.55	137 249	

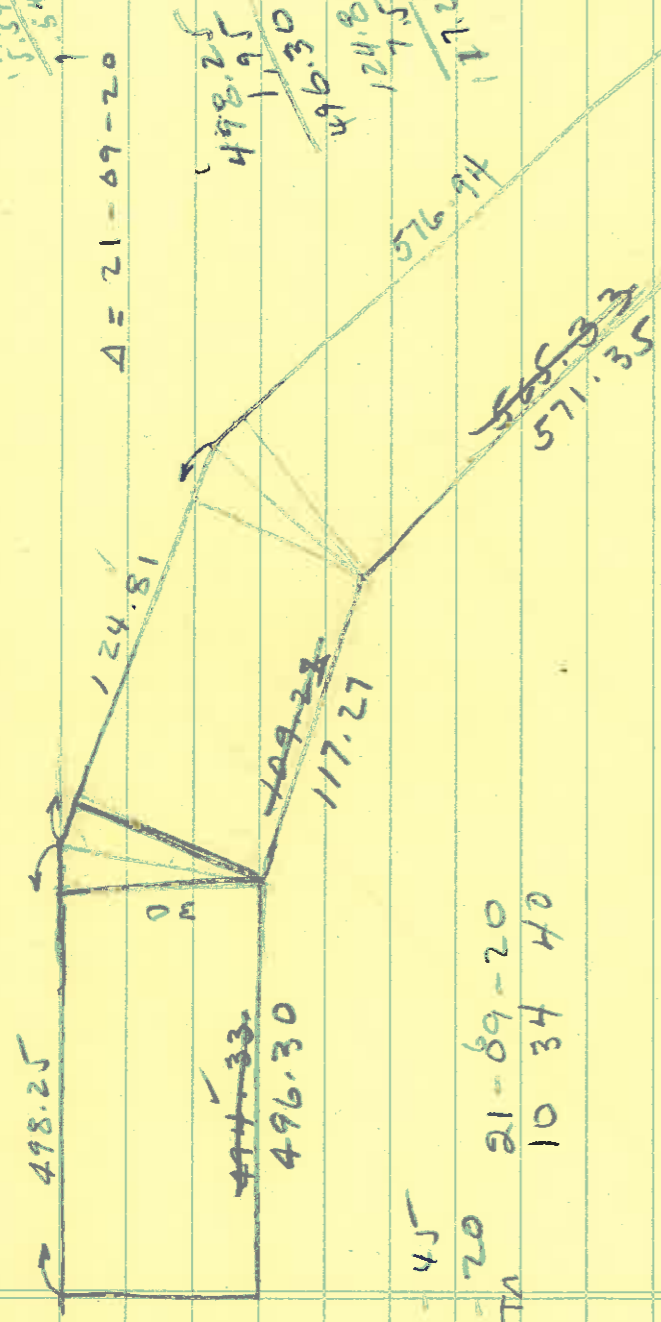
~~285.70~~ 288.89 ~~1114.07~~ ~~1098.94~~
289.03 289.03 1114.13 1114.13

.941 AC

516.59
191.35

258+00
252+23.06
576.91

$\Delta = 7-26-45$



$\Delta = 21-09-20$

7-26-45
3-43-20
21-09-20
10 34 40

06496
TAN 3°43' X 30 = 1.95
TAN 18684' X 30 = 11.61

498.25
3.92
494.33

3.92
11.61
15.53

576.94
11.61
565.33

+20.0
-100
COT = 10487

+34.46
-138.92
COT = 24805

10000 78°41' 10050 84°01'
101.98 9900 388.12 9514.00 76°04'
1024.9 937500

+66.11
-197.25
COT = 33515
71°28'
208.03

+127.83
-291.92
COT = 43789
66°21'
318.68

SQUARE YARDS OF SKIDDING OR SODDING FOR 100 FOOT STATIONS FROM SUM OF END WIDTHS

SQ. Y.	0	1	2	3	4	5	6	7	8	9	10	11	SQ. Y.
0.0	0	18	36	54	72	90	108	126	144	162	180	198	0.0
2.8	0.5	18.5	36.5	54.5	72.5	90.5	108.5	126.5	144.5	162.5	180.5	198.5	2.8
5.6	1	19	37	55	73	91	109	127	145	163	181	199	5.6
8.3	1.5	19.5	37.5	55.5	73.5	91.5	109.5	127.5	145.5	163.5	181.5	199.5	8.3
11.1	2	20	38	56	74	92	110	128	146	164	182	200	11.1
13.9	2.5	20.5	38.5	56.5	74.5	92.5	110.5	128.5	146.5	164.5	182.5	200.5	13.9
16.7	3	21	39	57	75	93	111	129	147	165	183	201	16.7
19.4	3.5	21.5	39.5	57.5	75.5	93.5	111.5	129.5	147.5	165.5	183.5	201.5	19.4
22.2	4	22	40	58	76	94	112	130	148	166	184	202	22.2
25.0	4.5	22.5	40.5	58.5	76.5	94.5	112.5	130.5	148.5	166.5	184.5	202.5	25.0
27.8	5	23	41	59	77	95	113	131	149	167	185	203	27.8
30.6	5.5	23.5	41.5	59.5	77.5	95.5	113.5	131.5	149.5	167.5	185.5	203.5	30.6
33.3	6	24	42	60	78	96	114	132	150	168	186	204	33.3
36.1	6.5	24.5	42.5	60.5	78.5	96.5	114.5	132.5	150.5	168.5	186.5	204.5	36.1
38.9	7	25	43	61	79	97	115	133	151	169	187	205	38.9
41.7	7.5	25.5	43.5	61.5	79.5	97.5	115.5	133.5	151.5	169.5	187.5	205.5	41.7
44.4	8	26	44	62	80	98	116	134	152	170	188	206	44.4
47.2	8.5	26.5	44.5	62.5	80.5	98.5	116.5	134.5	152.5	170.5	188.5	206.5	47.2
60.0	9	27	45	63	81	99	117	135	153	171	189	207	60.0
52.8	9.5	27.5	45.5	63.5	81.5	99.5	117.5	135.5	153.5	171.5	189.5	207.5	52.8
55.6	10	28	46	64	82	100	118	136	154	172	190	208	55.6
58.3	10.5	28.5	46.5	64.5	82.5	100.5	118.5	136.5	154.5	172.5	190.5	208.5	58.3
61.1	11	29	47	65	83	101	119	137	155	173	191	209	61.1
63.9	11.5	29.5	47.5	65.5	83.5	101.5	119.5	137.5	155.5	173.5	191.5	209.5	63.9
66.7	12	30	48	66	84	102	120	138	156	174	192	210	66.7
69.4	12.5	30.5	48.5	66.5	84.5	102.5	120.5	138.5	156.5	174.5	192.5	210.5	69.4
72.2	13	31	49	67	85	103	121	139	157	175	193	211	72.2
75.0	13.5	31.5	49.5	67.5	85.5	103.5	121.5	139.5	157.5	175.5	193.5	211.5	75.0
77.8	14	32	50	68	86	104	122	140	158	176	194	212	77.8
80.6	14.5	32.5	50.5	68.5	86.5	104.5	122.5	140.5	158.5	176.5	194.5	212.5	80.6
83.3	15	33	51	69	87	105	123	141	159	177	195	213	83.3
86.1	15.5	33.5	51.5	69.5	87.5	105.5	123.5	141.5	159.5	177.5	195.5	213.5	86.1
88.9	16	34	52	70	88	106	124	142	160	178	196	214	88.9
91.7	16.5	34.5	52.5	70.5	88.5	106.5	124.5	142.5	160.5	178.5	196.5	214.5	91.7
94.4	17	35	53	71	89	107	125	143	161	179	197	215	94.4
97.2	17.5	35.5	53.5	71.5	89.5	107.5	125.5	143.5	161.5	179.5	197.5	215.5	97.2
SQ. Y.	0	1	2	3	4	5	6	7	8	9	10	11	SQ. Y.

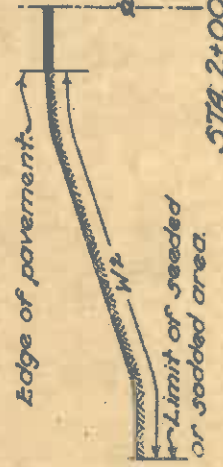
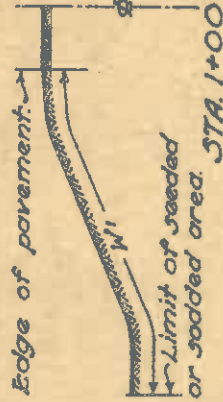
EXPLANATION: Find sum of end widths in body of table. Then, at top or bottom of vertical column, find hundreds of square yards and at extreme left or right of horizontal line find square yards under 100.

EXAMPLE: $W_1 = 31.0$ Ft, $W_2 = 36.5$ Ft, Sum 67.5 Ft. which is found under or over 3 and opposite 75.

ANSWER: 375 Square Yards.

If the distance between cross-sections is other than 100 Ft., multiply the answer, as given in the table, by the fraction of 100 Ft., between stations.

EXAMPLE: Answer from table equals 375 Sq. Yds. Distance between stations equals 107 Ft. Multiply $375 \times 1.07 = 401.25$ Sq. Yds. (Use 401)



BUREAU OF LOCATION & RIGHT OF WAY
OHIO DEPARTMENT OF HIGHWAYS

DATE
4-2-48

SQUARE YARDS SEEDING OR SODDING TABLE

PLAN PREPARATION
MANUAL

No. 1

Roadway Yardage Calculations

Bridge 10 - 5.09

Jefferson Township

5/4/70

Station	End Area Cut	End Area Fill	Sum Cut	Sum Fill	Dist	Cu Yds Cut	Cu Yds Fill
1	0	0	37	25	100	69	46
2	247+00	37	25	25	100	69	46
3	247+00	37	25	25	100	69	46
4	248+00	87	124	47	100	230	87
5	248+00	87	92	92	100	180	91
6	249+00	10	200	92	100	180	91
7	249+00	10	200	92	100	180	91
8	250+00	12	373	92	100	180	91
9	250+00	12	373	92	100	180	91
10	251+00	58	288	110	100	130	1224
11	251+00	58	288	151	100	180	1170
12	252+00	93	344	151	100	180	1170
13	252+00	93	344	151	100	180	1170
14	252+00	93	344	179	60	199	736
15	252+00	86	318	153			
16	253+40	59	176	119			
17	253+40	59	176	119	60	132	329
18	254+00	60	150	98	100	181	372
19	254+00	60	150	98	100	181	372
20	255+00	38	61	77	100	143	211
21	255+00	38	61	77	100	143	211
22	256+00	39	38	50	100	93	113
23	256+00	39	38	50	100	93	113
24	257+00	31	28	42	100	78	52
25	257+00	31	28	42	100	78	52
26	258+00	11	0	28	100	78	52
27	258+00	11	0	28	100	78	52

} Bridge

1756 CY 5812 CY

6683 CY

415% 871

317 170
 Section
 Nichols
 Roberts

BM Top S. Riv. Man 266.00 Elev 1215.30
 BM S.M. in S 27 LT S. Riv 248.78 1187.89

BM Elev
 BM 1215.30
 30 1205.74 1190.247 +
 248.78 1196.37
 70 1174.69 Top Riv Man Rt 248.78
 75 78.70
 75 71.18
 75 85.60

249.00 1185.99
 249.40
 +25 83.57
 +50 71.21
 +75 78.89
 250.00 76.95
 725 73.15
 750 5.47
 775 70.6
 251.00 67.65
 BM 69.30
 725 7.7
 730 7.60
 775 5.7
 252.00 64.89
 725 3.7
 750 3.2
 763 2.8
 766 58.6
 770 57.5
 787 8.6
 253 64.15
 725 0.7
 734 2.3
 734 68.40
 750 8.2
 775 8.1

60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71
 60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71

60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71
 60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71
 60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71

60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71

60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71
 60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71

60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71

60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71
 60 30 12.0 6.0 11 20 24 28 41 54 70
 508.7 878 2.1 2.45 5.28 5.2 45.6 79.9 78.7 71.7 71.7 71

P.I. 251 + 92.34
T.S. 247 + 52.05
S.C. 249 + 02.05
C.S. 254 + 67.08
S.T. 256 + 17.08
256 + 29.57 AND

$\Delta = 28^\circ 58'$
 $\angle S = 150$
Dc 4° 00
Ts 440.29
Es 16.48
Ds 3°
P 0.65
K 74.99

$X_c = 14$
Yc 2.62
CT 100.0
S.T. 50.0
LC 149.9
AC 2236
LC 565.0

249 + 02.05
282.51
284.56

M.P.

STATION DIST DEFLECTION
T.S. 251 + 52.05 0
248 + 00 47.95 0° 06'
+ 50 50 0° 26'
249 + 00 50 0° 58'
+ 02.05 02.05 1° 00'
+ 50 47.95 0° 57.5'
250 + 00 50 1° 57.5'
+ 50 " " 2° 57.5'
251 + 00 50 3° 57.5'
+ 50 " " 4° 57.5'
+ 84.56 34.56 5° 57.5'
252 + 00 15.44 5° 57.5'
+ 50 50 6° 57.5'
253 + 00 " " 7° 57.5'
+ 50 " " 8° 57.5'
254 + 00 " " 9° 57.5'
+ 50 " " 10° 57.5'
255 + 67.08 17.08 11° - 18.0'

247 + 52.05
4 + 40.29
257 + 92.34

$\frac{246 + 00}{30.47}$
 $\frac{247 + 00}{50.47}$

251 + 00
65.47

$\frac{252 + 50}{65.47}$
254 + 50
55.47

$\frac{258 + 00}{30.47}$

$\frac{440.29}{149.9}$
290.35

249.09
66
75.98
51
290.07

32.92
52 + 23.05
50 + 98.25
24.81

251 + 92.34
250 + 98.25
94.07

290.35
236.07
54.28

T.S. P.I. 258 3/4 W

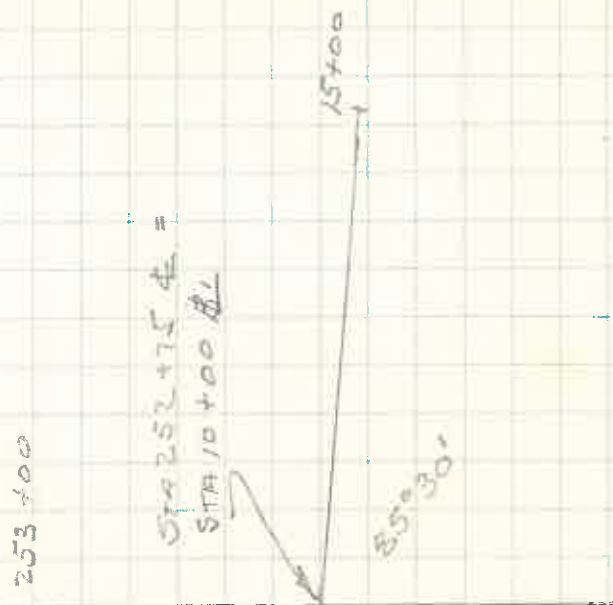
Attatched

Br 10-5.09

CHANNELED SECTIONS

CHANNEL SECTIONS

Sta	HUB ELEV	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th
6. M.	1169.30	2.8	5.0	7.8	9.8	12.8	17.8	24.8	34.8	47.8	62.8	80.8	102.8	128.8	162.8	205.8
7	1164.90	2.3	2.9	4.1	5.8	8.2	11.2	15.8	22.2	30.8	42.8	58.8	78.8	102.8	132.8	172.8
8	1164.62	1.7	2.5	3.8	5.5	8.2	12.2	17.8	25.8	37.8	53.8	75.8	102.8	138.8	188.8	252.8
9	1163.54	1.2	2.0	3.0	4.7	7.0	10.8	16.2	23.8	35.8	52.8	78.8	112.8	152.8	202.8	262.8
10	1163.7	9.3	12.1	16.8	23.8	34.8	50.8	72.8	102.8	142.8	198.8	272.8	372.8	502.8	672.8	882.8
11	1163.16	2.8	4.2	6.2	9.2	13.8	20.8	30.8	45.8	67.8	98.8	142.8	202.8	282.8	392.8	532.8
12	1162.47	1.2	2.0	3.0	4.7	7.0	10.8	16.2	23.8	35.8	52.8	78.8	112.8	152.8	202.8	262.8
13	1166.14	2.4	3.8	5.8	8.8	13.8	21.8	33.8	50.8	75.8	112.8	158.8	222.8	312.8	432.8	582.8
14	1165.88	1.4	2.2	3.5	5.2	7.8	11.8	17.8	26.8	39.8	57.8	82.8	118.8	168.8	232.8	318.8
15	1166.17	6.1	9.2	13.8	20.8	30.8	45.8	67.8	102.8	142.8	198.8	272.8	372.8	502.8	672.8	882.8
Ver DM	1169.32															



Sta	HUB ELEV	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th
16	1169.32	2.8	4.2	6.2	9.2	13.8	20.8	30.8	45.8	67.8	98.8	142.8	202.8	282.8	392.8	532.8
17	1169.32	2.3	2.9	4.1	5.8	8.2	11.2	15.8	22.2	30.8	42.8	58.8	78.8	102.8	132.8	172.8
18	1169.32	1.7	2.5	3.8	5.5	8.2	12.2	17.8	25.8	37.8	53.8	75.8	102.8	138.8	188.8	252.8
19	1169.32	1.2	2.0	3.0	4.7	7.0	10.8	16.2	23.8	35.8	52.8	78.8	112.8	152.8	202.8	262.8
20	1169.32	9.3	12.1	16.8	23.8	34.8	50.8	72.8	102.8	142.8	198.8	272.8	372.8	502.8	672.8	882.8
21	1169.32	2.8	4.2	6.2	9.2	13.8	20.8	30.8	45.8	67.8	98.8	142.8	202.8	282.8	392.8	532.8
22	1169.32	1.2	2.0	3.0	4.7	7.0	10.8	16.2	23.8	35.8	52.8	78.8	112.8	152.8	202.8	262.8
23	1169.32	2.4	3.8	5.8	8.8	13.8	21.8	33.8	50.8	75.8	112.8	158.8	222.8	312.8	432.8	582.8
24	1169.32	1.4	2.2	3.5	5.2	7.8	11.8	17.8	26.8	39.8	57.8	82.8	118.8	168.8	232.8	318.8
25	1169.32	6.1	9.2	13.8	20.8	30.8	45.8	67.8	102.8	142.8	198.8	272.8	372.8	502.8	672.8	882.8

123.00
1175
1481

1/26/70 C.G. T.H.
C.N. P.

BRDG 10-5.09

DESC. STREAM LOCATION

STA B.S. ANGLE

252+23.06 250+98.25.

DIST.

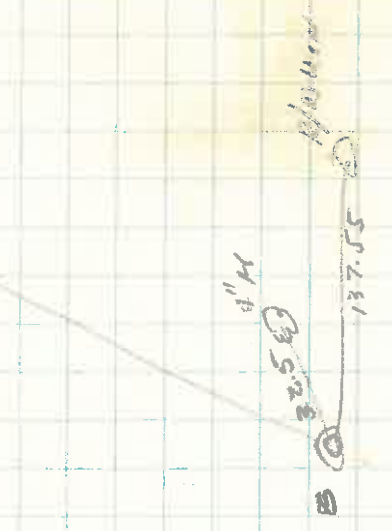
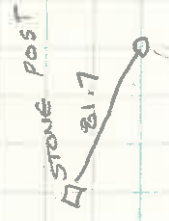
STATION	B.S.	ANGLE	DIST.	DESC.	LOCATION
1		115° 05' LT	75 ✓	FENCE	
2		119° 16' LT	82 ✓	E.W.	
3		117° 30' LT	105 ✓	"	
4		96° 28' LT	148 ✓	"	
5		88° 00' LT	155 ✓	FENCE	
6		80° 24' LT	235 ✓	"	
7		87° 56' LT	246 ✓	E.W.	
8		77° 01' LT	315 ✓	FENCE	
9		80° 50' CT	318 ✓	E.W.	
10		72° 55' LT	422 ✓	FENCE	
11		76° 26' LT	433 ✓	E.W.	
12		70° 54' LT	542 ✓	FENCE	
13		72° 37' LT	542 ✓	E.W.	
14		70° 08' LT	710 ✓	FENCE	
15		71° 14' LT	720 ✓	E.W.	
16		72° 01' LT	715 ✓	"	
17		73° 21' LT	542 ✓	"	
18		74° 46' LT	567 ✓	"	FOUR
19		75° 01' LT	537 ✓	"	"
20		77° 38' LT	430 ✓	"	"
21		55° 02' LT	327 ✓	"	FENCE KING
22		100° 54' LT	378 ✓	FRANK CORNER	
23		87° 32' LT	330 ✓	TOP BANK	
24		90° 48' LT	251 ✓	E.W.	
25		99° 46' "	176 ✓	"	
26		103° 58' "	191 ✓	TOP BANK	
27		124° 02' "	109 ✓	E.W.	
28		140° 25' "	51 ✓	"	
29		151° 12' "	55 ✓	"	
30		141° 36' LT	58 ✓	"	E KING
31		174° 41' RT	86 ✓	"	
31		135° 01' "	135 ✓	"	
32		120° 01' "	215 ✓	"	
33		172° 10' "	118 ✓	"	
34		133° 32' "	177 ✓	"	
35		124° 04' RT	236	"	

□ N.W. N.W. 1169.30
 SPIKE φ 27' LT 248+78

246+00 5/8" φ
 247+07.33 5/8" φ
 250+98.25 3/4" P.I.P.E
 252+23.06 3/4" P.I.P.E

7° 26 3/4 RT
 21° 09 1/3 RT

75
 27
 51.77



ADDITIONALS INSD BRIDGE

251+00

135
12

140
140

100

100
100

Centered Expenses

NEW CENTERLINE CROSSING R. FENCE OR STR. 252+41.5

PC	PIS	DIST	ANGLE
251+25.00	250+95.25	314	76° 52' LT
		378	100° 50' LT
		646	95° 52' LT

FENCE INTERSECTION
" CORNER
FENCE

SEEDING & MULCHING

Be. 10-S.07

D.L.D
5/4/70

	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
	STA	WIDTH LT	SUM LT	DIST LT	Sq Yds LT		WIDTH RT	SUM RT	DIST RT	Sq. Yds RT
1										
2	258+00	0					0			
3			13	100	72			25	100	139
4	257+00	13					25			211
5			30	100	167			57	100	317
6	256+00	17					32			484
7			39	100	217			69	100	383
8	255+00	22					37			600
9			48	100	267			84	100	467
10	254+00	26					47			734
11			57	60	190			81	60	280
12	253+40	31					37			470
13										
14										
15	252+60	39					40			
16			94	60	313			76	60	253
17	252+00	55					36			566
18			99	100	550			70	100	389
19	251+00	44					34			939
20			90	100	500			76	100	422
21	250+00	46					42			422
22			80	100	444			83	100	461
23	249+00	34					41			905
24			46	100	256			75	100	417
25	248+00	12					34			673
26			19	100	106			53	100	294
27	247+00	7					19			400
28				100	39			19	100	106
29	246+00	0					0			144
30										
31										
32										
			TOTAL		3121			TOTAL		3928
						GRAND TOTAL		7049		Sq Yds

659 Commercial Fertilizer

$$7050 \times 9 \div 1000 \times 20 \text{ lb} = 1269.0 \text{ lbs.}$$

$$1269 \div 2000 = 0.634 \text{ Tons}$$

To General Summary 0.634 Tons

659 Agricultural Liming

$$7050 \times 9 \div 1000 \times 100 = 6345.0 \text{ lbs.}$$

$$6345 \div 2000 = 3.17 \text{ Tons}$$

To General Summary 3.17 Tons

ITEM 601.08 Rock Channel Protection

3' thick + 6" No. 357 Asph.

Thickness for calculation = 3.5'

$$60' \times 12' \times 2 + 50' \times 10' + 60' \times 10' = 2500 \text{ sq. ft.}$$

$$1440 + 500 + 600 = 2540 \text{ sq. ft.}$$

$$2540 \times 3.5 \div 27 = 329.26 \text{ cu. yd.}$$

Use 330 cu. yd.

24
60
1440
1100
2540

$$247+00 \text{ to } 252+83 = 583 \text{ Lin Ft}$$

Deduct Drive =

$$33 \text{ Lin Ft}$$

NET LENGTH =

$$550' \text{ Lin Ft}$$

$$550 \times 12' \times 2' \div 27 = 488.9 \text{ cu. yd}$$

Use 489 cu. yd.

$$253+54 \text{ to } 253+74$$

$$20' \times 2' \times 12' \div 27$$

$$= 480 \div 27 = 17.8 \text{ cu. yd.}$$

Use 18 cu. yd.

$$489 + 18 = 507 \text{ cu. yd.}$$

PAVEMENT CALCULATIONS

B2 10- 5.09

ITEM 301 BITUMINOUS AGGREGATE BASE
Sta. 247+00 To 258+00 = 1100.0 LIN. FT.
Deduct STA. EQUATION 17.5 "
Deduct BRIDGE 81.8

TOTAL LIN. FT. = 1005.7 LIN. FT.

$$20' \times \frac{1}{12} \times 1005.7 \div 27 = 377.48 \text{ cu. yds.}$$

ITEM 402 ASPHALT CONCRETE $\frac{1}{4}"$

$$\frac{1}{4}" = 0.1042'$$

$$20 \times \frac{1}{12} \times 1005.7 \div 27 = 77.63 \text{ cu. yds.}$$

ITEM 404 ASPHALT CONCRETE 1"

$$1" = 0.0833'$$

$$20' \times \frac{1}{12} \times 1005.7 \div 27 = 62.05 \text{ cu. yds.}$$

ITEM 411 STABILIZED (USHED) AGGREGATE

$$7\frac{1}{4}" \text{ AVG. DEPTH} = 0.604'$$

$$1005.7 \times 2 = 2011.4 \text{ LIN. FT.}$$

Deduct for Mail box turnout 70.0 "

Deduct for Drives 120.0 "

$$\text{TOTAL LIN. FT. } 1821.4$$

$$2' \times \frac{1}{12} \times 1821.4 \div 27 = 81.49 \text{ cu. yds.}$$

$$\frac{28 - 36.08}{6} = \frac{22 - 36.08}{6}$$

$$\begin{aligned} 21^\circ 09.33 & \quad 28^\circ \text{ TS} = 432.29 \quad \text{ES} = 44.5 \\ 7^\circ 26.75 & \quad 29^\circ \quad = 445.60 \quad \text{ES} = 47.8 \\ \hline 28^\circ - 36.08' \quad \Delta \end{aligned}$$

$$\Delta = 28^\circ 36.08' = 28.60133 \quad \frac{177 \cdot 60}{28 - 36.08} = 151 - 23.92$$

$$\Delta_s = 150' \quad \Delta_c = 4^\circ 00' \quad \sim$$

$$\text{TS} = 440.29$$

$$\text{ES} = 46.48$$

$$\theta_s = 3^\circ$$

$$P = 0.65$$

$$K = 74.99$$

$$X_c = 149.96$$

$$Y_c = 2.62$$

$$\text{CT} = 100.01$$

$$\text{ST} = 50.01$$

$$\text{LC} = 149.98$$

$$A_c = 22^\circ 36.08'$$

$$\angle_c = 526.03' \checkmark$$

$$250 + 98.25$$

$$\frac{94.09}{251 + 92.34} \quad \text{P.I.} \checkmark$$

$$-4 + 40.29 \quad \text{T.S.}$$

$$247 + 52.05 \quad \text{T.S.} \quad 300$$

$$\frac{1 + 50}{249 + 02.05} \quad \text{S.C.}$$

$$\frac{2 + 82.52}{251 + 84.57} \quad \text{M.P.}$$

$$\frac{2 + 82.51}{254 + 67.08} \quad \text{C.S.}$$

$$\frac{1 + 50.00}{256 + 17.08} \quad \text{S.T.}$$

STATION	DIST	DEF	
TS. 247+52.05	0	0	3 5-39
248+00	47.95	0° 06'	4 22-36
249+00	100.00	0° 58.4'	
SC +02.05	2.05	1° 00'	
250+00	97.95	1° 57.5'	
251+00	100	3° 57.5'	
+84.57	84.57	5° 39.0'	
252+00	15.43	5° 57.5'	
253+00	100	7° 57.5'	
254+00	100	9° 57.5'	
C.S. +67.08	67.08	11-18.0'	
255+00	32.92	0° 03'	
256+00	100	0° 47'	
ST +17.08	17.08	1° 00'	
=	256+33+57 AHEAD	256 + 29.57	AHEAD

$L_s = 180$
 $D_c = 4000$
 $21 - 09' 14.53''$

$2527 + 23.06$
 $4 + 10.51$
 $2564 + 33.57$

$252 + 23.06$
 $250 + 98.25$
 $\hline 24.81$

$252 + 23.06$

$250 + 98.25$
 24.81

$21^{\circ} 09' 13''$

124.81

124.81

94.09
 124.81

$28.2608 \quad 47871$
 $\sin 151^{\circ} 23.92' = \frac{124.81}{x}$

12958
 $\sin 7^{\circ} 26.75' = \frac{33.78}{x}$

36089
 $\sin 151^{\circ} 23.92' = \frac{124.81}{x}$
 $\sin 21^{\circ} 09.33' = \frac{94.09}{x}$

ITEM 408 PRIME COAT

$$(2' \times 1821.4 \div 9) = 404.76 \text{ Sq Yds.}$$

$$404.76 \times 1.5 \text{ GAL.} = 202.38 \text{ GALS.}$$

ITEM 409 SEAL COAT

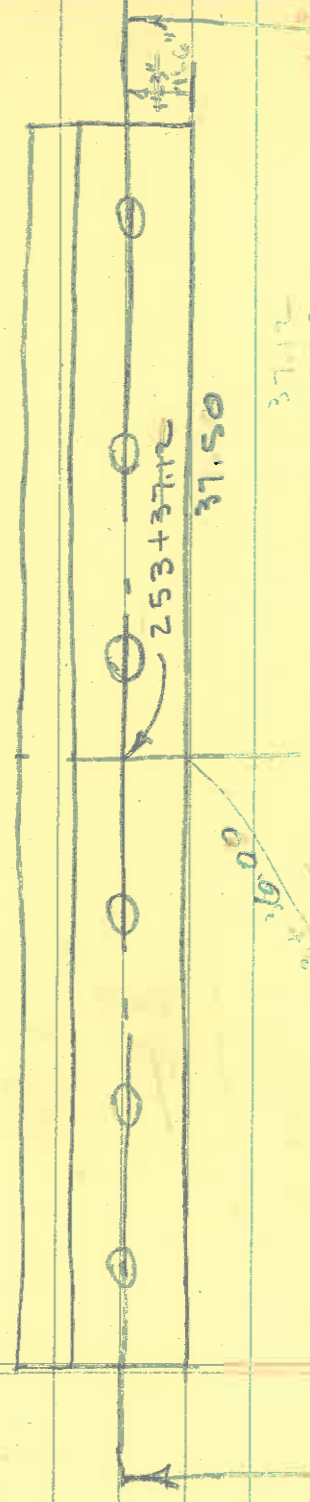
$$404.76 \times .35 \text{ GAL.} = 141.67 \text{ GALS.}$$

ITEM 409 SEAL COAT COVER AREA GALS. NO. 8

$$404.76 \times 25 \text{ lb} \div 2400 \text{ lb} = 4.22 \text{ Cu Yds.}$$

$$\begin{array}{r} 33 \\ 15 \overline{) 50} \\ \underline{45} \\ 50 \\ \underline{45} \\ 50 \\ \underline{45} \\ 50 \end{array}$$

253+37.12
 252+58.87
 78.25



37.12
 1.25
 35.87

24.50
 24.60

← PIER

253+13.00

252+58.87
 24.13
 252+83.00
 30.00
 253+13.00
 24.12
 253+37.12

0
 0
 0

← PIER

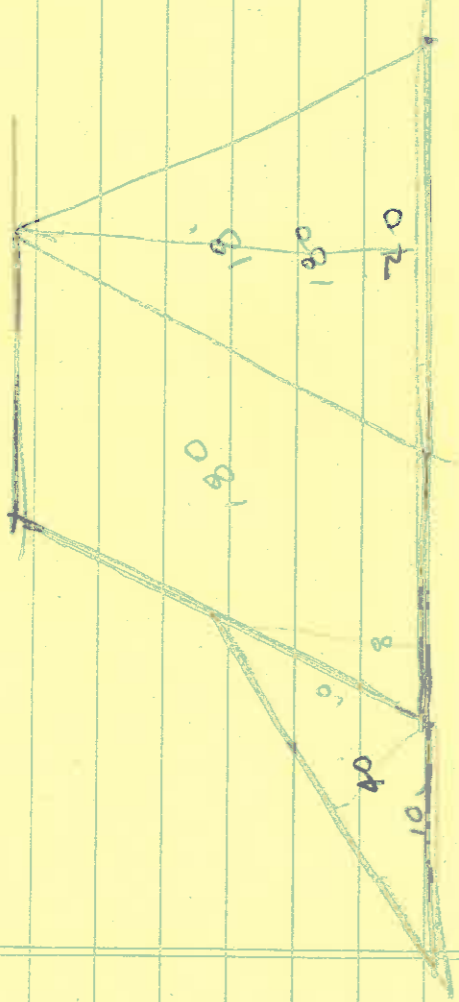
252+88.00

24.50
 24.60

252+60.00
 FACE

58.50
 252+58.87

58.87
 1.25
 60.12



180
180
300

300 x 1/2 = 150

$$300 \times \frac{1}{2} = 150 \quad 150 \times \frac{1}{2} = 75$$

1/23/70
O.V.D.

BR 10-S.09
400' V.C.

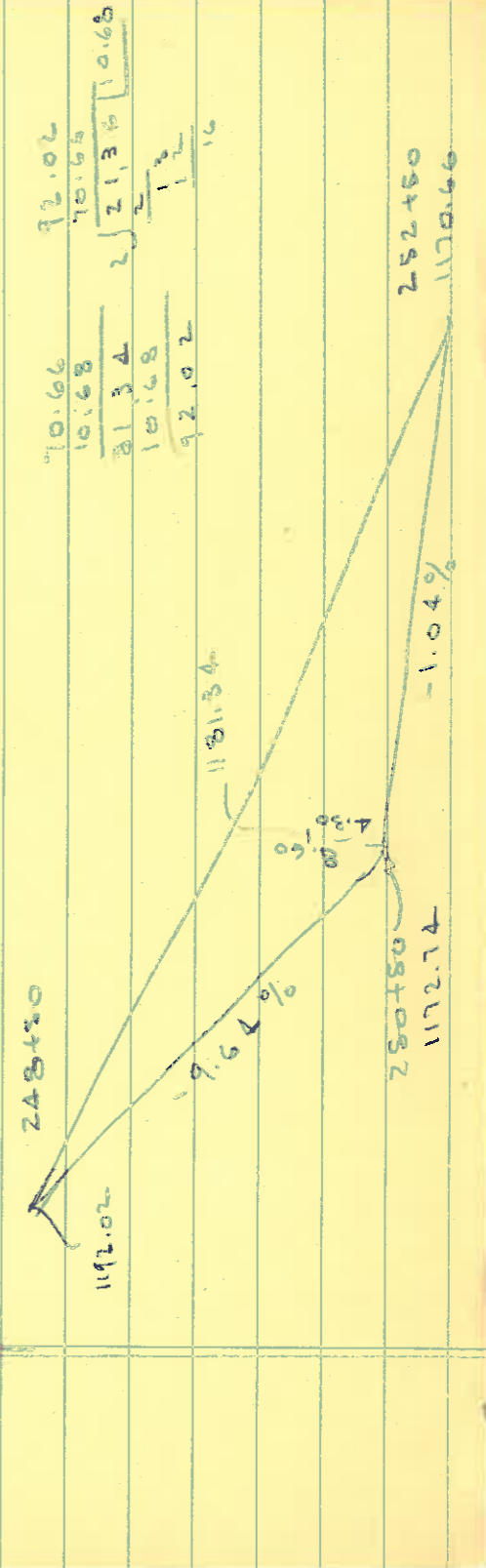
STA	GRADE ELEV	V.C. OFFSET	ELEV.
248+80	1192.02	0	1192.02
+75	1189.61	$\frac{1}{8}\%$	1189.68
249+00	1187.20	$\frac{2}{8}\%$	1187.47
+25	1187.00	0.29	1187.29
+25	1184.79	$\frac{3}{8}\%$	1185.39
+50	1182.38	$\frac{4}{8}\%$	1183.45
+75	1179.97	$\frac{5}{8}\%$	1181.65
250+00	1177.56	$\frac{6}{8}\%$	1179.98
+25	1175.15	$\frac{7}{8}\%$	1178.44
+50	1172.74	$\frac{8}{8}\%$	1177.04
+75	1172.48	3.29	1175.77
251+00	1172.22	2.82	1174.64
+25	1171.96	1.68	1173.64
+50	1171.70	1.07	1172.77
+75	1171.44	0.60	1172.04
252+00	1171.18	0.27	1171.45
+25	1170.92	0.07	1170.99
+50	1170.66	0	1170.66

$$\left(\frac{52^2}{200}\right) \times 4.30$$

$\frac{2700}{40,000}$

$\frac{52}{32}$
 $\frac{2600}{200}$
 $\frac{130}{200}$

$\frac{81.34}{72.74}$
 $\frac{8.60}{}$



248+50
1192.02

250+80
1172.74

252+50
1171.45

9.64%

-1.04%

400'

252+50
1170.66

Dr. 10-5-09

STA	GRADE ELEV.	V.C. OFFSET	SUPER-ELEVATION	LT. EDGE OR PUNT	Proposed \pm Elev.	RT. EDGE OF PUNT
CS. 254+67.08	1168.40	0.07	1.20	1169.51	1168.47	1168.31
775	1168.32	0.09	1.16	1169.41	1168.41	1168.25
255+00	1168.06	0.16	1.00	1169.06	1168.22	1168.06
725	1167.80	0.25	0.71	1168.60	1168.05	1167.89
+50	1167.52	0.36	0.48	1168.22	1167.90	1167.74
775	1167.52	0.25	0.19	1167.80	1167.77	1167.61
256+00	1167.50	0.16	0.83	1167.53	1167.66	1167.50
BANK ST. 77.08	1167.49	0.11	0	1167.44	1167.60	1167.44
ST. 729.57	1167.49	0.11				
+50	1167.48	0.06		1167.38	1167.54	1167.38
775	1167.46	0.02		1167.32	1167.48	1167.32
257+00	1167.44	0.01		1167.29	1167.45	1167.29
+12.49	1167.43	0		1167.27	1167.43	1167.27

$$10 \times \frac{3}{16} = \frac{30}{16} = 1\frac{7}{8}'' = 0.16'$$

Pa. 10-5.09

SUPER ELEVATION CALC.

247+52.05
15
8 27.05

MAX. SUPER = 0.06 FT/FT P.M.T. = 20' = 20 x 0.06 = 1.20'

75.0
52.05
22.95

$$e = \left(\frac{2 \times 22.95}{150} \right) 0.60 = 0.06$$

248+00

$$e = \left(\frac{2 \times 47.95}{150} \right) 0.60 = 0.23$$

248+25
248+25
247+52.05
72.95

$$e = \left(\frac{2 \times 72.95}{150} \right) 0.60 = 0.57$$

248+50

$$e = 1.20 - \left(\frac{2(150 - 97.95)}{150} \right)^2 0.60 = 0.91$$

248+75

$$e = 1.20 - \left(\frac{2(150 - 122.95)}{150} \right)^2 0.60 = 1.12$$

249+02.05

$$e = e = 1.20$$

254+67.08

$$e = e = 1.20$$

254+75
13.2

$$e = 1.20 - \left(\frac{2(150 - 132.08)}{150} \right)^2 0.60 = 1.16$$

255+00

$$e = 1.20 - \left(\frac{2(150 - 107.08)}{150} \right)^2 0.60 = 1.00$$

255+25

$$e = 1.20 - \left(\frac{2(150 - 82.08)}{150} \right)^2 0.60 = 0.71$$

255+50

$$e = \left(\frac{2 \times 67.08}{150} \right)^2 \times 0.60 = 0.48$$

255+75

$$e = \left(\frac{2 \times 42.08}{150} \right)^2 \times 0.60 = 0.19$$

256+00

$$e = \left(\frac{2 \times 17.08}{150} \right)^2 \times 0.60 = 0.03$$

BR. 10-5.09
300' V.C

5/21/70

STA	GRADE ELEV	VIC. OFFSET	ELEV
254+00	1169.10	0	
+25	1168.84	$\frac{1}{6} \frac{1}{36} = 0.01$	
+50	1168.58	$\frac{2}{6} \frac{1}{36} = 0.04$	
C.S. +67.08	1168.40	$\frac{3}{6} \frac{1}{36} = 0.07$	
+75	1168.32	$\frac{4}{6} \frac{1}{36} = 0.11$	
255+00	1168.06	$\frac{5}{6} \frac{1}{36} = 0.16$	
+75	1167.80	$\frac{1}{6} \frac{1}{36} = 0.25$	
+50	1167.54	$\frac{2}{6} \frac{1}{36} = 0.36$	
+75	1167.52	0.25	
256+00	1167.50	0.16	
ST. +17.08 = 29.57	1167.49	0.11	
+50	1167.48	0.06	
+75	1167.46	0.02	
257+00	1167.44	0	
+17.49	1167.43	0	

$\left(\frac{67}{150}\right)^2 \times 0.36$	
$\left(\frac{12.49}{150}\right)^2 \times 0.36$	
$\left(\frac{37.49}{150}\right)^2 \times 0.36$	
$\left(\frac{62.49}{150}\right)^2 \times 0.36$	
$\left(\frac{82.49}{150}\right)^2 \times 0.36$	

1169.10	
-1.04	
0.16	
1167.54	
-0.08	
1167.43	

82.92	
17.08	
100.00	
67.03	
1.85	
68.26	
69.10	
67.43	
1.67	
68.26	
67.50	
0.76	
68.26	

1/2 1/10
D.I.B.

BR. 10-5.09

PUNT SLOPE = 3/16" / FT.
WIDTH = 20.

STA.	GRADE ELEV.	V.C. OFFSET	SUPER-ELEVATION	LT. EDGE OF PUNT.	PROPOSED ELEV.	RT. EDGE OF PUNT.
247+50	1201.66			1201.50	1201.66	1201.50
15.247+52.05	1201.46		0	1201.30	1201.46	1201.30
+75	1199.25		0.06	1199.15	1199.25	1199.09
248+00	1196.84		0.25	1196.93	1196.84	1196.68
+75	1194.43		0.57	1194.84	1194.43	1194.27
+50	1192.02	0	0.91	1192.77	1192.02	1191.86
+75	1189.61	0.07	1.12	1190.64	1189.68	1189.52
249+00	1187.20	0.27		1188.51	1187.47	1187.31
56.249+02.05	1187.00	0.29	1.20	1188.33	1187.29	1187.13
+25	1184.79	0.60		1186.43	1185.39	1185.23
+50	1182.38	1.07		1184.49	1183.45	1183.29
+75	1179.97	1.68		1182.69	1181.65	1181.49
250+00	1177.56	2.42		1181.02	1179.98	1179.82
+25	1175.15	3.29		1179.48	1178.44	1178.28
+50	1172.74	4.30		1178.08	1177.04	1176.88
+75	1172.48	3.29		1176.81	1175.77	1175.61
251+00	1172.22	2.42		1175.68	1174.64	1174.48
+25	1171.96	1.68		1174.68	1173.64	1173.48
+50	1171.70	1.07		1173.81	1172.77	1172.61
+75	1171.44	0.60		1173.08	1172.04	1171.88
252+00	1171.18	0.27		1172.41	1171.45	1171.29
+25	1170.92	0.67		1172.03	1170.99	1170.83
+50	1170.66	0		1171.70	1170.66	1170.50
+75	1170.57			1171.44	1170.40	1170.24
+50	1170.40			1171.36	1170.32	1170.16
+75	1170.32			1171.18	1170.14	1169.98
253+00	1170.14			1171.04	1170.00	1169.84
+25	1170.00			1170.92	1169.88	1169.72
+75	1169.88			1170.66	1169.62	1169.59
+50	1169.75			1170.40	1169.36	1169.20
254+00	1169.36			1170.14	1169.10	1168.94
+25	1168.84	0.01		1169.89	1168.85	1168.69
+50	1168.58	0.04		1169.64	1168.62	1168.46
65+67.08	1168.40	0.07	1.20	1169.51	1168.47	1168.31
		0.06				

Bridge Limits

$$9 \text{ Be} = 252 + 98.00$$

$$79-6'$$

$$1-3''$$

$$1-3''$$

$$\underline{82-0'}$$

$$252 + 98.00 \quad 252 + 98.00$$

$$41.00$$

$$41.00$$

$$\underline{252 + 57.00} \quad 252 + 39.00$$

$$253 + 39.0$$

$$252 + 57.0$$

$$\underline{82-0'}$$

$$27.50$$

$$253 + 13.00$$

$$\underline{24.50}$$

54.25
50
4.25

57.12
29
50.25
25
29.25

+04.25

+29.25

50

25

+54.25

252 + 57.12

81.5

81.75

BR L x H
BR L x G.R. or Br

255 + 38.87

50

50

15
187.5
162.5
25

87.5
15

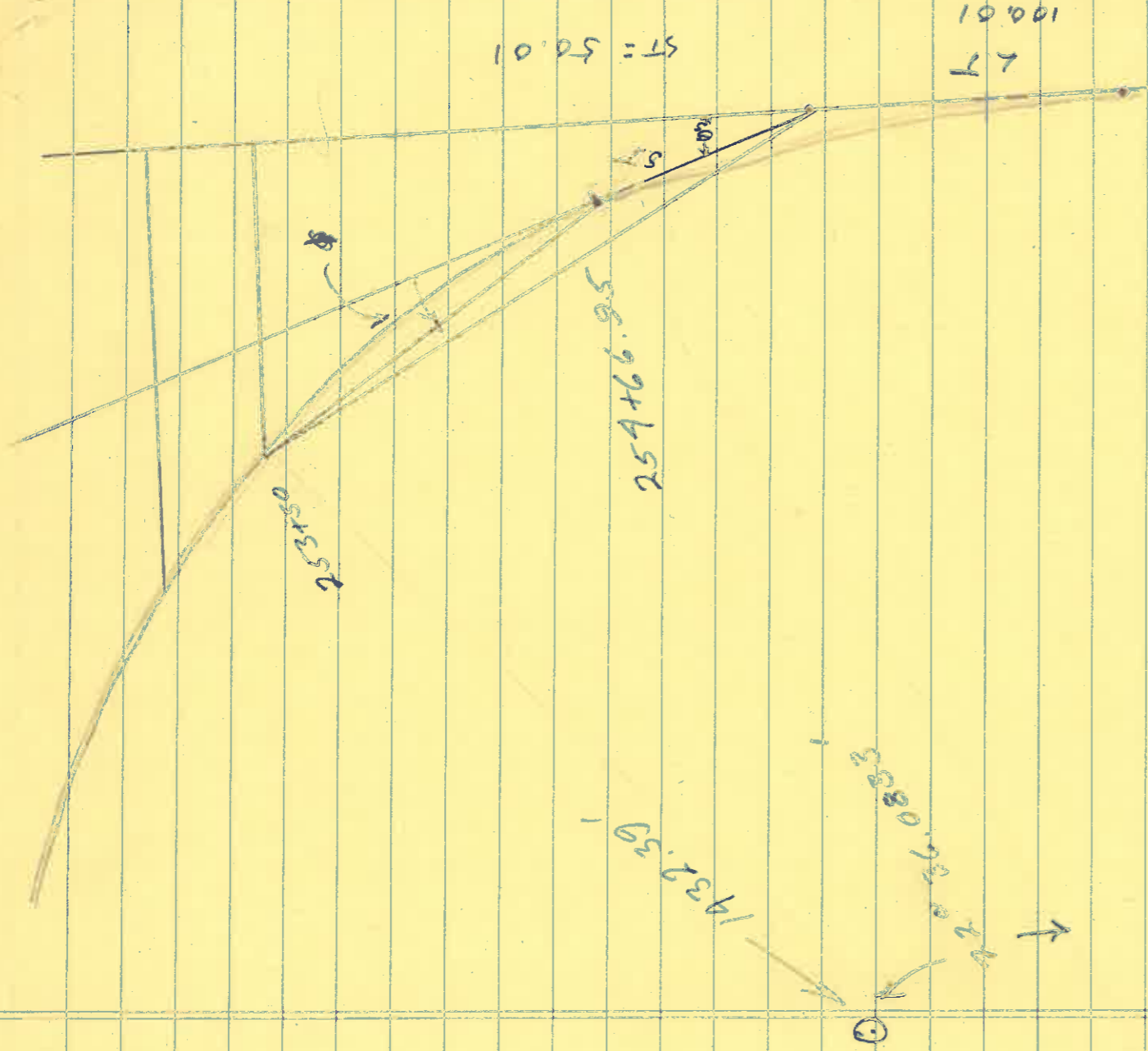
38.87
1.88
41.75

+91.75

75
12.5
81.5
81.75
5.75
2.87
25.75
1.7
1.6
1.5

253 + 38.87
252 + 57.12
81.75

OFFSET FROM EXISTING C



$$LC = 2R \sin \frac{\Delta}{2} = 2 \times 1932.39 \times \sin \frac{22^\circ 36.0833}{2}$$

$$= 2864.78 \times \sin 11^\circ 18.0465$$

$$\sin 11^\circ 18.0465 = 0.19599461 + 0.04165 \times 285.2$$

$$= 561.3765592$$

$$\text{Length of curve} = 116.95 = \frac{A_c \times 100}{D_c}$$

$$D_c = 9^\circ$$

$$\therefore A_c = 4 \times 116.95 \times 100 = 46780$$

$$L_{\text{CHORD}} = 2R \sin \frac{\phi}{2} = 2069.78 \times \sin 2^{\circ} 20.39'$$

$$\sin 2^{\circ} 20.39' = 0.0407131 + 0.31 \times 2906$$

988

$$\underline{0.0408119}$$

$$L_{\text{CHORD}} = 116.917$$

$$\phi = 0.3 \times 116.95 \times \pi = 110.39' = 2^{\circ} 20.39'$$

166.8978

116.917

50.01

177' 39.66'

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$= 2501.0001 + 13669.5819 + 2 \times 5817.01917 \cos A$$

$$\cos A = 0.9991709$$

- 10

$$\underline{0.9991669} \times 116.917 = 11681.2960$$

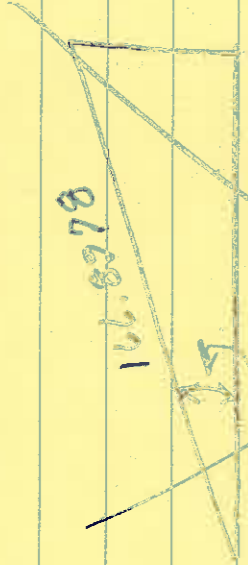
$$= 2501.0001$$

$$\underline{13669.5819}$$

$$16170.5850$$

$$\underline{11681.2960}$$

$$27051.8810 \quad \sqrt{\quad} = 166.8978$$



$$\phi = 3.00 + 2^\circ 20.39' = 5^\circ 20.39'$$

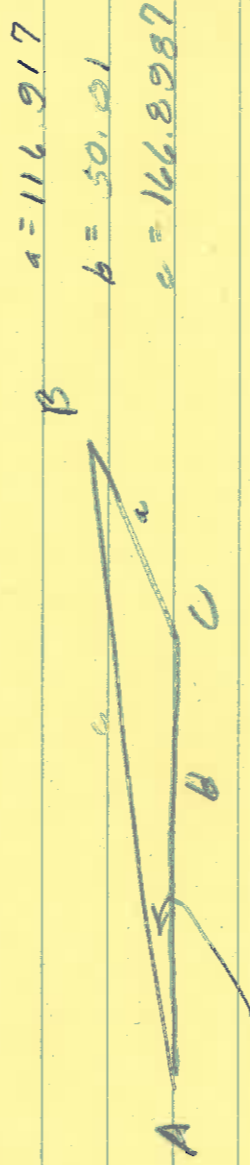
$$\sin 5^\circ 20.39' = \frac{x}{166.8978}$$

$$\therefore x = 166.8978 \sin 5^\circ 20.39'$$

$$\sin = 0.0929799$$

$$\frac{985}{0.0930487}$$

$$x = 15.5296$$



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} = \frac{166.8959^2 + 50.01^2 - 116.917^2}{2 \cdot 166.8959 \cdot 50.01} = 0.99960367$$

$$0.99960367$$

$$= 0.99960367$$

$$\frac{99960367}{10000000000}$$

$$A = 1^\circ 35.198'$$

$$\phi = 1^\circ 35.198'$$

$$+ 34'$$

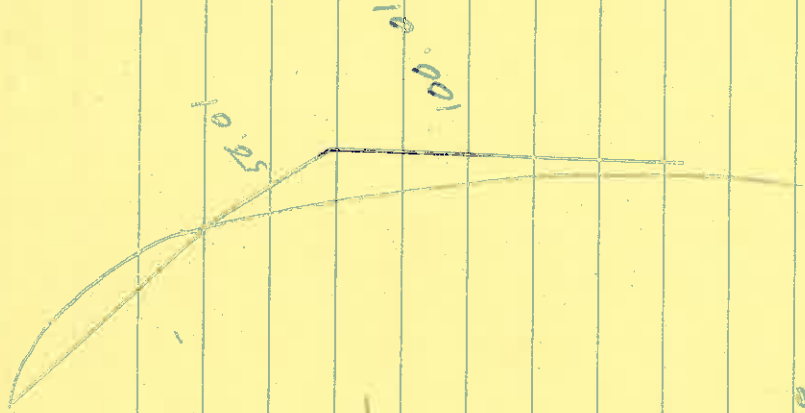
$$1^\circ 35.198'$$

$$= 1^\circ 35.198'$$

$$\sin = 0.0799147$$

$$0.53450$$

$$x = 13.33750761$$



$$6.95$$

$$6 \times \frac{100}{4}$$

$$6695 = 2.6780^\circ = 2^\circ 40.68'$$

$$2864.78 \sin \frac{20 \ 40.68'}{2} \quad \text{and} \quad 1^\circ 20.39'$$

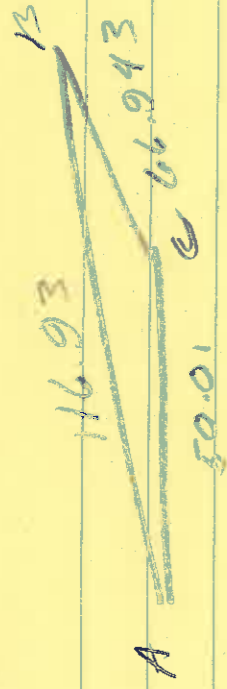
$$2864.78 \times 0.465253$$

$$= 1333.950$$

$$.0467229 = 1333.950$$

$$\times 1,0232620$$

$$999$$



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} = 11695.88226$$

$$= 0.99990966$$

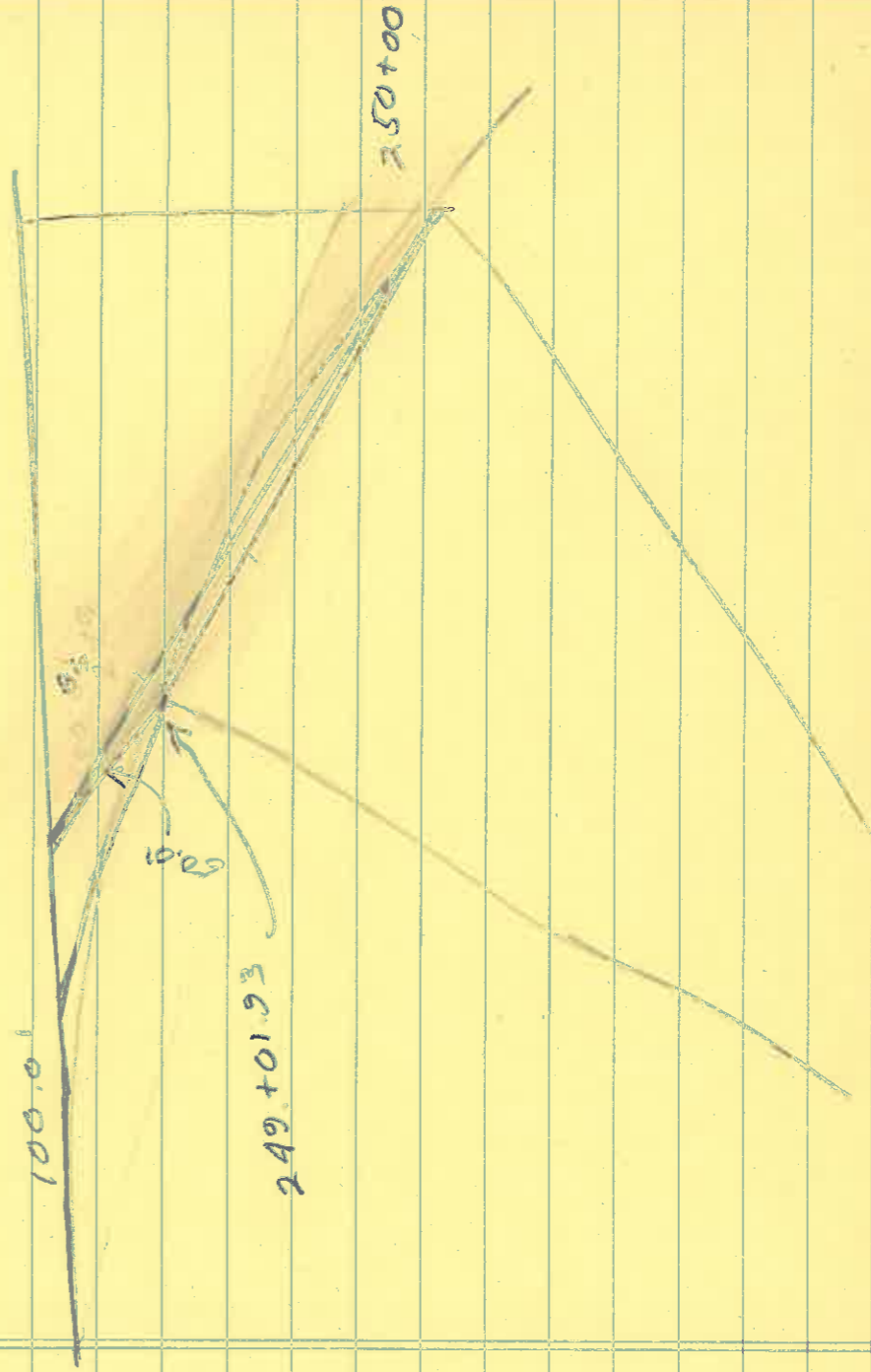
$$A = 0^\circ 45' 827''$$

$$x = 116.93 = \sin 3^\circ 45' 827''$$

$$\sin 3^\circ 45' 827'' = 065903 / \underline{1579} = 0655605$$

$$259100 \quad x = 7.6660 \text{ @ sta } 257$$

sta 250



Sta 250+00 (cont)

Length of curve = 250+00

$$- \frac{240 + 01.93}{98.07}$$

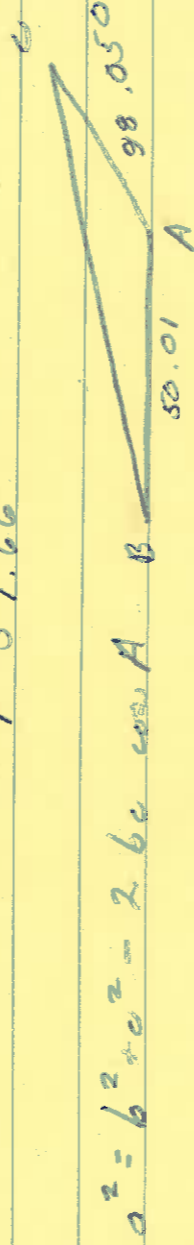
$$A_c = \frac{98.07}{100} \times 4^\circ = 3.922^\circ = 3^\circ 55.360'$$

$$\text{Length of chord} = 2R \sin \frac{A}{2} = 2069.78 \times \sin 1^\circ 57.681'$$

$$\sin 1^\circ 57.681' = 0.0340274$$
$$+ \frac{1988}{0.0342262}$$

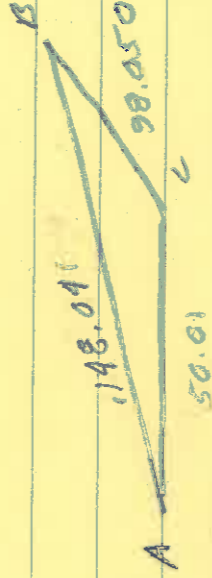
$$\text{Chord} = 98.050533236$$

$$\phi = 0.3 \times 64 \times 4 = 76.8$$
$$= 1^\circ 57.66'$$



$$\cos A = 0.9994209$$
$$= \frac{33}{0.9994186}$$

$$a^2 = 21916.20982 \quad a = 148.04124366$$



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} = \frac{19803.30}{19803.30}$$

$$= 0.9997492$$

$$\phi = 4^\circ 17.7429'$$

49

$$A = 1^\circ 17.7429'$$

$$\sin \phi = 0.0223965$$

$$\cdot 2158$$

$$\underline{0.0226123}$$

2.50

$$x = 148.041 \times \sin \phi = 33473$$

Sta 251700 Arc Length $r = 108.07$

$$d_c = 1.9807 \times 4 = 7.9228 = 7^\circ 55.368'$$

$$\text{Chord Length} = 2R \sin \frac{\phi}{2}$$

$$\sin 3^\circ 57.684' = 0.0688859$$

$$\underline{1282}$$

$$0.0690843$$

$$C.L. = 197.91132095$$



$$\phi = 0.3 \times 197.911 \times 4$$

$$= 237.493' = 3^\circ 57.493584'$$

$$\cos A = \cos 3^\circ 57.493' = 9976295$$

$$\underline{-99}$$

$$0.9976146$$

$$d^2 = 61964, \quad d = 247.82405$$



$$\frac{63400^2}{2}$$

$$= 9984570$$

$$\cos A = 264$$

$$= \underline{9984974}$$

$$091$$

$$A = 3^\circ 11.5617'$$

$$\phi = 3 + 3^\circ 11.5617$$

$$\phi = 6^\circ 11.5617'$$

$$x = \sin \phi \times 247.829$$

$$\sin \phi = \frac{1629}{0.1098726}$$

$$x = 26.73342$$

$$252700 \text{ Arc Length} = 298.07$$

$$A_0 = 4 \times 2.2807 = 11.2828 = 11^\circ 55.3680'$$

$$\text{Chord Length} = 2R \sin 5^\circ 57.689'$$

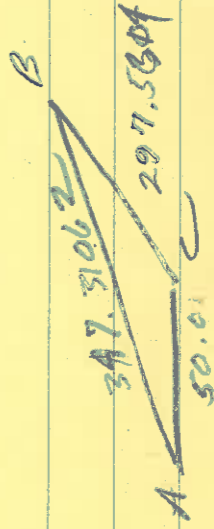
$$\sin 5^\circ 57.689' = \frac{1979}{0.1038589}$$



$$\phi = 0.3 \times 297.5319 \times 4 = 357.037' = 5^\circ 57.0377'$$

$$\cos A = \frac{0.9946127}{-11} = -0.9946116$$

$$a = b^2 + c^2 - 2bc \cos A = 397.31062$$



$$\cos A = \frac{b^2 + c^2 - a^2}{2bc} = \frac{34600.737}{9960669}$$

$$= 0.9960483$$

$$= 186$$

$$186$$

$$A = 5^\circ 5.71808'$$

$$d = 8^\circ 5.71808'$$

$$\sin d = 0.1406132$$

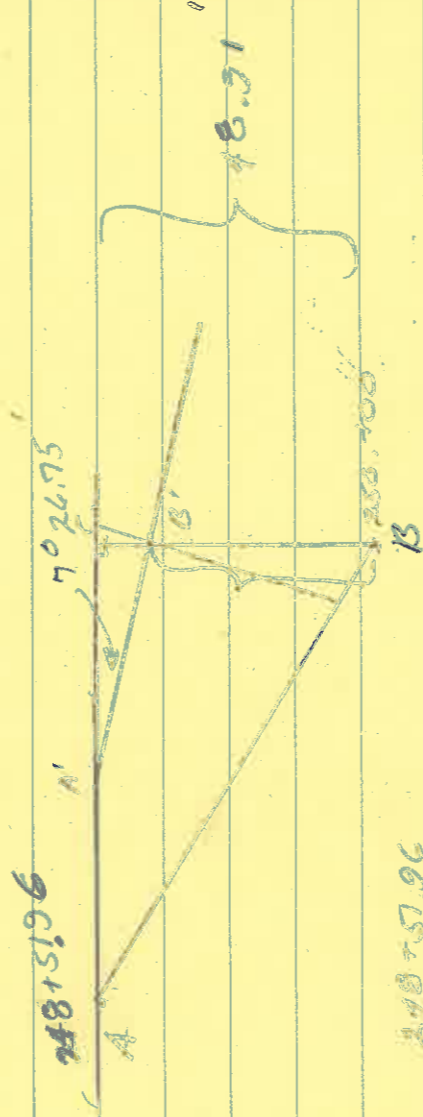
$$\frac{2068}{0.1908200}$$

$$0.1908200$$

$$y = 347.31062 \times \sin d = 48.2082815$$

258

This gives the true distance + to the extension of the existing E whic's turns L R $7^\circ 26.75'$ @ sta 250 + 98.25



$$248 + 57.96$$

$$\frac{345.96}{251 + 97.92}$$

$$250 + 98.25$$

$$99.67$$

$$d = 6' \tan 7^\circ 26.75' = 99.67 \times 0.1308200 = 13.02526$$

$$x = 35.8823195$$

SPIRAL OFFSETS FROM TANGENT

Sta	L	θ	C_x	X	C_y	Y
256+00	29.44	0.115	1.0	0.0087	0.003	
255+00	129.44	2.233	.99985	.01287	1.678	
248+00	48.05	0.309		.00175	.008	
249+00	148.05	2.921		.01628	2.513	

$$\theta = \frac{L^2}{L_g} \times \theta_s \quad \frac{\theta_s}{L_g^2} = \frac{3}{150^2} = 0.0001333$$

Coefficients from TABLE II, p. 56

(.09)

$$4 \sqrt{\frac{77.5}{150}} \quad \theta = 0.107$$

$$\frac{12}{30} \quad \underline{.00058}$$

$$\quad \quad \quad \underline{.98}$$

$$\quad \quad \quad .00106$$

BRIDGE POSITION

Center of Bridge @ sta 252 + 97.48

Move to sta 252 + 98.00

Face of Abutment @ 252 + 98.00

+15.00

+23.50

Forward 253 + 36.50

-77.00

Rear 252 + 59.50

C of piles is 7 1/2" behind abutment face

Forward C of piles @ sta 253 + 37.12

Rear " " " " 252 + 58.87

78.25

Elev of Rd way & w/o Super elevation

Pav. C @ Forward, face of Abutment = 1170.14

sta 253 + 36.50 - 0.3796

1169.76

Pav. C @ Rear, face of Abutment = 1171.18

sta 252 + 59.50 - 0.6188

1170.56

~~W/ Super elevation~~

~~lowering inside @ 0.261 ft for 13'~~

~~Elev Inside Forward Face of Abutment = 1168.25'~~

~~" " Rear " " = 1169.67~~

Lowering the inside edge at $\frac{2}{16}$ " ft. for $15' = \frac{45}{16}$ "
= 0.234375

1169.96

- .23

Pav @ Inside Forward Face of Abutment = 1169.53

" " Rear " " = 1170.33

Subtracting the slab thickness of $18\frac{1}{2}$ " = 1.125'

Inside Seat of Forward Abutment 1168.91

" " Rear " " 1169.21

Subtracting 2.0' to bench, 1166.91

1169.21

Subtracting 3.0' to bottom of Abut

1163.91

1164.21

82

~~At Forward Pier Inside Bottom~~

~~elev = 1166.91~~

~~Outside Bottom $\gamma = (\frac{d}{e}) \times \gamma_c$~~

~~+ 1.74 elev = 1168.15~~

~~At Rear Pier Inside Bottom~~

~~elev = 11~~

FROM INSIDE SEAT OF REAR ABUTMENT

TO INSIDE C. OF PIER = 23.5' - $\frac{1}{2}$ " edge beam

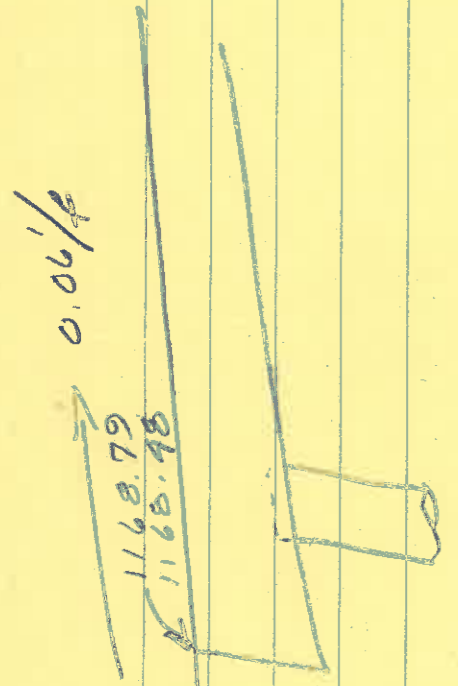
diff. elev. = -0.244' - 0.208' beam

TO INSIDE C. OF PIER = -0.5569' - 0.208

TO INSIDE SEAT OF FORWARD ABUT = -0.8008

7.44
~~1169.96~~
~~1169.96~~
1169.96

10



0.06'

1169.21
- 0.452

1168.76

~~1168.41~~
~~0.37~~
7

1168.81 rear
1168.53 for

Slab is super-elevated @ 0.06'/ft

1169.21
- 0.764
1168.45

∴ for 0.5' diff = +0.03'

Subtracting 2' to bottom of pier cap

Inside Bot. of rear Pier Cap = 1166.79
" " " for " = 1166.48

29
179

In super-elevation for 29' of pier,
outside diff = $290 \times 0.06 = 0.174'$

Outside Bot. of rear Pier = 1166.53'
" " " for " = 1166.22'

Outside top of pier = 1168.53
1168.22

Outside bot of pav = 1168.56
1168.25

Outside edge of pav = 1168.56
+ 1.25
1169.81'
1169.50'

Q @ 1168.91'
1169.60'

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT	PIER	GENL
6	9	9	5.4"	8	8	8	8
6	8	8	5.4	7	7	7	7

3' 1/2
Ground

12'

20
22
— 2
42

10
10
— 0
20

Porous Backfill shall extend upward to the subgrade and to the surface of the earth shoulders, and outward to the surface of the embankment slopes.

De to - 5.09

(4) CHANSEL SEC. SHEET
✓ Title Block

✓ Work Proposed Sec.
✓ W.C. F/L ELEV.

(8) APPOINTMENT SHEET

✓ Title Block

✓ TRIM LINE

✓ TRIM SHEET

(9) BE PLAN SHEET

✓ Title Block

General Notes

✓ TRIM LINE

✓ TRIM SHEET

ESTIMATED QUANTITIES

HOUB

(10) PIECE PLAN

✓ Title Block

✓ TRIM LINE

✓ TRIM SHEET

(10) SLAB SHEET

✓ Title Block

✓ TRIM LINE

✓ TRIM SHEET

✓ DECK PLAN

(3) SITE PLAN

✓ UPPER TITLE BLOCK

✓ BORDER

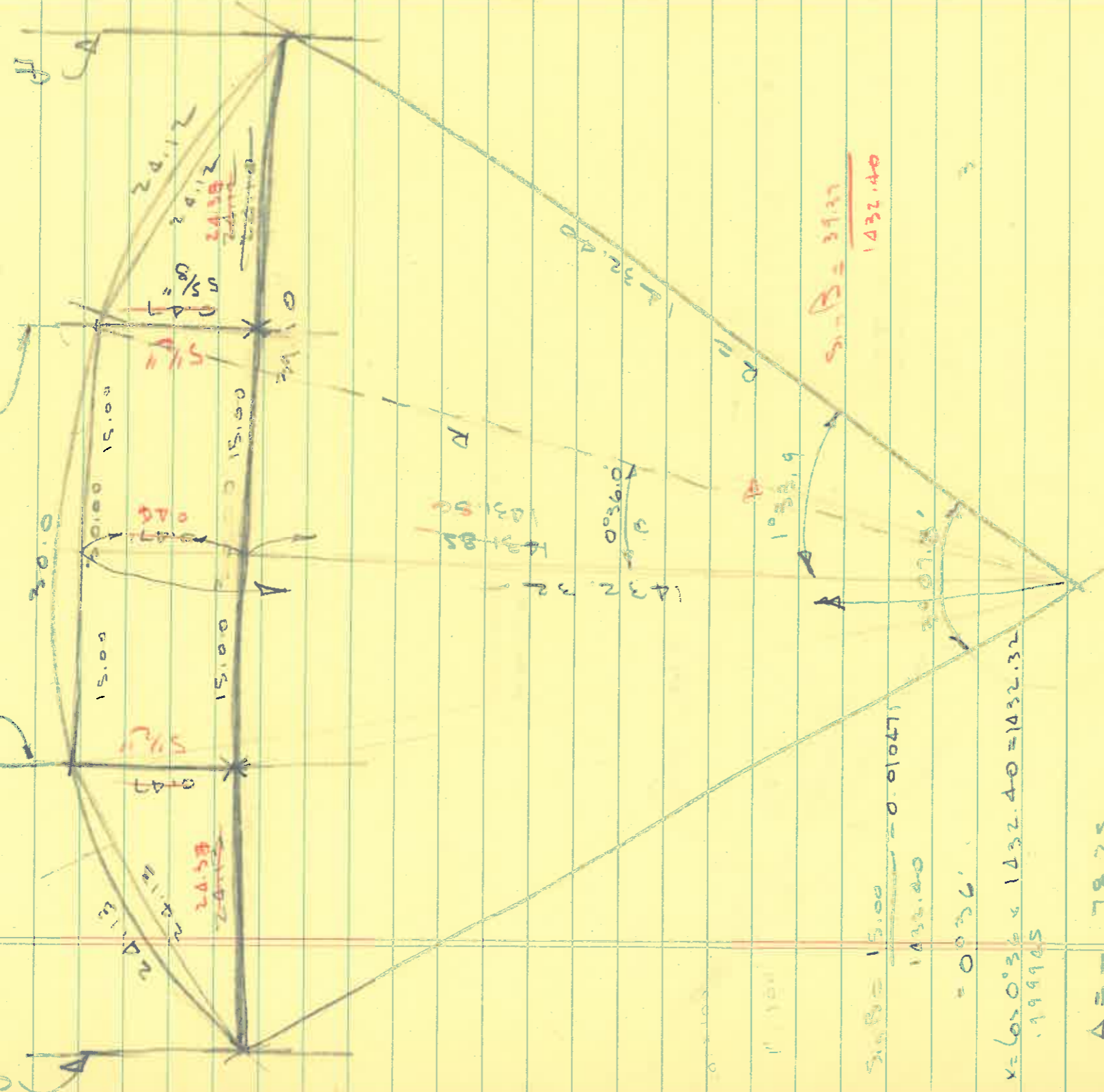
✓ TRIM LINE

✓ TRIM SHEET

Chord Dist = 78.20'

Arc Dist = 78.25'

± Pieces



$$\sin B = \frac{15.00}{1432.40} = 0.010471$$

$$= 0.36'$$

$$x = \cos 0.36 \times 1432.40 = 1432.32$$

$$.999965$$

$$A = \frac{78.25}{360}$$

$$3.14159 (2864.80)$$

$$= 3.12999^\circ = 3^\circ 7.7'$$

$$\sin 1.5369 \times 1432.40 = 39.10$$

$$.02730$$

$$\cos 1.5369 \times 1432.40 = 1431.85$$

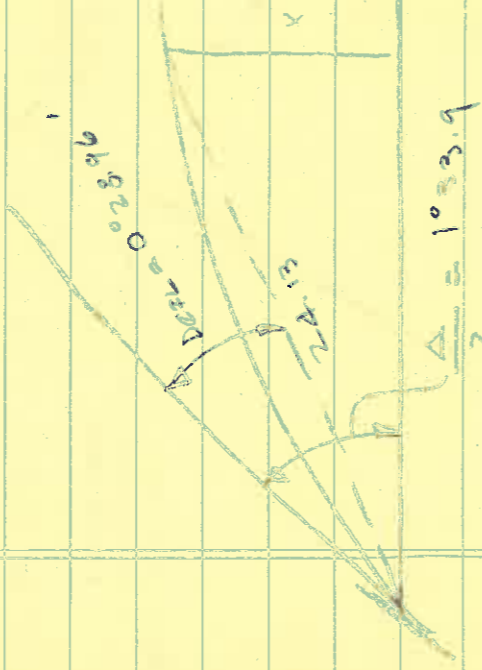
$$.99962$$

$$\sin B = \frac{39.37}{1432.40}$$

$$D = A^{\circ}00'$$

$$\text{Defl. / FT} = 1.2'$$

$$\Delta L = \text{FT} / AOC = 240' \times 78.25 = 3^{\circ}7.8'$$



$$\frac{1^{\circ}33.9}{29.9} = 1.0410$$

$$V = \sin 1^{\circ}04' \times 24.13 = 0.43$$
$$.01862$$

$$\frac{A}{2} = 1^{\circ}33.9$$

$$3^{\circ}7.8 \times 1.00000068 = 1432.40$$
$$\frac{6.45.6}{2}$$

200-012

(2) P/W Profile

- ✓ EASE PROPOSED GUAO RAIL
- ✓ " " SIDE DITCH & DT. PROTECTION
- ✓ " " R/W LINES
- ✓ " GUAO RAIL QUANTITIES

(3) TYPICAL SECTION SHEET

- ✓ IVE LIMITING STATIONS
- ✓ TRAIN LINES
- ✓ TRAIN SHEET

SUMMARY SHEET

VINE GENERAL SUMMARY

- ✓ " CALCULATIONS
- ✓ " TITLE
- ✓ TRAIN LINES
- ✓ TRAIN SHEET

(4) COVER

(5) R/W

GENERAL NOTES

BOUCE PILES

No 10-5.05

3 → REFERENCE shall be made to Standard Drawings CS-1-65, A-1-54, revised 11-8-63 and P-1-54 revised 11-8-63.

6 → EMBANKMENT CONSTRUCTION: The embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments and benches.

4 ABUTMENT EXCAVATION QUANTITY, in addition to 503.10, includes the removal of embankment above the bench.

3 PILES shall be driven to a minimum bearing capacity of 25 tons per pile for the abutments and 35 tons per pile for the piers.

4 PIER PILE ENCASUREMENT as shown on std. Draw. No. P-1-54 may be omitted provided that the tapered portion (if any) of all pier piles does not extend above the stream bed. If the tapered portion of any pile extends above this limitation, the encasement will be required for all the pier piles. If the encasement is omitted the pile casings shall have a thickness of metal not less than 19017 gage, and the portion of the piles shall extend to low water elevation.

GENERAL NOTES

No 10-503

15-1

DESIGN SPEED: The geometrics for this project have been planned for a design speed of 30 mile per hour.

UTILITIES: The contractor shall notify at least 48 hours before breaking ground, all Public Service Companies having wires, poles or other structures that may be affected by this operation. Any or all work required for public or private utilities will be done by and at the expense of their respective owners.

ROUNDING OF CORNERS OR CROSS SECTIONS: The rounded corners shown on Standard Drawing R1-1 apply to all cross sections over though otherwise shown in these plans.

ELEVATION DATA: All elevations are based on U.S.C.S. datum.

EXCAVATION FOR ITEM 300: Where mail box turnouts and drives are in "fill" excavation for Item 300 material shall be made by the contractor at his own expense if he builds the embankment up to finish grade before placing the Item 300 material.

ITEM 659 COMMERCIAL FERTILIZER: All areas to be seeded under Item 659 shall have commercial fertilizer 12-12-12 analysis, applied at the rate of twenty (20) pounds per 1000 sq. ft.

REPLACEMENT: The Contractor shall replace at his own expense any items not specifically listed for removal that is damaged or destroyed by his operation.

CONSTRUCTION LAYOUT STAKES: All construction layout stakes will be provided by the County at no expense to the contractor.

71.01
1.08
69.93
6.04
63.89

1.25
1.06
1.08

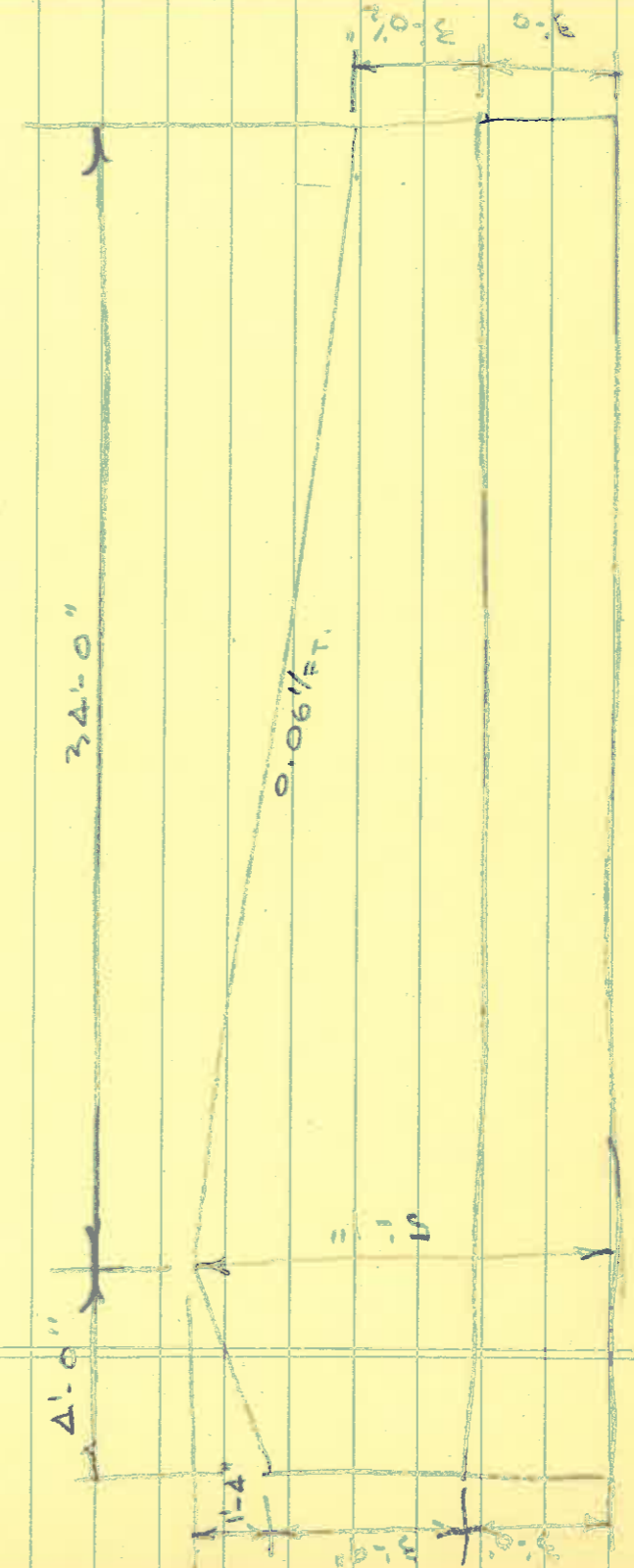
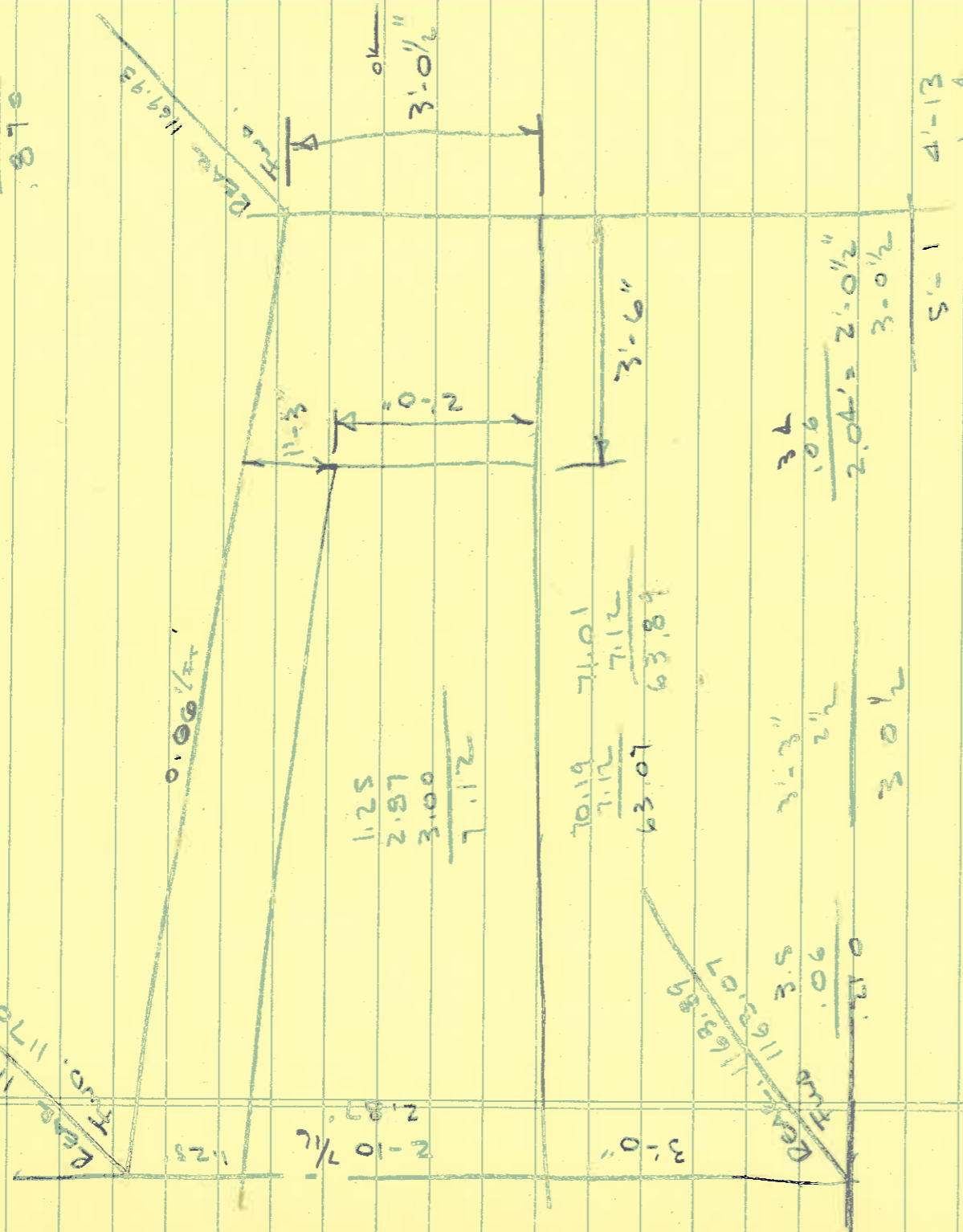
71.01 70.40
70.76 70.17
.25

440.79
33.78
406.51

252 + 23.06
475.57

11.5
.06
.870

DEPT. 1171.01
TRUSS 1170.19



Concrete
BR 10-5.09

Abutment

$$28' \times 3' \times 3' \div 27 = 12.67 \text{ cu. yds}$$

$$38 \times 13\frac{1}{2}' \times 4' - 1\frac{1}{8}' \div 27 = 6.48$$

$$\text{Deduct } \frac{4' \times 14\frac{3}{4}' \times 13\frac{1}{2}' \div 27 = 0.12}{2}$$

$$29' \times 1' - 3' \times 2' - 10\frac{7}{16}' \div 27 = 3.85$$

$$\text{Deduct } 29' \times 7\frac{1}{2}' \times 2\frac{1}{2}' \div 27 = 0.14$$

$$\text{TOTAL ONE ABUTMENT} = 22.74$$

$$22.74 \text{ cu. yds} \times 2 = 45.48 \text{ cu. yds.}$$

STRUCTURAL STEEL

Dr. 10-5.09

REINFORCING STEEL

32524.6 lbs

GUANO RAIL POSTS

$$3'-5\frac{1}{2}" \times 2.5 \text{ lb} \times 26 = 2249.0 \text{ lb}$$

$$26 \times \frac{1}{2}" \times 7' \times 1'-3" \text{ PL} = 386.75$$

$$26(11.9" \times 1.25) = 386.75 \text{ lb}$$

TOTAL 2635.75

G.I. BOLTS

$$4 \times 26 = 104 \text{ Bolts}$$

$$790.4 \times 1.04 = 822.0 \text{ lbs}$$

ADD 44 lbs FOR ADDITIONAL NUTS

TOTAL WEIGHT 866 lb

2635.75

866

3501.75

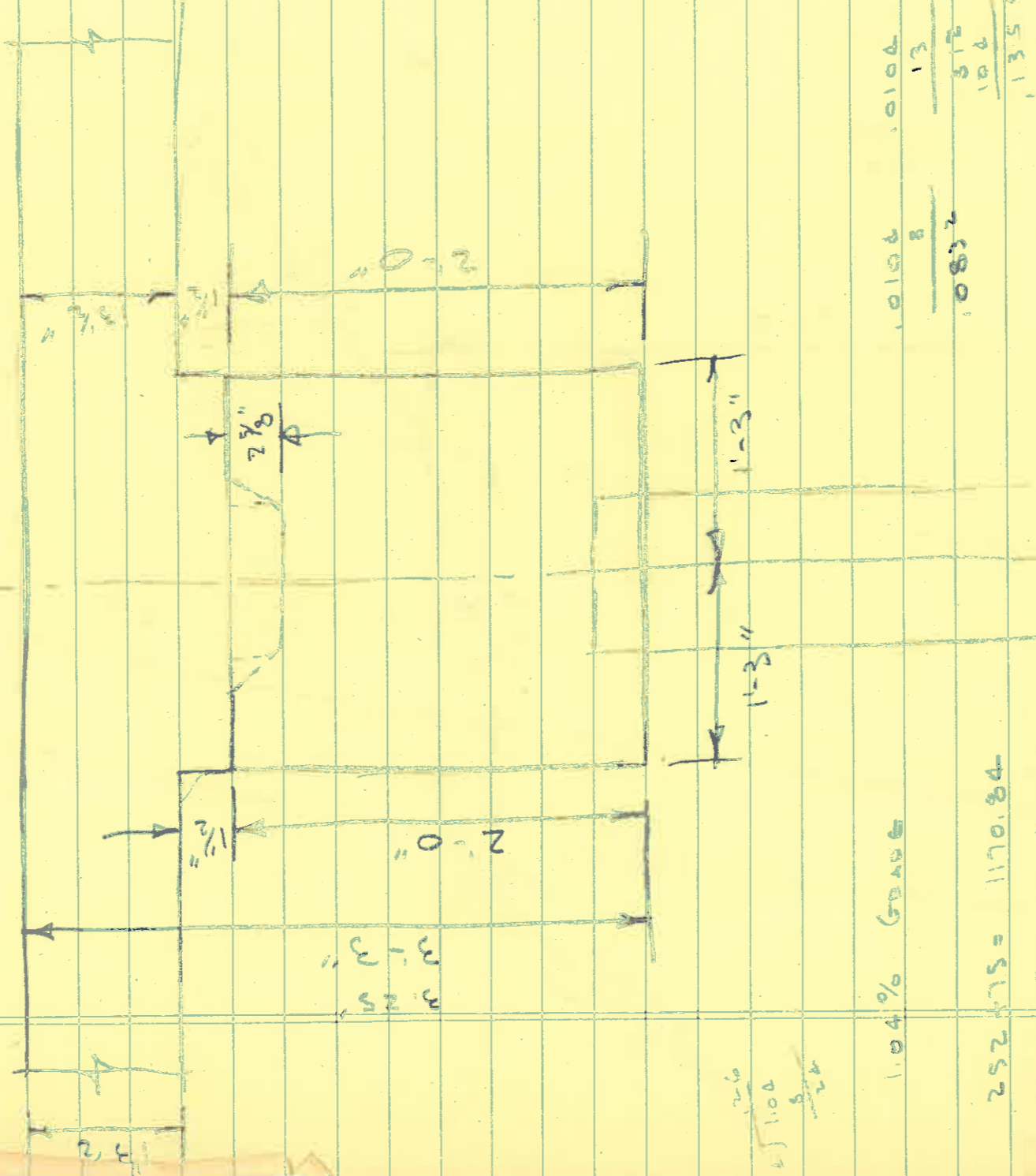
$\text{Top P.I.} = 252 + 83.00$
 $\text{Elev.} = 1170.76$ (top of slab)

$2'-0"$
 $1'-1\frac{1}{2}"$
 $1'-\frac{1}{2}"$

 $3'-3"$

$\text{Forward P.I.} = 253 + 13.00$

$\text{Elev.} = 1170.44$ (top of slab)



$\frac{252}{2}$
 $\frac{1104}{8}$
 $\frac{24}{24}$

1.04% GRADE

10104
 $\frac{13}{8}$

 10832
 $\frac{512}{104}$

 11352

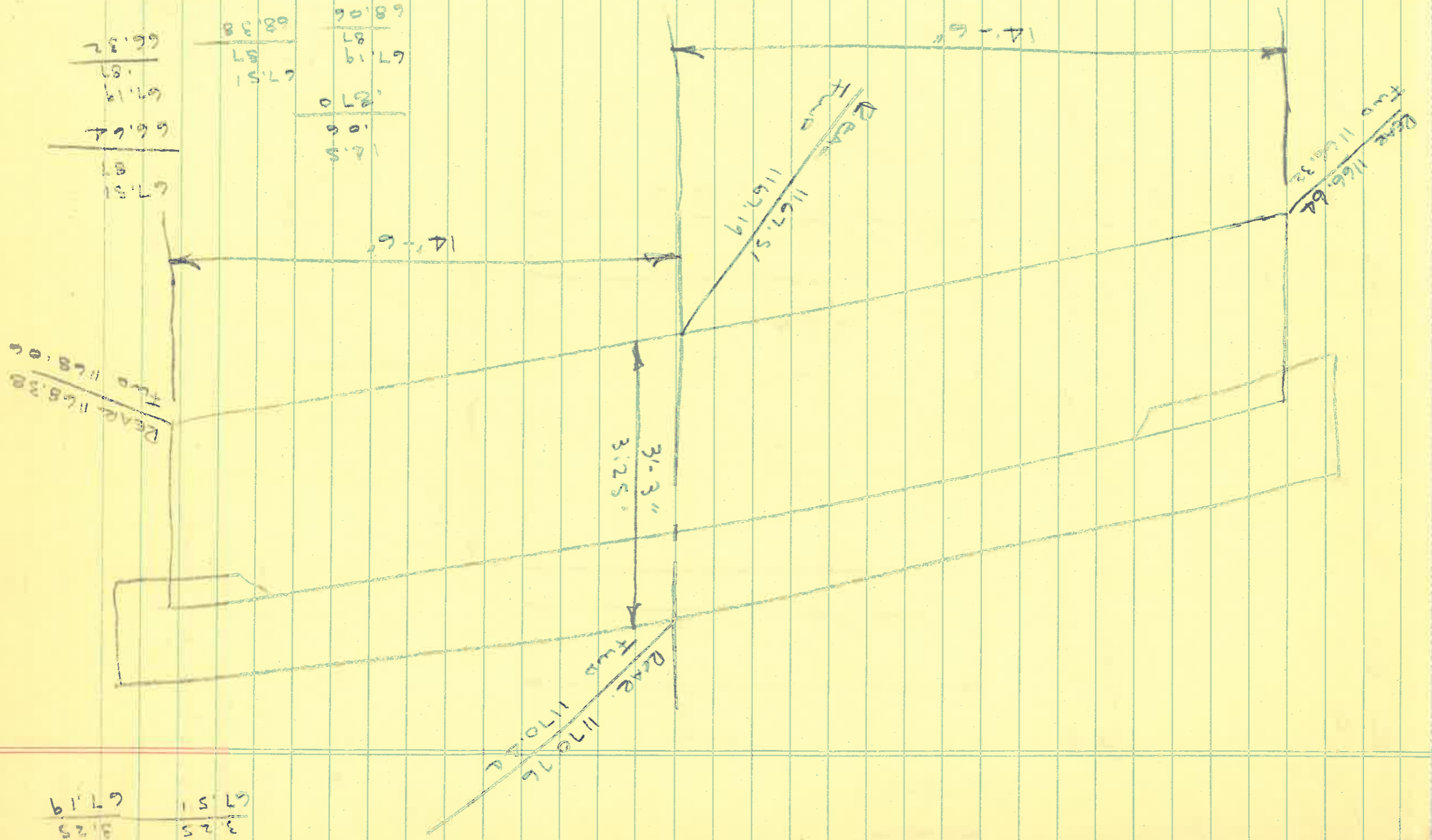
$252 + 75 = 1170.84$

$252 + 83.00 = 1170.76$

$253 + 13.00 = 1170.44$

1169.84
 $\frac{60}{60}$

 1170.44



68.06	67.19
87	87
68.38	67.51

66.32	67.19
87	87
66.64	67.51

3'-3"
3'-2.5"

70.75	67.51
3.25	
70.44	67.19

REAR H. 1170.76
REAR H. 1170.44

REAR H. 1166.64
REAR H. 1166.32

REAR H. 1168.38
REAR H. 1168.00

REINFORCING STEEL LIST

178 F.O.R

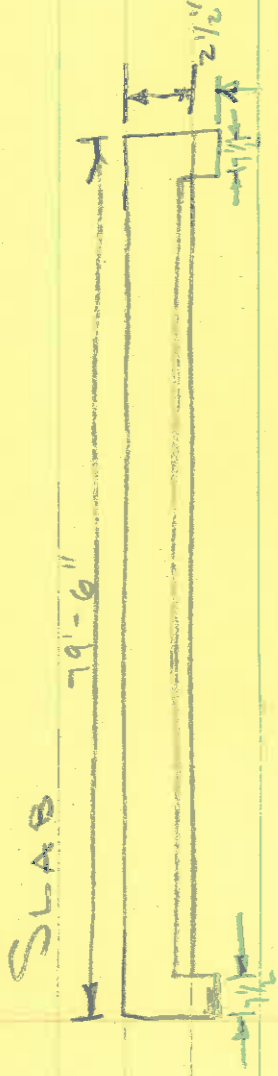
MARK	No.	LENGTH	WT	SHP	Sp'g
		SUPERSTRUCTURE			
A824	81	28'-1"	6073.58	S	13½"
B824	28	21'-0"	1569.96	B	27"
C824	24	18'-9"	1174.80	B	27"
D824	14	19'-6"	728.91	S	27"
E824	12	15'-10"	507.30	S	27"
F924	54	21'-3"	3878.55	S	10½"
G924	28	10'-6"	993.72	S	27"
H924	24	8'-2"	662.98	S	27"
J601	28	15'-3"	641.35	S	27"
K601	14	13'-10"	290.89	S	27"
M601	80	28'-6"	3544.72	S	13"
N601	54	29'-6"	2392.69	S	
O501	6	16'-8"	197.80	S	
P501	12	17'-11"	224.24		
R724	20	16'-6"	694.52		
S501	128	5'-0"	1035.59		
T501	108	2'-6"	616.20		25013.87
			25013.87		25013.87
		ABUTMENTS			
R1001	16	15'-11"	1062.97	S	
R201	16	20'-0"	857.90	S	R506
R501	16	20'-0"	333.76	S	
R502	104	6'-7"	719.11	B	
R503	8	15'-1"	125.96	S	R507
R504	12	4'-0"	50.06	S	
R505	16	5'-6"	91.98	S	
R506	12	9'-2½"	115.25	B	
R507	16	4'-11"	184.26	B	R508
R508	12	11'-10½"	148.63	B	
R509	8	17'-3"	143.93	S	
R510	8	4'-6"	37.55		R512
R511	8	6'-6"	54.24	S	
R512	40	6'-2½"	203.34	B	

MARK NO LENGTH WT SHP Spg

MARK	NO	LENGTH	WT	SHP	Spg
		ABUTMENTS (Cont)			
R401	48	5'5"	271.18	B	
		Tot.	4480.82		4481.26
		PIERS			
P1001	8	29'6"	989.59	S	
P201	8	26'6"	716.56	S	
P701	72	1'0"	588.67	S	
P501	4	26'6"	110.56	S	
P502	44	9'0"	913.03	B	
P503	8	6'9"	52.85	B	
P401	48	5'5"	173.68	B	
		Tot	3039.99		
		TOT	32524.63		455491
					3039.99
			4480.46		
			4470.82		
			1770.82		

CONCRETE
BR. 10-5.09

D.L. 150.



$$\begin{aligned} 79.5 \times 2.7 \times 13\frac{1}{2} \div 27 &= 89.44 \text{ Cu. Yds} \\ 79.5 \times 3 \times 15 \div 27 &= 111.04 \text{ " " } \\ 2(29.0 \times 7\frac{1}{2} \times 4 \div 27) &= 0.45 \text{ " " } \\ \hline &= 100.93 \text{ Cu. Yds} \end{aligned}$$

CHECK $\rightarrow 3.38 \times 30 = 101.4$

USE 101.4 Cu. Yds

PEIR

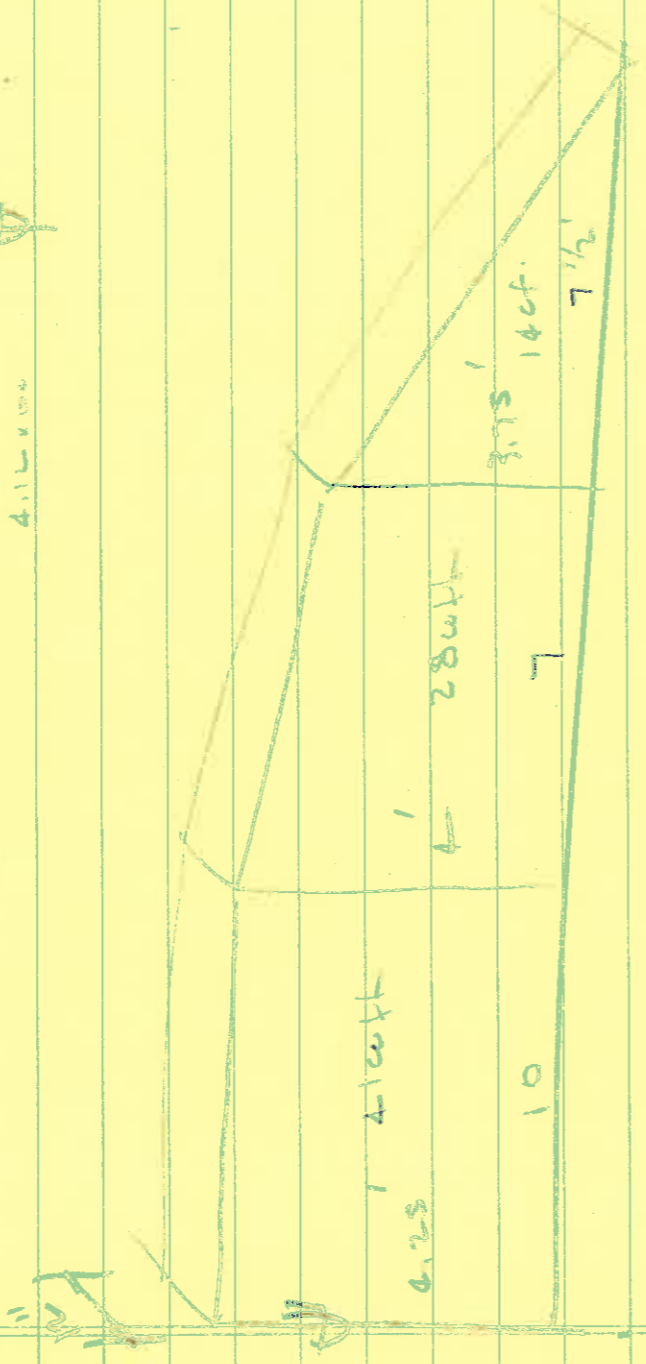
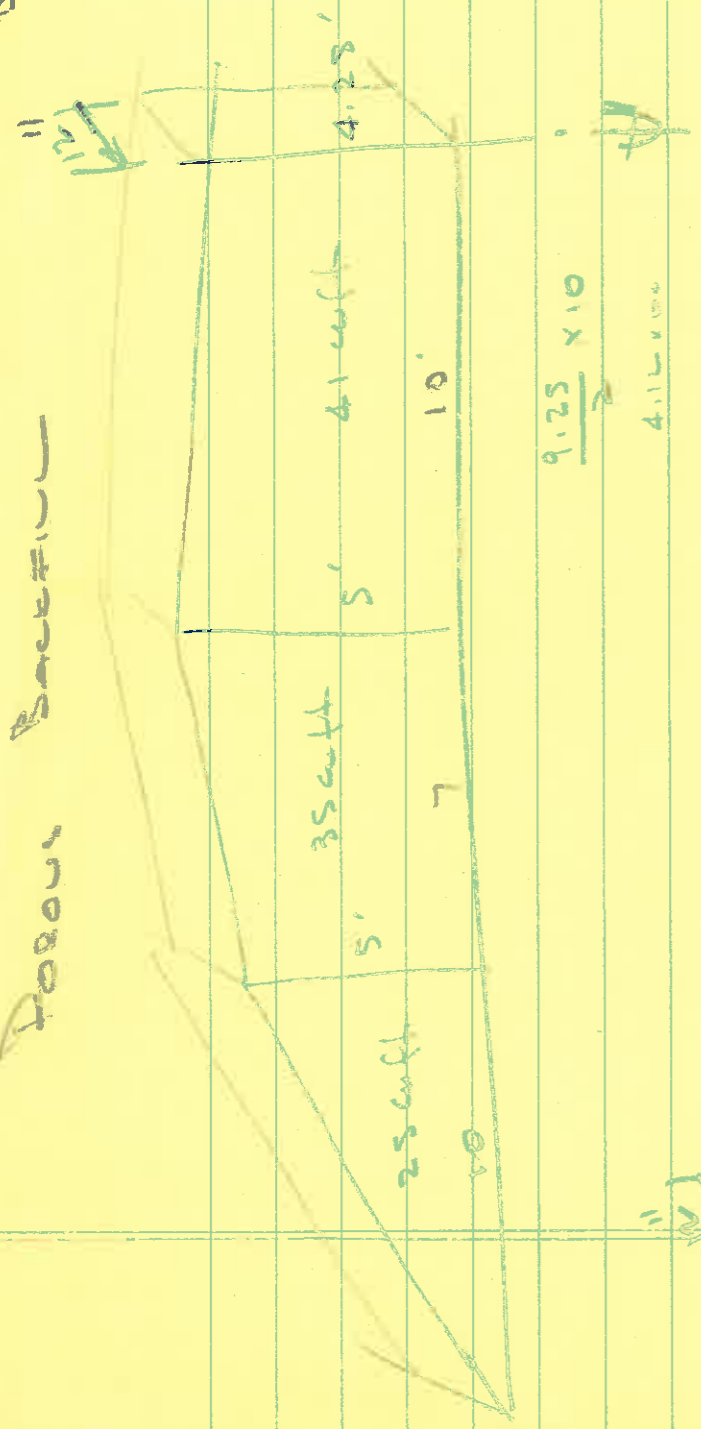
$$2(29' \times 2.0' \times 2.5 \div 27) = 10.74 \text{ Cu. Yds}$$

CHECK $5.35 \times 2 = 10.7 \checkmark$

ADD 10.7 Cu. Yds to SLAB QUANTITY

FORUM SECTION

D.L.O.



25
38
41
41
28
11

184
368 cut

375
375
1875
2625
5125
140625

$368 + 27 = 13.6$ cu yd.

CONC. QUANTITIES
BE 10-5-07

D. No. 612/10

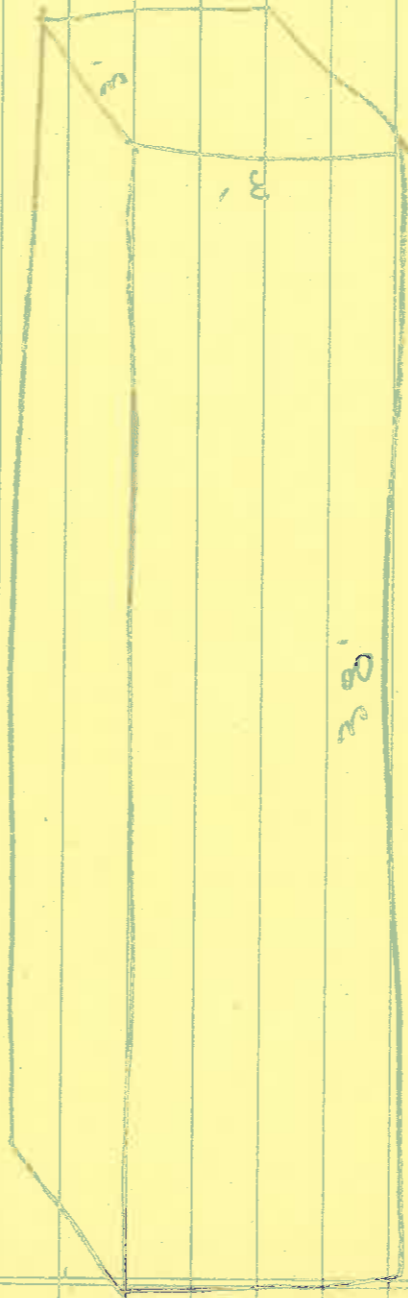
TREATMENT



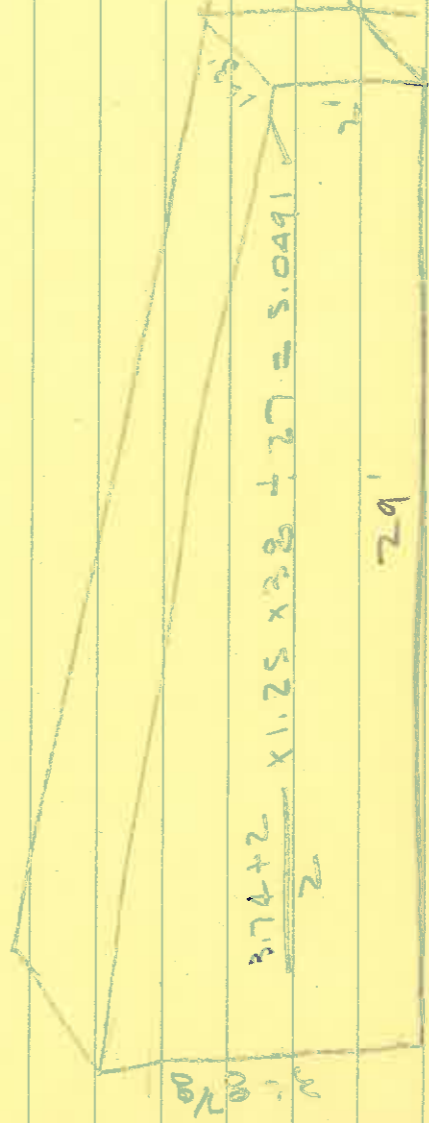
$$\frac{5.08 + 3.04}{2} \times 3.4 \times 1.25 + 2.7 = 6.3907 \checkmark$$

$$\frac{5.08 + 3.75}{2} \times 4 \times 1.25 + 2.7 = 0.8176 \checkmark$$

7.2083



$$3.8' \times 3' \times 3' + 2.7 = 12.6667 \checkmark$$



$$\frac{3.74 + 2}{2} \times 1.25 \times 3.8 + 2.7 = 5.0491 \checkmark$$

$$\text{Product } 0.21 \times 0.63 \times 2.9 + 2.7 = 0.1421$$

4.9070

TOTAL ONE ASUT = 24.78

*Br on 10
Issue #1*

PRE-CONSTRUCTION CONFERENCE
10-8-70

Attendance:

Mr. Joe O'Brien, Div. Const. Engr.
Mr. Joe Bowen, Right of Way Dept-OSHD
Mr. Ralph Johnston, Permit Expitor
Mr. Chester R. Kurtz, Log.Co. Engr.
Mr. Bud Deishy, Logan County Co-Op Power & Light
Mr. Bud Tront, Iberia Earthmoving Company
Mr. Dan Busler, Iberia Earthmoving Company
Mr. Frank Scott, United Telephone Service
Mr. Bernard Jendresik, United Telephone Service

- O'Brien - Opens meeting, asking contractor for brief statement of when he wants to start work and what he has in mind.
- Busler - Weather permitting, the week of the 19th, we will begin work, and start earthmoving. I have a schedule here to try to get the piling in as fast as we can without disturbing the road until the weather shuts us out.
- O'Brien - Calls on utilities.
- Deishy - The only question we have is about the clearance above the water, we plan 35'.
- O'Brien - I understand here that you're going to move out.
- Deishy - To the north side.
- O'Brien - Yes, you've decided, you're going to cut across the road and go east beyond the bridge.
- Deishy - Yes, that's right. I see no reason why it wouldn't. We plan on two weeks.
- O'Brien - Calls on DP & L.
- Bowen - Comments on location.
- O'Brien - Calls on United Telephone.
- Scott - We are in the process of getting out of the way right now, the only thing that we will be worried about is where we are going across the bridge.
- O'Brien - At 45 feet, you can't go that high, that part follows, across the channel -- I don't think that will be in your way.
- Scott - We hope to get moved as soon as possible because the river must really get bad.
- O'Brien - It doesn't look very big, does it? That's something that you're going to have to try to work out. How far north do we go on this channel line here? It could be beyond where you are going to be putting the cable. The channel work will go north from where you are going to be putting your cable in, just depends if the weather is not too bad to start the channel work into the bridge. I think we can start at this point and not interfere with them when they are working. If we get weathered out, they will be able to run their cable.
- O'Brien - How about the overhead wire? For the present operation they are not in your way. Its just a case when they can get their work done and when they want to get it done, probably won't do so much on the far side.
- Busler - Well, we are going to try to get all the channel off that we can, if the weather holds ok.
- O'Brien - That channel changes right at the structure, doesn't it?
- Busler - Yes, it does.
- O'Brien - The channel will be pushed a little bit east there won't it? What I mean of course there is the possibility of getting in there and hitting an abutment that is there now- west bank. So it shouldn't bother the east side. Why don't you arrange to contact the Telephone Company when you get out there and have them come out on the job. You are in a position to commence work and co-ordinate with them. That way it looks pretty good. Do you have anything further with the Utilities - if not you can be dismissed. Thank you for coming.
- O'Brien - Now we will continue. I haven't seen anything too unusual about this set of plans. You mentioned removing guard rail. What is the status of this guard-rail? Who gets the guardrail? Do you remove it or the county. In my mind, you're going to have to close the road and of course there at the bridge on the north side, why that could be removed and, I just thought that they would come down the hill and around the drive and --
- Busler - We won't interfere with the traffic.

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JUN 24 1971

LOGAN COUNTY
ENGINEER

Page 4
O'Brien - I just thought if you could work pretty well up on a level and you might have to have a little temporary something there at the channel - whatever works out; we might have to concede with our conformance, we usually have to -- in this case because of the super elevation you're bench elevation will be too high and I don't think you would like to be left that way for the winter. Will the abutment come out beyond where the existing guard rail is now?

Busler - Not the way that I see it,

O'Brien - When you do look at the picture get out and measurement the abutment location.

Busler - It's going to be close.

O'Brien - Well, if the abutment is no farther than what the guardrail is now and it should be ok. From now on the one pier, there's a lot of extra concrete along the bottom of it. I don't know how close that's going to get. I noticed that the North east corner has quite a wad of concrete. Of course that doesn't show on the plans. What is your thought on this inspection? We have to administer the contract as far as that goes. You've only got \$100.00 which probably wouldn't cover it. Do you have someone that could be trained or could be trained for full time inspection, or do you want us to furnish you some help? We have to charge you for that, as part time help but this is one of these jobs that they have to be inspected as long as the contractor is working, Some more of these Issue 1 jobs will come up but the actual on the job inspection, we try to keep to a minimum. About how much would you estimate?

Kurtz - 18,000.00

O'Brien - It depends on how much county funds you might have up there, but we will make an estimate of what we think it would take and send in a request. The first thing is that we are going to have to establish a center line and rough grade stakes, and stake the structure and -- I think the R/W is staked, I was going to say they had the center line tied down, but I don't know if it is complete enough in order to have stakes - rough grade- and structure. We would like to train some of your fellows. We don't know how we will be next year for help, but we have people that take compaction tests and concrete control tests. On bituminous plan inspection it won't pay to train someone on the little dab in this contract. We don't charge you on the rental of equipment. Miami County bought a compaction kit. Some of their men went to our schools and they discovered that was about the only way that they could keep themselves out of trouble. There's no argument on R/W. Its all clear and what about the field office? Discusses Field Office.

O'Brien - If no one has anything else,

Busler - There's our progress schedules and list of suppliers - what we are going to be doing on the project.

Meeting adjourned.



UNITED TELEPHONE COMPANY OF OHIO

September 16, 1970

Mr. Dan Dodson
Logan County Engineer's Office
Tidewater Road
Bellevue, Ohio

Dear Mr. Dodson:

These drawings show our proposal to clear the construction area of the new bridge on Logan County Road #10 at Zanesfield. I am sorry to not have been able to attend the pre-construction meeting and discuss this with the contractor. We could place this new pole line earlier and be ready to transfer the wire and remove the existing poles with a short notice from the contractor if this would be satisfactory.

If there are any questions, contact Mr. Phil Lantz, Plant Supt. at 592-1681 or Engineering Department, 593-4871.

Thank you.

Very truly yours,

Lloyd Angle

RECEIVED

SEP 17 1970

**LOGAN COUNTY
ENGINEER**



Division No. 7

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

Columbus, Ohio 43216

J. PHILLIP RICHLEY
Director of Highways

JOHN J. GILLIGAN
Governor

March 16, 1971

WILLIAM P. MCKENNA
Chief Engineer

William F. Wagner
Division Deputy Director
Ohio Department of Highways
P. O. Box 381
Sidney, Ohio

Re: Project No. 596 (1970)
Logan - County Road No. 10
Section 5.09
State Issue No. 1

Attention: W. G. Knase1

Dear Sir:

Enclosed herewith please find the original and two (2) copies of a suggested amendment to a contract between Logan County and the State of Ohio, dated July 27, 1970.

This contract, after execution by Logan County and the Ohio Director of Highways, will enable the State to perform the construction engineering and inspection for the subject project in accordance with a request made by Chester R. Kurtz, Logan County Engineer.

Please present this contract to the Logan County Commissioners for execution and return the original and one (1) copy to this office as soon as possible.

A copy of the amended contract will be returned to the County when signed by the Director.

Yours very truly,

Enclosures

RAB:SK:vs

cc: Logan County
R. E. Catlin
John H. Smith
David W. Shaw
File

R. A. Booth
Administrator of Contract Sales
Division of Design and Construction

RECEIVED

MAR 19 1971

LOGAN COUNTY
ENGINEER

COPY

TO: Chester Kurtz
Logan County Engineer
Bellevue, Ohio

DATE: 10-18-71

Application is hereby made by UNITED TELEPHONE COMPANY OF OHIO
Address 125 North Main Avenue, Sidney, Ohio 45565

(Make To place a buried cable along N. side of Logan County 88 W. from U.S. 33 to 1860' complete West of Stokes Twp. 86, then 1440' further West on the South side of Co. Rd. 88. statement Also on the East side of Stokes Twp. 86, South from Co. Rd. 88 for 1500'. To bore of type Co. Rd. 90, Stokes Twp. 86, and Co. Rd. 88 as shown. The existing pole line will work to be removed except for two (2) aerial inserts over bridges. be done.)

AT THE FOLLOWING DESCRIBED LOCATIONS:

Along, across Logan Co. 88, 90, and Twp. 86, Stokes, Township,
Work will commence on or about Oct. 20, 1971 and will require 7 days.

WE AGREE TO THE FOLLOWING CONDITIONS UPON ISSUANCE OF THE PERMIT:

- (1) To restore all disturbed surfaces to their original condition and adhere to specifications or restrictions as outlined below.
- (2) That traffic will be maintained at all times, lights, signs, barricades and, if necessary, flagmen and watchmen will be placed on the job for the protection of traffic at all times, day and night, during the time this work is being done and that instructions given by the County Engineer as to handling of traffic will be fully complied with.
- (3) We assume the responsibility for and will save the County or Township harmless from any and all claims for personal injuries and property damages, and shall defend any action which might be brought due to this work.
- (4) Other

W. O. 5124094

SIGNED T. L. Crowe (JLH)

TITLE T. L. Crowe, Div. Eng. Supv.

TELEPHONE NO. (513) 492-7105

Permit to do this work under conditions stated in the above application is hereby granted.

SIGNED Robert S. Hambley

TITLE Chester R. Kurtz, Co. Eng.

TELEPHONE NO. 592-2791

Brq. 10-509
58' offset

Sta

12+00

13+00

N. $34\frac{1}{2}^{\circ}$ E

14+00

15+00

16+00

17+00

18+00

+37

ANGLE RT $(10^{\circ}17\frac{1}{2}'$
 $(20^{\circ}35')$

19+00

20

21

N $44\frac{1}{2}^{\circ}$ E

22

23

24

+42

ANGLE RT $(12-32$ RT
 $(29^{\circ}03')$

+91

FENCE

25

N. 59° E

+39

FENCE

26

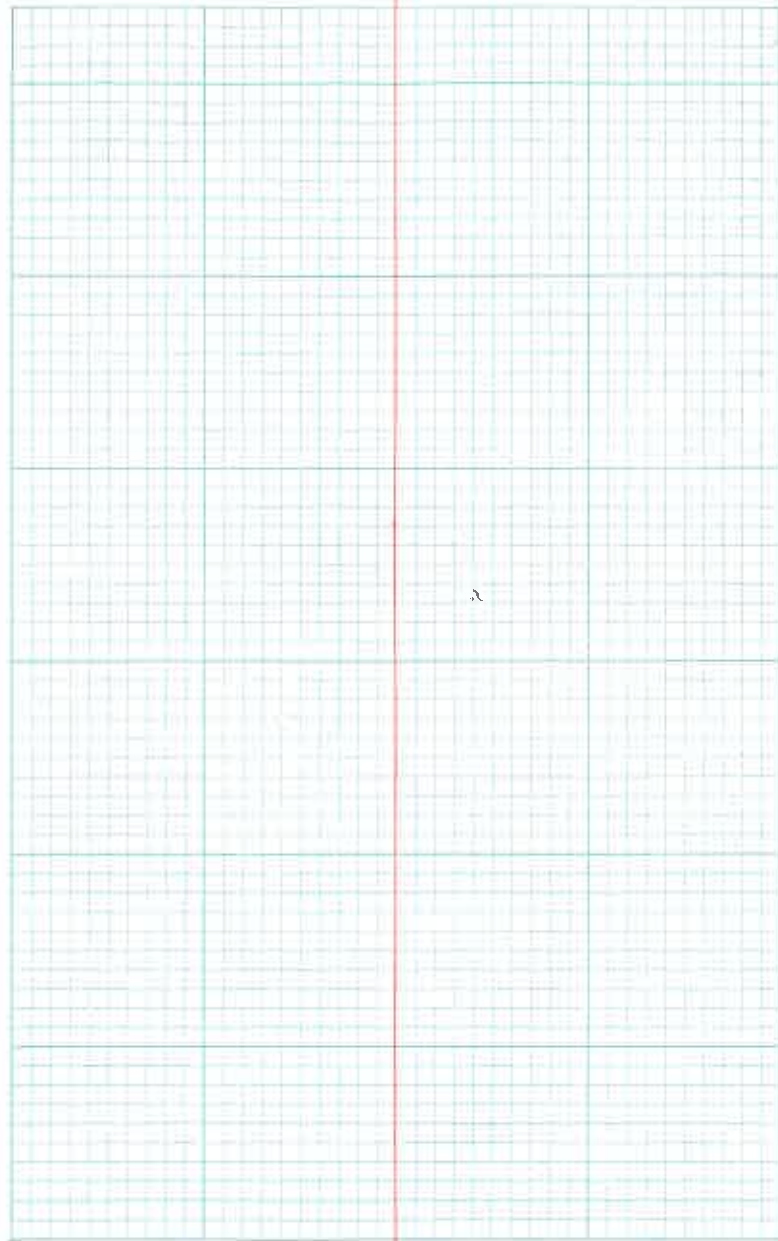
27

+25

END B

SEEN
NICHOLS
BROOKS

3/23/10



STAT.	BROG 10-5.09	HUB ELEV
BM.		1169.30
12		63.47
13		66.14
14		65.98
15		66.14
16+00		✓ 66.10 TP
17+00		1166.49
18+00		1167.64
+37		1167.63
19+00		1166.72
20+00		1168.18
21+00		✓ 1168.40 TP
22+00		1167.28
23+00		1169.37
24+00		1169.95
+42		1170.32
25+00		1171.15
26+00		1170.08
27+00		1170.78
+25		70.97

B.M.
NICHOLS
CROOKS

CHISLED NW WALL BROG

SEE PREVIOUS CHANNEL SECTIONS
FOR SECTIONS ON 12, 13, 14, 15

H	66.1	63.7	62.1	62.7	62.0	62.8	60.8	60.8	61.3	62.3	61.8	55.5	66.7
H	11	15	31	57	61	62	64	74	74	78	82	87	100
H	67.4	66.9	62.9	63.7	63.0	62.1	61.0	62.1	62.3	62.7	65.2		
H	18	24	32	52	79	88	87	93	96	100	103		
H	68.1	68.0	66.8	63.6	63.9	63.5	62.8	62.0	61.1	61.8	62.8		
H	16	20	25	37	72	99	100	104	108	112	115		
H	68.5	63.6	63.8	63.1	62.0	63.1	63.1	63.3	62.7	64.2	63.8	66.1	
H	29	32	35	46	59	57	67	70	89	106	111		
H	63.0	64.4	61.5	62.4	63.7	62.3	64.6	64.7	64.1	66.3	68.2		
H	5	10	19	33	25	58	74	90	100	123	128		
H	67.2	65.5	64.0	62.8	63.5	64.1	65.2	66.8	68.3				
H	27	33	33	41	53	70	87	100	125				
21+80 Ford 30' Long													
H	66.7	64.4	63.0	61.9	63.4	61.3	65.9	67.4	69.0				
H	30	35	39	48	64	73	81	96	121				
H	67.9	65.3	64.9	64.5	62.9	64.1	63.2	64.3	69.2	69.7			
H	36	42	57	58	60	75	90	95	96	116			
H	68.1	66.8	65.2	64.9	63.2	62.8	63.0	62.3	65.6	66.6	70.0		
H	37	45	53	62	67	75	82	90	94	104	109		
H	67.2	rubble	67.0	65.1	62.5	63.7	63.2	64.5	67.8	67.6	70.5		
H	27		37	46	61	70	85	89	95	107	122		
H	70.5	66.8	66.5	65.2	66.3	66.5	66.1	62.5					
H	28	35	48	49	59	77	89	103					
H	70.7	67.3	65.2	63.6	63.0	65.2	66.3	67.0	68.0	71.0			
H	35	36	41	47	51	59	62	71	86	100			

END

ON EAST SIDE MAD RIVER

$\overline{F_{BC}}$
21+80 30° Left 67.28