

COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(PT.)"
UNITS #1 & #2

STATE OF OHIO

DEPARTMENT OF HIGHWAYS

MILLPORT-WEST POINT ROAD

S.H. 734 - SEC. "E-(PT.)"

COLUMBIANA COUNTY

FRANKLIN & WAYNE TWP'S.

UNIT #1 - BRIDGE No. CO-518-00
UNIT #2 - BRIDGE No. CO-518-33

CONVENTIONAL SIGNS

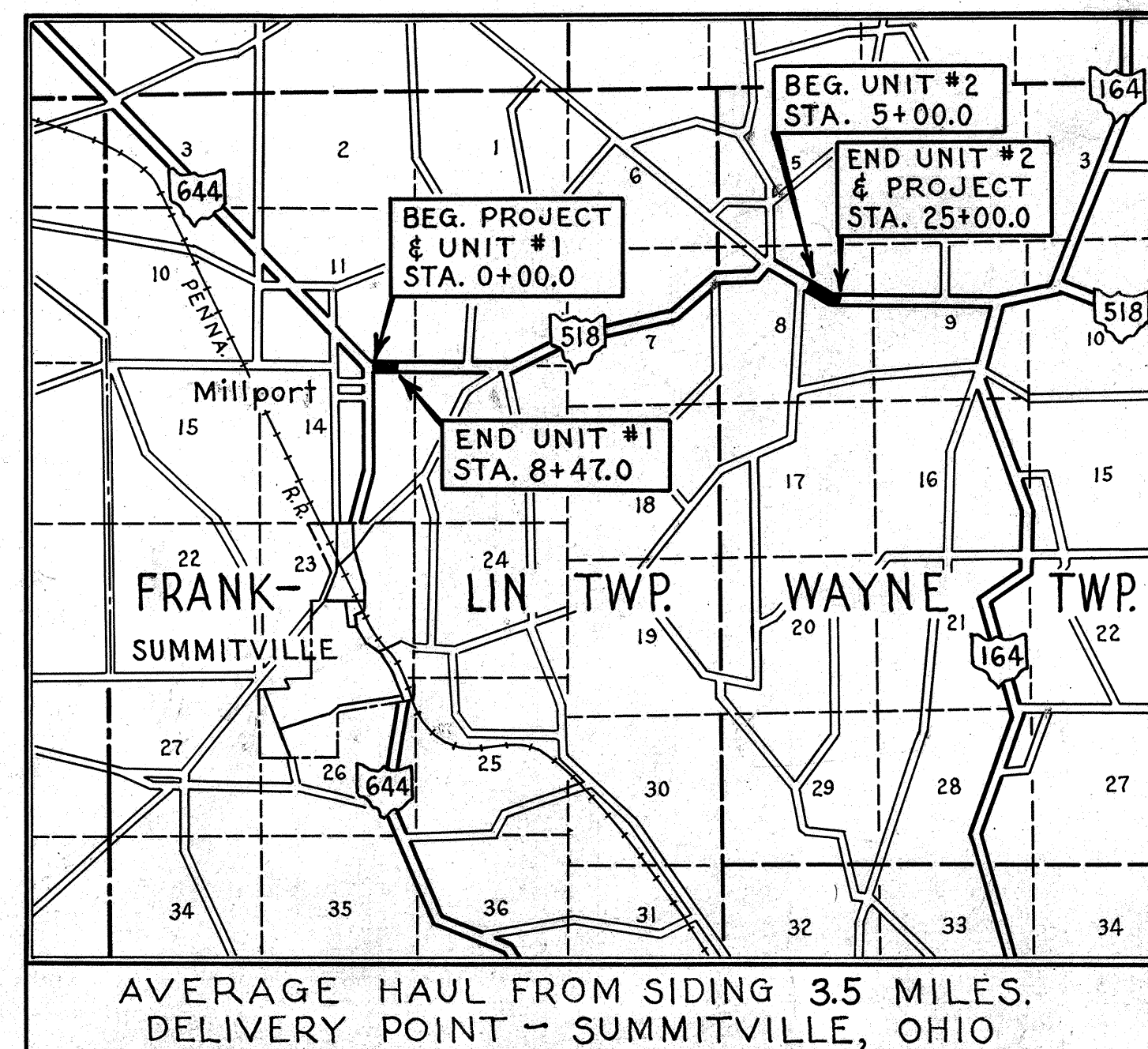
COUNTY LINE	-----
TOWNSHIP LINE	-----
SECTION LINE	-----
CENTER LINE	-----
PROPERTY LINE	-----
CITY OR VILLAGE LINE	-----
FENCE LINE	-----
POLE LINE	-----
GUARD RAIL	-----
DRAIN PIPE	-----
⊕ POWER	⊕ TELEPHONE
----- OLD	----- NEW
----- OLD	----- NEW

INDEX OF SHEETS

TITLE PAGE		SHEET	1
TYPICAL SECTION		do.	2
TYPICAL DETAILS & BRIDGE APPR. SLABS		do.	3-4
PLAN & PROFILE	UNIT No 1	do.	5
CROSS SECTIONS	do	do	6-7
STRUCTURES UNDER 20' SPAN	do	do	8
BRIDGE PLANS	do	do	9-11
PLAN & PROFILE	UNIT No 2	do	12-13
CROSS SECTIONS	do	do	14-18
CHANNEL EXCAVATION	do	do	19
BRIDGE PLANS	do	do	20-21
SUMMARY OF QUANTITIES		do	22

LINE DATA

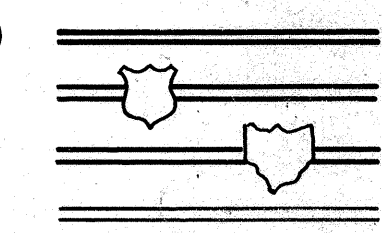
BEGIN PROJECT & UNIT No 1	STA. 0+00.0
END UNIT No 1	STA. 8+47.0
NO ADDITIONS OR DEDUCTIONS	
NET LENGTH OF UNIT No 1	847.0 LIN. FT. OR 0.160 MILES
BEGIN UNIT No 2	STA. 5+00.0
END UNIT No 2 & PROJECT	STA. 25+00.0
NO ADDITIONS OR DEDUCTIONS	
NET LENGTH OF UNIT No 2	2000.0 LIN. FT. OR 0.378 MILES
NET LENGTH OF PROJECT	2847.0 LIN. FT. OR 0.539 MILES



LOCATION PLAN

SCALE - 1" = 1 MI.

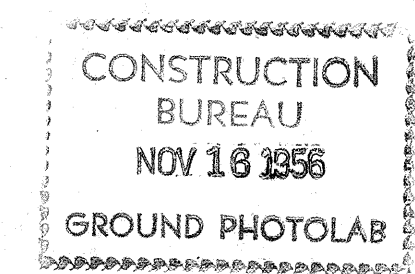
PORTION TO BE IMPROVED
FEDERAL ROADS
STATE ROADS
OTHER ROADS



SCALES

PLAN
PROFILE - HORIZONTAL
PROFILE - VERTICAL

1" = 50'
1" = 50'
1" = 5'



The standard specifications of the State of Ohio Department of Highways, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for maintenance and safety of traffic will be as set forth on the plans and estimates.

The right of way for this improvement will be provided by the State of Ohio.

Approved: John M. Murr
Date: 11/19/45 Act Resident Deputy Director.

Approved: John M. Murr
Date: 11/19/45 Division Deputy Director.

Approved: _____
Date: _____ Chief Engineer, Bureau of Maintenance.

Approved: Guy D. Colbin
Date: 12-7-45 Chief Engineer, Bureau of Bridges & R.R. Crossings.

Approved: P.C. Masket
Date: 12-11-45 Chief Engineer, Bureau of Location & Design (Actg)

Approved: Edwin W. Collins
Date: 12-11-45 First Ass't. Director & Chief Engineer.

Approved: Perry T. Ford
Date: 12-11-45 Director of Highways.

STANDARD DRAWINGS

G-7.07	6-1-42	I-15 N#3	G-2-41
S-27 P.C. 2	12-1-41	I-15 N#4	11-1-41
S-27 P.C. 3	2-20-45	I-15 N#5	11-1-41
I-1,2,3,4 & 5	2-20-45	I-15 N#6	11-1-41
I-8 C.B. 2-2-A & B	12-15-41	I-15 N#7	9-15-45
AS-41-F	3-31-41	I-15 N#9	10-1-45
I-15 N#11	11-1-41	C&G-12-39	1-8-41
		M&D-40	10-24-40

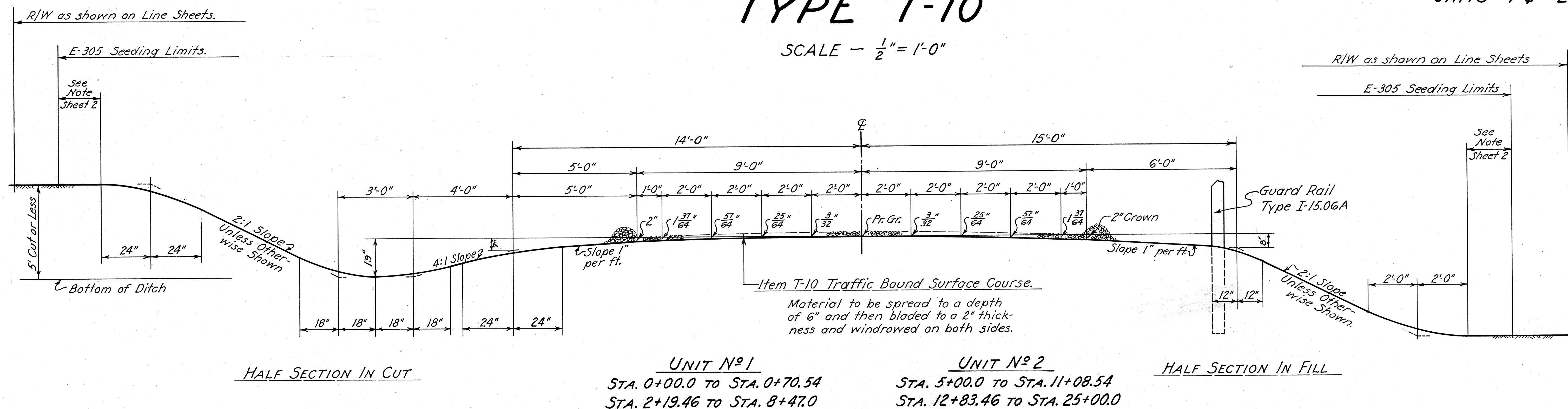
SUPPLEMENTAL SPECIFICATIONS

I-117		I-15-44	
E-305	REV.	5-1-41	
M-102.12		8-2-43	
177	REV.	4-21-44	
178	REV.	4-21-44	
T-170.15		8-2-43	
T-110	REV.	8-3-36	

FILE	COLUMBIANA COUNTY	S.H. 734
	SECTION "E-(PT.)" --(BRIDGES # CO-518-00 & -33)	
	DATE OF LETTING	
	CONTRACT No.	

TYPICAL SECTION TYPE T-10

SCALE - $\frac{1}{2}'' = 1'-0''$



~GENERAL NOTES~

SUPERELEVATION:- Superelevated curves shall be built without crown. The crown shall be worked out of the pavement in that portion between the beginning of the transition and the point where the super-elevation equals twice the crown.

TREES:- No trees shall be removed unless specifically marked for removal by the Engineer.

SCALPING:- Top soil from the scalping operation shall be used in the final operation necessary for finishing shoulders, slopes and ditches.

EXISTING PAVEMENT REMOVAL:- After the existing pavement has been removed (Item E-8, see Sh. 5-12-13) the old roadway shall be plowed, harrowed and dragged to a smooth grade, the old ditches filled and the entire area left in a neat condition. Cost of this work shall be included in the price bid for pavement removal, Item E-8. Areas shall then be seeded and mulched, Item E-305.

GUARD RAIL:- Extreme care shall be exercised in staking guard rail, so that the location of the beginning or ending of any particular run shall meet the physical features; such as bridges, drives, road approaches, etc.
Note:- All guard rail on this project has been calculated for 16' foot spacing of posts.

UTILITY ADJUSTMENT:- Any and all work required for Public or Private Utilities will be done by and at the expense of their respective owners unless otherwise noted in these plans.

SILT:- Excavated material and borrow of which the grain size of 50% or more is between 0.074 mm and 0.005 mm (State Highway Testing Laboratory method of testing) shall be placed at least 3 feet below the pavement when used in embankment.

E-305 SEEDING AND PROTECTING ROADWAY AREAS:- Quantities for Seeding Item E-305 are calculated for the soil areas between lines ten feet (10') outside the work limits as shown on the cross sections or to the R/W line if such line is less than ten feet from the work limits.

All areas outside these limits where the vegetative growth has been injuriously disturbed or destroyed by the contractor shall be restored and seeded in accordance with the provisions of Item E-305 by the contractor at his own expense.

Additional areas have been estimated for seeding, where the old pavement outside the limits of construction is specified for removal.

COMPACTION:- Compaction will not be required on the top four (4) inches of the area to be seeded.

FERTILIZER:- Fertilizer of 10-6-4 formula shall be used on all areas, at the rate of 20 lbs. per 1000 sq. ft.

AGRICULTURAL GROUND LIME STONE:- Agricultural ground limestone shall be applied at the rate of 100 lbs. per 1000 sq. ft. for all seeding and sodding areas.

Agricultural ground limestone shall be of a fineness that 99% will pass a 10 mesh sieve, with 40% passing a 100 mesh sieve; and with a minimum total neutralizing power of 95%.

TRAFFIC NOTE:- The contractor shall maintain traffic at all times on this project, as outlined herewith or as may be directed by the Engineer.

Two way traffic shall be maintained on the portions of the existing pavement lying outside the limits of new construction. The portions of existing pavement being used for traffic lanes shall be kept free of stored materials, equipment, employees automobiles and other obstructions. Existing pavement outside construction limits, listed for removal and on which traffic is to be maintained shall remain in place until traffic is routed over the new pavement.

In all cases where the new construction limits include the existing pavement or berms, the cuts, fills and connecting ramps shall be built in such a manner as to provide for two way traffic lanes with a surface not less than twenty (20) feet in width and embankment need not be constructed full cross section width.

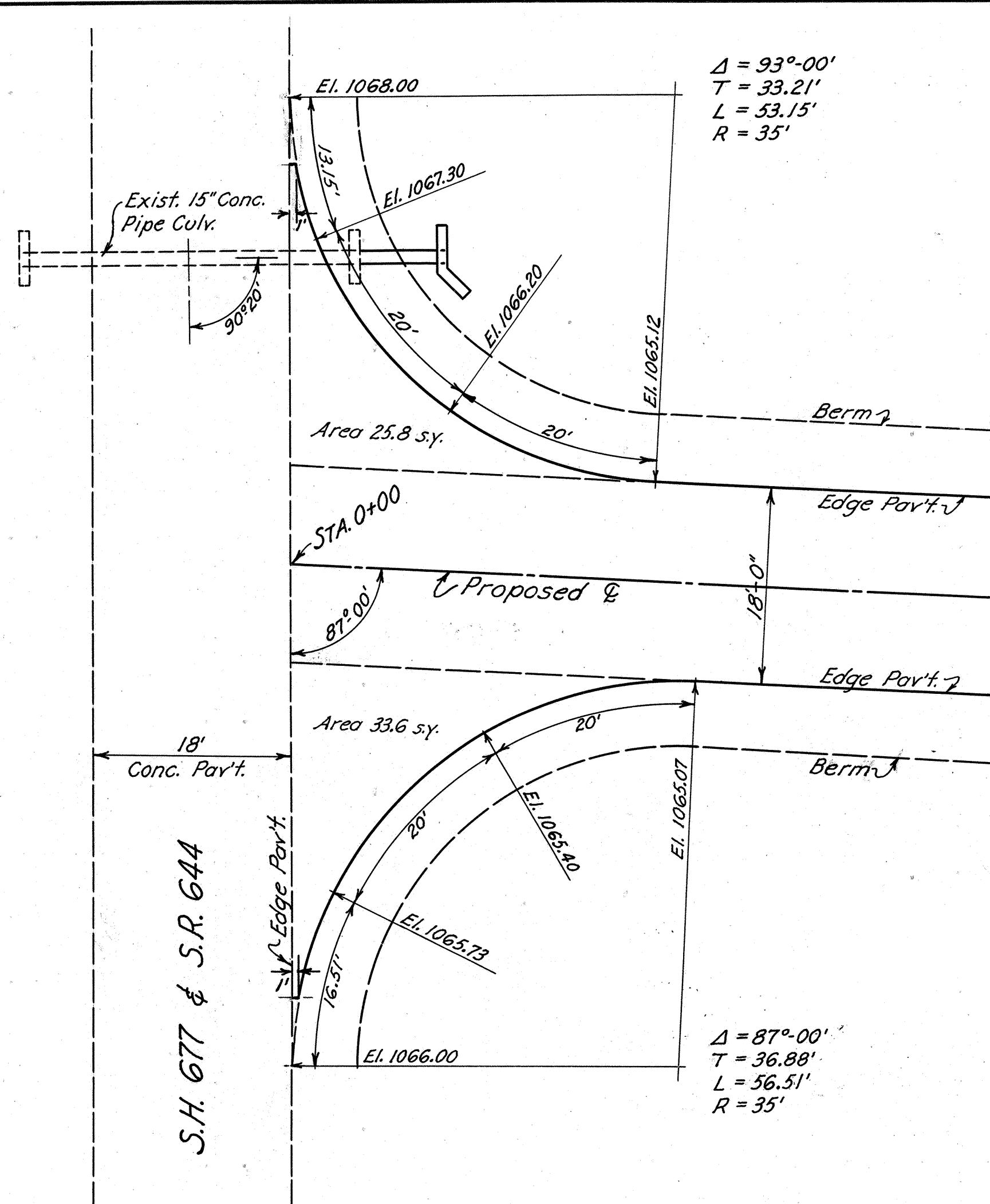
Two-way traffic shall be maintained at all times, unless special permission is granted by the Engineer in writing for one-way traffic between specified stations, for a definite period of time. In event one-way traffic is permitted the surfacing material shall not be less than twelve (12) feet in width. Watchmen shall be posted at each end of the one-way traffic zone and maintained twenty-four (24) hours daily. All temporary traffic lanes shall be surfaced with T-110 material, treated with calcium chloride and the surface maintained daily to the satisfaction of the Engineer. When it becomes necessary to relocate temporary traffic lanes, the T-110 material shall be salvaged and re-used on each succeeding location where practicable. The unit price bid per cu. yd. of T-110 Traffic Compacted Surface Course, shall include the operation of salvaging the material for re-use and the final removal and disposal to an elevation at least 4" below the finished berm or slope line when no longer needed for temporary traffic lanes.

The necessary temporary guard rail and barricades shall be erected at all dangerous points along narrow cuts and fills, which are to be used as a temporary route where directed by the engineer, for the protection of traffic during construction.

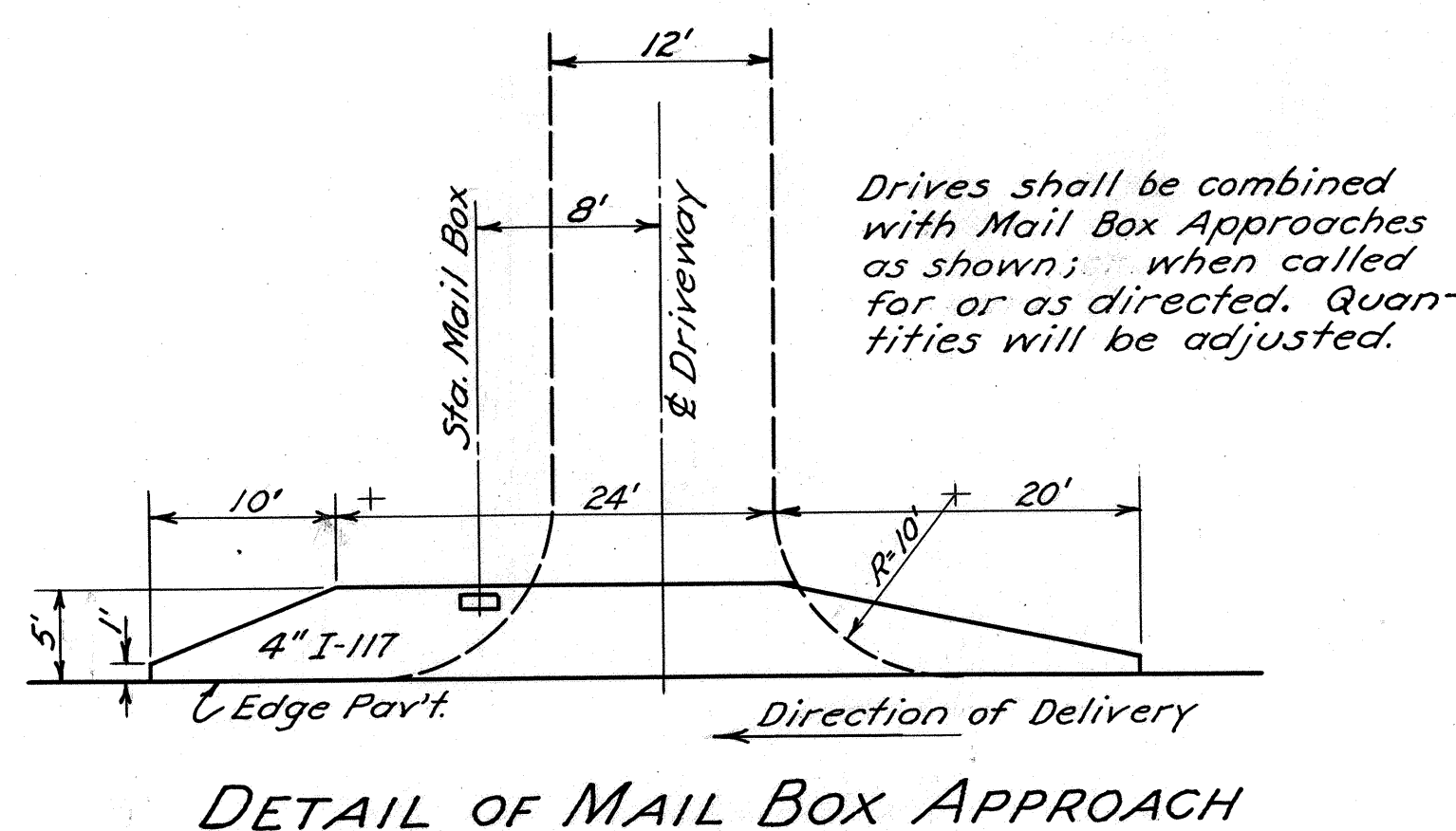
The contractor will be required to maintain trucks or tractors in the vicinity of all temporary traffic lanes at all times to render the necessary assistance in the movement of traffic.

The lump sum bid for maintaining traffic, including lights, signs, barricades and watchmen for twenty-four (24) hours service, shall include payment for all the foregoing labor, materials and equipment necessary to complete this item, except calcium chloride and the T-110 aggregate for traffic lanes, which items are included in the estimate as separate items.

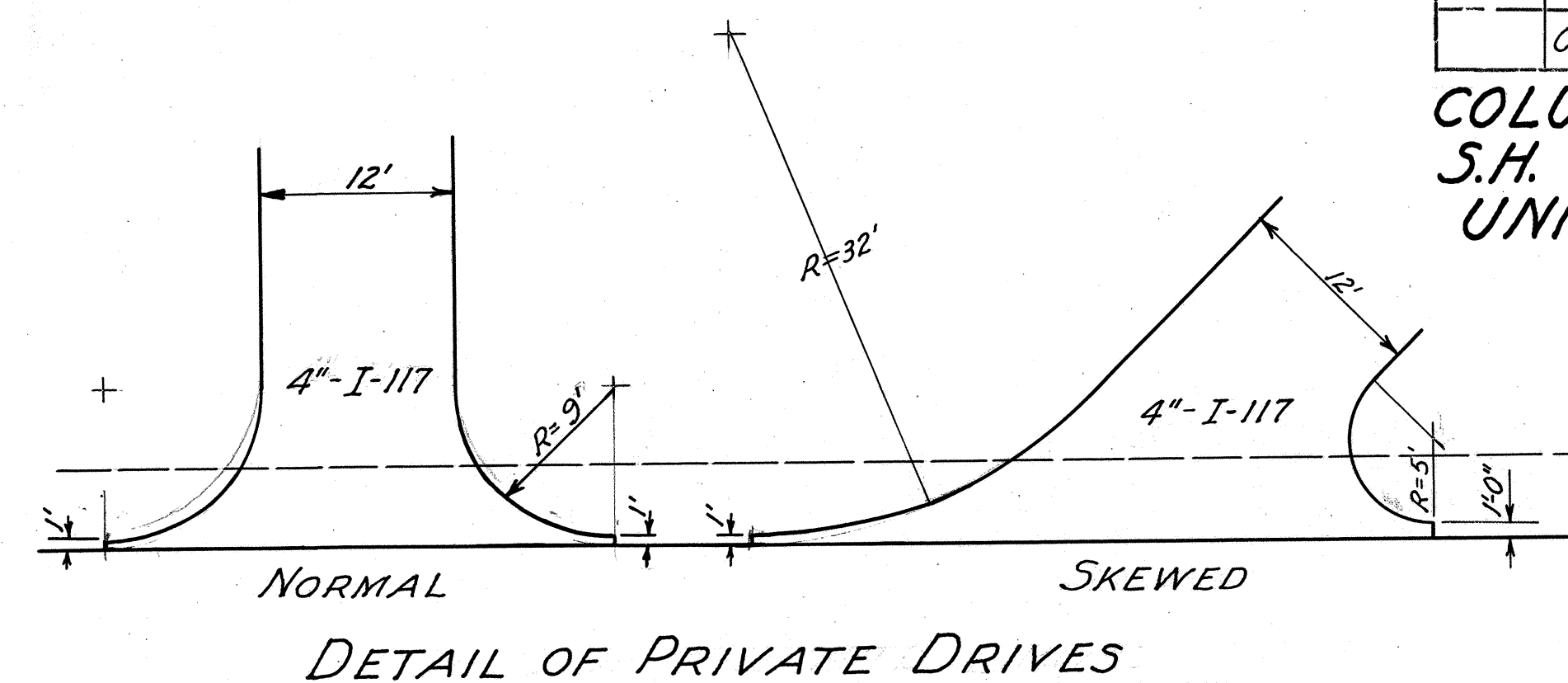
COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(PT.)"
UNITS #1 & #2



DETAIL OF ROAD APPR. - STA. 0+00 - UNIT #1
Scale 1" = 10'



DETAIL OF MAIL BOX APPROACH

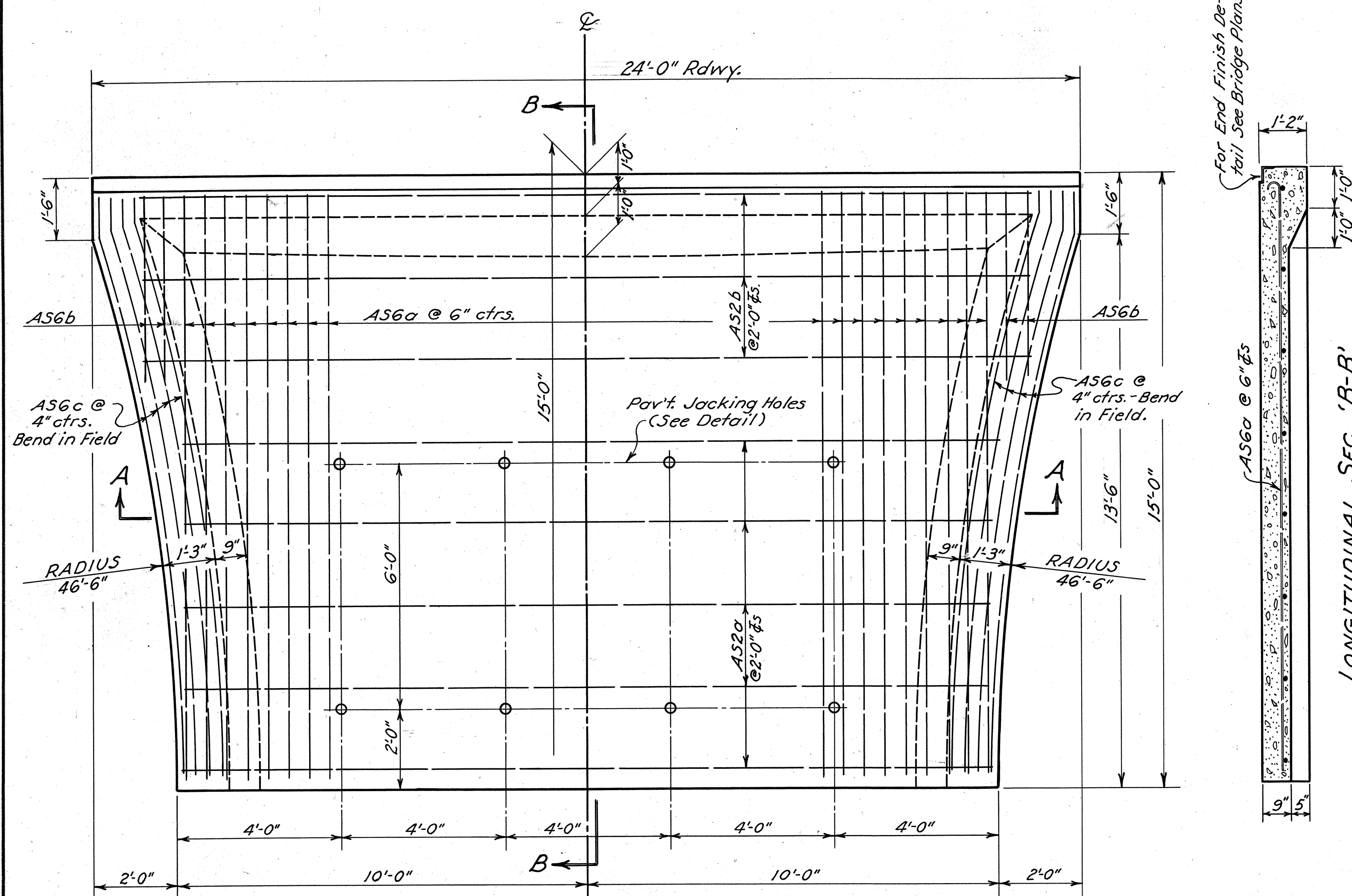


DETAIL OF PRIVATE DRIVES

P.C. 16+13.19			D = 4°-00' LT.			P.T. 21+28.61		
LEFT			STATION	PROFILE GRADE ELEV.	RIGHT			
EDGE OF PAV'T.	DEDUCT CROWN	WIDTH			ADD. SUPER.	WIDTH	EDGE OF PAV'T.	
1016.38	0.17	9'	14+13.19	1016.55	0.00	9'	1016.38	
1016.43			+25	1016.60	0.01		1016.44	
1016.53			+50	1016.70	0.07		1016.60	
1016.65			+75	1016.82	0.18		1016.83	
1016.80			15+00	1016.97	0.36		1017.16	
1016.99			+25	1017.16	0.60		1017.59	
1017.22			+50	1017.39	0.89		1018.11	
1017.48			+75	1017.65	1.13		1018.59	
1017.78			16+00	1017.95	1.31		1019.07	
1017.95			+13.19	1018.12	1.38		1019.30	
1018.12			+25	1018.29	1.43		1019.52	
1018.49			+50	1018.66	1.49		1019.98	
1018.70			+63.19	1018.87	1.50		1020.20	
1018.90			+75	1019.07			1020.40	
1019.34			17+00	1019.51			1020.84	
1019.82			+25	1019.99			1021.32	
1020.34			+50	1020.51			1021.84	
1020.89			+75	1021.06			1022.39	
1021.48			18+00	1021.65			1022.98	
1022.11			+25	1022.28			1023.61	
1022.77			+50	1022.94			1024.27	
1023.45			+75	1023.62			1024.95	
1024.13			19+00	1024.30			1025.63	
1024.81			+25	1024.98			1026.31	
1025.49			+50	1025.66			1026.99	
1026.17			+75	1026.34			1027.67	
1026.85			20+00	1027.02			1028.35	
1027.53			+25	1027.70			1029.03	
1028.21			+50	1028.38			1029.71	
1028.89			+75	1029.06			1030.39	
1029.57			+78.16	1029.15	1.50		1030.48	
1030.24			21+00	1029.74	1.48		1031.05	
1030.92			+25	1030.41	1.39		1031.63	
1031.49			+28.16	1030.49	1.38		1031.70	
1032.07			+50	1031.05	1.25		1032.13	
1032.63			+75	1031.66	1.05		1032.54	
1033.17			22+00	1032.24	0.79		1032.86	
1033.67			+25	1032.80	0.51		1033.14	
1034.15			+50	1033.34	0.29		1033.46	
1034.60			+75	1033.84	0.14		1033.81	
1034.65	0.17	9'	23+00	1034.32	0.04		1034.19	
			+25	1034.77	0.01		1034.61	
			+28.16	1034.82	0.00	9'	1034.65	

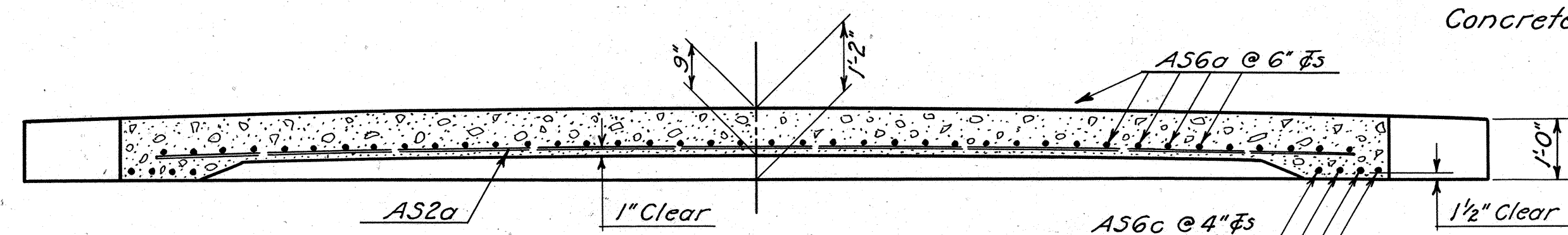
P.C. 5+76.65			D = 1°-00' LT.			P.T. 8+23.32		
LEFT			STATION	PROFILE GRADE ELEV.	RIGHT			
EDGE OF PAV'T.	DEDUCT CROWN	WIDTH			ADD. SUPER.	WIDTH	EDGE OF PAV'T.	
1018.65	0.17	9'	5+00	1018.82	0.00	9'	1018.65	
1018.03			+25	1018.20	0.03		1018.10	
1017.46			+50	1017.63	0.12		1017.63	
1016.94			+75	1017.11	0.25		1017.19	
1016.91			+76.65	1017.08	0.26		1017.17	
1016.46			6+00	1016.63	0.35		1016.77	
1016.03			+25	1016.20	0.38		1016.38	
1016.00			+26.65	1016.17			1016.36	
1015.64			+50	1015.81			1016.02	
1015.30			+75	1015.47			1015.68	
1015.01			7+00	1015.18			1015.39	
1014.76			+25	1014.93			1015.14	
1014.56			+50	1014.73			1014.94	
1014.41			+73.32	1014.58	0.38		1014.79	
1014.41			+75	1014.58	0.38		1014.79	
1014.30			8+00	1014.47	0.36		1014.64	
1014.24			+23.32	1014.41	0.30		1014.54	
1014.24			+25	1014.41	0.29		1014.53	
1014.22			+50	1014.39	0.18		1014.43	
1014.25			+75	1014.42	0.08		1014.37	
1014.33			9+00	1014.50	0.02		1014.35	
1014.42	0.17	9'	+23.32	1014.59	0.00	9'	1014.59	

COLUMBIANA COUNTY
S.H. 734 - SEC. 'E-(PT.)'
UNITS No 1 & 2

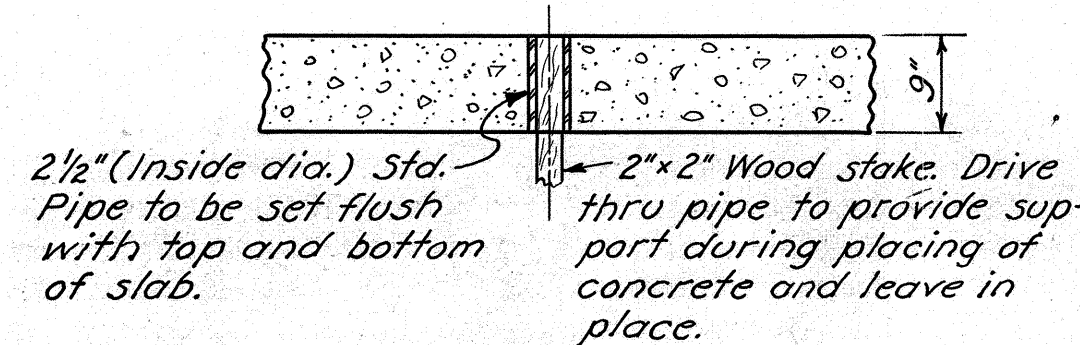


PLAN
Scale 1/2" = 1'-0"

Note:
Approach Slab details are typical for each end of bridge.
Concrete to be "Class C"



TRANSVERSE SECTION 'A-A'

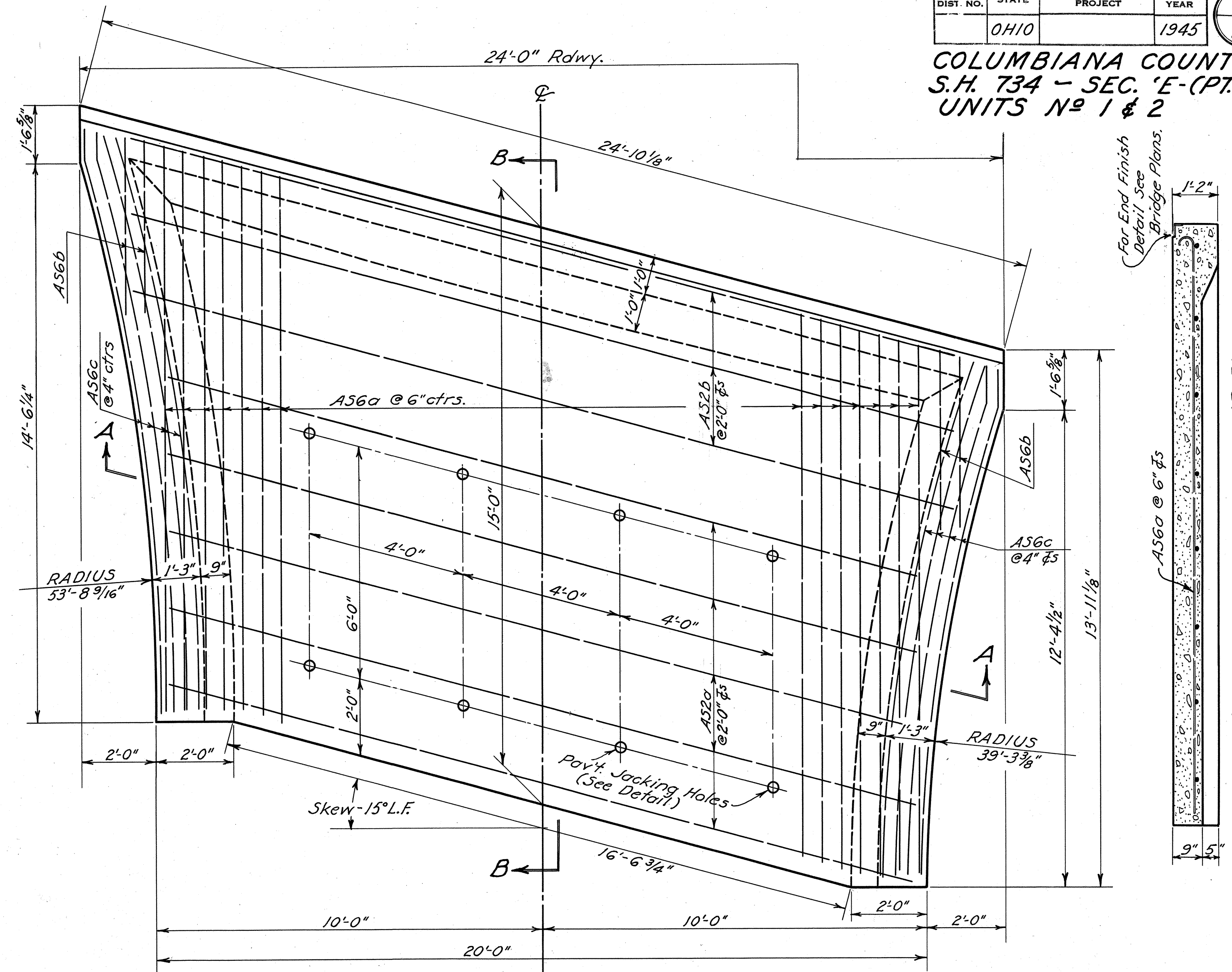


DETAIL OF HOLES FOR PAYT JACKING

STEEL LIST				
No	MARK	SIZE	SHAPE	LENGTH
5	AS2a	1/2" φ	Str.	19'-6"
3	AS2b	"	"	21'-6"
40	AS6a	7/8" φ	Bent	15'-3"
4	AS6b	"	"	5'-6"
8	AS6c	"	"	15'-9"

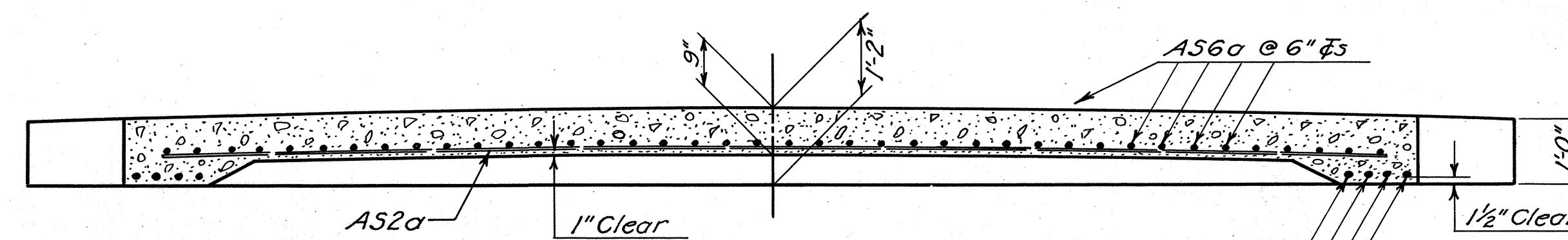
EST. QUANTITIES
Item S-5: Reinforced Conc. Approach Slabs (2) 72 sq. yds.
Reference Drwg. AS-41-F.

APPROACH SLABS FOR
BRIDGE No CO-518-00
UNIT No 1 - STA. 1+45.0



PLAN
Scale 1/2" = 1'-0"

Note:
Approach Slab details are typical for each end of bridge.
Concrete to be "Class C"



TRANSVERSE SECTION 'A-A'

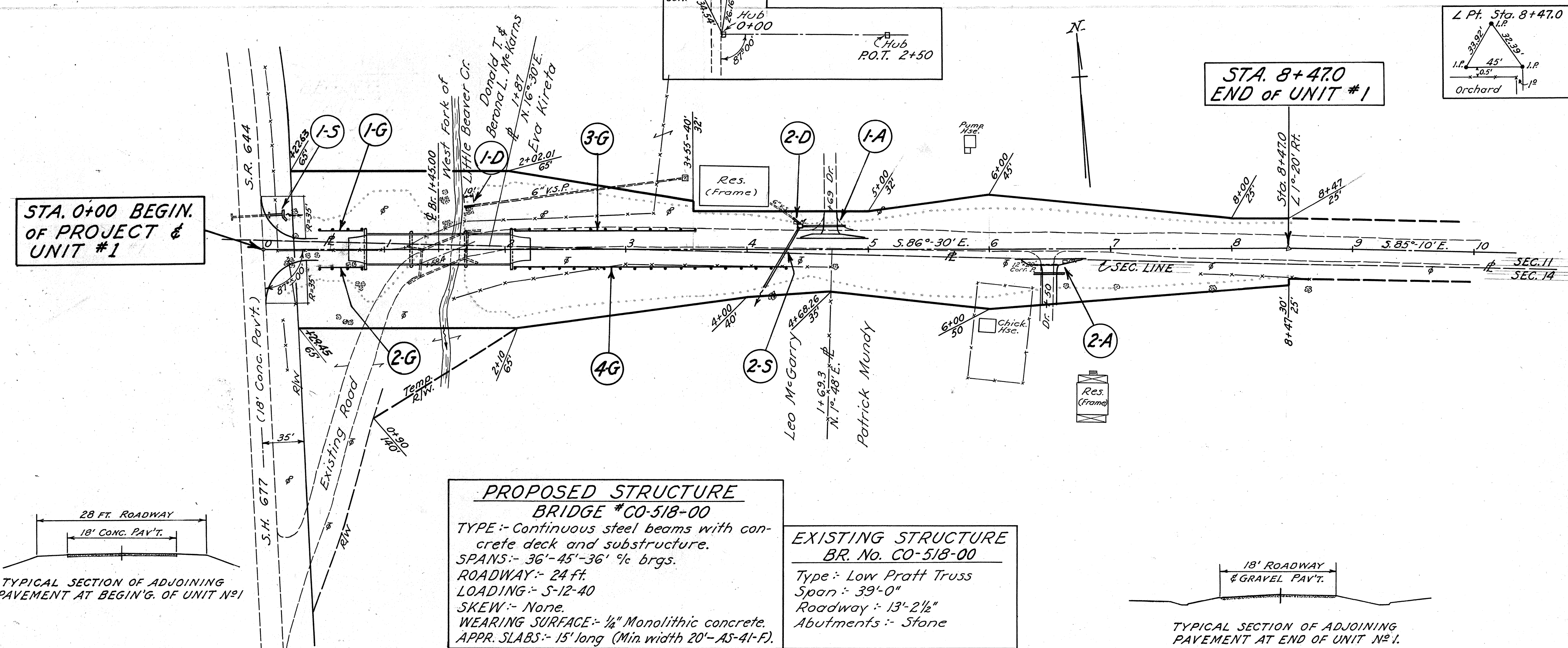
STEEL LIST				
No	MARK	SIZE	SHAPE	LENGTH
5	AS2a	1/2" φ	Str.	20'-3"
3	AS2b	do	do	22'-3"
40	AS6a	7/8" φ	Bent	15'-3"
4	AS6b	do	do	5'-6"
8	AS6c	do	do	15'-9"

EST. QUANTITIES
Item S-5: Reinforced Concrete Approach Slabs (2) 72 sq. yds.
Reference Drwg. AS-41-F.

APPROACH SLABS FOR
BRIDGE No CO-518-33
UNIT No 2 - STA. 11+96.0

BRIDGE APPROACH SLABS

COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(Pt.)"
BRIDGE No. CO-518-00
UNIT #1.



STA. 0+00 BEGIN.
OF PROJECT &
UNIT #1

STA. 8+70
END OF UNIT #1

APPROACHES

REF. No	STATION	SIDE	SEE SHEET No	12" PIPE REMOVED & STORED Lin. Ft.	PIPE FOR DRIVEWAYS Lin. Ft.	I-117 AGG. Cu. Yds.
1-A	4+69	Lt.		36	5	5
2-A	6+50	Rt.		20	26	9
SHEET TOTAL				20	62	14

STRUCTURES - 20 FT. SPAN & UNDER

REF. No	STATION	SEE SHEET No	REMOVALS			NEW WORK			
			TYPE	SIZE	LENGTH	TYPE	SIZE	LENGTH	
1-5	0+00			PIPE	15"		PIPE	15"	8'
2-5	4+31			PIPE	15"		PIPE	15"	54'

TREE REMOVAL

STATION FROM	STATION TO	SIDE	TREES - EACH			
			8"-15"	15"-24"	24"-36"	36"-48"
0+00	1+71	Lt.	2	8	1	
0+00	1+81	Rt.	9	1	1	
4+71	7+04	Rt.	2	1		
SHEET TOTAL			13	10	2	

DRAINAGE

REF. No	STATION FROM	STATION TO	SIDE	SEE SHEET No	OUTLET PIPE (Lin. Ft.)
1-D	1+67	1+77	Lt.		10
2-D	4+33	4+43	Lt.		10
SHEET TOTAL					20

EROSION CONTROL

STATION FROM	STATION TO	SIDE	SEE SHEET	E-305 SEEDING Sq. Yds.	FERTILIZER Lbs.	GROUND AGRICULTURE LIME-STONE Lbs.	RIPRAP TYPE 'A' GROUTED Sq. Yds.
0+00	1+35	Rt.		1837	331	1653	
1+69	9+00	Rt.		4976	896	4478	
1+67	2+20	Lt.					195
SHEET TOTAL				6813	1227	6131	195

GUARD RAIL

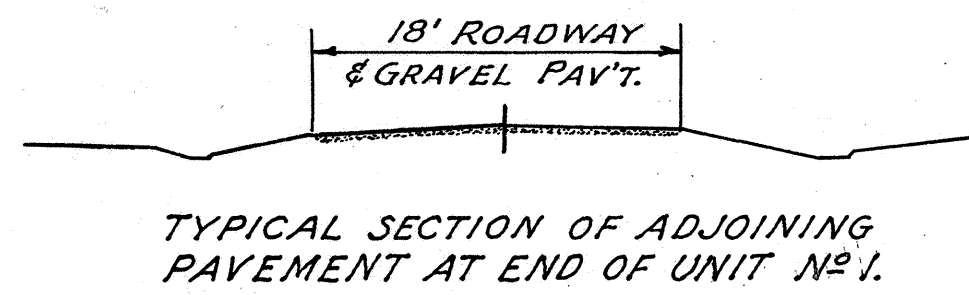
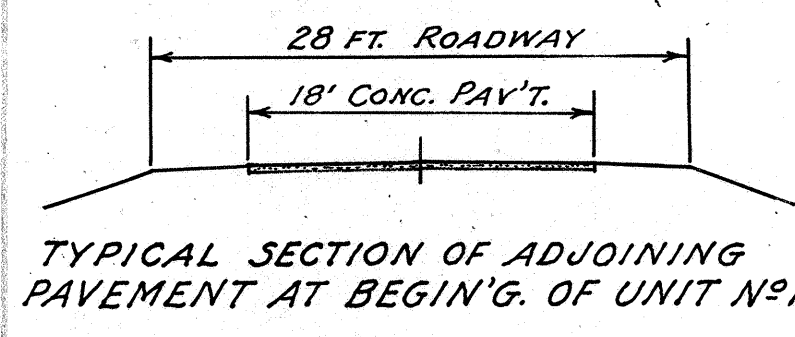
REF. No	STATION FROM	STATION TO	SIDE	PLACE NEW Lin. Ft.
1-G	0+36.5	0+84.5	Lt.	48.0
2-G	0+36.5	0+84.5	Rt.	48.0
3-G	2+05.5	3+65.5	Lt.	160.0
4-G	2+05.5	4+29.5	Rt.	224.0
SHEET TOTAL				480.0

PAVEMENT REMOVAL

STA.	ITEM T-10 18" WIDE & 6" DEPTH Sq. Yds.
0+55 Rt.	480
240 L.F. (Exist. Roadway)	

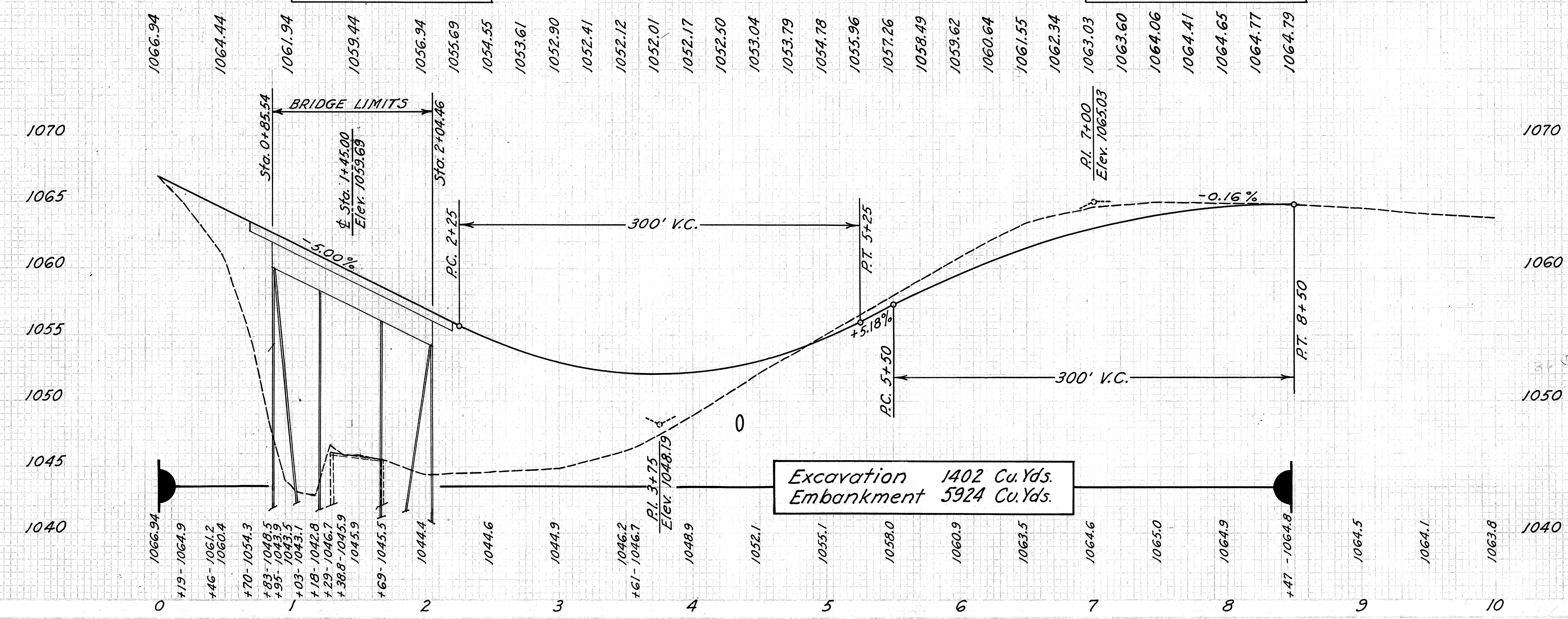
PROPOSED STRUCTURE
BRIDGE # CO-518-00
TYPE: Continuous steel beams with concrete deck and substructure.
SPANS: 36'-45'-36' % brgs.
ROADWAY: 24 ft.
LOADING: S-12-40
SKEW: None
WEARING SURFACE: 1/2" Monolithic concrete.
APPR. SLABS: 15' long (Min. width 20'-45'-41'-F).

EXISTING STRUCTURE
BR. No. CO-518-00
Type: Low Pratt Truss
Span: 39'-0"
Roadway: 13'-2 1/2"
Abutments: Stone



B.M. + S.E. Cor. Conc.
Hd. Wl. of Culv. - 24'
Lt. Sta. 0+26
Elev. 1069.94

B.M. - Bottom Cor. Strip
at N.E. Cor. House to
Rt. of Sta. 7+00.
Elev. 1070.99

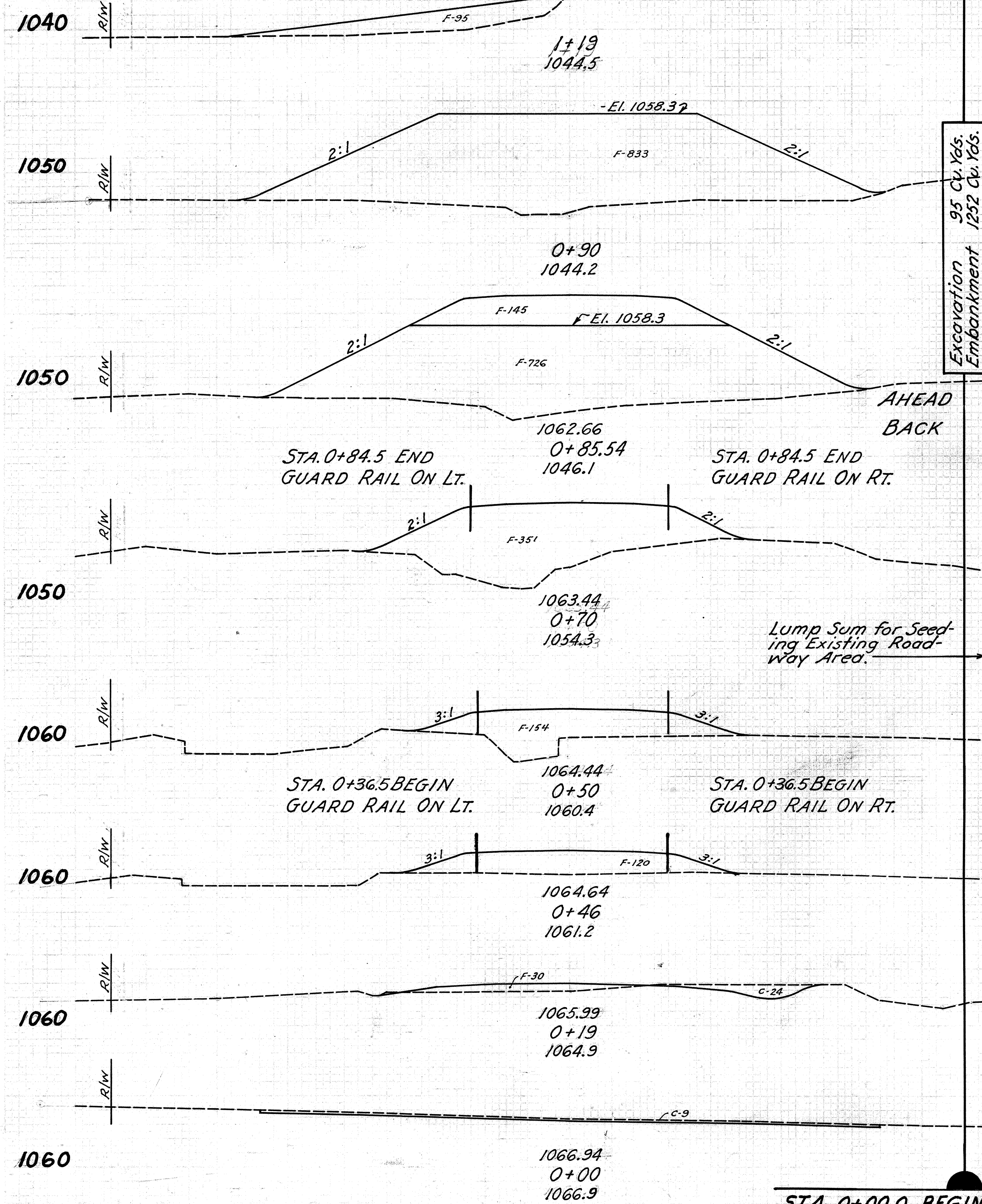


Excavation 1402 Cu.Yds.
Embankment 5924 Cu.Yds.

60 50 40 30 20 10 0 10 20 30 40 50 60

60 50 40 30 20 10 0 10 20 30 40 50 60

OHIO 1945 6 22
 COLUMBIANA COUNTY
 S.H. 734 - SEC. "E-(Pt.)"
 BR. No. CO-518-00
 UNIT #1.

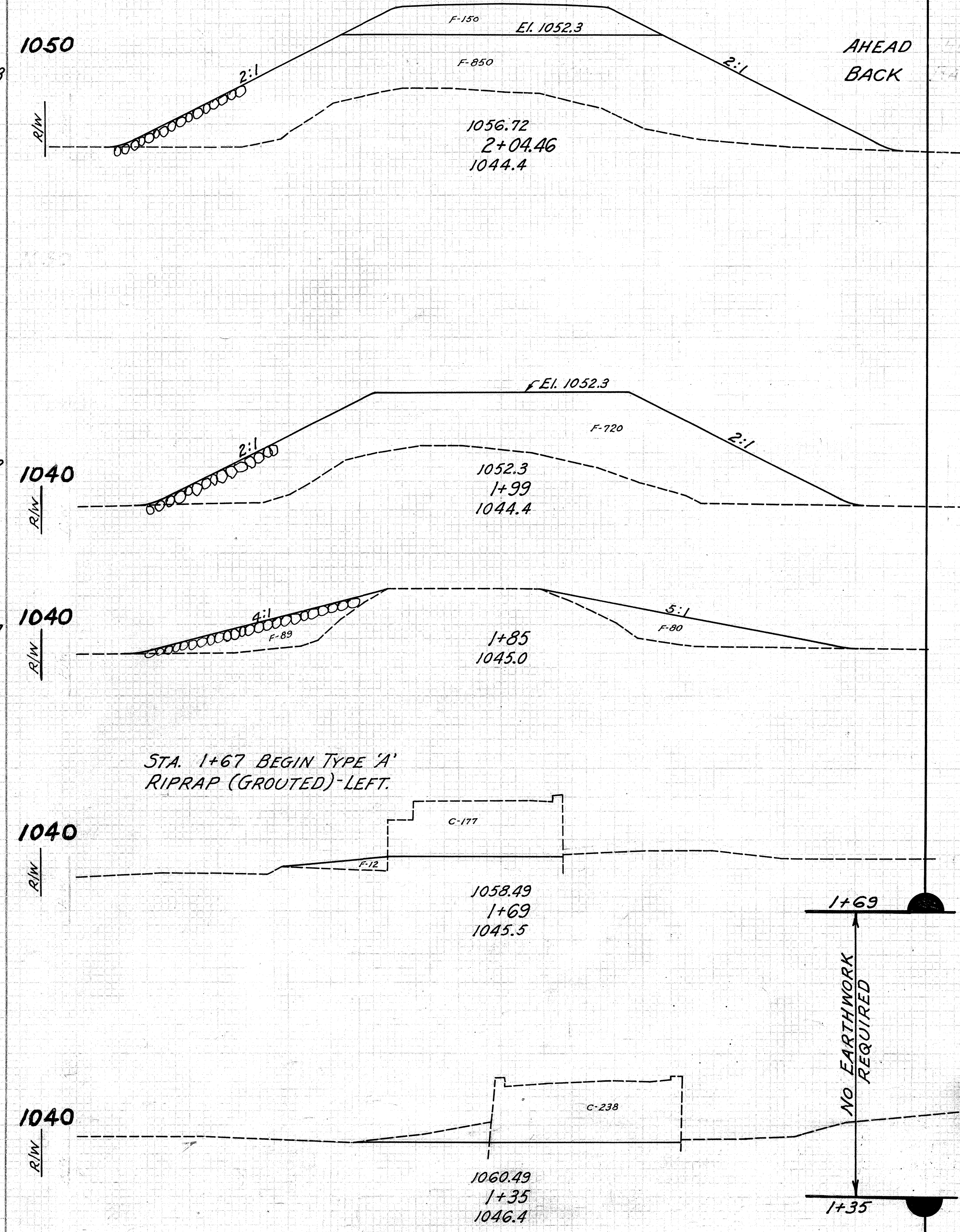


Excavation 95 Cu. Yds.
Embankment 1252 Cu. Yds.

STA. 0+00.0 BEGIN PROJECT & UNIT #1

Station	Seeding		End Area		Cu. Yds.	
	Width	Area	Cut	Fill	Cut	Fill
1040	98		71	28		
1050	110		0	95		
1050	364		0	498		
1050	116		0	833		
1050	52		0	81		
1050	95		0	145		
1050	108		0	871		
1050	143		0	352		
1050	58		0	351		
1060	830		0	187		
1060	120		0	154		
1060	50		0	154		
1060	22		0	20		
1060	50		0	120		
1060	153		12	75		
1060	52		24	30		
1060	55		12	11		
1060	0		9	0		

STA. 2+20 END TYPE 'A' RIPRAP (GROUTED)-LEFT



AHEAD BACK

NO EARTHWORK REQUIRED

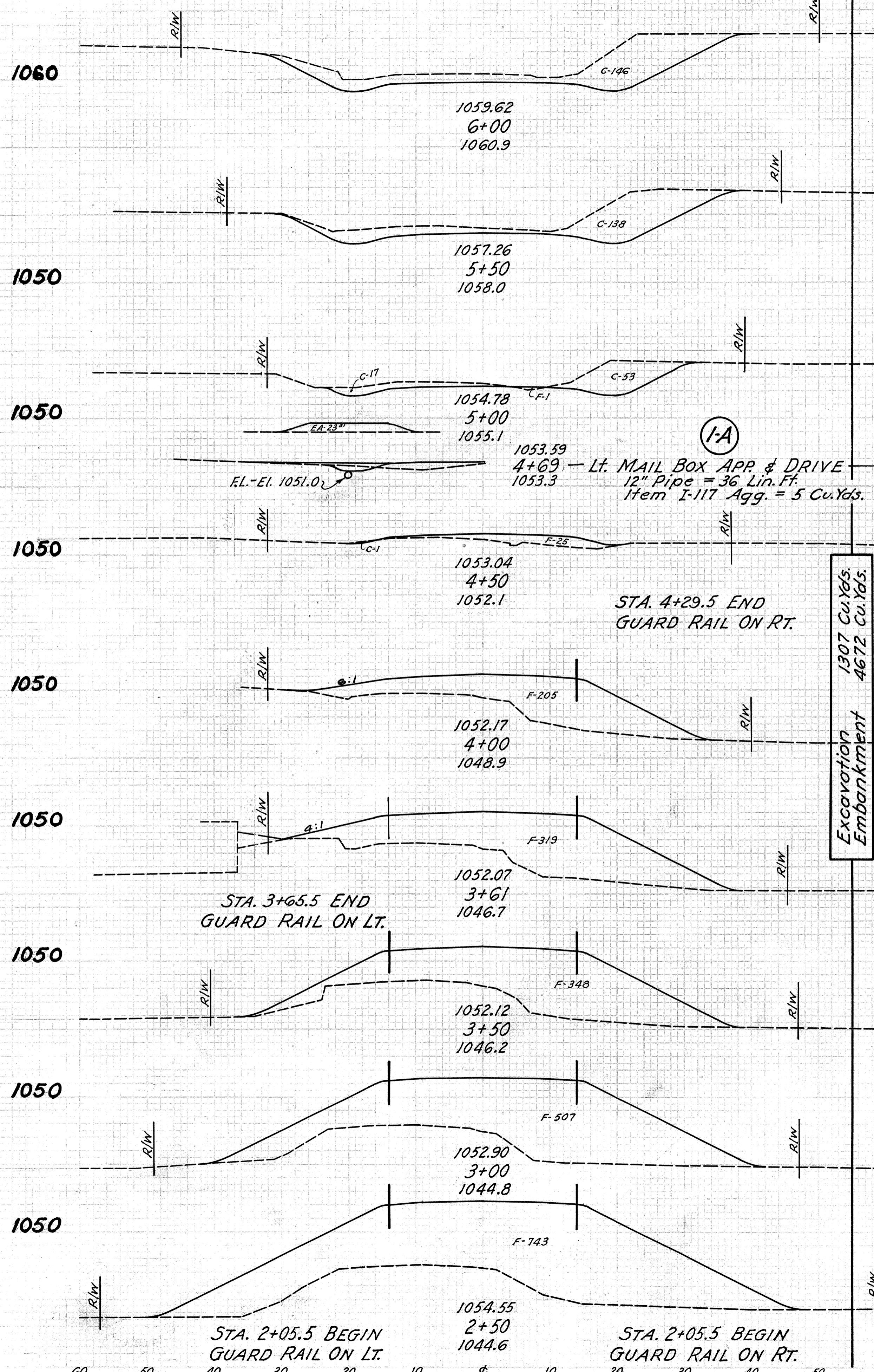
Station	Seeding		End Area		Cu. Yds.	
	Width	Area	Cut	Fill	Cut	Fill
1050	552		0	1470		
1050	114		0	1000		
1050	129		0	850		
1040	77		0	159		
1040	126		0	720		
1040	193		0	231		
1040	122		0	169		
1040	108		52	54		
1040	0		177	12		
1040	0		238	0		

STA. 0+00 TO STA. 2+04.46

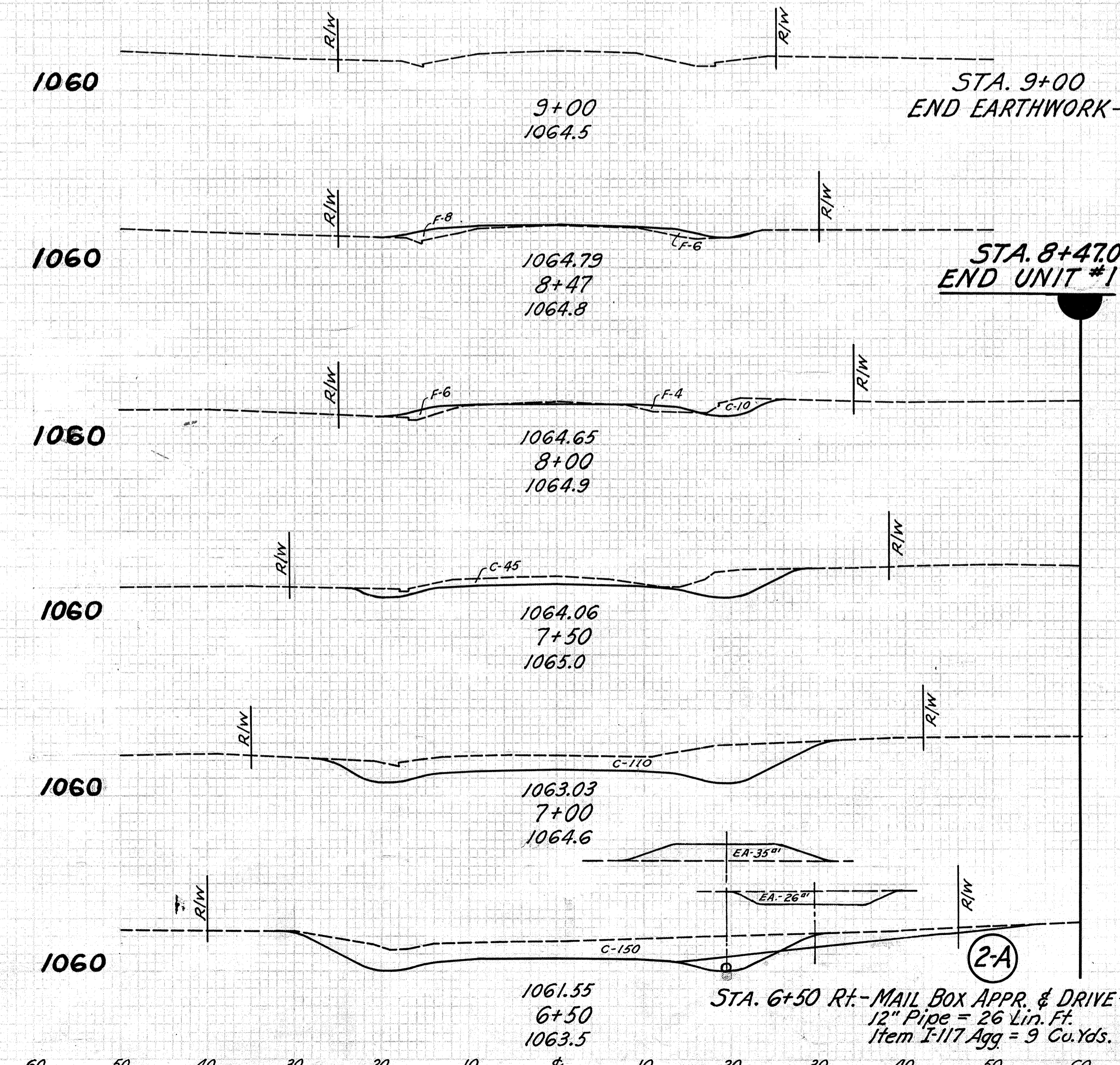
60 50 40 30 20 10 0 10 20 30 40 50 60

60 50 40 30 20 10 0 10 20 30 40 50 60

OHIO 1945 7 22
 COLUMBIANA COUNTY
 S.H. 734 - SEC. "E-(PT.)"
 BRIDGE No. CO-518-00
 UNIT #1



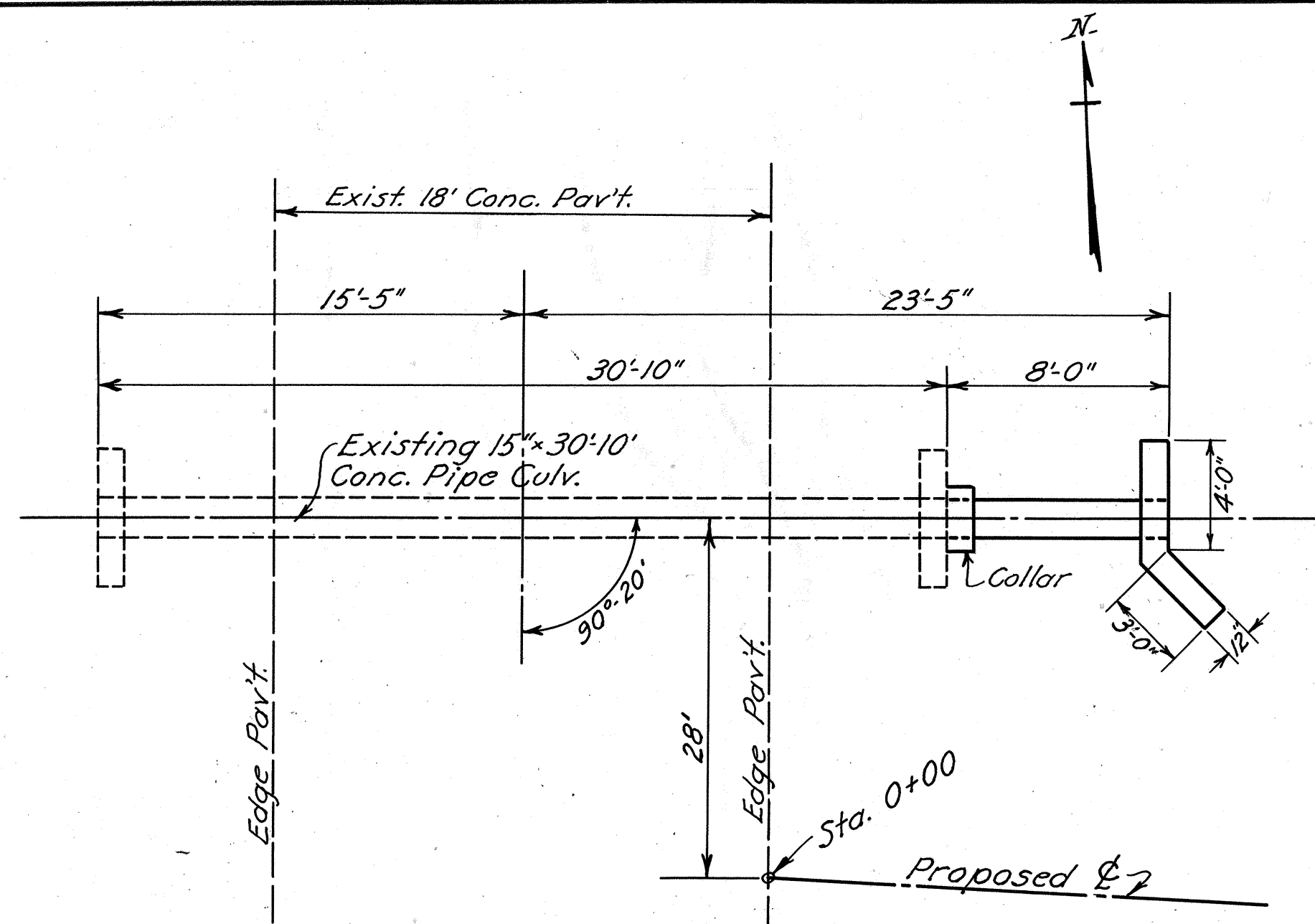
Station	Seeding		End Area		Cu. Yds.	
	Width	Area	Cut	Fill	Cut	Fill
1060	353		274	0		
1050	74	146	0			
1050	386		263	0		
1050	65	138	0			
1050	331		193	1		
1050	54	70	1			
1050	272		66	24		
1050	44	1	25			
1050	283		1	213		
1050	58	0	205			
1050	260		0	378		
1050	62	0	319			
1050	84		0	136		
1050	75	0	348			
1050	422		0	792		
1050	77	0	507			
1050	503		0	1157		
1050	104	0	743			



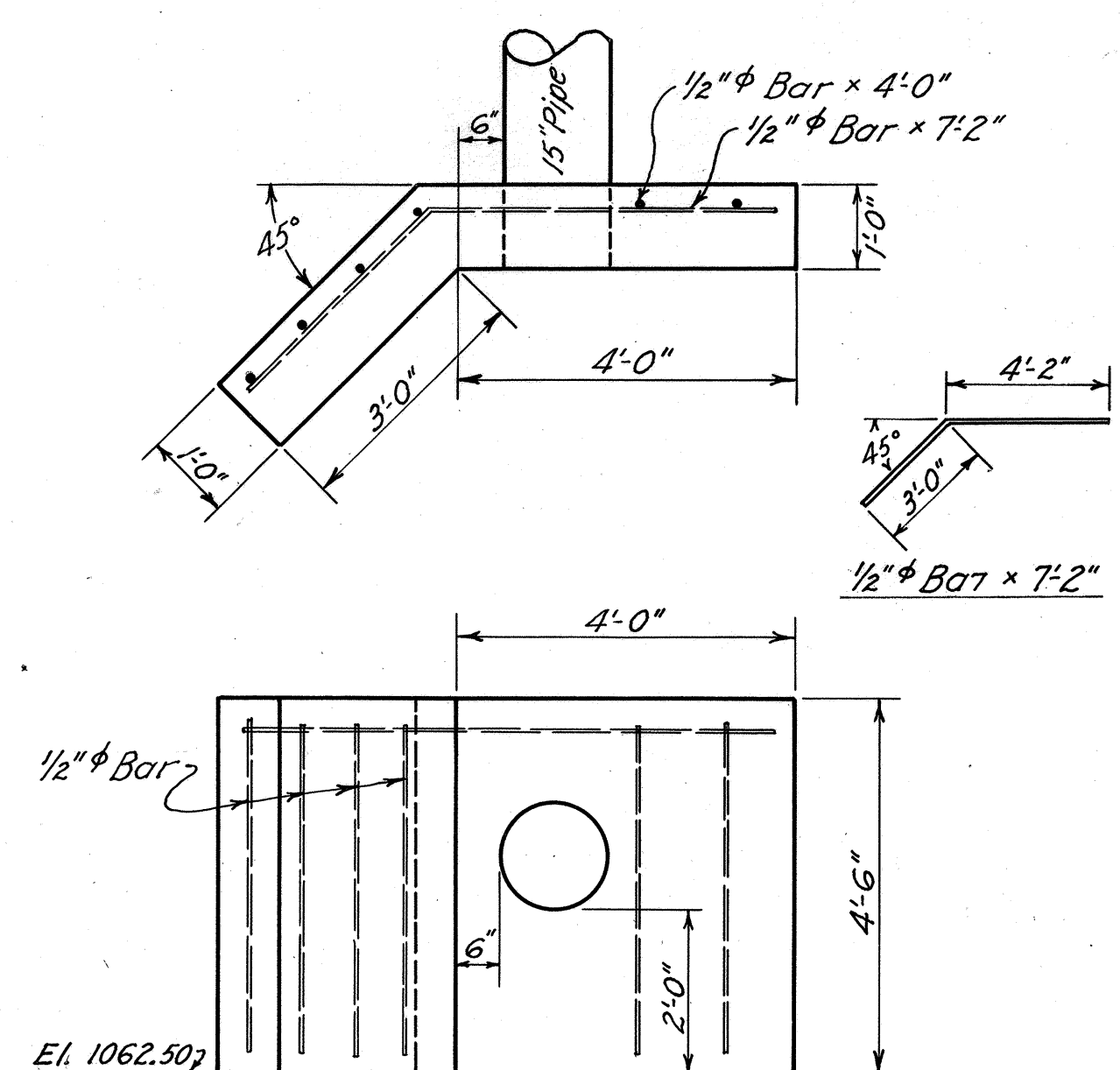
Station	Seeding		End Area		Cu. Yds.	
	Width	Area	Cut	Fill	Cut	Fill
1060	0	0	0	0		
1060	106		0	14		
1060	36	0	14			
1060	201		9	21		
1060	41	10	10			
1060	247		51	9		
1060	48	45	0			
1060	292		144	0		
1060	57	110	0			
1060	306		241	0		
1060	53	150	0			

STA. 2+50 TO STA. 9+00

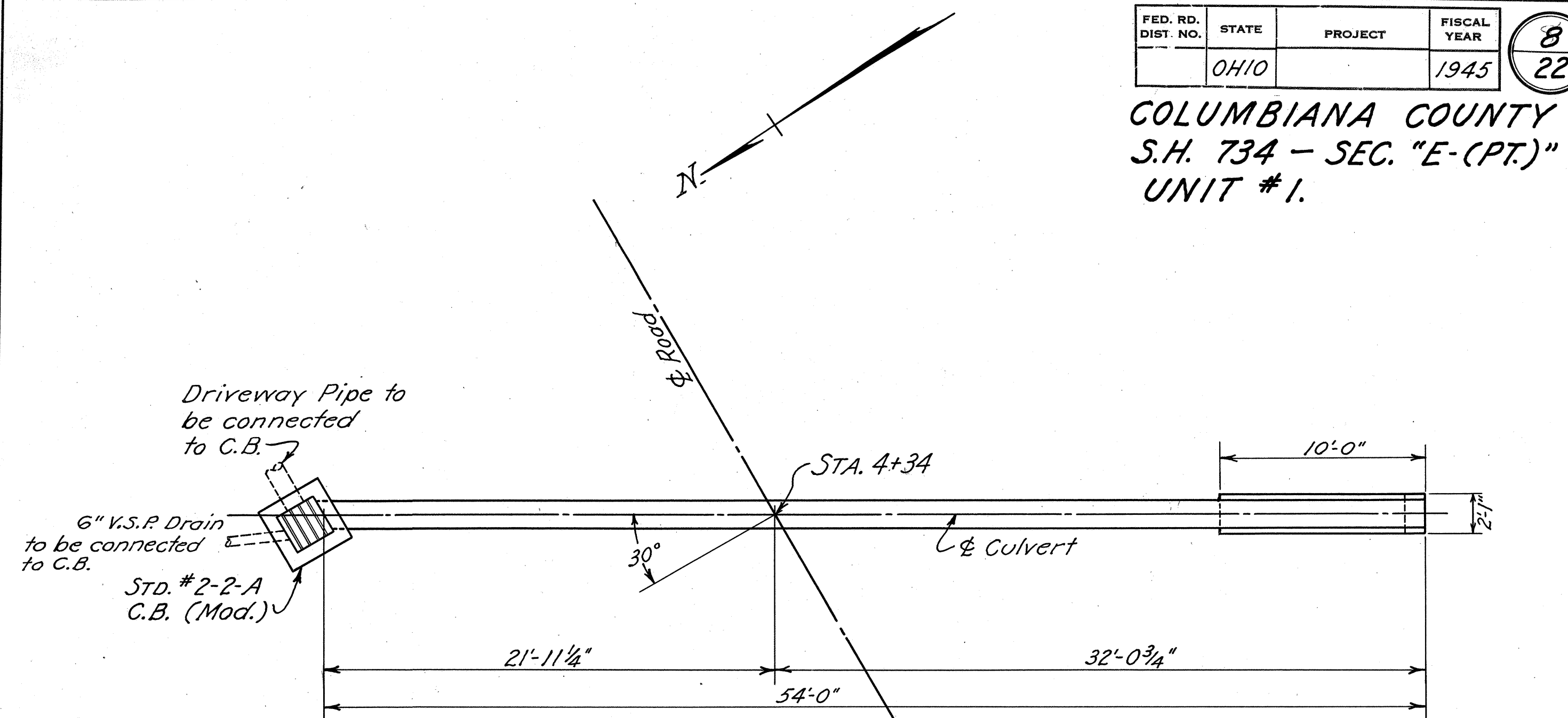
COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(PT.)"
UNIT #1.



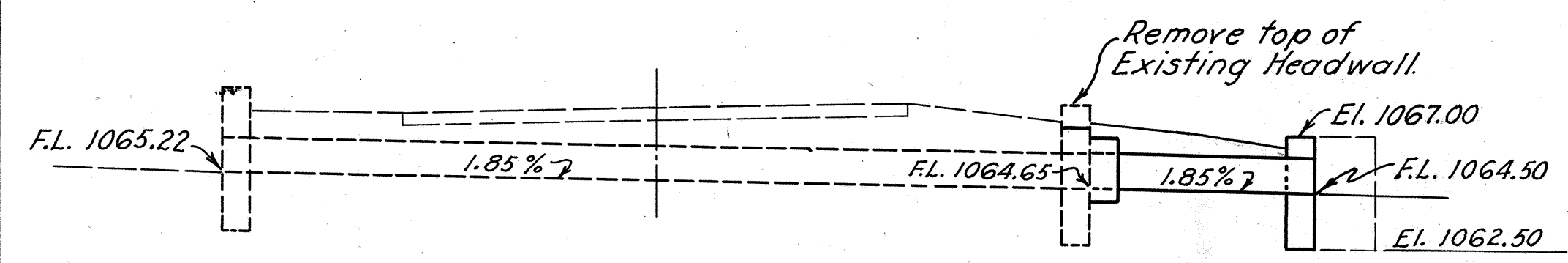
PLAN
Scale 1"=5'



DETAIL OF HEADWALL

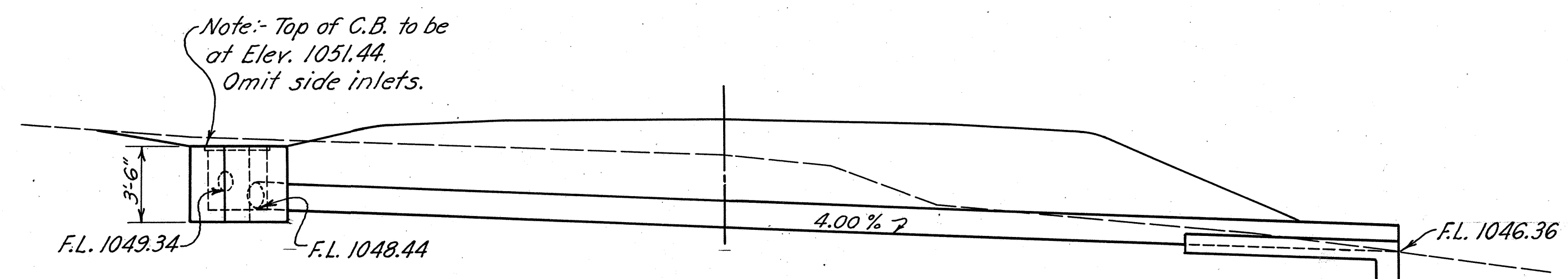


PLAN
Scale 1"=5'



SECTION

STEEL LIST				
No.	SIZE	LENGTH	SHAPE	WEIGHT
1	1/2" φ	7'-2"	Bent	5 lb.
5	"	4'-0"	Str.	13 "
4	Dowels 5/8" φ	1'-6"	"	6 "
TOTAL				24 lb.



SECTION

STRUCTURE DATA

TYPE - Pipe Culvert
 SIZE - 15" x 38'-10"
 WORK REQ'D. - Extend existing 15" x 30'-10" Conc. Pipe Culvert 8'-0" to Rt. Remove portion of existing headwall as shown and build new headwall.

REFERENCE DRAWINGS

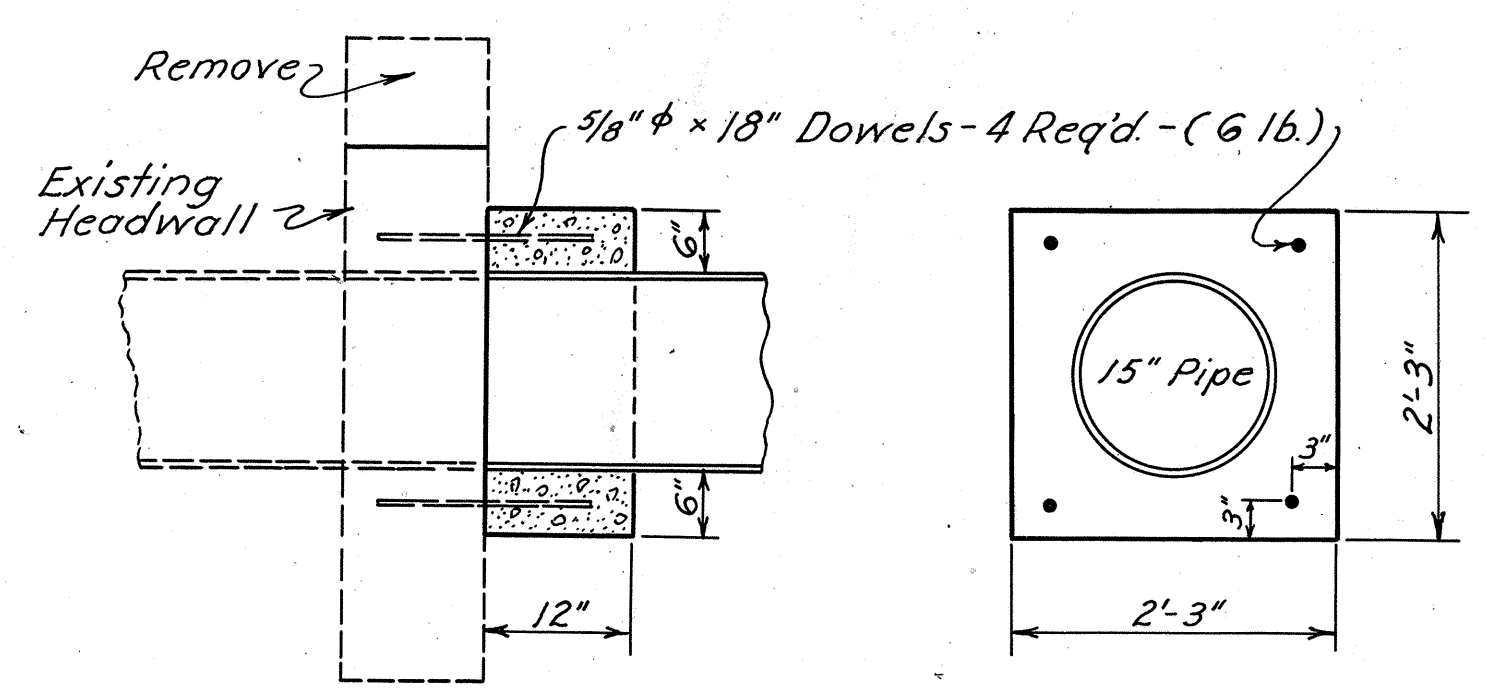
Pipe Culverts S-27---PC-3

ESTIMATED QUANTITIES

- Item E-2; Excavation for Structure 2 Cu.Yds.
- Item S-27; 15" Pipe 8 Lin. Ft.
- Item S-1; Concrete (Class 'C') 1.3 Cu.Yd.
- Item S-22; Removal Existing Masonry 0.2 Cu.Yd.
- Item S-4; Reinforcing Steel 24 Lbs.
- Item S-23; Dowel Holes 6 Lin. Ft.

15" x 38'-10" PIPE CULVERT
 STA. 0+00 - 28' LT.

1-S



CONNECTING COLLAR

STRUCTURE DATA

TYPE - Std. Pipe Culvert.
 SIZE - 15" x 54'-0"
 WORK REQ'D. - Build Std. 15" x 54'-0" Pipe Culvert, Skewed 30° L.F. with Std. #2-2-A C.B. (Mod.) on Lt. and Std. Pipe Culvert End on Rt.

REFERENCE DRAWINGS

Pipe Culvert Ends S-27---PC-2
 Pipe Culverts S-27---PC-3
 Catch Basins I-8 C.B. - 2-2-A & B

ESTIMATED QUANTITIES

- Item E-2; Excavation for Structures 19 Cu.Yds.
- Item S-27; 15" Pipe 54 Lin. Ft.
- Item S-1; Concrete (Class 'E') for Culv. End 0.7 Cu.Yd.
- Item I-8; Catch Basin #2-2-A (Mod.) 1 Only.

15" x 54'-0" PIPE CULVERT
 STA. 4+34

2-S

FED. RD. DIV. NO.	STATE	PROJECT	FISCAL YEAR
2	OHIO	STATE	1945

9
22

COLUMBIANA COUNTY
S.H. 734 SEC. E (PT.)
AT JUNCTION RT. 644
UNIT NO. 1

EXISTING BRIDGE DATA
BR. NO. CO-518-00 TO BE REMOVED ---
TYPE: - Low Pratt Truss.
SPAN: - 39'-0"
ROADWAY: - 13'-2 1/2"
ABUTMENTS: - Stone
LOADING: - H-5:5

Residence

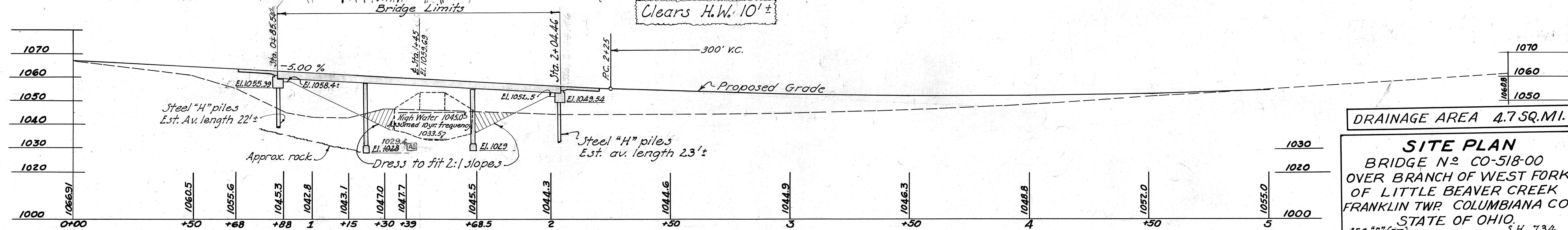
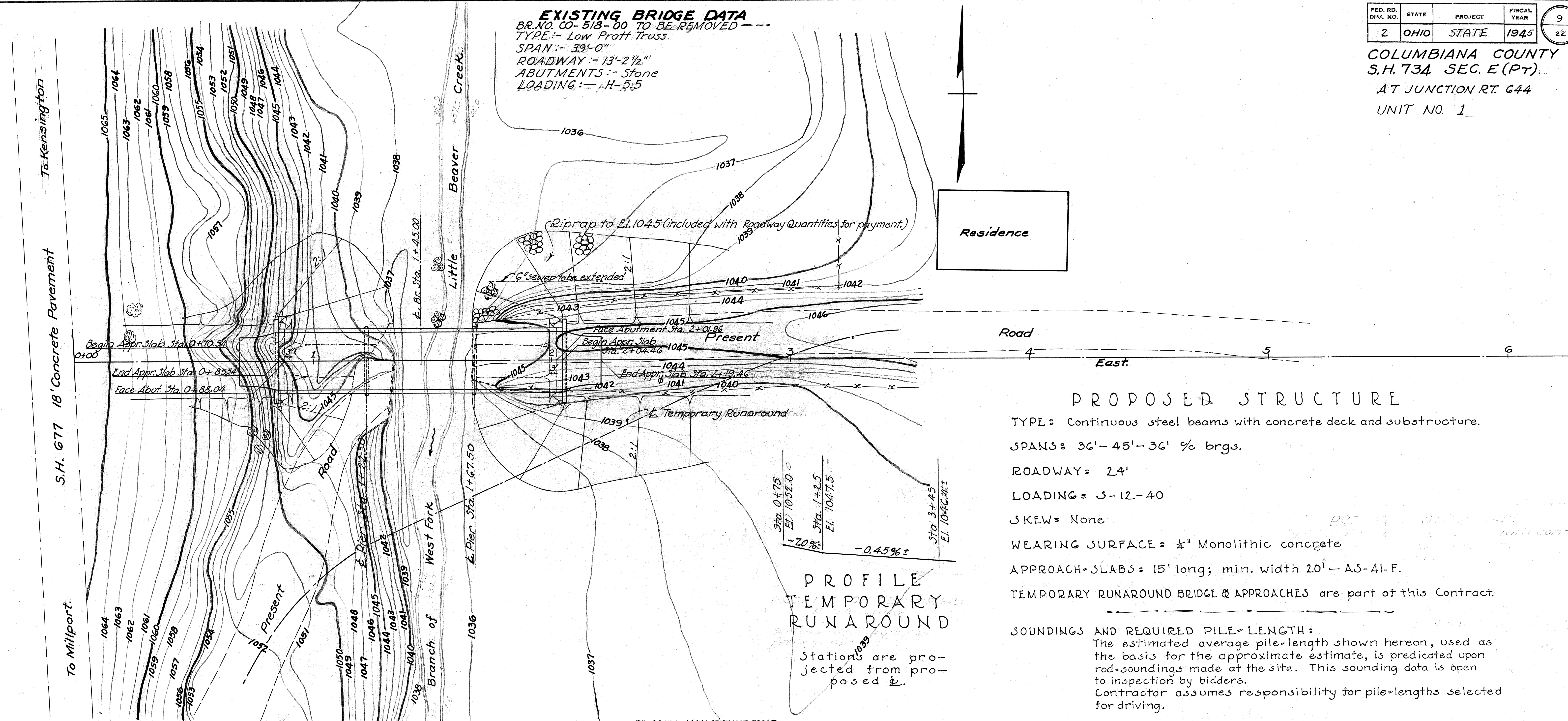
PROPOSED STRUCTURE

- TYPE: Continuous steel beams with concrete deck and substructure.
- SPANS: 36'-45'-36' 1/2 brgs.
- ROADWAY: 24'
- LOADING = 5-12-40
- SKEW = None
- WEARING SURFACE = 1/4" Monolithic concrete
- APPROACH SLABS = 15' long; min. width 20' - AS-41-F.
- TEMPORARY RUNAROUND BRIDGE & APPROACHES are part of this Contract.

SOUNDINGS AND REQUIRED PILE LENGTH:
The estimated average pile length shown hereon, used as the basis for the approximate estimate, is predicated upon rod soundings made at the site. This sounding data is open to inspection by bidders. Contractor assumes responsibility for pile lengths selected for driving.

PROFILE TEMPORARY RUNAROUND

Stations are projected from proposed \pm .



PROFILE ON CENTER LINE

DRAINAGE AREA 4.7 SQ. MI.

SITE PLAN
BRIDGE N^o CO-518-00
OVER BRANCH OF WEST FORK
OF LITTLE BEAVER CREEK
FRANKLIN TWP COLUMBIANA CO.
STATE OF OHIO.

SEC. "E" (PT.) S.H. 734
SCALE 1"=20' STA. 1+45.00

PRESENT TOPO	PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED
L.K.E.C.B.	S.L.P.	C.N.A.	C.N.A.	G.E.S.

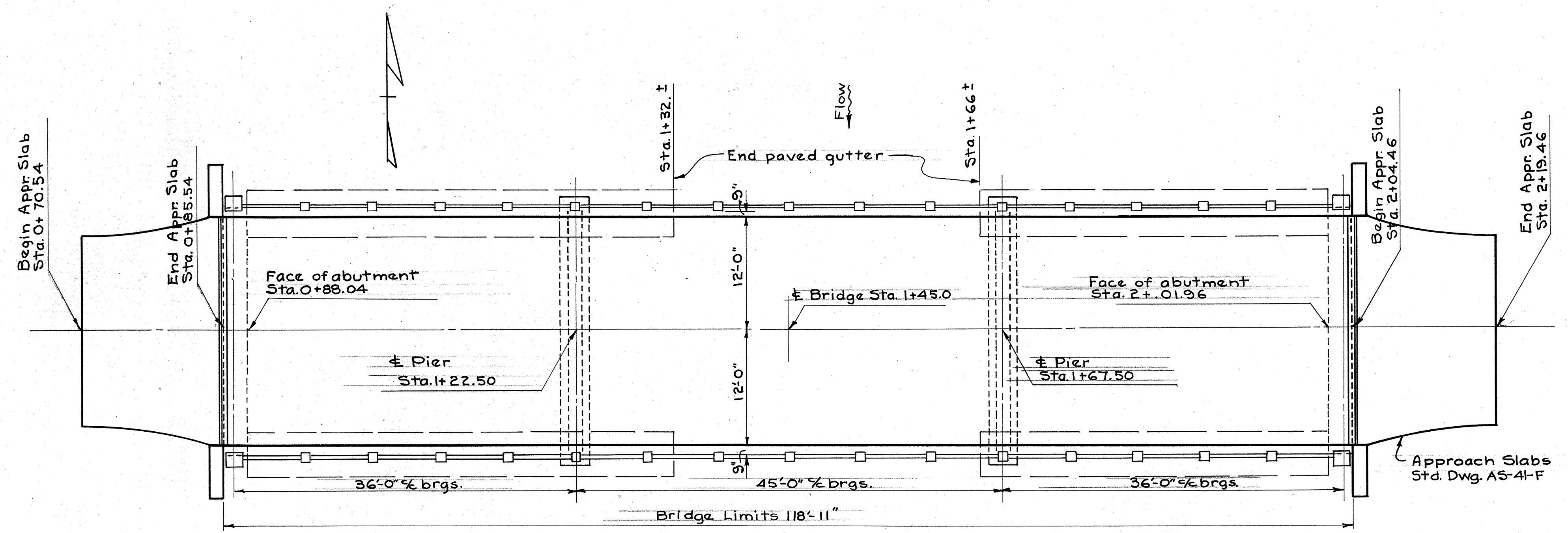
REVIEWED
J.M.M. S.P.S.

B.M. + S.E. Corner Concrete
Headwall S.R. 644
Elev. 1068.16

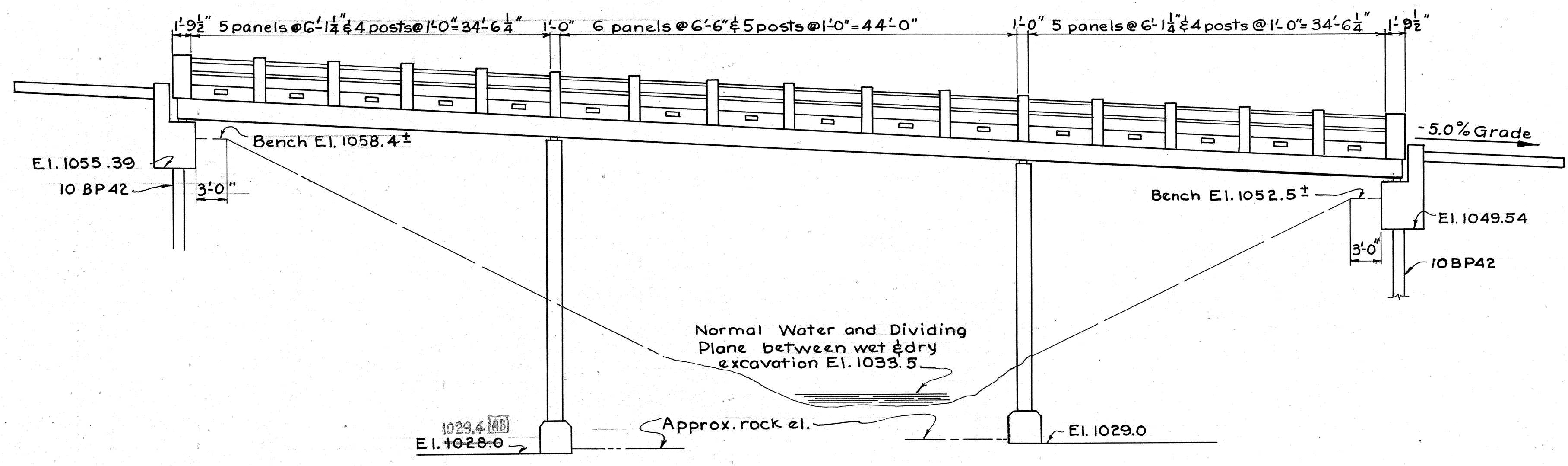
B.M. - Top of lower window sill
S.W. Corner House Lt. Sta. 3+55
Elev. 1045.11

Appr. Part. 18 with 5' x 6' beams.

COLUMBIANA COUNTY
S. H. 734 SEC. E (PT.)



PLAN



ELEVATION

CHANGE ORDER	AS BUILT	ESTIMATED QUANTITIES									
		ITEM	TOTAL	UNIT	DESCRIPTION	W.ABUT	W.PIER	E.PIER	E.ABUT	SUPERST	GEN'L AS BUILT
		E-2	Lump	Sum	Cofferdams and pumping						Lump
		E-2	116	Cu.yd.	Excavation for structures, dry	22	53	19	22		
C-2 -236	19.4	E-2	49	Cu.yd.	Excavation for structures, wet						
C-2 +801	11.90	E-2	4	Cu.yd.	Excavation for structures, rock						
		S-1	74	Cu.yd.	Class "C" concrete, super structure					74	
		S-1	46.8	Cu.yd.	Class "C" concrete, abutments	23.4			23.4		
C-2 -46	25.4	S-1	2.6	Cu.yd.	Class "C" concrete, pier caps and columns			12.3			
		S-1	18.4	Cu.yd.	Class "C" concrete, pier footings	9.2			9.2		
		S-3	24	Sq.yd.	Type "B" water proofing				12		
C-2 -163	34855	S-4	35024	Lbs.	Reinforcing steel	2910		5944	2910	16860	120
		S-7	53300	Lbs.	Structural steel					53300	
		S-8	53300	Lbs.	Field painting of structural steel, (3 coats)					53300	
		S-14	23725	Lin.ft.	Bridge railing (steel with concrete posts)					23725	
		S-15	Lump	Sum	Temporary run-around bridge & approaches						Lump
		S-16	Lump	Sum	First test pile (10" BP @ 42")						Lump
C-2 -386	281.4	S-18	320	Lin.ft.	Steel piles 10" BP @ 42"	160			160		
		S-24	Lump	Sum	Removal of existing structure						Lump
		I-14	175	Lin.ft.	Paved gutter (grouted)	100			75		

GENERAL NOTES

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS: Reference shall be made to Std. Dwgs. CSB-12-39 sheets 1&2 (rev. 1-8-41), AS-41-F (dated 3-31-41) and MBD-40 (dated 10-24-40); and to S.S.M-102.12 (dated 8-2-43).

EXISTING SUPERSTRUCTURE shall be removed, when no longer needed for run-around and piled at the disposal of the Columbiana County Commissioners.

EXISTING SUBSTRUCTURE shall be removed to 1'-0" below proposed ground line. Suitable stone masonry may be used as rip-rap.

EXCAVATION QUANTITY includes the removal of fill material between the top of earth bench and bottom of abutment cap.

RAILING: Delete railing note on Std. Dwg. CSB-12-39, substitute: All railing angles, sleeves and bolts shall be galvanized.

FOR PILE CAP R details refer to Std. Dwg. MBD-40.

PILES shall be driven to refusal in solid rock.

PIER FOOTINGS shall extend a minimum of 3" into solid rock.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

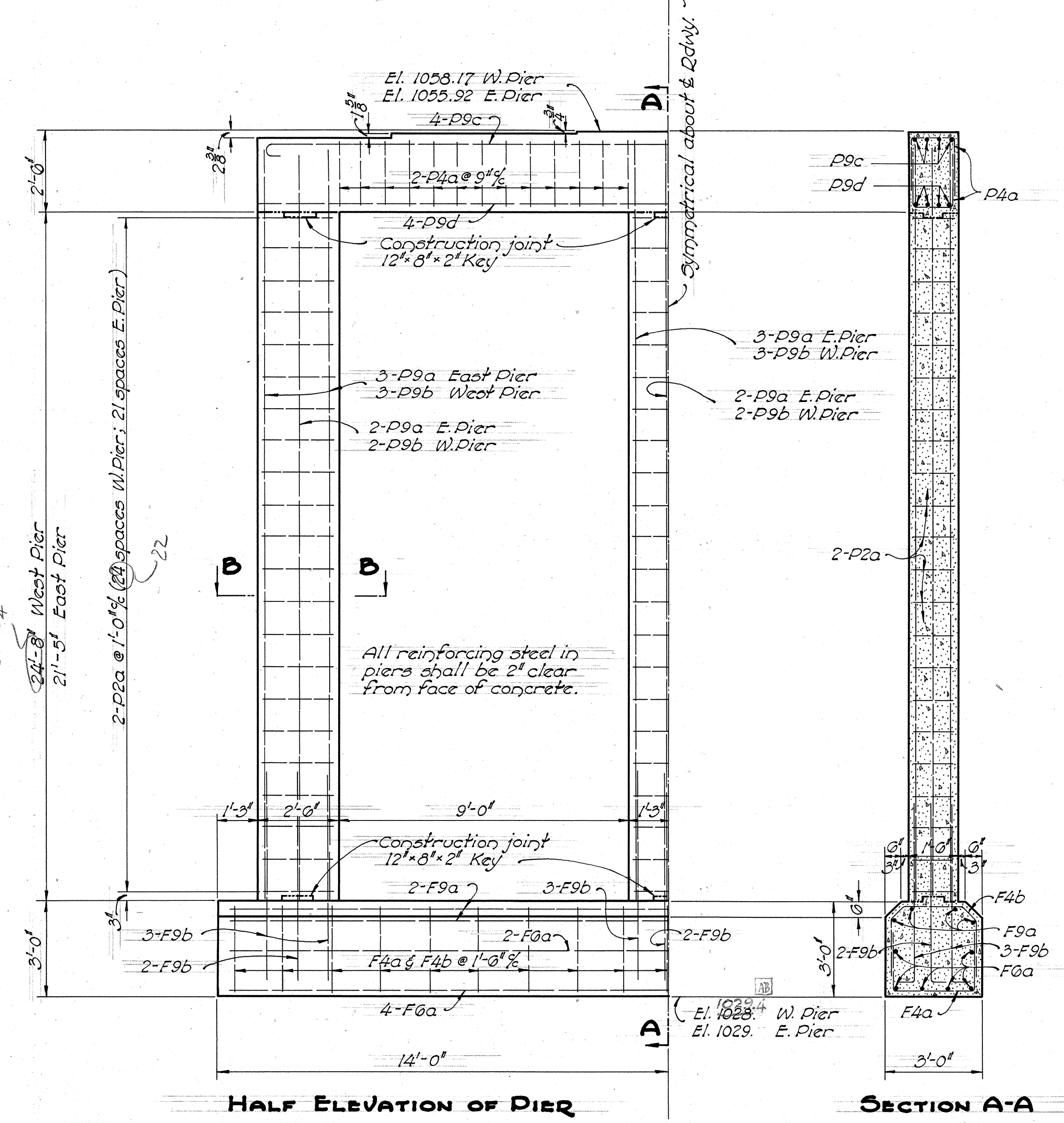
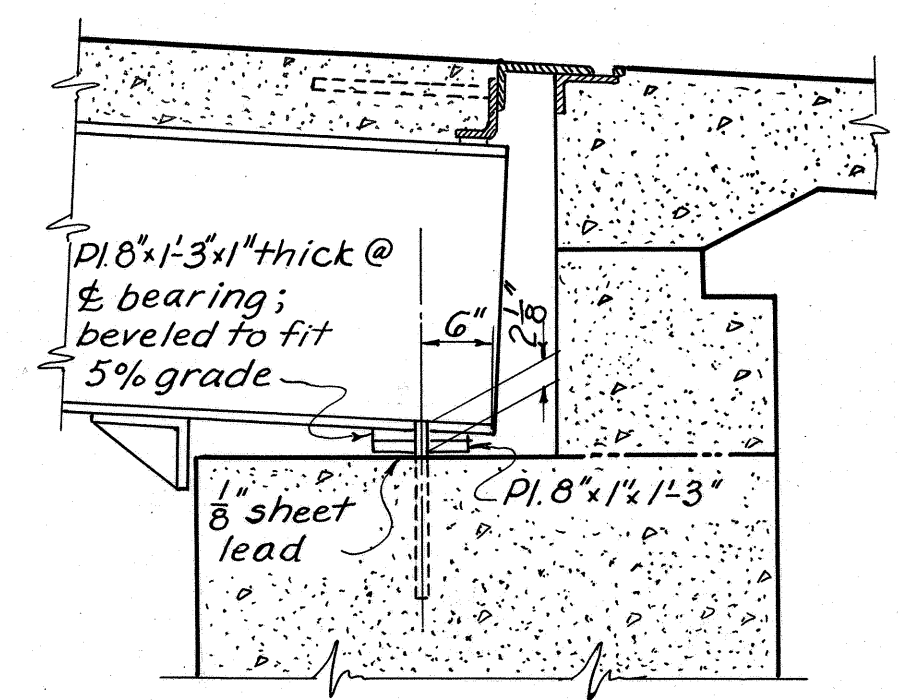
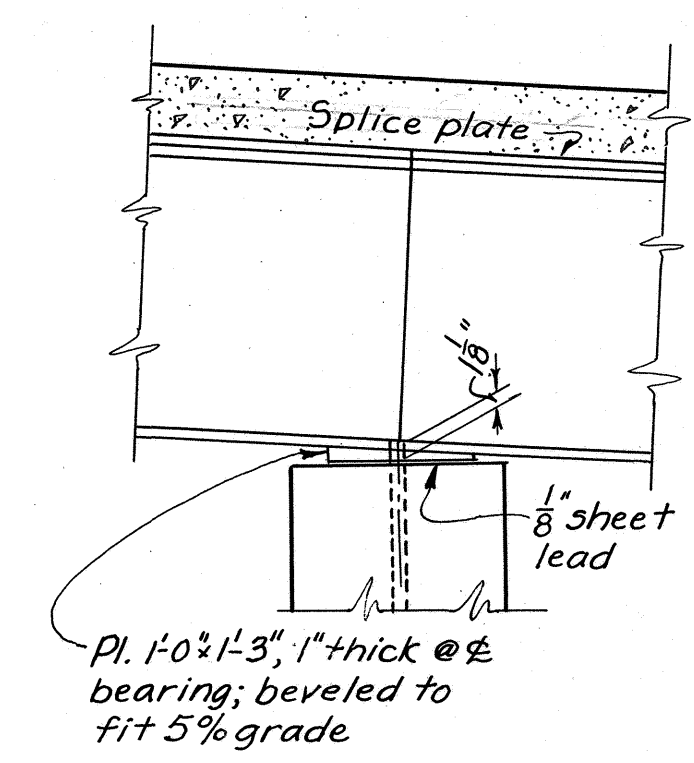
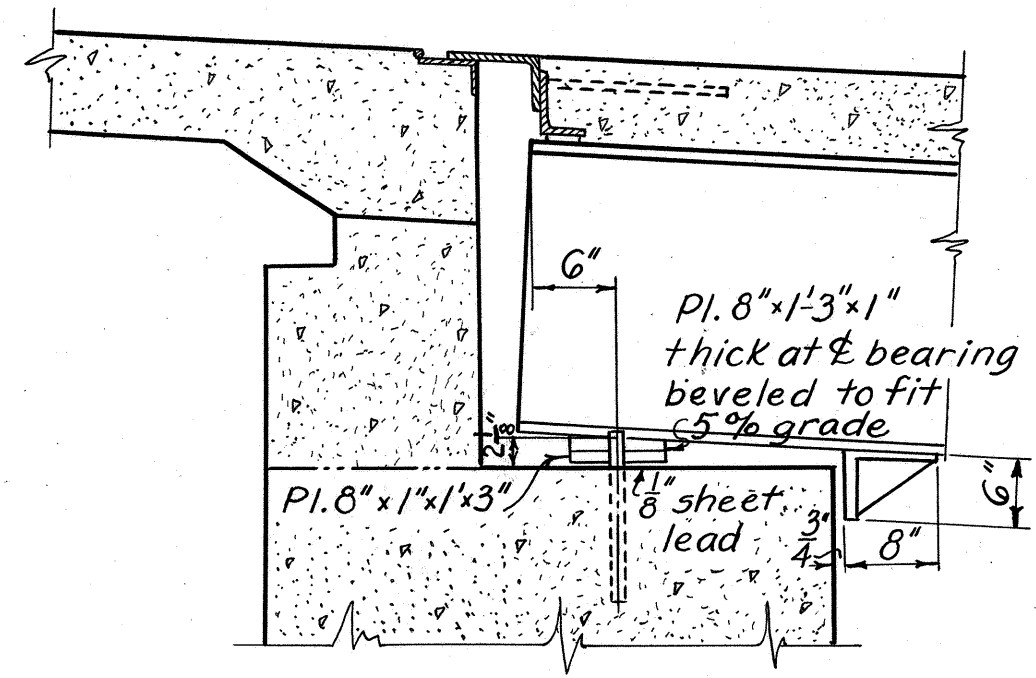
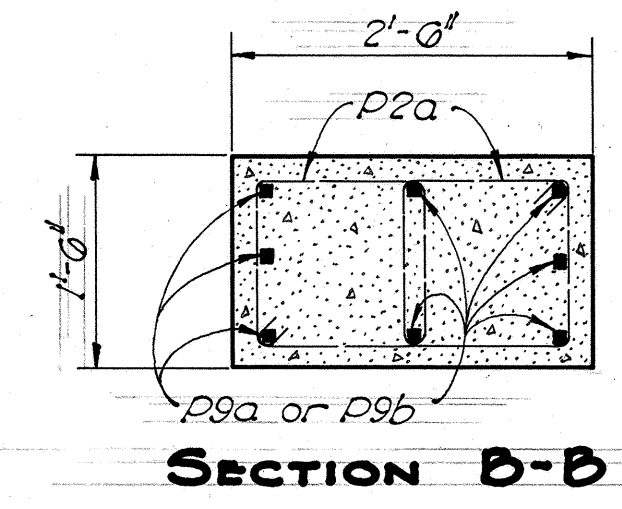
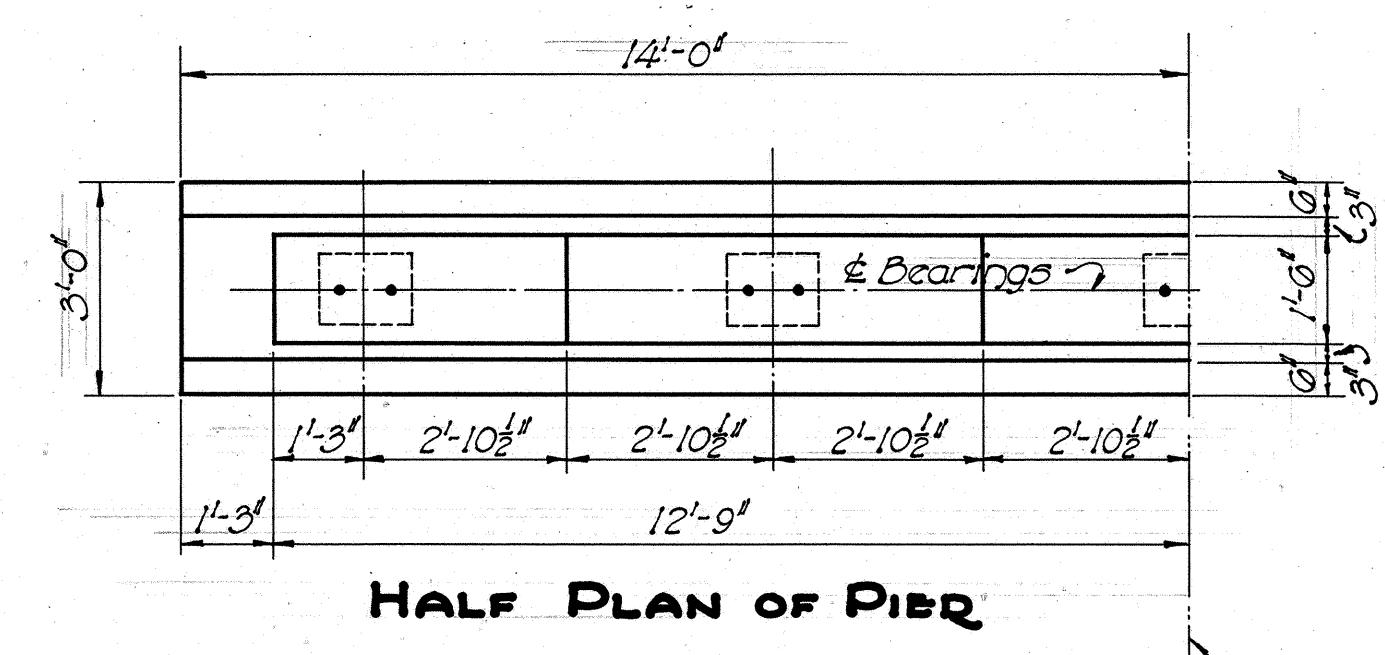
**GENERAL PLAN & ELEVATION
NOTES & QUANTITIES**
BR. NO. CO-518-00
OVER

BRANCH OF W. FORK LITTLE BEAVER CREEK
COLUMBIANA CO. S.H. 734
SEC. E (PT.) STA. 1+45.0

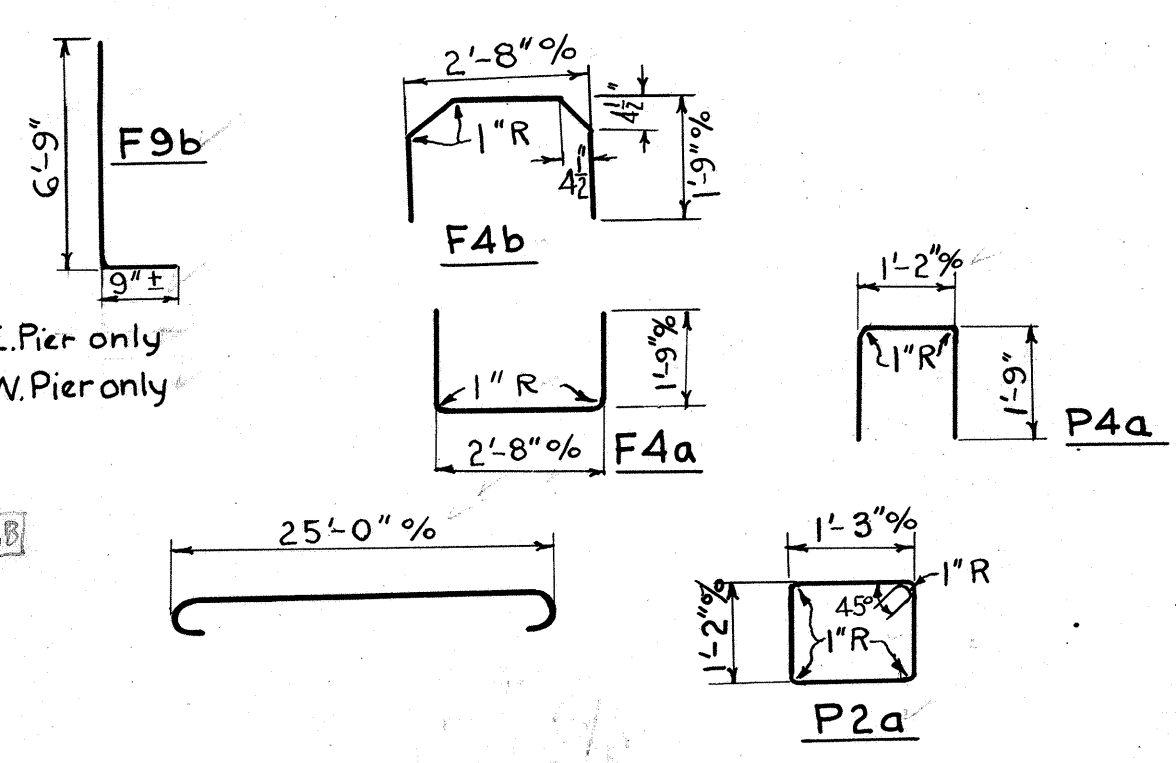
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		K.E.T.			11-21-45	

MBD Revised As-Built
10/25/47 C.B.O.

COLUMBIANA COUNTY
S. H. 734 SEC. E. (PT.)



REINFORCING STEEL FOR PIERS						BENDING DIAGRAMS	
MARK	SIZE	No	LENGTH	WEIGHT	SHR		
F9a	1 1/8" sq	8	27'-6"	947	S		
F9b	1 1/8" sq	48	7'-6"	1549	B		
F6a	7/8" phi	12	27'-6"	675	S		
F4a	5/8" phi	38	6'-0"	238	B		
F4b	5/8" phi	38	5'-6"	218	B		
P9a	1 1/8" sq	24	23'-6"	2427	S	E. Pier only	
P9b	1 1/8" sq	24	26'-9"	2763	S	W. Pier only	
P9c	1 1/8" sq	8	27'-0"	928	B		
P9d	1 1/8" sq	8	25'-0"	861	S		
P4a	5/8" phi	104	4'-6"	488	B		
P2a	1/2" phi	282	6'-0"	1109	B		



Details of this structure shall be as shown on Std. Dwg. CSB-12-39 except as shown on this sheet.
Reinforcing steel for abutments and superstructure shown on Std. Dwg. CSB-12-39.

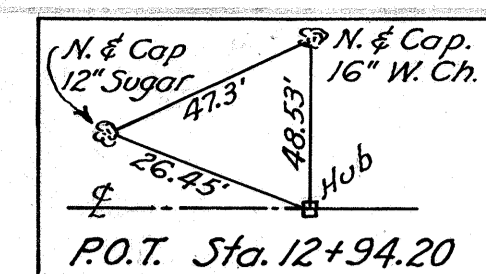
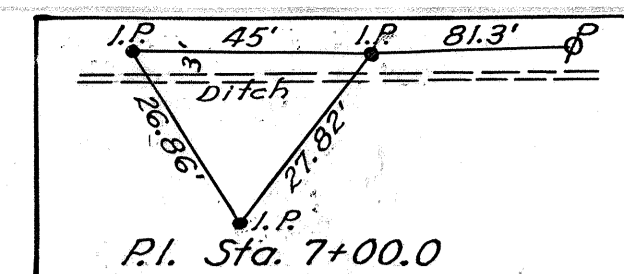
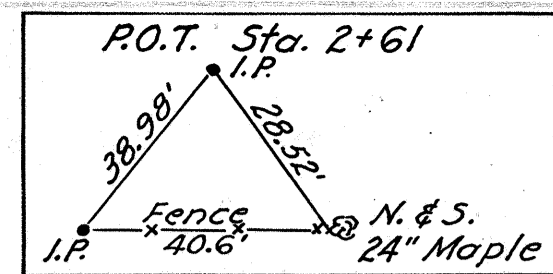
BRIDGE SEAT ELEVATIONS			
	A	B	C
W. Abutment	1059.89	1059.82	1059.69
W. Pier	1058.17	1058.11	1057.97
E. Pier	1055.92	1055.86	1055.72
E. Abutment	1054.04	1053.98	1053.84

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

PIER AND END FINISH DETAILS
BRIDGE NO. CO-518-00
OVER BRANCH OF W. FORK LITTLE BEAVER CR.
COLUMBIANA CO. S. H. 734
SEC. E. (PT.) STA. 1+45.00

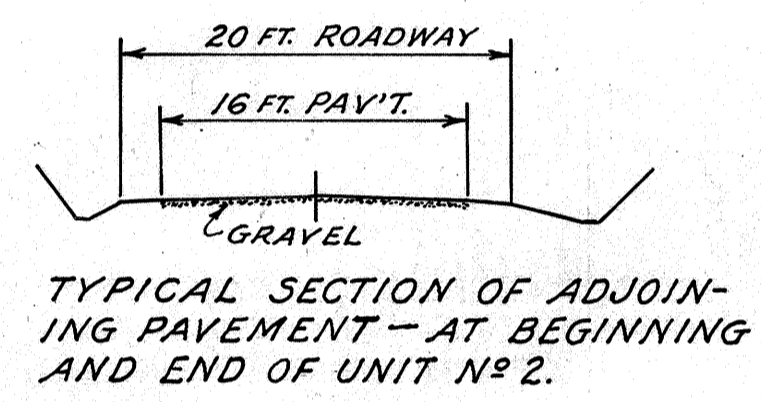
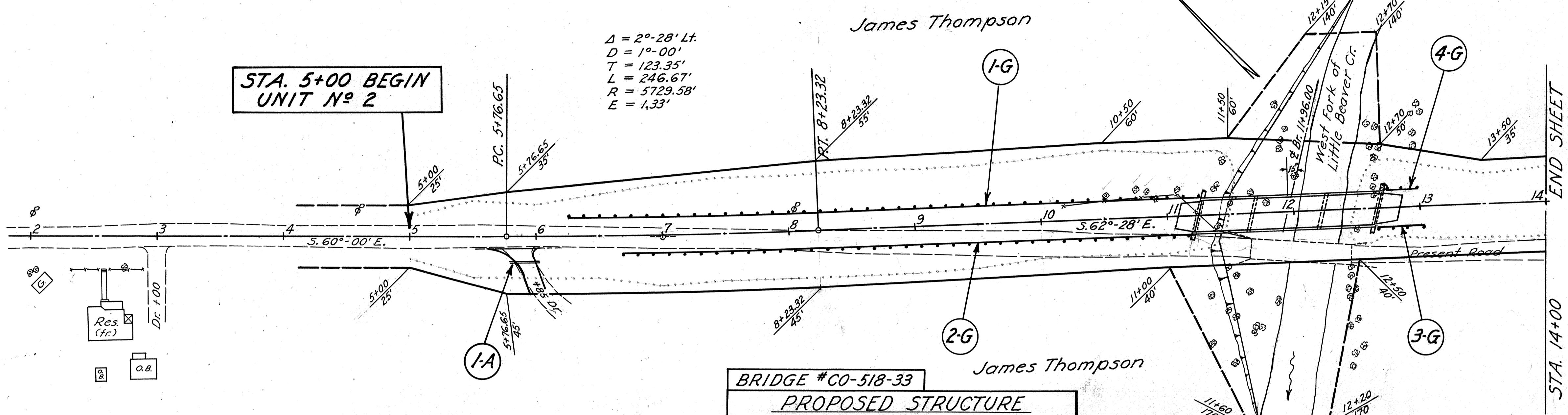
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		C. J.	H. E. T.	B. F. G.	11-21-45	

COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(PT.)"
BRIDGE No. CO-518-33
UNIT # 2



$\Delta = 2^{\circ}-28' Lt.$
 $D = 1^{\circ}-00'$
 $T = 123.35'$
 $L = 246.67'$
 $R = 5729.58'$
 $E = 1.33'$

STA. 5+00 BEGIN
UNIT No 2



BRIDGE #CO-518-33
PROPOSED STRUCTURE
 TYPE: Continuous Steel Beam with concrete deck and concrete substructure.
 SPANS: 44'-55'-44' % Bearings.
 RDWY: 24 Ft.
 LOADING: 5-12-40
 SKEW: 15° L.F.
 SURFACE COURSE: 1/4" Monolithic concrete.
 APPROACH SLABS: 15' long, Min. width 20' (Std. Drwg. AS-41-F-(3-31-41)).

PRESENT STRUCTURE
 TYPE: Wood Truss (Covered)
 SPAN: 81'-0"
 ROADWAY: 11'-3"
 ABUTMENTS: Stone
 CONDITION: Poor (Loading H-3)

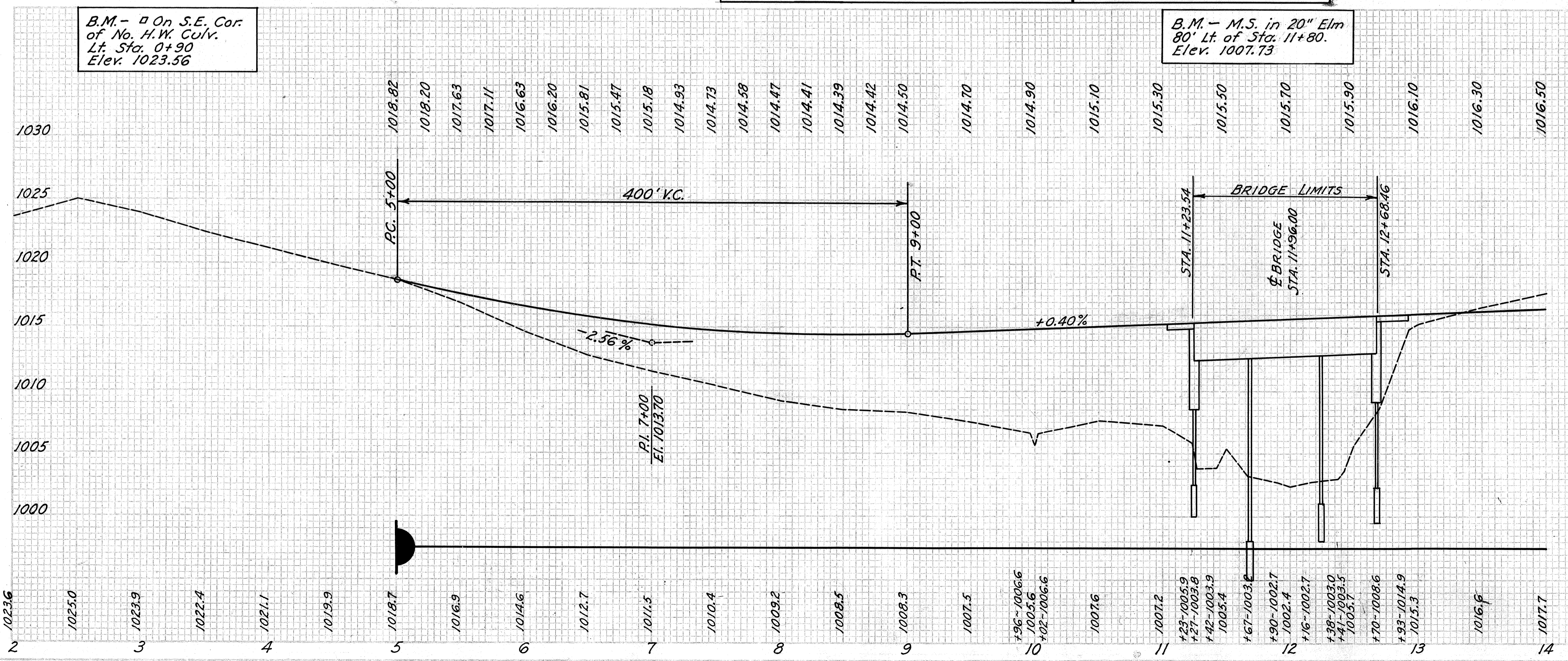
APPROACHES						
REF. No	STATION	SIDE	SEE SHEET No	12" PIPE REMOVED & STORED Lin. Ft.	PIPE FOR DRIVEWAYS 12" Lin. Ft.	I-117 AGG. Cu. Yds.
1-A	5+85	Rt	14		30	5
SHEET TOTAL					30	5

TREE REMOVAL						
STATION		SIDE	TREES - EACH			
FROM	TO		8"-15"	15"-24"	24"-36"	36"-48"
10+74	12+00	Lt.	7	8		
11+48	11+90	Rt.	7	2		
12+58	12+70	Lt.	4	1		
12+40	15+25	Rt.	1	2	1	
SHEET TOTAL			19	13	1	

EROSION CONTROL						
STATION		SIDE	E-305 SEEDING	FERTILIZER	GROUND AGRICULTURE LIMESTONE	RIPRAP TYPE 'A' GROUTED
FROM	TO		Sq. Yds.	Lb.	Lb.	Sq. Yds.
5+00	11+38	R&L	5188	934	4669	
12+47	14+00	R&L	1338	241	1204	
11+00	11+30	Lt.				90
12+47	12+87	Lt.				90
11+96	In channel	SH #19				55
SHEET TOTAL			6526	1175	5873	235

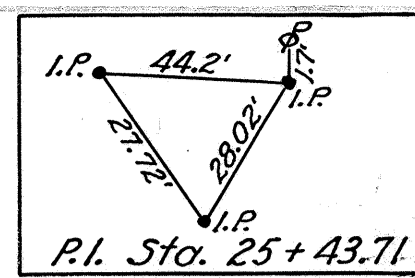
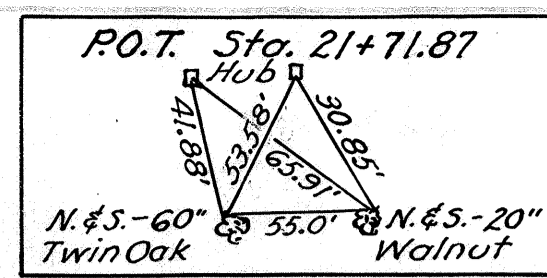
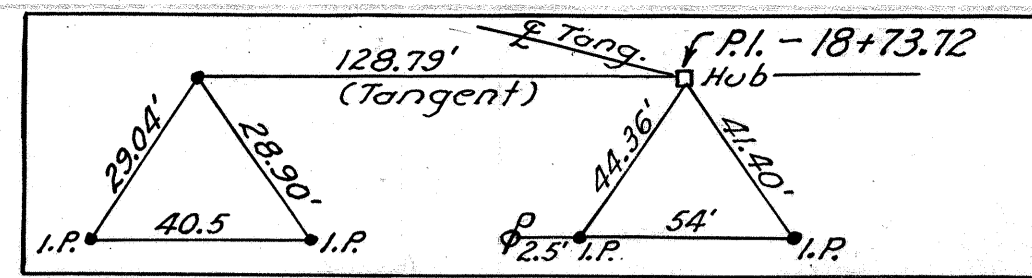
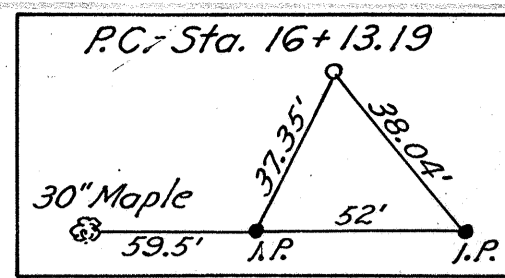
GUARD RAIL				
REF No	STATION	SIDE	PLACE NEW	
FROM	TO		Lin. Ft.	
1-G	6+30.3	Lt.	496	
2-G	6+70.8	Rt.	448	
3-G	12+65.7	Rt.	48	
4-G	12+73.2	Lt.	32	
SHEET TOTAL			1024.0	

PAVEMENT REMOVAL			
STATION		ITEM T-10 18" Av. WIDTH & 6" DEPTH	Sq. Yds.
FROM	TO		
12+45	14+00	Rt.	310
SHEET TOTAL			310



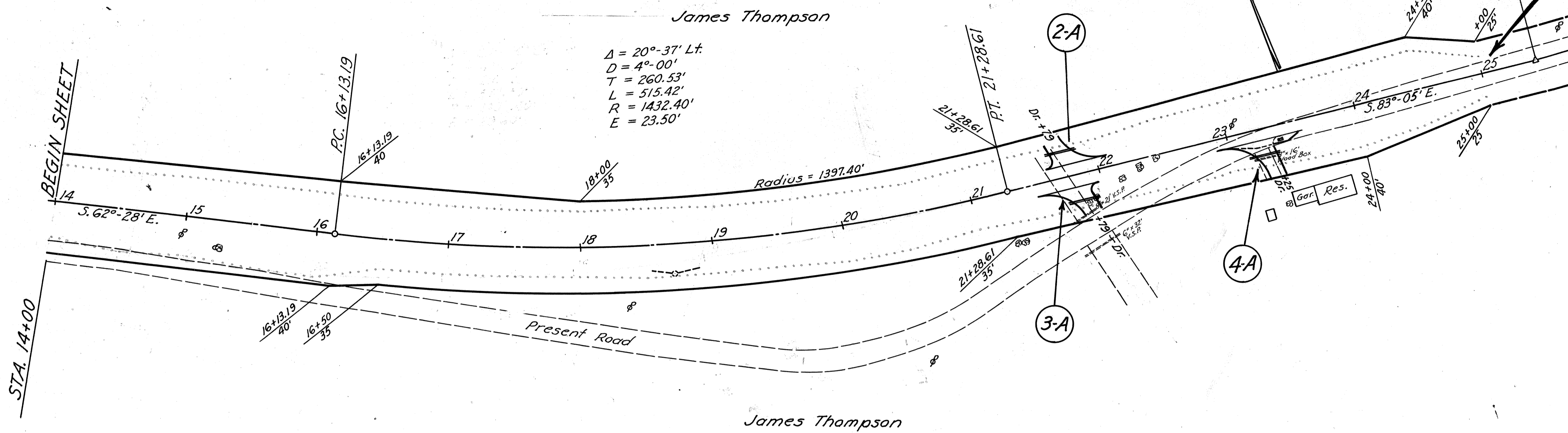
B.M. - On S.E. Cor. of No. H.W. Culv. Lt. Sta. 0+90 Elev. 1023.56

B.M. - M.S. in 20" Elm 80' Lt. of Sta. 11+80. Elev. 1007.73



**COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(PT.)"
BRIDGE No. CO-518-33
UNIT # 2**

**STA. 25+00.0 END
OF PROJECT AND
UNIT No 2**

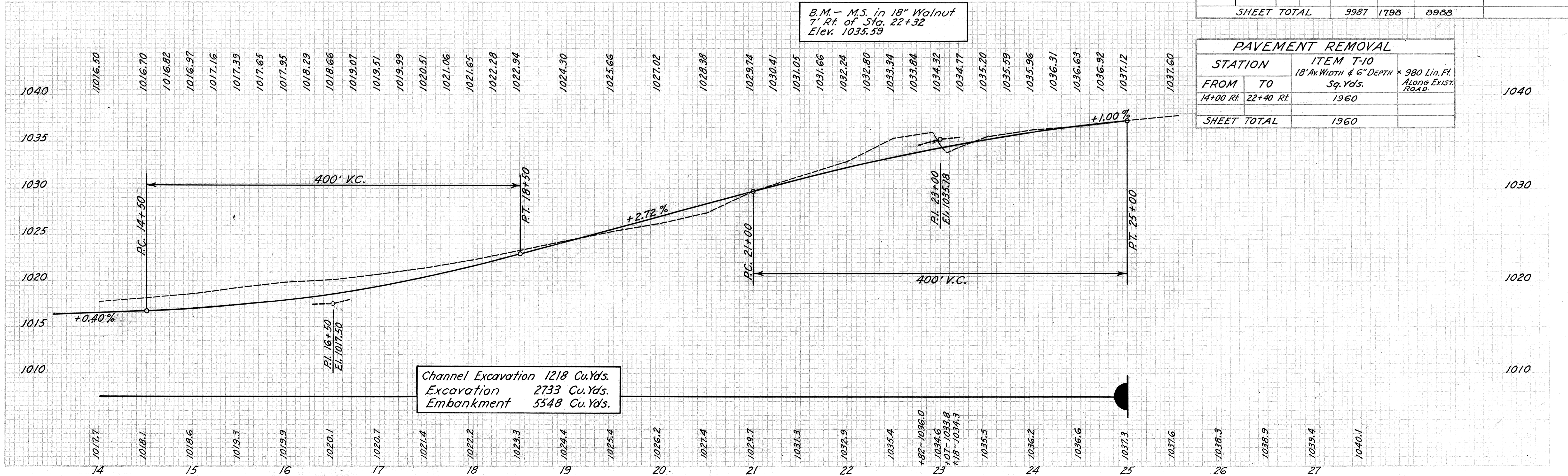


REF. No	STATION	SIDE	SEE SHEET No	PIPE REMOVED & STORED Lin. Ft.	PIPE FOR DRIVEWAYS Lin. Ft.	I-117 AGG. Cu. Yds.
2-A	21+79	Lt.	17	32	28	4
3-A	21+79	Rt.	17	21	28	4
4-A	23+25	Rt.	18		24	7
SHEET TOTAL				32	21	80

STATION FROM	STATION TO	SIDE	TREES - EACH			
			8"-15"	15"-24"	24"-36"	36"-48"
21+94	22+50	Rt.	2	3		
SHEET TOTAL			2	3		

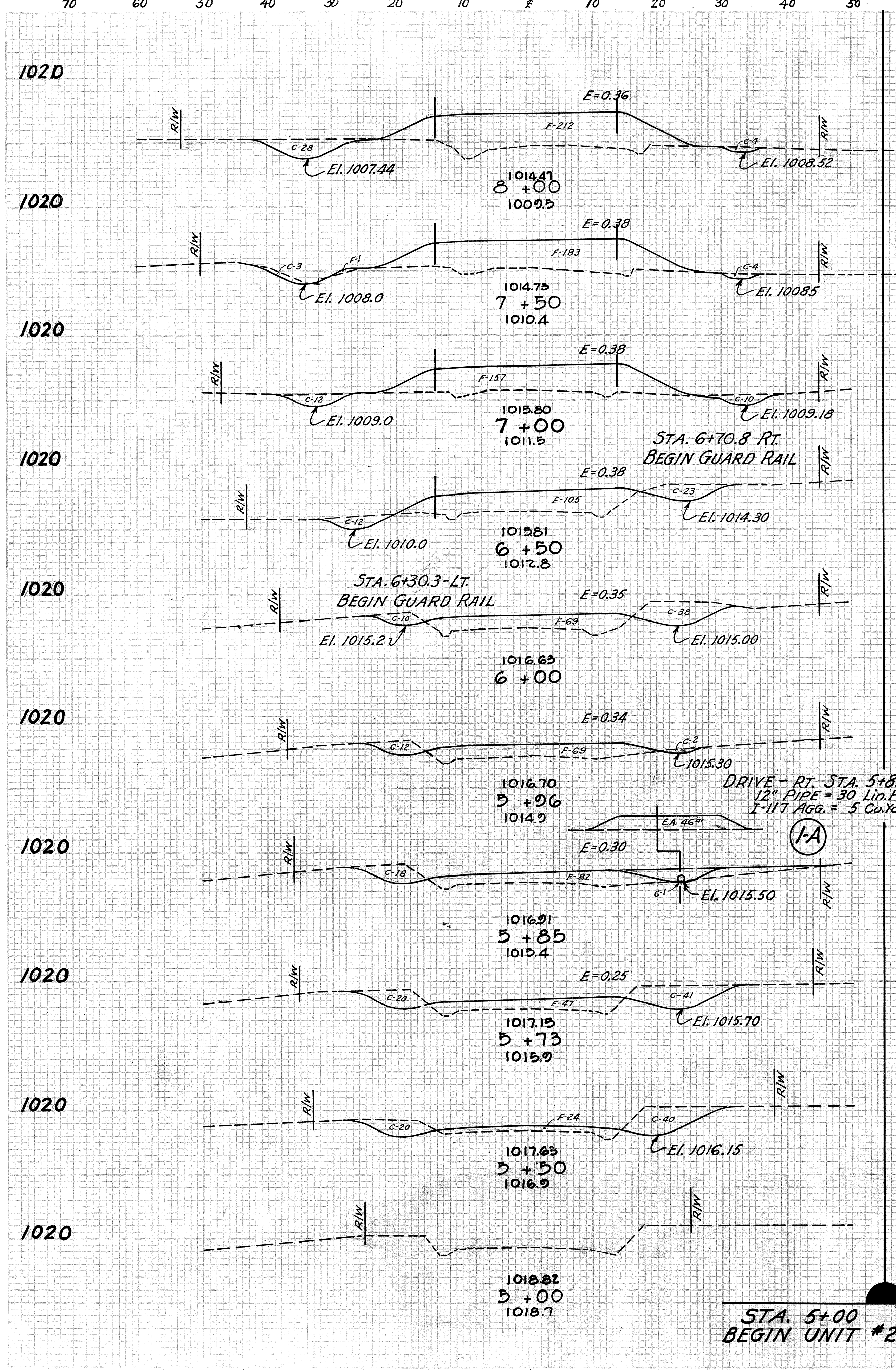
STATION FROM	STATION TO	SIDE	E-305 SEEDING Sq. Yds.	FERTILIZER Lb.	GROUND AGRICULTURE LIMESTONE Lb.
14+00	25+00	R.&L.	9987	1798	8988
SHEET TOTAL			9987	1798	8988

STATION FROM	STATION TO	ITEM T-10 18' Av. Width & 6" Depth x 980 Lin. Ft. Along Exist. Road.
14+00 Rt.	22+40 Rt.	1960
SHEET TOTAL		1960

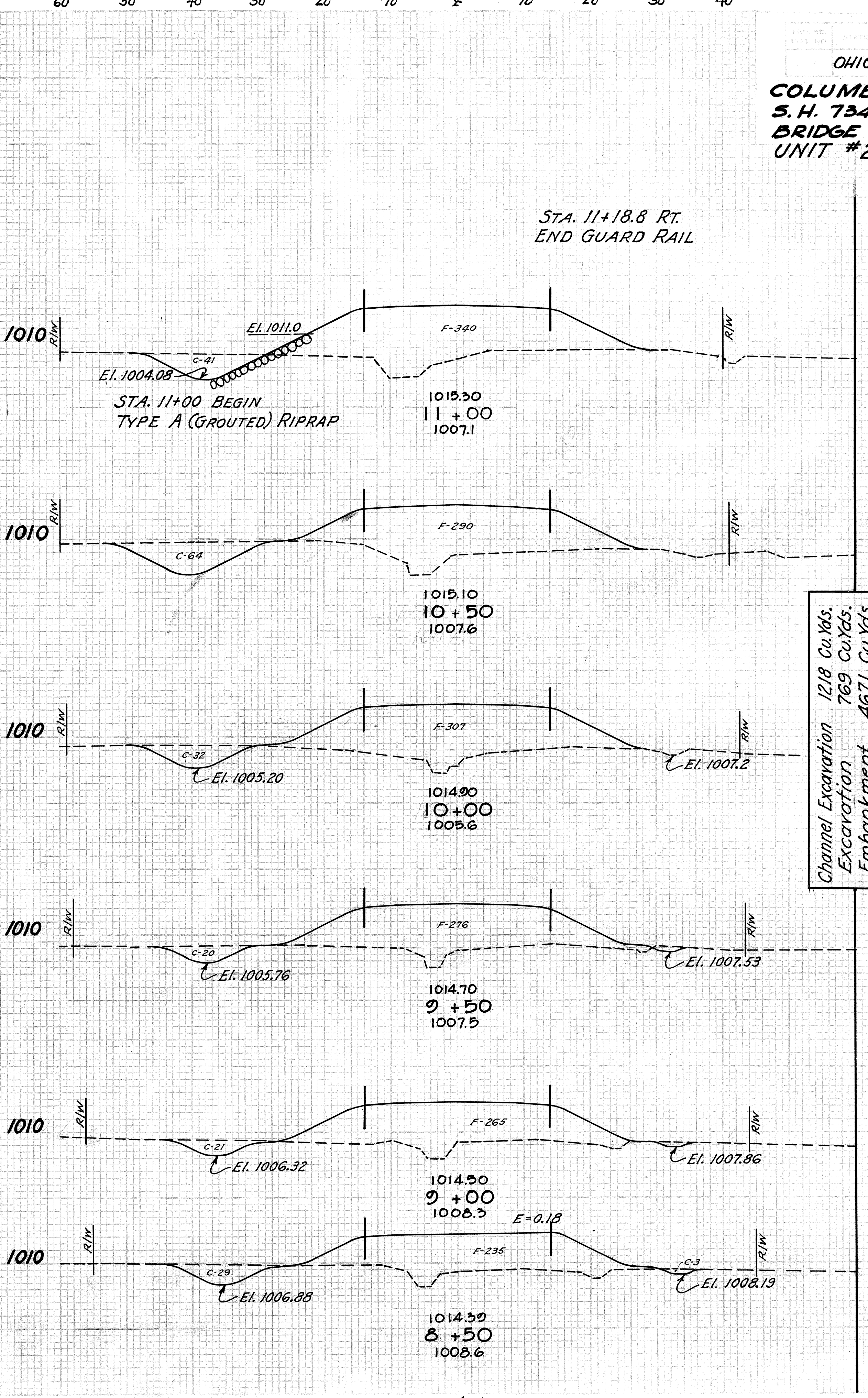


B.M. - M.S. in 18" Walnut
7' Rt. of Sta. 22+32
Elev. 1035.59

Channel Excavation 1218 Cu.Yds.
Excavation 2733 Cu.Yds.
Embankment 5548 Cu.Yds.



SEEDING	End Area		Cu. Yds.	
	WIDTH	AREA	Cut	Fill
102D	461		59	414
1020	84	32	212	
1020	456		36	367
1020	80	7	184	
1020	431		27	316
1020	75	22	157	
1020	397		53	243
1020	68	35	105	
1020	356		77	161
1020	60	48	69	
1020	26	5	10	
1020	55	14	69	
1020	70	7	31	
1020	60	19	82	
1020	61	61	47	
1020	148	52	30	
1020	55	60	24	
1020	153	56	22	
1020	0	0	0	



SEEDING	End Area		Cu. Yds.	
	WIDTH	AREA	Cut	Fill
1010	175		34	303
1010	70	41	340	
1010	435		97	583
1010	86	64	290	
1010	486		89	553
1010	89	32	307	
1010	486		50	540
1010	86	22	276	
1010	471		42	501
1010	84	23	265	
1010	461		51	463
1010	82	32	235	

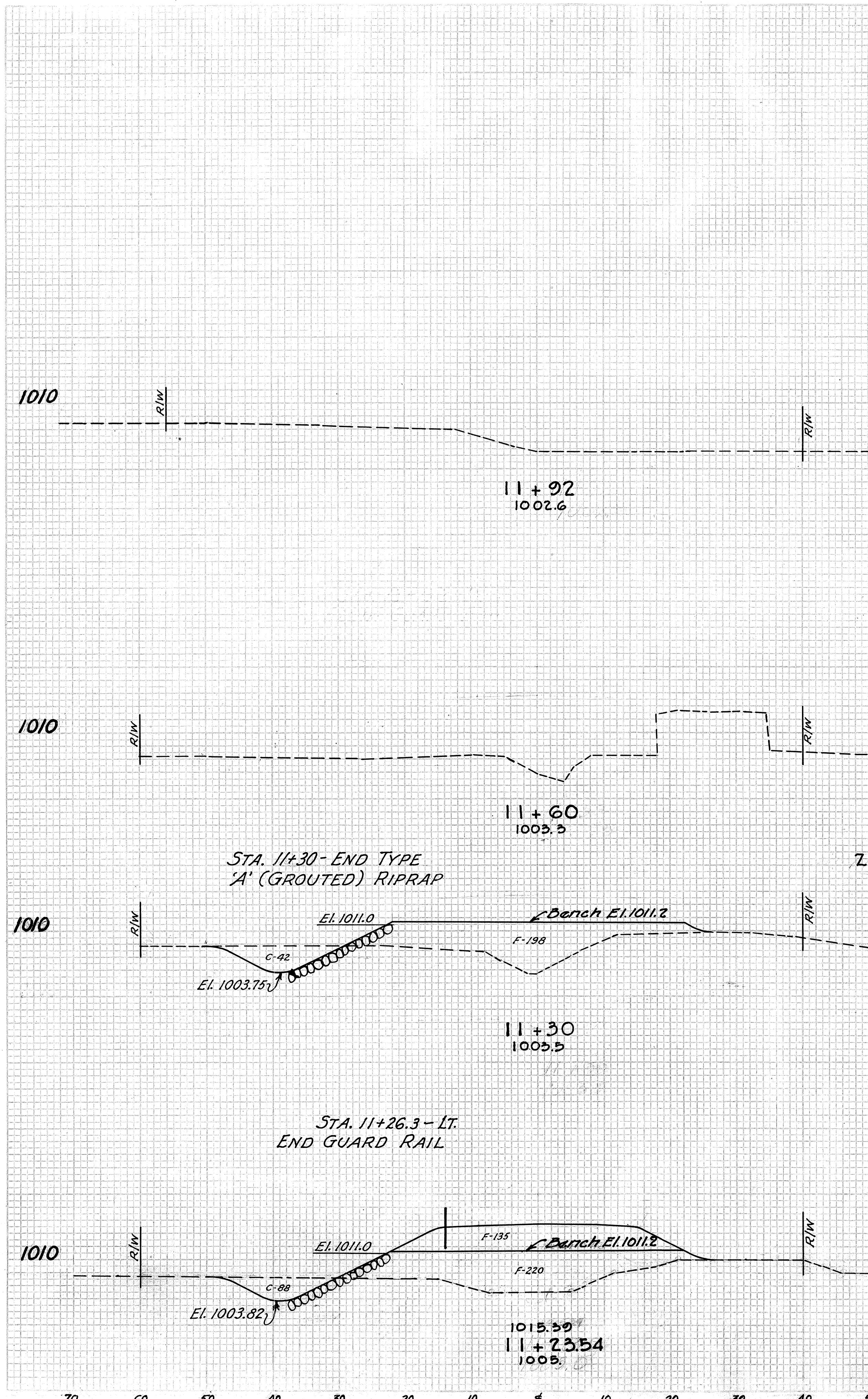
Channel Excavation 1218 Cu.Yds.
 Excavation 769 Cu.Yds.
 Embankment 4671 Cu.Yds.

STA. 5+00
 BEGIN UNIT #2

STA. 5+00 TO STA. 11+00

SEEDING		End Area		Cu. Yds.	
WIDTH	AREA	Cut	Fill	Cut	Fill
110		0	137		

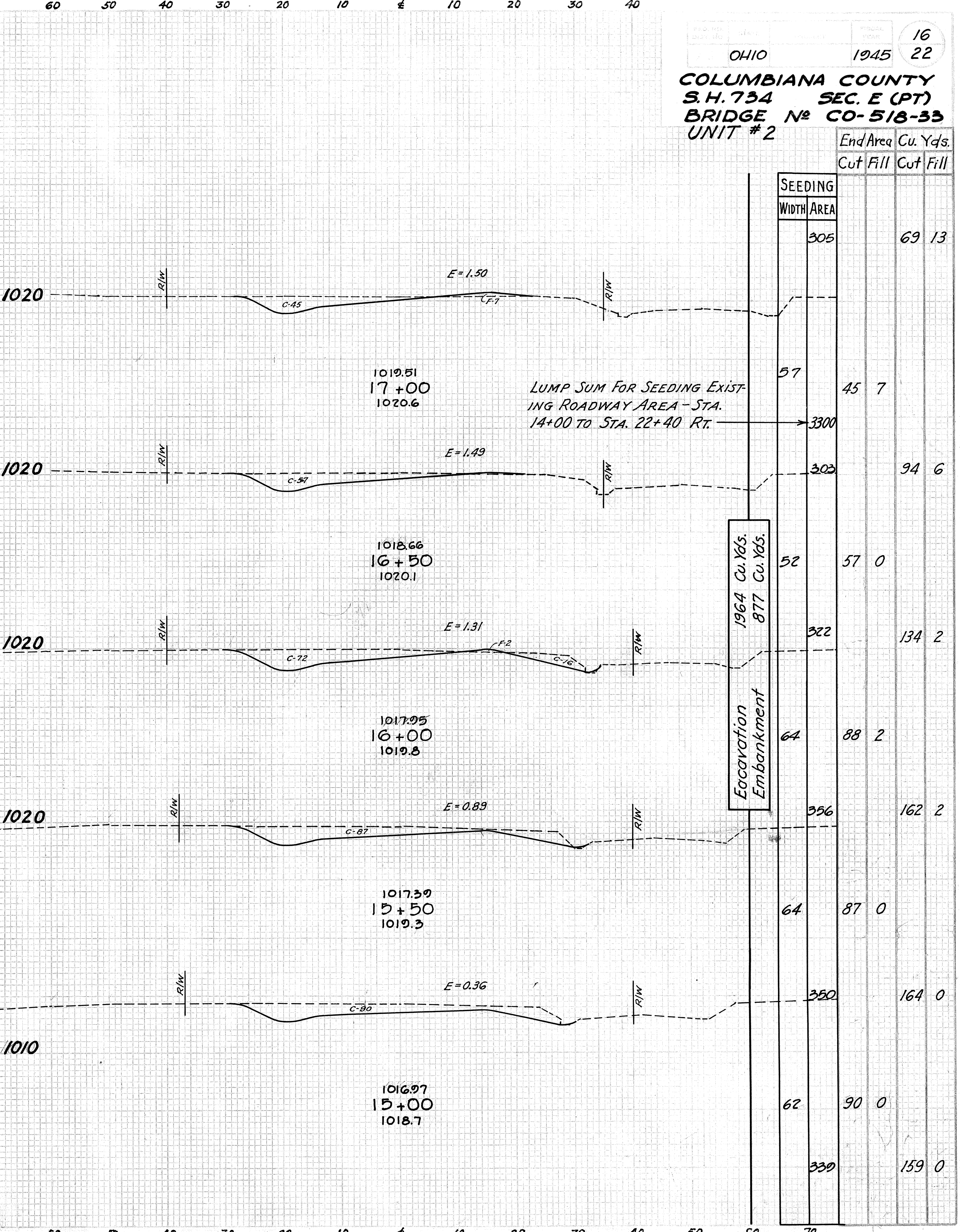
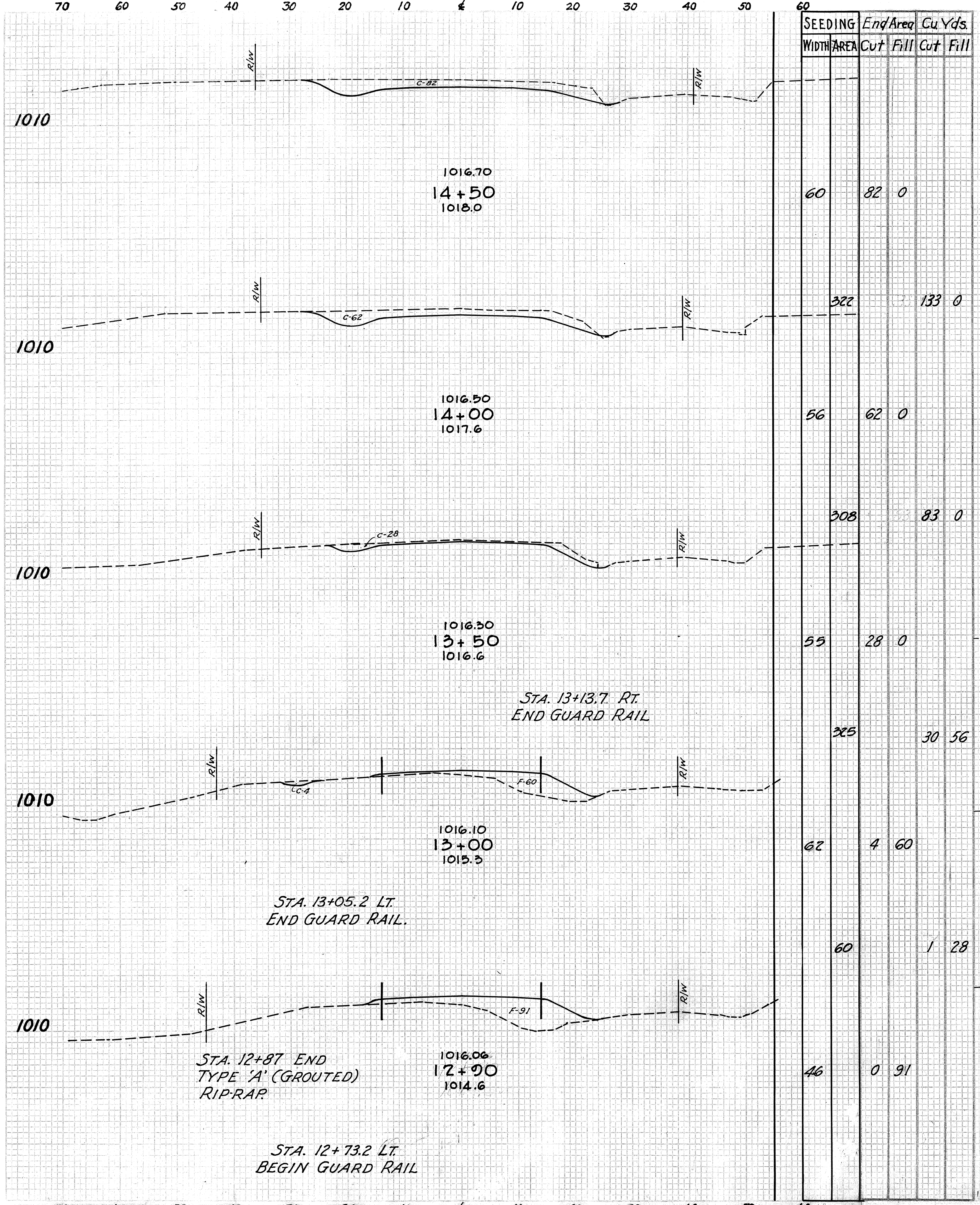
SEEDING		End Area		Cu. Yds.	
WIDTH	AREA	Cut	Fill	Cut	Fill
110		0	137		
46 AHEAD		0	252		
64 BACK		0	124		
430					
41		0	43		
72		0	300		
64		0	89		
0		0	0		
37		6	29		
84		42	198		
60		10	50		
82 AHEAD		220			
63 BACK		38	355		



LUMP SUM FOR SEEDING EXISTING ROADWAY AREA - STA. 12+45 TO STA. 14+00. RT. → 430

ZERO FILL 12+47

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill
305		69	13
57		45	7
303		94	6
52		57	0
322		134	2
64		88	2
356		162	2
64		87	0
350		164	0
62		90	0
330		159	0

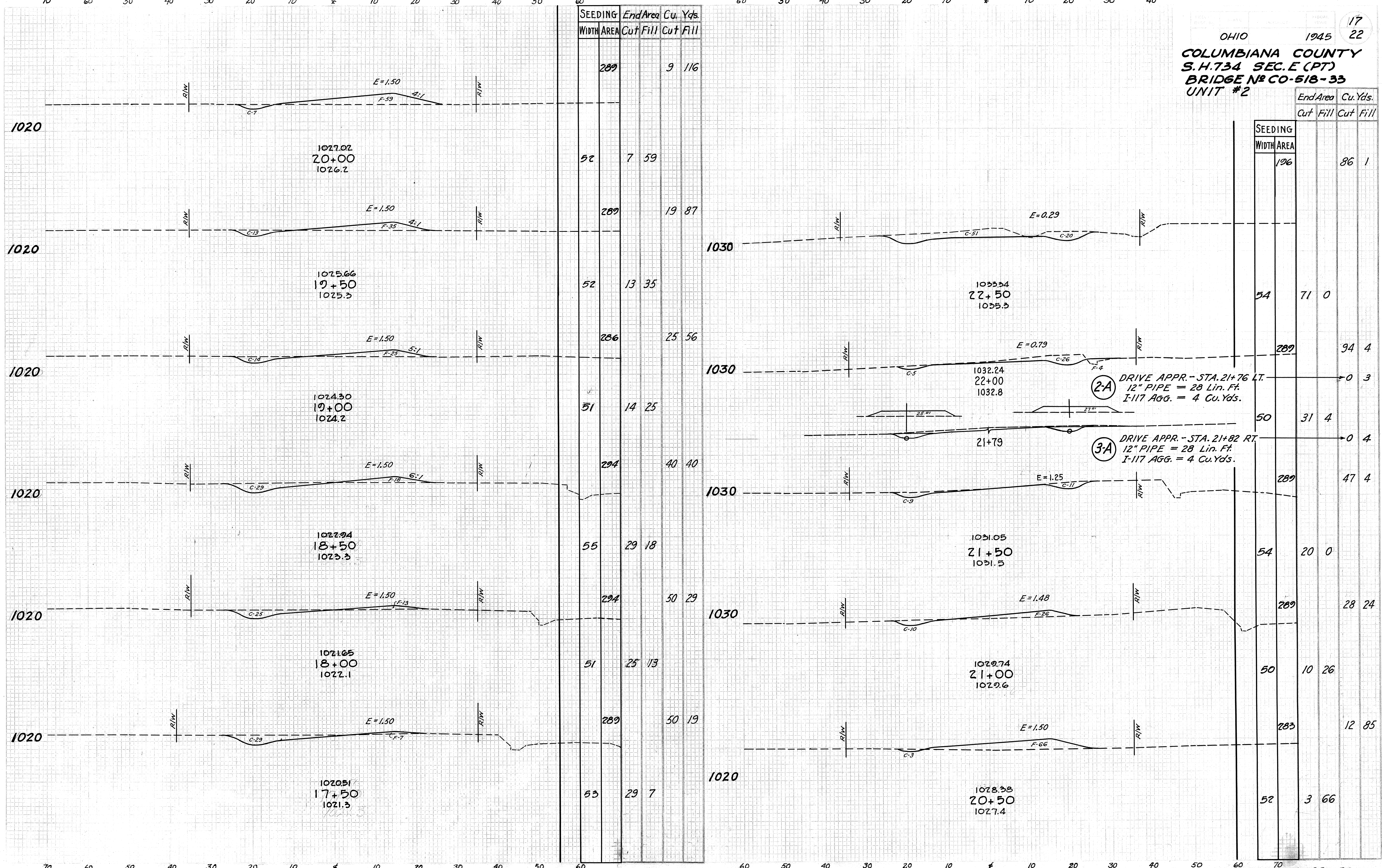


SEEDING WIDTH	SEEDING AREA	End Area		Cu. Yds.	
		Cut	Fill	Cut	Fill
60	82	0			
322		133	0		
56	62	0			
308		83	0		
55	28	0			
305		30	56		
62	4	60			
60		1	28		
46	0	91			

1964 Cu. Yds.
 877 Cu. Yds.
 Excavation
 Embankment

LUMP SUM FOR SEEDING EXISTING ROADWAY AREA - STA. 14+00 TO STA. 22+40 RT.

STA. 12+90 TO STA. 17+00



SEEDING	End Area		Cu. Yds.	
	WIDTH	AREA	Cut	Fill
289			9	116
52	7	59		
289	19	87		
52	13	35		
286	25	56		
51	14	25		
294	40	40		
55	29	18		
294	50	29		
51	25	13		
289	50	19		
53	29	7		

SEEDING	End Area		Cu. Yds.	
	WIDTH	AREA	Cut	Fill
196			86	1
54	71	0		
289	94	4		
50	31	4		
289	47	4		
54	20	0		
269	28	24		
50	10	26		
283	12	85		
52	3	66		

(2-A) DRIVE APPR. - STA. 21+76 LT.
 12" PIPE = 28 Lin. Ft.
 I-117 AGG. = 4 Cu. Yds.

(3-A) DRIVE APPR. - STA. 21+82 RT.
 12" PIPE = 28 Lin. Ft.
 I-117 AGG. = 4 Cu. Yds.

70 60 50 40 30 20 10 ± 10 20 30 40 50 60

60 50 40 30 20 10 ± 10 20 30 40

OHIO 1945 18 22
COLUMBIANA COUNTY
S.H. 734 SEC. E (PT)
BRIDGE NO. CO-518-33
UNIT #2

SEEDING	End Area		Cu. Yds.	
	WIDTH	AREA	Cut	Fill
			344	112 7
1030	62	63	5	
1030	62	70	2	
1030	525	130	4	
1030	55	70	2	
1030	118	52	1	
1030	60	78	1	

End Area		Cu. Yds.	
Cut	Fill	Cut	Fill

SEEDING	WIDTH	AREA	End Area	Cu. Yds.
Cut	Fill	Cut	Fill	
1030	172			54 3
1030	62		58	3

1030

1030

1030

1030

1035.96
24+00
1035.9

1035.20
23+50
1035.4

1034.32
23+00
1034.5

1033.96
22+81
1033.0

MAIL BOX & DR. APPR. - STA. 23+25 RT.
 12" PIPE = 24 Lin. Ft.
 I-117 AGG. = 7 Cu. Yds.

4A

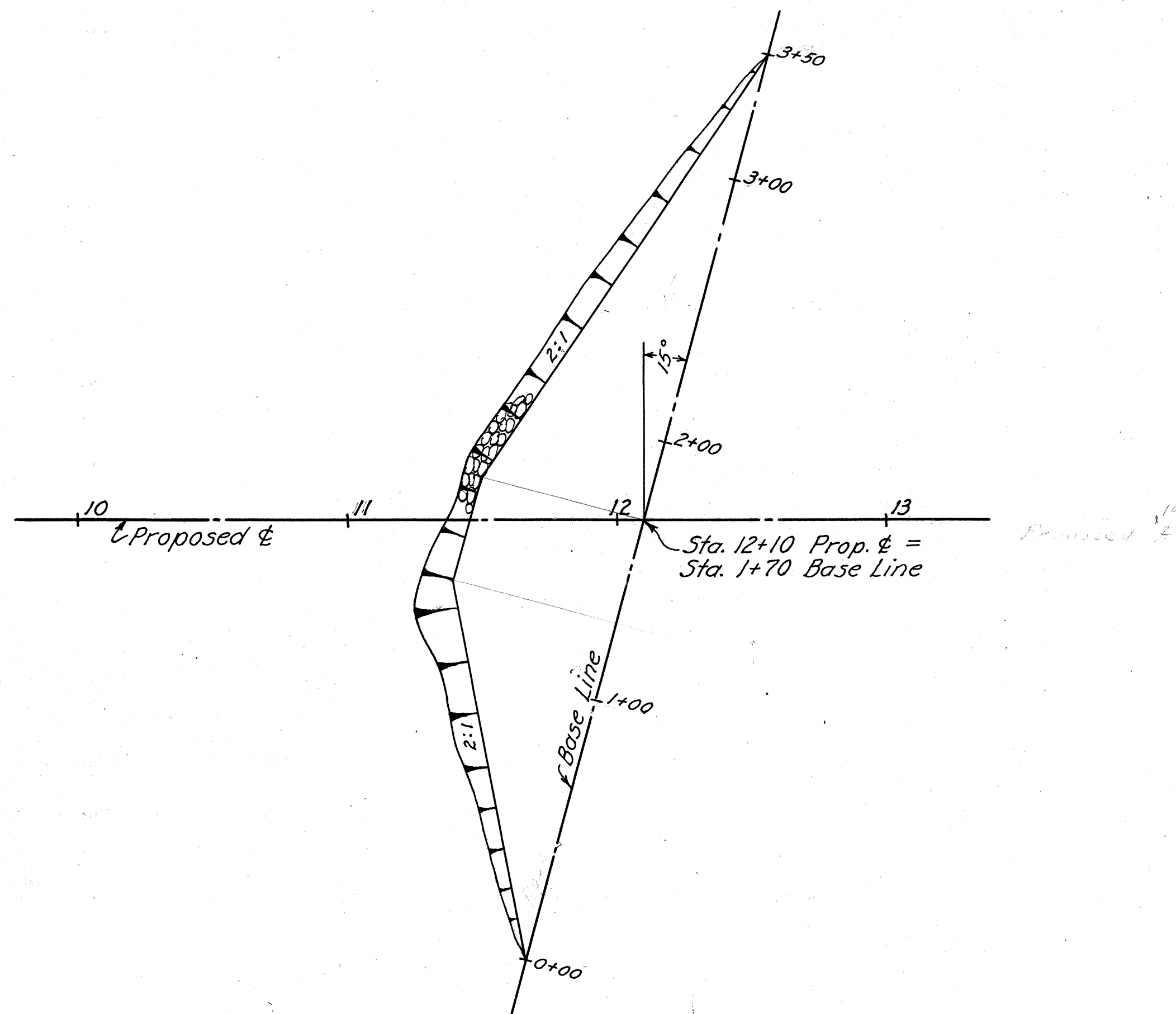
STA. 25+00
END PROJECT
& UNIT #2

25+00
1037.2

1036.63
24+50
1036.5

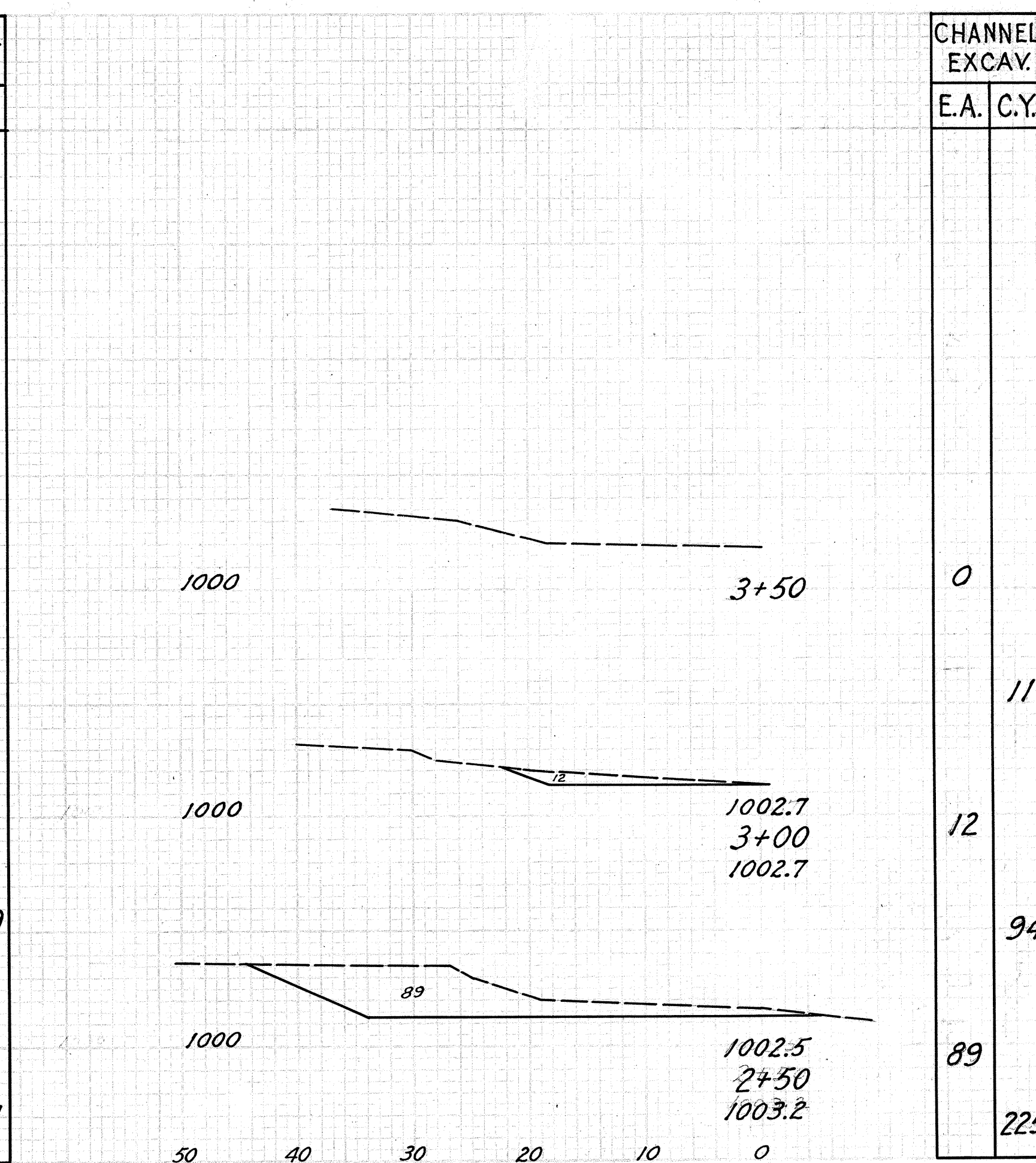
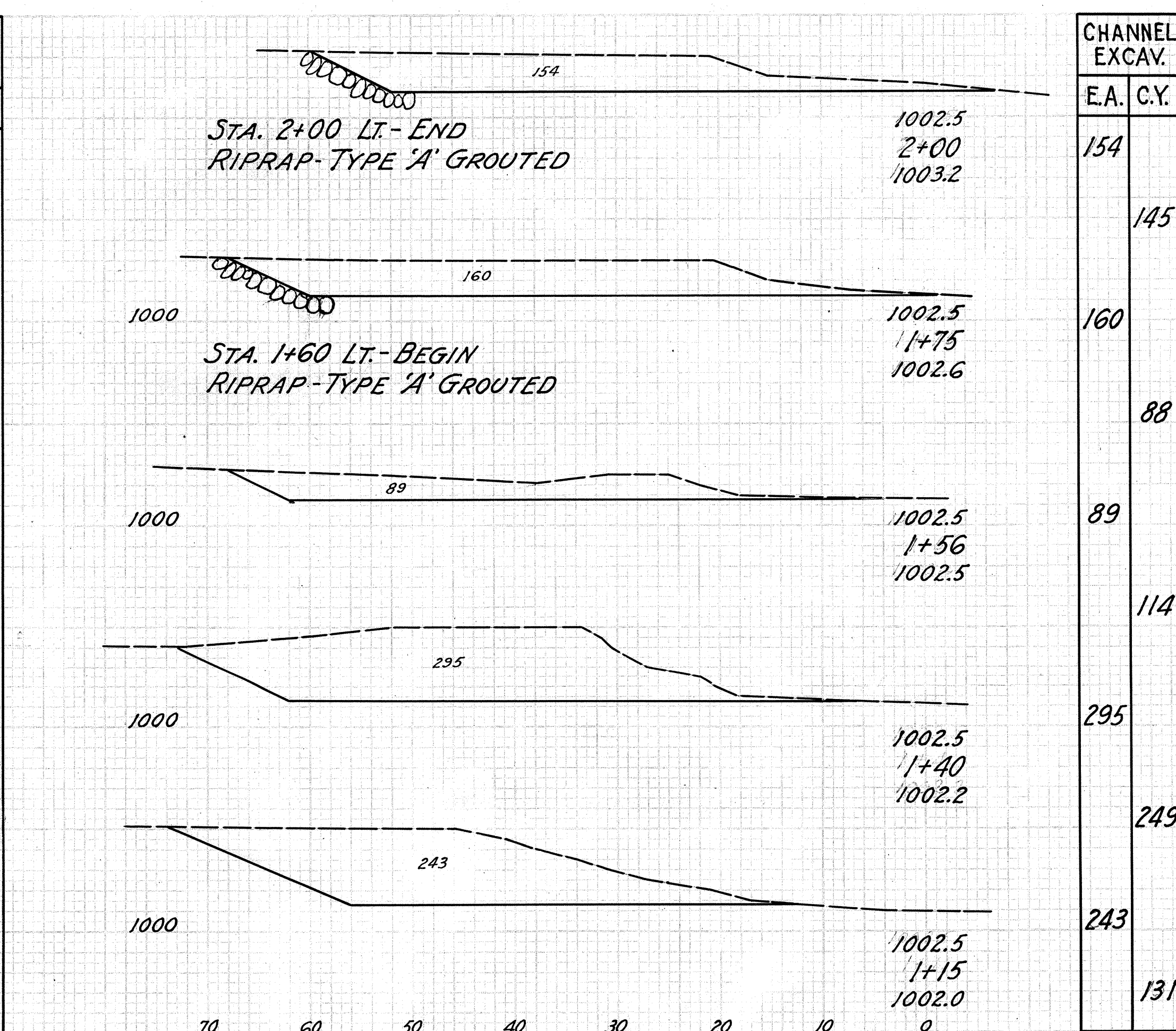
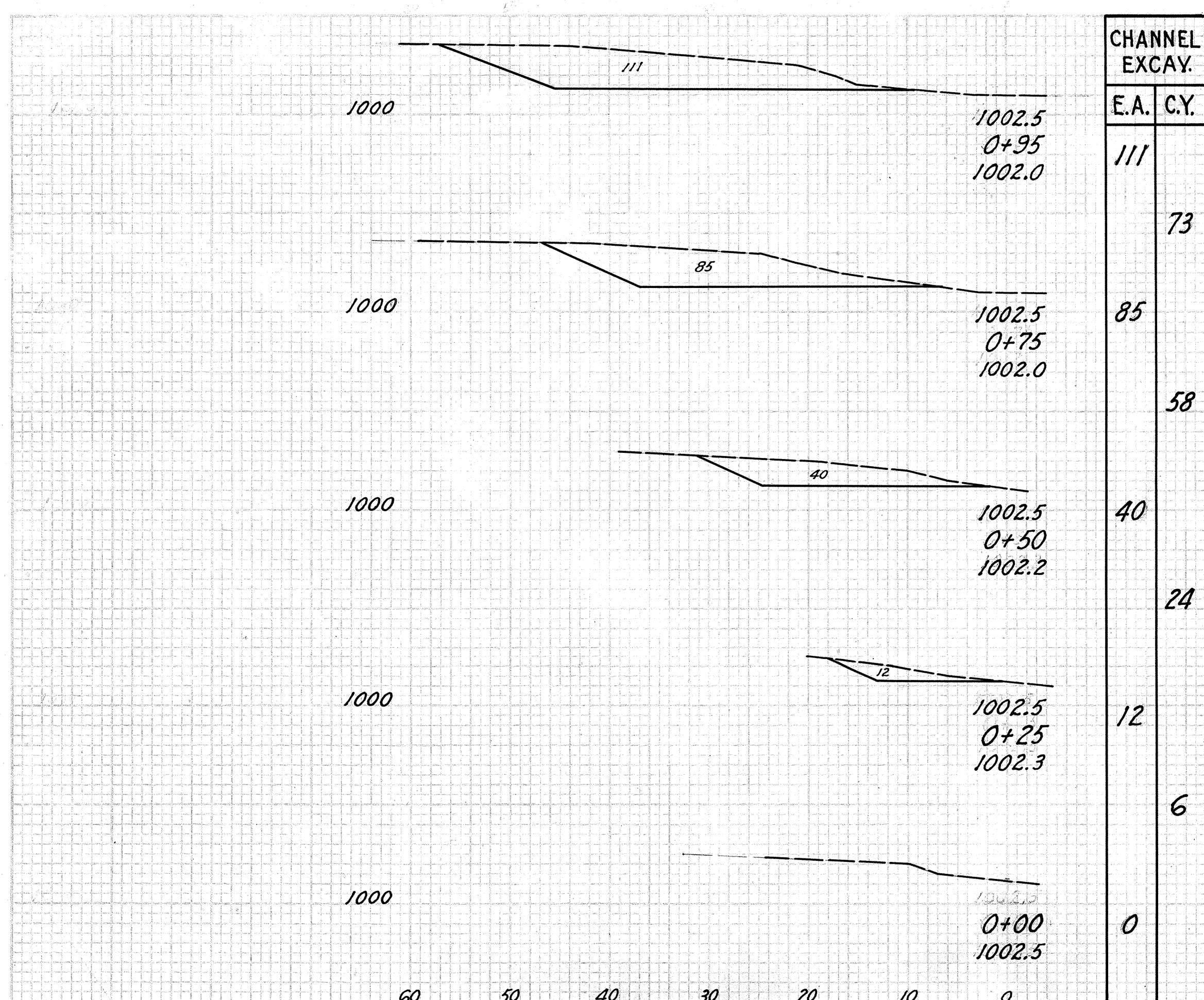
STA. 22+81 TO STA. 25+00

COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(PT.)"
BRIDGE No CO-518-33
UNIT #2



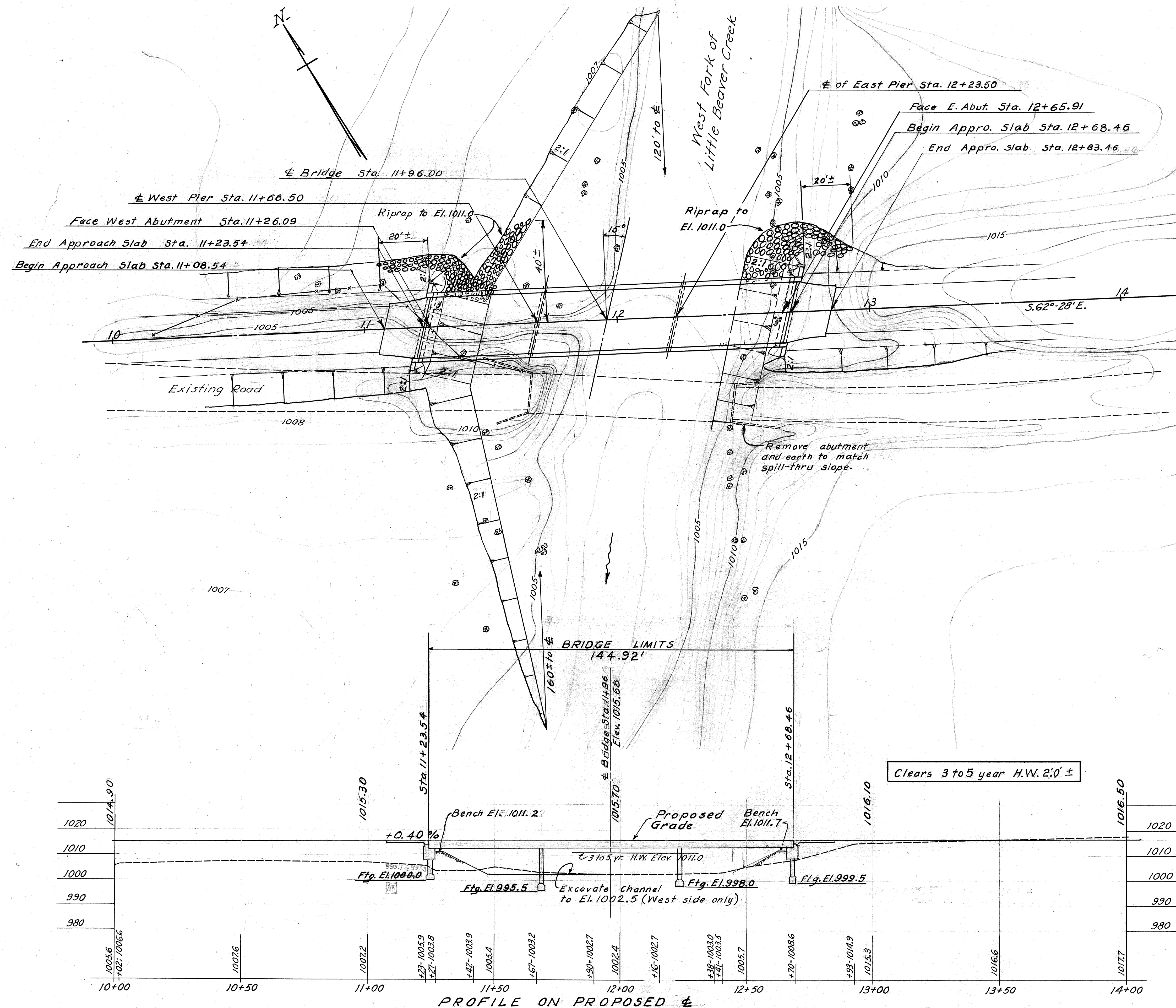
ESTIMATED QUANTITIES

- Item E-3; Channel Excavation 1218 cu.yds.
- * Item I-10; Riprap-Type 'A' Grouted 55 sq.yds.
- * Total carried to Sh.#12 for inclusion with other Riprap.



FED. RD. DIV. NO.	STATE	PROJECT	FISCAL YEAR	20
2	OHIO	STATE	1945	22

COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(Pt.)"
BRIDGE No. CO-518-33
Approx. 7.0 Miles W. of West Point
UNIT NO. 2.



EXISTING STRUCTURE
(TO BE REMOVED)
TYPE: - Wood Truss (Covered).
SPAN: - 81'-0"
ROADWAY: - 11'-3"
ABUTMENTS: - Stone
CONDITION: - Poor
LOADING: - H-3

PROPOSED STRUCTURE
TYPE: Continuous steel beam with concrete deck and concrete substructure.
SPANS: 44'-55'-44' % Bearings.
RDWY: 24 Ft.
LOADING: 5-12-40.
SKEW: 15° L.F.
SURF. COURSE: 4" monolithic concrete.
APPROACH SLABS: 15' long, Minimum width 20' (Std. Dwg. AS-41-F. 3-31-41)

Note:
Traffic to be maintained over present bridge until new bridge is completed and open to traffic.

SOUNDING NOTE
Foundation investigation indicates solid rock foundation.

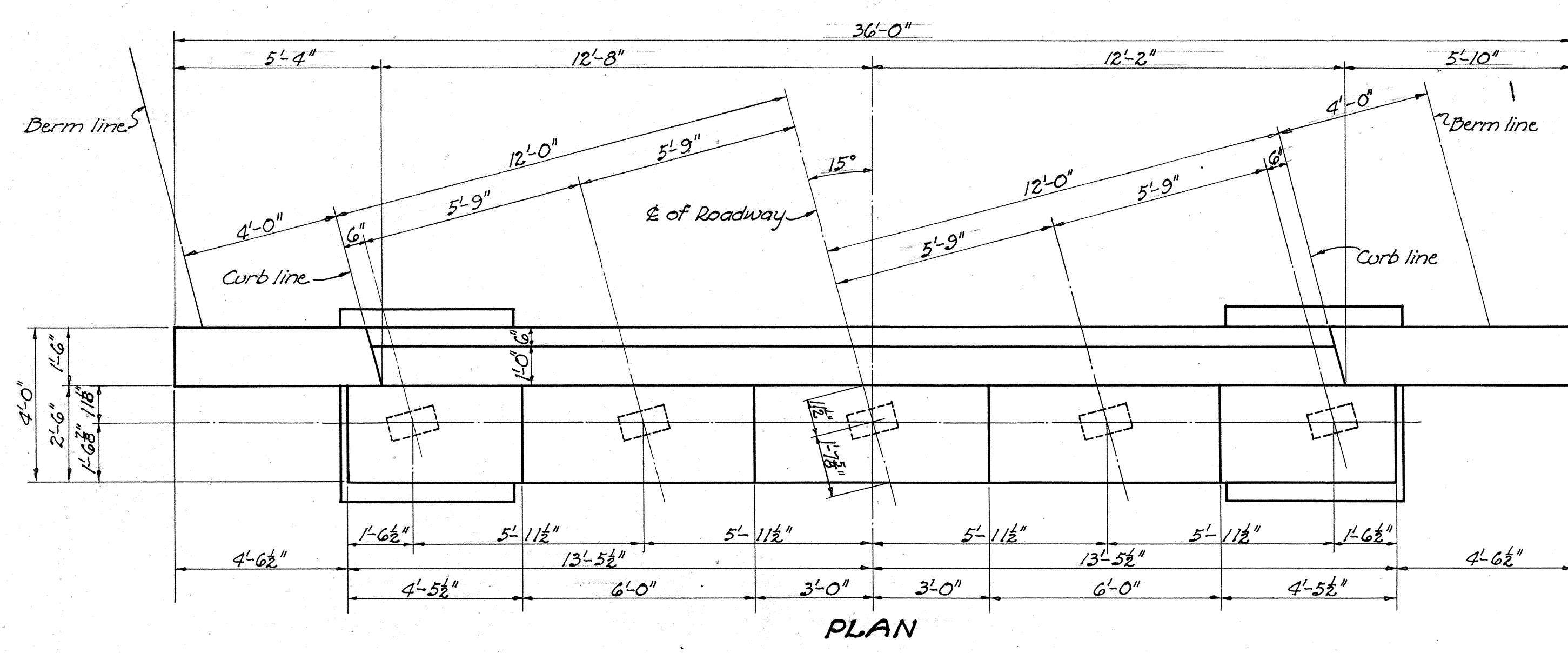
DRAINAGE AREA 37.5 Sq. Mi.

SITE PLAN
BRIDGE No. CO-518-33
WEST FORK OF LITTLE BEAVER CREEK
S.H. 734 - SECTION 'E-(Pt.)'
WAYNE TWP - COLUMBIANA CO.
STATE OF OHIO

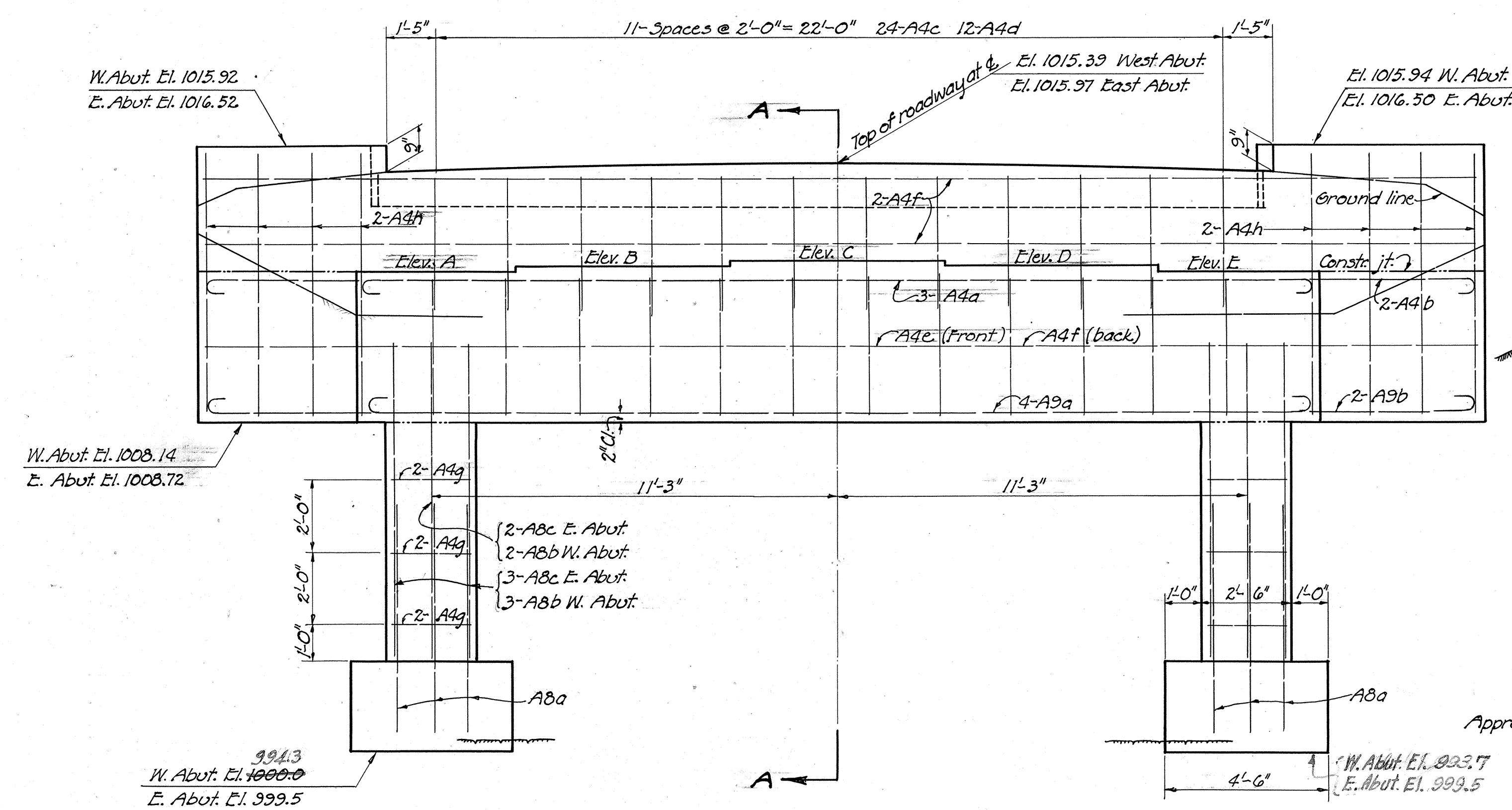
SCALE 1" = 20' STA. 11+96.00

PRESENT TOPO	PROPOSED WORK
SURVEY DRAWN	DESIGNED
L.R.	J.L.P.
	Q.E.S.
	Q.A.D.
	W.P.

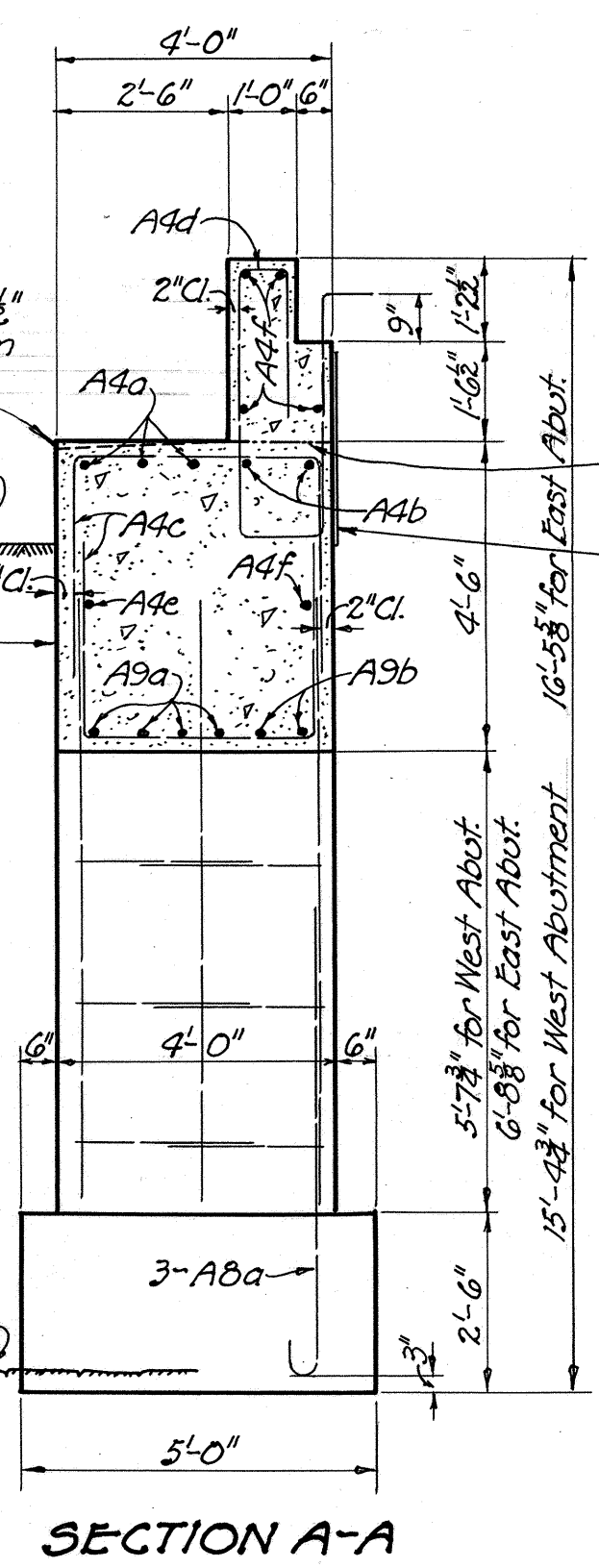
Proposed Pavement 18' with 6' Berms.



PLAN



ELEVATION



SECTION A-A

ESTIMATED QUANTITIES

Item	Total	Unit	Description	Abuts.	Piers	Superstr.	General	Change Order	As Built
E-2	Lump	Sum	Cofferdams and pumping				Lump		
E-2	184	Cu. Yd.	Excavation for structures, unclassified	180	85			C-2 +21	205
E-2	6	Cu. Yd.	Excavation for structures, rock	4	2				
I-14	44	Lin. Ft.	Paved gutters (grouted)				44		
S-1	90	Cu. Yd.	Class "C" concrete, superstructure			90			
S-1	28	Cu. Yd.	Class "C" concrete, footings	9	19				
S-3	24	Sq. Yd.	Type "B" waterproofing, 36" wide	24					
S-4	35670	Lb.	Reinforcing steel	5300	10210	20070	90	C-2 +21 C-2 +21	36,633
S-7	74600	Lb.	Structural steel			74600			
S-8	74600	Lb.	Field painting of structural steel			74600			
S-14	289.16	Lin. Ft.	Bridge railing (steel with concrete posts)			289.16			
S-24	Lump	Sum	Removal of existing structure				Lump		
S-1	76	Cu. Yd.	Class "C" concrete, piers and abutments	38	17			C-2 +480	80.50

REINFORCING STEEL LIST

Mark	Size	No.	Length	Weight	Shp	Bending Diagram
ABUTMENTS						
A9a	1 1/2"	8	29'-0"	995	Bt.	A9b, A9b → 35'-6"
A9b	1 1/2"	4	38'-0"	654	Bt.	
A8a	1"	32	7'-0"	762	Bt.	→ 6'-0" → A8a
A8b	1"	16	9'-6"	490	Str.	
A8c	1"	16	9'-0"	490	Str.	
A4a	5/8"	6	27'-9"	174	Bt.	→ 6'-0" → A4a
A4b	5/8"	4	36'-9"	153	Bt.	
A4c	5/8"	48	9'-6"	476	Bt.	→ 3'-8" → A4c
A4d	5/8"	24	11'-9"	294	Bt.	
A4e	5/8"	2	26'-6"	55	Str.	→ 2'-2" → A4e
A4f	5/8"	10	35'-6"	370	Str.	
A4g	5/8"	1824	8'-0"	200	Bt.	
A4h	5/8"	32	7'-3"	242	Str.	
REPLACEMENT STEEL						
RE3	1 1/2"	1	8'-6"	36	Str.	
RE8	1"	1	8'-0"	27	Str.	
RE5	3/4"	1	7'-0"	11	Str.	
RE4	5/8"	1	6'-6"	7	Str.	
RE3	1/2"	1	6'-0"	5	Str.	
RE2	1/2"	1	6'-0"	4	Str.	

PIERS:
Reinforcement for piers same as Std. Drwg. CSB-12-39, Sheet 2, except that for west pier "W" bars shall be 14'-0" long, and for east pier "W" bars shall be 11'-6" long.

SUPERSTRUCTURE
Same as Std. Drwg. CSB-12-39, Sheet 1.

BRIDGE SEAT ELEVATIONS

	A	B	C	D	E
W. Abut.	1012.43	1012.56	1012.64	1012.57	1012.45
W. Pier	1012.82	1012.69	1012.90	1012.83	1012.71
E. Pier	1012.91	1013.04	1013.12	1013.05	1012.93
E. Abut.	1013.01	1013.14	1013.22	1013.15	1013.03

GENERAL NOTES:
STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS: For details not shown on these drawings reference shall be made to Std. Drawgs. CSB-12-39, Sheets 1 and 2 (dated 1-8-41), and AS-41-F (dated 3-31-41), and to Supplemental Specification M-102.12 (dated 8-2-43).
EXISTING SUPERSTRUCTURE shall be removed and piled at the disposal of the State when no longer needed to maintain traffic.
EXISTING SUBSTRUCTURE shall be removed. Suitable stone masonry may be used for riprap.
WELDING: All welding shall be Class "A".
PAINTING: First coat shall be in accordance with Secs. M-9.9, M-9.20 or M-9.21.

FOOTINGS shall extend a minimum of 3 inches into solid rock at piers and 1'-0" at abutments.
ABUTMENTS: After pedestals are placed all backfill shall be made full height of earth bench and excavation made for cross-beam. If bottom forms are used for cross-beam they shall be left in place.
RAILING: Substitute the following note for "Railing Note" on Std. Drwg. CSB-12-39, Sheet 1: All railing angles, sleeve angles, and bolts shall be galvanized.
BUMPER ANGLES shall be omitted.
EXCAVATION quantity includes the removal of fill material between top of earth bench and bottom of abutment cross-beam.
PAVED GUTTERS centered under curb openings down embankment slopes on South side of bridge only.

STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES									
ABUTMENT DETAILS, REINFORCING STEEL NOTES AND ESTIMATED QUANTITIES									
BRIDGE NO. CO-518-33 OVER WEST FORK OF LITTLE BEAVER CREEK COLUMBIANA COUNTY SECTION E (PT.)									
S. H. 734 STA. 11+96.00									
DESIGNED M.S.Z.	DRAWN M.S.Z.	TRACED J.P.P.	CHECKED E.L.L.	REVIEWED B.F.C. M.C.E.	DATE 11-21-45	REVISION 11-23-45			

Revised As-Built
10/22/47

- SUMMARY OF QUANTITIES -

COLUMBIANA COUNTY
S.H. 734 - SEC. "E-(Pt.)"
UNITS #1 & #2

STRUCTURES 20 FT. SPAN & UNDER - S														
REF. No.	STATION	DETAILED ON SHEET No.	REMOVALS		EXCAVATION		CONCRETE		REINF. STEEL	DOWEL HOLES	PIPE		CATCH BASINS	
			DISPOSE OF PORTIONS OF EXIST. STRUC.		STRUCT.		CLASS "C"	CLASS "E"			Lbs.	Lin. Ft.	15"	
			Cu. Yds.		Cu. Yds.		Cu. Yds.	Cu. Yds.	Lbs.	Lin. Ft.	Lin. Ft.		Each	
UNIT No. 1														
1-5	0+00 (28' L)	8	0.2		2		1.3		24	6	8			
2-5	4+34	8			19			0.7			54		1	
TOTAL			0.2		21		1.3	0.7	24	6	62		1	

APPROACHES - A				
TOTAL OF SHEET No.	REMOVALS STORE	PIPE FOR DRIVEWAYS	I-117 AGGREGATE	
	PIPE 15" & UNDER	Lin. Ft.	12"	Cu. Yds.
UNIT No. 1				
5	20	62		14
TOTAL			62	14
UNIT No. 2				
12		30		5
13	53	80		15
TOTAL			110	20

EROSION CONTROL				
TOTAL OF SHEET No.	E-305 SEEDING	FERTILIZER	LIME	RIP-RAP TYPE 'A' GROUT FILLED
	Sq. Yds.	Lbs.	Lbs.	Sq. Yds.
UNIT No. 1				
5	6813	1227	6131	195
TOTAL			6813	1227
UNIT No. 2				
12	6526	1175	5873	235
13	3987	1798	8988	
TOTAL			16,513	2973

GUARD RAIL	
TOTAL OF SHEET No.	NEW ROADWAY
	Lin. Ft.
UNIT No. 1	
5	480
TOTAL	
UNIT No. 2	
12	1024
TOTAL	

TREE REMOVAL	
TOTAL OF SHEET No.	TREES
	Each
UNIT No. 1	
5	25
TOTAL	
UNIT No. 2	
12	33
13	5
TOTAL	

PAV'T. REMOVAL	
TOTAL OF SHEET No.	REMOVE & DISPOSE OF 18' WIDTH. T-10 PAV'T.
	Sq. Yds.
UNIT No. 1	
5	480
TOTAL	
UNIT No. 2	
12	310
13	1960
TOTAL	

STORM SEWER	
TOTAL OF SHEET No.	PIPE 6"
	Lin. Ft.
UNIT No. 1	
5	20
TOTAL	

APPROACH SLABS				
REF. No.	BRIDGE STATION	DETAILED ON SHEET No.	REINF. CONG. CLASS "C"	
			Sq. Yds.	
UNIT No. 1				
1-AS	1+45	4		72
TOTAL				72
UNIT No. 2				
1-AS	11+96	4		72
TOTAL				72

WATER CALCULATIONS

UNIT No. 1 :-
TOTAL EMBANKMENT OF 5924 C.Y. $\times 5 \div 1000 = 29.6$ M. GAL.

UNIT No. 2 :-
TOTAL EMBANKMENT OF 5548 C.Y. $\times 5 \div 1000 = 27.7$ M. GAL.

EXCAVATION & EMBANKMENT					
STATION	ROADWAY EXCAVATION	ROADWAY EMBANKMENT	EMBANKMENT +25%	CHANNEL EXCAVATION	
UNIT No. 1					
0+00	9+00	1402	5924	7405	
TOTAL			1402	5924	7405
UNIT No. 2					
5+00	25+00	2733	5548	6935	
11+96					1218
TOTAL			2733	5548	6935
UNIT No. 1					
Borrow = 7405 - 1402 = 6003 Cu. Yds.					
UNIT No. 2					
Borrow = 6935 - (2733 + 1218) = 2984 Cu. Yds.					

PAVEMENT CALCULATIONS	
BEGIN UNIT No. 1 - STA. 0+00.0	
END UNIT No. 1 - STA. 8+47.0	
GROSS LENGTH UNIT No. 1 = 847.00 LIN. FT.	
DEDUCTION FOR BRIDGE:	
STA. 0+70.54 TO STA. 2+13.46 = 148.92 LIN. FT.	
NET LENGTH UNIT No. 1 = 698.08 LIN. FT.	
AREA OF PAV'T. UNIT No. 1; 698.08 $\times 18 \div 9 = 1396.2$ SQ. YDS.	
ADDITIONS: EXTRA AREA AT STA. 0+00 (SH. #3) = 59.4 SQ. YDS.	
TOTAL AREA OF UNIT No. 1 PAVEMENT = 1455.6 SQ. YDS.	
T-10 PAVEMENT = 1455.6 $\times 6 \div 36 = 243$ CU. YDS.	
BEGIN UNIT No. 2 - STA. 5+00.0	
END UNIT No. 2 - STA. 25+00.0	
GROSS LENGTH UNIT No. 2 = 2000.00 LIN. FT.	
DEDUCTIONS FOR BRIDGE:	
STA. 11+08.54 TO STA. 12+83.46 = 174.92 LIN. FT.	
NET LENGTH UNIT No. 2 = 1825.08 LIN. FT.	
AREA OF PAVEMENT, UNIT No. 2 = 1825.08 $\times 18 \div 9 = 3650.16$ SQ. YDS.	
T-10 PAVEMENT = 3650.16 $\times 6 \div 36 = 609$ CU. YDS.	

GENERAL SUMMARY						
ITEM	QUANTITY			UNIT	DESCRIPTION	
	UNIT-1	UNIT-2	TOTAL			
ROADWAY						
E-1	1402	2733	4135	Cu. Yds.	ROADWAY EXCAVATION	
E-3		1218	1218	"	CHANNEL EXCAVATION	
E-4	6003	2984	8987	"	BORROW	
E-8	480	2270	2750	Sq. Yds.	REMOVAL & DISPOSAL OF EXISTING PAVEMENT	
E-9	25	38	63	EACH	REMOVAL OF TREES & STUMPS	
E-11	30	28	58	M. GAL.	WATER	
E-12	20	53	73	LIN. FT.	PIPE REMOVED & STORED - 15" AND UNDER	
I-1	62	110	172	LIN. FT.	12" PIPE FOR DRIVEWAYS	
I-2	20		20	LIN. FT.	6" PIPE FOR STORM SEWER OUTLET	
I-8	1		1	EACH	STANDARD No. 2-2-A (MODIFIED AS PER PLAN)	
I-10	195	235	430	Sq. Yds.	RIPRAP TYPE 'A' (GROUT FILLED)	
I-15	480	1024	1504	LIN. FT.	TRAFFIC TAPE GUARD RAIL, TYPE I-15.06A (2 TAPES)	
I-117	14	20	34	Cu. Yds.	SIDE APPROACHES, MAIL BOX TURNOUTS & BERM MATERIAL	
E-305	6813	16,513	23,326	Sq. Yds.	SEEDING & PROTECTING ROADWAY AREA	
L-9	6131	14861	20992	LBS.	AGRICULTURAL GROUND LIMESTONE	
L-9	1227	2973	4200	LBS.	COMMERCIAL FERTILIZER - 10-6-4	
M-10	3	6	9	Tons	CALCIUM CHLORIDE FOR MAINTAINING TRAFFIC (ESTIMATED)	
T-110	170	270	440	Cu. Yds.	TRAFFIC COMPACTED SURFACE COURSE FOR MAINTAINING TRAFFIC (ESTIMATED)	
PAVEMENT						
T-10	243	609	852	Cu. Yds.	TRAFFIC BOUND SURFACE COURSE - No. 46 AGGREGATE	
S-5	72	72	144	Sq. Yds.	9" REINFORCED CONCRETE APPROACH SLABS	
STRUCTURES 20 FT. SPAN & UNDER						
E-2	21		21	Cu. Yds.	EXCAVATION FOR STRUCTURES	
S-1	1.3		1.3	Cu. Yds.	CONCRETE FOR STRUCTURES - CLASS "C"	
S-1	0.7		0.7	Cu. Yds.	CONCRETE FOR STRUCTURES - CLASS "E"	
S-4	24		24	LBS.	REINFORCING STEEL	
S-22	0.2		0.2	Cu. Yds.	REMOVAL OF PORTIONS OF EXISTING STRUCTURE	
S-23	6		6	LIN. FT.	DOWEL HOLES	
S-27	62		62	LIN. FT.	PIPE FOR ROADWAY CULVERTS - 15"	
STRUCTURES OVER 20 FT. SPAN						
UNIT No. 1 - QUANTITIES FOR BRIDGE No. CO-518-00 - SEE SHEET No. 10						
UNIT No. 2 - QUANTITIES FOR BRIDGE No. CO-518-33 - SEE SHEET No. 21						